

AMSWE-WE-P-702-103

32 JA

*QUALITY ASSURANCE PAMPHLET
FOR PROCUREMENT PROGRAMS*

RIFLE, 5.56mm, M16/M16A1

(M16) FSN 1005-856-6885

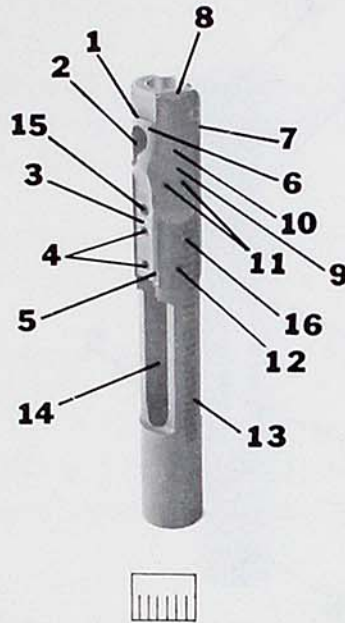
(M16A1) FSN 1005-073-9421



U.S. ARMY WEAPONS COMMAND

SEPTEMBER 1970

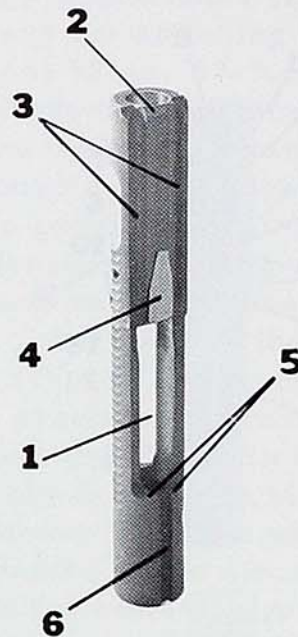
for the bolt carrier key; two (2) tapped holes (Fig. 67-4), which are located in this seat, provide a means for attaching the bolt carrier key to the bolt carrier. Guide surfaces (Figs. 67-5, 67-6, and 67-7, and 69-1 and 69-2) are portions of a cylindrical surface; this surface provides a guide for the bolt carrier in the upper receiver assembly. A flat diagonal surface (Fig. 67-8) is located on the right side and at the front of the bolt carrier. This surface provides a camming surface which prevents the ejection port cover from interfering with the motion of the bolt carrier; if this camming surface was not present, interference would occur when the bolt catch was released with the ejection port cover closed. The ejection port cover relief (Fig. 67-9), a depression located on the right side of the bolt carrier, provides clearance to allow the ejection port cover to close when the bolt carrier is in the battery position; the forward edge (Fig. 67-10) of this depression provides a camming surface which opens the ejection port cover when the weapon is initially fired. Exhaust ports (Fig. 67-11), located in the ejection port cover relief cover depression (Fig. 67-9) provide for relieving gas pressure when the bolt has been unlocked from the battery position after the weapon has been fired. The firing pin retaining pin hole (Fig. 67-12), a small transverse hole, runs through the bolt carrier; this hole is chamfered at both ends. The deeper of the two (2) chamfers, which is located on the left side of the bolt carrier, accommodates the head of the firing pin retaining pin. The chamfer on the right side of the bolt carrier facilitates removal of the cam pin retaining pin without the use of tools. Serrations (Fig. 67-13) are provided along the right side of the forward assist assembly. Two (2) openings through the bolt carrier, one located on the top (Fig. 67-14) and the other on the bottom (Fig. 68-1) provide clearance for the hammer. A bolt catch override (Fig. 68-2) is located on the bottom and at the front of the bolt carrier; its purpose is to prevent the possibility of the bolt catch engaging the front of the bolt carrier assembly. Clearance grooves (Figs. 68-3 and 69-3), located on the bottom of the bolt carrier, provide clearance for the lips on the top of the magazine. The hammer cocking ramp (Fig. 68-4), located between the clearance grooves, rotates the hammer into the cocked position during recoil. A striker surface (Fig. 68-5), located at the rear of the bottom opening (Fig. 68-1), engages the automatic sear when the weapon is fired in the automatic mode. The buffer retainer clearance groove (Fig. 68-6), located at the rear and bottom of the bolt carrier, provides clearance for the buffer retainer. Internal bearing diameters (Figs. 70-1 and 70-2) provide guiding surfaces in the bolt carrier for the bolt. The sealing diameter (Fig. 70-3) provides a bearing surface for the bolt rings; this prevents gas leakage past the larger (Fig. 70-1) of the two (2) internal bearing diameters. When the bolt is assembled into the bolt carrier, the space



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| 1. Charging handle catch | 9. Ejection port cover relief |
| 2. Cam slot | 10. Forward edge of ejection port cover relief |
| 3. Bolt carrier key seat | 11. Exhaust ports |
| 4. Tapped holes | 12. Firing pin retaining pin hole |
| 5. Guide surface | 13. Serrations |
| 6. Guide surface | 14. Hammer clearance opening |
| 7. Guide surface | 15. Gas port hole |
| 8. Diagonal camming surface | 16. Gas relief port |

Figure 67. Bolt Carrier - Right Side and Top.

between the bolt rings and the smaller of the two (2) internal bearing diameters forms a gas chamber (Fig. 70-4). The pressure of the gas acting on the rear face (Fig. 70-5) of the gas chamber forces the bolt carrier to the rear during recoil; this action unlocks the bolt and cocks the hammer. A gas port hole (Figs. 67-15 and 70-6), located in the top of the gas chamber, provides an opening between the bolt carrier key and the gas chamber in the bolt carrier. The firing pin stop (Fig. 70-7), a counterbored shoulder, engages a flange on the firing pin when the bolt carrier is recoiled; this action retracts the firing pin from the cartridge face and prevents accidental firing of the cartridge due to protrusion of the firing pin. Due to space limitations, no sealing rings are provided



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| 1. Hammer clearance opening | 4. Hammer cocking ramp |
| 2. Bolt catch override | 5. Striker surface |
| 3. Clearance grooves | 6. Buffer retainer clearance groove |

Figure 68. Bolt Carrier - Left Side and Bottom.

at the smaller internal bearing diameter (Fig. 70-2). For this reason, a small gas relief port (Figs. 67-16 and 70-8), located on the right side of the bolt carrier, intersects an internal relief diameter (Fig. 70-9) located behind the small internal bearing diameter; this configuration provides a means for relieving any gas pressure buildup between the bolt carrier and the firing pin due to blowback past the small internal bearing diameter.

b. Important Functioning Points and Areas. These are as follows:

(1) The location of the charging handle latch (Fig. 67-1) must be within tolerance to prevent interference of the charging handle with the bolt carrier assembly when the bolt carrier assembly is in the battery position.

(2) The locating dimensions, diameters, and full contour of the cam slot (Fig. 67-2) must be within tolerance to insure smooth motion

of the cam pin when the bolt is being locked into or unlocked from the battery position.

(3) The width and depth of the bolt carrier key seat (Fig. 67-3) and its symmetry and parallelism to the outside diameter must be as specified to insure the following:

(a) Smooth motion and proper angular alignment of the bolt carrier in the upper receiver assembly.

(b) Proper engagement of the bolt carrier key with the gas tube.

(4) The finish on the bolt carrier key seat must be as specified to prevent gas leakage at the mating surfaces of the bolt carrier key and bolt carrier.

(5) The locating dimensions of the two (2) tapped holes (Fig. 67-4) must be within tolerance to insure assembly of the bolt carrier key to the bolt carrier assembly.

(6) The diameter formed by the guide surfaces (Figs. 67-5, 67-6, 67-7, and 69-1 and 69-2) must be within tolerance to insure smooth motion of the bolt carrier assembly in the upper receiver assembly.

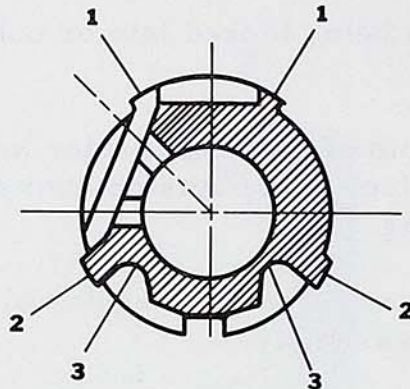
(7) The diameter and location of the exhaust ports (Fig. 67-11) must be within tolerance to insure proper actuating force for operation of the weapon.

(8) The vertical locating dimension of the firing pin retaining pin hole (Fig. 67-12) must be within tolerance to avoid interference of the firing pin retaining pin with the firing pin.

(9) The dimensions of the serrations (Fig. 67-13) must be within tolerance to insure proper engagement of the forward assist pawl when the forward assist assembly is used.

(10) The dimensions of the two (2) clearance grooves (Figs. 68-3 and 69-3) must be within tolerance to assure proper clearance of the bolt carrier with the magazine lips.

(11) The location of the striker surface (Fig. 68-5) must be within tolerance to insure proper operation of the weapon in the automatic mode.



1. Guide surfaces
2. Guide surfaces
3. Clearance grooves

Figure 69. Transverse Section Through Bolt Carrier Exhaust Ports.

(12) The larger internal bearing diameter (Fig. 70-1) must be within tolerance to insure smooth motion of the bolt in the bolt carrier.

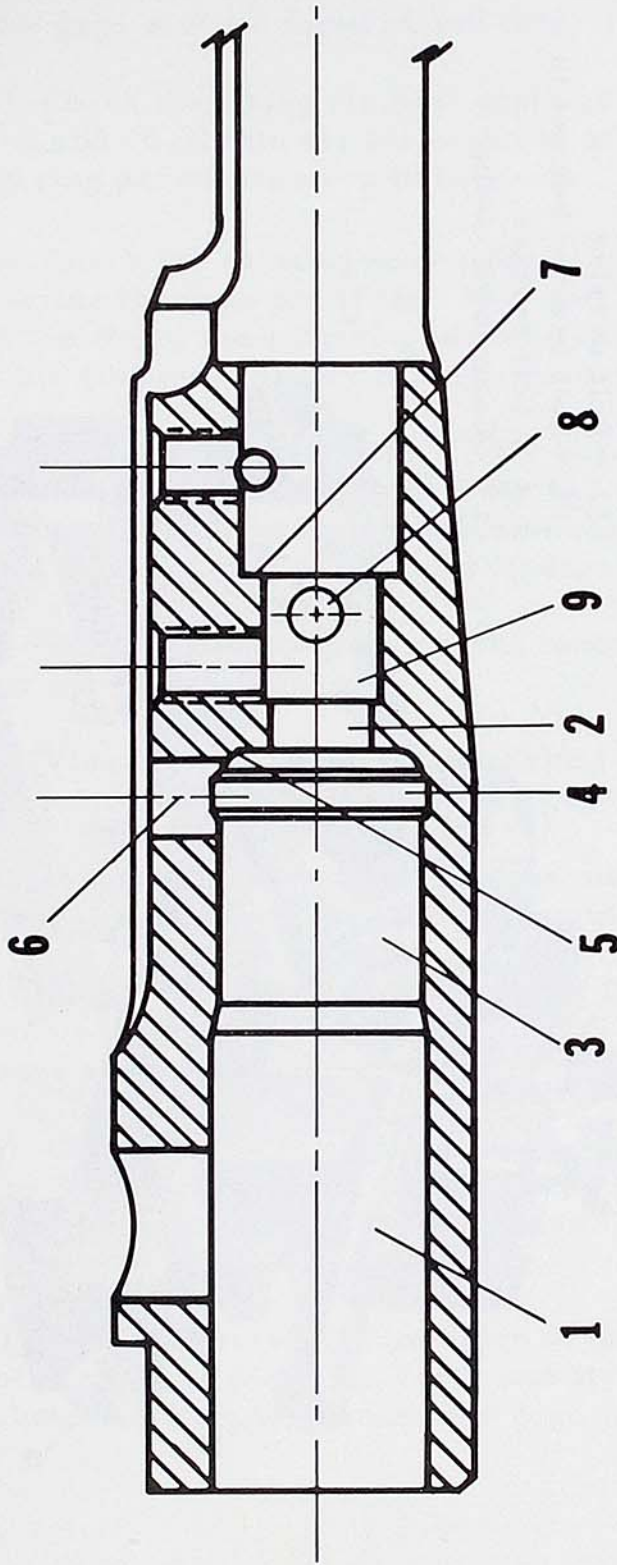
(13) The smaller internal bearing diameter (Fig. 70-2) must be within tolerance to insure smooth motion of the bolt in the bolt carrier and to minimize blowback.

(14) The locating dimension of the firing pin stop (Fig. 70-7) must be as specified to avoid interference with the firing pin when the weapon is fired.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662274. Special gages, some of which are described below, are used to check significant characteristics. Routine test procedures and standard visual inspection methods are to be followed for those characteristics given in the above referenced SQAP which are not listed below.

(1) Fixture Location Gage - 8440772. This gage is used to check the cam slot location for full contour; this characteristic is detailed in the above referenced SQAP. The procedure to be followed is outlined on the base of the gage. Figure 71 shows initial gage setup. Figures 72 and 73 show pin "H" in the fixture reset and gaging positions. Figure 74 shows gage pin storage.

(2) Flush Pin Depth Gage - 8443904. This gage (Fig. 75) is used to check the location of the firing pin seat and the location of the firing pin retaining pin hole; these characteristics are detailed in the above referenced SQAP. The following procedure is to be used:



- 1. Larger internal bearing diameter
- 2. Smaller internal bearing diameter
- 3. Sealing diameter
- 4. Gas chamber
- 5. Gas chamber rear face
- 6. Gas port hole
- 7. Firing pin stop
- 8. Gas relief port
- 9. Internal relief diameter

Figure 70. Cross Section Showing Right Half of Bolt Carrier.

1. Component clamping knob
2. Initial set gage pin
3. Gage pin hole
4. Cam slot in bolt carrier
5. Angle set mark
6. Angle set knob
7. Slide
8. Gaging distance set mark
9. "V" block
10. Gaging distance set knob
11. Bolt carrier
12. Bolt carrier key set in bolt carrier
13. Component clamp

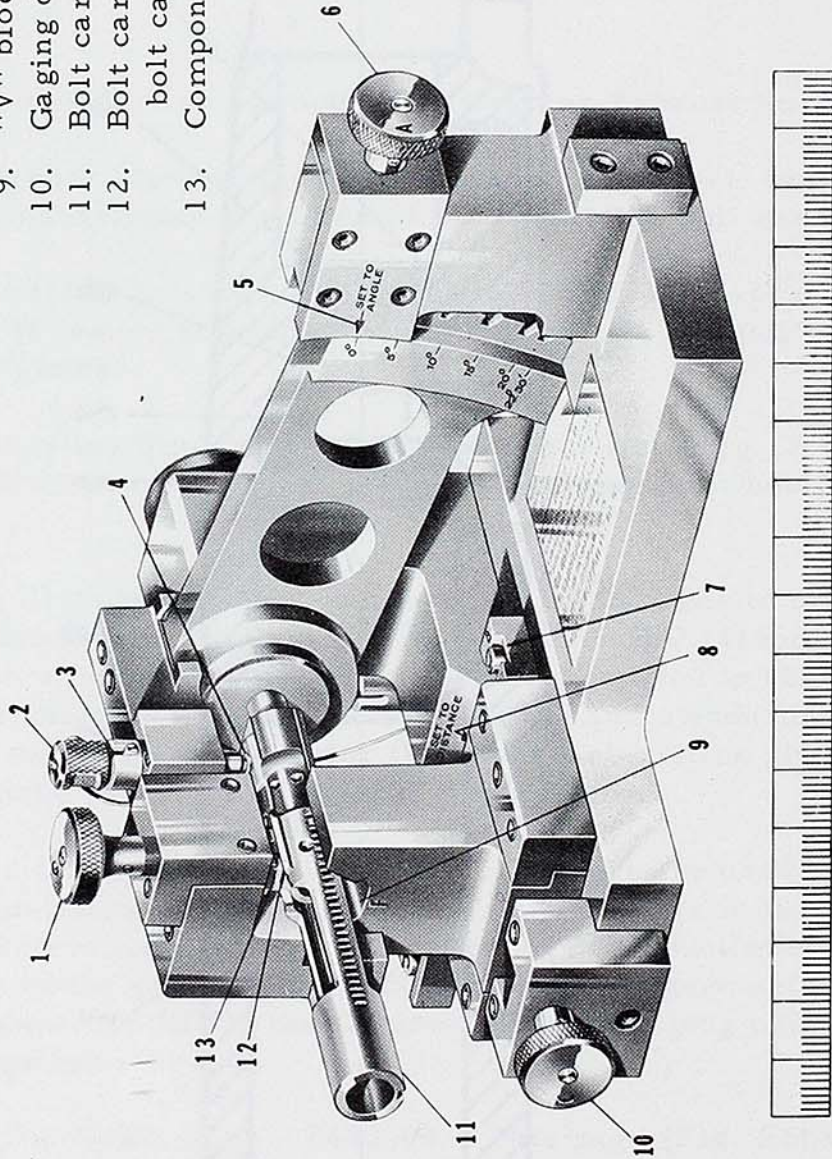


Figure 71. Initial Fixture Location Gage Setup.

(a) Place the bolt carrier on the locating post (Figs. 75-1 and 76-1) on the gage with its forward end (Fig. 76-2) facing up.

(b) Check the firing pin seat depth by inserting the flush pin gage (Figs. 75-2 and 76-3) into the forward end of the bolt carrier. Routine flush pin gaging procedures are to be used.

(c) Check the locating dimension of the firing pin retaining pin hole by inserting the gage pin (Figs. 75-3 and 76-1) into this hole (Fig. 76-5). If the firing pin retaining pin hole location is within tolerance, the gage pin will move freely through the entire hole length.

(3) Location Gage - 11837910. This gage (Fig. 77) is used to check the locations of the two (2) bolt carrier key mounting holes and the location of the gas port hole; these characteristics are detailed in the above referenced SQAP. The following procedure is to be used:

(a) Place the bolt carrier in the location gage with the bolt carrier key seat up.

(b) Visually position the bolt carrier key mounting holes and the gas port hole in line with the location gage bushings.

(c) Insert the thread gage into the middle bushing (Fig. 77-1) of the location gage, and thread the thread gage into the bolt carrier.

(d) Check the locating dimension of the forward bolt carrier key mounting hole with the flush pin gage (Fig. 78-1). Routine flush pin gaging procedures are to be used.

(e) Check the locating dimension of the rear bolt carrier key mounting hole by inserting the applicable gage pin (Fig. 78-2) into its bushing (Fig. 77-2). If the rear bolt carrier key mounting hole is within tolerance, the gage pin will freely enter the bolt carrier.

(f) Check the locating dimension of the gas port hole by inserting the applicable gage pin (Fig. 78-3) into its bushing (Fig. 77-3). If the gas port hole is within tolerance, the gage will freely enter the bolt carrier.

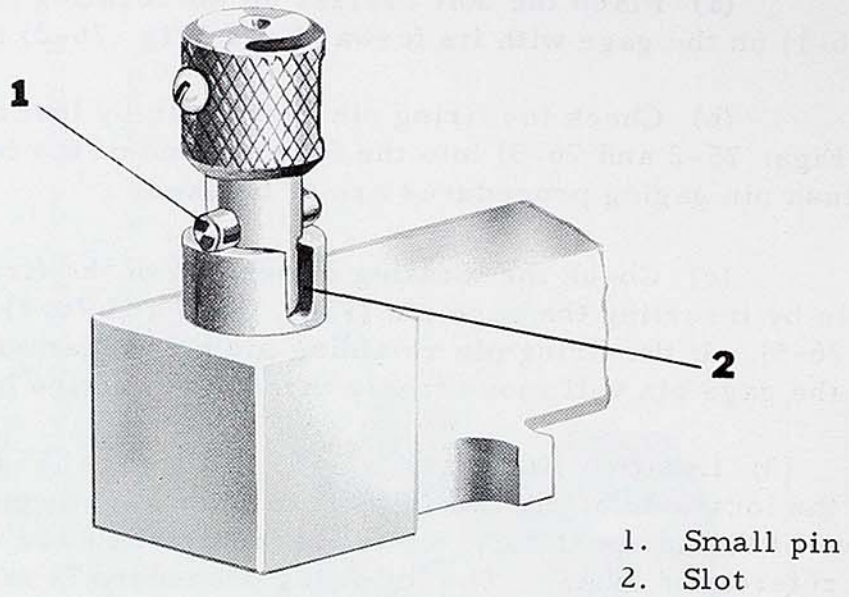


Figure 72. Gage Pin "H" in Fixture Reset Position.

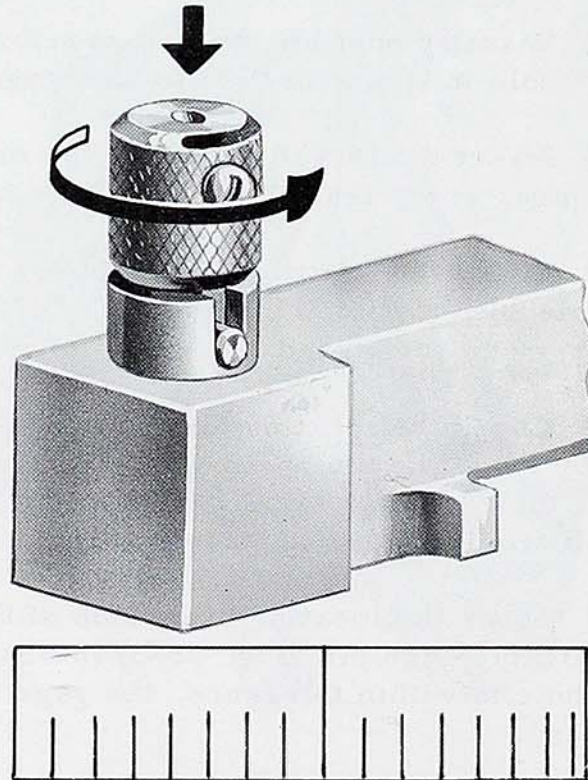


Figure 73. Gage Pin "H" in Gaging Position.

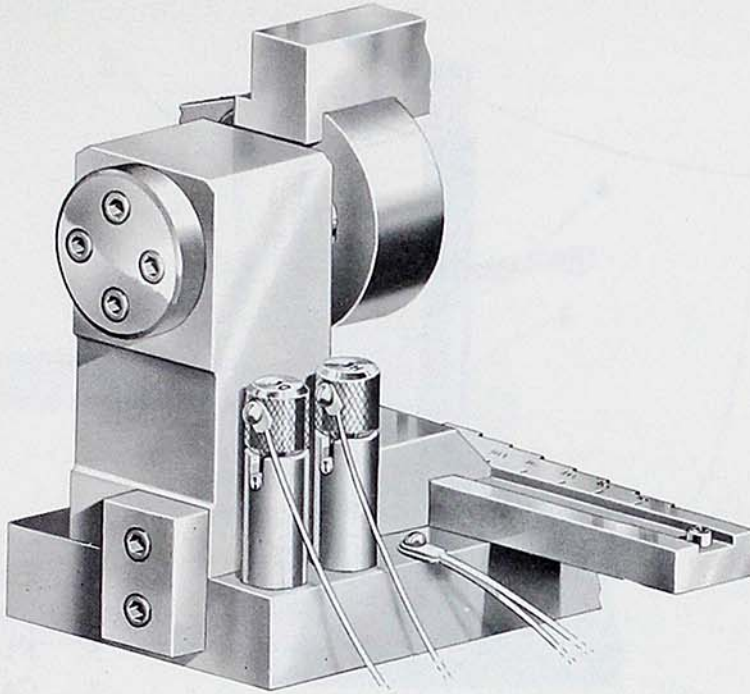
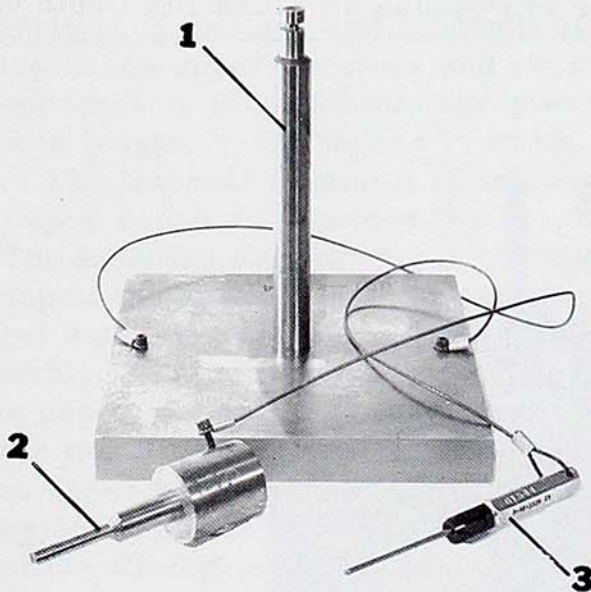


Figure 74. Gage Pin Storage.



- 1. Locating post
- 2. Flush pin gage
- 3. Gage pin

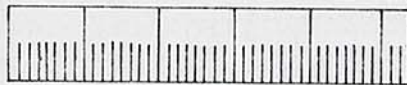
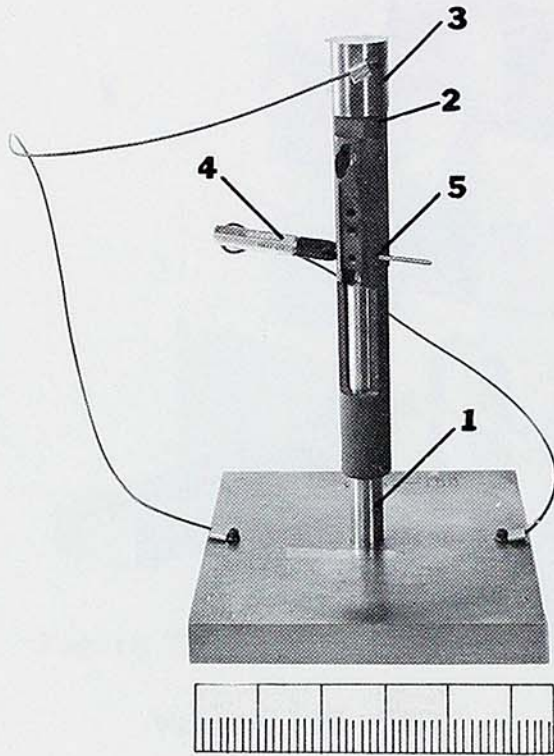
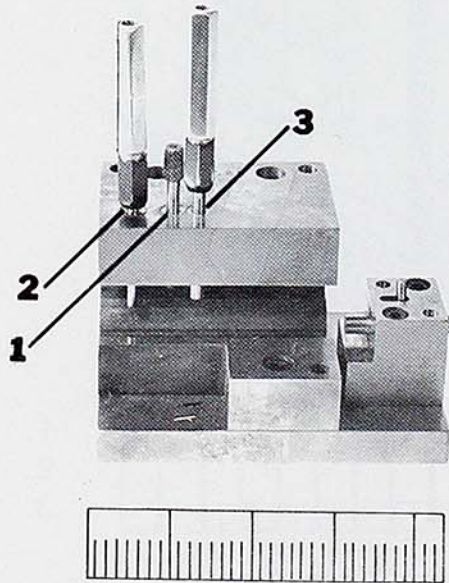


Figure 75. Flush Pin Depth Gage.



- 1. Locating post
- 2. Forward end of bolt carrier
- 3. Flush pin gage
- 4. Gage pin
- 5. Firing pin retaining pin hole

Figure 76. Bolt Carrier in Position on Flush Pin Depth Gage.



- 1. Middle bushing
- 2. Bushing
- 3. Bushing

Figure 77. Location Gage.

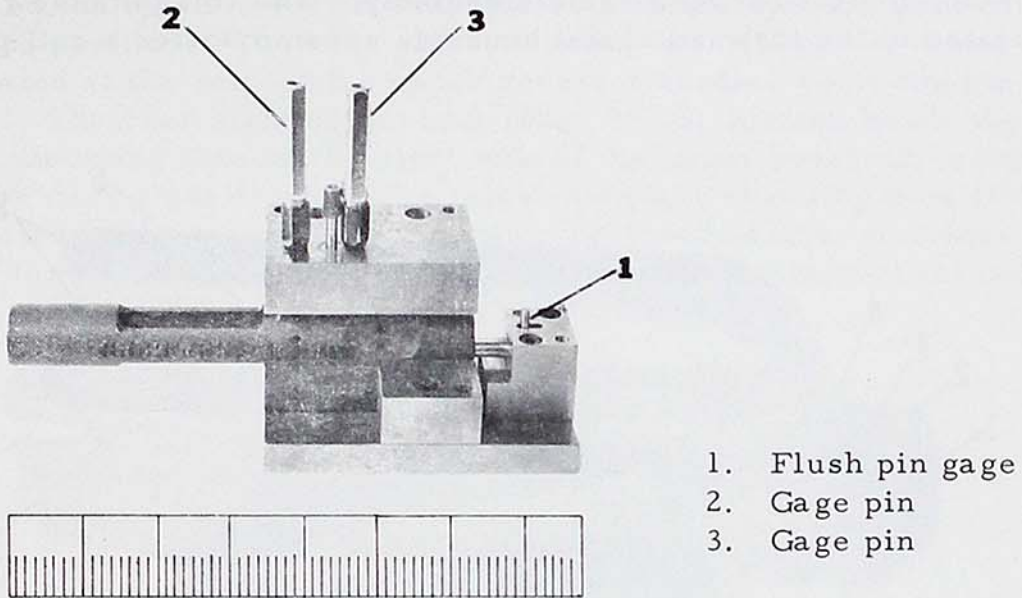
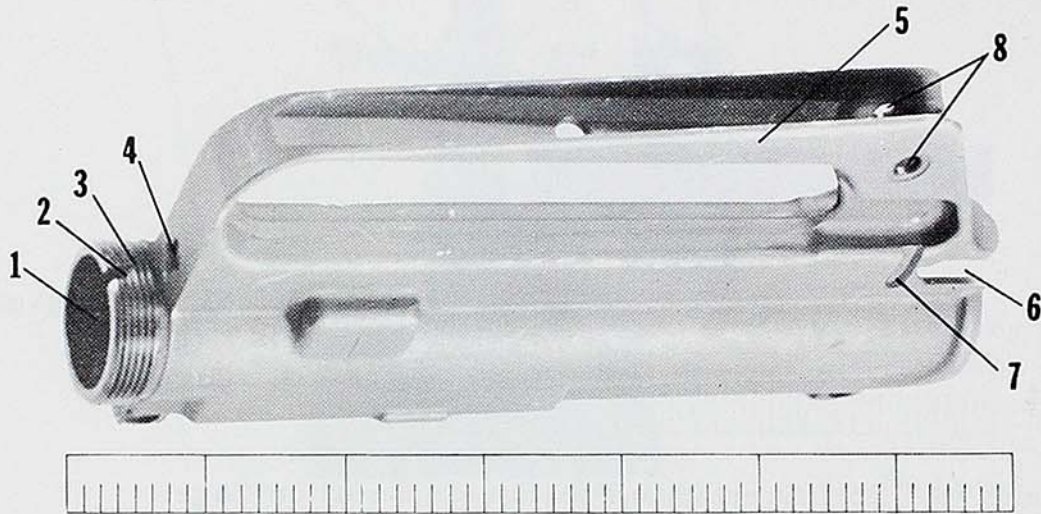


Figure 78. Bolt Carrier in Position on Location Gage.

