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GUN MOUNT ADAPTERS

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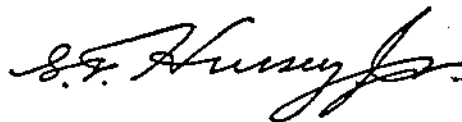
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RESTRICTED

ORDNANCE PAMPHLET 1070

GUN MOUNT ADAPTERS, NAVY TYPE

1. Ordnance Pamphlet 1070 describes and contains instructions for the installation, operation, and maintenance of all caliber .30 and caliber .50 gun mount adapters used on Navy aircraft.
2. This pamphlet supersedes the following publications, which should be destroyed: Ordnance Handling Instructions V1-43, V4-43, and V5-43; and Ordnance Technical Instructions V18-43.
3. This publication is RESTRICTED and shall be safeguarded in accordance with the security provisions of U. S. Navy Regulations, 1920, Article 76.



G. F. HUSSEY, JR.
Rear Admiral, U. S. Navy
Chief of the Bureau of Ordnance.

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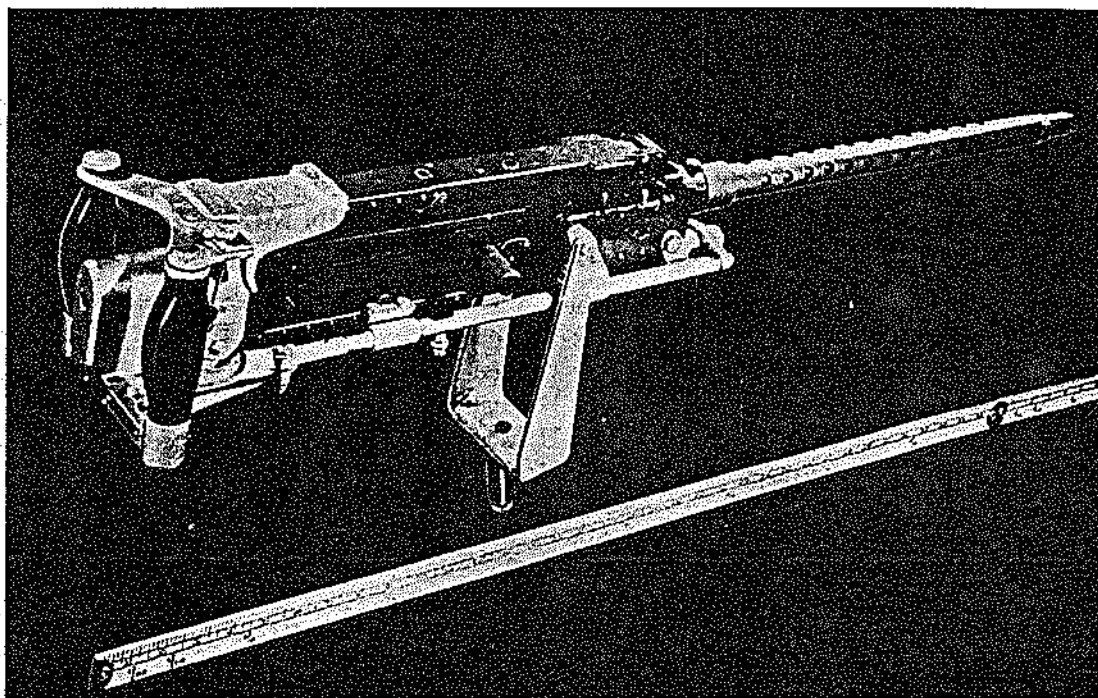


Figure 1.—Gun Mount Adapter (Mk 12) with Gun

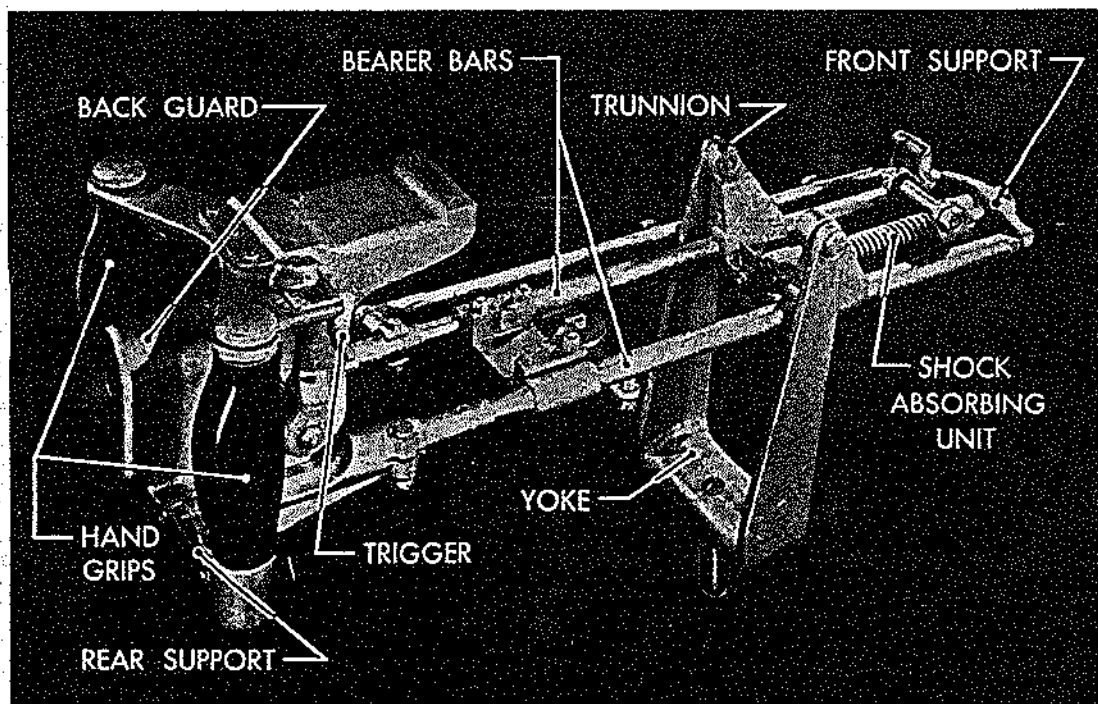


Figure 2.—Gun Mount Adapter (Mk 12) Alone

SECTION 1, EXPLANATION

1. DESCRIPTION

Gun mount adapters are installed on aircraft for the purpose of holding and attaching a gun to the plane. Most of the adapters described in this pamphlet are similar to the Gun Mount Adapter Mk 12 shown on the opposite page. The principal parts are:

- Bearer bars connected by supports
- A yoke attached to the trunnion
- Shock-absorbing unit
- Back guard
- Trigger
- Handgrips

The Gun Mount Adapter Mk 9 consists of a yoke only and is without a shock-absorbing unit. The Gun Mount Adapter Mk 8 Mod 1 has no means for aiming or swinging the gun, being essentially a shock mount for a turret gun. The two annular Gun Mount Adapters Mk 13 and Mk 15 are essentially shock-absorbers only.

2. TYPES

The following types of adapters are covered in detail in this pamphlet:

Single, Rigid

- Mk 8 Mod 1 (turret type)

Single, Flexible

- Mk 6 Mod 3
- Mk 9 (simple yoke suspension)
- Mk 10 and Mods
- Mk 12

Twin, Flexible

- Mk 11 and Mods
- Mk 14 and Mods

Annular

- Mk 13 (hydraulic)
- AN-E-10 (Mk 15) (Mechanical)

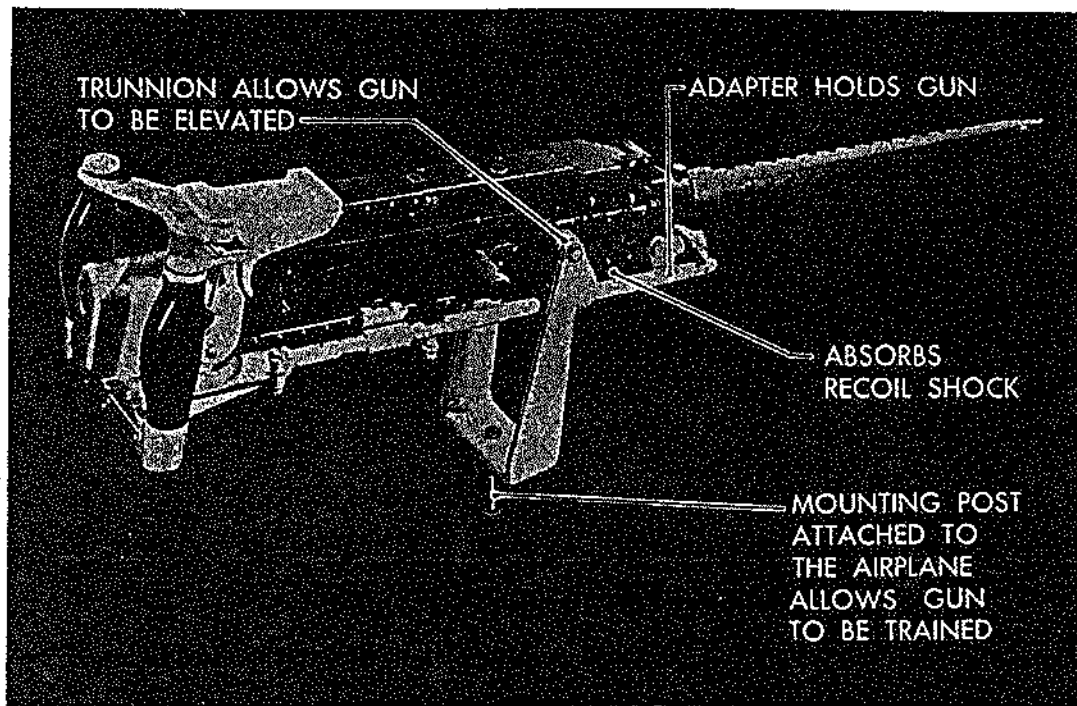


Figure 3.—Function

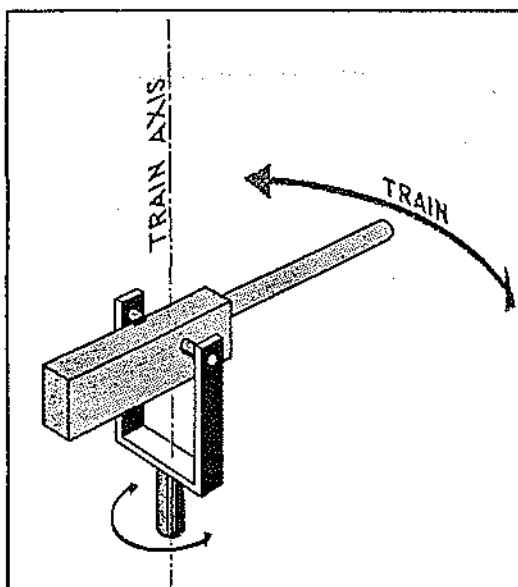


Figure 4.—Train

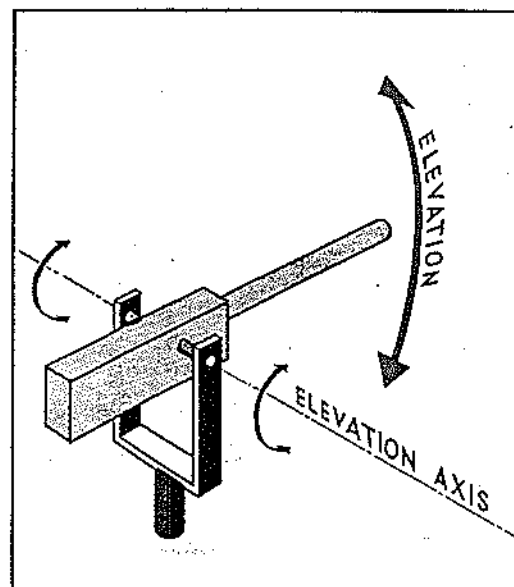


Figure 5.—Elevation

SECTION 1, EXPLANATION

3. FUNCTION

Hold and attach gun to airplane.—All adapters are cradles that hold the gun and attach it to the airplane.

Absorb recoil shock of the gun.—Except for the simple yoke-suspension type, Gun Mount Adapter Mk 9, all Navy gun mount adapters contains units that absorb recoil shock.

Allow gun to be trained and elevated.—Except for the rigid turret type, Gun Mount Adapter Mk 8 Mod 1, and the annular types, Gun Mount Adapters Mk 13 and AN-E-10 (Mk 15), the gun mount adapters described in this pamphlet are flexible and permit the gun to be trained and elevated.

4. OPERATION

Train

The gun is trained by pivoting the adapter around its mounting post, which is the train axis.

Elevation

The gun is elevated by rotating the adapter around its trunnion, which is the elevation axis.

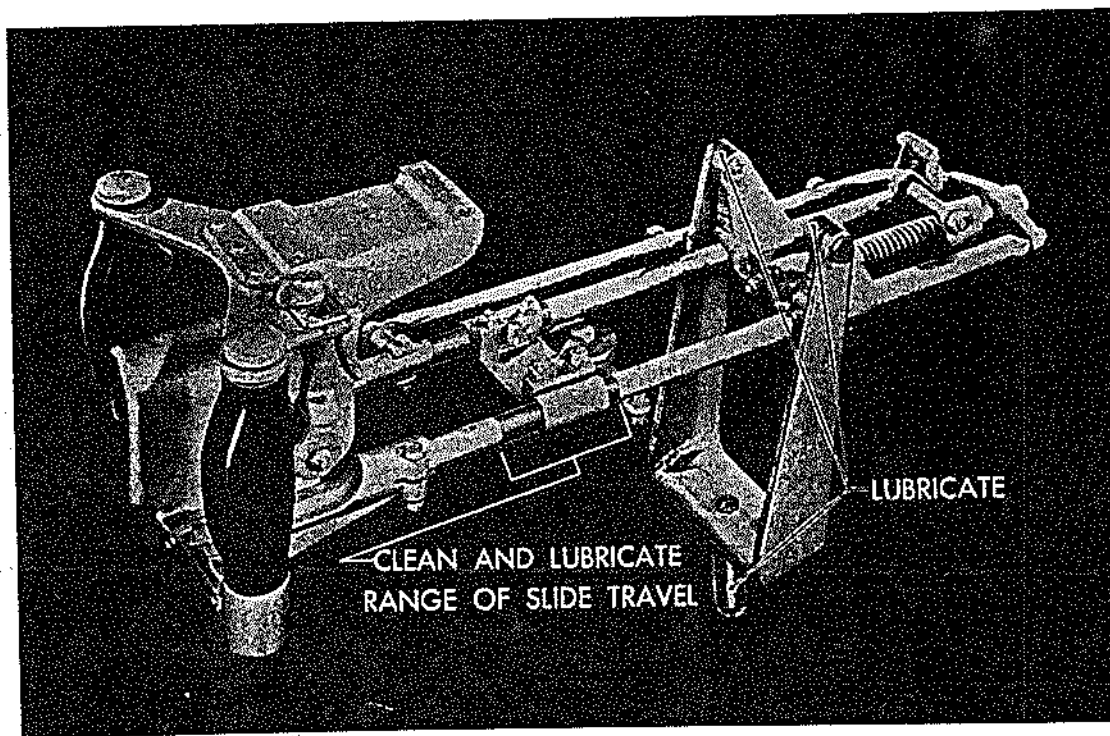


Figure 6.—Maintenance

SECTION 1, EXPLANATION

5. MAINTENANCE

Bearer bars are cleaned and lubricated over the range of slide travel with light oil, O.S. 1361 (Army AXS-777).

Mounting post and trunnion bearing surfaces are lubricated with light oil, O.S. 1361 (Army AXS-777).

Rollers of the continuous ammunition feed units on Gun Mount Adapters Mk 11 and Mods and Mk 14 are occasionally lubricated with a slight application of light oil, O.S. 1361 (Army AXS-777).

Before firing the gun, thoroughly check all adapter fastenings for security.

When painting adapters, do not paint bearing surfaces such as range of slide travel on bearer bars, safety slide and knob, trunnion, mounting post, etc.

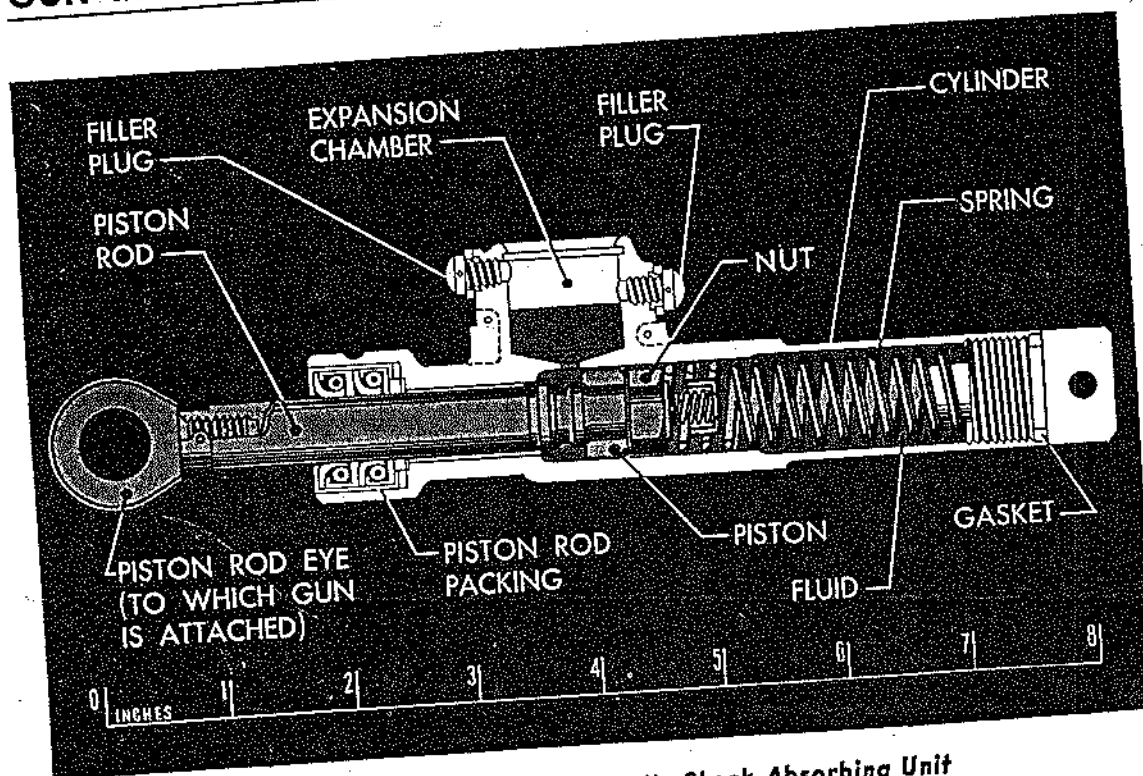


Figure 7.—The Spring-Hydraulic Shock Absorbing Unit

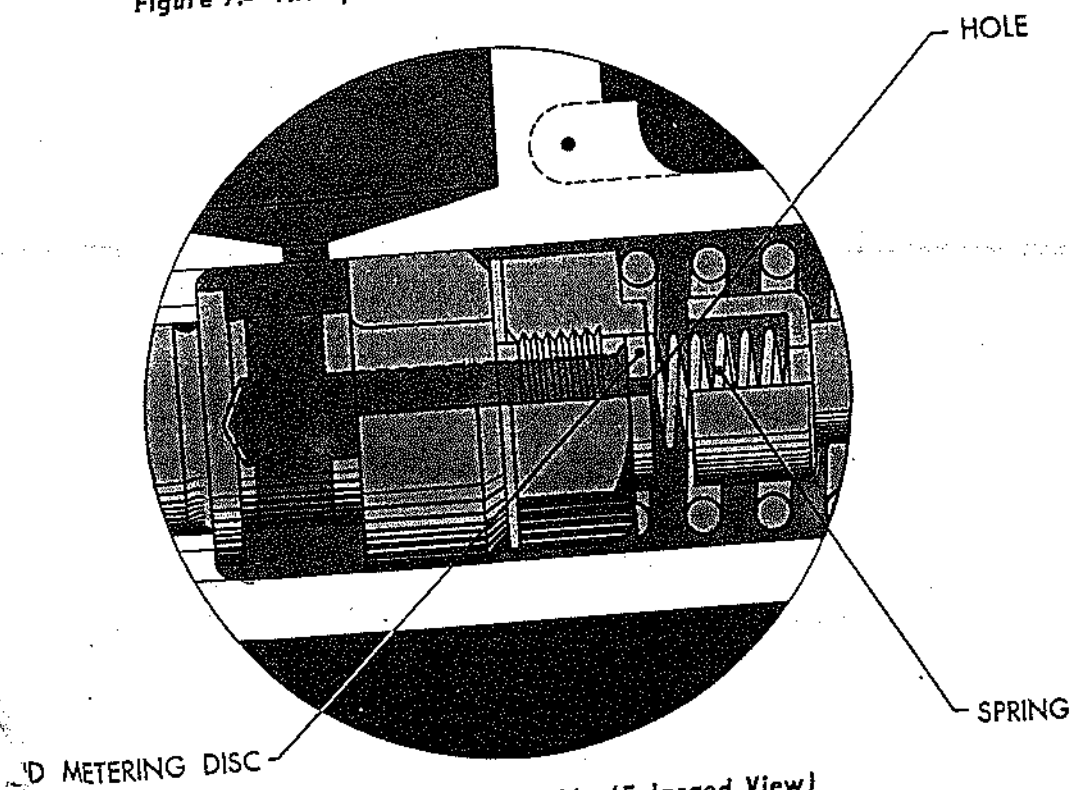


Figure 7A.—Piston Assembly (Enlarged View)

SECTION 2, SHOCK-ABSORBING UNITS

THE SPRING-HYDRAULIC SHOCK-ABSORBING UNIT

6. INSTALLATION

The spring-hydraulic shock-absorbing unit shown is used on Gun Mount Adapters Mk 6 Mod 3 and Mk 10 and Mods.

7. FUNCTION

By absorbing recoil and counterrecoil shocks, the unit performs the following important functions:

Eliminates high stresses on the adapter and plane structure.

Facilitates control of the gun and increases sighting accuracy by reducing excessive vibration.

**SHOCK-ABSORBING
UNITS**

REPRODUCED AT GOVERNMENT EXPENSE

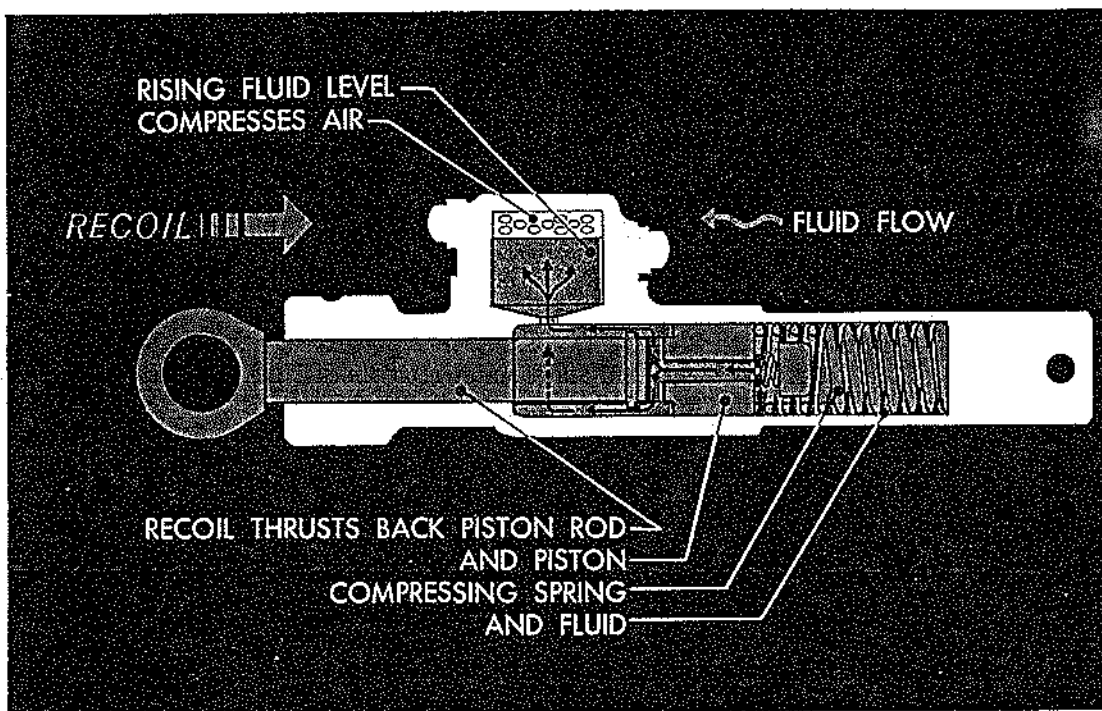


Figure 8.—Recoil (Moving parts red, fluid blue)

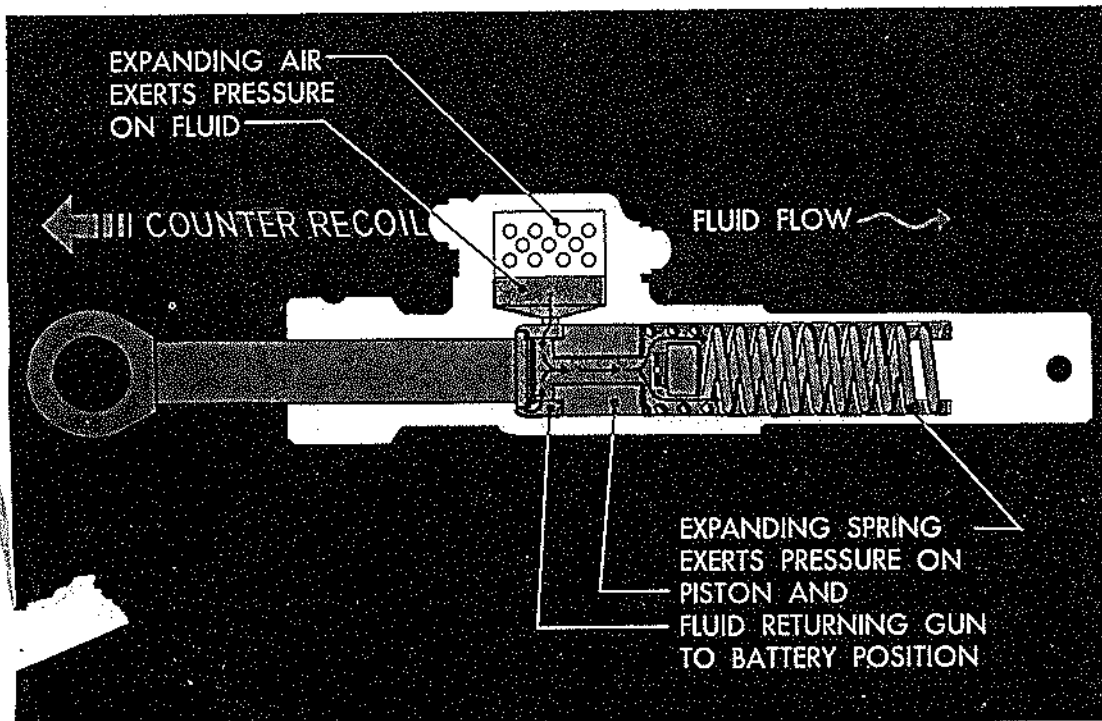


Figure 9.—Counterrecoil (Moving parts red, fluid blue)

SECTION 2, SHOCK-ABSORBING UNITS

THE SPRING-HYDRAULIC SHOCK-ABSORBING UNIT

8. OPERATION

The hydraulic unit absorbs recoil and counterrecoil shock by permitting a controlled and limited fore-and-aft movement of the gun which is attached to the piston rod eye. The cycle of motion is:

Recoil—(a) When the gun is fired, as shown in Fig. 8, its recoil thrusts back the piston rod and piston which compresses the spring and the fluid in the cylinder. (b) Then, as shown by the flow arrows, the fluid is forced through the hole in the metering disc and squirts through passages in the piston rod up into the expansion chamber. (c) The rising fluid level compresses the air in the expansion chamber. Recoil energy is thus dissipated through spring compression, through friction produced by the rushing liquid, and by air compression.

Counterrecoil—(d) Following recoil, the spring and air instantly exert pressure on the fluid as shown in Fig. 9, which forces open, or unseats, the metering disc. (e) Then, as shown by the flow arrows, the fluid gushes past the disc into the rear of the cylinder, opposing counterrecoil thrust by frictional resistance. (f) This flow rapidly reduces fluid pressure in the front of the cylinder, enabling the spring to return the gun to its battery position more quickly.

9. MAINTENANCE

Fluid—Refill the unit periodically with hydraulic fluid (AN-VV-O-366A or Army Air Force Specification No. 3580-C.) Level the unit; remove filler plugs; and pour in fluid until it runs out of the lower filler hole. While pouring, pump lightly with piston rod to free air bubbles. Replace plugs.

Leakage—If piston packing leaks, install another adapter and turn in the defective one for repair. However, the defective adapter can be used in an emergency if the hydraulic unit is filled just before use.

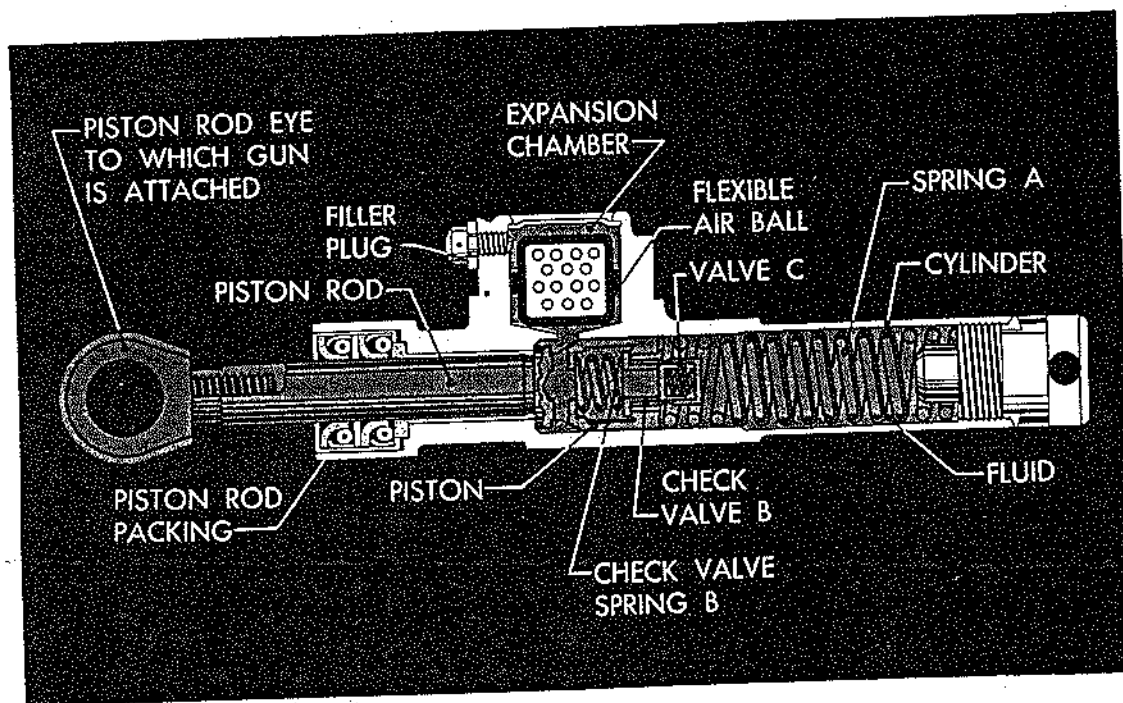


Figure 10.—The Air-Ball Type Spring-Hydraulic Stock-Absorbing Unit

The air-ball type spring-hydraulic shock-absorbing unit shown is installed on the Gun Mount Adapter Mk 8 Mod 1. The air-ball type hydraulic unit performs the same functions as the other hydraulic unit previously described, and is similar in operation and structure. Maintenance is the same for both. The unit shown in Fig. 10, however, has a flexible air ball, and its fluid metering valves are somewhat different from the one shown in Fig. 7.

10. OPERATION

Recoil—(a) Gun recoil, illustrated in Fig. 11, compresses spring A and exerts pressure on the fluid in the cylinder. (b) Fluid pressure forces open check valve B, which allows the fluid to flow into the expansion chamber as shown by the arrows. (c) Fluid pressure against the piston is thus relieved and exerted against the flexible air ball, which is compressed.

Counterrecoil—(d) On the counterrecoil stroke, shown in Fig. 12, check valve spring B closes check valve B while air-ball pressure, transmitted by the fluid, opens valve C. (e) Opening of valve C accelerates the return flow of the fluid back into the cylinder, enabling spring A to expand and return the gun to its battery position more quickly.

