

MANUAL OF
MODERN AUTOMATIC
x x x **GUNS** x x x



STEN,
BREN, LEWIS,
THOMPSON, VICKERS,
BROWNING ETC., ETC.

LOADING, FIRING
DETAILS of MECHANISM
STOPPAGES AND
IMMEDIATE ACTION
STRIPPING & ASSEMBLING
ETC. ETC.

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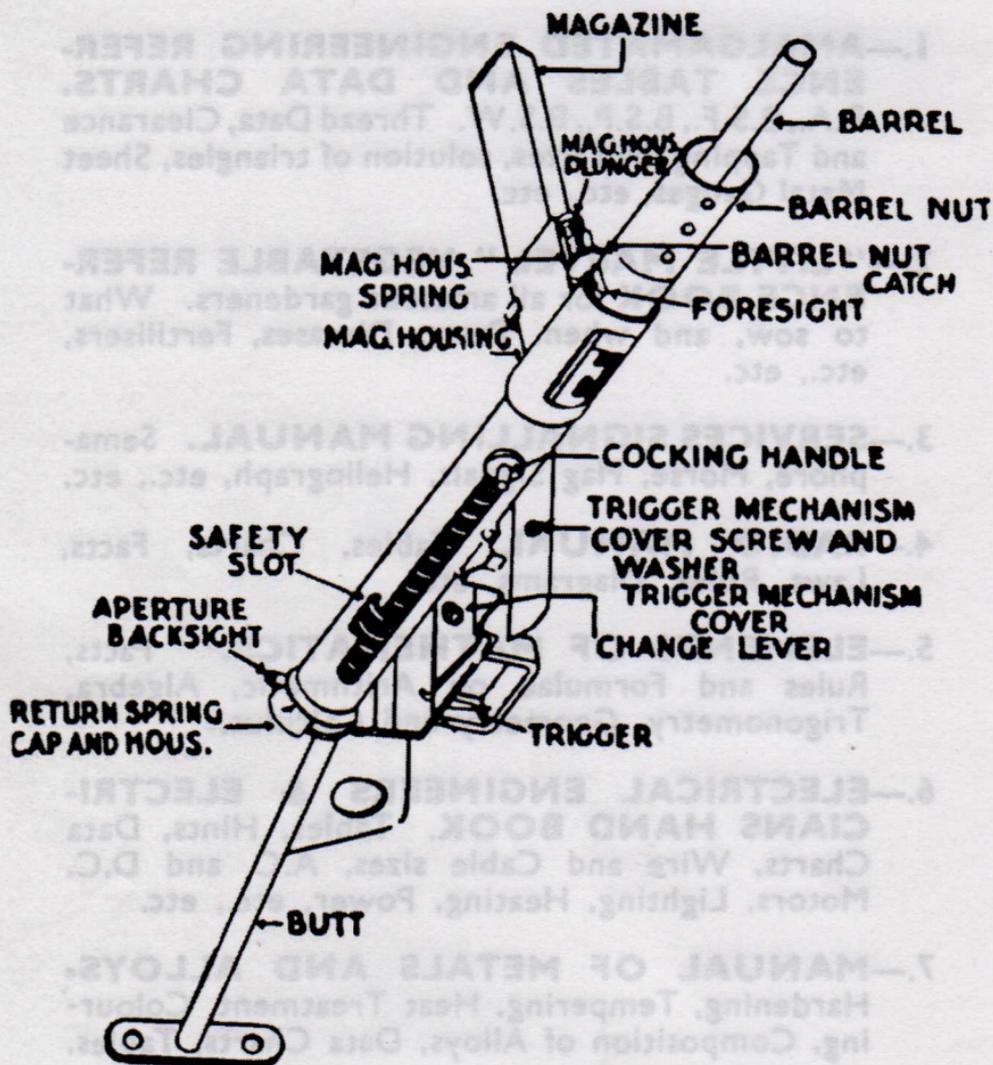
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“BERNARDS” Pocket Book

STEN MACHINE CARBINE 9mm. Mk II



THE STEN MACHINE CARBINE.

Mark II. 9 mm.

DETAILS.

The Sten will fire all 9-m.m. ammunition of the round nose rimless type. The gun is charged by blow-back and return spring. It may be fired automatically or in single shots—always fire dry. Sights are fixed for use up to 200 yards.

Weight.—Carbine without magazine 6 lb. 10 ozs. Empty magazine 10 ozs. Full magazine with 32 rounds 1 lb. 7 ozs.

Rate of Fire.—Cyclic about 525 rounds per minute.

Rifling.—Six-groove right-hand turn.

Magazine.—Box type Mark II. holds 32 rounds. Magazine is fixed in housing on left side and held by spring-loaded catch.

Sights.—Inverted "V" foresight, aperture back sight.

Dimensions.—Length of Carbine overall 2 ft. 6 in.

STRIPPING.

Make sure the gun is unloaded, double check magazine and press breech block forward.

Butt.—Push in return spring housing, slide butt off with a downward motion.

Breech Block.—Move forward return spring cap and housing roughly $\frac{3}{8}$ in. and turn about $\frac{3}{16}$ in. anti-clockwise; this frees the cap lugs from their ports in the casing. Remove housing cap and spring. Withdraw breech block to rear, remove cocking handle when in line with safety slot, put cocking handle in front of breech block, pull back and clear.

Barrel.—Undo barrel nut catch, turn magazine housing to the left, undo barrel nut and remove with barrel.

Trigger Mechanism.—Turn gun upside down and then : Take out screw and washer on either side and then lift cover. Disengage trigger spring from trip lever pawl and trigger. Take out trip lever pawl. Drive out sear axis pin and disengage sear. Pull out change lever split pin, and holding trip lever clear, take out change lever. Disengage trigger axis pin. Extract trip lever with trigger facing forward. Trip lever can be disengaged from trigger by extracting trip lever pin.

ASSEMBLY.

