

TENTATIVE
INSTRUCTION MANUAL
for the
JOHNSON
LIGHT MACHINE GUN

.30 Caliber M.1944 E-1
(Model 1945)

NOTES ON MATERIEL

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(Model 1945)

- A Development of -

JOHNSON AUTOMATICS, INCORPORATED

84 State Street
Boston 9, Massachusetts

FOREWORD

The Model 1944 E-1 Johnson Light Machine Gun (The Model 1945)

The Model 1944 E-1 Johnson Light Machine Gun has been developed to offer the maximum versatility of combat performance as a squad automatic. Because of its light weight and balance, its accurately-controlled semi-automatic fire (cocked with the bolt closed) and safely-controlled automatic fire (cocked with the bolt open) - all of which its unique fire control system positively insures - the Johnson is adapted for employment as a semi-automatic shoulder rifle, as an automatic shoulder rifle, and as a light machine gun.

In comparison with the combat-tested M 1941 Johnson, the M 1945 incorporates even faster barrel changing, a new gas-assist permitting higher cyclic rate of fire, a novel nine-position folding monopod serving also as the forestock, new type rear sight with hasty battle elevation peep, double-tube Micarta covered butt stock with folding butt plate, and space for cleaning rod with 1.5 ounce oiler.

Johnson Arms are covered by U. S. Patents, numbers: 2,094,156; -2,146,743; -2,181,131; -2,215,470 and other U. S. and foreign patents and patents pending.

TABLE OF CONTENTS

Section I.	General Description.....	1
Section II.	Detailed Description of the Parts.....	6
Par. 1.	Barrel Group.....	6
Par. 2.	Bolt and Locking Cam Group.....	6
Par. 3.	Hammer Housing Group.....	8
Par. 4.	Butt Group.....	9
Par. 5.	Receiver Group.....	9
Par. 6.	Magazine Support and Magazine Group.....	10
Section III.	Parts List.....	12
Section IV.	Operation.....	17
Par. 7.	To Load the Magazine, Detached from the Gun.....	17
Par. 8.	To Load the Magazine while Attached to the Gun by Clip.....	18
Par. 9.	To Load the Magazine while attached to the Gun, by Single Rounds.....	19
Par. 10.	To Fire Semi-Automatically.....	19
Par. 11.	To Fire Automatically.....	20
Par. 12.	To Change from Semi-Automatic to Automatic Fire.....	20
Par. 13.	To Change from Automatic to Semi-Automatic Fire.....	21
Par. 14.	To Set the Change Lever in the Safe or Locked Position.....	21
Par. 15.	To Unload the Gun by Detaching the Magazine.....	21
Par. 16.	To Unload the Gun without Detaching the Magazine.....	22
Par. 17.	To Unload the Magazine when Detached from the Gun.....	23
Par. 18.	To Change One or More Rounds of One Type of Ammunition to Another while the Magazine is in the Gun.....	23
Par. 19.	To Operate the Gun as a Single-Shot Rifle, without Magazine.....	24
Par. 20.	To Adjust the Rear Sight.....	24
Par. 21.	To Adjust the Monopod.....	25
Par. 22.	To Maintain Automatic Fire.....	26
Par. 23.	Recommended Positions for Automatic Fire..	27
Par. 24.	Use of Cleaning Kit.....	28
Section V.	Functioning.....	30
Par. 25.	Action During Recoil, Semi-Automatic.....	30
Par. 26.	Action During Counter Recoil.....	32
Par. 27.	Action During Forward Stroke, Automatic Fire.....	32
Par. 28.	Action During Recoil, Automatic Fire.....	32
Par. 29.	Action of the Bolt Lock Lever.....	32
Par. 30.	Action of the Change Lever, Sear, and Bolt Catch.....	33

Section VI.

	Disassembling and Assembling.....
Par. 31.	General Information.....
Par. 32.	Field Stripping.....
Par. 33.	Dismounting the Barrel Group.....
Par. 34.	Removing the Butt and Hammer Housing Group..
Par. 35.	Removing the Bolt and Locking Cam Group.....
Par. 36.	Disassembling the Bolt and Locking Cam Group
Par. 37.	Removing the Magazine Support Group.....
Par. 38.	Disassembling the Mainspring.....
Par. 39.	Removal and Replacement of the Operating Handle-Extractor unit in the Field.....
Par. 40.	Removal and Replacement of the Barrel in the Field.....
Par. 41.	Re-assembly from Field Stripping.....
Par. 42.	Complete Stripping of the Bolt and Locking Cam Group.....
Par. 43.	Complete Stripping of the Butt and Hammer Housing Group.....
Par. 44.	Complete Stripping of the Magazine.....
Par. 45.	Complete Stripping of the Magazine Support..
Par. 46.	Disassembling the Receiver Group.....
Par. 47.	Removal and Disassembling of the Rear Sight.
Par. 48.	Removal of Barrel Return and Spring.....
Par. 49.	Assembling.....

Section VII.

	Care and Cleaning.....
Par. 50.	General.....
Par. 51.	Cleaning the Barrel.....
Par. 52.	Cleaning the Mechanism.....
Par. 53.	Lubrication.....
Par. 54.	Use of the Field Cleaning Kit.....
Par. 55.	Care after Extensive Service.....
Par. 56.	Directions for Service in Sub-Zero Climates.....

Section VIII.

Par. 57	Maintaining Function under Severe Abuse.....
Par. 58.	Stoppages and Immediate Action.....
Par. 59.	General Note.....
	Stoppages and Immediate Action to Remedy Them.....

Fig. I. The Johnson M '44 E-1 With Monopod Folded
and Magazine Detached.....Following Page

Fig. II. The Johnson M '44 E-1 With Monopod Extended
and Magazine in Place.....Following Page

Fig. III. The Johnson M '44 E-1 Field Stripped
Following Page

Fig. IV. Section Drawing of the Johnson
M '44 E-1..... Following Page

SECTION I

GENERAL DESCRIPTION

a. The Johnson Light Machine Gun, Model of 1944 E-1, caliber .30-'06, is the result of some three years of test, experiment and reported combat experience with the original Johnson Light Machine Gun, Model of 1941, type H. The Light Machine Gun is a monopod or shoulder-firing weapon capable of full or semi-automatic fire with a total capacity of 25 shots and a weight empty of 15 lbs. It weighs 13.3 lbs. without the monopod, which is however, integral with the gun. The magazine weighs 1.2 lbs.

The new design includes a straight double tubular stock of Micarta, no wood of any type on the weapon, an instantly detachable and replaceable barrel, and a trap butt plate allowing access to the mainspring and cleaning kit in the stock tubes.

It also includes a gas assist assembly consisting of a guide collar piston and guide collar cylinder. The barrel and piston are pierced with a gas port 8 inches from the breech to allow gas impingement on the cylinder to assist the recoil action, increase the cyclic rate, and improve functioning under adverse conditions.

It is equipped with a single column, detachable box magazine, having a capacity of 20 rounds. The magazine is adapted for loading from the standard 1906 Springfield clip or by single rounds while attached to the gun, as well as when detached. With the magazine attached to the gun, 24 rounds may be loaded at one time, plus one in the chamber on semi-automatic.

The gun is fired automatically and semi-automatically, the type of fire being controlled by the change lever, which also serves as the safety. For full automatic fire the gun is cocked with the bolt open. For semi-automatic fire the gun is cocked with the bolt closed and locked. The gun will fire only if the breech is closed and locked. The force of recoil assisted by expanding gas is utilized to operate the mechanism.

In the first movement of the action, when the cartridge is fired, the barrel and bolt recoil together about $1/2$ of an inch assisted by gas action between the piston and cylinder of the gas assist assembly. During the rearward passage of the barrel the rotary bolt is turned through 20° by the action of the camming arm on the bolt against the camming face in the receiver. The bolt does not begin to unlock until the bullet is approximately two feet from the muzzle. The bullet is between four and five feet from the muzzle when the bolt is fully unlocked. The unlocking of the bolt lugs precedes primary extraction. When the bolt is fully unlocked, the barrel is arrested in its rearward movement. The bolt, impelled by its momentum and by residual pressure, continues to travel to the rear, extracting and ejecting the empty case. This movement compresses the recoil spring in the butt stock and cocks the hammer. The barrel is returned to its forward position by the action of the buffer and barrel return springs.

Following the cycle of operation in semi-automatic fire, the force of the mainspring returns the bolt to the closed position. During this forward movement, the bolt picks up the top cartridge in the magazine and chambers it. In loading, the cartridge is not required to enter the chamber from the side or at an abrupt angle, so that the bolt has full control of the head of the cartridges at all times, and the possibility of jam is minimized.

The locking cam rotates the bolt to the locked position, engaging the locking lugs with the locking abutments, and also engaging the bolt lock which prevents the bolt from unlocking until the barrel has recoiled slightly. The gun is then ready to fire semi-automatically with the bolt closed and locked. When the round has been fired the bolt remains closed.

In full automatic fire, the cycle commences with the bolt held in the open position by the bolt catch, which is released by pulling the trigger, allowing the bolt to close and lock. After the bolt has locked, the automatic sear is tripped, allowing the hammer to fire the cartridge after the locking cam platforms have released the hammer at the moment of full locking of the bolt. The gun will then continue to fire automatically until the trigger is released, catching the bolt in the open position. When the last round has been fired, the bolt remains in the closed position and the hammer is uncocked.

b. The theoretical cyclic rate of fire of the Johnson L. Machine Gun is approximately 600 to 700 rounds per minute. The maximum deliverable rate of automatic fire is as follows:

- 1) By a single operator, in excess of 150 rounds per minute.
- 2) Operated by a trained, two-man crew, in excess of 300 rounds per minute for short intervals. (i.e., 100 rounds in 16 seconds, and 200 rounds in 35 seconds.)
- 3) Semi-automatic fire: Starting with a fully loaded gun, 25 aimed shots can be fired in 25 seconds. The approximate maximum rate of semi-automatic aimed fire is about 30-40 shots per minute, loading with 5-shot clips. Reloading accomplished by changing the detachable magazine increases the deliverable rate of semi-automatic fire to 60 or more aimed shots per minute.

c. The barrel is exposed to the air for its entire length allowing the most efficient air cooling by natural radiation of barrel heat. In practice, the barrel is not likely to overheat in semi-automatic fire. In full automatic fire the barrel may instantly be removed and replaced by a spare barrel in situations where sustained fire is essential. It is recommended that the barrel be changed every 200 rounds if the gun is fired at 100 more rounds per minute continuously. (1000 rounds have been fired in 6 minutes, changing barrels every hundred rounds.)

d. The accuracy of aim is not impaired by the automatic action. In semi-automatic fire this gun is substantially as accurate as the average standard bolt action military rifle. In full automatic fire, the gun is so designed as to diminish the tendency to climb. With proper instruction this weapon can be operated full automatically from the shoulder in the standing, kneeling and prone positions with considerable accuracy without using the mount. In prone firing or situations where support is possible, the monopod mount adds to the steadiness of any firing position, and for semi-automatic sniping purposes gives in effect a 15 lb. sniping rifle with its own rest.

e. Under conditions of sustained rapid fire, the gun is actually more accurate in semi-automatic fire than the average bolt action repeating rifle, in that the operator's attention may be concentrated entirely upon lining up the sights, watching the target or targets, and squeezing the trigger. Recoil is considerably reduced upon the shooter's shoulder, as the recoil is partially absorbed in operating the mechanism.

On account of its recoil-absorbing design, modification of the standard firing positions used with bolt action rifles, to give firmer support to the gun, may be made without receiving the jarring that might be expected. The actual impact energy of the Johnson Light Machine Gun with monopod fired full automatic from the shoulder with standard .30-'06 (M2) ammunition is only 1.33 foot pounds per shot.

In the prone position the body can be in almost direct prolongation of the line of fire, or at the usual angle for prone shooting, depending on the type of support desired. The standing shooter should lean into the gun with a steady pressure as the recoil takes the form of a more or less even backward push, rather than a series of blows accompanied by upward jerks.

DATA

JOHNSON LIGHT MACHINE GUN

MODEL 1944 E-1
(M 1945)

SPECIFICATIONS

Caliber: U.S. .30-'06, M1 or M2.

Type of Fire: Full and Semi-automatic.

Barrel: Detachable standard barrel 22 inches long.

Length Overall: 42.5 inches with standard 22-inch barrel.

Weight: The Johnson Light Machine Gun M 1944-E-1 empty without magazine weighs approximately 15 pounds with the monopod attached. The monopod weighs 1.8 pounds and the weight minus the monopod is approximately 13.2 lbs. The monopod is normally part of the gun as issued. The magazine, empty, weighs 1.2 lbs., loaded 2.2 lbs. The flash hider, if attached, weighs about 0.5 lbs.

4
Magazine Capacity: Standard detachable box magazine has ²⁰⁻⁵⁰ capacity plus five in the action when the gun is fully loaded (total 25 with one in the chamber.)

Feed: Horizontal feed from side-mounted magazine, cartridges positioned in the feed lips in the receiver below the bolt path.

Methods of Loading:

- a) By inserting loaded magazines in the magazine support in the left side of the gun.
- ✓ b) By loading 5-shot clips in the right side of the gun with the magazine attached.
- ✓ c) By loading single rounds from the right side of the gun with the magazine attached.
- ✓ d) By loading single rounds through the ejection port without any magazine.
- e) Magazine may be loaded by 5-shot clips.
- f) Magazine may be loaded with single rounds.

Cooling Method: Fully air-cooled barrel with heat-radiating metal handguard.

Change Lever: Single-control, three-position lever; full automatic (cocked with bolt open, to the rear); semi-automatic (cocked with bolt closed, forward); safety (locked with bolt in either position, up).

Cyclic Rate of Fire: About 600 to 700 rounds per minute. (This is controlled by the size of the gas port).

Maximum Deliverable Rate of Full Automatic Fire:

✓ About 300-350 rounds per minute.

Sights: Folding leaf rear peep sight and "battle range" post front sight.

Stock: The stock of the Johnson Light Machine Gun is of plastic. The stock is composed of two pieces of Micarta tubing 6 7/8 inches long ending in a fitting for the trap butt assembly. The pistol grip side plates are optionally of unbreakable plastic or standard black walnut.

Finish: The plastic stock and pistol grip material can be finished in black or in simulation of standard walnut brown. Metal parts are blacked to a non-reflecting, rust-resistant finish.