SECTION 2, SHOCK-ABSORBING UNITS

THE AIR-BALL TYPE, SPRING-HYDRAULIC, SHOCK-ABSORBING UNIT

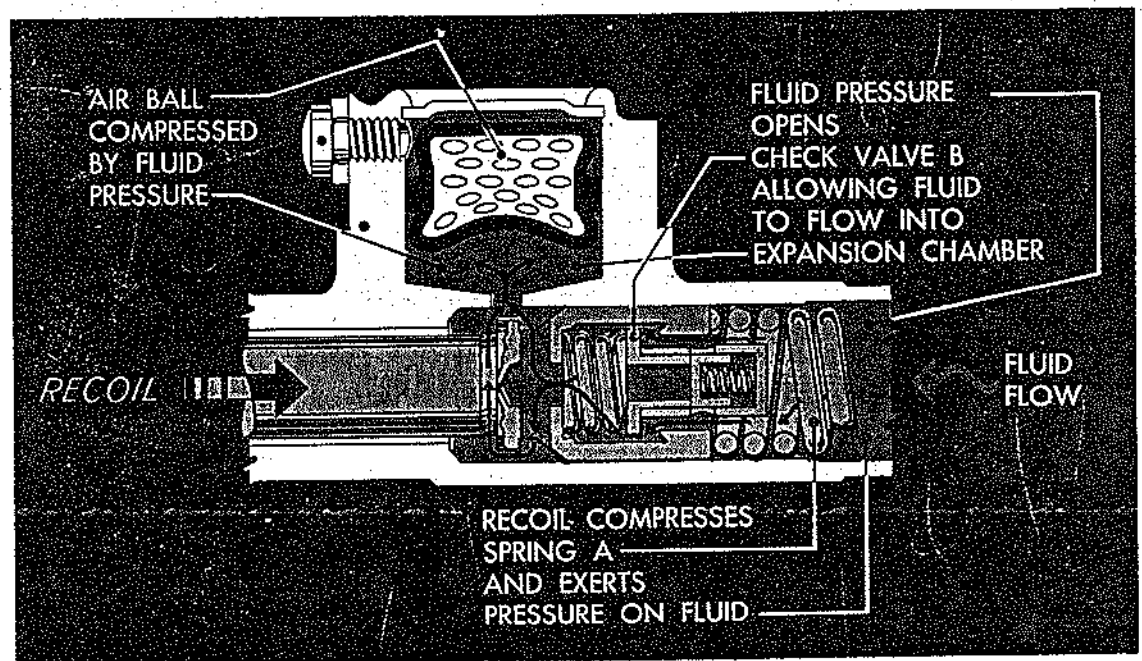


Figure 11.—Recoil (Moving parts red, fluid blue)

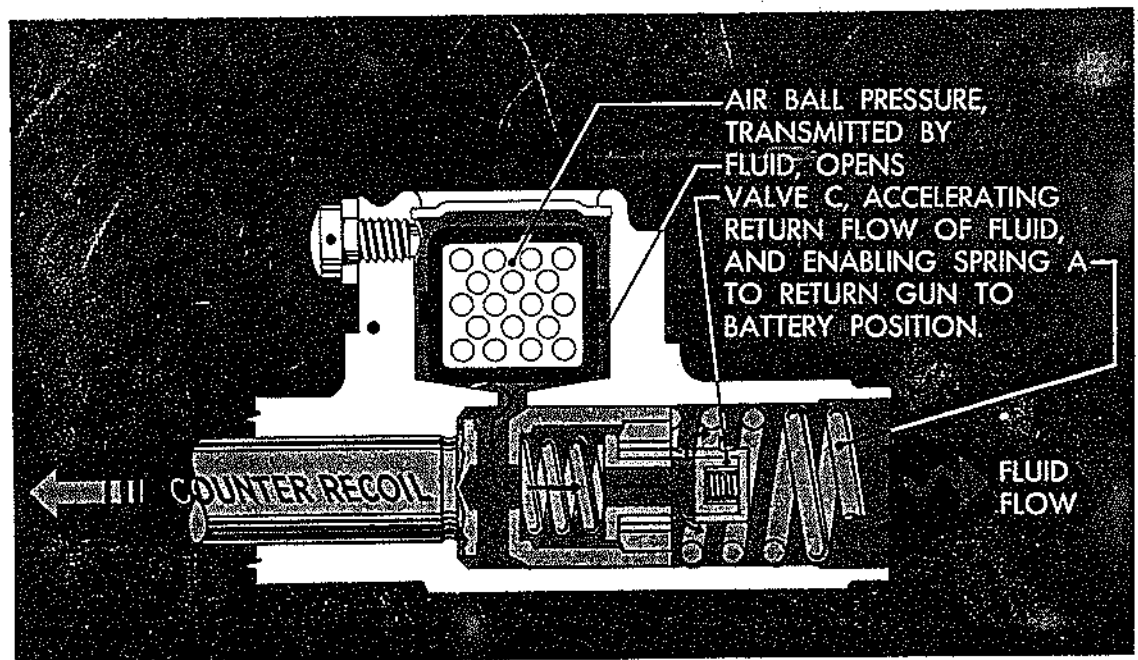


Figure 12.—Counterrecoil (Moving parts red, fluid blue)

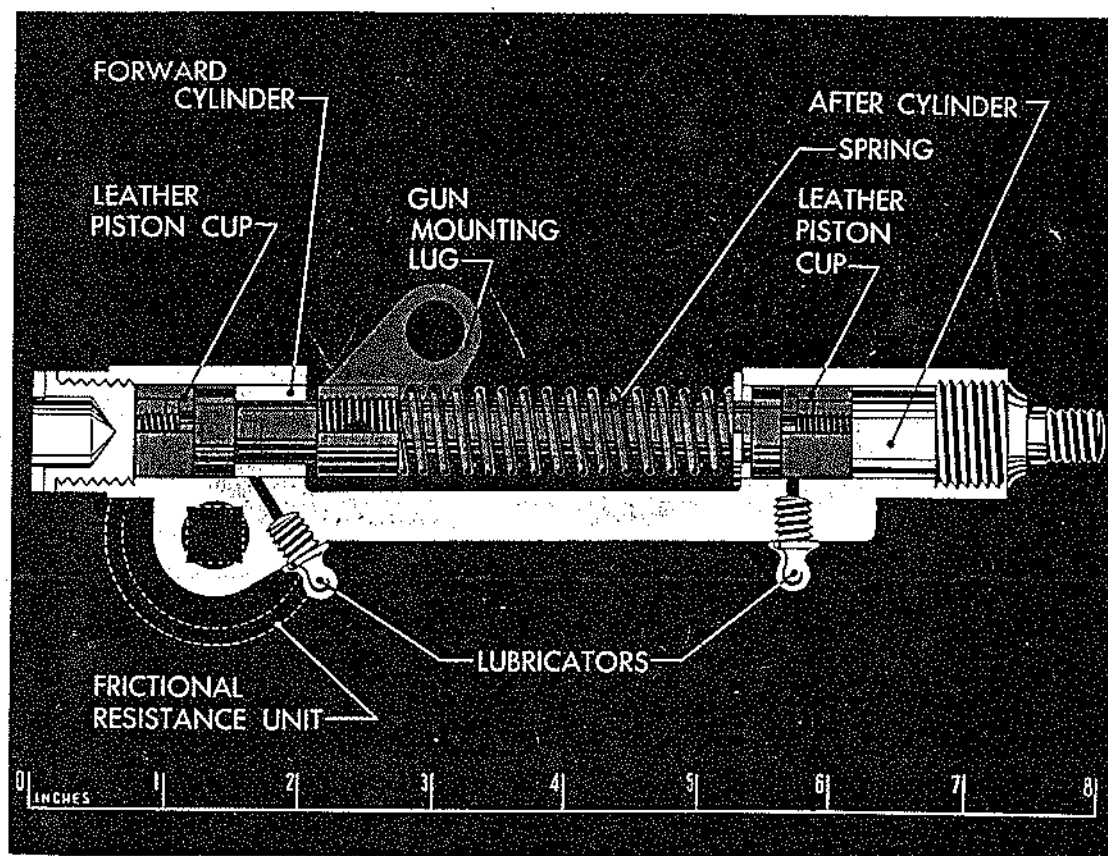


Figure 13.—The Spring-Pneumatic Shock-Absorbing Unit
(Moving parts red)

SECTION 2, SHOCK-ABSORBING UNITS

THE SPRING-PNEUMATIC SHOCK-ABSORBING UNIT

11. INSTALLATION

The spring-pneumatic shock-absorbing unit shown is used on Gun Mount Adapters Mk 11 and Mods, Mk 12, and Mk 14.

12. FUNCTION

The pneumatic unit operates differently but performs the same functions as the hydraulic unit previously described. These functions are:

Eliminates high stresses on the adapter and plane structure.

Facilitates control of the gun and increases sighting accuracy by reducing excessive vibration.

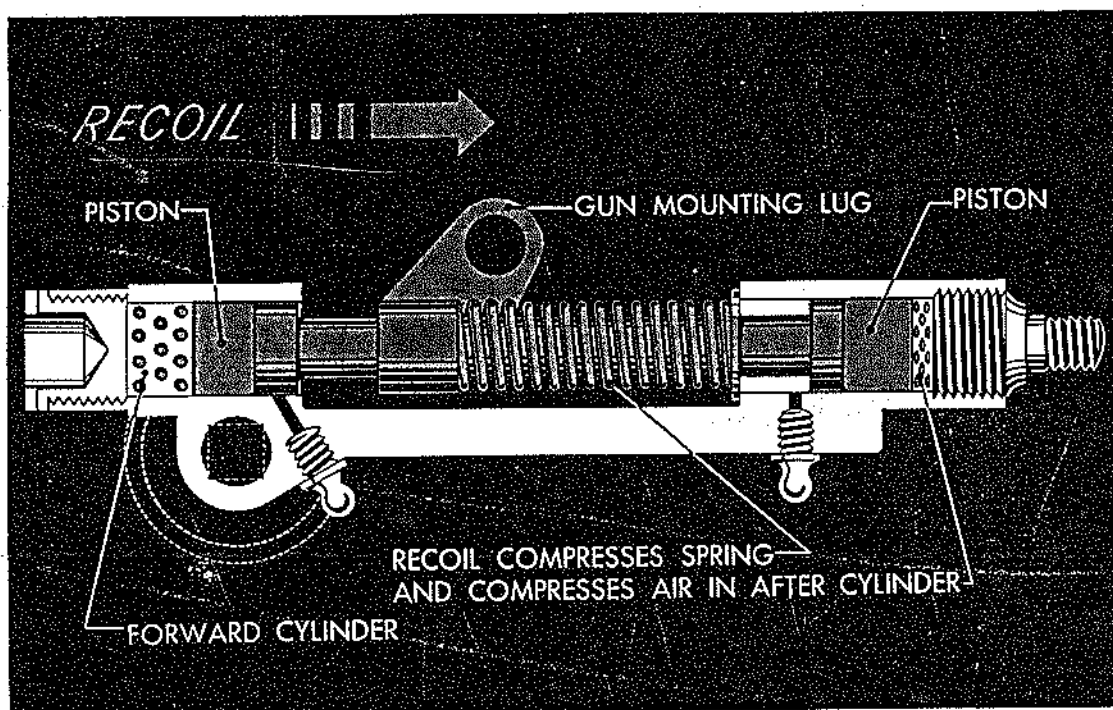


Figure 14.—Recoil (Moving parts red)

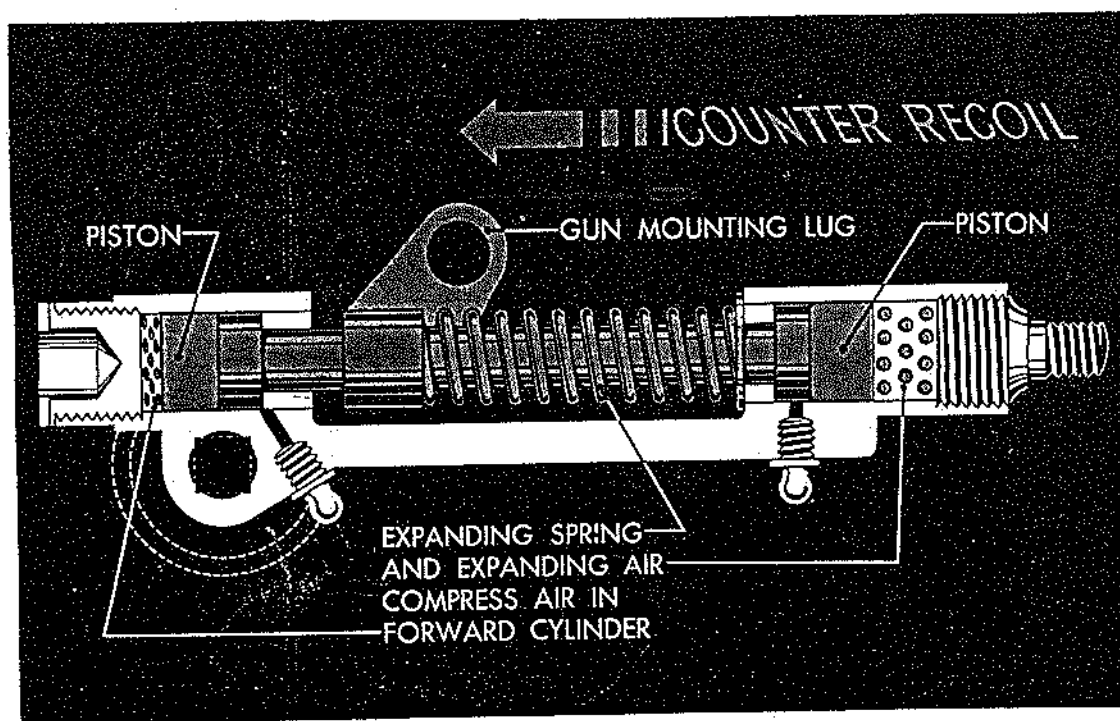


Figure 15.—Counterrecoil (Moving parts red)

SECTION 2, SHOCK-ABSORBING UNITS

THE SPRING-PNEUMATIC SHOCK-ABSORBING UNIT

13. OPERATION

Recoil and counterrecoil forces are absorbed by allowing a limited and controlled fore-and-aft movement of the gun, which is bolted to the lug of the shock unit. Movement sequence is as follows:

Recoil—(a) When the gun is fired, as shown in Fig. 14, its recoil compresses the spring, and the air in the after cylinder. (b) Recoil shock is thus absorbed by spring compression and by air compression in the after cylinder.

Counterrecoil—(c) Following recoil, the spring and the air pressure in the after cylinder immediately return the gun to its static or battery position, as shown in Fig. 15, compressing the air in the forward cylinder. (d) Air compression in the forward cylinder forms a cushion which absorbs the counterrecoil shock.

During rapid fire, the above cycle is repeated—the gun and pistons floating in a fluttering or reciprocating movement—the pistons never reaching the maximum limit of their strokes.

14. MAINTENANCE

The pneumatic unit requires no adjustment or care other than one injection of light grease (O.S. 1350 or A.N. G. 3) applied to the leather piston cups after every 5000 rounds of firing. Apply grease with a pressure gun through lubricator fittings.

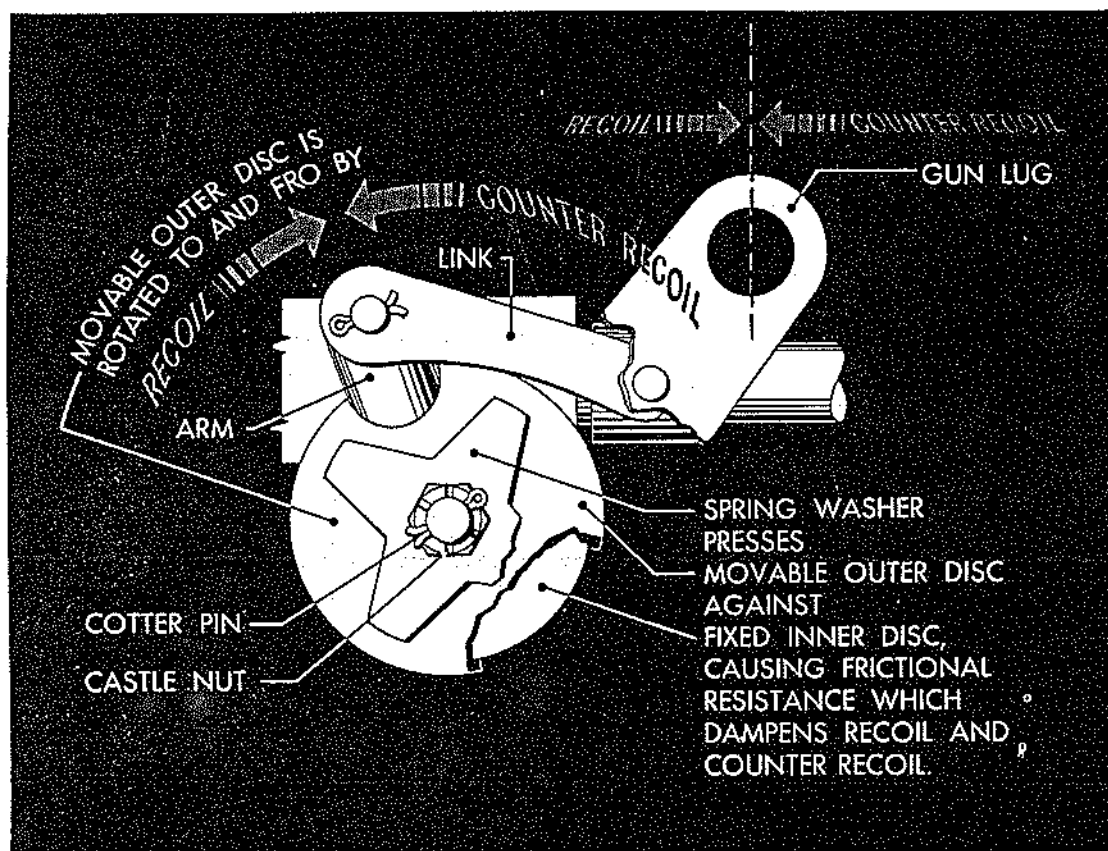


Figure 16.—The Two-Disc Frictional Resistance Unit
(Actual size)

SECTION 2, SHOCK-ABSORBING UNITS

THE TWO-DISC FRICTIONAL-RESISTANCE UNIT

15. INSTALLATION

The two-disc frictional-resistance unit, illustrated in Fig. 16, is installed on Gun Mount Adapters Mk 11 and Mods, and Mk 14.

16. FUNCTION

The resistance unit, used in conjunction with the pneumatic shock unit previously described, assists in controlling recoil and counterrecoil by frictional resistance.

17. OPERATION

The movable outer disc, linked to the gun lug, is pressed against the fixed inner disc by the spring washer. The outer disc is rotated to and fro by recoil and counterrecoil, which are dampened by frictional resistance between the two rubbing discs.

18. MAINTENANCE

Spring tension has been adjusted at assembly and will usually require no further attention. If, however, readjustment of spring tension becomes necessary, proceed as follows:

- (a) Remove the cotter pin from the castle nut.
- (b) Push the gun back to the limit of its recoil stroke and tighten the nut just enough to allow the gun to return slowly to its battery position.
- (c) Replace the cotter pin.

Do not oil friction discs—lubrication destroys their function.

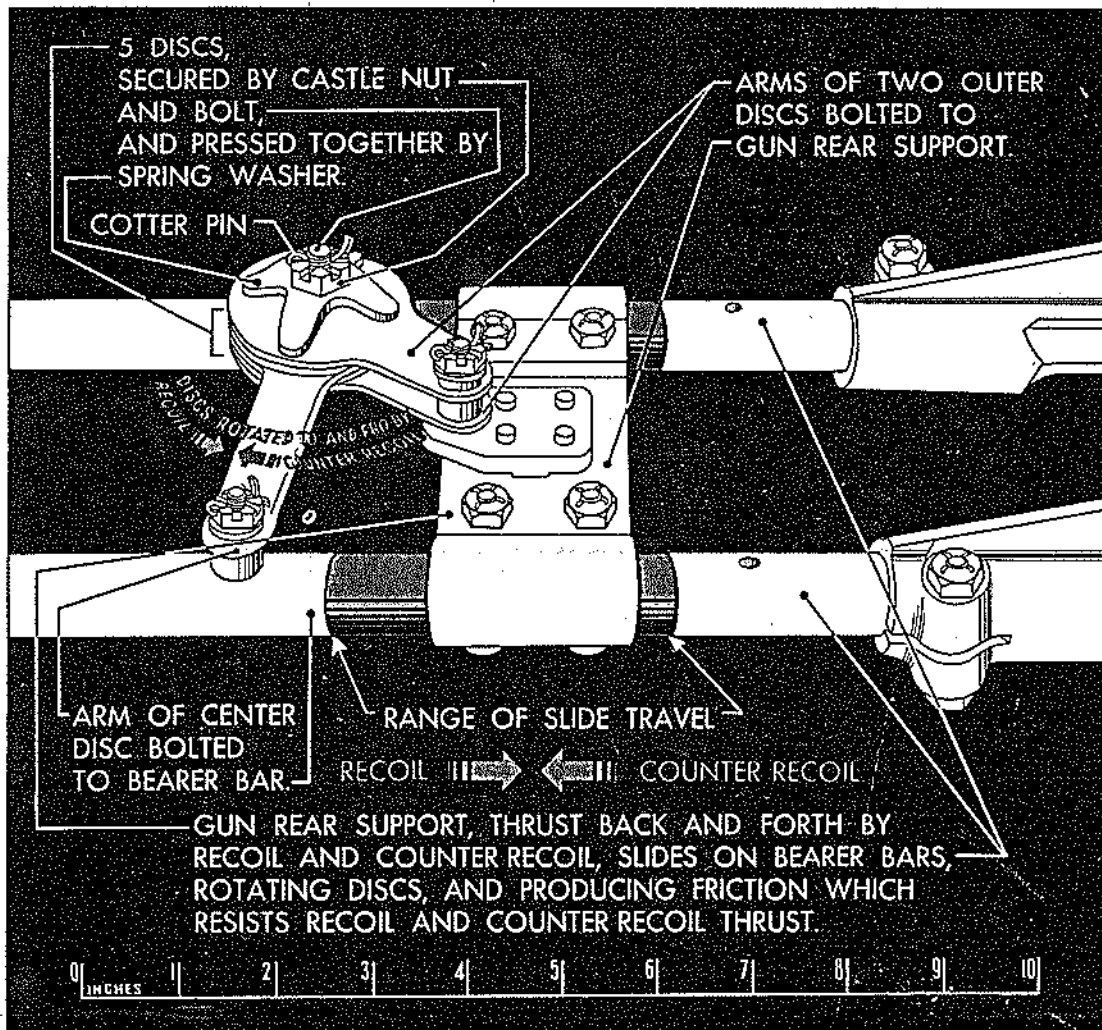


Figure 17.—The Five-Disc Frictional-Resistance Unit

SECTION 2, SHOCK-ABSORBING UNITS

THE FIVE-DISC FRICTIONAL-RESISTANCE UNIT

19. INSTALLATION

The five-disc frictional-resistance unit, shown in Fig. 17, is installed on the Gun Mount Adapter Mk 12.

20. FUNCTION

This friction-type shock dampener is used as an auxiliary aid to the pneumatic shock-absorber on the Gun Mount Adapter Mk 12.

21. OPERATION

The five discs, secured by a bolt and castle nut, are pressed together by a spring washer. The arm of the center disc is bolted to one bearer bar; the arms of the two outer discs are bolted to the gun rear support.

Consequently, the support—thrust back and forth by recoil and counterrecoil—slides on the bearer bars, rotating one set of discs against the other. Friction between the rubbing discs opposes and dampens recoil and counterrecoil thrust.

22. MAINTENANCE

The spring ordinarily maintains correct pressure. But if re-adjustment of tension becomes necessary—

(a) Pull the cotter pin from the castle nut. (b) Shove the gun back as far as possible. (c) Tighten nut just enough to permit the gun to return slowly to its static or battery position. (d) Reinsert cotter pin.

Do not oil friction discs—lubrication destroys their function.

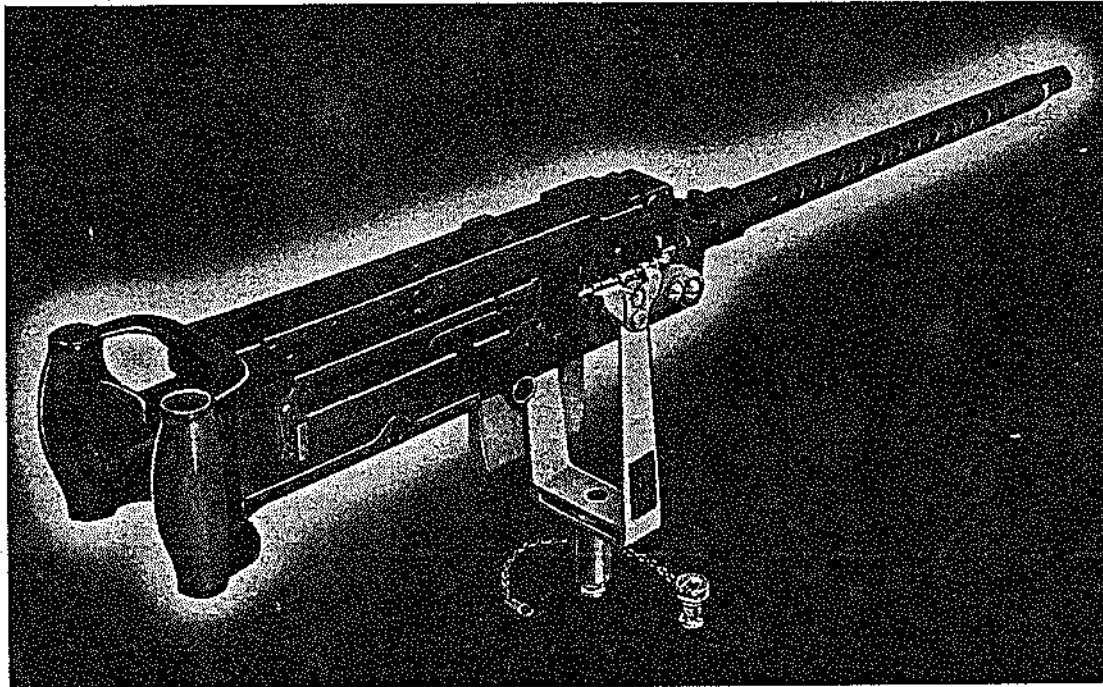


Figure 18.—Gun Mount Adapter Mk 9 (Flexible, Single) with Caliber .30 BAM Gun

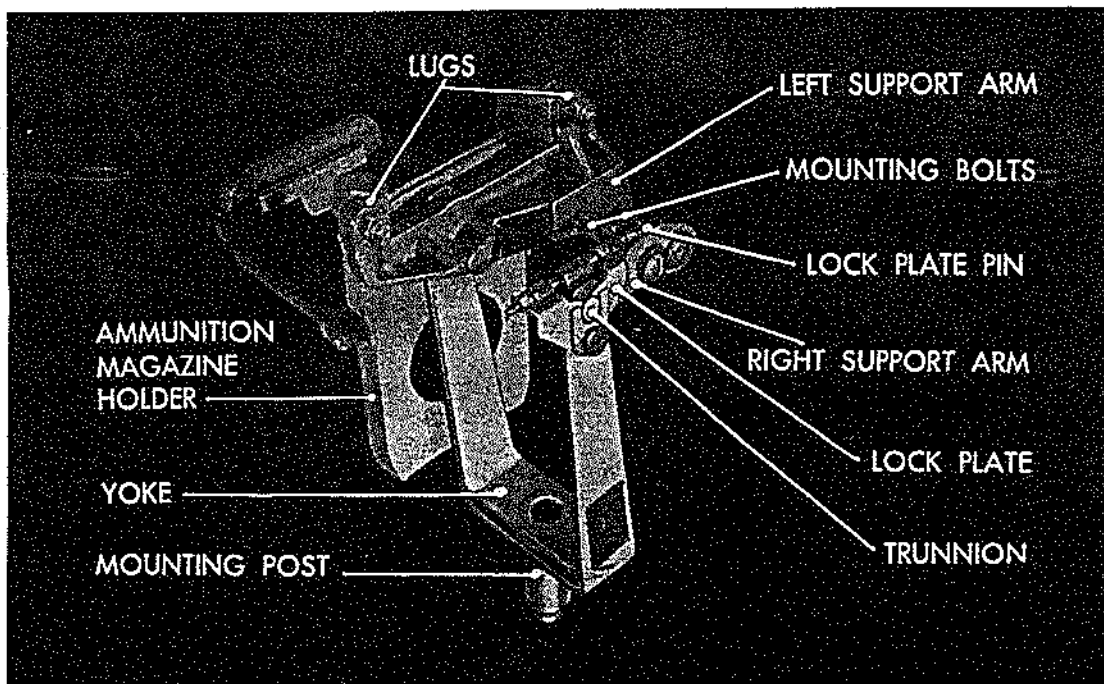


Figure 19.—Gun Mount Adapter Mk 9 Alone

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 9 (FLEXIBLE, SINGLE)

23. The Gun Mount Adapter Mk 9, shown in Fig. 19, is a simple, flexible, yoke-suspension type adapter. It mounts a single caliber .30 BAM gun with spade hand grips, illustrated in Fig. 18. This adapter is used on aircraft types VPB, VOS, VSO, and VTB. Its weight is 4.3 lb., and its dimensions are 6.0 in. x 9.5 in. x 5.3 in.

24. THE FRAME

The adapter frame consists of the non-detachable, left support arm, connected to the left fork of the yoke, and the detachable right support arm, which is secured to the right fork of the yoke by a detachable lock plate. This is the only adapter described in this pamphlet that does not contain a shock-absorbing unit.

25. GUN SUPPORT

The gun is supported by two mounting bolts connecting the left and right support arms.

26. AMMUNITION MAGAZINE HOLDER

The holder is bolted to two lugs on the left support arm.

27. YOKE

At its trunnion, the approximate center of gravity with a gun installed, the adapter is supported by the yoke. The mounting post of the yoke is attached to the plane, and secured by the adapter latch. With the gun hand grips, the gun and adapter are trained by pivoting around the mounting post, and elevated by rotation around the trunnion, as shown on page 6.

Note: The Microphone Switch Mk 1, described on pages 34, 35, and 84, may be used with this adapter by attaching it to the spade grip of the caliber .30 BAM gun installed in the adapter.

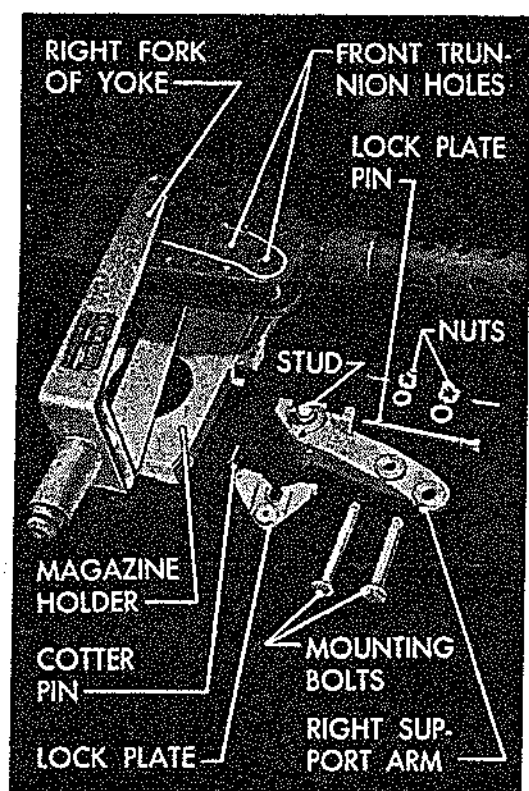


Figure 20A

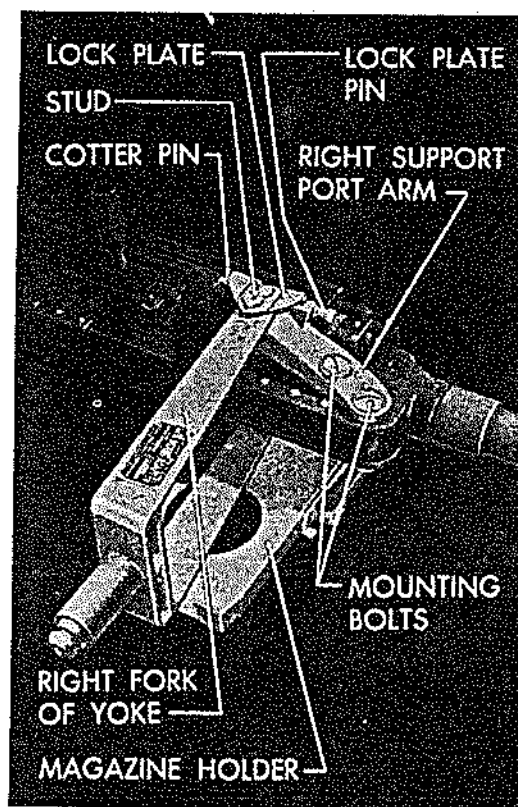


Figure 20B

28. GUN INSTALLATION

For installing the caliber .30 BAM gun in the Gun Mount Adapter Mk 9, the procedure is as follows:

(a) Lay the adapter on its left side, resting on the magazine holder. (b) Remove mounting bolts, cotter pin, lock plate pin, lock plate, and right support arm. (c) Place gun in adapter resting on left support arm, as shown in Fig. 20A. (d) Align front trunnion holes of gun with holes in left support arm.

(e) Slip stud on right support arm into hole of right fork of yoke by springing out fork. (f) Replace lock plate, lock plate pin, and cotter pin as shown in Fig. 20B. (g) Align holes in right support arm with holes in gun, and insert mounting bolts. (h) Turn gun on its back, replace nuts on mounting bolts, tighten and insert cotter pin.

