NATIONAL GROUND INTELLIGENCE CENTER

Operator's Manual

PK-Series General-Purpose Machinegun

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2055 BOULDERS ROAD
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Operator's Manual

7.62 x 54R-mm, PK, General-Purpose Machinegun

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This is not an official US Army or Marine Corps publication. Information contained within was developed solely through evaluation, analysis, and information gathered from translated manuals. This manual is designed to provide instructor guidance for presenting instruction, as required on the PK-Series Machinegun. This publication was prepared by the Close Combat Division, Ground Systems Directorate, National Ground Intelligence Center, Charlottesville VA 22911. Other than normal exchange with other agencies at the working level, this document has not been coordinated outside NGIC. Interpretation of information in this publication represents the views of NGIC and may be subject to modification as a result of subsequent information.

PREFACE

PURPOSE

This publication provides an introduction to the 7.62 x 54R mm, PK, General Purpose Machinegun.

SCOPE

This manual contains instructions for the operation and maintenance of the PK machinegun.

APPLICABILITY

This publication applies to all military personnel who require operator and maintenance information pertaining to the PK machinegun.

ADMINISTRATION

Recommendations for weapons publication improvements.

Reports of errors, omissions, and recommendations for improving this publication by the user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded to: Commander, National Ground Intelligence Center, Attn: IANG-GS-CC (MS 304), 2055 Boulders Road, Charlottesville, VA 22911.

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Section I. General

The Soviet/Russian 7.62 x 54R-mm, PK family of General-Purpose Machineguns is composed of open-bolt-fired, gas-operated, rotary-locked-bolt (Kalashnikov), belt-fed, fully automatic weapons. The ammunition is fed by non-disintegrating metallic belts; current belts are composed of joined 25-round sections, but earlier feed belts were made of one 250-round length. Belt boxes for 100- and 250-round belts are available. Both boxes can be attached to the underside of the PK receiver. The receiver is constructed of riveted stampings. It carries the very simple trigger, which is automatic only, and the belt-feed mechanism.

The term “general purpose” refers to a machinegun that, with minor changes, can be used in a variety of tactical roles. The basic PK or PKM on its bipod fills the light machinegun role. The PKS or PKMS is a PK or PKM mounted on a light tripod fulfils the heavy machinegun role. The PKT is a PK modified for use as an armored vehicle coaxial machinegun. The PKB is a PKT fitted with sights and spade grips for use as a pintle-mount machinegun on combat vehicles.

Accessories include spare parts, a combination tool and an oil-solvent container. The largest accessory is the general-purpose tripod, which can be quickly adapted for anti-aircraft fire. The version issued with the PK machinegun is the Samozhenkov tripod which weighs 7.7 kg. When the PKM was introduced in 1969, it was issued with a newer and lighter tripod, known as the Stepanov tripod. The Stepanov tripod is made almost entirely from steel stampings and weighs only 4.5 kg. Each tripod leg can be folded for transport or adjusted for proper height on uneven terrain. It is possible to secure a magazine box to it in such a manner that the gun can be moved with the ammunition box still in place and with the gun loaded. Sandbags are required to secure the Samozhenkov and Stepanov tripods during firing due to their low weight.

Similar to the AK series of assault rifles, the PK series of machineguns is also widely exported and widely produced by many countries. Most are virtually exact copies; however, some have indigenous modifications. Listed below are many of the producers of PK’s.

- Bulgaria (Arsenal): MG (PK), MG-M1 (PKM) and MG-M1S (PKMS), and MG-T (PKT).
- China (Norinco): Type 80 (PK) and Type 59 (PKT).
- Kazakhstan (Kaspex): PKD (converted PKT). Converted mainly by adding a tubular butt-stock assembly and a bipod. The main PKT features, such as the heavier barrel, were retained. The butt-stock has a shock-absorbing butt-plate.
- North Korea: Type 68 (PK) and Type 73 (PKM). The Type 68 is a PK with the long PKT barrel (w/front sight) an oddly shaped buttstock, and a ladder-type rear sight.
- Poland: PKMP (PKM), PKMSP (PKMS), PKMSNP (PKMS w/GARBO ×4 magnification night sight capable of engaging targets at up to 400 m at night), PKMNP (PKM w/GARBO ×4 magnification night sight capable of engaging

targets at up to 400 meters at night), PKT (PKT), and the GROM or “Thunder” (pintle-mounted PKT with a manual trigger intended for naval and static applications). All the models produced have their iron sights illuminated by tritium light sources.

- Romania (RomArm): PKT (PKM) and PKMS (PKMS). There is also a PKA (unknown which version–likely PKT) for aircraft installations.
- Yugoslavia (Zastava): M84 (PKM) and M86 (PKT). The M86 may be found in three different versions. 1) The coaxial gun for the M84 battle tank,which has a fixed heavy barrel and a remote-control solenoid firing mechanism. 2) The externally mounted commander’s gun, the M86A, also has a solenoid firing mechanism and a rapid-change barrel. 3) If required, the M86A can be used dismounted. When dismounted, the firing solenoid is replaced by a manual trigger group and pistol grip, combined with a rudimentary butt.

Development work has been conducted by several countries to produce corresponding versions of the PK machineguns capable of firing 7.62x51-mm NATO ammunition has been completed. This was done primarily to exploit the export market and to meet NATO compatibility of new NATO members. Known caliber conversions are:

- Bulgaria (Arsenal): MG-M1 (PKM) and MG-M1S (PKMS).
- Poland: UKM-2000 series, UKM-2000P (PKM), UKM-2000D (PKMS), and UKM-2000C (PKT).

PK Series Machineguns

PK: The basic gun (see figure 1-1) with a heavy fluted barrel, feed cover constructed from both machined and stamped components and a plain butt plate. The PK machinegun weighs about 9 kg (19.8 lbs).

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Figure 1-1. Russian PK Machinegun

PKS: The basic PK mounted on a tripod. The lightweight tripod, 4.75 kg (10.45 lbs), not only provides a stable mount for long-range ground fire, it also can be quickly opened up to super elevate the gun for anti-aircraft fire.

PKT: The PKT (see figures 1-2 & 1-3) is a PK altered for coaxial installation in an armored vehicle. The sights, stock, tripod, and trigger mechanism have been removed; a longer, heavier barrel is installed, and an electrical solenoid is fitted to the receiver back plate for remote triggering. The PKT has an altered method of connecting the barrel to the receiver. An emergency manual trigger and safety is fitted for firing the weapon dismounted from its vehicle.

Figure 1-2. Russian PKT Tank Machinegun

Figure 1-3. Russian PKTM Tank Machinegun

PKM: A product-improved PK (see figure 1-4), with a lighter weight, un-fluted barrel, the feed cover constructed wholly from stampings with a hinged butt rest fitted into the butt plate. Excess metal has been machined away wherever possible to reduce weight.

Figure 1-4. Russian PKM (Top) and
North Korean Type 73 (Bottom) Machinegun

Figure 1-5. Yugoslav M-84 Machinegun

PKMS: The PKMS (see figures 1-6 – 1-10) is a PKM mounted on a new pattern of tripod designed by L V Stepanov, on which the ammunition box can be secured to the right rear tripod leg. This enables one crew member to carry and operate the gun in combat without having to unload the gun for moves. The tripod can also be configured for air-defense fire. The PKMSN is similar to the PKMS but with the addition of a night sight, typically an NSPU or an NSPUM.

Figure 1-6. Russian PKMS Machinegun
Mounted on a Stepanov Tripod

Figure 1-7. Russian PKMS Machinegun
Mounted on a Tripod

Figure 1-8. Russian PKMS Machinegun
Mounted on Stepanov Tripod in AA Mode

Figure 1-9. Chinese Type 80 (PKMS) Machinegun

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Figure 1-10. Bulgarian MG-M1S (PKMS) Machinegun

PKB or PKMB:
The PKB (see figure 1-11) is the PKM with the tripod, butt-stock, and trigger mechanism removed and replaced by twin spade grips and a butterfly trigger similar to those on the SGMB. This gun may also be known as the PKMB. Late-production models of this weapon may be fitted with night-sight units with a night-firing range of 300 meters. The weight of the sight unit is 2.95 kg.

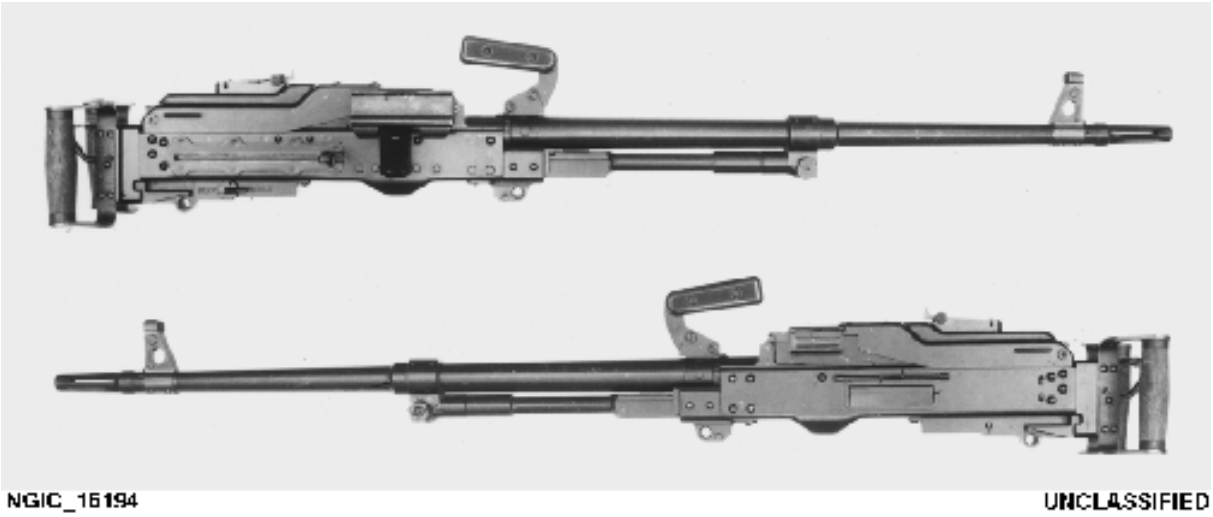

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Figure 1-11. Russian PKB Machinegun

Unified Machinegun (UMG): The UMG was introduced in 1993 as an upgrade to the PKM machinegun. It is chambered for a new 6x49-mm rimmed cartridge vice the standard 7.62x54R cartridge used for the PK and PKM. The UMG has a longer barrel than a either a PK or a PKM, but is roughly the same length (1150 mm). It reportedly weighs only 6.5-kg. Prototypes were shown with no iron sights, but instead fitted with an optical sighting device. It is also reported that it has high chamber pressures and thus may suffer from case separation.

6P41 Pecheneg: The Pecheneg (see figure 1-12) is based on the PKM machinegun, sharing about 80% of common parts. It retains many features of the PKM except that it now features a new heavy fixed barrel that is claimed to enhance accuracy out to a range of 1500- meters. The new barrel is heavy, ribbed, and enclosed in a metallic sleeve. During fire, hot powder gases emerging from the barrel cause air in the sleeve to circulate along the barrel cooling it so that it reportedly can sustain rates of fire of about 1000 rounds per hour without decrease of performance or barrel life. Overall barrel life is claimed by the Russians to be over 30,000 rounds. The sights are calibrated up to 1500 meters. It is claimed that at this range, shot dispersion is stated to be a maximum of 300 mm in width and 342 to 820 mm in height. Unlike other PK series models, the bipod is secured just under the muzzle. A fixed carrying handle is provided over the barrel. Standard tripods can be used.

Figure 1-12. Russian 6P41 Pecheneg Machinegun

Description of the PK Machinegun Components

The PK machinegun has the following major components (see figure 1-13): the barrel assembly, receiver assembly and grip, cover and feed mechanism assembly, sight assemblies, gas block assembly with gas regulator, gas cylinder assembly, operating rod assembly, slide assembly, piston assembly, bolt assembly, trigger assembly, gun stock assembly, and bipod assembly.

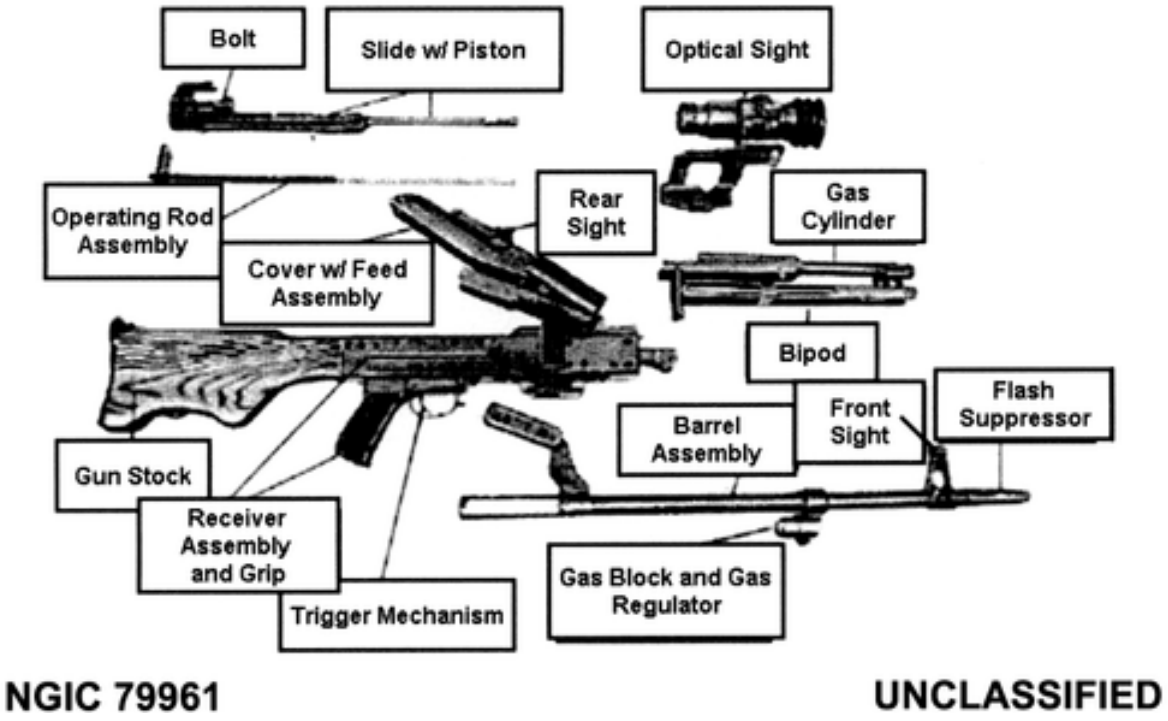

Figure 1-13. PK Main Components

Barrel Assembly. Firing takes place in the barrel assembly (see figure 1-14), which gives the bullet its direction and spin during flight. The barrel houses the chamber and bore. The bore is rifled and has four grooves and four lands which twist to the right. The bore and chamber are chrome plated.

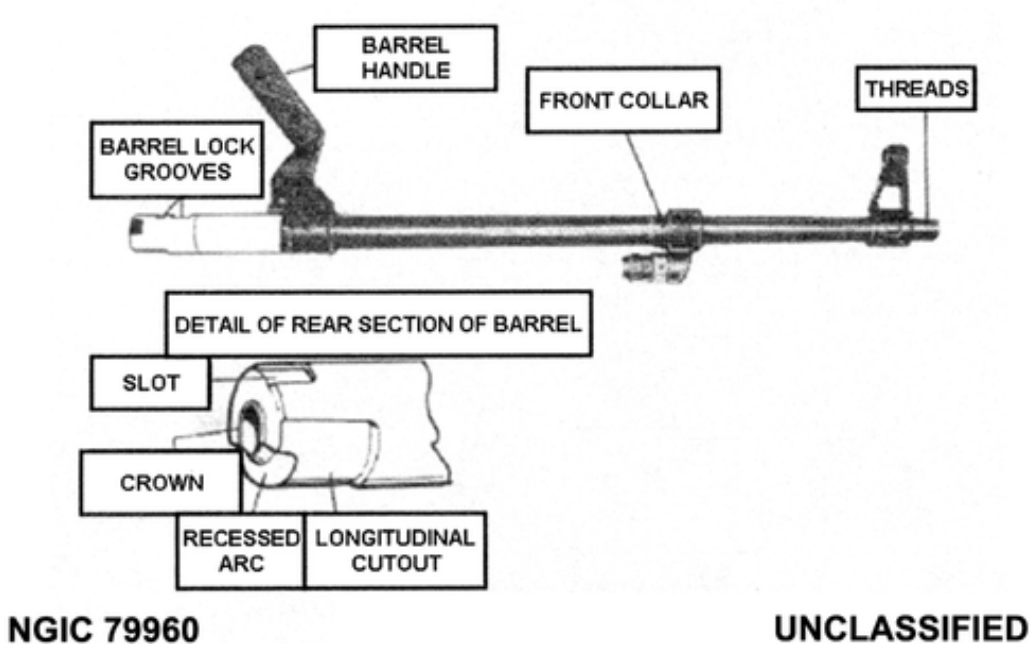

Figure 1-14. Barrel Assembly

On the front end of the barrel assembly there are threads for screwing on the flash suppressor or a recoil device for blank ammunition. Behind the threads there are three grooves (two on the bottom that hold pins for attaching the front sight mount and one on the bottom that simultaneously fastens the front sight mount and the flash suppressor latch). The gas block is attached to the front collar. On the top of the front collar there are two grooves that hold the pins. The front collar is notched, which limits the backward movement of the gas block ring when it is fitted onto the barrel.

At the rear of the barrel assembly there is a wide circular groove which holds the barrel handle. The longitudinal movement of the barrel handle is limited by two rings. The rear ring has a slot that limits lateral movement of the handle. Two smaller slots hold lugs on the front of the barrel socket which prevent the barrel from twisting. Behind the rings, on the chromed section of the barrel, there are two grooves on the top into which the lugs of the barrel lock fit and which lock the barrel into the barrel socket. On the rear surface of the barrel there is a recessed arc into which the extractor claw fits, which allows it to catch on the rim of the cartridge case. On the bottom a longitudinal cutout receives the lug of the slide, and on the right side there is a smaller slot into which the receiver lug fits. The rim of the cartridge case fits onto the crown of the barrel.

Flash Suppressor. The flash suppressor serves to disperse the propellant gases at the muzzle, as well as to reduce flash and thus to conceal the position of the ordnance. There are five elongated vents for the release of the propellant gases. On the outside of the rear section it has five oval cutouts into which its latch fits, and on the inside there are threads for affixing it to the barrel. The flash suppressor is screwed onto the barrel by twisting it from left to right; it is removed by twisting it in the opposite direction.

Barrel Handle. The barrel handle facilitates the quick and easy removal of the barrel assembly from the receiver, as well as the transport of the ordnance. It is fastened onto the barrel by means of rings. The rings are each fastened to the barrel by three machine bolts, of which the two upper machine bolts serve to fasten the handle. On the bottom of the handle there is an oval opening into which the middle machine bolt fits, allowing the handle to move vertically. On the rear of the bottom of the handle is a tooth which rests against the front section of the barrel socket (when the handle is raised upward) and when the barrel is to be removed ensures the initial movement of the barrel forward. The panels of the handle are plastic and are joined together and to the handle with two machine bolts.

Receiver Assembly. The receiver assembly and grip (see figures 1-15 & 1-16) serves to join all parts of the machinegun to ensure their proper functioning and to guide the movement of the slide and bolt. The receiver is sealed on the top by the cover.

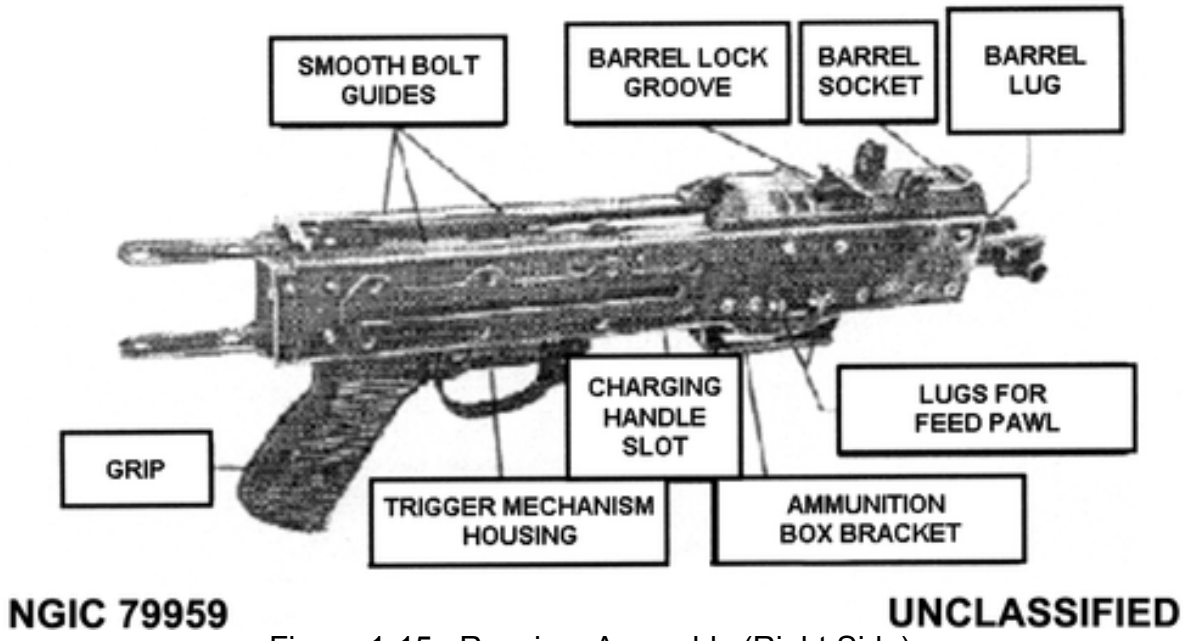

Figure 1-15. Receiver Assembly (Right Side)

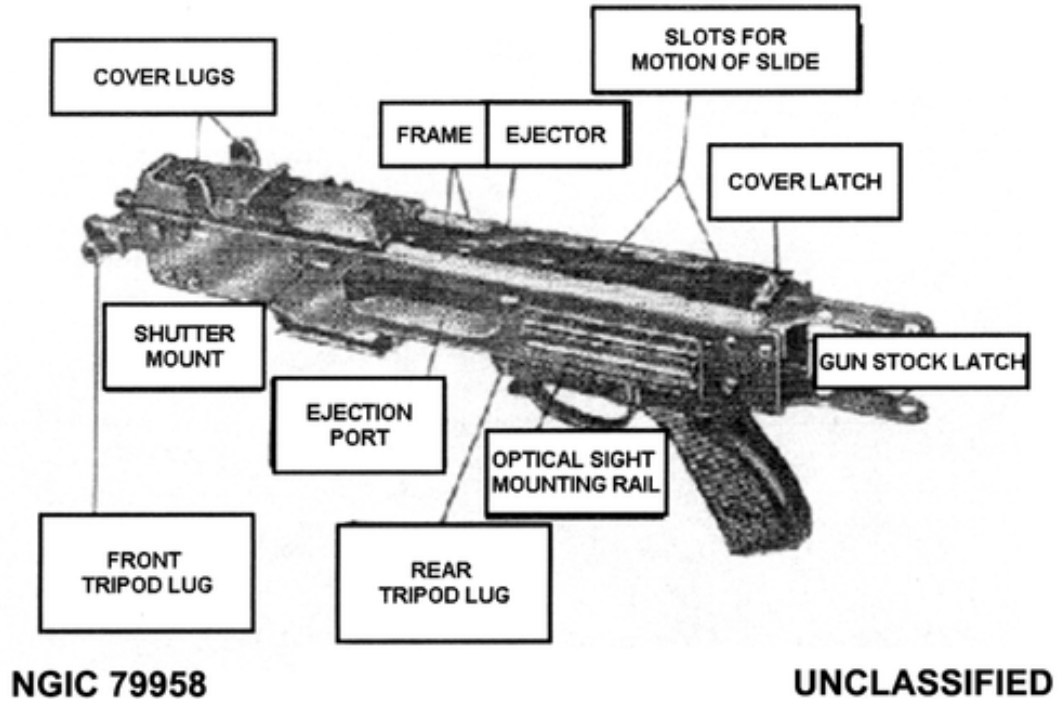

Figure 1-16. Receiver Assembly (Left Side)

The receiver assembly consists of three components: the receiver frame, the barrel socket, and the gun stock bracket; all have interlocking grooves and are riveted together. The receiver frame has a box shape. The tops of the sides are curved inward and serve to guide the slide.

On the left side of the receiver is the ejection port which can be closed with a shutter. The shutter is fastened to the receiver with a pin and a spring which continually presses it downward. The optical (passive night) sight mounting rail is welded to the receiver frame behind the ejection port. To the rear of the optical sight mounting rail are two circular openings which hold the wire latch of the shutter pin. The shutter arm is located inside the left side of the receiver frame and its front curved end protrudes through the ejection port. The arm serves to open the shutter as the slide moves to the rear position.

A rectangular slot on the front right side of the receiver frame holds lugs of the barrel socket, into which the feed pawl is attached along with its guard. To the rear of the feed pawl the receiver frame is grooved inwards longitudinally with a profiled opening on the front end. The cocking lever fits into the cutout, and its tooth moves through the profiled opening. On the outside the cocking lever is fastened with a plate that has a longitudinal groove for the movement of the cocking lever. The plate is welded to the receiver frame.

The top of the receiver frame has a long slot—the rear section of which has wider cutouts which allow the slide to be removed from the receiver frame. The ejector is riveted to the upper part of the receiver frame.

Along the bottom, the receiver frame extends downward, and the lower leg of the feed pawl fits into this well. The round opening in the well serves to allow any water that might collect in the receiver to drain. The bracket for an ammunition box containing 100 rounds is attached over the well. To the rear of the bracket for the ammunition box there is a rectangular opening for the trigger mechanism.

The rear of the receiver frame is sealed by the gun stock bracket. The gun stock bracket consists of an upper and lower tab, each of which has holes for machine bolts that fasten the gun stock.

The front of the bracket has two round openings: the upper, larger opening allows the passage of the guide of the operating rod assembly, and the lower, smaller opening allows bore sighting (when the gun stock has been removed) when the precision and accuracy of the machinegun is being tested. The top of the gun stock bracket is curved back at the front for latching the receiver cover closed.

Barrel Socket. The barrel socket has a round opening on the top. Behind the opening there are two lugs for attaching the receiver cover and the feed plate. Behind the lugs there is a lateral groove for the barrel lock.

