

TM 11-392

WAR DEPARTMENT

TECHNICAL MANUAL

for

SIGNAL LAMP EQUIPMENT
SE-11

April 17, 1943

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WAR DEPARTMENT

Washington, April 17, 1943.

This Technical Manual, published by Greenway Reflector Mfg. Co. on Order 16320-PHILA-43, is furnished for the information and guidance of all concerned.

TECHNICAL MANUAL

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WASHINGTON, April 17, 1943.

SIGNAL LAMP EQUIPMENT SE-11

PREPARED UNDER DIRECTION OF THE
CHIEF SIGNAL OFFICER

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DESTRUCTION OF ABANDONED MATERIEL IN THE COMBAT ZONE

In case it should become necessary to prevent the capture of this equipment, and when ordered to do so,

DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

MEANS:—

1. Explosives, when provided.
2. Hammers, axes, sledges, or whatever heavy objects are readily available.
3. Burning by means of incendiaries such as gasoline, oil paper, or wood.
4. Grenades and shots from available arms.

PROCEDURE:—

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch- and instrument-boards.
3. Destroy all controls, switches, relays, connecting means and meters.
4. Rip out all wiring in electrical equipment. Smash water-cooling, gas, and oil systems in gas-engine generators, etc.
5. Smash every electrical or mechanical part whether rotating, moving or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.