43. UPPER RECEIVER - 62278.

a. Description, Function, and Interrelationship. The upper receiver is located in the upper receiver and barrel assembly (see Fig. 124). This component, a forged aluminum piece, is approximately eight (8) inches in length, 1 1/8 inches in width, and four (4) inches in overall height. The internal diameter which runs through the forward portion of the upper receiver provides the barrel extension retainer (Fig. 79-1). The indexing pin slot (i. e., the timing slot) (Fig. 79-2), located at the top of the barrel extension retainer, engages the indexing pin on the barrel extension and angularly positions the barrel and barrel extension assembly. The external thread (Fig. 79-3), located at the front end of the upper receiver, is engaged by the barrel nut assembly; this provides the means for securing the barrel and barrel extension assembly to the upper receiver. The gas tube hole (Fig. 79-4), located in the front face of the upper receiver handle (Fig. 79-5), positions the gas tube so that it will engage the bolt carrier key when the bolt carrier is in the battery position. The charging handle slot (Fig. 79-6), located in the rear face of the upper receiver, positions the charging handle in its retracted position. The charging handle latch slot (Fig. 79-7), located in front of the charging handle slot on the left side of the upper receiver, engages the charging handle latch; this retains the charging handle assembly in its retracted position. The forward assist housing (Fig. 80-1),

located at the rear and on the right side of the upper receiver, provides a guide for the forward assist assembly. The roll pin hole (Fig. 80-2), located in the forward assist housing, accommodates a roll pin which

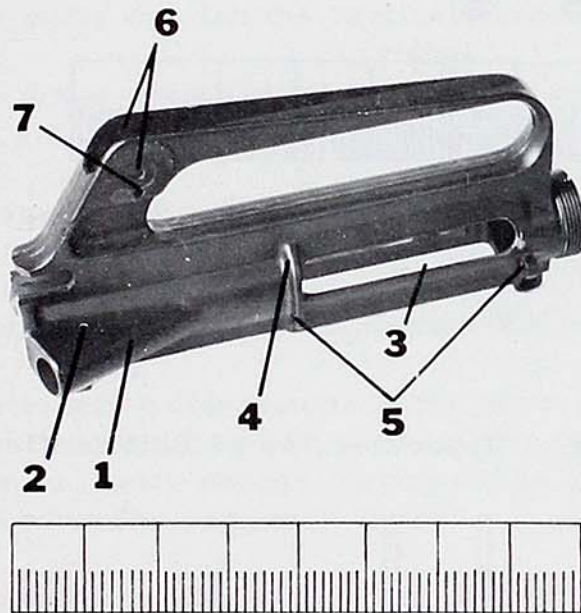


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|------------------------------|-------------------------------|
| 1. Barrel extension retainer | 5. Upper receiver handle |
| 2. Indexing pin slot | 6. Charging handle slot |
| 3. External thread | 7. Charging handle latch slot |
| 4. Gas tube hole | 8. Rear sight mounting hole |

Figure 79. Upper Receiver - Left Hand View.

provides a retainer for the forward assist assembly. The takedown lug (Fig. 81-1), located on the rear and at the bottom of the upper receiver, engages the takedown slot in the lower receiver when the weapon is closed. The takedown pin hole (Fig. 81-2), a slotted hole located in the takedown lug, is engaged by the takedown pin when the weapon is locked in the closed position. The hinge lug (Fig. 81-3), located on the bottom of the upper receiver behind the external thread, engages the hinge on the lower receiver. The pivot hole (Fig. 81-4), located in the hinge lug, is engaged by the receiver pivot pin; this provides the means for attaching the upper and lower receiver. The ejection port (Fig. 80-3), located on the right side of the upper receiver, provides an opening for the ejection of the spent cartridge. The cartridge stop (Fig. 80-4), located at the rear of the ejection port, directs the spent cartridge away from the operator of the weapon. The ejection port cover hinge (Fig. 80-5), located below the ejection port, provides a pivot for the ejection port cover.

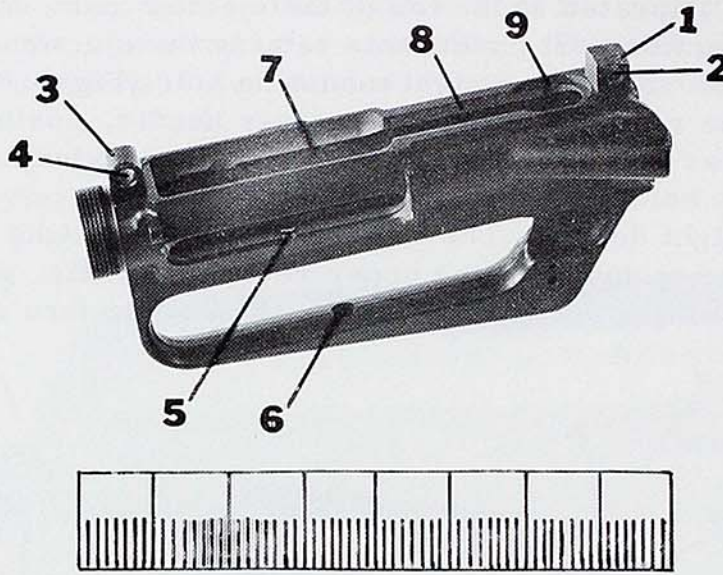
Notches (Fig. 81-5), located at the top of the ejection port, are engaged by a latch on the ejection port cover; this retains the ejection port cover in its closed position. The rear sight mounting hole (Figs. 79-8 and 80-6), located at the rear of the upper receiver handle, positions the rear sight. The rear sight detent hole (Fig. 80-7), located below the rear sight mounting hole on the right side of the upper receiver, accommodates the rear sight detent. The telescope sight mounting hole (Fig. 81-6), located at the midpoint of the upper receiver handle, provides the means for mounting a telescopic sight. The bottom face of the upper



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| 1. Forward assist housing | 5. Ejection port cover hinge |
| 2. Roll pin hole | 6. Rear sight mounting hole |
| 3. Ejection port | 7. Rear sight detent hole |
| 4. Cartridge stop | |

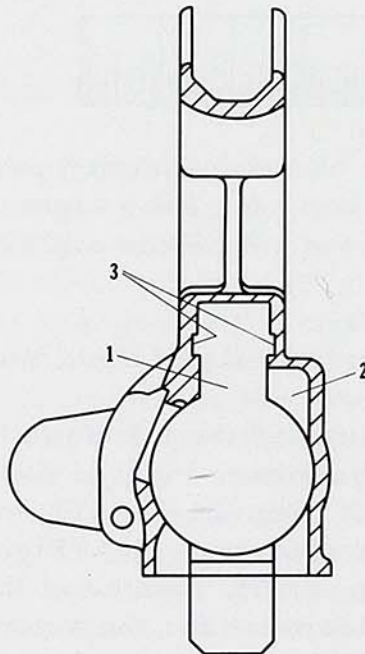
Figure 80. Upper Receiver - Right Hand View.

receiver is open between the hinge lug and the takedown lug. The widest portion of this opening, located at the forward end of the upper receiver, provides the magazine clearance slot (Fig. 81-7). The narrow portion of this opening provides the hammer clearance slot (Fig. 81-8). The automatic sear assembly relief (Fig. 81-9), located at the rear of the hammer clearance slot, provides clearance for the automatic sear assembly. The internal cavity (Fig. 82) of the upper receiver houses the bolt carrier assembly and the charging handle assembly. The key and cam



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| 1. Takedown lug | 6. Telescope sight mounting hole |
| 2. Takedown pin hole | 7. Magazine clearance slot |
| 3. Hinge lug | 8. Hammer clearance slot |
| 4. Pivot hole | 9. Automatic sear assembly relief |
| 5. Notch | |

Figure 81. Upper Receiver - Bottom View.



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|----------------------------|
| 1. Key and cam pin guide |
| 2. Cam pin relief groove |
| 3. Charging handle grooves |

Figure 82. Upper Receiver - Section View.

pin guide (Fig. 82-1), located in the upper portion of the internal cavity, angularly positions the bolt and bolt carrier by retaining the bolt carrier key and cam pin. The cam pin relief groove (Fig. 82-2), located on the left side and near the forward end in the bolt carrier guide, provides clearance to permit the cam pin to rotate into and out of the battery position. The charging handle grooves (Fig. 82-3), located in the bolt carrier guide, provide a guide for the charging handle.

b. Important Functioning Points and Areas. Reference planes for the upper receiver are as follows:

- (1) The plane through the vertical centerline of the pivot hole.
- (2) The plane containing the horizontal centerlines of the pivot hole and takedown pin hole.
- (3) The plane formed by the right side surfaces of the hinge lug and the takedown lug.

Important functioning points and areas are as follows:

- (1) The locating dimensions of the pivot pin hole and the takedown pin hole, and their relationship to the above referenced planes must be within tolerance to insure proper mating of the upper and lower receiver assemblies when the weapon is closed.
- (2) The diameter of the pivot pin hole and the dimensions of the takedown pin slot must be within tolerance to insure proper mating of the upper and lower receivers.
- (3) The width of the takedown lug and its symmetry to the hinge lug must be as specified to insure proper mating of the upper and lower receiver assemblies when the weapon is closed.
- (4) The parallelism of the takedown lug to the hinge lug must be as specified to insure proper mating of the upper and lower receiver assemblies when the weapon is closed.
- (5) The diameter of the barrel extension retainer (Fig. 79-1) must be within tolerance to insure proper alignment of the barrel and barrel extension assembly in the upper receiver.
- (6) The symmetry of the indexing pin slot (Fig. 79-2) with

respect to the key and cam pin guide (Fig. 82-1) must be as specified to insure proper alignment of the bolt and barrel extension during recoil and counter recoil.

(7) The locating dimensions of the gas tube hole must be within tolerance to insure proper engagement of the gas tube with the bolt carrier key.

(8) The locating dimensions of the charging handle slot and the charging handle latch slot must be within tolerance to avoid interference between the bolt carrier and the charging handle when the bolt carrier is in the battery position.

(9) The diameters of the hole and counterbore in the forward assist assembly and their concentricity to each other must be as specified to insure free motion of the forward assist assembly in the upper receiver housing.

(10) The locating dimension of the roll pin hole, with respect to the hole and counterbore in the forward assist assembly, must be within tolerance to insure free motion of the forward assist assembly in the upper receiver housing.

(11) The dimensions pertaining to the following must be within tolerance to insure mating of the ejection port cover assembly with the ejection port:

- (a) The ejection port cover hinge.
- (b) The relief around the ejection port periphery.
- (c) The notch at the top of the ejection port.

(12) The vertical locating dimension of the rear sight mounting hole determines the zero elevation position when targeting the weapon. This dimension must be within tolerance to insure sufficient elevation adjustment in either direction to permit targeting the weapon.

(13) The locating dimensions of the rear sight detent hole must be within tolerance to insure proper engagement of the rear sight detent with the windage drum.

(14) The dimensions pertaining to the magazine and hammer

clearance slot must be within tolerance to insure proper clearance with the magazine and hammer.

(15) The dimensions pertaining to the key and cam pin guide (Fig. 82-1) must be within tolerance to insure free motion of the bolt carrier assembly in the upper receiver and proper engagement of the bolt in the barrel extension during recoil and counter recoil.

(16) The vertical locating dimension of the charging handle grooves (Fig. 82-3) must be within tolerance to insure proper clearance between the charging handle and the bolt carrier assembly.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662278. Special gages, some of which are described below, are used to check significant characteristics. Routine test procedures and standard visual inspection methods are to be followed for additional characteristics given in the above referenced SQAP which are not listed below.

(1) Flush Pin Gage - 8443663. This gage (Fig. 83) is used to check the locating dimension of the charging handle slots from the bottom surface of the upper receiver; this characteristic is detailed in the above referenced SQAP. The following procedure is to be used:

(a) Insert the gage (Fig. 84-1) into the opening in the bottom of the upper receiver (Fig. 84-2) using the appropriate faces of the locating lugs (Fig. 84-3) to position the gage.

(b) Check the locating dimension of the charging handle slots along their full length, using routine flush pin gaging procedures.

(2) Location Gage - 11837926. This gage (Fig. 85) is used to check the following characteristics, which are detailed in the above referenced SQAP:

(a) Locating dimensions of the rear sight.

(b) Locating dimension of the front face of the upper receiver.

(c) Locating dimension of the magazine opening.

(d) Locating dimension of the charging handle clearance slot.

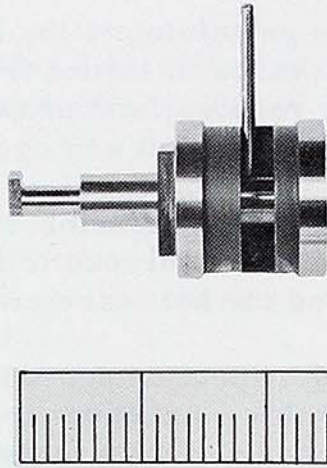
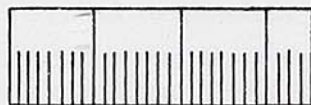
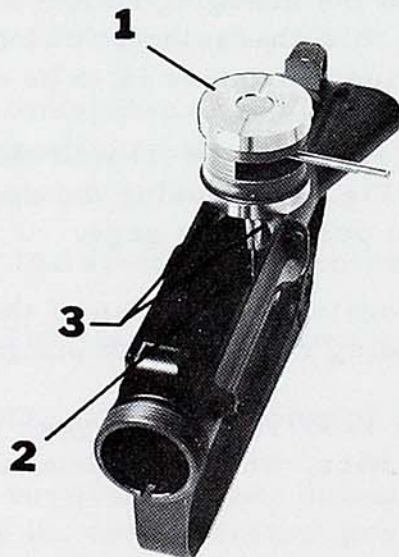


Figure 83. Flush Pin Gage.



- 1. Gage
- 2. Opening in bottom of upper receiver
- 3. Locating lugs

Figure 84. Flush Pin Gage Positioned in Upper Receiver.

(e) Locating dimension of the bottom surface of the channel in the handle of the upper receiver.

(f) Locating dimensions of the telescope mounting hole.

(g) Locating dimension of the rear face of the hammer clearance slot.

The following procedure is to be used:

(a) Locate the upper receiver against the wear plate (Fig. 86-1) on the location gage.

(b) Insert the locating plugs (Figs 86-2 and 86-3) at the front and rear of the upper receiver.

(c) Tighten the clamp (Fig. 86-4) at the rear of the upper receiver.

(d) Check the locating dimensions of the front face of the upper receiver, magazine opening, charging handle slot, bottom surface of the channel in the handle of the upper receiver, and hammer clearance slot, using their respective flush pin gages (Figs. 86-5 through 86-9). Routine flush pin gaging procedures are to be used.

(e) Check the locating dimensions of the rear sight and telescope mounting holes by using their respective gaging pins (Figs. 86-10 and 87-1).

44. SLING SWIVEL - 62280.

a. Description, Function, and Interrelationship. Two (2) sling swivels are used; one is fastened to the bottom of the front sight, and one to a steel base in the bottom rear portion of the buttstock assembly (see Fig. 123). A projection at the midpoint of one of the long sides of this component (Fig. 88-1) forms a hinge lug. The sling swivels provide the means for attaching a sling to the weapon.

b. Important Functioning Points and Areas. Each sling swivel must move freely on its hinge pin.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662280.

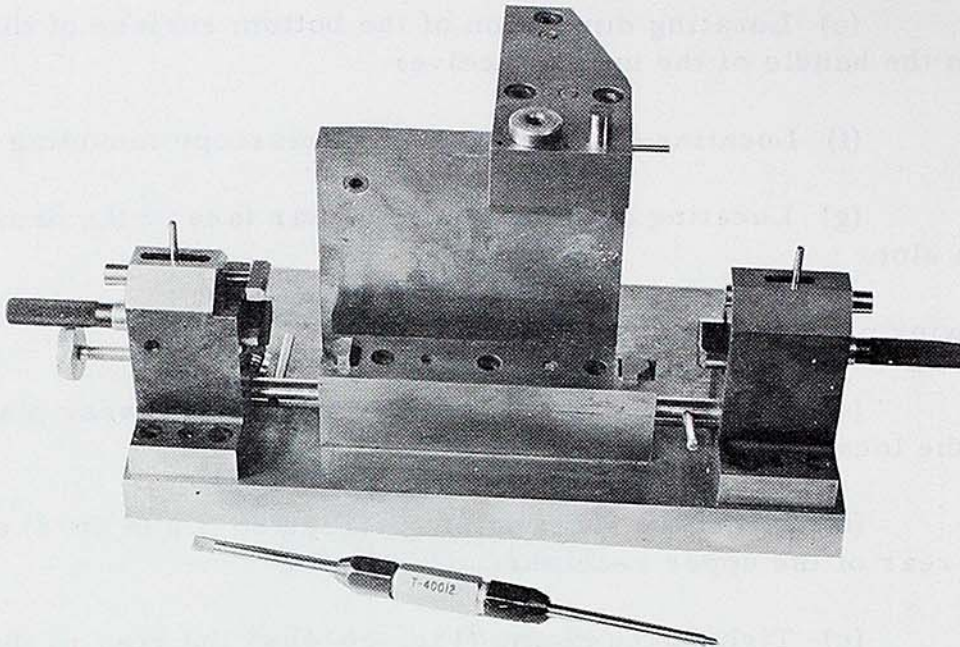
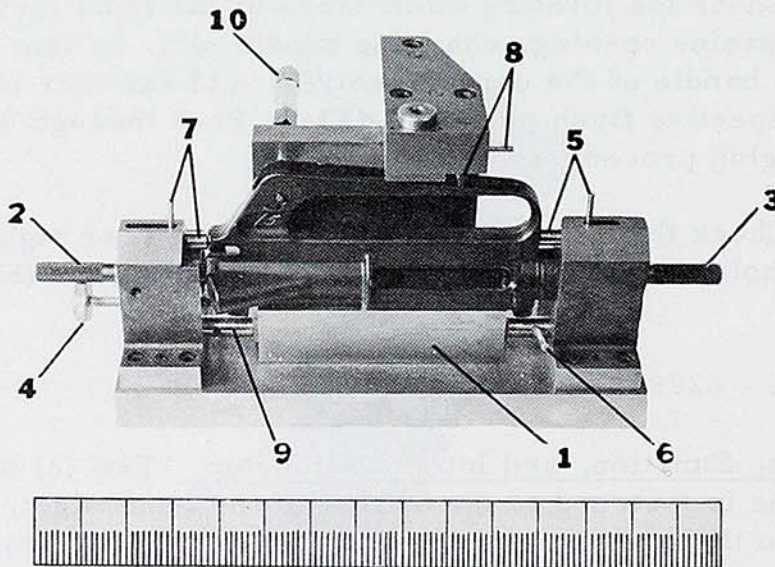


Figure 85. Location Gage Positioned to Accommodate Upper Receiver.



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|-------------------|--|
| 1. Wear plate | 6. Flush pin gage |
| 2. Locating plug | 7. Flush pin gage |
| 3. Locating plug | 8. Flush pin gage |
| 4. Clamp | 9. Flush pin gage |
| 5. Flush pin gage | 10. Rear sight mounting hole
gaging pin |

Figure 86. Upper Receiver Positioned in Location Gage with Gaging Pin in Rear Sight Mounting Hole.

1. Telescope mounting
hole gaging pin

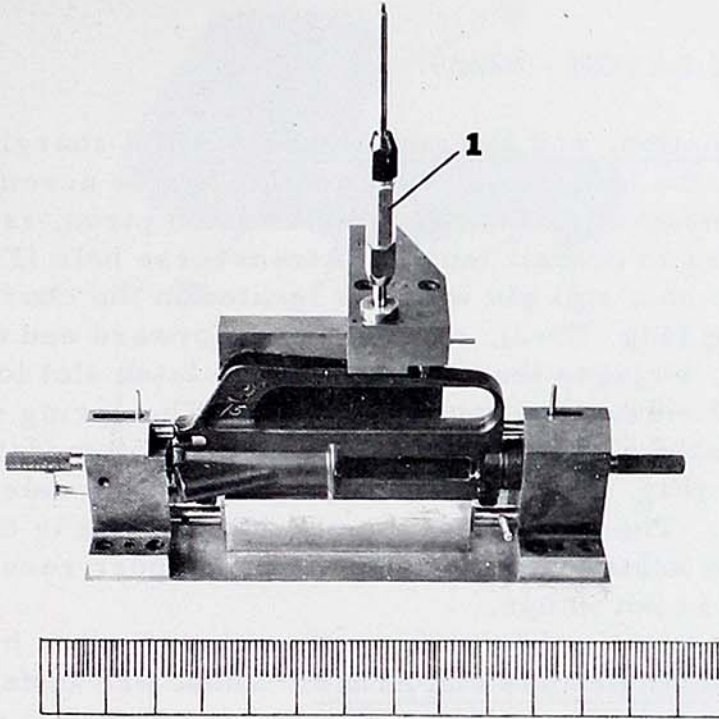
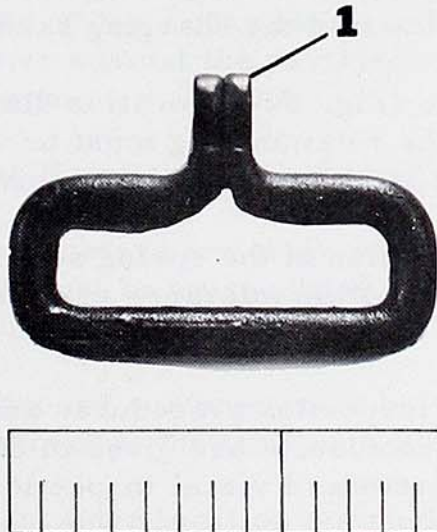


Figure 87. Upper Receiver Positioned in Location Gage with Gaging Pin in Telescope Mounting Hole.



1. Hinge lug

Figure 88. Sling Swivel.

Routine gaging techniques and standard visual inspection methods are to be followed.

45. CHARGING HANDLE LATCH - 62289.

a. Description, Function, and Interrelationship. The charging handle latch is located on the left side of the charging handle assembly (see Fig. 130). This component, a flat die cut aluminum piece, is approximately 1 1/4 inches in overall length. A transverse hole (Fig. 89-1) provides for a pivot on a roll pin which is located in the charging handle. The retaining lug (Fig. 89-2), located at the forward end of the charging handle latch, engages the charging handle latch slot located at the rear and on the left side of the upper receiver. The spring seat (Fig. 89-3), which is located near the transverse hole accommodates the latch spring. Serrations (Fig. 89-4) provide a finger grip for releasing the charging handle latch. The purpose of the charging handle is to retain the charging handle in its forward position in the upper receiver when the charging handle is not in use.

b. Important Functioning Points and Areas. These are as follows:

(1) The diameter of the transverse hole must be within tolerance to insure free rotation of the charging handle latch about its roll pin.

(2) Metal thickness must be within tolerance to insure free motion of the charging handle latch in the charging handle.

(3) The catch surface (Fig. 89-5) location dimension and all inside contour dimensions of the retaining lug must be within tolerance to insure proper seating of the latch in the upper receiver.

(4) The locating dimension of the spring seat, with respect to the transverse hole, must be within tolerance to insure proper action of the latch spring.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662289. Routine gaging techniques and standard visual inspection methods are to be followed.

46. FIRING PIN - 62294.

a. Description, Function, and Interrelationship. The firing pin is

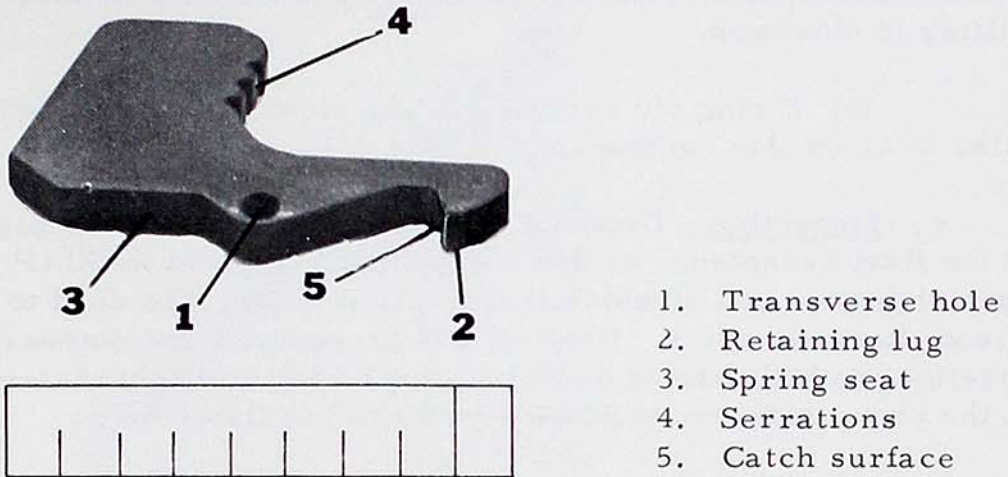


Figure 89. Charging Handle Latch.

located in the bolt (see Fig. 127). This component, a steel cylindrical pin, has a body diameter of approximately $5/32$ of an inch and is $3 \frac{1}{4}$ inches in length. A head (Fig. 90-1), which provides a striking surface for the hammer, is located at one end of the firing pin. The firing pin stop (Fig. 90-2), a flange, is located near the firing pin head; the purpose of this stop is to prevent firing pin protrusion when the bolt is not locked in the battery position. The firing pin striker point (Fig. 90-3), a spherical radius, is located at the opposite end from the firing pin head. The purpose of the firing pin is to transmit and concentrate the force of the hammer against the cartridge primer, resulting in discharge of the weapon.

b. Important Functioning Points and Areas. These are as follows:

(1) All diameters and their concentricities to the shank diameter (Fig. 90-4) must be as specified to insure smooth movement of the firing pin in the bolt.

(2) All ground surfaces must be to the specified finish to insure smooth movement of the firing pin in the bolt.

(3) All shoulder location dimensions must be as specified in Part IV of SQAP M1662287.

(4) Material hardness and fillet radii must be as specified to insure adequate service life of this component.

(5) The trueness of the striker point spherical radius must be maintained; if it is not the cartridge primer may be pierced, resulting in blowback.

(6) Firing pin chrome plating must be as specified to minimize wear on this component.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662294. Special gages, one of which is described below, are used to check significant characteristics. Routine test procedures and standard visual inspection methods are to be followed for additional characteristics given in the above referenced SQAP which are not listed below.

(1) Dial Indicating Fixture Gage - 11837911. This gage is used to check the concentricities of the diameters of the firing pin; this characteristic is detailed in the above referenced SQAP. The following procedure is to be used:

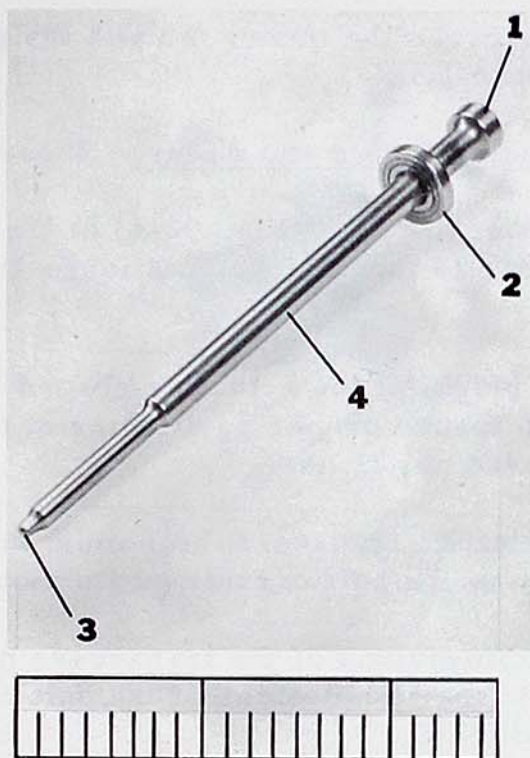
(a) Insert the firing pin into the gage (Fig. 91).

(b) Rotate the firing pin for one complete turn.

(c) Check concentricity tolerance by observing the total differences in the readings of the four (4) indicator gages.

47. BOLT CATCH - 62301.

a. Description, Function, and Interrelationship. The bolt catch is located directly behind the magazine well near the top of the lower receiver assembly (see Fig. 123). This component, a small steel casting, is normally held in a lowered position by the force of the bolt catch spring acting through the bolt catch plunger. The actuating lug (Fig. 92-1) is located so that it is engaged by the magazine follower when the last cartridge is stripped from the magazine. The stop face (Fig. 92-2) of the bolt catch base forms a latch which is located so that it will be rotated up into the path of the bolt carrier assembly when the actuating lug is engaged by the magazine follower. The thumb tab (Fig. 92-3) which, when the bolt catch is assembled into the weapon, is located on the left side of the lower receiver assembly, provides a means for manually returning the bolt catch to the lowered position; this action in turn releases the bolt. The plunger lug (Fig. 92-4), located below the thumb tab, provides a contact surface for the bolt catch plunger. A transverse



- 1. Head
- 2. Stop
- 3. Striker point
- 4. Shank

Figure 90. Firing Pin.

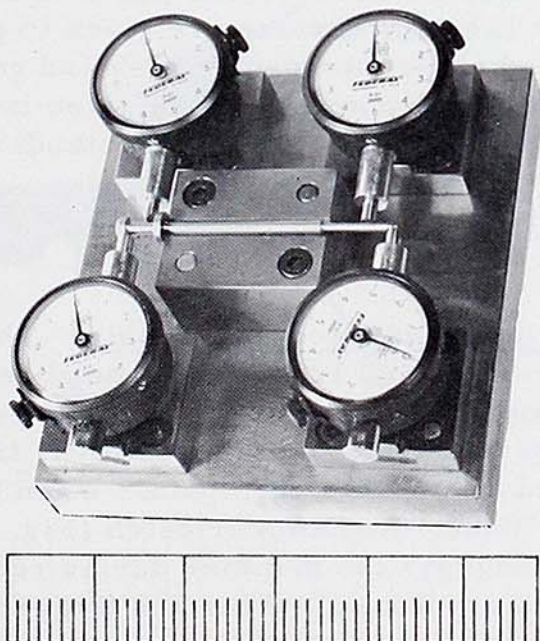


Figure 91. Firing Pin in Position on Dial Indicating Gage.

hole (Fig. 92-5), located between the thumb tab and the plunger lug, provides a pivot for the bolt catch.

b. Important Functioning Points and Areas. These are as follows:

(1) The thickness of the base (Fig. 92-6) of the bolt catch as cast must be within tolerance to insure free rotation in the lower receiver assembly.

(2) The step and height of the actuating shaped lug as cast must be within tolerance to insure proper positioning of the bolt catch in both the raised and lowered positions.

(3) The diameter of the transverse hole must be within tolerance to insure free rotation of the bolt carrier on its mounting roll pin.

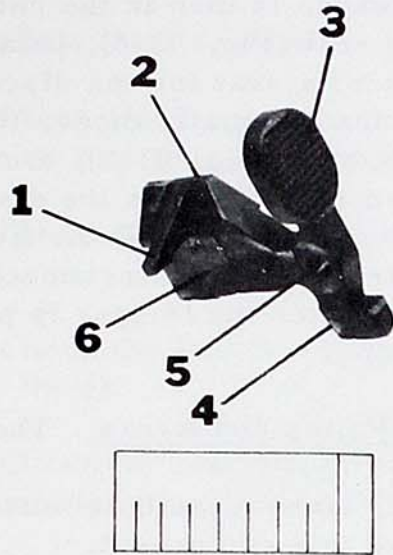
(4) The locating dimensions of the transverse hole must be within tolerance to insure proper positioning of the bolt catch in both the raised and lowered positions.

(5) The material hardness must be as specified to insure adequate strength and service life.

c. Inspection. Inspection procedures and gages to be used in the acceptance of the bolt catch cast dimensions are given in position "A" of SQAP M1662301. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in position "B" of SQAP M1662301. Routine gaging techniques and standard visual inspection methods are to be followed.

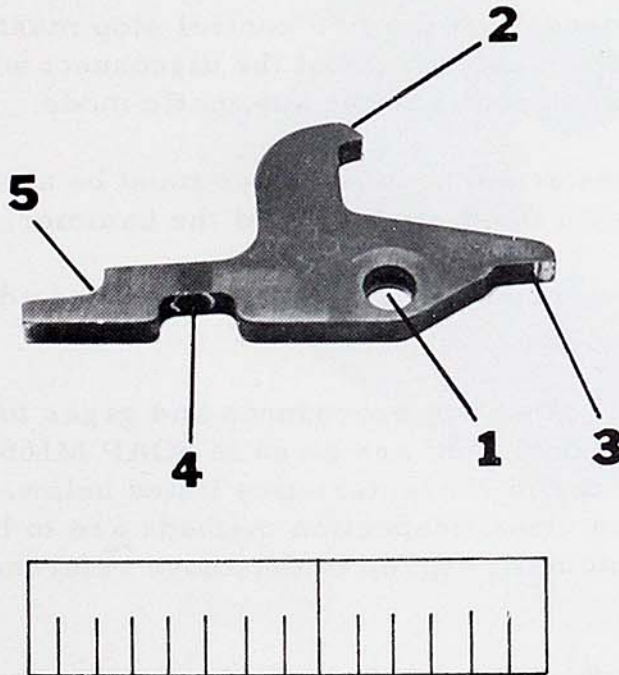
48. DISCONNECT - 62334.

a. Description, Function, and Interrelationship. The disconnect is located above the trigger (see Fig. 123). This component, a flat die cut steel piece, is approximately 1/8 of an inch in thickness, 1 3/4 inches in overall length, and 7/8 of an inch in overall width. A transverse hole (Fig. 93-1) provides for a pivot on the trigger pin. When the weapon is fired in the semiautomatic mode, the hammer catch (Fig. 93-2) located at the top of the disconnect engages the hammer during recoil; the hammer is retained until the trigger is released. When the trigger is released, a face on the top of the trigger engages the trigger catch (Fig. 93-3), a flat surface at the bottom of the forward end of the disconnect; this rotates the disconnect, releasing the hammer catch from the hammer.



