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A 1 2 3 4 5 6 M 8 9 10 11 12 13 14 15 B 17 18 19

Colour Chart #13
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Inches Centimetres
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FM 101-10

WAR DEPARTMENT FIELD MANUAL

STAFF OFFICERS' FIELD MANUAL

ORGANIZATION, TECHNICAL AND LOGISTICAL DATA

RESTRICTED. DISSEMINATION OF RESTRICTED MATTER.—The information contained in restricted documents and the essential characteristics of restricted material may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also par. 23b, AR 380-5, 15 Mar 1944.)

WAR DEPARTMENT 21 DEC 1944

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FM 101-10

WAR DEPARTMENT FIELD MANUAL

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STAFF OFFICERS' FIELD MANUAL

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WAR DEPARTMENT 21 DEC 1944

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WAR DEPARTMENT FIELD MANUAL

FM 101-10

This manual supersedes FM 101-10, 18 October 1944

STAFF OFFICERS' FIELD MANUAL

ORGANIZATION, TECHNICAL

AND LOGISTICAL DATA

WOJSKO POLSKIE
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Inwentaryzacja

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WAR DEPARTMENT - 21 DECEMBER 1944

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 21 December 1944.

FM 101-10, Staff Officers' Field Manual, Organization, Technical and Logistical Data, is published for the information and guidance of all concerned.

[A. G. 300.7 (4 Sep 44.]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.

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For explanation of symbols, see FM 21–6.

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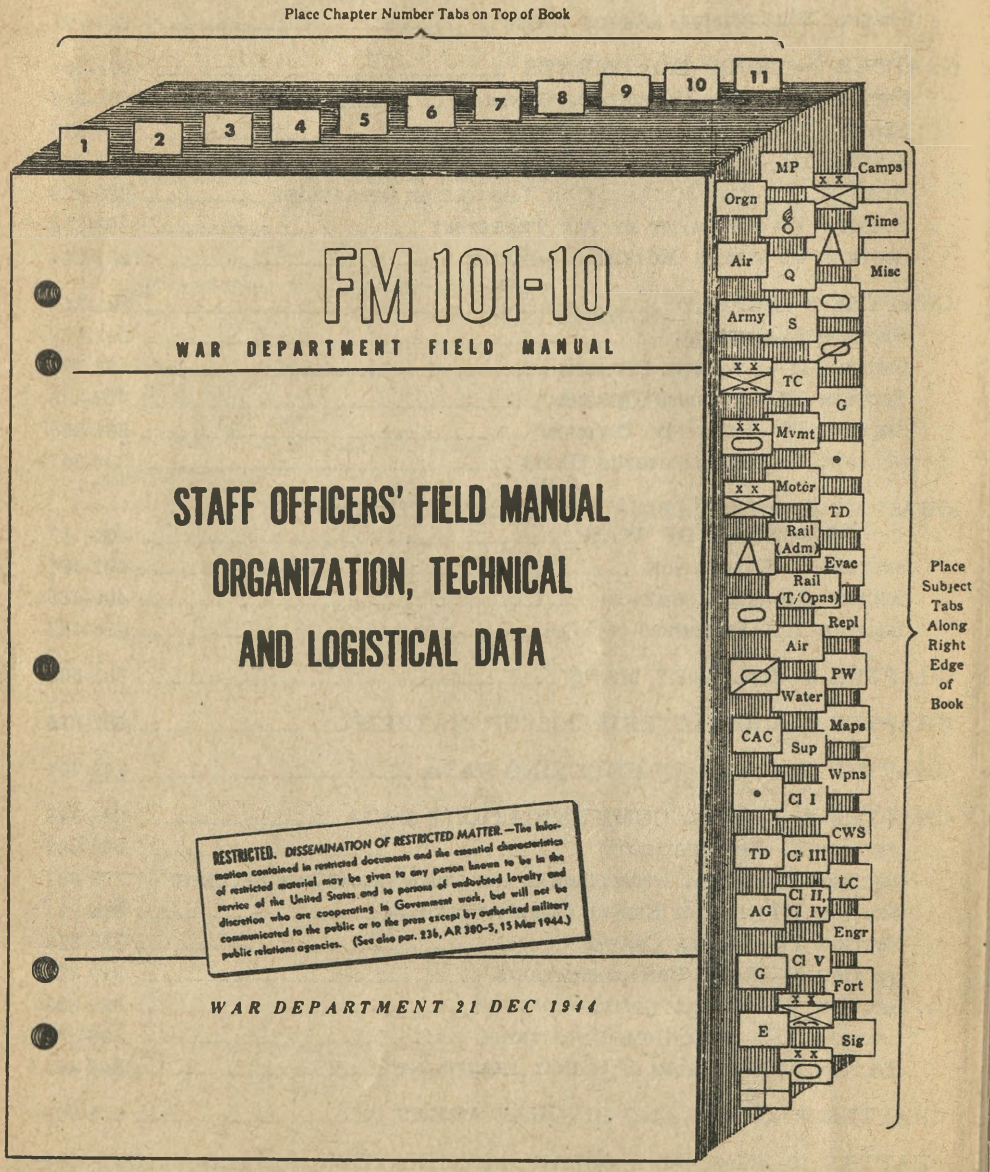

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The recommended system of tab indexing as shown below has been found by experience to facilitate the use of the manual in locating specific information. (It is recommended that all tabs be marked on both sides.)

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Gummed index tabs may be procured at the Book Shop.

65 tabs (Approx ½" x ½") are required.

Throughout the manual, certain abbreviations are used which are not found in FM 21-30.

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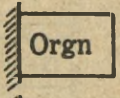
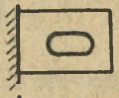
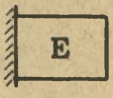
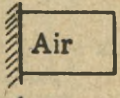
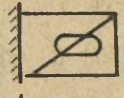
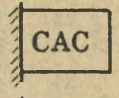
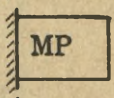
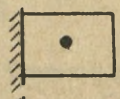
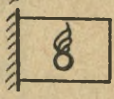
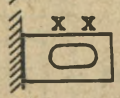
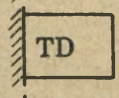
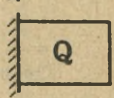
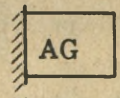
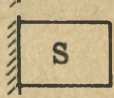
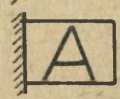
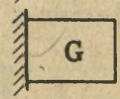
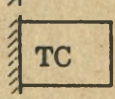
3		65		97	
11		70		117	
19		72		132	
21		74		136	
33		87		148	
47		91		161	
57		94		172	

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To: ASSISTANT SECRETARY, COMMAND AND GENERAL STAFF SCHOOL
Fort Leavenworth, Kansas

REVISION NOTES, FM 101-10

CHAP.[1]	PG.	PAR.	LINE	CLM.	RECOMMENDED CHANGES, ADDITIONS, CORRECTIONS (with reasons—where applicable)

[1] Use separate slip for each chapter.

☐ Material for addition is attached.

☐ Material for addition will follow.

Revision Notes By: _____

_____

Date_____

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☐ Material for addition will follow.

Revision Notes By: _____

_____

Date_____

Chapter 1

ORGANIZATION

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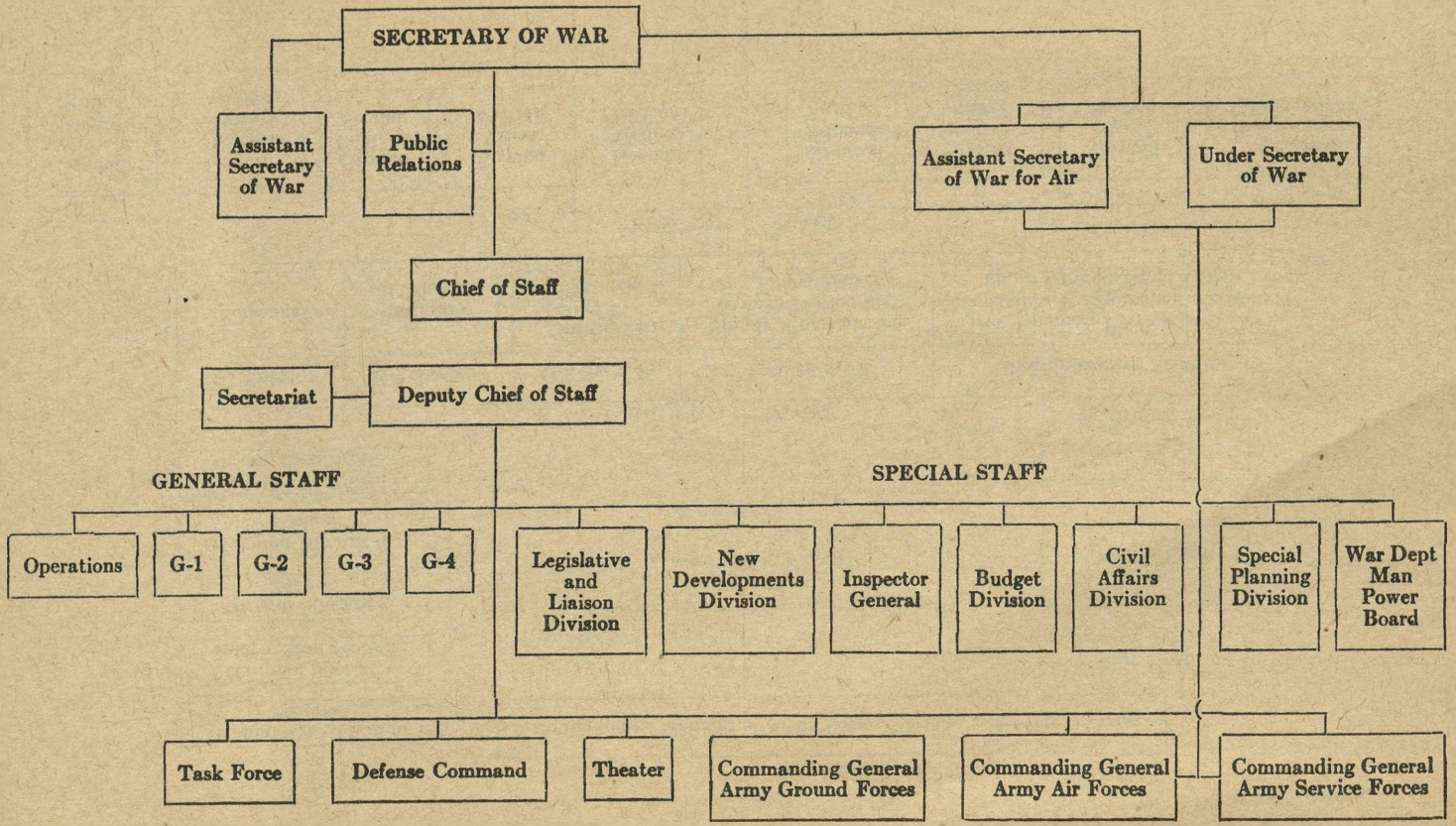
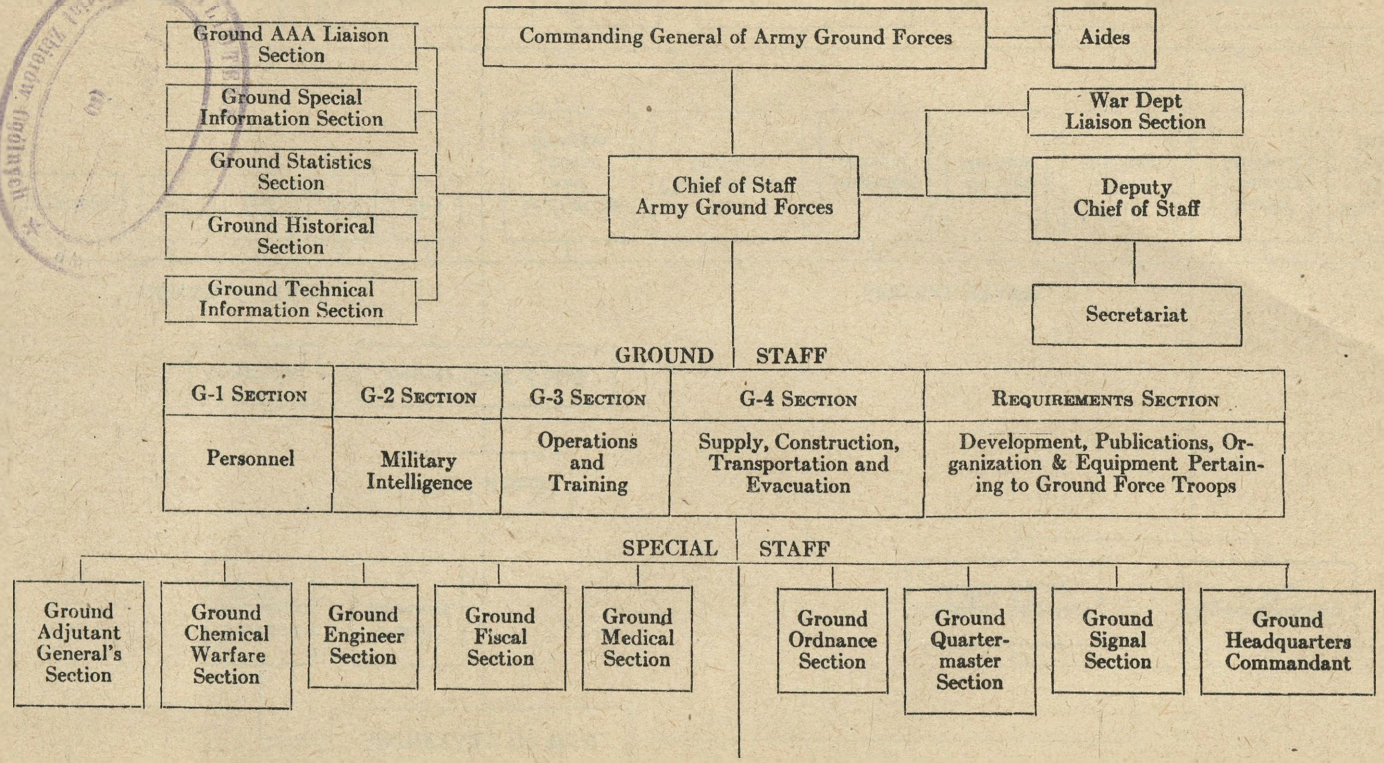
SECTION I

GENERAL

■ 101. ORGANIZATION OF THE WAR DEPARTMENT:



102. ORGANIZATION OF THE ARMY GROUND FORCES:



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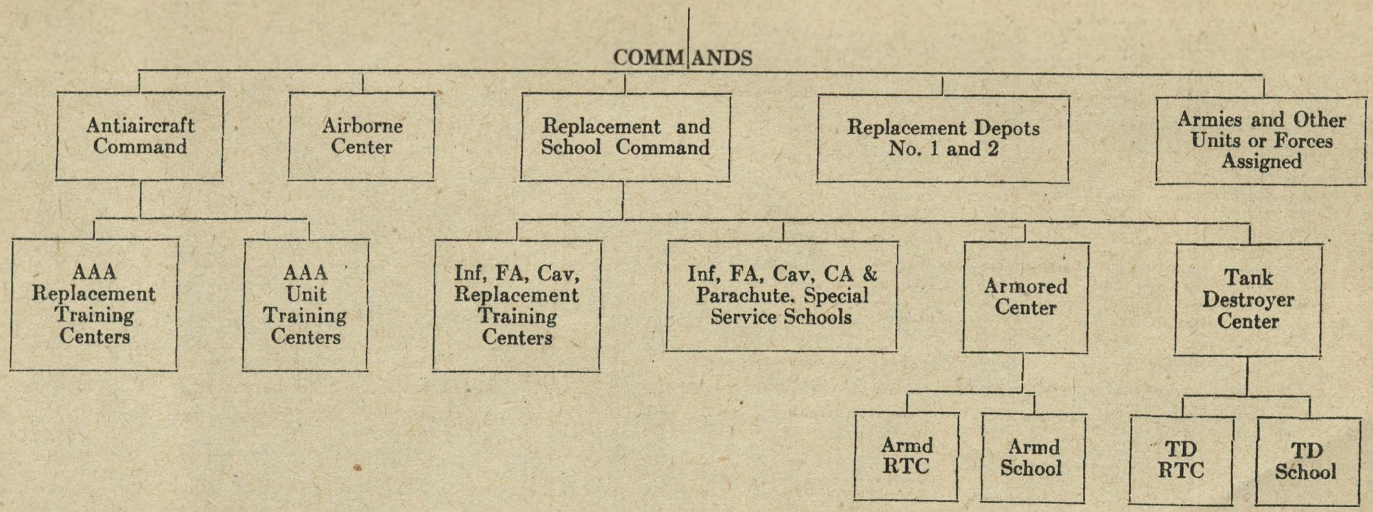
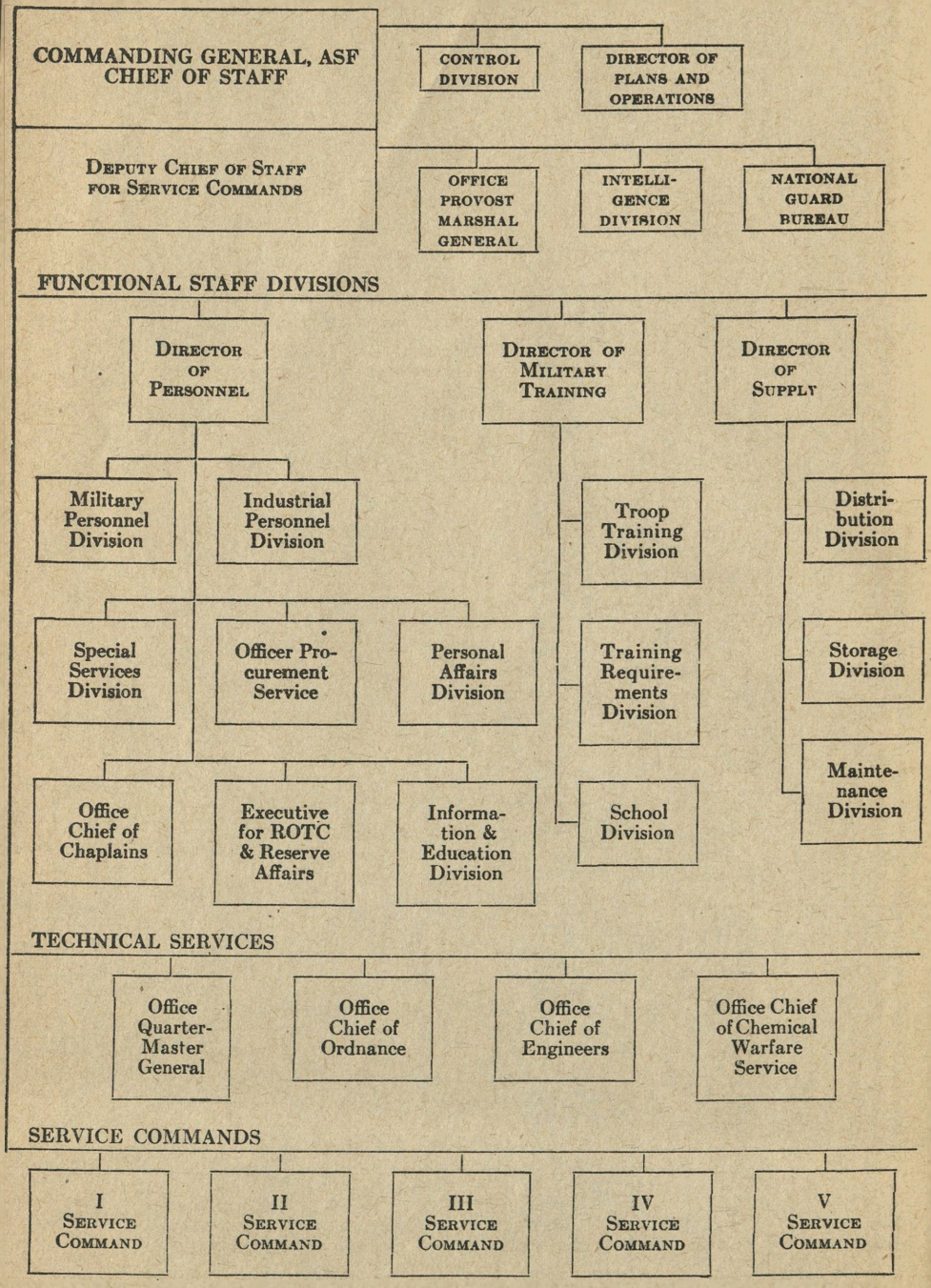
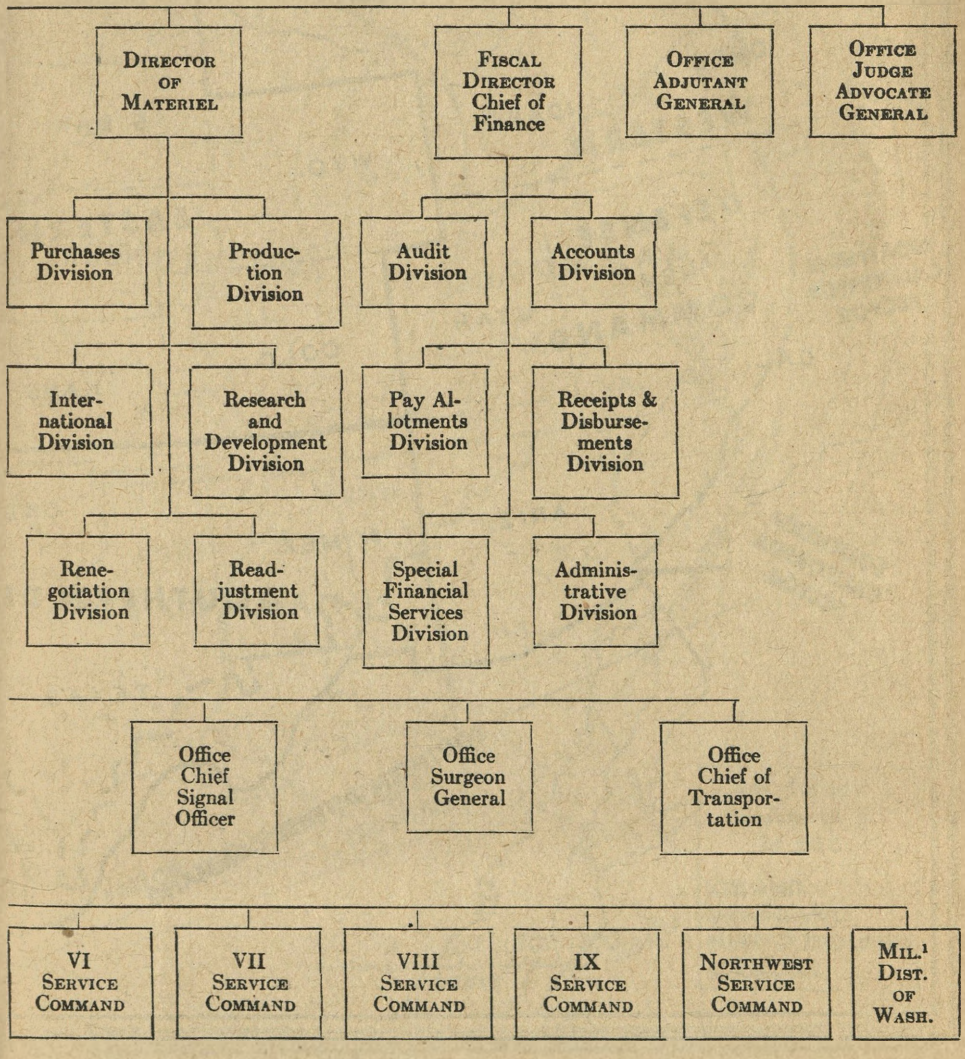


103. Organization of the Army Service Forces:



ORGANIZATION OF THE ARMY SERVICE FORCES (Continued):



[1] Under Army Service Forces for Administrative and Supply Functions.

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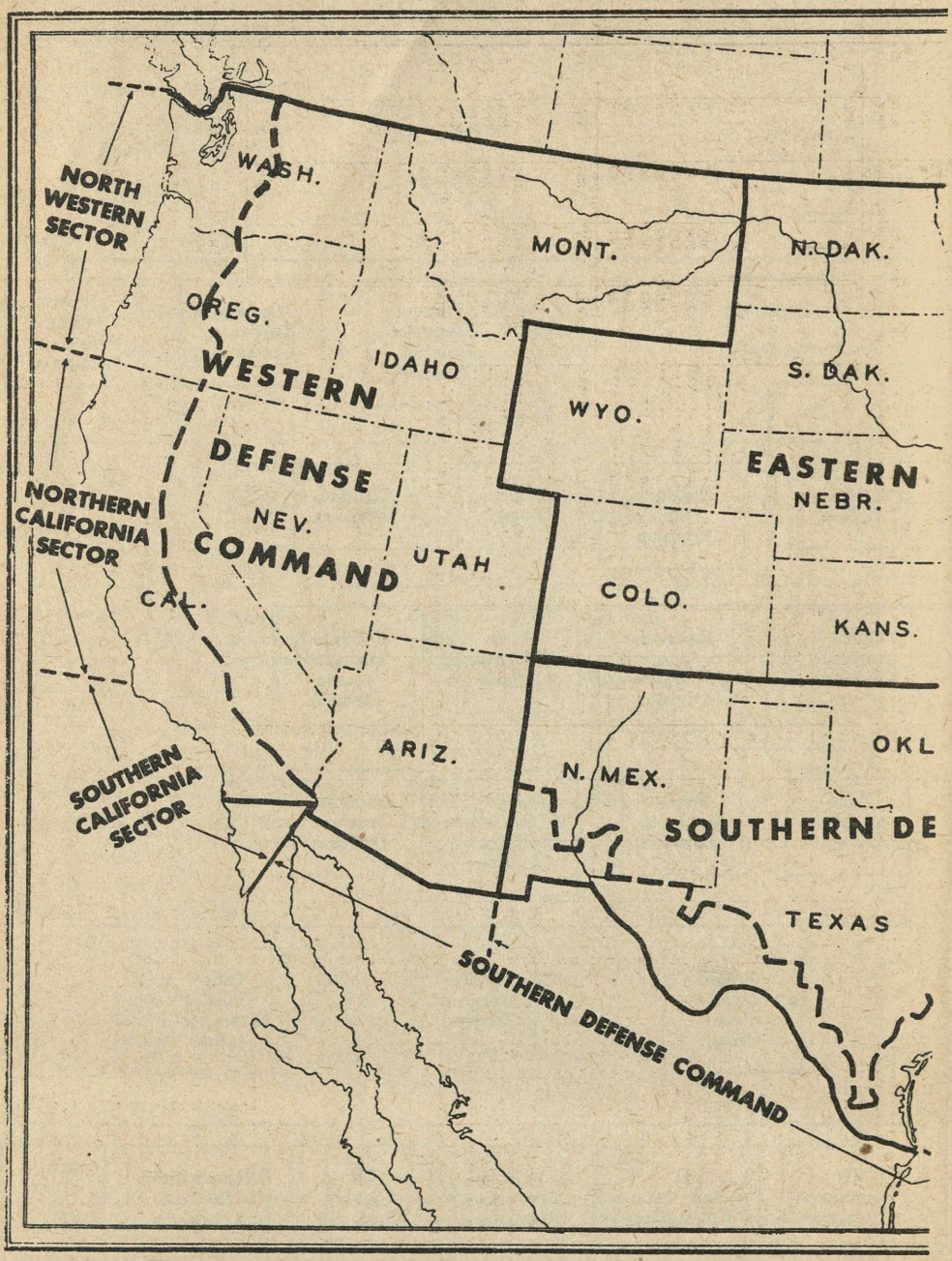
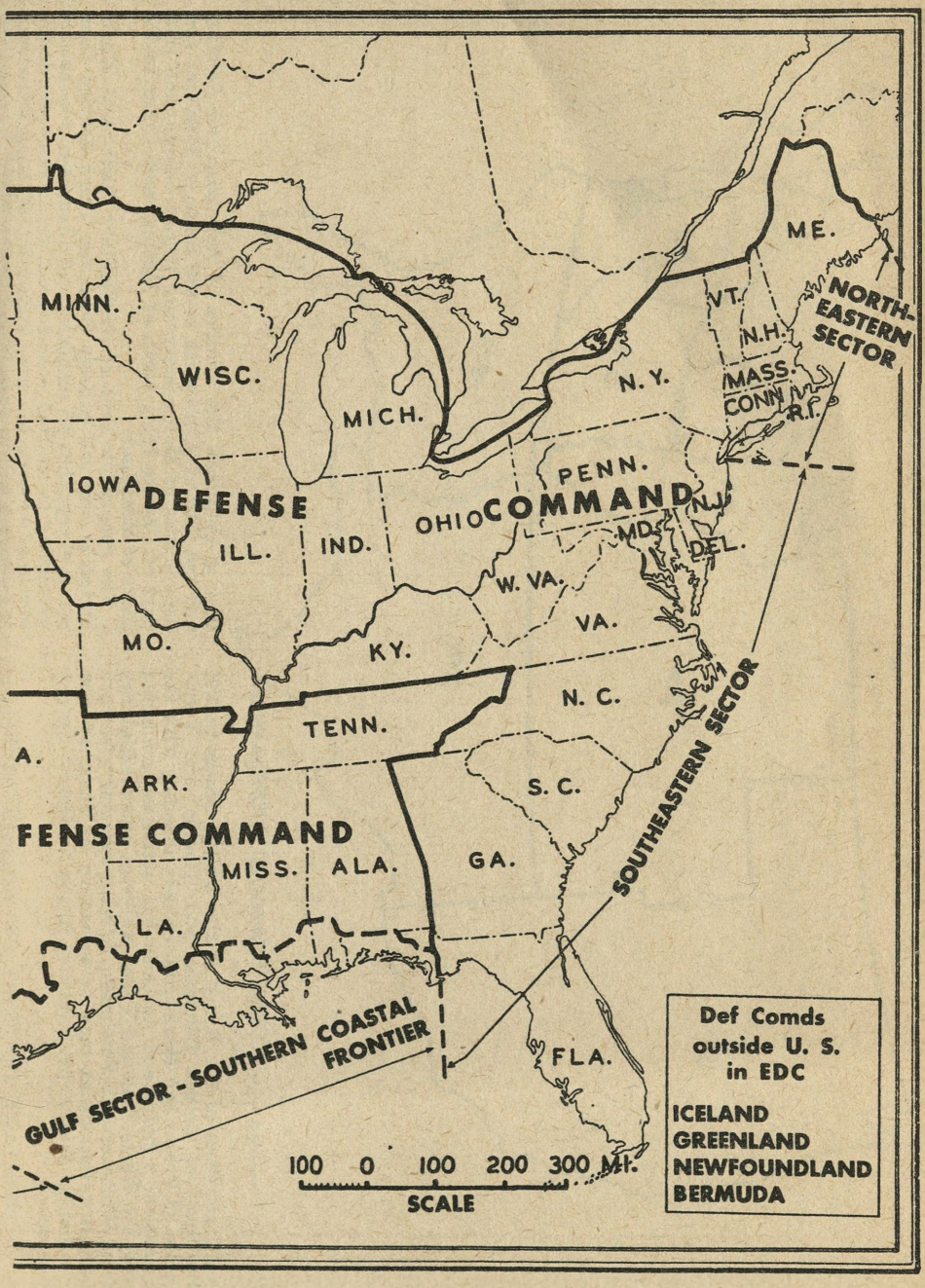
104. Defense Command Areas:

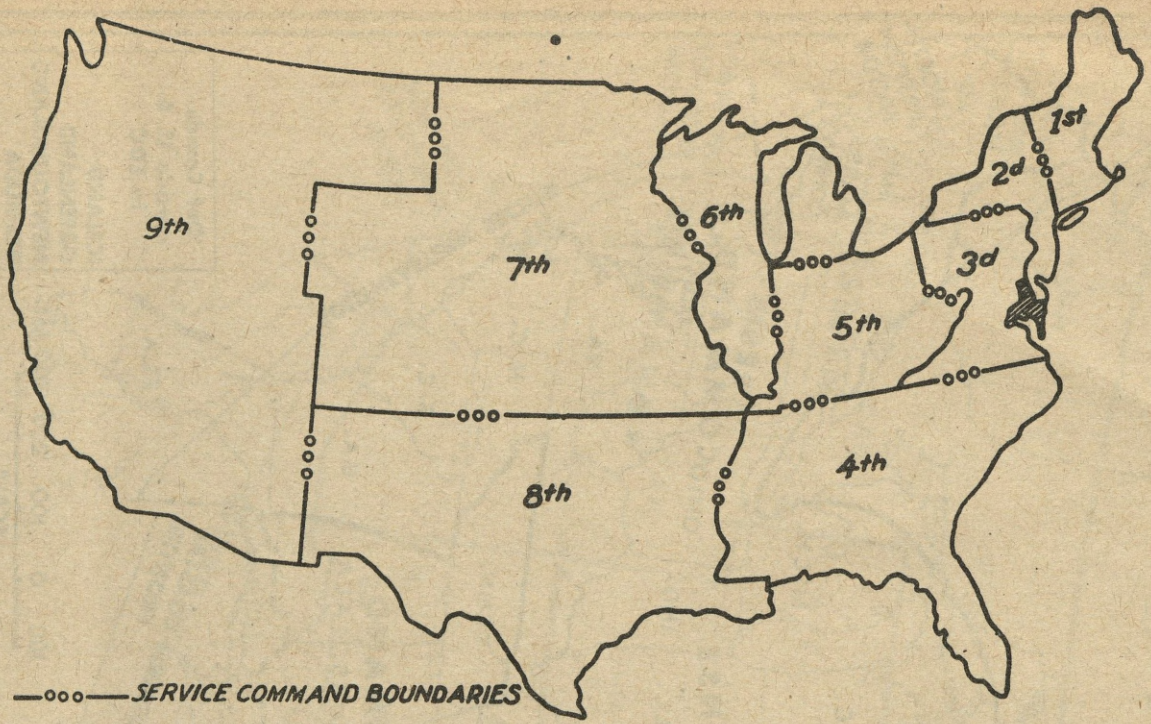


DEFENSE COMMAND AREAS (Continued):

COASTAL FRONTIERS



105. SERVICE COMMAND BOUNDARIES:



All activities of the Army of the United States in the Provinces of British Columbia and Alberta, and Territories of Yukon and Mackenzie, Canada together with the operation, supply, and construction activities connected with the White Pass and Yukon Railway, and the highway from Whitehorse to Fairbanks, Alaska, together with such base installations as may be necessary in Skagway and Fairbanks, Alaska, are combined in the Northwest Service Command.

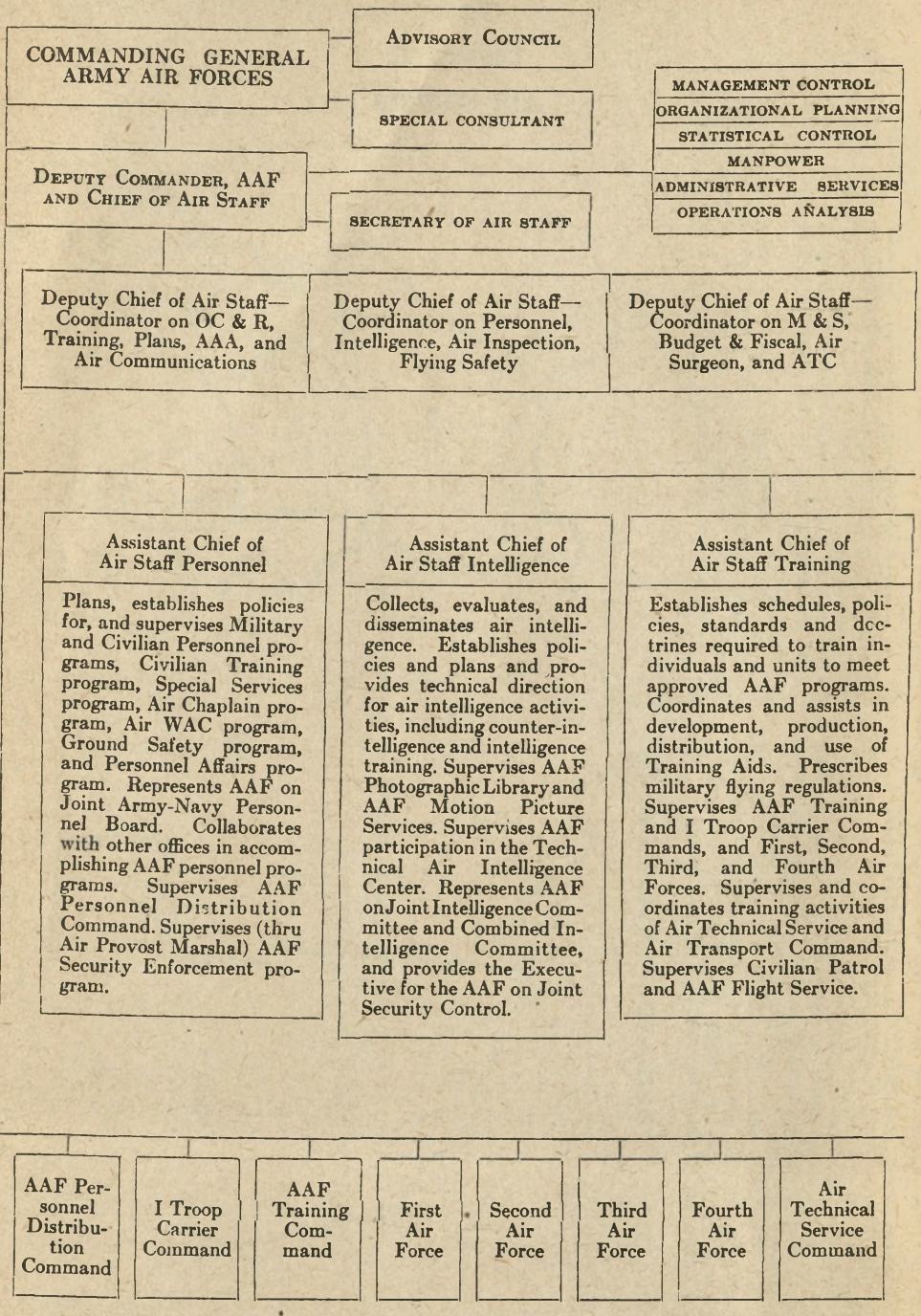
MILITARY DISTRICT OF WASHINGTON

The Military District of Washington includes the District of Columbia, the counties of Arlington and Fairfax, and the City of Alexandria in the State of Virginia; and the counties of Montgomery and Prince George, and that part of Charles lying north of Mattawoman Creek in the State of Maryland.

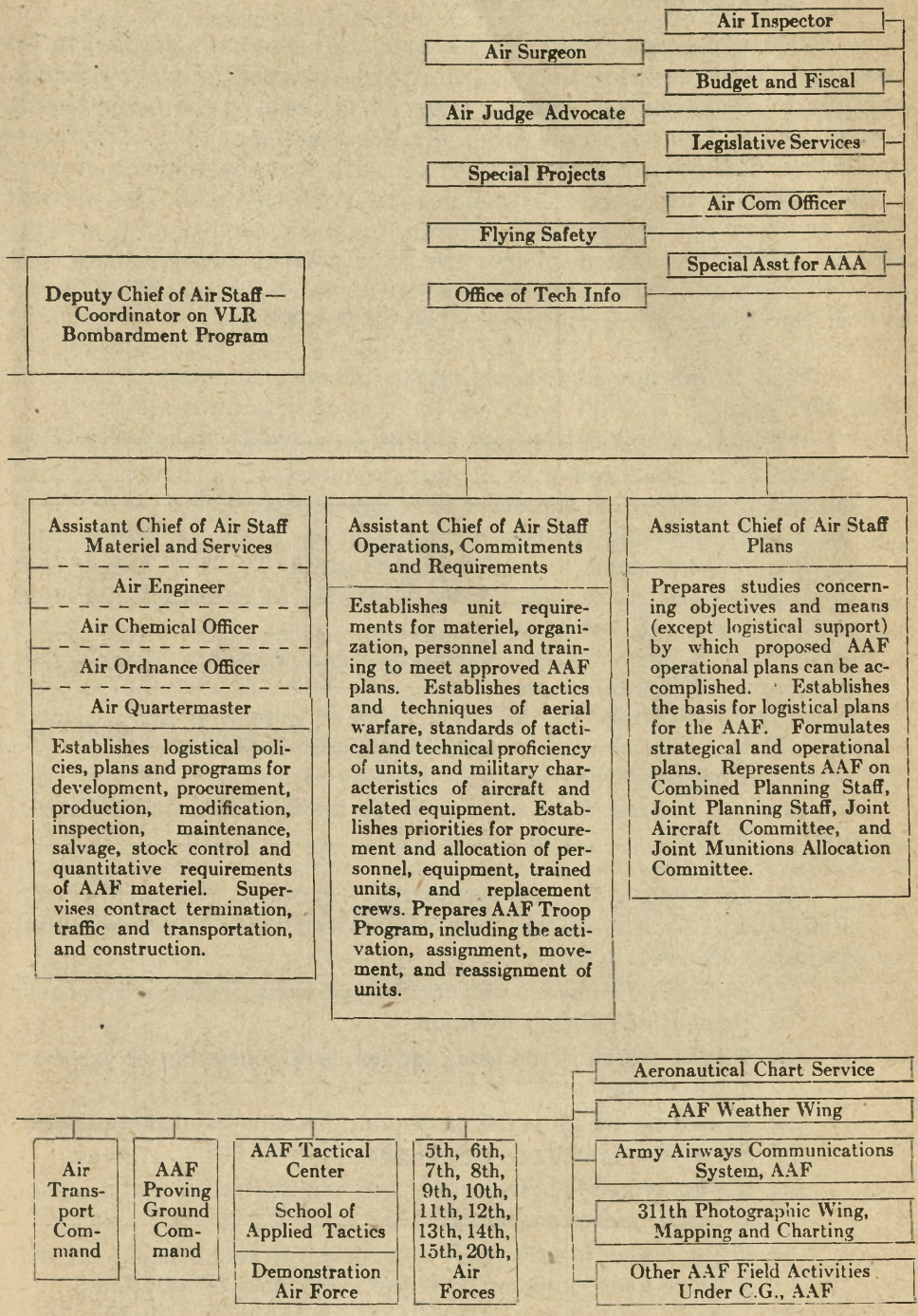
The geographic area of the Military District of Washington is removed entirely from the Third Service Command, except that all schedules and administrative matters pertaining to enlisted procurement, processing, and distribution of recruits procured within the Military District of Washington will be coordinated by the Third Service Command.

SECTION II
AIR FORCES

■ 106. *a.* Organization of the Army Air Forces:



AIR FORCE UNITS (Continued):



b. ORGANIZATION OF AN AIR FORCE:

a. The entire organization of the Army Air Forces is devoted to the basic function of assuring that the squadrons assigned to it are able successfully to discharge the missions assigned to them by the Commanding General of the Theater. In an Army Air Force are a number of different squadrons. The pilot of a single-place aircraft, and the airplane crew of a multi-place aircraft are the fundamental striking units. The aircraft pilots or crews are grouped into Flights, the basic combat unit, and the Flights in turn are assembled into the basic combat and administrative unit—the Squadron. The number of aircraft which form a Flight varies as does the number of aircraft which form a Squadron.

b. Army Regulation 95-10 contains the following summary of the units of an Air Force:

"1. SQUADRON.—*a.* The basic unit of the Army Air Forces is the squadron. A squadron may contain administrative, flying, maintenance, communication, and other technical personnel, and personnel of the various arms and services on duty with the Army Air Forces, such as chemical, ordnance, and medical personnel. To fulfill the various functions of the Army Air Forces, a variety of squadrons [1] may be organized such as headquarters; fighter; light, medium, and heavy bombardment; observation; communication; weather; photographic mapping; photographic reconnaissance; depot repair and supply; troop carrier; transport; etc. New types of squadrons are activated and old types eliminated by the Commanding General, Army Air Forces, as occasion requires. The detailed organization of each type of squadron is prescribed in War Department Tables of Organization. * * *

"2. TACTICAL AND ADMINISTRATIVE UNITS.—*a.* For tactical and administrative purposes the units of the Army Air Forces are subdivided as follows:

(1) *Individual airplane and its combat crew,* which is the basic element of military aviation.

(2) *Flight,* which is the basic tactical unit consisting of three or more airplanes.

(3) *Squadron,* which is the basic administrative and tactical unit consisting of two or more flights.

(4) *Group,* which is both tactical and administrative and consists of two or more squadrons.

(5) *Wing,* which is essentially a tactical unit and consists of two or more groups normally of the same class of aviation.

ORGANIZATION OF AN AIR FORCE (Continued):

(6) *Command,* which is both tactical and administrative and consists of two or more wings or groups normally of the same class of aviation.

(7) *Air force,* which consists of a sufficient number of commands to accomplish all phases of its mission.

* * *

"*c.* For all purposes of administering military discipline and the exercise of inferior jurisdiction under the provisions of Articles of War 9 and 10, a Squadron will be considered a Battalion, a Group will be considered a Regiment, and a Wing will be considered a Brigade. Commanding Officers of Squadrons, Groups, and Wings will have all the corresponding powers conferred by Articles of War 9 and 10 upon Commanding Officers of Battalions, Regiments and Brigades respectively.

"3. ATTACHED OR INDEPENDENT UNITS OTHER THAN SQUADRONS. —There may be units other than squadrons such as air force bands, tow-target detachments, airways detachments, station complements (including units of the Army Ground Forces and Army Service Forces), either functioning independently or attached to one of the tactical or administrative units of the Army Air Forces."

c. It will be noted that the Commands correspond to one of the available, broad, general missions of an Air Force; namely, Bomber (Air Striking Force or Strategic)[2]; Fighter (Air Defense)[3], and Air Force Service (Service and Supply).

[1] Observation Squadrons no longer exist and their original function is now performed by Tactical Reconnaissance Squadrons. Bombardment Squadron, very heavy, should be included.

[2] In some Air Forces the name Bomber Division is used in place of Bomber Command. The names are synonomous.

[3] Fighter aircraft are employed not only on Air Defense missions but also on strategic and tactical operations. Thus a Fighter Command may be assigned to a Tactical Air Force to conduct offensive operations.

■ 107. AIR FORCE UNITS:

a. Bombardment Squadrons:

Unit	*Personnel*	*Planes*	*Remarks*
Bomb Sq (Very Heavy) T/O & E 1-167 (4/17/44, C1)	O.....102 EM.....542 Agg.....644	10 Four-Engine Bombers Flight A—4 Flight B—3 Flight C—3	Combat crew: 1 Pilot (O) 1 Co-Pilot (O) 2 Navigator-Bombardiers, Radar (O) 1 Flight Engineer (EM) 1 Radio Operator-Mechanic (EM) 5 Aerial Gunners (EM) (For aircraft without central fire control.) 4 Aerial Gunners (EM) and 1 Central Fire Control Gunner (EM) (For aircraft with central fire control.)
Bomb Sq (Heavy) T/O & E 1-117 (7/21/44)	O..... 66 EM.....354 Agg.....420	12 Four-Engine Bombers Flight A—4 Flight B—4 Flight C—4	Combat crew: Pilot (O) Co-pilot (O) 2 Bombardier-Navigator (O) 2 Mechanic-gunner (EM) 2 Radio operator-gunner (EM) Armorer Gunner (EM)
Bomb Sq (Medium) T/O & E 1-127 (8/18/44)	O..... 66 EM.....299 Agg.....365	16 Two-Engine Bombers Flight A—4 Flight B—4 Flight C—4 Flight D—4	Combat crew: Pilot (O) Co-pilot (O) Mechanic-Gunner (EM) Bombardier-Navigator (O) Radio Mechanic-gunner (EM) Armorer Gunner (EM)
Bomb Sq (Light) T/O & E 1-137 (3/28/44)	O..... 35 EM.....239 Agg.....274	16 Two-Engine Bombers Flight A—4 Flight B—4 Flight C—4 Flight D—4	Combat crew: Pilot (O) 2 Gunners (EM) 1 Bombardier-Navigator (O) (per flight)

b. Fighter Squadrons:

Fighter Sq Single-Engine T/O & E 1-27 (12/22/43, C1)	O..... 39 EM.....245 Agg.....284	25 Single-Engine Fighters Flight A—9 Flight B—8 Flight C—8	Combat crew: Pilot (O)
Fighter Sq Two-Engine T/O & E 1-37 (12/22/43, C1)	O..... 39 EM.....274 Agg.....313	25 Two-Engine Fighters Flight A—9 Flight B—8 Flight C—8	Combat crew: Pilot (O)
Night Fighter Sq T/O & E 1-67 (9/4/44)	O..... 42 EM.....234 Agg.....276	12 Two-Engine Night Fighters Flight A—4 Flight B—4 Flight C—4	Combat crew: Pilot (O) Radar Observer (O) Gunner (EM)

AIR FORCE UNITS (Continued):

c. Reconnaissance Squadrons:

Unit	*Personnel*	*Planes*	*Remarks*
Tactical Rcn Sq T/O & E 1-267 (9/20/43, C1, 2, 3)	O..... 34 EM..... 194 Agg..... 228	Flights A, B, and C each have 6 single-engine, fighter type and 1 liaison AP	Combat crew: Liaison..... Pilot (EM) Fighter..... Pilot (O) Has photo Lab with limited reproduction capacity.
Photographic Rcn Sq T/O & E 1-757 (9/17/43, C1)	O..... 44 WO..... 1 EM..... 297 Agg..... 342	16 Two-Engine Planes Flight A—4 Flight B—4 Flight C—4 Flight D—4	Combat crew: Pilot (O) Has photo Lab with moderate reproduction capacity and limited interpretation facilities.
Combat Mapping Sq (4E) T/O & E 1-768 (9/20/43, C1, 2)	O..... 64 WO..... 1 EM..... 373 Agg..... 438	12 Four-Engine Bombers Flight A—5 Flight B—4 Flight C—4	Combat crew: Pilot (O), Co-pilot (O) Navigator-Gunner (O) Radio-Mechanic-Gunner (EM) Mechanic-Gunner (EM) Upper Turret Gunner Tail Gunner Photographer-Gunner (EM) Photographer (EM)

d. Air Service and Air Depot Units:

Service Gp Hq and Hq Sq T/O & E 1-142 (6/16/43, C1, 2, 3)	O..... 28 EM..... 135 Agg..... 163		Furnishes administrative overhead for a Service Center.
Air Service Sq T/O & E 1-417 (1/2/44, C1, 2)	O..... 7 WO..... 2 EM..... 236 Agg..... 245	3 Utility	Operates Service Center Supply and Engineering (Third Echelon).

AIR FORCE UNITS:

Air Service and Air Depot Units (Continued):

Unit	*Personnel*	*Planes*	*Remarks*
Air Dep Gp Hq and Hq Sq T/O & E 1-852 (1/20/44, C1, 2, 3)	O 25 EM 152 Agg 177		Furnishes administrative overhead for an Air Depot.
Air Depot Repair Sq T/O & E 1-857 (12/15/43, C1, 2)	O 12 EM 328 Agg 340	3 Two-Engine Med Cargo	Operates Air Depot Engineering (Fourth Echelon).
Dep Supply Sq T/O & E 1-858 (11/25/43, C1, 2)	O 7 EM 124 Agg 131		Operates Air Depot Supply (Fourth Echelon).

e. Troop Carrier Squadron:

Troop Carrier Sq T/O & E 1-317 (5/12/44)	O 68 Flt O 16 WO 1 EM 275 Agg 360	16 Two-Engine Transports Flight A—4 Flight B—4 Flight C—4 Flight D—4 2 liaison (SE)	Air crew: Pilot (O) Co-pilot (O) Aerial Engineer (EM) Radio operator (EM) Navigator (1 per Flt) Additional equipment: 32 Gliders, 15-place or 16 Gliders, 40-place

SECTION III
ARMY, TASK FORCE, AND CORPS

■ 108. ARMY.—*a.* The Army is a flexible combat force capable of independent operations, consisting of two or more corps and reinforcing combat and service troops.

The organization of an Army will vary in accordance with the requirements for the particular theater of operations in which it is to be used.

Each Army will be organized with headquarters and headquarters detachments and special troops.

b. Organization, Organic Army Troops:

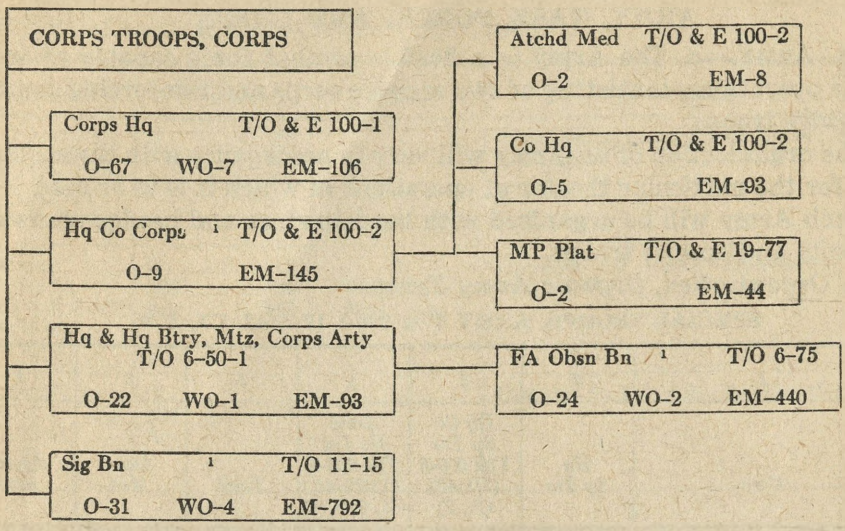
SPECIAL TROOPS, ARMY T/O 200-3 (7/1/42, C1, 2, 3)

1	1	2	3	4	5	6	7
1	*Unit*	*Hq Sp Trs*	*Hq Co Sp Trs T/O 200-2 (7/1/42, C1, 2)*	*Army Hq Det T/O 200-1 (12/26/43, C1, 2, 3, 4)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	3	7	229	239	3	242
3	Warrant Officers		3	22	25		25
4	Enlisted men	11	247	507	765	12	777
5	AGGREGATE	14	257	758	1,029	15	1,044
6	.30 cal carbine	9	236	352	597		597
7	.45 cal pistol	5	21	344	370		370
8	Ambulance, ¾-ton					1	1
9	Trailer, 1-ton, cargo		8		8		8
10	Trailer, Mbl, public address		1		1		1
11	Truck, ¼-ton	2			2	1	3
12	Truck, ¾-ton, carry-all		1		1		1
13	Truck, ¾-ton, C & R	1	1		2		2
14	Truck, ¾-ton, Wpn Carr		1		1		1
15	Truck, 2½-ton, cargo		8		8	1	9

■ 109. TASK FORCE.—A task force consists of those units (combat and service) necessary to carry out certain planned operations (task). It has no fixed organization. Thus a task force designed for one operation might be especially strong in armored units; while in another, amphibious units might be predominant.

■ 110. CORPS.—*a.* The organic elements of the corps will consist of a headquarters and headquarters company; military police platoon; signal battalion; headquarters and headquarters battery, corps artillery; and a field artillery observation battalion. The functions of the corps in an army will be primarily tactical. The functions of the separate corps will necessarily be both tactical and administrative since under such circumstances the corps is in effect a small army. Other units will be assigned to a corps in accordance with its combat mission. These will be divisions, groups, or battalions of field artillery, antiaircraft artillery, tank, tank destroyer, engineer, and cavalry reconnaissance elements.

b. Diagram:



[1] Includes attached medical and chaplains.

c. Organization Organic Corps Troops: [1]

1	*1* Unit	*2* Hq T/O & E 100-1 (7/15/43 C1, 2, 3)	*3* Hq Co T/O & E 100-2 (7/15/43 C1) ([2])	*4* Hq & Hq Btry, Mtz Corps Arty T/O 6-50-1 (12/27/43 C1, 2, 3)
2	Officers	67	9	22
3	Warrant officers	7	.....	1
4	Enlisted men	106	145	93
5	AGGREGATE	180	154	116
6	Carbine, cal .30, M-1	113	110	79
7	Rifle, cal .30, M-1903	11	29	.....
8	Pistol, automatic, cal .45	45	1	37
9	Gun, submachine, cal .45	.....	4	.....
10	Gun, machine, cal .50, HB	.....	2	2
11	2.36" Rocket Launcher	.....	20	6
12	Airplane, liaison	.....	.....	2
13	Ambulance, ¾-ton	.....	.....	.....
14	Car, 5-passenger (M sedan)	.....	1	.....
15	Trailer, ¼-ton	.....	3	5
16	Trailer, 1-ton	.....	4	3
17	Truck, ¼-ton, 4x4	.....	24	6
18	Truck, ¾-ton, command	.....	7	4
19	Truck, ¾-ton, weapon carrier	.....	3	6
20	Truck, 2½-ton, cargo	.....	5	2
21	Truck, 2½-ton, cargo, SWB	.....	.....	4

[1] For organization FA Obsn Bn (T/O 6-75) see Par 144.
For organization Sig Bn, (T/O 11-15) see Par 166.
[2] Includes Atchd Med.

■ 111. AIRBORNE DIVISION—TABLE OF ORGANIZATION AND EQUIPMENT No. 71 *(1 August 1944)* (For Reference Only) : [1]

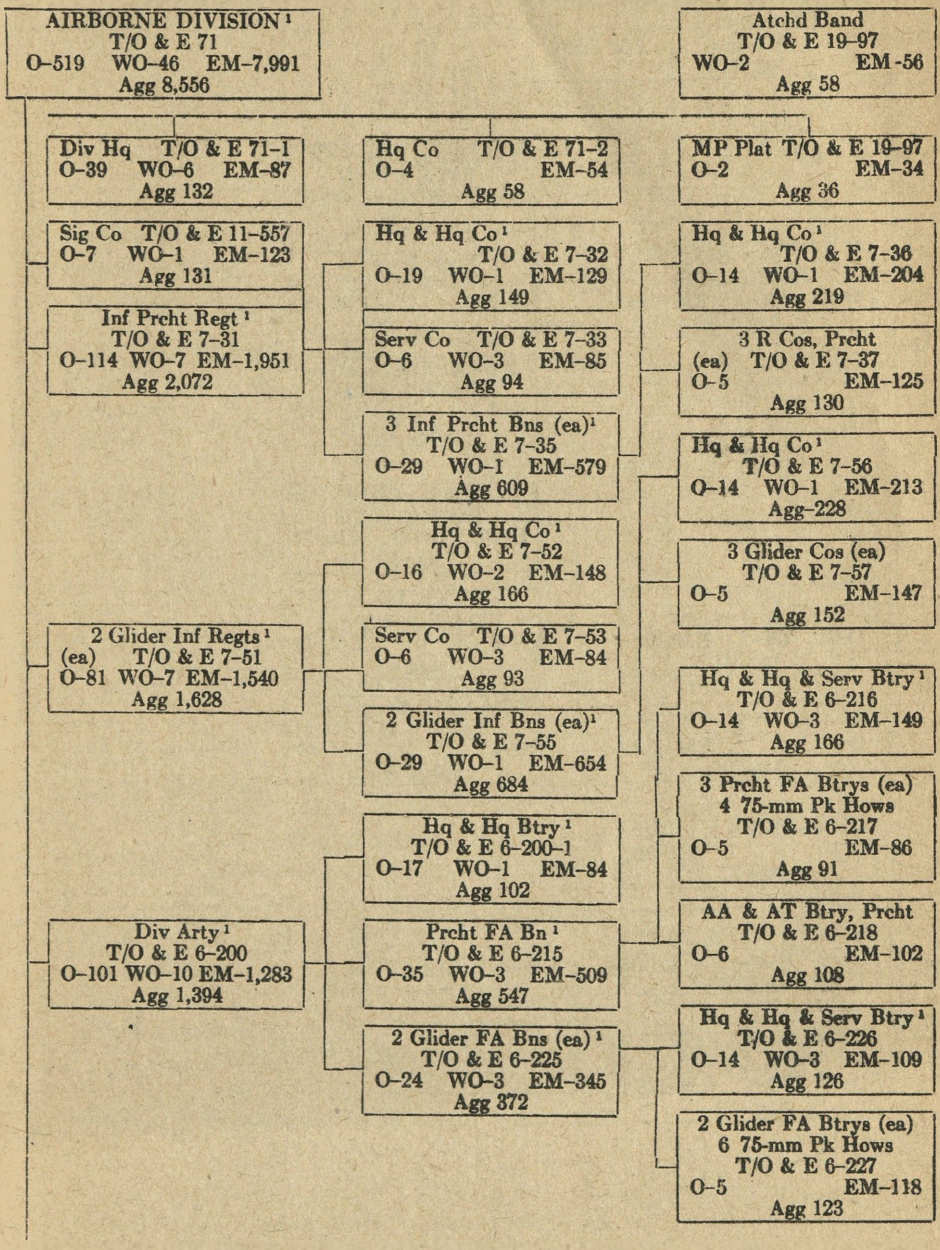
1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
	Unit	*Hq Airborne Div (T/O & E 71-1)*	*Hq Co, Airborne Div (T/O & E 71-2) 9/16/44 C1*	*MP Plat (T/O & E 19-97)*	*Div Arty (T/O & E 6-200)*	*1 Inf Prcht Regt (T/O & E 7-31)*	*2 Inf Glider Regts (ea) (T/O & E 7-51)*	*Airborne AA Bn (T/O & E 44-275)*	*Engr Bn (T/O & E 5-225)*	*QM Co (T/O & E 10-327)*	*Sig Co (T/O & E 11-557)*	*Med Co (T/O & E 8-37)*	*Prcht Maint Co (T/O & E 71-27)*	*Ord Co (T/O & E 9-87)*	*Total*	*Atchd Med & Ch*	*Aggregate [2]*
2	Major general	1													1		1
3	Brigadier general	1			1										2		2
4	Colonel	1			1	1	1								5		5
5	Lieutenant colonel	11			4	4	3	1	1	1	1			1	30		30
6	Major	9	1	1	9	6	5	2	2	1	1	1	1		44	3	47
7	Major or captain	1													1		1
8	Captain	8	1		29	22	16	8	7	1	1		1	2	112		112
9	Captain or First lieutenant											16			16	26	42
10	First lieutenant	6	2	1	43	64	32	9	8	2	4	4	1	2	210	9	219
11	Second lieutenant	1			8	5	16	9	3					2	60		60
12	TOTAL COMMISSIONED	39	4	2	95	102	73	29	21	5	7	21	3	7	481	38	519
13	Warrant officer	6			10	7	7	2	2		1		1	1	44		46
14	Master sergeant	9			5	4	4	1	1	1	1		1	1	32		32
15	First sergeant		1		12	14	10	7	4	1	1	1	1	1	63		63
16	Technical sergeant	4	1		16	39	27	5	4	2	4		5	3	137	3	142
17	Staff sergeant	6	4	1	57	146	113	24	14	3	8	10	5	9	513	12	527
18	Sergeant	8	2	4	68	127	97	14	22	2	1	7	4	1	454	3	457
19	Corporal	1	1	3	148	49	48	67	25	8	7	7	1	1	414	11	425
20	Technician, grade 3	7			4						5	5		7	28	21	49
21	Technician, grade 4	32	7		90	50	37	12	21	3	18	14	27	15	363	26	403

[1] All T/O & Es dated 1 Aug 44 except where noted.
[2] Includes Atchd Band (T/O & E 20-107).

AIRBORNE DIVISION—*T/O & E 71 (1 August 1944)* (Continued):

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	*Unit*	*Hq Airborne Div (T/O & E 71-1)*	*Hq Co, Airborne Div (T/O & E 71-2) 9/16/44 C1*	*MP Plat (T/O & E 19-97)*	*Div Arty (T/O & E 6-200)*	*1 Inf Prcht Regt (T/O & E 7-31)*	*2 Inf Glider Regts (ea) (T/O & E 7-51)*	*Airborne AA Bn (T/O & E 44-275)*	*Engr Bn (T/O & E 5-225)*	*QM Co (T/O & E 10-327)*	*Sig Co (T/O & E 11-557)*	*Med Co (T/O & E 8-37)*	*Prcht Maint Co (T/O & E 71-27)*	*Ord Co (T/O & E 9-87)*	*Total*	*Atchd Med & Ch*	*Aggregate* [1]
22	Technician, grade 5	18	13	3	164	82	68	28	39	9	32	25	28	17	594	58	668
23	Private, first class	2	11	11	312	956	745	138	114	25	20	53	25	4	3,161	71	3,254
24	Private		14	12	367	392	325	162	130	28	26	61	31	8	1,881	90	1,971
25	Basic		(3)	(2)	(62)	(136)	(107)	(27)	(20)	(4)	(6)	(19)	(7)	(4)	(494)	(25)	(519)
26	TOTAL ENLISTED	87	54	34	1,243	1,859	1,474	458	374	82	123	183	128	67	7,640	295	7,991
27	AGGREGATE	132	58	36	1,348	1,968	1,554	489	397	87	131	204	132	75	8,165	298	8,556

■ 112. AIRBORNE DIVISION—DIAGRAM (For computations involving Personnel):



[1] Includes attached medical and chaplains.

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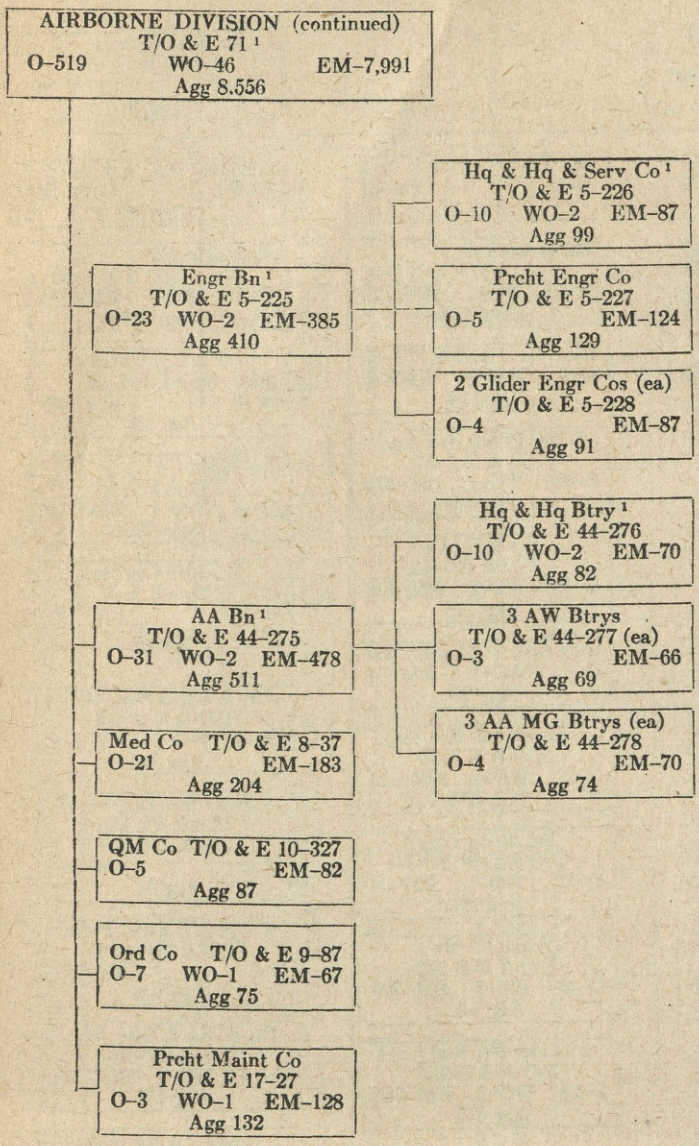
AIRBORNE DIVISION—DIAGRAM—(Continued):



[1] Includes attached medical and chaplain.

■ 113. SUMMARY OF ARMAMENT—AIRBORNE DIVISION (For computations involving Armament) :[1]

1	Unit	.30 cal carbine	.30 cal machine gun, heavy	.30 cal machine gun, light	.30 cal rifle, automatic	.30 cal rifle, M1	.30 cal rifle, M1C	.30 cal rifle, M1903, A4	.45 cal pistol	.45 cal submachine gun	.50 cal machine gun, HB, flexible	37-mm gun, Towed	37-mm gun, automatic	2.36" launcher, rocket	60-mm mortar	75-mm howitzer, high speed	81-mm mortar
2	Airborne Div	4,979	16	169	72	2,550	.....	51	317	211	92	16	24	466	75	40	36
3	Hq Co, T/O & E 71-2, 9/16/44, C1	233	.....	2	.....	4	.....	.....	21	16	3	.....	.....	14	.....	.....	.....
4	MP Plat, T/O & E 19-97	15	.....	2	.....	4	.....	.....	1	16	.....	.....	.....	4	.....	.....	.....
5	Div Arty, T/O & E 6-200	1,093	.....	.....	.....	.....	.....	.....	255	.....	37	.....	.....	173	.....	40	.....
6	Hq & Hq Btry, T/O & E 6-200-1	(84)	.....	.....	.....	.....	.....	.....	(11)	.....	(2)	.....	.....	(6)	.....	.....	.....
7	2 Gli FA Bns (ea), T/O & E 6-225	(305)	.....	.....	.....	.....	.....	.....	(55)	.....	(9)	.....	.....	(50)	.....	(12)	.....
8	Hq, Hq & Serv Btry, T/O & E 6-226	(77)	.....	.....	.....	.....	.....	.....	(37)	.....	(3)	.....	.....	(14)	.....	.....	.....
9	2 Gli Btrys (ea), T/O & E 6-227	(114)	.....	.....	.....	.....	.....	.....	(9)	.....	(3)	.....	.....	(18)	.....	(6)	.....
10	Prcht FA Bn, T/O & E 6-215	(399)	.....	.....	.....	.....	.....	.....	(134)	.....	(17)	.....	.....	(67)	.....	(16)	.....
11	Hq, Hq & Serv Btry, T/O & E 6-216	(115)	.....	.....	.....	.....	.....	.....	(37)	.....	(3)	.....	.....	(11)	.....	.....	.....
12	3 Prcht Btrys (ea), T/O & E 6-217	(76)	.....	.....	.....	.....	.....	.....	(15)	.....	(2)	.....	.....	(14)	.....	(4)	.....
13	AA & AT Btry, T/O & E 6-218	(56)	.....	.....	.....	.....	.....	.....	(52)	.....	(8)	.....	.....	(14)	.....	(4)	.....
14	Prcht Inf Regt, T/O & E 7-31	1,098	.....	132	.....	859	27	.....	11	54	4	.....	.....	73	27	.....	12
15	Hq & Hq Co, T/O & E 7-32	(105)	.....	.....	.....	(15)	.....	.....	(5)	.....	.....	.....	.....	(5)	.....	.....	.....
16	Serv Co, T/O & E 7-33	(63)	.....	.....	.....	(31)	.....	.....	.....	.....	(4)	.....	.....	(5)	.....	.....	.....
17	3 Prcht Bns (ea), T/O & E 7-35	(310)	.....	(44)	.....	(271)	(9)	.....	(2)	(18)	.....	.....	.....	(21)	(9)	.....	(4)
18	Hq & Hq Co, T/O & E 7-36	(163)	.....	(8)	.....	(28)	.....	.....	(2)	.....	.....	.....	.....	(9)	.....	.....	(4)
19	3 Rifle Cos (ea), T/O & E 7-37	(49)	.....	(12)	.....	(81)	(3)	.....	.....	(6)	.....	.....	.....	(4)	(3)	.....	.....
20	2 Gli Inf Regts (ea), T/O & E 7-51	814	8	12	36	683	12	.....	9	36	3	8	.....	81	24	.....	12
21	Hq & Hq Co, T/O & E 7-52	(119)	.....	.....	.....	(21)	.....	.....	(5)	.....	.....	(8)	.....	(15)	.....	.....	.....
22	Serv Co, T/O & E 7-53	(55)	.....	.....	.....	(38)	.....	.....	.....	.....	(3)	.....	.....	(10)	.....	.....	.....
23	2 Gli Inf Bns (ea), T/O & E 7-55	(320)	(4)	(6)	(18)	(312)	(6)	.....	(2)	(18)	.....	.....	.....	(28)	(12)	.....	(6)
24	Hq & Hq Co, T/O & E 7-56	(176)	(4)	.....	.....	(24)	.....	.....	(2)	.....	.....	.....	.....	(10)	.....	.....	(6)
25	3 Gli Cos (ea), T/O & E 7-57	(48)	.....	(2)	(6)	(96)	(2)	.....	.....	(6)	.....	.....	.....	(6)	(4)	.....	.....
26	Engr Bn, T/O & E 5-225	138	.....	11	.....	256	.....	.....	3	18	.....	.....	.....	25	.....	.....	.....
27	Hq & Serv Co, T/O & E 5-226	(76)	.....	.....	.....	(7)	.....	.....	(3)	.....	.....	.....	.....	(4)	.....	.....	.....
28	Prcht Co, T/O & E 5-227	(20)	.....	(3)	.....	(109)	.....	.....	.....	(6)	.....	.....	.....	(9)	.....	.....	.....
29	2 Gli Cos (ea), T/O & E 5-228	(21)	.....	(4)	.....	(70)	.....	.....	.....	(6)	.....	.....	.....	(6)	.....	.....	.....
30	QM Co, T/O & E 10-327	54	.....	.....	.....	31	.....	.....	2	.....	4	.....	.....	5	.....	.....	.....
31	Sig Co, T/O & E 11-557	129	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	4	.....	.....	.....
32	Med Co, T/O & E 8-37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	AA Bn, T/O & E 44-275	433	.....	.....	.....	.....	.....	.....	3	48	36	.....	24	.....	.....	.....	.....
34	Hq & Hq Btry, T/O & E 44-276	(51)	.....	.....	.....	.....	.....	.....	(3)	(6)	.....	.....	.....	.....	.....	.....	.....
35	3 AW Btrys (ea), T/O & E 44-277	(61)	.....	.....	.....	.....	.....	.....	.....	(8)	.....	.....	(8)	.....	.....	.....	.....
36	3 MG Btrys (ea), T/O & E 44-278	(68)	.....	.....	.....	.....	.....	.....	.....	(6)	(12)	.....	.....	.....	.....	.....	.....
37	Ord Maint Co, T/O & E 9-37	50	.....	.....	.....	21	.....	.....	1	3	2	.....	.....	5	.....	.....	.....
38	Prcht Maint Co, T/O & E 71-27	118	.....	.....	.....	13	.....	.....	1	.....	.....	.....	.....	5	.....	.....	.....
39	Hq, AB Div, T/O & E 71-1	103	.....	.....	.....	.....	.....	.....	19	.....	.....	.....	.....	.....	.....	.....	.....

[1] All T/O & Es dated 1 Aug 44 except where noted.

■ 114. SUMMARY OF TRANSPORTATION—*Airborne Division:* [1]

a. Airplanes and Gliders Supplied by the Troop Carrier Command: [2]

1	Vehicle	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		Airborne Div	Hq & Hq Co, T/O & E 71-2 (9/16/44 C1)	MP Plat, T/O & E 19-97	Div Arty, T/O & E 6-200	Hq & Hq Btry, T/O & E 6-200-1	2 Gli FA Bns (ea) T/O & E 6-225	Hq, Hq & Serv Btry, T/O & E 6-226 [3]	2 Gli Btrys (ea), T/O & E 6-227	Prcht FA Bn, T/O & E 6-215	Hq, Hq & Serv Btry, T/O & E 6-216 [3]	3 Prcht Btrys (ea), T/O & E 6-217	AA & AT Btry, T/O & E 6-218	Prcht Inf Regt, T/O & E 7-31	Hq & Hq Co, T/O & E 7-32	Serv Co, T/O & E 7-33 [3]	3 Prcht Bns (ea), T/O & E 7-35	Hq & Hq Co, T/O & E 7-36	3 Rifle Cos (ea), T/O & E 7-37
2	C-47 type airplanes (parachute units)	178			52					(52)									
3	CG—4-A gliders	815	17	7	148	(16)	(66)	(14)	(26)		(4)	(12)	(12)	117	(9)		(36)	(9)	(6)
4	CG—13 gliders	392	9	4	70	(8)	(31)	(7)	(12)										
5	C-47 type airplanes in lieu of gliders	518	9	4	104	(11)	(47)	(9)	(19)										

1	Vehicle	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
		2 Gli Inf Regts (ea) T/O & E 7-51	Hq & Hq Co, T/O & E 7-52	Serv Co, T/O & E 4-53 [3]	2 Gli Inf Bns (ea), T/O & E 7-55	Hq & Hq Co, T/O & E 7-56	3 Gli Cos (ea), T/O & E 7-57	Engr Bn, T/O & E 5-225	Hq & Serv Co, T/O & E 5-226 [3]	Prcht Co, T/O & E 5-227	2 Gli Cos (ea), T/O & E 5-228	QM Co, T/O & E 10-327	Sig Co, T/O & E 11-557	Med Co, T/O & E 8-37	AA Bn, T/O & E 44-275	Hq & Hq Btry, T/O & E 44-276	3 AW Btrys (ea), T/O & E 44-277	3 MG Btrys (ea), T/O & E 44-278	Ord Maint Co, T/O & E 9-37	Prcht Maint Co, T/O & E 11-27 [3]
2	C-47 type airplanes (parachute units)							9		(9)										
3	CG—4-A gliders	156	(36)		(61)	(25)	(12)	54	(30)		(12)	64	18	46	115	(7)	(18)	(18)	30	
4	CG—13 gliders	77	(21)		(28)	(13)	(5)	28	(18)		5	30	6	22	54	(6)	(8)	(8)	15	
5	C-47 type airplanes in lieu of gliders	106	(29)		(41)	(17)	(8)	32	(16)		8	30	10	28	70	(4)	(10)	(12)	15	

[1] All T/O & E's for A/B Div are dated 1 Aug 44 except where noted.
[2] Above figures are tactical loads only but include the Quartermaster and Ordnance Maintenance Companies—all or part of which may be brought up with Supply Serial. Medical detachments are included with headquarter units.
[3] Service Cos and the Prcht Maint Co include no tactical personnel and are not allotted tactical air transportation.

SUMMARY OF TRANSPORTATION—AIRBORNE DIVISION (Continued):

b. Organic Transportation: (For computations involving vehicles.)

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	*Vehicle*	*Airborne Div*	*Hq & Hq Co* T/O & E 71-2 (9/16/44) C1	*MP Plat* T/O & E 19-97	*Prcht Inf Regt* T/O & E 7-31	*Hq & Hq Co* T/O & E 7-32	*Serv Co* T/O & E 7-33
	TRUCKS, ¼-TON, 4x4						
2	Combat and command	223	9	4	15		(15)
3	Cargo or maintenance	98					
4	Attached Medical & Chaplain	21			2	(2)	
5	Wire	4					
6	SUB-TOTAL	346	9	4	17	(2)	(15)
	MISCELLANEOUS						
7	Car, light, 5-passenger sedan	1	1				
8	Motorcycle, solo	2		2			
9	Scooter, motor	236	4	2	52		(52)
10	Tractor, gas engine, 20 DBHP, w/bull-dozer	4					
11	SUB-TOTAL	243	5	4	52		(52)
	TRUCKS, ¾-TON						
12	Weapons carrier, maintenance	13			1		(1)
13	Weapons carrier, cargo	5	5				
14	Ambulance	6			2		(2)
15	SUB-TOTAL	24	5		3		(3)
	TRUCKS, 2½-TON						
16	Ammunition and cargo	16					
17	Command and operations	2	2				
18	Dump	4					
19	Kitchen	41	2		9		(9)
20	Motor maintenance	9	1				
21	Personnel and baggage	18	5		6		(6)
22	SUB-TOTAL	90	10		15		(15)
23	TOTAL MOTOR VEHICLES	703	29	8	87	(2)	(85)
	TRAILERS						
24	Cart, hand	312			34	(4)	(6)
25	Cargo, 1-ton	88	10		15		(15)
26	Cargo, ¼-ton	269	12	4	15		(15)
27	Attached Med & Chap, ¼-ton	21			2	(2)	
28	Compressor	2					
29	Dump, 2-wheel, ½-ton	10					
30	TOTAL TRAILERS	702	22	4	66	(6)	(36)
31	Planes, liaison	8					
32	TOTAL VEHICLES	1,413	51	12	153	(8)	(121)

SUMMARY OF TRANSPORTATION—AIRBORNE DIVISION:

Organic Transportation (Continued):

1	*1*	*8*	*9*	*10*	*11*	*12*
1	*Vehicle*	*3 Prcht Bns (ea)*	*Hq & Hq Co*	*3 Rifle Cos (ea)*	*2 Glider Inf Regts (ea)*	*Hq & Hq Co*
		T/O & E 7–35	*T/O & E 7–36*	*T/O & E 7–37*	*T/O & E 7–51*	*T/O & E 7–52*
	TRUCKS, ¼-TON, 4x4					
2	Combat and command				19	
3	Cargo or maintenance				1	
4	Attached Medical & Chaplain				4	(3)
5	Wire					
6	SUB-TOTAL				24	(3)
	MISCELLANEOUS					
7	Car, light, 5-passenger sedan					
8	Motorcycle, solo					
9	Scooter, motor				29	
10	Tractor, gas engine, 20 DBHP, w/bull-dozer					
11	SUB-TOTAL				29	
	TRUCKS, ¾-TON					
12	Weapons carrier, maintenance				1	
13	Weapons carrier, cargo					
14	Ambulance				2	
15	SUB-TOTAL				3	
	TRUCKS, 2½-TON					
16	Ammunition and cargo					
17	Command and operations					
18	Dump					
19	Kitchen				7	
20	Motor maintenance					
21	Personnel and baggage				3	
22	SUB-TOTAL				10	
23	TOTAL MOTOR VEHICLES				66	(3)
	TRAILERS					
24	Cart, hand	(8)	(8)		96	(12)
25	Cargo, 1-ton				10	
26	Cargo, ¼-ton				12	
27	Attached Med & Chap, ¼-ton				4	(3)
28	Compressor					
29	Dump, 2-wheel, ½-ton					
30	TOTAL TRAILERS	(8)	(8)		122	(15)
31	Planes, liaison					
32	TOTAL VEHICLES	(8)	(8)		188	(18)

SUMMARY OF TRANSPORTATION—AIRBORNE DIVISION:

Organic Transportation (Continued):

1	13 Serv Co T/O & E 7-53	14 2 Glider Inf Bns (ea) T/O & E 7-55	15 Hq & Hq Co T/O & E 7-56	16 3 Glider Cos (ea) T/O & E 7-57	17 Div Arty T/O & E 6-200	18 Hq & Hq Btry T/O & E 6-200-1	19 Prcht FA Bn T/O & E 6-215	20 Hq Hq & Serv Btry T/O & E 6-216	21 3 Prcht Btrys (ea) T/O & E 6-217	22 AA & AT Btry T/O & E 6-218
2	(19)				92	(9)	(17)	(17)		
3	(1)				19		(3)	(3)		
4	(1)				8	(2)	(2)	(2)		
5										
6	(21)				119	(11)	(22)	(22)		
7										
8										
9	(29)				50	(4)	(12)	(4)	(2)	(2)
10										
11	(29)				50	(4)	(12)	(4)	(2)	(2)
12	(1)				8	(1)	(1)	(1)		
13										
14	(2)									
15	(3)				8	(1)	(1)	(1)		
16					10		(8)	(8)		
17										
18										
19	(7)				13	(2)	(5)	(5)		
20					4	(2)	(2)	(2)		
21	(3)									
22	(10)				27	(4)	(15)	(15)		
23	(63)				204	(20)	(50)	(42)	(2)	(2)
24		(42)	(18)	(8)	26	(4)	(10)	(2)	(2)	(2)
25	(10)				27	(4)	(15)	(15)		
26	(12)				78	(9)	(5)	(5)		
27	(1)				8	(2)	(2)	(2)		
28										
29										
30	(23)	(42)	(18)	(8)	139	(19)	(32)	(24)	(2)	(2)
31					8	(2)	(2)	(2)		
32	(86)	(42)	(18)	(8)	351	(41)	(84)	(68)	(4)	(4)

SUMMARY OF TRANSPORTATION—AIRBORNE DIVISION:

Organic Transportation (Continued):

1	1	23	24	25	26	27	28
1	*Vehicle*	*2 Glider FA Bns (ea)*	*Hq Hq & Serv Btry*	*2 Glider Btrys (ea)*	*AA Bn*	*Hq & Hq Btry*	*3 AW Btrys (ea)*
		T/O & E 6-225	*T/O & E 6-226*	*T/O & E 6-227*	*T/O & E 44-275*	*T/O & E 44-276*	*T/O & E 44-277*
	TRUCKS, ¼-TON, 4x4						
2	Combat and command	(33)	(5)	(14)	44	(44)	
3	Cargo or maintenance	(8)	(2)	(3)			
4	Attached Medical & Chaplain	(2)	(2)		2	(2)	
5	Wire						
6	SUB-TOTAL	(43)	(9)	(17)	46	(46)	
	MISCELLANEOUS						
7	Car, light, 5-passenger sedan						
8	Motorcycle, solo						
9	Scooter, motor	(17)	(9)	(4)	15	(3)	(2)
10	Tractor, gas engine, 20 DBHP, w/bull-dozer						
11	SUB-TOTAL	(17)	(9)	(4)	15	(3)	(2)
	TRUCKS, ¾-TON						
12	Weapons carrier, maintenance	(3)	(1)	(1)	2	(2)	
13	Weapons carrier, cargo						
14	Ambulance						
15	SUB-TOTAL	(3)	(1)	(1)	2	(2)	
	TRUCKS, 2½-TON						
16	Ammunition and cargo	(1)	(1)				
17	Command and operations						
18	Dump						
19	Kitchen	(3)	(3)		1	(1)	
20	Motor maintenance						
21	Personnel and baggage				1	(1)	
22	SUB-TOTAL	(4)	(4)		2	(2)	
23	TOTAL MOTOR VEHICLES	(67)	(23)	(22)	65	(53)	(2)
	TRAILERS						
24	Cart, hand	(6)	(2)	(2)	42		(8)
25	Cargo, 1-ton	(4)	(4)		2	(2)	
26	Cargo, ¼-ton	(32)	(8)	(12)	44	(44)	
27	Attached Med & Chap, ¼-ton	(2)	(2)		2	(2)	
28	Compressor						
29	Dump, 2-wheel, ½-ton						
30	TOTAL TRAILERS	(44)	(16)	(14)	90	(48)	(8)
31	Planes, liaison	(2)	(2)				
32	TOTAL VEHICLES	(113)	(41)	(36)	155	(101)	(10)

SUMMARY OF TRANSPORTATION—AIRBORNE DIVISION:

Organic Transportation (Continued):

1	29 3 MG Btrys (ea) T/O & E 44-278	30 Engr Bn T/O & E 5-225	31 Hq & Serv Co T/O & E 5-226	32 Prcht Co T/O & E 5-227	33 2 Glider Cos (ea) T/O & E 5-228	34 Sig Co T/O & E 11-557	35 QM Co T/O & E 10-327	36 Ord Maint Co T/O & E 9-87	37 Prcht Maint Co T/O & E 71-27	38 Med Co T/O & E 8-37
2		4	(4)			7		2	3	5
3		14	(14)				30	13	2	18
4		1	(1)							
5						4				
6		19	(19)			11	30	15	5	23
7										
8										
9	(2)	25	(5)	(4)	(8)	9	4	2	10	5
10		4	(4)							
11	(2)	29	(9)	(4)	(8)	9	4	2	10	5
12										
13										
14										
15										
16								2	4	
17										
18		4	(4)							
19								1	1	
20		1	(1)					3		
21										
22		5	(5)					6	5	
23	(2)	53	(33)	(4)	(8)	20	34	23	20	28
24	(6)	18	(5)	(5)	(4)					
25		4	(4)					5	5	
26		8	(8)			11	30	15	5	23
27		1	(1)							
28		2	(2)							
29		10	(10)							
30	(6)	43	(30)	(5)	(4)	11	30	20	10	23
31										
32	(8)	96	(63)	(9)	(12)	31	64	43	30	51

115. TABLE OF ORGANIZATION AND EQUIPMENT, NO. 17, ARMORED DIVISION (For Reference only):

1	Unit	Div Hq, T/O 17-1 (9/15/43, C1, 2, 3, 4, 5)	Hq Co, T/O 17-2 (8/12/44)	Hq & Hq Cos, CC (each), T/O 17-20-1 (9/15/43, C1, 2, 3)	Armd Res Comd, T/O 17-30-1 (9/15/43)	Armd Sig Co, T/O 11-57 (9/15/43, C1)	Cav Recn Sq, Mecz, T/O 2-25 (9/15/43, C1, 2)	3 Tank Bns (each), T/O 17-25 (9/15/43, C1, 2, 3, 4, 5)	3 Armd Inf Bns (each), T/O 7-25 (9/15/43, C1, 2, 3, 4)	Armored Division Artillery, T/O & E 6-160 (2/12/44)			Armd Engr Bn, T/O 5-215 (9/15/43, C1)	Armd Div Trains, T/O 17-60 (9/15/43, C1, 2, 3, 4)	Total Div	Atchd Med	Atchd Chap	Atchd Band	Aggregate
										Hq & Hq Btry, Armd Div Arty, T/O 6-160-1 (2/12/44, C1, 2, 3)	3 Armd F A Bns (each), T/O 6-165, (9/15/43, C1, 2, 3)	Total Arty							
2	Major general	1													1				1
3	Brigadier general			1 [1]											1				1
4	Colonel	1		1 [1]	1					1		1		1	5				5
5	Lieutenant colonel	12		1		1	1	1	1	1	1	4	1	2	29				29
6	Major	9	1	3	2	1	2	2	2	4	2	10	2	8	53	3			56
7	Major or captain	1													1				1
8	Captain	16	1	3		1	11	10	9	3	8	27	8	13	140				140
9	Captain or first lieutenant													16	16	28	8		52
10	First lieutenant	3	2	3 [2]		6	15	12	11	4	12	40	10	29	179				179
11	Second lieutenant		1	2 [2]		2	13	2	13		8	24	11	14	143				143
12	TOTAL COMMISSIONED	43	5	13 [3]	3	11	42	37	36	13	31	106	32	83	568	31	8		607
13	Warrant officer	8		1		3	3	3	3	1	2	7	3	8	52			2	54
14	Master sergeant	10		2		3	2	2	2	2	2	8	3	10	52				52
15	First sergeant		1	1		1	7	6	5	1	5	16	4	9	73				73
16	Technical sergeant	7	1	2	2	12	12	10	22	2	6	20	7	41	202			2	204
17	Staff sergeant	7	6	5	1	20	45	32	76	8	25	83	28	66	590	13		2	505
18	Sergeant	10	9	3		7	58	60	44	1	31	94	45	34	575				575
19	Corporal	1	5	1		2	55	75	23	8	46	146	31	34	570	13			583
20	Technician, grade 3	10				11				1	1	4		46	71	14			85
21	Technician, grade 4	42	16	16		42	106	88	35	10	50	160	48	203	1,018	15		14	1,047
22	Technician, grade 5	28	31	28	1	103	229	116	125	22	92	298	186	336	1,991	51		16	2,058
23	Private, first class	2	18	7	1	32	148	118	444	12	99	309	123	196	2,529	53		22	2,604
24	Private, including		23	11		46	187	153	180	16	120	376	183	303	2,139	68			2,207
25	Basic		(6)	(4)		(14)	(44)	(35)	(78)	(4)	(24)	(76)	(60)	(105)	(652)	(18)			(670)
26	TOTAL ENLISTED	117	110	76	5	279	849	660	956	83	477	1,514	658	1,278	9,810	227		56	10,093
27	AGGREGATE	168	115	90 [3]	8	293	894	700	995	97	519	1,627	693	1,369	10,430	258	8	58	10,754

[1] In one headquarters, combat command only; 1 combat command commanded by brigadier general, 1 commanded by colonel.

[2] Includes 1 aide; authorized only in headquarters, combat command having brigadier general.

[3] Less 2 officers (aides) in combat command not authorized a brigadier general.

■ 116. DIAGRAM (For computations involving Personnel):

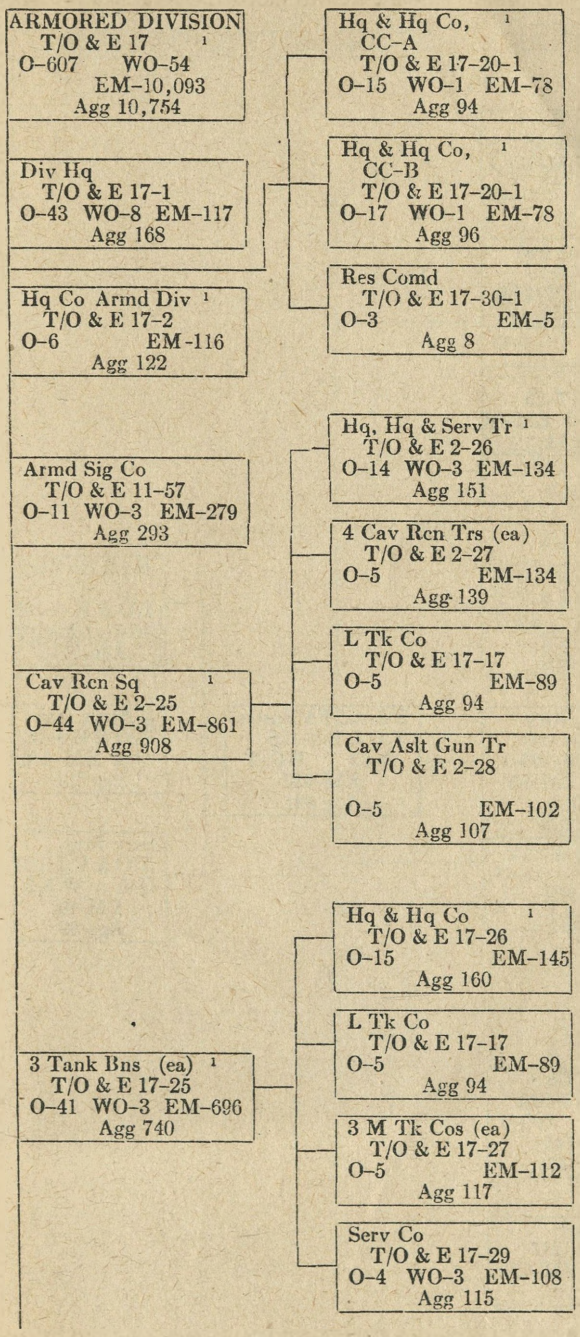


DIAGRAM (Continued):

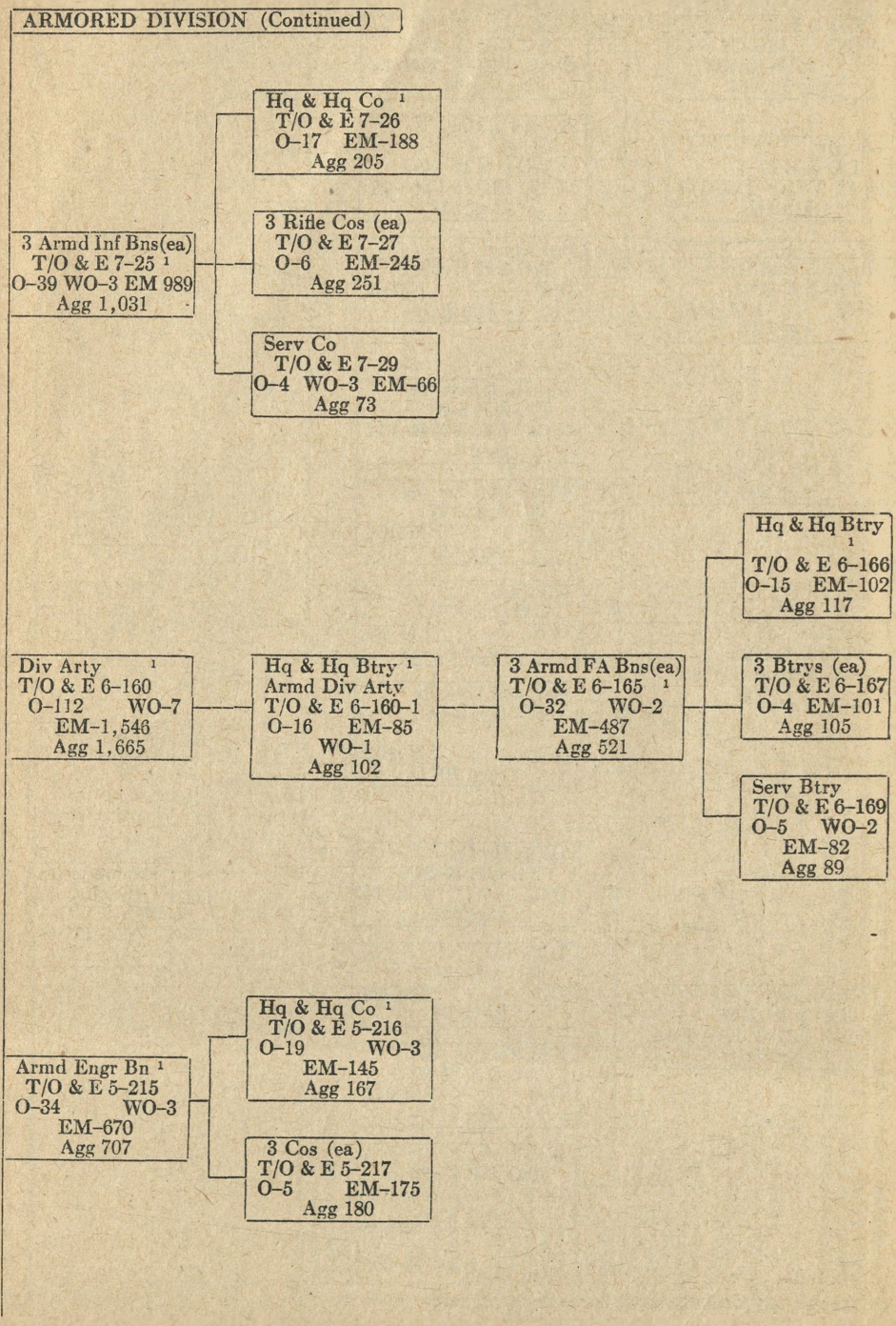
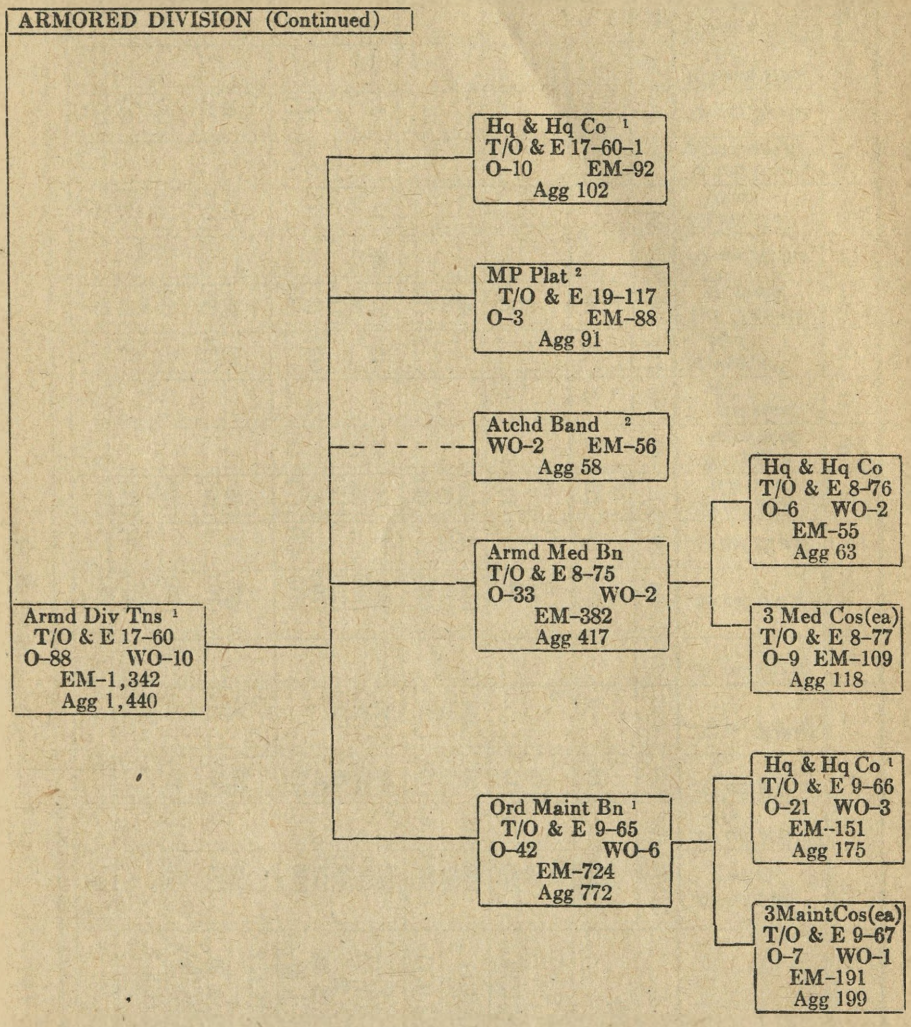


DIAGRAM (Continued):



[1] Includes Atchd medical and chaplains.
[2] Atchd Hq Co, Div Tns, for administration.

■ 117. SUMMARY OF ARMAMENT, ARMORED DIVISION (For computations involving Armament): [1] [2] [3] [4] [5]

1	Unit	.30 cal Carbine	.30 cal MG, Ho	.30 cal MG, L	.30 cal Rifle, M1	.30 cal Rifle, M1903	.45 cal SMG	.45 cal Pistol	.50 cal MG, HB	37-mm Gun (turret mtd)	57-mm Gun, AT	Mortar, 2" M-3	2.36" Launcher, rocket	60-mm Mortar	75-mm Gun (tank)	75-mm How (Aslt Gun) SP	81-mm Mortar	105-mm How (SP)	105-mm How (tank)	Flame Thrower
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	Aggregate	5,103 [3]	129	950	2,036	27	2,804	90 [3]	761	54	30	272	609	63	245	8	48	54	27	18
3	Div Hq & Hq Co, T/O & E 17-2 (8/12/44)	206	.....	15	9	.....	37	19	11	2	3	3	10	.....	3	.....	.....	.....	.....	.....
4	2 CC Hq & Hq Co, (ea) T/O & E 17-20-1 (C1, 2, 3)	58 [2]	.....	9	.....	.....	27	5	7	.....	.....	3	8	.....	3	.....	.....	.....	.....	.....
5	Armd Sig Co, T/O & E 11-57 (C1, 2)	229	.....	13	.....	.....	62	1	13	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	.....
6	Armd Engr Bn, T/O & E 5-215 (C1)	153	18	20	434	.....	103	3	20	.....	.....	.....	29	.....	.....	.....	.....	.....	.....	18
7	Hq & Hq Co, T/O & E 5-216	(87)	.....	(5)	(26)	.....	(37)	(3)	(5)	.....	.....	.....	(8)	.....	.....	.....	.....	.....	.....	(18)
8	3 Engr Cos (ea), T/O & E 5-217 (C1)	(22)	(6)	(5)	(126)	.....	(22)	.....	(5)	.....	.....	.....	(7)	.....	.....	.....	.....	.....	.....	.....
9	Cav Rcn Sq, T/O & E 2-25 (C1, 2)	536	.....	154	120	.....	235	3	54	52	.....	17	37	36	17	8	3	.....	.....	.....
10	4 Rcn Trs (ea), T/O & E 2-27 (C1, 2)	(85)	.....	(25)	(26)	.....	(28)	.....	(3)	(12)	.....	.....	(4)	(9)	.....	.....	.....	.....	.....	.....
11	Aslt Gun Tr, T/O & E 2-28 (C1, 2)	(69)	.....	(6)	(16)	.....	(22)	.....	(15)	.....	.....	.....	(11)	.....	.....	(8)	(1)	.....	.....	.....
12	Tk Co (L), T/O & E 17-17 (C1, 2, 3)	(24)	.....	(35)	.....	.....	(70)	.....	(20)	.....	.....	(17)	(2)	.....	(17)	.....	(1)	.....	.....	.....
13	Hq & Serv Tr, T/O & E 2-26 (C1, 2)	(103)	.....	(13)	.....	.....	(31)	(3)	(7)	(4)	.....	.....	(8)	.....	.....	.....	(1)	.....	.....	.....
14	3 Tk Bns (ea), T/O & E 17-25 (C1, 2, 3, 4, 5)	240	.....	170	20	.....	437	3	105	.....	.....	76	35	.....	70	.....	9	.....	6	.....
15	Tk Co (L), T/O & E 17-17 (C1, 2, 3)	(24)	.....	(35)	.....	.....	(70)	.....	(20)	.....	.....	(17)	(2)	.....	(17)	.....	.....	.....	.....	.....
16	3 Tk Cos (M) (ea), T/O &E 17-27 (C1, 2, 3)	(25)	.....	(37)	.....	.....	(92)	.....	(20)	.....	.....	(18)	(3)	.....	(17)	.....	(2)	.....	(1)	.....
17	Hq & Hq Co, T/O & E 17-26 (C1, 2, 3, 4)	(70)	.....	(13)	(20)	.....	(47)	(3)	(13)	.....	.....	(5)	(12)	.....	(2)	.....	(3)	.....	(3)	.....
18	Serv Co, T/O & E 17-29 (C1, 2, 3)	(71)	.....	(11)	.....	.....	(44)	.....	(12)	.....	.....	.....	(12)	.....	.....	.....	(2)	.....	.....	.....

SUMMARY OF ARMAMENT, ARMORED DIVISION [1] [2] [3] [4] [5] (Continued):

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
19	3 Armd Inf Bns (ea), T/O & E 7–25 (C1 2, 3)	376	37	35	469	9	138	3	49	.....	9	3	74	9	.....	.....	4	.....	3	.....
20	3 Rifle Cos (ea), T/O & E 7–27 (C1, 2, 3)	(78)	(10)	(6)	(145)	(3)	(25)	.....	(10)	.....	(3)	.....	(18)	(3)	.....	.....	.....	.....	.....	.....
21	Hq & Hq Co, T/O & E 7–26 (C1, 2, 3, 4, 5)	(91)	(7)	(12)	(34)	.....	(41)	(3)	(13)	.....	.....	(3)	(14)	.....	.....	.....	(3)	.....	(3)	.....
22	Serv Co, T/O & E 7–29 (C1, 2, 3)	(51)	.....	(5)	.....	.....	(22)	.....	(6)	.....	.....	.....	(6)	.....	.....	.....	(1)	.....	.....	.....
23	Hq & Hq Btry, Div Arty, T/O & E 6–160–1 (2/12/44, C1, 2, 3)	69	.....	1	.....	.....	21	9	5	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....
24	3 Armd FA Bns (ea), T/O & E 6–165 (C1, 2, 3)	391	.....	28	.....	.....	114	5	47	.....	.....	3	40	.....	3	.....	2	18	.....	.....
25	3 Btrys 105-mm (ea), T/O & E 6–167 (C1, 2, 3)	(88)	.....	(4)	.....	.....	(17)	.....	(10)	.....	.....	(3)	(7)	.....	.....	.....	.....	(6)	.....	.....
26	Hq & Hq Btry, T/O & E 6–166 (C1, 2, 3, 4)	(68)	.....	(10)	.....	.....	(33)	(5)	(9)	.....	.....	.....	(11)	.....	(3)	.....	.....	.....	.....	.....
27	Serv Btry, T/O & E 6–169 (C1, 2, 3)	(59)	.....	(6)	.....	.....	(30)	.....	(8)	.....	.....	.....	(8)	.....	.....	.....	(2)	.....	.....	.....
28	MP Plat & Hq & Hq Co, Armd Div Tns,[4] T/O& E M–60–1 (C1, 2, 3, 4)	178	.....	2	6	.....	60	4	3	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....
29	Ord Maint Bn, T/O & E 9–65	592	.....	28	.....	.....	165	5	38	.....	.....	.....	35	.....	.....	.....	.....	.....	.....	.....
30	3 Maint Cos (ea), T/O & E 9–67	(161)	.....	(6)	.....	.....	(38)	.....	(9)	.....	.....	.....	(8)	.....	.....	.....	.....	.....	.....	.....
31	Hq & Hq Co, T/O & E 9–66 (C1)	(109)	.....	(10)	.....	.....	(51)	(5)	(11)	.....	.....	.....	(11)	.....	.....	.....	.....	.....	.....	.....
32	Armd Med Bn, T/O & E 8–75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	3 Med Cos (ea), T/O & E 8–77 (C1, 2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	Hq & Hq Co, T/O & E 8–76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[1] Includes vehicular weapons.
[2] Delete 2 carbines for CC Hq & Hq Co not including Brigadier General.
[3] Includes 5 carbines and 3 pistols Reserve Comd not shown elsewhere.
[4] Includes band—58 carbines.
[5] All T/O & Es dated 9/15/43 except as noted.

■ 118. SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS (For computations involving Vehicles): [1]

1	Unit	2 Aggregate	3 Div Hq Co, T/O & E 17-2 (8/12/44)	4 2 Hq & Hq Co CC (ea), T/O & E 17-20-1, (C1, 2, 3)	5 Armd Sig Co, T/O & E 11-57 (C1, 2)	6 Armd Engr Bn, T/O & E 5-215 (C1)	7 Hq & Hq Co, T/O & E 5-216	8 3 Engr Cos (ea), T/O & E 5-217 (C1)	9 Cav Rcn Sq, T/O & E 2-25 (C1, 2)	10 4 Rcn Trs (ea), T/O & E 2-27 (7/15/43, C1, 2)	11 Aslt Gun Tr, T/O & E 2-28 (C1, 2)	12 Tk Co (L), T/O & E 17-17 (C1, 2, 3)	13 Hq & Serv Tr, T/O & E 2-26 (C1, 2)	14 3 Tank Bns (ea), T/O & E 17-25 (C1, 2, 3, 4, 5)	15 Tank Co (L), T/O & E 17-17 (C1, 2, 3)	16 3 Tank Cos (M) (ea), T/O & E 17-27 (C1, 2, 3)	17 Hq & Hq Co, T/O & E 17-26 (C1, 2, 3, 4)	18 Serv Co, T/O & E 17-29 (C1, 2, 3)
	PASSENGER CARS, AMBULANCES, AND TRUCKS ¼-TON and ¾-TON																	
2	Ambulance, ¾-ton	41	1 [1]						1 [1]				1 [1]	1 [1]			(1) [1]	
3	Car, medium, 5-passenger	1																
4	Truck, ¼-ton	491	11 [1]	9	22	26 [1]	(11) [1]	(5)	110 [1]	(23)	(2)	(2)	(14) [1]	26 [1]	(2)	(2)	(15) [1]	(3)
5	Truck, ¾-ton, Comd	21				1	(1)											
6	Truck, ¾-ton, Wpn Carr	95	2			7 [1]	(4) [1]	(1)	1 [1]				1 [1]	3			(1)	(2)
7	SUB-TOTAL	649 [1]	14 [1]	9	22	34 [1]	(16)	(6)	112 [1]	(23)	(2)	(2)	(16) [1]	30 [1]	(2)	(2)	(17) [1]	(5)
	TRUCKS, 2½-TON																	
8	Ammunition	82		1					2				(2)	13				(13)
9	Cargo (Ord Spare Parts)	38																
10	Dump	18				18		(6)										
11	Equipment and Supply (includes Engr and Sig)	18			3	15	(6)	(3)										
12	Fuel and Lube	79			1	2	(2)		5				(5)	14				(14)
13	Kitchen	85	2	1	2	4	(1)	(1)	7	(1)	(1)	(1)	(1)	6	(1)	(1)	(1)	(1)
14	Maintenance (includes AP maint)	37	1		1	2	(2)		2				(2)	3				(3)
15	Medical Supply	8																
16	Ordnance Special Repair	29																
17	Personnel and Equipment	40				2	(2)		2				(2)	1				(1)
18	Radio	6			6													
19	Ration	13				1	(1)		1				(1)	1				(1)
20	Sig Corps repair	2			2													

SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS [1] (Continued):

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
21	Signal Supply Div	4	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Water	13	.....	.....	.....	1	(1)	.....	1	.....	.....	.....	(1)	1	.....	.....	.....	(1)
23	Wire	3	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	SUB-TOTAL	475	3	2	21	45	(15)	(10)	20	(1)	(1)	(1)	(14)	39	(1)	(1)	(1)	(34)
	VEHICLES, HEAVY, NON-COMBAT																	
25	Truck, heavy wrecking, M-1	25	.....	.....	.....	1	(1)	.....	1	.....	.....	.....	(1)	2	.....	.....	.....	(2)
26	Truck, 6-ton, treadway bridge	6	.....	.....	.....	6	(3)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Truck, 40-ton, Tk recovery	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	Vehicle, Tk recovery, M-32, wo/Arm	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	(1)	.....	(2)
29	Vehicle, Tk recovery, L, wo/Arm	6	.....	.....	.....	.....	.....	.....	3	.....	(1)	(1)	(1)	(1)	(1)	.....	.....	.....
30	SUB-TOTAL	70	.....	.....	.....	7	(4)	(1)	4	.....	(1)	(1)	(2)	8	(1)	(1)	.....	(4)
	MISCELLANEOUS																	
31	Apparatus, decontaminating (4-ton 6 x 6)	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	Compressor, air, Trk Mtd	4	.....	.....	.....	4	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	Tractor, crawler type, 35 DBHP [2]	3	.....	.....	.....	3	.....	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	Truck, surgical	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35	SUB-TOTAL	16	.....	.....	.....	7	(1)	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	COMBAT VEHICLES																	
36	Car, Armd Utility, M-20, wo/Arm	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Car, Armd, M8, w/Arm	54	2	.....	.....	.....	.....	.....	52	(12)	.....	.....	(4)	.....	.....	.....	.....	.....
38	Car, H-T wo/Arm, Amb	6	.....	.....	.....	2 [1]	(2)	.....	4 [1]	.....	.....	.....	(4)	.....	.....	.....	.....	.....
39	Carrier, Personnel, H-T M3A2, wo/Arm	448	12	7	19	15	(3)	(4)	32	(4)	(10)	(1)	(5)	13	(1)	(1)	(8)	(1)
40	Carrier, H-T, 81-mm, M21, w/Arm	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	(3)	.....
41	Carriage Motor, 75-mm How, Assault gun	8	.....	.....	.....	.....	.....	.....	8	.....	(8)	.....	.....	.....	.....	.....	.....	.....
42	Carriage Motor, 105-mm How, (Artillery), M7	54	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Tank, (M) 105-mm How w/Arm	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	(1)	(3)	.....
44	Tank, (L) w/Arm	77	3	3	.....	.....	.....	.....	17	.....	.....	(17)	.....	17	(17)	.....	.....	.....
45	Tank, (M) w/Arm 75mm Gun	168	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53	.....	(17)	(2)	.....
46	SUB-TOTAL	861 [1]	17 [1]	10	19	17 [1]	(5)	(4)	113 [1]	(16)	(18)	(18)	(13)	92 [1]	(18)	(19)	(16)	(1)
47	TOTAL SELF-PROPELLED MOTOR VEHICLES	2,071 [1]	34 [1]	21	62	110	(41)	(23)	249	(40)	(22)	(22)	(45)	169	(22)	(23)	(34)	(44)

SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS [1] (Continued):

1	1 Unit	2 Aggregate	3 Div Hq Co, T/O & E 17-2 (8/12/44)	4 2 Hq & Hq Co CC (ea), T/O & E 17-20-1, C1, 2, 3)	5 Armd Sig Co, T/O & E 11-57 (C1, 2)	6 Armd Engr Bn, T/O & E 5-215 (C1)	7 Hq & Hq Co, T/O & E 5-216	8 3 Engr Cos (ea), T/O & E 5-217 (C1)	9 Cav Ren Sq, T/O & E 2-25 (C1, 2)	10 4 Ren Trs (ea), T/O & E 2-27 (7/15/43, C1, 2)	11 Aslt Gun Tr, T/O & E 2-28 (C1, 2)	12 Tk Co (L), T/O & E 17-17 (C1, 2, 3)	13 Hq & Serv Tr, T/O & E 2-26 (C1, 2)	14 3 Tank Bns (ea), T/O & E 17-25 (C1, 2, 3, 4, 5)	15 Tank Co (L), T/O & E 17-17 (C1, 2, 3)	16 3 Tank Cos (M) (ea), T/O & E 17-27 (C1, 2, 3)	17 Hq & Hq Co, T/O & E 17-26 (C1, 2, 3, 4)	18 Serv Co, T/O & E 17-29 (C1, 2, 3)
	TRAILERS																	
48	¼-ton, cargo	91		2											(2)	(2)	(15)	(3)
49	1-ton, cargo	378	3	2	10	24	(12)	(4)	34 [1]	(5)	(1)	(1)	(12)	26 [1]	(1)	(1)	(3)	(20)
50	1-ton, ammunition, M-10	192		1		2	(2)		14		(12)		(2)	17			(4)	(13)
51	1-ton, 250-gallon, water	6																
52	Signal, K-52	6			6													
53	Utility, 2½-ton, Type I	9				9		(3)										
54	8-ton, low bed	3				3		(1)										
55	40-ton, Tk recovery	9																
56	Welder equipment, Trk Mtd	1				1	(1)											
57	TOTAL TRAILERS	695 [1]	3	5	16	39	(15)	(8)	48 [1]	(5)	(13)	(1)	(14)	70 [1]	(3)	(3)	(22)	(36)
58	Airplanes, liaison	8																
59	TOTAL CONVEYANCES, ALL TYPES	2,774 [1]	37 [1]	26	78	149	(56)	(31)	297 [1]	(45)	(35)	(23)	(59)	239 [1]	(25)	(26)	(56)	(80)

SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS [1] (Continued):

1	1	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	Unit	3 Armd Inf Bns (ea), T/O & E 7-25 (C1, 2, 3, 4)	3 Rifle Cos (ea), T/O & E 7-27 (C1, 2, 3)	Hq & Hq Co, T/O & E 7-26 (C1, 2, 3, 4, 5)	Serv Co, T/O & E 7-29 (C1, 2, 3)	Armd Div Arty,[1] T/O & E 6-160 (C1)	Hq & Hq Btry, Armd Div Arty,[1] T/O & E 6-160-1 (2/12/44, C1, 2, 3)	3 Armd FA Bns (ea), T/O & E 6-165 (C1, 2, 3)	3 Btrys 105-mm (ea), T/O & E 6-167 (C1, 2, 3)	Hq & Hq Btry, T/O & E 6-166 (C1, 2, 3, 4)	Serv Btry, T/O & E 6-169 (C1, 2, 3)	Hq & Hq Co Armd Div Tns, T/O & E 17-60-1 (C1, 2, 3, 4)[4]	Ord Maint Bn, T/O & E 9-65	3 Maint Cos (ea), T/O & E 9-67	Hq & Hq Co, T/O & E 9-66 (C1)	Armd Med Bn, T/O & E 8-75	Med Cos (ea), T/O & E 8-77 (C1, 2)	Hq & Hq Co, T/O & E 8-76
	PASSENGER CARS, AMBULANCES, AND TRUCKS ¼-TON and ¾-TON																	
2	Ambulance, ¾-ton	1[1]		(1)		3[1]		(1)[1]		(1)[1]		1				30	(10)	
3	Car, medium, 5-passenger	28[1]	(3)	(16)[1]	(3)	74[1]	(8)[1]	22[1]	(3)	(10)[1]	(3)	34	24[1]	(5)	(9)[1]	10	(2)	(4)
4	Truck, ¼-ton	1			(1)	6		(2)			(2)		3		(3)	8	(2)	(2)
5	Truck, ¾-ton, Comd	3[1]		1	(2)	29	(8)	(7)		(4)	(3)	13	18[1]	(5)	(3)[1]	7	(2)	(1)
6	Truck, ¾-ton, Wpn Carr																	
7	SUB-TOTAL	33[1]	(3)	(18)[1]	(6)	112[1]	(16)[1]	(32)[1]	(3)	(15)[1]	(8)	48	45[1]	(10)	(15)[1]	55	(16)	(7)
	TRUCKS, 2½-TON																	
8	Ammunition	4			(4)	27		(9)			(9)		38	(6)	(20)			
9	Cargo, Ord Spare Parts																	
10	Dump																	
11	Equipment and Supply (includes Engr and Sig)	3			(3)	15		(5)			(5)		4		(4)	1		(1)
12	Fuel and Lube	8	(2)	(1)	(1)	16	(1)	(5)	(1)	(1)	(1)	2	4	(1)	(1)	4	(1)	(1)
13	Kitchen	3			(3)	10	(1)[3]	(3)			(3)	1				2		(2)
14	Maintenance (includes AP maint)															8	(2)	(2)
15	Medical Supply												29	(3)	(5)			
16	Ordnance Special Repair	1			(1)	5	(2)	(1)			(1)	6	19	(5)	(4)			
17	Personnel and Equipment																	
18	Radio	1			(1)	3		(1)			(1)		1		(1)	1		(1)
19	Ration																	
20	Sig Corps Repair																	

SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS [1] (Continued):

1	Unit	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
		3 Armd Inf Bns (ea), T/O & E 7–25 (C1, 2, 3, 4)	3 Rifle Cos (ea), T/O & E 7–27 (C1, 2, 3)	Hq & Hq Co, T/O & E 7–26 (C1, 2, 3, 4, 5)	Serv Co, T/O & E 7–29 (C1, 2, 3)	Armd Div Arty,[1] T/O & E 6–160 (C1)	Hq & Hq Btry, Armd Div Arty,[1] T/O & E 6–160–1 (2/12/44, C1, 2, 3)	3 Armd FA Bns (ea), T/O & (6–165 (C1, 2, 3)	3 Btrys 105-mm (ea), T/O & E 6–167 (C1, 2, 3)	Hq & Hq Btry, T/O & E 6–160 (C1, 2, 3, 4)	Serv Btry, T/O & E 6–169 (C1, 2, 3)	Hq & Hq Co Armd Div Tns, T/O & E 17–60–1 (C1, 2, 3, 4)[4]	Ord Maint Bn, T/O & E 9–65	3 Maint Cos (ea), T/O & E 9–67	Hq & Hq Co, T/O & E 9–66 (C1)	Armd Med Bn, T/O & E 8–75	Med Cos (ea), T/O & E 8–77 (C1, 2)	Hq & Hq Co, T/O & E 8–76
21	Signal Supply Div																	
22	Water	1			(1)	3		(1)			(1)		1		(1)	1		(1)
23	Wire					1	(1) [3]											
24	SUB-TOTAL	21	(2)	(1)	(14)	80	(5)	(25)	(1)	(1)	(21)	9	96	(20)	(36)	17	(3)	(8)
	VEHICLES, HEAVY, NON-COMBAT																	
25	Truck, heavy wrecking, M-1	1			(1)	3		(1)			(1)		11	(3)	(2)			
26	Truck, 6-ton, treadway bridge																	
27	Truck, 40-ton, Tk recovery												9	(3)				
28	Vehicle, Tk recovery, M-32, wo/Arm	1			(1)	6		(2)			(2)							
29	Vehicle, Tk recovery, L, wo/Arm																	
30	SUB-TOTAL	2			(2)	9		(3)			(3)		20	(6)	(2)			
	MISCELLANEOUS																	
31	Apparatus, decontaminating (4-ton 6 x 6)												3	(1)				
32	Compressor, air, Trk Mtd																	
33	Tractor, crawler type, 35 DBHP [2]																	
34	Truck, surgical															6	(2)	
35	SUB-TOTAL												3	(1)		6	(2)	

SUMMARY OF ORGANIC TRANSPORTATION, ARMORED DIVISIONS [1] (Continued):

	1	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	COMBAT VEHICLES																	
36	Car, Armd Utility, M-20 wo/Arm					1	(1)											
37	Car, Armd M8, w/Arm																	
38	Car, H-T wo/Arm, Amb																	
39	Carrier, personnel, H-T M3A2, wo/Arm	72	(20)	(11)	(1)	90		(30)	(7)	(9)		3	4	(1)	(1)	4	(1)	(1)
40	Carrier, H-T, 81-mm, M21, w/Arm	3		(3)														
41	Carriage Motor, 75-mm How, Assault gun																	
42	Carriage Motor, 105-mm How (Artillery), M7					54		(18)	(6)									
43	Tank, (M) 105-mm How, w/Arm	3		(3)														
44	Tank, (L) w/Arm																	
45	Tank, (M) w/Arm, 75mm Gun					9		(3)		(3)								
46	SUB-TOTAL	78 [1]	(20)	(17)	(1)	154 [1]	(1) [1]	51 [1]	(13)	(12)		3	4	(1)	(1)	4	(1)	(1)
47	TOTAL SELF-PROPELLED MOTOR VEHICLES	134	(25)	(36)	(23)	355 [1]	(22) [1]	(111) [1]	(17)	(28)	(32)	60	168	(38)	(54)	82	(22)	(16)
	TRAILERS																	
48	¼-ton, cargo					6 [1]	(3) [1]	(1)		(1)		3						
49	1-ton, cargo	21 [1]	(3)	(2)	(10)	67 [1]	(4) [1]	21 [1]	(2)	(3)	(12)	9	66	(12)	(30)	17	(3)	(8)
50	1-ton, ammunition, M-10	8		(4)	(4)	99		(33)	(8)		(9)					6	(2)	
51	1-ton, 250-gallon, water																	
52	Signal, K-52																	
53	Utility, 2½-ton, Type I																	
54	8-ton, low bed																	
55	40-ton, Tk recovery												9	(3)				
56	Welder equipment, Trk Mtd																	
57	TOTAL TRAILERS	29 [1]	(3)	(6)	(14)	172	(7) [1]	55 [1]	(10)	(4)	(21)	12	75	(15)	(30)	23	(5)	(8)
58	Airplaines, liaison					8	(2)	(2)		(2)								
59	TOTAL CONVEYANCES, ALL TYPES	163 [1]	(28)	(42)	(37)	535 [1]	(31) [1]	168 [1]	(27)	(34)	(53)	72	243 [1]	(53)	(84)	105	(27)	(24)

[1] Includes Atchd Medical. All T/O & E's dated 9/15/43 except as noted.
[2] Carried on Trailer, Low Bed, 8-ton, on march.
[3] SWB.
[4] Includes MP Plat.