DISPOSAL:—

8. Where possible, and when time permits, bury all debris or dispose of it in streams or other bodies of water.

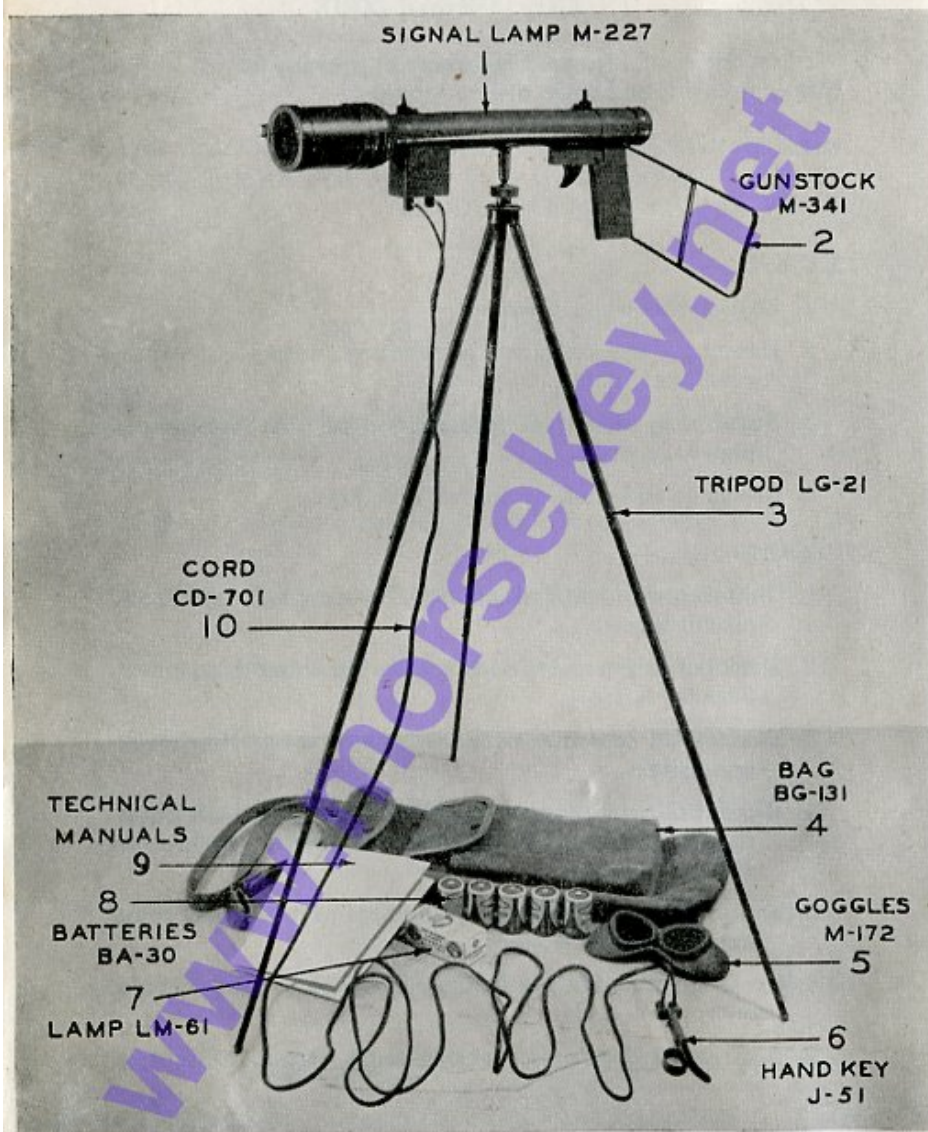


FIGURE 1
Side View of Signal Lamp Equipment SE-11 mounted on Tripod LG-21.

SECTION I. DESCRIPTION

1. General.—

a. Signal Lamp Equipment SE-11 is a portable field equipment for transmitting messages by means of white or red flashes of light in International Morse Code. Lamp LM-61 operates on 5 dry cell Batteries BA-30. Signal Lamp M-227, which has two collapsible sights, is designed for three methods of operation:

- (1) As a gun by raising Gunstock M-341 to the shoulder and operating trigger of trigger box assembly (31) to produce light flashes.
- (2) Remote control by mounting Signal Lamp M-227 on Tripod LG-21 and operating at a maximum distance of 15 feet from Signal Lamp M-227 by using Cord CD-701 and Hand Key J-51.
- (3) Remote control at a greater distance (one-half mile or more if necessary) by means of a pair of telephone or other well-insulated wires, the bare ends of which, when brought together, produce the light flashes.

b. The characteristics of the equipment are:

- (1) Point to point communication on the ground.
- (2) Range—
Daytime (door closed): approximately 1000 yards.
Daytime (door open): approximately 2000 yards.
Night (door closed): approximately 2½ miles.
Night (door open): approximately 5 miles.
- (3) Code speed—10 words per minute.
- (4) Weight of shipping carton—1 lb.
- (5) Weight of Signal Lamp Equipment SE-11, complete—7½ lbs.
- (6) Transportation load, complete—8½ lbs.

2. List of Components.—

Quan. No.	Article	Quan. No.	Article
1 6B41	Bag BG-131	1 6B442	Hand Key J-51
1 6B432	Goggles M-172	1	Signal Lamp M-227
1 3E1701	Cord CD-701	11 6B561	Lamps LM-61
1 6B1121	Tripod LG-21	10 3A30	Batteries BA-30
1 6B441	Gunstock M-341	2	Technical Manuals

Figure 1

- | | | |
|----------------------|------------------|---------------------|
| 1. Signal Lamp M-227 | 4. Bag BG-131 | 8. Batteries BA-30 |
| 2. Gunstock M-341 | 5. Goggles M-172 | 9. Technical Manual |
| 3. Tripod LG-21 | 6. Hand Key J-51 | 10. Cord CD-701 |
| | 7. Lamp LM-61 | |

2-A. List of Interchangeable Parts.—

Quan.	Stock No.	Article	Quan.	Stock No.	Article
1	6B195	End Cap S-144	1	2Z3404.1	Relay cover S-703
1	Lamp bushing	1	2Z7642-1	Relay AS-34
1	6B194	Trigger box assembly S-123	1	3Z6100-79	Resistor 111-1100-5
			1	6B628	Reflector W-100