- 1. Actuating plug
- 2. Stop face
- 3. Thumb tab
- 4. Plunger plug
- 5. Transverse hole
- 6. Base

Figure 92. Bolt Catch .



- 1. Transverse hole
- 2. Hammer catch
- 3. Trigger catch
- 4. Spring seat
- 5. Fire control stop

Figure 93. Disconnect.

This action permits the hammer to rotate until it is engaged by the forward end of the trigger. The weapon is then in the cocked mode and ready to fire again. The spring seat (Fig. 93-4), located on the bottom surface of the disconnect, provides a seat for the disconnect spring. When the weapon is operated in the automatic mode, the fire control selector engages the fire control stop (Fig. 93-5), a curved surface located at the rear of the disconnect; this holds the disconnect clear of the hammer, permitting the weapon to repeat the firing cycle until the trigger is released. The purpose of the disconnect is to prevent the firing of more than one round when the trigger is pulled with the weapon in the semiautomatic mode.

b. Important Functioning Points and Areas. These are as follows:

(1) The diameter of the transverse hole must be within tolerance to insure smooth rotation of this component:

(2) The locating dimensions of the hammer catch and the trigger catch must be within tolerance to insure proper engagement of the disconnect with the hammer when the weapon is in the semiautomatic mode.

(3) The locating dimension of the fire control stop must be within tolerance to insure proper engagement of the disconnect with the fire control selector when the weapon is in the automatic mode.

(4) Surface roughness at the hammer catch must be as specified to insure smooth motion between the disconnect and the hammer.

(5) Material hardness must be as specified to insure adequate service life of this component.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662334. A location gage is used to check the characteristics listed below. Routine gaging techniques and standard visual inspection methods are to be followed for additional characteristics given in the above referenced SQAP.

(1) Location Gage - 8443955. This gage (Fig. 94) is used to check the following characteristics:

(a) Location of the hammer catch.

- (b) Location of the fire control stop.

The following procedure is to be used:

- (a) Place the disconnect on the locating pin (Fig. 95-1) on the location gage so that it is seated against the stop (Fig. 95-2).
- (b) Clamp the trigger in place by tightening the clamping screw (Fig. 95-3).
- (c) Check the location of the fire control stop with the flush pin gage (Fig. 95-4).
- (d) Check the location of the hammer stop with a dial indicator using the master plug (Fig. 95-5) as a datum.

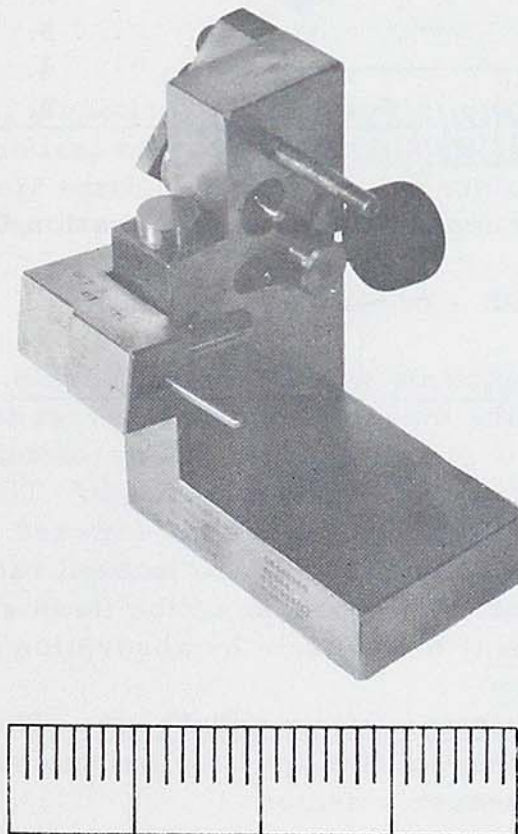


Figure 94. Location Gage.

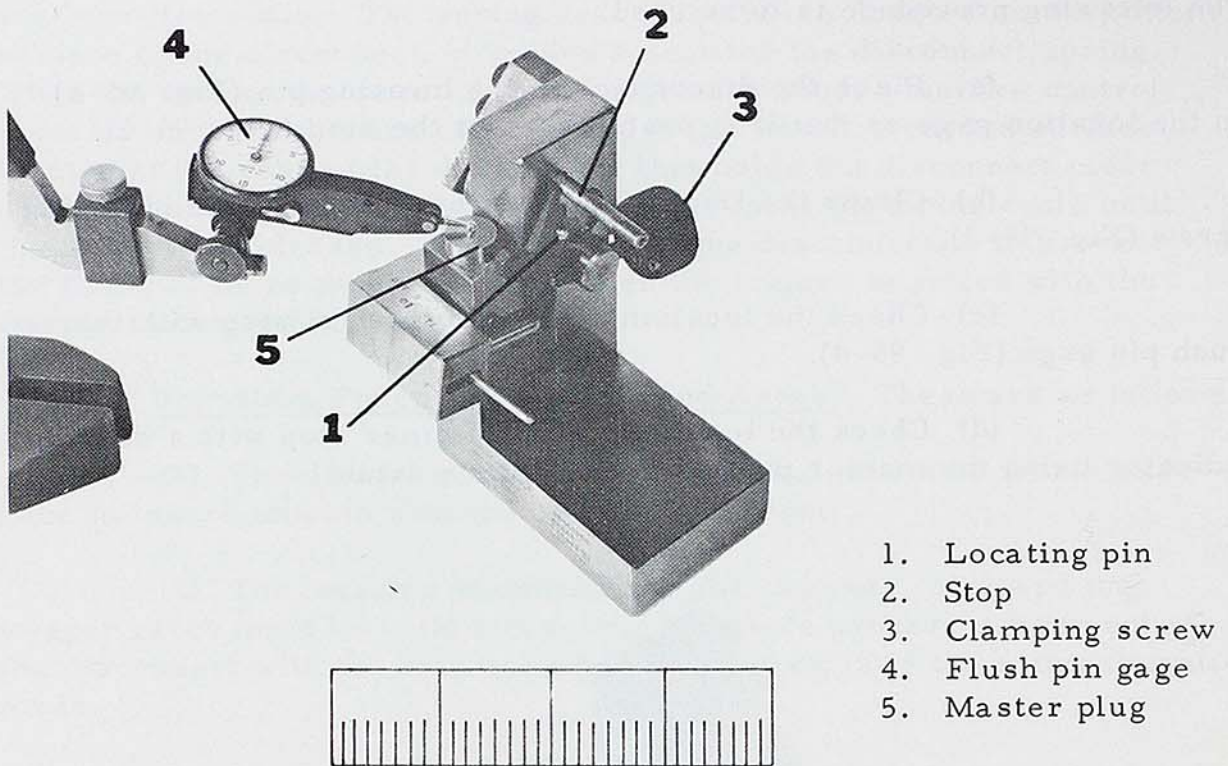


Figure 95. Disconnect in Position on Location Gage.

49. FLASH SUPPRESSOR - 62348.

a. Description, Function, and Interrelationship. The flash suppressor is threaded onto the muzzle end of the barrel (see Fig. 124). This component, a hollow steel cylinder, is approximately $7/8$ of an inch at its outside diameter and $1\ 3/4$ inches in length. The internal diameter of the flash suppressor is tapered toward the forward end. Six (6) identical equally spaced slots (Fig. 96) are located radially in the tapered portion of this component. The purpose of the flash suppressor is to minimize the firing flash at the muzzle by absorption and diffusion.

b. Important Functioning Points and Areas. The perpendicularity of the threads to the mating surface must be as specified to insure that the flash suppressor is properly seated.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1662348.

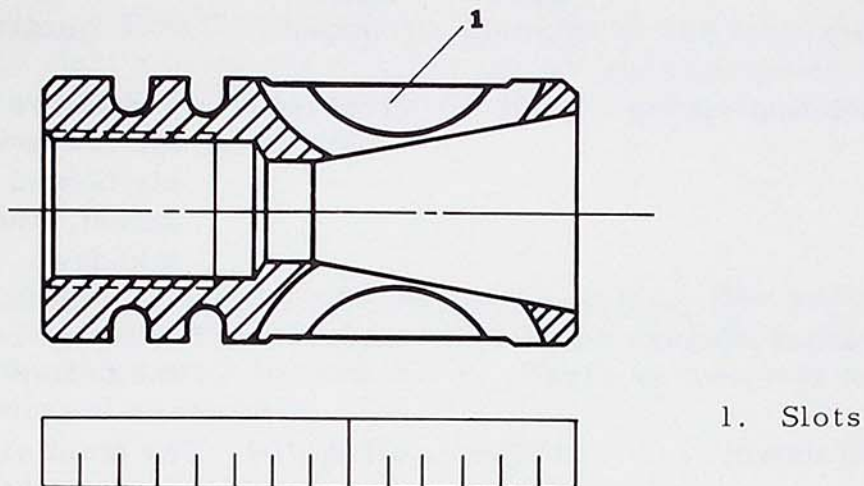


Figure 96. Flash Suppressor.

Routine gaging techniques and standard visual inspection methods are to be followed.

50. SPRINGS.

a. Description, Function, and Interrelationship. The following components - steel helical compression springs - are used throughout the weapon to actuate their mating parts. These components are identified and located as follows:

Name	Part Number	SQAP Number	Location
Bolt spring	50381	M1650381	The forward assist assembly behind the pawl detent.
Extractor spring	61568	M1661568	The bolt under the extractor.
Ejector and safety detent spring	61569	M1661569	Used in two (2) places - in the bolt behind the ejector, and in the pistol grip behind the safety detent.
Action spring	61581	M1661581	The lower receiver extension over the buffer assembly.

Name	Part Number	SQAP Number	Location
Takedown detent spring	61692	M1661692	Used in two (2) places in the lower receiver assembly behind the pivot pin detent, and behind the takedown pin detent.
Buffer retainer spring	61694	M1661694	The lower receiver under the buffer retainer.
Front sight detent spring	61709	M1661709	The front sight under the front sight detent.
Rear sight detent spring	61754	M1661754	The upper receiver assembly behind the rear sight detent.
Magazine catch spring	61759	M1661759	The lower receiver on the magazine catch.
Charging handle latch	61875	M1661875	The charging handle behind the charging handle latch.
Disconnect spring	61925	M1661925	The trigger assembly under the disconnect.
Bolt catch spring	62177	M1662177	The lower receiver assembly behind the bolt catch plunger.
Plunger spring	62271	M1662271	The upper receiver assembly on the forward assist assembly.

b. Important Functioning Points and Areas. The above components must develop sufficient force to actuate or retain their mating parts under operating conditions. In most cases, the maximum solid height of these items should not exceed the specified values; this is necessary to prevent possible interference of mating parts. The spring rate of spring number 61581, the action spring, must be maintained to insure that the firing rate of the weapon will be within specified limits.

c. Inspection. Detailed inspection procedures and test equipment to be used in the final acceptance of these components are given in the above referenced SQAP's. Routine test procedures and standard visual inspection methods are to be followed.

51. ROLL PINS.

a. Description, Function, and Interrelationship. The following components - standard commercial roll pins - are used throughout the weapon to attach components to each other. These components are identified and located as follows:

Part Number	Location
95101	Used in two (2) places - in the trigger guard, and in the rear sight windage drum.
95102	The bolt at the ejector pin hole.
95103	Used in two (2) places - in the front sight at the sling hole, and in the buttstock assembly at the swivel base.
95105	The lower receiver assembly at the bolt catch pivot hole.
95106	The lower receiver assembly at the trigger guard.
95108	The front sight at the gas tube hole.
95111	The buttstock assembly at the swivel assembly hole.
95113	The charging handle at the latch pivot hole.
95126	The upper receiver assembly at the forward assist housing.
95127	The plunger assembly.
95138-1	The buffer assembly at the buffer bumper.

b. Important Functioning Points and Areas. Roll pins must meet commercial specifications.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this component are given in SQAP M1695101. Routine gaging techniques and standard visual inspection methods are to be followed.

52. PINS.

a. Description, Function, and Interrelationship. The following components - steel pins - are used throughout the weapon to provide pivots for their mating parts. These components are identified and located as follows:

Name	Part Number	SQAP Number	Location
Extractor pin	61563	M1661563	The bolt at the extractor.
Automatic sear pin	61615	M1661615	The lower receiver assembly at the sear assembly.
Hammer and trigger pin	61654	M1661654	Used in two (2) places in the lower receiver assembly - at the hammer assembly, and at the trigger assembly.
Cover hinge pin	61658	M1661658	The upper receiver assembly at the ejection port.

b. Important Functioning Points and Areas. These components must permit their mating parts to rotate freely.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of these components are given in the above referenced SQAP's. Routine test procedures and standard visual inspection methods are to be followed.

53. DETENTS.

a. Description, Function, and Interrelationship. The following components - cylindrical steel parts - are used throughout the weapon to index their mating parts to manually selected positions. These components are identified and located as follows:

Name	Part Number	SQAP Number	Location
Takedown pin detent	61698	M1661698	Used in two (2) places in the lower receiver - at the takedown pin, and at the receiver pivot pin.
Front sight detent	61705	M1661705	The front sight at the front sight post.
Rear sight detent	61755	M1661755	The upper receiver assembly at the rear sight windage drum.
Fire control selector detent	61785	M1661785	The lower receiver assembly at the fire control selector.

b. Important Functioning Points and Areas. Diameters and concentricities must be held within specified tolerance to insure free motion and proper seating of the detents in relation to their mating parts.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of these components are given in the above referenced SQAP's. Routine test procedures and standard visual inspection methods are to be followed.

54. MODIFIED COMMERCIAL COMPONENTS.

a. Description, Function, and Interrelationship. The following components - modifications of commercial hardware - are used throughout the weapon to retain their mating parts. These components are identified and located as follows:

Name	Part Number	SQAP Number	Use and Location
Front sight taper pin	62086	M1662086	Attaches the front sight to the barrel.
Lock washer	62126	M1662126	Locks the flash suppressor to the barrel.

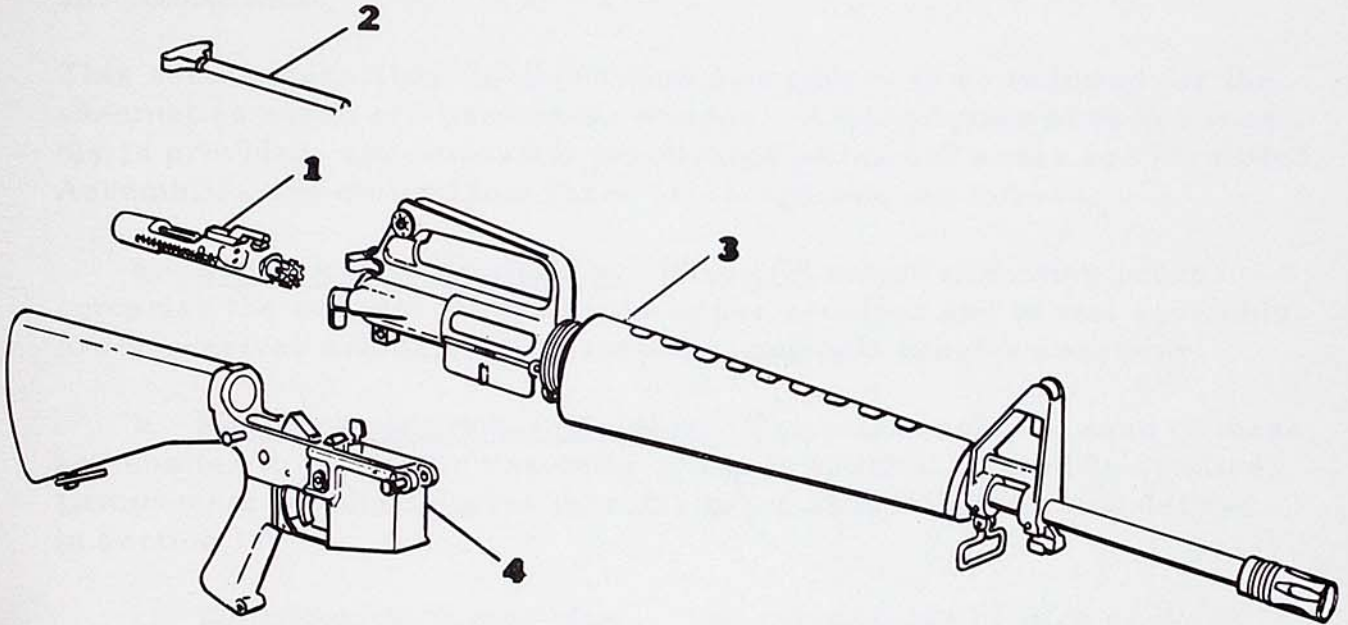
Name	Part Number	SQAP Number	Use and Location
Firing pin retaining pin	62335	M1662335	Retains the firing pin in the bolt carrier.
Hex socket head cap screw	92201	M1692201	Attaches the bolt carrier key to the bolt carrier.
Butt cap screw	92601	M1692601	Attaches the buttstock to the lower receiver.
Pistol grip screw	92701	M1692701	Attaches the pistol grip to the lower receiver.

b. Important Functioning Points and Areas. These are as follows:

(1) The above components must meet commercial standards for comparable parts.

(2) Physical properties must be as specified to insure sufficient strength and life.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of these components are given in the above referenced SQAP's. Routine test procedures and standard visual inspection methods are to be followed.



1. Bolt carrier assembly
2. Charging handle assembly
3. Upper receiver and barrel assembly
4. Lower receiver and buttstock assembly

Figure 97. Assembly Groups.

SECTION V

INSPECTION OF ASSEMBLIES

55. GENERAL.

This section describes the inspection procedures to be followed for the assemblies which are used in the weapon. A description of each assembly is provided, and important functioning points and areas are identified. Assemblies are divided into three (3) categories, as follows:

a. Major Assembly Groups. Three (3) major assembly groups comprise the weapon; these are the upper receiver and barrel assembly, lower receiver and buttstock assembly, and bolt carrier assembly.

b. Manufacturing Subassemblies. The relationship of each of these assemblies to the major assembly group in which it is used is detailed. Components which comprise manufacturing subassemblies are defined in Section IV.

c. Functional Subassemblies. The relationship of each of these assemblies to the major assembly group in which it is used is detailed. Closely related components which function as parts of functional subassemblies are defined in this section.

56. MAGAZINE CATCH - 61604.

a. Description, Function, and Interrelationship. The magazine catch is located on the left side of the lower receiver and buttstock assembly (see Fig. 123). This assembly consists of a magazine catch plate (Fig. 98-1) and a magazine catch shaft (Fig. 98-2) which are threaded together and swaged (Fig. 98-3). The magazine catch plate, an oblong steel component approximately 1 1/2 inches in length, has two shallow grooves (Fig. 98-4) across its inside face. The land (Fig. 98-5) between the two (2) grooves on the catch plate engages a slot on the magazine box assembly. The magazine catch shaft, a cylindrical steel component approximately 1 1/4 inches in length, is threaded on its outside end (Fig. 98-6) to accommodate the magazine release button. The purpose of the magazine catch is to hold the magazine in position to insure proper stripping of the cartridge from the magazine during recoil.

b. Important Functioning Points and Areas. These are as follows:

(1) The locating dimensions of the tapped hole in the magazine catch plate must be as specified to insure proper seating and free operation of the magazine catch in the lower receiver assembly.

(2) The magazine catch shaft body diameter, as well as the concentricity of the two (2) threaded diameters to the body diameter, must be as specified to insure proper seating and free operation of the magazine catch in the lower receiver assembly.

(3) The perpendicularity of the magazine catch shaft to the magazine catch plate must be as specified to insure proper seating and free operation of the magazine catch in the lower receiver assembly.

(4) The magazine catch plate and magazine catch shaft must be assembled to the specified torque before swaging in order to prevent loosening under shock loading.

(5) The material hardness must be as specified to insure adequate service life.

c. Inspection. Inspection of the magazine catch assembly and its components shall be performed in accordance with SQAP M1661604 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the magazine catch plate are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of the magazine catch shaft are given in position "B" of the above referenced SQAP.

(3) The torque testing procedure is given in Part IV of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the final acceptance of the magazine catch assembly are given in position "C" of the above referenced SQAP. Routine gaging and testing techniques and standard visual inspection methods are to be followed.

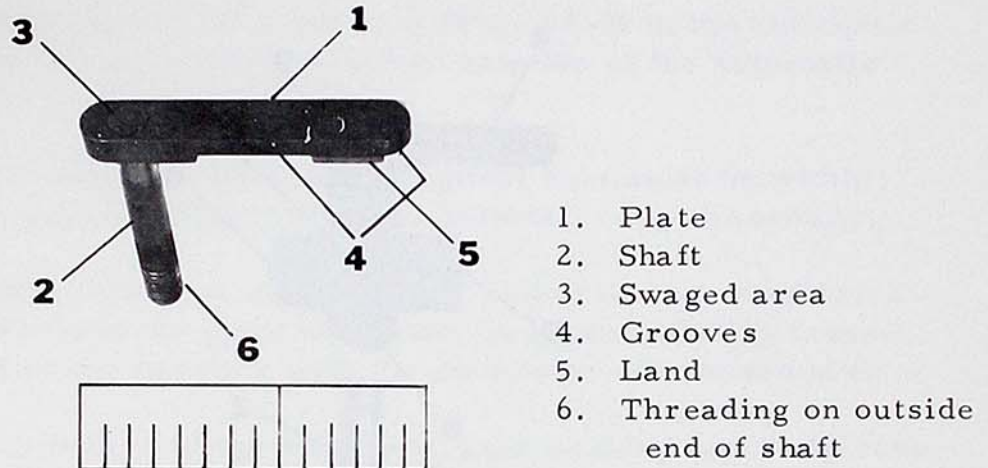
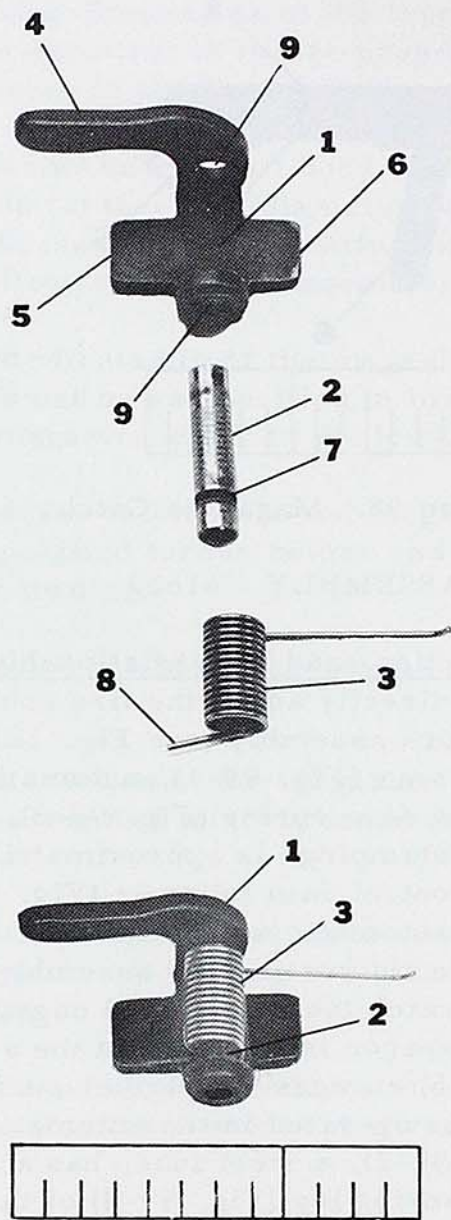


Figure 98. Magazine Catch.

57. AUTOMATIC SEAR ASSEMBLY - 61622.

a. Description, Function, and Interrelationship. The automatic sear assembly is located directly above the fire control selector in the lower receiver and buttstock assembly (see Fig. 123). This assembly consists of the automatic sear (Fig. 99-1), automatic sear bushing (Fig. 99-2), and automatic sear spring (Fig. 99-3). The automatic sear, a "U" shaped steel stamping, is approximately $5/8$ of an inch in overall width. The fire control cam follower (Fig. 99-4), an extension on the left leg of the automatic sear, rides on the fire control selector; this positions the automatic sear assembly for each mode of operation. The hammer catch tab (Fig. 99-5) engages the sear catch on the hammer when the weapon is operated in the automatic mode. The bolt carrier tab (Fig. 99-6) engages the striker surface on the bolt carrier when the weapon is operated in the automatic mode. The automatic sear bushing (Fig. 99-2), a steel tube, has a slot (Fig. 99-7) which is engaged by the locking leg (Fig. 99-8) of the automatic sear spring. When the automatic sear assembly is mounted in the lower receiver, the locking lug on the automatic sear spring engages a groove on the automatic sear pin; this retains the automatic mode, the automatic sear assembly holds the hammer in the cocked position until the bolt reaches the battery position; when this occurs, the striker surface on the bottom of the bolt carrier rotates the automatic sear assembly clear of the hammer. This action permits the weapon to recycle as long as the trigger is held full to the rear.

b. Important Functioning Points and Areas. These are as follows:



- | | |
|------------------------------|--------------------------------------|
| 1. Automatic sear | 6. Bolt carrier tab |
| 2. Automatic sear bushing | 7. Automatic sear bushing slot |
| 3. Automatic sear spring | 8. Automatic sear spring locking leg |
| 4. Fire control cam follower | 9. Automatic sear pivot hole |
| 5. Hammer catch tab | |

Figure 99. Automatic Sear Assembly.

(1) The diameter of the pivot hole (Fig. 99-9) in the automatic sear must be within tolerance to insure free rotation of the automatic sear assembly.

(2) The locating dimensions of the pivot hole must be within tolerance to insure proper alignment of the automatic sear assembly.

(3) The parallelism of the pivot hole and of the hammer catch lug surface (Fig. 99-5) to the pivot hole must be as specified to insure proper engagement of the hammer with the automatic sear assembly.

(4) The diameters of the automatic sear bushing and their concentricity to each other must be as specified to insure proper alignment of the automatic sear assembly.

(5) The angular variation of the automatic sear spring legs must not exceed the maximum value specified; this is necessary to insure proper operating force on the automatic sear assembly.

(6) Material hardness must be as specified to insure adequate strength and service life.

c. Inspection. Inspection of the automatic sear assembly and its components shall be performed in accordance with SQAP M1661622 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of automatic sear forming dimensions are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of automatic sear machining dimensions are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures and gages to be used in the acceptance of the automatic sear bushing are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the acceptance of the automatic sear spring are given in position "D" of the above referenced SQAP.

(5) Detailed inspection procedures to be used in the final

acceptance of the automatic sear assembly are given in position "E" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

58. GAS TUBE ASSEMBLY - 61645.

a. Description, Function, and Interrelationship. The gas tube assembly is located in the upper receiver and barrel assembly between the front sight and the upper receiver (see Fig. 124). This assembly, approximately fifteen (15) inches in length, consists of the gas tube (Fig. 100-1), a steel tube which is closed at one end by crimping over the gas tube plug (Fig. 100-2). A gas port hole (Fig. 100-3), which is drilled through one side of the gas tube, is located directly behind the gas tube plug. A roll pin hole (Fig. 100-4) is drilled through the gas tube and gas tube plug at right angles to the gas port hole ; the purpose of the roll pin hole is to locate the gas tube so that the gas port hole in the gas tube is aligned with the gas port in the front sight. An undercut (Fig. 100-5) is located near the open end of the gas tube to facilitate assembly into the upper receiver. Both ends of the gas tube are sized to insure proper engagement with their mating parts. An offset (Fig. 100-6) approximately $3/16$ of an inch is located in front of the undercut in the same plane as the gas port. The purpose of the gas tube assembly is to direct gas pressure from the barrel to the chamber in the bolt carrier assembly; this provides the actuating force for extracting the spent cartridge and cocking the weapon.

b. Important Functioning Points and Areas. These are as follows:

(1) The fit between the gas tube and gas tube plug must be within tolerance to minimize gas leakage at the closed end of the gas tube.

(2) The outside diameter of the open end of the gas tube must be within tolerance to insure proper mating with the bolt carrier key.

(3) The outside diameter of the closed end of the gas tube must be within tolerance to minimize gas leakage.

(4) The locating dimensions of the gas port hole and the roll pin hole must be within tolerance to insure proper alignment of the gas port in the gas tube with the gas port in the front sight. This is necessary

- 1. Gas tube
- 2. Gas tube plug
- 3. Gas port hole
- 4. Roll pin hole
- 5. Undercut
- 6. Offset

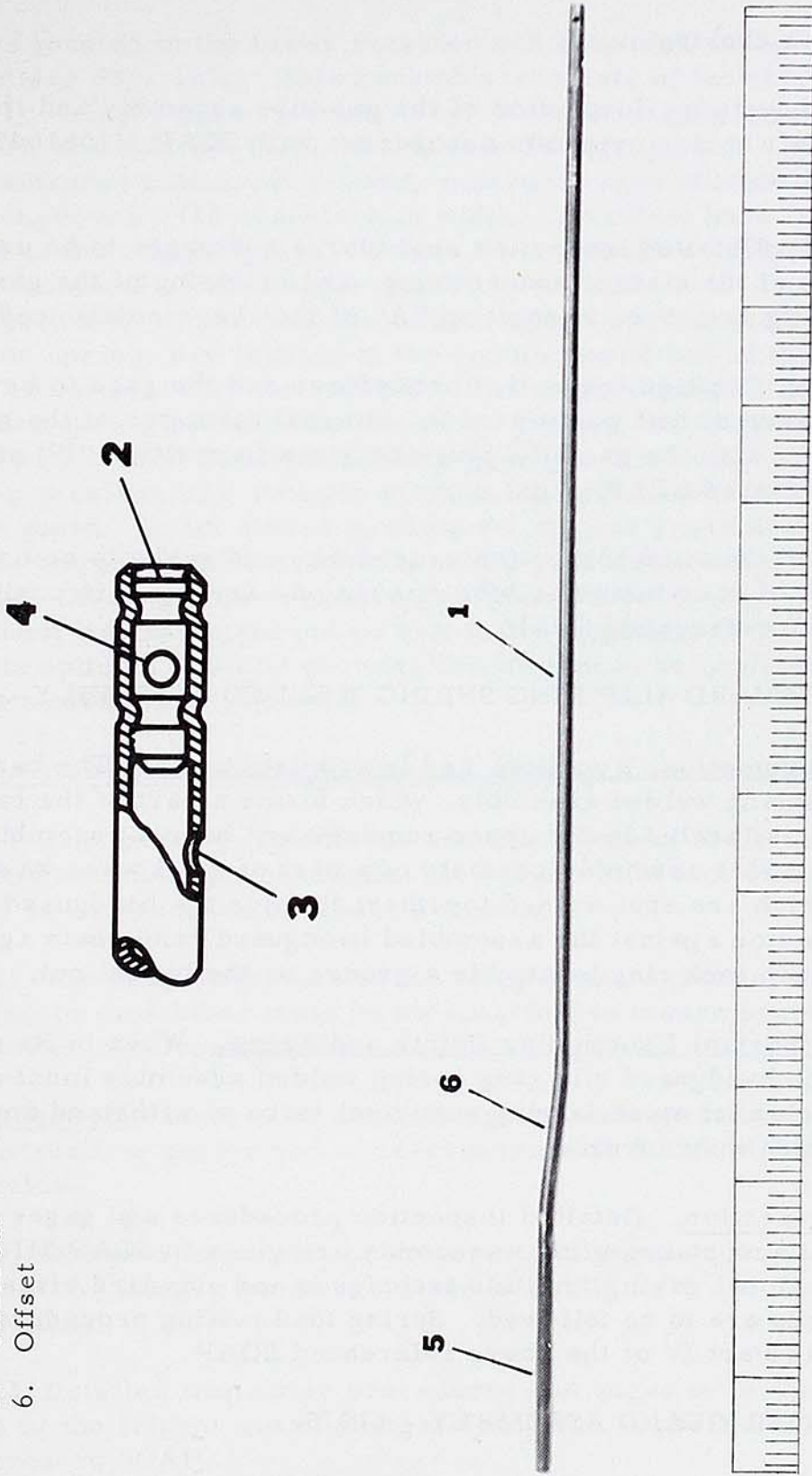


Figure 100. Gas Tube Assembly .

to avoid gas choking.

c. Inspection. Inspection of the gas tube assembly and its components shall be performed in accordance with SQAP M1661645 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the sizing, undercutting, and crimping of the gas tube and gas tube plug are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and the gage to be used in the acceptance of that portion of the internal diameter of the gas tube which mates with the gas tube plug are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures and gages to be used in the acceptance of remaining gas tube dimensions are given in position "C" of the above referenced SQAP.

