

**HOTCHKISS
AIRCRAFT MACHINE GUNS
OBSERVER'S TYPES**



HOTCHKISS AIRCRAFT MACHINE GUN
DRUM FEED TYPE
OBSERVER'S GUN

44.02 (036)
HOT

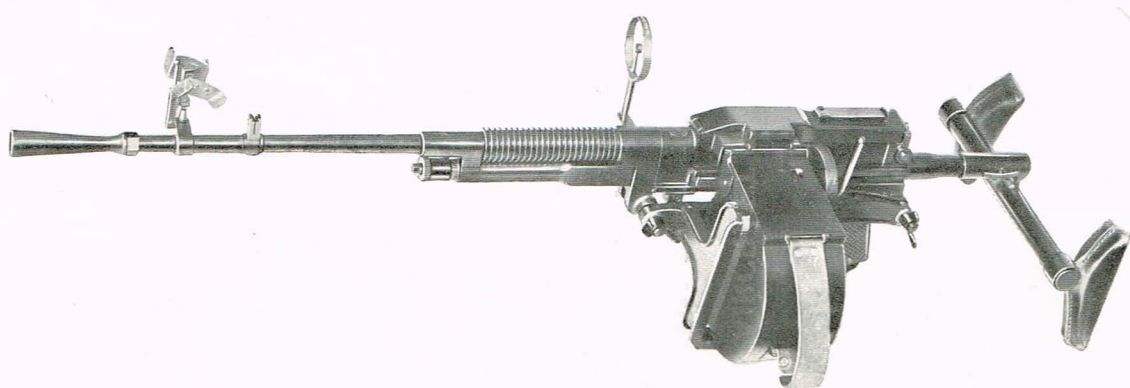


Plate 1. — Machine gun — Drum feed type — With shoulder pieces.

Weight of machine gun without drum	22 lbs
Weight of drum empty	3.5 lbs
Weight of drum full	10.3 lbs
Overall length	39 ins.
Length of barrel	23.6 ins.
Length from pivot to hand grip	18 ins.
Capacity of drum	100 rounds
Rate of fire	1000 rounds min.
Calibre303 ins

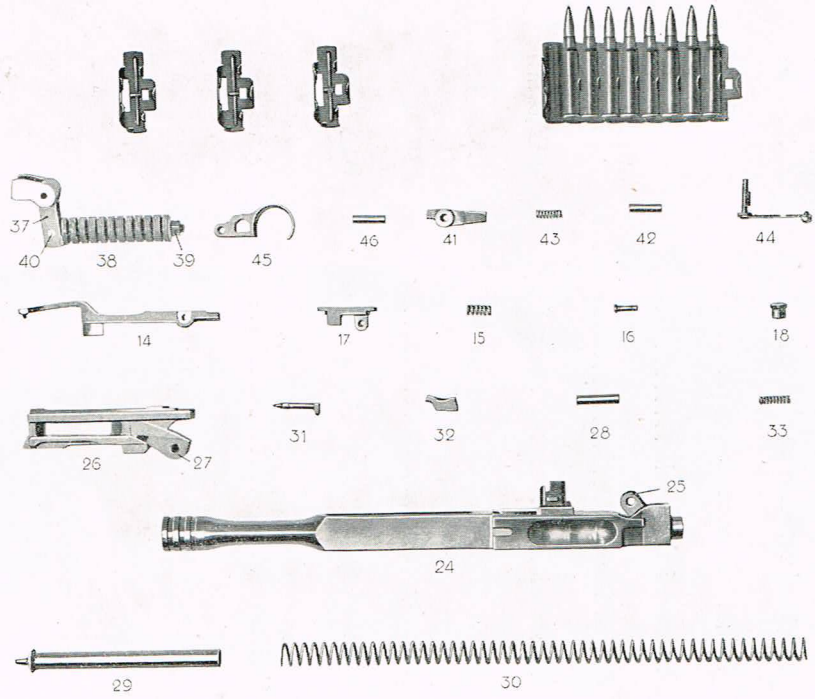


Plate 2. — Details — Interior Parts.

