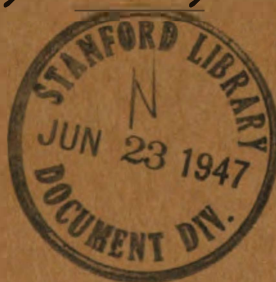


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TM 11-360

WAR DEPARTMENT TECHNICAL MANUAL

REEL UNITS RL-26, R-26-A, -B, AND -C



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WAR DEPARTMENT

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OCTOBER 1944

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WAR DEPARTMENT TECHNICAL MANUAL
TM 11-360

This manual supersedes TM 11-360, 21 August 1941, and TB 11-360-1, 22 December 1943.

REEL UNITS RL-26,
RL-26-A, -B, AND -C



WAR DEPARTMENT

OCTOBER 1944

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WAR DEPARTMENT,

WASHINGTON 25, D. C., 31 OCTOBER 1944.

TM 11-360, Reel Units RL-26, RL-26-A, -B, and -C, is published for the information and guidance of all concerned.

[A. G. 300.7 (3 Aug 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
*Major General,
The Adjutant General.*

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IC 44: T/O & E 44-7; 44-312.

*IBn 11(5); IC 6, 11, 44(5).

For explanation of symbols, see FM 21-6.

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DESTRUCTION NOTICE

WHY —To prevent the enemy from using or salvaging this equipment for his benefit.

WHEN—When ordered by your commander.

- HOW** —1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.
2. Cut—Use axes, handaxes, machetes.
3. Burn—Use gasoline, kerosene, oil, flame throwers, incendiary grenades.
4. Explosives—Use firearms, grenades, TNT.
5. Disposal—Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

- WHAT**—1. Smash—Engine cylinder head, cylinder, crankcase, carburetor, magneto, air filter, muffler, fuel filter, all frame castings, transmission, reel clutches, all small parts.
2. Cut—Fuel line, all wires in ignition system.
3. Burn—Cover, all wire, gaskets, manuals, fuel, oil.
4. Bend—Gasoline tank, base, reel axles, crankshaft, camshaft.
5. Bury or scatter—Breaker points, all parts listed above after breaking.

DESTROY EVERYTHING

RESTRICTED

This manual supersedes TM 11-360, 21 August 1941, and TB 11-360-1, 22 December 1943.

SECTION I DESCRIPTION

1. Purpose

Reel Units RL-26, RL-26-A, RL-26-B, and RL-26-C are transportable wire-laying and wire-recovering machines. They are intended primarily for either permanent or temporary installation in motor trucks. They can be operated while the vehicles are stationary or in motion. Dismounted, the units can be operated in temporary fixed positions on the ground. In this manual Reel Unit RL-26-() refers to all models of Reel Unit RL-26.

2. Characteristics

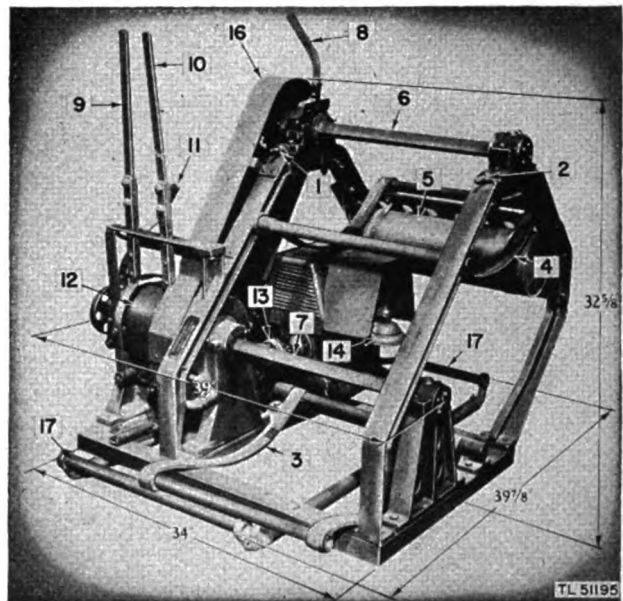
a. **REEL UNIT RL-26.** All the component parts of Reel Unit RL-26 are assembled on a skid frame. The reel unit can be installed quickly in the back of a vehicle. The capacity of the unit is two Reels DR-5, each containing 1 mile of Wire W-110 or its equivalent, mounted in position for paying out or recovering wire. The individual reels are readily replaceable. The wire can be recovered on either reel or on both reels simultaneously at a maximum speed of 6 miles an hour. It can also be recovered on either reel by means of the hand crank when the engine of Reel Unit RL-26 is at rest. The skid and the framework are drilled with holes which permit the unit to be secured to the floor of a truck with bolts or lag screws.

b. **REEL UNIT RL-26-A.** This reel unit is identical with Reel Unit RL-26 except that it is supplied with waterproof canvas Cover BG-68. Only the addition or removal of Cover BG-68 changes the designation. Minor differences in the covers and guards, and the design of the fuel tank and the main clutch handles do not affect the designation as Reel Unit RL-26 or RL-26-A. Likewise the several different makes and types of engines which may be installed do not affect the designation.

c. **REEL UNIT RL-26-B.** The principle

changes in design of Reel Unit RL-26-B over previous models are as follows:

- (1) The aluminum frame base and steel skid have been replaced with a welded steel base having two carrying handles attached by bolts.
- (2) The aluminum frame side brackets have been replaced with welded steel brackets and are changed in shape. Reel Unit RL-26-B does



- (1) Bearing adjustment screw.
- (2) Bearing adjustment screw.
- (3) Lower loading cradle.
- (4) Upper loading cradle.
- (5) Fuel tank.
- (6) Upper reel axle.
- (7) Lower reel axle.
- (8) Secondary clutch lever for upper reel axle.
- (9) Main clutch lever for lower reel axle.
- (10) Main clutch lever for upper reel axle.
- (11) Secondary clutch for lower axle.
- (12) Clutch drum.
- (13) Flexible coupling.
- (14) Air cleaner.
- (15) Chain guard.
- (16) Skid frame.

Figure 1. Reel Unit RL-26.

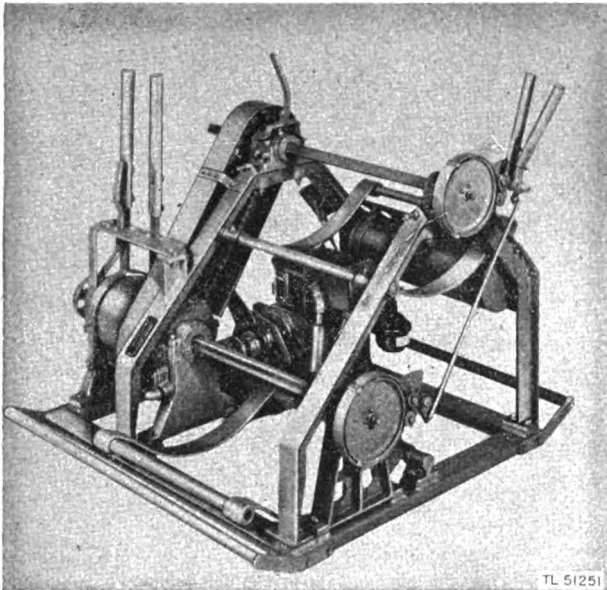


Figure 2. Reel Unit RL-26-B.

not require the additional reinforcing kit described in paragraphs 15 and 47.

(3) The aluminum transmission housing and bearing stand have been replaced with malleable iron castings.

(4) The muffler arrangement has been changed so that the lengthy exhaust pipe has been eliminated.

(5) The glass sediment-bowl type gasoline filters are now used instead of the former gasoline filter.

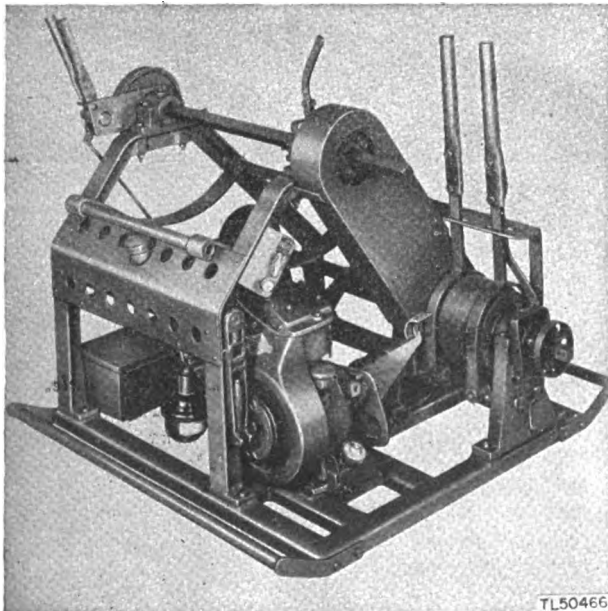


Figure 3. Reel Unit RL-26-C—operating side.

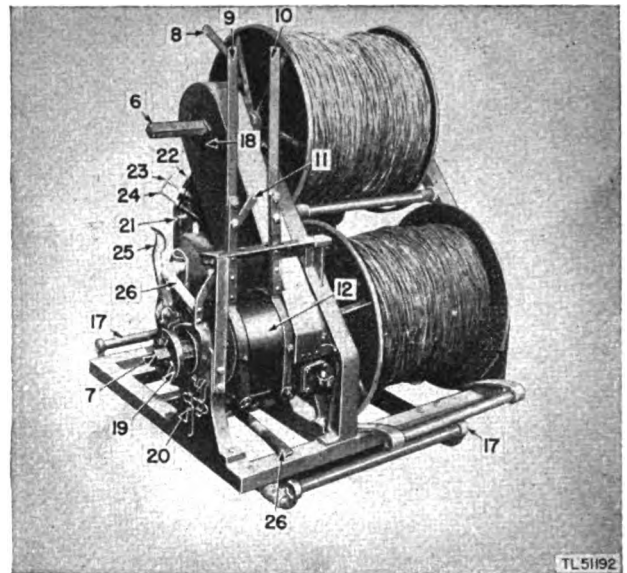


Figure 4. Reel Unit RL-26 with two Reels DR-5 installed.

(6) Brakes were first introduced on Reel Unit RL-26-B and are currently being supplied for all units now in service. See paragraph 47, covering the installation of Signal Corps Kit No. 6H6226A/K11.

(7) Cover BG-68 has been changed to Cover BG-68-A. This new cover is designed to accommodate Reel Unit RL-26-B, and does not have the lashing rope down the rear side. The cover is secured to the reel unit by lashing it to the four corners of the frame base.

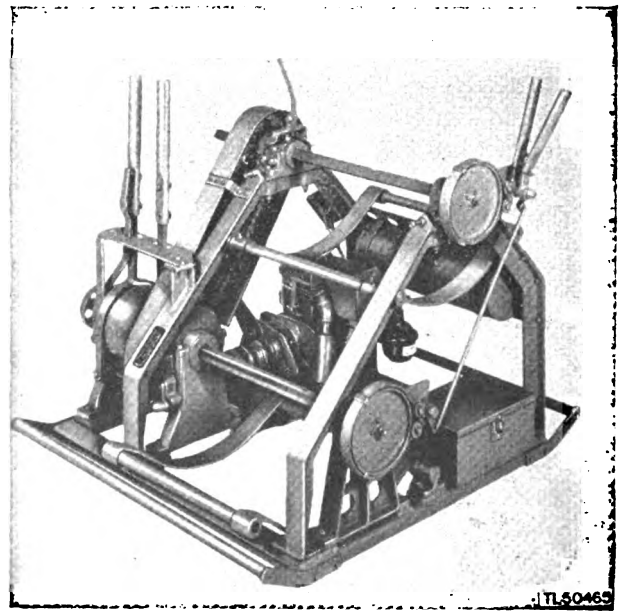


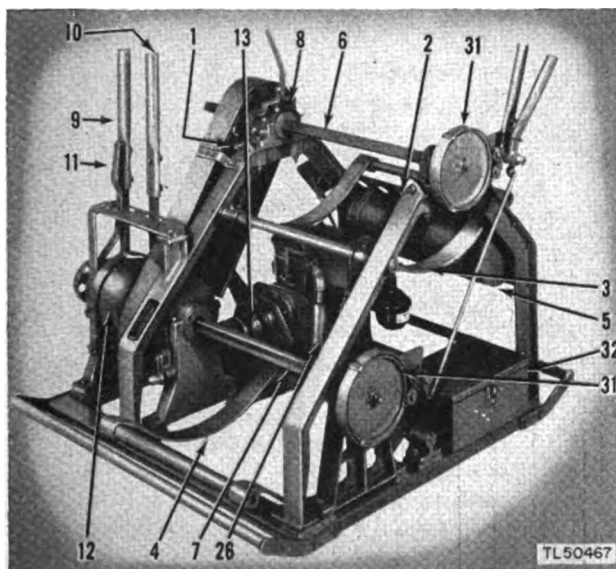
Figure 5. Reel Unit RL-26-C.

(8) There have been several minor changes in certain of the component parts. When ordering replacements, order by stock number, name, and description. (See par. 49.)

d. REEL UNIT RL-26-C. This reel unit is identical with Reel Unit RL-26-B except for the addition of Tool Box D-7502-A.

3. Description

a. REEL UNITS RL-26 AND RL-26-A (fig. 1). Reel Units RL-26 and RL-26-A consist of a framework upon which are mounted: a gasoline engine; axles (6) and (7) (also called "reel shafts") for two Reels DR-5; transmission features incorporating clutches which can be operated by hand levers (8), (9), (10), and (11) for connecting the engine shaft to the reel axles; two loading cradles (3) and (4) to facilitate the removal and insertion of the reels. The relative locations of the two reels are shown in figure 4.

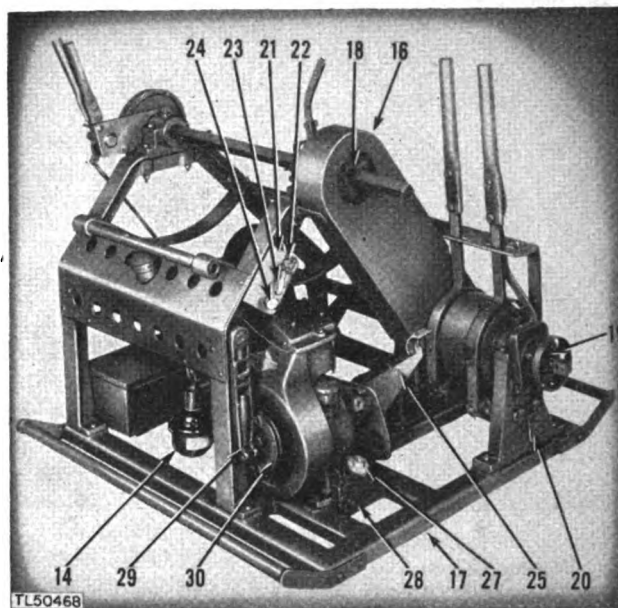


- (1) and (2) Bearing adjustment screws.
- (3) and (4) Loading cradles.
- (5) Fuel tank.
- (6) and (7) Reel axles.
- (8) Secondary clutch lever for upper reel axle.
- (9) Main clutch lever for lower reel axle.
- (10) Main clutch lever for upper reel axle.
- (11) Secondary clutch lever for lower reel axle.
- (12) Clutch drum.
- (13) Flexible coupling.
- (26) Muffler.
- (31) Brakes.
- (32) Tool box.

Figure 6. Reel Unit RL-26-C.

It will be noted that one reel is located to the rear and above the other reel. These reels and their respective axles will be referred to hereafter as the upper reel and/or axle and the lower reel and/or axle. The over-all dimensions of Reel Units RL-26 and RL-26-A are as follows: length, approximately 40 inches; width, 39 inches; height, 33 inches. Its weight without reels is approximately 346 pounds. Since one Reel DR-5, containing 1 mile of Wire W-110, weighs 170 pounds, the unit weighs approximately 690 pounds when fully loaded.

b. REEL UNIT RL-26-B AND RL-26-C. Reel Units RL-26-B and RL-26-C are approximately 42 inches long, 41 inches wide, and 31 inches high. Each weighs approximately 435 pounds without reels. The weight of each unit is approximately 775 pounds when it is loaded with two Reels DR-5.

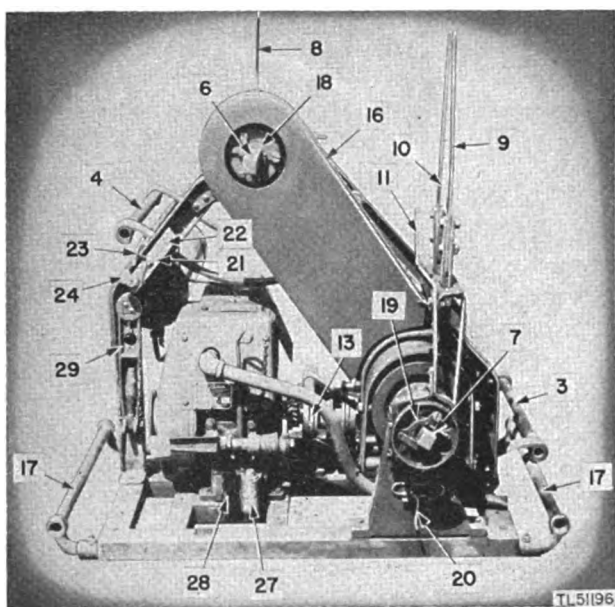


- (14) Air cleaner.
- (16) Chain guard.
- (17) Frame base.
- (18) and (19) Reel latches.
- (20) Axle tool.
- (21) Control panel.
- (22) Ignition switch.
- (23) Throttle.
- (24) Choke.
- (25) Foot starter pedal.
- (27) Oil filler plug.
- (28) Drain plug.
- (29) Hand crank.
- (30) Pulley for rope starter.

Figure 7. Reel Unit RL-26-C.

4. Frame

a. REEL UNITS RL-26 and RL-26-A. The frame of the earlier Reel Units RL-26 and RL-26-A (fig. 1) consists of an aluminum alloy base and two aluminum alloy side members. In later units the aluminum alloy base and side members were replaced with welded steel base and side members. A skid frame of pipe (17) is attached to the underside of the base to facilitate handling. The side members are bolted to the base and are braced across their upper portions at two places. The shape of the frame is such that the unit will not be obstructed by the rear wheel guards in trucks where the wheel guards project into the truck bed proper. The frames on units of recent procurement are



- (3) and (4) Loading cradles.
- (6) and (7) Axles for reels.
- (8) Secondary clutch lever for upper reel axle.
- (9) Main clutch lever for lower reel axle.
- (10) Main clutch lever for upper reel axle.
- (11) Secondary clutch lever for lower reel axle.
- (13) Flexible coupling.
- (16) Chain guard.
- (17) Skid frame.
- (18) and (19) Axle latches.
- (20) Axle tool.
- (21) Control panel.
- (22) Ignition switch.
- (23) Throttle.
- (24) Choke.
- (27) Oil filler plug.
- (28) Drain plug.
- (29) Crank.

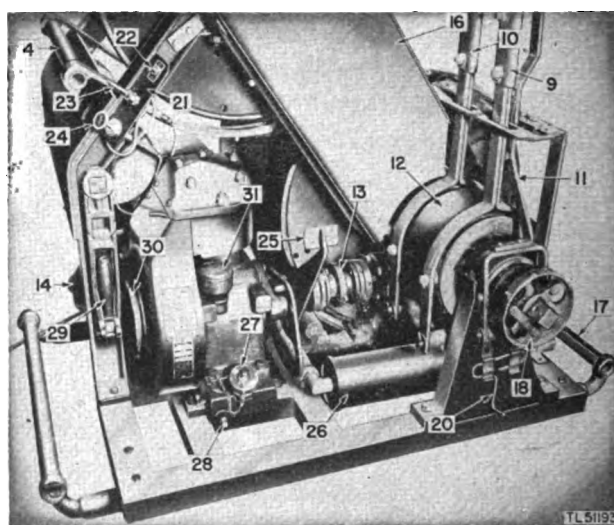
Figure 8. Reel Unit RL-26, showing Lauson engine.

drilled so that the Lauson and the Briggs and Stratton engines may be interchanged.

b. REEL UNITS RL-26-B AND RL-26-C. The frame of Reel Unit RL-26-B and RL-26-C (fig. 5) consists of a steel base and two steel side members. The base consists of formed steel shapes welded together with mounting surfaces for the component subassemblies. The steel side brackets are bolted to the base and supported by two cross braces. The bases are drilled so that either Lauson or Briggs and Stratton engines may be used.

5. Reel Axles and Bearings (figs. 1, 3, and 4)

a. REEL UNITS RL-26 AND RL-26-A. The reel axles of Reel Units RL-26 and RL-26-A



- (4) Upper loading cradle.
- (9) Main clutch lever for lower reel axle.
- (10) Main clutch lever for upper reel axle.
- (11) Secondary clutch lever for lower reel axle.
- (12) Clutch drum.
- (13) Flexible coupling.
- (14) Air cleaner.
- (16) Chain guard.
- (17) Skid frame.
- (18) Reel axle latch.
- (20) Axle tool.
- (21) Control panel.
- (22) Ignition switch.
- (23) Throttle.
- (24) Choke.
- (25) Foot pedal starter.
- (26) Muffler.
- (27) Oil filler plug.
- (28) Drain plug.
- (29) Hand crank.
- (30) Pulley for rope starter.
- (31) Crankcase breather.

Figure 9. Engine and coupling of Reel Unit RL-26.

are designed to receive and drive Reel DR-5. These axles are provided with dirtproof bearings. The axle is inserted through the square hole in the bearing, through the square hole in the reel, and through the opposite bearing. The axle is held in this position by a spring-operated latch which engages a recess in the square axle shaft. The axle is beveled at one end to facilitate the insertion through the various square holes. Before either reel axle can be removed it is necessary to disengage the retaining latch. The latches referred to are shown in figures 4 and 8 as (18) and (19). The tool (20) facilitates withdrawal of the reel axles.

b. REEL UNITS RL-26-B AND RL-26-C. The reel axles and bearings in Reel Units RL-26-B and RL-26-C (figs. 2 and 3) are of the same construction as those in Reel Units RL-26 and RL-26-A described in a above.

6. Transmission

In Reel Units RL-26, RL-26-A, RL-26-B, and RL-26-C the gas engine drive is connected to the reel axles by the transmission system. This transmission system includes a main clutch and a secondary clutch for each reel axle. (See sec. III for details.) The controlling levers for the various clutches are shown as follows (fig. 1): main clutch, upper reel, (10); main clutch, lower reel, (9); secondary clutch, upper reel, (8); secondary clutch, lower reel, (11). The main clutch levers and the upper secondary clutch lever may be removed or collapsed for shipment. The details of the transmission system of Reel Units RL-26-A, RL-26-B, and RL-26-C are shown in figures 25 and 26.

7. Gasoline Engines

a. GENERAL. (1) All reel units are supplied with either a Lauson or a Briggs and Stratton engine. In the future they may be equipped with other engines which are at least equal to these engines. All engines are interchangeable. The frames are drilled to receive any engine, and the shafts are in line with the coupling. Some of the old Reel Unit RL-26 frames are not drilled for the Briggs and Stratton engine. All frames should be drilled to mount this type of engine in order to facilitate maintenance. This is especially true if an organization is equipped with reel units having both types of engines.

(2) All engines are provided with a nameplate giving the name of the manufacturer, the model, and the serial number.

(3) The engines each weigh approximately 73 pounds.

(4) The fuel tank (fig. 1(5)) is a special type, and is mounted on the reel frame rather than on the engine. The tank is connected to the engine by an oil-resistant rubber fuel line. A cut-off valve is installed in the fuel line at the tank. The fuel system on recent units has been improved; the fuel line is attached near one end of the tank instead of being attached near the center, and a gasoline filter is combined with the cut-off valve.

(5) Instructions for the care and maintenance of the engines are contained in section IV.

(6) Before attempting to start the engine, observe every precaution regarding lubrication as set forth in paragraph 13.

(7) A control panel (21) is mounted on the frame of the unit. (See figs. 4, 7, 8, and 9.) To accelerate the engine, pull out the throttle control (23) from the panel. To choke the carburetor, pull out the choke control (24) from the panel. The throttle control may be locked in any desired position by a slight turn of the control handle in a clockwise direction.

b. THE 4-STROKE CYCLE. (1) *Intake stroke.* The piston goes down, creating a vacuum in the cylinder. This draws gas through the open intake valve into the space above the piston.

(2) *Compression stroke.* The piston comes up with the valves closed, highly compressing the gas into the space left between the top of the piston and the cylinder head.

THE 4-STROKE CYCLE

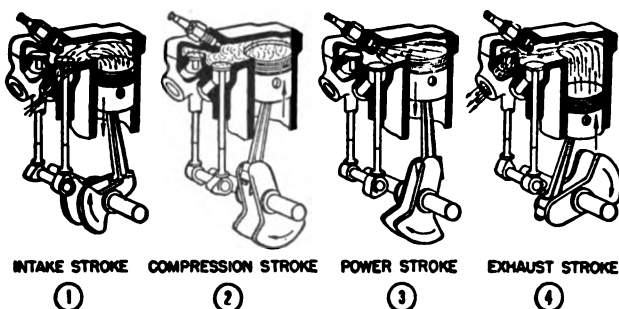


Figure 10. The 4-stroke cycle.

TL50470

(3) *Power stroke.* At this point the magneto sends high-tension current to the spark plug, firing or exploding the compressed gas and driving the piston down.

(4) *Exhaust stroke.* Exhaust valve opens and the upward stroke of the piston forces out all of the burnt gases, thus completing the power cycle.

c. **REEL UNITS RL-26 AND RL-26-A.** Reel Units RL-26 and RL-26-A use either a Lauson or a Briggs and Stratton engine. These motors are interchangeable.

(1) *Lauson engine.* Two types of this engine have been used:

(a) *Lauson Engine RAY-843.* The engine RAY-843 (figs. 4 and 8) is equipped with a mechanical foot-pedal starter (25), a Wico magneto, and a Donaldson air cleaner. A straight pipe section (26) is used in place of a muffler. An air-driven governor is used to prevent the speed from exceeding 4,000 revolutions per minute. This governor is installed in the ventilating system and is connected to the carburetor for control.

(b) *Lauson Engine Ray-885.* The engine RAY-885 has several refinements and improvements. It is equipped with a mechanical foot-pedal starter, an Eisemann magneto, a Tillotson carburetor, and a Donaldson air cleaner. Other refinements and improvements are a pulley for rope starting, covers and guards for the carburetor and the spark plug, and a mechanical speed-limiting governor. The exhaust pipe has been modified and is now equipped with a Hayes muffler or its equal to reduce the exhaust noise to a minimum.

(2) *Briggs and Stratton engine, Model A, No. 208,072.* This engine is also standard equipment on Reel Units RL-26 and RL-26-A. It is equipped with a mechanical foot-pedal starter, a Donaldson air cleaner, and a Nelson muffler. The engine is provided with a pulley for rope starting, covers and guards for the carburetor and the spark plug, and an adjustable speed-limiting governor.

d. **REEL UNITS RL-26-B AND RL-26-C.** Reel Units RL-26-B and RL-26-C are equipped with Briggs and Stratton engines model AP, type No. 208286. (See fig. 11.) These engines are fundamentally the same as furnished previously

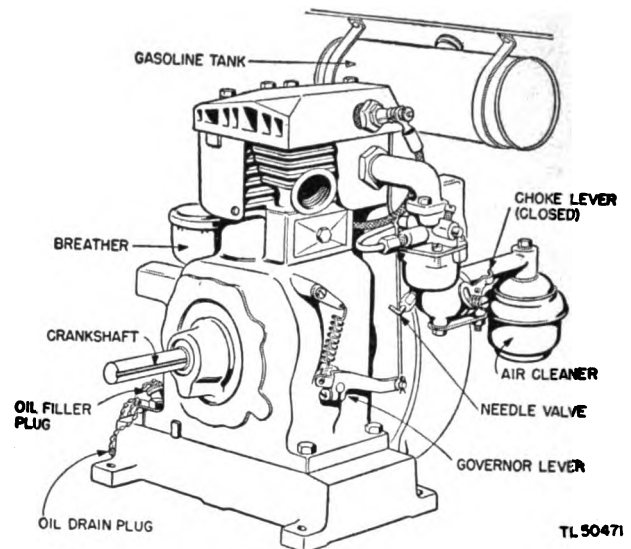


Figure 11. Briggs and Stratton engine model AP, type No. 208286, on Reel Units RL-26-B and RL-26-C.

except that the ignition system of the engine has been shielded to minimize radio interference. The operation and maintenance of the engines are covered in section IV.

8. Loading Cradles

Loading cradles are provided in all units for both upper and lower reels. These cradles (figs. 1, 7 and 8(3) and (4)) are intended to facilitate replacement of reels. They are an aid in aligning the square reel axle holes with the bearing when inserting the reel axle. The reel is placed in the cradle. The cradle is lifted by grasping the handle bar until the bearings and the reel hole have been aligned. The reel axle is then thrust into position. The axle tool (fig. 4(20)) is an aid in withdrawing the reel axles.

9. Brakes

The addition of two hand brakes constitutes one of the changes of Reel Unit RL-26-B over previous units. The main parts of the brakes are the drums, the brake bands, the levers, and the operating handles. The drums are attached to the axle bushings and rotate when the axles revolve. The braking action is created by pulling on the handles, which actuates the brake bands by levers. The brake bands are lined with regular asbestos-base brake linings. These linings engage the drums by friction, thereby producing the braking action. The proper method of using the brakes is outlined in paragraph 16.

10. Tool Box

Reel Unit RL-26-C is the first model reel unit having a tool box mounted on the unit. The tools and spare parts contained therein are listed in paragraph 22 and are shown in the reference photograph. (See fig. 34.)

11. Covers

a. COVER BG-68. Reel Unit RL-26 is designated Reel Unit RL-26-A when it is equipped with Cover BG-68. Cover BG-68 is made of waterproof, mildew-resistant olive drab duck. It is constructed to cover the entire reel unit. The cover is put on whenever the reel unit is not in use. Lengths of rope and suitable grommets are provided so the cover may be lashed in place. The reel unit is covered with Cover BG-68 as follows:

- (1) The cover is adjusted over the reel unit.
- (2) The cover is lashed down at the rear of the reel unit.
- (3) The cover is lashed at the four corners to the reel unit base or skid. Take care, in placing the cover over the reel unit, that the reinforced sections of the cover rest on top of the main clutch levers and the secondary clutch lever.



Figure 12. Cover BG-68-A on Reel Unit RL-26-C.

b. COVER BG-68-A. Cover BG-68-A (fig. 12) is basically the same as Cover BG-68, except that it has been redesigned to accommodate Reel Units RL-26-B and RL-26-C. There are reinforcements at all points where excessive wear is likely to occur. Cover BG-68-A is secured to the reel unit by four lashing ropes which tie to the four corners of the frame base.

SECTION II

INSTALLATION AND OPERATION

12. Installation

a. **GROUND INSTALLATION.** A typical ground installation is shown in figure 13. The engine is being used as a power source. The operator has both main clutches engaged, and the wire is being reeled in on both reels simultaneously.

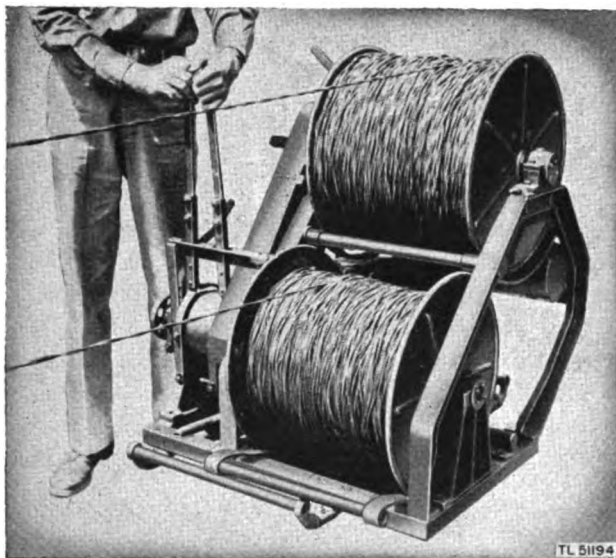


Figure 13. Ground installation of Reel Unit RL-26.

b. **VEHICULAR INSTALLATION.** A typical installation of the reel unit in a truck is shown in figures 15 and 16. In such an installation, the unit is securely fastened to the floor of the truck or other vehicle by lag screws or bolts. Holes are provided in the base and skid frame for this purpose. Other arrangements for fastening the unit securely to withstand hard road usage may be used.

(1) *Installation of Reel Unit RL-26-() in 2½ ton 6x6 cargo truck.* Any of the reel units may be mounted in the 2½ ton 6x6 cargo truck. Drill ¾ inch holes in the truck bed according to the mounting diagram. (See fig. 14.) The unit is fastened to the truck bed with 5/16"-18x3" bolts.

(2) *Installation of Reel Unit RL-26-() in 1½ ton 4x4 cargo truck.* Reel Unit RL-26-() may be mounted in the 1½ ton 4x4 cargo truck. Drill ¾ inch holes in the steel truck bed floor

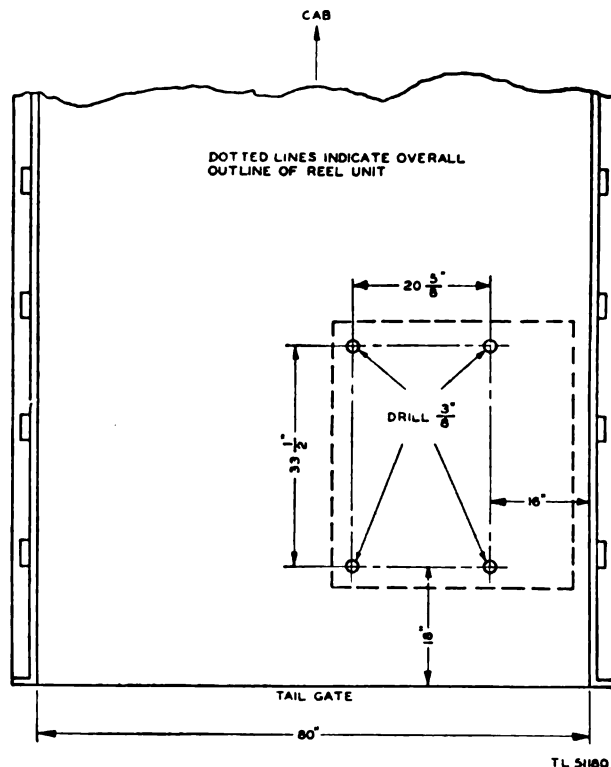


Figure 14. Mounting details on 2½-ton 6x6 cargo truck.

according to the mounting diagram. (See fig. 17.) The unit is fastened to the truck bed with 5/16"-18x3" bolts.

(3) *Installation of Reel Unit RL-26-() in ¾ ton 4x4 weapons carrier.* Reel Unit RL-26-() may be installed in the ¾ ton 4x4 weapons carrier by using the special mounting kit SC No. 6H6226A/K13 provided for this purpose. The mounting frame is constructed with the hardware provided in the kit and the wood obtained in the field according to the detail diagram. (See fig. 19.) Holes for mounting the frame are drilled in the truck bed as shown in figure 20. The units are installed by attaching them to the mounting frame according to the mounting diagrams in figures 21 and 22. If the kit is not available, a mounting frame can be improvised from the materials at hand. Many variations in the construction of the frame are possible.



Figure 15. Laying wire with truck-mounted Reel Unit RL-26.

13. Lubrication

a. REEL UNITS RL-26 AND RL-26-A. It is imperative that lubrication of the various moving parts of the units and of the engine be checked frequently.

(1) The reel axle bearings are equipped with oil cups for lubrication. These cups should be filled with Oil, engine (fig. 43) at regular intervals. The length of these intervals will depend upon the service given the unit. The viscosity of the oil to be used will depend to some extent on the climate in which the unit is operated.

(2) The sprocket chain should be lubricated occasionally with Oil, engine. (See fig. 43.)

(3) The reel unit transmission (housing the inclosed worm and worm gear) requires particular attention with regard to lubrication. The

correct transmission oil must be used, and the proper level of this oil must be maintained. In general, the oil required is Oil, automobile transmission, as used in automobile transmissions under comparable climatic conditions. When the temperature is above 32° F., use Oil, automobile transmission, SAE 90. When the temperature is below 32° F., use Oil, automobile transmission, SAE 80. A heavier oil, when cold, will thicken and create an excessive load on the transmission and engine. This makes engine starting difficult. The oil must be maintained at a level which can be seen by looking down into the filler spout with the plug removed and the engine not running. The filler plug and drain plug should be firmly in position during operation.

(4) The gasoline engine requires the care and

maintenance characteristic of all gasoline engines. The most important consideration is correct lubrication. The crankcase has a capacity varying from 1 pint to 2½ pints, depending upon the particular type of engine. The oil filler plug is painted red. The drain plug is painted blue. The following general rules, if strictly observed, will insure proper lubrication of the engine:

(a) Be sure the crankcase is filled up to the filler plug. Each engine is equipped with an instruction plate containing brief instructions for the lubrication of that particular engine. Instructions specifying the kind of lubricant to be used in summer and in winter are included. The instruction plate also contains directions for the care of the engine in storage. The specific instructions on this plate should be followed.

(b) Frequently inspect the oil level during operation. Be sure to stop the engine for this inspection. Add new oil as needed to maintain the filler spout full. The oil level should be inspected at least once during every hour of operation.

(c) Drain the crankcase and refill it with new oil every 48 hours of operation.

b. REEL UNITS RL-26-B AND RL-26-C. The following changes in the above procedure apply only to Reel Units RL-26-B and RL-26-C:

(1) The reel-axle bearing-end brake levers are equipped with Zerk fittings. These should be serviced every 8 hours with Grease, general purpose, No. 1 or No. 0. In extremely cold temperatures, Ordnance Department special lubricating grease (Spec. No. AXS-637) may be used.



Figure 16. Recovering wire with truck-mounted Reel Unit RL-26.

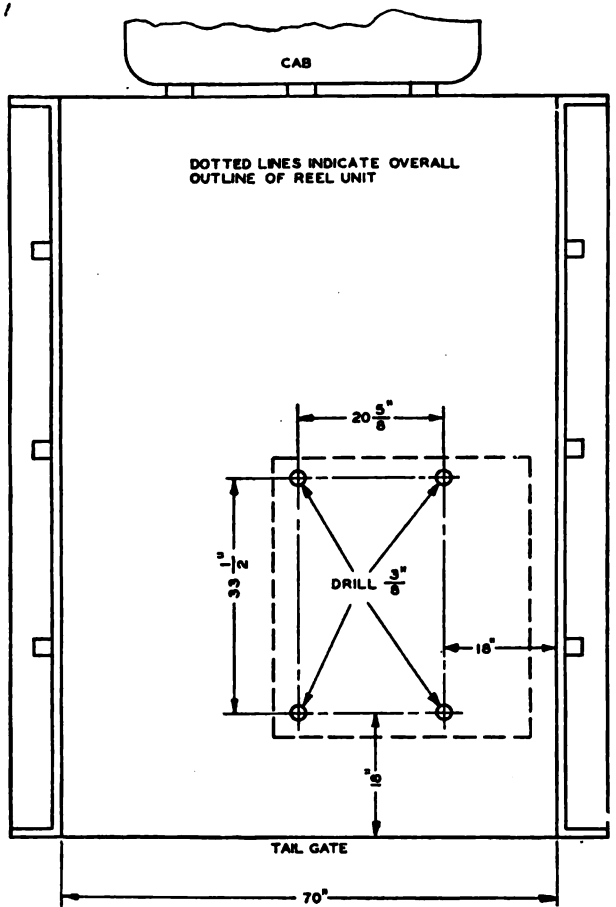


Figure 17. Mounting details on 1½-ton 4x4 cargo truck.