59. HANDGUARD SLIP RING SPRING WELDED ASSEMBLY - 61962.

a. Description, Function, and Interrelationship. The handguard slip ring spring welded assembly, which forms a part of the barrel nut assembly, is located in the upper receiver and barrel assembly (see Fig. 124). This assembly consists of a nest of steel wave washer springs which are spot welded together; it holds the handguard slip ring in position against the assembled handguard, and seats against the external snap lock ring located in a groove on the barrel nut.

b. Important Functioning Points and Areas. When in its operating position the handguard slip ring spring welded assembly must move freely; in addition, it must develop sufficient force to withstand any shock loading which may occur.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this assembly are given in SQAP M1661962. For dimensional gaging, routine techniques and standard visual inspection methods are to be followed. Spring load testing procedures are as specified in Part IV of the above referenced SQAP.

60. TRIGGER GUARD ASSEMBLY - 61970.

a. Description, Function, and Interrelationship. The trigger guard

assembly is located in the lower receiver and buttstock assembly below the trigger (see Fig. 123). This assembly consists of the trigger guard (Fig. 101-1), trigger guard plunger (Fig. 101-2), trigger guard spring (Fig. 101-3), and roll pin (Fig. 101-4) (see Paragraph 51). The trigger guard, an extruded aluminum section, measures approximately two (2) inches in length and $7/16$ of an inch in width. An offset boss is located at each end of the trigger guard. A hole runs through each boss; the hole at the front end of the trigger guard is counterbored. The trigger guard plunger, a steel pin, and the trigger guard spring, a steel helical compression spring, are located in the counterbored end of the trigger guard and held in place by the roll pin. The trigger guard plunger and trigger guard spring provide the means for locking the trigger guard assembly in its closed position. The trigger guard assembly is attached to the lower receiver by a roll pin through the hole in the rear boss of the trigger guard. In its closed position the trigger guard assembly protects the trigger from accidental jostling which could cause the weapon to discharge. In its completely open position, the trigger guard assembly is swung about its rear pivot pin so that it is completely clear of the trigger; this optional position permits the weapon to be used when the operator is wearing heavy gloves.

b. Important Functioning Points and Areas. These are as follows:

(1) The locating dimensions and diameters of the holes in the trigger guard and their perpendicularities to the side face of the trigger guard must be as specified to insure assembly.

(2) The body diameters of the trigger guard plunger and their concentricity to each other must be as specified to insure proper seating in the lower receiver assembly.

c. Inspection. Inspection of the trigger guard assembly and its components shall be performed in accordance with SQAP M1661970 as indicated below.

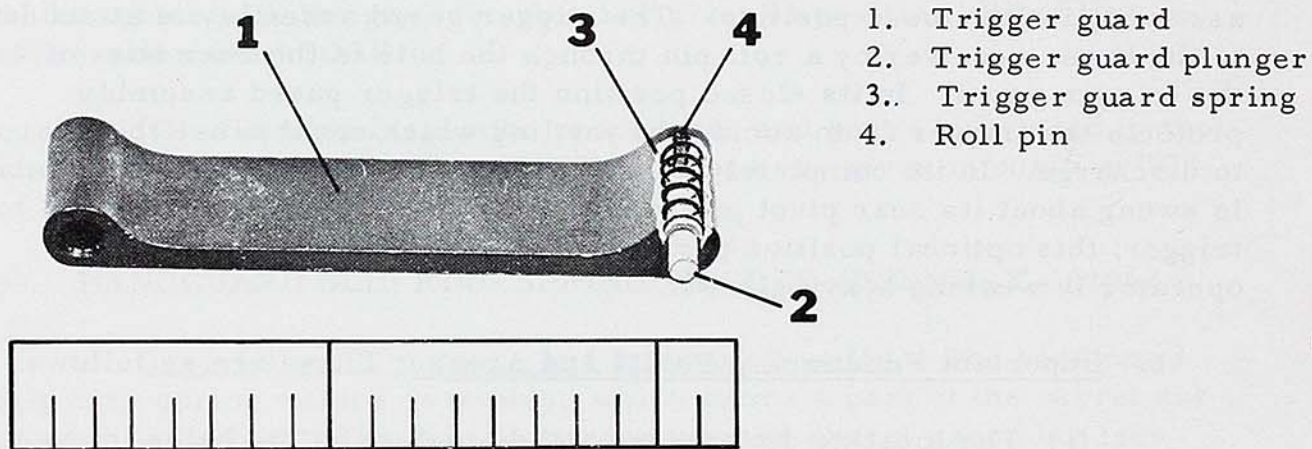
(1) Detailed inspection procedures and gages to be used in the acceptance of the trigger guard are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of the trigger guard plunger are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures and gages to be used in the acceptance of the trigger guard spring are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the final acceptance of the trigger guard assembly are given in position "D" of the above referenced SQAP.

Routine gaging and testing techniques and standard visual inspection methods are to be followed.



1. Trigger guard
2. Trigger guard plunger
3. Trigger guard spring
4. Roll pin

Figure 101. Trigger Guard Assembly.

61. EJECTION PORT COVER ASSEMBLY - 62112.

a. Description, Function, and Interrelationship. The ejection port cover assembly is located on the right side of the upper receiver (see Fig. 124.). This assembly consists of the ejection port cover (Fig. 102-1), cover latch housing (Fig. 102-2), cover latch (Fig. 102-3), cover latch spring (Fig. 102-4), and retaining ring (Fig. 102-5). The ejection port cover, a steel stamping, is approximately 3 1/8 inches in length and 7/8 of an inch in width. One long edge is rolled to form a half section of a hinge (Fig. 102-6). The cover latch mounting hole (Fig. 102-7), a hole located near the midpoint of the opposite long edge, provides a mounting for the cover latch housing. The cover latch housing, a steel piece, has two (2) flanges (Fig. 102-8) running the full length of each edge of one face; these flanges locate the cover latch housing in the ejection port cover. The edges of the camming face are chamfered along

their full length (Fig. 102-9); as an alternative, this face may be semi-cylindrical in form. If the ejection port cover assembly is closed during recoil, the camming face is engaged by the forward edge of the ejection port cover relief on the bolt carrier; this action automatically opens the ejection port cover assembly. The cover latch hole (Fig. 102-10), which runs longitudinally through the cover latch housing, provides a guide for the cover latch and cover latch spring. The cover latch housing is permanently attached to the ejection port cover by staking (Fig. 102-11) at assembly. The cover latch, a steel pin, retains the ejection port cover in the closed position. The cover latch spring, a helical steel compression spring, activates the cover latch. The retaining ring, a steel "C" ring, seats in a groove (Fig. 102-12) on the cover latch; this ring holds the cover latch in position in the cover latch housing. The purpose of the ejection port cover assembly is to protect the internal operating parts of the weapon from foreign matter, such as dirt and dust, when the weapon is not being fired.

b. Important Functioning Points and Areas. These are as follows:

(1) The dimensions of the ejection port cover hinge must be within tolerance to insure proper seating of the ejection port cover assembly in its closed position.

(2) The diameters and locating dimensions of the hole in the cover latch housing must be as specified to insure free motion and proper seating of the cover latch.

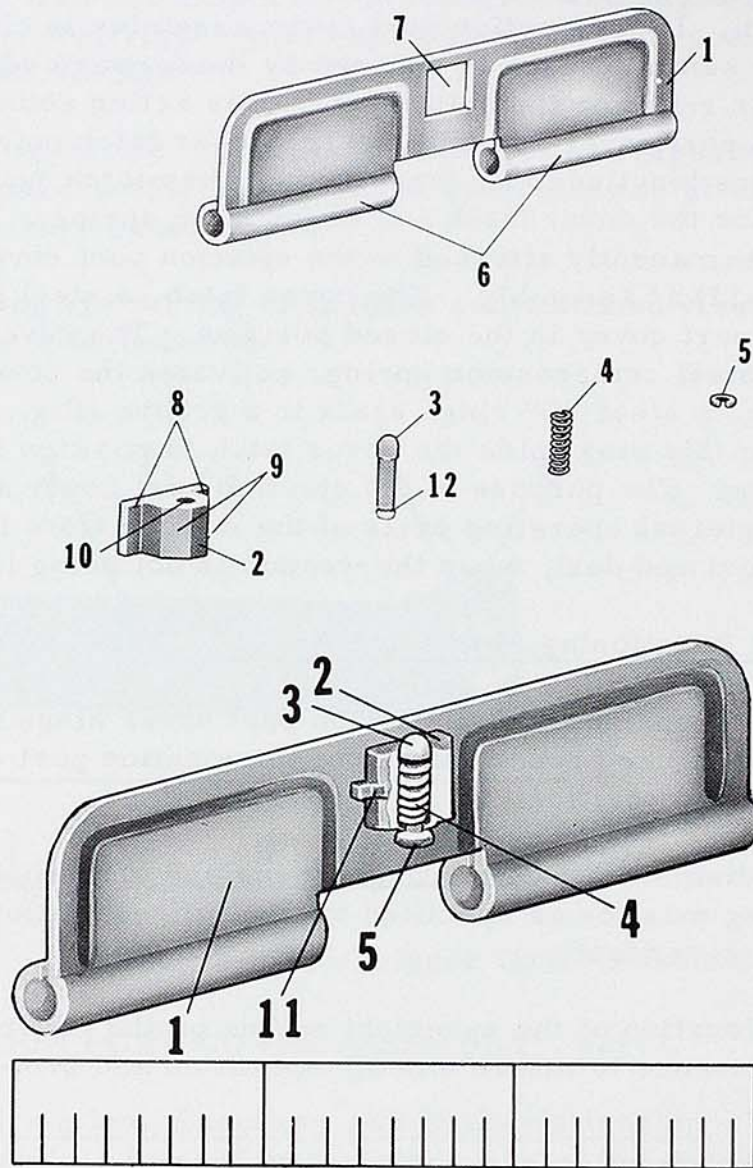
(3) The location of the spherical radius on the cover latch must be within tolerance to insure smooth operation and proper seating of the cover latch.

(4) The dimensions of the retaining ring groove must be within tolerance to insure proper seating of the retaining ring.

(5) The material hardness must be as specified to insure adequate wear life.

c. Inspection. Inspection of the ejection port cover assembly and its components shall be performed in accordance with SQAP M1662112 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the cover latch are given in position "A" of the above



- | | |
|------------------------|---------------------------------|
| 1. Ejection port cover | 7. Cover latch mounting hole |
| 2. Cover latch housing | 8. Cover latch housing flanges |
| 3. Cover latch | 9. Camming face chamfered edges |
| 4. Cover latch spring | 10. Cover latch hole |
| 5. Retaining ring | 11. Staked Area |
| 6. Hinge half section | 12. Groove |

Figure 102. Ejection Port Cover Assembly.

referenced SQAP.

Detailed inspection procedures and gages to be used in the acceptance of the cover latch spring are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures to be used in the acceptance of the retaining ring are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the acceptance of the cover latch housing are given in position "D" of the above referenced SQAP.

(5) Detailed inspection procedures and gages to be used in the acceptance of the ejection port cover are given in position "E" of the above referenced SQAP.

(6) Detailed inspection procedures to be used in the acceptance of the ejection port cover and cover latch housing assembly are given in position "F" of the above referenced SQAP.

(7) Detailed inspection procedures to be used in the final acceptance of the ejection port cover assembly are given in position "G" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

62. BOLT ASSEMBLY - 62116.

a. Description, Function, and Interrelationship. The bolt assembly is located in the bolt carrier assembly (see Fig. 127). This assembly consists of the bolt (see Paragraph 13), extractor (see Paragraph 16), extractor spring (see Paragraph 50), extractor pin (see Paragraph 52), ejector (see Paragraph 17), ejector and safety detent spring (see Paragraph 50), roll pin (see Paragraph 51), and bolt rings (see Paragraph 14). The bolt assembly performs the following functions:

(1) Strips the cartridge from the magazine, and directs it into the chamber.

(2) Locks the cartridge in the chamber.

(3) Extracts and ejects the spent cartridge.

b. Important Functioning Points and Areas. These are as follows:

(1) The bolt rings must be assembled with gaps staggered to insure proper sealing against gas pressure.

(2) The extractor spring must bottom in the extractor (see Fig. 103); this is necessary to insure that the extractor will be free to slide over the cartridge lip during chambering.

c. Inspection. Inspection procedures to be used in the final acceptance of this assembly are given in SQAP M1662116. Standard visual inspection methods are to be followed.

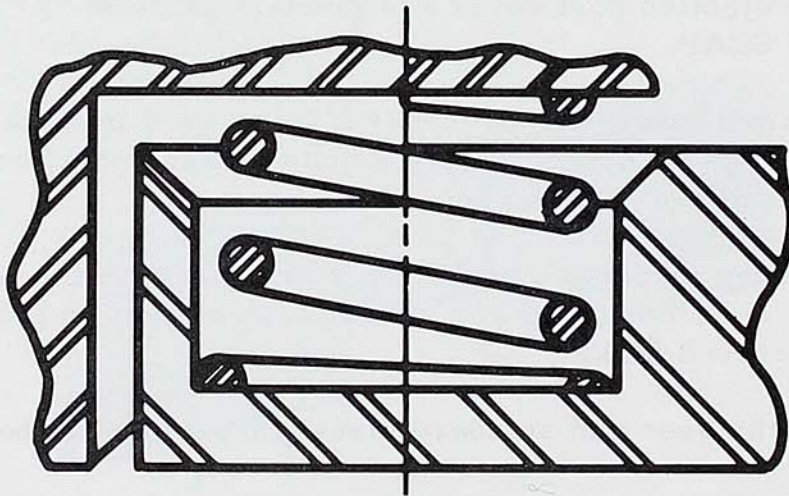


Figure 103. Bolt Assembly - Seating of Extractor Spring in Extractor.

63. BARREL AND BARREL EXTENSION ASSEMBLY - 62180.

a. Description, Function, and Interrelationship. The barrel and barrel extension assembly is located in the upper receiver and barrel assembly (see Fig. 124). This assembly consists of the barrel, barrel extension, and barrel indexing pin. The barrel, a tubular steel component, is approximately twenty (20) inches in length and $5/8$ of an inch in diameter. The chamber (Fig. 104-1), located at one end of the barrel, houses the cartridge when the weapon is being fired. The bore (Fig. 104-2) guides the bullet into its flight path. The rifling (Fig. 104-3), which extends the length of the bore, imparts a rotating motion to the bullet; this motion stabilizes the bullet in its flight path. The

barrel is threaded at both ends; the barrel extension thread (Fig. 104-4), located on the chamber end, provides a means for attaching the barrel extension to the weapon. The flash suppressor thread (Fig. 104-5), located at the muzzle end (Fig. 104-6), provides a means for attaching the flash suppressor to the weapon. The front sight mounting diameter (Fig. 104-7) is located approximately 1/3 of the length of the barrel from the muzzle end. The front sight shoulder (Fig. 104-8) laterally locates the front sight on the barrel. The barrel extension (Fig. 104-9), a hollow steel cylindrical component, is approximately 1 1/8 inches in length and one (1) inch in diameter. A locating flange (Fig. 104-10), located at the inner end of the barrel extension, provides a seating surface for the barrel and barrel extension assembly in the upper receiver assembly. The bolt lock (Fig. 104-11), consisting of internal lugs, is located at the outer end of the barrel extension; the bolt lock provides a means for locking the bolt in the battery position when the weapon is fired. The indexing pin (Fig. 104-12), positioned behind the locating flange, provides a key which insures proper alignment of the bolt lugs in the barrel extension with the bolt. The cartridge ramps (Fig. 104-13), located at the bottom of the bolt lock, provides guides for directing the cartridge into the chamber.

b. Important Functioning Points and Areas. These are as follows:

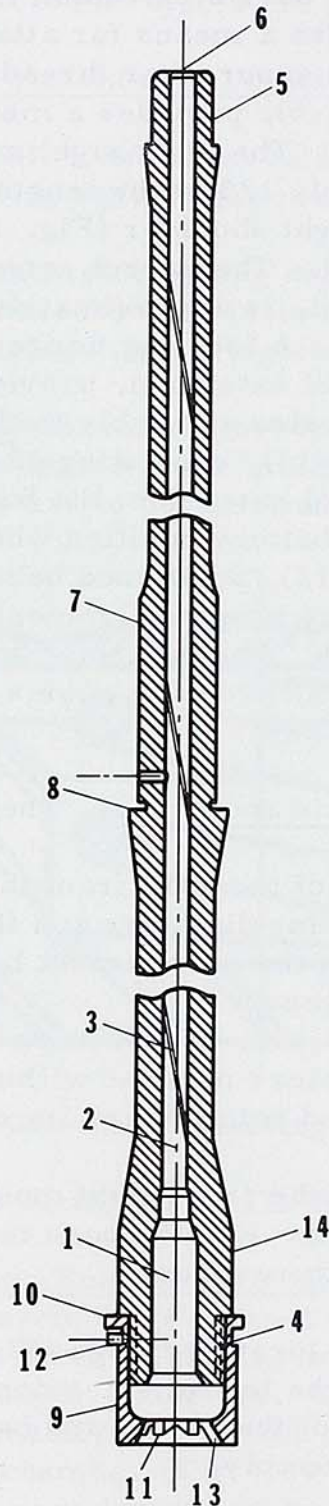
(1) The angular deviation of the bore from the centerline established by the front sight mounting diameter and the outside diameter (Fig. 104-14) at the chamber end of the barrel must be within tolerance to insure proper targeting of the weapon.

(2) Bore and rifling diameters must be within tolerance to insure that proper muzzle velocity and rotation are imparted to the bullet.

(3) The concentricities of the front sight mounting diameter and barrel extension outside diameter with the bore must be within tolerance to insure proper targeting of the weapon.

(4) The dimensions of the locating flange (Fig. 104-10) and its perpendicularity to the threads on the barrel extension must be within tolerance to insure proper seating of the barrel and barrel extension assembly in the upper receiver assembly.

(5) The contour dimensions of the bolt lock (Fig. 104-11) must be within tolerance to insure proper engagement of the bolt with the barrel extension during recoil and counter recoil.



1. Chamber
2. Bore
3. Rifling
4. Barrel extension thread
5. Flash suppressor thread
6. Muzzle end
7. Front sight mounting diameter
8. Front sight shoulder
9. Barrel extension
10. Locating flange
11. Bolt lock
12. Indexing pin
13. Cartridge ramps
14. Outside diameter

Figure 104. Barrel and Barrel Extension Assembly.

(6) The dimensions of the cartridge ramps (Fig. 104-13) must be within tolerance to insure smooth chambering of the cartridge.

(7) The locating dimension of the rear face of the bolt lock and its perpendicularity to the threads on the barrel extension must be as specified to insure proper headspace.

(8) The angular location of the barrel indexing pin with respect to the bolt locking lugs must be within tolerance to insure proper engagement of the bolt with the barrel extension during recoil.

(9) The chamber dimensions must be within tolerance to insure proper seating of the cartridge in the chamber.

(10) The material hardness of each component must be as specified to insure adequate strength and service life.

(11) Finishes shall be as follows:

(a) The bore and rifling finishes must be as specified to insure that proper muzzle velocity and rotation are imparted to the bullet.

(b) The chamber finish must be as specified to prevent seizing of the cartridge in the chamber due to surface roughness.

(c) The finish of the rear face of the bolt lock must be as specified to insure smooth motion when the bolt is being locked into or unlocked from the battery position.

(d) The finish of the outside diameter of the receiver extension and the finish of the front sight mounting diameter must be as specified to insure proper fitting of mating parts at these points.

(12) The chrome plating in the chamber must be as specified to prevent seizing of the cartridge in the chamber due to corrosion.

(13) Since the barrel and barrel extension are subjected to severe loading, it is essential that these components be proof fired and magnifluxed to insure that they are free of any hidden defects.

c. Inspection. Inspection of the barrel and barrel extension assembly and its components shall be performed in accordance with SQAP

M1662180 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the barrel are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of the barrel extension are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures and gages to be used in the acceptance of the barrel indexing pin are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the acceptance of the chamber are given in position "D" of the above referenced SQAP.

(5) Detailed inspection procedures to be used in the final acceptance of the barrel and barrel extension assembly are given in position "E" of the above referenced SQAP.

Special gages, some of which are described below, are used to check significant characteristics. Routine gaging techniques and standard visual inspection methods are to be followed for additional characteristics given in the above referenced SQAP.

(6) Angular Deviation Gage - 11837916. This gage is used to check the angular deviation of the bore from the centerline established by the front sight mounting diameter and the outside diameter at the chamber end of the barrel. This characteristic is detailed in position "A" of the above referenced SQAP; the procedure to be followed is detailed in Part IV of this SQAP. Figure 105 shows the barrel and barrel extension assembly in position in the angular deviation gage.

(7) Indicator Gage - 8443850. This gage is used to check the locating dimension of the rear face of the bolt lock in the barrel extension with respect to the rear face of the barrel extension. This characteristic is detailed in position "B" of the above referenced SQAP. The following procedure is to be used:

(a) To set the gage indicator to zero, slide the adapter

body off center on the gage as shown in Figure 106. Adjust the indicator to read zero.

(b) Position the barrel extension on the indicator gage so that the back face of the bolt lock seats on the measuring pin as shown in Figure 107.

(c) Check the bolt locating dimension for its full circumference. The direct indicator reading must not exceed the allowable tolerance marked on the indicator gage base.

(8) Gage Ring - 11837903, Bullet Depth Gage - 8443866, and Second Shoulder Depth Gage - 8443869. These gages (Fig. 108) are used to check the bullet seat depth and shoulder depth of the chamber. These characteristics are detailed in position "D" of the above referenced SQAP.

The following procedure is to be used:

(a) Insert a centering plug into the gage ring (Fig. 108-1).

(b) Insert the gage ring and centering plug into the chamber of the barrel and barrel extension assembly.

(c) Rotate the gage ring in the direction indicated by the arrow (Fig. 109-1) until the stop (Fig. 109-2) seats against the indexing pin (Fig. 109-3) on the barrel and barrel extension assembly.

(d) Lock the gage ring in place with the clamp (Fig. 109-4).

(e) Remove the centering plug.

(f) Check the bullet seat depth by inserting the bullet seat depth gage (Fig. 108-2) into the chamber and comparing the flush pin stepped surfaces with the back face of the gage ring.

(g) Check the shoulder depth by inserting the second shoulder depth gage (Fig. 108-3) into the chamber and comparing the flush pin stepped surfaces with the back face of the gage ring.

(9) Concentricity Gage - 11837947. This gage (Fig. 110) is used to check the concentricities of the barrel and barrel extension outside diameters with respect to the bore. These characteristics are

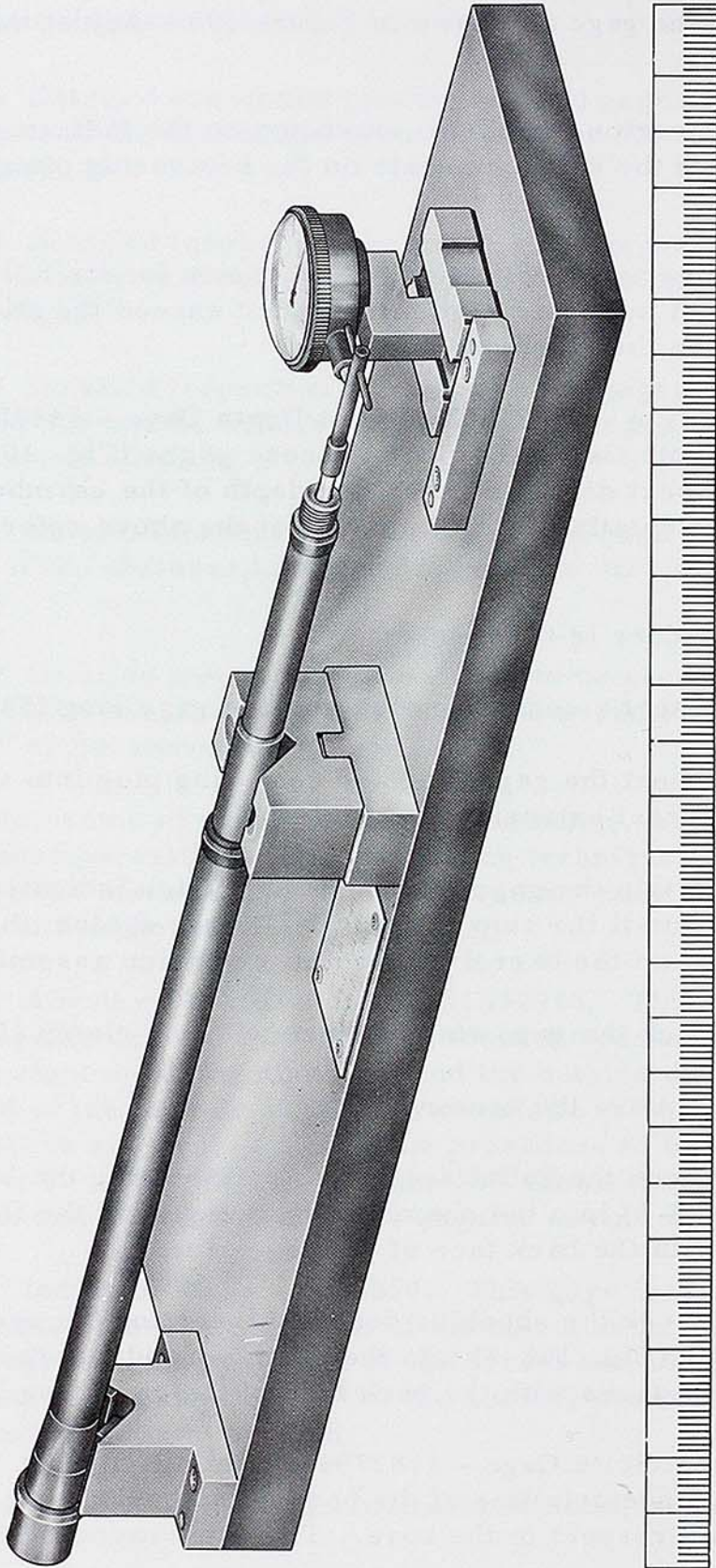


Figure 105. Barrel and Barrel Extension Assembly Positioned in Angular Deviation Gage.



Figure 106. Zero Setting of Indicator Gage.

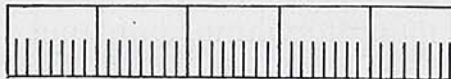


Figure 107. Barrel Extension in Position on Indicator Gage.

1. Gage ring
2. Bullet seat depth gage
3. Second shoulder depth gage

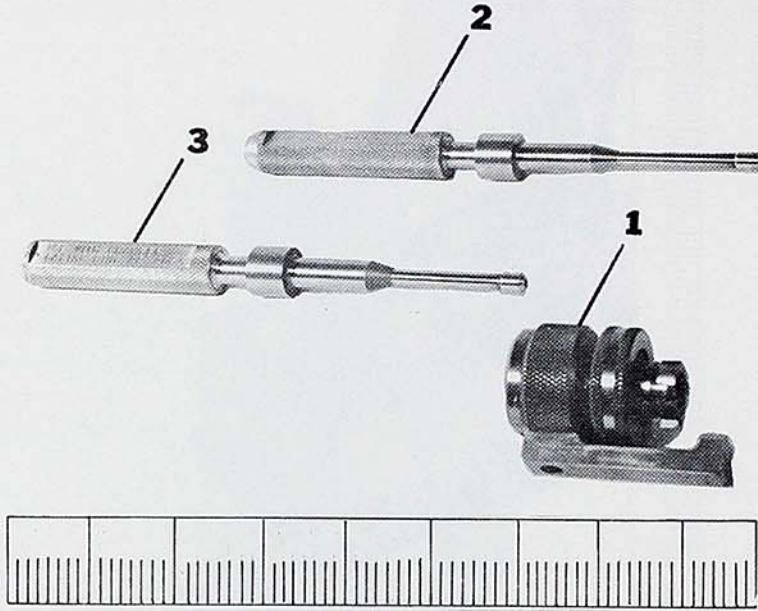


Figure 108. Gage Ring, Second Shoulder Depth Gage, and Bullet Depth Gage.

1. Arrow
2. Stop
3. Indexing pin
4. Clamp

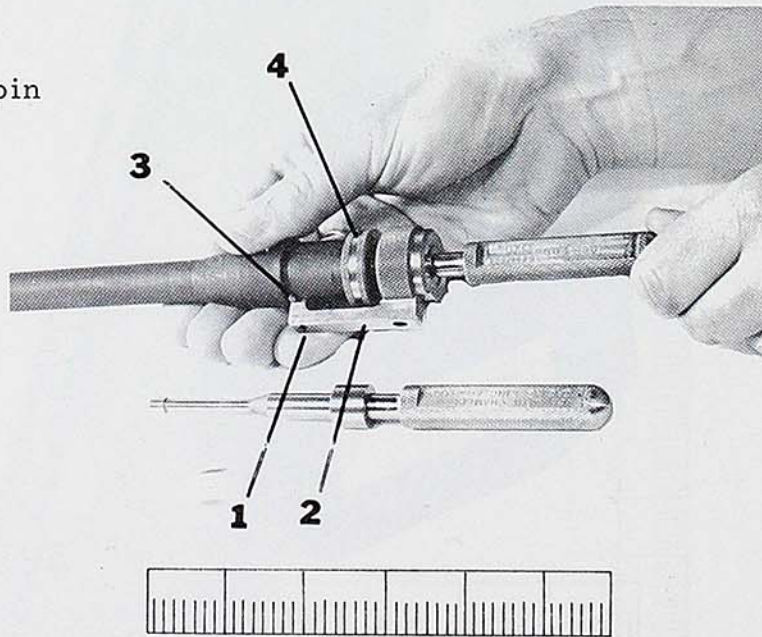


Figure 109. Checking Bullet Seat Depth and Second Shoulder Depth of Chamber.

detailed in position "E" of the above referenced SQAP. The following procedure is to be used:

(a) Position the barrel and barrel extension assembly between the centering pins as shown in Figure 111.

(b) Check concentricity tolerances by observing the total differences in the readings of the indicator gage at the specified diameters as shown in Figure 111.

(10) Proof Firing. The barrel and barrel extension assembly and the bolt are subjected to a high pressure resistance test as described in MIL-R-45587. Test firing fixture 11837944 is used to retain the barrel and barrel extension assembly and the bolt during this test; the procedure to be used for inserting these items into the test firing fixture is as follows:

(a) Release the test firing fixture lock by squeezing and rotating the latch (Fig. 112-1) in a counter clockwise direction.

(b) Open the test firing fixture by pulling the handle (Fig. 112-2) up, and then sliding the handle toward the hammer (Fig. 112-3).

(c) Position the barrel collar (Fig. 113-1) over the barrel extension with the slot (Fig. 113-2) aligned with the barrel indexing pin (Fig. 113-3).

(d) Insert a high pressure cartridge (Fig. 113-4) into the chamber.

(e) Insert the barrel and barrel extension assembly, barrel collar, and cartridge into the test firing fixture as shown in Figure 114.

(f) Remove the adaptor (Fig. 112-4) from the test firing fixture as follows:

1 Rotate the adaptor in a counter clockwise direction.

2 Lift the adaptor out from the test firing fixture.

(g) Insert a bolt (Fig. 115-1), firing pin (Fig. 115-2), and firing pin spring (Fig. 115-3) into the adaptor.