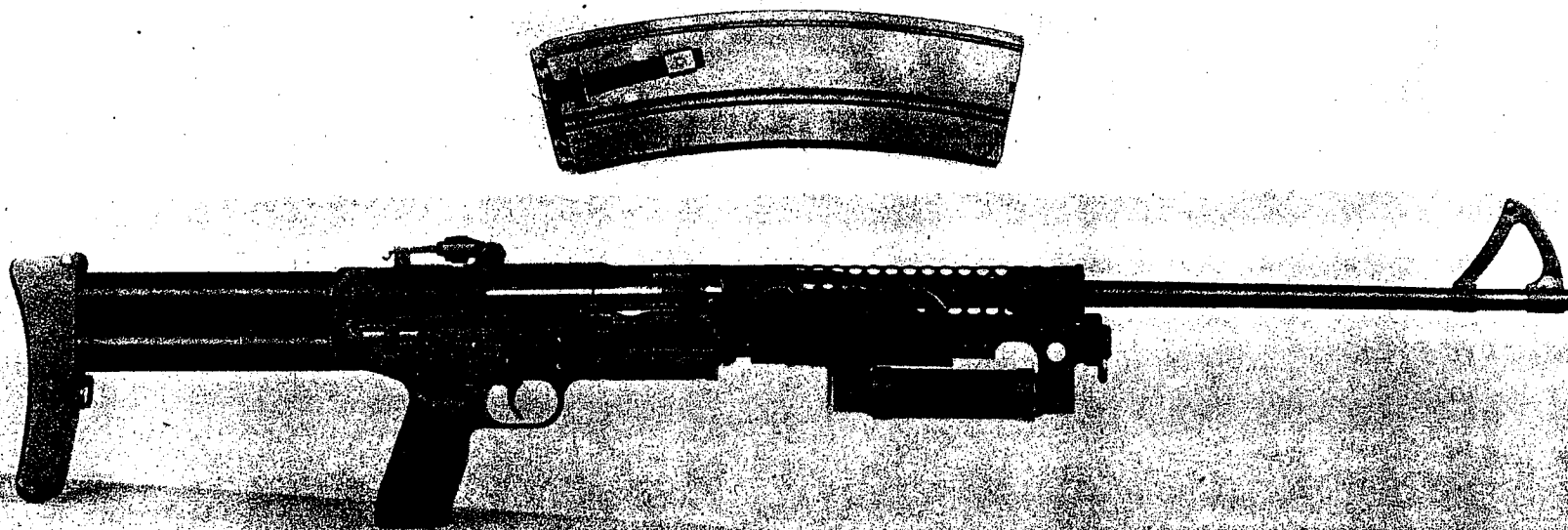
General Ballistics of Ammunition for which the
Johnson Light Machine Gun is adapted

U.S. Caliber .30-'06	M2	A.P. M2
Extreme Range	3300 yards	3500 yards
Max. effective Barrage Range	2200 yards	2350 yards
Max. effective Rifle Range	800-1000 yards	800-1000 yards
Muzzle Velocity-feet per second	2800	2775
Muzzle Energy - foot pounds	2700	2780
Bullet Weight	150 Gr.	168.5 Gr.
Chamber Pressure - pounds per square inch	40-45,000	50,000
Powder Charge	48 Gr.	53 Gr.
Remaining Velocity at 1000 yards.	1050-1075	1100

NOTE I: Ammunition capable of meeting specifications equal to those laid down by the United States Ordnance Department for ammunition caliber .30 M2 and/or A.P. .30 M2 should be used in the Johnson Light Machine Gun. As the correct relation of the size of the cartridge case to the barrel chamber is important to the proper functioning of all automatic arms, reloaded ammunition is not recommended.

NOTE II: For parachute troops, cavalry, or other special units a 20-inch barrel may be used - length overall: 40.5 inches; maximum length for parachute pack 20 inches.

NOTE III: This gun is well adapted for U. S. ammunition caliber .30 M1 (172 grain boat-tail), although this type is no longer in production.



J.A. '45 - 1 APRIL 14, 1945 Boston Ordnance District
JOHNSON AUTOMATICS, INCORPORATED, 84 STATE STREET, BOSTON 9, MASS.

Fig. 1 The Johnson Light Machine Gun .30 Caliber Model 1944 E-1 (M.1945) With monopod folded to form forestock and bolt closed - 20-shot box magazine detached.



SECTION II

DETAILED DESCRIPTION OF THE PARTS

Barrel Group	Par. 1
Bolt and Locking Cam Group	Par. 2
Hammer Housing Group	Par. 3
Butt Group	Par. 4
Receiver Group	Par. 5
Magazine Support and Magazine Group	Par. 6

1. Barrel Group. This consists of the barrel, the front sight, the gas assist assembly, made up of the guide collar piston and the guide collar cylinder, and the barrel locking bushing.

a. The barrel is of caliber .30, 22 inches in length, with 4 grooves of 10" right hand twist.

b. The "battle range" front sight is assembled to the barrel and held in place by three pins which hold it firmly on the barrel.

c. The gas assist assembly is located 8 inches from the breech. It consists of the barrel guide piston and the barrel guide cylinder. The barrel guide piston is permanently assembled to the barrel, and pinned in place with 2 cross pins. It performs both the functions of a guide collar, and, by a gas port connecting with a gas port in the barrel, assists in the recoil by expansion of powder gas from the discharge between it and the barrel guide cylinder. The barrel guide cylinder also performs barrel guide functions. It is a movable part assembled loosely to the barrel and retained by the guide collar piston at the rear and the front sight at the front. It positions the barrel and guide collar piston in the radiator sleeve by its outside bearing surface on the sleeve. It also retains the barrel assembly by its bearing on the barrel latch at the front. It assists recoil by expansion of gas against its forward and inner surfaces. The barrel and guide collar piston slide within it in recoil.

d. The barrel locking bushing consists of a cylindrical block about 1 1/2 inches in length, having a barrel return lug on the bottom and a series of abutments and channels inside to engage the lugs of the bolt. It screws onto the barrel in the conventional manner. The return lug bears on the barrel return.

2. Bolt and Locking Cam Group. This consists of the bolt, the extractor, operating handle assembly, locking cam assembly, firing pin assembly and firing pin stop.

a. The bolt is 5 inches long and 7/8 of an inch in diameter. At the front end are eight circumferential lugs, evenly spaced in nine segments around the head of the bolt, one of which is left clear for the extractor. On the right side of the bolt is the "T" slot extractor

8. forward movement of the firing pin when the parts are assembled. It also, by a cam surface on its left side prevents the locking cam from rebounding from the bolt after closure and locking of the bolt and firing cam in full automatic fire.

e. The firing pin assembly is a straight pin with its body of fluted triangular section and a shoulder near the rear end for engagement with the firing pin stop. It is fitted with a firing pin spring to hold the firing pin away from the primer before the hammer falls.

It is contained within the bolt and the locking cam and limited in forward travel by the firing pin stop. When the bolt is closed and locked, the rear end of the firing pin protrudes from the back of the locking cam assembly where it is struck by the hammer when the trigger is pulled.

3. The Hammer Housing Group. The hammer housing group consists of the hammer housing which includes the pistol grip web and trigger guard, two wood or plastic pistol grips and two pistol grip screws. The hammer housing houses the rest of the firing and fire control assemblies which comprise the following units:

a. The hammer assembly consists of the hammer, the hammer strut, the hammer strut pin, the hammer spring and hammer retaining pin.

b. The sear and sear trip assembly consists of the sear assembly, consisting of, the sear claw front, the sear hub, the sear claw rear, the sear stud, the sear stud washer, the sear spring and the sear trip. The assembly is held together by the sear trip pin. The sear is actuated by a spring. The sear is assembled to the trigger by the trigger pin bushing (which is part of the bolt catch control assembly) and retained in the hammer housing by the trigger pin which passes through the trigger pin bushing and the hammer housing.

c. The bolt catch control assembly consists of the bolt catch control and the trigger pin bushing. The assembly is retained in place by the trigger pin.

d. The trigger is assembled to the sear by the trigger pin bushing and held in place in the hammer housing by the trigger pin.

e. The hammer pin and the trigger pin are both retained in the hammer housing by the pin retainer, a flat spring which locks into a recess in the left outer surface of the hammer housing and is held in place by the pin retainer rivet and pin retainer thimble.

f. The bolt catch assembly consists of the bolt catch support, bolt catch, bolt catch spring, the bolt catch pin, change lever plunger, plunger spring, and retaining pin. The bolt catch support houses the rear end of the hammer strut. The support is positioned by a fixed cross pin in the hammer housing which engages an open groove in

recess. On the left is the ejector channel. The body of the bolt is of the same diameter as the lugs from a point $7/16$ of an inch back of their faces, so as to present an even surface to the cartridge in the feed lips. The bolt is bored inside and slotted at the top to accommodate the firing pin and locking cam assembly. At the top center of the outside surface is the camming arm. The right rear face of the camming arm is beveled at an angle somewhat less than 45 degrees. The left rear face is similarly beveled to operate with the locking cam.

b. The extractor consists of a leaf or tail about 2 inches long terminating at its forward end in the extracting claw. It sets into the extractor recess and is held in place by the operating handle. A hole is provided at the rear end of the leaf for the operating handle plunger.

c. The operating handle assembly slides into a "T" slot in the extractor recess above the extractor and locks the extractor in place. The operating handle plunger under tension of the operating handle plunger spring extends through the extractor leaf and into a recess in the bolt locking the operating handle and extractor in place. The operating handle plug retains the plunger and spring in their recess within the operating handle.

d. The locking cam assembly, the forward part of which set into the rear of the bolt, has a cam on the upper surface which bears on the camming arm of the bolt, and just behind this is a roller stud (integral with the locking cam). The roller fits on the roller stud and is not removable except in the shop.

The rear section of the locking cam consists of the hammer guide, a metal body longitudinally slotted for the passage of the hammer, the sear trip plunger, which protrudes from the bottom of the locking cam body, and which releases the sear trip in firing automatically, the mainspring guide and buffer assembly, which consists of a guide shaft around which is engaged the mainspring, the buffer plunger, buffer plunger spring, and buffer plunger pin.

The automatic sear trip plunger assembly consists of the plunger and plunger spring. It is retained by the trip plunger retainer which fits around the mainspring guide shaft. Premature release of the hammer in automatic fire as well as in semi-automatic fire, prior to the complete closure of the bolt, is prevented by two short, narrow projections located on the bottom of the hammer guide section of the locking cam body. The locking cam unit is bored inside to accommodate the firing pin. The locking cam is cut at the top in front of the hammer guide slot for the firing pin stop. The firing pin stop is a movable stop riveted to the locking cam and moving up and down to limit the

the rear end of the bolt catch support. The bolt catch is hinged to the bolt catch support by the bolt catch pin. The bolt catch support unit is retained by the bolt catch support pin. The assembly is secured by the change lever, which prevents the bolt catch support from sliding forward in the hammer housing. The change lever plunger retains the change lever.

g. The change lever passes through the hammer housing between the trigger and the bolt catch support. Acting as the spring actuated change lever plunger, it controls the trigger, sear trip, bolt catch, and bolt catch control.

h. The lock plunger is a cross plunger through the hammer housing, working against a spring which maintains it in the left hand position and also retains it in the hammer housing. It locks the hammer housing and butt stock assemblies to the receiver until released by pressure from left to right.

4. The Butt Group. The butt group consists of two cylindrical tubes of Micarta screwed one below the other to the rear of the hammer housing, the butt plate assembly including the hinge and latch assemblies, the butt sling swivel assembly and the mainspring and buffer stop assembly. The upper of the two tubes contains the steel mainspring tube (permanently assembled to the hammer housing) containing the mainspring, which is locked into the rear end of the tube by the engagement of a cross pin through the buffer stop assembly, to which the mainspring is attached. The lower of the two tubes contains a field cleaning kit and a container. Both tube assemblies attach to a fitting at the rear end to which the butt plate is hinged. By pressure of the point of a cartridge on the inside of the buttplate, the buttplate swings up exposing the cleaning kit and also the rear end of the buffer stop assembly for removal.

5. Receiver Group. This consists of the receiver and radiator sleeve, barrel return and buffer spring assembly, bolt lock, ejector assembly, forward sling swivel, barrel latch assembly, monopod assembly and rear sight assembly.

a. The receiver and radiator sleeve is 20 inches overall in length. At its forward end it is called the radiator sleeve and contains the barrel assembly. Its after end, the receiver proper, contains the bolt group. The radiator sleeve is pierced with a number of $3/8$ " holes to allow for air circulation and barrel heat radiation. An ejector rod is provided on the outer left side of the receiver. It is also slotted and pierced on the left side for the bolt lock. The cam channel, cam chamber and camming arm unlocking flange are cut in the inner upper surface of the receiver. In the floor of the receiver are the feed lips and on the right side, below the ejection port, is the clip seat (all integral with the receiver). The radiator sleeve is held in proper

alignment and to the correct diameter by a spacer, which is riveted into position.

b. The barrel return assembly consists of a heavy return spring in a housing below the radiator sleeve in conjunction with a barrel buffer spring designed to check the rearward movement of the barrel before it reaches the stop shoulder in the receiver. These springs are carried on a guide rod terminating in the barrel return which engages the return lug in the barrel locking bushing.

c. The bolt lock in the form of a plunger with a spring tail fits into a hole and dovetail slot cut into the left of the outside of the receiver opposite the forward end of the ejection port. It is a flat spring with a rounded knob at the front end. It locks into place when the tail is slid into the dovetail slot in the receiver until the knob drops into the hole in front of the slot. When the bolt turns in locking, the knob of the bolt lock rides over it and drops into the ejector cut to hold the bolt locked.

d. The ejector fits in the ejector recess in the left side of the receiver behind the lock and is held in place by, and pivots on, the ejector pin, which is held in place by the ejector spring.

e. The barrel latch assembly consists of a barrel latch, barrel latch spring and detent balls. It is situated at the forward end of the receiver spacer and retained by the forward sling swivel. It moves up and down to engage or release the forward flange of the guide collar cylinder and retain the barrel assembly in the radiator sleeve.

f. The monopod assembly is pivoted by a spring loaded pivot to the monopod mounting lug at the front end of the receiver spacer. It consists of a Micarta tube $4 \frac{3}{8}$ inches long, two pivot assemblies, and a foot. The tube has a ferule cap at each end. The pivot assemblies are screwed into position and permanently riveted to both caps. The pivot assembly at one end is riveted by a cross rivet to the mounting lug on the receiver spacer. The pivot assembly at the other end is riveted to a lug on the monopod foot assembly. The monopod foot assembly consists of the monopod foot, a semi-circular pierced stamping $6 \frac{3}{4}$ inches long with a pivot bracket riveted to the top center of its outside surface.

g. Magazine Support and Magazine Group. This consists of the magazine support assembly and one or more detachable box magazines. The box magazines have a capacity of twenty cartridges and five more cartridges may be inserted through the loading port after the magazine is locked in place in the magazine support.

a. The magazine support assembly consists of a metal housing attached to the receiver by two lugs and having the magazine release lever and magazine release lever spring on the upper side. Two ramps are provided for carrying up the magazine

retainer when the magazine is inserted into the support. On the right side of the magazine support is the loading cover or magazine support cover, actuated by the magazine support cover spring. The inner face of the magazine support cover is shaped so as to present a ramp for the cartridges as they are forced in from the left hand side of the magazine support, thus rolling the cartridges in the feed lips of the receiver.

b. The detachable box magazine consists of the magazine body, the magazine end plate, magazine follower spring, magazine follower, and magazine retainer, which also acts as a cartridge retainer when the magazine is not attached to the gun. The magazine is inserted into the magazine support horizontally from the left hand side of the gun. As the magazine is inserted, the magazine retainer is forced upward by ramps on the magazine support and engages notches in the ramps, thus retaining the magazine in position, also releasing the cartridges into the action under pressure of the magazine follower and follower spring. The magazine retainer is disengaged for removal of the magazine by depressing the magazine release lever on the magazine support.