(2) The sprocket chain should be lubricated every 8 hours with Oil, engine. (See fig. 43.) Clean and relubricate every 64 hours.

(3) Check the oil level in the reel unit transmission every 64 hours. Maintain the oil at a level that may be seen by looking down the filler spout with the plug removed and the engine not running. Use Lubricant, gear, universal; SAE 90 in temperatures above 32° F., and SAE 80 between 0° F., and 32° F. For temperatures below 0° F., use SAE 75. In extremely cold weather, it may be necessary to dilute SAE 75 with as much as 40 percent Oil, engine SAE 10.

(4) The upper and lower secondary spline shafts and shift collars should be lubricated every 8 hours with Oil, engine, SAE 10. These should be thoroughly cleaned and lubricated every 64 hours.

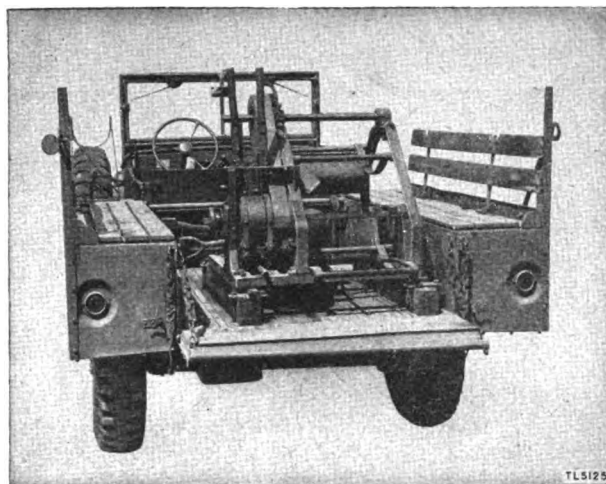
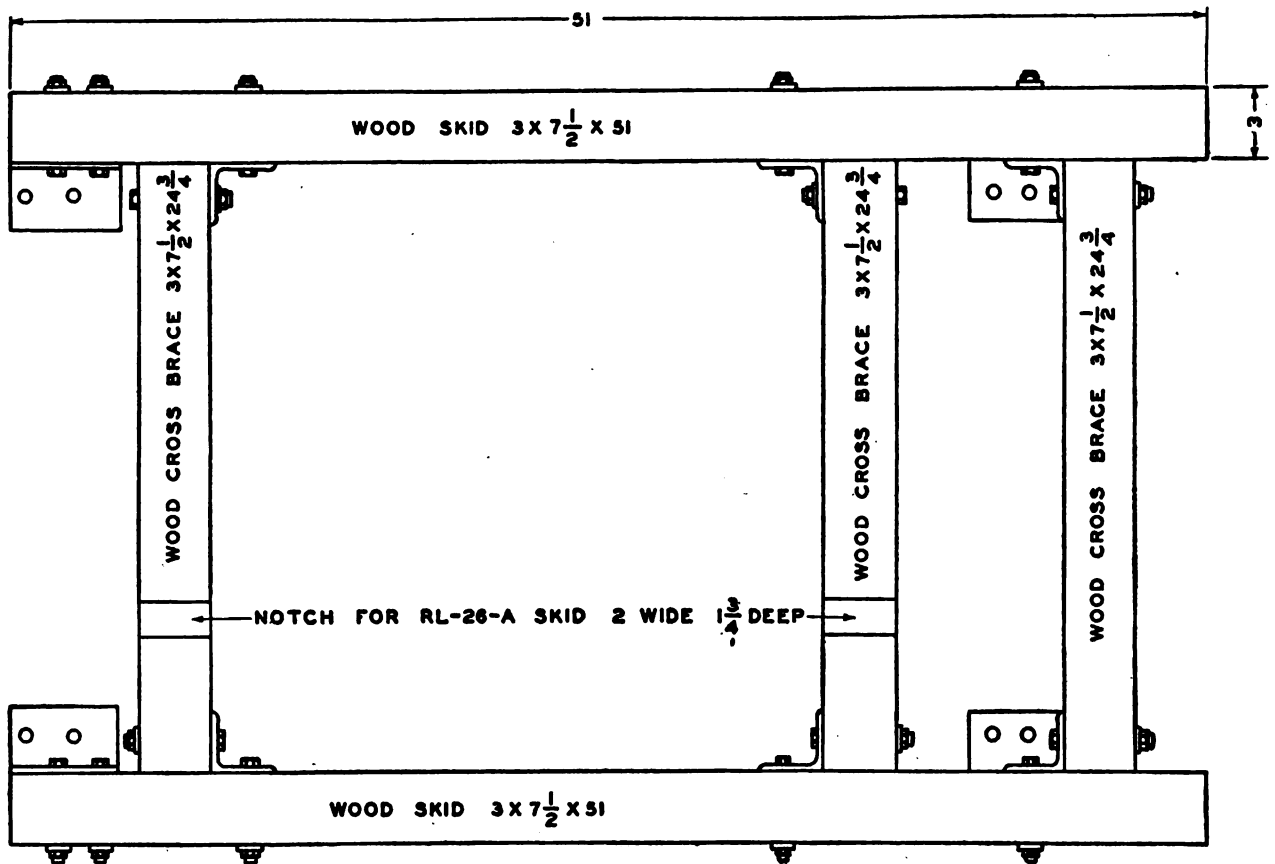


Figure 18. Reel Unit RL-26 mounted on ¼-ton 4x4 weapons carrier.

14. Operation of Engine

When starting any new engine or any engine which has been standing for some time, make the following check-ups:

- a. See that there is gasoline in the fuel tank. Use every precaution to prevent dirt of any kind from getting into the fuel. Dirt will clog the fuel screen, carburetor jets, or filter on units equipped with a filter.
- b. See that the oil is at the proper level in the crankcase. See figures 41 and 42 for the proper grade of oil.
- c. Open the valve in the fuel line and allow the carburetor float chamber to fill. Open the throttle control about one-fourth of the full throttle position.
- d. Close the choke and turn the engine over several times with the pedal starter and the ignition switch off.
- e. Turn the ignition switch on, open the choke, and crank the engine with the pedal starter. In cold weather it may be necessary to leave the choke partially closed until the engine warms up.
- f. If the engine has been standing idle for a long period of time, the working parts may have become dry. Therefore, it is advisable to idle the engine for a few minutes before applying the load so that all the parts may become properly lubricated.
- g. Never permit the choke to remain closed after the engine starts or when the engine is



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Figure 19. Mounting kit details for mounting Reel Unit RL-26-() on $\frac{3}{4}$ -ton 4x4 weapons carrier.

running. This will cause an excess of raw fuel to be drawn into the cylinder. Raw fuel in the cylinder will result in dilution of the crankcase oil or possible stopping of the engine because of an over-rich mixture.

h. A warm engine does not require as much choking as a cold engine.

i. Stop the engine by means of the magneto cut-out switch. *Never use the carburetor needle valve for stopping the engine.*

j. Adjust the carburetor, if necessary, when the engine is under load and warmed up.

15. Operation of Reel Units RL-26 and RL-26-A

a. **LAYING WIRE.** Assuming that the reel unit has been fastened to the floor of the truck body by either lag screws or bolts, remove the individual reel axles and install one Reel DR-5 filled with wire in each of the loading cradles. Lift the cradles to the proper height, insert the

reel axles, and latch them in place. Disengage both main clutches and both secondary clutches. The reels are now ready for wire-laying operations. To prevent overspinning of the reels when laying wire, "brake" them by lifting the loading cradles up against the edges of Reels DR-5. The engine should not be running when the wire is paid out in this manner. Figure 15 shows Reel Unit RL-26 mounted in a $2\frac{1}{2}$ ton 6x6 cargo truck with personnel in position to control the reels. It requires two operators to control the reels when wire is laid from both reels simultaneously, if this method of breaking the reels is used. Reel Units RL-26 and RL-26-A can be adapted for high-speed field wire construction by installing a kit provided for this purpose. (See par. 47 and fig. 23.) This kit includes means for strengthening the frame and a set of mechanical brakes for each reel axle. By the use of this kit, the vibration and strain of high-speed operation are reduced and better braking control is accomplished.

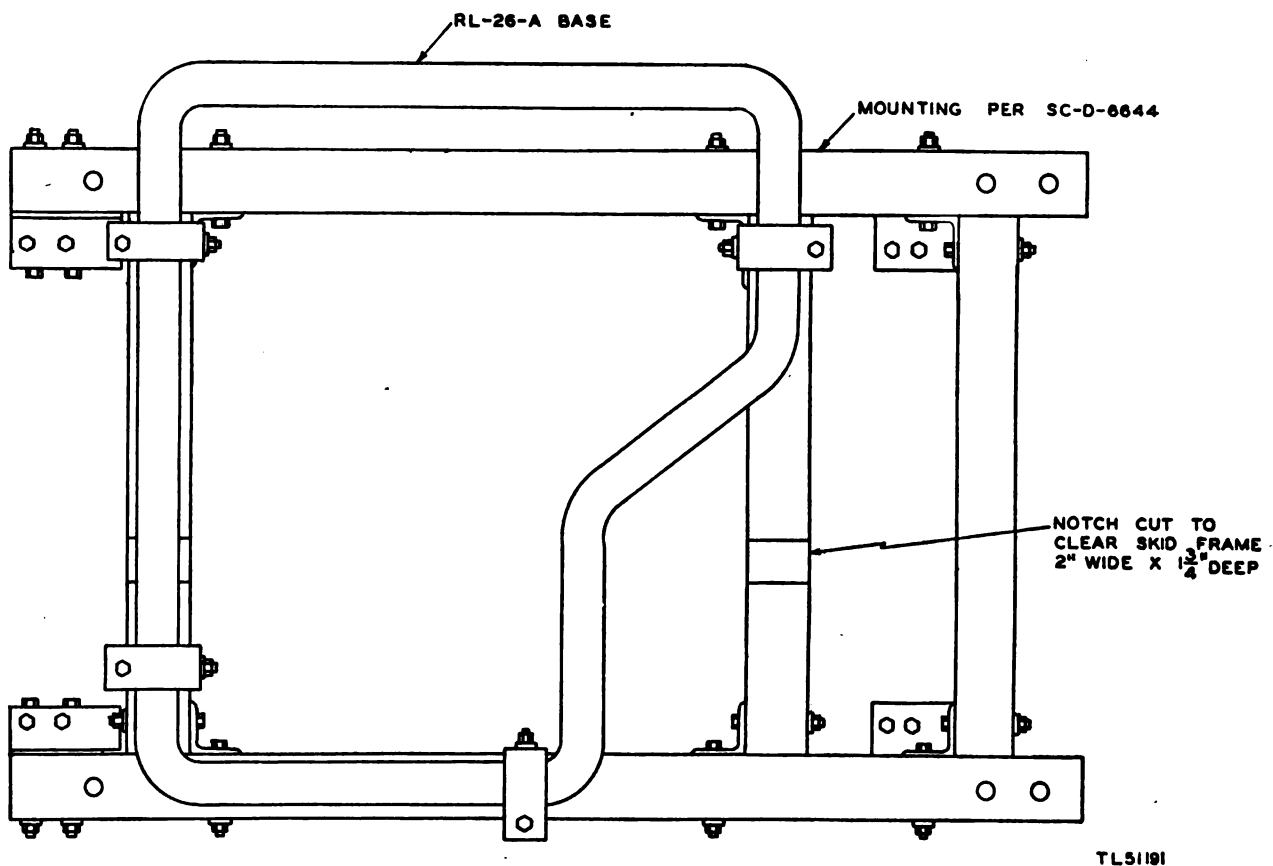


Figure 21. Mounting Reel Unit RL-26-A on $\frac{3}{4}$ -ton 4x4 weapons carrier with mounting kit.

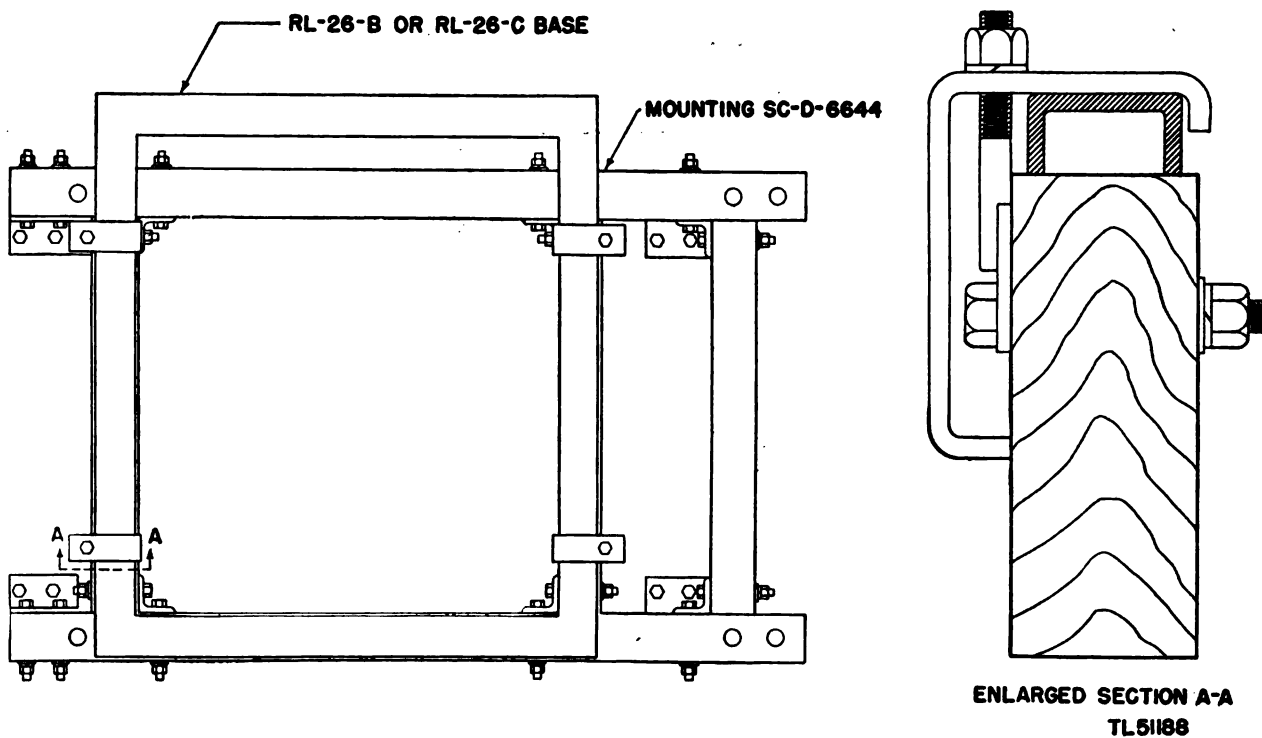
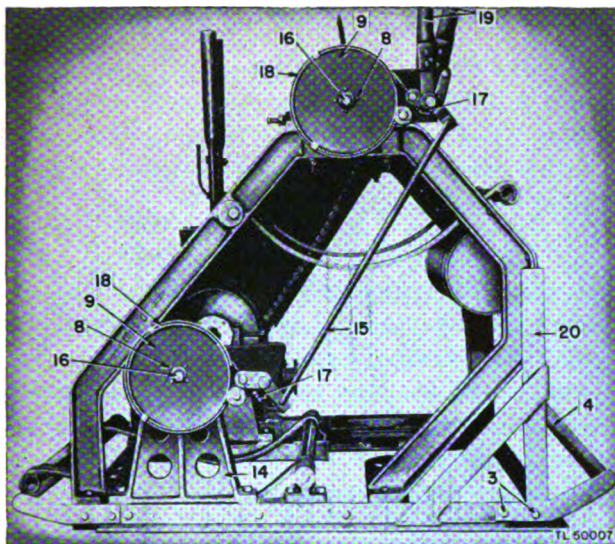


Figure 22. Mounting Reel Units RL-26-B and RL-26-C on $\frac{3}{4}$ -ton 4x4 weapons carrier with mounting kit.



- (3) Cap screws for handles.
- (4) Handle assemblies.
- (8) Brake drum screws.
- (9) Brake drums.
- (14) Lower bearing pillow.
- (15) Brake rod.
- (16) Brake drum adjustment screw.
- (17) Brake band adjusting nuts.
- (18) Brake band.
- (19) Brake lever.
- (20) Steel angle brace.

Figure 23. Reel Unit RL-26-A with reinforcing kit installed.

b. RECOVERING WIRE. (1) *By engine.* When it is desired to recover wire using the gasoline engine as a power source, be sure that all instructions outlined in paragraph 13 have been observed. Mount one empty Reel DR-5 on each of the axles. Secure one end of each of the two field wires to be recovered to the two reels in such a manner that the end of both wires of each pair will extend outside of Reels DR-5 when they are filled; this makes both ends of each wire of the pairs available for testing purposes. Disengage both main clutches and engage the secondary clutches. Start the gasoline engine as explained in paragraph 14, and recover the wire on either or both of the reels by performing the following operations in sequence:

- (a) Permit the engine to run several minutes before subjecting it to load so that it will be properly warmed up. Do not race the engine.
- (b) Operate the main clutches and regulate the speed of wire recovery by manipulating the

engine throttle. Use sufficient pressure on the clutch levers to keep the clutches firmly engaged.

(c) The successful recovery of wire with Reel Units RL-26 or RL-26-A depends to a great extent upon the ability and skill of the operator. A capable and skillful operator will at all times be alert at the main clutch levers, and will be ready to disengage the clutches and brake the reels in an emergency. He will be so familiar with the position and operation of the various controls that he maintains complete control of the reel unit at all times. He must be especially watchful to safeguard personnel who are guiding the wire on the reels and those who are holding the wire loop. The personnel guiding the wire on the reels should be alert and ready to release their hold on the wire if it becomes entangled. The wire must be guided from a position near the reels in an orderly and systematic manner so that it will be wound in reasonable smooth layers across the width of the reel. The personnel holding the loop must maintain sufficient tension on the wire so that it will be wound tightly and so that Reels DR-5 will take approximately 1 mile of wire each. The arrangement and actual method of performing the various duties depends chiefly upon the personnel and equipment available and the particular task at hand, with due consideration of the terrain, the weather, and other factors affecting that particular task. When the reinforcing kit is used, wire may be laid at speeds as high as 30 miles per hour. Extreme caution must be taken at these high speeds to insure that personnel will be safeguarded and that the wire will not become tangled or twisted.

(2) *By hand.* The operation of recovering wire on the upper reel by the hand crank is shown in figure 24. The upper reel secondary clutch is disengaged. The operator is turning the axle and reel directly, without the additional load of sprockets, chain, and main clutch. In recovering wire by the hand crank furnished for this purpose, be sure that the secondary clutches are disengaged. Recovering wire by hand is a laborious task, and sufficient personnel must be available for frequent relief at the crank. Generally, hand recovery of wire is slow. Care should be exercised to wind the wire as tightly as possible on Reels DR-5 to prevent tangling when the wire is laid. Every attempt should be made to keep the engine in working condition so that it will not be necessary to

recover wire by hand. Figures 7, 8 and 9 show the location of the hand crank (29) when not in use.



Figure 24. Recovering wire with Reel Unit RL-26 by using hand crank.

16. Operation of Reel Units RL-26-B and RL-26-C

a. GENERAL. The operation of Reel Units RL-26-B and RL-26-C is the same as for Reel Units RL-26 and RL-26-A with the exception of the method of braking described in paragraph 15a.

b. BRAKING REEL UNITS RL-26-B AND RL-26-C. It is impossible to maintain constant speed when paying out wire. When the vehicle is slowed down from a certain wire-laying speed, the reels may overspin. This overspinning, caused by a reduction in the tension in the wire, causes the wire to loop as it leaves the reel, and become entangled with the reel unit. The brakes on Reel Unit RL-26-B and RL-26-C eliminate this entangling of wire. They maintain a steady pull on the reels by braking the reels as they tend to overspin. The operator must apply braking pressure intermittently only as needed, so that undue wear on the brake bands and drums will not occur. As the brake bands wear, they are adjusted by loosening the two hexagonal nuts on the brake-band adjusting screw, moving the spacer, and then securing the two nuts when the desired brake-band position is obtained.

SECTION III

FUNCTIONING OF PARTS

17. Transmission System (fig. 25)

The gasoline engine drive is connected to the reel axles by a transmission system. The engine is connected to the transmission system by a flexible coupling and worm-gear drive. The transmission system incorporates two expansion friction clutches (hereafter referred to as the "main clutches") and two additional positive splined-sleeve clutches (hereafter referred to as the "secondary clutches"). The two main clutches and the lower reel axle secondary clutch are included in the transmission assembly.

18. Mechanical Coupling

The engine shaft is coupled to the drive shaft through a flexible coupling. (See figs. 1 and 9(13).) The purpose of this coupling is to minimize the effects of minor variations in alignment between the crankshaft of the engine and the transmission drive shaft. The drive shaft enters a dirtproof and oil-retaining gear housing. A worm is machined on the housing end of

the drive shaft. Ball bearings are provided for the shaft on each end of this worm. The worm engages a bronze worm wheel. The ratio between the worm and the worm wheel is 24 to 1; that is, 24 revolutions of the worm result in 1 revolution of the worm wheel. It is imperative that the gear housing be kept filled to the proper level with a lubricant of the correct viscosity as specified in paragraph 13. If this precaution is not observed, the gears will overheat in operation and excessive wear will occur. Actual gear destruction may result from *improper lubrication*.

19. Main Clutches

The worm wheel is directly connected to the clutch drum. This drum acts as the driving side of the main clutch and rotates whenever the engine is running. Two semicircular bronze clutch shoes are arranged so that they may work against the driving surface of the clutch drum. When the clutch is disengaged, the clutch shoes

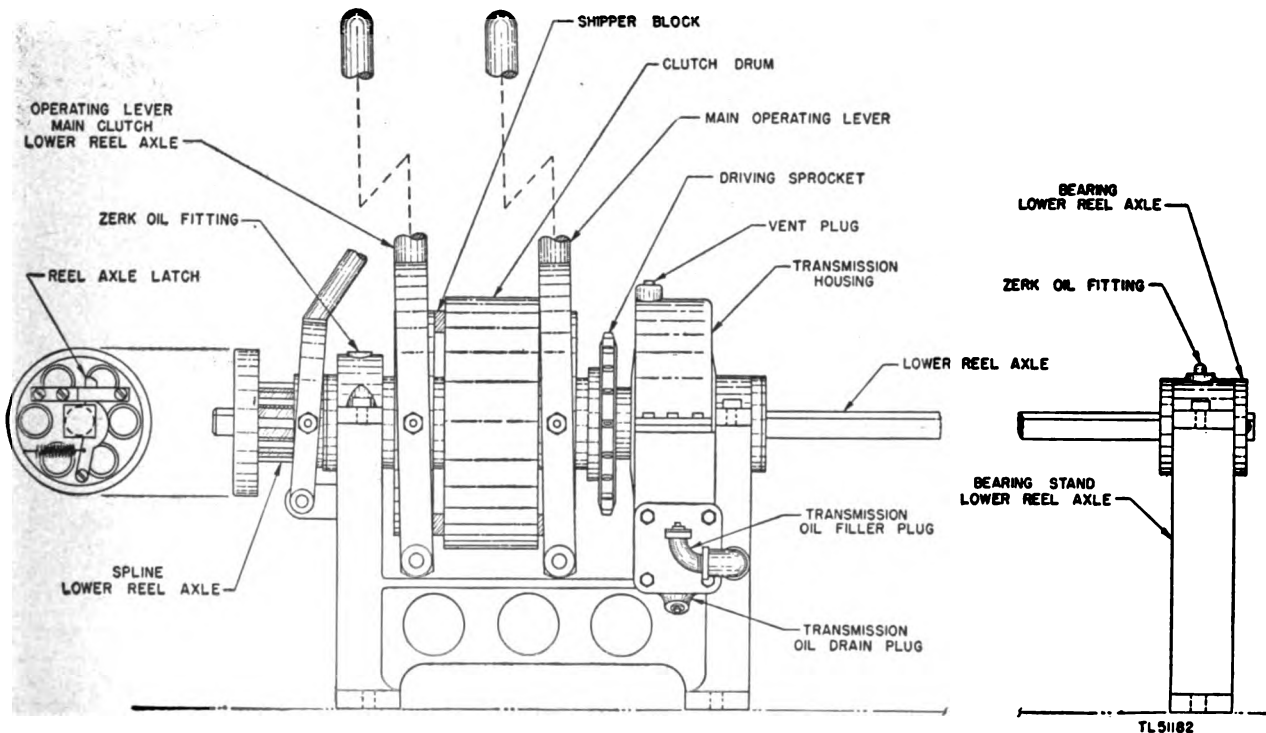


Figure 25. Transmission system of Reel Unit RL-26- ().

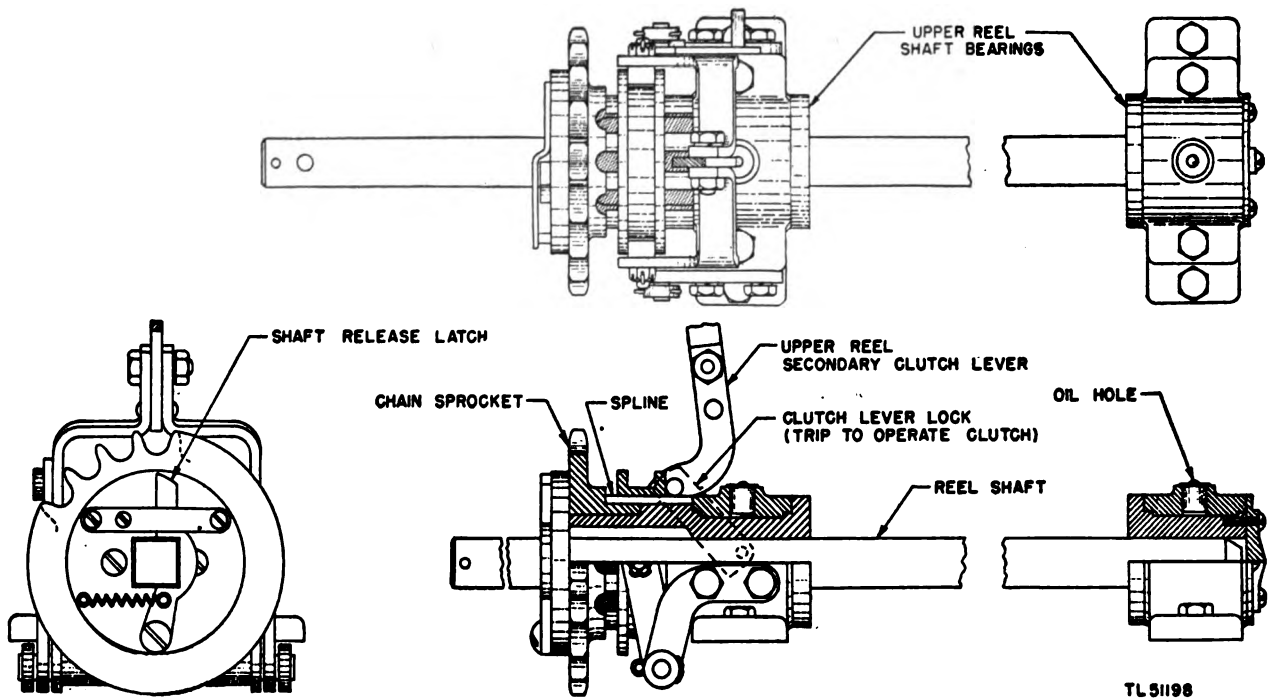


Figure 26. Upper reel secondary clutch of Reel Unit RL-26- ().

do not touch the drum driving surface. The clutch is engaged by forcing the wedge-shaped members on the shipper block between the ends of the shoes. This forces the clutch shoes into engagement with the driving surface of the clutch drum. The shipper block is operated by the main clutch levers. One of the driven clutch assemblies is connected through a secondary clutch to drive the lower reel axle. The other driven clutch is connected to drive the upper reel axle through a driving sprocket, a chain, a driven sprocket, and a secondary clutch. A guard or cover is provided for the sprockets and chain. (See fig. 1(16).) The lower reel clutch is controlled by lever (9), and the upper reel clutch is controlled by lever (10).

20. Secondary Clutches (figs. 25 and 26)

a. A secondary clutch is provided for the upper reel axle so that the load of the sprocket chain and the main clutch driven side may be removed from the upper reel axle when hand cranking is necessary. When the gasoline engine is used to drive the upper reel axle, the secondary clutch must be engaged. This clutch is a positive-type, as differentiated from friction-types. It consists of an arrangement for shifting a splined sleeve (an internally keyed or toothed sleeve) into engagement with the driving

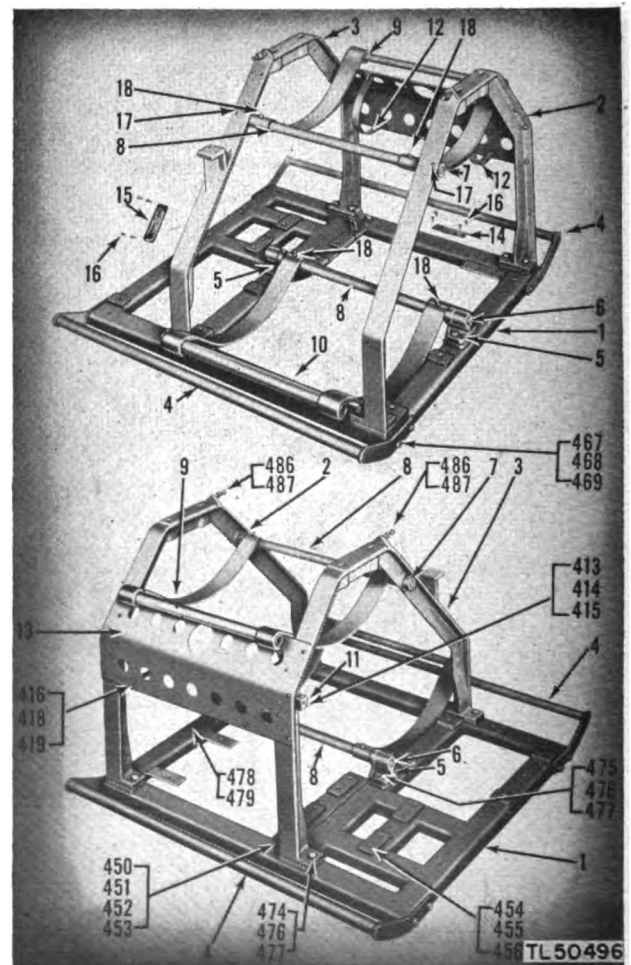


Figure 27. Frame assembly.

sprocket hub or out of engagement with that hub. The splined sleeve transmits the drive to the upper reel axle, or disengages the drive from that axle, depending upon the position of the sleeve (that is, whether in mesh or not in mesh). The position of the sleeve is controlled by a lever. (See fig. 1(8).) For smooth engagement the chain should be driving the sprocket.

b. A similar secondary clutch is provided for the lower reel axle, and is operated by lever (11) shown in figure 1.

21. Sprocket Chain

The sprocket chain should be lubricated as specified in figure 43. The chain has been adjusted to the correct tension by the manufac-

turer, but after a certain amount of use it may require tightening. To tighten it, loosen the upper reel-bearing frame bolts and adjust the bearing by means of the setscrew. (See fig. 1(1).) After the adjustment has been made, the setscrew and bearing bolts should be locked into position. It is imperative that the same operation on the opposite upper reel bearing be performed by means of the other setscrew (2); otherwise, the two reel bearings will be out of alignment.

22. Reference Parts List

A list of the principal parts of Reel Units RL-26-() and their functions is given below. The reference number of each part refers to the corresponding number on figures 27 to 40.

Ref. No.	Name and description	Function
FRAME ASSEMBLY (fig. 27)		
1	*BASE ASSEMBLY: steel channels and braces welded.....	Mounts main components.
2	*BRACKET ASSEMBLY: steel casting and T-sections welded.....	Side member of frame assembly.
3	*BRACKET ASSEMBLY: steel casting and T-sections welded.....	Side member of frame assembly.
4	*HANDLE ASSEMBLY: steel pipe and brackets welded.....	Lifts unit.
5	BEARING: cast-iron, bonderized.....	Pivot for lower shaft.
6	SHAFT: steel, $\frac{3}{4}$ " diameter, 23 $\frac{1}{8}$ " long, bonderized.....	Pivot shaft for lower lift.
7	SHAFT: steel, $\frac{3}{4}$ " diameter, 23 $\frac{1}{4}$ " long, bonderized.....	Pivot shaft for upper lift.
8	SPACER: steel tube, 1.050" outside diam, 0.112" wall, 14-23.32" long, bonderized.....	Spacer for pivot shafts.
9	CRADLE: upper, steel pipe and tracks welded, bonderized.....	Holds upper reel of wire while positioning.
10	CRADLE: lower, steel pipe and tracks welded, bonderized.....	Holds lower reel of wire while positioning.
11	BLOCK: crank, steel, 1" square, bonderized.....	Holds crank when not in use.
12	CLAMP, tank, steel strip $\frac{3}{4}$ " wide, No. 16 gauge, bonderized.....	Holds fuel tank in place.
13	BRACE: $\frac{1}{8}$ " steel plate, bonderized.....	Brace for frame brackets.
14	NAMEPLATE: Signal Corps nomenclature.....	Identification.
15	PLATE: instruction, lubrication.....	Engine lubricating instructions.
16	ESCUTCHIN PIN: brass, 14" x $\frac{1}{2}$ " long.....	Attaches instruction plate and nameplate.
17	TAPER PIN: steel, No. 4 x 2" long.....	Secures upper pivot shaft.
18	FITTING: lubrication, No. 1710, $\frac{5}{8}$ "-24.....	Lubricates cradle shafts.
TRANSMISSION ASSEMBLY (fig. 28)		
19	BASE: transmission, malleable iron casting, bonderized.....	Housing for transmission.
20	CAP: gear housing, malleable iron casting, bonderized.....	Cover for worm gear.
21	CAP: bearing, malleable iron casting, bonderized.....	Upper cap for bronze bushing.
22	LINER: bearing, cast-iron.....	Running surface for bushing.
23	STAND: bearing, malleable iron casting, bonderized.....	Locates and supports bearing.
24	WASHER, steel, 3 $\frac{3}{8}$ " outside diam, $\frac{3}{16}$ " thick, bonderized.....	Retainer for bushing.
25	WASHER: steel, 3 $\frac{1}{2}$ " outside diam, $\frac{3}{16}$ " thick.....	Spacer between shipper block and bearing.
26	WASHER: steel, 3 $\frac{1}{4}$ " outside diam, $\frac{1}{8}$ " thick.....	Spacer between worm gear and cap.
27	WASHER: steel, 3 $\frac{1}{4}$ " outside diam, $\frac{1}{8}$ " thick.....	
28	WORM GEAR: chilled cast bronze, lumen alloy No. 48.....	Drives clutch drum.
29	WORM: forged-steel, case hardened and ground.....	Drives worm gear.
30	COLLAR: steel, 0.878" inside diam.....	Spacer and oil slinger for worm
31	COLLAR: steel, 1.065" inside diam.....	Same as 30.
32	THRUST PLATE: iron casting.....	Takes up thrust of worm.
33	THRUST PLATE: iron casting.....	Same as 32.
34	BUSHING: phosphor-bronze, 1 $\frac{1}{2}$ " square hole.....	Bearing for real shaft.
35	BUSHING: phosphor-bronze, 2.501" outside diam, 2.128" inside diam.....	Bearing for clutch drum.
36	BUSHING: phosphor-bronze, 3.003" outside diam, 2.625" inside diam.....	Bearing for clutch drum.
37	SPROCKET: steel, 5.032" pitch diam, 21 teeth, bonderized.....	Drives chain.
38	WASHER: leather oak, 3 $\frac{1}{2}$ " x 2 $\frac{7}{8}$ " x $\frac{1}{8}$ ".....	Antifriction washer.
39	CLUTCH DRUM: steel friction drum.....	Friction clutch.
40	SHIPPER BLOCK: cast steel ring.....	Expands clutch shoes.
41	CLUTCH-SHOE SLEEVE: iron casting, 3 $\frac{1}{4}$ " long.....	Holds clutch shoe and drives sprocket.

* Applies only to Reel Units RL-26-B and RL-26-C.

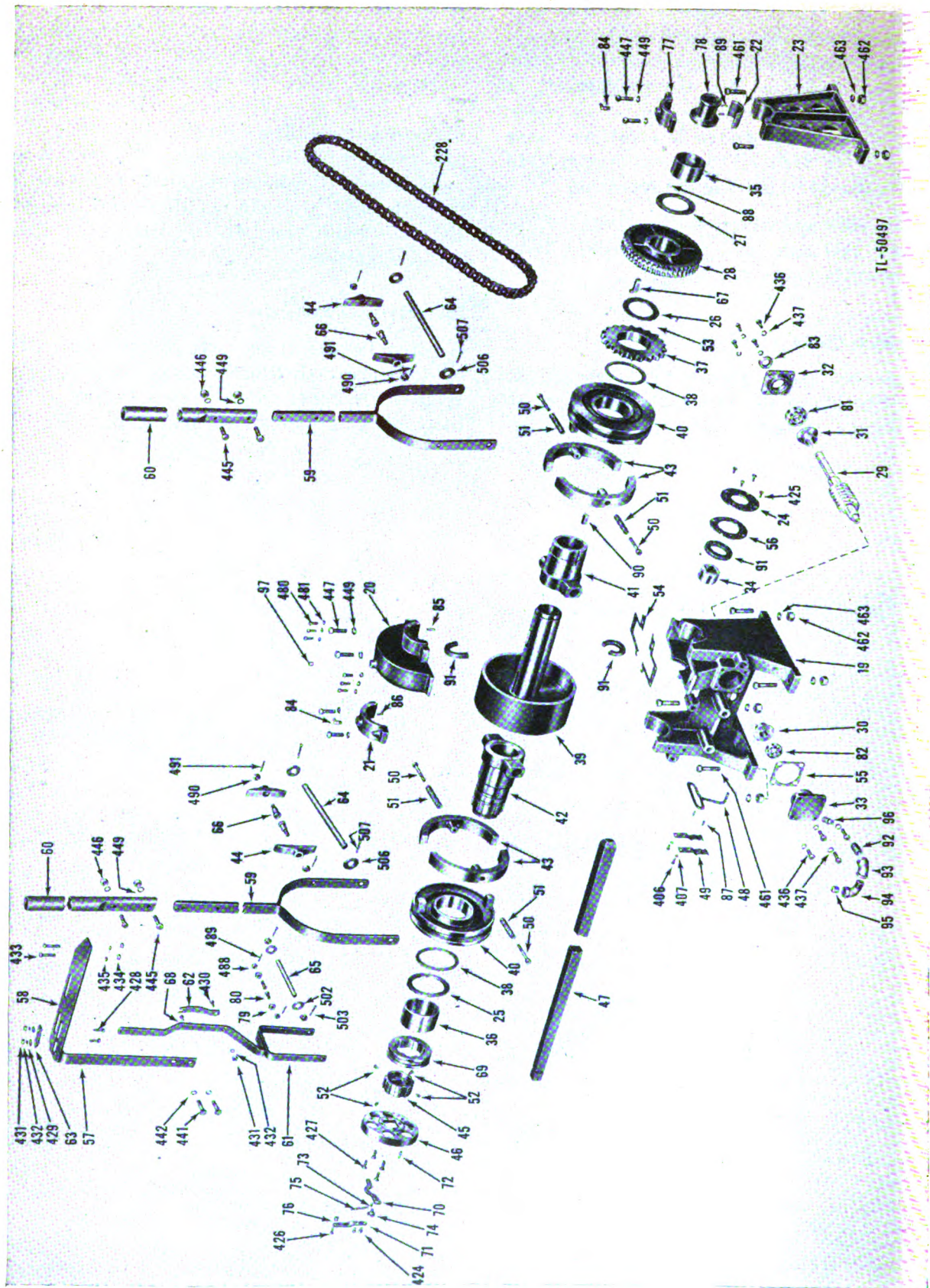


Figure 28. Transmission assembly—exploded view.

