

# HUSQVARNA

Model	Bore mm (in.)	Stroke mm (in.)	Displacement cc (cu. in.)	Drive Type
61, 61 CB, 61 Rancher, 162 SE, 162 SG	48.0 (1.89)	34.0 (1.34)	61.5 (3.75)	Direct
66, 266, 266 CB, 266 SG, 266 XP, 268, 268 XP	50.0 (1.97)	34.0 (1.34)	66.7 (4.1)	Direct
272 XP, 272 XPG	52 (2.05)	34.0 (1.34)	72 (4.4)	Direct

## MAINTENANCE

**SPARK PLUG.** Recommended spark plug is Bosch WS7F or Champion RCJ7Y. Electrode gap should be 0.5 mm (0.020 in.).

**CARBURETOR.** A Tillotson Model HS diaphragm carburetor is used on all models except Model 61, which may be equipped with a Tillotson HS or a Walbro WS carburetor. Refer to Tillotson or Walbro section of CARBURETOR SERVICE section for carburetor overhaul and exploded views.

On 268XP and 272XP models, initial adjustment of low- and high-speed mixture needles is one turn open. On all other models, initial adjustment of low-speed mixture needle is one turn open and high-speed mixture needle is 3/4 turn open. On all models, make final adjustment with engine warm and running.

Turn low-speed mixture needle (L-Fig. H40) clockwise to obtain highest idle speed, then turn screw 1/4 turn counterclockwise. Engine should accelerate cleanly without hesitation. If engine stumbles or seems sluggish when

accelerating, adjust idle mixture screw until engine accelerates without hesitation.

Adjust high-speed mixture needle (H) to obtain optimum performance under cutting load. Make certain engine no-load speed (bar and chain installed) does not exceed 12,000 rpm on Models 61, 66 and 162, or 12,500 rpm on Models 266, 268 and 272.

Do not operate saw with high-speed mixture too lean because engine damage may result from lack of lubrication and overheating.

Adjust idle speed stop screw (T) so engine idles just below clutch engagement speed.

**IGNITION.** All models are equipped with an electronic breakerless ignition system. Ignition timing is not adjustable and no periodic maintenance is required. Air gap between ignition coil and flywheel should be 0.30 mm (0.012 in.).

**LUBRICATION.** The engine is lubricated by mixing oil with the fuel. Recommended fuel:oil ratio is 50:1 when using Husqvarna Two-Stroke Oil. If Husqvarna Two-Stroke Oil is not available, use good quality oil designed for use in air-cooled two-stroke engines mixed at 25:1 ratio.

All models are equipped with an adjustable automatic chain oil pump. Adjustment is possible after clutch removal. Turn adjusting screw (S-Fig. H41) for desired oil output; position number "1" is minimum output, position number "4" is maximum output.

## REPAIRS

**CRANKCASE PRESSURE TEST.** An improperly sealed crankcase can cause the engine to be hard to start, run rough, have low power and overheat. Refer to ENGINE SERVICE section of this manual for crankcase pressure test procedure. If crankcase leakage is indicated, pressurize crankcase and use a soap and water solution to check gaskets, seals, pulse line and castings for leakage.

**TIGHTENING TORQUE.** Refer to the following table when tightening fasteners.

Carburetor-	
61, 66, 162. . . . .	4-6 N·m (35-53 in.-lbs.)
266, 268, 272. . . . .	2-3 N·m (18-26 in.-lbs.)
Crankcase screws. . . . .	7-9 N·m (62-79 in.-lbs.)
Cylinder screws . . . . .	8-10 N·m (71-88 in.-lbs.)
Clutch hub . . . . .	30-40 N·m (22-29 ft.-lbs.)
Flywheel nut . . . . .	30-40 N·m (22-29 ft.-lbs.)

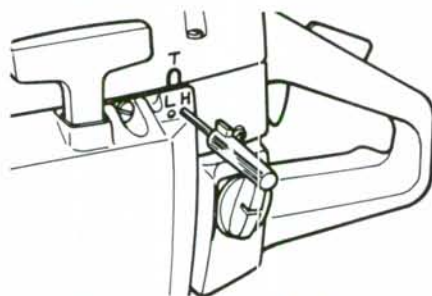


Fig. H40—View showing location of carburetor adjusting points typical of all models. Idle speed screw is at (T), idle mixture screw is at (L) and high speed mixture screw is at (H).