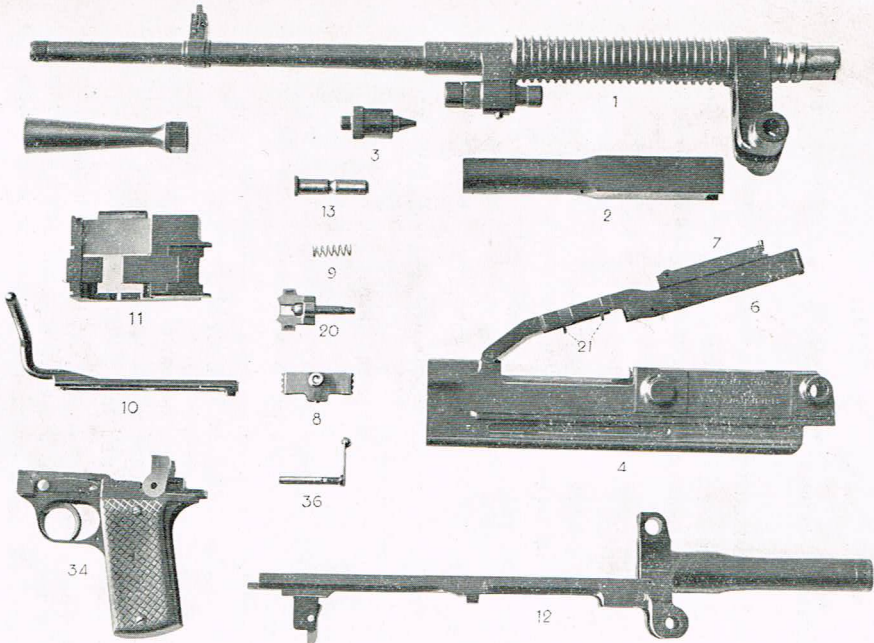


Plate 3. — Details — Exterior parts.

NOMENCLATURE OF PARTS AND THEIR USE

A. — BARREL

1. — **Barrel** : Screwed on to the receiver, presents on the outside :

- the muzzle thread which takes the flash eliminator,
- the gas regulator block, which by means of its vent diverts to the piston a small amount of the gases of explosion,
- the radiator,
- the trunnion block which bears on the front face of the receiver, and on which a stop limits the rotation. Holds in place the piston protection tube.

2. — **Piston protection tube** : protects the piston.

3. — **Regulator** : According to whether it is screwed more or less into the gas regulator block, allows less or more gas to escape and thus regulates the force utilized for working the gun (the lower the division number employed, the greater the force). A leaf spring keeps the regulator at the position determined and carries a mark which is placed in coincidence with the division to be employed.

B. — RECEIVER

4. — **Receiver** : Carries the barrel and encloses the recoiling parts. Presents on the inside two longitudinal ribs to support and guide the breech block, and the piston abutment.

On the outside two ribs to support the bottom plate; on one of the sides a rib to guide the cocking handle, and a passageway for its tenon. At the forward upper part, it is cut away to take the feed block. At the rear is the hole for the fixing pin.

In the middle are fixed the strengthening shoulders which support the locking dogs at the moment of explosion of the charge.

5. — **Piston abutment ring** : Hardened ring fixed in the receiver. It takes the shock of the piston at the moment of closing.

6. — **Receiver cover** : Encloses the top of the receiver, holds in place the feed block, carries the feed pawls, the rear sight, and the cover bolt, and encloses the feed mechanism.

7. — **Rear Sight** : Composed of the following pieces :

- The sight base,
- The sight leaf spring, which holds the sight leaf on the base and holds in place the pivot of the feed arm frame,
- The sight leaf.

8. — **Cover bolt** : Holds the cover on the receiver and keeps in place the fixing pin. By a support to which it is connected, guides and holds the feed arm frame.

9. — **Cover bolt spring** : Holds the cover bolt engaged under the receiver and the rear support of the feed arm frame on the feed arm frame.

10. — **Cocking handle** : By its tenon moves the piston, in arming by hand; a leaf spring keeps it in the forward position during firing. The flat body of the cocking handle covers the passage way in the receiver in which the tenon of the cocking handle moves.