Ref. No.	Name and description	Function
TRANSMISSION ASSEMBLY (contd.)		
42	CLUTCH-SHOE SLEEVE: iron casting, 6 $\frac{3}{8}$ " long	Holds clutch shoe and drives lower reel shaft.
43	CLUTCH SHOE: plastic-bronze, semicircular	Engages clutch drum and clutch shoe sleeves.
44	SHIPPER SHOE: phosphor-bronze casting	Shifts shipper block.
45	CLUTCH SPLINE: steel, 2.625" outside diam, 8 slots, 1 $\frac{3}{8}$ " square hole in center	Drives lower reel shaft.
46	LOCK PLATE: malleable iron, six 1" diam cored holes; 1 $\frac{1}{8}$ " square hole in center	Holds latch assembly, lower reel.
47	REEL SHAFT: steel, 1" square, 38" long, parkerized	Supports wire reel.
48	SHAFT PULLER: steel, $\frac{1}{4}$ " diam, rod formed, parkerized	Removes reel shafts.
49	SHAFT PULLER SPRING: flat spring, steel, $\frac{3}{4}$ " wide, parkerized	Holds shaft puller.
50	CLUTCH-SHOE SCREW: steel, $\frac{1}{4}$ "-20 x 2 $\frac{1}{8}$ " long	Holds clutch shoe in place.
51	CLUTCH-SHOE SPRING: steel, 2 $\frac{3}{8}$ " long, parkerized	Maintains pressure of clutch shoe against clutch drum.
52	LOCKSCREW: steel, $\frac{1}{4}$ "-20 x 1 $\frac{1}{16}$ " long, parkerized	Setscrew for clutch spline.
53	PIN: steel, special, $\frac{3}{16}$ " diam, $\frac{9}{32}$ " long, parkerized	Secures washer. (See item 26.)
54	GASKET: fish-paper	Oil seal, gear housing.
55	GASKET: fish-paper	Oil seal, thrust plate.
56	GASKET: fish-paper	Oil seal, reel shaft bushing.
57	SUPPORT: steel, $\frac{3}{16}$ " x 1 $\frac{1}{4}$ " x 13 $\frac{1}{2}$ " formed, bonderized	Support for lever guide.
58	GUIDE: steel, $\frac{1}{8}$ " x 3 $\frac{3}{8}$ " x 13 $\frac{1}{8}$ " stamping, bonderized	Guide for levers.
59	LEVER: steel, two halves riveted together	Operates clutch.
60	HANDLE: steel, tubing, 14 $\frac{1}{4}$ " long, formed and bonderized	Handle for levers.
61	LEVER ARM AND STIRRUP: steel, riveted together, bonderized	Engages clutch ring and spline.
62	SPRING: phosphor-bronze, $\frac{3}{4}$ " wide x 20 gauge	Spring for catch.
63	CATCH: steel, $\frac{1}{8}$ " x 1" x 2 $\frac{3}{4}$ " stamping, bonderized	Locks lever arm.
64	SHIPPER SHAFT: steel, $\frac{1}{2}$ " diam, 9 $\frac{1}{16}$ " long, parkerized	Pivots shift lever.
65	SHIPPER SHAFT: steel, $\frac{3}{8}$ " diam, 5" long, parkerized	Pivots secondary shift lever.
66	SHIPPER-SHOE SCREW: steel, $\frac{3}{8}$ "-24 x 1 $\frac{1}{8}$ " special, parkerized	Holds shipper shoe.
67	KEY: steel, $\frac{3}{8}$ " wide, 1.625" long, special	Holds worm gear on clutch drum shaft.
68	SPRING GUIDE: steel, parkerized	Guide for catch spring.
69	CLUTCH RING: steel, 3 $\frac{3}{4}$ " outside diam, 8 internal splines	Engages drive to reel shaft.
70	LATCH: steel, $\frac{3}{16}$ " thick, 3 $\frac{3}{4}$ " long, stamping, parkerized	Locks reel shaft in position.
71	LATCH GUIDE: steel, $\frac{1}{8}$ " x $\frac{1}{2}$ " x 3 $\frac{1}{4}$ " stamping, parkerized	Guides latch.
72	PIN: steel, $\frac{1}{8}$ " diam, $\frac{23}{64}$ " long, parkerized	Mounts latch spring.
73	PIN: steel, $\frac{1}{8}$ " diam, $\frac{15}{64}$ " long, parkerized	Mounts latch spring.
74	SCREW: steel, $\frac{1}{4}$ "-20 x $\frac{39}{64}$ " long, special, parkerized	Screw for latch.
75	SPRING: steel, $\frac{1}{4}$ " diam, 1 $\frac{1}{2}$ " long, extension, parkerized	Spring for latch.
76	SPACER: steel, $\frac{3}{8}$ " outside diam, 1 $\frac{3}{4}$ " inside diam, $\frac{1}{32}$ " long, parkerized	Spacer for latch.
77	CAP: bearing, cast-iron, bonderized	Upper cap for bushing.
78	BUSHING: phosphor-bronze	Bearing for reel shaft.
79	BLOCK: bronze, $\frac{1}{2}$ " square, 1 $\frac{1}{32}$ " long	Shifter block for clutch ring.
80	SCREW: steel, $\frac{1}{4}$ "-28 x $\frac{1}{8}$ " long, special, parkerized	Shifter block screw.
81	BEARING: SKF No. 6304	Rear bearing for worm.
82	BEARING: SKF No. 6302	Front bearing for worm.
83	OIL SEAL: Chicago rawhide, No. 13724	Oil seal for rear worm bearing.
84	OIL FITTING: No. 1612, $\frac{1}{8}$ " pipe thread, 67 $\frac{1}{2}$ "	Lubricates clutch shaft bearing.
85	DOWEL: $\frac{3}{16}$ " diam, $\frac{9}{16}$ " long, steel	Locates bushing and gear housing cap.
86	DOWEL: $\frac{3}{16}$ " diam, $\frac{1}{16}$ " long, steel	Locates bushing and bearing cap.
87	DOWEL: $\frac{3}{16}$ " diam, $\frac{3}{16}$ " long, steel	Locates shaft puller springs.
88	DOWEL: $\frac{1}{4}$ " diam, $\frac{27}{64}$ " long, steel	Locates washer and bushing.
89	DOWEL: $\frac{1}{8}$ " diam, $\frac{27}{64}$ " long, steel	Locates bearing liner and stand.
90	KEY: steel, $\frac{3}{8}$ " x $\frac{3}{8}$ " x $\frac{23}{32}$ " long	Locks clutch-shoe sleeve to sprocket.
91	PACKING: $\frac{3}{16}$ " square, 9" long, spiral triple expansion	Oil seal for worm oil reservoir.
92	PIPE NIPPLE: $\frac{3}{8}$ " x 1 $\frac{1}{4}$ " long, wrought-iron, electro-galvanized	Oil reservoir filler.
93	ELBOW: $\frac{3}{8}$ " x 90°, malleable iron, galvanized	Oil reservoir filler.
94	STREET ELBOW: $\frac{3}{8}$ " x 90°, malleable iron, electro-galvanized	Oil reservoir filler.
95	PIPE PLUG: $\frac{3}{8}$ ", screw driver slot, cast-iron, electro-galvanized	Oil reservoir filler plug.
96	PIPE PLUG: $\frac{1}{4}$ " screw driver slot, cast-iron, electro-galvanized	Oil drain plug.
97	PIPE PLUG: $\frac{1}{8}$ ", screw driver slot, cast-iron, electro-galvanized	Vent plug in gear housing cap.
TOP REEL SHAFT ASSEMBLY (fig. 29)		
98	CAP: bearing, cast-iron, bonderized	Upper cap for bushing.
99	BUSHING: phosphor-bronze	Bearing for arbor.
100	BEARING: cast-iron, bonderized	Lower cap for bushing.
101	BEARING: cast-iron, bonderized	Lower cap for bushing.
102	BUSHING: phosphor-bronze	Bearing for arbor.
103	SPROCKET: steel, LB-S43524	Drives upper reel shaft.
104	CLUTCH RING: 3 $\frac{3}{4}$ " outside diam, 8 internal splines	Engages drive to reel shaft.
105	LOCK PLATE: steel 3 $\frac{13}{16}$ " outside diam, 1 $\frac{1}{8}$ " square hole through center, bonderized	Holds upper latch assembly.
106	LATCH: steel, $\frac{3}{16}$ " thick, 3 $\frac{3}{4}$ " long stamping, parkerized	Locks reel shaft in place.
107	LATCH GUIDE: steel, $\frac{1}{8}$ " x $\frac{1}{2}$ " x 3 $\frac{1}{4}$ " stamping, parkerized	Guides latch.
108	PIN: steel, $\frac{1}{8}$ " diam, $\frac{15}{64}$ " long, parkerized	Mounts latch spring.
109	PIN: steel, $\frac{1}{8}$ " diam, $\frac{15}{64}$ " long, parkerized	Mounts latch spring.

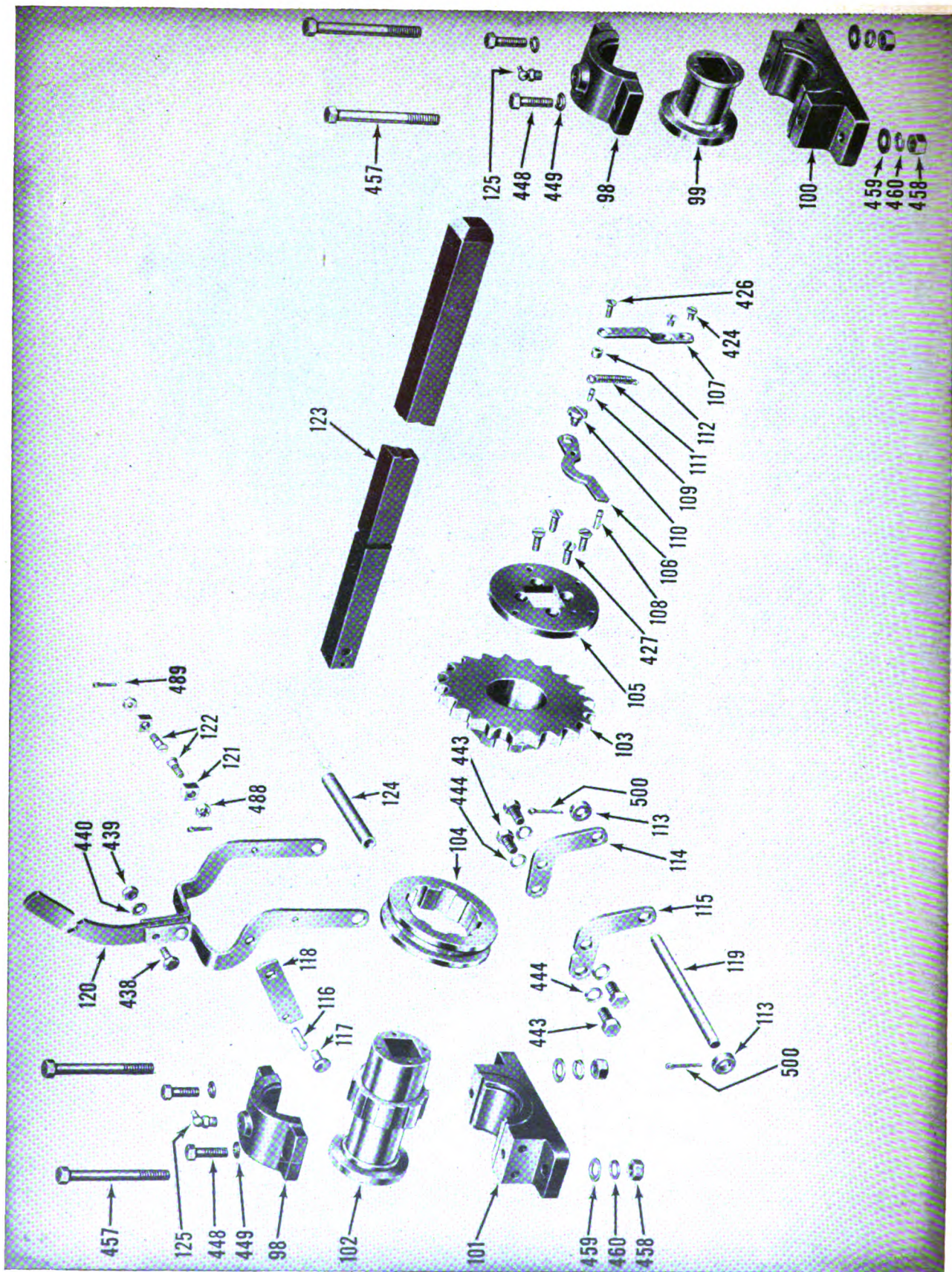


Figure 29. Upper reel shaft assembly—exploded view.

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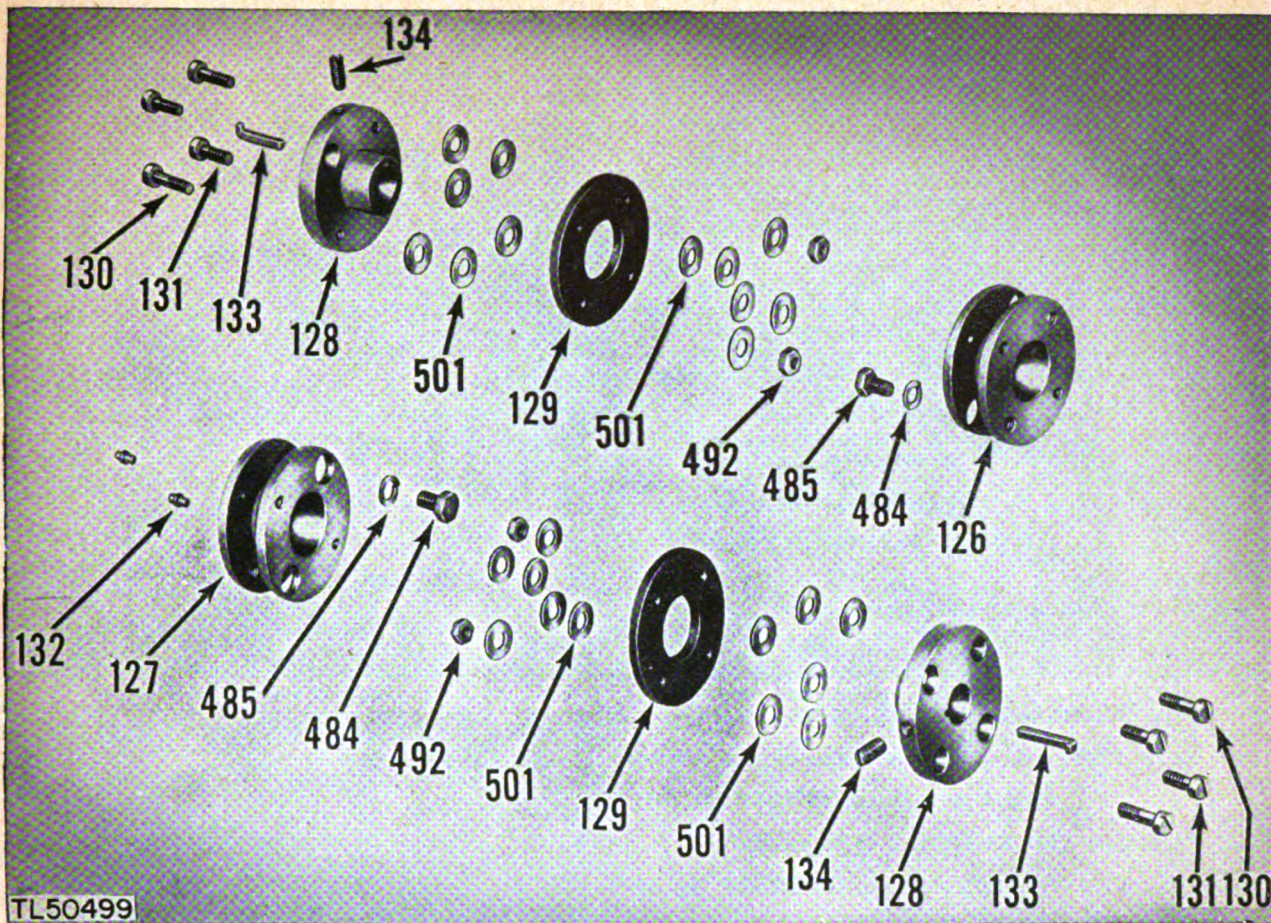


Figure 30. Coupling assembly—exploded view.

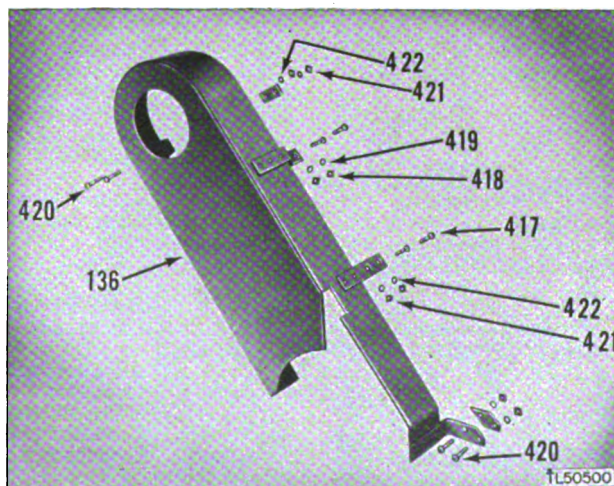


Figure 31. Chain guard assembly—exploded view.

Ref. No.	Name and description	Function
TOP REEL SHAFT ASSEMBLY (contd.)		
110	SCREW: steel, $\frac{1}{4}$ "-20 x $\frac{3}{4}$ " long, special, parkerized	Screw for latch.
111	SPRING: steel, $\frac{1}{4}$ " diam, $1\frac{1}{2}$ " long, extension, parkerized	Spring for latch.
112	SPACER: steel, $\frac{3}{8}$ " outside diam, $\frac{1}{4}$ " inside diam, $\frac{1}{2}$ " long, parkerized	Spacer for latch.
113	COLLAR: steel $\frac{1}{4}$ " outside diam, $\frac{3}{8}$ " inside diam, $\frac{1}{4}$ " long, parkerized	Stop collar for shaft.
114	BRACKET: steel, stamping, bonderized	Bracket for lever arm.
115	BRACKET: steel, stamping, bonderized	Bracket for lever arm.
116	PAWL: steel, $\frac{3}{16}$ " x $\frac{3}{4}$ " x $2\frac{1}{16}$ " stamping, bonderized	Locks lever in place.
117	HANDLE: steel pin, $\frac{1}{4}$ " diam, 1" long, special, bonderized	Handle for pawl.
118	STUD: steel pin, $\frac{1}{2}$ " diam, $2\frac{3}{16}$ " long, special, bonderized	Stud for pawl.
119	SHAFT: steel, $\frac{3}{8}$ " diam, $5\frac{1}{2}$ " long, parkerized	Pivot shaft for handle.
120	HANDLE AND LEVER ARM ASSEMBLY: 2 lever arms and handles riveted	Engages clutch ring and sprocket.
121	BLOCK: bronze, $\frac{1}{2}$ " square, $1\frac{1}{2}$ " long	Shifter block for clutch ring.
122	SCREW: steel, $\frac{1}{4}$ "-28 x $\frac{7}{8}$ " long, special parkerized	Shifter block screw.
123	REEL SHAFT: steel, 1" square, $27\frac{1}{16}$ " long, parkerized	Reel shaft for upper reel.
124	SPACER: steel tube, $\frac{1}{2}$ "	Spacer for lever arm assembly.
125	OIL FITTING: No. 1612, $\frac{1}{8}$ " pipe thread, $16\frac{1}{2}$ "	Lubricates bearings.
COUPLING ASSEMBLY (fig. 30)		
126	HUB: connecting, steel, bonderized	Connects to driving hub.
127	HUB: connecting, steel, bonderized	Connects to driving hub.
128	HUB: driving, steel, bonderized	Couples with shafts.
129	DISK: thermoid, TR-type 63C324	Flexible coupling.
130	SCREW: steel, $\frac{1}{4}$ "-28 x $1\frac{1}{2}$ ", special parkerized	Joins connecting and driving hubs.
131	SCREW: steel, $\frac{1}{4}$ "-28 x $1\frac{1}{2}$ ", special, parkerized	Joins connecting and driving hubs.
132	DOWEL: steel, 0.186" diam, $\frac{1}{16}$ " long, parkerized	Aligns connecting hubs.
133	KEY: steel, Gib, special	Holds coupling to shafts.
134	SETSCREW: steel, $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " long, cup point, headless	Holds keys in place.
CHAIN GUARD ASSEMBLY (fig. 31)		
136	CHAIN GUARD ASSEMBLY: including fillers	Protects driving chain.
CONTROL PANEL ASSEMBLY (fig. 32)		
137	PANEL: steel	Mounts controls.
138	CHOKE CONTROL: IB-43756	Chokes engine.
139	THROTTLE CONTROL: IB-43757	Controls engine speed.
140	PLATE: switch, ON-OFF	Designates ON and OFF.
141	SWITCH: AH-20994, toggle	Control for ignition circuit.
142	CLAMP: steel, stamping, bonderized	Support for controls.
143	PANEL BOX: $\frac{3}{4}$ " x $4\frac{5}{8}$ " x 1" x 15-gauge steel box	Shield for switch.
* FUEL TANK ASSEMBLY (fig. 33)		
144	FUEL TANK: with spout, terneplate	Gasoline tank.
145	FILLER CAP: standard, $1\frac{1}{2}$ "	Cap for filler spout.
146	NIPPLE: brass, $\frac{1}{8}$ " pipe thread	Connects fuel tank and filter.
147	FILTER: gasoline, assembly	Strains fuel.
148	COVER: filter, die casting	Provides fuel passages and cover filter.
149	LEVER: gasoline shut-off	Controls flow of gasoline.
150	NUT: gasoline filter shut-off	Retains shut-off lever and packing.
151	PACKING: gasoline filter shut-off lever	Prevents fuel leakage.
152	SCREEN: gasoline filter	Strains fuel.
153	GASKET: gasoline filter	Seals filter bowl.
154	BOWL: gasoline filter	Sediment basing for filter.
155	YOKE: gasoline filter	Clamp bowl to filter cover.
156	CONNECTOR: brass, $\frac{1}{16}$ " SAE thread one end, $\frac{1}{8}$ " pipe thread other end	Connects fuel line to filter.
157	FUEL LINE: $\frac{1}{4}$ " oil-resistant hose	Carries fuel from filter to carburetor.
** TOOL BOX ASSEMBLY (fig. 34)		
158	TOOL BOX ASSEMBLY	Stores tools and spare parts.
159	MAGNETO FILE	Cleans magneto points.
160	SPARK PLUG AND MAGNETO POINT FEELER GAUGE: type BAS	Adjusts gaps.
161	VALVE LIFTER: type 900	Compresses valve springs.
162	SPARK PLUG WRENCH: socket with handle	Removes spark plugs.
163	PLIERS: II-26	General repairs.
164	SCREW DRIVER: $\frac{1}{2}$ " x 4", plastic handle	General repairs.

* Applies only to Reel Units RL-26-B and RL-26-C.

** Applies only to Reel Unit RL-26-C.

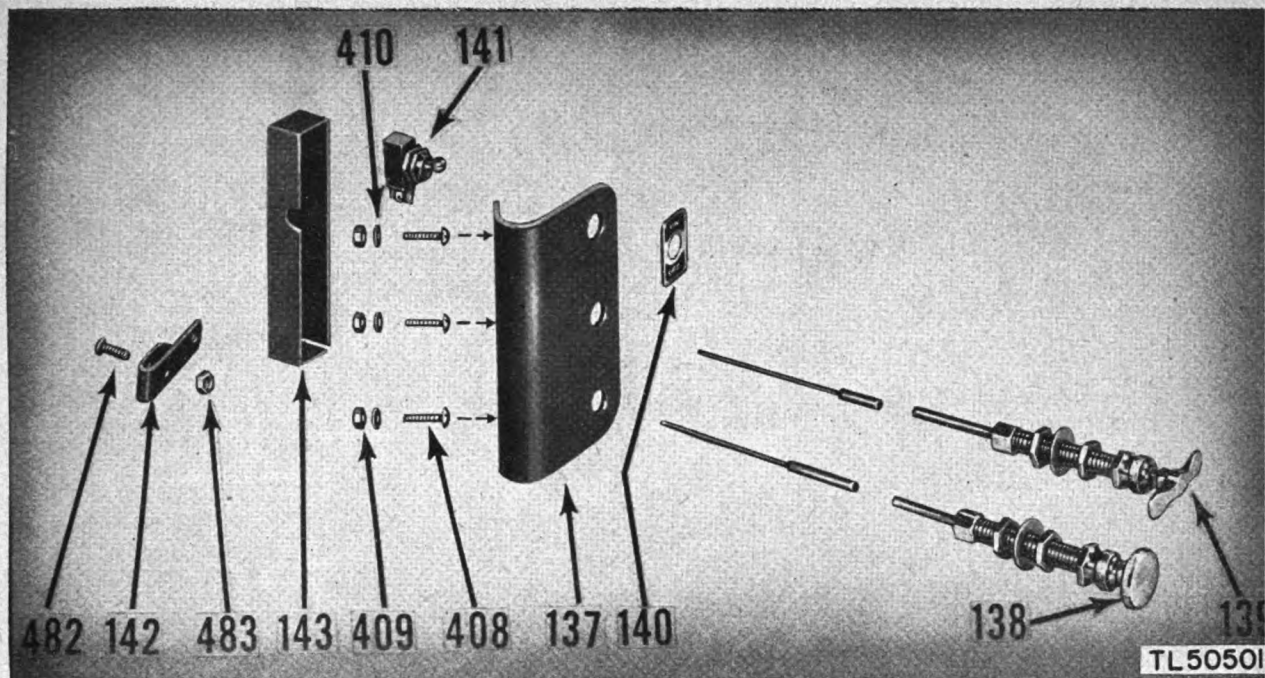


Figure 32. Control panel assembly—exploded view.

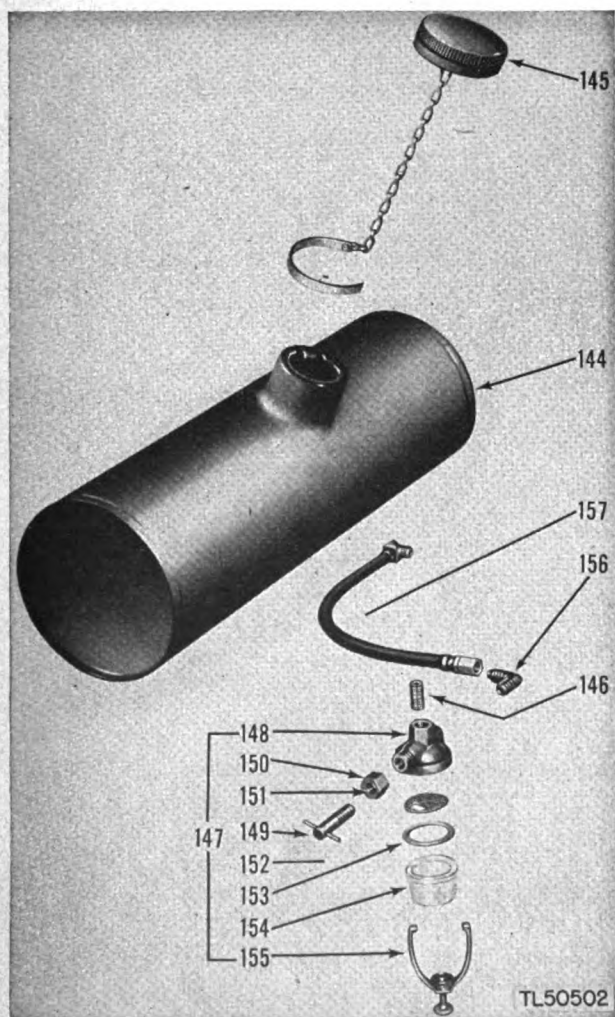


Figure 33. Fuel tank assembly—exploded view.

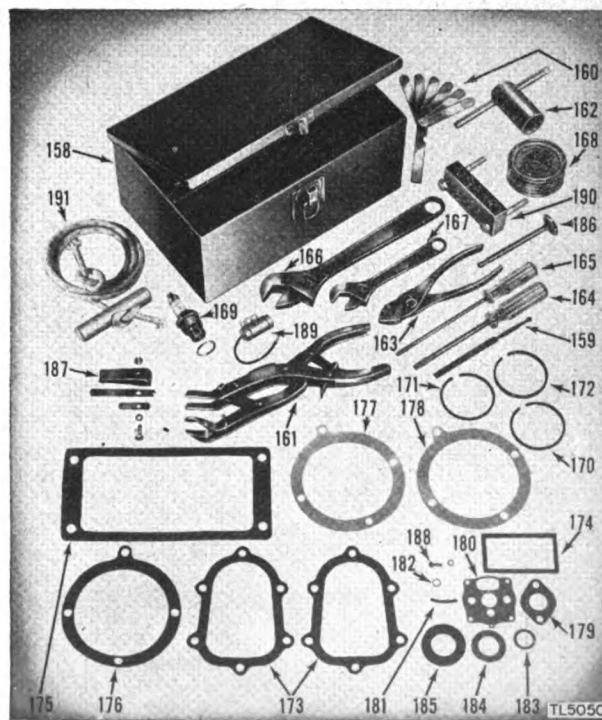


Figure 34. Tool box assembly—exploded view.

Ref. No.	Name and description	Function
** TOOL BOX ASSEMBLY (contd.)		
165	SCREW DRIVER: $\frac{3}{16}$ " x 5", plastic handle.....	General repairs.
166	WRENCH: crescent.....	General repairs.
167	WRENCH: crescent.....	General repairs.
168	VALVE GRINDING COMPOUND: 2-oz can.....	Grinds valves.
169	PLUG: spark, 18-mm Champion 6M, with gasket.....	Ignites fuel.
170	PISTON RING: top, standard.....	Compression seal.
171	PISTON RING: center, standard.....	Compression seal.
172	PISTON RING: oil, standard.....	Lubricates cylinder wall.
173	GASKET: cylinder head.....	Seals cylinder head to cylinder.
174	GASKET: valve cover plate.....	Seals valve cover plate to cylinder.
175	GASKET: base.....	Seals base to crankcase.
176	GASKET: magneto plate, 0.015" thick.....	Seals between magneto plate and crankcase.
177	GASKET: magneto plate, 0.009" thick.....	Seals between magneto plate and crankcase.
178	GASKET: magneto plate, 0.005" thick.....	Seals between magneto plate and crankcase.
179	GASKET: carburetor mounting.....	Seals carburetor to intake elbow.
180	GASKET: carburetor body.....	Seals upper and lower body sections.
181	PACKING: needle valve.....	Prevents fuel leakage.
182	GASKET: inlet valve seat.....	Prevents leak at inlet valve.
183	GASKET: venturi.....	Seals lower carburetor to venturi.
184	GASKET: air cleaner.....	Seals air cleaner to air cleaner pipe.
185	GASKET: oil filler cap.....	Prevents oil leakage.
186	VALVE: exhaust.....	Releases exhaust gases.
187	CONTACT BLOCK ASSEMBLY: with block, contact, and spring.....	Interrupts primary of ignition circuit.
188	SCREW: contact point, magneto special.....	Contact point and adjustment.
189	CAPACITOR: magneto.....	Prevents arcing at the contact points.
190	PULLER: flywheel.....	Removes flywheel.
191	ROPE: starter.....	Cranks engine.
* BRAKE ASSEMBLY (fig. 35)		
192	CONNECTING ROD: steel, $\frac{3}{8}$ " diam, 21 $\frac{1}{2}$ " long.....	Connects lower brake to handle.
193	HANDLE: steel tubing, 8 $\frac{1}{2}$ " long, formed, bonderized.....	Operating handles.
194	BRAKE DRUM: with expansion block welded in hub, bonderized.....	Braking device.
195	SCREW: steel, $\frac{3}{8}$ "-16 x 2", special.....	Expands locating block.
196	BRAKE BAND: with lining and rivets.....	Stops rotation of brake drums.
197	BRAKE BAND: less lining.....	Mounts brake lining.
198	SHOULDER: steel tube, $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " x 1" long, bonderized.....	Spacer for fastener.
199	BRACKET: upper, welded assembly, bonderized.....	Mounting for operating lever.
200	HOLDER: steel, 0.622" diam, 1 $\frac{1}{2}$ " long, Parco-lubrized.....	Secures one end of brake band.
201	BRACKET: lower, welded assembly, bonderized.....	Mounting for operating lever.
202	SPACER: brass, 1 $\frac{1}{4}$ " outside diam x 0.750" inside diam x 0.210" thick.....	Separator for drum and bracket.
203	LEVER ASSEMBLY: upper, welded, parkerized.....	Actuates connecting rod.
204	LEVER ASSEMBLY: upper, welded, parkerized.....	Actuates upper brake.
205	LEVER ASSEMBLY: lower, welded, parkerized.....	Actuates lower brake.
206	BRAKE LINING: $\frac{1}{8}$ " x 1" x 19 $\frac{1}{4}$ " long, wire-woven.....	Retards brake drums.
207	RIVET: tubular, steel, $\frac{3}{16}$ " long, No. 1353.....	Attaches lining to band.
208	OIL FITTING: $\frac{3}{16}$ "-32, No. 1762.....	Lubricates levers.
209	WASHER: brass, 1" x $\frac{5}{16}$ " x $\frac{3}{32}$ " thick.....	Spacer for upper levers.
210	WASHER: brass, 1 $\frac{1}{8}$ " x $\frac{3}{16}$ " x $\frac{3}{32}$ " thick.....	Spacer for lever assemblies.
CRANK ASSEMBLY (fig. 36)		
212	ARM: malleable iron casting, bonderized.....	Engages reel shafts.
213	HANDLE: malleable iron casting, bonderized.....	Handle to operate crank.
214	HANDLE SHAFT: steel, $\frac{3}{8}$ " diam, 5 $\frac{1}{2}$ " long, special, bonderized.....	Holds handle to arm.
215	END PIECE: steel, $\frac{3}{8}$ " diam, $\frac{3}{16}$ " thick, bonderized.....	Secures handle in place.
216	BUTTON: steel, roundhead, parkerized.....	Handle position lock.
217	DISK: steel, $\frac{1}{2}$ " diam, $\frac{1}{8}$ " thick, parkerized.....	Handle position lock.
218	STOP: steel, 0.245" diam, $\frac{5}{16}$ " long, parkerized.....	Handle position lock.
219	SPRING: steel, $\frac{1}{4}$ " diam, $\frac{5}{8}$ " long, parkerized.....	Handle position lock.
220	SPRING: steel, $\frac{1}{4}$ " diam, 1 $\frac{1}{2}$ " long, parkerized.....	Locks crank to shaft.
221	PLUNGER: steel, 0.145" diam, $\frac{3}{32}$ " long, special, parkerized.....	Locks crank to shaft.
222	PLUNGER: steel, 0.187" diam, $\frac{15}{32}$ " long, special, parkerized.....	Handle position lock release.
223	STOP: steel, $\frac{1}{16}$ " x 1 $\frac{1}{8}$ " x 1 $\frac{1}{2}$ " bent 90°, bonderized.....	Handle stop.
224	TUBE: brass, No. 17 x $\frac{3}{8}$ " outside diam x 1 $\frac{1}{2}$ " long.....	Houses springs and plungers.
225	PIN: steel, $\frac{1}{4}$ " diam, 1 $\frac{1}{2}$ " long, bonderized.....	
226	PIN: brass, $\frac{1}{16}$ " diam, 1 $\frac{1}{16}$ " long.....	Locks tube in place.
COVER ASSEMBLY (fig. 12)		
227	COVER: BG-68-A.....	For covering reel when not in use.

** Applies only to Reel Unit RL-26-C.

* Applies only to Reel Units RL-26-B and RL-26-C unless kit No. 6H6226A/K11 has been used.

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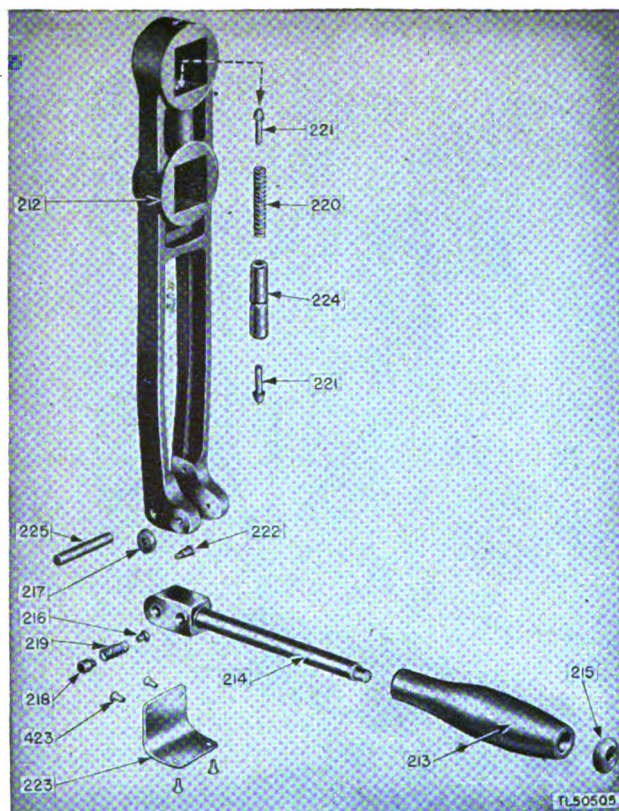


Figure 36. Crank assembly—exploded view.