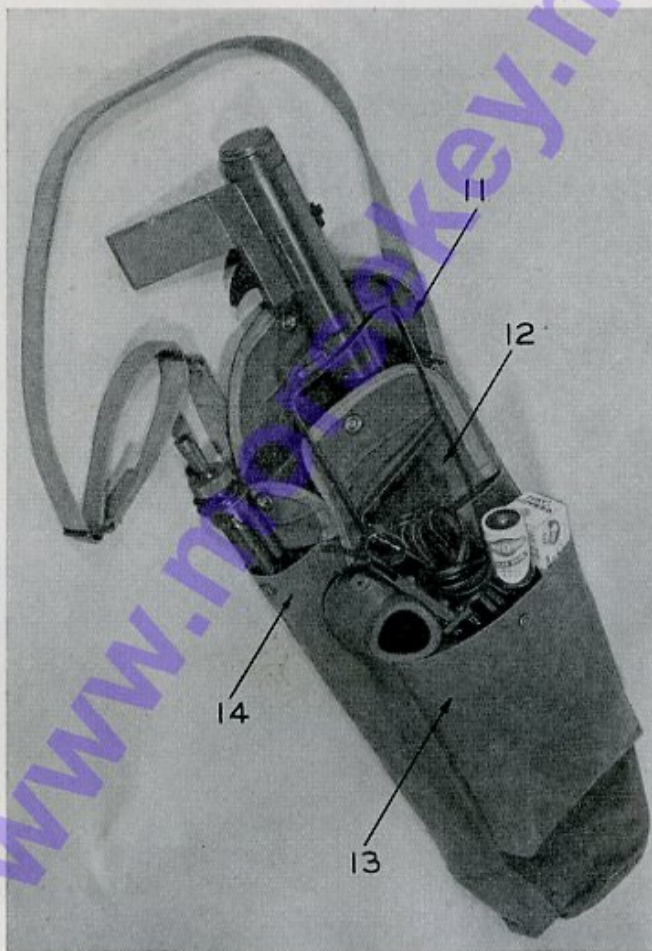


FIGURE 2
Signal Lamp Equipment SE-11 in Bag BG-131.

3. Description of Component Parts.—

a. Bag BG-131 is made of 12-ounce duck, the edges being bound with webbing. It is fitted with four pockets for carrying Signal Lamp M-227, Gunstock M-341, Tripod LG-21, Goggles M-172, Cord CD-701, Hand Key J-51, 11 Lamps LM-61, 10 Batteries BA-30 and two Technical Manuals. The flaps of the pockets are equipped with dot fasteners to hold them securely in place. Bag BG-131 is carried over the shoulder by a one-inch wide cotton webbing strap which is adjustable (FIGS. 2 and 6).

b. Signal Lamp M-227 consists of a battery tube $1\frac{5}{8}$ inches in diameter by $12\frac{1}{2}$ inches long containing 5 dry cell batteries. The tube is threaded on one end for end cap (35), which is removed when replacing batteries and has a strap around the barrel to hold pistol grip (33) in place and in line with the trigger tracks. This end cap can be replaced with cap from Flashlight TL 122-B. Mounted on the outside are front sight (16), rear sight (34), relay (29), mounting stud (30), and hood (17) containing reflector (20), reflector spring (21), Lamp LM-61, and lamp bushing (22) (FIG. 3).

c. Tripod LG-21 has three tubular telescoping legs about 42 inches long when extended and about $17\frac{1}{2}$ inches long when collapsed, and a head slotted and fitted to receive mounting post (30) of Signal Lamp M-227.

d. Gunstock M-341 is a skeleton frame shaped similar to an ordinary gunstock. It fits over pistol grip (33). A spring in the sleeve setting in a "V" slot secures Gunstock M-341 to pistol grip (33).

e. Cord CD-701 is a twin-conductor #18 soft-stranded, type P.O.S.J. rubber-coated, copper wire cord 15 feet, 8 inches long. It is fitted at each end with two shouldered (or phone) tips. Cord CD-701 is used for remote control of Signal Lamp M-227, as shown in FIG. 4.