11. — **Feed block** : Supports and guides the feed belt; an inclined plane, situated in the way of the cartridges, lowers their forward end and assures their introduction into the barrel chamber.

The feed block carries the ejector which is pinned in place.

12. — **Bottom plate** : Terminated at the rear by a tube in which is lodged the return spring. Constitutes the bottom and the rear face of the receiver; its forward part which protrudes into the trunnion block prevents the barrel from unscrewing; carries the ejection opening; carries the accelerator housing and serves as a guide for the cocking handle. On its under part, has two stops to hold the deflector bag.

13. — **Fixing pin** : Keeps the bottom plate assembled to the receiver is held in place by the cover bolt when the cover is closed.

C. — FEED MECHANISM :

mounted in the receiver cover.

14. — **Feed arm** : Is worked to the left and right by the camway of the breech block moving its tenon; its beak assures the advance of the belt, by falling successively into each of the openings of the links.

When the cover is opened, the heel of the feed arm (in the form of an inclined plane) slides on a roller. This gives to the feed arm a position such that the tenon will engage in the camway of the breech block when the cover is closed.

15. — **Feed arm spring** : When the cover is closed, the spring keeps the tenon and the beak of the feed arm pressed downwards. When the cover is opened, it causes the heel of the feed arm to slide on roller as above.

16. — **Feed arm pivot** : Connects the feed arm with the feed arm frame.

17. — **Feed arm frame** : Supports the feed arm.

18. — **Feed arm frame pivot** : Serves as a pivot for the feed arm frame and holds in place the base of the rear sight.

19. — **Roller** : Works the heel of the feed arm when the cover is opened. (See above).

20. — **Feed arm frame rear support** : Guides and holds the feed arm frame at the rear. (A support integral with the cover holds this frame at the front.)

21. — **Feed pawls** : Oppose all backward movement of the belt as the beak of the feed arm slides over the belt to engage in the following link.

22. — **Feed pawl pivot** : Forms the axis for the pawls.

23. — **Feed pawl springs** : Hold the pawls on the belt.

D. — MECHANISM FOR LOCKING, FIRING AND EXTRACTION :

Mounted in the inside of the receiver and bottom plate.

24. — **Piston** : Recoils under the impulse of the gas, in compressing the return spring; advances under the action of the compressed spring and engages with the sear in the armed position : by its link and rear ramp lowers and raises the locking dogs; by its striker post holds the breech block and commands the movement of the firing pin.

25. — **Link** : Lowers the locking dogs when the piston recoils.

26. — **Breech block** : Actuates the feed mechanism through the camway; introduces the cartridge into the chamber; by its locking dogs which engage the abutments in the receiver, closes the breech; has lateral grooves which slide on the ribs of the receiver, and a longitudinal groove for the passage of the ejector; carries the firing pin and the extractor.

27. — **Locking dogs** : Lock the breech block in its closed position.

28. — **Top link pin** : Connects the locking dogs and the link.

29. — **Return spring guide** : Connects the piston with return spring and guides the latter.

30. — **Return spring** : Housed in the bottom plate tube, tends constantly to force the piston forward.

31. — **Firing pin** : Strikes the primer of the cartridge.

32. — **Extractor** : By its claw, extracts the empty case from the chamber of the barrel.

33. — **Extractor spring** : Forces the extractor forward and causes the latter to engage behind the rim of the case.

E. — FIRING MECHANISM :

Mounted in the housing placed beneath the bottom plate.

34. — **Trigger and accelerator housing** : Encloses the sear, trigger and accelerator : carries the safety lever.

Its rear part, in the form of a pistol grip, aids in pointing the gun.

35. — **Accelerator Button screw** : Used to facilitate the mounting of the Belleville discs.

36. — **Trigger and accelerator housing pin** : Attaches the housing on to the bottom plate.

37. — **Accelerator lever** : Transmits to the Belleville discs the energy remaining in the piston at the end of its recoil, then gives the piston a sharp forward movement, thus increasing the rate of fire.

