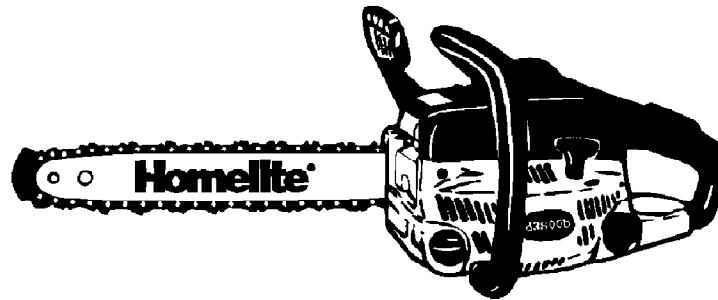


Homelite®

Dealer Service Guide



Chain Saws

d3350b	UT10767, A	23av	UT10772A
d3350bc	UT10768, A	z3850bc	UT10773
z3350b	UT10759	23av w/cc	UT10773A
20av	UT10759A	i3850b	UT10758, A
z3350bc	UT10771	b2316	UT10798R
20av w/cc	UT10771A	b2316 w/cc	UT10798R1
i3350b	UT10774, A		
b2014	UT10797R	d3800	UT10780, A
All American	UT10790	d3800c	UT10783, A
		z3800	UT10781
d3300	UT10779, A	23	UT10781A
d3300c	UT10784, A	z3800c	UT10785
z3300	UT10782	23 w/cc	UT10785A
20	UT10782A	n3316	UT10800R
z3300c	UT10786		
	UT10809	d4150b	UT10801
20 w/cc	UT10786A	d4150b w/cc	UT10802
n3014	UT10799R	i4150b	UT10808
n3014 w/cc	UT10799R1	d4550b	UT10787
PS33	UT10788	i4550b	UT10807
		25av	UT10803
d3850b	UT10769, A	25av w/cc	UT10804
d3850bc	UT10770, A	27av	UT10805
z3850b	UT10772		

ST01371-1

Revised 12/21/98

For Homelite Discount Parts Call 606-678-9623 or 606-561-4983

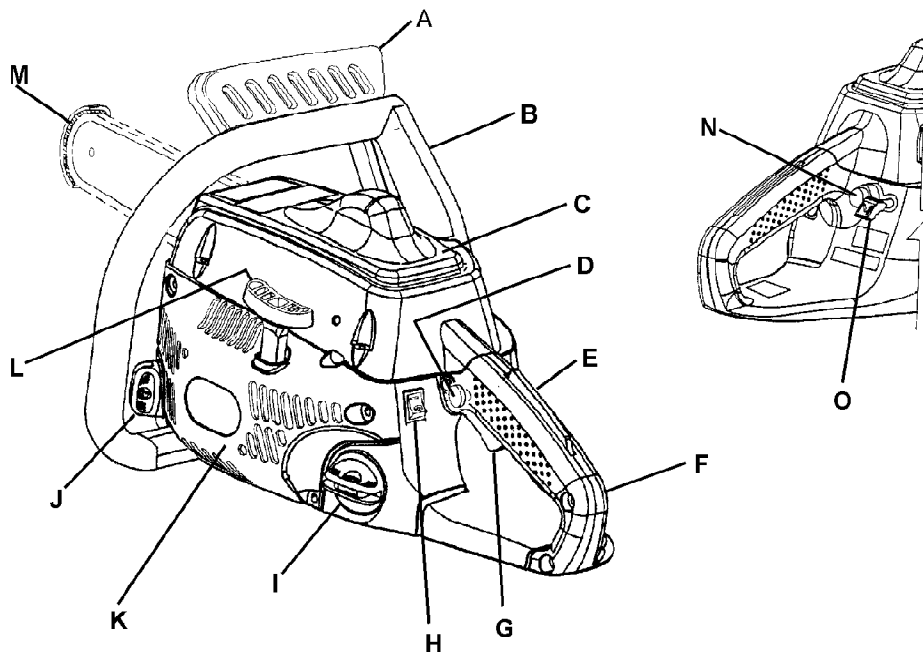
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Contents

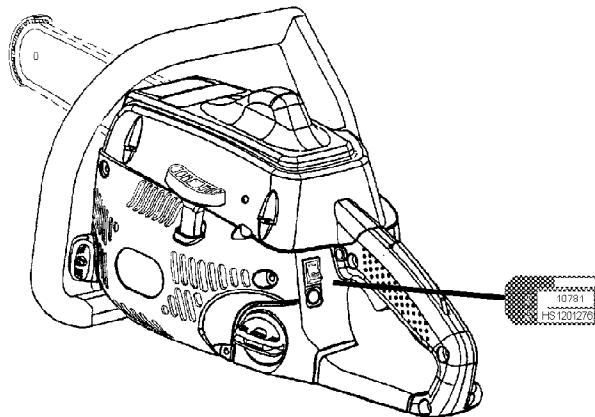
	Page	
Unit features, model and serial number location, unit specifications and torque specifications .	4	SPECIFICATIONS
Troubleshooting 2 cycle engines, spark plug troubleshooting chart, testing for spark under compression, general trouble-shooting information.	14	TROUBLESHOOTING
Disassembly, testing, repair and assembly of the fuel tank, fuel lines, fuel filter, fuel cap, muffler, air filter, carburetor. Testing includes compression testing, pressure and vacuum testing of the crankcase.	18	FUEL SYSTEM
Disassembly, testing and assembly of the ignition system. Testing includes testing for maximum output of the ignition module, inspection of the spark plug.	26	IGNITION SYSTEM
Complete disassembly and assembly of the chain saw including: Remove internal engine components, piston, cylinder, gaskets, inspection and repair procedures. Assemble all internal and power head components and special assembly techniques. Starter disassembly, inspection and assembly. Throttle handle removal and disassembly, Chain brake disassembly and assembly.	28	ENGINE INTERNAL

UNIT FEATURES

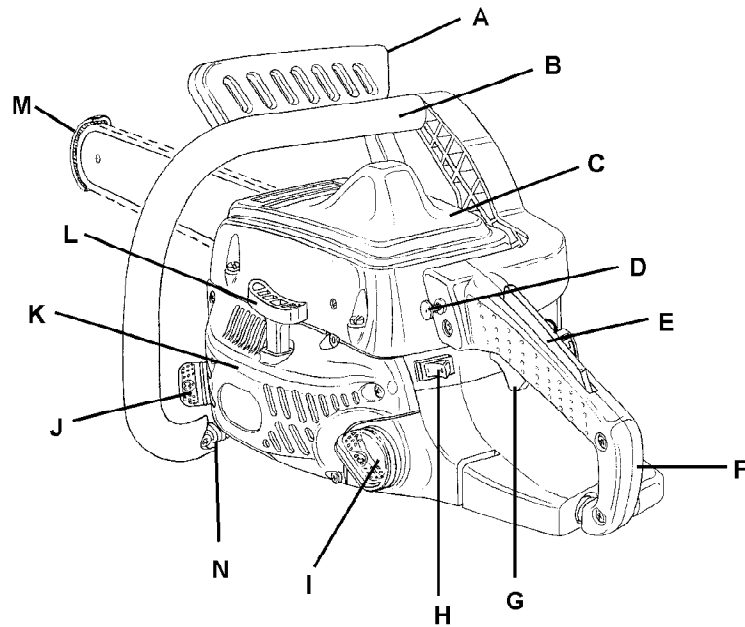


- | | |
|--------------------------------------|------------------------|
| A. Front hand guard | I. Fuel mix cap |
| B. Front handlebar | J. Chain oil cap |
| C. Cylinder cover | K. Starter/Fan housing |
| D. Throttle lock button for starting | L. Starter grip |
| E. Trigger lock | M. Safe-t-tip® |
| F. Rear handle | N. Primer bulb |
| G. Throttle trigger | O. Choke lever |
| H. Ignition Switch (I) On / (O) Off | |

UNIT AND SERIAL NUMBER IDENTIFICATION



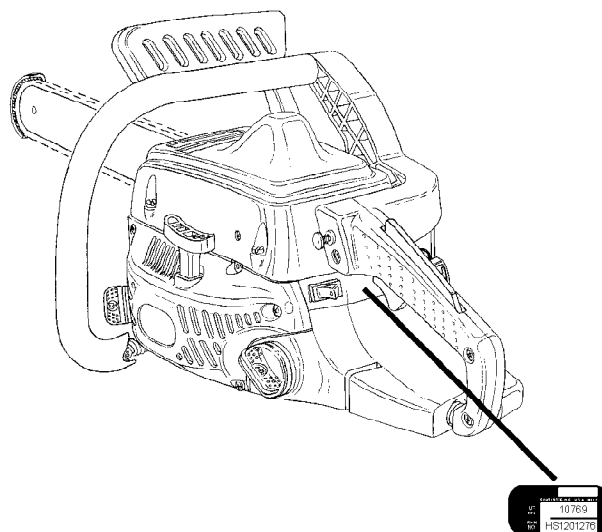
UNIT FEATURES



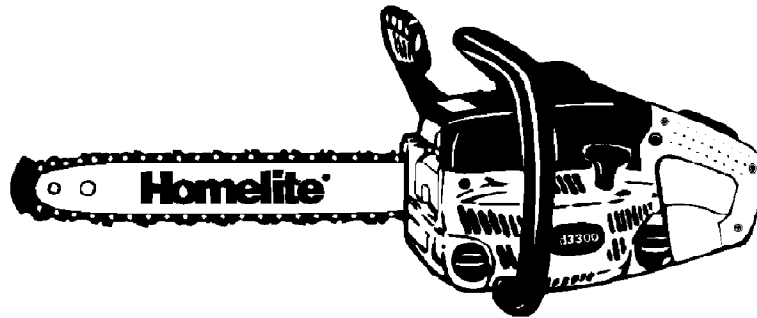
- A. Front hand guard / Chain brake
- B. Front handlebar
- C. Cylinder cover
- D. Throttle lock button
- E. Trigger lock
- F. Rear handle
- G. Throttle trigger

- H. Ignition Switch
- I. Fuel mix cap
- J. Chain oil cap
- K. Starter/Fan housing
- L. Starter grip
- M. Safe-t-tip®
- N. Isolator Spring

SERIAL NUMBER IDENTIFICATION



UNIT SPECIFICATIONS



Model d3300, d3300c, z3300, 20, z3300c, 20 w/cc, n3014, n3014 w/cc, PS33

Engine

Type	2-cycle, Single Cylinder, Air Cooled
Engine Displacement (cu.in.)	33.0 cc (2.0)
Bore (mm)	1.4375" (36.5)
Stroke (mm)	1.224" (31.09)

Ignition System

Ignition	One Piece Capacitor Discharge
Ignition Timing	27° BDTC (Non - Adjustable)
Muffler	Dual Chamber Soft-Tone

Fuel System

Carburetor	All Position Diaphragm Type With Remote Primer Bulb
Intake	Piston Port Induction
Air Filter	Flocked Type
Engine Shut Off	Rocker Switch
Fuel Capacity (ml)	18.6 Fl.oz. (350)
Fuel Mix Ratio	Use Premium Exact Mix®
Throttle Control	Trigger Type With Safety Interlock, Throttle Latch For Starting.

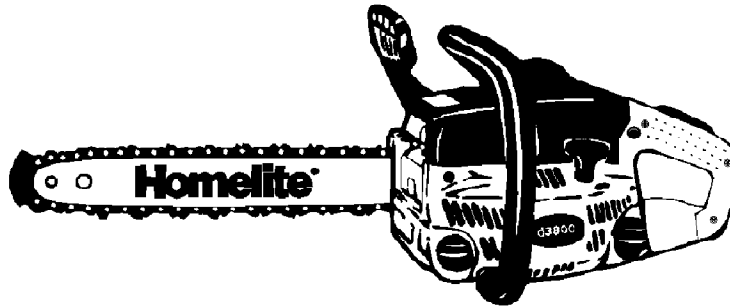
Chain And Guide Bar

Guide Bar Lengths	12" - 16" Power Tip®
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General

Automatic Chain Oiling	Minimum 7cc per minute at 9000 rpm
Saw Chain Type	3/8" Low Profile
Run Time	25 Minutes
Weight lbs.(kg)	10 lbs. (4.5 Kg) Powerhead Only
Warranty	1 Year Limited

UNIT SPECIFICATIONS



Model d3800, d3800c, z3800, 23, z3800c, 23 w/cc, n3316

Engine

Type 2-cycle, Single Cylinder, Air Cooled
Engine Displacement (cu.in.) 38.0 cc (2.3)
Bore (mm) 1.56525 (39.68)
Stroke (mm) 1.224" (31.09)

Ignition System

Ignition One Piece Capacitor Discharge
Ignition Timing 27° BDTc (Non - Adjustable)
Muffler Dual Chamber Soft-Tone

Fuel System

Carburetor All Position Diaphragm Type With Remote Primer Bulb
Intake Piston Port Induction
Air Filter Flocked Type
Engine Shut Off Rocker Switch
Fuel Capacity (ml) 18.6 Fl.oz. (350)
Fuel Mix Ratio Use Premiun Exact Mix®
Throttle Control Trigger Type With Safety Interlock, Throttle Latch For Starting.

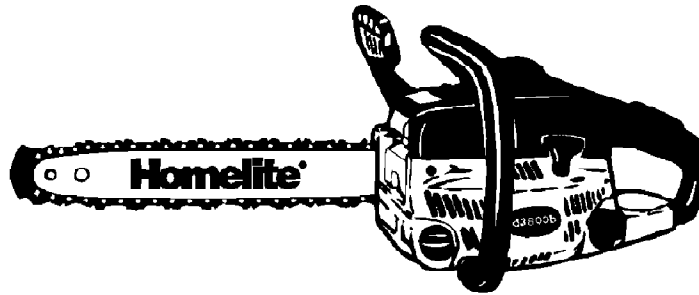
Chain And Guide Bar

Guide Bar Lengths 14" - 18" Power Tip®

General

Automatic Chain Oiling Minimum 7cc per minute at 9000 rpm
Saw Chain Type 3/8" Low Profile
Run Time 25 Minutes
Weight lbs. (kg) 10 lbs. (4.5 Kg) Powerhead Only
Warranty 1 Year Limited

UNIT SPECIFICATIONS



Model d3350b, d3350bc, z3350b, 20av, z3350bc, 20av w/cc, i3350b, b2014, AllAmerican

Engine

Engine	2-cycle, single cylinder, air cooled
Engine Displacement (cu.in.)	33.0cc (2.0)
Bore (mm)	1.4375" (36.5)
Stroke (mm)	1.224" (31.09)

Ignition System

Ignition	One Piece Capacitor Discharge
Ignition Timing	27° BDTC (Non - Adjustable)
Muffler	Dual Chamber Soft-Tone

Fuel System

Carburetor	All Position Diaphragm Type with remote Primer Bulb
Intake	PistonPort Induction
Air Filter	Flocked Type
Engine Shut off	Rocker Switch on Control Panel
Fuel Capacity (ml)	18.6 fl.oz. (350)
Fuel Mix Ratio	Use Premium Exact Mix®
Throttle Control	Trigger type with safety interlock, throttle latch for starting.

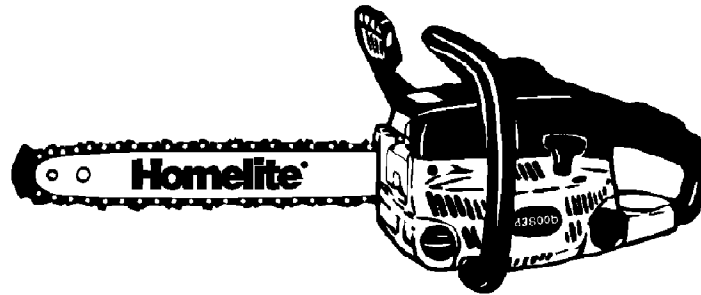
Chain And Guide Bar

Guide Bar Lengths	12" - 16" Power Tip®
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General

Automatic Chain Oiling	Minimum 7cc per minute at 9000 rpm
Vibration Isolation	Three point, spring type
Chain Brake	Standard
Saw Chain Type	3/8" Low Profile
Run Time	25 minutes
Weight Lbs(kg)	10 lbs (4.5 kg) powerhead only
Warranty	1 Year Limited

UNIT SPECIFICATIONS



Model d3850b, d3850bc, z3850b, 23av, z3850bc, 23av w/cc, i3850b, b2316, b2316 w/cc

Engine

Engine 2-cycle, single cylinder, air cooled
Engine Displacement (cu. in..) 38.0 cc (2.3)
Bore (mm) 1.5625" (39.68)
Stroke (mm) 1.224" (31.09)

Ignition System

Ignition One Piece Capacitor Discharge
Ignition Timing 27° BDTc (Non - Adjustable)
Muffler Dual Chamber Soft-Tone

Fuel System

Carburetor All Position Diaphragm Type with remote Primer Bulb
Intake Piston Port Induction
Air Filter Flocked Type
Engine Shut off Rocker Switch on Control Panel
Fuel Capacity (ml) 18.6 fl. oz. (350)
Fuel Mix Ratio Use Premium Exact Mix®
Throttle Control Trigger type with safety interlock, throttle latch for starting.

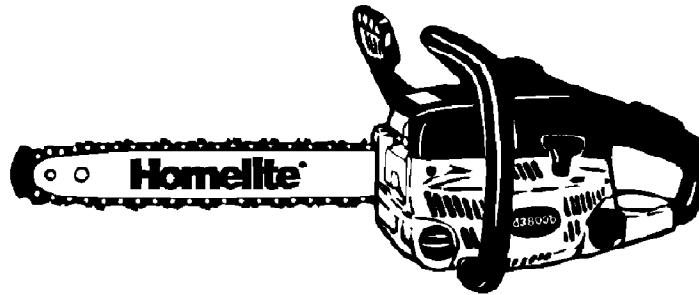
Chain And Guide Bar

Guide Bar Lengths 14" - 18" Power Tip®

General

Automatic Chain Oiling Minimum 7cc per minute at 9000 rpm
Vibration Isolation Three point, spring type
Chain Brake Standard
Saw Chain Type 3/8" Low Profile / i3850b .325
Run Time 25 minutes
Weight Lbs (kg) 10 lbs (4.5 kg) powerhead only
Warranty 1 Year Limited

UNIT SPECIFICATIONS



Model d4150b, d4150bw/cc, i4150b

Engine

Engine	2-cycle, single cylinder, air cooled
Engine Displacement (cu. in.)	45.00 cc (2.75)
Bore (mm)	1.6905" (42.94)
Stroke (mm)	1.224" (31.09)

Ignition System

Ignition	One Piece Capacitor Discharge
Ignition Timing	27° BDTC (Non - Adjustable)
Muffler	Dual Chamber Soft-Tone

Fuel System

Carburetor	All Position Diaphragm Type with remote Primer Bulb
Intake	Piston Port Induction
Air Filter	Flocked Type
Engine Shut off	Rocker Switch on Control Panel
Fuel Capacity (ml)	18.6 fl. oz. (350)
Fuel Mix Ratio	Use Premium Exact Mix®
Throttle Control	Trigger type with safety interlock, throttle latch for starting.

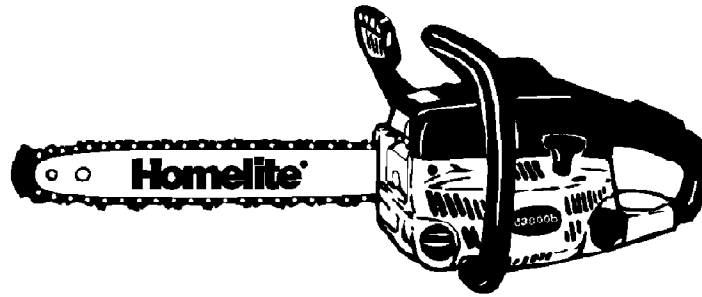
Chain And Guide Bar

Guide Bar Lengths	13" - 20" Power Tip®
-------------------	----------------------

General

Automatic Chain Oiling	Minimum 7cc per minute at 9000 rpm
Vibration Isolation	Three point, spring type
Chain Brake	Standard
Saw Chain Type	.325
Run Time	25 minutes
Weight Lbs (kg)	10 lbs (4.5 kg) powerhead only
Warranty	1 Year Limited

UNIT SPECIFICATIONS



Model d4550b, i4550b, 25av, 25av w/cc, 27av,

Engine

Engine	2-cycle, single cylinder, air cooled
Engine Displacement (cu. in..)	45.00 cc (2.75)
Bore (mm)	1.6905'' (42.94)
Stroke (mm)	1.224'' (31.09)

Ignition System

Ignition	One Piece Capacitor Discharge
Ignition Timing	27° BDTC (Non - Adjustable)
Muffler	Dual Chamber Soft-Tone

Fuel System

Carburetor	All Position Diaphragm Type with remote Primer Bulb
Intake	Piston Port Induction
Air Filter	Flocked Type
Engine Shut off	Rocker Switch on Control Panel
Fuel Capacity (ml)	18.6 fl. oz. (350)
Fuel Mix Ratio	Use Premium Exact Mix®
Throttle Control	Trigger type with safety interlock, throttle latch for starting.