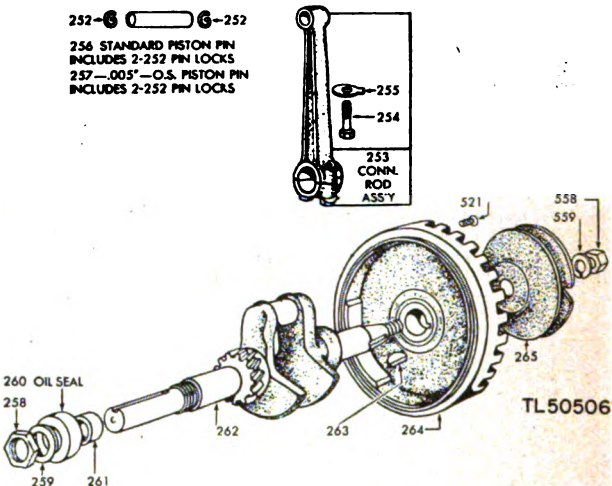
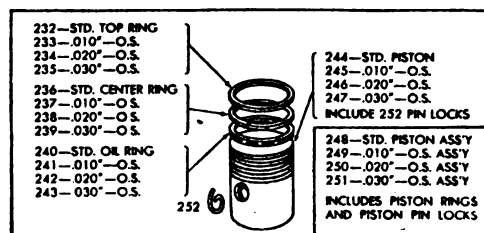
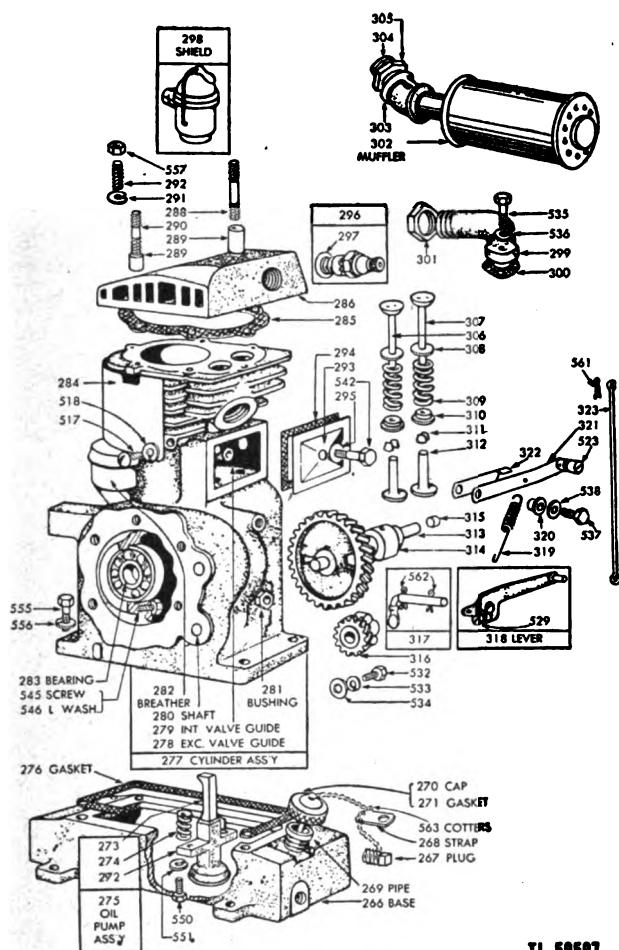


Figure 37. Flywheel and connecting rod assembly—exploded view.

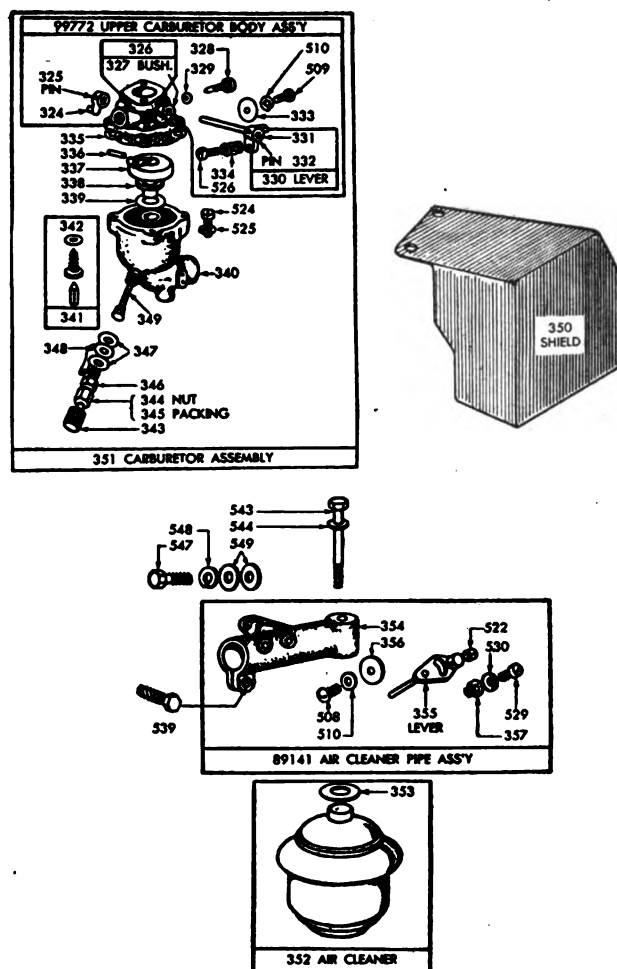
Ref. No.	Name and description	Function
* GENERAL ASSEMBLY (figs. 37 through 40)		
232	PISTON RING: top, standard.....	Compression seal.
233	PISTON RING: top, 0.010" oversize.....	Compression seal.
234	PISTON RING: top, 0.020" oversize.....	Compression seal.
235	PISTON RING: top, 0.030" oversize.....	Compression seal.
236	PISTON RING: center, standard.....	Compression seal.
237	PISTON RING: center, 0.010" oversize.....	Compression seal.
238	PISTON RING: center, 0.020" oversize.....	Compression seal.
239	PISTON RING: center, 0.030" oversize.....	Compression seal.
240	PISTON RING: oil, standard.....	Lubricates cylinder wall.
241	PISTON RING: oil, 0.010" oversize.....	Lubricates cylinder wall.
242	PISTON RING: oil, 0.020" oversize.....	Lubricates cylinder wall.
243	PISTON RING: oil, 0.030" oversize.....	Lubricates cylinder wall.
244	PISTON: standard.....	Receives force from combustion of fuel.
245	PISTON: 0.010" oversize.....	Receives force from combustion of fuel.
246	PISTON: 0.020" oversize.....	Receives force from combustion of fuel.
247	PISTON: 0.030" oversize.....	Receives force from combustion of fuel.
248	PISTON ASSEMBLY: with rings, standard.....	Receives force from combustion of fuel.
249	PISTON ASSEMBLY: with rings, 0.010" oversize.....	Receives force from combustion of fuel.
250	PISTON ASSEMBLY: with rings, 0.020" oversize.....	Receives force from combustion of fuel.
251	PISTON ASSEMBLY: with rings, 0.030" oversize.....	Receives force from combustion of fuel.
252	RING: lock, piston pin.....	Locks pin in piston.
253	ROD: connecting, assembly.....	Transmits power from piston to crankshaft.
254	SCREW: connecting rod, steel, 1/4-28 x 1 1/4" special.....	Secures bearing cap.
255	LOCK: screw head, connecting rod.....	Secures screw, item 254.
256	PIN: piston, standard.....	Connects piston and connecting rod.
257	PIN: piston, 0.005" oversize.....	Connects piston and connecting rod.
258	NUT: lock, crankshaft, 1 1/8" hexagonal, 7/8-20 thread, special.....	Secures bearing and oil seal to crankshaft.
259	WASHER: bearing sleeve.....	Holds oil seal in place.
260	SEAL: oil, bearing.....	Prevents oil leakage.
261	SLEEVE: crankshaft bearing.....	Locates ball bearing.
262	CRANKSHAFT: steel forging.....	Converts vertical motion to rotary.

* Applies only to Reel Units RL-26-B and RL-26-C.



TL 50507

Figure 38. Briggs and Stratton engine, model AP—exploded view.



TL 50500

Figure 39. Carburetor assembly—exploded view.

Ref. No.	Name and description	Function
*GENERAL ASSEMBLY (contd.)		
263	KEY: crankshaft, Woodruff No. 9	Locks flywheel to crankshaft.
264	FLYWHEEL: cast wheel with magnets	Produces magnetic flux for ignition.
265	PULLEY: rope starter	Cranking engine.
266	BASE: cast-iron	Oil reservoir.
267	PLUG: pipe, special, crankcase drain	Closes oil drain.
268	STRAP: for chain, drain plug, and filler cap	Secures oil filler and drain plug chains.
269	NIPPLE: pipe, steel, oil filler assembly	Oil fill pipe.
270	CAP AND CHAIN: oil filler	Cover oil fill pipe.
271	GASKET: oil filler cap	Prevents oil leakage.
272	BODY: oil pump	Houses pump plunger.
273	PLUNGER: oil pump	Pumps oil to crankcase.
274	SPRING: oil pump	Actuates oil pump plunger.
275	PUMP: oil assembly	Pumps lubricating oil.
276	GASKET: base	Seals crankcase to base.
277	BLOCK: cylinder, assembly including: Exhaust valve guide —61955 Intake valve guide —61348 Governor shaft —63492 Breather —89250 Governor crank bushing—63492	Combustion chamber and crankshaft housing.
278	GUIDE: exhaust valve	Guide for valve stem.
279	GUIDE: intake valve	Guide for valve stem.
280	SHAFT: governor	Supports governor gear.

* Applies only to Reel Units RL-26-B and RL-26-C.

Ref. No.	Name and description	Function
*GENERAL ASSEMBLY (contd.)		
281	BUSHING: governor crank.....	Bearing for governor crank.
282	BREATHER: oil, crankcase, with sisal filter.....	Vents crankcase.
283	BEARING: ball.....	Bearing for crankshaft.
284	SHIELD: cylinder.....	Directs flow of air around cylinder fins.
285	GASKET: cylinder head.....	Seals cylinder head to cylinder.
286	HEAD: cylinder.....	Covers cylinder and forms explosion chamber.
288	STUD: cylinder head, long, $2\frac{3}{4}$ " long, $\frac{5}{16}$ "-18 x $\frac{5}{8}$ " thread, $\frac{5}{16}$ "-24 x $\frac{5}{16}$ " thread.....	Holds cylinder head in place.
289	SPACER: cylinder, short, pipe $\frac{1}{4}$ " x $\frac{5}{8}$ " long.....	Raises cylinder head nut above head.
290	STUD: cylinder head, medium, $2\frac{1}{4}$ " long, $\frac{5}{16}$ "-18 x $\frac{5}{8}$ " thread, $\frac{5}{16}$ "-24" x $\frac{5}{16}$ " thread.....	Holds cylinder head in place.
291	SPACER: cylinder head, steel, $\frac{3}{4}$ " x $\frac{5}{16}$ " x $\frac{1}{16}$ " thick.....	Raises cylinder head nut above head.
292	STUD: cylinder head, short, $1\frac{1}{16}$ " long, $\frac{5}{16}$ "-18 x $\frac{5}{8}$ " thread, $\frac{5}{16}$ "-24" x $\frac{5}{16}$ " thread.....	Holds cylinder head in place.
293	PLATE: valve cover.....	Incloses valve adjustment parts.
294	GASKET: valve cover plate.....	Seals valve cover plate to cylinder.
295	WASHER: valve cover, fiber, hard, $\frac{5}{8}$ " x $1\frac{1}{4}$ " x 0.031" thick.....	Seal for valve cover plate screw.
296	PLUG: spark, 18 mm, Champion 6M, with gasket.....	Ignites fuel.
297	GASKET: spark plug (comes with spark plug).....	Seals plug to cylinder head.
298	SHIELD: spark plug.....	Shields against electrical interference.
299	ELBOW: carburetor intake, one end threaded, other end flanged.....	Fuel intake from carburetor to cylinder.
300	GASKET: carburetor mounting.....	Seals carburetor to intake elbow.
301	NUT: lock, intake elbow, special.....	Locks intake elbow.
302	MUFFLER: exhaust.....	Muffler exhaust.
303	ELBOW: muffler, standard, malleable iron, $\frac{3}{4}$ ", 45°.....	Positions muffler.
304	NIPPLE: muffler, standard, $\frac{3}{4}$ " x close.....	Connects muffler to exhaust port.
305	NUT: lock, elbow, muffler, for $\frac{3}{4}$ " iron pipe.....	Locks muffler assembly in place.
306	VALVE: exhaust.....	Releases exhaust gases.
307	VALVE: intake.....	Admits fuel to combustion chamber.
308	CUP: valve spring.....	Mounts valve spring.
309	SPRING: intake and exhaust valve.....	Seats valves.
310	RETAINER: valve spring.....	Retains valve spring.
311	COLLAR: valve spring retainer, consisting of two halves.....	Locks valve spring in place.
312	TAPPET: valve.....	Transmits action from cam to valve.
313	SHAFT: cam gear.....	Carries cam and cam gear.
314	CAM.....	Operates valves.
315	PLUG: camshaft.....	Prevents oil leak.
316	GEAR: governor, with weights.....	Transmits governor action.
317	CRANK: governor.....	Operates governor lever.
318	LEVER: governor assembly including: Cotter pin-91431. Fillister head screw: No. 10-32 x $\frac{1}{2}$ " long-90202.	Actual throttle link.
319	SPRING: throttle.....	Counteracts governor for speed control.
320	BUSHING: bell crank.....	Bearing for spring lever.
321	LEVER: governor spring.....	Actuates throttle link.
322	STOP: lever, control.....	High-speed control.
323	LINK: throttle.....	Connects governor with carburetor throttle.
324	LEVER: throttle, carburetor.....	Regulates butterfly valve shaft.
325	PIN: throttle lever, carburetor, $\frac{3}{16}$ " x $\frac{1}{16}$ " long, steel, zinc-plated.....	Secures throttle lever to butterfly valve shaft.
326	BODY: upper carburetor section.....	Contains throttle, idler, and gas connections.
327	BUSHING: throttle shaft.....	Bearing for throttle shaft.
328	VALVE: idler needle, carburetor.....	Idling adjustment.
329	SPRING: idler valve, carburetor.....	Holds setting of idler valve.
330	SHAFT: assembly, throttle.....	Controls throttle valve.
331	STOP: throttle, zinc alloy die casting.....	Guide for throttle shaft.
332	PIN: throttle lever, carburetor, $\frac{3}{16}$ " x $\frac{1}{16}$ " long, zinc-plated steel.....	Locks throttle stop to throttle shaft.
333	VALVE: throttle carburetor.....	Controls flow of fuel to cylinder.
334	SPRING: idler valve, carburetor.....	Holds setting of valve.
335	GASKET: carburetor body.....	Seals upper and lower body sections.
336	PIN: float hinge, carburetor, $\frac{3}{16}$ " x $\frac{1}{8}$ " long, 0.015 x 45° chamber on both ends.....	Axle for carburetor float.
337	FLOAT: carburetor.....	Maintains gasoline level in bowl.
338	CARBURETOR: venturi.....	Aids in mixing fuel.
339	GASKET: venturi.....	Seals lower carburetor body to venturi.
340	BODY: carburetor, lower.....	Mixing chamber for fuel.
341	VALVE AND SEAT: inlet, carburetor.....	Admits fuel to mixing chamber.
342	GASKET: inlet valve seat.....	Prevents leak at inlet valve.
343	JET: needle valve.....	Carburetor adjustment.
344	NUT: needle valve packing.....	Secures packing to prevent leakage.
345	PACKING: needle valve, carburetor.....	Prevents fuel leakage.
346	RETAINER: needle valve, carburetor.....	Retains jet in carburetor body.
347	WASHER: fiber, soft, carburetor nozzle, $\frac{1}{16}$ " x $\frac{3}{16}$ " x $\frac{1}{16}$ " thick.....	Prevents fuel leakage.
348	SPRING: needle valve adjusting.....	Holds adjustment of needle valve.

* Applies only to Reel Units RL-26-B and RL-26-C.

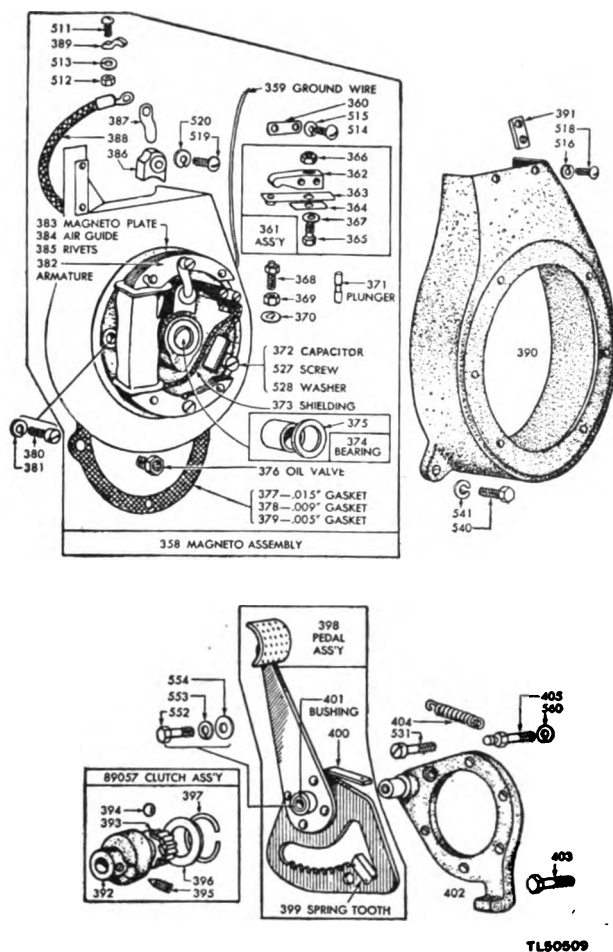


Figure 40. Magneto assembly—exploded view.

TL50509

Ref. No.	Name and description	Function
*GENERAL ASSEMBLY (contd.)		
349	NOZZLE: carburetor.....	Meters fuel above idling speed.
350	SHIELD: carburetor.....	Protects carburetor.
351	CARBURETOR ASSEMBLY: complete.....	Mixes and regulates fuel.
352	AIR CLEANER ASSEMBLY: complete with filter.....	Filters air entering carburetor.
353	GASKET: air cleaner.....	Seals air cleaner to air cleaner pipe.
354	AIR CLEANER PIPE.....	Connects air cleaner and carburetor.
355	LEVER AND SWIVEL: choke lever.....	Axle for choke valve.
356	VALVE: choke, carburetor.....	Controls intake of air.
357	BUSHING: choke shaft.....	Bearing for choke lever.
358	MAGNETO ASSEMBLY: complete.....	Provides spark for ignition.
359	WIRE: ground.....	Grounds magneto through ON-OFF switch to stop engine.
360	PLATE: contact block connector.....	Mounts contact point block
361	CONTACT BLOCK ASSEMBLY: with block contact and spring.....	Interrupts primary circuit.
362	BLOCK: contact, magneto.....	Mounts and insulates breaker point spring.
363	CONTACT AND SPRING.....	Interrupts primary circuit.
364	STOP: contact spring.....	Stops contact spring.
365	SCREW: contact block, magneto, special.....	Assembles contact block and spring.
366	NUT: special, magneto dust cover, steel, zinc-plated, hexagonal, 8-32 x 1 1/2 x 0.102".....	Secures screw. (See item 365.)
367	WASHER: lock, steel, zinc-plated, contact block screw.....	Secures screw. (See item 365.)
368	SCREW: contact point, magneto, special.....	Contact point and adjustment.
369	NUT: lock, contact point screw, zinc-plated.....	Locks contact point screw.
370	WASHER: lock, shakeproof No. 6, contact point, magneto, locknut.....	Secures nut. (See item 369.)
371	PLUNGER: magneto point.....	Actuates breaker points.

* Applies only to Reel Units RL-26-B and RL-26-C.

Ref. No.	Name and description	Function
*GENERAL ASSEMBLY (contd.)		
372	CAPACITOR: magneto.....	Prevents arcing at contact points.
373	INSULATOR: armature lead.....	Insulates armature lead.
374	BEARING: magneto, with No. 62235 oil retainer ring.....	Support for crankshaft.
375	OIL RETAINER RING.....	Prevents oil leakage.
376	VALVE: oil return.....	Drains oil from crankcase.
377	GASKET: magneto plate, 0.015".....	Seal between magneto plate and crankcase.
378	GASKET: magneto plate, 0.009".....	Seal between magneto plate and crankcase.
379	GASKET: magneto plate, 0.005".....	Seal between magneto plate and crankcase.
380	SCREW: magneto, plate, heat-treated, cap $\frac{5}{16}$ "-24 x $1\frac{1}{16}$ ", fillister head, zinc-plated.....	Mount magneto plate.
381	WASHER: lock, magneto plate, $\frac{5}{16}$ " x $\frac{3}{16}$ " x $\frac{3}{4}$ " thick, zinc-plated.....	Secures screw. (See item 380.)
382	ARMATURE: magneto.....	Induces high voltage.
383	PLATE: magneto.....	Support for magneto parts.
384	MAGNETO PLATE AIR GUIDE.....	Directs flow of air for cooling.
385	RIVET.....	Secures air guide to magneto plate.
386	COVER: dust, magneto point.....	Protects breaker points.
387	CLIP: dust-cover, magneto.....	Secures dust cover.
388	CABLE: ignition.....	Conducts spark to plug.
389	CLAMP: ignition cable.....	Secures ignition cable.
390	BLOWER HOUSING.....	Houses flywheel.
391	BRACKET: mounting, blower.....	Attaches blower housing to engine.
392	CASE: starter ratchet.....	Houses ratchet.
393	PINION: starter.....	Engages pedal ratchet.
394	BALL: steel, clutch.....	Engages ratchet case to turn crankshaft.
395	SCREW: set, Allen head, cone point, heat-treated, $\frac{5}{16}$ "-24 x $\frac{1}{2}$ ".....	Fastens starter to crankshaft.
396	PLATE: retainer, clutch.....	Holds steel clutch balls in place.
397	SPRING: clutch retainer.....	Holds retainer plate in place.
398	PEDAL: starter, assembly, including: Spring tooth —99632. Spring hook —22198. Starter bushing—23192.	Engages pinion to crank engine.
399	TOOTH: spring starter assembly.....	Stop for starter pinion.
400	HOOK: spring.....	Fastener for starter spring.
401	BUSHING: starter.....	Bearing for pedal assembly.
402	BRACKET: starter.....	Used to mount pedal assembly.
403	SCREW: $\frac{5}{16}$ "-24 x 1", special, hardened.....	Mounts starter bracket.
404	SPRING: starter return.....	Returns starter pedal to normal position.
405	SCREW: starter return spring anchor, steal, special.....	Anchors starter spring.

Numbers 406 and above, shown in illustrations, apply only to standard hardware such as bolts, nuts, washers, etc., and are used to identify such items for assembly purposes.

* Applies only to Reel Units RL-26-B and RL-26-C.

SECTION IV

MAINTENANCE

Note. Failure or unsatisfactory performance of this equipment will be reported immediately on WD, AGO Form No. 468. If this form is not available, see TM 38-250.

23. General

Tinkering with the engine or any part of the reel unit should be avoided. However, a certain amount of service and attention is required. Keeping the unit clean throughout and providing the right kind of fuel, oil, and grease will assure better performance and satisfactory service. The proper operation of the gasoline engines depends upon correct adjustment to provide good ignition, carburetion, compression, and cooling. It is of equal importance that the gasoline used be clean and the oil be of the recommended grades. The instructions in this section fully explain the simple adjustments and offer some operating recommendations that will provide satisfactory and trouble-free service.

24. Gasoline

The use of a good grade of clean, fresh gasoline is strongly recommended. Higher octane (aviation) gasoline must not be used; it will form a vapor lock in the fuel line when the engine gets hot and cause the engine to stop. Be sure that the vent hole in the top of the fuel tank is open, for air must enter the tank to allow the gasoline to flow to the carburetor. Gasoline containing gum must not be used. The gum content of any gasoline can be checked by evaporating $\frac{1}{2}$ pint of the gasoline in an open dish. A gummy, sticky residue denotes gum content in the gasoline. Gasoline containing gum will eventually clog the carburetor, fuel line, and fuel tank, and cause the engine to stop. Since evaporation is a major cause of gum, deposits can largely be avoided if the fuel tank is kept full when the engine is not in use. When shutting the engine down for a short period of time such as one or two days, shut off the gasoline shut-off valve and allow the engine to stop by running dry. This removes all gasoline from the fuel line and carburetor and prevents the accumulation of gum during the shut-down period. A more com-

plete discussion of internal combustion engine fuels is given in TM 10-550.

25. Lubrication

a. GENERAL. A high-grade, well-refined oil is essential for proper engine lubrication. The rule regarding lubrication of any particular engine is: Follow carefully the instructions contained on the lubrication order for that engine.

b. LAUSON ENGINES ON REEL UNITS RL-26 AND RL-26-A. (1) Lubrication for varying climatic conditions. In general, oil of the following viscosities will be found suitable for varying atmospheric and service conditions for the Lauson engines:

(a) Summer.

1. Heavy duty (service involving full-load for long periods), SAE 30.
2. Average duty (service involving intermittent full-loading or sustained partial loads), SAE 20.

(b) Winter.

1. Where engines are exposed to temperatures between 32° F., and 0° F., *never* use an oil heavier than SAE 10.
2. It may be necessary, under extremely cold conditions (below 0° F.), to use a lighter oil, such as SAE 10, mixed with 25 percent gasoline. Drain crankcase daily.

(2) *Filling crankcase.* With every filling of the fuel tank, also replenish the oil supply in the crankcase of the engine to bring it up to the proper level.

(3) *Oil level in crankcase.* The oil reservoir should be kept to the top of the filter fitting.

Caution: Do not mix oil in the gasoline and do not put oil in the gasoline tank.

(4) *Changing oil.* (a) It is essential that the crankcase be drained and refilled with fresh oil every 48 hours of operation. The oil accumulates small particles of dust and grit, and the oil is thinned by unburned fuel which passes by

the piston. This results in a lowering of the lubricating properties of the oil and possible damage to the engine. The crankcase should be drained when the engine is hot. Always allow the crankcase to drain completely.

(b) Do not flush the crankcase with kerosene or gasoline. The pockets of the crankcase will trap some of the kerosene or gasoline and will dilute the fresh oil. This reduces the lubricating qualities of the oil and may cause damage to the engine. Draining the crankcase while the engine is warm will remove the sediment as well as, or better than, flushing with kerosene or gasoline. Finally, refill the crankcase to the proper level with fresh oil of the proper weight.

(5) *Removing sludge.* The oil in the crankcase also becomes contaminated with sediment resulting from metallic wear, carbon flaking, and grit drawn in through the crankcase breather. Under winter conditions, with a cold crankcase, a certain amount of water will condense in the oil reservoir. When the oil is dirty, this water will form a gummy emulsion or sludge, which clogs the oil strainer and pump valves. This oil sludge will cause trouble if allowed to remain. If used oil shows signs of thickening, the engine should be removed from its base and every trace of the formation removed. The oil pump and strainer screen should also be thoroughly washed at this time. Do not use cotton or wool waste for cleaning. Particles from it may stick to the screen and other parts, and will eventually clog up the oil passages in the lubricating system.

c. BRIGGS AND STRATTON ENGINES ON REEL UNITS RL-26-A, RL-26-B, AND RL-26-C. (1) *General.* For proper lubrication, a high-grade, well-refined oil is essential. An oil not heavier than SAE 30 should be used for operating the engine in temperatures of 32° F., or above. For temperatures of 32° F., to 0° F., use an oil not heavier than SAE 10. No gasoline should be used for operating at temperatures above 0° F.

(2) *Mixing oil.* For subzero temperature, mix gasoline with oil as follows:

(a) 0° to -10° F., 9 parts of Oil, engine, SAE 10, and 2 parts gasoline.

(b) -10° to -20° F., 8 parts of Oil, engine, SAE 10, and 2 parts gasoline.

(c) -20° to -30° F., 7 parts of Oil, engine, SAE 10, and 3 parts gasoline.

Note. Under no circumstances should a greater proportion of gasoline be used than specified above.

(3) *Adding oil.* With every filling of the fuel tank, or after each 4 hours of operation, replenish the oil supply in the crankcase of the engine to bring the oil up to the proper level.

(4) *Changing oil.* The oil is drained by removing the yellow oil drain plug. Drain the crankcase completely after every 48 hours of operation. Do not flush the crankcase with kerosene or gasoline. Draining while the engine is warm will accomplish as much in the removal of sediment.

Caution: Do not mix oil with gasoline, as this engine is provided with an efficient pump lubrication system which forces a stream of oil to all moving parts. There are no external parts which require separate oiling.

(5) *Removing sludge.* See b(5) above.

d. LUBRICATION CHARTS. (1) A lubrication chart showing the points of lubrication of the Lauson engines, models RAY-843 and RAY-885, according to lubrication order No. 3041, is shown in figure 41.

(2) A lubrication chart showing the lubrication points of the Briggs and Stratton engines, models A, AHL, and AP, according to lubrication order No. 3005, is shown in figure 42.

(3) A lubrication chart showing the lubrication points of Reel Unit RL-26-(), according to lubrication order No. 3006, is shown in figure 43.

e. FRAME AND TRANSMISSION. (1) The reel-axle bearing-end brake levers are equipped with Zerk fittings. These fittings should be serviced every 8 hours with Grease, general purpose, No. 1 for temperatures above 32° F., and No. 0 for temperatures below 32° F.

(2) The sprocket chain should be lubricated with engine oil every 8 hours. (See fig. 43.) If the reel unit is in continuous operation, lubricate the sprocket chain every 4 hours. Clean and relubricate every 64 hours.


(3) Check the oil level in the reel unit transmission every 64 hours. Maintain the oil at a level that may be seen by looking down the filler spout with the plug removed and the engine not running. Use Lubricant, gear, uni-

versal SAE 90 in temperatures above 32° F., and SAE 80 between 0° F., to 32° F. For temperatures below 0° F., use SAE 75 with as much as 40 percent Oil, engine, SAE 10.

(4) The upper and lower secondary spline


shafts and shift collars, and the upper and lower primary clutch shift collars should be lubricated every 8 hours with Oil, engine, SAE 10. These should be thoroughly cleaned and lubricated every 64 hours.

LUBRICATION ORDER



LAUSON ENGINE MODELS RAY 843 AND 885

(For Reel Unit RL-26-A, B and C Lubrication, See Lubrication Order No. 3006)



Operating
Lubricant • Hours

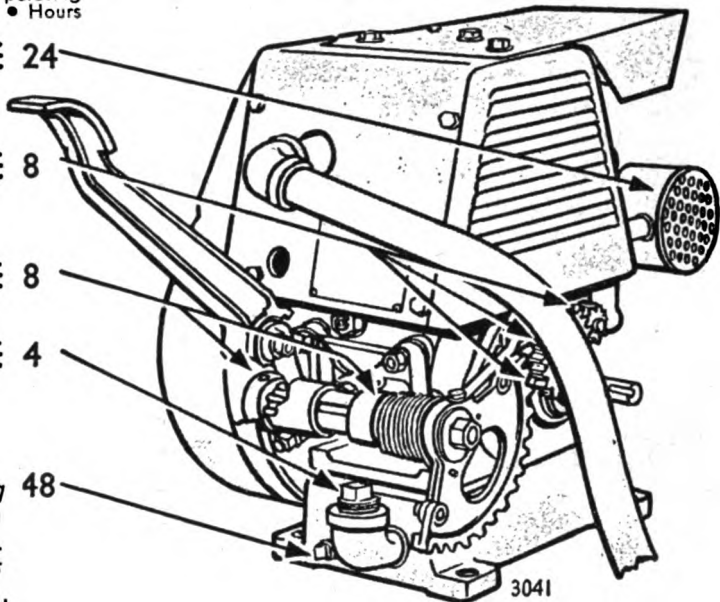
Air Cleaner OE 24
Remove, wash element, allow to dry, then saturate with OE.

Foot Starter Gears and Shafts OE 8
Every 64 hours, clean and relubricate

Foot Starter Shaft OE 8
Oil holes

Crankcase Fill and Level Plug OE 4
Check level, fill to plug hole
Keep breather vent clean.

Crankcase Drain Plug 48
Drain and refill
Cap. approx. 1 qt.
Drain only when hot



COLD WEATHER—Below 0° F., drain Crankcase daily. Refill Crankcase with 75% OE SAE 10 and 25% gasoline thoroughly mixed. Check level more often. Maintain at level of fill plug hole by adding undiluted OE SAE 10 only.

HOURS—Reduce hours under severe operating conditions.

CLEAN parts with SOLVENT, dry-cleaning, or OIL, fuel, Diesel. Allow parts to dry thoroughly before lubricating.

LUBRICATED BY SIGNAL CORPS MAINTENANCE PERSONNEL—Magneto, Engine Breather.

REFERENCE—Technical Manual TM 11-360.

By Order of the Secretary of War:
G. C. Marshall, Chief of Staff.

KEY

LUBRICANTS	LOWEST EXPECTED AIR TEMPERATURE		
	above +32°F.	+32°F. to 0°F.	below 0°F.
OE—OIL, engine			
Crankcase	OE SAE 30	OE SAE 10	See Cold Weather Note
Except Crankcase	OE SAE 30	OE SAE 10	PS

PS—OIL, lubricating, preservative, special

Requisition LUBRICATION ORDER from Philadelphia Signal Depot, or Utah ASF Depot, Ogden, Utah, by Signal Corps Stock No.

25 Mar 1944
Supersedes all previous lubrication instructions.

Figure 41. Lubrication order No. 3041, Lawson engine, models RAY-843 and RAY-885.

TL51172

26. Fuel Systems

a. GENERAL. Because of difference in design, manufacture, and replacement and maintenance in the field, there are several different types of

fuel lines and couplings in use. Generally, a flexible rubber fuel line equipped with a permanent brass coupling at the carburetor end and a permanent elbow at the fuel tank end is

WAR DEPARTMENT LUBRICATION ORDER No. 3005

SIGNAL CORPS



BRIGGS AND STRATTON ENGINE

(MODELS A, AHL and AP)

(For Reel Unit RL-26-A, B, & C Lubrication, see Guide No. 3006)



Starter Gears and Shafts
Every 64 hours clean and lubricate.

Crankcase Breather. Remove, wash parts, saturate element.

Air Cleaner
Check level, refill to level mark.
Every 24 hours, remove, drain, clean and refill. Every 256 hours, remove, wash all parts.

Crankcase Fill and Level Gage
Check level.

Crankcase Drain Plug
Drain and refill. Cap. approx. 1½ qt.
Drain only when hot.

COLD WEATHER—Below 0°F., drain crankcase daily. Refill crankcase with 75% OE SAE 10 and 25% gasoline thoroughly mixed. Check level more often. Maintain at FULL mark by adding undiluted OE SAE 10 only.

HOURS—Reduce hours under severe operating conditions.

Lubricant • Operating Hours

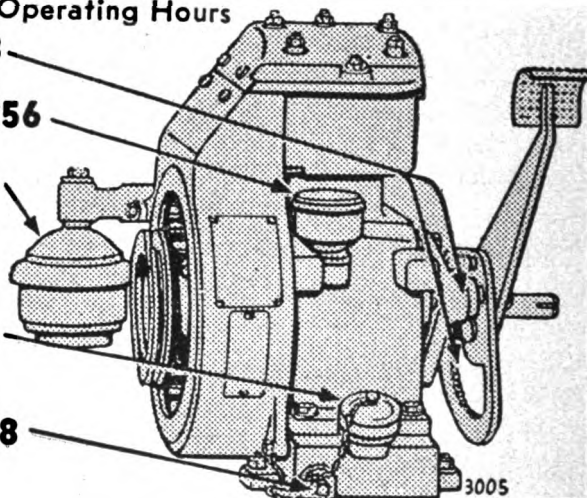
OE 8

OE 256

OE 8

OE 4

48



CLEAN parts with SOLVENT, dry-cleaning, or OIL, fuel, Diesel. Allow parts to dry thoroughly before lubricating.

REFERENCE—Technical Manual TM 11-360.

By Order of the Secretary of War:
G. C. Marshall, Chief of Staff.

KEY

LUBRICANTS	LOWEST EXPECTED AIR TEMPERATURE		
OE—OIL, engine	above +32°F.	+32°F. to 0°F.	below 0°F.
Crankcase	OE SAE 30	OE SAE 10	See Cold Weather Note
Except crankcase	OE SAE 30	OE SAE 10	PS
PS—OIL, lubricating, preservative, special			

Requisition LUBRICATION ORDER from Philadelphia Signal Depot, or Utah ASF Depot, Ogden, Utah, by Signal Corps Stock No.

6D10113-5

25 Mar 1944

Supersedes all previous lubrication instructions.

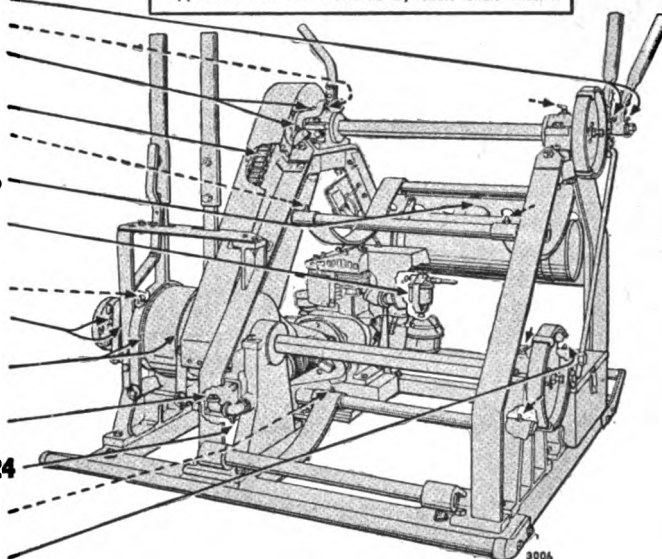
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Figure 42. Lubrication order No. 3005, Briggs and Stratton engines, models A, AHL, and AP.