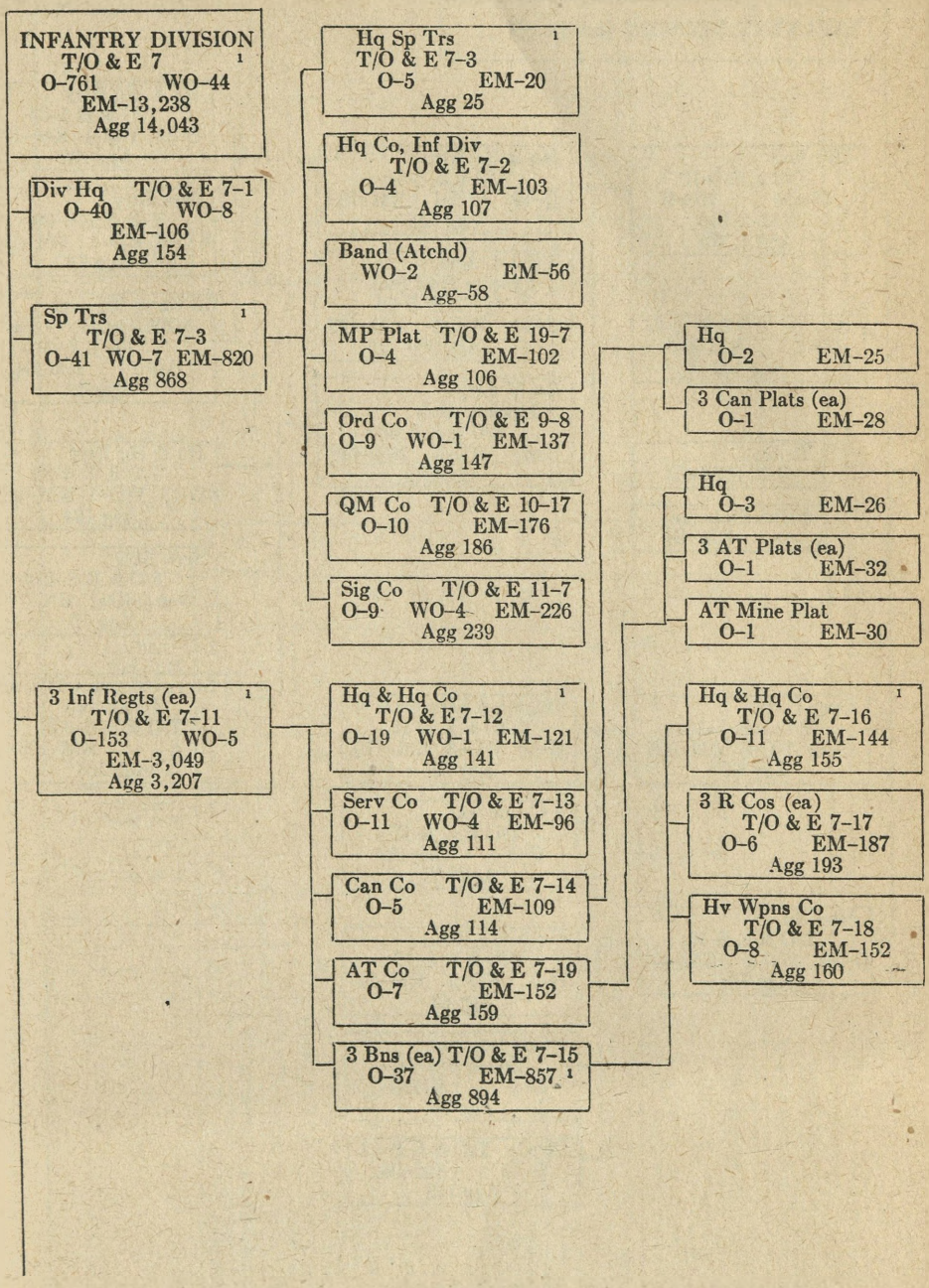
■ 119. TABLE OF ORGANIZATION AND EQUIPMENT No. 7 (*15 July 1943*, C1) (For Reference only):

INFANTRY DIVISION

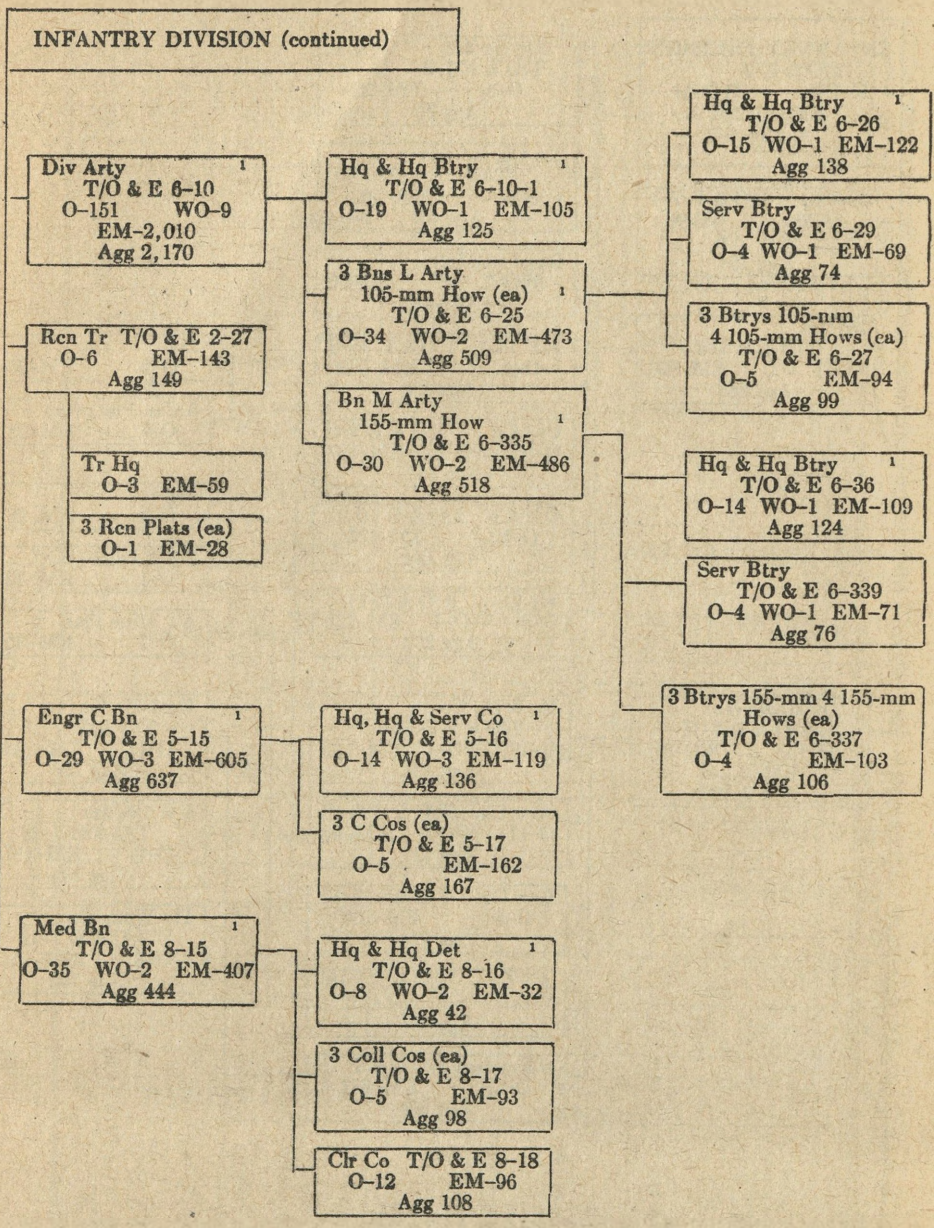
Designation ---------- Infantry Division

1	Unit	Div Hq T/O & E, 7-1 (7/15/43, C1, 2, 3, 4)	Sp Tr T/O & E 7-3 (7/15/43, C1, 2, 3, 4)															
			Hq Sp Tr	Hq Co Inf Div, T/O & E, 7-2 (7/15/43, C1, 2, 3, 4, 5)	MP Plat, T/O & E, 19-7 (9/12/44)	Ord L Maint Co, T/O & E 9-8 (7/15/43, C1)	QM Co, T/O & E 10-17 (9/19/44, C1)	Sig Co, T/O & E 11-7 (12/11/43, C1, 2)	8 Inf Regts (each), T/O E& 7-11 (2/26/44, C1)	Div Arty, T/O & E 6-10 (2/26/44, C1)	Cav Recn Tr Mect, T/O & E 2-27 (7/15/43, C1, 2)	Engr Bn, T/O & E 5-15 (3/15/44, C1)	Med Bn, T/O & E 8-15 (7/15/43, C1, 2, 3, 4)	Total Div	Atchd Med	Atchd Chap	Atchd Band	Aggregate
2	Major general	1												1				1
3	Brigadier general	1								1				2				2
4	Colonel	1							1	1				5				5
5	Lieutenant colonel	11	1			1	1	1	4	5		1	1	34				34
6	Major	8			1	1	1	1	6	11		2	2	45	5			50
7	Major or captain	1												1				1
8	Captain	12	1	2		2	3	1	28	42	1	7	5	160				160
9	Captain or first lieutenant												17	17	26	11		54
10	First lieutenant	4		1	2	3	3	5	59	62	2	11	6	276	9	2		287
11	Second lieutenant	1		1	1	2	2	1	42	21	3	6	3	167				167
12	TOTAL COMMISSIONED	40	2	4	4	9	10	9	140	143	6	27	34	708	40	13		761
13	Warrant officer	8				1		4	5	9		3	2	42			2	44
14	Master sergeant	10				1	1	3	5	10		3	1	44				44
15	First sergeant			1		1	1	1	19	21	1	4	4	91				91
16	Technical sergeant	6	1	1		4	2	8	64	18	1	6	4	243	5		2	250
17	Staff sergeant	4	1	5	2	8	7	11	241	104	7	25	21	918	15		2	935
18	Sergeant	8	1	2	10	6	11	10	205	96	8	32	23	822	4			826
19	Corporal	1		4	9	2	18	2	93	233	11	32	13	604	14			618
20	Technician, grade 3	10				6		8		5			9	38	33			71
21	Technician, grade 4	37		7	1	23	7	34	83	154	17	50	31	610	43		14	667
22	Technician, grade 5	27	2	18	1	44	41	68	148	308	41	119	58	1171	93		16	1280
23	Private, first class	3	1	28	38	15	40	35	1479	457	26	145	113	5338	106		22	5466
24	Private, including		1	37	41	27	48	46	586	553	31	174	130	2846	144			2990
25	Basic			(10)	(4)	(13)		(11)	(219)	(104)	(7)	(29)	(22)	(866)	(40)			(906)
26	TOTAL ENLISTED	106	7	103	102	137	176	226	2923	1959	143	590	407	12725	457		56	13238
27	AGGREGATE	154	9	107	106	147	186	239	3068	2111	149	620	443	13475	497	13	58	14043

■ 120. INFANTRY DIVISION—DIAGRAM (For computations involving Personnel):



INFANTRY DIVISION—DIAGRAM (Continued):



[1] Totals include attached medical and chaplains.

■ 121. SUMMARY OF ARMAMENT—INFANTRY DIVISION (For computation involving Armament):

1	Unit	2 .30 cal Carbine	3 .30 cal MG, H	4 .30 cal MG, L	5 .30 cal Rifle, automatic	6 .30 cal Rifle, M1	7 .30 cal Rifle, M1903	8 .30 cal Rifle, M1903A4	9 .45 cal, SMG	10 .45 cal Pistol	11 .50 cal MG, HB, flexible	12 57-mm Gun	13 57-mm Gun, Towed	14 2.36" Launcher, Rocket	15 60-mm Mortar	16 81-mm Mortar	17 105-mm Howi, M2A1	18 105-mm Howi, M3	19 155-mm Howi,	20 Grenade Launcher
2	Total Div	5,221	90	134	405	6,238	31	81	266	1,225	236	13	57	558	90	54	36	18	12	2,131
3	Div Hq T/O & E 7-1, (7/15/43, C1, 2, 3, 4)	108				17				17										
4	Sp Trs T/O & E 7-3 (7/15/43, C1, 2, 3, 4:) Hq, Sp Tr	8								1										
5	Hq Co Inf Div, T/O & E 7-2, (7/15/43, C1, 2, 3, 4, 5)	102				50				13	3		3	6						53
6	MP Plat Inf Div, T/O & E 19-7, (9/12/44)	79				26				1										52
7	Ord L Maint Co, T/O & E 9-8, (7/15/43, C1)	102					31		12	2	5			5						6
8	QM Co Inf Div, T/O & E 10-17, (2/19/44, C1)	143				41				2	13			5						89
9	Sig Co Inf Div, T/O & E 11-7 (12/11/43 C1, 2)	153				49			35	2	6			6						100
10	3 Inf Regt (ea), T/O & E 7-11, (2/26/44, C1)	836	24	36	135	1,831		27	63	293	35		18	112	27	18		6		544
11	Hq & Hq Co Inf Regt, T/O & E 7-12, (2/26/44, C1)	(24)				76			(3)	(4)	(2)			(4)						(14)
12	Serv Co Inf Regt, T/O & E 7-13, (2/26/44, C1)	(30)				(80)				(1)	(9)			(8)						(37)
13	Inf Can Co, T/O & E 7-14, (2/26/44, C1,2)	(77)				(37)					(3)			(4)				(6)		(19)
14	Inf AT Co, 57-mm Gun, T/O & E 7-19 (2/26/44, C1)	(48)				(66)				(45)	(3)		(9)	(9)						(18)
15	3 Inf Bn (ea), T/O & E 7-15, (7/15/43, C1)	(219)	(8)	(12)	(45)	(524)		(9)	(20)	(81)	(6)		(3)	(29)	9	6				(152)
16	Hq & Hq Co Inf Bn, T/O & E 7-16, (2/26/44, C1)	(53)		(6)		(51)			(2)	(17)	(2)		(3)	(8)						(11)
17	3 Inf R Co (ea), T/O & E 7-17, (2/26/44, C1)	(28)		(2)	(15)	(143)		(3)	(6)	(10)	(1)			(5)	(3)					(37)
18	Inf Hv Wpns Co, T/O & E 7-18, (2/26/44, C1)	(82)	(8)			(44)				(34)	(1)			(6)		(6)				(30)
19	Div Arty Mtz Inf Div, T/O & E 6-10, (2/26/44, C1)	1,806								305	89			166			36		12	48
20	Hq & Hq Btry Div Arty, T/O & E 6-10-1, (7/15/43, C1, 2, 3, 4, 5)	(85)								(29)	(5)			(6)						(2)

SUMMARY OF ARMAMENT—INFANTRY DIVISION (Continued):

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	3 FA Bn 105-mm How (ea), T/O & E 6-25, (7/15/43, C1, 2, 3, 4)	(428)								(69)	(21)			(40)			(12)			(12)
22	Hq & Hq Btry FA Bn 105-mm How, T/O & E 6-26, (7/15/43, C1, 2, 3, 4, 5, 6)	(99)								(27)	(5)			(6)						(6)
23	3 FA Btry 105-mm How (ea), T/O & E 6-27, (7/15/43, C1, 2, 3, 4, 5, 6)	(89)								(10)	(4)			(8)			(4)			(2)
24	Serv Btry FA Bn 105-mm How, T/O & E 6-29, (7/15/43, C1, 2, 3, 4, 5)	(62)								(12)	(4)			(10)						
25	FA Bn 155-mm How, T/O & E 6-335, (7/3/43, C1, 2, 3, 4)	(437)								(69)	(21)			(40)					(12)	(10)
26	Hq & Hq Btry FA Bn 155-mm How, T/O & E 6-36, (7/15/43, C1, 2, 3, 4, 5, 6, 7, 8)	(86)								(26)	(5)			(6)						(4)
27	3 FA Btry Mtz 155-mm How (ea), T/O & E 6-337, (7/3/43, C1, 2, 3, 4, 5, 6)	(96)								(10)	(4)			(8)					(4)	(2)
28	Serv Btry Mtz FA Bn 155-mm How, T/O & E 6-339. (7/15/43, C1, 2, 3, 4)	(63)								(13)	(4)			(10)						
29	Cav Rcn Tr Mecz, T/O & E 2-27, (7/15/43, C1,2)	147		26[3]		26			30		3	13[3]		5	9					(40)
30	Bn Engr C, T/O & E 5-15, (3/13/44, C1)	65	18			536			16	3	12			29						111
31	Hq & Hq Serv Co Engr C Bn, T/O & E 5-16, (3/13/44, C1)	(29)				(83)			(4)	(3)	(3)			(2)						(39)
32	3 Engr C Co (ea), T/O & E 5-17, (3/13/44, C1)	(12)	(6)			(151)			(4)		(3)			(9)						(24)
33	Med Bn, T/O & E 8-15, (7/15/43, C1, 2, 3, 4)																			
34	Hq & Hq Det Med Bn, T/O & E 8-16, (7/15/43, C1, 2, 3)																			
35	3 Coll Co Med Bn (ea), T/O & E 8-17, (7/15/43, C1)																			
36	Clr Co Med Bn, T/O & E 8-18 (7/15/43, C1)																			

[1] Includes Atchd Band.
[2] Includes 13-30 Cal MG, L mounted on Car Armored, Light M8.
[3] Mounted on Car Armored, Light M8.

■ 122. SUMMARY OF ORGANIC TRANSPORTATION—INFANTRY DIVISION [1] (For computations involving Vehicles):

1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			Sp Trs T/O & E 7-3 (7/15/43, C1, 2, 3, 4)												
1	*Vehicle and Normal Use*	*Total Div*	*Hq Sp Trs*	*Hq Co, Inf Div, T/O & E 7-2 (7/15/43, C1, 2, 3, 4, 6)*	*MP Plat Inf Div, T/O & E 19-7 (9/12/44)*	*Ord L Maint Co, T/O & E 9-8 (7/15/43, C1)*	*QM Co Inf Div, T/O & E 10-17 (8/19/44, C1)*	*Sig Co Inf Div, T/O & E 11-7 (12/11/43, C1, 2)*	*3 Inf Regt (ea), T/O & E 7-11 (2/26/44, C1)*	*Hq & Hq Co Inf Regt, T/O & E 7-12 (2/26/44, C1)*	*Serv Co Inf Regt, T/O & E 7-13 (2/26/44, C1)*	*Inf Can Co, T/O & E 7-14 (2/26/44, C1, 2)*	*Inf AT Co, 57-mm Gun, T/O & E 7-19 (2/26/44, C1)*	*3 Inf Bn (ea), T/O & E 7-15 (7/15/43, C1)*	*Hq & Hq Co Inf Bn, T/O & E 7-16 (2/26/44, C1)*
	PASSENGER CARS, AMBULANCES & TRUCKS, ¼ and ¾-TON														
2	Ambulance, ¾-ton	30													
3	Car, 5-passenger, medium	1		1											
4	Truck, ¼-ton, 4x4	634	1	16	23	7	6	16	139	(19)	(6)	(6)	(6)	(34)	(9)
5	Truck, ¾-ton 4x4, command	8	1	6		1									
6	Truck, ¾-ton, weapon carrier	208		1	4	4	2	19	12	(1)	(2)	(1)	(2)	(2)	(1)
7	Truck, Atchd Ch & Med, ¼-ton	25							7	(4)				(1)	(1)
8	Truck, Atchd Med, ¾-ton, weapon carrier	15	1						3					(1)	(1)
9	SUB-TOTAL	921	3	24	27	12	8	35	161	(24)	(8)	(7)	(8)	(38)	(12)
	TRUCKS, 1½-TON														
10	Ammunition and Pioneer tools	9							3					(1)	(1)
11	Antitank mines	6							2				(2)		
12	Command and Operation	4						1	1				(1)		
13	Kitchen	2													
14	Personnel and Orgn equipment	5		2					1			(1)			
15	Prime mover (57-mm Gun or 105-mm How)	75		3					24			(6)	(9)	(3)	(3)
16	Signal Communication	3						3							
17	Unit Maintenance														
18	Attached medical	1													
19	SUB-TOTAL	105		5				4	31			(7)	(12)	(4)	(4)
	TRUCKS, 2½-TON (Short Wheel-base)														
20	Ammunition	30													
21	Unit maintenance	9													
22	Prime mover (105-mm How)	36													
23	Signal communication	6													
24	SUB-TOTAL	81													
	TRUCKS, 2½-TON (Long Wheel-base)														
25	Ammunition	52							9		(6)	(3)			
26	Antitank mines	2													
27	Assault boats	1													
28	Cargo (general purpose)	48					48								
29	Command and operation	9				1	1	1							
30	Kitchen	91		2		1	1	1	19		(19)				
31	Medical supply	3													
32	Personnel and Orgn Equip	19						2	2		(2)				
33	Platoon tools	9													
34	Service maintenance	15				12		3							
35	Shop, Mtz, general purpose	1													
36	Signal communication	13						10	1	(1)					
37	Squad tools & personnel (dump Trks)	27													
38	Unit maintenance	13					1		2		(2)				
39	Water supply	3													
40	Attached medical	3							1	(1)					
41	SUB-TOTAL	309		2		14	51	17	34	(2)	(29)	(3)			

SUMMARY OF ORGANIC TRANSPORTATION—INFANTRY DIVISION [1] (Continued):

1	16 3 Inf R Co (ea), T/O & E 7-17 (8/26/44, C1)	17 Inf Hv Wpns Co, T/O & E 7-18 (8/26/44, C1)	18 Div Arty Mtz Inf Div, T/O & E 6-10 (8/26/44, C1)	19 Hq & Hq Bty Div Arty, T/O & E 6-10-1 (7/15/43, C1, 2, 3, 4, 5)	20 3 FA Bn 105-mm How (ea), T/O & E 6-25 (7/15/43, C1, 2, 3, 4)	21 Hq & Hq Bty FA Bn 105-mm How, T/O & E 6-26 (7/15/43, C1, 2, 3, 4, 5)	22 3 FA Bty 105-mm How (ea), T/O & E 6-27 (7/15/43, C1, 2, 3, 4, 5, 6)	23 Serv Bty FA Bn 105-mm How, T/O & E 6-29 (7/15/43, C1, 2, 3, 4, 6)	24 FA Bn 155-mm How (1), T/O & E 6-335 (7/3/43, C1, 2, 3, 4, 5, 6)	25 Hq & Hq Bty FA Bn 155-mm How, T/O & E 6-36 (7/15/43, C1, 2, 3, 4, 5, 6, 7, 8)	26 3 FA Bty Mtz 155-mm How (ea), T/O & E 6-337 (7/3/43, C1, 2, 3, 4, 5, 6)	27 Serv Bty, Mtz FA Bn 155-mm How, T/O & E 6-339 (7/3/43, C1, 2, 3, 4)	28 Car Ken Tr Mez, T/O & E 9-27 (7/15/43, C1, 2)	29 Engr C Bn, T/O & E 5-15 (8/13/44, C1)	30 Hq & Hq Serv Co Engr C Bn, T/O & E 5-16 (8/13/44)	31 3 Engr C Co (ea), T/O & E 5-17 (8/13/44, C1)	32 Med Bn, T/O & E 8-16 (7/15/43, C1, 2, 3, 4)	33 Hq & Hq Det Med Bn, T/O & E 8-16, (7/15/43, C1, 2, 3, 4)	34 3 Coll Co Med Bn (ea), T/O & E 8-17 (7/15/43, C1, 2, 3)	35 Clr Co Med Bn, T/O & E 8-18 (7/15/43, C1, 2)
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30	.....	(10)	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	(2)	(19)	99	(6)	(25)	(11)	(4)	(2)	(18)	(7)	(3)	(2)	24	16	(4)	(4)	9	(2)	(2)	(1)
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	(1)	(114)	(10)	(26)	(11)	(4)	(3)	(26)	(11)	(4)	(3)	.....	13	(7)	(2)	15	(2)	(4)	(1)
7	.....	.....	4	.....	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	.....	.....	5	(1)	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	(2)	(20)	222	(17)	(53)	(24)	(8)	(5)	(46)	(20)	(7)	(5)	24	29	(11)	(6)	54	(4)	(16)	(2)
10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	(2)
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	2	.....	.....	(2)
20	.....	.....	30	.....	(9)	.....	(2)	(3)	(3)	.....	.....	(3)	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	.....	9	(1)	(2)	.....	.....	(2)	(2)	.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....
22	.....	.....	36	.....	(12)	.....	(4)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	.....	.....	6	(2)	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....	.....	81	(3)	(24)	(1)	(6)	(5)	(6)	(1)	.....	(5)	.....	.....	.....	.....	.....	.....	.....	.....
25	.....	.....	24	.....	(6)	.....	.....	(6)	(6)	.....	.....	(6)	.....	1	(1)	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	(2)	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	.....	.....	6	(2)	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	21	(1)	(5)	(1)	(1)	(1)	(5)	(1)	(1)	(1)	1	4	(1)	(1)	3	.....	(1)	.....
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	(3)	.....	.....
32	.....	.....	4	.....	(1)	.....	.....	(1)	(1)	.....	.....	(1)	.....	.....	.....	.....	6	.....	.....	(6)
33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	(3)	.....	.....	.....	.....
34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27	.....	(9)	.....	.....	.....	.....
38	.....	.....	3	.....	.....	.....	.....	.....	(3)	.....	(1)	.....	.....	1	(1)	.....	2	(2)	.....	.....
39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	(3)	.....	.....	.....	.....	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	.....	.....	58	(3)	(13)	(2)	(1)	(8)	(16)	(2)	(2)	(8)	1	49	(10)	(13)	14	(5)	(1)	(6)

SUMMARY OF ORGANIC TRANSPORTATION—INFANTRY DIVISION [1] (Continued):

1	1 Vehicle and Normal Use	2 Total Div	3 Hq Sp Trs	4 Hq Co Inf Div, T/O & E 7-8 (7/15/43, C1, 2, 3, 4, 5)	5 MP Plat Inf Div, T/O & E 19-7 (9/12/44)	6 Ord Co Inf Div, T/O & E 9-8 (7/15/43, C1)	7 QM Co Inf Div, T/O & E 10-17 (2/19/44, C1)	8 Sig Co Inf Div, T/O & E 11-7 (12/11/43, C1, 2)	9 3 Inf Regt (ea), T/O & E 7-11 (2/26/44, C1)	10 Hq & Hq Co Inf Regt, T/O & E 7-12 (2/26/44, C1)	11 Serv Co Inf Regt, T/O & E 7-13 (2/26/44, C1)	12 Inf Can Co, T/O & E 7-14 (2/26/44, C1, 2)	13 Inf AT Co, 57-mm Gun, T/O & E 7-19 (2/26/44, C1)	14 3 Inf Bn (ea), T/O & E 7-15 (7/15/43, C1, 2, 3)	15 Hq & Hq Co Inf Bn, T/O & E 7-16 (2/26/44, C1)
	Sp Trs T/O & E 7-3 (7/15/43, C1, 2, 3, 4)														
	TRUCKS, 4-TON, 6-TON, AND 10-TON														
42	4-ton wrecker	4				2									
43	6-ton prime mover for Tlr low bed, 20-ton	3													
44	10-ton wrecker, M1	1				1									
45	SUB-TOTAL	8				3									
	COMBAT VEHICLES														
46	Car, Armd, L, M8, w/Armt	13													
47	Carrier, half-track, M3A1, wo/Armt	5													
48	SUB-TOTAL	18													
	MISCELLANEOUS VEHICLES														
49	Compressor, air, motorized, truck mounted	4													
50	Tractor, diesel, engine driven, 55-65 DBHP [2]	3													
51	Tractor, medium, M5	18													
52	SUB-TOTAL	25													
53	Total self-propelled, wheeled, vehicles	1,467	3	31	27	29	59	56	226	(26)	(37)	(17)	(20)	(42)	(16)
	AIRPLANES														
54	Liaison	10													
	TRAILERS, 1-TON, CARGO														
55	Ammunition	19							6			(3)		(1)	(1)
56	Antitank mines	8							2				(2)		
57	Cargo (general purpose)	48					48								
58	Command and operation	9				1	1	2							
59	Kitchen	90		2		1	1	1	19		(19)				
60	Medical supply	3													
61	Organizational equipment	15		2				2							
62	Platoon tools	9													
63	Service maintenance	14				11		3							
64	Signal communication	13						10	1	(1)					
65	Unit maintenance	9													
66	Water supply	3													
67	Attached medical	1													
68	SUB-TOTAL	241		4		13	50	18	28	(1)	(19)	(3)	(2)	(1)	(1)
	MISCELLANEOUS TRAILERS														
69	Ammunition, 4-ton	6													
70	Ammunition, M10	57													
71	Cargo, ¼-ton	284	1						70	(4)				(22)	(2)
72	Semi-Tlr, low bed, 20-ton	3													
73	Signal, K-52	1						1							
74	Utility, pole type, 2½-ton	10													
75	Water tank, 250-gallon	5													
76	Welding Set No. 1	1													
77	Atchd Ch & Med, ¼-ton	27	1						7	(4)				(1)	(1)
78	SUB-TOTAL	394	2					1	77	(8)				(23)	(3)
79	TOTAL TRAILERS	635	2	4		13	50	19	105	(9)	(19)	(3)	(2)	(24)	(4)
80	TOTAL VEHICLES	2,112	5	35	27	42	109	75	331	(35)	(56)	(20)	(22)	(66)	(20)

SUMMARY OF ORGANIC TRANSPORTATION—INFANTRY DIVISION [1] (Continued):

1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	3 Inf R Co (ea), T/O & E 7-17 (2/26/44, C1)	Inf Hv Wpns Co, T/O & E 7-18 (2/26/44, C1)	Div Arty Mtr Inf Div, T/O & E 6-10 (2/26/44, C1)	Hq & Hq Btry Div Arty, T/O & E 6-10-1 (7/15/43, C1, 2, 3, 4, 5)	3 FA Bn 105-mm How (ea), T/O & E 6-25 (7/15/43, C1, 2, 3, 4)	Hq & Hq Btry FA Bn 105-mm How, T/O & E 6-26 (7/15/43, C1, 2, 3, 4, 5)	3 FA Btry 105-mm How (ea), T/O & E 6-27 (7/15/43, C1, 2, 3, 4, 5, 6)	Serv Btry FA Bn 105-mm How, T/O & E 6-29 (7/15/43, C1, 2, 3, 4, 5)	FA Bn 155-mm How T/O & E 6-535 (7/8/43, C1, 2, 3, 4, 5, 6)	Hq & Hq Btry FA Bn 155-mm How, T/O & E 6-36 (7/15/43, C1, 2, 3, 4, 5, 6, 7, 8)	3 FA Btry Mtz 155-mm How (ea), T/O & E 6-337 (7/8/43, C1, 2, 3, 4, 5, 6)	Serv Btry FA Bn 155-mm How, T/O & E 6-339 (7/8/43, C1, 2, 3, 4)	Can Ron Tr Mecz, T/O & E 2-27 (7/15/43, C1, 2)	Engr C Bn, T/O & E 5-15 (3/13/44, C1)	Hq & Hq Serv Co Engr C Bn, T/O & E 5-16 (3/13/44)	3 Engr C Co (ea), T/O & E 5-17 (3/13/44)	Med Bn, T/O & E 8-16 (7/15/43, C1, 2, 3, 4)	Hq & Hq Det Med Bn, T/O & E 8-16 (7/15/43, C1, 2, 3, 4)	3 Coll Co Med Bn (ea), T/O & E 8-17 (7/15/43, C1, 2, 3)	Clr Co Med Bn, T/O & E 8-18 (7 15 43, C1, 2)
42	.....	.....	1	.....	.....	.....	.....	.....	(1)	.....	.....	(1)	.....	1	(1)	.....	.....	.....	.....	.....
43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	(1)	.....	.....	.....	.....
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	1	.....	.....	.....	.....	.....	(1)	.....	.....	(1)	.....	4	(1)	(1)	.....	.....	.....	.....
46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	.....	.....	.....	.....	.....	.....	.....
47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....
48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	.....	.....	.....	.....	.....	.....	.....
49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	(1)	(1)	.....	.....	.....	.....
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	(1)	.....	.....	.....	.....
51	.....	.....	18	.....	.....	.....	.....	.....	(18)	.....	(6)	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	.....	.....	18	.....	.....	.....	.....	.....	(18)	.....	(6)	.....	.....	7	(1)	(2)	.....	.....	.....	.....
53	(2)	(20)	380	(23)	(90)	(27)	(15)	(18)	(87)	(23)	(15)	(19)	43	91	(25)	(22)	70	(9)	(17)	(10)
54	.....	.....	10	(2)	(2)	(2)	.....	.....	(2)	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	(2)	.....	.....	.....	.....	.....
57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	.....	.....	5	(2)	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	.....	.....	21	(1)	(5)	(1)	(1)	(1)	(5)	(1)	(1)	(1)	1	4	(1)	(1)	2	.....	.....	(2)
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	(3)	.....	.....
61	.....	.....	3	.....	(1)	.....	.....	(1)	(1)	.....	.....	(1)	3	1	(1)	.....	4	.....	.....	(4)
62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	(3)	.....	.....	.....	.....
63	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	7	(1)	(1)	.....	.....	(1)	(1)	.....	.....	(1)	1	1	(1)	.....	.....	.....	.....	.....
66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	(3)	.....	.....	.....	.....	.....
67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
68	.....	.....	36	(4)	(8)	(2)	(1)	(3)	(8)	(2)	(1)	(3)	5	22	(10)	(4)	9	(3)	.....	(6)
69	.....	.....	6	.....	.....	.....	.....	.....	(6)	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	.....	.....	57	.....	(15)	.....	(2)	(9)	(12)	.....	(1)	(9)	.....	.....	.....	.....	.....	.....	.....	.....
71	(2)	(14)	58	(3)	(15)	(5)	(3)	(1)	(10)	(3)	(2)	(1)	.....	9	.....	(3)	6	.....	(2)	.....
72	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	(1)	.....	.....	.....	.....
73	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
74	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	(1)	(3)	.....	.....	.....	.....
75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	(1)	(2)
76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	(1)	.....	.....	.....	.....	.....
77	.....	.....	15	(1)	(1)	(1)	.....	.....	(1)	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
78	(2)	(14)	126	(4)	(31)	(6)	(5)	(10)	(29)	(4)	(5)	(10)	.....	23	(2)	(7)	11	.....	(3)	(2)
79	(2)	(14)	162	(8)	(39)	(8)	(6)	(13)	(37)	(6)	(7)	(13)	5	45	(12)	(11)	20	(3)	(3)	(8)
80	(4)	(34)	552	(33)	(131)	(37)	(21)	(31)	(126)	(31)	(21)	(32)	48	136	(37)	(33)	90	(12)	(20)	(18)

[1] Includes Atchd Med and Ch.
[2] Carried on Tlr, Low Bed, 20 ton.

SECTION VII
MISCELLANEOUS UNITS
ANTIAIRCRAFT ARTILLERY UNITS

■ 123. ORGANIZATION—ANTIAIRCRAFT ARTILLERY BRIGADE:[1]

1	1 Item	2 Hq & Hq Btry T/O & E 44-10-1 (10/20/44)	3 AAA Group[2]
2	Officers	14	
3	Warrant officers	2	
4	Enlisted men	63	
5	AGGREGATE	79	
6	.30 cal carbine	30	
7	.30 cal rifle, M-1	32	
8	.45 cal gun, submachine	11	
9	.45 cal pistol, automatic	6	
10	.50 cal gun, machine, HB, flexible	1	
11	Trailer, ¼-ton	3	
12	Trailer, 1-ton	3	
13	Truck, ¼-ton	4	
14	Truck, ¾-ton, weapons carrier	4	
15	Truck, 2½-ton, cargo	3	
16	TOTAL MOTOR VEHICLES	11	

[1]AAA Brig consists of Hq & Hq Btry AAA Brig, & 2 or more AAA Gps.
[2]See Par 124.

■ 124. ORGANIZATION—ANTIAIRCRAFT ARTILLERY GROUP:[1]

1	1 Item	2 Hq & Hq Btry T/O & E 44-12 (4/29/44, C1)[2]	3 AAA Bns[3]
2	Officers	13	
3	Enlisted men	60	
4	AGGREGATE	73	
5	.30 cal carbine	22	
6	.30 cal rifle, M-1	36	
7	.45 cal gun, submachine	10	
8	.45 cal pistol, automatic	5	
9	Trailer, ¼-ton	5	
10	Truck, ¼-ton	4	
11	Truck, ¾-ton, weapons carrier	5	
12	Truck, 2½-ton, cargo	1	
13	TOTAL MOTOR VEHICLES	10	

[1]AAA Gp consists of Hq & Hq Btry AAA Gp, and 2 or more AAA Bns.
[2]Includes Atchd Ch.
[3]See Pars 125-132, inclusive.

■ 125. ORGANIZATION—ANTIAIRCRAFT ARTILLERY AUTOMATIC WEAPONS BATTALION MOBILE, T/O 44-25 (4/22/44, C1, 2, 3):

1	1	2	3	4	5	6
1	*Item*	*Hq & Hq Btry, T/O & E 44-26 (4/22/44, C1, 2, 3)*	*4 AW Btrys (ea), T/O & E 44-27 (4/22/44, C1, 2)*	*Total*	*Atchd Med & Ch*	*Aggregate*
2	Officers	8	6	32	4	36
3	Warrant officers	3		3		3
4	Enlisted men	89	164	745	17	762
5	AGGREGATE	100	170	780	21	801
6	.30 cal carbine	25	17	93		93
7	.30 cal rifle, M-1	47	129	563		563
8	.45 cal gun, submachine	25	24	121		121
9	.45 cal pistol, automatic	3		3		3
10	.50 cal gun, machine, HB, flexible	2	5	22		22
11	40-mm gun, automatic		8	32		32
12	2.36" launcher, rocket		8	32		32
13	Mount Tlr, multiple, cal .50, machine gun, M55 [1]		8	32		32
14	Trailer, ¼-ton	12	1	16		16
15	Trailer, 1-ton	9	11	53		53
16	Truck, ¼-ton	12	3	24	1	25
17	Truck, ¾-ton, weapons carrier	4	2	12		12
18	Truck, 2½-ton, cargo	9	19	85	1	86
19	TOTAL MOTOR VEHICLES	25	24	121	2	123

[1]Trailer, Organic armament—4 cal .50 MG (AA).

■ 126. ORGANIZATION—ANTIAIRCRAFT ARTILLERY AUTOMATIC WEAPONS BATTALION SEMIMOBILE, T/O 44-125 (4/19/44, C1, 2, 3):

1	1 Item	2 Hq & Hq Btry, T/O & E 44-126 (4/19/44, C1, 2)	3 4 AW Btrys (ea) T/O & E 44-127 (4/19/44, C1, 2)	4 Total	5 Atchd Med & Ch	6 Aggregate
2	Officers	9	6	33	4	37
3	Warrant officers	2		2		2
4	Enlisted men	100	158	732	16	748
5	AGGREGATE	111	164	767	20	787
6	.30 cal, carbine	27	16	91		91
7	.30 cal, rifle, M-1	52	145	632		632
8	.45 cal, gun, submachine	29	3	41		41
9	.45 cal, pistol, automatic	3		3		3
10	.50 cal, gun, machine, HB, flexible	5		5		5
11	40-mm gun, automatic		8	32		32
12	2.36" launcher, rocket		8	32		32
13	Mount, Tlr, multiple, cal .50 machine gun, M55 [1]		8	32		32
14	Trailer, ¼-ton	6		6	1	7
15	Trailer, 1-ton	19	1	23		23
16	Truck, ¼-ton	8	1	12		12
17	Truck, ¾-ton, weapons carrier	2	1	6	1	7
18	Truck, 2½-ton, cargo	19	1	23		23
19	TOTAL MOTOR VEHICLES	29	3	41	1	42

[1] Trailer, Organic armament—4 cal .50 MG (AA).

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■ 127. ORGANIZATION—ANTIAIRCRAFT ARTILLERY AUTOMATIC WEAPONS BATTALION, SELF-PROPELLED, T/O 44-75 (4/19/44, C1):

1	1 Item	2 Hq & Hq Btry, T/O & E 44-76 (4/19/44)	3 4 AW Btrys (ea) T/O & E 44-77 (4/19/44)	4 Total	5 Atchd Med & Ch	6 Aggregate
2	Officers	9	6	33	4	37
3	Warrant officers	2		2		2
4	Enlisted men	106	136	650	13	663
5	AGGREGATE	117	142	685	17	702
6	.30 cal carbine	25	16	89		89
7	.30 cal gun, machine, light	2	2	10		10
8	.30 cal rifle, M1	58	101	462		462
9	.45 cal gun, submachine	31	25	131		131
10	.45 cal pistol, automatic	3		3		3
11	.50 cal gun, machine, HB, flexible, M2	6	3	18		18
12	Car, half-track w/o Arm	5	3	17		17
13	Carriage, motor, combination gun [1]		8	32		32
14	Carriage, motor, multiple gun [2]		8	32		32
15	Trailer, ammunition		8	32		32
16	Trailer, ¼-ton	9		9		9
17	Trailer, 1-ton, cargo	13	18	85		85
18	Truck, ¼-ton	12	4	28	1 [3]	29
19	Truck, ¾-ton, ambulance				1	1
20	Truck, ¾-ton, Wpn Carr				1	1
21	Truck, 2½-ton, cargo	13	2	21		21
22	Truck, Hv Wrecker, 10-ton, M1	1		1		1
23	TOTAL MOTOR VEHICLES	31	25	131	3	134

[1] Organic armament—2 cal .50 MG (AA); 1 37-mm gun (AA).
[2] Organic armament—4 cal .50 MG (AA).
[3] If Atzd by theater.

■ 128. ORGANIZATION—ANTIAIRCRAFT ARTILLERY GUN BATTALION, MOBILE, T/O 44-15 (4/22/44, C1, 2, 3) : [1]

1	*1*	*2*	*3*	*4*	*5*	*6*
1	*Unit*	*Hq & Hq Btry, T/O & E 44-16 (4/22/44)*	*4.2 Gun Btrys (ea) T/O & E 44-17 (4/22/44)*	*Total*	*Atchd Med & Ch*	*Aggregate*
2	Officers	9	4	25	4	29
3	Warrant officers	3		3		3
4	Enlisted men	97	146	681	13	694
5	AGGREGATE	109	150	709	17	726
6	.30 cal carbine	28	15	88		88
7	.30 cal rifle, M-1	57	114	513		513
8	.45 cal gun, submachine	21	22	109		109
9	.45 cal pistol, automatic	3		3		3
10	.50 cal gun, machine, AA		4	16		16
11	.50 cal gun, machine, HB, flexible, M-2	3	9	39		39
12	2.36" rocket launcher		2	8		8
13	90-mm gun, AA		4	16		16
14	Trailer, K78 or K75	1	1	5		5
15	Trailer, ¼-ton	4	6	28		28
16	Trailer, 1-ton	10	8	42		42
17	Trailer, generator, M7	1	2	9		49
18	Truck, ¼-ton	4	3	16	1	17
19	Truck, ¾-ton, weapons carrier	4	3	16		16
20	Truck, 2½-ton, cargo	10	8	42	1	43
21	Truck, 2½-ton, 15' special body	1	2	9		9
22	Truck, Hv Wrecker, 10-ton, M1	1		1		1
23	Truck, 4-5-ton, Tractor	1	1	5		5
24	Tractor, 18-ton, high speed		5	20		20
25	Detector unit	1	1	5		5
26	Generator Unit w/Tlr	1	3	13		13
27	TOTAL MOTOR VEHICLES	21	22	109	2	111

[1] Figures shown in this table are for Type A unit (equipped with SCR-584 and 90-mm gun mounts M2). For Type B unit (equipped with SCR-545) see T/O & E 44-15.

■ 129. ORGANIZATION—ANTIAIRCRAFT ARTILLERY GUN BATTALION SEMIMOBILE, T/O 44-115 (4/26/44, C1, 2, 3) :[2]

	1	2	3	4	5	6
1	*Unit*	*Hq & Hq Btry, T/O & E 44-116 (4/26/44, C1, 2)*	*4 Gun Btrys (ea) T/O & E 44-117 (4/26/44, C1, 2)*	*Total*	*Atchd Med & Ch*	*Aggregate*
2	Officers	9	4	25	3	28
3	Warrant officers	2		2		2
4	Enlisted men	109	120	589	12	601
5	AGGREGATE	120	124	616	14	631
6	.30 cal carbine	29	14	85		85
7	.30 cal rifle, M-1	59	107	487		487
8	.45 cal gun, submachine	29	3	41		41
9	.45 cal pistol, automatic	3		3		3
10	.50 cal gun, machine, AA		4	16		16
11	.50 cal gun, machine, HB, flexible	10	1	14		14
12	2.36" Launcher, rocket		2	8		8
13	90-mm gun, AA, mobile [1]		4	16		16
14	Trailer, K78	1	1	5		5
15	Trailer, M18	2		2		2
16	Trailer, ¼-ton	3		3	1	4
17	Trailer, 1-ton	10	1	14		14
18	Truck, ¼-ton	5	1	9		9
19	Truck, ¾-ton, weapons carrier	3	1	7	1	8
20	Truck, 2½-ton, cargo	10	1	14		14
21	Truck, 2½-ton, 15' special body	2		2		2
22	Truck, 4-ton, wrecker	1		1		1
23	Truck, 4- 5-ton, tractor	2		2		2
24	Tractor, high speed, 18-ton	6		6		6
25	Detector unit	1	1	5		5
26	TOTAL MOTOR VEHICLES	29	3	41	1	42

[1]Gun Btrys may be equipped with 120-mm gun, AA, M1.

[2]Figures shown in this table are for Type A unit (radio set SCR-584) equipped with 90-mm gun. For Type A unit with 120-mm gun and for Type B unit (radio set SCR-545) with either 90- or 120-mm gun, see T/O & E 44-115.

■ 130. ORGANIZATION—ANTIAIRCRAFT ARTILLERY SEARCHLIGHT BATTALION, T/O 44-135 (5/23/44, C1) :[1]

	1	2	3	4	5	6
1	*Item*	*Hq & Hq Btry, Type B, T/O & E 44-136 (5/23/44, C1)*	*3 SL Btrys (ea), Type B, T/O & E 44-138 (12/28/43, C1)*	*Total*	*Atchd Med & Ch*	*Aggregate*
2	Officers	9	5	24	4	28
3	Warrant officers	2		2		2
4	Enlisted men	99	218	753	14	767
5	AGGREGATE	110	223	779	18	797
6	.30 cal carbine	26	22	92		92
7	.30 cal rifle, M-1	72	179	609		609
8	.45 cal gun, submachine	10	22	76		76
9	.45 cal pistol, automatic	2		2		2
10	.50 cal gun, machine, AA		12	36		36
11	.50 cal gun, machine, HB, flexible	1	4	13		13
12	2.36" Rocket Launcher		18	54		54
13	Trailer, ¼-ton	2		2	1	3
14	Trailer, 1-ton	2	1	5		5
15	Trailer, 4-ton (tilting type)		4	12		12
16	Trailer, K28B		6	18		18
17	Trailer, K-34-D		6	18		18
18	Truck, ¼-ton	3	3	12	1	13
19	Truck, ¾-ton, weapons carrier	3	4	15	1	16
20	Truck, 2½-ton, cargo	2	3	11		11
21	Truck, 2½-ton, SWB		8	24		24
22	Truck, 4-ton, wrecker	1		1		1
23	Truck, 6-ton, prime mover	1	4	13		13
24	Detector unit		6	18		18
25	Searchlight unit		12	36		36
26	Generating unit, w/Tlr		12	36		36
27	TOTAL MOTOR VEHICLES	10	22	76	2	78

[1]Figures shown in this table are for Type B unit (equipped with SCR 268-C). For Type A (equipped with SCR 268-B) and Type C (equipped with Radar Set An/TPL-1 C) see T/O & E 44-135.

■ 131. ORGANIZATION—ANTIAIRCRAFT ARTILLERY BALLOON BATTALION, VLA, T/O & E 44-325 (6/24/43, C1, 2):

1	1 Item	2 Hq and Hq Btry, T/O & E 44-326 (6/23/44, C1, 2)	3 3 Balloon Btrys (ea) T/O & E 44-327 (6/23/43, C1, 2, 3, 4)	4 Total	5 Atchd Med	6 Atchd Ch	7 Aggregate
2	Officers	8	6	26	3	1	30
3	Warrant officers	1		1			1
4	Enlisted men	90	238	804	11		815
5	AGGREGATE	99	244	831	14	1	846
6	.30 cal carbine	22	13	61			61
7	.30 cal rifle, M-1	62	215	707			707
8	.45 cal gun, submachine	13	15	58			58
9	.45 cal pistol, automatic	2	1	5			5
10	.50 cal gun, machine, HB, flexible	2	1	5			5
11	Trailer, ¼-ton				1	1	2
12	Trailer, 1-ton	8	3	17			17
13	Truck, ¼-ton	3	5	18		1	19
14	Truck, ¾-ton, weapons carrier	1	7	22	1		23
15	Truck, 2½-ton, cargo	8	3	17			17
16	Balloon, barrage, VLA, M-1	45	120	405			405
17	Generator, hydrogen, M-1	2		2			2
18	Winch, balloon, portable, BB VLA, M-1	15	50	165			165
19	Reel, payout, VLA (amphibious)[1]	15	50	165			165
20	TOTAL MOTOR VEHICLES	12	15	57	1	1	59

[1]Issued for amphibious operations only.

■ 132. ORGANIZATION—ANTIAIRCRAFT ARTILLERY MACHINE GUN BATTERY, SEPARATE, AIRBORNE, T/O & E 44-217 (8/20/43, C1):

1	Unit	AAA MG Btry
2	Officers	5
3	Warrant officers	
4	Enlisted men	85
5	AGGREGATE	90
6	.30 cal carbine	5
7	.50 cal gun, machine, AA	12
8	.45 cal gun, submachine	58
9	.30 cal rifle, M1	24
10	Trailer, ¼-ton	2
11	Truck, ¼-ton	2
12	TOTAL MOTOR VEHICLES	2

SEPARATE ARMORED UNITS

■ 133. ORGANIZATION—ARMORED GROUP: [1]

1	1 Item	2 Hq & Hq Co Armd Gp T/O & E 17–22 (10/2/43 C1, 2, 3)[2]	3 Armd Bns [3]
2	Officers	17	
3	Warrant officers	1	
4	Enlisted men	80	
5	AGGREGATE	98	
6	.30 cal carbine	60	
7	.30 cal gun, machine, light, flexible	3	
8	.45 cal gun, submachine	27	
9	.45 cal pistol, automatic	5	
10	.50 cal gun, machine, HB, flexible	4	
11	2.36" launcher, rocket	8	
12	Carrier, personnel, half-track, M3A2, wo/Armt	7	
13	Tank, light, w/Armt [4]	3	
14	Trailer, ¼-ton	2	
15	Trailer, 1-ton	2	
16	Trailer, ammunition, M10	1	
17	Truck, ¼-ton	9	
18	Truck, 2½-ton	2	
19	TOTAL MOTOR VEHICLES	21	

[1] Armd Gp consists of Hq & Hq Co Armd Gp, and 2 or more Armd Bns.
[2] Includes attached Med and Ch.
[3] See Par. 116.
[4] Includes: 2 .30 cal MGs; 1 .50 cal MG; 1 2" Mortar M3 and 1 75-mm gun, Tank.

■ 134. ORGANIZATION—*Light Tank Battalion* T/O & E 17-15, 11/12/43 C1, 2) :

1	*1* Item	*2* Hq & Hq Co T/O & E 17-16	*3* 3 L Tk Cos (ea) T/O & E 17-17	*4* Serv Co T/O & E 17-19	*5* Total	*6* Atchd Med	*7* Aggregate
2	Officers	13	5	4	32	2	34
3	Warrant Officers			3	3		3
4	Enlisted men	125	89	88	480	15	495
5	AGGREGATE	138	94	95	515	17	532
6	.30 cal carbine, M1	70	24	66	208		208
7	.30 cal rifle, M1	20			20		20
8	.30 cal gun, machine, light, flexible	3	1	8	14		14
9	.45 cal gun, submachine	45	70	29	284		284
10	.45 cal pistol, automatic	3			3		3
11	.50 cal gun, machine, HB, flexible	5	3	8	22		22
12	2.36" launcher, rocket	12	2	9	27		27
13	Carriage, motor, 75-mm How w/Armt	3			3		3
14	Carrier, half-track, 81-mm mortar, M21, w/Armt	3			3		3
15	Carrier, half-track, personnel, M3A2, w/o Armt	8	1	1	12		12
16	Mortar, 81-mm		1	2	5		5
17	Tank, light, w/Armt	3	17	2	56		56
18	Trailer, ammunition, M10	4		6	10		10
19	Trailer, 1-ton	2	1	12	17		17
20	Truck, ¼-ton	11	2	3	20	3	23
21	Truck, ¾-ton, ambulance					1	1
22	Truck, ¾-ton, weapons carrier			2	2	1	3
23	Truck, 2½-ton, cargo	1	1	19	23		23
24	Truck, heavy, wrecking, M1		1	2	5		5
25	TOTAL MOTOR VEHICLES	29	22	29	124	5	129

SUMMARY OF ARMAMENT

1	*1* Weapon	*2* Non-Vehicle	*3* Organic to combat vehicle	*4* Aggregate
2	.30 cal carbine, M1	208		208
3	.30 cal rifle, M1	20		20
4	.30 cal gun, machine, light, flexible	14	118	132
5	.45 cal gun, submachine	284		284
6	.45 cal pistol, automatic	3		3
7	.50 cal gun, machine, HB, flexible	22	65	87
8	2" mortar, M3		59	59
9	2.36" launcher, rocket	27		27
10	81-mm mortar	5	3	8
11	75-mm How		3	3
12	75-mm gun, Tk		59	59

■ 135. ORGANIZATION, TANK BATTALION (Separate) T/O & E 17-25 (15 Sept 43 C 1, 2, 3, 4, 5).

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	*Item*	*Hq & Hq Co T/O & E 17-26 (9/15/43, C1, 2, 3, 4)*	*3 M Tk Cos (ea) T/O & E 17-27 (9/15/43, C1, 2, 3)*	*L Tk Co T/O & E 17-17 (9/15/43, C1, 2, 3)*	*Serv Co T/O & E 17-29 (9/15/43, C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	13	5	5	4	37	2	39
3	Warrant Officers				3	3		3
4	Enlisted men	131	112	89	108	664	18	682
5	AGGREGATE	144	117	94	115	704	20	724
6	.30 Cal carbine, M1	70	25	24	71	240		240
7	.30 Cal Rifle, M1	20				20		20
8	.30 Cal Gun, machine, light, flex	3	1	1	11	18		18
9	.45 Cal Pistol, automatic	3				3		3
10	.45 Cal Gun, submachine	51	92	70	44	441		441
11	.50 Cal Gun, machine, HB, flex	5	2	3	12	26		26
12	2.36" Launcher, Rocket	12	3	2	12	35		35
13	81-mm Mortar		1	1	2	6		6
14	Carrier (half-track), 81-mm mortar, M21 w/Arm	3				3		3
15	Carrier (half-track), personnel, M3A1, wo/Arm	8	1	1	1	13		13
16	Tank, light, w/Arm			17		17		17
17	Tank, medium, w/Arm	3	17			54		54
18	Tank, medium, w/Arm—(105-mm How)	3	1			6		6
19	Trailer, ammunition, M10	4			13	17		17
20	Trailer, 1-ton	2	1	1	20	26		26
21	Truck, ¼-ton	11	2	2	3	22	4	26
22	Truck, ¾-ton Ambulance						1	1
23	Truck, ¾-ton, Wpns carrier				2	2	1	3
24	Truck, 2½-ton cargo	1	1	1	34	39		39
25	Truck, heavy wrecker				2	2		2
26	Vehicle, tank recovery, light wo/Arm			1		1		1
27	Vehicle, tank recovery M32 wo/Arm		1		2	5		5
28	TOTAL MOTOR VEHICLES	29	23	22	44	164	6	170

■ 136. ORGANIZATION—AMPHIBIAN TANK BATTALION (T/O & E 17-115, 1/29/44, C1):

1	*1* Item	*2* Hq & Hq and Serv Co T/O & E 17-116 (1/29/44, C1)	*3* 4 Amph Tk Cos (each) T/O & E 17-117 (1/29/44, C1)	*4* Total	*5* Atchd Med	*6* Aggregate
2	Officers	10	5	30	3	33
3	Warrant Officers	4		4		4
4	Enlisted men	93	150	693	18	711
5	AGGREGATE	107	155	727	21	748
6	.30 cal carbine	69	31	193		193
7	.45 cal gun, submachine	35	121	519		519
8	.45 cal pistol, automatic	3	3	15		15
9	.50 cal gun, machine, HB, flexible	4	2	12		12
10	2.36" launcher, rocket	4	3	16		16
11	Trailer, 1-ton	4	1	8		8
12	Truck, ¼-ton	2	2	10	4	14
13	Truck, ¾-ton, weapons carrier	2		2	1	3
14	Truck, 2½-ton, cargo	8	2	16		16
15	Truck, 10-ton, Hv Wrecker, M1	1		1		1
16	Vehicle, LVT, cargo (Armd), wo/Arm	4	2	12		12
17	Vehicle, LVT, combat (Armd), w/Arm [1]	3	18	75		75
18	TOTAL MOTOR VEHICLES	20	24	116	5	121

[1]Includes: 3 .30 cal MGs, 1 .50 cal MG, 1 75-mm How (or 1 37-mm gun, AT).

■ 137. ORGANIZATION—AMPHIBIAN TRACTOR BATTALION, T/O & E 17-125, (4/29/44, C1) :

1	1	2	3	5	5	6
1	*Item*	*Hq & Hq and Serv Co T/O & E 17–126 (4/29/44, C1)*	*2 Trac Cos (each) T/O & E 17–127 (4/29/44)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	9	5	19	1	20
3	Warrant Officers	2		2		2
4	Enlisted men	91	189	469	11	480
5	AGGREGATE	102	194	490	12	502
6	.30 cal carbine	69	139	347		347
7	.30 cal gun, machine, light, flexible	34	102	238		238
8	.45 cal gun, submachine	30	54	138		138
9	.45 cal pistol, automatic	3	3	9		9
10	.50 cal gun, machine, HB, flexible	34	102	238		238
11	2.36" launcher, rocket	4	3	10		10
12	Trailer, 1-ton	3	2	7		7
13	Truck, ¼-ton	4	1	6	3	9
14	Truck, ¾-ton, weapons carrier				1	1
15	Truck, 2½-ton, cargo	8	2	12		12
16	Truck, 10-ton, Hv Wrecker, M1	1		1		1
17	Vehicle, LVT, un-armored, w/oArm	17	51	119		119
18	TOTAL MOTOR VEHICLES	30	54	138	4	142

CAVALRY UNITS

■ 138. ORGANIZATION—CAVALRY GROUP, MECHANIZED:[1]

	1	2	3
1	*Item*	*Hq & Hq Tr (T/O & E 2-22) 10/13/43 C1, C2*[3]	*Rcn Sq Mecz*[2]
2	Officers	15	
3	Enlisted men	55	
4	AGGREGATE	70	
5	.30 cal carbine	37	
6	.30 cal gun, machine, light	3	
7	.30 cal rifle, M1	10	
8	.45 cal gun, submachine	14	
9	.45 cal pistol, automatic	5	
10	.50 cal gun, machine, HB, flexible	4	
11	2.36" launcher, rocket	3	
12	Car, armored, utility, M20, w/o armament	3	
13	Trailer, ¼-ton	5	
14	Trailer, 1-ton	1	
15	Trailer, K-52 (Sig)	1	
16	Truck, ¼-ton	6	
17	Truck, ¾-ton, command	2	
18	Truck, ¾-ton, weapons carrier	2	
19	Truck, 2½-ton, cargo	2	
20	TOTAL MOTOR VEHICLES	15	

[1]Cav Mecz Gp consists of a Hq & Hq Tr Cav Gp and 2 or more Cav Rcn Sq Mecz.
[2]See Par 137.
[3]Includes Atchd Med and Ch.

■ 139. ORGANIZATION—CAVALRY RECONNAISSANCE SQUADRON, MECHANIZED, T/O 2-25 (9/15/43, C1, 2): [1]

1	1 Item	2 Hq & Serv Tr T/O & E 2-26 (9/15/43, C1, 2)	3 3 Rcn Tr (ea) T/O & E 2-27 (9/15/43, C1, 2)	4 L Tk Co T/O & E 17-17 (9/15/43, C1, 2, 3)	5 Aslt Gun Tr T/O & E 2-28 (9/15/43, C1, 2)	6 Total	7 Atchd Med	8 Aggregate
2	Officers	12	5	5	4	36	2	38
3	Warrant officers	3				3		3
4	Enlisted men	118	134	89	81	690	12	702
5	AGGREGATE	133	139	94	85	729	14	743
6	.30 cal carbine	100	85	24	55	434		434
7	.30 cal MG,L, Flex	9	13	1	5	54		54
8	.30 cal rifle, M1		26		12	90		90
9	.45 cal gun, submachine	30	28	70	18	202		202
10	.45 cal pistol, automatic	3				3		3
11	.50 cal MG, HB, Flex	7	3	3	6	25		25
12	2.36" launcher, rocket	8	4	2	9	31		31
13	60-mm mortar		9			27		27
14	81-mm mortar	1		1	1	3		3
15	Car, Armd, L M8, w/Armt	4	12			40		40
16	Carr, motor, 75-mm How				6	6		6
17	Carr, half-track, w/o Armt	5	4	1	8	26		26
18	Tank, light [2]			17		17		17
19	Trailer, 1-ton	12	5	1	1	29		29
20	Trailer, ammunition, M10	2			9	11		11
21	Truck, ¼-ton	10	23	2	2	83	4	87
22	Truck, ¾-ton, ambulance						1	1
23	Truck, ¾-ton, wpns carr						1	1
24	Truck, 2½-ton, cargo	13	1	1	1	18		18
25	Truck, heavy, wrecker	1				1		1
26	Vehicle, Tk recovery, light, w/o Armt	1		1	1	3		3
27	TOTAL MOTOR VEH	34	40	22	18	194	6	200

[1] Not applicable to Cav Sq Mecz in Armd Div. [2] Tank, Light M24 replaces Tank, Light M5.

SUMMARY OF ARMAMENT, INCLUDING WEAPONS MOUNTED ON VEHICLES (FOR ENTIRE SQUADRON)

1	1 Weapon	2 Non-Vehicle	3 Organic to Vehicles	4 Total
2	.30 cal carbine	434		434
3	.30 cal gun, machine, light	54	74	128
4	.30 cal rifle, M1	90		90
5	.45 cal pistol, automatic	3		3
6	.45 cal gun, submachine	202		202
7	.50 cal gun, machine, HB, flexible	25	23	48
8	37-mm gun		40	40
9	2.36" launcher, rocket	31		31
10	60-mm mortar	27		27
11	75-mm howitzer		6	6
12	75-mm gun		17	17
13	81-mm mortar	3		3

COAST ARTILLERY UNITS

■ 140. ORGANIZATION—COAST ARTILLERY GROUP, 155-MM GUNS:[1]

1	*1*	*2*	*3*
	Item	*Hq & Hq Btry CA Gp, 155-mm gun T/O & E 4–152 (7/31/44)*[2]	*CA Bns*
2	Officers	16	
3	Enlisted men	57	
4	AGGREGATE	73	
5	.30 cal carbine	24	
6	.30 cal rifle, M1	22	
7	.30 cal rifle, automatic	7	
8	.45 cal pistol, automatic	5	
9	.45 cal submachine gun	9	
10	2.36" launcher, rocket	5	
11	Trailer, ¼-ton	6	
12	Truck, ¼-ton	6	
13	Truck, ¾-ton, weapons carrier	4	
14	TOTAL MOTOR VEHICLES	10	

[1]CA Gp may be composed of Hq & Hq Btry CA Gp 155-mm guns, and from 2 to 5 CA Bns, 155-mm guns.

[2]Includes Atchd Med and Ch.

■ 141. ORGANIZATION—COAST ARTILLERY BATTALION, 155-MM GUN, T/O & E 4-155 (8/5/44):

1	1	2	3	4	5
1	*Item*	*Hq & Hq Btry T/O & E 4-156 (8/5/44)*	*2 Btrys [1] (ea) T/O & E 4-157 (8/5/44)*	*Atchd Med T/O & E 4-155 (8/5/44)*	*Total*
2	Officers	11	7	1	26
3	Warrant officers	1			1
4	Enlisted men	140	169	9	487
5	AGGREGATE	152	176	10	514
6	Searchlight unit	8			8
7	Trailer, tilting type, 4-ton	4			4
8	.30 cal carbine	35	24		83
9	.30 cal rifle, M1	82	128		338
10	.30 cal rifle, automatic	19	15		49
11	.45 cal pistol, automatic	3			3
12	.45 cal gun, submachine	13	9		31
13	.50 cal gun, machine, AA	8	4		16
14	.50 cal gun, machine, HB, flexible	2	3		8
15	2.36" launcher, rocket	6	8		22
16	155-mm gun		4		8
17	Tractor, high-speed, 18-ton		2		4
18	Trailer, ¼-ton			1	1
19	Trailer, 1-ton	5	3		11
20	Truck, ¼-ton	1	1		3
21	Truck, ¾-ton, command	1	1		3
22	Truck, ¾-ton, weapons carrier	2	2	1	7
23	Truck, 2½-ton, cargo	5	3		11
24	Truck, 2½-ton, SWB	4			4
25	TOTAL MOTOR VEHICLES	13	9	1	32

[1] Two firing units per Btry.

FIELD ARTILLERY UNITS

142. ORGANIZATION—FIELD ARTILLERY BRIGADE: [1]

1	1 Item	2 Hq & Hq Btry, Mtz, FA Brig T/O & E 6-20-1 (1/10/44 C1)	3 FA Units
2	Officers	13	
3	Warrant Officers	1	
4	Enlisted men	89	
5	AGGREGATE	103	
6	.30 caliber, carbine	78	
7	.45 caliber, pistol, automatic	25	
8	.50 caliber, gun, machine, HB, flexible	3	
9	2.36" launcher, rocket	6	
10	Airplane, liaison	2	
11	Trailer, ¼-ton	1	
12	Trailer, 1-ton	2	
13	Truck, ¼-ton	3	
14	Truck, ¾-ton, command	4	
15	Truck, ¾-ton, weapons carrier	6	
16	Truck, 2½-ton, cargo	2	
17	Truck, 2½-ton, cargo, SWB	4	
18	TOTAL MOTOR VEHICLES	16	

[1] FA Brig may be composed of Hq & Hq Btry, FA Brig, and such FA units as may be Atchd.

■ 143. ORGANIZATION—FIELD ARTILLERY GROUP: [1]

	1	2	3
1	*Item*	*Hq & Hq Btry FA Gp T/O & E 6-12 (10/29/43, C1, 2, 3, 4, 5, 6)* [2]	*FA Bns*
2	Officers	18	
3	Enlisted men	81	
4	AGGREGATE	99	
5	.30 caliber, carbine	69	
6	.45 caliber, pistol, automatic	24	
7	.50 caliber, gun, machine, HB, flexible	2	
8	2.36" launcher, rocket	5	
9	Airplane, liaison	2	
10	Trailer, ¼-ton	7	
11	Trailer, 1-ton	3	
12	Truck, ¼-ton	8	
13	Truck, ¾-ton, command	3	
14	Truck, ¾-ton, weapons carrier	8	
15	Truck, 2½-ton, cargo	2	
16	Truck, 2½-ton, cargo, SWB	3	
17	TOTAL MOTOR VEHICLES	24	

[1] When the Gp contains only 2 Bns, 1 Bn Hq may be designated as Gp Hq. In such case no Hq & Hq Btry, FA Gp is included.
[2] Includes Atchd Med and Ch.

■ 144. ORGANIZATION—FIELD ARTILLERY OBSERVATION BATTALION, T/O & E 6-75 (3/9/44, C1):

	1	2	3	4	5	6
1	*Item*	*Hq & Hq Btry T/O & E 6-76 (3/9/44 C1)*	*2 Obsn Btry (ea) T/O & E 6-77 (3/9/44 C1)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	9	7	23	1	24
3	Warrant Officers	2		2		2
4	Enlisted men	131	150	431	9	440
5	AGGREGATE	142	157	456	10	466
6	.30 caliber, carbine	114	139	392		392
7	.45 caliber, pistol	28	18	64		64
8	.50 caliber, gun, machine	4	4	12		12
9	Ambulance, ¾-ton				1	1
10	Trailer, ¼-ton	1	1	3	1	4
11	Trailer, 1-ton	6	7	20		20
12	Truck, ¼-ton	5	8	21	1	22
13	Truck, ¾-ton, weapons carrier	12	13	38	1	39
14	Truck, 2½-ton, cargo	5	6	17		17
15	Truck, 2½-ton, cargo, SWB	3	4	11		11
16	TOTAL MOTOR VEHICLES	25	31	87	3	90

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■ 145. FIELD ARTILLERY BATTALION, 75-MM HOWITZER, PACK T/O & E 6-155 (5/4/43, C1):

1	1	2	3	4	5	6
1	*Unit*	*Hq & Hq Serv Btry T/O 6–156 (5/4/43 C1, 2)*	*3 Btrys 75-mm Pk How (ea) T/O 6–157 (5/4/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	23	2	25
3	Warrant Officers	2		2		2
4	Enlisted men	89	114	431	17	448
5	AGGREGATE	102	118	456	19	475
6	.30 caliber, carbine	74	104	386		386
7	.30 caliber, automatic, rifle	3	4	15		15
8	.45 cailber, pistol, automatic	25	10	55	1	56
9	75-mm, howitzer, pack		4	12		12
10	Trailer, ¼-ton	1		1		1
11	Truck, ¼-ton	2		2		2
12	Animals, including:	103	60	283	5	288
13	Horse, riding, (bell mare)	(1)		(1)		(1)
14	Mule, pack	(86)	(57)	(257)	(5)	262
15	Mule, riding	(16)	(3)	(25)		(25)
16	TOTAL MOTOR VEHICLES	2		2		2

■ 146. FIELD ARTILLERY BATTALION, MOTORIZED, 105-MM HOWITZER, TRUCK-DRAWN, T/O & E 6-25 (9/27/44) :

1	1 Unit	2 Hq & Hq Btry, T/O & E 6-26 (9/27/44)	3 3 How Btrys (ea) T/O & E 6-27 (9/27/44)	4 Serv Btry, T/O & E 6-29 (9/27/44)	5 Total	6 Atchd Med	7 Aggregate
2	Officers	12	4	4	28	1	29
3	Warrant officers	1		1	2		2
4	Enlisted men	95	92	69	440	11	451
5	AGGREGATE	108	96	74	470	12	482
6	.30 cal carbine	83	87	62	406		406
7	.45 cal pistol, automatic	25	9	12	64		64
8	.45 cal gun, submachine, M3		1		3		3
9	.50 cal gun, machine, HB, flexible	5	4	4	21		21
10	2.36" launcher, rocket	6	8	10	40		40
11	105-mm howitzer		4		12		12
12	Airplane, liaison	2			2		2
13	Trailer, ¼-ton	2	3	1	12	1	13
14	Trailer, 1-ton	2	1	3	8		8
15	Trailer, ammunition, M10		2	9	15		15
16	Truck, ¼-ton	6	3	2	17	1	18
17	Truck, ¾-ton, weapon carrier	11	4	3	26	1	27
18	Truck, 2½-ton, cargo	2	1	8	13		13
19	Truck, 2½-ton, cargo, SWB	1	6	5	24		24
20	TOTAL MOTOR VEHICLES	20	14	18	80	2	82

[1] Above table is for FA Bn, 105-mm How, Trk-Dr with non-divisional artillery. For FA Bn, 105-mm How, Trk-Dr with Inf Div Arty see Par 119-122, incl.

■ 147. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 105-mm HOWITZER, TRACTOR-DRAWN, T/O & E 6-325 (7/26/43, C1, 2):

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	*Item*	*Hq & Hq Btry T/O & E 6-26 (7/15/43 C1, 2, 3, 4, 5, 6)*	*3 105-mm How Btrys (ea) T/O & E 6-327 (7/26/43 C1, 2)*	*Serv Btry T/O & E 6-329 (7/26/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	12	4	4	28	1	29
3	Warrant officers	1		1	2		2
4	Enlisted men	96	94	71	449	11	460
5	AGGREGATE	109	98	76	479	12	491
6	.30 cal carbine	84	88	64	412		412
7	.45 cal pistol, automatic	25	10	12	67		67
8	.50 cal gun, machine, HB, flexible	5	4	4	21		21
9	2.36" launcher, rocket	6	8	10	40		40
10	105-mm howitzer		4		12		12
11	Airplane, liaison	2			2		2
12	Tractor, medium, M5		6		18		18
13	Trailer, ¼-ton	2	2	1	9	1	10
14	Trailer, ammunition, M10		2	9	15		15
15	Trailer, 1-ton	2	2	3	11		11
16	Truck, ¼-ton	5	3	2	16	1	17
17	Truck, ¾-ton, weapons carrier	11	4	3	26	1	27
18	Truck, 2½-ton, cargo	2	2	8	16		16
19	Truck, 2½-ton, cargo, SWB	1		5	6		6
20	TOTAL MOTOR VEHICLES	19	15	18	82	2	84

■ 148. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 155-mm HOWITZER OR 4.5" GUN TRACTOR-DRAWN, T/O & E 6-335 (7/3/43, C1, 2, 3, 4, 5, 6) : [1]

1	1	2	3	4	5	6	7
	Item	Hq & Hq Btry T/O & E 6-36 (7/15/43 C1, 2, 3, 4, 5)	3 How Btrys (ea) T/O & E 6-337 (9/27/44)	Serv Btry T/O & E 6-339 (9/27/44)	Total	Atchd Med	Aggregate
2	Officers	12	4	4	28	1	29
3	Warrant officers	1		1	2		2
4	Enlisted men	96	102	71	473	11	484
5	AGGREGATE	109	106	76	503	12	515
6	.30 cal carbine	84	96	63	435		435
7	.45 cal pistol, automatic	25	10	13	68		68
8	.50 cal gun, machine, HB, flexible	5	4	4	21		21
9	2.36" launcher, rocket	6	8	10	40		40
10	Howitzer or gun [2]		4		12		12
11	Airplane, liaison	2			2		2
12	Tractor, high speed, M5		6		18		18
13	Trailer, ¼-ton	2	2	1	9	1	10
14	Trailer, ammunition, M10		1	9	12		12
15	Trailer, 1-ton	2	1	3	8		8
16	Trailer, 4-ton, ammunition		2		6		6
17	Truck, ¼-ton	6	3	2	17	1	18
18	Truck, ¾-ton, weapons carrier	11	4	3	26	1	27
19	Truck, 2½-ton, cargo	2	2	8	16		16
20	Truck, 2½-ton, cargo, SWB	1		5	6		6
21	Truck, 4-ton, wrecker			1	1		1
22	TOTAL MOTOR VEHICLES	20	15	19	84	2	86

[1] This table for non-divisional artillery. For details of FA Bn, Mtz, 155-mm How or 4.5" Gun, tractor-drawn, T/O & E 6-335 see Pars 119-122, incl.

[2] 155-mm How or 4.5" Gun.

■ 149. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 155-mm GUN, TRUCK-DRAWN, T/O & E 6-55 (7/31/43, C1, 2, 3):

1	1	2	3	4	5	6	7
1	*Item*	*Hq & Hq Btry T/O & E 6-56 (7/2/43 C1, 2, 3, 4)*	*3 155-mm Gun Btrys (ea) T/O & E 6-57 (7/31/43 C1, 2, 3, 3, 4, 5)*	*Serv Btry T/O & E 6-59 (7/2/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	124	29	494	11	505
5	AGGREGATE	105	128	32	521	12	533
6	.30 cal carbine	82	119	24	463		463
7	.45 cal pistol, automatic	23	9	8	58		58
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	8	4	34		34
10	155-mm gun		4		12		12
11	Airplane, liaison	2			2		2
12	Trailer, ¼-ton	2	2	1	9	1	10
13	Trailer, ammunition, M10		1		3		3
14	Trailer, 1-ton	2	1	3	8		8
15	Trailer, 8-ton, ammunition		2		6		6
16	Truck, ¼-ton	5	2	1	12	1	13
17	Truck, ¾-ton, weapons carrier	11	6	2	31	1	32
18	Truck, 2½-ton, cargo	2	2	2	10		10
19	Truck, 2½-ton, cargo, SWB	1		2	3		3
20	Truck, heavy wrecker			1	1		1
21	Truck, 7½-ton, prime mover		6		18		18
22	TOTAL MOTOR VEHICLES	19	16	8	75	2	77

■ 150. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 155-mm GUN, TRACTOR-DRAWN, T/O & E 6-355 (7/31/43, C1, 2, 3, 4):

1	1	2	3	4	5	6	7
1	*Item*	*Hq & Hq Btry T/O & E 6-56 (7/2/43 C1, 2, 3, 4)*	*3 155-mm Gun Btrys (ea) T/O & E 6-357 (7/31/43 C1, 2, 3)*	*Serv Btry T/O & E 6-359 (7/2/43 C1, 2, 3, 4)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	126	31	502	11	513
5	AGGREGATE	105	130	34	529	12	541
6	.30 cal carbine	82	120	26	468		468
7	.45 cal pistol, automatic	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	8	4	34		34
10	155-mm gun		4		12		12
11	Airplane, liaison	2			2		2
12	Tractor, medium		6		18		18
13	Trailer, ammunition, M10		1		3		3
14	Trailer, ¼-ton	2	2	1	9	1	10
15	Trailer, 1-ton	2	1	3	8		8
16	Trailer, 8-ton, ammunition		2		6		6
17	Truck, ¼-ton	5	2	1	12	1	13
18	Truck, ¾-ton, weapons carrier	11	6	2	31	1	32
19	Truck, 2½-ton, cargo	2	3	2	13		13
20	Truck, 2½-ton, cargo, SWB	1		2	3		3
21	Truck, heavy wrecker			1	1		1
22	TOTAL MOTOR VEHICLES	19	17	8	78	2	80

■ **151. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 155-mm GUN, SELF-PROPELLED, T/O & E 6-125 (9/29/43, C1, 2, 3):**

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	*Item*	*Hq & Hq Btry T/O & E 6-56 (7/2/43 C1, 2, 3, 4)*	*3 155-mm Gun Btrys (ea) T/O & E 6-127 (9/29/43 C1, 2, 3)*	*Serv Btry T/O & E 6-129 (9/29/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	108	32	449	11	460
5	AGGREGATE	105	112	35	476	12	488
6	.30 cal carbine	82	102	27	415		415
7	.45 cal pistol, automatic	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	8	4	34		34
10	Airplane, liaison	2			2		2
11	Carriage, motor, 155-mm gun		4		12		12
12	Carrier, cargo		4		12		12
13	Trailer, ammunition, M10		2		6		6
14	Trailer, ¼-ton	2	1	1	6	1	7
15	Trailer, 1-ton	2	2	3	11		11
16	Truck, ¼-ton	5	2	1	12	1	13
17	Truck, ¾-ton, weapons carrier	11	6	2	31	1	32
18	Truck, 2½-ton, cargo	2	4	2	16		16
19	Truck, 2½-ton, cargo, SWB	1		2	3		3
20	Truck, heavy wrecker, M1			1	1		1
21	TOTAL MOTOR VEHICLES	19	20	8	87	2	89

■ 152. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 8-INCH HOWITZER, TRUCK-DRAWN, T/O & E 6-65 (7/2/43, C1, 2, 3, 4):

1	1	2	3	4	5	6	7
	Item	*Hq & Hq Btry T/O & E 6–56 (7/2/43 C1, 2, 3, 4)*	*3 8 in. How Btrys (ea) T/O & E 6–67 (7/2/43 C1, 2, 3, 4)*	*Serv Btry T/O & E 6–59 (7/2/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	133	29	521	11	532
5	AGGREGATE	105	137	32	548	12	560
6	.30 cal carbine	82	127	24	487		487
7	.45 cal pistol, automatic	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	8	4	34		34
10	8" howitzer		4		12		12
11	Airplanes, liaison	2			2		2
12	Trailer, ammunition, M10		1		3		3
13	Trailer, ¼-ton	2	2	1	9	1	10
14	Trailer, 1-ton	2	1	3	8		8
15	Trailer, 8-ton, ammunition		2		6		6
16	Truck, ¼-ton	5	2	1	12	1	13
17	Truck, ¾-ton, weapons carrier	11	6	2	31	1	32
18	Truck, 2½-ton, cargo	3	2	4	13		13
19	Truck, 7½-ton, 6x6		6		18		18
20	Truck, heavy wrecker, M1			1	1		1
21	TOTAL MOTOR VEHICLES	19	16	8	75	2	77

■ 153. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 8-INCH HOWITZER, TRACTOR-DRAWN, T/O & E 6-365 (7/2/43, C1, 2, 3, 4, 5):

1	1	2	3	4	5	6	7
1	*Item*	*Hq & Hq Btry T/O & E 6-56 (7/2/43 C1, 2, 3, 4)*	*3 8 in. How Btrys (ea) T/O & E 6-367 (7/2/43 C1, 2, 3, 4)*	*Serv Btry T/O & E 6-359 (7/2/43 C1, 2, 3, 4)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	135	31	529	11	540
5	AGGREGATE	105	139	34	556	12	568
6	.30 cal carbine	82	129	26	495		495
7	.45 cal pistol	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36″ launcher, rocket	6	8	4	34		34
10	8″ howitzer		4		12		12
11	Airplane, liaison	2			2		2
12	Tractor, medium, M4		6		18		18
13	Trailer, ammunition, M10		1		3		3
14	Trailer, ¼-ton	2	2	1	9	1	10
15	Trailer, 1-ton	2	1	3	8		8
16	Trailer, 8-ton, ammunition		2		6		6
17	Truck, ¼-ton	5	2	1	12	1	13
18	Truck, ¾-ton, weapons carrier	11	6	1	31	1	32
19	Truck, 2½-ton, cargo	3	3	4	16		16
20	Truck, heavy wrecker, M1			1	1		1
21	TOTAL MOTOR VEHICLES	19	17	7	77	2	79

■ 154. ORGANIZATION—FIELD ARTILLERY BATTALION, MOTORIZED, 240-mm HOWITZER, M1918 MODIFIED, TRUCK DRAWN, T/O & E 6-95 (8/18/43, C1, 2,3):

1	1	2	3	4	5	6	7
1	*Item*	*Hq & Hq Btry T/O & E 6–56 (7/2/43 C1, 2, 3, 4)*	*3 Btrys 240-mm How (ea) T/O &E 6–97 (8/18/43 C1, 2, 3)*	*Serv Btry T/O & E 6–59 (7/2/43 C1, 2, 3)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	101	29	425	11	436
5	AGGREGATE	105	105	32	452	12	464
6	.30 cal carbine	82	95	24	391		391
7	.45 cal pistol, automatic	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	6	4	28		28
10	240-mm howitzer		2		6		6
11	Airplane, liaison	2			2		2
12	Crane, truck-mounted		1		3		3
13	Trailer, ¼-ton	2	2	1	9	1	10
14	Trailer, 1-ton	2	1	3	8		8
15	Trailer, ammunition, M10		1		3		3
16	Trailer, clam shell		1		3		3
17	Trailer, 8-ton, ammunition		2		6		6
18	Truck, ¼-ton	5	2	1	12	1	13
19	Truck, ¾-ton, weapons carrier	11	6	2	31	1	32
20	Truck, 2½-ton, cargo	2	2	2	10		10
21	Truck, 2½-ton, cargo, SWB	1		2	3		3
22	Truck, heavy wrecker, M1			1	1		1
23	Truck, 7½-ton, prime mover		6		18		18
24	TOTAL MOTOR VEHICLES	19	17	8	78	2	80

■ 155. FIELD ARTILLERY BATTALION, MOTORIZED, 240-mm HOWITZER, M1918, OR 8-INCH GUN, TRACTOR DRAWN, T/O & E 6-395 (8/18/43, C1, 2, 3, 4):

1	1	2	3	5	5	6	7
1	*Unit*	*Hq & Hq Btry T/O & E 6-56 (8/18/43 C1, 2, 3, 4)*	*3 Btrys (ea) T/O & E 6-397 (8/18/43 C1, 2, 3, 4)*	*Serv Btry T/O & E 6-359 (7/2/43 C1, 2, 3, 4)*	*Total*	*Atchd Med*	*Aggregate*
2	Officers	11	4	2	25	1	26
3	Warrant officers	1		1	2		2
4	Enlisted men	93	108	31	448	11	459
5	AGGREGATE	105	112	34	475	12	487
6	.30 cal carbine	82	102	26	414		414
7	.45 cal pistol, automatic	23	10	8	61		61
8	.50 cal gun, machine, HB, flexible	5	4	2	19		19
9	2.36" launcher, rocket	6	6	4	28		28
10	240-mm howitzer (8" gun)		2		6		6
11	Airplane, liaison	2			2		2
12	Crane, truck-mounted		1		3		3
13	Tractor, heavy		6		18		18
14	Trailer, ¼-ton	2	2	1	9	1	10
15	Trailer, 1-ton	2	1	3	8		8
16	Trailer, ammunition, M10		1		3		3
17	Trailer, 8-ton, ammunition		4		12		12
18	Trailer, clamshell		1		3		3
19	Truck, ¼-ton	5	2	1	12	1	13
20	Truck, ¾-ton, weapon carrier	11	6	2	31	1	32
21	Truck, 2½-ton, cargo	2	2	2	10		10
22	Truck, 2½-ton, cargo, SWB	1		2	3		3
23	Truck, heavy wrecker			1	1		1
24	TOTAL MOTOR VEHICLES	19	17	8	78	2	80

TANK DESTROYER UNITS

■ **156. ORGANIZATION—TANK DESTROYER GROUP:** [1]

	1	2	3
1	*Item*	*Hq & Hq Co TD Gp T/O & E 18–10–1 (12/30/43, C1, 2, 3)*[2]	*TD Bns*
2	Officers	15	
3	Enlisted men	57	
4	AGGREGATE	72	
5	.30 cal carbine	46	
6	.30 cal gun, machine, flexible	2	
7	.45 cal pistol, automatic	20	
8	.50 cal gun, machine, HB, flexible, M-2	4	
9	2.36″ launcher, rocket	5	
10	Car, armored, utility, M20 wo/armament	2	
11	Trailer, ¼-ton	4	
12	Trailer, 1-ton	3	
13	Truck, ¼-ton	7	
14	Truck, ¾-ton, weapons carrier	2	
15	Truck, 1½-ton, cargo	1	
16	Car, half-track, M3A2, wo/armament [3]	3	
17	Truck, 2½-ton, cargo	1	
18	TOTAL MOTOR VEHICLES	16	

[1] TD Gp consists of Hq & Hq Co TD Gp and normally 2 or more SP or Towed Bns.
[2] Includes Atchd 2 Ch and 2 Med O.
[3] 1 armd w/.50 cal MG; 1 w/.30 MG, and 1 unarmed.

■ 157. ORGANIZATION—TANK DESTROYER BATTALION, (SELF-PROPELLED) T/ & E 18-25 (3/15/44, C1, 2) :

1	1 Item	2 Hq & Hq Co T/O & E 18-26 (3/15/44, C1, 2)	3 Rcn Co T/O & E 18-28 (3/15/44, C1, 2)	4 3 TD Cos (ea) T/O & E 18-27 (3/15/44, C1, 2)	5 Total	6 Atchd-Med	7 Aggregate
2	Officers	13	6	5	34	1	35
3	Warrant Officers	2			2		2
4	Enlisted men	105	115	124	592	15	607
5	AGGREGATE	120	121	129	628	16	644
6	.30 cal carbine	28	64	67	293		293
7	.30 cal gun, machine, flexible	3	12	4	27		27
8	.30 cal rifle, M1	63	46	49	256		256
9	.45 cal pistol, automatic	29	11	13	79		79
10	.50 cal gun, machine, HB, flexible M2	7	7	9	41		41
11	2.36" launcher, rocket	14	21	9	62		62
12	Carriage, motor, 76-mm gun, M36, w/Armt [1]			12	36		36
13	Car, armored, light, M8, w/Armt		6		6		6
14	Car, armored, utility, M20, wo/Armt	3	3	8	30		30
15	Compressor, air, Mtz, 105 CFM		1		1		1
16	Trailer, ¼-ton	1	2	1	6		6
17	Trailer, 1-ton, cargo	12			12	1	13
18	Trailer, Am, M10	6		3	15		15
19	Truck, ¼-ton	8	18	6	44	4	48
20	Truck, ¾-ton, weapons carrier	6	1		7		7
21	Truck, 1½-ton, 6x6, cargo	1	4		5	1	6
22	Truck, 2½-ton, cargo	18		1	21		21
23	Truck, 10-ton, heavy wrecker, M1A1	1			1		1
24	Vehicle, tank recovery, w/Armt, M32			1	3		3
25	TOTAL MOTOR VEHICLES	37	33	28	154	5	159

SUMMARY OF ARMAMENT, INCLUDING WEAPONS MOUNTED ON VEHICLES, AND TRAIN DEFENSE GUNS (FOR ENTIRE BN)

1	1 Weapon	2 Non-Vehicle	3 Organic to Vehicles	4 Total
2	.30 cal carbine	293		293
3	.30 cal gun, machine, light	27	9	36
4	.30 cal rifle, M1	256		256
5	.45 cal pistol, automatic	79		79
6	.50 cal gun, machine, HB, flexible	41	39	80
7	37-mm gun		6	6
8	2.36" launcher, rocket	62		62
9	76-mm gun		36	36
10	81-mm, Mortar, M1		3	3

[1] Models M18, M10, or M10A1 may be substituted.

■ 158. ORGANIZATION—TANK DESTROYER BATTALION, TOWED, T/O & E 18-35 (9/1/44):

1	1 Item	2 Hq & Hq Co T/O & E 18-36 (9/1/44)	3 3 TD Cos (ea) T/O & E 18-37 (9/1/44)	4 Total	5 Atchd Med	6 Aggregate
2	Officers	15	5	30	1	31
3	Warrant officers	2		2		2
4	Enlisted men	148	188	712	15	727
5	AGGREGATE	165	193	744	16	760
6	.30 cal carbine		120	360		360
7	.30 cal gun, machine, flexible	11	7	32		32
8	.30 cal rifle, M1	11	24	83		83
9	.45 cal gun, submachine	151	49	298		298
10	.45 cal pistol, automatic	3		3		3
11	.50 cal gun, machine, HB, flexible M2	8	3	17		17
12	2.36" launcher, rocket	26	15	71		71
13	3" gun, M1		12	36		36
14	Car, armored, light, M8, with armament	4		4		4
15	Car, armored, utility, M20, w/o Armt	4	2	10		10
16	Trailer, Am, M10	6	3	15		15
17	Trailer, ¼-ton	1	1	4		4
18	Trailer, 1-ton, cargo [1]	11		11	1	12
19	Truck, ¼-ton	18	15	63	4	67
20	Truck, ¾-ton, weapons carrier	6		6	1	7
21	Truck, 1½-ton, (12 volt system)	1	3	10		11
22	Truck, 2½-ton, cargo [1]	17	1	20		20
23	Truck, heavy wrecker	1		1		1
24	Vehicle, armored utility, T41		12	36		36
25	TOTAL MOTOR VEHICLES	51	33	150	5	155

SUMMARY OF ARMAMENT, INCLUDING WEAPONS MOUNTED ON VEHICLES, AND TRAIN DEFENSE GUNS (FOR ENTIRE BN)

1	1 Weapon	2 Non-Vehicle	3 Organic to Vehicles	4 Total
2	.30 cal carbine	360		360
3	.30 cal gun, machine, light	32	4	54
4	.30 cal rifle, M1	83		83
5	.45 cal gun, submachine	298		298
6	.45 cal pistol, automatic	3		3
7	.50 cal gun, machine, HB, flexible	17	36	53
8	37-mm gun	36	4	4
9	2.36" launcher, rocket	71		71
10	3" gun, AT, M6			36

[1] Includes 3 2½-ton trucks and 1-ton trailers Atchd by Theater for fuel and lubricants.

■ 159. ADJUTANT GENERAL AND SPECIAL SERVICE UNITS: [1]

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Army Postal Unit T/O 12-605 (2/8/44) (Type M)	O..... 2 EM.....27 Agg.....29	Trk, ¾-ton, Wpn Carr.....1 Trk, ¼-ton.....1 Trk, 1½-ton, cargo.....1 ([2])	Furnishes postal services and maintains directory service for units. Serves units of 20,000 to 25,000 non-divisional troops. Type units A thru K are organized to furnish the same services for fewer troops. Wt (short tons): on wheels, 8; boxed, 9. Cubage (ship tons): on wheels, 40; boxed, 32.
3	T/O 12-601-11 (3/12/43)	O..... 15 EM.....434 Agg.....449	Trk, 2½-ton, cargo.....2 Trk, ¾-ton, Wpn Carr.....2 Trk, ¼-ton.....2	Base Post Office T/O 12-601-3 to 12-601-10 inclusive, used for T of Opns composed of 25,000 to 300,000 Trs, incl. Wt (short tons): on wheels, 53; boxed, 55. Cubage (ship tons): on wheels, 234; boxed, 179.
4	T/O 12-601-12 (3/12/43)	O..... 19 EM.....551 Agg.....570	Trk, 2½-ton, cargo.....3 Trk, ¾-ton, Wpn Carr.....2 Trk, ¼-ton.....2	Central post office for T of Opns composed of 400,000 to 500,000 personnel. Same operations and functions as 12-601-3. Wt (short tons): on wheels, 63; boxed, 64. Cubage (ship tons): on wheels, 297; boxed, 224.
5	T/O 12-601-13 (3/12/43)	O..... 22 EM.....625 Agg.....647	Trk, 2½-ton, cargo.....4 Trk, ¾-ton, Wpn Carr.....2 Trk, ¼-ton.....2	Central post office for T of Opns composed of 500,000 to 600,000 personnel. Same operations and functions as 12-601-3. Wt (short tons): on wheels, 74; boxed, 76. Cubage (ship tons): on wheels, 277; boxed, 231.
6	T/O 12-601-14 (3/12/43)	O..... 25 EM.....713 Agg.....738	Trk, 2½-ton, cargo.....4 Trk, ¾-ton, Wpn Carr.....3 Trk, ¼-ton.....2	Central post office for T of Opns composed of 600,000 to 750,000 personnel. Same operations and functions as 12-601-3. Wt (short tons): on wheels, 80; boxed, 83. Cubage (ship tons): on wheels, 355; boxed, 281.
7	Base Post Office (Con't.) T/O 12-601-15 (3/12/43)	O..... 31 EM.....824 Agg.....855	Trk, 2½-ton, cargo.....5 Trk, ¾-ton, Wpn Carr.....3 Trk, ¼-ton.....2	Central post office for T of Opns composed of 750,000 to 1,000,000 personnel. Same operations and functions as 12-601-3. Wt (short tons): on wheels, 91; boxed, 95. Cubage (ship tons): on wheels, 417; boxed, 318.

ADJUTANT GENERAL AND SPECIAL SERVICE UNITS [1] (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
8	(Type E) T/O 12–317 (5/29/43)	O..... 4 EM.....83 Agg.....87	[2]	Furnishes machine records service for troops numbering from 200,000 to 250,000. Machine Records Units (Type A to O, incl) furnish similar service for Trs aggregating from 50,000 to 200,000.
9	Machine Records Unit (Mbl) Type X T/O 12–327 (1/23/43, C1)	O..... 2 EM.....25 Agg.....27	Tlr, 1-ton, Generator.....2 Trk, 4-, 5-ton, Trac.....2 Trk, ¾-ton, Comd.....1 Semi-trailer, Van.....3	1 per divided corps or small task force of less than 35,000 strength. Wt (short tons): on wheels, 45; boxed, 47. Cubage (ship tons): on wheels, 284; boxed, 255.
10	Machine Records Unit (Mbl) Type Y T/O 12–327 (1/23/43, C1)	O..... 3 EM.....39 Agg.....42	Tlr, 1-ton, Generator.....2 Trk, ¾-ton, Comd.....1 Trk, 4-, 5-ton, Trac.....2 Semi-trailer, Van.....4	1 per type corps, reinforced corps, Air Force, or task force of 35,000 to 75,000 strength. Wt (short tons): on wheels, 59; boxed, 61. Cubage (ship tons): on wheels, 347; boxed, 318.
11	Machine Records Unit (Mbl) Type Z T/O 12–327 (1/23/43, C1)	O..... 4 EM.....55 Agg.....59	Tlr, 1-ton, Generator.....3 Trk, ¾-ton, Comd.....1 Trk, 4-, 5-ton, Trac.....3 Semi-trailer, Van.....5	1 per reinforced corps, Army, Air Force or task force of 75,000 to 125,000 strength. Wt (short tons): on wheels, 77; boxed, 79. Cubage (ship tons): on wheels, 431; boxed, 382.
12	Postal Regulating Station T/O 12–602 (9/28/44)	O..... 3 EM.....28 Agg.....31	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 1½-ton, cargo.....1	Usually established at Army regulating stations between the combat and communication zones Wt (short tons): on wheels, 7; boxed, 8. Cubage (ship tons): on wheels, 39; boxed, 31.
13	Hq & Hq Co Replacement Depot T/O & E 12–42 (10/14/44)	O..... 30 WO..... 2 EM.....164 Agg.....196	Tlr, ¼-ton.....3 Amb, ¾-ton.....2 Trk, ¼-ton.....5 Trk, ¾-ton, Wpn Carr.....5 Trk, 2½-ton, cargo.....2	Provides overhead to operate replacement depot of 5 Replacement Bns with (T/O 20–46 and T/O 20–47) gross capacity of 6,000 replacements. Wt (short tons): on wheels, 472; boxed, 365.[3] Cubage (ship tons): on wheels, 1,354; boxed, 819.

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ADJUTANT GENERAL AND SPECIAL SERVICE UNITS [1] (Continued):

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
14	Hq & Hq Det Replacement Bn T/O & E 12–46 (10/12/44)	O..... 8 EM.....23 Agg.....31	Tlr, ¼-ton.....1 Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....3	Provides overhead necessary to administer 3 or 4 Replacement Companies (T/O 20–47) of 300 replacements each. Wt (short tons): on wheels, 302; boxed, 300.[3] Cubage (ship tons): on wheels, 471; boxed, 457.
15	Replacement Co T/O & E 20–47 (8/31/43, C1)	O..... 4 EM.....31 Agg.....35	Trk, 1½-ton, cargo.....1	Company is organized into 3 Plats of 100 replacements each. Total for company is 300 replacements.
16	Special Service CO T/O 28–17 (3/16/44)	O..... 5 EM.....109 Agg.....114	Trk, 2½-ton, cargo.....5 Trk, ¾-ton, Wpn Carr.....4 Trk, ¼-ton.....1 Tlr, 1-ton, cargo.....5	Orgn designed to provide recreation to troops overseas. Has 4 Plats each capable of establishing a complete recreational center, including musical, theatrical, radio, public address, library, movie, athletic, exchange, printing and publishing facilities. Wt (short tons): on wheels, 58; boxed, 62. Cubage (ship tons): on wheels, 371; boxed, 144.

[1] All figures include Atchd Med and Ch.
[2] Additional transportation requirements furnished by QM Trk pool.
[3] Equipment only.

■ 160. CHEMICAL WARFARE UNITS:

a. Combat Unit:

Chemical Mortar Battalion, T/O & E 3-25 (9/29/44): [1] [2]

1	*1* Item	*2* Hq & Hq Co (T/O & E 3-26) 9/29/44	*3* 3 Mortar Co (ea) [1] (T/O & E 3-27) 9/29/44	*4* Total	*5* Atchd Med	*6* Aggregate
2	Officers	9	9	36	2	38
3	Warrant officers	1		1		1
4	Enlisted men	145	158	619	14	633
5	AGGREGATE	155	167	656	16	672
6	.30 cal carbine	121	130	511		511
7	.30 cal rifle	31	37	142		142
8	.45 cal pistol, automatic	3		3		3
9	.50 cal gun, machine, HB, flexible	3	3	12		12
10	2.36" launcher, rocket	5	5	20		20
11	4.2" mortar, chemical		12	36		36
12	Trailer, ¼-ton	5	32	101	1	102
13	Trailer, 1-ton	13	4	25		25
14	Truck, ¼-ton	6	32	102	1	103
15	Truck, ¾-ton, weapons carrier	3	2	9	1	10
16	Truck, 1½-ton, cargo		3	9		9
17	Truck, 2½-ton, cargo	14	1	17		17
18	TOTAL MOTOR VEHICLES	23	38	137	2	139

[1] Normal attachment, 1 Bn per Inf Div. Fires chemicals, smoke, incendiaries, and HE.
[2] Wt (short tons): on wheels 364; boxed 456 cubage (ship tons): on wheels 1,600; boxed 2,047.

CHEMICAL WARFARE UNITS (Continued):

b. Service Units.

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
1	Cml Maint Co T/O 3-47 (4/1/42, C1)	O..... 4 EM.....115 Agg.....119	Tlr, 1-ton, cargo..... 5 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 2 Trk, 2½-ton, cargo..... 6 Trk, Mach Shop, M-4..... 1	Assigned to Armies for repair and Salvage of CW equipment. Requires transportation for movement and salvage operations. Wt (short tons): on wheels 53; boxed 68. Cubage (ship tons): on wheels 120; boxed 153.
2	Cml Dep Co T/O 3-67 (5/28/42)	O..... 5 EM.....173 Agg.....178	Tlr, 1-ton, cargo..... 3 Tlr, Cml Serv..... 3 Trk, ¼-ton..... 1 Trk, 2½-ton, cargo..... 3 Trac, crane..... 3 Trk, crane..... 3	Normally assigned 1 per Army. Stores and issues CW equipment, supplies munitions, fills Cml munitions. May require QM labor Trs and additional transportation.
3	Cml Processing Co (T of Opns) T/O & E 3-77 (3/1/44)	O..... 5 EM.....135 Agg.....140	Tlr, 1-ton, cargo..... 1 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 3	Established in Com Z for impregnating clothing. Equipped with 2 semi-fixed impregnating plants. Assigned on a basis of one Co per 50,000 Tr. Not completely Mtz. Wt (short tons): on wheels 110; boxed 140. Cubage (ship tons): on wheels 310; boxed 376.
4	Cml Base Processing Co T/O 3-87 (4/17/44)	O..... 4 EM..... 62 Agg..... 66	Tlr, 1-ton..... 1 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 1	Assigned to Base Dep on the basis of one Co per 300,000 persons. Equipped with one fixed impregnating plant. Some additional labor from local labor pools required.
5	Cml Lab Co T/O & E 3-97 (6/3/44)	O..... 8 EM..... 50 Agg..... 58	Tlr, 1-ton, cargo..... 1 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 1	Normally assigned 1 Co to a T of Opns. Analyzes enemy CW agents, equipment, and material. Checks protective clothing and equipment. Has library, Cml and physical Labs. Wt (short tons): on wheels 21; boxed 27. Cubage (ship tons): on wheels 47; boxed 61.
6	Cml Base Dep Co T/O & E 3-117 (11/16/43, C1)	O..... 7 EM.....100 Agg.....107	Tlr, ¼-ton..... 2 Tlr, 1-ton..... 2 Tlr, Cml Serv, M1..... 2 Trk, ¼-ton..... 3 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 3 Trk, crane, M2..... 3	Normally assigned to a Base Cml Dep or to a Cml Sec of a Base Gen Dep to handle Cml munitions and material for approximately 100,000 individuals. Does not maintain & repair Cml materiel. Wt (short tons): on wheels 55; boxed 73. Cubage (ship tons): on wheels 354; boxed 285.

CHEMICAL WARFARE UNITS:

b. Service Units (Continued):

1	*1* Unit	*2* Personnel	*3* Vehicles	*4* Remarks
7	Cml Decon Co T/O & E 3-217 (10/12/43, C1, 2, 3)	O 5 EM 158 Agg 163	Tlr, 1-ton, cargo 17 Trk, ¼-ton 5 Trk, 2½-ton, cargo 17 Apparatus, Decon, Power driven 12	Assigned to armies on the basis of 1 per 100,000 men for large scale decontamination of vital areas or installations. Also decontaminates large quantities of material. Completely Mtz. Wt (short tons): on wheels 143; boxed 180. Cubage (ship tons): on wheels 889; boxed 381.
8	Cml Warfare Gen Serv Co T/O & E 3-137S (8/9/44)	O 6 EM 124 Agg 130	Tlr, ¼-ton 4 Tlr, 1-ton 10 Tlr, Water Tank (205 gal) 1 Tlr, Cml Serv 2 Trk, ¼-ton 6 Trk, ¾-ton, Wpn Carr 1 Trk, 2½-ton, cargo 6 Trk, 2½-ton, w/apparatus decontaminating M3A2 8 Trk, 2½-ton, Mach Shop 1 Trk, crane, swinging boom 2	Will provide supply, maintenance, laboratory and decontaminating service for 30,000 Trs. When decontamination becomes primary service, additional personnel must be Atchd for depot functions.
9	Cml Smoke Gen Co T/O & E 3-267 (5/4/44)	O 4 EM 129 Agg 133	Tlr, 1-ton, cargo 1 Tlr, generator 28 Tlr, Water Tank (250 Gal) 2 For Unit Equipped with M1 Generator Trk, ¼-ton 5 Trk, ¾-ton, Wpn Carr 3 Trk, 2½-ton, cargo 29 Generator, smoke, Mech, M1, 100 gal. (Mounted on 2½-ton Trk) 24 For Unit Equipped with M2 Generator Tlr, ¼-ton 24 Tlr, 1-ton 1 Tlr, Water Tank (250 gal) 2 Trk, ¼-ton 29 Trk, ¾-ton, Wpn Carr 3 Trk, 2¼-ton, cargo 5 Generator, smoke, Mech, M2, 50 gal 50	Designed for area screening (AA protection) of important surface installations. 1 Co screens area 1-2½ miles wide & several miles long. Equipped with mobile generating apparatus. Wt (short tons): on wheels 327; boxed 353. Cubage (ship tons): on wheels 1,797; boxed 877.
10	Cml Warfare Serv Orgn T/O & E 3-500 (7/19/43) (Designated as Composite Plat, Co or Bn)	Varies	Varies	Extremely flexible CW Serv Orgn, organized as needed for a specific task. May include any or all of preceding CW service functions, in varying proportion. Designation as Plat, Co or Bn depends on total number of personnel. Particularly good for task forces.

■ 161. ENGINEER UNITS:

NOTES: See Paragraph 703 for stream crossing equipment
704 for water supply information
705 for explosives
706 for intrenching sets
All figures include attached Medical or Chaplains

a. Air Force Units:

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	Engr AF Hq Co, T/O & E 5-800-2 (9/6/43)	O..... 12 EM.....172 Agg.....174	Tlr, ¼-ton, cargo..... 4 Tlr, 1-ton, cargo..... 8 Tlr, 1-ton, Tk, 250-gal..... 2 Trk, ¼-ton..... 4 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 8 Trk, 2½-ton, cargo..... 8 Trk, 5- 6-ton, Trac..... 1 Mbl Repro Equip..... 1	Provides personnel and equipment for the AF Engr on all administrative, engineering, drafting, camouflage and reproduction fuuctions. Consists of Co Hq, Engr Plat, Cam Plat and Repro Plat. Average area needed for unit installation—3.8 acres.
3	Engr Avn Regt T/O 5-411 (4/1/42, C1, 2, 3)	O.....114 EM.....2333 Agg.....2462	Auger, earth, Mtz..... 1 Compressor, Mtz.....12 Crane, Trac, towed..... 4 Amb..... 4 Car, Half-track, M2.....13 Tlr, 1-ton, cargo.....58 Tlr, tank, 250-gal.....24 Tlr, 8-ton.....12 Tlr, 15-ton.....14 Tlr, 21-ton..... 4 Tlr, 1,500-gal, w/heating coils..... 7 Trk, ¼-ton.....52 Trk, ¾-ton, Comd.....17 Trk, ¾-ton, Wpn Carr.....15 Trk, 1½-ton.....10 Trk, 2½-ton, cargo.....28 Trk, 2½-ton, dump.....123 Trk, 2½-ton, Tk, 750-gal... 4 Trk, 4- 5-ton, dump w/w....42 Trk, 6-ton, prime mover....15 Trk, tank, fuel, 750-gal..... 4 Mbl, camera, copying..... 1 Clearing unit, Trac, Mtd.... 1 Grader, Mtz.....18 Mbl map reproduction..... 1 Mtz Rep Equip A & B..... 4 Shovel, ¾-cu yd..... 2 Shovel, push, Trac Mtd..... 3 Shovel, ½-cu yd..... 9 Trac, 70-hp.....12 Trac, 95-hp..... 4 Trac, medium.....27 Trac, rubber-tired..... 9 Well Driller, Mtz..... 3 Asphalt repair Equip, towed..... 3 Distributor emulsion, towed..... 4 Grader, rd, towed..... 3 Heater, asphalt, trailer type..... 4	This unit designed for operations in a large theater where much work is concentrated in a small area. It acts as a Dep or pool for additional equipment which may be sent to the individual Bns as the need arises. The Bn is the usual field operating unit. The Bn is a balanced Orgn capable of executing complete Cons of an airdrome. Consists of Hq and Hq & Serv Co and a varying number of Engr Avn Bns. 3 Bns are normally assigned to the Regt. The Bn is composed of a Hq and Hq & Serv Co and 3 line Cos. The Cos can function independently. *Vehicles—(Continued)* Mixer, concrete, 14-cu ft, Tlr-Mtd..... 4 Mixer, rd material, Hv..... 1 Mixer, rd material, rotary tiller..... 6 Rock crusher, Tlr type..... 1 Roller, rubber-tired..... 9 Roller, sheep's foot triple unit..... 4 Roller, 5- 7-ton, tandem, Mtz..... 9 Roller, 10-ton, Mtz..... 4 Rooter, Med..... 1 Scraper, 8-cu yd..... 9 Scraper, 12-cu yd..... 3 Scraper, wheeled, 3½-cu yd.....27 Trencher, vertical boom..... 3

ENGINEER UNITS:

Air Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
4	Engr Avn Bn T/O & E 5-415 (5/15/44)	O..... 33 EM.....774 Agg.....807	Compressor, Mtz..... 4 Tlr, ¼-ton.....16 Tlr, 1-ton, cargo.....18 Tlr, Tank, 250 gal..... 8 Tlr, 8-ton..... 4 Tlr, 15-ton..... 4 Trk, ¼-ton.....16 Trk, ¾-ton, Wpn Carr.....11 Trk, 2½-ton, cargo.....11 Trk, 2½-ton, dump.....37 Trk, 4- 5-ton, dump.....14 Trk, 4- 5-ton, wrecker..... 1 Trk, 6-ton, prime mover..... 6 Trk, Trac, 4-5-ton..... 1 Grader, Mtz..... 8 Mtz, Rep, Gen purpose & Hv shop..... 1 Shovel, Trac, Mtd..... 1 Shovel, ¾-cu yd, w/Tlr..... 2 Trac, 70- 90-hp.....11 Trac, rubber tired..... 2 Trk, tank, fuel, 750-gal..... 1 Crane, Trk Mtd, ¾-yd..... 1 Roller, road, gas-engine 5- 8-ton..... 2 Roller, road, gas engine, 10-ton..... 1 Semi-Tlr, Tech Sup, 10-ton..... 1 Crane, Trac-operated, 20-ton..... 1 Distributor, bituminous, Tlr-Mtd..... 1 Ditching machine, crawler-Mtd..... 1	The basic Cons unit of an air force. A balanced Orgn capable of Cons a complete airdrome and maintaining, camouflaging and defending it. *Vehicles—(Continued)* Grader, towed..... 2 Heater, asphalt, Tlr-Mtd..... 1 Kettle, asphalt, Tlr-Mtd..... 4 Lubricator, Tlr-Mtd..... 4 Mixer, concrete, 14-cu ft, Tlr-Mtd..... 1 Mixer, rotary tiller, Mower, Trac-Dr..... 1 Power plant, 5-kw, Tlr-Mtd..... 1 Pump, asphalt, Tlr-Mtd..... 1 Pump, water, w/distrib Attach, Tlr-Mtd..... 1 Roller, sheepsfoot..... 3 Roller, rd, towed..... 2 Rooter, rd..... 1 Scraper, Mtz, 12-cu yd..... 3 Scraper, towed, 8-cu yd..... 7 Semi-Tlr, 20-ton, (Lb).....14 Sweeper, rotary, Trac-powered..... 1 Tank, asphalt, Tlr-Mtd 1,500-gal..... 2 Welding Equip, Tlr-Mtd..... 1
5	Engr Avn Co T/O 5-417 (5/15/44)	O..... 5 EM.....178 Agg.....183	Compressor, Mtz..... 1 Tlr, ¼-ton, cargo..... 4 Tlr, 1-ton, cargo..... 4 Tlr, Tank, 250-gal..... 2 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 2 Trk, 2½-ton, cargo..... 2 Trk, 2½-ton, dump..... 4 Trk, 4-ton, dump..... 3 Grader, Mtz..... 1 Trac, 70-90 hp, crawler..... 3 Semi-Tlr, 20-ton..... 1	The mission of this unit is to maintain, rehabilitate and camouflage airdromes and to assist in their defense. Normally a company operates as component of Engr Avn Bn but may operate separately on special missions.

ENGINEER UNITS:

Air Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
6	A/B Engr Avn Bn T/O 5–455 (5/4/43)	O..... 28 WO..... 1 EM.....501 Agg.....530	Trac, 20DBHP, crawler.....19 Trac, 23DBHP, rubber-tired.....13 Bicycles.....11 Tlr, 1-ton, cargo.....14 Trk, ¼-ton.....23 Trk, 2½-ton, cargo.....10	Cons Maint and camouflage of advanced air fields. Operations include landings and airfields immediately seized from the enemy and emergency work to prepare fields for use by friendly aircraft. Does only initial preparation of air fields. Consists of Hq and Hq & Serv Co, and 3 Ltr Cos. Average area needed for unit installation—11.1 acres. Wt (short tons): on wheels 225; boxed 250. Cubage (ship tons): on wheels 900; boxed 650.
7	A/B Engr Avn Co T/O 5–457 (5/4/43)	O..... 5 EM.....124 Agg.....129	Trac, 20DBHP, crawler type..... 5 Trac, 23DBHP, rubber-tired..... 3 Tlr, 1-ton, cargo..... 3 Trk, ¼-ton..... 5 Trk, 2½-ton, cargo..... 2	Orgn exactly the same as Ltr Co A/B Engr Avn Bn, intended for use with small air task forces and for rehabilitation or Cons of small isolated airfields accessible only by air.
8	Engr Avn Cam Bn T/O & E 5–465 (4/17/43)	O..... 26 WO..... 1 EM.....573 Agg.....600	Compressor, Mtz..... 1 Amb, ¾-ton..... 1 Trk, ¼-ton.....17 Trk, ¾-ton, Comd..... 5 Trk, ¾-ton, Wpn Carr.....16 Trk, 2½-ton, cargo.....39 Trk, 2½-ton, Dump..... 2	Performs camouflage inspection, discipline and training for air field personnel. Supplies camouflage materials and experiments with local situations. Consists of Hq and Hq Co and 3 Cos of 3 Plats ea. Average area needed for unit installation—12.3 acres. Entirely mobile. Wt (short tons): on wheels 500; boxed 550. Cubage (ship tons): on wheels 2,100; boxed 1,350
9	Engr Avn Topo Orgn T/O & E 5–400 (11/1/43)	Varies	Varies	Collects geographical and geodetic data and survey control information; prepares maps, charts, and plans from this data or other information; reproduces and distributes maps, charts, target charts and plans as required by The AF Engr. May be organized as Engr Topo Co, Avn or Engr Topo Bn, Avn.

ENGINEER UNITS (Continued):

b. Ground Force Units:

(1) *Divisional Units:*

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Engr C Bn T/O & E 5-15 (3/13/44 C1)	O..... 29 WO..... 3 EM.....605 Agg.....637	Tlr, ¼-ton..... 9 Tlr, 1-ton.....22 Tlr, pole type.....10 Semi-Tlr, 20-ton, (low bed) 3 Tlr, welding..... 1 Trk, ¼-ton.....16 Trk, ¾-ton, Wpn Carr.....13 Trk, 1½-ton, cargo..... 1 Trk, 2½-ton, cargo.....22 Trk, 2½-ton, dump.....27 Trk, 4-ton, wrecker..... 1 Trk, 6-ton,prime mover..... 3 Shop, Mtz, Gen purpose..... 1 Trac, diesel, 55-65 DBHP[1].. 3 Compressor, Mtz..... 4	Performs Gen Engr work for Inf Div. Also is attached to Corps and Armies. Hq & Hq & Serv Co—3 lettered Cos of 3 Plats each. Cos can function independently. Area required for unit installation—7 acres. Entirely Mbl. Has 4-water supply sets. Wt (short tons): on wheels 700; boxed 750. Cubage (ship tons): on wheels 2,800; boxed 2,200.
3	Armd Engr Bn T/O & E 5-215 (9/15/43, C1)	O..... 34 WO..... 3 EM.....670 Agg.....707	Tlr, 1-ton.....24 Tlr, pole type, 2½-ton..... 9 Tlr, welding..... 1 Tlr, Am, M10..... 2 Tlr, 8-ton, LB..... 3 Trk, ¼-ton.....26 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 7 Trk, 2½-ton, cargo.....27 Trk, 2½-ton, dump.....18 Trk, 6-ton, cargo (Treadway)..... 6 Trk, Hv wrecker..... 1 Car, half-track, Amb..... 2 Carrier, half-track, M3A1 15 Compressor, Trk-Mtd..... 4 Trac, 35DBHP..... 3	Facilitates movement of the Armd Div and impedes hostile ground forces. Hq & Hq Co—3 lettered Cos. Entirely Mbl. Has 4-water supply sets. Has Treadway Ferry set consisting of 72′ of steel treadway bridge.

[1] Divisional Bns only. For non-divisional Bns, 70-90 DBHP diesel engine driven tractors.

ENGINEER UNITS:

Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
4	A/B Engr Bn T/O & E 5-225 (8/1/44)	O..... 23 WO..... 2 EM.....385 Agg.....410	Tlr, ¼-ton..... 9 Tlr, 1-ton..... 4 Tlr, dump, ½-ton.....10 Trk, ¼-ton.....19 Trk, 2½-ton, cargo..... 1 Trk, 2½-ton, dump..... 4 Compressor, air Tlr-Mtd..... 2 Trac, crawler, 20 DBHP..... 4 Scooter, motor.....25	Engr component of Airborne Div. Performs Gen Engr work—organized to increase the combat effectiveness of A/B Div by assisting to gain objectives and then to hold them—especially to capture airdromes for early use by AF. Hq & Hq & Serv Co, 1 Prcht Co and 2 Glider Cos. Prcht Co normally Atchd to Prcht Regt of Airborne Div. Glider Cos normally accompany the Glider Inf Regts of the Div. Prcht Co prepared to demolish enemy installations—(airdromes, factories, docks, utilities, etc.) Glider Cos capable of more extensive Engr work than Prcht Co—first duty on ground is to Rep landing fields and to make them reasonably safe for airplanes. Average area required for unit installation—4.5 acres.

(2) *Non-Divisional Units:*

2	Engr Hq, Army T/O & E 5-200-1 (7/15/42)	O..... 28 WO..... 1 EM..... 43 Agg..... 72	None	Army Engineer plus his executive and engineering staff. Average area required for unit installation—.72 acres.
3	Hq & Hq Co, Engr C Gp T/O & E 5-192 (8/25/44)	O..... 17 EM.....64 Agg..... 81	Tlr, ¼-ton..... 8 Tlr, 1-ton..... 1 Trk, ¼-ton..... 6 Trk, ¾-ton, Wpn Carr..... 8 Trk, 2½-ton, cargo..... 1	Designed to support Corps or Army Combat troops. Coordinates and supervises a Gp normally composed of 4 Engr Bns or equivalent—generally consisting of a combination from any of the following units: C Bn, Hv Pon Bn, L Pon Co, Treadway Br Co, Topo Bn or Sep Co, Cam Bn or Sep Co, W Sup Co, L Equip Co, Maint Co, Dp Trk Co, Dep Co. Average area required for unit installation—1.5 acres. Wt (short tons): on wheels 50; boxed 60. Cubage (ship tons): on wheels 200; boxed 150.

ENGINEER UNITS:

Non-Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
4	Engr Topo Co, Corps T/O & E 5-167 (8/26/44)	O..... 5 EM.....113 Agg.....118	Tlr, 1-ton..... 7 Tlr, 1-ton, 250 gal, water.... 1 Mtz Reproduction Equip.... 5 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 5 Trk, 2½-ton, cargo..... 8 Trk, 5- 6-ton, Trac..... 1 W Sup Equip..... 1	Provides map information adequate for tactical and strategical requirements of the Corps by preparation of sketches, drawings, maps and map substitutes and the distribution and reproduction of existing maps of the T of Opns. Also furnishes FA survey support. Mtz reproduction equipment includes: Camera Sec Combination Sec Photographic Sec Plate Grainer Sec Press Sec Entirely Mbl. Average area required for unit installation—2.1 acres. Usually assigned 1 per Corps.
5	Engr Topo Bn, Army T/O & E 5-55 (8/22/44)	O..... 19 WO..... 3 EM.....404 Agg.....426	Tlr, ¼-ton..... 4 Tlr, 1-ton.....32 Tlr, 1-ton, 250 gal, water.... 1 Mtz Reproduction Equip....10 Trk, ¼-ton.....11 Trk, ¾-ton, Wpn Carr..... 7 Trk, 1½-ton, cargo..... 4 Trk, 2½-ton, cargo.....25 Trk, 2½-ton, Tk, 750-gal.... 1 Trk, 4-ton, cargo..... 2 Trk, 4-ton, wrecker..... 1	Provides map information adequate for tactical and strategical requirements of the Army by preparation of sketches, drawings, maps and map substitutes and the distribution and reproduction of existing maps of the T of Opns. Furnishes appropriate FA Survey support. Normally assigned 1 per Army. Entirely Mbl. Hq & Hq & Serv Co and 2 Cos (Repro Co & Photo-mapping Co). Average area required for unit installation—8.8 acres. Mtz reproduction equipment includes: Camera Sec.....1 Laboratory Sec.....1 Photographic Sec.....1 Plate Grainer Sec.....1 Plate Process Sec.....1 Press Sec.....4 Map Layout Sec.....1 Wt (short tons): on wheels 550; boxed 600. Cubage (ship tons): on wheels 2,500; boxed 1,850.

ENGINEER UNITS:

Non-Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
6	Engr L Pon Co T/O & E 5-87 (3/11/44)	O..... 6 EM.....205 Agg.....211	Tlr, 2-wheel, utility, pole type— 2½-ton: Type I.....51 2½-ton: Type IV..... 2 Tlr, 1-ton..... 6 Tlr, 8-ton..... 2 Trk, ¼-ton..... 7 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo.....57 Trk, 4-ton, cargo..... 4 Trk, 4-ton, wrecker..... 1 Trac, 35 to 40 DBHP..... 2 Compressor, Mtz..... 1 Crane, Trk-Mtd..... 1	Maintains and transports river-crossing equipment, assists in construction. Hq Plat and 3 Plats (2 bridge Plats and 1 light equipage Plat). Average area required for unit installation—4.6 acres. Sufficient organic transportation for movement of all personnel and equipment. See Ch 7 for details of bridging equipment. Wt (short tons): on wheels 800; boxed 1,000. Cubage (ship tons): on wheels 2,900; boxed 2,500.
7	Engr Treadway Br Co T/O & E 5-627 (9/29/43)	O..... 4 EM.....134 Agg.....138	Compressor, Mtz..... 4 Crane, Trk Mtd..... 2 Trac, 35DBHP..... 2 Tlr, 8-ton..... 2 Tlr, 2½-ton, utility..... 2 Tlr, 1-ton, cargo.....13 Trk, ¼-ton..... 4 Trk, 2½-ton, cargo.....17 Trk, Hv wrecker..... 1 Trk, 6-ton, treadway.....36 Car, Half-track, M3A1..... 1	This Co furnishes 864 ft of steel treadway bridge M-2, or 1,080 ft of steel treadway bridge M-1 for use by Hv equipment. Normal attachment is 1 Co per Armd Div and 1 per 2 Tk or TD Gps. For functions and characteristics, see Par 703. Completely Mbl.
8	Engr Hv Pon Bn T/O & E 5-275 (7/9/43)	O..... 17 WO..... 3 EM.....362 Agg.....382	Tlr, welding..... 1 Semi-Tlr, ponton.....64 Tlr, 8-ton..... 4 Tlr, pole type, 2½-ton..... 8 Tlr, 1-ton..... 9 Trk, ¼-ton..... 3 Trk, ¾-ton, Comd..... 4 Trk, ¾-ton, Wpn Carr..... 8 Trk, 2½-ton, cargo, w/w....15 Trk, 4-ton, cargo, w/w..... 8 Trk, 4-ton, wrecker..... 2 Trk, 5- 6-ton, Trac, w/w....64 Mtrcl, solo..... 6 Trac, 35DBHP..... 4 Compressor, Mtz..... 1 Crane, Trk Mtd..... 2 Shop, Mtz, Gen Rep..... 1	Primarily a bridge transport and Maint unit. Can assist in Cons and under certain circumstances can construct bridges. Hq & Hq & Serv Co—2 lettered Cos. Bridging Equip of the Bn comprises 4 complete units of Hv Pon equipage (each bridge of 200 ft.) Average area required for unit installation—15 acres. Sufficient transportation for movement of all personnel and equipment. Wt (short tons): on wheels 1,600; boxed 1,900. Cubage (ship tons): on wheels 6,300; boxed 7,000.

ENGINEER UNITS:

Non-Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
9	Engr Cam Bn, Army T/O & E 5–95 (8/2/43)	O..... 28 WO..... 2 EM.....341 Agg.....371	Compressor, Mtz..... 1 Tlr, ¼-ton.....32 Tlr, 1-ton..... 7 Trk, ¼-ton..... 8 Trk, 2½-ton, cargo..... 8 Trk, ¾-ton, Wpn Carr.....38	Prepares, plans, and supervises large scale camouflage installations; performs experimental work; facilitates Sup of camouflage materials; directs inspections; supervises camouflage discipline and Tng for all Trs in an assigned area. Hq & Hq & Serv Co and 4 lettered Cos. Wt (short tons): on wheels 250; boxed 300. Cubage (ship tons): on wheels 1,200; boxed 750.
10	Engr Cam Co, Corps T/O & E 5–97 (8/2/43, C1)	O..... 5 EM..... 62 Agg..... 67	Tlr, ¼-ton..... 8 Tlr, 1-ton..... 1 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 9 Trk, 2½-ton, cargo..... 1	A lettered Co of an Engr Cam Bn, Army with small additions in personnel & equipment may be used as a special task force unit. Normal camouflage duties for a task force smaller than an Army. Consists of Co Hq and 4 Plats. Sep Co is organized for assignment to an independent Corps. Normally 1 Plat Atchd to each Div. Not completely Mbl.
11	Engr W Sup Co T/O & E 5–67 (8/4/43)	O..... 6 EM.....130 Agg.....136	Tlr, ¼-ton..... 4 Tlr, 1-ton.....13 Trk, ¼-ton..... 5 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 1 Trk, 2½-ton, dump..... 4 Water purification unit, Mbl..... 8	Purifies, stores and fills water containers at purification points. Co Hq and 4 Plats (production). Plats can operate independently. Capacity—33,600 gal water per 8 hr day per mobile unit. Average area for unit installation—1.6 acres. Wt (short tons): on wheels 100; boxed 150. Cubage (ship tons): on wheels 400; boxed 250.

ENGINEER UNITS:

Non-Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
12	Engr L Equip Co T/O & E 5-367 (8/24/44)	O..... 4 EM.....114 Agg.....118	Auger, earth, Skid Mtd..... 2 Compressor, Trk Mtd..... 6 Crane, Trk Mtd..... 2 Grader, Rd, Mtz..... 6 Grader, Rd, towed type..... 2 Shovel, ½-cu yd..... 4 Scraper, 8-cu yd..... 2 Trac, 70- 80-DBHP..... 6 Trac, 35- 40-DBHP w/loader bucket..... 2 Tlr, 8-ton, LB..... 2 Tlr, 1-ton..... 2 Trk, ¼-ton..... 3 Trk, ¾-ton, Wpn Carr..... 2 Trk, 2½-ton, cargo..... 3 Trk, 2½-ton, dump, w/w.... 8 Trk, 4-ton, cargo..... 2 Trk, Hv, wrecker, M1A1.... 1 Trk, 6-ton, prime mover....10 Semi-Tlr, 20-ton, LB.....10 Lubricator, Tlr Mtd..... 1 Shop, Mtz, Gen purpose..... 1 Welding Equip, Tlr Mtd.... 1	A flexible pool of earth-moving equipment with operators to augment equipment of combat Bns for Cons and demolition work. Consists of Co Hq, 2 Equip Plats and 1 Serv Plat. This unit can work in shifts giving 24-hour performance. Normally assigned one (1) per six non-Div C Bns. Wt (short tons): on wheels 600; boxed 650. Cubage (ship tons): on wheels 1,900; boxed 1,700.
13	Engr Sp Shop Bn T/O & E 5-535S (9/3/43, C1)	O..... 35 WO..... 3 EM.....858 Agg.....896	Crane, Trk Mtd..... 2 Trac, 80 DBHP..... 2 Mtrcl, Solo..... 2 Tlr, 1-ton, cargo.....16 Tlr, low bed, 16-ton..... 2 Trk, ¼-ton..... 9 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 9 Trk, 2½-ton, cargo.....16 Trk, 4-ton, wrecker..... 1 Trk, 6-ton, prime mover .... 3 Compressor, Trk Mtd..... 1 Boats: Control..... 1 Fire, 36 ft..... 4 Fire & Salv, 50 ft..... 4 Power, utility.....12	Rep unit for the Engr Sp Brig. Performs 4th and 5th Ech Maint. Normally assigned one (1) per 2-3 Engr Sp Brigs. Consists of Hq Co, Power Plant Rep Co, Hull Rep Co, Salv & Dockage Co, Dep Co. Cos can function independently. Average area needed for unit installation—16.06 acres wo/boats.

ENGINEER UNITS:

Non-Divisional Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
14	Engr Sp Brig T/O & E 5-510S (4/7/44)	O.....382 WO..... 15 EM.....6731 Agg.....7128	Trac, crawler, Diesel 70-90 DBHP, w/bulldozer.....33 Compressor, Trk Mtd..... 3 Crane, Trac, 20-ton..... 6 Shop Equip, Mtz Mach Shop, Hv..... 3 Mach Shop, L..... 6 Tool & Bench..... 6 Small Tool Rpr..... 6 Welding.....12 Shovel, crawler, Mtd ½-cu yd..... 9 Semi-Tlr, low bed, 20-ton.... 6 Tlr, 1-ton, cargo.....71 Tlr, 1-ton, water, 250-gal.... 8 Tlr,K52 ..... 1 Tlr, ¼-ton.....23 Trk, K51..... 1 Trk, ¼-ton.....147 Trk, ¾-ton, Wpn Carr.....18 Trk, 1½-ton, cargo.....58 Trk, 2½-ton, Amph.....36 Trk, 2½-ton, cargo.....83 Trk, 2½-ton, dump.....15 Trk, 2½-ton, Gas Tk 750-gal..... 9 Trk, 2½-ton, instrument repair..... 3 Trk, 2½-ton, wrecker..... 1 Trk, 4-ton, wrecker..... 4 Trk, 6-ton, prime mover..... 6 Boats: Comd/Navigation.....32 Lighter, Tk, 50 ft (LCM)..270 Patrol.....36 Fire & Salvage.....15 Surf Landing, 36 ft (LCVP).....270 Power Utility.....21	Provides personnel and equipment for transportation of C Trs from a friendly near shore to a hostile far shore. Furnishes resupply for these Trs during early stages of establishment of beachhead. Near and far shores may be on same coast line. Operating distance of this brigade is approximately 100 mi. Can transport 1 Div when reinforced by Navy LCT. Consists of Brig HQ, Hq Co; 3 boat and shore Regts ea with Hq Co, 1 boat Bn of Hq Co & 3 Ltr Cos and 1 Shore Bn of Hq Co & 3 Shore Cos; 1 Boat Maint Bn of Bn Hq, Hq Co and 3 Maint Cos; plus Atchd Med Bn, Ord Maint Co, Sig Co and QM Hq & Hq Co. Average area needed for unit installation—101.3 acres wo/boats. Wt (short tons): on wheels 2,800; boxed 3,000. Cubage (ship tons): on wheels 12,800 ;boxed 9,700.
15	Engr Tech Int Team (C) T/O & E 5-398T	O..... 1 EM..... 3 Agg..... 4	Tlr, ¼-ton..... 1 Trk, ¼-ton..... 1	Examines and photographs new enemy Equip, fortifications, and demolitions; furnishes Tech Int for use in Theater of Opns.
16	Engr Tech Int Team (Research) T/O & E 5-399T	O..... 3 EM.....6 Agg.....9	Trk, ¼-ton..... 2 Trk, 2½-ton, cargo..... 1	Examines and photographs new enemy Equip, fortifications, and demolitions, and supplies information to zone of interior for further study; procures captured Equip and prepares them for shipment to zone of interior.

ENGINEER UNITS (Continued):

c. Service Force Units:

	1	2	3	4
1	*Unit*	*Personnel*	*Vehicles*	*Remarks*
2	Hq & Hq Co Engr Base Topo Bn T/O & E 5–186 (12/29/43)	O..... 7 WO..... 2 EM.....72 Agg.....81	Tlr, 1-ton..... 1 Trk, ¼-ton..... 3 Trk, ¾-ton, Comd..... 5 Trk, 2½-ton, cargo..... 4	This organization is designed to furnish the necessary administrative and operative overhead for a base topographic battalion to which base reproduction companies, base photomapping companies, base survey companies and teams from T/O & E 5–500 are attached as required. No definite battalion orgainzation is provided. This organization prepares topographical maps by photogrametric methods, and furnishes to Army Topo Bns advanced points for control purposes.
3	Engr Base Reproduction Co, Engr Base Topo Bn T/O & E 5–187 (12/29/43)	O..... 6 EM.....161 Agg.....167	Tlr, 1-ton, cargo.....1 Tlr, 1-ton, Water Tank 250-gal..... 1 Trk, ¾-ton, Comd..... 1 Trk, 2½-ton, cargo..... 2	One or more Companies may be assigned to Hq & Hq Co, Engr Base Topo Bn. Co Hq and 3 Lithographic platoons.
4	Engr Base Survey Co, Engr Base Topo Bn T/O & E 5–188 (12/29/43, C1, 2)	O..... 6 EM.....210 Agg.....216	Tlr, 1-ton.....10 Tlr, 1-ton, 250 gal tank, water..... 1 Tlr, utility, pole type, 2½-ton.....10 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr.....19 Trk, 2½-ton, cargo..... 8	One or more companies may be assigned to Hq & Hq Co, Engr Base Topo Bn. Co Hq and 3 Platoons.
5	Engr Base Photomapping Co, Engr Base Topo Bn T/O & E 5–189 (12/29/43)	O..... 8 EM.....262 Agg.....270	Tlr, 1-ton..... 1 Trk, ¾-ton, Comd..... 1 Trk, 2½-ton, cargo..... 1	One or more companies may be assigned to Hq & Hq Co, Engr Base Topo Bn. Co Hq and 3 mapping platoons.

