FA MAS 5,56 F1

MAS GIAT

5.56 calibre automatic rifle manufactured by the "Groupement Industriel des Armements Terrestres"

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INTRODUCTION

The FA-MAS 5.56-mm calibre rifle was designed and mass-produced by GIAT in its St. Etienne works (Manufacture Nationale d'Armes de St. Etienne). Since the end of 1979, it has been used by the French Army which has ordered several hundred thousand units. The rifle has been studied in great detail from the following standpoints :

– ergonomics, with due consideration being given to the permanent requirements of the user : dimensions, weight, transfer, ease of use and maintenance, etc.,

– reliability and operating safety under the most difficult conditions of use,

– operation of the rifle with all types of 5.56 mm ammunition currently in service (US, NATO),

– efficiency of its multiple functions : precision firing of single shots, excellent stability and high power when firing in bursts (80 HP), grenade firing, (anti-tank, anti-personnel),

– general quality of manufacture, with systematic monitoring of raw materials, the fabrication processes and firing performance of the rifle.

Apart from the additional equipment supplied : bipod, bayonet attachment, cleaning accessories, etc., the FA-MAS can also be proposed with training systems such as a sleeve for firing blank ammunition, or the Balplast reduced size firing system.

1 — GENERAL INFORMATION

1-1 — Presentation of the equipment

1-1-1 — Function

The FA-MAS calibre 5.56 is an automatic individual weapon designed for :

— Bullet firing with single shot fire, complete bursts or limited bursts according to the position of the firing selector.

— A.T., 500 g. grenade firing by means of a sighting rule incorporated in the protective handle.

— A.P., 500 g. grenade firing :

— Curved fire : buttstock placed on the ground, weapon inclined at 45° or 75° , aiming obtained by means of a vertical fire sighting rule fixed on to the protective handle.

— Direct firing : the same as A.T. firing.

1-1-2 — Ammunition

— 5.56 mm cartridges O and T in conformity with NATO standards.

— With the 12" twist barrel, the FA-MAS can fire both French ammunition (F1 and PPA) and American M193 ammunition. With a 9" twist barrel the FA-MAS can fire French, Belgian SS 109, and M193 ammunition.

— 5.56 bulletless cartridges for 22 mm fin-stabilized rifle grenades.

— 5.56 blank cartridges using a sleeve for firing blanks.

— 5.56 "balplast" cartridges with speeial kit.

1-2 — General description of the weapon

The operating mechanism is an inertia amplifying mechanism.

Empty cases are ejected to the right or to the left, according to the conformation of the firer.

The line of sight, with single combat backsight, allows aiming adjustment for elevation and direction — there is also a retractable slide fitted with luminescent spot for night firing.

The entirely armoured plastic fittings ensure :

— Protection of the vital parts of the weapon including the sighting parts.

— Effective grasp for firing and carrying the weapon.

— Protection of the user against firing heat.

1-3 — Static features

— Length :

Overall length without bayonet . . . . . 757 mm
Barrel and branch length . . . . . 488 mm
Length of line of sight . . . . . 330 mm

— Weight :

of the weapon without magazine or sling or bipod . . . . . 3.610 kg
of the empty magazine . . . . . 0.150 kg
of the magazine fitted with 25 cartridges . . . . . 0.450 kg
of bayonet and sheath . . . . . 0.480 kg
of sling . . . . . 0.150 kg
of bipod . . . . . 0.170 kg

— Barrel rifling :

Number 3
Screw . . . . . Right-hand
Pitch . . . . . 12 ins, i.e., 305 mm
optional pitch . . . . . 9 ins, i.e., 228 mm

1-4 – Performance

Muzzle velocity of the ammunition Vo : 960 m/s

Rate of fire : 1000 shots/min.

H + L at 200 metres < 400 mm on a series of 10 cartridges.

H + L at 300 metres < 600 mm on a series of 10 cartridges

1-5 – Operating limits

1-5-1 – Temperatures

1-5-1-1 – Extreme storage temperature

– 54°C

+ 71°C

1-5-1-2 – Extreme operating temperatures

– For bullet firing

– 40°C

+ 51.5°C

– For grenade firing

– 31.5°C

+ 51.5°C

1-5-2 – Barrel wear

Avoid firing more than four full magazines (100 shots) without letting the barrel cool down.

Barrel resistance : 10 000 shots, 420 grenades.

1-5-3 – Range limits

– Bullet firing

Single combat backsight from 0 to 300 metres.

– Grenade firing

Anti-tank firing : effective combat range = 75 to 100 m

Flat trajectory firing : A.P. (anti-personnel) effective combat range = 100 m

Vertical firing A.P. at 45° min : 140 m

max : 360 m

at 75° min : 70 m

max : 180 m

1-5-4 – Perforations

1-5-4-1 – Ammunitions

90% perforation

Ammunitions	3.5 mm mild steel plate	7 mm armour plate	15 mm light alloy plate
F1	355 m	100 m	140 m
PPA	584 m	210 m	326 m
SS109 (9 ins)	625 m	180 m	273 m

1-5-4-2 – Grenades

AT 58 anti-tank grenades (80% probability)

– 250 mm of armour plating at 0° incidence

– 130 mm of armour plating at 60° incidence

AP-AV model F1

– 100 mm of armour plating at 0° incidence

1-5-5 – Grenade firing

Vo grenade ~ 65 m/s for a grenade mass of approximately 500 g.

1-6 – Safety rules specific to the weapon described

1-6-1 – During transport

If the weapon is loaded, ensure that the safety catch is effectively in the "safety" position.

1-6-2 – Before firing

Ensure :

– that the firing pin and the cocking lever are in proper order,

– that the barrel is perfectly clean ; in particular, under operating conditions which may involve a risk of filling with water, take the precaution of opening the breech and tilting the weapon downwards to release any water,

that the cheek-rest is on the opposite side to ejection.

– that the weapon is positioned for ejection towards the ground (in the case of curved firing of A.P grenades).

1-6-3 – During firing

– Do not put the hand beetwen the protective handle and the cocking lever slot.

– Self-ignition : Maximum allowable rate 150 shots in 2 minutes.

1-6-4 – After firing

– When the magazine still contains ammunition : put the safety catch back to the safety position.

– When the magazine is empty : make sure that the chamber is empty of any ammunition.

2 — DESCRIPTION AND OPERATION

2-1 – DESCRIPTION

The rifle is made up of 9 main parts :

1 –The "rifle body", itself made up of the following components : -Barrel -Breech casing -Cocking mechanism -Stock -Tube sub-assembly.

2 –The mobile assembly

3 –The mechanism unit

4 –The stock fitted with the cheek rest

5 –The protective handle

6 –The magazine

7 –The sling

8 –The two branches of the bipod

9 –The bayonet

2-1-1 – Rifle body unit (stock – breech casing – cocking mechanism – barrel)

The splined chamber barrel is fixed to the light alloy breech casing. This barrel and casing assembly forms the basic structure of the weapon, on to which are fixed 5 non-removable assemblies :

1 – The sub-assembly comprising outer tube and sighting apertures

2 – The foresight support

3 – The cocking mechanism

4 – The stock

5 – The grenade inserting ring,

and 5 removable assemblies :

1 – The mobile assembly in the T-slideway.