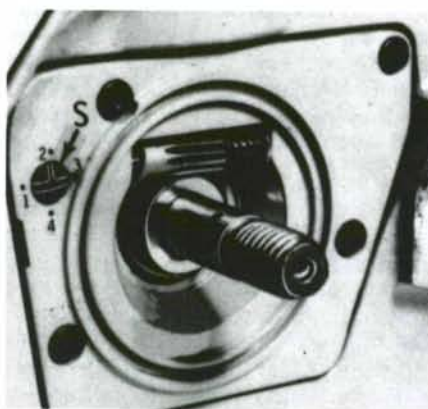


Fig. H41—View showing location of oil pump adjusting screw (S). Adjusting screw shown is set at position 2.

Muffler .....	7-8 N·m (62-70 in.-lbs.)
Oil pump .....	3-4 N·m (26-35 in.-lbs.)
Spark plug .....	20 N·m (15 ft.-lbs.)
4 mm screw .....	4.5-5.5 N·m (40-50 in.-lbs.)
5 mm screw .....	5.5-6.8 N·m (50-60 in.-lbs.)
6 mm screw .....	10-11.8 N·m (90-105 in.-lbs.)
8 mm screw .....	28.2-32.8 N·m (250-290 in.-lbs.)
10 mm screw .....	36.7-42.4 N·m (325-375 in.-lbs.)

**PISTON, PIN, RINGS AND CYLINDER.** To disassemble, remove cylinder cover and air filter assembly. Disconnect carburetor linkage and fuel line. Remove screws attaching muffler bracket to crankcase. Remove cylinder mounting screws and lift cylinder with muffler and carburetor from crankcase. Remove piston pin retaining rings (5-Fig. H42) and push piston pin out of piston. Remove carburetor and muffler from cylinder.

Clean carbon from cylinder ports and piston. Inspect cylinder and piston for

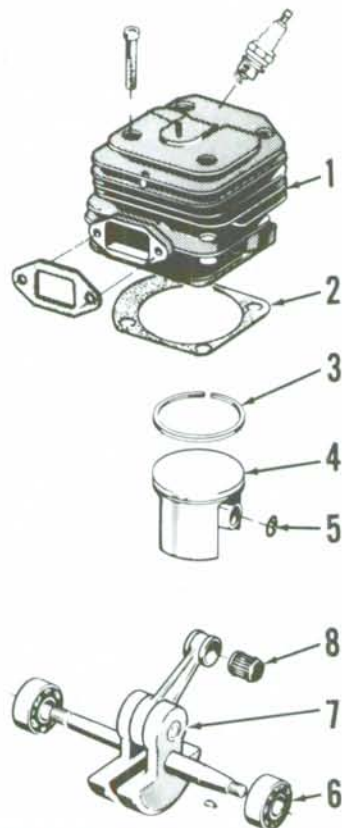


Fig. H42—Exploded view of engine components typical of all models.

- |                 |   |
|-----------------|---|
| 1. Cylinder     | 6. Bearing                              |
| 2. Gasket       | 7. Crankshaft & connecting rod assembly |
| 3. Piston ring  | 8. Roller bearing                       |
| 4. Piston       |   |
| 5. Pin retainer |   |



Fig. H43—Arrows showing location of piston and cylinder letter grades. Be sure arrow stamped in piston crown points toward exhaust port when installing piston. Grade "B" is shown.

excessive wear or damage. Slight scuffing of piston and cylinder wall may be polished out using fine emery cloth.

On Models 266XP, 268XP and 272XP, new cylinder is available only with a fitted piston, but new piston is available separately for installation in used cylinder. On all other models, piston and cylinder are graded with a letter according to size. Piston is marked on piston crown while cylinder is marked on top as shown in Fig. H43. Letter sizes range from "A" to "C," with "A" being the smallest size. Piston cylinder grades should match, although one size larger piston may be installed in a used cylinder. For instance, a piston graded "C" may be used in a cylinder graded "B."

Piston must be installed with arrow on piston crown pointing toward exhaust port. Refer to Fig. H43. A locating pin is present in piston ring groove to prevent piston ring rotation. Be sure ring end gap is positioned around the locating pin when installing cylinder. Lubricate roller bearing (8-Fig. H42) and piston with oil before installing cylinder. Tighten cylinder mounting screws evenly to 8-10 N·m (71-88 in.-lbs.).

