

TECHNICAL MANUAL } HEADQUARTERS
No. 9-1005-213-10 } DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 12 July 1968

OPERATOR'S MANUAL

**MACHINE GUN, CALIBER .50; BROWNING
M2, HEAVY BARREL, FLEXIBLE, W/E
(1005-322-9715)**

**MOUNT, TRIPOD, MACHINE GUN,
CALIBER .50, M3, W/E
(1005-322-9716)**

**MOUNT, MACHINE GUN, ANTI-AIRCRAFT,
CALIBER .50, M63, W/E
(1005-673-3246)**

This manual is current as of 29 March 1968

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*This manual supersedes TB 9-1005-213-10/1, 27 March 1964; and together with TM 9-1005-213-25, 8 July 1968, supersedes TM 9-1005-213-12P, 14 January 1964, including all changes, and so much of LO 9-1000-228-12, 18 May 1966, as pertains to MG, M2, M2, Trip, M3 and AA, MT, M63. DA Label 19, 1 December 1956, is rescinded.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual contains instructions for the operation and maintenance of Caliber .50 Machine Gun, Browning, M2, Heavy Barrel, Flexible, Machine Gun Tripod Mount, M3, and Machine Gun Anti-aircraft Mount, M63 allocated to the operator/crew by the MAC.

1-2. Forms, Records and Reports

a. General. DA Forms and procedures used for equipment maintenance will be only those prescribed in TM 38-750, Army Equipment Record Procedures.

b. Recommendations for Maintenance Manual Improvements. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Weapons Command, ATTN: AMSWE-SMM-P, Rock Island, Ill. 61201.

Section II. DESCRIPTION AND DATA

1-3. Description

a. *Machine Gun.* The machine gun (figs. 1-1 and 1-2) is an automatic, recoil-operated, alternate-feed, link-belt fed, air-cooled, crew-operated weapon. It is used as a ground gun mounted on Tripod Mount M3 or Antiaircraft Mount M63.

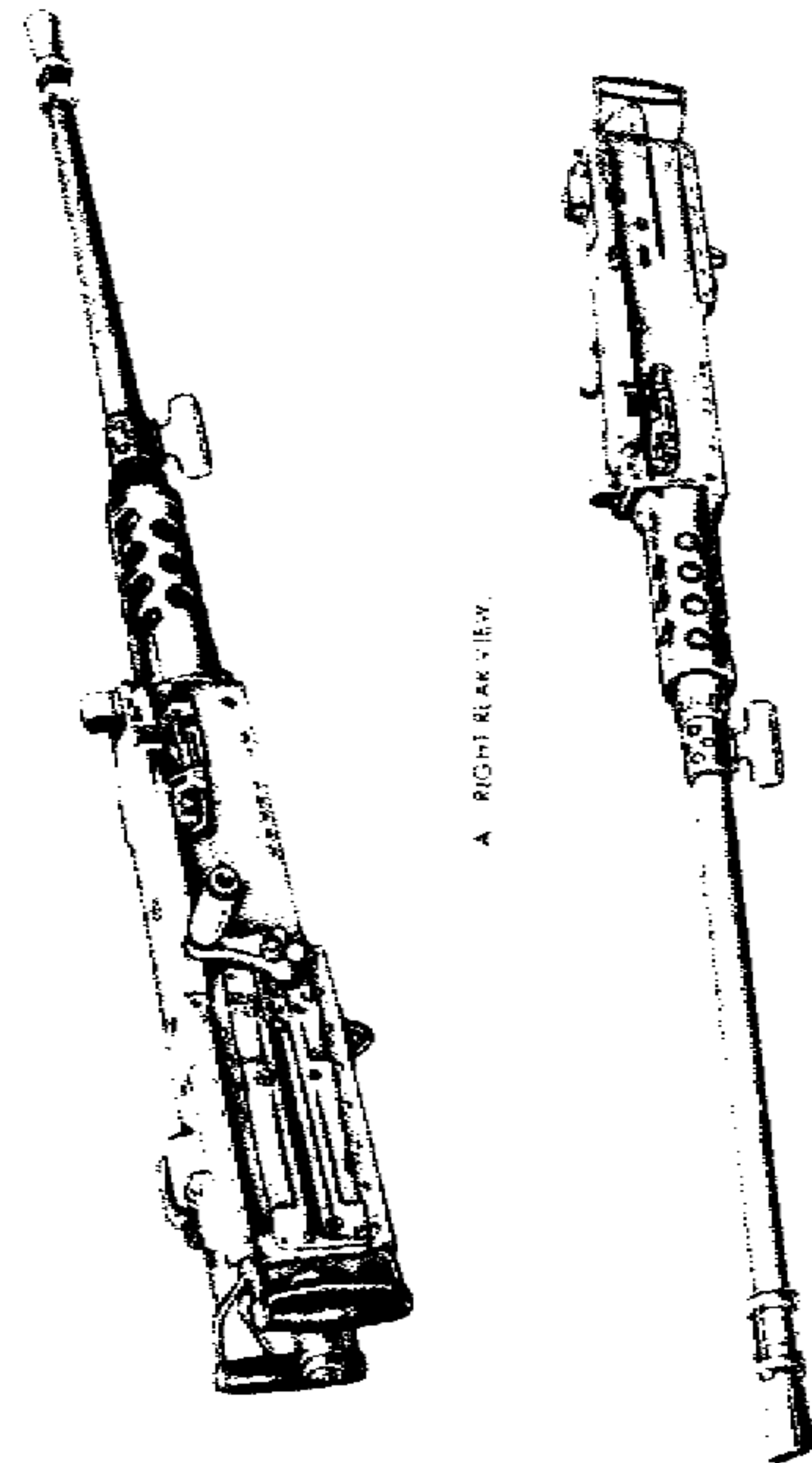
b. *Tripod Mount, M3.* The tripod mount (figs. 1-3 and 1-4) is a light weight portable folding mount which permits a high degree of accuracy and control of fire.