f. Hand Key J-51 consists of three spring steel members mounted on bakelite filler block. One member, with finger loop and coin silver contact button at one end and binding post at the other end, constitutes one-half of Hand Key J-51. Two other members (one supporting a coin silver contact at one end and binding post at the other end, and another shaped like

Figure 2

- | | |
|---|--|
| 11. Largest pocket | 13. Outside compartment of double pocket |
| 12. Inside compartment of double pocket | 14. Long narrow pocket |

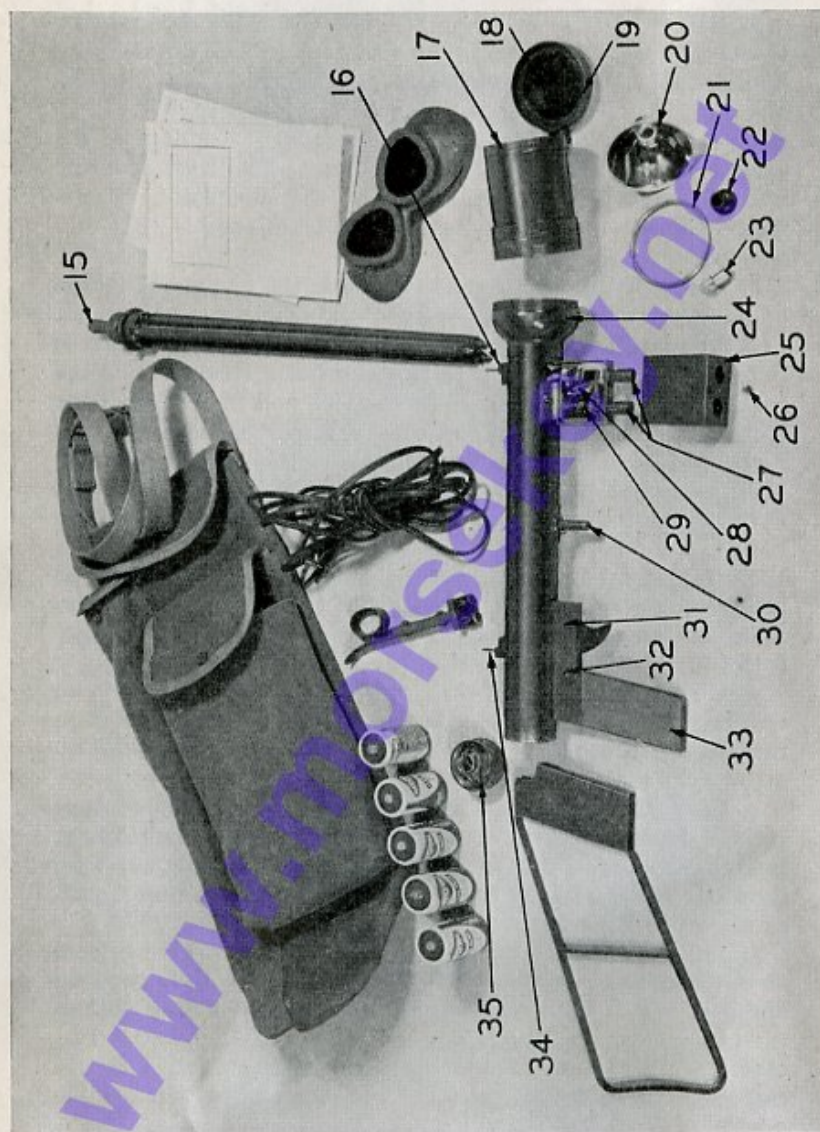


FIGURE 3
Dismantled view of Signal Lamp Equipment SE-11.

a leaf spring, with a thin bakelite separator between them) constitute the other half of Hand Key J-51.

