

# MADSEN MACHINE GUN

M(016) 81. 19440

COMPAGNIE MADSEN, 44 COMPAGNIE MADSEN, 44 COMPANIAGEN ELLE MARK

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## I. DESCRIPTION OF THE GUN

The MADSEN machine gun is an air-cooled weapon and consists of :

the fixed parts and the recoiling parts.

The working of the gun is brought about as follows: the recoiling parts under the pressure of the powder gas and a system of springs move backwards and forwards within the fixed parts; this is caused by the powder gas pressure on the base of the cartridge being transferred through the breech block to the recoiling parts; when firing ceases, the recoiling parts are in their rearmost position with the *chamber empty*.

#### 1. The fixed parts.

#### (Fig. 7).

The principal fixed parts are the barrel casing (104) and the frame (1), which are screwed together, and the trigger plate (65) and stock (96). These two latter parts are connected by means of the stock screw (98) and they are made fast to the frame (1) by means of the frame bottom bolt (141) and the frame lid locking bolt (22).

On the left side of the frame (1) is the magazine receiver; mounted on the trigger plate is the trigger gear and the organs for regulating the movements of the recoiling parts.

At the top the frame is closed by the frame lid (2). In its underside the trigger plate has an opening for the passage of empty cases, which can be closed by the flap-shaped spring-controlled deflector (92).

On the fore end of the barrel casing is the flash absorber (381). On its upper side is the foresight base with the foresight (31), and farther back the rear sight base (23) with the rear sight leaf spring (26), leaf (24) with the slide (27) and notch. On both sides the leaf has a graduated scale from 200 to 1900 metres.

On the underside of the barrel casing towards the muzzle are two struts which can be folded back along the casing; they are adjustable for length and are joined together by a jointed stay with a wing-nut, by means of which the struts can be clamped back in the unused position.

At the middle of the upper side of the casing there are studs to hold the clamp of the gun mounting when the gun is to be placed on it. A little farther back on the right side is the carryinghandle (592), which is secured to the barrel casing by means of the carrying-handle ring (598), in the hinge of which the handle can be folded up and down.

The barrel casing is also designed to take anti-aircraft sights; a separate description contains particulars of the construction and mounting of these sights.

Near the toe of the stock (96) is the stock elevator socket (197) and wing nut, and on the right side of the stock a holder for the periscope, which can be used when firing over cover.

On the left side of the trigger plate is the sight-post for mounting the elevation clinometer for use in indirect fire.

# 2. The recoiling parts. (Fig. 7).

The main details of the recoiling parts are the barrel (43), the breech (44) and the breech block (59).

The breech (44), into which the barrel is screwed, is in the form of an oblong frame holding the breech block (59), which moves inside the breech round the horizontal breech block bolt (61).

The fixed parts and the recoiling parts are connected together by the recoil arm (69), which is mounted on the horizontal crank axle bolt (68) and the head of which engages in a groove in the link (47), which is immovably connected with the breech (44).

#### 3. The trigger gear.

#### (Figs. 1, 2 and 3).

The trigger gear is placed inside the trigger plate (65). It comprises the trigger guard (79), the trigger (80) and trigger spring (81). The trigger guard has a seating for the trigger rod pin (87) on which the trigger works. The finger-piece of the trigger extends down into the trigger guard, and in addition the trigger has a forward pointing arm which is pressed upwards by the trigger spring, and which on its upper side has a nose (80A) to engage the notch in the recoil arm (69).

The trigger rod (85), which turns on the trigger rod pin to the left of the trigger, has on its upper side a nose (the sear) to fit into the notch of the percussion arm (70). At its fore end the trigger rod and also the forward pointing arm of the trigger are cut away to allow the safety catch (91) to be turned in under them.

# 4. The recoiling and percussion mechanism. (Figs. 1, 2 and 3).

The backward motion of the recoiling parts is braked by the recoil arm (69) together with the recoil spring (75) and the percussion arm (70) with its spring (76) working together, and at the end of the recoil the parts are thrust forward again by the recoil arm and spring alone.

The recoil arm is mounted on a four-sided seating on the crank axle bolt (68) and is thus fixed to it and moves with it.

At its fore end the recoil arm has a head which engages in a groove in the link (47), thus forming the connection between the fixed and the recoiling parts of the gun.

At the rear the recoil arm has seatings for the two studs on the recoil spring plunger (74), and below these a notch for the nose of the trigger by means of which the recoiling parts are held in the rearmost position when the pressure on the trigger is released.

The recoil spring (75) is compressed during the recoil between the percussion and recoil spring base (78) in the trigger plate (65) and the shoulder on the recoil spring plunger; this compression checks the recoil of the moving parts and sends them forward again at the end of the recoil as long the trigger is kept pressed.

On the boss of the recoil arm is the trigger stud (69A); during the final part of the forward movement this stud depresses the trigger rod, thus releasing the trigger rod nose (85A) out of the notch in the percussion arm, which is thus released and then strikes.

The percussion arm (70), which turns on the crank axle bolt (68), has at its rear end seatings for the stude of the percussion spring plunger (77), below these a notch for the trigger rod nose (85 A), and at the fore end a head which at the moment of firing impacts on the hammer (48).

The percussion spring (76) lies round the percussion spring plunger in the same manner as the recoil spring and plunger, and is compressed between its shoulder and the spring base (78).

#### 5. The safety device.

(Figs. 1 and 2).

