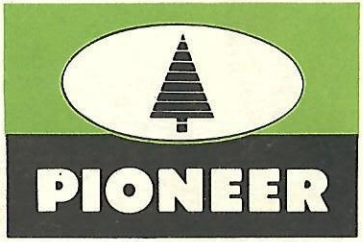
PIONEER

model **750** direct drive chain saw

instruction manual



U.S.A. – GALESBURG, ILLINOIS — CANADA – PETERBOROUGH, ONTARIO

PREPARING YOUR CHAIN SAW FOR USE

It will be necessary to install the pivot grip, cutter bar and chain on the new unit.

1. Remove the strut assembly, special inner guide plate and standard outer guide plate. (Fig. 2)
2. Secure the pivot grip on the front of the crankcase. There are two pivot grips available, customized for your type of timber. (Optional Equipment) See your Pioneer service dealer.
3. Replace the special inner guide plate and the cutter bar on the two mounting studs.
4. Fit the chain on the sprocket and cutter bar. Be sure the cutting teeth are facing in the right direction.
5. Replace the outer guide plate and strut assembly. Be sure the chain adjusting pin is locating through the outer guide plate and the cutter bar. Do not tighten the strut permanently. (Fig. 3)
6. Tighten chain, using adjusting screw Fig. 3, until the chain can be pulled out of the bar about ½". When released it should snap back about ⅛" clearance between the top of the side straps and the bar rail on the lower side.

   "Test tension and alignment by pulling chain along the bar. See Fig. 4."
7. Permanently tighten the two hexagonal nuts which secure the strut and cutter bar.

CAUTION — To ensure correct chain/bar entry, lift up on the tip of the bar before final tightening.

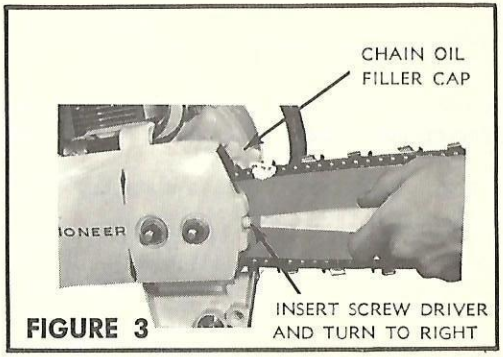


FIGURE 3

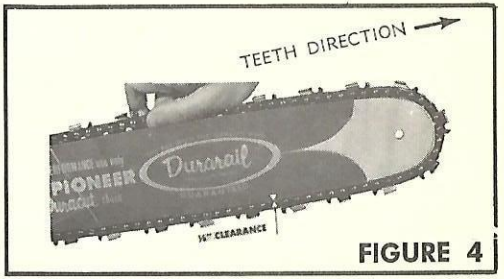


FIGURE 4

FUEL AND LUBRICATION

The lubrication of all internal moving parts depends entirely on the oil which is mixed in the gasoline. Therefore, it is very important to prepare your fuel mix properly. Mix ONE part of S.A.E. 30 - 40 motor oil to SIXTEEN parts of regular gasoline, or a ratio of one pint of oil to two gallons of gasoline.

Mixing Procedure:
Pour one half the amount of the gasoline to be used in a clean container, then add all the oil required. Shake vigorously, then add the balance of the gasoline. Again shake to ensure a thorough mix. DO NOT MIX IN THE SAW FUEL TANK.
Strain the fuel mix through a fine mesh screen to eliminate water or foreign particles, prior to pouring into the saw fuel tank.(figure 5)

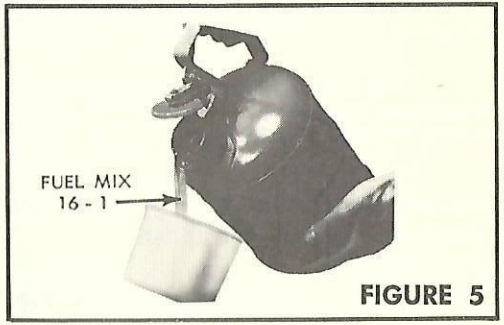


FIGURE 5

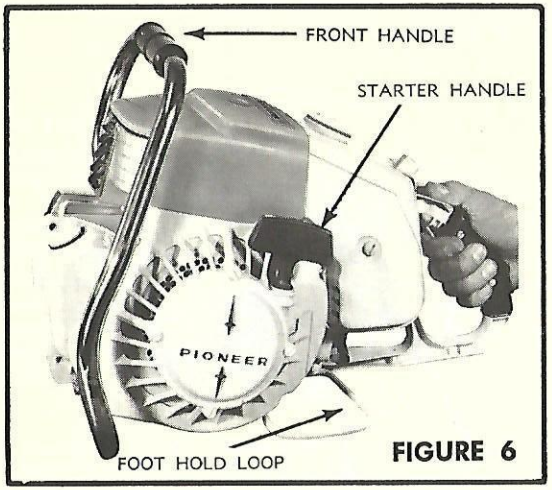


FIGURE 6

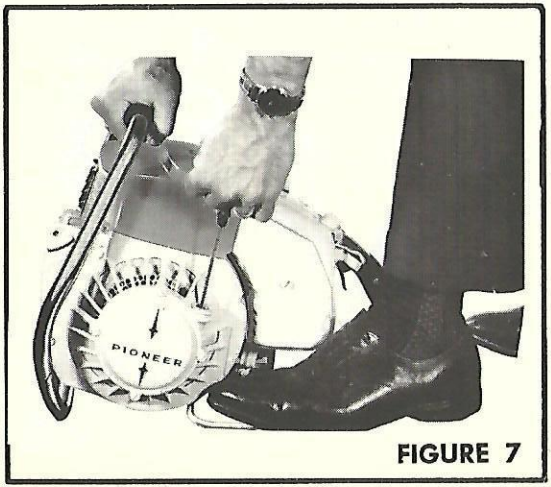


FIGURE 7

CHAIN OIL

Lubrication of the cutting chain is essential to minimize pitch fouling, wear and power loss through friction. Use the chain oiler often — oil is more economical to buy than cutter bars and chain.

Your chain saw is fitted with a manually operated oil pump, drawing its supply from the reservoir. To operate the oiler, simply pump the conveniently located pump oiler lever. Pump the oiler with full deliberate strokes to ensure sufficient oil flow to the cutter bar and chain.

Clean oil is essential. The factory recommends S.A.E. 10 - 20 with penetrating, tacky, rust inhibiting, non-soluble in water, extreme pressure qualities. Good clean oil is a must. Less tacky oil could be thrown off the end of the cutter bar before accomplishing full lubrication. The weight of the oil used is dependent on the season and the type of timber being cut.

STARTING INSTRUCTIONS

1. Fill the fuel tank with thoroughly mixed 16:1 fuel.
2. Fill the chain oil reservoir.
3. Place the saw in a convenient position where it will sit squarely and firmly while the starter rope is being pulled.
4. Open the fuel shut-off valve.
5. Pump primer to fill fuel system.
6. Prime the saw with fuel by pumping the primer button 2 — 3 times, after resistance is felt.
7. Slide the ignition switch on the control panel to the ON position. (Fig. 6)
8. Take a firm hold on the top of the front handlebar.
9. Grip the starter handle and place your foot firmly on the foothold loop. (Fig. 7)
10. Engage the starter pawls and give the starter firm sharp pulls.
11. When the engine starts, lightly squeeze the throttle trigger to maintain a fast idle for warm-up. When the engine is cold it may require an extra prime or two before the carburetor is operational. During the warm-up on fast idle, the chain will revolve — pump the chain oiler often to ensure thorough lubrication.
12. Check the General Information section for important information on chain break-in and tensioning.

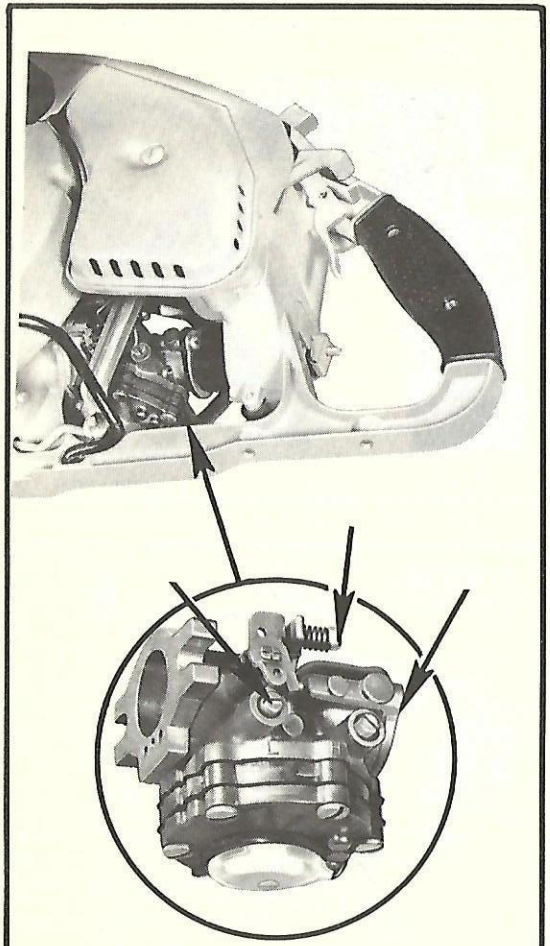


FIGURE 8

STARTING INSTRUCTIONS (Cont'd.)

13. After warm-up, to obtain peak performance, it may be necessary to vary the carburetor adjustments SLIGHTLY. Weather conditions, altitude, etc., all affect carburetion to some degree. Adjust the low speed setting to obtain a smooth, even idle. Adjust the speed of idle by adjusting the throttle stop idle screw. High speed adjustment must be done while the saw is under load at full throttle. Adjust for maximum power by sound and feel. Please refer to the "Carburetor Adjustment" section for further information.
14. Again, we stress treating your new saw with care during break-in:—
    (a) Warm up the engine before starting to cut.
    (b) Use full throttle while cutting.
    (c) Do NOT race the engine when cutting smaller timber or when starting and finishing a cut.

NOTE—A warm engine will start without priming. Do not over-prime and flood the engine. A flooded engine may take 5—6 pulls to clear and restart.

CARBURETOR ADJUSTMENTS

All carburetors on Pioneer chain saws are tested and adjusted at the factory. Very little re-adjustment, if any, is required. Before any adjustment is made, note the present position of the needle and move only slightly in the direction felt necessary (figure 8). Excessive smoking, lack of power and an irritating rough exhaust noise indicate the fuel mixture adjustments are set too RICH. Sluggish acceleration, lack of power and stalling in the cut indicate the carburetor fuel mixture adjustments are too LEAN.

NOTE—ONLY when the above conditions are noted should the carburetor adjustments be reset.

1. The idle speed adjusting screw (indicated) controls the engine idling speed and should be set so that the engine will idle without the chain revolving.
2. The low speed adjustment (marked "L") controls the fuel mixture at idling speed. This should be set so the warm engine idles smoothly and evenly. Setting - Approximately ¾ turn open.
3. The high speed adjustment (marked "H") controls the fuel mixture at full throttle. The high speed adjustment MUST be set with the unit at full throttle and cutting wood.
   Setting—Approximately ¾ turn open.

CAUTION—Do not close the adjustment needles too tightly and damage the needle seat in the casting.

Do not hold throttle fully open when not cutting wood; adjust carburetor when cutting; close throttle between cuts.

OPERATING INSTRUCTIONS

designed to operate between 5000 and 7500 RPM for peak efficiency and safety.

Excessively high RPM attained by lean carburetor setting can be detrimental to the life and efficiency of your chain saw. This is more critical in the case of small timber and pulp cutting. We recommend that your carburetor be adjusted to the settings referred to under 'Carburetor Adjustments'.

Using your saw as recommended will give you more production, low maintenance cost and guarantee safe operation which cannot be obtained with carburetor adjustment settings that will not give the maximum engine performance and allow excessively high, unsafe RPM engine speeds.

If you have never operated a chain saw, carefully prepare the unit as previously suggested, then cut a few lengths from a small log to get the feel of the saw in operation. When starting the cut, do not race the engine and ram the saw into the wood. Secure the tips of the pivot grip in the log and raise the rear handle as you slowly increase the throttle to engage the chain.

