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U.S. Dept. of Army

WAR DEPARTMENT
TECHNICAL MANUAL

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MACHINE GUN MOUNTS
FOR BOATS

14 OCTOBER 1943

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WAR DEPARTMENT
Washington, 14 October 1943

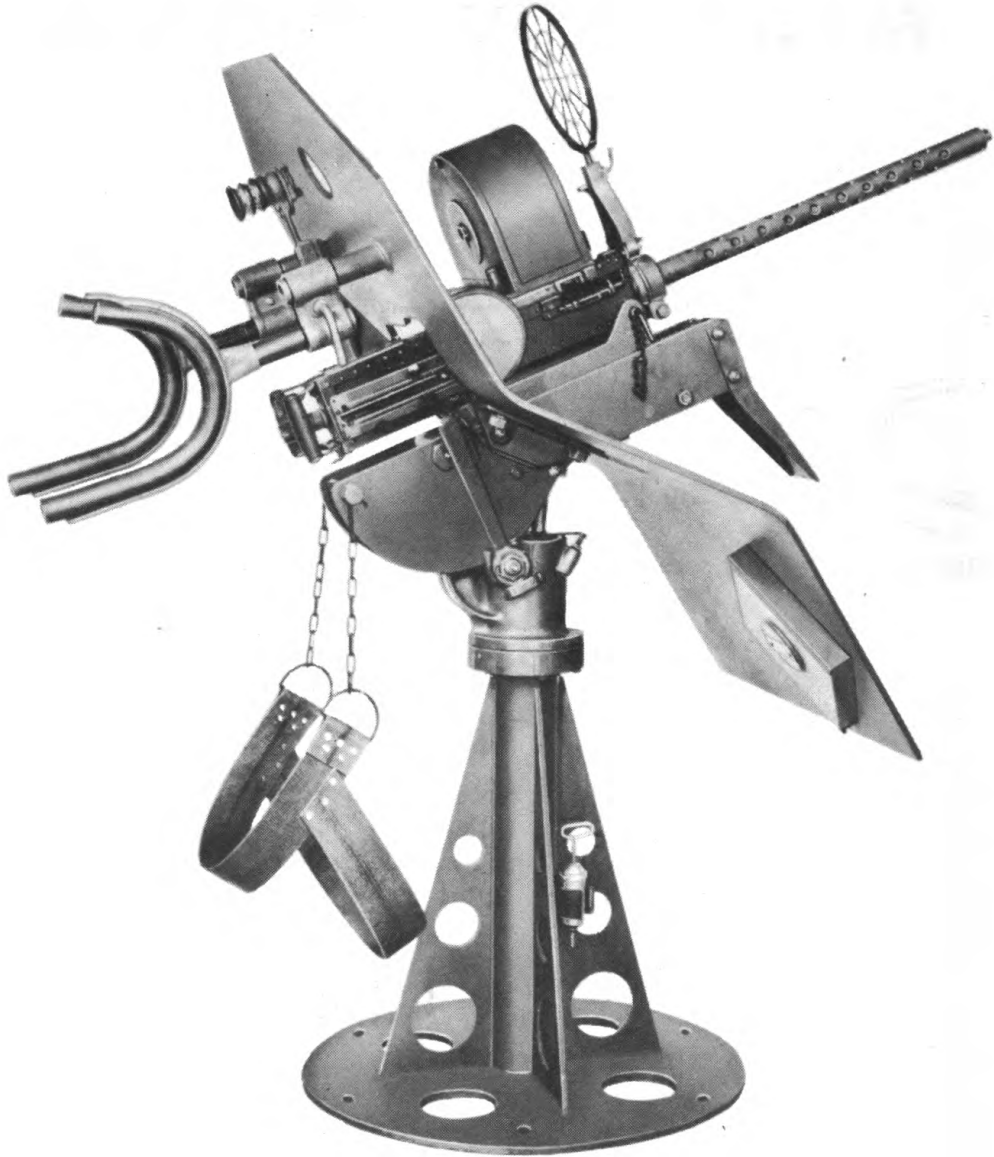
MACHINE GUN MOUNTS FOR BOATS

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MACHINE GUN MOUNTS FOR BOATS



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**Figure 1 — Cal. .50, Machine Gun, Pedestal Mount M39,
with Aircraft Machine Gun**

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**Figure 2 – Cal. .50, Machine Gun, Pedestal Mount M43,
with Water-cooled Gun**

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Section I

INTRODUCTION

	Paragraph
Scope	1
Characteristics	2
Differences among models.....	3
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Precautions	5

1. SCOPE.*

a. This manual is published for the information and guidance of the using arms charged with the operation and maintenance of this materiel. It contains information required by the using arms for the identification, use and care, inspection, and maintenance of the following mounts:

- (1) Cal. .50 Machine Gun Pedestal Mount M39.
- (2) Cal. .50 Machine Gun Pedestal Mount M43.
- (3) Twin Cal. .50 Machine Gun Pedestal Mount M46.
- (4) Cal. .30 Machine Gun Ring Mount M41.
- (5) Bracket Mount M40.

b. For information on the use and care of the machine guns used with these mounts, see the manuals listed in section X.

c. For the decontamination of the materiel affected by chemicals and for treatment of casualties see TM 3-220, FM 21-40, and TM 3-215.

2. CHARACTERISTICS.

a. **Machine Gun Pedestal Mounts M39, M43, and M46** (figs. 1, 2, and 3). These mounts are similar in construction and are designed for close range, high-angle, antiaircraft fire. They can also be locked in position for use against ground targets. They can be traversed manually through 360 degrees and elevated from minus 10 degrees to plus 80 degrees, and locked in both elevation and traverse by a single lever. The Mount M39 is provided with a Browning Machine Gun, cal. .50, M2, Aircraft. The Mount M43 is provided with a Browning Machine Gun, cal. .50, M2, Water-cooled. The Mount M46 is fitted with two Browning Machine Guns, cal. .50, M2, Water-cooled.

*To provide operating instructions with the materiel, this Technical Manual has been published in advance of complete technical review. Any errors or omissions will be corrected by changes or, if extensive, by an early revision.

INTRODUCTION



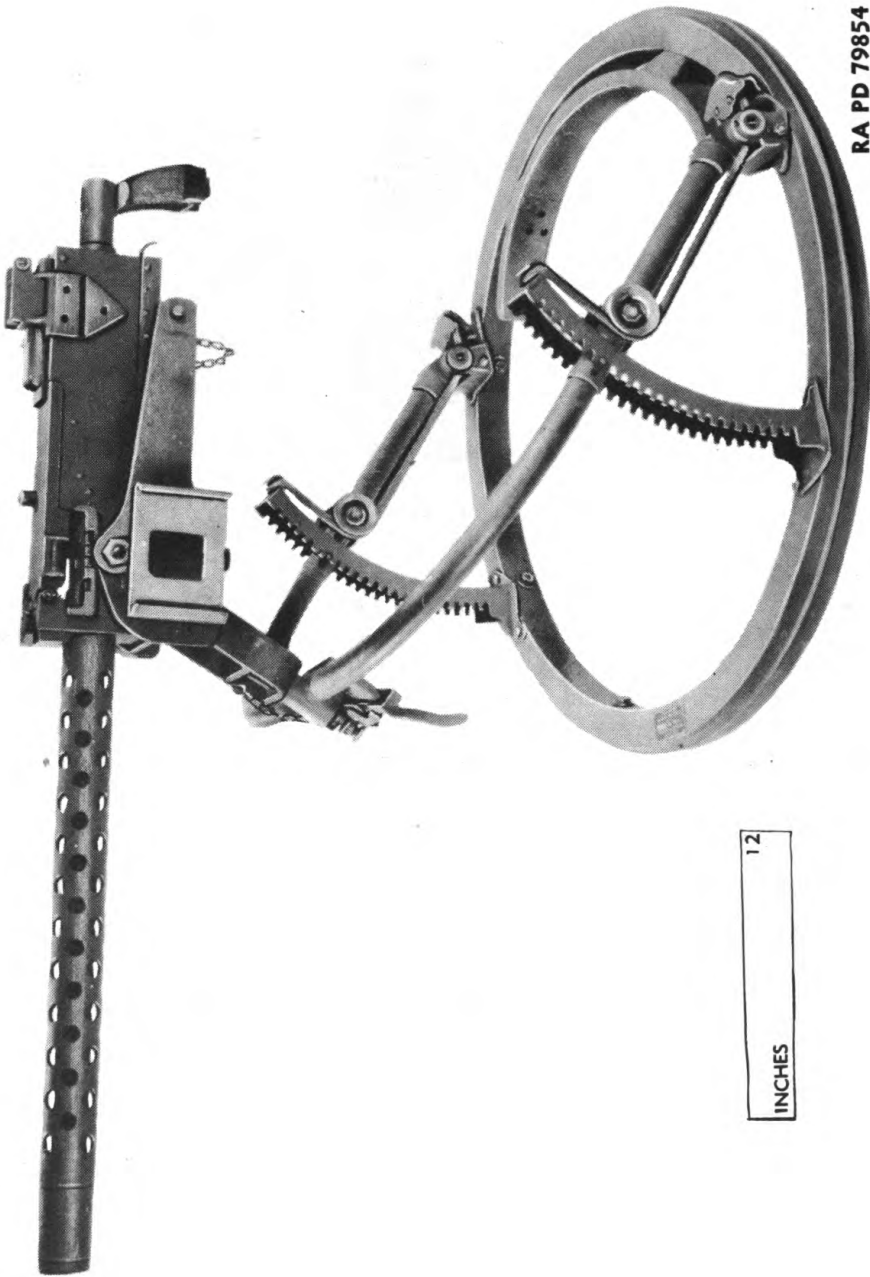
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**Figure 3 – Twin Cal. .50, Machine Gun, Pedestal Mount M46,
With Water-cooled Guns**

b. **Machine Gun Ring Mount M41** (fig. 4). This mount is designed for close range, antiaircraft fire and can also be used against ground targets. The mount can be traversed manually 360 degrees and elevated from zero degree to about plus 50 degrees. In addition, the gun and cradle can be elevated to about 90 degrees. The mount is to be used with a Browning Machine Gun, cal. .30, M1919A4 (flexible).

c. **Bracket Mount M40** (fig. 5). This mount has a cradle with cradle pintle, identical with those of the Ring Mount M41. This

MACHINE GUN MOUNTS FOR BOATS



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Figure 4 — Cal. .30, Machine Gun, Ring Mount M41, with Gun

INTRODUCTION

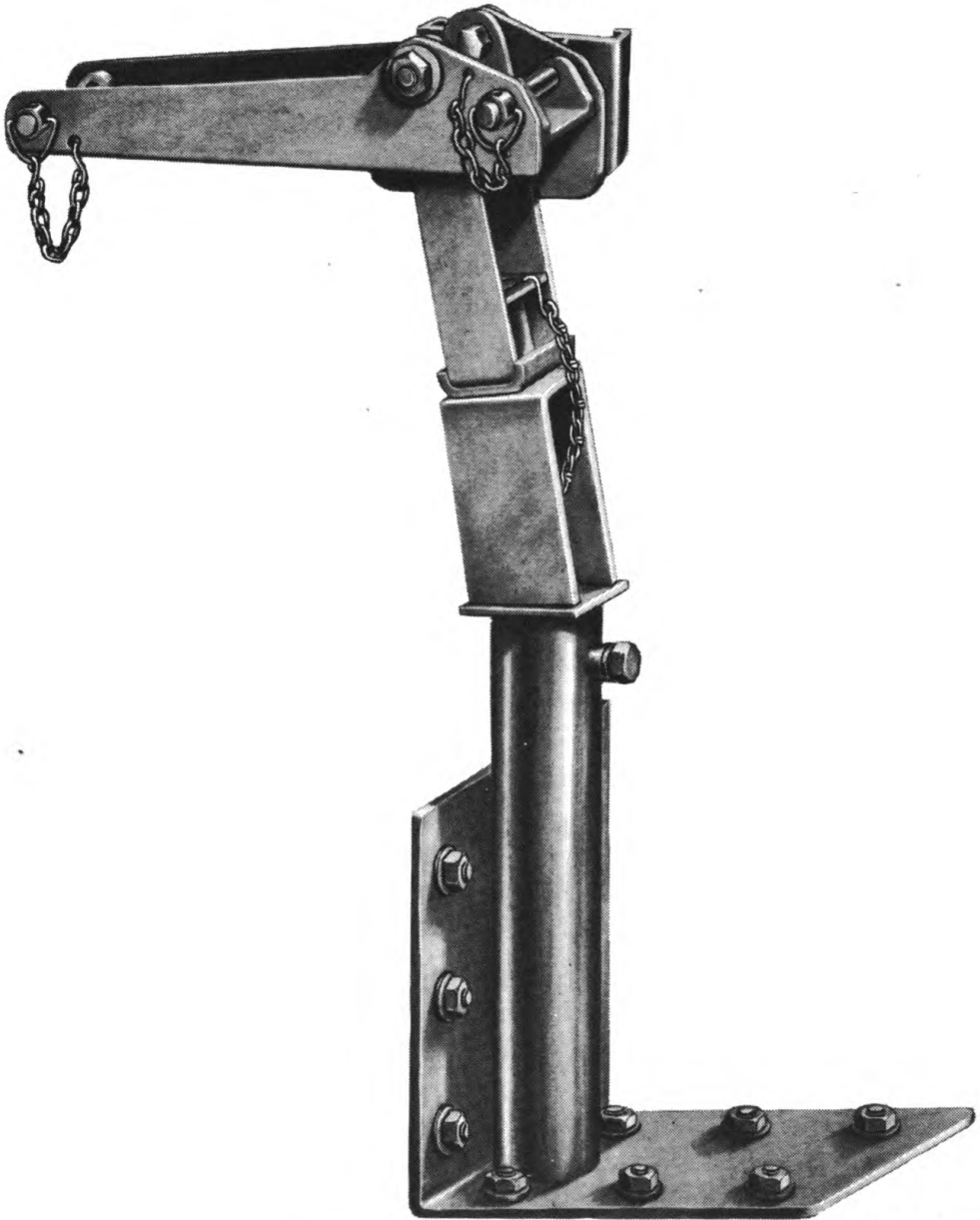


Figure 5 — Bracket Mount M40

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mount is to be used with a Browning Machine Gun cal. .30 M1919A4 (flexible).

3. DIFFERENCES AMONG MODELS.

a. The cradles of the Mounts M39 and M43 have no recoil absorbing device and the gun bracket plates are fixed to the side plates. These mounts are intended to be maneuvered without power or power assistance. The weight of the shield, gun, ammunition chart, and ammunition at all angles being equilibrated by means of a helical

MACHINE GUN MOUNTS FOR BOATS

spring located within the pedestal tube to the exclusion of counterweights. The cal. .50 Browning air-cooled (aircraft) or water-cooled machine gun may be used either on the single Mount M39 or the M43 by interchanging the spring suitable for the particular gun. The cradle of the Mount M46 is provided with a double acting, recoil absorbing device so that the inner gun bracket plates are allowed to recoil with the guns within the side plates.

b. The sights provided for the Mounts M39 and M43 are assembled to the gun while the sights for the Mount M46 are assembled to the mount.

4. DATA.

Mount M39 or M43 (without gun or ammunition chest).....	725 lb
Mount M46 (without guns or ammunition chests).....	825 lb
Mount M41 (without gun or ammunition chest).....	60 lb
Browning Machine Gun, cal. .50, M2, Aircraft.....	65 lb
Browning Machine Gun, cal. .50, M2, Water-cooled.....	100 lb
Browning Machine Gun, cal. .30, M1919A4 (flexible).....	31 lb

5. PRECAUTIONS.

a. The shipping lock on the Mounts M39, M43, and M46 is required only during transportation of the mount from the manufacturer, and must be completely removed after the gun has been mounted but before the mount is to be put into use.

b. The counterbalance spring within the pedestal tube of the Mounts M39, M43, and M46 is under compression when the mount is shipped, and it must not be released until the gun has been secured to the mount.

c. When the counterbalance spring is not in place, do not release the locking lever, as the cradle and guns will fall.

d. The reversible name plate on the sight assembly container at the lower right-hand corner of the back of shield should at all times indicate the kind of counterbalance spring in place in the pedestal tube. When the spring is changed, the plate should be changed accordingly.

Section II

DESCRIPTION AND FUNCTIONING

	Paragraph
Machine gun pedestal mounts M39, M43, and M46.....	6
Machine gun ring mount M41 and bracket mount M40.....	7
Machine guns	8

6. MACHINE GUN PEDESTAL MOUNTS M39, M43, AND M46.

a. **Components of Mounts.** The chief components of each mount are the pedestal, socket, cradle, shield, shoulder braces, back strap, and sight assemblies. The cradle with gun is rotatable in the socket of the pedestal.

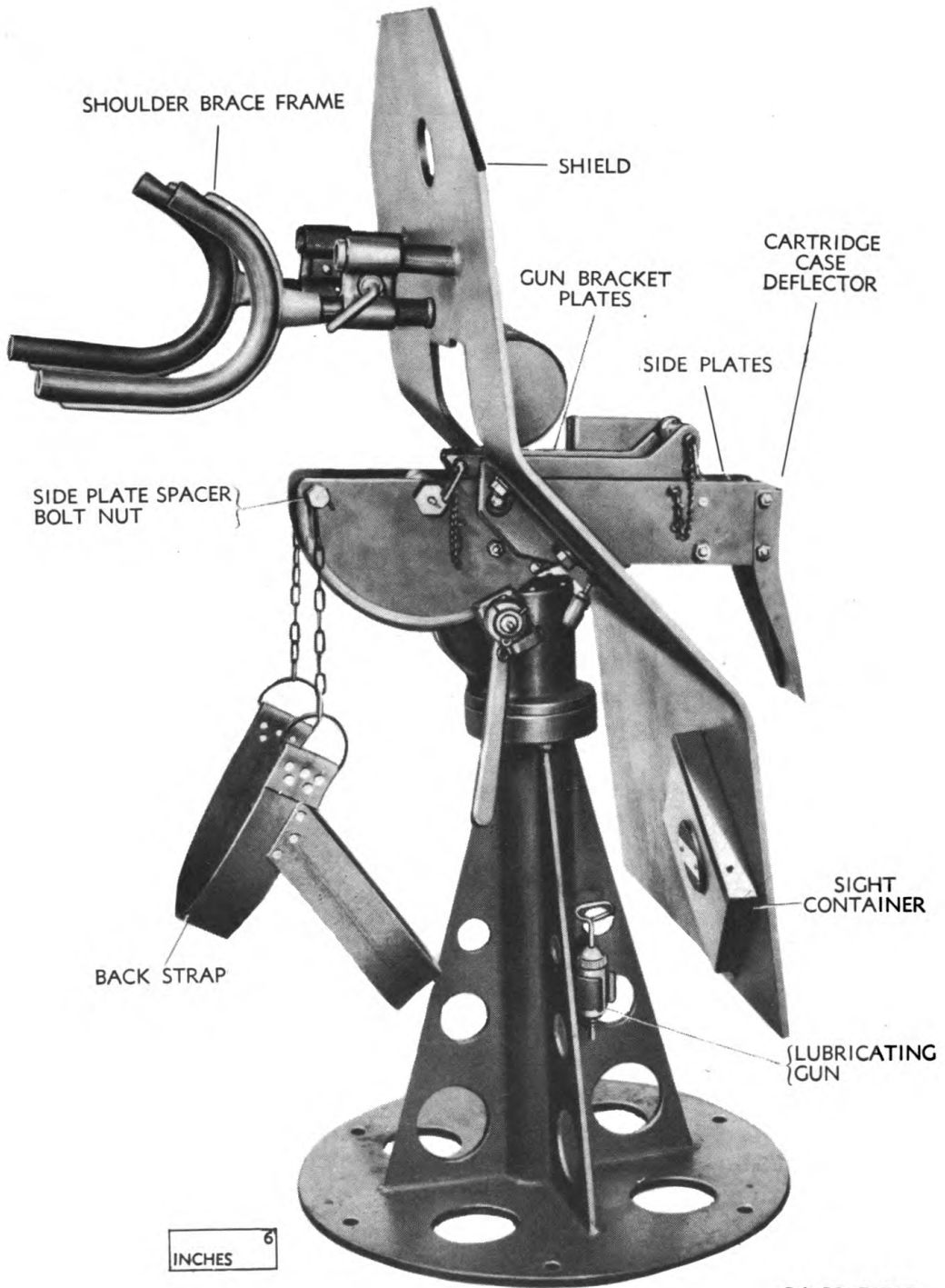
b. **Cradle Assembly** (figs. 6, 7, 8, and 9). Each cradle consists of two inner gun bracket plates and two outer side plates held together by spacers. The cradles of the Mounts M39 and M43 have no recoil mechanism and the gun bracket plates are fixed to the side plates. The cradles of the Mount M46 are equipped with recoil and counter-recoil springs. Thus the gun bracket plates to which the guns are secured are free to recoil within the side plates. The recoil springs tend to absorb the shock of recoil while the counterrecoil springs are held to return the guns and inner plates into battery. A cartridge case chute is secured to the inner plates of the cradle, and deflects the ejected cases to an opening in the shield. A cartridge case deflector, which extends downward from the forward end of the cradle, causes the ejected cases to drop to the deck. An ammunition box support bracket is mounted on the left outer side plate of the Mounts M39 and M43 and on each outer side plate of the Mount M46. Each bracket supports an Ammunition Chest M2 having a capacity of 200, cal. .50, rounds.

c. **Shield Assembly** (figs. 6, 7, and 8). The shield is secured to the cradle through an angle-piece welded to the outer side plates. The shield is made of 1/2-inch armor plate and is resistant to cal. .30 and cal. .303 armor-piercing bullets, normal impact at test range. On the upper rear face of the shield are two shoulder brace extension tubes to which are clamped the two frames with rubber padding. The gunner keeps his shoulders against the brace frames to maneuver the mount during firing.

d. **Pedestal Assembly** (figs. 10 and 11).

