250G, 440G, 550GE, G2500K, G4400K, G5500K, and G5500KE GENERATORS

TECHNICAL MANUAL

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John Deere
Worldwide Commercial and Consumer Equipment Division

TM1791 (18Feb00)

Litho in U.S.A

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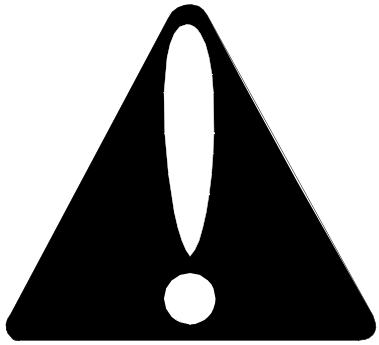
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RECOGNIZE SAFETY INFORMATION



This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

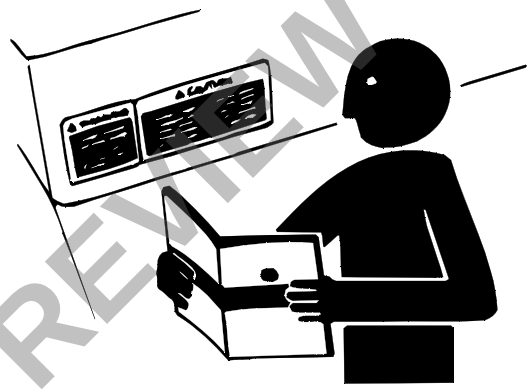
Follow recommended precautions and safe servicing practices.

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

REPLACE SAFETY SIGNS



Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

HANDLE FLUIDS SAFELY-AVOID FIRES

Be Prepared For Emergencies



When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

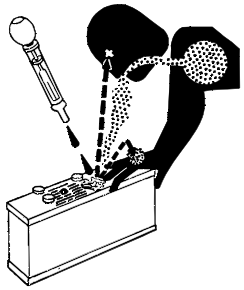
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

USE CARE IN HANDLING AND SERVICING BATTERIES





Prevent Battery Explosions

- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

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GENERAL SPECIFICATIONS

250G GENERATOR

Engine

Model . . . . . Briggs & Stratton Industrial Plus
Horsepower . . . . . 5 hp
Starting . . . . . Automatic Rewind
Running Time at 3600 RPM (Tank of Fuel) . . . . . 7.2 Hours at Rated Load

Fuel System

Fuel Type . . . . . Automotive
Fuel Capacity . . . . . 3 Gallons (11 Liters)

Electrical

AC Watts - Intermittent 2500
AC Watts - Continuous 2300
AC Power Output . . . . . 120 Volts, Single Phase
Voltage Regulation . . . . . Electronic, +/- 6%
Frequency . . . . . 60 Hz
Rated Amperage 19.2
Outlets . . . . . (2) 15 amp, 120 V (Type 5-15R)
. . . . . (2) 15 amp, 120V GFCI

General

Sound Level at 50 ft. . . . . 71 dBA
Length . . . . . 22.25 in.(57 cm)
Width . . . . . 18.50 in.(47 cm)
Height . . . . . 19 in.(48 cm)
Weight (dry) . . . . . 95 lbs (43 kg)

440G GENERATOR

Engine

Model . . . . . Briggs & Stratton Industrial Plus
Horsepower . . . . . 8 hp
Starting . . . . . Automatic Rewind
Running Time at 3600 RPM (Tank of Fuel) . . . . . 6.0 Hours at Rated Load

Fuel System

Fuel Type . . . . . Automotive
Fuel Capacity . . . . . 5 Gallons (19 Liters)

Electrical

AC Watts - Intermittent 4400
AC Watts - Continuous 4000
AC Power Output . . . . . 120 /240 Volts

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TORQUE SPECIFICATIONS

End Bell to Engine*	
250G and G2500K	13.6-16.9 N•m (120-150 lb-in.)
440G, 550GE, G440K, G5500K and G5500KE	27.1-28.2 N•m (240-250 lb-in.)
Stator Housing Bolts	6.8-9.0 N•m (60-80 lb-in.)
Rotor Bolt	11.3-15.8 N•m (100-140 lb-in.)
Brush Holder	1.4-1.8 N•m (12-16 lb-in.)
Stator to Bracket	16.9-17.5 N•m (150-155 lb-in.)
Receptacle (220G)	1.0-1.5 N•m (9-13 lb-in.)
Fan to Rotor	1.4-1.8 N•m (12-16 lb-in.)
Isolator to Frame	16.4-17.5 N•m (145-155 lb-in.)
Engine to Engine Support	16.4-17.5 N•m (145-155 lb-in.)
Ground Wire to Stator	5.1-6.2 N•m (45-55 lb-in.)
Tank Support to Frame	2.8-4.0 N•m (25-35 lb-in.)
Heat Shield to Tank Support	0.9-1.4 N•m (8-12 lb-in.)
Generator Support Bracket to Eng/Gen Support (250G)	16.4-17.5 N•m (145-155 lb-in.)
Generator Bracket to Isolator (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Engine to Engine Support (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Ground Screw (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Panel to Frame	2.4-2.8 N•m (20-25 lb-in.)
Receptacles to Panels	1.4-1.6 N•m (12-14 lb-in.)
Circuit to Panel	1.8-2.4 N•m (15-20 lb-in.)
Front to Back Panel	1.8-2.4 N•m (15-20 lb-in.)
Idle Bracket to Engine	6.8-7.9 N•m (60-70 lb-in.)
Idle Paddle to Governor Arm	1.6-2.0 N•m (14-18 lb-in.)
Switch to Battery Plate (440G, G4400, 550GE, G550K)	7.9-9.0 N•m (70-80 lb-in.)
Battery Strap to Plate (440G, G4400, 550GE, G550K)	1.4-1.8 N•m (12-16 lb-in.)
Battery Cables to Battery	4.5-5.6 N•m (40-50 lb-in.)
Battery Cables to Starter Switch	5.6-6.8 N•m (50-60 lb-in.)
Battery Cables to Starter	3.4-4.5 N•m (30-40 lb-in.)
Idler Bracket to Muffler Bracket (550GE)	16.4-17.5 N•m (145-155 lb-in.)
Idler Bracket Clamp (550GE)	1.6-2.0 N•m (14-18 lb-in.)
Idler Paddle Clamp (550GE)	1.6-2.0 N•m (14-18 lb-in.)

