

Instruction Manual

Lombard
**WOODLOT
WONDER**®

MODEL 3½D POWER CHAIN SAW

**Including Parts List
and
Chain Sharpening Instructions**

LOMBARD GOVERNOR CORPORATION

CHAIN SAW DIVISION

ASHLAND, MASSACHUSETTS

LOMBARDCORRECTIONS FOR MODEL 3 $\frac{1}{2}$ -D PARTS MANUALSThis list effects saws with serial #3 $\frac{1}{2}$ -D - 23,001 and up.

Sorry for the inconvenience, but until such time as new Parts Books are printed, the following changes must be made.

PAGE 13: Item 13 - Strike out.

PAGE 14: Item 3 - YS-2216, change to YS-2245.
Item 5 - 5-55, change to 5-53.
Item 12 - PS-127, change to PS-122 - 1/4-20 X 1 1/4 lg.
Item 13 - Strike out.

PAGE 17: Heading - Type 95, change to Type 1024.
Item 65 - Change to Item 66.
Item 26 - Change to Item 65.

PAGE 18: Item 10 - S-1274, change to O10-29.
Item 24 - 452209, change to YS-2209.
Item 33 - 1018-03, change to 1018-23.
Item 34 - 1019-03, change to 1019-12.
Item 38 - 1062, change to 4062.
Item 43 - 1133-06, change to 14-3.
Item 47 - 3084-01, change to 3084-02 Step Switch.
Item 65 - S-1115, change to S-1357 - 1/4-20 X 1/2 lg. Pan Hd.
Item 66 - Change quantity from 2 to 4. Sems Screw.
Item 74 - Add Part No. 3105.

PAGE 19: Item 20 - FG-1250, change to FG-1720.

PAGE 21: Changes in Photo -

In upper right hand corner only strike out Items 23, 24 and 25.

Item 14 - Strike out.

Item 5 - Strike out.

Changes in Text -

Item 5 - Strike out.
Item 13 - 11-7-1, change to 11-71.
Item 14 - Strike out.
Item 16 - 27-9, change to 27-17.
Item 17 - 44-1, change to 44-2.
Item 18 - 40-1, change to 140-1.
Item 19 - 13-1, change to 13-10.
Item 20 - 29-4, change to 53-2.
Item 22 - 51-3-1, change to 51-31.
Item 26 - 25-5, change to 25-9.

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**Including Parts List
and
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LOMBARD GOVERNOR CORPORATION

CHAIN SAW DIVISION

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IMPORTANT OPERATING INSTRUCTIONS

AND GENERAL INFORMATION ON

LOMBARD MODEL 3 1/2D WOODLOT WONDER CHAIN SAW

1. ENGINE-STARTING INSTRUCTIONS

NOTE: Special fuel mixture for run-in of new engine. Use 3/4 pint S.A.E. 30 motor oil per gallon of gas for first 20 hours of use.

(A) Permanent Fuel

In a clean container thoroughly mix 1/2 pint of No. 30 motor oil with each gallon of gasoline. (Low grade or white gasoline is preferred, but any grade of gasoline will operate satisfactorily). Fill the tank with this mixture.

(B) Starting Engine

Completely open the shut-off valve, located on the right side of the engine below gas tank.

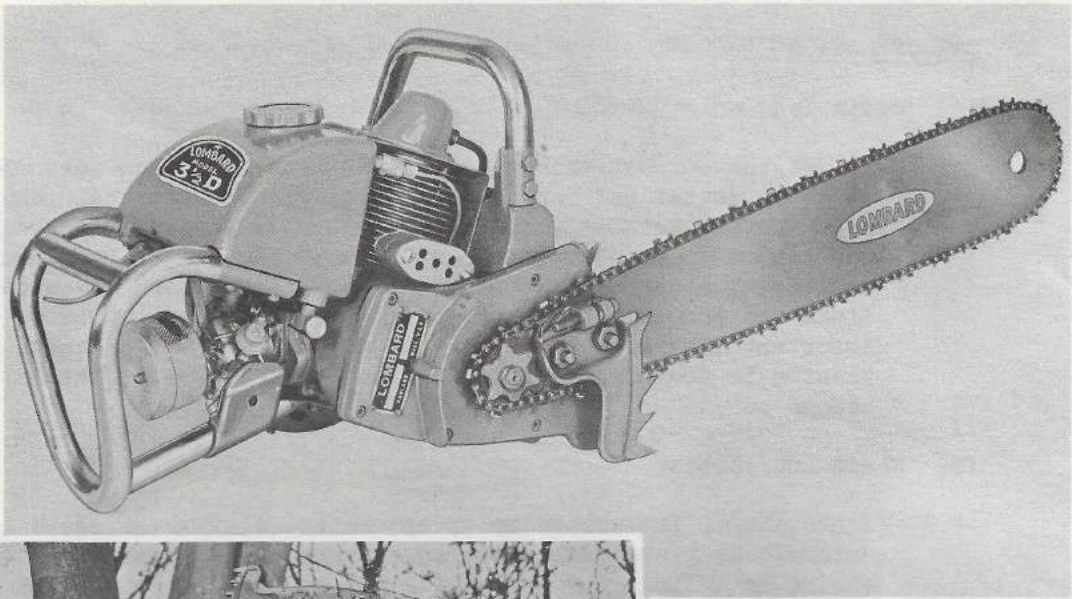
Move the choke lever to the choke position. Check to see that the carburetor dial is set at No. 7. NOTE: The choke lever is on the left side of the carburetor and the choke position is back toward the filter.

Pull handle of recoil starter straight out, on same angle that it is mounted, with your left hand. Hold the saw by placing the right hand on the rear handle bar, and at the same time hold the throttle lever in open position. In very cold weather, or if engine has not been run for a long period, two or more pulls may be necessary. After the engine starts gradually move the choke lever back until the engine has warmed up.

When restarting a warm engine, choking is not necessary. Choking a warm engine, or over-choking a cold engine may result in flooding. If this occurs, continue cranking engine, with the choke pushed back until the engine starts. In severe cases of flooding, the shut-off valve should be closed and the engine cranked until it starts. After the engine starts, the valve should again be opened.

(C) Stopping Engine

To stop the engine, push stop button located on air shroud, left side of engine. Completely close gas shut-off valve.



Lombard Model 3 1/2 D



Cuts at all angles



Felling



Bucking

2. SAW OPERATION

(A) Chain Tension

To get the correct tension of chain, loosen the two nuts on studs so cutter bar can be moved easily. Tighten chain tension screw until chain is reasonably tight. To check for correct tension, the chain on the lower part of the cutter bar should be hanging loose so there is at least 1/8" between the side links and the edge of cutter bar. The chain tension is an important item and should be watched carefully. If chain tension is too tight, chain will not run, or end of bar may become burnt.

(B) Chain Lubrication

The chain is lubricated by an automatic oiler which shuts off automatically when the chain is not moving. Therefore, when engine is idling, the chain will not be oiled. Remove the filler cap on the oil reservoir to fill with SAE #30 oil.

It may be necessary in sub-zero weather to mix kerosene with the oil or use a much lighter oil. Kerosene may also be added to cut gummy pitch.

There is a small hole in the sprocket which allows the oil to get on the chain and this should be checked daily to see that it is not plugged with sawdust.