Chain And Guide Bar

Guide Bar Lengths	13''- 20'' Power Tip®
-------------------	-----------------------

General

Automatic Chain Oiling	Minimum 7cc per minute at 9000 rpm
Vibration Isolation	Three point, spring type
Chain Brake	Standard
Saw Chain Type	.325
Run Time	25 minutes
Weight Lbs (kg)	10 lbs (4.5 kg) powerhead only
Warranty	1 Year Limited

TORQUE SPECIFICATIONS

NOTE: TORQUE SPECIFICATIONS ARE GIVEN IN INCH POUNDS AND NEWTON METERS (N·M)

SIZE & TYPE	QTY	APPLICATION	TORQUE LIMITS (IN. LBS)	TORQUE LIMITS (N·M)
10-24 HEX NUT	2	CARB. BOLTS	30-40	3.4-4.5
10-24 x .875 TRUSS HD. TAPTITE SCREW	2	CARB. SPACER TO CYL.	45-55	5.4-6.6
8-16 x .625 PAN HD. PLASTITE SCREW	2	AIR FILTER TOP TO BASE	15-20	1.8-2.4
5/16-18 HEX NUT	2	DRIVE CASE COVER TO UNIT	90 - 100	10.2-11.3
10-14 x .750 TRUSS HD. PLASTITE SCREW	1	CHAIN STOP TO ENG. HSG.	30-50	3.4-5.6
6-19 x .500 PAN HD. PLASTITE SCREW	1	BAR PLATE TO ENG. HSG.	8-18	0.9-2.0
8-32 X .625 ALLEN HD. MACHINE SCREW	1	L. H. & R. H. PIVOTS TO ENG. HSG.	25-35 (1)	2.8-3.9
10-32 HEX NUT	3	MUFFLER BOLTS	50-60	5.6-6.8
CLUTCH	1	CLUTCH TO C/SHAFT	130-180	14.7-20.3
5/16-24 JAM NUT	1	ROTOR TO C/SHAFT	100-150	11.3-23.0
8-32 x .625 PAN HD. TAPTITE SCREW	2	IGNITION MODULE TO CYL.	30-40 (1)	3.4-4.5
10-24 x 2.00 TORX HD. MACHINE SCREW	4	CYLINDER TO ENG. HSG.	65-75 (1)	7.3-8.5
8-16 x .630 PAN HD. PLASTITE SCREW	2	OIL PUMP TO C/CASE	15-20	1.8-2.4
10-14 X .750 TRUSS HD. PLASTITE SCREW	1	STARTER PULLEY TO STARTER HSG	30-40	3.4-4.5
10-14 x .625 TRUSS HD. PLASTITE SCREW	2	STARTER HSG TO ENG. HSG. (TOP)	30-40	3.4-4.5
10-14 x .875 TRUSS HD. PLASTITE SCREW	2	STARTER HSG TO ENG. HSG. (BOTTOM)	30-40	3.4-4.5

(1) Use Thread Locking Compound

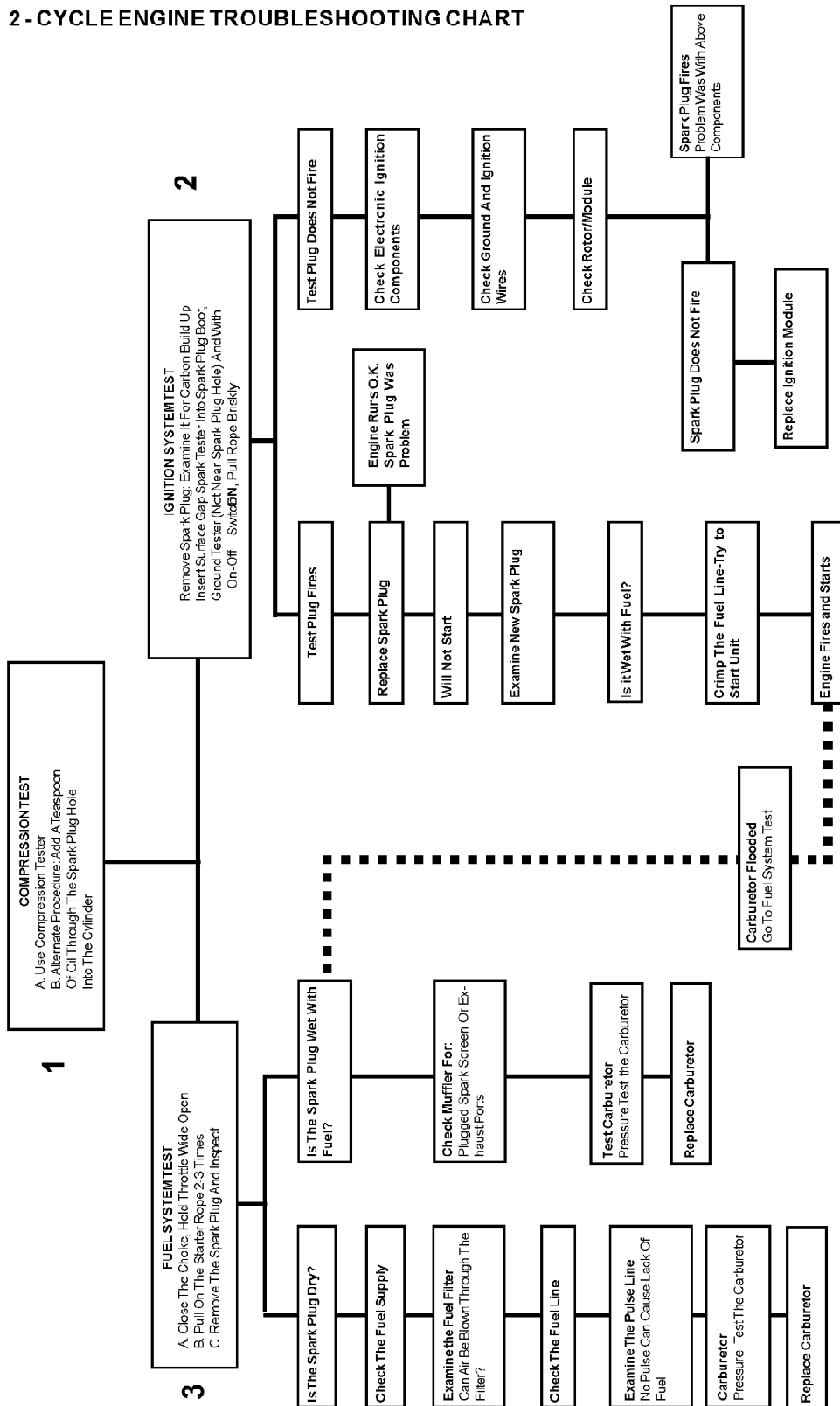
TORQUE SPECIFICATIONS

NOTE: TORQUE SPECIFICATIONS ARE GIVEN IN INCH POUNDS AND NEWTON METERS (N·M)

SIZE & TYPE	QTY	APPLICATION	TORQUE LIMITS (IN. LBS)	TORQUE LIMITS (N·M)
SPARK PLUG	1	SPARK PLUG TO CYLINDER	120-180	13.6-20.3
10-14 x .750 TRUSS HD. PLASTITE SCREW	4	FRONT HANDLE TO ENGINE HOUSING	40-50	4.5-5.6
8-16 x .625 PLASTITE SCREW	1	HANDGUARD TO ENG. HSG	25-30	2.8-3.4
10-14 x .750 TRUSS HD. PLASTITE SCREW	3	HANDLE COVER TO HANDLE	30-40	3.4-4.5
10-16 TYPE B DEEP SLOT PAN HD. SCREW	3	CYLINDER COVER TO ENG. HSG.	15-25	1.8-2.8
10-14 x .500 TRUSS HD. PLASTITE SCREW	1	BUMPER SPIKE TO ENG. HSG.	30-40	3.4-4.5
10-24 NUT AND 10-24 x .625 PAN HD. TORX MACHINE SCREW	1	BUMPER SPIKE TO ENG. HSG.	40-50	4.5-5.6
6-19 x .500 PAN HD. PLASTITE SCREW	2	CHAIN BRAKE COVER TO ENG. HSG.	10-20	0.7-2.4
8-32 x .625 HEX SOCKET MACHINE SCREW	1	CHAIN BRAKE PIVOT TO ENG. HSG.	25-35 (1)	2.8-3.9
8-16 x .320 PHILLIPS PAN. HD. SCREW	1	BRAKE BAND TO SLIDER	15-25	1.8-2.8
10-14 x .625 TRUSS HD PLASTITE SCREW	3	ISOLATOR SPRINGS TO HNDLS & HSGS	30-40	3.4-4.5
12-14 x 1.50 HEX WASHER HD. PLASTITE SCREW	1	FRONT HANDLE TO REAR HANDLE	40-50	4.5-5.6
10-14 x .500 TRUSS HD. PLASTITE SCREW	1	ISOLATOR SPRINGS TO HANDLES AND HOUSINGS	30-40	3.4-4.5
10-24 x .625 TRUSS HD. TAPTITE SCREW	1	ISOLATOR SPRING TO CYL.	40-50	4.5-5.6
10-14 x .500 TRUSS HD. PLASTITE SCREW	2	ISOLATOR PLATE TO HANDLE	30-40	3.4-4.5
10-14 x .500 TRUSS HD. PLASTITE SCREW	1	THROTTLE CABLE BLOCK TO CARB SPACER	30-40	3.4-4.5

TROUBLESHOOTING

2 - CYCLE ENGINE TROUBLESHOOTING CHART



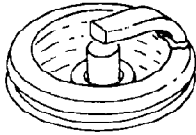
TROUBLESHOOTING

SPARK PLUG

TROUBLESHOOTING CHART

Remove spark plug and examine it for the following:

NORMAL



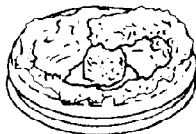
DESCRIPTION

Few combustion deposits on plug. Electrodes not burned or eroded. Insulator tip color, brown to light tan.

ANALYSIS

Ignition and Carburetion in good condition. Plug is in good condition. Clean and replace or install new spark plug of same heat range.

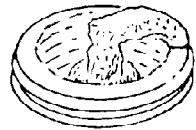
OXIDE FOULING



Electrodes not worn (may be covered with deposits). Insulator nose choked or splattered with ash-like deposits. Deposits are thrown against and adhere to the side electrode. Flying deposits may also wedge between the electrodes, shorting out the plug.

Excessive combustion chamber deposits. Clogged exhaust or muffler. Wrong fuel mix or use of non-recommended oils.

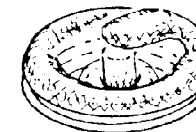
GAP BRIDGING



Spark gap shorted out by combustion particles fused between electrodes. Originating from combustion chamber or piston crown.

Excessive carbon in cylinder. Use of non-recommended oils and / or fuels. Improper fuel-oil ratio. Clogged exhaust ports.

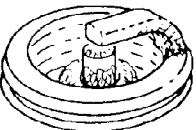
WET FOULING



Insulator tip black. Damp oily film over firing end. Carbon layer over entire nose. Electrode not worn.

Idle speed too low. Idle adjustment too rich. Weak ignition output. Air filter badly clogged. Wrong fuel mix (too much oil, wrong type oil). Excessive idling. Plug too cold for type of work. Hi-speed not adjusted properly (too rich).

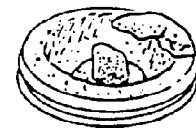
OVERHEATED



Electrode burned. Insulator tip color, light grey or chalk white.

Carbon clogged exhaust ports or muffler. Dirty or sawdust clogged cylinder fins. Lean carb. setting, dull chain teeth causing engine overload. Air leak in fuel line, ruptured fuel pump diaphragm. Wrong spark plug heat range (too hot).

WORN OUT



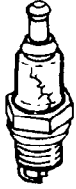
Corrosive gases produced by combustion attack the electrodes. High voltage spark wears down electrodes. Increases distance the spark must jump.

This condition requires more voltage to fire the plug, often more voltage than the ignition system can produce. Replace with new plug of the same heat range.

TROUBLESHOOTING

SPARK PLUG TROUBLESHOOTING CHART

SHELL INSPECTION



DESCRIPTION

1. Wet with fuel.
2. Cracked or broken porcelain.
3. Air gap.

ANALYSIS

Flooded, incorrect carburetor setting (too rich), no spark.

Insulation breakdown, will cause shorted or grounded condition.

Air gap too wide intermittent or no spark. Reset gap to .025" (0.64 mm)

TROUBLESHOOTING

Remove the Cylinder Cover

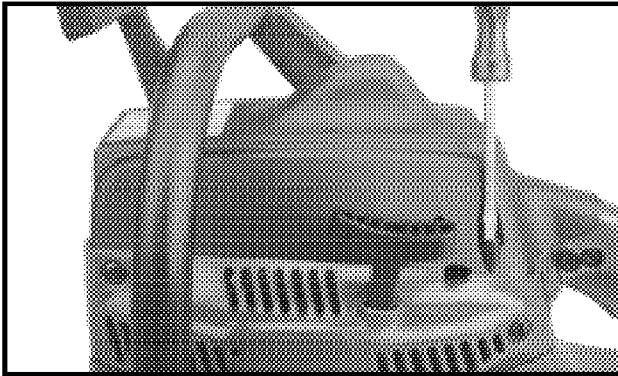


FIGURE 1

Remove the cylinder cover by loosening the three #10 - 16 x 1 1/2" screws, then lift the cylinder cover off the unit.

This is the only reliable way to compression test the spark plug and test the potential voltage available in the solid state ignition. If no spark is present, proceed with further testing.

Compression Testing

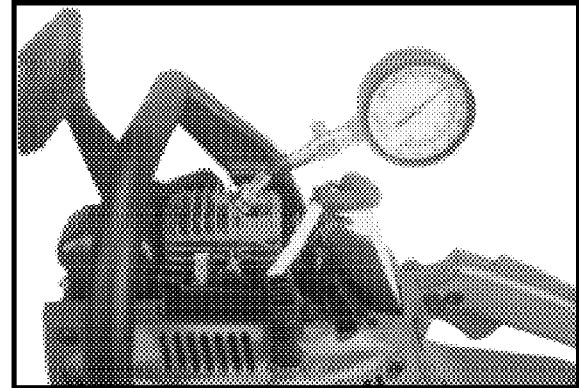


FIGURE 3

Low compression will cause hard starting, erratic idling, loss of power under load, and hard starting when hot.

Remove the spark plug. Place the choke lever in the OFF position. With the throttle wide open, pull the starter grip rapidly several times to purge any excess fuel in the crankcase and cylinder.

Insert a compression gauge into the spark plug hole. Pull the starter grip rapidly 12 to 15 times or until the compression gauge reaches its peak.

Engine compression should be: Hot Engine 115 - 140 psig (7.9 - 10 bars). Cold Engine 125 - 150 PSIG (8.7 - 10 bars).

Testing Ignition Output

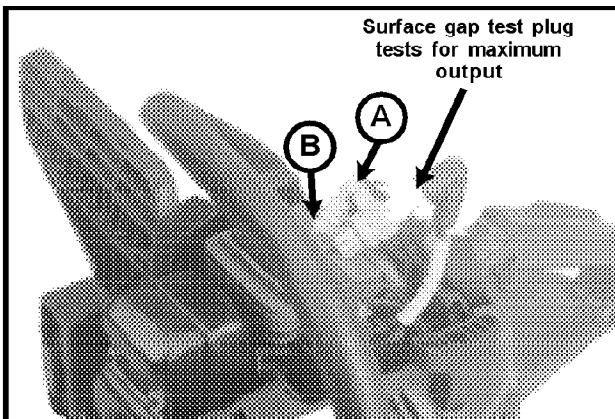


FIGURE 2

Remove the spark plug terminal (boot) from the spark plug. Insert the spark tester between the spark plug terminal and the tip of the spark plug (Point A above). Pull the starter grip rapidly (at least 800 R.P.M.). A spark should jump the 3/16" - 1/4" gap between the tester electrodes.

WARNING: If all components in the ignition system are working, this test may result in the starting of the unit. Always make this test in a safe area.

If a spark occurs, the ignition module and spark plug are performing properly. If no sparking occurs, connect the tester to the base of the plug (Point B above) and pull the starter grip again. If a spark jumps the gap, it indicates spark plug failure under compression. Replace the spark plug and retest. If no sparking occurs at point A or B, the failure is with the other ignition components.

FUEL SYSTEM

If testing has indicated the fuel system is causing the problem, perform the following tests to narrow the area of inspection.

Fuel Filter Inspection

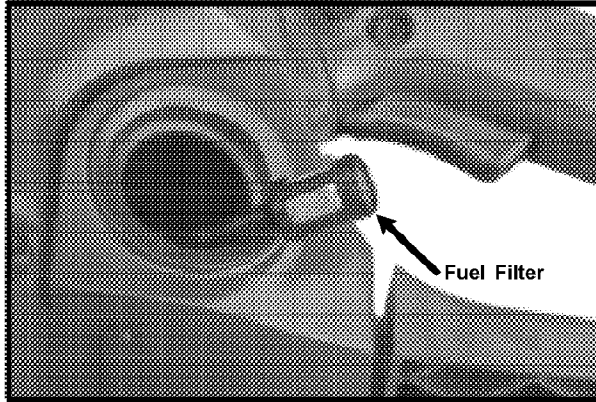


FIGURE 4

Remove the fuel cap and drain all the fuel from the fuel tank. Use a hook to pull the flexible fuel line and fuel filter from inside the tank. Inspect the fuel filter for buildup of dirt and debris. If the filter is discolored (yellow) or if dirt streaks are visible replace the filter. A fuel filter that is loaded with dirt will cause hard starting and dying out in the cut (when the saw is under full load).

Examine the fuel line for kinks, tears or pin hole leaks. The line should be flexible and should spring back if compressed. Replace the line if it is hard or stiff to the touch. A hard or stiff line cannot follow the fuel in the tank.

Fuel Pump and Fuel Line Integrity

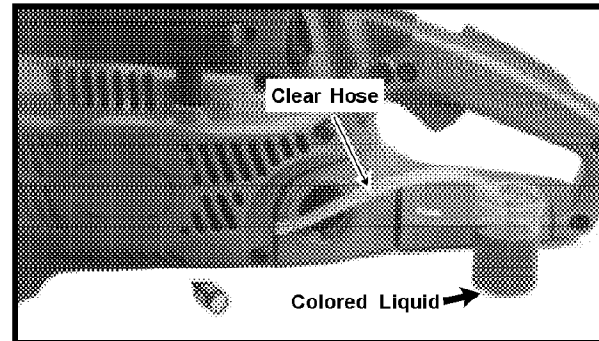


FIGURE 5

Remove the fuel filter from the fuel pick up line. Connect a length of clear plastic tubing to the fuel pick up line. Add some colored liquid (colored water, coffee, soda, etc.) to a small open top container. Place the end of the clear plastic tubing into the colored liquid. Close the choke on the carburetor. Pull the starter grip briskly.

Look for the colored liquid to begin to travel up the clear tubing toward the carburetor. If the colored liquid moves up the clear tubing, **stop** pulling the starter grip. This indicates that the crankcase is delivering the needed pulse / vacuum to the carburetor and that the fuel pump side of the carburetor is working.

If the colored liquid does not move up the clear tubing the problem may be in the fuel line, carburetor fuel pump area, the inlet screen area, inlet needle and seat area, leaking external pulse line, etc. and will require further testing to determine the cause of the problem.

Pressure Testing the Carburetor

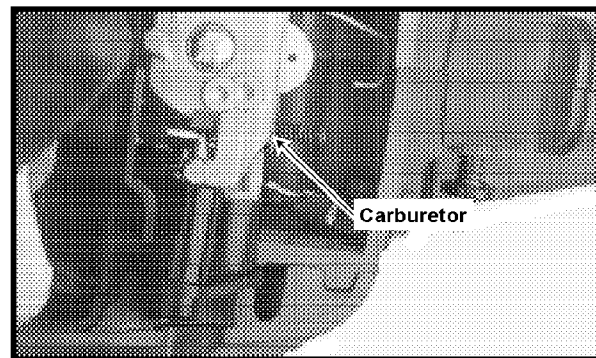


FIGURE 6

Pressure testing the carburetor will test the fuel inlet line, pump cover and gasket integrity, fuel pump inlet and outlet check valves, fuel inlet screen and the inlet needle valve and seat.

FUEL SYSTEM

Pressurize the Carburetor

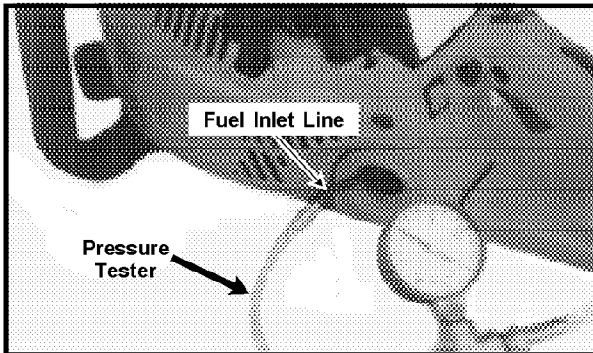


FIGURE 7

Drain the fuel from the fuel tank and remove the fuel filter from the fuel pickup line. Push a straight fitting on the fuel pickup line and then push a pressure tester line on the other end of the fitting.

Pressurize the carburetor to 5 - 6 psig (pounds per square inch - gauge) or 0.3 - 0.4 bars. The fuel pump side of the carburetor should hold pressure. If not, push the fuel inlet line off the carburetor fitting (at top of the carburetor) and insert the pressure tester line on the carburetor fitting. Once again pressurize the carburetor. If it now holds pressure, the fuel line has a pin hole or tear and must be replaced. If not, the carburetor will have to be replaced.

Remove the Air Filter:

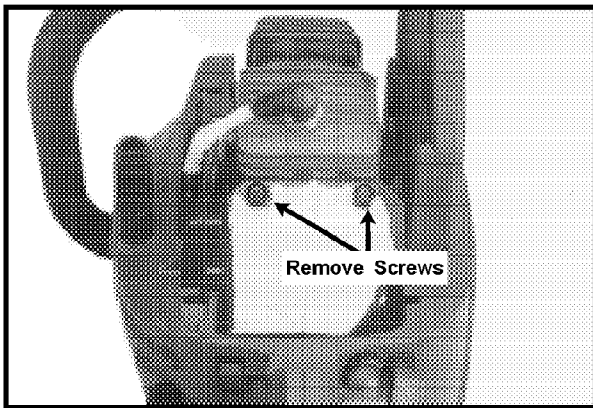


FIGURE 8

Use a screwdriver to remove both air filter cover (#8-16 x 5/8") slotted pan head screws. Lift the top air filter half from the air filter base. The air filter is a flocked type filter and can be serviced by blowing compressed air (from the inside out) or if you are in the field, brush the saw dust particles and dust off the filter.

Remove the Air Filter Base

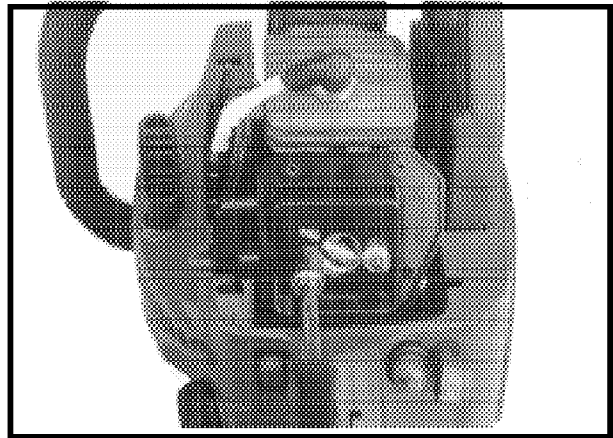


FIGURE 9

Use 3/8" combination or open end wrench to remove the two carburetor mounting flange hex nuts (10 - 24). Then, slide off the air filter base.

Remove the Carburetor, Grommet, Choke Rod, Fuel Lines (Non-Vibration Isolated Units)

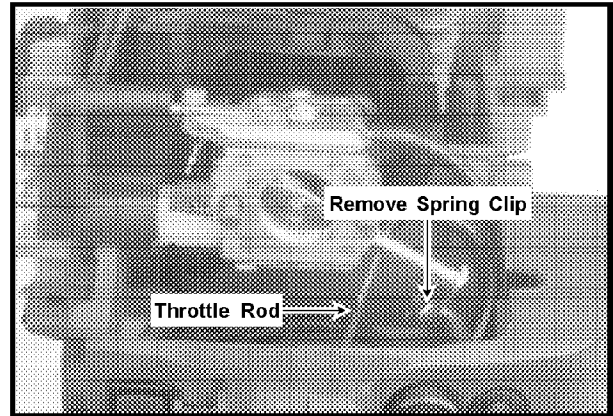


FIGURE 10

Use a pair of needle nose pliers to remove the spring clip off the choke rod. The choke rod can now be removed from the carburetor linkage and pulled out of the grommet.

Use a pair of needle nose pliers to disconnect the throttle rod from the throttle trigger.

FUEL SYSTEM

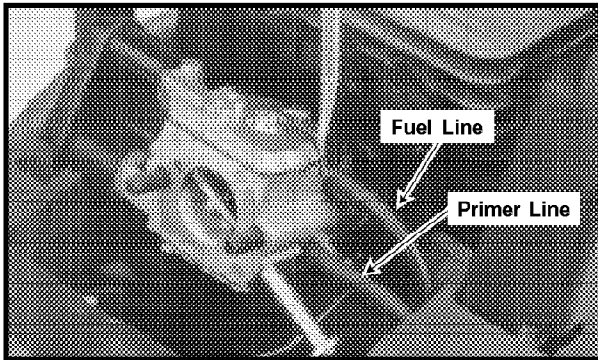


FIGURE 11

Use a flat blade screwdriver to push the inlet line and primer inlet line off the carburetor.

Inspect the fuel return line, overflow line and fuel inlet line for signs of abrasion or pin hole leaks. Use a pressure tester and vacuum gauge if the diagnosis (lean running, will only start on choke) warrants their use.

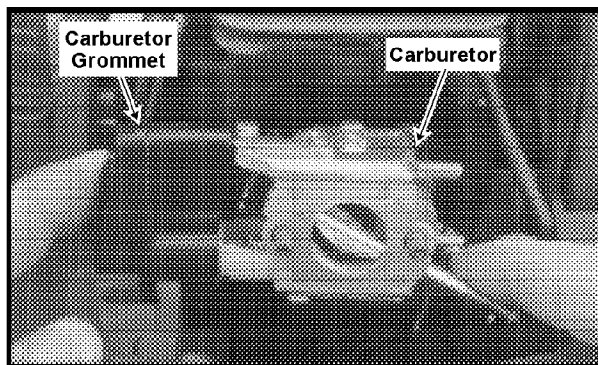


FIGURE 12

Rotate the carburetor and grommet (clockwise as viewed from the clutch side of the unit) as far as they will go against the carburetor studs. Then pull back on both parts simultaneously to force the grommet out of the housing.

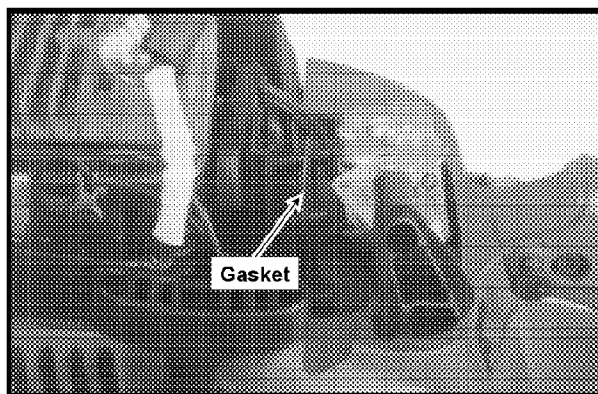


FIGURE 13

Once the carburetor is pulled off the studs and lifted out of the engine housing, the throttle rod can be removed from the carburetor and the carburetor gasket taken off the two studs.