SECTION III

PARTS LIST

NOTE I: Parts numbers having an "X" or "XC" after them apply to assemblies of two or more parts which will usually be handled by the soldier in their assembled forms.

The letters "A", "B", and "C" are used to distinguish between related and similar parts which carry the same part number.

The letter "R" indicates parts also used in the rotary type Johnson Semi-Automatic Rifle and common to the rotary type Johnson Semi-Automatic Rifle and Johnson Light Machine Gun.

The letters "MG" indicate parts used only in the Johnson Light Machine Gun.

The absence of a distinguishing letter indicates that the part is common to all Johnson models.

NOTE II: The quantity required of each part to make up an assembly is also listed against it.

The number of each of the parts required to make a complete gun is listed against the individual Part Number, as in some cases one part serves two uses in the gun.

NOTE III: Assemblies are listed as such and then the parts that make up assemblies which can be disassembled are also listed. Only one of each complete assembly is needed in each case to make a gun, not an assembly plus the parts which would be needed to make another one.

Part Number	Number Required	Name of Part
----------------	--------------------	--------------

RECEIVER GROUP

MG5001-X	1	Receiver Sub Assembly (Receiver Body and Barrel Guide Sleeve undismountable (1) of MG5461 (2) each of MG5584 (2) MG5627 (4) of MG5628
MG5110-XC	1	Rear Sight Assembly Complete (1) each of MG5110, MG5111, MG5112, MG5115, MG5116, MG5117, MG5118, MG5119, MG5664, (4) each of MG5113, MG5114,
MG5110	1	Rear Sight Frame
MG5111	1	Rear Sight Aperture Block
MG5112	1	Rear Sight Elevating Nut
MG5113	6 ?	Rear Sight Click Detent Ball
MG5114	4	Rear Sight Click Detent Ball Spring
MG5115	1	Rear Sight Combat Aperture
MG5116	1	Rear Sight Combat Aperture Pin

MG5117	1	Rear Sight Tension Spring
MG5118	1	Rear Sight Windage Screw
MG5119	1	Rear Sight Windage Knob
R-16-X	1	Ejector Assembly Complete (1) each of R-16A, R-16B, R-16
R-16	1	Ejector
R-16A	1	Ejector Spring
R-16B	1	Ejector Spring Retainer
R-17	1	Ejector Pin
MG-19	1	Bolt Lock
MG5460-X	1	Barrel Return Housing Assembly (undismountable)
MG5461	1	Receiver Spacer (including monopod mounting lug)
MG5466-XC	1	Barrel Return Assembly Complete (1) each of MG5459, MG5463, MG5464, MG5465, MG5466, MG5659, MG5663, (2) of MG5510
MG5462	1	Barrel Return Spring Stop
MG5463	1	Barrel Return Washer
MG5464	1	Barrel Return Spring Collar
MG5465	1	Barrel Return Rod
MG5466	1	Barrel Return
MG5459	1	Barrel Return Spring
MG5510	2	Barrel Return Rod Pin
MG5563-XC	1	Monopod Assembly Complete (undismountable)
MG5567	2	Monopod Hinge Rivet
MG5584	5	Receiver Spacer Pin Short
MG5600	1	Barrel Return Housing Catch
MG5602	1	Barrel Return Housing Catch Spring
MG5627	2	Barrel Return Housing Thimble
MG5628	5	Receiver Spacer Pin (Long)
MG5657	1	Barrel Latch Spring
MG5658	1	Barrel Latch
MG5659	1	Barrel Recoil Buffer Spring
MG5663	1	Barrel Recoil Buffer Spring Washer
MG5664	1	Rear Sight Windage Knob Retaining Pin
MG5665	1	Rear Sight Frame Pin
MG5669	1	Barrel Latch Detent Spring

HAMMER AND BUTT GROUP

MG5050-X	1	Hammer Housing Sub Assembly (1) each of MG54B, MG5050, MG5068, MG5150, MG5513, MG5519-X, MG5521, MG5524, MG5641, MG5643, MG5647, MG564
MG5050	1	Hammer Housing
MG54-B	1	Hammer Housing Pin Retainer Bushing
R55	1	Hammer Strut
MG56	1	Hammer Strut Pin
MG57	1	Hammer Spring
MG70	1	Sear Trip Pin
MG72	1	Bolt Catch

MG5051-XC	1	Sear Assembly Complete (undismountable)
MG5052	1	Trigger Pin
MG5053-XC	1	Hammer and Hammer Strut Assembly Complete (1) each of R55, MG56, MG5053
MG5053	1	Hammer
MG5054	2	Hammer Pin
MG5058-XC	1	Trigger and Sear Stop Stud Assembly (undismountable)
MG5059-XC	1	Bolt Catch Support Assembly Complete (1) each of MG5059, MG5575, MG5577, MG5638-X
MG5059	1	Bolt Catch Support
MG5060-XC	1	Sear and Sear Trip Assembly Complete (1) each of MG70, MG5060, MG5051-XC
MG5060	1	Sear Trip
MG5062-XC	1	Change Lever Assembly (undismountable)
MG5066	1	Sear and Trigger Spring
MG5068	1	Bolt Catch Support Retaining Pin
MG5073	1	Bolt Catch Spring
MG5073-XC	1	Bolt Catch Control Assembly Complete (undismountable)
MG5133	1	Main Spring
MG5148	2	Pistol Grip Screw
MG5149	2	Pistol Grip Escutcheon (C' bored)
MG5149A	2	Pistol Grip Escutcheon (tapped)
MG5150	1	Hammer Housing Lock Plunger
MG5458	2	Butt Plate Nut
MG5489-XC	1	Butt Plate Assembly Complete (1) each of MG5489X, MG5492, MG5493, MG5499, MG5532X, MG5536, MG5537 (3) MG5494, (2) MG5495
MG5489-X	1	Butt Plate Sub Assembly (undismountable)
MG5492	1	Butt Plate Spacer (long)
MG5493	1	Butt Plate Latch Housing
MG5494	3	Butt Plate Spacer Rivet
MG5495	2	Butt Plate Spacer (short)
MG5496	1	Buffer Stop Lock Pin
MG5497	1	Buffer Stop Lock Pin Rivet
MG5499	1	Butt Plate Hinge Rivet
MG5513	1	Hammer Housing Lock Plunger Stop Screw
MG5519-X	1	Main Spring Tube Sub Assembly (undismountable)
MG5521	2	Butt Storage Tube Bushing
MG5522	1	Butt Storage Tube
MG5523	1	Main Spring Tube Sleeve
MG5524	1	Hammer Housing Lock Plunger Spring
MG5531-X	1	Buffer Stop Assembly (undismountable)
MG5532-X	1	Butt Plate Bracket Assembly (1) each of MG5496, MG5497, MG5532
MG5532	1	Butt Plate Bracket
MG5536	1	Butt Plate Latch Spring
MG5537	1	Butt Plate Latch
MG5538-X	1	Butt Sling Swivel Assembly (1) each of MG5538, MG5539, MG5540

MG5538	1	Butt Sling Swivel Plate
MG5539	2	Butt Sling Swivel Bow
MG5540	1	Butt Sling Swivel Bow Pin
MG5575	1	Change Lever Plunger Spring Retaining
MG5577	1	Change Lever Plunger Spring
MG5579-XC	1	Pistol Grip Assembly - Right Hand (2) MG5149, (1) 5579
MG5579	1	Pistol Grip - Right Hand
MG5580-XC	1	Pistol Grip Assembly - Left Hand (2) MG5149-A, (1) MG5580
MG5580	1	Pistol Grip - Left Hand
MG5638-X	1	Change Lever Plunger Assembly (undism)
MG5641	1	Hammer Housing Pin Retainer Rivet
MG5643	1	Hammer Housing Pin Retainer

BOLT AND LOCKING CAM GROUP

MG5075	1	Bolt
MG5076-X	1	Locking Cam Assembly (1) each of R80, MG89, MG90, MG94, MG5078, MG5091, MG5092, MG5093, MG5654
MG5076	1	Locking Cam
R80	1	Locking Cam Roller
MG89	1	Trip Plunger
MG90	1	Trip Plunger Spring
MG94	1	Buffer Plunger Retaining Pin
MG5078	1	Firing Pin Stop
MG5077-XC	1	Firing Pin Assembly Complete (1) each of MG5077, MG5088
MG5077	1	Firing Pin
MG5088	1	Firing Pin Spring
MG5621	1	Firing Pin Stop Retaining Pin
MG5091	1	Trip Plunger Retainer
MG5092	1	Buffer Plunger
MG5093	1	Buffer Plunger Spring
MG5079	1	Extractor
MG5081-XC	1	Operating Handle Assembly Complete (1) each of MG5081, MG5083, MG5084, MG5086, MG5654
MG5081	1	Operating Handle
MG5083	1	Operating Handle Plunger
MG5084	1	Operating Handle Spring
MG5085	1	Operating Handle Pin (Long)
MG5086	1	Operating Handle Plug
MG5654	1	Operating Handle Pin (Short)

MAGAZINE SUPPORT AND MAGAZINE GROUP

MG5170-XC	1	Magazine Support Assembly Complete (1) each of MG175-X, MG176, MG177, MG179, MG180, MG181, MG5170-X.
MG5170-X	1	Magazine Support Welding Assembly (undismountable)
MG175-X	1	Magazine Support Cover Assembly (undismountable)
MG176	1	Magazine Support Cover Spring
MG177	1	Magazine Support Cover Hinge Pin
MG178	1	Magazine Release Lever

MG179	1	Magazine Release Lever Pin
MG180	1	Magazine Release Lever Spring
MG181	1	Magazine Release Lever Cotter Pin
MG185-XC	1	Magazine Assembly Complete (1) each of MG185-X, MG186, MG188-XC

BARREL GROUP

MG5212-XC	1	Barrel Assembly, Complete (1) each of MG205, MG5209, MG5210, MG5212, MG5656, (3) of R206, (2) of MG5204
MG5656	1	Barrel Guide Collar Piston
MG205	1	Barrel Front Sight
R206	3	Barrel Front Sight Pin
MG5204	2	Barrel Guide Collar Piston Retaining Pin
MG5209	1	Barrel Locking Bushing
MG5210	1	Barrel Guide Collar Cylinder
MG5212	1	Barrel Caliber .30-'06

Total parts field stripped by the soldier..... 11

Total parts normally disassembled by
the armorer..... 33

Total parts, including all springs, pins,
rivets, screws, etc.....180

SECTION IV

OPERATION

To Load the Magazine, Detached from the Gun	Par. 7
To Load the Magazine while Attached to the Gun, by Clips	Par. 8
To Load the Magazine while Attached to the Gun, by Single Rounds	Par. 9
To Fire Semi-Automatically	Par. 10
To Fire Automatically	Par. 11
To Change from Semi-Automatic to Automatic Fire	Par. 12
To Change from Automatic to Semi-Automatic Fire	Par. 13
To Set the Safety	Par. 14
To Unload the Gun by Detaching the Magazine	Par. 15
To Unload the Gun without Detaching the Magazine	Par. 16
To Unload the Magazine when Detached From the Gun	Par. 17
To Change Several Rounds of One Type to Another (i.e., ball to tracer)	Par. 18
To Operate the Gun as a Single-Shot Rifle, without Magazine or Magazine Support	Par. 19
To Adjust the Rear Sight	Par. 20
To Adjust the Monopod	Par. 21
To Maintain Automatic Fire	Par. 22
Recommended Positions for Automatic Fire	Par. 23
Use of Cleaning Kit	Par. 24

7. To Load the Magazine, Detached from the Gun.

a. The 20-shot detachable magazine may be loaded by inserting single rounds, or by Springfield-type clip five cartridges.

b. To load single rounds, hold the magazine with hands, and press the single cartridges down past the ridge retainer (magazine retainer) with the forefinger of each hand. Be careful to permit the cartridge retainers to engage each cartridge after its insertion. The forefinger of the left hand should press on the cartridge just in rear of the cartridge retainer, and the forefinger of the right hand should press on the cartridge just in front of the retainer.

c. To load the magazine with standard Springfield five-shot clips, seat the clip in the rear end of the magazine, and strip the cartridges from the clip into the magazine with the thumb of the right hand. The end of the clip should be used to push the top cartridge down past the cartridge retainer. The clip should be removed from the magazine with the thumb and forefinger of the right hand. (Four 5-shot clips, total 20 rounds, have been loaded in the magazine in approximately 15 seconds.)

d. Cartridges can be loaded into the magazine either singly or from Springfield clips by inserting the point of a loaded cartridge under the cartridge retainer to hold it out a way from the mouth of the magazine, and then inserting cartridges into the magazine singly or by clips, holding them down with one hand between single rounds or clips, as they are inserted. After the magazine has been filled, withdraw the cartridge under the magazine retainer and allow it to hold the cartridge in, in the normal way.