(C) Gear Lubrication

An oil hole cover, on gear case near muffler, has been provided for lubricating gears. Hold the throttle lever down enough so chain is moving very slowly and oil will be distributed on teeth of driven gear inside gear case, (use two or three squirts from an oil can). There is a small hole in the back of the gear case which acts as an overflow if excess oil is used on gears. Leakage through this hole is a normal function and should not cause alarm.

REMEMBER: Oil Daily: using SAE 30 oil.

(D) Positions of Cutting

This model 3 1/2D saw will cut in any position. When starting a cut be sure engine is up to speed before entering chain into wood.

3. ENGINE MAINTENANCE

(A) Spark Plug

The spark plug should be checked periodically. A dirty, oily or carboned plug causes starting trouble and poor operation.

The spark plug should be cleaned, and the points set at .030 inches. If there is any doubt about the condition of the plug, it should be replaced with a Champion J-6-J or equivalent.

(B) Air Filter

This engine is equipped with a dry type tubular filter. It should be cleaned in gasoline twice a week and allowed to drain. The filter should be dry before replacing.

(C) Muffler & Exhaust Ports

The muffler and the exhaust ports should be cleaned every 50 hours. Failure to clean these parts periodically results in loss of power.

To clean the muffler, remove from cylinder and scrape carbon from all cavities and the exhaust outlet space.

To clean the cylinder exhaust ports, remove the spark plug, and turn the starter pulley so that the piston is at the bottom of the stroke, below the exhaust holes. With any blunt instrument scrape the carbon from the three cylinder exhaust holes so that they are completely open and remove the carbon from the surrounding exhaust chamber. Crank the engine several times to blow out the loosened carbon. Replace the spark plug and muffler.

(D) Starter

If the emergency arises where the rewind starter fails, it may be removed from the air shroud to expose a conventional rope pulley starter which can be used until rewind starter is repaired.

To repair starter remove four screws holding starter to air shroud. Refer to exploded view of starter (Fig. 7) before disassembling. All parts of the drive mechanism may be replaced by removing the retainer ring. Take notice of the way the parts are assembled. They must be reassembled in exactly the same way for the starter to operate.

To replace cord or rewind spring, remove four screws holding mounting flange, flange and cover together. Hold rotor from turning and remove screen, mounting flange and flange. Allow rotor to turn, about two turns, to relieve preset of rewind spring and remove rotor being careful to disengage rotor from rewind spring so spring will remain in cover. To replace cord, knock out pin in rotor. Take out old cord and insert new one. Put cord retainer on cord and crimp with pliers. Make two turns around rotor with cord in a counterclockwise direction when looking at outward end of rotor. Replace pin in rotor over cord. Spring may be replaced if needed. Spring must be replaced with

care as it is apt to fly while taking it out or putting it in. Before reassembling, refer to Fig. 7. Also notes under Fig. 7. Check each part individually with Fig. 7 before assembling. Assemble rotor, being sure to engage rewind spring. Rewind cord on rotor counterclockwise. Make about two turns on rotor counterclockwise to preset spring. Hold in this position and reassemble parts. When starter is assembled and cord is pulled, the sharp edges of the friction shoe plates should protrude and turn counterclockwise. Check this action before reassembling starter to engine.

(E) Carburetor Adjustments

There are two adjustments on the carburetor, the full load adjustment and the idling adjustment. The full load adjustment is the numbered dial located on the right side of the carburetor. The idling adjustment is located on left side of the carburetor. The normal setting of full load adjustment is at No. 7, and the idling adjustment is about 3/4 turn open.

Should it be necessary to check the adjustments, the engine should first be run at full load until it is warmed up. The full load adjustment may then be checked by turning it (clockwise) until motor slows down or coughs and the position noted. The adjustment should then be turned open (counterclockwise) until the engine after speeding up again slows down and runs unevenly; this position should be noted. Correct adjustment will be half way between these two points. At this position, the engine should deliver maximum power.

Make sure that the numbered dial is tight on the carburetor shaft. If it should become loose, remove it from the adjustment shaft. Turn the adjustment shaft in until it seats in the carburetor. Do not turn in too tight as this may damage the seat. Then back out 1/8 turn; place the dial on the needle valve, push all the way in and rotate clockwise until the stop on the back of the dial strikes the side of the projection on the guard plate. Tighten set screw.

To check the idling adjustment, the carburetor throttle must be held in the closed position and the idling adjustment screw on the right side of carburetor turned in or out until the engine runs smoothly. If after this adjustment the engine keeps stalling, it can be adjusted with the idling adjusting screw on the throttle shaft.

If carburetor leaks flush as outlined below.

Flush the diaphragm chamber. Tilt saw backward so the drain plug (located on lower left hand side of carburetor below choke lever)

is the lowest spot in the diaphragm chamber. Open fuel line valve on tank. Remove the drain plug. Insert a toothpick or similar blunt instrument through the vent hole in the bottom of the carburetor gently depressing the diaphragm, thus permitting fuel to flush past the inlet needle through the diaphragm chamber and out the drain hole. This will clean the inlet needle and remove any foreign particles from the chamber.

This step should only take place after all other methods of stopping leak have failed. Loosen screw just above choke lever. This screw must not be taken out, or loosened enough to bring head more than 1/8 inch above casting. With the screw in this position, break the copper washer that is under the head and remove it. Retighten the screw and recheck.

If by chance this screw is loosened too much or taken out, the spring will become dislodged from the nib on the inlet control lever. This nib is visible through the drain plug hole. If the spring cannot be put in proper place on nib through the drain plug hole, then the diaphragm cover on the bottom of the carburetor must be removed to make this spring accessible.

Two-cycle engines when running under light loads may appear to miss. This in no way affects the operation of the engine.

(F) Should Engine Fail to Start

The following material is presented as an aid in the maintenance and repair of the engines. Proper maintenance of an engine will result in hundreds of hours of satisfactory operation.

Check for fuel in the gas tank and check to see that shut-off valve is open.

Check magneto. Hold the spark plug wire 3/16" from engine, spark should jump from the terminal to the engine when cranked. If no spark occurs, test the condenser and coil; if faulty, replace.

Check for spark; remove spark plug and with magneto wire attached hold the base of the plug against the engine, crank engine. A spark should jump across the plug points. If it doesn't, clean the plug or replace with a new one.

Check for flooding. Remove spark plug and if plug is wet or if gap is closed by liquid fuel, the plug should be dried, and with main adjustment needle closed, the engine should be cranked until vapor stops coming out of spark plug hole. Re-insert plug and open adjustment dial to No. 7 or 3/4 turn open.

Check for gasket leaks and for leaks around the crankshaft seal.

(G) Should Engine Overheat

Check the flow of air over the cylinder. If restricted by dust or dirt, remove the cylinder shield and clean the cylinder fins, and if necessary, remove the air shroud and clean the flywheel fan and the air intake holes on rewind starter.

Be sure to have correct fuel mixture; 1/2 pt. of No. 30 motor oil to each gallon of gasoline. Use a separate clean container for mixing oil and gasoline.

(H) Should Engine Lack Power

Check carburetor adjustment. See instructions. (Item E in engine maintenance.)

Check magneto timing. Corresponding match marks on the stator plate and crankcase should be lined up. If the timing has been changed, loosen the stator plate lock screw. Move the stator plate to the correct timing position as indicated by the marks and tighten the screw. Proper timing is indicated by the breaker points opening when the piston is .093 to .100 before the top dead center of the stroke.

Check for carbon. If exhaust ports and muffler are restricted by carbon, scrape clean.