Remove The Carburetor (Vibration Isolated Units)

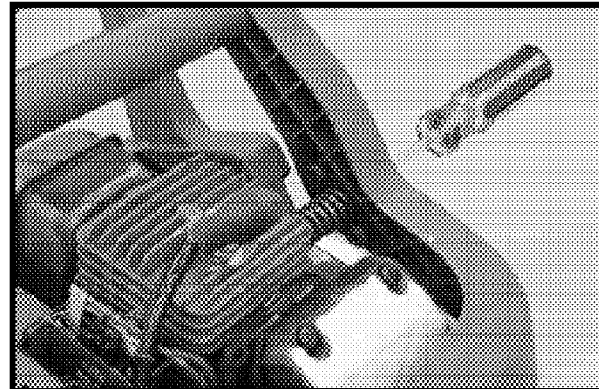


FIGURE 14

Remove only clutch isolator (10-24 x 5/8) screws with a T-25 Torx bit.

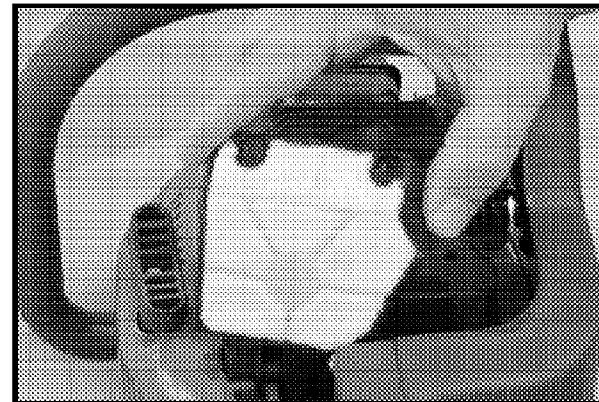


FIGURE 15

Use a screwdriver to remove both air filter cover (#8-16 x 5/8 slotted pan head) screws. Lift the top air filter half from the air filter base. The air filter is flocked, polyester mesh type and can be serviced by blowing compressed air (from the inside out) or if you are in the field, brush the saw dust particles and dust off the filter.

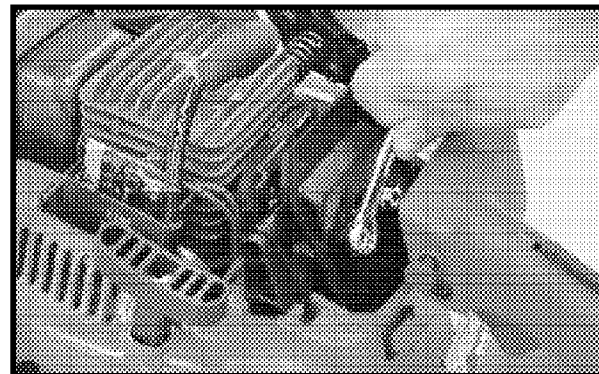


FIGURE 16

Use 3/8 combination or open end wrench to remove the two carburetor mounting flange hex nuts (10-24). Then, slide off the air filter base.

FUEL SYSTEM

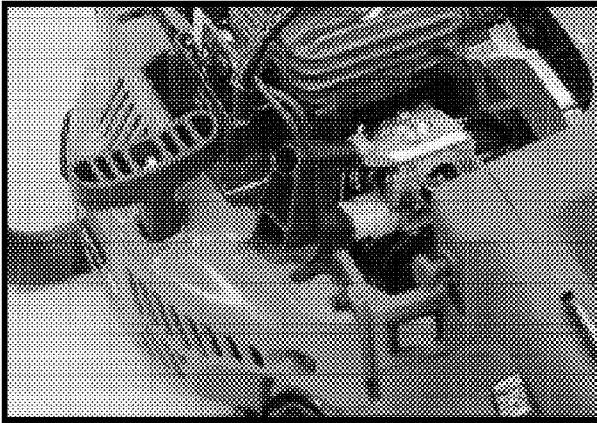


FIGURE 17

Loosen the four starter mounting screws (Two #10-14 x 3/4 at bottom and two #10-14 x 5/8 at top) with a T-25 Torx bit. Pull the grommet up and away from the adjusting screws.

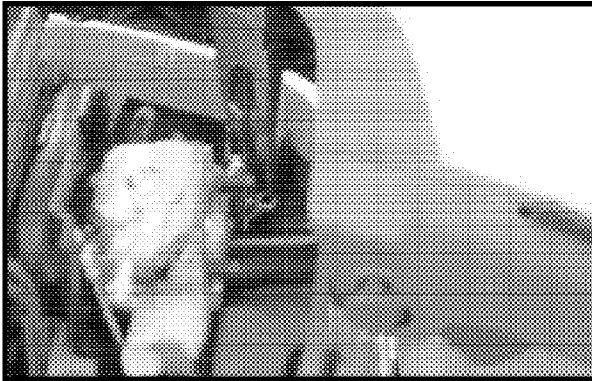


FIGURE 18

Use a pair of needle nose pliers to remove the spring clip off the choke rod. The choke rod can now be removed from the carburetor linkage and pulled out of the grommet.

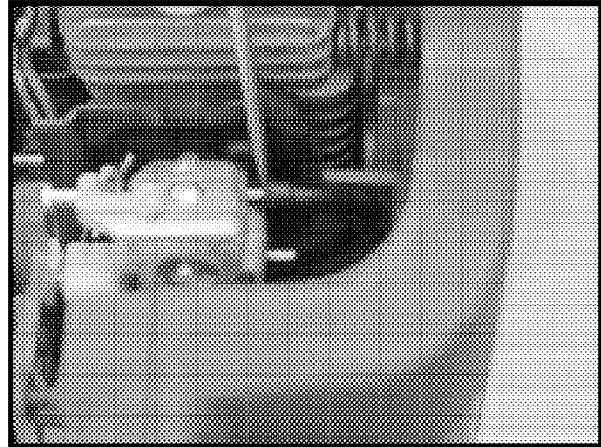


FIGURE 19

Use a flat blade screwdriver to push the inlet line and primer discharge line off the carburetor.

Inspect the fuel line, overflow line and fuel pick up line for signs of abrasion or pin hole leaks. Use a pressure tester and vacuum gauge if the diagnosis (lean running, will only start on choke) warrants their use.

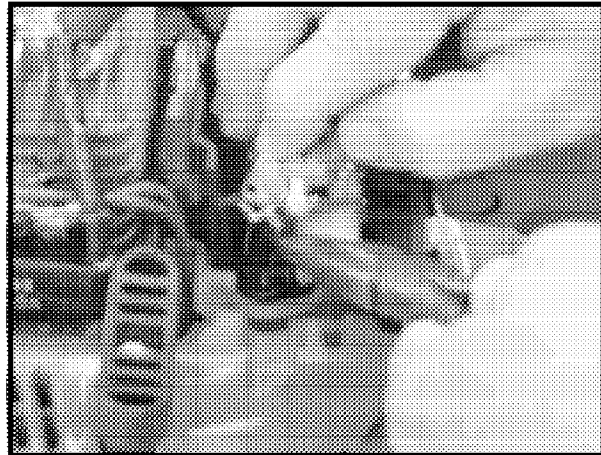


FIGURE 20

Hold throttle plate wide open and disconnect the throttle carburetor Z fitting from the carburetor with a pair of needle nose pliers.

FUEL SYSTEM

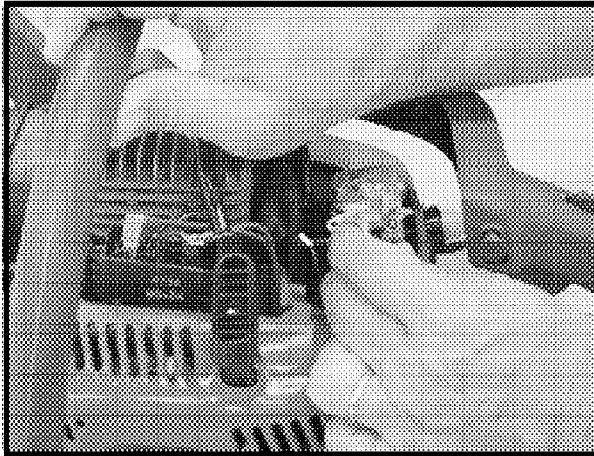


FIGURE 21

With the choke at wide open position, pull back on the handle and slide the carburetor and then the gasket off the two mounting studs.

Pulse Test, Heat Dam Removal

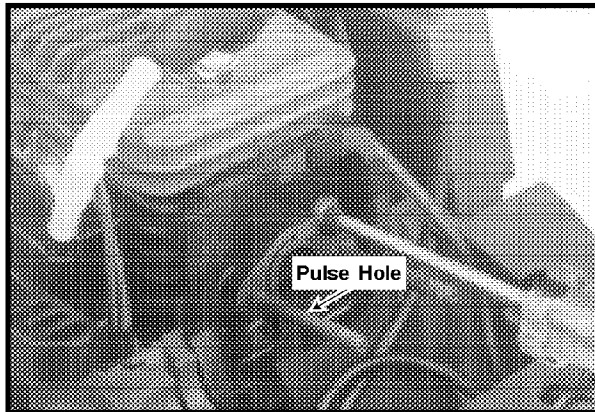


FIGURE 22

To test for pulse through the heat dam, place one or two drops of oil in the carburetor heat dam pulse hole.

Pull rapidly on the starter grip. The oil should be pushed out of the pulse hole, indicating that the passage way is clear.

If there is no pulse, remove the two 10 - 24 x 7/8" Torx spacer screws with a T - 25 Torx bit. Then remove the heat dam, two carburetor retaining studs, and heat dam gasket. Examine the parts and pulse passageway to find the fault.

REPLACEMENT CARBURETOR ADJUSTMENT PROCEDURE

Anytime a carburetor is replaced; it might need some preliminary adjustments. New replacement carburetors are shipped with the plastic limiter caps not permanently seated. Only after the final adjustments are made to the carburetor should the limiter caps be pushed down over the serrated part of the adjustment needle.

After a new replacement carburetor is installed and before any adjustments are made, start and run the unit until it is at its full operating temperature. (about four to five minutes) If the unit will not start, back out the idle screw slowly until you can see a gap between the lever and the screw. Then turn screw back in slowly until it touches but does not move the lever. Now turn the screw in 1/2 to 3/4 turn more to move the lever (which will open the throttle valve slightly).

New replacement carburetors are shipped with the plastic limiter caps not permanently seated.

Remove the limiter caps by gently pulling up on them with needle nose pliers.

Now close both adjustment needles very slowly clockwise, until each gently bears against its seat.

The idle mixture adjustment is called the LO NEEDLE. It meters the flow of fuel in the idle system. Open the LO NEEDLE one turn.

The main mixture adjustment is called the HI NEEDLE. It meters the fuel drawn through the main jet for full power operation. Open the HI NEEDLE 1 turn.

FOR IDLING: Start and run the chain saw until it is at full operating temperature (run at least five (5) minutes). Then turn the LO NEEDLE slowly to the left and then back to the right while noting the effect on the idle speed. At this point, DO NOT adjust the IDLE SPEED SCREW to change the speed, but set the LO NEEDLE at the highest speed obtainable, then back off on the needle until the RPM just starts to decrease.

The needle is now adjusted to RICH OPTIMUM.

Now you can adjust the proper idle speed with the IDLE SPEED SCREW. The proper speed is slightly below that which would cause clutch engagement but fast enough that the engine idle will be stable at any altitude. Adjust the Idle Speed Screw so that the unit idles from 2800 to 3200 rpm..

Pull trigger to WOT to make sure acceleration is good and without hesitation.

With the throttle held in WOT position, apply a load to the engine. Adjust the HI needle to a RICH OPTIMUM setting. (This is achieved by setting HI needle to a maximum rpm under load and back-off needle counterclockwise until there is a 200rpm speed drop.)

The HI and LO needle limiter caps are now ready to be pressed into their tamper-proof (RICH STOP) position without changing their settings (without the needles turning).

The maximum no-load RPM should be between 11,500 and 12,000 RPM.

FUEL SYSTEM

Testing the Primer Bulb

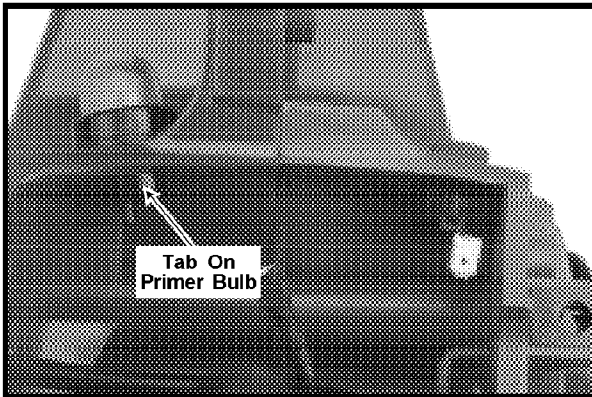


FIGURE 23

The primer bulb can be removed by pushing squeezing the two tabs on the primer bulb and pushing it out the back of the engine housing.

Cleaning the Pre - Filter

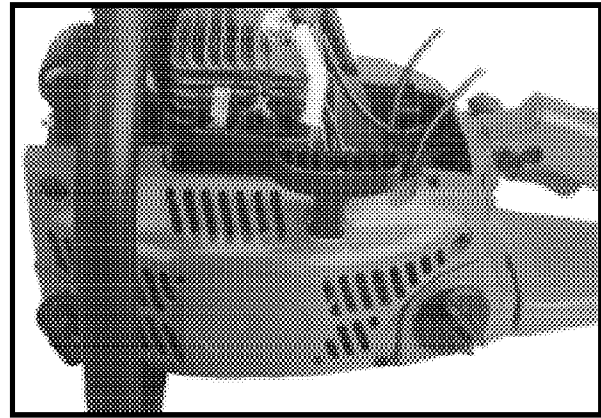


FIGURE 25

Remove the four starter housing screws (two #10 - 14 x $\frac{3}{16}$ " at the bottom and two #10 - 14 x $\frac{5}{16}$ " at the top) with a T - 25 Torx bit. Remove the air scroll and set it aside.

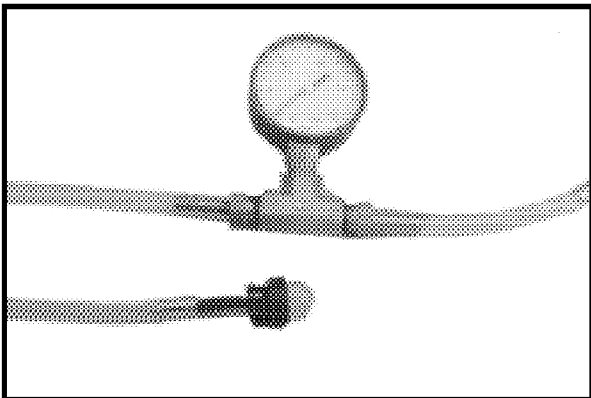


FIGURE 24

Attach a pressure tester to the long (discharge) fitting on the primer bulb. Push on the primer bulb. The gauge needle should rise every time the bulb is depressed. If the needle does not rise the umbrella valve inside the primer bulb is stuck closed. If the needle rises and falls with each stroke (and release) of the bulb, the valve is stuck open.

Switch the pressure tester to the short (inlet) fitting on the primer bulb. Pressurize the bulb to 5 - 6 psig (0.3 - 0.4 bars). The bulb should hold pressure (unless it is completely dry). If the bulb continues to leak even when wet with fuel, replace the bulb. If the bulb holds pressure, push on the bulb. The pressure gauge needle should drop each time the bulb is depressed. If not, replace the bulb.

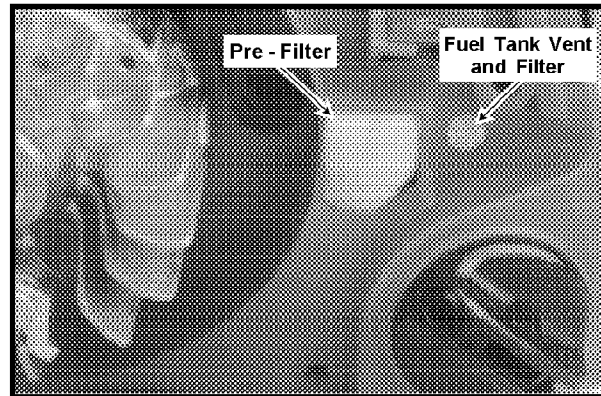


FIGURE 26

The chain saw draws all of the air for combustion from the fan (rotor) through a channel in the air scroll and past the foam pre - filter and into the carburetor chamber. The pre - filter is a dense closed cell foam filter designed to keep larger particles of dirt and debris from entering the carburetor chamber and to trap sawdust fines that would otherwise end up on the main flocked filter. The foam pre - filter should be cleaned with a soap and water solution and allowed to air dry before reinstalling it on the saw.

To the right of the pre - filter is the sintered bronze filter and beneath it a duck bill check valve. These two parts are the vent for the fuel tank. If this vent is plugged up the saw will starve for fuel - quit running after a short time until the fuel cap is cracked open.

FUEL SYSTEM

Muffler Removal and Inspection

The muffler should be removed and inspected periodically for carbon build up.

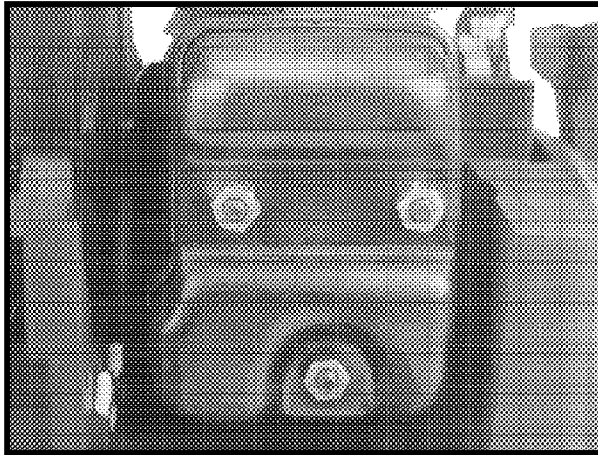


FIGURE 27

Use a $\frac{3}{8}$ " socket or wrench to remove the three 10 - 24 lock nuts holding the muffler to the cylinder. Slide the muffler off the three mounting studs.

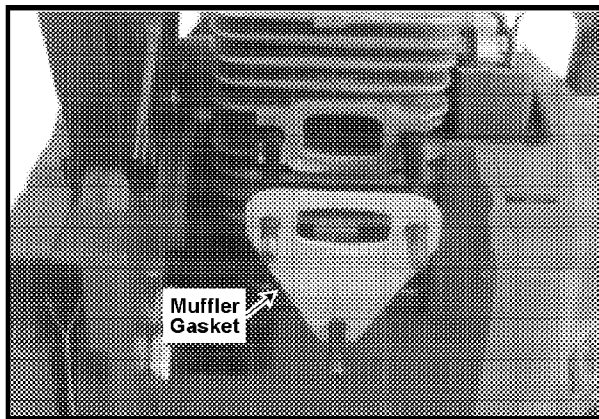


FIGURE 28

Pull the muffler gasket off the cylinder. Inspect the cylinder exhaust ports for carbon buildup.

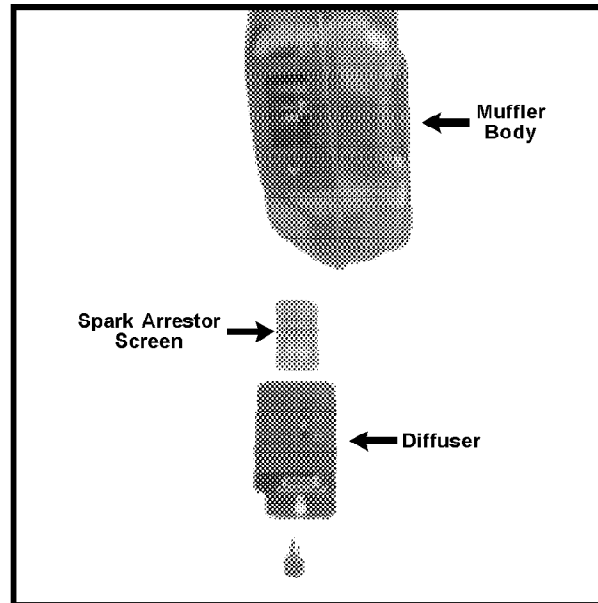


FIGURE 29

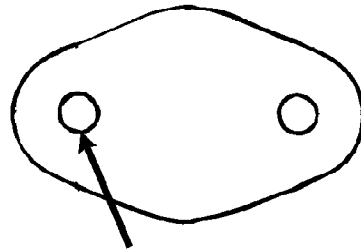
Remove the muffler diffuser and spark screen from the muffler body by using a T - 20 Torx bit or driver to remove the 8 - 32 x $\frac{3}{8}$ " retaining screw.

If the spark screen, muffler body or exhaust ports are plugged the saw will be hard starting, have low power (under load) and in the worst case, will only allow the engine to start and run at idle or will not start at all.

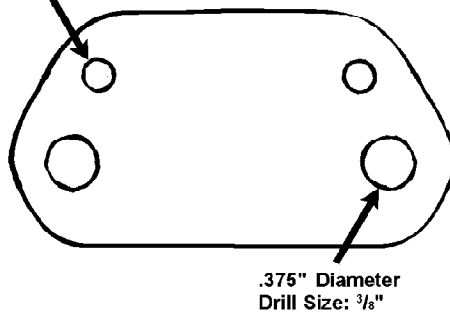
The spark screen can be replaced or cleaned.

FUEL SYSTEM

Crankcase / Cylinder Pressure and Vacuum Testing



.190" Diameter
Drill Size: #15, 3/16"



SEALING PLATE TEMPLATES

Pressure and vacuum testing of the crankcase / cylinder is an important procedure that is often overlooked. All air going into the engine must pass through the carburetor. Air bypassing the carburetor because of leaking seals, gaskets or porous castings will cause hard starting, erratic idling, poor acceleration and deceleration. Pressure and vacuum testing the crankcase and cylinder is the best way to determine where a leak is occurring.

Pressure Testing

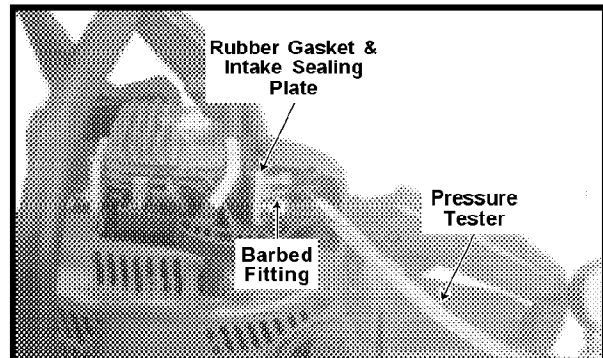


FIGURE 30

To pressure test the crankcase, close off both intake and exhaust ports with sealing plates and rubber gaskets as shown above. *Note:* The intake sealing plate has been drilled and tapped. A barbed fitting (purchase locally) is in the intake plate.

Use pressure tester, part #97197, to introduce 5 - 6 PSIG (0.3 - 0.4 bars) of pressure into the crankcase and cylinder. The crankcase should hold pressure. A drop in pressure indicates an air leak. To find out where the air leak is, spray or paint a soap and water solution on suspected areas (gaskets, seals, castings, etc.).

Vacuum Testing

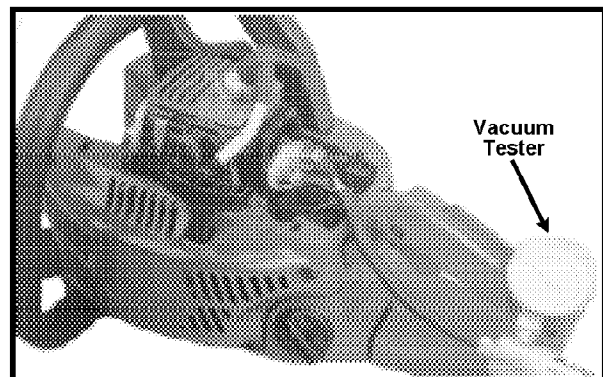


FIGURE 31

Vacuum testing of the crankcase and cylinder is an important part of troubleshooting as the crankshaft seals must seal tight against both vacuum and pressure.

With the intake and exhaust sealing plates in place, install vacuum tester, part #A08279, and actuate the vacuum tester until the gauge needle reaches 5 - 6 inches of mercury (5" - 6" Hg or 12.7 - 15.2 cm Hg). This is generally the point of maximum negative pressure reached during wide open throttle operation.

IGNITION SYSTEM

If there is no spark or the ignition system seems to break down under full load (stutters when accelerated or when the bar and chain are put in the wood) use the following as a guide to help locate the problem.