2 – The mechanism unit fitted by pinning to the rear of the magazine casing.

3 – The stock fitted by pinning to the front of the magazine casing.

4 – The magazine fitted by means of a hook fixed to the front of the magazine casing.

5 – The protective handle which is fixed to the outer tube sub-assembly by centring on the main spring rod fixture nut and by pinning to the ringsight unit.

2-1-1-1 – The outer tube sub-assembly

This sub-assembly is screwed on to the barrel and incorporates :

– The cocking system fitted by fastening to the main spring guide rod.

– The stock fitted, by centring on the stock spacer on the forward hoop of the outer tube.

– The ringsight unit, fitted by means of the ringsight unit screw, spring, pointer and elevation screw ; these 4 parts are provided for adjusting the line of sight elevation.

2-1-1-2 – The cocking mechanism

The mechanism comprises :

– The cocking lever which closes the mobile assembly on to the cocking lever stop.

– The spring tube, sealed and lubricated for life, which contains the main spring and ensures the connection between the cocking lever and the mobile assembly.

2-1-1-3 – The stock

The stock is fitted on to the breech casing by crimping a cylindrical liner and on to the outer tube sub-assembly by centring the stock spacer on the forward hoop of the outer tube.

The stock incorporates :

– The selector plate for trigger guard adjustment.

– The trigger and firing selector : single shot, burst, safety.

– The trigger guard arch.

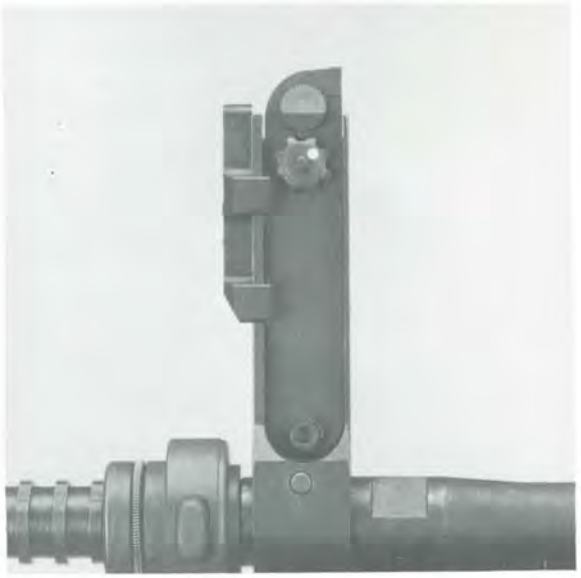
– The pistol grip which is hollow and closed at the bottom by a hinged cover, so that it can be used to contain cleaning (oiler) or spare parts.

2-1-1-4 – The foresight support

This part is fitted to the barrel by pinning and incorporates:

– The foresight consisting of a spring blade which allows line of sight direction adjustment.

– The retractable slide with luminescent spot for night firing.



2-1-1-5 – The grenade inserting ring

– This part allows variation of the muzzle velocity of rifle grenades with a flash suppressor sleeve with an external diameter of 22 mm. (curved firing).

– At maximum insertion, it enables rear centring of the bayonet.

2-1-2 – The bolt

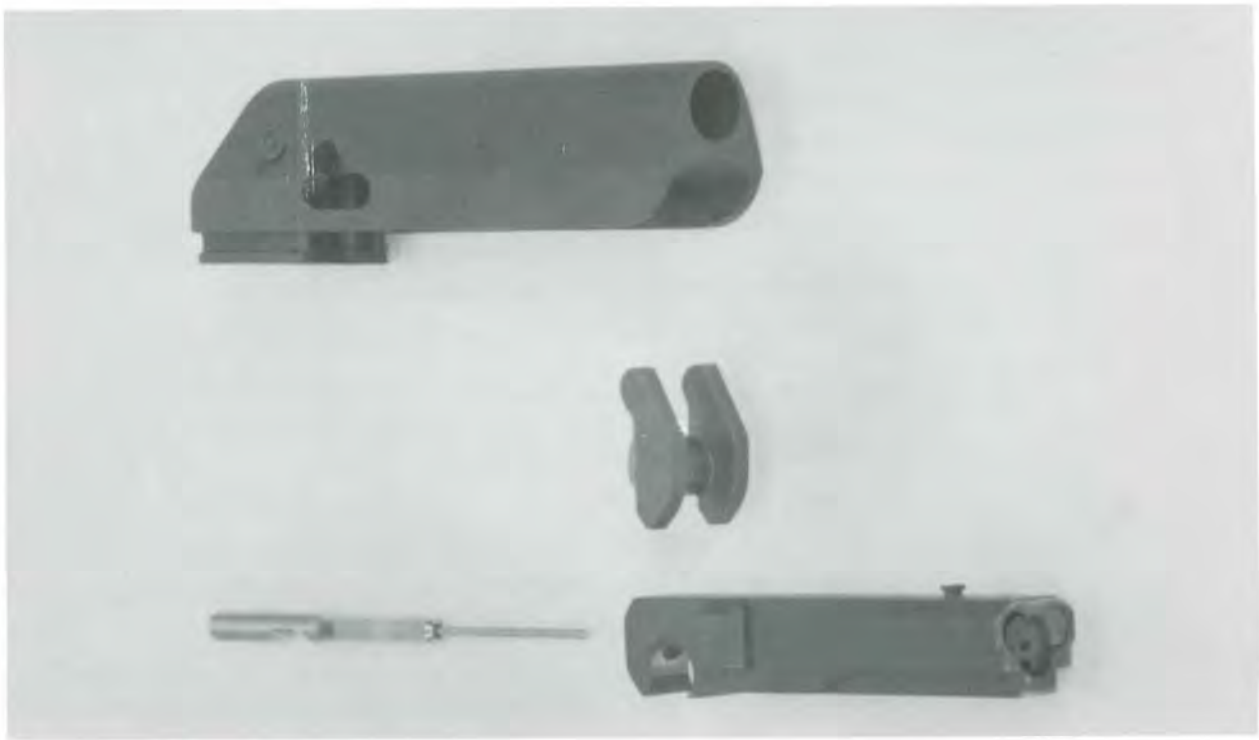
The bolt comprises :

– The added mass which enables hooking of the bolt to the spring tube through a sliding pin fixed to the latter part.

– The breech bolt with central ejector, designed for ejection to the right or to the left by reversing the extractor and the plug after dismantling the bolt.

– The firing pin.

– The delayed blow-back lever.



2-1-3 – The mechanism unit

This unit is made up of a plastic shell containing the trigger and hammer mechanisms, as well as the burst limiter, controlled by a switch situated under the unit.