Check compression. Remove spark plug and place compression gauge in cylinder spark plug hole. After cranking the engine several times, the gauge should register 70 lbs. or more. If compression is faulty, replace piston rings.

Check for gasoline and oil ratio in fuel. Be sure engine has 1/2 pint of oil for each gallon of gasoline.

Check cylinder, carburetor, reed plate, and transfer port gaskets for leaks. Also check for leaks around the crankshaft seals.

(I) General Information

Magneto point setting020 inch
Spark Plug gap030 inch
Fuel Ratio	1/2 pt. No. 30 oil per gal. of gasoline
Recommended engine speed	2700 to 4000 r.p.m.
Clean muffler and exhaust ports every 50 to 75 hours.	
Clean air filter twice a week.	

If magneto is removed from the engine, be sure to replace cam in original position, with the beveled side out.

When replacing piston, be sure tapered side of baffle is toward muffler side of engine.

4. SAW MAINTENANCE

(A) Chain

One of the most important parts of the saw is the chain. The cutting efficiency of the unit depends on the condition of the chain. Therefore, it should be inspected daily for sharpness and damage. If the chain appears to be dull (noticed by slower cutting) or if it has struck a hard object such as a stone, etc., do not continue to cut. Use a round file with file holder to sharpen this Chipper Chain. A chain cutting wood after becoming dull will damage both chain and cutter bar as it will require forcing the saw. It will also reduce the life of the chain as it necessitates excessive filing of the radius face angles of the cutters.

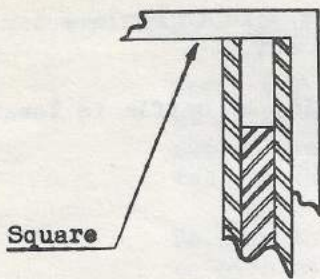
Use your chain with care and see that it has plenty of lubrication so parts will not wear and keep it sharp at all times.

If a cutter is broken or damaged beyond repair, it may be replaced from the spare parts that are shipped with all new chains. Check to be positive the correct cutter, that is, left or right, is assembled into the chain. When peening rivets, do not strike too hard, or you will bulge large diameter of rivet in center blanks; therefore, binding the chain. Light blows using the ball end of a small hammer is sufficient. Always check chain for flexibility at repaired joint.

(B) Cutter Bar

Many cutter bars are damaged by ill use, that is, lack of proper lubrication on chain and cutter bar, unnecessary forcing of saw when cutting, and twisting of cutter bar in some cuts. Always remember the lack of proper oil will cause excess wear on both chain and cutter bar: therefore, reducing the life of both items.

The top edges of slot of cutter bar, where side links of chain run, should be checked for parallelism periodically. A good method is to place a square on side of cutter bar as shown in Fig. 1.



File or stone edges parallel and remove all burrs. If one edge is lower than the other, the chain will cut crooked, and then the operator will force the saw to try and remedy this situation; therefore, resulting in considerable damage to the cutter bar.

Fig. 1

(C) Clutch

This saw is equipped with a special shoe-type, automatic clutch mounted on engine shaft, inside gear housing. It will automatically engage and release according to engine speeds, which are controlled by the throttle lever.

This clutch cannot be adjusted. If chain creeps, then the idling speed of the engine is incorrect. This is remedied by adjusting idle mixture.

When repairing saw, never run engine with clutch assembly on engine shaft unless drum is also assembled in proper position on same shaft. Because of centrifugal force the shoes may fly off and cause injury or damage.

(D) Gear Housing

The gear housing contains the gears and clutch assembly. The only attention it requires is to oil gears daily by 3 or 4 drops of SAE #30 motor oil from an oil can. At the same time, hold throttle lever down a small amount so chain will be traveling very slowly, thus gears will be rotating slowly and get oiled properly.

5. SERVICE AND REPAIR INSTRUCTIONS

(A) Suggested Procedure for Dismantling Saw

Remove Cutter Bar and Chain.

Sprocket - Hold sprocket stationary and remove sprocket nut. Lift sprocket from spline shaft.

Cover - Gear Case: Remove eight screws.

Remove lock nut on engine shaft.

Clutch: Use puller to remove.

Remove clutch key.

Remove special washer.

Remove drum - gear assembly.

Remove bushing and special washer from engine shaft.

Driven gear and transmission shaft assembly are removed as one unit.

Front handle bar, remove four screws.

Gear case, remove three screws.

Fuel line, disconnect and remove.

Remove throttle link between carburetor and arm.

Oil Pump - if necessary to remove oil pump from back of gear case, loosen holder, keeping in mind the threads are left hand.

Remove gas tank and rear handle bar.

(B) Suggested Procedure for Dismantling Engine

Air Filter - remove air filter cover and filter.

Carburetor and Reed Plate - remove two nuts.

Muffler - remove the screws holding muffler to the cylinder.

Rewind Starter - remove four screws holding starter to air shroud.

Air Shroud - remove screws holding the air shroud to the shroud base, and remove wire to stop button.

Flywheel - remove nut from inside starter cup and remove starter cup. Replace nut loosely and give it a sharp rap with a rawhide hammer until flywheel is loosened from taper of crankshaft.

Magneto Stator Plate - loosen the friction screw at the base of the stator plate. Pull the stator plate off by turning back and forth.

Cam and Key - remove by tapping. Note position before removal.

Shroud Base - remove four screws holding the shroud base to the engine.

Cylinder - remove four nuts.

Crank Case - remove six screws holding the crankcase together, then tap the end of the crankshaft gently to separate the case and bearing from shaft, tap the shaft gently.

To replace ball bearing in the case, remove lock ring, washer and seal. Heat the case evenly with a blow torch or over a gas flame until the bearing drops out. At this temperature a new cold bearing can be dropped in. Make sure that the beveled side of the inner race of the bearing is up when it is dropped into the crankcase. Also, be sure when replacing the seal that the lip is toward the center of the engine.

Connecting Rod - to remove the connecting rod from shaft, remove the two screws holding the cap to the rod. When reassembling the rod and cap to the shaft, be sure that the match markers on the rod and cap are on the same side. Be sure that there are 30 rollers in assembly. Be sure that the straight side of the piston baffle is toward the tapered end of shaft.

To remove the rod from the piston pin, remove the lock ring from one side of the piston and slide the piston pin to one side.

It is extremely important that all parts be thoroughly clean, and the moving parts oiled before assembly. A reassembled engine will require a run-in period of about an hour before full power will be developed.

EXPLODED VIEWS

AND PARTS LISTS

MODEL 3 1/2D

WOODLOT WONDER

Note: Kindly order by part number. Do not use
illustration reference numbers.