Your direct drive unit will not require you to exert pressure to force the saw through the cut. You will realize, after a few cuts, that a firm, even pressure will cut more wood with less effort. Be prepared to release the throttle immediately the cut is finished. This will prevent the engine racing with no load.

Be generous with chain oil. Check the oil reservoir regularly. In pitchy wood or cold weather many operators have found thinning the chain oil with kerosene helps the oil to flow more freely and reduce fouling of the chain by wood resin.

FALLING AND BUCKING

Although there are many varied methods applied in the field, we will simply illustrate only a few of the more common methods of falling, bucking and limbing.

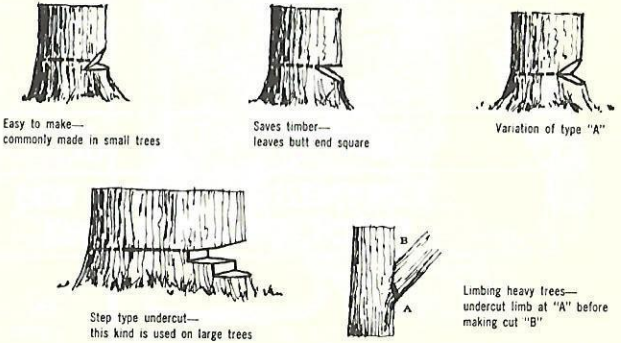


FIGURE 9

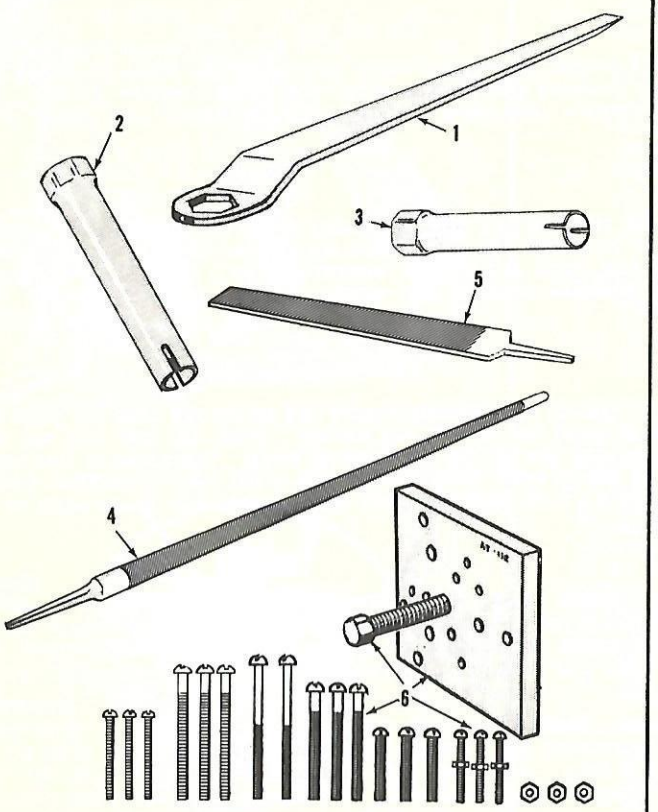


FIGURE 10

PRIMER PUMP INSTRUCTIONS

1. Your Pioneer chain saw is equipped with a primer pump. The manual choke system has been eliminated.
2. On a saw with a completely dry fuel system, pump the primer button to fill the fuel pickup line, fuel filter system and the fuel lines to the carburetor and primer pump.
3. When the fuel system is completely primed and free of air, a resistance will be felt. An additional 2 — 3 pumps (after feeling resistance) will prime the crankcase ready for starting.
4. Use the primer as you would a manual choke; that is, if the engine starts, then falters, give an extra prime or two until the engine draws the correct mixture through the carburetor.
5. A hot engine should restart without priming.
6. If a hot engine, which is not flooded, fails to restart, a single pump of the primer should ease starting. A few trial pulls will indicate whether the engine is flooded or not.
7. Do not over-prime. A flooded engine may take 5 — 6 pulls to clear and start.

RECOMMENDED TOOLS FOR FIELD MAINTENANCE

Item No.	Part No.	Description
1	425580	½" wrench Screw driver
2	425733	Spark Plug wrench
3	426991	7/16" deep wrench
4	425598	7/32"full round file
5	426992	Smooth edge flat jointing file
6	471141	Puller set

SUGGESTED EXTRA TOOLS

7/16" open end wrench
wire feeler gauge .020".

PREVENTIVE MAINTENANCE

'Preventive Maintenance' is the elimination of potential causes of trouble before they occur. To realize the full value of your investment, prevent unnecessary repair bills and loss of use or "down" time, make preventive maintenance a MUST. Set up a regular schedule of inspections and tune-ups.

1. Air Cleaner:
The air cleaner, located on the side of the rear handle assembly, filters the air entering the carburetor. The dust and grit should be cleaned regularly from the flock screen filter element daily under certain extreme conditions. The air cleaner is easily serviced. By removing one centrally located ¼—20 screw, the filter element may be removed and washed in clean gasoline or solvent. This is preferable to washing in fuel mix. The mix leaves a sticky film of oil which necessitates more frequent cleaning. The filter element may be tapped lightly to dry it. It is recommended the area behind the filter element be wiped clean of accumulated dirt and sawdust. (Fig. 11)

2. Cylinder Block and Head Fins:
At least once a week, remove the outer shroud and inner shroud. This will expose the power head. With a thin blade type tool, clean any accumulated dust and chips from between the fins. Clogged fins impair the passage of cooling air from the flywheel and causes the engine to overheat.

3. Exhaust Ports:
Occasionally remove the exhaust muffler by removing the two 7/16" nuts. Rotate the crankshaft until the piston is clear of the exposed exhaust ports. With a blunt edged tool, carefully scrape away any carbon build-up present in both the exhaust port openings and the muffler flange opening. Replace the muffler gasket if necessary. (Fig. 12)

4. Ignition:
Check the high tension and ignition switch wires for breaks or wear.

5. Spark Plug: J-8-J
Check for carbon, fouling and porcelain cracks. Keep the spark plug clean and maintain the proper electrode gap of .025".

6. Magneto:
Do not inspect or adjust the magneto unless absolutely necessary. The appearance of the spark arcing from the spark plug electrode will indicate magneto condition. The breaker point gap should be .020" when the rocker arm is riding the highest point on the cam. If the magneto is serviced, the parts must be replaced in the same location with the correct settings. It is recommended that a local Pioneer dealer service the magneto when required. (Fig. 13)

FIGURE 11

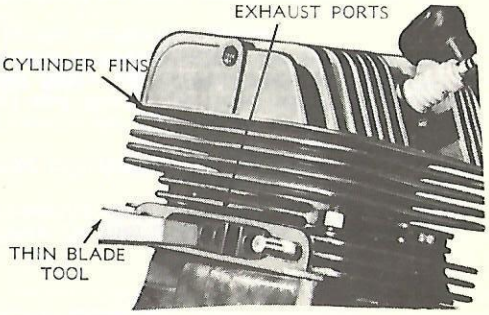


FIGURE 12

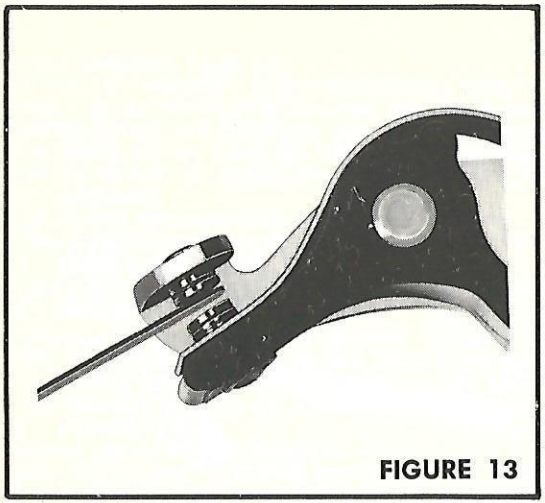


FIGURE 13

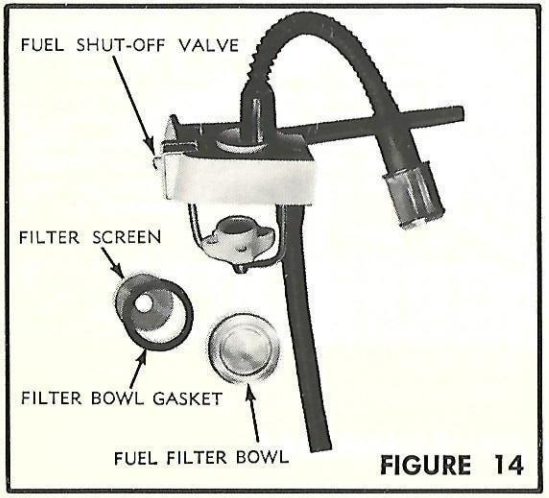


FIGURE 14

PREVENTIVE MAINTENANCE (Cont'd.)

7. Carburetor

Remove the fuel pump valve housing. Clean the fuel pump valves of accumulated fine dust and foreign particles. A complete inspection and overhaul should be performed by your servicing dealer.

CAUTION — Do not screw in the carburetor adjustments too tightly; a damaged needle seat can be costly to repair.

WARNING — When reinstalling the fuel line to the carburetor, care must be taken to ensure that the fuel line is free of all dirt and foreign particles which, if present, will immediately cause malfunction of the fuel pump valves. This **PIONEER** carburetor has an integral filter screen. The fuel is filtered before it enters the fuel line by the screen in the sediment bowl, then filtered by the carburetor screen.

8. Fuel Filter:

Periodically remove the fuel filter bowl and clean out accumulated sediment and trapped moisture. Remove and clean the filter outlet screen. Be sure the filter bowl gasket is correctly located before tightening the filter bowl clamp. (Fig. 14)

9. Clutch:

The clutch is automatic-designed to engage at a specific engine speed. Do not slip and wear the clutch by overloading. Release the throttle immediately if the chain becomes pinched.

10. Sprocket:

The sprocket is external to the clutch drum for easy servicing.

11. Cutter Bar

Make sure the cutter bar grooves are clean at all times. The lubricating oil enters the grooves through the side oil vent and is picked up by the moving chain. Check for cutter bar rail wear at regular intervals. Make a practice of turning the bar over to ensure the rail wear is even on both sides. Should a sharp edge develop on the rail, it may be removed with a flat file.

12. Primer Pump

The primer pump requires very little servicing. However, if dirt enters the inlet valve, or exit valve, it must be removed and carefully cleaned. Dirt particles in the inlet valve will be indicated by a lack of resistance when pressing the primer button. Dirt present in the exit valve will be indicated by a noticeably rich idle and a smoking condition caused by fuel leaking past the exit valve and entering the crankcase. A preventive measure would be to ensure a thoroughly clean fuel mix and careful refueling procedure.

SERVICE DIAGNOSIS

TROUBLE	PROBABLE CAUSE	REMEDY
Motor fails to Start.	Fuel tank empty.	Fill with correct fuel mixture.
	Fuel shut-off valve closed.	Open shut-off valve.
	Motor not primed.	Pump primer button 2 - 3 times after resistance is felt.
	Carburetor.	See carburetor adjustment.
	Over-priming.	Open throttle and pull starter until motor fires.
	Flooded Engine.	If motor is continually flooding, check for plugged air filter and dirt in the carburetor inlet needle and seat.
	Dirt in primer pump inlet or outlet valve.	Remove and clean primer pump valves.
	Spark Plug.	Remove plug, clean and adjust. Re-attach wire and hold metal seat of plug against motor. Pull starter. A blue spark should jump gap between electrodes.
	Magneto.	Disconnect wire from spark plug. Hold so metal end is ¼" from clean metal surface. (Away from gas tank) Pull starter. There should be a strong blue spark across the gap. If no spark, the trouble is breaker points, coil, condenser, shorted wire, or switch.
	*Plugged or frost covered pickup in fuel tank.	Remove and clean. Check for ice, water and dirt in fuel filter screen.
	*Plugged impulse hole in carburetor, misaligned carburetor gasket or reed valve gasket.	Remove and clean. Check for ice, water and dirt in fuel filter screen.
	*Frozen gas line or ice in filter or carburetor.	Remove and clean. De-ice additive used in prescribed proportion will counteract this. (One teaspoonfull to a full tank of fuel.)