The safety catch (91) consists of a transversal bolt with a radial cam. When the recoiling parts are in their rearmost position the safety catch can, by means of a finger-piece on the left side of the trigger plate (65), be set at three different positions, marked from below: "F", "D" and "S".

In position "F" (ready to fire) the cam slopes obliquely upwards and forwards, so that both the forward-pointing arm of the trigger and the trigger rod are free and can move downwards.

In position "D" (discharge) the cam is vertical and solely supporting the fore end of the trigger rod, thus stopping its movement downwards, whereby the percussion arm is locked in the cocked position. The forward pointing arm of the trigger, which is somewhat shorter, is free, so that the recoil arm can be released and the gun can be unloaded without risk of firing.

In position "S" (safety) the cam slopes upwards and backwards, thus supporting both trigger rod and trigger and locking them, so that firing is impossible.

#### 6. The breech block and its movements. (Figs. 4, 5, 6 and 7).

Forward on the right side the breech block (59) has a downward lug having on its right side the breech block guide stud (59A). At the top rear the breech block is drilled transversally for the breech block bolt (61); it is also drilled longitudinally for the firing pin (62); on its underside is the ejection track (59 B), and on its upper side is a clearance to permit the cartridge to be fed into the chamber.

The breech block guide plate (20) is placed in the right side of the frame (1) and on its inner side has five blocks which serve to guide the motion of the breech block as described below.

On Fig. 4 the barrel (43) is shown closed by the breech block (59). The breech block guide stud (59 A) rests between the two foremost blocks of the breech block guide plate (20), these two blocks forming a horizontal track for the stud. When the shot is fired the parts begin to recoil, in which motion the barrel and the breech block retain their mutual positions, so that the chamber is still closed until the guide stud strikes against the middle block on the guide plate. As the breech block is resting on the ejector (54), the guide stud cannot slip under the middle block, so that it now moves up along the track a-b, thus raising the fore end of the breech block so that the chamber is opened.

As the recoil continues, the guide stud runs along the track b-c, which keeps the breech block raised up so that the empty cartridge case can be ejected.

When the guide stud has passed the point c, the breech block spring (60) in the lid (2) of the frame will press down the fore end of the breech block; and as the recoil is simultaneously ended and the return movement begins, the guide stud will glide downwards and forwards along the track c-d, so that the chamber is open while the guide stud runs forward along the track d-e.

During this latter motion a cartridge is fed into the chamber; the latter is then closed by the breech block, of which the guide stud runs up along the track e-a and continues till it reaches its starting point between the two foremost blocks of the guide plate.

Of the two rear blocks on the guide plate, the purpose of the upper one is to facilitate the ejection of unfired rounds, whereas the lower one prevents double loading.

# 7. The cartridge feeding mechanism. (Figs. 5 and 7).

On the left side of the frame (1) is the magazine receiver (A), into which a magazine can be placed and locked there by the magazine catch (12); the rounds from the magazine fall on

to the floor of the magazine receiver, the magazine cut-off being pushed back by the action of inserting the magazine.

The cartridge distributor (173) forms the floor and left wall of the magazine receiver and turns on its own axis on the cartridge distributor pin (177), which lies parallel to the axis of the bore.

The cartridge distributor, which in this manner forms a bed for the cartridge, has on its left side an outward cam and on its right side a short arm (C), which is actuated by the distributor guide (163) on the left side of the breech, against which the arm is pressed by the cartridge distributor spring (174).

The cartridge feeder (51), which turns on the cartridge feeder axle pin (52) between two downward lugs on the breech (44), is in the form of a three-armed lever, with one long arm and two short ones, and it can move backwards and forwards between the breech block and the left wall of the breech, which has an elongated clearance for the passage of the cartridge.

The long upward arm of the cartridge feeder deals with the cartridge, whereas the two short downward arms govern the motions of the feeder by engaging round the cartridge feeder actuating block (66) on the trigger plate (65).

At the moment of firing the cartridge feeder (51) is right forward and rests lightly against the extreme left edge of the cartridge base, whilst the cartridge distributor (173), of which the arm (C) rests on the upper edge of the distributor guide (163), is turned outwards so that the next round is lying on the floor of the magazine receiver.

With the firing of the round the barrel and breech recoil; with this the arm of the cartridge distributor glides down the ramp of the distributor guide, thus releasing the distributor spring and pressing the round in the magazine receiver over towards the left side of the breech, while the outer cam of the distributor passes under and cuts off the next round. At the same time the cartridge feeder actuating block (66) swings back the cartridge feeder (51), so that it has just passed and stopped behind the rear edge of the cartridge opening in the left side of the breech shortly before the same rear edge passes the base of the cartridge in the magazine receiver.

Now the cartridge distributor presses the cartridge (B) in through the opening into the breech block in front of the cartridge feeder, with the point of the bullet turned a little to the right, whereafter, when the recoiling parts begin their return motion, and the breech block falls to its lower position, the cartridge feeder moves forward and takes the cartridge through the clearance in the upper part of the breech block and into the chamber, which is then closed by the breech block ; the distributor guide (163) meanwhile has again turned the cartridge distributor back, so that a fresh round falls down into the magazine receiver.

#### 8. The ejection mechanism. (Figs. 6 and 7).

The ejection mechanism consists of the ejector (54), the ejector lever (56) and ejector lever spring (58), which have their position in the forward part of the breech (44), and the ejector trip block (18), which is held by a nut to the bottom of the frame (1).

