

Description
of the
Armstrong AR 10
Basic Infantry Weapon
Caliber 7.62
(NATO)

AR-10 BASIC INFANTRY WEAPON

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ArmaLite AR 10

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Caliber 7,62

(NATO)

- Figures no. 1-11
- a. Safe
- b. Semi (semi) (semi)
- (Automatic) (Auto)
- The main parts of the weapon are:
- a. Barrel
 - b. Sights
 - c. Upper Receiver and Locking System

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AR-10 BASIC INFANTRY WEAPON

The AR-10 (fig. 1a and 1b) is an automatic weapon which may be fired semi-automatic or full automatic. The weapon was designed and developed by the **Armalite Division of Fairchild Engine and Airplane Corporation, Los Angeles, U.S.A.** It is manufactured under licence by „**Artillerie-Inrichtingen**”, **Hembrug - Zaandam, the Netherlands** (fig. 2).

The overall length of the weapon is 1035 mm (barrel length 505 mm), its weight 3,25 kg.

1. Description of Weapon

The AR-10 is a gas operated weapon, using the front multiple lock on a rotary bolt. With one thumb operated lever (fig. 3) it may be set to:

- a. Safe
- b. Semi (semi automatic)
- c. Auto (full automatic)

The main parts of the weapon are:

- a. Barrel
- b. Sights
- c. Upper Receiver and Locking System

- d. Lower Receiver with Trigger Group
- e. Buttstock with Driving Spring
- f. Magazine

In the following the figures in brackets refer to those mentioned in the cross sectioned drawing (fig. 11).

a. Barrel

It consists of a conventional barrel (20). The cartridge is fired in the chamber, the lands and grooves stabilize and direct the bullet. On the front end of the barrel (fig. 4) there is a flashhider (1) which serves as a grenade launcher as well. The gas port with gas adjustment screw (2) is located in the front sightbase. The gas port is factory adjusted for a normal rate of fire of approx. 700 rounds/minute. This adjustment is generally sufficient and **need not be altered for the launching of rifle grenades**. A gas port adjustment may be necessary in the following circumstances:

1. The use of ammunition other than NATO-standard;
2. Extreme temperature variations (40°C or -30°C).

Gas adjustment instructions:

The gas adjustment screw, which is permanently emplaced in the front sightbase, may be

turned by means of a special tool. The screw has a spring detent which „clicks“ at each quarter turn. Clockwise rotation of screw = reduction of rate of fire.

b. Sights

The sights consist of a front sight (3) and a rear peep sight. The rear sight (14) is located in the carrying handle (6) and is completely protected against damage. It is adjustable for ranges from 200 to 600 yards in increments of 100 yds (fig. 5).

Zeroing procedure:

The weapons are zeroed at the factory. Should however a change in the point of impact be required, proceed as follows:

1. Elevation adjustment:

- aa. Rotate elevation spool (11) until the number "2" (meaning 200 yds) is visible in the sight window, and loosen elevation adjustment screw with a screw driver through the hole (13) on top of the carrying handle.
- bb. By rotating the lower knurled ring (10) of the elevation spool, the rifle can now be zeroed for elevation at 200 yds.
- cc. Tighten elevation adjustment screw.

2. Windage adjustment:

- aa. Rotate elevation spool (11) until windage adjustment screw is visible through a hole (15) in the back of the carrying handle and loosen it with a screw driver.
- bb. Make necessary windage (14) correction.
- cc. Tighten windage adjustment screw.

c. Upper Receiver and Locking System

The bolt and bolt carrier (fig. 6) slides in the upper receiver (fig. 7) of forged aluminium alloy.

The main parts of the locking system are:

- Bolt carrier (9)
- Bolt (21)

Other parts are:

- Cam Pin (8)
- Firing Pin
- Extractor and Spring
- Ejector and Spring
- Key-Gas Transfer

Actuated by the driving spring (18) the bolt and bolt carrier, in their forward motion, pick up a round from the magazine and push it into the chamber. Guided by the cam pin and a cam surface in the bolt carrier, the bolt rotates and locks. After the round is fired the bolt is rotated and unlocked by gas

pressure, the cartridge case withdrawn by the extractor, and during the rearward movement of bolt and bolt carrier ejected by the ejector.

d. Lower Receiver with Trigger Group

The lower receiver (23), made of the same material as the upper receiver, contains the trigger group. On the **right** side there is the magazine release button. On the **left** side the bolt stop lever (24), and the selective fire lever (29) which is readily accessible to the shooter's thumb, providing for semi automatic, full automatic, and safe positions. The bottom of the trigger guard (26) opens easily to provide for access to the trigger while wearing full winter mittens.

e. Buttstock with Driving Spring

Inside the receiver extension in the buttstock (33) there is the driving spring (18) with buffer, buffer housing and spring guide (17). The buttstock and handguard (19), are made of durable fiberglass with heatresistant foam insulation. The pistol grip (32) is a one piece tough fiberglass molding. No fiberglass parts require special care.

f. Magazine

The interchangeable magazine has a capacity of 20 rounds and weighs only 113 g. (empty).

It is inserted into the magazine well in the lower receiver and pushed in until it locks. To remove magazine press magazine release button with index finger of **right** hand (fig. 8). The hand remains on the pistol grip. The left hand is free to remove the empty and to insert a full magazine.

2. **Loading the Weapon** (Initial)

Insert loaded magazine.

Pull charging handle (7) **all the way** back and release it.

Put selective fire lever (29) on "Safe", "Semi", or "Auto".

Upon firing the last round in the magazine the bolt remains open.

After inserting a loaded magazine, pushing the bolt stop lever (24, fig. 9) allows the bolt to close, feeding a new round into the chamber.

3. **Clearing the Weapon**

Set selective fire lever (29) on „Safe”.

Remove magazine.

Pull back the charging handle (7) and check the chamber.

Push bolt stop lever (24).

Put selective fire lever on "Semi" and pull the trigger (28).

Close the dust cover.

4. **Functioning of Weapon**

The weapon is loaded and the selective fire lever

is on "Semi". Upon pulling the trigger (28), the hammer (25) strikes the firing pin which detonates the primer.

When the bullet passes beyond the gas port, gas passes through the gas tube (4) and into a chamber formed by the bolt carrier (9) and bolt (21).

When the high pressure gas enters the chamber formed by the bolt and bolt carrier the bolt is in the locked position acting as a stationary piston. The entering gas pressure causes the bolt carrier to move to the rear. As the bolt carrier continues its rearward motion it rotates the bolt, unlocking it and carrying it rearward. As the bolt assembly travels rearward the gas is exhausted through ports in the side of the bolt carrier.