g. Lamp LM-61 is a special prefocused, quick flashing lamp bulb (6.0 volts, .50 amps, life $3\frac{1}{2}$ hours, b— $3\frac{1}{2}$, filament c-2). Spare lamps may be found in the outside compartment (13) of the double pocket of Bag BG-131.

h. Batteries BA-30. Five dry cell batteries fit into the battery tube of Signal Lamp M-227 and furnish the electric current for producing light flashes.

i. Goggles M-172 consist of red glass lenses framed in soft rubber, to which are attached one piece of cotton webbing strap and one piece of "Everlastic." By inserting the hook on the strap into the ring on the "Everlastic" the goggles are firmly supported around the head. Red light flashes from Signal Lamp M-227 can best be seen by wearing Goggles M-172.

j. Filter MC-430 consists of two red filters in metal frames. Filter MC-430 is snapped over either Field Glass M3 or Field Glass EE when one of these glasses is used in receiving long-distance signals.

SECTION II. INSTALLATION AND OPERATION

4. Installation.—

a. Take Tripod LG-21 out of long, narrow pocket (14) of Bag BG-131, and place in position by taking hold of tripod head (15) with one hand and pulling each leg out to its full length with the other hand, then spreading the legs to the desired angle.

b. Take Signal Lamp M-227 out of largest pocket (11) of Bag BG-131 and insert mounting post (30) in tripod head (15), making sure that stop pin on mounting post (30) is in slot of tripod head (15). When Signal Lamp M-227 is so

Figure 3

- | | |
|----------------------|--------------------------|
| 15. Tripod head | 26. Relay cover screw |
| 16. Front sight | 27. Binding posts |
| 17. Hood | 28. Resistor |
| 18. Filter | 29. Relay |
| 19. Filter door | 30. Mounting post |
| 20. Reflector | 31. Trigger box assembly |
| 21. Reflector spring | 32. Trigger box bolt |
| 22. Lamp bushing | 33. Pistol grip |
| 23. Lamp LM-61 | 34. Rear sight |
| 24. Barrel adaptor | 35. End cap |
| 25. Relay cover | |

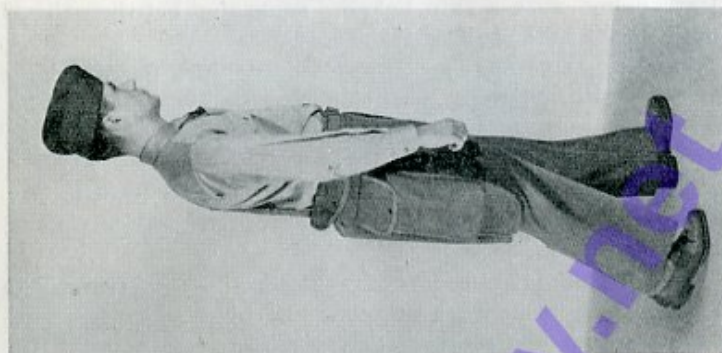


FIGURE 6—Soldier carrying Signal Lamp Equipment SE-11 by means of strap on Bag BG-131.



FIGURE 5—Operating Signal Lamp M-227 as a gun.

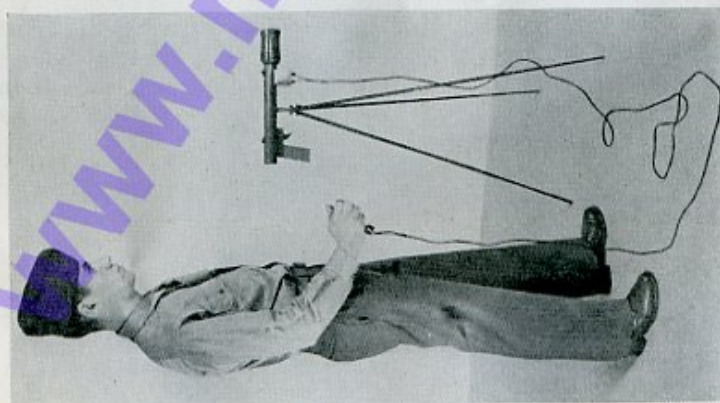


FIGURE 4—Operating Signal Lamp M-227 by means of hand key.