Remove the Air Filter Cover

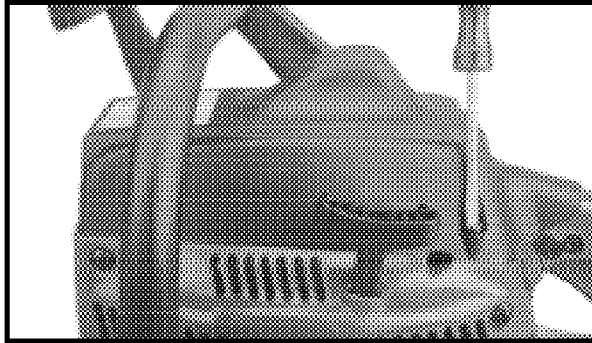


FIGURE 32

Remove the cylinder cover by loosening the three #10 - 16 x 1 1/2" screws, then lift the cylinder cover off the unit.

Spark Plug Removal

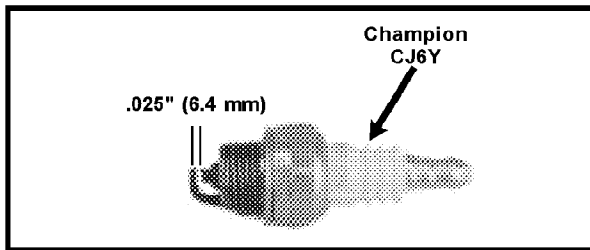


FIGURE 33

Use a 3/4" (19 mm) deep set socket to remove the spark plug. Inspect the plug for deposits, gap bridging, and correct gap (see the troubleshooting section for more details). The spark plug is a Champion CJ6Y (For International units use RCJ6Y). The electrode gap is .025" (6.4 mm).

Ignition Switch Test and Disassembly

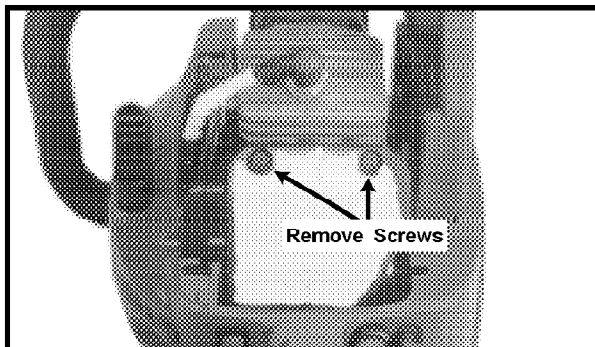


FIGURE 34

Remove the air filter with a straight blade screwdriver and use a 3/8" socket or wrench to remove the two 10 - 24 flange nuts holding the air filter base to the unit. This will allow you to gain access to the two ignition leads and ignition switch for testing / replacement purposes.

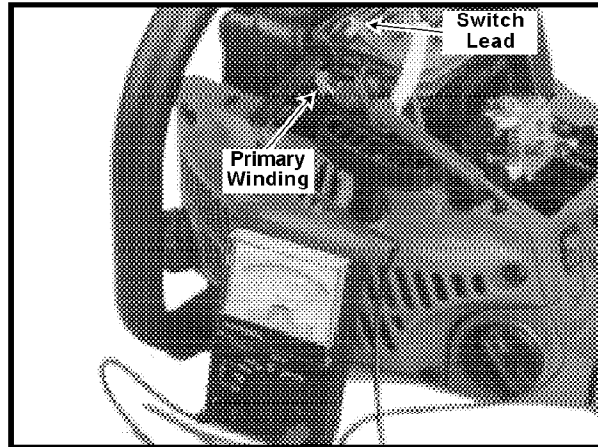


FIGURE 35

Disconnect the ground wire at the module spade terminal by pushing off the flag terminal with a flat blade screwdriver. Select R x 1 on the VOM meter, place the VOM meter probes on the ground wire and ignition lead.

With the switch in the on (I) position there should be no continuity. With the switch in the off (O) position there should be continuity.

Rotor Inspection

The rotor contains a ceramic magnet, which under normal operating conditions, should not require any maintenance except for occasional cleaning.

The rotor may affect the operation of the ignition system if the woodruff key has been sheared, the rotor / module air gap is too wide or if permanent magnetism has been reduced or removed (by striking the rotor magnets with a mallet).

A sheared rotor key will allow the spark plug to fire (even under compression) but the unit will not start. If this condition exists, pull the rotor and check the key and keyway area of the rotor.

IGNITION SYSTEM

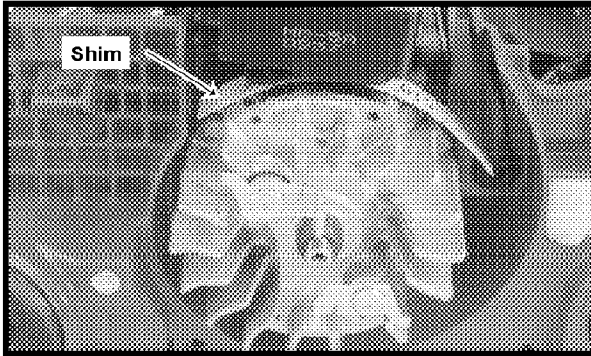


FIGURE 36

Rotor / module air gap must be correct if the ignition system is to work properly. If the air gap is too wide, the voltage output will be too low causing no output under compression or loss of spark after a short period of time or repeated changing of the spark plug. If the air gap is set too close, the rotor and module will suffer mechanical damage.

The rotor / module air gap is .008" (0.2 mm) to .014" (0.35 mm). The air gap should be set with a plastic shim, Homelite Part # PS24306. The shim must be placed between the rotor magnets and module core legs (as shown above). With the module screws loosened, the slotted module core will slide towards the rotor magnets. The module mounting screws are then tightened to maintain the gap.

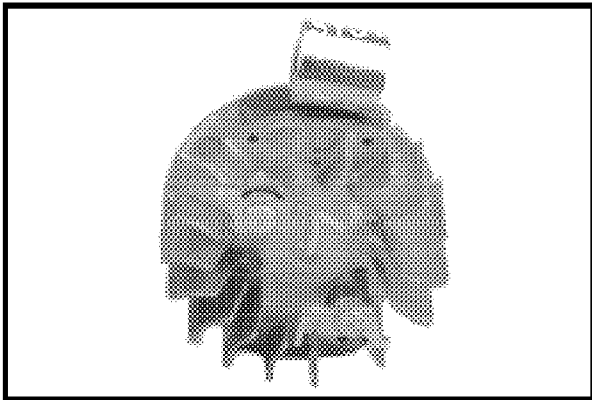


FIGURE 37

Low magnetic field strength in the rotor magnets will likewise reduce output and may cause loss of fire under compression. Test the rotor magnets by placing a large socket on the rotor magnets. Shake the rotor, the magnets should hold on to the socket unless the field is weak.

SERVICE NOTE

Missing fins or damage to the rotor is not acceptable. Always replace the rotor if rotor fins are missing or if there is visible damage to the rotor.

The starter pawls are not replaceable. If the springs and pawls are damaged, the rotor will have to be replaced.

CAUTION

Operating a saw with a damaged rotor could result in a rotor explosion and possible injury.

INTERNAL / ENGINE

DISASSEMBLY AND INSPECTION

Remove the Cylinder Cover

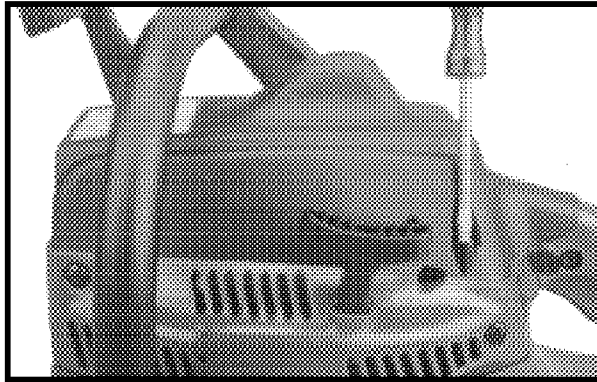


FIGURE 38

Remove the cylinder cover by using a flat blade screwdriver to remove the three #10 - 16 x 1 1/2" deep slot pan head screws.

Remove the Air Filter:

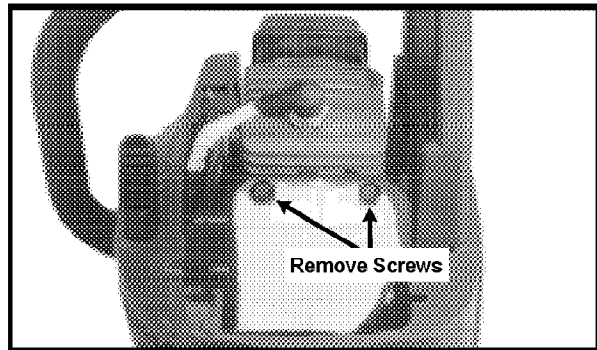


FIGURE 39

Use a T - 25 Torx bit to remove both air filter cover (#8 - 16 x 5/8" slotted pan head) screws. Lift the top air filter half from the air filter base.

The air filter cover is keyed at the bottom and fits into two cutouts in the air filter. Make sure the bottom part of the cover is placed into the two cutouts before inserting the two air filter screws are inserted into the top of the cover.

Remove the Air Filter Base

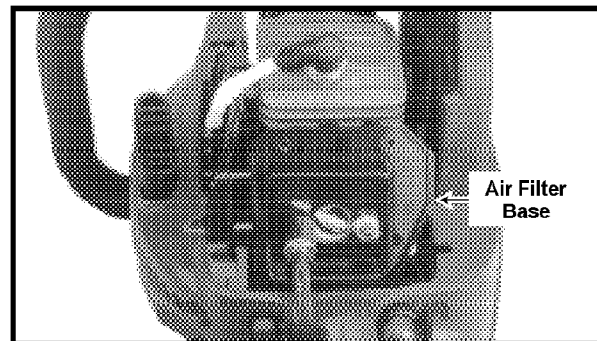


FIGURE 40

Use 3/8" socket to remove the two carburetor mounting flange hex nuts (10 - 24). Then, slide the air filter base off the two carburetor mounting studs.

Rear Handle Disassembly (Non Vibration Isolated Units)

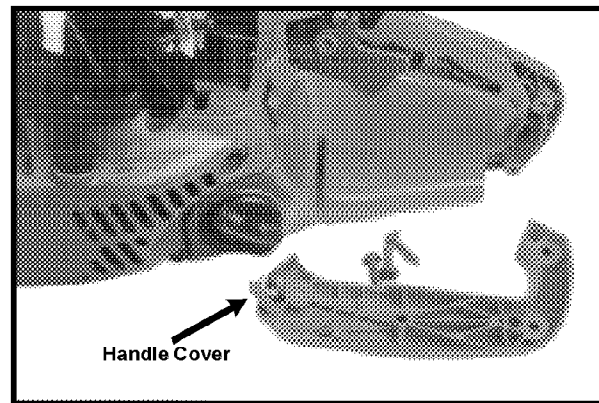


FIGURE 41

Use a T - 25 Torx bit or screwdriver to remove the three handle (#10 - 14 x 3/4") cover screws. The cover will be loose and may be removed.

SERVICE NOTE

All fasteners going into plastic should be rotated counter clockwise until the screw drops in place. This should always be done when reinstalling so the same threads are used and new threads are not cut in the plastic.

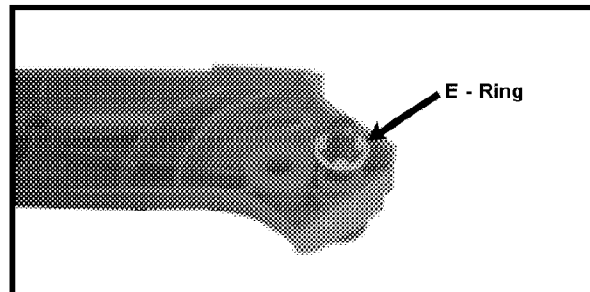


FIGURE 42

The throttle lock may be serviced by using a pair of needle nose pliers to pull the retaining (e) ring off the throttle lock pin.

SERVICE NOTE

If you are going to depress the throttle lock pin to ease disassembly of the retaining (e) ring, slowly release the throttle pin so the compression spring does not fly off the pin.

INTERNAL / ENGINE

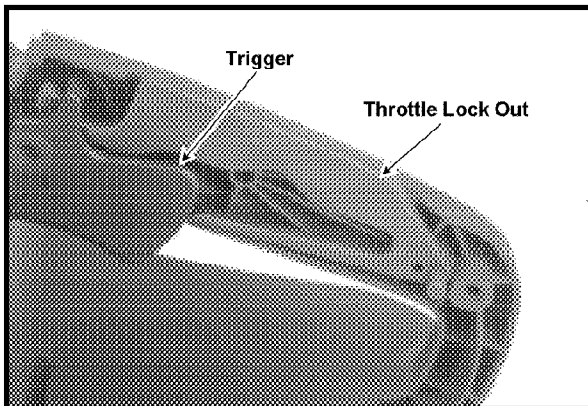


FIGURE 43

Push slightly away and down on the throttle lock out to free it from the handle. Squeeze the throttle lock out together to remove it from the trigger.

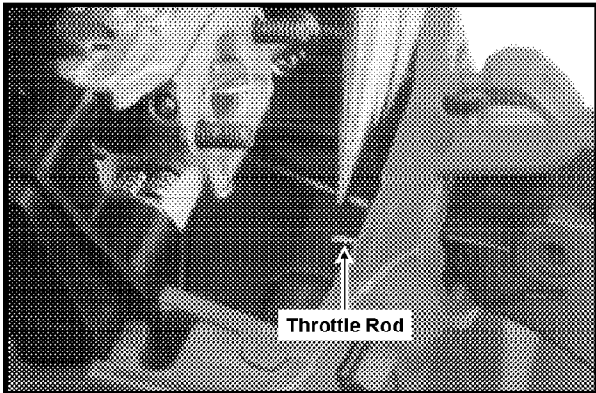


FIGURE 44

Use a pair of needle nose pliers to remove the throttle rod from the trigger, then the trigger can slide off the boss.

Front Handle Removal

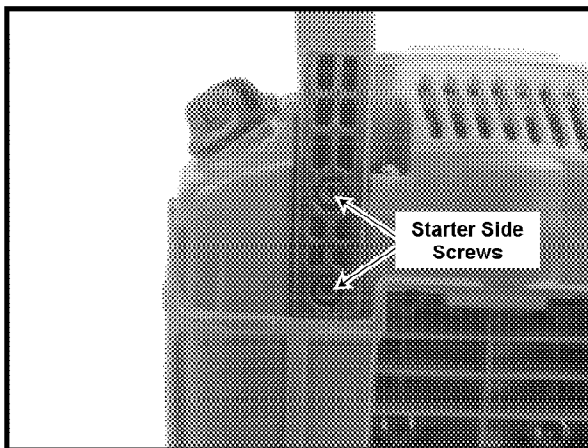


FIGURE 45

Use a T - 25 Torx bit to remove the two (#10 - 14 x 7/8") starter side front handle screws

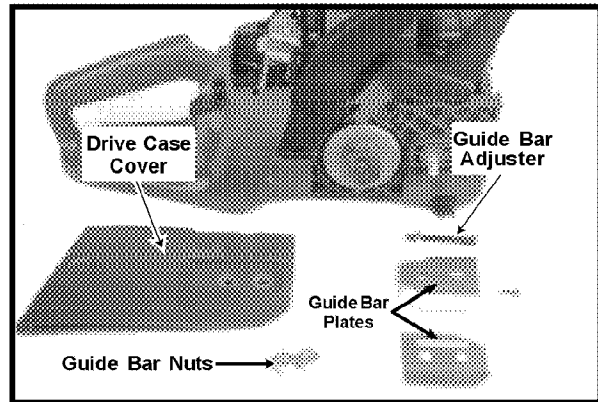


FIGURE 46

Use a 5/8" (16 mm) socket or combination wrench to remove the guide bar nuts. Next, remove the drive case cover, outer guide bar plate, inner guide bar plate (with a #2 phillips screwdriver) and the guide bar adjusting pin, screw and e - ring assembly.

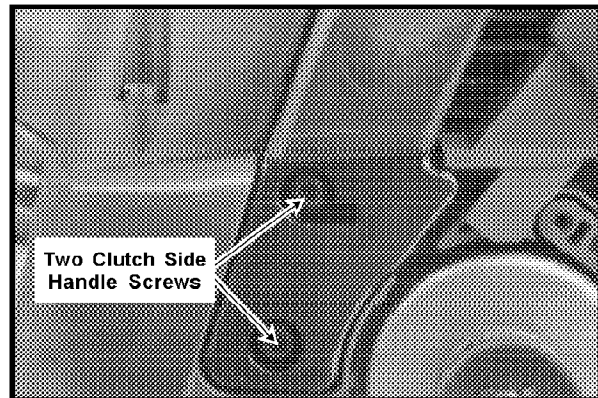


FIGURE 47

Use a T - 25 Torx bit to remove the two (#10 - 14 x 7/8") clutch side front handle screws

INTERNAL / ENGINE

Throttle Cable and Handle Assembly Removal (Vibration Isolated Units)

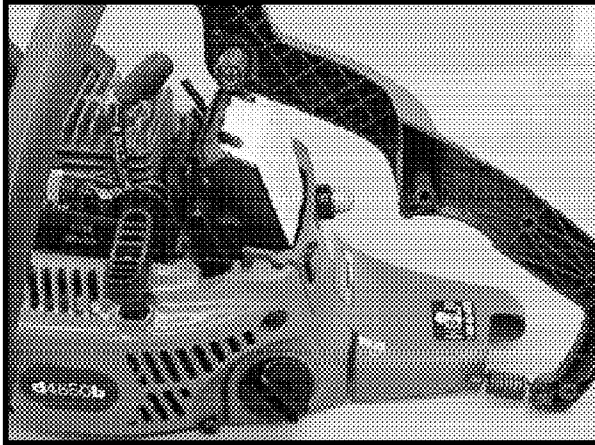


FIGURE 48

The throttle cable housing nests in a rectangular cavity. The throttle cable end fits into a pocket in the handle.

Remove the throttle cable from the handle and use a T-25 Torx bit to remove the two #10-14 x 1/2" starter side and rear handle isolator screws. Then, use the same size bit to remove the clutch side (10-24 x 5/8") isolator screw. Lift the handle assembly off the saw.

Use a T-25 Torx bit to remove the three remaining isolator screws, isolators, isolator plate and isolator limiter.

Starter Assembly Removal, Disassembly and Assembly

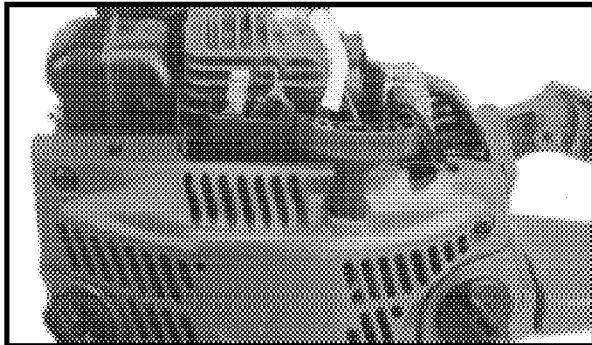


FIGURE 49

Use a T - 25 Torx bit to remove the two top starter mounting screws (#10 -14 x 5/8") and two bottom starter housing screws (#10 -14 x 7/8"). Lift the starter off the saw.



FIGURE 50

If the rope is to be replaced, cut the rope (while holding the pulley) just below the grip and slowly relieve the tension on the spring. If the rope is **NOT** to be replaced, pull approximately 10" (25 cm) of rope out of the starter housing. Align the notch in the pulley flange with the rope exit hole. Place your thumb on the pulley to keep it from turning.

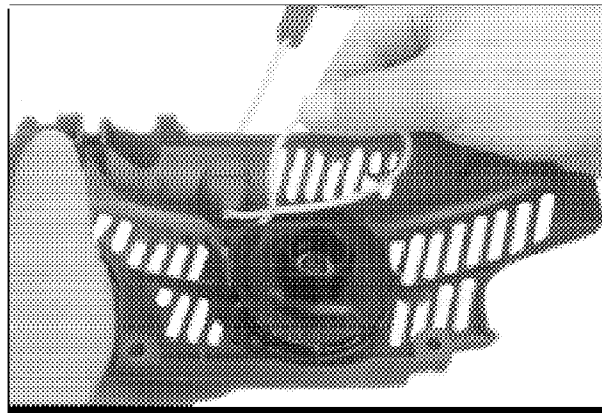


FIGURE 51

Pull the slack rope back through the starter housing to form a loop as shown. Place the loop of rope closest to the pulley into the notch. Apply pressure on rope in the notch while **SLOWLY** unwinding the pulley until spring tension is relieved.

INTERNAL / ENGINE

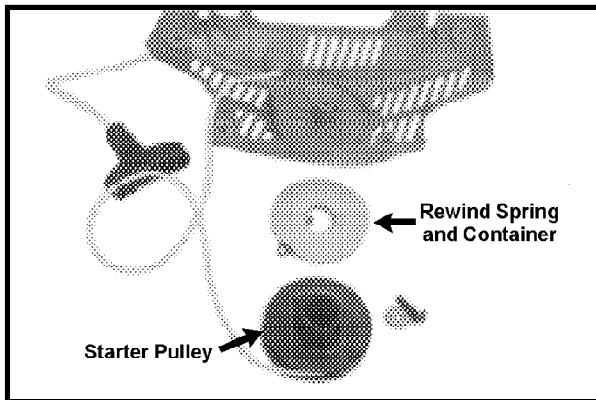


FIGURE 52

Use a T - 25 Torx bit to remove the pulley retaining screw and washer. Slowly lift the pulley off the starter post. Use needle nose pliers to grasp the inner spring hook. Carefully lift the rewind spring and container from the starter housing.

WARNING

Eye protection should be worn when removing the pulley from the starter housing. The spring coils remain under tension within the container and can fly out with great force if disturbed.

SERVICE NOTE

If the spring jumps out of the container, it can be re-wound within the container in a clockwise direction (spring coils facing up).

Remove the rope if frayed or too short (rope length is 46" or 117 cm). Remove the spring and container if the spring is bent or broken. If the inner spring hook will not engage the pulley, carefully reshape the spring hook by bending it with needle nose pliers until it once again engages the pulley.

Starter Assembly

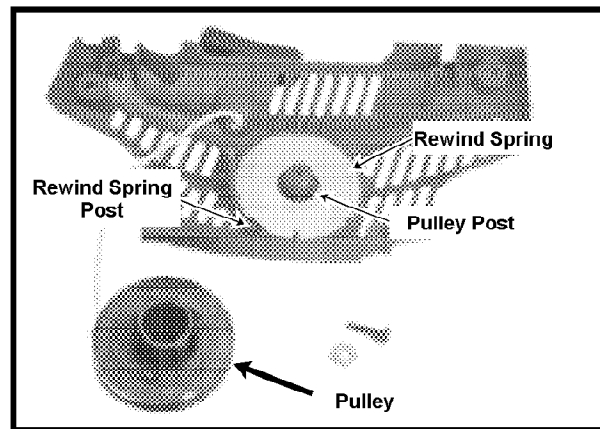


FIGURE 53

Drop the rewind spring and container in the starter housing. The loop on the outside of the container must line up with the small post on the starter housing.

Wind all but 10" (25 cm) of rope on the pulley in a clockwise direction (ratchet side up) before placing the pulley in the starter housing. Lightly grease the starter housing pulley post with multipurpose grease prior to assembly.

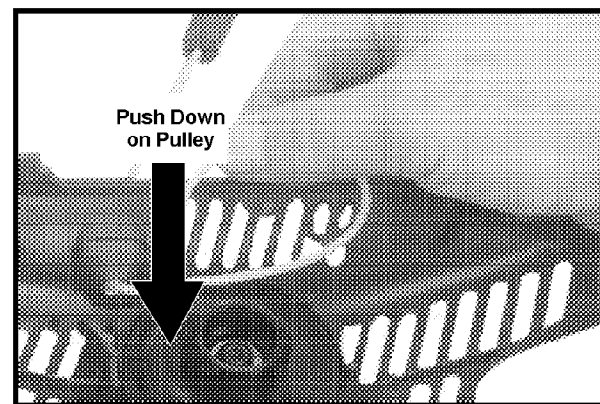


FIGURE 54

Place the pulley in the housing and press down on the pulley while turning the pulley back and forth to engage the spring hook. Install the washer and Torx head screw. Torque to 30 - 40 in.lbs. (3.4 - 4.5 N · m)

INTERNAL / ENGINE

For proper recoil operation, two to three pre - winds on the recoil spring are required. Pull the 10" (25 cm) of slack rope back into the housing to form a loop. Put the loop in the pulley notch as shown and wind the pulley in a clockwise direction two to three complete revolutions. Use your thumb to hold the pulley and use the grip to pull the loop back out of the starter housing as shown. When the pulley is released, all of the rope should rewind back into the starter housing.