c. *Antiaircraft Mount, M63.* The antiaircraft mount (figs. 1-5 and 1-6) is a four-legged, low silhouette, portable mount used for antiaircraft fire.

1-4. Tabulated Data

a. *Machine Gun.*

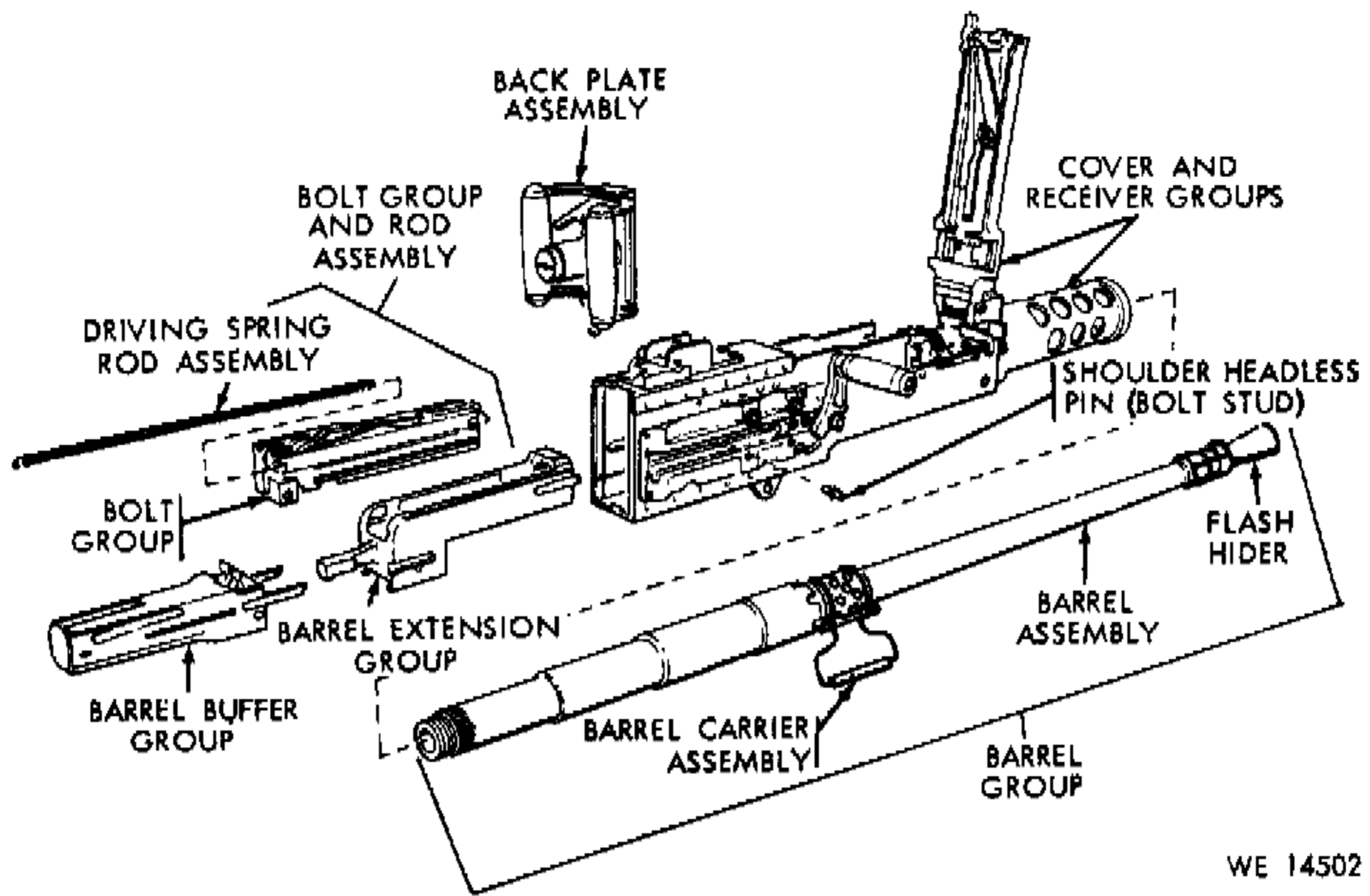
Weight (approx.)	84 lb
Weight of barrel	24 lb
Length of gun	65.13 in
Length of barrel	45 in
Length of rifling (approx)	41.88 in
Number of lands and grooves	8
Twist, right-hand	one turn in 15 in
Feed	link-belt
Operation	short recoil
Cooling	air
Muzzle velocity (approx)	3,050 fps
Rate of fire (cyclic)	450-550 rds/m
Maximum range (approx)	7,440 yd or 6,765 meters
Maximum effective range (approx)	2,000 yd or 1,830 meters