ENGINEER UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
6	Engr Gen Serv Regt T/O 5-21 (4/1/42, C1, 2)	O..... 51 WO..... 3 EM.....1212 Agg.....1266	Amb..... 1 Tlr, for tractor..... 8 Tlr, 1-ton..... 29 Trk, ¼-ton..... 5 Trk, ¾-ton, Comd..... 11 Trk, ¾-ton, Wpn Carr..... 26 Trk, 2½-ton, cargo..... 21 Trk, 2½-ton, dump..... 24 Trk, 4-ton, cargo..... 8 Trk, 4-ton, wrecker..... 1 Trk, 6-ton, prime mover .... 2 Trac, 35DBHP..... 8 Auger, earth, Mtz..... 1 Compressor, Mtz..... 8 Grader, Road, Mtz..... 2 Shop, Mtz, Gen purpose 1 Shop, welding, Tlr Mtd..... 1 Shovel, ½-cu yd..... 2 Mtrcl, Solo..... 8	Gen Engr work requiring high percentage of skilled labor, such as Cons of bridges, highways, railroads, cantonments, hospitals, etc. Other Serv units assigned as needed, such as 1 Dp Trk Co, or elements of Equip Cos. Hq & Hq & Serv Co plus 2 Bns of 3 Cos each. Cos can function independently. Transportation for equipment only. To be completely mobile requires additional transportation for approximately 1,086 individuals. Wt (short tons): on wheels 900; boxed 1,000. Cubage (ship tons): on wheels 3,600; boxed 2,700.
7	Engr Gen Serv Regt T/O & E 5-121 (9/27/44)	O..... 86 WO..... 2 EM.....1707 Agg.....1795	Compressor, Mtz.....12 Crane, Trk-Mtd, ¾-cu yd.. 1 Grader, Rd, Mtz..... 3 Lubricator, Tlr-Mtd..... 1 Mixer, concrete, 14-cu ft, Tlr-Mtd..... 1 Semi-Tlr, 20-ton (LB).....14 Shop, Mtz, Gen purpose Rep..... 2 Shovel, ¾-cu yd..... 2 Trac, 70- 90-DBHP.....12 Welding Equip, Tlr-Mtd.... 1 Tlr, ¼-ton..... 5 Tlr, 1-ton, cargo.....41 Tlr, 1-ton, tank, 250-gal.....10	Performs Gen Engr work. Consists of Hq and Hq and Sv Co and 3 Bns, each with Hq and Hq Det and 3 lettered Cos. *Vehicles—(Continued)* Trk, ¼-ton.....37 Trk, ¾-ton, Amb..... 1 Trk, ¾-ton, Wpn Carr..... 8 Trk, 1½-ton, cargo.....31 Trk, 2½-ton, cargo.....13 Trk, 2½-ton, dump, w/w.....53 Trk, 4-ton, wrecker..... 1 Trk, 6-ton, prime mover w/w.....14
8	Engr Gen Serv Bn T/O & E 5-135 (9/27/44)	O..... 37 WO..... 2 EM.....797 Agg.....836	Compressor, Mtz..... 6 Crane, Trk-Mtd, ¾-cu yd.. 1 Grader, Rd, Mtz..... 2 Lubricator, Tlr-Mtd..... 1 Mixer, concrete, 14-cu ft, Tlr-Mtd..... 1 Semi-Tlr, 20-ton, (LB)..... 7 Shop, Mtz, Gen purpose Rep..... 1 Shovel, ¾-cu yd..... 1 Trac, 70-90 DBHP..... 6 Welding Equip, Tlr-Mtd.... 1 Tlr, ¼-ton..... 3 Tlr, 1-ton, cargo.....21 Tlr, 1-ton, tank, 250-gal..... 5 Trk, ¼-ton.....17	Performs Gen Engr tasks. Consists of Hq and Hq and Sv Co, and 4 lettered Cos. For use where there is insufficient work to warrant assignment of Gen Serv Regt. *Vehicles—(Continued)* Trk, ¾-ton, Amb..... 1 Trk, ¾-ton, Wpn Carr..... 5 Trk, 1½-ton, cargo.....12 Trk, 2½-ton, cargo..... 9 Trk, 2½-ton, dump, w/w.....28 Trk, 4-ton, wrecker..... 1 Trk, 6-ton, prime mover w/w..... 7

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ENGINEER UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
9	Hq & Hq Co Engr Cons Gp T/O & E 5-72 (12/23/43, C1)	O..... 12 WO..... 2 EM..... 80 Agg..... 94	Tlr, ¼-ton..... 6 Tlr, 1-ton..... 1 Tlr, 250-gal, water..... 1 Trk, ¼-ton..... 8 Trk, ¾-ton, Wpn Carr..... 1 Trk, 1½-ton, cargo..... 5 Trk, 2½-ton, cargo..... 2	The engineer construction group is a specialized organization designed, trained, and equipped for general engineer construction in the Com Z or the Z of I. The group consists of a Hq & Hq Co, a Gp Med Det, and 3 or more Engr Cons Bns. Other Engr units may be attached as required. The Gp Hq supervises the work of the attached Cons Bns or other units.
10	Engr Cons Bn T/O & E 5-75 (12/23/43, C1)	O..... 29 WO..... 2 EM.....869 Agg.....900	Compressor, Trk Mtd..... 8 Crane, Trac operated, 20-ton..... 1 Crane, Trk Mtd, ¾-cu yd.. 2 Grader, Mtz..... 3 Grader, Towed..... 1 Lubricator, Tlr-Mtd..... 4 Mixer, Concrete, Tlr-Mtd.. 2 Power Plant, 5 Kw, Tlr Mtd..... 1 Pump, centrifugal, Tlr Mtd 5 Roller, Sheepsfoot, towed.... 2 Rooter, 5-tooth..... 2 Scraper, towed, 8-cu yd..... 6 Roller, road, 10-ton..... 2 Roller, road, 5-8-ton..... 1 Semi-Tlr, LB, 20-ton.....12 Shop Equip, 3d Ech, Mtz: Shop, Gen purpose..... 1 Shop, Mach, Hv..... 1 Shovel, ¾-cu yd..... 2	Gen Engr work requiring a high percentage of skilled labor, such as Cons of bridges, highways, railroads, cantonments, hospitals, etc. Hq & Hq Serv Co and 3 lettered Cos. *Vehicles—(Continued)* Trac, 70-90 DBHP w/angle dozer.....10 Trk, ¼-ton.....27 Trk, ¾-ton, Wpn Carr..... 1 Trk, 1½-ton, cargo.....15 Trk, 2½-ton, dump, w/w.....40 Trk, 2½-ton, cargo..... 1 Tlr, ¼-ton..... 1 Tlr, 1-ton.....23 Tlr, 250-gal tank, water..... 4 Trk, 4-ton, wrecker..... 1 Trk, 6-ton, prime mover.....12
11	Engr Dp Trk Co T/O & E 5-88 (5/9/44)	O..... 4 EM.....103 Agg.....107	Tlr, 1-ton..... 2 Tlr, 250 gal water tank..... 1 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 2 Trk, 2½-ton, dump, w/w...48	Pool of dump Trks for Cons work. May be assigned to any Engr unit requiring transportation of bulk materials. Will move 120 ton of bulk material per trip. Co Hq and 2 Plats. Average area required for unit installation—3.7 acres. Wt (short tons): on wheels 400; boxed 450. Cubage (ship tons): on wheels 1,600; boxed 1,200.

ENGINEER UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
12	Engr Maint Co T/O & E 5–157 (8/24/44)	O..... 6 EM.....185 Agg.....191	Shop, Mtz, Elec Rep..... 2 Shop, Mtz, Gen Rep..... 2 Shop, Mtz, Mach shop, Hv 2 Shop, Mtz, Mach shop, L.. 2 Shop, Mtz, tool Rep..... 1 Shop, Mtz, tool & bench.... 2 Tlr, 1-ton, cargo.....13 Tlr, 1-ton, 250-gal, water tk 1 Tlr, low bed, 20-ton..... 2 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 9 Trk, 2½-ton, cargo.....20 Trk, Hv wrecker, M1A1..... 3 Lubricator, Tlr mounted.... 2 Power plant, 5kw, Tlr-mtd.. 5	Operates Mbl shops for 3d Ech Maint of Engr equipment and supplements construction by job-site fabrication. 1 Hq Plat, 2 Maint Plats, and 1 Contact Plat. The Maint Plats make Rep on equipment that can be moved to their bases of operation. The Contact Plat makes emergency Rep to equipment that cannot be easily moved. Completely Mbl. Average area required for unit installation—4.1 acres. Engr Avn Maint Co, organized under same T/O & E, has same mission for AAF Engr Units.
13	Engr Dep Co or Engr Avn Dep Co T/O & E 5–47 (10/22/43)	O..... 7 EM.....202 Agg.....209	Tlr, LB, 20-ton..... 2 Tlr, 1-ton..... 5 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 5 Trk, 2½-ton, cargo..... 5 Trk, 2½-ton, dump..... 2 Trk, 5- 6-ton, Trac..... 2 Crane, Trk Mtd..... 1	Provides supervisory, Adm, and limited skilled labor personnel and equipment for operating Engr Deps whose function is to receive, store, and issue Engr Sup. Hq Plat and 3 Dep Plats. 1 Parts Sup Plat. Plats can function independently. Co can furnish personnel to operate a Dep of about 300,000 sq ft of storage area. Average area required for unit installation including storage area —11.3 acres. Mbl SL Maint Units (crew of 3 men per unit) can be Atchd. Gen Engr Trs and Dp Trk Cos may assist in the movement, establishments, and operations of Army Deps. Wt (short tons): on wheels 150; boxed 170. Cubage (ship tons): on wheels 550; boxed 400.

ENGINEER UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
14	Engr Parts Sup Co T/O 5-247 (4/23/43)	O..... 6 EM.....168 Agg.....174	Trac, rubber-tired, 30 HP .. 1 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 4 Trk, 5- 6-ton, Trac..... 1 Semi-Tlr, 20-ton..... 1 Mtrcl, solo..... 1 In order to operate as an independent unit, the following must be added. Crane, Trk Mtd..... 1 Tlr, 1-ton, cargo..... 3 Trk, 2½-ton, cargo..... 3	Establish and operate an Engr spare parts Sup Dep whose function is to Sup spare parts for all equipment procured by Corps of Engineers. Usually operates as a component of Engr Dep Gp. Dep Hq, Hq Plat, Procurement Plat and Warehouse Plat. Under normal conditions will serve a force which includes 30,000 Engr Trs. Average area needed for warehouse, vehicles and personnel—2.82 acres. Wt (short tons): on wheels 50; boxed 60. Cubage (ship tons): on wheels 150; boxed 125.
15	Engr Parts Sup Sep Plat T/O & E 5-567 (6/9/43, C1)	O..... 3 EM.....54 Agg.....57	Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 2 In order to operate independently the following equipment must be provided: Crane, Trk Mtd, gas, ⅜-cu yd..... 1 Tlr, 1-ton, cargo..... 1	Supplies spare parts for Engr equipment. Normally operated as a component of the Engr Base Dep Gp and when so assigned can serve a force which includes 15,000 Engr Trs. Assigned one per Dep, base or theater where there is insufficient Engr equipment for the operation of a parts Sup Co. Average area needed for unit installation—1 acre.
16	Hq & Hq Co, Engr Port Cons & Repair Gp T/O & E 5-52 (9/16/44, C1)	O..... 17 EM.....255 Agg.....272	Compressor, Tlr Mtd..... 4 Crane, Trk Mtd..... 2 Shovel, ¾-cu yd..... 2 Trac, 70-90DBHP..... 4 Tlr, pole type, 2½-ton..... 3 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 2 Trk, 2½-ton, dump, w/w.... 4 Trk, 6-ton, prime mover w/w..... 4 Mixer, 14-cu ft, Tlr Mtd.... 2 Lubricator, Tlr Mtd..... 1 Shop Equipment, 3d Ech Mtz: Set No. 3, Gen purpose..... 1 Set No. 4, Mach Shop Hv.... 1 Pump, centrifugal, Tlr Mtd 5 Tlr, Semi, 20-ton..... 4 Shovel, 2-cu yd (non-std) .. 2 Welding Equip, Tlr Mtd.... 6	This Co furnishes skilled technical specialists, supervisors and equipment required for Cons and Rep of waterfront establishments and harbor facilities. 1 per major captured or liberated port. Consists of Gp Hq and Hq Co. Hq Co consists of Co Hq, Hq Plat and a Cons Plat. The capacity is determined by its assignment and the additional Serv units, or civilian laborers attached. Average area required for unit installation—2.7 acres. A Port Cons and Rep Gp may consist of one or more of the following: Hq & Hq Co, Fin Sec, Sig Sec, Eng Cons Bn, Engr Gen Serv Regt or Bn, QM Trk Co, QM Serv Bn, or Port Bn or Civilian Labor, Med Det, MP Co or Det. Some naval equipment & personnel may also be needed.

ENGINEER UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
17	Engr Petroleum Distribution Co T/O & E 5-327 (7/24/44, C1)	O..... 7 EM.....210 Agg.....217	Compressor, Trk Mtd..... 1 Shop, Mtz, Gen purpose Repl Trac, 55DBHP..... 1 Tlr, pole type, 2½-ton.....12 Tlr, 250-gal, water tank..... 2 Tlr, Semi, 20-ton, LB..... 1 Trk, ¼-ton..... 6 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo.....12 Trk, 6-ton, prime mover..... 1 Welding Equip, Tlr Mtd.....4	Mission is to locate, construct, operate, and maintain military pipeline systems as a means for transporting, distributing, and storing petroleum products in bulk in a T of Opns. 1 Hq Plat and 1 Operating Plat. Unit can construct and operate 120 miles of pipeline system, composed of 12 pumping stations, 2 tank terminals, and 2 warehouses. One Engr Gen Serv Co is required when construction of pipeline must be completed in a short time. Average area needed for unit installation—3.53 acres!
18	Hq & Hq & Serv Co, Engr Forestry Bn T/O & E 5-386 (6/25/43)	O..... 6 WO..... 2 EM.....65 Agg.....73 Med Attchd O..... 2 EM.....14 Agg.....16	Tlr, 1-ton, cargo..... 3 Trk, ¼-ton..... 1 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 7 Trk, 2½-ton, cargo..... 4 Amb..... 1	Hq for a type Bn of 3 to 6 Forestry Cos. Locates, cruises amd maps available boundaries of timber plans and supervises logging and milling operations. Provides 3d and 4th Ech Maint for forestry equipment. Average area required for unit installations—1.5 acres.
19	Engr Forestry Co T/O & E 5-387 (2/4/44, C1)	O..... 5 EM.....150 Agg.....155	Tlr, 1-ton..... 2 Tlr, 4-wheel, 7-14-ton..... 3 Tlr, 1-ton, 250 gal, water.... 1 Trk, ¼-ton..... 2 Trk, 1½-ton, cargo..... 2 Trk, 2½-ton, cargo..... 4 Trk, Trac, 4-ton..... 3 Trk, 6-ton, cargo..... 1 Trac, 70-90DBHP..... 3 Semi-Tlr, 20-ton..... 1 Arch, logging, towed type, crawler Mtd..... 1	Production of lumber from standing timber. Provides forestry products, such as lumber, piling, cross ties, poles, etc. Capable of producing from 20,000 to 40,000 bd ft of construction lumber per day. Needs transportation for personnel. Average area needed for unit installation—2.65 acres.

ENGINEER UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
20	Engr Serv Orgn T/O & E 5-500 (6/26/44)	Varies	Varies	This is a cellular organization providing specialized teams of varying sizes, functions, and capacities, for use where standard organizations are too large or cannot meet a particular engineer need of the theater. Teams may operate independently, may be combined to form composite platoons, companies, or battalions, or may be attached to a standard engineer unit. Teams are grouped in the T/O into 8 parts: part I; administrative; part II, supply; part III, water supply and transportation; part IV, maintenance and special equipment, part V, utilities; part VI, firefighting; part VII, topographic; and part VIII, marine.
21	Hq & Hq Co, Engr Base Dep Gp T/O & E 5-592 (6/30/43)	O.....11 WO.....2 EM.....59 Agg.....72	Trk, ¼-ton.....2 Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....2	This Hq Co provides the nucleus of administrative personnel for a Base Dep Gp consisting of one or more of the following units: Engr Base Dep Co, Engr Parts Sup Co, Engr Base Equip Co, Engr Hv Shop Co, Engr Gas Generating Unit. 1 Dep Hq and 1 Hq Co (Hq consists of Co Hq, Adm Sec, Dep Sup Sec, Sep Shop Sec & Transportation Sec). Average area needed in unit installation—1.0 acre.
22	Engr Base Dep Co T/O & E 5-267 (5/30/44)	O.....5 EM.....160 Agg.....165	Trac, rubber-tired, 30DBHP3 Tlr, 1-ton, cargo.....3 Trk, ¼-ton.....4 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....3 Crane, Trk Mtd, ¾-cu yd....3 *Remarks—(Continued)* Wt (short tons): on wheels 25; boxed 30. Cubage (ship tons): on wheels 75; boxed 50.	Receives, stores and issues Engr Sup and equipment. Normally this unit will serve a force which includes 15,000 Engr Trs. Consists of Dep Hq Staff Sec, Co Hq, and 3 Plats. Designed to operate as a component of the Engr Dep Gp. Average area needed for unit installation—1.85 acres for personnel and organic transportation. Will need additional space for all which unit will handle.

ENGINEER UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
23	Engr Base Equip Co T/O & E 5-377 (6/24/44)	O..... 5 EM.....168 Agg.....173	Tlr, LB, 8-ton..... 4 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 3 Trk, 4-ton, cargo..... 4 Trk, 6-ton, prime mover ....18 Crane, ¾-cu yd, Trk Mtd.. 1 Semi-Tlr, 20-ton, (LB).....18 Shop, Mtz, Gen purpose .... 1 Trk, Hv wrecker, M1A1..... 1 Trk, 2½-ton, 750-gal, gasoline tank..... 1 Lubricator, Tlr-Mtd..... 2 Welding Equip, Tlr-Mtd.... 1 *Remarks—(Continued)* Wt (short tons): on wheels 350; boxed 400. Cubage (ship tons): on wheels 1,150; boxed 850.	This unit is designed to operate as a component unit of a base, general, or branch depot. It will be charged with the following: 1. Assembly and initial conditioning of all construction equipment received by the Dep for Dep stock. 2. Delivery of heavy construction equipment, with operators, to Engr units the T of Opns, when required. 3. Reconditioning of equipment, including 1st and 2d Ech Rep, when returned by units. 4. Evac of damaged Hv Engr equipment in the Com Z. 5. Provision of well drilling and Maint personnel for use of W Sup units when desired. Consists of Co Hq, Equip Plat, and Serv Plat.
24	Engr Hv Shop Co T/O & E 5-357 (5/19/43, C1, 2)	O..... 6 EM.....163 Agg.....169	Tlr, 1-ton, Tk, 250-gal..... 1 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 2 Trk, 4-ton, wrecker..... 1 Trk, Hv wrecker, M1..... 1 Lubricator, Tlr-Mtd..... 1 In order to perform independent missions, this Co must have assigned to it: Trk, 2½-ton, cargo, w/w.... 3 Tlr, Semi, 20-ton..... 2 Trk, 5- 6-ton, Trac..... 2 *Remarks—(Continued)* Wt (short tons): on wheels 150; boxed 175. Cubage (ship tons): on wheels 450; boxed 400.	Non-mobile base shop. Provides 4th and 5th Ech Rep for all Engr equipment. Hq Plat, Manufacturing Plat, and a Rep Plat. Normally operates by assignment to an Engr Dep Gp. Average area needed for unit installation—3.2 acres. Shop equipment, 3d Ech, Mtz: Set No. 2—emergency repair.....2 Set No. 3—Gen purpose rep.....1 Set No. 9—welding.....2 Shop equipment, 4th Ech: Set No. 1—electrical.....1 Set No. 2—forge.....1 Set No. 3—Gen Rep.....1 Set No. 4—machine shop.....1 Set No. 5—motor.....1 Set No. 6—welding.....1 Set No. 7—woodworking.....1 Set No. 8—toolroom, heavy.....1

d. Basis for Computing Engineer Troop Requirements: [1]

1	*1* Unit	*2* T/O & E	*3* Inf Div	*4* Armd Div	*5* AB Div	*6* Corps of 3 Div [2]	*7* Army of 3 Corps [2]	*8* Air-Force [2]	*9* Com Z Supporting Army Gp and AF
2	Engr C Bn	5–15	1			6	12		
3	Armd Engr Bn	5–215		1					
4	A/B Engr Bn	5–225			1				
5	Engr Hq, Army	5–200–1					1		
6	Hq & Hq Co, Engr C Gp	5–192				2	4		
7	Engr Topo Co, Corps	5–167				1			
8	Engr Topo Bn, Army	5–55					1		
9	Engr Topo Bn, Base	5–186–7–8–9							1
10	Engr L Pon Co	5–87				2	6		
11	Engr Treadway Br Co	5–627		1 [3]		2	3		
12	Engr Hv Pon Bn	5–275				1	3		
13	Engr Cam Bn, Army	5–95					1		
14	Engr Cam Co, Corps	5–97				1			
15	Engr W Sup Co	5–67					1		5
16	Engr L Equip Co	5–367				1	6		10
17	Engr Dp Trk Co	5–88				2	6		10
18	Engr Maint Co	5–157				2	3		10
19	Engr Gen Serv Regt	5–121					3 [4]		25 [4]
20	Hq & Hq Co, Engr Cons Gp	5–72					3 [4]		25 [4]
21	Engr Sep Bn	5–35							10
22	Engr Dep Co	5–47					1	1	6
23	Engr Parts Sup Co	5–247					1		6
24	Engr Parts Sup Sep Plat	5–567							3
25	Hq & Hq Co, Engr Port Cons & Rep Gp	5–52							5
26	Engr Petroleum Distribution Co	5–327						2	8
27	Hq & Hq & Serv Co, Engr Forestry Bn	5–386							2
28	Engr Forestry Co	5–386							8
29	Engr Serv Orgn	5–500							(5)
30	Hq & Hq Co, Engr Base Depot Gp	5–592							6

Basis for Engineer Troop Requirements (Continued):

1	1 Unit	2 T/O & E	3 Inf Div	4 Armd Div	5 AB Div	6 Corps of 3 Div [2]	7 Army of 3 Corps [2]	8 Air-Force [2]	9 Com Z Supporting Army Gp and AF
31	Engr Base Dep Co	5-267							6
32	Engr Base Equip Co	5-377							6
33	Engr Hv Shop Co	5-357							16
34	Engr Sp Brig	5-510S	1 [5]						3
35	Engr Sp Shop Bn	5-535S							1
36	Engr AF Hq Co	5-800-2						1	
37	Engr Avn Regt	5-411						2	
38	Engr Avn Bn	5-415						(7)	
39	A/B Engr Avn Bn	5-455						2	
40	Engr Avn Cam Bn	5-465						1	
41	Engr Avn Topo Orgn	5-400						1	
42	Engr Det Sv, Fire Fighting, Avn	5-500						(8)	
43	Engr Det Sv, Utilities, Avn	5-500						(8)	

[1] This merely shows a typical organization; actual organization is *extremely flexible*. It should NOT be construed as the normal organization of any specific unit. CORPS, ARMIES, AIR FORCES, AND COMMUNICATION ZONES SHOULD CONSIST OF NEEDED UNITS, rather than a fixed organization conforming to the above.

[2] Numbers do not include units assigned to components; i.e. Corps figures do not include divisions.

[3] Attached when necessary. Not an organic part of division.

[4] Either Gen Sv Regts of 3-Bns *or* Cons Gps of 3-Cons Bns. Not both.

[5] May be assigned or attached for shore-to-shore operations.

[6] To be provided, attached, or assigned as required.

[7] 1 per each two fighter, bomber, or reconnaissance Gp.

[8] 1 per fighter, bomber, or reconnaissance Gp.

■ 162. MEDICAL DEPARTMENT UNITS:

a. Air Force Units:

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	Med Air Evac Transport Sq T/O 8–477 (7/19/44)	O.....6 N.....25 EM.....56 Agg.....87	Tlr, ¼-ton, cargo.....7 Tlr, 1-ton, Tk (250 Gal).....1 Tlr, 1-ton, cargo.....1 Trk, ¼-ton.....9 Trk, ¾-ton, Wpn Carr.....1 *Remarks—(Continued)* Wt (short tons): on wheels, 27; boxed, 32. Cubage (ship tons): on wheels, 123; boxed, 100.	Furnishes Med Dept personnel to Tr Carr and air transport units utilized in the Evac of sick and wounded, so as to provide Med care, nursing and treatment of casualties during flight. May be assigned or Atchd to: Air Transport Comd, Tr Carr Comd, an AF, an Air Transport Comd Wing, an Air Supt Comd or Tr Carr Wing of an AF, A Tr Carr Gp, and occasionally to an Air Serv Comd of an AF. Consists of Hq Sq, Hq and Sup Sec; 4 Evac Flights (each with a classification Sec and 6 Air Transport Teams). Functions with Evac Hosp, Field Hosp, Gen Hosp, Embkn Pts and Reception Centers for casualties, located accessible to airdromes.
3	Med Disp, Aviation T/O & E 8–450 (10/27/43, C1)	O.....4 EM.....24 Agg.....28	Tlr, ¼-ton, cargo.....3 Tlr, ¼-ton, Tk, (250 Gal).....1 Trk, ¼-ton.....4	Maintains a 36 bed dispensary. Furnishes Med care, with the exception of full hospitalization, for Army AF bases and organizations which are not provided with or have inadequate Med facilities. T/O & E 8–450 RS provides a 24-bed unit.
4	Med Sup Plat (Avn) T/O & E 8—497 (7/26/43)	O.....2 EM.....19 Agg.....21	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1	Procures, stores and issues Med Sup to Med units of AF served by Air Dep Gp, to which it is normally Atchd.
5	Vet Det Aviation T/O & E 8–487 (11/25/43)	O.....1 EM.....3 Agg.....4	Trk, ¾-ton, Comd.....1	A flexible Mbl organization designed to inspect all subsistence of Anl origin or sources of such foods for an AF in the field. Basic unit sufficient for 25,000 personnel and 1 officer and 2 soldiers for each additional 25,000.

[1] The floor space requirements given refer to buildings constructed for hospital purposes. For converted buildings, such as hotels, the floor space requirements are approximately four times that required in buildings constructed for use as hospitals.

MEDICAL DEPARTMENT UNITS (Continued):

b. Ground Force Units:

(1) *Division and Brigade Units:*

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	AB Div Med Co T/O 8-37 (8/1/44)	O..... 21 EM.....183 Agg.....204	See Par 114	1 per Airborne Div., 1 Plat to each RCT for Coll., Evac and treatment of casualties. Wt (short tons): on wheels, 36; boxed, 50. Cubage (ship tons): on wheels, 224; boxed, 130.
3	Med Bn Armd Div T/O & E 8-75 (9/15/43)	O..... 33 WO..... 2 EM.....365 Agg.....400	See Par 118	1 per Armd Div. Each Med Co has Co Hq, Coll Plat and Clr Plat for 2d Ech Med Serv. Wt (short tons): on wheels, 458; boxed, 542. Cubage (ship tons): on wheels, 2,459; boxed, 2,259.
4	Med Bn T/O & E 8-15 (7/15/43, C1, 2)	O..... 35 WO..... 2 EM.....407 Agg.....444	See Par 122 *Remarks—(Continued)* Wt (short tons): on wheels, 297; boxed, 316. Cubage (ship tons): on wheels, 1,474; boxed, 975.	1 per Inf Div. Hq & Hq Det, 3 Coll Cos, 1 Clr Co. Provides 2d Ech Med Serv and Evac for Div. Can move all equipment with organic transport but not personnel unless all Ambs are used for such transportation plus 6 additional 2½-ton cargo Trks.
5	Med Sq Cav Div T/O 8-85 (4/1/42, C1)	O..... 24 EM.....326 Agg.....350	Amb.....24	1 per Cav Div. Hq and Hq Det, 1 Coll Tr, 1 Clr Tr, 1 Vet Tr. Wt (short tons): on wheels, 251; boxed, 291. Cubage (ship tons): on wheels, 1,486; boxed, 1,125.
6	Med Bn, Engr Sp Brig T/O 8-195S (4/21/43)	O..... 31 EM.....389 Agg.....420	Tlr, 1-ton, (250 gal) water tank..... 7 Trk, ¼-ton.....33 Trk, ¾-ton, Comd..... 1 Trk, 1½-ton, cargo..... 4 Trk, 2½-ton, cargo.....17 Trk, 2½-ton, wrecker..... 1	1 per Engr Sp Brig. Consists of Hq and Hq Det and 3 Med Cos. Each Med Co has a Coll and Clr Plat. Provides Med support initially in landing operations in immediate vicinity of beachheads and will provide Med coverage in small boat evacuation to ships or base shore.

MEDICAL DEPARTMENT UNITS:

Ground Force Units (Continued):

(2) *Army Units (Assigned or Attached):*

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	Hq & Hq Det, Med Gp T/O & E 8-22 (11/1/43, C1)	O.....10 EM.....23 Agg.....33	Tlr, 1-ton.....1 Trk, ¼-ton.....4 Trk, ¾-ton, Comd.....1 Trk, 2½-ton, cargo.....1	THQ Res unit for attachment in numbers required to Armies, Corps, or separate task forces. Consists of Comd, Exec, and Comm Sec, Opns and Tng Sec and Hq Det. Is a flexible Orgn having tactical (command) control over six (6) to eight (8) basic Med units, which units may be Sep Cos, Bns, Mbl Hosp or similar units. Wt (short tons): on wheels, 14; boxed, 17. Cubage (ship tons): on wheels, 71; boxed, 50.
3	Hq & Hq Det, Med Bn (Sep) T/O & E 8-26 (5/20/43, C1)	O..... 6 WO..... 1 EM.....21 Agg.....28	Tlr, 1-ton, cargo.....2 Trk, ¼-ton.....3 Trk, 2½-ton, cargo.....3	THQ Res Unit. Normally Atchd to Army and Corps. May be Atchd to a Med Gp or operate separately. Consists of Comd and Exec Sec, Opns and Tng Sec, Sup and Maint Sec and Hq Det. Is a tactical and Adm Hq to which may be Atchd three (3) to six (6) Sep Cos, number and type of these units depend upon assigned mission. Wt (short tons): on wheels, 22; boxed, 25. Cubage (ship tons): on wheels, 119; boxed, 91.
4	Med Coll Co (Sep) T/O & E 8-27 (5/20/43, C1, 2, 3)	O..... 5 EM..... 95 Agg.....100	Tlr, ¼-ton..... 2 Tlr, 1-ton, Tk, (250 gal)..... 1 Amb, ¾-ton.....10 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpns Carr..... 4 Trk, 2½-ton, cargo..... 1	Designed for attachment to Hq and Hq Det, Med Gp, or Hq and Hq Det, Med Bn (Sep). To Army or Corps as necessary to meet varying conditions. Unit consists of Co Hq and 3 Plats (Sta Plat, Litter Plat and Amb Plat). Provides or augments facilities for care and Evac of Div, Corps or Army Tr. Unit has capacity to Evac casualties from approximately 3,500 Div Tr. Basis of assignment to task forces: 1 per Div. Wt (short tons): on wheels, 50; boxed, 66. Cubage (ship tons): on wheels, 302; boxed, 237.

MEDICAL DEPARTMENT UNITS:

Ground Force Units:

Army Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
5	Med Amb Co, Mtr (Sep) T/O & E 8-317 (5/20/43, C1)	O..... 4 EM..... 86 Agg..... 90	Tlr, 1-ton, cargo..... 1 Amb, ¾-ton..... 30 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpns Carr..... 1 *Remarks—(Continued)* Wt (short tons): on wheels, 107; boxed, 127. Cubage (ship tons): on wheels, 618; boxed, 530.	Designed for attachment to Hq and Hq Det, Med Gp, or Hq and Hq Det, Med Bn, Sep. To Army or Corps as necessary to meet varying conditions. Consists of Co Hq and 3 Plats. Has adequate facilities to Evac casualties from 12,000 Tr.
6	Med Clr Co (Sep) T/O & E 8-28 (9/4/44)	O..... 13 EM..... 99 Agg..... 112	Tlr, ¼-ton..... 1 Tlr, 1-ton, cargo..... 6 Tlr, 1-ton, Tk, (250 gal)..... 2 Trk, ¼-ton..... 3 Trk, ¾-ton, Wpns Carr..... 1 Trk, 1½-ton, cargo..... 2 Trk, 2½-ton, cargo..... 6	Designed for attachment to Hq and Hq Det, Med Gp or Hq and Hq Det, Med Bn (Sep). To Army or Corps as necessary to meet varying conditions. Unit consists of Co Hq and 2 Clr Plats. Assigned to task forces on the basis of 1 per Inf Div; supports Div Coll and Clr Cos. Has facilities to clear approximately 15,000 Army, Corps or Div Tr. Wt (short tons): on wheels, 70; boxed, 78. Cubage (ship tons): on wheels, 324; boxed, 204.
7	Evac Hosp (750 Beds) T/O 8-580 (4/23/43)	O..... 47 N..... 52 D..... 1 WO..... 1 EM..... 294 Agg..... 395	Tlr, ¼-ton, Tk, (250 gal)..... 1 Tlr, 1-ton, cargo..... 1 Trk, ¼-ton..... 1 Trk, ¾-ton, Comd..... 1 Trk, 2½-ton, cargo..... 2 Trk, 2½-ton (water tank 700 Gal)..... 1	1 per 3 Divs. May be Atchd to Hq and Hq Det, Med Gp. Receives all Cl of cases and prepares them for further Evac. May be used for definitive hospitalization in emergency. Is set up in Army Serv Area in as close support as tactical situation permits. Should be located at a distance from enemy air objectives, on or near a Ry, and on a good road net from front to rear. Sewage facilities are desirable. Minimum space requirements: Under tents: 200 x 200 yards. In buildings: 80,000 square ft. ① Requires 4 to 6 hours to establish and 8 to 10 hours to dismantle, when empty of patients. Usually moves by rail but can be moved by army motor convoy. Movement requires 2/3 train, type A or 184 truck tons for equipment only. Wt (short tons): on wheels, 198; boxed, 224. Cubage (ship tons): on wheels, 1,010; boxed, 700.

MEDICAL DEPARTMENT UNITS:

Ground Force Units:

Army Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
8	Evac Hosp, Sem (400 Beds) T/O & E 8-581 (3/25/44)	O..... 38 N..... 40 WO..... 1 EM.....207 Agg.....286	Tlr, ¼-ton..... 1 Tlr, tank (250 Gal)..... 2 Tlr, 1-ton, cargo.....18 Trk, ¼-ton..... 3 Trk, ¾-ton, Wpns Carr..... 2 Trk, 2½-ton, cargo.....20 Trk, water tank (700 Gal).. 1	1 per Div. May be Atchd to Hq and Hq Det, Med Gp. Receives all Cl of cases and prepares them for further Evac. May be used for definitive hospitalization in an emergency. Equipment can be moved by organic transportation. Personnel by shuttling. Is established in Army Serv, Corps area, or in as close support of Div as tactical situation permits. Should be located on or near a Ry to the rear; and good roads to the front. Should not be established near enemy air objectives. Minimum space requirements under tentage 150 x 150 yards. Wt (short tons): on wheels, 198; boxed, 224. Cubage (ship tons): on wheels, 795; boxed, 603.
9	Conv Hosp T/O 8-590 (4/1/42, C1, 2)	O..... 31 EM.....184 Agg.....215	Amb, ¾-ton.....4 Car, sedan.....1 Trk, ¼-ton.....2 Trk, ¾-ton, Wpns Carr.....9 Trk, 2½-ton, cargo.....2 *Remarks—(Continued)* Wt (short tons): on wheels, 216; boxed, 228. Cubage (ship tons): on wheels, 725; boxed, 638.	1 per 150,000 ground Trs. Receives convalescents from Evac Hosp. Capacity 3000 patients normally; 5000 for not to exceed one week. Is set up in rear of Army area on roads or Rys, preferably near army replacement pool. Sewage facilities desirable. Minimum space requirements: Under tents: 540 x 300 yards. In buildings: 120,000 square feet.[1] Movement requires ½ train, type A. "A," 216.00; "B," 228.00; "C," 725.00; "D," 638.00.[2]
10	Med Lab (Army or Com Z) T/O & E 8-500 (4/23/44)	O.....11 EM.....42 Agg.....53	Tlr, 1-ton, tank (250 Gal)....1 Tlr, 1-ton, cargo.....1 Trk, ¼-ton.....3 Trk, ¾-ton, Wpns Carr.....1 Trk, 2½-ton, cargo.....3	1 per Army, 1 per Sec of Com Z. When the Com Z is not organized in Sec, laboratories are located as required by the health situation. Conducts epidemiological investigations, surveys and studies, with necessary laboratory work, including water analysis. Includes 1 stationary laboratory and 3 Mbl Secs. Movement requires 1/6 train, type A.

MEDICAL DEPARTMENT UNITS:

Ground Force Units:

Army Units (Continued):

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
11	Med Dep Co CZ T/O 8-667 (4/17/44, C1)	O..... 13 WO..... 1 EM.....131 Agg.....145	Tlr, 1-ton.....8 Trk, ¼-ton.....5 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....5 Trk, 2½-ton, Dent Lab.....2 Trk, 2½-ton, optical repair..1	1 per 125,000 Trs in combat zone. Receives stores and issues medical supplies; performs 3d and 4th echelon maintenance of Medical Department equipment; replaces and repairs spectacles and dental prosthetic appliances. Mbl unit consisting of Dep Hq, maintenance platoon and 3 storage and issue platoons, which operates depot proper and two forward supply points which may include optical and dental posthetic repair teams. Unit ordinarily moves by rail and is established in the Army Service Area. Must be located centrally with reference to road net and accessible to motor vehicles from Div Corps and Army units.
12	Field Hosp (400 Beds) T/O & E 8-510 (8/31/44)	O..... 22 N..... 18 EM.....182 Agg.....222	Tlr, ¼-ton, cargo.....3 Tlr, water tank (250 Gal)....3 Tlr, 1-ton, cargo.....1 Amb, ¾-ton.....6 Trk, ¼-ton.....4 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....4 Bathing unit, field portable..1	A Theater unit. Consists of Hq and 3 Units. Each unit may act independently and is capable of caring for 100 patients. May be transported by air (less vehicles). Used to cover air bases, island garrisons or Secs of the Com Z when fixed bed facilities are not present and construction not feasible. Should be considered as Mbl type of Sta Hosp. Of great value under jungle conditions where it may serve at a landing field as a small Evac Hosp, plus surgical teams. Wt (short tons): on wheels, 99; boxed, 110. Cubage (ship tons): on wheels, 418; boxed, 392.
13	Portable Surg Hosp (25 Beds) T/O & E 8-572S (6/4/43, C1, 2)	O..... 4 EM..... 33 Agg.....37	Tlr, 1-ton, cargo.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpns Carr.....2	Three to nine per Inf Div. A Mbl Surg unit for use in difficult terrain where wheeled transport is impracticable. Of great value in jungle, may be rapidly established, closed, and moved by hand-carry, patients by litter, using native bearers to help in movement. Total weight about 1000 pounds in waterproof containers (30 lbs per man). Operates well Fwd—vicinity of Coll or Clr Stations.

MEDICAL DEPARTMENT UNITS:
Ground Force Units:
Army Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
14	Med Sanitary Co T/O & E 8-117 (5/13/44, C1)	O..... 3 EM.....109 Agg 112	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....4 Trk, 2½-ton, cargo.....2 Trk, 2½-ton, dump 2	Theater Unit. Consists of Co Hq and 2 identical Plats. Co may be employed as directed by the malariaologists in conjunction with anti-malaria control work. Assists large Hosp units. Wt (short tons): on wheels, 16; boxed, 17. Cubage (ship tons): on wheels, 77; boxed, 61.
15	Professional Services Unit T/O 8-500 (4/23/44)	Variable	Variable	THQ Unit 1 per 75,000 troops or major fraction thereof in theater. Made up of surgical, orthopedic, shock, maxillo-facial, neuro-surgical, thoracic surgical and gas teams which reinforce any medical installation or unit requiring additional surgical facilities and personnel in theater of operations. Gas teams provide oxygen therapy for lung irritant casualties in support of existing medical installations. Headquarters, professional service unit authorized for units of 24 or more teams.
16	Vet Co (Sep) T/O 8-99 (5/3/43, C1)	O..... 5 EM.....59 Agg.....64	Semi-Tlr, 6 ton, Anl & cargo.....3 Trk, Trac, 4- to 5-ton.....3	THQ Res Unit. May be Atchd to Hq and Hq Det Med Gp. Consists of a Co Hq, three (3) Coll and Treatment Plats and a Motor Evac Sec. Evacs Anl casualties to Vet Evac Hosps from Div, Corps and Army Vet Aid Stas and Vet Clr Stas. Each semi-trailer has capacity for 8 horses, one Plat capable of supporting a Regtl CT. Basis of assignment: 2 per Cav Div, 1 per 2,000 animals, 1 per 6 Sep QM Pk Trs, and 1 per 6 Sep FA Pk Bns. Wt (short tons): on wheels, 35; boxed, 36. Cubage (ship tons): on wheels, 493; boxed, 492.

MEDICAL DEPARTMENT UNITS:

Ground Force Units:

Army Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
17	Vet Evac Hosp T/O 8-780 (4/1/42, C1)	O..... 6 EM..... 84 Agg..... 90	Tlr, ¾- to 1-ton, cargo.....1 Tlr, 1-ton, tank (250 Gal)....1 Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, 1½-ton, cargo.....3 *Remarks—(Continued)* Wt (short tons): on wheels, 23; boxed, 28. Cubage (ship tons): on wheels, 75; boxed, 68.	A Theater Unit. Capacity: 150 Anls normally; 300 in an emergency. Establishes within one day's march for Anl casualties from Vet Aid and Clr Sta, preferably on or near a Ry to the rear. Minimum space requirements: Under tents, 125 x 100 yards. Usually moves by rail. Movement requires ¼ train, type A or 9 Trk tons for equipment only.
18	Vet Conv Hosp T/O 8-790 (8/30/43, C1)	O..... 6 EM.....151 Agg.....157	Tlr, 1 ton, cargo.....3 Trk, ¼ ton.....2 Trk, ¾-ton, Wpns Carr.....1 Trk, 1½-ton, cargo.....2 Trk, 2½-ton, cargo.....3	A Theater Unit. Receives convalescents from Vet Evac Hosp. Capacity: 500 Anls normally; 1000 in an emergency. Movement requires ½ train, type A, or 24 Trk tons for equipment only. Wt (short tons): on wheels, 46; boxed, 54. Cubage (ship tons): on wheels, 203; boxed, 170.

c. Service Force Units:

2	Hosp Tn T/O & E 8-520 (2/12/44, C1)	O..... 4 N..... 6 EM.....39 Agg.....49	None	THQ Unit. Requirements based on length of haul and expected casualties. Normally, 1 per Div or Corps may be required in T of Opns. Evacs casualties from Evac Hosps, to Gen Hosps, to the Z of I; and Evacs casualties within the Z of I. Within the T of Opns, the Med Dept is charged with care and treatment of patients transported and general administration coincident thereto. Movement into and out of Com Z is controlled by the Regulating Officer, under direction of Theater. Classification: (1) Type train; 22 cars, 20-ton box type, super-structure altered to meet MD requirements; average capacity 300 patients. (2) Improvised; 1 Hosp unit car, 1 baggage car and a variable number of pullman, tourist sleeper, or chair cars, depending on availability; average capacity, 500 patients.

MEDICAL DEPARTMENT UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
3	Gen Hosp (1,000 Beds) T/O & E 8-550 (7/3/44, C1)	O..... 55 N..... 83 WO..... 1 EM.....450 Agg.....589	Tlr, ¼-ton, cargo.....4 Tlr, 1-ton, cargo.....2 Tlr, 1-ton (250-gal) Tk.....2 Amb, ¾-ton.....6 Trk, ¼-ton.....6 Trk, ¾-ton, Wpn Carr.....1 Trk, 1½-ton, cargo.....4 Trk, 2½-ton, cargo.....2 Trk, 2½-ton, dump w/w.....1	The number of Gen Hosps in the Com Z or the Z of I depends on expected demand and policy of Evac from T of Opns to Z of I. Receives patients from Evac Hosps of the Combat Zone, and from other Hosps in Com Z. Provides definitive hospitalization for all C1 cases. Located on Ry or waterway. In Com Z or the Z of I, a number of Gen Hosp may be grouped to form a Hosp Center. Gen Hosp is not Mbl. This unit may be expanded to 1,500 or 2,000 beds by direction of Theater Commander. Additional services: Ldry, Fin, MP, Postal, Sig, etc., will be provided as for Hosp Centers. Gen Hosp (NP), T/O 8-550S provides a 1,000 bed unit especially staffed and equipped to care for neuropsychiatric patients. Minimum floor space requirements: 120,000 sq ft.[1] Requires 17 freight cars to move. Wt (short tons): on wheels, 297; boxed, 311. Cubage (ship tons): on wheels, 1,269; boxed, 1,058.
4	Hosp Cen T/O & E 8-500 (4/23/44) (For Conv Cen—see T/O & E 8-591-T)	O..... 7 N..... 1 WO..... 1 EM.....23 Agg.....32	Trk, ¾-ton, Wpn Carr..... 2 Trk, 1½-ton, cargo..... 1	Furnishes overhead for a Hosp Cen of 2 or more Gen Hosps and a convalescent camp which normally has a capacity equal to 20% of that of the center. Each center requires laundry, motor transport, baking and other QM personnel; also MP, Fin, Postal, Sig Dets, etc. Centralization of receiving, evacuation, medical supply, general supply, utilities sanitation, transportation, laboratory and guard will result in economy of personnel and increased efficiency of operation. Total patient capacity of center is dependent on the number of general hospitals assigned to center.

MEDICAL DEPARTMENT UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
5	Station Hosp Com Z (25 to 900 beds) T/O 8-560 (7/22/42, C1, 2, 3)	O..... 21 N..... 21 EM.....144 Agg.....186	Amb, ¾-ton.....3 Car, sedan.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....2 Trk, 1½-ton, cargo.....1 Trk, 2½-ton, cargo.....2	250 bed Station Hosp is shown hereon, but Hosps range from 25 to 900 beds. Station Hosps are assigned in Com Z to provide hospitalization for Tr in the Com Z. Not Mbl. Floor space required 32,000 sq ft.[1] Wt (short tons): on wheels, 100; boxed, 109. Cubage (ship tons): on wheels, 447; boxed, 396.
6	Professional Services Unit T/O & E 8-500	See Paragraph *b*, Army Units.		May be located in the Med Dept Concentration Center of the Com Z.
7	Med Lab Army or Com Z T/O & E 8-500	See Paragraph *b*, Army Units.		
8	Gen Lab T/O & E 8-500 (4/23/44)	O.....23 EM.....69 Agg.....92	Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....2 Trk, 1½-ton, cargo.....1	1 per T of Opns, if size of force in the theater justifies it. Conducts extensive epidemiological studies, researches, technical inspections and investigations. Manufactures biologicals. Not Mbl. Has sufficient transportation for its own Sup Serv.
9	Med Dep Orgn T/O & E 8-500 (4/23/44)	Variable	Variable	A flexible T/O which provides storage and issue teams, optical repair and dental prosthetic teams and 3d, 4th, and 5th echelon maintenance teams for varying troop strengths.

MEDICAL DEPARTMENT UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
10	Med Base Dep Co T/O & E 8-187 (1/29/44, C1, 2)	O..... 3 WO..... 1 EM.....40 Agg..... 44	Tlr, ¼-ton, cargo.....3 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1	1 Co assigned to a Med Sec, Gen Dep, or a branch Med Dep when requirements do not exceed 100,000. Additional Cos may be assigned as increased requirements warrant. Unit designed to operate as a component of a Med branch Dep or of the Med Sec of a base Gen Dep. Labor will be furnished by the QM labor pool and transportation by the QM transportation pool. May be supplemented by supply and maintenance teams, T/O & E 8-500. Wt (short tons): on wheels, 8; boxed, 10. Cubage (ship tons): on wheels, 37; boxed, 27.
11	Dispensary Units T/O & E 8-500 (4/23/44)	Variable	Variable	Type units which render outpatient medical service to areas or installations with troop populations from 2,000 to 10,000 (General Dispensaries). Also provides a smaller dispensary section which renders temporary hospitalization for an area or installation with a troop population between 1,500 and 3,000.
12	Med Dept Concentration Center T/O & E 8-500 (4/23/44)	O..... 5 EM.....14 Agg.....19	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	1 per T of Opns if the size of the force in the theater justifies it. This unit provides the overhead for the Adm in the T of Opns of Med and Vet units held during concentration, after withdrawal from the line for the purpose of overhauling and rehabilitation or as THQ reserve. Normally the following Med Dept units are found at this center: Evac Hosps and Professional Services Units. The center requires additional personnel from other arms and services to function properly.

MEDICAL DEPARTMENT UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
13	Med Dept Serv Orgn T/O & E 8-500 (4/23/44)	Variable	Variable	A flexible, cellular type T/O composed of the following service units in addition to those mentioned elsewhere in this paragraph: Headquaters for composite platoons, companies and battalions. Mess, service and auto mechanic teams. Motor Ambulance and veterinary motor evacuation sections. Veterinary and veterinary food inspection detachments.
14	Vet Co (Sep) T/O 8-99 (5/3/43, C1)	See Paragraph *b*, Army Units.		
15	Vet Evac Hosp T/O 8-780 (4/1/42, C1)	See Paragraph *b*, Army Units.		
16	Vet Gen Hosp T/O & E 8-750 (5/14/43, C1, 2, 3)	O..... 10 EM.....243 Agg.....253	Tlr, 1 ton, tank (250 Gal)....1 Semi-Tlr, 6-ton, Anl & cargo.....1 Trk, 1½-ton, cargo.....2 Trk, 2½-ton, cargo, w/w.....2 Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, Trac, 4- 5-ton.....1	A Theater Unit. Receives patients from the Com Z or from other Vet Hosp. Capacity: 500 Anls normally; 1000 in an emergency. Located in the Com Z or Z of I only. Not Mbl. Wt (short tons): on wheels, 58; boxed, 61. Cubage (ship tons): on wheels, 273; boxed, 254.
17	Vet Conv Hosp T/O & E 8-790 (8/30/43, C1)	See Paragraph *b*, Army Units.		

MEDICAL DEPARTMENT UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
18	Vet Sta Hosp T/O 8-760 (7/20/42, C1)	O..... 6 EM.....80 Agg.....86	Tlr, 2-horse van.....1 Trk, ½-ton.....1 Trk, 1½-ton, cargo.....1 Trk, 2½-ton, cargo.....1	A Theater unit. Renders Vet care to sick or wounded Anls. Does not receive patients from combat zone. Established in the Com Z when justified by the number of Anls in the area. Capacity of units shown hereon—300 patients. 150 patient unit also provided for in T/O. Average area required for installations under tents, 125 x 125 yds. Wt (short tons): on wheels, 29; boxed, 33. Cubage (ship tons): on wheels, 132; boxed, 102.

d. Miscellaneous Units:

2	Med Det, Museum & Med Arts Service T/O 8-500 (4/23/44)	O.....1 EM.....6 Agg.....7	Trk, ¾-ton, Wpn Carr.....1	1 per Theater of 50,000 men or larger. Consists of clinical photographer and artists who record the various types of wounds and new or unusual treatment procedures developing in the field. Collects and ships specimens to the Army Med Museum for scientific and historical purposes.
3	Med Amb Ship Co T/O 8-538 (10/27/42)	O..... 9 N..... 20 WO..... 1 EM..... 74 Agg.....104	None	1 per Amb ship. Provides professional care and Serv for sick and wounded Evac from T of Opns to Z of I by Amb ship. Unit consists of administrative and professional Secs. Amb ship differs from Hosp ship in that it is able to protect itself against aircraft and submarine attacks. Not protected by the Geneva Convention due to its mixed cargo on the outward bound voyage. Speed is such that it is not necessary to be convoyed. Capacity—500 patients normally. Personnel can be increased by increments for each additional 100 patients.

MEDICAL DEPARTMENT UNITS:

Miscellaneous Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
4	Hosp Ship Complement T/O & E 8-537T (12/7/43, C1)	O..... 14 N..... 34 WO..... 1 EM.....130 Agg.....179	None	1 per Hosp ship. May be employed in support of landing operations and for Evac of overseas T of Opns. Ship is registered with International Red Cross for protection and is permitted to transport only patients, Med Sup and Med personnel. Personnel varies with bed capacity, i. e. 200–1,000. This strength for 500 cases.
5	Med Hosp Ship Plat Sep T/O & E 8-534 (10/21/43, C1, 2, 3)	O..... 4 EM.....28 Agg.....32	None	Teams of variable composition according to number of patients (25 to 500) to be transported. 250 patient team shown hereon. Provides professional care for sick and wounded transported from T of Opns to Z of I on transports or cargo vessels. Nurses not normally Atchd. Overseas commander originating Evac will furnish nurses when required.
6	Malaria Survey Unit T/O & E 8-500 (4/23/44)	O..... 2 EM.....11 Agg.....13	Trk, ¼-ton.....3 Trk, ¾-ton, Wpns Carr.....1	Prepares general and specific surveys of malaria parasite as required to check on the effectiveness of suppressive treatment and control measures. Unit has mobile laboratory.
7	Malaria Control Unit T/O & E 8-500 (4/23/44)	O..... 1 EM.....11 Agg.....12	Trk, ¼-ton.....2 Trk, ¾-ton, Wpns Carr.....2 Trk, 2½-ton, cargo.....2 Trk, 2½-ton, dump.....2	Prepares detailed plans for malaria control measures based on the findings of the malaria survey unit. Initates and carries out malaria control meaures. Exercises supervision of medical sanitary companies or other military, civilian or prisoner of war labor for carrying out the prescribed control measures.

MEDICAL DEPARTMENT UNITS (Continued):

e. Units Normally Atchd to a Field Army: [1]

1	1	2	3	4	5	6	7
	Types of Units	*T/O*	*Strength*				*Patient Capacity*
			O	*N*	*WO*	*EM*	
2	Med Section-Army Hq	200–1	25		1	35	
3	Hq & Hq Det, Med Gp	8–22	10			23	
4	Hq & Hq Det, Med Bn, Sep	8–26	6		1	21	
5	Coll Co (Sep)	8–27	5			95	
6	Amb Co Mtr (Sep)	8–317	4			86	
7	Clr Co (Sep)	8–28	13			100	250
8	Evacuation Hospital	8–580	47	52	1	294	750
9	Evacuation Hospital (Sem)	8–581	38	40	1	207	400
10	Convalescent Hospital	8–590	31			184	3,000
11	Medical Laboratory	8–500	11			42	
12	Medical Depot Company, CZ	8–667	13		1	131	
13	Field Hospital (THQ)	8–510	22	18		182	400
14	Portable Surgical Hospital	8–572S	4			33	25
15	Sanitary Company (THQ)	8–117	3			109	
16	Professional Services Unit	8–500	Variable				
17	Vet Co (Sep) (THQ Unit)	8–99	5			59	
18	Vet Evac Hosp	8–780	6			84	150
19	Vet Conv Hosp (THQ Unit)	8–790	10			151	1,000 to 2,000

[1] Assigned or attached in accordance with policies of the Theater Commander.

f. Medical Department Units in a Communications Zone: [1]

1	1	2	3	4	5	6	7
	Types of Units	*T/O*	*Strength*				*Patient Capacity*
			O	*N*	*WO*	*EM*	
2	Hospital trains—each	8–520	4	6		39	300 lying
3	General Hospital	8–550	55	83	1	450	1,000
4	Hospital Center (Gen Hosp not Incl)	8–500	7	1	1	23	2,000 to 20,000
5	Station Hospital, Com Z	8–560 [2]	21	21		144	25 to 900
6	Professional Services Unit	8–500	Variable				
7	Medical Laboratory, Com Z (or Army)	8–500	11			44	
8	General Laboratory	8–500	23			69	
9	Medical Depot Orgn	8–500	Variable				
10	Med Base Depot Co	8–187	3		1	40	
11	General Dispensary	8–500	Variable				
12	Med Dept Concentration Center (THQ unit)	8–500	5			14	
13	Med Serv Orgn	8–500					
14	Veterinary Company (Separate) (THQ unit)	8–99	5			59	
15	Veterinary Evacuation Hospital	8–780	6			84	150
16	Veterinary General Hospital	8–750	10			243	500 to 1,000
17	Veterinary Conv Hosp (THQ unit)	8–790	6			151	1,000 to 2,000
18	Veterinary Station Hospital, Com Z	8–760	6			80	150 to 300

[1] Assigned or attached in accordance with policies of the Theater Commander.
[2] T/O for 250-Bed Station Hospital is shown.

163. Military Police Units:

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	MP Plat Inf Div T/O & E 19–7 (9/12/44)	O..... 4 EM.....102 Agg.....106	Trk, ¾-ton, Wpn Carr..... 4 Trk, ¼-ton.....23	1 per Inf Div. Commanded by Div PM. Consists of Plat Hq, Police Sec, 3 Sqds and Traf Sec, 5 Sqds. Plat Atchd to Div Hq for mess. Wt (short tons): on wheels, 27; boxed, 34. Cubage (ship tons): on wheels, 178; boxed, 104.
3	MP Plat Armd Div T/O & E 19–117 (9/28/44)	O..... 3 EM.....84 Agg.....87	Car, half-track, M3A2, wo/Armt..... 1 Trk, ¼-ton.....19 Trk, ¾-ton, Wpn Carr..... 3	1 per Armd Div, Commanded by Div PM. Consists of Plat Hq, Police Sec, 2 Sqds Traf Sec, 4 Sqds. Plat Atchd to Tn Hq Co for Adm and mess.
4	MP Plat Airborne Div T/O & E 19–97 (8/1/44)	O..... 2 EM.....34 Agg.....36	Mtrcls, solo.....2 Scooter, motor.....2 Tlr, ¼-ton.....4 Trks, ¼-ton.....4	1 per Airborne Div. Commanded by Div PM. Consists of Plat Hq and Police Sec, 2 Sqds. Plat Atchd to Div Hq Co for Adm and mess. Wt (short tons): on wheels, 7; boxed, 9. Cubage (ship tons): on wheels, 50; boxed, 23.
5	MP Plat Corps T/O & E 19–77 (8/1/44)	O..... 2 EM.....42 Agg.....44	Trk, ¼-ton.....7	1 per Corps. Performs MP functions for Corps Hq and Corps Trs. Commanded by Capt Ass't Corps PM. Consists of Plat Hq and 2 Secs, 2 Sqds Ea. Wt (short tons): on wheels, 9; boxed, 11. Cubage (ship tons): on wheels, 60; boxed, 28.
6	MP Bn, Army T/O & E 19–35 (8/19/43, C1, 2)	O..... 23 WO..... 1 EM.....542 Agg.....566	Tlr, ¼-ton..... 9 Tlr, 1-ton..... 5 Trk, ¼-ton.....53 Trk, ¾-ton, Wpn Carr..... 4 Trk, 2½-ton..... 6	1 per Army. Polices army service area, handles Evac of PW from Div, operates Army PW Encl. Consists of Hq Det, T/O 19–36, and 1 Co T/O 19–37, per Corps. Cos may be Atchd to Corps or Divs when needed. Wt (short tons): on wheels, 135; boxed, 159. Cubage (ship tons): on wheels, 669; boxed, 383.
7	MP Co T/O & E 19–37 (8/19/43) C1, 2)	O..... 5 EM.....165 Agg.....170	Tlr, ¼-ton..... 3 Tlr, 1-ton..... 1 Trk, ¼-ton.....16 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton..... 1	1 per Corps or Task Force. Polices Corps service area, operates Corps PW Encl when necessary. Cos may be separate or Atchd from Army Bn. Consists of Police Plat, 4 Sqds and 2 Traf Plats, 4 Sqds Ea. Plats may be Atchd Divs when needed. Wt (short tons): on wheels, 26; boxed, 42. Cubage (ship tons): on wheels, 176; boxed, 99.

MILITARY POLICE UNITS (Continued):

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
8	MP Escort Guard Co T/O & E 19-47 (11/25/43, C1)	O..... 3 EM.....132 Agg.....135	Bicycle.....4 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton.....2	1 per 1,000 prisoners of war or interned aliens. Furnishes the escort and guard for PW at PW Encl, Camps and in transit. Consists of Co Hq and 4 Escort Guard Secs Ea handling a PW Co of 250. Used in ZI, Com Z and in Army area. Secs may be Atchd to Divs when needed. Wt (short tons): on wheels, 16; boxed, 19. Cubage (ship tons): on wheels, 103; boxed, 58.
9	MP PW Processing Co T/O 19-237 (11/18/43, C1, 2)	O..... 5 EM.....111 Agg.....116	Tlr, 1-ton.....7 Trks, 2½-ton.....7	1 per Army where processing can be accomplished in Army area. Also employed in Com Z and ZI. Processes PW, furnishing information to PW Information Bureau. Consists of Co Hq and 3 Plats. Plats may be Atchd to Corps or Task Forces when necessary. Each Plat capable of processing 60 PW per hour.
10	MP Bn T/O & E 19-55 (11/27/43)	O..... 29 WO..... 1 EM.....648 Agg.....678	Amb, ¾-ton..... 1 Car, scout, w/a.....12 Tlr, ¼-ton.....12 Tlr, 1-ton..... 9 Trk, ¼-ton.....19 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 3 Trk, 1½-ton.....17 Trk, 2½-ton..... 1 Trk, 4-ton, wrecker..... 1	Assigned to Service Commands and P of E in ZI for internal security. In Com Z used to protect L of C, Ports, police Com Z and perform other security missions. Consists of Hq and Hq Det, T/O & E 19-56, 4 MP Cos, T/O & E 19-57, and Atchd Med Trs. Wt (short tons): on wheels, 218; boxed, 233. Cubage (ship tons): on wheels 1,345; boxed, 611.
11	MP Co T/O & E 19-57 (11/27/43, C1)	O..... 5 EM.....151 Agg.....156	Car, scout, w/armt.....3 Tlr, ¼-ton.....3 Tlr, 1-ton.....2 Trk, ¼-ton.....4 Trk, 1½-ton.....4 Trk, 2½-ton.....1	Performs internal security measures in Z/I and T of Opns. Part of MP Bn (T/O 19-55). Sep numbered Cos may be organized under this table for use in Com Z or Z/I, when a Co will meet MP requirements. Consists of Co Hq and 3 Plats. Wt (short tons): on wheels, 42; boxed, 46. Cubage (ship tons): on wheels, 274; boxed, 143.
12	MP Co Avn, Post, Camp, or Station T/O & E 19-217 (5/1/42)	O..... 4 EM.....100 Agg.....104	Bicycle.....10 Mtrcl..... 6 Trk, ¼-ton..... 3 Trk, ¾-ton, carryall..... 2 Trk, 2½-ton..... 2	Contains following sections: Desk Record Registration; Investigation; Traffic and Gate; Dismounted Patrol; and Motorized. This unit is flexible. May be increased or decreased (by addition or subtraction of sections) as needs are determined.

MILITARY POLICE UNITS (Continued):

	1	2	3	4
1	*Unit*	*Personnel*	*Vehicles*	*Remarks*
13	MP Serv Orgn T/O & E 19–500 (4/22/44)	Varies	Varies	A cellular type Orgn which provides MP Adm and Maint facilities, Police, Traffic, Criminal Investigation and PW Guard teams of different strength according to actual requirements of particular area.

164. ORDNANCE UNITS (All figures include Atchd Med & Ch.):

a. Air Force Units: [1]

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Ord Maint Co, Air Force T/O & E 9–257 (9/16/43, C1, 2, 3)	O..... 8 WO..... 1 EM.....216 Agg.....225	Tlr, 1-ton, cargo.....26 Tlr, 1-ton, 250 Gal water tank..... 1 Trk, ¼-ton..... 5 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 5 Trk, 2½-ton, cargo.....20 Trk, Ord Spec Rep..... 6 Trk, Hv wrecker..... 1 Trk, 4-ton, wrecker..... 2	As required, normally assigned to an AF Gen Dep. Performs 4th Ech Maint & overflow 3d Ech Maint of vehicles and armament of an AF. Wts (short tons): on wheels 250; boxed 286. Cubage (ship tons): on wheels 1171; boxed 1085.
3	Ord Sup & Maint Co Avn T/O & E 9–417 10/28/44	O..... 4 EM.....74 Agg.....78	Tlr, ½-ton, dump.....2 Tlr, 1-ton.....4 Tlr, Bomb.....4 Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....3 Trk, 2½-ton, cargo.....3 Trk, 2½-ton Bomb Service M-27.....1 Trk, Ord Spec Rep.....5 Trk, bomb service, M6.....2 Trk, 4-ton, wrecker.....1 Trk-Trac, 7½-ton w/Tlr-semi 12½-ton & Dolly Convertor. C-2 wrecking unit 1 Trac-crane, 3-ton.....1 *Torpedo Section* Trk, ¾-ton, Wpn Carr.....1 Trk, 4-ton.....1 Trk, 2½-ton, cargo.....1	Assigned 1 Co per Combat Gp. Usually operates with an Air Service Group. Provides Ord Gen Sup & Am Sup and 3d Ech Maint on automotive & armament equipment. Torpedo Sec 1-O & 10-EM added when Torpedo Sq is being serviced. Aerial Mine Section 1-O & 10-EM added when Aerial Mines are serviced. Automotive Maintenance team 7-EM added per 100 additional vehicles serviced. Wts (short tons): on wheels 103; boxed 116. Cubage (ship tons): on wheels 580; boxed 418.
4	Ord Med Auto Maint, Plat, Avn T/O & E 9–427 (2/8/44, C1)	O..... 2 EM.....46 Agg.....48	Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....5 Trk, 4-ton, wrecker.....1	Provides 3d Echelon maintenance for Approx. 350 vehicles. Assigned to Air depots, Trk organizations or AF installations without facilities for 3d Echelon vehicle maintenance.

[1] Ord Ammunition Co, T/O 9-17 and Ord Depot Co, T/O & E 9-57 listed under Ground Force units are also units of the Air Forces.

ORDNANCE UNITS (Continued):

b. Ground Force Units:

(1) *Divisional Units:*

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	A/B Ord Maint Co T/O 9–87 (8/1/44)	O..... 7 WO..... 1 EM.....67 Agg.....75	See Par 114 *b*	Organic to AB Div. Includes O-2 and EM-9 for Div Ord Sec. Performs 3d Ech Maint and Supply. Capable of independent operations 3 to 6 days. Capacity of from 30 to 60 percent of 3d Echelon maintenance of Division. Wt (short tons): on wheels 60; boxed 73. Cubage (ship tons): on wheels 468; boxed 231.
3	Ord Maint Bn, Armd Div T/O & E 9–65 (9/15/43)	O..... 42 WO..... 6 EM.....724 Agg.....772	See Par 118	Organic to Armd Div. Consists of Hq & Hq Co (T/O & E 9–66), 3 Maint Cos (T/O & E 9–67) & Med Det (O-2 & EM-8). Performs 3d Ech Maint & Sup. Wts (short tons): on wheels 1,393; boxed 1,590. Cubage (ship tons) on wheels 9,551; boxed 6,090.
4	Hq & Hq Co, Ord Maint Bn Armd Div T/O & E 9–66 (9/15/43, C1)	O..... 19 WO..... 3 EM.....143 Agg.....165	See Par 118	1 per Maint Bn, Armd Div (T/O & E 9–65). Provides base of operations for Maint Cos.
5	Maint Co, Ord Maint Bn, Armd Div T/O & E 9–67 (9/15/43)	O..... 7 WO..... 1 EM.....191 Agg.....199	See Par 118	3 per Maint Bn, Armd Div (T/O & E 9–65) Wts (short tons): on wheels 238; boxed 374. Cubage (ship tons): on wheels 2,010; boxed 1,430.
6	Ord L Maint Co Inf Div T/O & E 9–8 (7/15/43, C1)	O..... 9 WO..... 1 EM.....137 Agg.....147	See Par 122	Organic to Inf Div. Performs 3d Ech Maint & Sup. Capacity 30% to 60 % of 3d Ech Maint for the Div. Includes O-3 & EM-11 for Div Ord Sec. Wt (short tons): on wheels 148; boxed 172 Cubage (ship tons): on wheels 1,026; boxed 785.

ORDNANCE UNITS:

Ground Force Units (Continued):

(2) *Non-Divisional Units*:

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
7	Hq & Hq Det Ord Gp T/O & E 9–12 (4/15/44)	O.....12 WO.....2 EM.....39 Agg.....53	Tlr, ¼-ton.....2 Tlr, 1-ton.....1 Trk, ¼-ton.....6 Trk, ¾-ton, Wpn Carr.....2 Trk, 1½-ton, cargo.....1	Normal assignment Army or Independent Corps. Supervises training and operation of 4 to 5 ordnance Bns.
8	Hq & Hq Det Ord Bn T/O 9–76 (3/31/43, C1)	O.....5 WO.....1 EM.....19 Agg.....25	Tlr, 1-ton.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, 2½-ton, cargo.....1	Normally 2 to 5 Ord Cos will be Atchd to this Hq. Performs administrative functions for a Gp of Cos operating in the same area. Wt (short tons): on wheels 11; boxed 12. Cubage (ship tons): on wheels 70; boxed 49.
9	Hq & Hq Det Ord Am Bn T/O 9–15 (4/1/42)	O.....4 EM.....23 Agg.....27	Car, 5-passenger, L Sedan.....1 Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....2	Normally 2 to 6 Ord Am Cos (T/O 9–17) will be Atchd to this Hq. Assigned to Army & Com Z Dep as required. Wt (short tons): on wheels 213; boxed 254. Cubage (ship tons): on wheels 1,909; boxed 1,301.
10	Ord Am Co T/O 9–17 (4/1/42)	O.....6 EM.....180 Agg.....186	Trk, ¼-ton.....2 Trk, ¾ ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....3 When assigned to AF following additional vehicles Atzd: Trk, 2½-ton, Bomb Service, M-27.....2 Trk-Trac, 7½-ton, w/Tlr-Semi, 12½-ton & dolly converter, C-2 wrecking unit.....2 Trac-Crane, 2-ton w/Bulldozer.....2	Normally assigned to Army, AF or Com Z as required to operate Am Sup Pt or Dep. Can handle 500 to 750 tons per day. Wt (short tons): on wheels 31; boxed 36. Cubage (ship tons): on wheels 240: boxed 160.
11	Ord Dep Co T/O & E 9–57 (6/1/43)	O.....5 WO.....1 EM.....180 Agg.....186	Semi-trailer, 6-ton.....16 Tlr, 1-ton.....2 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....2 Trk, Trac, 4- 5-ton.....4 Trk, Hv, wrecker.....1	Normally assigned to Army or AF to operate Dep supplying all classes ordnance material except Am. Can perform Army Sup for an average of from 15,000 to 45,000 men, subject to variations depending on the type of units in the force. Wt (short tons): on wheels 168; boxed 199. Cubage (ship tons): on wheels 1,534; boxed 1183.

ORDNANCE UNITS:
Ground Force Units:
Non-Divisional Units **(Continued):**

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
12	Ord Evac Co T/O 9–187 (10/2/42)	O..... 6 EM.....179 Agg.....185	Tlr, 1-ton..... 2 Trlr, ¼-ton..... 7 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 3 Trk, Hv, wrecking..... 3 Trk, 40-ton, Tk recovery....18	Assigned to Army & Com Z as required. Transports Tks & Hv Equip form Com Z bases and Army Dep to Div Distributing points & Evacs Tks from C area to Rep Shops. Wt (short tons): on wheels 405; boxed 474. Cubage (ship tons): on wheels 1,862; boxed 1,109.
13	Ord Hv Automotive Maint Co T/O & E 9–197 (5/27/44)	O..... 6 WO..... 1 EM.....195 Agg.....202	Tlr, 1-ton.....12 Semi-Tlr, 6-ton, Comb Anl & cargo..... 5 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 2 Trk, 2½-ton, cargo.....10 Trk, Ord Spec Rep..... 2 Trk, 4-ton, wrecker..... 2 Trk, Hv, wrecker..... 2 Trk, Trac, 4- 5-ton..... 2	Normally assigned to Army. Performs 4th Ech Maint for approximately 2500 wheel vehicles, including Gen purpose vehicles, scout cars, and half-tracks. Can also maintain limited number of small arms. Wt (short tons): on wheels 192; boxed 225. Cubage (ship tons): on wheels 1,394; boxed 1,007.
14	Ord Hv Maint Co Field Army T/O & E 9–9 (7/3/43) C1	O..... 5 WO..... 1 EM.....192 Agg.....198	Semi-trailer, Comb Anl & vehicle..... 2 Semi-trailer, 6-ton, van..... 4 Tlr, 1-ton..... 2 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 6 Trk, Ord Spec Rep.....10 Trk, Trac, 4- 5-ton..... 2 Trk, Hv, wrecker..... 2	Normally assigned to Army. Performs 4th Ech Maint for Wpns, instruments and a limited number of vehicles. Capacity, Approx 4 Inf Div, 5AAA Gps or 5 FA Gps. Wt (short tons): on wheels 274; boxed 309. Cubage (ship tons): on wheels 1,711; boxed 1,289.
15	Ord Hv Maint Co Tk T/O & E 9–37 (7/3/43)	O..... 8 WO..... 1 EM.....201 Agg.....210	Semi-trailer, 6-ton, Comb Anl & cargo..... 2 Semi-trailer, 6-ton, van..... 4 Tlr, 1-ton..... 2 Tlr, ¼-ton..... 1 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 2 Trk, Ord Spec Rep.....11 Trk, Trac, 4- 5-ton..... 2 Trk, Hv, wrecker..... 2 Trk, Tlr, 40-ton, Tk T..... 2	Normally assigned to Army. Performs 4th Ech Maint for all types Armd equipment with emphasis on Tks. Capacity 1 Armd Div or its equivalent in equipment. Wt (short tons): on wheels 271; boxed 236. Cubage (ship tons): on wheels 1,487; boxed 1,196.
16	Ord Maint Co AA T/O & E 9–217 (3/28/44)	O..... 6 WO..... 1 EM.....156 Agg.....163	Tlr, 1-ton.....15 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 5 Trk, 2½-ton, cargo.....10 Trk, Ord Spec Rep..... 5 Trk, Hv, wrecker..... 1	Normally assigned to Army; basis, 1 Co per 5 AA Bns. Atchd as necessary to Hq of large AA concentrations. Performs 3d & 4th Ech Maint of AA guns, fire control instruments and vehicles. Wt (short tons): on wheels 122; boxed 140. Cubage (ship tons): on wheels 935; boxed 734.

ORDNANCE UNITS:

Ground Force Units:

Non-Divisional Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
17	Ord M Maint Co T/O 9-7 (9/30/44)	O..... 6 WO..... 1 EM.....155 Agg.....162	Tlr, 1-ton.....17 Trk, ¼-ton..... 5 Trk, ¾-ton, Wpn Carr..... 4 Trk, 2½-ton, cargo.....13 Trk, Ord Spec Rep..... 5 Trk, 4-ton, wrecker..... 1 Trk, Hv, wrecker..... 1	Normally assigned to Army. Organic to Cav Div with Div Ord Sec of O-3 & EM-11 added. Performs 3d Ech Maint on weapons, instruments, and a limited number of vehicles. Wt (short tons): on wheels 160; boxed 181. Cubage (ship tons): on wheels 1,171; boxed 785.
18	Ord M Automotive Maint Co T/O & E 9-127 (5/19/44)	O..... 4 EM.....112 Agg.....116	Tlr, 1-ton.....14 Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 4 Trk, 2½-ton, cargo.....13 Trk, Ord Spec Rep..... 1 Trk, 4-ton, wrecker..... 2	Normally assigned to Army. Performs 3d Ech Maint for approximately 1,200 vehicles under favorable conditions. Small-arms Sec capable of maintaining the equivalent of 1/3 the small arms of Inf Div. Wt (short tons): on wheels 126; boxed 145. Cubage (ship tons): on wheels 891; boxed 549.
19	Ord Maint Co Engr Sp Brig T/O 9-97S (10/7/44)	O..... 5 WO.....1 EM.....87 Agg.....93	Tlr, 1-ton.....7 Trk, ¼-ton.....1 Trk, 1½-ton, cargo.....3 Trk, 2½-ton, cargo.....7 Trk, 2½-ton, Ord Spec Rep.....2	Performs 3d echelon maintenance of vehicles, fire control, marine navigational instruments, small arms and artillery for an Engineer Special Brigade. Assignment: 1 per Brigade. Includes 2-O and 7-EM for Brigade Ord Sec.

c. Service Force Units:

2	Hq & Hq Co Ord Base Depot T/O & E 9-620-1T (9/13/44)	O..... 29 WO..... 3 EM.....100 Agg.....132	Tlr, ¼-ton.....2 Tlr, 1-ton.....1 Trk, ¼-ton.....5 Trk, ¾-ton, Wpn Carr.....1	Assignment: One per Gen or Br Depot in Com Z. Provides Command, Technical and administrative personnel for supervision of the operation of an ordnance branch or Ord section of a Base General Depot. Serves a force of 100,000 troops or over.
3	Ord Base Dep Co T/O & E 9-367T (9/13/44)	O..... 8 WO..... 1 EM.....198 Agg.....207	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1 Trk, Hv, wrecker.....1	Assigned to Ord Base Depot or Ord Sec Base General Depot. Operates the supply division of a depot and is capable of serving a balanced field force of 100,000 men.

ORDNANCE UNITS:

Service Force Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
4	Hq & Hq Det Ord Base Gp T/O & E 9-312 (6/8/43, C1)	O.....8 WO.....2 EM.....31 Agg.....41	Tlr, 1-ton.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, 1½-ton, cargo.....1	This unit provides the supervisory & administrative personnel for the Dep Ord Sec of a Com Z Base Gen Dep or a Com Z Branch Ord Dep. The Dep Ord Sec of a Com Z Base Gen Dep normally comprises 1 or more of the following units: Ord Base Armament Maint Bn (T/O 9-315) Ord Base Automotive Maint Bn (T/O 9-325) Ord Bn, Hq & Hq Det (T/O 9-76) comprising 3 to 5 of the following units: Ord Am Co (T/O 9-17) Ord Evac Co (T/O 9-187) Ord Mtr Veh Distributing Co (T/O 9-337) Ord Tire Repair Co (T/O 9-347) Ord Mtr Veh Assembly Co (T/O 9-348) Ord Base Depot Co (T/O 9-377) Normally this unit will be utilized to administer a Dep to serve a force with a total strength of 100,000 & over. Wt (short tons): on wheels 9; boxed 11. Cubage (ship tons): on wheels 69; boxed 45.
5	Ord Base Armament Maint Bn T/O 9-315 (9/7/44)	O.....24 WO.....3 EM.....589 Agg.....616	Tlr, 1-ton.....2 Trk, ¼-ton.....4 Trk, ¾-ton, Wpn Carr.....4 Trk, 2½-ton, cargo.....4 Trk, Hv, wrecking.....2	Consists of Hq & Serv Co. (T/O 9-316), Armd Veh Maint Co (T/O 9-317), Arty & Fire Control Maint Co (T/O 9-318), Small Arms Maint Co (T/O 9-319). Assigned as required in base shops in Com Z, usually 1 per Army & 1 per Armd Div. Performs 5th Ech Maint on all arms and Armd vehicles. Component Cos cannot operate separately. Bn must operate as a whole. Wt (short tons): on wheels 60; boxed 76. Cubage (ship tons): on wheels 415; boxed 305.

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ORDNANCE UNITS:

Service Force Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
6	Hq & Serv Co Ord Base (Armament or automotive) Maint Bn T/O & E 9–316 (7/3/44)	O.....10 WO.....2 EM.....129 Agg.....141	Tlr, 1-ton.....2 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....2 Trk, Hv wrecker.....1	1 per Ord Base Armament or Automotive Maint Bn. (T/O 9–315, and T/O 9–325 respectively). Provides administrative, Gen overhead and Serv personnel for the Bn. Wt (short tons): on wheels 16; boxed 20. Cubage (ship tons): on wheels 113; boxed 89.
7	Ord Base Armd Veh Maint Co T/O & E 9–317 (9/7/44)	O.....6 WO.....1 EM.....241 Agg.....248	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1 Trk, Hv wrecking.....1	1 per Ord Base Armament Maint Bn (T/O 9–315). Performs 5th Ech Maint on all types of Armd vehicles. Cannot operate alone, must be in Bn. Wt (short tons): on wheels 16: boxed 20. Cubage (ship tons): on wheels 106; boxed 75.
8	Ord Base Arty & Fire Control Maint Co T/O & E 9–318 (9/7/44)	O.....5 EM.....147 Agg.....152	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	1 per Ord Base Armament Maint Bn (T/O 9–315). Performs 5th Ech Maint on Arty, fire-control instruments (general & AA) and remote control systems. Cannot operate alone, must be in Bn.
9	Ord Base Small Arms Maint Co T/O & E 9–319 (9/7/44)	O.....3 EM.....72 Agg.....75	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1	1 per Ord Base Armament Maint Bn. (T/O 9–315). Performs 5th Ech Maint on small arms. Cannot operate alone, must be in Bn.
10	Ord Base Automotive Maint Bn T/O 9–325 (3/23/43, C1)	O.....31 WO.....2 EM.....754 Agg.....787	Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....9 Trk, 2½-ton, cargo.....1 Trk, Hv, wrecking.....1	Consists of Hq & Serv Co (T/O 9–316), Base Dep Co (T/O 9–377), 2 Automotive Maint Cos (Engine Rebuild) (T/O 9–327), Automotive Maint Co (Power Train Rebuild) (T/O 9–328). Assigned as required in base shops in Com Z, usually 1 per Army. Performs 5th Ech Maint including rebuilding, on all automotive equipment. Component Cos cannot operate separately. Bn must operate as a whole.

ORDNANCE UNITS:

Service Force Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
11	Ord Base Automotive Maint Co (Engine rebuild) T/O & E 9–327 (10/11/43, C1)	O..... 6 EM.....200 Agg.....206	Trk, ¾-ton, Wpn Carr.....1	2 per Ord Base Automotive Maint Bn. (T/O 9–325). Performs 5th Ech Maint by rebuilding standard engines and subassemblies such as generators & pumps. Cannot operate alone, must be in Bn. Wt (short tons): on wheels 3; boxed 4. Cubage (ship tons): on wheels 39; boxed 30.
12	Ord Base Dep Co T/O & E 9–377 (10/11/43, C1)	O..... 6 EM.....111 Agg.....117	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1 Trk, Hv wrecking.....1	Assigned 1 or more to Ord Base Dep as required. Handles Gen Ord Sup for a balanced force of about 30,000. Additional labor may be assigned from Gen pool or by use of local civilian labor. One Co organic to Ord Base Auto Maint Bn (T/O 9–325). Wt (short tons): on wheels 22; boxed 27. Cubage (ship tons): on wheels 106; boxed 91.
13	Ord Base Automotive Maint Co (Power Train Rebuild) T/O & E 9–328 (10/28/43)	O..... 4 EM.....139 Agg.....143	Trk, ¾-ton, Wpn Carr.....1	1 per Ord Base Automotive Maint Bn (T/O 9–325). Performs 5th Ech Maint by complete rebuilding of power Tn assemblies for reissue to 3d & 4th Ech shops. Cannot operate alone, must be in Bn. Wt (short tons): on wheels 3; boxed 4. Cubage (ship tons): on wheels 50; boxed 24.
14	Hq & Hq Det Ord Bn T/O 9–76 (3/31/43, C1)	See Par 164 b (2)		
15	Ord Am Co T/O 9–17	See Par 164 b (2)		
16	Ord Evac Co T/O 9–187	See Par 164 b (2)		

ORDNANCE UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
17	Ord Mtr Veh Assembly Co (Portable) (T/O & E 9–348 (5/17/44, C1)	O..... 6 EM.....173 Agg.....179	Tlr, 1-ton, cargo..... 3 Tlr, 5- 6-ton, cargo..... 5 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo.....12 Trk, Ord, Sp Rep..... 2 Trk, Hv, wrecker..... 2	As required in Com Z, usually 1 per Army. Located near port of debarkation. Assembles & services vehicles for distribution to field units. Capacity 25 vehicles per day in twin unit packs or 75 per day in single unit packs. Can perform 3d echelon Maint for from 1200 to 1500 wheeled vehicles. Wt (short tons): on wheels 107; boxed 140. Cubage (ship tons): on wheels 787; boxed 711.
18	Ord Tire Repair Co T/O & E 9–347 (5/17/44, C1)	O..... 5 EM.....140 Agg.....145	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....2 Trk, 1½-ton.....1	Assigned as required to Ord Base Dep. Operates 2 complete tire rebuilding & vulcanizing shops. Performs retreading & sectional repairs. Under average conditions will serve 30,000 to 40,000 vehicles. Equipment capacity equals 130 retreads & 350 sectional repairs per day. Wt (short tons): on wheels 3; boxed 4. Cubage (ship tons): on wheels 32; boxed 30.
19	Ord Mtr Veh Distributing T/O & E 9–337 (8/10/44)	O..... 4 EM.....160 Agg.....164	Trk, ¼-ton..... 7 Trk, 2½-ton, cargo.....10	Assigned to Com Z Dep as required, usually 1 per Mtr Veh Assembly Co. Distributes motor vehicles to Fwd units & establishments. Wt (short tons): on wheels 62 boxed 73. Cubage (ship tons): on wheels 395; boxed 259.
20	Ord Maint Co Engr Sp Brig T/O & E 9–97S (10/7/44)	O..... 5 WO.....1 EM.....87 Agg.....93	Tlr, 1-ton.....7 Trk, ¼-ton.....1 Trk, 1½-ton, cargo.....3 Trk, 2½-ton, cargo.....7 Trk, Ord Spec Rep.....2	Organic to Engr Spec Brig. Performs 3d Ech Maint and Sup for motor vehicles, fire control & marine navigation instruments, small arms & Arty. Includes O-2 & EM-7 for Brig Ord Sec. Wt (short tons): on wheels 65; boxed 75. Cubage (ship tons): on wheels 506; boxed 309.
21	Ord Service Composite Organization T/O & E 9–500 (6/8/44, C1, 2, 3)			
	ADMINISTRATION			
22	Plat Hq (AA)	O.....1 EM.....6 Agg.....7	Trk, ¾-ton, Wpn Carr.....1	1 per 2 or more teams.

ORDNANCE UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
23	Co Hq (AB)	O..... 2 EM.....13 Agg.....15	Tlr, ¼-ton.....1 Tlr, 1-ton.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	1 per 2 or more Plats.
24	Bn Hq (AC)	O..... 4 EM.....13 Agg.....17	Trk, ¼-ton.....1 Trk, ¾-ton, comd.....1	1 per 3 or more Cos.
25	Mess Tm No.1 (AD)	EM..... 3		1 per 30 to 100 men.
	Mess Tm No. 2 (AE)	EM..... 5		1 per 101 to 175 men.
	Mess Tm No. 3 (AF)	EM..... 7		1 per 176 to 225 men.
	Mess Tm No. 4 (AG)	EM..... 8		1 per 226 to 275 men.
	Mess Tm No. 5 (AH)	EM.....10		1 per 276 to 325 men.
26	Serv Tm No. 1 (AI)	EM.....19		Provide common service section as required.
	Serv Tm No. 2 (AJ)	EM.....28		
	Serv Tm No.3 (AK)	O..... 1 EM.....43 Agg.....44		
27	Repair Tm No.1 (AL)	EM.....1		Perform 2d Ech Maint provided on basis 1 Mech per 15 men.
	Repair Tm No. 2 (AM)	EM.....2		
	DEPOT			
28	(GENERAL) Sup Sec No. 1 (BA)	O..... 1 EM.....16 Agg.....17		Can supply Approx. 2,000 men (or 3-ton/day).
	Sup Sec No. 2 (BB)	O..... 1 EM.....26 Agg.....27		Can supply approx 4,500 men (or 7-ton/day).
	Sup Sec No. 3 (BC)	O..... 1 EM.....37 Agg.....38		Can supply approx 6,000 men (or 12-ton/day).

ORDNANCE UNITS:

Service Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
	AMMUNITION			
29	Sup Sec No. 1 (BD)	EM.....15	Trk, ¾-ton, Wpn Carr.....1	Can supply approx 2,000 men (or 50-ton/day).
	Sup Sec No. 2 (BE)	EM.....20	Trk, ¾-ton, Wpn Carr.....1	Can supply approx 3,500 men (or 90-ton/day).
	Sup Sec No. 3 (BF)	O..... 1 EM.....23 Agg.....24	Trk, ¾-ton, Wpn Carr.....1	Can supply approx 5,000 men (or 150-ton/day).
	MAINTENANCE ARTILLERY			
30	Maint Tm No 1 (CA)	EM..... 6		Can maintain approx 20 Arty pieces.
	Maint Tm No. 2 (CB)	EM.....14	Trk, ¾-ton, Wpn Carr.....1	Can maintain approx 45 Arty pieces.
	Maint Tm No. 3 (CC)	O..... 1 EM.....21 Agg.....22	Trk, ¾-ton, Wpn Carr.....1	Can maintain approx 90 Arty pieces.
	AUTOMOTIVE			
31	Maint Tm No. 1 (CD)	O..... 1 EM.....23 Agg.....24	Trk, ¼-ton.....1 Trk, 2½-ton, Machine Shop 1 Trk, 4-ton, wrecker.....1	Capable of maintaining approx 250 vehicles.
	Maint Tm No. 2 (CE)	O..... 1 EM.....34 Agg.....35	Trk, ¼-ton.....1 Trk, ¾-ton Wpn Carr,.....1 Trk, 2½-ton, Mach Shop.....1 Trk, 4-ton, wrecker.....1	Capable of maintaining approx 420 vehicles.
	Maint Tm No. 3 (CF)	O..... 2 EM.....47 Agg.....49	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, Mach Shop.....1 Trk, 4-ton, wrecker.....2	Capable of maintaining approx 600 vehicles.
	SMALL ARMS			
32	Maint Tm No. 1 (CG)	EM..... 4	Trk, Small Arms Repair.....1	Capable of maintaining approx 1,500 Small Arms.
	Maint Tm No. 2 (CH)	EM..... 6	Trk, Small Arms Repair.....1	Capable of maintaining approx 4,500 Small Arms.
	Maint Tm No. 3 (CI)	EM.....10	Trk, Small Arms Repair.....1	Capable of maintaining approx 7,000 Small Arms.
	INSTRUMENT			
33	Maint Tm No. 1 (CJ)	EM..... 5	Trk, ¾-ton, Wpn Carr.....1	Capable of maintaining Fire Control instruments for approx 20 AA Arty pieces.
	Maint Tm No. 2 (CK)	EM..... 6	Trk, ¾-ton, Wpn Carr.....1	Capable of maintaining Fire Control instruments for approx 45 AAA pieces.
	Maint Tm No. 3 (CL)	EM..... 9	Trk, ¾-ton, Wpn Carr.....1	Capable of maintaining Fire Control instruments for approx 90 AAA pieces.

ORDNANCE UNITS:

Service Force Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
34	DISTRIBUTION			
	Vehicle Distr Sec (DA)	O 1 EM 35 Agg 36	Trk, ¼-ton 1 Trk, ¾-ton, Wpn Carr 2 Trk, 2½-ton, wrecker 1	Distributes vehicles from Ord Base to Combat Zone.
	Vehicle Distr Plat (DB)	O 1 EM 71 Agg 72	Trk, ¼-ton 2 Trk, ¾-ton, Wpn Carr 3 Trk, 2½-ton, wrecker 1	Distributes vehicles from Ord Base to Combat Zone.
35	RECOVERY			
	Light Sec (EA)	EM 6	Trk, 2½-ton, Mach Shop 1	Recovers all types of damaged vehicles and moves to Base Shops for repair.
	Hv Sec (EB)	EM 6	Trk, 40-ton, Tank Recovery 1	Recovers all types of damaged vehicles including tanks and moves to Base Shops for repair.
	Recovery Plat (EC)	O 1 EM 53 Agg 54	Trk, ¾-ton, Wpn Carr 1 Trk, 2½-ton, Mach Shop 1 Trk, 40-ton, Tank Recovery 6	Same as Hv Sec.
36	BOMB DISPOSAL			
	Bomb Disposal Squad Sep (FA)	O 1 EM 6 Agg 7	Tlr, 1-ton 1 Trk, ¾-ton, Wpn Carr 1 Trk, 2½-Ton, cargo 1	Locates and renders safe unexploded bombs, mines and shells.
	Bomb Disposal Sec (FB)	EM 15	Trk, ¾-ton, Wpn Carr 1 Trk, 2½-ton, cargo 2	Locates and renders safe unexploded bombs, mines and shells.
	Bomb Disposal Plat (FC)	O 1 EM 32 Agg 33	Tlr, 1-ton 1 Trk, ¾-ton, Wpn Carr 1 Trk, 2½-ton, cargo 4	Locates and renders safe unexploded bombs, mines and shells.
37	MISCELLANEOUS			
	Am Renovation Plat (GA)	O 2 EM 68 Agg 70	Tlr, ¼-ton 1 Trk, ¼-ton 2 Trk, ¾-ton, Wpn Carr 3	Capable of renovating 800 Rds of 75-mm or 105-mm or the equivalent of smaller caliber ammunition per day.
	AA Arty Maint Tm (GB)	O 1 EM 11 Agg 12	Trk, ¾-ton, Wpn Carr 2	Performs 3d echelon Maint on Armament, directors and control systems for approx 2 to 3 composite AA Bns.

ORDNANCE UNITS (Continued):

d. Basis for Computing Ordnance Troop Requirements for the Combat Zone. [1] [2] [3] [4]

1	1	2	3	4	5	6	7	8	9	10
1		*M Auto Maint Co*	*M Maint Co*	*M Maint Co AA*	*Hv Maint Co F Army*	*Hv Maint Co Tk*	*Hv Auto Maint Co*	*Dep Co*	*Evac Co*	*Am Co*
2	*T/O & E*	*9–127*	*9–7*	*9–217*	*9–9*	*9–37*	*9–197*	*9–57*	*9–187*	*9–17*
3	Inf Div	.....	1.0	.....	0.25	.....	0.25	0.4	.....	0.5
4	A/B Div	0.1	0.5	.....	0.15	.....	.....	0.2	.....	0.3
5	Armd Div	.....	.....	.....	.....	1.0	0.5	1.0	1.0	1.0
6	Tank Bn (Sep)	.....	.....	.....	.....	0.3	.....	0.1	0.1	0.1
7	TD Bn (SP)	.....	.....	.....	.....	0.25	.....	0.1	0.1	0.1
8	TD Bn (Towed)	.....	0.2	.....	0.1	.....	.....	0.05	.....	0.1
9	FA Bns (Lt & Med) Trk Dr	.....	0.1	.....	0.05	.....	0.02	0.03	.....	0.1
10	FA Bns (Lt & Med) Tractor Dr	.....	0.1	.....	.....	0.15	.....	0.03	.....	0.1
11	FA Bns (Hv) Trk Dr	.....	0.1	.....	0.1	.....	0.02	0.05	.....	0.1
12	FA Bns (Hv) Trac Dr	.....	0.1	.....	0.1	0.1	.....	0.05	.....	0.1
13	CA Bns (Mob)	.....	0.1	.....	0.1	.....	.....	0.05	.....	0.1
14	AA Bns (Gun & AW)	0.04	.....	0.2	0.04	.....	0.02	0.04	.....	0.04
15	Engr Bns (Combat)	0.1	.....	.....	.....	.....	0.05	.....	.....	.....
16	Bns (Sig, Engr, Med, Chem & Misc)	0.14	.....	.....	.....	.....	0.07	.....	.....	.....
17	QM Trk & Tr Transport Cos	0.06	.....	.....	.....	.....	0.03	.....	.....	.....

[1] Other units as necessary on a comparative basis.

[2] Bn Hq (T/O & E 9-76) 1 per 2 to 5 Cos.

[3] Gp Hq as necessary and authorized.

[4] This table shows the approximate ratio for the proper balance in field assignments of ordnance units in the combat zone. In specific cases it is subject to the necessary judgment as dictated by conditions.

■ **165. QUARTERMASTER UNITS:**

a. Air Force:

(1) *Quartermaster Sections in Air Force Headquarters Units:*

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
2	Hq & Hq Sq, Air Force T/O 1-800-1 (7/26/42, C1)	QM SEC O..... 7 WO..... 1 EM.....18 Agg.....26		
3	Hq & Hq Sq, AF Composite Comd T/O 1-801-1 (6/19/43, C1)	QM SEC O.....4 EM.....4 Agg.....8		
4	Hq & Hq Sq, Troop Carrier Comd T/O 1-300-1 (1/12/43)	QM SEC O.....2 EM.....4 Agg.....6		
5	Hq & Hq Sq, Sv Gp T/O 1-412 (6/16/43, C1, 2, 3)	QM SEC O.....3 EM.....6 Agg.....9		

(2) *Administrative Units:*

6	QM Plat Air Dep Gp T/O & E 10-427 (9/17/43, C1)	O..... 2 EM.....22 Agg.....24	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	Adm Sec, Sup Sec, T Sec. Tech and Adm personnel for Opn of QM Sec of Air Dep Gp.

QUARTERMASTER UNITS:

Air Force (Continued):

(3) *Supply Units:*

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
7	QM Co Serv Gp Avn (RS) T/O 10–437–RS (1/12/44)	O.....3 EM.....55 Agg.....58	Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....3	Serv Cen Sup Sec, Cl I Sup Sec, 2 Cl III Sup Secs. Tech and Adm personnel for Opn of QM Sup in Theater of Opns. Handles all Cl of QM Sup. Receives Sup from Air Deps or from ground Sup Pts and distributes to Distr Pts in local area. Labor by QM Serv.
8	QM Depot Subs Co (Avn) T/O & E 10–447 (9/17/43, C1)	O.....3 EM.....54 Agg.....57	Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....2	Dep Hq, Storage Sec. Adm and Tech unit for Opn of QM Subsistence Dep for air force troops in T. Not established where ground force SPs available. Capacity: Maint 25,000 men. Additional labor from QM Sv Units.

(4) *Transportation Units:*

9	QM Trk Co (Avn) T/O & E 10–517 (8/18/43, C1)	O.....3 EM.....99 Agg.....102	Tlr, water tank (250 gal).....3 Tlr, 1-ton, cargo.....50 Trk, ¼-ton.....3 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....51 Trk, 2½-ton, wrecker.....1	2 Plats, each of 2 Secs. Assigned to AF installations on basis of ton-miles required. Has 48 Trks and Tlrs for general use. Substitute equipment: Trk Tank 750-gal; or Trk, Trac, 4 to 5 tons with semi-trailers, combination Anl and Cargo.

(5) *Petroleum Unit:*

10	QM Depot Co, Cl III (Avn) T/O & E 10–467 (10/9/43, C1)	O.....2 EM.....30 Agg.....32	Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	Dep Hq Sec, Storage Sec. Adm and Tech personnel for Opn of QM Cl III Dep for AAF Tr. Not established when ground force SPs available. Additional labor, when required, provided by QM Serv Units.

QUARTERMASTER UNITS (Continued):

b. Ground Force: [1]

(1) *Quartermaster Sections in Ground Force Headquarters Units:*

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Army Hq T/O 200–1 (7/1/42, C1, 2, 3, 4)	QM SEC O.....24 WO..... 3 EM.....57 Agg.....84		
3	Corps Hq T/O 100–1 (7/15/43, C1, 2, 3)	QM SEC O.....2 EM.....2 Agg.....4		
4	Armd Div Hq T/O 17–1 (9/15/43, C1, 2, 3, 4, 5)	QM SEC O..... 4 EM.....11 Agg.....15		

(2) *Administrative and Divisional Units:*

5	Airborne QM Co T/O 10–327 (9/5/42, C1)	O..... 5 EM.....82 Agg.....87	See Paragraph 114	1 per Airborne Div.
6	QM Co Inf Div T/O & E 10–17 (2/19/44, C1)	O..... 10 EM.....176 Agg.....186	See Paragraph 122	1 per Inf Div. Wt (short tons): on wheels, 306; boxed, 374. Cubage (ship tons): on wheels, 2545; boxed, 1737.
7	Hq & Hq Det, QM Gp T/O & E 10–22 (6/12/43, C1, 2)	O.....10 EM.....21 Agg.....31	Tlr, ¼-ton.....2 Trk, ¼-ton.....5 Trk, ¾-ton, Wpn Carr.....2	1 per 2 or more QM Bns. Provides Comd agency for planning, supervising and coordinating the Opn, Tng, Adm and Sup of QM units Atchd or assigned to the Gp.
8	Hq & Hq Det, QM Bn Mbl T/O & E 10–56 (5/3/44)	O..... 3 WO..... 2 EM.....14 Agg.....19	Tlr, 1-ton.....1 Trk, ¼-ton.....2 Trk, ¾-ton, Wpns Carr.....1 Trk, 2½-ton, cargo.....1	This Hq and Hq Det provides the necessary personnel for the control and Adm of 2 to 6 QM Trk Cos.

[1] Other QM Units listed under Par 165c, Service Force, may operate under Ground Force control.

QUARTERMASTER UNITS:

Ground Force (Continued):

(3) *Supply Units:*

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
9	QM Dep Co Sup T/O & E 10–227 (9/6/43, C1, 2)	O..... 8 EM.....178 Agg.....186	Tlr, 1-ton, cargo.....3 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....3	Office of Dep Comdr, Co Hq, 3 Dep Plats. Provides Adm and Tech personnel for Opn of a QM Sup Dep in a T of Opns. With normal attachment of 1 QM Trk Co and 2 QM Serv Cos can maintain 60,000 men. Wt (short tons): on wheels, 22; boxed, 26. Cubage (ship tons): on wheels 126; boxed 120.
10	QM Rhd Co T/O & E 10–197 (10/8/43, C1, 2, 3, 4)	O..... 4 EM.....173 Agg.....177	Trk, ¼-ton.....4 Trk, 2½-ton, cargo.....2	Operates Rhds or Trkhds to receive, break down and issue Cl I, II, III and IV supplies and evacuate salvage. Capacity, 30,000 men. Can operate 2 Rhds serving 15,000 each or 4 Rhds serving 7,500 each. Has 1,600 5-gal gas cans. Wt (short tons): on wheels, 19; boxed, 21. Cubage (ship tons): on wheels, 116; boxed, 93.

(4) *Transportation Units:*

11	QM Car Co T/O 10–87 (12/29/43, C1)	O..... 5 EM.....124 Agg.....129	Tlr, 1-ton, cargo..... 1 Trk, ¼-ton.....44 Trk, ¾-ton, Wpn Carr.....46 Trk, 2½-ton, cargo..... 1	Provides passenger transportation for the Hq to which Atchd. Wt (short tons): on wheels, 174; boxed 204. Cubage (ship tons): on wheels, 1242; boxed, 940.
12	QM Pk Tr (Co) T/O 10–118 (12/18/43, C1, 2)	O..... 2 EM.....75 Agg.....77	None	4 Plats. Provides Gen cargo transportation. Capacity: 20 tons. 4 horses, bell; 5 horses, riding; 217 mules, pack; 75 mules, riding. (200 pack mules available for general hauling.)
13	QM Trk Co T/O & E 10–57 (8/8/43, C1, 2, 3)	O..... 5 EM.....105 Agg.....110	Tlr, 1-ton, cargo.....49 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo.....50	3 Plats each of 2 2-Sq Secs. Assigned to CZ and Com Z on basis of ton-miles required. Has 48 Trks and Tlrs for Gen use. Wt (short tons): on wheels, 309; boxed, 378. Cubage (ship tons): on wheels, 2,327; boxed, 1,759.
14	QM Tr T Bn T/O & E None	O..... 34 WO..... 2 EM.....651 Agg.....687	Tlr, 1-ton, cargo.....294 Trk, ¼-ton..... 26 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr..... 6 Trk, 2½-ton, cargo.....301	Hq & Hq Det, QM Bn, Mbl (T/O 10–56) plus 6 QM Trk Cos (T/O 10–57). Used to Mtz Inf Divs. Has 288 Trks, 2½-ton, cargo; and 288 Tlrs, 1-ton cargo, for Gen use.

QUARTERMASTER UNITS:

Ground Force (Continued):

(5) *Miscellaneous Unit:*

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
15	QM War Dog Plat T/O & E 10-397T (24/6/44)	O..... 1 EM.....20 Agg.....21	None	Personnel and Anls for training and Opn of co-ordinated man-dog messenger teams and man-dog scout teams. (24 war dogs; 6 messenger, 18 scout). To be Atchd to using unit for Adm and mess.

c. Service Force:

(1) *Quartermaster Sections in Service Force Headquarters have no prescribed T/O.* [1]

(2) *Administrative Units:*

2	Hq & Hq Co QM Base Dep T/O & E 10-520-1 (8/11/43)	O..... 34 WO..... 2 EM.....118 Agg.....154	Trk, ¼-ton.....4 Trk, ¾-ton, Comd.....2 Trk, ¾-ton, Wpn Carr.....1	Provides supervisory and Adm personnel for Dep QM Sec of Com Z Base Gen Dep of a Com Z Branch QM Dep. Necessary QM units Atchd as needed. Will administer Dep serving 100,000. The QM Sec of a Com Z base Gen Dep normally comprises 1 or more of following units: QM Base Dep Co; Refrigerator Co, Fixed; Salvage Repair Co; Base Petroleum Sup Co; Ldry Co; Bakery Co; Graves Registration Co, all operating under the depot QM. A base Gen Dep will usually have both a depot QM and a station QM. The Station QM furnishes local QM Sv for the depot, and may have QM Trk and Sv Units and a QM Base Dep Sup & Sales Co. Wt (short tons): on wheels, 6; boxed, 7. Cubage (ship tons): on wheels, 43; boxed, 32.
3	Hq & Hq Det, QM Bn T/O & E 10-536 (6/1/43, C1)	O..... 3 WO..... 2 EM.....12 Agg.....17	Trk, ¾-ton, Comd.....1	Assigned on basis of 1 per 3 to 6 QM Cos. QM Bns may contain like Cos, or may consist of any combination of types. Supervises Adm Tng, Sup and Opn of Cos Atchd or assigned to the Bn according to situation. Wt (short tons): on wheels, 4; boxed, 4. Cubage (ship tons): on wheels, 19; boxed, 17.

[1] Other QM Units listed under Par 165*b*, Ground Force may operate under Service Force control.

QUARTERMASTER UNITS:

Service Force:

Administrative Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
4	Hq & Hq Co, Mtr T Serv T/O 10–500–1 (7/21/42)	O..... 36 WO..... 2 EM.....138 Agg.....176	Car, 5-passenger.....1 Tlr, 1-ton.....1 Trk, ¾-ton C & R.....8 Trk, 2½-ton.....2	Supervision Sup, operating, maint and training motor transport (SOS); Sup motor transport Serv for SOS, ground forces and air forces; and Hv QM Maint (Field Ranges, Refrigeration equipment etc.)
	(3) *Supply Units:*			
5	QM Base Dep Co T/O 10–367 (10/26/43, C1)	O..... 4 EM.....71 Agg.....75	Trk, ¾-ton, Wpn Carr.....1	Clothing & equipage section; general supplies section and a subsistence section. Furnishes technical personnel for receipt, storage, and issue of Cl I, II & IV QM supplies and provides additional personnel to augment Hq & Hq Co QM Base Depot. Operates only in conjunction with Hq & Hq Co, QM Base Depot. Capacity: Serve 100,000 Trs.
6	QM Base Dep Supply & Sales Co T/O 10–387 (11/6/43)	O..... 10 EM.....120 Agg.....130	Tlr, 1-ton, cargo.....1 Trk, 2½-ton, cargo.....1	Co Hq, Sup Plat and Serv Plat. Furnishes all classes Sup and retail sales facilities for all components of a Gen or branch Dep, provides personnel to supervise labor & motor pools. One to each Gen Dep, port, or as required in Com Z. For Deps serving less than 100,000 Trs, appropriate columns T/O 10-500 will apply.
7	QM Ref Co, Fixed T/O & E 10–217 (7/30/43, C1, 2, 3)	O..... 5 EM.....137 Agg.....142	Trk, ¼-ton.....1	Operates cold storage warehouses and ice plants to serve 120,000 men. Consists of headquarters platoon, cold storage platoon, and butchery platoon when slaughterhouse is to be operated. Meat, 30 days stock....2,500 tons Perishables, 30 days stock.....1,500 tons Wt (short tons): on wheels, 5; boxed, 6. Cubage (ship tons): on wheels, 27; boxed, 21.
8	QM Sales Co, Mbl T/O & E 10–157 (5/28/43, C1)	O..... 4 EM.....174 Agg.....178	Tlr, 1-ton.....13 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo.....13	3 Plats, 4 Secs ea. Provides and distributes sales articles. Capacity: Sales per day— Section: 10,000 Trs. Platoon: 40,000 Trs. Company: 120,000 Trs. Wt (short tons): on wheels, 86; boxed, 104. Cubage (ship tons): on wheels, 630; boxed, 469.

QUARTERMASTER UNITS:

Service Force:

Supply Units (Continued):

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
9	QM Bkry Co T/O & E 10–147 (10/6/44)	O..... 5 EM.....155 Agg.....160	Tlr, ¼-ton, cargo.....5 Tlr, 1-ton, cargo.....1 Tlr, 1-ton, 250 Gal, water tank.....1 Trk, ¼-ton, cargo.....5 Trk, ¾-ton, Wpn Carr.....2 Trk, 2½-ton, cargo.....2	4 Plats of 4 Secs each. Each Sec can operate independently. Capacity Section: 2,000 Lbs. Platoon: 6,000 Lbs. Company: 32,000 Lbs. Wt (short tons): on wheels, 22; boxed, 24. Cubage (ship tons): on wheels 96; boxed 78.
10	QM Rmt Tr T/O & E 10–97 (1/22/44)	O..... 5 EM.....146 Agg.....151	Tlr, 1-ton, cargo.....1 Tlr, 1½-ton, 2-horse.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....2 Wagon, escort.....8	Tr Hq and Dep Div consisting of Dep Hq Serv & Gd Plat, and Tng Plat. Operates F Rmt Dep with capacity of 400 Anls. Assignment dependent on requirements of T of Opns. Wt (short tons): on wheels, 49; boxed, 53. Cubage (ship tons): on wheels, 316; boxed, 228.

(4) *Transportation Units:*

11	QM Trk Co (Hv) or Petroleum) T/O & E 10–37 (8/11/44)	O..... 5 EM.....112 Agg.....117	Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 2 Trk, 4-ton, Wrecker..... 1 Trk, 5-ton, 4x2 Trac.....48 {Semi-Tlr, 10-ton Stake & Platform.....96} or {Trk, 4- to 5-ton 4x4 Trac....48 Semi-Tlr, 2,000-gal gas tank.....48} Tlr, 1-ton, cargo..... 2	Designated QM Trk Co (Hv) when equipped with stake and platform Tlr. Hauls freight when lighter equipment not economical. For use on good roads, more economical on long hauls. Capacity: 384 tons: When dolly for dual Tlr can be used, 576 tons. Designated QM Trk Co (Petroleum) when equipped with 2,000 gal gas tanks. Capacity: 960 gal bulk petroleum.
12	QM Ref Co, Mbl T/O & E 10–247 (2/25/44)	O..... 4 EM..... 99 Agg.....103	Semi-Tlr, Ref.....30 Tlr, 1-ton, cargo..... 2 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 2 Trk, 4- 5-ton, Trac.....30 Trk, 4-ton, wrecker..... 1	3 Plats, each of 3 Secs. Refrigerated Mtr transport of perishable Sup. Has 30 units for Gen use. Can handle Sup needs for 135,000 men. 1 Sec serves 1 Div. Wt (short tons): on wheels, 205; boxed, 241. Cubage (ship tons): on wheels, 1,709; boxed, 1,685.

QUARTERMASTER UNITS:

Service Force (Continued):

(5) *Repair and Maintenance Units:*

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
13	QM Salv Rep Co (Sem) T/O & E 10-237 (7/6/43, C1, 2)	O..... 3 EM.....198 Agg.....201	Semi-Tlr, van.....6 Tlr, 1-ton.....3 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....3 Trk, 4- 5-ton, Trac.....2	2 Plats, each of 1 Shoe Rep Sec, 1 Clothing Rep Sec, and 1 Textile Rep Sec. Provides repair element of a Salv Rep installation. With Bn Hq Det, a Ldry Co, a F&B Co, constitutes a QM Salv Rep Bn Sem and can take care of 50,000 men. Wt (short tons): on wheels, 36; boxed, 41. Cubage (ship tons): on wheels, 208; boxed, 182.
14	QM Salv Rep Co Fixed T/O 10-317 (11/5/43, C1)	O..... 14 EM.....192 Agg.....206	Tlr, 1-ton, cargo.....6 Trk, 1½-ton.....1	Furnishes Adm, Tech and other overhead personnel for operation of fixed salvage repair installations. Operates only in conjunction with Hq & Hq Co QM Base Depot T/O & E 10-500-1, Labor from depot labor pool, transportation from depot transportation pool. Capacity: Handle salvage from 100,000 Trs when operating in two shifts. Estimated labor requirements: Clothing repair 256, shoe, leather & rubber repair, 130, canvas and webbing repair, 100, machinery and metal, 50.
15	QM Ldry Co Sem T/O & E 10-167 (4/21/44)	O..... 5 EM.....262 Agg.....267	Semi-Tlrs, van, Ldry.....16 Tlr, 1-ton, cargo..... 6 Trk, ¼-ton..... 5 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 6 Trk, 4- 5-ton, Trac..... 4	4 Plats. Capacity: 48,000 men. A Plat can operate independently. Wt (short tons): on wheels, 136; boxed, 162. Cubage (ship tons): on wheels, 1,485; boxed, 1,092.

(6) *Petroleum Units:*

16	QM Base Petroleum Sup Co T/O & E 10-377 (7/29/44)	O..... 5 EM.....139 Agg.....144	Tlr, 1-ton.....9 Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....3 Trk, 2½-ton, cargo.....8	Co Hq, Dep Sec & 3 Opn Plats. Receives and stores petroleum products at Com Z Dep, tank farms or petroleum pipeline terminals; supervises distribution of bulk gasoline and lubricants to canning points, cleans and fills cans from bulk supply. Maintains reserve 100,000 Gal gasoline in 5-Gal cans and 15 tons oil & grease, cleans and fills 20,000 5-Gal cans daily from bulk storage.

QUARTERMASTER UNITS:

Service Force:

Petroleum Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehciles*	*Remarks*
17	QM Gas Sup Co T/O 10–77 (4/1/42, C1)	O..... 3 EM.....122 Agg.....125	Tlr, 1-ton, cargo.....21 Trk, ¼-ton..... 3 Trk, ¾-ton, Wpn Carr..... 5 Trk, 2½-ton, cargo.....21	2 Plats, each of 2 Secs. Assigned for distribution of gasoline, oil and lubricants. Has 4 gasoline dispensers and carrying capacity for 16,000 Gal gasoline in 5-Gal drums. Wt (short tons): on wheels, 139; boxed, 168. Cubage (ship tons): on wheels, 1,030; boxed, 780.

(7) *General Service and Miscellaneous:*

18	QM Gr Reg Co T/O & E 10–297 (11/6/43)	O..... 6 EM.....120 Agg.....126	Tlr, 1-ton, cargo..... 1 Trk, ¼-ton..... 5 Trk, ¾-ton, Wpn Carr.....12 Trk, 2½-ton, cargo..... 1	Co Hq and 4 Plats, each of 3 Secs. Assigned on basis of 1 Plat per combat Div, or 1 Co per Corps of 3 Divs. Supervises identification and burial of dead, Coll and disposition of personal effects, location and registration of battlefield graves and Cem. Additional labor from QM Serv units. Normal assignment: 1 Plat per combat Div. Wt (short tons): on wheels, 91; boxed, 107. Cubage (ship tons): on wheels, 586; boxed, 502.
19	QM Gr Reg Co T/O & E 10–298 (9/26/44)	O..... 5 EM.....247 Atchd Med.. 13 Agg.....265	Tlr, 1-ton, cargo.....23 Trk, ¼-ton..... 4 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo.....23	Collects, evacuates and identifies battlefield dead; collects personal effects, locates and registers battlefield graves and cemeteries, supervises interment. 3 platoons, basis of assignment: 1 Plat per Div. 1 Sec per Regtl CT.
20	QM Salv Coll Co T/O & E 10–187 (6/23/43)	O..... 4 EM.....202 Agg.....206	Tlr, 1-ton, cargo.....7 Trk, ¼-ton.....4 Trk, 2½-ton, cargo.....8 Trk, 2½-ton, wrecker.....6 Trk, 4-ton, wrecker.....3	3 Plats, each of 2 2-sqd Secs; also Atchd Ord, Cml and Sig personnel. Collection, receipt and basic classification of all Cl of Salv at Salv Coll Pts and Dep. Capacity: 75,000 troops. Wt (short tons): on wheels, 114; boxed, 137. Cubage (ship tons): on wheels, 698; boxed, 572.

QUARTERMASTER UNITS:

Service Force:

General Service and Miscellaneous (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
21	QM Fumigation & Bath Co T/O & E 10-257 (9/30/43, C1, 2)	O..... 3 EM.....83 Agg.....86	Tlr, 1-ton, cargo.....3 Tlr, bath unit.....2 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....7	Function: To delouse personnel, fumigate clothing and equipment, supply clean clothes to personnel being processed. Capacity: 3,600 per 12 hours. See remarks under QM Salv Rep Co. Wt (short tons): on wheels, 46; boxed, 56. Cubage (ship tons): on wheels, 296; boxed, 286.
22	QM Serv Co T/O & E 10-67 (2/25/44)	O..... 4 EM.....208 Agg.....212	Tlr, 1-ton, cargo.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	2 Plats each, of 2 4-Sq Secs. Assigned on basis of tonnage to be handled. Has 160 laborers. Can handle approx 800 tons of assorted Sup per day. Wt (short tons): on wheels, 12; boxed, 14. Cubage (ship tons): on wheels, 79; boxed, 66.

d. Quartermaster Service Organization, T/O & E 10-500 3 March 44:

(Detachments from this organization are grouped as required into Quartermaster Composite Battalions, Composite Companies or separate platoons.)

(1) *Administrative Units:*

1	1	2	3	4	5
	Unit	*Desig.*	*Personnel*		*Remarks*
			O	*EM*	
2	HEADQUARTERS:				
	Platoon Hq.....	AA	1	1	Composite Plat Hq when part of a composite Co.
	Platoon Hq.....	AB	1	4	Composite Plat Hq when a separate unit.
	Company Hq.....	AC	2	10	Composite Co of from 4 to 8 Plats. May also be used to supervise organized native units. Personnel should speak language of native laborers if thus utilized.
	Battalion Hq.....	AD	4	13	Composite Bn of from 6 to 8 composite Cos.
	MESS TEAMS	.....	.....	.....	Provide personnel and equipment to furnish mess facilities to:
	Mess Teams:	AE	.....	4	40 to 100 Trs.
		AF	.....	6	101 to 175 Trs.
		AG	.....	8	176 to 225 Trs.
		AH	.....	9	226 to 275 Trs.
		AI	.....	11	276 to 325 Trs.
	AUTO MECHANIC TEAMS:	.....	.....	.....	Provides personnel for 2d echelon Maint. Teams in Multiple or combination may be used to meet requirements.
		AJ	.....	1	15 vehicles. Has auto mechanics tool set only.
		AK	.....	2	30 vehicles. Has Unit equipment 2d Echelon tool Set No. 1 and one 2½-ton Trk w/w. (See SNL N-19.)

QUARTERMASTER UNITS:

Quartermaster Service Organization (Continued):

(2) *Supply Units:*

1	2	3	4	5
Unit	*Desig.*	*Personnel*		*Remarks*
		O	*EM*	
SUPPLY SEC				Adm and Tech personnel for receipt, storage and issue of Class I, II, III and IV Sup to maintain force of Strength indicated. Labor and transportation to be furnished from labor and transportation pools as required.
	BA	1	22	Serves 3,500 to 7,500 Trs.
	BB	2	30	Serves 7,500 to 15,000 Trs.
	BC	3	37	Serves 15,000 to 25,000 Trs.
SALES UNITS				Provide and distribute sales articles as indicated.
Sales Sec	BD	1	15	10,000 sales per day.
	BE		12	Personnel and equipment to augment Type BD unit, ration of assignment not to exceed 3 Type BE slaes units to one Type BD unit. Each augmentation unit capable of making 10,000 sales per day.
BAKERY UNITS				Personnel and equipment to bake bread. Operates field bakery equipment.
Bakery Sec	BF		6	800 Trs (1 oven operating 8 hours).
	BG		4	Augmentation unit for BF. Both can operate one oven two shifts, or two ovens one shift, for 1,200 Trs.
	BH	1	27	10,000 Trs, working two 8-hour shifts.
REMOUNT UNITS				Personnel for care and training of Anls.
Remount Sec	BI	2	28	100 Anls.
	BJ	1	25	Augmentation personnel to increase capacity BI unit to 200 Anls.

(3) *Transportation Units:*

4				
PASSENGER AND CARGO				Transportation units which may be organized singly or in multiple to meet transportation requirements.
Sections:	CA		10	32 Trs with not over 125 Lbs baggage Ea or 4 tons Gen cargo.
	CB	1	21	60 Trs with not over 100 Lbs baggage Ea.
	CG	1	30	90 Trs with not over 100 Lbs baggage Ea.
	CD		9	14 tons Gen cargo.
	CE		13	28 tons cargo; if equipped with 750 Gal tank Trks, 6,000 Gal.
	CF	1	18	40 tons cargo.
	CG	1	18	48 tons Gen cargo.
	CH	1	19	38 Trs and 16 tons cargo.
	CI	1	26	38 Trs and 42 tons cargo.
	CJ		2	Refrigeration Trk. Serve 5,000 Trs if trip only 1 day.
	CK	1	7	Refrigeration Trk. Serve 15,000 Trs if trip only 1 day.
Animal Sec	CL	1	14	Personnel and Anls for 5 tons cargo if components do not exceed 200 Lbs and are not too bulky.
	CM		7	2½ tons cargo, same restrictions as for Sec CL.
Driver team	CN		24	Driver augmentation team to provide two drivers per vehicle for standard Trk Co when vehicles operating over long period of time.

QUARTERMASTER UNITS:

Quartermaster Service Organization (Continued):

(4) *Repair Units:*

1	1	2	3	4	5
	Unit	*Desig.*	*Personnel*		*Remarks*
			O	*EM*	
5	REPAIR UNITS				Provides personnel to operate fixed or semi-fixed repair installations equipped to repair, for restockage or return to the individual or Orgn, all types clothing, leather, canvas or web items of equipment that are QM Maint responsibility.
	Repair Teams:	DA		9	For 2,500 Trs.
		DB		15	For 5,000 Trs.
		DC	1	23	For 7,500 Trs.
		DD	1	32	For 10,000 Trs.
		DE	1	38	For 12,500 Trs.
		DF	1	45	For 15,000 Trs.
		DG	1	50	For 17,500 Trs.
		DH	1	58	For 20,000 Trs.
	Office Mach Team	DI		2	Personnel and equipment for repair of office machines. Is mobile and can make repairs in the field.

(5) *Laundry and Dry Cleaning Units:*

6	LAUNDRY AND DRY CLEANING UNITS.				Operate mobile and fixed laundry equipment and fixed and semi-fixed dry-cleaning installations, Folding, resizing and marking must be performed by labor (civilian or military) from other sources. Totals do not include labor, which should not exceed following proportion to Sec strength: Temperate Zone units 200%; Frigid Zone 50%; Hospital 75%; Dry Cleaning units 10%.
	Mobile Ldry	EA	1	12	Mobile laundry equipment for 1,500 Trs.
		EB		6	Augmentation to Sec EA, provides second shift, uses same equipment: capacity 3,000 Trs.
	Fixed (Temperate Zone).	EC	1	13	2,500 Trs, using fixed or semi-fixed machines installed by Corps of Engineers.
		ED	1	23	5,000 Trs under same conditions as EC.
		EE	1	33	10,000 Trs under same conditions as EC.
	Fixed (Frigid)	EF	1	13	2,500 Trs under same conditions as EC.
		EG	1	22	5,000 Trs under same conditions as EC.
		EH	1	31	10,000 Trs under same conditions as EC.
	Fixed (Hosp)	EI		14	Serves 500-bed Hosp, machines installed by Engrs. Unit normally Atchd to Hosp for administration and rations.
		EJ		16	Serves 1,000-bed Hosp, under same conditions as EI.
	Dry Cleaning	EK		5	600 Trs. Operates machines installed by Engrs.
		EL		5	1,100 Trs under same conditions as EK.
		EM		8	2,800 Trs under same conditions as EK.

QUARTERMASTER UNITS:

Quartermaster Service Organization (Continued):

(6) *Petroleum and Gen Serv Units:*

1	1	2	3	4	5
	Unit	*Desig.*	*Personnel*		*Remarks*
			O	*EM*	
7	SERVICE UNITS				Personnel and equipment for testing petroleum products, packaging Gas; cleaning petroleum containers; Gr Reg activities; fumigation of clothing and equipment; disinfestation of personnel; and labor units.
	Laboratory, Base	FA	2	11	Tests petroleum products, and functions as parent unit for not to exceed 3 Type FB mobile Labs.
	Laboratory, Mbl	FB	1	6	Inspection of petroleum equipment and Sup in field. Sup Base Lab (Type FA unit) with information and specimen concerning petroleum products, activities and equipment in the field.
	Can Cleaning Team, Type I.	FC	.....	9	Equipment, and personnel for one shift, to clean 6,500 5-Gal Gas cans prior to refilling or storage.
	Team, Type II	FD	.....	9	Augmentation personnel to FC unit, operate same equipment one additional shift, capacity 6,500 additional cans cleaned.
	Petroleum Dispensing Sec.	FE	1	28	Personnel and equipment fill 5-Gal cans from bulk. Can package 33,000 Gal in one shift.
		FF	.....	26	Augments FE unit. Same equipment for an additional shift.
	Gr Reg: Type I	FG	1	11	Handles mortality expectancy of 5,000 Trs. No labor.
	Type II	FH	.....	6	Augmentation to FG, increases capacity by 5,000. Not to exceed two FH units to each FG unit.
	Fumigation and Bath, Type I.	FI	1	30	Personnel and equipment to delouse personnel, fumigate clothing and equipment and supply change of clean clothing, excluding shoes, to 1,800 Trs one shift, 10 hours.
	Type II	FJ	.....	24	Provides personnel for one additional shift to FI, doubles capacity, using same equipment.
	Labor	FK	.....	49	Handles 200 tons Gen Sup per day.
		FL	.....	12	Handles 50 tons Gen Sup per day.

(7) *Petroleum Large Drum Servicing Units:*

8	DRUM (LARGE) FILLING PLATOON.	GA	1	83	Personnel to operate fixed drum (large) filling plant. Capacity: Can fill 3,500 drums (55-Gal capacity) per 16-hour day.
	DRUM (LARGE) CLEANING & REPAIR PLATOON	GB	1	50	Personnel to operate fixed drum (large) repair plant. Inspects, cleans and repairs large drums for petroleum products. Capacity: 2,000 drums (55-Gal capacity) per 16-hour day.

166. SIGNAL UNITS:

a. Air Force Units:

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	Sig Co Dep, Avn T/O 11-287 (4/11/44)	O.....15 WO.....2 EM.....309 Agg.....326 (Variable)	Tlr, ¼-ton, 2-wheel, cargo....2 Tlr, 1-ton, 2-wheel, cargo....8 Trk, ¼-ton.....4 Trk, ¾-ton, Wpn Carr.....8 Trk, 2½-ton, cargo.....2 Trk, 2½-ton, cargo, w/w.....4 Trk, 2½-ton, Mach shop, M16A1 (load A & B).....1 Trk, 2½-ton, small arms repair.....2	Hq Sec, Opn Plat, Sup & Rep Plat. (1 per Dep Gp.) Performs all 4th ech maintenance on airborne & ground Sig Equip. Provides Sig Comm for Air Depot Group to which attached.
3	Sig Co Serv Gp T/O 11-237 (3/26/43)	O.....6 EM.....112 Agg.....118 (Variable)	Tlr, 1-ton.....5 Trk, ¼-ton.....5 Trk, ¾-ton, Wpn Carr.....3 Trk, 2½-ton, cargo.....1 Trk, 2½-ton, cargo, w/w.....2 Trk, 2½-ton, small arms Rep.....2	Hq Sec, Opn Plat, Sup & Rep Plat. (1 per Serv Gp). Provides communication at Serv Gp Hq and 3d Ech Rep of Sig equipment.
4	Sig Co, Avn T/O 11-217 (5/19/42, C1, 2)	O.....8 EM.....250 Agg.....258 (Variable)	Tlr, 1-ton.....4 Trk, ¼-ton.....4 Trk, ¾-ton, Wpn Carr.....3 Trk, 2½-ton, cargo.....1 Trk, 2½-ton, cargo, w/w.....3	Hq Sec, Co Hq, Opn Plat, Rad Int Plat. (1 per Strategic AF, A Def C, A Serv C. Provides Sig Com at each Hq).
5	Sig Bn, Tac AF T/O 11-335 (4/19/42)	O.....34 WO.....1 EM.....656 Agg.....691	Tlr, 1-ton.....20 Trk, ¼-ron.....38 Trk, ¾-ton.....1 Trk, ¾-ton, Wpn Carr.....9 Trk, 1½-ton, cargo.....1 Trk, 2½-ton, cargo.....1 Trk, 2½-ton, cargo, w/w....25	Bn Hq, Sig Co Avn (T/O 11-217); 2 Sig Co, L Cons, Avn. (1 per Tac AF. Provides Sig Com for Tac AF/Hq).
6	Radio Sq Mobile T/O & E 1-1027 (1/25/44)	O.....23 EM.....292 Agg.....315	Tlr, ¼-ton, 2-wheel, cargo....7 Tlr, 1-ton, 2-wheel, cargo....18 Trk, ½-ton, 4x4.....16 Trk, ¾-ton, 4x4, Comd.....2 Wpn Carr.....3 Trk, 1½-ton, 6x6, cargo.....4 Trk, 2½ ton, 6x6, cargo.....24 Trk, 2½ ton, 6x6, w/w.....13	Provides voice & CW intercept, D/F service, Analysis, Radio Intelligence Evaluation, Org and Analysis.
7	Sig Co Wg T/O 11-247 (7/1/42)	O.....8 EM.....123 Agg.....131 (Variable)	Tlr, 1 ton.....4 Trk, ¼ ton.....3 Trk, ¾ ton, Wpn Carr.....2 Trk, 2½ ton, cargo.....2 Trk, 2½ ton, cargo, w/w.....2	Hq Plat, Com Plat. (1 per Wg except Tr Carr Wg. Provides Com for Wg Hq.)
8	Sig Co Tr Carr Wg T/O & E 11-257 (8/14/43, C1, 2)	O.....7 EM.....127 Agg.....134	Tlr, ¼-ton.....2 Tlr, 1-ton.....3 Trk, ¼-ton.....11 Trk, ¾-ton, Wpn Carr.....3 Trk, 2½-ton, cargo.....10 Trk, 2½-ton, cargo, w/w....2	Hq Plat, Rad Plat, Tp & Tg Plat. (1 per Tr Carr Wg. Provides Sig Com for Wg Hq.)