TESTING RECOIL SPRING TENSION:

With the starter fully assembled, pull the rope completely out of the housing. Grasp the pulley and turn it clockwise.

If the pulley will not rotate, the spring is bottoming out. Release one pre - wind and recheck.

If the spring does **not** bottom out and you can turn the pulley more than one turn, the spring is not tight enough and you will need to add one turn clockwise.

Carburetor, Heat Dam Disassembly

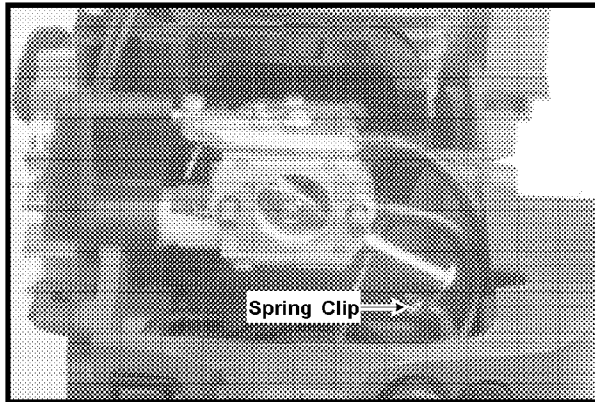


FIGURE 55

Use a pair of needle nose pliers to pull the spring clip off the choke rod. The choke rod can then slide out of the choke shaft linkage and pulled out of the grommet and engine housing.

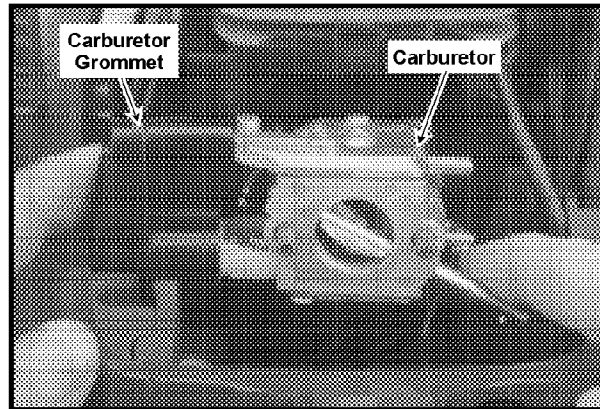


FIGURE 57

Rotate the carburetor and grommet (clockwise as viewed from the clutch side of the unit) as far as they will go against the carburetor studs. Then pull back on both parts simultaneously to force the grommet out of the housing .

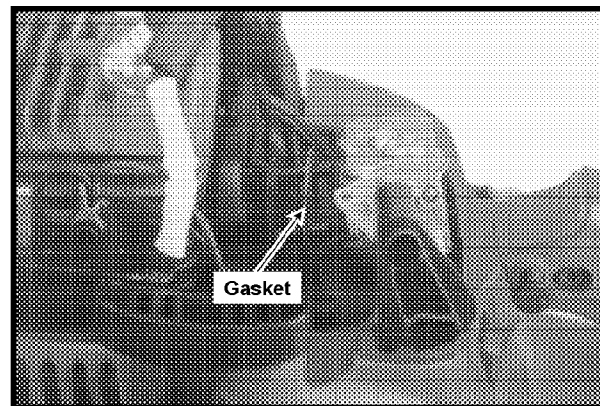


FIGURE 58

Once the carburetor is pulled off the studs and lifted out of the engine housing, the throttle rod can be removed from the carburetor and the carburetor gasket taken off the two studs.

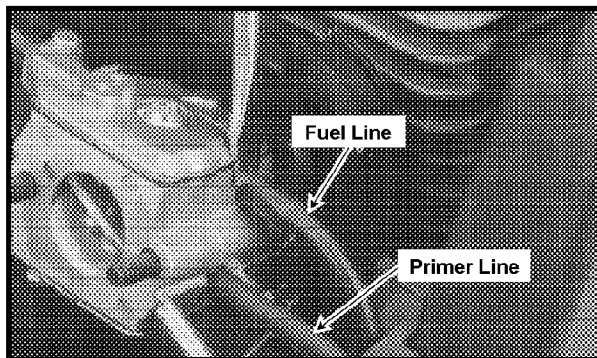


FIGURE 56

Use a flat blade screwdriver to push the fuel inlet line and primer inlet line off the carburetor.

INTERNAL / ENGINE

Remove The Carburetor (Vibration Isolated Units)

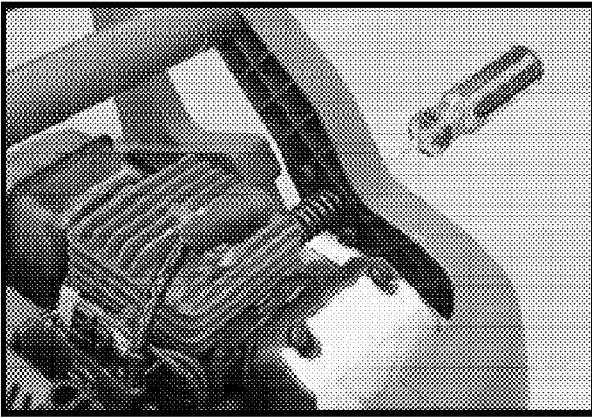


FIGURE 59

Remove front (#10-14 x 1/2) and clutch isolator (10-24 x 5/8) screws with a T-25 Torx bit.

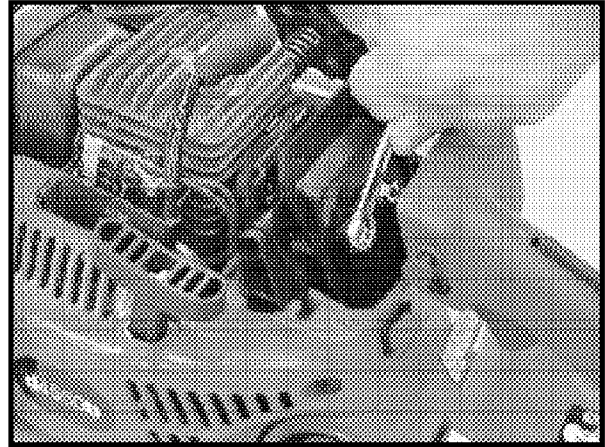


FIGURE 61

Use 3/8 combination or open end wrench to remove the two carburetor mounting flange hex nuts (10-24). Then, slide off the air filter base.

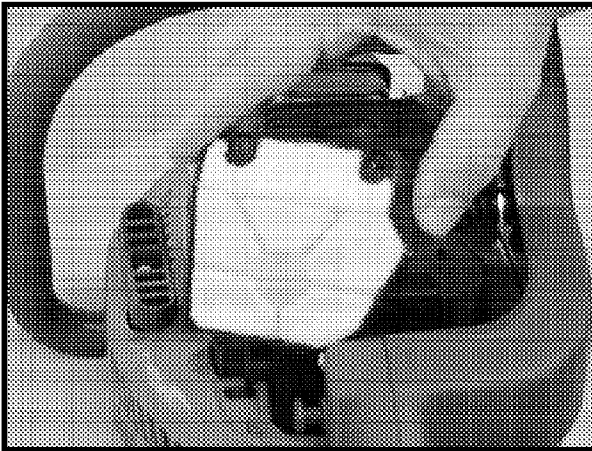


FIGURE 60

Use a screwdriver to remove both air filter cover (#8-16 x 5/8 slotted pan head) screws. Lift the top air filter half from the air filter base. The air filter is flocked, polyester mesh type and can be serviced by blowing compressed air (from the inside out) or if you are in the field, brush the saw dust particles and dust off the filter.

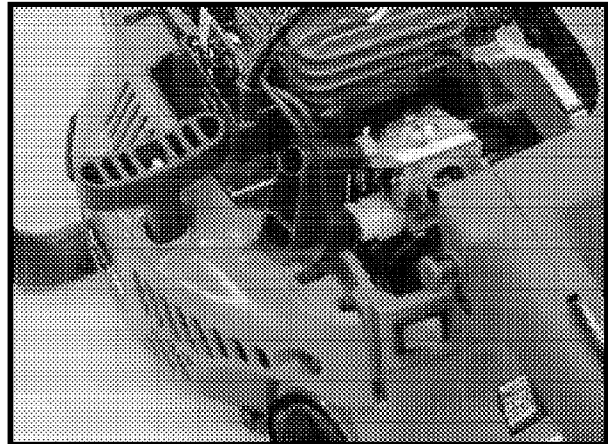


FIGURE 62

Loosen the four starter mounting screws (Two #10-14 x 3/4 at bottom and two #10-14 x 5/8 at top) with a T-25 Torx bit. Pull the grommet up and away from the adjusting screws.

INTERNAL / ENGINE

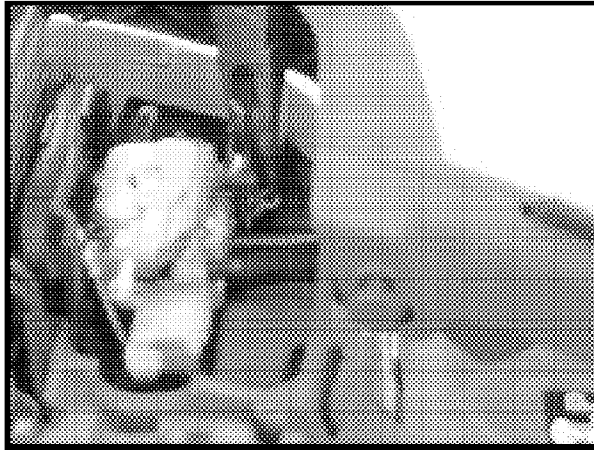


FIGURE 63

Use a pair of needle nose pliers to remove the spring clip off the choke rod. The choke rod can now be removed from the carburetor linkage and pulled out of the grommet.

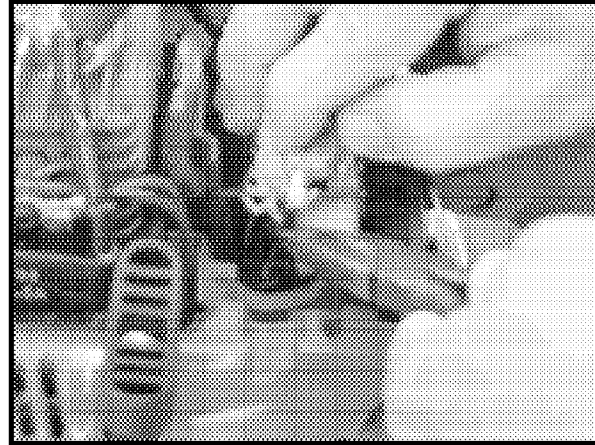


FIGURE 65

Hold throttle plate wide open and disconnect the throttle carburetor Z fitting from the carburetor with a pair of needle nose pliers.

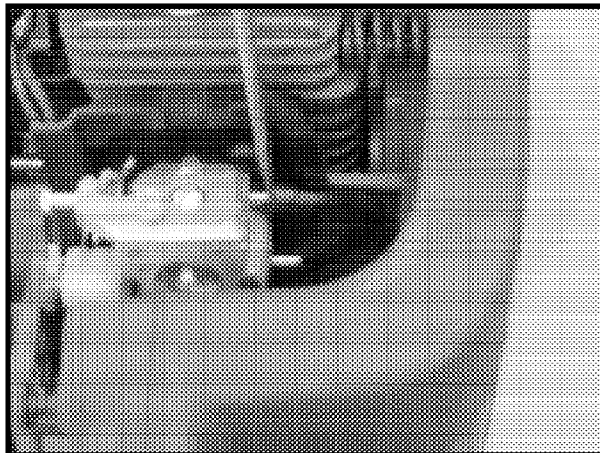


FIGURE 64

Use a flat blade screwdriver to push the inlet line and primer discharge line off the carburetor.

Inspect the fuel line, overflow line and fuel pick up line for signs of abrasion or pin hole leaks. Use a pressure tester and vacuum gauge if the diagnosis (lean running, will only start on choke) warrants their use.

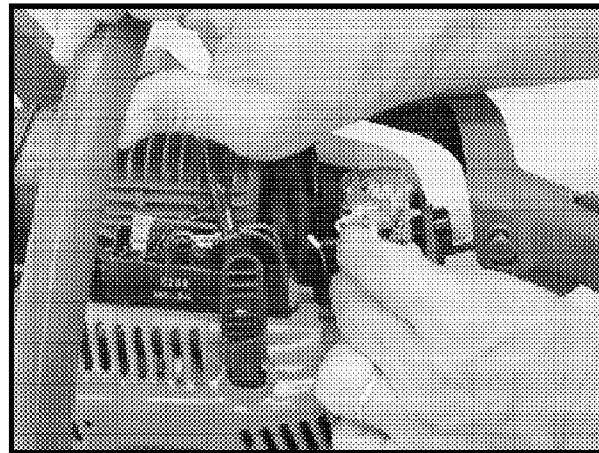


FIGURE 66

With the choke at wide open position, pull back on the handle and slide the carburetor and then the gasket off the two mounting studs.

INTERNAL / ENGINE

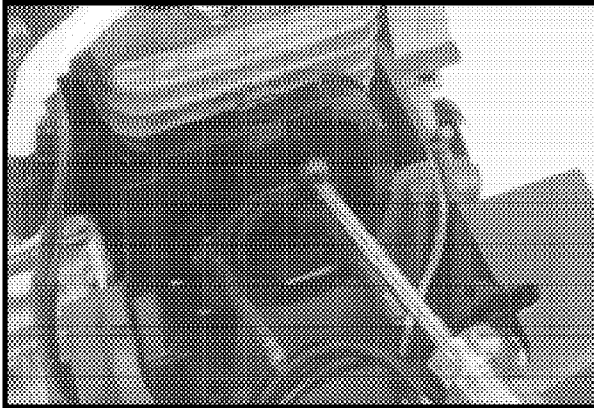


FIGURE 67

Use a T-25 Torx bit to loosen the #10-24 x 1/2" screw and washer retaining the throttle cable housing to the head dam. Remove the throttle cable from the heat dam.

Remove the two 10 - 24 x 7/8" Torx spacer screws with a T - 25 Torx Bit. Then remove the heat dam, two carburetor retaining studs and heat dam gasket.

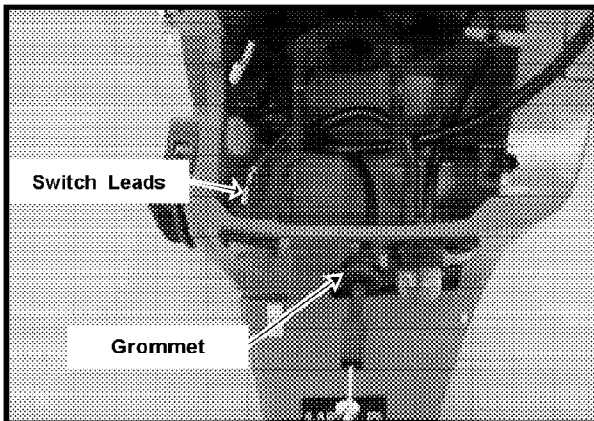


FIGURE 68

Push the two switch leads off the ignition switch and disconnect the overflow line from the primer bulb. Remove throttle cable grommet.

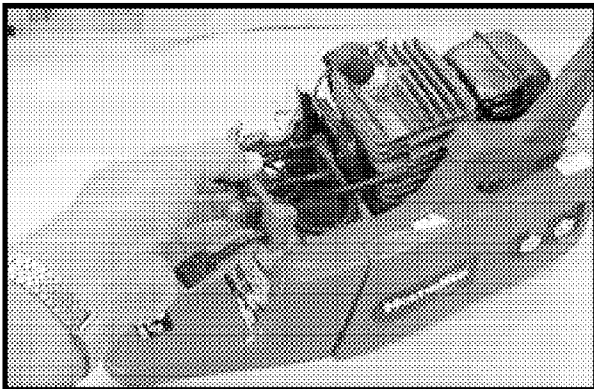


FIGURE 69

Grasp the control panel and lift it off the engine housing.

Muffler Removal

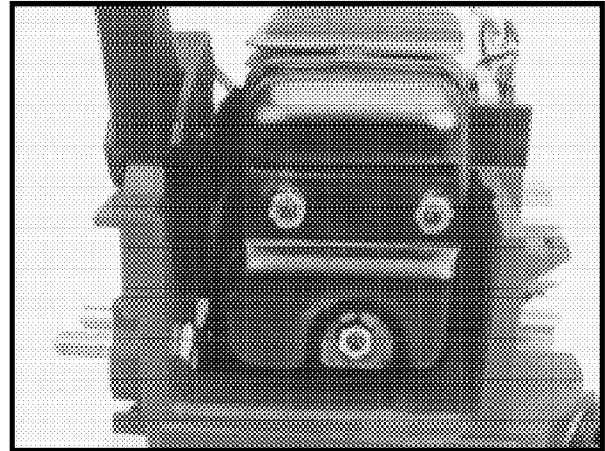


FIGURE 70

Use a 3/8" socket to remove the three 10 - 24 muffler hex nuts. Slide the muffler and muffler gasket off the mounting bolts.

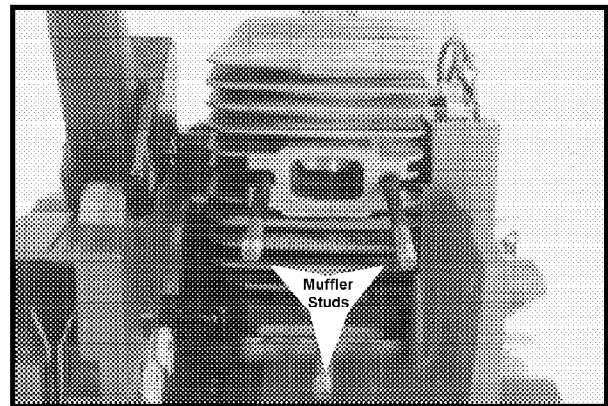


FIGURE 71

The three muffler mounting bolts (10 - 24 x 2 5/8") will slide out of pockets cast into the cylinder.

The cylinder fins and engine housing should be checked and cleaned occasionally to prevent the engine from overheating. The muffler should be kept clean and open, but the unit should never be operated without the muffler in place. If local regulations require the use of a spark arrestor screen, check the condition of the screen periodically and replace when it is clogged or deteriorated.

SERVICE NOTE

The muffler is supplied as a one piece sealed assembly.

INTERNAL / ENGINE

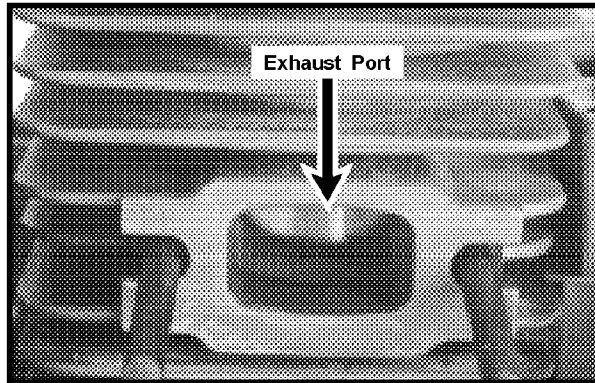


FIGURE 72

While the muffler is off, check the condition of the cylinder exhaust port (and the piston ring through the port). If the port is clogged, it will be necessary to first put the piston at top dead center, and then remove the carbon carefully with a wooden scraper. DO NOT scratch the piston or damage the edges of the port.

Sprocket and Clutch Removal and Disassembly

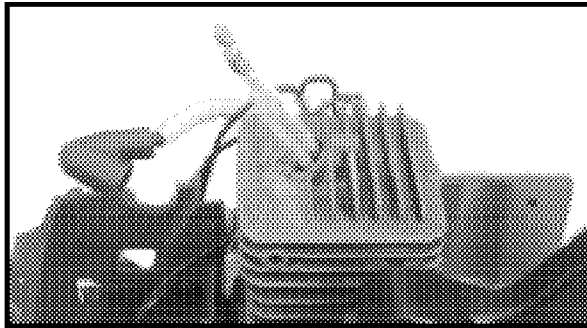


FIGURE 73

Use a $\frac{3}{4}$ " (19 mm) deep set socket to remove the spark plug. Rotate the piston to BDC and insert a length of rope into the spark plug hole to act as a piston stop.

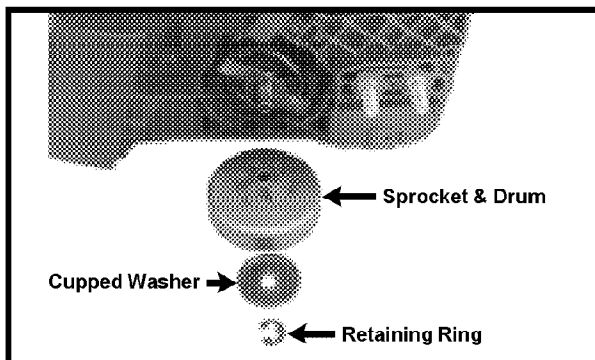


FIGURE 74

Remove the retaining ring, cupped washer and sprocket and drum assembly. Examine the sprocket bearing and crankshaft for wear. Replace as needed.

SERVICE NOTE

The needle bearings in the sprocket are greased retained in the bearing shell. Apply a liberal amount of multipurpose grease to the crankshaft, then pull the sprocket through the grease while removing from the crankshaft.

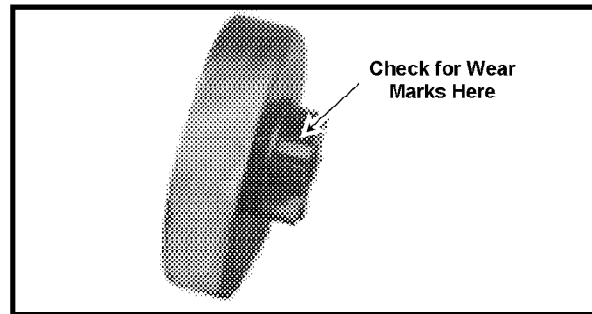


FIGURE 75

Examine the sprocket teeth for wear and inspect the drum for excessive wear at clutch shoe point of engagement.

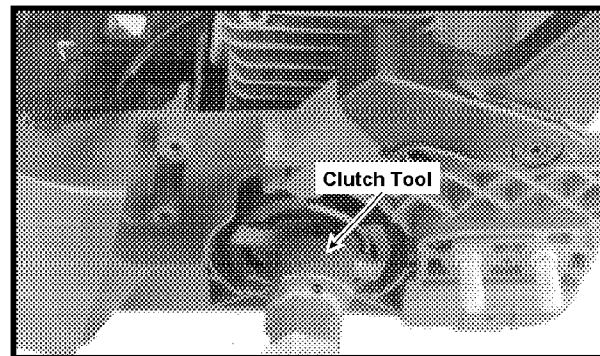


FIGURE 76

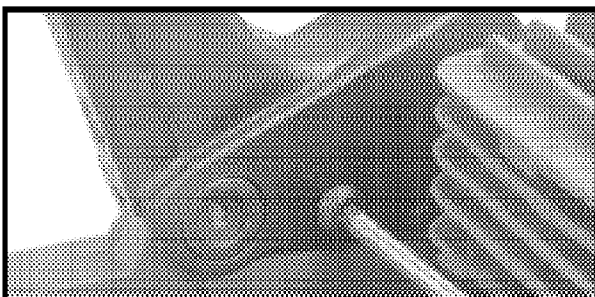
Install the clutch removal tool on the clutch. Use a $\frac{7}{8}$ " (22 mm) wrench to turn the clutch clockwise to remove the clutch assembly and thrust washer from the unit.

CAUTION

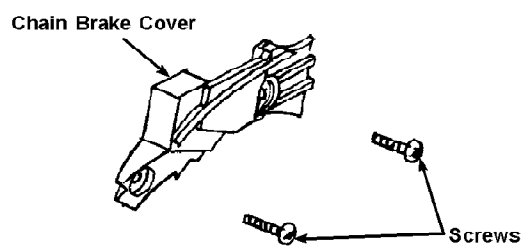
Inspect clutch shoes and spider for wear or damage. A damaged clutch could explode and cause injury.