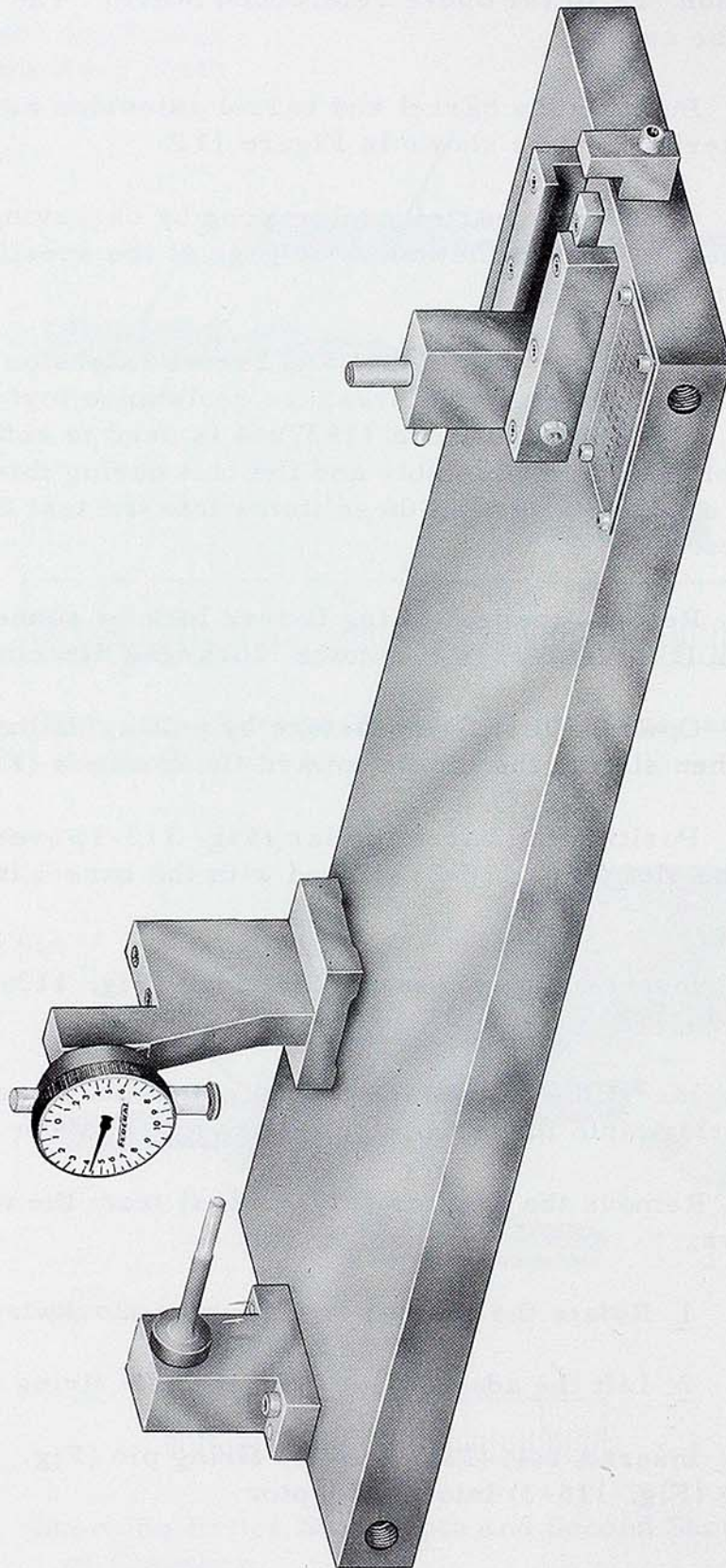


Figure 110. Concentricity Gage.

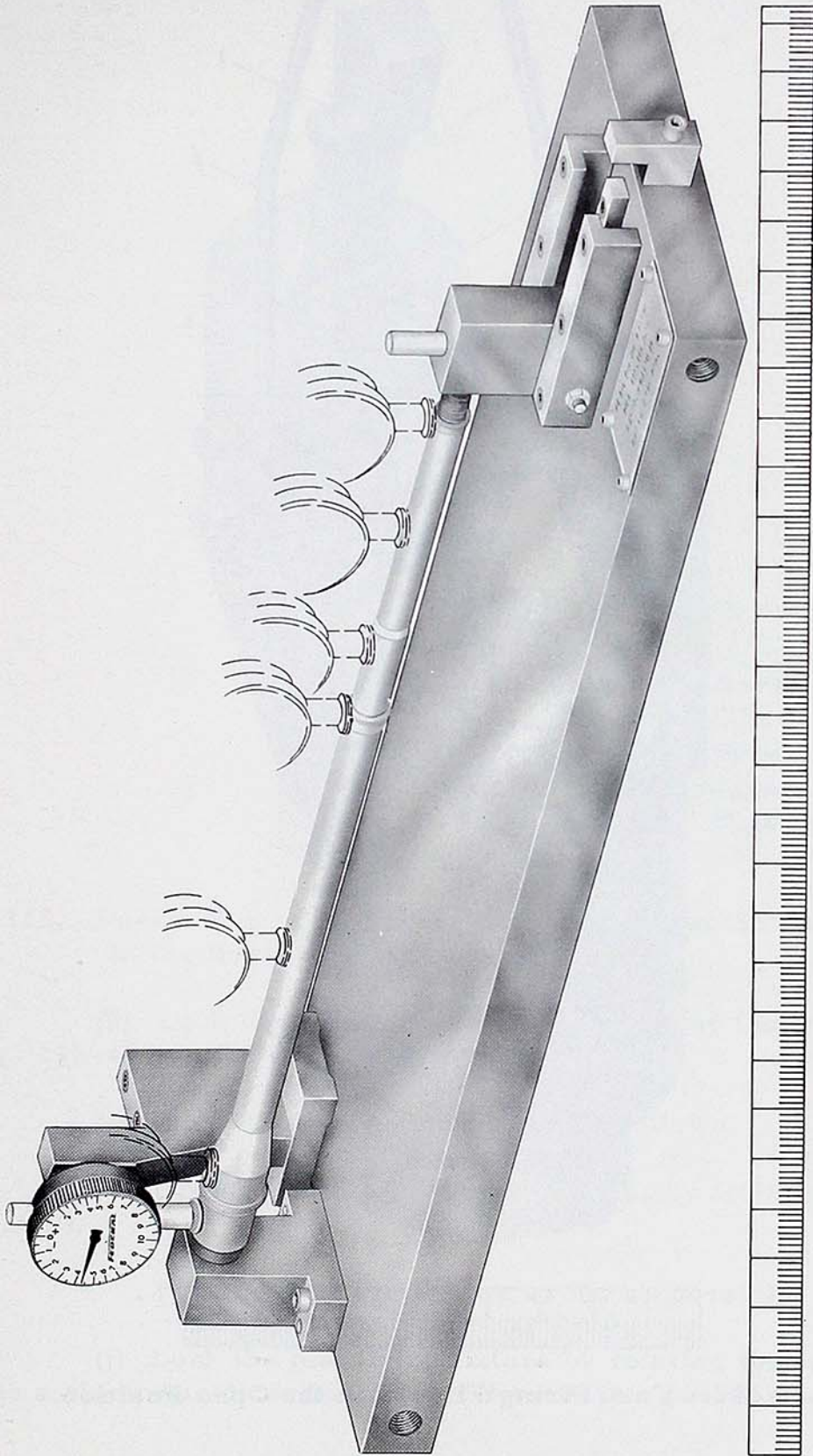


Figure 111. Barrel and Barrel Extension Assembly in Position on Concentricity Gage.

- 1. Latch
- 2. Handle
- 3. Hammer
- 4. Adaptor

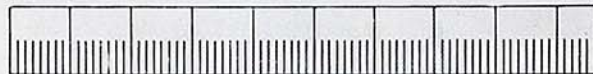
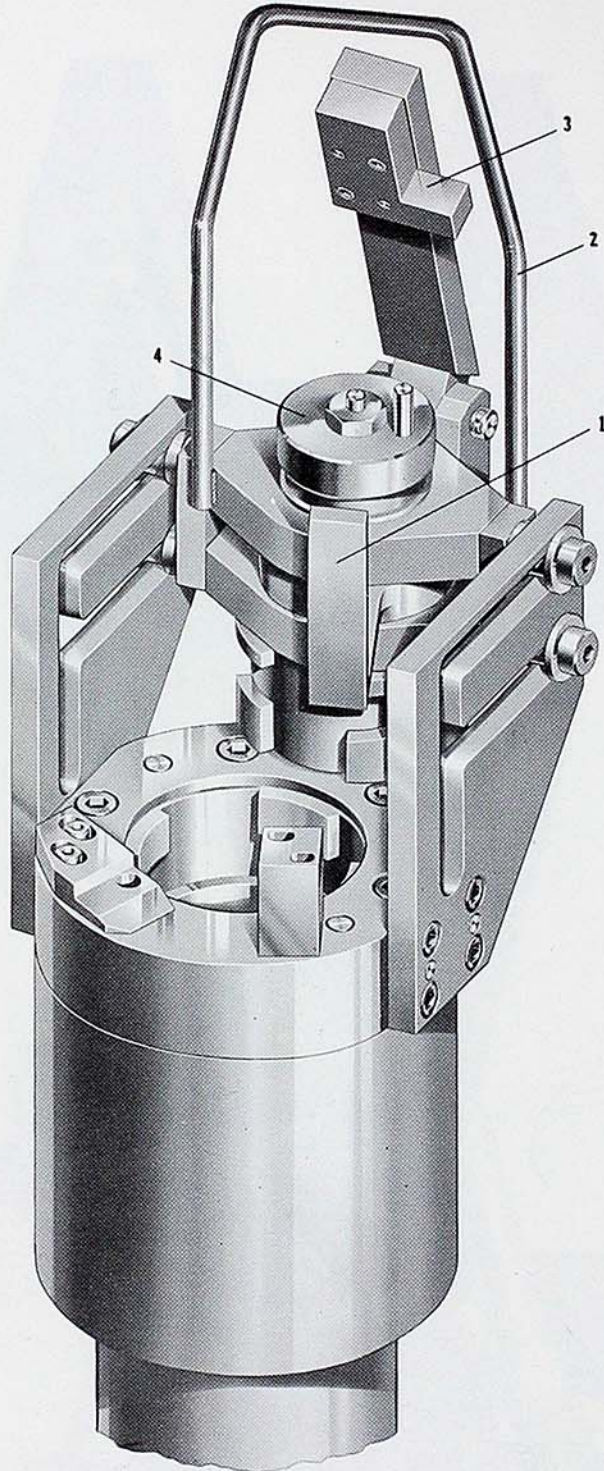


Figure 112. Test Firing Fixture in the Open Position.

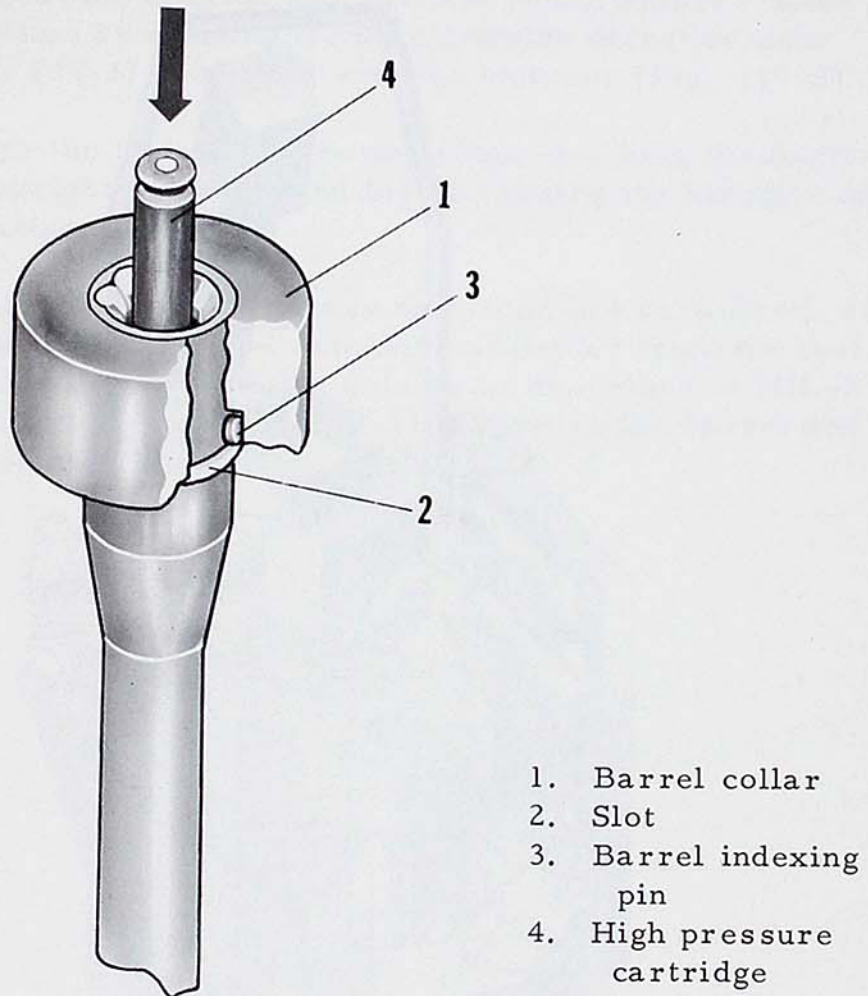


Figure 113. Positioning of the Collar and Insertion of the Cartridge in the Barrel Extension.

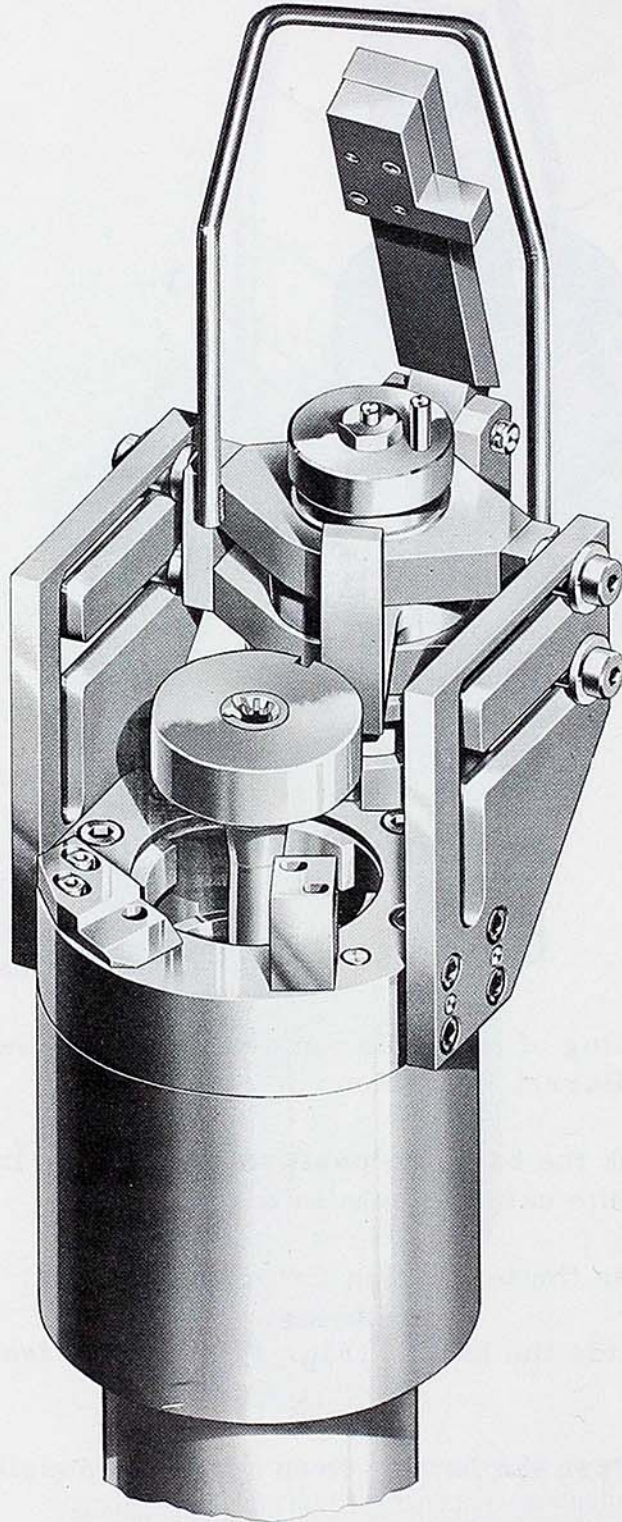
(h) Lock the bolt into position radially by inserting the pin (Fig. 115-4) into the cam pin hole in the bolt.

(i) Close the test firing fixture as follows:

1 Slide the handle (Fig. 116-1) away from the hammer (Fig. 116-2).

2 Push the handle down as far as possible.

(j) Lock the test firing fixture by rotating the latch (Fig. 116-3) in a clockwise direction until it detents into position.



Fixture 114. Insertion of the Barrel and Barrel Extension Assembly into the Test Firing Fixture.

(k) Insert the adaptor into the test firing fixture. Lock the adaptor into position by rotating it in a clockwise direction until the safety stop (Fig. 117-1) is aligned with the hammer (Fig. 117-2).

(l) Fire the high pressure cartridge by lifting the hammer (Fig. 118-1) to its upright position, and then releasing the hammer so that it falls on the fixture firing pin.

(m) After the high pressure cartridge has been fired, remove the bolt and barrel and barrel extension assembly from the test firing fixture; examine these items for defects as described in MIL-R-45587. Use the extraction tool (Fig. 119-1) to remove the barrel and barrel extension assembly

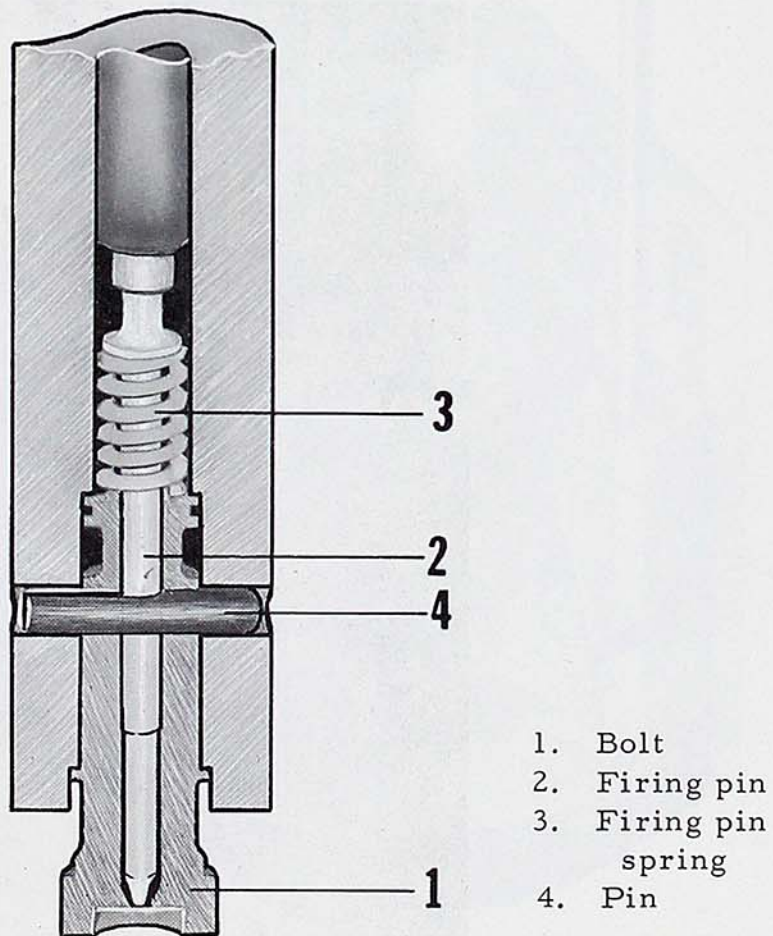


Figure 115. Insertion of the Bolt into the Adaptor.

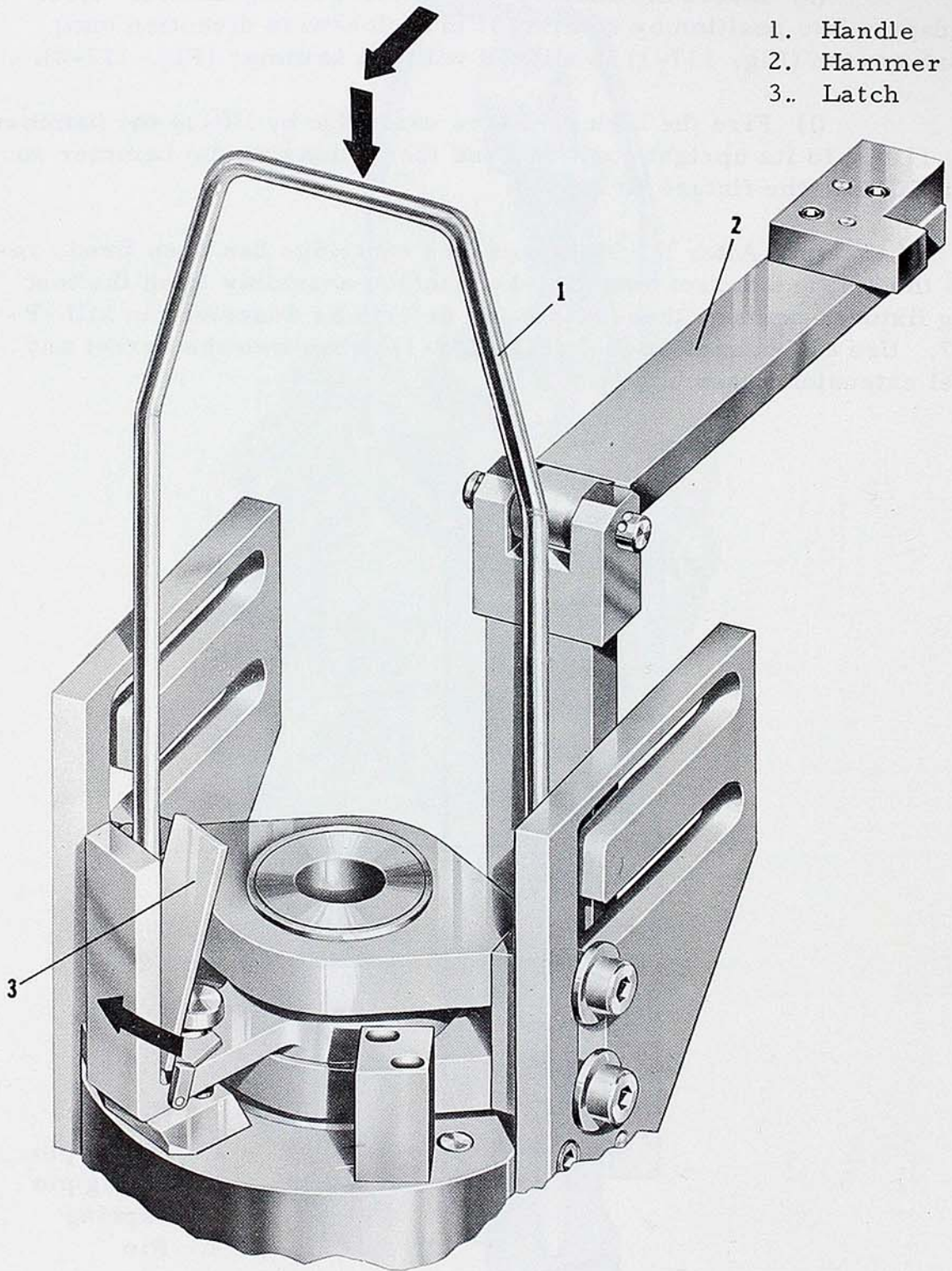


Figure 116. Test Firing Fixture in the Closed Position.

- 1. Safety stop
- 2. Hammer

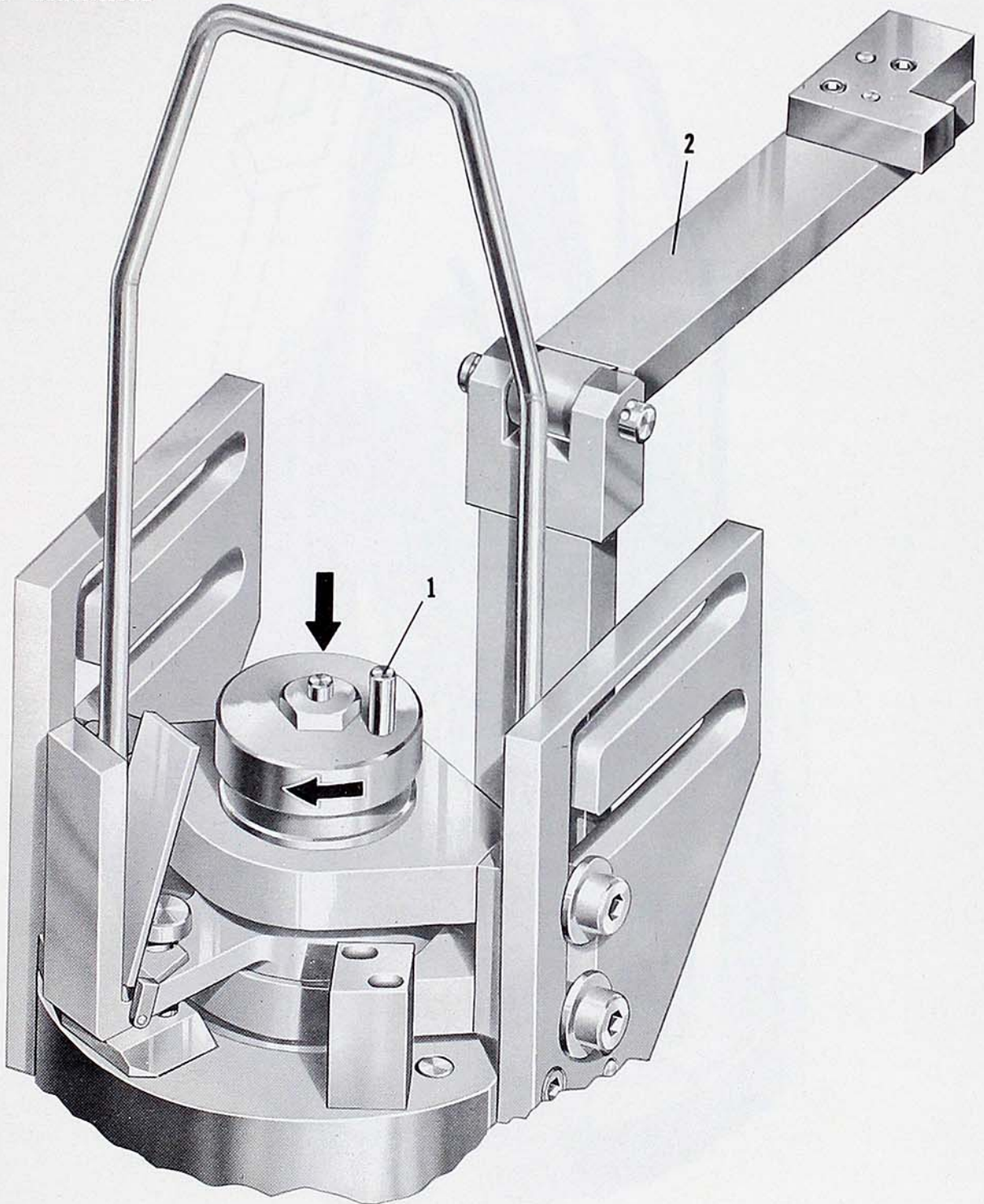


Figure 117. Adaptor in Position in the Test Firing Fixture.

1. Hammer

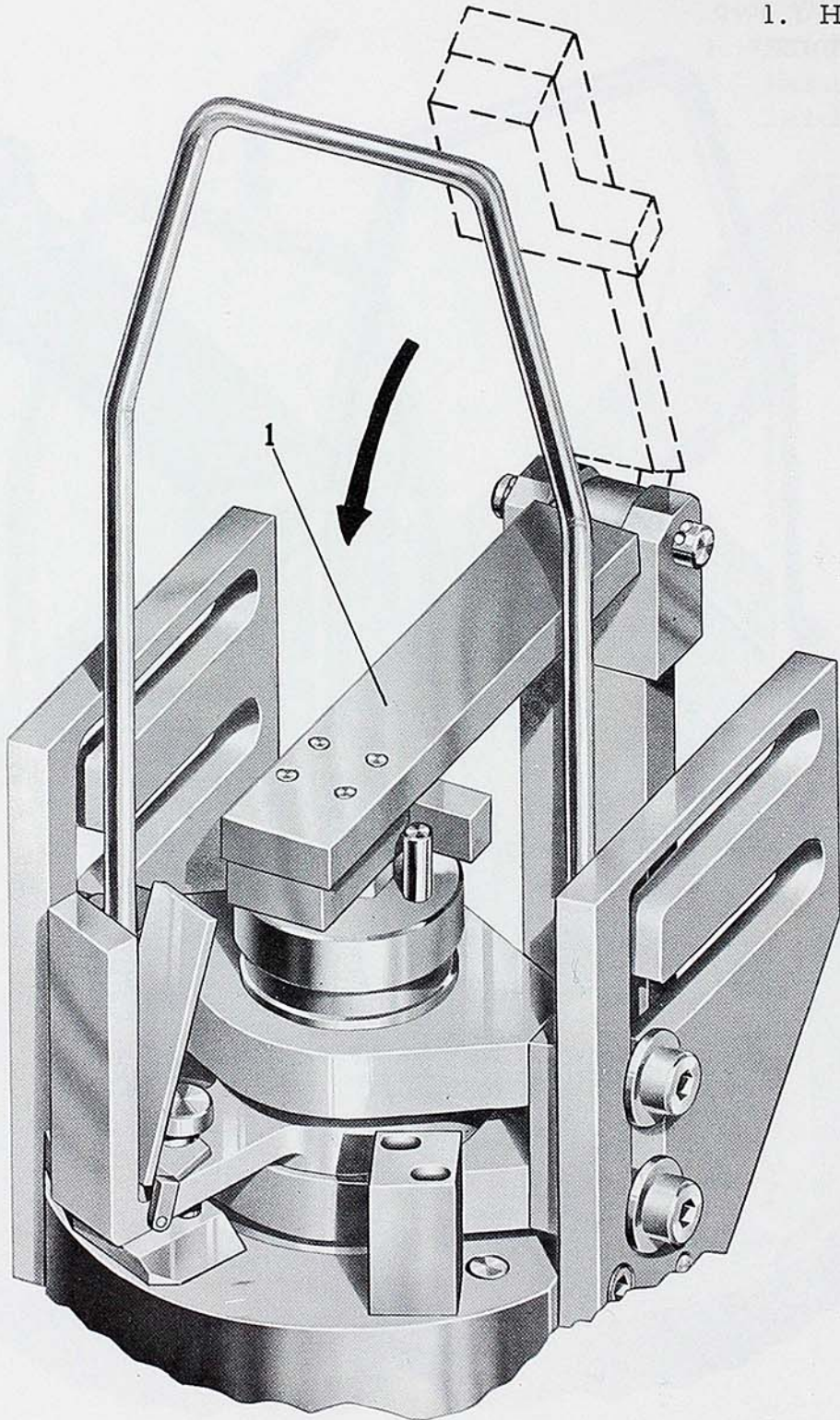


Figure 118. Firing of the High Pressure Test Cartridge.