38. — **Belleville discs** : Store up the energy of the piston by the agency of the accelerator lever.

39. — **Belleville disc guide** : Placed through the centre of the Belleville discs.

40. — **Disc guide pivot** : Connects the guide with the accelerator lever.

41. — **Sear** : Engages in the arming notch of the piston; is actuated by the trigger.

42. — **Sear pivot** : Supports the sear.

43. — **Sear spring** : Tends to force the sear upwards.

44. — **Safety lever** : Prevents the action of the trigger.

45. — **Trigger** : Commands the sear.

46. — **Trigger Pivot** : Supports the trigger.

F. — ACCESSORIES

Box for accessories : Encloses small spare parts and the cleaning accessories.

Hand extractor : Used to remove a cartridge or a non ejected case and to dismount the extractor spring.

Key : Serves to dismount the barrel and to turn the regulator.

Cleaning rod : In 4 pieces on which can be screwed, as necessary a brush or a sponge.

Links : Assembled with cartridges to form the flexible belt.

Loading machine : For assembling the links with cartridges.

ACTION OF THE MECHANISM

When the trigger is pressed, the sear is disengaged from the piston, which moves forward under the action of the main spring, together with the breech block.

During the forward motion, the action of the mechanism is as follows :

The tenon of the feed lever, engaged in the cam groove of the breech block, moves from right to left. The beak of the feed lever slides over the belt, and engages in the opening corresponding to the second cartridge.

The breech block forces the first cartridge from the band into the chamber.

The claw of the extractor rides over and engages with the rim of the cartridge.

The breech block is brought to rest against the rear face of the barrel. The piston continues its forward motion, and by its rear ramps and link raises the breech block locking dog. This is brought into line against abutments in the receiver, and locks the breech block. The piston continues its forward movement, carrying, with it the firing pin, which strikes the primer of the cartridge and explodes the charge.

After the bullet has passed the gas vent, a small amount of gas is diverted through the gas nozzle to the head of the piston, throwing it to the rear in compressing the main spring.

During the first part of its rear movement, the piston withdraws the firing pin; it then lowers the locking dog and frees the breech block, which moves to the rear with the piston, the extractor withdrawing the empty cartridge case.

When the head of the empty cartridge case strikes the ejector, the case is ejected through the opening in the body of the piston.

The tenon of the feed lever, working in the cam groove of the breech block, moves from left to right. The beak of the feed lever, engaged in the belt, moves it to the right, thus positioning a cartridge against the cartridge stop of the feed block.

Near the end of its stroke, the rear end of the piston strikes the accelerator lever, and gives up the remainder of its energy in compressing the Belleville discs. These immediately expand, and, acting through the lever throw the piston smartly forward, and the cycle is repeated until the drum is exhausted or the trigger released.

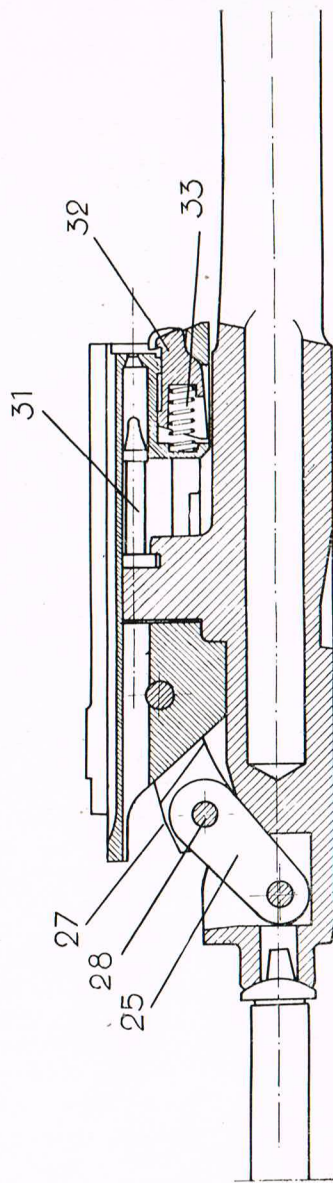


Plate 4. — Section — Piston and breech block assembly.