The ejector, of which the hole for the ejector bolt (55) is somewhat longer and wider than the bolt diameter, has a certain amount of play and is kept in the vertical position by the ejector lever, which is kept pressed down by the ejector lever spring and with its claw engages the slot in the bottom forward edge of the ejector. When in this position the extractor on the ejector does not reach as far as in behind the collar of the cartridge in the chamber.

During the rearward motion produced by the recoil, the fore end of the breech block is raised as already described, while the ejector, still vertical, glides up the ramp of the ejector trip block. This upward motion takes the extractor in under the collar of the cartridge.

During the passage of the ejector across the horizontal surface of the ejector trip block the claw of the ejector lever is lifted free of the slot, as a stud on the left side of the lever glides up a sloping track on the left side of the ejector trip block.

After passing the horizontal surface of the ejector trip block the ejector trips against the step on the block, falls backwards almost to a horizontal position and throws out the empty case; the case follows the ejection track (59 B) of the breech block and falls down through the opening in the trigger plate, where it strikes and is deflected by the deflector (92), so that the case hits neither the gunner nor his helper.

Fig. 6 shows the mutual positions of the parts described while the recoil is in progress, at the moment when the ejector (54) is tripping over the step on the ejector trip block (18).

When the recoiling parts are moving forward, the breech block (59), which is now in its lowest position, will hold the ejector (which after ejecting the empty case is lying on the ejector trip block) down in its prone position until the breech block guide stud has passed the sloping track of the forward lower block, whereafter the ejector lever, which has become reengaged with the ejector, will raise the latter to its vertical position again, partly under the influence of the ejector lever spring (58), partly because the aforesaid stud on the left side of the ejector lever is pressed down by a bevel flange at the fore end of the left side of the ejector trip block.

# 9. The firing mechanism. (Fig. 7).

The firing mechanism comprises the firing pin (62) and firing pin spring (63) and the hammer (48).

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The firing pin, which has its position inside the firing-pin way in the breech block (59), has a rounded point at the fore end, at the middle a shoulder for the firing pin spring, and at the rear a cylindrical collar, the fore edge of which, in conjunction with a seating in the firing-pin way, limits the forward motion of the pin, whilst the rear end forms an anvil for the head of the hammer. In the underside of the firing pin collar is a slot for the firing pin retaining stud (64), which restricts the rearward motion of the firing pin.

The firing pin spring (63), which lies round the firing pin and is compressed between the shoulder of the pin and a cylindrical seating in the firing-pin way, keeps the point of the pin behind the front face of the breech block except at the moment of firing.

The hammer (48), which swings on the hammer axle pin (49) in the rear wall of the breech (44), has a head at the front for the firing pin and at the rear an anvil for the percussion arm (70).

When the trigger releases the percussion arm, it strikes down on the hammer, which transmits the stroke to the firing pin, whereby the latter is thrust forward and hits the percussion cap of the cartridge, the firing pin spring being compressed at the same time.

At the very beginning of the recoil after the round is fired the percussion arm leaves the anvil on the hammer, gliding up an inclined track in the link (47), so that the firing pin spring can withdraw the tip of the firing pin into the breech block.

### 10. The magazine.

(Plate VII).

The magazine is in the form of a flat box of sheet steel. One end of the magazine is closed by the bottom, whereas the other is open. Inside the magazine is the platform; between the latter and the bottom is a spring, which gradually becomes compressed as the magazine is being filled with cartridges.

The cartridges are prevented from falling out of the magazine by an outside spring with a hook on its left side; this is automatically released when the magazine is placed in the magazine receiver on the gun.

The reinforcing band at the open end of the magazine has a lug at the front and a clearance at the rear to secure the magazine in the receiver, which has a corresponding clearance and the magazine catch.

## II. ACTION OF MECHANISM WHEN FIRING

The gun is designed for automatic fire, and therefore *auto*matic fire is the normal, employed in long or short bursts of up to a whole magazine at a time.

Single shots can be fired if the gunner lets the trigger go quickly after each round; the mechanism will then remain in the rear position each time, as explained below.

The gun must be loaded before firing commences.

#### Loading.

When a magazine is placed into the magazine receiver, the spring hook will be pressed to the left so that the cartridges become free; they are then pressed forward by the magazine spring until the first round is lying on the floor of the magazine receiver.

The gunner then performs a loading motion, in which the crank is pulled smartly backwards, then released and, with a blow of the hand, thrust forward till it engages with the crank catch on the right side of the frame.

This motion rotates the crank axle bolt, and with it the recoil arm, which draws the recoiling parts back to the rearmost position, where they are held by the nose of the trigger entering up behind the notch on the recoil arm.

At the same time the percussion arm is cocked, being held by the nose of the trigger rod, whilst the cartridge distributor has carried the first round from the magazine receiver over towards the left side of the breech block in front of the cartridge feeder.

The gun is now ready to fire; if necessary the safety catch can now be applied.

#### Firing.

The gun is fired by pressing the trigger. This pressure lowers the forward-pointing arm of the trigger, thus releasing the recoil arm; under the pressure of the recoil spring the arm carries the recoiling parts forward, whereby the cartridge is inserted into the chamber and the breech block closes it as described above.

When the recoiling parts still have about 2.5 mm to complete the forward motion, the trigger stud (69 A) on the recoil arm hits the trigger rod and depresses it, thereby releasing the percussion arm to fire the round, while the next cartridge falls into the magazine receiver as previously described.

The recoil is produced by the pressure of the powder gas against the inside of the cartridge base.

During this motion the empty case is ejected after the breech block is raised under the influence of the guide stud as stated above.