(1) The pedestal assembly consists of the pedestal body, ball bearing, housing, and counterbalance spring with connecting rod. The pedestal body assembly is a tube with ribs and a base. Drain holes are drilled at the base of the tube and also in the center of the base. A push-type, pressure-lubricating gun, having a 3-ounce capacity, is

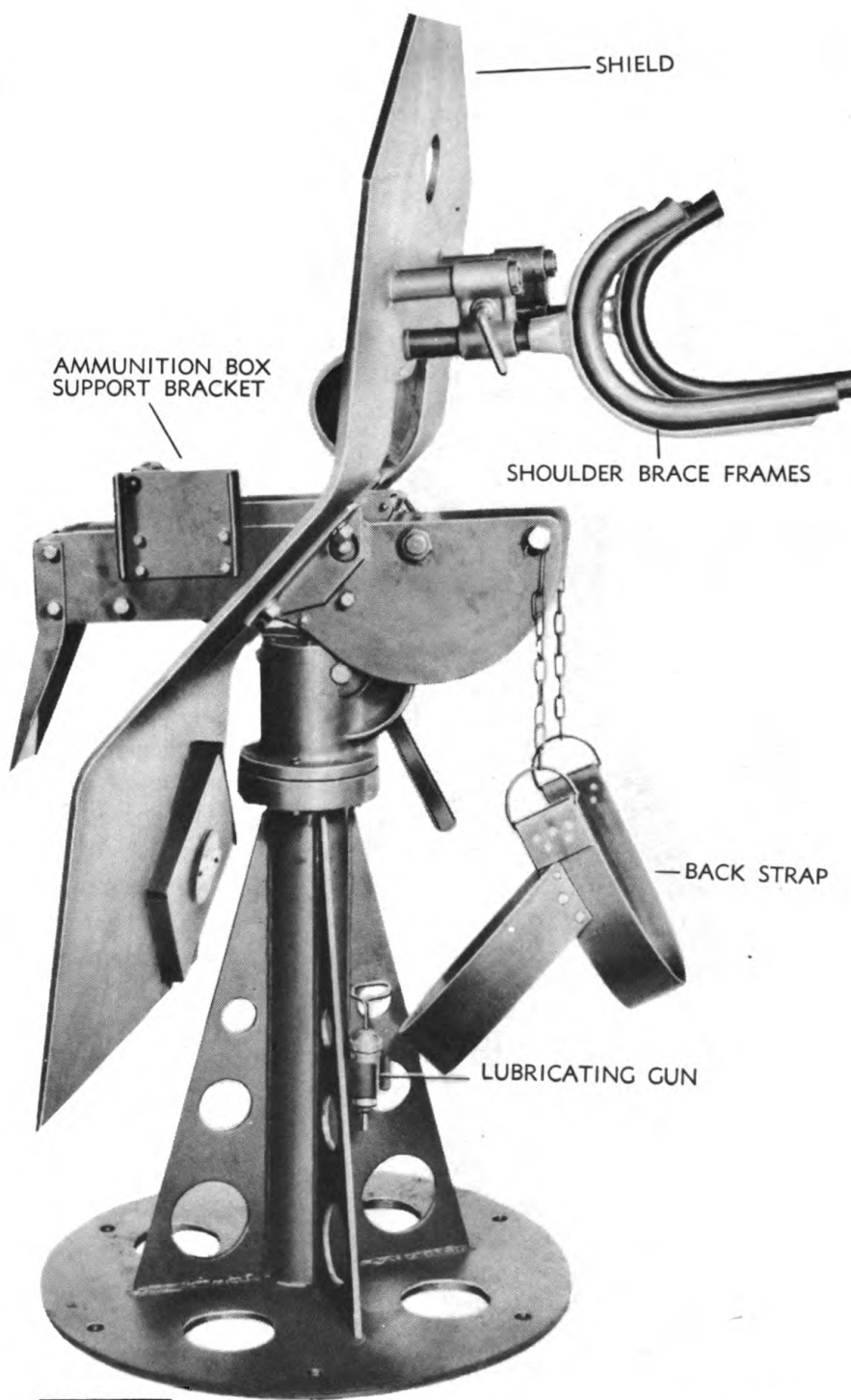
MACHINE GUN MOUNTS FOR BOATS



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Figure 6 — Mounts M39 and M43 — Right Side View

DESCRIPTION AND FUNCTIONING



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Figure 7 — Mounts M39 and M43 — Left Side View

MACHINE GUN MOUNTS FOR BOATS

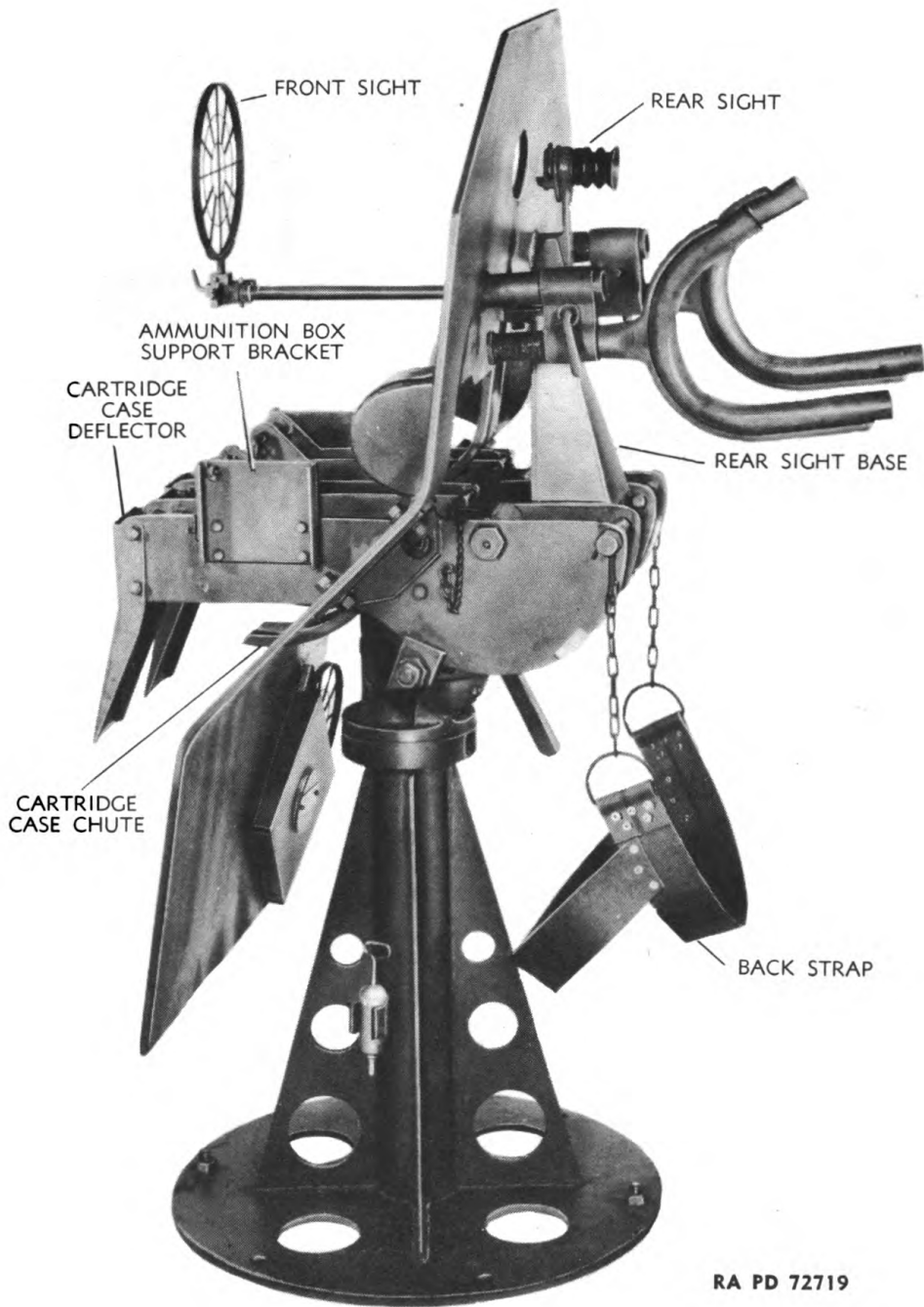
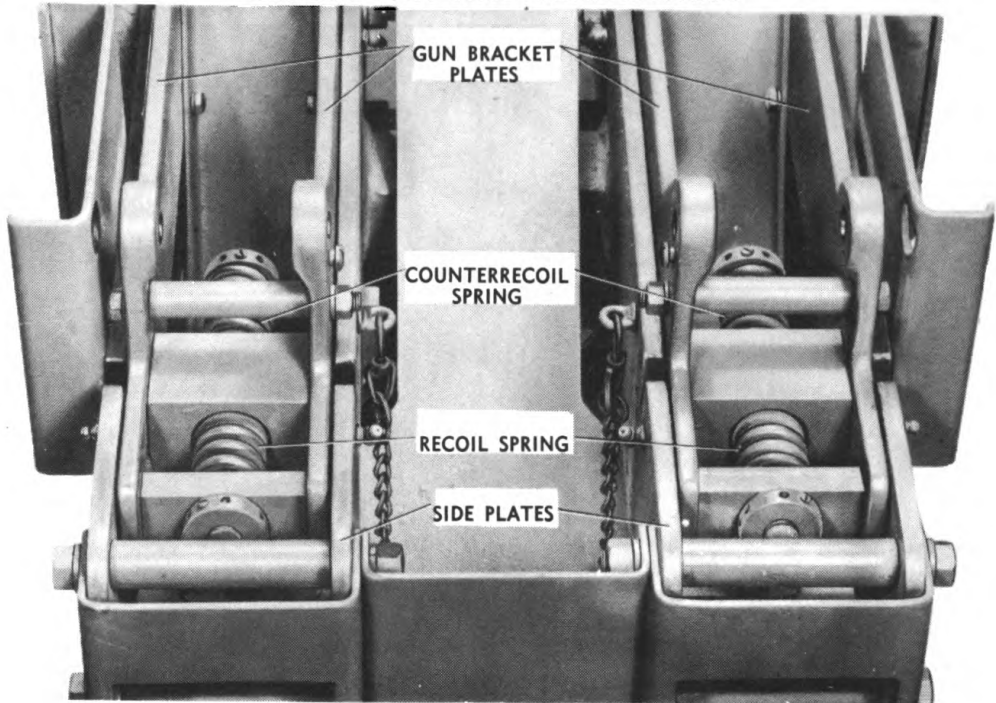


Figure 8 — Mount M46 — Left Side View

DESCRIPTION AND FUNCTIONING



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Figure 9 – Cradles of Mount M46 – Top View

mounted on a spring clip of the pedestal. The pedestal tube houses a heavy compression counterbalance spring. The function of the spring is twofold, to cushion the fall of the gun and cradle when changing from an elevated to a horizontal position, and also to reduce the force required of the gunner to elevate the gun for high-angle firing. The compression of the spring can be varied to suit the individual gunner by adjusting the counterbalance spring connecting rod. The lower end of the connecting rod is secured to the counterbalance spring guide and cap at the top of the spring. The upper end of the connecting rod is threaded into a crosshead in the cradle, and has an adjusting nut which is used to regulate compression of counterbalance spring.

(2) The type of counterbalance spring used depends on the type of mount and gun. The springs are painted different colors for easy identification (par. 20 b (4)).

(3) The ball bearings are accommodated in the ball bearing housing between inner and outer bearing rings.

e. **Socket Assembly** (figs. 12 and 13). The socket is a 1-piece casting. The base of the socket forms the upper half of the bearing housing which is secured by screws to the lower half of the bearing on the pedestal. A screw, which is adjustable by means of a nut, is housed in the right side of the socket. The screw contacts the cradle side plate stop and thus prevents the mount from being depressed below the safe angle determined by the requirements of the installa-