The cartridge case is then extracted and ejected in the usual manner.

When the selective fire lever (29) is on "Auto", the automatic sear (30) holds the hammer in cocked position. Upon locking of the bolt, the bolt carrier trips the automatic sear, firing the weapon.

When the selective fire lever is on "Semi", the sear (27) holds the hammer in cocked position. The hammer is released by pulling the trigger (28).

The firing pin can strike the primer only when the bolt is completely locked.

5. Field Stripping and Assembling

No tools are required for field stripping and assembling the AR-10 (fig. 10 a-k).

- a. Clear the weapon (see paragraph 3).
- b. With bolt in forward position press out Rear Pin (31) and open rifle (fig. 10a).
- c. Withdraw Bolt and Bolt Carrier Assembly from Upper Receiver (fig. 10b).
- d. Withdraw Firing Pin Retaining Pin (fig. 10c).
- e. Withdraw Firing Pin (fig. 10d).
- f. Withdraw Cam Pin (8) (fig. 10e).
- g. Withdraw Bolt (21) from Bolt Carrier (9) (fig. 10f).
- h. Using Firing Pin to start it, pull out Extractor Pin and remove Extractor and Extractor Spring. Spring will remain with Extractor. (fig. 10g).
- j. After cocking the hammer by hand, depress buffer retainer plunger (16) (fig. 10h).
- k. Remove Buffer Assembly and Driving Spring (18) (fig. 10j).

For assembling the weapon proceed in reverse order.

Further stripping is unnecessary under normal field conditions. If necessary, the trigger group may be stripped for cleaning without the use of tools. Hammer pin should be removed first, using firing pin to start it. All pins in the trigger group are spring retained and may be

removed and replaced from either side of the Receiver. Hammer and trigger pins are interchangeable. Before closing weapon the hammer (25) should be in cocked position.

6. Care of Weapon

After firing, normal cleaning of the barrel is necessary. The bolt group is chrome plated and needs no additional care other than wiping with an oily cloth from time to time. Very little oil should be used in the weapon at any time. The butt stock and forearm need no attention.

Wipe buffer assembly with oily cloth and place a drop of oil on each end of the sear after extensive firing.

7. Launching Rifle Grenades

The flash hider (1) on the front end of the barrel serves as a grenade launcher as well. It has an outside diameter of 21,95 mm. Grenade launching cartridges may be put into the chamber by hand in the conventional manner, or fed through the magazine in the same manner as live ammunition. With the selective fire lever (29) on „Semi” 20 grenades can be launched with one magazine load.

Positively no adjustment in the Gas System is necessary for the launching of Rifle Grenades.

8. Technical Data

System: Gas operated (The Armalite System of operation is unique in that it has no moving parts).

Locking: Front Locking System with multiple lugs.

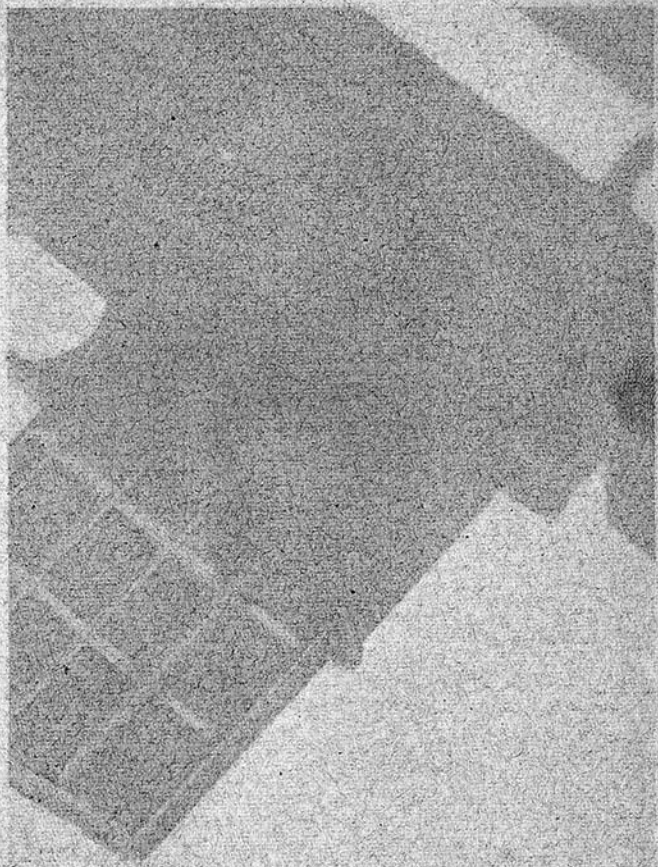
Caliber	NATO	7,62	mm
Overall length		1035	mm
Weight without Magazine		3,25	kg
Weight of Magazine (empty) ..		113	g
Weight of loaded Magazine (20 rounds)		523 603	g
Barrel length (with Flash Hider)		543	mm
Barrel length (without Flash Hider)		505	mm
Twist		right hand	
Length of rifling		450	mm
Number of Lands		4	
Sight Radius		525	mm
Sight adjustment	up to	600	Yds
Rate of Fire	approx.	700	Rounds/mi
Muzzle Velocity		830 810	m/sec.
Muzzle Energy		925 305	kgm

Fig. 1a - 1b





Fig. 2.