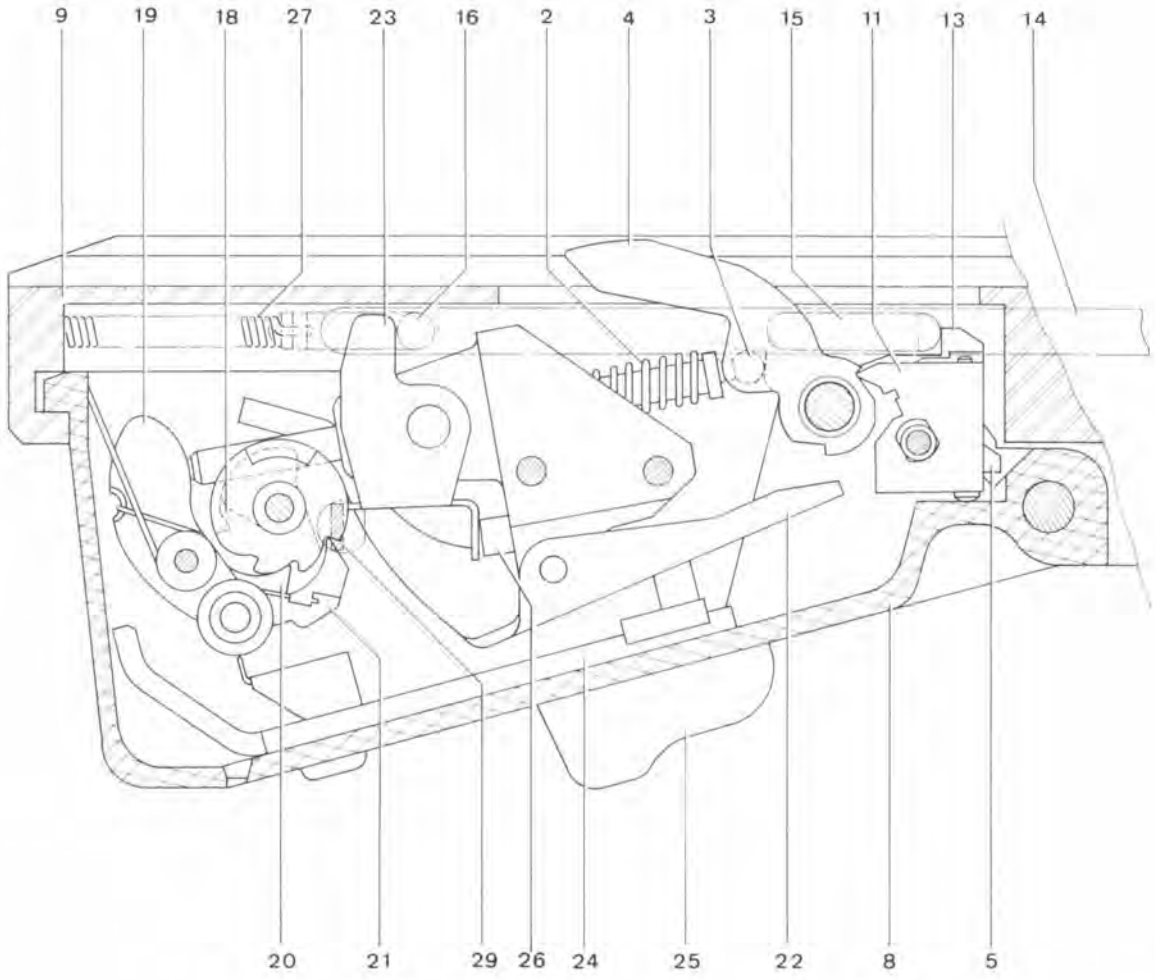


Diagram 1

2-1-4 – The stock and cheek rest

The plastic stock has a rubber recoil mechanism and incorporates the shock absorber mechanism in its upper part.

The cheek rest is fitted to the right or left of the stock depending on which side has been selected by the firer for ejection.

2-1-5 – The protective handle

The plastic part protects the sighting parts :

– Against accidental dropping of the weapon or shocks, and offers an effective grasp for transport.

It incorporates :

– The sighting rule for vertical firing of grenades at 45° and 75°

– The retractable rule for direct firing of grenades

– The bipod articulations.

2-1-6 — The magazines

The weapon takes a 25 bullet cartridge magazine and a single propellent cartridge magazine (for firing grenades).

The 25 cartridge magazine has a steel frame, a shoe-plate, a follower spring and a plastic follower plate.

2-1-7 — The universal sling

The sling is made of synthetic material, and comprises a long belt with a hooking device at one end and a short belt fitted with a mobile slide. The width of the sling may be adapted to the morphology of the user, and allows the weapon to be carried in several different ways : over the shoulder, on the back, on the stomach.

2-1-8 — The bipod

The bipod comprises two independent branches with plastic base, which are attached to the articulations fitted to the protective handle.

It has two positions :

— transport

— utilisation

2-2 – OPERATION

2-2-1 – Operating principle

The action of gas on the breech head through the case causes the backward movement of the breech. Opening is delayed by the inertia amplifying system (Type AA 52 and AA F1).

2-2-2 – Closing and loading mechanism

Backward movement (diagrams 2 and 3)

– The amplifying lever, under the breech bolt thrust and by the action of the two lower arms on the receiver bearing surface, pushes back the added mass with a speed increased by the amplifying ratio.

– The angular stroke of the lever is 45° and during this rotation the following operations are effected :

– Firing pin withdrawal.

– Extraction by means of the extractor fitted to the right or the left according to the firer's preference.

– After complete rotation of the lever, the backward movement of the bolt is effected for each of these parts at the same speed and the compression of the main spring takes place throughout the backward movement.

– A new cartridge is presented when the breech has moved back beyond the magazine casing.

– At the end of the backward stroke, the bolt's surplus energy is absorbed by the shock absorber, which it compresses over a maximum stroke of 25 mm.

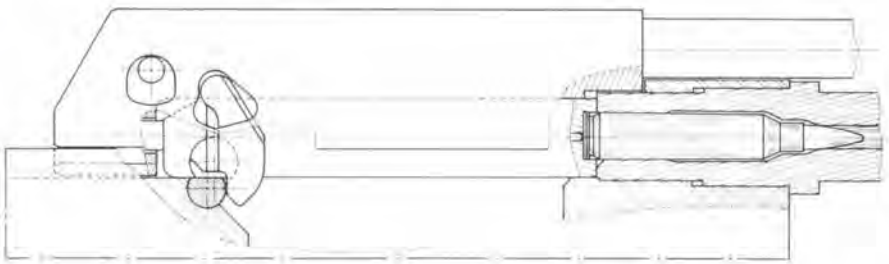


Diagram 2

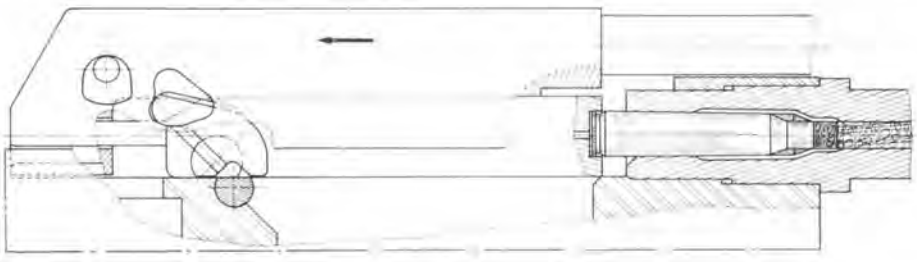


Diagram 3

Forward movement :

The movement is actuated by the main spring trigger and includes :

– Introduction of a new cartridge by breech thrust on to the base of the cartridge presented during the backward movement,

– Closure of the breech which causes the extractor claw to engage the case groove and compression of the ejector spring,

– Complete closure of the bolt, ensured by the backward movement of the added mass, which brings the amplifying lever back to the vertical position, by pushing the top of its upper arms.