A - RIGHT REAR VIEW.

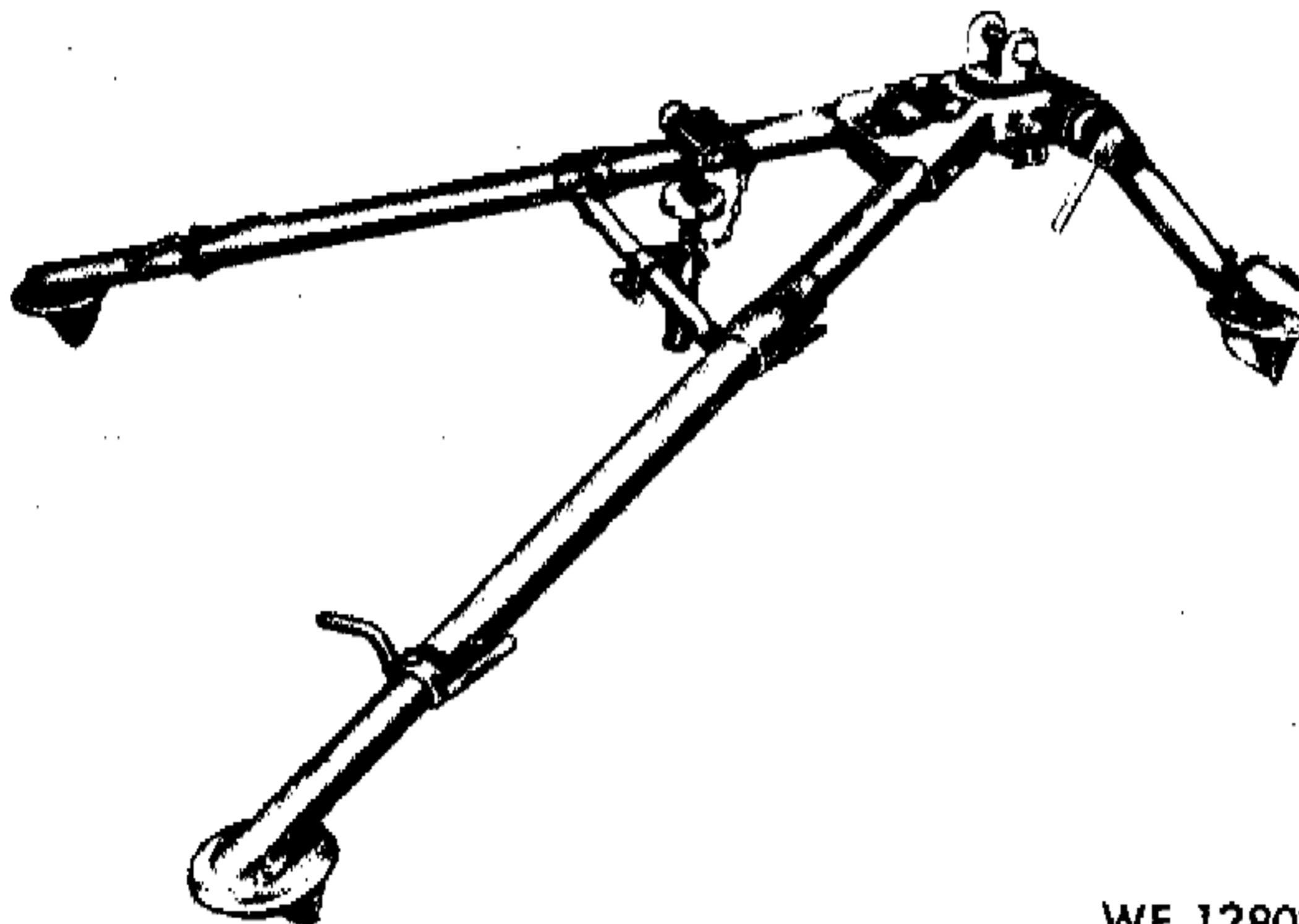
B - LEFT FRONT VIEW.