* Conditions which may be experienced during cold weather operation.

SERVICE DIAGNOSIS (Cont'd.)

TROUBLE	PROBABLE CAUSE	REMEDY
Motor cuts out, leans out, or Misfires.	Short circuit in ignition system.	Check all wires and connections.
	Partial stoppage in fuel system.	Clean out carefully and check carburetor.
	Fouled, wet or damaged spark plug.	Clean and adjust, or replace.
	Magneto: Faulty breaker points, coil, condenser, ignition wire or connection.	Check.
	Inlet control lever sticking on the control lever hindge pin.	Remove and clean inlet lever and hinge pin, or replace.
	Improper sequence of fuel pump diaphragm and gasket.	Fuel pump gasket must be next to fuel pump valve housing.
	Dirt in fuel lines or carburetor passages.	Check and clean.
	Air leak in fuel lines.	Replace.
	**Improper inlet lever setting.	Adjust.
	Fouled spark plug.	Clean and gap, or replace.
Motor lacks Power.	Incorrect Fuel Mixture.	Drain tank, refill with correct mixture.
	Carburetor out of adjustment.	Adjust carburetor.
	Exhaust ports or muffler clogged.	Clean.
	Air Intake Filter Clogged	Clean.
	Poor compression.	See your servicing dealer.
Motor Overheats.	Cylinder fins or air system clogged.	Clean.
	Incorrect fuel mixture.	Drain tank, refill with correct mixture.
	Carburetor lean.	Adjust.
	Leaking cylinder or base gaskets.	Check and replace if necessary.
Chain Stalls In Cut.	Clutch slipping.	Check clutch shoes. If worn, replace.
	Improper filing or jointing.	Check filing and jointing instructions or see your servicing dealer.
	Cutter bar and chain pinched in log.	Use wedge if necessary to open cut wider to free bar & chain.
Chain moves when throttle is Closed.	Idling speed too fast.	Adjust idle speed.

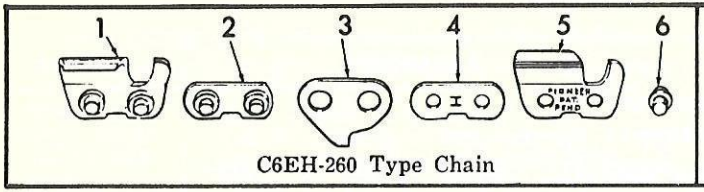
** Inlet Needle Lever Adjustment: The correct lever setting is level with the face of the diaphragm chamber. Adjust short part of the lever to obtain correct setting. Do not jamb the needle into the seat.

SERVICE DIAGNOSIS (Cont'd.)

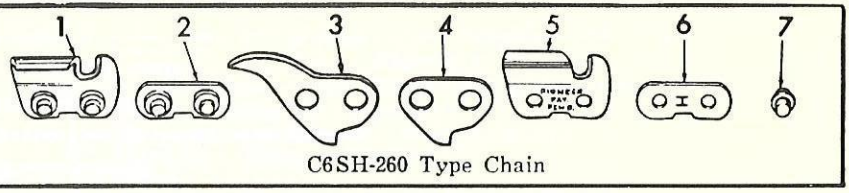
TROUBLE	PROBABLE CAUSE	REMEDY
Chain Cuts Roughly or Digs In.	Top and front angles on cutters incorrectly filed. Too much joint.	Check filing jointing instructions, or see your servicing dealer.
Chain Oiler Stops Pumping	Dirt in pump assembly or discharge vent.	Remove and clean pump and feed line. Fill with clean oil. (S.A.E. 10 or 20).

NOTE: If motor idling is erratic or races away and then drops, it may indicate the possibility of excess air entering the crankcase. If this condition exists, the motor would continue to idle with the idle stop screw backed completely off.

Check the following points:
(1) Cocked throttle shutter.
(2) Leaking carburetor or reed valve gaskets.
(3) Loose carburetor nuts.
(4) Leaking crankshaft seals.



C6EH-260 Type Chain



C6SH-260 Type Chain

ALWAYS USE GENUINE PIONEER BARS AND CHAINS

We have two types of chain available for your chain saw.

1. General Purpose - C6EH-260. Recommended for use where the length of the cutter bar is greater than the diameter of the timber being cut.

PIONEER SURE GUARD

2. Recommended for high production pulp areas. A smooth, fast cutting chain which greatly reduces kick back and grabbing.

Ref. No.	Part No. C6EH 260	Description
1	470831	Preset R. H. Cutter
2	470303	Preset Side Link
3	425248	Centre Link
4	425286	Side Link
5	426937	L. H. Cutter
6	425345	Rivet
	470823	Spares Kit
	426949	Chain Carton (Only)

Ref. No.	Part No. C6SH 260	Description
1	470831	Preset R. H. Cutter
2	470303	Preset Side Link
3	427386	Sure Guard Centre Link
4	425248	Centre Link
5	426937	L. H. Cutter
6	425286	Side Link
7	425345	Rivet
	471208	Spares Kit
	427522	Chain Carton (Only)

CUTTER BARS		CHAIN		
Part No.	Length	C6EH	C6SH	Length
470060	16"	470816	470806	16"
471320	20"	470817	470807	20"
471321	24"	470818	470808	24"
470063	28"	470819		
470064	32"	470820		
471149	36"	471153		
471150	42"	471154		

*Cutting chains of comparable length are available from your dealer.

Can. Pat. 1950 - 1955; U.S. Pat. 24,129; 2,508,784; 2,622,636

7 PIONEER DURACUT CHAIN SHARPENING AND JOINTING 7

CHAIN SHARPENING

Tighten the chain firmly on the cutter bar to hold it securely. When sharpening, take a firm grip on the file and use a steady even stroke. Do not swing the file during the stroke. Keep a constant cutting angle on all teeth. Make sure the file is bearing against the under side of the top face. (Fig. 18)

Keeping one fifth of the diameter of the file above the top cutting edge of the tooth will ensure a hollow ground cutting edge. This edge will cut fast and hold sharp longer. Don't file back any more metal than necessary to give a sharp cutting edge. (Fig. 16)

Be sure to use a sharp file. A dull file will work harden the already heat treated steel alloy and make it virtually impossible to sharpen the next time. Use only a sharp 7/32" full round file. Keep all the cutting teeth the same length. If the cutting teeth are an uneven length, the longer teeth will bite deeper and cause the saw to cut in an arc.

When you have finished sharpening the chain, slack off to the recommended tension and run it with an excessive amount of oil to clear the filings from the cutter bar groove.

NOTE

Filing with the tooth, to maintain the approximate 30 degree angle from the vertical as illustrated in Figure 17A hold the file approximately 5 degrees from horizontal, with the handle low. "As in the case of jointing: Factory recommendation for general purpose calls for the 5° from the horizontal when filing. Various types of wood and cutting conditions may necessitate the operator lowering the file handle an additional 5°. This should only be changed after testing or on recommendation from your Pioneer dealer, (Figure 17)."

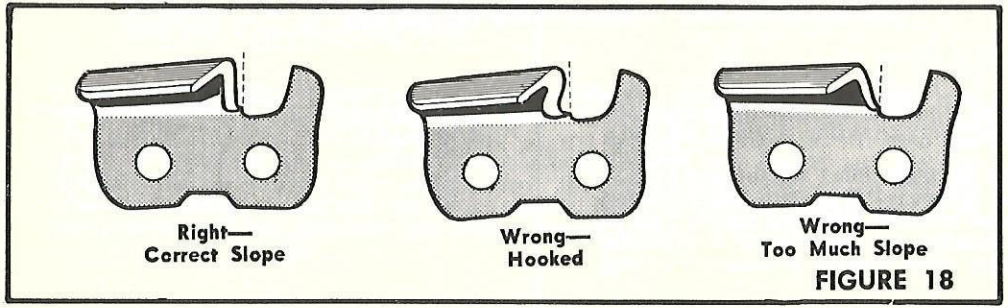


FIGURE 18

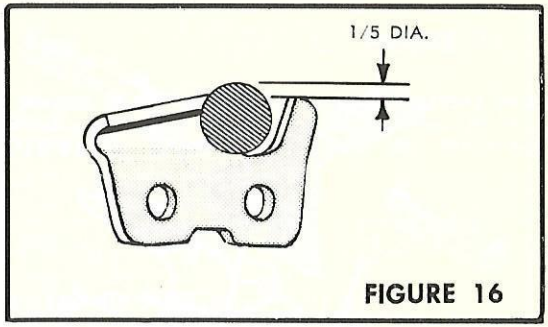


FIGURE 16

FIGURE 17

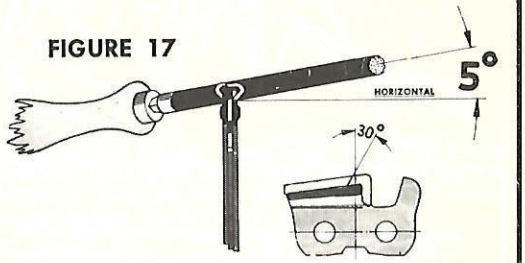


FIGURE 17-A

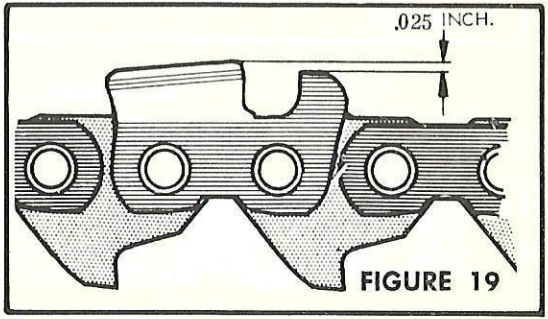


FIGURE 19

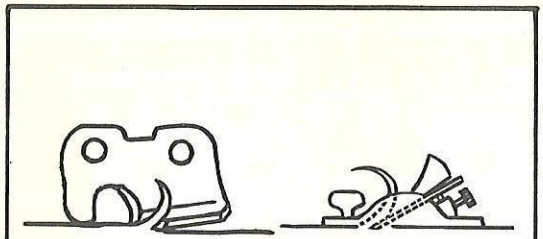


FIGURE 20 A

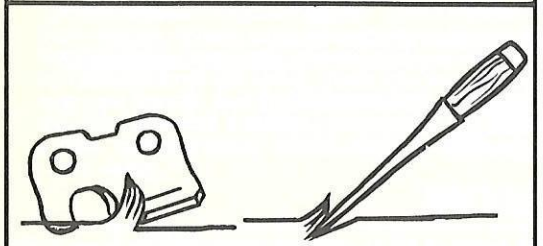


FIGURE 20 B

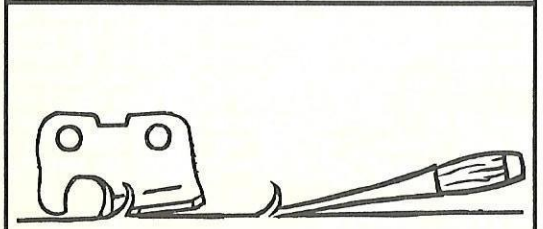


FIGURE 20 C

CHAIN TENSION

The importance of correct chain tension cannot be over-stressed. Check carefully the instructions given under the 'General instructions' section. PARTICULAR CARE must be used during the chain break-in period.
Correct chain tension is especially important with cutter bar lengths of 32 inches and over to prevent the chain jumping off the bar and damaging the chain, cutter bar and sprocket.
When the chain is correctly filed, jointed, tensioned and lubricated, it will cut smoothly and efficiently with the minimum of wear and effort.