OUR MOTTO IS:

"GIVE YOUR SAW A LITTLE ATTENTION TODAY AND
YOUR SAW WILL REQUIRE LESS ATTENTION TOMORROW"

LOMBARD MODEL 3½D GAS SAW-PHOTO No. YS-2223

Gas Tank & Rear Handle Bar Assembly

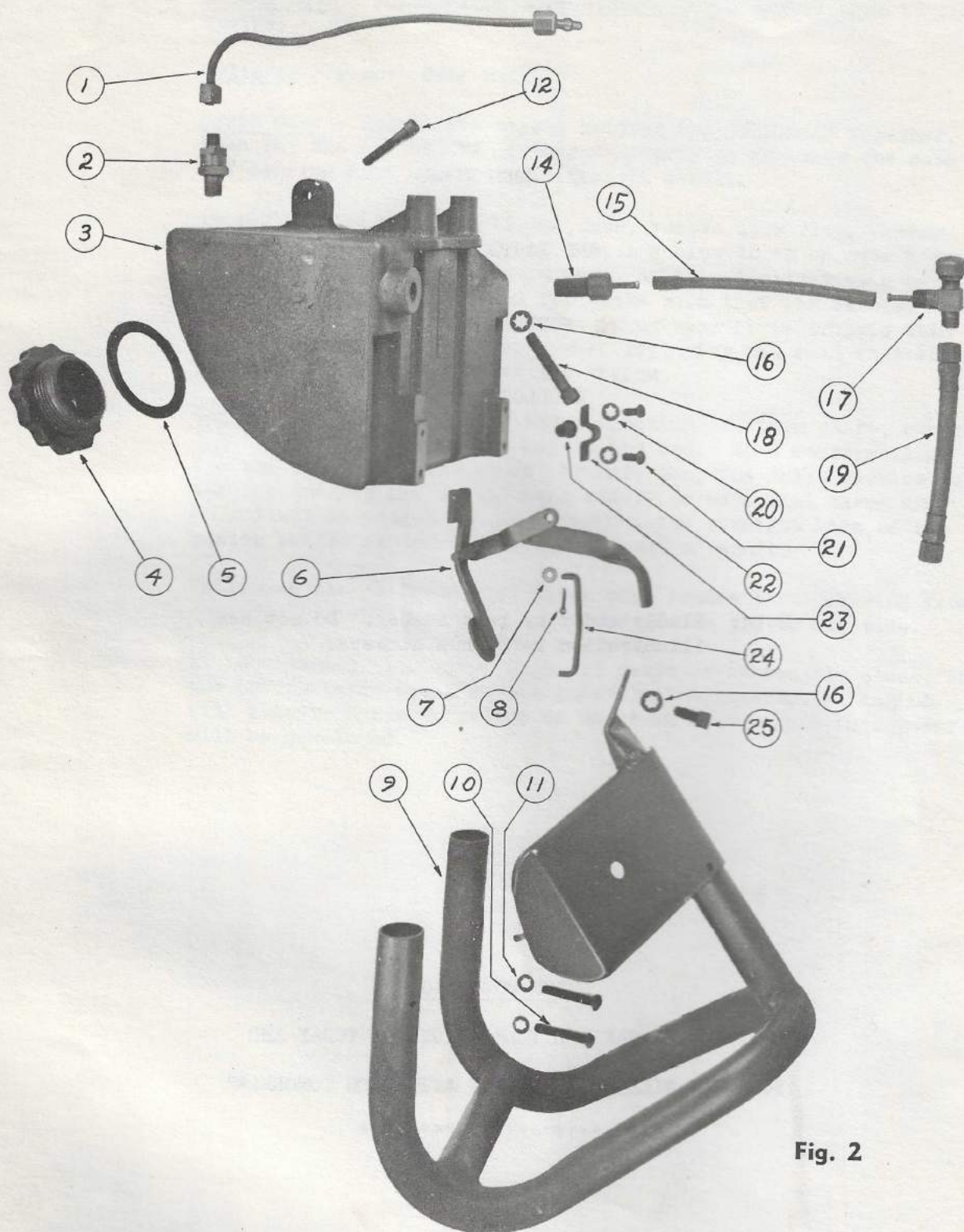


Fig. 2

LOMBARD GOVERNOR CORP., ASHLAND, MASS.

PARTS LIST YS-2223

For Gas Tank and Rear Handlebar Assembly
Woodlot Wonder Model 3½ D

Item No.	Part No.	Part Name	Qty. Per Unit
1	YS-2219	Pressure Line	1
2	4042-08	Check Valve	1
3	YS-2245	Gas Tank	1
4	YS-2015	Cap, Gas Tank	1
5	5-55	Gasket, Gas Tank Cap	1
6	YS-2080	Throttle	1
7	PW-107	Washer, Plain	2
8	PM-144	Cotter Pin	2
9	YS-2217	Rear Handlebar	1
10	PS-315	Screw, Round H'd. #10-24 x 1¼ lg.	4
11	PW-210	Lockwasher, Shakeproof #1210-00	5
12	PS-122	Screw, Socket H'd. Cap ¼-20 x 1¼ lg.	1
14	5-42	Strainer & Weight	1
15	5-41	Sleeve — Gas Tank	1
16	PW-211	Lockwasher, Shakeproof #1214-00	3
17	5-39	Valve, Shut-off	1
18	PS-128	Screw, Socket H'd. Cap ¼-20 x 1⅛	2
19	PM-152	Gas Line	1
20	PW-209	Lockwasher Shakeproof #1208-00	4
21	PS-308	Screw, Rd. H'd. 8-32 x ⅜ lg.	4
22	YS-2017	Clip, throttle	2
23	YS-2014	Bushing, Throttle	2
24	YS-2018	Link, Throttle	1
25	PS-106	Screw, Socket H'd. Cap ¼-20 x ⅝ lg.	1

LOMBARD MODEL 3½ D GAS SAW — PHOTO No. YS-2227
Gear Case & Front Handle Bar Assembly