Figure 1-1. Caliber .50 Machine Gun, Browning, M2, HB, Flexible.



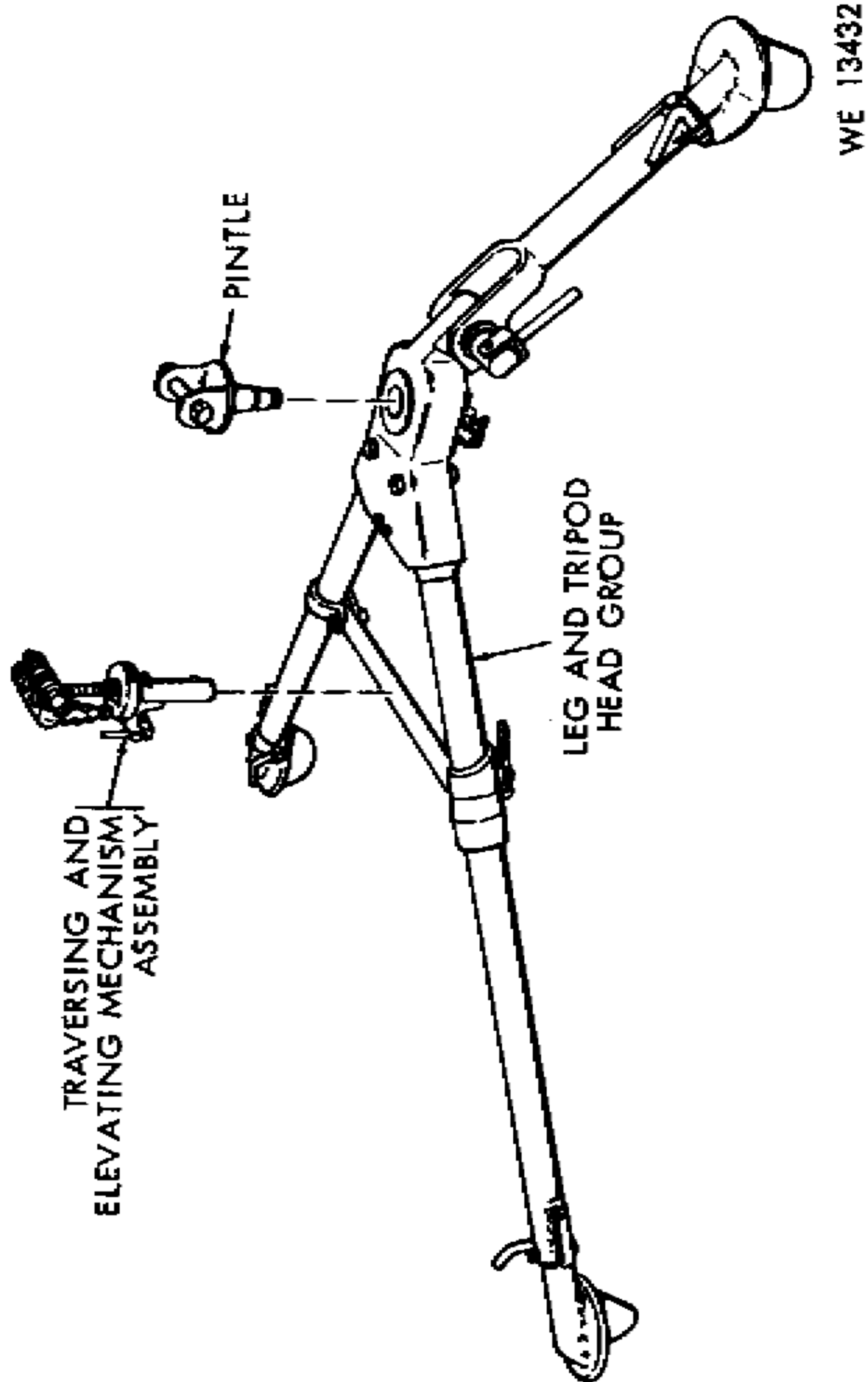
WE 14502

Figure 1-2. Caliber .50 Machine