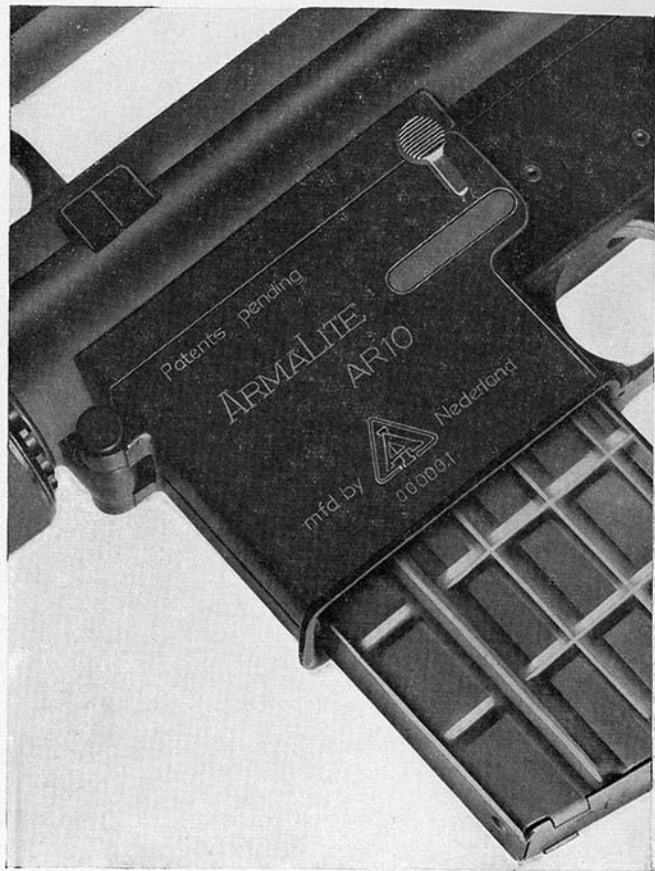
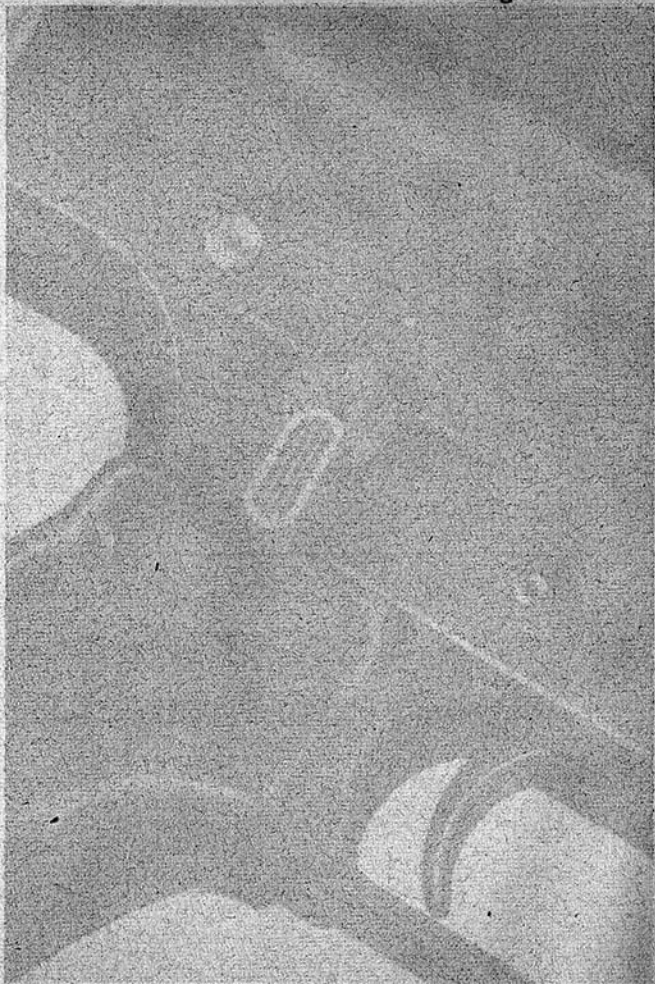


Fig. 3



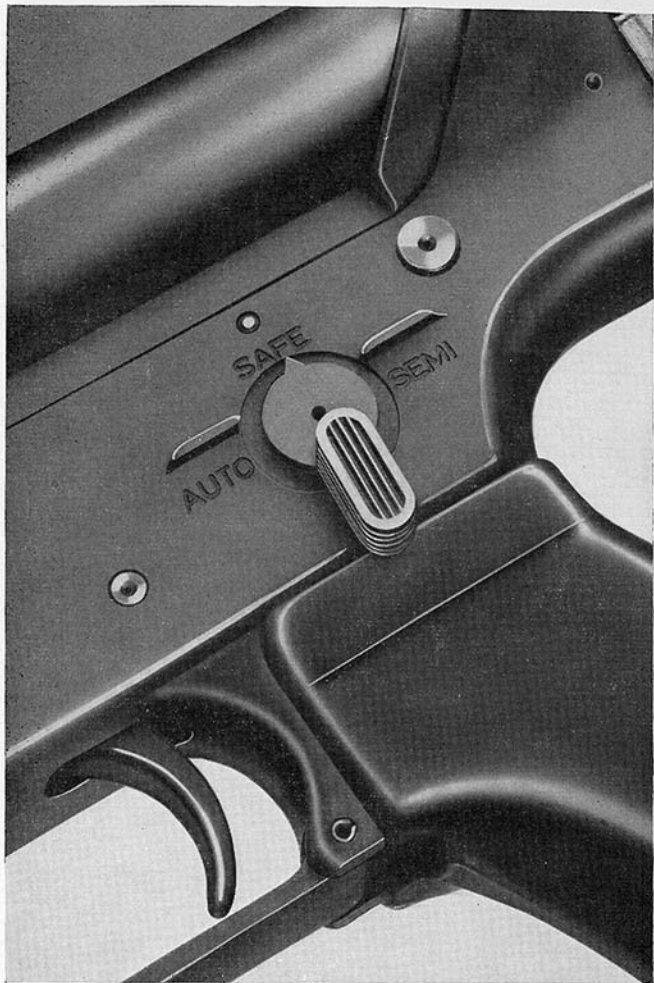
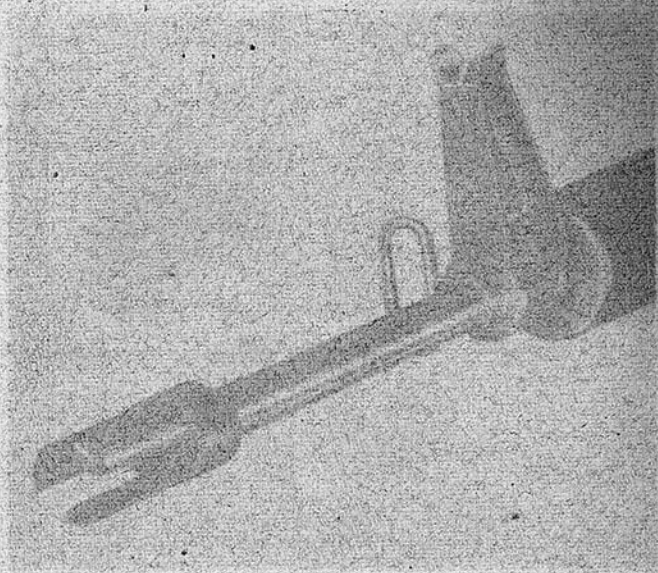