SECTION 3. SINGLE GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 9 (FLEXIBLE, SINGLE)

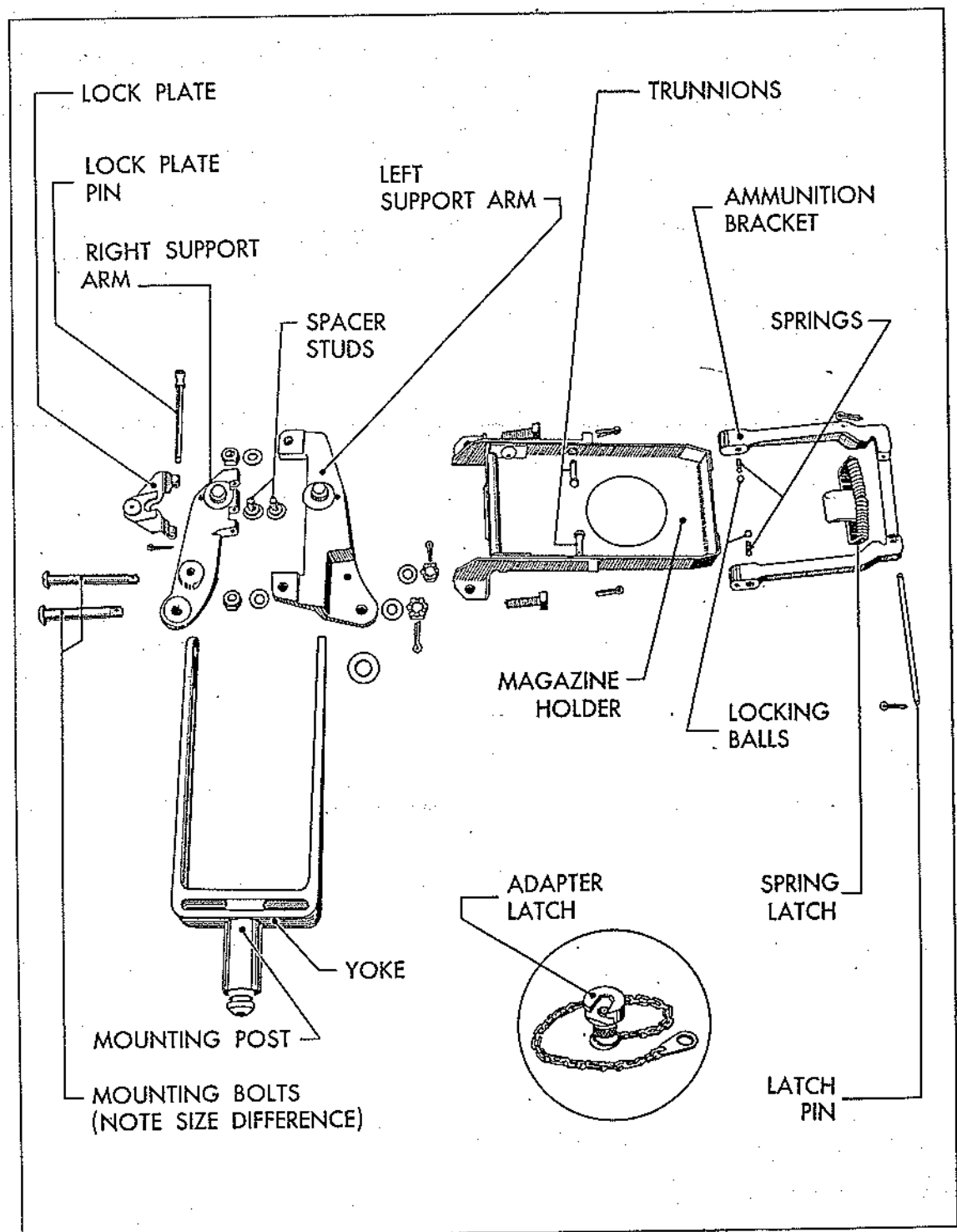


Figure 21.—Disassembly of Gun Mount Adapter Mk 9

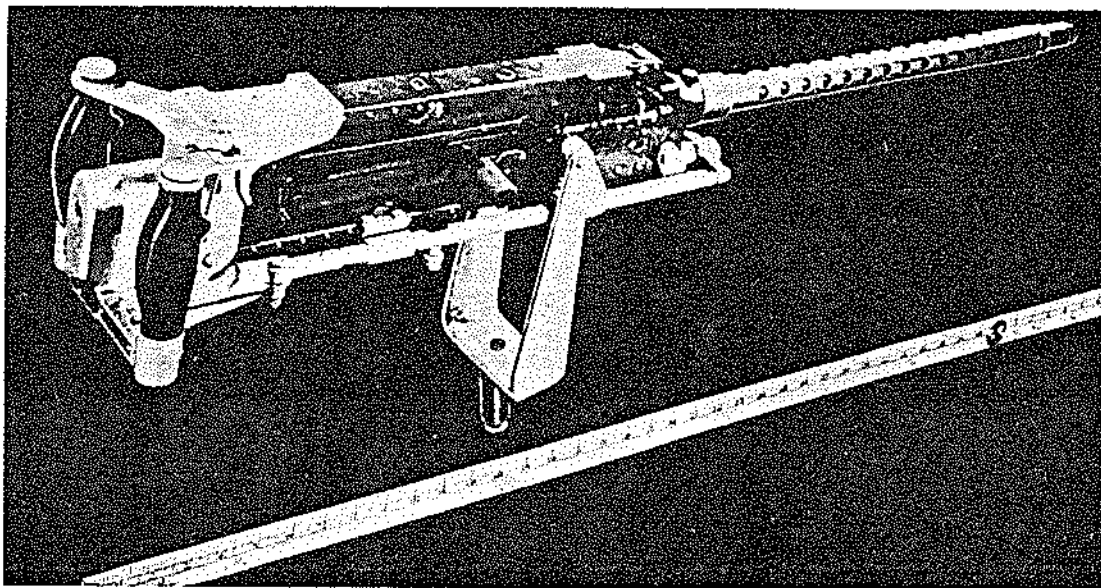


Figure 22.—Gun Mount Adapter Mk 12 (Flexible, Single)
with Caliber .30 BAM Gun

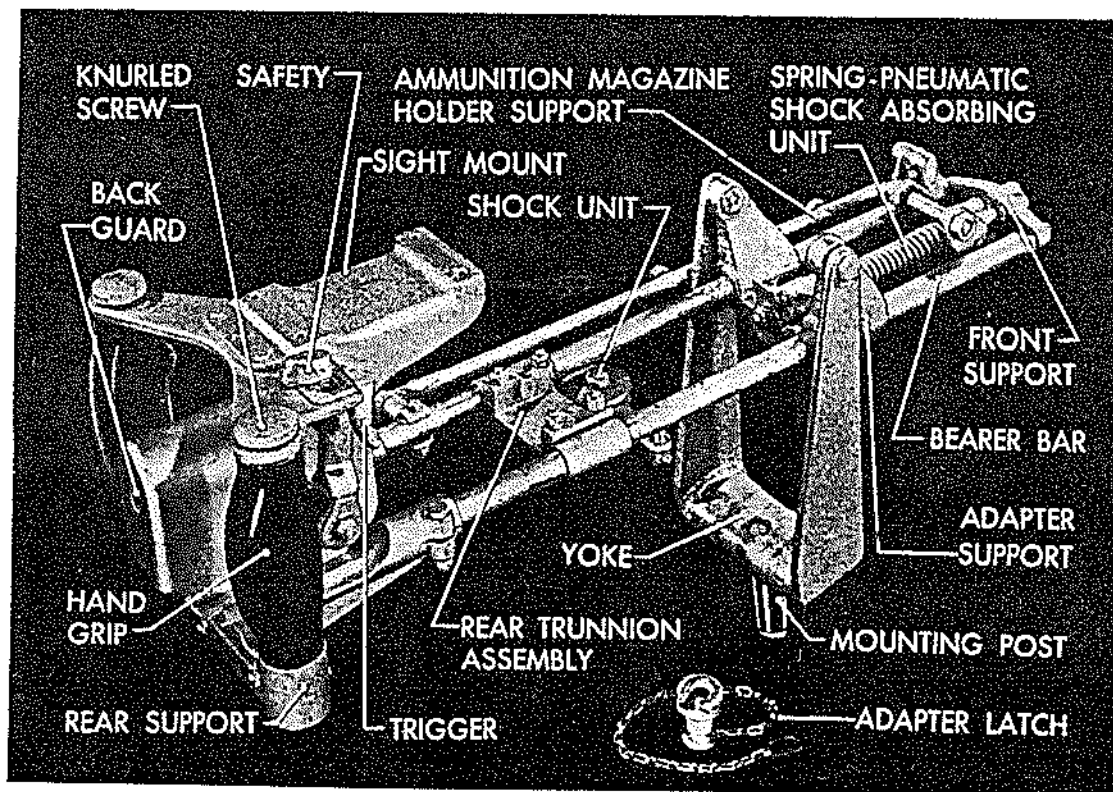


Figure 23.—Gun Mount Adapter Mk 12 Alone

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 12 (FLEXIBLE, SINGLE)

29. The Gun Mount Adapter Mk 12 is flexible, mounting a single caliber .30 BAM gun with a fixed-type back plate. This adapter is used in the tunnel gun position of the PBN-1 plane. Its weight is 14 pounds, and its dimensions 20 in. x 13 in. x 21.5 in.

30. THE FRAME

The adapter frame consists of two parallel bearer bars connected by a front and a rear support. Secured to the front support is one integrally built-in spring-pneumatic shock-absorbing unit previously explained on page 16.

31. GUN FRONT SUPPORT

The front trunnion of the gun is supported by the shock unit lugs to which it is bolted.

32. GUN REAR SUPPORT

The rear trunnion assembly supports the after end of the gun and oscillates on the bearer bars during recoil and counterrecoil of the gun. The rear trunnion assembly is connected to one bearer bar by a five-disc frictional resistance unit previously described on page 22.

33. AMMUNITION MAGAZINE HOLDER

The holder is attached to its support arm, which is bolted to two detachable lugs secured to a bearer bar.

Therefore, by means of the detachable lugs, the magazine holder can be secured to either

the right or the left bearer bar, depending upon the airplane installation, which determines the side from which the gun must be charged and fed.

35. YOKE

At its trunnion, the approximate center of gravity with a gun installed, the adapter is supported by the yoke. The mounting post of the yoke is attached to the plane and secured by an adapter latch. With the hand grips, the adapter and gun are trained by pivoting around the mounting post, and elevated by rotation around the trunnion, as shown on page 6. Because of its angular offset, reversing the yoke increases the maximum elevation angle and decreases the maximum depression angle, or vice versa.

36. SIGHT BRACKET

The Telescope Sight Mk 5 Mod 1 may be mounted in the sight bracket. At present, in the PBN-1 plane, the Fore Post Type A-4 and the Rear Ring Sights Type B-10 are used. These are being replaced by the Fore Post Sight Mk 6 Mod 1 and the Rear Ring Sight Mk 12 Mod 1. None of the sights are furnished with the adapter.

Note: A microphone switch may be provided on this adapter by using the Microphone Switch Mark 1, shown on pages 34, 35, and 84.

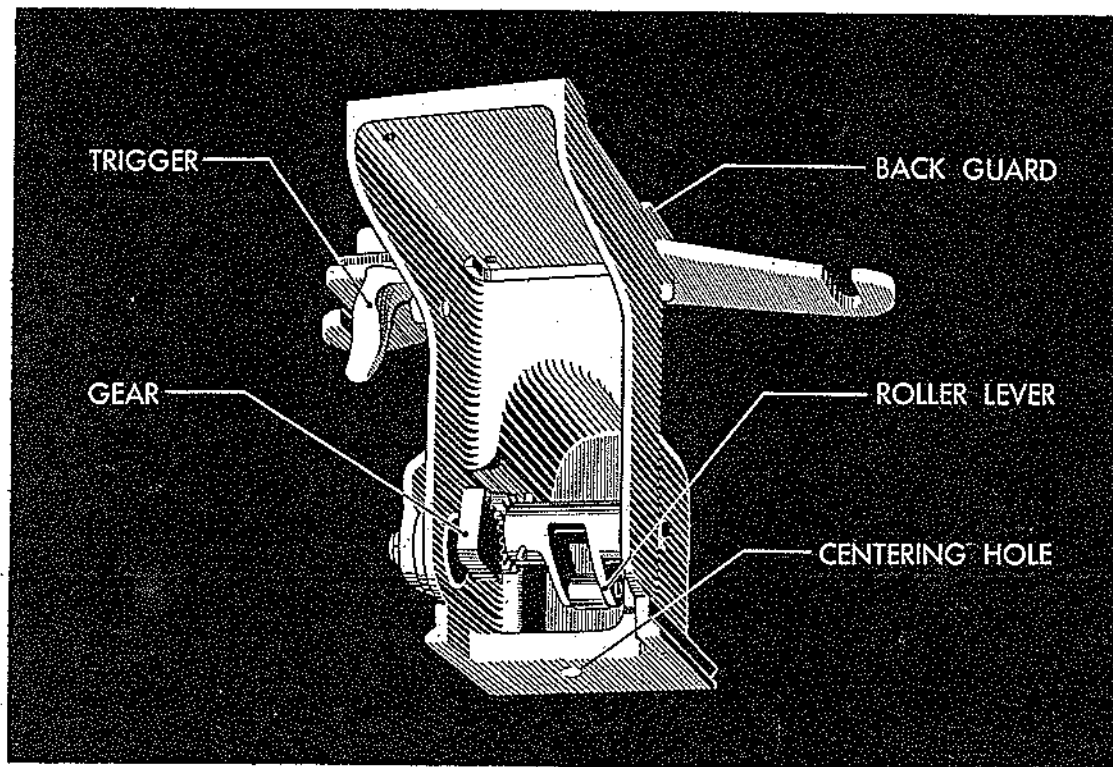


Figure 24.—Back Guard and Trigger Assembly

37. BACK GUARD

The back guard protects the gunner against injury from the recoil shock of the gun. By loosening the two knurled screws at the top of the hand grips, and the knurled set screw at the bottom of the rear support, the back guard may be pulled back and removed so that the gun can be serviced.

38. TRIGGER ASSEMBLY

The trigger arm on the back guard is geared to a roller lever which contacts the gun bell crank. Pulling the trigger raises the roller

lever which lifts the bell crank, thus actuating the gun firing mechanism.

Sliding the safety knob on the back guard to the left or SAFE position locks the trigger, preventing accidental discharge of the gun.

Caution—When replacing the back guard, be sure that the safety knob is on SAFE, and that the roller lever slides beneath the bell crank.

Before tightening screws, see that the knurled hand grip screws are properly seated, and that the knurled set screw in the bottom of the rear support is centered in hole at bottom of back guard.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 12 (FLEXIBLE, SINGLE)

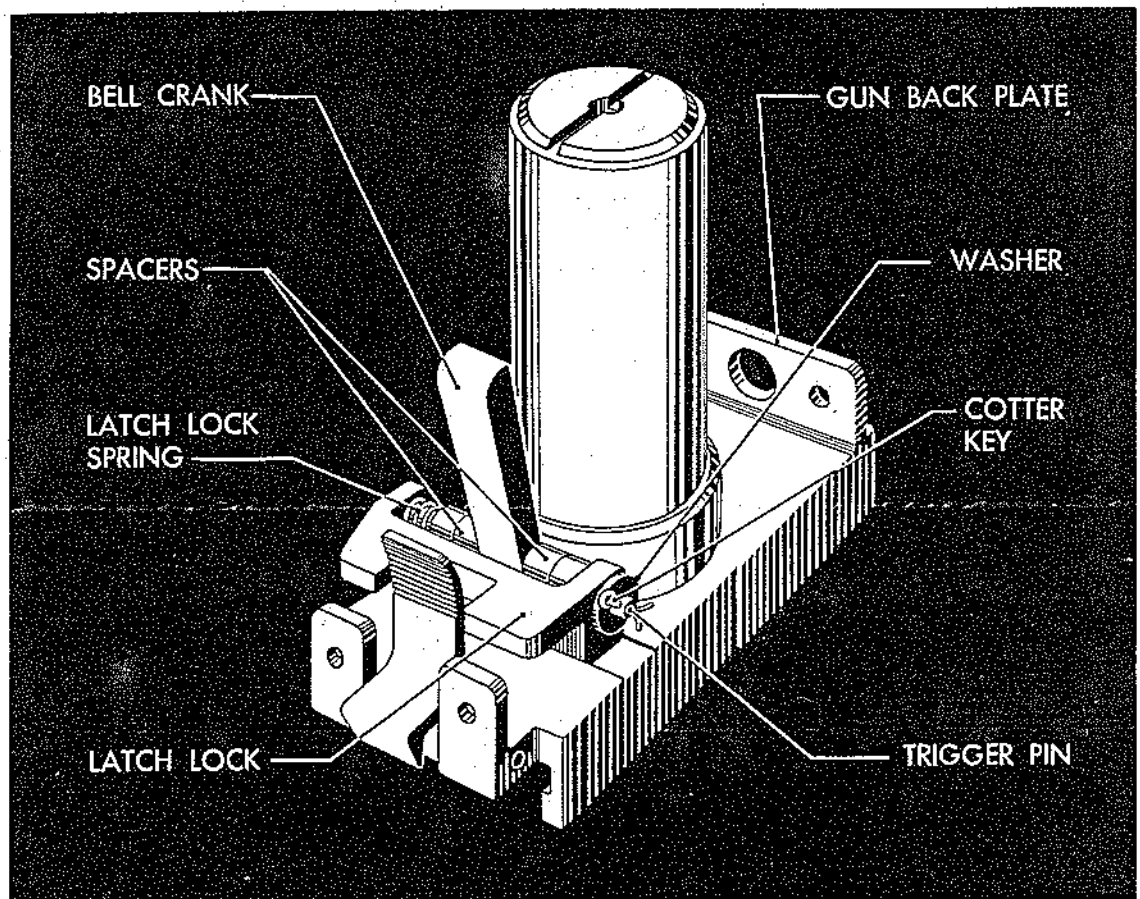


Figure 25.—Bell Crank Installation for Caliber .30 BAM Gun Conversion

39. GUN CONVERSION—BELL CRANK INSTALLATION

Caliber .30 BAM guns with fixed back plates are installed in the Gun Mount Adapters Mk 12, Mk 11, and Mk 14. Bell cranks, supplied with the adapters, are installed in the back plates of the guns and connect the gun-firing mechanism with the adapter triggers. The following procedure for installing the bell cranks is the same for the Gun Mount Adapters Mk 12, Mk 11, and Mk 14.

(a) Remove the gun back plate shown in Fig. 25.

(b) Remove the cotter key, washer, and

trigger pin, leaving the latch lock and the latch lock spring on the back plate.

(c) Insert the bell crank through the hole in the back plate and over the latch spring, so that the longer arm extends aft with its rounded corner facing downward.

(d) Insert a spacer on each side of the bell crank as shown.

(e) Reinsert the trigger pin; replace the washer, and cotter key as illustrated.

(f) Replace the back plate on the gun.

Note: The parts necessary for the above conversion come in a small bag attached to each adapter.

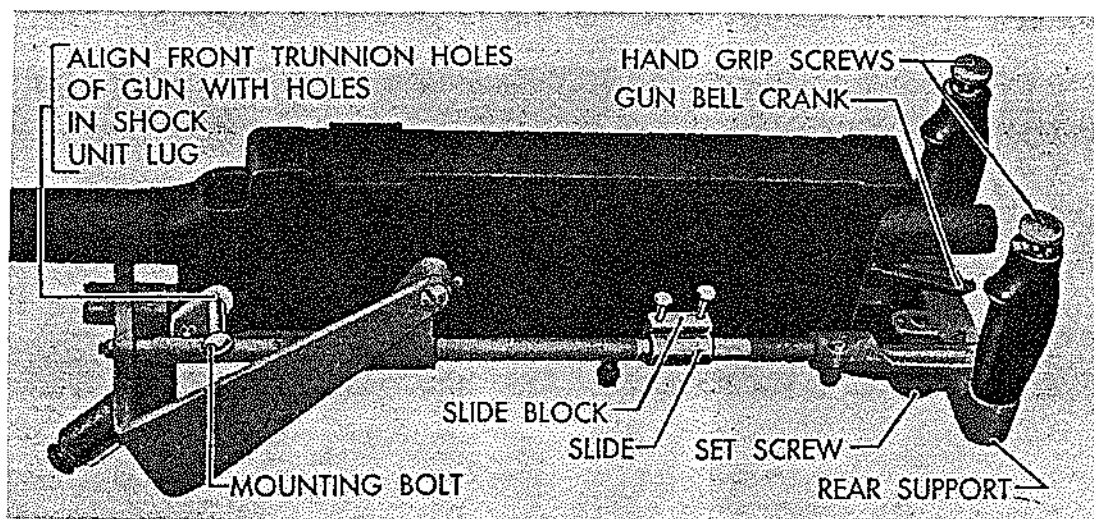


Figure 26A

40. CALIBER .30 GUN INSTALLATION

The procedure for installing a caliber .30 gun in the Gun Mount Adapter Mk 12 is as follows:

- (a) Remove back guard, the two slide blocks, and mounting bolt, nut, and cotter pin.
- (b) Place gun in adapter as shown in Fig. 26A.
- (c) Insert studs of slide blocks in rear mounting holes of gun as shown in Fig. 26B.
- (d) Align front trunnion holes of gun with holes in shock unit lug, as shown in Fig. 26A, and replace mounting bolt, nut, and cotter pin.
- (e) Align holes in the rear trunnion assembly as shown in Fig. 26B. Bolt blocks to rear trunnion assembly.
- (f) Place safety button on SAFE, and replace back guard so that roller lever slides

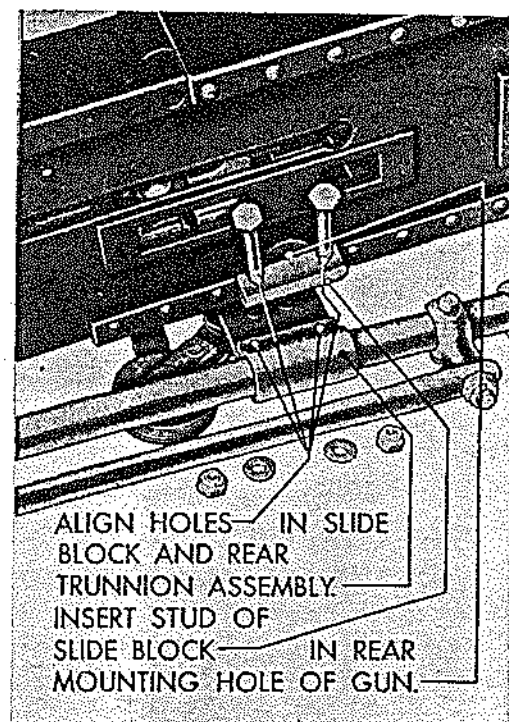


Figure 26B

beneath gun bell crank. Before tightening screws, be sure that knurled hand grip screws are properly seated, and that knurled set screw in bottom of rear support is centered in hole at bottom of back guard.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 12 (FLEXIBLE, SINGLE)—DISASSEMBLY

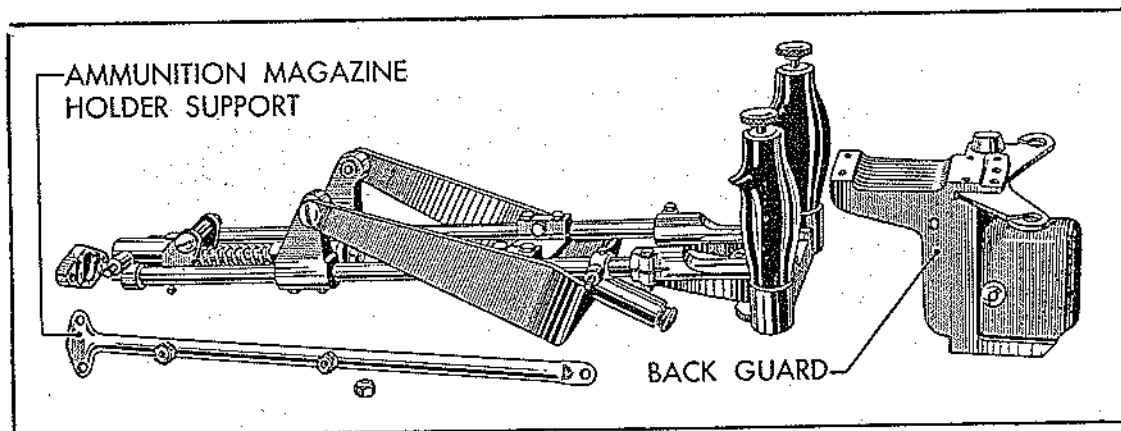


Figure 27A

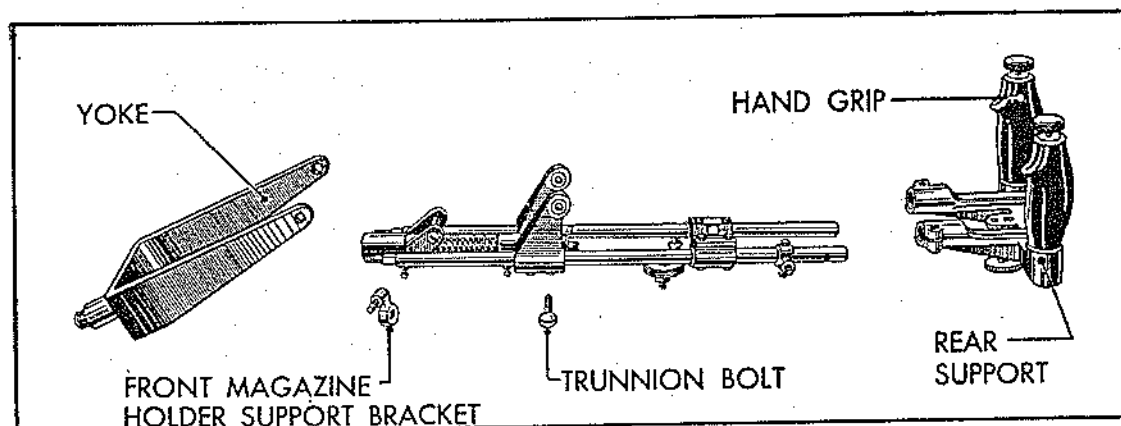


Figure 27B

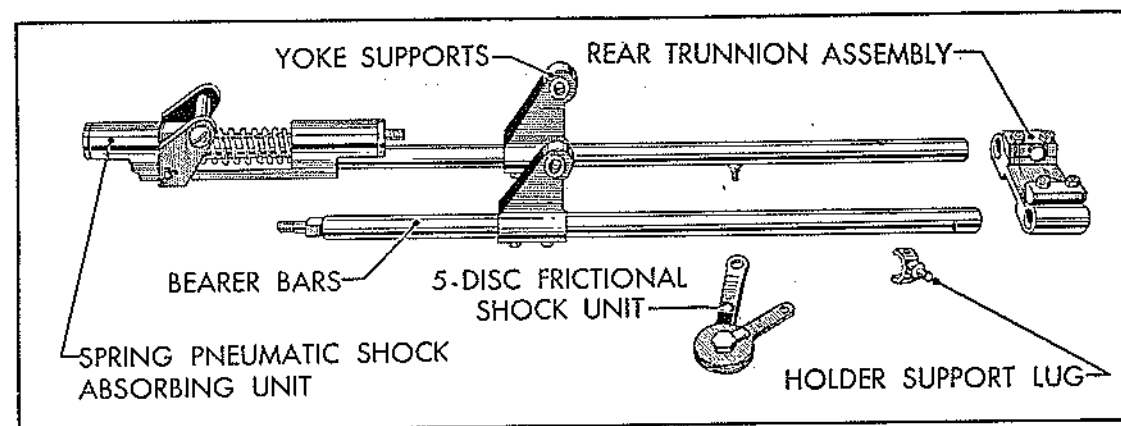


Figure 27C

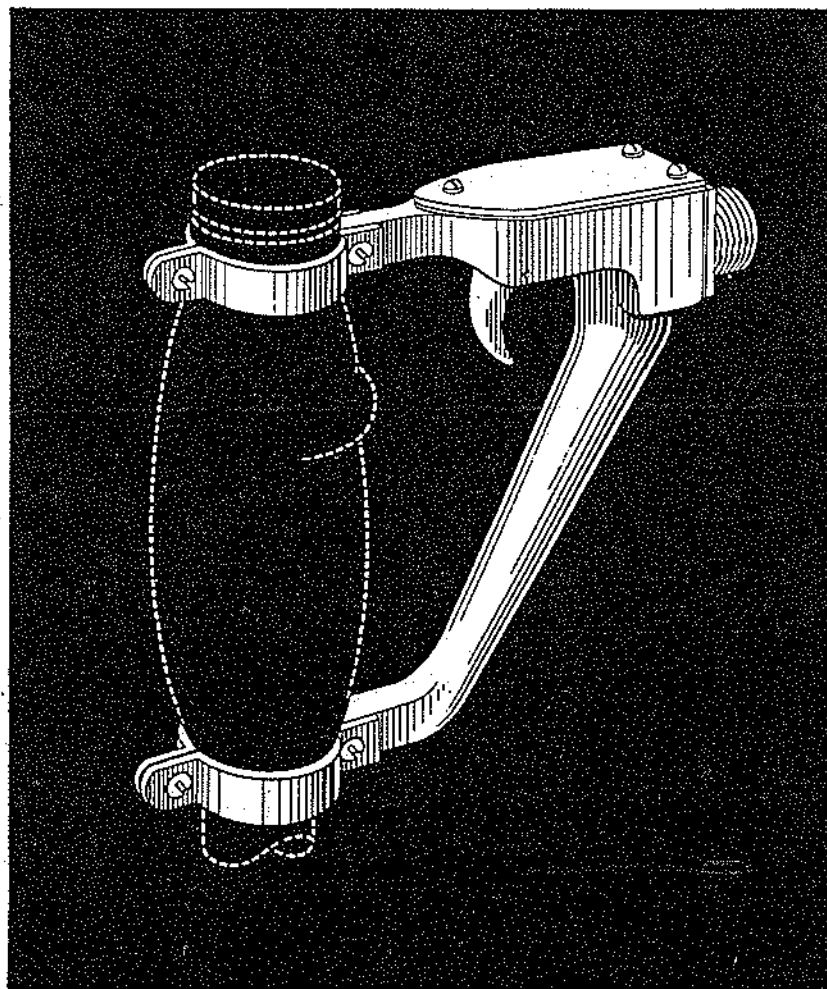


Figure 28.—The Microphone Switch Mk 1

SECTION 3, SINGLE GUN MOUNT ADAPTERS

41. MICROPHONE SWITCH MK 1

At present, the Flexible Gun Mount Adapters Mk 6 Mod 3, Mk 9, Mk 10 Mods 2 and 3, and Mk 12 in service are not equipped with a gunner's microphone switch. When required, therefore, the Microphone Switch Mk 1, illustrated above, may be ordered and installed as a supplementary unit on the hand grips of the above adapters.

Modifications of the above adapters, except the Gun Mount Adapter Mk 12, which is no longer under procurement, and the Gun Mount Adapter Mk 9, include microphone switches integrally built into the hand grips as shown on pages 47 and 55. The modifications are as follows: Mk 6 Mod 3 becomes Mk 6 Mod 4; Mk 10 Mod 2 becomes Mk 10 Mod 4; Mk 10 Mod 3 becomes Mk 10 Mod 5.

This auxiliary switch may also be used with the Gun Mount Adapter Mk 9 by attaching it to the spade grip of the caliber .30 BAM gun. The electrical lead furnished in the airplane must be capable of mating with AN 3102-14S-1P receptacle on the switch assembly.

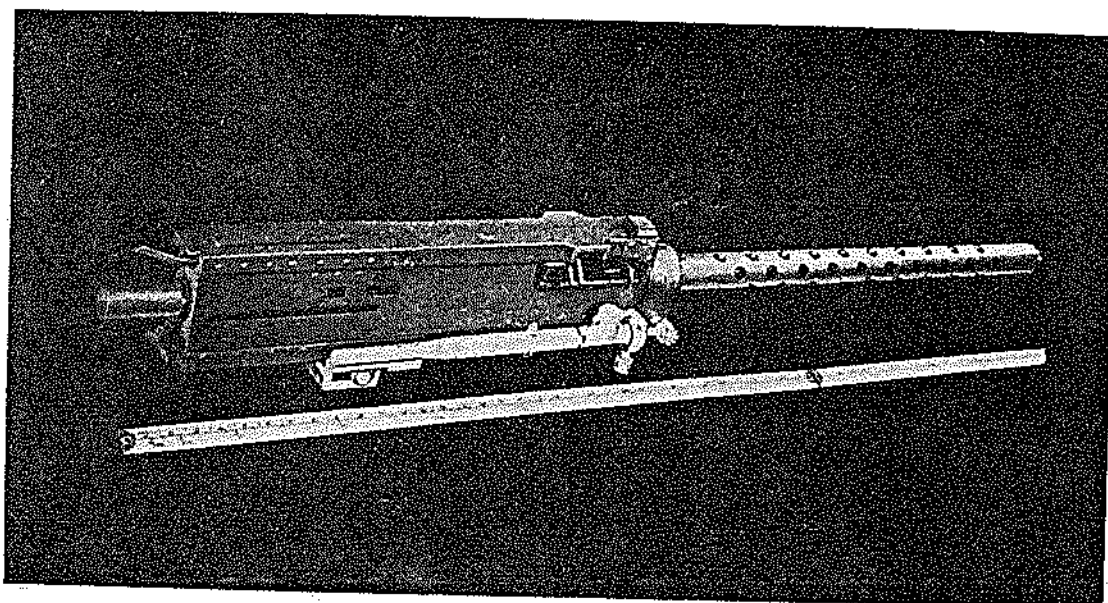


Figure 29.—Gun Mount Adapter Mk 8 Mod 1 (Rigid, Single)
Caliber .50 BAM Gun

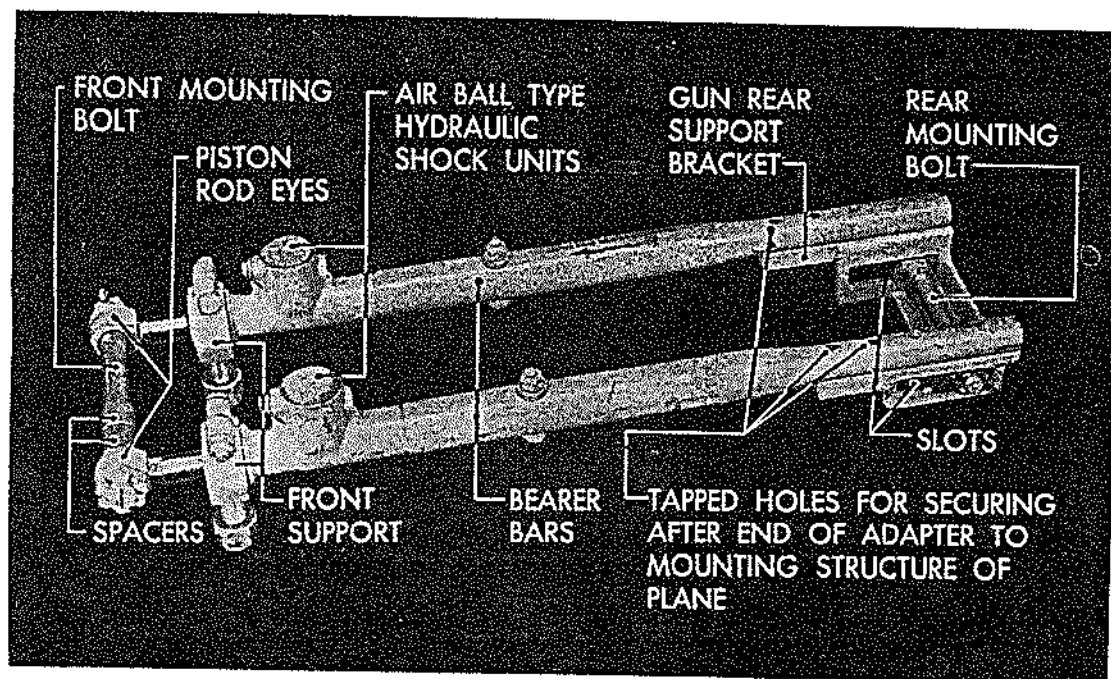


Figure 30.—Gun Mount Adapter Mk 8 Mod 1 Alone

SECTION 3. SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 8 MOD 1 (RIGID, SINGLE)

42. The Gun Mount Adapter Mk 8 Mod 1 is a single, rigid type adapter mounting a caliber .50 BAM gun. Its function is to provide a shock-absorbing gun cradle for aircraft turrets. Its weight is 6.0 lb., and its dimensions are 18.3 in. x 5.4 in. x 3.0 in.