Gun, Browning, M2, HB, Flexible—major groups and assemblies.



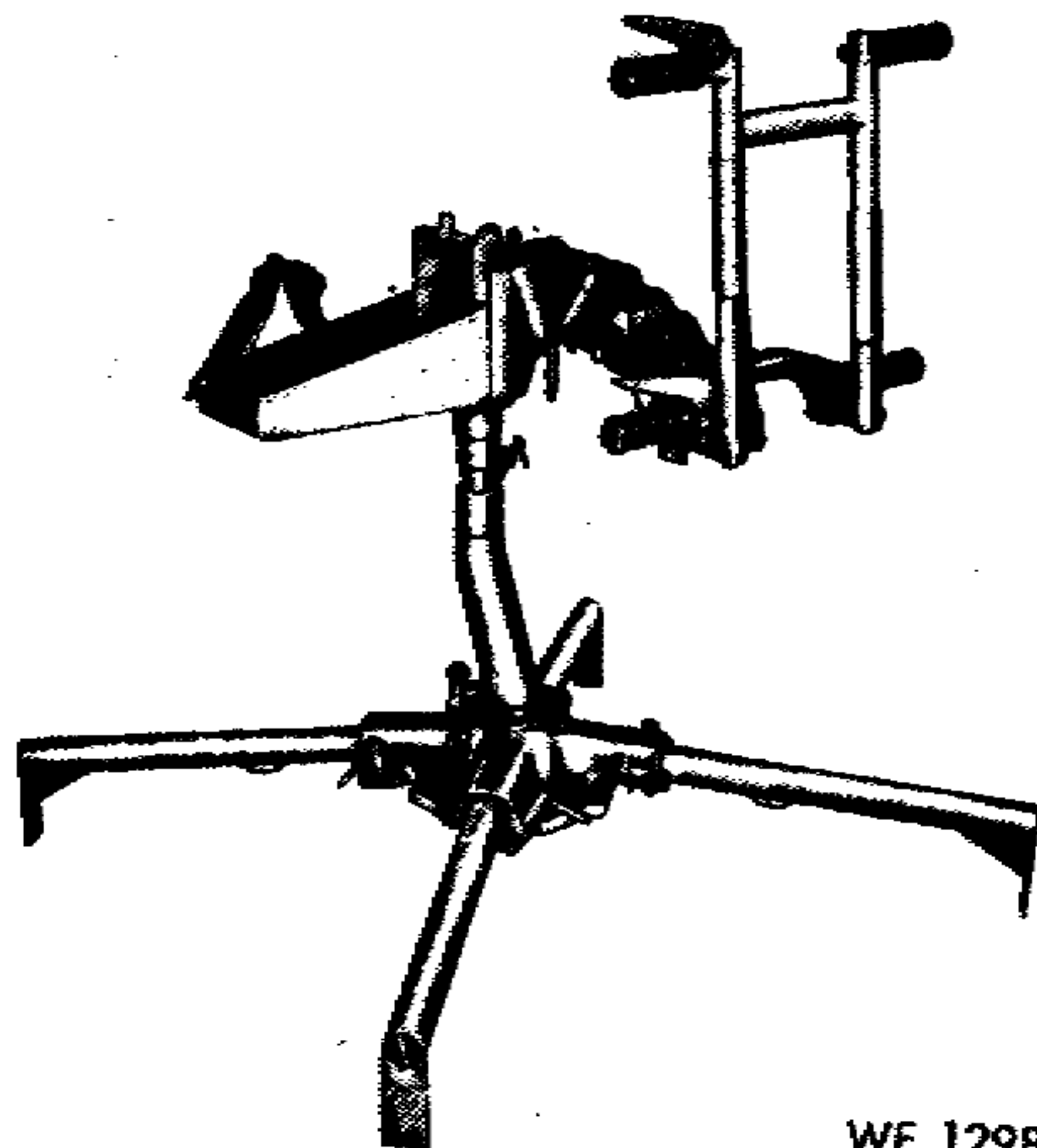
WE 12803

Figure 1-3. Tripod Mount, M3—right rear view.