MACHINE GUN MOUNTS FOR BOATS

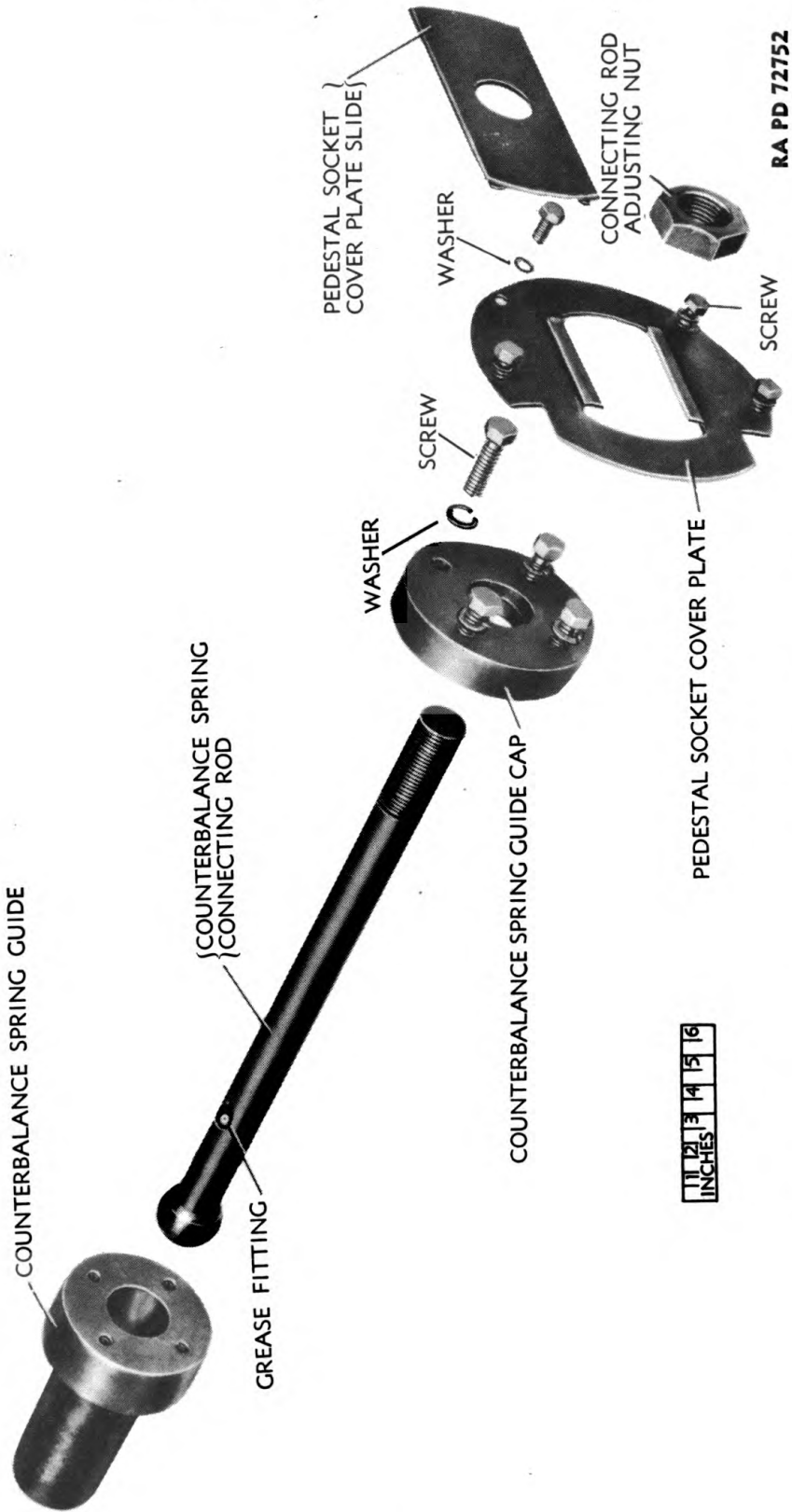


Figure 10 — Mounts M39, M43, and M46 — Connecting Rod Group

DESCRIPTION AND FUNCTIONING

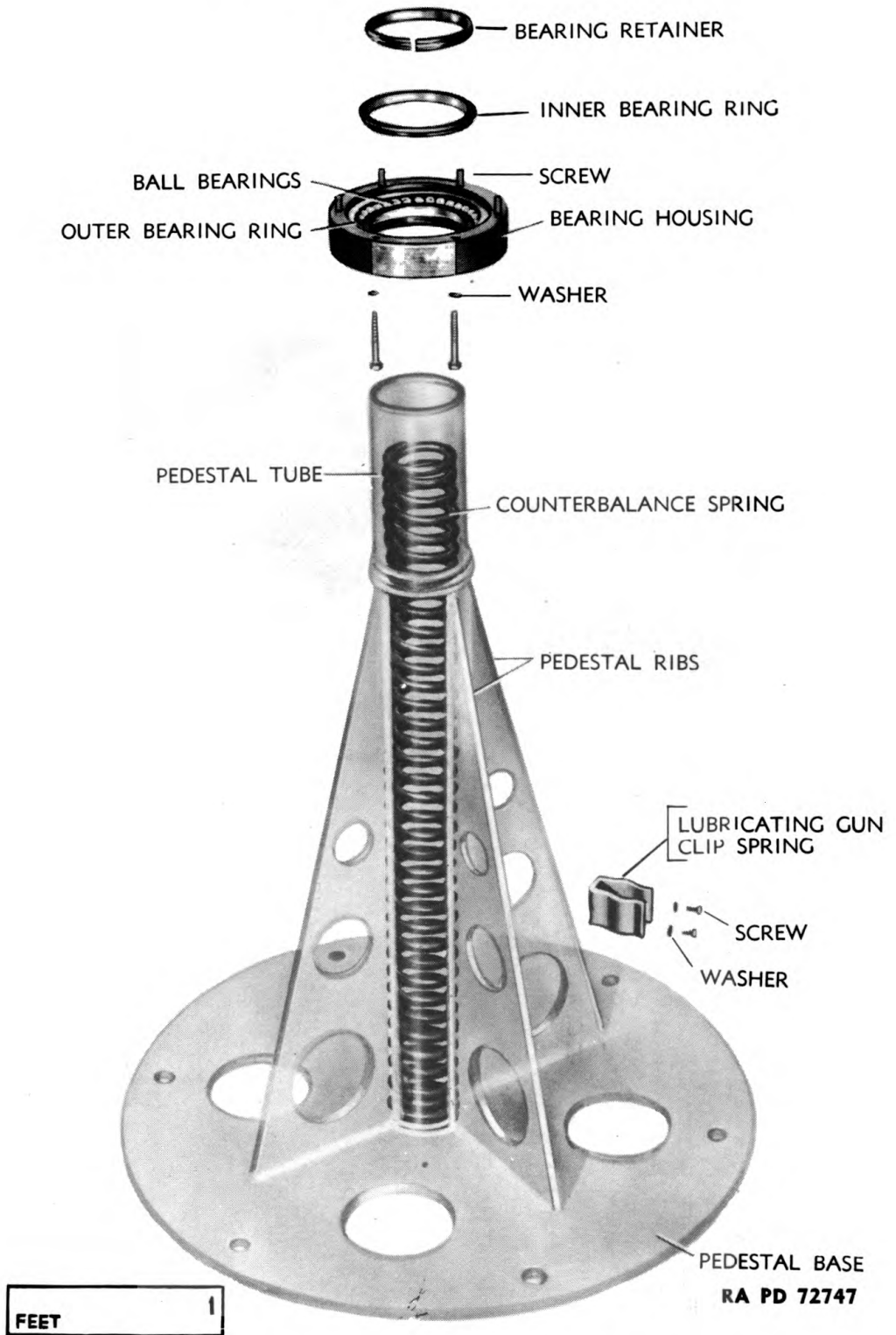
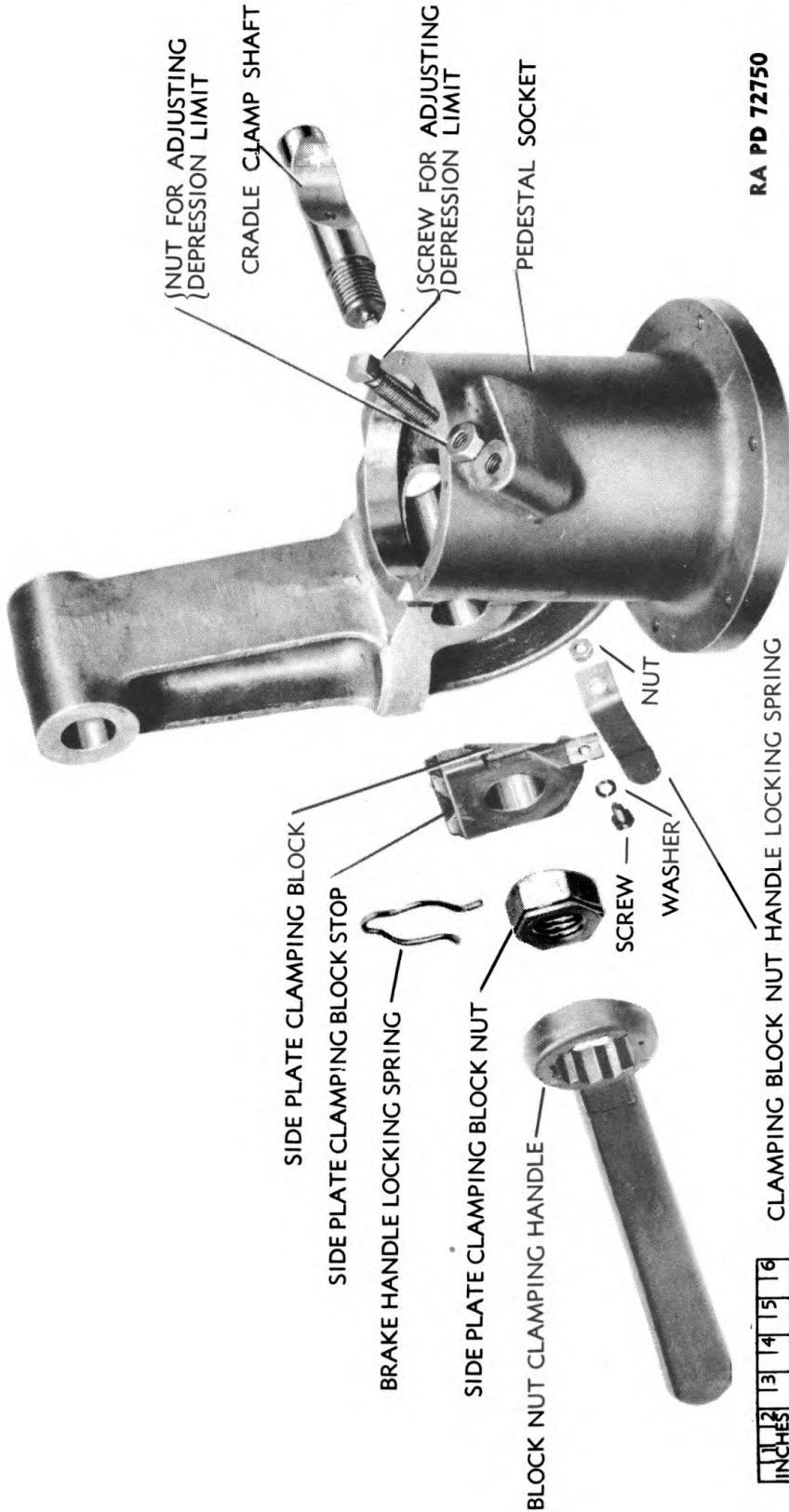


Figure 11 – Pedestal and Ball Bearing Group of Mounts M39, M43, and M46

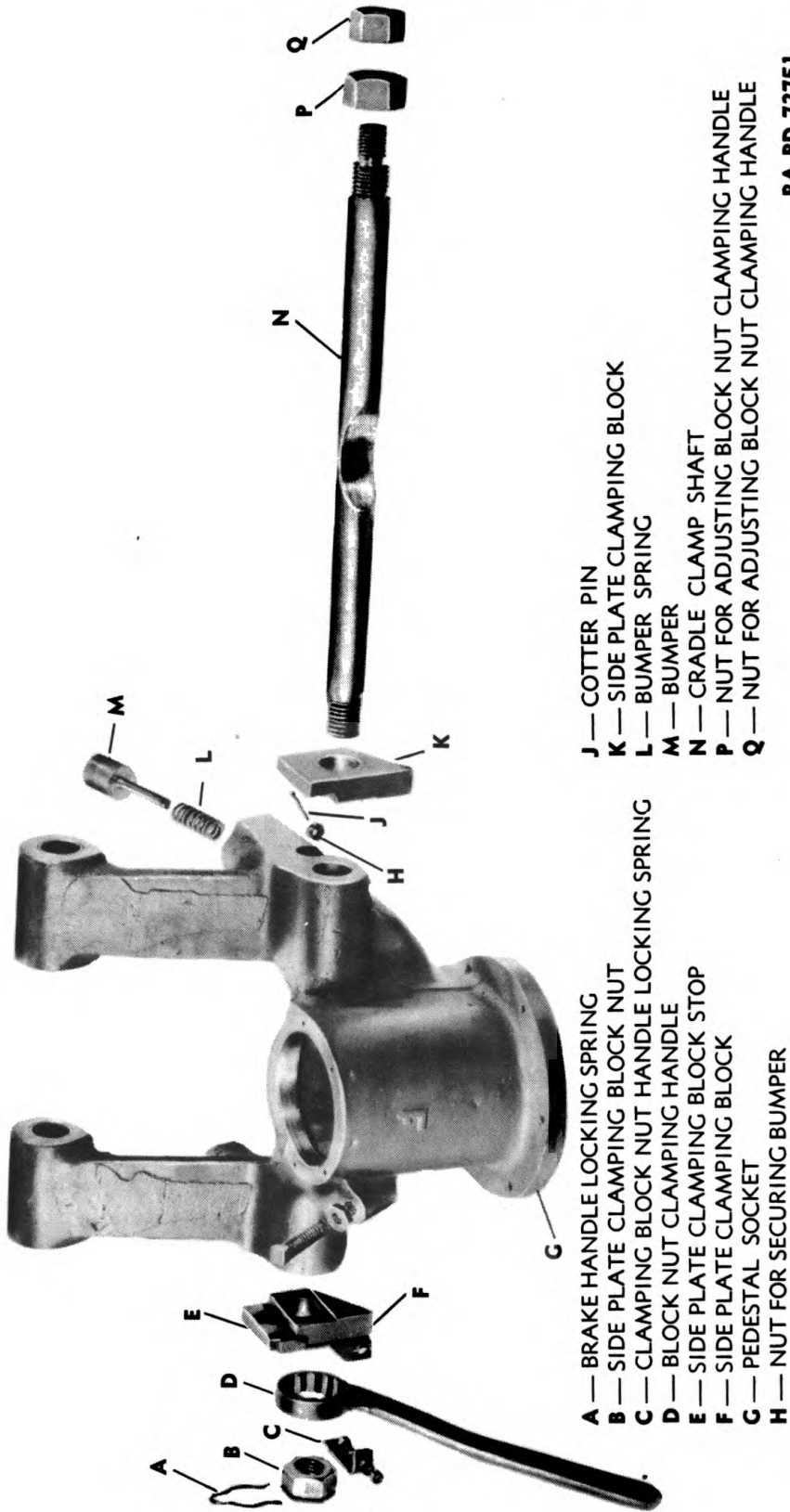
MACHINE GUN MOUNTS FOR BOATS



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Figure 12 — Pedestal Socket Group of Mounts M39 and M43

DESCRIPTION AND FUNCTIONING



- A — BRAKE HANDLE LOCKING SPRING
- B — SIDE PLATE CLAMPING BLOCK NUT
- C — CLAMPING BLOCK NUT HANDLE LOCKING SPRING
- D — BLOCK NUT CLAMPING HANDLE
- E — SIDE PLATE CLAMPING BLOCK STOP
- F — SIDE PLATE CLAMPING BLOCK
- G — PEDESTAL SOCKET
- H — NUT FOR SECURING BUMPER
- J — COTTER PIN
- K — SIDE PLATE CLAMPING BLOCK
- L — BUMPER SPRING
- M — BUMPER
- N — CRADLE CLAMP SHAFT
- P — NUT FOR ADJUSTING BLOCK NUT CLAMPING HANDLE
- Q — NUT FOR ADJUSTING BLOCK NUT CLAMPING HANDLE

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Figure 13 — Pedestal Socket Group of Mount M46

MACHINE GUN MOUNTS FOR BOATS

tion of the mount. The rear of the socket of the Mount M46 houses two spring-operated bumpers, one on left side, and one on right side. The function of these bumpers is to cushion the shock of the guns and cradles when elevated to a maximum of plus 80 degrees. The socket can be locked both in traverse to the pedestal and in elevation to the side plate of the cradle by the block nut clamping handle. The clamping handle is held in the unlocked position by the clamping block nut handle locking spring. By pulling the block nut clamping handle rearward and upward through an arc of 150 degrees, the cradle is locked both in elevation and traverse. The block nut clamping handle can be adjusted for tightness.

f. **Back Strap Assembly** (figs. 6, 7, and 8). The back strap, which serves as a seat for the gunner, is secured by chains to the side plate spacer bolt nuts on the outer side plates. The length of the back strap may be adjusted to suit the individual gunner. This is done by threading the shank of the hook through one of the oblong links of the chain and thence to the side plate spacer bolt nut on the side plate. One or both of the back strap chains may be adjusted in this manner.

g. **Sight Assemblies** (figs. 1, 2, 3, 14, and 15).

(1) The sights of the Mounts M39 and M43 are assembled to the machine gun while the sights of the Mount M46 are assembled to the mount. The rear sight of the Mounts M39 and M43 is secured by screws to the rear sight base which, in turn, is secured by screws set into the top plate of the machine gun receiver. The rear sight of the Mount M46 is supported by a base which is bolted to the rear ends of the cradles. The rear sight assembly has two screw holes which mate with holes on the sight bracket. The left hole (marked "TESTING") is used to secure the rear sight when the sights are to be adjusted (fig. 28). The right hole (marked "FIRING") is used to secure the rear sight for firing after the sights have been adjusted (fig. 29). The rear sight has a sun filter consisting of two lenses of duplex nonshatterable glass. One lens is darker than the other. The type of lens to be used depends on the brightness of the sun, but both may be used at the same time.

(2) The front sights are of the 300-knot ring type. The front sight of the Mount M43 is held in place by a clamp which fits over the trunnion block at the rear of the water jacket. The front sight of the Mount M39 is held in place by an adapter bolted to the barrel trunnion. The sights for the Mount M46 are assembled to the mount. The rear sight is supported by a base which is bolted to the rear ends of the cradles. The front sight of the Mount M46 is assembled to a shaft on the outer end of the shield. When the Mounts M39, M43, and M46 are not in use, the front sight is stowed in the sight container on the lower right-hand corner of the shield.

DESCRIPTION AND FUNCTIONING

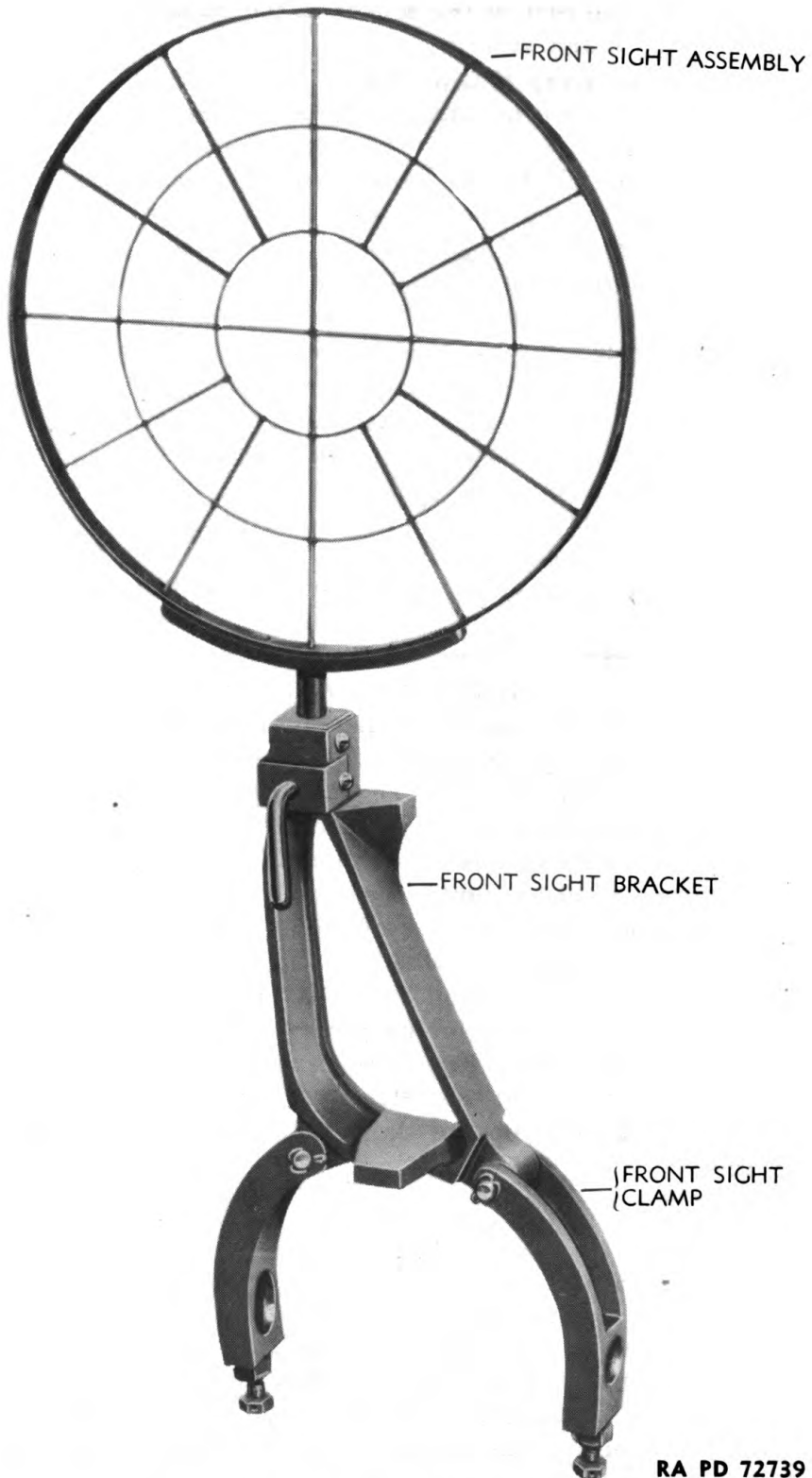


Figure 14 — Front Sight of Mount M43

MACHINE GUN MOUNTS FOR BOATS**7. MACHINE GUN RING MOUNT M41 AND BRACKET MOUNT M40 (figs. 5, 15, and 16).****a. Machine Gun Ring Mount M41.**

(1) **COMPONENTS OF THE MOUNT.** The chief components of the mount are the cradle, quadrants, main tube with latch, back rest bracket, and fixed and revolving ring assemblies.

(2) **CRADLE ASSEMBLY.** The cradle is mounted in a small tube on the main tube. The cradle consists of two side plates welded to two spacers, one at the front, and one at the rear. An ammunition box support is welded to the left side plate. The cradle pintle is secured to the side plate by two trunnion bolts with nuts. The cradle pivots on the two bolts. The nuts are tightened sufficiently to stabilize the cradle and then staked in three places. Two chain lock pins on the right side plate serve to lock the machine gun to the cradle. The pintle lock assembly is secured by a chain to the cradle pintle. The lock is spring-actuated and snaps into position around the circumferential groove on the shank of the pintle.

(3) **FIXED AND REVOLVING RING ASSEMBLIES.** The fixed ring is secured to the deck and mounts the revolving ring with all the other components of the mount thereon. A back rest bracket is bolted to the revolving ring; the bracket serves as a rest for the gunner's back when firing. The revolving ring has eight equally spaced spindles with eight rollers whereby it can be rotated 360 degrees on the fixed ring.

(4) **QUADRANT ASSEMBLIES.** The quadrants are bolted to the revolving ring. Each quadrant has a series of teeth for engaging the latch tube hub pins of the main tube. This serves to regulate the angle of elevation of the main tube.