8. To Load the Magazine while Attached to the Gun by Clip.

a. The magazine, whether empty or partially loaded, is assembled to the gun by inserting the open end of the magazine into the mouth of the magazine support, and pressing the magazine smartly from left to right until the retainer engages the lug on the magazine support.

b. With the magazine thus assembled and partly or wholly empty, the gun may be loaded by inserting clips of cartridges through the loading port on the right side of the gun, as the magazine support cover will admit cartridges in the same manner as the magazine cover of the rotary-feed rifle.

NOTE: The bolt should be closed when loading through the loading port.

c. Loading the Johnson gun with the magazine attached is easily and quickly done in the following manner:

To Load with ammunition in standard Springfield-type clip:

1. Insert the loaded clip into the clip guide as far as it will go; be sure that the clip is fully seated.
2. Strip the cartridges from the clip into the magazine past the magazine support cover with an even and continuous pressure of the right thumb.
3. Continue the thumb pressure until the last cartridge is well beyond the top edge of the magazine support cover.
4. Withdraw the thumb smartly to permit the magazine support cover to snap upwards into its closed position, thus holding the cartridges securely and positioning them properly in relation to the feed lips. If the empty clip is not thrown clear of the guide by the closing of the magazine support cover, it should be pulled out and dropped.

NOTE: Careful observance of a few details will add greatly to ease and facility in loading. When the proper loading technique is used, the cartridges will flow smoothly into the action with a minimum of effort and without any tendency to bind in the clip or in the action.

The ~~position of the thumb~~ should be approximately opposite the thumb notch in the receiver (1) between the ejection port and the charging Pressure should be with the ball of the thumb point nearer the tip than the first joint.

- ii If the pressure is applied too far forward ridge, difficulty may result from a tendency of cartridges to crowd in out of line and ride another. Greatly increased pressure is required to load this way.
- iii If the thumb is too far back, that is, too close to the clip, discomfort may result from chafing on the clip.
- iv As the clip is stripped, the cartridges should be pushed upward and in by a slight downward pressure on the cartridge under the thumb.
- v Pressure should be continuously applied until the cartridges are well in past the magazine support cover. Interruption of pressure may result in the clip becoming unseated. If this happens, the clip should be resealed before attempting to load the next of the cartridges.

NOTE: The remaining cartridges in a partially empty clip can be loaded into the Johnson gun as readily as those from a full clip. In this manner a total of five 5-shot clips or twenty-five rounds in all may be loaded into the gun if the magazine is wholled when loading begins, including one round in the chamber of the automatic.

d. After firing five or more cartridges, fresh clips should be inserted in the same manner.

9. To Load the Magazine while Attached to the Gun, by S

a. The procedure of loading the wholly or partly empty magazine while attached to the gun is similar to that described in Paragraphs 7 and 8 above, except that single rounds are grasped by the thumb and forefinger of the right hand and pushed past the magazine support cover into the magazine support by the thumb of the right hand. This procedure may be used whether the gun is wholly or partially empty. This is a convenient method of loading in the event that the operator is provided with clip-loaded ammunition, as is often the case. After firing several rounds these rounds may be replaced by this method.

b. The contents of three 8-shot M1 rifle clips may be loaded singly.

10. To Fire Semi-Automatically.

a. Insert a loaded magazine smartly into the magazine from left to right. The magazine retainer will be pushed to lock into position, and release the cartridges in action. With the bolt in the closed position, chambered the procedure is as follows:

1. Throw the change lever to the forward horizontal position marked "semi".
2. Grasp the operating handle with the right hand, draw it slightly to the rear, then raise it about 20 degrees and draw the bolt to the fully opened position.
3. Release the bolt handle smartly.
4. The gun is now loaded, with a cartridge in the chamber and the bolt closed and locked.
5. Grasp the trigger with the forefinger of the right hand. Each separate pressure on the trigger will fire one shot and reload. For successive shots the trigger must be released and pulled for as many shots as are desired. If the operator should suspend firing before the magazine is empty, it may be reloaded without removal as indicated above. When the magazine is empty, the bolt will remain in the closed position.

11. To Fire Automatically.

a. With the magazine loaded and attached to the gun, and with the bolt in the closed position on an empty chamber, the procedure is as follows:

1. Throw the change lever to the rearward horizontal position marked "auto".
2. Grasp the operating handle as indicated in Paragraph 10 above, and draw it fully to the rear.
3. The bolt will remain in the open, cocked position, ready to fire automatically.
4. Grasp the trigger as indicated in Paragraph 10 above, and apply pressure to the trigger.
5. Continued pressure on the trigger will cause the weapon to fire automatically until the magazine is empty, when the bolt will stop in the closed position, or until the pressure on the trigger is released, when the bolt will stop in the open position, with the gun cocked and ready for continuing the fire. Under normal conditions, it is not desirable with a weapon of the full automatic type to hold the trigger back for more than three to six shots per burst.

12. To Change from Semi-Automatic to Automatic Fire.

a. If the gun has been firing semi-automatically, and it is desired to fire full-automatically, the procedure is as follows:

1. Throw the change lever to the safe vertical position.
 2. Pull the bolt open to the fully rearward position where it will remain cocked, ready for full automatic fire, at the same time ejecting the loaded cartridge which was chambered in the barrel.
 3. This round may be replaced in the magazine if desired and kept available for later use.
 4. Throw the change lever to automatic (rear horizontal). The gun is now ready for full automatic fire as described in Paragraph 11 above.
 5. Extensive experience indicates it is preferable to change the magazine on semi-automatic and change magazines.
13. To Change from Automatic to Semi-Automatic Fire.
- a. If the gun has been firing full-automatically and it is desired to fire semi-automatically, the procedure is as follows:
 1. Throw the change lever to the forward horizontal position. This will cause the bolt to close and load the magazine, chambering a cartridge ready for semi-automatic fire.
 2. The weapon may now be fired semi-automatically as described in Paragraph 10 above.
14. To Set the Change Lever in the Safe or Locked Position.
- a. If, during the firing of the weapon either automatically or semi-automatically, it is desired to set the change lever on the safe or locked position, throw the change lever to the central and vertical position, marked "safe", midway between the automatic and semi-automatic positions. This will lock the sear and trigger to be locked if the gun is being fired semi-automatically, and will cause the bolt catch to be engaged, thus holding the bolt open, if the gun is firing full automatically. In any case, the sear and trigger are locked as well as the bolt catch.
 - b. If the gun has been firing semi-automatically and is ready to fire, and the operator desires to set the change lever on the safe position, and open the bolt in preparation for full-automatic fire, the change lever should be set in the safe position, before the bolt is opened.
- NOTE: This cannot be done unless the hammer is cocked.
15. To Unload the Gun by Detaching the Magazine.
- a. With the magazine loaded, partially loaded, or empty, the procedure for removing the magazine is as follows:

1. Grasp the magazine body between the heel and fingers of the left hand, with the thumb extended horizontally to the right.
2. Press the thumb of the left hand firmly and fully downward on the magazine release lever.
3. Withdraw the magazine smartly from right to left out of the magazine support while pressing downward on the release lever.
4. If the magazine is loaded or partially loaded, approximately four or five rounds will remain loose in the magazine support, while the rest of the rounds will be retained in the magazine. The operator should therefore shake the gun to remove the loose rounds, and these may then be reloaded in the magazine or returned to the ammunition box.

16. To Unload the Gun without Detaching the Magazine.

a. With the magazine wholly or partially loaded, if it is desired to empty the magazine before removing it from the gun, the procedure is as follows:

1. Place the left hand underneath the magazine support with the fingers of the left hand in a position to press the magazine support cover downward.
2. Hold the right hand with palm open just outside the loading aperture.
3. Press the magazine support cover fully downward, permitting all of the rounds remaining in the magazine to be forced by the magazine spring out into the palm of the right hand.

WARNING

After unloading or removing the magazine, the chamber should be cleared and inspected to make sure that no cartridges remain in the gun or in the chamber. Before unloading the gun, the change lever should be set in the safe or locked position; that is, in the vertical position. Preferably the bolt should be opened and the cartridge removed from the chamber, if the weapon has been firing semi-automatically, before removing the magazine. Under no circumstances should the gun be unloaded, unless the change lever is in the locked or "safe" position.

WARNING

The operator should be especially careful never to manipulate the bolt with the change lever in the position for full-automatic fire; that is, with the change lever in the rearward horizontal position. The operator should be especially careful for the

19. To Operate the Gun as a Single-Shot Rifle, without Magazine or Magazine Support.

a. This gun may be operated as a single-shot rifle with considerable effect in the absence of the magazine, as well as the magazine support, although it makes little difference whether or not the magazine support is attached for this purpose.

b. Procedure for firing the weapon efficiently as a single shot rifle is as follows:

1. Set the change lever in the safe or locked position and cock the bolt in the open position.

2. Holding the gun in the normal rifle fashion, roll the gun to the left so that the ejection port is upwards.

3. Drop one round of ammunition into the ejection port so that it lies on the inner left side of the receiver.

4. Throw the change lever to the forward horizontal position for semi-automatic fire.

5. Fire the round in the normal manner.

6. Grasp the next cartridge in the thumb and forefinger of the right hand, and, with the second and third fingers of the right hand, open the bolt and hold it open while at the same time dropping the cartridge into the ejection port as described above for loading the first round of the series. A little practice will show that by rolling the gun over so as to place the ejection port on top, the cartridge can very conveniently be dropped through the ejection port, and upon releasing the operating handle the round will be chambered and ready to fire. The gun can be operated very rapidly as a single-shot rifle in this manner. The operator should not insert a cartridge past the magazine support cover unless a magazine is on the gun, as the cartridge will merely fall out on the open side of the magazine support.

20. To Adjust the Rear Sight.

a. The elevating clicks on the Johnson rear sight are in minutes of angle. One click gives one minute of elevation. Thus, to move nine inches at 300 yards, it is necessary to move three minutes of angle or three clicks on the Johnson elevating screw.

b. Range marks will be found on the sight frame. The center line etched on the rearsight aperture block is made there by the factory tester and represents adjustment of the sight for 100 yards. Thus, with the 100 yard line touching the reference line on the block, the center of impact is substantially

correct for 100 yards. The sight is calibrated in yards. 25.
Some variation may be encountered in changing barrels.

c. As a general rule, personnel may be instructed that a range change of 100 yards between any range from 0 up to 600 yards inclusive can be obtained roughly by moving the Johnson elevating screw four clicks, or four minutes of angle which is approximately the amount of elevating change between each range from 300 to 500 inclusive, and three clicks from 100 to 300 yards.

c.. The movable aperture block should be used for fine adjustments and for sighting at all ranges over 300 yards. The movable aperture block is used with the rear sight in the vertical position. The combat aperture, at the top of the sight, is used with the sight flipped forward at an angle. This is a battle sight giving battle accuracy at all ranges from 0 up to 225-275 yards. It is not adjustable.

e. The windage adjustment, is also in one minute clicks, or one click makes one minute change. Thus one click of windage makes a three inch change at 300 yards. For example, at 600 yards to move the center of impact thirty inches requires five clicks of windage.

21. To Adjust the Monopod.

a. An adjustable monopod is a standard feature of the Model 1944 E-1 Johnson Light Machine Gun.

b. The monopod consists of a spring-operated pivot assembly lock and monopod lug at the fore end of the receiver, a Micarta tube fitting to it, and a pierced metal foot riveted to the Micarta tube by another spring-operated pivot assembly.

c. In normal firing positions for use as a rifle, the monopod is folded backward so that the Micarta tube and metal foot form a normal forestock for the gun.

d. To use the monopod as a support pull the Micarta tube down until it locks automatically in the vertical position. Then adjust the foot at right angles to it and this will also lock in position. This position of the monopod gives normal height of the gun for prone firing. The gun can be used in any rifle position with the monopod so arranged by grasping the Micarta tube as a forestock would be grasped. The monopod can also be positioned with its foot downward with the tube either forward horizontally or rearward horizontally in relation to the receiver. This gives a very steady support in a lower position in relation to the line of sight for use on uneven ground, barricades, windows, and so forth. A carrying position of the monopod can also be utilized with the Micarta tube in the forward position and the monopod foot folded up around the barrel instead of downwards in the support position. For extreme

reason that if the bolt should be half-closed or half-open with the change lever in the automatic position, the bolt might be accidentally or inadvertently released, and if a cartridge were in the chamber or in the magazine, the gun would go off when the bolt locked. The operator must be especially careful to take note of the position of the change lever, and make certain that it is in the safe or vertical position when any manipulation is to be accomplished. Since the bolt may be manipulated if the hammer is cocked with the change lever locked on "safe", that is, with the change lever in a vertical position, this practice should be strictly followed at all times. If the hammer is not cocked, cock it by retracting and releasing the bolt with the lever on "semi", then set the lever on "safe" for further manipulation. NEVER CAR THE GUN WITH A ROUND CHAMBERED IN THE BARREL WITH THE CHANGE LEVER ON AUTOMATIC!

WARNING

If the gun has been firing considerably on automatic, the barrel may be very hot, and it is therefore very dangerous to leave a cartridge in the chamber for any length of time after firing is suspended. The safety will have no control over the action of a cartridge left in a hot chamber, as the cartridge may explode due to the heat. For this reason it is especially desirable to have the bolt open with the safety set in the locked position during an interval when firing is suspended following a considerable amount of intensive automatic fire. Sustained semi-automatic fire under any normal conditions will not be sufficient to cause accidental discharge of a chambered round due to heat in the barrel.

17. To Unload the Magazine when Detached from the Gun.
 - a. Press down the top cartridge in the magazine with the fingers of one hand, and with the fingers of the other hand, or with the point of a cartridge, press the cartridge retainer away from the mouth of the magazine, thus permitting the pressure of the magazine spring to push the cartridges out of the magazine into the hand.

18. To Change One or More Rounds of One Type of Ammunition to Another while the Magazine is in the Gun (i.e., ball to tracer, ball to armor piercing, etc.)
 - a. With the fingers of the left hand, depress the magazine support cover slightly while holding the right hand next to the aperture so as to catch one or more rounds as they are expelled from the magazine loading aperture. This process may be described as "milking" the cover. In this fashion one or more rounds may be removed from the magazine.

NOTE: This is best done with the bolt closed at semi-automatic fire.

- b. The rounds which it is desired to replace may then be inserted into the magazine past the magazine support cover by clips or single rounds, as described in Paragraphs 8 and 9 above.

height the Micarta tube can be set in the vertical position and the supporting foot also left in a vertical position. This will raise the gun somewhat above its position with the foot horizontal as the gun will rest on the bottom edge of the foot. This is also useful on uneven ground.