1. Extraction tool

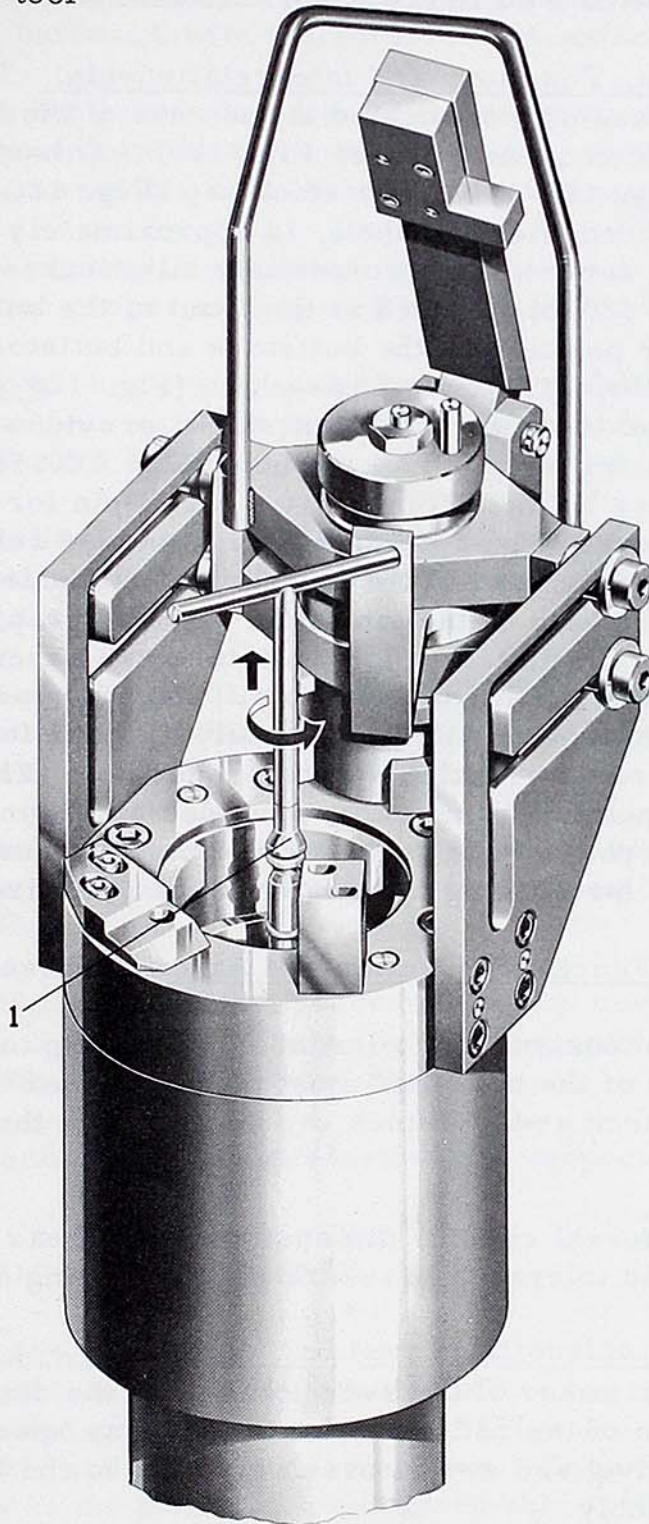


Figure 119. Extraction of the Barrel and Barrel Extension Assembly from the Test Firing Fixture.

64. BUTTSTOCK AND BUTTSTOCK CAP ASSEMBLY - 62193.

a. Description, Function, and Interrelationship. The buttstock and buttstock cap assembly is located at the rear of the lower receiver and receiver extension assembly (see Fig. 123). This assembly consists of the buttstock (Fig. 120-1) and buttstock cap (Fig. 120-2). The buttstock, a hollow molded phenolic shell, is approximately 9 5/8 inches in length; its cross section is approximately elliptical in shape. A locating boss (Fig. 120-3), located at the front of the buttstock, provides the means for positioning the buttstock and buttstock cap assembly on the lower receiver. The swivel base hole (Fig. 120-4), located along the bottom edge near the rear of the buttstock, provides a mounting for the swivel base. A transverse roll pin hole (Fig. 120-5), which intersects the swivel base hole, accommodates a roll pin for securing the swivel to the buttstock. The buttstock cap, a molded rubber piece, is shaped to fit the rear contour of the buttstock. A countersunk screw hole (Fig. 120-6), located at the top of the buttstock cap, provides the means for attaching the buttstock and buttstock cap assembly to the lower receiver and receiver extension assembly. The buttstock and buttstock cap are bonded together and filled with a polyurethane foam (Fig. 120-7) at assembly. The receiver extension clearance hole (Fig. 120-8), which is molded into the polyurethane foam, provides clearance for the receiver extension. The purpose of the buttstock and buttstock cap assembly is to provide a means for bracing the weapon when it is fired.

b. Important Functioning Points and Areas. These are as follows:

(1) All dimensions and tolerances pertaining to the locating lug at the front end of the buttstock must be maintained to insure proper mating of the buttstock and buttstock cap assembly to the lower receiver assembly.

(2) All internal contour dimensions at the rear of the buttstock must be within tolerance to insure proper mating of the buttstock and buttstock cap.

(3) The diameter of the swivel base and the diameter and locating dimensions of the roll pin holes must be as specified to insure assembly of the swivel and swivel base assembly to the buttstock and buttstock cap assembly.

(4) The concentricities of the diameters about the screw hole

in the buttstock cap must be as specified to prevent excessive misalignment of the buttstock with the receiver extension.

(5) The depth and diameter of the receiver extension clearance hole must be within tolerance to insure proper fit of the buttstock and buttstock cap assembly with the receiver extension.

(6) The contour dimensions of the buttstock cap must be within tolerance to insure proper mating of the buttstock and buttstock cap.

c. Inspection. Inspection of the buttstock and buttstock cap assembly and its components shall be performed in accordance with SQAP M1662193 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of buttstock molding dimensions are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of buttstock machined dimensions are given in position "B" of the above referenced SQAP.

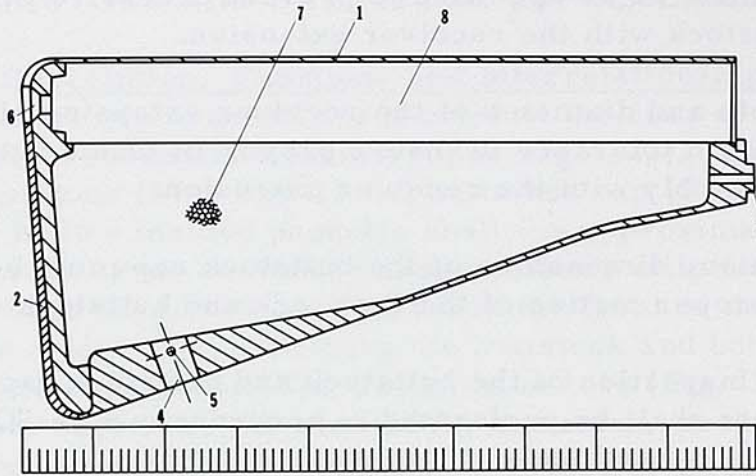
(3) Detailed inspection procedures and gages to be used in the acceptance of the buttstock cap are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures to be used in the final acceptance of the buttstock and buttstock cap assembly are given in position "D" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

65. LEFT HANDGUARD ASSEMBLY - 62196.

a. Description, Function, and Interrelationship. The left handguard assembly is located on the left side of the barrel (see Fig. 124). This assembly consists of a left handguard (Fig. 121-1), left handguard liner (Fig. 121-2), and ten (10) liner screws. The left handguard, a phenolic molding in the form of an elongated half shell, is approximately twelve (12) inches in length, 1 5/8 inches in width, and 7/8 of an inch in depth. The left handguard liner, a thin aluminum plate, is



- | | |
|---------------------|--------------------------------------|
| 1. Buttstock | 5. Transverse roll pin hole |
| 2. Buttstock cap | 6. Countersunk screw hole |
| 3. Locating boss | 7. Polyurethane foam |
| 4. Swivel base hole | 8. Receiver extension clearance hole |

Figure 120. Buttstock and Buttstock Cap Assembly.

- | |
|-------------------------|
| 1. Left handguard |
| 2. Left handguard liner |

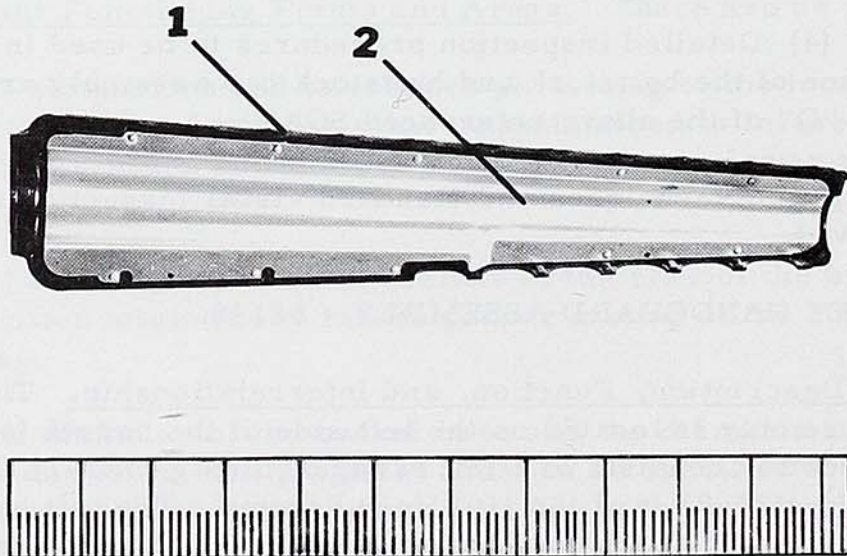


Figure 121. Left Handguard Assembly.

contoured to match the inner surface of the left handguard. Liner screws are type "U" drive screws; their purpose is to attach the left handguard liner to the left handguard. The purpose of the left handguard assembly, in conjunction with the right handguard assembly, is to provide an insulated handgrip for the operator of the weapon.

b. Important Functioning Points and Areas. The major dimensions at both ends of the left handguard assembly must be within tolerance to insure assembly.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this assembly are given in SQAP M1662196. Routine gaging techniques and standard visual inspection methods are to be followed.

66. RIGHT HANDGUARD ASSEMBLY - 62198.

The right handguard assembly consists of the right handguard, right handguard liner, and ten (10) liner screws (see Fig. 124). This assembly is a mirror image of the left handguard assembly; its description, function, and interrelationship, important functioning points and areas, and inspection are the same as those of the left handguard assembly.

67. PLUNGER ASSEMBLY - 62266.

a. Description, Function, and Interrelationship. The plunger assembly is located in a guide provided for it on the right side and at the rear of the upper receiver (see Fig. 124). This assembly consists of the plunger cap (Fig. 122-1), plunger (Fig. 122-2), and roll pin (Fig. 122-3) (see Paragraph 51). The plunger cap, a hollow steel cylinder approximately $5/8$ of an inch in length, has a serrated offset head about $5/8$ of an inch in length located at one end. The plunger, a steel cylinder, is approximately $1\ 3/8$ inches in length; a stepped down diameter (Fig. 122-4) at one end provides the means for positioning the plunger in the plunger cap. A retaining flat (Fig. 122-5), located on the plunger, provides motion stops for the plunger assembly in the upper receiver. Two (2) slots (Figs. 122-6 and 122-7), located at the forward end of the plunger, provide a guide for the forward assist pawl. A transverse roll pin hole (Fig. 122-8), which intersects the larger slot (Fig. 122-7), provides a pivot for the forward assist pawl. A counterbored hole (Fig. 122-9) running through the plunger provides a guide for the

pawl detent and bolt spring. The plunger cap and plunger are drilled at assembly and secured to each other by the roll pin (Fig. 122-3). The purpose of the plunger assembly, in conjunction with the forward assist pawl, is to provide a means for manually closing the bolt when necessary.

b. Important Functioning Points and Areas. These are as follows:

(1) The body and bore diameters for the plunger cap and their concentricity to each other must be within tolerance to insure free motion of the plunger assembly in the upper receiver.

(2) The body diameter of the plunger must be as specified to insure free motion of the plunger assembly in the upper receiver.

(3) The locating dimensions of the flat on the plunger must be within tolerance to restrict lateral and rotational motion of the plunger assembly in the upper receiver.

(4) The width, depth, and location of the two (2) slots in the plunger must be within tolerance to insure free motion of the forward assist pawl and to avoid interference of the forward assist pawl with the bolt carrier during normal operation.

(5) The location of the transverse roll pin hole (Fig. 122-8) and its perpendicularity to the slot (Fig. 122-6) must be as specified to avoid interference of the forward assist pawl with the bolt carrier assembly during normal operation.

(6) The stepped down diameter on the plunger and its concentricity to the plunger body must be as specified to insure proper fit between the plunger and plunger cap.

c. Inspection. Inspection of the plunger assembly and its components shall be performed in accordance with SQAP M1662266 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the plunger cap are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of the plunger are given in position "B" of the above referenced SQAP.

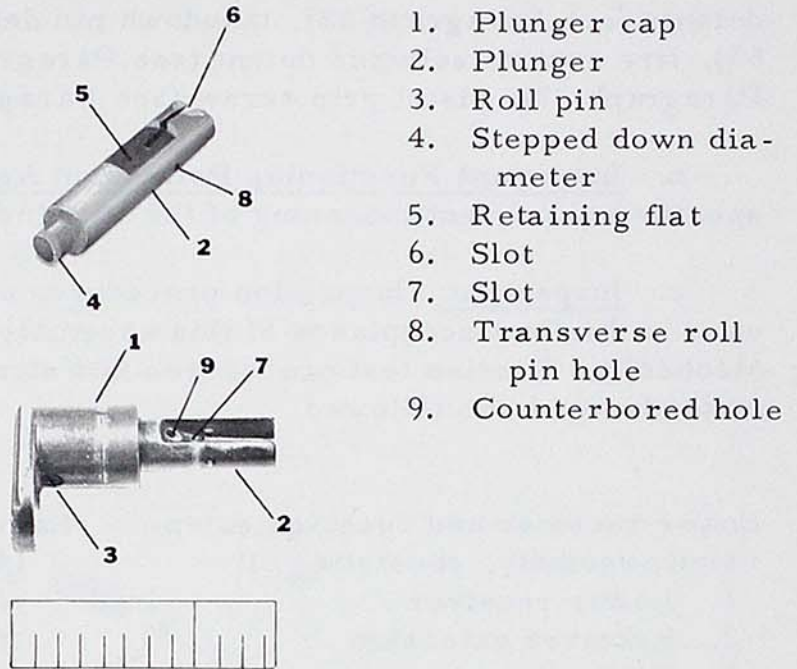


Figure 122. Plunger Assembly.

(3) Detailed inspection procedures to be used in the final acceptance of the plunger assembly are given in position "C" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

68. LOWER RECEIVER AND BUTTSTOCK ASSEMBLY - 62272.

a. Description, Function, and Interrelationship. The lower receiver and buttstock assembly (see Fig. 123), consists of the lower receiver and receiver extension assembly (see Paragraph 69), buttstock and swivel assembly (see Paragraph 78), butt cap screw (see Paragraph 54), buffer assembly (see Paragraph 76), action spring (see Paragraph 50), trigger assembly (see Paragraph 78), disconnect (see Paragraph 48), hammer assembly (see Paragraph 78), hammer and trigger pins (see Paragraph 52), fire control selector (see Paragraph 32), automatic sear assembly (see Paragraph 57), automatic sear pin (see Paragraph 52), magazine catch (see Paragraph 56), magazine catch spring (see Paragraph 50), magazine release button (see Paragraph 33), bolt catch (see Paragraph 47), bolt catch plunger (see Paragraph 36), bolt catch spring (see Paragraph 50), roll pin (see Paragraph 51), receiver pivot pin (see Paragraph 38, takedown pin (see Paragraph 20), takedown pin

detents (see Paragraph 53), takedown pin detent springs (see Paragraph 53), fire control selector detent (see Paragraph 53), pistol grip (see Paragraph 37), pistol grip screw (see Paragraph 54), and lock washer.

b. Important Functioning Points and Areas. Torque must be as specified to prevent loosening of the buttstock under firing load.

c. Inspection. Inspection procedures and test equipment to be used in the final acceptance of this assembly are given in SQAP M1662272. Routine test procedures and standard visual inspection methods are to be followed.

Lower receiver and receiver extension assembly, consisting of:

1. Lower receiver
2. Receiver extension
3. Buffer retainer
4. Buffer retainer spring
5. Trigger guard assembly

Buttstock and swivel assembly, consisting of:

6. Buttstock and buttstock cap assembly
7. Swivel and swivel base assembly
8. Butt cap screw
9. Buffer assembly
10. Action spring

Trigger assembly, consisting of:

11. Trigger
12. Trigger spring
13. Disconnect spring
14. Disconnect

Hammer assembly, consisting of:

15. Hammer and hammer pin retainer assembly
16. Hammer spring
17. Hammer and trigger pins
18. Fire control selector
19. Automatic sear assembly
20. Automatic sear pin
21. Magazine catch
22. Magazine catch spring
23. Magazine release button
24. Bolt catch
25. Bolt catch plunger
26. Bolt catch spring
27. Receiver pivot pin
28. Takedown pin
29. Pistol grip

Legend for Figure 123.

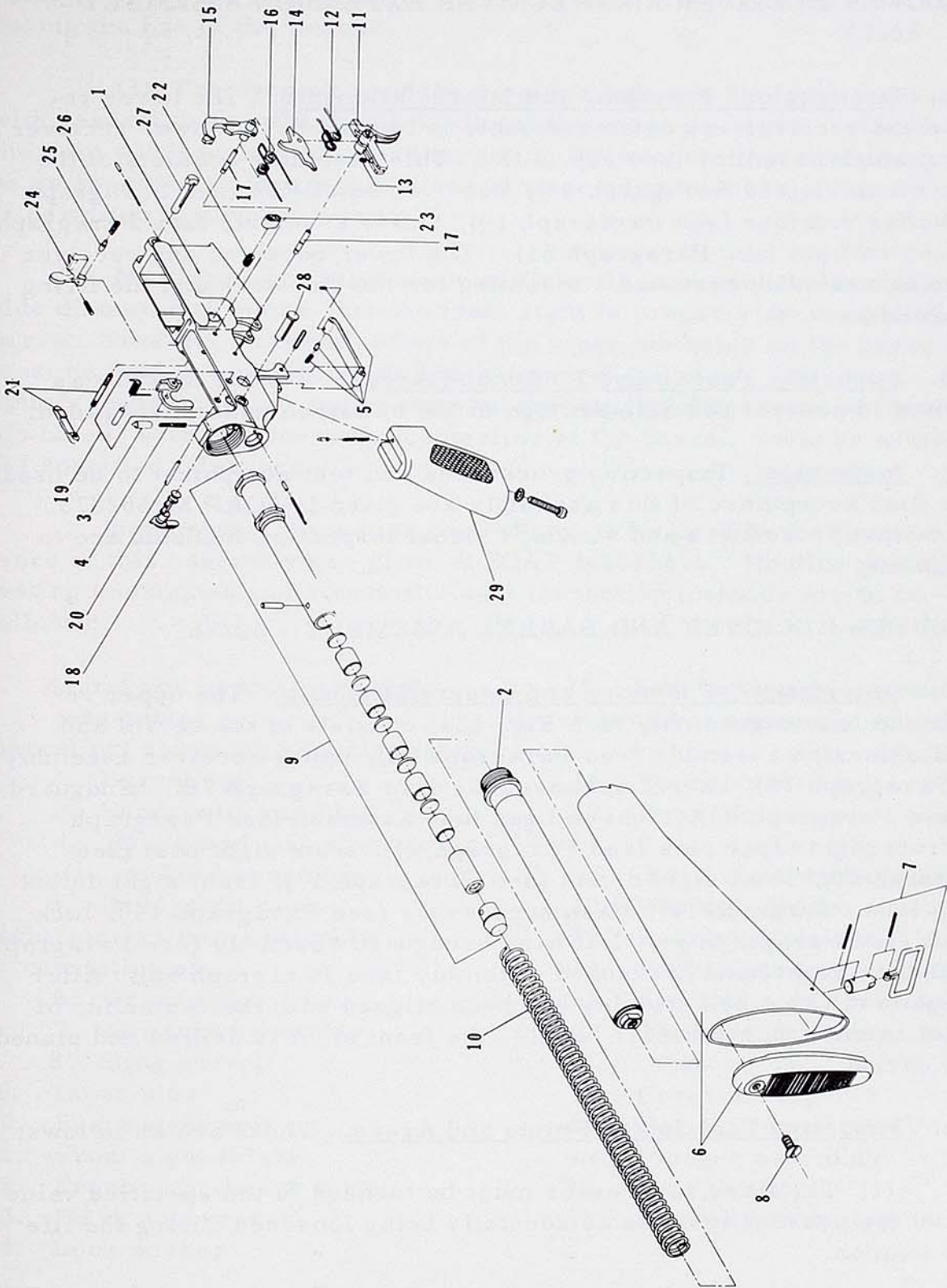


Figure 123. Lower Receiver and Buttstock Assembly.

69. LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY - 62273.

a. Description, Function, and Interrelationship. The lower receiver and receiver extension assembly is located in the lower receiver and buttstock assembly (see Fig. 123). This assembly consists of the lower receiver (see Paragraph 39), receiver extension (see Paragraph 18), buffer retainer (see Paragraph 19), buffer assembly (see Paragraph 60), and roll pin (see Paragraph 51). The lower receiver and receiver extension assembly provides a mounting for the buttstock and the firing mechanism.

b. Important Functioning Points and Areas. Torque must be as specified to prevent possible damage to the buttstock under firing load.

c. Inspection. Inspection procedures and test equipment to be used in the final acceptance of this assembly are given in SQAP M1662273. Routine test procedures and standard visual inspection methods are to be followed.

70. UPPER RECEIVER AND BARREL ASSEMBLY - 62276.

a. Description, Function, and Interrelationship. The upper receiver and barrel assembly (see Fig. 124) consists of the barrel and barrel extension assembly (see Paragraph 63), upper receiver assembly (see Paragraph 78), barrel nut assembly (see Paragraph 78), handguard cap (see Paragraph 35), sight and gas tube assembly (see Paragraph 78), front sight taper pins (see Paragraph 54), front sight post (see Paragraph 27), front sight detent (see Paragraph 53), front sight detent spring (see Paragraph 50), flash suppressor (see Paragraph 49), lock washer (see Paragraph 54), left hand handguard assembly (see Paragraph 65), and the right hand handguard assembly (see Paragraph 66). After the sight and gas tube assembly has been aligned with the centerline of the slot in the upper receiver handle, the front sight is drilled and pinned to the barrel.

b. Important Functioning Points and Areas. These are as follows:

(1) The flash suppressor must be torqued to the specified value to avoid the possibility of its accidentally being loosened during the life of the weapon.

(2) The barrel nut assembly must be torqued to the specified

value to avoid the possibility of the barrel accidentally being loosened during the life of the weapon.

(3) The symmetry of the threaded hole for the front sight post, with respect to the slot in the handle of the upper receiver, determines the zero windage position when targeting the weapon; this symmetry must be as specified to insure sufficient windage adjustment in either direction to permit targeting the weapon.

(4) Taper pin holes must sufficiently intersect the barrel outside diameter to insure that the front sight is properly secured to the barrel; however, the notch effect of the taper pin holes on the barrel must be held to a minimum to prevent barrel failure at this point. To satisfy these opposing requirements, the locating dimension of the taper pin holes, with respect to the centerline of the barrel, must be within the specified tolerance.

c. Inspection. Inspection procedures to be used in the final acceptance of this assembly are given in SQAP M1662276. Routine gaging and testing techniques and standard visual inspection methods are to be followed.

- | | |
|---|---|
| 1. Barrel and barrel extension assembly | 15. Left handguard assembly |
| Barrel nut assembly, consisting of: | Upper receiver assembly, consisting of: |
| 2. Barrel nut | 16. Upper receiver |
| 3. Handguard slip ring | 17. Rear sight |
| 4. Handguard slip ring spring welded assembly | 18. Rear sight spring |
| 5. Handguard cap | 19. Rear sight windage screw |
| Sight and gas tube assembly consisting of: | 20. Windage drum |
| 6. Front sight | 21. Rear sight detent |
| 7. Gas tube assembly | 22. Rear sight detent spring |
| 8. Sling swivel | 23. Ejection port cover assembly |
| 9. Taper pins | 24. Ejection port cover hinge pin |
| 10. Front sight post | 25. Cover spring |
| 11. Front sight detent | 26. Forward assist pawl |
| 12. Front sight detent spring | 27. Plunger assembly |
| 13. Flash suppressor | 28. Pawl detent |
| 14. Lock washer | 29. Pawl detent spring |

Legend for Figure 124.

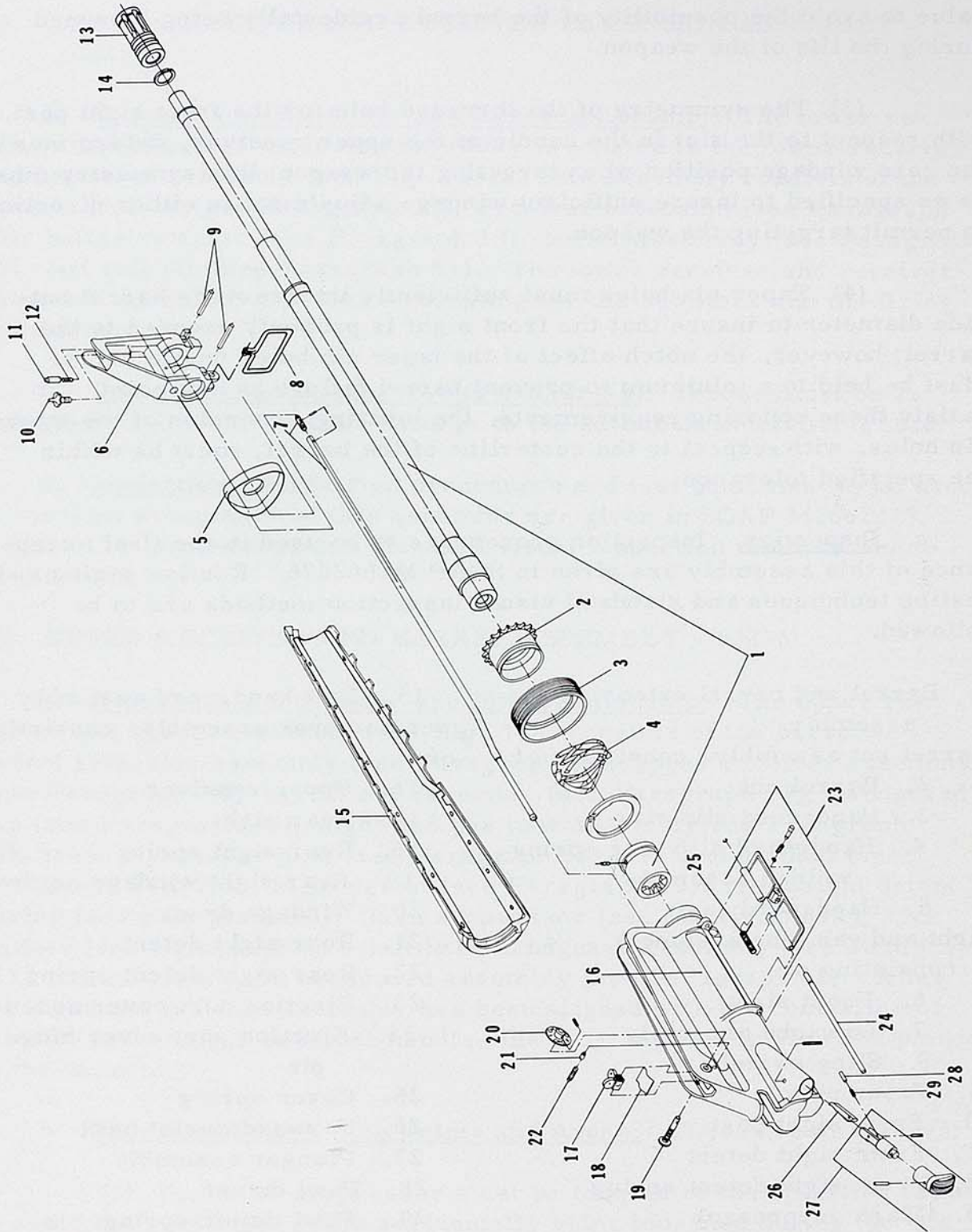


Figure 124. Upper Receiver and Barrel Assembly.

71. SWIVEL AND SWIVEL BASE ASSEMBLY - 62282.

a. Description, Function, and Interrelationship. The swivel and swivel base assembly is located at the lower rear end of the buttstock (see Fig. 123). This assembly consists of the sling swivel (see Paragraph 44), roll pin (see Paragraph 51), and a steel cylindrical base approximately 1/2 of an inch in diameter and one (1) inch in length. A transverse roll pin hole (Fig. 125-1) is located at the top of the swivel base. The roll pin (Fig. 123-2), which intersects the slot (Fig. 125-3) at the bottom of the swivel base, provides a hinge for the sling swivel. The swivel and swivel base assembly provides the means for attaching a sling to the weapon.

b. Important Functioning Points and Areas. These are as follows:

(1) The swivel base body diameter must be within tolerance to insure proper mating with the buttstock.

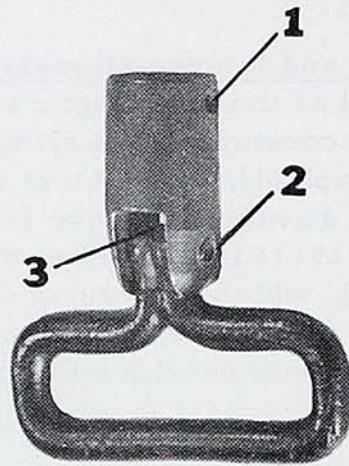
(2) The symmetry of the roll pin holes to the body diameter of the swivel base must be as specified to insure proper mating of the roll pins with the buttstock assembly and with the swivel and swivel base assembly.

c. Inspection. Detailed inspection procedures and gages to be used in the acceptance of the swivel base are given in position "A" of SQAP M1662282. Inspection procedures to be used in the final acceptance of the swivel and swivel base assembly are given in position "B" of the above referenced SQAP. Routine gaging techniques and standard visual inspection methods are to be followed.

72. KEY AND BOLT CARRIER ASSEMBLY - 62286.

a. Description, Function, and Interrelationship. The key and bolt carrier assembly is located in the upper receiver (see Fig. 127). This assembly consists of the bolt carrier (see Paragraph 42), bolt carrier key (see Paragraph 15), and hex socket head cap screws (see Paragraph 54). The purpose of the key and bolt carrier assembly is to house the bolt assembly and to utilize gas pressure to provide for bolt assembly recoil.

b. Important Functioning Points and Areas. The socket head cap screws must be tightened to the specified torque and properly staked



- 1. Transverse roll pin hole
- 2. Roll pin
- 3. Slot

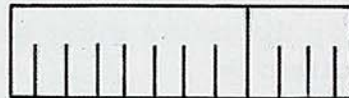
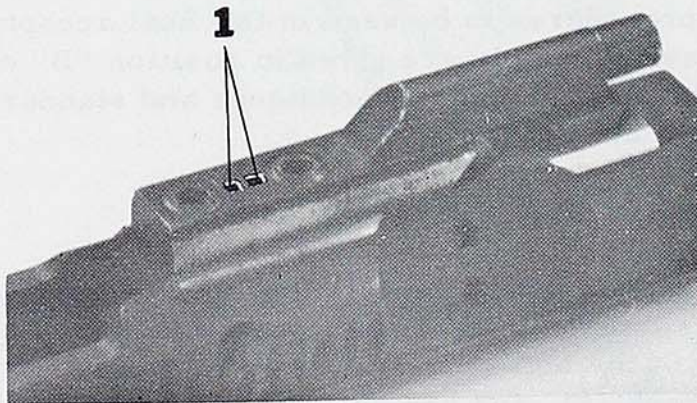


Figure 125. Swivel and Swivel Base Assembly.



- 1. Staked socket head capscrews



Figure 126. Key and Bolt Carrier Assembly.

(Fig. 126-1) to insure that the key will not loosen under shock loading.

c. Inspection. Inspection procedures and test equipment to be used in the final acceptance of this assembly are given in SQAP M1662286. Routine test procedures and standard visual inspection methods are to be followed.

73. BOLT CARRIER ASSEMBLY - 62287.

a. Description, Function, and Interrelationship. The bolt carrier assembly is housed in the upper receiver assembly (see Fig. 127). This assembly consists of the firing pin (see Paragraph 46), firing pin retaining pin (see Paragraph 54), bolt assembly (see Paragraph 62), cam pin (see Paragraph 26), and key and bolt carrier assembly (see Paragraph 72). The purpose of the bolt carrier assembly is to house and provide for the proper functioning of its individual parts as described in the above referenced paragraphs.

b. Important Functioning Points and Areas. The protrusion of the firing pin from the bolt face must be within the specified tolerance to insure proper indentation of the cartridge primer.

c. Inspection. The special gage described below is used when checking the bolt carrier assembly. Those detailed visual and visual manual inspection procedures given in Part II of SQAP M1662287 are to be followed when checking additional characteristics.