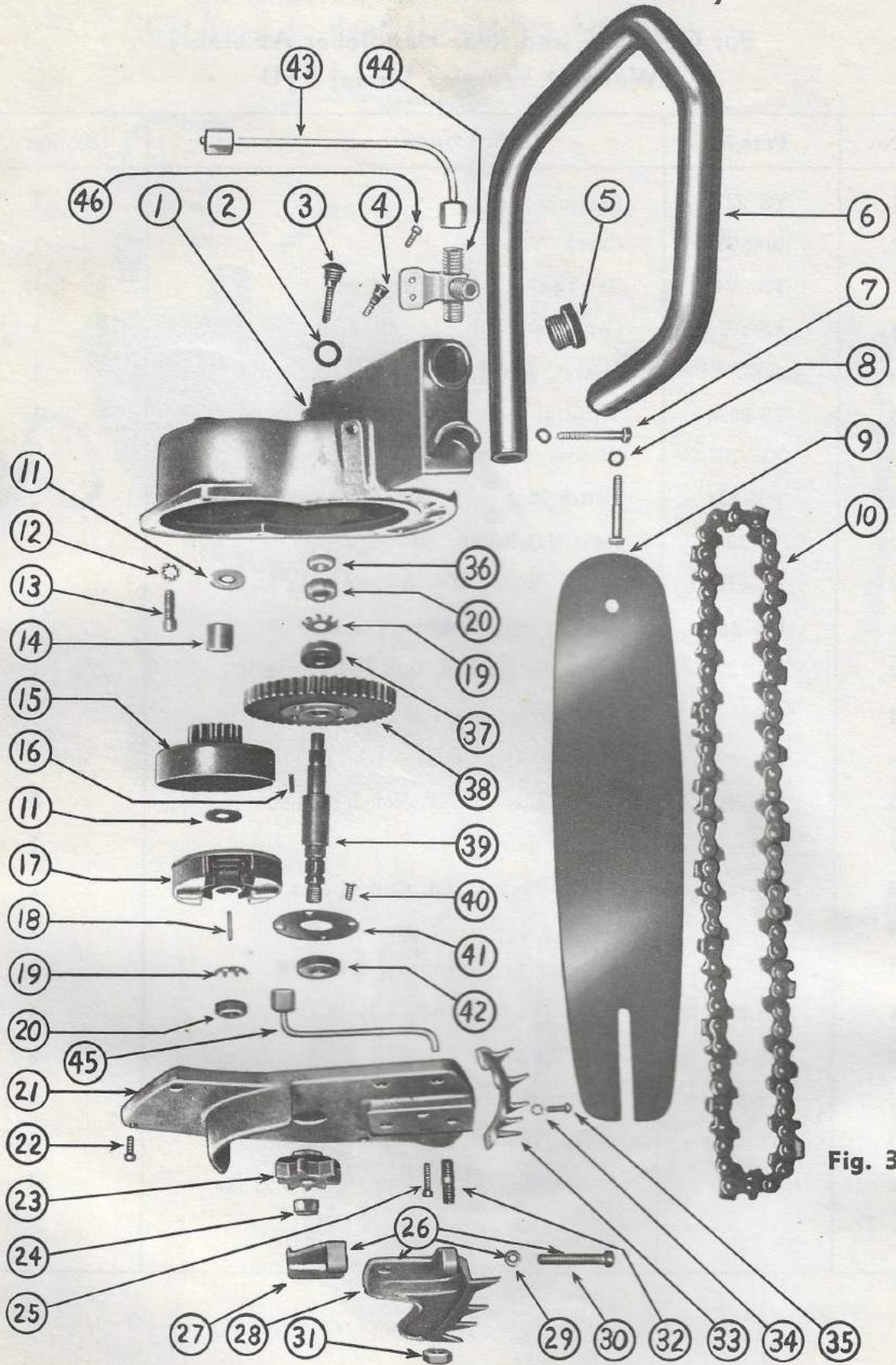


Fig. 3

LOMBARD GOVERNOR CORP., ASHLAND, MASS.

PARTS LIST YS-2227

For Gear Case Assembly Woodlot Wonder Model 3 1/2 D

Item No.	Part No.	Part Name	Qty.	Per Unit
1	YS-2081	Gear Case		1
2	YS-2031	Gasket, Oil Pump Holder		1
3	YS-2201	Oil Pump Assembly		1
		Consisting of :	Qty.	
	YS-2082	Shaft, Oil Pump	1	
	YS-2083	Holder, Oil Pump	1	
	YS-2084	Pin, Oil Pump	1	
	YS-2085	Spring, Oil Pump	1	
4	YS-2035	Cover, Oil Hole		1
5	GS-1135	Cap, Oil Reservoir		1
6	YS-2064	Handlebar (Front)		1
7	PS-405	Screw, Hex H'd. 1/4-20 x 1 1/2 lg.		4
8	PW-204	Lockwasher, 1/4" Standard		4
9		Cutterbar (One of the following)		1
	YS-2072	16" for .050 drive chain (Standard)		
	YS-2057	20" for .050 drive chain (Standard)		
10		Chain (One of the following)		1
	PM-181	16" with .050 drive link 3/8" pitch		
	PM-182	20" with .050 drive link 3/8" pitch		
11	YS-2032	Washer, Special		2
12	PW-212	Lockwasher, Shakeproof #1218-00		3
13	PS-123	Screw, Socket H'd. Cap 5/16-18 x 7/8 lg.		3
14	PM-137	Bushing		1
15	YS-2056	Gear, Driver		1
16	YS-2025	Key, Driven Gear		1
17	YS-2050	Clutch Assembly		1
		Consisting of :	Qty.	
	YS-2050-A	Body, Clutch	1	
	YS-2050-B	Shoe, Clutch	2	
	YS-2050-C	Spring, Clutch	2	
18	YS-2071	Key, Clutch		1
19	PM-135	Lockwasher		2
20	PM-134	Locknut		2
21	YS-2062	Cover, Gear Case		1
22	PS-124	Screw, Socket H'd. Cap 10-24 x 1 1/2 lg.		6
23	YS-2213	3/8" Pitch Sprocket Standard		1
24	PN-308	Locknut		1
25	PS-125	Screw, Socket H'd. Cap 10-24 x 3/4 lg.		2
26	YS-2087	Auxiliary Spike (Chain Tension) Assembly		1
		Consisting of :	Qty.	
27	YS-2091	Bracket, Tension	1	
28	YS-2068	Auxiliary Spike	1	
29	YS-2093	Thrust Collar	1	
30	YS-2092	Screw, Tension	1	
31	PN-103	Nut, 3/8-16 Standard		2
32	YS-2065	Stud		2
33	YS-2030	Spike Bumper		1
34	PW-210	Lockwasher, Shakeproof #1210-00		4
35	PS-318	Screw, Rd. H'd. 10-24 x 5/8 lg.		4
36	PM-132	Grease Seal		1
37	PB-110	Ball Bearing		1
38	YS-2003	Gear, Driven		1
39	YS-2066	Shaft, Gear Case		1
40	PS-210	Screw, Flathead 8-32 x 1 1/2 lg.		4
41	YS-2009	Plate, Bearing Cover		1
42	PB-111	Ball Bearing		1
43	YS-2244	Pressure Line (Crankcase)		1
44	YS-2242	Special Fitting		1
45	YS-2243	Bypass Line		1
46	PS-313	Screw, 8-32 x 1 1/2" Rd. H'd.		2

CAUTION: When ordering, include serial number of saw, part number, part name and quantity desired.