22. To Maintain Automatic Fire.

a. Automatic fire may best be maintained when the gun is operated by one man in the prone position by adopting the following procedure:

1. Place as many loaded magazines as are available on the left side of the gun adjacent to the magazine support. The magazines should be placed on their right side with the aperture of the magazine pointing toward the gun.
2. The operator should assume the proper position for firing, and the gun should be cocked with the bolt open, change lever in the locked position.
3. The operator then throws the change lever to "full-automatic" and fires the contents of the 20-shot magazine. When the last round has been fired the bolt will remain in the closed position.
4. The operator will then grasp the operating handle with the right hand and draw back the bolt, at the same moment grasping the empty magazine and magazine release lever with the left hand as described in Paragraph 15 in preparation for removing it. As the gun will normally be fired from prone position for this type of fire, and with the monopod as support, the operator can actually release both hands for this purpose.
5. The operator will then remove the empty magazine with the left hand while the right hand returns to the grip.
6. With the left hand the operator picks up a loaded magazine and inserts it into the gun as described in Paragraph 8. This movement should be executed smartly and if desired the operator may use the right hand to thrust against the right side of the receiver to offset the pressure of insertion of the magazine so as not to derange the laying of the gun.
7. The operator then returns the hands to the normal position, that is, the right hand on the grip with the finger on the trigger, and the left hand holding the butt stock from the under side of the butt if the monopod is used, or supporting the forestock if it is folded. Firing

is then resumed until the magazine is empty. (It has been found possible for an operator unassisted to fire over 150 shots per minute by following the above procedure.)

b. When the gun is to be fired by a two-man crew, the recommended procedure for maintaining fire is as follows:

1. The operator assumes the normal firing position, and the assistant takes a position on the left side of the gun near the magazine support.
2. When the gun is empty, the operator cocks the piece with the right hand while supporting the gun with the left hand to offset the pressure of exchanging magazines which might upset the laying of the piece.
3. The assistant, at the moment when the gun is empty, steadies the magazine support with the right hand while removing the magazine with the left hand in the prescribed manner, as indicated above in Paragraph 15.
4. The assistant then inserts a loaded magazine with the left hand while steadying the magazine support with the right hand, and the gunner continues the fire. (By following the above procedure over 300 rounds have been delivered per minute with this gun.) A modification of the above procedure consists of having the operator or gunner remove the empty magazine with his left hand while cocking the gun with his right, thereby permitting the assistant to concentrate entirely on inserting the loaded magazine. The factory record is 14 seconds for 100 rounds, 33 seconds for 200 rounds.

23. Recommended Positions for Automatic Fire.

a. Considerable firing experience with the Johnson gun indicates that the following positions are most efficient for firing this piece:

1. Firing from the standing or offhand position:

The operator should specifically remember always to lean forward in firing this gun automatically from the shoulder in the standing position. The operator should place the body so that the left shoulder points toward the target. The operator should not stand facing or partly facing the target for this type of fire. The gun should be grasped in the normal manner but with the legs spread apart, so that the right leg is at an angle of nearly 45 degrees to the ground, and this leg should be straight. The left leg should be bent and most of the weight of the body should be supported by the left leg. The left foot should be at right angles to the gun. The

operator should learn to lean forward and let the weight of the body offset the tendency of the gun to push the body back. While the gun does not climb if held properly, it nevertheless pushes in a series of successive thrusts when firing full-automatically. Strength is not required but merely balance to accomplish this type of fire. The control of the gun for the purpose of directing the bursts can be accomplished chiefly by the left hand which does not need to exert great force to hold the gun down. Persons firing the gun in this manner are urged to follow these instructions and not to fire the gun the way they are accustomed to fire a rifle. Failure to obey these instructions will result in very poor control, if not in actual danger to persons adjacent to the operator. If the body is inclined forward as prescribed above, no difficulty will be encountered.

b. If the gun is to be fired from the prone position with the monopod extended or folded, or with the forestock resting on the ground or some natural feature, the operator should actually lie in a position normally prescribed for a repeating rifle. The body should be at an angle of at least 45 to 60 degrees to the axis of the gun. Attention is called to the fact that the weight of the 20-shot magazine on the left of the Johnson gun tends to cause the gun to traverse slightly to the left when it is fired from the prone position with monopod. Therefore, this tendency can be neutralized by lying at an angle of 45 to 60 degrees to the gun. By assuming this position, it has been found that very accurate bursts can be delivered. If the operator desires to get more or less of an automatic traverse from right to left, the operator may lie straight behind or slightly off center with reference to the gun, in which case the gun will traverse from right to left. If the operator chooses to lie at an angle of 70 degrees to the axis of the gun, this will cause the gun to traverse slightly to the right. The left hand should be used to support the butt stock. It may be placed near the butt plate assembly on the lower tube. Both elbows should rest evenly and securely on the ground so as to form a natural support for the rear of the gun, resulting in the distribution of support on the monopod and the two elbows. If the gun tends to traverse to the left, pressure on the butt stock from right to left can be increased or the angle of the body to the axis of the gun increased. Additional pressure downward may be obtained by pressing the cheek downward on the top of the stock.

24. Use of Cleaning Kit.

a. A cleaning kit and oil can is provided in the lower tube of the butt stock group. To obtain this for use in the field, press down with the point of a loaded cartridge on the latch of the hinged butt plate which is directly below the rear sling swivel. The plate will then turn upward on the

hinge at the top exposing the ends of the butt tubes. Tip the gun muzzle upward and allow the cleaning kit to slide out into the hand. This kit consists of an oil container and a three-section jointed cleaning rod. The three-section cleaning rod screws together and screws into the body of the oil container which forms a handle for it. The rod is slotted for a standard patch and threaded at the end for a cleaning brush. As the barrel of the gun is very readily disassembled, cleaning should always be from the breech with the barrel disassembled. The rod can also be used from the muzzle to drive out a stuck case when faulty or very dirty ammunition has been introduced into the gun.

CAUTION: When using patches always use either standard .30 caliber patches or cloth cut to the approximate size of the standard patch. Larger pieces of cloth will jam in the barrel and make removal very difficult especially under field conditions.

If it is necessary to pull out a rod with a jammed patch, always pull straight out and do not tip the rod to one side. If two persons are available to pull, do not have one man hold the barrel with both hands and the other the rod with both hands. Each should put one hand on the barrel and one hand on the rod, facing each other with their hands crossed, then exert a steady pressure to draw the two pieces apart. Much more force can be exerted in this fashion and there is much less likelihood of breaking or bending a rod in a barrel.

The oil container is provided with a dropper attached to the screw cap in the form of a quill shaped tube, or in an emergency oil can be poured direct from the container. In many cases a dirty or very foul gun can be kept firing by the application of a little oil when it would otherwise cease to function. In extreme cases with a worn-out barrel and excessive dirt conditions it is sometimes possible to maintain fire by oiling even the chamber and the cartridges, although this is cautioned against under anything except emergency conditions. If firing is conducted in a heavy rainstorm, frequent oiling of the action and breech without disassembly is advisable. So also if the gun has been exposed to sand or dirt.

SECTION V

FUNCTIONING

See Folding Plate (Fig. 4)

Action During Recoil, Semi-Automatic	Par. 25
Action During Counter Recoil, Semi-Automatic	Par. 26
Action During Forward Stroke, Automatic	Par. 27
Action During Recoil, Automatic	Par. 28
Action of the Bolt Lock	Par. 29
Action of the Change Lever, Sear, and Bolt Catch	Par. 30

25. Action During Recoil, Semi-Automatic.

a. When the gun is loaded as described in Section 4, the hammer spring has been compressed and the sear is engaged in the lip of the hammer, holding it in the cocked position. The bolt is closed and locked on a chambered cartridge.

b. Ignition. When the trigger is pressed, the sear disengages from the lip of the hammer. The hammer spring drives the hammer against the firing pin which is protruding slightly from the rear of the locking cam, the firing pin moves forward from the blow and explodes the primer of the cartridge.

NOTE: Because the firing pin is held by the firing pin stop within the locking cam, it is impossible for the firing pin to move forward to come in contact with the primer of the cartridge until the bolt has rotated to the locked position. The gun cannot be discharged until the bolt is locked.

c. Recoil and Unlocking. As the bullet travels through the bore, the barrel, which has been held in the forward position by the tension of the barrel recoil spring and the mainspring (transmitted through the bolt) begins to recoil with the bolt against the tension of the springs. This recoil does not become apparent until the bullet has left the muzzle.

The recoil action is assisted in the 1944 E-1 Model by the gas-assist assembly which replaces the barrel guide collar of the earlier models. The barrel is pierced 8 inches from the breech with a gas-port .045 inches in diameter. It is fitted with a guide collar piston taking the place of the original guide collar, which is also pierced with a gas-port in continuation of the port in the barrel. Thus, the port is a continuous one from the inside of the barrel to the outside forward end of the guide collar piston. The port slopes toward the muzzle and is on the

underside of the barrel and piston. The piston is surrounded, when the barrel is assembled to the gun, by the guide collar cylinder. The guide collar cylinder slides on the barrel and guide collar piston. It positions the barrel and guide collar piston in the radiator sleeve. Its flanged forward surface, by contact with the barrel latch, retains the barrel assembly in the gun.

After the bullet passes the gas-port a spurt of gas drives through the port in the barrel and piston. The pressure of this gas, rearwardly on the front end of the guide collar piston and forward on the inside of the guide collar cylinder, forces the barrel to the rear, assisting materially the normal recoil action.

When the bullet is at the muzzle, the barrel and bolt have moved rearward about $1/64$ th of an inch. When the bullet is about 2 feet from the muzzle, the barrel and bolt have recoiled about $1/8$ th of an inch. At this point the camming arm on the bolt engages the camming face in the receiver and unlocking begins. When the bullet is about 4 feet from the muzzle, the barrel has recoiled its full $1/2$ of an inch and the bolt has been rotated through 20 degrees to the unlocked position by the action of the camming arm against the camming face. The rearward motion of the barrel is arrested by a shoulder in the receiver, after being slowed down by the cushioning effect of the buffer spring. The barrel is returned to its forward position by the barrel return and buffer springs.

d. Extracting. The bolt, being unlocked from the barrel, continues its rearward motion and jumps away from the chamber actuated by momentum and the residual pressure in the chamber. The extractor claw engaged in the cannellure of the cartridge case gives the empty case a sharp pull, effectively loosening it in the chamber. At the same moment the bolt receives a sharp blow from the locking cam, which, due to the impetus received during the rotation of the bolt, taps the bolt rearward, aiding extraction.

NOTE: There is enough residual pressure in the chamber to give appreciable assistance to extraction by blowing the loosened case from the chamber.

e. Retracting. The initial impetus given to the bolt by the barrel recoil and the force of residual pressure causes the bolt to be forced back in its channel in the receiver, drawing the cartridge case from the chamber, cocking the hammer, and compressing the mainspring.

f. Ejecting. Further movement of the bolt traveling to the rear in the receiver brings the base of the empty case in contact with the ejector, which throws the case clear of the receiver through the ejection port at an angle of 45 degrees. The bolt is finally halted in its rearward travel by contact of the buffer against the buffer stop.

By this time, the head of the bolt has passed behind the base of the cartridge in the feed lips, which is forced up in front of it by the pressure of the magazine follower actuated by the magazine follower spring, and the angle of the magazine support cover ramp.

26. Action During Counter Recoil.

a. As the bolt moves forward, actuated by the compressed mainspring, the lower part of the face of the bolt comes in contact with the base of the cartridge in the feed lips and carries it into the chamber. The locking lugs enter the barrel locking bushing and the locking cam causes the bolt to rotate through 20 degrees to the locked position, where it is held by the bolt lock.

b. The hammer, which has been cocked by the rearward motion of the bolt group, is held cocked by the sear as the bolt group goes forward again. Due to the design of the sear, the trigger must be positively released before another shot can be fired.

c. The gun is then ready to be fired again and the cycle described above is repeated each time the trigger is pressed until the magazine has been emptied. When the last round has been fired, the bolt closes after ejecting the empty case and remains closed.

27. Action During Forward Stroke, Automatic Fire.

a. In the automatic fire, the gun is cocked with the bolt open, and the trigger controls the bolt catch instead of the sear. The gun is loaded as described above.

b. When the trigger is pressed, the bolt catch is depressed disengaging the bolt, which moves forward, as described in Paragraph 26. As the bolt closes to the locked position, the sear trip plunger on the locking cam hits the sear trip, releasing the forward lip of the hammer from the forward lip of the sear. The hammer rides momentarily on the hammer platforms in the locking cam until the bolt is locked, where the hammer is released. The hammer, as in Paragraph 25 b, hits the firing pin, exploding the primer and firing the cartridge.

28. Action During Recoil, Automatic Fire.

a. This action is the same as that in semi-automatic fire described above. The gun continues to fire until the trigger is released, when the bolt remains open, engaged by the bolt catch, or until the gun is empty, when the bolt remains closed.

29. Action of the Bolt Lock.

a. At the moment of locking, the bolt tends to rebound

slightly, as does the locking cam. To insure reliable ignition in automatic fire, the bolt lock is provided to eliminate bolt rebound. The bolt lock is a spring actuated stud passing through a hole in the receiver and locking into the ejector slot as the bolt turns to its fully locked position. This prevents the bolt from turning towards its unlocked position until it has been withdrawn, or driven to the rear to disengage the lock from the ejector slot. The rebound of the locking cam assembly is prevented by camming surfaces on the left side of the firing pin stop and the left rear of the locking cam slot in the bolt.

30. Action of the Change Lever, Sear, and Bolt Catch.

a. When the change lever is set for semi-automatic fire, the bolt catch is depressed, the sear trip is depressed, and the sear is actuated by the trigger. Thus, when the trigger is pressed, the sear is rocked, releasing the hammer.

b. When the change lever is set for automatic fire the sear is disconnected from the trigger, the bolt catch is actuated by the trigger, and the sear is actuated by the sear trip. Thus, when the trigger is pressed, the bolt catch releases the bolt, which closes. The sear trip plunger on the locking cam actuates the sear trip as the bolt locks. The hammer, thus released, is controlled by the platform lugs in the locking cam until the bolt is locked, when the hammer is released, striking the firing pin.

c. When the change lever is set in the safe or locked position, the trigger cannot be pulled, and the sear and bolt catch are locked, preventing either type of fire.

SECTION VI.