Before the breech block rises, the firing pin must be drawn back from the percussion cap and the pressure must have left the barrel. For this reason the rearward movement of the breech block is straight backwards for the first 10 mm, and during this motion the link raises the head of the percussion arm away from the hammer, so that the firing pin can be pressed back by the firing pin spring. For this purpose the link has an inclined track which presses against the right half of the head on the percussion arm.

Furthermore, the cartridge feeder is turned back and the next round is laid over in front of it by the distributor. Simultaneously, the recoil arm and percussion arm are pressed back by the breech link, thus compressing the recoil and percussion springs; the nose of the trigger rod engages in the notch in the percussion arm, which is thus cocked.

The recoil having ended, the recoil spring thrusts the mechanism forward, and the next round is fired just before the forward movement has terminated; firing proceeds in this manner till the magazine is empty or till the gunner ceases to press the trigger.

If the magazine is empty, the mechanism will stop in the forward position, with no round in the chamber.

Should the gunner release the trigger before the magazine is empty, the trigger spring will force the forward-pointing arm of the trigger upwards and its nose will enter the notch in the recoil arm the first time the latter passes the nose on its way back; this prevents the mechanism from moving forward again, and no round is fed into the chamber.

It will thus be seen that by means of this device no cartridge will be placed in the chamber when fire ceases, and it is therefore impossible for a round to enter a heated chamber and perhaps explode through spontaneous ignition.

As stated above, the gun can fire a single shot at a time by releasing the trigger quickly after each round. The gun will then act as described above for every round. If the gunner is not quick enough in releasing the trigger, two rounds automatic will be fired before the gun stops.

#### Unloading.

If firing ceases while there are still rounds in the magazine, and firing is not to be resumed, the gun is unloaded in the following manner.

The safety catch must be turned to "D" (Discharge) and the magazine lifted off the magazine receiver, being gripped from

the rear with the right hand which presses it forward and downwards, the magazine catch at the same time being released by a pressure forward with the palm of the hand.

There will now be two rounds at most in the magazine receiver, and they can be removed by alternately pressing the trigger and performing a loading motion.

These rounds can also be taken out of the magazine receiver by pressing the forefinger on the nose of the bullet, thus tilting up the base, or by turning the gun on its left side and shaking them out. The lower cartridge must in this case be set free by pressing the finger-piece of the cartridge distributor with the left hand.

After unloading, the mechanism is returned to the forward position and the deflector closed up.

## III. STOPPAGES AND THEIR REMEDIES

Should the gun stop while firing, the gunner must apply the safety catch at once if possible, then quickly open the frame lid in order to judge of the cause from the position of the mechanism.

While clearing the trouble the gunner must keep calm, use his head, and act energetically but without ever using force.

The following stoppages may occur:

#### 1. Jams.

A jam can be seen from the fact that the mechanism is not all the way forward and that the breech block has stopped in its lower position, being prevented from rising by a round which has not been fully inserted into the chamber.

#### Cause:

a. The cartridge cannot go right into the chamber owing to dirt on it or in the chamber itself, or dents in the cartridge case.

b. The empty case of the last round has separated, and the end is jammed inside the chamber.

#### Remedy:

a. I. Close the lid and cool the barrel by pouring water on it from the water-bag. Then make a few very short loading motions to try and press the round right into the chamber, whereafter it is extracted by making a powerful loading motion. a. II. If the round cannot be made to go right into the chamber, remove the magazine and any rounds in the magazine receiver. Now draw the recoiling parts as far back as possible, pulling the crank with the right hand, the left hand armed with the emergency extractor (253) easing the jammed cartridge out of the chamber and pressing it so far over against the cartridge distributor that the recoiling parts can pass into their forward position. Then pick up the cartridge from the magazine receiver with the extractor.

b. Close the frame lid remove the magazine and any rounds in the magazine receiver.

Now turn the trigger plate down and change the barrel; the loader then extracts the separated case from the barrel with the clearing plug (267). The clearing plug cannot be inserted into the chamber while the barrel is in the gun.

#### 2. Faulty closing.

This is recognized by the mechanism being right forward, the round right home in the chamber, and the breech block on the way upwards.

#### Cause:

The cartridge collar is too thick or the cartridge itself too long.

#### Remedy:

Close the frame lid, cool the barrel with water, then proceed as for Jams a. I. and a. II.

#### 3. Faulty ejection.

The mechanism is not right forward and the breech block is in its top position.

#### Cause:

a. The cartridge case has jammed in the chamber and the ejector has torn the cartridge collar.

b. The cartridge case has merely got jammed in the chamber.

#### Remedy:

a. Pull back the recoiling parts, then push out the case with the cleaning rod.

b. Eject the case by making a loading motion.

#### 4. Misfire.

The mechanism is right forward and the percussion arm has fallen, but there is a round in the chamber.

#### Cause:

Faulty percussion cap or charge.

#### Remedy:

Close the lid and eject the round by a quick loading motion.

#### 5. Faulty cartridge feeding.

a. The mechanism is not right forward, the breech block is in its lower position, the round is not fully inserted, the cartridge feeder is lying alongside of or behind the cartridge, and the percussion arm is cocked.

b. The mechanism is right forward but the chamber is empty.

#### Cause:

a. The round fell too late from the magazine for the cartridge distributor to have time for laying it over in front of the cartridge feeder, either owing to dirt in the magazine or because the magazine spring is too weak or it is broken.