On the front of the barrel lock there are the following: two lugs that prevent the barrel from twisting in the socket; a longitudinal cylindrical opening which holds the barrel; an oval groove which houses the rear finger of the barrel; a vertical slot for the gas cylinder latch; two studs for mounting on the frame of the tripod cradle; two profiled lugs and two arced grooves for fitting the machinegun support on the tripod for engaging targets in the air; on the bottom, a rectangular longitudinal slot and two longitudinal grooves for attaching the gas cylinder.

Inside the barrel socket there are the following: lugs for holding the bolt in locked position and a lug with a beveled surface which allows the initial rotation of the bolt when it is locked.

On its upper rear section the barrel socket has a longitudinal cutout for the ribs of the feed plate.

Charging Handle. The charging handle serves to move the bolt into its rear position. It consists of the slide, handle, helical compression spring, and shaft (see figure 1-17).

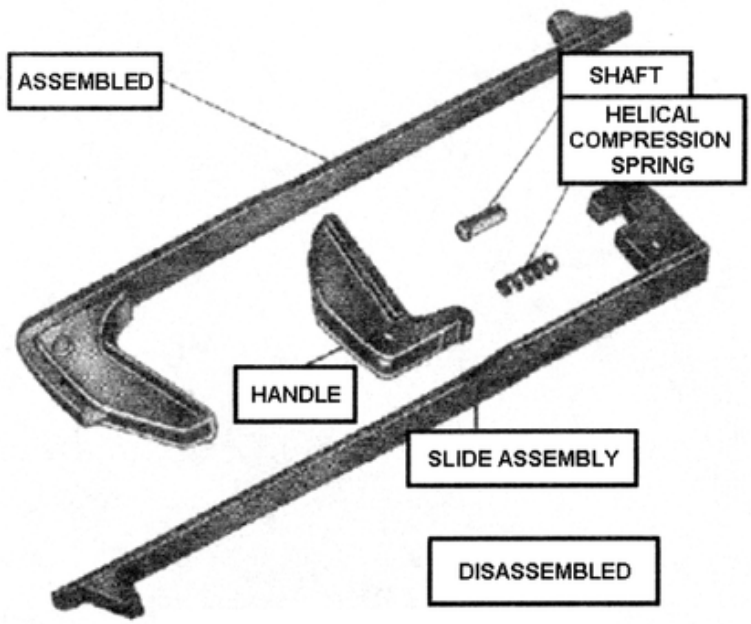

Figure 1-17. Charging Handle Assembly

Grip. The grip serves to facilitate the handling of the machine when firing. It is fastened to a lug on the frame of the trigger mechanism with a machine bolt.

Barrel Lock Assembly. The barrel lock assembly serves to fasten the barrel into the barrel socket and to adjust the headspace between the bolt and the rear section of the barrel. It consists of the following: the body, a machine bolt, a plug, and a pin (see figure 1-18). On the bottom of the body are two lugs and a groove for fastening the barrel. On the top there is a stepped cutout along which the feed pawl claw passes. The body has a longitudinal threaded opening for the machine bolt. The plug limits the movement of the lock into the extreme leftward position. Behind the lock, on the right side, there is a transverse, beveled recess into which the feed pawl fits.

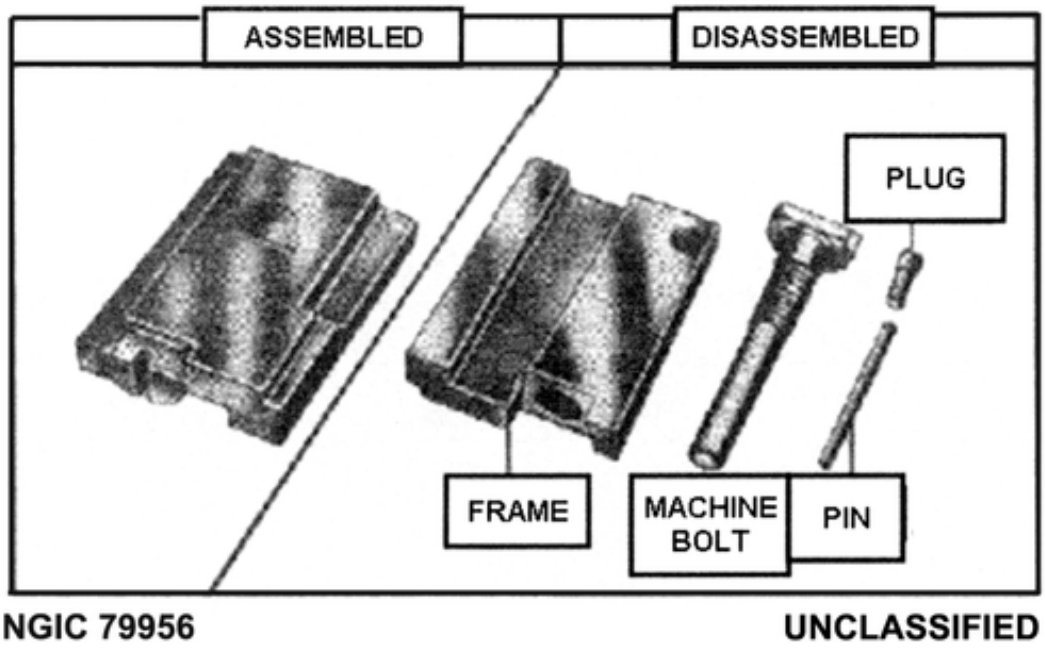

Figure 1-18. Barrel Lock Assembly

Receiver Cover and Feed Assembly. The receiver cover and feed assembly (see figure 1-19) serve to close the top of the receiver and to ensure the fitting and function of the components of the feed.

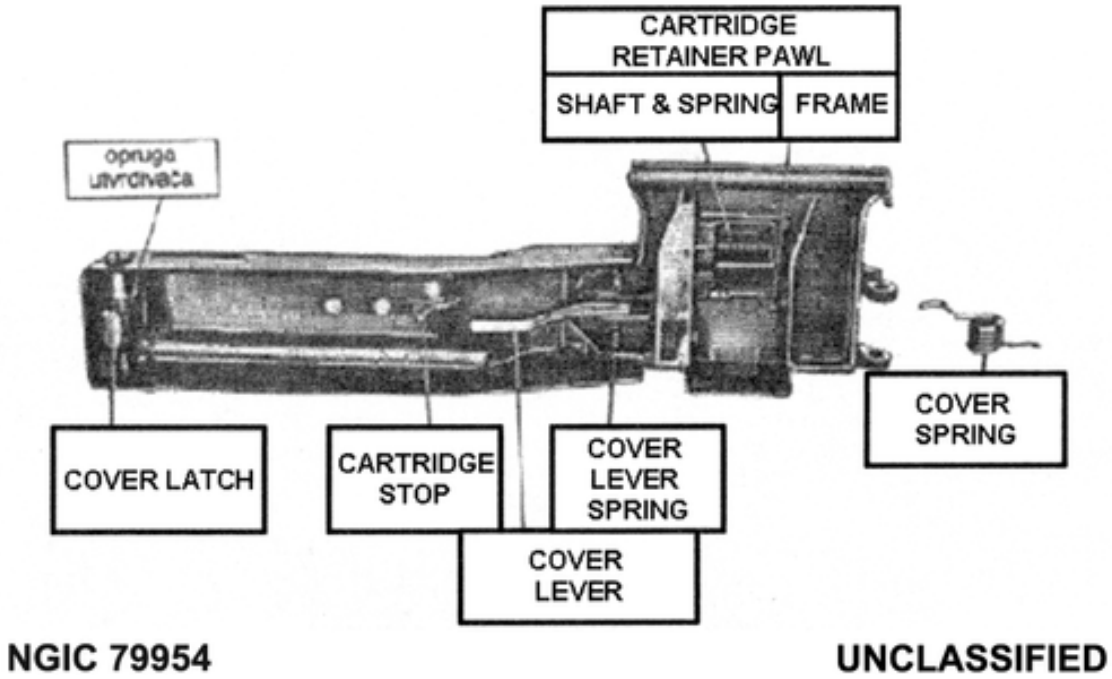

Figure 1-19. Receiver Cover Assembly

The front of the cover assembly has two lugs which hold the retaining pin, which fastens the cover onto the barrel socket. A helical torsion spring is slipped onto the retaining pin and holds the cover in an upright position when it is opened. The recessed surfaces of the lug bases limit the degree to which the cover can be lifted. A longitudinal opening houses the shaft of the cartridge retainer assembly.

The rear sight base and the rear sight bar guard are riveted to the top of the cover assembly.

The front section of the cover has two lugs which hold the pins and the springs of the shutters (the entry shutter is on the right, and the exit shutter is on the left). The shutter springs hold the cover in the closed position.

At the rear of the cover assembly is a square opening into which the cover latch fits. The body of the latch is notched so that it may be easily pressed forward, and on the bottom it extends out into a tooth. The latch assembly is fastened by a shaft. The latch spring presses the assembly tooth forward.

In the center of the inside of the cover is a longitudinal rectangular slot into which the cartridge stop fits. In front of the cartridge stop the cover is cut out in a profile with two lugs. The cover lever fits into the recess between the lugs and is fastened with its pin. The helical torsion spring presses the cover lever downward. In the front area of the interior there are guide lugs. The cartridge retainer pawl and its helical torsion spring fit into the groove between the lugs.

Feed Assembly. The feed assembly serves to ensure that the cartridge is fed onto the axis of motion of the bolt. It consists of the following components: the feed plate, the feed pawl and guard, and the cartridge retainer pawl.

Feed Tray. The feed tray (see figure 1-20) serves to direct the motion of the link belt and to direct the cartridge as it is fed into the chamber. On the front area of the feed tray there are two lugs for the cover retaining pin, which fastens it to the barrel socket. On the front left side there is a round hole which holds the feed tray latch. The latch consists of the body and a spring and serves to hold the feed tray in the open position.

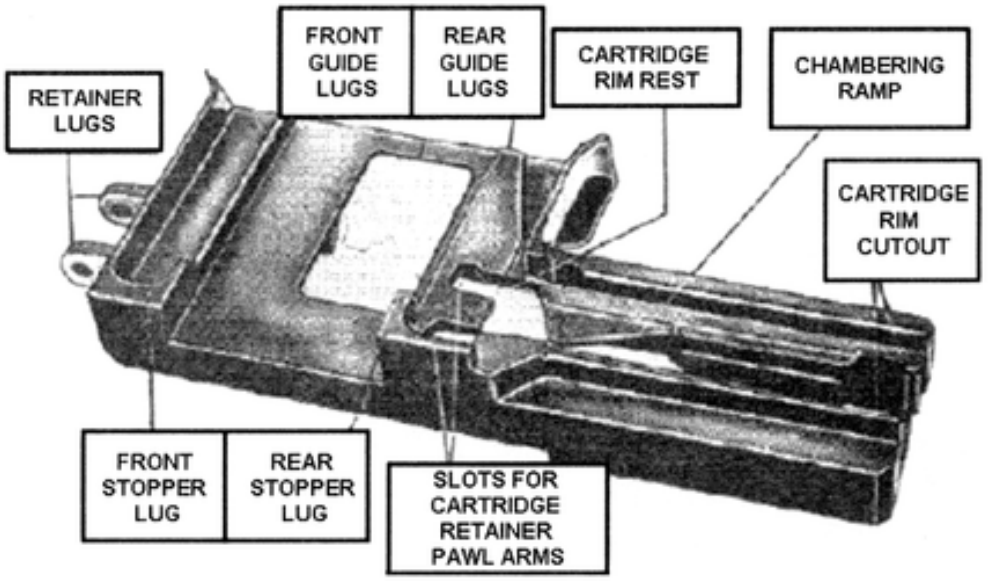

Figure 1-20. Feed Tray Assembly

On the top of the feed tray there are two sets of lugs (the guide lugs and the stopper lugs), which feed the next cartridge towards the extractor claws on the barrel socket. Between the lugs there is a lateral opening, allowing the movement of the feed pawl arm. In the rear guide lug there are profiled recesses (into which the legs of the cartridge retainer pawl fit) and the cartridge rim rest.

On the top of the rear of the feed tray there are ribs between which there runs a longitudinal groove which allows the extractor to move. The groove has a longitudinal slot, and in the front, on the sides, there is a chambering ramp which cams the cartridge into the chamber. In the rear, the groove has vertical recesses allowing the rim cartridge case to pass.

On the bottom, the feed tray has external ribs which fit into the grooves on the barrel socket, and there are two internal ribs under which the slide moves.

Feed Pawl. The feed pawl (see figure 1-21) serves to feed the link belt with the cartridges onto the feed tray. It consists of the frame, roller and pin, arm and spring, the guard, the pivot pin, and helical torsion spring.

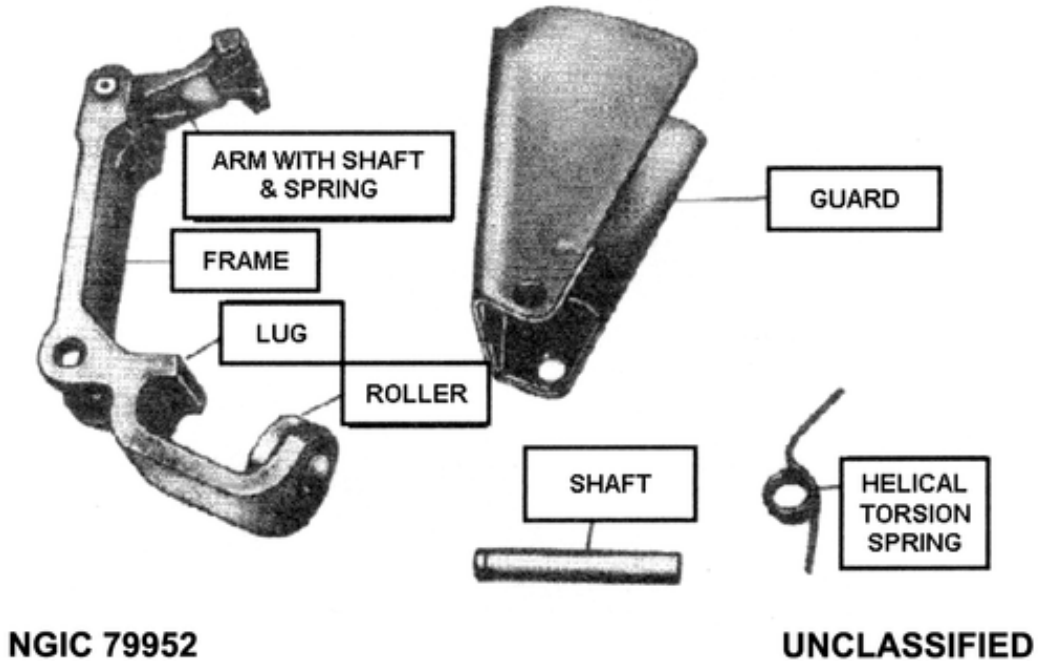

Figure 1-21. Feed Pawl Assembly

The feed pawl frame has a lug that slides along the groove on the right side of the slide. The roller with its pin fits into the groove on the left side of the slide. The feed pawl arm has three teeth on its underside. The guard protects the feed pawl frame from mechanical damage and dirt and closes the recess on right side the feed plate.

Cartridge Retainer Pawl. The cartridge retainer pawl holds the link belt back and prevents cartridges from being jammed against the guide lugs of the feed plate. It consists of the frame, the pin, and spring (shown in the receiver cover assembly, see figure 1-17).

Gas Block Assembly. The gas block assembly (see figure 1-22) with the gas regulator serves to direct the propellant gases diverted from the barrel and to regulate the amount of propellant gases acting on the slide piston.

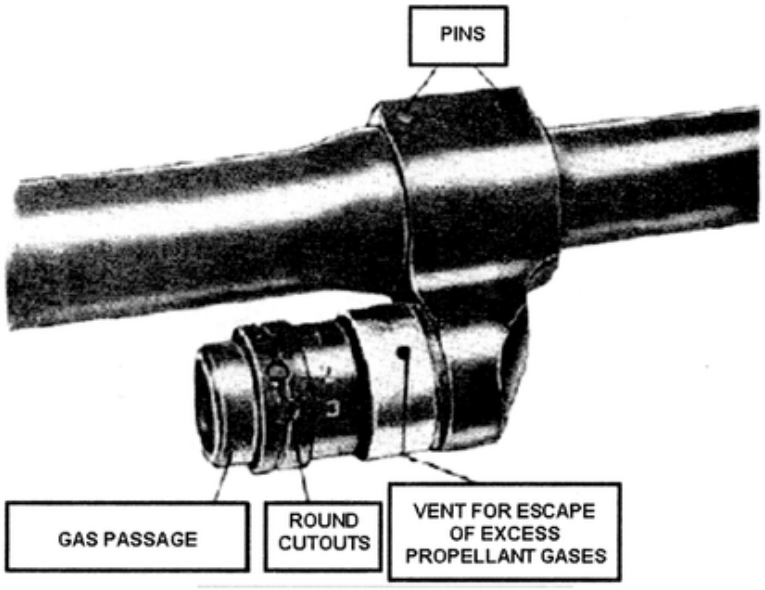

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Figure 1-22. Gas Block Assembly

The gas block assembly slips onto the barrel and is fastened with two pins. On the bottom in the elbow joint of the block there is a hole which allows the passage of the propellant gases from the barrel. The front ring has a vent for the escape of excess propellant gases. The rear ring has three round cutouts and a round groove. The arms of the gas regulator fit into the cutouts and groove. The round cutouts are marked “1”, “2” and “3”, and indicate the three positions of the gas regulator on the gas block. Position “1” is used after 3000 rounds have been fired from the machinegun and is the basic position of the gas regulator. Position “2” is used in case the slide does not return fully to the rear position, and position “3” is used when the machinegun is fired in adverse conditions (low temperature, rain, when the machinegun is dirty from propellant gas products, etc.) and during the first 3000 rounds. The rear section of the gas block fits into the gas cylinder.

Gas Regulator. The gas regulator (see figure 1-23) has two vents on the sides: on the left side there is an elongated opening, and on the right side there is a round hole. The openings serve to release the propellant gases from the gas port. When the regulator is in position “1” both vents are open; in position “2” only the left vent of the gas block is open; in position “3” both vents are closed. There are two rectangular lugs on the sides of the gas regulator which facilitate its being switched from position to position. The gas regulator arms fasten it to the gas block. On the ends of the arms are small studs that fit into the round cutouts and round groove on the gas block. On the bottom of the regulator there is a profiled lug with a groove in which the rim of a cartridge case fits. The cartridge case and groove are used to adjust the regulator from position to position when this cannot be done with the fingers (see figure 1-24).

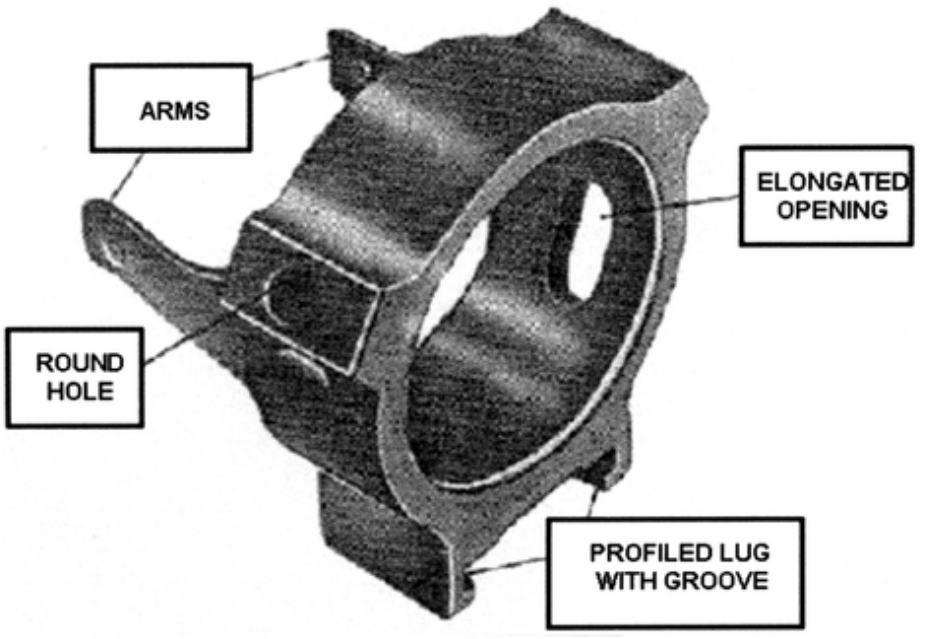

Figure 1-23. Gas Regulator

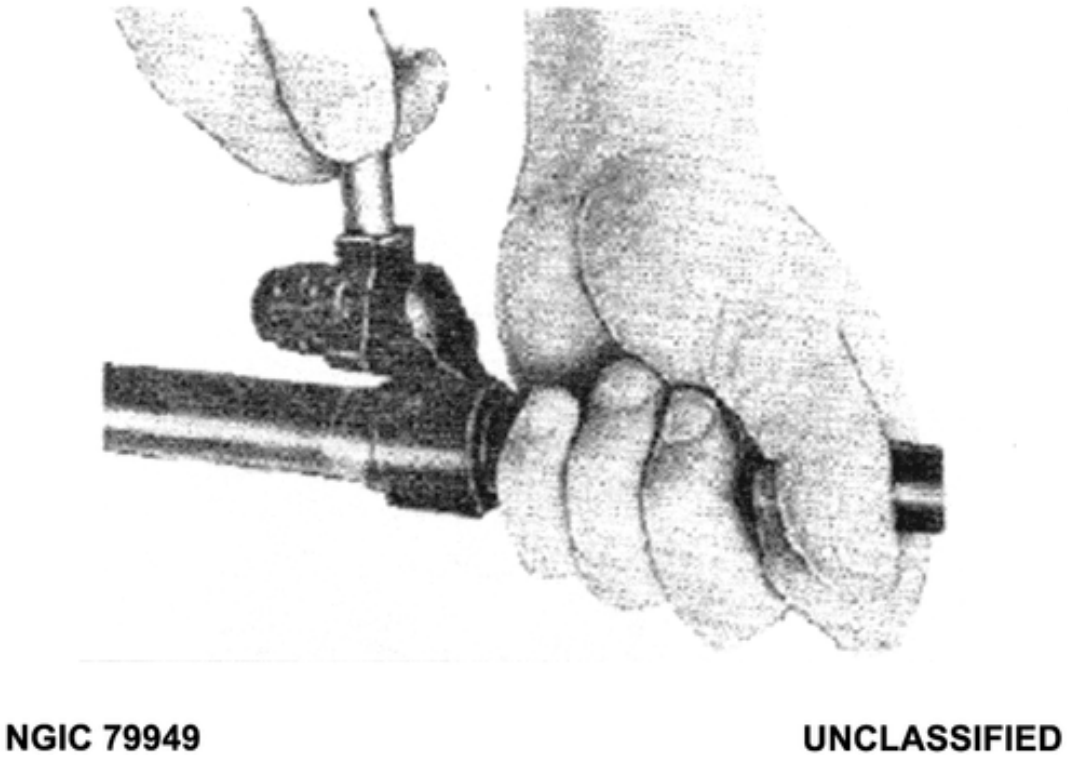

Figure 1-24. Adjusting the Gas Regulator

Gas Cylinder. The gas cylinder (see figure 1-25) serves to direct action of the slide and piston and for fastening the bipod.

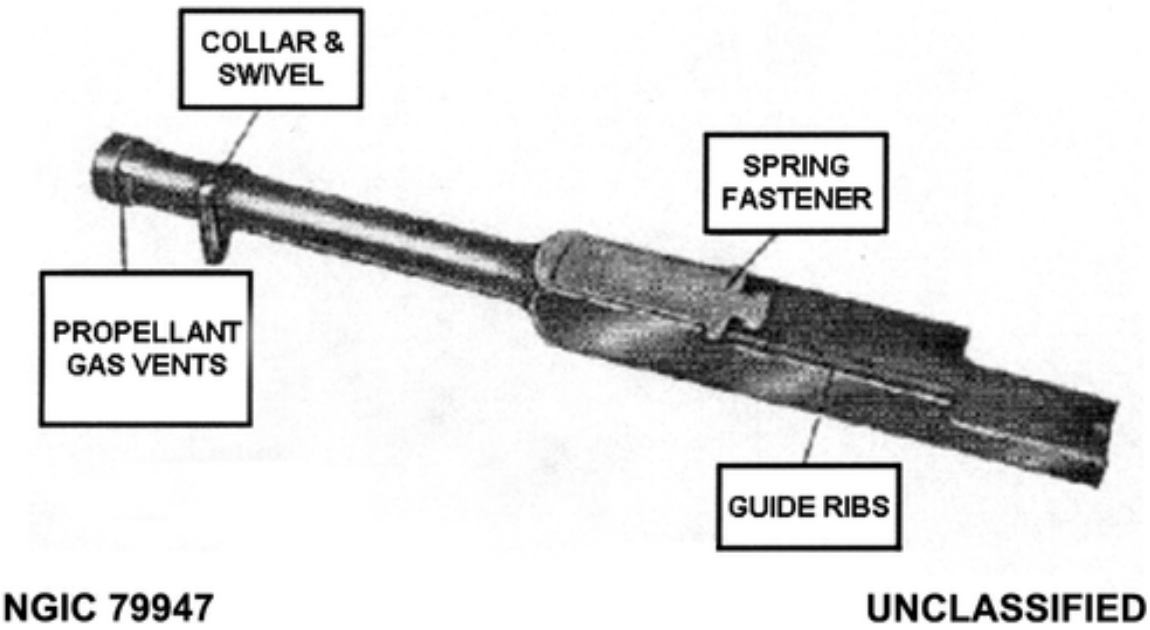

Figure 1-25. Gas Cylinder Assembly

The rear part of the gas cylinder has a rectangular shape for the passage and correct guiding of the slide, and the front part is cylindrical for the passage and guiding of the slide piston. The upper rear face of the gas cylinder is cut out. At the front end of the cutout is a spring fastener which fastens it to the receiver. The fastener at the rear end is a profiled lug which fits into the vertical slot in the barrel socket. On the sides of the gas cylinder there are two guide ribs which fit into the longitudinal grooves on the barrel socket. The upper rear of the gas cylinder is cut away in the shape of a rectangle to allow the movement of the cocking lever. A swivel for attaching the front end of the sling is on the front cylindrical end. In front of the collar there is a round groove and in front of it a ring with a cutout which serves to fasten the bipod. There are four holes for the escape of propellant gases on the ring.