SIGNAL UNITS:

Air Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
9	Sig Hq Co AWS Fi Comd T/O & E 11-460 (8/26/43, C1)	O..... 11 WO..... 2 EM.....212 Agg.....225	Tlr, 1-ton.....2 Trk, ¼-ton.....3 Trk, ¾-ton.....2 Trk, ¾-ton, Wpn Carr.....4 Trk, 2½-ton, cargo.....1 Trk, 2½-ton, cargo, w/w.... 2 Trk, 2½-ton, cargo.....3	Hq Plat, Plotting Plat, Communications Plat. (1 per Fi Comd Provides Service to Fi Comd Headquarters.)
10	Sig Co, AF T/O 11-267 (3/14/42)	O..... 7 EM.....207 Agg.....214	Tlr, 1-ton..... 6 Trk, ¼-ton..... 5 Trk, ¾-ton..... 3 Trk, ¾-ton, Wpn Carr..... 2 Trk, 1½-ton, cargo.....12 Trk, 2½-ton, cargo..... 2 Trk, K-53..... 5	Sig Hq, Co Hq, Wire & Msgr Plat, Rad Plat. (1 per AF. Provides Sig Com for AF Hq).
11	Sig Cons Bn Avn T/O 11-225 (7/1/42, C1)	O..... 17 WO..... 1 EM.....407 Agg.....425	Tlr, ¼-ton.....23 Tlr, 1-ton.....18 Tlr, K-36..... 4 Tlr, K-37..... 4 Tlr, K-38..... 4 Trk, ¼-ton.....26 Trk, ¾-ton, Wpn Carr.....14 Trk, 2½-ton, cargo.....10 Trk, 2½-ton, cargo, w/w.... 8 Trk, 4-ton, cargo, w/w..... 4 Trk, 4-ton, wrecker, w/w.... 2 Trk, K-43.....16 Trk, K-44..... 8	Bn Hq; 2 Sig Hv Cons Co, Avn. (2 per AF. Provides Cons personnel for all long lines within an AF.)
12	Sig AW Co Regional T/O & E 11-437 (6/28/43, C1, 2, 3)	Varies	Varies in accordance with number and type of teams as prescribed on basis of teams necessary to provide Radar coverage.	Hq Plat, Com Plat, Opn Plat, Ground Observer Plat, Reporting Plat, Radar Operating Team. Provides AWS for a region in the Continental U.S. where extensive telephone facilities are available. Strength depends upon the radar coverage required and the type radar employed.
13	Sig AW Orgn T/O & E 11-400 (3/1/44)	Varies	Varies	Bn Hq, Co Hq, Reporting Plat, Radar Operating Plat, Plotting Plat, Plotting Board Team, Radar Maint team, Msg C Team, Rad Team, Wire Team, TgP Team, Filter Plat, Ground Obsn Team (Tp), Ground Obsn Team (Rad), Mess Team, L Warning Plat. (Special unit for Task F use. Made up of one or more of each type unit shown above.)

SIGNAL UNITS:

Air Force Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
14	Sig Radio Maint Unit Avn T/O & E 11-357 (5/26/44)	Varies	Varies	This T/O & E provides for Ground Radar Maintenance Installation Teams, and VHF Installation and Maintenance Team. These teams are to be provided to overseas air force service commands as required to perform the following functions: Installation and maintenance of ground radar beacons and similar navigation aids. Installation and maintenance of instrument landing systems. Maintenance of special types of aircraft radio and radar equipment. Sufficient quantities of each type of team will be assigned to each air force service command as are required to perform installation and maintenance of radio and radar equipment.

b. Ground Force Units:

2	Sig Co, Inf Div T/O & E 11-7 (12/11/43, C1, 2)	O..... 9 WO..... 4 EM..... 226 Agg..... 239	Tlr, 1-ton..... 18 Tlr, K-52..... 1 Trk, ¼-ton..... 16 Trk, ¾-ton, Wpn Carr..... 19 Trk, 1½-ton, cargo..... 4 Trk, 2½-ton, cargo..... 15 Trk, 2½-ton, Sig C, Rep..... 2	Div Sig O's Sec, Hq Plat, Opns Plat, Cons Plat. (1 per Inf Div.) Wt (short tons): on wheels 252; boxed 299. Cubage (ship tons): on wheels 1,557; boxed 1,028.
3	Armd Sig Co T/O & E 11-57 (9/15/43, C1, 2)	O..... 11 WO..... 3 EM..... 279 Agg..... 293	Tlr, 1-ton..... 10 Tlr, K-52..... 6 Trk, ¼-ton..... 22 Trk, 2½-ton, cargo..... 19 Trk, 2½-ton, Sig C, Rep..... 2	Div Sig O's Sec, Hq Plat, Opns Plat, Rad Plat, Rad Repair Sec, Div Sig Co Sup Sec. (1 per Armd Div.) Wt (short tons): on wheels 446; boxed 518. Cubage (ship tons): on wheels 2,253; boxed 2,243.
4	A/B Sig Co T/O & E 11-557 (1/8/44)	O..... 7 WO..... 1 EM..... 123 Agg..... 131	Tlr, ¼-ton..... 4 Trk, ¼-ton..... 4 Servicycle..... 9	Comd Sec, Hq Plat, Msg Cen Plat, Rad Plat, Wire Plat. (1 per A/B Div.) Wt (short tons): on wheels 23; boxed 25. Cubage (ship tons): on wheels 83; boxed 55.

SIGNAL UNITS:

Ground Force Units (Continued):

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
5	Sig Bn T/O & E 11-15 (12/10/43)	O..... 32 WO..... 4 EM.....757 Agg.....793	Tlr, ¼-ton.....19 Tlr, 1-ton.....54 Tlr, K-36..... 8 Tlr, K-52..... 3 Trk, ¼-ton.....47 Trk, ¾-ton, Comd..... 5 Trk, ¾-ton, Wpn Carr.....50 Trk, 1½-ton, cargo..... 7 Trk, 2½-ton, cargo.....62 Trk, 2½-ton, smallarms, Rep 3 Trk, K-43.....18 Trk, K-44..... 8	Hq & Hq Co, 2 L Cons Cos, Field Opn Co. (1 per Corps.) Wt (short tons): on wheels 1,040; boxed 1,194. Cubage (ship tons): on wheels 6,379; boxed 4,288.
6	ArmdSigBn T/O & E 11-85S (7/22/43)	O..... 29 WO..... 6 EM.....669 Agg.....704	Tlr, ¼-ton.....16 Tlr, 1-ton.....36 Tlr, K-52..... 7 Trk, ¼-ton.....41 Trk, ¾-ton, Comd..... 1 Trk, ¾-ton, Wpn Carr.....18 Trk, 2½-ton, cargo.....65 Trk, 2½-ton, smallarms, Rep 3 Trk, 4-ton, wrecker..... 1	Hq & Hq Co, Opn Co, Cons Co. (1 per Armd Corps.)
7	Hq, Sig Serv Army T/O 11-200-1 (4/1/42)	O.....16 EM.....50 Agg.....66	No organic vehicles	Hq Sec, Adm & Per Sec, Training Sec, Sup Sec, Com Sec, Sig Int Sec. (1 per Army.) Normal Sig Units assigned to Army: Sig Cons Bn (T/O 11-25) Sig Opn Bn (T/O 11-95) Sig Dep Co (T/O 11-107) Sig Rep Co (T/O 11-127) Sig Photo Co (T/O 11-37) Sig Pgn Co (T/O 11-39) Sig Rad Int Co (T/O 11-77).
8	Sig L Cons Bn T/O 11-25 (2/25/44, C1)	O..... 19 WO..... 1 EM.....436 Agg.....456	Tlr, ¼-ton.....14 Tlr, 1-ton.....31 Tlr, K-36..... 8 Trk, ¼-ton.....23 Trk, ¾-ton, Wpn Carr.....36 Trk, 2½-ton, cargo.....39 Trk, K-43.....16 Trk, K-44..... 8	Hq & Hq Co, 2 Cons Cos. (1 or more per Army and Theater.) Wt (short tons): on wheels 729; boxed 820. Cubage (ship tons): on wheels 4,300; boxed 3.123.
9	Sig Opn Bn T/O 11-95 (5/19/44, C1)	O..... 21 WO..... 5 EM.....526 Agg.....552	Tlr, ¼-ton.....16 Tlr, 1-ton.....12 Tlr, K-52..... 6 Trk, K-43..... 4 Semi-Tlr, 3-ton, van.....12 Trk, ¼-ton.....49 Trk, ¾-ton, Wpn Carr.....28 Trk, 2½-ton, cargo.....12 Trk, 1½-ton, cargo, w/w.... 6 Trk, Trac, 1½-ton..... 6	Hq & Hq Co, 2 Sig Opn Cos. (1 or more per Army and Theater. Wt (short tons): on wheels 479; boxed 540. Cubage (ship tons): on wheels 2,780; boxed 2,057.

SIGNAL UNITS:

Ground Force Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
10	Sig Dep Co T/O 11-107 (6/9/44)	O..... 6 WO..... 2 EM.....135 Agg.....143	Tlr, 1-ton..... 7 Trk, Mach Shop..... 2 Trk, Sig Corps, Rep, M30.. 5 Trk, ¼-ton..... 1 Trk, ¾-ton, Wpn Carr..... 4 Trk, 2½-ton, cargo..... 2	Hq Plat, Rep Plat, 3 Storage and Issue Secs. (1 or more per Army and Theater.) Wt (short tons): on wheels 201; boxed 226. Cubage (ship tons): on wheels 1,169; boxed 1,071.
11	Sig Rep Co T/O & E 11-127 (5/22/44)	O..... 6 WO..... 1 EM.....152 Agg.....159	Tlr, 1-ton.....19 Trk, Sig Corps, Rep.....15 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo.....18	Hq Plat, 10 Rad Rep Secs, 5 Wire Rep Secs, (1 or more per Army and Theater.) Wt (short tons): on wheels 262; boxed 328. Cubage (ship tons): on wheels 1,589; boxed 1,351.
12	Sig Photo Co T/O 11-37 (2/12/44, C1)	O..... 17 WO..... 1 EM.....130 Agg.....148	Tlr, 1-ton..... 2 Trk, ¼-ton.....25 Trk, ¾-ton, Wpn Carr..... 6 Trk, 2½-ton, cargo..... 6	Wt (short tons): on wheels 143; boxed 162. Cubage (ship tons): on wheels 702; boxed 481.
13	Sig Pgn Co T/O & E 11-39 (9/6/43, C2)	O..... 9 EM.....143 Agg.....152	Tlr, ¼-ton.....25 Tlr, 1-ton.....17 Trk, ¼-ton.....28 Trk, ¾-ton, Wpn Carr..... 3 Trk, 1½-ton, cargo.....16 Trk, 2½-ton, cargo..... 1	Hq Plat, 3 Combat Plats. (1 or more per Army and Theater.) Wt (short tons): on wheels 209; boxed 244. Cubage (ship tons): on wheels 1,382; boxed 889.
14	Sig Rad Int Co T/O 11-77 (4/1/42)	O..... 7 WO..... 1 EM.....251 Agg.....259	Tlr, ¼-ton.....19 Tlr, 1-ton..... 2 Tlr, K-55.....11 Trk, ¼-ton..... 4 Trk, ¾-ton, Rad..... 1 Trk, ¾-ton, Wpn Carr.....15 Trk, 2½-ton, cargo..... 2 Trk, 2½-ton, cargo, w/w.... 1	Hq Plat, Intercept Plat, Position Finding Plat, Wire Plat. (1 or more per Army and Theater.) Wt (short tons): on wheels 176; boxed 213. Cubage (ship tons): on wheels 1,382; boxed 901.
15	Sig Port Serv Co T/O 11-327 (4/1/42)	O..... 12 WO..... 1 EM.....152 Agg.....165	Trk, K-50..... 1	Port Sig Sup Off, Adm Plat, Warehousing & Transshipping Plat. (For Port Sig Dep prior to entrance of Com Z.) Wt (short tons): on wheels 34; boxed 36. Cubage (ship tons): on wheels 105; boxed 96.
16	Sig Co Joint Assault T/O & E (11-147S (10/21/43, C1, 2, 3)	Ground O..... 21 WO..... 1 EM.....304 Air O..... 13 EM..... 39 Navy O..... 9 EM.....115 Total Agg.....502	Tlr, ¼-ton.....31 Tlr, 1-ton..... 2 Trk, ¼-ton.....42 Trk, ¾-ton, Wpn Carr..... 6 Trk, 2½-ton, cargo..... 1 Car, Half-track, M3A2..... 1	Hq Plat, Bn Shore & Beach Party Com Sec, Shore & Control Sec. Air Ln Sec. (For Amphibious Opns.) Wt (short tons): on wheels 134; boxed 161. Cubage (ship tons): on wheels 750; boxed 415.

SIGNAL UNITS (Continued):

c. Service Units:

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Sig L Cons Bn T/O 11-25 (2/25/44, C1)	O..... 19 WO..... 1 EM.....436 Agg.....456	See Par 166 b.	
3	Sig L Cons Co T/O 11-27 (10/12/43, C1)	O..... 6 WO..... 0 EM.....186 Agg.....192 When Separate O..... 6 EM.....188 Agg.....194	Tlr, ¼-ton..... 6 Tlr, 1-ton.....14 When separate.....15 Tlr, K-36..... 4 Trk, ¼-ton.....10 Trk, ¾-ton, Wpn Carr.....17 Trk, 2½-ton, cargo.....18 When separate.....19 Trk, K-43..... 4 Trk, K-44..... 8	1 Hq Plat. 2 Cons Plats of 3 Cons & cams each Wt (short tons): on wheels 336; boxed 374. Cubage (ship tons): on wheels 1,940; boxed 1,423.
4	Sig H Cons Bn T/O 11-65 (4/25/44)	O..... 21 WO..... 1 EM.....434 Agg.....456	Tlr, ¼-ton.....18 Tlr, 1-ton.....39 Tlr, K-36..... 8 Trk, ¼-ton.....27 Trk, ¾-ton, Wpn Carr.....20 Trk, 2½-ton, cargo.....39 Trk, K-38..... 4 Trk, K-43.....16 Trk, K-44..... 8	Normal assignment 1 or more per Com Z. May be assigned to Army or AF for special missions. Functions of unit include all types permanent or semi-permanent open wire or lead covered construction. The Bn is capable of building complete a 10 to 16 mile permanent pole line carrying 2 open wire circuits in 1 working day. Has Hq and 2 Sig H Cons Cos. Wt (short tons): on wheels 1,003; boxed 1,084. Cubage (ship tons): on wheels 3,592; boxed 2,501.
5	Sig H Cons Co T/O 11-67 (13/1/44, C1, 2)	O..... 7 EM.....186 Agg.....193	Tlr, ¼-ton..... 8 Tlr, 1-ton.....18 Tlr, 1-ton, Water tank 250 Gal..... 1 Tlr, K-36..... 2 Tlr, K-37..... 2 Tlr, K-38..... 2 Trk, ¼-ton.....12 Trk, ¾-ton, Wpn Carr..... 9 Trk, 2½-ton.....15 Trk, 4-ton, 6x6, cargo..... 2 Trk, 4-ton, 6x6, wrecker..... 1 Trk, K-43..... 8 Trk, K-44..... 4	Function: to construct any type permament or semi-permament telephone or telephone line involving open wire or lead covered cable. Capacity: 5 to 8 miles per day permanment pole line carrying 2 open wire circuits. Assignment: Normally to Com Z but may be requisitioned by an Army Comdr or AF Comdr for a specific task. Wt (short tons): on wheels 473; boxed 506. Cubage (ship tons): on wheels 1,586; boxed 1,112.

SIGNAL UNITS:

Service Units (Continued):

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
6	Sig Base Maint Co T/O 11-587 (11/23/43)	O..... 20 WO..... 5 EM.....306 Agg.....331	Tlr, 1-ton..... 1 Trk, ¾-ton, Wpn Carr..... 3 Trk, 2½-ton, cargo..... 3 Trk, small arms repair, M7A1..... 2	Function: 5th echelon maintenence for Sig equipment. Assignment: part of Sig Base Dep Group which is itself part of Gen Dep. Capacity: Provides 5th echelon maintenance for force of 100,000. Wt (short tons): on wheels 59; boxed 69. Cubage (ship tons): on wheels 302; boxed 250.
7	Hq & Hq Co Sig Base Dep T/O 11-592 (11/23/43)	O..... 24 EM..... 91 Agg.....115	Trk, ¼-ton..... 8 Trk, ¾-ton, Wpn Carr..... 2	Function: provides staff and personnel for supervision of all functions of Sig Base Depot Group, including supply and 5th echelon maintenance. No communications or photographic functions can be provided by the Sig Base Depot Gp. Assignment: Part of Sig Base Depot Group, which is itself part of Gen Dep. Capacity: supervision 1 or more Sig Base Dep Co plus 1 or more Sig Base Maintenance Co. Wt (short tons): on wheels 24; boxed 28. Cubage (ship tons): on wheels 82; boxed 47.
8	Sig Base Dep Co T/O 11-597 (11/23/43, C1)	O..... 7 WO..... 1 EM.....124 Agg.....132	Tlr, 1-ton..... 4 Trk, ¾-ton, Wpn Carr..... 2 Trk, 2½-ton, cargo..... 5	Function: receipt, storage and issue of all items Sig equipment. Maintenance of stock levels, follow-up of requisitions, and all other signal supply functions. Assignment: Part of Sig Base Depot Group–in itself part of Gen Dep. Capacity: Supply for force 100,000. Wt (short tons): on wheels 42; boxed 50. Cubage (ship tons): on wheels 262; boxed 168.
9	Sig Serv Orgn T/O & E 11-500 (7/1/43, C1, 2, 3, 4, 5, 6)	Varies	Varies	Provides one or more of all essential Sig Serv. Made up from teams to fit any Theater Hq or Com Z Hq Orgn.[1]

SIGNAL UNITS (Continued):

d. Detachments Included in T/O & E 11-500 Signal Service Organization, (approximate):

1	2	3	4	5	6	7
Letter Designation of Detachment	*Name*	*O*	*EM*	*Wpns*	*Trk or Tlr*	*Remarks*
	ADMINISTRATION:					
AA	Platoon headquarters	1	5	7	1	More than 19 and 1 team.
AB	Company headquarters	2	13	18	1	More than 99 and 1 platoon.
AC	Battalion headquarters	4	17	24	2	2 or more Cos.
AD	Group headquarters	4	18	25	2	3 or more Bns.
AE	Mess team, type No. 1	0	3	4	0	30 to 100 men.
AF	Mess team, type No. 2	0	5	6	0	101 to 175 men.
AG	Mess team, type No. 3	0	7	9	0	176 to 225 men.
AH	Mess team, type No. 4	0	8	10	0	226 to 275 men.
AI	Mess team, type No. 5	0	10	10	0	276 to 325 men.
	MOTOR MAINTENANCE:					
BA	Motor maintenance team, type No. 1	0	1	1	1	15 Vehicles.
BB	Motor maintenance team, type No. 2.	0	2	2	1	30 Vehicles.
	DEPOT:					Teams CA, CB, Storage and issue of Sig supplies Fourth echelon repair of Sig equipment.
CA	Depot Section, small	1	5	7	1	Serves 5,000 men.
CB	Depot section, medium	1	16	23	1	Serves 15,000 men.
CC	Storage and issue section	1	22	29	1	Serves 50,000 men.
CD	Inspection and maintenance team	3	6	9	3	
	MESSAGE CENTER AND MESSENGER:					Teams DA Thru DF include cryptographic personnel.
DA	Message center team, type No. 1	0	5	6	0	100 Msgs per day (15 word).
DB	Message center team, type No. 2	3	12	18	0	300 Msgs per day (15 word).
DC	Message center team, type No. 3	3	17	24	0	450 Msgs per day (15 word).
DD	Message center team, type No. 4	5	40	54	0	900 Msgs per day (15 word).
DE	Message center team, type No. 5	11	54	76	0	1400 Msgs per day (15 word).
DF	Message center team, type No. 6	17	75	108	0	1800 Msgs per day (15 word).
DG	Messenger team, type No. 1	0	6	8	3	
DH	Messenger team, type No. 2	0	12	15	6	
	RADIO:					
EA	Crystal grinding section	1	3	4	0	
EB	Mobile radio team	0	5	6	0	
EC	Radar installation and maintenance team	0	5	5	0	
ED	Radio automatic operation augmentation	0	5	6	0	
EE	Radio broadcast team	9	19	28	0	
EF	Radio carrier terminal team	2	24	34	4	100 mile radio link of 2 terminals and 3 intermediate repeaters.
EG	Radio repair section	0	10	12	3	
EH	Radio telegraph fixed station 1 position	1	6	10	2	One location.
EI	Radio telegraph fixed station 2 position	1	11	15	2	Two locations.
EJ	Radio telegraph fixed station 3 position	2	20	26	2	Three locations.

SIGNAL UNITS:

Detachments Included in T/O & 11-500 Signal Service Organization (Continued):

1	*2*	*3*	*4*	*5*	*6*	*7*
Letter Designation of Detachment	*Name*	*O*	*EM*	*Wpns*	*Trk or Tlr*	*Remarks*
	RADIO (Cont'd)					
EK	VHF installation and maintenance team	1	14	16	0	
EL	Multi-channel single-side band radio station	6	81	98	0	
EN	Signal Center Team	3	18	21	0	
EO	Radio Link repeater team	0	6	9	0	
	PHOTOGRAPHIC ASSIGNMENT UNITS:					
FA	Photographic assignment unit	1	4	2	3	
FB	Photographic laboratory unit	2	24	26	2	
FC	Newsreel Assignment Unit	1	6	7	3	
FD	Identification team	0	4	4	0	
FE	Still Picture Laboratory Team	0	5	5	0	
FF	Photo Mail Unit	1	15	16	1	14,000 letters/24 hrs.
FG	Photo Mail Unit	2	25	27	1	28,000 letters/24 hrs.
FH	Photo Mail Unit	4	87	91	1	115,200 letters/24 hrs.
FI	Photo Mail Unit	4	166	170	2	230,400 letters/24 hrs.
FJ	Photo Mail Reader (Sending)	0	1	1	0	
FK	Film Reel (Sending)	0	1	1	0	
FL	Recorder (Sending)	0	1	1	0	
FM	Film Developing Machine	0	2	2	0	
FN	Paper Process	0	2	2	0	
FO	Chopper	0	1	1	0	
FP	Continuous Enlarger	0	1	1	0	
FQ	Microfilm Camera	0	1	1	0	
FR	Diesel Operation	0	1	1	0	
FS	Official Mail Section	1	4	5	0	
	WIRE AND CABLE:					GA thru GD include installation and maintenance of local telephones.
GA	40-line switchboard team	0	6	8	1	—approximately 100 telephones
GB	1-position switchboard team	0	11	14	1	—approximately 200 telephones
GC	2-position switchboard team	1	21	26	2	—approximately 300 telephones
GD	3-position switchboard team	1	33	42	2	
GE	200-station automatic switchboard	1	21	27	2	
GF	Switchboard installation section	1	16	21	0	And maintenance.
GG	Small operating team	0	4	5	0	Switch board operation only.
GH	Large operating team	0	14	15	0	Switch board operation only.
GI	Small teletype team	0	5	6	0	1–3 Teletypewriters.
GJ	Medium teletype team	0	11	14	0	3–6 Teletypewriters.
GK	Large teletype team	1	19	24	0	5–10 Teletypewriters.
GL	Cable repair section	0	11	13	6	—25 miles cable.
GM	Open wire repair section	0	22	29	4	—4 crews—each maintains about 25 miles local or toll pole line.
GN	Telephone carrier and repeater section	2	19	24	0	
GO	Telephone and telegraph installation section	1	17	21	0	
GP	Spiral 4 cable section	2	28	35	7	Install, operate, maintain and repair a 100 mile spiral four cable carrier system.
GQ	Wire repair section	0	11	14	2	4th and 5th echelon repair of wire equipment.

SIGNAL UNITS:

Detachments Included in T/O & 11-500 Signal Service Organization (Continued):

1	2	3	4	5	6	7
Letter Designation of Detachment	*Name*	*O*	*EM*	*Wpns*	*Trk or Tlr*	*Remarks*
	WIRE AND CABLE (Cont'd)					
GR	Submarine cable section	1	11	15	0	
GS	Heavy Wire Construction Team	1	34	43	15	
GT	Light Wire Construction Team	0	11	12	3	
GU	Light Wire Platoon Hq	2	9	11	12	
GV	Heavy Wire Platoon Hq	0	6	6	6	
GW	Small Cable Repair Team	0	4	4	4	
	RADIO INSTALLATION:					
HA	Pole construction section	0	10	12	0	HA to HH not normally used in T of O where the operators usually install the stations.
HB	Steel tower construction section	0	5	6	0	
HC	Labor section	0	15	19	0	
HD	Receiving and transmitter installation section.	1	9	13	0	
HE	Boehme installation section	0	1	1	0	
HF	Wire installation section	0	4	5	0	
HG	Teletypewriter installation section.	0	1	1	0	
HH	Power section	0	6	8	0	
	RADIO INTELLIGENCE:					
IA	Platoon traffic analysis unit	1	14	15	5	
IB	Company traffic analysis unit	3	29	32	5	
IC	Direction finder team	0	9	11	0	
ID	FCC-intercept and direction finding team	0	5	5	1	
IE	Intercept team	0	23	29	0	
IF	Operation team	0	3	3	0	
IG	Plotting team	0	5	6	0	
IH	Radio operating team	0	4	5	0	
II	Teletypewriter team	0	4	5	0	
IJ	Wire team	0	4	5	1	
	SECURITY DETACHMENTS:					SA thru SN: Signal countermeasure teams — normally under Theater control.
SA	Security Team No. 1	0	5	5	3	
SB	Security Team No. 2	0	7	7	2	
SC	Security Team No. 3	0	6	6	1	
SD	Security Team No. 4	0	7	7	2	
SE	Security Team No. 5	0	6	6	2	
SF	Security Team No. 6	0	3	3	1	
SG	Security Team No. 7	0	5	5	2	
SH	Control Team No. 1	1	11	12	4	
SI	Control Team No. 2	1	5	6	2	
SJ	Control Team No. 3	1	4	5	1	
SK	Investigation Team No. 1	0	7	7	1	
SL	Control Team No. 2	0	5	5	1	
SM	Maintenance Team No. 1	0	6	6	2	
SN	Maintenance Team No. 2	0	5	5	2	

SIGNAL UNITS:

Detachments Included in T/O & 11-500 Signal Service Organization (Continued):

1	*2*	*3*	*4*	*5*	*6*	*7*
Letter Designation of Detachment	*Name*	*O*	*EM*	*Wpns*	*Trk or Tlr*	*Remarks*
	MEDICAL DETACHMENTS:					
XA	Increment No. 1	0	2	0	0	In Com Z the nearest station hospital is usually adequate.
XB	Increment No. 2	2	11	0	2	
XC	Increment No. 3	2	8	0	1	

■ 167. TRANSPORTATION CORPS UNITS:

a. Port Units:

1	1	2	3	4
	Unit	*Personnel*	*Vehicles*	*Remarks*
2	Hq & Hq Co Major Port (Oversea) T/O & E 55–110–1 (11/20/43, C1, 2)	O.....111 WO..... 1 EM.....408 Agg.....520	Tlr, ¼-ton, cargo.....1 Trk, ¼-ton.....5	Provides Hq and Adm overhead for a mobile port of embarkation or debarkation as described in AR 55–75. The cargo capacity will be determined by the number of port Bns Atchd. Maximum capacity as follows: *Cargo* — *Per Month* — *Max at any time* Pers..... 50,000 — 20,000 Anls..... 1,000 — 1,000 Sup (Ship Tons).....300,000 — 200,000
3	Hq & Hq Co Medium Port (Oversea) T/O & E 55–120–1 (5/13/44, C1)	O..... 76 EM.....231 Agg.....307	Trk, ¼-ton..... 14 Trk, ¾-ton, Wpn Carr.....141 Trk, 2½-ton, cargo.....142	Provides Hq and Adm overhead for a port of embarkation or debarkation. Can supervise a port with maximum capacity as follows: *Cargo* — *Per Month* — *Max at any time* Pers..... 25,000 — 10,000 Anls..... 500 — 500 Sup (Ship Tons)..... .....150,000 — 100,000
4	Hq & Hq Det, Port Bn T/O & E 55–116 (3/20/44)	O..... 4 WO..... 2 EM.....17 Agg.....23	Tlr, ¼-ton.....1 Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....1 Trk, 1½ ton, cargo.....1	This Hq is capable of controlling 6 Port Cos. Bns will be organized in accordance with the local situation. Assigned for Opns at a major port of embarkation or debarkation. Wt (short tons): on wheels, 9 boxed, 12. Cubage (ship tons): on wheels, 57; boxed, 22.
5	Port Co T/O & E 55–117 (7/31/44)	O..... 6 EM.....213 Agg.....219	Tlr, 1 ton, cargo.....1 Trk, ¼-ton.....1 Trk, 1½-ton, cargo.....1 Trk, 2½-ton, cargo.....1	This unit provides supervisory personnel and labor trained in loading and unloading vessels at ports. Unloading capacity: 15 long tons per hour per hatch section, or 150 long tons per hour per Co (10 hatch sections). Normally assigned for Opn at a major port.
6	Harbor Craft Co T/O & E 55–177 (5/19/43)	Flexible	Small Tugs..... 2 Motor Tow Boats..... 4 Barges.....20 Trk, ¼-ton..... 1 Trk, ¼-ton, Amph..... 1 Trk, ¾-ton, Wpn Carr..... 1	Provides Adm, supervisory and Maint personnel for operating miscellaneous harbor craft. Estimated cargo handling is approximately 89,225 measurement tons of cargo per month, operating on an 18 hour per day basis. To be used at a major port only when civilian operations cannot be depended upon.

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TRANSPORTATION CORPS UNITS (Continued):

b. Railway Units:

1	1 Unit	2 Personnel	3 Vehicles	4 Remarks
2	Hq & Hq Co Mil Ry Serv T/O & E 55-302 (5/4/44)	O..... 32 WO..... 2 EM.....165 Agg.....199	Trk, ¼-ton.....3 Trk, ¾-ton, Wpn Carr.....4 Trk, 2½-ton, cargo.....1	This Hq controls or supervises Ry units in the T of Opns. Normally assigned to a T of Opns where a large rail net exists employing 2 or more Ry Grand Divs. Wt (short tons): on wheels, 26; boxed, 33. Cubage (ship tons): on wheels, 121; boxed, 53.
3	Hq & Hq Co Ry Grand Div T/O & E 55-202 (3/18/44, C1, 2)	O.....25 EM.....56 Agg.....81	Tlr, ¼-ton, cargo.....1 Trk, ¼-ton.....3 Trk, ¾-ton, Wpn Carr.....2	This unit serves as an Adm Hq for from 2 to 4 Operating Bns, and 1 to 2 Shop Bns. Normally assigned to T of Opns as Adm Hq serving from 2 to 4 Ry Operating Bns and 1 to 2 Shop Bns. Wt (short tons): on wheels, 10; boxed, 11. Cubage (ship tons): on wheels, 49; boxed, 23.
4	Ry Oper Bn T/O & E 55-225 (10/28/43, C1, 2)	O..... 26 WO..... 1 EM.....789 Agg.....816	Tlr, ¼-ton, cargo.....1 Tlr, 1-ton, cargo.....1 Tlr, Low Bed, 16-ton.....2 Tlr, Low Bed, 20-ton.....3 Trk, ¼-ton.....3 Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....6 Trk, 2½-ton, cargo.....7 Trk, 2½-ton, dump.....6 Trk, 6-ton, Prime Mover.....2 Compressor, Trk Mtd.....3 Shovel, Crawler Mtd.....1 Trac, Angledozer.....2 Trac, Bulldozer.....2	Com Z and GHQ units, Hq & Hq Serv Co, 1 Maint of Equipment Co, L Maint of Way Co; 1 Transportation Co. Operates and maintains Ry Div of 90 to 150 miles in length, without increase of personnel. The Bn can furnish crews for 20 to 24 trains each way per day, or a total of 40 trains per day.
5	Ry Shop Bn T/O & E 55-235 (10/4/43, C1, 2)	O..... 24 WO..... 2 EM.....621 Agg.....647	Trk, ¼-ton.....1 Trk, ¾-ton, Comd.....1 Trk, ¾-ton, Wpn Carr.....5 Trk, 2½-ton, cargo.....4	Com Z and GHQ units, Hq & Hq Serv Co; 1 Erecting and Machine Shop Co; 1 Boiler and Smith Shop Co; 1 Car Repair Co. Operates heavy shops and executes major Rep of Ry equipment. The Bn can serve 2 Ry Operating Bns.
6	Elec Pwr Transm Co T/O & E 55-217 (10/28/43, C1, 2)	O..... 4 WO..... 0 EM.....188 Agg.....192	Tlr, 1-ton, cargo.....2 Trk, 2½-ton, cargo.....2	This Orgn is capable of maintaining electric power transmission on approximately 200 miles of electrified Ry.

TRANSPORTATION CORPS UNITS (Continued):

c. Miscellaneous Units:

1	1 *Unit*	2 *Personnel*	3 *Vehicles*	4 *Remarks*
2	Amph Trk Co T/O & E 55-37 (5/22/44, C1, 2, 3)	O..... 7 EM.....173 Agg.....180	Trk, ¼-ton..... 2 Trk, ¾-ton, Wpn Carr..... 1 Trk, 2½-ton, cargo..... 1 Trk, 2½-ton, Amph.....50	Capable of operating on a 24-hour basis unloading Approx 1,000 to 1,500 tons of mixed cargo. On the average, 1 DUKW should discharge about 3 tons over a combined water-land distance of about 2 miles in Approx 1 hour. (6 ton-miles per hour.) Wt (short tons): on wheels, 357; boxed, 373. Cubage (ship tons): on wheels, 2,683; boxed, 2,647.
3	Base Depot Co T/O & E 55-260 (3/22/43)	O..... 5 EM.....116 Agg.....121	Semitrailer, 20-ton.....1 Trk, 5-, 6-ton, Trac.....1 Trk, ¼-ton.....1 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1 Crane, Trac Mounted.....1	Provides administrative supervision, clerical and warehouse personnel for Dep Opns. Normally assigned to a T of Opns as a Serv unit to a Major Port, Mbl (T/O 55-110-1) and located in base Sec. Consists of Co Hq; Depot Plat, and Serv Plat. Can operate independently. Capable of supervising warehousing and maintenance of stock records for cargo handled by 4 Plat Cos—totaling 4,400 measurement-tons per day. Wt (short tons): on wheels, 48; boxed, 53. Cubage (ship tons): on wheels, 177; boxed, 124.
4	Hq & Hq Co Reg Sta T/O & E 29-22 (9/17/43, C1)	O..... 42 WO..... 1 EM.....141 Agg.....184	Trk, ¼-ton.....4 Trk, ¾-ton, Comd.....2 Trk, ¾-ton, Wpn Carr.....1 Trk, 2½-ton, cargo.....1	Controls Traf in the Com Z. It is the agency of the Theater Commander which provides for a systematic and orderly movement of Sup and replacements to the C Z and Evac to the RR of casualties, PW, and Salv from the C Z. Orgn includes Reg officers for rail, motor, air, and inland waterways (as required); includes officers from each Sup Serv, including air.
5	Staging Area Co T/O 55-147 (9/9/44)	O..... 6 EM.....173 Agg.....179	Trk, ¼-ton.....2 Trk, ¾-ton, Wpn Carr.....4 Trk, 2½-ton, cargo.....9	Provides messing facilities in ports of debarkation or embarkation in T of Opns. Capable of serving 4,000 individuals. Normally assigned to a major port installation.

TRANSPORTATION CORPS UNITS:
Miscellaneous Units (Continued):

1	*1*	*2*	*3*	*4*
	Unit	*Personnel*	*Vehciles*	*Remarks*
6	TC Serv Orgn T/O & E 55–500 (9/29/44)	Varies	Varies	Cellular Orgn designed to meet demands for specific purposes. Normally assigned for the Opn of a small port under the Comd of a Serv Gp Hq (base section). Provides for Traf Reg Gps. The composition of this unit is dependent on the amount of Sup being handled by the port. Refer to T/O for capabilities and details. Wt (short tons): on wheels, 107; boxed, 136. Cubage (ship tons): on wheels, 503; boxed, 162.

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Chapter 2

TROOP MOVEMENTS

			Paragraph
SECTION	I.	Troop Movements—General	201-205
	II.	Motor Movements	206-216
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	V.	Movements by Air Transport	229-236
	VI.	Troop Movements—Water	237-244

TROOP MOVEMENTS

SECTION I

TROOP MOVEMENTS—GENERAL

■ 201. INTRODUCTION. — *a. Basic road spaces.* — Troop movement data shown in basic tables of road spaces, rates and lengths of marches, are averages from field experience.

b. Examples.—The examples of tables of road spaces and troop movements by motor transport, for various types of divisions are based on Tables of Organization strength and are included as guides for the preparation of similar tables for units in the field. Tables for field use must conform to the variations of strength of units and the amount of transportation and equipment available. Regiments, separate battalions, and similar units should maintain tables showing road space requirements of their units based on actual strength and materiel on hand. Reports of subordinate units form the basis for tables of large units. However, a table based on actual strength of men and material may be worthless without proper evaluation of the weather, road conditions, hostile or mechanized threats, or other variable factors affecting the troop movement. These basic figures are capable of great increase or decrease under extremes of the variable factors.

■ 202. BASIC ROAD SPACES.—The following values apply in computing road spaces except when greater dispersion is desired to reduce the effect of unfavorable factors mentioned in par. 201 *b* above:

a. Foot troops (at halt or marching): [1]

	Yards
Single file, per man	2.4
In column of twos, per man	1.2
In column of threes, per man	.8
In column of fours, per man	.6

b. Animal elements (at halt or marching): [1]

Cavalry:	*Yards*
Single file, per animal	4.0
In column of twos, per animal	2.0
In column of fours, per animal	1.0
For large units, columns of twos	3.0
For large units, columns of fours	1.5
FA, H-Dr:	
Per animal	3.0

c. Bicycles:

In single file	4.0

[1] For time length of foot and animal elements in column see Par 203.

BASIC ROAD SPACES (Continued):

d. Motor elements (at halt):[2]

Motorcycles, solo or w/SC	5.0
Passenger cars	7.0
Trucks: ¼-ton	5.0
¼-ton w/cargo Tlr or Wpn in Tow	8.0
½ to ¾-ton	7.0
½ to ¾-ton w/cargo Tlr or Wpn in tow	12.0
1½ to 2½-ton incl	10.0
1½ to 2½-ton w/cargo Tlr or Wpn in tow	14.0
Over 2½-ton	13.0
Over 2½-ton w/cargo Tlr or Wpn in tow	20.0
Average per vehicle for a mixed column of various types	10.0

[2] For road spaces and time lengths for motor elements at various speeds see Par 210.

e. Uses of tables:

(1) A battalion of infantry with 800 men marching in column of threes: 800 x .8 (see *a.* above) = 640 yards road space.

(2) A battalion of field artillery, horse drawn, containing 400 animals: 400 x 3 (see *b.* above) = 1,200 yards road space.

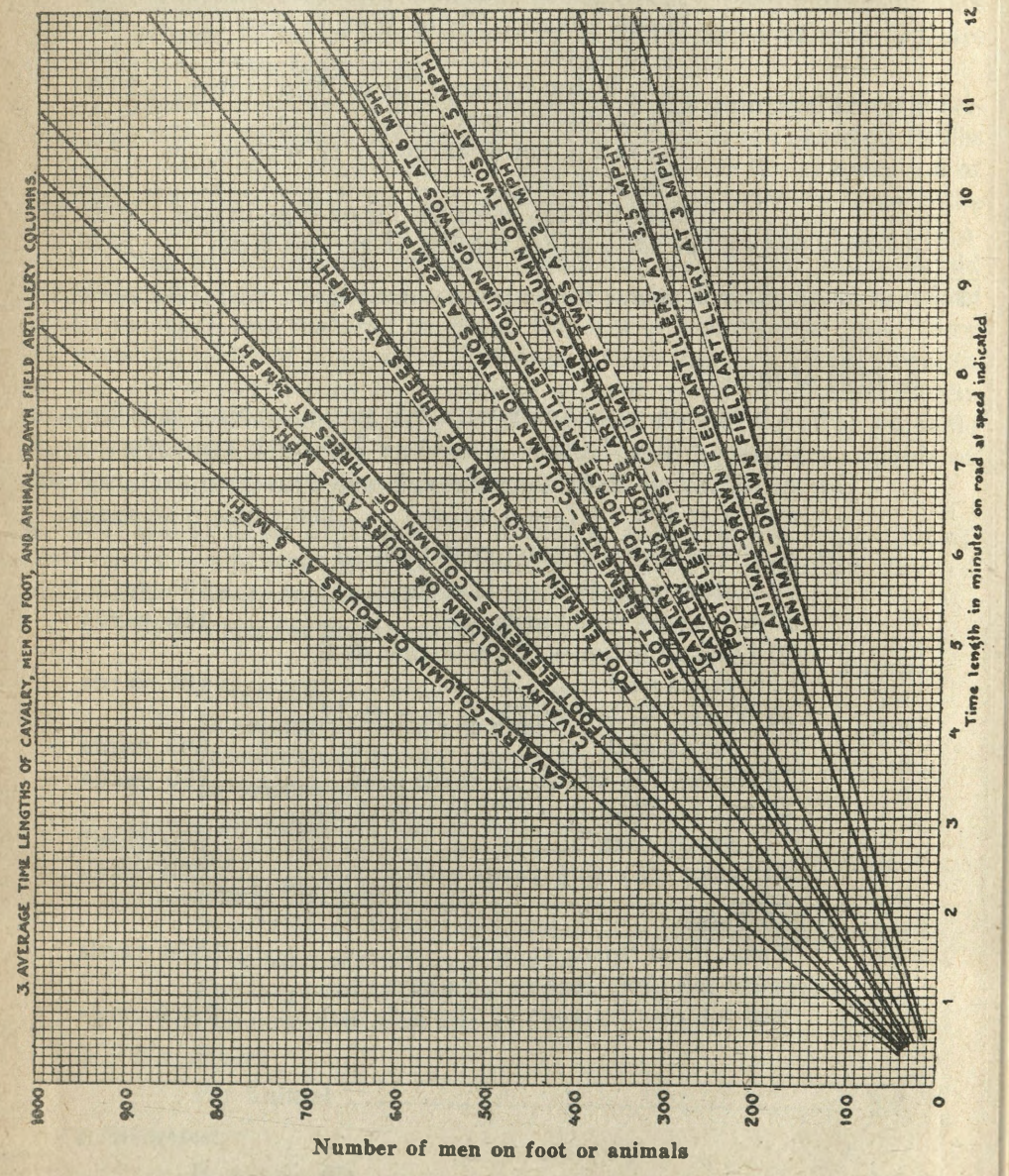
(3) A mixed motor column consisting of:

20 motorcycles @ 5 yards each	100 yards
20 scout cars @ 8 yards each	160 yards
20 trucks, ¼-ton w/Wpn in tow @ 8 yards each	160 yards
25 trucks, ¾-ton w/Tlr in tow @ 12 yards each	300 yards
75 trucks, 1½-ton @ 10 yards each	750 yards
40 trucks, 2½-ton w/Tlr in tow @ 14 yards each	560 yards
40 tanks (M) @ 8 yards each	320 yards
240 Total	
Total Road Space at halt	2,350 yards

Alternate solution: (see par. *d* above)

240 vehicles (mixed) @ 10 yards each ..... 2,400 yards

■ 203. AVERAGE TIME LENGTHS OF CAVALRY, MEN ON FOOT, AND ANIMAL-DRAWN FIELD ARTILLERY COLUMNS.



NOTES

This chart applies to columns of foot and animal elements.
This chart gives average time-length. Actual time-length may vary considerably, depending on conditions.
To use chart:
Determine the number of men on foot or animals in the column.
Locate this figure in vertical scale on left of chart.
Follow horizontal line to right to intersection with diagonal line indicating the proper foot or animal column and rate of travel.
From this intersection follow vertical line down to horizontal scale.
Read on horizontal scale average time-length of the column.

■ 204. RATES AND LENGTHS OF MARCHES; FOOT, ANIMAL, AND MOTOR ELEMENTS. [1]—*a.* The following rates and lengths of marches are based upon modern vehicles, trained personnel, and favorable conditions of roads and weather:

	1	2	3	4	5	6 [2]	7
		Average rates of march (mph) ([4])				*Lengths of March (average)*	
1	*Unit*	*On roads*		*Across country*		*On roads (miles per day)*	*Remarks*
		Day	*Night*	*Day*	*Night*		
	INFANTRY [5]						
2	Foot troops	2½	2	1½	1	12–15 for a division 15–20 for smaller units	Length of march increased with well seasoned trs marching on good roads in favorable weather when required by the tactical situation. [2]
	ARTILLERY [3]						
3	Horse-drawn	3½	3	3	2	20	
4	Pack (less motor elements)	3½	3	3	2	20	
5	Trk-Dr, L or M	25	25 (lights) 10 (no lights)	8	5	175	
6	Tr-Dr, M						Rates and lengths of march not available. Data to be furnished later.
7	Trk-Dr, Hv	18	18 (lights) 10 (no lights)	6	4	135	
8	Tr-Dr, Hv	15	15 (lights) 8 (no lights	6	4 (lights) 1½ (no lights)	135	
9	AAA, Trk-Dr	25	25 (lights) 10 (no lights)	8	5	175	
10	AAA, SP	25	25 (lights) 10 (no lights)	12	5	175	

RATES AND LENGTHS OF MARCHES; FOOT, ANIMAL, AND MOTOR ELEMENTS.[1] (Continued):

1	1 Unit	2 Average rates of march (mph) (4) On roads Day	3 Average rates of march (mph) (4) On roads Night	4 Average rates of march (mph) (4) Across country Day	5 Average rates of march (mph) (4) Across country Night	6 Lengths of March (average) On roads (miles per day)	7 Remarks
	CAVALRY						
11	Anl elements	6	5	5	4	35	Under conditions requiring maneuver, these rates may be increased.
12	Cars, armored or scout	35	35 (lights) 10 (no lights)	10	5	200	
	ARMORED						
13	Tanks, L	25	25 (lights) 10 (no lights)	15	5	150	Armored division moves at rate of march of medium tanks.
14	Tanks, M	17	17 (lights) 10 (no lights)	12	5	150	
	MISCELLANEOUS						
15	Pk Tns	3½	3	3	2	20	
16	Anl-Dr Tns	3½	3	1½	1	20	
17	Trks, Ambs, Mtz units (except Hv Arty)	25	25 (lights) 10 (no lights)	8	5	175	
18	Cars, passenger	35	35 (lights) 10 (no lights)	8	5	250	

[1] The rate of march of a column composed of elements with different rates of march is regulated by that of the slowest element.
[2] Greater distances than those given in column 6 may be covered under forced march conditions. (See paragraph 205.)
[3] Horse artillery marches at the rates of horse cavalry (line 11).
[4] Rates shown apply primarily to movement in close column, and may be increased for small commands under favorable conditions.
[5] For movement over mountainous terrain, an additional allowance of 1 hour should be made for each 1,000 feet of climb.
[6] Average rates of march for motorized elements listed in columns 2 and 3 are possible only on improved roads.

b. Marches in snow and extreme cold.—(1) Foot troops marching in snow without snowshoes or skis will have their mobility decreased. The decrease of mobility will depend on several factors, among which are depth and nature of the snow. Normally, snow of a depth of 24 inches or more will prohibit marching unless skis or snowshoes are used.

RATES AND LENGTHS OF MARCH (Continued):

For especially equipped and adequately trained troops, the following rates of march are practicable:

Snowshoes	1½ to 2½ miles per hour
Skis	1½ to 3½ miles per hour

Under favorable conditions the foregoing may be materially increased. Small bodies of well trained troops are capable of moving on skis 40 miles a day, under favorable conditions.

(2) *Dog teams.*—Average dog teams of 7 dogs and hauling a 500-pound load are capable of moving 5 to 7 miles per hour for 6 to 7 hours daily, an average day's march being approximately 30 miles.

(3) *Motor movement (wheel) in snow:*

Depth of snow (inches)	Measures required for movement
3	None
6	Rear chains
6-18	Chains all-around; and special tractor devices on leading vehicle (to break the trail)
18 and over	Snow plow required

■ 205. FORCED MARCHES; FOOT AND ANIMAL ELEMENTS.—*a. General:* Seasoned troops and animals when well rested at the beginning of the march, with good weather and good roads, are capable of reaching their destination physically fit to engage in combat after making forced marches as indicated on the graph on the following page.

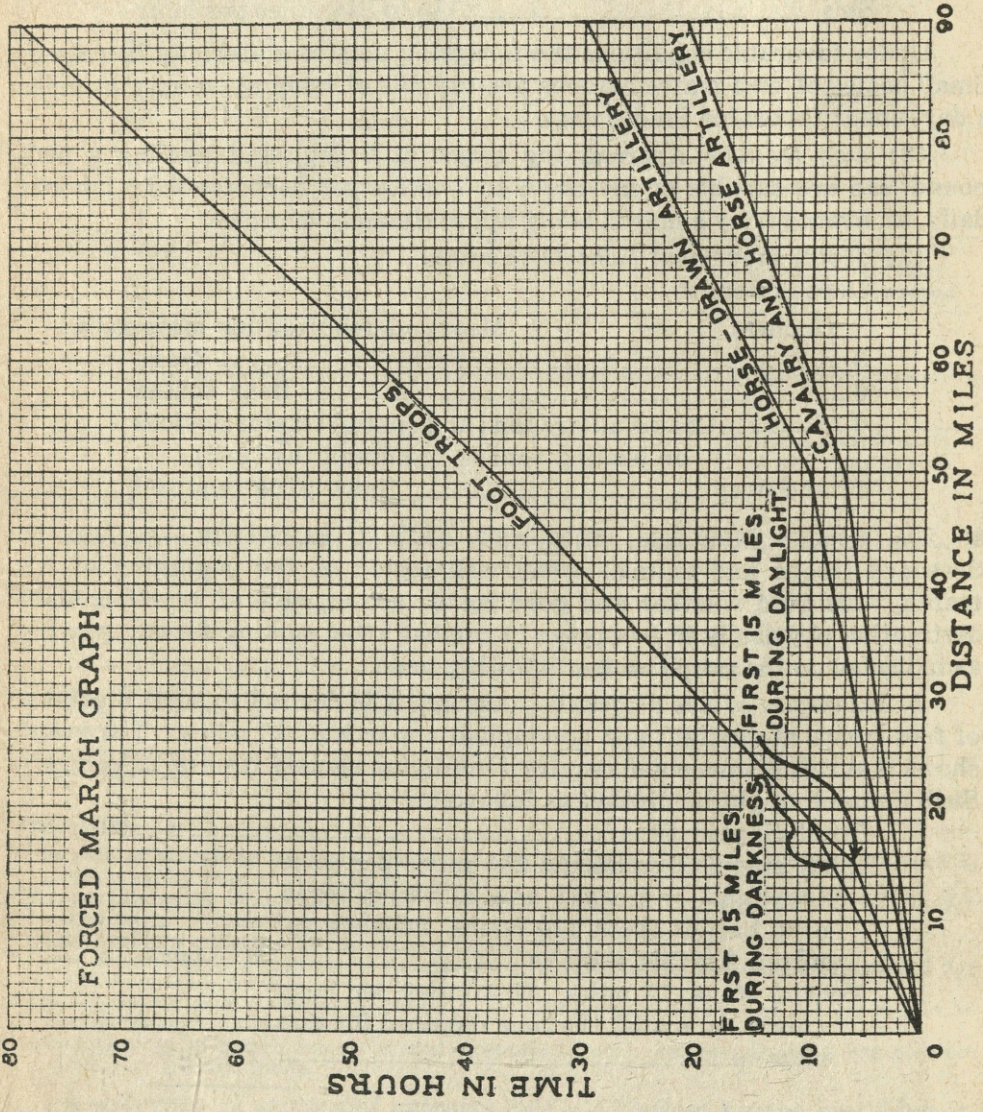
b. Examples of use of graph.—Assume it is desired to start a column of foot troops at daylight and accomplish a march of 33 miles. The graph shows that this distance will require a minimum elapsed time of 22½ hours. Such a march might be divided as follows:

Total elapsed time	22½ hrs
First stage, 18 miles. At 2½ miles per hour (daylight, on roads) and allowing for a noon halt of about 1½ hours, the time required for this stage is	9 hrs
Second stage, 15 miles. At 2 miles per hour (night, on roads) the time required for this stage is	7½ hrs
Total for both stages	16½ hrs
Available for a long rest halt between stages	6 hrs

The forced march could be divided into three or more stages instead of two, in which case two or more long rest halts totaling six hours could be scheduled.

FORCED MARCHES; FOOT AND ANIMAL ELEMENTS (Continued):

c. Forced March Graph:



SECTION II

MOTOR MOVEMENTS

■ 206. VEHICLE CAPACITIES.—*a. Truck capacities for troop movement.*—The capacity of motor transportation for movement of foot troops depends upon the rated capacity of the transportation employed, the type of body on the vehicles, and the method of carrying personnel. Normal capacities for trucks carrying personnel with rifles, packs, and extra ammunition, with no additional cargo:

	Men
Truck, ¼-ton (excluding driver)	3
Truck, ½-ton (excluding driver)	5
Truck, ¾-ton (excluding driver)	8
Truck, 1½-ton (excluding driver)	15
Truck, 2½-ton (or larger) (excluding driver)	25

NOTE

When 2½-ton dump truck or 2½-ton short wheel base artillery trucks carry the loads shown above, some personnel will be required to stand.

b. Truck capacities for animals.—

	Horses or mules
Truck, 1½-ton (exceptional)	2 plus 2 men with equipment
Truck, 2½-ton, cargo	4 plus 4 men with equipment
Semi-trailer, 4½-ton	8 plus 8 men with equipment, harness and forage for 1 day.

■ 207. FORM FOR TABULATING NUMBER OF TRUCKS REQUIRED FOR MOVEMENT BY MOTOR TRANSPORT (TACTICAL MOVEMENTS) INFANTRY DIVISION.—The following form may be used to tabulate the approximate number of trucks required to move the foot elements, with individual equipment, of the infantry division, or of component units thereof:

FORM FOR TABULATING NUMBER OF TRUCKS REQUIRED FOR MOVEMENT BY MOTOR TRANSPORT (Continued):

1	1	2	3	4	5	6	7
	Unit	*T/O strength*	*Actual strength*	*Transported in organic motors*	*Strengths for which transportation must be furnished*	*Number of trucks required*	
						1½-ton	*2½ ton*
2	Rifle Co						
3	Rifle Plat						
4	Weapons Plat						
5	Hv Wpn Co						
6	Cal .30 MG Plat						
7	81-mm Mort Plat						
8	Inf Bn (w/Bn Sec Med Det, Atchd)						
9	Hq & Hq Co, Inf Regt						
10	Serv Co						
11	AT Co						
12	Med Det, Inf Regt (less 3 Bn Secs)						
13	Inf Regt						
14	Inf Div (total) (foot troops) [1]						

[1] Remaining units of an infantry division are assumed to move by means of their own transport and so are not included in the above table.

■ 208. TRAFFIC FLOW OF MOTOR COLUMNS.—*a.* Efficient utilization of road space can be obtained in practice by operating a column in small serials. A traffic flow of 3,000 vehicles in one direction during daylight hours, considering halts and the headways between small serials, is a practical maximum for a well-improved, two lane highway with a well organized system of traffic control. On lower type roads and with varying conditions of road construction and maintenance, traffic control, road alinement, and weather, the workable capacity will be much lower.

b. For adaptation to a specific unit under field conditions, it is necessary that time and space studies be conducted continuously in order to arrive at a suitable factor based upon the state of proficiency of the specific unit in motor movement. This study may result in (1) a basic factor to which allowance for time distance between march units and serials must be added, or (2) a basic factor including allowance for time distance between march units and serials.

■ 209. DENSITY OF MOTOR COLUMNS.—*a.* The density of a motor column is expressed as the average number of vehicles per mile. Motor columns may be classified as either (1) close column, (2) open column, or (3) infiltration.

b. Close Column.—In close column, vehicles are closed up to safe driving distances behind the preceding vehicle. Usually a fixed speedometer multiplier (SM)[1] is specified (such as 2, 2.35, 2.5, 3, etc.) to accomplish a safe-driving intervehicular distance at all speeds.

c. Open Column.—In open column, distances between vehicles are increased to accomplish greater dispersion. Usually a fixed density is specified (such as 10, 15, or 20 vehicles per mile) but open column conditions may be obtained by designating a fixed speedometer multiplier high enough to insure the desired intervehicular lead at the lowest speed expected.

d. Infiltration.—In infiltration, vehicles are dispatched at irregular intervals with a fixed density (such as 3, 4, 5, or 6 vehicles per mile).

e. The following table shows the density for several rates of march. Select the appropriate rate of march on the upper line and read directly below for density. (This table holds for a SM of 2.35 only).

Rate of March (Mph)	10	15	20	25	30	35	40	45	50
Density (Veh/Mi)	75	50	37	30	25	21	19	17	15

[1] Speedometer multiplier (SM) is any number by which speed in miles per hour is multiplied to determine inter-vehicular lead in yards. Example: with a SM of 2, the inter-vehicular lead of two successive vehicles (measured from head to head) at a speed of 10 mph is $2 \times 10 = 20$ yards; at a speed of 25 mph is $2 \times 25 = 50$ yds.

■ 210. AVERAGE ROAD SPACE AND TIME LENGTHS OF MOTOR COLUMNS AT VARIOUS RATES OF MARCH.—*a. Road Space.*—Road space occupied by a motor column may be obtained by dividing the number of motor vehicles in the column (disregarding trailers) by the average density (number of vehicles per mile).

$$\frac{\text{Number of motor vehicles in column}}{\text{Density (vehicles per mile)}} = \text{Road Space (miles)}$$

The chart on page 15 shows the average road space under ideal conditions and does not include allowances for intervals between march units. Actual road space may vary somewhat depending upon conditions.

To use chart:

Determine the number of motor vehicles in column, disregarding trailers or towed weapons.

Locate the figure in vertical scale on left of chart, marked "number of vehicles."

Locate the figure showing average density under which the movement will be made, on the vertical scale marked "Density, Veh/mile."

Connect these two points with a straight edge. Read the figure at the point of intersection of the straight edge with the vertical scale marked "Road Space, Miles."

This will be the Road Space, in miles, occupied by the column under the given conditions.

AVERAGE ROAD SPACE AND TIME LENGTHS OF MOTOR COLUMNS AT VARIOUS RATES OF MARCH (Continued):

b. Time Length:—(1) The time length of motor columns may be obtained by multiplying number of vehicles in column by average intervehicular headway (interval of time between heads of vehicles as they pass a given point) of column. Thus a column composed of 300 vehicles having an average intervehicular headway of 0.20 minutes (12 seconds per vehicle) would have a time length of 300 × 0.20 or 60 minutes (300 vehicles per hour).

(2) *Close Column.*—For purposes of calculation a value of 0.08 minutes intervehicular headway may be used for vehicles moving in close column with a SM of 2.35. Thus a continuous column of 300 vehicles would have a time length of 300 × 0.08 or 24 minutes. (750 vehicles per hour). This volume (750 vehicles per hour) applies only to a given serial or column of vehicles and does not include time interval between march units. It can not be multiplied by number of hours to obtain a daily traffic volume. See Par 208.

(3) *Open Column and Infiltration.*—Time length of a motor movement in open column or infiltration may be obtained by the following formula:

$$\frac{\text{Number of motor vehicles in column}}{\text{Density (vehicles per mile)} \times \text{rate of march (mph)}} = \text{Time length (in hours). (Or length of time to pass a given point.)}$$

d. The chart on page 15 shows average time lengths under ideal conditions and does not include allowances for intervals between march units. Actual time lengths may vary somewhat depending upon conditions.

To use chart:

Obtain "Road Space" as directed in subparagraph "*a*",

Locate the figure representing the average rate of march in miles per hour on the vertical scale marked, "Rate of March, mi/hr."

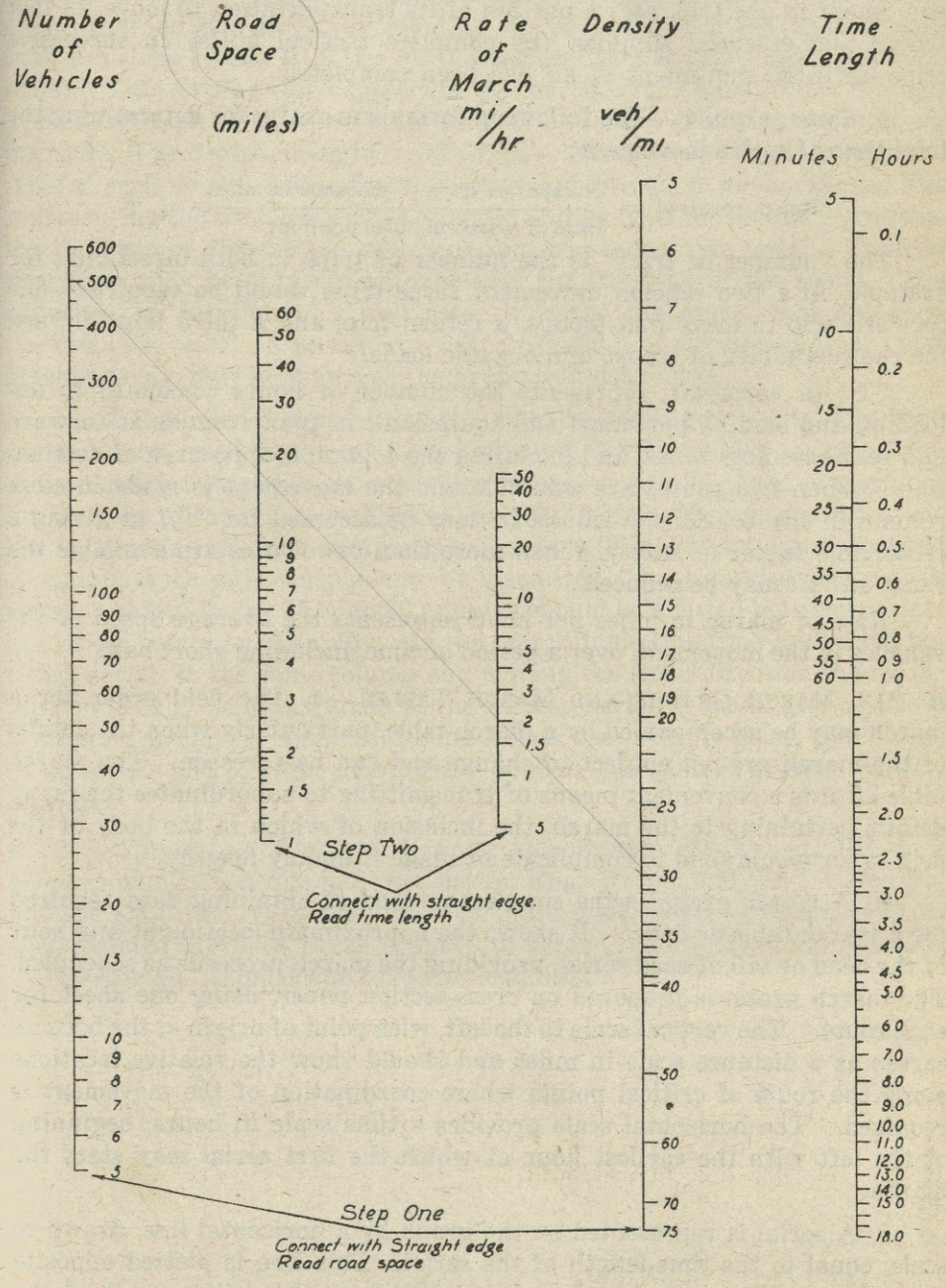
Connect these two points with a straight edge.

Read the figure at the intersection of the straight edge with the vertical scale marked "Time Length."

This figure is the Time Length of the column under the conditions given.

AVERAGE ROAD SPACE AND TIME LENGTHS OF MOTOR COLUMNS AT VARIOUS RATES OF MARCH (Continued):

(Does not include road space between march units.)



626166 O—45——13

■ 211. MOTOR MOVEMENT BY ECHELON.—*a. Definition.*—Motor movement by echelon is a movement by a unit, such as an Infantry Division, which lacking sufficient organic transportation to move all personnel and equipment in one trip, uses a portion of its transportation to move its foot troops and essential supplies (by complete tactical units) in successive trips until the movement of all has been completed.

b. Time formula.—The following formula is useful for determining the total time of such a movement:

$$\text{Hours required} = \frac{\text{Number of trips} \times \text{distance in miles}}{\text{Rate of march in miles per hour}} + T$$

The "number of trips" is the number of trips in both directions; for example, in a two echelon movement three trips would be required—one forward trip to move foot troops, a return trip, and a third trip forward for the remainder of troops and organic loads.

"T" (a variable), represents the number of hours consumed in unloading and loading personnel and equipment, in turn-arounds at forward and rear assembly areas, and in closing the column into its area of destination. When two routes are available and the movement is made in close column in two echelons, a value of 3 may be assumed for "T," as giving a reasonable factor of safety. When more than two routes are available the value of "T" may be reduced.

Rate of march in miles per hour represents the average speed of the vehicles in the movement, over a period of time, including short halts.

■ 212. MARCH GRAPHS AND MARCH TABLES.—*a.* The field order for a march may be accompanied by a march table, particularly when the details of the march are not subject to change and can be foreseen. The march table affords a convenient means of transmitting to subordinates the many details pertaining to the march, the inclusion of which in the body of the field order would tend to complicate or make it unduly lengthy.

b. A march graph is the simplest method of obtaining data required for a march table or order. It shows the approximate location at any hour of the head or tail of each serial, providing the march proceeds as scheduled. The march graph is prepared on cross-section paper, using one sheet for each route. The vertical scale to the left, with point of origin at the bottom, serves as a distance scale in miles and should show the relative locations along the route of critical points where coordination of the movement is required. The horizontal scale provides a time scale in hours, beginning at the left with the earliest hour at which the first serial may start the march.

c. A serial is represented on the graph by a horizontal line, drawn to scale, equal to the time-length of the serial. This line is plotted opposite the point on the vertical scale, corresponding to the initial point of the

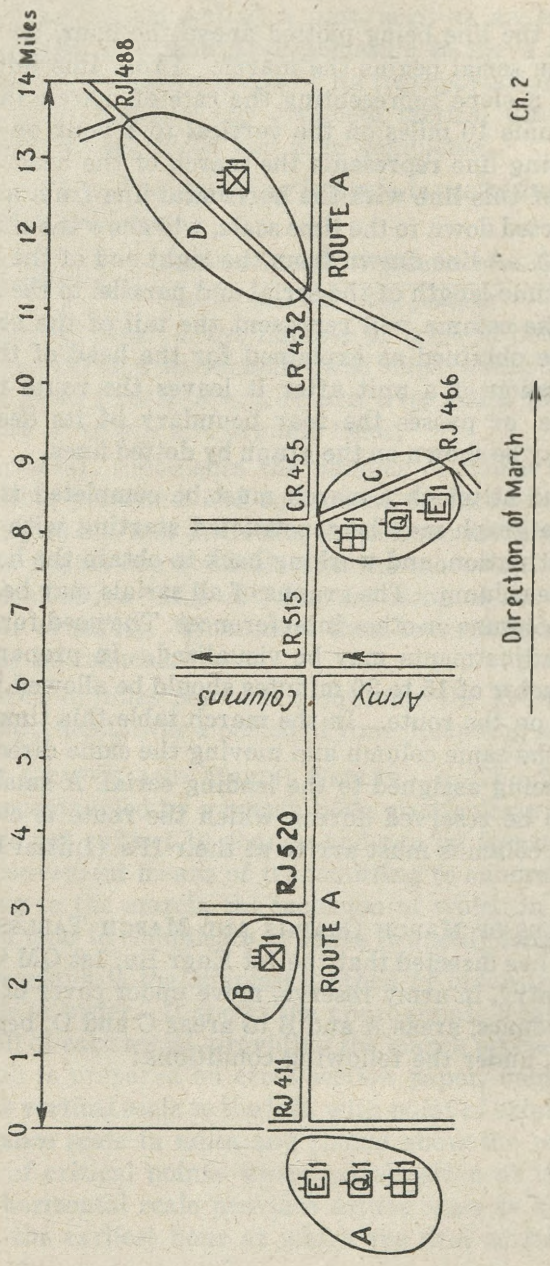
MARCH GRAPHS AND MARCH TABLES (Continued):

serial; the left of the line being plotted above the hour, on the horizontal scale, at which the serial begins the march. From this left end a line is drawn upward at a slope representing the rate of march (at 10 miles per hour the slope equals 10 miles on the vertical to 1 hour on the horizontal scale). This sloping line represents the march of the head of the column. The intersection of this line with the horizontal line from any point along the route, if projected down to the time scale, will show the time the head arrives at such point. A line drawn from the right end of the horizontal line representing the time-length of the serial and parallel to the line representing the head of the column will represent the tail of the serial. Time of clearances may be obtained as explained for the head of the serial. The movement or location of a unit after it leaves the route represented on the distance scale, or passes the rear boundary of its destination (new bivouac area), may be shown on the graph by dotted lines.

d. If the hour at which a march must be completed is the only time factor known, the graph may be constructed starting with the tail of the column at the destination, and working back to obtain the hour of starting, for the head of the column. The graphs of all serials may be adjusted to allow for crossing columns or other interferences. The need for and the means of making such adjustments may be visualized. In preparing the march graph, a safety factor of 15 to 30 minutes should be allowed between serials at critical points on the route. In the march table this time is divided between serials in the same column and moving the same direction the major portion usually being assigned to the leading serial. A small gap of about 5 minutes should be reserved during which the route is clear. The heads of all serials and columns must arrive at their IPs (Initial Points) exactly on time.

■ 213. EXAMPLES OF MARCH GRAPHS AND MARCH TABLES.—*a.* The division commander has directed that the 1st Engr Bn, 1st QM Co, 1st Med Bn, and the 1st Infantry, in army reserve, move under cover of darkness from their present bivouacs, areas A and B to areas C and D, beginning at 1900 27 October 19__, under the following conditions:

EXAMPLES OF MARCH GRAPHS AND MARCH TABLES (Continued):



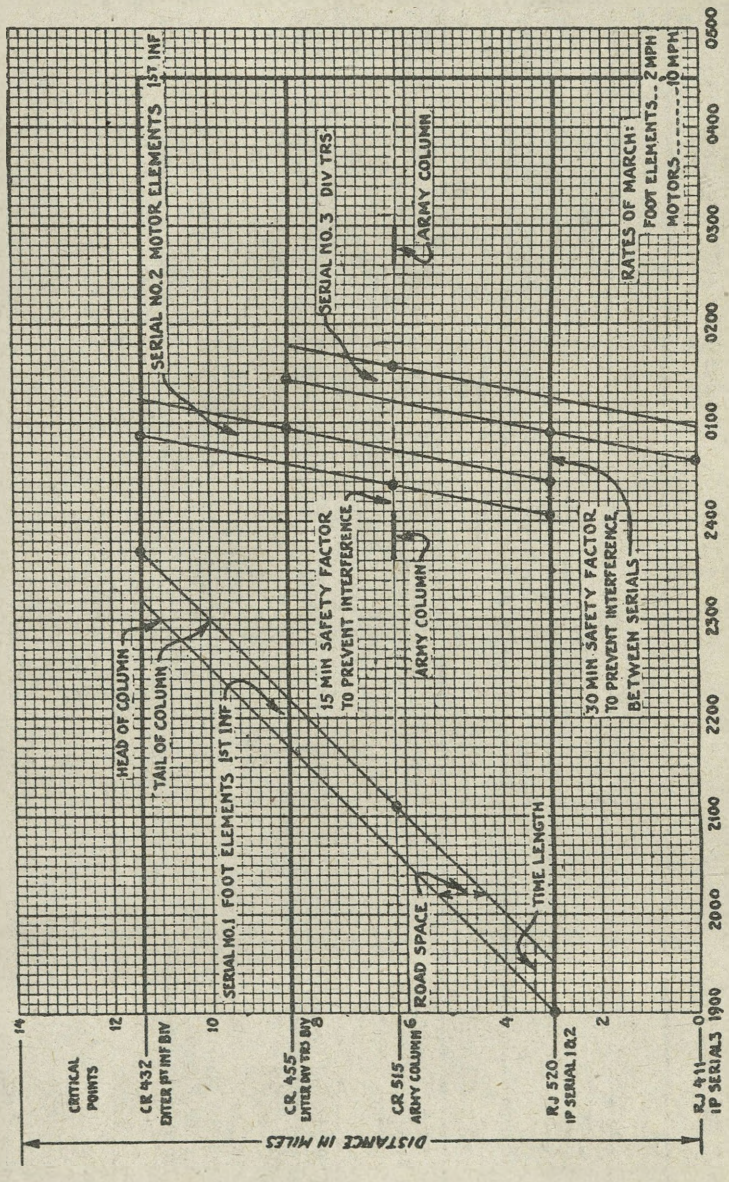
(1) Movement to be made without lights and to be completed prior to 0430 28 October 19__.

(2) Route A is available for the movement but CR 515 is reserved for army columns from 2336 to 0006 and from 0236 to 0300.

EXAMPLES OF MARCH GRAPHS AND MARCH TABLES (Continued):

b. The following EXAMPLE OF MARCH GRAPH-ROUTE A is the graph used by the division staff, 1st Infnatry Division in planning the march.

(Figures do not represent any specific organization)



NOTES 1. Time Lengths:

(a) Serial 1—2,150 men on foot in column of threes at 2 mph (Chart par. 203) = 30 min.
(b) Serial 2—262 vehicles at 10 mph (Chart par. 211) = 21 min.
(c) Serial 3—269 vehicles at 10 mph (Chart par. 211) = 22 min.

2. o Indicates remarks in march table for control of movement.

ANNEX No. 1 TO FO 2

Map—Operations Map

MARCH TABLE

1st Inf Div
Ketoku (1210-3365) San
1500, 27 Oct 19.....

1	2	3	4	5	6	7	8	9	10	11	12
Serial No.	Organization and commander	Present location	Route	Location by 0430 28 Oct	March			Control of Movement			Remarks
					Rate (miles per hour)	Type	Time-length (minutes) [1]	Location (critical points)	Earliest allowable arrival time	Latest allowable clearance time [2]	
1	Col "A" 1st Inf Comdg: Foot Troops 1st Inf 2,150 men	Area B	A	Area D	2	Column of 3's	30	RJ 520 (IP) CR 515 CR 455 CR 432	1900	2025 2201 2307 0037	
2	Lt Col "B" 1st Inf Comdg: Motor elements 1st Inf 262 vehicles	Area B	A	Area D	10	Close column	21	RJ 520 (IP) CR 515 CR 455 CR 432	0001 0021 0024 0042	0037 0057 0110	
3	Lt Col "C" 1st Engr Bn Comdg: Div Trs: 1st Engr Bn, 1st QM Co, 1st Med Bn, 269 vehicles	Area A	A	Area C	10	Close column	22	RJ 411 (IP) RJ 520 CR 515 CR 455	0035 0043 0103 0116	0143 0201 0221	

OFFICIAL:
Y

X
Maj Gen

G-3
Distribution: (Same as FO)

[1] Does not include time between march units.
[2] Time listed in this column prevents forced marching by any serial between critical points.

■ 214. FORMS FOR ABRIDGED TABLE—ROAD-SPACES AND TIME-LENGTHS: *a. Infantry Division.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Units (including attached chaplains and medical personnel)	*T/O No.*	*Authorized strength*		*Actual strength*			*Road-space at halt (miles)*		*Road-space moving (miles)*			*Time-length moving (minutes)*			*Additional vehicles to carry foot troops (Clm 7)*	*Road-space additional vehicles at halt (miles)*	*Time-length additional vehicles in close column*	*When Div moves by truck*	
												Men on foot (Clm of 3s)		*Vehicles in close column*				*Road-space at halt (Clm 9+17) (miles)*	*Time-length in close column (Clm 15+18) (min)*
		Men	*Vehicles*	*Men*	*Vehicles*	*Men on foot*	*Men on foot*	*Vehicles*	*Men on foot*	*Vehicles 10 mph Close Col.*	*Vehicles 25 mph Close Col.*	*2 mph*	*2½ mph*		*2½ ton*	*2½-ton*	*2½-ton*		
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
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14																			
15																			
16																			
17																			
18																			
19																			
20																			

Column 1: Designation of unit to be entered, as "1st Infantry Division."
Columns 5, 6, and 7: Based on periodic reports of subordinate units, the actual strength in men, and vehicles should be entered.
Column 8: Number of men on foot ×.8 (men in column of threes) = yards; ÷1760 = miles.
Column 9: For a column of vehicles of all types, 10 yards per vehicle is used as the average road space.
Column 10: Road-spaces of foot elements on the march are identical with road-spaces at the halt.
Column 11: Number of vehicles × 23.5 yards (2.35 × mph) per vehicle = yards ÷ 1760 = miles.
Column 12: Number of vehicles × 60 yards (2.35 × mph) per vehicle = yards ÷ 1760 = miles.
Columns 13 and 14: Number of men on foot ×.0109 = minutes at 2½ mph (×.0136 at 2 mph).
Column 15: Number of vehicles × .08 = minutes. (Does not include time between march units)
Column 16: Men on foot (column 7) ÷ 25 (for 2½-ton trucks). (See Pars 206 and 207).

FORMS FOR ABRIDGED TABLE—ROAD SPACE AND TIME LENGTH (Continued):

b. Armored Division:

	1	2	3	4	5	6	7	8	9	10	11	12
			Authorized strength		*Actual strength*			*Road-space moving (miles)*			*Time-length moving (minutes)*	
1	*Unit (including attached chaplain and medical personnel)*	*T/O No.*	*Men*	*Vehicles*	*Men*	*Vehicles*	*Road-space at halt (closed up) (mi)*	*Close column*		*Open column 17 mph 20 veh per mi*	*Close column*	*Open column 17 mph 20 veh per mi*
								10 mph	*17 mph*			
2												
3												
4												
5												
6												
7												
8												
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25												
26												
27												
28												

NOTES

Column 1: Designation of unit to be entered, (such as "1st Armd Div").
Columns 5 and 6: Based on periodic reports by subordinate units.
Column 7: For column of vehicles of all types, 10 yards per vehicle is used as the average road-space.
Column 8: Number of vehicles × 23.5 yards (2.35 × mph) = yards ÷ 1,760 = miles.
Column 9: Number of vehicles × 40 yards (2.35 × mph) = yards ÷ 1,760 miles.
Column 10: Number of vehicles ÷ 20 = miles.
Column 11: Number of vehicles × .08 minutes. (This does not include time-distance be-march units.)
Column 12: $\frac{\text{Number of vehicles}}{20 \text{ (vpm)} \times 17 \text{ (mph)}} \times 60$ = minutes (or approximately 1/6 × number of vehicles).

■ 215. MOTOR MOVEMENT BY ECHELON: INFANTRY DIVISION.—*a.* Refer to paragraph 212 for general formula for movement by echelon, and to paragraph 206, 207 and 217 for transportation requirements and availability.

b. The following example of standing operating procedure for a motor movement by echelon for an infantry division should be used only as a guide from which to prepare plans based upon the actual transportation available and the personnel to be moved:

c. Example No. 1:

(1) *Plan.*—Motor Movement 1 is a movement in which the division moves in its organic motors in two echelons, behind a screen furnished by troops outside the division, adequate to protect the movement against strong frontal attack. CT 1 and CT 2, constitute the first echelon. It moves on two or more routes and protects the immediate front of its movement with small advance guards. In addition to its organic transportation, sufficient additional trucks from units of the division not moving in the first echelon are attached to CT 1 and CT 2 for the movement, to transport by motor all their personnel and equipment. At the conclusion of the movement of the first echelon, trucks belonging to units of second echelon return to pick up prescribed loads and move CT 3. Necessary trucks from units of the first echelon dump loads in forward area and return to assist in moving foot troops of the second echelon. Division troops move in the second echelon.

(2) *Security.*—The Reconnaissance Troop protects the movement by conducting reconnaissance to the front and flanks.

(3) *Warning Order.*—Preliminary arrangements for the movement will be inaugurated upon receipt of order "Alert for motor movement one," or "Alert for motor movement one, after (designated hour)."

MOTOR MOVEMENT NUMBER ONE (MM1)—1ST INFANTRY DIVISION.

FIRST ECHELON

Group 1

CT1:
- 1st Inf
- 1st FA Bn
- 1st Plat Co A 1st Engr Bn
- Co A 1st Med Bn (-)

Group 2

CT2:
- 2d Inf
- 2d FA Bn
- 1st Plat Co B 1st Engr Bn
- Co B 1st Med Bn (-)

SECOND ECHELON

Group 3

CT3:
- 3d Inf
- 3d FA Bn
- 1st Plat Co C 1st Engr Bn
- Co C 1st Med Bn (-)

Group 4

Div Trs:
- 1st Inf Div Arty (less 1st, 2d, 3d FA Bns)
- 1st Engr Bn (less Dets)
- 1st Med Bn (less Dets)
- 1st QM Co (less Dets)
- 1st Ord Co
- 1st Inf Div Hq & Hq Co (less Dets)
- 1st Sig Co (less Dets)

NOTE: A Det of 1st Inf Div Arty Hq & Hq Btry marches with the 105-mm Bn of one of the groups of the 1st Echelon.

MOTOR MOVEMENT BY ECHELON; INFANTRY DIVISION (Continued):

ASSIGNMENT OF MOTOR TRANSPORT FOR MOVEMENT OF FOOT TROOPS (MM 1)

1	*1* Unit from which transport is furnished	*2* Number of 2½-ton trucks provided and unit to which furnished [2] 1st Echelon 1st Infantry	*3* 1st Echelon 2d Infantry	*4* 2d Echelon 3d Infantry	*5* Alternate 2d Echelon 3d Infantry
2	1st QM Co	48			31 [3]
3	1st Engr Bn		26		
4	1st Med Bn	8			
5	1st Sig Co	3			
6	1st FA Bn			11	
7	2d FA Bn			11	
8	3d FA Bn		21		
9	4th FA Bn	16			
10	1st Inf			26	22
11	2d Inf			27	22
12	3d Inf		28		
13	TOTAL [1]	75	75	75	75

[1] Total number of trucks required is based on:

Total foot troops in each infantry regiment—1,818 (an arbitrary figure not to be applied to any specific unit.)

Passenger capacity of trucks: 2½-ton — 25; 1½-ton — 15.

[2] See Par 217 for availability of trucks for troop movement.

[3] See Par 331 for prescribed loads of QM Co. Number of trucks used is based on number without prescribed loads (32).

NOTE

A variation in the above plan would be to use the trucks of the 1st QM Co to move foot troops in both the 1st and 2d echelons, and then have them return to pick up their prescribed loads (paragraph 331) and complete their movement in the 3d echelon. Their availability for troop movement in both echelons would be dependent upon the supply situation.

d. Example No. 2:

(1) Motor Movement 2 is a movement in which the division moves in its organic motors in two echelons. CTs 1, 2, and 3, less three Rifle Cos each, move in the first echelon. The three Rifle Cos from each CT and the remainder of the troops of the division move in the second echelon. Each CT dumps loads of trucks that can be temporarily diverted from their normal functions to assist in moving some of their own foot troops. Additional trucks to move the remaining foot troops of the 1st echelon are furnished by units moving in the second echelon. At the conclusion of the movement of the first echelon, trucks which carried foot troops return to pick up their prescribed loads. Necessary trucks from each CT that moved forward in the first echelon with their prescribed loads, dump

MOTOR MOVEMENT BY ECHELON; INFANTRY DIVISION (Continued):

their loads in the forward area and return to assist in moving the three Rifle Cos of their respective CTs. Trucks of the QM Co which carry no prescribed loads (see Par. 332) are also used to assist in moving the three remaining Rifle Cos of each CT.

(2) *Security.*—The Reconnaissance Troop protects the movement by conducting reconnaissance to the front and flanks.

(3) *Warning Order.*—Preliminary arrangements for this movement will be inaugurated upon receipt of order "Alert for motor movement two" or "Alert for motor movement two, after *(designated hour)*."

MOTOR MOVEMENT NUMBER TWO (MM-2)—1ST INFANTRY DIVISION

FIRST ECHELON

CT 1:	CT 2:	CT 3:
1st Inf (less 3 R Cos)	2d Inf (less 3 R Cos)	3d Inf (less 3 R Cos)
1st FA Bn	2d FA Bn	3d FA Bn
1st Plat Co A 1st Engr Bn	1st Plat Co B 1st Engr Bn	1st Plat Co C 1st Engr Bn
Co A 1st Med Bn (-)	Co B 1st Med Bn (-)	Co C 1st Med Bn (-)

SECOND ECHELON

3 R Cos 1st Inf	3 R Cos 2d Inf	3 R Cos 3d Inf

Div Trs:
1st Inf Div Arty (less 1st, 2d, 3d FA Bns); 1st Engr Bn (less Dets); 1st Med Bn (less Dets); 1st QM Co (less Dets); 1st Ord Co; 1st Sig Co (less Dets); 1st Inf Div Hq & Hq Co (less Dets).

NOTE: A Det of 1st Inf Div Arty Hq & Hq Btry marches with the 105-mm Bn of one of the CTs of the 1st echelon.

ASSIGNMENT OF MOTOR TRANSPORT FOR MOVEMENT OF FOOT TROOPS (MM 2)

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
		Number of 2½-ton trucks and unit to which furnished								
1	*Unit from which transport is furnished*	*1st Echelon*			*2d Echelon*			*Alternate 2d Echelon*		
		1st Inf	*2d Inf*	*3d Inf*	*1st Inf (3 R Cos)*	*2d Inf (3 R Cos)*	*3d Inf (3 R Cos)*	*1st Inf (3 R Cos)*	*2d Inf (3 R Cos)*	*3d Inf (3 R Cos)*
2	CTs:									
3	Inf Regts—each	20	20	20	6	6	6	6	6	6
4	FA Bns—each	6	6	6	4	4	4	.....	.....	.....
5	Div Trs:									
6	1st QM Co	16	16	16	10[2]	10[2]	10[2]	14[3]	14[3]	14[3]
7	4th FA Bn	11	.....	.....	.....	.....	.....	.....	.....	.....
8	1st Engr Bn	.....	11	.....	.....	.....	.....	.....	.....	.....
9	1st Med Bn	.....	.....	8	.....	.....	.....	.....	.....	.....
10	1st Sig Co	.....	.....	3	.....	.....	.....	.....	.....	.....
11	TOTAL[1]	53	53	53	20	20	20	20	20	20

[1]Total number of trucks required is based on:
Total foot troops in each infantry regiment—1,818 (approximate); each rifle company 165.
(Figures are arbitrary—not to be applied to any specific unit.)

[2]See Par 331 for prescribed loads of QM Co. Number of QM Co trucks used is based on number without prescribed loads (32).

[3]Assuming all QM trucks are available except those carrying prescribed loads of Class III and V supplies (6).

■ 216. EXAMPLE OF WORK SHEET SHOWING AVAILABILITY OF CARGO TRUCKS (1½- & 2½-TON) IN THE INFANTRY DIVISION FOR MOVEMENT OF FOOT TROOPS.—This table shows a priority which might be established within a division; for the availability of organic motor transportation from units scheduled to be moved in the second echelon, to be used for movement of foot troops of the first echelon. The table can also be used in determining the priority of transport to be used in motorizing an infantry unit in reserve, or for cargo hauling.

WORK SHEET—AVAILABILITY OF MOTOR TRANSPORT FOR TROOP MOVEMENT[1][2][3]

Priority	1 Normal Use	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		3 Inf Regts (each)		3 FA Bns 105-mm How (each)	FA Bn 155-mm How	Engr Bn		Med Bn		QM Co	Sig Co		Total		Aggregate
		1½-ton	2½-ton	2½-ton	2½-ton	1½-ton	2½-ton	1½-ton	2½-ton	2½-ton	1½-ton	2½-ton	1½-ton	2½-ton	
1	Cargo Trks									48				48	48
2	Pers & Orgn equipment	1	2	1	1		1		6			2	3	19	22
3	Am & Pion tools	3											9		9
4	Ki Trks		19	5	5		4	2	3	1		1	2	86	88
5	Engr tools						36							36	36
6	Assault boats						1							1	1
7	W Sup						3							3	3
8	Am & AT mines	2	9	15	9		3						6	84	90
9	Comd & Opns	1		1	1					1	1	1	4	6	10
10	Med Sup								3					3	3
11	Sig Com		1	1	1						3	10	3	17	20
12	Atchd Med		1			1							1	3	4
	TOTAL	7	32	23	17	1	48	2	12	50	4	14	28	306	334

[1] The availability of cargo Trks & priority of such availability are command decisions.
[2] Prime movers omitted. See Par 336, FM 100-5.
[3] Maintenance vehicles omitted as they usually accompany motor vehicles of the unit.

SECTION III

ADMINISTRATIVE TROOP MOVEMENTS BY RAIL

■ 217. CAPACITY RAILWAY EQUIPMENT.—*a. Passenger.*

(1) Consult AR 55-125 and AR 55-130 for assignment of coaches and sleeping cars to Administrative Troop Movements.

(2) Capacity of Standard U. S. Passenger Cars:

1	2	3	4
Item	*Day coach* [1]	*Tourist sleeper*	*Standard sleeper* [2]
Length in feet	65 to 75	65 to 75	65 to 80
Number of sections	None	13 to 16	12 to 16
Maximum seating, 2 men to each double seat [3]	60 to 70	52 to 64	53 to 64
Maximum seating, 3 men to each 2 double seats [3]	45 to 48	39 to 48	40 to 48
Maximum sleeping, 2 men per berth	None	52 to 64	53 to 64
Sleeping capacity, 3 men per section	None	39 to 48	40 to 48
Sleeping capacity, 1 man per berth	None	26 to 32	27 to 32

[1] Limited number steel coaches, 70 feet long or over, available.
[2] Standard sleeper—12 sections and drawing room or 16 sections and no drawing room.
[3] Double seat—a seat having the capacity of 2 men.

b. Freight.

(1) The Official Railway Equipment Register, published by the Railway Equipment and Publication Co., 424 West 33rd Street, New York, N. Y. shows by individual car initials and numbers, the marked capacity, length, dimensions, and cubical capacity of all American railway cars used to transport freight.

CAPACITY RAILWAY EQUIPMENT (Continued):

(2) *Standard U. S. Military Freight Cars:*

Type of Car	Gage	Capacity [1]		Weight Empty in Tons	Inside Dimensions		
	Ft–In	Tons	Cu Ft		Length Ft–In	Width Ft–In	Height Ft–In
Box	4–8½	20		9	23–9½	7–7½	6–5
Box	3–3⅜	20		9	23–9½	7–7½	6–5
Box	3–3⅜	30		15	34–6	7–1	6–1
Box	3–6	30		15	34–6	7–1	6–1
Box	4–8½	40		20	39–9	8–0	6–9
H.S. Gondola	4–8½	20		8	23–9½	7–6	4–0 side
H.S. Gondola	3–3⅜	30		10	34–6	6–11½	4–0 side
H.S. Gondola	4–8½	40		21.5	39–8	7–11	5–0 side
L.S. Gondola	3–3⅜	30		9	34–6	6–11	1–6 side
L.S. Gondola	4–8½	40		18	40–6½	7–6	1–6 side
Flat	4–8½	56		17.5	40–9	8–5	
Flat	3–3⅜	30		16	34–8½	7–2	
9,900 Gal Tank	4–8½	40		20	37–2	6–9 dia	
5,000 Gal Tank	3–3⅜	30		16	27–6	5–6 "	
Refrigerator	4–8½	35		21	32–8	6–11	6–6

(3) *Standard U. S. Commercial Freight Cars:* [2]

Box		30	2,750	18	36	8–6	9
Box		40	3,100	20	40–6	8–6	9
Box		50	3,100	24	40–6	8–6	9
Gondola		50	1,570	22	40	9–11	4
Gondola		70	1,920	25	48	10	4
Flat		40		18	40	9	
Flat		50		20	45	9	
Flat		70		25	50	9	
8,000 Gal Tank		40		20	33	6–6 dia	
10,000 Gal Tank		50		24	33	7–2 "	
Refrigerator		30	2,570	28	40–6	8–2	7–2
Refrigerator		40	2,570	30	40–6	8–2	7–6
Stock		30	2,625	20	36	8–6	8–6
Automobile		40	3,100	20	40–6	8–6	9
Automobile		50	3,850	25	50–6	8–6	9
Baggage				45	60	9–1	8
Caboose				20	27–6	8–2	7
Diner				90	78–6	8–6	8–6

[1] Capacity for personnel may be computed on a basis of 8 square feet per man and equipment for those cars suitable for this purpose.

[2] There are no "standard" dimensions of commercial cars. Figures given here are for some types in common use.

■ 218. MAXIMUM BULK LOADING FOR STANDARD U. S. FREIGHT CARS: [1]

1	2	3	4
Rated capacity of cars in tons	*30*	*40*	*50*
Items	*Actual capacity of cars in tons*		
Ammunition	30	40	50
Barbed wire	30	40	50
Blankets, baled	27	32	40
Bread	19	24	30
Canned goods, boxes	30	36	45
Cement	30	40	50
Clothing, baled	27	32	40
Flour	30	40	50
Gravel	30	40	50
Harness and saddlery	18	20	30
Hay, baled	15	20	25
Iron, corrugated	30	40	50
Meat	15	24	35

1	2	3	4
Rated capacity of cars in tons	*30*	*40*	*50*
Items	*Actual capacity of cars in tons*		
Motor vehicle parts	24	28	40
Oats	18	24	30
Rails	30	40	50
Rifles, in chests	30	40	50
Sand	30	40	50
Sandbags	21	24	30
Stone, any form	30	40	50
Sugar	30	40	50
Telephone wire	30	40	50
Tentage	15	20	30
Ties, railroad	19	26	32
Tools, engineer	30	40	50
Tools, truck	30	40	50

[1] A rated capacity of a car in tons does not mean that this rated tonnage of all articles can be carried. This table shows the tonnage of military freight which can be carried in freight cars of common rated capacities.

■ 219. RAILWAY CAR SPACE REQUIREMENTS.—Refer to Par 601 for shipping lengths of military vehicles and equipment to be used in computing railway car requirements for Administrative Troop Movements.

■ 220. METHODS OF LOADING MILITARY VEHICLES AND EQUIPMENT.—In accordance with AR 55-145, par. 6, consult "Rules Governing the Loading of Mechanized and Motorized Equipment, Transported by the Ground Armed Forces, also, Major Caliber Guns for the United States Army and Navy on Open Top Equipment." (Revised, March 1, 1943)

■ 221. RAIL MOVEMENT TABLE—ADMINISTRATIVE:

INFANTRY DIVISION [1]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
			Strength		Organizational Equipment		Checkable Baggage		Vehicles and Equipment per unit											Railway car requirements per unit										
									Standard Vehicles									Special Equipment		Passenger			Freight						
									Trailers		Trucks									Coach	Pullman		Box		Flat Cars				
Line No.	T/O & E	Unit	O & WO	EM	Pcs	Wt	Pcs	Wt	¼-ton 58" W 109" L	1-ton 146"	¼-ton 4x4 68" W 133" L	¾-ton 4x4 Comd 166"	¼-ton 4x4 Wpns Carr w/o 177"	1½-ton 6x6 w/o 225"	2½-ton LWB w/o 256"	2½-ton LWB w/ 265"	2½-ton SWB w/o 245"	Items	Ship Length Inches	48 Men	Std No of Secs (8/Sec)	Tour No of Secs (3/Sec)	Kit Bag	Org Equip	Clr Bag	40'	42'	45'	50'
1	7-1	DHQ																											
2	7-2	Hq & Hq Co Sp Trs [4]																											
3		Band (Atchd) [3]																											
4	19-7	MP Plat																											
5	9-8	Ord L Maint Co																											
6	10-17	QM Co																											
7	11-7	Sig Co																											
8	7-12	Inf Regt, Hq & Hq Co [4]																											
9	7-13	Inf Regt, Serv Co																											
10	7-14	Inf Regt, Can Co																											
11	7-19	Inf Regt, AT Co																											
12	7-16	Inf Bn, Hq & Hq Co																											
13	7-17	Inf R Co																											
14	7-18	Inf Hv Wpns Co																											
15	6-10-1	Div Arty Hq & Hq Btry [4]																											
16	6-26	L Arty Bn Hq & Hq Btry [4]																											
17	6-27	L Arty Btry (105-mm How)																											
18	6-29	L Arty Serv Btry (105-mm How)																											
19	6-36	M Arty Bn Hq & Hq Btry [4]																											
20	6-37	M Arty Btry (155-mm How)																											
21	6-39	M Arty Serv Btry (155-mm How)																											
22	2-27	Cav Rcn Tr Mecz																											
23	5-16	Engr Hq, Hq & Serv Co [4]																											
24	5-17	Engr Co																											
25	8-16	Med Bn Hq & Hq Det																											
26	8-17	Med Coll Co																											
27	8-18	Med Clr Co																											

[1] Can be adapted to any type division.

[2] Compute flat car requirements (in Continental U. S.) on basis of crosswise loading of ¼-ton trucks and trailers. It should be noted that the Assn of American Railroads has authorized shipment on flat cars 10 feet wide of eight ¼-ton trucks lengthwise in two parallel columns of four each.

[3] Personnel and equipment loaded with Hq & Hq Co Sp Trs 7-2, line 2.

[4] Includes attached medical and chaplains.

RAIL MOVEMENT TABLE—ADMINISTRATIVE (Continued):

NOTES:

a. This tentative table should be maintained currently by division transportation officers in compliance with AR 55-130, Par 12.

b. Upon receipt of movement order, the table will be revised to reflect actual strength and equipment on hand, and to conform to provisions of movement order.

c. Organizational equipment and checkable baggage must be listed separately. Organizational equipment moves under freight rates and will normally be loaded in unit transportation. If loaded separately, additional box cars will be required. (Clm 25 above.)

d. Checkable baggage up to 150 pounds per individual is carried free. Normally this will be loaded in baggage or box car. When transportation groupings permit, checkable baggage for two companies or similar units may be loaded in one box car. (Clm 26.)

e. Officers and warrant officers will be moved in standard pullmans, two per section. They should be listed in column 22 in fractions of car (example: 14 officers, show as 14/32) as officers and warrant officers of all units in one train will be grouped in one or more pullman cars as required. (AR 55-125.)

f. Enlisted men will be moved in tourist pullmans, three per section. Noncommissioned officers of the first three grades are entitled to a separate berth. (AR 55-125.) Allowances should be made for personnel attached from Medical Battalions and personnel detached for guards on freight cars.

g. Kitchen-baggage cars are furnished on the basis of one per 250 men or fraction thereof. (AR 55-135.) Kitchen-baggage car requirements per train are dependent upon transportation groupings. For tentative estimates allow one per unit.

h. Compute flat cars required on basis of maximum utilization of each car, regardless of length. See Par 222. Do not restrict computation to cars of all one length. Six inches at one end of each car must be left for brake-wheel clearance. For detailed approved methods of loading vehicles and equipment, see Association of American Railroads booklet "Rules governing the loading of mechanized and motorized army equipment, also, major caliber guns for the United States Army and Navy, on open top equipment." (See Par 220.)

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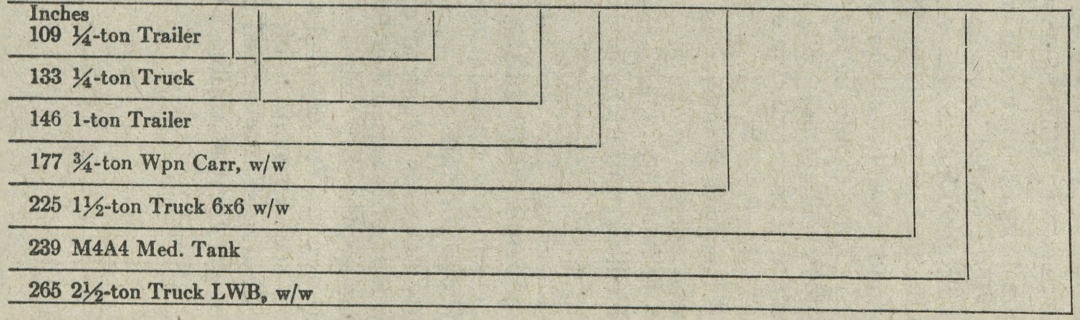
■ 222. RAILWAY CAR LOADING SCALES:

FT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
INCH	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348

30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
360	372	384	396	408	420	432	444	456	468	480	492	504	516	528	540	552	564	576	588	600

RAILWAY CAR LOADING SCALE (¼″=1′)

No. 1



VEHICLE AND EQUIPMENT LOADING SCALE (¼in.=1 ft.) Lengths and Widths Shown are for Illustration only.

No. 2

NOTES

1. These scales will assist in determining the number and length of open-top (flat and gondola) railway cars required to accommodate vehicles and equipment.
2. Scale No. 1 represents a 50-foot railway car and is scaled to show feet and inches.
3. Scale No. 2 is constructed on the same basis (¼ inch equals 1 foot) and is specially scaled to indicate the shipping lengths of various types of vehicles and equipment assigned to a given unit.
4. By applying Scale 2 to Scale 1, various combinations may be easily developed which will result in the maximum utilization of railway equipment.

223. TRAIN CONSIST TABLE—ADMINISTRATIVE:

----------DIVISION

Train No.	*Transportation groupings*	*Railway equipment*							*Train officers*
		Coach	*Pullman*		*Kitchen-baggage*	*Box*	*Flat and gondola*	*Total*	
			Standard	*Tourist*					
1									CO..... TO..... Mess O..... Surg.....
2									CO..... TO..... Mess O..... Surg.....
3									CO.....

NOTES

1. Upon receipt of movement order, Commanding General will designate the order in which units will be forwarded.
2. Train Consist Table is prepared by division transportation officer from data appearing on revised Rail Movement Table, (Par 221).
3. Maximum and minimum length of trains (total number of freight and passenger cars) will be prescribed by the origin railroad. (AR 55-145, Par 1.)
4. Under "Transportation Groupings" show units which will comprise each individual train.
5. Under "Train Officers" show by name the officers assigned to each train in accordance with AR 55-145, Pars 14, 15, and 16.

224. Individual Train Loading Plan—Administratve:

_____DIVISION

Train No._____ Main No._____

ASSIGNMENT OF PERSONNEL AND EQUIPMENT
TO INDIVIDUAL RAILWAY CARS

Front

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Rear

50	51	52	53	54	55	56

(Continued on following page)

INDIVIDUAL TRAIN LOADING PLAN—ADMINISTRATIVE (Continued):

SUGGESTED SYMBOLS FOR EQUIPMENT AND VEHICLES

Equipment	*Symbol*	*Equipment*	*Symbol*	*Equipment*	*Symbol*	*Equipment*	*Symbol*
Coach	CH	Truck, ¼-ton	TJ	Howitzer, 105-mm	HL		
Pullman, Std	SP	Trailer, ¼-ton	TQ	Howitzer, 155-mm	HM		
Pullman, Tourist	TP	Truck, 2½-ton	TC				
Kitchen-Baggage	KB	Motorcycle	MC				
Box	BX	Gun, 37-mm, AT	GAT				

ASSIGNMENT OF UNITS TO CARS (BY BLOCK NUMBERS ABOVE)

Unit	*Block Nos.*	*Unit*	*Block Nos.*	*Unit*	*Block Nos.*

NOTES

1. This Plan is prepared by the division transportation officer. Copies should be furnished to:
   a. Troop commanders.
   b. Entraining officers.
   c. Train commanders.
   d. Motor park dispatcher so that vehicles will arrive at entraining point in the order in which they will be loaded on railway cars.
   e. Local transportation officer.
2. In each block, indicate by symbol the specific personnel and equipment assigned to each car.
3. In each block representing an open-top freight car (flat car or gondola car) indicate by symbol the equipment specifically assigned to each car.
4. In the space provided at the bottom of the Plan, all cars (freight and passenger) should be assigned by block numbers (not by railroad car initials and numbers) to the specific units which will occupy them.

■ 225. ENTRAINING TABLE—ADMINISTRATIVE:

----------DIVISION

Train No.	*Main No.*	*Order Depart*	*Loading*			*Departure*		*Arrival*		*Entraining officer*
			Point	*Date*	*Hour*	*Date*	*Hour*	*Date*	*Hour*	

NOTES

1. Upon completion of Train Consist Table (Par 223) and Individual Train Loading Plan (Par 224), division transportation officer will prepare this Entraining Table.
2. "Train Number" will be as shown on Train Consist Table (Par 223).
3. The Main Number, which authorizes the movement of each train, will be issued by the Military Transportation Section, Association of American Railroads, through the Passenger Branch, Traffic Control Division, Office of the Chief of Transportation, to the local transportation officer who will furnish Main Number to division transportation officer.
4. Entraining officers will be designated by name in accordance with AR 55-145, Par 13.

SECTION IV

TROOP MOVEMENTS BY RAIL IN A THEATER OF OPERATIONS

■ 226. TROOP MOVEMENT BY RAIL (T of Opns); BASIC DATA.—*a. Speed of railway trains.*—The average speed of military railway trains is approximately 20 miles per hour.

b. Time of loading and unloading.—Allow 3 hours for loading or unloading standard type troop trains and other trains carrying artillery, motorized units, and cavalry units. When only foot elements of a unit move by rail and other elements of the unit move overland, allow one-half hour for loading and one-half hour for unloading.

c. Train densities.—Train densities on single and multiple track railroads will vary greatly depending on the condition of track, number of passing sidings, terminal facilities, available rolling stock, and the like. At the average speed of 20 miles per hour, maximum train densities may be estimated as follows:

One track with two-way traffic -- 20 trains per 24 hours in each direction
One track with one-way traffic ---------- 60 trains per 24 hours
Two tracks with two-way traffic --- 60 trains per 24 hours in each direction
Two tracks with one-way traffic ---------- 120 trains per 24 hours
Three tracks with two-way traffic -- 80 trains per 24 hours in each direction
Three tracks with one-way traffic ---------- 180 trains per 24 hours
Four tracks with two-way traffic --120 trains per 24 hours in each direction
Four tracks with one-way traffic --- ------ ------240 trains per 24 hours

d. Railroad officials should be consulted for accurate information as to train densities and speeds of trains possible for a rail movement.

■ 227. TYPES AND COMPOSITION OF RAILWAY TRAINS (T of Opns).—*a.* Composition of railway trains, *grouped for planning purposes*, used for troop movements *in the combat zone* is as follows:

1	2	3	4	5	6	7	8
Type of Train	*Composition* [1]						*Total Number of Cars*
	Pullman	*Coach*	*Box* [2] [5]	*Flat*	*Stock*	*Caboose* [3]	
A	1	11	4	18		(1)	34
B	1	6	4	23		(1)	34
C	6	22	6			(1)	34
D [4]	1	5	2	26		(1)	34
E	1	5	3		25	(1)	34
F	1	10	7		16	(1)	34

[1] The above table contemplates the use of standard railroad equipment. Standard trains of specially constructed light equipment may also be prescribed in the theater of operations.
[2] Includes one combination kitchen-supply car per company.
[3] For train crew, not required when coaches are used.
[4] For movement of armored units when wheel vehicles and certain personnel, march separately. Personnel with this type train includes 2 men per vehicle.
[5] Baggage cars may be used.

■ 228. EXAMPLE OF RAIL CONSTRUCTION REQUIREMENTS.—*a. Problem.* —To construct a 150 mile railway with 5.25 miles of siding and a yard at each terminal of 3.25 miles of track.

(1) Material requirements:

Rail	25,000 tons
Cross ties	50,000 tons
Rail fastenings	1,500 tons
Ballast, stone	315,000 tons
Bridges, girder (30 @ 80 tons each)	2,400 tons
TOTAL	351,900

(2) Personnel Requirements;

	O	EM
Two general service regiments for construction.	92	2,518
Two railway battalions for operation:	42	1,640
TOTAL	134	4,158

(3) Rolling Stock Requirements:

30 locomotives @ 100 tons each	3,000
250 cars (60,000 lbs capacity)	5,000
TOTAL	8,000

(4) GRAND TOTAL: 401,900 tons; 134 Officers; 4,158 E.M.

SECTION V

MOVEMENTS BY AIR TRANSPORT

■ 229. INTRODUCTION.—This chapter deals with the movement of ground troops by air.

■ 230. DEFINITION.—*Airborne forces.*—Army Ground forces units which are specially organized, trained, and equipped to utilize air transportation for entry into combat. Normally such units will include parachute and glider borne elements. Airborne units should not be confused with other light units of the Army Ground Forces, many of which may be transported by air, which are not specifically organized, trained, nor equipped for this method of movement.

Air Force.—See Section IV Chapter 1.

Troop Carrier Wing, Group, Squadron.—These are combat units organized, equipped and trained for tactical employment as combat carriers in active operations. Their primary mission is to carry combat troops and auxiliary combat equipment to effective locations in combat zones from which to begin active combat operations. Their secondary mission is to maintain combat supply and resupply to units in the combat zone and to evacuate casualties and other personnel and material.

■ 231. OUTLINE OF PROCEDURE.—Movement of troops by air transport is normally ordered by the highest authority in the Theater. These orders are issued simultaneously to the commander of the unit to be moved and to the commander of the Air Forces in the Theater.

Responsibility.—The Air Force is responsible for the entire operation to include arrival at the proper destination, protection in flight and supply after landing until other means of supply become available. This normally means that supplies must be transported by air and delivered by air landing, if airdromes or strips are immediately available. If airdromes or strips are not available deliveries may be made by glider, parachute, or free dropping.

The Air Force is responsible for assisting airborne troops after their landing in enemy territory by the use of combat aviation to isolate the landing areas.

The unit to be transported is responsible for the selection of the landing areas from which it can most successfully accomplish its assigned mission. The transporting unit then must make the decision as to whether or not the selected landing areas can be reached.

The unit to be transported is responsible for getting the troops and material to be transported in the main flight to the departure fields to be

OUTLINE OF PROCEDURE (Continued):

used. Thereafter the receiving and delivery of supplies is the responsibility of the transporting unit.

Reference.—For details of planning: SOP developed by Troop Carrier Command and Airborne Center. WDTC No. 113, 9 Oct 1943.

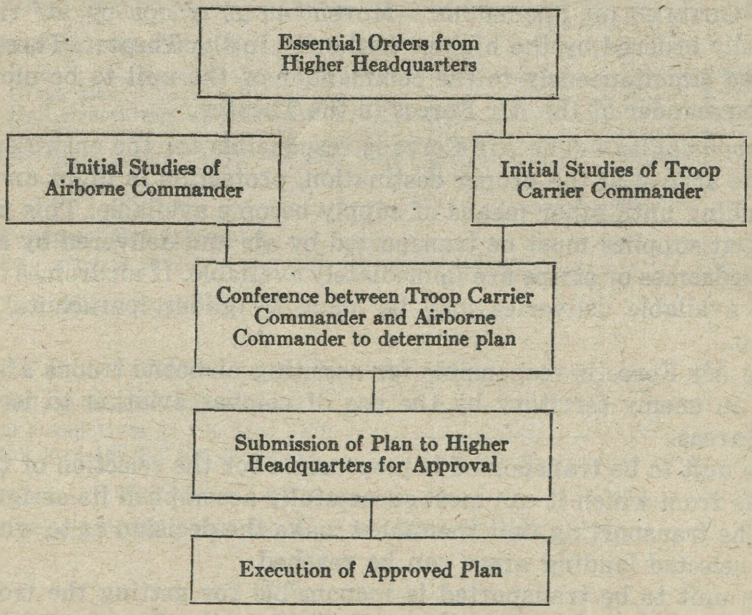
■ 232. COORDINATION.—The closest coordination and cooperation between the commanders and staffs of the unit to be moved and the transporting unit must exist.

The transporting unit should furnish all data as to capacity of airplanes, location of airplanes on departure fields, time of departure, time of loading and time of arrival.

The unit to be transported should furnish all data as to requirements to accomplish their mission, number of troops and amount of materiel to be transported and time they must arrive at the destination to accomplish the assigned mission.

Coordination of airborne troops and combat aviation upon arrival at the destination is imperative as the airborne troops require time to assemble for combat and normally will be short of artillery ammunition.

■ 233. SCHEMATIC DIAGRAM: PLANNING PHASES OF AN AIRBORNE OPERATION:



234. AIR MOVEMENT TABLE.

AIR MOVEMENT TABLE

D Day_____

Annex____to FO____(Troop Carrier Unit) Annex____to FO____Div (A/B or Air Landing Unit)

Maps:_____ Place_____ Place_____

Hour, Date_____ Hour, Date_____

	TROOP CARRIER UNITS				AIRBORNE UNITS												
Serial No.	Troop Carrier Unit	Serial Commander Designed by	No. Airplanes	No. Gliders	Airplanes Required	Troops to be Loaded	Troop Commander	Gliders Required	Troops to be Loaded	Troop Commander	Depart From	Objective	Hour Loading Begins	Hour Loading Completed	Hour of Departure	Hour Over Objective	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

■ **235. WEIGHTS OF PERSONNEL AND EQUIPMENT.**—*a. Weight of personnel and component units of an Infantry Division.*

Item	*Pounds per item*	*Remarks*
(1) Individuals.—(Average O and EM)		For loading purposes, average weight of officer and enlisted man, fully equipped for combat, is computed as 240 lbs per individual (with parachute).
Man stripped ---------- 160 lb		
Parachute ---------- 20 lb		
Rations ---------- 6 lb		
Clothing (winter) ------- 18 lb		
Equipment ---------- 21 lb		
Arms and ammunition --- 15 lb		
TOTAL ---------- 240 lb	240	The weights given should be used only as a guide. The total weight of each unit will depend upon the number of men transported by air, the equipment carried for each unit, and the amount of ammunition and rations transported with the troops. The weights given provide for the following ammunition, 60 rounds per carbine: 176 rounds per rifleman; 320 rounds per automatic rifle; 5000 rounds per .30 Cal MGs; 1000 rounds per .50 Cal MG; 54 rounds per 60-mm mortar; 75 rounds per 81-mm mortar; and 20 rounds per 37-mm AT Gun, 10 rounds per launcher rifle Cal .30; 10 rounds per rocket launcher 2.36" AT.
(2) *Weights of component units:*		
(a) *Infantry Rifle Company*	46,500	
Rifle Squad	2,880	
Rifle Platoon	11,040	
Lt MG Squad	1,620	
Lt MG Section	3,960	
60-mm Mortar Squad	1,543	
60-mm Mortar Section	5589	
Weapons Platoon	11,229	
(b) *Infantry Heavy Weapons Company*	49,982	
.30 Cal MG Squad	2,404	
.30 Cal MG Section	5,048	
.30 Cal MG Platoon	12,496	
81-mm Mortar Squad	2,845	
81-mm Mortar Section	5,930	
81-mm Mortar Platoon	20,190	
(c) *Infantry Battalion Units*		
Bn Hq & Hq Co	24,528	
Med Sec	8,400	
Rifle Co		
3 Rifle Cos	139,529	
Hv Wp Co	49,982	
Total Inf Bn	222,437	
(d) *Infantry Antitank Co. (37-mm)*	51,384	
Squad	2,602	
Section	5,684	
Platoon	12,808	
(e) *Infantry Regt's Hq and Hq Co*	28,560	

WEIGHTS OF PERSONNEL AND EQUIPMENT (Continued):

Item	*Pounds per item*	*Remarks*
(f) ***Field Artillery Battalion Units***		Following equipment not included: barrack bags, officers bedding rolls, field desks, cooking outfits, wall tents, and non-portable typewriters.
FA Btry (75-mm How pack)	41,674	
Bn Hq FA Bn (75-mm How pack)	24,012	
FA Bn (75-mm How pack) (3 Btrys and Bn Hq)	149,034	
(g) ***Engineers***		
Engineer Squad	3,279	Includes reasonable quantities of engineer equipment and supplies.
Engineer Platoon	10,610	
Engineer Company	33,796	
(h) *Detachment—Div Sig Co*	3,480	Includes 2 SCR 177 sets.
(i) *Parachute troops*		See FM 7-20.
Rifle Platoons: Each airplane should be capable of transporting, in addition to airplane crew: 13 parachutists and 3 equipment delivery containers (each 300 lbs net cargo capacity).		
Co Hqs One airplane required for each rifle company headquarters.		
Bn Hqs Two airplanes required for each Bn Hq and Hq Co.		

b. Weights of essential items of equipment and supplies.

Item	*Pounds per item*	*Remarks*
Rations and water		
Reserve ration, (C-ration) (Par 312)	4.20	One meal 1.75 lbs.
Can, water, 10-gal (with water)	100.00	
Ordnance equipment and ammunition		
Cartridge, Very, assorted	.20	
Chest, cal .30 MG Am (250 rounds)	20.30	
Chest, cal .30 LMG Am (250 rounds)	20.30	
Chest, cal .50 MG Am (100 rounds)	36.00	
Chest, spare parts, MG cal .30	17.30	
Chest, spare parts, LMG	18.93	
Chest, spare parts, .50 cal MG	31.50	
Gun, submachine, cal .45	10.00	
Gun, 37-mm, Antitank	912.00	
Howitzer and carriage, pack, 75-mm M1	1,269.00	
Tube ----------221.00		

WEIGHTS OF PERSONNEL AND EQUIPMENT (Continued):

Item	*Pounds per item*	*Remarks*
Breech mechanism ---------- 121.00		
Top sleigh ---------- 121.00		
Bottom sleigh and recoil ---------- 203.00		
Cradle ---------- 100.00		
Front trail ---------- 235.50		
Rear trail ---------- 95.00		
Axle and traversing mechanism ---------- 65.50		
Wheels ---------- 96.50		
Telescope and mount ---------- 10.50		
Machine gun, cal .30, light complete	48.00	
Machine gun, Browning, cal .30, complete	91.95	
Machine gun, Browning, cal .50, complete	124.00	
Magazine, submachine gun (50-rd) filled	4.95	
Mortar, 60-mm, complete	43.00	
Mortar, 81-mm, complete	136.00	
Projector, ground signal	4.20	
Rifle, automatic, cal .30 (BAR), M1918A2, complete	23.50	
Rifle, automatic, cal .30, M-1	9.4	
Round, 37-mm antitank gun Am, AP	3.41	
Round, 37-mm antitank gun AM, HE	3.03	
Round, 60-mm mortar Am	2.96	
Round, 81-mm mortar Am (L)	6.92	
Signals, ground, assorted	.50	
Truck, ¼-ton, w/spare tire, 10 gals gas and tools	2,366.00	
Trailer 1-ton	Net 1,470.00 Gross 3,470.00	
Quartermaster equipment		
Axe, handled	6.00	
Bag, water sterilizing	18.8	
Kitchen, M-37 (3 unit)	1,229.00	
Pick, handled	10.00	
Shovel, general purpose	4.50	
Medical equipment		
Bucket, canvas	3.3	
Chest, MD (99280)	121.00	
Chest, MD (99281)	150.00	
Chest, MD (99282)	161.00	
Litter	15.00	
Set, splint	50.00	
Set, blanket	138.00	
Set, lantern	30.00	
Signal equipment		
Axle, RL 27-A	6.50	
Batteries for radio set SCR-195	12.00	Spare
Chest, BC-5	45.00	
Codes (special for the operation)	.25	
Devices, code	.50	
Lineman equipment	25.00	
Panel set	23.00	
Radio, SCR-195	27.00	
Radio, SCR-178	203.00	
Telephone, EE-8	13.00	
Wire, field telephone, 1-mile	132.00	

236. SUPPLY FACTORS.—Factors, other than tactical, influencing supply by air transport consist of:

a. Supply conditions:

(1) Weight will ordinarily be the controlling factor for supplies. Dimensions will be determined by the size of door.

(2) The number of trained personnel available for loading and lashing supplies. (6 trained men can load a C-47 type airplane in 45 minutes.)

b. Supply methods:

(1) *Air Ferry.*—Delivery by airplane to the airhead. This is the most efficient method, but requires an air base or strip at the unloading point to allow the airplane to land.

Carrying capacity of airplanes:

Type Plane	*Normal Pay Load at*	*Range*
C-46	10,000 lbs.	400 miles
C-47	6,000 lbs.	900 miles
C-54	14,000 lbs.	1,550 miles
C-87	9,800 lbs.	1,700 miles

NOTE: Pay load will vary with length of flight.

(2) *Glider.*—Delivery by gliders is expensive, but can be accomplished without the use of a prepared air strip. The CG-4A has a capacity of 3,600 lbs. and the CG-13A a capacity of 8,000 lbs. (excluding weight of pilot).

(3) *Parachute.*—Delivery by parachute from a plane by releasing parachute-equipped bundles over the desired dropping area is comparatively inefficient and should be used only when more desirable methods are not available.

SUPPLY FACTORS (Continued):

WEIGHTS & CAPACITIES, PARACHUTE DELIVERY UNITS

Type of Unit	*Weight of Unit*	*Average Safe Load of Unit*	*Gross Weight (lbs)*
Canopy Parachute, Cargo 24'	20.00 [1]	200	220.00
Delivery Unit, Type A-4	13.25	100	133.25
Delivery Unit, Type A-5	42.00	175	237.00
Delivery Unit, Type A-6	15.00	150	185.00
Delivery Unit, Type A-7	.50	150	170.50
Delivery Unit, Type A-8	59.00	125	204.00
Cargo Net	11.00	189	220.00

[1] The weight of canopy is added to Gross Weight for each unit.

PARACHUTE DELIVERY UNITS WHICH CAN BE CARRIED PER AIRPLANE [1]

Cargo Capacity	*C-46*	*C-47*	*C-53*	*C-54A*
Type A-4	82	33	30	82
Type A-5	46	18	16	46
Type A-6	59	23	21	59
Type A-7	64	25	23	64
Type A-8	53	21	19	53
Cargo Net	50	20	18	50

[1] The number of units which can be carried will vary with the weight of the loaded unit. This table is based on the average safe capacity load for each unit as presented in the preceding Table.

(4) *Free Dropping.*—Dropping of supplies without parachute results in a high loss of the supplies and should be undertaken only in case of emergency, using the least fragile items.

SECTION VI

WATER MOVEMENT [1]

■ 237. SHIPPING TERMS.—Ships which the Army uses to transport troops are known as *troop transports;* those used to transport supplies are known as *freight transports* or *freighters.* Similar ships used by the Navy are called *APs* and *AKs* respectively. Characteristics peculiar to ships include *decks, compartments* for troops, *'tween decks* for cargo, *holds, deep tanks, booms, masts,* and the following:

a. Nautical Mile—6,080 feet.

b. Knot.—One nautical mile per hour.

c. Gross Tonnage.—The entire internal capacity of a ship expressed in tons of 100 cubic feet.

d. Net Tonnage.—The tonnage of a ship representing the freight earning spaces remaining after certain deductions have been made from the gross tonnage for the propelling machinery space, shaft trunks, crew spaces, and navigation spaces. Net tonnage is also expressed in tons of 100 cubic feet.

e. Deadweight Tonnage.—The carrying capacity of a ship expressed in tons of 2,240 pounds capacity (i.e., the difference between displacement loaded and displacement light).

f. Displacement Tonnage, Light and Loaded.—Displacement light is the weight of the ship, *EXCLUDING* cargo, passengers, fuel, water, stores, dunnage, and such other items as are necessary during a voyage. Displacement loaded is the weight of the ship *INCLUDING* those items.

g. Cargo Capacity Tons.—The number of tons (2,240 pounds) which remain after deducting fuel, water, stores, dunnage, and such other items as are necessary during a voyage.

h. Bale Cubic Capacity.—The space available for cargo, measured in cubic feet to the *INSIDE* of the cargo battens [2], *ON* the frames, and to the *UNDERSIDE* of the beams.

i. Ship Ton or Measurement Ton (M/T).—40 cubic feet.

j. Stowage Factor.—The volume of a particular item or piece of cargo in cubic feet per ton, either per long ton or per short ton, as specified. While stowage factors of cargo were originally stated in cubic feet per long ton, commercial practice today states stowage factors either way. This makes it necessary to indicate a stowage factor of cargo as cubic feet per long ton or cubic feet per short ton.

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[1] For a comprehensive treatment of this subject, see TM 55-310, "Stevedoring."

[2] Batten—Pieces of wood secured to frames of ships in holds and 'tween decks to keep cargo from touching metal, thus preventing damage.

SHIPPING TERMS (Continued):

k. Vessel Factor:

$$\text{Vessel Factor} = \frac{\text{bale cubic capacity} - \text{estimated stowage loss}}{\text{cargo capacity tons} - \text{estimated weight of deck cargo}}$$

Example: A ship has a bale cubic capacity of 500,000 cubic feet and a cargo capacity tonnage of 10,300 long tons. Its deck load for the particular voyage is estimated at 300 long tons and the stowage loss at 15%. What is its Vessel Factor?

$$\frac{500{,}000 - 75{,}000}{10{,}300 - 300} = \frac{425{,}000}{10{,}000} = 42.5$$

This means that the ship will be fully loaded, that is, have all of its space for cargo filled (less stowage loss) and at the same time have all the cargo weight it can carry, if it is loaded with cargo that occupies 42.5 cubic feet to the long ton. The Vessel Factor is expressed in cubic feet per *long* ton.

■ 238. LOADING.—*a. General.*—In loading transports, a balance must be maintained between the weight the ship can safely float and the volume it can hold; or, in other words, the weighted average of the stowage factors of the various pieces of cargo stowed under the decks must approximate the vessel factor of the particular transport.

Unless limited by the method of loading being used, it is desirable for a ship to be fully loaded. There are two separate measurements to determine whether a ship is fully loaded, a weight measurement and a volume measurement.

A ship is said to be "full" when its bale cubic capacity (underdeck space for cargo) is completely utilized, except a reasonable allowance (10% to 20%) for stowage loss.

A ship is said to be "down" when it has its cargo capacity tonnage aboard.

b. Methods of Transport Loading:

(1) *Commercial*—This method of loading utilizes the ship's space to maximum capacity. It applies to movements between established and well secured ports, when no naval opposition is to be expected and it is unnecessary for troops and impedimenta to be immediately available for tactical employment upon landing.

(2) *Unit:*

(a) COMBAT—By this method, certain units with their necessary impedimenta and transportation are completely loaded in a single transport to facilitate their making a forced landing or to be immediately available for tactical employment upon debarking. They must be loaded to facilitate simultaneous debarking of troops, impedimenta, and supplies into small boats or on piers; to maintain the tactical integrity of the units at all times; and in the inverse order in which it is desired that they be debarked.

LOADING (Continued):

(b) ORGANIZATIONAL—This is a method of loading in which organizations with their impedimenta and transportation are loaded in a single transport, but not in such a manner as to permit debarkation of troops, impedimenta, and supplies simultaneously. This method is more economical in ship space than combat unit loading. It maintains tactical integrity and permits tactical employment of organizations as soon as troops and equipment are unloaded, but does not permit utilization of the organizations for forced landings.

(c) CONVOY.—This is a method of loading organizations with their impedimenta and transportation in transports of the same convoy, but not necessarily the same ship. It is used after beachheads are established and when it is unnecessary to utilize the organizations for tactical employment until some time after they are debarked and assembled.