Trigger Mechanism.—Turn gun upside down : Replace sear (bent back) and fit sear axis pin. Replace trip lever to trigger. Assemble trigger and trip lever with shortest arm of trip lever upwards. Put in trigger pin and engage short end in right plate. Fit trip lever notch to sear. Pull trip lever away and assemble change lever and split pin. Re-assemble trip lever pawl to pawl pin on sear with long arm pushing against lower side of trip lever. Hook ends of

trigger spring to trigger hook and short arm of trip lever pawl. Re-assemble cover screws and washers.

Breech Block.—Place in casing with cocking handle recess in line with port. Pull trigger and push breech block forward. Move cocking handle to safety slot and push forward.

Return spring in housing.—Replace return spring. Replace housing and cap. Fit cap so that the lugs fit into the ports. Push forward and rotate clockwise to engage, release and allow cap to go back into position.

Barrel.—Lift barrel nut catch. Refit barrel. Before screwing barrel nut tight, release barrel nut catch so as to enable it to engage barrel nut. Barrel nut to be screwed tight by hand only.

Butt.—Push in return spring housing with top of butt plate and press butt upwards into position.

Important.—Take infinite care with stripping or assembling. Do not force parts into position, as this causes burrs and strains, which in turn cause stoppages, and may cost you your life and possibly the lives of your comrades.

LOADING.

Put gun at "Safe," fit the loaded magazine, pull cocking handle from "Safe," and let breech block move forward until held by sear. The gun is ready to fire. For one shot fire, push in end of change lever marked "R." For firing automatically, push in end marked "A." Double check change lever position by pressing in the desired direction before pressing trigger.

STOPPAGES.

Faulty Feed.—Double ejection, causing breech block to jam; bad functioning of magazine may also be a cause.

Faulty Ejection.—Shell case not ejected.

Misfiring.—Carbon accumulating on face of breech block may stop firing pin from firing cap.

Burst or flawed case.—Due to back-fire caused by dirty chamber where round is fired when not fitting snugly into same.

Immediate action.—Cock and put to "safe." Take off magazine. Remove obstruction. Replace magazine. Start firing. If this does not rectify the stoppage, change magazine and clean face of breech block.

Important.—Keep magazine clean. Make sure magazine cap is engaged when inserting. Remove platform, if it sticks knock the end against the knee and replace magazine.

MAGAZINES.

Description.—The box type magazine is the Mark II., which consists of case, platform, spring, bottom plate and bottom plate retainer. The latter is fitted to the spring, on it is a raised projection which sticks through the hole in the bottom plate.

303 BREN LIGHT MACHINE GUN. Mark I & II.

DETAILS.

Weight about 23 lbs. Length, 3 ft. 9½ in. Gas operated. Locked by rising rear end of breech block. Air cooled. Change barrel when overheated.

Mode of feed.—Box with 30 rounds or drum for anti-aircraft use with 100 rounds. Weight of magazine box, 2¾ lbs. full, ¾ lb. empty. Drum 12 lbs. 2 ozs. full, 6 lbs. 10 ozs. empty. Underneath ejection. Right hand side cocking handle.

Position of Breech.—(1) Stop fire. Open. (2) Empty magazine. (a) Box, open, moving parts held back by projection and back of magazine platform; (b) drum, closed. Automatic or single shot firing, 500 rounds per minute cyclic rate of fire.

Aperture Sights.—Mark I, 200—2,000 yards, clicks at every fifty. Mark II, 200—1,800 yards. Utilises any .303 British Service Ammunition. Tripod weighs 30 lbs. 42 deg. horizontal angle of fire and 19 deg. elevation angle of fire.

STRIPPING.

(a) Make certain moving parts are forward. (b) Push body locking pin out to the right as far as possible. This pin is in top of body beneath the aperture of back sight. (c) Whilst left hand holds back sight drum, pull back the butt group the furthest possible with the right hand. The return spring rod can then be seen protruding ahead from the butt via the buffer. (d) Hold return spring rod to the left with thumb of left hand, pull cocking handle rearwards strongly; this causes piston and breech block to slide out of the rear of the body. These can then be removed together from the gun. (e) Push breech block backwards till the claws in the front of it release from grooves on the piston. (f) On the left of the gun, just ahead of the magazine opening, can be seen barrel nut lever. Press the spring catch on the bottom side of this, and elevate the lever to its highest point. This releases the barrel which can now be removed by pushing it forward until clear. Lifting the barrel nut lever also permits the butt group to be taken from the body by pulling further back. (g) To move the bipod from the body, lift the front of the body with right hand. Pull left leg of bipod backwards towards you to its fullest extent, and then push bipod sleeve off front end of gas cylinder. (IMPORTANT.—Mark II bipod is irremovable.) (h) To move barrel nut, lift lever and press down small stud just ahead of the magazine opening cover. The barrel nut can then be lifted out. To replace, press the barrel nut into place vertically downwards, with lever as high as possible, at the same time pressing down stud.

ASSEMBLY.

Reverse instructions given above, paying special attention to:—(a) Make certain that small stop on the left at the

front end of the butt group is ahead of the barrel nut lever before dropping the lever, and see bipod is fully home on body. (b) When replacing barrel, see that bottom long slot between gas block and the carrying handle fits with the stud on top of the body. (c) Note that barrel nut lever is home and that catch is fitted on rib on body. (d) Return the breech block on the piston by pushing the claws downwards into the slots on piston, at the same time pressing forward, then let the rear of breech block drop. (e) Upon replacing piston and breech block together, note that:— (1) Butt group is fully backwards; (2) breech block is forward on piston; (3) breech block and piston are pressed right into body, before trying to press forward the butt group. (f) Upon pressing forward butt group, ensure that return spring rod fits in the recess made for it in the rear of the piston. To check assembly, cock gun, move change lever to "A," and press trigger.

LOADING AND UNLOADING.