INTERNAL / ENGINE

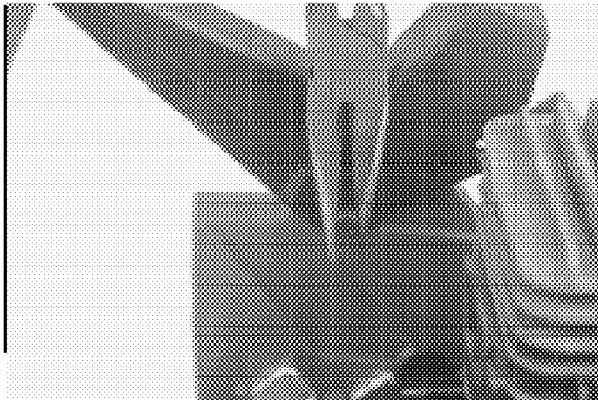
Hand Guard Disassembly



Chain Brake Disassembly



INTERNAL / ENGINE



Use the 8 - 32 x $\frac{1}{8}$ " allen head screw that was removed from the right hand pivot assembly and screw it into the left hand pivot. Use a pair of needle nose pliers to pry out the left hand pivot.

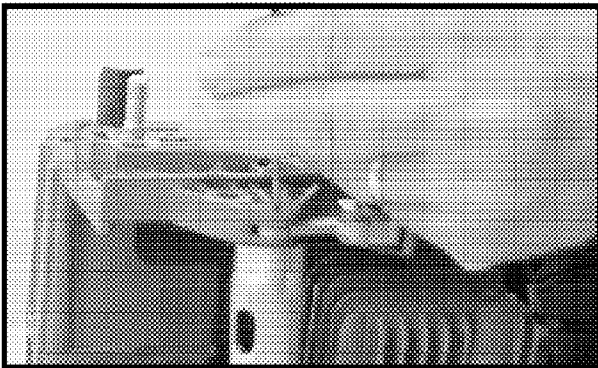


FIGURE 84

Use a $\frac{1}{8}$ " (3.2mm) rod to push the roll pin out of the link and engine housing (as shown)

SERVICE NOTE

Support the engine housing with a deep set socket or combination wrench (see above).

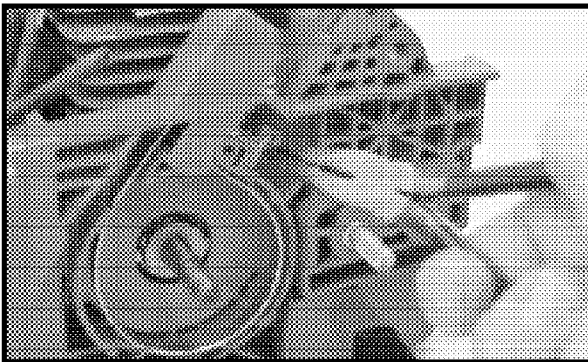


FIGURE 85

Use a pair of needle nose pliers to lift the dowel pin and brake band end out of the engine housing. This will remove tension on the brake band. Pull up on the brake band and link assembly. With a #2 Phillips screwdriver in hand, remove the screw (#8-16 x $\frac{1}{16}$ ") holding the brake band to the chain brake link assembly.

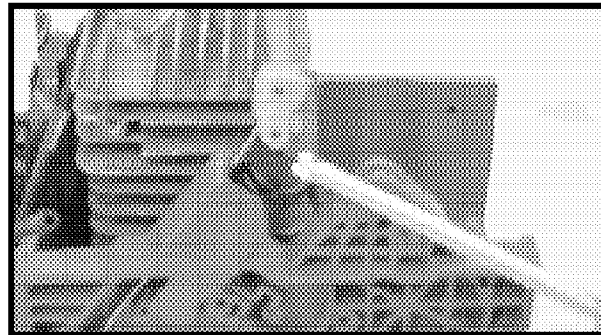


FIGURE 86

Pull the link assembly and brake band out of the housing

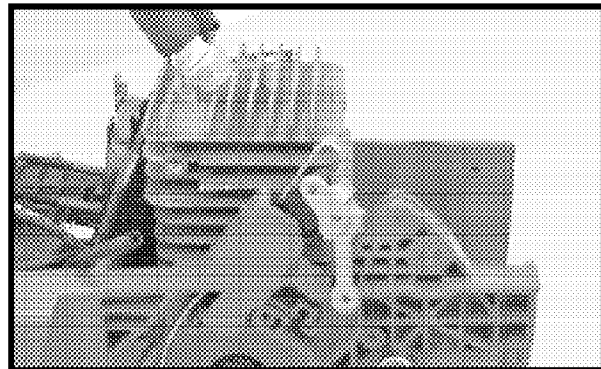


FIGURE 87

and rotate the link assembly clockwise and down into the pocket on the engine housing. Then, push up on the brake band to free the link assembly from the compression spring. Once clear of the spring, unhook the link assembly from the brake band. Use needle nose pliers to remove the compression spring from the engine housing.

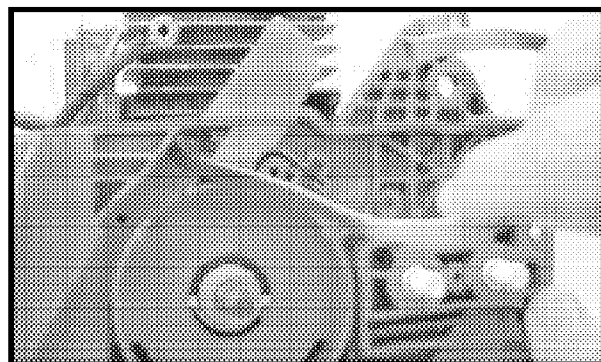


FIGURE 88

Slide the brake band back through the housing until it bottoms. Rotate the brake band upwards until it is at the three o'clock position (perpendicular to the engine housing) and pull it out of the engine housing.

INTERNAL / ENGINE

Rotor, Module Disassembly

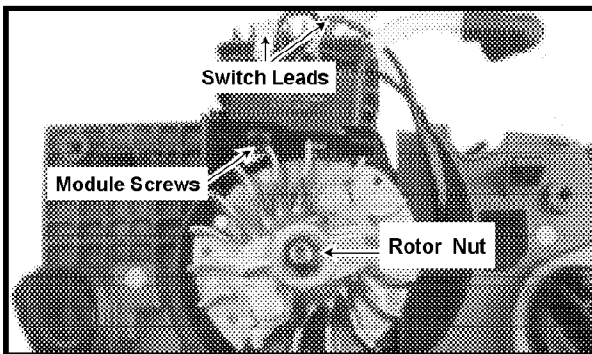


FIGURE 89

With the rope in the cylinder as a piston stop, use a $\frac{1}{2}$ " (13 mm) socket to remove the rotor nut.

Use a pair of needle nose pliers to remove the switch lead off the spade terminal on the module.

Use a T - 25 Torx bit or screwdriver to remove the two 8 - 32 x $\frac{5}{8}$ " screws holding the module on the cylinder.

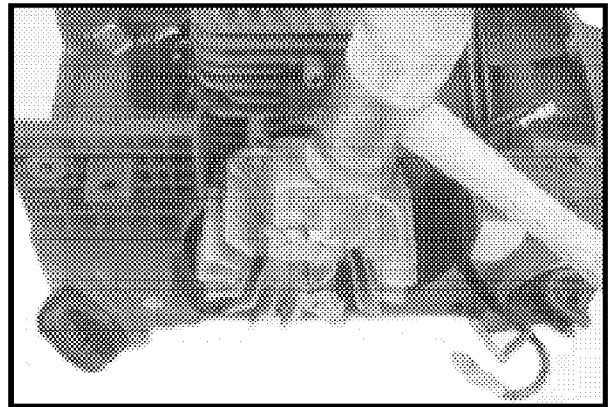


FIGURE 90

Tap on the counterweight side of the rotor with a plastic or rawhide mallet to free it from the crankshaft. Use a pair of dikes (side cutters) to remove the woodruff key.

Disassemble Engine Housing Components

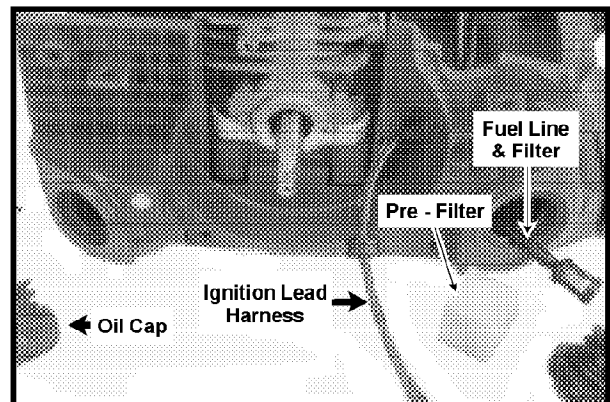


FIGURE 91

Remove the fuel and oil caps, pre - filter and fuel filter off the engine housing. Pull the fuel line and overflow lines out of the engine housing and push the grommet and ignition lead harness out of the hole in the housing.

INTERNAL / ENGINE

Engine Housing Disassembly

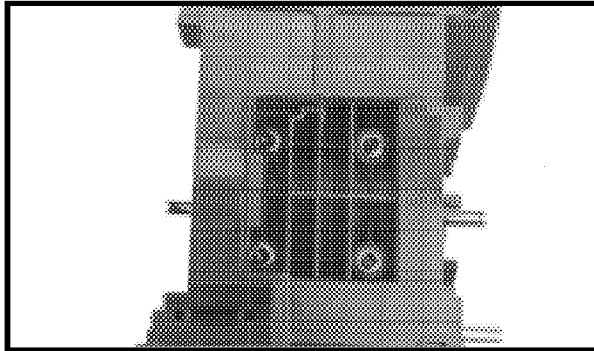


FIGURE 92

Use a T - 27 Torx bit to remove the four 10 - 24 x 2" truss head Torx screws holding the short block to the engine housing.

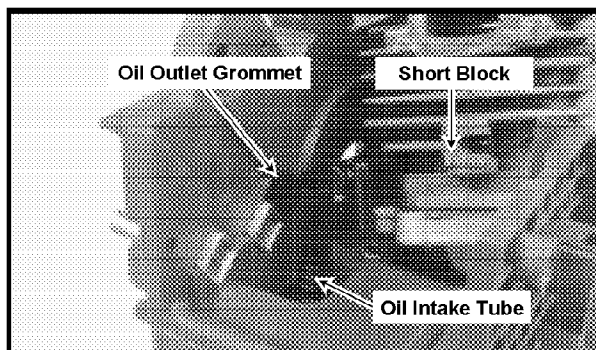


FIGURE 93

Push the oil inlet tube off the automatic oil pump. Work the short block from side to side to free it from the oil outlet grommet. Pull the short block out of the housing

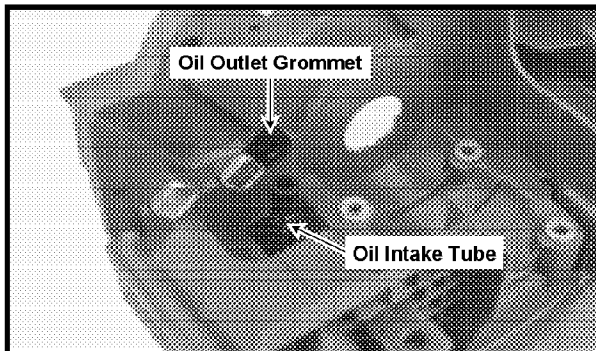
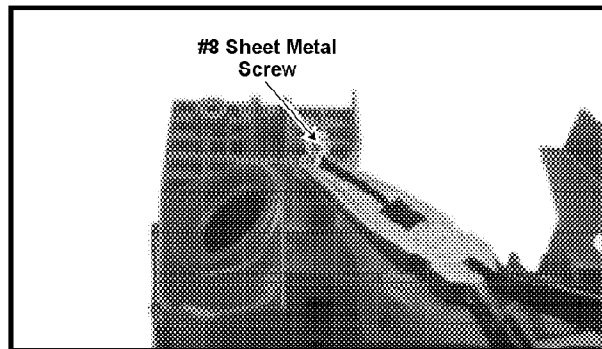


FIGURE 94

Use a pair of needle nose pliers to remove the oil inlet tube and oil outlet grommet from the engine housing.

Filter and Duck Bill Valve Removal



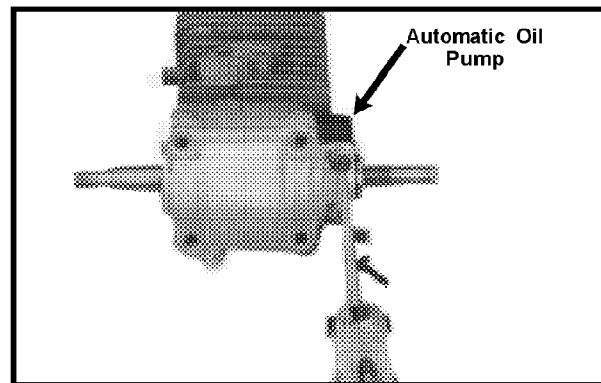
#8 Sheet Metal Screw

FIGURE 95

Position a drill stop or put tape on a 1/8" (3 mm) drill bit so it will not drill deeper than 5/32" (4 mm).

Drill into the bronze check valve filter, then insert a #8 sheet metal screw into the filter. Use a pair of needle nose pliers and fulcrum to pull the filter out of the housing. Now, use a small screwdriver to pull the duck bill check valve out of the housing.

Automatic Oiler Removal



Automatic Oil Pump

FIGURE 96

Use a T - 25 Torx bit to remove the two #8 - 16 x 5/8" pan head automatic oiler retaining screws.

Examine the automatic oiler plunger gear for signs of wear on the lateral segments of the tooth.

Use your thumb to rotate the plunger gear. There should be no binding; the plunger must rotate freely by hand or the oiler assembly should be replaced.

INTERNAL / ENGINE

Piston / Crankshaft Removal

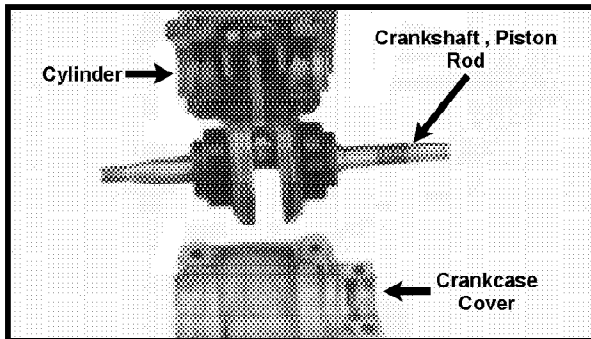


FIGURE 97

Pull the crankcase cover off the cylinder. Grasp the crankshaft / bearing assembly. Use a rocking pulling motion to free the crankshaft from the cylinder. Once the piston is in view pull the crankshaft **slowly** until the piston clears the cylinder.

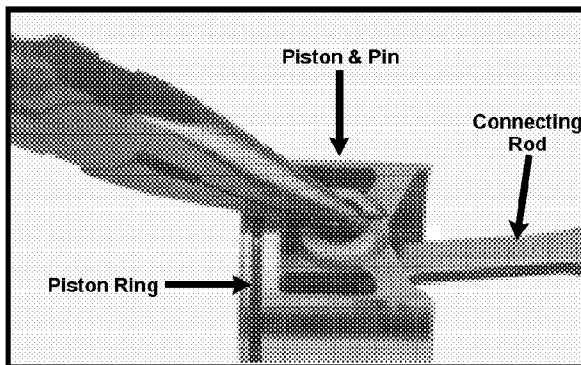


FIGURE 98

Use a needle nose pair of pliers to remove the piston pin retaining ring. Push the piston pin out of the piston and connecting rod.

SERVICE NOTE

Be careful not to disturb the connecting rod piston pin bearing as the needle bearings inside the cage are grease retained and can fall out.

Re-grease the bearings as soon as possible and slip the piston pin back into the bearing to keep the needles in place. The needle bearing count is 21. Make sure all needle bearings are in the bearing shell.

Internal Component Inspection

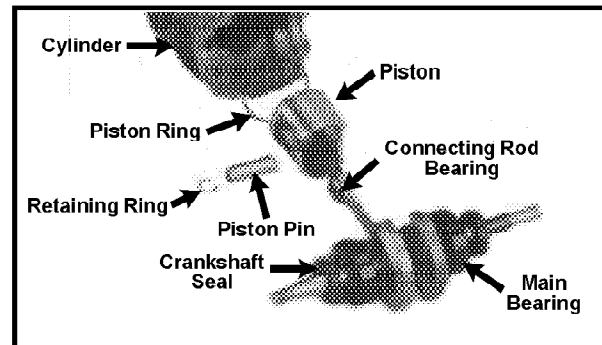


FIGURE 99

Examine the seals for nicks, cuts and abrasion. Replace the seals on assembly of the short block.

Spin each of the bearings (**slowly**) on the crankshaft. Replace the bearings if roughness or binding is felt while rotating the bearing.

Inspect the connecting rod and crankshaft for signs of bluing, discoloration or scoring.

Remove the piston ring and examine the groove in the piston for carbon build up. Inspect the piston ring for thin spots or other signs of wear.

De - carbon the piston and piston ring groove if needed. De - glaze the piston with crocus cloth. A 50 / 50 mixture of kerosene and oil along with a silicon carbide Christmas tree (ball) type hone may be used to de - glaze the cylinder. The cylinder must be de - glazed if it is to be reused.

INTERNAL / ENGINE

ASSEMBLY OF INTERNAL ENGINE COMPONENTS

Before assembly begins, select a clean working surface, clean all tools and equipment to be use during assembly. Clean all parts with solvent, compressed air and shop towels. Any dirt or other contaminants left in the engine can significantly reduce engine life.

Refer to the Torque Specifications section before tightening fasteners or other parts (clutch, rotor, etc.)

Use the Unit Specifications section for assembly and service data.

Piston Ring to Piston

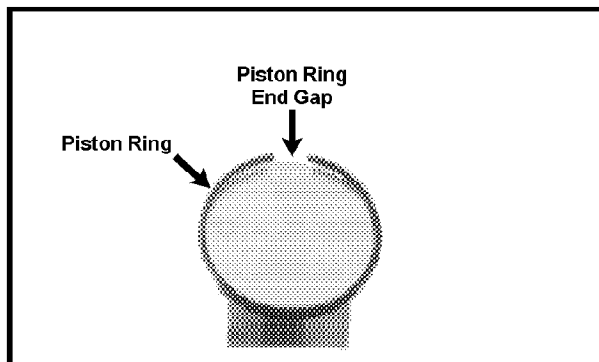


FIGURE 100

Lubricate the piston ring with a light coating of SAE 30 oil. Assemble the piston ring to the piston on a slight angle. Make sure the piston ring gap is towards the piston ring dividing pin. Once on, spread the ring end gap until the ring just clears the crown of the piston.

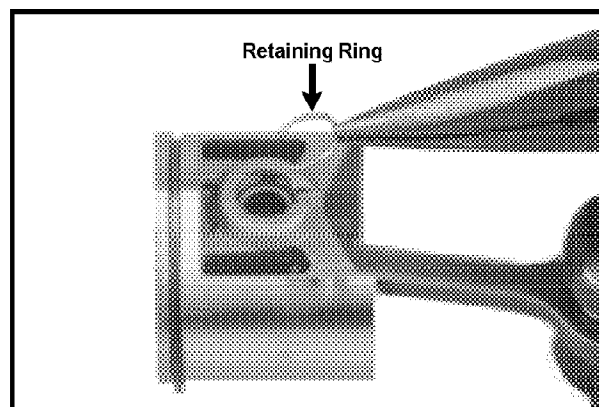


FIGURE 101

Place the piston on the connecting rod. The piston ring dividing

pin must face the intake port for proper assembly. Push in the piston pin. Use a pair of needle nose pliers to install the piston pin retaining ring.

Short Block Assembly

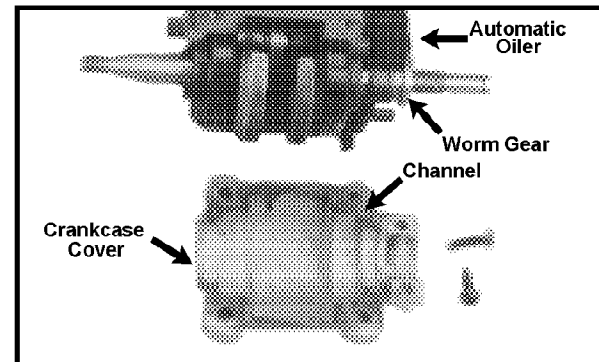


FIGURE 102

Apply a thin coating of silicone sealant to the crankcase cover (in the channel) where it mates with the cylinder. Lightly oil the piston and use a oiled rag to lubricate the cylinder bore. Apply a light coating of SAE 30 oil to the lips of the two crankshaft seals and slide them in place until they are flush with the main bearings.

Use your fingers to collapse the piston ring and push the piston / rod assembly into the cylinder. Push the crankshaft in until the crankshaft seals are seated in the bearing bore.

Grasp the crankcase and push it on the crankshaft bearings and cylinder until it seats. Make sure the two crankshaft seals are flush with both cylinder and crankcase cover halves.

Lubricate the automatic oiler gear and worm gear with multipurpose grease and assemble it to the crankcase. Insert the two mounting screws and torque to 15 to 20 in. lbs. (1.8 - 2.4 N m).

Assemble Short Block and Components to Engine Housing

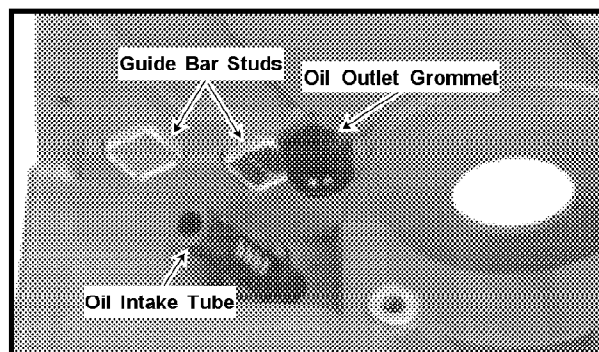


FIGURE 103

Insert the two guide bar studs into the housing. Install the outlet grommet into the housing with the flat side of the grommet facing the guide bar stud. Push the grommet until it is flush with the housing.

Insert the oil intake tube (with the oil filter attached) with the flat on the tube towards the front of the unit.

INTERNAL / ENGINE

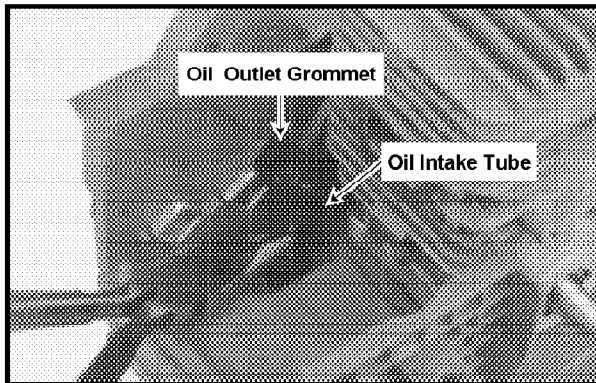


FIGURE 104

Insert the clutch side of the crankshaft into the hole in the engine housing. Align the automatic oiler intake tube and oil outlet grommet with the fittings on the automatic oil pump. Push the discharge fitting on the automatic oiler into the oil outlet grommet. Use needle nose pliers to work the oil intake tube on the inlet fitting on the automatic oil pump. Work the short block in place in the engine housing.

SERVICE NOTE

The oil intake tube and oil outlet grommet may be dipped in a soap and water solution prior to assembly to ease installation of these components.

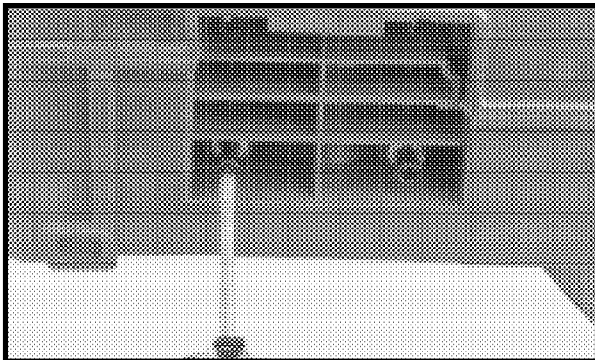


FIGURE 105

Apply thread locking compound to the four short block mounting screws. Insert the four mounting screws and flat washers through the engine housing, crankcase cover and into the cylinder.

Use a T - 27 Torx bit or screwdriver to tighten and torque the four 10 - 24 x 2" socket head cap screws to 65 - 75 in. lbs. (7.3 - 8.5 N · m).