Operating Rod Assembly. The operating rod assembly (see figure 1-26) serves to return the slide and piston to the forward position. It consists of the spring guide rod, the driving spring, and the support plate.

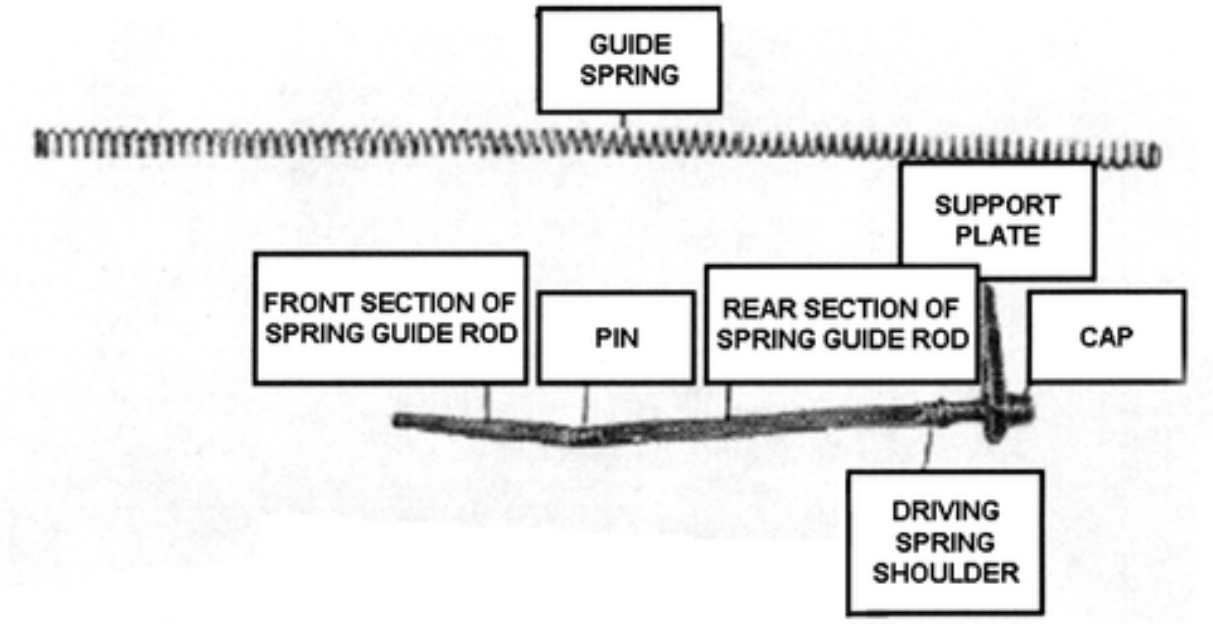

Figure 1-26. Operating Rod Assembly

The spring guide rod consists of the front and rear parts which are joined by a pin. On the rear there is a shoulder against which the driving spring rests. The support plate serves to reduce the impact of the slide frame in the rear position. The plate slips onto the rear end of the spring guide rod and is fastened from behind with a cap. The cap is fastened on the rear end of the spring guide rod with a pin and serves to stabilize the support plate; and it also serves as a lug for joining the operating rod to the receiver frame. The support plate has a hole for bore sighting when testing the accuracy and precision of the machinegun.

Slide and Piston Assembly. The slide and piston assembly serves to house the bolt, extract cartridges from the link belt, lock the bolt from below when it is in the forward position, absorb the force of the propellant gases, unlock the bolt, and return it to the rear position, as well as to cock the trigger mechanism. The slide with piston (see figure 1-27) consists of the frame, piston, and the cartridge extractor.

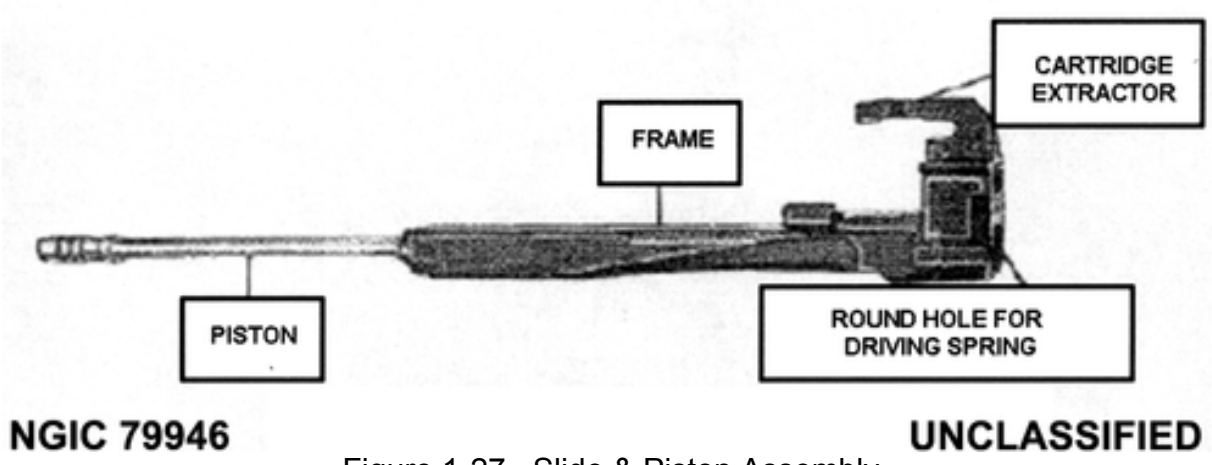

Figure 1-27. Slide & Piston Assembly

Frame. The frame has a hole in the back for the driving spring, a lug with a hole for the pin of the cartridge extractor, and a hole for the bolt body. On the interior surface of the hole for the bolt body there is a semicircular groove for guiding the lug of the firing pin during locking and unlocking.

On the sides of the slide frame there are grooves that guide the motion of the slide frame along the curved sides of the receiver. The right groove has a further slot in it which allows passage of the ejector. On the top of the lug of the slide frame is a lateral groove with two teeth which holds the cartridge extractor. On the upper rear, in front of the extractor lug, there is a spiraled groove for the profiled lug of the bolt. On the left side of the spiraled groove is a beveled lug onto which the beveled face of the profiled lug of the bolt fits. On the bottom of the slide frame there is a cutout lug which is held by the sear tooth when the slide is in the rear position and the trigger is not pulled. On the sides of the frame grooves have been cut out for guiding the feed pawl. On the right side of the frame is a lug which the cocking lever tooth catches. On the front of the frame are profiled lugs for attaching the piston.

Piston. The piston serves to absorb the pressure of the propellant gases and transfer it to the slide frame. The rear of the piston has a shoulder which fits into the profiled lugs of the slide. The slide and piston are joined by a pin. On the front of the piston there are rings and grooves for sealing the gas block. The rear or guide ring guides the motion of the piston in the gas cylinder.

The cartridge extractor fits onto the lug on the slide frame and is fastened with a pin. Its bottom has a profiled lug, and its top has two claws with a vertical slot for catching the cartridge case rim.

Bolt Assembly. The bolt assembly (see figure 1-28) serves to feed the cartridge into the chamber, close the barrel, ignite the primer cap of the cartridge, and extract the cartridge case. It consists of the body, the firing pin, and the extractor.

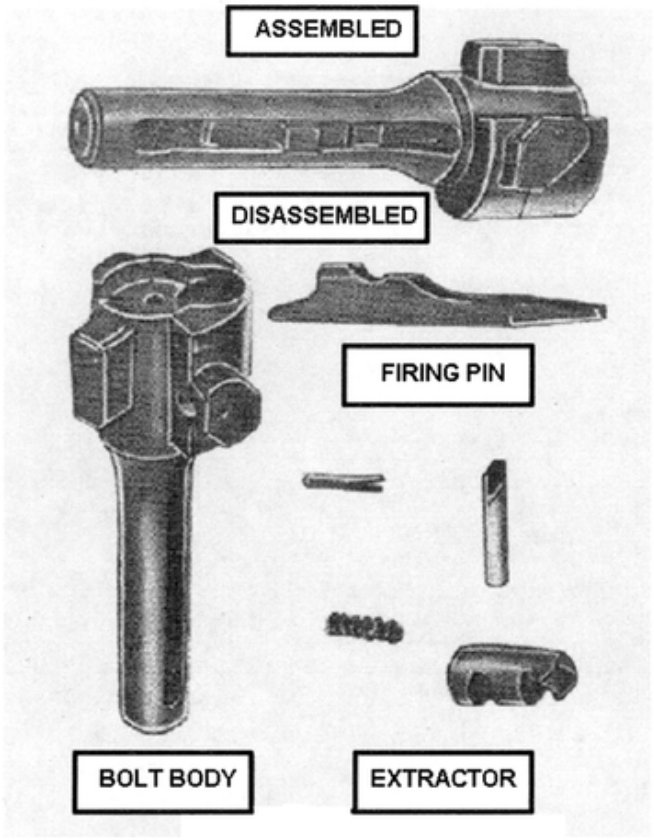

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Figure 1-28. Bolt Assembly

On the front of the bolt body there is a round cutout for the cartridge head and an oval cutout for the extractor. In the round cutout there is a hole for the firing pin. On the top of the bolt body there is a semicircular lug on which there is a smaller profiled lug. Under the profiled lug there is a round hole which holds the extractor shaft. On the side of the body there is a rectangular lug which allows the bolt to be locked and unlocked, and a longitudinal groove along which the ejector tooth slides. The lower part of the bolt is the shaft which feeds the cartridge.

The extractor consists of the body, helical compression spring, shaft, and pin. The firing pin has a lug which guides it through the bolt body and allows easy removal.

Front Sight Assembly. The front sight assembly (see figure 1-29) consists of the following components: the base, the blade housing, and the blade. The base is pulled onto front of the barrel and fastened with three pins. The top of the base has the shape of a semicircular ring and serves as the sight blade guard.

Under the blade guard there is lateral hole which holds the blade housing. On the front side of the base, on a beveled recessed surface, there is a notch for checking the proper position of the blade housing. Below the beveled recess of the base there is a hole for the flash suppressor stud. The lower part of the base is ring shaped and slipped onto the barrel and has holes for the retainer pins.

The blade housing has a threaded hole where the blade is screwed into place. A line is engraved on the front side of the blade housing which is lined up with the notch on the beveled recess in the base. The blade is screwed into the hole in the base. Its lower part is split for a better fit into the housing.

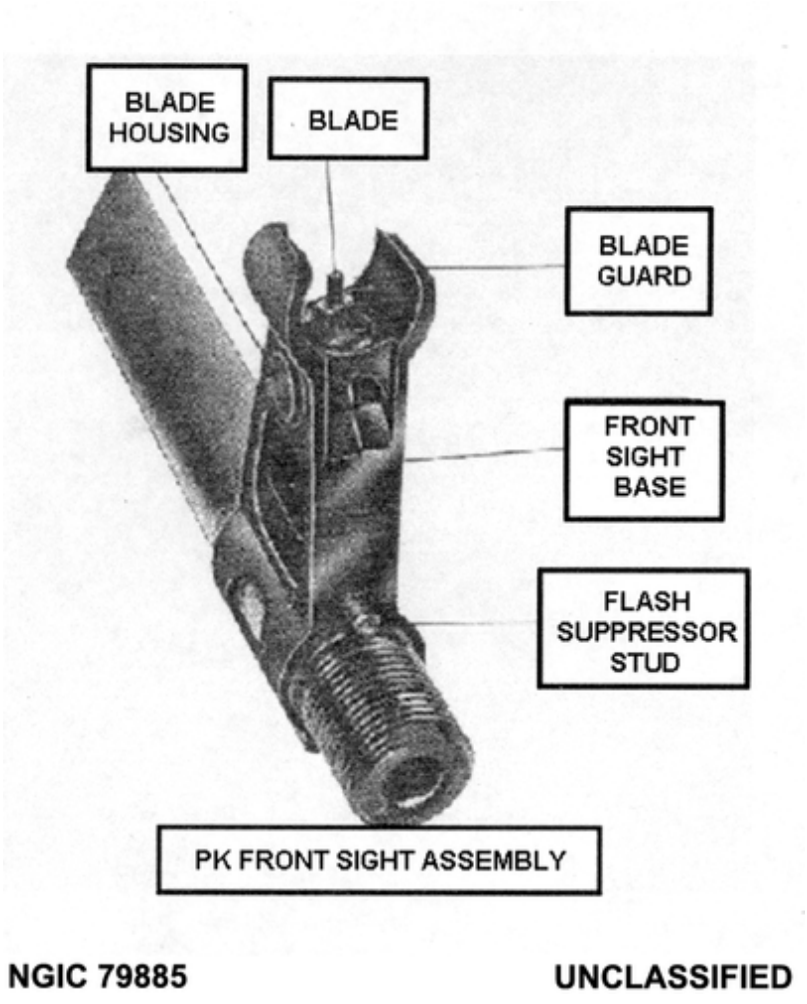

Figure 1-29. PK Front Sight Assembly

Rear Sight Assembly. The rear sight assembly (see figure 1-30) consists of the base, leaf, elevation knob, leaf spring, and sight bar assembly. The sight base is riveted onto the receiver cover. On the front of the sight base there is a projection which fits through the longitudinal rectangular slot in the receiver cover and functions as the cartridge stop. The top of the base is cut through in order to hold the leaf spring. The leaf and elevation knob serve to set the firing range. The upper surface of the leaf has an engraved scale with divisions representing values of 100 meters, in marks numbered 0–15. The “0” mark is used when engaging targets in the air.

The lower right side of the leaf is serrated to fit the tooth of the knob fastener. On the front of the leaf is the sight bar slot, which on the rear surface has a scale from 0–16 mils, on which each mark has a value of 2 mils (0–02). The elevating knob consists of the shank, fastener, and spring. The fastener has a tooth, which the spring presses into the notches on the right side of the leaf. The sight leaf spring is housed in the base and holds the leaf in the desired position by pressing its rear edge upward.

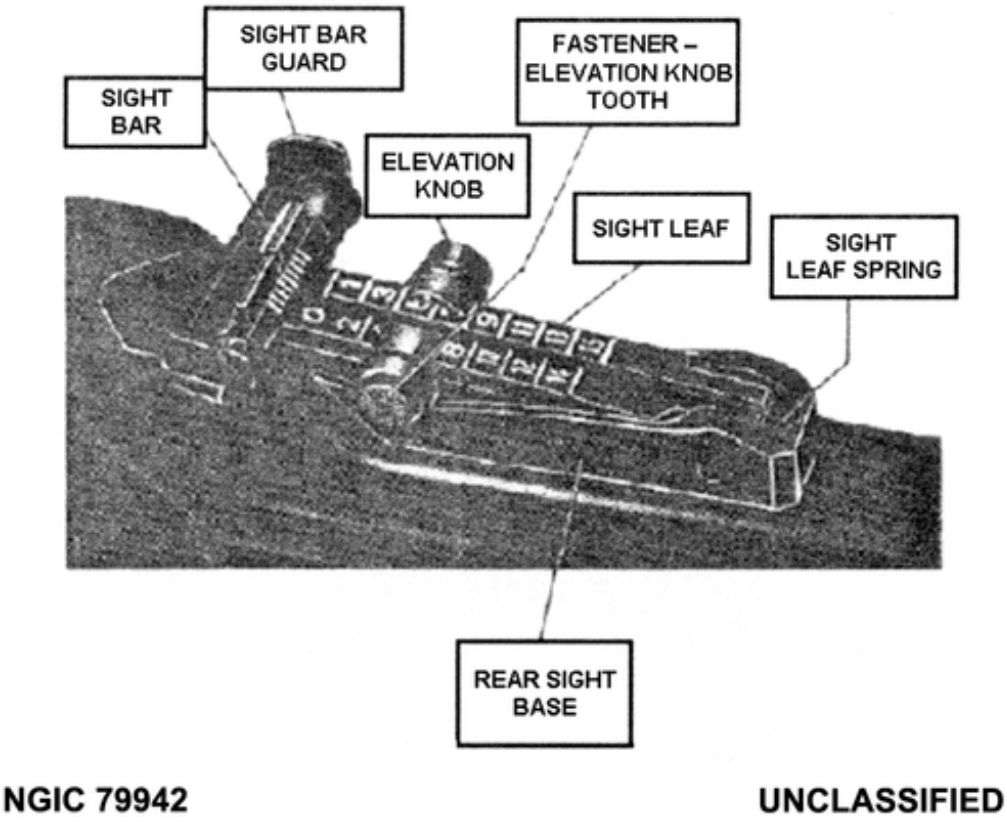

Figure 1-30. PK Rear Sight Assembly

Sight Bar Assembly. The sight bar assembly (see figure 1-31) serves to facilitate lead adjustment when firing on moving targets and for compensating for the effects of crosswind. It consists of the sight bar, spindle, drum, spring, and nut. The sight bar has an aperture in the center for sighting and is moved back and forth by the spindle when the drum is turned. In order to move the sight bar one division on the scale, the drum must be turned two full rotations. The spindle is threaded. The nut is attached to its end and fastened with the pin. The drum is slipped onto the spindle on the right side. Its rim is notched in order to facilitate turning, and on its left side there are two projections that hold it in the desired position. The spring is slipped over the spindle, and its ends rest against the nut and the drum.

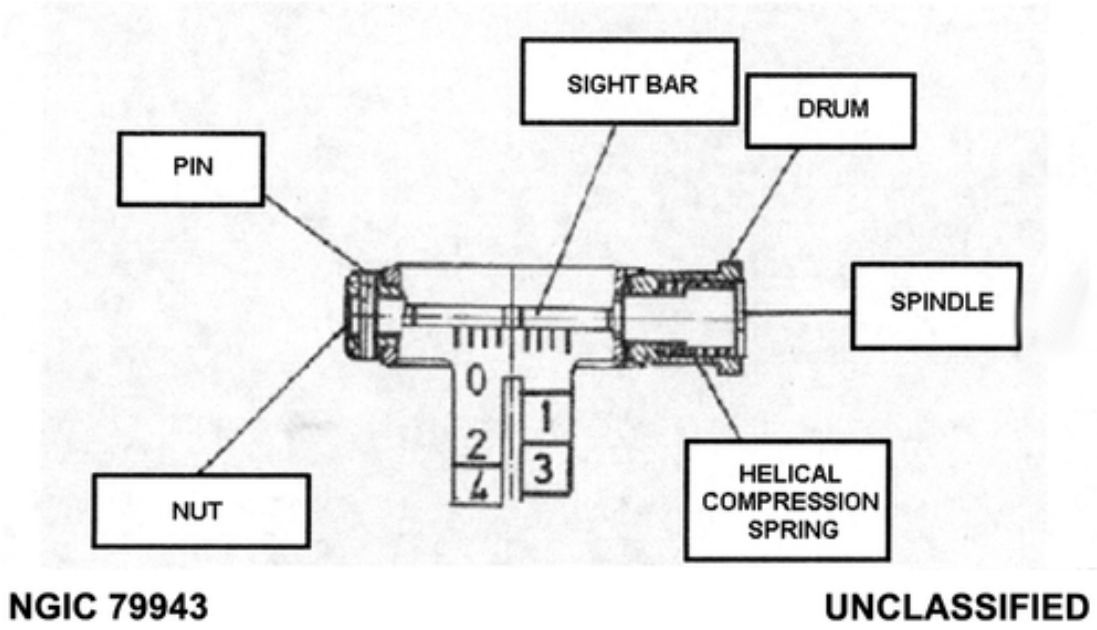

Figure 1-31. PK Sight Bar Assembly

Bipod Assembly. The bipod assembly (see figure 1-32) is used to support the machinegun if necessary when firing. It consists of the bipod assembly pivot, coupling, helical compression spring, leg lock, and bipod latch.

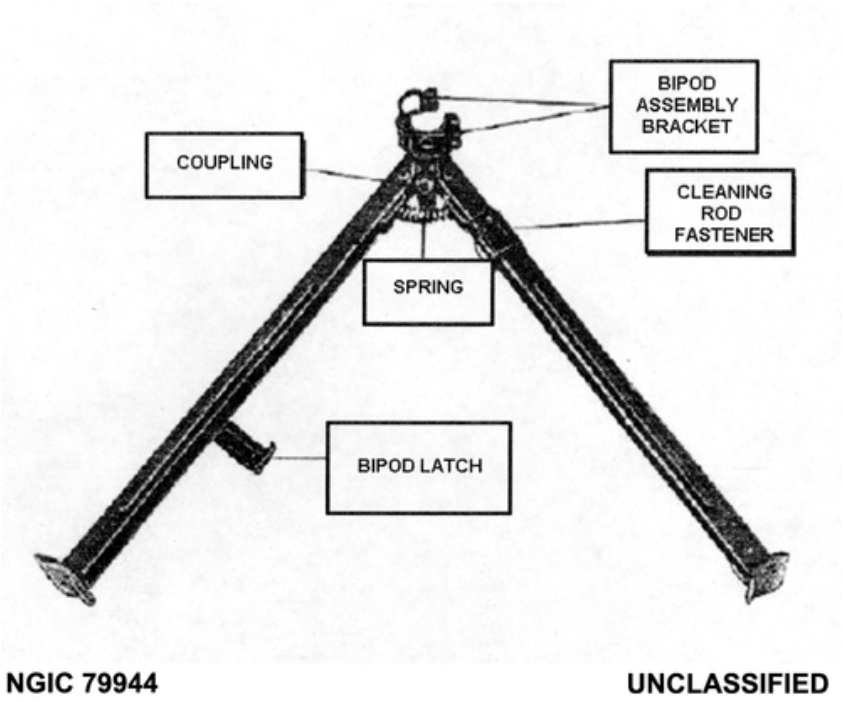

Figure 1-32. Bipod Assembly

The bipod assembly bracket consists of an upper part and a lower part which are joined with two pins through their lugs. On the bottom of the lower part there is a lateral oval opening which holds the beveled components of the bipod. The lower part of the bipod assembly bracket has a lateral hole for the coupling and a longitudinal hole for the coupling pin. On the front and rear of the lower part of the bipod assembly bracket there are slots for the bipod leg ribs when they are in the folded position.

The coupling joins the upper ends of the legs with the bipod assembly bracket and limits the sideward extension of the legs. It is fastened to the legs with pins.

The bipod legs end in the leg bottoms. The bipod latch is attached to the left leg with a wire fastener. The cleaning rod is located inside the right leg. The cleaning rod fastener is located in the upper end of the right leg and consists of body, pin, and spring.

When the legs are released from the bipod latch, the spring presses them apart.

Tripod Assembly. The tripod serves to provide increased stability of the machinegun when firing from various positions, to facilitate firing at targets in the air and firing at linear and deep targets with sweeping fire. The tripod (see figure 1-33) consists of the following components: cradle, attachment for firing at targets in the air, cradle mount, base, and legs.

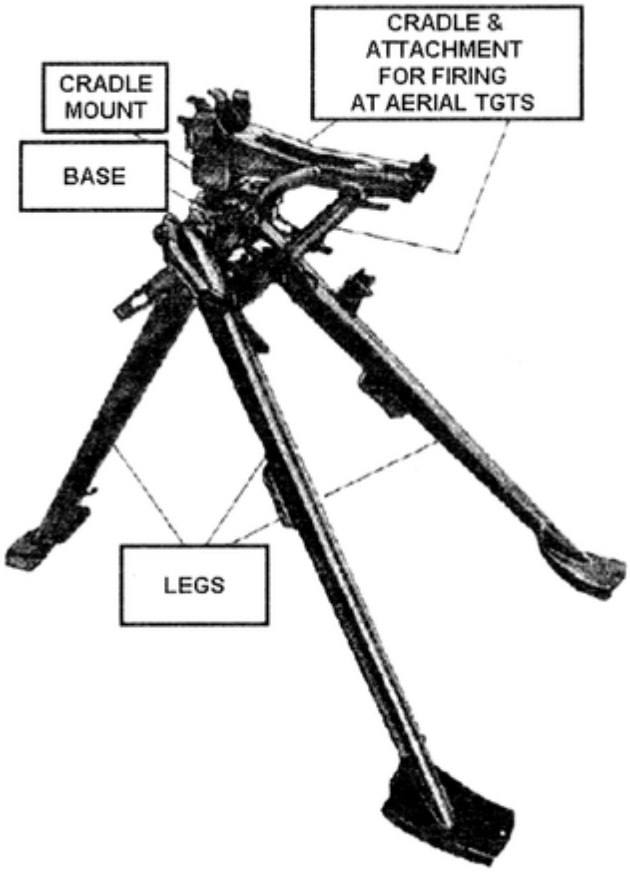

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Figure 1-33. Tripod Assembly

The cradle and aerial target attachment (see figure 1-34) serves to fasten the machine gun to the tripod, to facilitate firing at targets on the ground and in the air, and firing at targets with depth. It consists of the following components: the cradle frame, attachment for firing at targets in the air, and precision elevating mechanism.

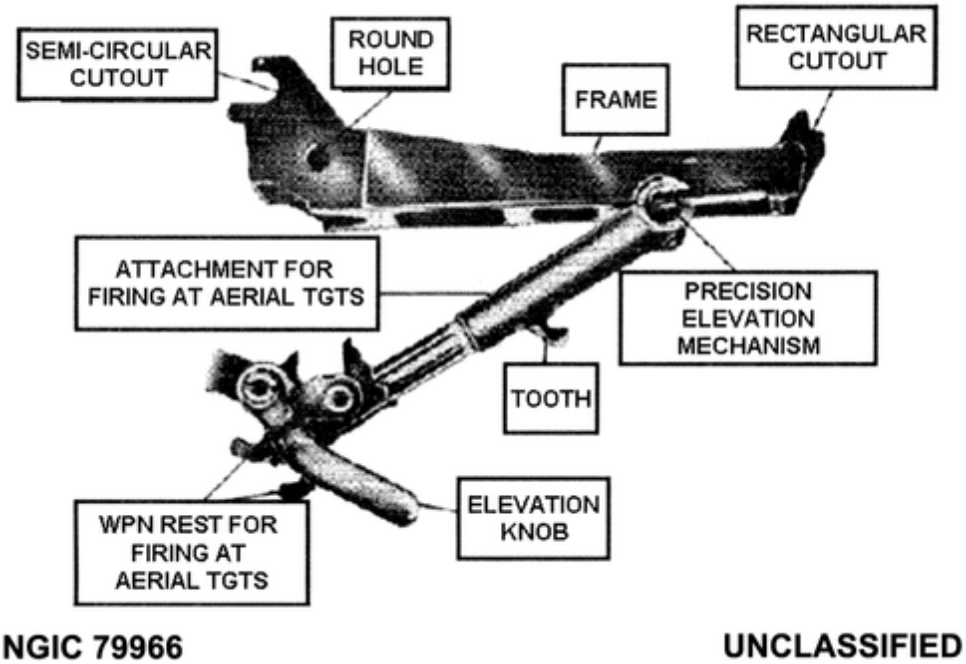

Figure 1-34. Cradle & Aerial Target Attachment

On the front end of the cradle frame there are lugs with semicircular cutouts into which the studs of the barrel socket fit. On the sides of the front part of the frame there are round holes which hold the machine bolts, which join the cradle frame with the cradle mount. Washers and nuts are affixed to the machine bolts. On the front of the cradle frame there is a profiled opening which holds the cradle latch when the machinegun is set up for firing at targets in the air. On the rear of the cradle frame there are lugs with rectangular cutouts which hold the front end of the trigger mechanism. Under the lugs there is a latch for the lug on the trigger mechanism housing and trigger guard and for the tooth on the support of the attachment for firing at targets in the air. The latch consists of the lever, shaft with tooth, spring, and pin. On the rear of the cradle frame there are round lugs for fitting the precision elevation mechanism and for attaching the device for firing at targets in the air.