Otherwise, the cartridge distributor spring may be weak or broken, or the cotter in the distributor pin has fallen out. b. short recoil, owing to low charge in the cartridge, or the mechanism is too dry or dirty.

The rounds may have stuck in the magazine owing to dirt, dents in the cases or in the magazine, or the magazine spring is weak or broken.

#### Remedy:

a. and b. Perform a loading motion. If this does not suffice, remove the magazine and the rounds from the magazine receiver; then take out the round that failed to enter the chamber and inspect both magazine and cartridge distributor, etc., clean and oil. If necessary, clean and oil the mechanism.

Should the magazine be defective, take another one; if the cartridge distributor spring is weak or broken, replace it.

If the cartridge distributor pin cotter is missing, replace it.

#### 6. Empty case in ejection way.

The case is extracted from the chamber but is jammed between the recoiling and the fixed parts of the gun.

#### Remedy:

Open the frame lid and perform a short loading motion, which will cause the case to drop out.













## V. NOMENCLATURE AND PHOTOGRAPHS

OF PARTS, ACCESSORIES AND TOOLS FOR THE MADSEN MACHINE GUN MODEL 1940

#### MAIN PARTS

#### I. BARREL CASING

Barrel casing. Sights. Flash absorber.

II. FRAME Frame. Frame lid. Sundry parts of frame and lid.

#### **III. BARREL**

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Barrel. Breech. Breech block.

#### IV. TRIGGER PLATE

Trigger plate. Trigger guard. Safety catch. V. STOCK Stock. Stock elevator socket. Periscope sight base. Struts. Fittings.

VI. STOCK ELEVATOR

VII. MAGAZINE

VIII. ANTI-AIRCRAFT SIGHT Fore sight. Rear sight.

IX. ACCESSORIES AND TOOLS X. ACCESSORIES AND TOOLS

| Photo<br>No. | Name of Part                              | Factory<br>No. |
|--------------|---|----------------|
|              | I. BARREL CASING                          |                |
| 1            | Barrel casing                             | 104            |
|              | Sights.                                   |                |
| 2            | Foresight                                 | 31             |
| 3            | Foresight protector, right                | 110            |
| 4            | Foresight protector, left                 | 111            |
| 5            | Foresight protector screw for 110 and 111 | 33             |
| 6            | Pin for No. 33                            | 34             |
| 7            | Rear sight base                           | 23             |
| 8            | Rear sight base rivet                     | 30             |
| 9            | Rear sight leaf spring                    | 26             |
| 10           | Rear sight leaf                           | 24             |
| 11           | Rear sight hinge screw                    | 25             |
| 12           | Rear sight slide                          | 27             |
| 13           | Rear sight slide catch                    | 28             |
| 14           | Rear sight slide catch spring             | 29             |
|              | Flash absorber.                           |                |
| 15           | Flash absorber                            | 381            |
| 16           | Flash absorber catch                      | 236            |
| 17           | Flash absorber catch spring               | 238            |

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|--------------|------------------------------------|----------------|----|--------------|--------------------------------|----------------|
| Photo<br>No. | Name of Part                       | Factory<br>No. |    | Photo<br>No. | Name of Part                   | Factory<br>No. |
|              | II. FRAME                          |                | 1  | 34           | Cartridge distributor pin      | 177            |
|              |                                    |                |    | 35           | Pin for No. 177                | 34             |
| 18           | Frame                              | 1              |    |              |                                | 0.             |
| 10           | From 11                            | 2              |    | 36           | Breech block guide plate       | 20             |
| 19           | Frame lia                          | 2              | 4  | 37           | Breech block guide plate latch | 21             |
|              | Sundries for Frame and Frame Lid.  |                |    | 38           | Crank catch stop               | 151            |
| 20           | Frame lid hinge pin                | 3              |    |              |                                |                |
| 21           | Pin for No. 3                      | 34             |    | 39           | Frame end plate                | 16             |
| 22           | Frame lid hinge spring             | 254            | 4  | 40           | Frame end plate screw          | 17             |
| 23           | Breech block spring                | 60             |    | 41           | Frame bottom plate             | 150            |
| 24           | Frame lid locking bolt             | 22             |    | 42           | Ejector trip block             | 18             |
| 25           | Frame lid locking bolt pawl        | 401            |    | 43           | Ejector trip block nut         | 19             |
| 26           | Frame lid locking bolt pawl spring | 402            | 1  | 44           | Frame bottom bolt              | 141            |
| 27           | Frame lid locking bolt pawl pin    | 403            |    | 45           | Frame bottom bolt locking pin  | 902            |
| 28           | Magazine catch                     | 12             |    |              |                                |                |
| 29           | Magazine catch pawl                | 14             |    |              |                                |                |
| 30           | Magazine catch spring              | 13             | 1  |              |                                |                |
| 31           | Magazine catch pin                 | 15             |    |              |                                |                |
| 32           | Cartridge distributor              | 173            |    |              | •                              |                |
| 33           | Cartridge distributor spring       | 174            | X. |              |                                |                |