Fig. 4



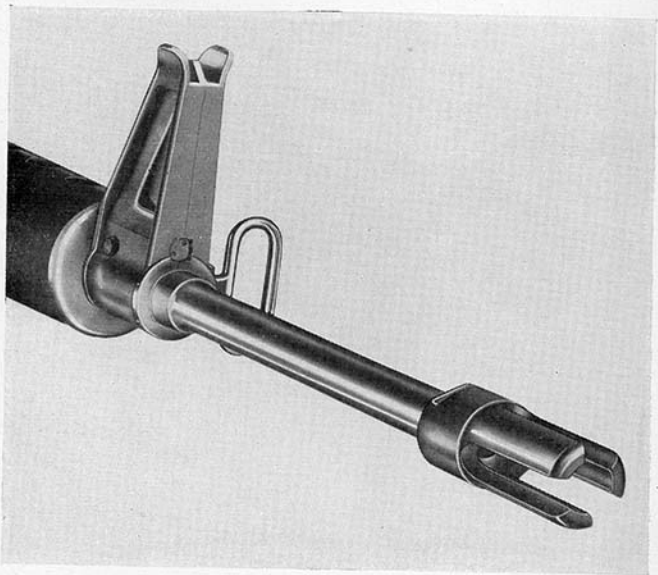
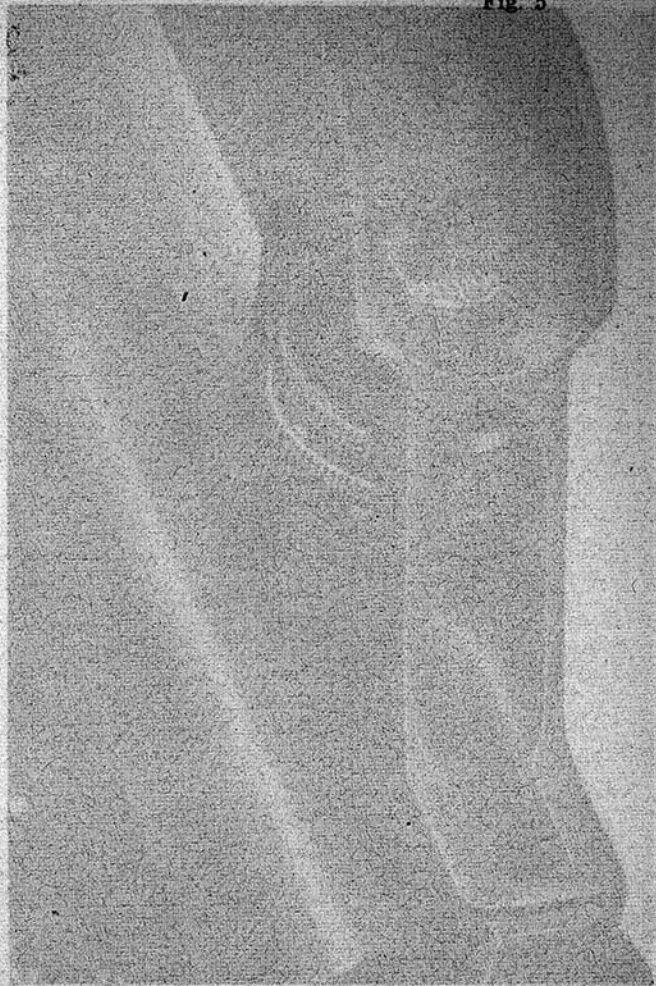


Fig. 5



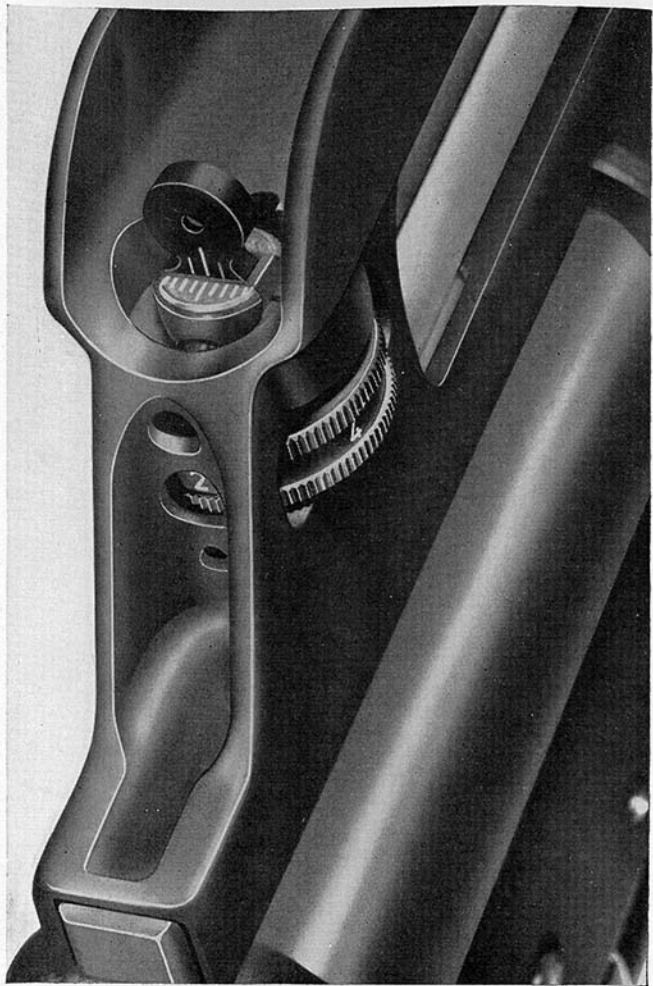
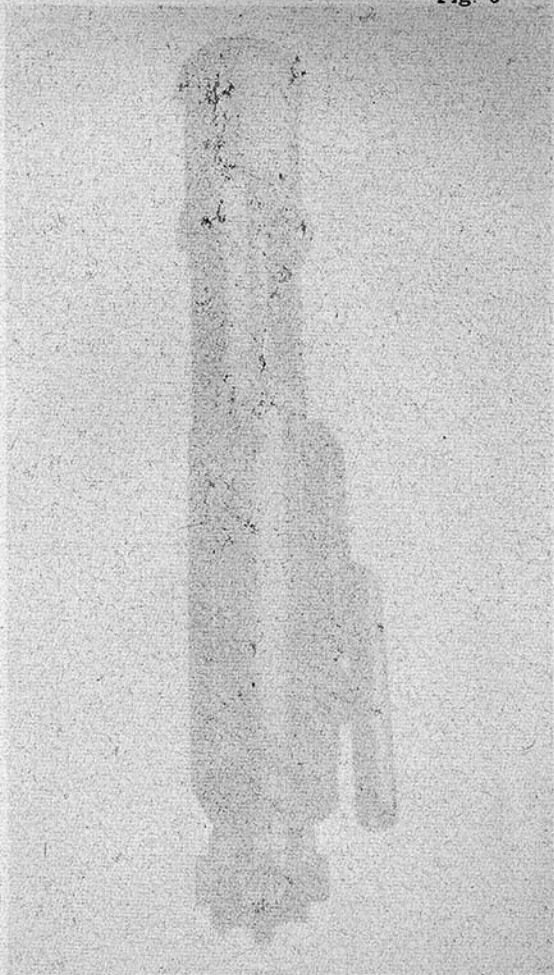