With box type magazine, place in 28 rounds only, so as not to overload the spring. Special care should be taken to prevent getting the rim of any cartridge behind that of the cartridge above it, as this will certainly cause a stoppage. To fill, hold magazine in one hand, open upwards front end towards you, put a cartridge on the magazine platform, ensuring that cartridge is slightly ahead of its final position in the magazine. Press the cartridge down and push it as far backwards as possible. Repeat with each round until full. Instructions for filling drum type magazine will always be found on inside of the lid containing it.

LOADING.—Open magazine cover, place magazine and mouth downwards, and fit its lip into magazine opening, engaging it beneath the front end of opening. Lower the back of the magazine until catch engages on the rib, and pull back cocking handle as far as possible. Press forward again, folding it against body. Cocking handle on Mark II guns do not fold. Put change lever at "safe." It is found on left of body just over trigger.

UNLOADING.—Push magazine catch ahead, at the same time holding the magazine, and tilt it forward until it no longer fouls the magazine catch, and then lift off. If change lever is at "safe" move it to "A." Press trigger, cock gun and repress trigger. Close magazine and covers of ejection port.

FIRING PREPARATION.

(a) See all parts of gun are dry and see that gas regulator is correctly set to normal, which is No. 2 hole. Check that foresight is tight in its block. (b) Inspect magazine to see that platform does not stick, and that spring is functioning correctly. After loading, inspect to see that it is correctly loaded.

Firing.—On top of change lever (which is situated on the left side of the gun above the trigger) can be found the letters

A.S.R. ; these indicate setting for either automatic firing, safe, or single round firing respectively. The lever can be

STRIPPING AND ASSEMBLY.

Press down bottom plate retainer and move off bottom plate. Take off spring and platform. Refit in reverse order.

How to load with Mark II. Filler.—Fix filler to magazine so that the spring catch engages port in back of magazine. Hold magazine upright, put the four fingers of the left hand on the lever, placing third finger through the hole in lever, resting first finger on the toe. Press down tail, putting a bullet into aperture with right hand, cap first. Lift lever with third finger and again press down to insert next round, repeat operation until magazine is filled (32 rounds). To prevent Magazine Spring from becoming weak after constant use, never load with more than 26 rounds.

How to unload.—Hold magazine with left hand and eject bullets with right thumb.

Cleaning.—The gun was designed to operate dry (without oil). Oil should only be used to preserve the rifling in the barrel when not in use.

THIS GUN MUST BE FIRED DRY.

Holding.—When firing keep your fingers clear of the ejection opening. Always keep a firm grip of the gun. If held loosely, the gun will tend to fire high.

Storing.—Wrap gun in oily rags and keep in a wooden box. Avoid using rag with loose ends as these may be caught up in the mechanism.

MECHANISM.

Forward movement, single shot.—When depressing trigger, the sear is released from engagement with bent of breech block. Breech block moves forward by action of compressed return spring. Trip lever is pressed down by bent which releases it from the sear, which then rises by means of the extended trigger spring. Moving ahead, double horns on breech block meet base of cartridge and move it forward into the chamber. The extractor clips in the recess in base of cartridge and the firing pin strikes percussion cap and the charge is fired.

Rearward movement, single shot.—After firing, part of the expanding gases force the breech block to the rear whilst the empty case is retained by the extractor. The ejector meets the base of the cartridge case and throws it through the ejection port to the right of the gun, at the same time the return spring is compressed by the breech block moving to the rear, and the breech block is prevented from returning (by expansion of the spring) by the sear.

Automatic firing.—When the change lever is set to "A," the trip lever is cleared from the path of the bent on breech block, causing the sear to be held down and, therefore, the gun continues to fire automatically, until trigger pressure is released or magazine empty.

BROWNING AUTOMATIC RIFLE.

DETAILS.

Service name, .300 Browning Automatic Rifle. Length, 3 ft. 7 in. Weight, 15½ lbs. Magazine, 20 rounds. Sights, aperture adjustable for 200—1,600 yards. Ammunition, .300 rimless cartridges. Rate of fire, 550 rounds per minute. Magazine weight full, 1 lb. 10 ozs.

MECHANISM.

The expanding gases from the exploded charge compress a spring by means of a piston, this cycle being automatic. A change lever is fitted on left hand side of gun behind trigger guard, and has 3 positions, forward for single shot, "A" on central for automatic fire, and back for safe or locked.

STRIPPING.

(a) Press in stud in front of trigger guard and take off magazine. (b) Pull back cocking handle to see gun is not loaded. (c) Then turn retaining pin through 180 deg. clockwise, push spring forward by means of bullet point, and pull out retaining pin. (d) Pull ahead hand guard and gas cylinder and remove same. (e) Press trigger, control front movement of action and turn gun over. (f) Pull out trigger action retaining bolt and remove complete trigger group from body. (g) Rotate rear end of main spring rod out of its grooves in the interior of the front of body, whilst seeing piston is right to the fore. (h) Pull rod and main spring pulley back and pull cocking handle back about 7-16 in. till lynch pin end is visible through aperture in opposite side of the body, then push out lynch pin from cocking handle side. (i) Take out hammer by sliding forward from beneath back end of piston which should be pulled back so as to release the hammer, then pull out piston to the front by pressing breech block as far forward as possible. (j) Put a nail in one of lynch pin holes in breech block link. Pull breech block as far back as possible, then push out bolt retaining catch on left of body by means of a penknife blade, and lift out breech block, and withdraw firing pin. (k) Pull slide and cocking handle out.

ASSEMBLY.

Reverse order to stripping but see that the gun is cocked before fitting complete handguard and when it is fitted, press the trigger.

FIRING.

Fix gas regulator with smallest hole directly under barrel. If empty case is not ejected freely, set to next largest hole to increase gas pressure, by pulling out split fixing pin and turning regulator.

STOPPAGES AND IMMEDIATE ACTION.