STRIPPING AND REASSEMBLING THE GUN

In the HOTCHKISS observer's gun, the principle has been followed of locking one part of the mechanism by another, so that the gun can be stripped without the use of tools. To facilitate the removal of the ejector spring, a hand extractor is provided, but this is not indispensable.

TO STRIP :

- Close the breech if necessary.
- Unscrew the two drum support bolts and remove.
- Open the cover of the receiver by pulling back the cover bolt. Remove the feed block.
- Take out the fixing pin and disengage the bottom plate by drawing it to the rear.
- Remove the return spring and return spring guide.
- Withdraw the piston and breech block : separate these by removing the top link pivot pin.
- Remove firing pin.
- By means of the hand extractor remove the extractor spring.
- Remove extractor.
- Draw the cocking handle lightly to the rear until the tenon disengages from the receiver.
- Unscrew the receiver by turning clockwise.
- Remove piston protection tube by withdrawing to the rear.
- Unscrew the gas regulator.

Reassemble the parts in reverse order, noting that the firing pin must be put as far forward as possible before introducing the striker post of the piston into the breech block.

Assemble the piston and breech block before entering them into the receiver. Note that the breech block cannot be introduced into the receiver, unless the locking dogs are lowered. (An easy method of ensuring this is to hold in the right hand and by its rear part the piston and breech block assembly, placing the thumb between the lowered dogs of the breech block.)

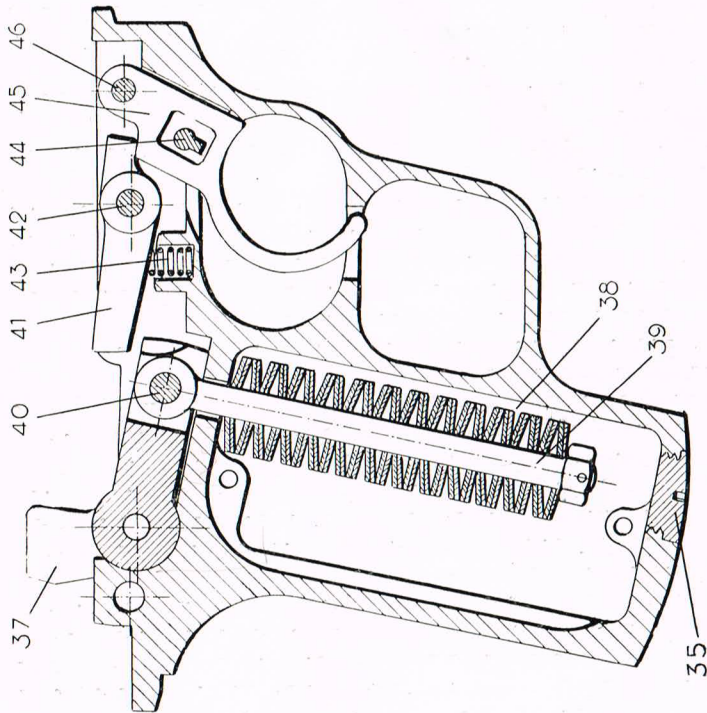


Plate 5. — Section — Accelerator and trigger assembly.

COMPLEMENTARY STRIPPING

Trigger and accelerator housing.

Remove the trigger and accelerator housing pin and separate the housing from the bottom plate.

Push on the sear with the thumb and with the housing pin push out the sear pivot pin. Take out the sear and sear spring.

Take out the trigger pivot pin and remove the trigger.

The accelerator, in principle, is never dismantled. If it is required to do so, unscrew the button screw at the bottom of the pistol grip.

Unscrew the nut holding the Belleville discs together. Remove the discs. Remove the accelerator lever and disc guide.

Remount in reverse order, taking care to pin the nut holding the Belleville discs. and to block the button screw.

Feed mechanism.

Push with the point of a cartridge on the sight plate, about 1/2 inch from the forward end and pull the plate to the rear : take out the plate and the leaf spring.