**CRANKSHAFT, CONNECTING ROD AND CRANKCASE.** To disassemble, remove chain and guide bar, cylinder cover, air filter assembly, starter assembly and air baffle. Remove spark plug and install a piston stop in spark plug hole. Remove flywheel mounting nut (right-hand threads) and starter pawls. Use suitable puller to remove flywheel.

Remove ignition module and generator coil if so equipped. Remove clutch assembly (left-hand threads) and oil pump. Remove cylinder mounting screws and pull cylinder off piston. Separate piston from connecting rod. Separate tank and handle assembly from crankcase.

Remove crankcase mounting screws and use Husqvarna tool 502 51 61-01, or other suitable puller tool, to separate crankcase halves and press crankshaft out of main bearings. It will be necessary to heat crankcase halves to remove and install main bearings. Care should be taken not to damage mating surfaces of crankcase halves.

Crankshaft and connecting rod are a unit assembly. Check rotation of connecting rod around crankpin and renew crankshaft unit if roughness or other damage is found. The connecting rod should not have any radial clearance (up and down play) on the crankpin.

To reassemble, reverse the disassembly procedure. Heat crankcase halves and position tool 502 50 30-04 against outside face of crankcase half, then press main bearing in from inside crankcase until bearing bottoms against tool. Be sure crankshaft is snug against the main bearings and centered in crankcase. Tighten crankcase screws evenly, starting with screws closest to crankshaft, to 7-9 N·m (62-79 in.-lbs.).

**CLUTCH.** All models are equipped with a three-shoe centrifugal clutch (Fig. H44), which is accessible after removing chain brake assembly and chain guide bar. Clutch hub has left-hand threads (turn clockwise to remove).

Inspect clutch shoes (1), drum (2) and bearing (3) for excessive wear or damage due to overheating. Renew clutch shoes if there is less than 1 mm (0.039 in.) of clutch material remaining at the most worn section. Shoes must be renewed as a set. Inspect chain sprocket teeth for excessive wear and renew as necessary.

Lubricate the needle bearing with grease. Tighten clutch hub to 30-40 N·m (22-29 ft.-lbs.).

**OIL PUMP.** All models are equipped with an automatic oil pump, which is

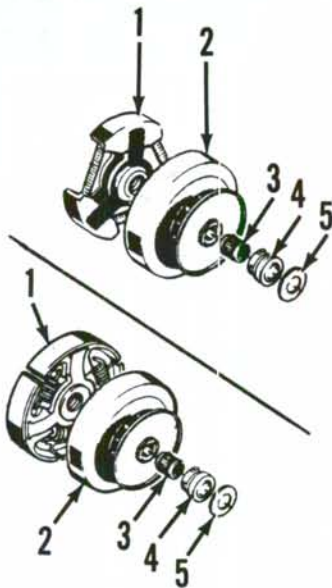


Fig. H44—Exploded view of two different styles of clutch assemblies. Notches on back of clutch drum (2) engage dogs on oil pump drive gear (4).

- |                |                        |
|----------------|------------------------|
| 1. Hub & shoes | 4. Oil pump drive gear |
| 2. Clutch drum | 5. Washer              |
| 3. Bearing     |                        |