Fig. 6



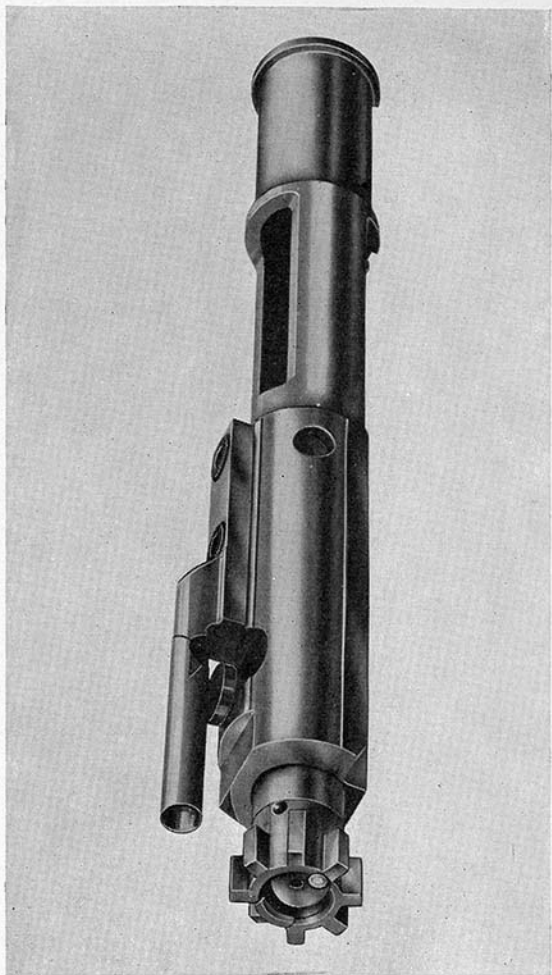
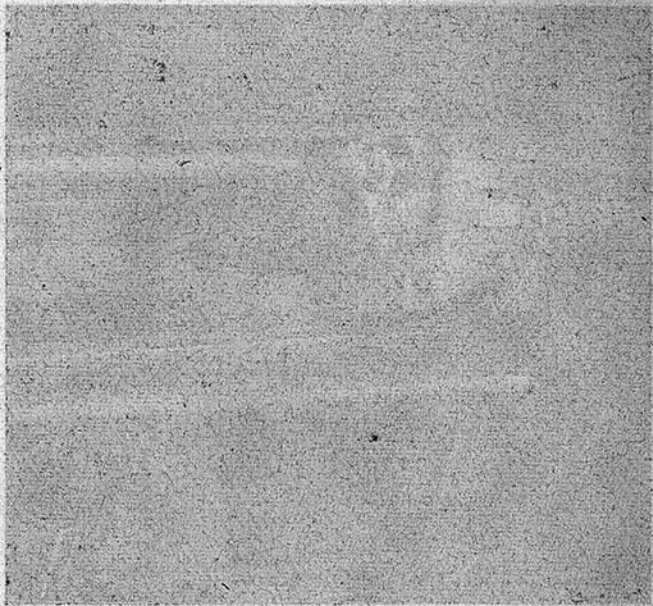


Fig. 7



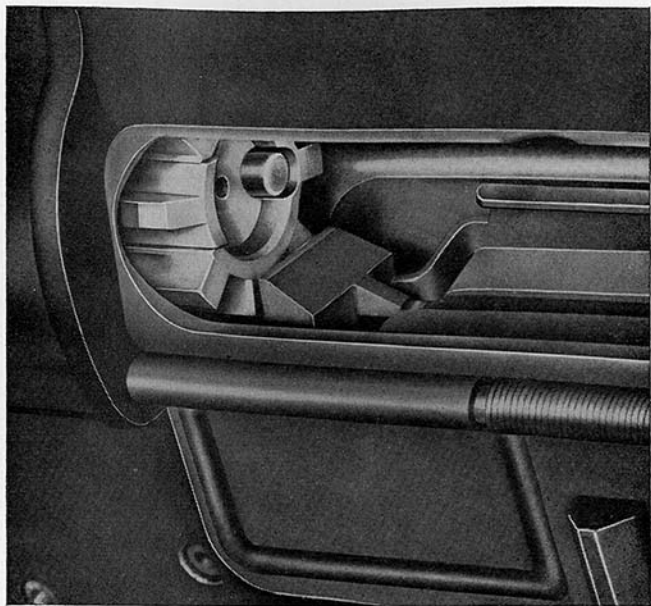
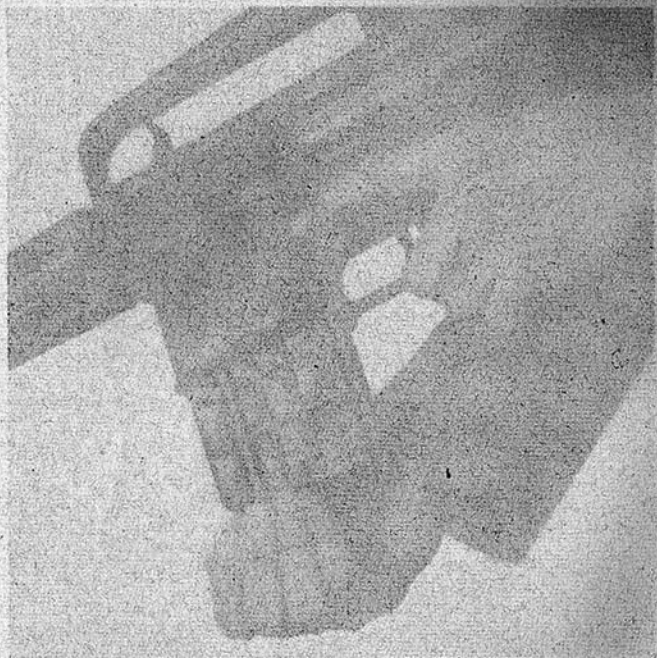