Closure is considered "complete" when the cocking lever has moved beyond the cocking lever stop.

2-2-3 – Trigger and firing mechanism

The trigger mechanism is of the so-called "escaping cam" type. (See diagram 1 page11).

2-2-3-1 – Firing selectors

– The weapon has two selectors :

– The firing selector, located at trigger level,

– The 3-shot limited burst selector, situated on the underside of the mechanism unit.

– This configuration is explained by the fact that the conventional hammer and trigger mechanisms (single-shot firing and firing in bursts) are independent of the burst limiter. Thus a failure of the burst limiter under harsh operating conditions (mud, sand, ice, etc) does not interfere with operation of the basic mechanism.

The following three firing methods may be chosen :

– Semi-automatic :
Firing selector on position "1" 1 shot
Limiter selector on position "0" or "3" (inoperative)

– Limited bursts of 3 shots :
Firing selector on position "R" bursts
Limiter selector on position "3" bursts of shots

– Automatic
Firing selector on position "R" bursts
Limiter selector on position "O"

The safety position corresponds to placing of the firing selector on the letter"S" situated on the centre line of the barrel in front of the trigger.

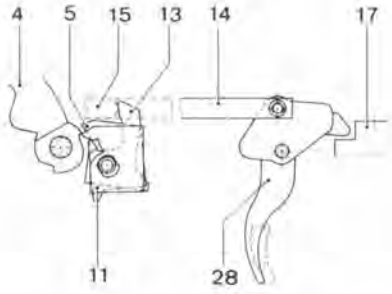


Diagram 4

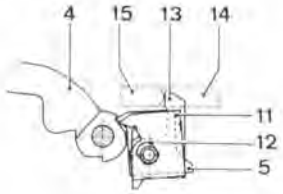


Diagram 5

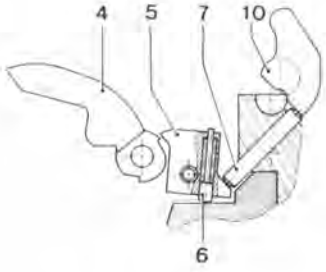


Diagram 6

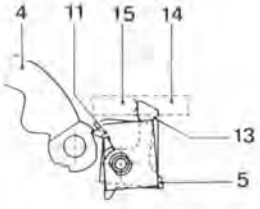


Diagram 7

2-2-3-2 – Single shot operating mode

By pulling the trigger (28), the connecting rod (14) causes rotation of the sear drive (13) and the driven sear (11) which frees the hammer (4) ; see diagram 4.

The hammer, under the action of the hammer spring (2), pivots violently around its axis and strikes the firing pin which causes departure of the shot.

Cocking of the hammer is effected during the backward movement of the bolt, and at the end of its stroke the hammer hooks on to the automatic sear (5); see diagram 5.

It is released at the end of the forward movement of the added mass by the thrust of the left-hand lower beak of the inertia amplifying lever (10) on the automatic sear control rod (7); see diagram 6.

At this moment, the hammer hooks on to the driven sear (11) and firing is stopped. The interruption of finger action on the trigger releases the sear drive (13) from the driven sear (11), the latter ensuring that the hammer is always hooked in position ready to fire (diagram 7).

2-2-3-3 – Automatic operating mode

This is identical to the single shot operating mode with regard to the first four paragraphs. Then, since the stroke of the sear drive (13) is longer in the burst position (diagram 8), the hammer can no longer hook on to the driven sear (11) and there is firing as soon as the automatic sear (5) is clear.

Operation stops at the end of action on the trigger or when the magazine is empty.

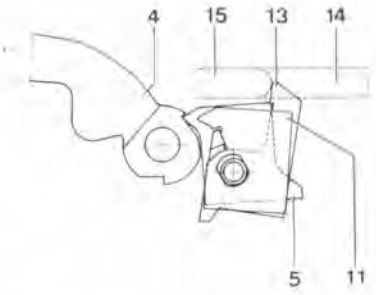


Diagram 8

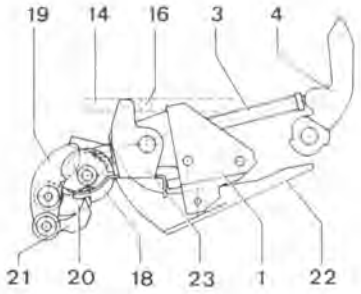


Diagram 9

2-2-4 – Operation in the limited burst mode

– When the limiter is engaged (position 3) and the finger is pressed on the trigger, on each backward rotation of the hammer, the hammer rod (3) causes rotation of the limiter operating lever (19), the driving-pawl (21) of which causes the ratchet wheel to make one turn corresponding to the counting of one shot (diagram 9).

A retaining catch (20) then engages in the opposite wheel and prevents the ratchet wheel from returning to its original position (diagram 10).

One shot is counted.

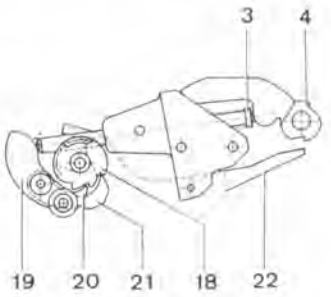


Diagram 10

– When the hammer performs its stroke to strike the firing pin, its rod frees the operating lever, which returns to its original position supported on the hub of the ratchet wheel (diagram 11).

– Counting of the following two shots is effected in this way, and operation of the trigger mechanism during the first two shots is identical to operation in the automatic mode.

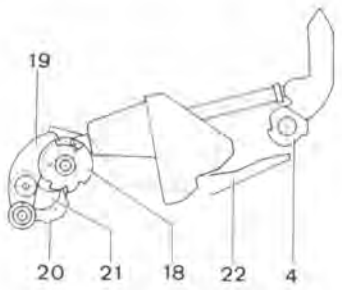


Diagram 11

– At the third shot, the limiter catch (22) stops the hammer at the end of its backward movement, hooking it on to the lower catch of the hammer (4) (diagram 12). This hooking is effected by rotation of the ratchet wheel cam, which on the third shot causes pivoting of the limiter catch.

Firing is interrupted, and it is the release of finger pressure on the trigger (28) which releases the limiter catch in two stages :

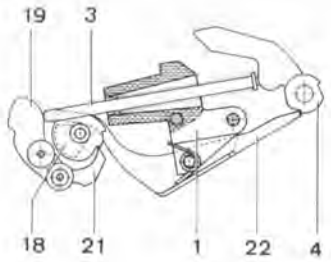


Diagram 12

1 – Release of the driving-pawl (21) and retaining catch (20) by rotation of the uncogging part (23), the latter rotation being actuated by the backward movement of the connecting rod (diagram 13).