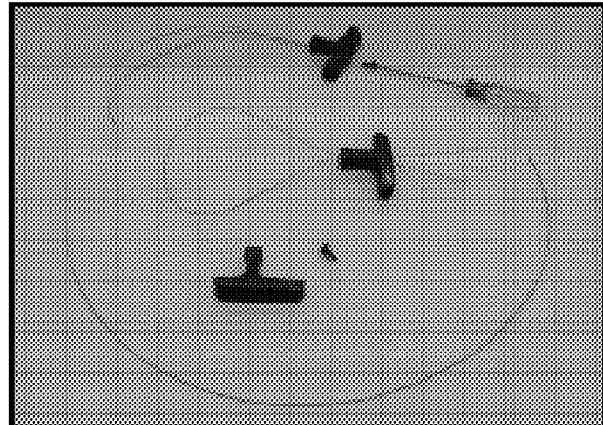


FIGURE 106

Use a fuel line installation tool (made with #15 AWG wire, screw p/n 82541 [#10 - 1/2"] and a starter grip) to install the fuel inlet line and primer return line into the engine housing.

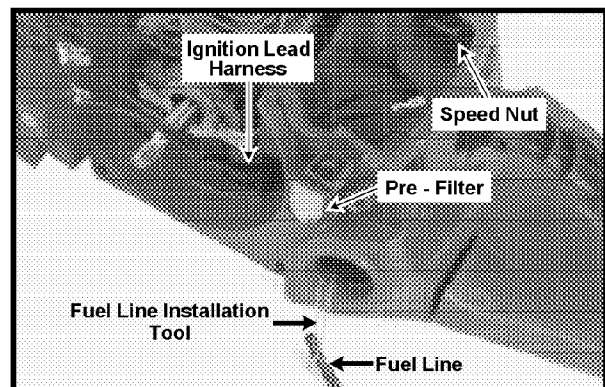


FIGURE 107

Push the installation tool through the hole in the engine housing and out the fuel filler hole. Place the free end of the fuel line (opposite end has fuel filter installed) through the loop. Squeeze the loop to capture the fuel line, then pull the loop back in the engine housing until the fuel line is next to the hole in the engine housing. Give the installation tool a short, sharp tug to pull the fuel line through the engine housing. Repeat this same procedure for the primer discharge line.

Push the ignition lead harness and grommet through the hole in the engine housing.

Push the foam pre - filter into the cavity in the engine housing and press the three speed nuts into place on the housing.

The two sintered metal filters and duck bill check valves may also be assembled at this time if they were removed from the engine housing.

INTERNAL / ENGINE

Rotor and Module Assembly

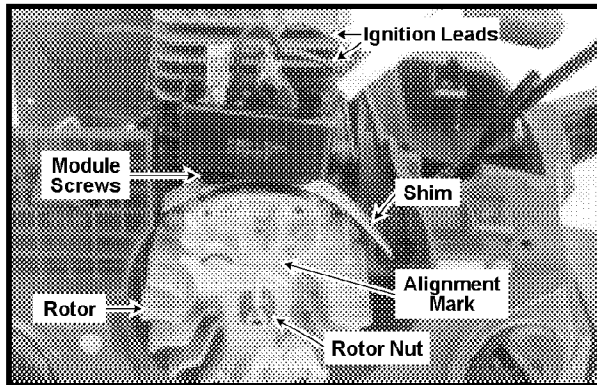


FIGURE 107

Use the alignment mark on the face of the rotor to align the rotor with the woodruff key on the crankshaft. Slide the rotor and flat washer on the crankshaft. Thread the jam nut on the crankshaft and torque the rotor nut to 100 to 150 in. lbs. (11.3 - 23.0 N·m).

Rotate the rotor magnets 180° away from the module mounting bosses. Apply thread locking compound to the two 8 - 32 x 5/8" Torx screws. Place the ignition module on the cylinder and insert the two screws through the module and into the bosses on the cylinder. Make sure the upper right module mounting screw passes through the module grounding lead and the ignition lead with the ring type terminal before being inserted into the module. Tighten the two screws so the module can still slide. Place a .012" (0.3 mm) shim, Homelite part # PS24306, between the rotor and module.

Rotate the rotor so the magnets on the rotor are aligned with the module core legs (see above). With the shim still located between the core legs and rotor magnets, tighten both module mounting screws with a T - 25 Torx bit or screwdriver and torque the two screws to 30 - 40 in. lbs. (3.4 - 4.5 N·m).

Remove the air gap shim. Push the remaining ignition lead flag terminal on the primary winding spade terminal. Make sure the flag terminal is tight on the ignition module. If not use a pair of needle nose pliers to crimp the edges of the terminal.

Rear Handle Assembly

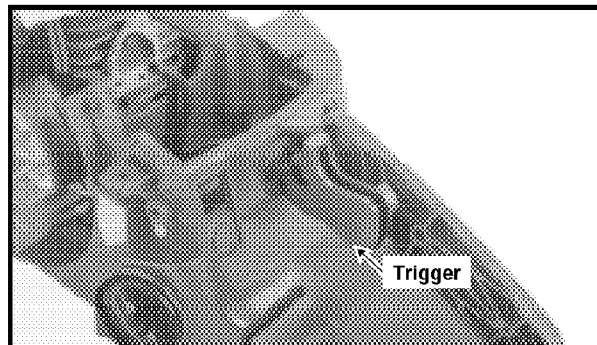


FIGURE 108

Insert the front of the trigger into the opening in the engine housing. Push the round hole in the trigger over the post on the rear handle.

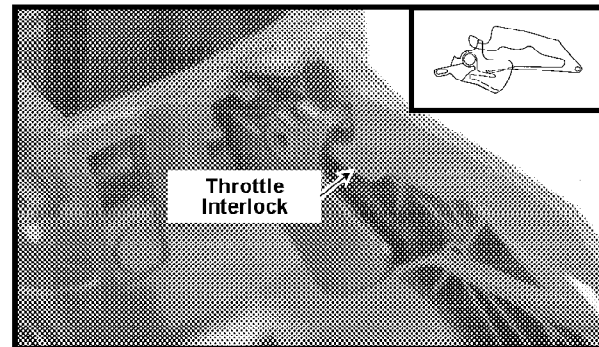


FIGURE 109

Slip the throttle interlock through the trigger so the cut out in the throttle lock out nests in the trigger.

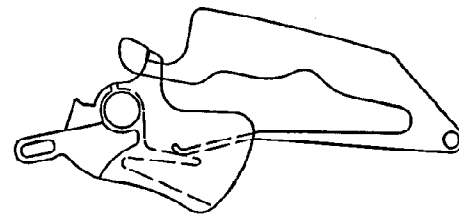


FIGURE 110

Squeeze the throttle lock out together until the spring portion of the throttle interlock is resting on the top shelf inside the trigger.

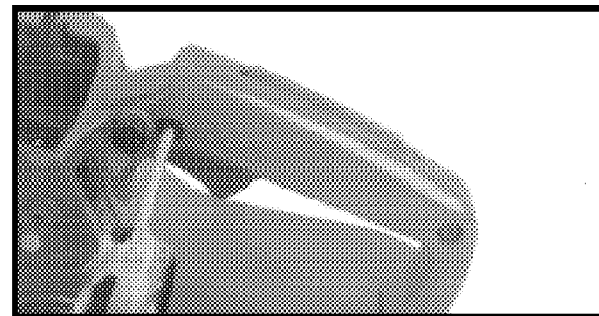


FIGURE 111

Assemble the throttle lock pin, compression spring and e - ring retaining ring to the rear handle cover. Install the cover on the rear handle, insert the three #10 -14 x 3/4" torx head screws through the cover and into the housing. Torque the three screws to 30 - 40 in. lbs. (3.4 - 4.5 N·m).

INTERNAL / ENGINE

Assemble Primer Bulb, Switch and Choke Rod

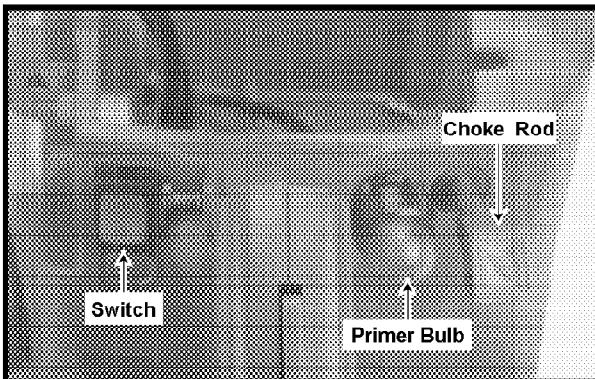


FIGURE 112

Push the ignition switch into the engine housing. Make sure the 0 on the switch faces down (towards the stop sign molded into the engine housing). Push the ignition switch lead flag terminals on the switch spade terminals.

SERVICE NOTE

The ignition switch lead with the insulated terminal goes on the top most switch spade terminal.

Align the notch on the primer bulb with the cut out on the engine housing. Both should be facing towards the choke side of the engine housing. Push home the primer bulb until the bulb is flush with the housing and the locking tabs on the primer bulb are firmly locked into the housing.

Push one side of the choke rod grommet into the engine housing and then work the other side into the hole in the housing. Insert the choke through the grommet. *Note:* A light coating of SAE 30 weight oil on the choke will aid assembly.

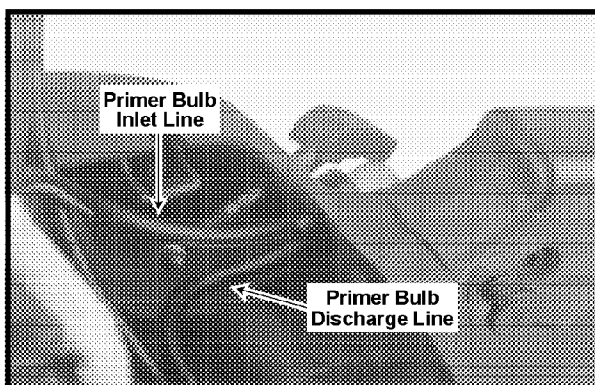


FIGURE 113

Push the primer bulb discharge line on the long fitting on the primer bulb. Then take the loose short rubber line and push one end on the short fitting on the primer bulb.

Assemble Heat Dam, Carburetor and Air Filter

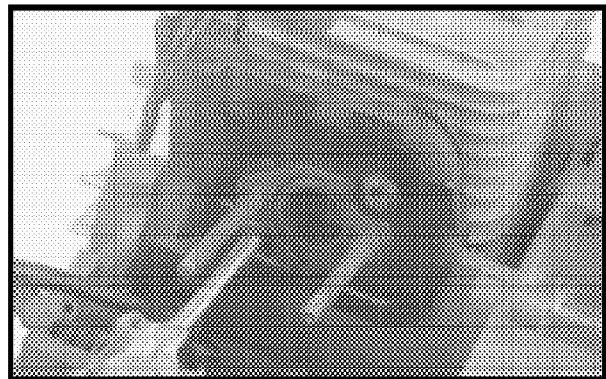


FIGURE 114

Assemble the two carburetor mounting studs into the back of the heat dam. Insert the two 10 - 24 x 3/8" screws through the heat dam. Work the heat dam gasket over the two mounting screws and place this assembly next to the cylinder. Line up the two mounting screws with the two holes in the cylinder. Use a T - 25 Torx bit or screwdriver to tighten the two screws. Torque the two screws to 45 - 55 in. lbs. (5.0 - 6.2 N · m).

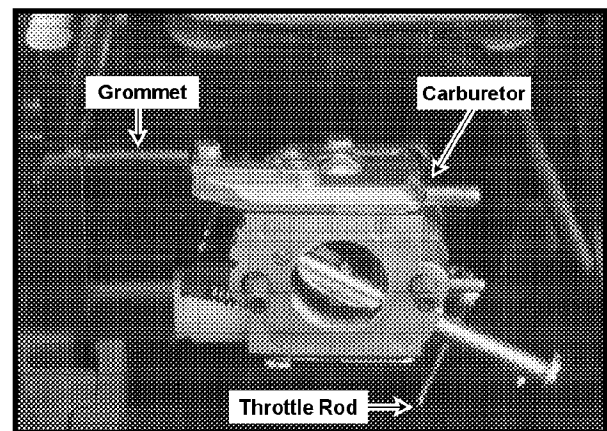


FIGURE 115

Slip the carburetor gasket on the two carburetor mounting studs. Insert the 2" part of the throttle rod into the linkage on the carburetor. Guide the throttle rod into the engine housing and slide the carburetor on the two mounting studs. Push the carburetor until it is flush with the gasket. Place the grommet over the three adjusting screws.

INTERNAL / ENGINE

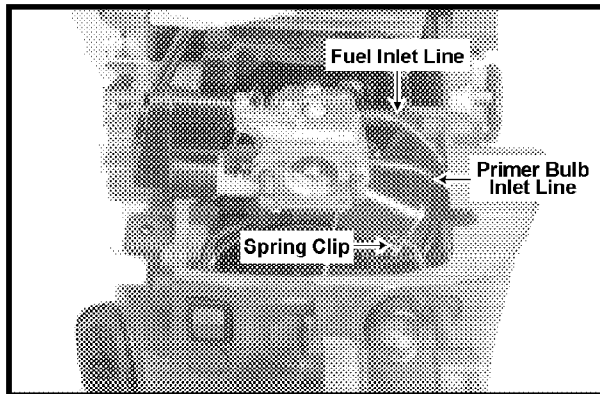


FIGURE 116

Use a pair of needle nose pliers to snap the throttle rod into the trigger.

Push the short primer bulb inlet line on the small diameter fitting on the carburetor, then push the long fuel inlet line on the large fitting on the carburetor.

SERVICE NOTE

Make sure that all lines are routed under the throttle rod, choke rod and choke shaft.

Insert the choke rod in the hole on the choke shaft. Use your fingers or a pair of needle nose pliers push the spring clip through the choke rod.

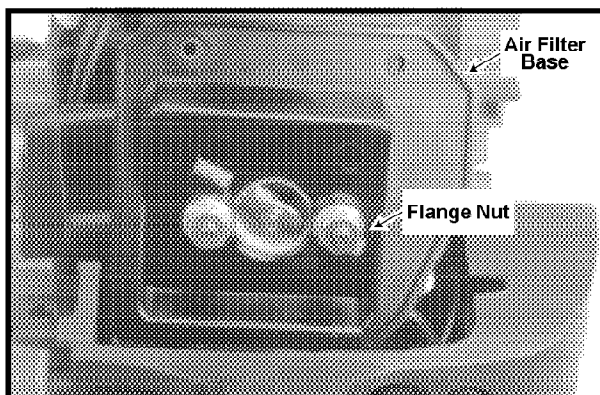


FIGURE 117

Assemble the air filter base to the two mounting studs. Screw the two 10 - 24 flange nuts on the carburetor mounting studs. Torque the two flange nuts to 30 - 40 in. lbs. (3.4 - 4.5 N · m).

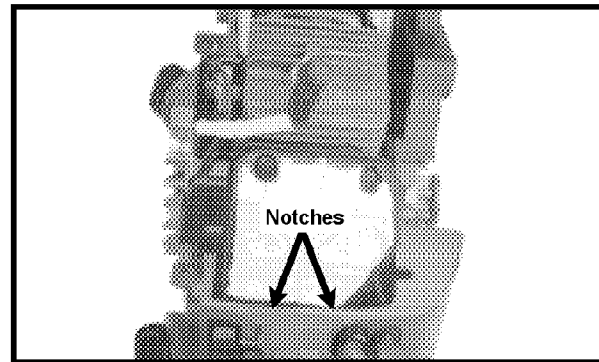


FIGURE 118

Insert the slotted portion of the air filter cover into the two cut outs on the air filter base.

Start the two #8 - 16 x 3/8" pan head screws through the air filter base. Torque the two screws to 15 - 20 in. lbs. (1.7 - 2.3 N · m).

Assemble Clutch, Sprocket, Guide Bar Adjuster, Chain Stop

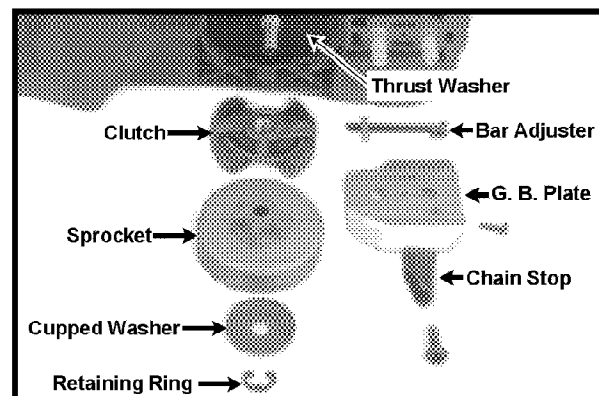


FIGURE 119

Slide the thrust washer on the crankshaft and thread on the clutch assembly.

Insert the clutch spanner wrench pins into the clutch assembly so the pins ride against the shoes. Use a 7/8" (19 mm) combination or open wrench to tighten the clutch in a counterclockwise (left hand threads) direction. Tighten the clutch 130 to 180 in. lbs. (14.7 - 20.3 N · m).

Lubricate the sprocket and drum bearing with multipurpose grease. Push the sprocket and drum on the crankshaft and then assemble the cupped washer (open side out) and the e clip (retaining ring).

SERVICE NOTE

Do not reuse the e clip (retaining ring) that retains the sprocket and drum to the crankshaft. This part should be replaced every time it is removed from the chain saw.

INTERNAL / ENGINE

Thread the guide bar adjuster pin on the guide bar adjuster screw with the cut out part of the pin facing down. Place the adjuster assembly into the cavity in the engine housing making sure the retaining ring is in the slot provided in the engine housing.

Work the inner guide bar plate over the two guide bar studs. Use the small 6 - 19 x 1/2" phillips head screw and phillips head screwdriver to retain the inner guide bar plate to the engine housing. Torque the screw to 8 - 18 in. lbs. (.9 - 2.0 N · m).

Assemble the chain catcher on the engine housing with the open side of the chain catcher going towards the clutch side. Insert the #10 - 14 x 3/4" thread forming screw through the chain catcher and into the engine housing. Torque the screw to 30 - 50 in. lbs. (3.4 - 5.6 N · m).

Assemble Hand Guard to Engine Housing

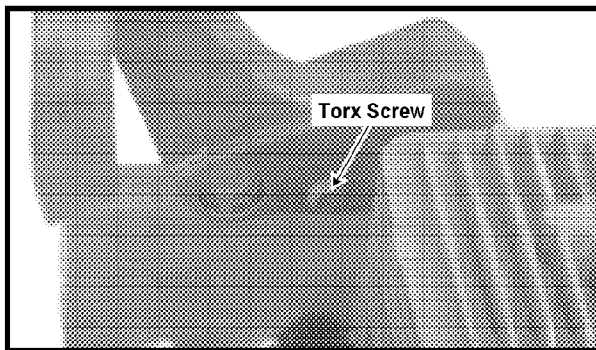


FIGURE 120

Place the hand guard on the engine housing and line up the holes in the hand guard with the corresponding holes in the engine housing.

Insert the truss head Torx screw (8 - 16 x 5/8") and tighten but leave it loose so the hand guard can pivot easily.

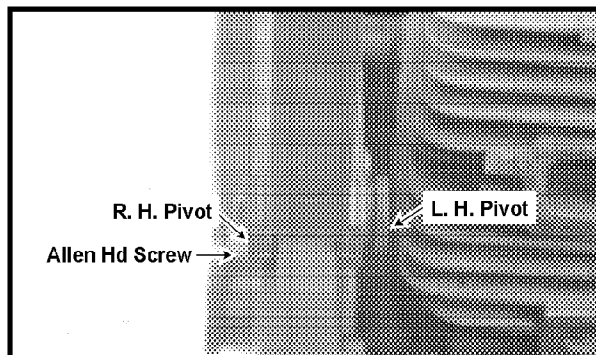


FIGURE 121

Insert the right hand pivot through the hand guard and engine

housing. Line up the serrations on the outside diameter of the left hand pivot with the indentations in the engine housing. Push the left hand pivot through the hand guard and into the engine as far as it will go.

Now insert the small (8 - 32 x 5/8") allen head cap screw through the right hand pivot and screw it into the left hand pivot. Continue to turn the allen head screw until the right hand pivot is drawn completely into the housing. Apply thread locking compound and torque the allen head screw to 25 - 35 in. lbs. (2.8 - 3.9 N · m).

Installation of Control Panel, Carburetor and Chain Brake Assembly to Vibration-Isolated Units

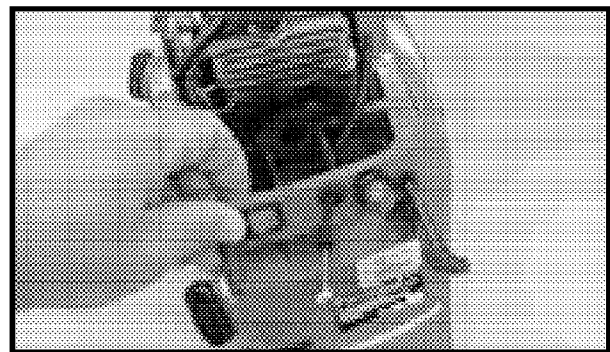


FIGURE 122

Push ignition switch, primer bulb, throttle cable grommet and throttle cable and choke rod grommet into control panel. Slide control panel into appropriate slots on engine housing.

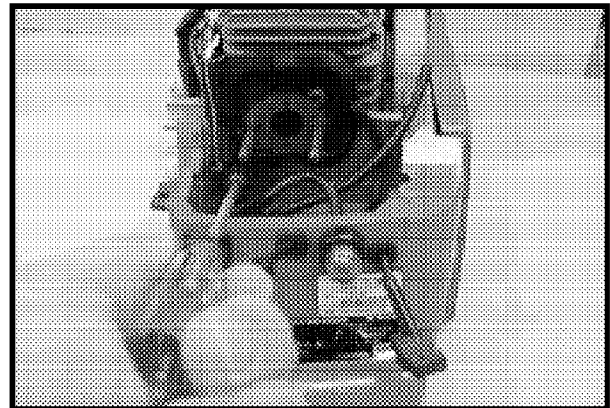


FIGURE 123

Install Z fitting end of throttle cable into rectangle cavity on heat dam and tighten T-25 TORX retaining screw. Place adhesive backed heat dam gasket on backside of heat dam and install heat dam onto cylinder using two 10-24 x 7/8 T-25 TORX screws.

INTERNAL / ENGINE

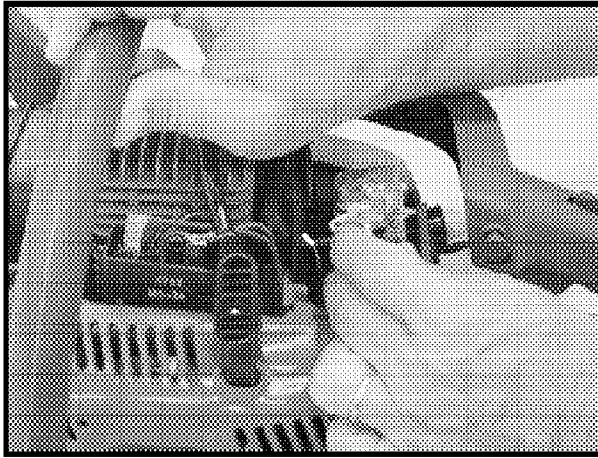


FIGURE 124

Slide carburetor gasket and carburetor onto the two carburetor-mounting studs. Use a pair of needle nose pliers to install throttle cable Z fitting into throttle plate.

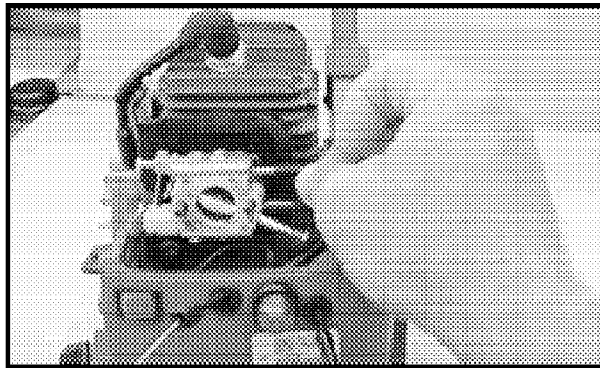


FIGURE 125

Push the short primer bulb inlet line on the small diameter fitting on the carburetor, then push the long fuel inlet line on the large fitting on the carburetor.

SERVICE NOTE

Make sure that all lines are routed under the throttle rod, choke rod and choke shaft.



FIGURE 126

Insert the choke rod in the hole on the choke shaft. Use your fingers or a pair of needle nose pliers push the spring clip through the choke rod. Assemble the air filter base to the two mounting studs.