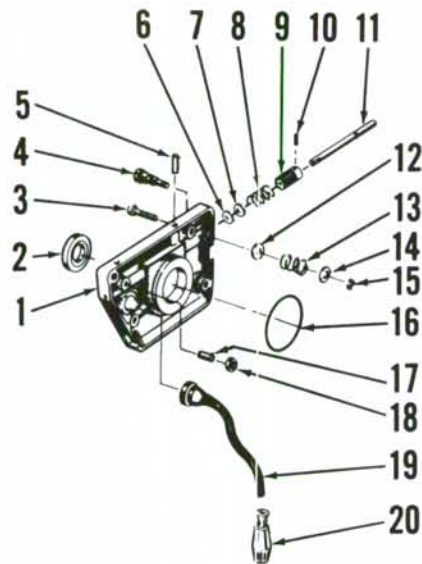


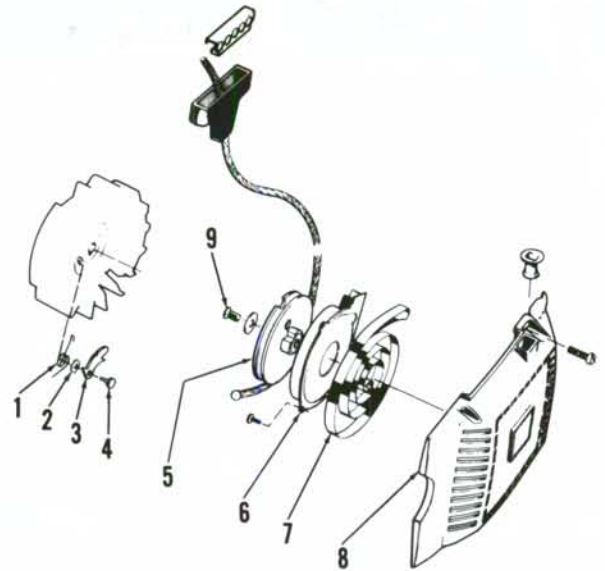
Fig. H45—Exploded view of automatic oil pump. When assembling, note location of brass and steel washers (6 and 7).

- |                    |                |
|--------------------|----------------|
| 1. Pump housing    | 11. Plunger    |
| 2. Oil seal        | 12. Washer     |
| 3. Screw           | 13. Spring     |
| 4. Adjusting screw | 14. Washer     |
| 5. Pin             | 15. "E" ring   |
| 6. Brass washer    | 16. "O" ring   |
| 7. Steel washer    | 17. Oil tube   |
| 8. Spring          | 18. Seal       |
| 9. Driven gear     | 19. Oil hose   |
| 10. Screw          | 20. Oil pickup |

driven by the clutch drum. Notches on the back of the clutch drum engage dogs on oil pump drive gear (4—Fig. H44) which rides on the crankshaft. The oil pump drive gear engages driven gear (9—Fig. H45) which is secured to

Fig. H46—Exploded view of rewind starter.

- |                    |
|--------------------|
| 1. Spring          |
| 2. Washer          |
| 3. Pawl            |
| 4. Pin             |
| 5. Rope pulley     |
| 6. Rope guide      |
| 7. Rewind spring   |
| 8. Starter housing |
| 9. Screw           |



plunger (11) by set screw (10). Oil pump output is adjusted by turning screw (4).

To remove oil pump, first remove timing guide bar, clutch and oil pump mounting screws. Using two screwdrivers, insert blade tips into notches provided in pump housing and carefully withdraw oil pump.

To disassemble for cleaning and inspection, remove "E" ring (15), washers (12 and 14) and spring (13). Remove adjusting screw (4). Remove set screw (10) and withdraw plunger (11), driven gear (9), spring (8) and washers (6 and 7).

Lubricate parts with oil during assembly. Be sure steel washer (7) is closest to spring (8). Install new oil seal (2) and "O" ring (16).

To reinstall, it is recommended that sleeve, tool number 50 25 053-01, be placed over crankshaft end to prevent damage to oil seal (2). Tighten pump mounting screws to 3-4 N·m (27-35 in.-lbs.).

**REWIND STARTER.** To disassemble rewind starter, remove starter housing from saw. Pull starter rope and hold rope pulley (5—Fig. H46) with notch in pulley adjacent to rope outlet. Pull rope back through outlet so it engages notch in pulley and allow pulley to slowly unwind. Unscrew pulley retaining screw (9) and carefully remove rope pulley. If rewind spring (7) must be removed, care should be taken not to allow spring to uncoil uncontrolled.

Install rewind spring in starter housing with spring coiled in clockwise direction from outer spring end. Wrap starter rope around rope pulley in a clockwise direction as viewed with pulley in starter housing. Turn rope pulley two turns clockwise before passing rope through rope outlet to place tension on rewind spring. Spring tension is correct

if rope pulley can be rotated approximately 1/4 turn further when rope is at its greatest length.

When installing starter assembly on saw, make sure starter pulley properly engages pawls on flywheel before tightening retaining cap screws.

**CHAIN BRAKE.** Some models may be equipped with a chain brake system designed to stop chain movement should kickback occur. Several types of chain brake systems have been used. Refer to Fig. H47, Fig. H48 and Fig. H48A for exploded views of different styles of brake mechanisms used.

The chain brake is activated either by the operator's hand striking the hand guard (1) or by sufficient force being applied to the guide bar tip during kickback to cause the front handle to contact trigger lever (6—Fig. H47) on early models, trigger button (9—Fig. H48) or trigger assembly (4—Fig. H48A) on later models, resulting in automatic activation of brake mechanism.