WE 13432

Figure 1-4. Tripod Mount, M3—Major groups and assemblies.



WE 12983

Figure 1-5. Antiaircraft Mount, M63—left rear view.

b. Tripod Mount, M3.

Weight (approx)	44 lb
Length (extended)	74.50 in
Folded	45.50 in
Spread of extended rear legs	61.50 in
Height	14 in
Traversing range without releasing traversing and elevating mechanism assembly	45°
Free	360°
Traversing bar assembly graduation	800 mil

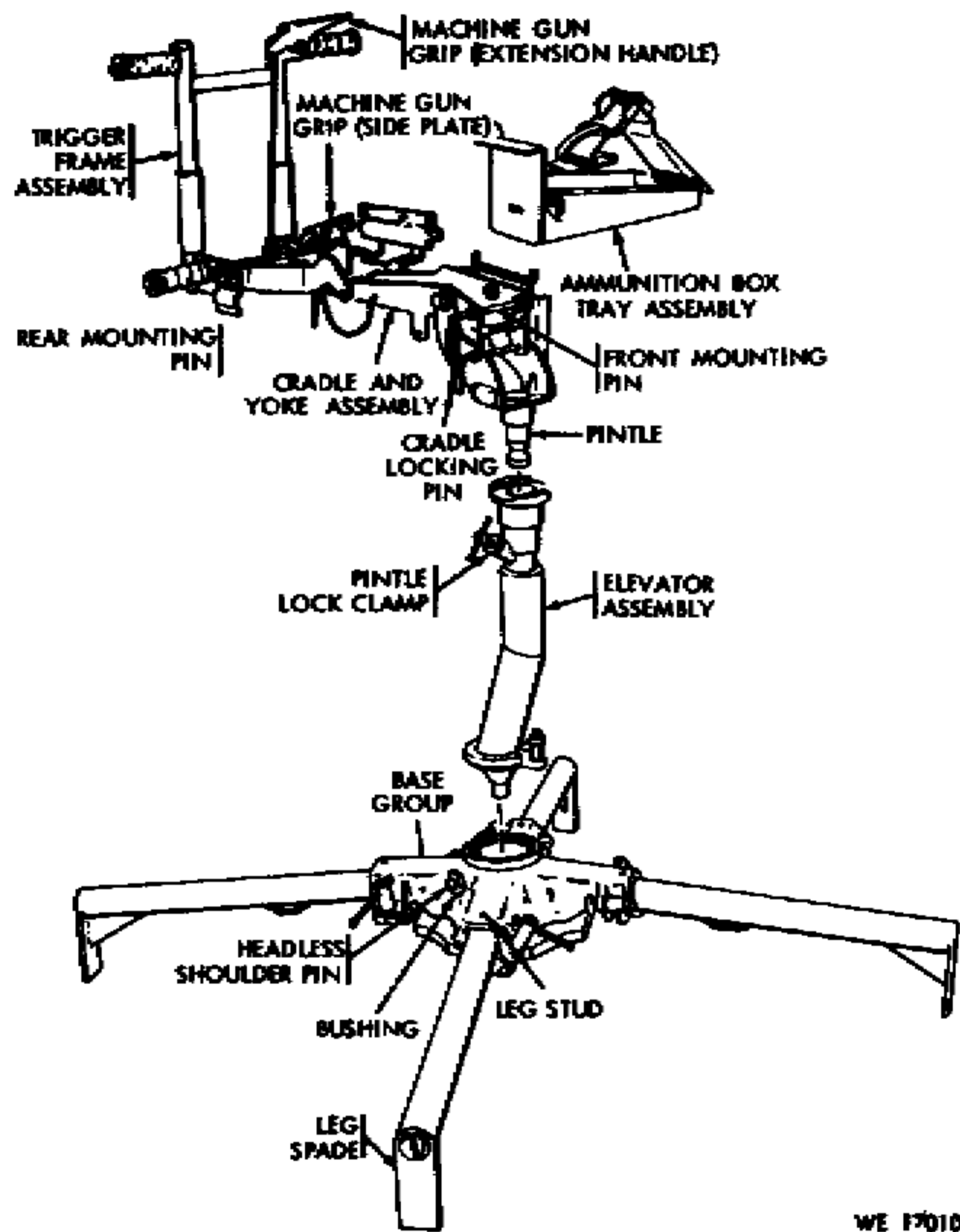


Figure 1-6. Antiaircraft Mount, M63—
major groups and assemblies.