43. THE FRAME

The frame consists of two parallel bearer bars connected at the rear by the gun rear support. At the front, the bars are connected by the front mounting bolt and by the turret structure to which the front supports are bolted. Integrally built into the bars are two air-ball type hydraulic shock-absorbing units previously explained on page 14.

44. GUN FRONT SUPPORT

The front trunnion of the gun is supported by the piston rod eyes to which it is bolted.

45. GUN REAR SUPPORT

The rear of the gun is supported by a slotted bracket fastened to the bottom of the bearer bars. The gun rear mounting bolt and its two slides reciprocate in the slots during gun recoil and counterrecoil.

46. AMMUNITION FEED

No provision for feeding ammunition is supplied with the adapter, since the feeding arrangement is provided in the turret installation.

47. MOUNT

The adapter is mounted rigidly on the turret structure by two bolts on the front support and by four screws which fit into tapped holes in the bearer bars.

48. SIGHT BRACKET

The sights are mounted remotely from the gun on the turret. Therefore, no sight brackets are provided with the adapter.

49. BACK GUARD

Because the gun and adapter are not manually operated, a back guard for the gunner's protection is unnecessary.

50. TRIGGER

As the gun is fired by an electric trigger control, a manual trigger assembly is not supplied.

51. GUN CONVERSION

Gun conversion varies, depending upon the particular turret installation.

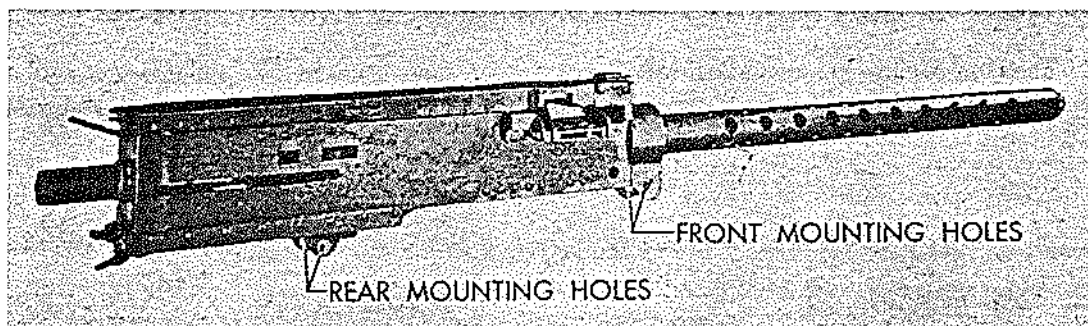


Figure 31A.—Caliber .50 BAM Gun

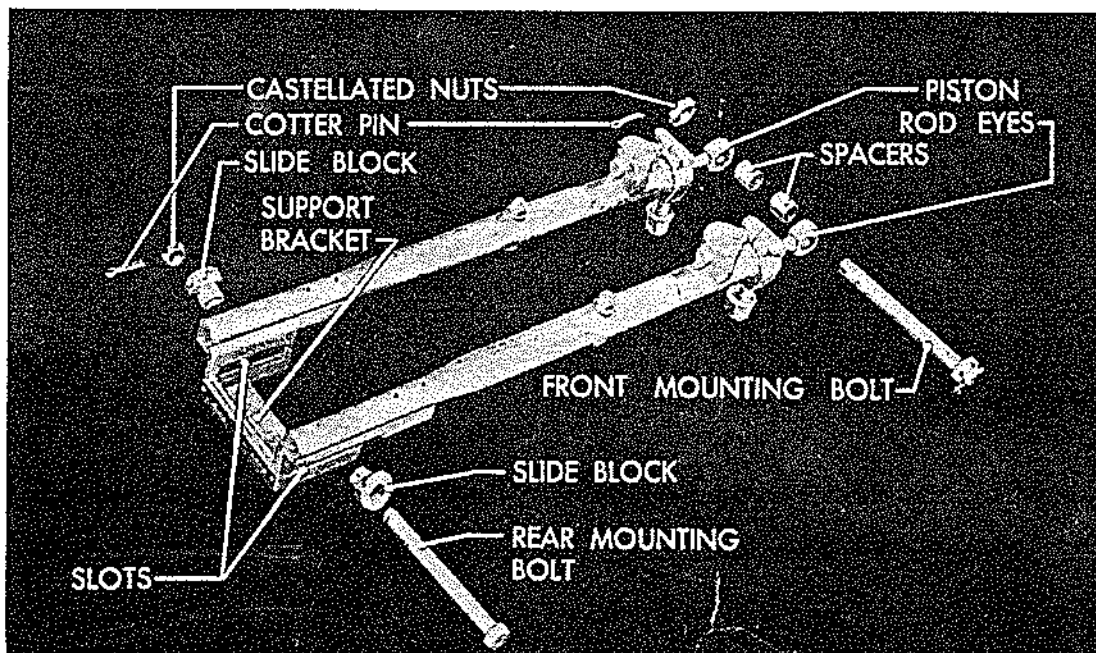


Figure 31B.—Gun Mount Adapter Mk 8 Mod 1—Ready for Installation

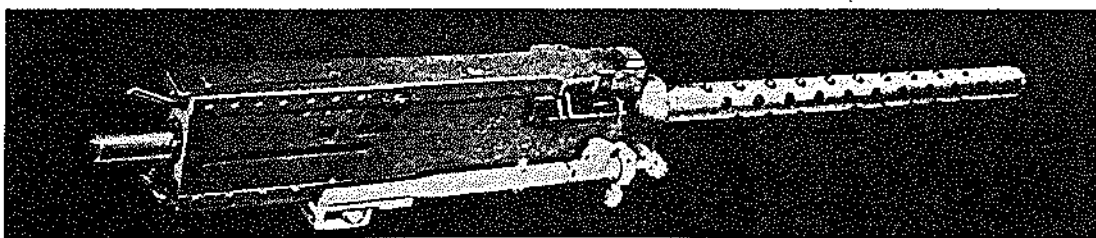


Figure 31C.—Gun Installed

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 8 MOD 1 (RIGID, SINGLE)

52. GUN INSTALLATION

- (a) Remove front and rear mounting bolts shown in Fig. 31B.
- (b) Lower gun into adapter.
- (c) Insert slides in slots of support bracket.
- (d) Align slides with rear mounting holes of gun shown in Fig. 31A.
- (e) Insert bolt.
- (f) Screw on castellated nut and tighten as much as possible without binding slides in slots.
- (g) Insert cotter pin.
- (h) Place spacers between front mounting holes of gun and piston rod eyes as illustrated in Fig. 31C.
- (i) Insert front mounting bolt, screw on castellated nut, tighten firmly, and insert cotter pin.

DISASSEMBLY

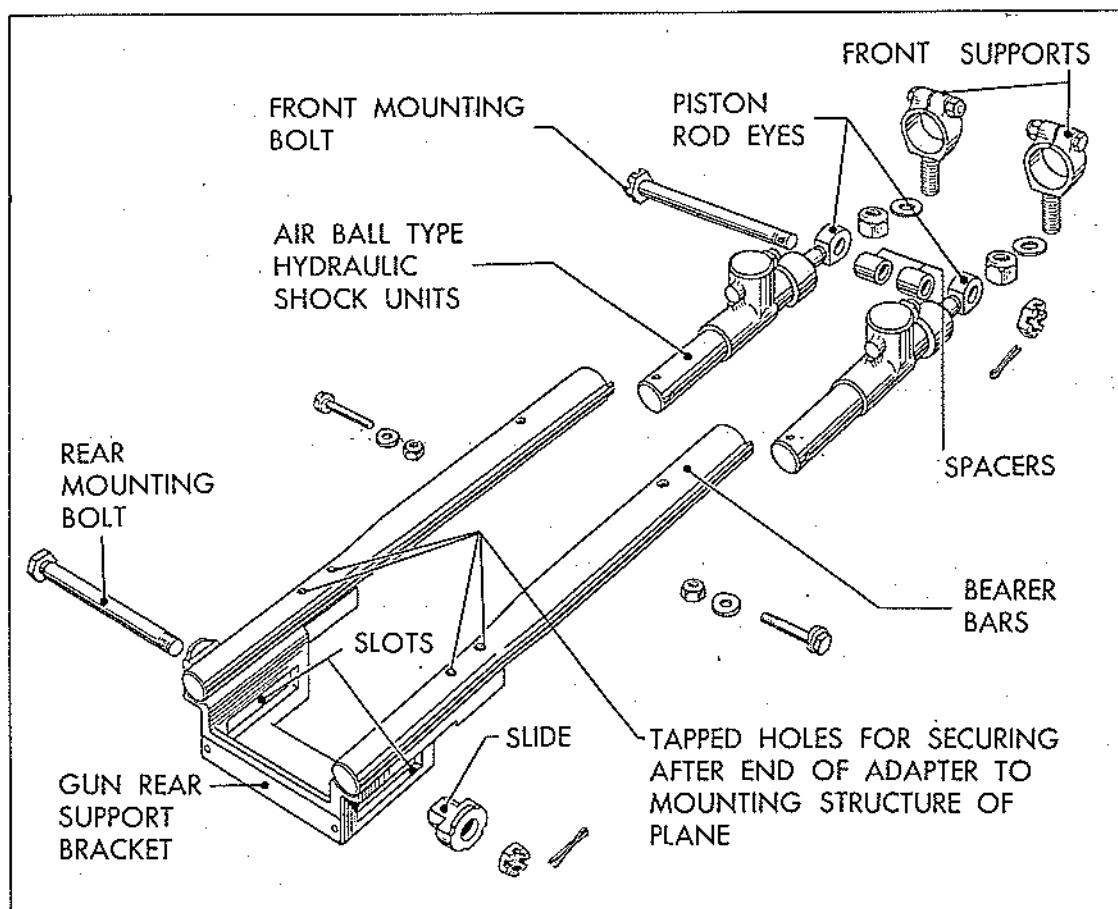


Figure 32.—Disassembly of Gun Mount Adapter Mk 8 Mod 1

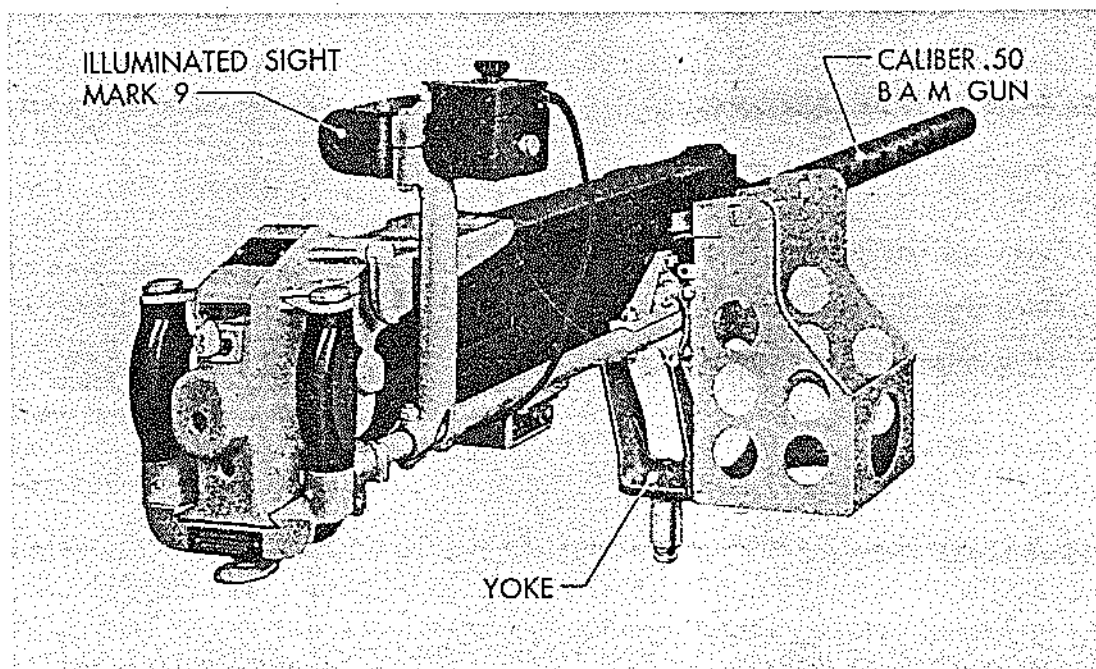


Figure 33.—Gun Mount Adapter Mk 6 Mod 3 (Flexible, Single) with Caliber .50 BAM Gun

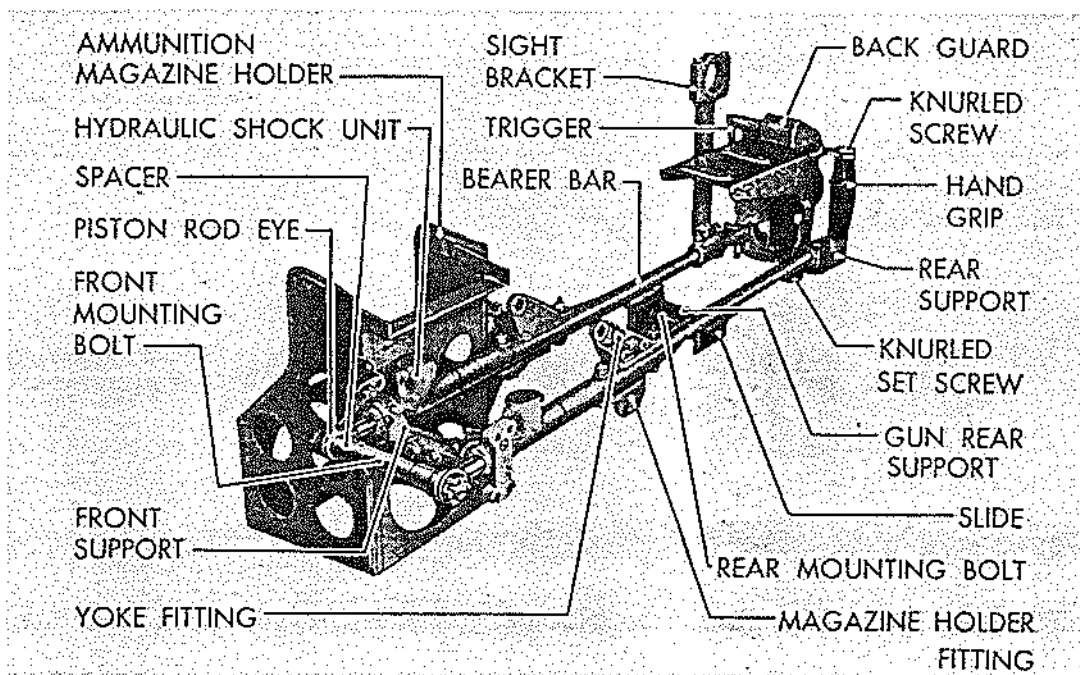


Figure 34.—Gun Mount Adapter Mk 6 Mod 3 Alone

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 6 MOD 3 (FLEXIBLE, SINGLE)

53. The Gun Mount Adapter Mk 6 Mod 3 is flexible, mounting a single caliber .50 BAM gun with a fixed-type back plate. Its weight, without yoke, is 15.6 lb., and its dimensions are 29.4 in. x 15.7 in. x 19.2 in.

54. THE FRAME

The adapter frame consists of two bearer bars connected by the front support, the gun rear support, and the rear support, shown in facing Fig. 34. Built into the bearer bars are two hydraulic shock units previously explained on page 10.

55. GUN FRONT SUPPORT

The front of the gun is supported by the piston rod eyes to which it is bolted.

56. GUN REAR SUPPORT

The rear of the gun is supported by a slotted bracket affixed to the bottom of the bearer bars. The gun rear mounting bolt and its two slides reciprocate in the slots during gun recoil and counterrecoil.

57. AMMUNITION MAGAZINE HOLDER

The holder can be bolted to either side of the adapter, depending upon the side from

which the gun must be fed. This varies with the airplane installation.

In certain installations, continuous feed units, not furnished with the adapter, are substituted for the holder.

58. YOKE

The yoke, not supplied with the adapter, is furnished by the airplane contractor in order that the required angles of fire may be obtained in the particular installation. Extra holes are provided so that the yoke can be fastened to the adapter in either of two positions, $1\frac{1}{8}$ inches apart, in order that clearance requirements of patrol type airplanes can be met. Where these requirements do not dictate position of the yoke, it should be attached at the aftermost position for best handling of the adapter.

59. SIGHT BRACKET

The sight bracket provides a mount for the Illuminated Sight Mk 9 or Mk 9 Mod 1.

Note: The Gun Mount Adapter Mk 6 Mod 2 should be converted to Mod 3 by means of Navord Ordalt 1746.

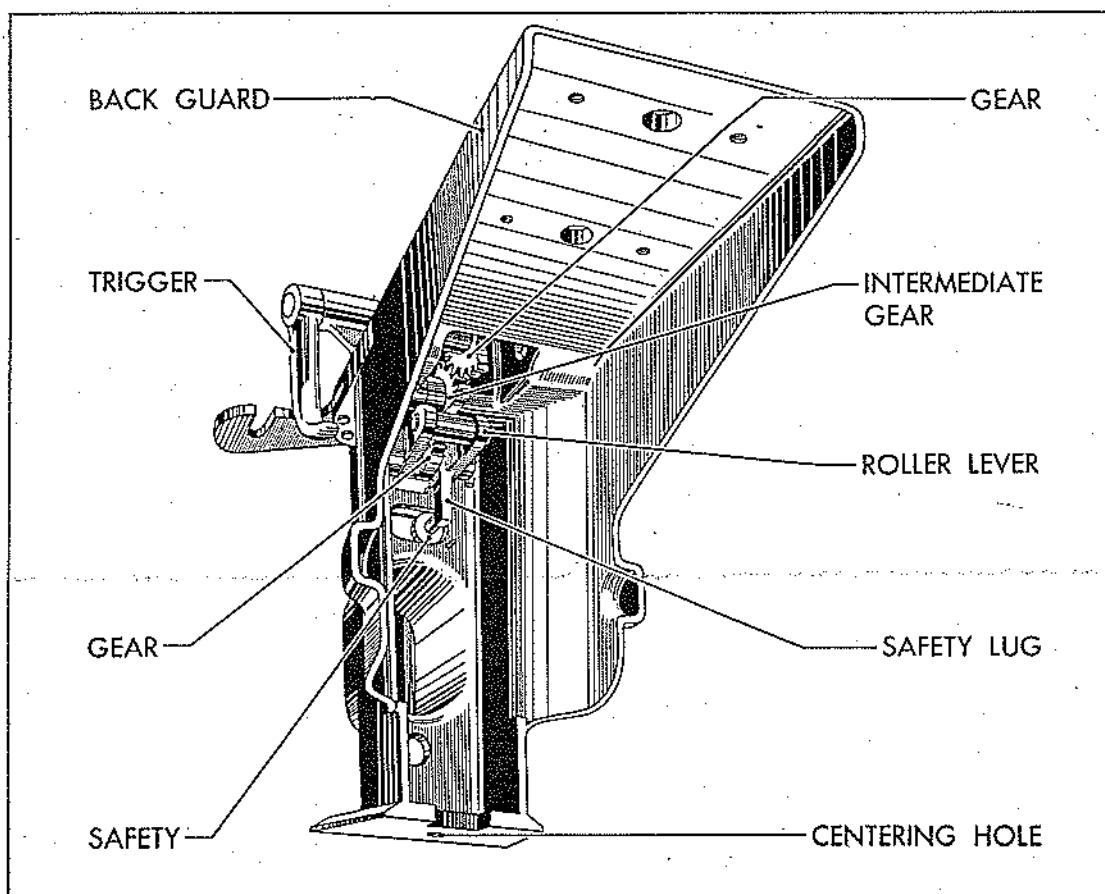


Figure 35.—Back Guard and Trigger Assembly

60. BACK GUARD

The back guard and trigger assembly on the Gun Mount Adapter Mk 6 Mod 3 are similar in structure, and identical in function, to those on the Gun Mount Adapter Mk 12 illustrated on page 30.

As stated before, the back guard protects the gunner against injury from the recoil shock of the gun. By loosening the two knurled screws at the top of the hand grips, and the knurled set screw at the bottom of the rear support, the back guard may be pulled back and removed so that the gun can be serviced.

61. TRIGGER ASSEMBLY

The trigger arm on the back guard is geared

to a roller lever which contacts the gun bell crank. Pulling the trigger depresses the roller lever which lowers the bell crank, thus actuating the gun firing mechanism.

Sliding the safety button on the back guard to the SAFE position locks the trigger, preventing accidental discharge of the gun.

Caution—When replacing the back guard, be sure that the safety button is on SAFE, and that the roller lever slides above the bell crank.

Before tightening screws, see that knurled hand grip screws are properly seated, and that knurled set screw in bottom of rear support is centered in hole at bottom of back guard.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 6 MOD 3 (FLEXIBLE, SINGLE)

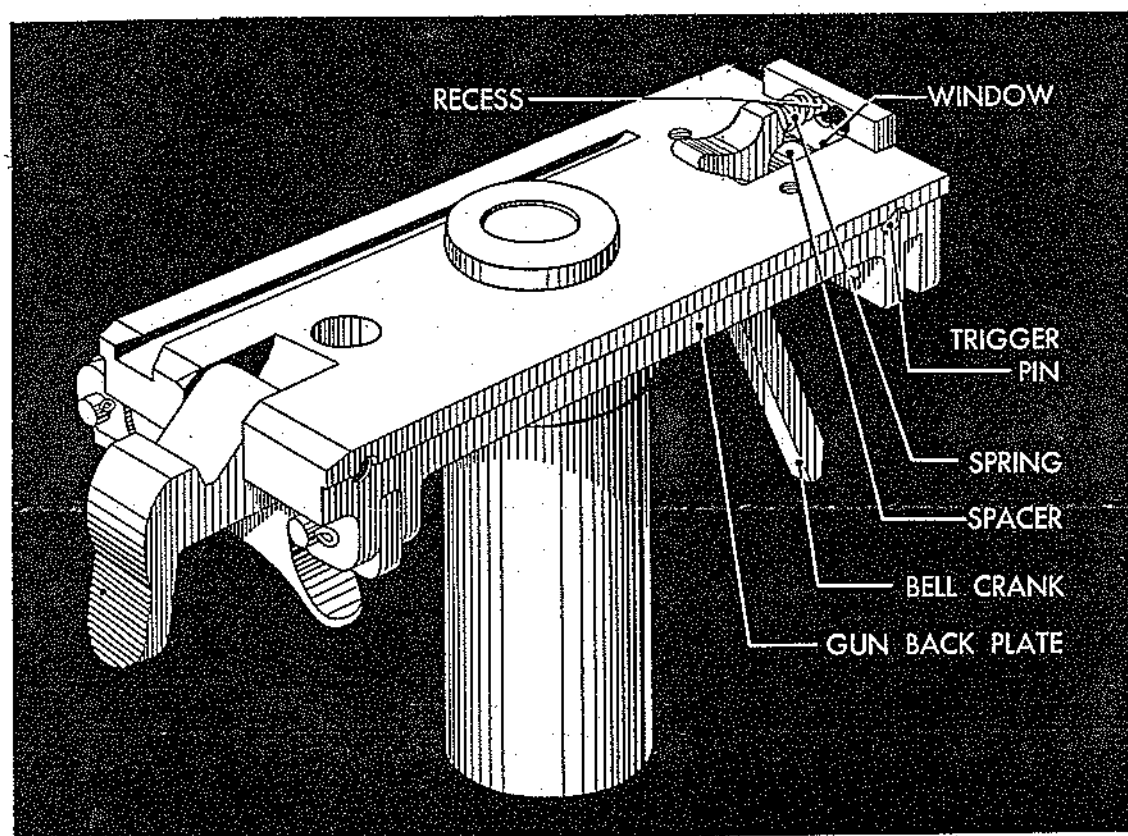


Figure 36.—Bell Crank Installation for Caliber .50 BAM Gun Conversion

62. GUN CONVERSION

Bell Crank Installation — A caliber .50 BAM gun with a fixed back plate is installed in the Gun Mount Adapter Mk 6 Mod 3. A bell crank, supplied with the adapter, is installed in the back plate of the gun and connects the gun-firing mechanism with the adapter trigger. Following is the installation procedure:

- (a) Remove the gun back plate shown in Fig. 36.
- (b) Remove the trigger pin and the filler piece from the window in the top of the back plate.
- (c) Insert the bell crank in the window with its longer arm aft as shown in Fig. 36.
- (d) Place the spacer in the window on the

left side of the bell crank, and re-insert the trigger pin through the back plate, spacer, and bell crank.

- (e) Place the bottom of the spring in the bell crank recess—compress the spring—and slip its top into the recess in the top of the window.

- (f) Replace the back plate on the gun.

Note: The parts necessary for the above conversion come in a small bag attached to each adapter. Navord OCL V27-43 calls attention to the fact that some Gun Mount Adapters Mk 6 Mod 2 were delivered minus the bell crank trigger spacer and bell crank trigger springs, and tells how to order them separately. The Gun Mount Adapters Mk 6 Mod 3 should include these in their bag of parts.

GUN CONVERSION (continued)

Retracting Slide Installation—The retracting slide group assembly is supplied as a separate unit for the gun. This unit must be installed on the left side of the gun because the sight bracket, mounted on the right side of the adapter as shown in Fig. 37A,

would prevent full retraction on the right side.

The retracting slide lever of the gun must be installed in the foremost of its two optional positions on the retracting slide in order to clear the adapter back guard during charging.

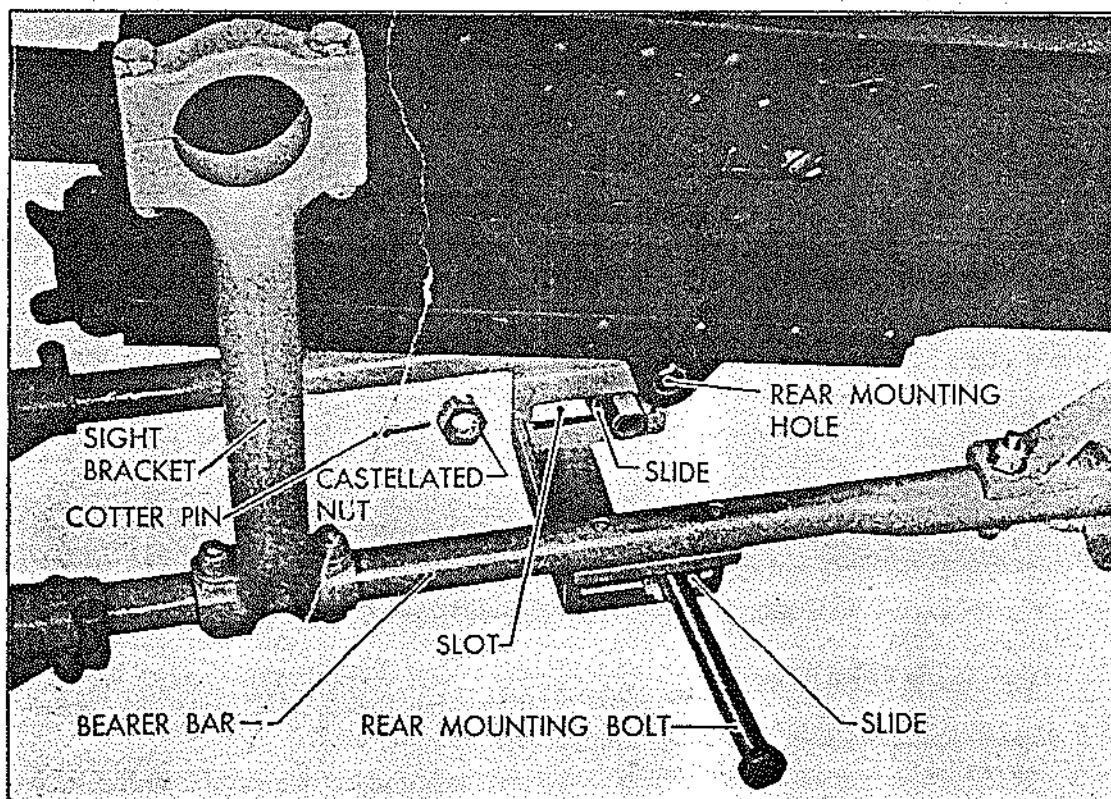


Figure 37A.—Gun Rear Installation

63. GUN INSTALLATION

The procedure for installing a caliber .50 gun in the Gun Mount Adapter Mk 6 Mod 3 is as follows:

- (a) Remove back guard.
- (b) Remove front and rear mounting bolts.

- (c) Lower gun into the adapter.

Gun Rear Installation—(d) Insert slides in slots of support bracket as shown in Fig. 37A. (e) Align slides with rear mounting holes of gun and insert bolt. (f) Screw on castellated nut and tighten as much as possible without binding slides in slots. Insert cotter pin.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 6 MOD 3 (FLEXIBLE, SINGLE)

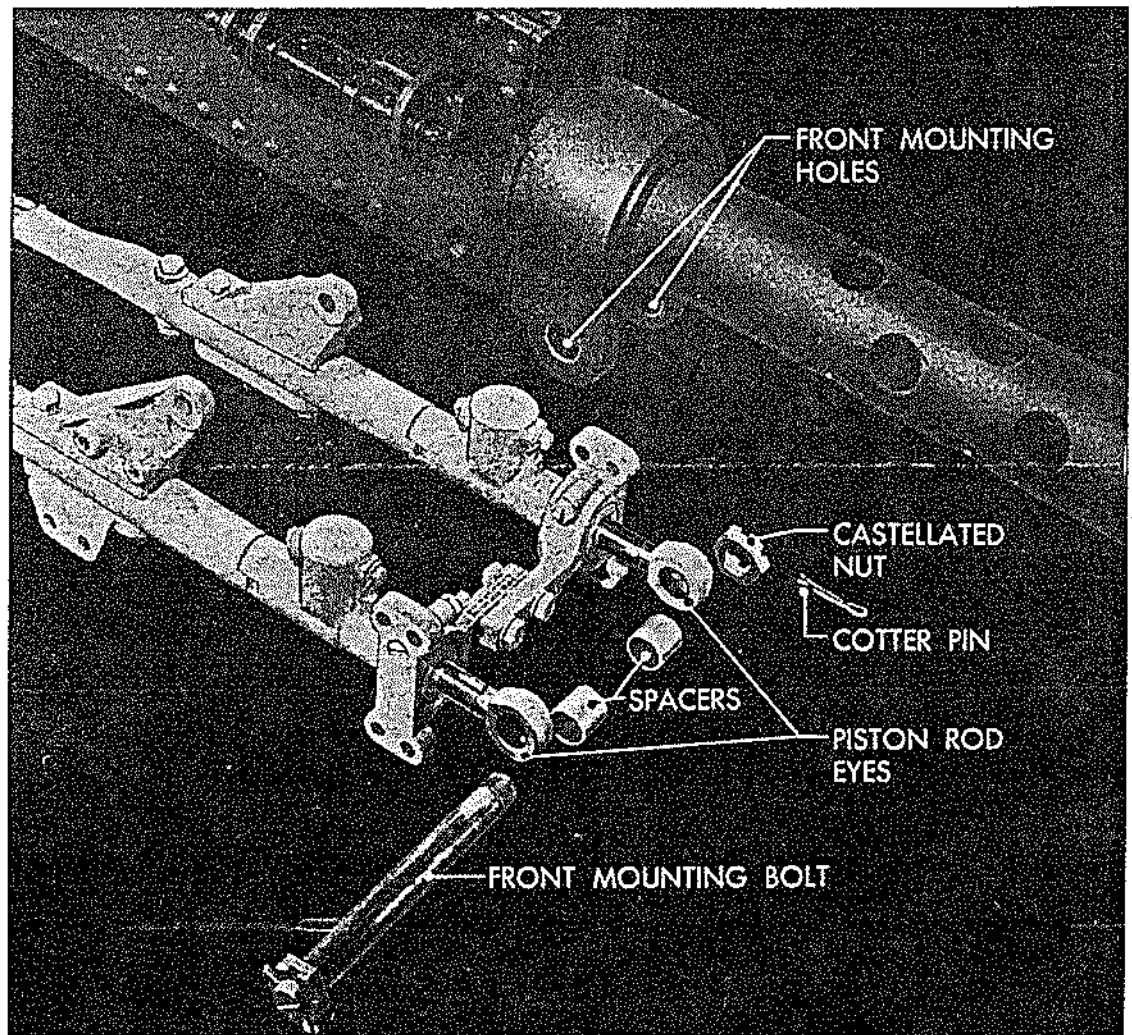


Figure 37B.—Gun Front Installation

Gun Front Installation—(h) Place spacers between front mounting holes of gun and piston rod eyes, shown in Fig. 37B. (i) Insert front mounting bolt. (j) Screw on castellated nut, tighten firmly, and insert cotter pin.

(k) Place safety button on SAFE, and replace back guard so that roller lever slides above gun bell crank. (l) Before tightening screws, be sure that knurled hand grip screws are properly seated, and that knurled set screw in bottom of rear support is centered in hole at bottom of back guard.