A line is stamped into the left round lug; the notch on the handle of the precision elevation mechanism is aligned with the line. There is a semicircular rib which limits the movement of the handle of the precision elevation mechanism.

a) **Aerial Target Attachment.** The attachment for firing at targets in the air (see figure 1-34) serves to establish a stable link between the cradle frame and the pintle of the cradle mount when the machinegun is set up for firing at targets on the ground and to enable the machinegun to be fired at targets in the air. It consists of the support and rest for firing at targets in the air.

   The support has on its upper end a housing with which it is joined with the cradle frame. In the middle of the support is a tooth used to fasten the machinegun when firing at targets in the air. The lower end of the support has a smaller profile

and has longitudinal ribs which allow better fastening of the rest for firing at targets in the air. The elevation stop is slipped onto the support and fastened with a pin. The stop prevents the rest (for firing at targets in the air) from falling off the support.

The rest for firing at targets in the air serves to join the support with the cradle mount pintle and allow firing at targets in the air. It consists of two spring couplings (one large, one small), the mount, the rest latch, and the locking device. The larger spring coupling joins the machinegun rest with the support, and the smaller spring coupling joins the machinegun rest with the cradle mount pintle. The upper end of the coupling consists of lugs with holes for joining it with the shaft of the rest latch. The lower end of the coupling is split for better expansion. The mount consists of the frame and two holders. The frame and the holders are joined together with shafts. The frame is joined with the rest latch shaft via the lugs with holes. The mount frame has two internal and two external lugs. The internal lugs fit onto the edge of the support stop and prevent the mount frame from slipping down when the machinegun is set up to fire at targets in the air. The external lugs limit the movement of the holders downward. On the inner right side of the rest mount there is a round stud which fastens the mount onto the larger flexible coupling when the machinegun is set up for firing at targets on the ground. The mount holders on the upper edge has semicircular lugs with slots and fit onto the shoulders of the barrel socket when the machinegun is set up for firing at targets in the air. The rest latch joins all components of the rest for firing at targets in the air. It consists of the shaft, nut, and handle. A washer and a spring washer fit under the nut and ensure that the nut will not come loose. The shaft screws into the handle. The locking device is slipped onto the latch and keeps the smaller flexible coupling from falling off the cradle mount pintle when the machinegun is set up for firing at targets on the ground. It consists of the lever with tooth and the spring.

b) **Precision Elevation Mechanism.** The precision elevation mechanism (see figure 1-35) serves to join the aerial fire addition and the cradle frame to allow accurate sighting with respect to elevation and firing at deep targets (the range of operation is 15 mils). It consists of the eccentric shaft, handle, nut washer, and spring washer.

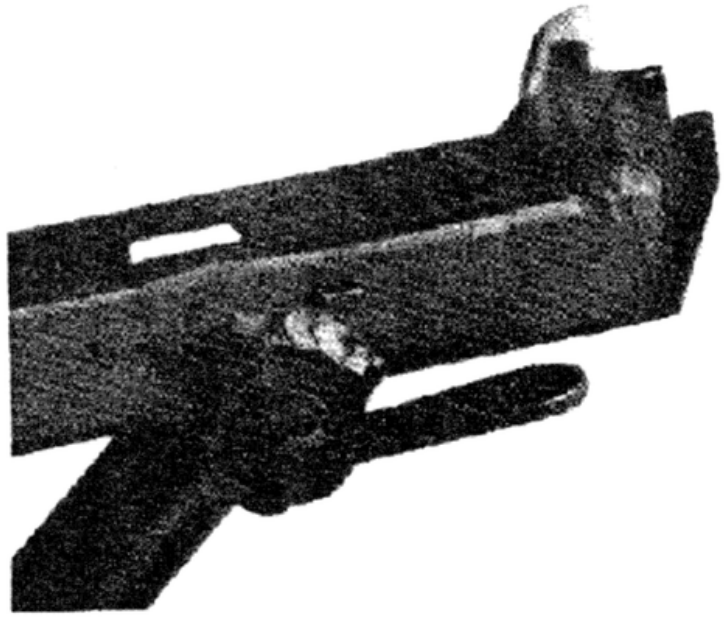

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Figure 1-35. Precision Elevation Mechanism

The handle is joined to the shaft with a pin. On the edge of the handle there is a notch which is aligned with the line on the round lug of the cradle frame. A locking device is built into the bottom of the shaft and moves along a groove in the round lug of the cradle frame.

c) **Cradle Mount.** The cradle mount (see figure 1-36) serves to join the cradle with the base and allows the machinegun to be traversed. It consists of the pintle, the traversal mechanism, and the cradle latch. The pintle in the upper part has two arms with holes for fastening it to the cradle frame. On the rear of the pintle there is a lug with a hole for fastening the traversal latch. On the top of the pintle is the housing for the cradle latch. The lower part of the pintle is threaded to receive the nut, and there is a longitudinal groove for the tooth of the stop of the rest for firing at targets in the air. The pintle is fastened on the tripod base with a nut, a flexible serrated cap, a washer, and a pin.

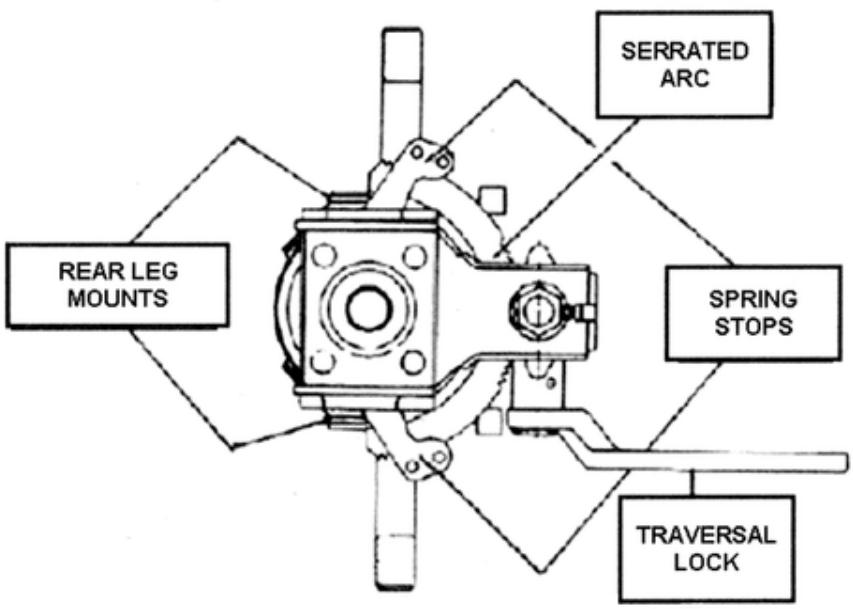

Figure 1-36. Cradle Mount & Base

d) **Traverse Mechanism.** The traversal mechanism consists of the serrated arc, two spring stops (left and right), the locking device, and nut. The components of the traversal mechanism are slipped onto the forward leg mount and fastened with a nut. The serrated arc has 58 teeth. The total value of the arc is 70°, and the value of one tooth is 2° 52' and 12" (about 0–50). The spring stops have curved lugs, which prevent the stops from being passed in case they slip out of the serrated arc. On the bottoms of the stop arms there are serrated plates fastened with two rivets. The locking device fastens the serrated arc and prohibits it from moving laterally. The transversal latch fastens the cradle in a given position. It consists of the offset handle, nut, washer, stop, clamp, and cotter pin. The stop serves to catch against the spring stops with its edges when the machinegun is traversed. The cradle latch consists of the body, pin, and spring.

e) **Base.** The base (see figure 1-36) joins all components of the tripod. It consists of the two rear leg mounts, the front leg mount, the separation cap, and four spring washers. The rear leg mounts are serrated on their exterior sides for a form fit with the legs when they are locked with the latches. On the back they have lugs which fix the upper- and lowermost positions of the legs. On the bottom of each mount is a semicircular lug which limits the spread of the leg to the side. The front leg mount is serrated on each side; the separation cap, rear leg mounts, and the traversal mechanism components slip onto it. The serrated sides have lines stamped into them with which the lines on the legs are aligned. The aligned lines indicate the position of the front leg in the sitting position and when firing at targets in the air. The lug on the right serrated side limits the lower- and

uppermost position of the leg. The separation cap, with the spring washers, fixes the positions of the leg mounts.

f) **Legs.** The legs (see figure 1-37) serve to ensure the stability of the machinegun when firing and taking up various positions. They are fastened to the base with latches. Each leg latch consists of the handle, shaft, nut, and two flat washers. The nut screws onto the shaft and is secured with a cotter pin.

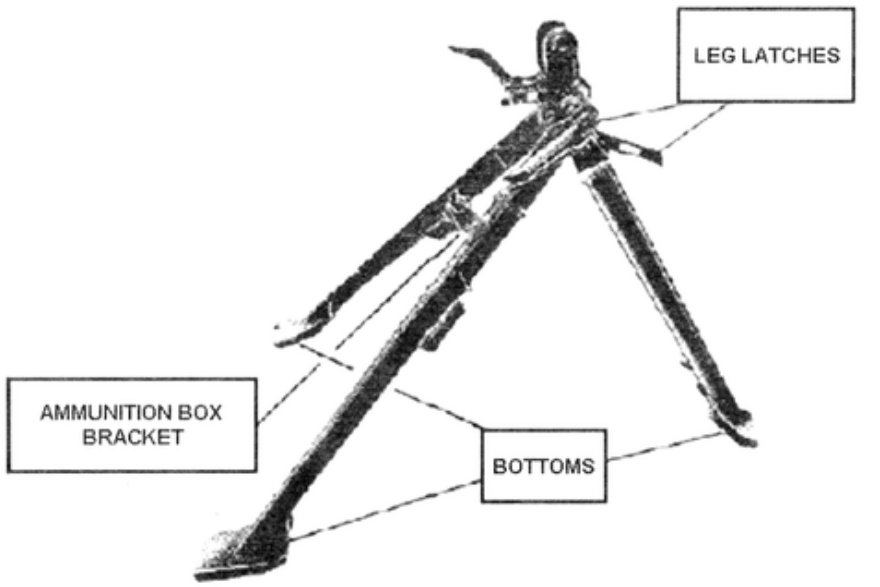

Figure 1-37. Tripod Legs

The leg bottoms ensure the stability of the tripod. The rear legs have carrying rests, and each has two swivels for the slings when the tripod is carried. The right leg has the bracket for the ammunition box and two stops. There are round holes on the leg bottoms through which the karabiners for the ammunition box straps are attached.

Section II. Technical Data

All technical data listed below, unless specified, is for the Soviet / Russian PKM machinegun.

a. Weapon

Caliber	7.62x54R mm
Operation	Gas
Fire type	Fully automatic Only
Cyclic rate of fire	690-720 rpm (6P41–650 rpm)
Practical rate of fire	250 rpm
Overall length	1190 mm / 47 inches (6P41-1164 mm)
Weight unloaded	8.4 kg / 18.5 lbs (6P41-8.2 kg)
Max range	3800 m
Max effective range	1000 m (6P41-1500 m)

b. Feed.

Type	Belt; non-disintegrating links
Location	Right to left
Belt capacity	25-250 rounds (connectable 25-rd sections)

c. Barrel.

Length	60.3 cm/23.75 in
Approximate muzzle velocity	835 ms/2741fps (6P41–825 ms)

d. Sights.

Front type	Protected cylindrical post
Rear type	Rectangular notch, tangent ramp
Rear sight graduation	100-1500 m in 100-m increments;
Battle setting	330 m
Adjustment	Front sight: zero only Rear sight: elevation & windage

e. Action.

Locking feature type	Rotary bolt
Full automatic	Fires from open bolt
Trigger type	Spur
Safety type	Rotary selector (safe or fire)
Safety location	Left side trigger guard

f. Stock.

Type	Fixed
Material	Wood (laminated)

Section III. Operation

Loading the Non-disintegrating Belt. The ammunition belts for the PK machinegun initially are preloaded at ammunition factories in 25-cartridge, connectable belt lengths. Unloaded belts also come in 100-, 200-, and 250-cartridge lengths. To reuse the non-disintegrating belt lengths, the belt must be hand loaded.

To hand load the belt, insert a 7.62x54R cartridge, one at a time, into each opening of the belt from the large section of belt to the small section. Push the round completely forward into each opening. A cartridge is completely seated when the front ridge of the cartridge is aligned with the front of the smallest portion of the belt (see figure 3-1).

Figure 3-1. Non-Disintegrating Belt and Proper Seating of Ammunition in Belt

WARNING: This weapon cannot utilize NATO 7.62x51-mm ammunition unless it is specifically calibrated to fire NATO ammunition. Consult table 8-1 in Section VIII of this manual for appropriate types of ammunition.

An improperly loaded cartridge (see figure 3-2) may cause the belt to feed incorrectly or cause the round not to chamber properly. Either of these actions will cause a stoppage.

Figure 3-2. Improper Seating of Ammunition in Belt

Normal safety precautions of handling small arms ammunition should be observed at all times. Careful insertion of each round should avoid any accidental striking of the primer.

Loading the PK Machinegun. Keep the weapon pointed in a safe direction. Place the selector lever, located on the left-hand side of the weapon to the forward (fire) position (see figure 3-3). Depress the feed tray cover latch, located at the rear of the receiver, and raise the feed tray cover to the fully open position. Place the belt on the feedway, ensuring that the rim of the first cartridge is in the cartridge gripper, located at the center rear of the feedway (see figure 3-4). The charging handle and bolt will be in the forward position. Close the feed tray cover of the weapon, ensuring that the receiver cover latch is engaged (see figure 3-5).

> **CAUTION:** During operation, if the receiver cover is not closed and the receiver cover latch is not engaged, damage to the receiver cover and operator may occur by the blow back action of the bolt and expended cartridge. Additionally, the weapon selector is in the fire position during the loading process—the operator should place the selector lever weapon back in the safe position once he completes loading the weapon if is he is not going to immediately fire his weapon.

Figure 3-3. PK Selector Lever in Fire Position

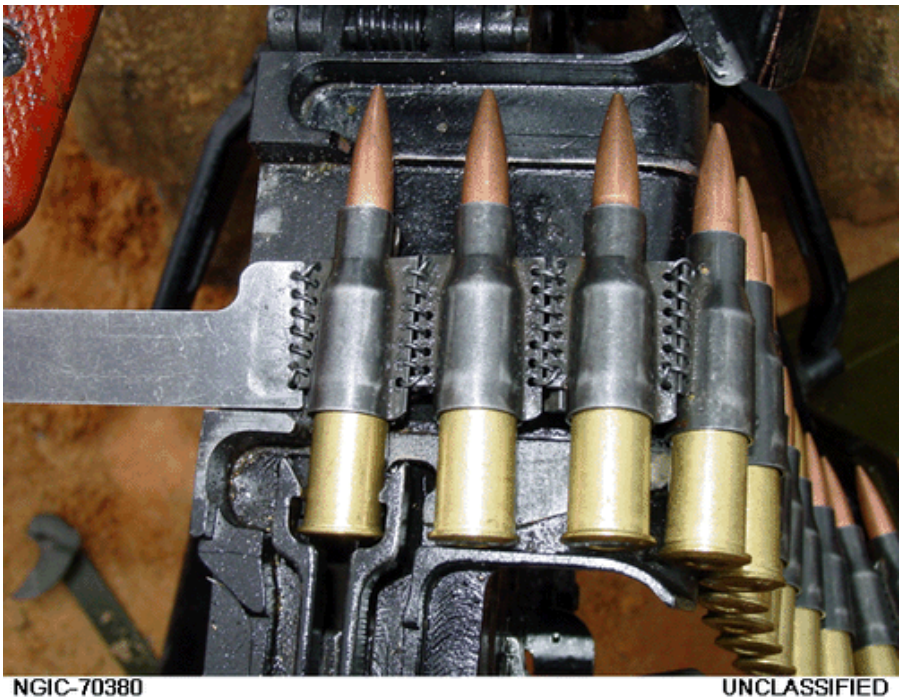

Figure 3-4. Proper Seating of Ammunition Belt in Weapon

Figure 3-5. Receiver Cover Properly Closed

Firing the PK Machinegun. Pull the charging handle, located on the right side of the weapon, completely to the rear. This will extract the first round of ammunition from the belt. This action places the first cartridge in position on the bolt face. Return the charging handle to the forward position. The PK is now ready for firing. Note: To ensure that the charging handle is seated properly, it a slight push forward with the palm of the right hand (see figure 3-6).

Figure 3-6. Charging Handle in Forward Position for Firing

Aim the weapon at the desired target. Pull the trigger, firing the weapon in 6- to 9-round bursts. Note: Firing the PK in short 6- to 9-cartridge bursts allows the barrel to cool and prolongs the life of the barrel. Test results have shown that continuous fire of more than 260 cartridges significantly increases the possibility of a cook-off (heat of barrel exploding a chambered cartridge).

Unloading the PK Machinegun. Keep the weapon pointed in a safe direction. Place the selector lever, located on the left-hand side of the weapon to the rear (safe) position. Depress the feed tray cover latch, located at the rear of the receiver, and raise the feed tray cover to the fully open position. Lift the ammunition belt out of the feedway and remove the single cartridge from the cartridge gripper. It may be necessary to swing the feed tray up and press this cartridge out of the feed lips in the tray.

Clearing the PK Machinegun. Keep the weapon pointed in a safe direction. Place the selector lever, located on the left-hand side of the weapon to the forward (fire) position. Depress the feed tray cover latch, located at the rear of the receiver, and raise the feed tray cover to the fully open position. If an ammunition belt or cartridge is present remove the ammunition belt out of the feedway and remove the single cartridge from the cartridge gripper. It may be necessary to swing the feed tray up and press this cartridge out of the feed lips in the tray. Pull the operating handle rearward, inspect to ensure that no cartridges are present, grasp the operating handle, and press the trigger; ease the operating mechanism forward. Close the cover and rotate the selector lever rearward (safe).

Immediate Action: A malfunction is a failure of the weapon to function as designed. Defective ammunition or improper operation of the weapon by an operator is not considered a malfunction of the weapon. The three most common malfunctions of the PK machinegun are misfires, runaway guns, and sluggish operation.

- Cool^{-1} Weapon Misfire Procedures—Keep the weapon pointed in a safe direction (up and down range). Then pull the charging handle to the rear and extract the misfired cartridge. Release the charging handle, loading a new round and attempt to fire it. If the weapon still does not fire, inspect the extracted cartridges for indications that the primer of the cartridge has been struck. If it has, the ammunition is probably faulty, and a new lot of ammunition should be selected. If the round shows no indication of being struck, inspect the bolt assembly and firing pin for damage.

- Hot^{-2} Weapon Misfire Procedures—Keep the weapon pointed in a safe direction (up and down range) for at least 5 minutes before re-cocking the weapon and extracting the misfired round. This procedure is incorporated as a safety factor to reduce the possibility of a cook-off. After the 5-minute waiting period, follow the steps as outlined in the Cool Weapon Misfire Procedures to continue firing the weapon.

- Runaway Gun & Corrective Procedures—A runaway gun is a weapon that continues to fire after the trigger is released. It may be caused by a worn sear, worn sear notch, or a short recoil (operating group recoils to feed and fire but not sufficiently enough for the sear to engage the sear notch). Short recoil may also be caused by loss of gas or excessive carbon build-up in the operating rod. Keep the machinegun pointed in a safe direction (up and down range) until all ammunition is expended or twist the ammunition belt to cause a stoppage. Clear the weapon and inspect it to determine the cause of the malfunction—check the gas port plug, gas cylinder extension, and clean the operating rod. Replace parts as necessary.

- Sluggish Operation & Corrective Procedures—Sluggish operation of the weapon usually is due to excessive friction caused by dirt or carbon, lack of proper lubrication, burred parts, or excessive loss of gas. Clean and lubricate the weapon, then inspect for burred parts and replace if necessary.

[-1] Cool Weapon = <200 cartridges fired
[-2] Hot Weapon = >200 cartridges fired

Barrel Quick Change. The changing of barrels prolongs the life of the barrel and equalizes barrel wear. There are three rates of fire with a machinegun: sustained, rapid, and cyclic. These rates indicate when a barrel change is desired.

- Sustained Fire. 100 cartridges per minute in bursts of 6 to 9 rounds with a 4- to 5 second interval between bursts. A barrel change is recommended after firing the sustained rate for 10 minutes.

- Rapid Fire. 200 cartridges per minute in bursts of 6 to 9 rounds with a 2- to 3-second interval between bursts. A barrel change is recommended after firing the rapid rate for 2 minutes.

- Cyclic Fire. 700 cartridges per minute or the maximum rate of ammunition which can be expended in 1 minute. A barrel change is recommended after firing in excess of rapid fire for 1 minute.

Conduct a quick barrel change with the PK machinegun in the following manner:

- Unload the weapon.
- Maintain the feed tray cover in the open position and swing the feedway up (pivots on same pin as the receiver cover).
- Push the barrel locking latch completely to the left-hand side of the receiver (see figures 3-7 and 3-8). Pull the barrel carrying handle away from the barrel (see figure 3-9); this will lever a hot barrel out of its seat in the receiver, then pull the barrel forward, completely off the gun (disengaging the barrel from the barrel receiver group).
- Insert a new, cool barrel, seating it fully – ensure the gas tube is properly seated (see figure 3-10). Press the barrel lock fully in and close the feed tray cover.
- Reload and resume firing.

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Figure 3-7. Barrel Locking Latch in Locked Position

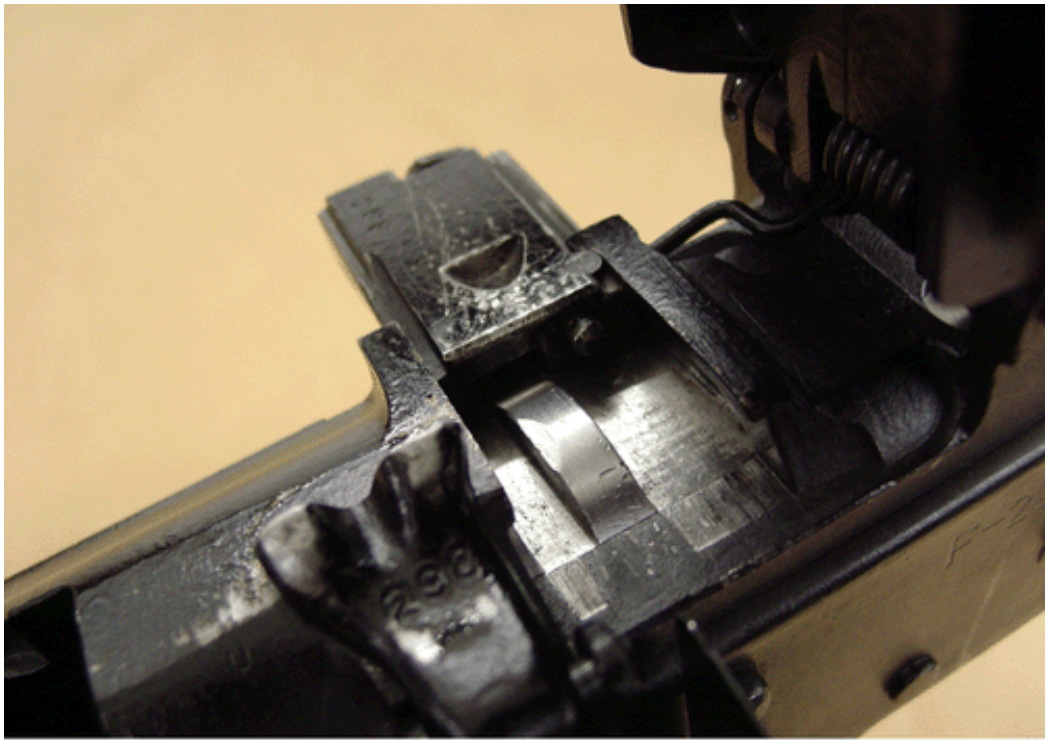

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Figure 3-8. Barrel Locking Latch in Unlocked Position

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Figure 3-9. Barrel Quick-Change Handle and Barrel Pulled Forward from Barrel Receiver

Figure 3-10. Gas Tube Seated

Zeroing the PK-series Machinegun. Listed below are the established "Testing the Mechanical Sights" procedures as outlined in the Yugoslavian (U) Manual for the M84, 7.62-mm Machinegun, dated 1989. Some of the data is re-phrased in order for the reader to easily understand.

The precision and accuracy of the machine-gun are tested by opening semi-automatic or automatic fire from a bipod or only automatic fire from the tripod mount. After the firing has been completed, group spread and position of the central shot (CS) in relation to the control point (CP) are determined separately for every type of fire.

Training Target. A 1 x 1 meter training target is used with a target for testing the accuracy and precision of a machine gun (see figure 3-11). The target is in the shape of a rectangle 35 cm high and 25 cm wide. The aiming point (AP) is at the center of the lower edge of a black rectangular and has to be level with the firer and weapon. A different color is used to mark the point that represents the central shot, or control point (CP), 25 centimeters above the aiming point. 10 and 20 cm-radius rings are drawn around the control point.