Maximum elevation	5.6°
Maximum depression	14°
Least increment of elevation	1 mil

c. Antiaircraft Mount, M63.

Weight (overall)	144 lb
Four legs	24 lb
Base assembly	54 lb
Elevator assembly	12 lb
Cradle assembly	44 lb
Ammunition box tray assembly	10 lb
Height (overall)	42 in
Length of leg	24 in
Diameter of base (with leg assembled)	52 in
Maximum elevation	85°
Maximum depression	29°
Traverse	360°

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

2-1. Inspecting and Servicing the Equipment

Refer to table 2-1.

Table 2-1. Service Upon Receipt of Material

Step	Action	Reference
1	Check for missing items. <i>Note.</i> Items must agree with Basic Issue Items List.	Appendix B
	Machine Gun	
2	Field strip and inspect for: Missing parts Proper assembly Caution: Make Certain buffer assembly does not contain oil. If so, notify organizational maintenance personnel.	Figs. 1-2 and 3-1-3-20
3	Clean and lubricate, if necessary.	Table 3-1
4	Reassemble weapon, step 2, above. <i>Note.</i> Install spare barrel assembly to make certain it locks securely in receiver.	
5	Check and adjust headspace and timing.	Tables 2-3 and 2-4
6	Hand function, using dummy cartridge M2, 1305-028-6384.	

Table 2-1—Continued

Step	Action	Reference
	Tripod Mount, M3	
1	Clean and lubricate, if necessary	Table 3-1
2	Check traversing and elevating mechanism assembly for proper function.	
	Antiaircraft Mount, M63	
1	Clean and lubricate, if necessary	Table 3-1
2	Examine mount for completeness	

Section II. CONTROLS AND INSTRUMENTS

2-2. General

This section describes the various controls and instruments and provides the operator/crew sufficient information to insure the proper operation of machine gun, tripod mount, and antiaircraft mount.

2-3. Controls and Instruments

Refer to table 2-2.

Table 2-2. Controls and Instruments

Control or instrument	Function	Reference
	Machine Gun	
Bolt latch release	To release the bolt from the rearward position.	Fig. 2-12
Buffer tube sleeve	To lock the bolt latch release in the open position to permit gun to fire automatically.	Fig. 2-12
Back plate latch	To secure/release back plate on receiver of gun.	Fig. 3-3

Table 2-2—Continued

Control or instrument	Function	Reference
Back plate latch lock	To secure/release back plate latch.	Fig. 3-3
Trigger	To fire the machine gun.	Fig. 2-12
Retracting slide assembly handle	To manually cock the machine gun.	Fig. 2-12
Cover latch	To secure/release cover assembly.	Fig. 3-18
Front and rear sights	To zero and accurately sight the weapon.	Figs. 3-1 and 3-6
Trigger lever	To connect trigger to sear.	Fig. 2-3
Plain knurled nut	To adjust timing.	Fig. 2-3
Tripod Mount, M3		
Front leg clamping handle	Secures/releases front leg of mount. Keeps mount secured in pre-determined position.	Fig. 2-5
Pintle lock assembly	Secures/releases mount tripod pintle on tripod head.	Fig. 2-6
Sliding sleeve	Secures/releases traversing bar assembly to right rear leg.	Fig. 2-5
Indexing lever assembly	Permits legs to be extended by alining the stud on indexing lever with holes in leg extension. Secures/releases legs by tightening/loosening leg clamping handle.	Fig. 2-5

Table 2-2—Continued

Control or instrument	Function	Reference
Quick release pin	Secures/releases rear of machine gun to/from traversing and elevating mechanism assembly.	Fig. 2-6
Sleeve lock latch	Secures/releases right rear leg for correct extended/open position.	Fig. 2-5
Sliding sleeve stop	Provides support for mount by keeping traversing bar assembly and sliding sleeve in correct position.	Fig. 2-5
Front leg clamping screw nut	Provides support to front leg when clamping handle is secured on leg.	Fig. 2-7
Traversing bar assembly	Secures/releases rear legs of mount when in locked/unlocked position.	Fig. 2-5
Yoke	Provides support with quick release pin in installing/removing machine gun from rear of mount.	Fig. 2-6
Antiaircraft Mount, M63		
Cradle locking pin	Secures cradle in horizontal or vertical position. Releases when elevation change is desired.	Fig. 2-9
Rear mounting pin	Secures/releases rear of machine gun to mount.	Fig. 2-9
Front mounting pin	Secures/releases front of machine gun to mount.	Fig. 2-9