Fig. 8



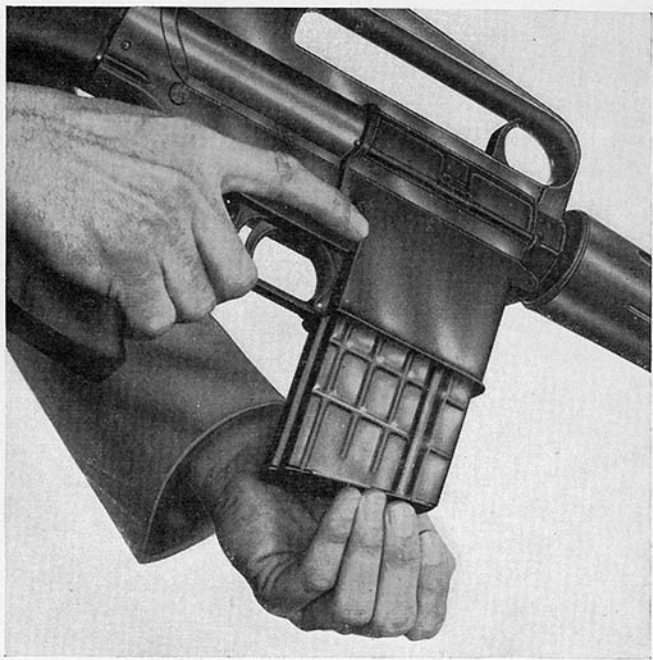


Fig. 9

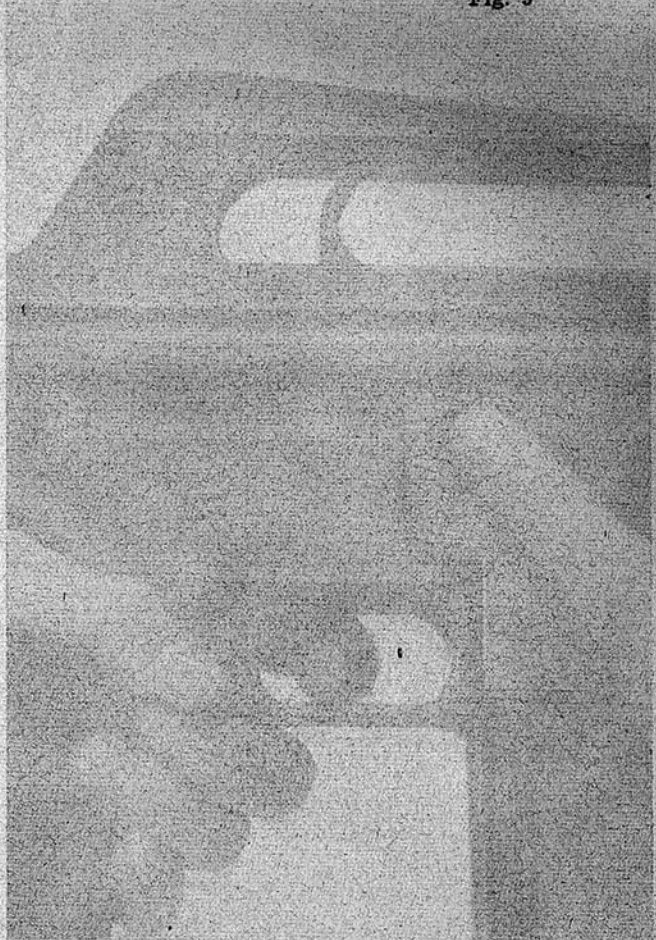


Fig. 10 a - 10 k



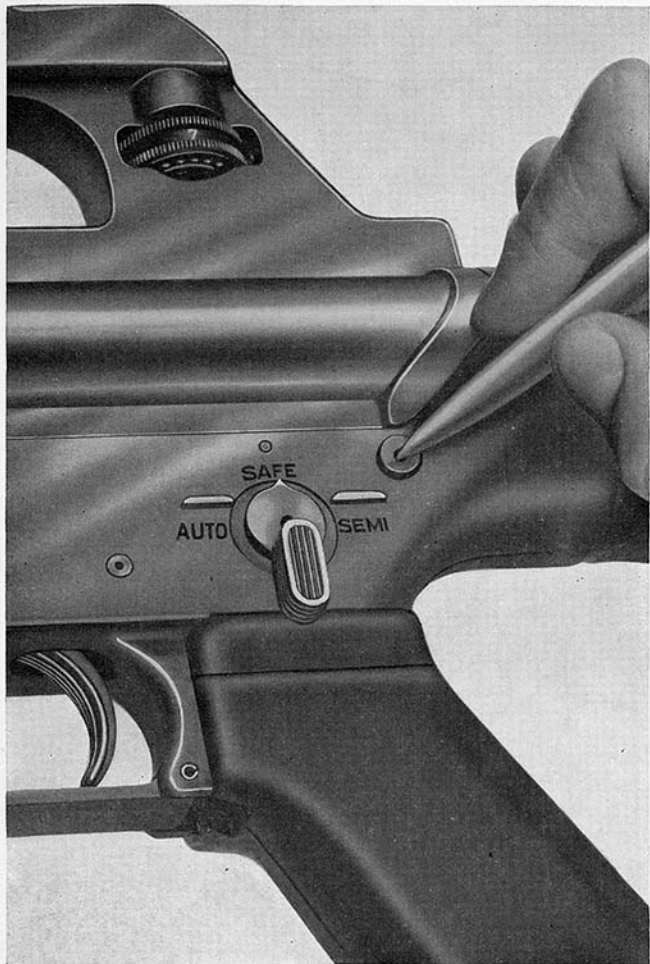


Fig. 10 a

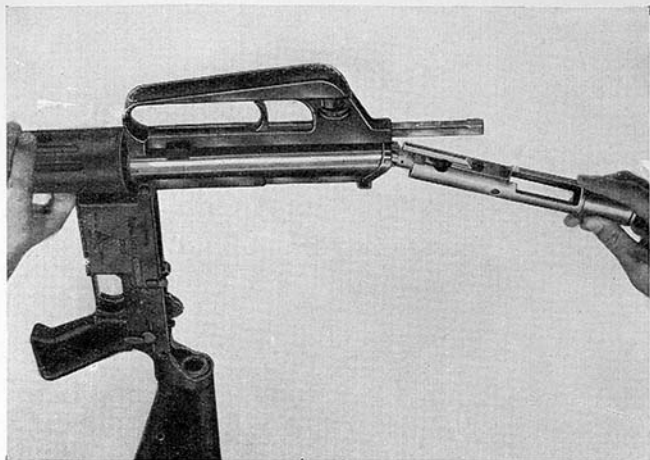


Fig. 10 b

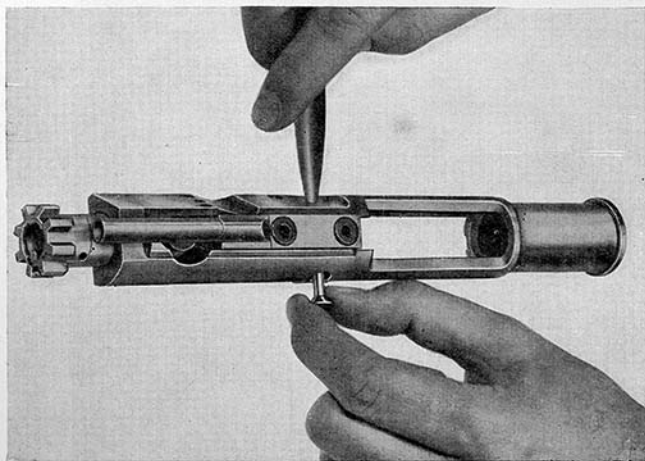


Fig. 10 c