REEL UNIT RL-26-A, B & C (For Engine Lubrication See Lubrication Order No. 3005)

	Lubricant	Operating Hours
Reel Shaft Brake Control Levers	CG	64
Upper Reel Shaft Bearing	CG	64
Upper Secondary Clutch Spline Shaft and Shift Collar	OE	8
Drive Chain	OE	8
Reel Cradle Shaft Bearing	CG	64
If not equipped with fittings, lubricate with OE.		
Fuel Tank	256	
Clean inside of tank and fuel line. Keep fuel clean and vent in cap open. (Cap. approx. 2 gal.)		
Fuel Strainer	64	
(Some models) Remove and clean sediment bowl and screen. Also, open fuel tank shut-off valve to drain water and sediment. (See Note)		
Lower Reel Shaft Bearing	CG	64
Lower Secondary Clutch Spline Shaft and Shift Collar	OE	8
Upper and Lower Primary Clutch	OE	8
Shift Collars	CG	64
Transmission Fill and Level Plug	GO	64
Check level, fill to plug hole. Keep hole in vent plug open.		
Transmission Drain	1024	
Drain, flush and refill. Cap. approx. 1/2 qt. Drain only after operation.		
Reel Cradle Shaft Bearing	CG	64
If not equipped with fittings, lubricate with OE.		
Reel Brake Control Shaft	CG	64

CAUTION: Lubricate Dotted Arrow Points on Both Sides. Opposite Points are indicated by Short Shaft Arrows.



KEY

LUBRICANTS	LOWEST EXPECTED AIR TEMPERATURE		
	above +32°F.	+32°F. to 0°F.	below 0°F.
OE—OIL, engine	OE SAE 30	OE SAE 10	PS
GO—LUBRICANT, gear, universal	GO SAE 90	GO SAE 80	GO Grade 75
CG—GREASE, general purpose	CG No. 1	CG No. 0	CG No. 0
PS—OIL, lubricating, preservative, special.			

Copy of this Lubrication Order will remain with the equipment at all times. Instructions contained therein are mandatory and supersede all conflicting lubrication instructions dated prior to 22 August 1944.

BY ORDER OF THE SECRETARY OF WAR:

OFFICIAL:
J. A. ULIO,
Major General,
The Adjutant General.

G. C. MARSHALL,
Chief of Staff.

Requisition LUBRICATION ORDER from Philadelphia Signal Depot, or Utah ASF Depot, Ogden, Utah, by Signal Corps Stock No. 6D10113-6

No. 3006

TL51174

Figure 43. Lubrication order No. 3006, Reel Unit RL-26-().

used. This complete assembly should be considered as a replaceable unit, and no attempt should be made in the field to separate the rubber tubing from the integral coupling assemblies.

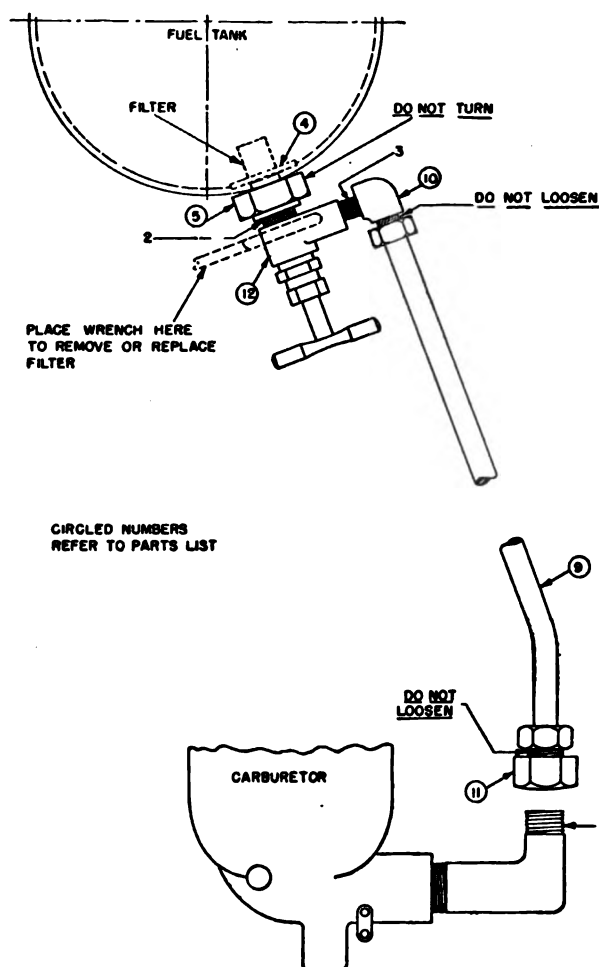
b. REMOVAL AND REPLACEMENT. If the fuel line is assembled as shown in figure 44, certain threads and nuts *must not* be loosened; otherwise, the fuel line will be damaged beyond repair. These particular threads and nuts are distinctly labeled in figure 44. If, however, the fuel line is one of several which are equipped

with union-type couplings attached to the rubber tube by a metal ferrule, the union nuts may be unscrewed and the fuel line removed without removing any other parts. Careful examination, while keeping the details of figure 44 in mind, will indicate the type of couplings and the nuts that may be unscrewed without damaging the fuel line.

c. FUEL LINE OF REEL UNIT RL-26-A, EQUIPPED WITH A LAUSON ENGINE AND A TILLOTSON CARBURETOR. The following procedure in removing and replacing the fuel line is used:

The carburetor strainer head screw should be removed and the strainer with the fuel pipe raised from the carburetor a sufficient amount to permit unscrewing the carburetor strainer head from the fuel pipe coupling. The fuel pipe can then be unscrewed as a unit from the fuel tank valve, and the strainer head can be replaced on the carburetor. The installation of a new fuel pipe is made in the reverse order to the process just described; that is, remove the carburetor strainer head, screw fuel pipe into the tank valve, screw the strainer head into the fuel pipe coupling, position the strainer head on the carburetor, and lock it in place with the holding screw. Care must be taken throughout not to injure the strainer screen.

d. FUEL LINE OF REEL UNITS RL-26 AND RL-26-A EQUIPPED WITH BRIGGS AND STRATTON



TL51103

Figure 44. Fuel line assembly on Reel Unit RL-26.

ENGINE, MODEL A, No. 208072. Generally, reel units equipped with Briggs and Stratton engines are equipped with a fuel line having union-type couplings which may be unscrewed, permitting the fuel line to be removed directly. However, since a variation from the general case is quite probable, and in the event a unit is equipped with a fuel line as shown in figure 44, the same threads and nuts as are labeled in figure 44 *must not* be loosened. Since the carburetor is of a different design, the procedure to remove the fuel line must be varied. Proceed as follows:

- (1) Remove the air cleaner and air cleaner pipe from the carburetor.
- (2) Remove the carburetor from the intake elbow, and then unscrew the carburetor from the fuel line.
- (3) Unscrew the fuel line and the filter as an integral unit from the fuel tank.
- (4) To replace or install a new fuel line, reverse the order of the procedure described above.

e. FILTER. All Reel Units RL-26 procured on orders dated 1939 and later are equipped with a Zenith gasoline filter screwed into the fuel tank. This filter includes a valve as shown in figure 44. Because of the physical construction of the filter and the fuel tank, it is impossible to unscrew the fuel line from the filter in place without loosening prohibited connections if the fuel line is as shown in figure 44. Therefore, after the carburetor has been removed from the end of the fuel line, it becomes necessary, in order to dismantle the fuel line farther, to unscrew the filter from the fuel tank. This must be done by placing a wrench on the body of the filter unit and turning in a counterclockwise direction. The large nut adjacent to the fuel tank (fig. 44) *must not* be turned when removing the filter. If the filter unit is tight and requires considerable force to loosen it, hold the large nut with a second wrench to prevent breaking the soldered joint between the nut and the fuel tank.

f. CLEANING FUEL LINE. Disconnect the fuel line at the carburetor and also at the gasoline filter or at the fuel tank. Blow through the line to clear it.

g. CLEANING GASOLINE FILTER. This operation is applicable to those units equipped with

a gasoline filter. To clean the gasoline filter, remove it from the fuel tank and blow from the end to which the fuel line is fastened until all dust and lint have been removed. Check the filter by pouring gasoline through it from the end which connects to the fuel tank. After the filter unit has been removed from the tank, it can be unscrewed from the fuel line if desired. The filter unit is composed of fine metal disks assembled very close together. Gasoline will pass through the filter, but water, because of its higher surface tension, will not go through. Therefore, it is necessary to remove the filter and drain the fuel tank of the accumulated water at various intervals of time depending upon the fuel, care in storage, and climatic conditions. If a gummy, varnishlike substance is present in the filter or fuel line, alcohol or acetone will dissolve it.

h. FUEL LINE OF REEL UNITS RL-26-B AND RL-26-C EQUIPPED WITH BRIGGS AND STRATTON ENGINE, MODEL AP, TYPE No. 208286. (1) *Cleaning fuel lines.* (a) Close the shut-off valve in the fuel filter by turning the lever to the right.

(b) Disconnect the fuel line at the filter.

(c) Blow through the fuel line to clear it.

(2) *Cleaning fuel tank.* (a) Disconnect the fuel line at the outlet.

(b) Remove the filter from the fuel tank.

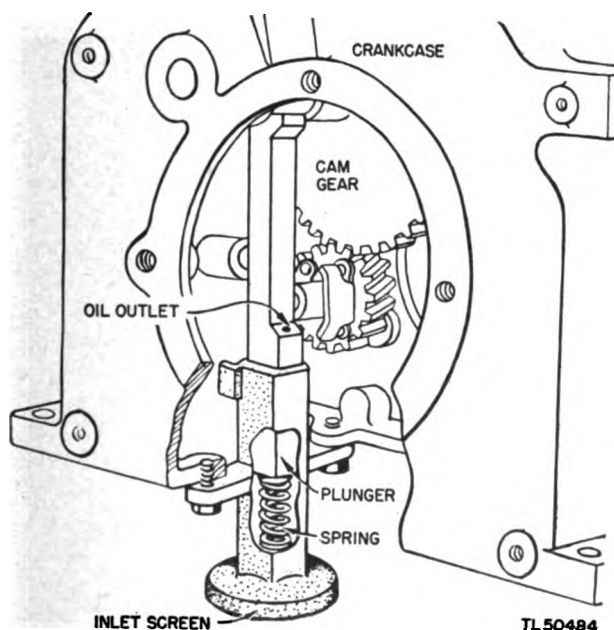


Figure 45. Oil pump on Briggs and Stratton engine.

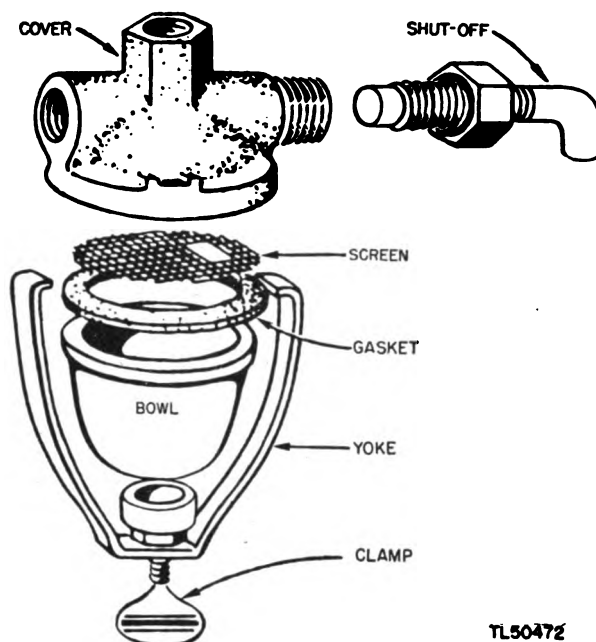


Figure 46. Fuel filter used on Briggs and Stratton engine.

(c) Clean the filter screen and the outlet opening.

(3) *Cleaning fuel tank cap.* Be sure that the small vent hole in the fuel tank cap is not clogged up, for air must enter the tank to allow the gasoline to flow to the carburetor. Test by blowing through the top of the cap.

i. CORRECT USE OF CHOKE. The correct carburetor setting (j below) gives the engine the best mixture to run on when it is hot. The following method of using the choke for starting is recommended:

(1) Close the choke and turn the engine over several times with the pedal starter and with the ignition switch off.

(2) Turn the ignition switch on, open the choke, and crank the engine with the pedal starter. In cold weather it may be necessary to leave the choke partially closed until the engine warms up.

j. CARBURETOR. The carburetor on the Briggs and Stratton, model AP, type No. 208286, is of the gravity type. The gasoline is regulated by a needle valve. The throttle is automatically controlled by a governor.

(1) *Adjusting.* (a) Completely close the needle valve by turning it in a clockwise direction as far as possible. Do not screw it too

tightly or use force when closing the needle valve, as the valve and its seat may be damaged.

(b) From the closed position, open the needle valve 1 to $1\frac{1}{4}$ turns.

(c) After the engine has been started and warmed up, make a final adjustment with the choke wide open by turning the needle valve to the point at which the engine operates most smoothly with full-load. This setting will also take care of starting with the use of the choke.

(d) If it is necessary to keep choke partially closed several minutes before the engine runs smoothly, the carburetor setting is too lean and the needle valve should be opened a notch or two. Turn the needle valve counterclockwise. For governor adjustment, see paragraph 28.

(e) The idle adjustment screw setting is about $\frac{1}{2}$ to $\frac{3}{4}$ turn counterclockwise. Do not force the screw against its seat or both will be damaged.

(f) The throttle lever adjustment screw is set at the factory to permit an idling speed of about 1,200 rpm. If it is desired to idle the engine at a speed higher than 1,200 rpm, turn the throttle lever adjusting screw in a clockwise direction.

(2) *Removing and replacing.* (a) Close the shut-off valve in the fuel filter.

(b) Disconnect the fuel line at the carburetor.

(c) Remove the air cleaner and elbow.

(d) Remove the two cap screws and lockwashers from the intake elbow.

(e) Remove the throttle link. The carburetor is then free from all connections. To replace, reverse the operations above.

(3) *Disassembling.* (a) Remove the needle valve, stuffing box nut, gland, and nozzle.

(b) Remove the screws and lockwashers from the carburetor body.

Caution: The upper and lower bodies are interlocked by the nozzle (fig. 48), and failure to disassemble the parts in the above order will result in damaged parts.

(4) *Checking inlet valve and seat* (fig. 49). Pull out the brass pin which holds the carburetor float. Remove the float and inspect the inlet valve and seat. A worn or dirty inlet valve and seat or an incorrectly adjusted float lever will cause the carburetor to leak.

(5) *Cleaning parts.* (a) Wash the parts with alcohol or acetone to remove gum deposits and dirt.

(b) Blow through all passages and openings. Do not use wire to clean out the holes.

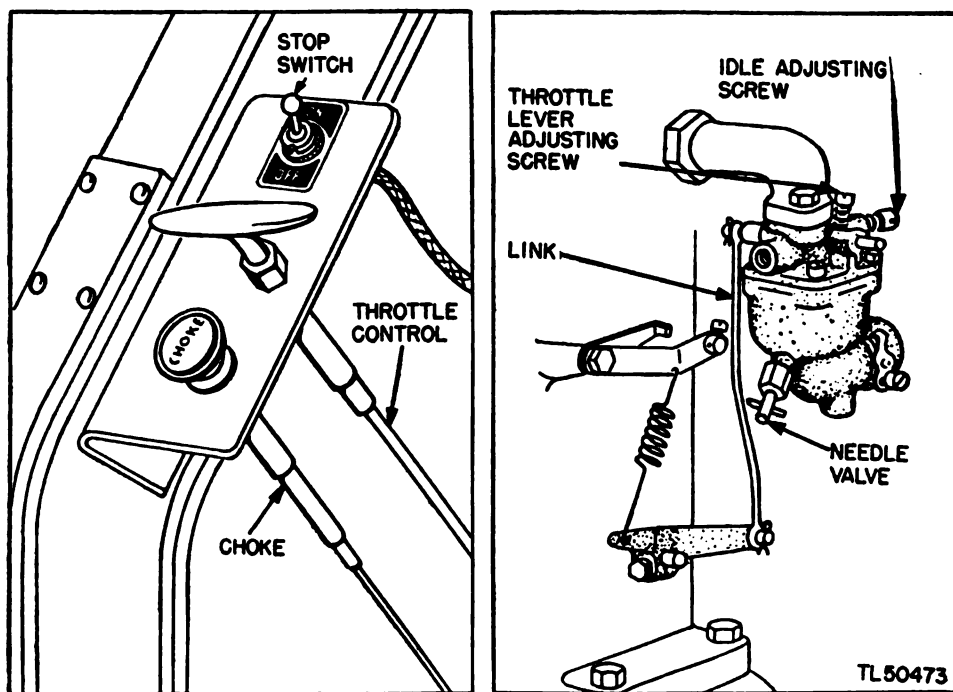


Figure 47. Carburetor, governor, and manual control mechanism on Reel Unit RL-26-().

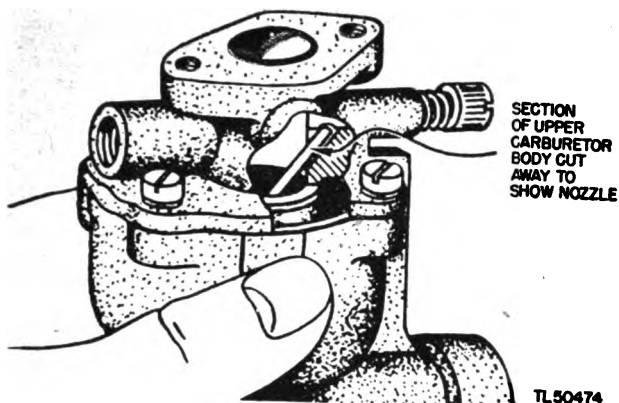


Figure 48. Carburetor nozzle on Briggs and Stratton engine.

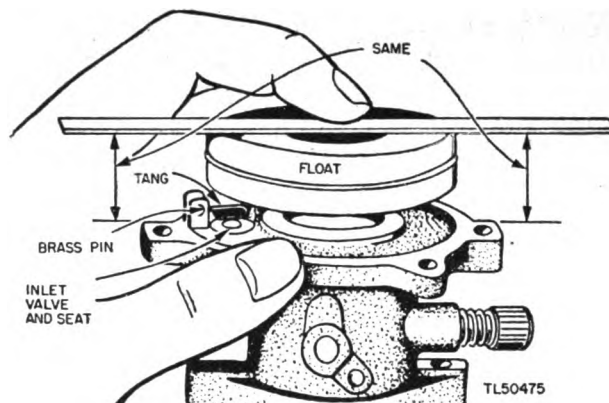


Figure 49. Carburetor float position.

(c) Replace the worn or damaged parts.

(6) *Reassembling* (fig. 49). (a) The float should be in a horizontal position when it closes the inlet valve.

(b) Check the float by inverting the upper carburetor body, and place a scale or flat, straight piece of steel across the carburetor float. See that the distance from the top of the float to the carburetor body flange is equal on both sides. The float hinge tang can be bent to attain the proper position of the float.

(c) Reassemble the remaining parts in the following order:

1. Upper and lower carburetor bodies.
2. Nozzle and needle valve parts.

27. Valve Adjustment

a. LAUSON ENGINE, MODEL RAY-885. The exhaust valve should be closed when the piston reaches top dead-center. (See fig. 10.) The next downward stroke is the intake or suction stroke. The intake valve should start open after the

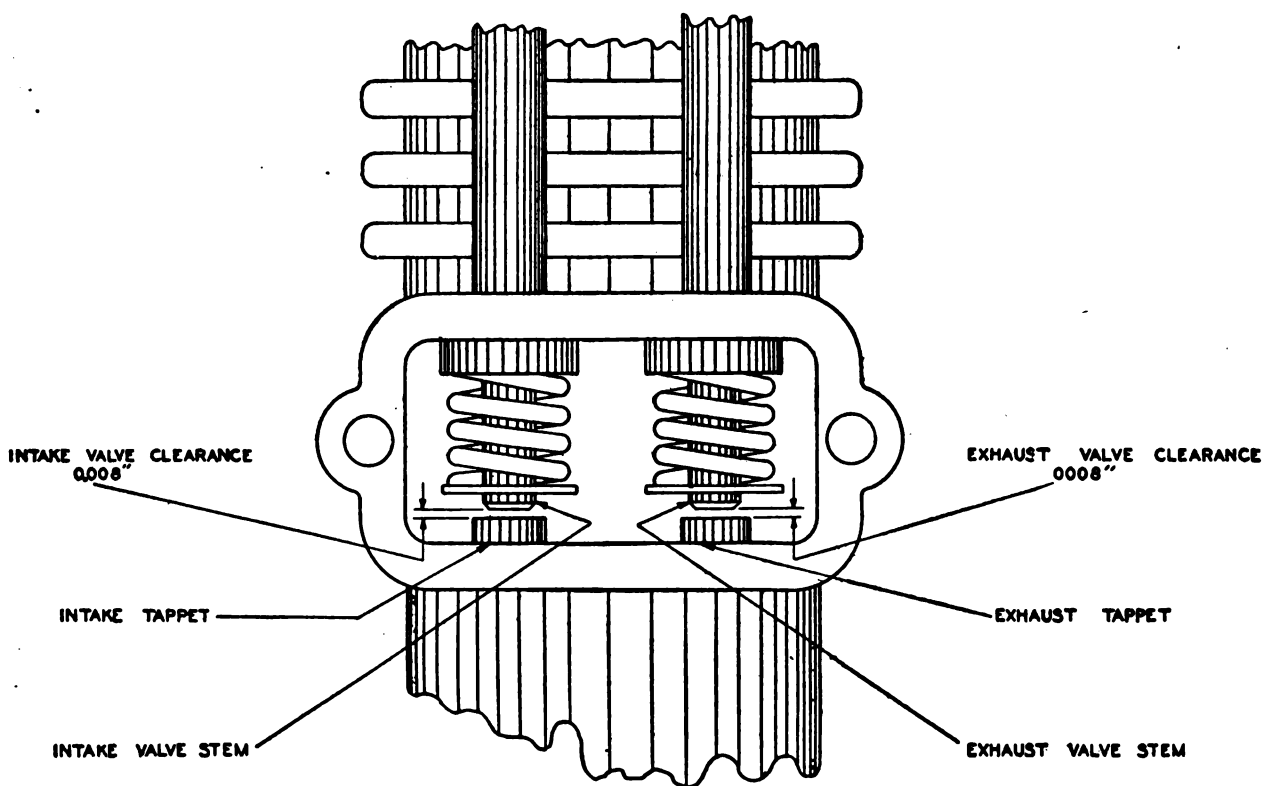


Figure 50. Valve adjustment on the Lawson engine.

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crank has traveled 4° to 5° past top dead-center, or after the piston has traveled down from the top dead-center a distance of 0.009 to 0.010 inch. The clearance should be checked with a feeler gauge. (See fig. 50.) Adjust the clearance by filing the valve stems.

b. BRIGGS AND STRATTON ENGINE, MODEL A, No. 208072. (1) *Checking valve clearance.* The engine should be warmed up before checking the valve clearance. Remove the valve cover plate. Check the clearance by inserting feeler gauges between the valves and tappets. The proper feeler gauge will fit snugly but not tightly. The correct clearance on the exhaust valve is 0.012 inch. On the intake valve the clearance is 0.008 inch. The valve clearance is adjusted by grinding the required amount from the end of the valve stem. The end of the stem must be square with the stem proper.

(2) *Removing valves.* Remove the cylinder head, and if the engine is not dismantled, drain the oil from the crankcase. Invert the cylinder. Compress the spring with the valve-spring compressor (tool No. 69189-T3), and push out the split collars with the end of a screw driver. Release the spring compressor. Tilt the cylinder back far enough to allow the valve to drop, permitting its stem to clear the springs. Pry the spring out with the end of a screw driver.

(3) *Replacing valves and valve springs.* Compress the spring in the valve-spring compressor. Turn the tool to the inverted position with collar retainer washers on top. Drop the split collars into place in the retainer washer, one at a time. When the first half of the split

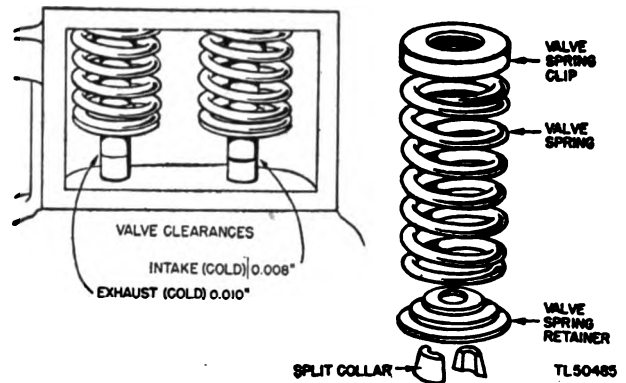


Figure 52. Valve adjustment on Briggs and Stratton engine.

collar is in place in the retainer washer, push it around to the back of the valve stem to permit easy placing of the second half.

(4) *Reseating valves.* The valves are ground in the same manner as automobile valves. If the valves stick, it may be that they are coated with gum or carbon. The gum can be removed with alcohol or acetone. Thoroughly clean the valve stems with a wire brush or emery cloth. Scrape all carbon from the valve posts.

(5) *Timing.* The timing of the valves is fixed by the meshing of the camshaft gear with the gear on the crankshaft. These gears are properly meshed when the punch mark on the camshaft gear is in line with the mark on the crankshaft collar. (See fig. 51.)

c. BRIGGS AND STRATTON ENGINE, MODEL AP, TYPE No. 208286. (1) *Checking clearance* (fig. 52). To check the valve clearance, remove the carburetor and valve cover plate. The clearances are measured by inserting feeler gauges between the valve stem and tappet. The correct measurement is made when the feeler will fit snugly but not tightly. The correct valve clearances for this engine when it is cold are: exhaust valve, 0.010 inch; intake valve, 0.008 inch. Valve clearance is adjusted by grinding required amount from the end of the valve stem. The end of the stem must be square with the stem proper.

(2) *Removing valves* (fig. 53). (a) Remove the muffler, carburetor intake elbow, and cylinder head.

(b) Place the valve-spring compressor on top of the valve chamber and below the spring retainer as illustrated. Then compress the spring and pry out the split retainer collars with a screw driver.

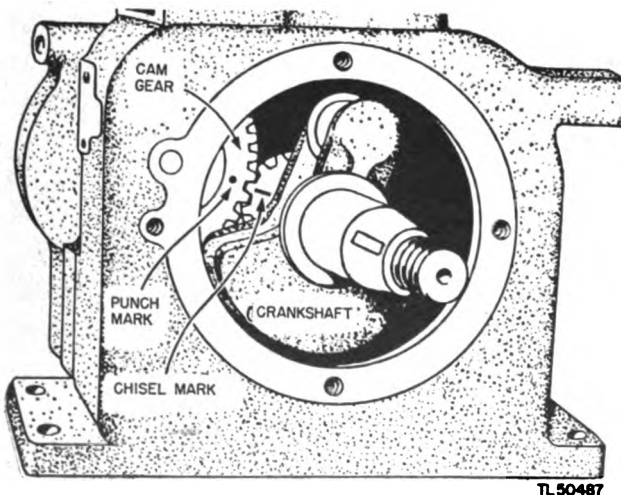


Figure 51. Valve timing.

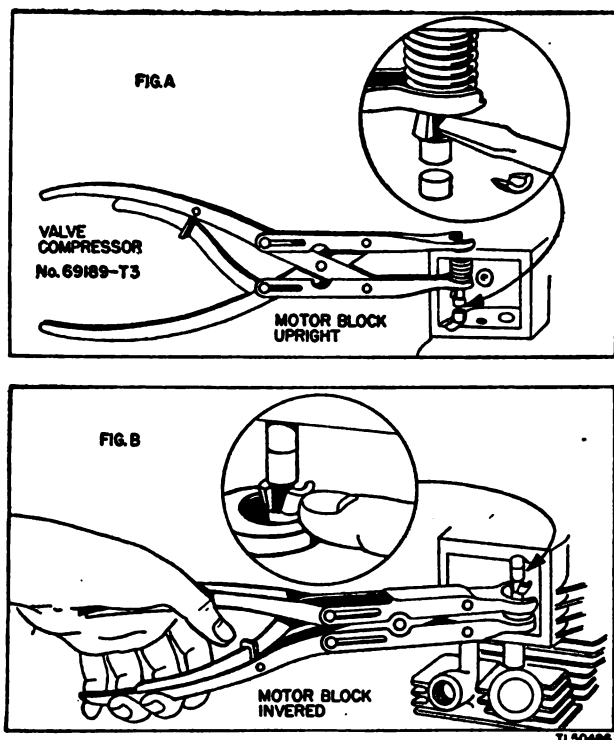


Figure 53. Removing and replacing valves.

(3) *Replacing valves* (fig. 53). (a) Invert the cylinder after the oil has been drained.

(b) Place the valve springs and retainer into the compressor tool, and compress the spring as much as possible. Place the tool into the valve chamber and slip the valve into place. Slip one-half of the retainer collar into the groove in the valve stem, and move it toward the rear of the valve chamber. Then insert the other half of the retainer collar. Release the spring compressor.

(4) *Reseating valves*. (a) Grind the valves in the same manner as automobile valves. If the valves stick, they may be coated with gum or carbon. Remove the gum with alcohol or acetone. Clean the valve stems thoroughly with a wire brush or emery cloth. Scrape carbon from the valves.

(b) Replace the valve if inspection shows it to be excessively worn or pitted. If the valve is not too badly worn or pitted, it may be refaced on a valve refacing machine set at 45°.

(c) If the valve seats are excessively worn or pitted, install a new cylinder block. If only minor wear or pitting has taken place, grind the seats with compound, valve grinding, McMaster-Carr Type "Clover" or equal.

(5) *Valve timing*. The timing of the valves is taken care of by the meshing of the camshaft gear with the gear on the crankshaft. These gears are properly meshed when the mark on the camshaft gear is in line with the mark on the camshaft collar. (See fig. 51.)

28. Speed Governor on Briggs and Stratton Engines

a. *ADJUSTING SPEED*. The speed of the Briggs and Stratton engines is adjusted at the control panel. (See fig. 47.) To increase the engine speed, turn the throttle counterclockwise and pull it out until the engine runs at the desired speed. To decrease the engine speed, push down the throttle control. After the speed has been adjusted, turn the lever clockwise to lock it. The normal operating speed of the Briggs and Stratton engine, model A, type No. 208072, on Reel Units RL-26 and RL-26-A is 3,600 rpm. The normal operating speed of the Briggs and Stratton engine, model AP, type No. 208286 is 3,200 rpm.

b. *RESETTING GOVERNOR LEVER* (fig. 54). If the governor lever has become loosened or removed from the governor shaft, reset it as follows:

(1) With the carburetor attached to the engine and hooked up to the governor lever with the throttle link, loosen the screw holding the governor lever on the shaft.

(2) Push the governor lever toward the engine body as far as it will go. Hold it in this position and turn the governor shaft in a clockwise direction until it strikes a stop in the crankcase. Tighten the screw that holds the governor lever to the shaft until it is snug.

(3) Push the governor lever toward the end of the shaft and tighten the screw securely.

c. *REMOVING AND REPLACING GOVERNOR*. The governor mechanism is self-oiling and parts seldom need replacing. However, if trouble should develop and inspection is necessary, proceed as follows:

(1) Disconnect the governor spring and throttle control rod.

(2) Remove the governor lever by loosening the screw.

(3) Remove the engine from its base, and tilt it back so that it rests on the fuel tank.

(4) Remove the oil pump. (See par. 36.)

(5) Remove the screw and slide out the governor gear assembly. If any parts show breakage or undue wear, replace these parts with new ones. To replace the governor, reverse the above procedure.

29. Flywheel, Briggs and Stratton Engine, Model A, Type No. 208072

a. REMOVING. The flywheel is securely attached to the crankshaft by means of a taper fit, a soft flywheel key (Woodruff No. 9), a lockwasher, and a right-hand thread nut. Remove the blower housing. Place a block of wood under a flywheel fin on the left side of the flywheel to hold it rigid and prevent its turning. (See fig. 55.) Place a 15/16-inch socket wrench on the nut. Apply a force to the wrench in a counterclockwise direction. Tap the wrench with a hammer to loosen the nut. Great care is necessary in this operation to prevent breaking a fin from the flywheel, causing unbalance and rendering it useless. After the pulley is removed, remove the two screws and washers from the flywheel. The flywheel can then be

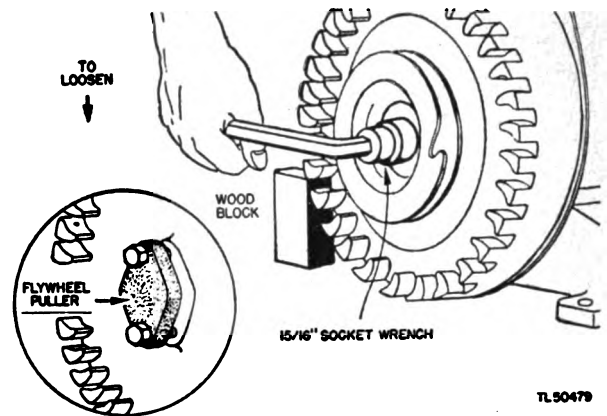


Figure 55. Removing flywheel.

removed with the aid of the flywheel puller, tool No. 29157, provided with the engine.

b. REPLACING. Place the flywheel on the crankshaft with the Woodruff No. 9 key in place. Reverse the operations given in a above. Draw the nut up *very tight* by tapping the bar or wrench with a hammer. Be sure that the flywheel key is a soft key. If a hard key is used and the flywheel becomes loose, the crankshaft and flywheel key seat will be damaged, probably to an extent requiring replacement.

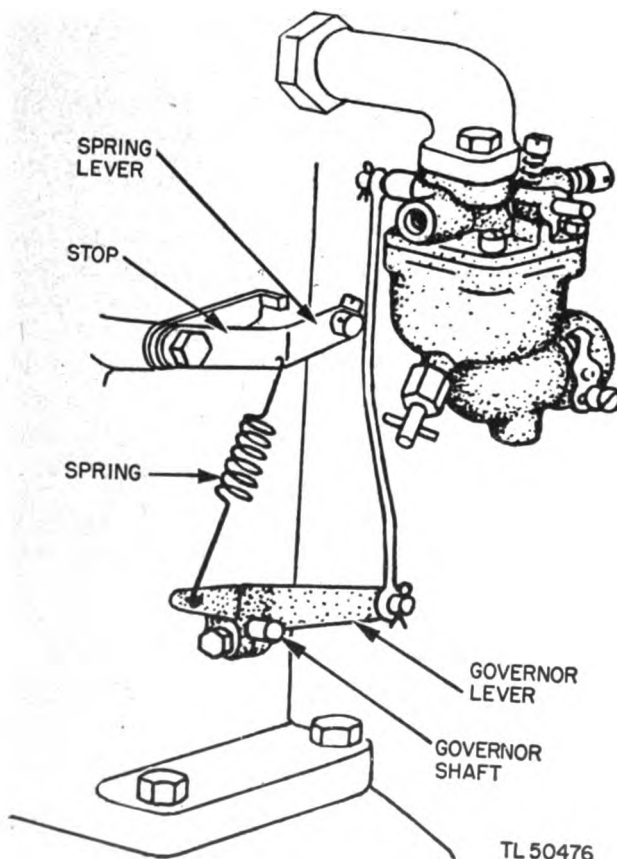


Figure 54. Governor hook-up on Briggs and Stratton engine.

30. Ignition Systems

a. GENERAL CARE AND MAINTENANCE. The information in this paragraph is necessarily limited to the ignition systems of the particular engines which are a part of Reel Units RL-26-(). No attempt is made to explain the theory of ignition electricity. There are several common causes of failure of the ignition system. Fortunately, most of these causes of failure become evident upon examination or inspection. Some of them are listed below:

(1) The high-voltage cable may be short-circuited. Examine it for deterioration or damage by oil, age, wear, or misuse.

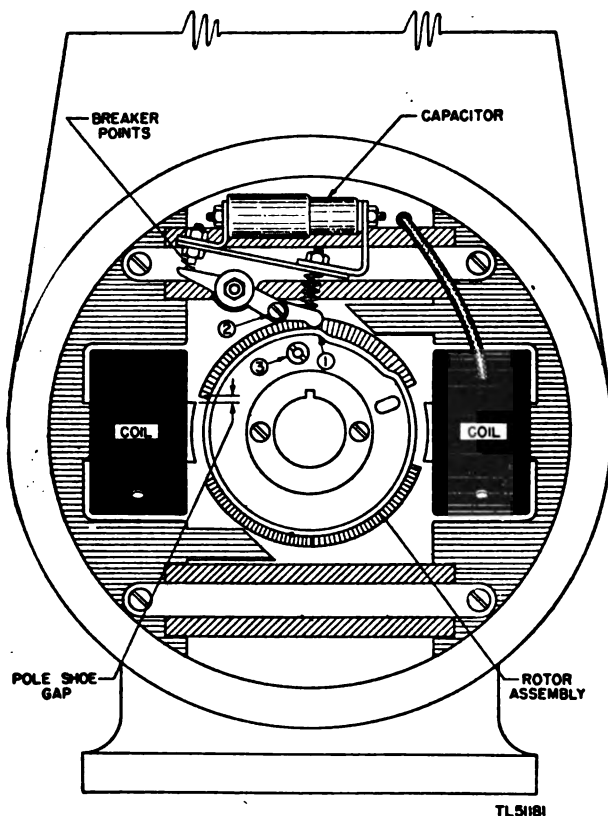
(2) The wire to the ignition switch may be short-circuited. Examine it carefully, especially where it connects to the switch screw.

(3) The spark plug may be fouled. Remove and examine it, paying particular attention to both the points and the porcelain.

(4) If the trouble cannot be traced to the above causes, it will be necessary to inspect the magneto. This involves removing the blower housing and the flywheel.

(5) Examine the breaker points. If they are worn or pitted, dress them with a carborundum stone especially designed for this purpose. Then remove all dust particles with a dry cloth. Do not use a steel file on contact point surfaces. Stiff paper or cardboard will remove the oxide formation on the contact points resulting from long idleness.

b. WICO MAGNETO ON THE LAUSON ENGINE, MODEL RAY-843. The information in this subparagraph is applicable only to those engines with the Wico magneto.



- (1) High part of cam.
- (2) Breaker adjusting screw.
- (3) Cam adjusting nut.

Figure 56. Wico magneto on Lawson engine, model RAY-843.

(1) *Adjusting breaker points* (fig. 56). Turn the rotor assembly to bring the highest point of the cam (1) in contact with the breaker lever. This causes the breaker points to open to the maximum distance. Loosen the adjusting screw (2) on the breaker lever, insert a feeler gauge or a strip of metal 0.010 inch thick between the breaker points and tighten the adjusting screw. The maximum distance the breaker points should now be is equal to the thickness of the

gauge or 0.010. The engine will not operate properly if the maximum opening of the breaker points is not within 0.007 to 0.010 inch, inclusive.

(2) *Magneto timing.* Turn the rotor assembly clockwise until the cam starts to open the breaker points. Take note of the pole shoe gap. The corner of the rotor notch should have traveled away from the pole shoe in the coil a distance of $5/64$ inch. If this gap distance is greater than $5/64$ inch, loosen the cam adjusting nut (3), and shift the cam on its axis until this gap is $5/64$ inch at the moment the breaker points just open. Tighten the adjusting nut (3). Replace the flywheel, taking care that the key in the crankshaft engages properly in the key seat of the flywheel. Replace the blower housing. If the magneto still fails to function after the above check-up and adjustments have been made, it will be necessary to send it to a depot repair shop.

c. EISEMANN MAGNETO. The information contained in this subparagraph is applicable to the Eisemann magneto on the Lawson engine, model RAY-885.

