

Description
of the
ARMALITE AR 10 Basic Infantry Weapon

Caliber 7.62 mm
(NATO)

Designed by:
ARMALITE DIVISION OF FAIRCHILD ENGINE AND
AIRPLANE CORPORATION, LOS ANGELES, U. S. A.

Manufactured by:
"ARTILLERIE-INRICHTINGEN"
HEMBRUG ZAANDAM, THE NETHERLANDS

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AR - 10 Basic Infantry Weapon

The AR-10 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 license by "ARTILLERIE-INRICHTINGEN", HEMBRUG-ZAANDAM, THE NETHERLANDS.

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 it may be set to:

- Safe
- Semi (semi-automatic)
- 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

a. Barrel

It consists of a conventional barrel (19)*. The cartridge is fired in the chamber, the lands and grooves stabilize and direct the bullet. On the front end of the barrel there is a flash hider (1) which serves as a grenade launcher as well.

* The figures refer to those mentioned in the cross-sectioned drawing.

The gas port with gas adjustment screw (2) is located in the front sight (17).

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°).

Gas adjustment instructions:

The gas adjustment screw, which is permanently emplaced in the front sight, 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 (17) and a rear peep sight. The rear sight (12) is located in the carrying handle (4) and is completely protected against damage. It is adjustable for ranges from 200 to 600 Yards in increments of 100 Yds.

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 (9) 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 (11) on top of the carrying handle.
- bb. By rotating the lower knurled ring (8) 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 (9) until windage adjustment screw is visible through a hole (13) in the back of the carrying handle and loosen it with a screw driver.
- bb. Make necessary windage correction.
- cc. Tighten windage adjustment screw.

c. Upper Receiver and Locking System

The bolt and bolt carrier slides in the upper receiver of forged aluminum alloy.

The main parts of the locking system are:

- Bolt carrier (7)
- Bolt (20)

Other parts are:

- Cam Pin (6)
- Firing Pin
- Extractor and Spring
- Ejector and Spring
- Key-Gas Transfer

Actuated by the driving spring (16) the bolt and bolt carrier, in their forward motion, pick up a round from the magazine and push it in the chamber.

Guided by the cam pin (6) 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 (22), 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 (23), and the selective fire lever (28) which is readily accessible to the shooter's thumb, providing for semi-automatic, full automatic, and safe posi-

tions. The bottom of the trigger guard (25) 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 (32) there is the driving spring (16) with buffer, buffer housing, and spring guide (15).

The buttstock and handguard (18) are made of durable fiberglass with heat resistant foam insulation. The pistol grip (31) 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. The hand remains on the pistol grip. The left hand is free to remove the empty, and to insert a full magazine.

2. Loading Weapon (Initial)

Insert loaded magazine.

Pull charging handle (5) all the way back and release it.

Put selective fire lever (28) 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 (23) allows the bolt to close, feeding a new round into the chamber.

3. Clearing Weapon

Selective fire lever (28) on "Safe".

Remove magazine.

Pull back the charging handle (5) and check the chamber.

Push bolt stop lever (23).

Put selective fire lever on "Semi" and pull the trigger (27).

Close the dust cover.

4. Functioning of Weapon

The weapon is loaded and the selective fire lever is on "Semi". Upon pulling the trigger (27), the hammer (24) strikes the firing pin which detonates the primer.

When the bullet passes beyond the gas port, gas passes through the gas tube (3) and into a chamber formed by the bolt carrier (7) and bolt (20).

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 a port in the side of the bolt carrier.

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

When the selective fire lever (28) is on "Auto", the automatic sear (29) 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 (26) holds the hammer in cocked position. The hammer is released by pulling the trigger (27).

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

5. Field stripping and assembling

No special tools are required for field stripping and assembling the AR-10.

- a. Clear the Weapon (see Paragraph 3).
- b. With bolt in forward position press out Rear Pin (30) and open rifle.
- c. Withdraw Bolt and Bolt Carrier Assembly from Upper Receiver.

- d. Withdraw Firing Pin Retaining Pin.
- e. Withdraw Firing Pin.
- f. Withdraw Cam Pin (6).
- g. Withdraw Bolt (20) from Bolt Carrier (7).
- h. Using Firing Pin to start it, pull out Extractor Pin and remove Extractor and Extractor Spring. Spring will remain with Extractor.
- j. After cocking the hammer by hand, use bullet point to depress buffer retainer plunger (14).
- k. Remove buffer Assembly and Drive Spring (16).