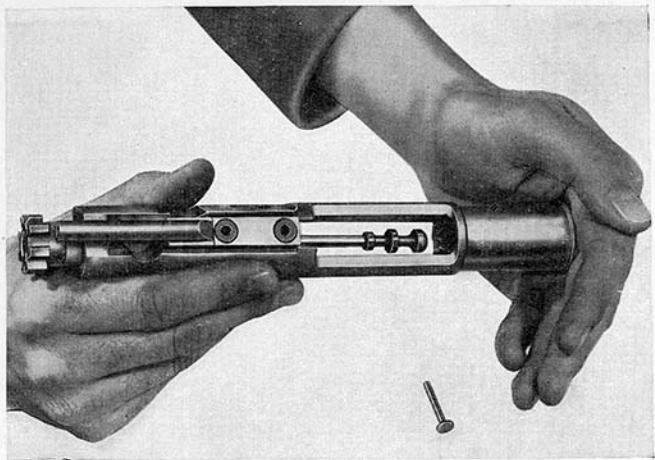


Fig. 10 d

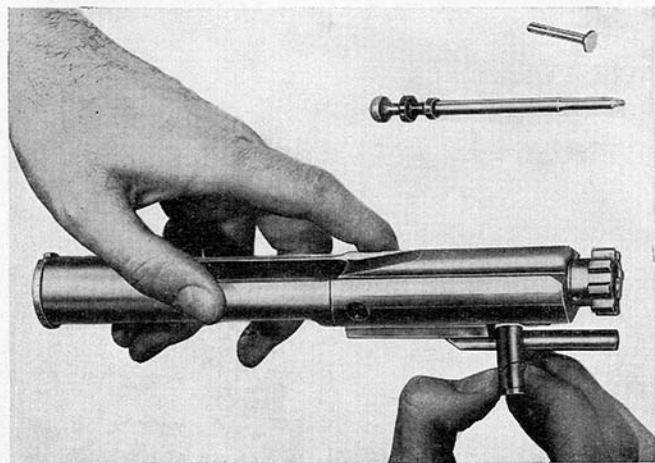


Fig. 10 e

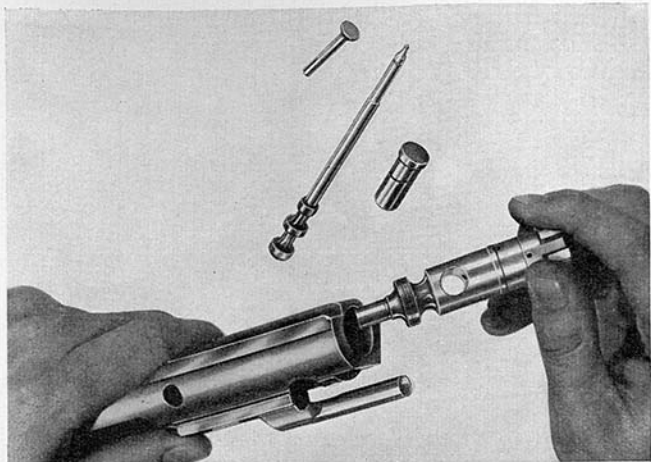


Fig. 10 f

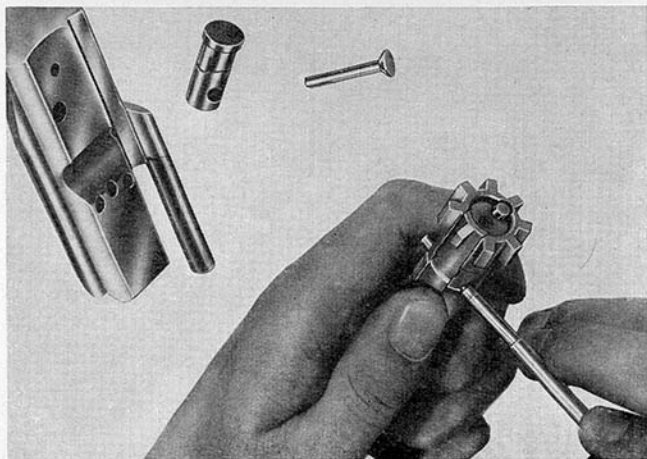


Fig. 10 g

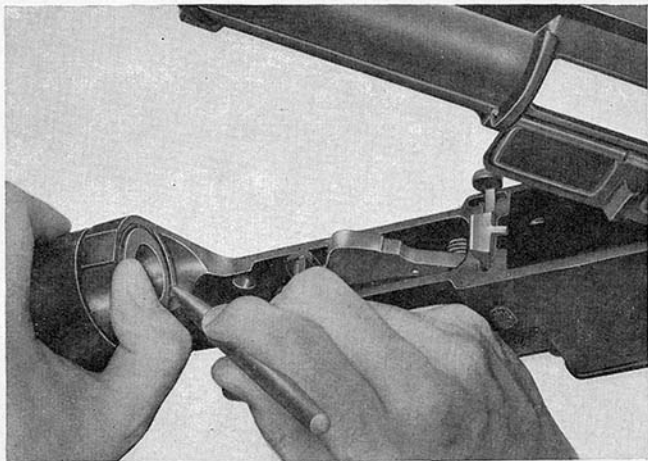
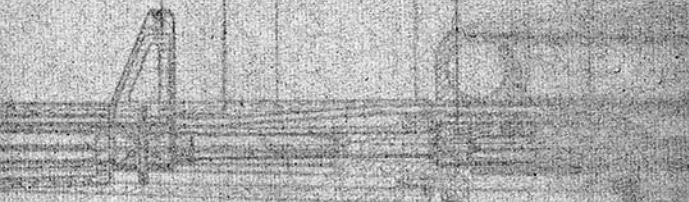