(1) *Checking breaker points.* This magneto functions at its maximum efficiency with a maximum breaker point opening of 0.018 to 0.022 inch, inclusive. To check the gap, proceed as follows:

- (a) Remove the flywheel from the crankshaft.
- (b) Remove the spark plug.
- (c) Rotate the crankshaft slowly in a clockwise direction until the breaker lever fiber rests on the highest part of the cam approximately $1/8$ inch past the breaking edge or 30° beyond the firing point.
- (d) Check the gap between the breaker points with a 0.020-inch feeler gauge.

(e) The cam must be positioned as illustrated when gauging the breaker gap. The heavy section of the cam is slightly eccentric, and the breaker points are not fully separated when the closing edge of the cam approaches the breaker lever fiber. (See fig. 57.)

(2) *Adjusting gap.* If it is necessary to adjust the gap, proceed as follows:

- (a) Slightly loosen the screw which fastens the breaker plate to the stator plate, and leave it friction tight.

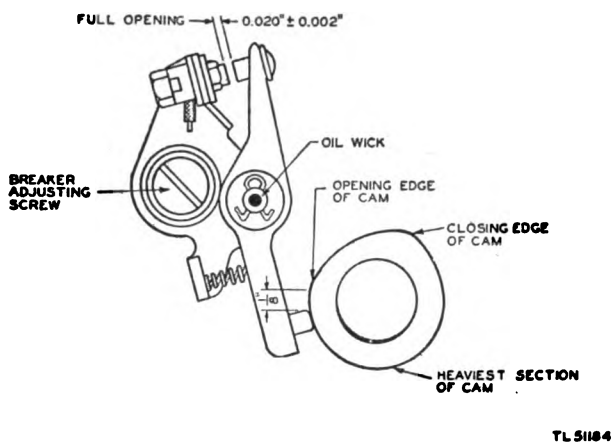


Figure 57. Breaker contact adjustment on the Eisemann magneto on the Lauson engine, model RAY-885.

(b) Move the entire breaker mechanism toward the cam to increase the gap, or away from the cam to decrease the gap.

(c) Tighten the breaker plate, fastening screw securely.

(d) Do not loosen the locknut on the stationary breaker screw.

(e) Since the entire breaker assembly moves as a unit about the breaker adjustment screw, the gap adjustment may be made without disturbing the relationship of the point surfaces. No point dressing is required.

(3) *Setting timing of magneto.* The synchronism of the breaker point interruption and the pole shoe gap is illustrated in figure 58. At the instant when the breaker points first separate and the spark is produced, the edge of the leading pole shoe should be from $\frac{3}{32}$ to $\frac{3}{16}$ inch away from the center leg of the winding core in the direction of rotation, with the edge of the trailing pole centered over the winding. It is vitally important to maintain the correct pole shoe gap. This can be accomplished only by maintaining the breaker point opening within the specified limits of 0.018 and 0.022 inch, inclusive. If the breaker-point opening is adjusted to less than 0.018 inch, the effect is to increase the pole shoe gap; and if the breaker point opening is adjusted to more than 0.022 inch, a reduction in pole shoe gap results. This impairs the performance of the magneto and results in an engine which is hard to start.

(4) *Installation of ignition cable.* Install the eyelet terminal at the spark plug. Strip the insulation from the other end sufficiently to ex-

pose $\frac{3}{16}$ inch of wire. Twist the ends together and attach to the coil winding. It is unnecessary to solder the cable to the coil winding.

(5) *Replacing breaker cam.* If the breaker cam is removed from the crankshaft, it should be replaced with the arrow (which indicates the direction of rotation) on the outside.

(6) *Lubrication of magneto.* The magneto should require no lubrication for long periods of service. Frequent removal of the flywheel for this purpose alone is not recommended. However, if it does become necessary to remove the flywheel, apply 1 drop of crankcase oil to the concealed oil wick in the breaker level bearing pin, and spread a light covering of vaseline or grease over the breaker cam operating surface.

d. MAGNETO, BRIGGS AND STRATTON ENGINE (fig. 59). On the Briggs and Stratton engine, the cable should be soldered to the secondary terminal loop (the small brass plate extending from the coil). Avoid touching the coil with a hot soldering copper. For trouble in the cable, see a(1) above.

(1) *Magneto assembly.* (a) *Removing.* After removing the flywheel (par. 29), detach the ignition cable from the spark plug and remove the back plate, flywheel key, contact point dust cover, and four magneto mounting screws. Turn the crankshaft so that the contact plunger holds

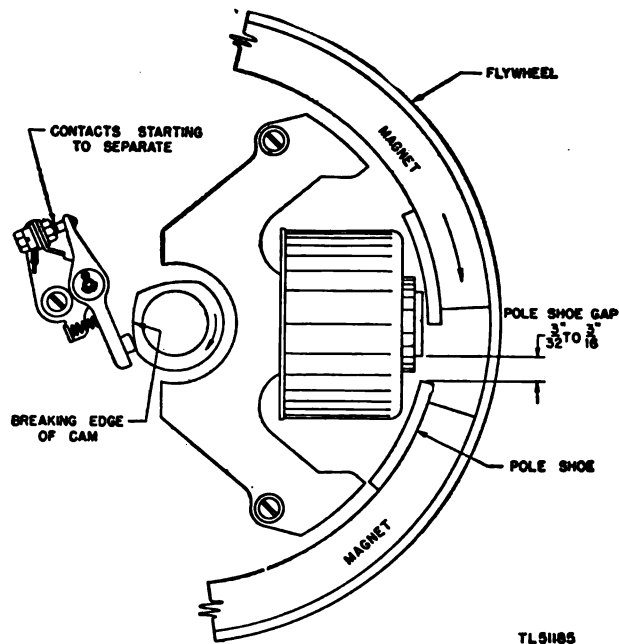


Figure 58. Contact point interruption and pole shoe synchronization on Eisemann magneto.

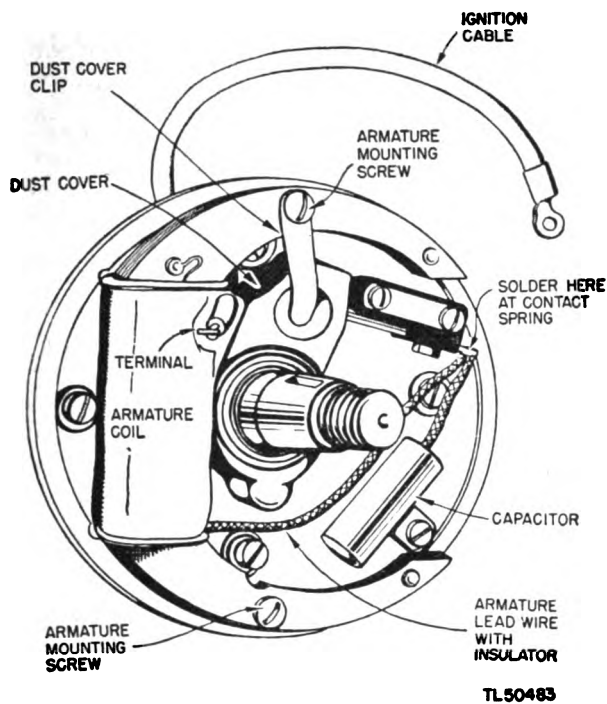


Figure 59. Complete magneto assembly.

the contact points open; then remove the magneto assembly.

(b) *Replacing.* To replace the magneto, reverse the operations above and use the old gasket between the plate and crankcase, or if damaged, a new gasket. It is necessary that the new gasket be of the proper thickness to give the correct end play (0.002 to 0.008 inch) between the magneto bearing and the crankshaft thrust faces as shown in figure 68. Use lockwashers under the mounting screws.

(2) *Magneto timing.* The magneto is always correctly timed with the engine when the flywheel is assembled to the tapered crankshaft with a key and securely held in place with a right-hand thread nut. Do not attempt to change the timing by relocating any parts or by filing the camshaft flat.

(3) *Adjusting contact points* (fig. 60). While the magneto plate is on the motor crankcase, turn the crankshaft by hand and check the contact points for proper opening and closing action. Contact points must be clean and must line up squarely to make good electrical contact. *Do not file contact points.* Fine sandpaper or a fine grit hone may be used to clean the points. If the contact points are out of line, line them up as follows:

(a) Loosen the contact bolt.

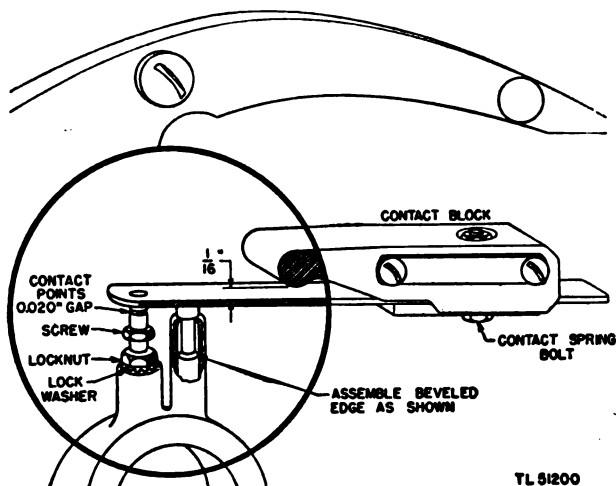


Figure 60. Magneto contact points on Briggs and Stratton engine.

(b) Move the contact spring assembly to line up with the contact screw point.

(c) Tighten contact spring bolt.

(4) *Adjusting contact spring tension.* (a) Turn the crankshaft until the points are in the open position.

(b) Place a 1/16-inch gauge between the contact spring and the round end of the contact block.

(c) Tighten the contact block screws.

(d) Turn the contact screw to secure a 0.020-inch gap.

(e) Tighten the contact screw locknut against the lockwasher.

(f) If *either* or *both* points are badly pitted or burned, replace with contact point assembly S.C. No. 3H1901-A/P35.

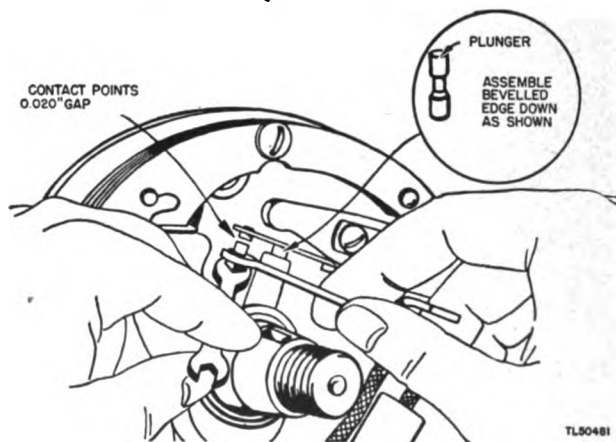


Figure 61. Adjusting contact points on Briggs and Stratton engine magneto.

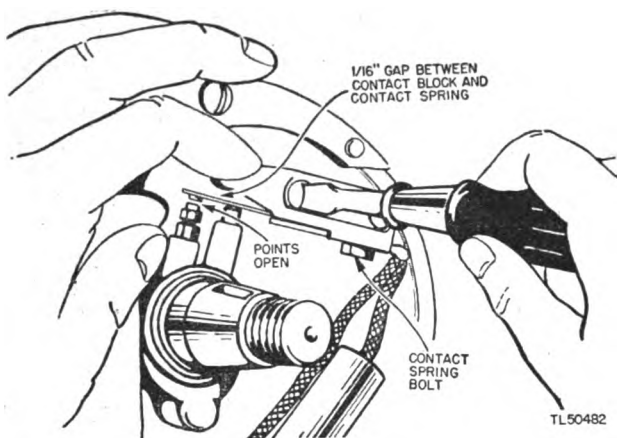


Figure 62. Adjusting contact points on Briggs and Stratton engine magneto.

(5) *Replacing capacitor.* A leaky capacitor may cause the engine to sputter, to be hard to start, or to misfire under load. If the engine misfires after the gasoline line, carburetor, spark plug, cable, and contact points have been checked, install a new capacitor. (See fig. 40 (372).) Slip the short insulator sleeve over the capacitor wire. Solder the end of the capacitor wire and the primary wire to the contact spring. (See fig. 63.) If, after installing a new capacitor, the ignition system still fails to deliver a

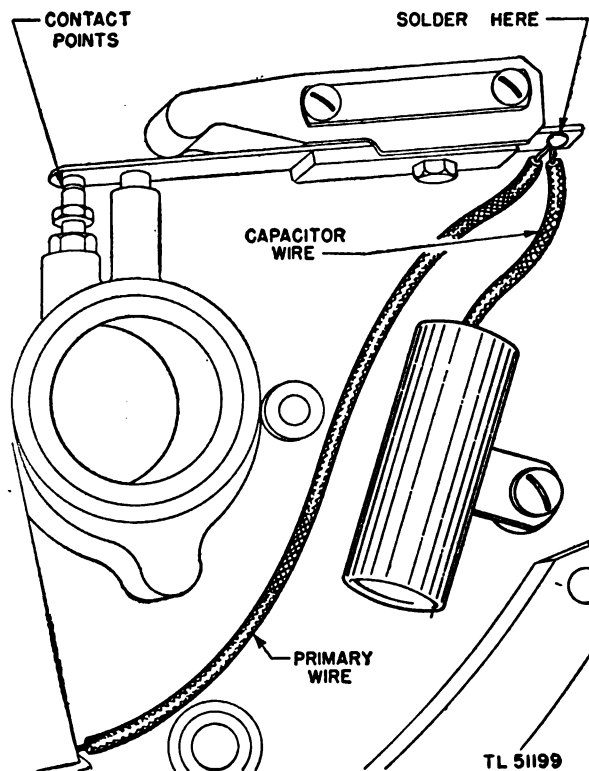


Figure 63. Capacitor installation.

satisfactory spark, it is recommended that the engine be sent to the depot repair shop for repair. Additional information on the operation of the capacitor is given in TM 10-580.

(6) *Magneto repair.* The magneto assembly, with the exception of the contact point assembly and the capacitor, is a replaceable unit on the maintenance parts list. If any trouble develops in the magneto, with the exception of contact point or capacitor trouble, remove and replace the magneto assembly as outlined in (1) above.

(7) *Checking flywheel clearance.* An air gap of 0.002 to 0.010 inch must be maintained between the armature shoes and the flywheel poles. The gap must be sufficient to prevent rubbing, but it must not exceed 0.010 inch, or poor ignition will result. To check the armature shoes for rub, chalk the edges of the shoes and replace the flywheel. Remove the spark plug to relieve the compression, and turn the flywheel several revolutions by hand. Remove the flywheel and examine the edges of the armature shoes. The chalk will be rubbed off the high spots. File the high spots carefully with a fine file until the flywheel clears. Do not remove too much metal.

e. IGNITION SYSTEM, BRIGGS AND STRATTON ENGINES, MODEL AP, TYPE No. 208286. (1) *General.* The ignition spark is produced by a high-tension magneto inside the flywheel. The magneto, as well as the cable and spark plug, must be in proper condition and adjustment to insure a good hot spark.

(2) *Checking for spark.* (a) Remove the ignition cable from the plug. Remove the plug. Hold the ignition cable terminal about $\frac{1}{8}$ inch from any metal part of the cylinder head. (See fig. 64.)

(b) Turn the engine with the starter. If a spark jumps this gap, the entire ignition system with the exception of the spark plug is functioning properly.

(c) If no spark develops, check the cable and the magneto adjustments described in a through d above.

(3) *Spark-plug adjustment* (fig. 65). Spark plugs should be cleaned and the gap between spark points reset to 0.025 inch after every 100 hours of operation. The points burn away in service. They may be cleaned by washing with

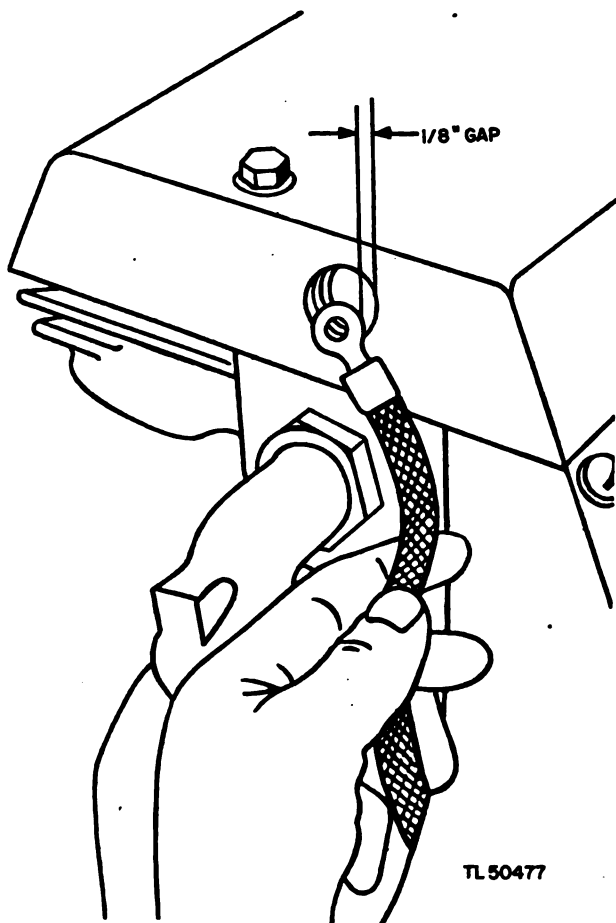


Figure 64. Checking spark.

gasoline or kitchen scouring powder. The points should be scraped or sandpapered. Inspect the plug for cracks in the porcelain. A spark plug may fail because of a cracked porcelain, dirt or carbon on the porcelain, or a wet exterior. It is advisable to keep a new spark plug as a spare with every engine. Champion No. 6-M, Auto-Lite No. B5, or their exact equivalents are recommended. When replacing the spark plug in the cylinder head, put a little graphite grease on the threads. Do not get grease on the points.

(4) *Ignition cable.* Insulation must not be broken or soaked with oil or water, or grounded in any way where it touches the engine. Any one of these faults will interfere with the ignition system and prevent good ignition. It is necessary to remove the blower case to check the cable all the way to the magneto. Be sure that the cable is securely fastened to the secondary terminal of the coil. (See fig. 59.)

(5) *Removing flywheel.* The flywheel is securely mounted to the crankcase by means of a taper fit, a soft flywheel key, and a right-hand

thread nut. To remove the flywheel, proceed as follows (fig. 55):

(a) Place a wood block under the flywheel fin as illustrated.

(b) Use a 15/16-inch socket wrench to remove the nut. Tap the end of the wrench lightly to loosen the nut. Remove the two screws and washers.

(c) Remove the flywheel with the flywheel puller (fig. 34 (190)) supplied with the engine.

(6) *Reassembling flywheel.* Reverse the operation in the preceding paragraph. Place a thin coat of cup grease on the crankshaft taper and see that the flywheel key is in place. If the key is damaged, use a new key, part No. 66403.

(7) *Removing magneto assembly.* After removing the flywheel as explained in e(5) above, proceed as follows:

(a) Detach the ignition cable from the spark plug.

(b) Remove the contact point dust cover and the four magneto mounting screws.

(c) Turn the crankshaft so that the contact plunger holds the contact points open; then remove the magneto assembly.

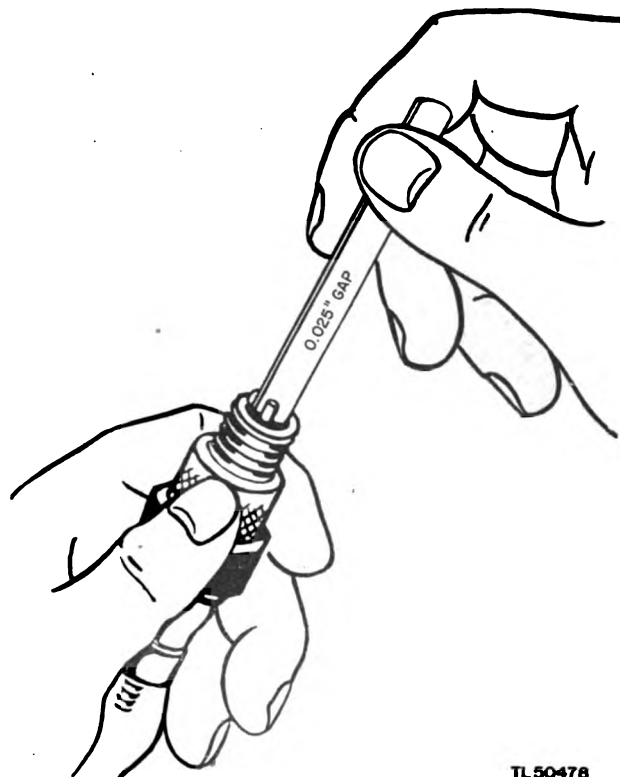


Figure 65. Checking spark-plug gap.

(8) *Replacing magneto assembly.* (a) Reverse the above operations and use the old gasket between the magneto plate and crankcase. If the original gasket is damaged, use one of the following new gaskets to obtain the proper end play (fig. 40) :

(377) 0.015 inch thick

(378) 0.009 inch thick

(379) 0.005 inch thick

(b) The end play should be 0.002 to 0.008 inch between the magneto bearing and the crankshaft thrust faces. (See fig. 68.) Use lockwashers under the mounting screws.

(9) *Magneto timing.* The magneto assembly is always correctly timed with the engine when the flywheel is assembled to the tapered crankshaft with a key, and is held securely in place with a threaded pulley or right-hand threaded nut. Do not attempt to change the magneto timing by relocating any parts or by filing on the crankshaft timing flat. Always use a soft key. (See fig. 37 (263).) If a steel key is used and the flywheel becomes loose, it will damage the key seat in the crankshaft.

(10) *Adjusting and cleaning contact points* (figs. 61 and 62). (a) While the magneto plate is on the engine crankcase, turn the crankshaft by hand to see if contact points open and close properly. Points must be clean and must line up squarely to make good electrical contact. Do not use a steel file on the contact points. Use a carborundum contact point file. If either or both points are badly pitted or burned, replace both points. (See fig. 40 (368) and (363).)

(b) To line up the contact points:

1. Loosen the contact spring bolt.
2. Move the contact spring assembly to line up with the contact screw point.
3. Tighten the contact spring bolt.

(c) To adjust contact spring tension:

1. Turn the crankshaft until the points are in the open position; place a 1/16-inch gauge between the contact spring and round end of the contact block; and tighten the contact block screws.
2. Turn the contact screw to secure a 0.020-inch gap, and tighten the locknut against the lockwasher.

31. Cylinder Heads

a. CYLINDER HEAD, BRIGGS AND STRATTON ENGINE TYPE A, MODEL No. 208072. (1) The cylinder head is held in place by six studs and nuts. Take care in replacing the head, following its removal for carbon cleaning or valve grinding.

(2) Use a new gasket if possible. Otherwise, clean the old gasket and coat both sides with cup grease. Do not use shellac on cylinder head gaskets.

(3) Tighten each nut a little at a time after they come in contact with the cylinder head so that the head is pulled down evenly and each stud is taking its portion of the strain.

b. CYLINDER HEAD, BRIGGS AND STRATTON ENGINE MODEL AP, TYPE No. 208286. (1) *General.* This cylinder head is held in place with six cap screws.

(2) *Removing and cleaning cylinder head.*

(a) Remove the spark plug.

(b) Remove the cylinder head.

(c) Scrape off the accumulated dirt, grease, and oil and blow them out of the air passages. This is important to allow free circulation of the air and prevent over-heating of the engine.

(d) Clean the carbon deposits with a wire brush or scraper and thoroughly blow them out. See that the spark plug hole is clean and that the threads are not stripped.

(3) *Reassembling cylinder head.* (a) Use a new gasket (173). If not available, clean the old one and coat both sides with cup grease. Do not use shellac.

(b) Replace the cylinder head and tighten the cap screws a little at a time, taking them in rotation as shown in figure 66.

(c) Continue in this manner until the head is securely tight, do not exert more than 200 inch-pounds of pull.

(d) Use a small amount of graphite grease on the spark plug before replacing it.

(4) *Checking cylinder.* (a) Frequently cylinders which appear scored are merely out-of-round or oversize. In such cases, use an inside micrometer to determine the condition by taking several readings (fig. 67) from the top to the bottom of the space in which the piston operates. If the bore readings at the two ends

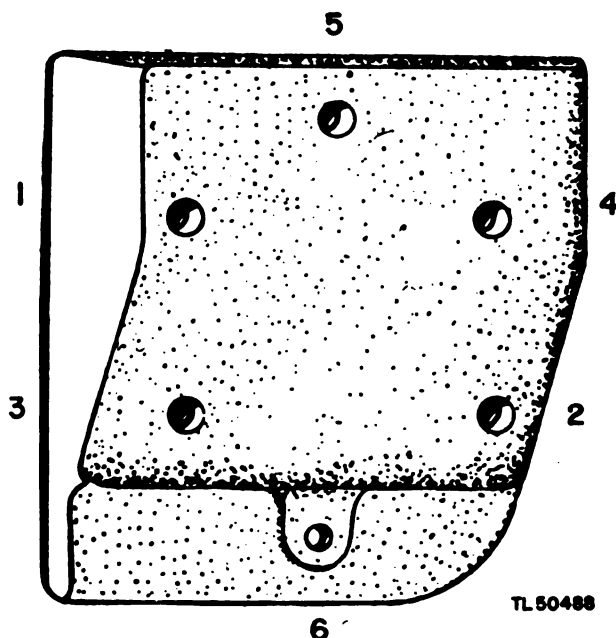


Figure 66. Tightening cylinder head.

of ring travel differ by more than 0.008 inch, the cylinder should be rebored.

(b) When reboring the cylinder, add 0.010 to the standard size to allow for oversized pistons of this same size. (See par. 35.) Allow 0.0055 to 0.007 inch for piston and cylinder clearance.

(c) Rebore and hone the cylinder in the same manner as in an automobile engine.

32. Crankshaft, Briggs and Stratton Engines

a. REMOVING CRANKSHAFT. Different engine models have different crankshaft assemblies. Therefore, before removing, determine the model of the engine by referring to the metal nameplate attached to the blower housing and proceed as follows:

- (1) Remove the foot pedal and clutch.
- (2) Remove the nut, washer, oil seal, and spacer on the drive side of the crankshaft.
- (3) Drain the oil from the crankcase.
- (4) Remove the blower housing.
- (5) Remove the flywheel as explained in paragraph 29a.
- (6) Remove the magneto plate.
- (7) Remove the engine from its base.
- (8) Turn the engine upside down.
- (9) Remove the oil pump.

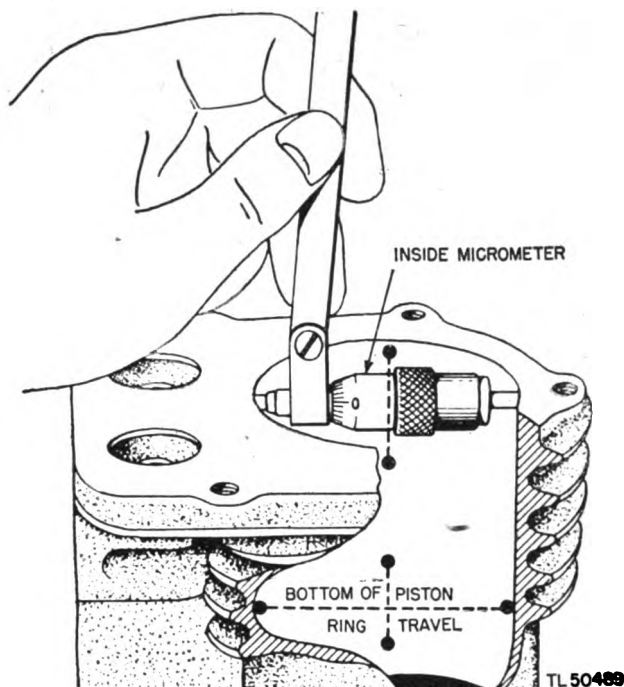


Figure 67. Checking cylinder bore.

(10) Disconnect the connecting rod and push the piston down in the cylinder bore so that it clears the crankshaft. Do not push the piston too far down as the top ring may become detached.

(11) Slide the crankshaft out toward the magneto side of the engine.

b. REASSEMBLING CRANKSHAFT. Reverse the above procedure. Check the gasket between the crankshaft and the magneto plate for correct end play. The end play should not be less than 0.002 inch or more than 0.008 inch.

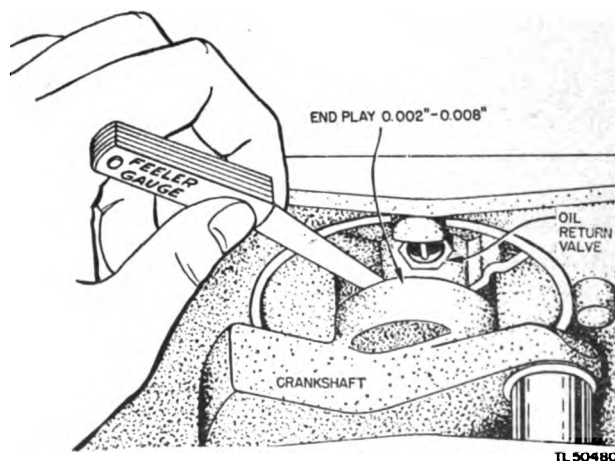


Figure 68. Correct crankshaft end play.

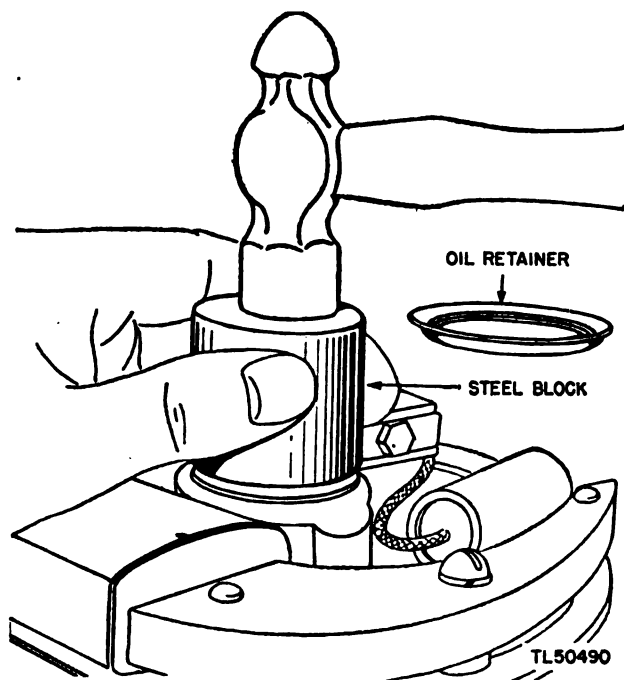


Figure 69. Replacing oil retainer ring.

c. REMOVING BALL BEARING FROM CRANK-SHAFT. The ball bearing (fig. 38 (283)) is a friction fit on the crankshaft and is held in the cylinder by three cap screws and lockwashers. Remove these screws and lockwashers located inside of the crankcase and the ball bearing will drop out or can easily be forced out with a screw driver.

d. REPLACING BALL BEARING. Place the ball bearing with the sealed side toward the inside of the crankcase and fasten securely with the three cap screws and lockwashers. If the ball bearing is worn or rough, replace it with a new one.

e. OIL RETAINER RING (fig. 69). Replace the oil retainer, using a wood block and a hammer to force the ring into position. If the ring (fig. 40 (375)) is worn or damaged, replace it with a new one.

33. Camshaft and Cam Gear, Briggs and Stratton Engines

a. REMOVING CAMSHAFT AND CAM GEAR. Proceed as follows:

(1) Use a blunt punch, and force the camshaft out from the drive side of the engine as shown in figure 70. The cam gear will then be free for removal from the crankcase.

(2) Be sure not to get burrs on the end of the shaft. After removal, check the camshaft for wear. Standard camshaft diameters are 0.37315-inch maximum, and 0.37285-inch minimum.

b. REPLACING CAMSHAFT. (1) Insert the camshaft through the hole in the magneto side of the engine far enough to permit sliding the cam gear into position.

(2) Slide the camshaft through the cam gear, and press it in flush with the outside of the crankcase on the opposite side.

(3) Install the expansion plug in the hole on the magneto side of the engine with its open end out. Seal with Permatex or other liquid gasket material to prevent oil leaks.

(4) When inserting the crankshaft, be sure to line up the timing marks on the camshaft gear with the gear on the crankshaft. (See fig. 51.)

34. Compression

Proper compression is obtained when the valves seat properly, the gaskets do not leak, and the piston and rings are properly fitted. When tuning up an engine, it is always well to check the compression. This may be done by turning the engine rapidly by hand. If turned slowly, sticky valves may not be detected. If a noticeable point of resistance is encountered on every other revolution, the compression should be satisfactory. If, however, the engine turns over two complete revolutions of the flywheel with-

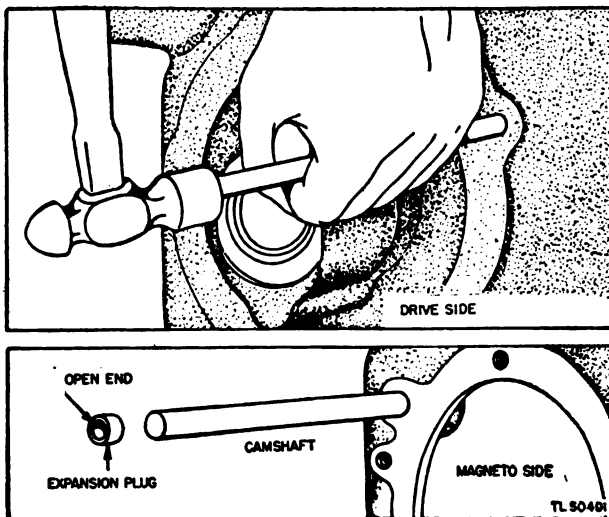


Figure 70. Removing camshaft.

out developing compression resistance, it is possible that the piston or piston rings are worn or that the valves or gaskets leak. See that the spark plug has a gasket under it, and that it is drawn up tight. Check the cylinder head gasket and tighten the cylinder head nuts when the engine is hot.

35. Piston Assembly and Connecting Rod

a. PISTON (fig. 71). (1) The piston is made of a special aluminum alloy which is very light in weight. The standard clearance between the piston skirt and the cylinder wall is 0.0055 to 0.007 inch. The clearance is necessary to compensate for the considerable expansion of aluminum when hot. The top and second lands of the piston are smaller than the skirt to allow for greater expansion at the piston head. When the piston is removed, be sure to thoroughly clean the carbon from the head of the piston and ring grooves. If the piston is out-of-round or scored, it should be replaced.

(2) If an oversize piston is necessary, rebore the cylinder to form a perfect ring. Oversize pistons and assemblies (including rings) are available as follows. (See fig. 37.)

(a) Pistons:

(245) 0.010-inch oversize.

(b) Piston assemblies:

(249) 0.010-inch oversize.

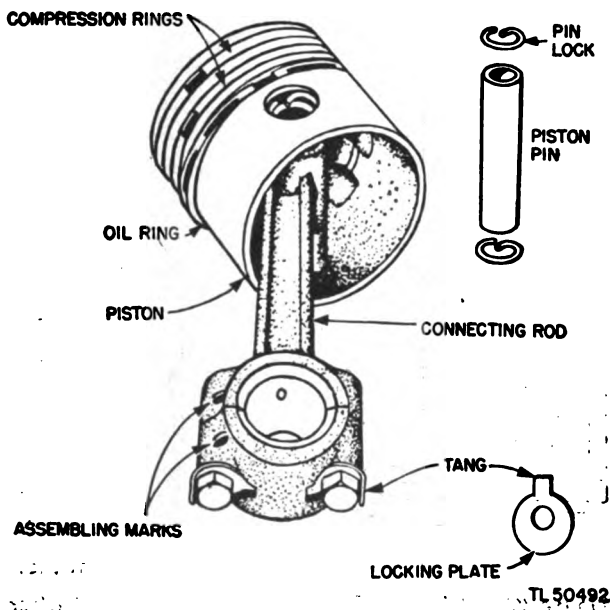


Figure 71. Piston and connecting rod assembly.

b. PISTON RINGS. Three rings are used: two compression rings, and one oil control ring. Before assembling new rings, thoroughly clean the piston grooves so that the rings move freely. When fitted in the cylinder, allow a gap of 0.007 to 0.017 inch. Check the clearance between a new ring and groove wall with a 0.005-inch feeler gauge. If the gauge enters the space, the piston should be replaced with a new one. Oversize rings are available and will be found listed in the maintenance parts list. (See par. 49.)

c. PISTON PINS. (1) *For Briggs and Stratton engine, Model A, Type 208072.* The piston pin is a free fit in one side of the piston and a tight fit in the other side. To remove this pin without special equipment, it is advisable to heat the piston in boiling water to expand the aluminum alloy. Cut a wooden pin, smaller than the size of the piston pin, and use this pin and a hammer to drive the piston pin out while the piston is still hot. Drive the pin out through the free fit hole. This hole is toward the magneto side, and is marked with an X on the pin hole boss. The pin is easily replaced if the piston is heated as described above.

(2) *For Briggs and Stratton engine, Model AP, Type 208286.* (a) The piston pin is a slip fit in the piston. To remove the pin, first remove the lock rings; then slip the pin out of the piston. Standard piston pin diameters are 0.56225-inch maximum and 0.56200-inch minimum.

(b) The maximum clearance, including wear between the piston pin and the pin hole in the connecting rod, is 0.0015 inch.

(c) If the clearance exceeds 0.0015 inch, the pin should be replaced with a new pin (fig. 37 (257)) which is 0.005 oversize and hole-reamed to fit. If a new connecting rod is used, a standard pin (256) should be used.

d. CONNECTING ROD. The connecting rod is also made of a special alloy which combines strength with light weight. When assembling the connecting rod to the crankshaft, the assembly marks on the cap and rod must be on the same side and toward the magneto side of the engine. (See fig. 71.) It is equipped with locking plates. The tank in this plate must fit in the slot and the plate must be bent against the hexagonal-head cap screws.

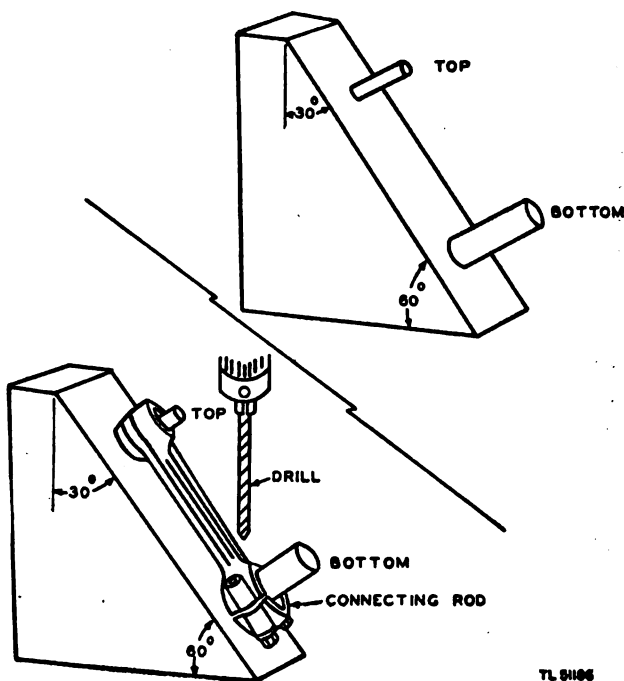


Figure 72. Jig for drilling oil holes in Briggs and Stratton connecting rod.