2 – Return of the ratchet wheel (18) to its original position under the action of its spring which, by rotation of the cam, also effects the return of the limiter catch to its normal position (diagram 13).

The hammer can then catch on to the driven sear (11).

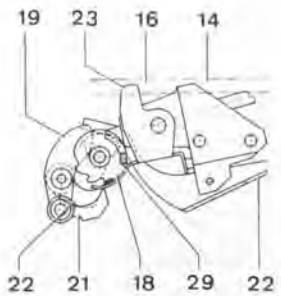


Diagram 13

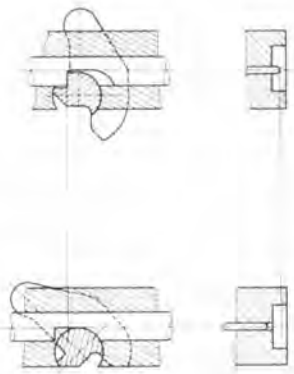


Diagram 14

2-2-5 – Weapon safety

– All the weapon's safety functions are ensured by the delayed blow back lever (diagram 14).

1 – The backward movement of the firing pin : if the bolt is not completely closed and the hammer drops, it sends the firing pin against the delayed blow back lever and firing of the cartridge in the chamber cannot take place due to the lack of a projecting boss.

– The backward position of the firing pin produced by rotation of the delayed blow back lever avoids accidents due to the inertia movements of the firing pin, when closing.

2 – *Control of the automatic sear :* See section 2-2-2 Forward movement, third paragraph.

This system offers two safety functions :

– The hammer cannot drop if the bolt is not correctly closed (diagram 6, page 15).

– If the user, during reassembly, forgets the delayed blow back lever, the automatic sear cannot clear and the shot cannot take place because the hammer remains hooked on to the automatic sear.

3 — USE IN NORMAL CONDITIONS

3-1 — Preliminary operations and checks

See paragraph 1-6 : Safety instructions concerning the equipment before firing. In particular, make sure :

— for ball cartridge firing, that the cheek rest is on the opposite side to ejection.

— for firing A.P. grenades, that the weapon is positioned in such a manner that spent cartridges are ejected towards the ground.

— For optimum operational regularity, even under prolonged firing conditions, that the quantity of lubricant on the moving parts and trigger mechanism does not exceed the film value required for adequate protection from corrosion.

N.B. : Under special conditions of sand or dust storms in desert areas, the rifle must be dry before firing.

3-2 — Operating methods and checks

3-2-1 — Ball cartridge firing

3-2-1-1 — Use of magazine

— Loading a magazine :

Two cases :

1 — Cartridges supplied in bulk.
Insert the cartridges by pressing them one by one into the magazine, making sure to place the cartridge base at the end with the two small rear ribs.

2 — Cartridges supplied on loading clip
Place the loader supplied with cartridges on the magazine. Fit the loading clip to the loader.
Insert the series of cartridges by pressing the row of cartridges, with the thumb.

— Unloading a magazine

Expel the first cartridge towards the front by pressing the base of the cartridge using the base of another cartridge.

3-2-1-2 — Inserting the magazine

— Place the weapon in the safety position (S mark on the firing selector).

— Insert the magazine at an angle in order to engage the rear part of the lips of the magazine casing first of all, and tip the lower part of the magazine towards the front thereby pushing it into the casing until it clicks into place.

3-2-1-3 — Removing the magazine

— Place the weapon in the safety position (S mark).

— Press the magazine hook and pull the magazine downwards by tilling it slightly towards the rear of the weapon.

— If applicable, remove any cartridge that may remain in the chamber by manual cocking.

3-2-1-4 – Manual cocking

– Place the weapon in the safety position (S mark).

– Grasp the cocking lever with one or two fingers, pull it until the bolt comes up against the shock absorber and let it come back to the front **without accompanying it.**

– If the mechanism does not complete its forward travel (incomplete closure) due to an excessive amount of impurities (mud, sand, snow, etc.) slight forward pressure has to be exerted on the cocking lever heel in order to complete closure. If closure is still difficult, check that there are no foreign bodies in the barrel or breech.

– Depending on the position of the firer, the rifle is cocked by the right hand or the left hand.

– Since the rifle does not have a breech stop, repeat the same operation again, after each insertion of a magazine.

3-2-1-5 – Uncocking

– Remove the magazine. See 3-2-1-3.

– Cock the weapon in order to extract and eject any cartridge which might still be in the chamber.

– Pull the trigger, **taking care to point the rifle in a safe direction.**

3-2-1-6 – Aiming for ball cartridge firing

The aiming device offerts three possibilities (2 for daylight firing and one for night firing).

3-2-1-6-1

– Day firing

– With normal light, keep the two flaps of the ringsight closed, the eye-piece diameter is minimum and gives maximum precision.

– In bad light, flip down the front flap, the diameter of the eye-piece is greater.

3-2-1-6-2

– Night firing

– Flip down the two ringsight slide flaps and lift up the slide located on the front face of the frontsight support. For ball cartridge firing, it is necessary to align the target, the green luminescent spot (materialising the support), and the two red luminescent spots which appear on the sighting rule support for direct grenade firing when this sighting rule is folded back.

3-2-1-7 – Firing

Semi-automatic firing

– Firing selector on position 1. Limited burst selector on position O. (recommended position although not compulsory).

– Pull the trigger, a single shot is fired. Release the trigger. The following cartridges are fired in the same way until the magazine is empty.

– For precision firing, the finger pressure control on the trigger is facilitated by a small boss.

Firing in three-shot bursts

– Firing selector on position R. Limited burst selector on position 3.

– Pull the trigger.

– It is very important to pull the trigger home AS FAR AS POSSIBLE and to hold it in this position. If trigger travel is limited, the rifle acts as if it were in single shot firing mode. In such cases, it is possible that bursts of only two shots, or even a single shot, will be obtained.

– In all cases, the following burst will include three shots if, as specified, the trigger is maintained fully pulled, as the burst selector returns to its initial position as soon as the trigger is released.

In automatic firing

– Firing selector on position R. Limited burst selector on position O.

– Pull the trigger home completely.

– It is important to maintain the trigger pulled home for as long as the burst of firing is to be continued.

– To interrupt a burst, simply release the trigger.

3-2-2 – Firing of blank cartridges

The rifle can be used for firing blank cartridges by screwing a blank firing sleeve to a shutter against the front end of the barrel supported on the rear part of the flash-suppressor. The rifle can then be fired under exactly the same conditions as ball cartridge firing : in single shots, in short bursts of three shots or in long bursts.

IMPORTANT :

– Check that the sleeve is always well screwed on.

– THE USER MUST UNDER NO CIRCUMSTANCES USE THE WEAPON THUS EQUIPPED WITH ORDINARY CARTRIDGES OR GRENADE-LAUNCHING CARTRIDGES.

3-2-3 – Using the bipod

Deployment of the bipod

– Take one leg of the bipod and pull it towards the rear of the rifle *until it can swivel freely* around its joint.