(5) **MAIN TUBE WITH LATCH ASSEMBLY (figs. 30, 31 and 32).** The main tube with latch assembled is arch-shaped. The tube has a fork at each end by means of which it can pivot on the two brackets bolted to the revolving ring. On each side of the fork is a projecting boss with a circumferential groove. The grooves serve as guides for the endless elastic cord. The cord passes through the hook on the top of the quadrant, then over the two elastic cord pulleys on the main tube, then over two projecting bosses on the forks, and finally around the main tube bracket under the spring-actuated main tube bracket plate. In this position, the elastic cord is under tension and prevents the main tube with cradle and gun from falling when changing angle of main tube. The main tube houses the working parts for operating the mount in elevation and traverse. The middle of the tube houses two pulleys and a cable assembly which is actuated by the cable operating lever. At each end of the cable is a cable and link which is pinned to the clevis of the latch tube. The clevis of the latch tube is pinned to the spring-operated plunger lock lever at its upper end. At its midpoint, the lever pivots on the main tube bracket bolt. The forked plunger lock lever spring is mounted around

DESCRIPTION AND FUNCTIONING



Figure 15 — Front Sight of Mount M39

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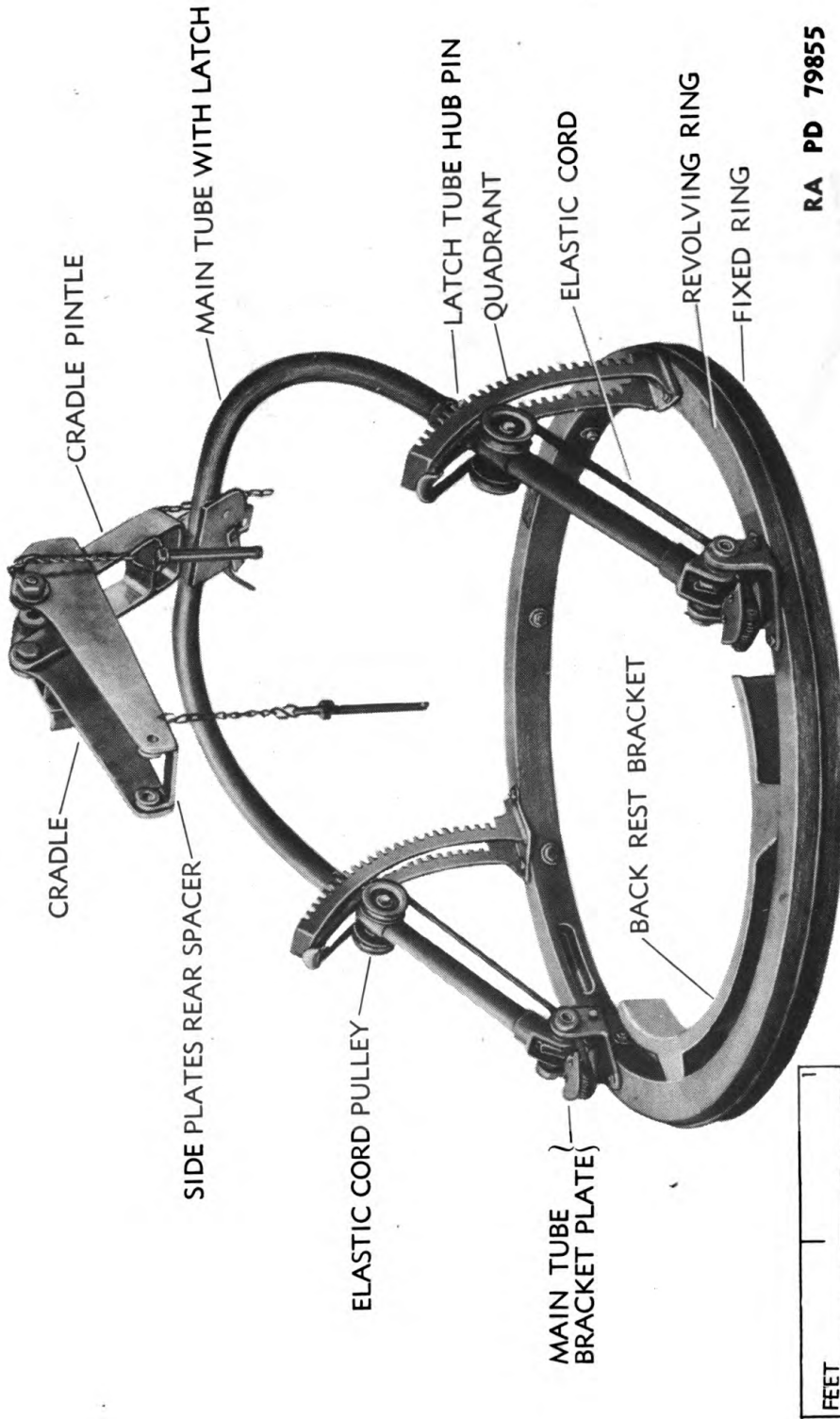


Figure 16 — Cal. .30, Machine Gun, Ring Mount M41

DESCRIPTION AND FUNCTIONING

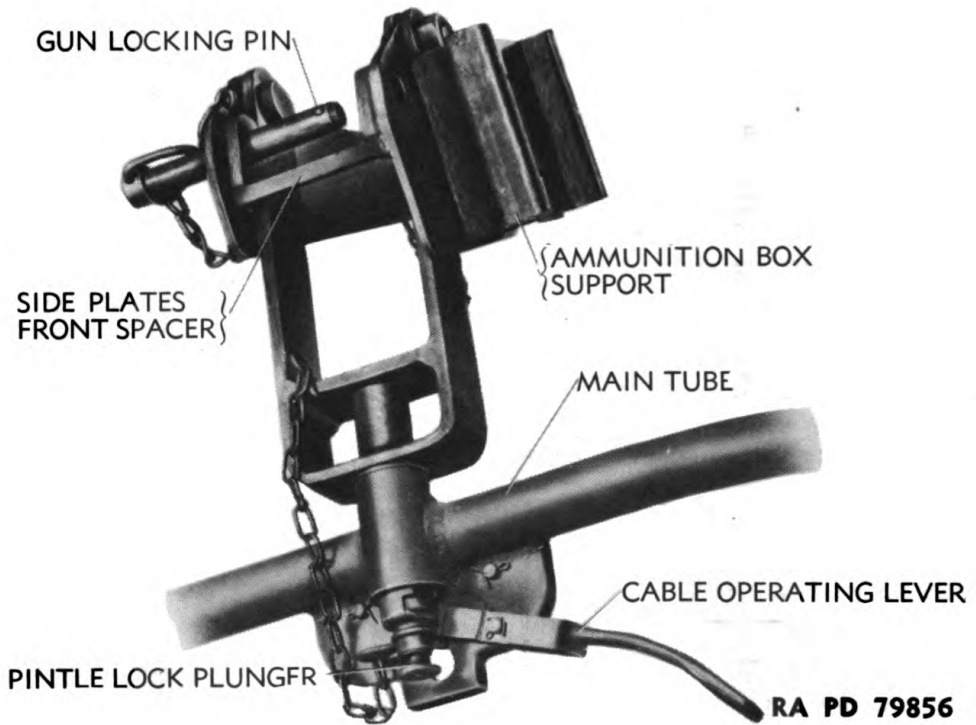


Figure 17 — Cradle and Main Tube of Mount M41 — Front View

the lever on the bolt. A latch tube hub pin passes through the upper end of the latch tube and extends on each side of the main tube. The hub pin serves to engage the teeth of the quadrant. Thus, by squeezing the cable operating lever, the plunger lock levers raise the plunger locks so that the revolving ring can be rotated and, at the same time, the cable moves the latch tubes so that the latch tube hub pins are disengaged from the teeth of the quadrant. Thus, the main tube can be elevated and depressed by the operation of one lever.

b. **Bracket Mount M40** (fig. 5). This mount consists essentially of a bracket which is secured to the boat and a cradle with a cradle pintle. The cradle and pintle are identical with those of Ring Mount M41 as described in subparagraph a (2) above.

8. MACHINE GUNS.

a. All machine guns for Mounts M39, M43, and M46 must be equipped with retracting slides and double spade-grip back plates.

b. The machine gun for the Mount M39 must be equipped for left-hand feed and right-hand charging.

c. The machine gun for the Mount M43 must be equipped for left-hand feed and right-hand charging.

d. The left side gun for the Mount M46 must be equipped for left-hand feed and left-hand charging; the right side gun must be equipped for right side feed and right-hand charging.

MACHINE GUN MOUNTS FOR BOATS

Section III

OPERATION AND ADJUSTMENTS

	Paragraph
Mounting the machine guns.....	9
Mounting the sights.....	10
Operations	11
Adjustments	12
Dismounting and replacing the machine guns.....	13

9. MOUNTING THE MACHINE GUNS.

a. Twin Cal. .50 Machine Gun Pedestal Mount M46.

(1) Place the machine gun on the mount so that the barrel protrudes through the gun hole in the shield and the mounting holes of the gun aline with those of the gun bracket plates.

(2) Secure the machine gun to the mount by inserting the front gun securing pin (fig. 18) and then the rear gun securing pin (fig. 19). Make certain the flanges on the gun securing pins engage the gun pin locking screws.

(3) Similarly, mount the second machine gun.

b. Cal. .50 Machine Gun Pedestal Mount M39. Proceed as in subparagraph a (1) and (2) above.

c. Cal. .50 Machine Gun Pedestal Mount M43. Proceed as in subparagraph a (1) and (2) above.

d. Cal. .30 Machine Gun Ring Mount 41.

(1) Place the machine gun on the cradle so that the mounting holes of the gun aline with those of the cradle.

(2) Secure the machine gun to the mount by inserting the front and rear gun locking pins (fig. 19).

e. Bracket Mount M40. Proceed as in subparagraph d above.

10. MOUNTING THE SIGHTS.

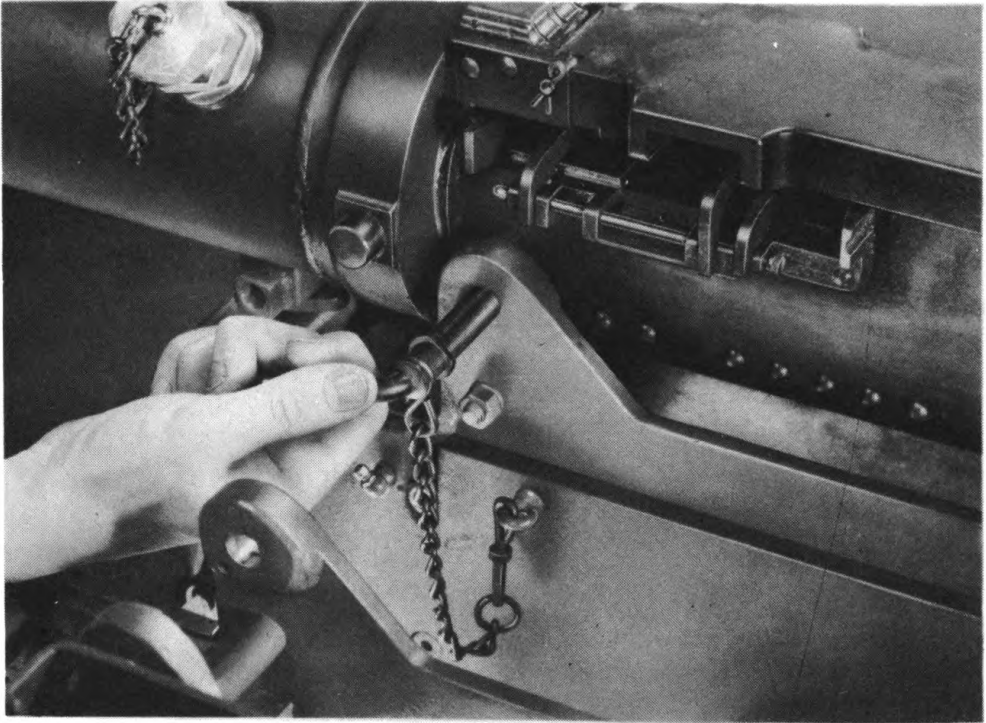
a. Cal. .50 Machine Gun Pedestal Mount M39.

(1) REAR SIGHT.

(a) Unscrew the three top plate cover screws and remove the top plate cover from the machine gun.

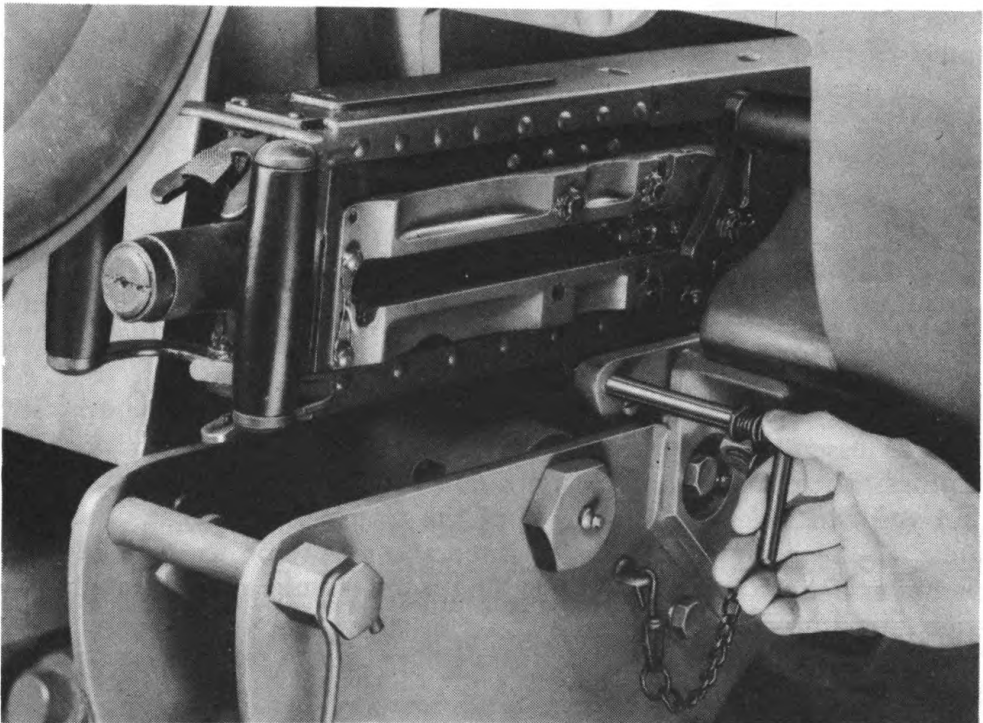
(b) Secure the rear sight by means of the three rear sight base mounting screws to the top plate of the receiver. Then assemble the rear sight assembly to the rear sight base by means of the three screws.

OPERATION AND ADJUSTMENTS



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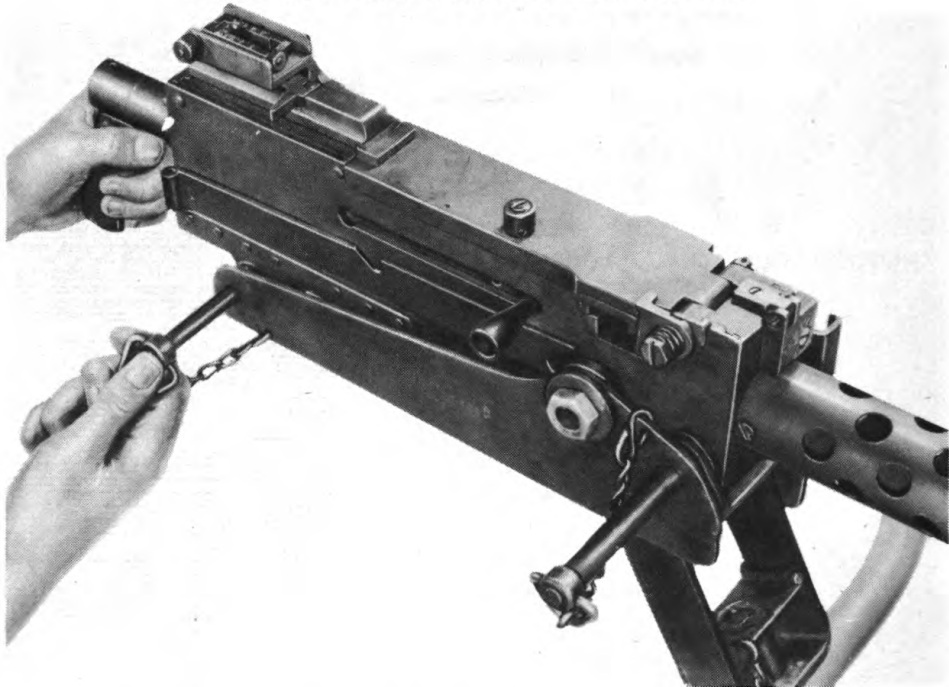
Figure 18 — Securing Front of Machine Gun to Mount M46



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Figure 19 — Securing Rear of Machine Gun to Mount M46

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Figure 20 — Securing Machine Gun to Mount M41

(2) **FRONT SIGHT** (fig. 15).

(a) Slip the front sight adapter with bracket assembled over the barrel of the gun until it is on the trunnion adapter. The front sight locking handle should be toward the muzzle. Secure the sight adapter to the trunnion adapter by pushing through the screw and tightening with the nut.

(b) Assemble the front sight assembly to the front sight bracket and tighten the locking handle.

b. Cal. .50, Machine Gun, Pedestal Mount M43.

(1) **REAR SIGHT.** To assemble the rear sight, proceed as in subparagraph a (1) and (2) above.

(2) **FRONT SIGHT** (fig. 14).

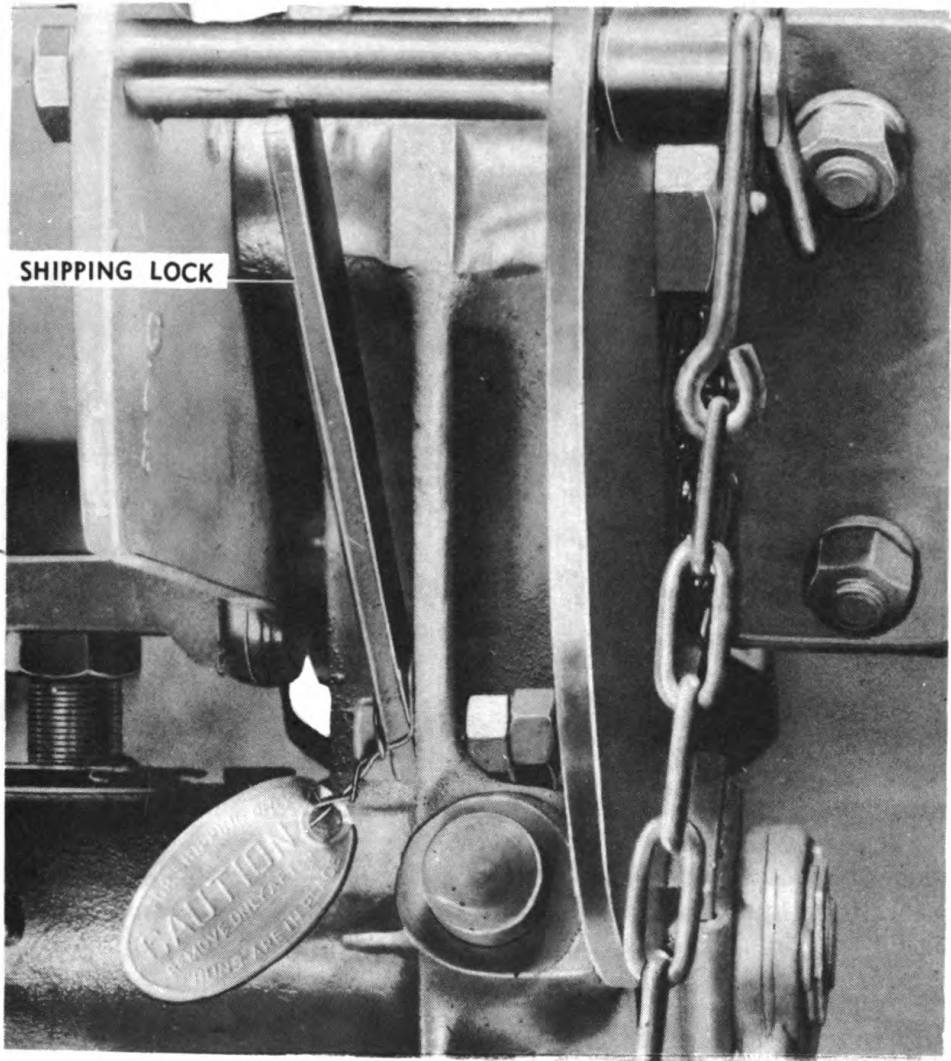
(a) To assemble the front sight, slip the front sight clamp with bracket assembled over the water jacket. The front sight locking handles should be toward the muzzle. Adjust the front sight clamp so that the two holes on the inside of the clamp arms engage the two studs on the jacket assembly. Tighten the screws on the end of each clamp arm and lock with wire. The wire should pass through the holes in clamp arms.

