McCULLOCH SERVICE BULLETIN

NO. 1629

MODEL Super Pro 81 E Chain Saws DATE February 1, 1977

SUBJECT Capacitor Discharge Ignition (CDI)

Super Pro 81 E chain saws now being manufactured are identified by Model Number 600439 and Serial Number prefix 11-.

The Illustrated Parts List for this model is P/N 91690. Your Distributor should provide you with a copy of this IPL in the near future if he has not already done so.

The SP81E is the basic SP81 model which features a Capacitor Discharge Ignition System (CDI). This system provides constant ignition timing throughout the saw cutting speed range, provides more consistent power output than magneto ignition systems and provides for longer spark plug life.

The CDI system also eliminates high maintenance items such as the condensor, and breaker points.

Information concerning those parts used in the Super Pro 81E, Model Number 600439 Serial Number prefix 11- which differ from the SP 81 is presented in the following table.

IPL Location	Part Number	Description	Qty	Mfg. Sugg. List Price	Stock Code
Figure 1	110971	Bearing-Sprocket	1	$ 1.30	A
"	83828	Wire Asy-Ground	1	1.20	A
"	92816	Brace-Frame	1	13.25	A
"	91689A	Nameplate	1	.55	A
"	69890	Plate-Lock	1	.40	A
Figure 4	92888	Wire Asy-Stop Switch	1	.75	A
Figure 7	92815	Shroud-Lower	1	7.55	A
"	*92886	Flywheel Asy	1	18.20	A
"	92846	Module Asy-Stator	1	20.20	A
"	92848	Wire Asy-Primary	1	.40	A
"	92889	Stud-Fan Hsng Mounting	1	.50	A
"	93273	Tie Cable	1	.10	A
"	92847	Transformer Asy	1	9.20	A
"	110973	Clip-Guide .375	1	.20	A
"	92890	Spacer - Transformer	2	.30	A
"	110749	Screw-HXW 10-24 x 1.12	2	.05	A
Figure 8	110963	Screw	1	.05	A
"	93265	Kit - Cyl/c'case	1	68.95	A
"	**92885	Crankshaft	1	30.00	A

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* To be used only on SP81E units--keyway is located in a different position than standard magneto flywheel. All CDI flywheels are painted black.

** To be used only on SP81E units--crankshaft does not have a cam and cannot backfit

The following information concerns service procedures for the electronic ignition (CDI) system on the SP 81E chain saw.

TROUBLESHOOTING:

1) Remove the spark plug from the engine and reconnect it into the spark plug boot. To be certain of an accurate test use a new spark plug.

2) Ground the spark plug on the engine, away from the spark plug hole.

3) Place the stop switch in the "ON" position.

4) Turn the engine over and watch for a blue-white spark across the plug electrode.

TROUBLESHOOTING WITH THE MERC-O-TRONIC ANALYZER:

1) Connect the large red lead to the spark plug boot.

2) Connect the black lead to a good ground on the engine.

3) Place the stop switch in the "ON" position.

4) Turn the engine over. Check for a spark in the window in the upper right corner of the Analyzer.

IMPORTANT: Do not induce current into the system since this could result in damage to one of the components.

If either method of testing produces no spark, it will be necessary to check the system components. To do this:

1) Loosen the seven hold-down screws and remove the fan housing-starter assembly.

2) Loosen rear handle to brace screw, the two frame clamp screws and the mount screw and remove the frame brace, frame clamp and the lower mount.

3) Check the stop switch wire for frayed or worn conditions, and to be sure it is properly mounted to the module fitting. The stop switch wire must be held to the mounting stud with the tie cable (Fig. 1-a).

4) Check the ignition switch using test procedures found in S.I. 17, the Ignition Wall Chart.

5) Check the lamination gap between the flywheel and the module assembly. It is important that the gap be between .011" and.015".

6) Check the primary wire and the spark plug for frayed or worn conditions. It is very important that the primary wire is securely mounted on both the module terminal and the transformer terminal.

7) Be sure the primary wire is properly routed from module assembly to the transformer assembly. From the module it should:

   A) Wrap once around the spark plug wire (Fig. 2-a)

   B) Through the guide clip (Fig. 2-b)

   C) Out through the shroud grommet (Fig. 3-a)

   D) Between the transformer assembly and the shroud and onto the transformer terminal (Fig. 3-b)

The transformer terminal should be bent in at about a 45^{o} angle to prevent contact with the sawdust shield (Fig.3-c).

The module terminal should be bent in at about a 15^{o} angle to prevent contact with the inside of the fan housing (Fig. 1-b).

If no problem is found after these checks, the following steps should be taken.

1) Remove module assembly and replace it with a new assembly. Torque the two hold down screws to 50 to 60 pound x inches (5.7 to 6.8 N.m.). Be sure all wires are properly connected.

2) Repeat the spark test from the troubleshooting section.

3) If no spark occurs, remove the transformer assembly and replace it with a new assembly. Torque the two hold down screws to 30 to 40 pound x inches (3.4 to 4.5 N.m.). Be sure all wires are properly routed and mounted.

4) Repeat the spark test from the troubleshooting section.

During re-assembly of the unit, be sure that the ground strap is properly mounted to the lower mount clamp and the top of the grommet (refer to S.I. 94).

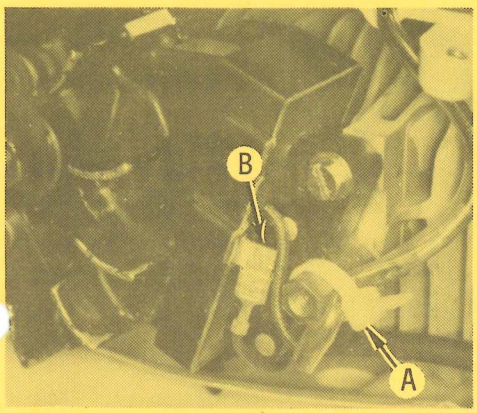


Figure 1

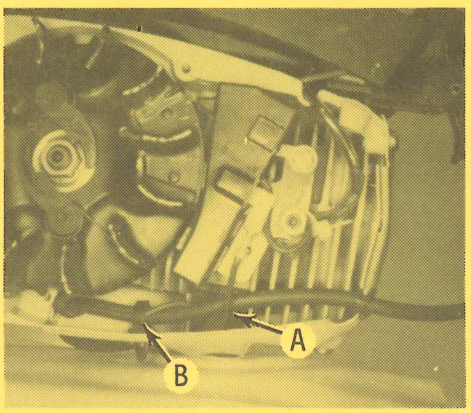


Figure 2

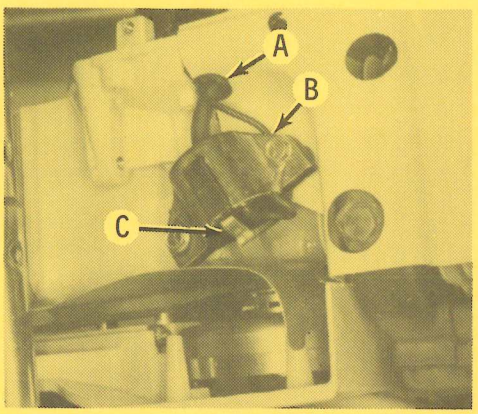


Figure 3