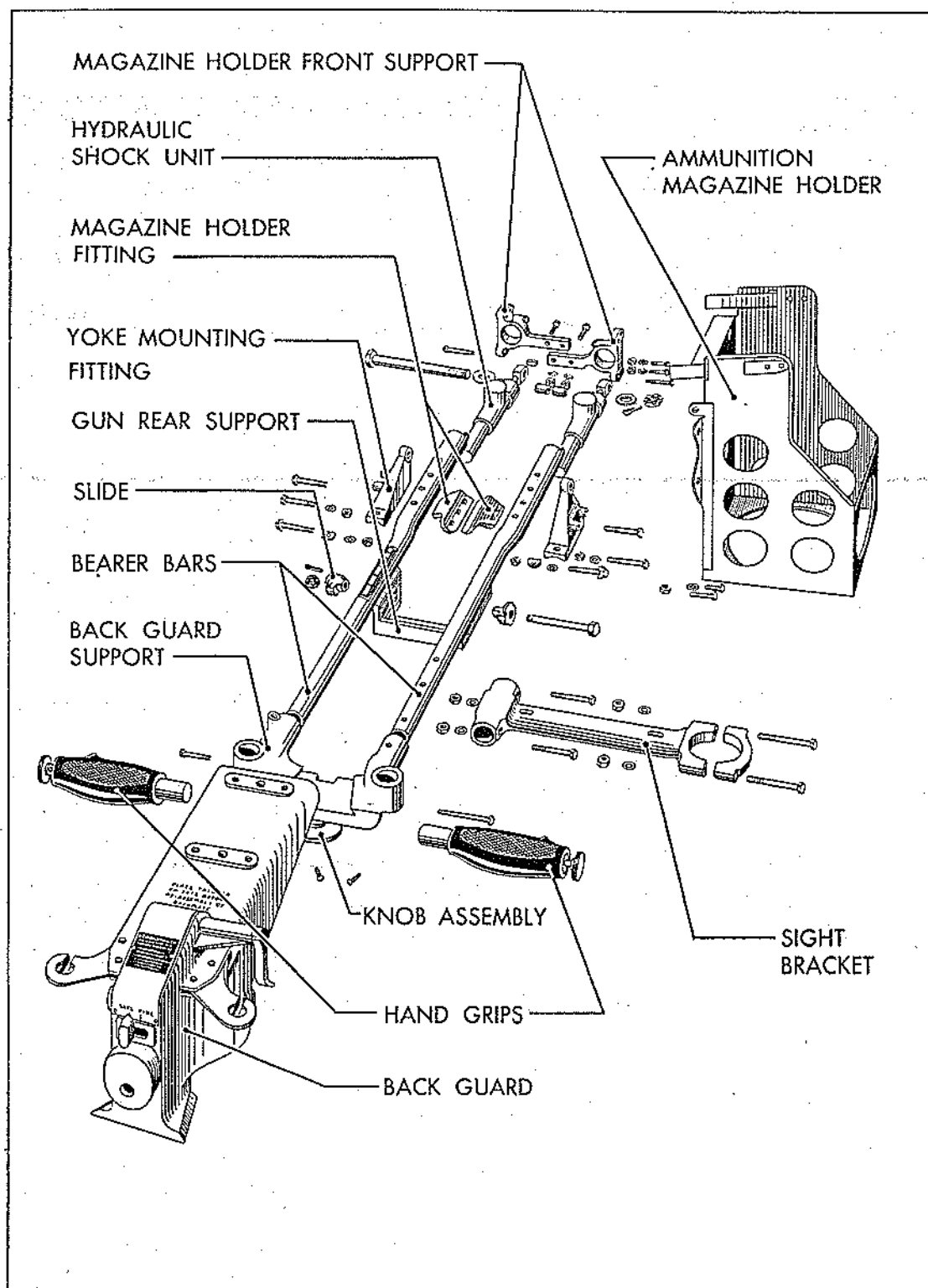
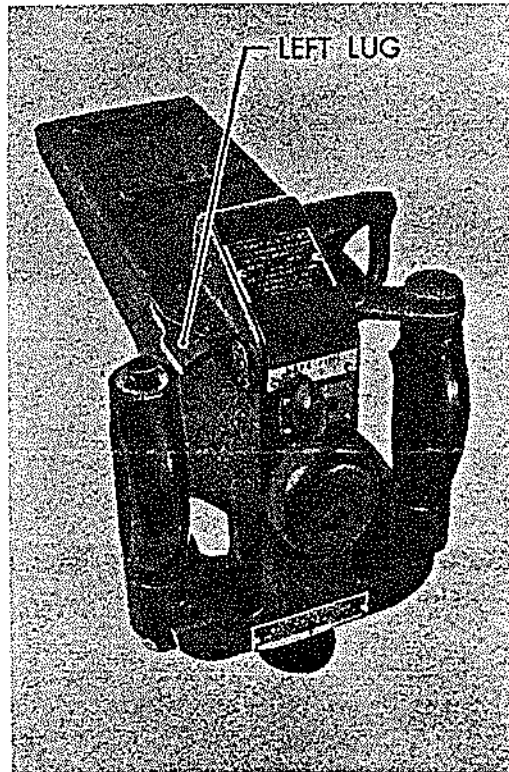


Figure 38.—Disassembly of Gun Mount Adapter Mk 6 Mod 3

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 6 MOD 4 (FLEXIBLE, SINGLE)



**Figure 39. — The Microphone Switch
Integrally Built Into the Gun Mount
Adapter Mk 6 Mod 4**

The Gun Mount Adapters Mk 6 Mod 3 and Mk 6 Mod 4 are identical except in the two following respects.

The microphone switch, illustrated above, is integrally built into the left-hand grip of the Gun Mount Adapter Mk 6 Mod 4.

The left lug of the back guard on the Gun Mount Adapter Mk 6 Mod 4 has been cut off, as shown above, to permit operation of the push-button microphone switch.

Note: Gun Mount Adapters of the Mk 6 type not having a built-in microphone switch may be provided with one by using the Microphone Switch Mk 1 described on pages 34, 35, and 84.

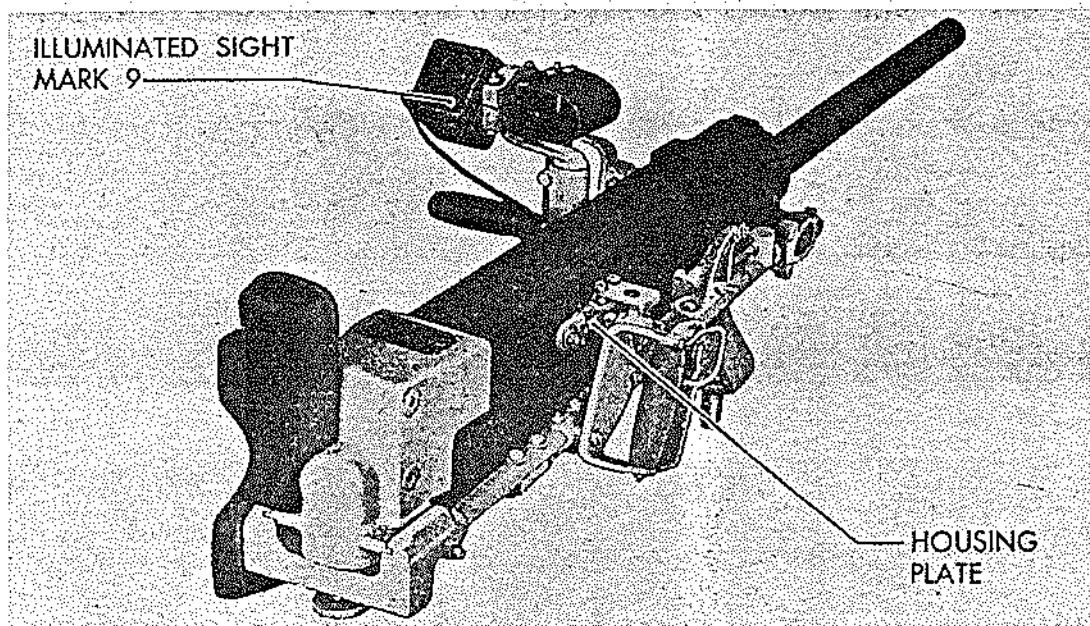


Figure 40.—The Gun Mount Adapter Mk 10 Mod 3 (Flexible, Single) with Caliber .50 BAM Gun

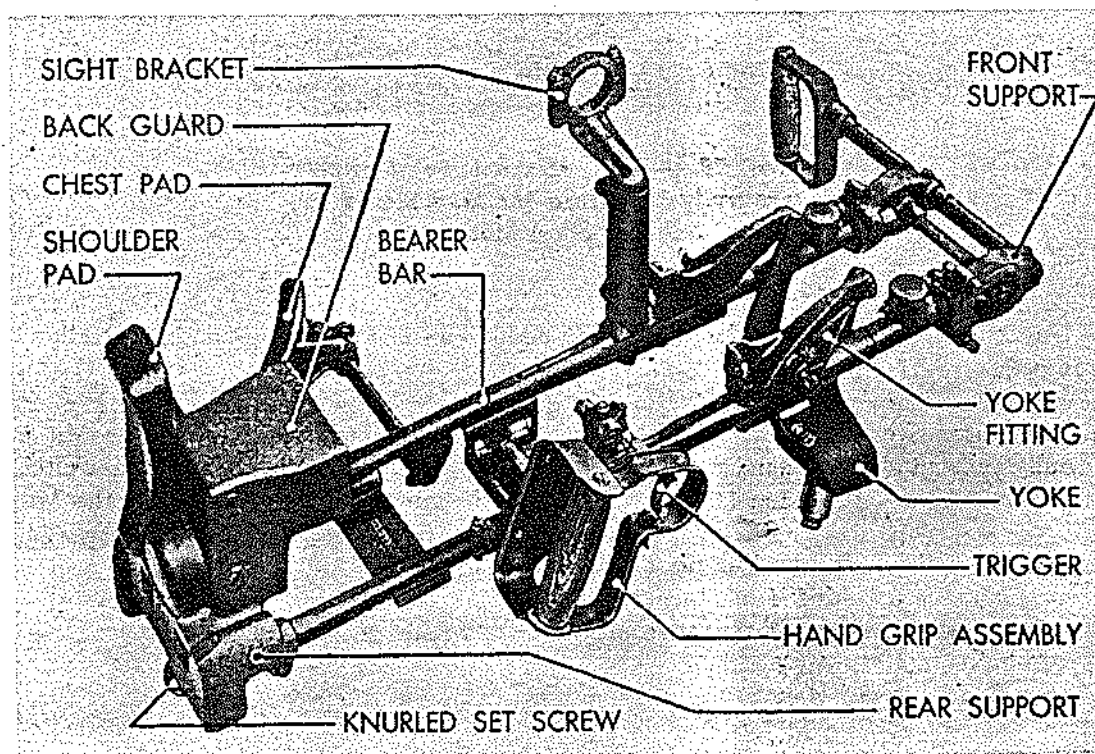


Figure 41.—The Gun Mount Adapter Mk 10 Mod 3 Alone

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 SINGLE, FLEXIBLE ADAPTER MK 10 MOD 3

64. The Gun Mount Adapter Mk 10 Mod 3 is flexible, and mounts a single caliber .50 BAM gun. Body and shoulder pads are positioned so that the gunner fires from his right side instead of standing directly behind the adapter. The trigger is housed in the right-hand grip. The adapter weighs 21.4 lb., and its dimensions are 32.0 in. x 20.8 in. x 18.2 in.

65. THE FRAME

The frame consists of two bearer bars connected by the cross members shown in Fig. 41. Built into the bearer bars are two hydraulic shock units previously explained on page 13.

66. GUN FRONT SUPPORT

The front of the gun is supported by the piston rod eyes to which it is bolted.

67. GUN REAR SUPPORT

The rear of the gun is supported by a slotted bracket affixed to the bottom of the bearer bars. The gun rear mounting bolt with its two slides reciprocates in the slots during gun recoil and counterrecoil.

68. AMMUNITION FEED

The front support and yoke fittings have tapped holes and studs for installation of a continuous-feed unit or a magazine holder, either of which is installed according to the needs of the particular installation.

69. SIGHT BRACKET

The sight bracket provides for mounting the Illuminated Sight Mk 9 or Mk 9 Mod 1. The bracket is clamped into the mounting post, which is bolted to the left bearer bar.

70. BACK GUARD

The back guard protects the gunner against injury by gun recoil. By loosening the knurled set screw at the bottom of the rear support, the back guard can be pulled back and removed, so that the gun can be serviced.

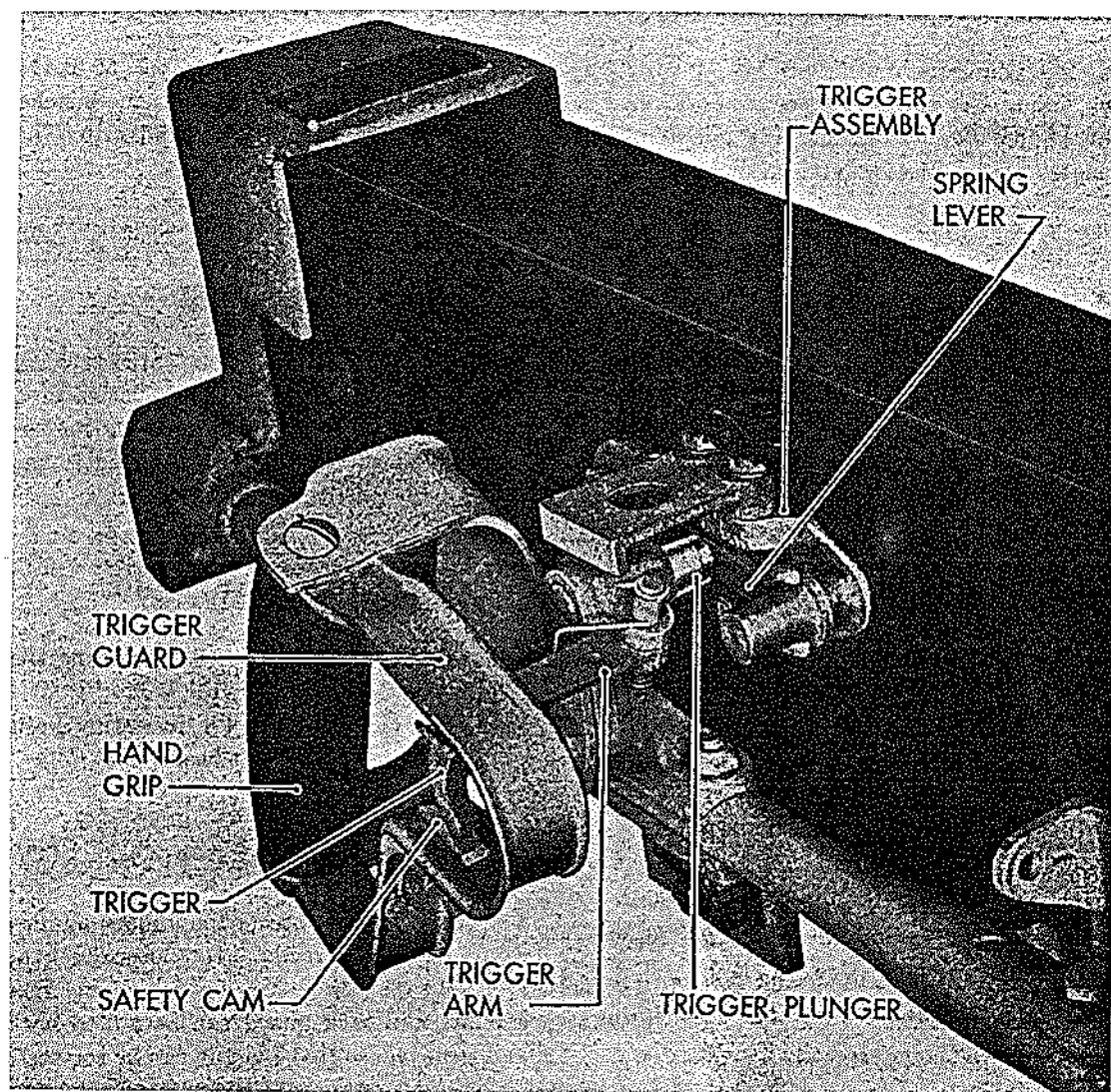


Figure 42.—Hand Grip and Firing Mechanism

71. TRIGGER ASSEMBLY

The trigger assembly shown in Fig. 42 is mounted on a bracket secured to the right bearer bar. The trigger and its plunger actuate the trigger assembly illustrated in Fig. 42 and in Fig. 43 on the opposite page. This assembly controls the gun-firing mechanism.

The spring lever on the housing plate has a camming lug which contacts the sear slide of the gun. Pulling the trigger, therefore, thrusts

the plunger against the lever so that its lug actuates the sear slide—thus firing the gun.

The trigger assembly, mounted on the gun side plate, reciprocates with recoil and counterrecoil. During firing, consequently, the trigger plunger and spring lever are in sliding—but positive—contact.

Rotating the safety cam on the trigger guard to its SAFE position locks the trigger, preventing accidental gun fire.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 3 (FLEXIBLE, SINGLE)

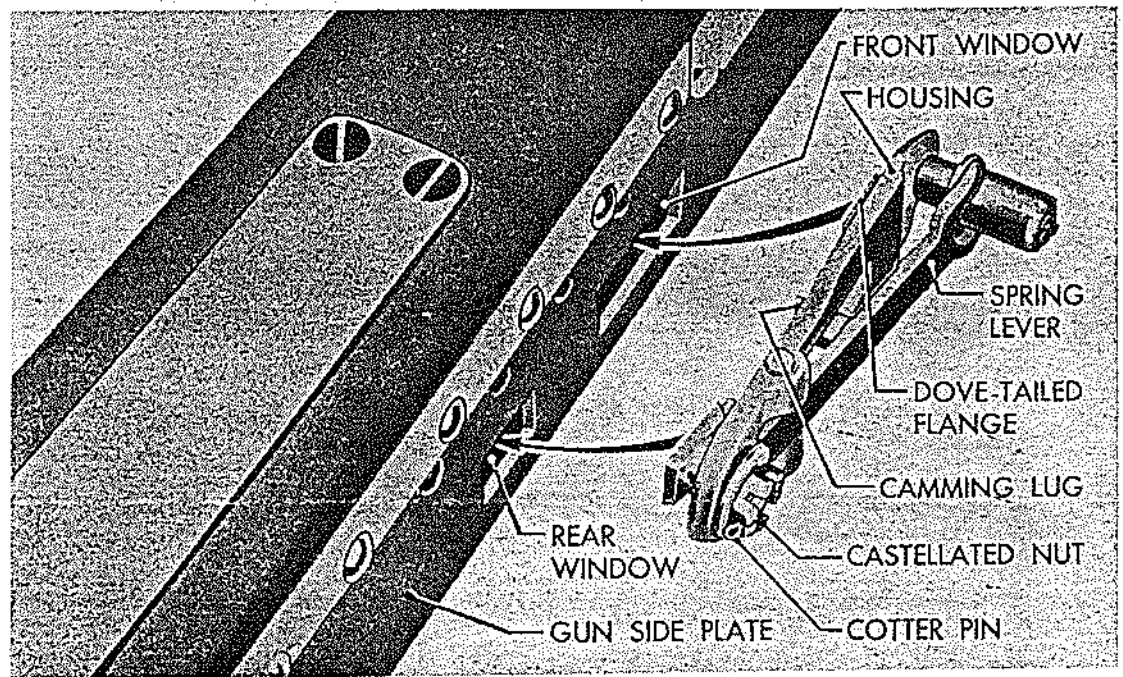


Figure 43.—Trigger Assembly

72. GUN CONVERSION

Housing Plate Installation—The trigger assembly, supplied with the adapter is installed on the right side of the gun receiver as follows:

- (a) Remove the cotter pin—then loosen the castellated nut on the dove-tailed bolt.
- (b) Insert the dove-tailed flange on the trigger housing into the front window of the gun side plate and thrust forward.
- (c) Insert the dove-tailed bolt head into the rear window, tighten the castellated nut—and reinsert its cotter pin.

Sear Slide Installation—The sear slide must be installed in the gun bolt so that its square end is toward the trigger assembly.

Note: The parts necessary for the above conversion come in a small bag attached to each adapter.

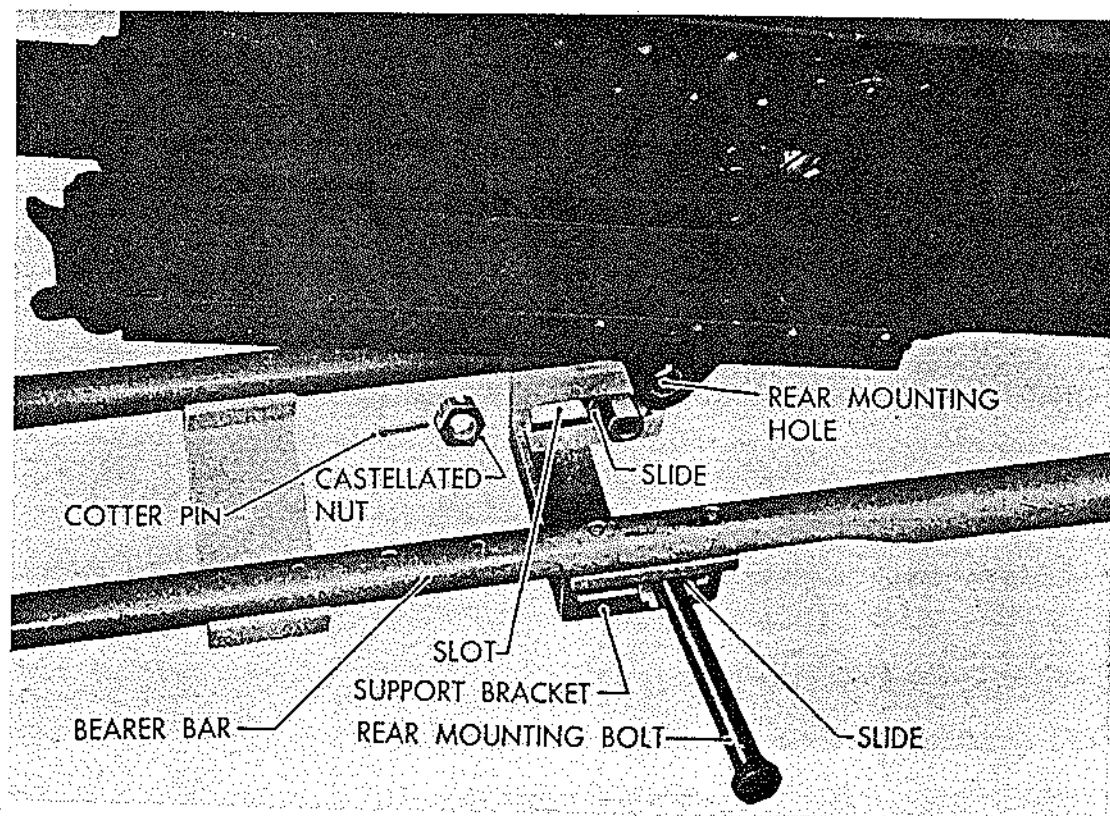


Figure 44A.—Gun Rear Installation

73. GUN INSTALLATION

Retracting Slide Installation — Before the gun is installed, the retracting slide group assembly must be installed on the left side of the gun.

The procedure for installing a caliber .50 gun in the Gun Mount Adapter Mk 10 type is as follows:

- (a) Remove the back guard.
- (b) Remove the front and rear mounting bolts. Lower the gun into the adapter. If the

retracting slide interferes with the sight bracket, file a $\frac{1}{4}$ -in. 45° bevel on the outer forward edge of the retracting slide bracket.

Gun Rear Installation—(c) Insert the slides in the slots of the support bracket as shown above in Fig. 44A. (d) Align the sides with the rear mounting holes of the gun and insert the mounting bolt. (e) Screw on the castellated nut and tighten it as much as possible without binding the slides in the slots. (f) Insert the cotter pin.

SECTION 3, SINGLE GUN MOUNT ADAPTERS

CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 3 (FLEXIBLE, SINGLE)

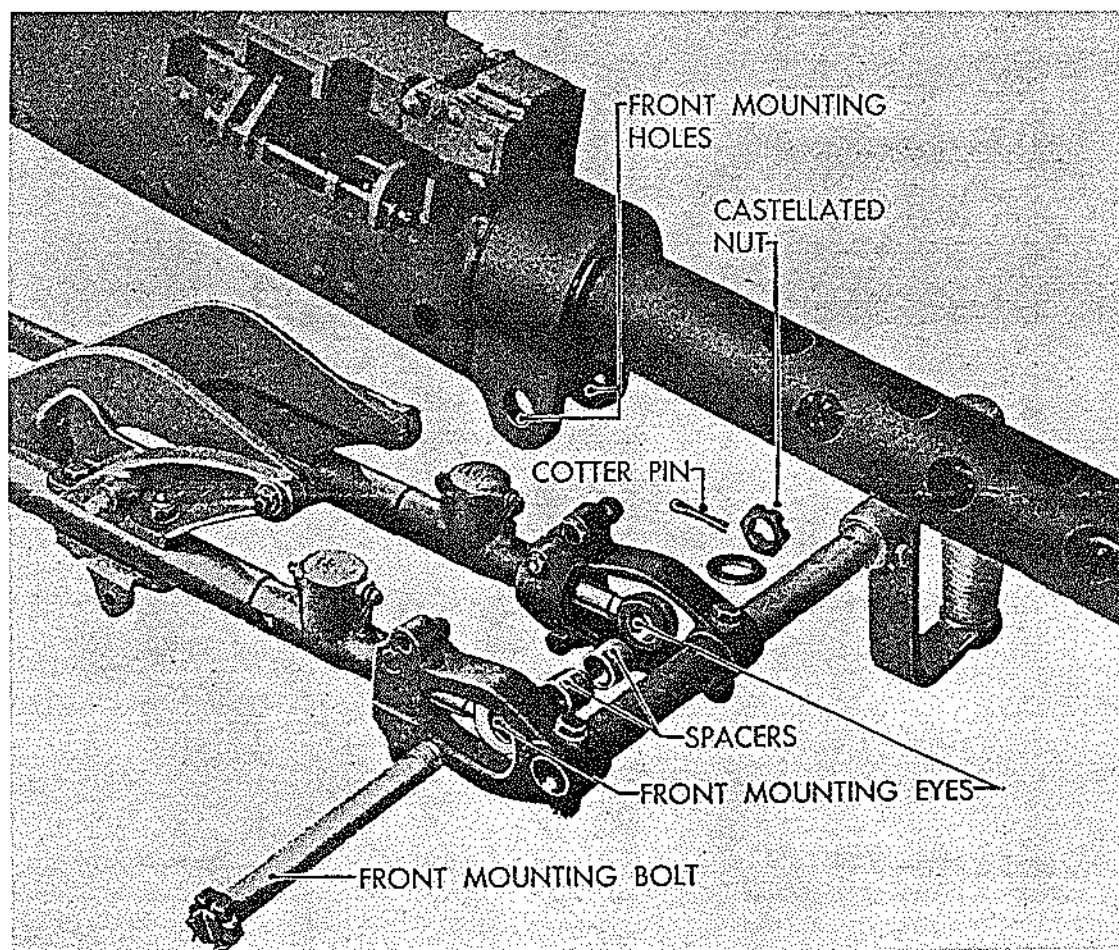


Figure 44B.—Gun Front Installation (Front Grip Removed)

Gun Front Installation—(g) Place the spacers between the front mounting holes of the gun and the piston rod eyes shown in Fig. 44B. (h) Insert the front mounting bolt. (i) Screw on the castellated nut, tighten firmly, and insert the cotter pin.

(j) Replace the back guard. Before tightening, be sure that the knurled set screw in the bottom of the rear support is centered in the hole at the bottom of the back guard.

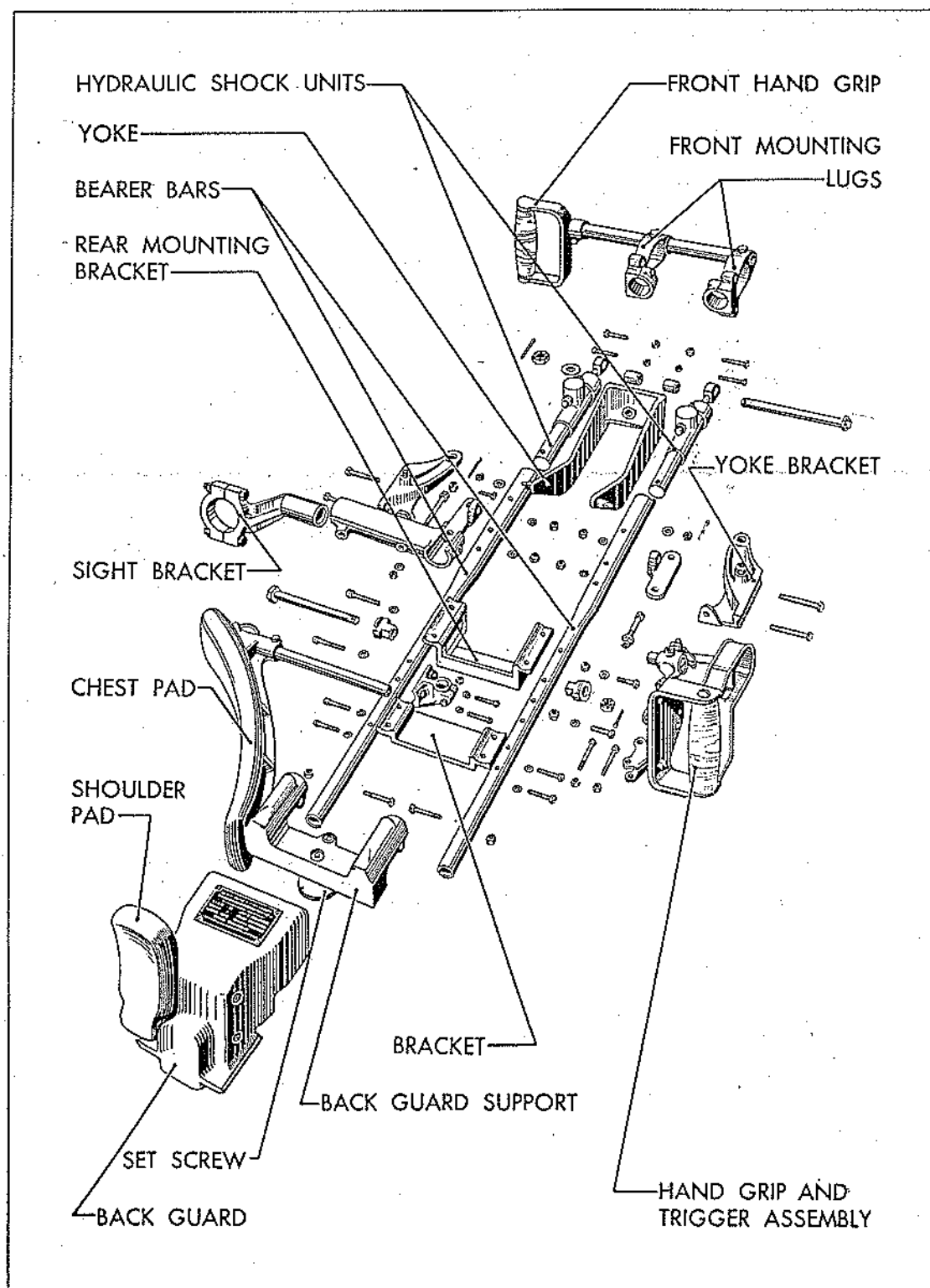


Figure 45.—Disassembly of Gun Mount Adapter Mk 10 Mod 3

SECTION 3, SINGLE GUN MOUNT ADAPTERS

74. CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 5 (FLEXIBLE, SINGLE)

The Gun Mount Adapter Mk 10 Mod 5 is exactly the same as the Gun Mount Adapter Mk 10 Mod 3 described on the preceding pages, except for the microphone switch illustrated below, which is integrally built into the right hand grip of the Gun Mount Adapter Mk 10 Mod 5.

75. CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 2 (FLEXIBLE, SINGLE)

This is the left-hand side firing version of the Gun Mount Adapter Mk 10 Mod 3 illustrated on the previous pages. It is identical to the Gun Mount Adapter Mk 10 Mod 3 in other respects, and their parts are interchangeable, with the exception of the two hand grip gun mount assemblies and the breast and shoulder pad assemblies.



Figure 46.—The Microphone Switch Integrally Built into the Gun Mount Adapter Mk 10 Mod 5.

76. CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 4 (FLEXIBLE, SINGLE)

The Gun Mount Adapter Mk 10 Mod 4 is the same as the Gun Mount Adapter Mk 10 Mod 2 except for the microphone switch, illustrated above, which is built into the left-hand grip of the Gun Mount Adapter Mk 10 Mod 4.

Note: Gun Mount Adapters of the Mk 10 type not having a built-in microphone switch may be provided with a microphone switch by means of the auxiliary microphone switch described on pages 34, 35, and 84.

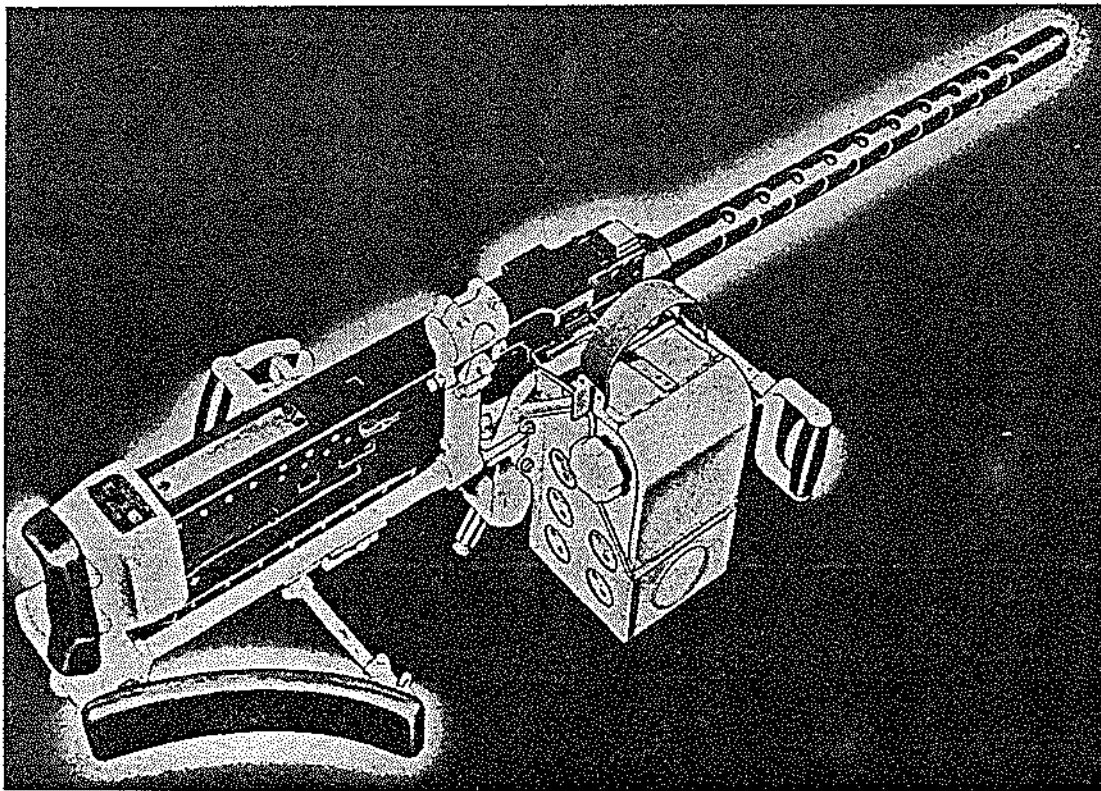


Figure 47.—Gun Mount Adapter Mk 10 with Caliber .50 BAM Gun

77. CALIBER .50 GUN MOUNT ADAPTER MK 10

The Gun Mount Adapter Mk 10, illustrated above, is basically the same as the Gun Mount Adapter Mk 10 Mod 2, except for the three following differences:

The Gun Mount Adapter Mk 10 has a sight bracket that is built to hold the Telescopic Sight Mk 5, while the sight bracket of the Gun Mount Adapter Mk 10 Mod 2 is designed to mount the Illuminated Sight Mk 9 or Mk 9 Mod 1.