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 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. Elimination of Malfunctions

In most cases malfunctions can be corrected by recharging the Weapon.

8. 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 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.

9. 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	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)	543	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/min.
Muzzle Velocity	830	m/sec.
Muzzle Energy	325	kgm

INTERARMCO -- AR - 10 RIFLE, FIELD SPARE PARTS

Drawing No		Nomenclature	Suggested Requirement per Quantity of Rifles Indicated Below				Factory Price
Factory	Interarmco		10	50	100	500	
140354	1218	Sear	1	5	7	10	\$2.10
140345	1213)	hammer assy	0	2	3	5	3.00
140347	1216)	retainer hammer pin					
140351	1220)	trigger assy	0	2	3	5	3.60
140356	1221)	plunger sear					
140357	1528)	spring sear					
)	roll pin					
140367	1231)	bolt catch	1	5	7	10	1.88
)	conex roll pin					
140369	1529)	plunger bolt catch	1	5	7	10	.15
140353	1223)	spring trigger					
140370	1233)	magazine catch	0	2	3	5	1.50
140371	1234)	button magazine catch					
140372	1236)	spring magazine catch					
140358	1225)	safety	0	2	3	5	3.60
140360	1226)	pin safety detent					
140361	1311)	spring safety detent					
140467	1297	pin firing retainer	1	5	8	15	.50
140449	1300	aperture rear sight	0	2	3	5	2.25
140453	1308	detent rear sight	0	2	3	5	.11
140455	1523	spring rear sight	0	2	3	5	.06
144002	- -	cam pin	0	3	5	8	1.50
140349	1215	pin hammer trigger	1	5	7	10	.24
140366	1229	pin automatic sear	1	5	7	10	.06

Drawing No.		Nomenclature	Suggested Requirement per Quantity of Rifles				Factory Price
Factory	Interarmco		Indicated Below				
			10	50	100	500	
140463	1295	pin extractor	1	5	8	15	\$ 1.11
141677	- -	screw gas regulator with ball and spring (141678)	0	2	3	5	2.25
140464	1296)	ejector	1	5	8	15	.33
140465	1299)	spring ejector roll pin					
140436	- -)	flash hider lock ring	0	1	2	3	3.75
140479	1543)	gas tube assy	0	1	2	5	5.25
141676	- -)	housing gas regulator buffer assy	0	1	2	5	6.00
140393	1255)	buffer					
140395	1257)	guide action spring					
140399	1522)	buffering outer 2 x					
140398	1521)	" inner 1 x					
140397	1520)	" end 2 x 2 roll pins					
140461	1291)	extractor	3	10	15	25	4.50
140462	1298	spring extractor					
141943	- -	pivot pin assy	0	2	3	5	1.80
140466	1293	pin firing	1	5	7	10	2.25
140348	1214	spring hammer	1	5	7	10	.30
140353	1223	spring trigger	1	5	7	10	.06
140462	1298	spring extractor	1	5	7	10	.12
140400	1258	spring action	0	1	2	3	.30

Drawing No.		Nomenclature	Suggested Requirement per Quantity of Rifles Indicated Below				Factory Price
Factory	Interarmco		10	50	100	500	
		screw locking aperture	0	2	3	5	\$.06
		rear sight					
		taper pin front sight	0	2	4	7	.06
		key front sight	0	2	3	5	30
		set of roll pins	1	5	7	10	75
		set of springs (exc. spring action)	1	5	7	10	2.25
140460	1290)	bolt assy	0	3	5	8	16.50
140468	1513)	ring bolt 3 x					
140461	1291)	extractor					
140462	1298)	spring extractor					
140463	1295)	pin extractor					
140464	1296)	ejector					
140465	1299)	spring ejector					
)	roll pin					
140475	1554)	handle charging assy	0	2	3	5	5.65
140477	1560)	spring handle charging					
140476	1559)	catch handle charging					
)	roll pin					
140363	1227)	automatic sear assy	0	2	3	5	1.50
140364	1228)	spring automatic sear					
140365	1526)	bushing automatic sear					
140411	1271	magazine assy					2.25