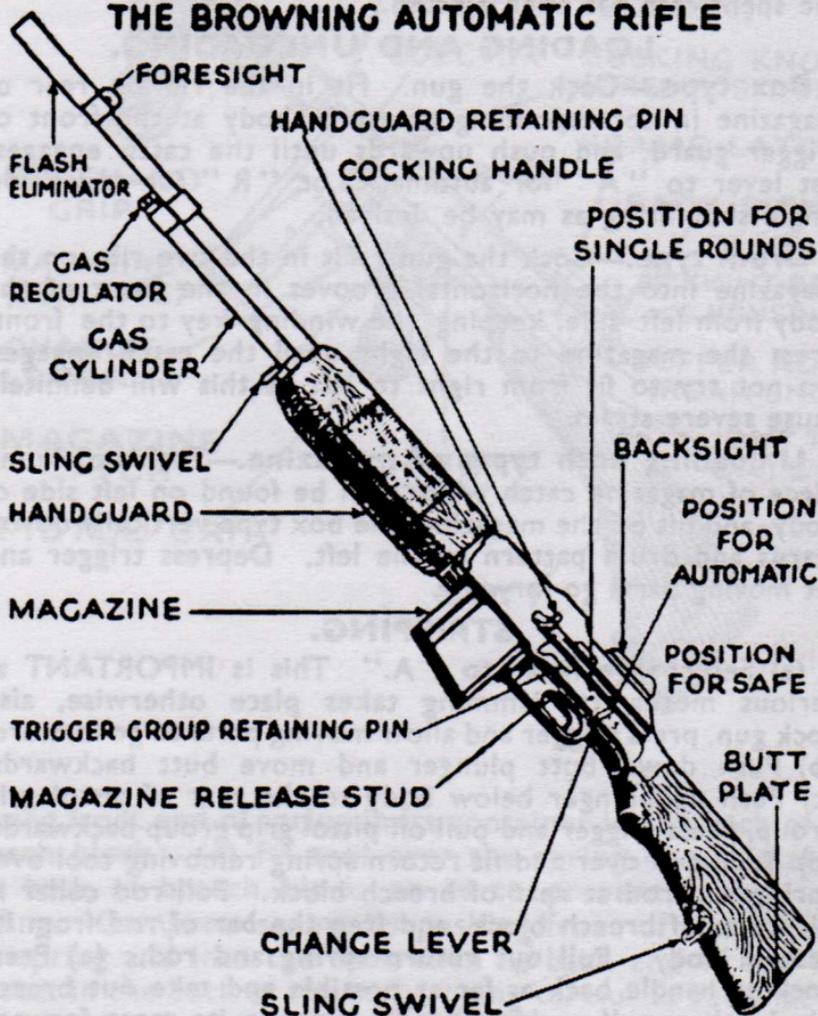
(1) If gun stops firing, cock gun and take off magazine, change it if empty, or if round is misplaced or damaged, remove it and refit magazine, then start firing. (2) Inter-

Alter gas regulator to larger size hole. (3) If gun cannot be held due to excessive kick on firing, reduce size of gas regulator hole.

NOTES.

Always clean gun after firing and oil all moving parts.

THE BROWNING AUTOMATIC RIFLE



THOMPSON SUBMACHINE GUN.

Known as the 'Tommy Gun.'

DETAILS.

Service name, Thompson machine carbine. Weight, 10 lbs. Length, 2 ft. 9 $\frac{1}{2}$ in. Rate of fire, about 650 rounds per minute. Drum magazine capacity, 50 rounds weigh 4 $\frac{1}{2}$ lbs. loaded. Box magazine capacity, 20 rounds weigh 1 $\frac{1}{4}$ lbs. loaded. Sights, 0—600 yards backsight adjustable. Rifling, right hand one turn in 1 ft. 4 in. of length. Type of fire, single shot or auto by change lever. Mode of operation, projection of empty cartridge case. Ammunition, .45 in. rimless automatic pistol cartridge.

MECHANISM.

On firing the expanding gases press against base of spent cartridge case and force breech open after suitable delay to allow bullet to leave the barrel. As the case is forced back it also pushes the bolt to the rear, thus compressing recoil spring, and the gun is ready for firing the next round whilst the spent case has been ejected.

LOADING AND UNLOADING.

Box type.—Cock the gun. Fit in the rib on rear of magazine in corresponding recess in body at the front of trigger guard, and push upwards until the catch engages. Set lever to "A" for automatic, or "R" for repetition single shot firing as may be desired.

Drum type.—Cock the gun. Fit in the two ribs on the magazine into the horizontal grooves in the front of the body from left side, keeping the winding key to the front. Press the magazine to the right until the catch engages. Do not try to fit from right to left as this will definitely cause severe strain.

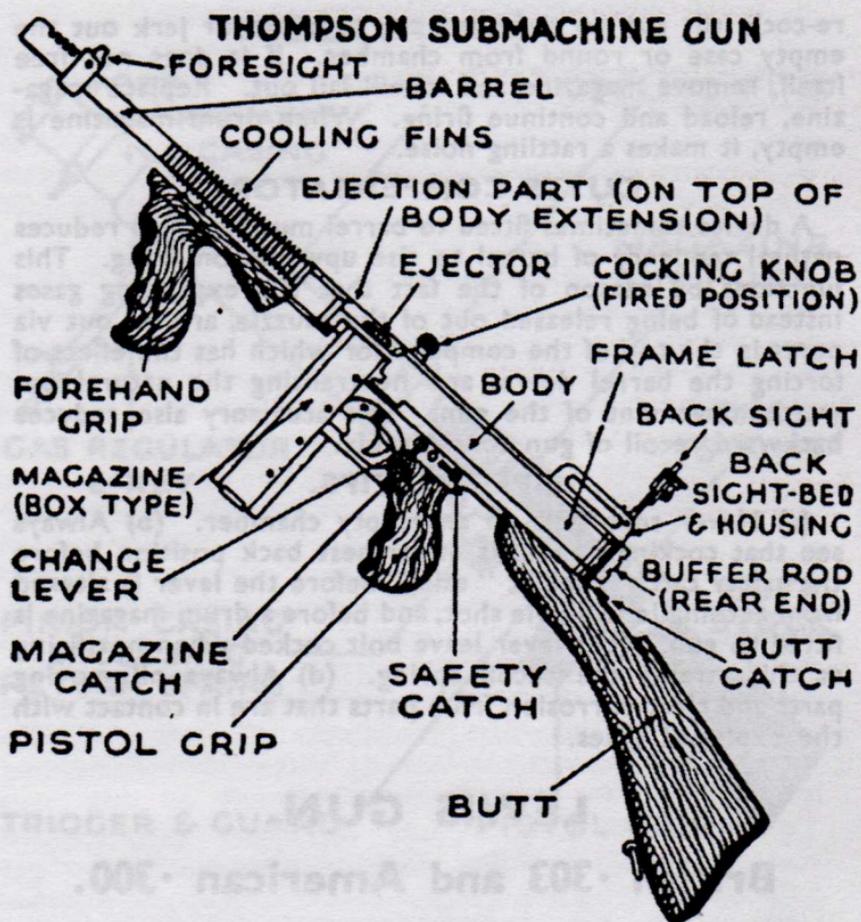
Unloading both types of magazine.—Push up thumb piece of magazine catch which will be found on left side of body, and lift off the magazine, the box type vertically downwards and drum pattern to the left. Depress trigger and let moving parts go forward.