The back guard on the Gun Mount Adapter Mk 10 has not been reshaped to eliminate interference with the gun-charging handle.

The breast and shoulder supports on the Gun Mount Adapter Mk 10 have not been provided with oil-resistant coating.

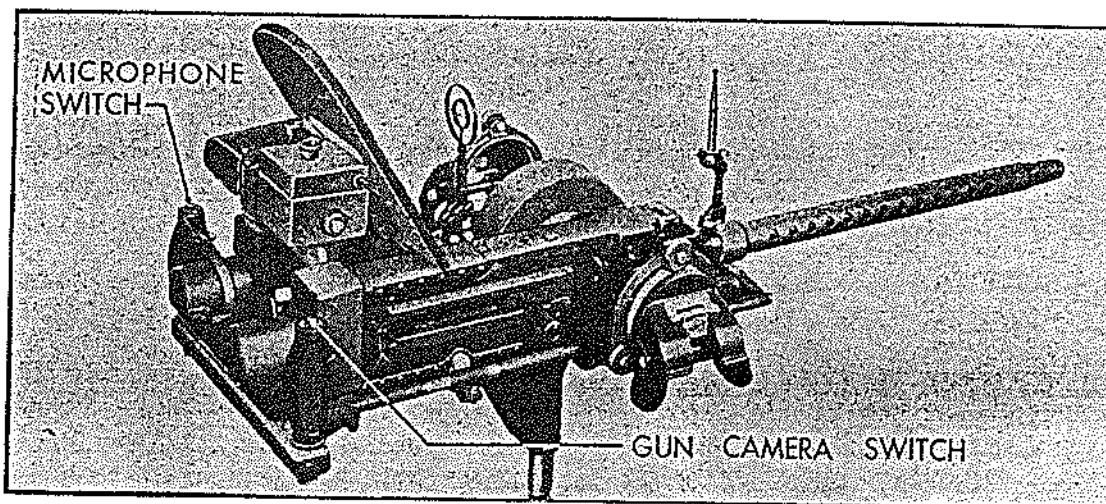
SECTION 3, SINGLE GUN MOUNT ADAPTERS

NAVORD OTI-V15-43 describes a means of providing a bracket to mount the Illuminated Sight Mk 9 or Mk 9 Mod 1 on the Gun Mount Adapter Mk 10 and Mk 10 Mod 1.

The Gun Mount Adapter Mk 10 should be changed by NAVORD ORDALT 1724 to the Gun Mount Adapter Mk 10 Mod 2.

78. CALIBER .50 GUN MOUNT ADAPTER MK 10 MOD 1

This is the right-hand side firing version of the Gun Mount Adapter Mk 10 shown on the opposite page. It is otherwise identical, and its parts are interchangeable with the parts of the Gun Mount Adapter Mk 10, with the exception of the two hand grip assemblies and the breast and shoulder pad assemblies. The Gun Mount Adapter Mk 10 Mod 1 should be changed by NAVORD ORDALT 1724 to the Gun Mount Adapter Mk 10 Mod 3.



**Figure 48.—Gun Mount Adapter Mk 11 Mod 4 (Flexible, Twin)
with One Caliber .30 BAM Gun**

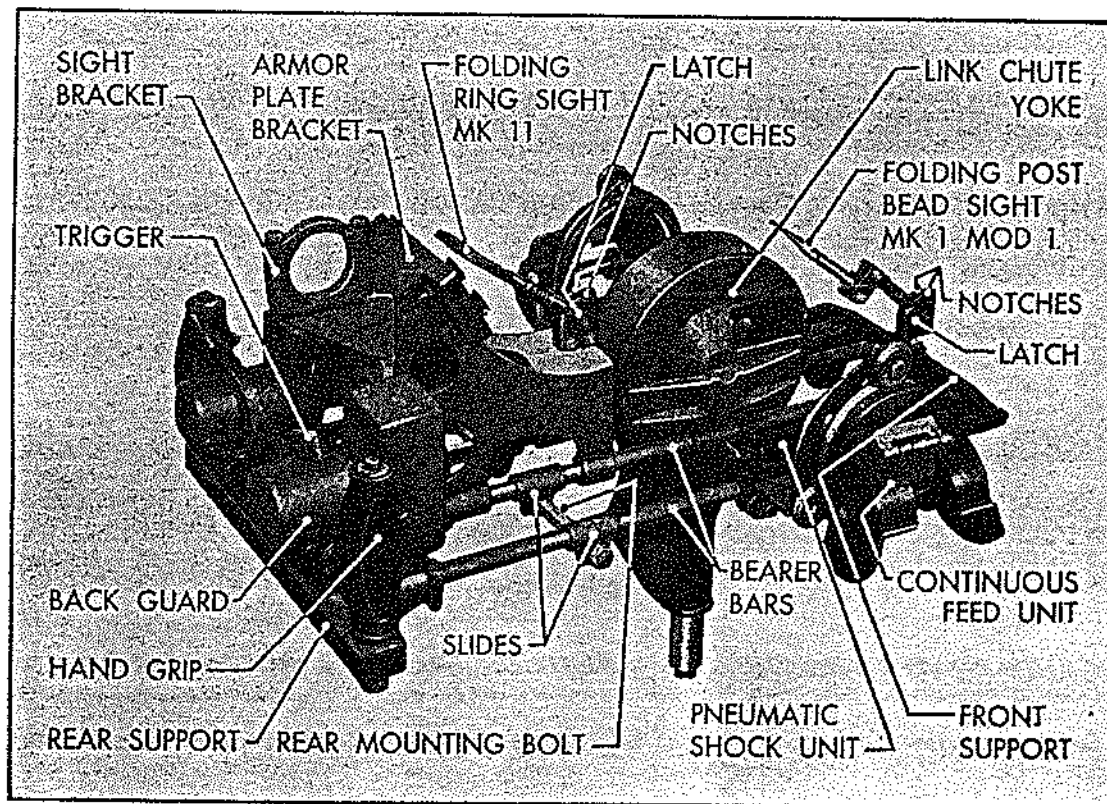


Figure 49.—Gun Mount Adapter Mk 11 Mod 4 Alone

SECTION 4, TWIN GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 4 (FLEXIBLE, TWIN)

79. The Gun Mount Adapter Mk 11 Mod 4 is flexible, mounting twin caliber .30 BAM guns with fixed-type back plates. It is used on SBD-type aircraft. The adapter weighs 30 lb., and its dimensions are 23.5 in. x 20.0 in. x 12.2 in.

80. THE FRAME

The adapter frame consists of four parallel bearer bars connected by a front and a rear support. Secured to the front support are two built-in spring-pneumatic shock-absorbing units previously described on page 17. Connected to each pneumatic unit are a pair of two-disc frictional resistance units illustrated on page 20. Just forward of the rear support across the inside bearer bars is a bracket for mounting the face armor.

81. GUN FRONT SUPPORT

The trunnion blocks of the guns are supported by the shock unit lugs to which they are bolted.

82. GUN REAR SUPPORT

Each gun is supported by a rear mounting bolt connecting two slides which reciprocate on the bearer bars during gun recoil and counterrecoil.

83. MICROPHONE AND GUN CAMERA SWITCHES

A push button switch is built into each hand grip. The left-hand switch controls the gunner's microphone. The right-hand switch operates the AN type gun camera which may be attached to the right gun by a Gun Camera Mount Mk 3 Mod 1.

84. SIGHTS

The rear sight bracket provides a mount for an Illuminated Sight Mk 9 or Mk 9 Mod 1. The standby open sight group consists of the Rear Ring Sight Mk 1 and the Fore Post Sight Mk 1 Mod 1, which may be folded back out of the field of view when the illuminated sight is in use.

Caution — Raise the latches clear of the notches when folding back the open sights—as pressure exerted against them may distort their alignment.

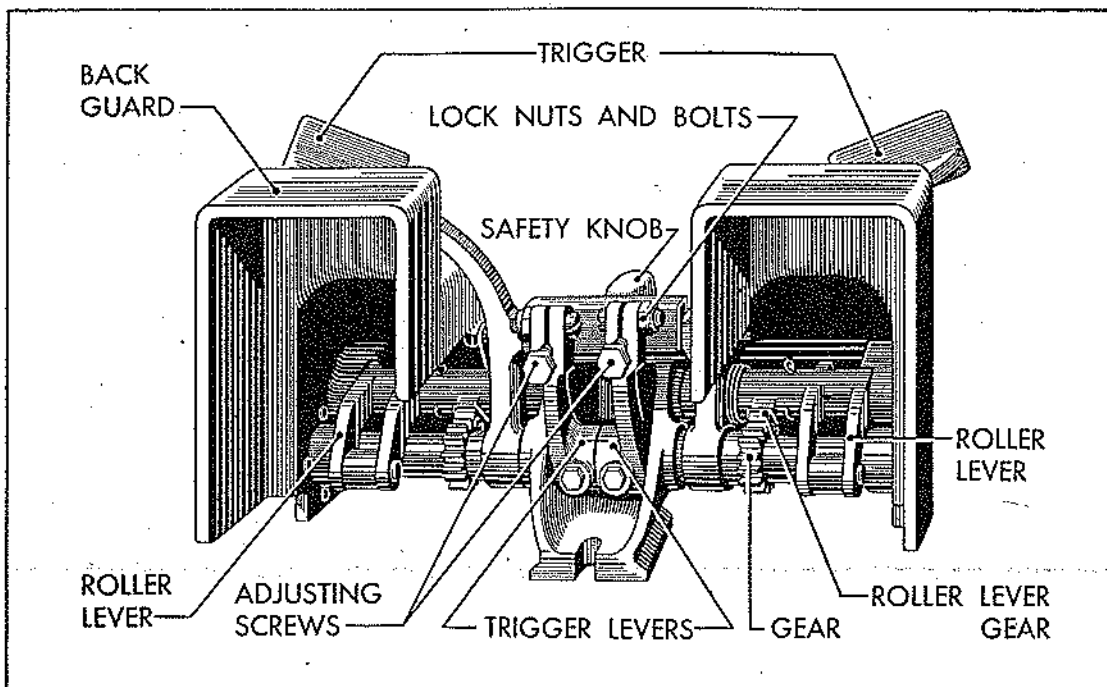


Figure 50.—Back Guard and Trigger Assembly

85. BACK GUARD

The back guard houses the trigger assembly and, by covering the rear of the guns, protects the gunner from injury by recoil. By loosening the knurled set screw at the bottom of the rear support, the back guard can be retracted and removed, so that the guns may be serviced.

Sliding the safety knob on the back guard to the left or SAFE position, as shown in Fig. 51, locks the trigger, preventing accidental discharge of the gun.

Caution—When replacing the back guard, be sure that the safety knob is on SAFE, and that the roller levers slide beneath the bell cranks of the guns.

Before tightening, see that the knurled set screw in the bottom of the rear support is centered in the hole at the bottom of the back guard.

86. TRIGGER ASSEMBLY

The trigger has two arms ending in plates which are within thumb reach of the two hand grips.

Two independent trigger levers are linked to the trigger by adjustment screws. The trigger levers are geared to roller levers which contact the bell cranks of the guns. Pressing either trigger thumb plate raises the roller levers, which lift the bell cranks, thus firing the guns.

If the trigger levers were not secured to the trigger, as shown in Fig. 51, accidental pressure on the levers would fire the guns, even though the trigger were locked in the SAFE position.

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CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 4 (FLEXIBLE, TWIN)

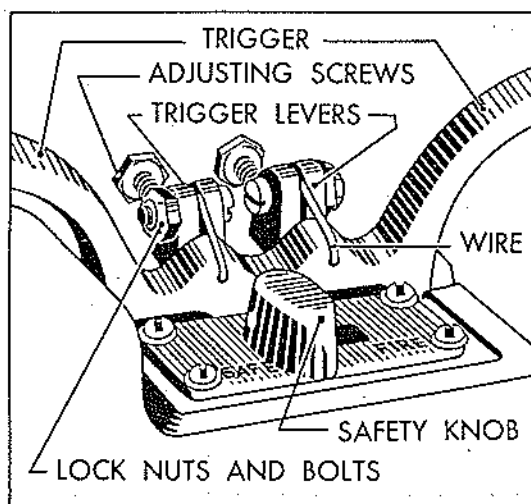


Figure 51.—Trigger Levers Wired to Trigger (on Open Mods Only)

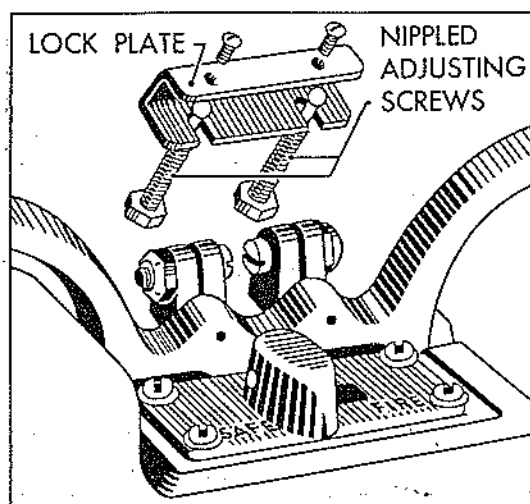


Figure 52.—Lock Plate Assembly (on Mod 3 and Later Mods)

Gun Synchronization—By means of the adjustment screws shown above, the actions of both trigger levers are synchronized so that both guns are fired simultaneously. Procedure for this synchronization is as follows:

(a) Make sure that both guns are unloaded.

(b) Remove the wires shown in Fig. 51 or the lock plate shown in Fig. 52.

(c) Loosen the lock nut and screw on the right trigger lever.

(d) Charge both guns.

(e) Press the trigger very slowly, noting whether the firing pin "click" of the right gun precedes or follows that of the left gun.

(f) If the right gun "click" is early, turn the right adjusting screw out—if late, turn the screw in until both guns "click" simultaneously.

(g) Tighten the lock screw and nut on the right trigger lever.

(h) Replace the wire or lock plate.

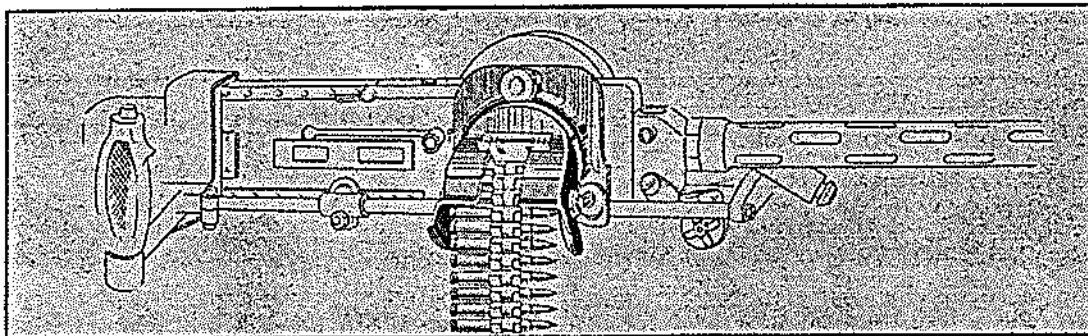


Figure 53A.—Continuous Ammunition Feed Unit with Ammunition Belt

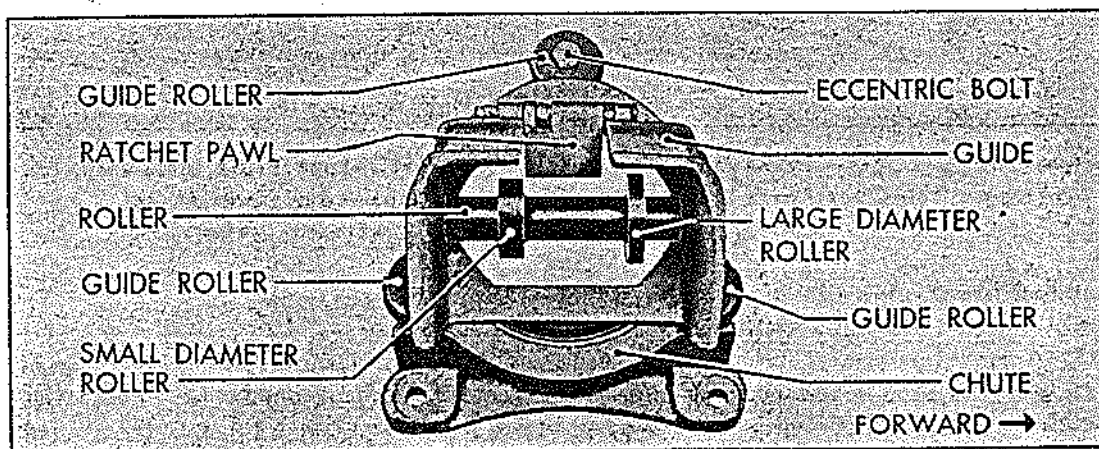


Figure 53B.—Continuous Ammunition Feed Unit for the Right Gun

87. CONTINUOUS AMMUNITION FEED

Two continuous feed units are mounted, one on each side of the adapter opposite the feedway of each gun. The units rotate through 360° in a vertical plane, and feed a continuous flow of belted ammunition into the gun chambers at all angles of fire.

As shown above in Fig. 53B, each unit consists of a guide that is bolted to studs on the outer bearer bars. Fitting into the track around the periphery of the chute are three guide rollers that hold the chute to the guide. Adjustment of the clearance between the rollers and the track is made by rotating the eccentric bolt on the top roller.

The spring pawl, which permits the ammunition belt to travel only toward the gun, prevents the belt from dropping out of the chute when the gun cover is raised. The belt can be pulled out of the chute when the pawl is pressed inward.

The front ammunition roller, which supports the cartridge noses, is larger in diameter than the rear roller so that the cartridge belt will pass through the guide parallel to the hub. Therefore, the feed units will not operate correctly unless the unit in which the largest roller is on the right feeds the right gun as shown in Fig. 53B, or vice-versa.

NAVORD OMI-VIO-44 provides instructions for modifying the ratchet pawl to

SECTION 4, TWIN GUN MOUNT ADAPTERS

prevent the belt of ammunition from sliding out of the continuous feed units. This change has been made in production of the Gun

Mount Adapters Mk 11 Mod 5, and a portion of the Gun Mount Adapters Mk 11 Mod 4.

CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 4 (FLEXIBLE, TWIN)

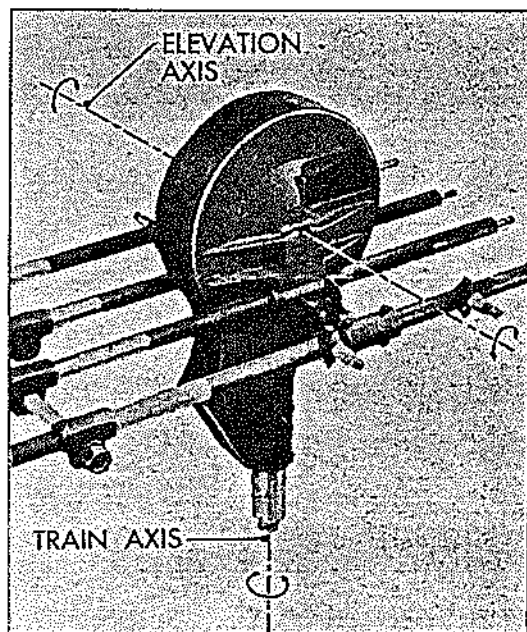


Figure 54A.—Link Chute

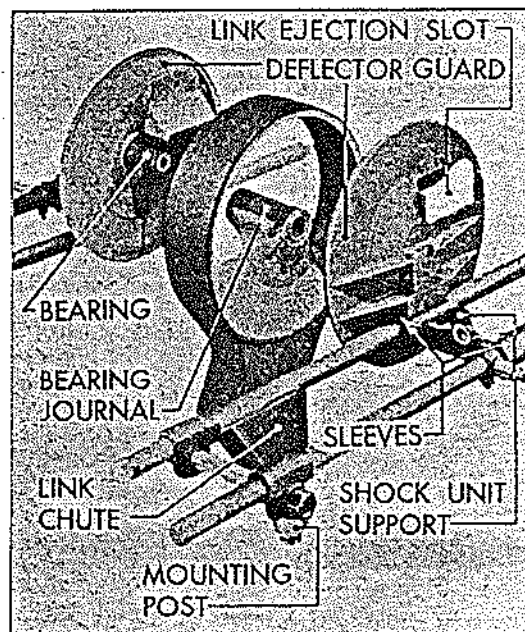


Figure 54B.—Link Chute Disassembled

88. LINK CHUTE

The link chute, illustrated above, serves the following purposes:

It receives and disposes of the ejected cartridge belt links which might otherwise jam the guns and adapter.

Like the adapter yokes, previously described, it also holds and attaches the adapter and guns to the airplane and allows them to be trained and elevated.

With the hand grips, the adapter and guns are trained by pivoting around the mount-

ing post, which is secured to the plane by an adapter latch. The adapter and guns are elevated by rotation around the axis of the bearing journal cast in the chute.

Fitting into the journal is a bisected bearing, each half of which is an integral part of the left and right deflector disc castings, as shown above in Fig. 54A. Two sleeves, connected by cross-webbing, are also part of each casting, and support the bearer bars and rear of the shock unit. In each disc is a slot or window through which the links are ejected into the chute.

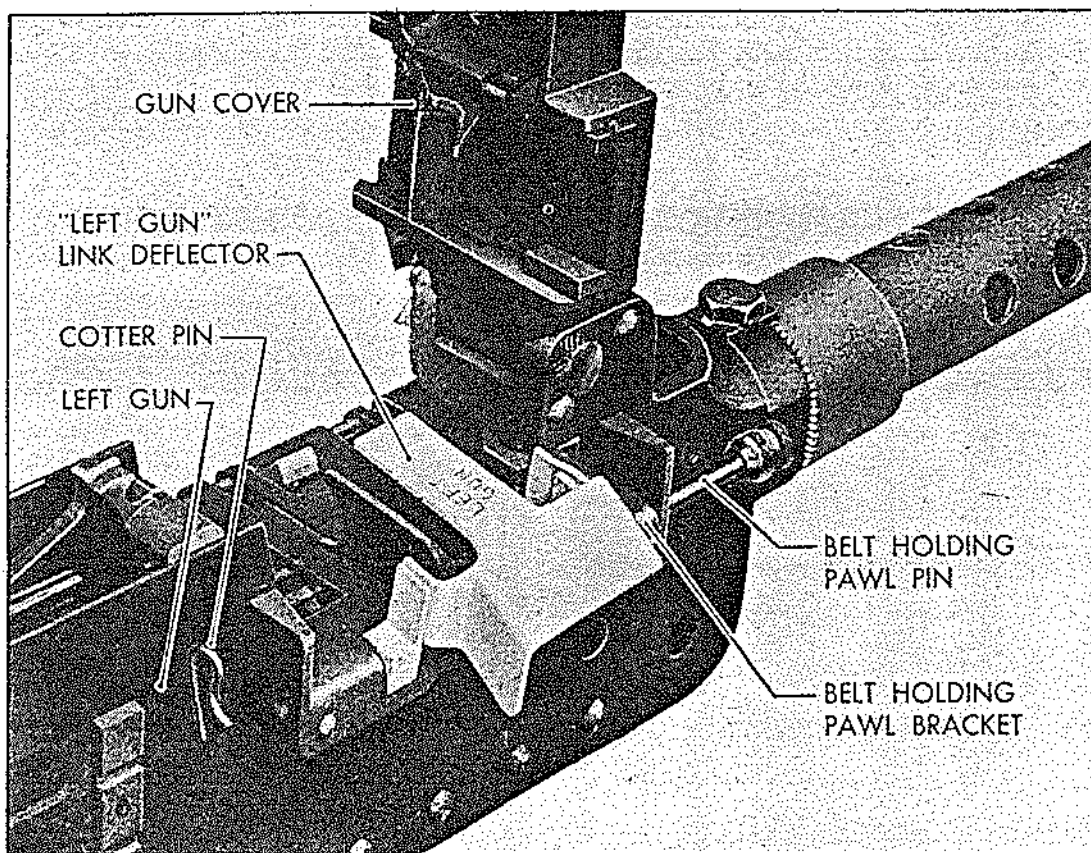


Figure 55.—"Left Gun" Link Deflector Installed

89. GUN CONVERSION

Bell Crank Installation—Installation in the back plates of the caliber .30 BAM guns of the bell crank and spacers, furnished with this adapter, is the same as for the Gun Mount Adapter Mk 12 and has been previously described on page 31.

Link Deflector Installation—Link deflectors supplied with the adaptor, must be installed on the guns to guide the ejected links into the link chute. Proceed as follows:

- (a) Raise the cover of the left gun. (b)

From the belt-holding pawl bracket on the right side of the gun, remove the cotter pin and withdraw the belt-holding pawl pin. (c) Insert the link deflector marked LEFT GUN as shown above in Fig. 55. (d) Reinsert the pawl pin and cotter pin.

(e) Repeat the above operation on the right gun, inserting the link deflector marked RIGHT GUN into the belt holding pawl bracket on the left side of the gun.

Note: The parts necessary for the above conversion come in a small bag attached to each adaptor.

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CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 4 (FLEXIBLE, TWIN)

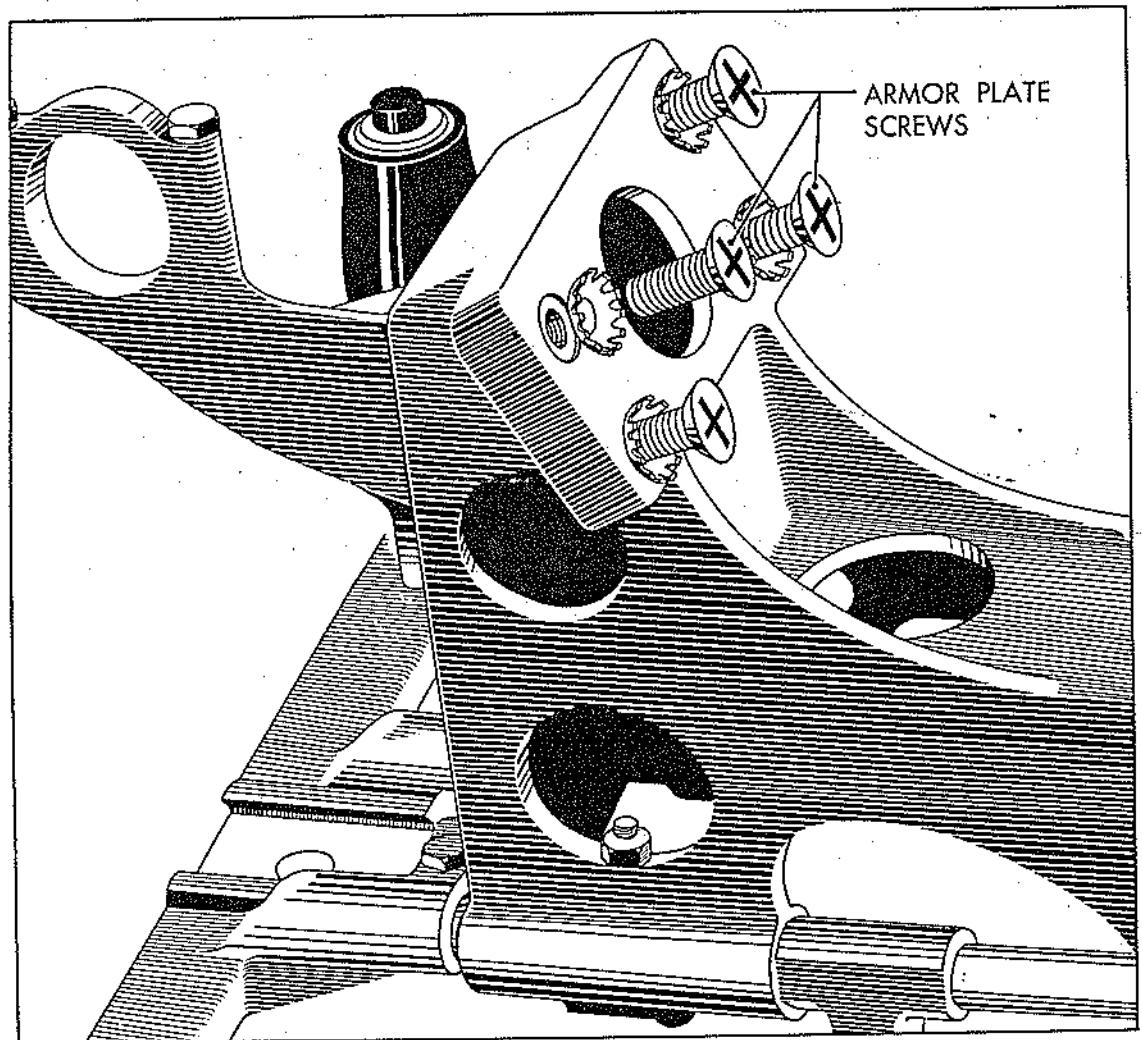


Figure 56.—Face Armor Plate Support

90. ARMOR PLATE INSTALLATION

To install face armor plate, remove the screws, as shown above in Fig. 56, and attach the face armor plate to the support with the countersunk holes to the front.

It is necessary to remove the armor plate before the guns can be demounted from the adapter.

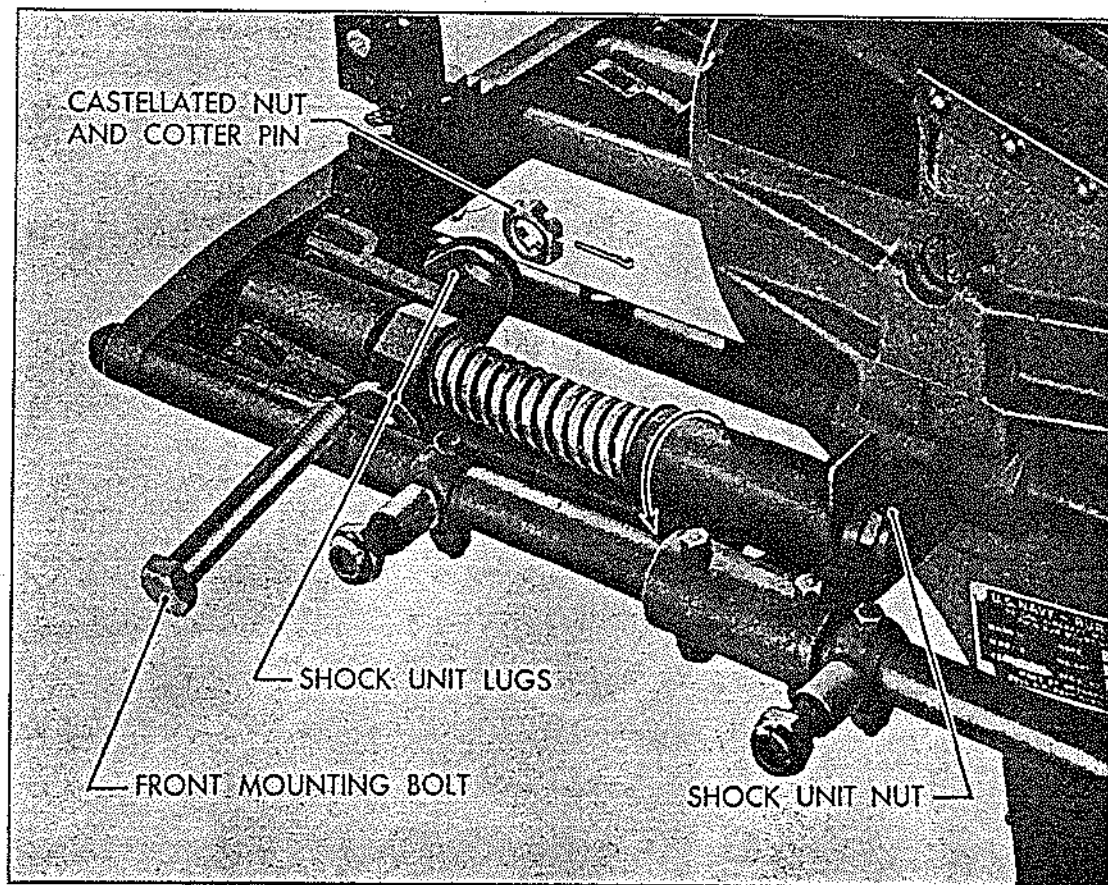


Figure 57A.—Gun Front Installation

91. GUN INSTALLATION

The procedure for installing the caliber .30 guns in the Gun Mount Adapter Mk 11 Mod 4 is as follows:

(a) Remove the back guard. (b) Remove the cotter pin, clevis pin, and rear mounting bolt shown in Fig. 57B.

Gun Front Installation — In lowering the gun into the adapter, it must be tilted outward so that the link deflector on the gun will clear the deflector disc on the link chute.

(c) Therefore, loosen the shock unit nut and rotate the unit outward as shown in Fig. 57A.

(d) Align the gun front mounting holes with the holes in the shock unit lug. (e) Insert the front mounting bolt. (f) Screw on the castellated nut; tighten firmly; and insert the cotter pin.

(g) Rotate the gun and shock unit back to the vertical position; then tighten the shock unit nut.

Gun Rear Installation—(h) Mount the rear mount adapters on the gun as shown in Fig. 57B. (i) Align the adapter hole with the holes in the slides, and reinsert the rear mounting bolt with its flat side up.