(b) Assemble the front sight assembly to the front sight bracket and tighten the locking handle.

c. Twin Cal. .50, Machine Gun, Pedestal Mount M46.

(1) The rear sight comes assembled to the mount; only the front sight has to be assembled.

OPERATION AND ADJUSTMENTS



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Figure 21 — Shipping Lock In Engagement With Side Plate Spacer Bolt of Mount M46

(2) Assemble the front sight assembly to the sight shaft, and tighten the locking handle.

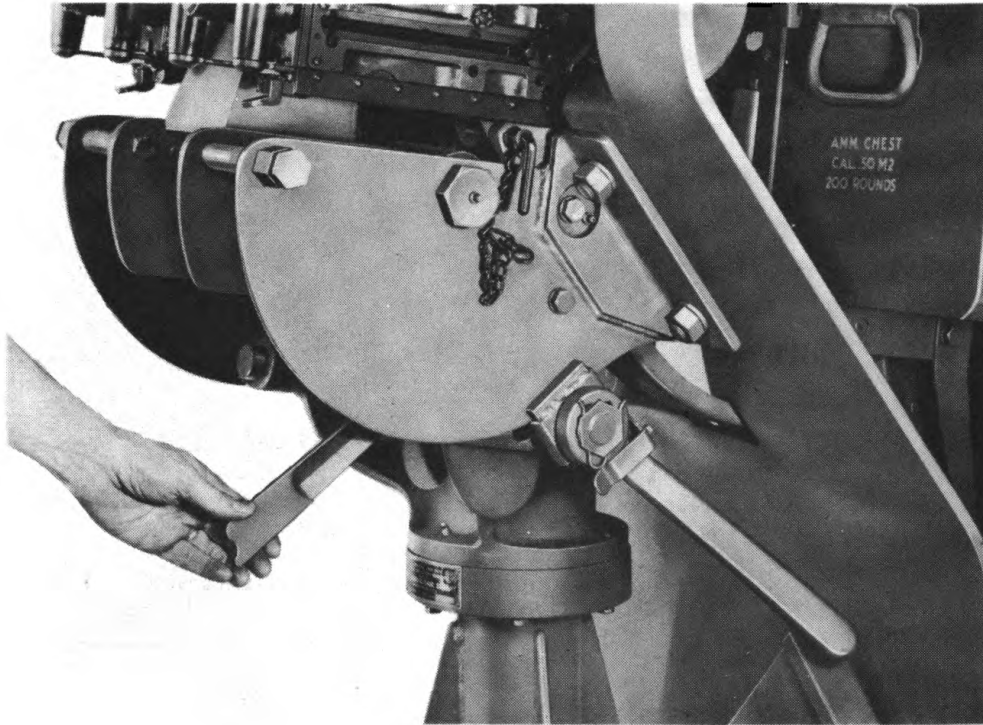
II. OPERATIONS.

a. Removal of Shipping Lock.

(1) **THIS OPERATION MUST BE DONE ONLY AFTER THE GUNS HAVE BEEN MOUNTED.** The shipping lock must engage the side plate spacer bolt (fig. 21).

(2) See that the block nut clamping handle is down. Depress the muzzle end of the gun and disengage the shipping lock from the side plate spacer bolt (fig. 22). Remove the shipping lock completely from the pedestal socket.

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Figure 22 — Disengaging Shipping Lock from Side Plate Spacer Bolt of Mount M46

b. Elevation and Traverse of Mounts M39, M43, and M46.

- (1) Rotate the block nut clamping handle down and forward, to free the mount for elevation and traverse (fig. 23).
- (2) Maneuver the gun in elevation and traverse by pressing the shoulders against the shoulder brace frames and with the hands on the spade grips.
- (3) To lock the gun at any point in elevation, rotate block nut clamping handle to the rear and upward in an arc of about 150 degrees.

c. Elevation and Traverse of Mount M41.

- (1) To elevate or depress the main tube with cradle and gun, squeeze the cable operating lever and move the main tube through the desired angle. Make certain the latch tube hub pins engage the teeth on the quadrants before releasing pressure on the cable operating lever.
- (2) To traverse the main tube with cradle and gun, squeeze the cable operating lever to unlock the revolving ring and rotate the mount through any desired angle. Make certain the latch tube hub pins engage the teeth on the quadrants before releasing pressure on lever.

OPERATION AND ADJUSTMENTS

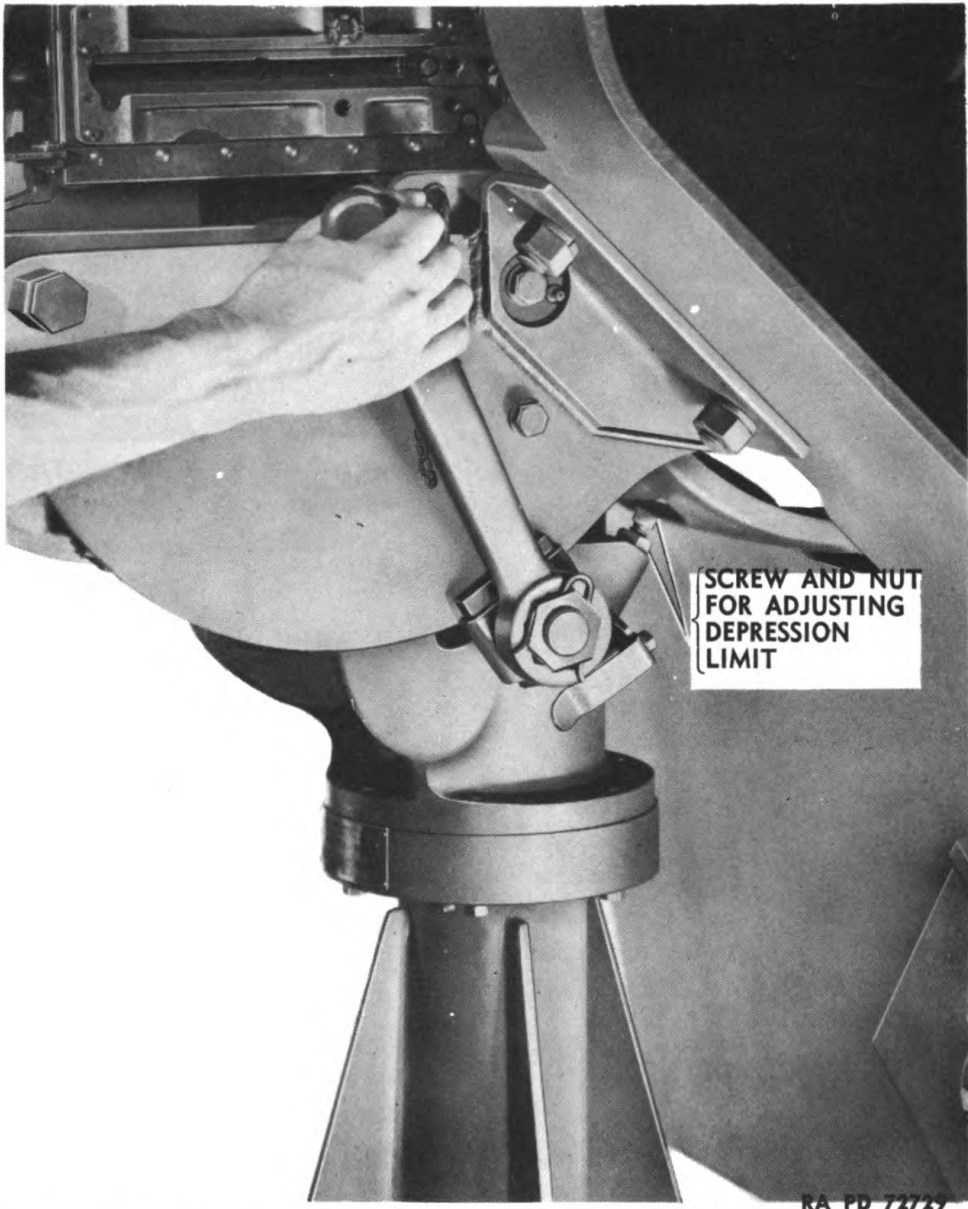


Figure 23 — Releasing Block Nut Clamping Handle of Mount M46

(3) The cradle and gun can also be elevated and traversed independently of the mount.

d. **Elevation and Traverse of Mount M40.** Grasp the machine gun grip and elevate or traverse the mount through the desired range.

12. ADJUSTMENTS.

a. **Adjustment of Back Strap.**

(1) To adjust the length of the back strap to suit the individual gunner, thread the shank of the hook through one of the oblong links

MACHINE GUN MOUNTS FOR BOATS

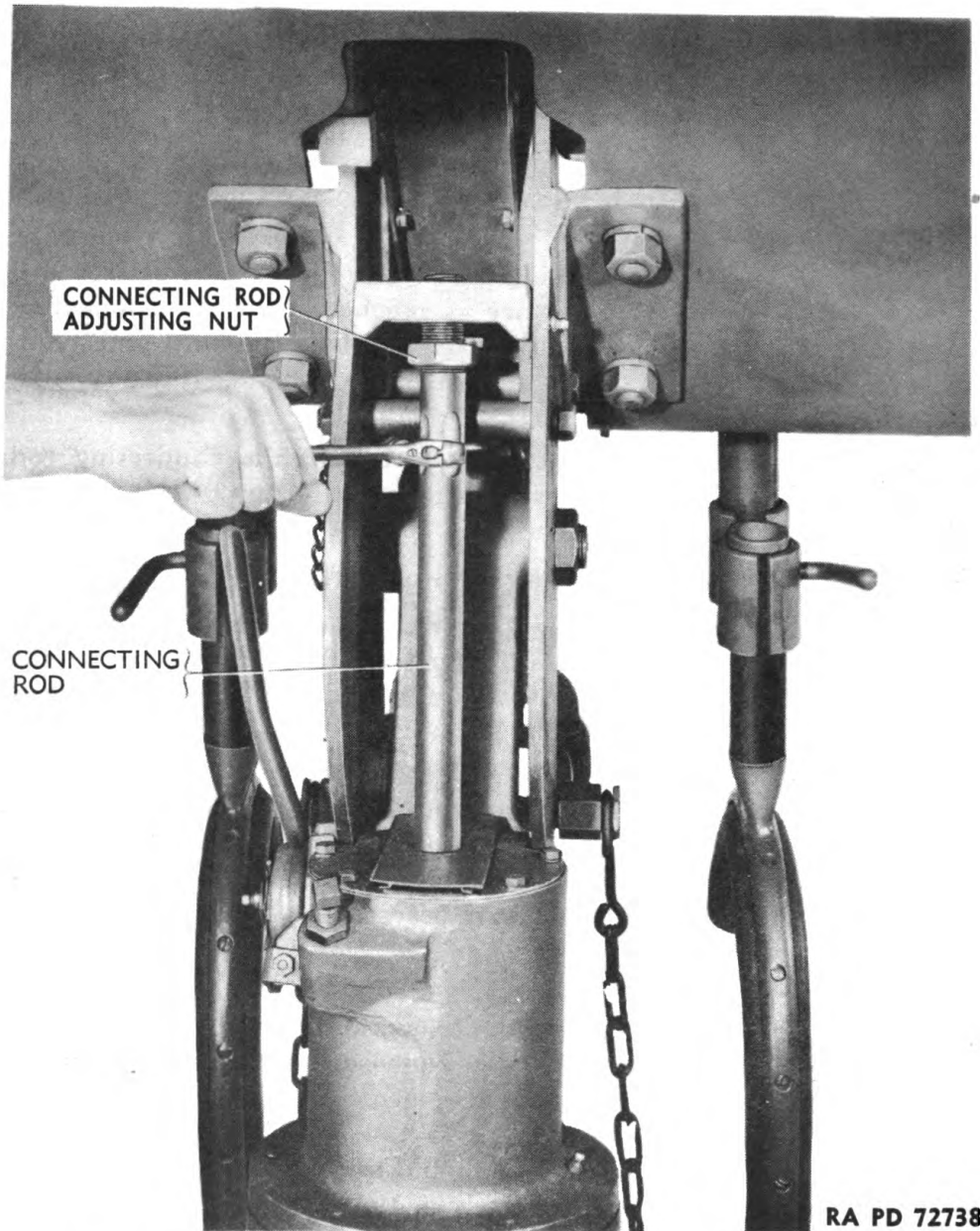


Figure 24 – Adjusting Counterbalance Spring Tension of Mounts M39 and M43

of the chain, and then to the side plate spacer bolt nut on the rear of the side plate.

(2) One or both of the chains may be shortened in this manner.

b. Adjustment of Depression Limit. To prevent the mount from being depressed below the safe angle determined by the requirements of the installation, adjust the nut on the screw located on the right side of the socket (fig. 23).

OPERATION AND ADJUSTMENTS

c. Adjustment of Counterbalance Spring Tension.

(1) The cradle and shield can be equilibrated readily by adjusting the tension of the counterbalance spring.

(2) Release the connecting rod adjusting nut on the connecting rod.

(3) Turn the rod, by hand or with a wrench on flats, to the right to make the muzzle heavy, or to the left to make breech heavy (fig. 24).

(4) When the desired balance is reached, turn the connecting rod so that the lubrication fitting on the rod faces forward and available for lubricating gun. Then tighten the connecting rod adjusting nut.

CAUTION: On the Mounts M39 and M43 the connecting rod must not protrude more than $\frac{1}{2}$ inch beyond the top of the counterbalance connecting rod crosshead.

d. Adjustment of Block Nut Clamping Handle.

(1) MOUNTS M39 OR M43 (fig. 8). Remove the brake handle locking spring from the side plate clamping block nut on the cradle clamp shaft. Tighten the handle partially, remove it, and replace it in original position on block nut. Replace the locking spring. Repeat operation if necessary in order to get the right adjustment.

(2) MOUNT M46 (fig. 9). Back off the two nuts on the left side of the cradle clamp shaft. Pull up the block nut clamping handle and tighten the nuts on the shaft. Test functioning of the clamping handle with gun in elevation and readjust if necessary.

13. DISMOUNTING AND REPLACING THE MACHINE GUNS.

a. Set the mount at maximum elevation and lock it securely with the block nut clamping handle. Release the connecting rod adjusting nut on the connecting rod, and turn the rod to the right until the nut reaches the crosshead so as to make the muzzle heavy. Set the mount in horizontal. Two men should hold down the shield while two other men remove the gun locking pins and dismount the gun from the mount.

b. With the mount in horizontal position and two men holding down the shield, replace the gun and secure it with the locking pins. Release the hold on the shield. Turn the connecting rod to the left to make the breech heavy. Make certain the lubrication fitting on the rod is accessible to the oil gun. Tighten the connecting rod adjusting nut. Release the block nut clamping handle and set the mount in horizontal.

NOTE: The guns should be dismounted only for replacement and not for ordinary cleaning and lubrication.

MACHINE GUN MOUNTS FOR BOATS

Section IV

CARE AND PRESERVATION

	Paragraph
General	14
Cleaning of components received from storage.....	15
Care before, during, and after combat operations.....	16
Care in tropical climates.....	17
Care in arctic climates.....	18

14. GENERAL.

a. Proper functioning and accuracy of firing depend to a large extent on care, cleaning, and oiling of the mount. All the operating parts should be checked daily for cleanliness and lubrication.

15. CLEANING OF COMPONENTS RECEIVED FROM STORAGE.

a. Components which have been received from storage and are covered with COMPOUND, rust-preventive, should be cleaned with SOLVENT, dry-cleaning. Apply the solvent with rag swabs. Take

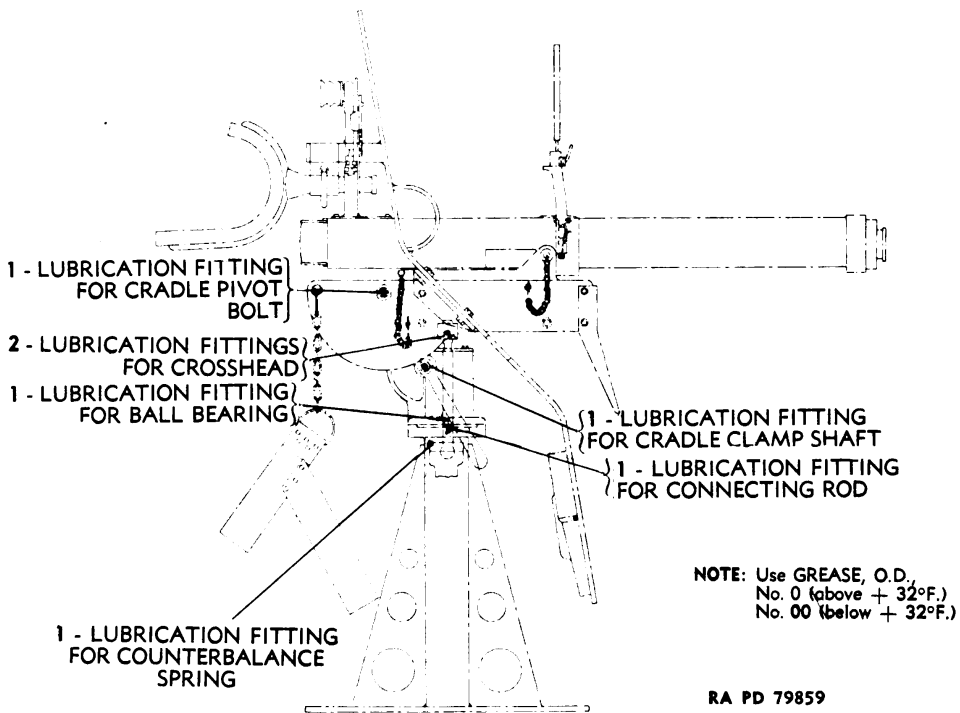


Figure 25 - Lubrication Guide for Mounts M39 and M43

CARE AND PRESERVATION

care to remove all traces of the compound from all recesses in which springs or plungers operate. After removing all traces of the compound, allow the parts to dry, and then wipe with a clean dry rag.

16. CARE BEFORE, DURING, AND AFTER COMBAT OPERATIONS.

a. Care and cleaning before combat operations include care of the mounts necessary to preserve their condition and appearance during periods when no firing is being done. Mounts should be inspected daily for proper condition and cleanliness. Remove all dirt and rust from the mounts, and wipe with a cloth oiled with OIL, lubricating, preservative, light, above zero degree F, or OIL, lubricating, preservative, special, below zero degree F. Clean all unpainted metal parts thoroughly, and wipe with an oiled cloth. In case of rain, snow, or dust storm, keep the machine guns covered with the gun cover.

b. During lulls in combat operations, clean the mount as described in subparagraph a above. In addition, keep all moving parts lubricated. In particular, clean and lubricate the quadrant edges of the side plates of Mounts M39, M43, and M46, and also the revolving ring and the pivot points of the main tube. Clean all the lubrication fittings and lubricate the mount through all lubrication fittings shown in figures 25 and 26.

17. CARE IN TROPICAL CLIMATES.

a. In hot and tropical climates where salt air is present, the materiel should be inspected and cleaned frequently, when, and as required, rather than at fixed intervals. Clean and oil the materiel as soon as possible after firing, when wet or dirty, or if there is any reason to expect corrosion to start. In hot, but dry climates where sand or dust is prevalent, the unprotected parts of the materiel should be covered with tarpaulin or other suitable material. Oiling should be kept at a minimum because oil has a tendency to collect dust which acts as an abrasive. Use OIL, lubricating, preservative, light.