■ 239. PORTS.—A port is a harbor plus terminal facilities, including wharfs, piers, quays, slips, and docks. The capability of a port to serve a force is not a fixed quantity. At any given time, it may be estimated by applying two dominant factors: Port facilities, and Port commitments.

a. Port facilities (assuming adequate water depth) to be considered include the following:

(1) Number of berths
(2) Number of working berths
(3) Number of moorings
(4) Sheltered and dispersed anchorages
(5) Available service troops and native labor
(6) Staging areas for troops
(7) Piers and loading equipment
(8) Clearances to piers (road or rail)
(9) Storage (covered and open)
(10) Fresh water
(11) Bunkering facilities
(12) Lighters and Tugs available
(13) Hospitals
(14) Local communications

b. Port commitment means the administrative mission that is a responsibility of the port, such as:

(1) Maintenance of troops overseas
(2) Maintenance of major units in training or staging areas
(3) Percentage of available anchorage allocated to Navy
(4) Civilian tonnage demand that must be cleared

240. SAILING DISTANCES:

	Ports	Ports of Embarkation							
		Boston	*New York*	*Charleston*	*New Orleans*	*Los Angeles*	*San Francisco*	*Seattle*	*London*
U. S. PORTS:									
Boston			200	900	2,000	5,100	5,400	6,200	3,200
New York		200		600	1,700	4,900	5,300	6,000	3,400
Charleston		900	600		1,200	4,500	4,900	5,600	3,800
New Orleans		2,000	1,700	1,200		4,300	4,700	5,500	4,800
Los Angeles		5,100 [1]	4,900 [1]	4,500 [1]	[1] 4,300		400	1,100	7,700
San Francisco		5,400 [1]	5,300 [1]	4,900 [1]	[1] 4,700	400		800	8,000
Seattle		6,200 [1]	6,000 [1]	5,600 [1]	[1] 5,500	1,100	800		8,800
NORTH ATLANTIC:									
Newfoundland	St. Johns	900	1,100	1,700	2,600	5,700 [1]	6,000 [1]	6,800 [1]	2,200
Greenland	Ivigtut	1,700	1,900	2,400	3,400	6,500 [1]	6,800 [1]	7,600 [1]	2,000
Iceland	Reykjavik	2,300	2,500	3,000	4,000	7,100 [1]	7,400 [1]	8,200 [1]	1,500
U. K	Liverpool	3,000	3,100	3,700	4,700	7,600 [1]	7,900 [1]	8,700 [1]	700
Norway	Oslo	3,900	4,100	4,500	5,600	8,400 [1]	8,700 [1]	9,500 [1]	700
Russia	Murmansk	3,700	3,800	4,500	5,600	8,400 [1]	8,700 [1]	9,500 [1]	1,800
CARIBBEAN & SOUTH ATLANTIC:									
Bermuda	Hamilton	700	700	800	1,700	4,600 [1]	4,900 [1]	5,800 [1]	3,200
Puerto Rico	San Juan	1,500	1,400	1,100	1,500	3,900 [1]	4,300 [1]	5,100 [1]	3,800
Trinidad	Port of Spain	2,000	1,900	1,700	2,100	4,100 [1]	4,400 [1]	5,300 [1]	4,000
Brazil	Rio de Janeiro	4,700	4,800	4,700	5,200	7,200 [1]	7,600 [1]	8,400 [1]	5,300
Argentina	Buenos Aires	5,800	5,900	5,800	1,300	8,300 [1]	8,700 [1]	9,600 [1]	6,400
MEDITERRANEAN:									
Italy	Naples	4,000 [2]	4,200 [2]	4,600 [2]	5,500	8,300 [1]	8,600 [1]	9,400 [1]	2,400
Algeria	Algiers	3,400 [2]	3,600 [2]	4,000	5,000	7,700 [1]	8,000 [1]	8,800 [1]	1,800

SAILING DISTANCES (Continued):

MIDDLE EAST:									
Egypt	Port Said	4,900	5,100	5,500	6,500	9,200	9,500	10,300	3,300
Red Sea	Aden	6,300	6,500	6,900	7,900	10,600	10,900	11,700	4,700
Turkey	Istanbul	4,800 [2]	5,000 [2]	5,400	6,400	9,100	9,400	10,200	3,200
Persian Gulf	Basra	8,300 [2]	8,500 [2]	8,900	9,800	12,600	12,900	13,700	6,700
NORTH PACIFIC:									
Alaska	Dutch Harbor	7,400 [1]	7,300 [1]	6,900	6,700	2,400	2,100	1,700	10,100
CENTRAL PACIFIC:									
Hawaii	Pearl Harbor	6,900 [1]	6,700 [1]	6,300	6,100	2,200	2,100	2,400	9,500
SOUTH PACIFIC:									
New Guinea	Finschhafen	10,200 [1]	10,000 [1]	9,600 [1]	9,400 [1]	6,100	5,900	6,000	12,800
Philippine Islands	Manila	11,600 [1]	11,300 [1]	11,000	10,800	6,600	6,300	6,100	14,200
Japan	Yokohama	9,900 [1]	9,600 [1]	9,500	9,100	4,800	4,500	4,200	12,500
SOUTHWEST PACIFIC:									
Australia	Brisbane	9,900 [1]	9,600 [1]	9,300 [1]	9,100 [1]	6,300	6,200	6,500	12,100 [2]
Australia	Melbourne	10,100 [1]	9,900 [1]	9,500 [1]	9,400 [1]	7,000	7,000	7,300	11,200 [2]
CHINA–BURMA–INDIA:									
China	Shanghai	10,800 [1]	10,600 [1]	10,200 [1]	10,000 [1]	5,700	5,400	5,100	13,400 [1]
India	Calcutta	9,600	9,800 [2]	10,200 [2]	11,200 [2]	13,900 [2]	14,200	15,000	8,000 [2]
India	Bombay	8,000	8,200 [2]	8,600 [2]	9,500 [2]	12,200 [2]	12,600	13,400	6,400

[1] Via Panama
[2] Via Gibraltar

■ 241. TURNAROUNDS.—Turnaround time includes time of loading at home port, steaming time to and from destinations, unloading and loading time at destinations, and unloading time at home port. To estimate turnaround time, steaming time may be computed at:

240 miles per day on cargo ships, or
360 miles per day on troopships
Plus 10% delay
Plus 25 days of port time.

However, since port loading facilities and delays vary widely, actual experience turnarounds for certain areas are listed below:

Areas	*Transports*	*Cargo*
BOSTON TO:		
Newfoundland	30	41
Greenland	45	103
Iceland	45	111
NEW YORK TO:		
United Kingdom	42	75
North Africa—		
Atlantic Ports	34	79
Mediterranean Ports	56	101
South Africa	60	120
Near East via Mediterranean	75	110
Near East via Cape of Good Hope	120	226
Indian Ports via Cape of Good Hope	110	204
via Mediterranean		158
CHARLESTON TO:		
Bermuda	15	20
NEW ORLEANS TO:		
Puerto Rico	25	35
Trinidad	30	60
Panama	25	35
SAN FRANCISCO TO:		
Hawaii	30	39
South Pacific	64	111
Southwest Pacific	56	108
Near East via Australia	120	210
India	100	159
SEATTLE TO:		
Alaska	30	45

■ 242. SHIP TO SHORE MOVEMENT.—*a.* Experience indicates the following guides in unloading supplies from ship-to-shore:

(1) In the unloading area, provide maximum number of available landing craft and LCT's.
(2) Make available one (1) LCT for each cargo vessel being unloaded at any one time.

SHIP TO SHORE MOVEMENT (Continued):

(3) Carry on each cargo vessel a completely assembled pontoon barge under each jumbo boom.

(4) Provide with each LST one (1) LCT and in addition at least four (4) one-by-seven pontoon sections hanging on the side, except where pontoon causeways are provided.

b. Equipment and rate of unloading are indicated by experience as follows:

(1) One (1) LCT should take about two hours loading at the ship, forty-five minutes to travel to the beach, two hours to unload, and another forty-five minutes to return to ship; thus a round trip every six hours, spending one-third of its time beached.

(2) An LCM should spend about one-eighth (1/8) of its time unloading and an LCV about one-tenth (1/10), by similar reasoning.

(3) A 2½-ton truck should take ten minutes to load, ten minutes to reach its dump, ten minutes to unload, and ten minutes to return to the beach.

(4) One (1) crane on the beach should be able to handle three (3) LCT's or 8 LCM's or 10 LCVP's, and four (4) trucks should work with each crane.

(5) Example: Assume six (6) LCT's, sixty (60) LCM's and two hundred (200) LCVP's active in unloading a force large enough to lift a division. This would require thirty cranes on shore and an additional thirty (30) at the dumps and one hundred twenty (120) trucks.

(6) The figures above on cranes and trucks might be reduced in instances of availability of manpower, of dragging pallets by tractors, and of storing supplies near the water. Also availability of nets will reduce handling of loose cargo from the hole to the dump.

c. Import capacity of landing beaches is based upon the following assumptions:

(1) 1 AKA or APA is allocated ½ mile of beach for unloading operations.

(2) 15 landing craft is the average that will be unloaded simultaneously on each mile of beach.

(3) 5 landing craft can be unloaded simultaneously at leeward side of a ship anchored from 8 to 5 miles offshore.

(4) Cargo can be transferred from ship to landing craft at rate of 15 ship tons or 7 short tons per hour per hatch.

(5) Landing craft can unload on beach at rate of 22 ship tons or 10 short tons per hour per craft.

(6) Depending upon governing factors, beaches may be usable 24 hours per day.

SHIP TO SHORE MOVEMENT (Continued):

(7) Capacity of ½ mile of beach (or per ship) $7 \times 5 \times 24 = 840$ short tons per day. (500 short tons on 15 hr day.)

(8) Not in excess of 75% of above indicated figures should be employed for planning purposes, so that allowance is made for normal conditions, such as errors in intelligence, weather, sea conditions, operational losses, etc.

d. A yardstick for the use of DUKWs may be obtained by saying that about 37 DUKWs (or 77% of company strength) should continuously average about 6 ton-miles per hour. At this rate a company should handle about:

$$50 \times 0.77 \times 6 \times 24 = \text{approximately}$$

5,000 ton-miles per day or say
2,500 tons per day.

Figuring 5 hatches with 7 DUKWs per hatch, this corresponds to a hatch rate of about 21 tons per hatch per hour—obtainable with suitable cargo, proper equipment, and trained stevedores.

(1) However, most ships are not loaded homogeneously, therefore, above rate will apply only to fragments of the cargo. Because of this and other difficulties a rate of 1,000 to 1,500 tons per day per DUKW company may be accepted as average performance.

(2) Standard loads are 5,000 pounds, except in the case of low density cargo such as QM stores where the maximum practical is frequently about 4,000 pounds. Permissible loads have proven heavier and are not up to 10,000 pounds where conditions are ideal. On the average it is found that 1 DUKW should discharge about 3 tons over a combined water-land distance of about 2 miles in about 1 hour.

■ 243. SHIPPING REQUIREMENTS OF CERTAIN MAJOR T/O UNITS:

1	1	2	3	4	5	6	7	8	9	10
					Organizational Equipment,[1] Ship Tons				30 Days' Gas & Oil	
1	T/O	Unit	Strength	No. of Vehicles & Wheeled Guns	General Purpose Vehicles Boxed	All Vehicles on Wheels	30 Days' Maintenance S/T[2]	10 Units of Fire S/T	Gallons[3]	Drums, S/T
2	7	Inf Div	14,253	2,144	11,285	31,574	15,678	5,626	513,108	3,110
3	17	Armd Div	10,998	2,673	10,533	55,278	28,002	12,474	1,749,478	10,603
4	17-25	Tank Bn	751	211	758	5,317	826	2,413	27,036	164
5	17-15	Tank Bn (L)	550	155	485	3,189	605	348	19,800	120
6	18-25	TD Bn	673	177	675	3,603	740	1,175	24,228	147
7	44-15	CA Bn (AA) (Gun) (M)	743	180	1,014	4,693	817	681	26,748	162
8	44-25	CA Bn (AA) (AW) (M)	817	205	1,299	3,893	899	243	29,412	178
9	44-135	CA Bn (AA) (SL) (S)	847	172	631	14,634	932	143	30,492	185
10	6-25	FA Bn (105-mm How)	521	134	969	2,236	573	701	18,756	114
11	7-31	Inf Regt (Prcht)	2,029	54	391	925	2,232	265	73,044	443
12		Bomb Gp (H) (Less planes)	1,667	326	1,867	3,636	1,834	39[4]	808,845	4,902
13		Bomb Gp (M) (Less planes)	1,544	306	1,607	3,636	1,698	29[4]	539,895	3,273
14		Bomb Gp (L) (Less planes)	1,262	298	1,559	3,543	1,388	31[4]	539,835	3,273
15		Ftr Gp (TE) (Crated planes)	1,333	245	16,387[5]	17,783[5]	1,466	64[4]	543,352	3,294
16		Ftr Gp (SE) (Crated planes)	1,217	227	13,286[6]	15,078[6]	1,339	39[4]	425,107	2,576

[1] Other than vehicles and wheeled guns add .5 S/T per man for organizational equipment. All computations without stowage.

[2] Maintenance computed on basis of 1.1 ship tons per man per month, excluding ammunition and gasoline and oil, except for armored element which includes 25% replacement of vehicles monthly in addition to normal maintenance. Requirements for any month are based on figures in this column plus necessary ammunition, gasoline and oil.

[3] Gasoline requirements computed on basis of 1.2 gallons per man per day for ground troops. Armored element use based on armored force data. Air force requirements based on 60 hours of operation per month for each engine at a consumption rate of 70 gallons per hour per engine; plus gas and oil for vehicles on a basis average of 7.5 gallons per day.

[4] Monthly ammunition requirement on basis of 30 day supply.

[5] Includes 15,235 ship tons for planes (crated 100 planes).

[6] Includes 12,530 ship tons for planes (crated 100 planes).

■ 244. SHIPPING CONVERSION FACTORS:

Average short ton of military Sup w/stowage	equals	2.2	Ship tons
Average short ton of military Sup w/o stowage	equals	1.9	Ship tons
Deadweight tonnage	equals	1.5[1]	Gross registered tonnage
Deadweight tonnage	equals	.85[1]	Measurement tonnage (Bale Cubic Capacity ÷ 40)
Effective deadweight tonnage	equals	.80[1]	Deadweight tonnage
Gross tonnage	equals	.6[1]	Deadweight tonnage
Net tonnage	equals	.4[1]	Deadweight tonnage

[1] Approximate relationships of ships of 10,000 tons DWT.

Chapter 3

SUPPLY

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SUPPLY

SECTION I

GENERAL

■ 301. CLASSIFICATION OF SUPPLY.—For convenience, supplies are divided into Class I, II, III, III(A), IV, IV(E), and V. (See Paragraph 1, FM 100-10.)

■ 302. METHODS OF SUPPLY.—Methods of supply are generally classified as Supply Point Distribution and Unit Distribution. The descriptive term (Supply Point or Unit) indicates the *place* where the supplies are issued to the lower unit. Thus:

In *supply point distribution* each lower unit sends its own transportation to the supply point to draw supplies;

In *unit distribution* the higher unit delivers the supplies to the lower unit.

In a division or other similar organization, it may be desirable to provide *supply point distribution* for some units and *unit distribution* to others.

At times it is necessary for the higher unit to transport supplies part of the way from the supply point to the unit, meeting unit transportation at some intermediate rendezvous where loads are transferred.

In any situation, the choice of method will depend upon the relative availability of the various trains to transport the supplies together with time and distance from the supply points to the troops.

■ 303. PROCUREMENT AND DISTRIBUTION OF SUPPLIES.—See paragraphs 65-84, inclusive, FM 100-10.

■ 304. TRAINS OF THE DIVISION.—The train of a unit is that portion of the unit's transportation with its accompanying personnel which operates under the immediate orders of the unit commander primarily in supply, evacuation, and maintenance. Although certain trucks may be assigned prescribed loads, their use is not limited to transporting such loads. Except for vehicles used for the movement of active weapons such as prime movers and weapon carriers, all of the large capacity trucks of a unit are considered as part of a *pool of transportation* to be used as required.

b. Trains are designated by purpose, such as ammunition train, maintenance train, medical train, kitchen and baggage train, etc. Infantry regimental and field artillery battalion trains service their units from the rear.

(1) Those trains required for immediate support (ammunition, maintenance, and medical) may be designated as *combat trains.*

TRAINS OF THE DIVISION (Continued):

(2) Those trains not required for immediate support of combat (kitchen and baggage trains, administrative vehicles, etc.) may be designated as *field trains*.

c. Company trains consists of those vehicles assigned to companies or similar units by Tables of Organization and Equipment for command, reconnaissance, communication, maintenance, weapon carrying or towing, and tactical purposes.

■ 305. LABOR.—*a.* For long term planning purposes labor requirements for handling supplies are computed on the average of ½-ton per man per hour for ten hours each day. For short periods the average is much higher.

b. The maximum number of men that can be employed advantageously in loading or unloading one freight car is eleven (one foreman and ten laborers).

c. In the field or at a depot, trucks and trailers can be loaded or unloaded at the rate of 20 minutes per truck and trailer unit regardless of tonnage if sufficient labor is available. The number of trucks and trailers that can be loaded or unloaded simultaneously is dependent upon the amount of labor available and the conditions existing at the loading or unloading point.

■ 306. TRUCK LOADING CAPACITIES.—*a.* Rated tonnage capacity is in addition to weight of driver and assistant driver (200 lbs. each). Prescribed loads should conform. Maximum pay loads on roads and cross-country, maximum towable loads, and maximum safe speeds are shown on the caution plate attached to each cargo vehicle. Par 2, Cir 212, May 44 states as follows: "An overload not to exceed 100% is authorized for all general purpose vehicles of all-wheel drive type up to and including 2½-ton, 6x6. when operating under favorable conditions on smooth hard-surface roads. Trailers will not be loaded beyond established pay load capacities."

■ 307. PRESCRIBED LOAD.—The prescribed load is a specified quantity of each type of supplies to be carried on unit vehicles and by the personnel. The establishment of this load is a command decision and is dependent upon the tactical situation as well as upon the capacity of unit transportation. The prescribed load of vehicle(s) may be unloaded at any time in order that the vehicle(s) may be used for other purposes. (Par. 204, FM 100-10.)

■ 308. DAY OF SUPPLY.—*(Par 1 FM 100-10). a. The estimated average daily expenditure of various items of supply in campaign (except Jungle Warfare):*

Item	*Pounds per Man per Day*	*Tons per Man per Month*	*Conversion Factor Short Tons to Ship Tons* [1]	*Ship Tons per Man per Month*	*Ship Tons per Man per Month With 15% Stowage*
CLASS I					
Rations	6.22	0.0933	1.3	0.121	0.140
CLASS II					
QM clothing and equipage	0.84	0.0126	2.0	0.025	0.029
QM general supplies	0.32	0.0048	2.0	0.010	0.011
Vehicle replacement	0.62	0.0093	5.0	0.047	0.053
Engineer	0.37	0.0055	2.0	0.011	0.013
Ordnance	0.30	0.0045	2.5	0.011	0.013
Chemical	0.34	0.0051	2.0	0.010	0.012
Signal	0.32	0.0048	2.5	0.012	0.014
Medical	0.20	0.0030	[3]	[3]	[3]
Total Class II	3.31	0.0496		0.126	0.145
CLASS III					
Gas, oil, grease (less AC)	8.26	0.1239	1.5	0.186	0.214
AC fuel and lubricants [2]	13.38	0.2007	1.5	0.301	0.346
Subtotal Class III	21.64	0.3246		0.487	0.560
Solid fuel for arctic zone*	17.00	0.2550	2.0	0.510	0.587
Solid fuel for temperate zone*	8.50	0.1275	2.0	0.255	0.293
*50% coal and coke by volume.					
CLASS IV					
Medical	0.27	0.0041	2.9	0.012	0.014
Motor Maintenance	0.18	0.0027	1.0	0.003	0.003
QM sales items	0.27	0.0041	2.0	0.008	0.009
AC supply and replacement	2.84	0.0426	4.0	0.170	0.196
Average use of Engr Const Material	11.90	0.1785	1.5	0.268	0.308
Total Class IV	15.46	0.2320		0.461	0.530
CLASS V					
Ammunition (less AC)	5.17	0.0775	0.81	0.063	0.072
AC ammunition	4.41	0.0661	0.67	0.044	0.051
Total Class V	9.58	0.1436		0.107	0.123
TOTAL, TEMPERATE ZONE (less arctic fuel)	64.71	0.9706		1.557	1.791
TOTAL, ARCTIC ZONE (less temperate fuel)	73.21	1.0981		1.812	2.085

[1] *Conversion Factors* are based on average cubage for each item. Ship tons (40 cu. ft.) of any one item can be found by multiplying its Short Ton (2,000 lbs.) weight by that item's *Conversion Factor.*

[2] AF Class III A.

[3] Information not available.

DAY OF SUPPLY (Continued):

b. The estimated average daily expenditure of various items of supply in Jungle Warfare Campaigns:

Item	*Pounds per Man per Day*	*Tons per Man per Month*	*Conversion Factor Short Tons to Ship Tons*	*Ship Tons per Man per Month*	*Ship Tons per Man per Month With 15% Stowage*
CLASS I					
Rations	7.16 [1]	.1075	1.3	.1398	.161
Medical Maintenance	.105	.0016	1.3	.00208	.0024
TOTAL CLASS I	7.265	.1091		.14188	.1634
CLASS II					
QM Clothing and Equipage	1.95	.0293	2.0	.0586	.0674
Engineer	.0051		2.0		
Ordnance (vehicle replacement and other ordnance)	.31	.0046	4.2	.0193	.0222
Chemical	.18	.0027	2.0	.0054	.0062
Signal	.1370	.00205	2.5	.0051	.0059
Medical	Negligible				
TOTAL CLASS II	2.5821	.03865		.0884	.1017
CLASS III					
Gas, oil, grease (less AC)	11.41	.1715	1.5	.257	.296
CLASS IV					
Medical	Negligible		2.9		
Engineer (less airstrip construction)	16.8	.2521	1.5	.3782	.436
Engineer (including airstrip construction)	43.1	.6475			
Signal	.2370	.00356	2.5	.0089	.0102
Quartermaster	.45	.00675	2.0	.0135	.0155
TOTAL CLASS IV (less airstrip construction)	17.4870	.262		.4006	.4617
TOTAL CLASS IV (including airstrip construction)	43.7870	.656			
GRAND TOTAL—					
(less airstrip construction)	38.7441 [1]	.58		.89788	1.0228
(including airstrip construction)	65.0441 [1]	.975			

[1] Including mail, post exchange supplies, special service, toilet and tobacco components.

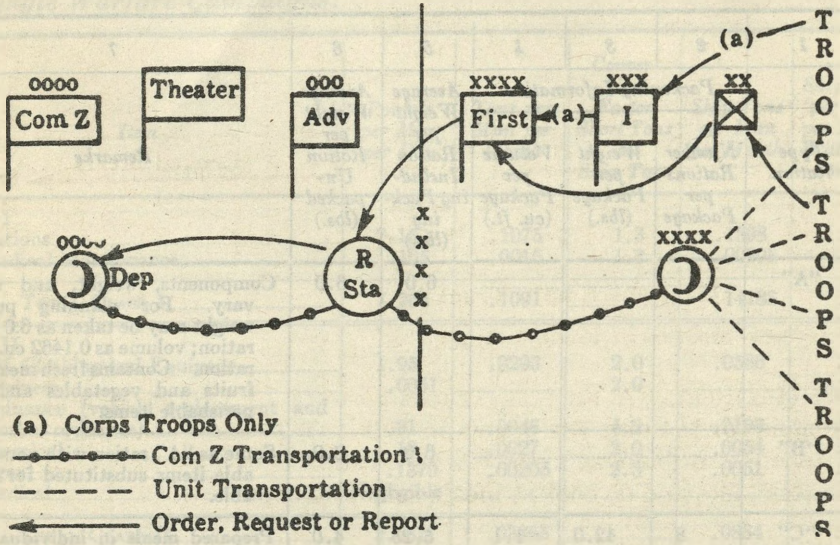
309. Basic Data Class I Supplies:

CHARACTERISTICS OF STANDARD RATIONS

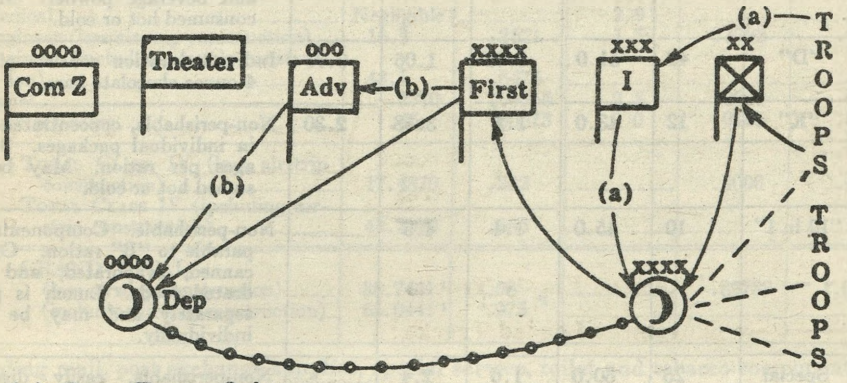
1	1	2	3	4	5	6	7
		Packaging Information					
	Type Ration	*Number Rations per Package*	*Weight per Package (lbs.)*	*Volume per Package (cu. ft.)*	*Average Weight per Ration Including Packing (lbs.)*	*Average Weight per Ration Unpacked (lbs.)*	*Remarks*
2	"A"	.....	.....	.....	6.0	6.0	Components, weight, and volume vary. For planning purposes weight may be taken as 6.0 lbs per ration; volume as 0.1462 cu. ft. per ration. Contains fresh meat, fresh fruits and vegetables and other perishable items.
3	"B"	.....	.....	.....	6.0	6.0	Same as "A" ration with non-perishable items substituted for perishable.
4	"C"	8	42.0	1.1	5.25	4.0	Prepared meals in individual cans. Individual ration consists of 3 cans of meat component, 3 cans "B" unit and 1 accessory packet. "B" unit contains biscuits, confection, and beverage powder. May be consumed hot or cold.
5	"D"	48	51.0	1.09	1.06	0.75	Individual ration consists of three 4-ounce chocolate bars.
6	"K"	12	43.0	1.2	3.58	2.30	Non-perishable, concentrated meals in individual packages. 3 packages per ration. May be consumed hot or cold.
7	"10 in 1"	10	45.0	1.4	4.5	.....	Non-perishable. Components comparable to "B" ration. Contains canned, evaporated, and dehydrated foods. Lunch is packed separately and may be issued individually.
8	Special Hospital Ration	25	60.0	1.6	2.4	.....	Non-perishable, easily digestible, concentrated foods packed in tin containers. Designed to supplement the regular field ration in overseas hospitals. Standard package contains supplemental rations for 25 men.
9	Grain	.....	.....	.....	.....	10	Average for horses and mules. Cut 50% on ship.
10	Hay	.....	.....	.....	.....	14	Average for horses and mules.

■ 310. DIAGRAM OF CLASS I SUPPLY:

a. A method of supply when a regulating station is used:



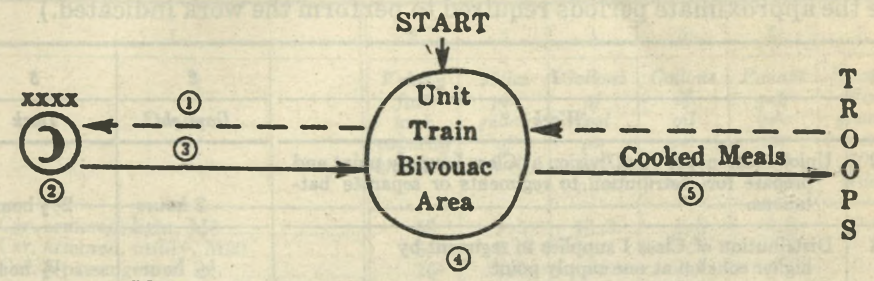
b. A method of supply when no regulating station is used:



[1]If Communication Zone transportation cannot put supplies within reach of using troops, then Army, using its transportation, will establish advance supply points.

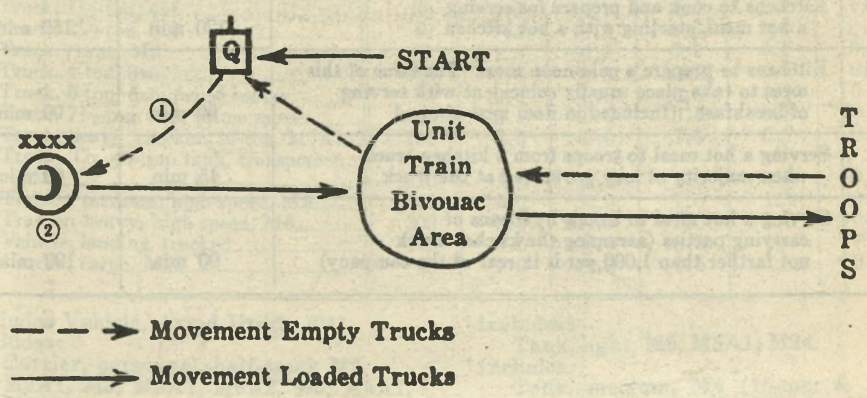
311. DIAGRAM OF DISTRIBUTION OF CLASS I SUPPLIES:

a. Supply Point Distribution:



① Unit (Inf Regt, FA Bn etc) Trucks go to ② Cl I *Supply Point*, where rations for the unit are drawn in bulk. ③ Trucks then return to unit kitchen train bivouac area ④ where ration is divided into Company or Battery lots and ⑤ cooked meals sent to troops.

b. Unit Distribution:



① Division Quartermaster Trucks go to ② Cl I Supply Point, draw rations for the unit and deliver to the *unit* train bivouac area. (See note ④ & ⑤ above.)

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■ 312. TIME ELEMENTS IN CLASS I SUPPLY.

(In the field under campaign conditions, the following time elements are the approximate periods required to perform the work indicated.)

1	1	2	3
	Work	*Daylight*	*Dark*
2	Unload rations for one Division at Class I supply point and prepare for distribution to regiments or separate battalions.	2 hours	2½ hours
3	Distribution of Class I supplies to regiment by higher echelon at one supply point	½ hour	½ hour
4	Distribution of Class I supplies to separate battalion by higher echelon or similar unit	¼ hour	¼ hour
5	Preparation of one day's Class I supplies for issue at regimental or battalion Class I supply point	½ hour	1 hour
6	Physical distribution by regimental supplies agencies of one field ration (transfer of loads) to kitchens	15 min	20 min
7	Kitchens to be taken off trucks, set up, and ready to begin cooking (or vice versa)	20 min	20 min
8	Division of one ration into three meals at kitchens	15 min	20 min
9	Kitchens to cook and prepare for serving a hot meal, starting with a hot kitchen	120 min	150 min
10	Kitchens to prepare a cold noon meal. The issue of this meal to take place usually coincident with serving of breakfast. (Included in item next above.)	60 min	90 min
11	Serving a hot meal to troops from a kitchen truck when majority of men are served at the truck	45 min	60 min
12	Serving a hot meal to troops by means of carrying parties (assuming the kitchen truck not farther than 1,000 yards in rear of the company)	90 min	120 min

314. BASIC DATA—CLASS III SUPPLY:

a. Vehicle Fuel and Lubricant Data.

1	*1* Vehicle	*2* Vehicle fuel tank capacity (gallons)	*3* Miles per gallon of fuel	*4* Gallons of fuel per 100 miles	*5* Gallons of oil per 100 miles	*6* Pounds gear lube per 100 miles	*7* Pounds Misc grease per 100 miles
2	Car, armored, light, M8	59	7.5	13.3	1.5	0.6	0.9
3	Car, armored, utility, M20	56	7.0	14.3	1.5	0.5	0.9
4	Car, 5 passenger	16	14.0	7.0	0.1	0.1	0.1
5	Carriage, motor, 75-mm How, M8	89	1.5	66.7	5.2	.....	1.5
6	Carriage, motor, 3" gun, M10A1	165	.14	71.4	11.0	.....	2.4
7	Carriage, motor (76-mm gun), M18 [1]	160	1.0	100.0	11.0	.....	2.4
8	Carriage, motor (105-mm How), M7	175	1.0	100.0	11.0	.....	2.4
9	Carriage, motor, 155-mm Gun, M12	200	0.8	125.0	11.0	.....	2.4
10	Carrier, cargo, M30	200	0.9	111.1	11.0	.....	2.4
11	Half-track vehicles [2]	60	3.3	30.3	1.1	0.7	1.2
12	Motorcycle, solo	3.5	42.0	2.4	0.2	.....	.....
13	Plane, liaison	14	17.9	5.6	0.2	.....	.....
14	Motor, scooter	2.0	50.0	2.0	0.2	.....	.....
15	Tank (L), A/B, T9E1	55	2.5	40.0	(5)	(5)	(5)
16	Tank, light [3]	115	1.4	71.4	5.2	.....	1.5
17	Tank, medium [4]	175	0.8	125.0	11.0	.....	2.4
18	Truck, ¼-ton	15	20.0	5.0	0.2	0.2	0.2
19	Truck, ¾-ton	30	8.0	12.5	0.3	0.6	0.2
20	Truck, 1½-ton, 4x4	30	9.0	11.1	0.5	0.7	0.2
21	Truck, 2½-ton, 6x6	40	7.5	13.3	0.6	0.9	0.3
22	Truck, crane, M2	100	1.5	66.7	0.7	0.7	0.5
23	Truck, 4-ton, 6x6	60	3.0	33.3	0.7	0.7	0.5
24	Truck, 6-ton, 6x6, prime mover	75	2.0	50.0	0.8	0.7	0.5
25	Truck, 7½-ton, 6x6, prime mover	160	2.5	40.0	0.5	0.8	0.5
26	Truck, heavy wrecker, 10-ton, M1A1	100	2.5	40.0	1.6	0.7	0.5
27	Truck, Tlr, 40-ton, tank, transporter, M25	120	1.6	62.5	1.5	0.7	0.5
28	Tractor, medium, high speed, M5	110	2.0	50.0	1.0	1.1	0.5
29	Tractor, heavy, high speed, M6	300	0.5	200.0	2.0	1.8	0.5
30	Vehicle, landing, tracked	110	0.5	200.0	10.0	(5)	(5)
31	Carrier, cargo, M29	25	7.0	14.3	1.5	.....	0.5

[1] Includes Vehicle, Armd Utility T41.

[2] Includes:
Carrier, personnel, half-track M2, M2A1, M3, M3A1, M3A2, M5, M5A1, M9A1.
Carriage multiple gun (AA) M13, M14, M15, M15A1, M16, M17.
Carriage 75-mm gun, M3, M3A1.
Carrier 81-mm mortar, M4, M4A1, M21.

[3] Includes:
Tank, light, M5, M5A1, M24.

[4] Includes:
Tank, medium, M4 (76-mm & 105-mm How), M4A1, M4A2, M4A3 (76-mm & 105-mm How), M4A4, Tk recovery vehicle M32.

[5] Information not available.

b. Miscellaneous:

(1) For planning purposes weight of gasoline may be taken as 40 pounds per 5 gallon drum.

(2) For planning purposes weight of engine oil for motors may be taken as 10 pounds per gallon.

BASIC DATA—CLASS III SUPPLY (Continued):

(3) Capacity of cargo trucks and trailers for carrying 5 gallon gasoline drums (filled):

1-ton trailer	50
1½-ton truck	75
2½-ton truck	125

■ 315. GASOLINE SUPPLY.—The factors controlling gasoline requirements of motor vehicles in military operation are:

a. Movement distance (MD), or the distance in miles that the center of mass of a unit is displaced. On a march this distance is measured from center to center of successive bivouac areas.

b. Supply distance (SD), or the average round trip distance between supply points and the troops. This distance is measured from supply points to center of the most distant bivouac area.

c. Variables (V), which consist of internal travel, reconnaissance, warming up engines, and abnormal periods or time required for low-gear operation. These items differ in each situation with the character of the operation, season of the year, weather, roads, and terrain, and must be estimated in accordance with actual conditions. Under average conditions, a constant of 10 unit miles of travel will usually cover these variables for estimating purposes.

To determine the Unit Distance (UD) in miles of travel the following formula may be used:

$$UD = MD + (.2 \times SD)^{1} + V$$

Example: Infantry division will move 20 miles, and the average round trip supply distance is 50 miles

$$MD = 20$$
$$SD = 50$$
$$V = 10$$

Applying the formula we have.

$$UD = 20 + (.2 \times 50) + 10$$
$$UD = 20 + 10 + 10 = 40$$

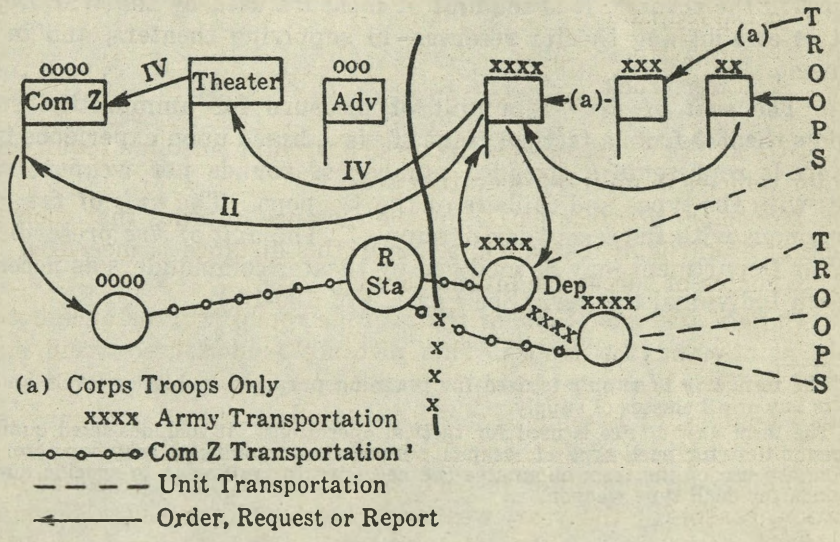
Now if we multiply this UD (miles of travel) by the number of gallons required to move all vehicles of the division one mile, we will have the gasoline requirements.

In order to determine the amount of gasoline to move all vehicles of a small unit one mile, specific computations are required.

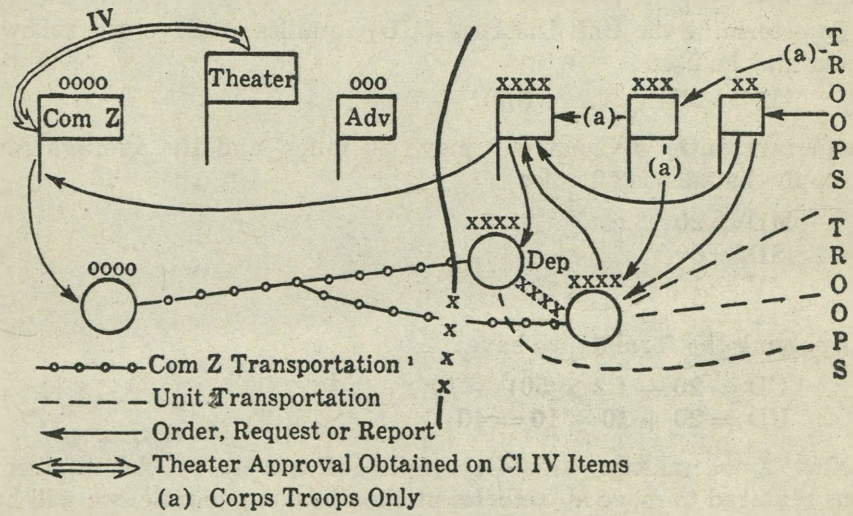
[1] Approximately two-tenths of the vehicles of a division function as supply vehicles, therefore multiply the supply distance by two-tenths.

■ 316. DIAGRAM OF REQUISITION AND SHIPMENT OF CLASS II AND CLASS IV SUPPLIES:

a. A method of supply when a regulating station is used:



b. A method of supply when no regulating station is used:



[1] If Communication Zone transportation is unable to place supplies in Army Supply Points within reach of using troops, then Army, using its own transportation will establish advance supply points.

■ 317. CLASS V SUPPLY.—*a* [1] The *day of supply* for ammunition (other than aircraft) is the estimated average expenditure per day in a campaign expressed in rounds per weapon per day for all weapons (in the hands of troops) in the theater. It is the unit of measure used by the War Department in establishing theater reserves, in supplying theaters, and in procurement.

b. The *unit of fire* [2] is a unit of measure for ammunition supply within a theater from a tactical point of view, based upon experience in the theater. It represents a specified number of rounds per weapon, which varies with the types and calibers of the weapons. The *unit of fire* is not synonymous with the term "day of supply." The *unit of fire* prescribed by the War Department may be modified by theater commanders as necessary for each individual theater. (See Par 1, FM 100-10.)

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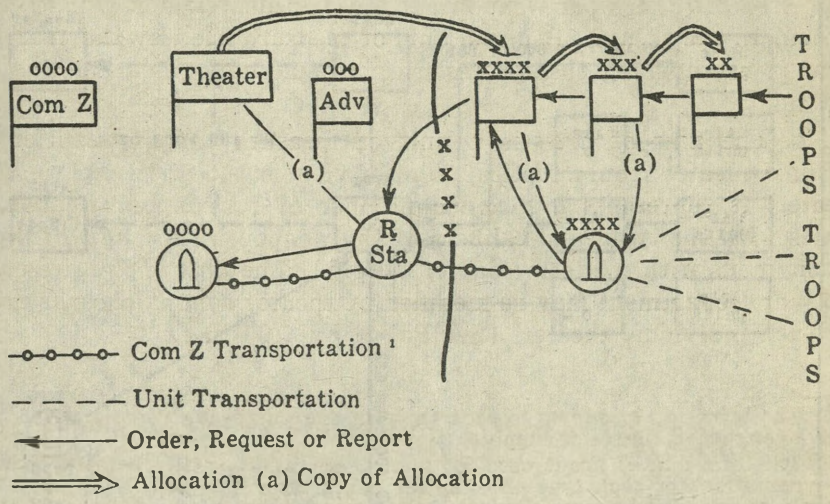
[1] The term *day of supply* is used for planning purposes on higher levels and pertains to any or all classes of supply.

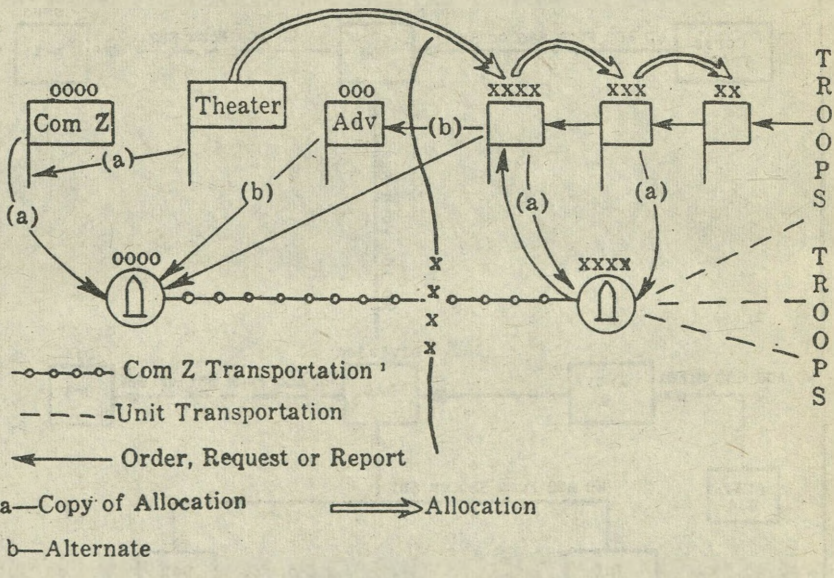
[2] The term *unit of fire* is used for tactical operations. It includes fixed quantities of ammunition for each type of weapon. Since these quantities may vary for each weapon, the use of the term eliminates the necessity for reference to specific numbers of rounds for each type weapon.

■ 318. DIAGRAM OF DISTRIBUTION OF CLASS V SUPPLIES:

a. A method of supply when a regulating station is used:

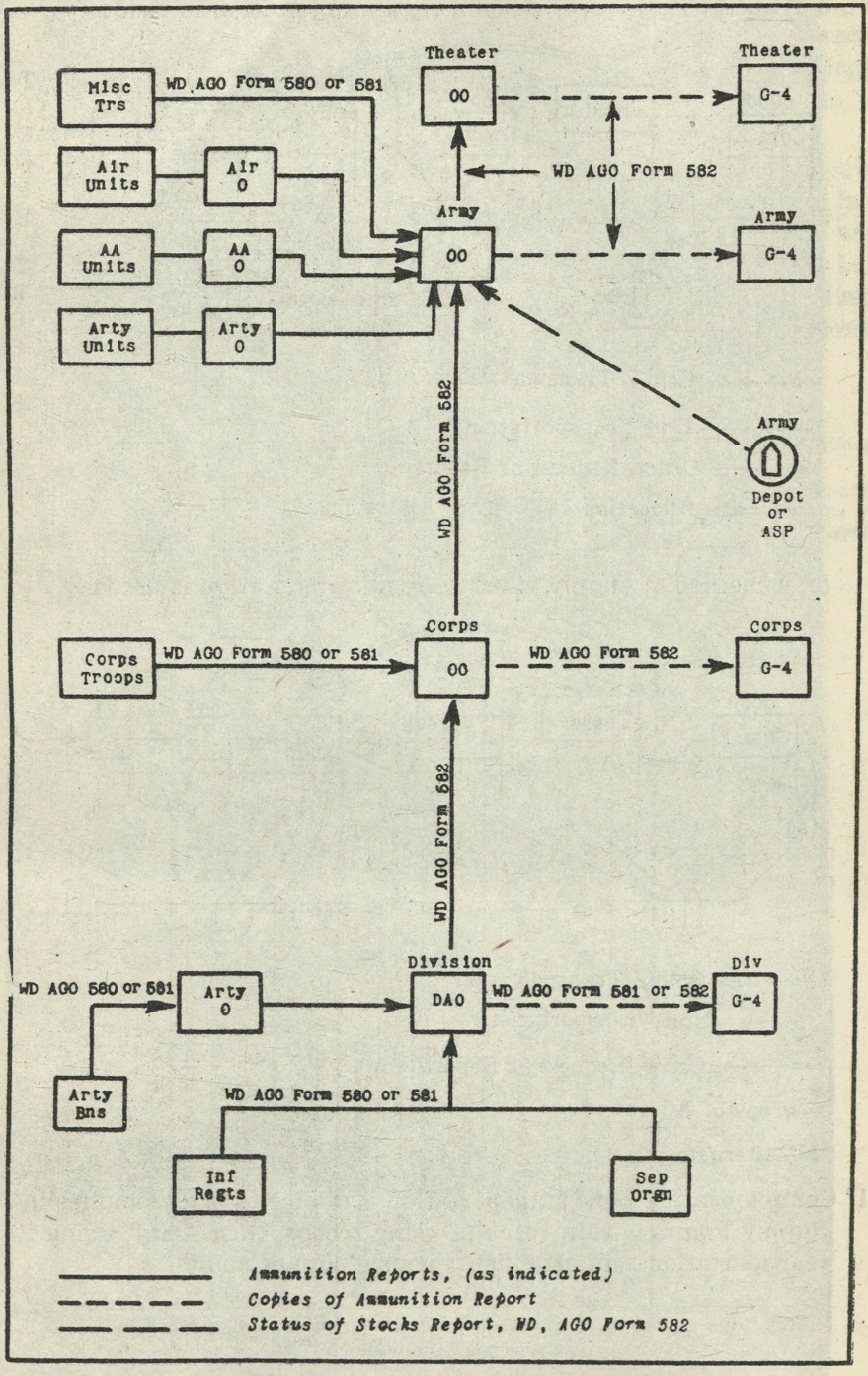


b. A method of supply when no regulating station is used:



[1] If Communication Zone transportation is unable to place supplies in Army Supply Points within reach of using troops, then Army, using its own transportation will establish advance supply points.

319. Diagram of Flow of Ammunition Reports:



320. *a. Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition):*

1	1 Weapon	2 Day of Supply (Rounds per weapon per day)	3 Proportion of Types	4 Unit of Fire (Rounds per weapon)	5 Container [1] Rounds [1]	6 Container [1] Gross Weight (pounds) [1]	7 Average weight per round incl. packing (pounds) [1] Overseas Shipment	8 Average weight per round incl. packing (pounds) [1] Combat Zone
2	.30 caliber carbine, M1	1.5	100% Ball	60	2,700	91	0.033	0.033
3	.30 caliber gun, machine (L and Hv)	70	80% AP 20% Tracer	2,000	1,000	77	0.077	0.077
4	.30 caliber rifle, automatic, M1918A2	30	80% AP 20% Tracer	750	1,500	113	0.075	0.075
5	.30 caliber rifle, M1; M.03	3	80% AP 20% Tracer	150	1,200	103	0.086	0.086
6	.45 caliber gun, submachine	6	100% Ball	200	2,000	110	0.055	0.055
7	.45 caliber pistol, automatic	0.2	100% Ball	10				
8	.50 caliber gun, antiaircraft, M2, water cooled	25	80% API 20% Tracer	1,200	265	97.4	0.37	0.37
9	.50 caliber gun, machine (HB)	25	80% API 20% Tracer	500				
10	20-mm gun, machine, antiaircraft	([3])	([3])	540	120	103	0.86	0.86
11	37-mm gun, antiaircraft	8	90% HE 10% APC	300	20	85	4.25	4.25

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

	1	2	3	4	5	6	7	8
12	37-mm gun, antitank, M3A1	5	40% APC 25% HE 35% Cannister	100	20	100	5	5
13	37-mm gun, tank, M6 (combat vehicles)	5	25% HE 40% APC 35% Cannister					
14	40-mm gun, all types	8	90% HE 10% AP	300	24	158	6.6	6.6
15	Mortar, 2-inch, tank, M3	1	100% Smoke	15[5]	18	45	2.5	2.5
16	57-mm gun, antitank	5	15% HE 70% APC 15% Cannister	100	3	63	21.0	17.0
17	60-mm mortar	7.5	80% HE 5% Illum. 15% Smoke WP	100	18	104	5.8	4.5
18	75-mm gun, antitank	6	25% HE (Super) 75% APC	50	3	84	28	24
19	75-mm gun, field	([3])	([3])	300				
20	75-mm gun, tank	5	50% HE (Super) 10% HE (Normal) 30% APC 4% Smoke HC 6% Smoke WP	100	3	84	28	24

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

	1	2	3	4	5	6	7	8
1	*Weapon*	*Day of Supply (Rounds per weapon per day)*	*Proportion of Types*	*Unit of Fire (Rounds per weapon)*	*Container* [1]		*Average weight per round incl. packing (pounds)* [1]	
					Rounds [1]	*Gross Weight (pounds)* [1]	*Overseas Shipment*	*Combat Zone*
21	75-mm howitzer, pack	25	80% HE 5% HE-AT 4% Smoke HC 6% Smoke WP 5% H	300	3	75	25	22
22	75-mm howitzer, SP and LVT	15	85% HE 4% Smoke HC 6% Smoke WP 5% HE, AT					
23	76-mm gun, antitank	6	54% HE (Normal) 15% HE (Reduced) 23% APC 3% Smoke HC 5% Smoke WP	[3]	3	105	35	29
24	76-mm gun, tank	10	45% HE (Normal) 10% HE (Reduced) 35% APC 4% Smoke HC 6% Smoke WP					

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

	1	2	3	4	5	6	7	8
25	3″ gun, antiaircraft, mobile	5	95% HE 5% APC	150	4	156	39	39
26	3″ gun, antitank, wheeled and self-propelled mount	6	54% HE (Normal) 15% HE (Reduced) 23% APC 3% Smoke HC 5% Smoke WP	75				
27	81-mm mortar (Incl combat vehicles)	8	25% HE (L) 65% HE (Hv) 10% Smoke WP	100 (70% L 30% Hv)	L 6 Hv 3 WP 3	73 71 60	12.2 39.7 20.0	9.7 19.0 15.0
28	90-mm gun, antiaircraft, mobile and and AMTB	4	85% HE 15% APC	125	2	129	64.5	64.5
29	90-mm gun, SP	15	60% HE 30% APC 4% Smoke HC 6% Smoke WP					
30	105-mm howitzer (M2A1 & M4) field and self-propelled mount	20	80% HE 5% HE-AT 4% Smoke HC 6% Smoke WP 5% H	200	3	171	57	49
31	105-mm howitzer, M3 (infantry)	10	80% HE 10% HE-AT 2% Smoke HC 8% Smoke WP	200	3	170	57	49
32	4.2″ chemical mortar	10	60% HE 40% WP	60	2	65	32.5	32.5

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

1	*1* Weapon	*2* Day of Supply (Rounds per weapon per day)	*3* Proportion of Types	*4* Unit of Fire (Rounds per weapon)	*5* Container [1] Rounds [1]	*6* Container [1] Gross Weight (pounds) [1]	*7* Average weight per round incl. packing (pounds) [1] Overseas Shipment	*8* Average weight per round incl. packing (pounds) [1] Combat Zone
33	4.5″ gun, M1	25	100% HE	175	1	55	75 [4]	68
34	Charge, Prop., 4.5″ gun	25	60% Super 40% Normal		3	61		
35	120-mm gun, antiaircraft	5	100% HE	90	2	130	143	143
36	Charge, Prop (in case, cartridge, M24)	5	100% Normal		2	156		
37	155-mm gun, M1917-18, M1, M1A1 & SP	20	90% HE 5% H 2% Smoke HC 3% Smoke WP	100	1	95	148.6 [4]	137
38	Charge, Prop., 155-mm gun, M1	20	100% Normal		3	161		
39	155-mm howitzer, field, M1	10	85% HE 4% Smoke HC 6% Smoke WP 5% H	150	1	96	122.3 [4]	115
40	Charge, Prop., 155-mm howitzer, M1	10	60% WB 40% GB		3	79		
41	155-mm howitzer, field, M1917-18	10	85% HE 4% Smoke HC 6% Smoke WP 5% H	150	1	96	112 [4]	107
42	Charge, Prop., 155-mm howitzer, M1917-18	10	60% WB 40% GB		6	95		

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

	1	2	3	4	5	6	7	8
43	8″ gun, field	10	100% HE	60	1	286	432 [4]	386
44	Charge, Prop., 8″ gun, field	10	35% GB 65% WB		1	146		
45	8″ howitzer, field	10	100% HE	60	1	201	236 [4]	236
46	Charge, Prop., 8″ howitzer, field	10	70% WB 30% GB		3	105		
47	240-mm howitzer, field (M1)	10	100% HE (360-lb.)	60	1	360	465 [4]	465
48	Charge, Prop., 240-mm (M1)	10	100% Normal (for 360-lb. shell)		1	105		
49	Grenade, AT, M9A1 per launcher grenade M1, M7, and M8	(3)	(3)	6	10	30	3	3
50	Grenade, hand, fragmentation, MK IIAI	(3)	(3)	50 [2]	25	53	2.12	2.12
51	Grenade, hand, offensive, MK IIIA2	(3)	(3)	(3)	50	54	1.1	1.1
52	Mine, anti-personnel, M2A1	(3)	100% HE	(3)	10	93.4	9.34	9.34
53	Mine, anti-personnel, M2A2	(3)	100% HE	(3)	10	93.4	9.34	9.34
54	Mine, anti-personnel, M2A3	(3)	100% HE	(3)	10	76.6	7.66	7.66
55	Mine, anti-personnel, M3	(3)	100% HE	(3)	6	73.2	12.2	12.2
56	Mine, antitank, M1A1	(3)	100% HE	(3)	5	73.5	14.7	14.7
57	Mine, antitank, M4	(3)	100% HE	(3)	5	69.0	13.8	13.8
58	Mine, antitank, M5	(3)	100% HE	(3)	4	88.7	22.2	22.2

Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (Continued):

1	1 Weapon	2 Day of Supply (Rounds per weapon per day)	3 Proportion of Types	4 Unit of Fire (Rounds per weapon)	5 Container [1] Rounds [1]	6 Container [1] Gross Weight (pounds) [1]	7 Average weight per round incl. packing (pounds) [1] Overseas Shipment	8 Average weight per round incl. packing (pounds) [1] Combat Zone
59	Mine, antitank, M6	([3])	100% HE	([3])	1	30	30	30.0
60	Mine, antitank, M7	([3])	100% HE	([3])	8	52	6.5	6.5
61	Rocket, 2.36", M6 (per launcher, rocket)	0.20	80% HE 20% Smoke WP	6	20	128	6.4	6.4
62	Torpedo, bangalore (Kit M1A1)	([3])		([3])	10	168	16.8	16.8

[1] Representative packings are shown. Additional information on the various types of packing may be found in the Army Service Forces Catalogue, Ord SNL's.

[2] Per rifle Co.

[3] Not published.

[4] Complete Round, including Projectile and Charge.

[5] For planning purposes only.

LEGEND: APC=Armor Piercing Cap, AT=Antitank, HE=High Explosive, H=Mustard or other blister gas, Hv=Heavy, Illum=Illumination, I=Incendiary, L=Light, SP=Self-Propelled, WP=White Phosporus.

b. Basic Data, Chemical Warfare Ammunition—For Theater of Operations:

(1) For Ground Force Units:

1	Items	Day of Supply (Rounds per weapon per day)	Unit of Fire (Rounds per weapon)	Container: Rounds	Container: Gross Weight (pounds)	Average Weight per round incl packing (pounds)
2	Grenade, hand, frangible, M-1 (various fillings)		(1)	12	45–55	3.8–4.6
3	Grenade, hand, irritant, (CN-DM), M6					
	Per MP Escort Guard Co	7.0	15	25	52	2.1
	Grenade, hand, smoke, (WP), M15					
4	Per Armd Force C vehicle, H-t M2 and M3	0.2	2	25	73	3
5	Per Armd Force Mtrcl and ¼-ton Trk	0.1	1			
6	Per Mech Cav C vehicle & ¼-ton Trk	0.2	2			
7	Per TD Mtr vehicle except Mtrcl and 2½-ton Trk	0.2	2			
8	Per Engr C Co; H Cav Rcn Tr; H Cav Wpn Tr Engr C Tr; Co, Armd Engr Bn	1.0	10			
9	Per Inf Co	2.0	20			
	Grenade, hand, tear (CN), M7					
10	Per MP Escort Guard Co: MP Co Z of I Bn: MP Co, Z of I Sep	7.0	15	25	50	2
	Grenade, Incendiary, AN-M14					
11	Per Engr C Co; Engr C Tr; Co, Armd Engr Bn	1.0	10			
12	Per Inf Regt (except Prcht) when Auth	20.0	200	25	75	3
13	Per Inf Prcht Regt	40.0	400			

Basic Data, Chemical Warfare Ammunition—For Theater of Operations (Continued):

1	1 Items	2 Day of Supply (Rounds per weapon per day)	3 Unit of Fire (Rounds per weapon)	4 Container: Rounds	5 Container: Gross Weight (pounds)	6 Average Weight per round incl packing (pounds)
	Grenade, smoke, colored, M16 or M18 (red, green, yellow, violet)					
14	Per Inf Rifle Co (assorted colors)	0.7	7	25	50	2
15	Per Inf Bn Hq (assorted colors)	1.5	15			
16	Per Cav Tr, Horse (assorted colors)	0.5	5			
17	Per Cav Tr, Mecz (assorted colors)	1.0	10			
18	Per Armd F and TD C vehicle (including towed guns) (assorted colors)	0.2	2			
19	Per FA Btry (assorted colors)	1.0	10			
20	Per FA Hq Btry (assorted colors)	1.5	15			
	Grenade, smoke, white (HC) AN-M8					
21	Per Inf Co	0.5	10			
22	Per MP Co, Z of I Bn; MP Co, Z of I Sep	7.0	15	25	60	2.4
	Mine, land, chemical, 1 gallon, with burster and detonator.					
23	Per Engr C Co; Co, Armd Engr Bn	1.0	10	10	35	3.5 [2]
24	Per Cml Wpns Co	10.0	100			
	Pot, smoke, (HC), M1 (with Squibb, electric)					
25	Per MP Co, Z of I Bn; MP Co, Z of I-Sep	1.0	10	3	50	17
26	Per Cml Smoke Generator Co	60	600			
	Pot, smoke, floating, HC, M4					
27	Per Cml Smoke Generator Co	30	300	1	56	56
	Shell, 4.2-inch Cml Mort					
28	Per Cml Mort (percentage by type varies with Theater and strategic situation)	10	60	2	65	32.5

[1] As authorized.
[2] Shipped empty, filled just before using.

(2) *For Special Purposes (CWS Am Listed Below is Distributed for Special Purposes as Indicated):*

Grenade, Frangible, M1
(3 types fillings). As needed in specific theaters
Grenade, incendiary, AN-M14
2 Per tactical airplane other than bombardment
6 Per bombardment airplane
3 Per Cml Mort, 4.2 inch
30 Per Cml Lab Co; Cml Proc Co, T of Opns
45 Per Cml Wpns Co; Cml Proc Co, Z of I
90 Per Cml Maint Co
900 Per Cml Depot Co
3 Per Engr Mtr Veh
3 Per Signal Mtr Veh
Grenade, Smoke, Red, AN-M3
1 Per airplane except training airplane
Grenade, Smoke, White (HC), AN-M8
1 Per airplane except training airplane
Incendiary, Safe Destroying, M1 (as required for special purposes).

■ 321. ESTIMATED DAILY REQUIREMENTS OF AMMUNITION FOR VARIOUS TYPES OF COMBAT EXPRESSED IN UNITS OF FIRE PER DAY OF COMBAT: [1]

1	2	3	4	5	6	7	8	9	10
		Artillery			AAA [2]			AT	
Type of Combat	75-mm Gun and 105-mm How	155-mm How	155-mm Gun and larger	Inf Am	37-mm 40-mm cal .50 & SA	120-mm & 90-mm Gun	4.2" Chem Mort	37-mm 57-mm and 75-mm Gun	3" Gun
Attack of position:									
Permanent fortifications:									
First day	2.0	2.0	2.0	1.0	0.5	0.5	2.0	1.0	3.0
Succeeding days	1.0	1.0	1.0	0.5	0.3	0.3	1.0	0.5	1.0
Deliberately organized:									
First day	1.5	1.5	1.5	1.0	0.5	0.5	2.0	1.0	1.0
Succeeding days	0.8	0.8	0.8	0.5	0.3	0.3	1.0	0.5	0.5
Hastily organized	0.8	0.5	0.5	0.5	0.5	0.5	1.5	0.8	0.5
Covering and security force action	0.3	0.2	0.0	0.3	0.1	0.1	3.0	0.5	0.5
Defense of position:									
First day	2.0	2.0	2.0	1.5	0.5	0.5	3.0	2.0	2.0
Suceeding days	1.0	1.0	1.0	1.0	0.5	0.5	1.5	1.0	1.0
Inactive situation [3]	0.1	0.1	0.1	0.2	0.1	0.1	0.25	0.5	0.5
Meeting engagement	0.5	0.5	0.3	0.5	0.2	0.1	2.0	1.0	1.0
Pursuit	0.5	0.5	0.0	0.3	0.1	0.1	1.0	0.5	0.5
Retirement or delaying action	1.0	0.5	0.0	0.2	0.3	0.2	3.0	0.5	0.5

[1] Not applicable to Armd Divs. See Par 328.
[2] When used only on AA missions.
[3] Force in contact but neither side attacking.

322. Field Artillery Ammunition Expenditures Expressed in Rounds per Weapon per Hour: [1]

	1	2	3	4	5	6
		Average rate per gun per hour				
1	*Kind of fire or phase of action*	*75-mm gun or howitzer*	*105-mm howitzer*	*155-mm howitzer*	*155-mm gun*	*240-mm howitzer*
2	Advance guard action, development, and deployment	25	25	12		
3	Preparation	85	80	25	25	5
4	Supporting fires during the attack (including counterbattery):					
5	First 2 hours	70	50	25	25	5
6	After 2 hours	40	30	15	15	5
7	Exploitation, pursuit, delaying action, or delaying enemy development	25	25	12	12	5
8	Counterpreparation	85	60	25	25	5
9	Defensive fires against infantry attack (including counterbattery)	70	50	25	25	5

[1] These figures are suitable for computing expenditures for periods of time less than 6 hours.

SECTION II

AIRBORNE DIVISION

■ **323. METHODS OF SUPPLY OF AN AIRBORNE DIVISION:**

a. Initial resupply of an Airborne Division will ordinarily be accomplished by means of parachute and glider under Air Force control assisted by the Airborne Division. During this stage the supplies should be delivered to the departure airfields by Army or Task Force agencies as requested by the Airborne Division, and responsibility for the packaging, loading, lashing and delivery of these resupplies to Airborne troops in the combat area devolves upon the Air Force Service Command. Through trained organizations, activated for this purpose, it cares for resupply of Airborne units from arrival of supplies on departure airfields until they are dropped or landed in the forward areas. Rear echelon personnel of the Airborne Division should be trained to properly pack parachute delivery units and to load and lash supplies in gliders and transport airplanes. Sufficient gliders or airplanes must be allotted to Division supply agencies to insure that the combat echelon will be properly supplied. In planning to drop supplies by parachute, it must be remembered that this is an uneconomical method of supply and should be used only in emergencies.

b. Division supply installations should be moved from the departure airfields to the combat area as soon as practicable. This movement will usually occur as soon as an airfield suitable for landing transport airplanes is captured and reasonably secured. Air Service Command personnel must therefore be trained in the proper handling of air transported supplies, in order to accomplish the delivery of supplies forward.

c. Supplies should be moved into the combat area by air as soon as possible due to the fact that air advantage may be lost or the weather may become unfavorable and thus render further air movement impracticable. Some supply means should be held in reserve to take care of unexpected contingencies.

d. Plans for the establishment of ground supply for the Airborne Division, as a result of the advance of reinforcing or relieving ground units, must be prepared initially and every effort made to put the plan into effect as soon as possible. In this connection it should be remembered that the Airborne Division has an extremely limited number of trucks and trailers available for supply purposes and proper provision for additional motor transportation should be allotted by Army or Task Force.

e. For further details regarding supply by air see FM 31-40.

■ 324. PRESCRIBED LOADS: (Quartermaster Company—Airborne Division).

a. Cargo capacity (16 tons) ---------- {29 ¼-ton trucks [1] / 29 ¼-ton trailers}

b. Items of prescribed load:

All loads prescribed by Division Commander.

Airborne troops will be equipped for the task they expect to perform and can normally expect relief within three days. Early shortages will occur in Artillery, Mortar, and Antiaircraft Ammunition.

[1] ¼-ton Trk has 800 lb. total payload capacity. Allowing 200 lbs. for driver and his equipment, the net payload is 600 lbs. per Trk.

■ 325. Gas and Oil Supply Data—Airborne Division: [1] [2] [5]

1	1 Unit	2	3	4	5	6	7
		Fuel and Lubricants Requirements—Motor Vehicles					
		Type Motor Vehicle					
		Car, 5-passenger	*Motorcycle, solo*	*Scooter, motor*	*Truck ¼-ton*	*Truck, ¾-ton*	*Truck, 2½-ton*
2	Hq Co, Airborne Div	1		4	9	5	10
3	MP Plat, Airborne Div		2	2	4		
4	Inf Prcht Regt			52	17	3	15
5	Hq & Hq Co, Regt, Prcht				(2)		
6	Serv Co, Regt, Prcht			52	(15)	(3)	(15)
7	3 Prcht Bns (ea)						
8	Hq & Hq Co, Bn, Prcht						
9	3 R Cos, Prcht (ea)						
10	2 Glider Inf Regts (ea)			29	24	3	10
11	Hq & Hq Co, Glider Inf Regt				(3)		
12	Serv Co, Glider Inf Regt			(29)	(21)	(3)	(10)
13	2 Glider Inf Bns (ea)						
14	Hq & Hq Co, Glider Inf Bn						
15	3 Glider Inf Cos (ea)						
16	Div Arty, Airborne Div			50	119	8	27
17	Hq & Hq Btry			(4)	(11)	(1)	(4)
18	Prcht FA Bn, 75-mm Pk How			(12)	(22)	(1)	(15)
19	Hq & Hq & Serv Btry			(4)	(22)	(1)	(15)
20	3 Prcht Btrys (ea)			(2)			
21	AA & AT Btry			(2)			
22	2 Glider FA Bns, 75-mm Pk How (ea)			(17)	(43)	(3)	(4)
23	Hq & Hq & Serv Btry			(9)	(9)	(1)	(4)
24	2 Glider Btrys (ea)			(4)	(17)	(1)	
25	Airborne, AA Bn			15	46	2	2
26	Hq & Hq Btry			(3)	(46)	(2)	(2)
27	3 AW Btrys (ea)			(2)			
28	3 AA, MG Btrys (ea)			(2)			
29	Airborne Engr Bn			25	19		5
30	Hq & Hq & Serv Co			5	(19)		(5)
31	Prcht Co			4			
32	2 Glider Cos (ea)			(8)			
33	Airborne Sig Co			9	11		
34	Airborne QM Co			4	30		
35	Airborne Ord Maint Co			2	15		6
36	Prcht Maint Co			10	5		5
37	Airborne Med Co			5	23		
38	Airborne Div (Totals)	1	2	236	346	24	90

[1] Data not available for miscellaneous small fuel consuming devices.
[2] In computing gasoline requirements, add a 10% safety factor.

GAS AND OIL SUPPLY DATA—AIRBORNE DIVISION [1 2 5] (Continued):

1	8	9	10	11	12	13	14	15	16	17	18
	Fuel and Lubricant Requirements—Motor Vehicles						*Gasoline Capacity*				
	Type Motor Vehicle		*Consumption in moving unit 100 miles* [2 3]				*Gallons fuel to fill all tanks*			*Total number, cans, 5-gal*	*Org Kit* [6]
	Plane, liaison	*Total Motor Vehicles*	*Vehicle fuel (gal)*	*Engine oil (gal)*	*Gear lube (lbs)*	*Grease, miscellaneous (lbs)*	*Vehicle tanks*	*Cans, 5-gal*	*Total*		
2	.....	29	256	10.2	12.4	5.9	709	210	919	42	2
3	.....	8	29	1.6	.8	.8	71	20	91	4	.....
4	.....	87	426	23.7	17.8	8.5	1,049	335	1,384	67	14
5	.....	(2)	(10)	(.4)	(.4)	(.4)	(30)	(30)	(60)	(6)	.....
6	.....	(85)	(416)	(23.3)	(17.4)	(8.1)	(1,019)	(245)	(1,264)	(49)	(2)
7	.....	.....	.....	.....	.....	.....	.....	(20)	(20)	(4)	(4)
8	.....	.....	.....	.....	.....	.....	.....	(20)	(20)	(4)	(4)
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	.....	66	349	17.5	14.7	8.4	908	300	1,208	60	10
11	.....	(3)	(15)	(.6)	(.6)	(.6)	(45)	(35)	(80)	(7)	.....
12	.....	(63)	(334)	(16.9)	(14.1)	(7.8)	(863)	(225)	(1,088)	(45)	(2)
13	.....	.....	.....	.....	.....	.....	.....	(20)	(20)	(4)	(4)
14	.....	.....	.....	.....	.....	.....	.....	(20)	(20)	(4)	(4)
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	8	212	1,201	54.0	50.8	33.5	3,317	1,160	4,477	232	12
17	(2)	(22)	(140)	(6.1)	(6.4)	(3.7)	(391)	(145)	(536)	(29)	(1)
18	(2)	(52)	(357)	(16.5)	(18.5)	(9.2)	(1,012)	(335)	(1,347)	(67)	(5)
19	(2)	(42)	(341)	(14.9)	(18.5)	(9.2)	(996)	(335)	(1,331)	(67)	(5)
20	.....	(2)	(4)	(.4)	.....	.....	(4)	.....	(4)	.....	.....
21	.....	(2)	(4)	(.4)	.....	.....	(4)	.....	(4)	.....	.....
22	(2)	(69)	(352)	(15.7)	(14.0)	(10.4)	(957)	(340)	(1,297)	(68)	(3)
23	(2)	(23)	(140)	(6.7)	(6.0)	(3.2)	(371)	(150)	(521)	(30)	(3)
24	.....	(22)	(106)	(4.5)	(4.0)	(3.6)	(293)	(95)	(388)	(19)	.....
25	.....	65	312	14.0	12.2	10.2	860	280	1,140	56	2
26	.....	(53)	(288)	(11.6)	(12.2)	(10.2)	(836)	(280)	(1,116)	(56)	(2)
27	.....	(2)	(4)	(.4)	.....	.....	(4)	.....	(4)	.....	.....
28	.....	(2)	(4)	(.4)	.....	.....	(4)	.....	(4)	.....	.....
29	.....	49	212	13.4	8.3	5.3	535	280	815	56	2
30	.....	(29)	(172)	(9.4)	(8.3)	(5.3)	(495)	(280)	(775)	(56)	(2)
31	.....	(4)	(8)	(.8)	.....	.....	(8)	.....	(8)	.....	.....
32	.....	(8)	(16)	(1.6)	.....	.....	(16)	.....	(16)	.....	.....
33	.....	20	73	4.0	2.2	2.2	183	60	243	12	1
34	.....	34	158	6.8	6.0	6.0	458	655	1,113	131 [4]	1
35	.....	23	159	7.0	8.4	4.8	469	140	609	28	1
36	.....	20	112	4.2	8.0	4.5	295	80	375	16	1
37	.....	28	125	5.6	4.6	4.6	355	120	475	24	1
38	8	711	3,761	175.3	146.2	107.6	10,117	3,940	14,057	788	57

[3] Does not include 2 Tractors, 20 DBHP w/Bulldozer.
[4] 31 cans for Co. vehicles. 100 cans for general use.
[5] Figures include Atchd Med.
[6] Average daily gasoline consumption (net) 15 gals per kitchen.[3]

326. Loads of Ammunition for Combat Echelon Airborne Division:

a. Glider Units.

1	1	2	3	4	5	6	7	8	9
		Number of rounds per weapon and how carried							
1	*Weapon*	*On individual armed*	*On individuals of platoon of crew served weapons*	*On prime-movers or handcarts*	*On other vehicles of combat echelon*	*Total*	*Remarks*		
							Armor-piercing %	*Ball %*	*Tracer %*
2	Carbine, U.S., cal .30, M-1	90 [1]			15	105		100	
					45 (Engr Bn)	135 (Engr Bn)			
3	Gun, machine, cal .30, heavy		4,000 [1]	5,000 [2]	2,000	11,000	80		20
4	Gun, machine, cal .30, light		4,500 [1]	3,000 [2]	2,000	9,500	80		20
5	Gun, machine, cal .50, AA			3,000		3,000	80		20
6	Gun, 37-mm, AT		70 (Inf) [1]		10	80 (Inf)	90		10
				100 (FA & AA Bns)		100 (FA & AA Bns)	90		10
				80 (Engr Bn)		80 (Engr Bn)	90		10
7	Howitzer, 75-mm, pack			120		120		77.5 HE 2.5 HE AT 10 WP 10 HS	
8	Mines, antitank				As Atzd	As Atzd			
9	Mortar, 60-mm		48 [1]	18 [2]	4	70		100 HE (Illuminating as ordered)	
10	Mortar, 81-mm		18 light [1]	12 heavy [2] 66 light [2]	6 light	12 heavy 90 light		100 HE (WP as ordered)	
11	Pistol, cal .45	21				21		100	
12	Rifle, automatic, cal .30	100 [3]	120 assistant auto-rifleman	200 [2]		420	80		20
13	Rifle, cal .30, M-1	176 [1 4]		8 [2]	8	192	80		20
14	Rifle, cal .30, M'03	160 [1 4]				160	80		20

LOADS OF AMMUNITION FOR COMBAT ECHELON AIRBORNE DIVISION (Continued):

	1	2	3	4	5	6	7	8	9
15	Submachine gun, cal .45	300			690	990		80	20
16	Grenades, AT, per launcher, cal .30	10			20 (Engr Bn)	10			
						30 (Engr Bn)		100 HE	
17	Cartridges, special, blank, M-3 per launcher, cal .30	11			22 (Engr Bn)	11			
						33 (Engr Bn)			
18	Grenade, hand, fragmentation	2 per individual				2 per individual		100 HE	
19	Grenade, hand, offensive, Mk-III			4 per ¼-ton Trk (Engr Bn)		4			
20	Rocket, 2.36-inch	10				10		100 HE	

NOTES

[1] Any part may be dropped to form small company dumps immediately upon landing as prescribed by company or battery commander.
[2] Carried in hand carts of organization and of Sup Sec of Bn Hq Co.
[3] 100 by each automatic rifleman, 120 by assistant automatic rifleman (in 20-round containers)
[4] Caliber .30 ammunition is packed and issued as follows:
Carbine, packed in 50-round cartons.
Machine gun, in 250-round belts of 1 round tracer to each 4 rounds of ball or AP.
Rifle M-1, in 8-round clips of either ball, tracer, or AP (*but not mixed*). Issued in 48-round bandoleers.
Rifle M-1903, in 5-round clips of either ball, tracer or AP (*but not mixed*) Issued in 60-round bandoleers.

LOADS OF AMMUNITION FOR COMBAT ECHELON AIRBORNE DIVISION (Continued):

b. Parachute Units:

Weapon	*On individual armed*	*Dropped in squad*	*Dropped in cargo containers*	*On combat trains*
Carbine, U.S., cal .30, M-1	60 45 (Engr Bn)	60 (squad container)		60
Gun, machine, .30 cal, light		1,000	1,000	
Gun, machine, .50 cal, AA		1,600		
Gun, 37-mm, AT		100		
Howitzer, 75-mm, pack		120 (In caisson T-8 & ADC 5)		
Mines, antitank, HE, M-1		Not normally carried but for special situations may be dropped in containers No. 10		
Mortar, 60-mm		18	36	108
Mortar, 81-mm		18	36	
Pistol, cal .45	21	14 (squad container)		
Rifle, cal .30, M-1		144	144	
Rifle, cal .30, M-1903	40		120 (Engr Bn)	
Submachine gun, cal .45		300	690	
Grenade, AT, M-9 per launcher, cal .30		10		
Cartridge, special, blank, M-3 per launcher, cal .30	11			
Grenade, hand, offensive	4 per jumper			
Rocket, 2.36-inch		8		

SECTION III

ARMORED DIVISION

■ 327. METHODS OF SUPPLY.—An armored division may be supplied by any of the following methods:

a. When the division is located within a reasonable operating radius of army supply points, supply is obtained therefrom by battalion and separate company transportation.

b. When the division is *not* located within a reasonable operating radius of the normally established army supply system, arrangements are made with higher authority to establish temporary supply points (railheads, truckheads) near the division area from which battalions and separate company transportation can obtain supplies.

c. Organic transportation of units within the division is adequate to carry ½ refill of cannon ammunition (37-mm or larger), and ¼ refill of small arms and machine gun ammunition.

d. For fuel consumption during road and cross-country operation, see paragraph 330.

e. To augment organic cargo transportation, the division will often be reinforced by the attachment of two Quartermaster truck companies. In special operations of several days duration it will be necessary to make the division self sustained by attaching transportation in addition to these two truck companies.

f. Supply may be effected by air transport to landing fields in possession of or protected by the division.

g. Supplies may be dropped in limited quantities by parachute from air transports in a marked area near the division.

h. In prolonged operation over wide areas supply may be effected directly to the unit by relays of army motor convoys moving between supply bases and holding and reconsignment points established near the localities in which the units are operating. Each convoy of army motor vehicles operating as a unit carries a type load of approximately one refill for the armored force or major subdivision of the force. Unit convoys are dispatched from the control point to destinations as required.

■ 328. AMMUNITION SUPPLY—ARMORED DIVISION:

a. Definitions:

(1) *Refill.*—Ammunition loads prescribed by stowage lists for all vehicles and individuals of battalions and other separate units. Does not include ammunition carried in cargo space of general purpose vehicles allotted for ammunition supply.

(2) *Resupply Capacity.*—Cargo capacity of general purpose vehicles allotted for ammunition supply.

(3) *Prescribed Load.*—Refill plus resupply capacity.

b. Estimated Ammunition Expenditures (based on Armored Unit Action in Tunisia):

(1) *Expenditures by Type per Day:*

	Cannon					SA & Special			
	105-mm How	*75-mm Gun 105-mm How Tank*	*75-mm How SP*	*57-mm AT Gun*	*37-mm Tk Gun*	*SA & MG*	*Rockets*	*60-mm & 81-mm Mortar*	*Grenades*
Refills	1.0	0.40	0.20	0.20	0.40	0.10	0.10	0.60	0.50
Units of Fire	0.73	0.32	0.10	0.06	0.50	0.13	0.17	0.48	.....

(2) *Total Unit Expenditures per Day:*

Tk Bn— 0.30 Refills
Armd FA Bn—0.85 Refills
Armd Inf Bn—0.20 Refills

c. For Units of Fire and Loads Carried see Paragraph 331.

■ 329. Gas and Oil Supply Data—Armored Division: [1] [2] [3] [4]

1	Unit	2	3	4	5	6	7	8	9
		Fuel and Lubricant Requirements—Motor Vehicles							
		Type Motor Vehicles							
		Car 5 Passenger	Truck ¼-ton	Truck ¾-ton	Truck 2½-ton	Truck 4 & 6-ton	Truck Hv Wrkr M1 10-ton	Car Armd (L) M8	Half-Track Vehicles
2	Div Hq & Hq Co		11	4	3			2	12
3	2 Hq & Hq Cos C. C. (ea)		9		2				7
4	Armd Sig Co		22		21				19
5	Armd Engr Bn		26	8	45	10	1		17
6	Hq & Hq Co, Engr Bn [3]		(11)	(5)	(15)	(4)	(1)		(5)
7	3 Engr Cos, Engr Bn (ea)		(5)	(1)	(10)	(2)			(4)
8	Cav Rcn Sq		110	2	20		1	52	36
9	4 Rcn Trs, Rcn Sq (ea)		(23)		(1)			(12)	(4)
10	Aslt Gun Tr, Rcn Sq		(2)		(1)				(10)
11	L Tk Co, Rcn Sq		(2)		(1)				(1)
12	Hq & Serv Tr, Rcn Sq [3]		(14)	(2)	(14)		(1)	(4)	(9)
13	3 Tank Bns (ea)		23	4	39		2		16
14	Tank Co (L) Tk Bn		(2)		(1)				(1)
15	3 Tank Cos (M), Tk Bn (ea)		(2)		(1)				(1)
16	Hq & Hq Co, Tk Bn [3]		(12)	(2)	(1)				(11)
17	Serv Co, Tk Bn		(3)	(2)	(34)		(2)		(1)
18	3 Armd Inf Bns (ea)		28	5	21		1		75
19	3 Rifle Cos, Inf Bn (ea)		(3)		(2)				(20)
20	Hq & Hq Co, Inf Bn [3]		(16)	(2)	(1)				(14)
21	Serv Co, Inf Bn		(3)	(3)	(14)		(1)		(1)
22	Hq & Hq Btry, Div Arty		8	8	5			1 [9]	
23	3 Armd FA Bns (ea)		22	10	25		1		30
24	3 Btrys 105-mm, FA Bn (ea)		(3)		(1)				(7)
25	Hq & Hq Btry, FA Bn [3]		(10)	(5)	(1)				(9)
26	Serv Btry, FA Bn		(3)	(5)	(21)		(1)		
27	Hq & Hq Co, Armd Div Tns & MP Plat	1	34	13	9				3
28	Ord Maint Bn		24	21	96	3	11		4
29	3 Maint Cos, Maint Bn (ea)		(5)	(5)	(20)	(1)	(3)		(1)
30	Hq & Hq Co, Maint Bn [3]		(9)	(6)	(36)		(2)		(1)
31	Armd Med Bn		10	45	23				4
32	3 Med Cos, Med Bn (ea)		(2)	(14)	(5)				(1)
33	Hq & Hq Co, Med Bn [3]		(4)	(3)	(8)				(1)
34	Armd Div (Total)	1	482	158	481	13	25	55	472

[1] In computing gasoline requirements add a 10% safety factor.
[2] Data based on 2,000 mile Field Operation Test. For approximate gasoline consumption under battle and cross-country conditions, multiply results from table above by 2.5 (the 10% safety factor may be omitted in this case).
[3] Includes Atchd Med.

GAS AND OIL SUPPLY DATA—ARMORED DIVISION [1] [2] [3] [4] (Continued):

1	1	10	11	12	13	14	15	16
		Fuel and Lubricant Requirements—Motor Vehicles						
		Type Motor Vehicles						*Gallons to fill tank*
1	*Unit*	*Tanks (L) (5)*	*Tanks (M) (6)*	*Tractor gas engine driven (7)*	*Truck 40-ton Tank Recovery*	*Airplane Ln*	*Total Vehicle Strength*	*Vehicle tanks*
2	Div Hq Co	3					35	2,182
3	2 Hq & Hq Cos C. C. (ea)	3					21	980
4	Armd Sig Co						62	2,310
5	Armd Engr Bn			3			110	4,300
6	Hq & Hq Co, Engr Bn [3]						(41)	(1,615)
7	3 Engr Cos, Engr Bn (ea)			(1)			(23)	(895)
8	Cav Rcn Sq	28 [8]					249	10,850
9	4 Rcn Trs, Rcn Sq (ea)						(40)	(1,333)
10	Aslt Gun Tr, Rcn Sq	(9) [8]					(22)	(1,497)
11	L Tk Co, Rcn Sq	(18)					(22)	(2,200)
12	Hq & Serv Tr, Rcn Sq [3]	(1)					(45)	(1,821)
13	3 Tank Bns (ea)	18	64				166	16,455
14	Tank Co (L) Tk Bn	(18)					(22)	(2,200)
15	3 Tank Cos (M), Tk Bn (ea)		(19)				(23)	(3,455)
16	Hq & Hq Co, Tk Bn [3]		(5)				(31)	(1,815)
17	Serv Co, Tk Bn		(2)				(44)	(2,075)
18	3 Armd Inf Bns (ea)		4				134	6,710
19	3 Rifle Cos, Inf Bn (ea)						(25)	(1,325)
20	Hq & Hq Co, Inf Bn [3]		(3)				(36)	(1,705)
21	Serv Co, Inf Bn		(1)				(23)	(1,030)
22	Hq & Hq Btry, Div Arty					2	24	644
23	3 Armd FA Bns (ea)		23			2	113	7,583
24	3 Btrys 105-mm, FA Bn (ea)		(6)				(17)	(1,555)
25	Hq & Hq Btry, FA Bn [3]		(3)			(2)	(30)	(1,433)
26	Serv Btry, FA Bn		(2)				(32)	(1,485)
27	Hq & Hq Co, Armd Div Tns & MP Plat						60	1,456
28	Ord Maint Bn				9		168	7,430
29	3 Maint Cos, Maint Bn (ea)				(3)		(38)	(1,805)
30	Hq & Hq Co, Maint Bn [3]						(54)	(2,015)
31	Armd Med Bn						82	2,660
32	3 Med Cos, Med Bn (ea)						(22)	(710)
33	Hq & Hq Co, Med Bn [3]						(16)	(530)
34	Armd Div (Total)	91	273	3	9	8	2,071	126,036

[4] An average consumption of 2,000 gallons per day (net) should be expected, regardless of marches, to provide fuel for kitchens and gasoline powered accessories.
[8] Includes assault gun, 75-mm SP.
[6] Includes Howitzer, 105-mm SP, Vehicle Tank Recovery M32.

GAS AND OIL SUPPLY DATA—ARMORED DIVISION [1] [2] [3] [4] (Continued):

	17	18	19	20	21	22	23	24	25	26
	Fuel and Lubricant Requirements—Motor Vehicles						Fuel Can Data			
	Gallons to fill tank		Consumption in moving unit 100 miles				Organic Fuel Cans			Org Kits [5]
1	Cans, 5-gallon	Total	Vehicle fuel (gallons) [1]	Engine oil (gallons)	Gear lube (pounds)	Grease, miscellaneous (pounds)	Ki & Misc	Motor Vehicles	Total	
2	565	2,747	750	37	18	14	2	111	113	2
3	365	1,345	498	26	8	15	1	72	73	1
4	995	3,305	963	38	37	33	19	180	199	2
5	2,095	6,395	1,885	62	71	46	6	413	419	4
6	(1,510)	(3,125)	(709)	(23)	(26)	(16)	(3)	(299)	(302)	(1)
7	(195)	(1,090)	(392)	(13)	(15)	(10)	(1)	(38)	(39)	(1)
8	5,810	16,660	4,625	302	97	163	7	1,155	1,162	7
9	(485)	(1,818)	(409)	(28)	(15)	(20)	(1)	(96)	(97)	(1)
10	(25)	(1,522)	(931)	(59)	(8)	(27)	(1)	(4)	(5)	(1)
11	(25)	(2,225)	(1,254)	(96)	(2)	(30)	(1)	(4)	(5)	(1)
12	(3,820)	(5,641)	(790)	(35)	(27)	(26)	(1)	(763)	(764)	(1)
13	10,995	27,450	10,536	849	56	217	6	2,193	2,199	6
14	(25)	(2,225)	(1,339)	(96)	(2)	(30)	(1)	(4)	(5)	(1)
15	(25)	(3,480)	(2,429)	(211)	(2)	(47)	(1)	(4)	(5)	(1)
16	(90)	(1,905)	(1,057)	(71)	(14)	(29)	(1)	(16)	(17)	(1)
17	(10,805)	(12,880)	(853)	(50)	(34)	(18)	(1)	(2,160)	(2,161)	(1)
18	2,330	9,040	3,296	148	79	112	8	458	466	8
19	(45)	(1,370)	(648)	(24)	(16)	(25)	(2)	(7)	(9)	(2)
20	(115)	(1,820)	(918)	(53)	(15)	(28)	(1)	(22)	(23)	(1)
21	(2,080)	(3,110)	(434)	(23)	(16)	(9)	(1)	(415)	(416)	(1)
22	340	984	232	9	15	5	1	67	68	1
23	3,900	11,483	4,402	314	54	108	5	775	780	5
24	(30)	(1,585)	(990)	(75)	(6)	(24)	(1)	(5)	(6)	(1)
25	(145)	(1,578)	(785)	(51)	(14)	(23)	(1)	(28)	(29)	(1)
26	(3,665)	(5,150)	(647)	(38)	(22)	(13)	(1)	(732)	(733)	(1)
27	740	2,196	550	20	25	15	2	146	148	2
28	5,415	12,845	2,884	109	124	55	4	1,079	1,083	4
29	(590)	(2,395)	(725)	(26)	(28)	(13)	(1)	(117)	(118)	(1)
30	(3,645)	(5,660)	(709)	(31)	(40)	(16)	(1)	(728)	(729)	(1)
31	1,360	4,020	1,040	35	53	23	4	268	272	4
32	(205)	(915)	(282)	(9)	(14)	(6)	(1)	(40)	(41)	(1)
33	(745)	(1,275)	(194)	(8)	(11)	(5)	(1)	(148)	(149)	(1)
34	69,725	195,761	68,627	4,597	1,023	1,705	104	13,841	13,945	85

[7] Consumes 1.5 gal gasoline per hour when operated. Not included in gasoline requirements. Carried on Tlr towed by 6-ton Trk on march.

[8] In computing kitchen requirements separately estimate 15 gallons gasoline per ki per day. [3]

[9] Includes 1 Armd car utility M-20.

330. AMMUNITION SUPPLY DATA—ARMORED DIVISION:

1	1 Type of Ammunition	2 Unit of Fire: Rounds	3 Unit of Fire: Tons	4 Refill: Rounds	5 Refill: Tons	6 Refill: Unit of fire	7 Prescribed Load: Rounds	8 Prescribed Load: Tons	9 Prescribed Load: Unit of fire
	ONE TANK BATTALION (3 ea)								
2	.30 Cal Carbine	15,420	0.25	19,125	0.32	1.24	23,906	0.39	1.55
3	.30 Cal Rifle & MG	343,000	14.23	531,000	22.04	1.55	676,000	28.05	1.97
4	.45 Cal Pistol & SMG	89,230	2.45	80,500	2.21	0.90	100,750	2.77	1.12
5	.50 Cal MG	52,500	9.71	57,200	10.58	1.09	69,900	12.93	1.33
6	2" Mortar, M3		(1)	1,140	1.43		1,810	2.26	
7	75-mm Gun Tk	7,000	84.00	5,550	66.60	0.79	8,300	99.60	1.19
8	81-mm Mortar	900	5.63	530	3.31	0.59	785	4.90	0.87
9	105-mm How Tk	1,200	58.80	626	15.34	0.52	939	23.00	0.78
10	Grenades, Frag M2	(1)		558	0.59		558	0.59	
11	Grenades, Smoke	(1)		642	0.96		642	0.96	
12	Mines, AT	(1)		(2)	(2)		(2)	(2)	
13	Pots, smoke, HC M1	(1)		36	0.30		36	0.30	
14	Projector, Signal M4	(1)		204	0.13		204	0.13	
15	Rocket, 2.36"	210	0.67	340	1.09	1.62	425	1.36	2.02
16	SUB TOTAL		175.74 [3]		124.90			177.24	
	ONE ARTILLERY BATTALION (3 ea)								
17	.30 Cal Carbine	23,460	0.39	32,500	0.54	1.39	40,250	0.66	1.72
18	.30 Cal MG	56,000	2.32	98,000	4.07	1.75	122,500	5.08	2.19
19	.45 Cal Pistol & SMG	22,850	0.63	21,000	0.58	0.92	26,200	0.72	1.15
20	.50 Cal MG	23,500	4.35	21,500	3.98	0.92	26,900	4.98	1.14
21	2" Mortar, M3		(1)	36	0.05		54	0.07	
22	75-mm Gun Tk	300	3.60	240	2.88	0.80	360	4.32	1.20
23	81-mm Mortar	200	1.25	60	0.38	0.30	90	0.56	0.45
24	105-mm How SP	3,600	88.20	2,574	63.06	0.76	3,861	94.59	1.08
25	Grenades Frag M2	(1)		292	0.31		292	0.31	
26	Grenades Smoke	(1)		340	0.51		340	0.51	
27	Mines, AT	(1)		(2)	(2)		(2)	(2)	
28	Pots, Smoke, HC M1	(1)		12	0.10		12	0.10	
29	Projector, Signal M4	(1)		420	0.28		420	0.28	
30	Rocket, 2.36"	204	0.65	400	1.28	1.67	500	1.60	2.08
31	SUB TOTAL		101.39 [3]		78.02			113.78	

AMMUNITION SUPPLY DATA—ARMORED DIVISION (Continued):

	1	2	3	4	5	6	7	8	9
	ONE INFANTRY BATTALION (3 ea)								
32	.30 Cal Carbine	22,560	0.37	29,500	0.49	1.31	36,900	0.61	1.64
33	.30 Cal Rifle & MG	213,700	8.87	294,000	12.20	1.38	368,000	15.27	1.72
34	.45 Cal Pistol & SMG	27,630	0.76	24,900	0.78	0.90	31,100	0.86	1.13
35	.50 Cal MG	23,000	4.26	29,700	5.49	1.29	37,100	6.86	1.62
36	2" Mortar, M3	(1)		36	0.05		54	0.07	
37	57-mm Gun AT	900	7.65	270	2.30	0.30	405	3.44	0.45
38	60-mm Mortar	900	2.03	684	1.54	0.76	1,026	2.31	1.14
39	81-mm Mortar	400	2.50	321	2.00	0.80	482	3.01	1.21
40	105-mm How, Tk	600	14.70	294	7.20	0.49	440	10.78	0.73
41	Grenades, Frag M2	(1)		1,088	1.15		1,088	1.15	
42	Grenades, Smoke	(1)		1,035	1.55		1,035	1.55	
43	Mines, AT	(1)		(2)	(2)		(2)	(2)	
44	Pots, Smoke, HC M1	(1)		6	0.05		6	0.05	
45	Projector, Signal M4	(1)		180	0.12		180	0.12	
46	Rocket, 2.36"	450	1.44	740	2.36	1.64	925	2.96	2.06
47	SUB TOTAL		42.58 [3]		37.28			49.04	
	CAVALRY RECONNAISSANCE SQUADRON								
48	.30 Cal Carbine	32,160	0.53	88,000	1.45	2.73	98,000	1.62	3.41
49	.30 Cal Rifle & MG	325,000	13.49	326,000	13.53	1.01	561,000	23.28	1.26
50	.45 Cal Pistol & SMG	47,030	1.29	42,000	1.16	0.89	46,000	1.27	0.98
51	.50 Cal MG	27,000	4.99	28,400	5.25	1.05	31,000	5.74	1.15
52	37-mm Gun	5,200	13.00	4,500	11.25	0.87	5,600	14.00	1.08
53	2" Mortar, M3	(1)		259	0.32		390	0.49	
54	60-mm Mortar	3,600	8.10	864	1.94	0.24	1,096	2.47	0.36
55	75-mm Gun, Tk	1,700	20.40	816	9.79	0.48	1,224	14.69	0.72
56	75-mm How	2,400	27.40	1,110	12.21	0.46	1,465	16.12	0.69
57	81-mm Mortar	300	1.86	240	1.50	0.80	360	2.25	1.20
58	Grenades, Frag M2	(1)		800	0.85		800	0.85	
59	Grenades, AT	(1)		4,500	2.98		4,500	2.98	
60	Grenades, Smoke	(1)		970	1.46		970	1.46	
61	Mines, AT	(1)		(2)	(2)		(2)	(2)	

AMMUNITION SUPPLY DATA—ARMORED DIVISION (Continued):

1	1	2	3	4	5	6	7	8	9
	Type of Ammunition	Unit of Fire		Refill			Prescribed Load		
		Rounds	Tons	Rounds	Tons	Unit of fire	Rounds	Tons	Unit of fire
62	Pots, Smoke, HC M1	(1)		226	1.92		226	1.92	
63	Projector Signal, M4	(1)		48	0.03		48	0.03	
64	Rocket, 2.36"	222	0.71	670	2.14	3.02	838	2.68	3.77
65	SUB TOTAL		91.77 [3]		67.78			91.85	
	ENGINEER BATTALION								
66	.30 Cal Carbine	9,180	0.15	11,470	0.19	1.25	14,350	0.24	1.56
67	.30 Cal Rifle & MG	141,100	5.81	162,720	6.75	1.15	203,500	8.45	1.44
68	.45 Cal Pistol & SMG	20,630	0.57	18,600	0.51	0.90	23,250	0.64	1.13
69	.50 Cal MG	10,000	1.85	8,910	1.65	0.89	11,130	2.06	1.11
70	Grenades, Frag M2	(1)		140	0.15		140	0.15	
71	Grenades, Smoke	(1)		90	0.14		90	0.14	
72	Mines, AT	(1)		(2)	(2)		(2)	(2)	
73	Projector, Signal M4	(1)		230	0.15		230	0.15	
74	Rocket, 2.36"	174	0.56	290	0.93	1.67	362	1.16	2.09
75	SUB TOTAL		8.96 [2]		10.47			12.99	
	DIV HQ & HQ CO, HQ & HQ CO CCS, DIV SIG CO, HQ & HQ BTRY DIV ARTY								
76	.30 Cal Carbine	37,200	0.61	51,910	0.81	1.32	64,900	1.07	1.68
77	.30 Cal Rifle & MG	95,350	3.96	155,000	6.43	1.46	190,000	7.88	1.82
78	.45 Cal Pistol & SMG	37,080	1.02	33,849	0.93	0.92	42,400	1.17	1.04
79	.50 Cal MG	21,500	3.98	20,600	3.81	0.96	25,200	4.66	1.17
80	37-mm Gun	200	0.50	320	0.80	1.60	480	1.20	2.40
81	2" Mortar M3	(1)		135	0.17		180	0.23	
82	57-mm Gun	300	2.55	90	0.77	0.30	135	1.15	0.45
83	75-mm Gun, Tk	900	10.80	400	4.80	0.44	535	6.42	0.59
84	Grenades, Frag M2	(1)		440	0.47		440	0.47	
85	Grenades, Smoke	(1)		364	0.55		364	0.55	

AMMUNITION SUPPLY DATA—ARMORED DIVISION (Continued):

	1	2	3	4	5	6	7	8	9
86	Mines, AT	(1)		(2)	(2)		(2)	(2)	
87	Pots, Smoke HC M1	(1)		8	0.07		8	0.07	
88	Projector, Signal M4	(1)		90	0.06		90	0.05	
89	Rocket, 2.36"	456	1.46	600	1.92	1.32	750	2.40	1.64
90	SUB TOTAL		24.88 [2]		21.59			27.32	
	DIVISION TNS (Hq & Hq Co Div Trs, Ord M and Bn and Med Bn, MP Plat)								
91	.30 Cal Carbine	44,400	0.73	57,970	0.96	1.25	72,400	1.19	1.56
92	.30 Cal Rifle & MG	60,900	2.53	68,480	2.84	1.12	85,500	3.55	1.40
93	.45 Cal Pistol & SMG	45,290	1.25	40,870	1.12	0.90	51,000	1.40	1.13
94	.50 Cal MG	20,500	3.79	14,520	2.69	0.71	18,160	3.36	0.89
95	Grenade, Frag M2	(1)		158	0.17		158	0.17	
96	Grenade, Smoke	(1)		42	0.06		42	0.06	
97	Mines, M7	(1)		357	1.16		357	1.16	
98	Projector, Signal M4	(1)		360	0.23		360	0.23	
99	Rocket, 2.36"	240	0.77	400	1.28	1.67	500	1.60	2.09
100	SUB TOTAL		9.07 [3]		10.51			12.72	
101	TOTAL FOR DIVISION		1,093.81 [3]		830.95			1,165.06	

[1] Not published.
[2] As prescribed. Depends on type of mine. See Par 320 for weights of various types of mines.
[3] Total does not include weights of items for which no Unit of Fire is published.

SECTION IV

INFANTRY DIVISION

331. QUARTERMASTER COMPANY—INFANTRY DIVISION.

a. Outline of Organization (T/O & E 10-17, 2/19/44, C1): [1]

1	1 Item	2 Office of Div QM	3 Quartermaster Company Co Hq	4 Serv Plat	5 3 Trk Plats (each)	6 Total Co	7 Aggregate
2	Officers	4	2	1	1	6	10
3	Enlisted Men	14	30	48	28	162	176
4	Including: Laborers			(39)		(39)	(39)
5	Aggregate	18	32	49	29	168	186
6	Truck, ¼-ton	1	2		1	5	6
7	Truck, ¾-ton, Wpn Carr	1		1		1	2
8	Trucks, 2½-ton, cargo	1	2		16	50	51 [1]
9	Trailers, 1-ton, cargo	1	1		16	49	50 [1]

[1] 48 2½-ton Trks and 48 1-ton Tlrs are available for general use. All other vehicles are required for company overhead.

b. Prescribed load:

	Truck, 2½-ton & Trailer, 1-ton
1. Cargo capacity (168 tons)	48
2. Items of prescribed load:	
(1) Class I: Rations (32 tons 10 in 1 Ration)	10
(2) Class III: (Including 4,000 gallons gasoline)	5
(3) Class V: Antitank mines M7, (1,072 cased)	1
Ammunition (As prescribed by Division Commander)	
3. Total prescribed load	16
4. Without prescribed load	32
5. Total units (2½-ton truck and 1-ton trailer)	48

■ 332. Gas and Oil Supply Data—Infantry Division: [1 2 6]

1	1	2	3	4	5	6	7
		Fuel and Lubricant Requirements—Motor Vehicles					
		Type Motor Vehicles					
1	*Unit*	*Car 5-passenger*	*Trk 1/4-ton*	*Trk 3/4-ton*	*Trk 1 1/2-ton*	*Trk 2 1/2-ton*	*Trk 4-ton*
2	Sp Trs, Inf Div	1	69	39	9	84	2
3	Hq & Hq Co, Inf Div	(1)	(17)	(9)	(5)	(2)	
4	MP Plat, Inf Div		(23)	(4)			
5	Ord L Maint Co, Inf Div		(7)	(5)		(14)	(2)
6	QM Co, Inf Div		(6)	(2)		(51)	
7	Sig Co, Inf Div		(16)	(19)	(4)	(17)	
8	3 Inf Regt (ea)		146	15	31	34	
9	Hq & Hq Co, Inf Regt		(26)	(1)		(2)	
10	Serv Co, Inf Regt		(6)	(2)		(29)	
11	Can Co, Inf Regt		(6)	(1)	(7)	(3)	
12	Inf AT Co, 57-mm Gun		(6)	(2)	(12)		
13	3 Inf Bns (ea)		(34)	(3)	(4)		
14	Hq & Hq Co, Inf Bn		(9)	(2)	(4)		
15	3 Inf R Cos (ea)		(2)				
16	Inf Hv Wpns Co		(19)	(1)			
17	Div Arty		103	119		139	1
18	Hq & Hq Btry, Div Arty		(6)	(11)		(6)	
19	3 FA Bns, 105-mm How (ea)		(26)	(27)		(37)	
20	Hq & Hq Btry, FA Bn, 105-mm How		(12)	(12)		(3)	
21	3 FA Btrys, 105-mm How (ea)		(9)	(4)		(7)	
22	Serv Btry, FA Bn, 105-mm How		(2)	(3)		(13)	
23	FA Bn, 155-mm How		(19)	(27)		(22)	(1)
24	Hq & Hq Btry, FA Bn, 155-mm How		(8)	(12)		(3)	
25	3 FA Btrys, 155-mm How (ea)		(3)	(4)		(2)	
26	Serv Btry, FA Bn, 155-mm How		(2)	(3)		(13)	(1)
27	Cav Rcn Tr, Mecz, Inf Div		24			1	
28	Engr C Bn		16	13	1	54	1
29	Hq & Hq & Serv Co, Engr C Bn		(4)	(7)	(1)	(12)	(1)
30	3 Engr C Cos (ea)		(4)	(2)		(14)	
31	Med Bn, Inf Div		9	45	2	14	
32	Hq & Hq Det, Med Bn		(2)	(2)		(5)	
33	3 Coll Cos, Med Bn (ea)		(2)	(14)		(1)	
34	Clr Co, Med Bn		(1)	(1)	(2)	(6)	
35	Inf Div (Totals)	1	659	261	105	394	4

GAS AND OIL SUPPLY DATA—INFANTRY DIVISION (Continued):

1	8	9	10	11	12	13	14	15	16	17	18	19
	Fuel and Lubricant Requirements—Motor Vehicles											
	Type Motor Vehicles							*Total Vehicle Strength*	*Consumption in moving unit 100 miles*[2]			
	Trk 6-ton	*Trk Hvy Wkr M1A1*	*Car Armd L M-8*	*Carr half-track M3A1*	*Airplane Liaison*	*Trac M, M5 gas engine*	*Trac Diesel engine driven*[3]		*Vehicle fuel (gal)*	*Engine oil (gal)*	*Gear lube (lbs)*	*Grease, miscellaneous (lbs)*
2		1						205	2,163	92.4	121.3	51.2
3								(34)	(287)	(9.9)	(14.2)	(6.9)
4								(27)	(165)	(5.7)	(7.2)	(6.5)
5		(1)						(29)	(390)	(14.3)	(19.1)	(8.1)
6								(59)	(733)	(32.4)	(48.3)	(16.9)
7								(56)	(588)	(30.1)	(32.5)	(12.8)
8								226	1,714	69.3	89.3	48.6
9								(29)	(169)	(5.5)	(6.4)	(4.8)
10								(37)	(441)	(19.2)	(28.5)	(10.3)
11								(17)	(160)	(6.8)	(9.4)	(3.7)
12								(20)	(188)	(7.8)	(10.8)	(4.0)
13								(41)	(252)	(10.0)	(11.4)	(8.0)
14								(15)	(114)	(4.7)	(5.8)	(3.4)
15								(2)	(10)	(0.4)	(0.4)	(0.4)
16								(20)	(108)	(4.1)	(4.4)	(4.0)
17					10	18		390	4,840	159.4	237.6	95.1
18					(2)			(25)	(259)	(8.3)	(13.2)	(5.4)
19					(2)			(92)	(970)	(35.7)	(54.7)	(21.9)
20					(2)			(29)	(261)	(8.0)	(12.3)	(5.9)
21								(15)	(163)	(6.2)	(9.5)	(3.7)
22								(18)	(220)	(9.1)	(13.9)	(4.9)
23					(2)	(18)		(89)	(1,671)	(44.0)	(60.3)	(24.0)
24					(2)			(25)	(241)	(7.2)	(11.5)	(5.1)
25						(6)		(15)	(392)	(9.0)	(11.4)	(4.5)
26								(19)	(254)	(9.8)	(14.6)	(5.4)
27			13	5				43	458	30.4	17.0	22.8
28	3						3	91	1,155	43.1	63.1	24.2
29								(25)	(312)	(11.3)	(17.2)	(6.3)
30	(1)						(1)	(22)	(281)	(10.8)	(15.3)	(5.9)
31								70	816	24.7	42.8	15.4
32								(9)	(102)	(4.0)	(6.1)	(2.3)
33								(17)	(198)	(5.2)	(9.7)	(3.5)
34								(10)	(120)	(5.1)	(7.6)	(2.6)
35	3	1	13	5	10	18	3	1,477	14,574	557.9	749.7	354.5

GAS AND OIL SUPPLY DATA—INFANTRY DIVISION (Continued):

1	1	20	21	22	23	24	25	26
		Gasoline Capacity			Fuel Can Data			
		Gallons fuel to fill tanks			Organic Fuel Cans [4]			
1	Unit	Vehicle tanks	Cans, 5-gal (All)	Total	K- & Misc	Motor Vehicles	Total	Org Kit [5]
2	Sp Trs, Inf Div	6,071	5,815	11,886	826	337	1,163	7
3	Hq & Hq Co, Inf Div	(771)	(250)	(1,021)	(1)	(49)	(50)	(3)
4	MP Plat, Inf Div	(465)	(105)	(570)	.....	(21)	(21)	.....
5	Ord L Maint Co, Inf Div	(1,035)	(295)	(1,330)	.....	(59)	(59)	(1)
6	QM Co, Inf Div	(2,190)	(4,565)	(6,755)	(801)	(112)	(913)	(1)
7	Sig Co, Inf Div	(1,610)	(600)	(2,210)	(24)	(96)	(120)	(2)
8	3 Inf Regt (ea)	4,930	1,610	6,540	19	298	317	19
9	Hq & Hq Co, Inf Regt	(455)	(135)	(590)	(1)	(26)	(27)	(1)
10	Serv Co, Inf Regt	(1,310)	(345)	(1,655)	(1)	(68)	(69)	(1)
11	Can Co, Inf Regt	(450)	(145)	(595)	(1)	(28)	(29)	(1)
12	Inf AT Co, 57-mm Gun	(510)	(175)	(685)	(1)	(32)	(33)	(1)
13	3 Inf Bns (ea)	(735)	(270)	(1,005)	(5)	(48)	(53)	(5)
14	Hq & Hq Co, Inf Bn	(330)	(115)	(445)	(1)	(21)	(22)	(1)
15	3 Inf R Cos (ea)	(30)	(15)	(45)	(1)	(2)	(3)	(1)
16	Inf Hv Wpns Co	(315)	(110)	(425)	(1)	(21)	(22)	(1)
17	Div Arty	12,675	3,490	16,240	18	674	692	21
18	Hq & Hq Btry, Div Arty	(688)	(230)	(918)	(1)	(45)	(46)	(1)
19	3 FA Bns, 105-mm How (ea)	(2,708)	(815)	(3,523)	(5)	(158)	(163)	(5)
20	Hq &Hq Btry, FA Bn, 105-mm How	(688)	(250)	(938)	(1)	(49)	(50)	(1)
21	3 FA Btrys, 105-mm How (ea)	(460)	(130)	(590)	(1)	(25)	(26)	(1)
22	Serv Btry, FA Bn, 105-mm How	(640)	(175)	(815)	(1)	(34)	(35)	(1)
23	FA Bn, 155-mm How	(3,863)	(815)	(4,753)	(2)	(155)	(157)	(5)
24	Hq & Hq Btry, FA Bn, 155-mm How	(678)	(225)	(853)	(1)	(44)	(45)	(1)
25	3 FA Btrys, 155-mm How (ea)	(845)	(160)	(1,005)	(1)	(25)	(26)	(1)
26	Serv Btry, FA Bn, 155-mm How	(700)	(185)	(885)	(1)	(36)	(37)	(1)
27	Cav Rcn Tr, Mecz, Inf Div	1,467	545	2,012	1	108	109	1
28	Engr C Bn	3,090	915	4,005	3	178	181	4
29	Hq & Hq & Serv Co, Engr C Bn	(840)	(255)	(1,095)	(3)	(46)	(49)	(1)
30	3 Engr C Cos (ea)	(770)	(220)	(990)	.....	(44)	(44)	(1)
31	Med Bn, Inf Div	2,105	655	2,760	.....	131	131	5
32	Hq & Hq Det, Med Bn	(290)	(80)	(370)	.....	(16)	(16)	.....
33	3 Coll Cos, Med Bn (ea)	(490)	(160)	(650)	.....	(32)	(32)	(1)
34	Clr Co, Med Bn	(345)	(105)	(450)	2	(19)	(21)	(2)
35	Inf Div (Totals)	40,198	16,240	56,523	907	2,322	3,229	95

[1] Data not available for miscellaneous small fuel consuming devices such as pumps, gasoline dispensers, wire reels, etc.

[2] In computing gasoline requirements, add a 10% safety factor.

[3] Carried on Tlr towed by 4-ton Trk on the march. Not included in columns 16-22. Consumption figures not available.

[4] Per tables of Equipment.

[5] Average daily gasoline consumption (net) is 15 gallons per kitchen.[2]

[6] Includes Atchd Med and Ch.

333. AMMUNITION SUPPLY DATA—INFANTRY DIVISION:

a. Units of Fire and Prescribed Loads:

1	1	2	3	4	5	6	7	8	9	10	11
	Type of ammunition	Unit of fire		Prescribed Load			Unit of fire		Prescribed Load		
		Rounds	Tons	Rounds	Tons	Units of fire	Rounds	Tons	Rounds	Tons	Units of fire
		ONE INFANTRY REGIMENT					THREE INFANTRY REGIMENTS				
2	.30 caliber, carbine	50,160	0.83	83,770	1.38	1.67	150,480	2.48	251,310	4.15	1.67
3	.30 caliber, rifle, M1 & 1903	952,500	40.96	1,143,000	49.15	1.20	2,857,500	124.87	3,429,000	147.45	1.20
4	.30 caliber, rifle, automatic	303,750	11.39	364,500	13.67	1.20	911,250	34.17	1,093,500	41.01	1.20
5	.30 caliber, MG, L & Hv	448,000	17.25	537,600	20.79	1.20	1,344,000	51.74	1,612,800	62.09	1.20
6	.45 caliber, pistol	2,930	0.08	5,860	0.16	2.00	8,790	0.24	17,580	0.48	2.00
7	.45 caliber, submachine gun	53,200	1.46	19,600	0.54	0.37	159,600	4.39	58,800	1.62	0.37
8	.50 caliber, MG	17,500	3.24	23,100	4.27	1.32	52,500	9.71	69,300	12.82	1.32
9	57-mm, AT (M1)	1,800	15.30	1,080	9.18	0.60	5,400	45.90	3,240	27.54	0.60
10	60-mm, mortar	2,700	6.08	2,592	5.83	0.96	8,100	18.23	7,776	17.49	0.96
11	81-mm, mortar, heavy	540	5.13	414	3.93	0.77	1,620	15.39	1,247	11.85	0.77
12	81-mm, mortar, light	1,260	6.11	990	4.80	0.79	3,780	18.33	2,970	14.40	0.79
13	105-mm, howitzer, (M3)	1,200	29.40	492	12.05	0.41	3,600	88.20	1,476	36.16	0.41
14	Flares, trip	540	0.92	540	0.92	1.00	1,620	2.76	1,620	2.76	1.00
15	Grenade, chemical	405	0.48	405	0.48	1.00	1,215	1.44	1,215	1.44	1.00
16	Grenade, hand, fragmentation	450	0.48	450	0.86	1.00	1,350	1.44	1,350	2.58	1.00
17	Grenade, hand, offensive	450	0.45	as	required		1,350	1.35	as	required	
18	Grenade, rifle, AT	2,736	4.10	4,236	6.35	1.55	8,218	12.32	12,708	19.06	1.55
19	Mine, AT[2]	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd	As Atzd
20	Rocket, 2.36"	672	2.15	672	2.15	1.00	2,016	6.45	2,016	6.45	1.00
21	Signal, aircraft	690	0.35	550	0.28	0.80	2,070	1.05	1,650	0.84	0.80
22	SUB-TOTAL		146.16		136.79			440.46		410.19	

AMMUNITION SUPPLY DATA—INFANTRY DIVISION (Continued):

1	1	2	3	4	5	6	7	8	9	10	11
	Type of ammunition	Unit of fire		Prescribed Load			Unit of fire		Prescribed Load		
		Rounds	Tons	Rounds	Tons	Units of fire	Rounds	Tons	Rounds	Tons	Units of fire
		ONE FIELD ARTILLERY BATTALION (105-mm Howitzer)					THREE FIELD ARTILLERY BATTALIONS (105-mm Howitzer)				
23	.30 caliber, carbine	25,680	0.42	51,360	0.85	2.01	77,040	1.27	154,080	2.54	2.01
24	.45 caliber, pistol	660	0.02	1,386	0.04	2.10	1,980	0.05	4,158	0.11	2.10
25	.50 caliber, MG	10,500	1.94	27,720	5.13	2.62	31,500	5.83	83,160	15.38	2.62
26	105-mm, howitzer, M2	2,400	58.80	2,196	53.80	0.92	7,200	176.40	6,588	161.40	0.92
27	Rocket, 2.36"	240	0.77	240	0.77	1.00	720	2.30	720	2.30	1.00
28	SUB-TOTAL		61.95		59.59			185.85		181.73	
							ONE FIELD ARTILLERY BATTALION (155-mm Howitzer)				
29	.30 caliber, carbine						26,220	0.43	52,440	0.87	1.70
30	.45 caliber, pistol						680	0.02	1,430	0.04	2.10
31	.50 caliber, MG						10,500	1.94	27,720	5.13	2.62
32	155-mm, howitzer, M1						1,800	103.50	1,500	86.25	0.83
33	Rocket, 2.36"						240	0.77	240	0.77	1.00
34	SUB-TOTAL							106.66		93.06	
							RECONNAISSANCE TROOP				
35	.30 caliber, carbine						8,820	0.15	8,115	0.14	0.91
36	.30 caliber, rifle & MG						55,900	2.32	46,748	1.94	0.83
37	.45 caliber, SMG						6,000	0.17	10,080	0.28	1.79
38	.50 caliber, MG						1,500	0.28	1,980	0.37	1.33
39	37-mm, gun						1,300	3.25	208	0.52	0.16
40	60-mm, mortar						900	2.03	162	0.36	0.08
41	Grenade, hand						(1)		120	0.13	

AMMUNITION SUPPLY DATA—INFANTRY DIVISION (Continued):

1	1	2	3	4	5	6	7	8	9	10	11
	Type of ammunition	Unit of fire		Prescribed Load			Unit of fire		Prescribed Load		
		Rounds	Tons	Rounds	Tons	Units of fire	Rounds	Tons	Rounds	Tons	Units of fire
42	Grenade, rifle, AT						(1)		380	0.57	
43	Mine, AT [2]						(1)				As Atzd
44	Rocket, 2.36"						30	0.10	24	0.08	0.80
45	SUB-TOTAL							8.30		4.39	
							DIV HQ & HQ CO, SIG CO, ORD CO, HQ & HQ BTRY DIV ARTY, ENGR BN, QM CO				
46	.30 caliber, carbine						51,680	0.85	67,180	1.11	1.30
47	.30 caliber, MG and rifle						213,000	8.84	101,282	4.20	0.48
48	.45 caliber, pistol and SMG						12,700	0.35	15,468	0.43	1.23
49	.50 caliber, MG						22,000	4.07	45,760	8.46	2.08
50	57-mm, gun, AT						300	2.55	180	1.53	0.60
51	Rocket, 2.36"						336	1.08	606	1.94	1.81
52	Grenade, fragmentation						(1)		714	0.76	
53	Grenade, chemical						(1)		168	0.27	
54	Grenade, rifle, AT						(1)		1,880	2.82	
55	Mine, AT [2] [3]						(1)				As Atzd
56	Mine Antipersonnel [2]						(1)				As Atzd
57	Signals, ground						(1)		436	0.28	
58	SUB-TOTAL							17.75		21.80	
59	TOTAL FOR DIVISION							759.02		711.17	

[1] Unit of fire not published.

[2] Depends upon type of mine carried. See Par 321 for weights of various types of AT and antipersonnel mines.

[3] Carried by Engr Bn.

AMMUNITION SUPPLY DATA—INFANTRY DIVISION (Continued):

b. Infantry Division—Resupply Capacity of Organic Ammunition Vehicles of the Infantry Regiments and Artillery Battalions: [1]

1	1		2	3	4	5	6	7	8	9	10	11	12	13
	Unit		Tractor Medium M5 [3]	Truck 2½-ton	Truck 1½-ton	Trailer 1-ton [4]	Trailer 4-ton Am	Capacity (tons)	Tractor Medium M5 [3]	Truck 2½-ton	Truck 1½-ton	Trailer 1-ton [4]	Trailer 4-ton Am	Capacity (tons)
	INFANTRY		ONE INFANTRY REGIMENT						THREE INFANTRY REGIMENTS					
2	Serv Co Am Tn			6				15.0		18				45.0
3	Can Co			3		3		10.5		9		9		31.5
4	AT Co [2]				2	2		5.0			6	6		15.0
5	TOTAL INF			9	2	5		30.5		27	6	15		91.5
	ARTILLERY		ONE ARTILLERY BATTALION						DIVISION ARTILLERY (3 Bns — 105-mm How) (1 Bn — 155-mm How)					
6	105-mm How	How, Btry Am Secs		6		6		21.0		18		18		63.0
7		Serv Btry Am Tn		9		9		31.5		27		27		94.5
8	155-mm How	How Btry Am Secs	6				6	31.8	6				6	31.8
9		Serv Btry Am Tn		9		9		31.5		9		9		31.5
10		TOTAL DIV ARTY							6	54		54	6	220.8

[1] Prime movers and weapon carriers not included since they are not normally used for resupply purposes. (Total resupply capacity is therefore generally less than prescribed load.)
[2] Two 1½-ton Trks and 1-ton Tlrs for carrying AT mines in each AT Co.
[3] Carries 24 rounds 155-mm How Am or Approx 1.3 tons.
[4] Tlr, Am, M10 (1-ton capacity) in FA Bns.

SECTION V

MISCELLANEOUS UNITS

334. Gas and Oil Supply Data—Antiaircraft Artillery Units: [1] [2] [5].

1	Unit	Fuel and Lubricant Requirements—Motor Vehicles: Type Motor Vehicles: Trk, ¼-ton	Trk, ¾-ton	Trk, 2½-ton	Trk, 4-ton	Trk, 4-5-ton	Trk, 6-ton	Trk, Hv Wrk'r M1	Half-track Veh	Trac, High Speed M4	Total Motor Veh Strength	Consumption in moving 100 miles [2]: Veh fuel (gals)	Engine oil (gals)	Gear lube (lbs)	Grease, miscellaneous (lbs)	Gasoline Capacity: Gallons fuel to fill tanks: Veh, tanks	Cans, 5-gal	Drums, 55-gal	Total	Fuel Can Data: Organic fuel cans [3]: Ki & Misc	Motor Veh	Total	Org Ki [4]
2	Hq & Hq Btry AAA Brig	4	4	3							11	110	3.8	5.9	2.5	300	95		395	1	18	19	1
3	Hq & Hq Btry AAA Gp	4	5	1							10	96	2.3	3.8	1.8	250	85		285	1	16	17	1
4	AAA AW Bn, Mbl	25	12	86							122	1,420	60.2	89.6	33.2	4,175	1,470		5,645	73	221	294	5
5	Hq & Hq Btry	(13)	(4)	(10)							(26)	(248)	(9.8)	(14.0)	(6.4)	(715)	(210)		(925)	(1)	(41)	(42)	(1)
6	4 AW Btrys (ea)	(3)	(2)	(19)							(24)	(293)	(12.6)	(18.9)	(6.7)	(865)	(315)		(1,180)	(18)	(45)	(63)	(1)
7	AAA AW Bn, Sem	12	7	23							42	454	18.3	27.3	10.7	1,310	730		2,040	73	73	146	5
8	Hq & Hq Btry	(8)	(3)	(19)							(30)	(330)	(13.9)	(20.5)	(7.9)	(970)	(270)		(1,240)	(1)	(53)	(54)	(1)
9	4 AW Btrys (ea)	(1)	(1)	(1)							(3)	(31)	(1.1)	(1.7)	(0.7)	(85)	(115)		(200)	(18)	(5)	(23)	(1)
10	AAA AW Bn, SP	29	2	21				1	81		134	2,908	109.7	83.3	110.2	6,295	1,405		7,700	42	239	281	5
11	Hq & Hq Btry	(13)	(2)	(13)				(1)	(5)		(34)	(439)	(18.1)	(19.7)	(13.4)	(1,175)	(305)		(1,480)	(6)	(55)	(61)	(1)
12	4 AW Btrys (ea)	(4)		(2)					(19)		(25)	(622)	(22.9)	(15.9)	(24.2)	(1,280)	(275)		(1,555)	(9)	(46)	(55)	(1)
13	AAA Gun Bn, Mbl	17	16	52		5		1		20	111	2,184	64.5	86.0	35.2	5,415	1,115		6,530	18	205	223	5
14	Hq & Hq Btry	(5)	(4)	(12)		(1)		(1)			(23)	(308)	(11.7)	(15.6)	(6.4)	(835)	(215)		(1,050)	(2)	(41)	(43)	(1)
15	4 Gun Btrys (ea)	(3)	(3)	(10)		(1)				(5)	(22)	(469)	(13.2)	(17.6)	(7.2)	(1,145)	(225)		(1,370)	(4)	(41)	(45)	(1)
16	AAA Gun Bn, Sem	9	8	16	1	2				6	42	759	22.9	29.7	12.7	1,855	470		2,325	18	76	94	5
16	Hq & Hq Btry	(5)	(4)	(12)	(1)	(2)				(6)	(30)	(635)	(18.5)	(22.9)	(9.9)	(1,515)	(290)		(1,805)	(2)	(56)	(58)	(1)
18	4 Gun Btrys (ea)	(1)	(1)	(1)							(3)	(31)	(1.1)	(1.7)	(0.7)	(85)	(45)		(130)	(4)	(5)	(9)	(1)
19	AAA SL Bn	13	16	35	1		13				78	1,413	39.5	53.5	23.3	3,110	1,640	990	5,740	185	143	328	4
20	Hq & Hq Btry	(4)	(4)	(2)	(1)		(1)				(12)	(180)	(4.7)	(6.4)	(3.2)	(315)	(110)		(505)	(2)	(20)	(22)	(1)
21	3 SL Btrys (ea)	(3)	(4)	(11)			(4)				(22)	(411)	(11.6)	(15.7)	(6.7)	(905)	(510)	(330)	(1,045)	(61)	(41)	(102)	(1)
22	AAA Balloon Bn, VLA	19	23	17							59	607	20.9	32.9	13.5	1,655	1,405		3,060	182	99	281	4
23	Hq & Hq Btry	(4)	(2)	(8)							(14)	(151)	(6.2)	(9.2)	(3.6)	(440)	(220)		(660)	(20)	(24)	(44)	(1)
24	3 Balloon Btrys (ea)	(5)	(7)	(3)							(15)	(152)	(4.9)	(7.9)	(3.3)	(405)	(395)		(800)	(54)	(25)	(79)	(1)

[1] Data not available for miscellaneous small fuel consuming devices.
[2] In computing gasoline requirements, add a 10% safety factor.
[3] Per Tables of Equipment.
[4] Average daily gasoline consumption (net) is 15 gallons per kitchen.
[5] Includes Atchd Med.

335. AMMUNITION SUPPLY DATA—ANTIAIRCRAFT UNITS:

1	1 Type of ammunition	2 Unit of Fire Rounds	3 Unit of Fire Tons	4 Prescribed Load Rounds	5 Prescribed Load Tons	6 Prescribed Load Unit of fire
		AAA AW BN MBL				
2	.30 cal carbine	5,580	0.09	5,580	0.09	1.00
3	.30 cal rifle	84,450	3.63	84,450	3.63	1.00
4	.45 cal pistol and SMG	24,230	0.67	24,230	0.67	1.00
5	.50 cal machine gun [1]	164,600	30.45	183,800	34.00	1.12
6	2.36" rocket	192	0.61	192	0.61	1.00
7	40-mm gun	9,600	31.68	9,600	31.68	1.00
8	TOTAL		67.13		70.68	
		AAA AW BN SEM				
9	.30 cal carbine	5,460	0.09	5,460	0.09	1.00
10	.30 cal rifle	94,800	4.08	94,800	4.08	1.00
11	.45 cal pistol and SMG	8,230	0.23	8,230	0.23	1.00
12	.50 cal machine gun [1]	156,100	28.88	175,300	32.43	1.12
13	2.36" rocket	192	0.61	192	0.61	1.00
14	40-mm gun	9,600	31.68	9,600	31.68	1.00
15	TOTAL		65.57		69.12	
		AAA AW BN SP				
16	.30 cal carbine	5,340	0.09	5,340	0.09	1.00
17	.30 cal rifle and machine gun	89,300	3.71	89,300	3.71	1.00
18	.45 cal pistol and SMG	26,230	0.72	26,230	0.72	1.00
19	.50 cal machine gun [2]	239,400	44.29	464,680	85.97	1.94
20	37-mm gun	9,600	20.40	9,600	20.40	1.00
21	TOTAL		69.21		110.89	
		AAA GUN BN MBL				
22	.30 cal carbine	5,220	0.08	5,220	0.08	1.00
23	.30 cal rifle	76,500	3.29	76,500	3.29	1.00
24	.45 cal pistol and SMG	21,830	0.60	21,830	0.60	1.00
25	.50 cal machine gun	38,700	7.16	38,700	7.16	1.00
26	2.36" rocket	48	0.15	48	0.15	1.00
27	90-mm gun	2,000	64.50	2,000	64.50	1.00
28	TOTAL		75.78		75.78	
		AAA GUN BN SEM				
29	.30 cal carbine	5,100	0.08	5,100	0.08	1.00
30	.30 cal rifle	73,050	3.14	73,050	3.14	1.00
31	.45 cal pistol and SMG	8,230	0.23	8,230	0.23	1.00
32	.50 cal machine gun	26,200	4.85	26,200	4.85	1.00
33	2.36" rocket	48	0.15	48	0.15	1.00
34	90-mm gun	2,000	64.50	2,000	64.50	1.00
35	TOTAL		72.95		72.95	

[1] On M55 mount.
[2] On M15A1 carriage.