(1) Firing Pin Protrusion Gage - 11837922. This gage is used to check firing pin protrusion; this characteristic is detailed in Part IV of the above referenced SQAP. The following procedure is to be used:

(a) Insert the spacer block (Figs. 128-1 and 129-1) between the front face of the bolt carrier (Fig. 129-2) and the locking lugs (Fig. 129-3) on the bolt.

(b) Firmly seat the spacer block by rotating the bolt (see Fig. 129).

(c) Fully seat the firing pin by placing the bolt carrier assembly on the gage post (Figs. 128-2 and 129-4).

(d) Check firing pin protrusion by making a direct reading of the dial indicator gage (Figs. 128-3 and 129-5). Be certain that the

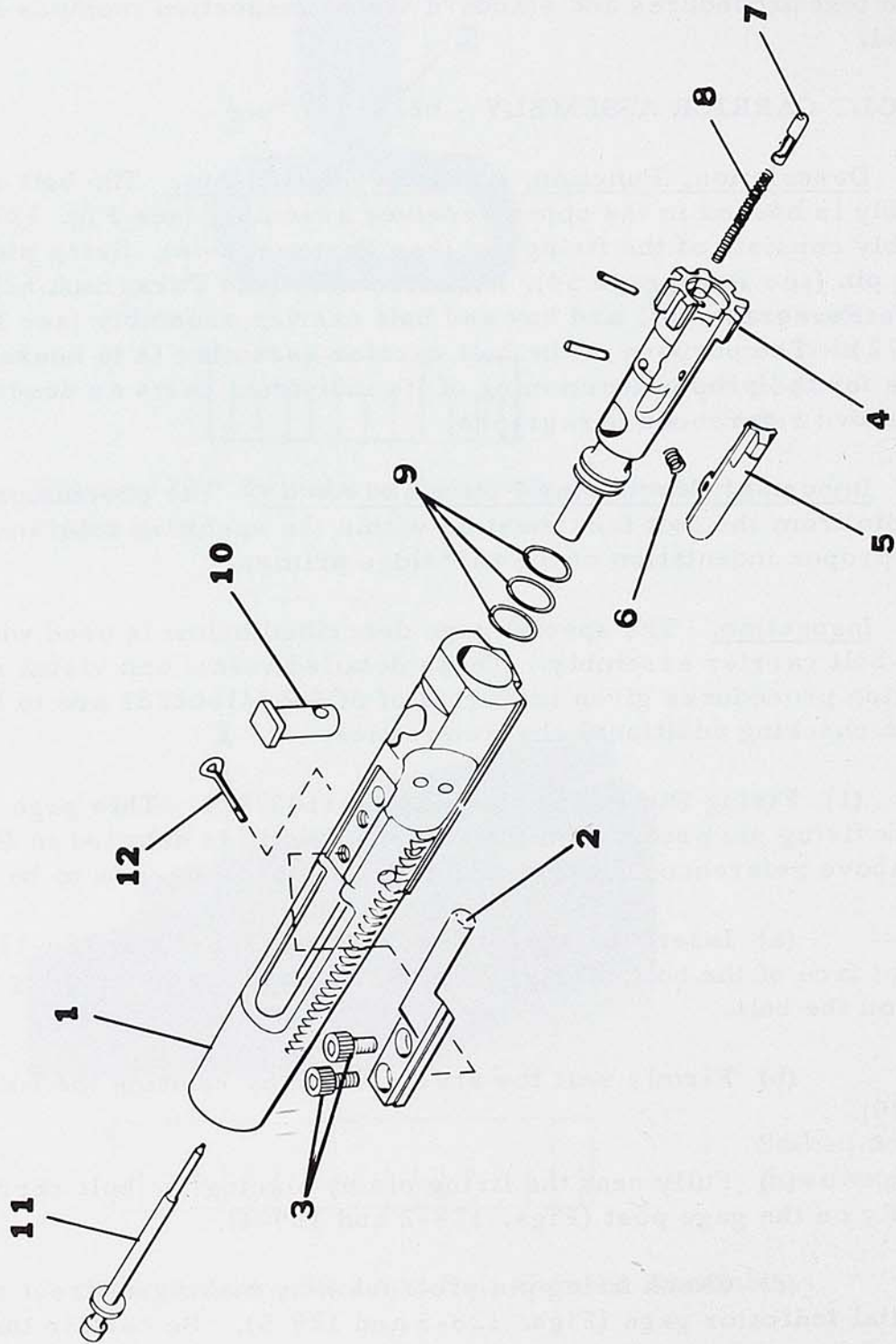


Figure 127. Bolt Carrier Assembly.

Key and bolt carrier assembly
consisting of:

1. Bolt carrier
2. Bolt carrier key
3. Cap screws

Bolt assembly, consisting of:

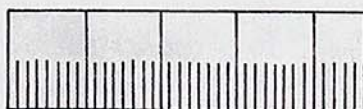
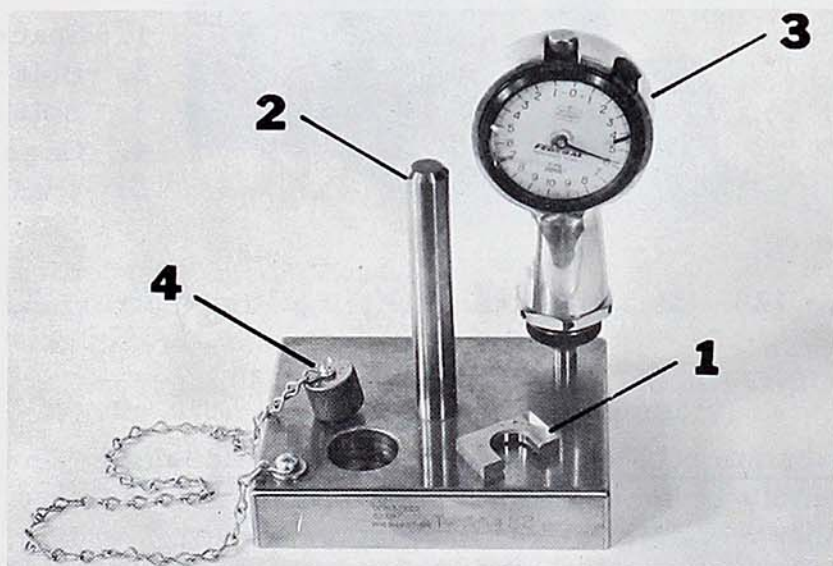
4. Bolt

5. Extractor
6. Extractor spring
7. Ejector
8. Ejector spring
9. Bolt ring
10. Cam pin
11. Firing pin
12. Firing pin retaining pin

Legend for Figure 127.

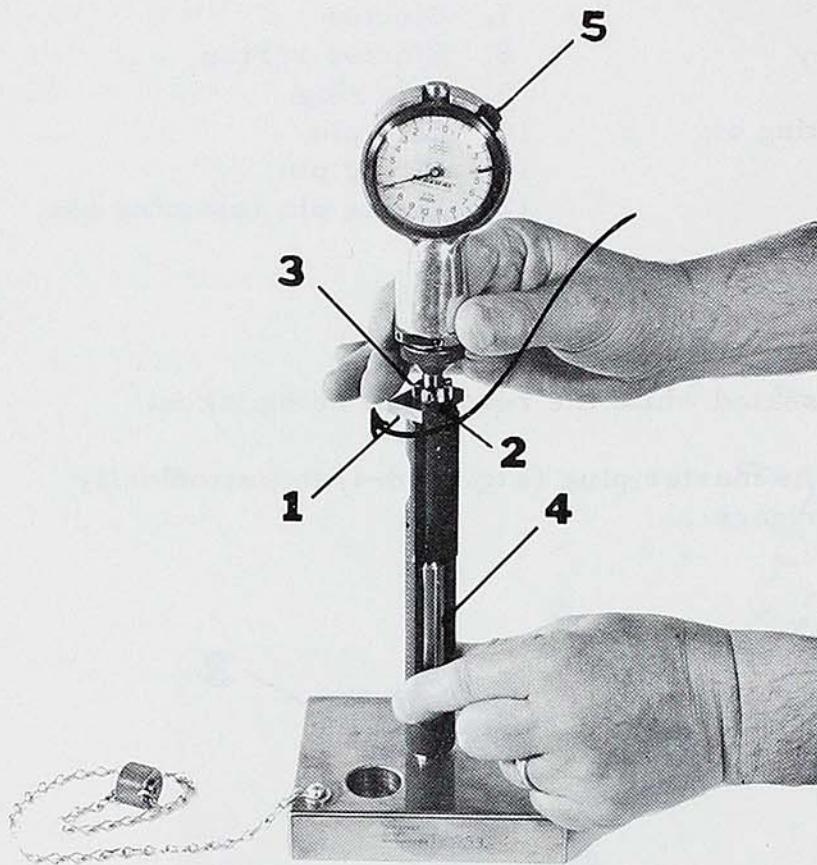
spacer block remains seated while the reading is being taken.

(e) Use the master plug (Fig. 128-4) to periodically check the dial indicator gage.



1. Spacer block
2. Gage post
3. Dial indicator gage
4. Master plug

Figure 128. Firing Pin Protrusion Gage.

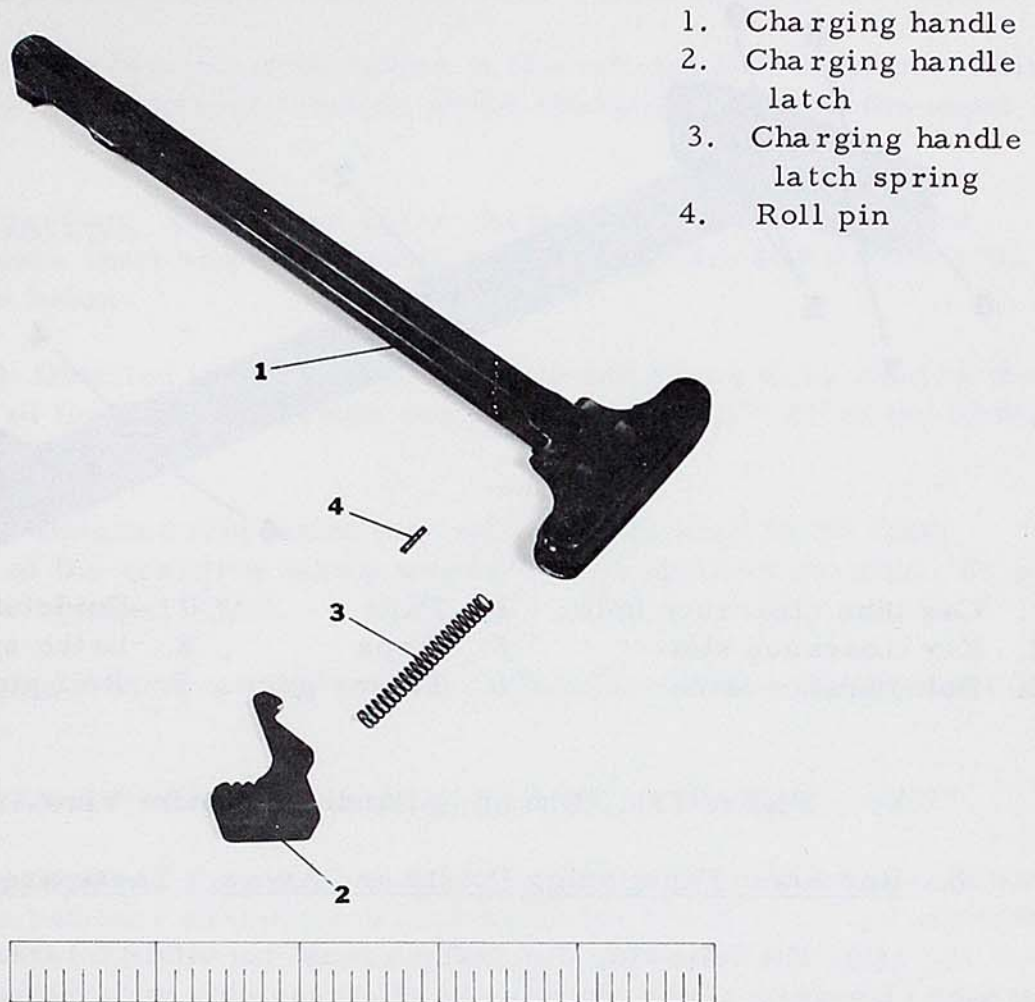


1. Spacer block
2. Bolt carrier front face
3. Bolt locking lugs
4. Gage post
5. Dial indicator gage

Figure 129. Measurement of Firing Pin Protrusion.

74. CHARGING HANDLE ASSEMBLY - 62290.

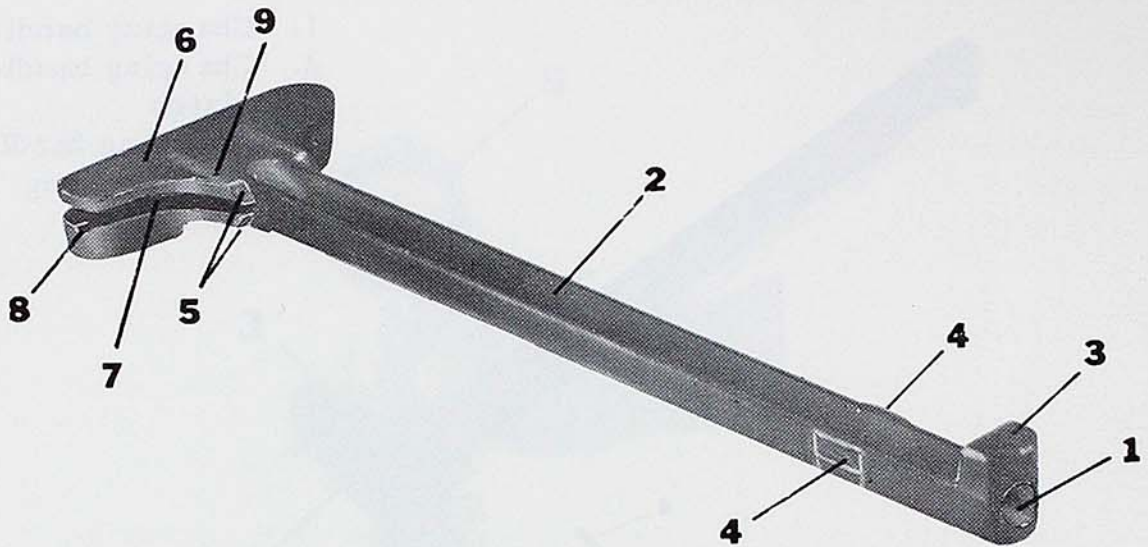
a. Description, Function, and Interrelationship. The charging handle assembly is housed in the upper receiver assembly (see Fig. 97). This assembly consists of the charging handle (fig. 130-1), charging handle latch (Fig. 130-2) (see Paragraph 45), charging handle latch spring (Fig. 130-3) (see Paragraph 50), and roll pin (Fig. 130-4) (see Paragraph 51). The charging handle, a forged aluminum piece in the form of a "T", is approximately seven (7) inches in length. The gas tube clearance hole (Fig. 131-1), located at the forward end of the charging handle, provides clearance for the charging handle assembly over the gas tube. The key clearance slot (Fig. 131-2), which runs the length of the base of the "T", provides clearance for the charging handle assembly over the bolt carrier key. The bolt carrier catch (Fig. 131-3), located at the forward end of the charging handle, engages the bolt carrier when



1. Charging handle
2. Charging handle latch
3. Charging handle latch spring
4. Roll pin

Figure 130. Charging Handle Assembly.

the weapon is manually charged. Two (2) pads (Fig. 131-4), located behind the bolt carrier catch, guide the charging handle assembly in the upper receiver. Stops (Fig. 131-5) located in front of the charging handle finger grip (Fig. 131-6), position the charging handle assembly in its retracted position in the upper receiver. The slot (Fig. 131-7), located in the left side of the charging handle finger grip, provides a guide for the charging handle latch. The latch spring hole (Fig. 131-8), located in the slot, provides a guide for the charging handle latch spring. The roll pin hole (Fig. 131-9), located in the left side of the finger grip, provides the pivot for the charging handle latch. The function of the charging handle assembly is to provide the means for manually cocking the weapon.



- | | | |
|----------------------------|----------------|----------------------|
| 1. Gas tube clearance hole | 4. Pads | 7. Guide slot |
| 2. Key clearance slot | 5. Stops | 8. Latch spring hole |
| 3. Bolt carrier catch | 6. Finger grip | 9. Roll pin hole |

Figure 131. Charging Handle - Bottom View.

b. Important Functioning Points and Areas. These are as follows:

(1) The following dimensions must be within tolerance to insure proper clearance of the charging handle assembly with the bolt carrier assembly and the upper receiver assembly:

- (a) The width of the charging handle base.
- (b) The diameter and locating dimensions of the gas tube clearance hole.
- (c) The width, depth, and locating dimensions of the key clearance slot.
- (d) The height and locating dimension of the pads.
- (e) The locating dimension of the stop.

(2) The slot width and diameter of the latch spring hole must

be within tolerance to insure free motion of the charging handle latch.

(3) The locating dimensions of the roll pin hole must be within tolerance to insure proper latching of the charging handle in the upper receiver.

c. Inspection. Inspection of the charging handle assembly and its components shall be performed in accordance with SQAP M1662290 as indicated below.

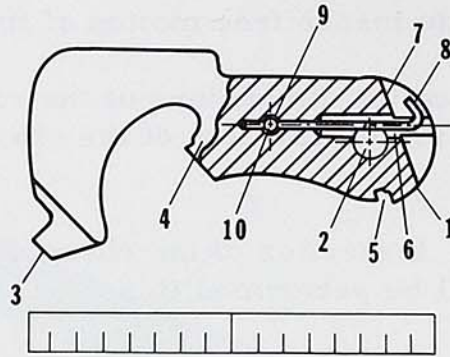
(1) Detailed inspection procedures and gages to be used in the acceptance of the charging handle are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures to be used in the final acceptance of the charging handle assembly are given in position "B" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

75. HAMMER AND HAMMER PIN RETAINER ASSEMBLY - 62317.

a. Description, Function, and Interrelationship. The hammer and hammer pin retainer assembly is located in the lower receiver assembly (see Fig. 123). This assembly contains a hammer and hammer pin retainer. The hammer, a steel casting in the form of a hook, is approximately two (2) inches in length and 5/16 of an inch in width. A hub (Fig. 132-1) is located at the hammer's pivot end; a pivot hole (Fig. 132-2) running through this hub accommodates the hammer pin. A sear catch (Fig. 132-3), a lug located at the hammer's outer end, engages the sear when the weapon is operated in the automatic mode. A disconnect catch (Fig. 132-4), a lug located approximately at the midpoint of the hammer, engages the disconnect when the weapon is operated in the semiautomatic mode. The trigger catch (Fig. 132-5), located radially from the centerline of the pivot, engages the trigger when the hammer is in the cocked position. A hammer pin retainer hole (Fig. 132-6), running longitudinally through the hammer body, intersects the hammer pivot hole; a hammer pin retainer slot (Fig. 132-7) is located at the outer edge of this hole. The hole and slot provide a means for attaching and guiding the hammer pin retainer (Fig. 132-8). A small transverse hole (Fig. 132-9), which intersects the hammer pin retainer hole, provides access for coining the retainer at assembly. The hammer pin retainer, a steel



- | | | |
|---------------|-----------------------------|--------------------------------|
| 1. Hub | 5. Trigger catch | 9. Transverse hole |
| 2. Pivot hole | 6. Hammer pin retainer hole | 10. Coined hammer pin retainer |
| 3. Sear catch | 7. Retainer slot | |
| 4. Disconnect | 8. Hammer pin retainer | |

Figure 132. Hammer and Hammer Pin Retainer Assembly.

wire part in the form of a hook, is approximately $3/64$ of an inch in diameter and $7/8$ of an inch in length; the purpose of this part is to retain the hammer and hammer spring on the hammer pin. The hammer pin retainer is locked in place by coining (Fig. 132-10). The purpose of the hammer and hammer pin retainer assembly is to provide for firing the weapon by striking the firing pin.

b. Important Functioning Points and Areas. These are as follows:

(1) The diameter of the hammer pin hole and its perpendicularity to the side face of the hammer must be within tolerance to insure free rotation of the hammer about the hammer pin.

(2) All dimensions and tolerances pertaining to the trigger catch notch slot must be maintained to insure proper functioning of the trigger and hammer in any selected mode.

(3) All dimensions and tolerances pertaining to the sear catch lug must be maintained to insure proper operation of the weapon in the automatic mode.

(4) All dimensions and tolerances pertaining to the disconnect catch lug must be maintained to insure proper operation in the semi-automatic mode.

(5) The hammer pin retainer hole diameter must be within tolerance to insure assembly of the hammer and hammer pin retainer.

(6) Material hardness must be as specified to insure adequate service life of this component.

c. Inspection. Inspection of the hammer and hammer pin retainer assembly and its components shall be performed in accordance with SQAP M1662317 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the hammer are given in position "A" of the above referenced SQAP. Special gages, one of which is described below, are used to check significant characteristics.

(2) Detailed inspection procedures and gages to be used in the acceptance of the hammer pin retainer are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures to be used in the final acceptance of the hammer and hammer pin retainer assembly are given in position "C" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed for additional characteristics given in the above referenced SQAP.

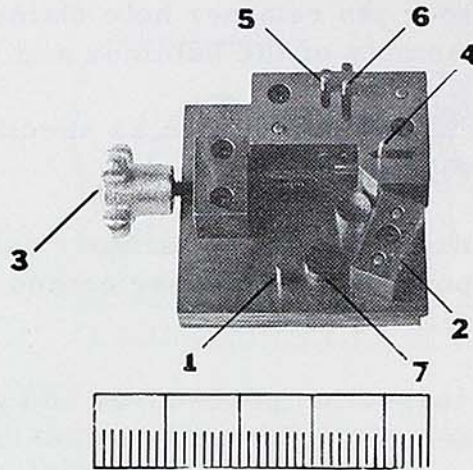
(4) Flush Pin Gage - 11837906. This gage is used to check the following characteristics:

- (a) Location dimension of the sear catch.
- (b) Clearance dimension of the sear catch.
- (c) Surface dimension of the sear catch.

The following procedure is to be used:

(a) Place the hammer on the locating pin (Figs. 133-1 and 134-1) so that it is seated against the stop (Figs. 133-2 and 134-2).

(b) Clamp the hammer in place by tightening the clamping screw (Figs. 133-3 and 134-3).



- | | | |
|-------------------|--------------------------------------|---------------------------|
| 1. Locating pin | 4. Sear catch surface flush pin gage | 6. Flush pin gage |
| 2. Stop | | 7. Locating surface plugs |
| 3. Clamping screw | 5. Flush pin gage | |

Figure 133. Flush Pin Gage.

(c) After making certain that the sear catch surface flush pin gage (Figs. 133-4 and 134-4) is retracted, check the location and clearance dimensions of the sear catch with the applicable flush pin gages (Figs. 133-5 and 133-6, and 134-5 and 134-6).

Routine flush pin gaging are to be used.

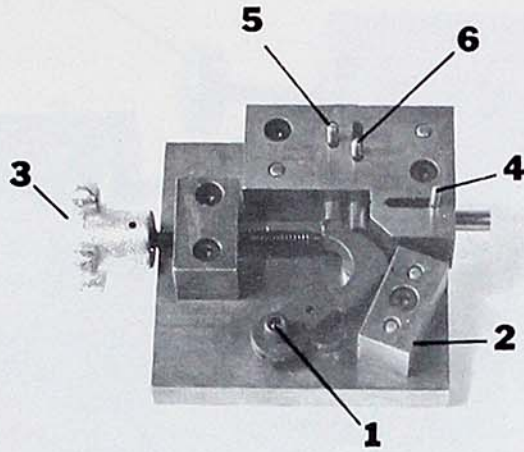
(d) Fully retract both the sear catch location gage (Figs. 133-5 and 134-5) and the sear catch flush pin gage (Figs. 133-6 and 134-6).

(e) Check the surface dimension of the sear catch with the applicable flush pin gage (Fig. 134-4).

(5) Indicator Gage - 8443892. This gage is used to check the symmetry of the trigger catch surface to the hammer pin hole.

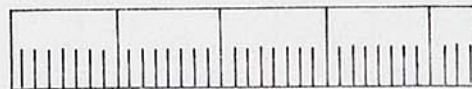
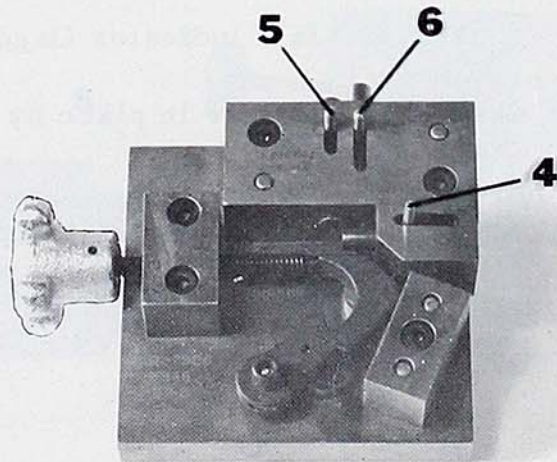
The following procedure is to be used:

(a) Place the hammer on the locating pin (Fig. 135-1) on the indicator gage so that it is seated against the stop (Figs. 135-2 and 136-1).



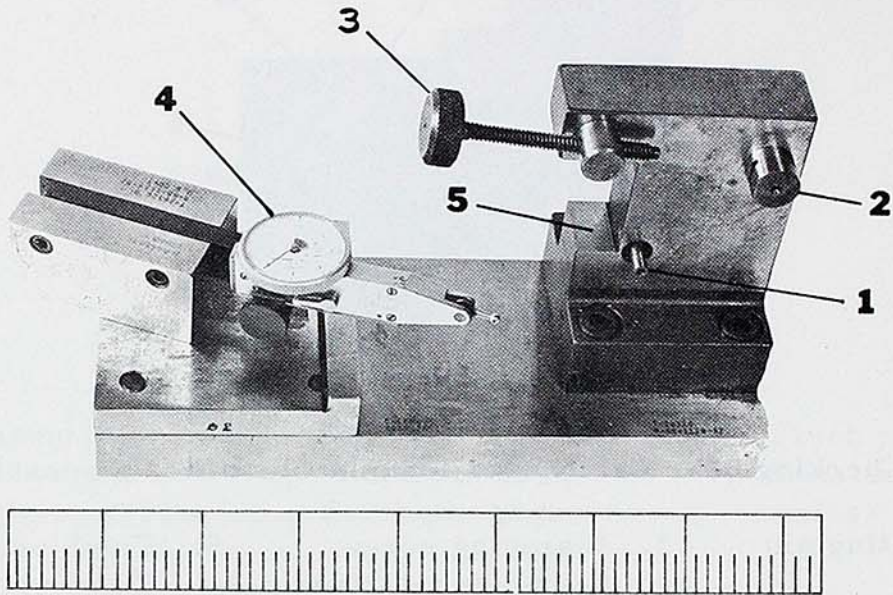
Checking Sear Catch Location and Clearance Dimensions.

- | | | |
|-----------------|-----------------------|-------------------|
| 1. Locating pin | 3. Clamping screw | 5. Flush pin gage |
| 2. Stop | 4. Sear catch surface | 6. Flush pin gage |
| | flush pin gage | |



Checking the Sear Catch Surface Dimensions.

Figure 134. Hammer in Position on the Flush Pin Gage.

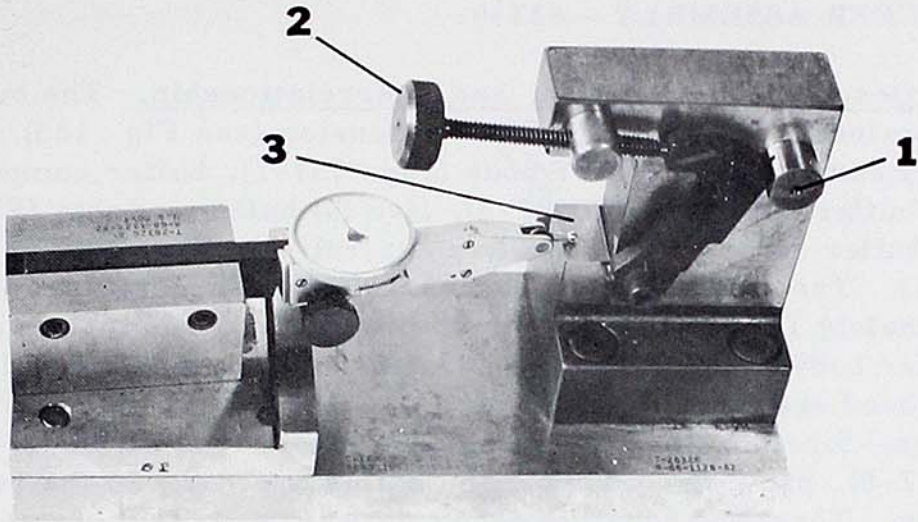


- 1. Locating pin
- 2. Stop
- 3. Clamping screw
- 4. Dial indicator
- 5. Locating surface

Figure 135. Indicator Gage.

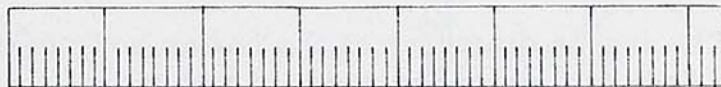
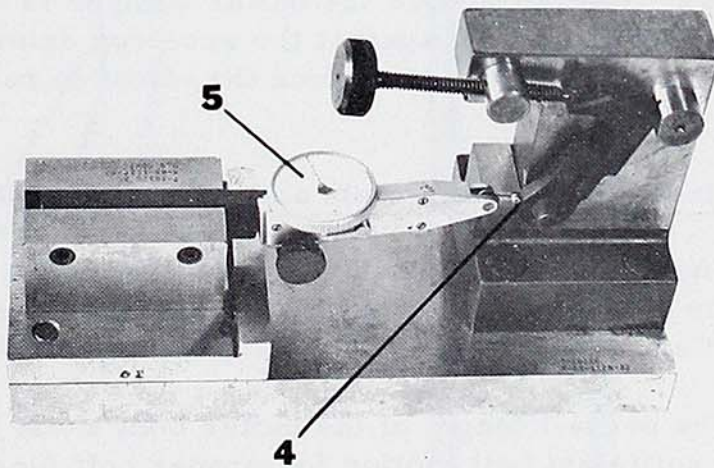
(b) Clamp the hammer in place by tightening the clamping screw (Figs. 135-3 and 136-2).

(c) Using the locating surface (Figs. 135-4 and 136-3) as a datum, check the symmetry of the trigger catch surface (Fig. 136-4) with the dial indicator (Figs. 135-5 and 136-5).



Use of the Locating Surface as a Datum.

- | | |
|-------------------|--------------------------|
| 1. Stop | 3. Locating surface |
| 2. Clamping screw | 4. Trigger catch surface |
| | 5. Dial indicator |



Checking Symmetry of the Trigger Catch Surface.

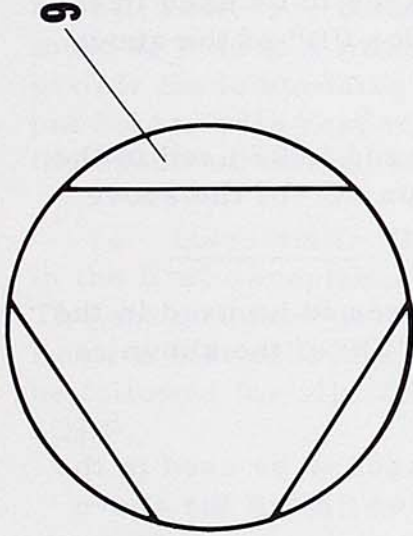
Figure 136. Hammer in Position on the Indicator Gage.