mounted it may be turned to any horizontal degree and also to any position toward the vertical within 82 degrees.

c. Take Gunstock M-341 out of inside compartment (12) of double pocket of Bag BG-131 and slip sleeve of Gunstock M-341 over pistol grip (33). A spring in the sleeve secures Gunstock M-341 to Signal Lamp M-227 by setting in a "V" slot in pistol grip (33). Gunstock M-341 need not necessarily be mounted on pistol grip (33) when Signal Lamp M-227 is mounted on Tripod LG-21.

d. Take Cord CD-701 and Hand Key J-51 out of outside compartment (13) of double pocket of Bag BG-131. Insert two tips of Cord CD-701 into binding posts (27) on relay cover (25) and two tips of Cord CD-701 into binding posts of Hand Key J-51. Signal Lamp M-227 is now completely set up, ready to operate by remote control through use of Hand Key J-51 or at a greater distance if necessary.

5. Operation.—

a. For remote control of Signal Lamp M-227, raise center piece or standard of front sight (16) and of rear sight (34) with tip of finger so they will snap into an upright position. Move Signal Lamp M-227 to the desired position and align tops of both sight standards with the object which is to receive signal. The light beam will then be focused on the object. The tension in tripod head (15) will hold Signal Lamp M-227 in this position while operating. Use Hand Key J-51 to produce light flashes by holding it in one hand, placing forefinger through finger loop and pressing the members together until the contact buttons meet, permitting the electric current to pass through the key (FIG. 4).

b. For operation from a greater distance (one-half mile or more) use telephone or any other well-insulated pair of wires. Insert two bare ends of these wires in binding posts (27). Go to other end of wires, leaving Signal Lamp M-227 on Tripod LG-21 in same position as for remote control operation, bring bare ends of wires together to produce light flashes.

c. To operate Signal Lamp M-227 as a gun, lift it from Tripod LG-21. With tip of finger, snap front and rear sight standards upright (if not already in this position), place Gunstock M-341 against your shoulder, align tops of front and rear

sight standards with object which is to receive signal, and pull trigger of trigger box assembly (31) to produce light flashes (FIG. 5).

d. Precautions During Operation.—Never leave the front and rear sight standards upright when not signaling. Never leave hood (17) in such position that the door will open upward. When filter (18) is not in use, open and swing to the side of hood (17). The hinge spring of filter door (19) will hold it in this position. When filter (18) is needed, swing it back again and press tightly until door catch snaps in place.

6. Packing for Transportation.—To take down and repack Signal Lamp Equipment SE-11:

a. Recoil Cord CD-701 in about 4-inch diameter coils and place it and Hand Key J-51 in outside compartment (13) of double pocket of Bag BG-131.

b. Remove Gunstock M-341 from pistol grip (33) by holding Signal Lamp M-227 in one hand and pulling Gunstock M-341 off with the other hand. Place Gunstock M-341 in inside compartment (12) of double pocket of Bag BG-131.

c. Lift Signal Lamp M-227 from tripod head (15) and place it, hood (17) first, in largest pocket (11) of Bag BG-131.

d. Collapse the legs of Tripod LG-21 by pressing catch located on center section of each leg and pushing from both ends of Tripod LG-21 toward the center. Bring legs together and place Tripod LG-21, legs first, in long narrow pocket (14) of Bag BG-131.

e. Put Goggles M-172, Technical Manuals, and spare Lamps LM-61 and spare Batteries BA-30, if any, in outside compartment (13) of double pocket of Bag BG-131.

f. Close pockets of Bag BG-131 by pressing dot fasteners on flaps together until they snap.

g. Carry Signal Lamp Equipment SE-11 by placing webbing strap of Bag BG-131 over shoulder.