ENGINE MODEL AH47 — TYPE 1024

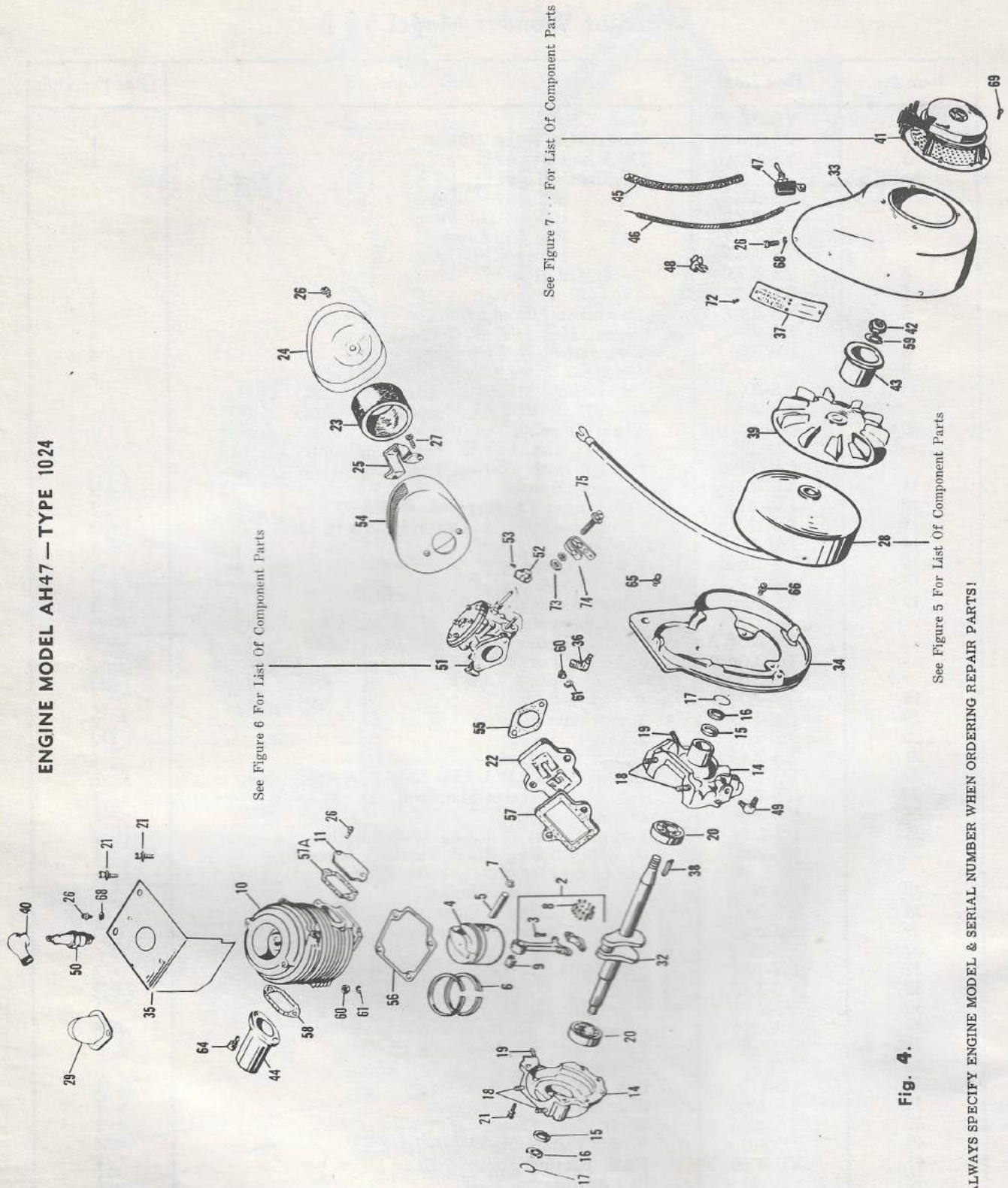


Fig. 4.

ALWAYS SPECIFY ENGINE MODEL & SERIAL NUMBER WHEN ORDERING REPAIR PARTS!

ENGINE MODEL AH47—TYPE 1024

PARTS LIST

Ref. No.	Part No.	Part Name	Qty.	Ref. No.	Part No.	Part Name	Qty.
2	005-06	Connecting Rod Asbly. Complete	1	40	1098	Spark Plug Cover	1
3	1007-02	Connecting Rod Screws	2	41	S-1282	Rewind Starter	1
4	1015-15	Piston	1	42	S-1128	7/16-20 Hex Nut	1
5	1016-03	Piston Pin	1	43	1133-06	Rewind Starter Cup	1
6	1017-09	Piston Rings	2	44	1058-15	Muffler	1
7	1119	Piston Pin Retaining Rings	2	45	1136	Cut-off Wire Sleeve	1
8	Q4212	Needle Bearings	30	46	3066-01	Ignition Cut-off Wire	1
9	B-68	Piston Pin Bearing	1	47	3084-02	Stop Switch	1
10	010-29	Cylinder	1	48	49425	Cable Fastener	1
11	1064-01	Transfer Port Cover	1	49	4042-07	Crankcase Pressure Line Elbow	1
14	020-21	Crankcase Asbly. Complete	1	50	S-1262	Spark Plug	1
15	1002	Crankcase Seals	2	51	H-12A	Carburetor	1
16	1003	Crankshaft Seal Retainers	2	52	08612	Carburetor Dial Knob	1
17	1004	Crankshaft Seal Retainer Spring	2	53	06969	Carburetor Dial Knob Set Screw	1
18	1022	Cylinder Studs	4	54	YS-2218	Air Filter Base	1
19	1031	Carburetor Studs	2	—	S-1276	Gasket Set	1
20	3203	Ball Bearings	2	55	1009	Carburetor Gasket	1
21	S-1114	10-24 x 5/8 Fil. Hd. Sems Screw	8	56	1012-04	Cylinder Gasket	1
22	026-04	Reed Plate Asbly.	1	57	1027	Reed Plate Gasket	1
23	1029	Air Filter Element	1	57A	1065-02	Transfer Port Cover Gasket	1
24	YS-2209	Air Filter Cover	1	58	3014-02	Cylinder Exhaust Gasket	1
25	1077	Air Filter Bracket	1	59	S-1206	7/16 Lockwasher	1
26	S-1115	10-24 x 1/2 Fil. Hd. Sems Screw	9	60	PN-102	1/4-20 Hex Nuts	6
27	S-1125	8-32 x 1/2 Fil. Hd. Sems Screw	2	61	PW-204	1/4 Lockwashers	6
28	F-1325D	Magneto	1	64	S-1142	1/4-20 x 3/4 Fil. Hd. Sems Screw	2
29	YS-2013	Shield—Spark Plug Protection	1	65	S-1191	1/4-20 x 1/2 lg. Fil. Hd. Sems Screw	4
32	1001-20	Crankshaft	1	66	S-1119	1/4-20 x 5/8 Fil. Hd. Sems Screw	4
33	1018-23	Air Shroud	1	68	PW-108	#10 Flatwashers	6
34	1019-12	Shroud Base	1	69	S-1283	10-32 x 1/2 Rd. Hd. Sems Screw	4
35	1023-04	Cylinder Shroud	1	72	S-1259	6 x 3/8 Drive Screws	2
36	1042-05	Fuel Line Elbow	1	73	PN-108	8-32 Nut	1
37	1057-03	Name Plate	1	74	3105	Throttle Shaft—Clampon Lever	1
38	4062	Flywheel Key	1	75	3105-03	Screw Fil. Hd. Sems—8-32 x 5/8	1
39	1053	Flywheel Fan	1				