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|   |  |   |   |   |   |   |  | Factory<br>No. |
|---|--|---|---|---|---|---|--|----------------|
|   |  |   |   |   |   |   |  | 177            |
| • |  |   | • |   |   |   |  | 34             |
|   |  |   |   |   |   |   |  | 20             |
|   |  |   |   | • |   | • |  | 21             |
| • |  |   |   |   |   |   |  | 151            |
|   |  |   |   |   |   |   |  | 16             |
|   |  |   |   |   |   |   |  | 17             |
|   |  | • |   |   | • |   |  | 150            |
|   |  |   |   |   |   |   |  | 18             |
|   |  |   |   |   |   |   |  | 19             |
|   |  |   |   |   |   |   |  | 141            |
|   |  |   |   |   |   |   |  | 902            |
|   |  |   |   |   |   |   |  |                |



| Photo<br>No. | Name of Part              | Factory<br>No. |
|--------------|---------------------------|----------------|
|              | III. BARREL               |                |
|              | Barrel.                   |                |
| 46           | Barrel                    | 43             |
| 47           | Barrel locking pin        | 162            |
| 48           | Pin for No. 162           | 34             |
|              | Breech.                   |                |
| 49           | Breech                    | 44             |
| 50           | Distributor guide         | 163            |
| 51           | Distributor guide rivet   | 288            |
| 52           | Ejector                   | 54             |
| 53           | Ejector bolt              | 55             |
| 54           | Ejector lever             | 56             |
| 55           | Ejector lever axle pin    | 57             |
| 56           | Ejector lever spring      | 58             |
| 57           | Ejector stop              | 46             |
| 58           | Ejector stop pin          | 45             |
| 59           | Pin for No. 45            | 34             |
| 60           | Cartridge feeder          | 51             |
| 61           | Cartridge feeder axle pin | 52             |
| 62           | Key for No. 52            | 219            |
| 63           | Pin for No. 52            | 53             |

| Photo<br>No. | Name of Part              | Factory<br>No. |
|--------------|---------------------------|----------------|
| 64           | Link                      | 47             |
| 65           | Hammer                    | 48             |
| 66           | Hammer axle pin           | 49             |
| 67           | Breech cover plate        | 298            |
|              | Breech block.             |                |
| 68           | Breech block              | 59             |
| 69           | Breech block bolt         | 61             |
| 70           | Firing pin                | 62             |
| 71           | Firing pin spring         | 63             |
| 72           | Firing pin retaining stud | 64             |



| Photo<br>No. | Name of Part                           | Factory<br>No. |   | Photo<br>No. |           |
|--------------|--|----------------|---|--------------|-----------|
|              | IV. TRIGGER PLATE                      |                |   | 94           | Recoil ar |
| 73           | Trigger plate                          | 65             |   | 95           | Recoil sp |
| 74           | Cartridge feeder actuating block       | 66             |   | 96           | Recoil sp |
| 75           | Cartridge feeder actuating block rivet | 396            |   |              |           |
| 76           | Trigger plate bolt                     | 164            | 4 | 97           | Percussio |
| 77           | Recoil arm stop                        | 165            |   | 98           | Percussio |
| 78           | Recoil arm stop rivet                  | 221            |   | 99           | Percussio |
|              |  |                |   | 100          | Percussio |
| 79           | Percussion arm stop                    | 406            |   |              |           |
| 80           | Percussion arm stop rivet              | 407            |   |              | Trigger g |
| 81           | Percussion arm stop rivet              | 408            |   | 101          | Deflector |
| 82           | Crank stop pawl                        | 395            |   | 102          | Key for N |
| 83           | Crank stop pawl rivet                  | 221-A          |   | 102          | Pin for N |
| 01           | Talassana sight past                   | 755            | 4 | 103          | Trigger g |
| 04           | Telescope-sight post                   | 221 1          |   | 105          | Trigger . |
| 85           | Telescope-sight post river             | 221-A          |   | 106          | Trigger s |
| 80           | Telescope-signt post river             | 003            |   | 107          | Trigger r |
| 87           | Crank                                  | 67             |   | 108          | Trigger r |
| 88           | Crank bolt                             | 167            |   | 109          | Trigger r |
| 89           | Crank knob                             | 166            |   | 110          | Pin for N |
| 90           | Crank bolt washer                      | 168            |   | 111          | Deflector |
| 91           | Crank axle bolt                        | 68             |   | 112          | Deflector |
| 92           | Crank block washer                     | 71             |   | 113          | Deflector |
| 93           | Crank bolt pin                         | 73             |   | 114          | Deflector |

| Name of Part                      | Factory<br>No. |
|-----------------------------------|----------------|
| Recoil arm                        | 69             |
| Recoil spring plunger             | 74             |
| Recoil spring                     | 75             |
| Percussion arm                    | 70             |
| Percussion spring plunger         | 77             |
| Percussion spring                 | 76             |
| Percussion and recoil spring base | 78             |
| Trigger guard.                    |                |
| Deflector hinge pin               | 93             |
| Key for No. 93                    | 219-A          |
| Pin for No. 93                    | 215            |
| Trigger guard                     | 79             |
| Trigger                           | 80             |
| Trigger spring                    | 81             |
| Trigger rod                       | 85             |
| Trigger rod spring                | 81             |
| Trigger rod pin                   | 87             |
| Pin for No. 87                    | 34             |
| Deflector                         | 92             |
| Deflector opening spring          | 169            |
| Deflector latch                   | 94             |
| Deflector latch screw             | 95             |
|                                   |                |

| Photo<br>No. | Name of Part                | Factory<br>No. |
|--------------|-----------------------------|----------------|
|              | Safety Device.              |                |
| 115          | Safety catch                | 91             |
| 116          | Safety catch pawl           | 409            |
| 117          | Safety catch pin            | 411            |
| 118          | Safety catch spring         | 410            |
| 119          | Safety catch spring housing | 895            |
| 120          | Safety catch washer         | 896            |
| 121          | Safety catch pin            | 411-A          |