336. GAS AND OIL SUPPLY—SEPARATE ARMORED UNIT: [1] [2]

1	Unit	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Fuel and Lubricant Requirements—Motor Vehicles															Fuel Can Data			
		Type Motor Vehicles								Gallons fuel to fill tanks			Consumption in moving vehicles 100 miles				Organic fuel Cans			
		Truck ¼-ton	Truck ¾-ton	Truck 2½-ton	Truck 10-ton, Hq Wrkr	Half-track Veh	Tank (L) [3]	Veh LVT [4]	Vehicle strength	Vehicle tanks	Cans, 5-gal	Total	Vehicle fuel (Gal)	Engine oil (Gal)	Gear lube (Lbs)	Grease, miscellaneous (Lbs)	Ki & Misc	Motor Veh	Total	Org Kis [5]
2	Hq & Hq Co, Armd Gp	9		2		7	3		21	980	365	1,345	498	26	9	15	1	72	73	1
3	Sep Tk Bn [1]																			
4	Light Tk Bn	21	2	23	2	17	62		127	9,645	4,705	14,350	5,459	383	48	137	5	936	941	5
5	Hq & Hq Co	(12)		(1)		(13)	(6)		(32)	(1,690)	(70)	(1,760)	(896)	(57)	(13)	(31)	(1)	(13)	(14)	(1)
6	3 Tk Cos (ea) (L)	(2)		(1)		(1)	(18)		(22)	(2,200)	(25)	(2,225)	(1,339)	(96)	(2)	(30)	(1)	(4)	(5)	(1)
7	Serv Co	(3)	(2)	(19)	(2)	(1)	(2)		(29)	(1,355)	(4,560)	(5,915)	(546)	(38)	(29)	(16)	(1)	(911)	(912)	(1)
8	Amphibian Tractor Bn	9	1	12	1			119	142	13,835	815	14,650	24,058	1,200	[6] 14	[6] 7	14	149	163	3
9	Hq & Hq & Serv Co	(7)	(1)	(8)	(1)			(17)	(34)	(2,425)	(215)	(2,640)	(3,594)	(178)	(10)	(5)	(2)	(41)	(43)	(1)
10	2 Tractor Cos (ea)	(1)		(2)				(51)	(54)	(5,705)	(300)	(6,005)	(10,232)	(511)	(2)	(1)	(6)	(54)	(60)	(1)
11	Amphibian Tank Bn	14	3	16	1			87	121	10,610	690	11,300	17,762	887	[6] 20	[6] 9	10	128	138	5
12	Hq & Hq & Serv Co	(6)	(3)	(8)	(1)			(7)	(25)	(1,370)	(170)	(1,540)	(1,614)	(79)	(12)	(5)	(2)	(32)	(34)	(1)
13	4 Tank Cos (ea)	(2)		(2)				(20)	(24)	(2,310)	(130)	(2,440)	(4,037)	(202)	(2)	(1)	(2)	(24)	(26)	(1)

[1] For Armd Inf, Armd FA and Tk Bns, separate, see Par 329.
[2] In computing gasoline requirements, add a 10% safety factor.
[3] Includes carriage, motor, 75-mm, SP.
[4] Includes LVT, cargo & combat, Armd and unarmored.
[5] For Kis, estimate a daily consumption of 15 gallons [2].
[6] Data not available for LVTs.

337. Ammunition Supply Data—Separate Armored Units: [1]

1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		Amphibian Tractor Bn				L Tk Bn				Amphibian Tank Bn				Hq & Hq Co, Armd Gp			
	Type of Ammunition	Unit of Fire		Prescribed Load [2]		Unit of Fire		Prescribed Load [2]		Unit of Fire		Prescribed Load [2]		Unit of Fire		Prescribed Load [2]	
		Rounds	Tons	Rounds	Tons	Rounds	Tons	Rounds	Tons	Rounds	Tons	Rounds	Tons	Rounds	Tons	Rounds	Tons
2	.30 cal Carbine	20,820	0.34			12,480	0.21			11,580	0.19			3,600	0.06		
3	.30 cal MG—Rifle	476,000	18.33			267,000	11.08			450,000	17.33			6,000	0.23		
4	.45 cal pistol & SMG	27,690	0.76			56,830	1.56			103,950	2.86			5,450	0.15		
5	.50 cal MG	119,000	22.02			104,400	19.31			43,500	8.05			2,000	0.37		
6	2" mortar, M3					885	1.11							45	0.06		
7	2.36" launcher, rocket	60	0.19			162	0.52			160	0.51			48	0.15		
8	75-mm howitzer, SP					900	9.90			22,500	247.50						
9	75-mm gun, Tk					5,900	70.80							300	3.60		
10	81-mm mortar					800	5.00										
11	Total		41.64				119.49				276.44				4.62		

[1] For Tank Bn, separate, see Par 329.
[2] Data not available.

■ 338. GENERAL—CAVALRY RECONNAISSANCE SQUADRON MECHANIZED:

a. Methods of Supply.—The methods of supply used by the cavalry squadrons, mechanized, are based upon the characteristics and missions of cavalry which require the squadrons to operate over broad fronts at a considerable distance from a supply point, and which require great mobility. The following methods or combinations of methods are used:

(1) *When Army supply points are within normal operating radius of squadron trains.*—By drawing supplies from army supply points using squadron or troop transportation.

(2) *When army supply points are beyond normal operating radius of the squadron trains.*—Two methods are available in this case. They are:

(a) Establishment of advanced supply points (all classes of supply) by army.

(b) Attachment by the army of sufficient cargo transportation to insure supply in special operations, the duration of which will be several days, in order to make the squadrons self sustaining for that period of time.

(3) *Special methods:*—In special cases supply may be effected by air transport, either to landing fields in possession of the unit, or by dropping in a marked area.

b. Basic doctrine:—Any method of effecting supply of the cavalry squadrons should recognize the following basic doctrines:

(1) Supplies must be placed within reach of the squadron trains.

(2) Supplies should be kept mobile.

(3) The transportation available to the squadrons and units of the squadrons will provide one day's supply only of Class III and V.

(4) The method of supply adopted must be flexible to meet unexpected situations.

■ 339. GAS AND OIL SUPPLY DATA—CAVALRY RECONNAISSANCE SQUADRON, MECHANIZED: [1] [2]

1	1	2	3	4	5	6	7	8	9	10	11
	Unit	Fuel and Lubricant Requirements—Motor Vehicles									
		Type Motor Vehicles									Total vehicle strength
		Truck ¼-ton	Truck ¾-ton	Truck 2½-ton	Truck Hv wrecker M1A1	Tank light	Car Armd light M8	Car Half-track	Carriage motor 75-mm How	Truck Recovery M32	
2	Hq & Hq & Serv Tr	10		13	1		4	5		1	34
3	3 Rcn Tr (ea)	23		1			12	4			40
4	Assault Gun Tr	2		1				8	6	1	18
5	L Tk Co	2		1		17		1		1	22
6	Atchd Med	4	2								6
7	Cav Sq, Mecz	87	2	18	1	17	40	26	6	3	200

1	1	12	13	14	15	16	17	18	19	20	21	22
	Unit	Fuel and Lubricant Requirements—Motor Vehicles				Gasoline Capacity			Fuel Can Data			
		Consumption in moving unit 100 miles [3]				Gallons fuel to fill tanks and cans		Total	Organic Fuel Cans [3]			Organic Kitchens [4]
		Vehicle fuel (Gal)	Engine oil (Gal)	Gear lube (Lbs)	Grease miscellaneous (Lbs)	Vehicle Tanks	Cans 5-gallon (all)		Ki & Misc	Motor Vehicles	Total	
2	Hq & Hq & Serv Tr	593	33.9	22.3	18.4	1,481	3,325	4,806	627	38	665	1
3	3 Rcn Tr (ea)	409	27.6	15.5	20.5	1,333	490	1,823	1	97	98	1
4	Assault Gun Tr	791	20.8	6.9	21.7	1,259	25	1,284	1	4	5	1
5	L Tk Co	1,392	101.5	2.0	29.8	2,260	25	2,285	1	4	5	1
6	Atchd Med	45	1.4	2.0	1.2	120	25	145		5	5	
7	Cav Sq, Mecz	4,048	240.4	77.7	132.6	9,119	4,870	13,989	632	342	974	6

[1] Not applicable to Cav Sq, Mecz in Armd Div.
[2] In computing gasoline requirements, add 10% safety factor.
[3] Per Tables of Equipment.
[4] Average daily gasoline consumption (net) is 15 gallons per kitchen.[2]

■ 340. AMMUNITION SUPPLY DATA—CAVALRY RECONNAISSANCE SQUADRON, MECHANIZED: [1]

1	1	2	3	4	5	6
	Type of ammunition	*Unit of fire*		*Prescribed Load*		
		Rounds	*Tons*	*Rounds*	*Tons*	*Units of fire*
2	.30 caliber, carbine	26,040	0.43	71,090	1.17	2.73
3	.30 caliber, machine gun and rifle	257,350	10.68	259,924	10.79	1.01
4	.45 caliber, submachine gun and pistol	40,430	1.11	35,983	0.99	0.89
5	.50 caliber, machine gun	24,000	4.44	25,200	4.66	1.05
6	37-mm gun	4,000	10.00	3,480	8.70	0.87
7	60-mm mortar	2,700	6.08	648	1.46	0.24
8	75-mm gun, Tk	1,700	20.40	816	9.79	0.48
9	75-mm howitzer	1,800	19.80	828	9.11	0.46
10	81-mm mortar	300	1.88	240	1.50	0.80
11	2.36" rocket	186	0.60	562	1.79	3.02
12	TOTAL		75.42		49.96	

[1] Not applicable to Cav Sq, Mecz in Armd Div.

■ 341. PRESCRIBED LOADS SQUADRON TRAIN, CAVALRY RECONNAISSANCE SQUADRON, MECHANIZED: [1]

	Truck, 2½-ton	*Trailer, 1-ton*	*Tons*
a. Cargo capacity (tons)	9	9	31.5
b. Items of prescribed loads:			
(1) Ration and Supplies	2	2	7.00
(2) Gasoline and oil	4	4	14.00
(3) Ammunition	2	2	7.00
(4) Water	1	1	3.50
c. TOTAL PRESCRIBED LOADS			31.50

[1] Not applicable to Cav Sq, Mecz in Armd Div.

342. Gasoline and Oil Supply Data—Chemical Mortar Battalion: [1]

1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Unit	Fuel and Lubricant Requirements—Motor Vehicles									Gasoline Capacity			Fuel Can Data			
		Type Motor Vehicles				Total Vehicle Strength	Consumption in moving unit 100 miles [2]				Gallons fuel to fill tanks			Organic fuel cans [3]			Organic Kitchens (3)
		Truck ¼-ton	Truck ¾-ton	Truck 1½-ton	Truck 2½-ton		Vehicle fuel (gallons)	Engine oil (gallons)	Gear lube (pounds)	Grease misc (pounds)	Vehicle tanks	Cans 5-gal (all)	Total	Ki & Misc	Motor vehicles	Total	
2	Hq & Hq Co	7	4		14	25	138	11	16	6	785	250	1,035	1	49	50	1
3	3 Mortar Cos (ea)	32	2	3	1	38	232	10	10	8	670	225	895	1	44	45	1
4	Bn (Total)	103	10	9	17	139	834	41	46	30	2,795	925	3,720	4	181	185	4

[1] In computing gasoline requirements, add a 10% safety factor.
[2] Per Tables of Equipment.
[3] Average daily consumption (net) is 15 gallons per kitchen. [1]

■ 343. AMMUNITION SUPPLY DATA—CHEMICAL MORTAR BATTALION:

a. Unit of fire and prescribed load:

	1	2	3	4	5	6
1	*Type of ammunition*	*Unit of fire*		*Prescribed Load*		
		Rounds	*Tons*	*Rounds*	*Tons*	*Units of fire*
2	.30 caliber, carbine	30,660	0.51	51,100	0.84	1.67
3	.30 caliber, rifle	6,300	0.27	6,300	0.27	1.00
4	.45 caliber, pistol	30	0.00	63	0.00	2.10
5	.50 caliber, machine gun	6,000	1.11	9,000	1.67	1.50
6	2.36" rocket	120	0.38	120	0.38	1.00
7	4.2" chemical mortar [1]	2,160	35.10	2,568	41.73	1.19
8	TOTAL		37.37		44.89	

[1] Type of Am (gas, smoke, or HE) prescribed to fit anticipated action.

b. Prescribed load of 4.2 ammunition will be 2,568 rounds. Breakdown of loading plan is as follows:

4–2½-ton Trks in Bn Am Sec @ 150 rds each	600 rds
4–1-ton Tlrs in Bn Am Sec @ 60 rds each	240 rds
36–¼-ton Trks & Tlrs (Mortars) @ 8 rds each	288 rds
36–¼-ton Trks & Tlrs (Am) @ 20 rds each	720 rds
9–1½-ton Trks (3 per Co)[1] @ 80 rds each	720 rds
TOTAL PRESCRIBED LOAD	2,568 rds

[1] It is contemplated that the 1-ton trailers in the platoon will be used for transporting platoon equipment.

c. Resupply Capacity:

4–2½-ton Trks in Bn Am Sec @ 150 rds each	600 rds
4–1-ton Tlrs in Bn Am Sec @ 60 rds each	240 rds
36–¼-ton Trks & Tlrs in Co Am Sec @ 20 rds each	720 rds
9–1½-ton Trks in Plat Am Sec @ 80 rds each	720 rds
TOTAL RESUPPLY CAPACITY	2,280 rds

344. GAS AND OIL SUPPLY DATA—SEPARATE FIELD ARTILLERY UNITS:[124]

1	1	2	3	4	5	6	7	8	9	10	11	12	13
		Fuel and Lubricant Requirements—Motor Vehicles											
		Type Motor Vehicles											
	Unit	*Truck ¼-ton*	*Truck ¾-ton*	*Truck 2½-ton*	*Truck 4 ton*	*Truck 7½-ton*	*Truck Hv wrecker M1A1*	*Tractor Medium*	*Carrier Cargo M30*	*Carriage Motor 155-mm How M12*	*Airplane liaison*	*Crane Trk Mtd M2*	*Total Vehicle Strength*
2	Hq & Hq Btry, Mts, FA Brig	3	10	6									19
3	Hq & Hq Btry, FA Gp	6	9	4							2		21
4	FA Obsn Bn	22	40	28									90
5	Hq & Hq Btry Obsn Bn	(6)	(14)	(8)									(28)
6	2 Obsn Btrys, (ea)	(8)	(13)	(10)									(31)
7	FA Bn, Mts, 105-mm How Trk Dr, (Non Divisional)	18	27	37							2		92
8	Hq & Hq Btry	(7)	(12)	(13)							(2)		(38)
9	3 105-mm How Btrys (ea)	(3)	(4)	(7)									(15)
10	Serv Btry	(2)	(3)	(3)									(8)
11	FA Bn, Mts, 105-mm, How, Tr-Dr	17	27	22				18			2		86
12	Hq & Hq Btry	(6)	(12)	(13)							(2)		(23)
13	3 105-mm How Btrys, (ea)	(3)	(4)	(2)				(6)					(15)
14	Serv Btry	(2)	(3)	(13)									(18)
15	FA Bn, Mts, 155-mm How (or 4.5" Gun) Tr-Dr	18	27	22	1			18			2		88
16	Hq & Hq Btry	(7)	(12)	(3)							(2)		(24)
17	3 155-mm How (or 4.5" Gun) Btrys (ea)	(3)	(4)	(2)				(6)					(15)
18	Serv Btry	(2)	(3)	(13)	(1)								(19)
19	FA Bn, Mts, 155-mm Gun, Trk Dr	12	32	13		18	1				2		79
20	Hq & Hq Btry	(5)	(12)	(3)							(2)		(23)
21	3 155-mm Gun Btrys (ea)	(2)	(6)	(2)		(6)							(16)
22	Serv Btry	(1)	(2)	(4)			(1)						(8)
23	FA Bn, Mts, 155-mm Gun, Tr-Dr	13	32	13			1	18			2		79
24	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
25	3 155-mm Gun Btrys (ea)	(2)	(6)	(2)				(6)					(16)
26	Serv Btry	(1)	(2)	(4)			(1)						(8)
27	FA Bn, Mts, 155-mm Gun, SP	13	32	19			1		12	12	2		91
28	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
29	3 155-mm Gun Btrys (ea)	(2)	(6)	(4)					(4)	(4)			(20)
30	Serv Btry	(1)	(2)	(4)			(1)						(8)
31	FA Bn, Mts, 8" How, Trk Dr	13	32	13		18	1				2		79
32	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
33	3 8" How Btrys (ea)	(2)	(6)	(2)		(6)							(16)
34	Serv Btry	(1)	(2)	(4)			(1)						(8)
35	FA Bn, Mts, 8" How, Tr-Dr	13	32	16			1	18			2		82
36	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
37	3 8" How Btrys (ea)	(2)	(6)	(3)				(6)					(17)
38	Serv Btry	(1)	(2)	(4)			(1)						(8)
39	FA Bn, Mts, 240-mm How, Trk Dr	13	32	13		18	1				2	3	82
40	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
41	3 240-mm How Btrys (ea)	(2)	(6)	(2)		(6)						(1)	(17)
42	Serv Btry	(1)	(2)	(4)			(1)						(8)
43	FA Bn, Mts, 240-mm How, M1918, or 8" Gun, Tr-Dr	13	32	13			1	[5]18			2	3	82
44	Hq & Hq Btry	(6)	(12)	(3)							(2)		(23)
45	3 Btrys (ea)	(2)	(6)	(2)				(6)				(1)	(17)
46	Serv Btry	(1)	(2)	(4)			(1)						(8)

GAS AND OIL SUPPLY DATA—SEPARATE FIELD ARTILLERY UNITS [1] [2] [4] (Continued):

1	14	15	16	17	18	19	20	21	22	23	24
					Gasoline Capacity			Fuel Can Data			
	Consumption in moving unit 100 miles [3]				Gallons fuel to fill tanks			Organic fuel cans			Organic Kitchens (*)
	Vehicle fuel (gallons)	Engine oil (gallons)	Gear lube (pounds)	Grease, mixed lanceus (pounds)	Vehicle tanks	Cans 5-gallon	Total	Ki & Misc	Motor Vehicles	Total	
2	220	7.2	12.0	4.4	585	220	805	1	43	44	1
3	207	6.3	10.2	4.2	520	205	725	1	40	41	1
4	983	31.7	50.6	19.8	2,620	805	3,425	3	158	161	3
5	(311)	(9.9)	(16.2)	(6.2)	(800)	(255)	(1,055)	(1)	(50)	(51)	(1)
6	(336)	(11.5)	(18.4)	(7.2)	(910)	(275)	(1,185)	(1)	(54)	(55)	(1)
7	930	33.9	(52.9)	20.1	2,410	775	3,185	11	144	155	5
8	(369)	(12.8)	(20.3)	(7.7)	(480)	(225)	(705)	(7)	(38)	(45)	(1)
9	(158)	(6.0)	(9.3)	(3.5)	(430)	(125)	(555)	(1)	(24)	(25)	(1)
10	(87)	(3.1)	(4.7)	(1.9)	(640)	(175)	(815)	(1)	(34)	(35)	(1)
11	1,627	206.3	35.6	15.0	4,180	845	5,025	11	158	169	5
12	(231)	(6.4)	(7.3)	(4.1)	(555)	(250)	(805)	(7)	(43)	(50)	(1)
13	(392)	(63.6)	(4.2)	(2.0)	(995)	(140)	(1,135)	(1)	(27)	(28)	(1)
14	(220)	(9.1)	(13.9)	(4.9)	(640)	(175)	(815)	(1)	(34)	(35)	(1)
15	1,665	207.2	36.5	23.2	4,255	830	5,085	5	161	166	
16	(236)	(6.6)	(7.5)	(4.3)	(570)	(225)	(795)	(1)	(44)	(45)	(1)
17	(392)	(63.6)	(4.3)	(4.5)	(995)	(140)	(1,135)	(1)	(27)	(28)	(1)
18	(253)	(9.8)	(14.6)	(5.4)	(700)	(195)	(895)	(1)	(36)	(37)	(1)
19	1,410	38.0	48.4	20.4	4,280	765	5,045	5	148	153	5
20	(231)	(6.8)	(10.9)	(0.7)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
21	(352)	(8.8)	(10.6)	(5.8)	(1,130)	(155)	(1,285)	(1)	(30)	(31)	(1)
22	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
23	1,590	203.6	34.0	13.2	3,380	515	3,895	5	98	103	5
24	(231)	(6.8)	(10.9)	(4.3)	(555)	(130)	(685)	(1)	(25)	(26)	(1)
25	(412)	(64.0)	(5.8)	(2.2)	(830)	(105)	(935)	(1)	(20)	(21)	(1)
26	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
27	3,603	289.4	39.4	73.6	6,800	645	7,445	5	124	129	5
28	(231)	(6.8)	(10.9)	(4.3)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
29	(1,083)	(92.6)	(7.6)	22.0	(1,970)	(115)	(2,085)	(1)	(22)	(23)	(1)
30	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
31	1,410	38.0	48.4	24.0	4,640	765	5,405	5	148	153	5
32	(231)	(6.8)	(10.9)	(4.3)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
33	(352)	(8.8)	(10.6)	(5.8)	(1,250)	(155)	(1,405)	(1)	(30)	(31)	(1)
34	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
35	1,629	205.4	36.7	14.1	3,500	795	4,295	5	154	159	5
36	(231)	(6.8)	(10.9)	(4.3)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
37	(425)	(64.6)	(6.7)	(2.5)	(870)	(165)	(1,035)	(1)	(32)	(33)	(1)
38	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
39	1,611	44.3	54.7	30.3	4,760	795	5,555	5	154	159	5
40	(231)	(6.8)	(10.9)	(4.3)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
41	(419)	(10.9)	(12.7)	(7.9)	(1,290)	(165)	(1,455)	(1)	(32)	(33)	(1)
42	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)
43	1,791	71.3	72.7	30.3	7,280	795	8,075	5	154	159	5
44	(231)	(6.8)	(10.9)	(4.3)	(555)	(220)	(775)	(1)	(43)	(44)	(1)
45	(479)	(19.9)	(18.7)	(7.9)	(2,130)	(165)	(2,295)	(1)	(32)	(33)	(1)
46	(123)	(4.8)	(5.7)	(2.3)	(335)	(80)	(415)	(1)	(15)	(16)	(1)

[1] Data not available for miscellaneous small fuel consuming devices.
[2] In computing gasoline requirements, add a 10% safety factor.
[3] Average daily gasoline consumption (net) is 15 gallons per kitchen. [3]
[4] Includes Atchd Med.
[5] Tractor, heavy.

■ 345. AMMUNITION SUPPLY DATA—SEPARATE FIELD ARTILLERY UNITS:

a. Unit of Fire and Prescribed Loads:

1	1	2	3	4	5	6
	Type of ammunition	Unit of Fire		Prescribed Load		
		Rounds	Tons	Rounds	Tons	Units of fire
		FA BN 75-mm HOW, PACK				
2	.30 cal carbine	23,160	0.38	23,160	0.38	1.00
3	.30 cal rifle, (BAR)	11,250	0.42	11,250	0.42	1.00
4	.45 cal pistol	560	0.02	1,176	0.03	2.10
5	75-mm, howitzer, pack	3,600	39.60	756	8.32	0.21
6	TOTAL		40.02		9.15	
		FA BN 105-mm HOW TRACTOR DRAWN				
7	.30 cal carbine	24,720	0.41	43,330	0.71	1.75
8	.45 cal pistol	670	0.02	1,407	0.04	2.10
9	.50 cal machine gun	10,500	1.94	15,750	2.91	1.50
10	2.36" rocket	240	0.77	240	0.77	1.00
11	105-mm howitzer	2,400	58.80	2,354	57.67	0.98
12	TOTAL		61.94		62.10	
		FA BN 155-mm HOW TRACTOR DRAWN				
13	.30 cal carbine	26,100	0.43	45,900	0.76	1.76
14	.45 cal pistol	680	0.02	1,428	0.04	2.10
15	.50 cal machine gun	10,500	1.94	15,750	2.91	1.50
16	2.36" rocket	240	0.77	240	0.77	1.00
17	155-mm howitzer, M1	1,800	103.50	1,050	60.38	0.58
18	TOTAL		106.60		64.86	
		FA BN 155-mm GUN TRUCK DRAWN				
19	.30 cal carbine	27,780	0.46	48,700	0.80	1.75
20	.45 cal pistol	580	0.02	1,218	0.03	2.10
21	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
22	2.36" rocket	204	0.65	204	0.65	1.00
23	155-mm gun	1,200	82.20	1,200	82.20	1.00
24	TOTAL		85.09		86.32	
		FA BN 155-mm GUN TRACTOR DRAWN				
25	.30 cal carbine	28,080	0.46	48,900	0.81	1.74
26	.45 cal pistol	610	0.02	1,281	0.03	2.10
27	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
28	2.36" rocket	204	0.65	204	0.65	1.00
29	155-mm gun	1,200	82.20	870	59.59	0.73
30	TOTAL		85.09		63.72	

AMMUNITION SUPPLY DATA—FIELD ARTILLERY UNITS:
Unit of Fire and Prescribed Loads: (Continued)

1	1 Type of ammunition	2 Unit of Fire: Rounds	3 Unit of Fire: Tons	4 Prescribed Load: Rounds	5 Prescribed Load: Tons	6 Prescribed Load: Units of fire
		FA BN 155-mm GUN SELF-PROPELLED				
31	.30 cal carbine	24,900	0.41	43,300	0.71	1.74
32	.45 cal pistol	610	0.02	1,281	0.03	2.10
33	.50 cal machine gun	15,500	2.87	23,250	4.30	1.50
34	2.36" rocket	204	0.65	205	0.69	1.00
35	155-mm gun	1,200	82.20	924	63.29	0.77
36	TOTAL		86.15		69.02	
		FA BN 8-inch HOW TRUCK DRAWN				
37	.30 cal carbine	29,220	0.48	50,800	0.84	1.74
38	.45 cal pistol	610	0.02	1,281	0.03	2.10
39	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
40	2.36" rocket	204	0.65	204	0.65	1.00
41	8" howitzer	720	84.96	750	88.50	1.04
42	TOTAL		87.87		92.66	
		FA BN 8-inch HOW TRACTOR DRAWN				
43	.30 cal carbine	29,700	0.49	51,600	0.85	1.74
44	.45 cal pistol	610	0.02	1,281	0.03	2.10
45	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
46	2.36" rocket	204	0.65	204	0.65	1.00
47	8" howitzer	720	84.96	510	60.18	0.71
48	TOTAL		87.88		64.35	
		FA BN, 8-inch GUN, TRACTOR DRAWN				
49	.30 cal carbine	24,840	0.41	41,200	0.68	1.66
50	.45 cal pistol	610	0.02	1,281	0.03	2.10
51	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
52	2.36" rocket	168	0.54	168	0.54	1.00
53	8-inch gun	720	138.96	300	57.90	0.42
54	TOTAL		141.69		61.79	
		FA BN 240-mm HOW TRUCK DRAWN				
55	.30 cal carbine	23,460	0.39	41,200	0.68	1.76
56	.45 cal pistol	610	0.02	1,281	0.03	2.10
57	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
58	2.36" rocket	168	0.54	168	0.54	1.00
59	240-mm howitzer	360	83.70	300	69.75	0.83
60	TOTAL		86.41		73.64	

[1] Unit of fire not published.

AMMUNITION SUPPLY DATA—FIELD ARTILLERY UNITS:
Unit of Fire and Prescribed Loads (Continued):

1	1 Type of Ammunition	2 Unit of Fire Rounds	3 Unit of Fire Tons	4 Prescribed Load Rounds	5 Prescribed Load Tons	6 Prescribed Load Units of fire
		FA BN 240-mm HOW TRACTOR DRAWN				
61	.30 cal carbine	24,840	0.41	41,200	0.68	1.66
62	.45 cal pistol	610	0.02	1,281	0.03	2.10
63	.50 cal machine gun	9,500	1.76	14,250	2.64	1.50
64	2.36" rocket	168	0.54	168	0.54	1.00
65	240-mm howitzer	360	83.70	300	69.75	0.83
66	TOTAL		86.43		73.64	

b. Resupply capacity of organic ammunition vehicles in tons: [1] [3]

1	1 Unit	2 Pk Mules	3 Carrier Cargo	4 Truck 2½-ton	5 Truck 7½-ton	6 Tractor Medium M4	7 Tractor Medium M5	8 Tractor Heavy M6	9 Trailer 1-ton Am M10	10 Trailer Am 8-ton	11 Capacity (Tons)
	FA BN, 75-mm HOW PK										
2	How Btry Am Secs (all)	48									4.8
3	Hq & Serv Btry Am Tn	36									3.6
4	TOTAL BN	84									8.4
	FA BN, 105-mm HOW, TRACTOR DRAWN										
5	How Btry Am Secs (all)						6				8.2
6	Serv Btry Am Tn			9					9		31.5
7	TOTAL BN			9			6		9		39.7
	FA BN, 155-mm GUN, TRUCK DRAWN										
8	Gun Btry Am Secs (all)				6					6	93.0
9	TOTAL BN				6					6	93.0
	FA BN, 155-mm GUN, TRACTOR DRAWN										
10	Gun Btry Am Secs (all)					6				6	60.3
11	TOTAL BN					6				6	60.3

AMMUNITION SUPPLY DATA—FIELD ARTILLERY UNITS:

b. Resupply capacity of organic ammunition vehicles in tons [1] [3] (Continued):

	1	2	3	4	5	6	7	8	9	10	11
1	Unit	Pk Mules	Carrier Cargo	Truck 2½-ton	Truck 7½-ton	Tractor Medium M4	Tractor Medium M6	Tractor Heavy M6	Trailer 1-ton Am M10	Trailer Am 8-ton	Capacity (Tons)
12	FA BN, 155-mm GUN, SELF-PROPELLED Gun Btry Am Secs (all)		[2](12)	6					6		15.0
13	TOTAL BN			6					6		15.0
14	FA BN, 8-inch HOW, TRUCK DRAWN How Btry Am Secs (all)				6					6	93.0
15	TOTAL BN				6					6	93.0
16	FA BN, 8-inch HOW, TRACTOR DRAWN How Btry Am Secs (all)			3		6			3	6	72.7
17	TOTAL BN			3		6			3	6	72.7
18	FA BN, 240-mm HOW, TRUCK DRAWN How Btry Am Secs (all)				6					6	93.0
19	TOTAL BN				6					6	93.0
20	FA BN, 240-mm HOW, TRACTOR DRAWN FA BN, 8-inch GUN, TRACTOR DRAWN Gun or How Btry Am Secs (all)			3				6	3	6	72.7
21	TOTAL BN			3				6	3	6	72.7

[1] Prime movers not included since they are not normally used for resupply.

[2] Accompanies the 155-mm SP gun and carries 155-mm Am—but is not a part of the Btry Am Sec.

[3] For FA Bn, 105-mm How, truck-drawn, and FA Bn 155-mm How tractor-drawn. See Par 334.

346. Gas and Oil Supply Data—Tank Destroyer Units:[1]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	Fuel and Lubricant Requirements—Motor Vehicles															Gasoline Capacity			Fuel Can Data			
	Type Motor Vehicles											Consumption in moving unit 100 miles[1]				Gallons fuel to fill tanks			Organic Fuel Cans			
Unit	Truck ¼-ton	Truck ¾-ton	Truck 1½-ton	Truck 2½-ton	Hv Wrecker M-1 A-1	Car Armd L M-8	Car Armd Utility M-20	Vehicle Arm'd Util. T-41	Carriage 76-mm gun M-18	Vehicle Tank recovery M-32	Total Vehicle Strength	Vehicle fuel (gallons)	Engine oil (gallons)	Gear lube (pounds)	Grease, miscellaneous (pounds)	Vehicle tanks	Cans 5-gallon (all)	Total	Ki & Misc	Motor Vehicles	Total	Organic Ki (2)
2 Hq & Hq Co TD Gp	7	2	1	1			5[3]				16	204	6.6	4.0	3.9	310	80	390	1	15	16	1
3 TD Bn (SP)	48	7	6	21	1	6	30		36	3	158	5,199	595.8	59.2	59.2	10,909	3,440	14,349	556	132	688	(5)
4 Hq & Hq Co, TD Bn (SP)	(12)	(6)	(2)	(18)	(1)		(3)				(42)	(480)	(2.1)	(25.6)	(12.8)	(1,408)	(3,075)	(4,483)	(548)	(67)	(615)	(1)
5 3 TD Cos (SP (ea)	(6)			(1)			(8)		(12)	(1)	(28)	(1,483)	(184.5	(6.8)	(23.6)	(2,853)	(80)	(2,933)	(1)	(15)	(16)	(1)
6 Rcn Co, TD Bn (SP)	(18)	(1)	(4)			(6)	(3)				(32)	(270)	(20.0)	(13.0)	(13.0)	(942)	(125)	(1,067)	(5)	(20)	(25)	(1)
7 TD Bn (Towed)	67	6	11	17	1	4	10	36			152	4,594	449.5	49.0	121.4	8,851	3,420	12,271	545[4]	139	684	5
8 Hq & Hq Co, TD Bn (Towed)	(22)	(6)	(2)	(14)[4]	(1)	(4)	(4)				(53)	(544)	(29.2)	(28.0)	(17.9)	(1,690)	(3,060)	(4,750)	(542)	(70)	(612)	(2)
9 3 TD Co (Towed) (ea)	(15)		(3)	(1)			(2)	(12)			(33)	(1,350)	(140.1)	(7.0)	(34.5)	(2,387)	(120)	(2,507)	(1)	(23)	(24)	(1)

[1]In computing gasoline requirements, add a 10% safety factor.
[2]Average daily consumption (net) is 15 gallons per kitchen.[1]
[3]Includes 3 Command Half Tracks M3A2.
[4]Includes 540 cans carrried in 3 2½-ton Trks and 1-ton Tlrs Atchd by Theater.

347. Ammunition Supply Data—Tank Destroyer Units:

	1	2	3	4	5	6
1	Type of ammunition	Unit of fire		Prescribed load		
		Rounds	Tons	Rounds	Tons	Units of Fire
		TD BATTALION (SP)				
2	.30 caliber, carbine	17,580	0.29	83,930	1.38	4.77
3	.30 caliber, MG and rifle	110,400	4.58	141,312	5.86	1.28
4	.45 caliber, pistol	790	0.02	1,638	0.04	2.07
5	.50 caliber, machine gun	40,000	7.40	107,700	19.92	2.69
6	37-mm gun, AT	600	1.50	600	1.50	1.00
7	2.36" rocket	372	1.19	1,240	3.97	3.33
8	76-mm gun, AT	2,700	36.15	2,844	41.24	1.05
9	81-mm Mortar, M1	300	1.88	90	0.56	0.30
10	Grenade, rifle, AT	252	0.38	207	0.31	0.82
11	Pyrotechnics	450	0.20	810	0.35	1.80
12	Signals, ground	150	0.10	540	0.35	3.60
13	Total		53.69		75.48	
		TD BATTALION (TOWED)				
14	.30 caliber, carbine	21,600	0.36	100,500	1.66	4.65
15	.30 caliber, MG and rifle	120,750	5.01	191,990	7.97	1.59
16	.45 caliber, pistol and SMG	59,630	1.64	144,303	3.97	2.42
17	.50 caliber, machine gun	26,500	4.90	100,700	18.63	3.80
18	37-mm gun, AT	400	1.00	400	1.00	1.00
19	2.36" rocket	426	1.36	1,410	4.51	3.31
20	3" gun, AT	2,700	52.65	2,440	47.58	0.90
21	Grenade, rifle, AT	702	1.05	106	0.16	0.15
22	Pyrotechnics	360	0.15	1,296	0.56	3.60
23	Signals, ground	170	0.07	612	0.26	3.60
24	Total		68.19		86.30	

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Chapter 4

EVACUATION, REPLACEMENTS, AND PRISONERS OF WAR

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EVACUATION, REPLACEMENTS, AND PRISONERS OF WAR

SECTION I

EVACUATION

■ **401. ESTIMATE OF PATIENTS—GENERAL.**—*a. Classification.*—For medical planning purposes casualties are classified as follows:

(1) *By nature of disability, non-battle casualties* into *the sick* and *the injured,* and *battle casualties* into *the wounded, the gassed,* and *the killed in action.*

(2) *By severity of disability,* into *walking* and *litter* patients.

(3) *By suitability for evacuation,* into *transportable* and *nontransportable.*

(4) *By type of accommodations required for evacuation,* into *recumbent* and *sitting.*

b. Non-battle casualties.—(1) For most purposes here discussed and as a practical matter only those casualties which require hospitalization and those which are excused from the performance of military duty for 24 hours or longer need be considered. Such casualties from sickness and non-battle injuries among front-line troops of a seasoned command in campaign, except in a particularly unhealthful region, may be expected to produce a daily admission rate of about three tenths of one percent (0.3%). This *average* rate can be expected at certain seasons of the year, *without epidemics,* to reach five tenths percent (0.5%) or even more. As a rough rule of thumb about *one-third* of such non-battle casualties may be expected to remain under treatment in their own organization (at aid stations) or in division clearing stations *if there is no interference with the primary mission of reception, treatment and evacuation of battle casualties.* About two thirds of the sick and non-battle injuries may be evacuated from the division area. It should be borne in mind, however, that the aid stations and division clearing stations will be called upon to treat not only the non-battle casualties who are not evacuated, (including those not requiring hospitalization and not excused from performance of military duty for 24 hours or longer) but also the non-battle casualties in process of evacuation.

(2) The daily admission rate to hospitals, from sickness and non-battle injuries, for an entire field force made up of seasoned troops and serving in a temperate climate may on the basis of the experience of the AEF in World War I be estimated at 0.165 percent. (Based on entire force under very favorable conditions.) In World War II approximately the same rates are noted.

This daily admission rate would correspond to an admission rate to hospitals and quarters (excused from performance of military duty for 24

CASUALTY ESTIMATES (Continued):

hours or longer) of about three tenths of one percent (0.3%) and after some months would result in a constant non-effective rate of about 4.5 percent. For unseasoned troops, in the same climatic conditions, the non-effective rate might reach 6 percent and would be even higher under unfavorable conditions of climate and location.

(3) On the basis of the experience in World War II to date, it may be expected that of the total sick and non-battle injuries admitted to hospital in the theater of operations about .2 percent will die, about 6 percent will be invalided home, of whom some will be returned to duty in the Zone of the Interior with the result that over 95 percent of all hospital admissions will eventually return to duty. The average stay in hospital has been about 24 days, but the cases disposed of in the theater averaged only 19 days hospital stay. (In World War I the average stay was 27 days).

c. Battle Casualties.—(1) The following table has been developed from American experience in active operations of World War I, *which, of course, may not be applicable to the present conflict.*

BATTLE CASUALTIES,
INCLUDING KILLED, IN PER CENT OF THE UNIT STRENGTH

1	*1*	*2*	*3*	*4*
	Unit	*Average for all days in line*	*Severe battle day*	*Maximum battle day*
2	Infantry regiment	2.5 per cent	12–15 per cent	35 per cent
3	Division	1.0 per cent	6–8 per cent	12 per cent
4	Corps	0.5 per cent	2–3 per cent	5 per cent
5	Army	0.35 per cent [1]	0.7–4.5 per cent	2 per cent

[1] As this is for sustained active operations, the average for one or several armies over a long period of time would be less, and may be taken as 0.2 percent.
Statistics for one Infantry Division in Italy and a Corps in NATO agree with lines 3 and 4 above.

(2) In estimating battle casualties in an army, an estimate based on front-line divisions engaged will usually be more accurate than if based on a rate for corps or the army as a whole.

(3) The battle casualties of an entire expeditionary force or theater of operations can best be estimated by using the rates incurred in the component divisions or armies, as the relative proportion of front-line troops to the total force will vary widely in each situation.

(4) The following data relative to battle casualties (based on experience in NATO) represent the results of severe engagements.

(a) In temperate and tropical zones, the ratio of killed to wounded may approximate the following:

Open operations ----------about 1:5
Trench operations ----------about 1:4

In SWPA it was 2.5—about double—due to close combat in jungle operations.

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CASUALTY ESTIMATES (Continued):

In the arctic zone, the ratio of killed to wounded will be considerably higher due to death of the wounded from exposure to cold.

(b) The transportation requirements for battle casualties of a division may be estimated as follows:

	Per cent
Dead	20
Able to walk to the collecting station but requiring transportation (sitting) farther to the rear	40
Require transportation (recumbent)	40
Of all casualties, about 1 per cent are nontransportable beyond the evacuation hospital, except by air.	
TOTAL	100

(c) On the basis of the limited experience in World War II to date, it may be expected that from 3 to 3.5 percent will die, about 20 percent will be invalided home of whom some will be returned to duty in the Zone of the Interior with the result that over 85 percent will eventually return to duty. In World War I about 8 percent of the gunshot wounded died in hospitals. The average stay in hospital of battle casualties in World War II has been about 90 days, but the cases disposed of in the theater averaged only about 57 days. (In World War I the average stay in hospital of the gunshot wounded was nearly 95 days)

Of the wounded in World War II about 3 percent die in hospital and about

19 percent recover in 15 days
13 percent recover in 15-30 days
18 percent recover in 30-60 days
12 percent recover in 60-90 days
25 percent recover after 90 days

and about 10 percent are of no further value.

(d) In World War I, of the gas casualties it was found that approximately:

2 per cent die in hospital.
25 per cent recover in 15 days.
27 per cent recover in from 15 to 30 days.
24 per cent recover in from 30 to 60 days.
16 per cent recover after 60 days.
6 per cent are of no further military value.

The average stay in hospital for gas casualties is 41.8 days.

CASUALTY ESTIMATES (Continued):

(e) Army Casualties in World War II: as of 28 October 1944		
Killed in action (KIA)	84,811	20%
Wounded (WIA)	243,054	
Missing (MIA)	55,011	
Prisoners	54,480	
TOTAL	437,356	100%

■ 402. METHOD OF COMPUTING NUMBER OF BEDS REQUIRED.—*a. General.*—Hospital requirements are usually computed in terms of beds in "fixed" hospitals and not in terms of medical units. All unnumbered hospitals, wherever located, and all numbered field, station and general hospitals are "fixed" hospitals. Evacuation hospitals (of 750 and 400 bed capacity), portable surgical hospitals, convalescent hospitals, and clearing companies on functional employment are non-fixed hospitals.

b. Basic Data appearing below were taken from Army Medical Bulletin No. 24 (*War Casualties*, by Lieut. Colonel Albert G. Love, M.C.) which text is based upon a study of all phases of hospitalization of the personnel of the United States Army during the World War I of 1917-18. For planning, it is accepted as the authoritative text.

c. In a theater of operations.—(1) *Basic decisions.*—Prior to calculating bed requirements in a theater of operations, two basic factors must be determined, and they are:

(a) Definition of an *Evacuation Policy;* and

(b) The *expected daily rates of admission* to hospital per 1,000 troops, for disease and non-battle injuries, gassed casualties and gunshot wounds.

(2) Evacuation Policy—a command decision—is made by the War Department upon the recommendation, or with the concurrence of the Theater Commander concerned. It indicates the length, in days, of the maximum period of non-effectiveness for patients who will be held in the theater for treatment. Patients, who in the opinion of responsible medical officers, cannot be returned to a duty status within the period prescribed, are to be returned to the zone of the interior by the first available and suitable transportation, provided the travel required will not aggravate their disabilities. The periods considered may be 30 days, 60 days, 90 days, 120 days, or 180 days. The minimum of 120 days is regarded as desirable in order to minimize the loss of trained men to the theater. A theater commander who desires a change in the announced evacuation policy submits his recommendations to the War Department with reasons therefore. A 120 day evacuation policy may be generally accepted as a reasonable period in advance planning for fixed hospitalization for any active theater.

METHOD OF COMPUTING NUMBER OF BEDS REQUIRED (Continued):

(3) *Daily admission rates to hospitals in a Theater of Operations.*—In making such an estimate important factors are: climatic conditions, terrain, status of training of our troops, type of combat expected, enemy capabilities, etc. (See A.M. Bull. No. 24 for detailed study.) For example, the British Isles will have a different rate from that of the North African Theater, and the Southwest Pacific Theater will differ in its admission rates from those expected in the Asiatic Theater. The rates prevailing in the AEF 1918, in lieu of something better now available, may be used as the basis for such computations, and they are as follows:

Disease and Non-Battle injuries (D & NBI) ____ 1.65 per 1,000 for Entire Strength, AEF
Gas Casualties (GASSED) __ 0.24 per 1,000 for Entire Strength, AEF
Gun Shot Wounds (GSW) ___ 0.53 per 1,000 for Entire Strength, AEF

d. Bed requirements in the Theater of Operations, per 1,000 troops in T of Opns.—Computations of the total hospital patients to be expected in a theater of operations for ALL THE TROOPS (Combat Troops, SOS Troops in Com Z, and others), under approximately the same conditions as existed for the American Expeditionary Forces in 1918, may be determined through use of the following Table (from Figure 44, page 65, A.M. Bull. No. 24) For SOS troops, 5% of strength may be found to be an adequate number of beds.

TABLE 1

ACCUMULATION OF HOSPITAL PATIENTS — THEATER OF OPERATIONS

(Daily Admission Rates per 1,000 as in AEF 1918)

	1	*2*	*3*	*4*	*5*	*6*	*7*
1	*Cause of admission*	*Daily admission rate per 1,000*	*M+30*	*M+60*	*M+90*	*M+120*	*M+180*
2	Disease and non-battle injuries	1.65	27.69	37.11	41.38	43.35	44.67
3	War gases	0.24	5.34	7.78	8.95	9.51	9.91
4	Gunshot missiles	0.53	14.14	24.03	31.22	36.44	42.97
5		TOTAL	47.17	68.92	81.55	89.30	97.55
6	Increase by 10% for dispersion factors, to provide for unforseen emergencies		4.71	6.90	8.15	8.93	9.75
7		TOTAL	51.88	75.82	89.70	98.23	107.30

NOTE

To obtain beds required, multiply total strength of troops in the Theater of Operations by the rates shown in the totals line, then divide the result by 1000. At M+360 a rate of about 121.77 may have been reached in AEF, plus 10% would give a rate of 133.94 per 1,000.

METHOD OF COMPUTING NUMBER OF BEDS REQUIRED (Continued):

e. Bed requirements in the Zone of the Interior.

(1) Fixed beds are required in the zone of the interior for those troops which did not depart from the theater of operations. When new recruits are being inducted in large numbers morbidity tends to be rather high and beds equal in number to as much as 5 percent of the Z of I strength may be necessary. After the period of training is over beds equal in number to about 4 percent of the Z of I strength may be sufficient.

(2) It is also necessary to compute bed requirements for those cases evacuated from the theater of operations, or which may be evacuated under the approved policy of sending patients home to Z of I hospitals. Such additional beds have recently been estimated on the basis of the expected numbers of evacuees arriving in the United States (disease and non-battle injury and battle casualty cases being separately considered) and the average duration of stay of such cases in Z of I hospitals.

f. Total Bed Requirements.—Station Hospitals in the Communications Zone serve the troops stationed in the communications zone, principally those of the Services of Supply. Bed requirements for this category are determined by using the same formula and Table which appear in paragraph *d* above, based on the strength of the SOS troops (approximately 5%).

General Hospitals and Hospital Centers—directly in the chain of evacuation—serve all other troops in the Theater, especially those disabled during combat operations. These "fixed beds" plus those for the SOS troops of the communications zone will give the total bed requirements for Theater of Operations. When patients are being evacuated to the Zone of the Interior under an announced evacuation policy, the bed requirements of the Theater of Operations may be lessened by the number evacuated.

EXAMPLE—(when all cases that will eventually be returned to duty are retained in the theater of operations):

Strength of Combat Troops	**1,500,000**
Strength of Service of Supply Troops of Com Z	**500,000**
TOTAL STRENGTH (approx)	2,000,000

Solution: Beds required in the T of Opns after 120 days:

Combat Trs—1,500,000×98.23 (per 1,000) = 147,345 General Hospital Beds

For SOS — 500,000×50.00 (per 1,000) = 25,000 Station Hospital Beds

TOTAL FORCE = 172,345 TOTAL BEDS in T of Opns (approximately 8½%)

METHOD OF COMPUTING NUMBER OF BEDS REQUIRED (Continued):

TABLE 2.

ACCUMULATION OF T of OPNS PATIENTS SENT TO Z of I HOSPITALS—120 DAY POLICY

(Evacuated from T of Opns to Z of I, as per Admission Rates in AEF, 1918)

	1	2	3	4	5	6	7	8
1	*Cause of admission*	*Daily admission rate per 1000*	*M+30*	*M+60*	*M+90*	*M+120*	*M+180*	*M+360*
2	Disease and Non-Battle Injuries	1.65	0.52	1.00	1.34	1.51	1.65	1.72
3	War gases	0.24	0.10	0.23	0.35	0.42	0.49	0.53
4	Gunshot Missiles	0.53	0.79	2.44	4.30	6.11	9.01	12.77
5	TOTAL		1.41	3.67	5.99	8.04	11.15	15.02
6	Increase by 10% for dispersion factor, to provide for unforseen emergencies		0.14	0.37	0.60	0.80	1.12	1.50
7	TOTAL		1.55	4.04	6.59	8.84	12.27	16.52

TABLE 3.

ACCUMULATION OF T of OPNS PATIENTS SENT TO Z of I HOSPITALS—180 DAY POLICY

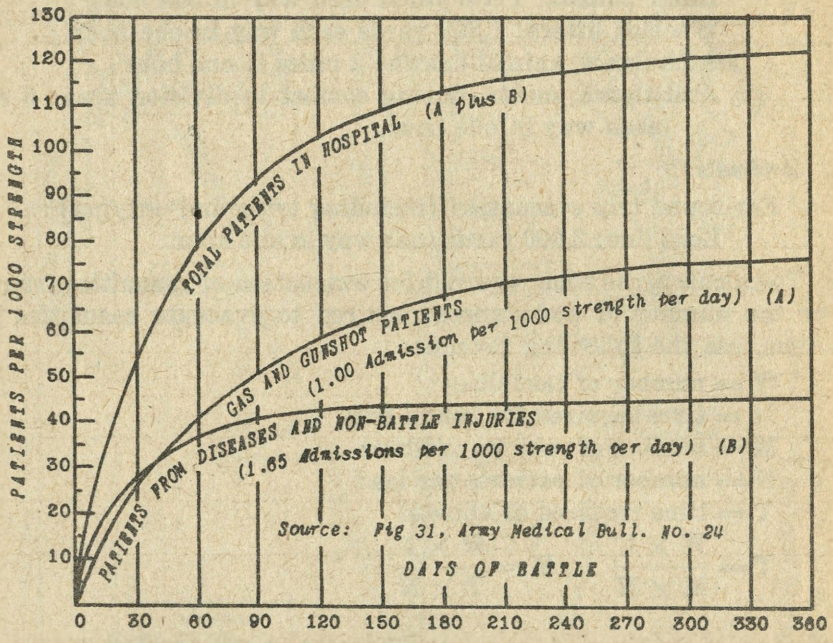
(Evacuated from T of Opns to Z of I, as per Admission Rates in AEF, 1918)

	1	2	3	4	5	6	7	8
1	*Cause of admission*	*Daily admission rate per 1,000*	*M+30*	*M+60*	*M+90*	*M+120*	*M+180*	*M+360*
2	Disease and Non-Battle Injuries	1.65	0.12	0.21	0.28	0.33	0.36	0.36
3	War gases	0.24	0.02	0.05	0.08	0.10	0.11	0.12
4	Gunshot Missles	0.53	0.42	1.30	2.31	3.28	4.83	6.85
5	TOTAL		0.56	1.56	2.67	3.71	5.30	7.33
6	Increase by 10% for dispersion factor, to provide for unforseen emergencies		0.06	0.16	0.27	0.37	0.53	0.73
7	TOTAL		0.62	1.72	2.94	4.08	5.83	8.06

METHOD OF COMPUTING NUMBER OF BEDS REQUIRED (Continued):

GRAPH

DAILY INCREASE OF PATIENTS IN HOSPITALS—ALL CAUSES



■ 403. MAXIMUM CAPACITY OF MEANS OF TRANSPORTATION FOR CASUALTIES:

1	1 Vehicle	2 Men Sitting	3 Men Recumbent	4 Men Average	5 Animals
2	Transport airplane (C-47)	27	18	21	
3	Ambulance, animal-drawn	8	4	6	
4	Ambulance, motor, field	10	4	6	
5	Ambulance, cross-country	6	4	5	
6	Half-Track	4	4	4	
7	Truck, ¼-ton	2	2	2	
8	Truck, ¾-ton		5	5	
9	Truck, 1½-ton	10	10	10	
10	Truck, 2½-ton	16	18	17	
11	Truck, 2½-ton, amphibian	11	6	9	
12	Railway car, coach	88			
13	Pullman car — 12 section	48	24	36	
14	16 section	64	32	48	
15	Hospital train	700	300	500	
	Ambulance, veterinary—				
16	Trailer, 2-horse van				2
17	Truck, 2½-ton, stock rack body				6
18	Stock car				18
19	Box car				18
20	Veterinary lead line				20

■ 404. TIME ELEMENT OF EVACUATION:

a. Personnel:

For round trip evacuation (including loading and unloading):
Litter squads: 1,000 yards each way in one hour
Wheeled litters: 1,250 yards each way in one hour
Ambulance, animal-drawn: 2 miles in one hour
Ambulance, motor, during combat in division area: 5 miles each way in one hour.

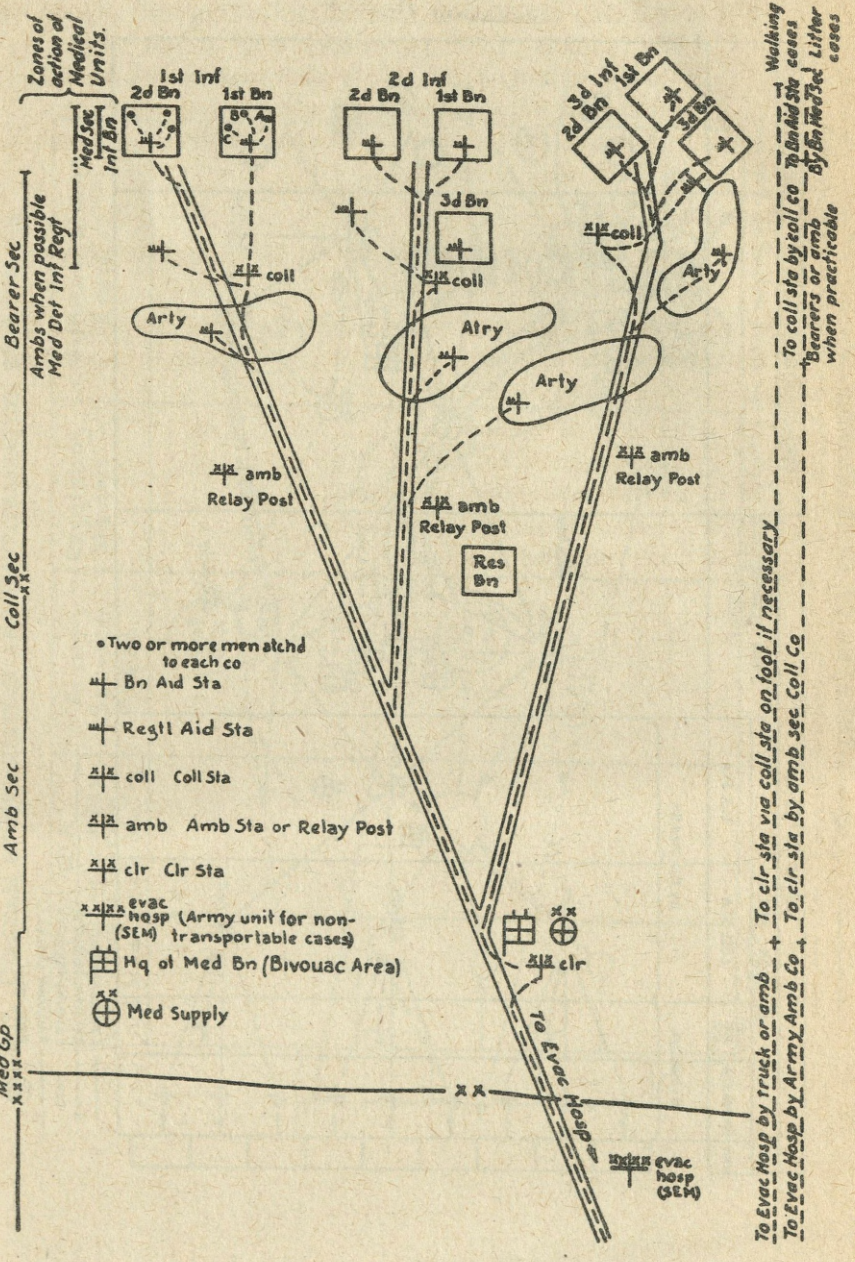
b. Animals:

For round trip evacuation (including tying and untying):
Lead line: 2,000 yards each way in one hour.

c. To calculate the time required for evacuation of casualties from the field, or the number of ambulances required to evacuate casualties in a given time, use the following formulae:

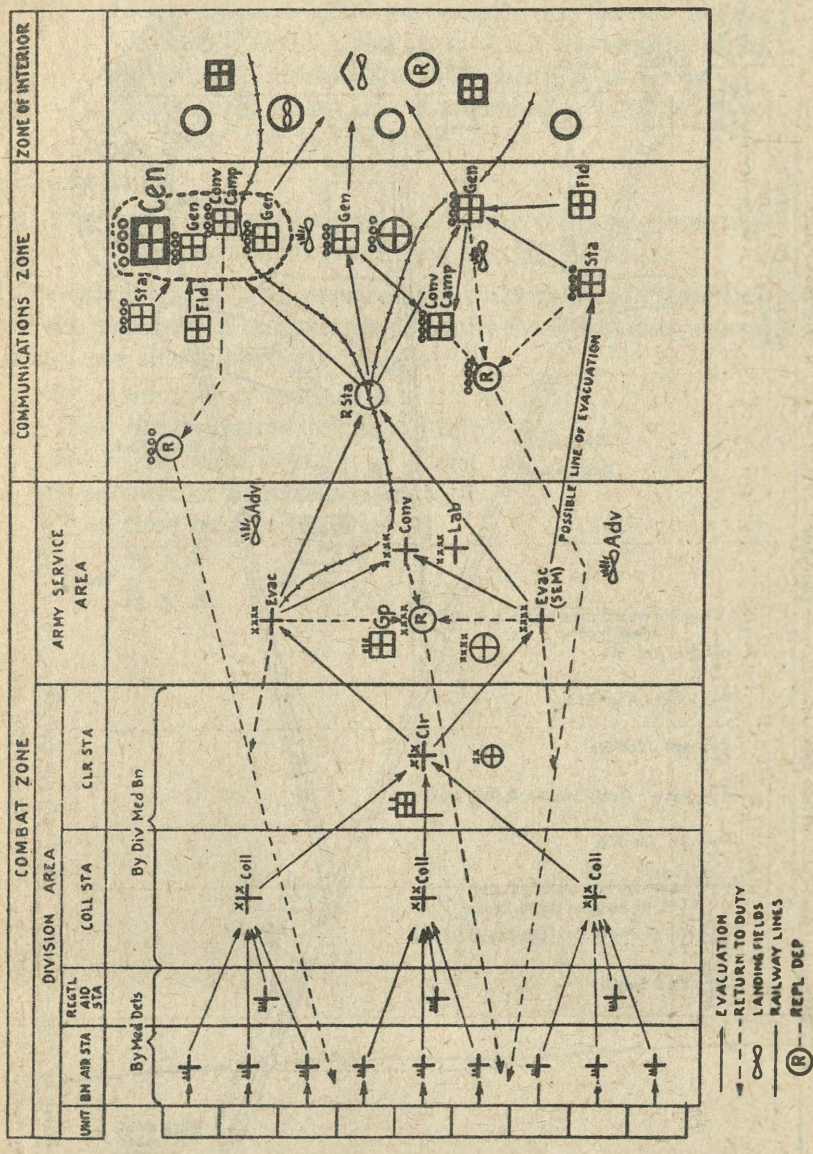
W = number of casualties
t = time required for round trip
M = number of vehicles or litters
N = number of patients per load
T = time required or allowed

$$T = \frac{W \times t}{M \times N} \qquad M = \frac{W \times t}{T \times N}$$

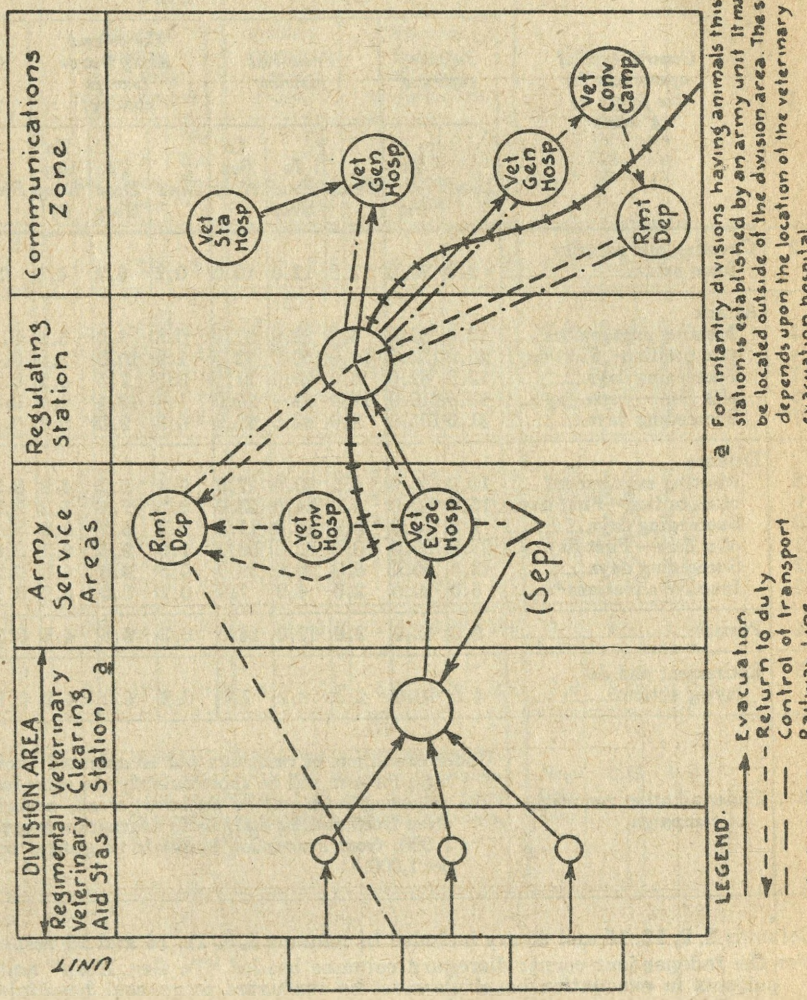


405. DIAGRAM OF MEDICAL SERVICE OF AN INFANTRY DIVISION.

■ 406. DIAGRAM OF EVACUATION AND HOSPITALIZATION OF PERSONNEL.



■ 407. DIAGRAM OF EVACUATION AND HOSPITALIZATION OF ANIMALS.



408. Estimated Daily Losses in Campaign of Personnel and Animals, Dead and Evacuated; and in Motor Vehicles Destroyed and Evacuated; per 1,000 of Actual Strength:

1	1	2	3	4	5	(1) 6	7	8	(1) 9	10	11	(1) 12
	General type of operations for the forces as a whole	Men										
		Infantry regiment		Front-line division			Corps and Army troops (except cavalry)			Combat troops in corps and army reserve		
		Dead	To Clr Sta	Dead	To Evac Hosp	To Gen Hosp (2)	Dead	To Evac Hosp	To Gen Hosp (2)	Dead	To Evac Hosp	To Gen Hosp (2)
2	Covering and security force action	6.0	30.0	2.0	12.0	10.0	0.2	6.2	4.3	0.1	5.6	3.9
	Attack											
3	Meeting engagement	16.0	80.0	6.0	32.0	27.0	0.6	8.0	5.6	0.3	6.5	4.5
4	of a position—First day	25.0	125.0	10.0	50.0	42.0	1.0	10.0	7.0	0.5	7.5	5.3
5	Succeeding days	12.0	62.0	5.0	25.0	21.0	0.5	7.5	5.2	0.3	6.3	4.4
6	of a Zone—First day	42.0	210.0	17.0	84.0	70.0	1.6	13.4	9.4	0.8	9.2	6.4
7	Succeeding days	21.0	105.0	8.0	42.0	35.0	0.8	9.0	6.3	0.4	7.0	4.9
	Defense											
8	Meeting engagement	10.0	50.0	4.0	20.0	17.0	0.4	6.2	4.3	0.2	5.6	3.9
9	of a position—First day	15.0	60.0	6.0	24.0	23.0	0.5	7.5	5.2	0.3	6.3	4.4
10	Succeeding days	7.5	30.0	3.0	12.0	11.5	0.3	5.7	3.9	0.15	4.8	3.3
11	of a Zone—First day	25.0	100.0	10.0	40.0	36.0	1.0	9.0	6.3	0.5	7.0	4.9
12	Succeeding days	12.5	50.0	5.0	20.0	18.0	0.5	6.6	4.8	0.25	5.3	3.6
13	Inactive situations [5]	5.0	20.0	2.0	8.0	7.0	0.2	6.0	4.2	0.1	5.5	3.9
14	Pursuit	8.0	42.0	3.0	17.0	14.0	0.3	6.5	4.5	0.2	5.8	4.1
15	Retirement and delaying action	4.0	20.0	2.0	8.0	7.0	0.2	6.0	4.2	0.1	5.5	3.9
16	Under all other conditions of campaign	Under conditions of campaign not enumerated above, casualty rates for men will be approximately the same for all troops. The following rates will be assumed: Dead, negligible; evacuation from clearing stations to evacuation hospitals, 2.5 per 1,000; from evacuation hospitals to general hospitals, 1.5 per 1,000. [1]										

[1] Columns 6, 9, 12, 15 and 20 are included in columns 5, 8, 11, 14 and 19 respectively.

[2] For the independent corps: disregard columns headed "To Gen Hosp" and assume all patients in evacuation hospitals must be evacuated to general hospitals.

[3] Repairs by unit maintenance sections.

[4] Repairs by 3d echelon—or higher.

[5] Forces in contact, neither side attacking.

ESTIMATED DAILY LOSSES IN CAMPAIGN OF PERSONNEL AND ANIMALS, DEAD AND EVACUATED; AND IN MOTOR VEHICLES DESTROYED AND EVACUATED; PER 1,000 OF ACTUAL STRENGTH (Continued):

1	13	14	(1) 15	16	17	18	19	(1) 20	21	22	23
	Men (Contd)			Animals					Motor Vehicles		
	Attached cavalry including reinforcements			Artillery regiment (horse-drawn)		Attached cavalry including reinforcements			Front-line division		
	Dead	To Evac Hosp	To Gen Hosp (2)	Dead	To Vet Aid Sta	Dead	To Evac Hosp	To Gen Hosp (2)	De-stroy-ed	2d Ech (3)	3d Ech (4)
2	0.4	12.5	8.5	6.0	7.0	1.5	12.0	2.0	5.0	5.0	7.0
3	1.2	16.0	11.0	16.0	20.0	5.0	16.0	2.0	10.0	10.0	9.0
4	2.0	20.0	14.0	25.0	31.0	8.0	20.0	3.0	16.0	15.0	11.0
5	1.0	15.0	10.4	12.0	15.0	4.0	15.0	2.0	13.0	7.0	8.0
6	3.2	27.0	19.0	42.0	55.0	13.0	27.0	4.0	27.0	27.0	15.0
7	1.6	18.0	12.5	21.0	26.0	7.0	18.0	3.0	14.0	13.0	10.0
8	0.8	12.5	8.5	10.0	12.0	3.0	12.0	2.0	6.0	6.0	7.0
9	1.0	15.0	10.0	15.0	15.0	4.0	15.0	2.0	9.0	75.0	7.0
10	0.6	11.0	8.0	7.0	7.0	2.0	11.0	2.0	8.0	6.0	7.0
11	2.0	18.0	12.5	25.0	25.0	8.0	18.0	3.0	16.0	12.0	10.0
12	1.0	13.0	9.5	12.0	12.0	4.0	13.0	2.0	8.0	6.0	7.0
13	0.4	12.0	8.5	5.0	5.0	1.5	12.0	2.0	3.0	2.0	6.0
14	0.6	13.0	9.0	8.0	10.0	2.5	13.0	2.0	5.0	5.0	7.0
15	0.4	12.0	8.5	4.0	5.0	1.5	12.0	2.0	3.0	3.0	6.0
16	For animals: Dead, negligible; evacuation from veterinary aid stations to evacuation hospitals, 1.25 per 1,000; from evacuation hospitals to general hospitals, 0.1 per 1,000 [1]								Negligible	2.0	1.0

SECTION II

REPLACEMENTS AND LOSSES

■ 409. REPLACEMENT SYSTEMS.—*a.* The original personnel replacement plan for a theater of operations, including the estimated number of replacements required, is prepared well in advance by the War Department and is based on contemplated operations in the theater. This plan may be modified by subsequent developments.

b. The theater commander anticipates his replacement requirements and obtains ground and service force replacements through submission of a bulk requisition to the War Department. (A bulk requisition specifies the number of replacements needed by arm or service; military occupational specialties are normally not indicated.)

Theater headquarters, in addition to submitting a monthly bulk requisition to provide for anticipated losses (WD AGO Form 657) also submits monthly an *estimate* of replacement requirements for the six (6) months beginning with the month following the date of preparation (WD AGO Form 655) and a personnel replacement status report (WD AGO Form 656). These reports furnish the War Department with the theater's immediate and anticipated replacement requirements and the status of personnel and number of vacancies within the theater. The War Department approves the bulk requisition and has the replacements furnished by replacement depots in the zone of the interior. Specialists are furnished in accordance with a theater requirement table based on previous loss experiences and the types of units in the theater. Non-flying air force replacements are requisitioned separately with the specification serial numbers given. Combat crews are not requisitioned. They are forwarded automatically from the zone of the interior to the theater at a predetermined monthly rate of replacement set up in War Department schedules. After approval of theater requisitions by the War Department, the replacements are furnished by the appropriate zone of interior replacement depots (AAF, AGF, or ASF).

Subordinate units in the theaters also make informal replacement studies and estimates but they requisition replacements only for actual losses suffered. In special cases replacements may be furnished on a predetermined automatic, periodic basis.

The theater replacement system as a whole will be placed under a commander whose sole responsibility is to operate the system under War Department and theater policies.

All unassigned personnel in the theater, except those that have been delivered to replacement units of field commanders, will be under the control of the commander of the replacement system.

Loss replacements are provided for the sole purpose of keeping units and allotments at strengths authorized by the War Department by replacing

REPLACEMENT SYSTEMS (Continued):

losses from battle and normal attrition. Replacements will not be used for other purposes without the prior specific approval of the War Department.

c. Replacement Requisitions.

In submitting requisitions from overseas for personnel, the following classifications govern:

(1) Replacements.
(2) Fillers for authorized units.
(3) Fillers for authorized allotments.
(4) Rotational Personnel.

d. Definitions.

(1) Replacements.

A "Replacement" is an officer or enlisted person needed to fill a shortage in the authorized strength of a unit or allotment approved by the War Department. (Such replacements do not include "Fillers" for authorized units or allotments, "Rotational Personnel" or personnel transferred or on detached service remaining in the theater.)

(2) Fillers.

A "Filler" is a person required *initially* to bring a unit or an approved allotment to authorized strength. [See Par *c* (2) and (3) above.]

(3) Rotational Personnel.

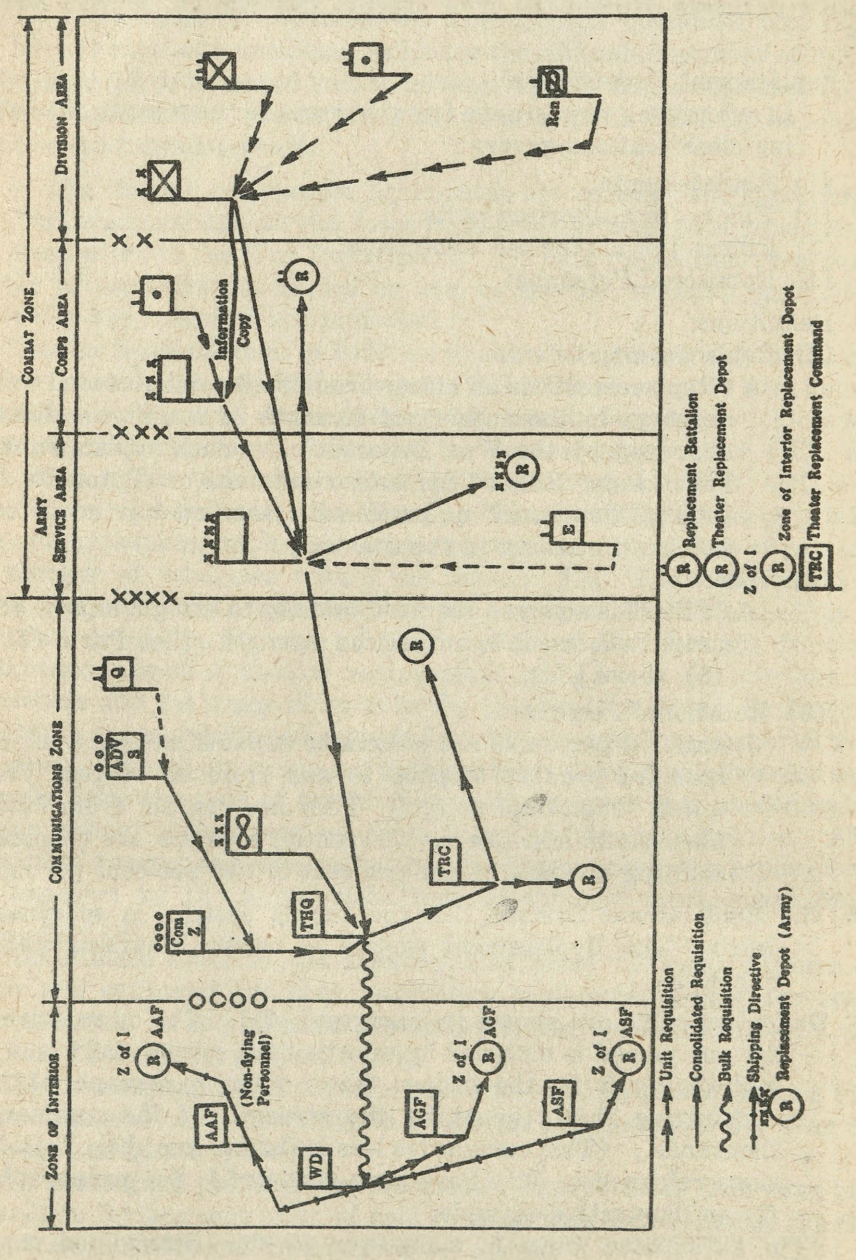
Rotational personnel are officers or enlisted men or women (*in specified grades*) shipped to and from an oversea theater under "rotational policy." They are distinct from *both* replacements and fillers. Currently, theaters are considering rotating one half of one per cent to two per cent per month.

e. The Replacement System, like the supply system, is echeloned in depth. The Replacement system is shown diagramatically in Par. 410.

f. Daily loss rates are shown in paragraph 411. The cumulative loss for any period is obtained by selecting the proper daily loss rate, multiplying it by the proper factor from paragraph 412, and multiplying this product by the strength of the command in thousands. (This cumulative loss is the *net* loss; hospital admissions returned to duty have been deducted.) See paragraph 413 for an illustrative example.

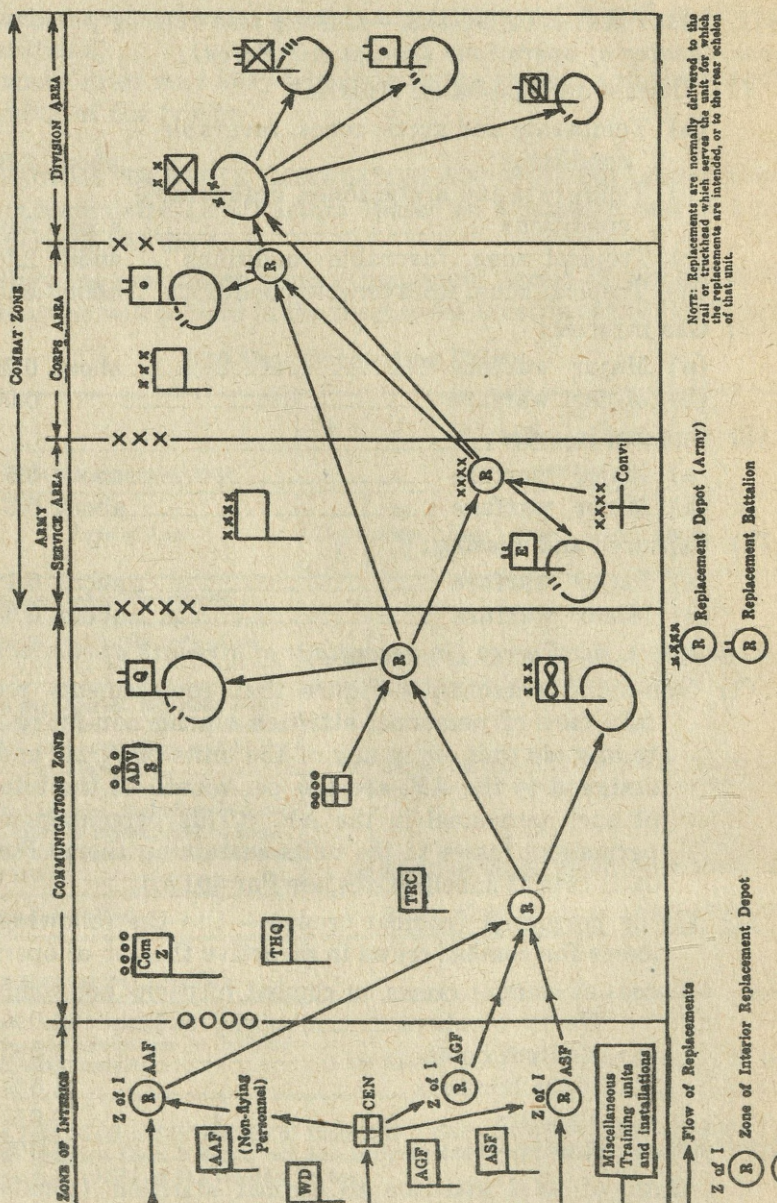
The anticipated losses in manpower, as thus determined, may be used by the theater commander as a basis for requisitions on the zone of the interior for replacements.

■ 410. PERSONNEL REPLACEMENT SYSTEM.—*a. Diagram of flow of replacement requisitions:*



PERSONNEL REPLACEMENT SYSTEM (Continued):

b. Diagram of personnel replacement system:



THEATER LOSSES

■ 411. DAILY RATES OF LOSSES.—*a. Daily loss rate by persons per 1,000 persons, theater of operations (except Air Force):*

(1) Disease and non-battle injuries:

(a) Temperate and arctic zones, favorable conditions ---------- about 2.0 persons

(b) Temperate and arctic zones, unfavorable conditions ---------- about 3.0 persons

(c) Tropical zone, favorable conditions --- about 2.5 persons

(d) Tropical zone, unfavorable conditions -- about 5.0 persons

(2) Gas injuries:

(a) Major warfare ---------- about 0.25 persons

(b) Minor warfare ---------- 0.00 persons

(3) Gunshot injuries:

(a) Major warfare ---------- about 0.5 persons

(b) Minor warfare ---------- about 0.3 persons

(4) Captured and missing:

(a) Major warfare ---------- about 0.1 persons

(b) Minor warfare ---------- about 0.03 persons

b. Loss Rates, Air Forces (in percentage of strength of command):

(1) Non-flying personnel.—Figure that replacements required to take care of personnel attrition among non-flying personnel to any air unit, or in any of the units or Arms and Services assigned to the AF, are 1% per month of the total number of such personnel in the AF. (This percentage represents permanent losses to the units sustaining them. For average daily rate of noneffectives, see Par 401 *b.*)

(2) Flying personnel (combat crews).—Use the following rates of losses for combat crews in an active theater of operations:

Losses of combat crews on combat missions per combat sortie.

Heavy bombers ---------- 4.0%

Medium bombers ---------- 2.0%

Light bombers ---------- 1.5%

Fighters ---------- 0.6%

Reconnaissance ---------- 1.0%

Ratio of total attrition to combat attrition (combat crews) 1.2 to 1. Total attrition figures cover non-battle casualties, such as losses due to accidents during operational flights other than combat missions, non-battle injury, and sickness. They also include personnel removed to the zone of the interior under rotational policies.

DAILY RATES OF LOSSES (Continued):

The casualty rates stated above are only a general guide. Where possible the actual casualty rates should be determined for each specific theater of operations.

The above rates may vary widely with the theater and the experience and seasoning of the troops.

■ 412. FACTORS FOR USE IN CALCULATING ACCUMULATED LOSSES (less Air Corps).—Accumulated Loss Factors (based on a casualty rate of 1 person per 1000 persons per day).

a. When the evacuation policy (maximum period of non-effectiveness for patients who will be held in the theater for treatment) is 120 days:

120-Day Evacuation Policy

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
	IN THEATER OF OPERATIONS	PERIOD							
	Type of Loss	*1 Day* [1]	*30 Days* [1]	*60 Days*	*90 Days*	*120 Days*	*150 Days*	*180 Days*	*360 Days*
2	Disease and nonbattle injuries, including hospital cases, deaths, and admissions sent to the zone of interior	1.00	17.40	24.12	27.85	30.19	31.94	33.38	40.87
3	Poison gas injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	23.49	35.63	42.77	47.53	51.07	54.13	69.84
4	Gunshot injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	36.71	67.76	95.19	119.97	142.79	164.23	278.74
5	Captured and missing	1.00	21.00	42.00	63.00	84.00	105.00	126.00	252.00
	IN ZONE OF THE INTERIOR								
6	Disease and nonbattle injuries, deaths, and discharges in hospital for physical disability	1.00	13.88	18.21	20.97	23.08	24.85	26.44	35.03

[1] Use the 1-day factor for periods of from 1 to 7 days, inclusive. For fractional periods of a month greater than 7 days, use the proportional part of the monthly factor, thus for 10 days, use 10/30 of the 30-day factor.

FACTORS FOR USE IN CALCULATING ACCUMULATED LOSSES (Continued):

b. When the evacuation policy (maximum period of non-effectiveness for patients who will be held in theater for treatment) is 90 days:

90-Day Evacuation Policy

1	1	2	3	4	5	6	7	8	9
	IN THEATER OF OPERATIONS	PERIOD							
	Type of Loss	*1 Day* [1]	*30 Days* [1]	*60 Days*	*90 Days*	*120 Days*	*150 Days*	*180 Days*	*360 Days*
2	Disease and nonbattle injuries, including hospital cases, deaths, and admissions sent to the zone of interior	1.00	17.81	25.23	29.75	32.94	35.52	37.84	50.52
3	Poison gas injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	23.85	38.05	45.79	52.07	57.28	61.96	87.73
4	Gunshot injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	37.05	68.99	97.69	124.05	148.66	172.03	299.69
5	Captured and missing	1.00	21.00	42.00	63.00	84.00	105.00	126.00	252.00

[1] Use the 1-day factor for periods of from 1 to 7 days, inclusive. For fractional periods of a month greater than 7 days, use the proportional part of the monthly factor, thus for 10 days, use 10/30 of the 30-day factor.

c. When the evacuation policy (maximum period of non-effectiveness for patients who will be held in theater for treatment) is 60 days:

60-Day Evacuation Policy

1	1	2	3	4	5	6	7	8	9
	IN THEATER OF OPERATIONS	PERIOD							
	Type of Loss	*1 Day* [1]	*30 Days* [1]	*60 Days*	*90 Days*	*120 Days*	*150 Days*	*180 Days*	*360 Days*
2	Disease and nonbattle injuries, including hospital cases, deaths, and admissions sent to the zone of interior	1.00	18.72	27.70	34.01	39.05	43.53	47.76	72.12
3	Poison gas injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	24.91	41.24	51.62	61.11	69.53	77.45	123.15
4	Gunshot injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	37.47	70.53	100.83	129.18	156.03	181.85	326.01
5	Captured and missing	1.00	21.00	42.00	63.00	84.00	105.00	126.00	252.00

[1] Use the 1-day factor for periods of from 1 to 7 days, inclusive. For fractional periods of a month greater than 7 days, use the proportional part of the monthly factor, thus for 10 days, use 10/30 of the 30-day factor.

FACTORS FOR USE IN CALCULATING ACCUMULATED LOSSES (Continued):

d. When the evacuation policy (maximum period of non-effectiveness for patients who will be held in theater for treatment) is 30 days:

30-Day Evacuation Policy

1	1	2	3	4	5	6	7	8	9
	IN THEATER OF OPERATIONS	PERIOD							
	Type of Loss	*1 Day* [1]	*30 Days* [1]	*60 Days*	*90 Days*	*120 Days*	*150 Days*	*180 Days*	*360 Days*
2	Disease and nonbattle injuries, including hospital cases, deaths, and admissions sent to the zone of interior	1.00	20.89	33.58	44.11	53.55	62.50	71.30	132.27
3	Poison gas injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	27.04	48.28	65.02	81.16	96.69	111.81	201.68
4	Gunshot injuries, including hospital cases, killed in action, died in hospital, and admissions sent to the zone of the interior	1.00	38.37	73.82	107.58	140.15	171.82	202.87	382.42
5	Captured and missing	1.00	21.00	42.00	63.00	84.00	105.00	126.00	252.00

[1] Use the 1-day factor for periods of from 1 to 7 days, inclusive. For fractional periods of a month greater than 7 days, use the proportional part of the monthly factor, thus for 10 days, use 10/30 of the 30-day factor.

■ 413. COMPUTATION OF LOSSES:

a. Method of using data in Par. 411 and 412:

The tabulations set forth are for a daily loss of *1 per thousand persons per day* in each type of loss. With these tablets, the losses to be expected in any operation may be computed as follows:

(1) From Par 411 select the applicable daily loss rate.

(2) In Par 412 the evacuation policy determines the subparagraph to be used (120 day, 90 day, etc.). In each subparagraph the period of time over which losses are being calculated determines the vertical column to be used (30 day, 60 day, ... 360 day). From the proper column select the loss factor opposite the type of loss under consideration. Multiply this factor by the appropriate daily loss rate per 1000 persons from Par 411.

(3) Multiply the product thus obtained by the number of thousands in the strength of the command. This result is the accumulated loss for the type of loss and period under consideration.

(4) Proceed similarly for the other type losses.

(5) Add the accumulated losses of the various types.

COMPUTATION OF LOSSES (Continued):

b. Example: Required the estimated number of replacements needed to replace losses for *30 days* for a force consisting of 500,000, including 10,000 Air Force with 1,000 in combat crews, initially operating in a *major* theater of operations, in the *temperate* zone, under *favorable* conditions, when the evacuation policy in the theater of operations is *120 days*.

Losses except Air Force:

(1) Disease and nonbattle injuries: $2.00 \times 17.40 \times 490$ 17,052
(2) Gas injuries: $0.25 \times 23.49 \times 490$ 2,878
(3) Gunshot injuries: $0.5 \times 36.71 \times 490$ 8,994
(4) Captured and missing: $0.1 \times 21 \times 490$ 1,029

Total 29,953

Losses, Air Force: (See Par 411 *b*, above and Par 703 FM 101-10 Air.)

(1) Non-flying personnel.—$9{,}000 \times .01$ ..... = 90
(2) Flying personnel (based on 2 Bomb Gps (H), 2 Fi Gps) $1.2\ [(9 \times 5 \times .04 \times 96) + (15 \times .006 \times 200)]$ ..... = 229

TOTAL 319

BATTLE LOSSES

■ 414. DISTRIBUTION OF BATTLE LOSSES—THEATER OF OPERATIONS (except Air Force):

a. Distribution of Battle Losses by arms and services in percentages: [1]

1	*1* Arm or Service	*2*	*3*	*4*	*5*	*6*
		Percentage of Battle Losses				
		Killed %	*Wounded* %	*Missing* %	*PW* %	*Total* %
2	Inf	13.3	49.2	2.8	10.6	75.9
3	FA	1.1	4.5	1.0	2.6	9.2
4	Engr	.8	2.7	.1	.9	4.5
5	MD	.6	2.0	.2	.6	3.4
6	Cav	.3	1.2	.1	.5	2.1
7	CAC	.4	1.2	.1	.2	1.9
8	Sig C	.2	.4	.0	.1	.7
9	QMC	.2	.4	.0	.0	.6
10	OD	.1	.3	.0	.0	.4
11	TC	.0	.2	.1	.0	.3
12	CWS	.0	.2	.0	.0	.2
13	MP	.0	.1	.0	.0	.1
14	Misc	.3	.3	.0	.1	.7
15	TOTAL	17.3	62.7	4.4	15.6	100.0

[1] The distribution set forth above is based on U. S. Army experience to date in the present conflict in all theaters (other than the Philippine Islands). The percentages must be modified in accordance with the strength and composition of our own and the enemy's forces, nature and location of the theater of operations, nature of the warfare, open or stabilized; degree of training; and morale.
Distribution of *non-battle* losses is in direct proportion to percentage strength of each branch.
Approximately six and one-half percent of the loss replacements are officers.

■ 415. ESTIMATE OF BATTLE LOSSES FOR A FRONT LINE DIVISION:

a. Estimated Daily Combat Losses of Personnel in Percent (%) of Actual Strength:

	1	2	3	4	5
1	*General type of operations for the forces as a whole*	*Front-line division or similar unit*			
		Dead %	*Wounded* %	*Captured & Missing* %	*Total* %
2	Covering and security force action	0.2	1.2	0.4	1.8
	ATTACK:				
3	Meeting engagement	0.6	3.2	1.0	4.8
4	Of a position—First day	1.0	5.0	1.5	7.5
5	Succeeding days	0.5	2.5	0.8	3.8
6	Of a Zone—First Day	1.7	8.4	2.5	12.6
7	Succeeding days	0.8	4.2	1.3	6.3
	DEFENSE:				
8	Meeting engagement	0.4	2.0	0.6	3.0
9	Of a position—First day	0.6	2.4	0.8	3.8
10	Succeeding days	0.3	1.2	0.4	1.9
11	Of a zone—First Day	1.0	4.0	1.3	6.3
12	Succeeding days	0.5	2.0	0.6	3.1
13	Inactive situations	0.2	0.8	0.3	1.3
14	Pursuit	0.3	1.7	0.5	2.5
15	Retirement and delaying action	0.2	0.8	0.3	1.3

b. Prior to deducting any of the above losses, assume an average of 5% of the command is continuously non-effective due to non-battle causes.

c. Example.—Calculate the losses for an infantry division for the first day and for the second day of an attack of a position and indicate the distribution of the losses. The current aggregate strength of the division is assumed as 12,531.

(1) *First Day Losses:*

(a) Non-effective due to non-battle causes:
5% of 12,531 or 627

(b) Effective strength before the attack:
12,531 less 627 or 11,904

(c) Battle losses, first day, in attack of position:
7.5% of 11,904 or 893

(d) Effective strength, end of first day:
11,904 less 893 or 11,011

ESTIMATE OF BATTLE LOSSES FOR A FRONT LINE DIVISION (Continued):

(2) *Second Day Losses:*

(a) Effective strength, beginning of second day: 11,011

(b) Battle losses, second day, in attack of position:
3.8% of 11,011 or 418

(c) Effective strength, end of second day:
11,011 less 418 or 10,593

(3) *Distribution of Battle Losses, First Day:*

Dead	1.0%	of 11,904 or	119
Wounded	5.0%	of 11,904 or	595
Captured and missing	1.5%	of 11,904 or	179
Totals	7.5%		893

(4) *Distribution of Battle Losses, Second Day:*

Dead	0.5%	of 11,011 or	55
Wounded	2.5%	of 11,011 or	275
Captured & missing	0.8%	of 11,011 or	88
Totals	3.8%		418

(5) *Total Battle Losses for both days:*

Dead	119	plus	55	or 174
Wounded	595	plus	275	or 870
Captured and missing	179	plus	88	or 267
Total				1311

(6) The loss in infantry units is approximately:
75.9% of 1311 or 995

(7) The loss per infantry regiment is approximately:
One-third of 995 or 332

(8) The loss of *officers* in the infantry regiment is approximately:
6.5% of 332 or 22

(9) Other losses may be similarly estimated.

SECTION III

PRISONERS OF WAR

■ 416. ESTIMATE OF PRISONERS OF WAR.—*a. General:* In order that the necessary arrangements may be made for the care, reception and disposition of prisoners of war, it will be necessary to estimate the number of prisoners that will probably be captured over a period of time. Factors to be considered in preparing such an estimate include the following:

(1) Enemy morale.

(2) Avenues of withdrawal open to the enemy.

(3) Ability of our own forces to encircle or cut off enemy units.

(4) Type of warfare in which forces are engaged; i.e., position warfare, war of movement.

(5) Relative strength of opposing forces.

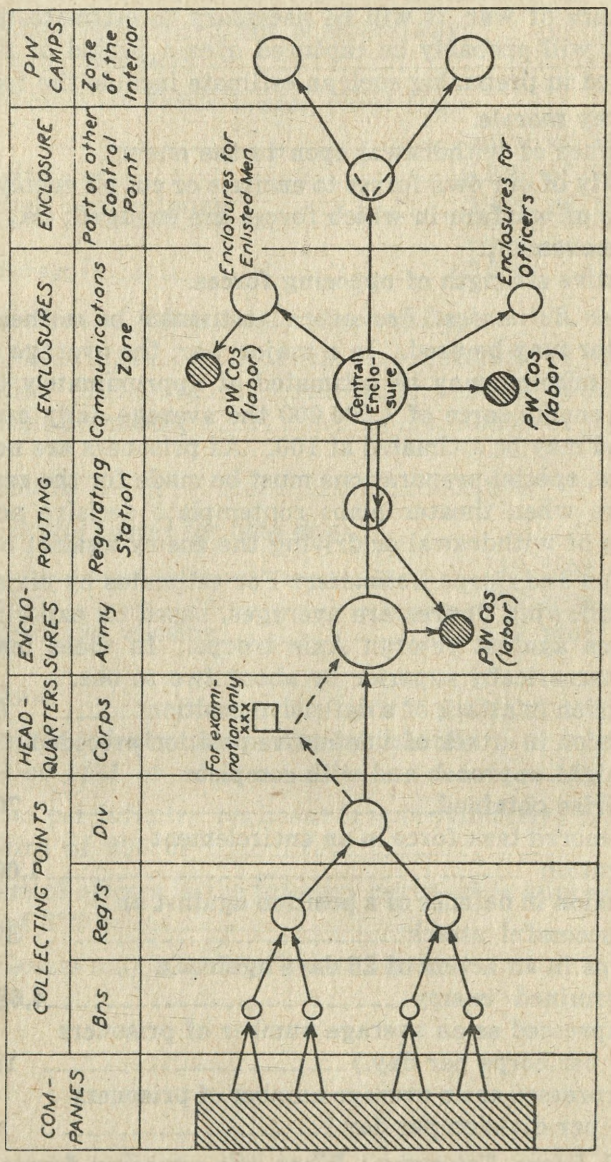
b. Theater Estimates: For overall estimates on a theater level, the following factor may be used. In a major war, the average daily rate for captured and missing may be estimated at approximately 0.1 per 1,000. Hence for an enemy force of 1,000,000 the average daily number of prisoners captured may be estimated at 100. As prisoners are not captured at a uniform rate, special preparations must be made for the reception of unusual numbers when theater plans contemplate decisive action, such as cutting routes of withdrawal or driving the enemy against an obstacle.

c. Division and Corps Estimates: For estimates by divisions (or task forces) the following figures are averages, based on experiences of some U. S. divisions against veteran Axis troops. In these instances, U. S. forces were numerically superior by about two to one.

By a division in attack of a defensive position	50 per day
By a division in attack of a defensive position preceded by night approach and with complete surprise obtained	700 per day
By an armored task force in an encirclement operation	1,000 per day
By a division in defense of a position against an unsuccessful attack	300 per day
By a corps in an action of 25 days against a determined enemy	4,680 in 25 days
(Expressed as an average number of prisoners per corps per day.)	187 per day
(Expressed as an average number of prisoners per division per day.)	47 per day

d. Equal Force Estimates: When the opposing forces are approximately equal in number and tactical dispositions, the number of prisoners taken should average the data given in Pars 411*a* (4), 412 line 5, and 414*a* column 5.

■ 417. DIAGRAM OF EVACUATION OF PRISONERS OF WAR.



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Chapter 5

MILITARY MAPS

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MILITARY MAPS

■ 501. Responsibility for Maps and Mapping:

Individual or agency	*Duties*
Commander of unit	Advance planning, which is necessary if mapping situation is to keep ahead of the tactical situation. Good maps will seldom be on hand without special command effort.
G-2 in divisions and larger units	Preparation of plans and policies and supervision of all activities concerning military topographic surveys and maps, including their acquisition, reproduction, and distribution.
Corps of Engineers	Prosecution of surveys, photogrammetric processes or compilations for the production or revision of maps required for military purposes. Map reproduction, supply, and distribution.
Army Air Forces	Aerial photographic work for: Military mapping operations in accordance with specifications prepared by Corps of Engineers, and Photography to meet intelligence needs of combat troops.

■ 502. Classification of Maps.—*a. According to scale:*

(1) *Small scale*—smaller than 1/1,000,000.

(2) *Medium scale*—1/125,000, exclusive, to 1/1,000,000.

(3) *Large scale*—1/125,000 and larger.

b. Military classification:

(1) *General*—Maps of small scale for general planning purposes.

(2) *Strategic and road*—Maps of medium scale for planning operations including the movement, concentration, and supply of troops (strategic and logistic purposes).

(3) *Tactical and special*—Maps of large scale for tactical and administrative purposes.

c. General classification:

(1) *Topographic map*—A map which presents relief or the vertical position of features in measurable form as well as their horizontal position.

(2) *Planimetric map*—A map presenting the horizontal position of features.

(3) *Photomap*—A reproduction of a photograph or mosaic upon which grid lines, marginal data, and place names may be added.

CLASSIFICATION OF MAPS (Continued):

d. Aeronautical charts—Classified as follows:

(1) *Planning charts*—World coverage charts, scale 1/5,000,000 used for route planning and control of tactical movements and developments.

(2) *Long range air navigation charts*—World coverage charts, scales 1/3,000,000 and 1/1,000,000, used for celestial air navigation.

(3) *Pilotage charts*—Charts covering land areas, scale 1/1,000,000 and 1/500,000, showing sufficient topographical detail, color scheme and pattern arrangement required for accurate contact flying.

(4) *Approach charts*—Charts, generally at scales 1/250,000 or 1/125,000, used by Air Forces in approaching objectives.

(5) *Target charts*—Large scale schematic charts containing information necessary to distinguish assigned targets.

e. According to methods of reproduction:

(1) *Lithograph*—Reproduced by lithography in one or more colors.

(2) *Fluid duplicator*—Reproduced by dye printing process in one or more colors.

(3) *Contact prints*—Reproduced by photographic methods. Includes black and white, blue, and brown prints.

(4) *Mimeograph*—Reproduced by mimeograph or similar means in one color.

(5) *Hectograph*—Reproduced by hectograph or similar means in one or more colors.

503. TYPES OF MAPS AND PHOTOMAPS FOR THEATER OF OPERATIONS: [1] [2] [3]

	1	2	3	4	5	6	7	8	9	10
1	*Kind of map*	*Scale*	*Contour interval (feet)*	*Sheet size (inches)*	*Size of area*	*Purpose*	*Natural features and works of man shown*	*Originals and limited number of copies prepared by —*	*Reproduced in quantity by —*	*Probable time or conditions when available* [4]
2	Vertical aerial photograph	1:5,000 to 1:60,000 (12 inches = 1 mile to 1 inch = 1 mile)		Varies	Varies, depending on scale	Intelligence. Map supplement for study of terrain and other detail Mosaics, preparation of stereopairs and triplets	Varies	Army Air Forces, Civilian agencies	Lithographic copies by base and army topographic battalions, and corps topographic companies. Contact prints 10 to 25 copies, by above units and army air force units	Limited numbers: 3 to 5 hours after photography Quantities: 48 hours after photography [5]
3	Oblique aerial photograph	Varies		Varies	Varies, depending on scale	Intelligence Map supplement for study of terrain and other detail	Varies	as above	as above	as above
4	Trimetrigon photograph	Vertical: As taken Oblique: Varies		Max. of 19 by 20 to 22 by 29 depending on organization printing	Varies, depending on scale	Map supplement Aeronautical chart production	Varies	as above	as above	as above

TYPES OF MAPS AND PHOTOMAPS FOR THEATER OF OPERATIONS (Continued):

	1	2	3	4	5	6	7	8	9	10
1	*Kind of map*	*Scale*	*Contour interval (feet)*	*Sheet size (inches)*	*Size of area*	*Purpose*	*Natural features and works of man shown*	*Originals and limited number of copies prepared by —*	*Reproduced in quantity by —*	*Probable time or conditions when available* (4)
5	Photomap	As taken, enlarged, or reduced. Generally approximately 1:20,000, 1:25,000, 1:62,500		Maximum of 19 by 20 to 22 by 29 depending on organization printing	Varies, depending on scale	General field uses as map supplement Limited horizontal control for unobserved artillery fire	Varies	Base and army topographic battalions. Corps topographic companies. Civilian agencies	Base and army topographic battalions. Corps topographic companies (Lithographic copies)	24 to 72 hours after photography, depending on amount of control used
6	Mosaic	As taken, enlarged, or reduced		Maximum of 19 by 20 to 22 by 29 depending on organization printing	Varies, depending on scale	General field uses as map supplement Approximate horizontal control for limited unobserved artillery fire	Varies	Army topographic battalions, Corps topographic companies, Civilian agencies Army Air Force units up to ten prints, when directed by proper authority	Army topographic battalions, Corps topographic companies (Lithographic copies)	24 to 47 hours after photography
7	Strip mosaic	As taken, enlarged, or reduced		Depends on number of photographs	Varies, depending on scale	General field use as map supplement Approximate horizontal control for limited unobserved artillery fire	Varies	Army Air Forces. Corps topographic companies Civilian agencies	Corps topographic companies (Lithographic copies)	24 hours after photography

TYPES OF MAPS AND PHOTOMAPS FOR THEATER OF OPERATIONS (Continued):

	1	2	3	4	5	6	7	8	9	10
8	Strategic map of the United States	1:500,000 (1 inch = 8 miles)	100–1,000 (contours seldom shown)		4° latitude and longitude (215 by 280 miles)	Strategy and logistics	Drainage systems, water, and mountain ranges Cities, rail lines and terminals, maintained water ways and airways and terminals, and roads of military importance	Corps of Engineers	Base reproduction plants	Reproductions: 24 hours
9	Topographic map, contoured, medium scale	1:250,000	Varies	17 by 19	Varies	Strategy and logistics	Stream lines, vegetation, and ground forms Railroads, roads, towns, air fields, etc.	Corps of Engineers Other Government agencies	Base reproduction plants Base and army topographic battalions	Reproductions: 24 hours or more
10	Topographic map, contoured	1:100,000 or 1:125,000 (1 inch = 2 miles)	50	17 by 19	30′ latitude and longitude	Substitute for 1:62,500 topographic map	Stream lines, vegetation, and ground forms Railroads, roads, towns, air fields, etc.	Geological survey Corps of Engineers	Base reproduction plants Geological survey Base and army topographic battalions	Reproductions: 24 to 48 hours (limited areas of U.S.)
11	Topographic map, contoured (8)	1:62,500 (1 inch = 1 mile)	20	Maximum 19 by 22 (maximum impression 18 by 21)	15′ latitude and longitude (25,000 by 30,000 yards)	General field uses Tactical and logistical studies by units from corps to regiment	Drainage systems, water, relief, and forested areas Railroads, roads, bridges, dams, towns, buildings, etc.	Geological survey Corps of Engineers	Geological survey, Base reproduction plants Base and army topographic battalions	Reproductions: 24 to 48 hours (very limited areas of U.S.)

TYPES OF MAPS AND PHOTOMAPS FOR THEATER OF OPERATIONS (Continued):

1	2	3	4	5	6	7	8	9	10
Kind of map	*Scale*	*Contour interval (feet)*	*Sheet size (inches)*	*Size of area*	*Purpose*	*Natural features and works of man shown*	*Originals and limited number of copies prepared by —*	*Reproduced in quantity by —*	*Probable time or conditions when available* (4)
12 Coast charts and harbor charts	Miscellaneous		Varies	Varies, depending on scale	Coast artillery in harbor defense All arms in coastal frontier defense	Hydrography, stream lines, coast line Harbor, docks, aids to navigation, railroads, roads, towns, air fields, etc.	Coast and Geodetic Survey, U.S. Hydrographic Office, U.S. Lake Survey Office	Coast and Geodetic Survey Base reproduction plants. Base and army topographic battalions	Reproductions: 24 to 48 hours
13 Transportation maps	Miscellaneous; frequently 1:1,000,000	Contours seldom shown	Varies	Varies	Logistics, maintenance, and operation of communications	Roads and railroads. Drainage systems, water, etc.	Base plants, Civilian agencies, Public Roads Administration	Civilian agencies. Base reproduction plants. Base and army topographic battalions. Corps topographic companies	Reproductions: 24 hours or more
14 Road maps (civil)	Miscellaneous		Varies	Varies	Logistics. Concentration of mechanized units. Maintenance and operation of communication	Drainage systems, water, etc.	Civilian agencies	American Automobile Association, oil companies, etc.	Reproductions: 24 to 48 hours
15 Road maps (special military)	Miscellaneous; frequently 1:250,000		Varies	Varies	Mechanized and motorized units; convoys; individual drivers	Salient ground features. Drainage systems. Terrain difficult for tanks generally indicated	Base plants. All topographic units	Base plants. All topographic units	Reproductions: 24 to 48 hours

TYPES OF MAPS AND PHOTOMAPS FOR THEATER OF OPERATIONS (Continued):

	1	2	3	4	5	6	7	8	9	10
16	Aeronautical charts, pilotage	1:1,000,000 and 1:500,000	Elevations shown by color gradients	Varies	Varies	Aerial navigation and as strategical map substitute	Stream lines and ground forms Railroads, roads, towns, air fields, and aids to aerial navigation	Coast and Geodetic Survey, U.S. Hydrographic Office Corps of Engineers	Coast and Geodetic Survey, U.S. Hydrographic Office Base reproduction plants	Reproductions: 24 to 48 hours
17	Aeronautical charts, approach	1:250,000 or or larger		14 by 17 or larger	Varies	Used by air forces in approaching objectives	Prominent features, roads, etc.	Air Force	Air Force	24 hours and up
18	Aeronautical charts, target	1:75,000 (varies)		14 by 17 or larger	Varies	Contain information necessary to distinguish assigned air targets	Prominent features, roads, etc.	Air Force	Air force	24 hours and up

NOTES

[1] The data as to existing maps contained in this table concern primarily the continental United States. Appropriate modifications are necessary in order to conform to conditions in other theaters of operations.

[2] Maps of foreign theaters, available for initial operations, will vary from direct one color reproductions of foriegn maps without translation of names and symbols, to multicolor maps compiled in accordance with United States standards. Any of the maps listed herein may be issued in a hasty and less accurate form, in which case they are called Provisional Maps.

[3] Topographic maps, scales 1:20,000 to 1:31,680 will be available for limited areas of vital importance of the United States and certain possessions. Normally maps of this character will not be available in other theaters of operation, unless prepared prior to outbreak of hostilities.

[4] Time estimates are predicated upon adequately organized. equipped, and trained mapping (Army Air Force, Engineer) and reproduction (Engineer) troops. Under less favorable conditions more delay must be expected.

[5] Under most favorable conditions, a single wet-print can be dropped within 30 minutes after photography, when the rapid type of photography is used, in which case no negative is available.

[6] 5,000-yard grid lines overprinted, or shown by tick marks at edge of map.

■ 504. ENGINEER MAPPING TROOPS:

1	1 Unit	2 Maps reproduced	3 Methods of reproduction	4 Sheet size (inches)	5 Remarks
2	Engineer base topographic, battalion	Maps in large quantities Maps of permanent utility Special sketches and drawings Photomaps	Lithography in 1 or more colors Contact prints (limited numbers only) Duplicator (hectograph and similar means)	22″ x 29″	Battalion is prepared to take over and operate presses of larger sizes. Generally assigned long range mapping projects
3	Engineer topographic, battalion, army	Revision and reproduction of existing maps Provisional maps and photomaps of unmapped areas for tactical and fire-control use Sketches and drawings	Lithography in 1 or more colors Contact prints (limited numbers) Duplicator (hectograph and similar means)	20″x22½″	Battalion organized for quantity reproduction to meet the more local reproduction needs of the army
4	Engineer topographic, company, corps	Revision and reproduction of existing maps Provisional and photomaps Mosaics Maps of limited areas Overprints, overlays, and sketches	Lithography in 1 color Contact prints (very limited numbers only) Duplicator (hectograph and similar means)	20″x22½″	Multicolor reproduction possible in cases where exactness in matching color plates is not essential and time is available
5	Engineer aviation topographic organization	Same as engineer topographic company, corps, or engineer base, topographic battalion Revision of existing aeronautical charts, preparation of target charts	Same as engineer topographic company, corps or engineer topographic battalion	20″x22½″ or 22 x 29	May be organized as Engr Avn Topo Co, Corps; or Engr Avn Topo Bn, to fit the need of the Air Force to which assigned. Equip and Orgn is same as for Engr Topo Co, Corps, or Engr Topo Bn, Army.
6	Division engineers	Simple sketches, overprints, and overlays	Duplicator (hectograph and similar means)	22″ x 33″	Lithographic reproduction not possible

505. ARMY AIR FORCE PHOTOGRAPHIC UNITS:

1	1	2	3
	Unit	*Photographs furnished*	*Remarks*
2	Photographic wing (T of Opns)	Specialized photography needed by topographic units for photogrammetry (multiple-lens or wide-angle single-lens type) Vertical and oblique photographs and mosaics for strategic purposes beyond the scope of tactical reconnaissance units	Wing may include mapping and charting squadrons Mapping photography ordinarily not suitable for intelligence purposes because of small scale and lack of detail. May contain important information, however, and prints should be made available to military intelligence officers for study
3	Tactical and Photo Reconnaissance Squadrons with Tactical Air Force	Photographs needed for intelligence or combat purposes (single photographs, vertical and oblique, stereopairs, night photographs)	Tactical reconnaissance capable of visual observation and photography—vertical and oblique. Photo Rcn capable of large quantities of photographs—vertical and obliques

506. MAP DISTRIBUTION IN THE FIELD:

1	1	2	3
	Organization or unit	*Agency responsible for securing and issuing maps* [1]	*Agency from which maps are secured*
2	GHQ and GHQ troops	Engineer—GHQ [2]	War Department, base topographic battalion,[2] and base plants [2]
3	Army	Army engineer [2]	Army topographic battalion [2], and engineer, GHQ [2]
4	Corps	Corps engineer [2]	Corps topographic company [2], and army engineer [2]
5	Division	Division engineer [2]	Corps engineer [2]
6	Regiment	Regimental S-2	Division engineer [2 3]
7	Battalion [4]	Battalion S-2	Regimental S-2 [3]
8	Company [4]	Company commander	Battalion S-2 [3]

NOTES

[1] The distribution of confidential or secret maps will be governed by the provisions of AR 380-5.

[2] These agencies only are authorized to maintain stocks of maps. Maps are issued to G-2 for headquarters distribution.

[3] Non-divisional units obtain maps from engineer or S-2 of unit to which they are attached.

[4] Applies similarly to squadrons, troops, or batteries.

■ 507. INITIAL ALLOWANCE OF MAPS.—*a.* Map allowances are based on the principle that each individual or organization should have an adequate supply of maps of areas in which they are currently operating, or in which they have an immediate prospective interest. Units should not be burdened with maps of areas outside their zone of operations, but should have adequate maps of regions of their present operations and of their immediate future operations. Difficulties of production and distribution, as well as the considerable weights involved, necessitate economy in map issues. Sectors assigned and operations contemplated are the basis for map distribution. The allowances prescribed herein are sufficient for minimum needs only; intervening organizations not specifically authorized to stock maps will not retain copies, but will distribute those received with the object in view of furnishing front-line units with maps needed by them for operations. Proper economy dictates that the only large-scale maps furnished shall be those of the areas of immediate importance to the individual or unit.

Basis of allowance:

	General maps (small scale)	*Strategic maps (medium scale)*	*Tactical maps (large scale)*
HEADQUARTERS: [1]			
GHQ	100	50	10
Army	75	50	10
Corps	40	75	10
Division	25	55	20
Regiment	7	7	14
Battalion [1]	1	6	6
Company	1 [2]	1	1
FOR INDIVIDUAL USE IN ORGANIZATIONS IN ADDITION TO ABOVE ALLOWANCE (per commissioned officer)	1 [2]	1 [3]	1 [4]
ARMY AIR FORCES: [3] [5]			
Air Force	15	15	
Wing headquarters	7	7	
Group headquarters	7	7	
Squadron headquarters	7	7	
Airplane		1	1 [6]

NOTES

[1] Allowance for separate battalions, Cavalry and Armored Force increased 50 percent.

[2] For Cavalry, Armored Force, and attached troops only.

[3] Except for officers of Army Air Forces. (Allowances for artillery observation missions prescribed in note [6] below.)

[4] Except Army Air Forces. See note [6] below. (Use by Cavalry and Armored Force will be exceptional.)

[5] Aeronautical charts for Army Air Forces as required.

[6] Reconnaissance squadrons only. Airplanes observing artillery fire will be issued same scale maps used by artillery firing batteries.

INITIAL ALLOWANCE OF MAPS (Continued):

Initial allowance:

	General maps (small scale)	*Strategic maps (medium scale)*	*Tactical maps (large scale)*
Type Army	2,600	16,800	17,100
Type Corps	740	4,740	4,830
Infantry Division	110	900	900
Armored Division	1,220	900	900
Army Headquarters and troops	370	2,600	2,600
Corps Headquarters and troops	270	1,100	1,100

b. (1) If maps of any of the scale groupings in *a* above are not available, substitution is authorized of maps of the scale nearest to that desired, and in quantities provided above for the map replaced.

(2) Special maps and road maps will be issued as directed by the commanding officer.

■ 508. COORDINATE SYSTEMS.—*a.* There are several coordinate systems which are used to locate points or areas, either on a map or on the terrain. All of these systems may be divided into two general classes—relative and absolute. Relative coordinates are determined by reference to base points and directions local to some map and selected by some individual. Thus a point on the map may have any number of different coordinates depending upon the origin selected. Absolute coordinates are determined by reference to a permanent fixed base point and direction which have been officially adopted for that purpose.

b. Polar Coordinates.—The relative system of polar coordinates is used in designating points located with a compass in the field and in designating positions on maps not equipped with a grid. The coordinates consist of an angle from a given base direction and a distance from a given base position.

c. Rectangular Coordinates.—The relative system of rectangular coordinates is used in designating points on ungridded maps without the aid of a protractor. The coordinates consist of two distances measured at right angles from a base position. Variations of this system include:

(1) *Thrust Line.*—In this system a base line is established on the map or ground. Points are located by giving a distance along this line and another distance at right angles to the base line either to the right or left of the base line. This system is fully described in paragraph 22½, TB 21-25-1.

(2) *Map Template (Templet), M2.*—The Map Template, M2 is a transparent sheet, 8½ by 12¼ inches, used for locating points on gridded or ungridded maps or aerial photographs when secrecy is desired. This device is fully described in TB 21-26-1.

COORDINATE SYSTEMS (Continued):

(3) *Point Designation Grid.*—The point designation grid is an arbitrary grid overprinted on photo maps. It may also be printed on a transparent template for use on photos without the grid. The grid is designed to have its two central lines, the AA line and the MM line, pass through the center of the photo. This system is fully described in paragraph 286 of FM 6-40, and in paragraph 44 of TB 21-25-1 as changed by TC 66, 24 Oct 44.

(4) *JAN Grid.*—The JAN grid is an arbitrary grid system employed by the Army when operating jointly with the Navy. The base directions are a meridian and a parallel and the origin is the intersection of these designated lines. Both the meridian and the parallel are divided into ten equal lengths to form a grid of 100 equal areas. This system is fully described in WD Training Circular No. 17, 11 Apr 42, and in paragraph 24⅘ of TB 21-25-1.

d, Geographic Coordinates.—The absolute system of geographic coordinates is used to designate points or areas on small scale maps and charts on which only the meridians of longitude and the parallels of latitude are shown.

e. Military Grid Coordinates.—Many countries have developed standardized systems of rectangular coordinates, the origins and base directions of which are officially adopted. The vertical (Y) grid line through the origin runs true north and south and the horizontal (X) grid line through the origin runs at right angles to the Y grid line. From the origin lines parallel to the Y and X lines are run at intervals of 1000 yards or 1000 meters, depending upon what system of measurement is used.

(1) *U. S. Military Grid System.*—The system employed by our Army uses grid lines at intervals of 1000 yards. On smaller scale maps only the 5000 or even 10,000 yard grid lines may be printed. Regardless of grid spacing, grid coordinates are expressed by writing the X-coordinate first and the Y-coordinate last, with a dash between, and the whole inclosed within parentheses. In locating a point remember the key phrase "READ-RIGHT-UP." This sysem is fully described in paragraph 24⅕ *b* and *c* of TB 21-25-1.

(2) *British Grid System.*—The system employed by the British is based on a square of 500,000 meters on a side. A particular grid zone may have any number of these squares up to about twenty-five, arranged according to the general shape of the country, continent, or other large area to be gridded. Each of the squares in a grid zone is assigned a letter, the letters being alphabetical and reading from left to right and down within the zone. Each 500,000 meter square is further divided into 100,000 meter squares, each of which is also designated by a letter. Thus a 100,000 meter square of a zone may be identified by two letters. In giving the coordinates of a point or area the letter of the 100,000 meter

COORDINATE SYSTEMS (Continued):

square in which the area falls is first given. If necessary due to the small scale of the map, both the letter of the 100,000 meter square and of the 500,000 meter square are given. After the letter the coordinates are listed in the same order as in the U. S. grid system but *without* the dash between the X- and Y- coordinates. Example: J4572. The system is more fully explained in the Tentative Technical Manual *"Use of Foreign Maps."* 5 Nov 42, and in paragraph 24$\frac{1}{3}$ *d* of TB 21-25-1.

(3) *Other Foreign Grid Systems.*—The Germans and the French have grid systems which, in general, are similar to the U. S. Military Grid System. Coordinates are read in the same manner as with the U. S. system, but the intervals between grid lines are in thousands of meters.

■ 509. REFERENCES.—Further details pertaining to military maps and mapping will be found in the following publications:

AR 300-15, Mapping and Charting.

FM 30-21, Aerial Photography, Military Applications.

FM 21-25, Map and Aerial Photograph Reading.

FM 21-26, Advanced Map and Aerial Photograph Reading.

FM 21-30, Conventional Signs, Military Symbols, and Abbreviations.

FM 30-20, Military Intelligence, Military Maps.

TB 21-25-1, Elementary Map and Aerial Photography Reading.

TB 21-26-1, Map Template M2.

P-1356—(5)—C&GSS

Chapter 6

CHARACTERISTICS OF MATERIEL

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601. Dimensions and Weight of Items of Equipment:[1] [2]

a. Combat Vehicles:

	1	2	3	4	5	6	7	8	9	10
	Vehicle	Type of Body	Overall Dimensions (Inches)			Weight (Pounds)		Displacement		
			Length	Width	Reducible Height	Net	Gross	Square Feet	Cubic Feet	Ship Tons
1	Car	Armored, L, M8, 6 x 6	185	100	74	.....	16,500	194	695	17.4
2		Armored, Utility, M20, 6 x 6	197	100	68	.....	14,500	194	695	17.4
3		Half-track, M2	235	88	75	14,200	17,800	147	868	21.7
4		Half-track, M2, w/w	242	88	75	14,600	17,800	150	896	22.4
5		Half-track, M3	243	88	75	14,150	17,650	148	903	22.5
6		Half-track, M3, w/w	243	88	75	14,650	17,650	148	924	23.1
7		Half-track, M3A2	249	89	85	.....	18,800	154	1,090	27.2
8		Half-track, M5	243	88	75	15,400	18,900	146	901	22.5
9		Half-track, M5, w/w	250	88	75	15,900	18,900	146	927	23.0
10		Half-track, M9A1	243	87	91	15,550	19,050	150	1,113	27.8
11		Scout, 4 x 4, M3A1	222	78	75	8,900	11,750	118	723	18.0
12	Carrier	Cargo, M30 (T14)	238	105	120	.....	47,000	174	1,740	43.4
13		Mortar, M21	237	78	73	.....	18,500	131	1,116	27.9
14		Mortar, M4	242	88	89	14,700	17,400	143	1,060	26.5
15	Carriage, motor	Gun, 75-mm How, M6	178	88	82	5,850	7,050	102	708	17.8
16		Gun, 76-mm, M18	251	110	102	.....	37,500	192	1,624	40.6
17		Gun, 3-inch, M10	236	120	98	.....	66,000	202	1,638	41.0
18		Gun, 3-inch, M10A1	236	120	98	.....	63,000	202	1,638	41.0
19		Gun, 155-mm, M2	265	105	106	.....	58,000	193	1,550	38.7
20		Howitzer, 105-mm, M7	223	114	100	.....	50,000	175	1,462	36.5
21		Howitzer, 75-mm, M8	174	89	92	.....	34,580	109	954	24.0
22		Multiple Gun, M13, (AA)	251	77	87	.....	19,800	145	1,188	29.7
23		Multiple Gun, w/w, M14, (AA)	256	85	87	16,800	19,800	145	1,069	26.7
24		Multiple Gun, M15A1, (AA)	243	98	104	.....	20,000	131	1,116	27.9
25		Multiple Gun, M16, (AA)	256	78	93	.....	19,800	105	1,188	29.7

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

	1	2	3	4	5	6	7	8	9	10
	Vehicle	Type of Body	Overall Dimensions (Inches)			Weight (Pounds)		Displacement		
			Length	Width	Reducible Height	Net	Gross	Square Feet	Cubic Feet	Ship Tons
26	Tank	Light, M3	179	88	100		28,000	106	924	23.1
27		Light, M3A3	198	100	91		31,280	108	940	23.5
28		Light, M5	175	89	95		32,340	109	861	21.5
29		Light, M5A1	175	89	95		32,340	109	861	21.5
30		Medium, M4	232	103	116		67,300	166	1,452	36.3
31		Medium, M4 (105-mm Howitzer)	232	103	116		68,500	166	1,452	36.3
32		Medium, M4A1	230	102	112		67,300	165	1,540	38.5
33		Medium, M4A2	234	103	116		70,100	167	1,526	38.4
34		Medium, M4A3	233	103	112		68,400	166	1,530	38.4
35		Medium, M4A4	239	103	112		71,900	170	1,529	38.4
36		Heavy, M6	300	126	124		120,000	244	2,442	61.0
	b. Trucks:									
1	Trucks, ¼-ton	Command	133	62	52	2,453	3,253	57	331	8.2
2		Amphibian	182	64	69	3,660	4,460	81	446	11.2
3	Trucks, ¾-ton	Carryall, 4 x 4 (Limited Standard)	186	79	81	5,750	7,250	102	670	17.0
4		Weapons Carrier, 4 x 4	167	83	63	5,250	6,750	97	502	12.5
5		Weapons Carrier, 4 x 4, w/w	177	83	63	5,550	7,050	102	529	13.2
6		Command Car, 4 x 4	166	79	63	5,375	6,875	85	442	11.8
7		Command Car, 4 x 4, w/w	176	79	63	5,675	7,175	96	500	12.5
8	Truck, 1½-ton, 4 x 4	Auger, earth, motorized, M2	223	94	80	7,200	10,200	164	1,438	36.0
9		Panel delivery, K51	222	87	91	6,760	9,760	133	1,541	38.5
10		Tractor	206	87	87	6,140	10,640	123	1,138	28.5

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

	1	2	3	4	5	6	7	8	9	10
11	Truck, 1½-ton, 6 x 6	Cargo, w/w	225	83	63	7,225	10,225	129	919	22.8
12		Cargo, wo/w	215	83	63	6,925	9,925	124	880	22.0
13	Truck, 2½-ton	Amphibian	373	86	107	13,600	18,800	248	221	55.2
14		Apparatus, decontaminating, power driven, M3A1	257	88	108	9,910	14,910	157	1,414	35.4
15		Cargo, C.O.E., 15′ body	267	88	109	10,810	14,410	163	1,474	36.9
16		Cargo, 6 x 6, SWB	231	88	110	10,100	15,100	142	1,301	32.5
17		Cargo, 6 x 6, w/w, SWB	245	88	110	11,000	16,000	149	1,365	34.1
18		Cargo, 6 x 6, LWB	256	88	92	10,050	15,050	156	1,429	35.7
19		Cargo, 6 x 6, w/w, LWB	265	88	92	11,000	16,000	165	1,511	37.7
20		Cargo and Dump, 6 x 6, SWB	230	87	116	10,620	15,620	137	1,321	33.1
21		Compressor, air, truck mounted	254	90	93	.....	14,300	163	1,304	32.6
22		Dump, 4 x 2	228	88	84	11,000	16,000	140	976	24.4
23		Gasoline Tank, 6 x 6, 750-gal, LWB	254	91	88	10,340	14,990	160	1,163	29.1
24		Ordnance Maintenance, 6 x 6	228	95	108	11,930	13,265	151	1,354	33.8
25		Repair 3	256	88	108	11,930	13,265	157	1,408	35.2
26		Shop, motorized [4]	273	96	115	11,130	16,130	182	1,748	43.7
27		Surgical, 6 x 6	256	92	118	11,280	16,280	160	1,603	40.0
28		Tractor, 4 x 4, K53	201	93	104	10,000	15,000	131	1,146	29.0
29		Van, K60	254	94	118	11,070	15,070	169	1,643	41.1
30		Water Purification, 6 x 6	260	96	123	.....	16,400	174	1,780	44.5
31	Truck, 4-ton, 6 x 6	Cargo, SWB, w/w	268	96	100	18,400	26,400	179	1,769	44.2
32		Cargo, LWB, w/w	297	96	117	18,500	26,500	179	1,769	44.2
33		Wrecker, w/w	292	101	111	.....	21,700	195	1,917	47.9
34	Truck, 4-5-ton, 4 x 4	Tractor, w/w	202	95	108	12,200	21,200	133	1,995	35.0
35	Truck, 5-6-ton, 4 x 4	Tractor, Ponton, C. O. E., w/w	297	99	131	16,600	27,300	166	1,536	38.4
36	Truck, 6-ton, 6 x 6	Prime mover, w/w	289	96	95	22,070	34,140	190	1,868	46.7
37		Bridge construction (Treadway)	254	91	88	10,340	14,990	160	2,437	60.9
38	Truck, 7½-ton, 6 x 6	Prime mover, w/w	297	103	94	29,620	44,620	210	2,132	53.3
39	Truck, 10-ton, 6 x 6	Heavy wrecker, M1	348	108	122	27,330	35,330	261	2,654	69.7

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

	1	2	3	4	5	6	7	8	9	10
	Vehicle	Type of Body	Overall Dimensions (Inches)			Weight (Pounds)		Shipping Dimensions		
			Length	Width	Reducible Height	Net	Gross	Square feet	Cubic feet	Ship tons
40	Truck, 40-ton, 6x6	Tank recovery vehicle, M25 (Truck-tractor M26, only)[3]	304	97	120	48,000	103,000	205	2,048	51.2
	c. Tractors:									
1		Crawler-type, 35D BHP, w/bulldozer	184	117	98		14,835	150	1,220	31.0
2		80 HP, D-7	246	163	113		33,303	283	2,622	66.0
3		113 HP, D-8	228	132	120		41,813	210	2,090	53.0
4		Medium, high speed, 18-ton, M4	206	97	99	28,000	31,400	139	1,138	28.5
5		Medium, high speed, 13-ton, M5	192	100	104	23,000	28,000	133	1,150	28.8
	d. Miscellaneous Motor Vehicles:									
1		Ambulance, ¾-ton, 4x4	195	78	91	5,920	7,720	105	790	19.8
2		Crane, truck mounted, ⅜-cu yd	252	95	134		22,600	172	1,848	47.0
3		Grader, road, Mtz, diesel engine, 12' moldboard	300	98	74		24,450	204	1,259	32.0
4		Motorcycle, solo	88	37	41	537	737	20	78	1.9
5		Motorcycle, w/side car	98	89	44	850	1,250	60	219	5.5
6		Sedan, 5-passenger, light	196	73	70	3,275	4,075	99	575	14.4
7		Sedan, 5-passenger, medium	209	77	64	3,700	4,400	110	583	14.6
8		Shovel, crawler mounted, ½-cu yd	355	95	120		26,300	236	2,370	60.0
9		Water supply set No. 2, mobile	260	96	123	16,400	20,100	174	1,777	45.0
10		Vehicle, Tank Recovery, M32	234	103	108		66,700	168	1,507	37.7

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

e. Semi-Trailers:

	1	2	3	4	5	6	7	8	9	10
1	1½-ton	Van, K-55 (Sig)	296	95	115	8,200	12,700	202	1,885	47.1
2	6-ton, gross	Van	221	86	132	5,800	11,800	132	1,455	36.4
3	10-ton, gross	Laundry	269	96	132	8,000	20,000	179	1,640	41.0
4		Refrigerator	242	96	129	12,150	22,150	164	1,763	44.1
5		Sterilizer and Bath	270	94	139	9,500	21,500	176	1,700	42.5
6		Map Reproduction equipment	346	96	132	.....	23,500	230	2,534	63.4
7	40-ton	Tank recovery vehicle, M25 (Semi-trailer, M15 only)[3]	462	124	41	36,300	116,300	398	1,359	33.9

f. Trailers:

1	¼-ton, 2 wheel	Cargo	78	40	42	550	1,050	42	141	3.5
2		Telephone cable splicer, K-38 (Sig)	78	56	42	410	910	21	68	1.7
3	½-ton, 2 wheel	Van, public address	148	88	93	2,200	3,200	63	486	12.3
4		Cargo, Armd, M8	119	89	53	2,640	4,840	73	316	8.0
5	1-ton, 2 wheel	Cargo	145	72	47	1,300	3,300	72	438	10.9
6		Cargo, K-52 (Sig)	140	72	74	1,282	3,232	72	438	11.0
7		Communications	255	84	103	5,800	7,800	148	1,276	32.0
8		250-gallon, water tank	137	72	58	1,400	3,400	67	324	8.1
9		Van, 2-horse	180	84	108	2,475	4,875	105	945	23.7
10		Ammunition, 1-ton, M10	140	82	58	2,090	.....	80	385	9.6
11	1½-ton, 4 wheel	Communications Van, K-35 (Sig)	309	96	116	7,800	10,800	260	1,992	50.0
12	2-ton, 4 wheel	Smoke generator, M7	193	95	98	5,750	9,750	128	1,024	25.6
13	2½-ton, 2 wheel	Utility, pole type (Type I)	225	84	43	2,460	7,460	131	470	11.7
14	5-ton, 2 wheel	Telephone construction, K-37 (Sig)	146	72	69	2,900	12,900	82	472	11.8
15	8-ton, 4 wheel	Full, low bed	300	102	57	9,990	25,990	170	825	20.6

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

	1	2	3	4	5	6	7	8	9	10
	Type Vehicle	Type Body	Overall Dimensions (Inches)			Weight (Pounds)		Shipping Dimensions		
			Length	Width	Reducible Height	Net	Gross	Square feet	Cubic feet	Ship tons
16	16-ton, 12 wheel	Full, low bed	346	102	60	15,330	55,330	193	967	24.2
17	20-ton, 12 wheel	Full, low bed	348	114	62	15,475	55,475	285	1.468	37.0
18	Miscellaneous	Searchlight trailer	190	96	114		7,550	127	1,203	30.1
19		Director, M9, trailer	192	96	100		9,160	128	1,066	26.7
20		Scraper, road, towed, 8-cu yd	396	121	128		13,900	334	3,549	84.0
	g. Towed Weapons:									
1		37-mm gun, AA, M3A1	241	70	81		5,300	117	765	19.1
2		37-mm gun, AT, M4A1	155	64	38		912	69	212	5.3
3		40-mm gun, AA, M2	226	72	80		5,549	113	846	21.1
4		57-mm gun, AT, M1A2	200	75	50		2,700	104	434	10.9
5		75-mm pack howitzer, M1	145	48	37		1,269	48	140	3.5
6		75-mm pack howitzer, M3A3	155	68	44		2,224	78	268	6.7
7		3″ gun, AA, M2A2	305	85	111		15,900	180	1,666	41.6
8		3″ gun, AT, M1	277	82	62		4,646	158	815	20.2
9		105-mm howitzer, M2	238	82	60		4,235	136	739	18.5
10		105-mm howitzer, M3A1	157	67	55		2,500	73	335	8.4
11		90-mm gun, AA, M1A1	250	101	112		19,000	176	1,664	41.6
12		90-mm gun, AA, M2	355	104	121		32,300	256	2,586	64.6
13		105-mm gun, AA, T4	431	124	124		46,200	371	3,841	96.0
14		4.5″ gun, M1	318	96	84		12,341	212	1,480	37.0
15		4.7″ gun, AA, T2	369	124	124		61,500	318	3,284	82.1
16		155-mm howitzer, M1	318	98	71		11,966	216	1,280	32.0
17		155-mm gun, M1	402	99	103		29,900	276	2,370	59.2
18		8″ howitzer, M1	402	99	100		28,000	276	2,300	57.4
19		240-mm howitzer, M1								
20		Carriage vehicle	429	111	128		47,200	330	3,520	88.0
21		Cannon vehicle	439	117	84		44,300	338	2,375	59.2

DIMENSIONS AND WEIGHT OF ITEMS OF EQUIPMENT [1] [2] (Continued):

[1] Figures shown are for representative types of vehicles as taken from TM 9-2800, Sep 43 or actual measurements. Various manufacturer's models vary slightly.