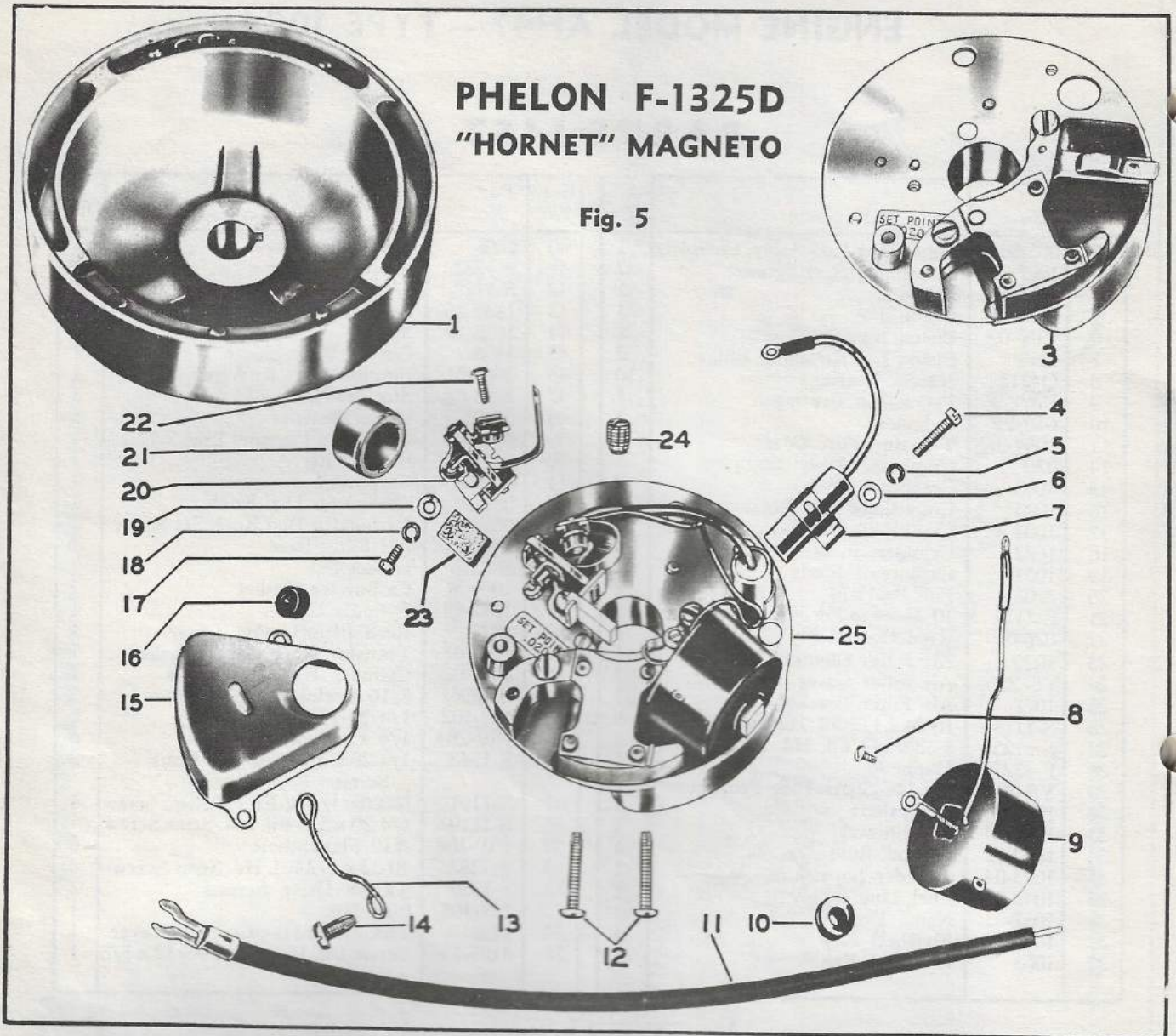
WARNING - Order By Part Number - Do Not Use Illustration Reference Numbers

Ask your Dealer for parts and prices — Parts normally sold only through Dealer.

ALWAYS SPECIFY ENGINE MODEL & SERIAL NUMBER WHEN ORDERING REPAIR PARTS!

PHELON F-1325D "HORNET" MAGNETO

Fig. 5



Ref. No.	Part No.	Part Name	Qty. Per Unit
1	FG-1442	Flywheel	1
3	FG-1453B	Stator & Core Machined (includes magnet)	1
4	F-1356	Condenser Screw	1
5	F-147C	Condenser Screw Lock Washer	1
6	F-247	Condenser Screw Plain Washer	1
7	FG-1355	Condenser Assembly	1
8	F-422	Ground Terminal Screw	1
9	FG-420B	Coil Assembly	1
10	F-128	Grommet (Lead Wire)	1
11	FG-862	Lead Wire Group	1
12	F-1404	Core Screws	2
13	F-1363	Dust Cover Clamp	1

Ref. No.	Part No.	Part Name	Qty. Per Unit
14	F-1402	Clamp Screw	1
15	F-1324	Dust Cover	1
16	F-1353	Grommet (Dust Cover)	1
17	F-204	Fixed Contact Screw	1
18	F-147C	Fixed Contact Screw Lock Washer	1
19	F-247	Fixed Contact Screw Plain Washer	1
20	FG-1250	Breaker Point Assembly	1
21	F-1433	Cam	1
22	F-601	Breaker Connection Screw	1
23	F-341A	Cam Felt	1
24	FG-1169	Friction Plug Group	1
25	FG-1456	Stator Plate Assembly (includes magnet)	1

TILLOTSON CARBURETOR MODEL H-12A

ALWAYS SPECIFY ENGINE MODEL
& SERIAL NUMBER WHEN
ORDERING REPAIR PARTS!