– Swivel the leg forwards until it clicks into the notch of the required position.

– Repeat this operation for the second leg.

Folding away of bipod

– Give a sharp knock on each leg, which then automatically returns to the transport position.

3-2-4 – Grenade firing

3-2-4-1 – Types of grenade

The FA-MAS 5.56 F1 can fire all types of 500 g grenades with a fin diameter of 22 mm.

For example : - anti-tank (AT) grenades,
- anti-personnel (AP) grenades,
- anti-personnel, anti-vehicle (AP-AV) grenades.
- smoke grenades,
- lighting grenades,
- practice grenades with passive head.

3-2-4-2 – Firing methods

The FA-MAS is equipped with two sighting systems for grenade firing :

a) *For indirect firing,* a twin position sighting rule (45° or 75°) :

at 45° the effective combat range is between 140 and 360 metres
at 75°, the effective combat range is between 70 and 180 metres.

b) *For direct firing,* a sight notch sighting rule that is aligned with the fore sight. There are two positions for firing at ranges of 75 and 100 metres. Yellow-orange luminescent spots are available for night firing.

3-2-4-3 – Magazine for propellent cartridges

The rifle can take a special magazine for firing propellent cartridges.

The magazine holds only one propellent cartridge.

Magazines are inserted and removed in the same way as for firing ball cartridges.

NB : Certain grenades are provided with a bullet trap and the use of propellent cartridges is not necessary : with grenades of this type, ball cartridges can be fired immediately after firing a grenade without any further manipulation.

3-2-4-4 – Preparing the weapon for grenade firing

1 – Place the rifle in the safety position.

2 – Select the firing system : direct firing or indirect firing.

3-2-4-5 – Indirect firing

– Place the grenade inserting ring on the selected mark corresponding to the distance to be fired.

– Orient the anti-personnel sighting rule (see photo) according to the angle selected (45° or 75°).

– Push the grenade home on the inserting ring until the stop is reached.

– Pull out the grenade safety pin.

– Load the magazine with a propellent cartridge.

– Take up the firing position, rifle butt on ground, ejection side turned towards the ground.

– Place the firing selector in the position 1 (single shot firing).

– Cock the rifle, aim and fire.

The rifle can be fired in either the prone or the standing position, with the butt firmly supported.

3-2-4-6 – Direct firing

– Place the grenade inserting ring in maximum position.

– Raise the sighting rule in the hand guard casing by pivoting it forwards.

– Select the firing distance

Movable carrier in low position : range of 75 metres
Movable carrier in high position : range of 100 metres

– Push the grenade home on the inserting ring until the stop is reached by slightly pivoting the grenade.

– Pull out the grenade safety pin.

– Load the magazine :

a - either special magazine with its propellent cartridge

b - or normal magazine with ball cartridges in the event of grenades with built-in bullet trap.

– Take up firing position holding the rifle firmly against the body.

– Place the firing selector on position 1 for single shot firing.

– Cock the rifle.

– Aim by aligning the target, the sight holder and the sight notch.

– Fire.

3-2-4-6-1

Standing position (see photograph)

Hold the rifle firmly by the pistol grip and butt, holding it against the body.

For a right-handed person, the right hand should hold the pistol grip and the left hand the butt, the rifle being pressed against the right shoulder.

The position is reversed for a left-handed person.

3-2-4-6-2

Prone position (see photograph)

The rifle is held in exactly the same way as in the standing position.

In the prone position, the rifle is supported on the bipod but the firer must be holding it firmly against the body.

3-2-4-6-3

Kneeling position (see photograph)

Hold the rifle in the same manner as described for standing position.

3-2-5 – Aiming for grenade firing

3-2-5-1 – Direct firing in daylight

The line of sight materialised with the retractable sighting rule must pass through the four following points:

1 – The eye of the firer

2 – The square notch sight, of the raised sighting rule.

3 – The normal frontsight.

4 – Target.

3-2-5-2 – Direct firing at night

The line of sight is in this case materialised on the raised sighting rule by two yellow-orange luminescent spots and on the deployed slide by a green luminescent spot.

3-2-5-3 – Indirect firing (daylight only)

Identical to direct firing for 1, 2 and 4 ; for 3 : top of frontsight holder.

3-2-6 – Use of the sling

1 – The hooking device of the long belt is placed on its hooking point located on the bipod drum, by successive half-turns.

2 – Insert the long belt in the metal buckle with beaks of the small belt (beaks upside down).

3 – Fold over the long belt after threading it through the stock loop and insert in the quick tightening device then through the loop.

Use of "shoulder slung weapons"

– Hook on the metal buckle by means of its beaks to the hooking ring as indicated in the photograph.

"Combat" use

– Unhook the metal buckle with beak from the hooking ring.
– The metal buckle then slides along the long belt.
– Place the weapon slung across the chest.
– From this position it is possible to take aim quickly.

4 — USE IN SPECIAL CONDITIONS

— cf. paragraph 1-5 operating limits (page 6)

4-1 — Very low temperatures and NBC environment

Use of the trigger guard arch

— Pull on the part of the arch located on a level with the pistol grip so as to release it from its normal operating position.

— Turn through 180° to set it for use at very low temperatures or NBC environment.

Use a lubricant compatible with the operating temperature. If not, clean and lubricate with paraffine oil only.

4-2 — Precautions to be taken during movements when water is likely to enter the barrel (rain, weapon dropped into water, etc.)

— Take the precautions mentioned under section 1-6-2, second paragraph.

4-3 — Sand and dust

Reduce lubrication to the minimum.

4-4 — Bullet firing at night

See para. 3-2-1-6.

4-5 — Direct firing of grenades at night

See para. 3-2-5-2.

5 — JAMMING AND TROUBLE

5-1 – Jamming

Possible jamming and trouble generally fall into one of the following three categories :

1 – Trouble resulting from excessive fouling of the weapon due to negligence by the user or his lack of knowledge of the weapon.

2 – Trouble caused by accidental mechanical failure of the weapon.

3 – Trouble caused by using the weapon in unfavourable conditions (snow, sand, mud...).

Jamming or interruption of firing, unless caused by an empty magazine or failure of a part, is generally quickly eliminated without looking for the cause of the trouble.

– If there is incomplete closure, press on the base of the cocking lever so as to make sure that the lever closes on to the cocking lever stop, then resume firing. If slight pressure is insufficient to close the coking lever, ensure that there is no foreign body fouling the barrel or firing mechanism.

– If there is insufficient recoil, cock to eject the case of the fired cartridge and insert another cartridge, then resume firing.

– In the case of any other firing trouble :

- – Keep the weapon in firing position.
- – Remove the magazine.
- – Cock twice.
- – Remove the case remaining inside the weapon (if applicable).
- – Insert magazine – cock, then resume firing.

Should the trouble occur again : remove the magazine, replace it by another, then resume firing. If the trouble persists, consult the gunsmith or instructor to determine what is wrong.

NB : if the shot does not take place after firing, wait at least 10 seconds before opening the breech so as to avoid the consequences of possible delayed firing.