[2] Fractions of inch shown as next greater inch in all dimensions.

[3] Complete Tank Recovery Vehicle, M25 includes:
Truck-tractor, M26
Semitrailer, M15

[4] This chassis with different equipment is used for general purpose, electrical repair, light machine shop, small tool repair, tool and bench, and welding cargo. Used by Corps of Engineers.

602. ARMAMENT ORGANIC TO COMBAT VEHICLES:

1	1 Vehicle	2 Weapons: Cal. 30 MG	3 Weapons: Cal .50 MG	4 Weapons: 37-mm Gun	5 Weapons: 75-mm Gun [1]	6 Weapons: 75-mm How	7 Weapons: 76-mm Gun	8 Weapons: 3" Gun	9 Weapons: 2" Mortar M3	10 Weapons: 105-mm How	11 Weapons: 155-mm Gun
2	Car, armored, light, M8	1		1							
3	Car, armored, utility, M20 [2]		1								
4	Car, half-track, M2	1	1								
5	Car, half-track, M3	1									
6	Car, half-track, M3A2 [2]	1	1								
7	Car, scout, M3A1	1	1								
8	Carriage, cargo, T14 [3]		1								
9	Carriage, motor, 75-mm gun, M3				1						
10	Carriage, motor, 75-mm How, M8		1			1					
11	Carriage, motor, 76-mm gun, M18		1				1				
12	Carriage, motor, 3" gun, M10A1		1					1			
13	Carriage, motor, 81-mm mortar, M21		1						1 [6]		
14	Carriage, motor, 105-mm How, M7		1							1	
15	Carriage, motor, 155-mm gun, SP (M12)										1
16	Carriage, motor, multiple gun, M15A1		2	1 [4]							
17	Carriage, motor, multiple gun, M16		4 [5]								
18	Carriage, trailer, MG, cal .50, M51		4								
19	Tank, Light, T9E1 (AB)	1		1							
20	Tank, light, M24	2	1		1				1		
21	Tank, medium, 75-mm gun, M4A3	2	1		1				1		
22	Tank, medium, 105-mm How, M4A3	2	1						1	1	
23	Tank, Heavy, M6	2	2	1				1			

[1] 75-mm guns are being replaced by 76-mm guns.

[2] Normally issued without armament. Armament included in T/E of organization to which vehicle is issued.

[3] Ammunition carrier for Carriage, motor 155-mm gun, SP (M12).

[4] Gun, AA, 37-mm, M1A2.

[5] Turret-type guns (AA).

[6] Includes 81-mm mortar.

603. CHARACTERISTICS OF INFANTRY WEAPONS:

1	1 Weapon	2 Weight in firing position (pounds)	3 Method of operation	4 Type of feed	5 Maximum rate of fire (rounds per minute) (1)	6 Sustained rate of fire (rounds per minute) (2)	7 Projectiles: Maximum range (yards)	8 Projectiles: Maximum effective range (yards)	9 Projectiles: Effective radius of burst—fragmentation (yards)
2	Grenade, AT	3.10			4		220 [3]	220 [3]	10
3	Grenade, hand, fragmentation, Mk II	1.31	([4])				50	50	([5])
4	Gun, machine, M1917, cal .30 (Hv) w/pintle	33.50	Recoil, automatic	250-round fabric belt	400–525	125	3,500 [6] 5,500 [7]	1,800 3,000 [6 8] 4,000 [7 8]	
	Gun and tripod M1917A1, with water	91.75							
	Gun and tripod, without water	84.50							
	Tripod, M1917A1	51.00							
	Chest with filled belt	20.50							
	Spare parts chest with contents	17.30							
	Chest 5.60								
	Spare parts 6.59								
	Accessories 5.11								
	Water chest, full	22.50							
	Water chest, empty	9.00							
5	Gun, machine, M1919A4, cal.30 (light) [10]	42.25	Recoil, automatic	100, 150, 250-round fabric belt	400–550	60	3,500 [6] 5,500 [7]	1,800 3,000 [6 8 9] 4,000 [7 8 9]	
	Ammunition chest, wooden (empty)	5.50							
	Ammunition chest, metal (empty) approx	4.00							
	Spare parts chest with contents	20.64							
6	Gun, machine, M-2, cal .50 (HB, flexible)		Recoil, semi-automatic & automatic	Metallic disintegrating link belt	400–500	125	7,200	1,800	
	Gun with tripod M-3, 45" barrel	129.00							
	Gun with tripod M-3, 36" barrel	124.00							
	Accessories and spare parts chest	32.00							
	Ammunition chest, empty	4.73							
	Ammunition chest, 100 cart AP (SNLA39)	35.53							

CHARACTERISTICS OF INFANTRY WEAPONS (Continued):

1	1	2	3	4	5	6	7	8	9
							Projectiles		
	Weapon	Weight in firing position (pounds)	Method of operation	Type of feed	Maximum rate of fire (rounds per minute) [1]	Sustained rate of fire (rounds per minute) [2]	Maximum range (yards)	Maximum effective range (yards)	Effective radius of burst—fragmentation (yards)
7	Carbine, cal .30, M-1 With magazine, loaded and sling Magazine, loaded, 15 rounds Magazine, unloaded	5.00 5.80 0.57 0.17	Gas, semi-automatic	15-round magazine	30–40	25	2,000	300	
8	Gun, 57-mm, M-1 Gun and carriage, M-1, M-1A1, or M-1A2	 2,700	Manual Single Shot	Hand, breech loading	10–15	6–8	10,260	800 [11]	[12]
9	Howitzer, 105-mm, M-3	3,800	Manual Single shot	Hand, breech loading	4	2	7,240	6,150	Lateral–50 Range–15
10	Mortar, 60-mm, M-2	42.00	Manual, single shot	Hand, muzzle loading	30–35	18	1,985	[13]	17
11	Mortar, 81-mm, M-1, and mount	136.00	Manual, single shot	Hand, muzzle loading	30–35	18	3,290 [14] 2,560 [15] 2,430 [16]	[13]	25
12	Pistol, automatic, cal .45 Pistol with loaded magazine Pistol with empty mazagine	 2.80 2.44	Recoil, semi-automatic	7-round box magazine	21–28	10	1,600	50	

CHARACTERISTICS OF INFANTRY WEAPONS (Continued):

	1	2	3	4	5	6	7	8	9
13	Rifle, automatic, cal. 30, Browning, M1918, A2		Gas, automatic	20-round box magazine	350–550 [17]	40—60	3,500 [6]	600 [6]	
	Rifle with sling	20.00							
	Magazine, filled	1.43							
	Magazine, empty	7ounces							
14	Rifle, U.S., cal .30, M1903A4		Manual	5-round clip	10–15	10	3,500 [6]	600 [6]	
	Rifle without bayonet	9.69							
	Rifle with bayonet	10.69							
15	Rifle, U.S., cal .30 M-1		Gas, semi-automatic	8-round clip	16–32	16	3,500 [6]	600 [6]	
	Rifle without bayonet	9.00							
	Rifle with bayonet	10.00							
16	Rocket, AT, 2.36"	3.50			4	4	650	300	10–15 [12]

[1] For other than full automatic weapons, proficiency of personnel is a controlling factor.
[2] A variable factor, the time of endurance of which is limited by construction, heating, and other conditions influencing prolonged performance.
[3] The grenade is effective at any range up to 220 yards. The maximum accurate range when fired as a flat trajectory weapon is 75 yards.
[4] These grenades may be fired with launcher attached to rifle, M-1903, M-1, or carbine, and grenade projection adapter, M-1. Ranges up to 180 yards with M-1903 or M-1 rifle.
[5] Casualty effect dependent on confinement of the area.
[6] M-1906, M2 ball, M2 armor-piercing ammunition, and M1 tracer.
[7] M1 ammunition.
[8] Indirect fire.
[9] Gun not well suited to indirect fire.
[10] Machine gun, cal. 30, M1919A4, tank, has same ballistic qualities.
[11] Against armored vehicles.
[12] No fragmentation—used for demolition purposes only.
[13] Within limits of maximum range. Observation is a controlling factor.
[14] Light shell. (HE) Superquick fuze.
[15] Heavy shell. (HE) Delayed action fuze.
[16] Chemical (smoke) shell (WP) superquick fuze.
[17] Automatic.
[18] Effective against any known medium or light tank.

604. CHARACTERISTICS OF FIELD ARTILLERY WEAPONS:

1	1 *Type and caliber (model designation refers to carriage)*	2 *Organic to* *Unit*	3 *T/O & E*	4 *Weight of piece and carriage, pounds* *Travelling position*	5 *Firing position*
2	Howitzer, 75-mm, M-1 (pack)	FA Bn, 75-mm Pk How FA Bn, 75-mm Pk How Trk Dr Parachute FA Bn, 75-mm Pk How Glider FA Bn, 75-mm Pk How	6-155 6-175 6-215 6-225	1,392	1,269
3	Howitzer 75-mm, M3A1, M3A2 (field) [4]	FA Bn, 75-mm, Field How, Horse	6-115	2,930 [4]	2,160
4	Howitzer 105-mm, M2A2	FA Bn, Mtz, 105-mm How, Trk Dr Tr Dr	6-25 6-325	4,900	4,900
5	Howitzer 105-mm, M7	Armd FA Bn	6-165	46,500 [5]	46,500 [5]
6	Gun, 4.5 inch M1A1	FA Bn, 4.5-inch Gun, Trk Dr Tr Dr	6-35 6-335	12,500	12,341
7	Howitzer 155-mm, M1A1	FA Bn, Mtz, 155-mm How, Trk Dr Tr Dr	6-35 6-335	12,000	11,966
8	Gun, 155-mm M1A1 [6]	FA Bn, Mtz, 155-mm Gun Trk Dr Tr Dr	6-55 6-355	29,900 [7]	27,700
9	Gun, 155-mm M12	FA Bn, Mtz, 155-mm Gun SP	6-125	55,400	55,400
10	Howitzer, 8-inch, M1A1 [6]	FA Bn, Mtz 8-inch How Trk Dr Tr Dr	6-65 6-365	28,000	30,200
11	Gun, 8-inch M2	FA Bn, 8-inch Gun, Trac Dr	6-395	Gun.....50,400 Carr.....48,840	69,500
12	Howitzer, 240-mm, M1918A2	FA Bn, 240-mm How, Mtz	6-145	How.....30,000 Carr.....25,000	41,300
13	Howitzer 240-mm, M1	FA Bn, 240-mm How, Mtz, Tr Dr	6-395	How.....44,300 Carr.....47,200	64,700

[1] Proficiency of personnel is a controlling factor.
[2] For Staff Planning Purposes, a figure of 85% of the maximum range is generally used. This may vary under special conditions.
[3] Six loads for Pk mules. Average total Wt on mule 342 lbs. Maximum pay load 248 lbs.

CHARACTERISTICS OF FIELD ARTILLERY WEAPONS (Continued):

1	6	7	8	9	10	11	12	13	14
	Piece Transportation	*Time to emplace (minutes)*	*Maximum rate of fire— (rounds per minute)*[1]	*Sustained rate of fire— (rounds per minute)*	*Projectile*				
					Maximum Range (yards)		*Effective area of burst (yards)*		*Wt (lbs)*
					100%	*85%*[2]	*Lateral*	*Range*	
2	6 Pk Mules[3] Trk, ¼-ton Trk, ¼-ton	3	6	3	9,610	8,165	30	10	15
3	6 H team	3	6	3	9,610	8,165	30	10	15
4	Trk, 2½-ton Trac, 13-ton M-5	3	4	2	12,205	10,374	50	15	33
5	Self-propelled		4	2	12,205	10,374	50	15	33
6	Trk, 4-ton Trac, 13-ton M-5	5	4	1	21,125	17,955			55
7	Trk, 4-ton Trac, 13-ton M-5	5	2	1	16,355	13,895	60	18	95
8	Trac, 18-ton M-4	30–360	3	1	25,715	21,860	60	18	95
9	Self-propelled		3	1	20,100	17,085	60	18	95
10	Trac, 18-ton, M4 Trk, 7½-ton	30–360	1	½	18,510	15,430			200
11	Trac, 38-ton, M6	120–360	½	¼	35,400	30,090			286
12	Trac, 38-ton, M6	120–360	½	¼	16,390	13,390			361
13	Trac, 38-ton, M6	120–360	½	¼	25,255	21,470			361

[4] Includes 770 lbs. limber.
[5] Weight fully equipped.
[6] Used with limber, heavy carriage, M2.
[7] Includes weight of heavy carriage limber M2, 2,000 lbs.

■ 605. CHARACTERISTICS OF ANTIAIRCRAFT ARTILLERY WEAPONS (MOBILE AND SELF-PROPELLED):

a. Basic Data:

1	1	2	3	4	5
	Type and caliber (model designation refers to carriage)	*Weight of piece and carriage (pounds)*		*Piece Transportation*	*Average time to emplace (minutes)*[1]
		Traveling position	*Firing position*		
2	Gun, 40-mm, M2	5,549	([3])	Trk, 2½-ton	3[4]
3	Gun, 90-mm, M1	19,000	([3])	Trk, 6-ton or Trac, 18-ton	20
4	Gun, 90-mm, M2	32,300	25,850	Trk, 6-ton, or Trac, 18-ton	20
5	Gun, 4.7-inch, M1	61,500	([3])	Trac, 30-ton	40
6	Gun, machine, cal .50, M2	485	485	Trk, 2½-ton	3[7]
7	Multiple, MG mount, cal .50, M51 (4 guns)	7,488	7,488	Tlr towed by Trk, 2½-ton	3[8]
8	SP Auto Wpns unit M15 1-37-mm gun 2-cal .50 MG	20,100	20,100	Self-propelled (half-track)	None
9	SP MG unit M16, cal .50 (4 guns)	19,800	19,800	Self-propelled (half-track)	None

[1] Time required to prepare gun for action—from travelling position. Time for digging in, camouflage, etc., to be added.

[2] For non-automatic weapons, proficiency of personnel is a controlling factor.

[3] Information not available.

[4] To emplace with director, 15 to 30 minutes.

CHARACTERISTICS OF ANTIAIRCRAFT ARTILLERY WEAPONS (MOBILE AND SELF-PROPELLED):

Basic Data (Continued):

1	6	7	8	9	10	11	12
	Elevation (degrees)		*Maximum rate of fire (rounds per minute)*[1]	*Range (yards)*			
				Horizontal		*Vertical*	
	Minimum	*Maximum*		*Maximum*	*30 sec fuze limit*	*Maximum*	*30 sec fuze limit*
2	—6[5]	+90	120	10,850	4,315[6]	7,625[6]	4,315[6]
3	—5	+80	18	19,980	12,425	13,170	11,625
4	—10	+80	25	19,980	12,425	13,170	11,625
5	—5	+80	12	28,250	16,400	20,600	16,500
6	—15	+69	500–650	7,125		([3])	
7	—10	+90	2,000 to 2,680	7,125		([9])	
8	([3])	([3])	37-mm=120 .50 Cal= 1,000-1,300	7,125		([9])	
9	—10	+90	2,000 to 2,600	7,125		([9])	

[5] With jacks—11°.

[6] 9 second fuze limit.

[7] Gun may be fired from truck, or removed from truck without disassembling from cradle or tripod.

[8] Gun can be fired from travelling position.

[9] Range of cal .50 approximately same as shown in line 6 for M2.

CHARACTERISTICS OF ANTIAIRCRAFT ARTILLERY WEAPONS (MOBILE AND SELF-PROPELLED) (Continued):

b. Antiaircraft Artillery Automatic Weapons Ranges:

Altitude Ft.	*Maximum Deterrent Horizontal Range (Yds)* (1)			*Maximum Killing Horizontal Range (Yds)* (1)			*Effective Killing Horizontal Range (Yds)* (1)		
	40-mm director control	*40-mm M7 sight control*	*.50 cal. MG* (3)	*40-mm director control*	*40-mm M7 sight control*	*.50 cal. MG*	*40-mm director* (2)	*40-mm M7 sight control*	*.50 cal. MG*
1000	3500	3500	1800	2500	1500	900	1500–600 (4)	1000–400 (4)	500–0

(1) Horizontal range in yards decreases as altitude increases and vice versa.

(2) Average hit expectancy or number of hits expected per 100 Rds fired 4%.

(3) Tracer burn out range. The extent of deterrent effect of .50 cal. tracer is questionable.

(4) Minimum range limited by max tracking rate. For targets diving directly at the gun, minimum range would be limited.

CHARACTERISTICS OF ANTIAIRCRAFT ARTILLERY WEAPONS (MOBILE AND SELF-PROPELLED) (Continued):

c. Perforating Characteristics of the Projectiles:

Weapon	*Projectile, Type and Weight (lbs)*	*Muzzle Velocity (ft/sec)*	*Perforation at 1,000 yds from 1 round*	
			Concrete (5,000 lb/sq in)	*Homogeneous Armor Plate*
90-mm M1 and M2	AP M77 23.4	2,700	3.8 ft	5.5 in

d. Cumulative Effect of Weapons on Concrete:

Weapon	*Type of Ammunition*	*Simulated Range, yds*	*Number of rounds to perforate concrete pillbox*		*Remarks*
			Wall thickness		
			5 feet	*7 feet*	
40-mm gun, M1	AP M81	1,000	60–80	.....	84 rounds perforated 5-foot wall
90-mm gun, M1	AP M77	1,000	3–4	8–10	9th round perforated 7-foot wall

606. CHARACTERISTICS OF COAST ARTILLERY WEAPONS *(Seacoast Mobile):*

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	Type and caliber (model designation refers to carriage)	*Weight of piece and carriage (pounds)*		*Piece transportation*	*Time to emplace*	*Maximum rate of fire (rounds per minute)*	*Sustained rate of fire (rounds per minute)*	*Maximum range (yards)*
		Traveling position	*Firing position*					
	RAILWAY:							
2	Gun, 8-inch (old)	174,000	174,000	Rwy flat car	3 hours	1⅕	1⅕	26,000
3	Gun, 8-inch, M1A1	230,000	230,000	Rwy flat car	1½ hours	1⅕	1⅕	32,000
4	Gun, 14-inch, M1920	730,000	730,000	Rwy flat car (1)	8 hours	½	½	45,000
5	Mortar, 12-inch, M1918	176,800	176,800	Rwy flat car (1)	3 hours	⅔	⅔	15,291
	TRACTOR DRAWN:							
6	Gun, 155-mm, M1917, & M1918	24,000	(2)	Tractor, Hv, M1	1-6 hours	3	(2)	20,000
7	Gun, 155-mm, M1917A1 M1918A1, M2, and M3	27,800	(2)	Tractor, Hv, M1	1-6 hours	4	(2)	20,000

[1] Routings restricted to certain railway lines by requirements of curvature, clearance and bridge capacities.
[2] Information not available.

607. CHARACTERISTICS OF CHEMICAL WEAPONS:

1	1 Weapon	2 Weight (pounds)	3 Transportation	4 Time to emplace (minutes) Day	5 Night	6 Maximum rate of fire (rounds per minute)	7 Sustained rate of fire (rounds per minute)	8 Projectile Maximum range (yards)	9 Effective radius of burst (yards)
2	4.2-inch Cml mortar, M2		¼-ton Trk & Tlr Hand cart may be used	5	10	20	5	4,400 [M6 Powder]	40 (WP Shell)
	Barrel	91							
	Baseplate	150							
	Standard	53							
	Hand cart, loaded with Cml mortar, complete	491							
	Hand cart, loaded with 10 rounds shell (boxes)	479							

608. CHARACTERISTICS OF CHEMICAL AGENTS:

a. Toxic Gas:

1	1	2	3	4	5	6	7	8.	9	10
	Agent (common name)	*CWS Symbol*	*Marking on munition*	*Odor in air*	*Persistency*		*Tactical Classification*	*Physiological Classification*	*Effect on body*	*Munitions suitable for use*
					Summer	*Winter*				
2	Phosgene	CG	1 green band CG GAS	Like ensilage, fresh-cut hay	5 minutes [1] 10 minutes [2]	10 minutes [1] 20 minutes [2]	Casualty gas	Choking gas [3]	Burns lower respiratory tract, causes accumulation of fluid in lungs	Cml Mort shells, bombs
3	Chlorine	CL	1 green band CL GAS	Pungent	5 minutes [1] 10 minutes [2]	Same as summer	Casualty gas	Choking gas [3]	Burns upper respiratory tract	Mixed with CG and PS. Cml Mort shell.
4	Hydrocyanic Acid Gas	AC	1 green band AC GAS	Bitter Almond	5–10 seconds [1]	Same as summer	Casualty gas (instantaneous)	Blood and nerve poison	Kills by poisoning nerves	Frangible grenade, bombs.
5	Cyanogen Chloride	CC	1 green band CC GAS	Biting	1 to 10 minutes	Same as summer	Casualty gas	Blood and nerve poison	Paralysis, injures lungs, causes tears	Bombs
6	Arsine	SA	1 green band SA GAS	Faint garlic	1 to 10 minutes	Same as summer	Casualty gas	Blood and nerve poison	Poisons blood and nerves	Bombs
7	Mustard	H	2 green bands H GAS	Like garlic or horseradish	3 to 4 days [1] 1 week [2]	Several weeks	Casualty gas	Blister gas [4]	Is absorbed in skin and lung tissue, produces burns and blisters	All type shell, airplane spray, bombs, land mines
8	Lewisite	L	2 green bands L GAS	Like geraniums, then biting	24 hour [1] 2 to 3 days [2]	1 week or more	Casualty gas	Blister gas [4]	Is absorbed in skin and lung tissue, Produces burns and blisters. Also poisons body	All type shell, Bombs, land mines, spray

	1	2	3	4	5	6	7	8	9	10
9	Mustard-Lewisite mixture	HL	2 green bands: HL GAS	Intermediate between H & L			Casualty gas	Blister gas (4)	Effects show within 30 minutes. Also see H & L	Spray, bombs, shell, land mines
10	Nitrogen Mustards	HN	2 green bands: HN GAS	Faint fishy	2 hours	Days	Casualty gas	Blister gas (4)	Like H but faster	Spray, bombs, shell, land mines
11	Ethyldichlorarsine	ED	2 green bands ED GAS	Biting, irritant	1 to 2 hours (1) 2 to 6 hours (2)	2 to 4 hours (1) 12 hours 2	Harassing and casualty gas	Blister gas (4)	Vesicant 1/6 as powerful as H. A powerful vomiting gas. Causes paralysis of the fingers	Shells, spray bombs
12	Chlorpicrin	PS	2 green bands PS GAS	Sweetish, like fly paper	1 hour 1 4 hours 2	12 hours 1 1 week 2	Harassing and casualty gas	Choking gas (3)	Lacrimates, irritates nose and throat, produces nausea and lung irritation in order as concentration increases	Mixed with CN in shells, spray, and bombs
13	Tear Gas	CN	1 red band CN GAS	Like apple blossoms	Solid form: several days Burning mixture: 5 minutes	Solid form: several weeks Burning mixture: 10 minutes	Harassing gas Training and civil disturbances only	Tear gas (5)	Eye and mild skin irritation	Grenades, pots.
14	Tear Gas Solution	CNS	1 red band CNS GAS	Like fly paper	1 hour 1 2 hours 2	6 hours 1 1 week 2	Harassing gas	Tear gas (5)	Violent eye irriation, vomiting, and mild skin itching	Shells, spray, grenades

CHARACTERISTICS OF CHEMICAL AGENTS (Continued):

1	1	2	3	4	5	6	7	8	9	10
	Agent (common name)	*CWS Symbol*	*Marking on munition*	*Odor in air*	*Persistency*		*Tactical Classification*	*Physiological Classification*	*Effect on body*	*Munitions suitable for use*
					Summer	*Winter*				
15	Adamsite	DM	1 red band DM GAS	No pronounced odor	5 minutes	Same as summer	Harassing gas	Vomiting gas (6)	Headache, nausea, violent sneezing, followed by temporary debility	Burning type munitions
16	Diphenylchlorarsine	DA	1 red band DA GAS	Like shoe polish	5 to 10 minutes	Same as summer	Harassing gas	Vomiting gas (6)	Sneezing, vomiting, headache	Burning type munitions

b. Screening Smokes:

1	1	2	3	4	5	6	7	8	9	10
2	White phosphorus	WP	1 yellow band WP SMOKE	Like matches	While burning	Same as summer	Screening smoke also casualty, and incendiary	None	Solid particles burn flesh. Smoke relatively harmless	Grenades, shells, bombs
3	Sulfur trioxide solution	FS	1 yellow band FS SMOKE	Acid or acrid	While container is operating	Same as summer	Screening smoke	None	Liquid burns like strong acid. Smoke causes prickling sensation on skin	Spray tanks, shells
4	HC mixture	HC	1 yellow band HC SMOKE	Acrid, suffocating when very dense	While burning	Same as summer	Screening smoke	None	None from solid. Slight suffocating action by heavy smoke	Burning type munitions only: grenades, smoke pots, BE shell
5	FM (titanium tetrachloride)	FM	1 yellow band FM SMOKE	Acrid	10 minutes (1)	10 minutes (1)	Screening smoke Training only	None	Liquid burns like strong acid. Vapor and smoke irritating to throat	Shells, special munitions

CHARACTERISTICS OF CHEMICAL AGENTS (Continued):

c. Incendiaries:

	1	2	3	4	5	6	7	8	9	10
2	Thermite	TH	1 purple band: TH INCEND				Incendiary			Bombs, grenades
3	Magnesium	MG	1 purple band: MG INCEND				Incendiary			Bombs
4	IM (Isobutyl Methacrylate)	IM	1 purple band: IM INCEND				Incendiary			Oil type incendiary bombs
5	NP (Napalm Thickener)	NP	1 purple band: NP INCEND				Incendiary			Oil type incendiary bombs

[1] In open.
[2] In woods.
[3] Choking gas—formerly called Lung Irritants.
[4] Blister gases formerly called Vesicants.
[5] Tear gases formerly called Lacrimators.
[6] Vomiting gas.—An agent which causes sneezing, vomiting, irritation of the throat and nose, and temporary physical disability. (Up to 24 hours). Formerly called Sternutators.

609. Data on Chemical Munitions:

	1	2	3	4	5	6
1	*Munition*	*Agent and weight of filling (pounds unless otherwise indicated)*	*Weight of filled munition complete (pounds unless otherwise indicated)*	*Approximate time for agent to burn or evaporate at point of release* (1)	*Marking and color*	*Chemical efficiency (percent)* (2)
2	Grenade, frangible, M-1	3 types, approx. 1 lb.	1.50 av.	30 seconds to 15 minutes	Varies with filling	67
3	Grenade, hand, irritant, CN-DM, M-6	Mixture of CN-DM.....1	2.0	1 minute	CN-DM Gas; 1 band, red	50
4	Grenade, incendiary, M-14	TH.....1.65	2.62	2 minutes	TH Incend; 1 band, purple	63
5	Grenade, hand, smoke, WP, M-15	WP.....1	1.95	1 minute	WP Smoke; 1 band, yellow	51
6	Grenade, Smoke Colored, M16 (6 colors) [3]	0.75	2.0	2 minutes 20 seconds	1 band, yellow. Lettering and color of top indicate color	38
7	Grenade, Smoke Colored, M18 (6 colors) [3]	Same as M16 except: Burns in 1 minute and color more pronounced M16 obsolete—no longer manufactured. May be seen in field.				
8	Candle, gas, irritant, DM, M-1	DM.....2	9	2 minutes	DM Gas; 1 band, red	22
9	Land mine, Cml (1-gallon can)	H.....10.5	13.0	10 days	H Gas; 2 bands, green	85
10	Pot, smoke, HC, M-1	HC.....12.5	14.3	5 to 8 minutes	HC Smoke; 1 band, yellow	87
11	Shell, 4.2-inch chemical mortar	WP.....7.5 H.....6.5 HE.....6.8	WP.....25.5 H.....24.5 HE.....26.0	2 to 3 minutes 10 days	WP Smoke; 1 band, yellow H Gas; 2 bands, green	WP.....29 H.....26 HE.....26

DATA ON CHEMICAL MUNITIONS (Continued):

	1	2	3	4	5	6
12	Shell, 81-mm mortar, Cml	WP.....4.1	WP.....11.4	1 minute	WP Smoke; 1 band, yellow	36
13	Shell, 75-mm howitzer, Cml	H.....1.04 WP.....1.34	H.....14.94 WP.....15.25	1 week 30 seconds	H Gas; 2 bands, green WP Smoke, 1 band, yellow	H.....7.0 WP.....8.8
14	Shell, 75-mm gun, Cml	WP.....1.81 H.....1.33	WP.....12.77 H.....12.31	Same as 75-mm Howitzer	Same as above	WP.....10.8 H.....10.0
15	Shell, 105-mm howitzer, Cml	H.....3.17 WP.....4.06	33.8 34.7	1 week 1 minute	Same as above	H.....9.4 WP.....11.7
16	Shell, 155-mm gun, Cml	H.....11.5	94.6	10 days	H Gas; 2 bands, green	H.....12.2
17	Shell, 155-mm howitzer, Cml	H.....11.5 WP.....15.3	94.5 98.0	H.....10 days WP.....2 minutes	H Gas; 2 bands, green WP Smoke, 1 band, yellow	H.....12.2 WP.....15.6
18	Tanks, airplane, chemical spray: M-10, non-pressure	Inbd Outbd FS.....432 305 L.....432 305	Inbd Outbd 500 373	FS.....5 to 10 secs L.....4 to 6 hours		Inbd Outbd 86.4 81.8
19	M-33 non-pressure	FS or L.....1100	1,280	FS.....5 to 10 secs L.....4 to 6 hours		86.7

DATA ON CHEMICAL MUNITIONS (Continued):

1	1 Munition	2 Agent and weight of filling (pounds unless otherwise indicated)	3 Weight of filled munitions complete (pounds unless otherwise indicated)	4 Approximate time for agent to burn or evaporate at point of release [1]	5 Marking and color	6 Chemical efficiency (percent) [2]
20	*Bomb, chemical:* 100-pound, M-47	WP.....100 H.....71	120 102	8 to 10 minutes 1 week	WP Smoke, 1 band, yellow H Gas; 2 bands, green	83 69
21	*Bomb, Smoke.* 10-pound, M-67		10	10 minutes	1 band, yellow	80
22	*Bombs, Incendiary:* Magnesium body: AN-M-50 AN-M-52	 TH.....10 oz. TH..... 8 oz.	 4 2	 9 to 12 minutes 7 to 10 minutes	 AN-M-50 (52) or AN-M-50 (52)X, 1 band, purple [4]	
23	Steel body: AN-M-54	TH.....1 lb. 9 oz.	4	1½ minutes	AN-M-54 or AN-M-54X 1 band, purple [4]	
24	100-pound, M-47:	1M.....50 lbs. NP.....50 lbs.	70	10 to 20 minutes	NP, 1 band, purple IM, 1 band, purple	
25	6-pound, M-69:	IM.....2.6 lbs. NP.....2.6 lbs.	6.2	5 minutes	AN-M69, 1 band, purple	

[1] Variable depending on amount of agent released, type of agent, terrain, and meteorological conditions.

[2] Ratio filling to total weight.

[3] Colors: Red, yellow, green, violet. For air-ground and other signaling.

[4] X after designation indicates explosive charge. Small incendiaries assembled and dropped in clusters of varying sizes.

610. CHEMICAL AMMUNITION REQUIREMENTS:

a. Gas Shell:

	1	2	3	4	5	6
1	*Agent*	*H, L or HL* (1)				*CG* (2)
	Weapon	*75-mm gun or How.*	*105-mm howitzer*	*155-mm gun & How*	*4.2-inch mortar*	*4.2-inch mortar*
2	Rounds per target (point target) [3]	540	232	64	112	160
3	Rounds per square 100×100 yards (area target)	270	116	32	56	80
4	Rounds per circle 200 yards diameter (area target)	1080	464	128	224	320

[1] Below 50 degrees F, increase H 25%. On wooded targets use 50% of the quantities given. Do not fire H below 32 degrees F. Use L or HL.
[2] Fired in not over 2 minutes.
[3] Minimum depth in line of fire, 200 yards (observed fire).

b. Smoke shell (1) Rounds per 100 yards per minute for combined screening and casualty effects.

	1	2	3	4	5
1	*Wind direction*	*Following 6 o'clock*	*Head 12 o'clock*	*Flank 3 or 9 o'clock*	*Quartering*
2	81-mm mortar	2.5	2	1.0	2
3	4.2-inch chemical mortar	1.25	1	.5	1
4	75-mm gun and howitzer	12	10	4	8
5	105-mm howitzer	9	7	1.5	6
6	155-mm howitzer	3	2	.5	2

CHEMICAL AMMUNITION REQUIREMENTS (Continued):

(2) Rounds per 100 yards per minute for screening effects only. (To obtain the number of rounds required, measure the line to be screened in hundreds of yards. Multiply this length by the quantity shown for the direction of wind given. Multiply this result by the number of minutes the screen is to be maintained plus one minute for the establishment of the screen. For adjustment fire and establishment of the screen approximately three times as much ammunition is required as for maintenance):

1	1	2	3	4	5
	Wind direction	*Following 6 o'clock*	*Head 12 o'clock*	*Flank 3 or 9 o'clock*	*Quartering*
2	81-mm mortar	1.5	1.5	.8	1.0
3	4.2-inch chemical mortar	.7	.7	.4	.5
4	75-mm gun and howitzer	6.	6.	3.	4.
5	105-mm howitzer	4.	4.	1.5	3.
6	155-mm howitzer	1.3	1.3	.5	1.
7	HC smoke pots [1]	6.	6.	3 to 4	5.

[1] For smoke pots, the quantities indicated are the number of pots that must be kept burning. The smoke pots burn an average of six and one-half minues; hence the indicated quantity will screen 100 yards for that period.

(3) BE Smoke Shell—105- and 155-mm How.

The following suggestive data on base ejection artillery shell for screening may be considered as a supplement to FM 3-5, par. 2 *b* and *c* of appendix 7, pending the issue of an official publication by AGF:

Shell	*Max. Yards Between Points of Shell Impact (Parallel to Front) With Wind Direction as*		*Rate of Fire [1] per Point of Impact Rounds per Minute*		
	6 & 12 o'clock	*3 & 9 o'clock*	*3 mph*	*10 mph*	*15 mph*
M84 for 105-mm Howitzer	30	400	1.0	1.5	2.0
M115 & M116 for 155-mm Howitzer	30	400	0.6	0.9	1.2

[1] **The initial screen should be established by firing two (2) rounds per piece as quickly as possible, and maintained thereafter at the rate indicated.**

The combination time and superquick fuze, M54, should be used to insure air bursts by an initial fuze setting of 1 to 2 seconds less than that used for zero height of burst for time shell. Subsequent adjustment may be made as needed by increasing or decreasing the time setting.

c. Airplane munitions:

(1) 100-lb. bombs, M47, (H, L or HL, for contamination)

Bombs per square (100 yards by 100 yards), 8
Bombs per 100 yards of occupied target 3
Bombs per 100 yards of road for interdiction 5
For bombs used on wooded area targets, reduce quantity 50%
For temperatures between 50° and 20° F, increase quantity 25%, for H.

CHEMICAL AMMUNITION REQUIREMENTS (Continued):

(2) Tanks for airplanes—

(a) Area covered by one wing tank, persistent gas.

Based on average meteorological conditions and following factors:

Altitude—100 feet.
Ground speed of airplane—275 m.p.h.
Wind velocity 3 to 10 m.p.h., at right angle to line of flight.

M10 Airplane Chemical Spray Tank.

Area covered by one tank: 800 yards long by 300 yards wide.
Capacity: 33 gallons, discharge time approximately 6 seconds.
Note: Airplane carries 4 wing tanks. Length of area may be varied by releasing tanks individually.

M33 Airplane Chemical Spray Tank.

Area covered by one tank: 1000 yards long by 300 yards wide.
Capacity: 75 gallons. Discharge time 7 seconds.
Airplane carries one tank, in bomb bay.

(b) Frontage screened by airplane chemical spray tanks, Smoke FS (or FM).

4 M10 tanks can screen 3200 yards of front.

One M33 tank can screen 1000 yards.

d. Land mines, H, L or HL filled.—(Effect is obtained by contamination):

MINES REQUIRED

1	*1*	*2*
	Purpose	*Mines required*
2	Barriers	Four parallel lines of mines 25 yards apart with mines staggered at 10-yard intervals in each line
3	Large areas	Lines of mines 25 yards apart with mines staggered at 20-yard intervals in each line
4	Along roads	One line of mines on each side of the road with mines staggered at 10-yard intervals along each line
5	Demolitions	Mines placed in lines 5 yards apart at 5-yard intervals along each line. The approaches to the demolition should be contaminated using 20 mines per square.

■ 611. CAPABILITIES OF CHEMICAL BATTALIONS: [1]

a. Mortar Operations.—Firing for area neutralization using HE Shell, WP shell or Mixed HE-WP require 24 rounds per square. Based on Prescribed Loads Plat can neutralize 8 squares, Co 24 squares & Bn 72 squares. Additional Am will only increase length of neutralization period.

	1	2	3	4
	Agent	*Platoon*	*Company*	*Battalion*
1	Non-persistent gas	Unit too small to use effectively	Covers target area of 6 squares	Covers target area of 18 squares
			Gas also effective downwind on additional area at least equal to initial area covered	
2	Persistent gas	Neutralizes area of 6 squares [2] [3]	Three times the capability of one platoon	Three times the capability of one company
3	Harassing gas (i.e. CNS)	Harasses for 4 hours 59 squares, or for 8 hours, 29 squares, etc.	Three times the capability of one platoon	Three times the capability of one company
		Gas remains effective for about 1 hour after firing ceases. The concentration should be maintained for at least 2 hours.		
4	Smoke (WP)	Can maintain 500 yd screen for 60 minutes with adverse winds. Flank winds approximately double this capability	Three times the capability of one platoon	Three times the capability of one company

[1] Figures are based on normal loads of ammunition of one type shell.
[2] In woods twice as much area can be neutralized.
[3] Based on Bn Am load. Any Am resupply increases capability proportionately.

b. Land mine operations:

	1	2	3	4	5	6
		Squad task	*Platoon task*	*Company task*	*Average time* [1]	
1	*Nature of task*	*1 Truck (2½-ton)*	*4 Squads*	*12 Squads*	*Time fuse or detonating cord*	*Wired for firing electrically*
2	Barrier, 100 yards deep	800 yards	3,200 yards	9,600 yards	4 hours	8 hours
3	Road contamination	1,600 yards	6,400 yards	19,200 yards	15 to 20 minutes [2]	2 hours
4	Mines required	330	1,320	3,960		

[1] The time should be increased 50% for night work.
[2] Detonating cord laid from truck, mines placed on cord.

■ **612. FIELD ARTILLERY BARRAGE AND CONCENTRATIONS.—Field artillery barrages and concentrations.—(Dimensions in yards):**

	1	2	3	4	5	6
1	*Caliber and type*	*Burst of one shell (yards)*	*Width of barrage (yards)*			*Maximum radius of large fragments (yards)*
			Normal	*Emergency*	*Rolling*	
2	75-mm howitzer battery	10 x 30	200	200	100	150
3	105-mm howitzer battery	15 x 50	300	300	200	300
4	155-mm howitzer battery	18 x 60	400	400	(1)	550
5	155-mm gun battery					

[1] Not suitable for firing close to our troops. May be used to add depth to barrage.

■ **613. CHARACTERISTICS OF LANDING CRAFT:**

a. General:

(1) Data contained in this paragraph, e.g., speed and endurance, may vary under operational conditions.

(2) Designating letters and names are used in the following general manner:

(a) LC (Landing Craft) is applied to non-ocean going vessels of less than 150 feet over-all length, designed for landing operations.

(b) LS (Landing Ship) is applied to ocean going vessels of more than 200 feet over-all length, designed for landing operations.

(c) LV (Landing Vehicle) is applied to small units, designed for landing operations, and capable of use on land or water.

(3) Data on the following pages is presented under headings which indicate their principal use:

(a) Personnel Landing Craft.
(b) Vehicle and Tank Landing Craft.
(c) Support and Command Craft.
(d) Amphibious Vehicles.
(e) Repair and Supply Craft.
(f) Landing Ships.

(4) Major operational types are prefixed by an asterisk (*).

CHARACTERISTICS OF LANDING CRAFT (Continued):

b. Personnel Landing Craft:

1	1	2	3	4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
2	*LCA, Landing Craft, Assault	4+1 O per 3 craft	35 Trs & 800 Lbs Equip	41′ 6″	10′	1′9″ Fwd, 2′3″ Aft, unoaded	13 tons maximum	6 loaded, 10 max light	50–80 @ 7 Kts, loaded, 65 @ 10 Kts	U.K.
3	LCI(S) Landing Craft, Inf (Small)	17	102 fully equipped Trs & 18 bicycles	105′ 1″	21′ 4″	2′ 10″ Fwd, 3′ 8″ Aft, loaded	63 tons, light; 100 tons, loaded	15 max; 13¼ max cont	550 @ 14 Kts; 700 @ 12½ Kts	U.K.
4	*LCI(L)-(1-350); Landing Craft, Inf (Large)	24	60, 182 EM or 75 tons cargo	158′ 5½″	23′ 3″	2′ 8″ Fwd, 4′ 10″ Aft (landing) 3′ 1½″ (mean)	380 tons, loaded 216 tons (light) 234 tons (landing)	16 max, loaded	4,000 @ 12 Kts (beaching dft) 500 @ 15 Kts or 1,500 @ 12Kts	U.S.
5	LCI(L)-(351-), Landing Craft, Inf (Large)	28	9 O, 196 EM, 32 tons cargo	158′ 5½″	23′ 3″	3′ Fwd, 5′ Aft, landing 5′ 8″ Aft (loaded)	250 tons (landing) 387 tons (loaded)	(1)	8,000 @ 12 Kts	U.S.
6	LCP(1), Landing Craft, Pers (Mk 1)	2	18 EM	20′	6′	(1)	2,000 Lb (Light)	(1)	Towed	U.K.
7	LCP(2), Landing Craft, Pers (Mk 2)	3	18 EM	25′ 6″	6′ 3″	(1)	4,000 Lb (light)	10	30 @ 10 Kts, max (loaded)	U.K.
8	LCP(S), Landing Craft, Pers (Small)	3	20 Trs, or 6 litters & 10 Trs, or 25 unequipped	29′ 6″	8′ 9″	1′ 4″ mean (light) 1′ 9″ mean (loaded)	3 tons (light) 5½ tons (loaded)	8 max (loaded)	120 @ 8 Kts	U.K.
9	LCP(M), Landing Craft, Pers (Medium)	3+1 O per 3 craft	20 Trs	38′ 11″	10′ 1″	2′ 1″ Fwd, 1′ 7″ Aft (loaded)	4½ tons (light) 7¼ tons (loaded)	7½ max, loaded	112 @ 7½ Kts	U.K.
10	*LCP(L), Landing Craft, Pers (Large) (U.S. Type)	3	30–36 Trs or 6,700–8,100 Lb cargo. fuel space may reduce this figure	36′ 8″	10′ 10″	2′ 6″ Aft (light) 3′ 6″ Aft (loaded)	18,000 Lb (loaded) 13,000 (light)	8 max, loaded	50 (gasoline) 130 (diesel)	U.S.
11	U.K. Type	3+1 O per 3 craft	25 equipped Trs or 6,700–8,100 Lbs cargo	36′ 8″ (o. a.)	10′ 10″	2′ 6″ Aft (light) 3′ 6″ Aft (loaded)	18,000 Lb (loaded) 13,000 (light)	9-11 max, loaded	120 @ full speed, loaded	U.K.

CHARACTERISTICS OF LANDING CRAFT:

Personnel Landing Craft (Continued):

1	1	2	3	4	5	6	7	8	9	1
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
12	LCP(N), Landing Craft, Pers (Nested)	2	13 Trs	32′	7′ 10″	10″ loaded, designed	1,400 Lbs, w/o engine	10–12 mph		U.S.
13	*LCP(R), Landing Craft, Pers (Ramped)	3	30–36 Trs or 6,700–8,100 Lb cargo; fuel space may reduce capacity	35′ 10″	10′ 9″	2′ 6″ Aft, light 3′ 6″ Aft, loaded	13,000	11 max, loaded	80 or 200	U.S.
14	LCP(U), Landing Craft, Pers (Utility)	4	30 Trs fully equipped	(1)	(1)	3′ max 6″ Aft	10 tons, light	15 Kts, designed; 12 min, designed	150 @ max speed, loaded	U.K.
15	*LCR(S), Landing Craft, Rubber (Small)	0	7 Trs	12′ 5″	5′ 11″	(1)	210 Lb, light 277.4, with motor	3½–4½ with engine	(1)	U.S.
16	*LCR(L), Landing Craft, Rubber (Large)	0	10 Trs	16′	8′	(1)	395 Lbs, light 474 Lbs, with motor	3½–4½	(1)	U.S.
17	LCW, Landing Craft, Air-Propelled	(1)	35 Trs or 5 tons cargo	(1)	(1)	1′ 6″ max	(1)	10 Kts, loaded	200 @ 10 Kts, loaded	U.K.

c. Vehicle and Tank Landing Craft:

2	LBV(1), (2), Landing Barge, Vehicle (Small) (Mk 1, 2)	(1)	100 tons (Approx); two 3-ton or three 15-cwt lorries	70′	18′	4′ to 4′ 6″, mean (loaded)	(1)	3–5 max (loaded)	360 @ 5 Kts (Mk 2)	U.K.
3	LBV(1), (2), Landing Barge, Vehicle (Medium) (Mk 1, 2)	(1)	150 tons (Approx); two 6-pounder guns and 3 lorries; or two 3-ton lorries, one 15-cwt lorry, and two 30-cwt lorries	78′	20′	4′ to 4′ 6″, mean (loaded)	(1)	3–5 max (loaded)	360 @ 5 Kts (Mk 2)	U.K.
4	LBV(1), (2), Landing Barge, Vehicle, (Large) (Mk 1, 2)	(1)	200 tons (Approx); two 6-pounder guns and 3 lorries; or two 3-ton lorries, one 15-cwt lorry, and two 30-cwt lorries	82′	23′	4′ to 4′ 6″, mean (loaded)	(1)	6 max (loaded)	360 @ 5 Kts (Mk 2)	U.K.

CHARACTERISTICS OF LANDING CRAFT:

Vehicle and Tank Landing Craft (Continued):

1	1	2	3	4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
5	LCM(1), Landing Craft, Mecz (Mk 1)	6+1 O per 3 craft	Tks or Trks of less than 16 tons total, or 100 men or mixed loads; some units carry 17¼ tons, increasing mean draft 1"	44' 8"	14' 0"	1' 6" Fwd, 4' 0" Aft, loaded 1' 4", Fwd, 2' 9" Aft, light	35 tons, loaded 21 tons, light	7.5	56 @ 7.5 Kts	U.K.
6	LCM(2), Landing Craft, Mecz (Mk 2)	4	1 L Tk (13½ tons) or 30,000 Lb cargo, or 100 Trs	45'	14' 1"	3', Mean	58,000 Lbs	7.5	75 @ 7.5 Kts, max	U.S.
7	*LCM(3), Landing Craft, Mecz (Mk 3)	4	1 30-ton Tk, 50' or 60,000 Lb cargo or 60 Trs; Bureau type carries 120,000 Lb cargo	50'	14' 1"	3' Fwd, 4' Aft, light	52,000 Lbs, light 52 tons, loaded	11 Max, 8 loaded	350 @ 6½; 140 @ 11 Kts.	U.S.
8	LCM(6), Landing Craft, Mecz (Mk 6)	4+1 O per 3 craft (6 British)	1 30-ton Tk or 60,000 Lb cargo, or 60 Trs; Bureau type, 120,000 Lb cargo	56'	14' 1"	3' Fwd, 4' Aft, light	52,000 Lb, light	11	350 @ 6½; 150 @ 11 Kts	U.S.
9	LCM(7), Landing Craft, Mecz (Mk 7)	(1)	1 30-ton Tk, Hold—35'x13' 6"; Ramp—13' 6" wide	(1)	(1)	3' 6" Max	23 tons, light	11	200 @ 11 Kts	U.K.
10	LCT(1), Landing Craft Tk, (Mk 1)	12	3 40-ton Tks, or 6 25-ton Tks, or 6 16-ton Tks, or 250 tons cargo	152'	29'	3' Fwd, 5' 9" Aft, loaded	226 tons, light	10 Max	900 @ 10 Kts, Max	U.K.
1	LCT(2), Landing Craft, Tk (Mk 2)	12	3 40-ton Tks, or 6 25-ton Tks, or 5 Trks; 4 carriers & 1 scout car or 250 tons cargo	159' 11"	31'	1' 11" Fwd, 5' Aft, light 3' 8" Fwd, 7' Aft, loaded (Tks)	296 tons, light	11 Kts, Max, Diesel 10½ Kts, Max, gasoline	2,700 w/3 engines; 3,500 w/2 engines	U.K.
12	LCT(3), Landing Craft, Tk (Mk 3)	12	5 40-ton Tks, or 10 3-ton Trks, or 300 tons	192'	31'	1' 9" Fwd, 4' 3" Aft 3' 5" Fwd, 6' 8" Aft, loaded (Tks)	350 tons, light	10.5 Max, loaded	1,900 @ 10½ Kts 2,700 @ 9 Kts	U.K.
13	LCT(4), Landing Craft, Tk (Mk 4)	12	6 40-ton or 9 30-ton Tks, or 12 loaded 3-ton Trks or 350 tons cargo	187' 3"	38' 8"	3' 1" Fwd, 4' 3" Aft, loaded ' Fwd, 3' 10" Aft, light	200 tons, light	8 Max, Cont	500 @ 9½ Kts 1,100 @ 8 Kts	U.K.

CHARACTERISTICS OF LANDING CRAFT:
Vehicle and Tank Landing Craft (Continued):

1	1	2	3	4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
14	*LCT(5), Landing Craft, Tk (Mk 5)	13	5 30-ton or 4 40-ton or 3 50-ton Tks or 9 Trks or 150 tons cargo	117′ 6″	32′	2′ 10″ Fwd, 4′ 2″ Aft, landing 1′ 6″ Fwd, 3′ 9″ Aft, light	286 tons, landing, 134	8 Max	700 @ 7 Kts, loaded	U.S.
15	*LCT(6), Landing Craft, Tk (Mk 6)	12	4 Med or 3 50-ton Tks or 150 tons cargo; accommodations for 8 Trs	120′ 4″	32′	3′ 4″ Fwd, 4′ Aft, landing	143 tons, light 284, landing	8, Max	700 @ 7 Kts	U.S.
16	LCT(8), Landing Craft, Tk (Mk 8)	12	3 Hv Tks or 13 loaded 3-ton lorries or 350 tons cargo, 48 Trs	226′	38′	(1)	(1)	12, loaded	2,500 @ 10 Kts	U.K.
17	*LCV, Landing Craft, Vehicle	(1)	1 1-ton Trk or 36 Trs or 10,000 Lbs cargo or 1 Bren carrier	36′ 3″	10′ 10″	2′ 2″ Fwd, 2′ 10″ Aft, loaded 1′ 6″ Fwd, 2′ 6″ Aft, light	11 tons, loaded 7 tons, light	9, loaded	68 @ 9 Kts 120 @ 7 Kts 200 @ Max	U.S.
18	LCV(2), Landing Craft, Vehicle (Mk 2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	U.K.
19	*LCVP, Landing Craft, Vehicle, Pers	3	36 Trs or 8,100 Lbs cargo or 3 tons vehicles	36′	10′ 5¼″	3′ Aft, 2′ 2″ Fwd, light	9 tons, light	9 Kts	102	U.S.

d. Support and Command Craft:

2	LBE, Landing Barge, Flak	6	Crew only; and 16 Army	60′–90′	19′–24′	5′, mean	(1)	6–7, Max	300 @ 5 Kts, Max (Cont)	U.K.
3	LCA (HR), Landing Craft, Assault (Hedgerow)	(1)	Crew only	41′ 6″	10′	1′ 9″ Fwd, 2′ 3″ Aft, loaded	13 tons, Max	10, Max	50–80 @ 7 Kts, loaded 65 @ 10 Kts	U.K.
4	*LCC(1), Landing Craft, Control (Mk 1)	14	Crew only	56′	13′ 7″	3′ 11½″, Max	30 tons	13.5, Max	500 @ 10 Kts 240 @ Max	U.S.
5	*LCC(2), Landing Craft, Control (Mk 2)	14	Crew only	56′	15′	3′ 11″, Max	30 tons	13.5	500 @ 10 Kts 250 @ Max	U.S.
6	LCC, Landing Craft, Control	(1)	(1)	112′	18′ 6″	5′, Max	75.5 tons	20, Max 17 Kts, cruising	(1)	(1)

CHARACTERISTICS OF LANDING CRAFT:

Support and Command Craft (Continued):

1	1	2	3	4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
7	LCF(2), Landing Craft, Flak (Mk 2)	13	Crew only; 68, gun crew	159′ 11″	31′	3′ 6″ Fwd, 7′ 6″ Aft, loaded	455 tons	11.5, loaded, Max	2,000 @ 10 Kts	U.K.
8	LCF(3), Landing Craft, Flak (Mk 3)	12	Crew only; 50, gun crew	195′ 9″	31′	2′ 5″ Fwd, 6′ 9″ Aft, light	440 tons, light	9½, Max	2,700 @ 9½ Kts	U.K.
9	LCF(4), Landing Craft, Flak (Mk 4)	12	Crew only; 50–54, gun crew	187′ 3″	38′ 8″		370 tons, light	9.5, Max. loaded	1,100 @ 8 Kts	U.K.
10	LCG(M), Landing Craft, Gun, (Med)	30	Crew only	154′ 6″	22′ 4″	6′ 3½″ (mean), loaded 5′ 6″, operating	270 tons, light	13½	(1)	U.K.
11	LCG(L) (3), Landing Craft, Gun (Mk 3)	15	Crew only; 23, gun crew	192′	31′	3′ 6″ Fwd, 6′ 0″ Aft	500 tons, loaded	10½, Max	2,700 @ 9 Kts	U.K.
12	LCG(L) (4), Landing Craft, Gun (Large) (Mk 4)	15	Crew only; 23, gun crew	187′ 3″	38′ 8″	3′ 6″ Fwd, 6′ 0″ Aft	500 tons, loaded	10	1,100 @ 8 Kts	U.K.
13	LCH, Landing Craft, Hq	(Statistics same as LCI(L))								U.K.
14	LCN, Landing Craft, Navigational	3+1 O per 3 craft	30–36 Trs or 6,700–8,100 Lb cargo; fuel space may reduce this figure	36′	10′ 9″	2′ 6″ Aft (light) 3′ 6″ Aft, loaded	18,000 Lbs, loaded	11, Max, loaded	80, early types; 120 @ 11 Kts 200 on later types	U.K.
15	LCP(SY), Landing Craft, Pers (Survey)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	U.K.
16	*LCS(S) (1), Landing Craft, Support (Small) (Mk 1)	6	3–4+crew and gunners	36′ 8″ 10′ 10″	(1)	3′ 6″, light	20,000 Lbs, light 22,000 Lbs, Std	12	115 @ full	U.S.
17	LCS(S) (2), Landing Craft, Support (Small) (Mk 2)	6	3–4+crew and gunners	36′ 8″ 10′ 10″	(1)	3′ 6″, light	23,000 Lbs	10	135 @ 11½ Kts Max	U.S.
18	LCS (M) (1), Landing Craft, Support (Med) (Mk 1)	11	Crew only	41′ 2″	10′ 0″	1′ 8″ Fwd, 1′ 11″ Aft, 1′ 9″ Aft light 1′ 5″ Fwd	10.8 tons, loaded 8.9, light	10, Max	60 @ 10 Kts	(1)
19	LCS (M) (2), Landing Craft, Support (Med) (Mk 2)	11	Crew only	41′ 2″	10′ 0″	1′ 6″ Fwd, 2′ 5″ Aft, loaded 1′ 4″ Fwd, 2′ 2″ Aft, light	12.5 tons, loaded 10.5, light	9, Max	60 @ 9 Kts	U.K.
20	LCS (M) (3), Landing Craft, Support (Med) (Mk 3)	10	Crew	41′ 2″	10′ 1″	1′ 9″ Fwd, 2′ 3″ Aft, loaded. 1′ 6″ Fwd, 2′ Aft, light	12.8 tons, loaded 11.4 tons, light	9, Max	90 @ 9 Kts	U.K.

CHARACTERISTICS OF LANDING CRAFT:

Support and Command Craft (Continued):

1	1 Type	2 Crew (EM)	3 Capacity	4 Length	5 Beam	6 Draft	7 Wt of Displacement	8 Speed (Knots)	9 Endurance (Mi)	10 Builder
21	LCS (L) (1), Landing Craft, Support (Large) (Mk 1)	13	Crew only	46′ 11″	12′ 7″	2′ 4″ Fwd, 4′ 3″ Aft, loaded 2′ 2″ Fwd, 3′ 11″ Aft, light	24.5 tons, loaded 20 tons, light	10, Max	100 @ 10 Kts	U.K.
22	LCS (L) (2), Landing Craft Support (Large) (Mk 2)	25	Crew only	105′ 1″	21′ 5″	3′ 8″ Fwd, loaded 2′ 8″ Fwd, 3′ 0″ Aft, light	116 tons, loaded	14¾	700 @ 12½ Kts	U.K.
23	*LCS (L) (3), Landing Craft, Support (Large) (Mk 3)	73	Crew only	158′ 5″	23′ 3″	4′ 6″ Fwd, 5′ 10″ Aft	227 tons 383 tons, loaded (est)	(1)	(1)	U.S.
24	LCS (R), Landing Craft, Support (Rocket)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	U.K.
25	LCT (A), Landing Craft, Tk (Armd)	(1)	Converted LCT (5), no further data available	(1)	(1)	(1)	(1)	(1)	(1)	(1)
26	LCT (R), Landing Craft, Tk (Rocket)	(1)	Converted from LCT (2), (3)	159′ 11″ 192′	31′	4′ 3″ Fwd, 7′ 6″ Aft	(1)	11.5, Max	1,400 @ 11½ Kts 2,700 @ 9 Kts	U.K.

e. Amphibious Vehicles:

2	LVT(1), Landing Vehicle, Tracked (Mk 1)	3	4,500 Lb cargo or 20 equipped Trs	21′ 6″	9′ 10″	(1)	16,900 Lbs (unloaded)	4 Kts (water) 15 mph (land)	75 (land) 50 (water)	U.S.
3	*LVT(2), Landing Vehicle, Tracked (Mk 2)	3	6,500 Lbs cargo or 24 equipped Trs	26′ 1″	10′ 8″	(1)	25,200 Lbs (unloaded)	5.4 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.
4	*LVT(3), Landing Vehicle, Tracked (Mk 3)	3	8,000 Lbs cargo or 24 equipped Trs	24′ 1½″	10′ 10″	(1)	28,000 Lbs (unloaded)	5.2 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.
5	*LVT(4), Landing Vehicle, Tracked (Mk 4)	3	6,500 Lbs cargo, Max	26′ 8″	10′ 8″	(1)	23,350 Lbs (unloaded)	5.4 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.
6	*LVT(A) (1), Landing Vehicle, Tracked (Armd) (Mk 1)	6	1,000 Lb cargo	26′ 1″	10′ 8″	(1)	25,200 Lbs	5.4 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.
7	*LVT (A) (2), Landing Vehicle, Tracked (Armd) (Mk 2)	6	6,500 Lb cargo	26′ 1″	10′ 8″	(1)	27,600 Lbs	5.4 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.

CHARACTERISTICS OF LANDING CRAFT:

Amphibious Vehicles (Continued):

1	1	2	3	4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
8	*LVT (A) (4), Landing Vehicle, Tracked (Armd) (Mk 4)	5	2,000 Lb, Am and gear	26′ 1″	10′ 8″	(1)	38,000 Lbs	5.2 Kts (water) 25 mph (land)	150 (land) 75 (water)	U.S.
9	*DUKW, 2½-ton, 6x6 Amph Trk	1	25 Equipped Trs, or 12 loaded litters, or 5,000 Lb cargo	31′ 0″	8′ 0″	(1)	13,000 Lbs (light) 18,600 Lbs (loaded)	50 mph (land) 5.5 Kts (water)	400 @ 35 mph (land)	U.S.
10	*JEEP, ¼-ton, 4x4 Amph Trk	1	800 Lb cargo	15′ 7″	5′ 4″	(1)	3,700 Lbs (light)	50 mph (land) 4.7 Kts (water)	300 (land)	U.S.
11	TERRAPIN (Mk 1)	(1)	5 tons (calm water) 4 tons (medium water) 50 men fully equipped	3	8′ 9″	(1)	15,450 Lbs (unloaded)	15 mph (Max, land)	(1)	U.K.
12	TERRAPIN (Mk 2)	(1)	11,200 Lbs (13,440 desired)	31′	8′ 6″	(1)	22,400 Lbs (Max)	20 mph (land) 6–7 Kts (water)	125 (land) 4 hours (water)	U.K.

f. Landing Ships:

2	*LSD, Landing Ship, Dock	17 O, 237 men LC-6 O, 30 men	3 LCT (5), (6) each with 5 Med Tks or 2 LCT (3), (4) each with 12 Med Trs, or 14 LCM (3) each with 1 Med Tk, or 1,500 long tons cargo, or 41 LVT's, or 47 DUKW's or Trs; 22 O, 218 men	457′ 9″	72′	8′ 2½″ Fwd, 10′ ½″ Aft (light) 10′ 8″ Fwd, 13′ 8″ Aft (light Sv) 15′ 5½″ Fwd, 16′ 2″ Aft (seagoing, loaded) 30′ 9½″ Fwd, 29′ 9½″ Aft (balasted) 8′ 1″ Fwd, 9′ 11″ Aft (well)	7,930 (seagoing) 4,032 (light)	17 Kts designed (Max)	8,000 @ 15 Kts	U.S.
3	*LSM, Landing Ship, Med	52	5 Med, or 3 Hv Tks (150 tons Max pay load, beaching) or 6 LVT's or 9 DUKW's Trs, 54	203′ 6″	34′	6′ 11¼″ Fwd, 3′ 5″ Aft (landing) 4′ 5″ Fwd, 7′ 11½″ Aft (full load)	900 tons (loaded) 741 tons (landing)	13.3	3,500 @ 12 Kts, Est	U.K.

CHARACTERISTICS OF LANDING CRAFT:

Landing Ships (Continued):

1	1	2		4	5	6	7	8	9	10
	Type	*Crew (EM)*	*Capacity*	*Length*	*Beam*	*Draft*	*Wt of Displacement*	*Speed (Knots)*	*Endurance (Mi)*	*Builder*
4	*LST, Landing Ship, Tk UK designation LST (2)	(2 davit) 7 O, 204 men; Trs 16 O, 147 men (6 davit) 9 O, 220 men; Trs, 14 O, 131 men	2,100 tons (ocean-going Max), (350 tons, main deck load), 1,060 tons diesel oil	328′ 0″	50′	8′ 0″ Fwd, 14′ 4″ Aft (seagoing) 3′ 1″ Fwd, 9′ 6″ Aft (landing) 1′ 6″ Fwd, 7′ 5″ Aft (light)	4,080 tons (full load) 2,160 (landing)	10.8 Kts (Max)	6,000 mi radius @ 9 Kts	U.S.
5	*APc, Coastal Trans	20	Trs, 20, 60 EM; or 17 ton cargo	103′ (wl)	21′ 3″	11′ (loaded)	238 tons	9.5 Kts (cruising)	3,095 @ 9.5 Kts	U.S.
6	*APD, High-Speed Trans (Destroyer)	112	One Marine Rifle Co, 4 LCP (L) or 4 LCP (R)	314′ 4″	31′ 8″	11′ 11″ (Max) plus 4-foot sound dome	1,060–1,090 tons 1,790 (loaded)	23 Kts (Max)	2,800 @ 20 Kts	U.S.

g. Repair and Supply Craft:

2	LBE, Landing Barge, Emergency Repair	18–24	3-ton workshop lorry	75′–85′	18′–23′	4′ 0″–4′ 6″ mean (loaded)	(1)	6, Max	360 @ 5 Kts	U.K.
3	LBK, Landing Barge, Ki	25	Provisions for 900 men for 1 week	79′	21′	3′ 6″, Est	(1)	(1)	300 @ 5 Kts, Est	U.K.
4	LBO, Landing Barge, Oiler	(1)	40 tons in Tk	80′–90′	20′–23′	4′ 6″–6′ 0″ mean (loaded)	(1)	6, Max	360 @ 5 Kts	U.K.
5	LBW, Landing Barge, Water	(1)	40 tons in Tk	80′–90′	20′–23′	4′ 6″–6′ 0″ mean (loaded)	(1)	6, Max	360 @ 5 Kts	U.K.
6	*LCE, Landing Craft, Emergency Repair	10	Crew and repair gear	36′ 3″	10′ 10″	3′	23,500 Lbs (Max)	9	80 @ Max speed	U.K.

[1] Data not available.

■ 614 CHARACTERISTICS OF U. S. CARGO SHIPS:

a. These characteristics are those of the normal ship. Individual ships of the various types are frequently altered to provide passenger space, armor, deck housing, additional ballast, etc., thereby affecting the characteristics stated.

	1	2	3	4	5	6	7	8
1	*U. S. M. C. Type*	*Liberty (EC2) (b)*	*Victory*		*C 1B*	*C1-M-AV1 (Coaster)*	*T 2E Tanker*	*ZET1 (Converted Liberty Tanker)*
			(VC2)	*(VC3)*				
2	Physical Characteristics:							
	Gross Registered Tonnage	7,100	7,600	7,600	6,700	3,860	10,200	7,000
	Length Over-all, in Feet	442	455	455	418	339	524	442
	Breadth, in Feet	57	62	62	60	50	68	57
	Speed, Sustained	11.0	15.5	16.5	14.0	11.0	14.5	11.5
	Draft, in Feet, Loaded to Summer Freeboard	28	28	28	28	23	30	28
3	Cargo Capacities:							
	Deadweight Tonnage	10,800	10,600	10,850	9,100	5,000	16,760	10,800
	Measurement Tonnage Space							
	Dry Cargo	11,500	11,750	11,750	11,400	5,675	375	0
	Refrigerated Cargo	0	0	0	0	275	0	0
	Barrel Cargo Capacity	5,000	0	0	0	4,000	141,000	65,000
	Number of Holds	5	5	5	5	4	9	9
	Ton Capacity of Heaviest Boom	50	50	50	30	30	5	5

b. Following additional details relate to the Liberty Ship (EC2). This type is by far the most widely used at the present time.

(1) Capacity Below Deck:

	Hatch No. 1	*Hatch No. 2*	*Hatch No. 3*	*Hatch No. 4*	*Hatch No. 5*	*Total*
Hatch Dimensions	33'9"x20'	33'9"x20'	35'x20'	33'9"x20'	20'x20'	
Cargo Space in M/Ts—						
Hold	900	2,300	1,500	1,300	1,300	7,300
Between Deck	1,000	1,100	600	700	800	4,200
Deep Tanks	140	270	460	———	———	870

(2) Capacity above Deck (examples):

Airplanes:	Will carry 24 complete units of P40 boxed, or 4 unboxed P38, or 13 P38 with wings boxed and fuselage unboxed or 13 light Douglas Bombers unboxed.
Tanks:	Will carry 10 Heavy or 25 Medium or 30 light.
Landing Craft:	Will carry 20-36' type or 18-40' (Navy) type.
Tank Lighters:	Will carry 9-50' type or 13-20' ton type.
Locomotives:	Will carry 4 Mikado type with tenders.

To carry these loads above deck, special measures must be taken to provide stability, by loading steel in lower holds, and to strengthen deck and hatch covers by special shoring.

615. Weights & Measurements of Certain Types of Army Cargo:

a. Airplanes:

1	1	2	3	4	5
	Type	Assembled		Crated	
		Length (Ft–In)	Width (Ft–In)	Short Tons	Ship Tons w/o Stowage
2	B-17 (D & E) (H-4 Eng)	66–0	110–0	31.08	378.15
3	B-26 (M-2 Eng)	58–3	71–0	19.25	231.68
4	A-20 (L-S Eng)	48–0	61–4	18.00	140.42
5	A-35 (A-31) (D-S Eng)	40–0	48–0	9.16	105.38
6	P-38 (Fi-2 Eng)	37–10	52–0	7.31	152.35
7	P-40 (Fi-S Eng)	31–9	37–4	7.19	62.65
8	C-47 (C-2 Eng)	64–6	95–0	21.43	224.13
9	C-54 (C-4 Eng)	93–10	117–6		

b. Rolling Stock: [1]

1	1	2	3
	Item	Short Tons	Ship Tons
	Standard Gauge:		
2	Locomotive consol, 2–8–0 (engine and tender) (80-ton)	113.25	180
3	Box car, 20-ton	93.19	215
4	Refrigerator, 35-ton	231.44	487
5	Brake vans, 20-ton	97.5	220
6	Flats, war, 56-ton	184.61	260
7	Gondola, 20-ton	83.76	126
8	Gondola, 40-ton	136.47	223
9	Tank car, 990-gal	184.63	880
	Motor Gauge:		
10	Locomotive, 2–8–2 (including tender) (60-ton)	79.5	126
11	Box, 30-ton	161.87	281
12	Brake van, 30-ton	169.22	288
13	Flat car, 20-ton (estimated)	80.	180
14	Gondola, 30-ton (estimated)	100.	225
15	Tank car, 5,000-gal	144.7	473
	Narrow Gauge:		
16	Locomotive, 0–6–0 (50-ton)	42.8	78

[1] All items except locomotives in units of ten.

616. Weights and Cubages of Certain Engineer Equipment:

1	1 Item	2 Short Tons	3 Ship Tons
2	Asphalt for 1 mile of road	65	76.5
3	Asphalt plant, 10 unit (80-150 tons per hour), trailer Mtd	105	308
4	Building, 20'x48', pre-fabricated	6.35	19.1
5	Compressor, 105 cu ft per Min, motorized. (leRoi Model 105, 1½ ton, 4x4)	7.4	28.7
6	Compressor, 210 cu ft per Min, trailer Mtd	5.1	9.9
7	Compressor, air, 315 CF trailer Mtd (Ingersoll-Rand K-315)	5.2	11.7
8	Crane, truck Mtd, ⅜ yd (Quickway), 5 to 8 ton (Model E with 1-H Model U-9)	17.4	50.3
9	Crane, 20 ton for D-8 tractor	4.0	31.5
10	Crushing plant, portable, 7 cu yds/hr (Crated Gruendler Model 1016-A)	4.2	7.3
11	Crushing and screening plant, crawler Mtd, 100 tons per hour (5 units per plant), (Pioneer Model 1942)	12	2.2
12	Crushing, screening and washing plant, rock, 150 tons per hour, crawler Mtd (9 units per plant), (Pioneer Engine Works)	140	240.1
13	Distributor, water, 1,000 gal, motorized	9.4	35.9
14	Explosives (Dynamite 60%)	1	1
15	Fence, 1 mile double-apron, 4 and 2-pace	8.5	10.9
16	Generator set, portable, diesel engine driven, skid Mtd, 50 KW (Cummins Model)	5.9	10.0
17	Grader, power, road, diesel, 12' blade (Caterpillar Model-12)	14.5	29.4
18	Grader, tractor-drawn, 12' blade, hand operated (Adams Model 124S)	6.4	64
19	Hangar, steel and canvas, 160'x130'	69.7	114.1
20	Lubricator, trailer Mtd (Stewart-Warner Model 2430)	1.5	4.2
21	Mixer, concrete, 7 cu ft (Const. Mach. Co. Model 7-S)	2.9	9.8
22	Mixer, concrete, 14 cu ft (Const. Mach. Co. Model 14-S)	4.5	17.1
23	Plow, tractor, 4 each, 14" bottoms, H. D. (John Deere Model 7)	2.3	11.3
24	Roller, sheepsfoot, 2 drums (Heil Model TRO)	3.0	16.8
25	Roller, towed, 13 wheel (Rubber, Wm. Bros. Model 67W)	2.7	9.1
26	Rooter, road, 3 tooth (LeTourneau Model B)	6.5	28.7
27	Runway, material, for one airport (4,500'x125') (562,500 sq ft) 2" surface, 10% bitumen content MC-4 asphalt	600	500
28	Runway, Light bar and rod	534	1,165
29	Runway, Heavy bar and rod	1,097	1,371
30	Runway, Steel plank	1,476	572
31	Runway, steel, for one airport, 4,500'x150' (average)	1,772	687
32	Sand bags per 100,000	16.5	100
33	Saw Mill, 60", 1200 FBM per hour (4'x7' saw table)	19	40
34	Scraper, road, towed type, cable operated, 6 cu yds (Bucyrus No. 567)	5.1	37.2
35	Scraper, road, towed type, cable operated, 12 cu yds (Garwood No. 400)	9.8	53.6
36	Shovel, ½ yd, w/att (Bucyrus Erie Model 1513)	12.1	26.5
37	Shovel, ¾ yd, w/att (Buckeye Model 70, packed for export)	22.7	43.8
38	Track, rails, 75 lbs per yd (per mile of track)	132.0	40
39	Track, turnouts, complete (right and left hand), 75 lbs per yd each	9.0	6.3
40	Tractor, D-7, w/dozer (Caterpillar)	15.3	18.6
41	Tractor, D-8, w/dozer (Caterpillar)	23.2	49.7
42	Tractor, wheeled, rubber tired, 23 HP (Case Model S1)	2.4	5.8
43	Trailer, 8-ton (Fruehauf Model CPT-8)	4.7	21.6
44	Trailer, 16-ton (Rogar Bros. Model H-16-LS-1, boxed)	15.9	37.5
45	Trailer, 20-ton (Lacrosse Model DF6-20)	8.1	30.1
46	Trailer, 40-ton	10.1	33
47	Trailer, 60-ton	12.9	28
48	Welding machine, 300 Amp, trailer Mtd	1.5	7.5

Chapter 7

FIELD ENGINEERING DATA

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FIELD ENGINEERING DATA

■ 701. PURPOSE.—These data are intended for use as general guides only. Their application should be varied to conform to local field conditions as required in each specific tactical situation, based on the recommendation, after reconnaissance, of the unit engineer charged with the task.

■ 702. ROADS AND BRIDGES.—*a. Traffic Capacity.*—See Chapter 2.

b. Load capacity of civilian bridges.—Peacetime design includes high safety factors for unusual loads and deterioriation. As a guide for military operations it may be assumed that the ordinary civilian bridge in good condition will carry twice the rated civilian capacity where restrictions are placed on the speed of vehicles and on the number of lanes in use. However, it is advisable to have bridge capacity analyzed by an engineer officer.

c. Construction, maintenance and repair.—Advantage is taken of the available road net, and all means are utilized to repair and maintain existing roads to fulfill military requirements, rather than to build new roads. Except for short sections, new road construction is avoided. In the combat zone, no better road should be maintained or built than is essential for the immediate purpose. Drainage is always vital; dry subgrades obtained by ditches, culverts, and smooth graded crowns are most important. Where graded and drained earth roads are inadequate, as in clay and silt soil under wet conditions, use locally available granular material such as sand, gravel, coral, or cinders for surfacing. In wooded or jungle country use brush, saplings, and logs for corduroy and cover with earth.

d. Plans.—Plans must in all cases provide for engineer reconnaissance, and, where necessary, reinforcement or repair of roads and bridges under our control, and for engineer troops to accompany advance elements into unreconnoitered terrain.

On most roads, bridges are sensitive points which may often become bottlenecks to flow of traffic. Alternate crossings or detour routes should be planned for bridges on important roads.

e. Road Capacity.—The capacity of a road is usually limited by the capacity of the bridges thereon.

f. Marking Bridges.—FM 5-10, 28 January 1944, prescribes that bridges will be marked according to capacity in tons. For instance, a bridge which can carry a vehicle weighing 12 tons is marked "12." This may also be known as a "Class 12" bridge. The same Field Manual also prescribes that each vehicle be marked with its weight-class. For instance a Truck, 2½-ton, cargo, wo/w, SWB weighing 15,100 lbs. (with load), (Par. 601, FM 101-10) would be marked "8" (15,100/2,000). It may be referred to as a "Class 8" vehicle. For vehicle combinations (trucks and

trailers), the weight class is the weight-class of the heavier plus ½ that of the lighter. For instance, if the truck mentioned above (Class 8) tows a 105-mm Howitzer M-2 weighing 4,235 lbs. (Class 2), the weight-class of the combination is 8 + (½ × 2) or "Class 9." The above conforms generally to British practice.

■ 703. BRIDGE AND FERRYING EQUIPMENT.—*a. Distribution of floating equipment.* [1]

1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
	Item	*Carried by*							
		Engr C Bn	*Engr Sq*	*Armd Engr Bn*	*Airborne Engr Bn*	*Petroleum Distribution Co*	*Engr Hv Pon Bn*	*Engr L Pon Co*	*Engr Treadway Br Co*
2	Boat, assault, M2	14						70	
3	Boat, Rcn, pneumatic, 2-man	15	12	12	12	4			
4	Boat, storm						16		
5	Bridge, foot, M1938 (432 ft)							1	
6	Raft, infantry support [3]		6					12	
7	Bridge, Engr Sq, Sup equipment set No. 2 (96 ft)[2]		1						
8	Bridge, ponton, pneumatic, M3 (250 ft)[2]							2	
9	Bridge, ponton, 25-ton (200 ft)[2]						4		
10	Bridge, floating, steel, panel, Bailey type [4]								
11	Bridge, steel treadway, M2 (864 ft)								1
12	Ferry set No. 1, infantry support [5]		2					4	
13	Ferry set No. 2, treadway, M2 [6]			1					

[1] Data corrected 1 December 1944. Subject to change. See latest T/O and E.

[2] Use indicated lengths of bridge for staff planning.

[3] Each infantry support raft contains 6 assault boats M2, and can be used to build 30 feet of assault-boat bridge.

[4] Stocked in depots: issued in lengths required. Uses 25-ton pontons.

[5] Contains bicycle traveler and other rigging equipment for trail ferry. Issued on basis of 1 per 3 infantry support rafts.

[6] Contains the equivalent of 72 feet of treadway bridge (6 floats with saddles and 6 pairs of treadways) with bicycle traveler and other ferrying equipment. Normal raft for medium tanks uses 4 floats and 5 pairs of treadways.

BRIDGE AND FERRYING EQUIPMENT (Continued):

b. Characteristics of ferrying equipment.[1]

1	1	2	3	4	5	6	7	8
	River crossing means	*Construction time*[2]	*Construction party (Engineers)*	*Maximum loads*	*Maximum relative stream velocity*	*Time in min for round trip across stream with width of:*[3]		
						300 feet	*500 feet*	*1,000 feet*
	SMALL BOATS:							
2	Assault boat M2: *Single boat* 9 paddles		Engineer crew—3 men	12 passengers or any of the following (in addition to crew): 1 rifle Sqd 1 Hv MG Sqd w/gun and 13 boxes Am 1 81-mm mortar Sqd w/mortar and 50 rounds Am 2 LMG Sqds w/guns and 20 boxes Am 2 60-mm mortar Sqds w/mortars and 72 rounds Am	5 fps	4	6	10
	Two-boat ponton with 22-hp outboard motor		Engineer crew—3 men	22 passengers (in addition to crew)[4]	10 fps	.....	6	8
3	Storm boat:		Engineer crew—2 men	7 passengers or any of the following (in addition to crew): 7 riflemen 1 Hv MG Sqd w/gun and 9 boxes Am 1 81-mm mortar Sqd w/mortar and 24 rounds Am 1 LMG Sqd, 2 extra men, gun and 10 boxes Am 1 60-mm mortar Sqd, 2 extra men, gun and 36 rounds Am	30 fps	.....	3	4

BRIDGE AND FERRYING EQUIPMENT:

Characteristics of ferrying equipment[1] **(Continued):**

1	1			2	3	4	5	6	7	8
	River crossing means			*Construction time*[2]	*Construction party (Engineers)*	*Maximum loads*	*Maximum relative stream velocity*	*Time in min for round trip across stream with width of:*[3]		
								300 feet	*500 feet*	*1,000 feet*
	FERRIES:									
4	Infantry support raft or trail ferry[6]	3-ponton		10 min	1 platoon[5]	2½-ton truck	7 fps[7]			
		5-ponton		15 min		2½-ton truck with 105-mm howitzer	7 fps[7]			
		7-ponton		20 min		4-ton truck with 2½-ton truck	5 fps[7]			
5	M3 pneumatic ponton raft	3-float	12-ton floats	1 hr	1 platoon[5]	4-ton truck	6 fps			
			13-ton floats				8 fps			
		4-float	12-ton floats			Motor carriage M7 (24 tons)	5 fps			
			13-ton floats				8 fps			
6	M3 pneumatic ponton trail ferry[6]	3-float	12-ton floats	1 hr	1 platoon[5]	4-ton truck	7 fps[7]	4	7	12
			13-ton floats				8 fps[7]			
		4-float	12-ton floats			Motor carriage M7 (24 tons)	8 fps[7]			
			13-ton floats				9 fps[7]			

BRIDGE AND FERRYING EQUIPMENT:

Characteristics of ferrying equipment[1] (Continued):

	1			2	3	4	5	6	7	8
7	25-ton ponton raft	5-ponton [8]	Without bow adapters	1 hr	1 platoon [5]	Medium tank M4 (35 tons)	8 fps [7]			
			With bow adapters			45-ton tank	7 fps [7]			
8	M2 steel treadway raft	4-float	60-foot	1 hr	1 platoon [5]	Medium tank M4 (35 tons)	8 fps			
		5-float	72-foot			Heavy tank T26 (43 tons)	8 fps			

[1]Based on test data available 1 December 1944. In the field, allowances must be made for specific site conditions.

[2]Construction time is from arrival of equipment on the site and includes unloading and construction in daylight. It does not include any preparation of landing site, landing stage, or approach roads, although these factors may govern. Adequate length of accessible river line is assumed. For night, increase time 50%.

[3]Round-trip time assumes daylight, fully trained men, favorable sites for loading and unloading, and current not exceeding 5 feet per second. Rafting is considerably slower if a landing stage is required or if source of power can not produce maximum speed. Increase times at least 100% if men are not fully trained. Two rafts can be used efficiently at one site if river is over 300 feet wide; 3 if river is over 500 feet wide.

[4]In rough water or high-velocity currents, 15 passengers is maximum.

[5]Crew to operate raft consists of NCO and 10 to 16 men.

[6]Assumes use of auxiliary power to increase speed and for safety in currents.

[7]*With caution.* Load must be placed as far on downstream side of deck as possible.

[8]With two balk on each side of deck over 3 middle pontons.

BRIDGE AND FERRYING EQUIPMENT (Continued):

c. Characteristics of floating bridge equipment.[1]

1	1			2	3	4	5	6	7	8	9	10		
	River crossing means			Construction time in hours for stream width of:[2]				Construction party (Engineers)	Posted capacity (tons) for stream velocities of:[3]			Traffic capacity one way:[4]		
				150 feet	300 feet	500 feet	1,000 feet		3 fps	5 fps	7 fps	3 fps	5 fps	7 fps
2	Footbridge, M1938			¼	⅓	½	.....	1 platoon	Men 2 paces apart	Men 1 bay apart	Men 2 bays apart	75 men per min	30 men per min	15 men per min
3	M2 assault boat bridge	Normal		1	1½	2½	.....	1 platoon	8	6	5	300 vehicles per hour		
4		Reinforced with pontons or 6-ton floats		1½	2	3	.....		13	9	7			
5	M3 pneumatic ponton bridge	Normal	Using 12-ton floats	2	3	4½	8	1 light ponton company plus 1 general engineer company	11	10	6	300 vehicles per hour		
6			Using 13-ton floats						12	11	10			
7		Reinforced	Using 12-ton floats	2½	3½	5	8½		14	14	0			
8			Using 13-ton floats						16	16	16			
9	10-ton ponton bridge[5]	Normal		2½	3½	5	9	1 light ponton company plus 1 general engineer company	11	10	6	350 vehicles per hour		
10		Reinforced with pontons		3½	4½	6½	10		16	12	10			
11		Reinforced with 12-ton floats		3½	4½	6½	10		16	12	8			
12		Reinforced with 13-ton floats		3½	4½	6½	10		16	14	12			

BRIDGE AND FERRYING EQUIPMENT:

Characteristics of floating bridge equipment[1] (Continued):

	1			2	3	4	5	6	7	8	9	10
13	25-ton ponton bridge	Normal	Without bow adapters	4	5½	7	11	1 heavy ponton battalion plus 1 or 2 general engineer companies	24	22	16	400 vehicles per hour
			With bow adapters						24	23	22	
14		Reinforced with pontons	Without bow adapters						39	39	28	
			With bow adapters	5	7	9	.....		39	39	37	
15		Reinforced with 12-ton floats	Without bow adapters						28	28	21	
			With bow adapters	5	7	9	.....		28	28	27	
16	Floating steel panel bridge, Bailey type[6]	Using 32-foot floating bays	Normal	5	8	12	20	1 heavy ponton battalion plus 1 or 2 general engineer companies	40	36	26	400 vehicles per hour
17			Reinforced with 12-ton floats	6	9	14	22		45	43	43	
18			Reinforced with pontons	6	9	14	22		45	45	45	
19		Using 42-foot floating bays	Normal	5	8	12	20		36	34	25	
20			Reinforced with 12-ton floats	6	9	14	22		43	43	35	
21			Reinforced with pontons	6	9	14	22		43	43	41	
22	M2 steel treadway bridge (18-ton floats, 45½-inch wide treadways 12 feet long, normal construction)			2	2½	3½	6	1 treadway bridge company plus 1 general engineer company	46	46	40	350 vehicles per hour

BRIDGE AND FERRYING EQUIPMENT:

Characteristics of floating bridge equipment[1] (Continued):

[1]Based on test data available 1 December 1944. In the field, allowances must be made for specific site conditions.

[2]Time is from arrival of equipment on the site and includes unloading and construction in daylight. It does not include preparation of approach roads, which may govern. Experienced troops and adequate length of accessible river line are assumed. For night, increase time 50%.

[3]See FM 5-10 for explanation of the meaning and use of posted capacities, description of the system of bridge and vehicle classification, and charts giving conditions under which specific vehicles can cross standard bridges. Capacities are tentative and subject to revision by further tests.

[4]Capacity is for daylight. Decreases 50% for night.

[5]Substitute standard.

[6]Uses 25-ton pontons.

BRIDGE AND FERRYING EQUIPMENT (Continued):

d. Fixed highway bridges.[1]

1	1	2				3				4						5		6	7	8
		Box-girder steel fixed bridge H-10 (knock-down)				*Box-girder steel fixed bridge, H-20*				*Panel steel fixed bridge, Bailey type*						*10-ton trestle bridge*[2]		*Semipermanent steel fixed bridges*		
2	*Length of one unit*	*72 feet (2-truss)*				*125 feet (2-truss)*				*150 feet (double-double)*						*75-feet (each additional unit provides 60 feet)*		*30-foot I-beam span*	*60-foot I-beam span*	*90-foot truss span*
3	Posted capacity in tons[3]	*Span (ft)*	*Type*			*Span (ft)*	*Type*			*Span (ft)*	*Type*					*Normal*	*Reinforced*			
			2-truss	*3-truss*	*4-truss*		*2-truss*	*3-truss*	*4-truss*		*Single-single*	*Double-single*	*Triple-single*	*Double-double*	*Triple-double*					
			tons	*tons*	*tons*		*tons*	*tons*	*tons*		*tons*	*tons*	*tons*	*tons*	*tons*					
		36	37	54	52	37½	70	70	70	30	45									
		48	25	34	34	50	70	70	70	40	40	70								
		60	18	24	25	62½	51	70	70	50	35	60								
		72	13	18	20	75	41	56	58	60	28	50								
		84	10	13	15	87½	32	44	47	70	.....	40	60							
		96	.....	10	11	100	25	35	39	80	.....	33	48							
						112½	19	28	32	90	.....	28	41	61						
						125	14	22	26	100	.....	23	35	53		12	18			
						137½	.....	17	20	110	.....	20	30	45	65	tons	tons	50 tons	50 tons	50 tons
						150	.....	.....	16	120	.....	16	25	40	57					
										130	.....	.....	22	35	49					
										140	.....	.....	18	30	41					
										150	.....	.....	.....	25	35					
										160	.....	.....	.....	21	29					
										170	.....	.....	.....	.....	23					
										180	.....	.....	.....	.....	19					

BRIDGE AND FERRYING EQUIPMENT:

Fixed highway bridges[1] (Continued):

1	2				3				4						5	6	7	8
		Box-girder steel fixed bridge H-10 (knock-down)				Box-girder steel fixed bridge, H-20				Panel steel fixed bridge, Bailey type						10-ton trestle bridge[2]	Semipermanent steel fixed bridges		
		feet	tons	tons	tons	feet	tons	tons	tons	feet	tons	tons	tons	tons	tons				
4	Shipping weight in tons[4]	36	7.7	9.5	11.4	37½	11.8	14.3	16.8	30	15.8								
		48	9.6	12.0	14.4	50	14.6	18.0	21.4	40	18.7	21.9							
		60	11.4	14.4	17.4	62½	17.5	21.8	25.0	50	19.1	25.5							
		72	13.3	16.9	20.5	75	20.4	25.5	30.6	60	21.5	29.0							
		84	15.2	19.4	23.5	87½	23.2	29.2	35.2	70	.....	29.1	37.4			9.1 tons	Steel—6.5 tons Lumber—6.2 tons	Steel—24.1 tons Lumber—12.4 tons	Steel—31.0 tons Lumber—18.9 tons
		96	.....	21.8	26.6	100	26.1	33.0	39.8	80	.....	32.2	41.6						
						112½	29.0	36.7	44.4	90	.....	35.3	45.8	51.5					
						125	31.9	40.5	49.0	100	.....	38.4	44.9	56.4					
						137½	.....	44.2	53.6	110	.....	41.4	48.6	61.2	75.6				
						150	.....	.....	58.2	120	.....	44.5	52.4	60.2	81.7				
										130	.....	.....	56.1	64.6	87.8				
										140	.....	.....	59.8	69.0	87.0				
										150	.....	.....	.....	73.4	92.6				
										160	.....	.....	.....	77.8	98.3				
										170	.....	.....	.....	.....	103.9				
										180	.....	.....	.....	.....	109.6				

BRIDGE AND FERRYING EQUIPMENT:

Fixed highway bridges[1] (Continued):

	1	2				3				4						5	6	7	8
		Feet	*Ship tons*	*Ship tons*	*Ship tons*	*Feet*	*Ship tons*	*Ship tons*	*Ship tons*	*Feet*	*Ship tons*	*Ship tons*	*Ship tons*	*Ship tons*	*Ship tons*				
5	Cubage in ship tons[4 5]	36	18.0	23.2	28.4	37½	32.8	45.1	57.4	30	21.5					14.1 ship tons	Steel—7.5 ship tons Lumber—7.8 ship tons	Steel—20.3 ship tons Lumber—15.5 ship tons	Steel—48.6 ship tons Lumber—22.2 ship tons
		48	22.6	29.4	36.4	50	44.0	61.2	78.4	40	26.6	32.7							
		60	27.1	35.7	44.2	62½	55.2	77.4	99.4	50	27.3	38.7							
		72	31.7	42.0	52.2	75	66.4	93.5	120.4	60	31.1	44.7							
		84	36.1	48.2	60.1	87½	77.7	109.6	141.5	70	.....	45.9	61.7						
		96	.....	54.5	68.1	100	88.9	125.8	162.5	80	.....	51.3	69.2						
						112½	100.1	141.9	183.5	90	.....	56.6	76.7	89.2					
						125	111.3	158.0	204.5	100	.....	61.9	76.7	98.2					
						137½	.....	174.2	225.6	110	.....	67.3	83.5	107.0	140.2				
						150	.....	.....	246.6	120	.....	72.6	90.3	108.1	152.1				
										130	.....	.....	97.0	116.4	164.0				
										140	.....	.....	104.0	124.7	165.4				
										150	.....	.....	.....	133.0	176.6				
										160	.....	.....	.....	141.3	187.8				
										170	.....	.....	.....	.....	198.9				
										180	.....	.....	.....	.....	210.1				
6	Where stocked	Depot as required				Depot as required				Corps and army supply points						Depot on basis of: 2 units per L Pon Co. Each L Pon Co also has 2 units as part of its light bridges	Depot as required		
7	Transportation for one unit	4 2½-ton trucks w/ 3 2-wheel trailers				15 2½-ton trucks or 7 5- to 6-ton tractor trucks w/semi-trailers				21 2½-ton trucks w/ 21 2-wheel trailers						2 4-ton or 2½-ton trucks w/ 2 2-wheel trailers	2 8-ton full flat-bed trailers w/ prime movers	4 8-ton full flat-bed trailers w/ prime movers	7 8-ton full flat-bed trailers w/ prime movers
8	Man-hrs per unit[6]	60				600				600						60	450	1,000	2,000

BRIDGE AND FERRYING EQUIPMENT:

Fixed highway bridges[1] (Continued):

[1]Based on data available 1 December 1944. In the field, allowances must be made for specific site conditions. For data on timber trestle bridges for loads up to weight class 80 with bays from 10 to 40 feet built with steel and timber stocked in depots, see FM 5-10, 28 January 1944.

[2]The 10-ton trestle bridge is limited to gap where bridge roadway is not more than 12 feet above trestle footings.

[3]See FM 5-10 for explanation of the meaning and use of posted capacities, a description of the system of bridge and vehicle classification, and charts giving conditions under which specific vehicles can cross standard bridges.

[4]Launching and erection equipment not included in case of H-10 and H-20 bridges.

[5]1 ship ton = 40 cubic feet.

[6]Exclusive of approaches but including single abutments; experienced troops; daylight. For night, increase time 50%.

BRIDGE AND FERRYING EQUIPMENT (Continued):

e. Railway bridging equipment.[1]

1	1	2					3		4		5	6	7
		I-beam railway bridge					*Unit construction railway bridge*		*Through truss railway bridge*		*Light standard (L-type) unit steel trestle*	*Standard (T-type) unit steel trestle*	*V-type unit steel trestle*
2	UNIT:	SPANS: 17, 21, 27, 31, and 35 feet					70-foot 2-girder deck and through spans [2]		123-foot span [2]		None Ordered by parts as required	None Ordered by parts as required	None Ordered by parts as required
3	USE:	SPANS 17 to 35 feet					SPANS: 50 to 85 feet		SPANS: 90 to 150 feet		Piers for *I*-beam and unit construction bridges	Piers for through truss bridge	Marine piers, quay repairs, and railway viaducts
4	Capacity [3]	E-45 loading					E-45 loading		E-45 loading		E-45 loading	E-45 loading	45 tons E-35 load-loading
5	Where stocked	Depot					Depot		Depot		Depot	Depot	Depot
6	Man-hours [4]	400-600					*70-foot deck span* 1300	*70-foot through span* 1500	*120-foot span* No Data	*150-foot span* 10,000	No data	No data	12 per ton using power crane [5] 17 per ton using hand cranes [5]
7	Shipping weight (short tons)	*Span (feet)*					35.6	49.8	140	173	Varies with type of pier. See TM 5-374		Steel: $W_S = 0.2\ HN$ [6] Decking and fendering: $W_L = 1.5\ M$
		17	*21*	*27*	*31*	*35*							
		3.1	5.0	6.9	10.0	13.2							
8	Cubage (ship tons)	3.2	3.6	4.8	7.9	8.9	22.5	32.5	140	171	$C_S = 0.7\ W_S$ [6]	$C_S = 0.5\ W_S$ [6]	Steel: $C_S = 0.7\ W_S$ [6] Decking and fendering: $C_L = 1.6\ M$

BRIDGE AND FERRYING EQUIPMENT:

Railway bridging equipment[1] (Continued):

[1]Data is based on information available 1 December 1944. In the field, allowances must be made for specific site conditions.

[2]Sets are also provided for conversion to other spans and types of construction. Erection equipment is ordered separately. See TB ENG 12.

[3]Maximum speed is 40 mph. This must be reduced on 130- to 150-foot through truss spans. See TM 5-372.

[4]Tentative. Value is from arrival of equipment on the site and includes unloading and construction in daylight and laying of track. For night, increase 50%. Time for erection of piers, approaches, and approach spans is not included. No data is available on V-trestle railway viaducts.

[5]Value is based on favorable conditions and experienced crew, and does not include preparation of foundations.

[6]Formulas for typical V- and T-shaped piers are approximately only.

C_L=cubage in ship tons of decking and fendering.
C_S=cubage in ship tons of steel only.
H=average height in feet of columns.
M=number of 10- by 10-foot bays.
N=number of columns.
W_L=weight in short tons of decking and fendering.
W_S=weight in short tons of steel only.

■ 704. WATER SUPPLY.—*a Troop requirements.*—Average requirements [1] for water by troops under several conditions of service, expressed in gallons per unit (man, animal, vehicle) per day:

	1	2	3	4	5	6
1	*Item*	*In battle*	*March and bivouac*	*Temporary camp*	*Semi-permanent camp in rest area*	*Cantonment*
2	Men	½ -2 [2 3]	2	5	30	50
3	Animals	3 -5 [2]	10	10	30	50
4	Motor vehicles	¼ -1 [3]	¼-1	¼-1	¼-30	¼-50

[1] Modify according to circumstances, especially in hot climates. Maximum requirement may exceed the average by from 15 to 100 per cent.
[2] ½ gallon per man and 3 gallons per animal is the absolute minimum, for not more than three days.
[3] Operations in Libya indicated that 2½ gallons per man and 6 gallons per radiator should be provided in similar climates.

b. Capacity of water-supply equipment.—

	1	2	3	4	5
1	*Unit*	*No. of sets*	*Gallons per minute under 50 ft head*		*Storage Capacity*
			Pump	*Filter*	
2	Engr C Bn	4 [1]	880	40	24,000
3	Armd Engr Bn	4 [1]	880	40	24,000
4	Airborne Engr Bn	4 [1]	880	40	24,000
5	Engr Sep Bn	1 [1]	220	10	6,000
6	Engr Hv Pon Bn	1 [1]	220	10	6,000
7	Engr Avn Bn	1 [1]	220	10	6,000
8	Airborne Engr Avn Bn	1 [2]	110	10	3,500
9	Engr Boat & Shore Regt	1 [1]	220	10	6,000
10	Engr Top Co, Corps	1 [2]	110	10	3,500
11	Engr Top Bn, Army	1 [2]	110	10	3,500
12	Engr Avn Top Co	1 [2]	110	10	3,500
13	Engr AF Hq Co	1 [2]	110	10	3,500
14	Engr Gen Serv Regt	2 [1]	440	20	12,000
15	Engr W Sup Co	8 [3]	1,320	560	72,000

[1] Each set includes:
1 portable purification unit of 10 gallons per minute purifying capacity and 55 gallons per minute pumping capacity.
3 pumps of 55 gallons per minute capacity.
2 canvas tanks of 3,000 gallons capacity.

[2] Each set includes:
1 portable purification unit of 10 gallons per minute purifying capacity and 55 gallons per minute pumping capacity.
1 pump of 55 gallons per minute capacity.
1 canvas storage tank of 3,000 gallons capacity.
2 canvas storage tanks of 250 gallons capacity (for reproduction purposes in topographic units).

[3] Each set includes:
1 mobile purification unit with a capacity of purifying 33,600 gallons of water per 8-hour day.
3 pumps of 55 gallons per minute capacity.
3 canvas tanks of 3,000 gallons capacity.

WATER SUPPLY (Continued):

c. Equipment issued to troop units.—Organizations are supplied with five-gallon cans for carrying water. Vehicle carrying capacities are:

2½-ton truck	100 cans (filled)
1½-ton truck	60 cans (filled)
1-ton trailer	40 cans (filled)

■ 705. EXPLOSIVES.—Explosives included in organic demolition sets:[1]

Unit	*Pounds of Explosive*
Engr C Bn	9,950
(Hq & Serv Co)	(5,000)
(Lettered Co ea)	(1,650)
Armd Engr Bn	10,040
(Hq & Hq Co)	(5,090)
(Lettered Co ea)	(1,650)
Airborne Engr Bn	3,960
(Hq & Serv Co)	(600)
(Parachute Co ea)	(1,680)
(Glider Co ea)	(840)
Hq Co, Inf Bn	40
Cav Rcn Tr	320

[1]Additional explosives carried as required.

■ 706. FIELD FORTIFICATIONS.—(See also FM 5-15).

a. Responsibility.—Generally, defensive positions are laid out and built by troops which are to occupy the area. Engineers furnish technical advice and assistance, and are responsible for works requiring special skills or equipment. When a defensive position is to be prepared before arrival of troops who will occupy the position, Engineers may be assigned this task.

b. Priority of work.—The order in which the various defensive measures are to be executed is expressed in orders in the form of priorities. The assignment of priorities does not prevent simultaneous work on several tasks. After the location of combat emplacements has been fixed, the normal priority is:

(1) Clearing fields of fire and removal of objects masking observation.

(2) Laying of antitank mine fields and execution of important demolitions such as bridges.

(3) Providing for adequate signal communication and observation systems.

(4) Preparing individual shelter and emplacement of weapons.

(5) Preparing obstacles (other than mine fields) and other demolitions.

(6) Preparing routes for movement of reserves and for supply and evacuation.

FIELD FORTIFICATIONS (Continued):

c. Camouflaging.—Camouflaging and other provisions for concealment precede or are concurrent with other work. Construction of dummy works is concurrent with other work.

d. Works (figures given are for daylight work; for work at night, increase labor by 50%).—(1) *Trenches.*—In estimating for fox holes or other type trenches allow 15 cu. ft, per man-hour, average soil, using pioneer tools.

(2) *Obstacles. (Against personnel).*—(a) Single belt of double-apron fence, 1,000 yards long, requires approximately 5 tons of materials and 120 man-hours of labor. Work capacity of an experienced 3-squad platoon in eight hours is approximately 2,250 linear yards of double-apron fence.

(b) Single belt of triple-belt barbed-wire concertina roll, 1,000 yards long requires approximately 8 tons of materials and 60 man-hours of labor. Work capacity of an experienced 3-squad platoon in eight hours is approximately 4,500 linear yards to triple-belt barbed-wire concertina fence.

(c) The approximate length of wire entanglement required to provide minimum protection may be found by multiplying the length of front by 1¼ to determine the length of tactical wire entanglement, and by 5 to determine the length of protective wire entanglement.

(3) *Clearing.*—Four man-hours of labor for clearing 100 square yards of brush and a few trees up to 12-inches in diameter; if brush only, 2 man-hours.

(4) *Machine-gun emplacement.*—Two foxhole type requires three (3) man-hours of labor.

e. Antitank mines, prescribed loads.—See Chapter 3.

f. Intrenching equipment.—Nine sets of intrenching equipment of pioneer tools are carried in the Infantry Division. Three sets are with each Infantry Regiment. The Infantry set weighs 3,100 pounds and has a cubage of 214 cubic feet. The principal item of intrenching equipment set are:

	Infantry
Axes	26
Bars, crow	4
Mattocks, pick	125
Sandbags	500
Saws, crosscut, hand	26
Shovels, D-handled	250
Tape, tracing, 500-ft rolls	6

The engineer combat battalion has squad and platoon carpenter, demolition and pioneer sets, plus: 58 axes, intrenching; 117 mattocks, pick; and 357 shovels, intrenching.

■ 707. ROAD BLOCKS AND ANTIMECHANIZED MEASURES.—(See also FMs 5-25, 5-30 and 5-31.)

a. Classification of barriers.—Barriers are classified as to location, as covering, flank, battle position, or rear area; and as to type, as natural or artificial.

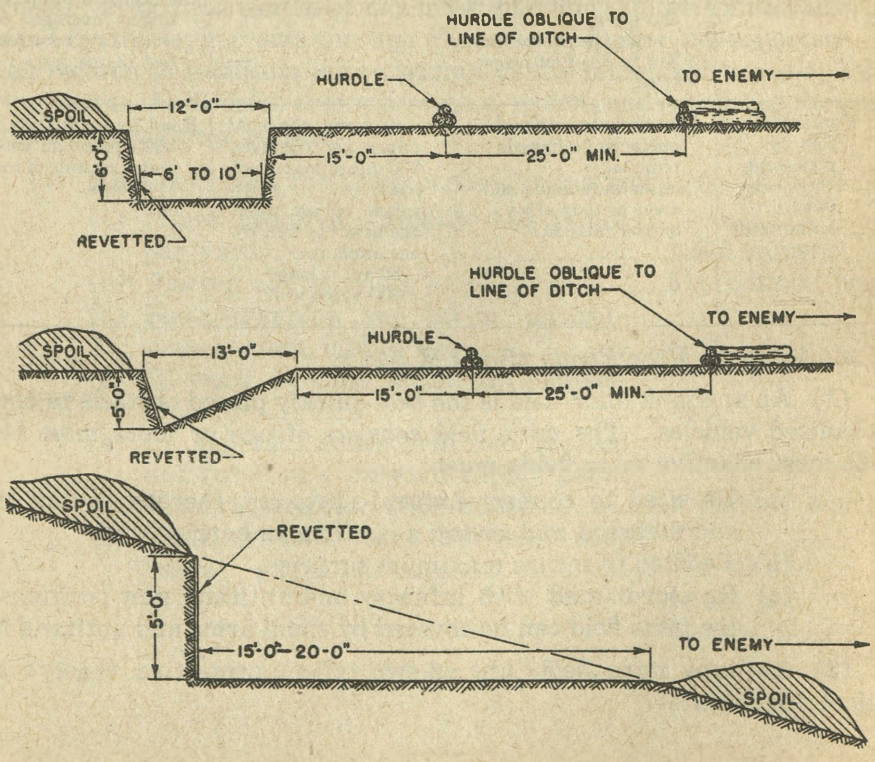
b. Description of roadblocks.—Common types of roadblocks are:

(1) Antitank mine. Mines are placed across a road at a defile in a pattern similar to that in a hasty mine field except with a density of 3 mines per yard.

(2) Bridge demolition. Requires from 5 to several hundred man-hours depending on type of structure, explosives available, and degree of destruction desired. A bridge prepared for demolition but not actually destroyed can be used freely by our own forces until demolition must be executed to prevent seizure by the enemy. Orders must be definite as to when to destroy the bridge.

(3) Antitank ditch. A ditch about 6 feet deep and 12 feet wide across the road, can be constructed by one platoon in 2½-3 hours with hand tools. Using the power earth auger and explosives a suitable ditch can be completed in about one-third of that time.

ANTITANK DITCHES



ROAD BLOCKS AND ANTIMECHANIZED MEASURES (Continued):

(4) Road craters. A road crater can be constructed by one squad in 1½ to 2 hours using explosives. Antitank and antipersonnel mines will increase the effectiveness of the crater.

c. Continuous artificial obstacles.

1	*1*	*2*	*3*	*4*
	Obstacle	*Construction*	*Installation*	*Rate of installation*
2	Protective (hasty) mine field	See sub-paragraph *d*, below.	Placed across avenues of approach. Concealed. Reinforce natural obstacles.	See sub-paragraph *d*, below.
3	Tactical (deliberate) mine field			
4	Antitank ditch, multiple charge method	10 feet deep— 30 feet wide	Constructed across wide avenues of approach.	One squad with power earth auger and demolition equipment can complete 100 yards in 12 hours.
5	Antitank ditch, hand tools	6 feet deep— 12 feet wide		One platoon under average conditions can complete 100 feet in 10 hours.
6	Log post field	Substantial posts set in the ground, density of one post per linear foot, 2½ to 3½-foot projection.		One squad with pile driver under average conditions can complete 50 feet in one day.
7	Contamination by persistent chemicals (when authorized)	Contaminate artificial obstacles to impede removal. Contaminate roads and areas as part of a barrier mission.	1 or more chemical mines per obstacle. 200 mines per mile of road. Airplane spray: average area covered by one airplane— 80 yards long— 300 yards wide.	Road contamination: one squad can contaminate one mile of road in 1½ hours.

d. Antitank Mine Fields (See FM 5-31).

(1) An antitank mine field is the best quickly placed obstacle to enemy mechanized vehicles. The mine field consists of one or more mine belts. To be most effective mine fields must:

(a) Be sited to connect natural obstacles, thereby saving time and material and giving a continuous barrier.

(b) Be sited to secure maximum surprise.

(c) Be coordinated with infantry and antitank gun positions so the mine field can be covered by small arms and antitank fire.

(2) Antitank mine fields are of two types: protective (hasty) and tactical (deliberate).

ROAD BLOCKS AND ANTIMECHANIZED MEASURES (Continued):

(a) *Protective mine fields* are laid on order of the local unit commander (Co, Bn, or Regt) and are for the local protection of that unit. They are usually laid by troops of the unit protected. Protective mine fields are usually shallow in depth, rapidly laid, and generally do not contain either antipersonnel or booby-trapped mines.

(b) *Tactical mine fields* are laid in accordance with a barrier plan approved by division, corps, army, or independent commanders. They are for the protection of the division or larger unit as a whole and are carefully located to break up and canalize the enemy's attack formations and to hold him in areas covered by antitank and automatic weapons. Tactical mine fields are usually of greater depth, with mines buried, and generally contain both booby-trapped and antipersonnel mines. Protective mine fields may be converted and incorporated into tactical fields. Tactical fields are laid by engineers, specially trained troops, or other troops with engineer supervision.

(3) All mine fields, when laid, will be marked by standard marking methods. A location sketch of any mine field laid will be immediately forwarded by the laying unit through channels to higher headquarters. Detailed records to facilitate later clearing of the mine field are sent by the laying unit to the division engineer section, which sends copies of the record to the corps engineer section.

(4) Mine field data for 1,000 yards of mine belt:

(a) Mines required (density 1½ mines per yard)	1,500 mines.
(b) Placing and burying, by daylight	5½ platoon hours.
(c) Booby-trapping and laying antipersonnel mines, add to time	50%
(d) If work is done at night, increase time by	50%
(e) In general, mines will be uncased and fused at a forward supply point. Time required for 1,500 mines	1 platoon hour.
(f) Clearing (will vary between wide limits)	150 to 300 mines per platoon hour.

(g) Weights and vehicle carrying capacities for antitank and antipersonnel mines are:

1	1	2	3	4	5	6	7	8
	AT Mines	*Wt., each, lb* [1]	1½-T Trk		2½-T Trk		1-T Tlr	
			Cased	*Uncased*	*Cased*	*Uncased*	*Cased*	*Uncased*
2	M1A1	10.67	200	281	340	468	135	187
3	M4	10.67	215	281	360	468	145	187
4	M5	14.5	132	206	224	344	88	137
5	M6	20	100	150	166	250	66	100
6	M7	4.5	456	666	768	1,111	304	444
7	Anti-Personnel mines							
8	M2A1	6.5	320	.....	530	.....	210	.....
9	M2A2	6.5	320	.....	530	.....	210	.....
10	M2A3	6.5	390	.....	650	.....	260	.....
11	M3	9.6	246	.....	408	.....	162	.....

[1]See Par 321 for weight of cased mines and number per box or crate.

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Chapter 8

SIGNAL COMMUNICATION DATA

			Paragraphs
SECTION	I.	Responsibility	801-802
	II.	Signal Intelligence and Communications Security	803-807
	III.	Use of Signal Communications	808-814
	IV.	Signal Center	815-818
	V.	Radio Communication	819-828
	VI.	Visual Communication	829-835
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	VIII.	Tables of Signal Equipment	844-845

SIGNAL COMMUNICATION DATA

SECTION I

RESPONSIBILITY

■ 801. GENERAL.—*a.* In general, Signal Corps troops install, operate and maintain signal communication—

(1) at Division, Corps and Army Headquarters,
(2) at Wing and higher headquarters for Air Force units,
(3) between widely separated Air Force units,
(4) for Aircraft Warning Systems,
(5) for most communication zone and zone of the interior organizations.

b. Regiments or group and smaller units of ground and air troops usually have communication personnel in their headquarters unit.

c. In any unit, signal communication is a responsibility of the commander. His signal communication troops furnish signal communication:

(1) at his own command post,
(2) to (but not including) the next lower echelon or command post,
(3) to units he supports,
(4) between next subordinate units when so directed.

d. For further details see AR 105-15.

■ 802. CLASSIFIED INFORMATION.—The safeguarding of classified military information is the responsibility of all military personnel. Within the limitations indicated in paragraphs 811, the originator of a message is responsible for its classification, unless special instructions governing particular cases have been received from higher authority. He is also responsible for assigning proper precedence to the message before forwarding it for cryptographing and transmission (see paragraph 812). (AR 380-5.)

SECTION II

SIGNAL INTELLIGENCE AND COMMUNICATION SECURITY

■ 803. SIGNAL INTELLIGENCE.—Signal intelligence includes all information of the enemy obtained from his communications by radio or other electrical means, by the detection of secret inks and other disguised writing, by the solution of codes and ciphers, and by the interception of sound and visual communication.

■ 804. COMMUNICATION SECURITY.—*a.* Communication security includes all measures that prevent or delay the enemy from gaining military information from our communications.

b. Communication security can be achieved only if supported by the personal effort of each individual to maintain the highest standards in procedure and operation and to observe careful personal censorship. Staff officers are in a position where they must exercise particular discretion.

c. Communication security consists of three components:

(1) Physical security.
(2) Cryptographic security.
(3) Transmission security.

■ 805. PHYSICAL SECURITY.—*a.* Physical security consists of the protection of communication equipment and classified documents (including plain language copies of messages) from capture, salvage, loss, unauthorized inspection, and photography.

b. Each staff officer should ascertain that every person to whom any classified information is entrusted has read and understands AR 380-5.

c. Important considerations for physical security include the following:

(1) Limit availability of classified material, particularly codes and ciphers, to authorized personnel. Only personnel investigated as to character, background, and loyalty and favorably reported may be authorized to perform duties in connection with secret and confidential cryptographic systems. (Exceptions are stated by the War Department.)

(2) Store classified material in room protected against unauthorized entrance. Registered documents must be stored in a three-combination safe or the equivalent.

(3) Limit to a minimum the classified material exposed to capture in advanced areas.

(4) Make a simple detailed plan for prompt destruction of all classified material when capture becomes imminent.

(5) Make prompt accurate report to higher authority of such destruction by the fastest means available.

■ 806. CRYPTOGRAPHIC SECURITY.—*a.* Cryptographic security consists of the provision and use of technically sound cryptographic systems, and the strict observance of instructions designed to prevent or delay their solution by the enemy. *Time spent in cryptographing yields high return in security.*

b. The use of cryptographic systems other than those authorized by the War Department or Theater Headquarters compromises security. Most such systems are susceptible to easy solution and give the user a false sense of security.

c. Instructions furnished with each code or cipher system must be carefully followed.

d. Hazards to cryptographic security may be minimized by adhering to the following rules in drafting messages:

(1) Be brief and concise.

(2) Avoid stereotyped phraseology particularly at beginning and end of message.

(3) Never quote documents available to the public.

(4) Never send identical messages in different cryptographic systems.

(5) Paraphrase messages to be sent in more than one cryptographic system.

(6) Paraphrase messages which are to receive distribution in plain language.

e. A cryptographic security officer should be designated at each headquarters as a consultant on cryptographic security and to enforce measures adopted to insure cryptographic security.

■ 807. TRANSMISSION SECURITY.—*a.* Transmission security consists of:

(1) Limiting the enemy ability to intercept our communications.

(2) Preventing the enemy from using our communications systems for navigational aids or for purposes of deception.

b. Listed below are the means of communications in order of preference from the point of view of transmission security, subject to variation in each tactical situation:

(1) Messenger.
(2) Approved mail service.
(3) Teletypewriter.
(4) Wire telegraphy.
(5) Wire telephony.
(6) Visual.
(7) Animals and birds.
(8) Radio telegraphy.
(9) Radio telephony.
(10) Sound.

TRANSMISSION SECURITY (Continued):

c. Radio telegraph and radio telephone transmissions are particularly susceptible to:

(1) Interception.
(2) Position finding.
(3) Traffic analysis.
(4) Deception.

d. The staff officer who personally uses the radio telephone must act as his own security officer. The following points must be borne in mind:

(1) Use proper radio telephone procedure (FM 24-9).
(2) Pre-plan the content and wording of each transmission.
(3) Avoid use of plain language especially for places, units, or names by substituting authorized prearranged message codes and map coordinate codes.
(4) Avoid the use of official titles (i.e., CG, CO, etc.).
(5) Employ authentication of the other party to the conversation.

e. A high standard of discipline is essential among operators to obtain signal security. Training in discipline and correct procedure must be continuous.

SECTION III

USE OF SIGNAL COMMUNICATIONS

■ 808. COORDINATION.—To obtain efficient signal communication, it is essential that there be adequate coordination between the commander's staff and the signal officer, and that the signal officer be fully cognizant of the details of contemplated operations.

■ 809. CHOICE OF MEANS.—*a.* No one means of signal communication possesses all the desirable military characteristics of *reliability, security, flexibility* and *speed;* several means of communication must always be provided.

b. The choice between a written message and a telephone call should be based on consideration of the following factors:

Need for record
Need for discussion
Need for speed
Need for secrecy
Availability of facilities
Traffic load on available facilities.

If the result desired can be obtained as well by means of a message as compared to telephone, write the message.

c. Due to the normal scarcity of technical communication facilities in field operations it will usually be necessary to restrict use of the wire telephone to those cases where direct personal discussion between commanders and senior staff officers is necessary. Reduction of messages to writing will usually reduce misunderstanding and misinterpretation.

d. Improper use of radio telephone has been the greatest single cause for combat inefficiency due to signal communications. It is imperative that anyone who holds radio telephone conversations be familiar with the principles contained in paragraph 807*d.*

■ 810. RELATION OF SECURITY TO OTHER SIGNAL COMMUNICATION REQUIREMENTS.—*a.* The fundamental requirements of military signal communication are (1) reliability, (2) security, (3) flexibility, and (4) speed.

b. Reliability is paramount.

c. The conflicting requirements of *speed* and *security* vary according to circumstances. Staff officers and signal communication personnel must be guided by general principles, applied with full appreciation of existing circumstances, rather than by rigid regulations. Reasonable security at all times should be the goal. In general, in a *strategic* situation some speed may be sacrificed to meet the greater secrecy requirements, while in *tactical* situations secrecy is often of secondary importance and may be sacrificed to meet the greater speed requirements. Various cryptographic devices and methods are available to meet both situations.

■ 811. PREPARATION OF MESSAGES.—*a.* Since the writer does not ordinarily know by what means a message will be transmitted, every message should be prepared in the briefest practicable telegraphic form to insure speedy transmission.

b. All messages are classified by the originator. In tactical operations, actual or simulated, all messages not classified and marked "Secret" will be regarded as "Confidential" but need not be so marked. Messages classified "Secret" should show on the face of the message the authority for such classification.

■ 812. WRITING MESSAGES.—*Example:*

THESE SPACES FOR MESSAGE CENTER ONLY

(M) TIME FILED | MSG CEN No. | HOW SENT

(O) 1 URGENT

MESSAGE (SUBMIT TO MESSAGE CENTER IN DUPLICATE) (PRECEDENCE)

NO.[2] 19 DATE[3] 6 May 1943

TO[4] CG TASK FORCE

5 3 BN 8 INF IDENTIFIED RJ AT 889-674 6

7 CG 1 INF DIV (OFFICIAL DESIGNATION OF SENDER) 8 1415 H (TIME SIGNED)

9 R. Jones, Lt Col G-2 (SIGNATURE AND GRADE OF WRITER)

(M) Leave blank. For Message Center use.
(O) Leave blank. For Operator's use.
[1] Precedence of transmission of messages—Routine messages transmitted in the order received. Precedence may be abbreviated or spelled out. Messages marked for special precedence of transmission are sent in the order shown in TABLE NO. 1.
[2] Enter writer's message serial number for his reference.
[3] Enter date message is written; day, month, (year).
[4] Enter after "To": CG or CO and unit. NOT staff section or personal name. [Staff reference may be indicated in body of message (not at beginning or end) IF ESSENTIAL for delivery.]
[5] Text of message. Be brief, concise, complete, and legible. Use only authorized abbreviations (FM 21-30 and school memorandum).
[6] AR 380-5, Par 46, indicates that figures are habitually spelled out. In divisional units, this practice is seldom followed.
[7] Enter CG or CO and unit NOT staff section or personal name. [Staff reference may be indicated in body of message (not at beginning or end) IF ESSENTIAL for delivery.]
[8] Enter time in 24-hour clock system and time zone suffix.
[9] Signature of writer with rank and *staff duty*. (For reference only; not transmitted.)

WRITING MESSAGES (Continued):

TABLE NO. 1—PRECEDENCE OF TRANSMISSION OF MESSAGES[1]

Precedence		*Sequence*	*Usual content*
Written	*Abbreviated*		
URGENT	O	Sent at once, interrupting all others.	Enemy contact reports. Immediate operations. Flash messages.
OPERATIONAL PRIORITY	OP	Sent after Urgent messages.	Operations messages including aircraft movements. NOT for ordinary troop movement messages.
PRIORITY	P	After Urgent and Operational Priority messages.	Operations messages. Other important messages. Highest administrative message precedence.
ROUTINE	R [2]	Sent after Urgent Operational Priority and Priority Messages.	Normal messages.
DEFERRED	D	Sent after all other messages, but not longer than 24 hours after filing.	Messages not requiring immediate delivery; 24-hour delivery assured.

[1] Over classification in precedence will result in the failure of the entire message classification system and will cause all messages to be handled alike, regardless of individual message priorities.
[2] No marking on the Msg.

■ 813. USE OF CRYPTOGRAMS.—For a complete discussion, see AR 380-5, FM 24-5, and Section II of this chapter. All messages to be transmitted by radio, or other means when danger of hostile interception exists, are cryptographed. Exceptions are:

a. When the tactical situation is such that time cannot be spared for cryptographing; when the information to be transmitted, if intercepted by the enemy, cannot be acted upon in time to influence the situation. Then the commanding officer or his authorized representative may order the transmission of radio messages in plain language. Such written messages will be marked "Send in clear" over the signature of the commanding officer or his authorized representative. Responsibility for transmission by radio telephone in the clear rests with the person making the transmission.

b. Transmission of artillery fire control messages in the clear is normal.

c. Secret messages are cryptographed for transmission by any means except authorized courier service when provided. Courier service for clear text secret messages is normally not available at the signal center.

■ **814. REFERENCES:**

FM 1-45, Air Corps Field Manual, Signal Communication.

FM 11-5, Missions, Functions, and Signal Communication in General.

FM 11-10, Organizations and Operations in the Infantry Division.

FM 11-15, Organizations and Operations in the Cavalry Division and Cavalry Corps.

FM 11-17, Organizations and Operations in the Armored Division and Armored Corps.

FM 11-20, Organizations and Operations in the Corps, Army, Theater of Operations, and GHQ.

FM 11-25, Aircraft Warning Service.

FM 11-35, Signal Corps Intelligence.

FM 24-5, Signal Communication: methods and technique of signal communication, with special emphasis on that of divisions and smaller units.

FM-24-9, Combined Radio Telephone (R/T) Procedure.

FM 24-10, Combined Radio-Telegraph (W/T) Procedure.

FM 30-25, Counterintelligence.

FM 31-35, Aviation in Support of Ground Forces.

For a list of technical publications, see the TM 11-series in FM 21-6.

SECTION IV

SIGNAL CENTER

■ 815. The term "Signal Center" includes a message center section, a cryptographic section (if required), and one or more operating sections, each one operating a means of signal communication. The purpose of the message center is to speed the transmission of messages. The message center chief selects the means of transmission of messages. Except for secret messages the writer should provide the message center with two copies of each message *plus* one additional copy for each addressee, if any, over one.

■ 816. LOCATION.—Message centers are located at all command posts and at the rear echelon of the headquarters of larger units. *Advance message centers* may be established at any location where they are needed to speed the transmission of messages. When the commander or an echelon of a headquarters moves with a column on a march, a message center operating in a vehicle accompanies the command group.

■ 817. OPERATION.—*a.* The message center is not organized or equipped to perform the following duties:

(1) Stenographic or clerical work for the headquarters it serves.

(2) Prepare additional copies of outgoing or incoming messages for multiple transmission or distribution. When transmission of mimeographed or printed material to a number of addressees is desired, all copies required for each addressee are delivered to the message center, wrapped, packaged, or otherwise secured, and plainly marked with their destination. Each such item is handled as a single message and will be delivered by messenger.

b. The message center is responsible only for messages delivered to it and does not include those messages which are:

(1) Transmitted directly by the writer to the addressee by personal agency, by telephone or by teletypewriter provided for private use.

(2) Handled by the military or civil postal service.

(3) Local messages between staff sections or individuals at the same location.

(4) The receipt of clear text messages delivered by special messenger to the addressee at a headquarters below the division.

(5) *Secret Messages.*—In tactical operations when time permits *secret* messages will normally be carried by a staff officer or officer courier operating as a direct agent. They may be transmitted by electrical or other means available provided the message center possesses the requisite codes. All personnel handling secret messages are required by the War Department to read AR 380-5.

■ **818. TIME INVOLVED IN MESSAGE TRANSMISSION.**—*a. Message Center.*—

(1) ***Recording.***—Maximum time permitted for all message center recording operations should not exceed 2 minutes unless cryptographing is required.

(2) *The cryptographing and decryptographing rate, varies from about one to eight words or groups per minute.*

b. Operator.—The following message rates are based upon calling, transmitting, and acknowledging receipt of a message of ten code or cipher groups, or ten words of clear text with address and signature.

1	*1*	*2*
1	*Means of transmission*	*Messages per hour*
2	Telephone	10–15
3	Telegraph (TG-5, TG-5-A, or other single-line manual)	25–30
4	Telegraph (duplex)	50–60
5	Teletypewriter (single-line)	60–100
6	Teletypewriter (duplex)	120–190
7	Radiotelegraph	15–25
8	Radiotelephone	8–12
9	Lamp	10
10	Semaphore flags	12
11	Wig-wag flag	10
12	Panel (code groups per hour)	20

c. Messenger.—

1	*1*	*2*	*3*
1	*Kind of messenger*	*Rate of travel in miles per hour*	
		Day	*Night (blackout)*
2	Dismounted (runner)	3–5	2–4
3	Mounted (horse)	6–8	4–6
4	Bicycle	6–10	6–10
5	Motor and motorcycle	25–40	15–30
6	Airplane	80–200	80–100
7	Pigeon	30–45	30–60

SECTION V
RADIO COMMUNICATION

■ 819. GENERAL.—*a.* Radio, when properly used, furnishes a valuable means of signal communication. It is used for both tactical and administrative messages by all units of a modern army. It is an essential means for highly mobile elements such as aircraft and armored units, and is especially applicable to motor movements and fast moving situations.

b. Radiotelegraphy is less subject to static interference than radiotelephony, and has greater range with a given amount of power.

c. Radiotelephony is used when person-to-person contact is required and when secrecy is relatively less essential. By using prearranged voice codes in radiotelephony secrecy can be maintained.

d. Proper use of radio as a means of communication requires a high state of training. It is imperative that communication exercises be conducted for staff officers and signal elements prior to combat in order to insure efficient operation of radio communication.

e. The range and quality of radio communication are affected, to a varying degree, depending upon the frequency used, by the weather, by the nature of the intervening terrain or obstacles, by the time of day, by the season of the year, and by magnetic disturbances.

■ 820. CAPABILITIES.—*a.* Radio stations are readily portable, and may be quickly placed in operation.

b. Radio stations may be operated from moving vehicles.

c. Radio is the only means of long range communication with or between ships or airplanes.

d. The approximate transmission range of a radio station may be limited in order to decrease the possibility of enemy interception and interference with other friendly stations.