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| Photo<br>No. | Name of Part                         | Factory<br>No. |
|--------------|--------------------------------------|----------------|
|              | V. STOCK                             |                |
|              | Stock.                               |                |
| 122          | Stock                                | 96             |
| 123          | Stock screw                          | 98             |
| 124          | Shoulder flap hinge plate screw      | 102            |
|              | Stock elevator socket.               |                |
| 125          | Stock elevator socket                | 197            |
| 126          | Stock elevator clamp                 | 193            |
| 127          | Stock elevator clamp wing-nut        | 199-A          |
| 128          | Stock elevator clamp wing-nut washer | 277-A          |
|              | Periscope sight base.                |                |
| 129          | Periscope sight base                 | 936            |
| 130          | Periscope sight base screw           | 102            |
| 131          | Locking pawl for No. 936             | 937            |
| 132          | Spring for No. 936                   | 938            |
| 133          | Pin for No. 936                      | 939            |
|              | Strut.                               |                |
| 134          | Strut hinge collar                   | 38             |
| 134          | Stop pin for strut hinge collar      | 923            |
| 135          | Strut hinge collar clamp             | 175            |
| 136          | Strut hinge collar screw             | 37             |
| 137          | Pin for strut hinge collar screw     | 215            |
|              |                                      |                |

| Photo<br>No. | Name of Part                | Factory<br>No. |
|--------------|-----------------------------|----------------|
| 138          | Strut head                  | 179            |
| 139          | Strut assembling pin        | 158            |
| 140          | Strut tube                  | 40             |
| 140          | Strut tube collar           | 789            |
| 140          | Strut tube collar pin       | 749            |
| 141          | Strut stay-bar band         | 784            |
| 142          | Strut transverse stay-bar   | 747            |
| 143          | Strut transverse stay-bar   | 747-A          |
| 144          | Strut stay-bar band pin     | 786            |
| 145          | Strut stay-bar screw        | 785            |
| 145          | Strut stay-bar screw key    | 190            |
| 146          | Strut stay-bar screw washer | 787            |
| 147          | Strut stay-bar wing nut     | 199            |
| 148          | Strut stay-bar screw washer | 277            |
| 149          | Strut tube collar           | 790            |
| 150          | Strut tube collar pin       | 749            |
| 151          | Strut spike                 | 156            |
| 152          | Strut assembling pin        | 158            |
| 153          | Strut spike flange          | 35             |
| 154          | Strut spike flange pin      | 36             |
|              | Fittings.                   |                |
| 155          | Carrying-handle ring        | 598            |
| 156          | Carrying-handle ring screw  | 128            |

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| Photo<br>No. | Name of Part               | Factory<br>No. |
|--------------|----------------------------|----------------|
| 157          | Sling-swivel ring nut      | 943            |
| 158          | Carrying-handle arm pin    | 597            |
| 159          | Carrying-handle arm        | 595            |
| 160          | Carrying-handle            | 592            |
| 161          | Carrying-handle arm washer | 168            |
| 162          | Sling-swivel ring          | 126            |
| 163          | Sling-swivel ring screw    | 128            |
| 164          | Sling-swivel               | 127            |
| 164          | Sling-swivel eye           | 155            |
| 165          | Sling-swivel ring link     | 112            |
| 166          | Sling-swivel ring link pin | 113            |

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| VI. STOCK ELEVATOR167Stock elevator spindle tube168Stock elevator sleeve nut169Stock elevator stop screw170Stock elevator spindle171Stock elevator foot172Stock elevator foot locking nut173Stock elevator foot screw | Photo<br>No. | Name of Part                    | Factory<br>No. |
|---|--------------|---------------------------------|----------------|
| 167Stock elevator spindle tube1168Stock elevator sleeve nut1169Stock elevator stop screw2170Stock elevator spindle1171Stock elevator foot1172Stock elevator foot locking nut2173Stock elevator foot screw2            |              | VI. STOCK ELEVATOR              |                |
| 168Stock elevator sleeve nut11169Stock elevator stop screw22170Stock elevator spindle11171Stock elevator foot11172Stock elevator foot locking nut22173Stock elevator foot screw22                                     | 167          | Stock elevator spindle tube     | 194            |
| 169Stock elevator stop screw22170Stock elevator spindle11171Stock elevator foot11172Stock elevator foot locking nut12173Stock elevator foot screw12   | 168          | Stock elevator sleeve nut       | 193            |
| 170Stock elevator spindle171171Stock elevator foot172172Stock elevator foot locking nut172173Stock elevator foot screw172   | 169          | Stock elevator stop screw       | 275            |
| 171Stock elevator foot1172Stock elevator foot locking nut2173Stock elevator foot screw2   | 170          | Stock elevator spindle          | 195            |
| 172Stock elevator foot locking nut2173Stock elevator foot screw2  | 171          | Stock elevator foot             | 196            |
| 173 Stock elevator foot screw 2   | 172          | Stock elevator foot locking nut | 274            |
|   | 173          | Stock elevator foot screw       | 273            |

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| Photo<br>No. | Name of Part              | Factory<br>No. |
|--------------|---------------------------|----------------|
|              | VII. MAGAZINE             |                |
| 174          | Magazine                  | 5000           |
| 174          | Magazine lid              | 5001           |
| 175          | Magazine reinforcing band | 5010           |
| 176          | Magazine bottom band      | 5002           |
| 177          | Magazine cut-off          | 5006           |
| 178          | Magazine latch spring     | 5011           |
| 179          | Magazine platform         | 5005           |
| 180          | Magazine platform spring  | 5008           |
| 181          | Magazine platform box     | 5003           |
| 182          | Magazine spring           | 5007           |
| 183          | Magazine base plate       | 5009           |