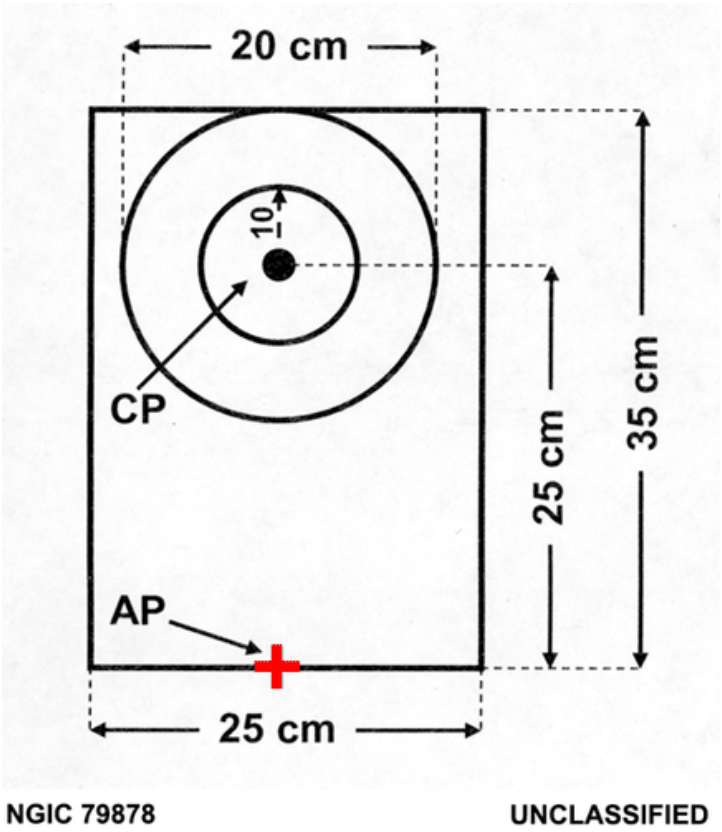

Figure 3-11. M84 Training Target

Correct Sight Picture**.** Aiming with a mechanical sight means that the gunner will bring into a straight line the eye, the rear sight, the blade, and the aiming point (target). The blade must be brought into the center of the aiming notch, and its tip aligned with the upper edge of the notch (see figure 3-12).

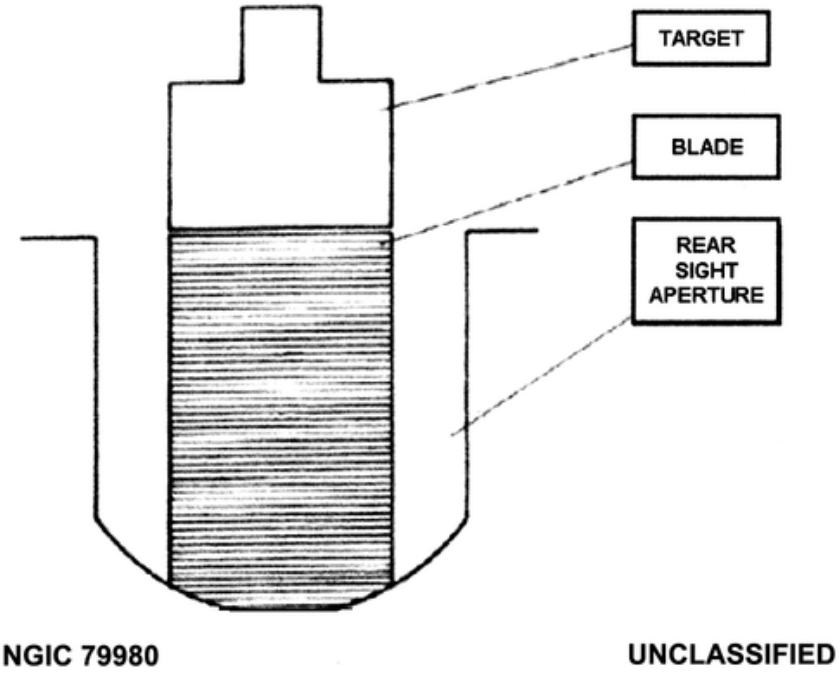

Figure 3-12. Correct Sight Picture

If one of the actions from the basic rules of aiming is performed incorrectly, shot dispersion will occur.

Different light intensity during the day, the position of the sun, and the weather can influence aiming. Strong light makes objects appear bigger, so the gunner instinctively draws the blade into the notch, and the illumination of the notch or the blade when there is a lot of sunshine causes reflection of the light, owing to which their real shape is lost, and they appear bigger. The gunner eliminates these errors by focusing observation on the spot where the reflection occurred, which will make the real position of the component (notch, blade, or target) visible, owing to the accommodation of the eye (adjustment of the lens in the eye to various sight distances).

During aiming, one eye can be closed, depending on the habit of the individual soldier. If the gunner uses both eyes during aiming, the possibilities of observation are better, there is less strain and the sharpness of vision is not reduced. It is important that the gunner uses his stronger (direction) eye for aiming and decides during training whether or not to close one eye while aiming.

In order to fire, the gunner, while keeping the alignment in place, slowly, and with even strength, pulls the trigger until firing occurs. The gunner's breathing rhythm significantly influences the shooting result, especially when the machinegun is not fixed during firing and when no bipod is used. The breathing follows the movement of the rib cage, the stomach, and the entire shoulder belt, which causes ordnance to move. Because of this, the gunner breathes out and holds his breath before firing. The gunner must practice firing 7 to 10 seconds after he stops breathing.

The gunner must pull the trigger with a steady motion of his index finger, while holding the grip with his hand in order to create sufficient support for overcoming trigger resistance. The grip must be held firmly, but not too tense, because muscle strain can cause the weapon to move. Pull the trigger with the first knuckle of the index finger straight to the rear and gradually increase pressure. The time from starting to pull the trigger until firing should not be longer than 1.5 or 2.5 seconds.

Bipod Semi-automatic Fire Zero.

- Zeroing the weapon is conducted by firing 4 x ball ammunition cartridges from the same lot of ammunition. All fire is conducted in single shots.
- The weapon is zeroed on a firing range at 100 meters with the rear sight setting at '3' and the sight bar division set on basic (the notch on the sight bar with a white line is placed opposite the middle notch on the scale).
- The position for firing is prone, bipod supported.

Semi-automatic fire zero standards. The machinegun is adequately precise and accurate if at least three out of four shots fall within a 15-cm-radius ring, and the group center is not outside the 5-cm-radius ring. Shots that touch the ring on the outside are also considered valid.

Determining CS. When the firing has been completed, the target is checked and the group size (precision) is determined as well as the position of the CS (accuracy) – marked by a red 'X' in the examples (see figures 3-13 and 3-14).

If precision is inadequate (loose spread), the chain of command will determine its causes. Once the cause has been established and the machinegun has been repaired, the same marksman fires again. In the event of another large dispersal, another marksman fires the same machinegun. If no desired precision is achieved, the firing is interrupted, and the machinegun is sent in for repair as imprecise. Three group pictures are sent along with the weapon.

Once satisfactory precision is achieved, the accuracy of the machinegun is determined by establishing the central shot in the group spread, determining its position and how much it deviates from the control point. The central shot (CS) for a group of four shots is determined in the following way (see figure 3-13):

- Connect the two closest shots with a straight line and divide the distance between them in two equal parts (the point in the middle is their central shot).

- Connect the central shot of the first two shots with the third one and divide the distance between them into three equal parts. The point closest to the central shot of the first two shots is the central shot of these three shots.
- Connect the central shot of the three shots with a straight line with the fourth shot and divide it into four equal parts. The point closest to the central shot of the first three shots is the central shot of the entire group.

In order to determine the position and the deviation of the CS from the control point (CP) more accurately, draw a vertical and a horizontal line through the CP and establish the position of the CS (left, right, underneath or above). The horizontal and the vertical deviation of the CS is measured with a ruler.

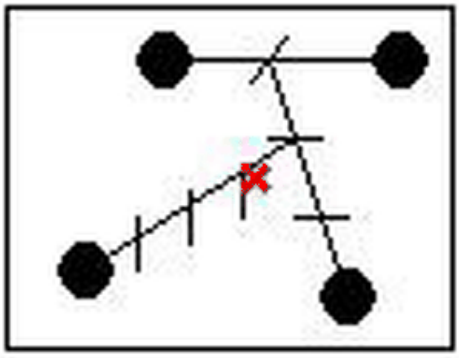

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Figure 3-13. Determining the CS

When the group spread is symmetrical, the central shot is determined according to figure 3-14.

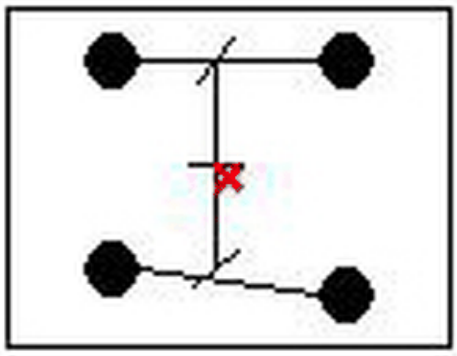

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Figure 3-14. Determining the CS

Bipod Automatic Fire Zero.

- Zeroing the weapon is conducted by firing 10 x ball ammunition cartridges from the same lot of ammunition. Fire is conducted in three to four short bursts.
- The weapon is zeroed on a firing range at 100 meters with the rear sight setting at '3', and the sight bar division set on basic (the notch on the sight bar with a white line is placed opposite the middle notch on the scale).
- The position for firing is prone, bipod supported.

Automatic fire zero standards. The machinegun is considered sufficiently precise and accurate if at least 7 out of 8 shots falls within a 20-cm-radius ring, and the CS does not deviate from the control point more than 5 cm to either side. Shots that touch the ring on the outside are also considered valid. If adequate precision is not achieved with automatic fire, repeat the zero procedures.

Determining CS. When opening automatic fire the CS is determined by counting half a number of shots up or down the vertical line (either above or down) and drawing a horizontal line, and then counting half a number of shots (from right to left) and drawing another vertical line (see figure 3-15). The point where the vertical and the horizontal lines cross is the position of the CS when a number of rounds are fired in bursts.

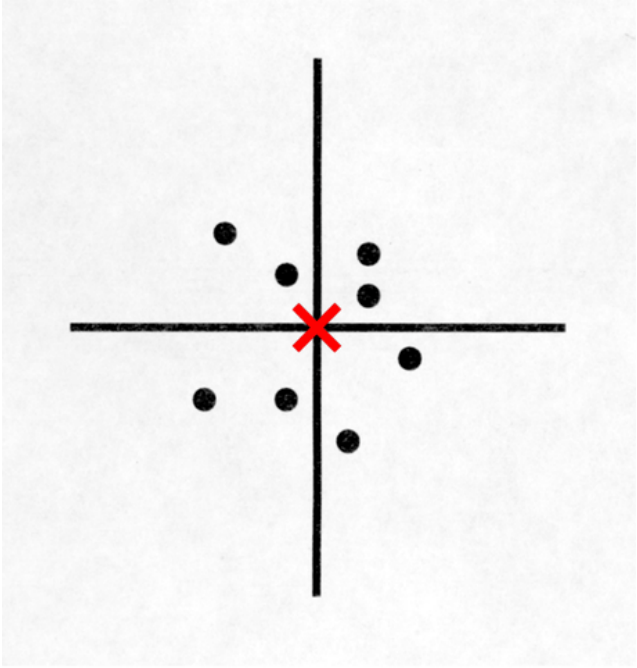

Figure 3-15. Determining Central Shot

The precision of the machinegun when firing automatic fire does not depend only on the proper functioning of the machinegun but also on the experience and the proficiency of the sight setter. In controversial cases, when the sight setter has influenced the precision, testing has to be repeated.

Adjusting the Weapon's Zero. When the shot group is satisfactory and the CS deviates from the CP more than 5 cm, the sights are changed in accordance with the format below:

Elevation –

- If the CS is lower than the CP (point of aim), rotate the front sight post down (clockwise).
- If the CS is higher than the CP (point of aim), rotate the front sight post up (clockwise).

Windage –

- If the CS deviates to the right of the CP (point of aim, drift the blade base (front sight) to the right.
- If the CS deviates to the left of the point of aim, drift the blade base (front sight) to the left.

How much the blade base is moved (i.e., raised or lowered) depends on how much the CS deviates and the length of the aiming line as shown in tables 2 and 3.

Table 1. Windage-Zero Adjustments

CS deviation (cm)	**5**	**7.5**	**10**	**12.5**	**15**	**17.5**	**20**	**22**	**25**	**27.5**	**30**
Blade moved horizontally (mm)	**.33**	**.5**	**.66**	**.88**	**1**	**1.17**	**1.33**	**1.5**	**1.66**	**1.83**	**2**

Table 2. Elevation-Zero Adjustments

Rotation of blade (full circle)	**1/4**	**½**	**3/4**	**1**
Vertical deviation of CS (cm)	**3**	**6**	**9**	**12**

The operator adjusts the blade base or the elevation under the supervision of his supervisor. Move the blade base sidewise until it is aligned with the external surface of the front sight base.

After the blade base is moved or its elevation adjusted by means of rotation, re-fire the semi-automatic fire and automatic fire zero as outlined above. If this proves inadequate, make further correction, and repeat firing.

If owing to a significant deviation of the CS, the blade base needs to be moved to the right (or left) more than allowed, another marksman carries out the firing. If the results are the same, the testing is discontinued and the machinegun is sent in for repair as inaccurate.

If results are achieved with the semi-automatic fire zero, but the CS continues to be more than 5 cm away from the CP, the proper functioning of the machinegun must be

checked again in order to establish whether the error lies with the operator and his setting of the sights or the position of the machinegun in the firing emplacement. After this, the firing is repeated. If no satisfactory results are achieved, the machinegun is sent in for inspection and repair.

If the results achieved with automatic fire are satisfactory (CS not more than 5 cm away), the pattern of shots is copied from the target onto a piece of paper on the scale 1:5. The number of the machinegun, date, time, temperature, and height above sea-level are recorded on the copy of the target, which is signed by the range officer-in-charge. This data is submitted along with the technical manual of the machinegun to be consulted whenever information on precision and accuracy is required.

Tripod Automatic Fire Zero.

- Zeroing the weapon is conducted by firing 10 x ball ammunition cartridges from the same lot of ammunition. Fire is conducted in one 10-shot burst.
- The weapon is zeroed on a firing range at 100 meters with the rear sight setting at '3' and the sight bar division remains on the adjusted sight settings.
- The position for firing is prone, tripod supported. The traversal and elevation mechanism has to be set, and the stock supported on the shoulder.

Automatic fire zero standards. The machinegun is considered sufficiently precise and accurate if 8 out of 10 shots fall within the 20-cm-radius ring, and the CS is not more than 5 cm away from the CP. Shots that touch the ring on the outside are also considered valid. The firing can be repeated two or three times, and if no satisfactory results are achieved, the machinegun is sent it for repair.

If the machinegun is not precise enough and the CS falls more than one mil (0-01) from the CP, the distance between the CS and the CP is measured both horizontally and vertically. The resulting deviation in divisions of the rear sight and the deflection correction is recorded in the documentation and taken into consideration during tripod firing.

Section IV. Disassembly

It is necessary to disassemble, inspect, and clean the internal components to ensure proper functioning of the PK machinegun.

Preparation: Clear the weapon IAW the procedures outlined in Section III, but do not rotate the selector lever back to safe or close the feed tray cover. Place the weapon on a flat surface with the bipod legs extended.

Open the Feed Tray Cover: Grasp the weapon by the buttstock; with free hand press the feed tray cover catch forward and lift the feed tray cover to the fully open position. Raise the feed tray to the fully open position to expose the internal working parts (see figures 4-1 to 4-4).

Figure 4-1. Press Feed Tray Cover Latch

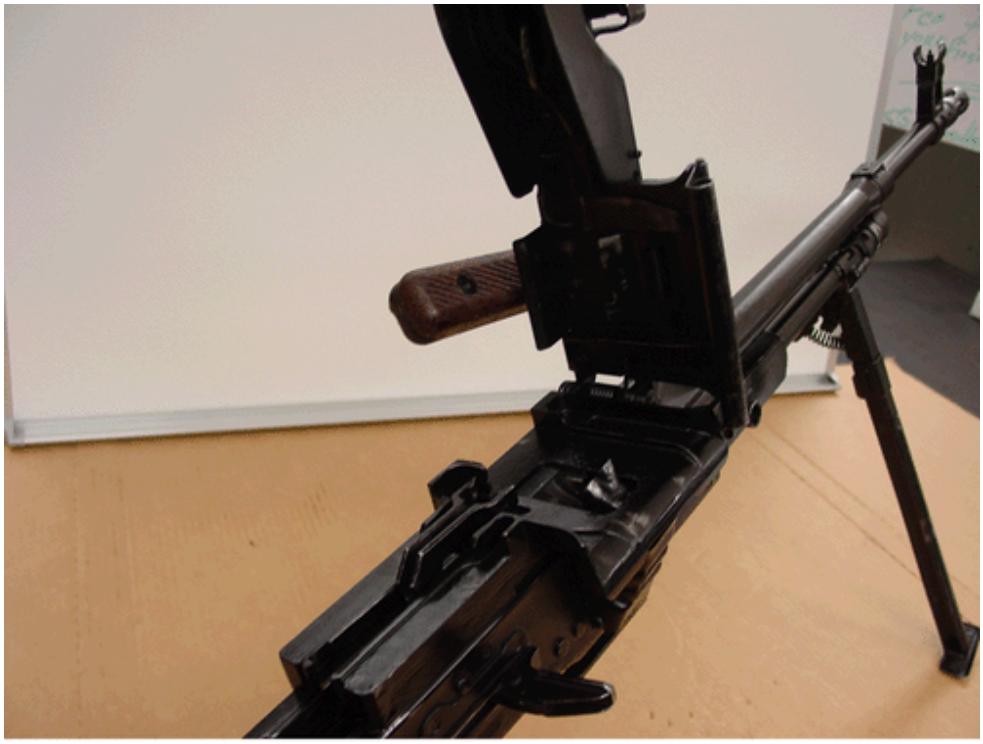

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Figure 4-2. Feed Tray Cover Open

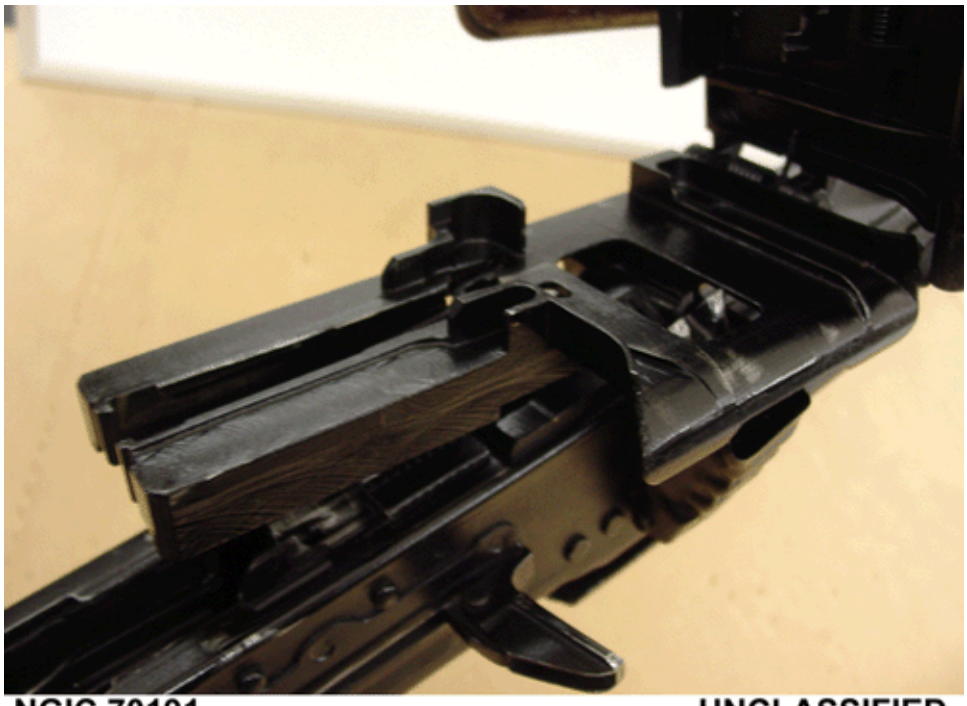

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Figure 4-3. Raising Feed Tray to Open Position

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Figure 4-4. Feed Tray Raised to Full Open Position

Remove the Operating Rod Assembly (Driving Spring and Guide Rod): Maintaining the feed tray cover and feed tray raised, leave the sliding cam and piston (cartridge space gripper and bolt) in the forward position. Grasp the operating rod assembly; pushing forward, easing the operating rod assembly upward and out of the weapon (see figures 4-5 to 4-7).

Figure 4-5. Sliding Cam and Piston in Forward Position

Figure 4-6. Pushing the Operating Rod Assembly Forward to Release Spring Tension

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Figure 4-7. Lifting Driving Spring Rod Upward and to Rear

Remove the Bolt and Carrier: Grasp the bolt carrier by the cartridge space gripper and pull the entire unit rearward until the notches on the bolt align with the notches on the receiver, then lifting upward until it comes free of the receiver (see figures 4-8 to 4-10).

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Figure 4-8. Sliding Cam Pulled to Rear of Receiver

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Figure 4-9. Lifting Sliding Cam from Receiver

Figure 4-10. Lifting Sliding Cam and Piston from Receiver

Removing the Bolt from the Carrier: Rotate the bolt to the rear of the cam in a counter-clockwise motion. Pull the bolt forward while aligning the notch on the firing pin with the notch on the sliding cam (see figures 4-11 and 4-12).

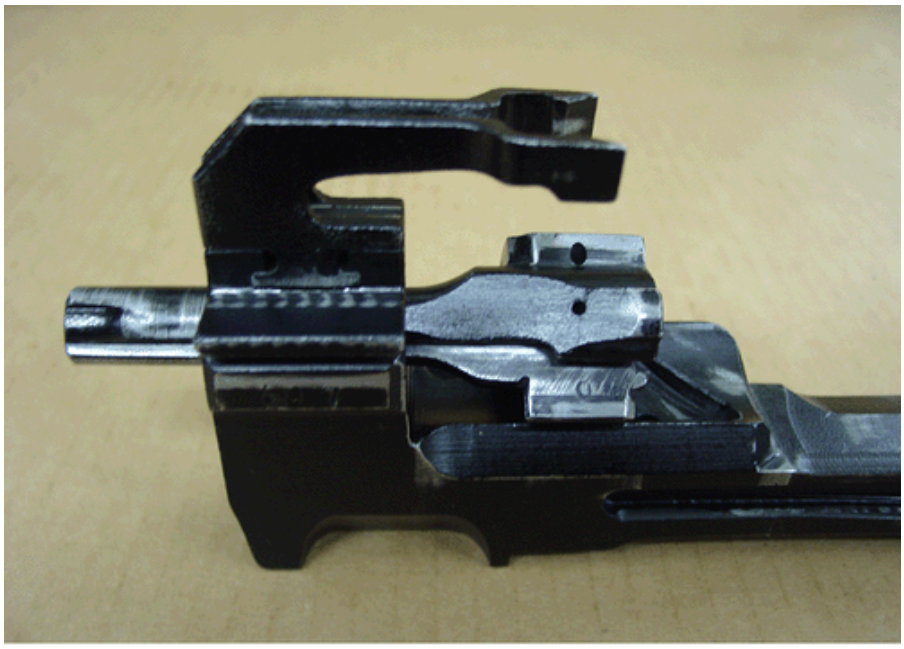

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Figure 4-11. Bolt Rotated to Rear of Sliding Cam

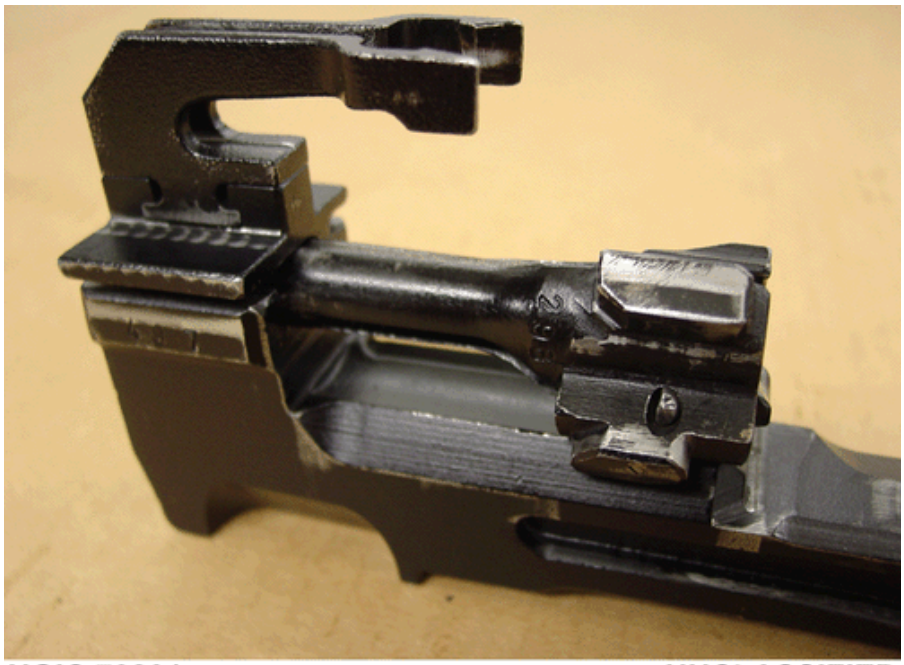

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Figure 4-12. Firing Pin and Bolt Notch Aligned with Sliding Cam Notch and Bolt Pulled Forward

Removing the Firing Pin from the Bolt: Push the firing pin to the rear of the bolt and rotate the bolt upside down extracting the firing pin (see figures 4-13 and 4-14).