5-2 – Troubles

Possible troubles	Causes	Remedies
No percussion	Incomplete closure	Cock and make sure of closure before firing
	Firing pin broken	Change firing pin
No extraction	Extractor deteriorated	Change extractor
	Chamber fouled	Clean weapon and clean chamber (rifling)
Resistance felt when inserting magazine	Weapon fouled	Clean weapon
	Magazine warped	Change magazine
Incorrect position of cartridge	Magazine warped	Change magazine
	Follower plate warped	
In single shot position departure in bursts	Trigger-guard badly adjusted	Adjust trigger-guard
Cartridge case not ejected	Ejector spring too weak	Change ejector-spring assembly
	Extractor spring too weak	Change extractor-spring assembly
Delayed firing	Defective cartridge	Check to ensure bullet is not still in barrel
Grenade not retained	Brake spring lost	Replace the grenade brake spring

– Changing parts : see chapter on dismantling.

– To replace the grenade brake spring :

  – Close the inserting ring up towards the flash-suppressor.

  – Roll a sheet of heavy paper round these two parts, engage the brake spring on to the cylinder thus formed and make it slide up to its housing on the ring.

6 — MAINTENANCE

6-1 — Dismantling for maintenance and reassembly.

6-1-1 — Remove the stock

— If the strap is tight, slacken it as would normally be the case for carrying the weapon over the shoulder.

— Expel the stock assembly stud, and place it in the tubular casing for fixing the stock to the breech casing.

— Pull the stock backwards.

— In order to dismantle the cheek rest, push the top of this part so that by elastic deformation it can be removed from the stock.

6-1-2 — Remove the protective handle.

— Expel the assembly stud of the protective handle and place it in the tubular casing fitted to the ringsight support.

— Push the protective handle towards the foresight, removing it from the sighting line by pulling it upwards.

6-1-3 — Remove the mechanism unit

— Push the mechanism unit assembly stud with the tip of a bullet or one of the two stock studs or protective handle studs and pull it so as to bring it into contact with the breech casing safety catch.

— Remove the mechanism unit by rotating it round the rear support of the breech case.

6-1-4 – Remove the mobile assembly

– Pull back the mobile assembly until the cocking lever makes contact with the rear face of the cocking lever stop.

– Free the mobile assembly from the spring tube by pushing the assembly stud as under para. 6-1-3.

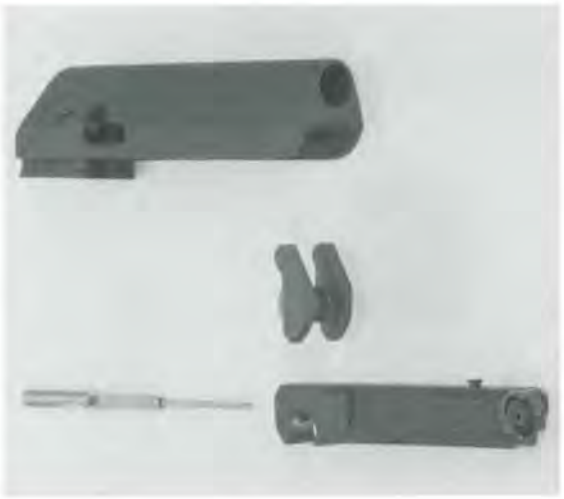
– Pull the mobile assembly backwards, allowing it to slide freely in the T groove of the breech casing.

6-1-5 – Disassembly of the bolt

– Separate the mobile breech assembly, the inertia amplifying lever and the firing pin from the added mass by making it slide along the bottom of the latter part until the lever is in the vertical position. In this position the slide on the head of the breech is freed from the corresponding part of the added mass, and the two parts can be separated by pulling on them.

Dismantle the amplifying lever by making it turn around its axis until its upper wings are in line with the breech and remove it from its housing in this position.

Pull the firing pin backwards.



6-1-6 – Dismantling the removable head

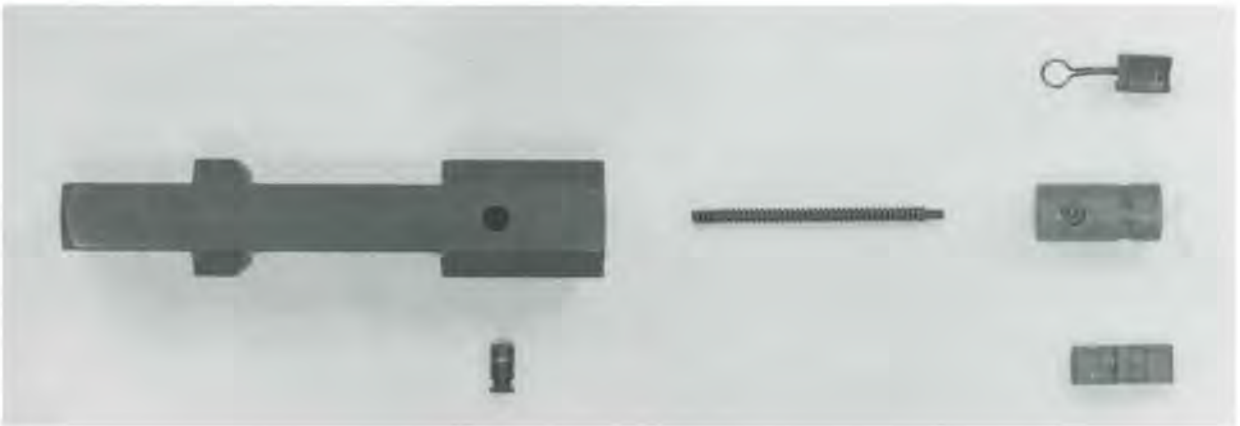
– Using the base of a case or the head of one of the stock assembly studs or protective handle studs, raise the support finger of the removable head.

– Engage the base of the case or the head of one of the stock assembly studs or protective handle studs under the extractor claw and pull the removable head.

– After dismantling in this way, there are 6 parts or assemblies :

- The breech
- The removable head
- The support finger
- The ejector, its spring and its inside rod
- The extractor and its spring
- The plug.

In order to reverse the ejection, simply exchange the extractor and its spring with the plug.



6-1-7 – Dismantling the bipod

To dismantle the bipod proceed in the same way as for mounting it (section 3-2-3), but continue to rotate the arms 120° beyond their normal position in use and in that position remove them laterally from their articulations.

6-1-8 – Reassembly

Reassembly is carried out in the reverse order of dismantling, although the following precautions must be taken :

– Reassembly of the removable head :

Before reassembling the ejector make sure that *the inside rod is exectly in place* (photo page 30).

– Use the spring ejector assembly to centre the removable head so as to be able to fit the support finger without any difficulty.

– Push the removing head with the firing pin.

– Fit the support finger, paying attention to the direction of assembly : the groove in which the base of the case is engaged (section 6-1-6) must be outside the breech after assembly.

– Reassembly of the mobile assembly :

First of all, assemble the firing pin and align the rear notch of the amplifying lever passage with the breech bore before reassembling the lever.