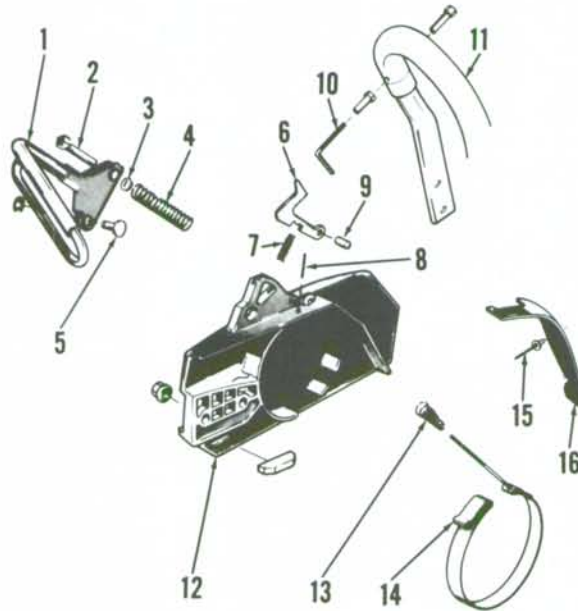
To adjust chain brake on early models, pull back brake lever and be sure mechanism is cocked. Turn adjusting screw (2—Fig. H47) in until chain cannot be pulled around bar, then turn screw out approximately four turns. If screw has a square head, be sure screw head does not rest on hand guard side plates. Chain should rotate freely around bar.

Check brake band tension adjustment by starting saw running at wide open throttle, then manually engage chain brake. Chain should stop rotating immediately.

Adjust gap between trigger lever (6—Fig. H47) and trigger arm (10) so chain brake will automatically activate when a 6.2-9.8 N (1.4-2.2 lbs.) force is applied on guide bar tip. A suitable

Fig. H47—Exploded view of early model chain brake.

1. Chain brake lever
2. Adjusting screw
3. Washer
4. Spring
5. Pin
6. Trigger lever
7. Spring
8. Pin
9. Pin
10. Trigger arm
11. Front handle
12. Side cover
13. Spring
14. Brake rod & band
15. Rivet
16. Chain guard



spring balance should be used for testing and adjustment.

To adjust chain brake on later models equipped with brake mechanism shown in Fig. H48, first pull back hand guard and be sure mechanism is cocked, then determine if brake system has an adjustable brake band as shown in inset of Fig. H48.

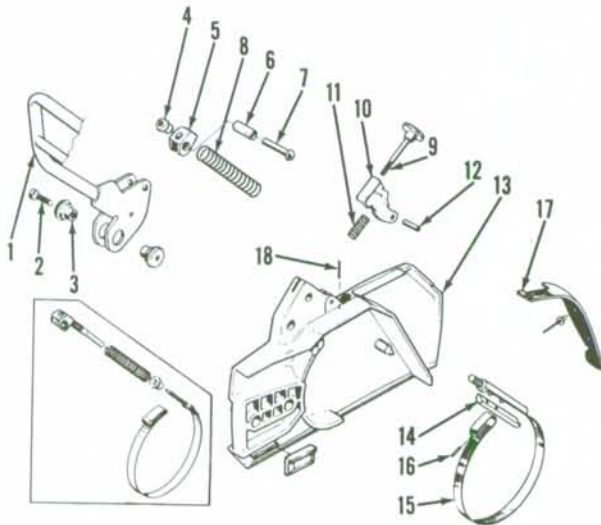
If brake band is adjustable, follow early model brake band adjustment procedures as outlined in previous paragraph. On models without adjustable brake band, be sure spring retaining nut (4) is tight against its seat.

On all models, gap between trigger button (9) and front handle should be adjusted so chain brake will automatically activate when a 6.2-9.8 N (1.4-2.2 lbs.) force is applied on guide bar tip. A suitable spring balance should be used for testing and adjustment.

No adjustment is required for chain brake shown in Fig. H48A.

Fig. H48—Exploded view of late style chain brake used on some models. Some models may have adjustable type brake band as shown in inset.

1. Hand guard
2. Cap screw
3. Trunnion
4. Nut
5. Latch
6. Bushing
7. Rivet
8. Spring
9. Trigger button
10. Trigger lever
11. Spring
12. Pin
13. Housing
14. Guide
15. Brake band
16. Pin
17. Chain guard
18. Pin



**HANDLE HEATER.** Models 162SG, 266SG and 272XPG are equipped with a front and rear handle heating system. A generator coil (4-Fig. H49) located

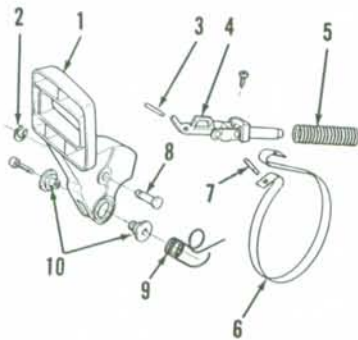


Fig. H48A—Exploded view of latest style chain brake mechanism used on some models.