76. BUFFER ASSEMBLY - 62339.

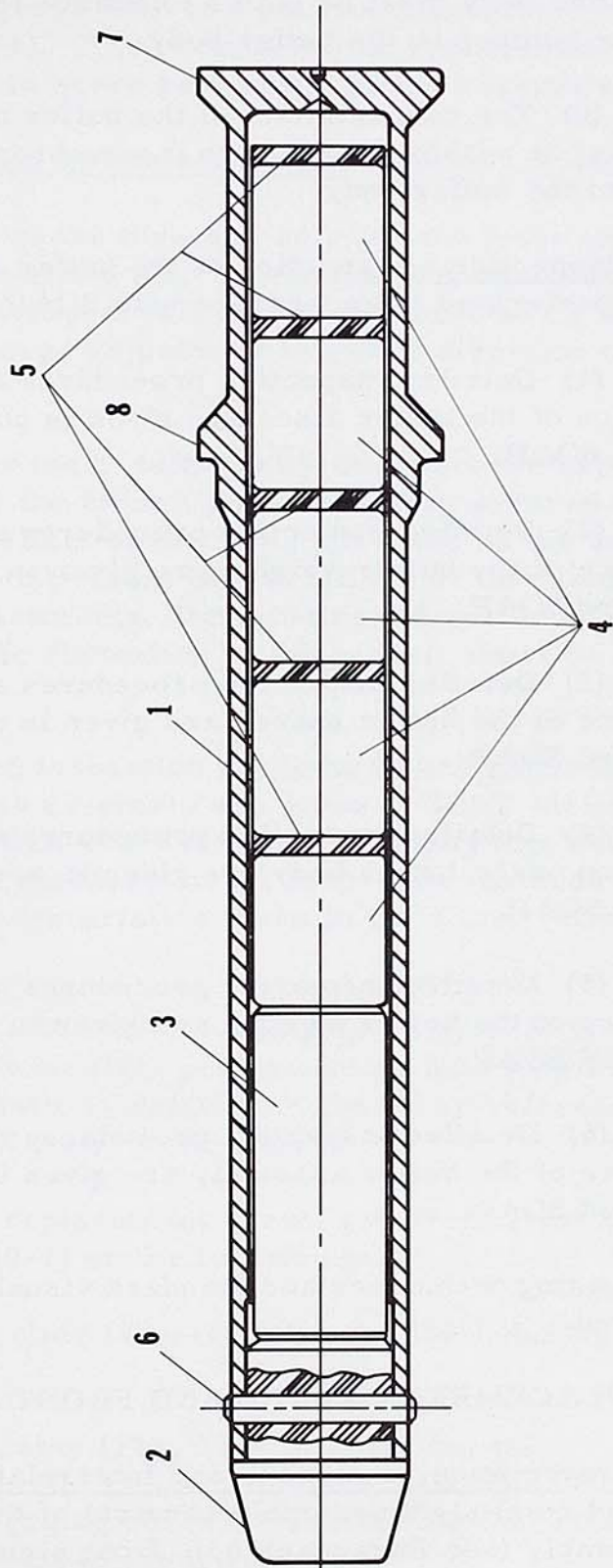
a. Description, Function, and Interrelationship. The buffer assembly is located in the lower receiver extension (see Fig. 123). This assembly consists of a buffer body (Fig. 137-1), buffer bumper (Fig. 137-2), buffer spacer (Fig. 137-3), five (5) buffer weights (Fig. 137-4), five (5) buffer discs (Fig. 137-5), and a roll pin (Fig. 137-6) (see Paragraph 51). The buffer body, a hollow cylindrical aluminum piece, is approximately $11/16$ of an inch in diameter and $5\ 1/2$ inches in length. The buffer body is closed at one end. Two (2) flanges, one (1) located at the closed end of the buffer body (Fig. 137-7) and the other approximately one-fourth of the length of the buffer body from the closed end (Fig. 137-8), provide guides for the buffer assembly in the receiver extension. Three (3) equally spaced flats (Fig. 137-9), located on each flange, provide relief for air which may be trapped behind the buffer assembly in the receiver extension. The buffer weights (Fig. 137-4), which are steel cylinders, and the buffer discs (Fig. 137-5), which are rubber discs, are alternately positioned in the forward portion of the buffer body, this configuration provides the means for absorbing excess recoil energy. The buffer spacer (Fig. 137-3), a hollow aluminum cylinder, is located behind the buffer weights and discs. The buffer bumper (Fig. 137-2), located at the open end of the buffer body, is pinned in place by the roll pin (Fig. 137-6). The purpose of the buffer bumper is to reduce the impact of the buffer assembly against the receiver extension. The purpose of the buffer assembly is to reduce the effect of recoil impact on the operator.

b. Important Functioning Points and Areas. These are as follows:

- (1) The diameter for each flange on the buffer body must be within tolerance to insure free motion of the buffer assembly in the lower receiver extension.
- (2) The overall length of the buffer body must be within tolerance to insure sufficient bolt motion for proper bolt functioning.
- (3) The inside diameter of the buffer body must be within tolerance to insure free motion of the weights and discs.
- (4) The bumper bore diameter and its concentricity to the outside diameter of the buffer body must be within tolerance to insure proper fitting of the buffer bumper to the buffer body.



Flanged End View .



Sectional View.

1. Buffer body
2. Buffer bumper
3. Buffer spacer
4. Buffer weights
5. Buffer discs
6. Roll pin
7. Flange
8. Flange
9. Flats

Figure 137. Buffer Assembly .

(5) The symmetry of the roll pin hole to the outside diameter of the buffer body must be within tolerance to insure proper fitting of the buffer bumper to the buffer body.

(6) The concentricity of the buffer bumper diameters to each other must be within tolerance to insure proper fitting of the buffer bumper to the buffer body.

c. Inspection. Inspection of the buffer assembly and its components shall be performed in accordance with SQAP M1662339 as indicated below.

(1) Detailed inspection procedures and gages to be used in the acceptance of the buffer discs are given in position "A" of the above referenced SQAP.

(2) Detailed inspection procedures and gages to be used in the acceptance of the buffer weights are given in position "B" of the above referenced SQAP.

(3) Detailed inspection procedures and gages to be used in the acceptance of the buffer spacer are given in position "C" of the above referenced SQAP.

(4) Detailed inspection procedures and gages to be used in the acceptance of the buffer body are given in position "D" of the above referenced SQAP.

(5) Detailed inspection procedures and gages to be used in the acceptance of the buffer bumper are given in position "E" of the above referenced SQAP.

(6) Detailed inspection procedures to be used in the final acceptance of the buffer assembly are given in position "F" of the above referenced SQAP.

Routine gaging techniques and standard visual inspection methods are to be followed.

77. REPLACEMENT BARREL AND FRONT SIGHT ASSEMBLY - 62516.

a. Description, Function, and Interrelationship. The replacement barrel and front sight assembly consists of the barrel and barrel extension assembly (see Paragraph 63), front sight (see Paragraph 34), front

sight post (see Paragraph 27), front sight detent spring (see Paragraph 50), sling swivel (see Paragraph 44), roll pin (see Paragraph 51), and taper pins (see Paragraph 54). The purpose of the replacement barrel and front sight assembly is to serve as a replacement assembly.

b. Important Functioning Points and Areas. These are as follows:

(1) The symmetry of the threaded hole for the front sight post, with respect to the barrel indexing pin, determines the zero windage position when targeting the weapon; this symmetry must be as specified to insure sufficient windage adjustment in either direction to permit targeting the weapon.

(2) Taper pin holes must sufficiently intersect the barrel outside diameter to insure that the front sight is properly secured to the barrel; however, the notch effect of the taper pin holes on the barrel must be held to a minimum to prevent barrel failure at this point. To satisfy these opposing requirements, the locating dimension of the taper pin holes, with respect to the centerline of the barrel, must be within the specified tolerance.

c. Inspection. Detailed inspection procedures and gages to be used in the final acceptance of this assembly are given in SQAP M1662516. The special gage described below is used when checking this assembly. Routine test procedures and standard visual inspection methods are to be followed for all other characteristics given in the above referenced SQAP.

(1) Location Gage - 8443537. This gage (Fig. 138) is used to check the symmetry of the front sight post mounting hole with the barrel indexing pin; this characteristic is detailed in the above referenced SQAP. The following procedure is to be used.

(a) Insert the replacement barrel and front sight assembly into the "V" blocks (Fig. 139-1) on the location gage.

(b) Lower the slide (Fig. 139-2) over the indexing pin on the barrel extension.

(c) Lock the clamp (Fig. 139-3) on the barrel.

(d) Insert the gaging pin (Fig. 139-4) into the front sight post mounting hole (Fig. 139-5) in the front sight.

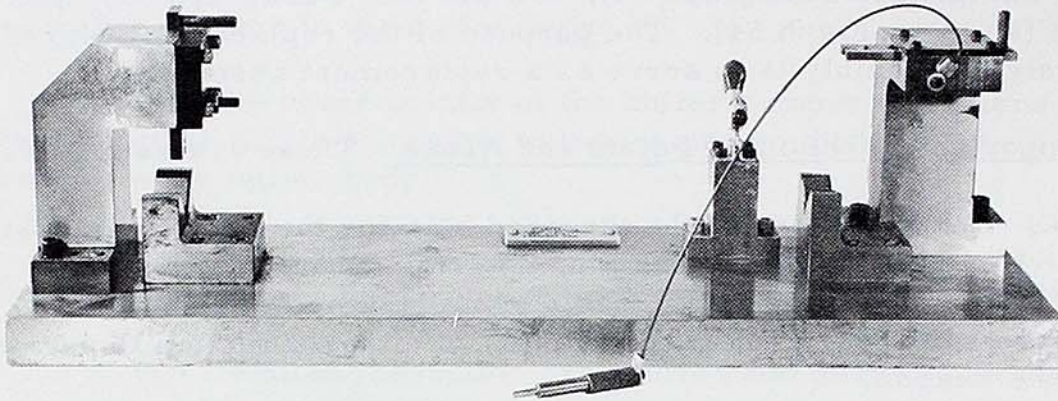


Figure 138. Location Gage Positioned to Receive the Replacement Barrel and Front Sight Assembly.

(e) Slide the gaging plate (Fig. 139-6) over the gaging pin. If the symmetry of the front sight post mounting hole is within tolerance, the slot on the gaging plate will move freely over the gaging pin.

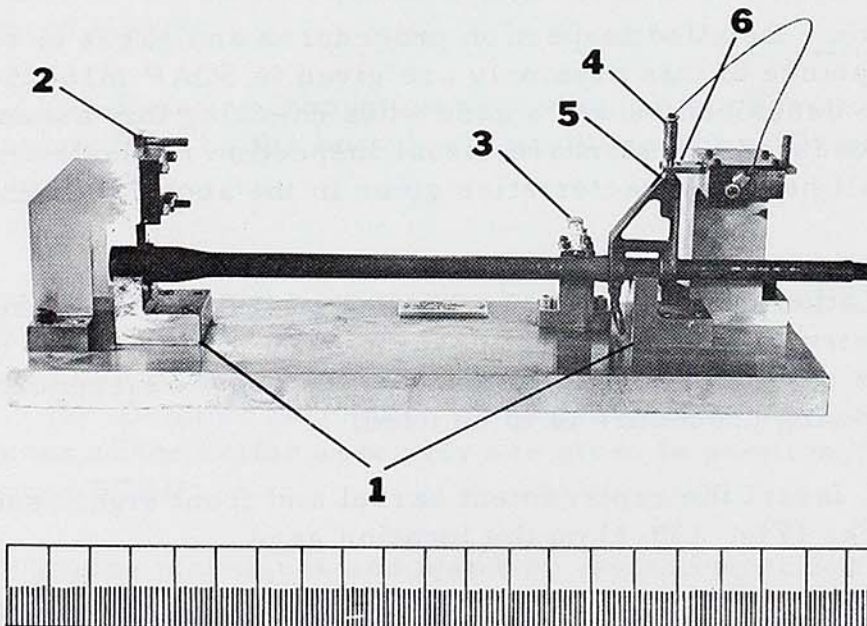


Figure 139. Replacement Barrel and Front Sight Assembly in Position on the Location Gage.

78. MANUFACTURING SUBASSEMBLIES.

a. Description, Function, and Interrelationship. The following items are subassemblies which are comprised of the components listed in Part I of their respective SQAP's:

Name	Part Number	SQAP Number
Barrel nut assembly	62113	M1662113
Hammer assembly	62117	M1662117
Trigger assembly	62157	M1662157
Forward assist assembly	62265	M1662265
Upper receiver assembly	62277	M1662277
Buttstock and swivel assembly	62302	M1662302
Sight and gas tube assembly	62310	M1662310

The above items are assembled for manufacturing convenience; in some cases they may also be stocked as service items. The individual components which comprise these assemblies are described in Section IV of this document.

b. Important Functioning Points and Areas. These assemblies need only be checked for incorrect assembly, missing parts, and quality of workmanship.

c. Inspection. The inspection of these assemblies is visual.

SECTION VI

INSPECTION OF THE COMPLETE ITEM

79. GENERAL.

The procedure for final acceptance inspection of the complete weapon is described in MIL-R-45587. Special gages, some of which are described below, are used to check significant characteristics. Routine test procedures and visual inspection methods are to be followed for additional characteristics given in the above referenced Military Specification which are not listed below.

80. CHECK OF FIRING PIN INDENTATION.

Firing pin indentation in the cartridge primer must be within tolerances. Indentation must be within the maximum limit to reduce the possibility of accidental firing of the weapon prior to pulling the trigger. Indentation must be within the minimum limit to assure firing of the weapon when the trigger is pulled. Two (2) gages are used to check for this characteristic; plug gage number 8440219 is used to check for minimum indentation, and plug gage number 8440220 for maximum indentation. An example of this type of plug gage is shown in Figure 140. The procedure for use of these gages is given in MIL-R-45587 and illustrated in Figure 141.

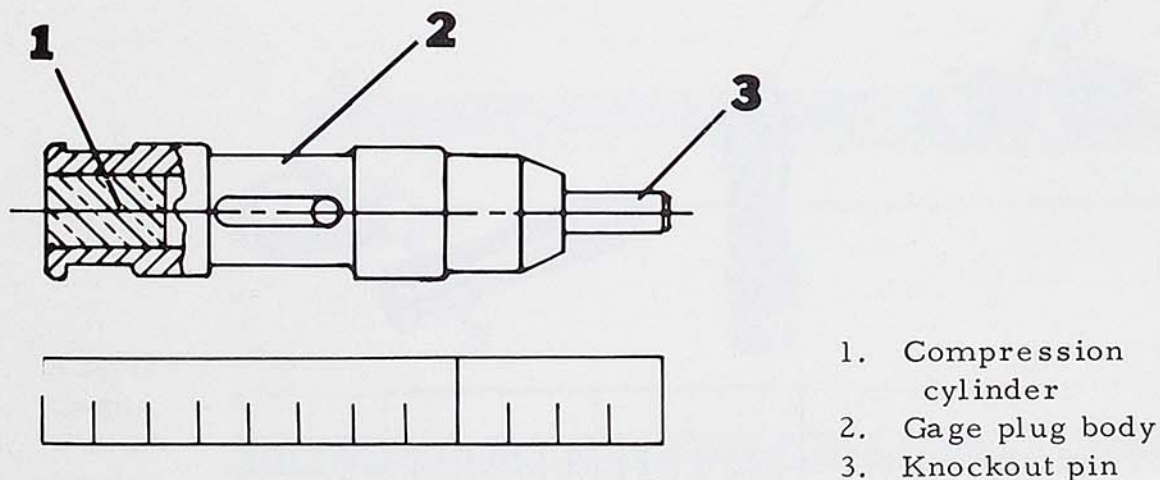


Figure 140. Typical Plug Gage for Measuring Firing Pin Indentation.

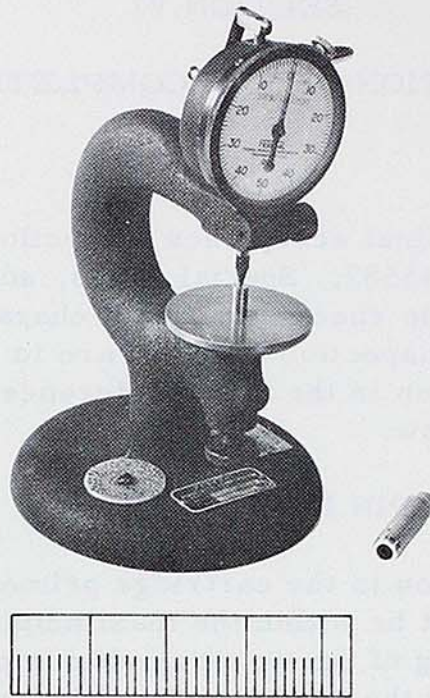


Figure 141. Measurement of Firing Pin Indentation.

81. CHECK OF HEADSPACE.

The headspace must be within minimum and maximum tolerances to insure proper closing of the bolt in the battery position when a cartridge is in the chamber. Headspace gage number 8443915 (Fig. 142) is used to check minimum headspace. The procedure for use of this gage is given in MIL-R-45587.



Figure 142. Headspace Gages.

82. CHECK OF HEADSPACE GROWTH.

Headspace growth, which is checked following endurance testing, must be within tolerance to insure proper operation of the weapon during the weapon's specified life cycle. Dial indicating fixture gage number 8440878 is used to check for this characteristic. The following procedure is to be used:

- a. Insert the adapter (Fig. 143-1) into the chamber of the weapon.
- b. Insert the gage (Fig. 143-2) into the barrel as shown in Figure 144.
- c. Set the indicator gage to zero.
- d. Remove the gage and adapter from the weapon, and insert both of these items into the fixture (Fig. 143-3) as shown in Figure 145.
- e. With the feeler (Fig. 143-4) set to the maximum position, the indicator on the gage should read zero or more.
- f. Set the feeler to the minimum position. The indicator on the gage should read zero or less.

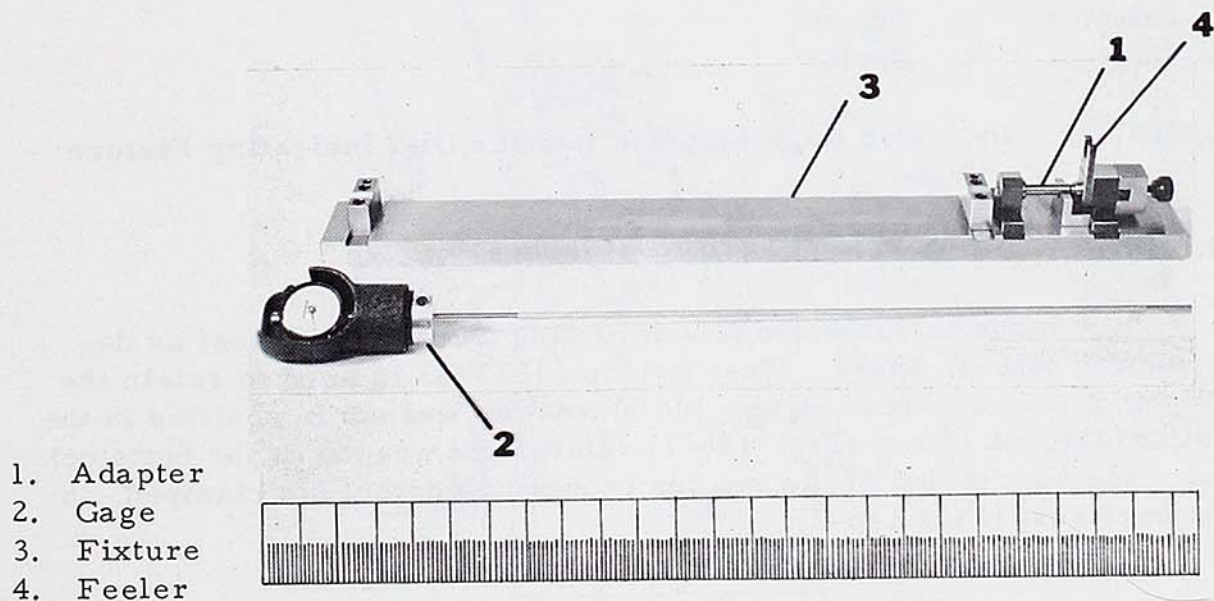


Figure 143. Dial Indicating Fixture Gage.

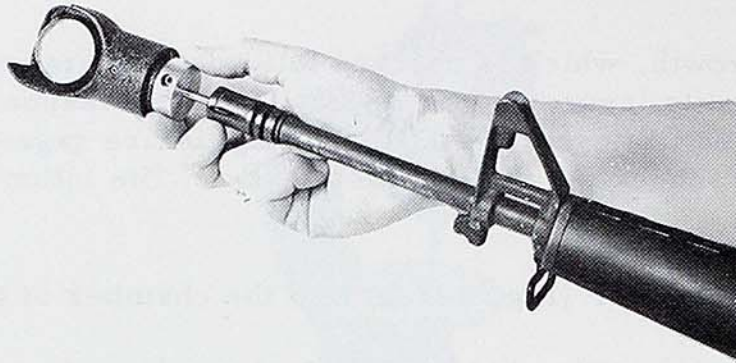
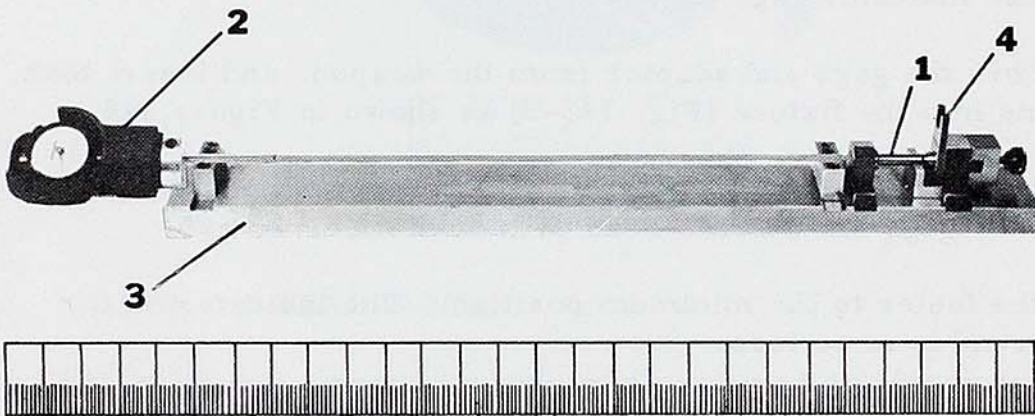


Figure 144. Indicator Gage Inserted into the Weapon.

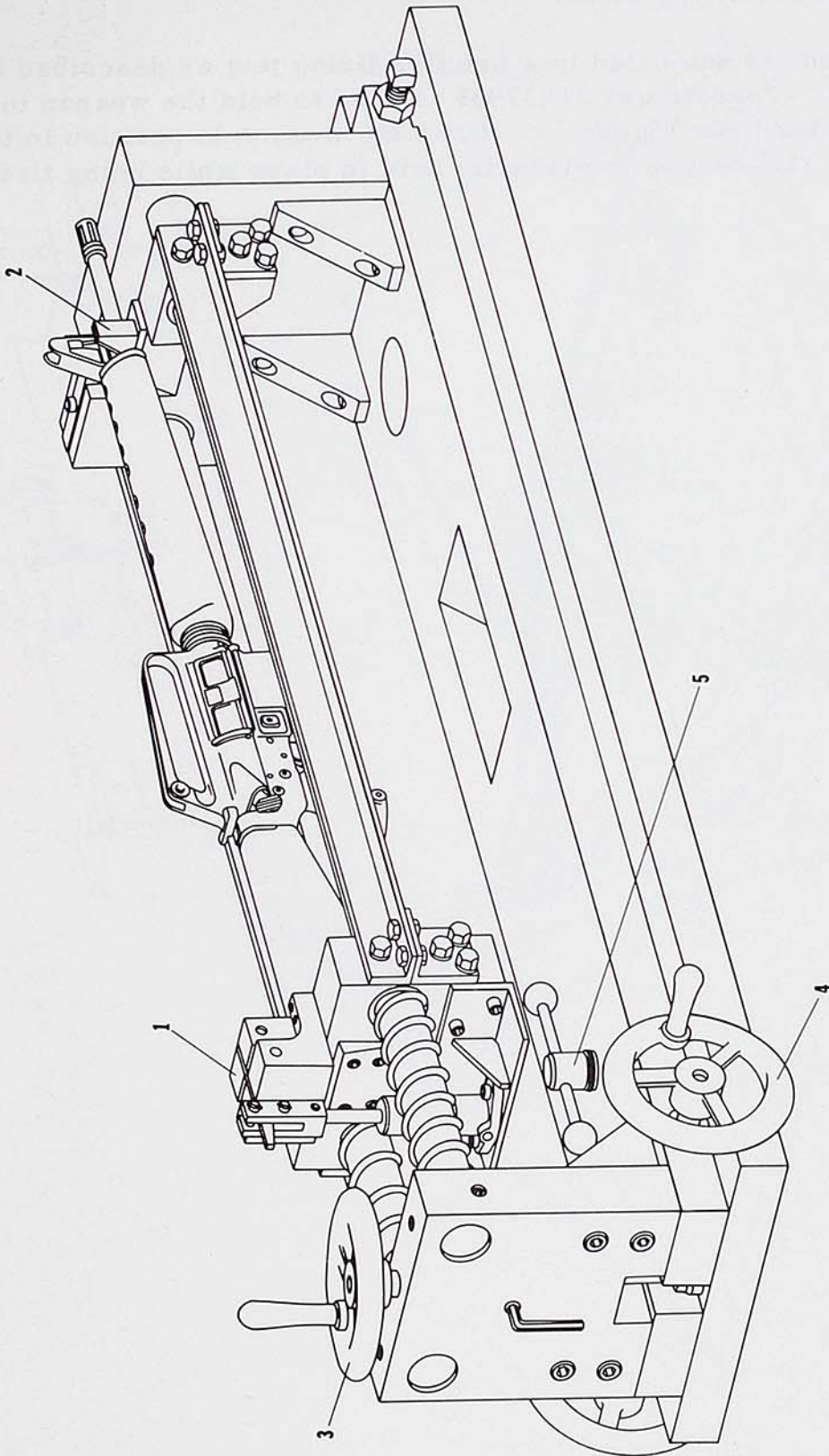


- | | |
|------------|------------|
| 1. Adapter | 3. Fixture |
| 2. Gage | 4. Feeler |

Figure 145. Indicator Gage Inserted into the Dial Indicating Fixture Gage.

83. CHECK OF TARGETING AND ACCURACY.

The weapon is subjected to a targeting and accuracy test as described in MIL-R-45587. Test fixture 11837943 is used to retain the weapon during the test; Figure 146 shows the weapon in position in the test fixture. A clamp (Fig. 146-1) retains the weapon at the buttstock end. The barrel end of the weapon is supported, but not clamped, in the front rest (Fig. 146-2).



- 1. Buttstock clamp
- 2. Front rest
- 3. Vertical adjustment screw
- 4. Horizontal adjustment screw
- 5. Locking clamp

Figure 146. Weapon in Position on the Targeting and Accuracy Test Fixture.

84. FUNCTION FIRING TEST.

The weapon is subjected to a function firing test as described in MIL-R-45587. Test fixture 11837945 is used to hold the weapon in place during this test; Figure 147 shows the weapon in position in the test fixture. The weapon is manually held in place while being fired.

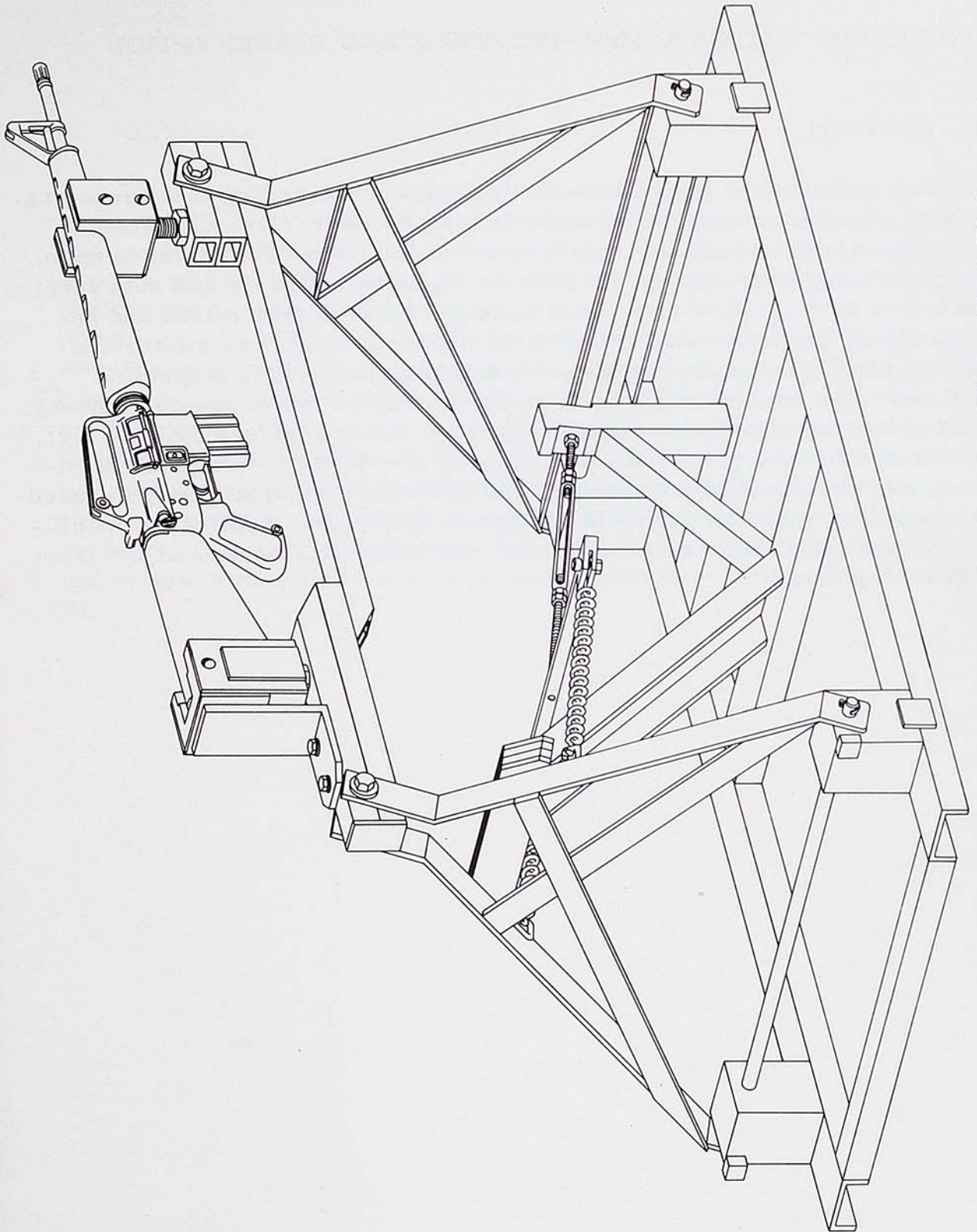


Figure 147. Weapon Positioned in the Function Firing Test Fixture.

SECTION VII

PACKAGING, PACKING, MARKING, CARE AND PRESERVATION

85. GENERAL.

The Government Inspector is responsible for assuring that packaging, packing, marking, care, and preservation procedures are conducted in accordance with specified requirements. In addition to the final weapon, these procedures are also applicable to replacement parts and subassemblies; this is necessary to prevent damage, loss, deterioration and degradation of quality, substitution of the product, and to insure serviceability at the time of product use. Packaging and packing inspection shall take into consideration such requirements as the complete removal of all corrosion promoting residues such as firing residues or shop dirt, the use of adequate preservative measures if extended storage is anticipated, control of moisture content, and protection against damage caused by shock and vibration during handling and shipment. Applicable specifications and standards are listed in the reference data section at the front of this document.

SECTION VIII
RECORDS AND REPORTS

86. GENERAL.

The Government Inspector is responsible for maintaining complete and accurate records of all phases of component, subassembly, and final weapon inspection and test activities. Since the Government Inspector will periodically be called upon to furnish reports detailing the quality and acceptability of the above referenced items, it is important that a record keeping system be implemented as soon as Quality Assurance activities are initiated. In some cases, such as the inspection of roll pins and detents, standardized inspection records may be used; however, for certain complex items having tolerance and performance requirements - such as the bolt and the barrel extension - individual records must be maintained. Information on surveillance and the classification of defects as related to acceptable quality levels and overall Quality Assurance policies contained in Section II. The inspection of materials and material processes is outlined in Section III.