CORRECT JOINT AND CUTTING ACTION

Maintain recommended depth of .025" on the depth gauge. (Fig. 19)
Check your joint regularly. Make a practice of jointing your chain after every second filing. This will result in a fast cutting, smooth operating chain with less effort on your part. Visualize your cutters as a properly adjusted planer blade with all depth gauges jointed evenly. (Fig. 20A)

EXCESSIVE JOINT:
Lack of care in jointing may result in excessive or uneven joint. This will cause the cutters to bite in, chain will grab, resulting in overloading of attachments, poor performance and damage to both chain and bar. (Figure 20B)

INSUFFICIENT JOINT:
FAILING TO CHECK OR JOINT REGULARLY. Cutters cannot bite into the wood, chain will not cut efficiently or to capacity. This will require extra pressure on your part, resulting in excessive wear to the bottom of the cutters and links, plus rapid wear to the cutter bar rails. (Figure 20C)

JOINTING

The chain is precision ground at the factory and has a standard joint of .025". Tests have indicated the .025" joint clearance is the best for average conditions. To suit particular cutting conditions, however, the joint can be altered, provided the joint height is kept uniform for all jointers. If you change the joint, use Gauge No. 471135 (available from your service dealer) to help you maintain uniform joint heights. A chain may be easily damaged or become severely worn by over filing. When filing the jointer runners, be sure and maintain the rounded corners. Not rounding the corners will cause rough cutting and a tendency to cut out of line.(Fig. 23)

Two Methods in General Use

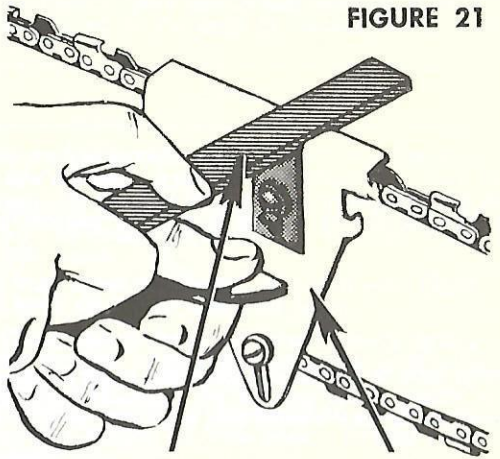
1. Use Jointing Gauge No. 471135 for simple and accurate jointing. First preset the adjustable plate, using the feeler gauge supplied, to the recommended joint. Next, place jointing tool on top of the chain with the depth gauge protruding through the slot in the jointing plate and resting on the two cutters near the centre of the bar. Using a flat file, file the depth gauge to the level of the jointing tool plate. (Fig. 21)

WARNING

Always work near the centre of the bar and move the chain each time, NOT the tool. This is necessary due to the contour of all cutter bars. To operate your jointing tool at various positions could give an uneven joint and a rough cutting chain.

2. If the above mentioned jointing tool is not available, place a straight edge, long enough to cover at least six cutters, on top of the chain. Next, check the existing joint with a standard .025" feeler gauge. If you cannot insert the feeler, give one stroke of a flat file and re-check. When correctly jointed, you should just feel the drag between the straight edge and the top of the depth gauge. Repeat this step for each depth gauge throughout the entire chain. This method of jointing chains is much slower and less accurate than with a proper jointing tool. (Fig. 22)

FIGURE 21



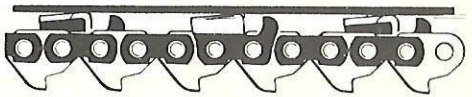
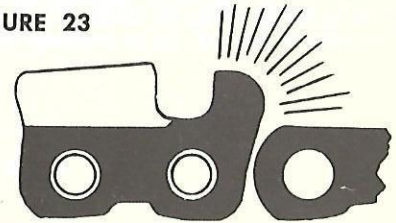


FIGURE 22

FIGURE 23



BAR AND CHAIN SERVICING

Tool No. 426235

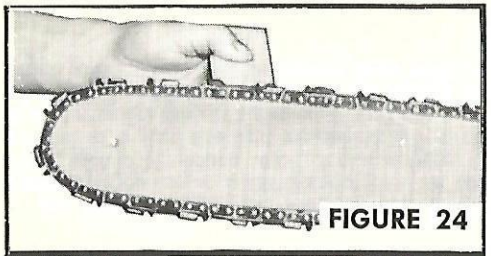


FIGURE 24

1. We recommend the use of the die cut corner, sheared at 35° for the maintaining of correct top angle on all cutters. This important feature on chain filing is outlined in all chain instruction pieces and the Operator's Manual. (Fig. 24)

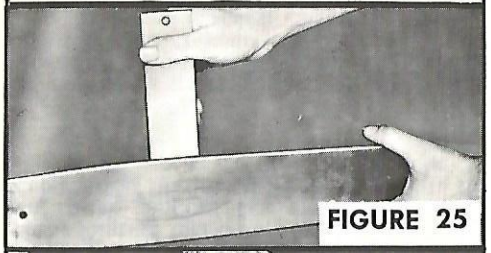


FIGURE 25

2. Front end of the cutter bar tool is marked to indicate the minimum safety depth of the bar groove to avoid the chain drive lugs riding on the bottom of the groove causing extensive chain and bar damage. (Fig. 25)

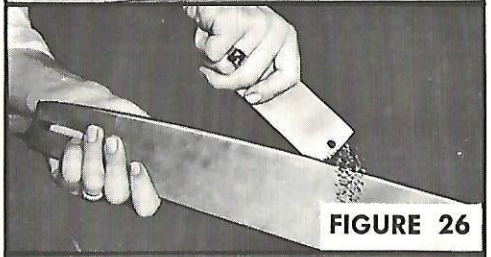


FIGURE 26

3. By using either of the sharp corners of this tool, the bar groove can be cleaned regularly. The removal of the accumulated sawdust, old oil and chain filings will overcome the common fault of a chain riding up in the groove resulting in both chain weave and breakage. (Fig. 26)

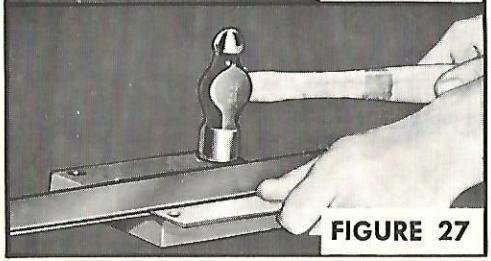


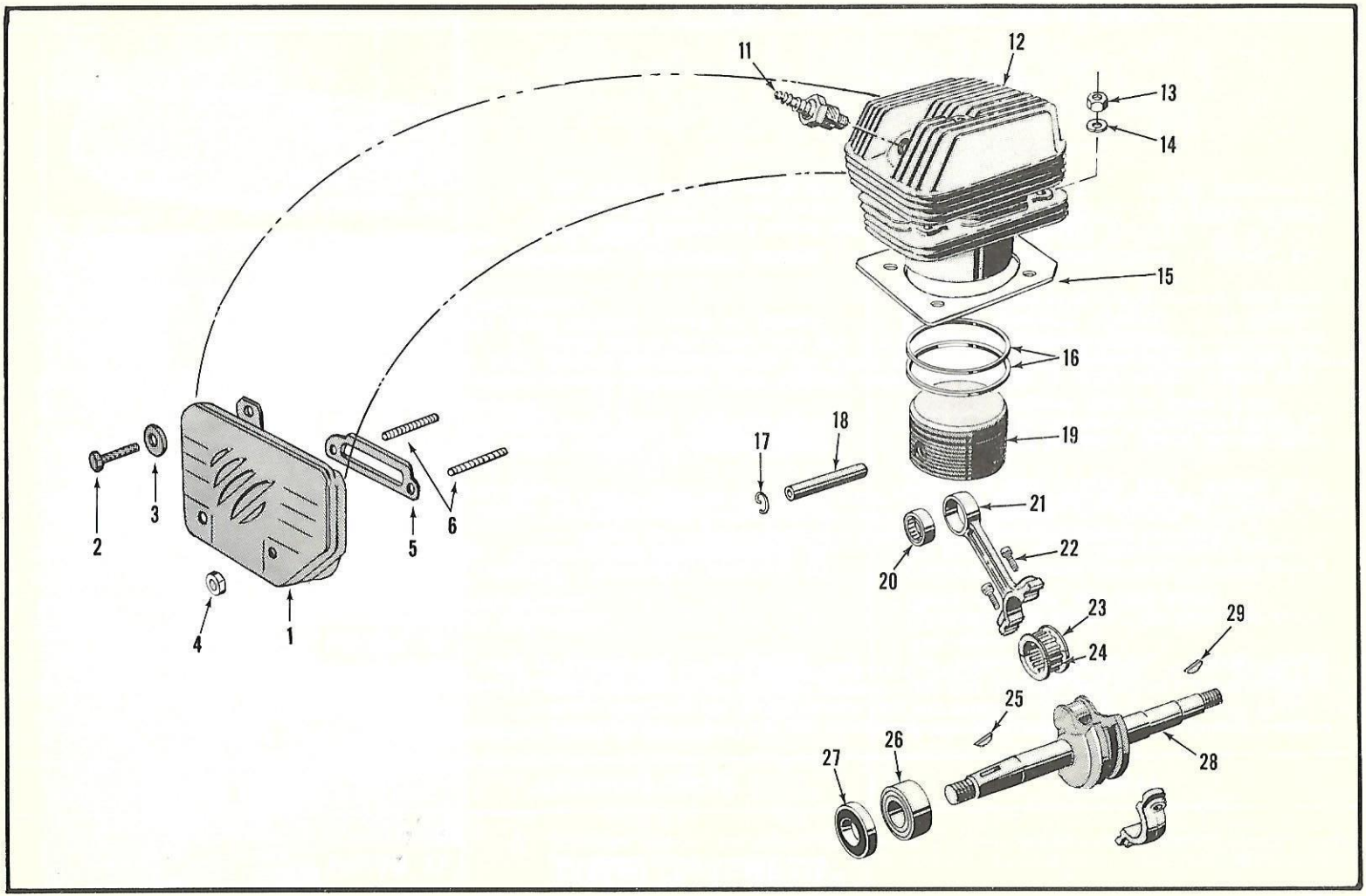
FIGURE 27

4. To carry out minor repairs such as a pinched bar, enter one corner of the tool in the groove near the pinched section, then tap the tool with a light hammer until the entire length of the gauge enters into the groove. While in this position, lightly tap along the bar rail which will straighten out the pinch and give chain clearance.

5. A further use for the side of this tool is to close up the rails to correct groove width for proper chain performance. This overcomes chain weave and rapid deterioration of both the bar and chain. (Fig. 27)