Before reassembling the added mass make sure that the two supporting parts of the amplifying lever on the added mass are *opposite the heel of the mobile breech.*

Before assembling the mobile assembly on the breech casing make sure that the slideway located on top of the breech is effectively engaged in the corresponding part of the added mass.

– Reassembly of the mobile assembly on the breech casing :

Hold the mobile assembly in the *open position* and slide it freely, without forcing, in the slideway of the breech casing.

– Reassembly of the mechanism unit : before reassembling the mechanism unit make sure that the hammer is hooked on to the automatic sear and that the connecting rod is in the rear position.

Engage the rear part of the mechanism unit into the corresponding housing of the breech casing by inclining it slightly (photo page 29), pivot it around this hooking point and pin it.

– Reassembly of the protective handle :

– Reassembly of the stock :

Make sure that the cheek-rest is mounted on the *side opposite ejection.*

6-1-9 – Reversing of ejection

– Remove the support finger as indicated in section 6-1-6 and pull the removable head as far as necessary to be able to pull out the extractor and the plug without completely dismantling the removable head.

– Reverse the two parts.

– Push the removable head back place by means of the firing pin and replace the support finger.

6-2 – Maintenance

6-2-1 – Ingredients

Use Break-Free CLP or ARDROX 397/2 – paraffin oil only under exceptional circumstances.

Attention :

– The use of paraffine oil facilitates cleaning of very fouled components but in order to avoid oxidation, *carefully clean the parts before oiling them.*

– Do not use chlorine solvents without the manufacturer's advice.

6-2-2 – Cleaning

The weapon must be cleaned as often as necessary, and obligatorily after each use, as soon as circumstances permit.

Cleaning must be limited to the removal of dust, moisture, impurities and surface rust. Cleaning must never be taken to extremes, where wear or deformation of the parts could arise.

N.B. : The use of abrasive substances (emery cloth, glass paper) or **metal objects (knife blade or screwdriver) is strictly forbidden.**

6-2-2-1 – Cleaning the barrel and chamber

The barrel is cleaned with a cleaning rod used with a square cloth of dimensions (6 x 6 cm of fine cloth) such that if forces slightly in the barrel. The cleaning cloth must be removed from the barrel after each return stroke. Introduce the cleaning rod by the barrel mouth piece so that the patch does not catch in the ring grooves.

After a few strokes effected with a dry, clean cloth, the internal surface of the barrel must be smooth and shiny. Otherwise, continue cleaning with an oil-soaked cloth.

The chamber must be cleaned with a metal brush; use an oil-soaked cloth to remove any matter fouling the chamber.

6-2-2-2 – Cleaning of other metal parts

Other parts must be cleaned with a dry, clean cloth or with paraffin oil if the parts are very dirty.

If rust patches show up, soak them in oil for a moment, then rub with an oil-soaked cloth.

6-2-2-3 – Cleaning of plastic parts

Clean with a moist clean cloth.

6-2-2-4 – Cleaning the mechanism unit

If metal debris or non-burnt products have entered the mechanism unit, clean the trigger mechanism and burst limiter with a fine brush.

6-2-3 – Checking

Each cleaning should be an occasion for checking the condition of the various parts of the weapon, and to show up incipient cracks, unusual wear and other deformations as well as breakage : in particular, the firing pin and the amplifying lever.

6-2-4 – Protection

Once the weapon is cleaned and its condition checked, it is necessary, before reassembly, to give it a protection against rust.

All the metal parts should be lightly oiled after cleaning. The barrel is protected by giving one backward and one forward stroke with an oil-soaked cloth which should be clean.

6-3 – Adjusting the line of sight

See MAT 1057 (technical guidance leaflet supplied with rifle) for dismantling of the protective handle.

6-3-1 – Adjustment for elevation

– The line of sight is adjusted for elevation by moving the ringsight unit as follows. Lower the adjustment wheel index and then compress the ringsight spring by means of the screw. To facilitate this operation, a cartridge case can be removed to compress the spring.

– If the rifle fires high : tighten the bolt and the ringsight is lowered.

– If the rifle fires low : unscrew the bolt and the ringsight rises.

– Shift value : one rotation of a bolt notch leads to an average point variation of about 6 cm at a distance of 200 mètres (0.30 m).

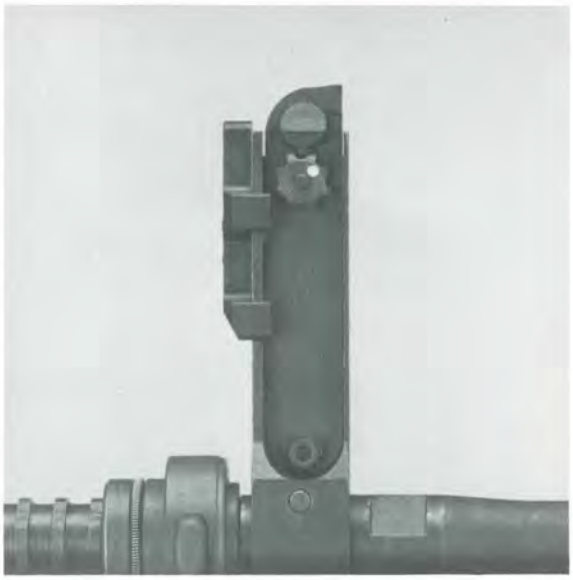
6-3-2 – Adjustment for direction

– Direction is adjusted by compressing or releasing a spring blade by means of a serrated nut.

– If firing is to the left : screw off.

– If firing is to the right : screw on.

– Value of the shift : the passage from one notch to another causes a variation in the mean centre point of about 6 cm at 200 m (0.30 m).



7 — PARTS LIST

Description of the parts itemised on the various diagrams

1 Hammer stop
2 Percussion spring
3 Percussion rod
4 Hammer
5 Automatic sear
6 Sear spring guide rod
7 Automatic sear control
8 Mechanism unit
9 Breech casing
10 Inertia amplifying lever
11 Driven sear
12 Driven sear notch
13 Driven sear drive
14 Connecting rod
15 Forward stud of connecting rod
16 Rear stud of connecting rod
17 Fire selector
18 Ratchet wheel
19 Limiter operating lever
20 Retaining catch
21 Driving-pawl
22 Limiter catch
23 Uncogging part
24 Disengaging trolley
25 Burst limiter switch
26 Uncogging spring pin
27 Connecting rod return spring
28 Trigger
29 Ratchet wheel stop pin

8 - TABLE OF COMPINED UNIT COMPONENTS

PART NAME	Qty
5.56 assault rifle, model F1	1
ACCESSORIES	
Magazine	6
Magazine for one protellent cartridge	1
Bayonet with sheath	1
Sling	1
Removable rod	1
Cleaning rod	1
Chamber cleaning brush	1
Brass cleaning brush	1
Nylon cleaning brush	1
Oil can	1
Synthetic cloth bag for FA 5.56 F1 accessories	1
Synthetic cloth magazine holder for FA 5.56 F1	2
Technical guidance leaflet MAT 1057	1
SPARE PARTS	
Support finger	1
Complete ejector	1
Extractor with spring	1
Cover	1

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