STRIPPING.

(a) Set change lever to "A." This is IMPORTANT as serious mechanical jamming takes place otherwise, also cock gun, press trigger and allow moving parts to go forward. (b) Push down butt plunger and move butt backwards. (c) Push up plunger below body to the rear of pistol grip group, press trigger and pull off pistol grip group backwards. (d) Turn gun over and fit return spring removing tool over spring and rod at rear of breech block. Pull rod collar in direction of breech block, and free the bar of rod from its seat in body. Pull out return spring and rod. (e) Press cocking handle back as far as possible and take out breech block, then pull cocking handle over to its most forward point and take out "H" piece, and once again move cocking handle back and withdraw.

ASSEMBLY.

(a) Refit cocking handle in back position and pull it to the fore, then replace "H" piece, sliding the pair of bosses down the sloping ramps in the body and the cross piece into the cocking handle jaws, keeping the word "UP" marked on the "H" piece uppermost. (b) Press "H" piece and cocking handle back and replace breech block with the bolt part in its recess in forepart of body, and the sloping slots on the block corresponding correctly with the side members of the "H" piece: (c) Move cocking handle, breech block, and "H" piece forward and fit the return spring to its rod,



placing front end of spring in its container in the back of the breech block. (d) Fit tool over the spring immediately in the back of breech block, so as to prevent spring from coiling. Compress spring by pushing front of rod through the spring and into the tool, then fit back end of rod into its seat in the back of the body, being careful to see that the flat on rod collar is underneath to enable assembly. (e) Refit pistol grip from the back and then fit butt also from the back.

AMMUNITION AND FIRING DATA.

Muzzle velocity, about 1,000 ft. per second. Bullet rises $4\frac{1}{2}$ in. at 50 yards when range is set to 100 yards. Bullet rises $16\frac{1}{2}$ in. at 50 yards when range is set to 200 yards. Bullet rises 23 in. at 100 yards when range is set to 200 yards. Bullet rises $18\frac{1}{2}$ in. at 150 yards when range is set to 200 yards. Maximum range at 30 deg. elevation is about 1,600 yards. Cartridge used is .45 in. rimless auto-loading pistol cartridge.

STOPPAGES AND IMMEDIATE ACTION.

If stoppage occurs, immediate action is as follows:—
 (a) Cock the gun and remove magazine and change it for a full one, then continue firing. (b) If gun still fails to fire,

re-cock, tilt gun to right and try to shake or jerk out the empty case or round from chamber. If it does not free itself, remove magazine and it will fall out. Replace magazine, reload and continue firing. When drum magazine is empty, it makes a rattling noise.

CUTTS COMPENSATOR.

A device sometimes fitted to barrel muzzle which reduces natural tendency of barrel to rise upwards on firing. This functions by reason of the fact that the expanding gases instead of being released out of the muzzle, are let out via ports in the top of the compensator which has the effect of forcing the barrel down, and neutralising the natural upwards movement of the gun. This accessory also reduces backward recoil of gun considerably.

SPECIAL TIPS.

(a) Never snap gun on an empty chamber. (b) Always see that cocking handle is at farthest back position before the safety catch is set at "safe," before the lever is altered from automatic to single shot, and before a drum magazine is fitted to gun. (c) Never leave bolt cocked when not firing as this strains the recoil spring. (d) Always oil moving parts and clear corrosion from parts that are in contact with the exploded gases.

LEWIS GUN.

British .303 and American .300.

DETAILS.

Weight of British gun, 27 lbs. Weight of American gun, 20 lbs. (without radiator and radiator casing). Magazine (47 rounds), weighs $4\frac{1}{2}$ lbs. full and $1\frac{1}{2}$ lbs. empty; 97-round magazine weighs $8\frac{1}{2}$ lbs. and 3 lbs. respectively. Length of gun about 4 ft. 2 in. Feed: Drum magazine. Right-hand-side ejection. Cocking handle, British right hand usually, American left hand. Mode of fire: Automatic only. Speed of fire: About 550 rounds per minute. Bullet velocity about 2,400 ft. per second.