CHAIN DIAGNOSIS

TROUBLE	PROBABLE CAUSE	REMEDY
Chain Stretched Beyond Adjustment.	Dull cutters. Lack of lubrication.	Remove a side and drive link. Increase lubrication.
Chain Breakage	Excessive pressure by Operator. Excessive joint. Lack of lubrication. Dull cutters.	Replace damaged parts. Check balance of oil. Increase lubrication. Rejoint chain. File chain.
Chain Stiff. Hard to Tension.	Lack of lubrication. Poor maintenance.	Clean chain in solvent. Oil bath over night. Check oil pump and vent holes.
Chain Stalls in Cut and/or Scored Drum.	Clutch slipping. Excessive pressure by operator. Clutch spring not releasing.	Check clutch shoes for wear. Check spring for tension. Apply less pressure; correctly filed chain will self-feed.
Chain Cuts Rough or Digs In.	Cutter angles incorrectly filed. Too much or uneven joint.	Check your filing instructions. Refile to correct angles. Check joint. Rejoint your chain.
Chain Jumps Bar.	Incorrect chain tension. Damaged cutter bar. Damaged drive links. Worn or damaged sprocket.	Correct chain tension. Check bar for damage, repair or replace. Check drive links for damage. Replace links or entire chain.
Chain Cuts Angle.	Cutter angles not the same on both sides. Uneven joint. Cutter bar rails uneven.	Refile cutters to same angle. Check rails. If worn, have bar serviced or replaced. Rejoint. Increase lubrication.
Worn Drive Sprockets.	Incorrect chain tension. Lack of lubrication. Dull cutters.	Replace sprocket. Correct chain tension. Increase lubrication. File cutters and joint chain.
Excessive Wear Drive Links and/or Side Straps.	Lack of lubrication. Excessive tension. Dull chain. Worn sprocket.	Increase lubrication. Check oil pump. Extensive damage can be occasioned in a few hours. Check tension. File chain. Check sprocket.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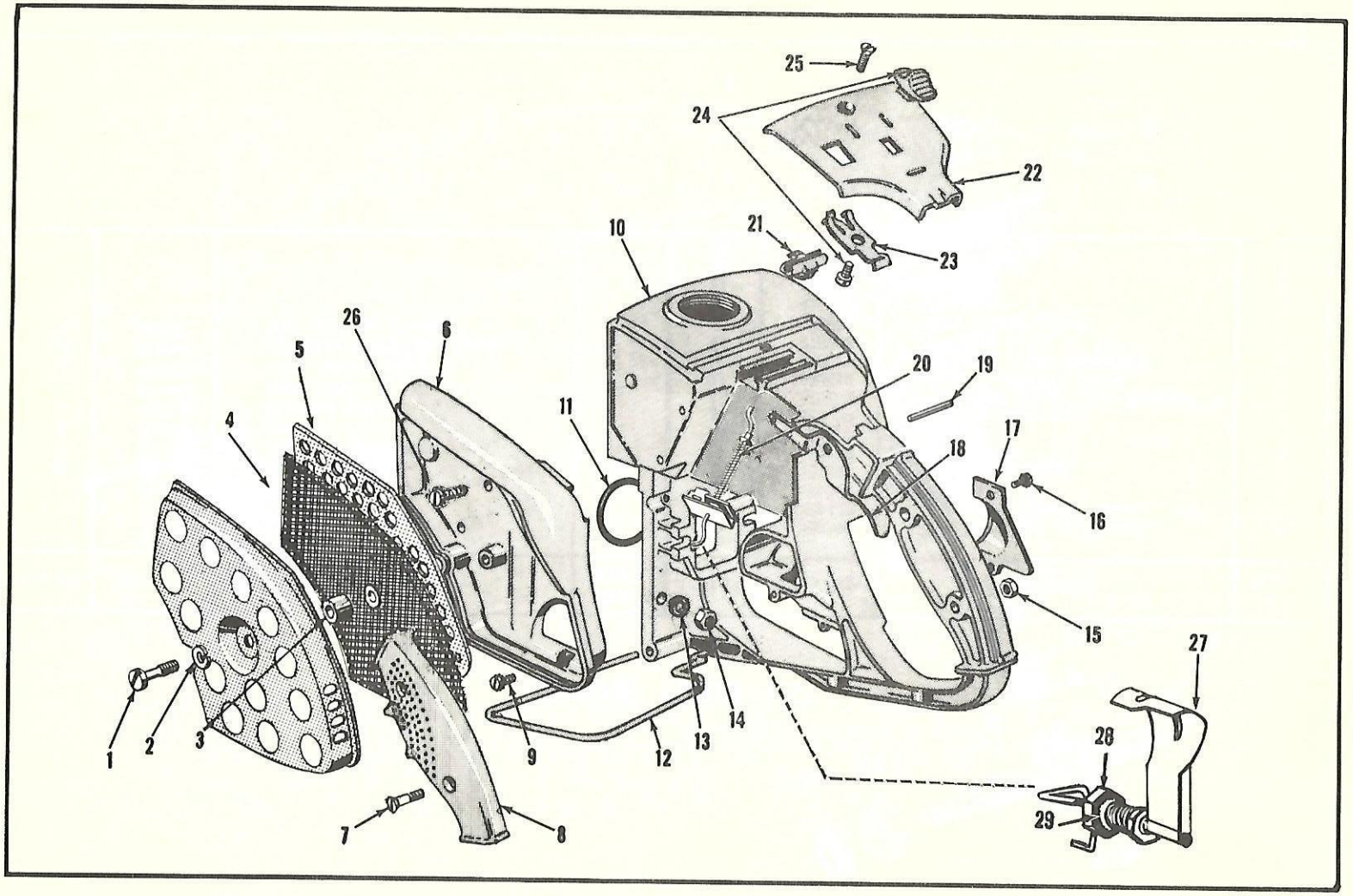
ENGINE PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No.	Part No.	Description	Qty. Req'd.
				14	306396	Washer (Cyl. to C'case.)	4
				15	427523	Gasket (Cylinder Base) mn.	1
	471298	Muffler Ass'y.	1	16	471002	Ring Set (2)	1
2	302468	Screw (Muffler)	1	17	425062	Retaining Ring	2
3	308134	Washer (Muffler)	1	18	427480	Wrist Pin	1
4	304609	Nut	2	19	427585	Piston	1
5	427600	Muffler Gasket	1	20	425060	**Needle Bearing	1
6	427601	Stud (Cyl.)	2	21	470168	Con Rod (Incl. Parts Marked **)	1
11	076152	J-8-J Spark Plug	1	22	304610	**Screw - Socket Head	2
12	471292	Cylinder Block c/w Studs	1	23	470927	Bearing Cage Assembly	1
13	306397	Nut (Cyl. to C'case.)	4	24	470926	Needles (Pkg. of 12)	1
				25	425061	Key - Crankshaft	1
				26	425066	Bearing	2
				27	425076	Seal	2
				28	471274	Crankshaft	1
				29	427179	Key	1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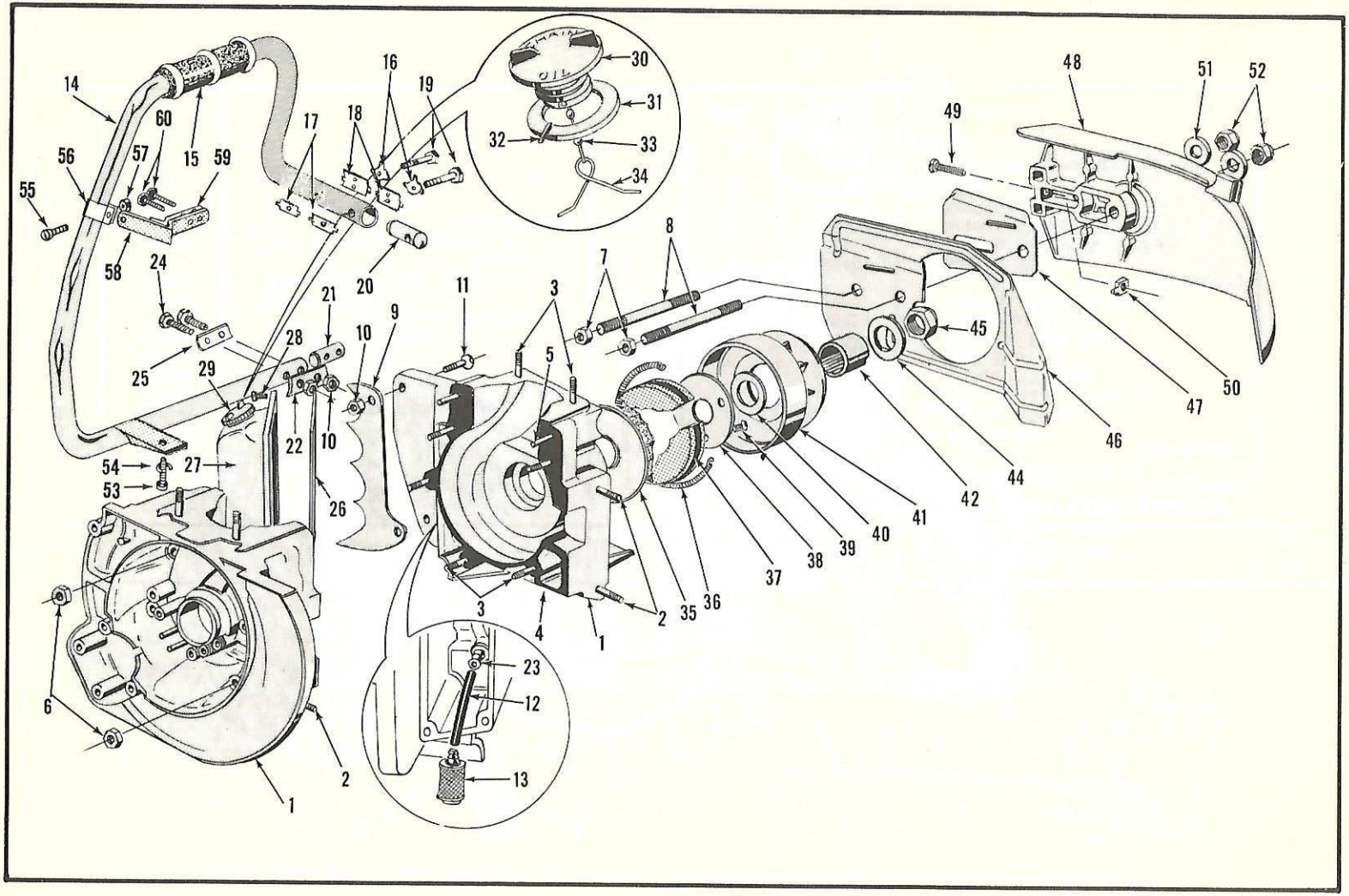
REAR HANDLE AND AIR CLEANER ASSEMBLIES

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.
	470967	Filter Cover Assembly (Incl. Parts Marked*)	1
1	427257	*Screw	1
2	306396	*Lockwasher	1
3	427258	*Spacer	1
4	427246	Filter Element Assembly	1
5	427588	Backing Plate	1
6	427148	Air Filter Body	1
7	427248	x Screw (Grip)	2
8	471003	Grip (Two Halves) (Incl. Parts Marked x)	1
9	302948	Screw (Body)	3
10	470951	Rear Handle and Tank Assembly	1
11	425030	"O" Ring (Rear Handle to Crankcase)	1
12	427155	Foothold Loop	1
13	306396	Lockwasher (Rear Handle to Crankcase)	3
14	306397	Nut (Rear Handle to Crankcase)	3
15	133079	x Nut (Grip)	2
16	307019	Screw (Cover)	2
17	427118	Air Passage Cover	1
18	427131	Throttle Trigger	1
19	426636	Roll Pin	1
20	471307	Throttle Link Ass'y.	1
21	426490	Terminal Block	1
22	470957	Control Panel Assembly (Incl. Parts Marked **)	1
23	426489	**Switch Spring	1
24	471115	**Switch Button & Screw	1
25	427160	Screw (Control Panel)	1
26	307061	Screw (Body)	1
27	471305	Vane Ass'y. (Includes Parts Marked xx)	1
28	427615	xx Nut (Vane)	1
29	309819	xx Lockwasher	1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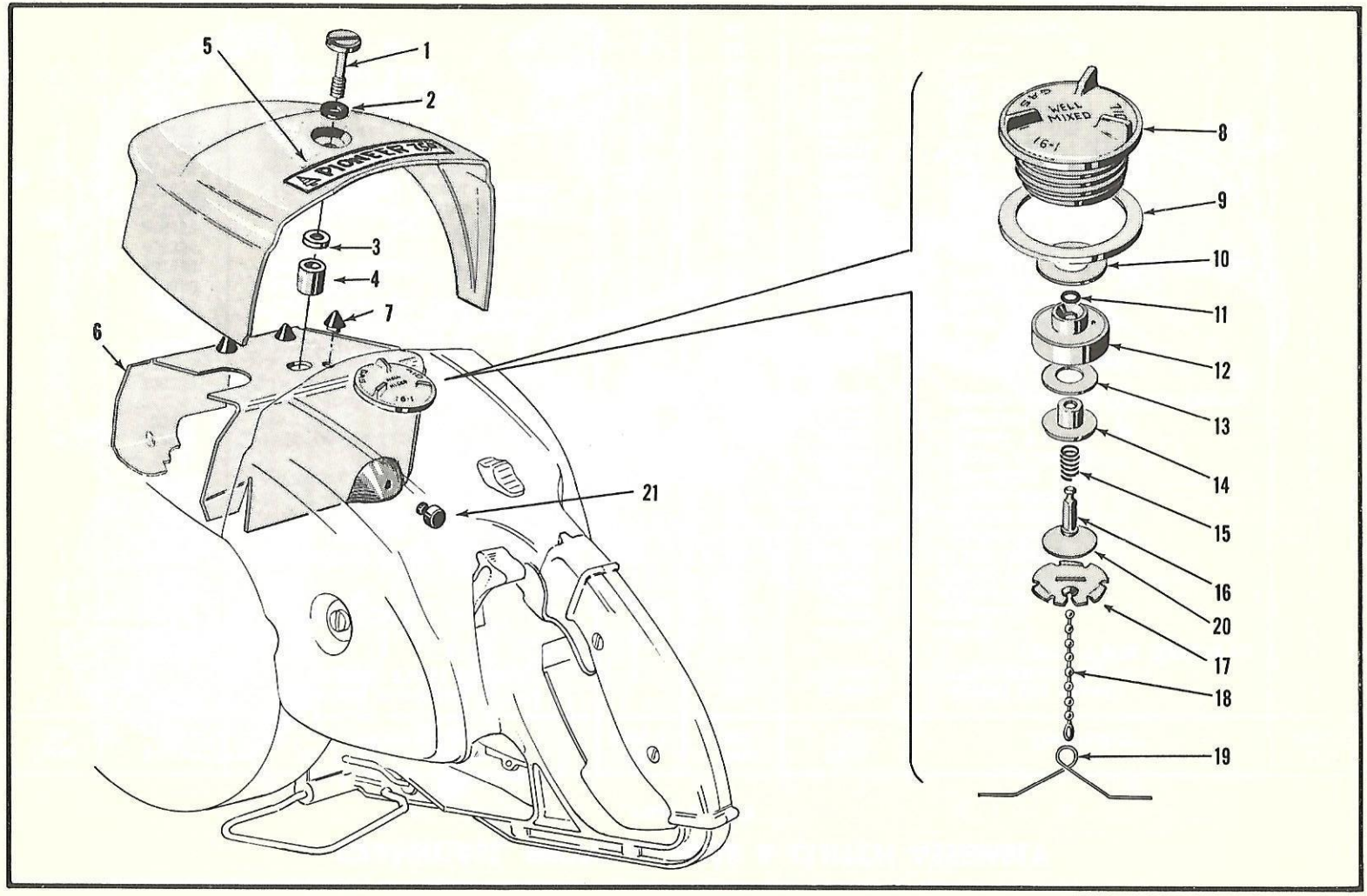
CRANKCASE, FRONT HANDLE & CLUTCH ASSEMBLY