18. CARE IN ARCTIC CLIMATES.

a. In arctic climates, it is essential that all moving parts be kept absolutely free of moisture. Clean and lubricate the mount but do not use excess lubricant because it may solidify to such an extent as to cause sluggish movement.

b. The counterbalance spring and the ball bearings are packed with grease by the manufacturer. This grease has a useful temperature range down to minus 40 degrees. It is possible that in arctic climates the grease may solidify and cause sluggish movement or even complete failure. This will require a change of lubricant; however, only extended, and not temporary changes of climatic condi-

MACHINE GUN MOUNTS FOR BOATS

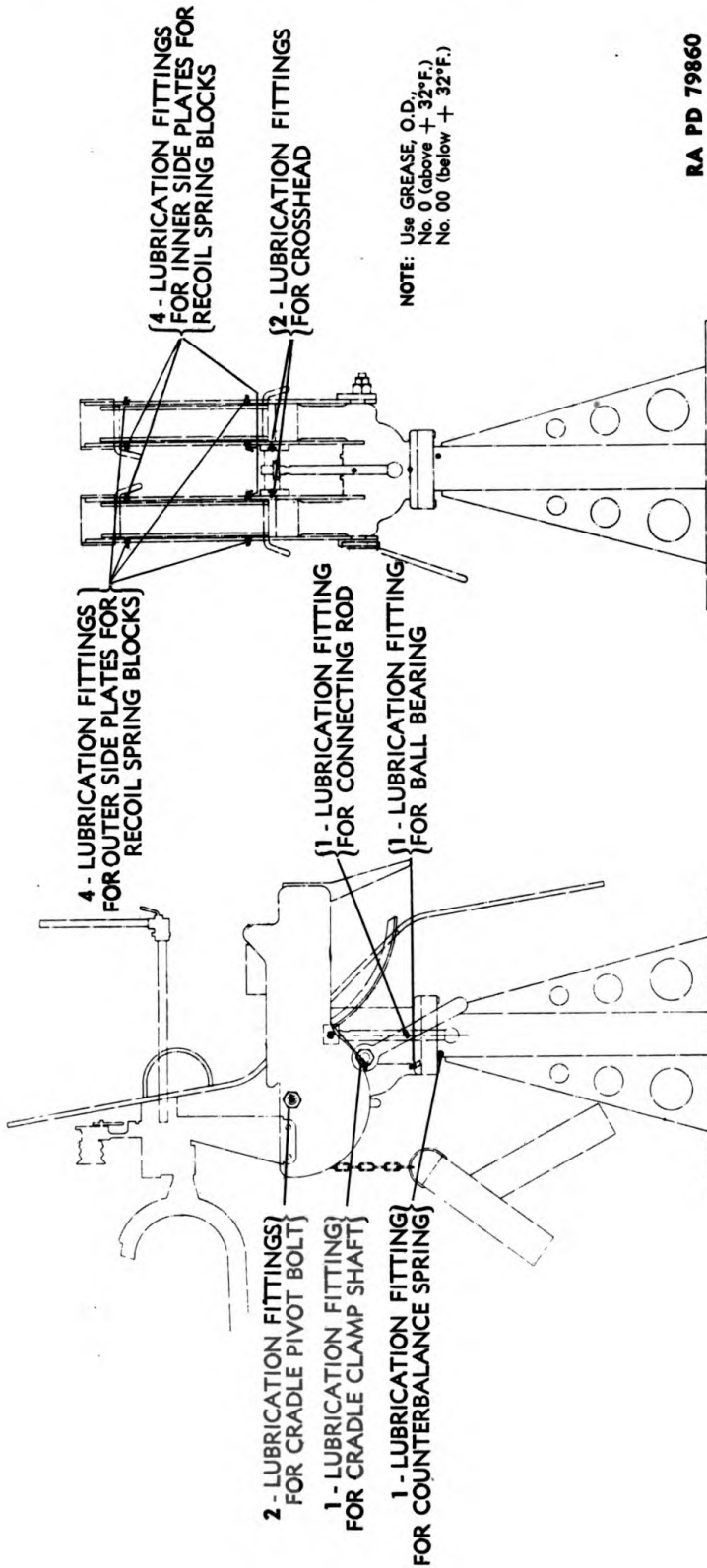


Figure 26 — Lubrication Guide for Mount M46

CARE AND PRESERVATION

tions warrant a change of lubricants. Ease of operation is the principal factor in determining when to change lubricants after a temperature drop.

c. If the mount does not operate properly due to solidification of the grease, remove the counterbalance spring and ball bearings, and degrease them with SOLVENT, dry-cleaning, and wipe with a clean dry cloth. Then pack the spring and ball bearings with GREASE, O.D., No. 00. For procedure to replace the spring and bearings, see paragraph 22 e and f.

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Section V

INSPECTION

	Paragraph
Purpose	19
Procedure	20

19. PURPOSE.

a. Inspection of your materiel is vital. Thorough systematic inspection at regular intervals is the best insurance against an unexpected breakdown at the critical moment when maximum performance is absolutely necessary. Never let your materiel run down; keep it in first class fighting condition by vigilant inspection and prompt maintenance.

b. Inspection is for the purpose of determining the condition of the materiel, whether repairs or adjustments are required, and the remedies necessary to insure serviceability and proper functioning. Its immediate aim is trouble prevention which includes preventive maintenance, inspection for any evidence of improper treatment of the materiel due to handling before delivery into your hands, and inspection for ordinary wear or defects of parts that may require replacement.

20. PROCEDURE.

a. **General.** The instructions for inspection are given as a unit for all the mounts listed in paragraph 1. Instructions which do not apply to the particular mount in question should, therefore, be disregarded.

b. Mount as a Unit.

(1) Check whether the mount is firmly secured to the deck; any looseness will cause vibrations and affect the accuracy of firing.

(2) Examine the mount for completeness and for the following loose parts:

(a) For the Mount M46: the canvas cover and also two front sight assemblies.

(b) For the Mounts M39 and M43: the canvas cover and also the front and rear sights with their supports.

(3) Check whether the name plates are properly secured and correctly labeled. Single mount with aircraft gun should be marked Mount M39 and with water-cooled gun Mount M43. Check if the reversible name plate on sight container is correctly positioned. When aircraft gun is used, the plate should read "air-cooled gun spring in place". When water-cooled gun is used, the plate should read "water-cooled gun spring in place".

INSPECTION

(4) Look into the recess at the bottom of the pedestal tube to check whether the right type of spring is in place. For the Mount M39 (aircraft gun), the spring is painted green; for the Mount M43 (water-cooled gun), the spring is painted black; and for the Mount M46 (water-cooled gun), the spring is painted yellow.

(5) Check the mount as a unit for condition, rigidity, or looseness of component assemblies. Check for welding defects. Note if lubricating gun is attached to pedestal. Check condition of grease fittings.

(6) Elevate and depress the mount through the full range and note any binding or sluggish movement.

(7) Rotate the mount through its full range and note any binding or sluggish movement.

(8) Rotate and elevate the machine gun and cradle on the Mounts M40 and M41 and note any binding or sluggish movement.

(9) Test the functioning of the block nut clamping handle.

(10) Test functioning of cable operating lever (Mount M41). Test functioning of cradle pintle lock of Mounts M40 and M41.

c. Shield Assembly.

(1) Examine the shield for sharp corners and defective welds.

(2) Note if the shoulder braces are firmly clamped to the shoulder brace extension tubes. Check if padding is loose.

d. **Cradle Assembly.** Check the cradle for loose parts such as cartridge case deflector, ammunition box support brackets, and cartridge case chute. Check whether gun pin locking screws are loose. Note whether recoil and counterrecoil springs are secured in position by the counterbalance spring guide caps. Check fit of ammunition box; it must be easily replaceable. Check whether cradle side plate stop is loose.

e. Pedestal and Socket Assemblies.

(1) Check functioning of cradle side plate stop and the screw which regulates limit of depression of cradle.

(2) Check functioning of the bumpers.

(3) Check for looseness of screws on lower end of socket.

(4) Test functioning of connecting rod and connecting rod adjusting nut.

f. Sight Assemblies.

(1) Check front sights for loose parts.

(2) Check rear sights for loose and broken parts. Move one and then the other lens retainer into position and note functioning of lens retainer springs.

MACHINE GUN MOUNTS FOR BOATS

Section VI

MAINTENANCE AND REPAIR

	Paragraph
General	21
Preventive maintenance	22
Replacement of worn or broken parts.....	23

21. GENERAL.

a. The instructions for maintenance and repair are given as a unit for all mounts listed in paragraph 1. Instructions which do not apply to the particular mount in question should therefore, be disregarded. The immediate aim of these instructions is trouble prevention, which includes preventive maintenance and replacement of worn or broken parts.

22. PREVENTIVE MAINTENANCE.

a. **General.** Tighten all bolts, nuts, and screws to prevent their becoming loose in service. This should be done periodically when the mount is in use. Remove all dirt and rust from the mount. Clean all lubrication fittings and passages, making certain that all dirt and metal chips have been cleaned out. Clean all contacting surfaces.

b. Adjustment of Cradles of Mount M46 in Horizontal Plane.

(1) Set the mount in horizontal.

(2) Set up a smooth target surface at a distance of 25 feet, with the center about 5 feet in height.

(3) Mount the guns on the mount. Remove the spade grips with back plate and the driving spring. Pull back on the handle far enough to remove the bolt handle or pin and then withdraw the bolt assembly. This leaves the receiver open so that a sight may be taken through the gun bore.

(4) Set one gun at right angles to the target. Sight through the barrel of one of the machine guns and place a cross mark on the target to indicate alinement of center of bore.

(5) Lock the mount in elevation by using a C-clamp or other means.

(6) Rotate the guns about 180 degrees in traverse and sight at same mark through the muzzle end of the barrel.

(7) Make the adjustments until the mark is sighted from each end of barrel.

(8) Bring the other gun into same horizontal position by loosening the nut below side plate crosshead and tightening the nut above crosshead.

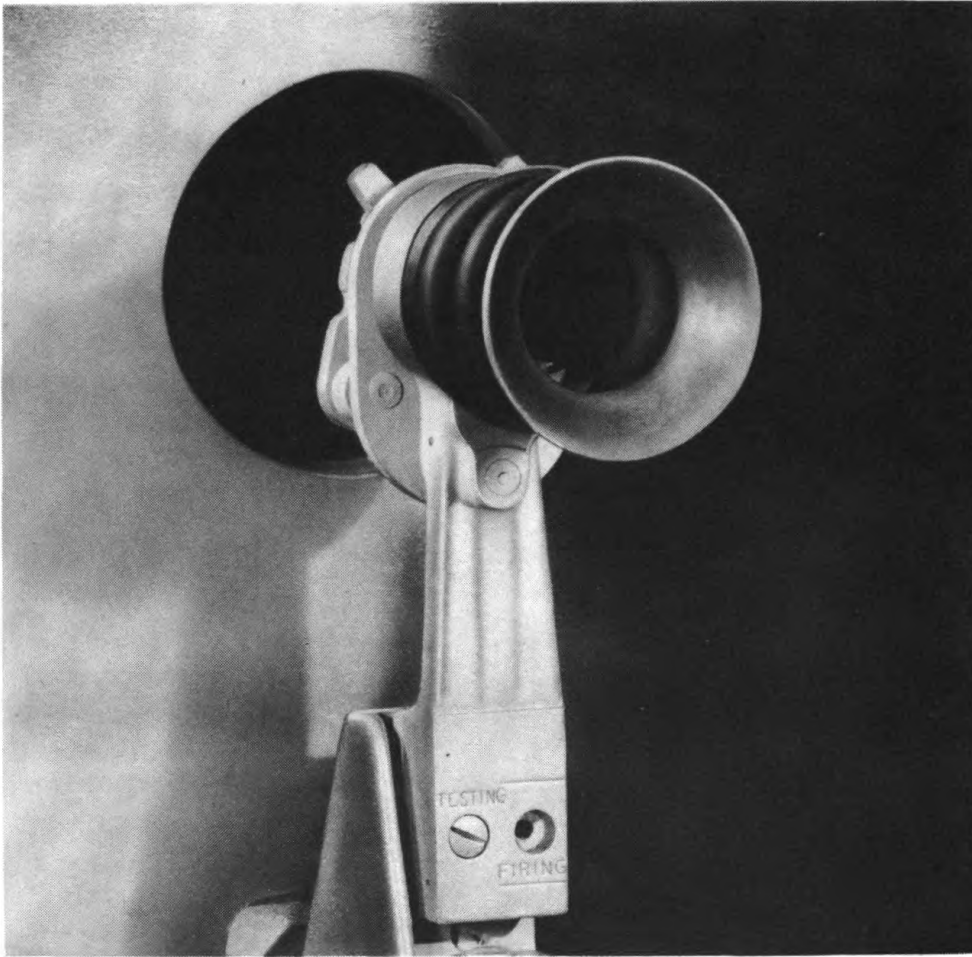
MAINTENANCE AND REPAIR



RA PD 72741

Figure 27 — Rear Sight Connections

MACHINE GUN MOUNTS FOR BOATS



RA PD 72746

Figure 28 — Rear Sight in Position for Adjustment

(9) Sight through gun barrel successively from each end, using same mark on target surface used in sighting first gun.

CAUTION: Do not release cradle in elevation while sighting the second gun.

(10) When all four positions of target sighting coincide, tighten the nuts below side plate crossheads to hold cradles in position.

(11) Replace gun parts unless sights are to be adjusted as described in following paragraphs.

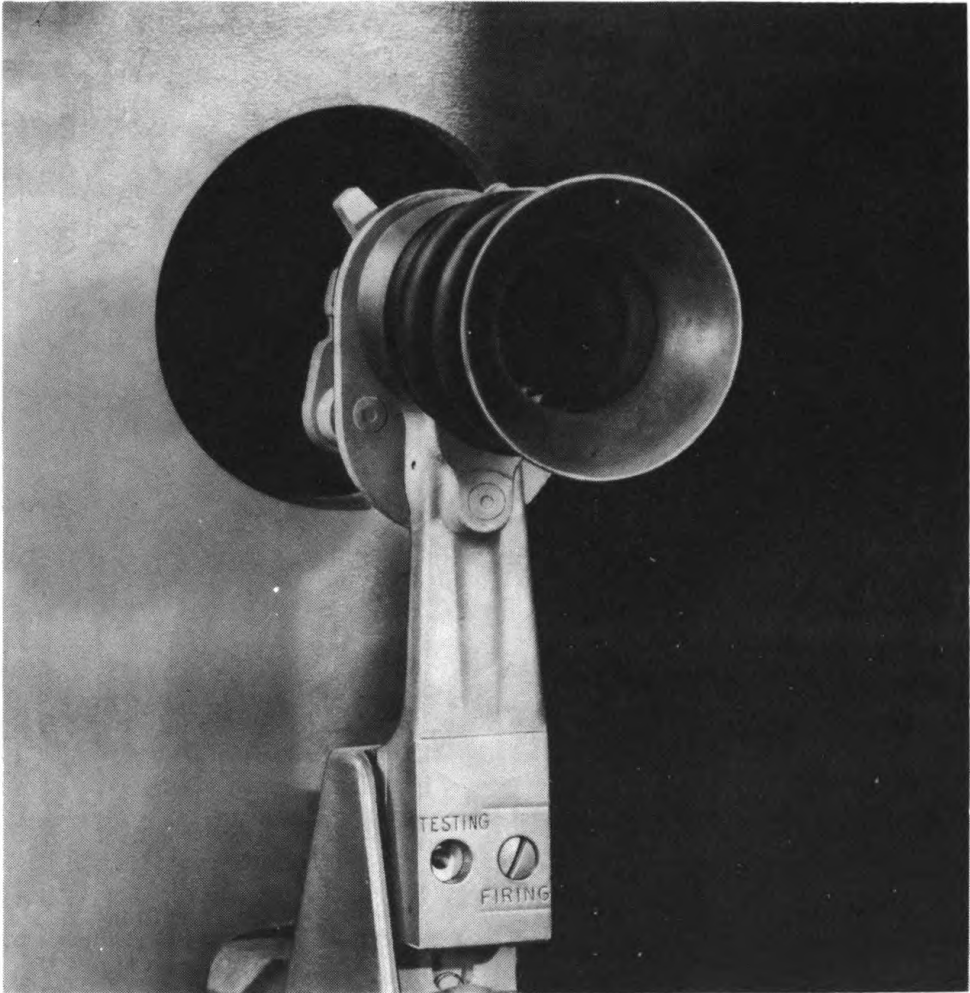
c. Adjustment of Sights on Mount M46.

(1) Bring cradles into same horizontal plane as described in subparagraph b above.

(2) Set the mount level.

(3) Erect an upright target surface, centered 5 to 6 feet in height, at exactly 25 feet through the mount from rear sight ring wire, and at

MAINTENANCE AND REPAIR



RA PD 72745

Figure 29 — Rear Sight in Position for Firing

right angles to a line from the center of the mount to the middle of the target.

(4) Set elevation so that the gun bores are approximately at right angles to a line from the center of the mount to the middle of the target and then lock the mount. Sight through gun barrels and mark the centers of both gun bores on target surface. Connect both centers with horizontal line; then erect a perpendicular at the midpoint of this line. Locate an intersection mark on the perpendicular line $15 \frac{21}{32}$ inches above the horizontal line.

(5) Loosen the upper two cap screws on the rear sight base (fig. 27) but keep sufficient tension on screws to hold the surfaces of the rear sight base guide together. Then insert and tighten the screw in hole of rear sight housing marked "TESTING" (fig. 28).