Fig. 10 h

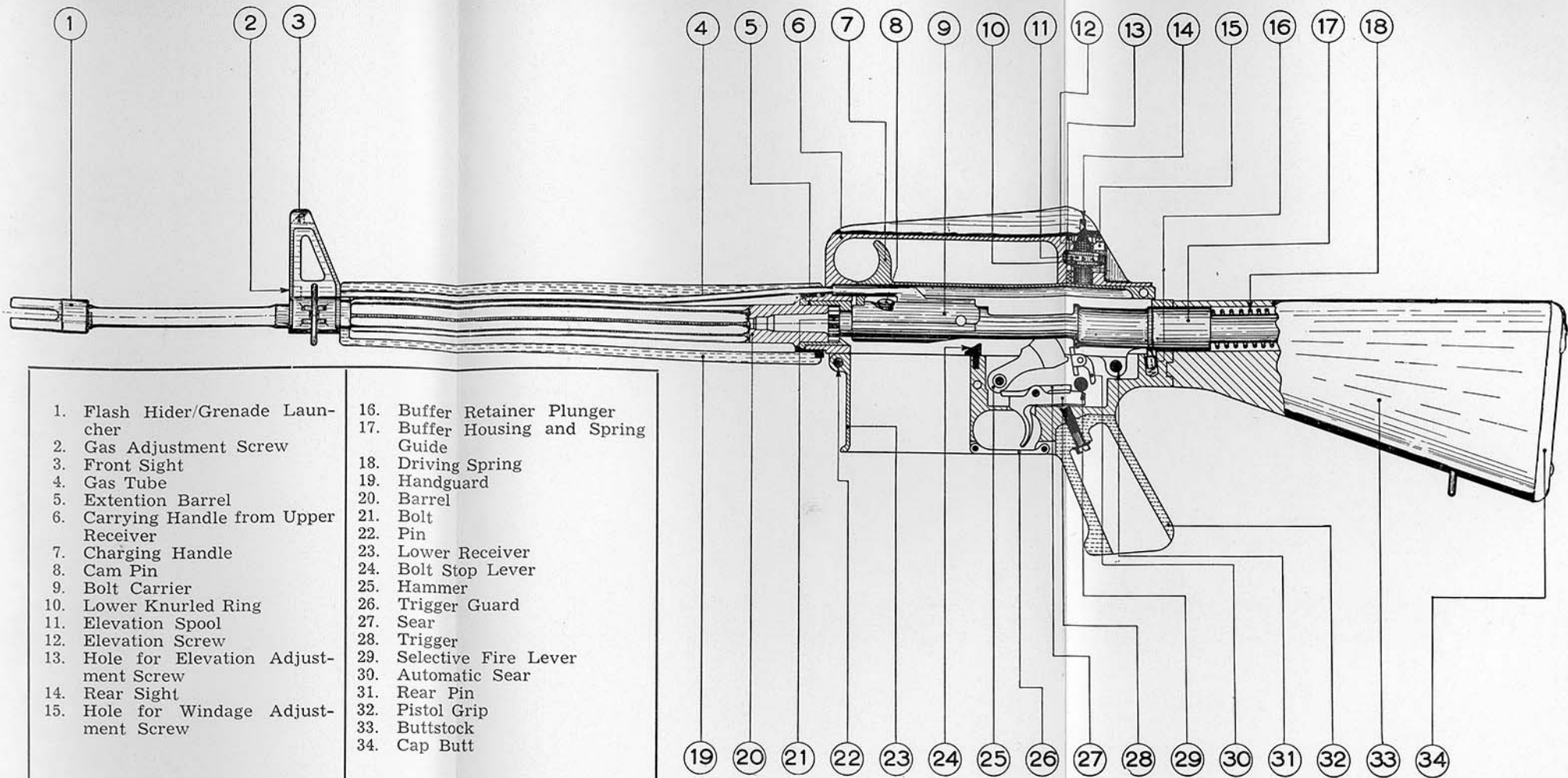


Fig. 10 j

Fig. 11



1	15	15	Hole for Window Adjust-ment Screw
2	14	14	Ball Stud
3	13	13	Ball Stud
4	12	12	Ball Stud
5	11	11	Elevation Screw
6	10	10	Elevation Spring
7	9	9	Roller
8	8	8	Roller
9	7	7	Roller
10	6	6	Roller
11	5	5	Roller
12	4	4	Roller
13	3	3	Roller
14	2	2	Roller
15	1	1	Roller



- | | |
|---|-------------------------------------|
| 1. Flash Hider/Grenade Launcher | 16. Buffer Retainer Plunger |
| 2. Gas Adjustment Screw | 17. Buffer Housing and Spring Guide |
| 3. Front Sight | 18. Driving Spring |
| 4. Gas Tube | 19. Handguard |
| 5. Extension Barrel | 20. Barrel |
| 6. Carrying Handle from Upper Receiver | 21. Bolt |
| 7. Charging Handle | 22. Pin |
| 8. Cam Pin | 23. Lower Receiver |
| 9. Bolt Carrier | 24. Bolt Stop Lever |
| 10. Lower Knurled Ring | 25. Hammer |
| 11. Elevation Spool | 26. Trigger Guard |
| 12. Elevation Screw | 27. Sear |
| 13. Hole for Elevation Adjustment Screw | 28. Trigger |
| 14. Rear Sight | 29. Selective Fire Lever |
| 15. Hole for Windage Adjustment Screw | 30. Automatic Sear |
| | 31. Rear Pin |
| | 32. Pistol Grip |
| | 33. Buttstock |
| | 34. Cap Butt |