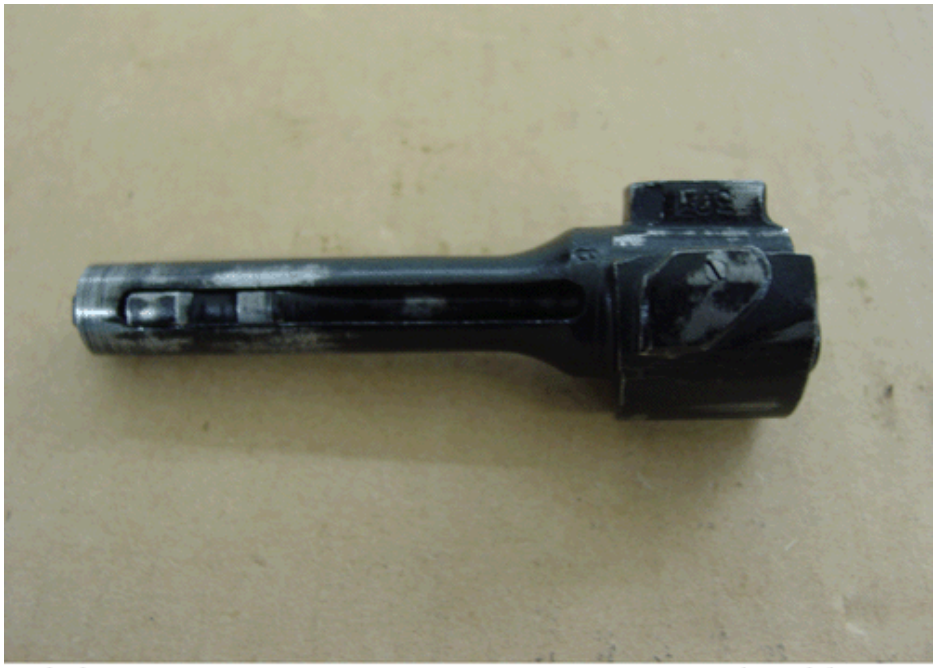

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Figure 4-13. Firing Pin Pushed to Rear of Bolt

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Figure 4-14. Firing Pin Extracted from Bolt

Removing the Barrel from the Receiver: Push the barrel locking latch completely to the left-hand side of the receiver. Grasp the barrel carrying handle and pull the barrel forward, disengaging the barrel from the barrel receiver group (see figures 4-15 - 4-18).

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Figure 4-15. Barrel Locking Latch in Locked Position

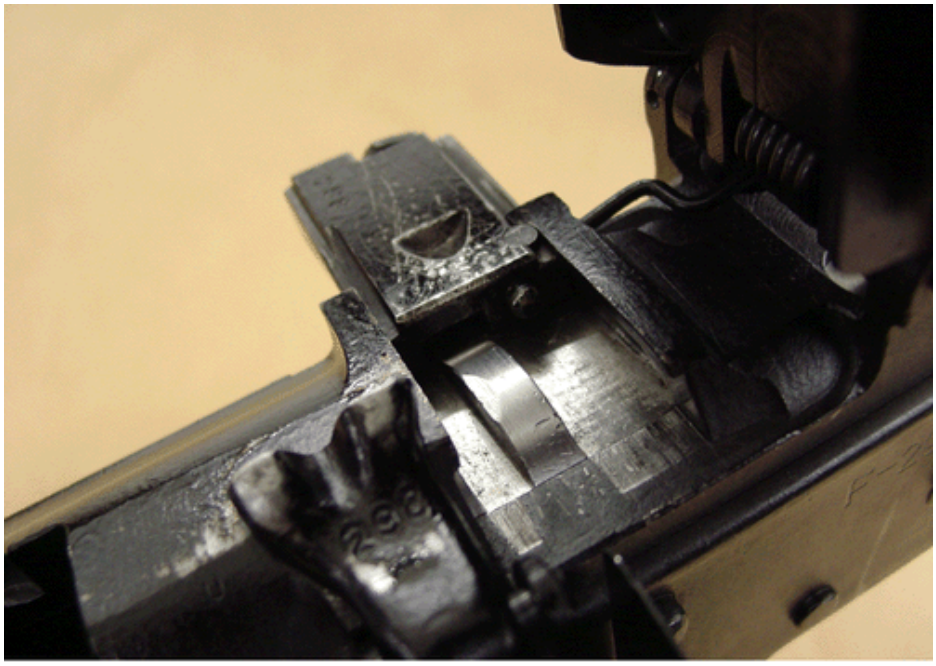

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Figure 4-16. Barrel Locking Latch in Unlocked Position

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Figure 4-17. Barrel Handle

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Figure 4-18. Disengaging Barrel from Receiver

PK Machinegun Field Stripped. The PK machinegun completely disassembled (operator level) for cleaning and inspection is shown in figure 4-19.

Figure 4-19. PK Machinegun Field Stripped

1. Receiver assembly
2. Operating rod assembly
3. Slide with piston
4. Firing pin
5. Bolt
6. Barrel assembly

Section V. Assembly

Preparation: Place the weapon on a flat surface with the bipod legs extended. Rotate the selector lever to fire. Do not close the feed tray cover.

Replace the Barrel from the Receiver: Ensure that the barrel locking latch assembly is in the fully open position, to the left-hand side of the receiver. Grasp the barrel carrying handle and pull the barrel rearward, inserting the rear of the barrel into the barrel receiver group while aligning the gas escape chamber located on the bottom of the barrel with the gas regulator on the bottom of the barrel receiver group. Close the barrel locking latch by sliding the barrel locking latch to the right of the receiver. This will lock the barrel in place (see figures 5-1 – 5-3).

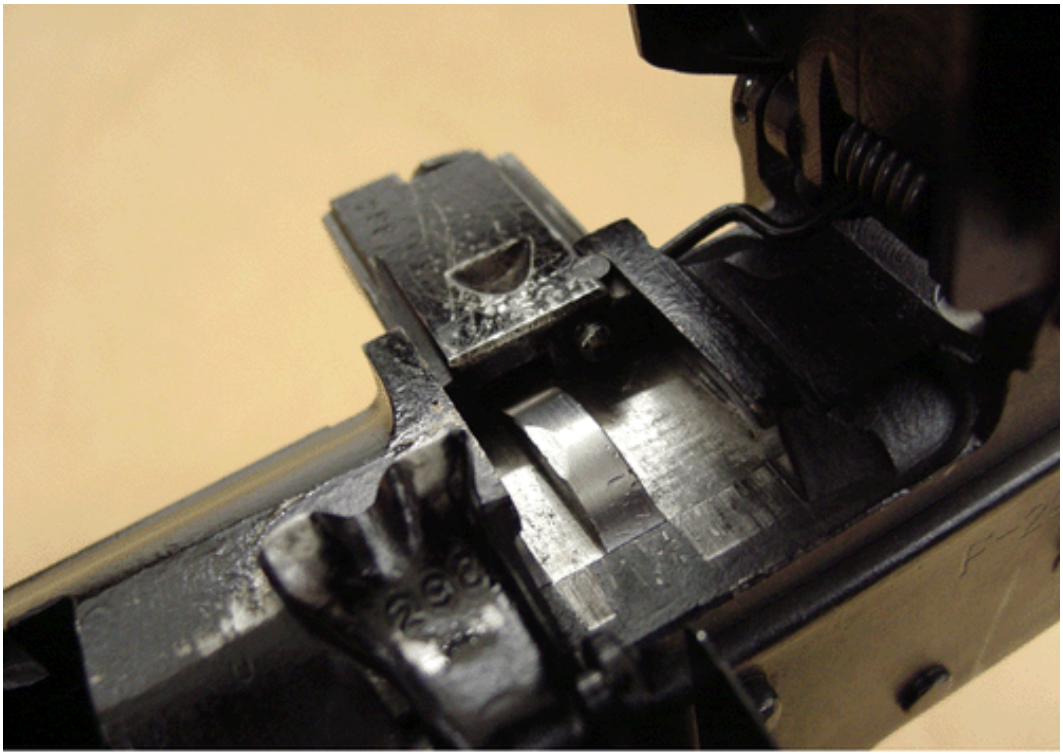

Figure 5-1. Barrel Locking Latch in Fully Open Position

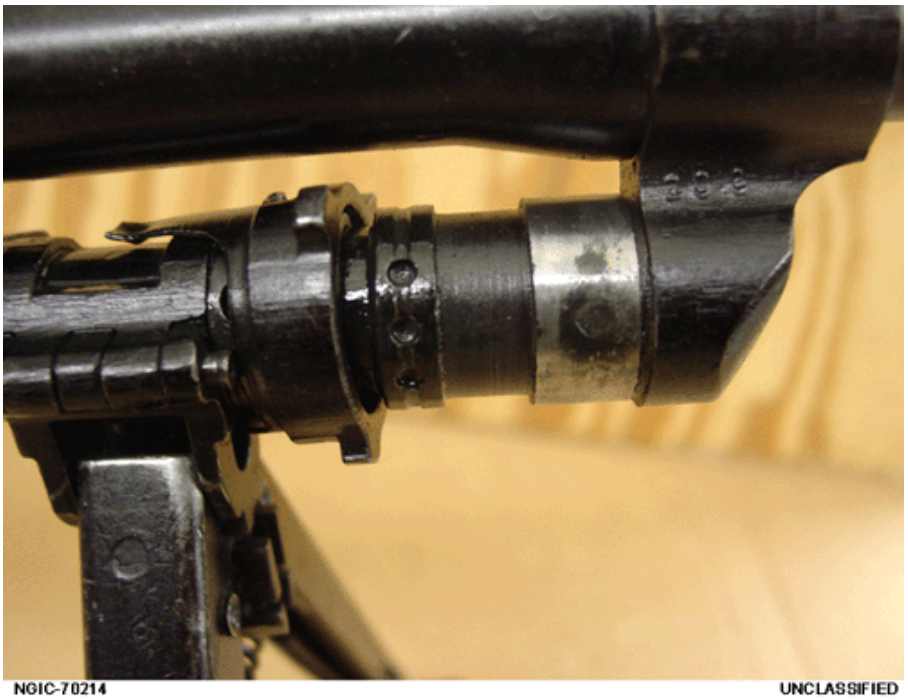

Figure 5-2. Gas Escape Chamber Aligned with Gas Regulator

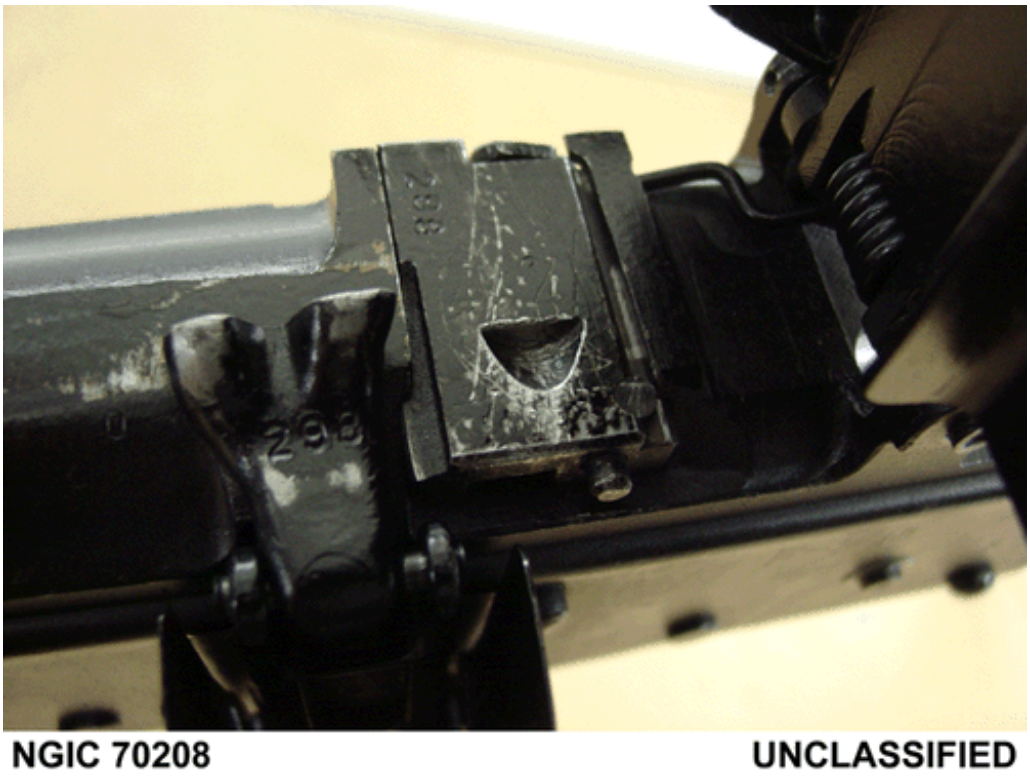

Figure 5-3. Barrel Locking Latch in Closed Position

Replace the Firing Pin in the Bolt: Rotate the bolt with the long groove facing in the upward position. Insert the firing pin while pushing the cylindrical portion of the firing pin forward see figures 5-4 & 5-5).

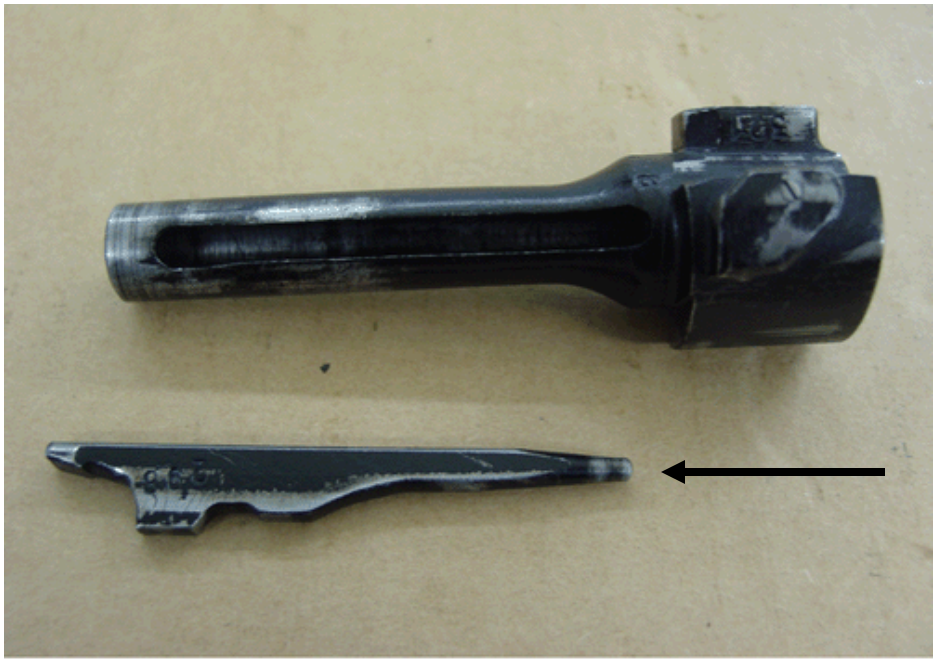

Figure 5-4. Cylindrical Portion of Firing Pin

Figure 5-5. Firing Pin in Forward Position

Replace the Bolt into the Carrier: Align the notch on the firing pin with the groove on the sliding cam. Push the rotating bolt to the rear while turning the rotating bolt in a clockwise motion (see figures 5-6 & 5-7).

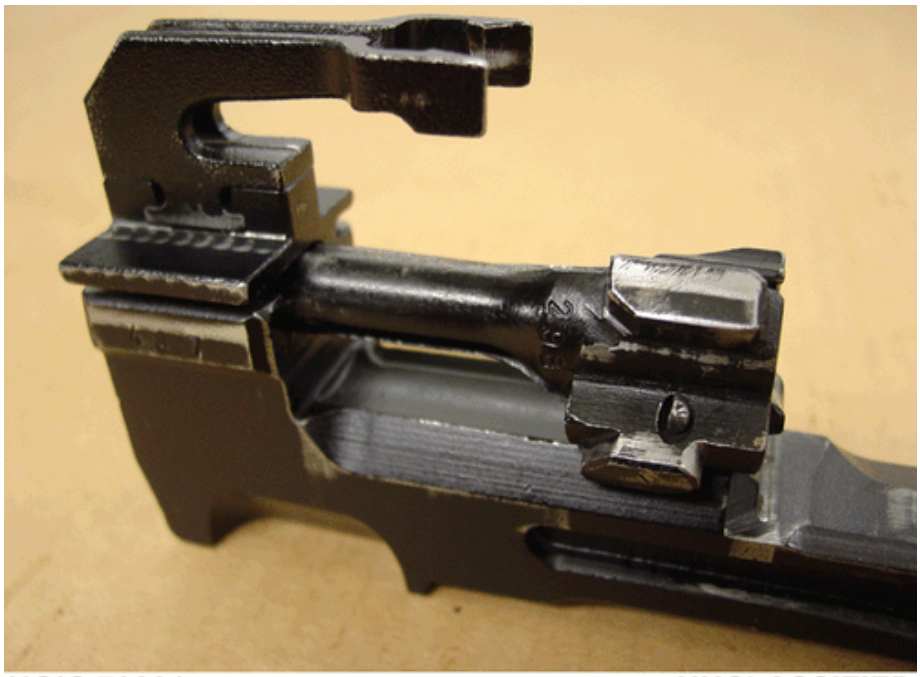

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Figure 5-6. Bolt Inserted, and Groove on Sliding Cam Aligned with Notch on Firing Pin

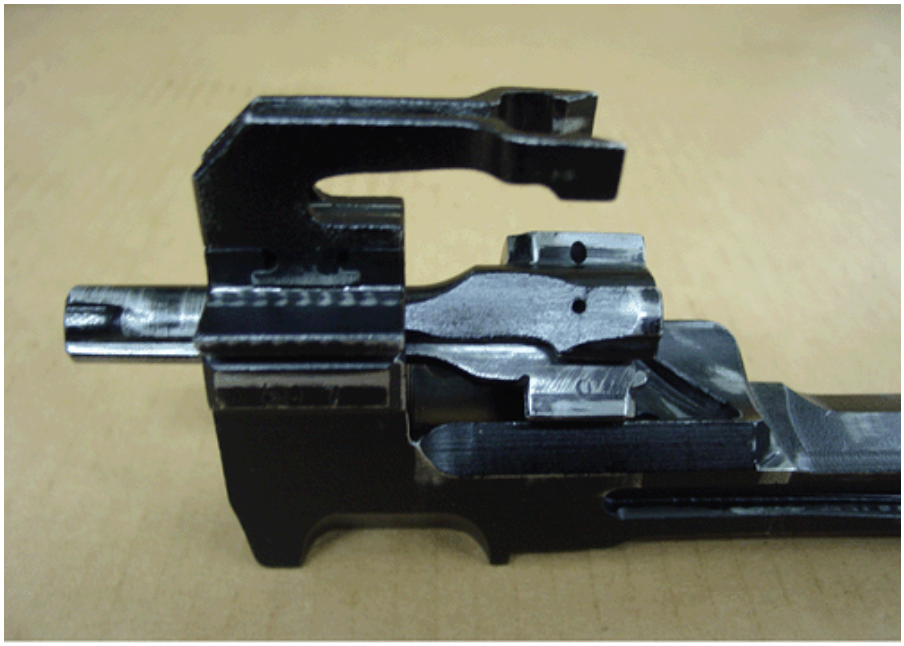

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Figure 5-7. Bolt in Rearward Position of Sliding Cam

Replace the Slide and Piston: Grasp the slide by the cartridge space gripper, aligning the piston into the gas tube cylinder and the notches on the sliding cam with the grooves on the receiver group. Slide the cam and piston forward while depressing the trigger (reason why weapon needs to be assembled with selector lever in fire mode) (see figures 5-8 – 5-10).

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Figure 5-8. Piston Aligned into Receiver Assembly

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Figure 5-9. Sliding Cam Notches Aligned

With Receiver Group Grooves

Figure 5-10. Sliding Cam and Piston in Forward Position

Replace the Operating Rod Assembly: Insert the operating rod assembly into the rear opening of the sliding cam (bolt carrier) and press the assembly forward and down against the spring pressure until the notch at the end of the guide rod is seated in the receiver group (see figures 5-11 5-12).

Figure 5-11. Operating Rod Assembly Aligned and Pushed Forward in Receiver Group

Figure 5-12. Operating Rod Assembly Partially Seated in the Receiver Group

Close the Feed Tray Cover: Grasp the weapon by the buttstock; with free hand close the feed tray cover (see figure 5-13).

Figure 5-13. Feed Tray Cover Closed

Section VI. Accessories

The PK-series machinegun accessories facilitate the carrying of the machinegun components and ammunition, the loading of machinegun, cleaning, lubrication, disassembly, and assembly. The PK-series machinegun accessories generally consist of the following: five ammunition boxes (three large and two small boxes), 19 link belts (five with tabs and 14 without), the cleaning rod, the carrying case, the sling, the strap for attaching the ammunition boxes to the tripod, two slings for carrying the tripod, the handle and cover, the punch, the cleaner, the cleaning brush, the oil cans, the ruptured cartridge extractor, recoil device and attachment for blank ammunition, the canvas bag for some accessories and for every three machineguns a belt loader.

250-cartridge ammunition box. The larger ammunition box (see figure 6-1) serves the storage and transport of a link belt holding 250 cartridges. The lid is on the top of the box and is fastened on the rear with lugs and a pin. Two brackets are riveted onto the top for fastening the carrying handle. The handle is made of linen and has rivets on the ends which fasten it to the brackets. The image of a cartridge is stamped into the lid, which indicates the direction that the link belt is to be placed into the box. On the front of the lid there is a latch which is attached with lugs and a pin. On the bottom of the latch there is a profiled hole for the latch fastener. It keeps the latch shut and attaches the ammunition box to its bracket on the right rear leg. Two ribs are welded onto the inside of the lid, which fit onto the sides of the box.

100-cartridge ammunition box. The smaller ammunition box (see figure 6-1) serves the storage and transport of a link belt holding 100 cartridges. The lid and latch are fastened to the box with lugs and a pin. On the top of the lid is a shutter through which the link belt passes when the box is fastened to the ammunition box bracket on the receiver of the machinegun. When the shutter is closed, it is held in place by a round projection. In front of the round projection is the ammunition box fastener. It consists of the handle, shaft, pin, machine bolt, tooth and bracket, spring and grab. The fastener fastens the box to the bracket on the receiver of the machinegun. The latch fastener secures the box to the tripod (see figures 6-2 & 6-3).

Figure 6-1. 100- and 250- Cartridge Ammunition Boxes

Figure 6-2. Ammunition Box Release Lever Action

Figure 6-3. Ammunition Box Installation

Ammunition Link Belt. The link belt (see figure 6-4) holds 50 rounds for easy loading of the machinegun when firing. It consists of links which are held together with springs. The end link has a semicircular notched lug so that multiple link belts can be connected. The tab facilitates the feeding of the link belt into the feeding mechanism of the machinegun.

Figure 6-4. Ammunition Belt Links

Carrying Case. The carrying case (see figure 6-5) is made of tarpaulin canvas and holds the machinegun. The handle and sling along with the leather shoulder pads allow the machinegun to be carried in various positions.

Sling. The sling (see figure 6-5) is a cotton strap and facilitates the carrying of the machine when encounters with the enemy are expected. On the top of the sling is a hook and the on the bottom a metal end and a buckle. The shoulder pad is slipped onto the sling so that the machinegun may be carried more comfortably.

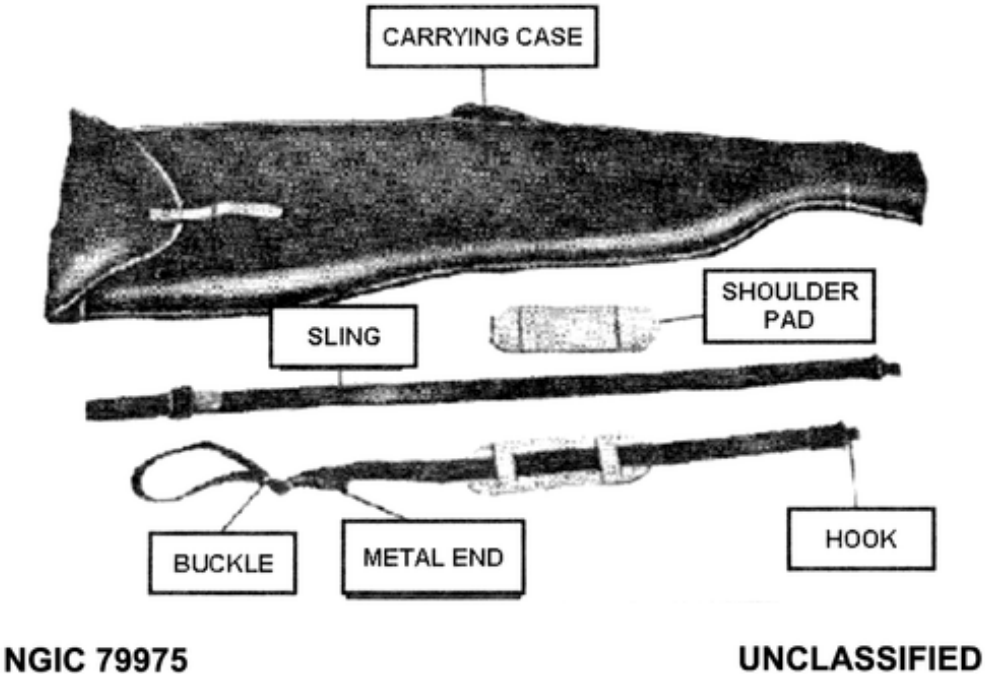

Figure 6-5. Sling & Carrying Case

The strap for attaching ammunition boxes to the tripod. It is made of linen with leather extensions (see figure 6-6). The strap has two carabiners with rings which are fastened to the swivels on the rear legs, as well as two buckles for fastening the leather extensions.