■ 821. PRECAUTIONS.—*a.* Radio intelligence is the enemy's best method of obtaining information of our plans, and operations by:

(1) Intercepting our messages.

(2) Locating our radio transmitters and thereby approximately locating command posts and other important installations, thus obtaining information as to the strength, constitution, and capabilities of our forces.

PRECAUTIONS (Continued):

b. Enemy intelligence activities cited above can be largely counteracted. These counter-measures often limit our use of radio communications. These measures include:

(1) Maintaining radio silence (operators continue to listen) at appropriate times.

(2) Maintaining a normal volume of traffic.

(3) Enforcing rigid radio discipline.

(4) Enciphering or encoding messages. However, code and cipher systems can be compromised by too frequent use and too large a volume of traffic.

(5) Using authenticator systems to identify stations and to establish authenticity of messages.

(6) Locating radio transmitters at a distance from command posts and other installations served, using remote control from the command posts.

(7) Safeguarding frequencies and call sign assignments, and changing them frequently.

(8) Providing alternate frequencies and shifting frequencies when a particular frequency is jammed.

(9) Using radiotelegraph in preference to radiotelephone whenever both are available.

(10) Establishing dummy stations.

(11) Transmitting false messages.

c. Radio equipment is complex and fragile. It requires constant maintenance and intelligent care.

d. Operating and maintenance personnel require extensive specialized individual training.

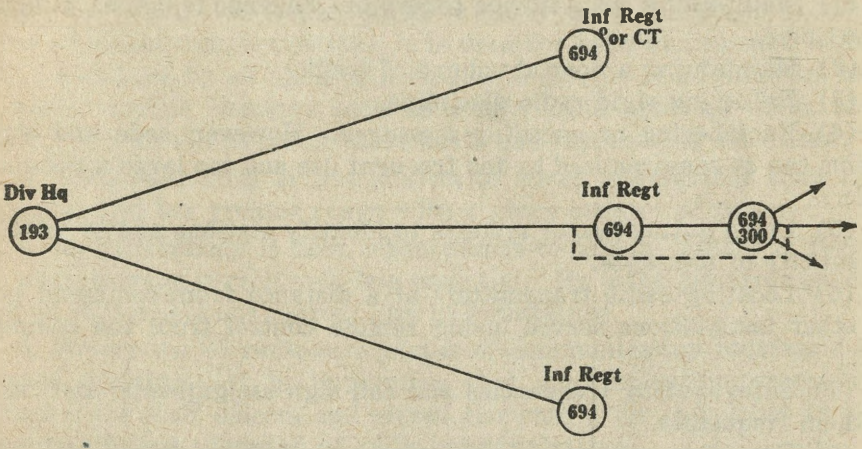
e. Necessary cryptographing and decryptographing of messages and use of authenticators delay transmission of messages and do not provide absolute security. Given sufficient time and volume of messages, any code or cipher system can be broken.

f. False messages transmitted by the enemy are designed to create confusion and cause action to his advantage.

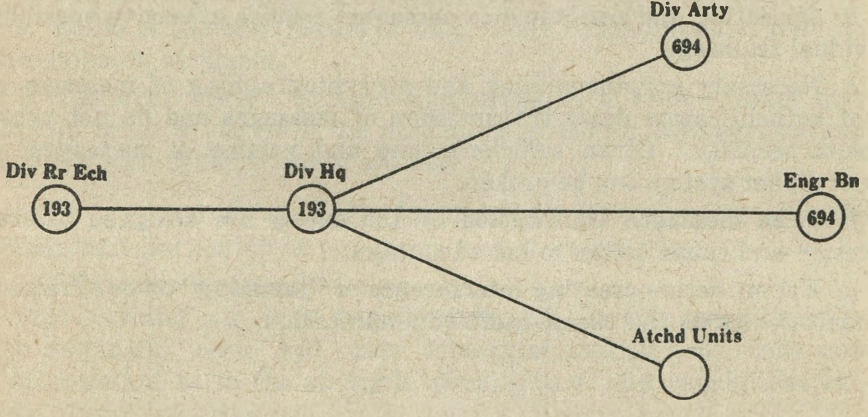
g. Enemy action creating interference or "jamming" on our frequency channels denies us the use of radio communication.

822. Type Radio Nets, Infantry Division:

DIVISION COMMAND NET NO. 1

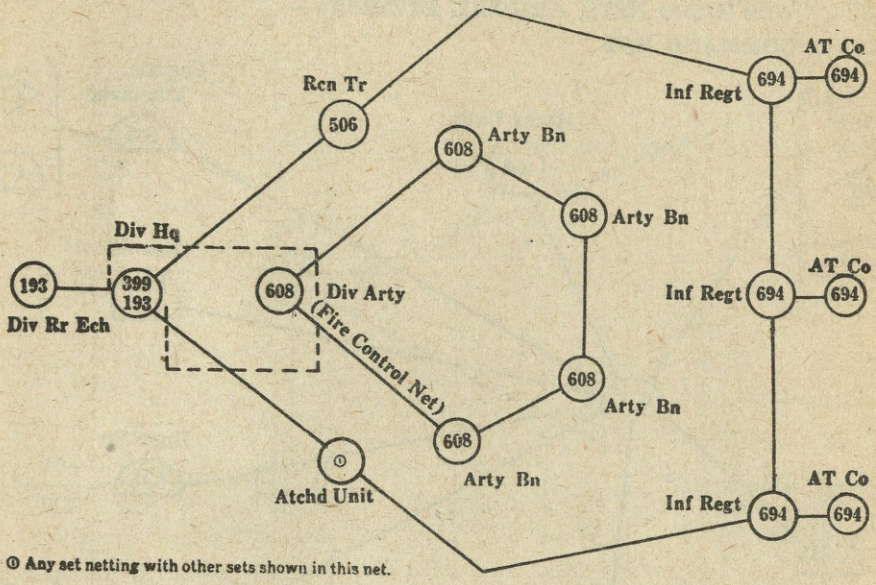


DIVISION COMMAND NET NO. 2
(Adm, Warning, Intelligence)



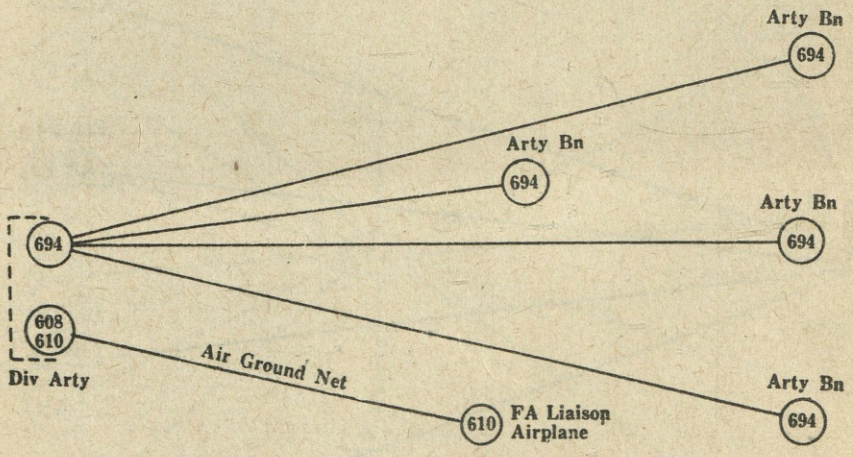
TYPE RADIO NETS, INFANTRY DIVISION (Continued):

DIVISION WARNING NETS



⊙ Any set netting with other sets shown in this net.

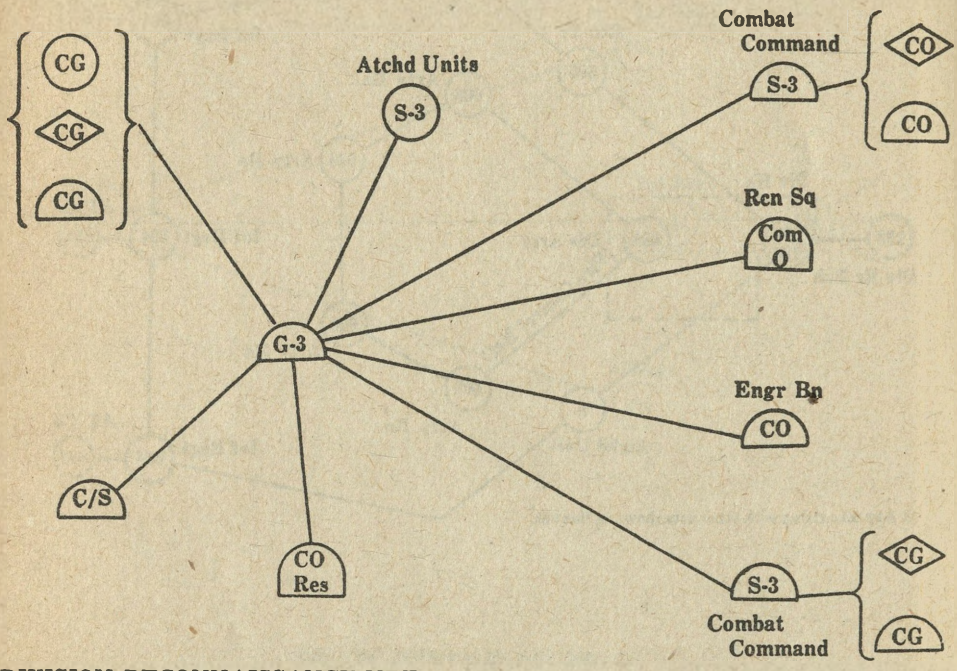
DIVISION ARTILLERY COMMAND NET



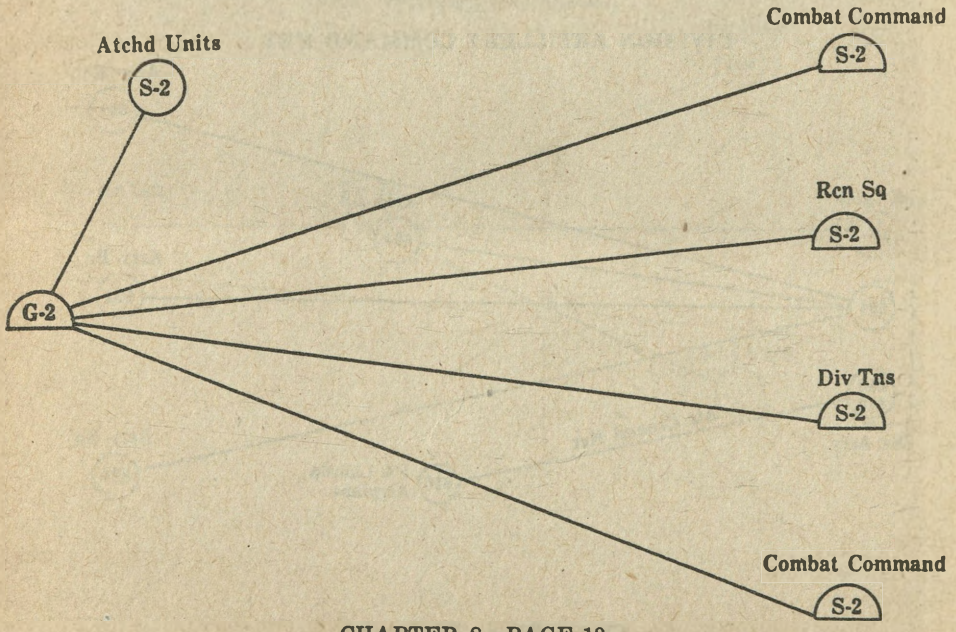
■ 823. TYPE RADIO NETS, INFANTRY DIVISION MOTORIZED.—The infantry division motorized radio nets are similar to the infantry division. The addition of some radio sets allows more flexibility in employment of radio.

■ 824. TYPE RADIO NETS, ARMORED DIVISION.—

DIVISION COMMAND NET

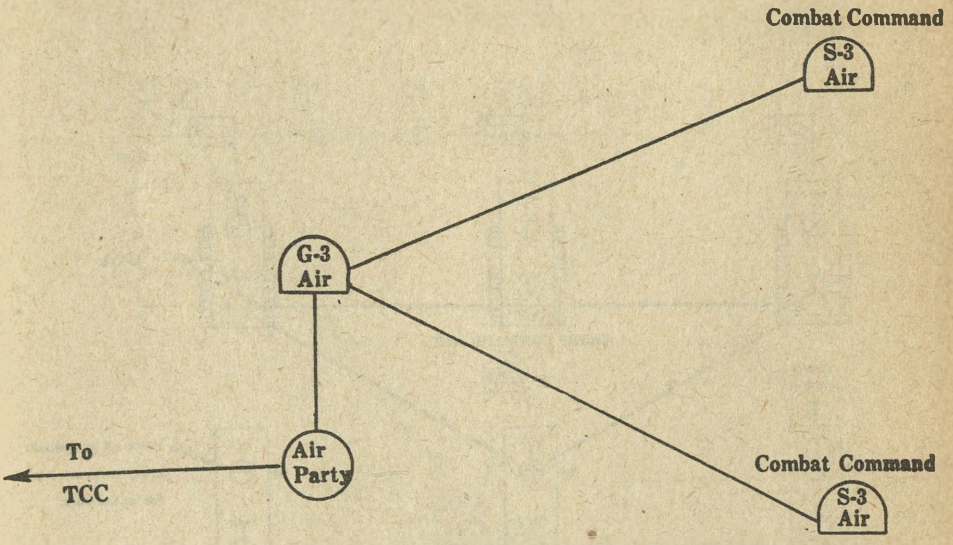


DIVISION RECONNAISSANCE NET

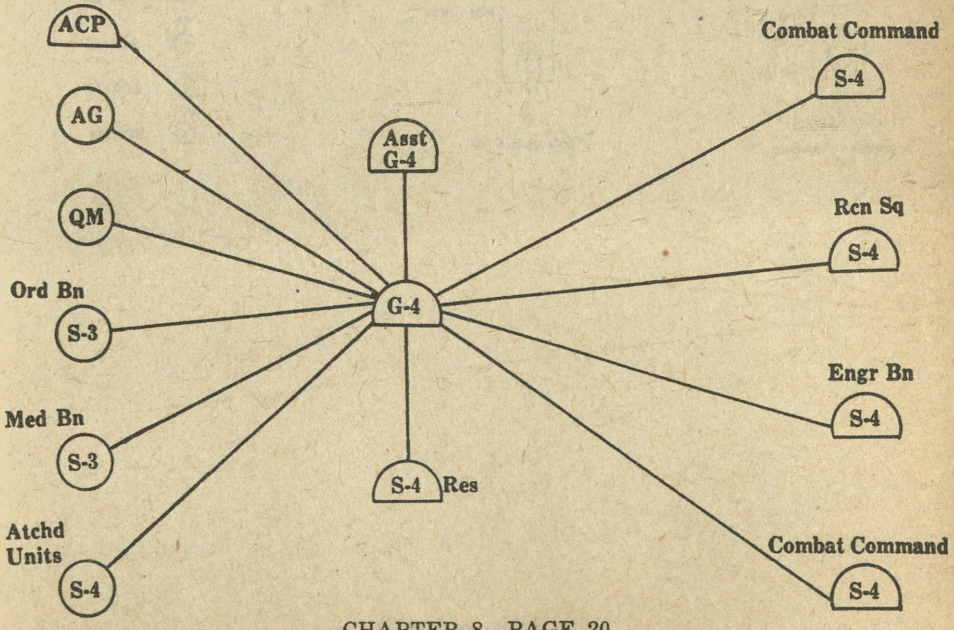


TYPE RADIO NETS, ARMORED DIVISION (Continued):

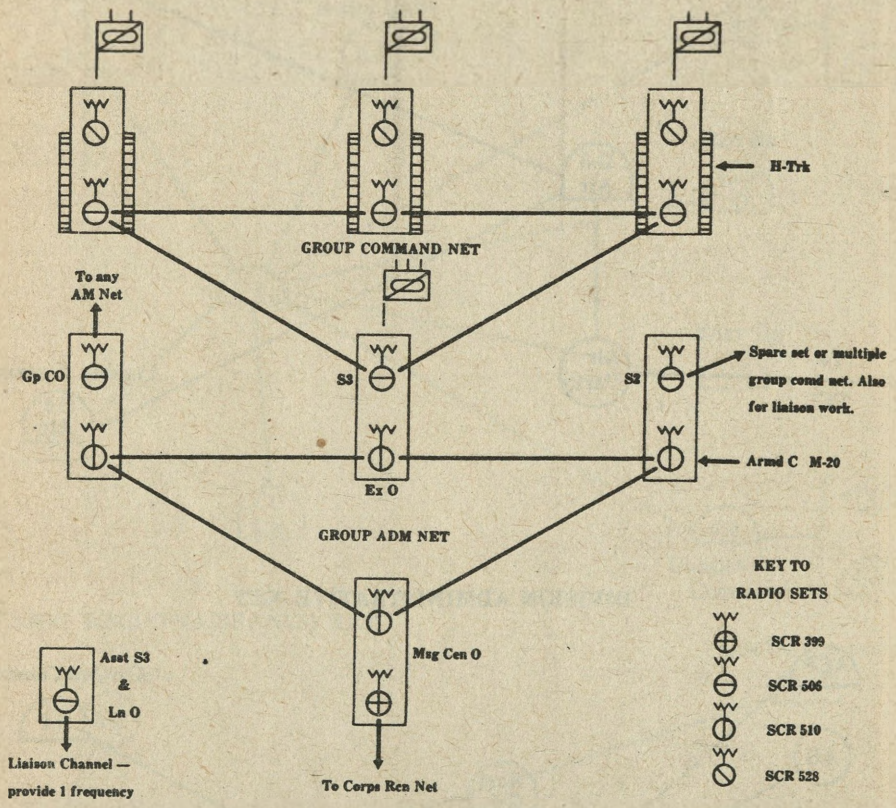
DIVISION AIR REQUEST NET



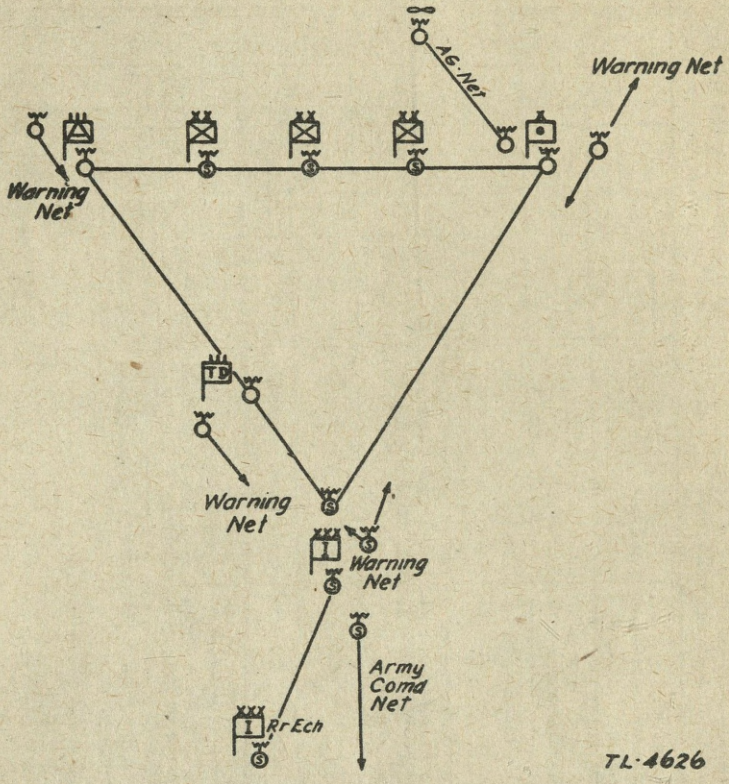
DIVISION ADMINISTRATIVE NET



825. TYPE RADIO NETS, CAVALRY RCN GROUP MECZ:



■ **826. TYPE RADIO NETS, CORPS (less Cavalry Rcn Group Mechanized):**



827. RADIO SETS. CHARACTERISTICS.—*a. Infantry Division.*—

1	1	2	3	4	5	6	7
	Set SCR	*Type signal*	*Range (miles)*	*Power source*	*Weight (lbs)*	*Description and remarks*	*Relative frequency coverage (not to scale) frequency →*
2	193-( )	CW Tone Voice	*60 *40 *20	Vehicle battery	195	Vehicular set. *Stationary; approximately half these values when moving.	———
3	284	CW Voice	20 5	Vehicle battery or hand generator	269 110	Used in vehicle or on ground. Pack. Being replaced by SCR-694.	———
4	300	Voice (Freq Mod)	5	Battery	32	Walkie Talkie. Carried on back.	———
5	399	CW Voice	250 100	Power unit PE-95		Installed and operated in 2½-ton truck which tows 1-ton cargo trailer mounting gasoline generator. Two receivers.	———
6	506	CW Voice	70 25	Vehicle battery	210	Vehicular set.	———
7	510	Voice (Freq Mod)	5	Dry Btry or Vibr Pack, Veh Btry	70	Vehicular set. 2 pre-selected channels available VHF.	———
8	511	Voice	5	Dry batteries	16	Carried by man, horse, motorcycle, or bantam. One pre-set frequency available.	———
9	536	Voice	1	Dry batteries	6	Carried in the hand. Operates on a single pre-set frequency.	———

RADIO SETS. CHARACTERISTICS:

Infantry Division (Continued):

1	2	3	4	5	6	7
	Set SCR	*Type signal*	*Range (miles)*	*Power source*	*Weight (lbs)*	*Description and remarks*	*Relative frequency coverage (not to scale) frequency →*
10	593	Voice		Storage battery	30	Carried shoulder slung or mounted in vehicle.	———
11	608	Voice (Freq Mod)	15	Vehicle battery	275	FA vehicular set, operated by persons not radio specialists. Two receivers. VHF.	———
12	610	Voice (Freq Mod)	5	Vehicle battery or dry batteries	70	FA portable set, carried in vehicle or by one man. VHF. (Being replaced by SCR 619.)	———
13	619	Voice (Freq Mod)	5	Vehicle battery or dry battery	Approx 25	FA portable set, carried in vehicle or by one man. VHF. (Replaces SCR 610.)	———
14	694	CW Tone Voice	30 20 15	Vehicle battery or hand generator	150 86	Vehicular. Pack.	———

RADIO SETS. CHARACTERISTICS (Continued):

b. Armored Division.—

1	1	2	3	4	5	6	7		
	Set SCR	*Type signals*	*Range (miles)*	*Power source*	*Weight (lbs)*	*Description and remarks*	*Relative frequency coverages (not to scale) frequency →*		
2	300	Voice (Freq Mod)	5	Battery	32	Vehicular mounted, Tk Co and Platoon. For Ln with Inf.			———
3	399	CW Voice	250 100	Power unit PE-95	850	Installed and operated in 2½-ton truck which tows 1-ton cargo trailer mounting gasoline generator. Two receivers.	———		
4	506	CW Voice	70 25	Vehicle battery	210	Armd Comd set, replaced in part SCR-193 and 245.	———		
5	508	Voice (Freq Mod)	7	Vehicle battery	210	Armd Comd vehicular set, 10 pre-selected channels available, 2 receivers. VHF.		———	
6	509	Voice (Freq Mod)	5	Dry Btry or Vibr Pack, Veh Btry	50	Armd Comd vehicular set, 2 pre-selected channels available. VHF.		———	
7	510	Voice (Freq Mod)	5	Dry Btry or Vibr Pack, Veh Btry	70	Armd Comd vehicular set, 2 pre-selected channels available. VHF.		———	
8	528	Voice (Freq Mod)	7	Vehicle battery	175	Armd Comd vehicular set. Same as SCR-508 except only one receiver. VHF.		———	

RADIO SETS. CHARACTERISTICS:
Armored Division (Continued):

1	1	2	3	4	5	6	7
	Set SCR	*Type signals*	*Range (miles)*	*Power source*	*Weight (lbs)*	*Description and remarks*	*Relative frequency coverages (not to scale)* *frequency* →
9	536	Voice (Freq Mod)	1	Dry Btry	6	Armd Inf portable set for platoon control in dismounted action.	———
10	538	Voice (Freq Mod)	7	Vehicle battery	135	Armd Comd vehicular set. One receiver only. Same as receiver of SCR-508. VHF.	———

c. Air Forces Units.—

1	1	2	3	4	5	6	7
	Set SCR	*Type signals*	*Range (miles)*	*Power source*	*Weight (lbs)*	*Description and remarks*	*Relative frequency coverages (not to scale)* *frequency* →
2	183 or 283	Tone Voice	45 30	Plane battery	45	Aircraft command set.	———
3	187 or 287	CW Tone Voice	750 500 250	Plane battery	250	Medium range aircraft liaison set.	———
4	188-A	CW Tone Voice	†100 † 70 † 50	Gas Eng Gen Set	1,385	Carried in vehicle. Air-ground set for Air Corps. †Transmission distances can be greatly increased by using high frequency.	———

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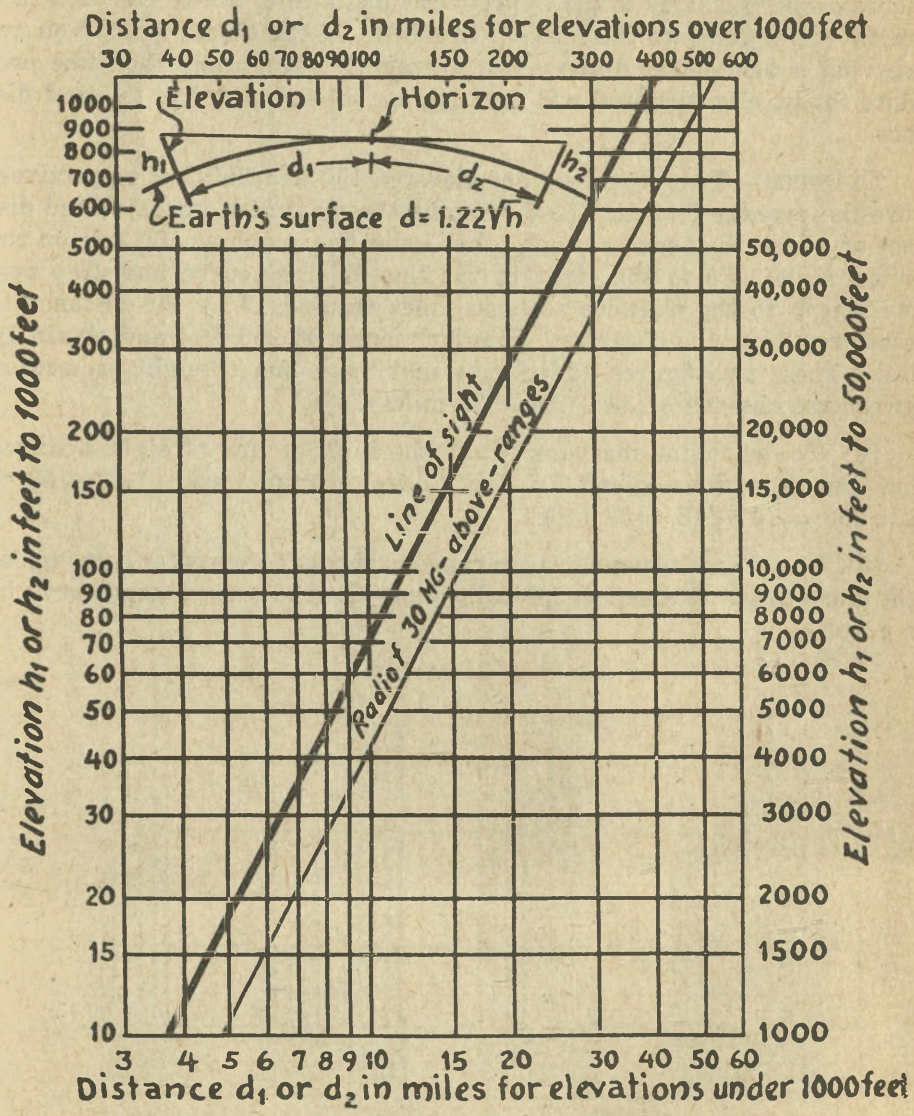
RADIO SETS. CHARACTERISTICS:

Air Forces Units (Continued):

	1	2	3	4	5	6	7	
5	197-( )	CW Tone Voice	†250 †150 †100	100 or 220 volt 60 cycles. Gen coupled to drive	Truck 9,980 Trailer 7,000	Air-ground set for higher headquarters. Vehicular set contained in truck. Accompanying trailer contains 3 receivers and wire communications equipment. Remote control through wire lines up to 7½ miles.		
6	238-A	CW Tone Voice	50 40 30	Plane battery	129	Short range aircraft liaison set.		
7	259-A	CW	1,500	Plane battery		Aircraft medium range liaison set		
8	274-N	CW Tone Voice	150 75	Plane battery	76.5	Aircraft command set.		
9	399	CW Voice	250 100	Power unit PE-95		Installed and operated in 1½-ton truck which tows 1-ton trailer mounting gasoline generators. Two receivers.		
10	522	Voice	—	Plane battery	49	V. H. F. Aircraft Command Set. 4-Channel Push Button Control.		
11	578	MCW	200	Hand generator	25	Sea rescue transmitter.		
12	585	Voice	1	Dry batteries	6	For gliders. When removed it becomes SCR-536		

■ 828. RADIO TRANSMISSION RANGES.—*a. Very High Frequency Line of Sight Communication Range can be determined from the curves below:*

(1) Distance d_1 or d_2 in miles for elevations h_1 and h_2 over 1,000 feet.



RADIO TRANSMISSION RANGES (Continued):

(2) Method of determining very high frequency transmission ranges:

(a) To determine graphically the limit of line of sight distance from a point elevated above the average surrounding terrain enter the graph on the preceding page at the elevation in feet and go to the line of sight curve. Thence perpendicularly to the appropriate distance in miles scale and read directly the distance to the horizon in miles. If the object which you are observing is also elevated above the average terrain, apply the same procedure for its elevation and add the distance thus obtained to the first distance.

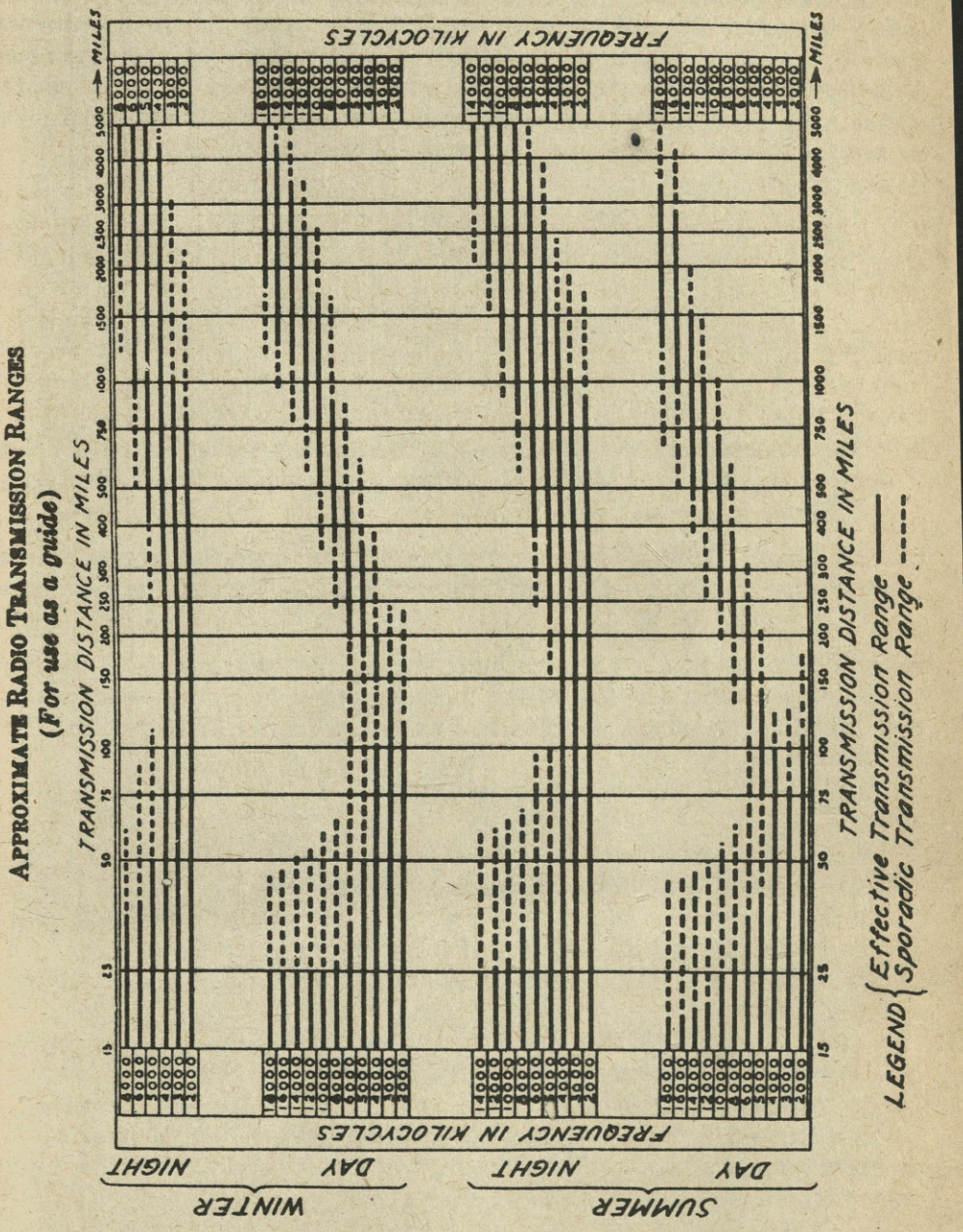
EXAMPLE.—Two observers are elevated 150 and 250 feet respectively above the average terrain. To determine the maximum unobstructed distance at which they can see each other enter the graph at 150 feet on the vertical scale. Go to the right to the line of sight curve and drop perpendicularly to the distance scale in miles reading 14 as the distance to the horizon from the observer. Similarly enter at 250 feet and obtain 18 miles. These two figures added give maximum line of sight separation between the observers ($14 + 18 = 32$ miles).

(b) To determine mathematically the limit of line of sight distance from the elevations given in the above example take $1.22\sqrt{150} + 1.22\sqrt{250} = 14 + 18 = 32$ miles.

(c) Very high frequency radio range is about 25% greater than line of sight and can be obtained graphically from the radio frequency curve in the graph.

RADIO TRANSMISSION RANGES (Continued):

b. Expected Transmission Distances for Various Frequencies, Times of Day and Seasons of Year. (See TM 11-462.)



SECTION VI
VISUAL COMMUNICATION

■ 829. EMPLOYMENT.—Visual communication is an auxiliary means of signal communication when other means are available, but in the absence or failure of other means it may become the only one. Visual communication is seldom employed in higher units, but is frequently employed within small units, particularly for transmitting prearranged signals, short code groups, and brief messages in the following cases:

a. Fire control.

b. Front to rear of small combat units.

c. Laterally between combat units when both stations are defiladed from hostile observation.

d. Air-ground communication, particularly ground to air.

e. Ground to vehicles in motion.

f. Between vehicles.

g. Amphibious operations.

■ 830. LAMPS.—Signal lamps are authorized for specified units. Air Force signal lamps are used for air-ground, air-ship, and air-air identifications. Signal lamps may be improvised by using standard flashlights.

■ 831. FLAGS.—Signal flags are authorized for specified ground force units. Signal flags are useful for artillery fire control when more suitable means are not available.

■ 832. PYROTECHNICS.—Pyrotechnics are an emergency means of sending short urgent messages. Due to the limited number of distinguishable signals available, meanings assigned to signals are usually limited to the following uses:

a. From front-line units to cause artillery fire to commence, cease, or lift.

b. To indicate arrival of units at predetermined locations or to coordinate operations when no other means are available.

c. For recognition between ground units and aircraft.

d. From aircraft to call for display of marking or identification panels or to request ground troops to indicate where a message may be dropped.

Meanings are assigned pyrotechnic signals by the superior headquarters in signal operation instructions and should be changed frequently for secrecy and to prevent the enemy from using similar pyrotechnics to confuse our own troops. Prearranging, when possible, the time or place from which our signals will be fired may help to avoid confusion from enemy fired signals.

■ 833. SMOKE.—Smoke grenades, smoke pots, smoke shells, and other smoke devices offer some possibilities for visual communication. Smoke signals may be employed effectively for target designation. Colored smokes may be used for recognition purposes in indicating the location of friendly troops.

■ 834. PANELS.—*a.* Fluorescent red, fluorescent yellow, or white panels about the same size as signalling panels are used in accordance with "Signal Operation Instructions."

(1) To mark leading elements. Displayed by leading platoon only.

(a) Must not be left displayed after troops move forward.

(b) Displayed when called for by prearranged signal or during a time bracket for prearranged missions with air.

(2) To identify vehicles, columns, or positions, panels are displayed:

(a) When menaced or fired upon by friendly aircraft.

(b) When called for by prearranged signal.

(c) At other times as prescribed.

b. Signaling panels are issued for communicating with aircraft and for the location and identification from the air of unit command posts. They may be used by ground units to indicate to aircraft the direction to targets or to convey short messages in a prearranged code.

An identification panel display is assigned to each headquarters in signal operation instructions. On request by friendly aircraft a unit identifies itself by displaying the prescribed identification display. See FM 24-5 and CCBP-8.

c. Display grounds.—Panel display grounds are located near the radio station since panels are normally operated in conjunction with the unit radio station. Although communication from aircraft is normally by radio, signal lamps or dropped messages may be used. Care must be exercised to see that panels are displayed only to friendly aircraft who have identified themselves as such by use of a prearranged signal or code group. Upon the approach of hostile aircraft the friendly aircraft should first be warned and then panels should be taken up and concealed. Ground troops may attract the attention of friendly aircraft to their panel display by means of signal lamps, mirrors, or other visual means.

■ 835. AIRCRAFT.—In an emergency, when a ground station is not equipped for radio or when the radio transmitter of an aircraft is silenced or out of operation, an aircraft may communicate to a limited degree with a ground station by means of a few simple standard maneuvers of the aircraft while in flight. Meanings are assigned to such maneuvers in signal operation instructions after consultation with the supporting air unit commander. Prearranged adjustment of the fire of field artillery batteries using only panels and aircraft signals may be both rapid and practicable.

SECTION VII
WIRE COMMUNICATION

■ 836. TELEPHONE.—*a. General.*—The distance over which satisfactory telephone communication is possible is determined by the electrical characteristics of the telephone circuit. A given type of dry wire circuit has a definite talking range. Training in preparation for field operations or combat should always provide for communication exercises using *field* telephones in order to familiarize all personnel including commanding officers and staff officers with their proper use. The following rules should be carefully adhered to in the use of field telephones:

(1) Make all conversations brief by mentally preparing the subject matter before the call is placed.

(2) The telephone should not be used for long reports, orders, or messages when other means are available.

(3) Conversations must be discreet since secrecy is never assured.

(4) After placing a call do not leave the telephone until a report is received and upon completion of a call always "ring-off."

(5) When the called party cannot answer the telephone promptly, leave your number and request that he call you back. Do not hold the line while waiting for him as that will deprive others of its use.

(6) No unnecessary conversations should be held with the switchboard operator and he should be spoken to in a civil manner.

(7) Use telephone directory and proper directory names and numbers in placing calls.

(8) Operators should not be directed how to route a call nor should the calling party attempt to route his own call by merely asking for connection to a certain central. Operators are trained to route calls with a minimum of delay when they are given the complete designation of the called party.

b. Capabilities.—(1) It is more reliable and consistent, and less subject to mechanical and electrical failure than radio.

(2) Does not require a high degree of technical skill to install and operate at smaller headquarters.

(3) Is less easily intercepted than is radio or visual communication.

(4) Requires considerable time, labor, and material and equipment to install, operate and maintain.

(5) Is limited in range and to points of geographical contact.

(6) Subject to failure due to vulnerability of extended lines to bombing, artillery fire, and enemy patrols.

(7) There is no satisfactory means of assigning precedence to telephone traffic. Telephone operators may be instructed to make circuits available if calls are announced as "Urgent" or "Operational Priority" by

TELEPHONE (Continued):

competent authority. Relatively unimportant and verbose conversation delays the transmission of vitally important messages.

(8) Subject to mechanical and electrical failure, in proportion to the elaborateness of the equipment involved.

(9) Subject to tapping.

(10) Often, no record of a message is made.

■ 837. TELETYPEWRITER.—*a. General.*—The teletypewriter is a telegraph instrument designed for interchanging printed messages between two or more stations. It is employed between headquarters in the same manner as the manual telegraph. Data relative to the employment of the teletypewriter will be found in FM 11-5.

b. Capabilities.—(1) It is rapid, reliable, and accurate in transmission and provides a printed record of each message.

(2) More secret than either the radio or the telephone.

(3) Has greater transmission range than the telephone over the same type line.

(4) When sufficient machines are available, may be placed in offices of staff officers of larger units for direct communication.

(5) Operates as a secondary channel on telephone lines already established.

(6) Any typist can be quickly trained as a teletype operator.

(7) Equipment is heavy, bulky, and difficult to transport and install.

(8) A dependable source of power is required, but is frequently difficult to obtain in the field.

(9) Requires frequent maintenance and adjustments by technically skilled personnel and a large stock of critical replacement parts.

(10) Message transmission is limited by the length and range of wire circuits, and the points of geographical contact.

(11) Subject to tapping.

■ 838. MANUAL TELEGRAPH.—*a. General.*—Telegraph equipment permits the utilization of existing wire lines to form additional channels for message transmission.

b. Capabilities.—(1) Has greater transmission range without use of repeaters, than telephone or teletypewriter.

(2) Operates over lower grade circuits than telephone or teletype.

(3) Equipment is lighter, more simple, and more reliable than any other electrical means of communication.

(4) Operates on a secondary channel over telephone or teletype circuits.

MANUAL TELEGRAPH (Continued):

(5) Requires little electrical power in operation.

(6) Requires skilled operators. Radiotelegraph operators can be used with some extra training.

(7) It is slower than teletypewriter, but faster in general than radio.

■ 839. FACSIMILE EQUIPMENT.—*a. General.*—Wire facsimile equipment is designed for transmission of photographs, maps, charts, overlays and printed or written messages between two or more stations by wire. With some simple additional equipment it can be used for radio facsimile transmission, employing standard signal corps radio sets. It is employed between headquarters of divisions or higher units.

■ 840. WIRE DATA.—*a. Rates of Wire Line Construction.*—Foot troops lay about 1½ miles of field wire per hour, using a three-man team per circuit. Darkness or traffic congestion may reduce this to about one mile per hour.

b. Field wire laid from trucks advances about three to five miles per hour. Two circuits may be laid simultaneously from the same trucks at the same rate. The team is usually six men.

A construction platoon can construct a pole line with five open wire circuits at the rate of about a quarter mile per hour, provided the poles and equipment are already delivered along the route. Light pole line materials weigh 2½ tons per mile. Standard pole line materials weigh 6 tons per mile. A platoon can place an additional arm with five pair at about one-half mile per hour. A platoon can install a pair on two brackets on an existing pole line at the rate of about 2½ miles per hour. Minimum clearance at main road crossing is 18 feet. About 25 poles per mile are required. These figures vary with transportation available, size of working parties, rocky soil, weather, traffic congestion and related factors.

WIRE DATA (Continued):

c. Replacement Requirements of Field Wire per Day of Combat, Infantry Division.

Type of combat	Miles of wire[1]				
	Inf Regt	*Div Arty Hq Btry*	*FA Bn*	*Div Sig Co*	*Total for Div*
INITIAL ALLOWANCE (Approximate, see T/E)	90	30	75	120	720
REPLACEMENT REQUIREMENTS (Approximate per day)					
1. ATTACK:					
a. In a meeting engagement	16	8	17	30	154
b. Of a position	24	12	18	35	191
c. Of a zone	16	6	9	35	125
2. DEFENSE:					
a. In a meeting engagement	10	8	17	24	130
b. Of a position	12	8	11	24	112
c. Of a zone	16	9	17	30	155
3. DELAYING ACTION	20	12	22	40	200
4. RETIREMENT: Day	16	9	17	30	155
Night	32	12	22	40	236

[1] These figures vary widely with terrain, speed of action, and dispersion of units.

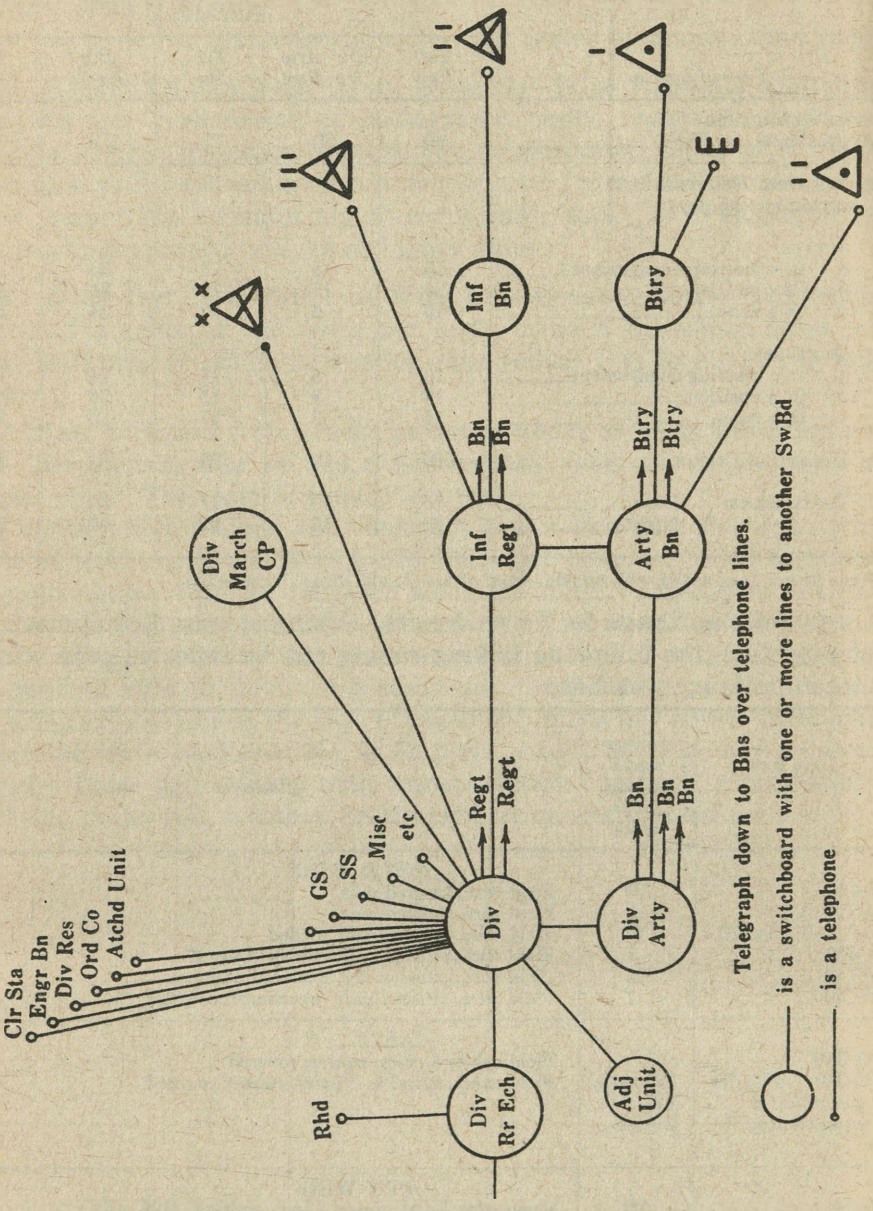
d. Talking Range on Wire Circuits.—Using standard equipment without repeaters, the following talking ranges can be expected over wire circuits in ordinary weather:

Type wire circuit	*Approximate talking range miles*[1]	*Remarks*
		FIELD WIRE
W-110	10	Field wire, twisted pair
W-110-B	11	Field wire, twisted pair
W-110-B (loaded)	19	Field wire, twisted pair, loaded
W-130	7	Field wire, twisted pair, rubber-covered
W-143	25	Field wire, parallel lay-insulated wire pair
W-150	7	Field wire, twisted pair, weatherproof braid
		CABLE
CC-345	19	Field cable, 5 pairs, rubber covered.
CC-358 (w/carrier and repeater equipment)	150-aerial 400-Buried	Field cable, spiral 4, 2 pairs, rubber covered.
		OPEN WIRE
W-74	520	Open wire, bare copper, 8-inch spacing. (128 mil)
W-75	118	Open wire, bare galvanized iron, 8-inch spacing. (148 mil)
W-76	79	Open wire, bare galvanized iron, 8-inch spacing. (83 mil)

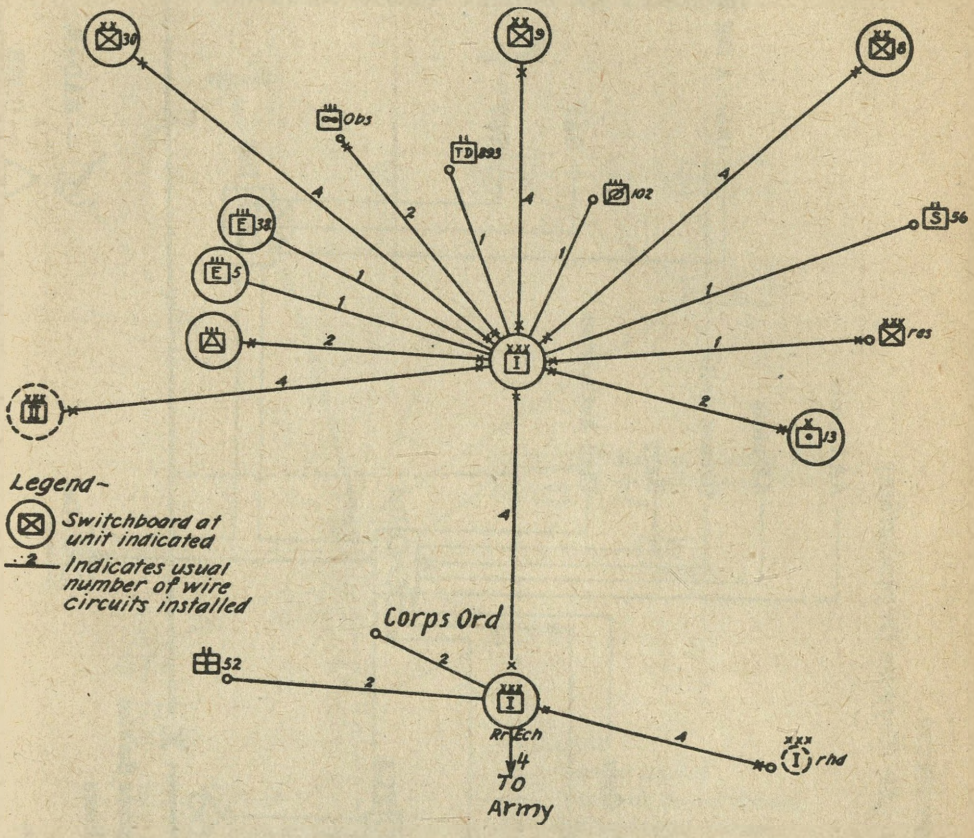
[1] Each additional telephone or switchboard in parallel with line decreases range about 5%.

■ 841. TYPE WIRE NETS, INFANTRY DIVISION.

DIVISION WIRE NET (SIMPLIFIED)

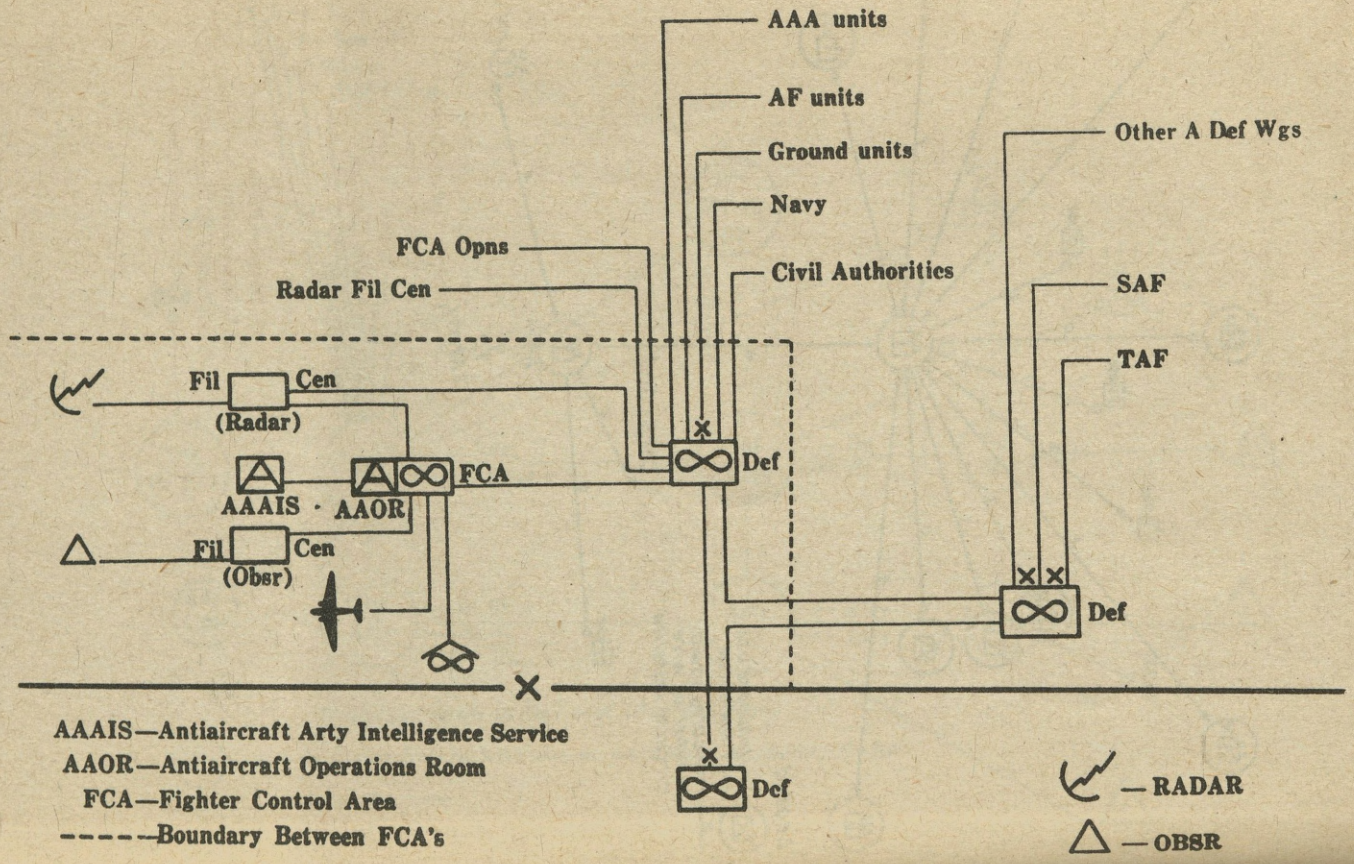


■ 842. TYPE WIRE NETS, CORPS.



■ **843. TYPE AIR COMMUNICATION NETS.**

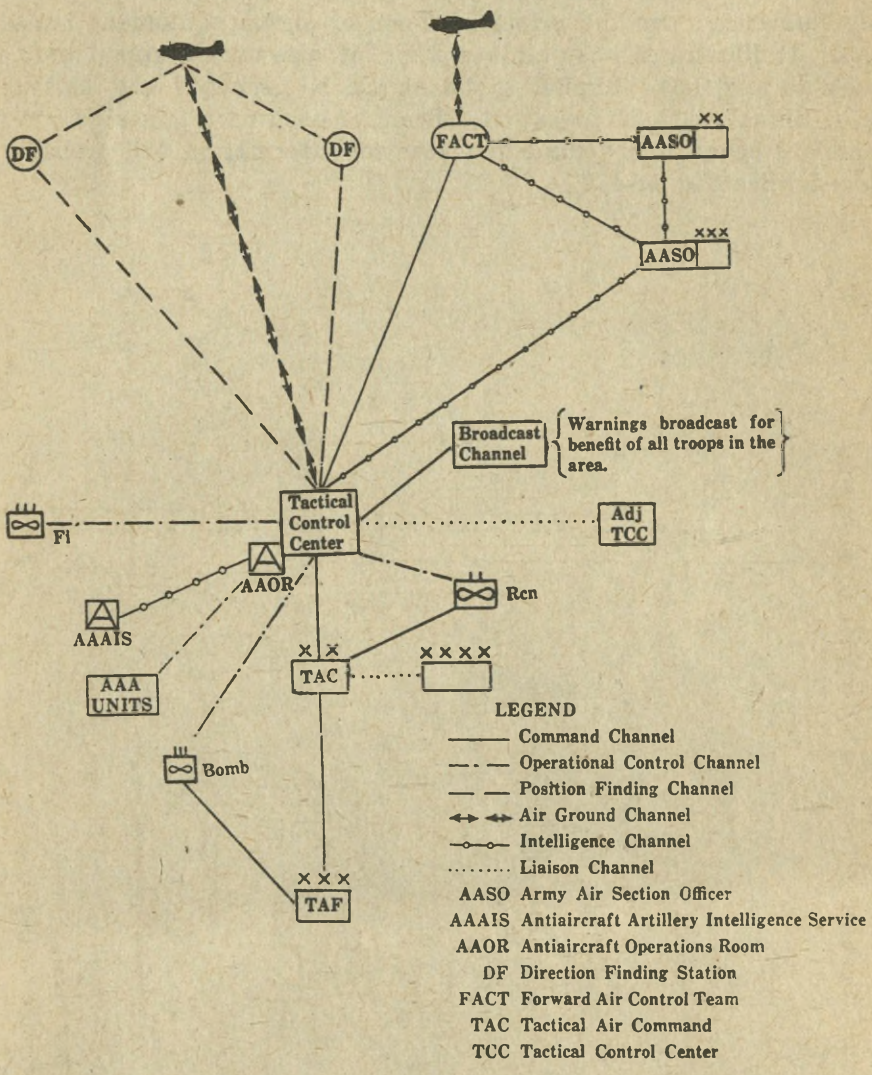
a. Aircraft Warning Service (Air Defense Organization)



TYPE AIR COMMUNICATION NETS (Continued):

b. Principal Communication Channels Tactical Air Command. (Schematic only.)

Schematic Net for Tactical Air Command



SECTION VIII

TABLES OF SIGNAL EQUIPMENT

■ 844. TABLES OF SIGNAL EQUIPMENT.—*General.*—This section lists in ready reference form the principal items of signal equipment issued to troops. It illustrates a suitable *method* of assembling signal data applicable to any unit. Similar tables should be prepared and kept up to date by Signal or Communication Officers of each unit. In airborne and amphibious operations, volume displacement information will probably be required. (See TM 11-462.)

845. PRINCIPAL ITEMS OF SIGNAL CORPS EQUIPMENT.—*a. Infantry Division.*

1	*1* Item	*2* Type No.	*3* Weight (lbs.)	*4* Sig Co (DH Q)	*5* Recn Tr	*6* Inf Regtl Hq Co	*7* Inf Bn Hq Co	*8* Inf AT Co	*9* Inf Cn Co	*10* Inf Rifle Co	*11* Inf Hv Wpns Co	*12* Hq Btry Div Arty	*13* Hq Btry FA Bn	*14* Engr Bn
	RADIO EQUIPMENT:													
2	Detector	SCR-625	20.0		3		2	3						15
3	Frequency meter set	SCR-211-( )	40.0	1	1	1						1		1
4	Radio set	SCR-193	195.0	9										
5	Radio set	SCR-284	269.0			6	1	1				2	2	
6	Radio set	SCR-399		1										
7	Radio set	SCR-300	32.0	6		12	6	5	5					
8	Radio set	SCR-506-( )	210.0	1	13									
9	Radio set	SCR-508		1	11									
10	Radio set	SCR-510-( )	70.0	1	10									
11	Radio set	SCR-511	16.0											
12	Radio set	SCR-528			3									
13	Radio set	SCR-536	6.0	10						6	6			
14	Radio set	SCR-543		1										
15	Radio set	SCR-593	30.0	2										
16	Radio set	SCR-608	275.0	2								2	2	
17	Radio set	SCR-610	70.0	10								2	11	
18	Radio set	SCR-694		1										
	TELEPHONE—TELEGRAPH AND SWITCHBOARDS:													
19	Coil, repeating	C-161	3.5	12								2		
20	Switchboard (6-line)	BD-71	48.0	1			1		1			1	1	2
21	Switchboard (12-line)	BD-72	68.0	5		2						2	2	
22	Telegraph set	TG-5-A	5.5	6		4	1					5	1	
23	Telephone	EE-8-A	9.8	72		12	8		6			21	19	5
24	Telephone	TP-3												8
25	Telephone central office set	TC-4		3										
26	Teletypewriter set	EE-97		4										

PRINCIPAL ITEMS OF SIGNAL CORPS EQUIPMENT.—*a. Infantry Division* (Continued):

1	*1* Item	*2* Type No.	*3* Weight (lbs.)	*4* Sig Co (DHQ)	*5* Recn Tr	*6* Inf Regtl Hq Co	*7* Inf Bn Hq Co	*8* Inf AT Co	*9* Inf Cn Co	*10* Inf Rifle Co	*11* Inf Hv Wpns Co	*12* Hq Btry Div Arty	*13* Hq Btry FA Bn	*14* Engr Bn
	WIRE-LAYING EQUIPMENT:													
27	Axle (wire-laying, hand)	RL-27	5.0	14	.....	6	3	.....	3	.....	.....	.....	3	.....
28	Reel unit (truck)	RL-26-( )	275.0	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	Reel unit (truck or hand)	RL-31	31.0	8	.....	4	1	.....	1	.....	.....	4	4	1
30	Reel unit	RL-39	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	5	8
31	Reel equipment	CE-11	.....	.....	.....	8	8	12	12	2	20	.....	.....	.....
	WIRE AND LOADING COILS:													
32	Coil, loading	C-114	1.5	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	Wire, mile (on DR-4, ½-mile reel)	W-110-B	70.0	10	.....	20	4	.....	.....	.....	.....	.....	3	2
34	Wire, mile (on DR-5, 1-mile reel)	W-110-B	132.0	110	.....	.....	.....	.....	.....	.....	.....	20	9	.....
35	Wire, mile (assault) (DR-4)	W-130A	32.0	.....	.....	5	4	.....	8	.....	.....	.....	15	.....
36	Wire (on DR-8, mile)	W-130A	.....	.....	.....	2	2	3	3	½	5	3	3	4
	MECHANICAL CIPHER DEVICES:													
37	Converter	M-209	6.0	13	13	2	2	.....	.....	.....	.....	2	2	15
	SIGNAL FLAGS AND AIR-GROUND PANELS:													
38	Flag kit	M-113	3.0	.....	30	.....	.....	.....	.....	.....	.....	.....	6	.....
39	Flag set	M-133	0.5	.....	.....	2	2	2	.....	5	2	.....	.....	.....
40	Flag set	M-238	.....	.....	25	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Panel set (signaling)	AP-30-C	.....	3	1	1	1	.....	.....	.....	.....	1	1	.....
42	Panel set (signaling)	AP-30-D	.....	3	1	1	1	.....	.....	.....	.....	1	1	.....
43	Panel set (signaling)	AP-50-A	5.0	40	6	4	8	15	13	3	4	3	3	27

PRINCIPAL ITEMS OF SIGNAL CORPS EQUIPMENT (Continued):

b. Radio Equipment of an Armored Division:

	Div Hq & Hq Co	2 Hq & Hq Cos Combat Comd	Armd Sig Co	Hq & Hq Tr, Cav Rcn Sq	4 Cav Rcn Trs	Cav Assault Gun Tr	3 Hq & Hq Cos, Tk Bn	9 Tk Cos (M), Tk Bn	4 Tk Cos (L), Tk Bn or Rcn Sq	3 Sv Cos, Tk Bn	3 Hq & Hq Cos, Armd Inf Bn	9 Rifle Cos, Armd Inf Bn	3 Serv Cos, Armd Inf Bn	Hq & Hq Btry, Div Arty	3 Hq & Hq Btrys, FA Bn	9 Btries, Armd FA Bn	3 Serv Btries, Armd FA Bn	Hq & Hq Co, Armd Engr Bn	3 Engr Cos, Armd Engr Bn	Hq & Hq Co, Armd Div Tns	Hq & Hq Co, Maint Bn	3 Maint Cos, Maint Bn	Hq & Hq Co, Armd Med Bn	3 Med Cos, Med Bn	Aggregate Sets
SCR-300	.....	.....	.....	.....	.....	.....	.....	7	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	91
SCR-299	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
SCR-506	7	7	15[1]	7	12	.....	2	.....	1[2]	1	2	.....	1	2	5	1	2	3	1	2	3	1	3	1	162
SCR-508	4	3	12[3]	5	12	.....	4	4	4	.....	2	.....	.....	1	4	1	.....	.....	.....	1	.....	.....	.....	.....	168
SCR-509	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	3	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
SCR-510	5	4	29[4]	4[5]	10	8	10[5]	2	2	3[6]	15[5]	5	2	1	1[6]	1	3	7[5]	5	7	3[5]	3	2	.....	320
SCR-528	4	2	2	3	1	1	4	14	13	3[7]	.....	1	1	1	8	3	.....	3	.....	.....	1	1	1	3	298
SCR-536	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5[8]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
SCR-538	.....	.....	.....	1	.....	1	.....	1	1	3[6]	.....	.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	33
Totals	20	16	64	20	35	10	23	28	28[2]	10	22	11	5	7	20	6	7	13	6	10	7	5	6	4	1,149

[1] Includes 4 spares
[2] In Cav Rcn Sq only
[3] Includes 12 spares
[4] Includes 10 spares
[5] Includes 1 SCR-510 for Med Det.
[6] Includes 1 spare
[7] Includes 2 spares
[8] 5 Radio Sets SCR-300 are being proposed in lieu of SCR-536 to permit communication with tanks.

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Chapter 9

CAMPS AND BIVOUAC AREAS

	Paragraph
Cantonments	901
Billeting	902
Semi-permanent Camps	903
Shelter Tent Camp	904
Bivouac Areas	905
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CAMPS AND BIVOUAC AREAS

■ 901. CANTONMENTS.—*a.* The percentage of the total force in a theater of operations for whom barracks must be provided will vary widely with such factors as the theater mission, the tactical situation, the availability of billets and with climatic conditions. Temporary shelter, hutments and improvised cover is used extensively in most theaters rather than semi-permanent construction.

b. Space requirements for sleeping quarters are as follows:

Zone of the Interior.

Normal: 60 sq. ft. floor space and 720 cu. ft. air space per person.
Minimum: 40 sq. ft. floor space and 400 cu. ft. air space per person.

Theater of Operations (for seasoned troops).[1]

Normal: 40 sq. ft. floor space and 400 cu. ft. air space per person.
Emergency: 20 sq. ft. floor space and 200 cu. ft. air space per person.

c. In cantonment, the building area for a 1000-man unit is 8.3 acres. However, large forces require a greater proportional area because of the desirability of dispersion, as a security measure, and to provide training, parking, and storage facilities.

Approximate area for infantry division is 160 acres.
Approximate area for armored division is 200 acres.

(Areas for drill, supply facilities, hospital and paddocks not included.)

■ 902. BILLETING.[1]—In hostile or liberated territory billeting is resorted to when desirable. The capacity of a locality for billeting is approximately as follows:

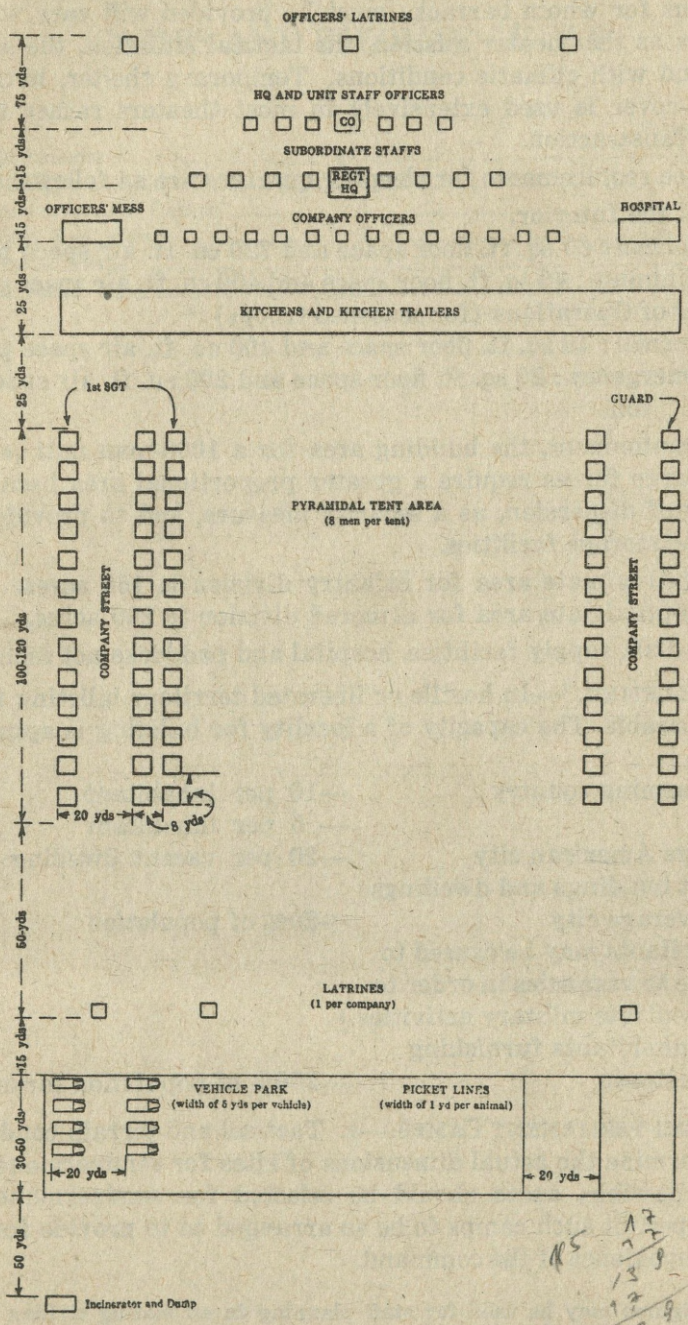
Rich farming country	—10 per inhabitant
Cities	— 5 per inhabitant
Average American city	—20 per vacant dwelling
Vacant buildings and dwellings in average city	—20% of population
(Inhabitants may be caused to move to vacancies in order to concentrate military activities.)	
With inhabitants furnishing subsistence	—200% of population for one week.

■ 903. SEMI-PERMANENT CAMPS.—*a.* Tactical and terrain conditions will largely determine the actual dimensions of sites for semipermanent camps. Whenever possible, areas should be selected for semipermanent camps which will permit such camps to be so arranged as to provide for the comfort and convenience of the command.

[1] These figures may be used for staff planning in estimating civilian evacuee requirements in a theater of operations.

SEMI-PERMANENT CAMPS (Continued):

DIAGRAMMATIC LAYOUT OF A TENT CAMP



SEMI-PERMANENT CAMPS (Continued):

b. There are many possible arrangements of facilities in a semipermanent camp. Data on them are given in a number of arm and service field manuals. A typical arrangement of such a tent camp which has been found satisfactory is shown in the diagram on the opposite page.

It is desirable to assign 6 men per large pyramidal tent with a maximum of 8 men. The area of open ground for an infantry regimental combat team would be about 50 acres. The initial estimate of the total area for any unit may be figured on the basis of 50 sq. yds. per man, and 100 sq. yds. per vehicle (10 acres per 1000 men or animals, 5 acres per 100 vehicles). This includes room for roads and assembly areas.

c. In a camp for units of the combined arms it will usually be desirable or necessary to have regimental or separate unit camps dispersed to a greater or less degree, with a minimum area for a division of about 480 acres. In the presence of the possibility of air attack, such a camp should not be established, but shelter should be dispersed, by battalion or company units, camouflaged, and advantage taken of existing cover and shelter.

■ 904. SHELTER TENT CAMP.—The camp may be arranged as shown in the diagram, or shelter tents may be pitched in lines parallel to the vehicles of each company or similar unit (motorized units). Parking of vehicles abreast facilitates the use of individual vehicles; parking in close column facilitates the entry into camp and resumption of the march. Because a shelter tent camp generally is occupied only a short time, intervals may be reduced from those used in a semipermanent camp.

■ 905. BIVOUAC AREAS.—As dictated by the tactical situation, units will bivouac in a dispersed formation without formal alignment of their elements. The degree of dispersion will be governed by the hostile mechanized threat, the air situation, and control of the command. Full use will be made of concealment and cover, and vehicles will be camouflaged and parked to facilitate their movement.

The bivouac area of a regimental combat team will vary from 50 acres to a square mile, as indicated by the situation and in proportion to the amount of concealment and cover available.

The approximate area required by a unit may be estimated as indicated in par. 903 *b* where personnel is the consideration, or on the following basis where the number of vehicles with the unit should govern: (the larger area as determined by the two methods will be used)—Take the square root of the number of vehicles with the unit, multiply by the desired dispersion in yards. This will give the square (area) in yards required to accommodate the unit. For example: Assume that a Regtl CT has 350 vehicles; square

BIVOUAC AREAS (Continued):

root of 350 equals 19 (approx); assume a dispersion of 100 yards between vehicles; 19 times 100 equals 1900 yards, which is the length of a side of the square required, or approximately $\frac{1900}{70} \times \frac{1900}{70} = 730$ acres; personnel will be distributed throughout the area.

NOTE.—The number of acres in a rectangular tract is approximately equal to the product of one-seventieth of the length in yards by one seventieth of the breadth in yards. One acre equals 4840 square yards (about 70 yards square). 1 square mile equals 640 acres.

■ 906.—REFERENCES.—FM 100-5, Halts and Security during halts, for tactical considerations in the selection of camp and bivouac areas.

FM 100-5, for detailed information regarding security measures.

FM 100-10, for administrative considerations.

FM 5-6 for shelter and camps; FM 5-10, for construction of cantonments.

FM 21-10, for sanitation.

TM 5-280, 5-281, for construction in the Theater of Operations.

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Chapter 10

TIME AND SOLAR ILLUMINATION

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TIME AND SOLAR ILLUMINATION

■ 1001. METHODS OF DESIGNATING TIME AND DATE.—*a. Time.*—Time will be expressed in a group of four digits ranging from 0000 to 2400. The first two digits on the left will be the hours after midnight, and the remaining two digits will indicate the minutes past the hour. Where the hour can be expressed by a single digit, it will be preceded by zero (0), for example, 0625 for 6:25 AM.

b. Date:

(1) In *all* communications, including the text of plans, and in all publications, the date will be expressed by spelling out or abbreviating the name of the month. The day, month, and year will always be expressed in that order. The day will always be expressed by numerals, the month will be either spelled out or abbreviated. Abbreviations, if used, will consist of the first three letters in the spelling of the word. The year will be expressed by four digits or by the last two digits, for example:

14 January 1945; 14 Jan 1945; 14 Jan 45.

(2) When future plans are involved and it is desired to keep the date of the operation secret, dates may be expressed by D plus or minus a numeral. When D-day has actually passed, dates will be expressed as indicated in paragraph (1).

c. Greenwich Civil Time.—(1) Greenwich Civil Time will be used in both the heading and text of all communications of the following categories:

Messages and orders from the War Department.

Messages and reports to the War Department.

Orders, reports, and other communications between headquarters not having a common local time.

Communications with the Navy.

Communications with the armed forces of associated nations.

(2) All time-groups expressing Greenwich Civil Time, including those in the headings of messages, will be designated by the letter suffix Z immediately following the last digit of the group. For example, 190225Z indicates 2:25 AM on the nineteenth day of the current month, Greenwich Civil Time.

■ 1002. EXPRESSION OF NATURAL PHENOMENA.—*a.* Staff officers will avoid the use of such indefinite terms as First light, Last light, Daybreak, Daylight, Darkness, Dusk and Dawn. Terms of a definite nature such as Sunrise, Sunset, beginning and ending of evening and morning, and Nautical and Civil Twilights are permissable. However, expressions of these periods or times to lower units must be in clock time.

b. For the purposes of military planning and to facilitate staff work in expressing natural phenomena in time, Theater Commanders should

EXPRESSION OF NATURAL PHENOMENA (Continued):

prepare and publish for the theater as a whole or for major geographic portions thereof, daily time, sunrise, sunset, twilight, moon and height tables and should specify the hours the local time is different from Greenwich Civil Time.

c. The purpose of these tables is to forecast the periods of darkness and solar illumination for particular localities and to express their beginning, ending or duration in local time.

■ 1003. TWILIGHTS, MORNING AND EVENING.—*a.* Twilights are the periods of solar illumination prior to sunrise and after sunset.

Both morning and evening twilights are divided into three periods, astronomical, nautical and civil. These periods are defined with reference to the sun's position below the horizon; astronomical 18°—12°, nautical 12°—6° and civil 6°—0°.

(1) Astronomical twilight affords such meager light, if any, that for military purposes it may be considered as a period of darkness.

(2) Nautical twilight provides enough illumination to carry on most types of ground movement without difficulty, and approaches conditions expected under full light of day. Vision is limited to 400 yards or less. For military purposes during the nautical periods weapons can be employed within the range of vision stated and daylight calculations relative to movement will apply, including restrictions on such movement. Bomb loading and repair work cannot be carried on, nor can tanks move buttoned up.

(3) Civil twilight affords sufficient light to carry on normal day activities. This period is the earliest or latest that provides sufficient natural illumination of targets to allow efficient observed artillery fire or day bombing.

b. Except for high latitudes, values for the approximate durations of astronomical, nautical and civil twilights may be considered equal.

c. First light, a term used by the Armed Forces of the United Kingdom, includes a slightly greater period of twilight than defined by civil twilight.

■ 1004. TABLES, ADJUSTMENT TO LONGITUDE, TIME ZONE CHART AND WAR TIME.—*a.* Tables as shown in paragraph 1007 list sunrise and sunset in Greenwich Civil Time on the Prime Meridian and duration of morning and evening civil twilight for latitudes between 60° N and 60° S for approximately ten day periods.

b. Adjustment to Longitude.—The earth makes 1 complete revolution in 24 hours or has an angular speed of 1° per 4 minutes. To determine the time of occurrence of natural phenomena in Greenwich Civil Time at a point other than on the prime meridian, multiply the degrees of longitude by 4^m and subtract for E longitude or add for W longitude from or to the time found in the tables for the particular locality.

TABLES, ETC (Continued):

c. Time Zone Chart.—(paragraph 1008).

The numbers in the time zones indicate the number of hours or fraction thereof that the Local Standard Time differs from Greenwich Civil Time. The time zones extend East and West from Greenwich to the 180° meridian.

If the zone in question lies east of the prime meridian and one desires to transpose Greenwich Civil Time to Local Standard Time, then the number is added. Transposing LST to GCT, the number is subtracted. The signs are reversed if the zone lies west of the prime meridian.

d. War Time.

To correct to War Time add the number of hours prescribed to the LST for that locality.

e. Use of suffixes.

The suffix letter used after a 4-digit time group indicates the number of hours by which the time being expressed differs from Greenwich Civil Time at the same instant. *It does not designate location on the earth's surface.* The suffix used with War Time differs from that used with Local Standard Time for the same locality.

Example: Washington, D. C. is located in the fifth time zone west of Greenwich. If that city keeps Local Standard Time (zone description +5), the time group suffix will be R. If that city keeps War Time, the suffix will be Q.

■ 1005. EXAMPLE.—*a. Situation.*—A task force staff is planning a landing on HOKKAIDO (Japan) on 3 Sep 45. The commanding general wishes to know when there will be sufficient light on that date to observe and adjust artillery fire.

b. Procedure.

(1) *Determine the latitude and longitude of the location.*

(2) *Decide which period of twilight meets the requirement of the problem in hand.*

(3) *Consult tables and determine the beginning of the desired period of twilight for a point on the prime meridian at the stated latitude.*

(4) *Interpolate if tables are not complete.*

(5) *Multiply the longitude by 4^m and add or subtract the total time in hours from the time of the phenomena on the prime meridian.*

(6) *Consult zone time chart. Determine hours or fraction thereof local time is different from Greenwich Civil Time. Add or subtract this difference from Greenwich Civil Time.*

(7) *Add one hour or two hours as the case may be to correct for War Time.*

EXAMPLE (Continued):

c. Solution.

(1) Consult map to determine latitude and longitude of the place. (HOKKAIDO 44° N—143° E).

(2) According to the definitions of twilights the beginning of morning civil twilight is the earliest time that will fulfill the requirement.

(3) Refer to almanac tables for 3 Sep and determine the time of sunrise on the prime meridian in Greenwich Civil Time for the given parallel of latitude.

As the table fails to show 44° N and 3 Sept, interpolations are necessary in each instance.

(4) For 40° N, determine the beginning of morning civil twilight for 28 Aug and 7 Sep.

7 Sep: 0532—27 = 0505
28 Aug: 0523—28 = 0455

Difference = 10^m

Interpolating between 28 Aug and 7 Sep for 3 Sep, which is six days after 28 Aug, we obtain $0455 + (6/10 \times 10) = 0501$, as the beginning of morning civil twilight for 3 Sep at 40° N.

Similarly, for 45° N, determine the beginning of morning civil twilight for the same dates.

7 Sep: 0528—30 = 0458
28 Aug: 0516—30 = 0446

Difference = 12^m

Again, interpolating for 3 Sep, we obtain $0446 + (6/10 \times 12) = 0453$, as the beginning of morning civil twilight for 3 Sep at 45° N.

Now interpolating for 3 Sep at 44° N, we add, algebraically, 4/5 of the difference between the beginnings of morning civil twilight for that date at 40° N and 45° N. Thus we obtain $0501 + 4/5\ (0453—0501) = 0455$ which is the beginning of morning civil twilight for 3 Sep at 44° N on the prime meridian.

NOTE.—Within the limits of the Tables of Sunrise and Sunset (Par 1007), the differences in sunrise, sunset and twilight data are very slight within the ten-day periods and latitudes stated. *Therefore, for practical purposes, the figures for the nearest date and latitude* can be used without interpolation. In the example given, the nearest date is 7 Sep and the nearest latitude is 45° N. From the tables we obtain as the beginning of morning civil twilight 0458. (Net error 3 min.)

(5) The next step is to find the beginning of morning civil twilight at HOKKAIDO in terms of Greenwich Civil Time. HOKKAIDO is 143° E. $143° \times 4^m = 572$ minutes or 9 hours and 32 min earlier than the time 0455 calculated above. Therefore the beginning of morning civil twilight on HOKKAIDO will be at 1923, G.C.T., 2 Sep 1945.

(6) From the Time Zone Chart, (Par 1008) there is a nine hour difference between LST and GCT. To convert 1923 GCT to this LST we add 9^h, obtaining 0423, 3 September 1945. This is the time of commencement of morning civil twilight on HOKKAIDO and the time at which artillery fire may be observed.

(7) For War Time, we add an additional hour; or, 0423 plus one hour =0523.

■ 1006. WEATHER.—*a.* Weather has been disregarded in these calculations. Smudge, fog clouds, refraction, reflection and precipitation affect the degrees of illumination.

b. These factors can only be included in the calculations by means of experience tables compiled in the area over a period of time and from meterological forecasts for the area.

1007. Tables of Sunrise and Sunset (1945): [1]

a. Northern Latitudes:

[2] T = Duration of morning and evening civil twilights (Maximum error + or — 3 min).
R = Sunrise, Greenwich Civil Time, Longitude 0°.
S = Sunset, Greenwich Civil Time, Longitude 0°.

Date	0°			10°			20°			30°		
	T	R	S	T	R	S	T	R	S	T	R	S
		h m	h m		h m	h m		h m	h m		h m	h m
Jan. 1	22	6 00	18 07	25	6 17	17 50	26	6 35	17 32	28	6 56	17 11
11	22	6 04	18 12	23	6 20	17 56	24	6 38	17 38	26	6 57	17 19
21	22	6 08	18 15	23	6 22	18 00	24	6 38	17 45	26	6 56	17 27
31	22	6 10	18 17	22	6 23	18 04	23	6 36	17 51	25	6 51	17 36
Feb. 10	22	6 11	18 18	22	6 21	18 08	23	6 32	17 57	25	6 45	17 44
20	21	6 10	18 17	22	6 18	18 10	23	6 27	18 01	25	6 36	17 52
Mar. 1	21	6 09	18 16	21	6 15	18 10	23	6 20	18 05	25	6 27	17 59
11	21	6 07	18 14	21	6 10	18 11	23	6 12	18 08	25	6 16	18 05
21	21	6 04	18 11	21	6 04	18 11	22	6 04	18 11	24	6 04	18 12
31	21	6 01	18 08	21	5 58	18 11	23	5 55	18 14	25	5 51	18 18
Apr. 10	21	5 58	18 05	22	5 52	18 10	23	5 47	18 17	25	5 40	18 24
20	21	5 56	18 02	22	5 47	18 11	24	5 39	18 20	26	5 29	18 30
30	22	5 54	18 01	22	5 43	18 11	24	5 32	18 23	26	5 19	18 36
May 10	22	5 53	18 00	22	5 40	18 13	24	5 26	18 27	26	5 10	18 43
20	22	5 53	18 00	23	5 38	18 15	24	5 22	18 31	27	5 04	18 49
30	22	5 54	18 01	23	5 37	18 17	24	5 20	18 35	27	5 00	18 55
June 9	22	5 55	18 03	23	5 38	18 20	25	5 20	18 38	27	4 58	19 00
19	23	5 57	18 05	23	5 40	18 22	25	5 21	18 41	28	4 59	19 04
29	23	5 59	18 07	23	5 42	18 24	25	5 23	18 43	27	5 01	19 05
July 9	22	6 01	18 08	23	5 44	18 25	24	5 26	18 43	27	5 05	19 04
19	22	6 02	18 10	23	5 47	18 25	24	5 30	18 42	26	5 11	19 01
29	22	6 03	18 10	23	5 49	18 24	24	5 34	18 38	26	5 17	18 56
Aug. 8	22	6 02	18 09	22	5 50	18 21	23	5 37	18 33	25	5 23	18 48
18	21	6 00	18 07	22	5 51	18 16	23	5 41	18 27	25	5 28	18 39
28	21	5 58	18 04	22	5 51	18 12	23	5 43	18 19	24	5 34	18 28
Sep. 7	21	5 55	18 01	21	5 50	18 06	23	5 46	18 10	24	5 40	18 16
17	21	5 51	17 58	21	5 50	18 00	22	5 48	18 01	23	5 45	18 04
27	21	5 48	17 54	21	5 49	17 53	22	5 50	17 52	23	5 51	17 51
Oct. 7	21	5 45	17 51	21	5 48	17 47	22	5 52	17 43	23	5 56	17 39
17	21	5 42	17 49	22	5 49	17 42	22	5 55	17 35	24	6 03	17 28
27	22	5 41	17 47	22	5 50	17 38	23	5 59	17 29	24	6 10	17 18
Nov. 6	22	5 40	17 47	22	5 52	17 36	23	6 04	17 24	24	6 17	17 10
16	22	5 41	17 48	22	5 55	17 35	23	6 09	17 20	25	6 26	17 04
26	22	5 44	17 51	23	5 59	16 36	24	6 15	17 19	25	6 34	17 01
Dec. 6	22	5 47	17 55	23	6 04	17 38	24	6 22	17 20	26	6 42	17 00
16	23	5 52	17 59	23	6 09	17 42	24	6 28	17 23	26	6 49	17 02
26	23	5 57	18 04	23	6 14	17 47	24	6 33	17 28	26	6 54	17 07

[1] Based on information furnished by The American Nautical Almanac for the year 1945, published by U. S. Naval Observatory, Washington, D. C.

[2] In northern latitudes, twilight lasts all night at 60° from 23 April—22 Aug; at 58° from 29 April—16 Aug; at 56° from 6 May—9 Aug; at 54° from 13 May—2 Aug; at 52° from 21 May—24 July; and at 50° from 2 June—12 July.

TABLES OF SUNRISE AND SUNSET (1945):

a. Northern Latitudes (Continued):

Date	35°			40°			45°			50°		
	T	*R* h m	*S* h m	*T*	*R* h m	*S* h m	*T*	*R* h m	*S* h m	*T*	*R* h m	*S* h m
Jan. 1	28	7 08	16 59	31	7 22	16 45	34	7 38	16 29	38	7 59	16 08
11	28	7 09	17 08	31	7 22	16 55	34	7 37	16 39	38	7 56	16 20
21	28	7 06	17 17	31	7 18	17 06	34	7 31	16 52	37	7 48	16 35
31	27	7 00	17 27	29	7 10	17 17	32	7 22	17 06	36	7 36	16 52
Feb. 10	27	6 52	17 37	29	7 00	17 29	32	7 09	17 20	35	7 21	17 09
20	26	6 41	17 47	28	6 47	17 41	31	6 54	17 34	34	7 03	17 26
Mar. 1	26	6 30	17 55	28	6 34	17 51	31	6 39	17 47	34	6 45	17 41
11	26	6 17	18 04	28	6 19	18 02	30	6 21	18 00	33	6 24	17 58
21	26	6 03	18 12	28	6 03	18 12	30	6 03	18 13	33	6 02	18 14
31	26	5 49	18 20	28	5 47	18 22	30	5 44	18 26	34	5 40	18 29
Apr. 10	27	5 36	18 28	29	5 31	18 33	31	5 25	18 38	34	5 19	18 45
20	27	5 23	18 36	29	5 16	18 43	32	5 08	18 51	36	4 58	19 00
30	28	5 11	18 44	30	5 02	18 53	33	4 52	19 03	37	4 39	19 16
May 10	28	5 01	18 52	31	4 50	19 03	34	4 38	19 16	39	4 22	19 31
20	29	4 53	19 00	32	4 41	19 12	36	4 26	19 27	42	4 08	19 45
30	29	4 48	19 07	32	4 34	19 21	37	4 18	19 37	42	3 57	19 57
June 9	30	4 46	19 13	33	4 31	19 27	37	4 13	19 45	44	3 52	20 07
19	30	4 46	19 16	33	4 30	19 32	38	4 12	19 50	45	3 50	20 12
29	30	4 48	19 18	33	4 33	19 33	37	4 16	19 50	44	3 53	20 13
July 9	29	4 53	19 16	32	4 39	19 31	36	4 22	19 48	42	4 00	20 09
19	28	4 59	19 12	31	4 46	19 26	35	4 30	19 41	41	4 11	20 00
29	28	5 06	19 06	30	4 55	19 17	34	4 41	19 31	38	4 24	19 48
Aug. 8	27	5 14	18 57	30	5 04	19 06	32	4 52	19 18	36	4 38	19 32
18	27	5 22	18 46	29	5 14	18 53	31	5 04	19 03	35	4 53	19 14
28	26	5 29	18 33	28	5 23	18 39	30	5 16	18 46	33	5 08	18 54
Sep. 7	25	5 36	18 19	27	5 32	18 23	30	5 28	18 27	33	5 23	18 32
17	25	5 44	18 05	27	5 42	18 07	28	5 40	18 08	31	5 38	18 11
27	25	5 51	17 50	27	5 52	17 50	29	5 52	17 49	31	5 53	17 48
Oct. 7	25	5 59	17 36	27	6 02	17 34	29	6 05	17 31	31	6 08	17 27
17	25	6 07	17 23	27	6 12	17 18	29	6 18	17 13	32	6 24	17 06
27	26	6 16	17 12	28	6 23	17 05	30	6 31	16 57	33	6 40	16 47
Nov. 6	26	6 25	17 02	28	6 34	16 53	30	6 44	16 42	33	6 57	16 30
16	27	6 35	16 54	29	6 46	16 44	31	6 58	16 31	35	7 14	16 16
26	27	6 45	16 50	30	6 57	16 37	32	7 11	16 23	36	7 29	16 05
Dec. 6	28	6 54	16 48	30	7 07	16 35	33	7 23	16 19	38	7 42	15 59
16	28	7 01	16 50	30	7 15	16 36	30	7 32	16 19	38	7 52	15 58
26	28	7 06	16 55	31	7 20	16 41	34	7 37	16 24	39	7 58	16 03

TABLES OF SUNRISE AND SUNSET (1945):

a. Northern Latitudes (Continued):

Date	52°			54°			56°			58°		
	T	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*
		h m	*h m*		*h m*	*h m*		*h m*	*h m*		*h m*	*h m*
Jan. 1	40	8 08	15 59	43	8 19	15 48	47	8 32	15 36	51	8 46	15 21
11	40	8 05	16 12	43	8 15	16 02	47	8 26	15 50	50	8 39	15 37
21	39	7 56	16 27	42	8 05	16 19	45	8 15	16 07	48	8 26	15 58
31	38	7 43	16 45	40	7 50	16 38	42	7 58	16 30	45	8 07	16 21
Feb. 10	37	7 26	17 04	39	7 32	16 58	42	7 38	16 52	44	7 45	16 45
20	36	7 06	17 22	38	7 11	17 18	40	7 15	17 14	42	7 20	17 08
Mar. 1	35	6 47	17 39	37	6 50	17 36	39	6 53	17 33	41	6 57	17 30
11	35	6 25	17 56	37	6 26	17 55	38	6 28	17 54	40	6 29	17 52
21	35	6 02	18 14	36	6 02	18 14	38	6 01	18 14	40	6 01	18 15
31	36	5 39	18 31	38	5 37	18 33	40	5 35	18 35	42	5 33	18 37
Apr. 10	36	5 16	18 48	38	5 12	18 51	40	5 09	18 55	43	5 05	18 59
20	38	4 54	19 05	40	4 49	19 10	42	4 44	19 16	46	4 38	19 22
30	40	4 33	19 22	42	4 27	19 29	45	4 20	19 36	49	4 12	19 44
May 10	41	4 15	19 38	45	4 07	19 47	49	3 58	19 56	54	3 48	20 06
20	45	4 00	19 54	48	3 50	20 03	54	3 39	20 14	60	3 27	20 27
30	46	3 47	20 07	51	3 36	20 18	56	3 24	20 31	65	3 09	20 45
June 9	48	3 41	20 17	53	3 29	20 29	61	3 15	20 43	74	2 59	20 59
19	50	3 39	20 23	55	3 27	20 35	63	3 12	20 50	76	2 56	21 06
29	48	3 42	20 24	53	3 30	20 36	62	3 16	20 50	73	3 00	21 07
July 9	46	3 50	20 19	51	3 39	20 30	56	3 26	20 44	66	3 19	20 59
19	44	4 02	20 10	48	3 52	20 20	53	3 40	20 32	61	3 26	20 45
29	41	4 16	19 56	44	4 07	20 05	48	3 57	20 15	55	3 45	20 26
Aug. 8	38	4 31	19 39	41	4 24	19 46	44	4 16	19 54	49	4 06	20 03
18	37	4 48	19 19	39	4 42	19 25	42	4 35	19 31	45	4 28	19 38
28	35	5 04	18 58	37	5 00	19 02	39	4 55	19 06	42	4 50	19 12
Sep. 7	34	5 20	18 35	36	5 18	18 38	38	5 14	18 41	40	5 11	18 44
17	32	5 37	18 12	34	5 35	18 13	36	5 34	18 14	38	5 32	18 16
27	32	5 53	17 48	34	5 53	17 48	36	5 54	17 47	38	5 54	17 47
Oct. 7	33	6 10	17 25	35	6 12	17 23	36	6 14	17 21	38	6 16	17 19
17	33	6 27	17 03	35	6 30	17 00	36	6 34	16 56	39	6 38	16 52
27	34	6 45	16 42	36	6 50	16 37	38	6 55	16 32	40	7 01	16 26
Nov. 6	35	7 03	16 24	37	7 09	16 17	39	7 16	16 10	41	7 24	61 02
16	36	7 21	16 08	38	7 28	16 00	41	7 37	15 52	44	7 47	15 41
26	38	7 37	15 57	40	7 47	15 47	43	7 57	15 37	46	8 09	15 25
Dec. 6	40	7 52	15 50	43	8 02	15 40	46	8 14	15 28	50	8 27	15 14
16	40	8 02	15 49	43	8 13	15 38	47	8 26	15 25	52	8 40	15 10
26	41	8 08	15 53	44	8 19	15 42	48	8 32	15 30	53	8 46	15 15

626166 O—45——30

TABLES OF SUNRISE AND SUNSET (1945) :

a. Northern Latitudes (Cont) : | *b. Southern Latitudes:* [1]

Date	60°			0°			10°			20°		
	T	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*
		h m	*h m*		*h m*	*h m*		*h m*	*h m*		*h m*	*h m*
Jan. 1	57	9 03	15 05	22	6 00	18 07	23	5 42	18 25	25	5 24	18 43
11	55	8 54	15 22	22	6 04	18 11	23	5 48	18 27	24	5 30	18 45
21	52	8 39	15 54	22	7 08	18 15	23	5 53	18 29	24	5 37	18 45
31	49	8 18	16 10	22	6 10	18 17	22	5 58	18 30	23	5 44	18 44
Feb. 10	47	7 53	16 37	22	6 11	18 18	22	6 01	18 28	23	5 49	18 40
20	44	7 26	17 03	21	6 11	18 17	22	6 03	18 25	23	5 54	18 34
Mar. 1	43	7 00	17 26	21	6 09	18 16	22	6 04	18 21	23	5 58	18 27
11	43	6 31	17 51	21	6 07	18 13	21	6 04	18 16	22	6 01	18 19
21	43	6 01	18 15	21	6 04	18 11	21	6 04	18 11	21	6 04	18 11
31	44	5 30	18 40	21	6 02	18 08	21	6 04	18 05	22	6 08	18 02
Apr. 10	47	5 00	19 04	21	5 58	18 05	21	6 03	17 59	22	6 09	17 53
20	49	4 30	19 29	21	5 56	18 03	22	6 04	17 55	22	6 13	17 46
30	54	4 02	19 54	21	5 54	18 01	22	6 05	17 50	23	6 16	17 39
May 10	61	3 36	20 18	22	5 53	18 00	22	6 06	17 47	23	6 19	17 33
20	69	3 12	20 42	22	5 52	18 00	22	6 07	17 45	24	6 22	17 29
30	80	2 51	21 03	22	5 53	18 01	23	6 10	17 44	24	6 27	17 27
June 9	95	2 40	21 18	22	5 55	18 02	23	6 12	17 45	24	6 30	17 27
19	105	2 35	21 27	23	5 58	18 05	23	6 15	17 48	24	6 34	17 29
29	102	2 39	21 27	23	5 59	18 07	23	6 17	17 49	24	6 35	17 31
July 9	87	2 52	21 18	22	6 01	18 09	23	6 18	17 53	24	6 36	17 35
19	72	3 10	21 01	22	6 02	18 10	23	6 18	17 54	24	6 34	17 38
29	61	3 32	20 39	22	6 03	18 10	22	6 17	17 57	23	6 31	17 42
Aug. 8	54	3 56	20 14	22	6 01	18 09	22	6 13	17 57	23	6 26	17 45
18	49	4 20	19 46	21	6 00	18 07	22	6 09	17 57	23	6 19	17 48
28	45	4 44	19 18	21	5 58	18 05	22	6 05	17 58	23	6 13	17 51
Sep. 7	43	5 07	18 48	21	5 54	18 01	21	5 59	17 57	23	6 03	17 52
17	41	5 31	18 17	21	5 51	17 57	21	5 52	17 56	22	5 54	17 55
27	41	5 54	17 46	21	5 48	17 54	21	5 47	17 56	23	5 45	17 57
Oct. 7	41	6 18	17 16	21	5 44	17 51	21	5 41	17 56	23	5 36	17 59
17	42	6 43	16 47	21	5 42	17 49	22	5 35	17 55	23	5 28	18 03
27	42	7 08	16 19	22	5 41	17 48	22	5 32	17 57	24	5 22	18 07
Nov. 6	44	7 33	15 53	22	5 40	17 47	22	5 29	17 59	24	5 16	18 11
16	47	7 59	15 30	22	5 42	17 49	23	5 28	18 02	24	5 13	18 17
26	51	8 23	15 11	22	5 44	17 51	23	5 29	18 07	24	5 12	18 24
Dec. 6	55	8 44	14 58	22	5 48	17 55	23	5 31	18 12	25	5 13	18 30
16	57	8 58	14 53	23	5 51	17 59	23	5 34	18 16	25	5 15	18 35
26	58	9 04	14 57	23	5 57	18 04	23	5 39	18 22	25	5 20	18 41

[1] In southern latitudes, twilight lasts all night at 60° from 26 Oct—18 Feb; at 58° from 1 Nov—12 Feb; at 56° from 8 Nov—5 Feb; at 54° from 15 Nov—30 Jan; at 52° from 22 Nov—21 Jan; and at 50° from 4 Dec—10 Jan.

TABLES OF SUNRISE AND SUNSET (1945):

b. Southern Latitudes (Continued):

Date	30°			35°			40°			45°		
	T	*R* h m	*S* h m	*T*	*R* h m	*S* h m	*T*	*R* h m	*S* h m	*T*	*R* h m	*S* h m
Jan. 1	27	5 02	19 05	29	4 49	19 18	32	4 34	19 33	36	4 16	19 50
11	26	5 10	19 05	29	4 57	19 17	32	4 44	19 31	36	4 27	19 48
21	26	5 19	19 04	28	5 08	19 15	31	4 55	19 27	34	4 41	19 41
31	25	5 28	18 59	27	5 19	19 09	30	5 08	19 19	33	4 56	19 32
Feb. 10	25	5 36	18 53	27	5 28	19 00	29	5 20	19 09	31	5 10	19 19
20	24	5 45	18 43	26	5 39	18 49	28	5 32	18 55	30	5 25	19 03
Mar. 1	24	5 51	18 34	25	5 46	18 38	27	5 42	18 42	30	5 36	18 48
11	23	5 57	18 23	25	5 55	18 25	27	5 52	18 27	28	5 49	18 30
21	23	6 03	18 11	25	6 03	18 11	27	6 03	18 12	28	6 02	18 12
31	23	6 11	17 59	25	6 12	17 57	27	6 14	17 55	29	6 17	17 52
Apr. 10	24	6 15	17 47	25	6 19	17 44	27	6 23	17 39	29	6 27	17 35
20	24	6 22	17 37	26	6 27	17 31	27	6 33	17 25	29	6 41	17 18
30	24	6 28	17 27	26	6 35	17 20	28	6 44	17 11	30	6 53	17 02
May 10	24	6 34	17 18	26	6 43	17 09	28	6 53	16 59	31	7 05	16 47
20	25	6 40	17 12	27	6 50	17 02	29	7 01	16 50	32	7 15	16 36
30	26	6 46	17 08	28	6 57	16 56	30	7 10	16 44	33	7 25	16 28
June 9	26	6 51	17 07	28	7 03	16 55	30	7 16	16 41	33	7 33	16 24
19	27	6 55	17 08	28	7 07	16 56	31	7 22	16 41	34	7 38	16 24
29	26	6 56	17 10	28	7 08	16 58	31	7 22	16 44	34	7 39	16 27
July 9	26	6 56	17 15	28	7 08	17 03	31	7 21	16 49	34	7 37	16 34
19	26	6 53	17 19	28	7 04	17 08	31	7 16	16 56	34	7 31	16 41
29	25	6 48	17 26	28	6 58	17 16	30	7 08	17 06	32	7 21	16 53
Aug. 8	25	6 40	17 30	27	6 48	17 22	29	6 57	17 13	32	7 08	17 03
18	25	6 31	17 37	27	6 37	17 30	29	6 44	17 23	31	6 53	17 15
28	25	6 21	17 42	26	6 26	17 38	28	6 31	17 33	31	6 37	17 16
Sep. 7	25	6 08	17 48	26	6 11	17 45	28	6 14	17 42	31	6 18	17 38
27	24	5 56	17 53	26	5 57	17 52	28	5 58	17 51	30	5 59	17 50
27	24	5 44	17 59	26	5 43	18 00	28	5 42	18 01	30	5 40	18 03
Oct. 7	25	5 32	18 04	26	5 29	18 06	28	5 26	18 10	31	5 22	18 13
17	25	5 20	18 11	27	5 15	18 16	29	5 10	18 22	31	5 03	18 28
27	26	5 10	18 18	27	5 04	18 25	29	4 56	18 33	33	4 47	18 42
Nov. 6	26	5 02	18 26	28	4 54	18 34	31	4 44	18 44	34	4 33	18 55
16	26	4 57	18 34	29	4 47	18 44	32	4 35	18 56	35	4 22	19 09
26	27	4 53	18 43	29	4 41	18 55	32	4 28	19 08	36	4 13	19 23
Dec. 6	27	4 51	18 51	29	4 39	19 03	32	4 25	19 18	37	4 08	19 35
16	28	4 53	18 57	30	4 40	19 10	33	4 25	19 25	37	4 07	19 43
26	27	4 58	19 03	30	4 45	19 16	33	4 30	19 31	37	4 12	19 49

TABLES OF SUNRISE AND SUNSET (1945):

b. Southern Latitudes (Continued):

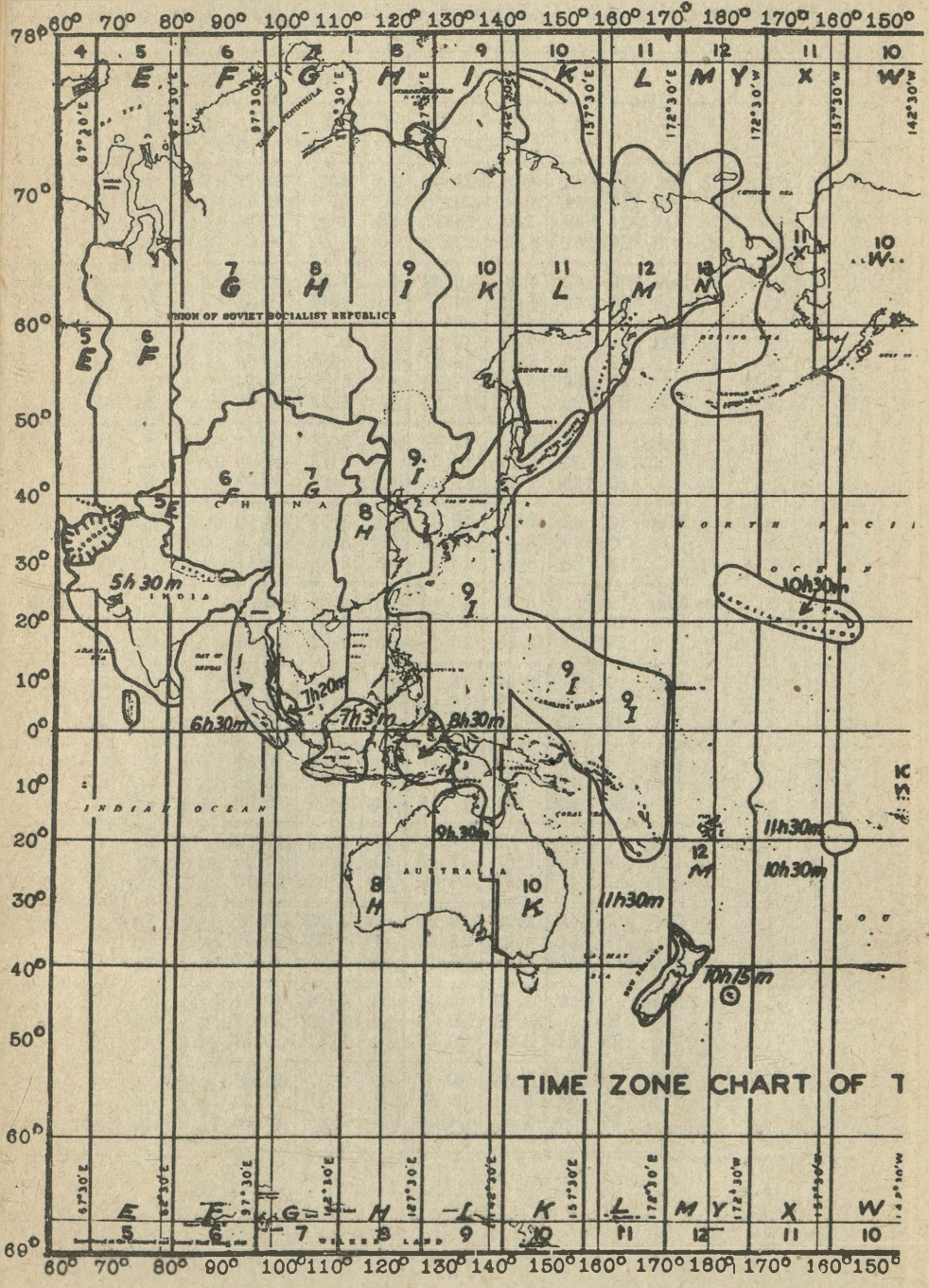
Date	50°			52°			54°			56°		
	T	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*	*T*	*R*	*S*
		h m	*h m*		*h m*	*h m*		*h m*	*h m*		*h m*	*h m*
Jan. 1	43	3 54	20 13	48	3 44	20 23	53	3 32	20 35	61	3 18	20 49
11	41	4 06	20 08	45	3 57	20 18	50	3 46	20 29	55	3 93	20 41
21	40	4 22	20 00	43	4 14	20 08	47	4 04	20 18	52	3 53	20 29
31	36	4 40	19 47	39	4 33	19 54	42	4 25	20 02	45	4 16	20 11
Feb. 10	35	4 57	19 31	37	4 51	19 37	40	4 45	19 44	43	4 37	19 51
20	34	5 15	19 12	36	5 11	19 16	38	5 06	19 21	39	5 01	19 16
Mar. 1	33	5 30	18 54	34	5 27	18 57	36	5 23	19 00	38	5 20	19 04
11	31	5 46	18 34	33	5 44	18 35	35	5 42	18 37	37	5 40	18 39
21	31	6 02	18 12	32	6 01	18 13	34	6 01	18 13	36	6 01	18 13
31	31	6 20	17 49	33	6 21	17 48	35	6 22	17 47	36	6 24	17 45
Apr. 10	32	6 33	17 29	33	6 35	17 27	35	6 38	17 24	36	6 41	17 21
20	32	6 49	17 09	33	6 53	17 05	35	6 57	17 01	37	7 02	16 56
30	33	7 04	16 50	34	7 10	16 45	36	7 15	16 39	38	7 22	16 32
May 10	35	7 19	16 33	36	7 26	16 26	38	7 33	16 19	40	7 41	16 10
20	36	7 32	16 20	38	7 39	16 12	40	7 48	16 04	43	7 58	15 54
30	37	7 44	16 10	38	7 53	16 01	41	8 03	15 51	44	8 14	15 40
June 9	38	7 53	16 04	40	8 02	15 55	43	8 13	15 44	46	8 25	15 32
19	39	7 59	16 04	41	8 09	15 54	44	8 20	15 42	48	8 33	15 30
29	39	8 00	16 07	41	8 09	15 57	44	8 20	15 46	48	8 33	15 33
July 9	38	7 57	16 14	40	8 06	16 05	43	8 16	15 55	47	8 28	15 43
19	38	7 49	16 24	40	7 57	16 15	43	8 06	16 06	47	8 17	15 55
29	36	7 37	16 37	38	7 44	16 30	41	7 52	16 22	43	8 01	16 13
Aug. 8	36	7 21	16 50	38	7 27	16 44	40	7 34	16 37	42	7 41	16 30
18	34	7 03	17 05	36	7 07	17 00	38	7 13	16 55	40	7 18	16 49
28	34	6 45	17 19	36	6 48	17 16	37	6 52	17 12	39	6 56	17 08
Sep. 7	34	6 23	17 34	35	6 24	17 32	37	6 27	17 30	39	6 29	17 28
17	33	6 00	17 49	35	6 01	17 49	37	6 01	17 48	38	6 02	17 47
27	33	5 38	18 05	35	5 38	18 06	37	5 37	18 07	39	5 36	18 08
Oct. 7	34	5 18	18 18	36	5 16	18 20	38	5 14	18 22	40	5 11	18 25
17	35	4 56	18 36	37	4 51	18 40	39	4 48	18 44	41	4 44	18 48
27	37	4 36	18 53	39	4 32	18 58	41	4 26	19 04	43	4 20	19 10
Nov. 6	37	4 19	19 09	40	4 13	19 16	43	4 05	19 23	46	3 58	19 31
16	40	4 05	19 26	42	3 57	19 34	47	3 49	19 43	50	3 39	19 52
26	42	3 53	19 43	44	3 44	19 52	50	3 34	20 02	55	3 22	20 14
Dec. 6	43	3 46	19 56	47	3 36	20 07	52	3 25	20 18	59	3 11	20 32
16	44	3 45	20 05	49	3 34	20 16	54	3 22	20 29	62	3 08	20 43
26	44	3 50	20 11	48	3 39	20 22	53	3 27	20 34	62	3 12	20 49

TABLES OF SUNRISE AND SUNSET (1945):

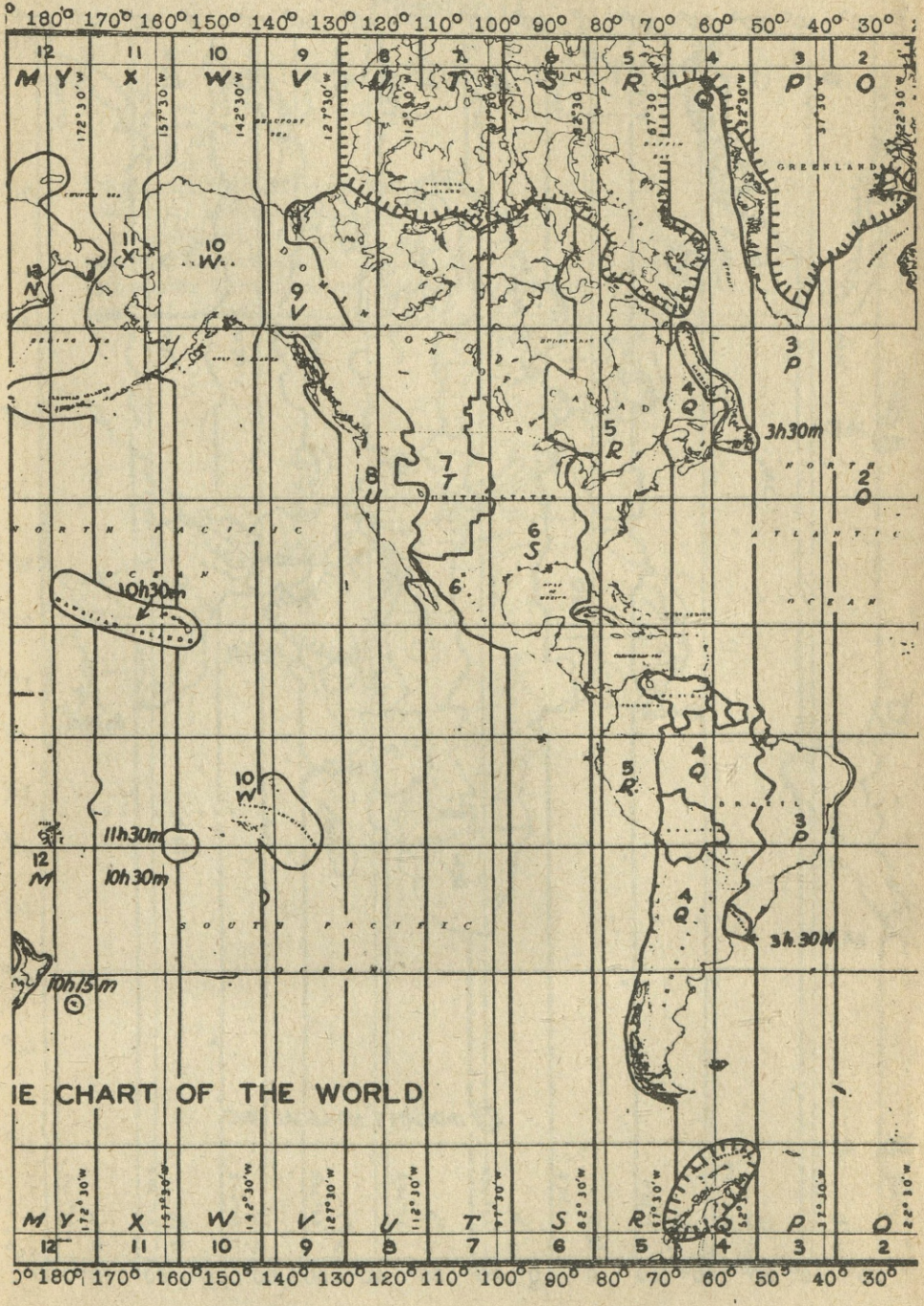
b. Southern Latitudes (Continued):

Date	58°			60°		
	T	*R*	*S*	*T*	*R*	*S*
		h m	*h m*		*h m*	*h m*
Jan. 1	72	3 01	21 06	95	2 41	21 26
11	64	3 18	20 56	80	3 00	21 14
21	58	3 41	20 41	66	3 26	20 56
31	51	4 06	20 21	58	3 54	20 33
Feb. 10	47	4 29	19 58	51	4 20	20 08
20	42	4 55	19 32	46	4 48	19 38
Mar. 1	41	5 15	19 08	43	5 11	19 13
11	39	5 38	18 41	41	5 36	18 43
21	38	6 00	18 13	41	6 00	18 14
31	38	6 25	17 43	41	6 27	17 42
Apr. 10	38	6 44	17 17	41	6 48	17 14
20	39	7 07	16 51	42	7 13	16 45
30	40	7 29	16 25	43	7 37	16 17
May 10	43	7 50	16 01	47	8 01	15 50
20	46	8 08	15 42	50	8 21	15 30
30	48	8 27	15 26	53	8 42	15 11
June 9	51	8 39	15 18	56	8 56	15 01
19	53	8 48	15 15	58	9 05	14 58
29	53	8 48	15 19	58	9 05	15 01
July 9	51	8 42	15 29	57	8 58	15 13
19	50	8 29	15 43	55	8 43	15 29
29	47	8 11	16 03	51	8 23	15 52
Aug. 8	45	7 50	16 21	48	7 59	16 11
18	43	7 25	16 43	46	7 32	16 36
28	42	7 01	17 04	44	7 06	16 59
Sep. 7	40	6 32	17 25	43	6 35	17 22
17	40	6 03	17 47	43	6 04	17 46
27	41	5 35	18 09	44	5 33	18 10
Oct 7	42	5 08	18 28	45	5 05	18 31
17	44	4 39	18 53	47	4 33	18 59
27	47	4 13	19 17	52	4 05	19 25
Nov. 6	50	3 49	19 40	56	3 38	19 51
16	56	3 28	20 04	64	3 15	20 17
26	63	3 09	20 27	74	2 53	20 43
Dec 6	70	2 56	20 47	89	2 37	21 06
16	75	2 51	20 59	103	2 31	21 20
26	74	2 56	21 05	105	2 35	21 26

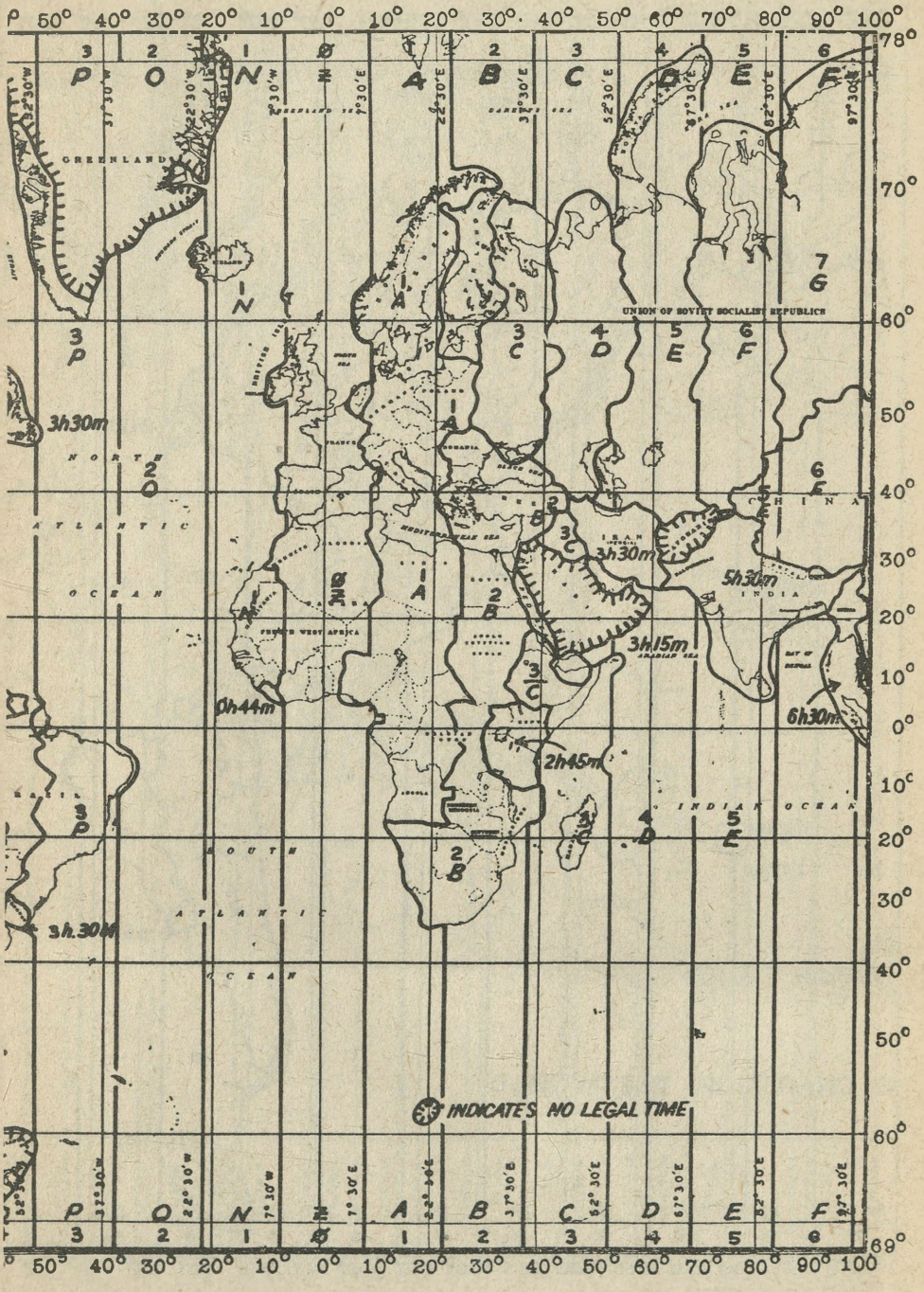
■ 1008. TIME ZONE CHART:



TIME ZONE CHART (Continued):



TIME ZONE CHART (Continued):



Chapter 11

MISCELLANEOUS DATA

	Paragraph
Factors for Conversion of Units	1101
Common Calibers	1102
Fordable Depth of Water	1103
Carrying Capacity of Ice	1104
Expressing Directions and Angular Measurements	1105
Speed of Sound	1106

MISCELLANEOUS DATA

■ 1101. FACTORS FOR CONVERSION OF UNITS.—To convert A to B, multiply A by C. To convert B to A, multiply B by D.

1	2	3	4
Unit	*Factor*		*Unit*
A	C	D	B
Length:			
Miles	63,360.0 [2]	0.00001578	Inches
Miles	5,280.0 [2]	0.0001894	Feet
Miles	1.609	0.6214	Kilometers
Knots (naut. miles) [1]	1.1516	0.8684	Miles
Meters	3.281	0.3048	Feet
Kilometers	3,281.0	0.0003048	Feet
Inches	2.540	0.3937	Centimeters
Feet	0.1667	6.0	Fathoms
Surface:			
Square miles	27,878,400.0	0.00000003587	Square feet
Square miles	640.0 [2]	0.001563	Acres
Acres	43,560.0 [2]	0.00002296	Square feet
Acres	4,047.0	0.0002471	Square meters
Square inches	6.452	0.1550	Square centimeters
Square meters	10.76	0.0929	Square feet
Volume:			
Cubic feet	0.025	40.0	Tons (shipping)
Cubic feet	1,728.0	0.0005787	Cubic inches
Cubic inches	16.39	0.06102	Cubic centimeters
Cubic meters	35.31	0.02832	Cubic feet
Cubic feet	7.481	0.1337	U.S. gallons
Cubic feet	6.23	0.1605	Imperial gallons
Cubic feet	28.32	0.03531	Liters
U.S. gallons	231.0 [2]	0.004329	Cubic inches
U.S. gallons	3.785	0.2642	Liters
Imperial gallons	1.201	0.8327	U.S. gallons
Fluid ounces	1.805	0.5540	Cubic inches
Velocities:			
Miles per hour	1.467	0.6818	Feet per second
Meters per second	3.281	0.3048	Feet per second
Meters per second	2.237	0.4470	Miles per hour
Pressure:			
Atmospheres (mean)	14.70	0.0680	Pounds per square inch
Atmospheres (mean)	29.92	0.03342	Inches of mercury
Pounds per square inch	2.036	0.4912	Inches of mercury
Feet of water	62.42	0.01602	Pounds per square foot
Weight:			
Ounces	0.0625	16.0	Pounds
Pounds	7,000.0 [2]	0.0001429	Grains (avoirdupois)
Kilograms	2.205	0.4536	Pounds
Short tons	2,000.	0.0005	Pounds
Long tons	1.120 [2]	0.8929	Short tons
Angular measurement:			
Circle	360.0	0.00278	Degrees
Degree	60.0	0.0167	Minutes
Degree	17.8	0.056	Mils
Mil [3]	3.27	0.296	Minutes
Minute	60.0	0.0167	Seconds

FACTORS FOR CONVERSION OF UNITS (Continued):

NOTES

[1] Normally express speed as a number of nautical miles per hour.
[2] A mil is the angle subtended by an arc of 1 unit on a radius of 1,000 units or, in other words, an angle the tangent of which is approximately (small angles) 1/1,000. The arbitrary value of the mil adopted by the United States Army is 1/6,400 of a circle.
[3] Exact values.

■ 1102. COMMON CALIBER (DIAMETER OF BORE):

The following table shows comparative sizes of the weapons in common use in World War II. The figures in italics are those which are the official designation of the weapon.

ALLIED		*ENEMY*	
Inches	*Millimeters*	*Millimeters*	*Inches*
.....	.....	*6.5*	.256
.300	7.6	.....	.....
.303	7.7	*7.7*	.303
.....	.....	*7.92*	.312
.....	.....	*8.0*	.315
.....	.....	*9.0*	.354
.380	9.7	.....	.....
.450	11.4	.....	.....
.500	12.7	.....	.....
.....	.....	*13.2*	.520
.787	*20.0*	*20.0*	.787
1.457	*37.0* [1]	*37.0*	1.457
.....	.....	*47.0*	1.850
.....	.....	*50.0*	1.970
2.244	*57.0* [2]	.....	.....
2.362	*60.0*	.....	.....
.....	.....	*70.0*	2.760
2.953	*75.0*	*75.0*	2.953
2.992	*76.0*	.....	.....
3.000	76.199	.....	.....
.....	.....	*80.0*	3.150
3.189	*81.0*	*81.0*	3.189
3.465	*88.0* [3]	*88.0*	3.465
3.543	*90.0*	*90.0*	3.543
4.134	*105.0*	*105.0*	4.134
4.200	106.7	.....	.....
5.500	140.0	*140.0*	5.500
.....	.....	*150.0*	5.906
6.000	152.4	.....	.....
6.103	*155.0*	*155.0*	6.103
.....	.....	*170.0*	6.793
8.000	203.2	.....	.....
.....	.....	*210.0*	8.268
9.449	*240.0*	*240.0*	9.449

[1] Known as the "2 pounder"
[2] Known as the "6 pounder"
[3] Known as the "17 pounder"
[4] Known as the "25 pounder"

1103. Fordable Depth of Water: [1]

Type unit	*Depth of water (feet)*
Infantry	3½
Horse cavalry	4½
Artillery (horse-drawn)	3
Wagons	3
Trucks and truck-drawn artillery	2
Light tanks	1-3
Medium tanks	2-4
Heavy tanks	4-6

[1] Moderate current; hard bottom.

1104. Carrying Capacity of Ice: [1]

1½	inches	Individual soldiers
2	inches	Infantry in open order
4	inches	Single horses
6	inches	Infantry and cavalry in march column with motor transport.
8	inches	Light artillery up to 2½ tons, 4-ton wheeled vehicles, maximum axle load 2.7 tons, minimum distance between vehicles 65 feet.
12	inches	10-ton wheeled vehicles, maximum axle load 7 tons, minimum distance between vehicles 65 feet.
14	inches	20-ton wheeled vehicles, minimum distance between vehicles 100 feet.

[1] New, sound ice in floating contact with the water.

■ 1105. CHARACTERISTICS OF METHODS OF EXPRESSING DIRECTIONS OR ANGULAR MEASUREMENTS:

Designation	*Units of angular measurement used*	*Base direction*	*Direction of measurement*	*Method of expression*
Azimuth	Degrees or mils	True, magnetic or grid (Y) north unless otherwise stated (south may be used)	Clockwise	True (magnetic) (grid) (Y) azimuth __ mils (__° __′)
Bearings	Degrees	True or magnetic north and south; whichever is designated	Direction which gives smallest arc (must not exceed 90°) is used and is designated	N (S) __° __ E (W)
Compass	Points (11° 15′ each)	Magnetic or true north and south	Direction which gives smallest arc	(NE by E)
Clock face, horizontal	Hours on a clock face	12 o'clock, observer at center	From 12 o'clock to the hour indicated	At ____ o'clock
Clock face, vertical	Hours on a clock face	Vertical, target or reference point at center	From 12 o'clock to the hour indicated	At ____ o'clock
Vertical angle	Degrees or mils Per cent or ratio (slopes and roads)	Horizontal	Vertically	Elevation, + (−) __mils (__° __′) slope, 10%, gradient 1:10
Air and forward observers (FA)	Yards R or L Yards O and S	Line of fire	Right or left and over or short and from observed point	____R (L) ____O (S)

NOTE

For military purposes, exact directions should normally be expressed as azimuths measured from grid, true, or rarely, magnetic north.

■ 1106. SPEED OF SOUND.—*a. In air.*—At 50° Fahrenheit equals 1,107.6 feet per second, in still air. With a 10 mile per hour wind against or in the direction of sound travel, the speed of sound decreases or increases about 15 feet per second; for a cross-wind, no effect. Speed increases one foot per second for each degree Fahrenheit. Humidity has little effect on speed.

b. In water.—At 33° Fahrenheit equals 4,938 feet per second.

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