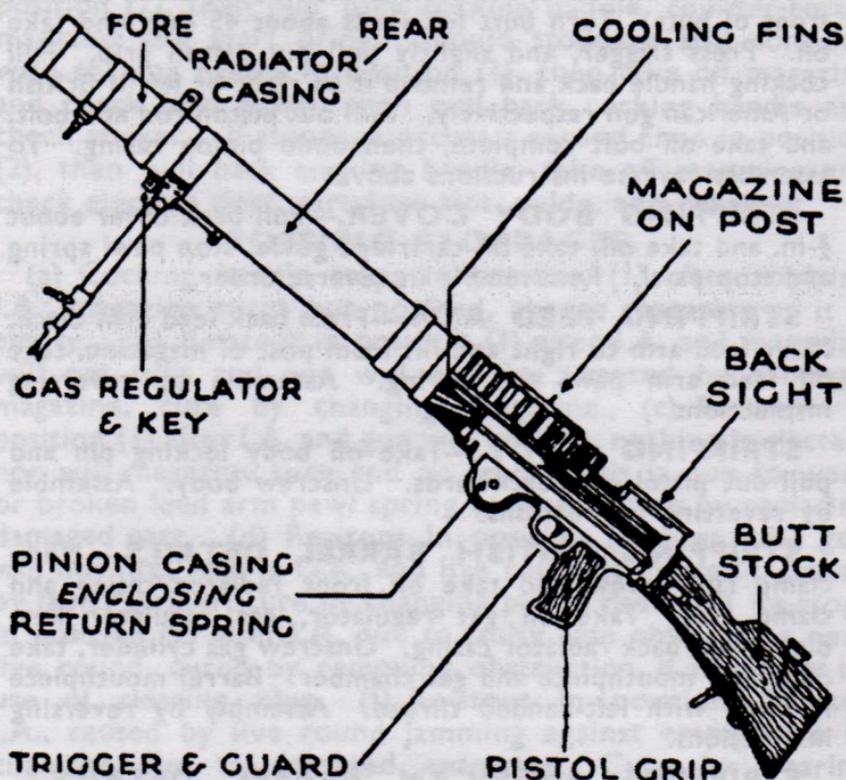
MECHANISM.

The pressure of the expanding gases caused by the exploded charge, and a return spring, combine to produce probably one of the most efficient automatic guns available.

COCKING HANDLE.—Shows if gun is ready to fire, or at "safe," when it is at rear position or at forward position respectively.

FIRING HINTS.—Always oil bolt magazine post, and strike post, during intermittent fire to prevent possible seizures. Inspect clamp ring to check if it is tightly screwed which is its normal position.

THE LEWIS GUN



LOADING.—(a) Place cocking handle forward. Fit magazine on magazine post, with magazine catch to right, on British and American 47-round magazine, and magazine with round indicator facing firer on American 97-round. (b) Push magazine down on catch until it engages. Turn magazine by hand until resistance is felt. Pull back cocking handle. Gun is now ready to fire.

UNLOADING.—(1) By firing. Take off magazine by pushing in magazine catch to right. Lift butt in the shoulder, release trigger, cock gun and repress trigger.

UNLOADING WITHOUT FIRING: BRITISH GUNS.—Take off magazine. Press base of round engaged by feed arm, and nose of round will rise. Pull round as far ahead as possible. Move cocking handle back and forth until round falls or is removable by hand. Then do as detailed in (1) above.

AMERICAN GUNS.—Remove magazine, hold cocking handle, and press trigger, then ease moving parts ahead until cartridge is free from feed arm and drops into bolt way. Pull back cocking handle and fit safety catch. Tilt gun to the right and cartridge then can be removed by hand. Release safety catch and follow on as in (1).

STRIPPING, PISTON DETAILS.

See gun is unloaded, and push to the fore the catch beneath front of butt. Turn butt leftwards about 45 deg. and take off. Press trigger, and slightly pull out piston grip. Pull cocking handle back and remove it to right or left if British or American gun respectively. Pull out piston rod and bolt, and take off bolt complete, then undo pinion casing. To assemble reverse instructions above.

STRIPPING BODY COVER.—Pull back cover about $\frac{1}{2}$ -in. and take off, take off cartridge guide, stop pawl spring and stop pawl. Re-assemble in reverse order.

STRIPPING FEED ARM.—Press back feed arm catch. Move feed arm to right and lift from post of magazine, take off feed arm pawl and spring. Assemble by reversing instructions.

STRIPPING BODY.—Take off body locking pin and pull out pistol grip backwards. Unscrew body. Assemble by reversing instructions.

STRIPPING BRITISH BARREL DETAILS.—Undo clamp ring screw, and take off front radiator casing and clamp ring. Take off gas regulator, gas regulator key, bipod, and back radiator casing. Unscrew gas cylinder, take off barrel mouthpiece and gas chamber. Barrel mouthpiece is fitted with left-handed thread. Assemble by reversing instructions.

STRIPPING AMERICAN BARREL DETAILS.—Take off gas regulator and key. Unscrew and take off gas cylinder. Undo gas regulator inner chamber and unscrew left hand threaded recoil reducer. Assemble by reversing instructions.

FIRING TIPS.

Before firing always strip completely and clean all parts ; set gas regulator to smallest port for British, and to No. 2 hole for American guns. Set return spring to 13 lbs. by disconnecting pistol grip, lift pinion to fit ratchet on piston, and pull cocking handle back 2 in., this increases weight by about 5 lbs. To decrease : disconnect pinion and pull cocking handle back an inch per $2\frac{1}{2}$ lbs., lift pinion and fit to catch. Press to the fore the pistol grip. Cocking handle moves ahead and weight is reduced off return spring. Always oil all moving parts and if gun is not immediately required again, reduce weight of return spring to about 3 lbs., so as to reduce strain, and always see cocking handle is to the fore when gun is stored.

STOPPAGES AND IMMEDIATE ACTION.

When stoppages occur, cocking handle stops in one of two positions, viz. : (1) fully to the fore and (2) any position between (1) and fully backwards. Always see cocking handle is forward when stripping to cure stoppages. If gun stops with cocking handle in position (1), rotate magazine.

Pull back cocking handle and start firing. If it stops in position (2), then pull back cocking handle, counter-rotate

Pull back cocking handle and start firing. If it stops in position (2), then pull back cocking handle, counter-rotate magazine and start firing. Should stoppage still continue with cocking handle in position (1), then take off magazine and check feed pawls, then pull back cocking handle and check striker. If stoppage occurs a second time in position (2), then pull back cocking handle, take off magazine and check ejection port, cartridge slot, guide, and chamber.

POSSIBLE STOPPAGES.