DISASSEMBLING AND ASSEMBLING

General Information

Field Stripping

Dismounting the Barrel Group

Removing the Hammer Housing and Butt Group

Removing the Bolt and Locking Cam Group

Disassembling the Bolt and Locking Cam Group

Removing the Magazine Support and Magazine Group

Disassembling the Mainspring

Removal and Replacement of the Extractor in the Field

Removal and Replacement of the Barrel in the Field

Reassembly from Field Stripping

Complete Stripping of the Bolt and Locking Cam Group

Complete Stripping of the Hammer Housing and Butt Groups

Complete Stripping of the Magazine

Complete Stripping of the Magazine Support

Disassembling of the Receiver Group

Removal and Disassembling of the Rear Sight

Removal of Barrel Return Assembly

Assembling

31. General Information. The Johnson Light Machine Gun can be stripped to its main component parts with no tools other than the point of a bullet or the point of the firing pin. A driver and any pointed instrument such as a punch, or even a nail, may be used. These simple and readily available tools are sufficient for all disassembly required by the operator in the field or barracks, either for cleaning, for remedying stoppage or for replacing worn or broken parts.

The only disassembling normally required by the operator consists of removing the barrel for cleaning after firing, and occasionally removing the butt stock, mainspring, and the bolt group for cleaning and oiling prior to inspections, etc. Stripping beyond the indicated procedure should not be permitted except in the hands of a skilled armorer, and no useful purpose is served in attempting to disassemble permanently assembled components.

BEFORE BEGINNING TO DISASSEMBLE THE GUN, REMOVE THE MAGAZINE AND MAKE SURE THAT THE CHAMBER IS EMPTY.

32. Field Stripping. Every soldier should be instructed in field stripping of the gun. Total stripping and disassembling by the average soldier will normally be unnecessary and serve no useful purpose. The following components are included in field stripping:

1. Removal of the barrel group
2. Removal of the hammer housing and butt group and removal of mainspring assembly
3. Removal and disassembly of the bolt and locking cam group
4. Removal of the magazine support and magazine group

The removal and replacement of the extractor and of the barrel without the disassembly of any other components may also be included under field stripping. Detailed directions for field stripping will be found in Paragraphs 32, 33, 34, 35, 36, 37, 38, and 39, 40, 41.

33. Dismounting the Barrel Group.

a. Grasp the gun with the left hand and with the change lever on safe and the hammer cocked, draw back the bolt until it catches open. Insert the point of a bullet round between the under side of the barrel and the top of the barrel latch. Using the cartridge as a lever push down the barrel latch until the detent balls engage in the detent recesses. This will hold the barrel latch out of engagement and allow the barrel to be withdrawn. If it is desired to lock the barrel latch permanently in its down position, press it down until its top is below the level of the monopod mounting lug and push the forward sling swivel either to the right or the left until it engages the barrel latch and holds it in this position. The barrel will now move forward slightly under pressure from the return spring.

b. Withdraw the barrel from the receiver. NOTE: Before dismounting the barrel, the bolt should always be withdrawn to the rear position and the change lever set in the safe or locked position. If the bolt is in the closed and locked position, the barrel will not be able to move forward when the latch is released as it will be locked to the bolt.

c. Although the barrel guide cylinder is loose on the barrel and free to travel between the barrel guide piston and the front sight, the barrel assembly should not be taken apart in the field. Its component parts are fitted and gauged with precision at the factory. Therefore, the assembly must be considered as a unit. It must be replaced complete when it is worn out or damaged sufficiently to impair the operation or accuracy of the gun.

34. Removing the Butt and Hammer Housing Group.

a. Take hold of the bolt handle with the left hand and turn the change lever to the semi-automatic position, lowering the bolt to its closed position when it is released from the bolt catch. Do not allow the bolt to slam home.

- 3
- b. Grasp the gun with the right hand on the receiver and the left hand below the butt stock and hammer housing, at the rear of the pistol grip, with the left thumb pressing on the lock plunger on the left side of the hammer housing. Press the lock plunger from left to right with the left thumb and at the same time withdraw the butt and hammer housing group smartly to the rear from the receiver.
 - c. This operation discloses the mainspring which will remain attached to the butt and hammer group by its engagement with the buffer stop assembly.

NOTE: Do not try to remove the butt and hammer group unless the hammer is cocked. In assembling the butt and hammer group, the hammer should be cocked as well.

35. Removing the Bolt and Locking Cam Group.

- a. In order to remove the bolt and locking cam group, it is first necessary to remove the butt and hammer group.
- b. Open the bolt to the half open position.
- c. Place the left thumb behind the operating handle and the left forefinger on the bolt face. Then insert the point of a bullet in the under side of the operating handle and draw the operating handle plunger outwards. Then, with the left thumb, slide the operating handle forward until it is clear of the shoulder in the extractor recess and remove it. Lift out the extractor.

NOTE: The operating handle should be regarded as a single part. It is not disassembleable and should be replaced complete in case of breakage.

- d. Now withdraw the bolt and locking cam from the rear of the receiver.

36. Disassembling the Bolt and Locking Cam Group.

- a. To complete the disassembling of the bolt and locking cam group in field stripping, or in order to disassemble the firing pin, rotate the locking cam or rear section of the bolt and locking cam group slightly to the left, and withdraw it from the rear end of the bolt.
- b. The firing pin is removed from the locking cam unit by raising the firing pin stop on its pivot so that it clears the retaining shoulder in the firing pin. Then withdraw the firing pin from the locking cam unit to the front.

37. Removing the Magazine Support and Magazine Group.

- a. The magazine should be removed from the magazine support before beginning to strip the gun.

37.
b. The removal of the magazine support is accomplished by grasping the support with the right hand, pressing the magazine support cover downward as far as it will go with the thumb of the right hand, drawing the support slightly to the rear so as to disengage its forward lug, and pulling it downward and away from the receiver.

38. Disassembling the Mainspring.

a. If it is necessary to clean the mainspring and mainspring tube of grease or dirt, the mainspring is readily removable from the butt stock unit. Open the butt plate by releasing the catch with the point of a bullet. This discloses the buffer stop and its lock pin which passes through the side of the butt plate bracket. Push out the lock pin from left to right as far as it will go, starting it with the point of a bullet, and withdraw the mainspring and buffer stop to the rear from the mainspring tube. This clears the tube and mainspring for cleaning. It is not necessary to disassemble the mainspring from the buffer stop.

NOTE: The buffer stop lock pin is held from falling completely out by a retainer in the butt plate bracket and will remain just far enough out to clear its engagement with the buffer stop.

39. Removal and Replacement of the Operating Handle-Extractor Unit in the Field.

a. The extractor may be removed and replaced without the disassembling of any part other than the operating handle which retains the extractor.

b. This operation may be accomplished in several ways.

One procedure is as follows:

1. Hold the bolt part way open, or cock the bolt in the open position with the change lever in the safe or locked position.
2. Pull out the operating handle plunger as described in paragraph 35, and remove the operating handle.
3. Lift out the extractor, and replace it with another extractor.
4. Slide the operating handle back onto the bolt. If the bolt is in the open position, it will be necessary to use both hands in order to hold the plunger outward with the point of a bullet, so as to engage the operating handle base in its slot in the bolt. If the bolt is held in the half-open position this is not necessary.

To hold the bolt in the half-open position it

is recommended that the point of a cartridge be used.

c. Another method consists of partially sliding off the butt and hammer group so as to release the tension of the mainspring. This procedure, however, is not necessary after the operator has practiced this stripping several times.

40. Removal and Replacement of the Barrel in the Field.

a. The operation of changing a hot barrel for a cool one in the field may be desired in the event that the gun is used for prolonged or sustained automatic fire. An asbestomitt or similar accessory is sometimes provided to facilitate this operation but it can be done with no protection for the hands.

b. This operation should be accomplished when the magazine has been removed from the gun in firing and prior to the insertion of a fresh magazine. The operator should cock the gun with the bolt open and preferably set the change lever in the safe or locked position. The barrel will then be removed as described in paragraph 33, and a new or cool barrel is assembled by pushing the barrel into the radiator sleeve and releasing the barrel latch. If no protection for the hand is available, the hot barrel can be drawn from the radiator sleeve by hooking a loaded cartridge into the front sight and drawing it out or pushing with a loaded cartridge on the backside of the barrel-guide piston until the barrel is pushed out of the radiator sleeve. If it can be done in a standing position, the barrel of course can be merely dropped out by upending the gun.

NOTE I: The Barrel latch is beveled on its front surface to permit ready insertion of the barrel and pressure on the front of the barrel guide cylinder will seat the gas-assist assembly home and allow the barrel latch to spring into the locked position even if it is not held down by the detents.

NOTE II: This completes the field stripping of the Johnson Light Machine Gun. It can be accomplished in a very short time and should be taught to every operator of the gun.

No further stripping should be necessary in the course of normal field use and cleaning, or to replace broken parts in the field. Experienced gunners may, however, be instructed under paragraphs 43, 44, and 48.

Directions for further disassembly follow, but such complete stripping should normally be done only by a trained armorer. Experienced gunners following paragraphs 43, 44, and 48, should undertake such stripping only in barracks.

41. Reassembly from Field Stripping.

a. Normal reassembly order is as follows: replace the firing pin in the locking cam and see that the firing pin stop engages the firing pin retaining shoulder.

b. Insert the locking cam and firing pin in the bolt and slide the unit into the receiver. Replace the extractor and operating handle in their slot in the bolt. If the mainspring has been removed from the butt stock assembly, replace it and close the butt plate. The closed butt plate will hold the buffer stop retaining pin in position. Replace the magazine support. Engage the channels of the hammer housing in the grooves of the receiver, lining up the mainspring around the rear end of the locking cam and slide the hammer housing and butt stock unit smartly home. Hold the rear of the magazine support snugly in place as the butt and hammer unit is seated.

NOTE: It is not necessary to press in on the lock plunger while this is done, as the lock plunger snaps into place as the units come together.

Insert the barrel in the radiator sleeve, preferably with the barrel latch locked in its downward position or held by the detents. Seat both the barrel and the barrel guide cylinder until the barrel guide cylinder flange is flush against the front of the radiator sleeve. Then release the barrel latch to hold it in place. Make sure the latch is fully up.

42. Complete Stripping of the Bolt and Locking Cam Group.

To remove the trip plunger from the locking cam, compress the trip plunger spring by inserting the tail of the extractor or a screwdriver in the recess between the upper rear end of the hammer slot in the locking cam and the trip plunger retainer. Slide the trip plunger retainer off the locking cam to the rear and lift out the trip plunger and trip plunger spring.

43. Complete Stripping of the Butt and Hammer Housing Group.

(If the gun is fully assembled, start with a.; if the stock group has already been removed, start with d.)

a. To remove the hammer housing and butt group from the assembled gun, the piece should be cocked with the bolt closed, the change lever set for semi-automatic fire.

b. Press the lock plunger with the thumb of the left hand, holding the receiver in the right hand and with the left hand grasping the butt and hammer housing group, withdraw it smartly to the rear.

- c. With the point of a cartridge unlatch the butt plate assembly, push out the buffer stop lock pin from left to right and remove the mainspring assembly.
- d. While holding the hammer, pull the trigger, and allow the hammer to come to the fired position, thus relieving the tension of the hammer spring.
- e. Disengage the pin retainer (on the left side of the hammer block) from its recess, and turn it out of the way of the heads of the pins.
- f. To remove the hammer assembly, push out the hammer retaining pin from right to left, and remove the hammer assembly. To disassemble the hammer assembly, remove the hammer spring from the hammer strut, and remove the strut from the hammer by driving out the hammer strut pin.

NOTE: The hammer strut pin is a riveted pin. Unless one of the parts of this assembly is broken or worn out, it should not be taken apart.

- g. To remove the bolt catch, push out the bolt catch hinge pin and lift out the bolt catch.
- h. To remove the sear and trigger group, push out the trigger pin, and lift out the sear assembly, sear trip, trigger, and trigger pin bushing and bolt catch control, which comprise the above group.
- i. To separate the trigger from the sear assembly and sear trip, push out the trigger pin bushing, which, with the bolt catch control attached to it, forms the bolt catch control assembly.
- j. To disengage the sear assembly and sear trip, drive out the sear trip pin. The sear assembly should not be disassembled but should be regarded as a unit.
- k. Draw the change lever retainer rearwards from the back of the bolt catch support with the point of a bulletted round or pin, and pull the change lever out from the right side of the hammer housing.
- l. Slide the bolt catch support forward and lift it out of the hammer housing. The change lever retainer is held in place in the bolt catch support by a riveted pin. It should not be removed except to replace broken parts.
- m. Lift out the bolt catch spring.
- n. To remove the sear-trigger spring, push out the sear-trigger spring retaining pin from right to left from the hammer housing and lift out the sear-trigger spring.

NOTE: Replacing the sear-trigger spring should be done in the following manner. First, replace the spring with its closed loop downward and toward the rear, and insert the retaining pin in its proper position. Then replace the sear-trigger unit without attempting to engage the spring. Set the change lever on safe and with the point of a bullet hook the spring arms separately under the trigger and the sear trip.

- a. To remove the hammer housing lock plunger, push it to its extreme right hand position and while holding it there unscrew the retaining screw with a small screwdriver and remove the screw and spring. Then remove the plunger from the left side of the hammer housing.

44. Complete Stripping of the Magazine.

- a. With the point of a bullet round inserted in the hole in the rear end of the magazine floor plate at the bottom of the magazine, raise up and push off the magazine floor plate from its slots in the magazine.
- b. Remove the magazine spring from the bottom of the magazine body. The magazine follower is attached to the spring and is removed with it.
- c. The cartridge and magazine retainer is retained by a rivet. Normally this should not be removed.

45. Complete Stripping of the Magazine Support.

- a. Remove the cotter pin which retains the magazine release lever and remove the magazine latch lever and spring and pin.
- b. To remove the magazine support cover, drive out the magazine support cover hinge pin and lift out the cover.
- c. To remove the magazine support cover spring, depress the spring and force it off of its socket in the magazine support.

46. Disassembling the Receiver Group.

(Assuming that the mainspring, hammer housing and butt group bolt and locking cam group, and magazine support have already been removed.)

NOTE: The receiver sleeve is held together and in proper alignment by the lug permanently riveted in position along the base of the sleeve. If the replacement of the lug becomes necessary, it should be replaced only by a skilled armorer equipped with the proper sizing gauges to assure true and correct internal dimensions of the sleeve. Otherwise the recoil action of the barrel will be interfered with.