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.
1	470938	Crankcase Assembly (Includes Parts Marked *)	1
2	426642	*Stud	3
3	425578	*Stud	9
4	427509	Gasket (C'case.)	1
5	427073	*Taper Pin	2
6	304609	*Nut	5
7	425078	*Nut (Strut Stud)	2
8	427242	*Stud (Strut)	2
9	471018	◈Eastern Pivot Grip (c/w Nuts and Bolts)	1
	471019	◈Western Pivot Grip (c/w Nuts and Bolts)	1
10	427170	Nut (◈ for Grip)	4
11	130491	◈Screw ◈(Optional at Extra Cost)	2
12	426200	Oiler Inlet Tube	1
13	470193	Oiler Pickup Ass'y.	1
14	470994	Front Handle Ass'y. (Incl. Parts Marked **)	1
15	470795	**Grip (c/w 2-oz. Tube Adhesive)	1
16	310860	Lock Plates	2
17	427494	Spacer (Upper)	2
18	427394	Clamp	2
19	306493	Bolt	2
20	427228	Upper Insert (Front Handle)	1
21	427229	Lower Insert (Front Handle)	1
22	427493	Spacer	1
23	426220	Oiler Intake Connector	1
24	306778	Bolt (Lower)	2
25	427519	Clamp (Lower)	1
26	427196	Gasket (Oiler Body)	1
27	427195	Cover (Oil Tank)	1
28	302948	Screw (oil cover)	4
29	470976	Oiler Filler Cap. (Incl. Parts Marked x)	1
30	427286	xBody	1
31	425074	xGasket	1
32	427289	xTaper Pin	1
33	427277	xBead Chain	1
34	427288	xLock Spring	1
35	470978	Clutch Driver Ass'y.	1
36	427188	Clutch Spring	1
37	427187	Clutch Shoe	3
38	427270	Retaining Plate	1
39	302104	Screw (Clutch)	3
40	427185	Thrust Washer	1
41	471152	Sprocket Ass'y	1
42	425091	Needle Bearing (Clutch Drum)	1
44	427413	Washer (Sprocket)	1
45	427181	Nut (Sprocket)	1
46	427232	Inner Guide Plate	1
47	425674	Outer Guide Plate	1
48	470995	Strut Ass'y. (Incl. Parts Marked xx)	1
49	202190	xxTension Screw	1
50	425672	xxTension Pin	1
51	425116	Washer (Strut)	2
52	425031	Nut (Strut)	2
53	306487	Bolt (Lower)	1
54	302376	Lockwasher	1
55	603105	Screw (Clamp)	1
56	427249	Brace Clamp	1
57	426942	Nut Clamp	1
58	427495	Brace	1
59	427499	Spacer	1
60	302948	Screw (Brace)	2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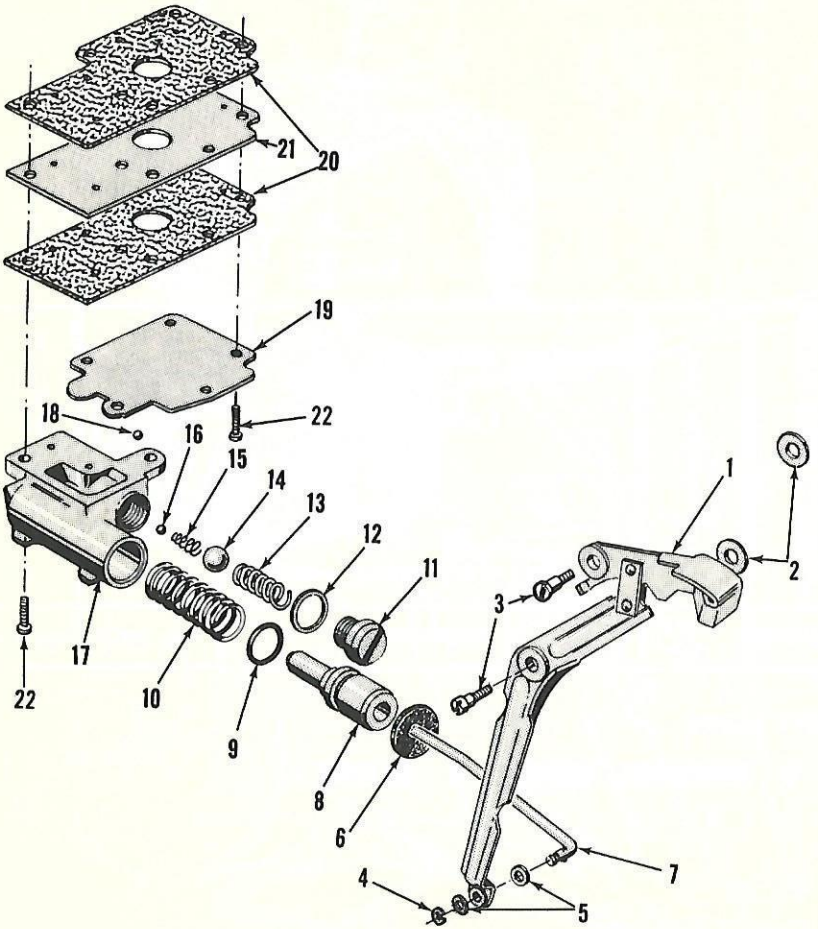
OUTER & INNER SHROUD & GAS CAP ASSEMBLY

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No.	Part No.	Description	Qty. Req'd.
	471291	Outer Shroud Ass'y. (Incl. Parts Marked *)	1	9	425087	x Gasket (gas cap)	1
1	427094	*Shroud Bolt	1	10	427273	x Gasket (Valve Body)	1
2	427521	*Washer	1	11	427281	x "O" Ring (Valve)	1
3	427472	*Washer	1	12	427276	x Body Valve	1
4	427474	*Spacer	1	13	427274	x Valve (Vacuum)	1
5	427624	Decal	1	14	427275	x Backing Plate (Valve)	1
6	470943	Inner Shroud Ass'y.	3	15	427280	x Spring	1
7	426746	**Bumper		16	427279	x Stem (Valve)	1
	470964	Gas Cap Assembly (Incl. Parts Marked xx)	1	17	427278	x Cover	1
			1	18	427277	x Bead Chain	1
8	427271	x Body		19	427213	x Lock Spring	1
				20	427376	x Filter Disc	1
				21	602844	x Rub Cap	1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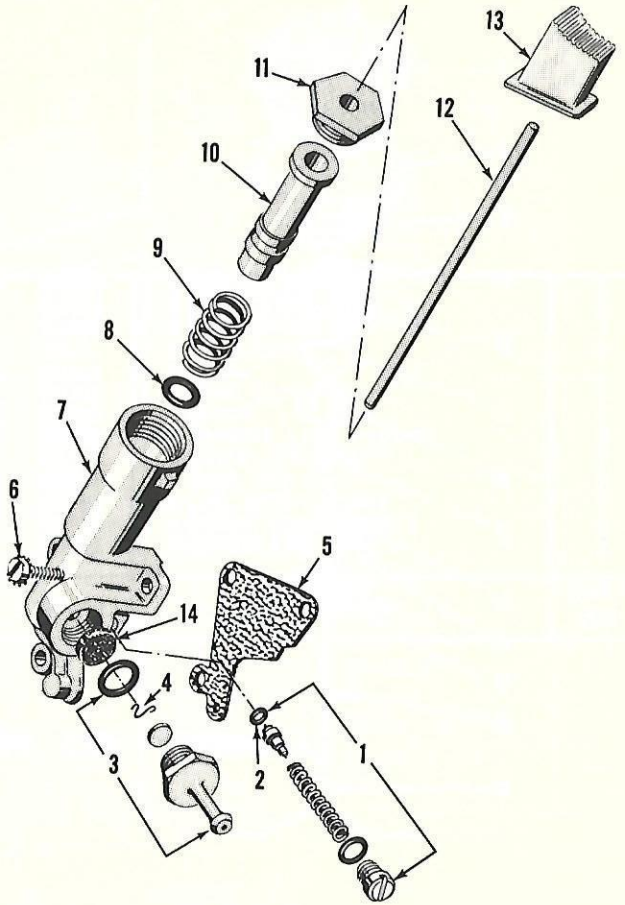
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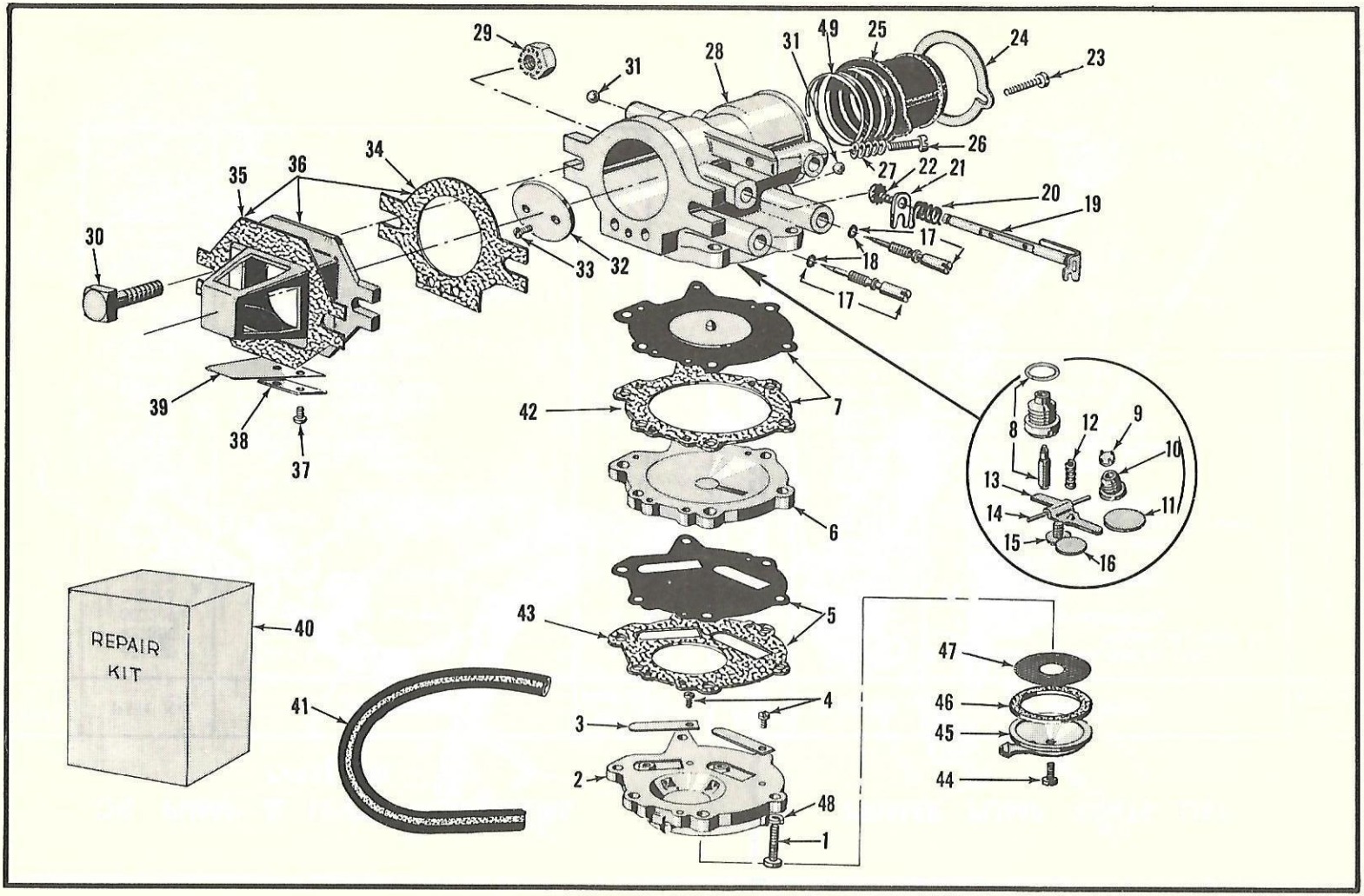
OIL PUMP & LEVER ASSEMBLIES