SECTION III. MAINTENANCE

7. Checking Signal Lamp M-227.—

a. First check Lamp LM-61 and Batteries BA-30 by looking into end of hood (17) while pulling trigger. If there is no light flash, hold relay (29) close to ear, pull trigger and listen for the click of relay switch when trigger is pulled and released.

If there is no light flash and no click, install fresh Batteries BA-30. If there is no light flash seen, but a click of the relay switch is heard, install new Lamp LM-61. To install new Lamp LM-61, first remove hood (17) by holding it in left hand and barrel of Signal Lamp M-227 in right hand, then turn hood (17) clockwise (to right) and it will unscrew from the barrel. The reflector (20), base of Lamp LM-61, lamp bushing (22), and reflector spring (21) will all be exposed, but will remain in hood (17). Turn lamp bushing (22) counter-clockwise (to left) until defective lamp comes out. **NOTE:** This bushing (22) is similar to the bushing in Flashlight TL-122-B. In an emergency, one can be substituted for the other. Replace with new Lamp LM-61 and screw in lamp bushing (22) by turning it clockwise (to right). Then replace hood (17) on barrel of Signal Lamp M-227.

b. Cleaning Silver Contact Points.—If, with new Lamp LM-61 and fresh Batteries BA-30, there is no light flash, remove bolt (32) and nut at end of trigger box assembly (31). Remove trigger box assembly (31) by pulling it forward and observe if there is any dust, dirt, or foreign substance on or between the silver contact points. If so, clean by using a small instrument such as a pocket knife or file. Replace trigger box assembly (31) and bolt (32) and nut, and test for light flashes by pulling and releasing trigger.

c. Replacing Relay.—If there is no light flash or click of the relay switch after new Lamp LM-61 and fresh Batteries BA-30 are installed and silver contact points in trigger box assembly (31) are cleaned, remove relay cover (25) by removing relay cover screw (26) in bottom of relay cover (25) between the two binding posts (27). Pull trigger and see if relay switch moves. If Lamp LM-61 and Batteries BA-30 are OK and contact points are clean, when the trigger is pulled the coil of relay (29) will become energized and pull the switch down to the core, somewhat like a solenoid coil operates. When trigger is released, the trigger spring will pull the trigger away from the contact strip, allowing the contactors to separate, opening the circuit at this point and causing the click when operating properly. If relay switch does not operate properly, replace with new relay and resistor assembly. Remove relay and resistor assembly by taking out the two screws holding relay bracket to barrel of Signal Lamp M-227. Then lift bracket off and remove the one screw which holds the relay on the bracket and the strap. Un-solder the contact strips from relay (29),

remove defective relay (29) and defective resistor (28) and replace with new relay and new resistor. Put the one screw back in bracket, strap and relay (29). Replace strap and bracket and put back in position the two screws that hold relay bracket to the barrel of Signal Lamp M-227. Re-solder the contact strips to relay (29). **Caution.** The contact leads from relay (29) to binding post on strap bracket, from trigger to relay (29) from battery contact, and from lamp contact should never be removed or adjusted. If a new relay is inserted, be careful in un-soldering and re-soldering all these contact leads not to displace them. Test relay (29) by pulling and releasing trigger, which will cause the relay switch to click. Then slip relay cover (25) over relay (29) and replace relay cover screw (26) between the two mounting posts on the bottom of relay cover (25).

8. Cleaning Mirror Reflector.—Don't remove reflector (20) unless it becomes dirty, dusty or clouded. To clean reflector (20), remove hood (17), remove reflector spring (21) from hood (17) with tip of finger or small instrument, then reflector (20) can be lifted out. Moisten soft cotton with ether and then with very fine rouge on moistened cotton wipe reflector (20) gently until reflecting surface is dry and clean. Replace reflector in hood (17), making sure that rim of reflector (20) is fitted tight against offset shoulder in hood (17). Hold reflector (20) in this position with one hand while inserting reflector spring (21) with the other hand. Place hood (17) on threaded portion of barrel adaptor (24) and turn hood (17) counter-clockwise (to left) with left hand until hood (17) is screwed in tight and door on front of hood (17) will open either *right, left* or *down*.