- a. Push out the ejector pin upwards from below and lift

out the ejector.

b. With the point of a bulletted round or other pointed instrument, lift up the forward end of the bolt lock until its knob is released from the hole through the receiver which it normally occupies. Then slide the bolt lock rearwards from its groove in the receiver until it can be lifted out.

47. Removal and Disassembling of the Rear Sight.

a. To remove the aperture block and elevating stem, drive out the combat aperture retaining rivet and lift out the combat aperture. Then turn the knob until the stem is free, and lift it from the sight. Remove the knob to the front or rear. The detent bearings and springs should be removed from the knob to avoid losing them.

b. To remove the windage knob, drive out the windage knob retaining pins, and take off the windage knob to the left of the sight. Remove the detent balls and springs.

c. Drive out the rear sight frame retaining pin releasing the frame from the windage screw. Withdraw the windage screw from left to right. The sight frame will now be free of the base and will be forced out of it by the tension spring. Lift out the tension spring.

NOTE: The detent bearings and springs in the windage knob should be removed carefully to avoid losing them.

48. Removal of Barrel Return and Buffer Spring Assembly.

The barrel return and buffer spring assembly is contained in a housing below the radiator sleeve. The housing is hinged at its forward end and retained by a catch at the rear. To remove it, release the catch, swing the housing downward on its hinge and lift out the barrel return and buffer spring assembly.

NOTE: In replacing the assembly, be sure that the barrel return spring washer is positioned in front of the barrel return spring stop.

NOTE II: This assembly is a riveted assembly and should not be disassembled except by an armorer.

49. Assembling.

a. This may be accomplished by referring to the preceding paragraphs, following the directions as contained in reverse order.

NOTE: Should breakage of any of the readily removable parts occur, they can be replaced in the field by following the instructions for disassembling and assembling. Other replacements and repairs should be made only at a properly equipped repair depot or armory.

SECTION VII

CARE AND CLEANING

General	Par. 50
Cleaning the Barrel	Par. 51
Cleaning the Mechanism	Par. 52
Lubrication	Par. 53
Use of the Field Cleaning Kit	Par. 54
Care after Extensive Service	Par. 55
Directions for Service in Sub-Zero Climates	Par. 56

50. General.

The Johnson Light Machine Gun is in one aspect an unusually lightweight, efficient machine. While it is true that this weapon can, will, and has continued to operate reliably under the most adverse conditions, the operator cannot be excused who fails to keep his weapon clean, properly oiled, and free from rust. Proper care will not only prolong the serviceable life of the gun but will doubly insure its performance in the field.

NOTE: Oil, grease, and solvents of a quality equal to U. S. War Department specifications are recommended for Johnson Light Machine Guns. Heavy base lubricants are not desirable.

51. Cleaning the Barrel.

As soon as practicable after firing, the barrel should be removed as described in Paragraph 33, and, using a cleaning rod or pull-through with proper-sized cleaning patches, be cleaned as follows:

- a. Wet patches or a brass brush with water or a prescribed powder solvent, and run them carefully up and down the entire length of the bore, always introducing the rod from the breech end of the barrel.

NOTE: As it takes less time to remove the barrel from a Johnson gun than it does to remove the bolt from the average bolt action rifle, there is no excuse for ever cleaning a barrel from the muzzle without removing it from the receiver.

- b. Run one or two dry patches through the bore.
- c. Inspect the bore for fouling, dirt, rust, etc.
- d. If the bore shows small lumps or smears, especially noticeable on the lands near the muzzle, which signifies metal fouling, repeat the process, using a brass brush wet with solvent, followed by patches.

e. After drying the bore, apply a patch soaked with a prescribed oil.

f. Special care must be given the chamber of the barrel, which should also be carefully rubbed with the wet, dry and oiled patches. If necessary, two patches may be inserted together on the rod in order to reach all parts of the chamber. It should be remembered that reliable functioning depends upon a smooth, clean chamber. Powder residue attacks the chamber as well as the bore of any weapon.

g. Wipe out the interior of the barrel locking bushing.

h. Slide the barrel guide collar cylinder down the barrel to clear the barrel guide collar piston and wipe both the interior and exterior of these parts thoroughly with a cloth soaked in powder solvent being sure that powder solvent from the barrel cleaning operation has also penetrated and cleaned the gas-port in the barrel and guide collar piston. Oil the gas-assist assembly after cleaning and leave it coated both inside and out with a light film of oil.

NOTE: Be sure that no cleaning patches have fallen off the rod and remain in the chamber or behind the barrel locking bushing.

i. Before firing, any excess oil in the bore should be removed by the passing of a dry patch through the bore.

j. If firing is not resumed the following day, the barrel should again be cleaned as above. If the gun is to be put away for any great length of time, grease should be used to protect the bore from rust.

CAUTION: Before firing, if possible, be sure to inspect the bore for obstructions such as dirt, cleaning rag, sand, etc.

NEVER FIRE ANY GUN WITH AN OBSTRUCTION IN THE BORE.

52. Cleaning the Mechanism.

Remove the butt and hammer housing group, bolt and locking cam group, and mainspring. Wipe off the parts, especially the bolt face, bolt body, interior of the receiver, and mainspring tube with an oily rag, and reassemble. The magazines and magazine support should be examined frequently, and dirt or rust removed. Sufficient oil to prevent rust should be kept on the barrel, return spring, magazine support cover spring, hammer spring, mainspring tube, and mainspring.

53. Lubrication.

Using a prescribed lubricating oil or light fluid grease, apply a reasonable amount of the lubricant to the locking

and unlocking cams, the bolt body, the hammer face, sear and hammer lips, cam channel and interior of the receiver and barrel bearings. This may be accomplished with an oil can when the gun is fully assembled. The hammer unit can be reached through the opening in the right side of the receiver. The mainspring tube should also be lubricated. It can be cleaned like the barrel by running a rod through it with a cloth around the tip.

54. Use of the Field Cleaning Kit.

The above care and lubrication can be conveniently accomplished with the field cleaning kit which is provided in the lower buttstock tube and is accessible by opening the butt plate assembly with the point of a cartridge. The field cleaning kit consists of a container and a three piece steel cleaning rod. The three piece rod is screwed together and the oil container forms a handle for the rod. The oil container is fitted with a screw plug which has a dropper tube attached to it for accurate placement of small quantities of oil. In an emergency oil can be poured directly from the container into the part which requires it.

55. Care after Extensive Service.

After extensive service such as exposure to water, mud, sand etc., disassemble all metal parts, wash them in gasoline, kerosene, etc., wipe dry, wipe with an oily rag, and reassemble. Guns which have been dropped in the water, especially salt water, are less likely to rust if so treated.

56. Directions for Service in Sub-Zero Climates.

If the gun is to be used in sub-zero climates, all parts should be wiped off so that no oil remains in the mechanism, and in general oil should not be used while in such climate unless it is of a suitable type, such as aircraft machine gun lubricating oil. This may be applied to a patch and wiped lightly on the operating cams. The firing pin and hammer mechanism must be absolutely dry, however.

57. Maintaining Function Under Severe Abuse.

Numerous abuse tests with sand, mud, water hose pouring into ejection port, etc., indicate that after such exposure functioning can almost invariably be restored by applying oil to the action, receiver, bolt, etc. through the open breech, using the oiler in the butt.

SECTION VIII

46.

STOPPAGES AND IMMEDIATE ACTION

General Note

Stoppages and Immediate Action

Par. 58

Par. 59

58. General Note:

To those familiar with the use of firearms, the close relation of immediate action and stoppages is well understood. The former is the unhesitating application of a probable remedy for a stoppage. The latter can be almost eliminated by an intimate knowledge of the gun and a clear understanding of their causes.

59. Stoppages and Immediate Action to Remedy Them.

NOTE: The Johnson Light Machine Gun is designed for shoulder firing. It may be fired, if necessary, from the hip or from a tripod mount.

a. Failure to fire, semi-automatic.

1. When the bolt is fully forward with the handle down, this may be from a defective primer. Reload with a fresh cartridge and pull the trigger again. If it does not go off, it may be a defective firing pin. Examine the firing pin and replace it if necessary. If the firing pin is in good condition, the hammer spring or hammer may be defective. Examine them and replace either or both if necessary. If the gun fails to fire with the bolt fully forward, but with the handle up, this is probably from a dirty gun and badly fouled chamber, or possibly a fouled barrel sleeve. The remedy is to clean or oil the gun and the chamber or sleeve. Temporary functioning can be secured in these two cases by manually rotating the bolt to the locked position. If this stoppage continues, the mainspring may be defective. Examine and replace it if necessary. If the gun fails to fire with the bolt not quite fully forward, and with the handle up, this indicates an obstruction in the chamber or in the bolt path. The remedy is to clean these points and remove the obstruction. If this is not the case, there may be an obstruction in the receiver sleeve which is preventing the return of the barrel to "battery" position. It will then be necessary to remove the barrel and clean out the obstruction. If the trigger is pulled when the bolt is closed but not fully locked, hitting the handle may cause the gun to fire. Preferably the handle should be pulled rearward. The hammer when released from the sear, rides on the locking cam platforms until the bolt is locked completely.

2. Failure to fire, automatic.

This may be due to failure of the trigger to operate the bolt catch, or failure of the bolt catch to release the bolt. Remedy: Remove and examine the hammer mechanism. This may be due to the failure of the bolt to close, due to failure to feed or an obstruction in the bolt path, or a weak mainspring, or a defective cartridge. If the bolt is closed but not locked, the sear has not been released by the sear trip, the bolt lock may have failed, or the bolt may be prevented from closing by a deformed cartridge or dirt in the chamber. Remedy: Examine these parts, clean or repair. The quickest remedy is to change at once to semi-automatic fire. Otherwise failure to fire may be due to causes outlined in Paragraph a.1.

b. Failure to extract.

With bolt forward and the handle down or up. This is probably a defective cartridge, in which case the cartridge should be extracted manually and the gun reloaded. Failure to extract may also be caused by sand or dirt in the chamber or on the ammunition. Extract the cartridge by operating the bolt manually, examine the chamber and clean, if necessary. Examine the ammunition and clean that if necessary.

NOTE: If rim of cartridge breaks, remove the barrel to facilitate the removal of the cartridge by hand with a rod.

Another cause of a failure to extract is a faulty extractor. Examine the extractor and replace it, if necessary. Failure to extract may also be caused by the barrel recoil being obstructed by foreign matter in the receiver sleeve. The remedy for this is to remove the barrel, clear the obstruction, and reassemble.

c. Failure to eject. (With the bolt forward and the handle down; empty case returned to chamber.)

This may be from a defective cartridge. Operate the bolt manually and reload with a fresh cartridge. Obstruction in the bolt path may also cause this stoppage. The remedy is to remove the bolt, clear the obstruction and reassemble. This stoppage may also occur if the gun is badly fouled with dirt, sand, etc. The remedy is to remove the bolt, clean it and replace it. A defective extractor or ejector may cause failure to eject. The remedy is to replace the extractor or ejector if necessary. Any of the above causes may also cause or produce a similar failure with the bolt partly forward, the empty case caught in chamber mouth, or in the barrel locking bushing or elsewhere in the receiver. In these cases the remedies are the same as when the bolt is all the way forward.

- d. Failure to reload. (With the bolt forward, the handle down and the chamber empty, or with bolt riding over base of cartridge case, bolt partly closed.)

If this is the case, replace the magazine. The stoppage may be caused by a defective magazine spring. Examine the spring and replace it if necessary. There may also be an obstruction in the follower path. Examine the magazine, clear the obstruction and, if necessary, remove the magazine and disassemble. If this failure occurs with the bolt part way forward (feed jam), it may be from a defective cartridge. Pull back the bolt handle, remove the jammed round and reload. It may also be caused by a defective follower spring, in which case the follower spring should be examined and replaced if necessary. A gun full of dirt will also cause this stoppage, in which case the action should be examined and cleaned, disassembling if necessary. If the stoppage continues, in a reasonably clean gun, it may be caused by a defective mainspring. Check the mainspring and replace it if necessary. A deformed cartridge will also cause a failure to reload. In this case the bolt handle should be operated manually and the cartridge discarded. Reload a fresh cartridge from the magazine.

- e. Failure to cock for automatic fire.

This is probably due to a defective bolt catch, broken bolt catch spring, or a defect or dirt in the change lever mechanism.

- f. Failure to stop firing, automatic.

This may be due to the causes indicated in Paragraph e. above. The immediate remedy is to throw the change lever forward to semi-automatic, or to pull off the magazine, or to depress the magazine loading cover. This will stop the gun.

- g. Failure to stop firing, semi-automatic.

This could in all probability only occur from a hot barrel causing preignition. (Example: gun has fired excessively, as in extended automatic fire, and is then put on semi-automatic. The immediate remedy is to throw the change lever rearward to full automatic or "safe". Otherwise remove the magazine or depress the loading cover.)

- h. Failure to close and fire on full automatic in abuse tests; remedy.

In extended abuse tests with sand, mud, etc., the mainspring may not push the bolt home far enough to lock and fire the piece. The immediate remedy is to shift to semi-automatic, close the bolt by hand, and fire. Action of the buffer usually causes the bolt to return to the locked position for the next shot. If in the field abuse conditions are extremely severe, as where sand is blowing in volume and with force into the open breech (cocked for automatic), close the bolt and rely on fast semi-automatic fire.

i. Rain.

The gun is entirely enclosed on top. Unless excessive water is poured with force into the right side (ejection port), average heavy rains will not cause stoppage. The gun should be carried normally, magazine horizontal.

A. Section of the Johnson Light Machine Gun Caliber .30 Model 1944 E-1 with the parts in position for Semi-Automatic firing, hammer cocked, chamber loaded.

B. Section of the action of the Johnson Light Machine Gun cocked for full automatic fire, bolt back, chamber clear. (Numbered parts have changed position.)

C. Section of the magazine of the Johnson Light Machine Gun in the magazine support in its normal position in relation to the receiver - shown with magazine and action fully loaded - capacity 25 shots.