Push out the feed arm frame pivot by pushing the point of the firing pin through the hole in the feed arm. Remove the base of the rear sight by pulling to the rear. Pull to the rear the cover bolt so as to disengage the feed arm frame. Remove the latter with the feed arm.

Unscrew the cover bolt. Remove the feed arm frame rear support and its spring.

Remount in reverse order.

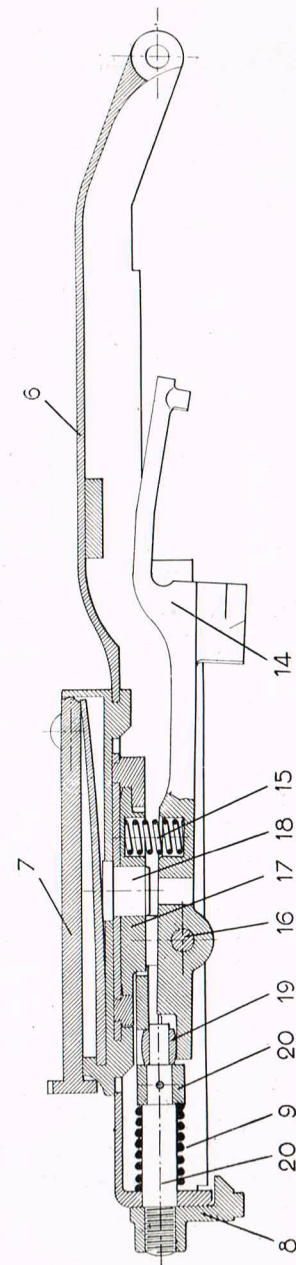


Plate 6. — Section — Feed mechanism.

STOPPAGES

In case of stoppage during firing, first pull the cocking handle two to three inches to the rear (without arming) then let go the cocking handle; if firing does not continue, arm fully and press on the trigger.

If the stoppage persists, arm by hand, open the cover and remove the feed block with the belt, and examine the respective positions of the breech block and of the cartridge. Take note of the stoppage.

POSSIBLE STOPPAGES

1. — **Empty closing at the commencement of a belt** : The belt was not pushed fully against the cartridge stop. Arm and press the trigger.

2. — **Pinched cartridge case** : Move the cocking handle backwards and forward a short distance to allow the cartridge to drop into the deflector bag, then release.

3. — **Missfire** : Arm by pulling back the cocking handle. The defective cartridge is ejected and firing is continued.

4. — **Broken link** : Agitate the cocking handle two to three times to clear any broken parts of the link, then let it go forward. If the gun does not fire, arm fully, at the same time watching the belt. If the belt moves into the feed block, then pull on the trigger. If the belt does not move, then feed it into the feed block till cartridge comes against the cartridge stop, then pull the trigger.

5. — **Non locking of the breech block** : A foreign body (perhaps a cartridge primer) prevents the complete closing of the breech. Remove it.

NOTE. — Always arm the gun before feeding the belt into the feed block.

To withdraw a belt from the feed block, open the receiver cover (this disengages the feed pawls from the belt) and return the belt into the drum by turning the feed wheel, at the same time depressing the pawl placed on the top of the drum.

NOTES ON HANDLING THE GUN

A. — **With Chest Plate.** — During firing the positions of the hands are : left hand on main spring tube, right hand on trigger grip.

B. — **With hand grip.** — During firing the positions of the hands are : left hand on scarf mounting, right hand on hand grip.

TO LOAD. — Grasp the drum with the left hand underneath the strap, put the thumb on the release catch, and depress. Withdraw drum from its holder. Place the right hand on the right of the drum (as shown in plate 7), and lift into position on the gun, streamlining in the slip-stream as much as possible.

Pull back the cocking handle with the left hand until sear engages with the piston.

Enter the belt into the feed block by means of the feeding wheel, until a cartridge engages against the cartridge stop.

The gun is ready for firing.

TO UNLOAD. — Grasp the drum as before, with the left hand under the strap, thumb on catch, and right hand on right of drum. Depress catch, withdraw drum from support, and streamline into the cockpit.



Plate 7. — Position of hands placing or removing drum.