# VI. DIMENSIONS, WEIGHTS, ETC. OF MADSEN MACHINE GUN MODEL 1940

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|                                  | Length of gun with flash absorber  | 1600        | mm   |
|----------------------------------|------------------------------------|-------------|------|
|                                  | Weight of gun with flash absorber  | 9.0         | kg   |
|                                  | Length of spare barrel with breech | 640         | mm   |
|                                  | Weight of spare barrel with breech | 2.2         | kg   |
|                                  | Length of rifled part of barrel    | 412.19      | mm   |
|                                  | Number of grooves                  | 4           |      |
|                                  | Width of grooves                   | 3.9 + 0.2   | mm   |
|                                  | Depth of grooves                   | 0.12 + 0.06 | mm   |
|                                  | Pitch of rifling (right-hand turn) | 240         | mm   |
|                                  | Calibre                            | 7.94 + 0.03 | mm   |
|                                  | Rate of fire                       | 450 r.p.    | min. |
|                                  | Maximum range                      | 2900        | m    |
|                                  | Maximum range on sights            | 1900        | m    |
|                                  | Muzzle height, gun on struts       | 330         | mm   |
| Magazine weight (empty)          |                                    | 0.540 kg    |      |
| Magazine weight (with 30 rounds) |                                    | 1.338 kg    |      |
|                                  | Weight of cartridge                | 26.6        | g    |
|                                  | Length of cartridge                | 75.1-1      | mm   |
|                                  | Weight of bullet                   | 11.7        | g    |
|                                  | Muzzle velocity at 30° C.          | 725 m       | sec. |
|                                  |                                    |             |      |

| Photo<br>No. | Name of Part             | Factory<br>No. |
|--------------|--------------------------|----------------|
|              | X. ACCESSORIES AND TOOLS |                |
| 197          | Spring remover           | 136            |
| 198          | Hexagon spanner          | 138            |
| 199          | Pair of nippers          | 142            |
| 200          | Barrel mirror            | 145            |
| 201          | Punch, 3 mm              | 270            |
| 202          | Punch, 4 mm              | 146            |
| 203          | Wires, bundle of         | 224            |
| 204          | Wires, bundle of         | 225            |
| 205          | Hammer screwdriver       | 264            |
| 206          | Box                      | 293            |
| 207          | Deflector key            | 392            |
| 208          | Brass punch              | 147            |
| 209          | Breech key               | 263            |



| Photo<br>No. | Name of Part               | Factory<br>No |
|--------------|----------------------------|---------------|
|              | IX. ACCESSORIES AND TOOLS  |               |
| 190          | Cleaning rod               | 134           |
| 191          | Chamber pull-through       | 135           |
| 192          | Oil can                    | 143           |
| 193          | Oil can cap and brush      | 217           |
| 194          | Cleaning rod extension     | 205           |
| 195          | Extractor, emergency       | 253           |
| 196          | Clearing plug and hook key | 267/251       |

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| Photo<br>No. | Name of Part              | Factory<br>No. |
|--------------|---------------------------|----------------|
|              | VIII. ANTI AIRCRAFT SIGHT |                |
| 184          | Fore sight                | 432            |
| 185          | Fore sight claw pin       | 1554           |
| 186          | Fore sight claw           | 578-A          |
| 187          | Fore sight claw screw     | 579            |
| 188          | Rear sight post           | 440            |
| 189          | Rear sight post screw     | 579            |



| Factory<br>No. | Name                           | Photo<br>No. | Plate<br>No.                            |
|----------------|--------------------------------|--------------|---|
|                | KEY TO NOMENCLATURE            |              |   |
| 1              | Frame                          | 18           | II                                      |
| 2              | Frame lid                      | 19           |   |
| 3              | Frame lid hinge pin            | 20           |   |
| 12             | Magazine catch                 | 28           | ,,                                      |
| 13             | Magazine catch spring          | 30           | "                                       |
| 14             | Magazine catch pawl            | 29           |   |
| 15             | Magazine catch pin             | 31           | 33                                      |
| 16             | Frame end plate                | 39           | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| 17             | Frame end plate screw          | 40           |   |
| 18             | Ejector trip block             | 42           |   |
| 19             | Ejector trip block nut         | 43           | "                                       |
| 20             | Breech block guide plate       | 36           | "                                       |
| 21             | Breech block guide plate latch | 37           | "                                       |
| 22             | Frame lid locking bolt         | 24           | **                                      |
| 23             | Rear sight base                | 7            | I                                       |
| 24             | Rear sight leaf                | 10           | ,,                                      |
| 25             | Rear sight hinge screw         | 11           | "                                       |
| 26             | Rear sight leaf spring         | 9            | "                                       |
| 27             | Rear sight slide               | 12           | "                                       |
| 28             | Rear sight slide catch         | 13           | "                                       |
| 29             | Rear sight slide catch spring  | 14           | "                                       |
| 30             | Rear sight base rivet          | 8            | .,                                      |
| 31             | Foresight                      | 2            | "                                       |
| 33             | Foresight protector screw      | 5            | "                                       |
| 34             | Pin for No. 33                 | 6            |   |
| 34             | Pin for No. 3                  | 21           | II                                      |