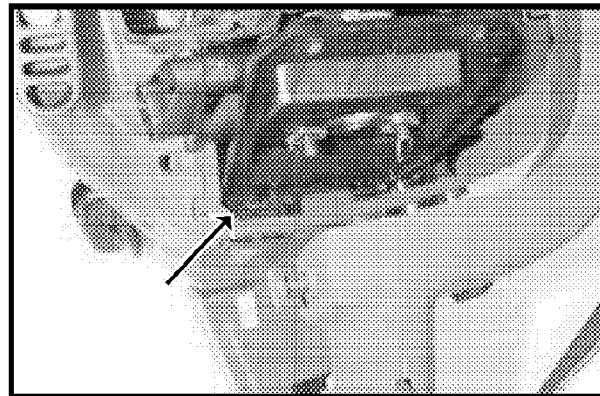


FIGURE 127

Screw the two 10 - 24 flange nuts on the carburetor-mounting studs. Torque the two flange nuts to 30 - 40 in. lbs. (3.4 - 4.5 N · m). Be sure that the base flange rests on top of the ignition switch.

INTERNAL / ENGINE

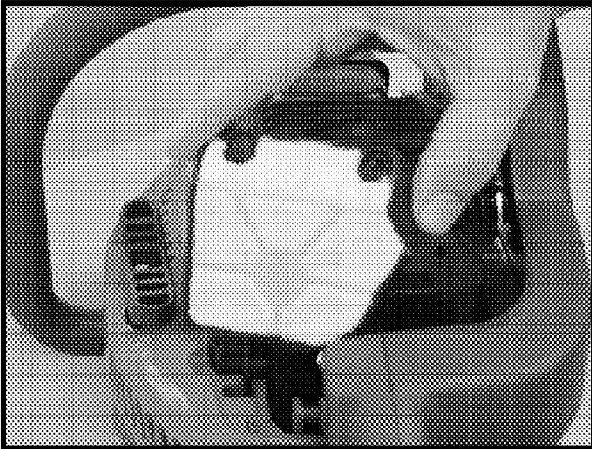


FIGURE 128

Insert the slotted portion of the air filter cover into the two cut outs on the air filter base.

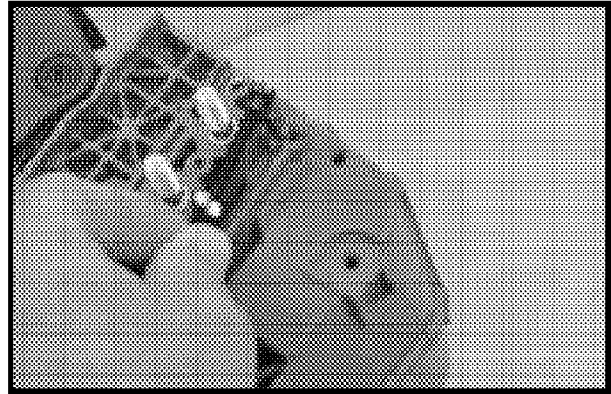


FIGURE 130

Thread the guide bar adjuster pin on the guide bar adjuster screw with the cut out part of the pin facing down. Place the adjuster assembly into the cavity in the engine housing making sure the e ring retaining ring is in the slot provided in the engine housing.

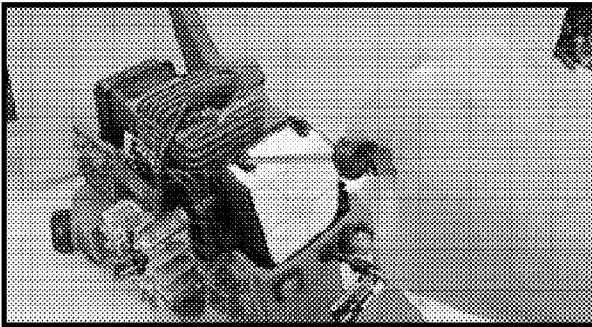


FIGURE 129

Start the two #8 - 16 x 5/8" pan head screws through the air filter base. Torque the two screws to 15 - 20 in.lbs. (1.7 - 2 N · m).

INTERNAL / ENGINE

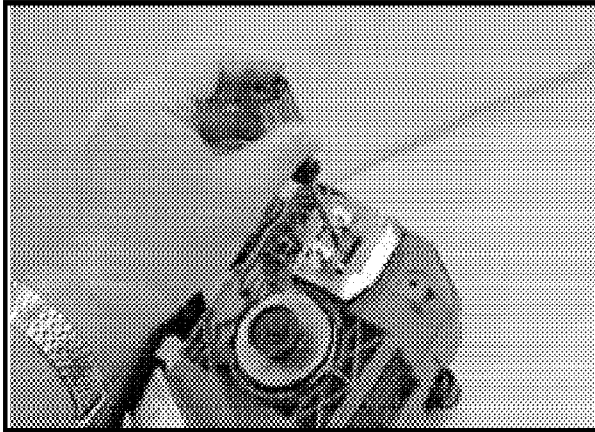


FIGURE 131

Work the inner guide bar plate over the two guide bar studs. Use the small 6 - 19 x 1/2" phillips head screw and phillips head screwdriver to retain the inner guide bar plate to the engine housing. Torque the screw to 8 - 18 in. lbs. (9 - 2.0 N · m).

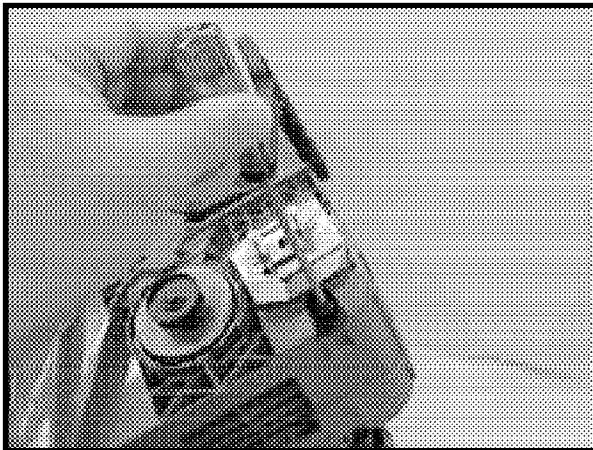


FIGURE 132

Assemble the chain catcher on the engine housing with the open side of the chain catcher facing down. Insert the #10 - 14 x 3/4" thread forming screw through the chain catcher and into the engine housing. Torque the screw to 30 - 50 in. lbs. (3.4 - 5.6 N · m).

Assemble the Front Handle

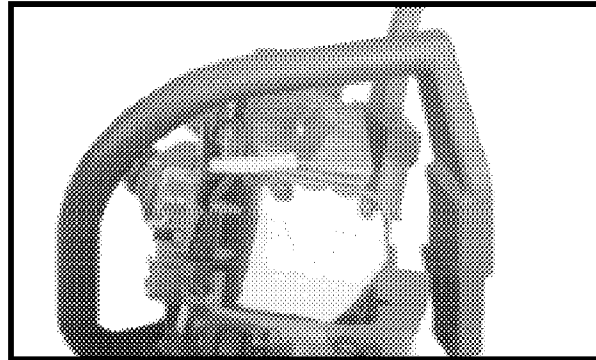


FIGURE 133

Place the front handle in front of the power head. Rotate the handle counterclockwise and slide the handle up and over the hand guard while lifting the front end of the power head to allow the bottom part of the handle to slip under the power head and into the pocket in the engine housing.

Pivot the starter side of the handle forward while pushing on the clutch side of the handle until snaps into the pocket on the clutch side of the engine housing.

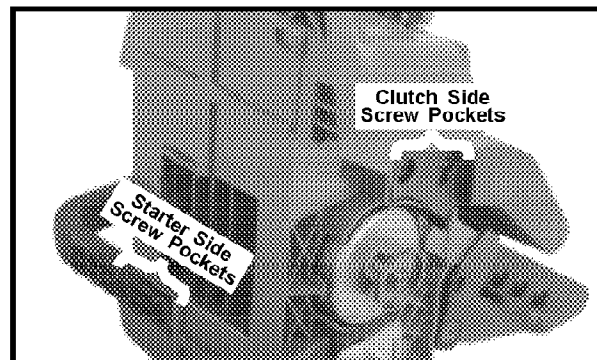


FIGURE 134

Install the four (#10 - 14 x 7/8") truss head front handlebar screws into the screw pockets. Torque the four screws to 40 - 50 in. lbs. (4.5 - 5.6 N · m).

INTERNAL / ENGINE

Chain Brake Assembly

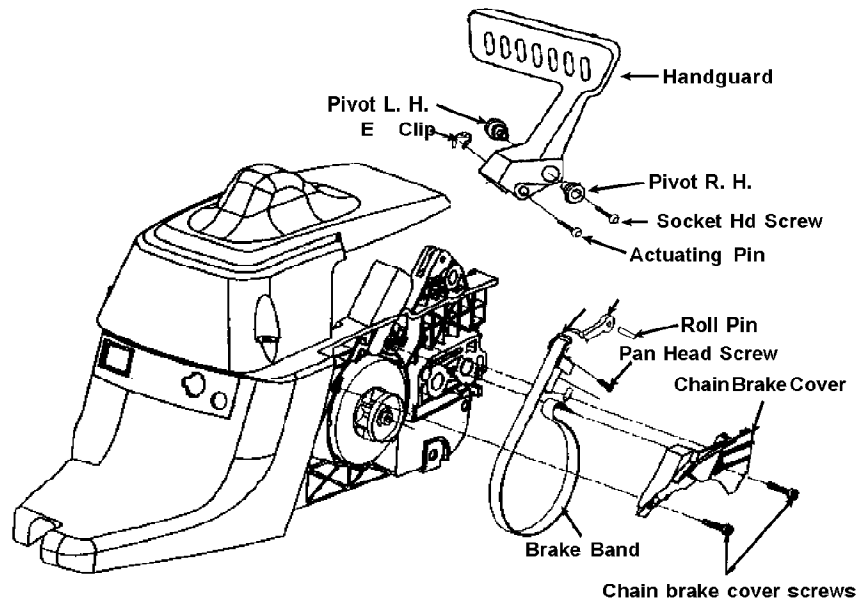


FIGURE 135

Insert the chain brake band in the engine housing pocket with the formed end of the band going into the pocket at the nine o'clock position. Rotate the brake band downwards until it parallels the brake band channel. Push the brake band up through the housing until the formed end is visible.

SERVICE NOTE

Leave the lower end of the brake band loose. Do not fit it into the engine housing at this time.

Insert the compression spring in the pocket just in front of the brake band. Hook the brake band with the slider and link assembly and slide the assembly into the engine housing until the end of the slider slips into the compression spring and will not go any farther.

Insert the dowel end of the brake band (free end) into the cavity in the engine housing. Insert the roll pin in to the housing. Tap the roll pin lightly until it is just visible in the channel pocket. Align the link end with the roll pin. Drive the roll pin home. Place the brake band cover and two screws into the cover. Rotate the screws counterclockwise, then thread the screws into the cover and torque the screws to 10 to 20 in. lbs. (1.1-2.3 Nm).

Insert the handguard spring into the handguard. Place the handguard in position on the engine housing and over the link assembly.

Insert the knurled left hand pivot to the inboard side of the engine housing. Insert right hand pivot into the opposite side of the handguard. Insert the socket head screw and torque to 25-35 in. lbs (2.8-3.9 Nm).

Insert the handguard actuating pin into the pocket on handguard. Lay the E-ring (flat side out) on the handguard and push it on the pin.

INTERNAL / ENGINE

Assemble the Muffler

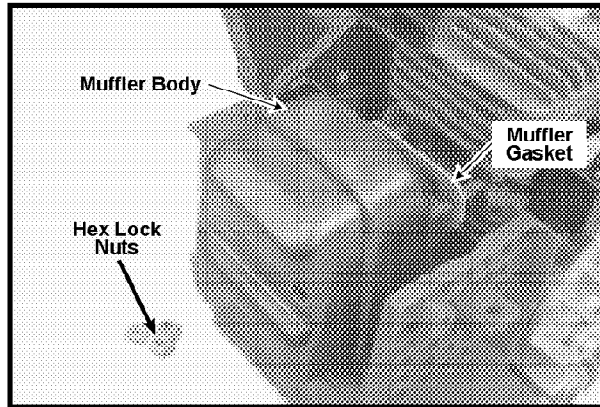


FIGURE 136

Assemble the three muffler mounting studs into the three pockets on the cylinder.

Slide a the muffler gasket on the three muffler mounting studs until it seats on the cylinder. Line up the three muffler studs with holes in the muffler body. Push the muffler assembly on the studs until the studs are visible and the muffler is flush with the gasket.

Thread on the three 10 - 32 lock nuts. Tighten the lock nuts and torque the lock nuts to 50 - 60 in. lbs. (5.6 - 6.7 N · m).

Assemble the Starter to the Engine Housing

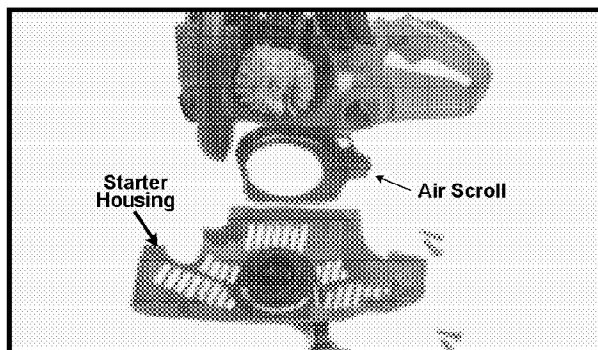


FIGURE 137

Place the air scroll over the rotor and foam pre - filter or insert it into the starter housing. Assemble the starter housing to the engine housing. While exerting slight pressure against the starter housing, pull on the starter rope to engage the starter pawls. Once the pawls are engaged, the starter housing

should pop in place flush against the engine housing.

Insert the two short Torx plastite screws (#10 - 14 x 5/8") into the top starter housing holes. Insert the two long Torx plastite screws (#10 - 14 x 7/8") into the two bottom starter housing holes. Torque the four screws to 30 - 40 in. lbs. (3.4 - 4.5 N · m).

Assemble the Engine Cover to the Engine Housing

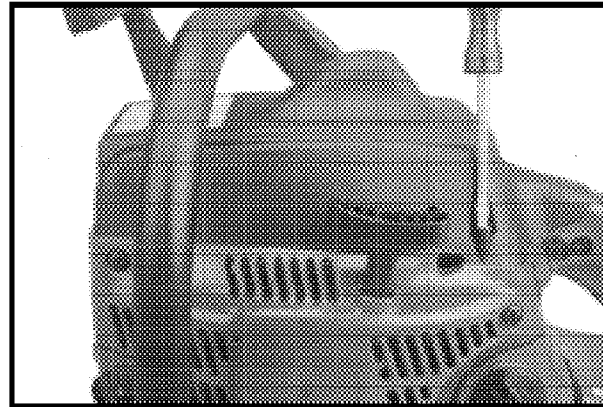


FIGURE 138

Place the engine cover over the cylinder and carburetor chamber. Work the cover into place and align the three screws with their respective speed nuts.

Start the three captive cover screws into the speed nuts and tighten hand tight or torque the screws to 15 - 25 in. lbs (1.7 - 2.8 N · m).

INTERNAL / ENGINE

Vibration Isolated Handle and Trigger Assembly

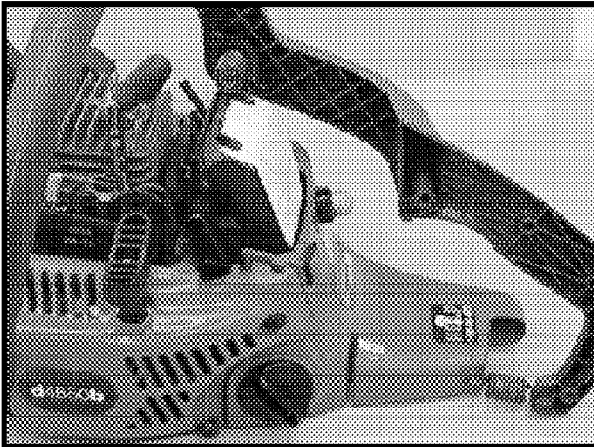


FIGURE 139

Swing the handle and handlebar assembly over the saw and into position.

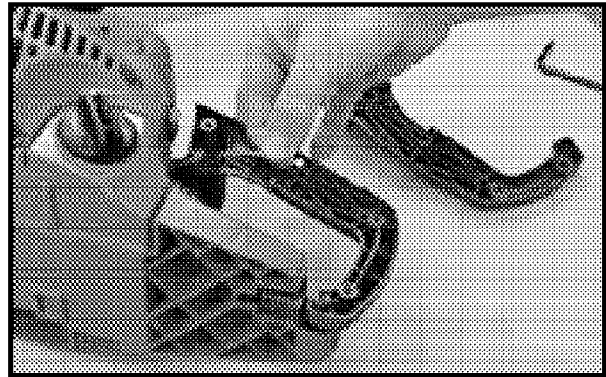


FIGURE 142

Secure the rectangular throttle cable housing end and the cable end or ball in their respective anchoring points in the handle.

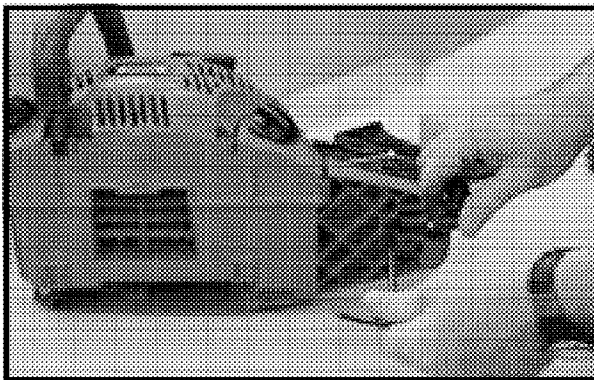


FIGURE 140

Use a T-25 TORX bit to install the two #10-14 x 1/2 starter side and rear handle isolator screws. Tighten the screws to 30 - 40 in. lbs. (3.4 - 4.5 N · m).

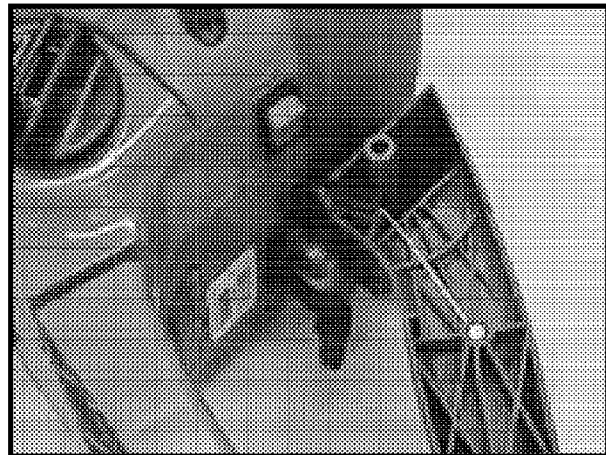


FIGURE 143

The throttle cable-housing end is anchored in a rectangular cavity. The throttle cable end, or ball, is anchored into a pocket in the handle.

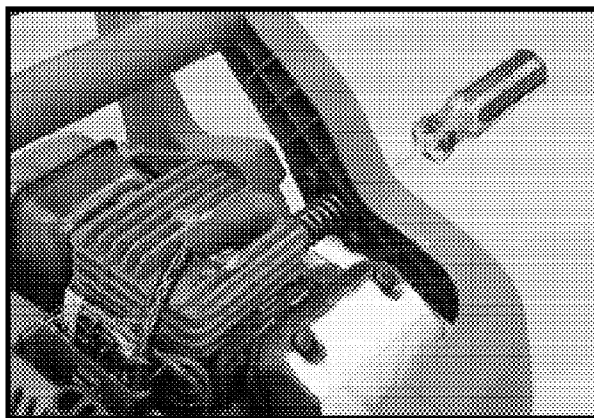


FIGURE 141

Use a T-25 TORX bit to tighten the one #10-24 x 5/8 clutch side isolator screw that has remained captive inside the isolator spring. Tighten this screw to 40 - 50 in. lbs. (4.5 - 5.6 N · m).

INTERNAL / ENGINE

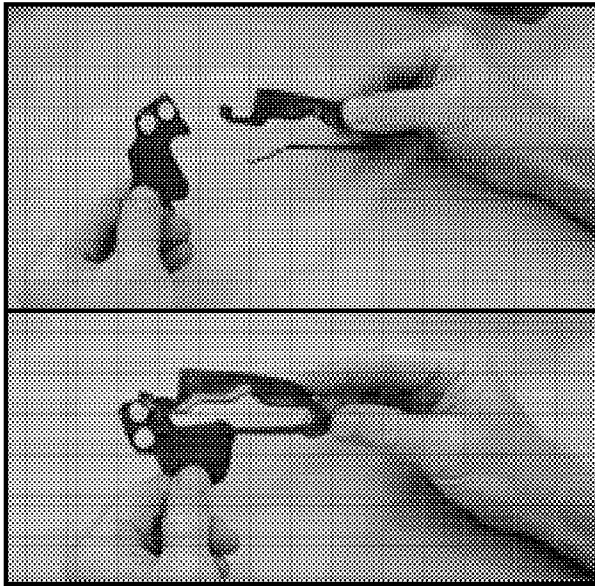


FIGURE 144

Take care when assembling the trigger and interlock shelves.

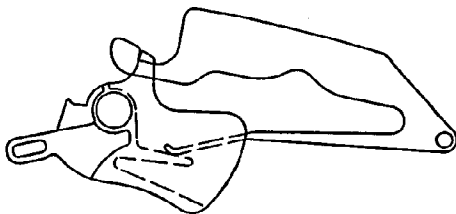


FIGURE 145

The spring portion of the throttle interlock should rest on the top shelf in the end of the trigger. Improper assembly will result in the interlock failing to perform properly.

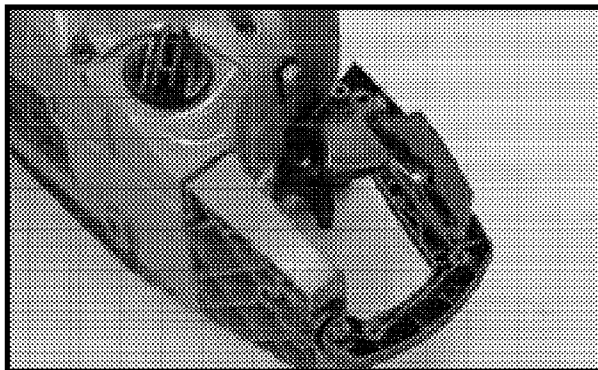


FIGURE 146

Carefully install the trigger interlock and trigger into the handle. Make sure that the cable contacts the proper surface of the trigger and the assembly functions properly.

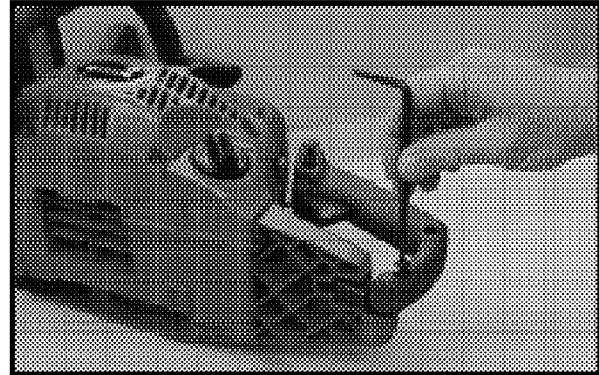


FIGURE 147

The cover may now be placed into position over the trigger and interlock.

Use a T-25 TORX bit or screwdriver to tighten the three #10 - 14 x 3/4" handle cover screws. Tighten these screws to 30 - 40 in. lbs. (3.4 - 4.5 N·m).

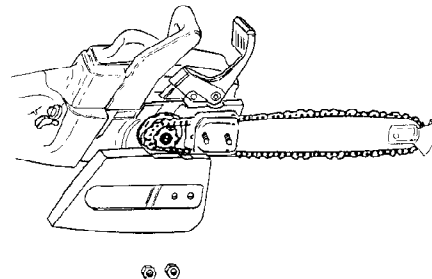


FIGURE 148

Put the guide bar mounting plate, drivecase cover and nuts back on the studs. Check that the bar and pin are still in place. Tighten the nuts with a wrench until bar is snug, but not tight against the mount. (Bar must be free to move for tension adjustment.)

Tighten chain with the adjusting screw until chain is snug on the guide bar. You should feel a slight drag or resistance when pulling chain around the bar with the thumb and forefinger. Chain should pull freely without slack.

Lift up on end of bar and tighten nuts firmly.

NOTES

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