MACHINE GUN MOUNTS FOR BOATS

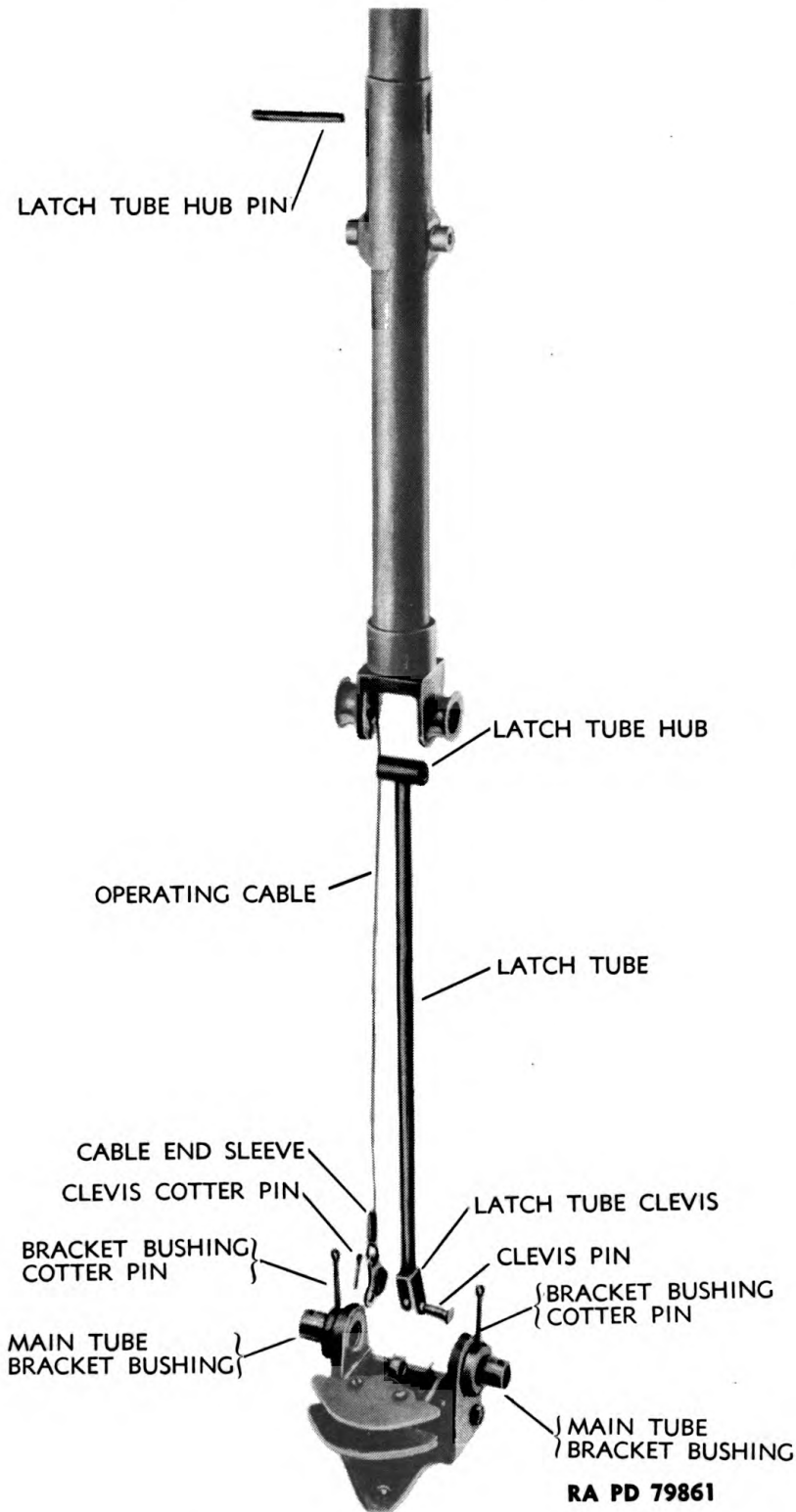


Figure 30 — Main Tube Bracket and Latch Group of Mount M41

MAINTENANCE AND REPAIR

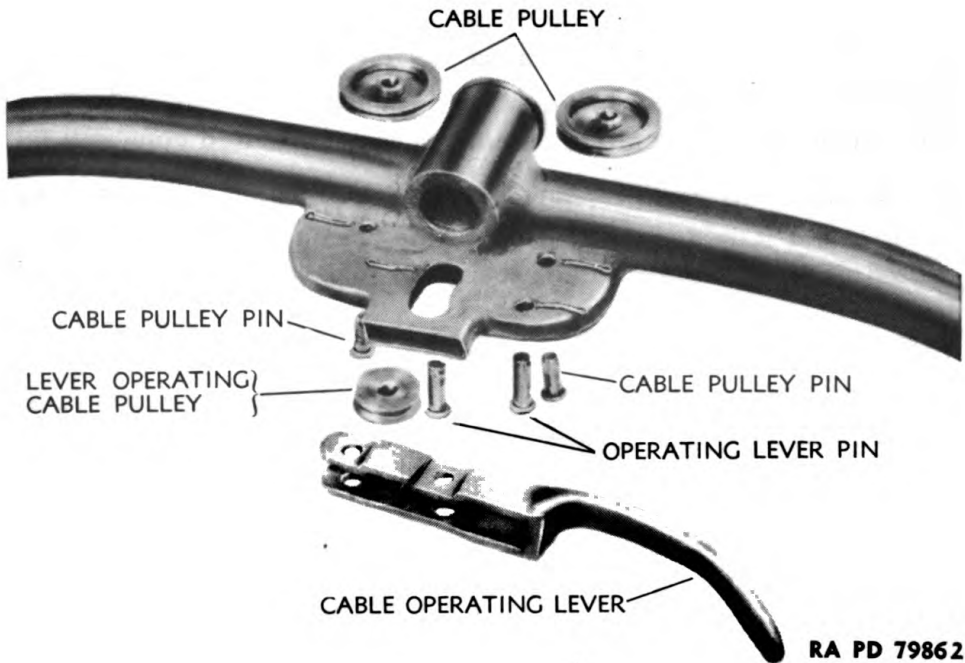


Figure 31 – Cable Operating Lever Group of Mount M41

(6) Assemble front sight to the shaft and tighten with clamping handle.

(7) Loosen bottom cap screw on rear sight base (fig. 27), holding sufficient tension with the screw to keep the surfaces of the rear sight base and guide together.

(8) Coincide the rear and front sight center ring wires with the upper mark on the target (step (4) above) by adjusting rear sight in vertical position by means of the rear sight housing adjusting screw (fig. 27). Then tighten the lower cap screw on the rear sight base.

(9) Remove the screw from the hole marked "TESTING" and screw it into hole marked "FIRING" (fig. 29). Tighten the upper two cap screws on rear sight base.

d. Adjustment of Sights on Mounts M39 and M43. Procedure is same as for the Mount M46 except that only one gun barrel is used.

e. Removal of Counterbalance Spring When Guns Are Mounted.

- (1) Set the mount at maximum elevation and lock it securely.
- (2) Remove the screws from the pedestal socket cover plate.
- (3) Back off connecting rod adjusting nut one turn and unscrew the connecting rod completely from the crosshead.

MACHINE GUN MOUNTS FOR BOATS

(4) Remove the connecting rod assembly with the pedestal socket cover plate.

(5) Remove the counterbalance spring from the pedestal.

CAUTION: While the spring is not in place in the pedestal, do not release the block nut clamping handle as the cradle and guns will fall.

f. Removal of Counterbalance Spring (When Guns Are Not Mounted). If it is desired to change the spring before the guns are mounted and while the shipping lock is in place, the procedure below is followed:

(1) Release the block nut clamping handle.

(2) Two men pull down on shield until the shipping lock is disengaged from side plate spacer bolt and drops to a hanging position. While maintaining firm pressure on the shield, slowly allow the shield to rise to an elevation of approximately 30 degrees. Then the two men lift the shield to the maximum elevation and a third man tightens the block nut clamping handle to secure the mount in that position.

(3) Remove the screws from the pedestal socket cover plate.

(4) Back off the connecting rod nut one turn and unscrew the connecting rod nut completely from the crosshead.

(5) Remove the connecting rod assembly with the pedestal socket cover plate.

(6) Remove counterbalance spring from the pedestal.

CAUTION: While the spring is not in place in the pedestal, do not release the block nut clamping handle as the cradle and guns will fall.

g. Replacement of Counterbalance Spring.

(1) Insert the spring into pedestal tube. Then insert connecting rod assembly into the pedestal.

(2) Push down on connecting rod to depress the spring and permit entry of threaded end of connecting rod into threaded hole of crosshead. Care should be taken not to cross the threads. Screw the connecting rod well into the crosshead, making certain the lettering on crosshead faces operator.

(3) Replace the pedestal socket cover plate with the screws.

(4) Release the block nut clamping handle.

(5) Make certain that the connecting rod adjusting nut does not strike sliding top of pedestal socket cover plate at low elevation.

(6) Adjust compression of spring after gun and loaded ammunition chests are mounted.

(7) Pack spring and pedestal tube with grease through grease fitting on tube.

MAINTENANCE AND REPAIR**h. Removal of Ball Bearing Assembly.**

(1) Fix a sling approximately 10 feet long through the sight hole in the shield and under forward end of cradle, behind the cartridge case deflector. Hold the cradle and shield at an angle of about 45 degrees.

CAUTION: Take care that the sling does not damage the sight.

(2) Support the ball bearing housing on pedestal tube so that it cannot drop by clamping blocks to the pedestal tube ribs. Remove the six screws from the bearing housing.

(3) Lift the shield, cradle, and socket from pedestal with a hoist or jib.

(4) Remove the split ring bearing retainer by inserting the bit of a screwdriver or similar tool into the slot of the retainer. Twist the tool to expand the ring. Place shims between retainer and pedestal tube so that retainer may be slid up and off the tube.

(5) Remove the upper inner and outer bearing rings, using a bladed tool.

CAUTION: Bearing rings have hardened surfaces: Do not scratch surfaces because it will affect ease of rotation of mount.

(6) Remove the 34 ball bearings and the lower inner and outer bearing rings. Remove bearing housing.

i. Replacement of Bearing Housing.

(1) See that all parts are completely clean and full of grease. There must be no grease between bearing rings and tube or between retainer and tube.

(2) Make certain that the felt seal in the bottom of the bearing housing is in place and protrudes from its seating.

(3) Replace the lower inner and outer bearing rings into the housing.

(4) Replace ball bearings.

(5) Replace the upper inner and outer bearing rings into housing.

(6) Replace the split ring bearing retainer by spreading it just enough to slide it over the tube.

(7) Lower the shield, cradle, and socket into position on the pedestal, making certain that the name plate on the bearing housing is under rear end of cradle.

(8) Replace the six screws in bearing housing. Draw screws slowly and evenly into moderate tightness and tighten further with equal pressure.

(9) Remove the blocks which hold housing in place.

(10) With mount unlocked, remove the hoisting sling.

(11) Pack bearing thoroughly with grease through grease fitting on lower flange of socket.

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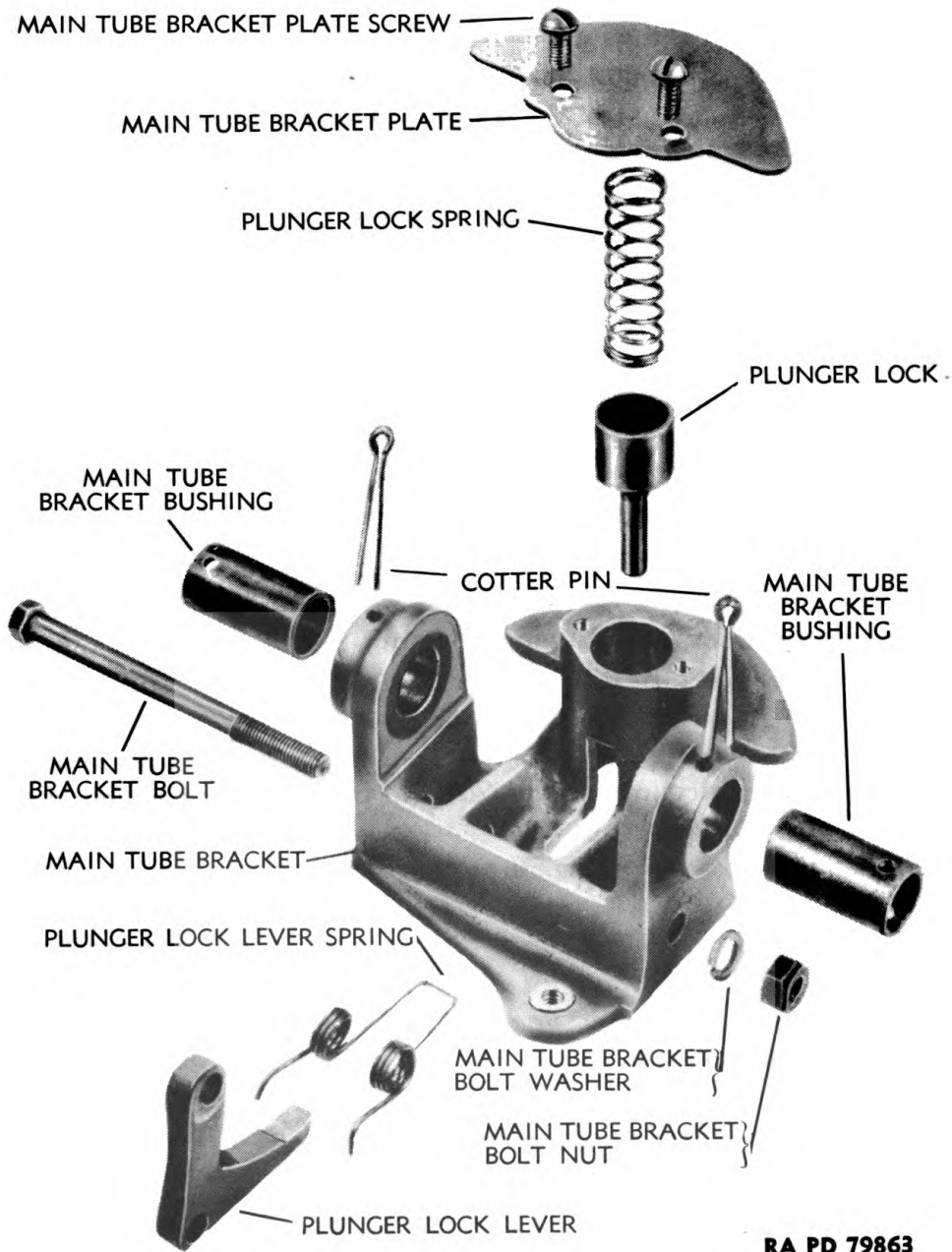


Figure 32 — Main Tube Bracket and Plunger Lock Group of Mount M41

MAINTENANCE AND REPAIR

(12) Test mount for free motion in traverse and correct any uneven tightness in housing bolts.

23. REPLACEMENT OF WORN OR BROKEN PARTS.

a. The design and construction of the Mounts M39, M43, and M46 are such that there will be a minimum of replacement of parts worn or broken by ordinary usage. However the following points should be noted at frequent intervals:

(1) If the bumpers on the socket of the Mount M46 do not function properly, replace the bumper springs.

(2) If the cradle side plate stop is broken or missing, it should be replaced. Similarly, if the screw on the socket, which serves to adjust the depression limit, is broken, it should be replaced.

(3) If the front sights are bent or broken, they should be replaced. Similarly, broken lens of the rear sight should also be replaced. Broken or worn lens retainer springs should be replaced.

b. The design of the Mount M41 is such that replacement of worn or broken parts requires disassembly of the mount. Disassemble the mount as follows:

(1) Remove the main tube bracket bushing cotter pins and the bushings (fig. 30).

(2) Remove the clevis cotter pin and clevis pin (fig. 30).

(3) Remove the cotter pins and then the cable pulley pins and operating lever pins. Withdraw the cable operating lever and the three pulleys (fig. 31).

(4) Remove the main tube bracket bolt nut and washer (fig. 32). Hold the plunger lock lever in position on the bolt and remove the bolt.

(5) Remove main tube bracket plate and withdraw the plunger lock, spring, and washer (fig. 32).

c. If operation of the cable operating lever does not disengage the mount from the fixed ring, it may be due to any of the following parts being broken or worn:

(1) Operating cable.

(2) Cable end link.

(3) Plunger lock.

(4) Plunger lock lever spring.

(5) Plunger lock lever.

d. Replace the broken or worn part. If the soldered joint of the cable is ruptured, it should be resoldered.

e. If the mount cannot be locked in traverse, replace the plunger lock spring.

f. If the elastic cord is torn or so worn that it does not support the main tube with the cradle and gun, it should be replaced.

MACHINE GUN MOUNTS FOR BOATS

Section VII

ORGANIZATIONAL SPARE PARTS AND ACCESSORIES

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Organizational spare parts.....	24
Accessories	25

24. ORGANIZATIONAL SPARE PARTS.

a. A set of spare parts is supplied to the using arms for field replacement of those parts most likely to become broken, worn, or otherwise unserviceable. The set should be kept complete at all times by requisitioning new parts for those used. Try each part as soon as practicable after received, to see that it fits the materiel properly. Replace any parts which do not function properly. For listing of organizational spare parts for the Machine Gun Mounts M39, M40, M41, M43; and M46, see pertinent Standard Nomenclature List.

b. Care of spare parts is covered in the section IV of this manual.

25. ACCESSORIES.

a. Accessories include the tools and equipment required for such disassembly and assembly as the using arms are authorized to per-

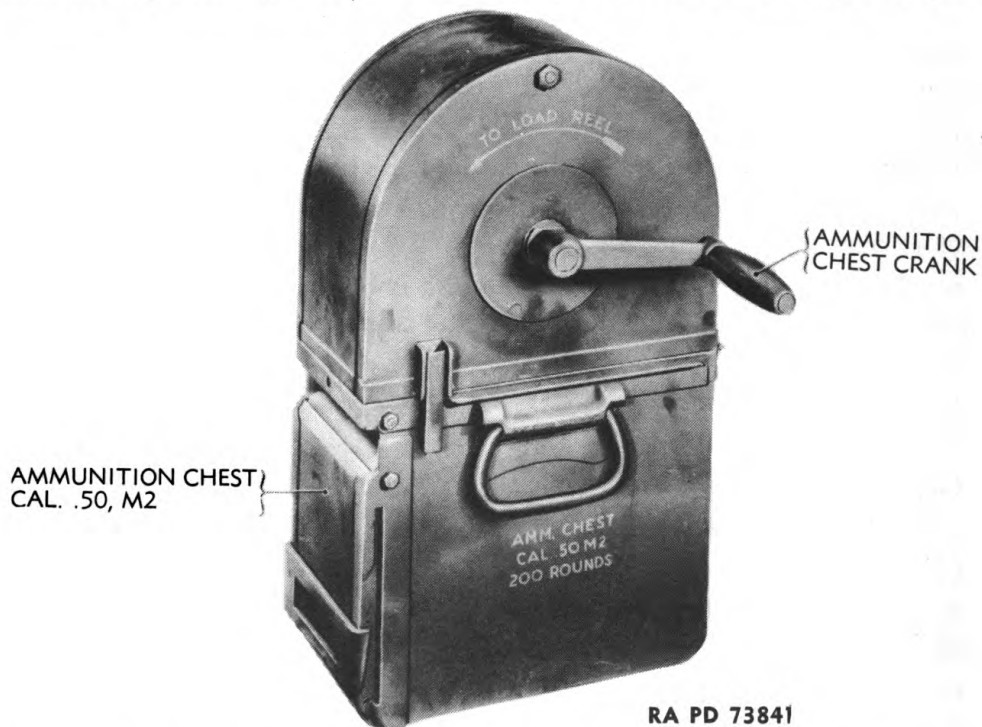


Figure 33 — Accessories for Cal. .50, Machine Gun, Pedestal Mounts M39, M43, and M46