1. Hand guard
2. Retainer
3. Pin
4. Trigger assy.
5. Brake spring
6. Brake band
7. Pin
8. Pin
9. Spring
10. Pivot sleeves
11. Sawdust guard
12. Brake housing
13. Chain tension adjusting bolt
14. Brake cover

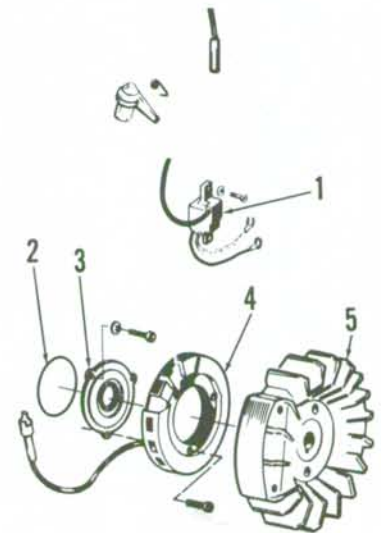
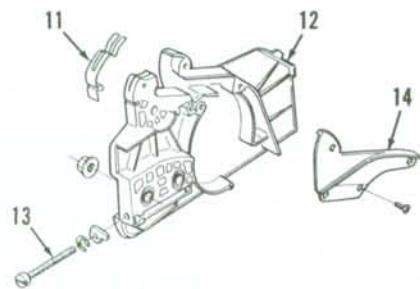
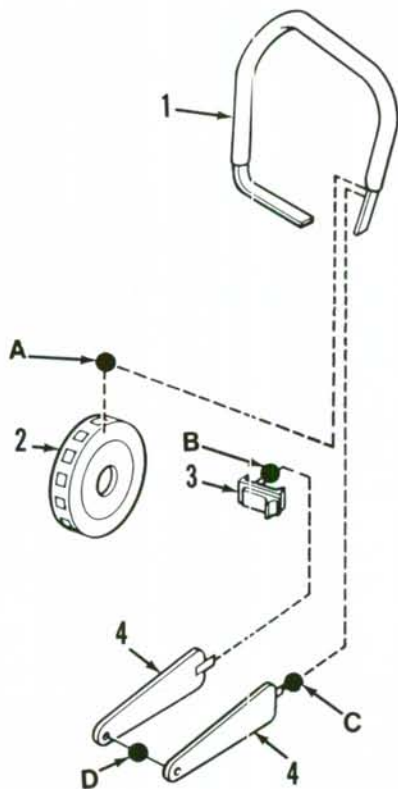


Fig. H49—Exploded view of Ignition system. Generator coil (4) for heated handles is used on Models 162SG and 266SG.

1. Ignition coil
2. "O" ring
3. Seal & retainer
4. Generator coil
5. Flywheel
6. Ignition module



**Fig. H50—Schematic drawing of handle heating system used on some models. Refer to text for testing procedures.**

- |                         |                         |
|-------------------------|-------------------------|
| 1. Front handle element | 3. Switch               |
| 2. Generator            | 4. Rear handle elements |

underneath the flywheel produces approximately 20 volts at 8500 rpm to provide an electrical current to heating coils in front and rear handles.

On some models, a thermostat that closes at approximately 10 degrees C (50 degrees F) regulates the heating system. On other models, a switch located next to the rear handle controls the heating system.

An ohmmeter may be used to check resistance of heating elements. To test rear handle elements (4-Fig. H50), connect ohmmeter test leads between points "D" and "B," and "D" and "C." Meter reading should be 0.7-0.9 ohms for each element.

To test both rear and front handle elements, connect ohmmeter test leads between points "A" and "B." Meter reading should be 5.1-5.7 ohms. If readings are significantly higher or lower, check for corroded connections or broken wires.

To check generator output, connect voltmeter between point "A" and crankcase (ground). With heater switch turned "ON" and saw running at about 10,000 rpm, meter reading should be about 20 volts. If there is low or no voltage, check generator windings for open or short circuit, loss of magnetism or faulty wiring.

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