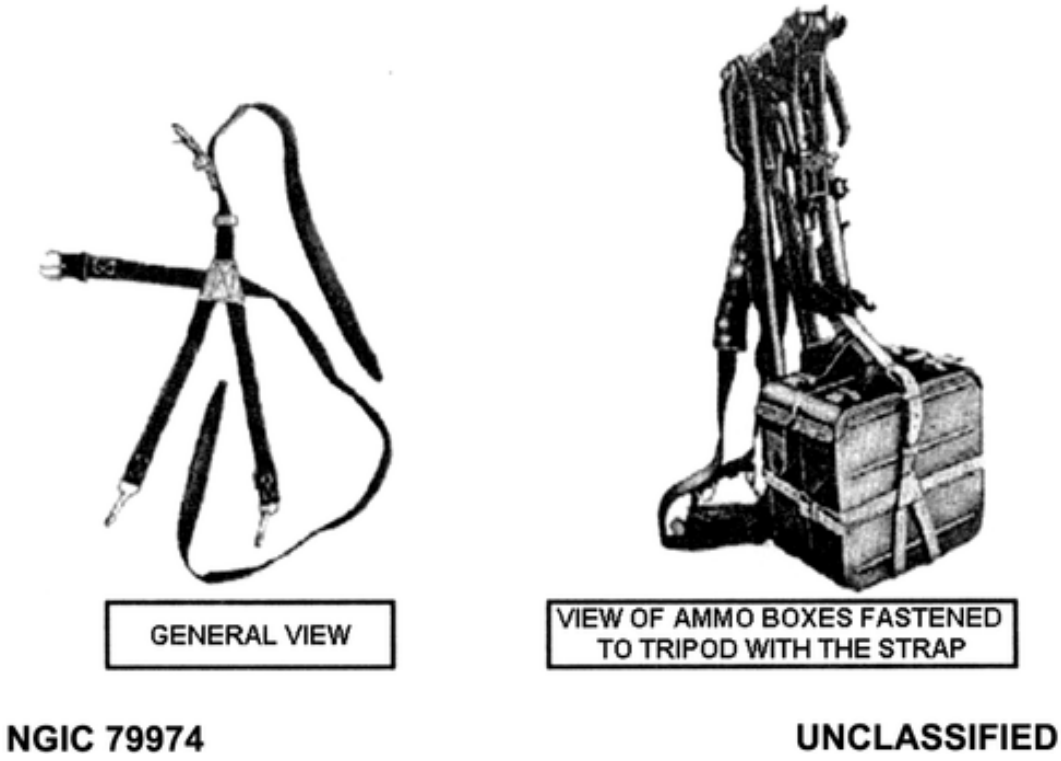

Figure 6-6. Tripod Ammunition Box Straps

The slings for carrying the tripod These are cotton straps and their length is adjustable (see figure 6-7). They are attached to the swivels on the tripod with the carabiners and rings. The straps have shoulder pads for comfortable carrying of the machine gun. The cross-strap and carabiners connects the slings and prevents them from falling off the wearer's shoulders.

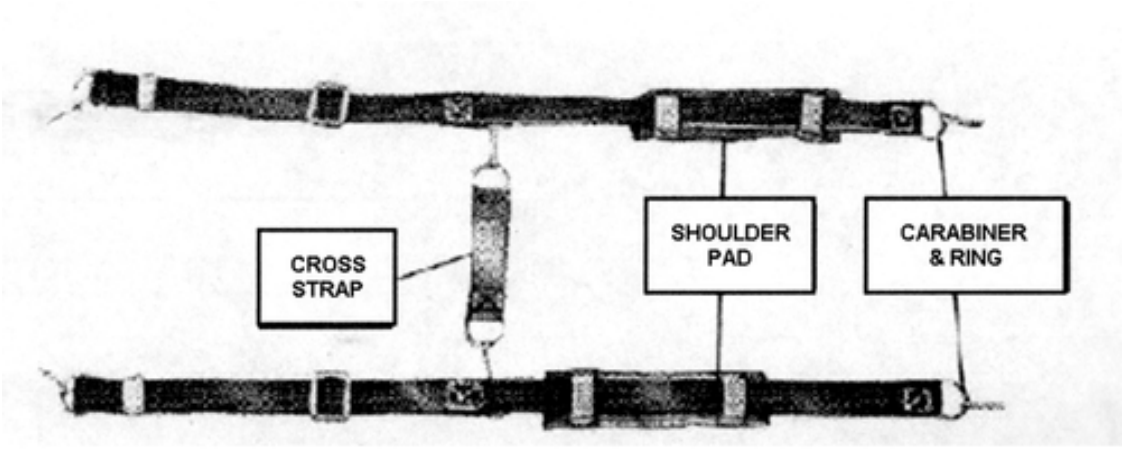

Figure 6-7. Tripod Slings

Cleaning Rod. The cleaning rod (see figure 6-8) consists of three components and is used to clean and lubricate the barrel and to push out stuck cartridge cases from the breech. The rear end of the cleaning rod has a shoulder with a hole which holds the pin punch so that the cleaning rod may be handled more easily during cleaning and lubrication of the barrel. The tip of the front end is threaded for attaching the cleaning brush and patch holder and a slot for holding patches. The components of the cleaning rod screw together.

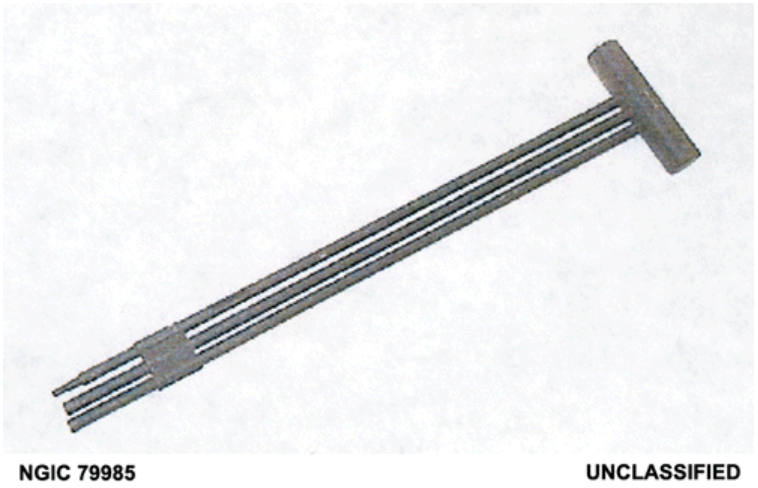

Figure 6-8. Cleaning Rod

Pin Punch. The pin punch (see figure 6-9) is used during disassembly and assembly of the machinegun.

Figure 6-9. Pin Punch

Patch Holder. The patch holder (see figure 6-10) serves to clean the barrel; it screws onto the cleaning rod. Tow or a rag is wrapped around the notched part.

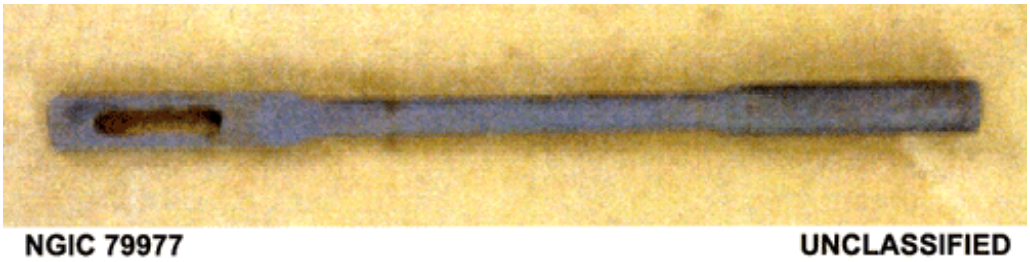

Figure 6-10. Patch Holder

Cleaning Brush. The cleaning brush (see figure 6-11) is used to clean and lubricate the bore of the barrel.

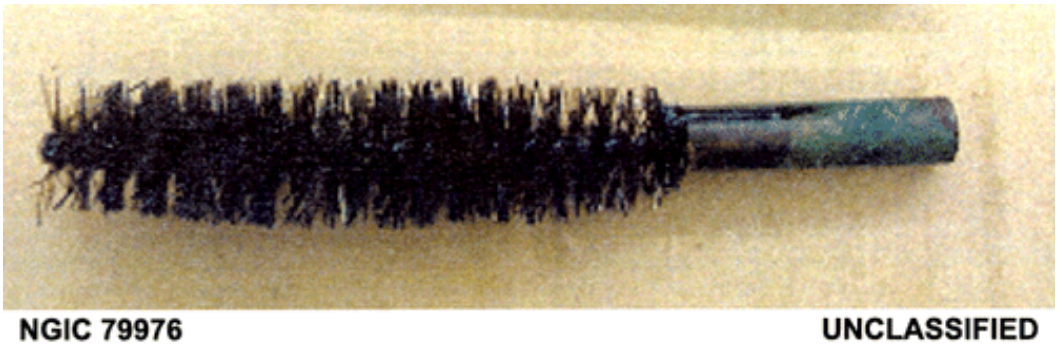

Figure 6-11. Cleaning Brush

Oil Can. The oil can (see figure 6-12) holds 30 cm3 and serves to hold general-purpose protective oil (GPPO) for lubrication.

Figure 6-12. Oil Can

Ruptured Cartridge Extractor. The ruptured cartridge extractor (see figure 6-13) serves to extract a cartridge case whose head and rim have torn away and which has remained in the breech. It consists of the nut, flexible cap, and shaft. The shaft screws into the nut.

Figure 6-13. Ruptured Cartridge Extractor

Recoil Device. The recoil device (see figure 6-14) for blank ammunition allows proper functioning of the machinegun when firing blank ammunition. It screws onto the barrel when the flash suppressor is removed.

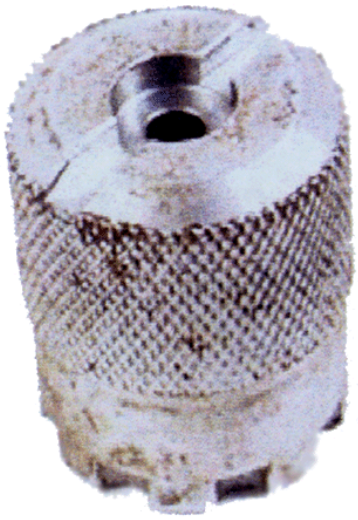

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Figure 6-14. PK Recoil Device

The attachment for blank ammunition serves to ensure proper functioning of the feed mechanism components, slide and piston, and bolt when firing blank ammunition. It fits into the longitudinal grooves on the bottom of the feed plate.

Canvas Bag. The canvas bag serves to hold the handle and lid, oil can, ruptured cartridge extractor, recoil device and blank ammunition attachment, cleaning brush, patch holder, and pin punch.

Link Belt Loader. The link belt loader (see figure 6-15) serves to feed cartridges into the link belt. It consists of the loading mechanism, handle, and clamp.

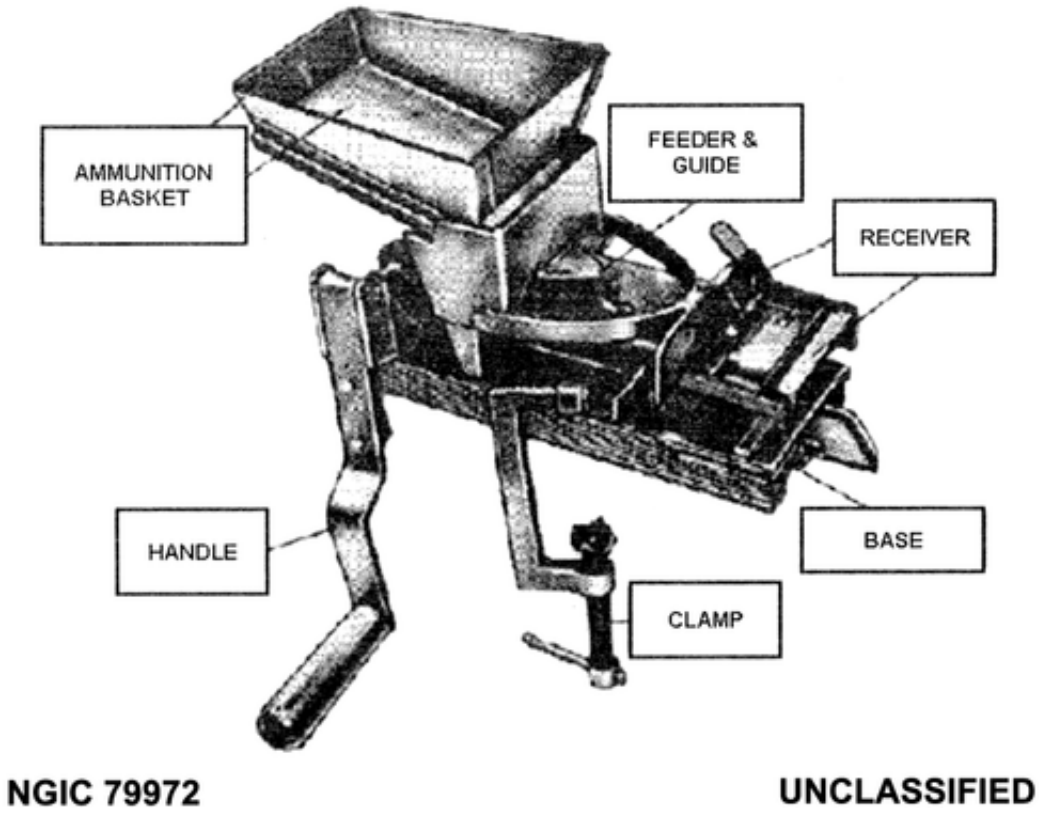

Figure 6-15. Link Belt Loader

The link belt loader is packed, carried, and stored in its original wooden box. It is taken from the wooden box and clamped to a table or inserted into the guide on the side of the box.

In order to prepare the link belt loader for use, it is necessary to do the following:

1) Remove the loader parts from the box.
2) Fasten the handle with the locking device.
3) Set up the base and fasten it to a table or to the side of the loader.
4) Set up the link belt feed.
5) Fill the basket with cartridges so that they lie across the width of the basket.
6) Lift the lid of the receptacle and insert the link belt with the cutouts on the links facing downward.
7) Insert a cartridge into the first link by hand and place the link belt with the cartridge opposite the feed; close the receptacle lid (see figure 6-16).

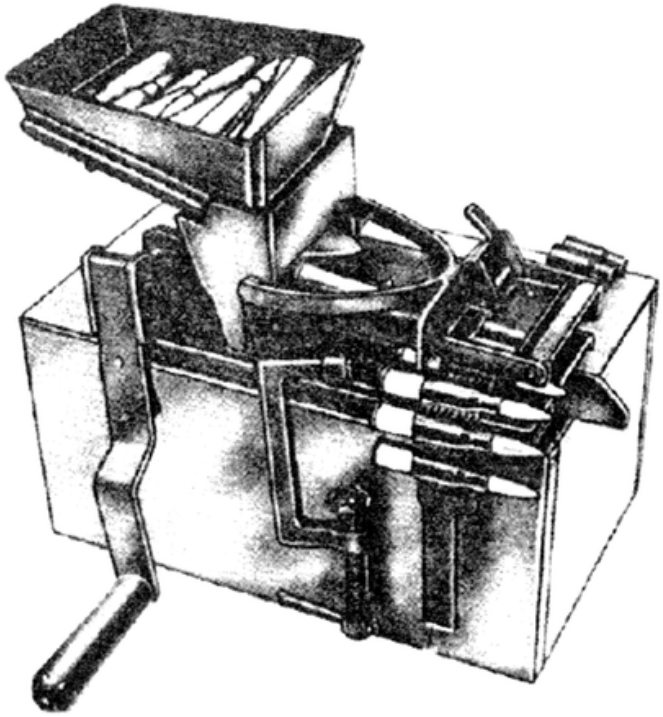

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Figure 6-16. Link Belt Loader Prepared for Use

In order to load the link belt with cartridges turn the handle clockwise with your right hand at an even speed and add ammunition to the basket with your left hand so that it lies across the width of the basket. When loading the link belt, attention must be paid that the link belt does not twist. During loading, the cartridges fall by their own weight into the narrow part of the conduit where the feed mechanism takes hold of them and pushes them out of the chute. The cartridge is passed forward along the conduit and then falls onto the bottom from where the feed mechanism aligns it with the link when the handle is turned around again. When the feeder returns to the rear position, its lever moves the link belt feeder which presses it into the link belt and moves it by one link.

In order to pack the link belt loader into the wooden box, it is necessary to do the following:

1) Release the latch and move the handle along the length of the loader over the feed mechanism.
2) Raise the clamp and fasten it with the machine bolt.
3) Place the handle between the bifurcation and the clamp machine bolt and place the components in the wooden box.

Section VII. Maintenance

Periodically and after all firing, the PK machinegun must be cleaned and inspected. Proper maintenance can be accomplished after disassembling the weapon into its major groups as indicated in Section IV.

The PK machinegun should be cleaned:

1) Prior to firing.
2) After firing.
   - Immediately after firing and on two consecutive days thereafter, thoroughly clean the bore, chamber, and the metal parts that have become fouled with powder, carbon, or with bore cleaner (cleaning compound, solvent, CR). Do not wipe dry. On third day after firing, clean with bore cleaner, wipe dry, and oil.
   - Clean the rest of the metal parts on the weapon with dry cleaning solvent (SD) immediately after firing. Wipe dry and oil.
   - Do not clean the inside of the gas system unless blank ammunition has been fired, or unless the gun fires sluggishly.
3) During any combat situations or in extended field exercises; daily during noncombat action periods.
4) No less than once a week if the weapon is not used. Clean the bore and the chamber with bore cleaner, wipe dry, and oil. Clean the rest of the metal parts on the weapon with dry cleaning solvent (SD). Wipe dry and oil. Clean oil only on well cleaned and dry metal surfaces immediately after cleaning so that moisture is not allowed to form on the metal.

Listed below are the established “Basic Maintenance” procedures as outlined in the Yugoslavian (U) Manual for the M84, 7.62-mm Machinegun, dated 1989.

Basic maintenance serves the purpose of ensuring at all times the proper functioning of the machinegun and the ammunition that is being used or stored in ammunition depots. Basic maintenance of the machinegun includes daily inspections, servicing, and periodic (weekly) inspections.

Daily Individual Weapon Inspection: Daily inspections are designed to ensure the proper functioning of the machinegun and its completeness. They are carried out by the squad commander and members of the crew. Daily inspections include inspections prior to, during, and after the use of the weapon. Inspections prior to and during use are carried out with the machinegun assembled; in order to conduct inspections after use, the machinegun is disassembled and cleaned.

1) Inspection of the assembled machinegun.

Inspection of the assembled machinegun is supposed to establish the following:

- Whether the machine gun is empty.

- The presence of corrosion, scratches, and dents on metal parts or cracks on the gun stock.
- The proper functioning of mechanical sights (whether the sight leaf folds over and the elevation knob rotates easily).
- Whether the optical sight is securely fastened, whether the rubber eye shield and the cover are properly adjusted and in good working order, and whether the cover is fastened with a string.
- Whether the cover pin securely fastens the cover.
- Whether the entry and exit shutters close the openings for the passage of the link belt and whether the springs are working properly.
- Whether the gas regulator is in the desired position.
- Whether the bipod folds and locks in position easily.
- Whether the flash suppressor is properly screwed on the barrel and fastened with a pin.
- Whether the machinegun is properly positioned and fastened on the tripod.
- Whether the machinegun can be easily moved for windage and elevation and locked in a specific position.
- Whether the mechanism for precision adjustment of the machinegun for elevation functions properly.
- Whether the ammunition box is properly fastened on the ammunition box bracket.
- Whether the machinegun and the optical sight accessories are complete and in good working order.

After this, in order to check the good working order and proper functioning of machinegun component and the ordnance as a whole, the following must be done: Open the cover and check that the feed assembly components (feed plate, feed pawl, guard, and cartridge retainer pawl) are not damaged or broken; open the ammunition box cover and position the link belt filled with training rounds in the feed plate; close the cover and pull the slide with the bolt rearward before returning the cocking lever forward; pull the trigger; open the cover and remove the link belt from the feed plate; pull the slide with the bolt rearward and eject the round through the cartridge ejection port, then, while holding the cocking lever with your fingers, return the slide in the forward position.

2) Inspection of the disassembled machinegun

Inspection of a disassembled machinegun is intended to check the proper working order of individual components, such as:

- **Barrel assembly:** That there are no dents, scratches, or dirt on the outside; that there are no cracks on the handle and that the tooth of the handle is not worn or broken; that the handle can be moved longitudinally and vertically; whether the flash suppressor screws onto the barrel easily and can be fastened with the pin; that there is no powder fouling, dirt, corrosion, scratches in the interior of the barrel, and that there are no bulges in the barrel.

- **Receiver assembly and grip:** That they are free of dents, scratches, corrosion, or dirt; that the cartridge ejector is not worn or broken; that cocking lever slides easily and its tooth is neither worn nor broken and that the spring and shaft of the lever are operating properly; that there is no corrosion or dirt and no scratches on the barrel lock and that the lock is equipped with the machine bolt, the plug and the pin; whether the shutters on the opening for cartridge ejection function properly, whether the grip is properly fastened with the machine bolt and not cracked.
- **Receiver cover and feed mechanism assembly:** That they are free of dents, scratches, dirt, and corrosion; that the cover latch is in good working order and the tooth not worn or broken; that the spring holds the cover in the upright position; that the (entry and exit) shutter springs press the shutters towards the cover; that the traversal stop is not broken; that the cover lever is not broken and that the spring constantly pushes it downward; that there are no scratches, corrosion, dirt on the feed plate and that the latch holds the feed plate in the upright position; that the feed pawl assembly components are not broken or damaged, and that the cartridge retainer pawl is not damaged or broken.
- **Trigger mechanism:** That there is no dirt, corrosion, nor scratches on the trigger mechanism components; that the sear spring is not broken and the sear tooth is neither damaged nor worn; that the trigger tooth catches the sear tooth and pulls the sear downward; and that the safety in the “safe” position prevents the trigger from being pulled rearward.
- **Gun stock assembly:** That the stock fits well next to the receiver and has no cracks; that the sling swivel is properly and securely fastened; that the shoulder rest spring holds the shoulder rest in an extended or folded position.
- **Mechanical sight:** That the sight blade guard is not deformed; that the notches on the blade housing and the sight base are aligned; that the springs of the rear sight leaf and elevation knob are working properly; that there are no dents or scratches on the leaf that could impede the proper functioning of the elevation knob; that the leaf is not bent and that there are no scratches or dents on the sight notch that could interfere with proper sighting.
- **Gas block and gas regulator:** That the opening on the gas block and the openings on the gas regulator are not blocked and that there is no corrosion, dirt, or powder fouling on them; that arms of the gas regulator are not broken or deformed; whether the many markings of the gas regulator position are visible; and that the profiled lug of the gas regulator is not damaged, dirty, or corroded.
- **Gas cylinder assembly:** That the opening inside the gas cylinder is not blocked and that there is no corrosion, dirt, or powder fouling; that the cylinder fits easily onto the gas block rim, and that there are no scratches, dirt, or corrosion on the spring latch.
- **Operating rod assembly:** That there is no corrosion, dirt, or powder fouling on individual components; whether the operating rod spring is functioning properly; and whether the support plate and guide rod are not broken or deformed.
- **Slide and piston assembly:** That there is no corrosion, dirt, no scratches or powder fouling on the individual components; that the protrusion on which the

cocking level tooth catches is not worn; and that the claws of the bullet extractor are not broken or deformed, and that the teeth on them are not worn.

- **Bolt assembly:** That there are no dents, scratches, corrosion, and dirt on the grooves, protrusions, and openings, that the bolt face is not worn or damaged; that the extractor claw is not damaged and whether the spring holds are properly in the housing, and whether the tip of the firing pin is not broken.
- **Bipod assembly:** That there is no corrosion, dirt, dents, or scratches on the individual components; whether the bipod mounting bracket easily moves inside the gas cylinder groove; whether the coupling limits the bipod from extending sideways; whether the latch fastens the bipod in a folded position; and whether the cleaning rod fastener functions properly.
- **Tripod assembly:** That there is no dirt and corrosion, and no scratches, dents, and deformed (bent) or broken components; whether the nuts on the cradle mount shafts are screwed on tight and fastened with a cotter pin; that the tooth, the lever or the spring of the latch on the machinegun trigger guard are not broken or damaged; whether the mechanism for precision adjustment of the machinegun for elevation moves the cradle vertically; that there are no scratches or dents on the components of the attachment for firing targets in the air, whether the large coupling slides easily along the support, and the small one can be easily fitted onto the pintle and fastened with a latch; whether the windage mechanism latch fastens the machinegun cradle in the designated position; that there are no broken teeth on the serrated arc and that the spring stops are not broken or deformed; and whether the bipod latches securely lock the bipod in the designated position.
- **Machinegun accessories:** That there is no dirt or corrosion on them; that the linen and leather components are not damaged or torn; whether the ammunition boxes can be shut easily and fastened on the rear right leg of the tripod; that the link belts are clean and that there are no deformed links; by installing the link belt loader, check whether it properly feeds the rounds into the link belt and establish whether the cleaning rod, ruptured cartridge extractor, and the attachment for blank ammunition are working properly.

Weekly Individual Weapon Inspection: Periodic (weekly) inspections form an integral part of the training and education of units and installations and must be planned within the work schedule. In principle, inspections of all equipment and materiel currently in use within the parent unit or installation are carried out once a week.

During the periodic inspection the technical status and completeness of the machinegun are checked as is the up-to-date status of the weapon logbook. At the same time, the crew’s knowledge of the ordnance and their ability to maintain it is checked. At the request of a senior officer from the parent unit, expert personnel from the technical maintenance units can be assigned to carry out expert procedures during the periodic inspection.

Lubrication

Lubricate the weapon with lubricating oil and keep it covered as much as possible.

Hot & Humid Weather: Inspect the weapon more frequently for signs of rust. Keep the weapon free of moisture and lightly oiled with lubricating oil. Clean and oil more frequently if the weapon is exposed to salt air, high humidity, or water.

Hot & Dry Weather: Clean the weapon frequently to keep sand and dust from collecting on the working parts; use of weapon oil should be kept to the absolute minimum. Graphite is best in hot and dry climates.

Cold Weather: During cold weather periods with a temperature of 5 degrees Celsius and below, lubricate the machinegun only with liquid weapon oil. When changing from one lubricant to another, it is necessary to carefully remove the old lubricant from all parts of the weapon.

Before removing the old lubricant, it is necessary to conduct full disassembly of the machinegun, wash all metal parts in liquid weapon oil and then rub them clean with a rag. Note: Never use weapons grease instead of liquid weapon oil with air temperatures below 5 degrees Celsius.

A machinegun carried from a freezing to a warm location is to be cleaned after 1-20 minutes (after it becomes moist). It is recommended that the machinegun be rubbed off with a rag wetted with liquid weapon oil before entry into a warm place.

Listed in table 7-1 are the established “Stoppages During Firing and Corrective Actions” procedures as outlined in the Yugoslavian (U) Manual for the M84, 7.62-mm Machinegun, dated 1989.

When handled, maintained, and stored properly, the machinegun is a safe weapon to use and functions without interruption.