ORGANIZATIONAL SPARE PARTS AND ACCESSORIES

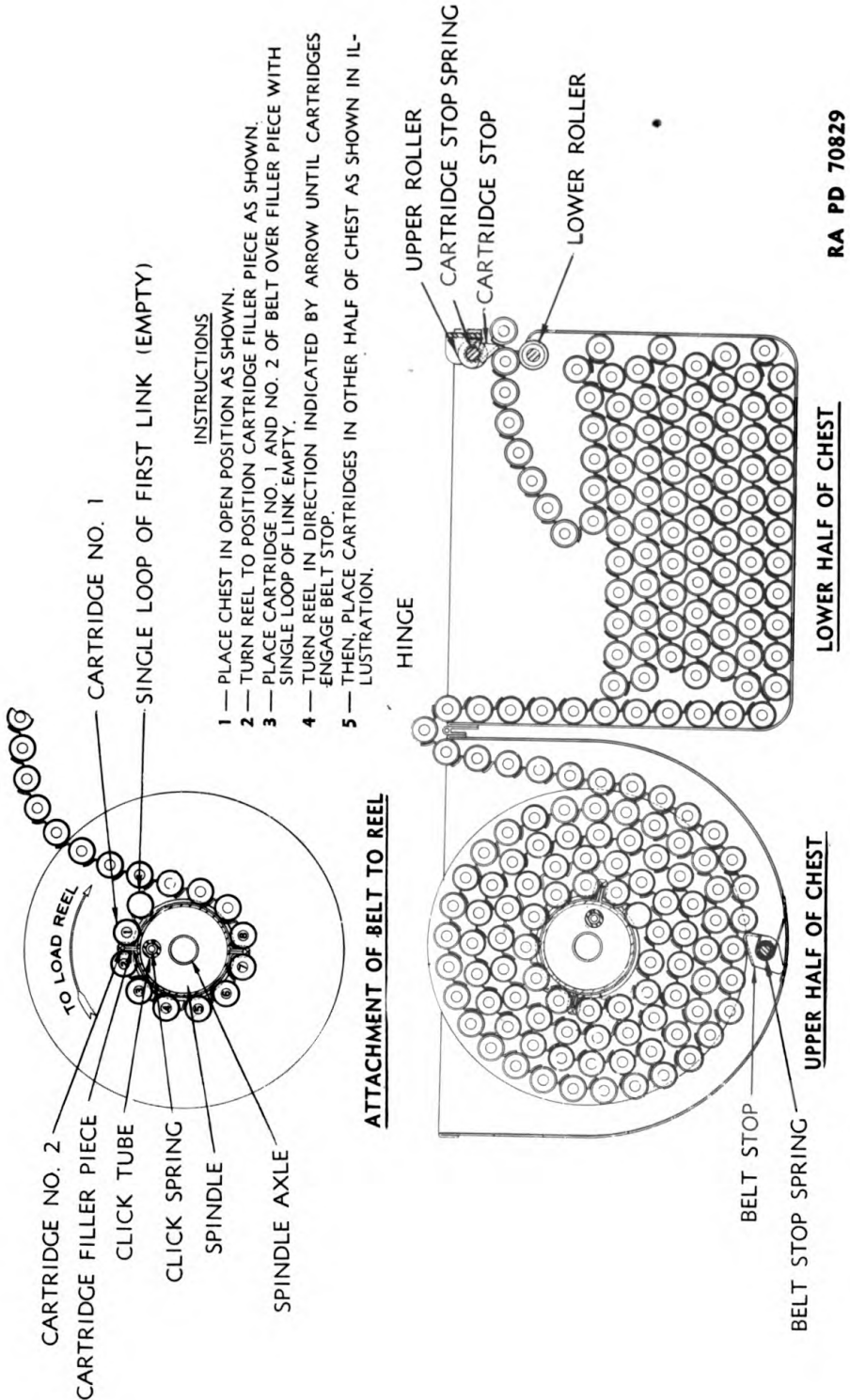
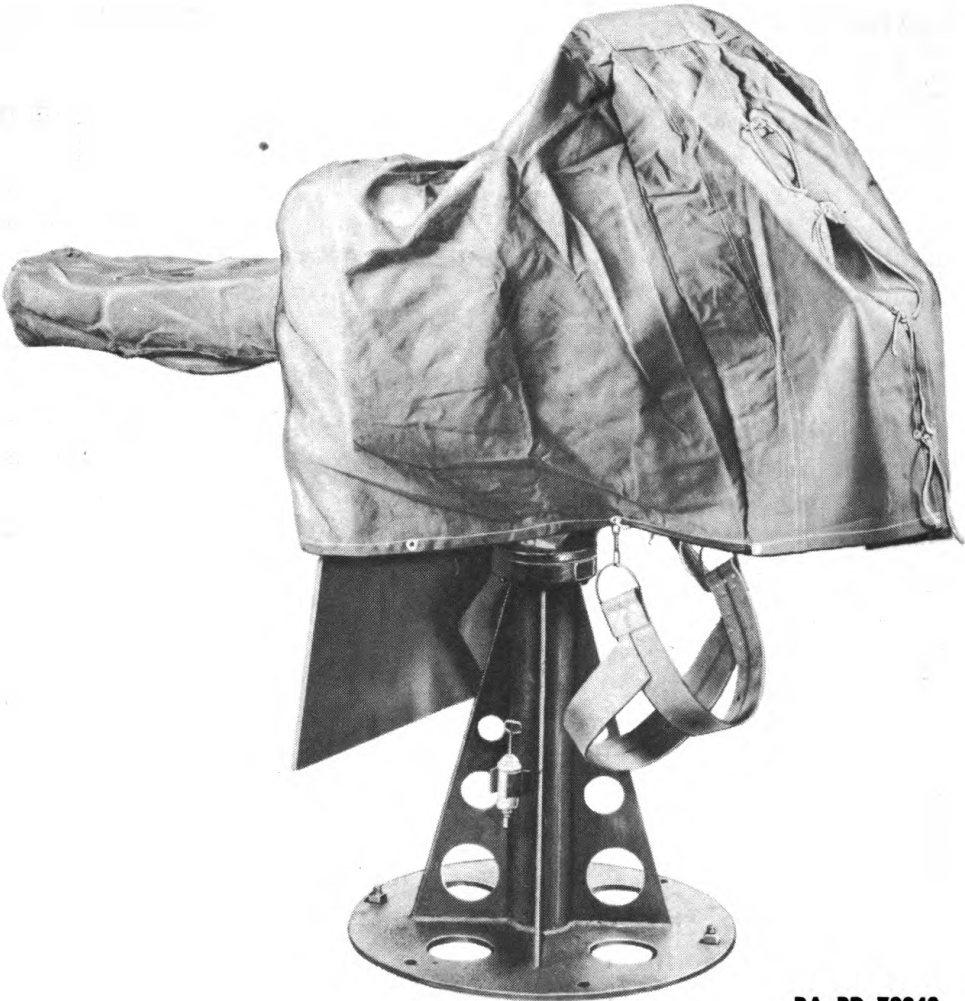


Figure 34 — Method of Filling Ammunition Chest, Cal. .50, M2 — Right Side Sectional View

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RA PD 73843

Figure 35 — Canvas Cover for Twin Cal. .50, Machine Gun, Pedestal Mount M46

form, and for cleaning and preserving the mounts. Accessories should not be used for purposes other than those prescribed, and when not in use should be properly stored.

b. There is a number of accessories, the names or general characteristics of which indicate their use. Others, embodying special features or having special uses, are described in subparagraph c, below.

c. Accessories for Cal. .50 Machine Gun Mounts M39, M43, M41, and M46.

(1) AMMUNITION CHEST, CAL. .50, M2.

(a) *General Description.* The ammunition chest (fig. 33) provides a convenient means of handling and feeding belted ammuni-

ORGANIZATIONAL SPARE PARTS AND ACCESSORIES

tion. The chest is attached to the mount by means of slots on the sides of the chest. A removable crank (fig. 33) is provided for use in loading the chest. The chest is made of steel and equipped with a hinge so that the upper half may be swung back for purposes of filling and cleaning. Latches are provided for locking the upper half in place. The upper half is provided with a spindle (reel) with fins, which is rotated by the removable crank, and a cartridge filler piece located around the spindle and mating with the fins. The lower half is provided with rollers to facilitate feeding, and a spring-operated stop to prevent the ammunition belt from dropping back when the tension is released.

The upper half is also provided with a spring-operated stop to hold the belt on the reel while closing the chest.

(b) *Method of Filling Chest* (fig. 34). Lock the cartridge filler piece in place over the projecting fins on the spindle by means of the set screw in the filler piece. (The position of the filler piece on the spindle is dependent upon whether left- or right-hand feed is contemplated, so as to engage the bullet end of the cartridge. For left-hand feed, the filler piece should be positioned over the front fin, when the chest is mounted.) Place the open single loop end of the ammunition belt over cartridge filler piece so that the fins on filler piece and spindle are between the first and second cartridges with the filler piece at the bullet end. Rotate the spindle in direction indicated by means of the crank. It may be necessary to hold the first layer of cartridges in place as the spindle is rotated. Fill the spindle to approximately the height of upper half of the chest, so that the belt stop engages and holds the belt. Pass the belt over hinge and down along back of lower half and along bottom of chest to the front. Then fill the lower half of the chest in layers until chest is filled to capacity (200 cartridges), and pass the first cartridge, seated in the *double loop* of the end link through the rollers when ready to load the gun. The points of the bullet should point to the front when chest is mounted.

(c) *Method of Adjustment of Spindle Tension*. The preferable tension on new chests is between 5 and 7 pounds when applied at the crank handle. A tension of 7 pounds is specified as chests will work at a somewhat reduced load after they have been worked in. To obtain the proper tension of 7 pounds proceed as follows: Insert crank in spindle axle and attach a spring scale or a 7-pound weight to the crank handle. Insert a screwdriver through the hole in side of chest and adjust the click tube adjusting screw until the desired tension is obtained when crank is in a horizontal position.

(2) **CANVAS COVERS**. This cover (fig. 35) is used when twin cal. .50 water-cooled or aircraft machine guns are mounted on the Twin cal. .50, Machine Gun, Pedestal Mount M46. These covers are

MACHINE GUN MOUNTS FOR BOATS



**Figure 36 — Canvas Cover for Cal. .50, Machine Gun,
Pedestal Mount M39 or M43**

constructed from weather-resistant olive-drab canvas material. Several pieces of heavy cord used to lace the rear and under side of the covers accompany the materiel. These covers are used to protect the guns and mounts when not in use or when traveling. This cover (fig. 36) is used when the cal. .50 water-cooled or cal. .50 aircraft machine gun is mounted on the cal. .50, Machine Gun, Pedestal Mount M39 or M43.

(3) 3-OUNCE PUSH-TYPE PRESSURE LUBRICATING GUN. This is a standard hand, push-type lubricating gun (fig. 36) used to lubricate the various lubrication fittings. When not in use or when traveling, the grease gun should be kept in its proper place (fig. 36) on the pedestal mount.

Section VIII

PAINTING

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General	26
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Painting metal surfaces.....	28
Paint as camouflage.....	29
Removal of paint.....	30

26. GENERAL.

a. Ordnance materiel is painted before issue to the using arms and one maintenance coat per year will ordinarily be ample for protection. With but few exceptions, this materiel will be painted with ENAMEL, synthetic, olive-drab, lusterless. The enamel may be applied over old coats of long oil enamel and oil paint previously issued by the Ordnance Department if the old coat is in satisfactory condition for repainting.

b. Paints and enamel are usually issued ready for use, and are applied by brush or spray. They may be brushed on satisfactorily when used unthinned in the original package consistency, or when thinned no more than 5 percent by volume THINNER. The enamel will spray satisfactorily when thinned with 15 percent by volume THINNER. (Linseed oil must not be used as a thinner since it will impart a luster not desired in this enamel.) If sprayed, it dries hard enough for repainting within 1/2 hour and dries hard in 16 hours.

c. Complete information on painting is contained in TM 9-850.

27. PREPARATION OF SURFACES FOR PAINTING.

a. If the base coat on the materiel is in poor condition, it is more desirable to strip the old paint from the surface than to use sanding and touch-up methods. After stripping, it will be necessary to apply a primer coat.

b. PRIMER, synthetic, rust-inhibiting, for bare metal, should be used on metal as a base coat.

c. The effectiveness of a painting job depends partly on the selection of a suitable paint, but largely upon the care used in preparing the surface prior to painting. All parts to be painted should be free of all extraneous matter such as rust, dirt, and grease, and must be dry.

28. PAINTING METAL SURFACES.

a. Metal parts in need of cleaning should be washed with a liquid solution consisting of 1/2 pound of SODA ASH, in 8 quarts of

MACHINE GUN MOUNTS FOR BOATS

warm water, or an equivalent solution, then rinsed with clear water and wiped thoroughly dry. If the materiel is in fair condition and marred only in spots, these places should be touched up with **ENAMEL**, synthetic, olive-drab, lusterless, and permitted to dry. The whole surface should then be sandpapered with **PAPER**, flint, class B, No. 1, and a finish coat of **ENAMEL**, synthetic, olive-drab, lusterless, applied and allowed to dry thoroughly before the materiel is used. If the equipment is in bad condition, all parts should be thoroughly sanded with **PAPER**, flint, class B, No. 2, or equivalent, given a coat of **PRIMER**, synthetic, refinishing, and permitted to dry for at least 16 hours. They should then be sandpapered with **PAPER**, flint, class B, No. 00, wiped free from dust and dirt, and given a final coat of **ENAMEL**, synthetic, olive-drab, lusterless, and allowed to dry thoroughly before the materiel is used.

29. PAINT AS CAMOUFLAGE.

a. Camouflage is now a major consideration in painting ordnance materiel with rust prevention secondary. The camouflage plan employed at present utilizes three factors: color, gloss, and stenciling.

(1) **COLOR.** Vehicles are painted with **ENAMEL**, synthetic, olive-drab, lusterless, which was chosen to blend reasonably well with the average landscape.

(2) **GLOSS.** The new lusterless enamel makes it difficult to see a vehicle from the air or from relatively great distances over land. A vehicle painted with ordinary glossy paint can be detected more easily and at greater distances.

(3) **STENCILING.** White stencil numbers on materiel have been eliminated because they can be photographed from the air. A blue-drab stencil enamel is now used which cannot be so photographed. It is illegible to the eye at distances exceeding 75 feet.

b. Preservation of Camouflage.

(1) Continued friction or rubbing must be avoided, as it will smooth the surface and produce a gloss. The materiel should not be washed more than once a week. Care should be taken to see that the washing is done entirely with a sponge or a soft rag. The surface should never be rubbed or wiped, except while wet, or a gloss will develop.

(2) It is desirable that materiel painted with lusterless enamel be kept as clean as that covered with glossy paint. A small amount of dust increases the camouflage value. Grease spots should be removed with **SOLVENT**, dry-cleaning. Whatever portion of the spot that cannot be so removed should be allowed to remain.

(3) Continued friction of wax-treated tarpaulins on the materiel will also produce a gloss which should be removed with **SOLVENT**, dry-cleaning.

PAINTING

(4) Tests indicate that repainting with olive-drab paint is necessary once a year and with blue-drab twice a year.

30. REMOVAL OF PAINT.

a. After repeated paintings, the paint may crack and scale off in places, presenting an unsightly appearance. If such is the case, remove the old paint with a lime-and-lye solution (see TF 9-850 for details) or with **REMOVER**, paint and varnish. It is important that every trace of lye or other paint remover be completely rinsed off, and that the equipment be perfectly dry before repainting is attempted. It is preferable that the use of lye solutions be limited to iron or steel parts. If used on wood, the lye solution must not be allowed to remain on the surface for more than a minute before it is thoroughly rinsed off and the surface wiped dry with rags. Crevices or cracks in wood should be filled with putty and the wood sanded before refinishing. The surfaces thus prepared should be painted according to directions in paragraph 27.

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Section IX

STORAGE AND SHIPMENT

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31. PREPARATION FOR SHIPMENT.

a. **General.** The preparation of the mounts for shipment and for storage is the same.

b. **Lubrication.** Lubricate all mounts as directed in the lubrication instructions section IV.

c. **Painting.** All painted surfaces that have become checked, pitted, or rusted, shall be thoroughly cleaned with CLOTH, abrasive, aluminum-oxide, removing all rust spots. Repaint clean surfaces, applying ENAMEL, synthetic, olive-drab, lusterless.

d. **Cleaning.** Clean all unpainted surfaces thoroughly with SOLVENT, dry-cleaning, or with soap solution as follows:

(1) Apply SOLVENT, dry-cleaning, by scrubbing with a brush or wiping with a clean saturated cloth.

(2) Apply soap solution by vigorously brushing or scrubbing the surfaces thoroughly until all traces of contamination have been removed. The surfaces shall then be rinsed with clean hot water, and dried thoroughly.

(3) Avoid contact of bare hands with the cleaned surfaces.

e. **Preservation of Mounts.**

(1) APPLICATION OF RUST-PREVENTIVES.

NOTE: Application of preventives shall be performed immediately after cleaning.

(a) Apply coating of COMPOUND, rust-preventive, thin film, to all unpainted surfaces of the mounts from which the compound can be removed without difficulty, and from those surfaces from which it is not necessary to be removed.

(b) COMPOUND, rust-preventive, light, shall be applied hot to all surfaces from which it would be difficult to remove the preventive.

(2) GENERAL INSPECTION. A systematic inspection shall be made prior to shipment or storage, listing all broken or missing items that are not repaired or replaced. Attach this list to the mount.

STORAGE AND SHIPMENT

32. CRATING OF MOUNTS.

a. **Construction.** Crating shall be in accordance with IOSSC-(a), Introduction to Ordnance Storage and Shipment Charts, Section (a), "Instructions and Specifications for Packaging Ordnance General Supplies."

	M39	M41	M43	M46
Length, O.D. (ft)	2.96	Note 1	2.88	2.88
Width, O.D. (ft)	3.10	Note 1	3.10	3.10
Height, O.D. (ft)	6.30	Note 1	6.30	6.30
Weight, un- crated (lb)	722	60	696	844
Weight, crated (lb)	941	Note 1	915	1063
Volume (cu ft)	57.9	Note 1	56.1	56.1
Ship ton	1.45	Note 1	1.40	1.40
Lining	Waterproof paper, type C (par. 32 b)	Waterproof paper, type C (par. 32 b)	Waterproof paper, type C (par. 32 b)	Waterproof paper, type C (par. 32 b)
Container type	Nailed wood Sheathed crate	Note 1	Nailed wood Sheathed crate	Nailed wood Sheathed crate

Note 1: Information not available.

b. **Waterproofing.** The crate shall be lined with an approved waterproof paper equal to type C which consists of two sheets of paper cemented together with asphaltum as specified in IOSSC-(a), Introduction to Ordnance Storage and Shipment Charts Section (a), "Instructions and Specifications for Packaging Ordnance General Supplies," so as to enclose the contents of the container completely, preventing direct entry of moisture. This paper shall be placed between the blocking and the inside faces of the box. Care shall be taken to puncture the paper as few times as possible.

33. STORAGE INSTRUCTIONS.

a. **Preparation.** The mounts shall be prepared for storage in the same manner as prescribed for shipment in paragraph 31.

b. **Inspection.** Periodical inspections shall be made of materiel while in storage. These inspections should note, among other things, condition of rust-preventives, missing parts, and required repairs. If mounts are found to be corroding in any part, they should be completely rust-proofed as prescribed in paragraph 31.

MACHINE GUN MOUNTS FOR BOATS

Section X

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34. STANDARD NOMENCLATURE LISTS.

a. Cleaning, Preserving, and Repair.

Cleaning, preserving and lubricating materials; recoil fluids, special oils, and miscellaneous related items	SNL K-1
Soldering, brazing and welding material, gases and related items	SNL K-2
Tools, maintenance, for repair of automatic guns, automatic gun antiaircraft materiel, automatic and semiautomatic cannon, and mortars	SNL A-35
Truck, small arms repair, M1	SNL G-72
Truck, 2½ ton, 6x6 small arms repair, M7 and M7A1	SNL G-138

b. Gun and Mount Materiel.

Gun, machine, cal. .50, Browning, M2, aircraft, basic	SNL A-38
Gun, machine, cal. .30, Browning, M1919A4, fixed and flexible; M1919A5, fixed; and M1919A6, flexible	SNL A-6
Gun, machine, cal. .50, Browning, M2, water-cooled, flexible; and Mounts	SNL A-37
Mount, bracket, M40	SNL A-55 Sec. 31
Mount, pedestal, machine gun, cal. .50, M39	SNL A-55 Sec. 33
Mount, pedestal, machine gun, cal. .50, M43	SNL A-55 Sec. 33
Mount, pedestal, machine gun, twin, cal. .50, M46	SNL A-55 Sec. 33
Mount, ring, machine gun, cal. .30, M41	SNL A-55 Sec. 27

Current Standard Nomenclature Lists are as tabulated here. An up-to-date list of SNL's is maintained as the "Ordnance Publications for Supply Index," now published in OFSB 1-1

REFERENCES

35. EXPLANATORY PUBLICATIONS.

- a. **Cleaning, Preserving, Lubricating, and Repair.**
 Cleaning, preserving, lubricating, and welding materials and similar items issued by the Ordnance Department TM 9-850
 General lubrication instructions, small arms..... OFSB 6-3
- b. **Decontamination.**
 Chemical decontamination materials and equipment TM 3-220
 Defense against chemical attack FM 21-40
 Military chemistry and chemical agents TM 3-215
- c. **Gun Materiel.**
 Browning machine gun, cal. .50, M2, aircraft—fixed and flexible TM 9-225
 Browning machine gun, cal. .50, M2, water-cooled, and Mounts TM 9-226
- d. **Inspection and Maintenance.**
 Inspection of ordnance materiel TM 9-1100
 Maintenance of materiel in the hands of troops .. OFSB 4-1
- e. **Ordnance Storage and Shipment.**
 Instructions and specifications for packaging ordnance general supplies IOSSC-(a)
 Instructions for marking shipments of ordnance supplies IOSSC-(b)
 Ordnance storage and shipment chart—Group B—major items OSSC-B

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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.)

NOTES

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