(a) Cocking handle stops in position (1) after applying I.A., magazine turns but no feed, change magazine as it is empty. (b) Re-stops in position (1) after I.A. and magazine will not turn and gun will not fire; caused by damaged magazine, cure by changing magazine. (c) Re-stops in position (1) after I.A. and gun will not fire, nothing is ejected, nor will magazine turn and no feed. This is due to weak or broken feed arm pawl spring or pawl; cure by replacing damaged part. (d) Re-stops in position (1) after I.A., gun will not fire, feed is O.K. and live round is ejected; caused by faulty striker, cure by changing piston rod. (e) Re-stops in position (2) after I.A. due to faulty case obstructing next live round, cured by removing obstruction, if necessary by use of clearing plug. (f) Re-stops in position (2) after I.A., caused by live round jamming against empty case in chamber due to damaged extractor. Cure by clearing obstruction and change bolt. (g) Re-stops in position (2) after I.A. due to double feed, caused by faulty stop pawl. Cure by clearing gun and change right stop pawl. (h) Re-stops in any position after I.A. with no tension on pulling back cocking handle; caused by broken return spring. Cure by changing pinion. (i) Re-stops in position (2) after I.A. and magazine will not counter-rotate. Cure by clearing gun and reduce return spring by about 3 lbs.

VICKERS MACHINE GUN ·300.

DETAILS.

Length, 43½ in. Weight of gun (no water), 33 lbs. Weight of gun (with water), 42 lbs. Barrel length, 24 in. Rate of fire, about 500 rounds per minute. Ejection, underside. Sights, 0—4000 yards, aperture. Magazine, fabric belt holding 250 rounds. Tripod weight, 50 lbs. Mode of operation, recoil by gas and fuzee spring. Ammunition, .300 M.I. Muzzle velocity, about 2,650 ft. per sec.

MECHANISM OF GUN.

Is by means of the expansion of the exploded gases combined with a fuzee spring.

LOADING.—Fit ammunition belt with tab end through right hand side of feed block and hold on to this on the left hand side of feed block. Elevate crank handle up and back on to roller, and pull belt through feed block from left side as far as possible. Then let crank handle go to the

fore under influence of fuzee spring. Repeat this operation again and the gun is then fully loaded and ready to fire.

FIRING.—Raise safety catch toward you, and push in thumb-piece, this frees the trigger and forces firing pin forward and gun fires. The expanding gases force recoiling parts backwards, and the fuzee spring returns them forward again. The firing cycle then continues to repeat until thumb-piece pressure is released.

UNLOADING.—(a) Pull crank handle rearwards on to roller and then release ; repeat this process again. (b) Push top pawls in feed block downwards, raise up the bottom ones and at the same time pull out the ammunition belt. (c) Pull up safety catch and depress thumb piece.

STRIPPING.

(a) Press up back cover catch at rear of gun and lift rear cover as far as it will go. Then pull backwards crank handle on to roller and take out connecting rod and lock. Rotate lock about 120 deg. clockwise and take away from connecting rod. Close rear cover. (b) Pull out muzzle attachment split pin from front of gun and take off attachment, then unscrew muzzle cap at front end of barrel. (c) Elevate front cover latch by pulling the head out leftwards, and turning upwards to the left. Take out feed block, close front cover. (d) Press to the fore the fuzee spring box, so as to pass the hooks at the front and rear ends from the studs, and undo box from gun and spring from fuzee chain. Then take off fuzee and chain to the left. (e) Elevate back cover once again, undo fixing pin of back cross piece and take it out. Move back cross piece to the horizontal. Pull to the back the two slides, one of which carries the roller. (f) Pull to the rear the barrel, the two inside plates and the crank, by pulling the crank handle stem straight to the back. (g) Undo the two plates from the crank and barrel.

ASSEMBLY.

To assemble reverse the above order.

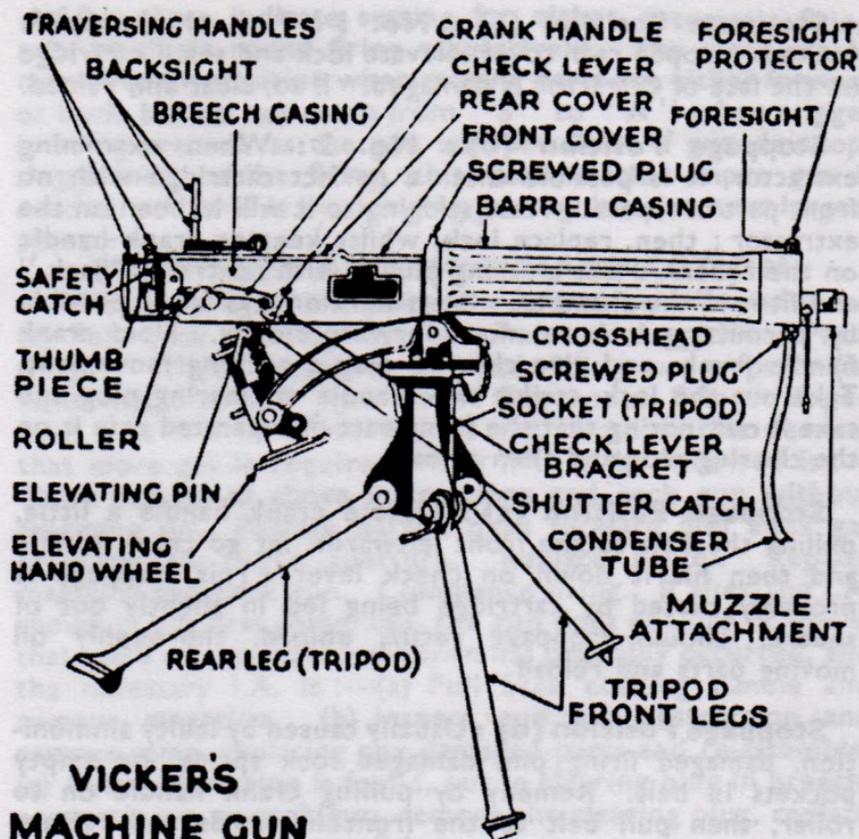
WEIGHING THE RECOILING PARTS.