(1) *Drilling oil holes in connecting rods of Briggs and Stratton Model A engines.* (a) *Purpose.* A number of engines now in service do not have oil holes for the wrist pin and crankshaft bearings in the connecting rods of Briggs and Stratton model A engines. If the holes are not present, they should be drilled according to the following directions.

(b) *Drilling operation.*

1. Make a jig of cold rolled steel according to figure 72. A connecting rod should be used as a guide in laying out this jig.
2. Take down the engine and remove the connecting rod. Make sure that the bearing cap at the crank end is marked so that it can be replaced in the same position.
3. Drill one hole in the wrist pin bearing and two holes in the crankshaft bearing as shown in figure 73 using a 3/32-inch drill.
4. Reassemble the engine. Make sure that the bearing cap on the connecting rod crank end is replaced in the proper position.

36. Oil Pump, Briggs and Stratton Engines

The oil pump is assembled to the crankcase, and is supported by two bolts and lockwashers. An eccentric on the cam gear operates the pump. An inoperative pump will cause insufficient lubrication and the cylinder and piston may be scored. The oil pump may be checked by removing the base and the two bolts that hold the pump in place. Then place the pump in a pan with oil about 1/2-inch deep, and move the plunger up and down. If the pump is in good operating condition, a stream of oil will be forced out of the hole in the plunger. If the pump does not function, it may be clogged. In this case, remove the plunger and the plunger spring. Submerge the parts in kerosene or Solvent, dry cleaning (Federal Specification P-S-661a) for 3 or 4 hours to loosen the

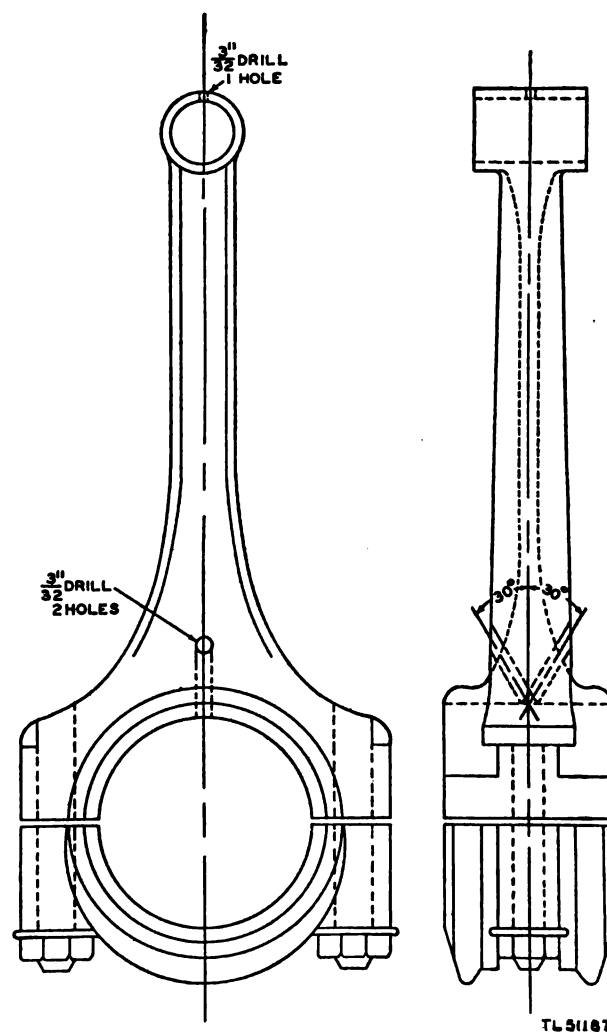


Figure 73. Briggs and Stratton connecting rod after oil holes have been drilled.

accumulated sludge or gum. If the pump fails to function after assembly, it should be replaced. When assembling the pump, be sure that the spring and plunger are in place as shown in figure 45.

37. Excessive Carbon

Excessive carbon is caused by using the improper grade of oil, by too much oil getting into the combustion chamber (usually the result of piston rings not seating properly or sticking), by the carburetor being set too rich, or by long service. An unusual amount of carbon is evidenced by a noticeable knocking of the engine (carbon knock) or a loss of power. The carbon should be removed from the valves, valve parts, piston head, piston rings and ring grooves, cylinder head, and the top of the cylinder bore by brushing with a wire brush or by scraping.

38. Crankcase Breather

a. **THE BREATHER.** The model AP, type 208286 Briggs and Stratton engine is equipped with a crankcase breather. This breather permits the circulation of air and prevents pressure from building up in the crankcase. The breather should be cleaned when the engine is tuned or overhauled. If the breather is clogged, sufficient pressure may build up to force oil through the bearing.

b. **DISASSEMBLY** (fig. 74). (1) Remove the cover by tapping lightly with a blunt tool as shown, and remove the parts.

(2) Replace the sisal filter with new sisal. Be sure to pull the new sisal apart with the fingers to remove lumps and also prevent packing too tightly. If new sisal is not available, wash the old sisal thoroughly with Solvent, dry cleaning (Federal Specifications P-S-661a) and permit to dry. Replace the same as new sisal.

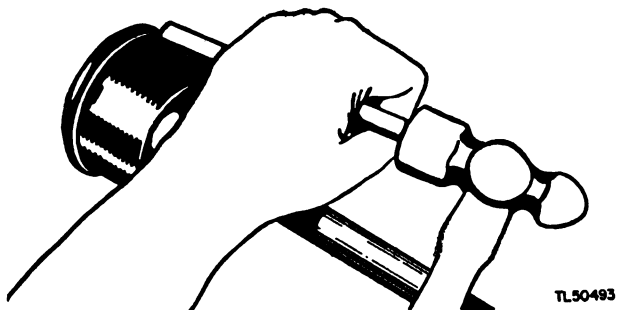


Figure 74. Disassembling breather.

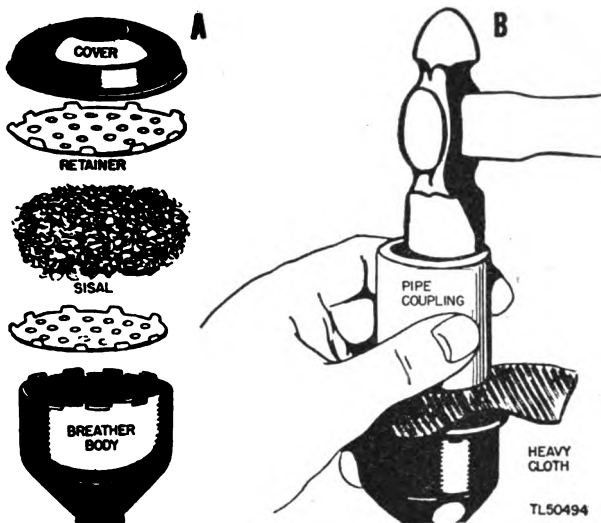


Figure 75. Assembling breather parts.

(3) Wash the retainers with Solvent, dry cleaning (Federal Specification P-S-661a).

c. **REASSEMBLY** (fig. 75). (1) Replace the parts in the order illustrated in figure 75 (A).

(2) Place a piece of cloth over the cover and, by using a 1½-inch pipe coupling placed over the cloth, force the cover into place with a hammer. (See fig. 75 (B).) Do not hammer directly on the cover as this is liable to dent it and prevent its fitting properly.

39. Air Cleaner

The air cleaner is necessary to protect the engine from dirt and grit. It is important that the air cleaner be cleaned occasionally to prevent clogging.

a. **REMOVING THE AIR CLEANER.** (1) Remove the cap screw holding the air cleaner to the carburetor pipe.

(2) Remove the cover and filter and pour out all oil.

b. **CLEANING AND REPLACING.** (1) Wash the outside of the filter element with a rag or brush dipped in kerosene or Solvent, dry cleaning (Federal Specification P-S-661a). *Do not submerge it.*

(2) Clean the bowl and cover by submerging them in kerosene or Solvent, dry cleaning (Federal Specification P-S-661a); wipe them dry.

(3) Replace the parts. Fill the cleaner with oil of the same viscosity as used in the crankcase up to the level marked on the cleaner bowl. See the instructions on the air-cleaner label.

40. Muffler

After long periods of service, it is possible that the muffler will become clogged to the point where it will affect the engine's power. To check the muffler, unscrew it from the engine and run water into the open end of the muffler. If a full stream of water comes out of the end of the muffler, it is not clogged up. If the water runs through very slowly, the muffler is probably clogged up and should be replaced.

41. Foot-pedal Starter

a. FOOT-PEDAL STARTER. These engines are equipped with a foot-pedal starter and pulley clutch.

b. ADJUSTING FOOT STARTER CLUTCH (fig. 76.) If the starter clutch slips or fails to turn the engine when stepping on the starter pedal, it is probably due to one of the following causes: a loose setscrew; a worn clutch housing; or a worn or broken pinion. The following procedure is used in repairing the foot-pedal clutch:

(1) Tighten the setscrew to be sure that the clutch is tight on the crankshaft. Use a 5/16-inch Allen hexagonal setscrew wrench.

(2) If the clutch still slips, loosen the setscrew and remove the clutch from the shaft.

(3) Pry out the snap spring with a sharp tool, holding the clutch in the position shown to prevent the spring from jumping out.

(4) Check the parts carefully for wear or damage and replace any parts necessary.

(5) To reassemble, replace the parts in the same order and slip the spring back in place. Replace the pulley clutch on the shaft with the setscrew hole lined up with the recess in the crankshaft extension. Securely tighten the setscrew.

42. Prevention of Overloading

Always be sure that the equipment operated by the engine is well-lubricated and running freely. If it is not, it may cause the engine to be overloaded, resulting in its overheating, losing power, or stopping entirely.

43. Storing

Before placing Reel Units RL-26-() in storage for a considerable length of time, observe the following precautions:

a. ENGINE. (1) Stop engine by shutting off the fuel supply.

(2) Drain entire fuel system, including carburetor, strainer, and lines.

(3) Drain the crankcase, and insert a full charge of preservative engine oil, conforming to Ordnance Specification AXS-934. Use Grade 1 oil.

(4) Remove spark plug.

(5) Rotate the engine by means of the rope starter or pedal starter.

(6) Using an air-atomizing type of spray gun and dry air, spray preservative engine oil of applicable grade into the cylinder while the engine is rotating. This will give adequate protection to the cylinder walls, valve head and stems, and valve guides.

Note. Two ounces of preservative engine oil is adequate for the cylinder in the engine. *Do not pour the preservative oil through the carburetor.*

(7) Remove the valve cover, and spray the specified preservative oil over the valve tappets and interior of the valve cone, and also spray the preservative oil into the crankcase breather pipe.

(8) Replace the spark plug.

Note. If the engine is to be moisture-vapor packed, and a dehydrating agent is to be included, replace the original spark plug with a dehydrating plug.

(9) Drain the preservative oil from crankcase.

(10) Attach a red tag to the oil filler cap which reads:

Caution: This engine has been rustproofed. Date: _____. Use engine oil conforming to U. S. Army Specification 2-104, seasonal grade, when placing engine in service.

(11) After engine has cooled, remove grease and dirt from the exterior.

(12) Seal the following openings with tape, nonhygroscopic, adhesive, conforming to Ordnance Specification AXS-981:

(a) Air intake.

(b) Crankcase breather.

(c) Exhaust.

(d) Exhaust expansion joints.

(13) Be sure all surfaces are dry; then spray all exterior surfaces of the engine and accessories, including wiring with ignition insulation compound, conforming to Ordnance Specification AXS-858.

b. REEL UNIT. The following precautions apply to the reel unit frame, transmission, and fuel tank.

(1) Drain the fuel tank, and allow any excess fuel to evaporate. Replace the cap and mask the vent and base of the cap with tape, nonhygroscopic, adhesive, conforming to Ordnance Specification AXS-981.

(2) Drain the transmission housing and insert a full charge of preservative engine oil, conforming to Ordnance Specification AXS-934. Use Grade 1 oil. Drain the oil from the crankcase 15 minutes after filling.

(3) Cover the reel unit with its canvas cover, and lash the ropes to the four corners of the frame base.

(4) Crate the reel unit if required. Crating depends upon the storage space and the shipping required.

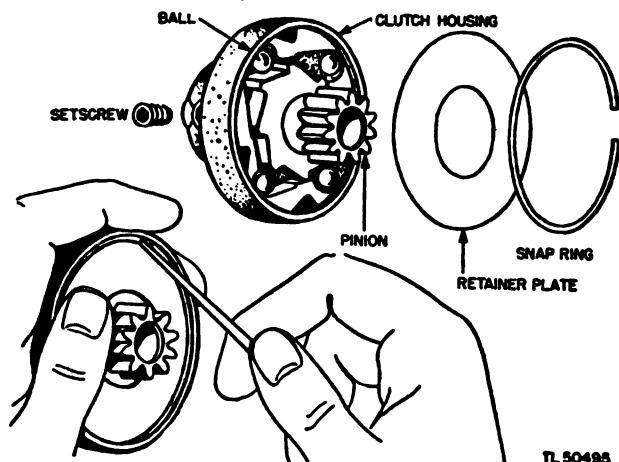


Figure 76. Foot-pedal clutch.

44. Engine Trouble Chart

a. ENGINE DIFFICULT TO START. (1) No fuel in tank.

- (2) Fuel flow obstructed.
- (3) Loose or defective wiring.
- (4) Spark plug cracked.
- (5) Spark plug fouled.
- (6) Improper choking.
- (7) Improper fuel mixture.
- (8) Throttle valve stuck or out of adjustment.

- (9) Throttle rod loose.
- (10) Valve seats bad.
- (11) Valves sticking.
- (12) Improper timing.
- (13) Defective magneto.

- (a) Breaker points worn or pitted.
- (b) Breaker points out of adjustment.
- (c) High-tension wire shorted.

- b. ENGINE MISSING.** (1) Spark plug fouled.
- (2) Spark plug cracked.
 - (3) Incorrect spark plug gap.
 - (4) Defective wiring.
 - (5) Ignition breaker points sticking.
 - (6) Valves warped, broken, or sticking.

- c. ENGINE OVERHEATING.** (1) Carburetor choke valve partly closed.
- (2) Improper fuel mixture.
 - (3) Piston rings sticking.
 - (4) Improper timing.
 - (5) Muffler clogged.
 - (6) Governor or throttle loose.
 - (7) Air cleaner requires cleaning.
 - (8) Overload.

- d. ENGINE KNOCKS.** (1) Carbon in cylinder.
- (2) Loose main bearings.
 - (3) Loose rod bearings.
 - (4) Worn piston and cylinder.
 - (5) Engine overheated.
 - (6) Tight pistons.
 - (7) Loose flywheel.
 - (8) Lack of oil.

- e. FAULTY CARBURETION.** (1) Carburetor improperly adjusted.
- (2) Inlet valve leaking.
 - (3) Shut-off valve closed.
 - (4) Sediment in fuel tank.

f. EXCESSIVE SMOKE FROM EXHAUST. (1) Carburetor needle valve open too far.

- (2) Carburetor float sticking or leaking.
- (3) Worn piston or piston rings.

g. EXPLOSION IN CARBURETOR. (1) Gas mixture too lean.

- (2) Intake valve sticking.
- (3) Intake tappets sticking.
- (4) Intake valve spring weak.
- (5) Intake valve warped or broken.
- (6) Intake tappets set too close.

h. POOR COMPRESSION. (1) Valves not seating.

- (2) Valves sticking.
- (3) Piston rings worn or weak.
- (4) Piston rings broken.
- (5) Piston rings sticking.
- (6) Loose spark plug.
- (7) Cylinder head loose.
- (8) Scored cylinder.
- (9) Worn piston and cylinder.
- (10) Cracked spark plug.

45. Disassembling Engine

a. REMOVING THE PARTS. To facilitate the complete disassembly of the engine for major repairs or general overhaul, remove the parts as follows:

- (1) Drain oil and fuel.
- (2) Remove air cleaner, brace, and elbow.
- (3) Remove muffler.
- (4) Disconnect fuel line at carburetor.
- (5) Remove fuel tank and filter.
- (6) Remove spark plug, using wrench supplied with engine.
- (7) Remove cotter pin which holds link attached to governor arm.
- (8) Remove two screws which hold carburetor to elbow, and remove carburetor.
- (9) Remove carburetor elbow and baffle plate.
- (10) Remove cylinder head.
- (11) Remove valve cover plate and gasket.
- (12) Remove valve, springs, and retainer.
- (13) Unhook governor springs from arm.
- (14) Remove blower case.
- (15) Remove rope starter pulley.
- (16) Remove flywheel.
- (17) Remove engine base.
- (18) Remove oil pump.
- (19) Remove piston and connecting rod.
- (20) Remove piston pin and rings.
- (21) Remove magneto plate.
- (22) Slide crankshaft out through magneto side.
- (23) Drive out camshaft and remove gear and tappets.
- (24) Remove governor lever from crankcase, and remove governor assembly.

b. CHECKING PARTS. Check each item as it is removed to determine its conditions. On the preceding pages there are instructions covering these items, including repair procedure, allow-

able tolerances, etc., to determine if parts are suitable for further use or must be replaced with new ones.

46. Installation of Reinforcing Kit for Reel Units RL-26 and RL-26-A

Reel Units RL-26 and RL-26-A may be adapted for high-speed operation by the installation of the reinforcing kit (Signal Corps stock No. 6H6226A/K11). This kit includes:

- a. Two handle assemblies.
- b. One brake assembly.
- c. One brace assembly.
- d. Three Zerk fittings, $\frac{1}{8}$ -inch pipe thread with three reducing bushings, $\frac{3}{8}$ to $\frac{1}{8}$ inch.
- e. Four $\frac{5}{16}$ "-18x1" hexagonal-head cap screws with lockwashers and hexagonal nuts.

47. Installation of Reinforcing Kit

a. Take the tubular skids off the reel unit base by removing the bolts which fasten the welded cleats to the reel unit base. Let the reel unit base rest solidly on the floor of the truck. Bolt the steel angle brace supplied with the reinforcing kit (fig. 83 (20)) to the cutaway portion of the reel unit frame. To install the steel angle brace, use eight standard $\frac{5}{16}$ "-18x $\frac{3}{4}$ " hexagonal-head cap screws with lockwashers and nuts. Space the screws according to the holes in the steel angle brace. The purpose of this brace is to strengthen the cutaway design of the base plate and frame member. The cutaway design was originally included to insure proper operation of Reel Unit RL-26-A when it was installed in a truck body with inner projections of the rear wheel guards. Figure 77 shows the reel unit before the steel angle brace is installed. Figure 83 shows the reel unit after the steel angle brace is installed.

b. After the steel angle brace has been attached to Reel Unit RL-26-A, drill four $\frac{11}{32}$ -inch holes at each end of the reel unit base. Make the holes coincide with the holes already drilled in the handle assemblies supplied with the reinforcing kit. (See fig. 83(4).) Bolt the handle assemblies to the reel unit base with eight $\frac{5}{16}$ "-18x1" hexagonal-head cap screws with lockwashers and nuts. (See fig. 83(3).)

c. Remove the eight $\frac{10}{32}$ -inch screws holding the stop plates on the upper and lower bearings of Reel Unit RL-26-A, (See fig. 77

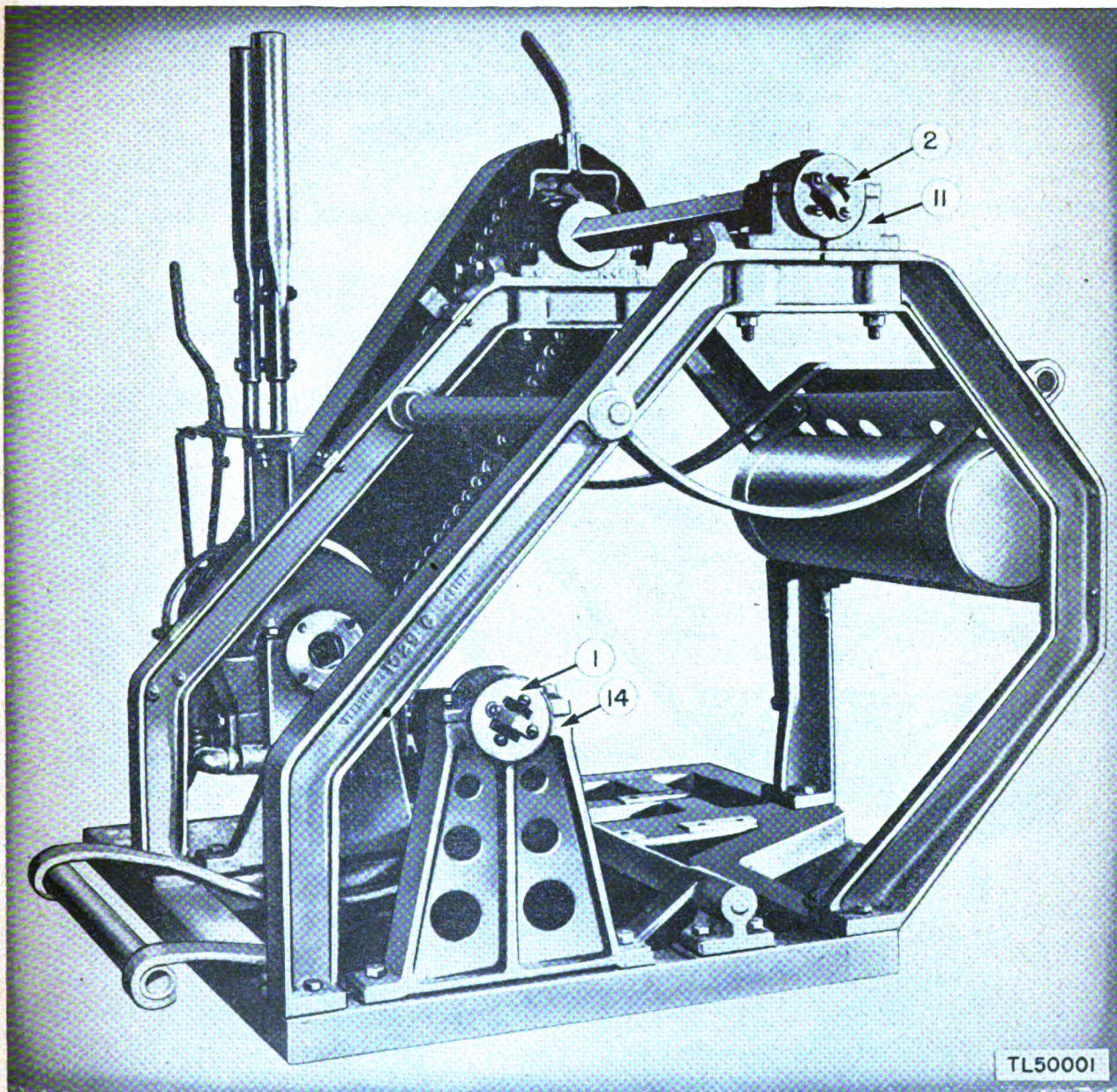


Figure 77. Reel Unit RL-26-A with tubular skids removed, before reinforcing kit is attached.

(1) and (2).) Remove the upper bearing pillow. (See figs. 79(11) and 82(11).) Using the upper brake assembly (figs. 78(5) and 82(5)) as a template, drill two 11/32-inch holes, as shown in figure 79. Install a straight Zerk fitting. (See figs. 79(12) and 82(12).) Remove the bearing cap at the chain-drive end of the upper axle. Install a straight Zerk fitting on the bearing cap. Bolt the brake assembly (figs. 78(5) and 82(5)) to the bearing block (figs. 79(11) and 82(11)), using two 5/16"-24x1" hexagonal-head cap screws. (See fig. 78(7).) Place a flat iron washer between the brake assembly and the bearing block. (See fig. 82.) Replace the upper bearing pillow (fig. 79(11), fig. 82(11)).

d. Remove the lower bearing pillow. (See figs. 77(14) and 80(14).) Using the brake assembly (fig. 78(6)) as the template, drill two holes as indicated in figure 80. Use a letter "I"

or a 0.272" drill. Using a 5/16"-24 tap, thread the holes to a depth of 1 inch. Install the offset Zerk fitting. (See figs. 80(13) and 81(13).) Insert two 5/16"-24x1" cap screws through the holes in the brake assembly plate. Place a 5/16-inch flat iron washer on each cap screw, on the inside of the brake assembly plate. Bolt the brake assembly (fig. 78(6)) to the lower bearing pillow (figs. 77(14), 80(14) and 81(4)) with two 5/16"-24x1" cap screws. (See fig. 81.) Replace the lower bearing pillow.

e. Remove the adjustment screw (figs. 78(16) and 83(16)) from the brake drum (figs. 78(9) and 83(9).) Insert the square driving stud of the brake drum into the square hole in the upper bearing. (See fig. 79(10).) Slip the brake bands (fig. 83(18)) over the brake drums. With the four screws supplied with the brake assembly, draw the brake drums, face

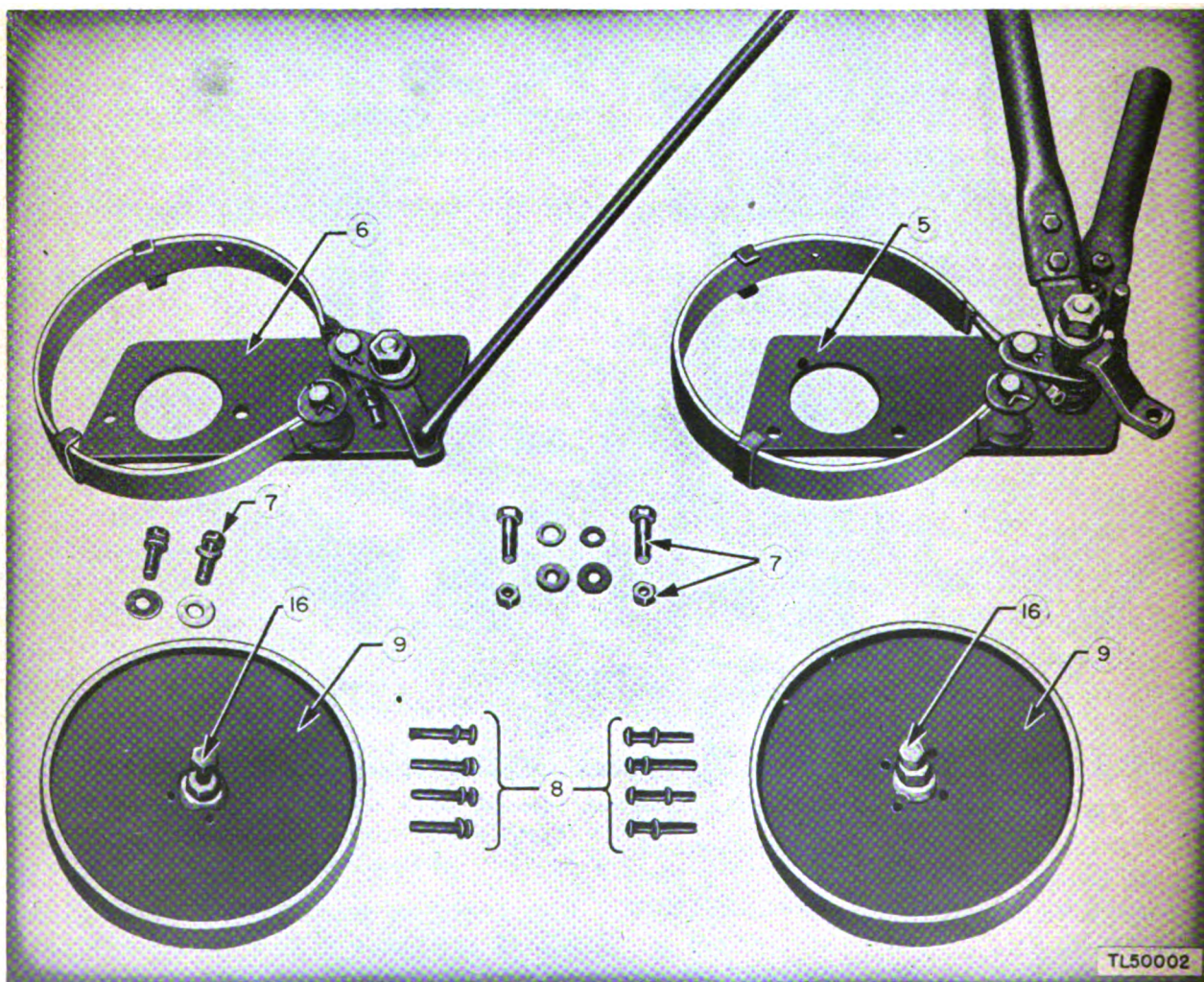


Figure 78. Brake assembly.

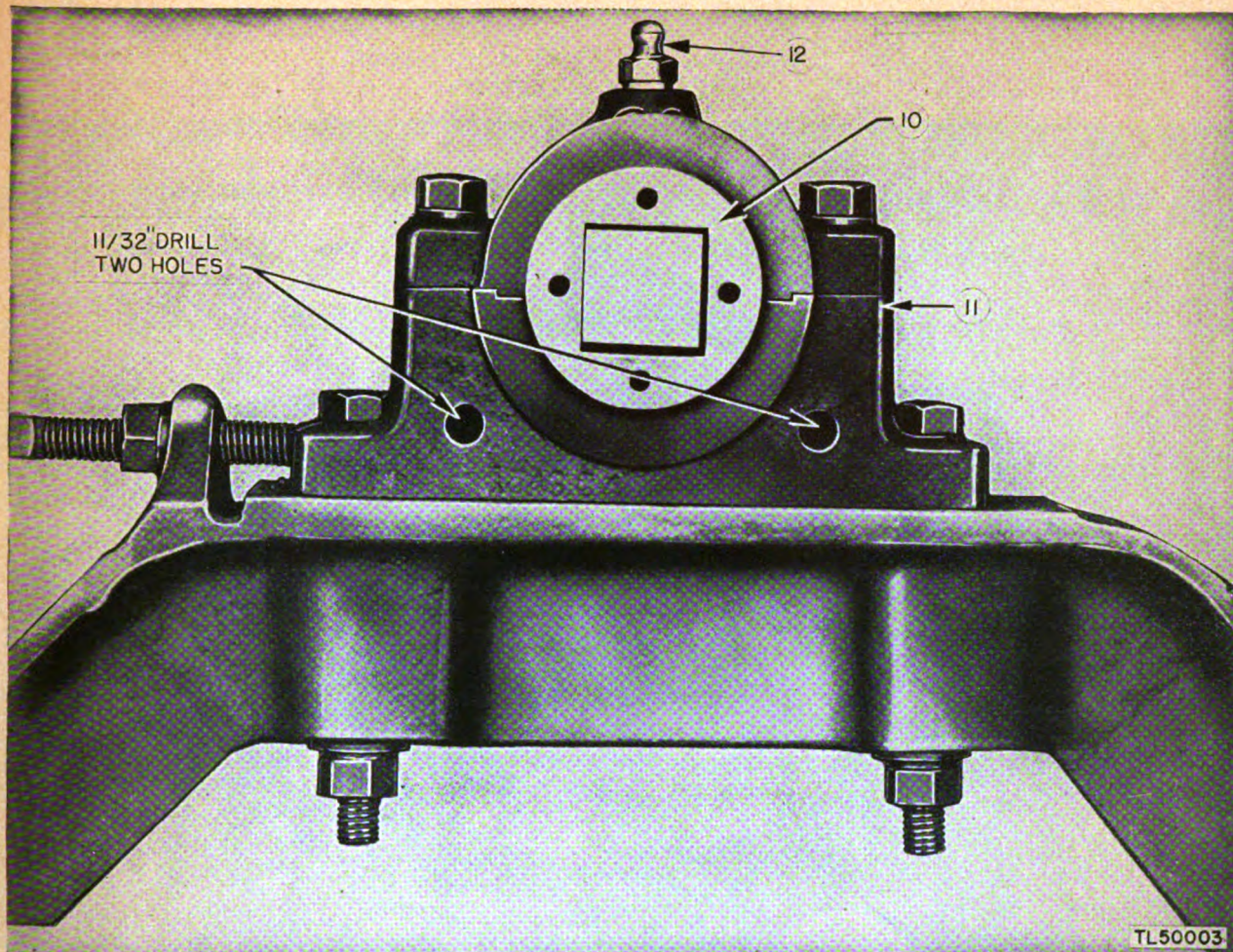


Figure 79. Upper bearing block.

up, to the bearing. (See figs. 78(8) and 83(8).) With the four screws tight, insert the adjustment screw. Tighten the adjustment screw until the square stud is fully expanded in the square hole of the bearing. Then lock the adjustment screw with locknuts. Repeat the procedure outlined above on the lower bearing pillow. (See figs. 77(14), 80(14) and 81(14).)

f. After the brakes have been mounted, the shaft which supports the reel will be too long. Cut off $\frac{1}{4}$ inch from the shaft end which strikes against the brake. Bevel the end of the shaft from which the cut is taken.

g. Install the brake rod (fig. 83(15)), and lock it in place with two cotter pins.

h. Adjust the brake bands with the adjusting nuts (fig. 83(17)) until the drums run free. By moving forward the appropriate brake lever (fig. 83(19)), braking action can be applied to either the upper or lower reel.

i. To install the modified Reel Unit RL-26-A in a truck, bolt the reel unit securely to the floor at the four corners of the reel unit base. Use standard $\frac{1}{2}$ "-13x8" hexagonal-head bolts, and secure the bolts through 2"x2"x52" angle irons placed under the truck floor ribs.

48. Moistureproofing and Fungiproofing

Not required.

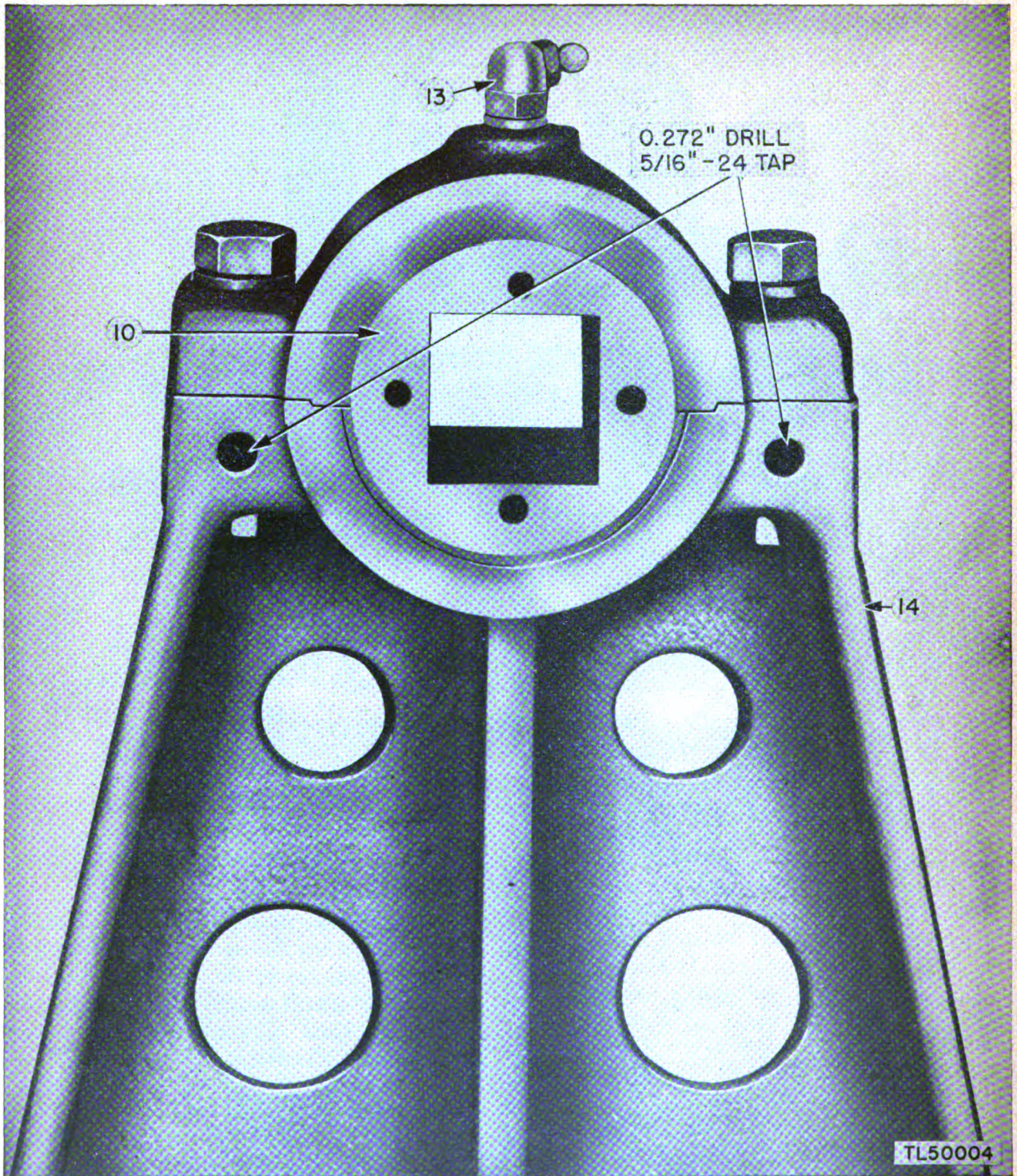


Figure 80. Lower bearing pillow.