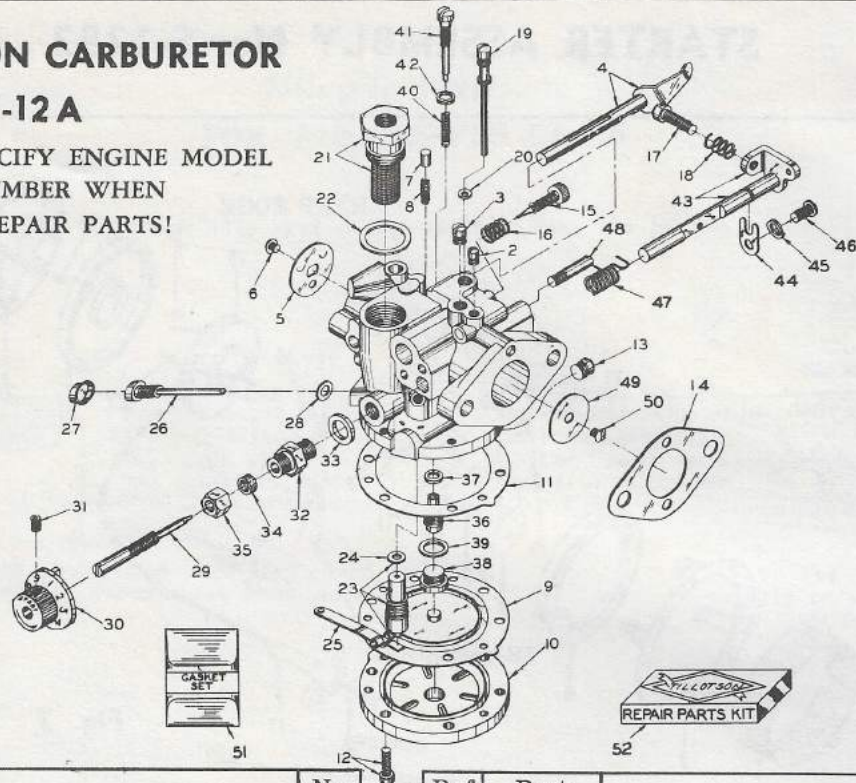


Fig. 6

Ref No.	Part No.	Part Name	No. Req.	Ref. No.	Part No.	Part Name	No. Req.
2	*02232	Body Channel Plug Screw	1	31	06969	Main Adjustment Screw Knob Set Screw	1
3	02983	Body Channel Plug Screw	1	32	0702	Main Adjustment Screw Gland	1
4	09876	Choke Shaft & Lever	1	33	0676	Main Adjustment Screw Gland Gasket	1
5	02405	Choke Shutter	1	34	09112	Main Adjustment Screw Packing	1
6	08942	Choke Shutter Screw	1	35	0703	Main Adjustment Screw Packing Nut	1
7	*05454	Choke Friction Pin	1	36	*09883	Main Nozzle	1
8	*08805	Choke Friction Spring	1	37	06076	Main Nozzle Gasket	1
9	*09698	Diaphragm	1	38	09679	Main Nozzle Channel Plug Screw	1
10	09614	Diaphragm Cover	1	39	09930	Main Nozzle Channel Plug Screw Gasket	1
11	09676	Diaphragm Cover Gasket	1	40	09683	Tension Spring	1
12	09689	Diaphragm Cover Screw & Lockwasher	6	41	010012	Tension Spring Retaining Screw	1
13	02395	Drain Plug Screw	1	42	010004	Tension Spring Retaining Screw Washers	1
14	1009	Flange Gasket	1	43	09878	Throttle Shaft & Stop Lever	1
15	*09697	Idle Adjustment Screw	1	44	*09678	Throttle Shaft Clip Lockwasher	1
16	*08793	Idle Adjustment Screw Spring	1	45	0992	Throttle Shaft Clip Lockwasher	1
17	05095	Idle Speed Control Screw	1	46	01974	Throttle Shaft Clip Screw	1
18	0788	Idle Speed Control Screw Spring	1	47	*09602	Throttle Shaft Return Spring	1
19	*09761	Idle Tube	1	48	04594	Throttle Stop Pin	1
20	07900	Idle Tube Gasket	1	49	08646	Throttle Shutter	1
21	09834	Inlet Connection & Screen	1	50	*08942	Throttle Shutter Screw & Lockwasher	1
22	09681	Inlet Connection Gasket	1	51	*GS-101	GASKET & PACKING SET	1
23	*09776	Inlet Needle, Seat & Gasket	1	52	RK-123	REPAIR PARTS KIT	1
24	02817	Inlet Seat Gasket	1				
25	*09708	Inlet Control Lever	1				
26	*09695	Inlet Control Lever Pinion Screw	1				
27	09884	Inlet Control Lever Pinion Screw Cap	1				
28	0648	Inlet Control Lever Pinion Screw Gasket	1				
29	*09880	Main Adjustment Screw	1				
30	08612	Main Adjustment Screw Knob	1				

*Indicates Contents of Designated Repair Parts Kit

STARTER ASSEMBLY No. S-1282

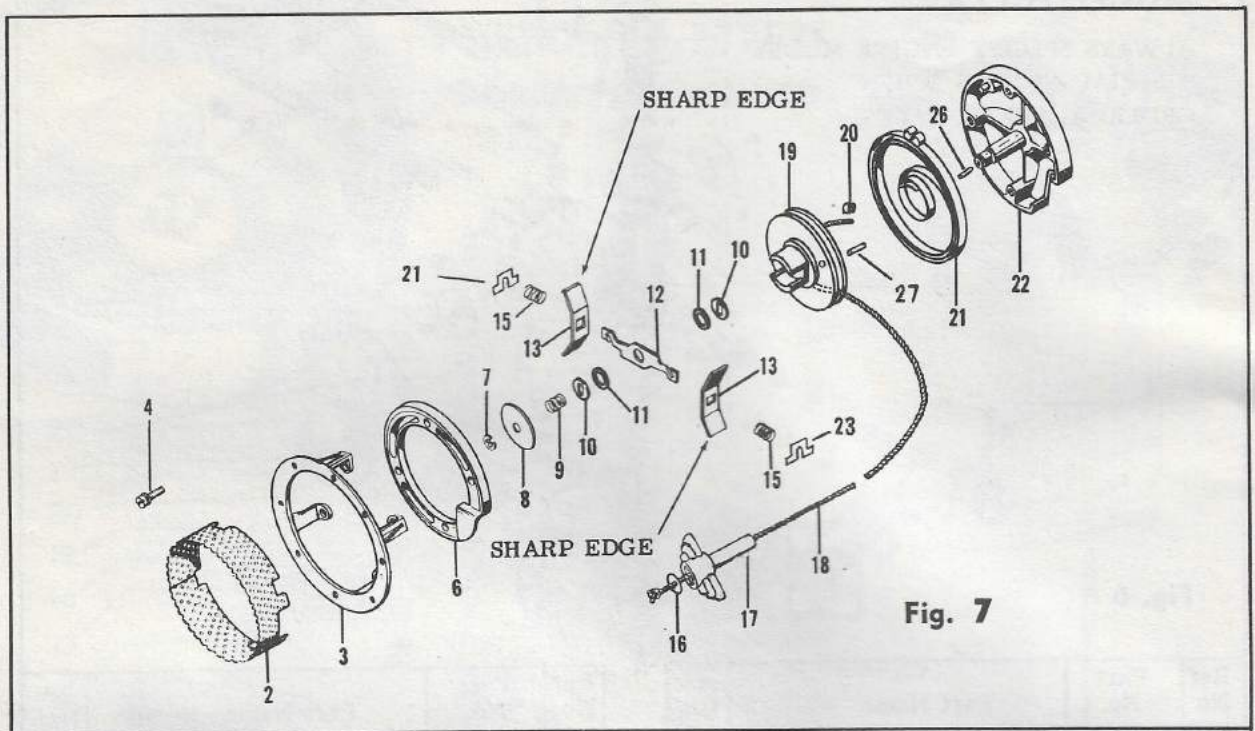


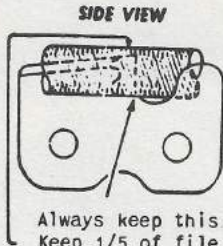
Fig. 7

NOTICE — When reassembling starter unit, the position of sharp edge of item 13 must be as shown on illustration. The position of item 12 must also be as illustrated.

Ref. No.	Part No.	Part Name	No. Req'd.
2	57-1	Screen	1
3	38-5	Flange-Mounting	1
4	23-5	Machine Screw	4
6	38-4	Flange	1
7	29-3	Ring-Retainer	1
8	27-8	Washer-Brake Retainer	1
9	20-3	Spring-Brake	1
10	27-3	Washer-Brake	2
11	27-2	Washer	2
12	16-4	Brake-Lever	1
13	11-71	Plate-Friction Shoe	2
15	20-2	Spring-Friction Shoe	2
16	27-17	Washer-Handle	1
17	44-2	Handle	1
18	40-1	Cord	1
19	13-1	Rotor	1
20	53-2	Clip	1
21	20-1	Spring-Rewind	1
22	51-31	Cover	1
23	11-9	Spring Retainer Plate	2
26	25-9	Pin, Centering	1
27	25-7	Cord Lock Pin	1

Filing Instructions FOR #12 CHIPPER CHAIN

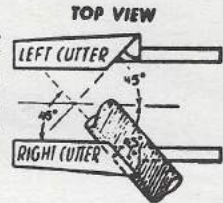
"Your file held in one position does the job"



Use only a 3/16 inch round, straight (not rat-tail) file. Draw long, even strokes. Press firmly back and slightly up. Hold one position.

Always keep this **edge** vertical when viewed from side. Keep 1/5 of file diameter above top plate.

Keep file up. Low filing undercuts side of cutter, causing chain to grab. **Never** use a flat file to sharpen top plate.

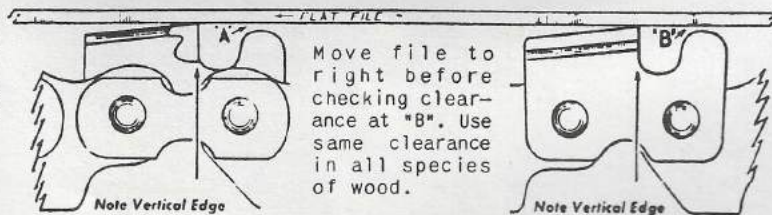


Keep the same 45° angle on both left and right cutters.



Chain Rider Clearance

To check rider clearance place a flat file on two cutters as illustrated...Use a feeler gauge in space "A".



Move file to right before checking clearance at "B". Use same clearance in all species of wood.

Depth gauge clearance should be about .030 inch, or as set at factory.