9. Cleaning Filter (18) and Lens of Goggles M-172.—Red Polystyrene, the substance of which filter (18) is made, is soft, easily scratched and cannot withstand hot water. Cleanse filter (18) with clean soft cloth or cotton, pure mild soap, free from substances that scratch, and cool water. If filter (18) becomes scratched, cleanse with Simonize, or similar cleaner. Then apply Simonize, or similar polish, and rub briskly until surface becomes dry, smooth and hard. **Caution—**Don't use gasoline, thinners or other solvents, as they will cloud the Polystyrene surface. Cleanse lenses of Goggles M-172 with any substance that is ordinarily used to clean glass. If nothing is available, breathe on lenses and rub gently with clean handkerchief.

10. Lubrication.—Occasionally apply a small amount of clean, good grade vaseline to the mounting post (30) of Signal Lamp M-227. If tripod head (15) becomes sticky and difficult to move around in position, remove clamping ring nut on tripod head (15) and insert a small amount of clean, dry graphite in the socket that receives the ball of tripod head (15) and replace the ball and ring nut.

SECTION IV. SUPPLEMENTARY DATA

11. Table of Replaceable Parts.—

Ref. No.	Stock No.	Name of Part	Description	Function	Mfr.
29	2Z7642-1	Relay AS-34	Coil and switch	To operate switch	1
28	3Z6100-79	Resistor 111-1100-5	BT 1/4 W 1000 Ohm	Limits line surge	2
10	3E1701	Cord CD-701	Twin-conductor rubber-coated copper wire	Remote control of signal lamp	3
20	6B628	Reflector W-100	Rhodium-plated metal	To reflect light	4
18		Filter	Red "Polystyrene"	Produces red light	5
5	6B432	Goggles M-172	Red glass lens, soft rubber	To receive red light flashes	6
4	6B41	Bag BG-131	Duck, 4 pockets	Holds signal lamp, etc.	7
3	6B1121	Tripod LG-21	3 tubular metal legs	Supports signal lamp	8
2	6B441	Gunstock M-341	Skeleton metal frame	Holds lamp to shoulder	9
6	6B442	Hand Key J-51	Steel frame, silver contacts	Creates light flashes	3
7	6B561	Lamp LM-61	Quick flashing lamp	To produce light	3
8	3A30	Batteries BA-30	Dry cell batteries	Supply electric current	3
35	6B195	End cap S-144	Metal cap	Holds batteries in barrel	3
31	6B194	Trigger box assembly S-123	Bakelite trigger, metal box	Operates lamp as a gun	3
25	2Z3404-1	Relay cover S-703	Metal box	Covers relay and resistor	3
17	6B440	Hood assembly S-205	Metal housing and reflector	Supports reflector and filter	3
		Filter MC-430	Red lenses in metal frame	Used on Field Glass M3 or EE when receiving long-distance signals	3

* List of Manufacturer's names and addresses:

1. Allied Control Co., Inc., New York City
2. International Resistance Co., Philadelphia, Pa.
3. Greenway Reflector Mfg. Co., Wayne & Bristol Sts., Philadelphia, Pa.
4. Wendel, Inc., New York City
5. American Industrial Safety Equipment Co., New York City
6. Wm. F. Vanderherchen, Inc., Philadelphia, Pa.
7. Eastman Kodak Co., Rochester, N. Y.
8. General Electric Co., Cleveland, O.
9. Ray-O-Vac Co., Madison, Wisc.

[A. G. 062.11 (11-4-42)]

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(For explanation of symbols, see FM 21-6.)