SECTION 4, TWIN GUN MOUNT ADAPTERS

CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 4 (FLEXIBLE, TWIN)

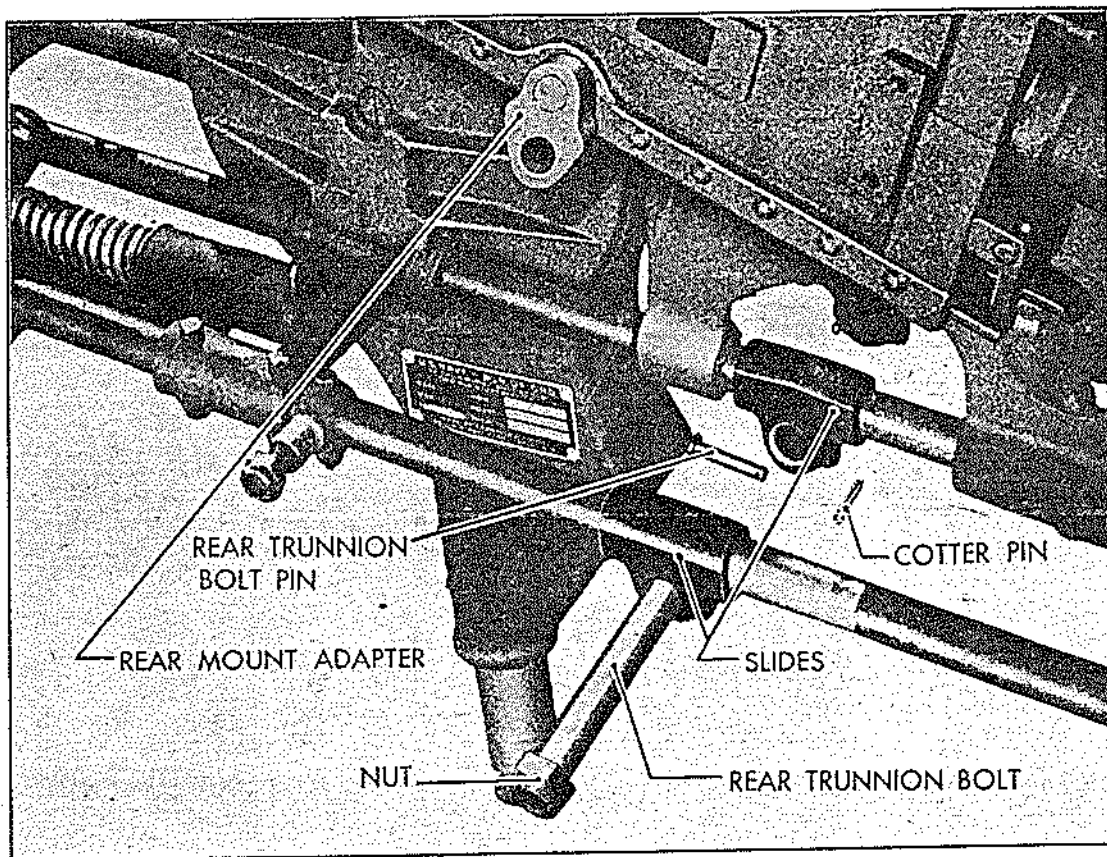


Figure 57B.—Gun Rear Installation

(j) Reinsert the clevis pin and its cotter pin. The clevis pin fits into the groove on the bottom of the rear mounting bolt, locking it in place. (k) Tighten the nut on the rear mounting bolt.

(l) Repeat the above installation procedure for the other gun.

(m) Place the safety knob on SAFE and replace the back guard so that the roller levers slide beneath the gun bell cranks on both guns. (n) Before tightening, be sure

that the knurled set screw in the bottom of the rear support fits into the centering hole in the bottom of the back guard.

Note: The sight bracket on the Gun Mount Adapter Mk 11 Mod 2, described below, interferes with removal of the back plate and tends to bring the sight into such a position that it is liable to be damaged by the rear seat gunner's breast armor in the SBD-type airplane. This is also true to a lesser extent of the sight bracket on the Gun Mount Adapter Mk 11 Mod 3.

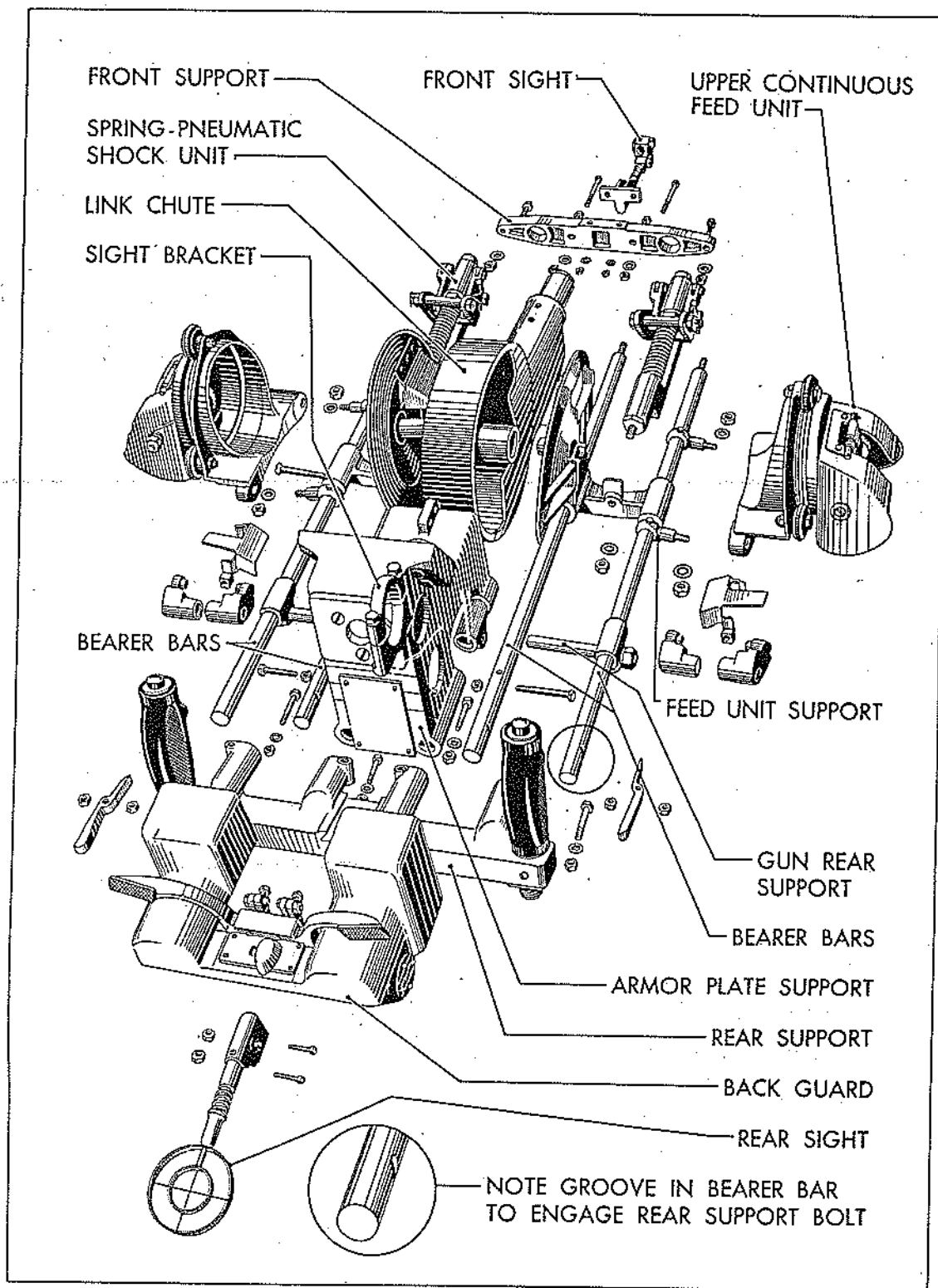


Figure 58.—Disassembly of Gun Mount Adapter Mk 11 Mod 4

SECTION 4, TWIN GUN MOUNT ADAPTERS

The sight bracket of the Mod 4 type has been redesigned to eliminate these difficulties. To do this, it has been necessary to bring the illuminated sight further forward on the adapter. With the sight moved forward, the normal eye distance of 4½ inches from the optical axis of the illuminated sight will not give the correct eye distance of 16 inches for the stand-by Ring Sight Mk 11. If it becomes necessary to use the stand-by ring and post sights, the gunner should move his head from the position required for use of the illuminated sight to a position 16 inches aft of the ring sight. It is realized that this may lessen the value of the stand-by sights, but it is considered preferable to satisfy service requirements for the best illuminated sight installation.

92. CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 1 (FLEXIBLE, TWIN)

The Gun Mount Adapter Mk 11 Mod 1 is basically the same as the Gun Mount Adapter Mk 11 Mod 4 described on the preceding pages, except for the following differences:

The Gun Mount Adapter Mk 11 Mod 1 has no armor plate support, rear ring sight, or fore post sight.

The sight bracket on the Gun Mount Adapter Mk 11 Mod 1 is built to hold the Telescopic Sight Mk 5, while the sight bracket on the Gun Mount Adapter Mk 11 Mod 4 is designed to mount the Illuminated Sight Mk 9 or Mk 9 Mod 1.

93. CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 2 (FLEXIBLE, TWIN)

The Gun Mount Adapter Mk 11 Mod 2 is basically the same as the Gun Mount Adapter Mk 11 Mod 4 described on the pre-

ceding pages, except for the sight bracket. On the Mod 2 type, this bracket extends further aft and the mounting hole is horizontal.

94. CALIBER .30 GUN MOUNT ADAPTER MK 11 MOD 3 AND MOD 5 (FLEXIBLE, TWIN)

The Gun Mount Adapter Mk 11 Mod 3 is similar to the Gun Mount Adapter Mk 11 Mod 2 described in the preceding paragraph, except that the sight bracket is 1¼ inches shorter and may be folded upward to facilitate removal of the back guard. The reduced size provides more headroom for the gunner in an SBD plane than the Mod 2 type.

The Gun Mount Adapter Mk 11 Mod 3 should be converted to the Mod 4 type by the changes described in NAVORD OMI V3-43; or, if necessary, suitable parts may be fabricated locally as described in NAVORD OTI GV 22-43.

95. The Gun Mount Adapter Mk 11 Mod 5 is the same as the Gun Mount Adapter Mk 11 Mod 4, with the exception of the new-type microphone and gun camera switches. The new switches are labeled MICROPHONE and GUN CAMERA. NAVORD OMI-V5-44 describes the method of installing the new gun camera switches in the adapters in service.

Note: Gun Mount Adapters Mk 11 of the earlier Mods did not have the trigger levers secured to the trigger and were, therefore, not safe; as accidental pressure on the levers would fire the guns, even though the trigger were blocked in a safe position. This was corrected first by wiring as shown in Fig. 51, and NAVORD OTIV-25-43 was issued to provide means for local fabrication of the trigger lever stop until such time as the production adapters came equipped with the device shown in Fig. 52.

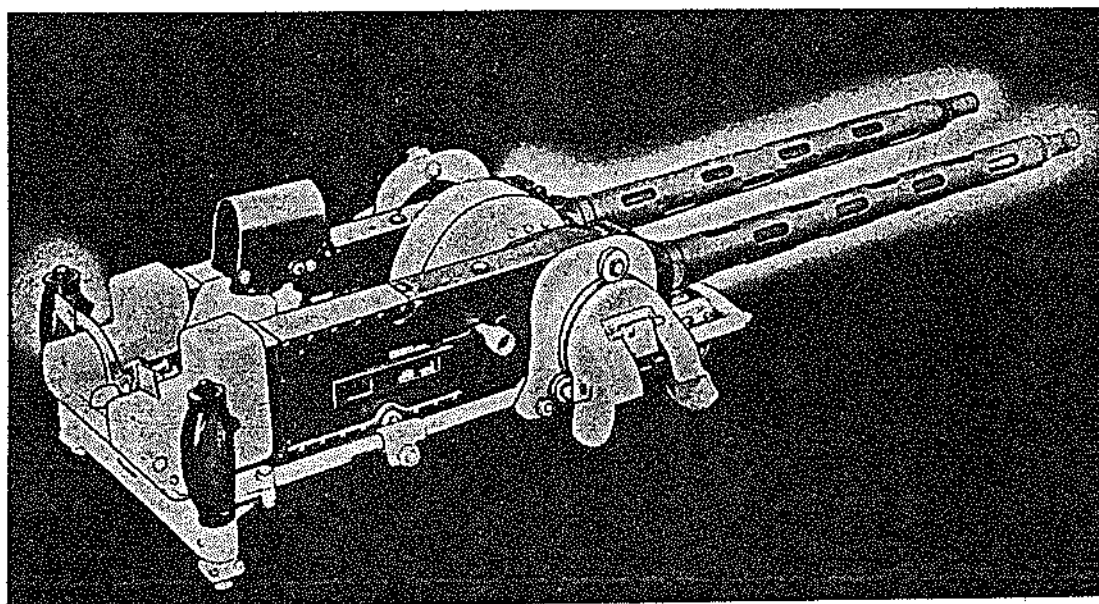


Figure 59.—Gun Mount Adapter Mk 14 (Flexible, Twin) with Caliber .30 BAM Guns

96. CALIBER .30 GUN MOUNT ADAPTER MK 14

The Gun Mount Adapter Mk 14 is flexible, mounting twin caliber .30 BAM guns with fixed-type back plates. It is used with a special bow turret which has been developed to provide a continuous feed installation in the nose of the PBV-5 and PBV-5A airplanes. Because of clearance requirements, the Gun Mount Adapter Mk 11 Mod 2, which was a standard twin caliber .30 adapter at that time, could not be used in this installation.

The Gun Mount Adapter Mk 14 differs from the Gun Mount Adapter Mk 11 Mod 4 in that the continuous feed units are of slightly different design and are closer to the centerline of the adapter to fulfill clearance requirements. The face armor support, the rear ring sight, and the fore post sight have been removed. A difference bracket mounts the Illuminated Sight Mk 9 or Mk 9 Mod 1. Aside from the above differences, the Gun Mount

Adapters Mk 14 and Mk 11 Mod 4 are identical, and all their other parts are interchangeable. The Gun Mount Adapter Mk 14 weighs 27 lb., and its dimensions are 23.2 in. x 18.4 in. x 9.0 in.

97. The Gun Mount Adapter Mk 14 Mod 1 is the same as the Gun Mount Adapter Mk 14, with the exception of the new-type microphone and gun camera switches. The new switches are labelled MICROPHONE and GUN CAMERA. NAVORD OMIV5-44 describes the method of installing the new gun camera switches in the adapters in service.

Note: NAVORD OMIV10-44 provides instructions for modifying the ratchet pawl to prevent the belt of ammunition from sliding out of the continuous feed units. This change will be made in production of the Gun Mount Adapter Mk 14 Mod 1 and a portion of the Gun Mount Adapter Mk 14.

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

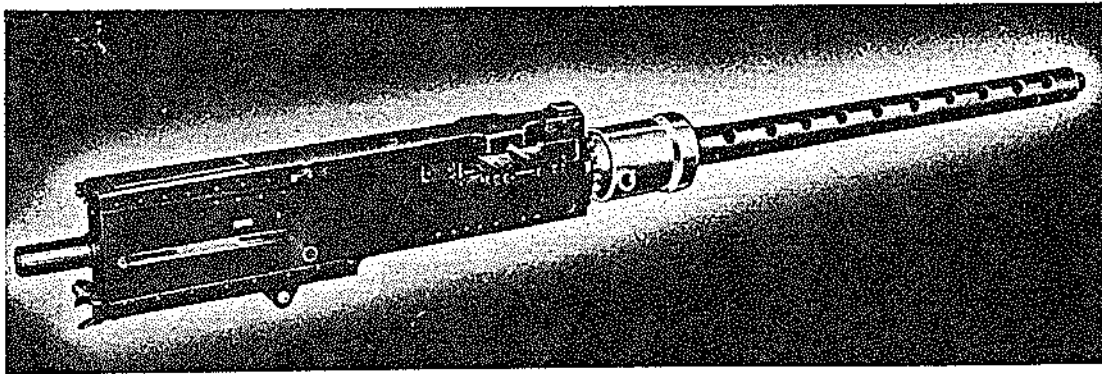


Figure 60.—Gun Mount Adapter AN-E-10 (Mk 15, Annular) with Caliber .50 BAM Gun

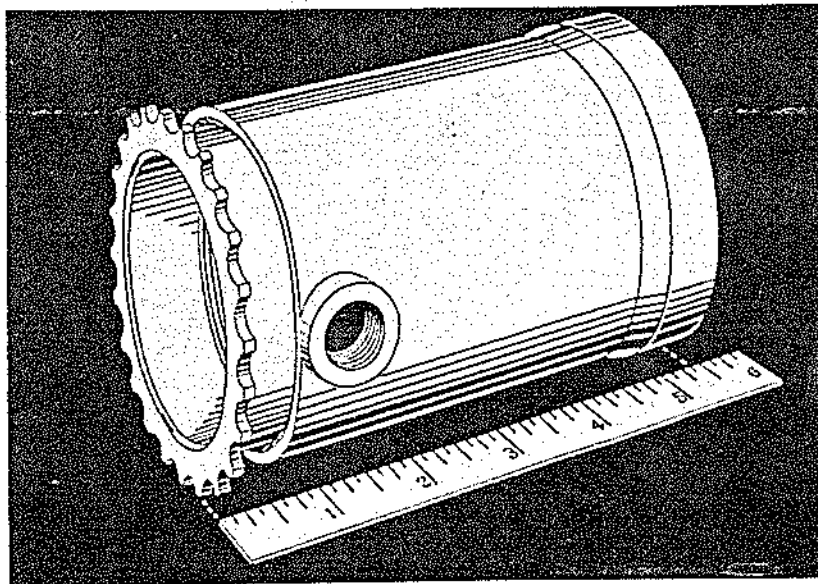


Figure 61.—The Gun Mount Adapter AN-E-10 (Mk 15) Alone

THE CALIBER .50 GUN MOUNT ADAPTER AN-E-10 (MK 15, ANNULAR)

98. The Gun Mount Adapter AN-E-10 (Mk 15), shown in Fig. 60 and Fig. 61, is a self-contained cylindrical assembly. It is mounted over the barrel jacket and fastened to the trunnion block of a caliber .50 BAM gun. Its function is to absorb recoil and counterrecoil shock and to provide the forward support for the gun. It is used in turret installations in which the mounting means is provided by the airplane manufacturer. It weighs 5.25 lb., and its over-all dimensions are 5.375 in. x 3.625 in. when in battery or neutral position.

99. GENERAL DESCRIPTION

The Gun Mount Adapter AN-E-10 (Mk 15) consists of an outer shell or sleeve, which, in use, is fixed to the airplane structure, an inner sleeve fixed to the gun, and a ring spring as-

sembly in a chamber or annular space between the sleeves. Recoil slides the inner sleeve aft within the outer sleeve, compressing the springs. Expansion of the springs returns the gun to battery position.

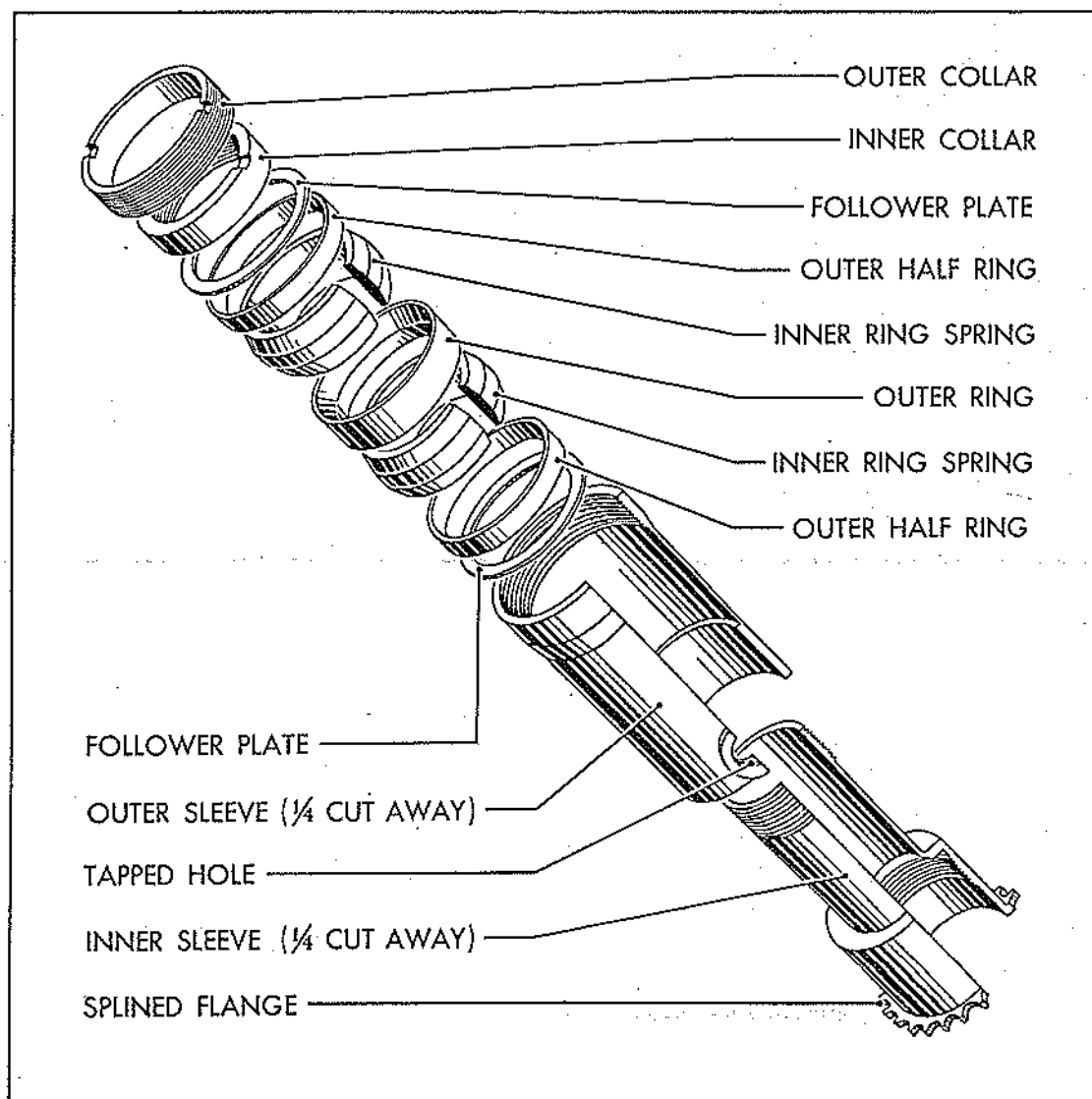


Figure 62.—The Caliber .50 Gun Mount Adapter AN-E-10
(Mk 15, Annular) Disassembled

100. DETAILED DESCRIPTION

The individual parts of the adapter are shown disassembled in Fig. 62 and assembled in Fig. 63. A section is cut away in Fig. 63 in order to show the relations of the parts.

The inner sleeve is threaded on the inside, near its after end, so that it can be screwed

on to the trunnion block of the caliber .50 BAM gun in place of the trunnion adapter furnished with the gun. On the extreme after end of the inner sleeve is a splined flange. One notch of this flange engages the trunnion block lock of the gun. This prevents the adapter assembly from turning and unscrewing from the gun.

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THE CALIBER .50 GUN MOUNT ADAPTER AN-E-10 (MK 15, ANNULAR)

The outer sleeve has two tapped holes near its after end. These receive the $\frac{5}{8}$ -in. bolts which hold the adapter to the turret or other supporting structure. The after part of the outer sleeve slides snugly over the after part of the inner sleeve.

The forward bearing surfaces are an inner collar, screwed to the recoiling inner sleeve, and an outer collar, screwed to the fixed outer sleeve.

The spring assembly consists of:

- (1) Two follower plates, one at each end
- (2) One outer ring and two outer half rings
- (3) Two inner ring springs

101. OPERATION

When the gun is fired, recoil thrusts the inner sleeve, inner collar, and forward follower plate aft. This squeezes the outer rings closer together, and their tapered inner faces compress the inner springs against the spring tension and the friction of the sliding surfaces. The recoil shock is thus absorbed by the combination of spring and frictional resistance. The expansion of the springs returns the gun forward to its battery position.

On counterrecoil, if the gun tends to travel beyond its battery position, the springs are compressed as on the recoil stroke. This causes an action just the reverse of that which takes place on recoil, the springs acting to bring the gun aft to its battery position and to absorb counterrecoil shock.

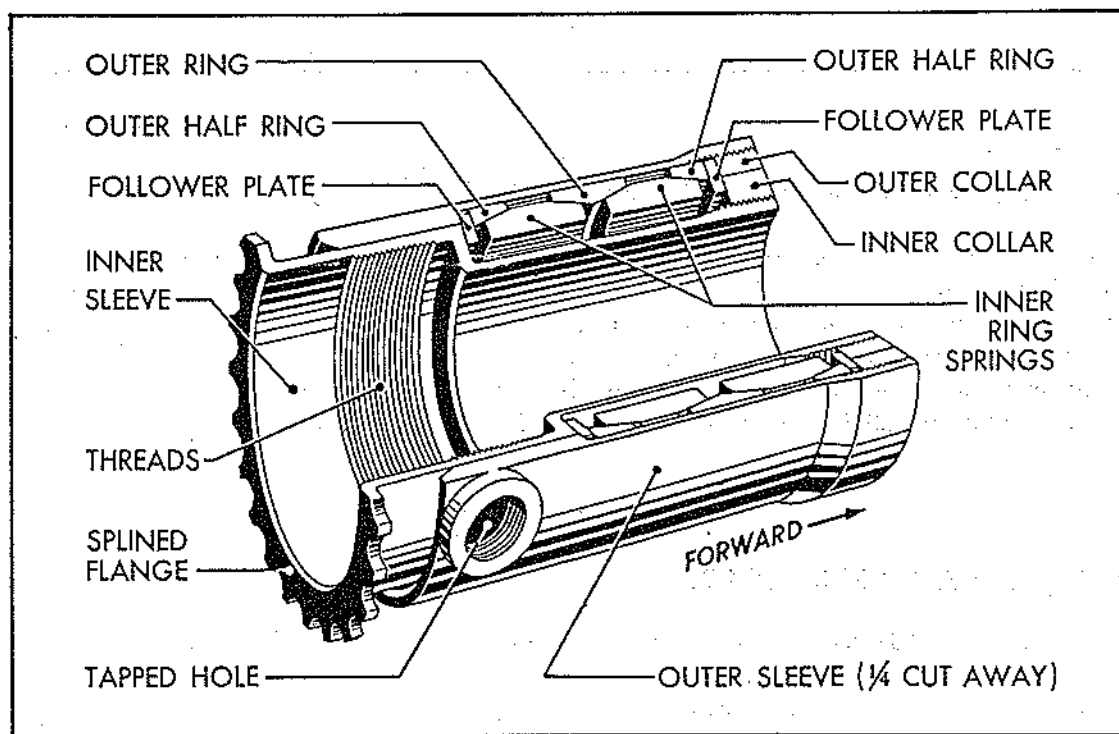


Figure 63.—The Caliber .50 Gun Mount Adapter AN-E-10 (Mk 15, Annular) Cutaway View

102. INSTALLATION

The gun is installed as follows:

(1) Unlock the trunnion block lock of the gun from the trunnion adapter.

(2) Unscrew the trunnion adapter from the trunnion block of the gun and remove it, leaving the trunnion shim on the gun.

(3) Slide the Gun Mount Adapter Mk 15 over the gun barrel and screw it up against the trunnion shim of the gun until the trunnion block lock can be seated in a notch of the splined flange of the adapter. The outer sleeve of the adapter must be turned so that the tapped holes are in the proper position to accommodate the mounting bolts of the supporting structure.

(4) Secure the adapter to the turret or supporting structure by means of the two bolts furnished with the turret, which screw

into the tapped holes in the outer sleeve of the adapter. Secure the bolts with safety wire.

103. MAINTENANCE AND REPAIR

When the Gun Mount Adapter Mk 15 is manufactured, it is lubricated and sealed for life and should not require servicing. When in constant use, however, a good grade of grease should be inserted in the mounting holes before the mounting bolts are attached.

If the adapter does not function properly, it should be replaced with a new one. The defective adapter should be returned to the nearest supply depot.

Note: The foregoing information is also covered, in part, by NAVORD OTI V18-43.

THE CALIBER .50 GUN MOUNT ADAPTER MK 13

104. The Gun Mount Adapter Mk 13, shown in Figs. 64 and 65, is a self-contained cylindrical assembly, similar in appearance and installation to the Gun Mount Mk 15. It is mounted over the barrel jacket and screwed to the trunnion block of a caliber .50 BAM gun. Its function is to absorb recoil and counterrecoil shock and to provide the forward support for the gun in turret installations. The mounting means is provided in the turret structure. It weighs 5.25 lb., and its overall dimensions are 6.50 in. x 3.625 in. when in battery or neutral position.

105. GENERAL DESCRIPTION

The Gun Mount Adapter Mk 13 consists of an outer sleeve or shell which is fixed to a yoke or similar member of the turret structure, an inner sleeve which is fixed to the gun, and a spring-hydraulic shock-absorbing unit in the annular space between the sleeves.

Recoil thrusts the inner sleeve aft within the outer sleeve. This motion is resisted by the springs and hydraulic mechanism, reducing recoil shock. Expansion of the springs returns the gun to battery position.

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

THE CALIBER .50 GUN MOUNT ADAPTER MK 13

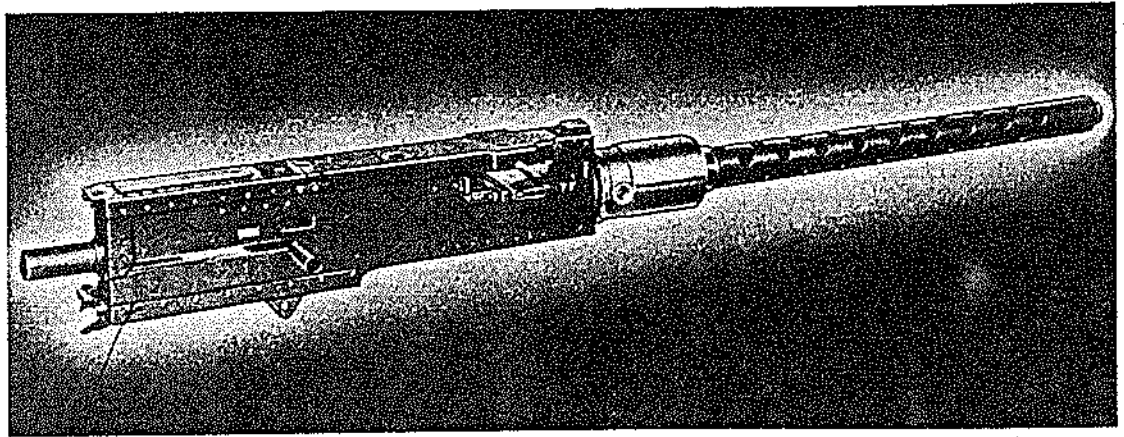


Figure 64.—The Gun Mount Adapter Mk 13, with
Caliber .50 BAM Gun

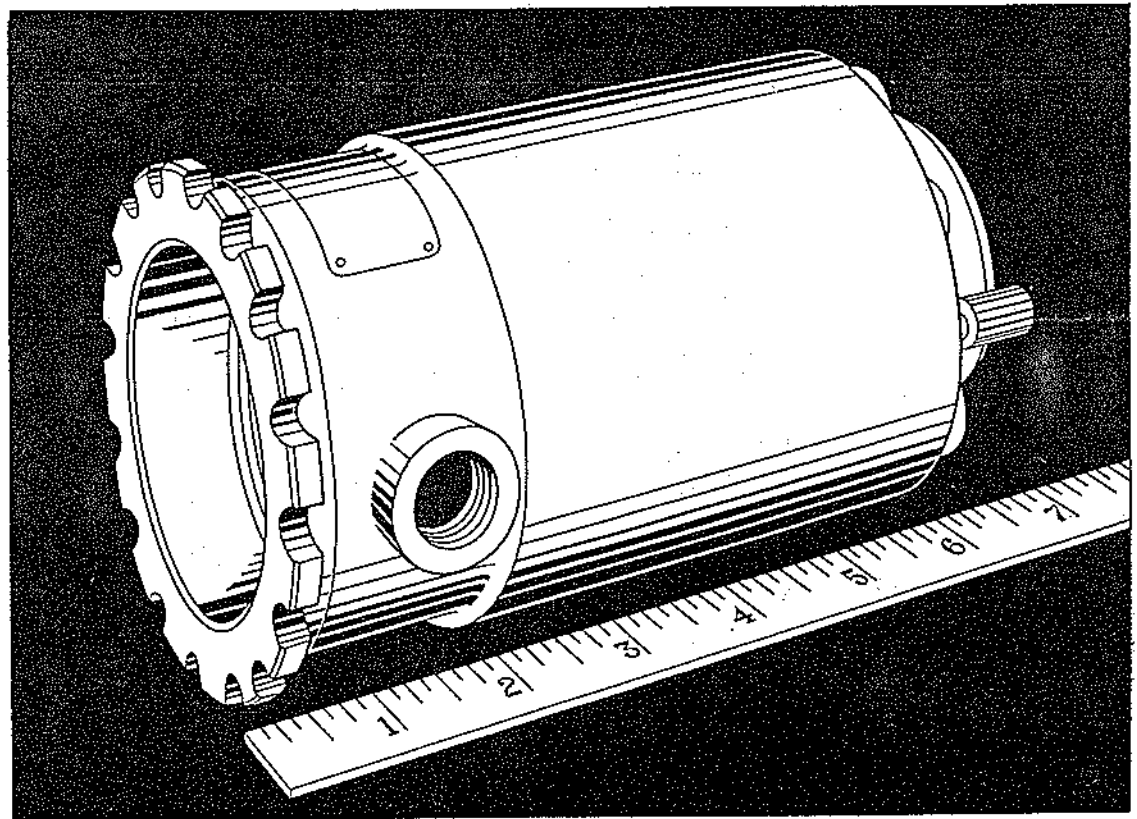


Figure 65.—The Gun Mount Adapter Mk 13 Alone

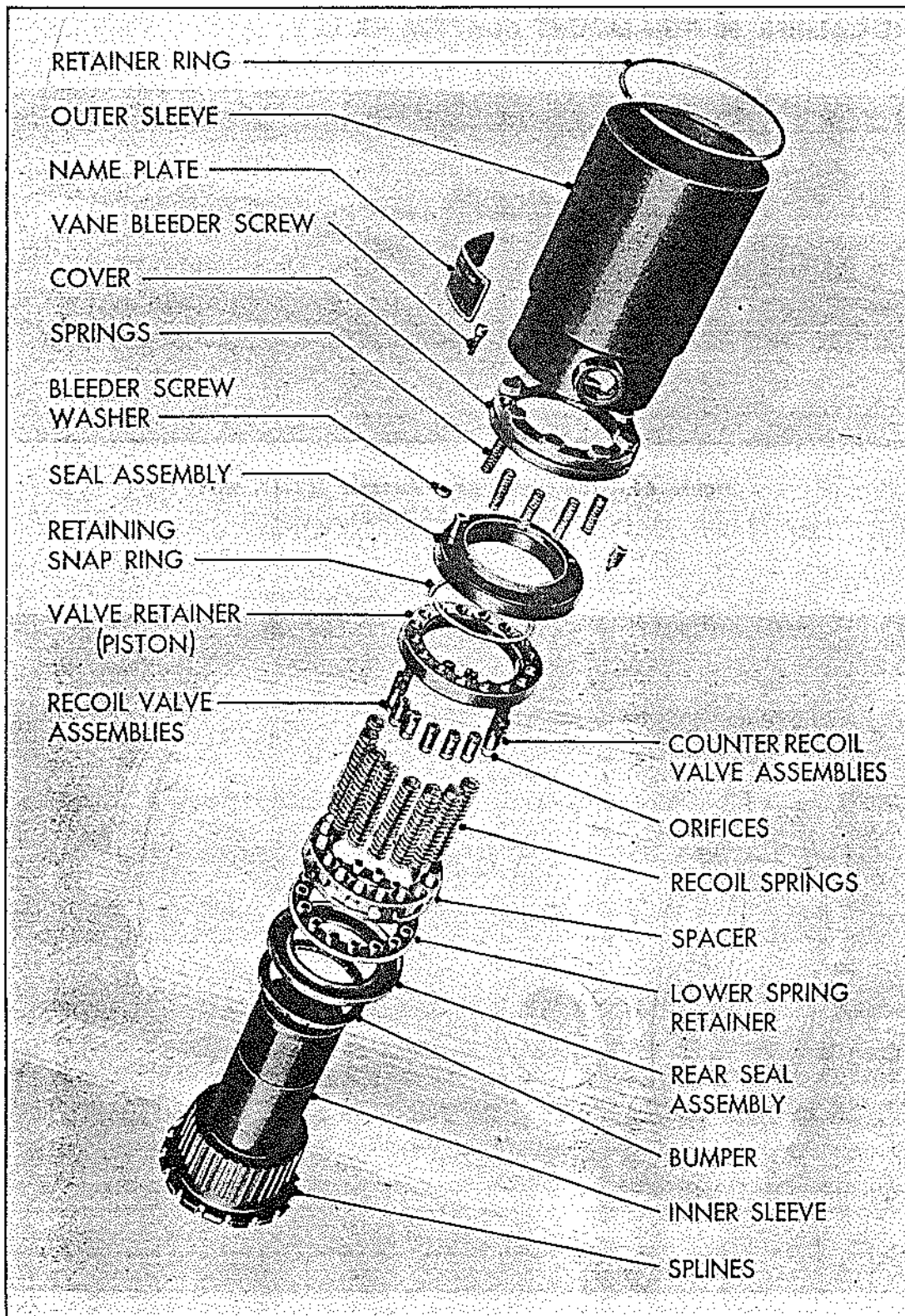


Figure 66.—Disassembly of Gun Mount Adapter Mk 13

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

THE CALIBER .50 GUN MOUNT ADAPTER MK 13

106. DETAILED DESCRIPTION

The individual parts of the adapter are shown disassembled in Fig. 66 and assembled in Fig. 67. In Fig. 67, some of the structure is cut away in order to show the relations of the parts.