- | | |
|------------------------------|---|
| 1. Butt plate | 39. Trigger |
| 2. Buffer stop | 40. Bolt catch control |
| 3. Mainspring tube | 41. Sear |
| 4. Mainspring | 42. Sear trip |
| 5. Buffer plunger | 43. Sear spring |
| 6. Rear sight rest | 44. Hammer housing |
| 7. Buffer spring | 45. Magazine support |
| 8. Trip plunger | 46. Cartridge positioned in the feed lips |
| 9. Receiver | 47. Barrel return housing catch |
| 10. Rear sight | 48. Barrel return and buffer springs |
| 11. Combat aperture | 49. Monopod foot |
| 12. Hammer | 50. Monopod tube |
| 13. Platform lug | 51. Monopod pivot |
| 14. Locking cam unit | 52. Monopod mounting lug |
| 15. Firing pin stop | 53. Front sling swivel |
| 16. Firing pin | 54. Barrel latch |
| 17. Firing pin spring | 55. Extractor |
| 18. Bolt | 56. Ejector |
| 19. Operating handle | 57. Cartridge entering cover ramp |
| 20. Locking bushing | 58. Magazine spring |
| 21. Receiver | 59. Magazine follower |
| 22. Cartridge in chamber | 60. Cartridges in magazine |
| 23. Barrel | 61. Magazine release lever |
| 24. Radiator sleeve | 62. Retainer spring ramp |
| 25. Gas-assist assembly | 63. Magazine retainer spring |
| 26. Front sight | 64. Cam channel |
| 27. Butt plate latch | 65. Magazine |
| 28. Rear sling swivel | 66. Magazine support guide lips |
| 29. Butt tubes | 67. Magazine support body |
| 30. Cleaning kit compartment | 68. Magazine support cover spring |
| 31. Hammer housing | 69. Magazine support cover |
| 32. Lock plunger | 70. Bolt lock |
| 33. Hammer strut | |
| 34. Bolt catch | |
| 35. Bolt catch support | |
| 36. Hammer spring | |
| 37. Pistol grip | |
| 38. Change lever | |

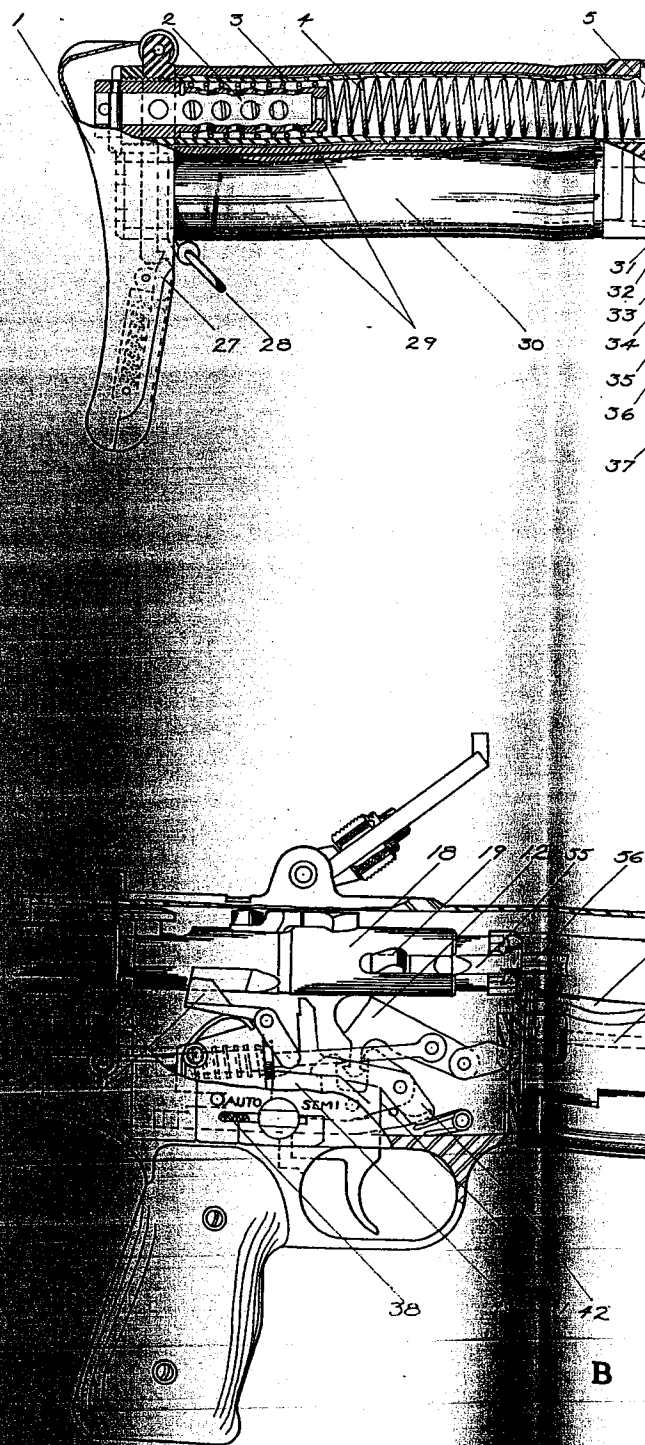
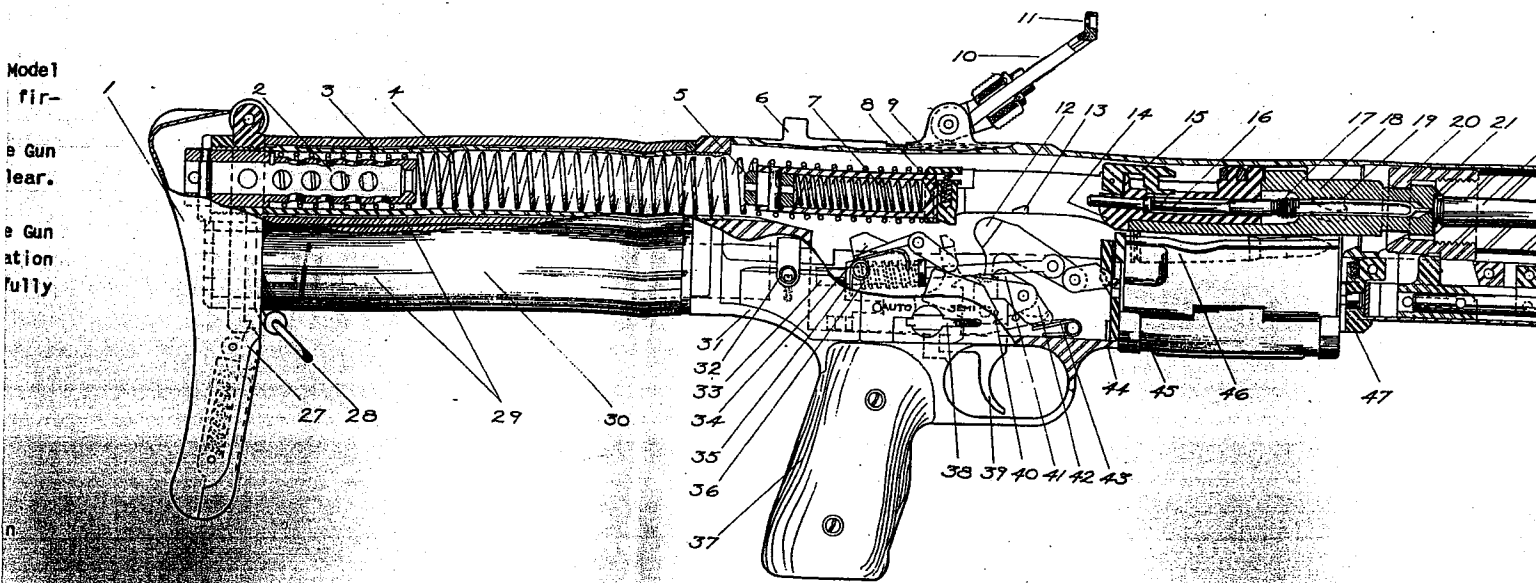
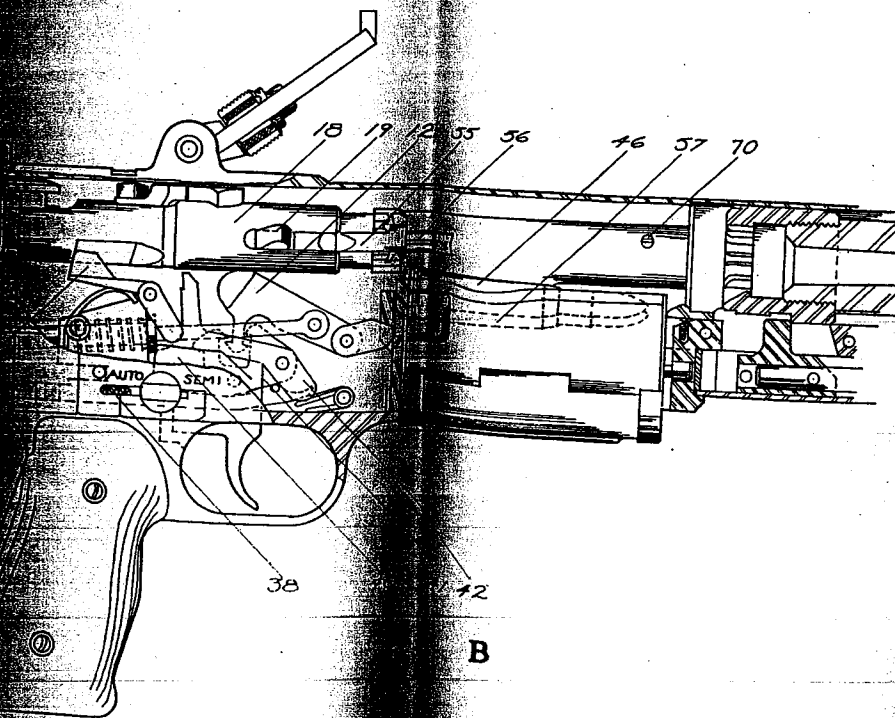


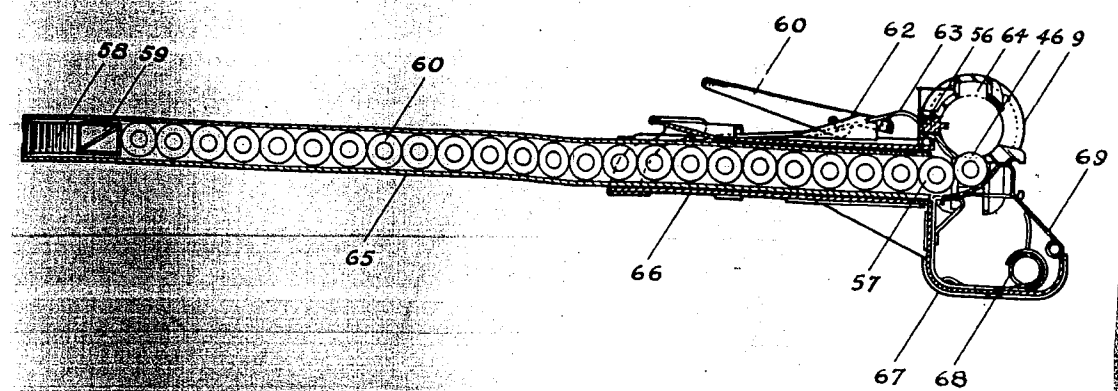
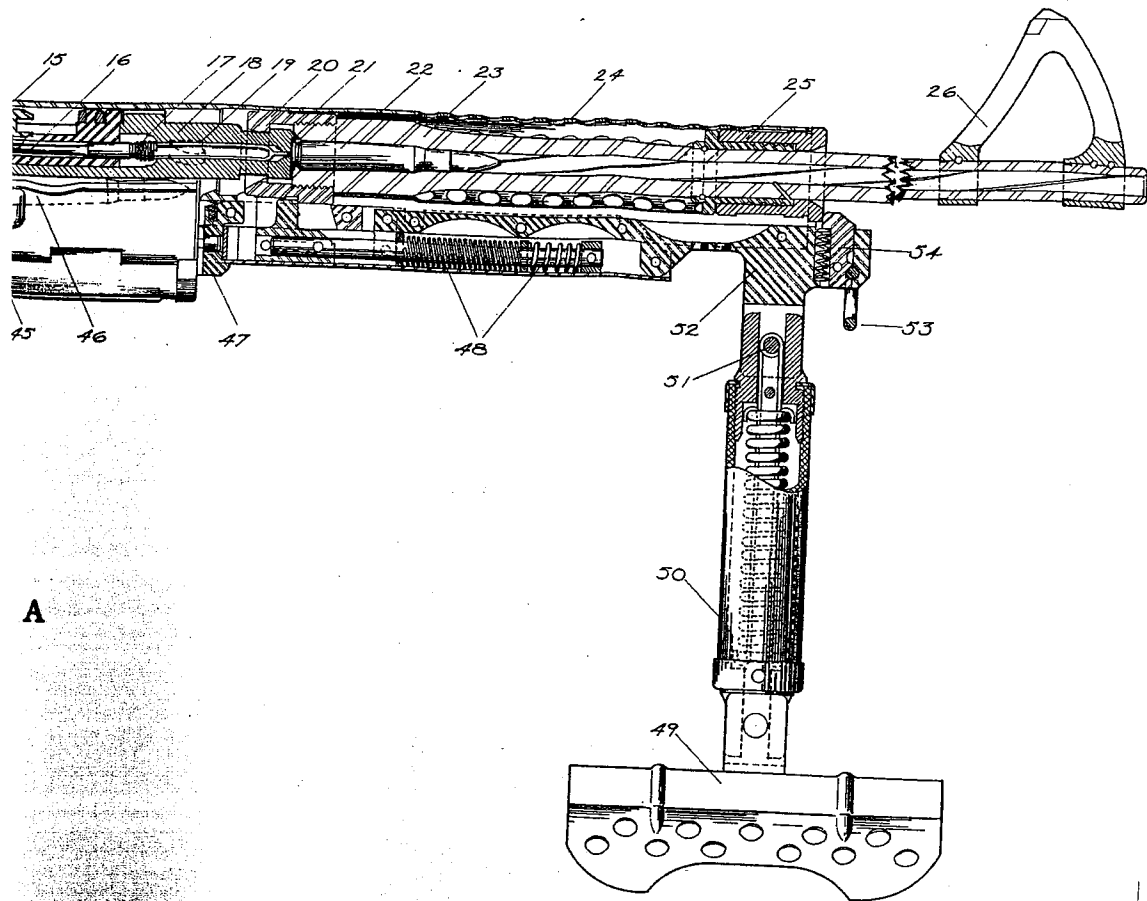
Figure 4



A



SECTION DRAWINGS OF THE JOHNSON .30 CALIBER MACHINE GUN
CALIBER .30 MODEL 1941



JOHNSON LIGHT MACHINE GUN
DEL 1944 E-1