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.
1	471109	Oiler Lever Assembly	1
2	427396	Washer	2
3	303247	Screw (Oiler Lever)	2
4	202755	"E" Ring	1
5	300154	Washer (Oiler Lever)	2
6	427367	Felt	1
7	427153	Push Rod	1
	470946	Manual Oil Pump Ass'y (Incl. Parts Marked *)	1
8	427098	*Plunger	1
9	427360	*"O" Ring (Plunger)	1
10	427253	*Spring (Plunger)	1
11	427096	*End Cap	1
12	427097	*Washer (End Cap)	1
13	427254	*Spring (Large Ball)	1
14	426227	*Steel Ball (Large)	1
15	427251	*Spring (Small Ball)	1
16	427250	*Steel Ball (Small)	1
17	470971	*Manual Oil Pump Body (Incl. Parts Marked **)	1
18	304201	**Lead Shot	1
19	427100	Cover — Oil Pump	1
20	427102	Gasket — Oil Pump	2
21	427259	Spacer — Oil Pump	1
22	427099	Screw (Cover)	7

PRIMER PUMP PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.
	470960	Primer Pump Ass'y. (Incl. Parts Marked *)	1
1	470729	*Exit Valve Assembly	1
2	308528	*"O" Ring	1
3	470728	*Inlet Valve Housing	1
4	426824	*Retaining Clip	1
5	427151	Gasket (Primer Body)	1
6	307613	Screw (Pump to Rear Handle)	3
7	427140	*Primer Pump Body	1
8	427444	*"O" Ring	1
9	427142	*Spring (Plunger)	1
10	427141	*Piston (Primer Pump)	1
11	427143	*Cap (Primer Pump)	1
12	427149	Primer Rod	1
13	427150	Primer Button	1
14	471171	Felt (Pkg. of 10)	


REPAIR
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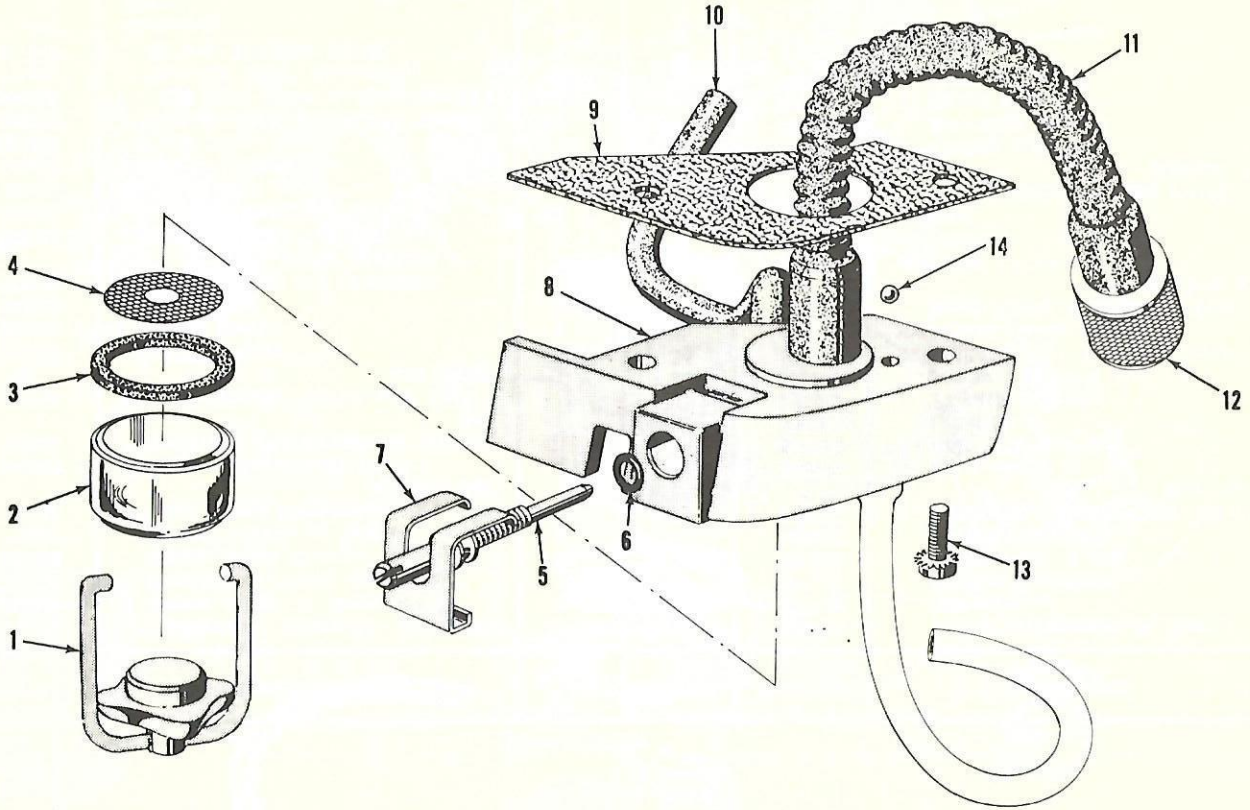
CARBURETOR AND REED VALVE ASSEMBLIES

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No	Part No.	Description	Qty. Req'd.
	471299	Carburetor Assembly Complete	1	23	309798	Screw (Grommet to Carb.)	1
1	427248	Screw (Hsg. to Body)	6	24	427139	Retainer	1
2	309320	Housing & Nipple Assembly	1	25	427138	Intake Grommet	1
3	309466	Valve (Fuel Pump)	2	26	309462	Screw (Idle Adj.)	1
4	310822	Screw (Valve to Hsg.)	2	27	309473	Spring (Idle Adj.)	1
5	379234	**Fuel Pump Diaphragm & Gasket Set	1	28	379236	Carburetor Body (Incl. Parts Marked *)	1
6	309323	Plate (Diaphragm Carb.)	1	29	304609	Keps Nut	2
7	379233	**Metering Diaphragm & Gasket Set	1	30	427203	Bolt (Carburetor)	2
				31	304201	*Lead Shot	2
8	379159	**Inlet Needle, Valve and Seat Assembly	1	32	309443	Throttle Valve	1
				33	303760	Screw (Throttle Valve)	2
9	309422	*Check Valve	1	34	427137	xxGasket (Reed Valve to Carb.)	1
10	309421	*Valve Seat	1	35	427136	xxGasket (Rear Handle)	1
11	202310	*Core Plug	1	36	471116	Reed Valve Assembly (Incl. Parts Marked xx)	1
	379237	**Inlet Control Kit (Includes Parts Marked x)	1	37	302667	xxScrew (Plate)	8
12	309455	xSpring (Lever)	1	38	427135	xxRetainer Plate	4
13	309420	xLever (Inlet Control)	1	39	427134	xxReed	4
14	309456	xHinge Pin	1	40	379235	Repair Kit (Includes Parts Marked **)	1
15	309457	Screw (Hinge Pin)	1				
16	303405	*Core Plug	1	41	427126	Pickup Line	1
17	379232	**Low & High Speed Adj. Needle	2	42	309463	Metering Gasket	1
18	304598	"O" Ring (Slow & High Speed)	1	43	309464	Pump Gasket	1
19	471308	Throttle Shaft Assembly	1	44	306915	Screw (Cover)	1
20	427572	Spring Throttle Shaft	1	45	310407	Cover	1
21	310942	Retainer	1	46	427369	Gasket (Screen)	1
22	307191	Screw	1	47	427123	Screen	1
				48	306310	Washer	6
				49	427579	Spring (Grommet)	1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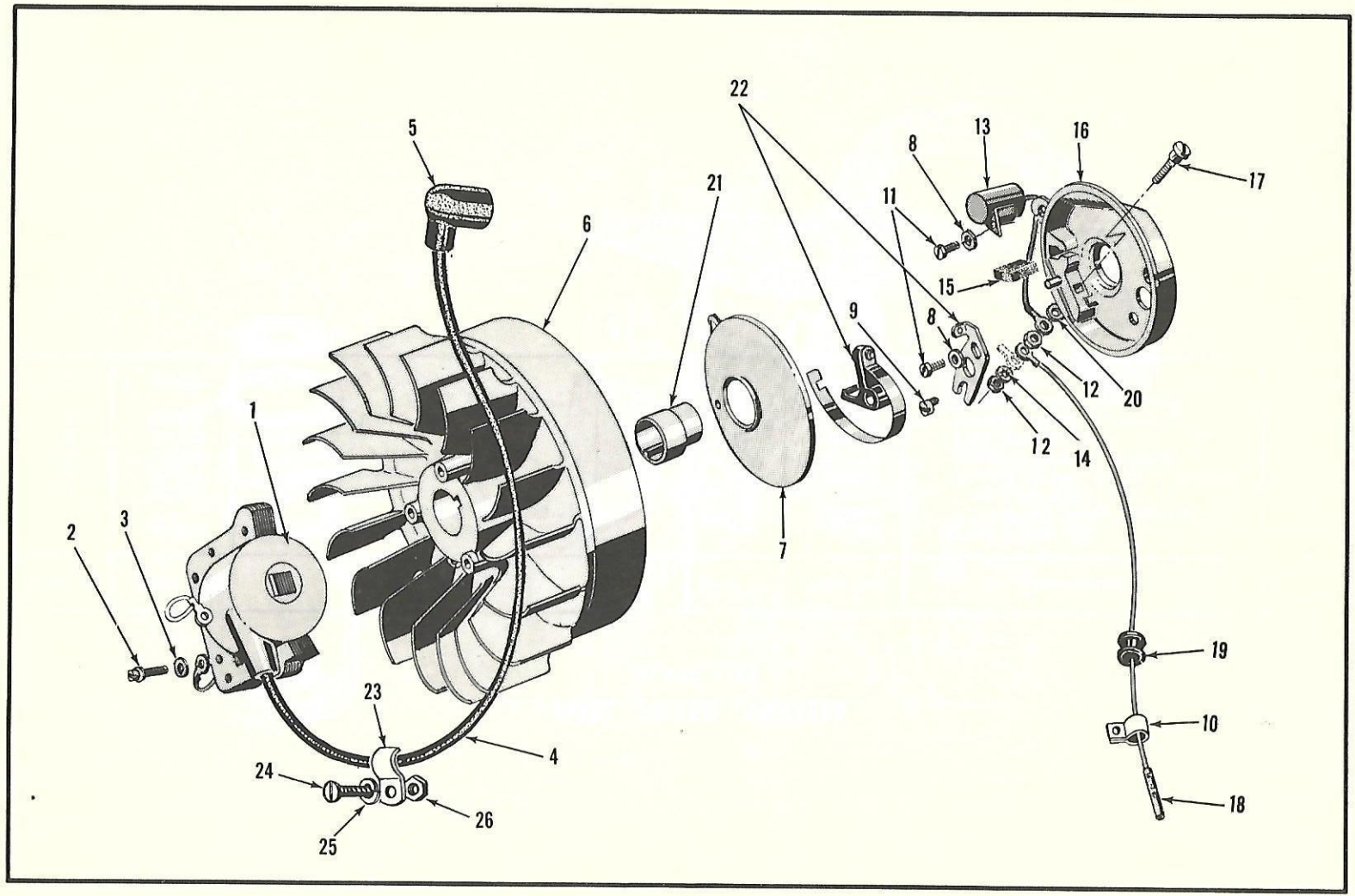
FUEL FILTER SYSTEM

PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No.	Part No.	Description	Qty. Req'd.
	470954	Fuel Filter Body Ass'y. (Incl. Parts Marked *)	1	7	427090	*Fuel Filter Clip	1
1	377607	*Clamp Unit	1	8	470997	*Fuel Filter Body Assembly Complete with Lead Shot	1
2	303121	*Sediment Bowl	1	9	427124	Gasket (Filter to Rear Handle)	1
3	427369	*Gasket - Filter Bowl	1	10	427125	Hose (Filter to Primer)	1
4	427123	*Screen	1	11	425343	Flex Pickup Line	1
5	470956	*Shut-off Valve Ass'y (Incl. Parts Marked **)	1	12	471121	Pickup Head Assembly	1
6	425028	**"O" Ring	1	13	302948	Screw (Fuel Filter Body)	2
				14	304201	Lead Shot	1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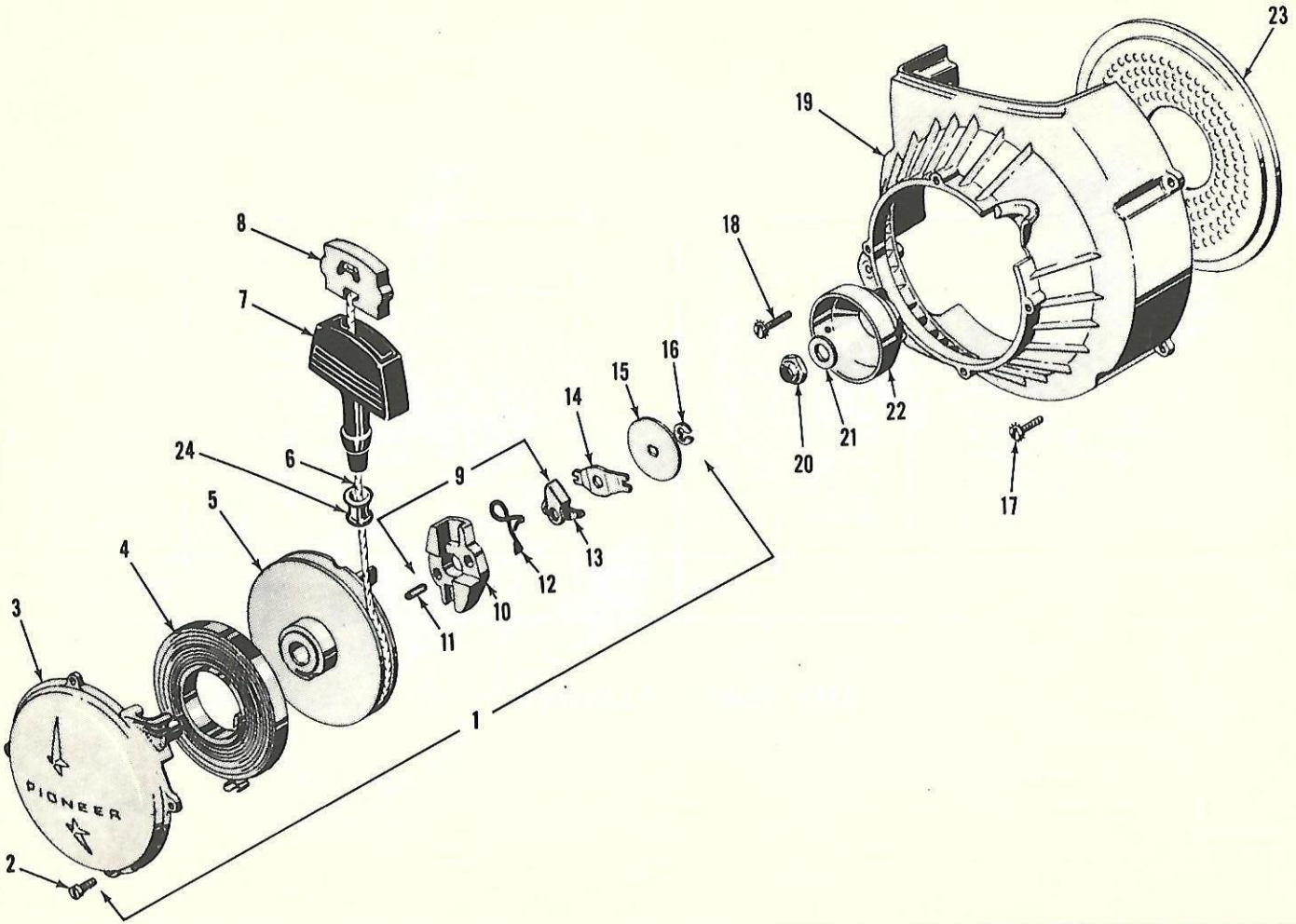
MAGNETO PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No.	Part No.	Description	Qty. Req'd.
1	580454	Coil & Lamination Assembly	1	14	307247	Washer	1
2	510397	Screw	3	15	510189	Oiler Wick	1
3	300154	Washer	1	16	510579	Housing (Contact Breaker)	1
4	426232	High Tension Wire	1	17	426522	Terminal Screw	1
5	580339	Sparky Assembly	1	18	470942	Switch Wire Assembly	1
6	580486	Flywheel Assembly	1	19	425338	Switch Wire Grommet	1
7	510577	Cover (Breaker Housing)	1	20	307189	Washer	1
8	303497	Washer	2	21	510603	Cam	1
9	510185	Eccentric Screw	1	22	580560	Breaker Point	1
10	471004	Clamp	1	23	120001	Clamp	1
11	307193	Screw (Condenser to Crankcase)	2	24	306460	Screw	1
12	302437	Nut	2	25	303916	S'Proof Washer	1
13	426528	Condenser	1	26	130450	Nut	1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PIONEER

STARTER ASSEMBLY PARTS LIST

Item No.	Part No.	Description	Qty. Req'd.	Item No.	Part No.	Description	Qty. Req'd.
1	470968	Starter Assembly (Includes Parts Marked *)	1	12	427163	**Pawl Spring	1
2	302948	Screw (Cover to Hsg.)	4	13	427162	**Pawl	2
3	470969	*Starter Cover Assembly	1	14	427164	*Friction Spring	1
4	427158	*Starter Rewind Spring	1	15	427165	*Friction Plate	1
5	427159	*Starter Pulley	1	16	202139	*"E" Ring	1
6	425846	*Starter Cord	1	17	302948	Screw (Blower to C'case.)	3
7	427370	*Starter Handle	1	18	305725	Screw (Blower, Lamination, C'case.)	1
8	427492	*Anchor	1	19	427156	Blower Cover	1
9	470970	*Starter Pawl Ass'y (Incl. Parts Marked **)	1	20	425916	Flywheel Nut	1
				21	304671	Washer	1
10	427161	**Pawl Block	1	22	427167	Starter Cup	1
11	427145	**Roll Pin	2	23	427168	Rotating Screen	1
				24	303560	*Eyelet	1

SAFETY PRECAUTIONS

Refuel your saw with the use of funnnel on an area that has been cleared down to bare ground.
If gas is spilled on the saw, wipe it off or let it evaporate before starting the motor.
Move the saw 10 feet at least from the fueling spot before starting the motor.
Never ask anyone to hold the saw while starting the motor.
During operation, keep inquisitive bystanders clear at all times.
Clear inflammable material away before cutting.
Let a hot saw cool before refueling.
Never start cutting until you have a clear place to work, a secure place to stand and a safe exit path from a falling tree.
Before starting motor, examine carefully the lean of the tree, look up for loose limbs or bark and intertwined branches.
Wherever possible, place the pivot grip against the tree or log before starting the cut.
When undercutting, wherever possible have chain in an inverted position.
Never operate a chain saw in a closed room as the exhaust fumes can be deadly.
Never touch or try to stop a moving chain.
Before you start the motor, make sure the saw is not touching anything.
When removing saw from cut, shut the motor off before the chain leaves the tree.
When operating the chain saw, be relaxed but in full control of the saw at all times.
Never carry your saw with the motor running when walking through a bushy area. A branch or twig may open the throttle and make the chain revolve.
Never operate the saw if the chain is dull or if repairs are needed.
Never attempt to sharpen or remove the chain while the motor is running.
Keep the muffler on the saw.
Keep the saw free of sawdust.
Keep the spark plug and wire connections tight.
Keep a filled fire extinguisher and shovel handy.

WARRANTY

WE WARRANT EACH NEW PIONEER ENGINE TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND SERVICE: OUR OBLIGATION UNDER THIS WARRANTY BEING LIMITED TO MAKING GOOD ANY PART OR PARTS THEREOF WHICH SHALL UPON EXAMINATION DISCLOSE TO OUR SATISFACTION TO HAVE BEEN THUS DEFECTIVE

THE BARS AND CHAIN ARE WARRANTED SEPARATELY FOR A PERIOD OF THIRTY DAYS AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP UNDER THE SAME CONDITIONS HERETOFORE MENTIONED

THIS WARRANTY BEING EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS EXPRESSED OR IMPLIED AND OF ALL OTHER LIABILITIES IN CONNECTION WITH THE SALE OR USE OF ANY PIONEER SAWS.

TO MAKE A CLAIM UNDER THIS WARRANTY, CONTACT THE DEALER FROM WHOM THE SAW WAS PURCHASED OR THE NEAREST AUTHORIZED PIONEER SAW DEALER ALL CLAIMS MUST BE ACCOMPANIED WITH THE MODEL AND SERIAL NUMBER OF THE SAW

THIS WARRANTY IS EXTENDED IN THE U.S.A. BY PIONEER SAWS, OUTBOARD MARINE CORPORATION, GALESBURG, ILLINOIS: IN CANADA BY PIONEER SAWS LTD., PETERBOROUGH, ONTARIO: IN AUSTRALIA BY OUTBOARD MARINE AUSTRALIA PTY. LIMITED, BANKSTOWN, N.S.W.: AND IN OTHER COUNTRIES OF THE WORLD BY OUTBOARD MARINE INTERNATIONAL S.A., NASSAU, BAHAMAS. IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THEIR RESPECTIVE WARRANTY POLICIES.

To assure you of your WARRANTY, fill out the Warranty Cards and immediately forward them as directed.

CONSULT YOUR LOCAL SALES AND SERVICE DEALER

When a service problem arises do not hesitate to consult your local Pioneer Chain Saw Dealer. Your dealer was appointed after careful consideration of his ability in providing prompt and effective service. Only he can offer the complete technical knowledge and skill to maintain your chain saw in tip-top condition.

Your dealer also stocks a complete line of genuine factory replacement parts. Therefore, when you require replacement parts order them from your local dealer. **DO NOT RETURN MOTOR TO FACTORY.**

When ordering, specify:

1. Model and Serial Number of your chain saw.
2. Quantity, part number and description of part in full.
3. Complete shipping instructions.

REGISTER YOUR MODEL AND SERIAL NUMBER IN THE SPACES PROVIDED BELOW.

Model Number.....
Serial Number.....

PIONEER

Protect Your Warranty

Insist on Genuine Pioneer chains, bars, sprockets and replacement parts. Consult your Pioneer dealer for quality service.

Pioneer Saws Ltd., Peterborough, Ontario, Canada Pioneer Saws, Galesburg, Illinois, U.S.A. Outboard Marine Australia Pty. Limited, Bankstown, N.S.W., Australia -- Outboard Marine International S. A., Nassau, Bahamas -- Outboard Marine International Inc., Nassau, Bahamas -- Outboard Marine of Belgium, S.A., Bruges, Belgium.

OVER 25 YEARS OF PROGRESS & LEADERSHIP

Part No. 427608 Date: 1-1-66

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