(a) Take out the fuzee spring and put crank handle to nearly vertical. (b) Fit hook of spring balance over the stem of crank handle and pull slowly to the rear. Pressure required to move must not exceed 4 lbs.

Weighing the Fuzee Spring.—Take off the lock, put hook of spring balance on crank handle knob. Push down check lever and pull balance vertically upwards. When crank handle commences to move, reading must indicate approximately 8 lbs. If over, turn vice pin upwards, and if under turn it downwards, 6 clicks denoting about 1 lb. change of weight.

STOPPAGES AND IMMEDIATE ACTION.

The position of the crank handle when the gun stops usually signifies the type of stoppage which has taken place. The crank handle stops in one of four positions.



Stoppage.—Position (a) : Crank handle stops rear of vertical. This is caused by the lock not coming back far enough to permit extractor to drop. **Position (b) :** Crank handle stops slightly ahead of vertical. This is caused by lock not going fully home after recoil. **Position (c) :** Crank handle nearly down on check lever. This is caused by extractor not rising to its highest point. Should the feed block slide jam, this indicates a fault in the feed. **Position (d) :** Crank handle fully home on check lever. This is caused by practically no expansion of exploding gases, thereby causing practically no recoil. This in turn allows lock to stay in its position to the fore.

IMMEDIATE ACTION.

Stoppage Position (a) : Turn crank handle on to roller and pull ammunition belt to the front on the left, and release crank handle. Should crank handle again stop in the same place when moved forward, re-pull crank handle on to roller, open rear cover, clear face of extractor, change the lock and reload. Should this not clear the stoppage, lift crank handle on to roller, pull belt to the front leftwards, and release crank handle, then reduce weight of fuze spring by $\frac{1}{2}$ lb.

Stoppage Position (b) : No. 1 : Push crank handle backwards, open rear cover, elevate lock and see if cartridge on the face of extractor is damaged. If so, clear and reload.

Stoppage Position (b) : No. 2 : When examining extractor, it is possible that a perfect cartridge with no front part of separated case sticking to it will be seen on the extractor ; then, replace lock, whilst keeping crank handle on the roller. Place clearing plug "with centre pin back," and fit it in the chamber. Press pin home as far as possible by permitting lock to move forward slowly. Hold crank handle firmly, and give clearing plug a rocking movement. Take out the lock, strike back handle of clearing plug and take it out, noting that the front part of separated case is on the clearing plug and then reload.

Stoppage Position (c) : Elevate crank handle a little, pulling the belt to the front leftwards, let go crank handle and then hit it down on check lever. This stoppage is probably caused by cartridge being fed in slightly out of square. Should stoppage recur, unload, thoroughly oil moving parts and reload.

Stoppage Position (d) : Usually caused by faulty ammunition, damaged firing pin, damaged lock spring, or empty pockets in belt. Remedy by pulling crank handle on to roller, then pull belt to the front leftwards and release crank handle. If stoppage still persists, re-pull crank handle on to roller twice, change lock and then reload.

The following are the most abnormal stoppages.—
(a) Crank handle stops right back on roller edges. This is caused by a broken fuzee spring and immediate action is to take out the fuzee spring and box, pull belt to the left, then turn crank handle on to check lever. Replace by a new spring checking its weight, reload and fire. (b) When gun stops with crank handle in "Position (d)," and then after immediate action, only fires two rounds and re-stops, this is caused by a damaged feed block and should be immediately replaced by the spare. (c) When gun will not stop firing although pressure on thumb piece is released, the immediate action is to remove a live round from the ammunition belt, so that the gun must stop when the empty pocket is in the feed block. When it stops, pull crank handle on to roller and pull out the ammunition belt, then let go crank handle, unload and change lock.

Cooling details.—Gun is water-cooled. After firing about 2,000 rounds, refill barrel casing. Water boils after firing 500 rounds continuously. In an emergency the gun can be fired without water for about 750 rounds without seizing up. Barrel casing holds about 1 gallon of water. Always see that the actual barrel is fully covered with water.

303 BREN LIGHT MACHINE GUN.

A.S.R. ; these indicate setting for either automatic firing, safe, or single round firing respectively. The lever can be moved to any position when moving parts are either forward or back, but do not move from "S" to "A" when trigger is being pressed, as the gun will not fire. If gun develops sluggishness whilst firing, this denotes that more gas is needed. Alter this by changing gas regulator to next largest aperture.

STOPPAGES AND IMMEDIATE ACTION.

When stoppages take place, the I.A. to be followed is :—

- (a) Pull back cocking handle. Remove magazine. Press trigger. Check magazine for bad filling or empty. (b) Refit magazine and cock gun. Commence firing. If gun then fires two or three rounds and re-stops, this denotes that more gas is required. The I.A. to be followed is :— Carry out (a) of above instructions and cock gun without magazine on. Release barrel, push forward and alter gas regulator to larger aperture. Replace barrel. Replace magazine and cock gun. Commence firing. If after the I.A. shown in the first paragraph, the gun does not fire, it means that some mechanical breakdown has probably occurred, and the necessary I.A. is :—(a) Pull back cocking handle and remove magazine. (b) Inspect gun for obstruction and remove same, replacing any damaged parts and re-assemble. (c) If no obstruction is found, put in clearing plug in breech, press trigger, re-cock gun, remove the clearing plug, replace magazine and commence firing.

SPECIAL NOTES.

Always strip gun and clean barrel by pouring boiling water through it. If unobtainable, cold water is better than none. Dry thoroughly and oil, taking special care that all parts affected by gas are thoroughly oiled, so that carbon, etc., is removed. Always make certain gun is not cocked when being put away, so that no unnecessary strain is caused. A spare barrel is supplied with every gun. After rapid firing ten magazines or nine minutes fast firing rate, change barrels and put hot barrel in water.