The inner sleeve is threaded on the inside near its after end, so that it can be screwed to the trunnion block of the caliber .50 BAM gun in place of the trunnion adapter furnished with the gun. On the extreme after end of this sleeve is a splined flange. One notch of this flange engages the trunnion block lock of the gun. This prevents the inner sleeve from turning and unscrewing from the gun.

The outer sleeve has two tapped holes near its after end. These receive the $\frac{5}{8}$ -in. studs which secure the adapter to the yoke or other supporting structure.

The two sleeves are splined together. This permits fore-and-aft movement in recoil and counterrecoil but prevents rotation of the gun by vibration or the thrust of ammunition feed.

The annular space between the sleeves is filled with oil, which is sealed in with synthetic rubber circular seals at each end. The inner sleeve carries a valve retainer which moves in this space with the motion of the sleeve. The valve retainer contains valves which permit a restricted flow of oil from high- to low-pressure chambers.

Aft of the piston is a set of heavy springs which maintains or returns the unit to battery position.

107. OPERATION

When the gun is fired, recoil thrusts the inner sleeve aft. The piston, which is attached to this sleeve by the snap ring (see Figs. 66 and 67) is carried aft with it, being forced through the oil. This movement is opposed by the recoil springs and the limited flow of oil through the recoil valves. The resistance of these two units absorbs recoil shock. The expansion of the springs returns the gun to its battery position. Counterrecoil movement is opposed by the limited flow of oil through the counterrecoil valves, thus absorbing counterrecoil shock.

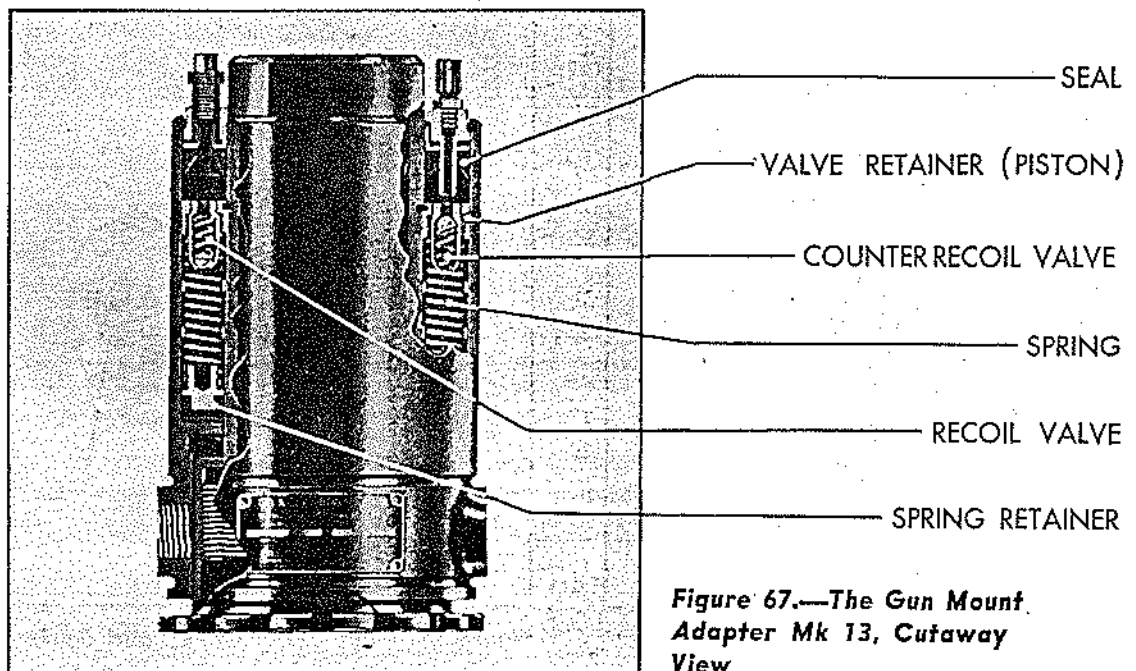


Figure 67.—The Gun Mount Adapter Mk 13, Cutaway View

108. INSTALLATION

The Gun Mount Adapter Mk 13 is installed in the same way as the Gun Mount Adapter Mk 15, as follows:

(1) Unlock the trunnion block lock of the gun from the trunnion adapter.

(2) Unscrew the trunnion adapter from the trunnion block of the gun and remove it, leaving the trunnion shim on the gun.

(3) Slide the Gun Mount Adapter Mk 13 over the gun barrel and screw it up against

the trunnion shim of the gun until the trunnion block lock can be seated in a notch of the splined flange of the adapter. The outer shell of the adapter must be turned so that the tapped holes are in the proper position to accommodate the mounting bolts of the supporting structure. Care should also be taken that the adapter is seated securely against the gun, using extra shims if necessary.

(4) Secure the adapter to the supporting structure by means of the two $\frac{5}{8}$ in. studs.

109. MAINTENANCE

Since the moving parts of the Gun Mount Adapter Mk 13 work in oil, no internal oiling is necessary. When in constant use, however, a good grade of grease should be inserted in the mounting holes before the studs are attached.

This adapter is sealed securely against leakage. If it should lose some oil, pressure is maintained by four springs pressing against a floating piston.

When the top cover is removed, if the top seal support edge is below the level of the top of the outside sleeve,

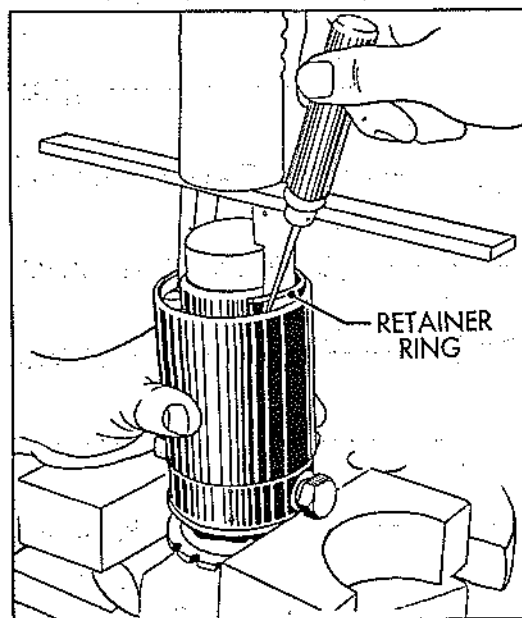


Figure 68.—Removing Retainer Ring

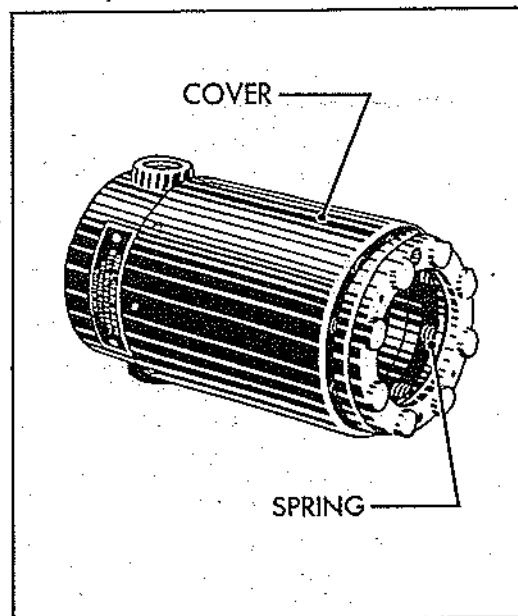


Figure 69.—Removing Cover and Spring

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

THE CALIBER .50 GUN MOUNT ADAPTER MK 13

a Zerk pressure assembly gun can be connected at the fitting provided on the valve (see Fig. 85) to add enough pressure to move the seal to its proper location. Do not allow this ring to extend beyond the outer sleeve

edge, or the cover cannot be attached. If the ring should extend beyond the edge, it may be pressed to its proper location by allowing some oil to bleed out of the top screw hole.

Caution—Do not use a pressure gun which will pump air into the unit.

110. REPAIR AND REPLACEMENT OF PARTS

When repair and/or replacement of parts requires disassembly of the adapter, proceed as follows:

Note: This work should be accomplished only at a major overhaul point when adequate facilities are available.

111. DISASSEMBLY

(1) Remove the bleeder screw and bleeder screw washer from the cover. See Fig. 85.

Note: It is not necessary to disassemble the valve assembly from the cover.

(2) Remove the retainer ring from the forward end of the unit as shown in Fig. 68.

(3) Remove the cover and springs as shown in Fig. 69.

(4) Remove the seal assembly with pliers and hook as shown in Fig. 70.

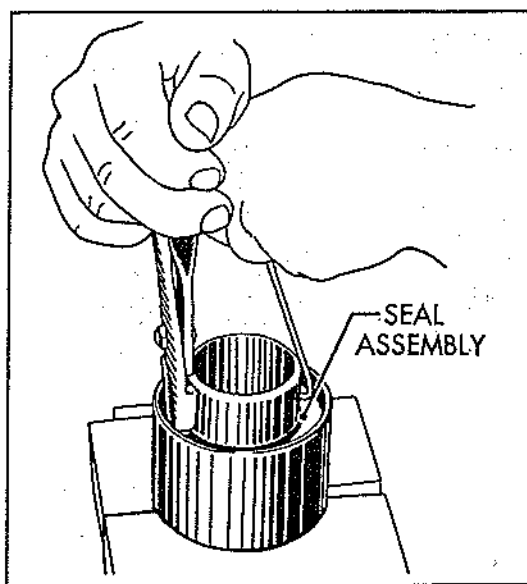


Figure 70.—Removing Seal Assembly

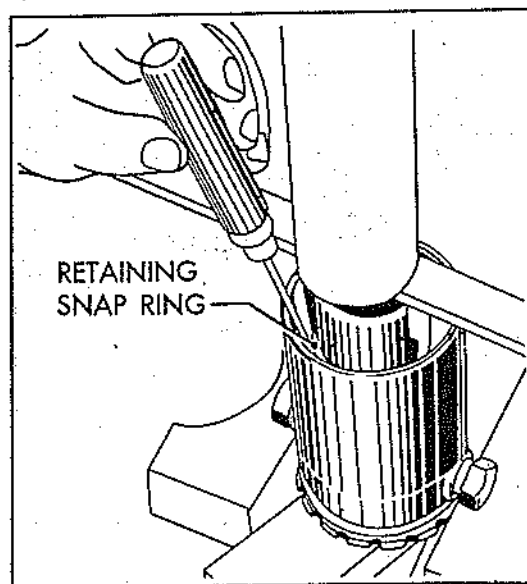


Figure 71.—Removing Retaining Snap Ring

DISASSEMBLY CONTINUED

Caution—Care must be taken not to damage the rubber with the tools.

(5) Remove the retaining snap ring as shown in Fig. 71.

(6) Slide out the valve and retainer assembly which is shown in Fig. 72, and drain off the remaining oil.

Note: Recoil valve assemblies, counterrecoil valve assemblies, and orifices should not be removed from the valve retainer except when it is absolutely necessary to replace damaged parts.

(7) Remove the recoil springs, the spacer, and the lower spring retainer shown in Fig. 72.

(8) Remove the rear seal assembly, also shown in Fig. 72.

Caution—Be very careful in removing this assembly to avoid cutting or damaging the seal.

(9) The bumper (see Fig. 72) may now be removed.

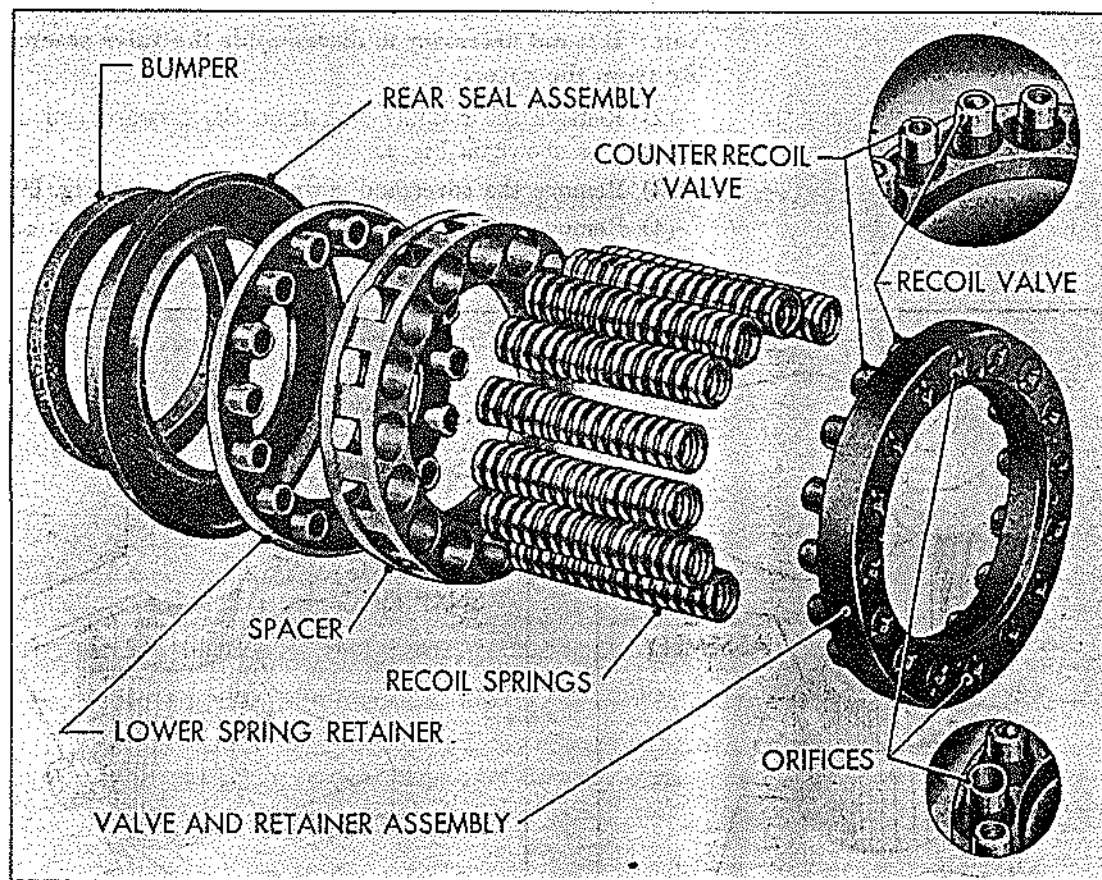


Figure 72

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

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112. REASSEMBLY

When repairs have been completed, the adapter is reassembled as follows:

(1) Slide the bumper over the inner sleeve until the bumper rests snugly against the shoulder as shown in Fig. 73.

(2) Slide the outer sleeve over the inner sleeve and bumper assembly as shown in Fig. 74.

(3) Insert the rear seal assembly as shown in Fig. 75, sliding the seal in carefully until it rests firmly on the shoulder of the inner sleeve.

Note: When inserting the rear seal assembly, be sure that the flanged side of the seal enters the outer sleeve first.

(4) Place the springs over the projections on the lower spring retainer and slide the spacer over the springs as shown in Fig. 76. The spacer should be halfway between the ends of the springs.

Note: In case the recoil and counterrecoil valve assemblies have been removed for replacement, reassemble them as shown in Fig. 72, taking care to alternate recoil valve assemblies and counterrecoil valve assemblies, and to place the two metering orifices opposite each other; i.e., 180° apart.

Note: The recoil valves have balls at the rounded end, and the counterrecoil valves have the balls at the threaded end.

(5) Insert the valve and valve retainer assembly into the end of the spring assembly as shown in Fig. 77.

(6) Insert the spring and valve assembly between the inner and outer sleeve, as shown in Fig. 78. Seat it carefully against the rear seal.

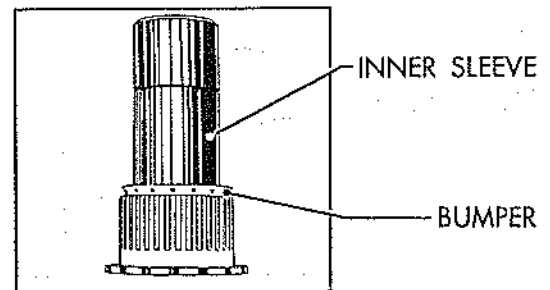


Figure 73

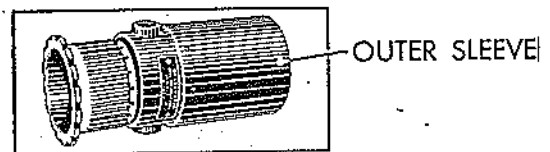


Figure 74

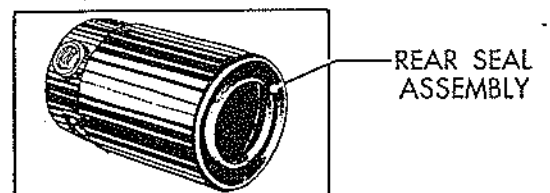


Figure 75

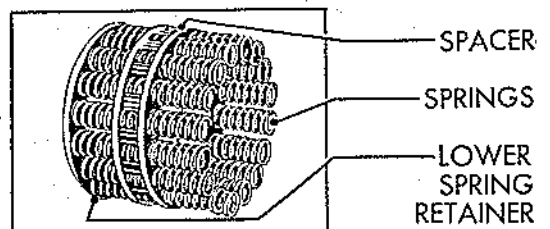


Figure 76

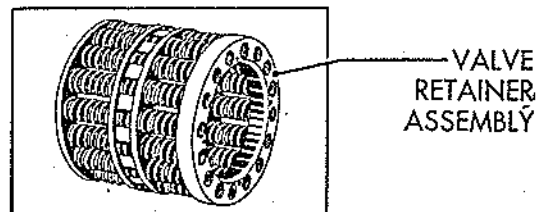


Figure 77

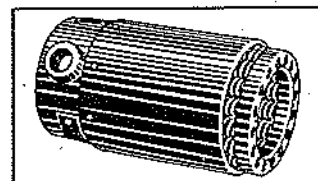


Figure 78

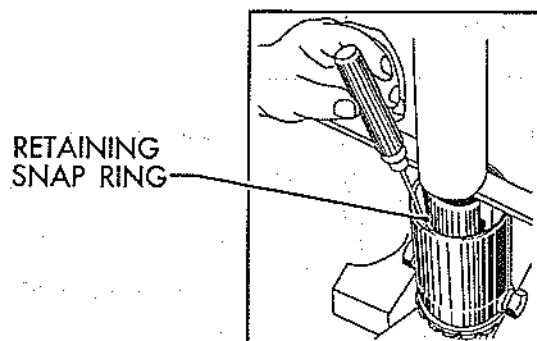


Figure 79

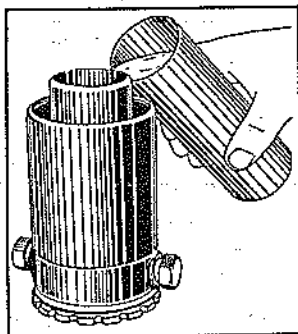


Figure 80

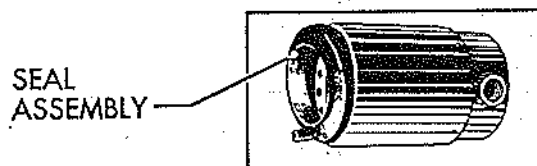


Figure 81

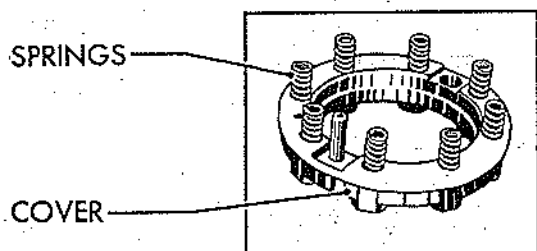


Figure 82

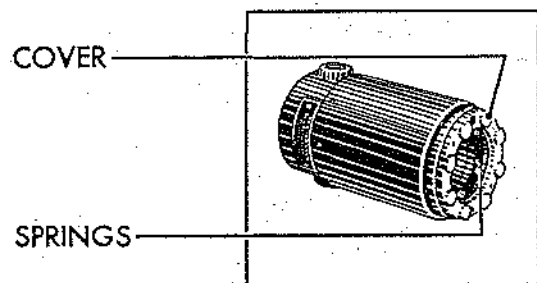


Figure 83

REASSEMBLY CONTINUED

(7) Insert the retaining snap ring against the spring and valve assembly, as shown in Fig. 79. This must be done carefully to avoid damaging internal parts.

Note: Oil AN-VV-O-366A must now be poured into the assembly as shown in Fig. 80, and each visible ball in the counter-recoil valve must be compressed to eliminate all air.

(8) Insert the seal assembly as shown in Fig. 81. Be careful not to damage the seal or other internal parts.

(9) Place the springs in the cover as shown in Fig. 82.

(10) Insert the spring and cover assembly against the seal assembly, as shown in Fig. 83.

(11) Insert the retainer ring in the end of the unit as shown in Fig. 84. Be careful not to damage internal parts.

(12) As shown in Fig. 85, assemble the bleeder screw washer and the vane bleeder screw to the stem projecting from the seal assembly through the cover. Assemble the valve assembly opposite the bleeder.

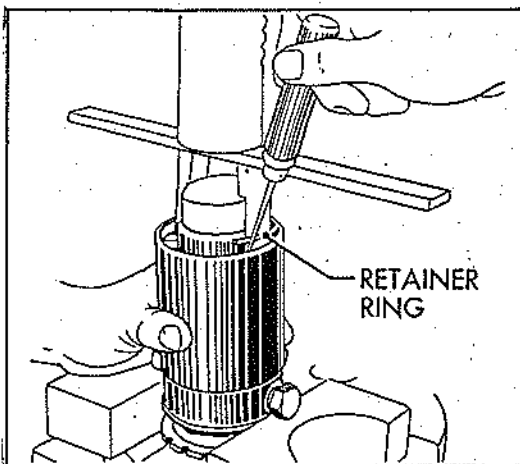


Figure 84

SECTION 5, ANNULAR GUN MOUNT ADAPTERS

THE CALIBER .50 GUN MOUNT ADAPTER MK 13

(13) Fill the unit with oil AN-VV-O-366A as follows (see Fig. 85):

(a) Remove the bleeder screw. With the bleeder screw hole pointing up, pour the oil through the valve until no air bubbles are visible.

(b) Let the unit stand one half-hour and repeat.

(c) Replace the bleeder screw and tighten it. Apply oil pressure through the valve at 1,000 lb. per square inch for one half-hour. **There must be no leakage.**

(d) Reduce the pressure to 75 lb. per square inch by opening the bleeder screw and making sure that the ring on the seal assembly is against the cover. Check this by means of a gauge through the 0.125-in. holes in the cover. Close the bleeder screw while maintaining 75 lb. pressure through the valve. This pressure may safely vary by five pounds, more or less.

Caution—In assembling this unit, all parts must be kept perfectly clean at all times. The presence of dust or other foreign matter will damage the parts and reduce the efficiency of the adapter.

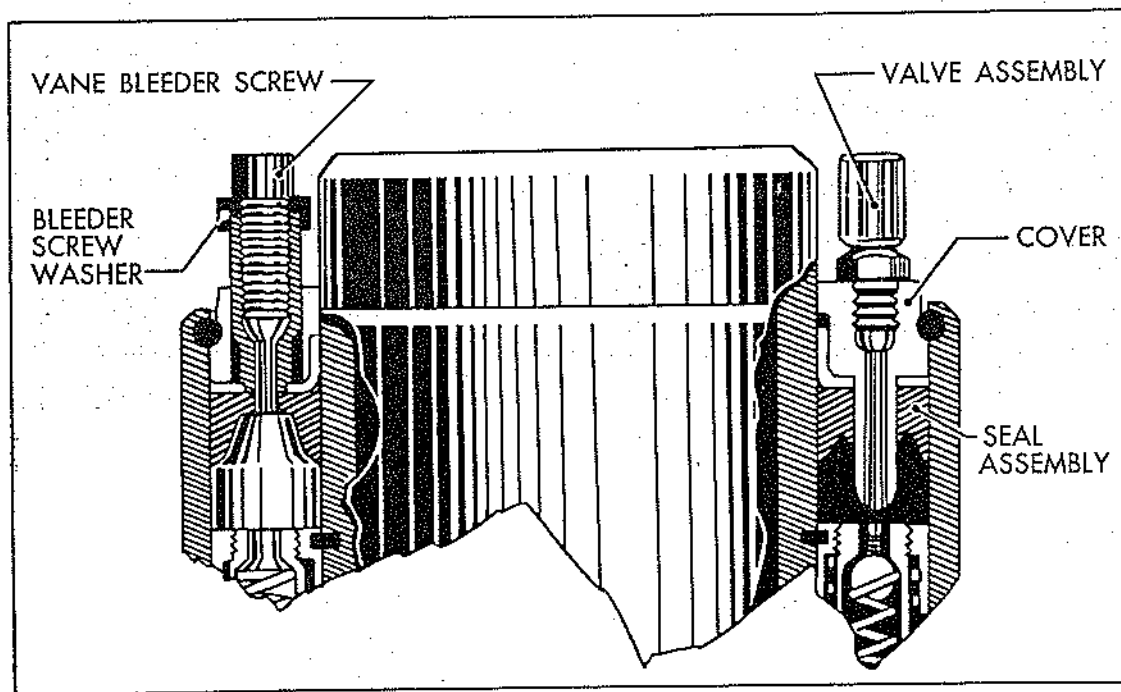


Figure 85.—Filling the adapter with oil

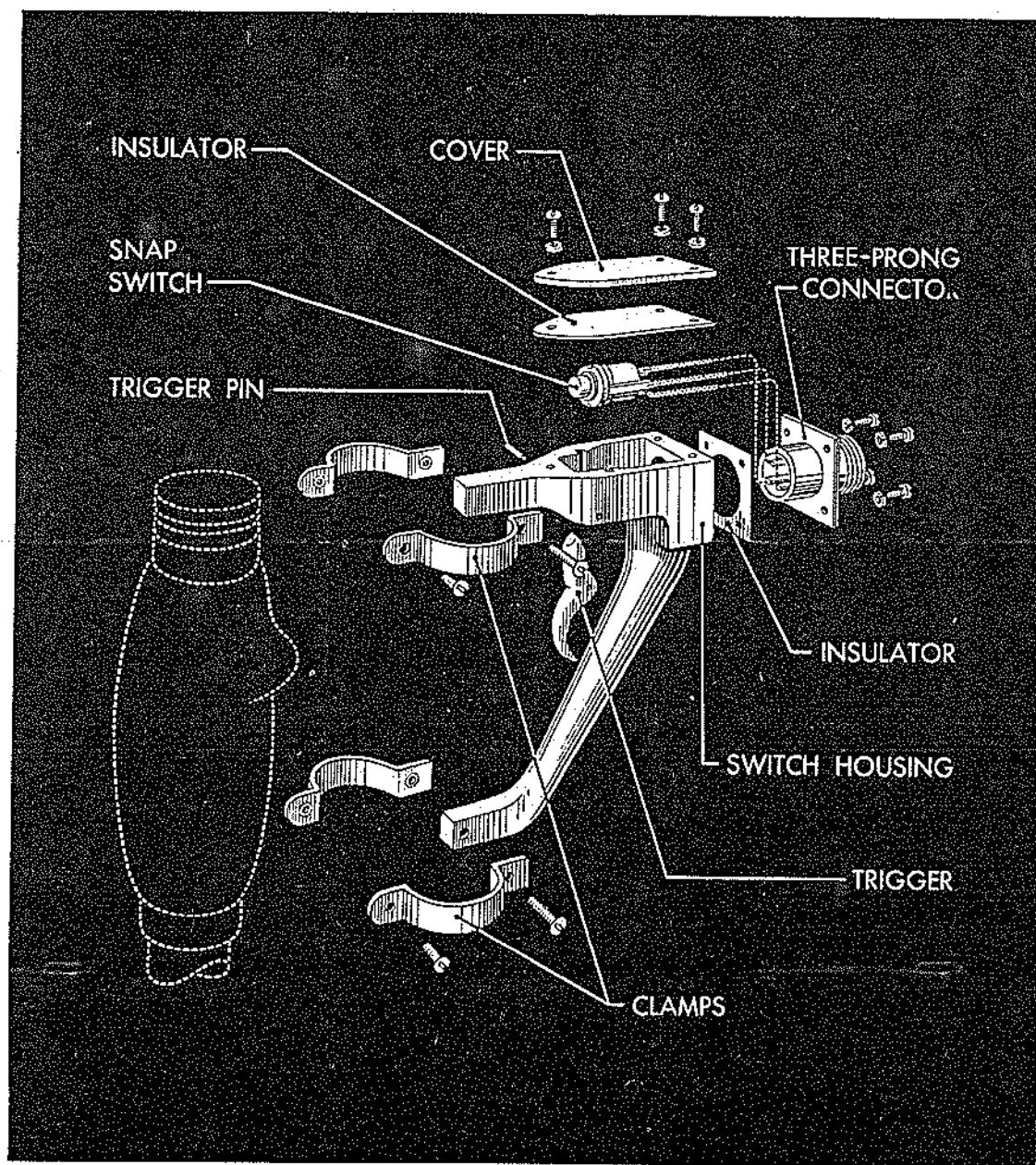


Figure 86.—The Microphone Switch Mk 1 Disassembled

SPARE PARTS SETS

Spare parts sets will be available for these adapters, and will be allowed to operating activities in accordance with the appropriate Bureau of Ordnance Airplane Model Allowance List. Only those parts which are subject to frequent loss or breakage will be supplied in these sets. Adapters which require replacements of complete assemblies, or major parts not supplied in sets, should be exchanged for new adapters at the nearest Naval Air Station.

**LIST OF REFERENCE ORDNANCE PUBLICATIONS
APPLICABLE TO GUN MOUNT ADAPTERS**

Publication	Adapters Applicable	Remarks
NAVORD OCL V27-43	Mk 6 Mod 2	Adapters for a time were being furnished without bell crank trigger spacers and bell crank trigger springs—information as to where to obtain them.
NAVORD ORDALT 1724	Mk 10, Mk 10 Mod 1	Installation of production mounting bracket for Illuminated Sight Mk 9. Resulted in Mk 10 Mod 2 and Mk 10 Mod 3. Follow-up on NAVORD OTI V15-43.
NAVORD ORDALT 1746	Mk 6 Mod 3	Installation of production mounting bracket for Illuminated Sight Mk 9. Resulted in Mk 6 Mod 3. Follow-up on NAVORD OTI V14-43.
NAVORD OMI V3-43	Mk 11 Mod 3	Installation of production mounting bracket for Illuminated Sight Mk 9. Resulted in Mk 11 Mod 4. Follow-up on NAVORD OTI GV22-43.
NAVORD OMI V4-44	Mk 6 Mod 3 Certain Mk 6 Mod 2's	Relocation of bracket for Illuminated Sight Mk 9 as installed by NAVORD ORDALT 1746. Moved $\frac{1}{4}$ in. forward.
NAVORD OMI V5-44	Mk 11 Mods 3 & 4 Mk 14	Replacement of gun camera switches in right-hand grip.
NAVORD OMIV10-44	Mk 11 Mods 3 & 4 Mk 14	Instructions for modifying continuous feed unit ratchet pawl to prevent ammunition belt from slipping out of unit.

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SAFETY PRECAUTIONS**General**

Make sure that the guns are unloaded before adjusting, repairing, or removing them from the adapters.

To prevent accidental discharge of the guns, always lock the triggers when the guns are not in use by placing the safety catch on the adapters at the SAFE position.

Before firing guns, check all adapter fastenings for security.

Specific

Gun Mount Adapters Mk 11 and Mk 14 type: If, on these twin adapters, the trigger levers are not secured to the triggers, accidental pressure on the levers will fire the guns, even though the triggers are locked in the SAFE position. For safety, therefore, the trigger levers and triggers must always be secured as shown in Fig. 52 on page 61.

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