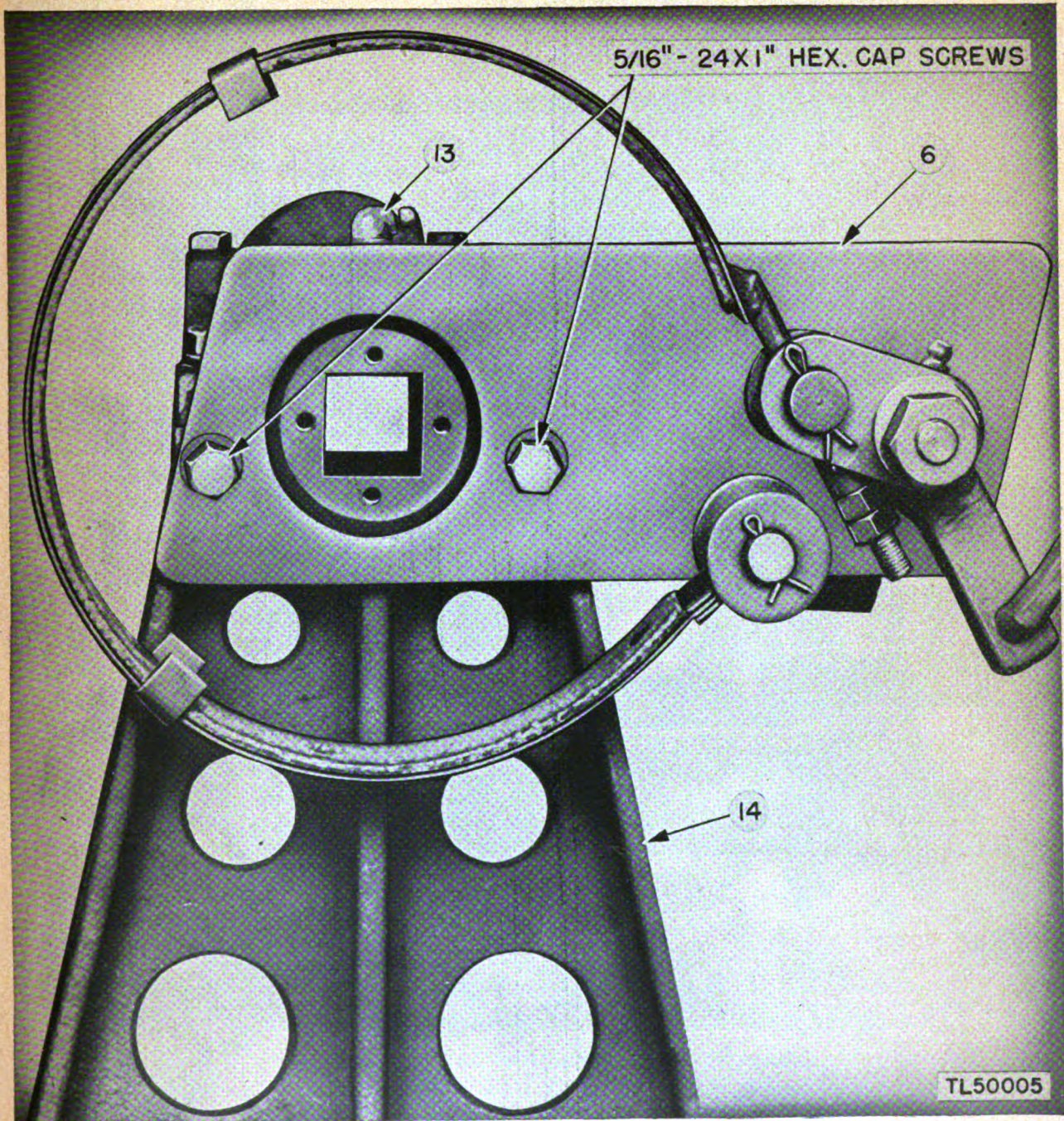


Figure 81. Lower brake assembled to bearing pillow.

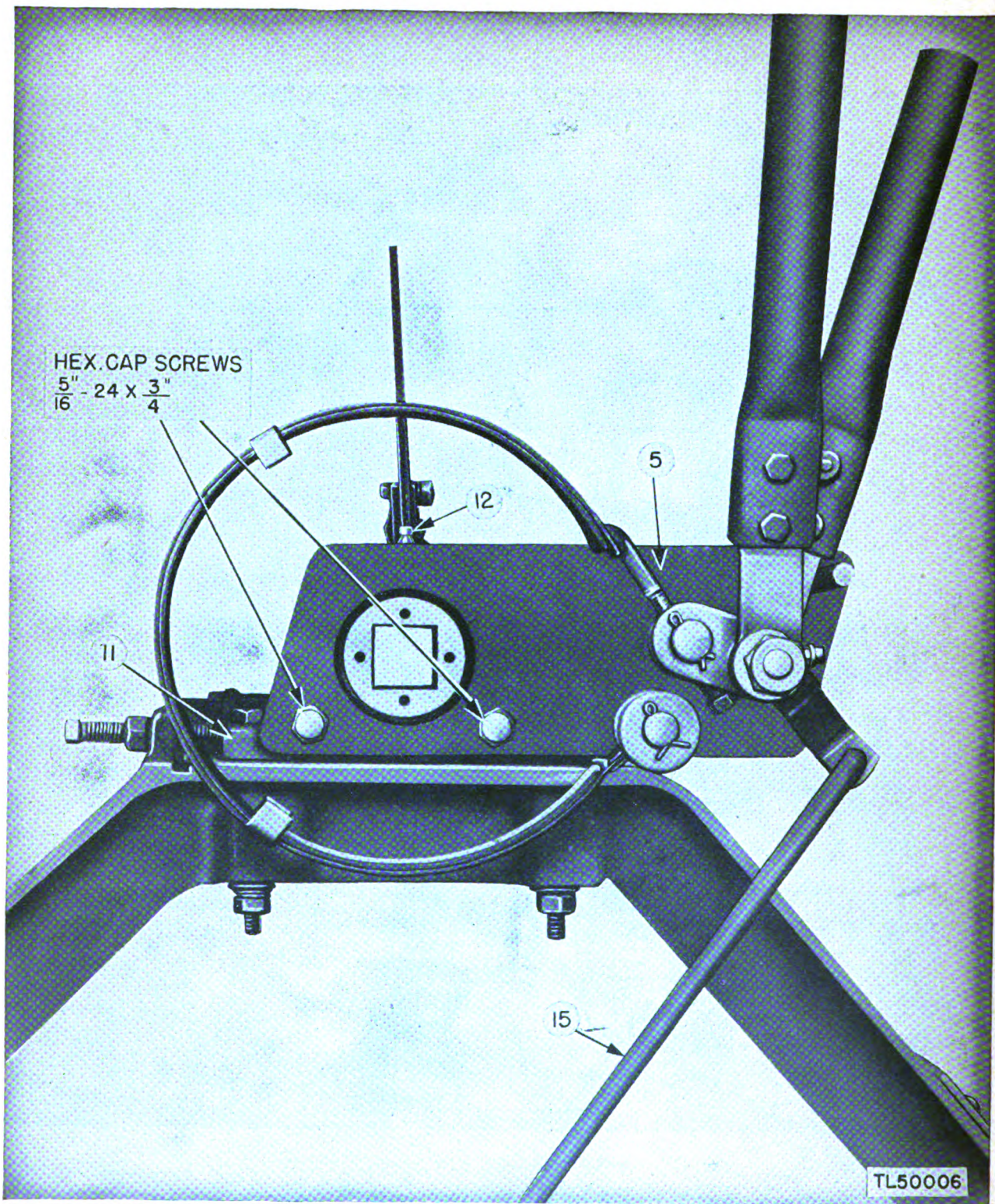


Figure 82. Brake assembled to bearing block.

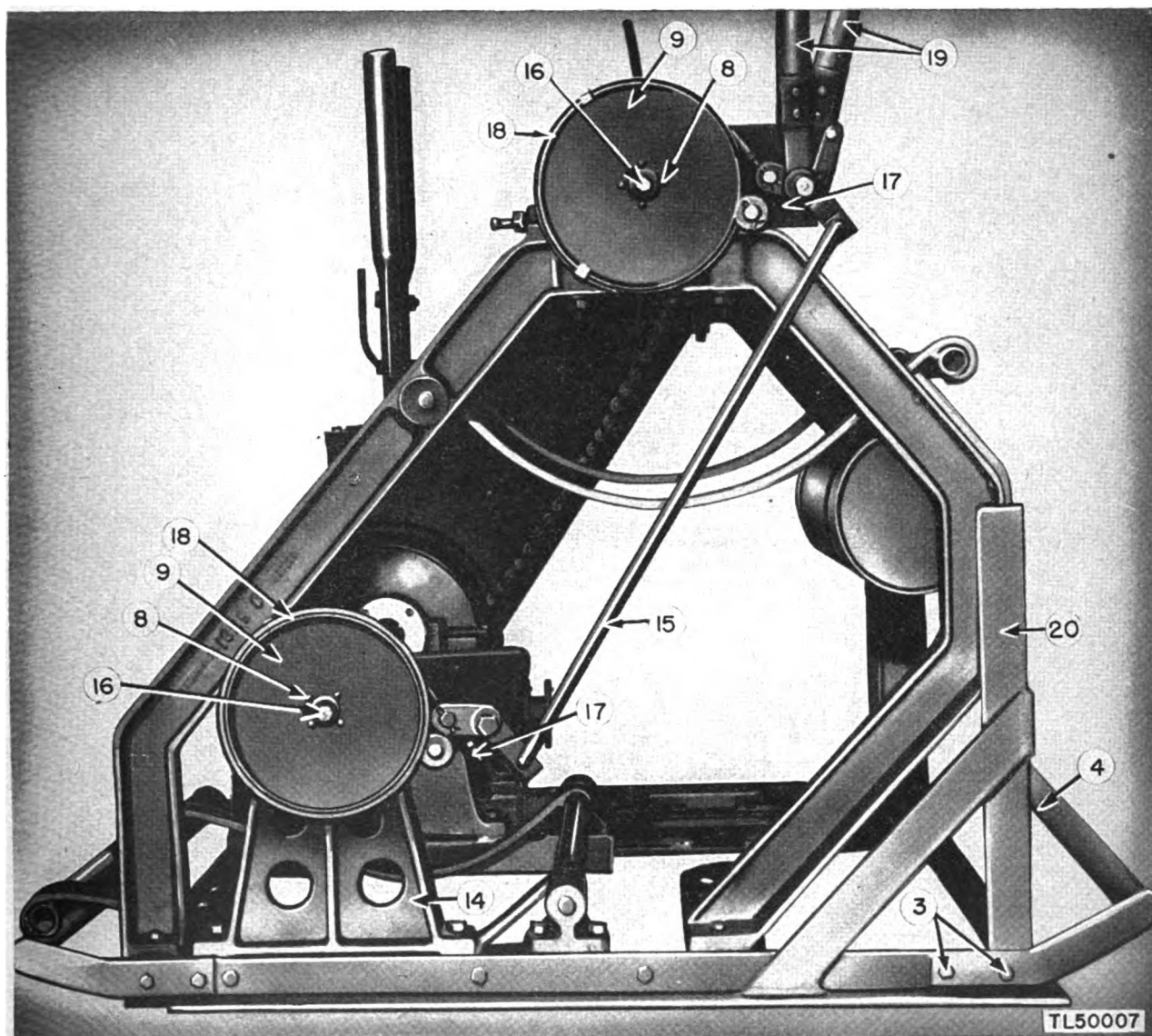


Figure 83. Reel Unit RL-26-A with reinforcing kit attached.

SECTION V

SUPPLEMENTARY DATA

49. Maintenance Parts List for Reel Unit RL-26, RL-26-A, -B, or -C

Note. Order maintenance parts by stock number, name, and description.
Only maintenance parts listed can be requisitioned.

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per unit	3d ech	4th ech	5th ech	Depot stock
123	6H6226/199	AXLE: reel; upper	1		*	*	*
47	6H6226/89	AXLE: reel; lower			*	*	*
	6H6226/11	BASE: frame	1				*
19	6H622A/B9	BASE: transmission	1				*
81	3H3805/B12	BEARING: transmission; SKF No. 6304	1				*
82	3H4575A/199	BEARING: transmission; SKF No. 6203	1				*
5	6H6226A/13	BEARING: frame	2				*
100	6H6226/174	BEARING: with two oil cover holes; top reel shaft clutch	1				*
101	6H6226/175	BEARING: with four oil cover holes; top reel shaft clutch	1				*
79, 121	6H6226/123	BLOCK: transmission and top reel shaft clutch	4	*	*	*	*
11	6H6226/20	BLOCK: crank; frame	1				*
13	6H6226/22	BRACE: frame					*
	6H6226/23	BRACKET: bent for truck wheel well; right-side; frame	1				*
	6H6226/24	BRACKET: left-side; frame	1				*
114	6H6226A/188	BRACKET: without groove; top reel shaft clutch	1				*
115	6H6226A/189	BRACKET: with V-shaped groove; top reel clutch	1				*
196		BRAKEBAND: steel; complete with lining (for hand brake); Reel Units RL-26-B and RL-26-C only.	4	*	*	*	*
34	6H6226/76	BUSHING: transmission	1				*
78, 99	6H6226/172	BUSHING: bearing; transmission and top reel shaft clutch	2				*
102	6H6226/176	BUSHING: bearing; top reel shaft clutch	1				*
35	6H6226/77	BUSHING: transmission bearing; 2.501" OD	1				*
36	6H6226/78	BUSHING: transmission bearing; 2.501" OD	1				*
21	6H6226/63	CAP: bearing; transmission	1				*
77, 98	6H6226/171	CAP: bearing; transmission and top reel shaft clutch assemblies	3				*
20	6H6226A/62	CAP: gear housing; transmission	1				*
63	6H6226/106	CATCH: for transmission lever arm	1				*
228	6H6226/8	CHAIN: sprocket; No. 60W; 76 links	1				*
138	6H6226/262	CHOKE CONTROL: part of control panel; (for engine carburetor).	1		*	*	*
	6Z1909-4	CLAMP: holds skid to frame	1				*
12	6H6226A/R12	CLAMP: holds fuel tank to frame	2				*
30	6H6226/72	COLLAR: 0.878" ID; (aligns worm in transmission)	1				*
31	6H6226/73	COLLAR: 1.065" ID; (aligns worm in transmission)	1				*
113	6H6226A/187	COLLAR: 3/8" ID; top reel shaft clutch	2				*
135	6H6226/240	COUPLING ASSEMBLY	1		*	*	*
	6H6226/128	COVER: oil-hole; transmission and top reel shaft clutch	4				*
227	6H868	COVER BG-68: canvas; fits entire Reel Unit RL-26-A			*	*	*
211	6H904	CRANK GC-4	1		*	*	*
85, 86, 87	6H6226A/129	DOWEL: 3/16" diam x 3/16" long; (holds transmission bearing)	4				*
88, 89	6H6226A/130	DOWEL: 1/8" diam x 27/64" long; (holds transmission bearing)	3				*
132	6H6226A/247	DOWEL: pin; 3/16" diam x 5/16" long; (holds connecting coupling hubs).	2	*	*	*	*
39	6H6226/81	DRUM: clutch; transmission	1				*
93	6H6226A/140	ELBOW: 3/8" x 90°; plain; (transmission oil-fill pipe)	2				*
94	6H6226A/140	ELBOW: 3/8" x 90°; street; (transmission oil-fill pipe)	2				*
	3H1901-A	ENGINE: for Reel Unit RL-26-A	1	*	*	*	*
	6H6226/L10	FILTER: screen; 80 x 80 Monel mesh; (for fuel filler plug)	1		*	*	*
54	6H6226/96	GASKET: fish-paper; (transmission gear housing)	2	*	*	*	*
55	6H6226/97	GASKET: fish-paper; (transmission gear housing)	1	*	*	*	*
56	6H6226/98	GASKET: fish-paper; (transmission shaft housing)	1	*	*	*	*
136	6H6226A/10	GUARD ASSEMBLY: chain	1				*
58	6H6226/100	GUIDE: lever arm; transmission; (part of support assembly)	1				*
71, 107	6H6226A/181	GUIDE: latch; transmission and top reel shaft clutch	2				*
68	6H6226/111	GUIDE: spring; transmission lever; (locks lever)	1				*
120	6H6226A/220	HANDLE: (for secondary clutch for upper axle)	1				*
60	6H6226A/102	HANDLES: (for levers for upper and lower axles)	2				*
157	6H6226/Q1.1	HOSE: fuel line; 1/4"; oil-resistant	1				*
15	6H6226/P3	INSTRUCTION PLATE	1				*
	6D13040	INSTRUCTIONS: Technical Manual TM 11-360	1				*
133	6H6226/248	KEY: holds coupling to shafts	2	*	*	*	*
90	6H6226A/133	KEY: 3/8" x 3/8" x 2 3/4"; (holds sprocket in place)	1		*	*	*

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per unit	3d ech	4th ech	5th ech	Depot stock
67	6H6226/131	KEY: shaft; transmission (holds worm gear)	1		*	*	*
70, 106	6H6226/180	LATCH: transmission; transmission and top reel shaft clutch	2				*
61	6H6226A/196	LEVER ARM: operates transmission secondary clutch	1				*
59	6H6226A/195	LEVER ARM: for upper axle	1				*
59	6H6226A/104	LEVER ARM: for lower axle	1				*
	6H6226A/101	LEVER HALF: arms for transmission levers	4				*
22	6H6226/64	LINER: transmission bearing	1				*
	6H6226/8-1	LINK: connecting; (for use with sprocket)	1	*	*	*	*
92	6Z7245-9	NIPPLE: pipe; $\frac{3}{8}$ " x $1\frac{1}{4}$ "; (transmission oil fill pipe)		*	*	*	*
91	6H6226/132	PACKING: transmission; square triple expansion; Johns Mansville Mogul	as req.		*	*	*
137	6H6226/261	PANEL: control					*
116	6H6226A/190	PAWL: locks upper axle lever arm to bracket	1	*	*	*	*
72, 108	6H6226/115	PIN: dowel; $\frac{5}{8}$ " long; transmission and top reel shaft clutch holding spring in clutch drum	2		*	*	*
73, 109	6H6226/116	PIN: dowel; $\frac{3}{8}$ " long; transmission and top reel shaft clutch holding spring in clutch drum	2		*	*	*
	6H6226/95	PIN: $\frac{3}{16}$ " diam top, $\frac{5}{16}$ " bottom, $\frac{3}{16}$ " long; peened over and flushed off; (holds washer in transmission)	2		*	*	*
135	6H6226/179	PLATE: lock; top reel shaft clutch assembly	1				*
46	6H6226A/88	PLATE: lock; (transmission assembly)	1				*
140	6H6226/264	PLATE: switch; (control panel)	1				*
97	6H6226A/134	PLUG: pipe; standard $\frac{1}{8}$ "; with screw driver slot; (screws into gear housing cap)	1	*	*	*	*
96	6H6226A/144	PLUG: pipe; standard $\frac{1}{4}$ "; with screw driver slot; (screws into transmission oil drain)	1	*	*	*	*
95	6H6226A/143	PLUG: pipe; standard $\frac{3}{8}$ "; with screw driver slot; (screws into transmission oil filler)	1	*	*	*	*
48	6H6226/90	PULLER: shaft, transmission	1		*	*	*
69, 104	6H6226/178	RING: clutch; 1 each for transmission and top reel shaft clutch assemblies	2				*
131	6H6226/246	SCREW: $\frac{1}{4}$ "-28 x $\frac{3}{4}$ " long; (holds coupling)	4	*	*	*	*
130	6H6226/245	SCREW: $\frac{1}{4}$ "-28 x $\frac{15}{16}$ " long; (holds coupling)	4	*	*	*	*
80, 122	6H6226/124	SCREW: $\frac{7}{8}$ " over-all length; (holds transmission block)	4	*	*	*	*
	6L18605-12.31	SCREW: set; $\frac{5}{8}$ "-18 x $\frac{3}{4}$ " long; headless; cup point; (holds coupling pin to shaft)	2	*	*	*	*
74, 110	6H6226/117	SCREW: $\frac{3}{4}$ " over-all length; head $\frac{1}{16}$ " diam; (holds transmission latches)	2	*	*	*	*
	6H6226/141	SCREW: hexagonal head; $\frac{5}{16}$ "-18 x $\frac{7}{8}$ " steel; (fastens transmission thrust plate)	1	*	*	*	*
50	6H6226/92	SCREW: clutch-shoe; $1\frac{15}{16}$ " over-all length; (adjusts transmission clutch shoe springs)	4	*	*	*	*
52	6H6226/94	SCREW: lock; $1\frac{1}{32}$ " over-all length; (locks clutch spline to transmission thrust plate)	4	*	*	*	*
66	6H6226/109	SCREW: shipper-shoe; $1\frac{5}{8}$ " over-all length; (holds shipper shoe to clutch lever)	4	*	*	*	*
83	6H6226/127	SEAL: oil; rawhide; transmission	1	*	*	*	*
6	6H6226A/15	SHAFT: lower lift; frame	1				*
7	6H6226A/16	SHAFT: upper lift; frame	1				*
119	6H6226/193	SHAFT: reel; top clutch	1				*
40	6H6226/82	SHIPPER BLOCK: transmission	2				*
65	6H6226/108	SHIPPER SHAFT: transmission	1				*
44	6H6226/86	SHIPPER SHOE: transmission	4		*	*	*
43	6H6226/85	SHOE: clutch; transmission	4		*	*	*
	6L6226A/V3	SKID CORNER JOINTS	4				*
	6H6226A/C33	SKID PIPE CLEAT	4				*
	6H6226A/J1	SKID PIPE END	2				*
	6H6626A/J2	SKID PIPE SIDE	2				*
41	6H6226/83	SLEEVE: clutch-shoe; transmission	1		*	*	*
42	6H6226/84	SLEEVE: clutch-shoe; with 8 slots; transmission	1		*	*	*
76, 112	6H6226A/186	SPACER: lift shafts; frame	2		*	*	*
	6H6226A/R7	SPACER: $\frac{1}{2}$ " x $\frac{3}{8}$ "; 1 each for transmission and top reel shaft clutch assemblies	2				*
124	6H6226A/200	SPACER: $3\frac{1}{16}$ "- $\frac{1}{2}$ " diam; top reel shaft clutch	1				*
45	6H6226/87	SPLINE: clutch	1		*	*	*
75, 111	6H6226/185	SPRING: $1\frac{1}{2}$ " x $\frac{1}{4}$ " diam	2	*	*	*	*
51	6H6226/93	SPRING: clutch-shoe; $2\frac{3}{8}$ " free length, $1\frac{1}{32}$ " diam; transmission	4				*
49	6H6226A/137	SPRING: shaft puller; transmission	2				*
62	6H6226/105	SPRING: $\frac{3}{4}$ " width; (locks lever arm)	1	*	*	*	*
37	6H6226/79	SPROCKET: transmission	1				*

* Indicates stock available.

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per unit	3d ech	4th ech	5th ech	Depot stock
103	6H6226/177	SPROCKET: top reel shaft clutch.	1				*
23	6H6226A/65	STAND: bearing; transmission.	1				*
	6H226A/138	STIRRUP: fastens over transmission clutch drum.	1				*
	6H6226/122	STOP: arbor, 1 each for transmission and top reel shaft clutch assemblies.	1				*
	6H6226A/L13	STRAINER AND SLEEVE ASSEMBLY: for filtering gas intake in fuel line.		*	*	*	*
118	6H6226/192	STUD: fastens pawl to upper axle lever arm.	1				*
57	6H6226/100.1	SUPPORT ASSEMBLY: transmission.	1				*
141	3Z8105	SWITCH: ignition; (control panel)	1	*	*	*	*
	6H6226/L3.1	TANK ASSEMBLY: fuel.	1				*
139	6H6226/263	THROTTLE CONTROL: lock-type; (control panel), Richland Auto Parts Co., Inc.	1		*	*	*
32	6H6226/74	THRUST PLATE: bearing; transmission.	1				*
33	6H6226/75	THRUST PLATE: bearing; transmission; for SKF bearing No. 6203.	1				*
	6H6226A.1/T1	TRANSMISSION ASSEMBLY.	1				*
38	6H6226/80	WASHER: leather; 3 1/2" OD, 2 1/8" ID; (between shipper block and bearing cap in transmission).	2		*	*	*
24	6H6226/66	WASHER: round; steel; 3 3/8" OD, 1 1/2" ID; (holding gasket transmission gear housing).	1		*	*	*
25	6H6226/67	WASHER: round; steel; 3 1/2" OD, 2 5/8" ID; (holds leather washer to transmission shipper block).	1		*	*	*
26	6H6226/68	WASHER: round; steel; 2-hole; 5/16" drill 3 1/4" OD; 2 3/4" ID; (between transmission gear housing and worm gear key).			*	*	*
27	6H6226/69	WASHER: round; steel; 1-hole; 0.129" drill; 3 1/4" OD; 2 3/4" ID; (between transmission gear housing cap and worm gear).	1		*	*	*
28	6H6226/70	WORM GEAR: transmission (8 diametrical pitch, 6" pitch diam; 25°, 48 threads for left-hand, double-thread worm).	1		*	*	*
29	6H6226/71	WORM: transmission.	1		*	*	*
GENERAL HARDWARE							
	6L3006-24C	NUT: steel; castle; bonderized; 3/4"-24 standard transmission	4	*	*	*	*
	6L3004C	NUT: steel; castle; bonderized; 1/4"-28 SAE; transmission and top reel shaft clutch.	4	*	*	*	*
	6L3507.14S	NUT: hexagonal; 1/8"-14 standard; miscellaneous and frame	14	*	*	*	*
	6L3110-32.1	NUT: steel; hexagonal; standard; No. 10-32; (control panel)	3	*	*	*	*
	6L3505-18S	NUT: hexagonal; standard; 5/16"-18, steel top reel shaft and frame.	9	*	*	*	*
	6L3506-16.1S	NUT: steel; hexagonal; standard; 3/8"-16; top reel shaft clutch, transmission, and frame.	10	*	*	*	*
	6L3504-20S	NUT: steel; hexagonal; bonderized; 1/4"-20 standard transmission.	5	*	*	*	*
	6L3804-20	NUT: steel; square; standard; 1/4"-20; frame	4	*	*	*	*
	6L3810-32	NUT: steel; square; standard; No. 10-32; frame	2	*	*	*	*
	6LK3904	PIN: cotter; steel; bonderized; 1/8" x 3/4"; transmission and top reel shaft clutch.	4	*	*	*	*
	6L9748-48	PIN: cotter; steel; bonderized; 1/8" x 3/4"; transmission	2	*	*	*	*
	6L974-10-64P	PIN: cotter; steel; bonderized; 3/32" x 1" long; transmission	4	*	*	*	*
	6L974-10-64	PIN: cotter; steel; bonderized; 3/32" x 1" long; transmission	4	*	*	*	*
	6L974-8-64	PIN: cotter; steel; 1/8" x 1" long; top reel shaft clutch.	2	*	*	*	*
	6L3918	PIN: escutcheon; standard; No. 14 x 1 1/2"	8	*	*	*	*
	6L6226A/27	PIN: taper; No. 4 x 2" long; frame	2	*	*	*	*
	6L4153-7	RIVET: countersunk head; 1/4" x 3/4"; transmission	6	*	*	*	*
	6L4304-8	RIVET: steel; roundhead; 1/4" x 5/8"; transmission	2	*	*	*	*
	6L4355-1	RIVET: steel; roundhead; 1/4" x 1/8"	12	*	*	*	*
	6L4342-5	RIVET: iron; roundhead; 1/4" x 1"; top reel shaft clutch.	1	*	*	*	*
		RIVET: roundhead; 1/8" x 1/2"; (fuel line)	1	*	*	*	*
		RIVET: steel; roundhead; standard; 3/16" x 1 5/8"; (skid)	1	*	*	*	*
	6L7920-4-10.320	SCREW: machine; steel; fillister-head; 1/4"-20 x 3/8"; bonderized; transmission.	6	*	*	*	*
	6L7920.4-146S	SCREW: machine; steel; flathead; bonderized; 1/4"-20 x 1/8"; transmission and top reel shaft clutch.	8	*	*	*	*
	6L7032-6P	SCREW: machine; steel; flathead; No. 10-32-3/8"; bonderized; transmission and top reel shaft clutch.	6	*	*	*	*
	6L7024-10	SCREW: machine; steel; flathead; bonderized; No. 10-32-5/8"; transmission	2	*	*	*	*
	6L7032-10	SCREW: machine; flathead; No. 10-32 3/8"; transmission and top reel shaft clutch.	2	*	*	*	*

Ref symbol	Signal Corps stock No.	Name of part and description	Quan- tity per unit	3d ech	4th ech	5th ech	Depot stock
		GENERAL HARDWARE (contd.)					
6L7918-5-12.81P...		SCREW: machine; steel; hexagonal head; $\frac{5}{16}$ "-18 x $\frac{3}{4}$ "; frame...	1	*	*	*	*
.....		SCREW: machine; hexagonal head; $\frac{5}{16}$ "-18 x $\frac{1}{8}$ "; transmission...	8	*	*	*	*
6L7920-4-20.815P		SCREW: machine; steel; hexagonal head; $\frac{1}{4}$ "-20 x $1\frac{1}{4}$ "; bonderized; transmission.	2	*	*	*	*
6L7920-4-14.15...		SCREW: machine; steel; roundhead; $\frac{1}{4}$ "-20 x $\frac{1}{8}$ "; frame.....	4	*	*	*	*
6L7032-8-15.....		SCREW: machine; steel; roundhead; No. 10-32 x $\frac{1}{2}$ "; bonderized; transmission.	2	*	*	*	*
6L7032-10-SP....		SCREW: machine; steel; roundhead; standard; No. 10-32 x $\frac{5}{8}$ "; bonderized; transmission and top reel shaft clutch.	8	*	*	*	*
6L7032-12.1.....		SCREW: machine; steel; roundhead; No. 10-32 x $\frac{3}{4}$ "; (control panel).	3	*	*	*	*
6L7032-32.1		SCREW: machine; steel; roundhead; No. 10-32 x 2"; frame....	2	*	*	*	*
6L7916-6-36-95P		SCREW: machine; steel; square head; $\frac{3}{8}$ "-16 x $2\frac{1}{4}$ "; frame....	2	*	*	*	*
6L58004P.....		WASHER: steel; standard for $\frac{1}{4}$ " screw; bonderized; transmission.	2	*	*	*	*
6L71006.....		WASHER: steel; standard for $\frac{3}{8}$ " shaft; bonderized; transmission.	2	*	*	*	*
6L58038-1.....		WASHER: steel; standard for $\frac{1}{2}$ " shaft; bonderized; transmission.	4	*	*	*	*
6L58028P.....		WASHER: flat; standard; $\frac{3}{8}$ "; top reel shaft clutch.....	4	*	*	*	*
6L70010.....		WASHER: lock; steel; standard No. 10 screw; bonderized; transmission control panel, top reel shaft clutch.	9	*	*	*	*
6L71104.6.....		WASHER: lock; steel; SAE regular; for $\frac{1}{4}$ " screw; bonderized; transmission.	11	*	*	*	*
6L7221.....		WASHER: lock; steel; SAE regular; for $\frac{3}{8}$ " screw; bonderized; transmission and top reel shaft clutch.	24	*	*	*	*
6L72218.....		WASHER: lock; steel; SAE regular; for $\frac{5}{16}$ " screw; bonderized; transmission and top reel shaft clutch.	9	*	*	*	*
6L71104.....		WASHER: lock; steel; split-spring; $\frac{1}{4}$ " standard; transmission and frame.	15	*	*	*	*
6L73028.....		WASHER: lock; steel; split-spring; $\frac{5}{16}$ " standard; frame.....	18	*	*	*	*
6L71006.....		WASHER: lock; steel; split-spring; $\frac{3}{8}$ " standard; frame.....	2	*	*	*	*
		WASHER: lock; steel; split-spring; $\frac{1}{16}$ " standard; miscellaneous and frame.		*	*	*	*
6L72210-10.....		WASHER: lock; steel; split-spring; No. 10 standard; frame.....	2	*	*	*	*

* Indicates stock available.

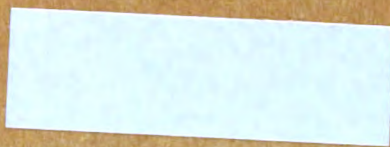
50. Maintenance Parts List for Engine, Briggs and Stratton Model A or AP, Used in Reel Unit RL-26

Note. Order maintenance parts by stock number, name, and description.
Only maintenance parts listed can be requisitioned.

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per assembly	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	3H1901-AP.1....	ENGINE: complete; Briggs & Stratton model A or AP as used in Reel Unit RL-26.		*	*	*	*	*
		PISTON GROUP						
	3H1901-A/P8....	PISTON ASSEMBLY: standard; (includes piston, three rings, two piston pin locks).			*	*	*	*
	3H1901-AP/P26..	PISTON ASSEMBLY: 0.010" oversize; (includes piston, three piston rings and two piston pin locks).				*	*	*
	3H1901-A/R2....	RING: piston; standard; compression; top.....	*	*	*	*	*	*
	3H1901-A/R1....	RING: piston; standard; compression; center.....	*	*	*	*	*	*
	3H1901-A/R3....	RING: piston; standard; oil.....	*	*	*	*	*	*
	3H1901-AP/R17..	RING: piston; 0.010" oversize; compression; top.....	*	*	*	*	*	*
	3H1901-AP/R20..	RING: piston; 0.010" oversize; compression center.....	*	*	*	*	*	*
	3H1901-AP/R23..	RING: piston; 0.010" oversize; oil.....	*	*	*	*	*	*
	3H1909/R4.....	LOCK: piston pin.....	*	*	*	*	*	*
	3H1909-/P3.2....	PIN: piston; standard.....	*	*	*	*	*	*
		CRANKSHAFT GROUP						
	3H1901-A/R8....	ROD ASSEMBLY: connecting; (includes connecting rod, screws, and lockwashers).	*	*	*	*	*	*
	3H1901-A/B2....	BEARING: ball; crankshaft.....	*	*	*	*	*	*
	3H1901-A/P15....	PUMP ASSEMBLY: oil.....	*	*	*	*	*	*
	3H1901-A/C41....	CAP AND PLUG ASSEMBLY: oil filler and drain.....	*	*	*	*	*	*
	3H1901-AP/G17..	GEAR: cam.....	*	*	*	*	*	*
	3H1901-A/C2....	CRANKSHAFT.....	*	*	*	*	*	*
	3H1901-AHL/S5..	SEAL: oil; crankshaft bearing.....	*	*	*	*	*	*
		CYLINDER GROUP						
	3H1901-A/B6....	CYLINDER ASSEMBLY: complete; (includes cylinder with breather, valve guides, and valve inserts).			*	*	*	*
	3H1901-A/V4....	VALVE: exhaust.....	*	*	*	*	*	*
	3H1909-V2.....	VALVE: intake.....	*	*	*	*	*	*
	3H1901-A/C20....	CUP: valve spring.....	*	*	*	*	*	*
	3H4541.1/45....	SPRING: valve.....	*	*	*	*	*	*
	3H4541.1/84....	RETAINER: valve spring; (washer).....	*	*	*	*	*	*
	3H4541.1/17....	COLLAR: valve spring retainer.....	*	*	*	*	*	*
	3H1909/B13....	GASKET: valve cover plate.....	*	*	*	*	*	*
	3H1901-A/G2....	GASKET: engine base to crankcase.....	*	*	*	*	*	*
	3H1909/G7.....	GASKET: cylinder head.....	*	*	*	*	*	*
	3H4410-6.....	PLUG: spark; 18-mm; Champion 6m with gasket.....	*	*	*	*	*	*
	3H4575C/S25....	SHIELD: spark plug.....	*	*	*	*	*	*
	3Z9849.10.....	SWITCH: toggle; single-pole, single-throw.....	*	*	*	*	*	*
		FLYWHEEL GROUP (MAGNETO)						
	3H1901-A/M2....	MAGNETO ASSEMBLY: shielded ignition.....	*	*	*	*	*	*
	3H1901-A/P35....	MAGNETO POINT ASSEMBLY.....	*	*	*	*	*	*
	3H1909C/C4....	CAPACITOR: magneto.....	*	*	*	*	*	*
	3H1909C/J5....	INSULATOR: armature lead; (magneto).....	*	*	*	*	*	*
	3H1901-AP/C2....	CABLE: shielded ignition.....	*	*	*	*	*	*
	3H1909C/G13....	GASKET: magneto plate; 0.005" thick.....	*	*	*	*	*	*
	3H1909C/G14....	GASKET: magneto plate; 0.009" thick.....	*	*	*	*	*	*
	3H1901-A/G6....	GASKET: magneto plate; 0.015" thick.....	*	*	*	*	*	*
		GOVERNOR GROUP						
	3H1909-AP/G18..	GEAR: governor; with weights.....	*	*	*	*	*	*
	3H1901-AP/L1....	LEVER: governor.....	*	*	*	*	*	*
	3H1901-AP/S40..	SPRING: governor.....	*	*	*	*	*	*
	3H1901-AP/B16..	BUSHING: governor crank.....	*	*	*	*	*	*
	3H1901-AP/C15..	CRANK: governor.....	*	*	*	*	*	*
	3H1901-A/L1.....	LEVER: governor spring.....	*	*	*	*	*	*
		FUEL SUPPLY GROUP						
	3H1901-A/F1....	FILTER ASSEMBLY: fuel.....	*	*	*	*	*	*
	3H1901-A/L2.....	LINE: fuel; filter to carburetor.....	*	*	*	*	*	*

Ref symbol	Signal Corps stock No.	Name of part and description	Quantity per assembly	Orgn stock	3d ech	4th ech	5th ech	Depot stock
FUEL SUPPLY GROUP (contd.)								
3H1901-A/V1	...	VALVE AND SEAT ASSEMBLY: inlet		*	*	*	*	*
3H1909C/E3	...	CONNECTOR: fuel line		*	*	*	*	*
3H1901-A-C1	...	CARBURETOR ASSEMBLY		*	*	*	*	*
3H1909C/V9	...	VALVE ASSEMBLY: needle; (carburetor)		*	*	*	*	*
3H1901-AP/V4	...	VALVE: idler needle; (carburetor)		*	*	*	*	*
3H1901-AP/S38	...	SPRING: idler needle valve; (carburetor)		*	*	*	*	*
3H1901-A/G3	...	GASKET: carburetor mounting		*	*	*	*	*
3H1901-A/G4	...	GASKET: carburetor body		*	*	*	*	*
3H1909C/G11	...	WASHER: fiber; carburetor nozzle; (needle valve carburetor inlet valve seat)		*	*	*	*	*
3H1901-AP/F1	...	FLOAT: carburetor			*	*	*	*
3H1901-AP/H1	...	PIN: float; hinge; (carburetor)			*	*	*	*
3H1909C/P6	...	PACKING: carburetor needle valve			*	*	*	*
3H1901-AP/L6	...	LINK: throttle; (governor to carburetor)			*	*	*	*
AIR CLEANER GROUP								
3H1901-A/A1	...	CLEANER ASSEMBLY: air				*	*	*
3H1901-A/C27	...	COVER AND FILTER ASSEMBLY				*	*	*
3H1901-A/G1	...	GASKET: air cleaner		*	*	*	*	*
3H1901-A/M8	...	MUFFLER ASSEMBLY		*	*	*	*	*
MISCELLANEOUS GROUP								
6G245.2	...	VALVE GRINDING COMPOUND		*	*	*	*	*
3H1901-A/B1	...	BLOWER HOUSING ASSEMBLY				*	*	*
3H1901-A/C25	...	CLUTCH: starter assembly			*	*	*	*
3H1901-A/H15	...	HARDWARE KIT: miscellaneous bolts, nuts, screws, and washers		*	*	*	*	*
3H1901-A/P2	...	STARTER ASSEMBLY: pedal			*	*	*	*
6D13040	...	INSTRUCTION: TM 11-360						*
3H1901-A/S10	...	SPRING: starter		*	*	*	*	*
3H1909C/R20	...	ROPE: starter		*	*	*	*	*

* Indicates stock available.



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