After prolonged operation, owing to the wear or breakage of individual components, presence of dirt, use of faulty ammunition, or negligent handling, defects may appear that cause stoppage. In order to prevent stoppage, soldiers and officers must strictly observe the rules on handling, disassembly, cleaning, assembly, and inspection of weapons; prior to firing inspect the ammunition belt and ammunition; the machinegun should not be loaded with faulty or dirty ammunition; prior to loading, wipe the ammunition with a dry rag; during firing, while running or pausing in combat, take good care of the weapon; inspect, clean and lubricate the machinegun regularly, especially its movable components, the bore, the gas block, the gas regulator, the gas cylinder, the receiver, the feed mechanism and ammunition belt; prior to firing regularly clean the barrel and lightly lubricate the receiver and the bolt assembly; during uninterrupted firing do not exceed the limit of 250 rounds. If stoppage occurs, wait up to 5 seconds, pull the bolt rearward, eject the stuck round, and continue to fire. If stoppage reoccurs, empty the machinegun, establish the cause of stoppage, and clear it if possible. If stoppage cannot be cleared, send the machinegun for repair.

Table 7-1. Machinegun Troubleshooting

Malfunctions and their Characteristics	Reasons for Malfunctions	Corrective Action
Bolt fails to move to rear and extract cartridge from belt link; cartridge jams under bolt head.	• Improper feeding, the 1st cartridge did not reach cartridge stop. • Wpn is on Safe.	• Disengage safety and pull back charging handle. • Press receiver cover latch and open receiver cover. • If cover does not open, use tools to feed the first round properly.
Bolt fails to move to rear and push the cartridge out of the feed. The cartridge jams between the bolt and the barrel or its tip hits against the breech.	• Broken or weak driving spring, lubricant build-up or dirt in receiver assembly. • Worn bolt face.	• Pull bolt rearward and release it suddenly. • Clear machinegun of ammunition. • Clean receiver and bolt. • If driving spring is broken, weak or the bolt face is worn, send wpn to the armorer for repair.

Malfunctions and their Characteristics	Reasons for Malfunctions	Corrective Action
Bolt fails to lock.	• Dirty receiver, chamber, gas port, or cartridges. • Bent cartridges. • Belt links with cartridges jammed in the feed tray.	• Remove barrel and lightly lubricate the chamber, gas port, and receiver surfaces that rub against each other. • Replace faulty cartridge or link belt.
Failure to fire.	• Faulty cartridge. • Faulty firing pin. • Dirty weapon.	• Eject cartridge from the wpn. If there is a weak indent from the firing pin, remove the bolt, clean and lightly lubricate. • Clean and lightly lubricate the chamber. • If the firing pin is broken, send the wpn to the armorer for repair.
Cartridge case does not eject.	• Faulty extractor or spring. • Dirty chamber. • Cartridge case rim torn off. • Dirty gas port or cylinder. • Faulty shutter lever.	• Eject the stuck cartridge case using cleaning rod; clean and lubricate chamber, gas port, gas cylinder, and receiver. • If rim of cartridge case tears off again, turn the gas regulator to a lower position. • If malfunction is due to faulty extractor, send wpn to the armorer for repair.
Ruptured cartridge case; next cartridge does not fit into the chamber	• Large headspace between the breech and the bolt face • Faulty cartridge.	• Charge the wpn, and if it ejects the front part of the cartridge case of the fired cartridge, continue to fire. • If same stoppage reoccurs, have the headspace adjusted (at repair facility).

Malfunctions and their Characteristics	Reasons for Malfunctions	Corrective Action
Cartridge case does not eject from the receiver.	• Dirty receiver surface, gas port, gas cylinder, or block.	• Eject the cartridge case and continue firing. • If same stoppage reoccurs, clean and lubricate the receiver, gas port, and extractor.
Cartridge fails to extract from the belt or falls out of extractor claws	• Faulty cartridge extractor claws. • Dirty or faulty feed pawl or cartridge retainer pawl. • Bent belt links or cartridges.	• If cartridge extractor and feed mechanism components are functioning properly and belt and ammo is free of defects, clean the wpn and continue firing. • If wpn components are defective, send wpn to the armorer for repair.
Cartridge case does not eject.	• Faulty extractor or spring. • Dirty chamber. • Cartridge case rim torn off. • Dirty gas port or cylinder. • Faulty shutter lever.	• Eject the stuck cartridge case using cleaning rod; clean and lubricate chamber, gas port, gas cylinder, and receiver. • If rim of cartridge case tears off again, turn the gas regulator to a lower position. • If malfunction is due to faulty extractor, send the wpn to the armorer for repair.
Ruptured cartridge case; next cartridge does not fit into the chamber	• Large headspace between the breech and the bolt face • Faulty cartridge.	• Charge the wpn, and if it ejects the front part of the cartridge case of the fired cartridge, continue to fire. • If same stoppage reoccurs, have the headspace adjusted (at repair facility).

Malfunctions and their Characteristics	Reasons for Malfunctions	Corrective Action
Slide does not return to the rear position.	• Dirty receiver, feed mechanism, link belt, or ammunition. • Link belt stuck in the ammunition box or twisted in the feed mechanism.	• Pull back on charging handle so that the slide is back to the sear tooth and continue firing. • If the stoppage reoccurs, disassemble the wpn; check how the ammunition is packed in the box and whether the link belt is properly loaded. • If the belt is properly loaded, turn the gas regulator to a higher position. • At the earliest possibility clean and lubricate the machinegun.
Uncontrolled fire/runaway machinegun.	• Faulty trigger mechanism. • Worn notched lug at the bottom of the slide. • Lubricant buildup or presence of dirt inside the machinegun.	• Interrupt fire by pressing the belt towards the feed mechanism with your hand. • Clear the wpn; inspect the sear and the notched lug on the frame of the slide. If they are free of defects, switch gas regulator to a higher position and lubricate the interlocking parts.

Section VIII. Service and Training Ammunition

The PK series of machinegun fires the 7.62 x 54R-mm, M1908 cartridge (see figures 8-1 & 8-2). The M1908 cartridge also goes by the following nicknames: 7.62-mm Mosin Nagant; 7.62 x 53R; 7.62-mm Soviet rimmed; 7.62-mm M1908, 7.62-mm M1891, 7.62-mm Russian Rimmed, 7.62-mm Russian Long, 7.62-mm Type 53, and the 7.62-mm Type 59.

Note: The M1908 cartridge is a spitzer-profiled bullet version of the M1891 cartridge; the M1891 cartridge had the old-style, rounded-nose bullet. The cartridges have varying construction depending upon their purpose. The weight of the bullets and their muzzle velocity are selected so that firing with the different bullets can be conducted with the same sight settings. Ammunition is divided into service and training types.

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Figure 8-1. M1908 7.62 x 54R-mm Cartridge and Bullet Profile

Figure 8-2. 7.62 x 51-mm NATO (Left) and
7.62 x 54R-mm (Right) Comparison

Ammunition Characteristics.
The M1908 7.62 x 54R-mm cartridge is a rimmed, bottlenecked cartridge case and is Berdan or Boxer primed. Cartridge cases may be made of brass, copper or brass washed steel, or lacquered steel. Bullet weights will vary from approximately 9 to 12 grams, depending on the type. Approximate muzzle velocity is 840-m/s; however, it will vary, depending on the type of weapon and the length of the barrel from which it is fired. The maximum effective range of this cartridge is about 350 meters when fired from an infantry rifle and approximately 1000 to 1200 meters when fired from a machinegun; this will also vary depending on the specific type of bullet. Listed below are the cartridge case and bullet dimensions for the 7.62 x 54R mm:

- Case length: 53.6 mm.
- Rim diameter: 14.2 mm.
- Bullet diameter: 7.9 mm.

M1908 7.62 x 54R-mm Ammunition Bullet Tip Color Coding.

The M1908 7.62 x 54R-mm cartridge is manufactured worldwide (Russia and the CIS, many Eastern European countries, some Middle Eastern countries, and some Asian countries). Most countries that manufacture 7.62 x 54R-mm cartridges follow the Russian and CIS pattern of bullet-tip color coding (see table 8-1). Some 7.62 x 54R-mm ammunition will also have a red annulus (see figure 8-3). Annulus is a term used to describe the water-proof sealant at both the cartridge case mouth and around the primer which prevents moisture penetration into the cartridge case and fouling the powder.

Table 8-1. Russia & CIS 7.62 x 54R-mm Bullet Tip Color Coding Pattern

Type	Designation	Bullet Tip Color	Bullet Status
Subsonic	Unknown	Cartridge & bullet green	Obsolete
Ball	L	Unpainted	Current
Sniper ball	7N1	Unpainted	Current
Light ball	LPS	Silver	Current
Heavy ball	D	Yellow	Current
Tracer	M1930 Type T	Green	Obsolete
Tracer	Type T-46	Green	Current
AP	B-30	Black	Obsolete
API	B-32	Black; may have red ring	Current
API	BS-40	Red bullet/black tip	Obsolete
API-T	PZ	Purple/red	Obsolete
API-T	BZT	Purple/red	Current
AP-T	BT	Purple	Current
LVI-T	ZP	Red	Current
Blank	Training	Crimped; may have colored sealer	Current

Subsonic: Low velocity ball; for silenced weapons (muzzle velocity below 300 m/s)
Light ball: Light ball bullet (with mild steel core)
Heavy ball: Heavy ball bullet (with lead core)
AP: Armor piercing
API: Armor piercing incendiary
API-T: Armor piercing incendiary tracer
AP-T: Armor piercing tracer
LVI-T: Incendiary ranging

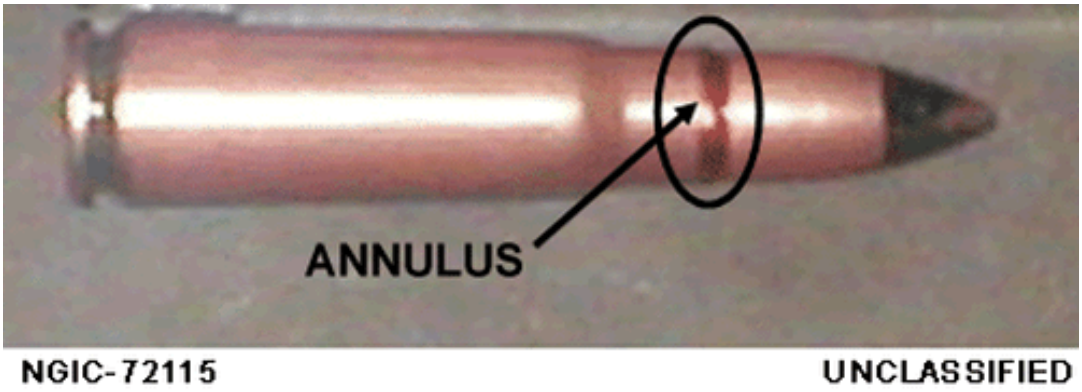

Figure 8-3. Annulus on Russian Federation Cartridges

The rise in international competition for small arms weapons and ammunition sales beginning in the early 1990s has resulted in many companies and countries producing weapons of varying calibers and ammunition in order to make their products more marketable. Some M1908 7.62 x 54R-mm ammunition may be marked in accordance with the International Standard if it was produced and marketed for international sales. The International Standard Color Code (see figure 8-3) was based on the contemporary U.S. color code system.

Table 8-2. International Bullet Tip Color Coding Pattern

Type	Bullet Tip Color Code
Ball	None
Frangible ball	Green tip over white ring
Heavy ball	Green tip
Armor-piercing (AP)	Black tip
Rifle grenade blank round	Rose or red color tip, crimped
Tracer	Orange tip (new); red tip (old)
Dummy round	No color, hole in cartridge case
Blank	No bullet or color, usually crimped
Inert	Entire round is black
Incendiary	Blue or dark blue/light blue tip
Armor-piercing incendiary (API)	Silver or white tip
Armor-piercing incendiary tracer (API-T)	Red tip over silver or white ring
Observation	Yellow tip
Observation tracer	Yellow tip over red ring

M1908 7.62 x 54R-mm Ammunition Headstamps.

The stamped markings that appear on a cartridge case base are termed the headstamp. The only general statement that can be made regarding cartridge headstamps is that the range of data that they can present is extremely varied. At a minimum, military cartridge headstamps normally identify the producer and the year of production. Either or both of these elements may consist of an abbreviation, a letter code, a numeric code, or an arbitrary symbol that is significant only to the producer. The term "producer" is to be interpreted broadly; it may identify the plant that produced the ammunition, or it may identify the country by which (or for which) the ammunition was made, with a separate mark to identify the factory. Other markings may identify the month, quarter, or lot number of production; cartridge caliber; cartridge case material or case construction; or functional bullet type. Marks that appear to serve merely design or decorative purposes, such as stars, dots, or arcs, frequently have a specific meaning for the producer or the intended user.

The term "design element" indicates bits of information that may be found together in a headstamp. If only one element, such as "7.62-mm" is present, this is termed a single-element headstamp; if two elements, such as "7.62-mm" and "3-94" are present, this is termed a two-element headstamp, and so on.

The location of the design elements can be indicated in either of two ways, depending on which is most convenient for the cartridge case at hand: either by its clock-face orientation, in which 12 o'clock is at the top, 3 o'clock is to the right, and so on, or by the angular orientation. For example, a two-element headstamp with one element at 12 o'clock and the other at 6 o'clock or on at 3 o'clock and the other at 9 o'clock would be termed a 2 x 180 pattern; if three elements were distributed equidistantly, it would be termed a 3 x 120 pattern (see figures 8-4 – 8-12).

Some headstamp designs include one or two segment lines that divide the cartridge base into either two or four equal parts or fields in which marking may or may not appear. Segment lines are a design feature that was relatively popular in Europe up to the 1920s, but has since gradually gone out of use; very few producers still follow this practice.

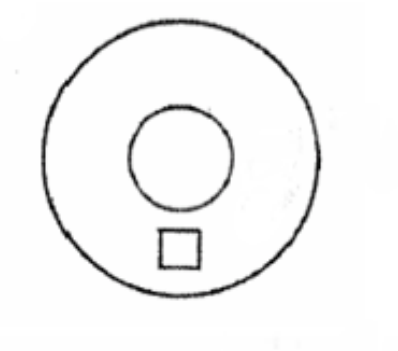

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Figure 8-4. Single-Element Headstamp

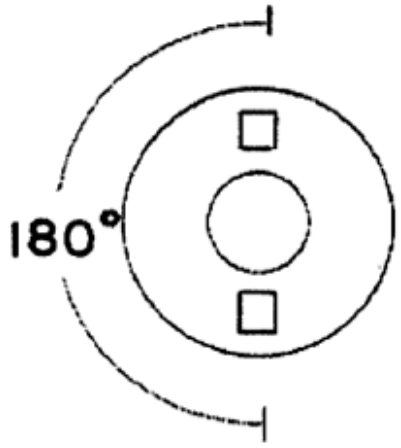

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Figure 8-5. Two-Element, 2 x 180 Headstamp

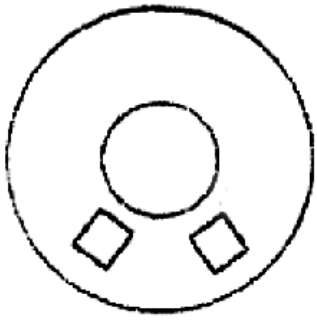

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Figure 8-6. Two-Element, Side-by-Side Headstamp

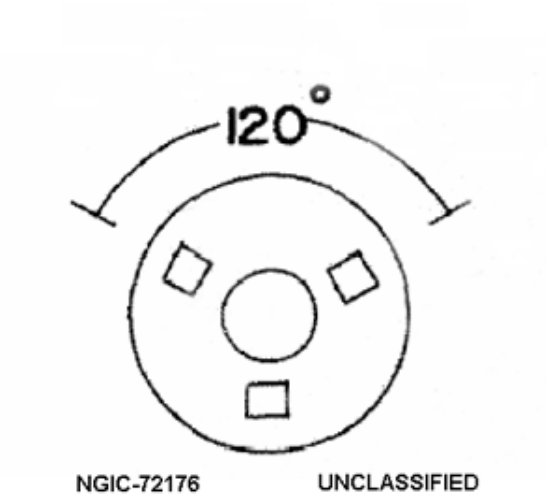

Figure 8-7. Three-Element, 3 x 120 Headstamp

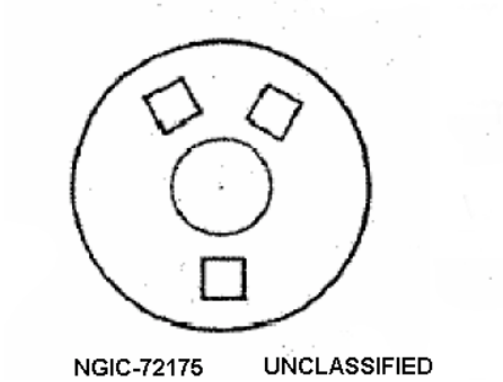

Figure 8-8. Three-Element, Side-by-Side Plus 2 x 180 Headstamp

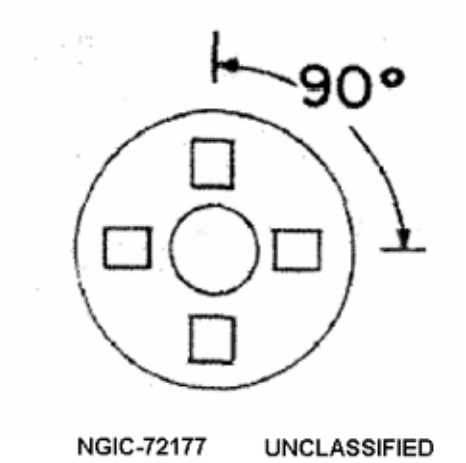

Figure 8-9. Four-Element Headstamp

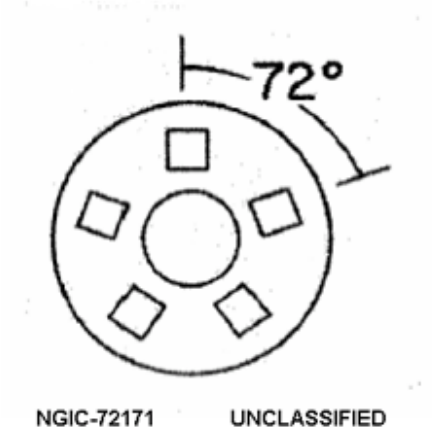

Figure 8-10. Five-Element Headstamp

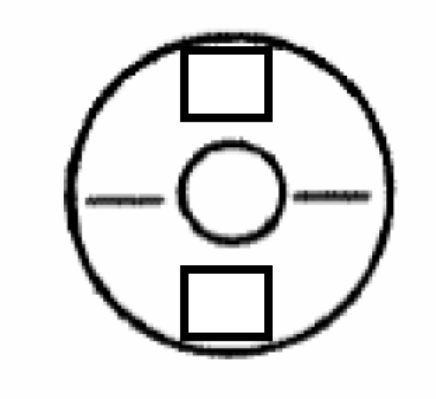

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Figure 8-11. Single Segment Headstamp

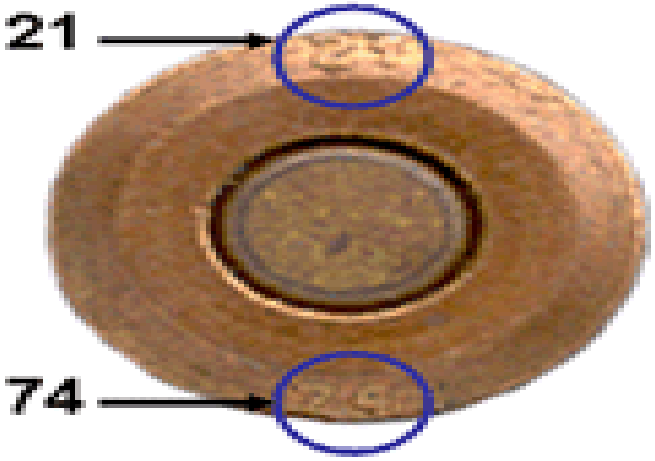

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Figure 8-12. Digital Photo of Two-Element, 2 x 180 Headstamp

The standard method of headstamping M1908 7.62 x 54R-mm ammunition is to mark it with the year of manufacture and with a factory identification mark. The factory identification mark is located on the top of the headstamp, while the year of manufacture is located on the bottom of the headstamp. Headstamp factory codes, dates, and cyphers are stamped and not raised. As stated above, some ammunition may have cyphers, in addition to the year of manufacture and factory identification mark, such as a star ★ triangle ▲ etc. Many headstamp variations exist. At least one nation (Yugoslavia) has combined the factory code and manufacturing year on the top headstamp and placed the caliber (7.62) on the bottom headstamp. Some ammunition can be found with either a headstamp entirely omitted or a partial headstamp with no year of manufacture or factory identification mark.

The year of manufacture normally appears as the last two digits of the year in which it was manufactured, i.e., 1966=66. There are a few notable exceptions to this general rule. For example, Yugoslav ammunition has the full four digits. The Soviet Union used Cyrillic letters in place of the date for about 5 years. See below. Some, though not all, North Korean ammunition uses a Korean letter or a hieroglyphic in place of a date.

USSR Cyrillic Letter Date Code:

r–1952	A (Cyrillic A)–1953
E–1954	N (Cyrillic inverted N)–1955
K–1956	

The standard factory identification mark used by most nations for M1908 7.62 x 54R-mm ammunition is a number code; however, there are exceptions. There are some factory codes that are used by more than one country.

- For example, Code 21 is used by both Hungary and Poland. Hungarian ammunition has both the factory code and date both upright while Poland has the date inverted.
- Code 10 was used by the USSR prior to 1946, is still used by Bulgaria, and during the 1970s a new Code 10 appeared whose origin is unknown.
- Beginning in the 1970s a large number of Chinese factory codes appeared, mostly with three and four digits. It is unlikely that these new high number codes represent new factories, but current factories allocated one or more additional factory codes to produce in an attempt to cause confusion outside China or to specify the type within a factory. The original factories in commission prior to 1970 were factories 11, 31, 41, 51, 61, and 81; not all produced 7.62x54R mm. It is also possible that a factory 21 also existed.

- Listed below in table 8-3 are the typical styles of Factory Code Letters that may be found.

Table 8-3. Typical Small Arms Ammunition Factory Code Letters

Code	Country	Code	Country	Code	Country
3	Albania	10	Bulgaria	1	China / PRC
031	China / PRC	0501	China / PRC	31	China / PRC
41	China / PRC	51	China / PRC	61	China / PRC
71	China / PRC	81	China / PRC	95	China / PRC
101	China / PRC	111	China / PRC	121	China / PRC
131	China / PRC	141	China / PRC	151	China / PRC
171	China / PRC	179	China / PRC	201	China / PRC
211	China / PRC	221	China / PRC	301	China / PRC
311	China / PRC	321	China / PRC	324	China / PRC
325	China / PRC	331	China / PRC	341	China / PRC
351	China / PRC	371	China / PRC	391	China / PRC
451	China / PRC	501	China / PRC	521	China / PRC
561	China / PRC	601	China / PRC	621	China / PRC
631	China / PRC	641	China / PRC	651	China / PRC
661	China / PRC	671	China / PRC	710	China / PRC
791	China / PRC	811	China / PRC	821	China / PRC
881	China / PRC	911	China / PRC	921	China / PRC
944	China / PRC	946	China / PRC	947	China / PRC
948	China / PRC	964	China / PRC	6141	China / PRC
6201	China / PRC	6202	China / PRC	6203	China / PRC
9121	China / PRC	9141	China / PRC	9381	China / PRC
9531	China / PRC	9611	China / PRC	9631	China / PRC
9661	China / PRC	9671	China / PRC	9901	China / PRC
21215	China / PRC	13	Cuba	PMV	Cuba
ZV	Czechoslovakia	aym	Czechoslovakia	bxn	Czechoslovakia
0	Czech Republic	7	Czech Republic	01	East Germany
04	East Germany	5	East Germany	05	East Germany
06	East Germany	22	East Germany	21	Hungary
23	Hungary	25	Hungary	93	North Korea
93 △o	North Korea	21	Poland	234	Poland
		54	Poland	343	Poland
361	Poland	15	Romania	RPR 21	Romania
RPR 22	Romania	22	Romania	23	Romania
312	Romania	314	Romania	315	Romania
317	Romania	319	Romania	321	Romania
322	Romania	323	Romania	324	Romania
325	Romania	334	Romania	3	Russia / USSR
7	Russia / USSR	012	Russia / USSR	17	Russia / USSR
30	Russia / USSR	38	Russia / USSR	50	Russia / USSR
60	Russia / USSR	61	Russia / USSR	182	Russia / USSR
187	Russia / USSR	188	Russia / USSR	270	Russia / USSR
528	Russia / USSR	539	Russia / USSR	543	Russia / USSR
547	Russia / USSR	611	Russia / USSR	710	Russia / USSR
711	Russia / USSR	4397	Russia / USSR	270	Ukraine
11	Yugoslavia	011	Yugoslavia	12	Yugoslavia
14	Yugoslavia	122	Yugoslavia	IK	Yugoslavia
*NK	Yugoslavia	nny	Yugoslavia	PP	Yugoslavia

* Inverted Cyrillic N

Service Ammunition. Service ammunition is subdivided into ball cartridges and special-purpose cartridges.

- Ball ammunition is used to engage enemy personnel.

- Special-purpose ammunition, depending on its construction, is designed for target indication and correction of fire, igniting fuel and highly flammable objects, and for destroying lightly armored targets.

    - Tracer cartridges are designed for target indication, fire adjustment, signal purposes, and engaging personnel. Tracer bullets can ignite dry grass, etc. The path of the bullet is indicated by either a red or green flame, which can generally be seen day or night for a distance of 700 meters.

    - Armor piercing/armor piercing incendiary cartridges are used to destroy targets protected by thin armor at ranges up to 300 meters, such as light trucks and personnel wearing body armor.

    - Incendiary cartridges are used to destroy fuel in iron tanks up to 3-mm thick. Incendiary cartridges also contain a tracer element. The path of the bullet is indicated by either a red or green flame, which can generally be seen day or night for a distance of 700 meters.

    - Subsonic/low velocity cartridges are used with silenced weapons. They often have a muzzle velocity of around 300 m/s.

Training Ammunition. Training ammunition is sub-divided into drilled and blank cartridges.

- Drilled rounds are designed for training in loading and firing. On the body of the cartridge case there are longitudinal grooves, and on the cartridge case mouth there are marks from the clamping device. The primer is pierced. There is no propellant in the cartridge case.

- Blank cartridges are designed for simulating fire and are used in tactical exercises. There is no bullet in the blank cartridges. The mouth is sealed by a star (rosette) crimp. It is dangerous to stand closer than 10 meters away from the muzzle face when blank cartridges are being fired. If blanks are to be fired from the PK machinegun, a blank adapter must be fitted to the muzzle. Without a blank adapter, insufficient gas pressure is developed to properly cycle the weapon.