Table 2-2—Continued

Control or instrument	Function	Reference
Firing handle rod	Provides positive contact with side plate trigger assembly to fire machine gun.	Fig. 2-14
Side plate trigger assembly	Actuates sear slide to fire machine gun.	Fig. 2-14
Pintle lock clamp	Secures/releases pintle of cradle and yoke assembly to/from elevator assembly.	Fig. 2-8
Ammunition box tray lever	Secures/releases ammunition box tray assembly to/from cradle.	Fig. 2-10
Headless shoulder pin	When depressed, locks/releases ball bearing assembly for removal/installation of the elevator assembly.	Fig. 2-8
Leg alining lug	Provides positive lock of mount leg with mount base.	Fig. 2-8
Rear pressure strap	Maintains required pressure on ammunition box to insure continuous feeding of ammunition into machine gun.	Fig. 2-13
Top pressure strap	Insures rapid, continuous feeding of ammunition into gun by keeping belted ammunition from twisting while holding ammunition in place.	Fig. 2-13

Table 2-2—Continued

Control or instrument	Function	Reference
Lock assembly	Secures/releases elevator assembly to/from fixed position when machine gun is being fired.	Fig. 2-8
Machine gun grips	Permits operator to control, aim, and fire machine gun.	Fig. 2-14

Section III. OPERATION UNDER USUAL CONDITIONS

2-4. Preparation for Operation

Refer to table 2-3.

Table 2-3. Preparation for Operation

Step	Procedure	Reference
Machine Gun		
1	Perform "before firing" preventive maintenance checks and services.	Table 3-3
2	Check and/or adjust headspace.	Table 2-4
3	Check and/or adjust timing.	Table 2-5
4	Install barrel carrier assembly.	Fig. 2-4
Tripod Mount, M3		
1	Open legs on tripod head group.	Fig. 2-5
2	Install traversing and elevating mechanism assembly.	Fig. 2-6
3	Install machine gun on mount.	Fig. 2-6
4	Install barrel assembly.	Fig. 2-7
5	Check and/or adjust headspace.	Table 2-4
6	Check and/or adjust timing.	Table 2-5

Table 2-2—Continued

Step	Procedure	Reference
Antiaircraft Mount, M63		
1	Install mount legs on base assembly.	Fig. 2-8
2	Install elevator assembly.	Fig. 2-8
3	Install trigger frame and cradle and yoke assemblies and cradle locking pin to hold in horizontal position.	Fig. 2-9
4	Install ammunition box tray assembly.	Fig. 2-9
5	Lock lever of tray assembly.	Fig. 2-10
6	Install machine gun on mount with the front and rear mounting pins.	Fig. 2-11
	<i>Note.</i> After installation of machine gun, make certain spring plunger lock assembly is in the locked position to prevent accidental firing of machine gun.	Fig. 2-14
7	Install barrel assembly.	Fig. 3-1
8	Check and/or adjust headspace.	Table 2-4
9	Check and/or adjust timing.	Table 2-5

2-5. Checking and Adjusting Headspace

Refer to table 2-4.

2-6. Checking and Adjusting Timing

Refer to table 2-5.

Table 2-4. Checking and Adjusting Headspace

Step	Procedure	Reference
	<i>Note.</i> Headspace must be checked each and every time the barrel is assembled to the machine gun for firing.	
	Warning: Improper headspace can cause malfunctioning of the machine gun and frequent damage to parts and/or injury to personnel.	
1	Open cover.	Fig. 3-1
2	Retract bolt (approximately 3/8 inch) using retracting slide handle until locking lug on barrel locking spring is centered in hole of right side plate of receiver.	Fig. 3-1
3	Hold bolt in above position and screw barrel fully into barrel extension.	Fig. 3-1
	<i>Note.</i> Should handle be released, the recoiling parts will remain out of battery position (a separation will exist between barrel extension and trunnion block).	
4	With handle retracted, unscrew barrel two notches (clicks). Release handle.	Fig. 3-1
5	Cock machine gun.	Fig. 2-1
	<i>Note.</i> With machine gun cocked, firing pin is withdrawn into face of bolt allowing headspace gage to be inserted into T-slot on bolt.	
	Caution: Do not fire machine gun when headspace gage is in T-slot. This could damage firing pin and gage.	