OTHER MATERIALS

Number	Name	Use
*T43514 / 277	Thread Lock and Sealer (High Strength)	Apply to threads of end bell to engine screws

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READING ELECTRICAL SCHEMATICS

The schematic is made up of individual circuits laid out in a sequence of related functions. It is formatted with all power wires (A) across the top and all ground wires (B) across the bottom. Current flow is generally from top to bottom through each circuit and component. All components are shown in the OFF position. The diagram does not list connector (C) information unless needed to avoid confusion. If the connector is shown, the number next to it is the terminal pin location (D) in the connector.

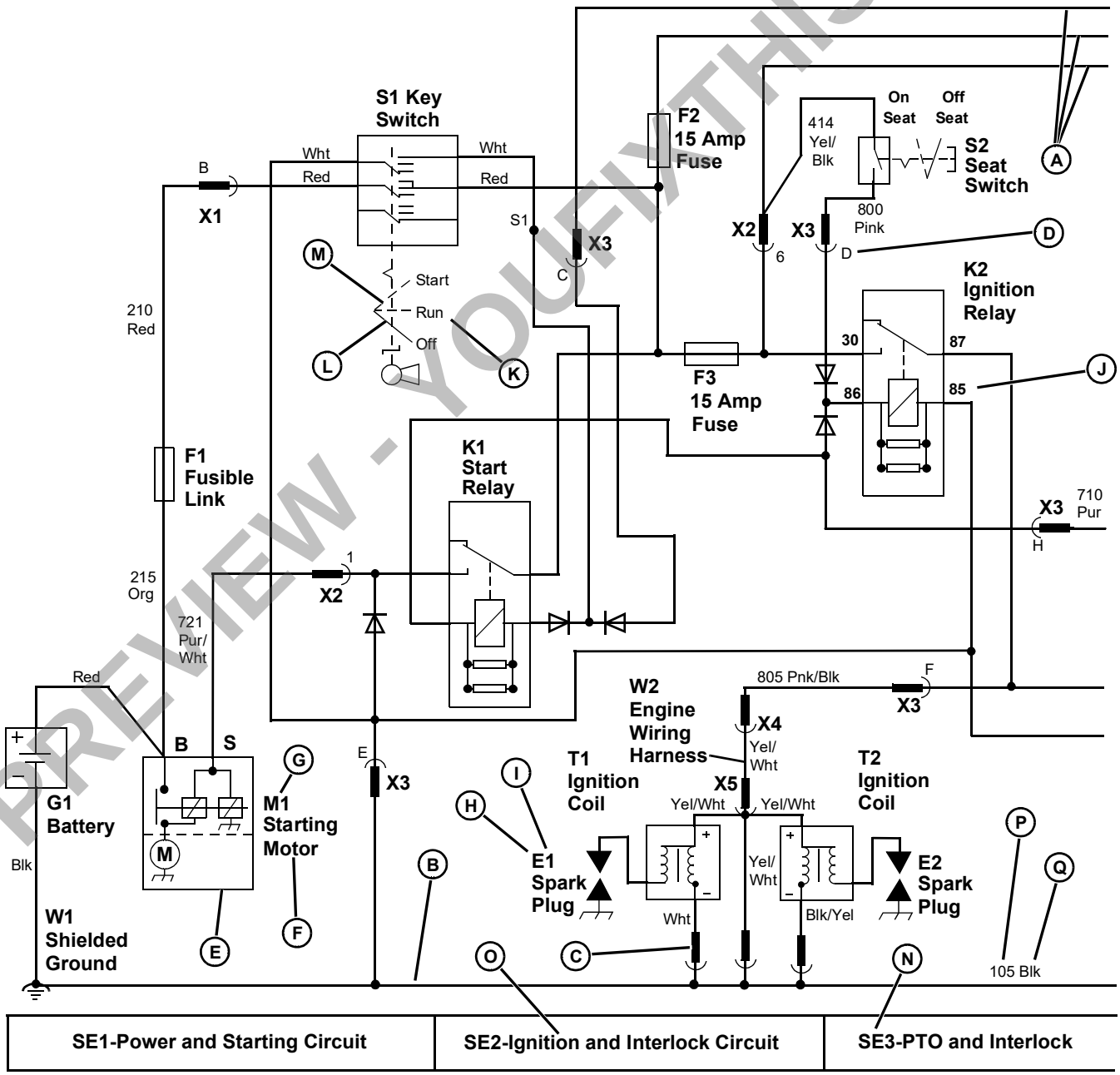
Each component is shown by a symbol (E), its name (F), and an identification code (G). The identification code contains a device identifying letter (H) and number (I).

The identifying letter is always the same for a specific component, but the identifying numbers are numbered consecutively from upper left to lower right. The terminal designation (J) is placed directly outside the symbol next to the connecting wire path. Switch positions (K) are also placed directly outside the symbol. The solid line (L) shows the position the switch is currently in and dash lines (M) represent other switch positions.

Each circuit is identified at the bottom of the drawing by a section number (N) and section name (O).

The circuit number (P) and wire color (Q) of the wires are shown directly next to the wire path.

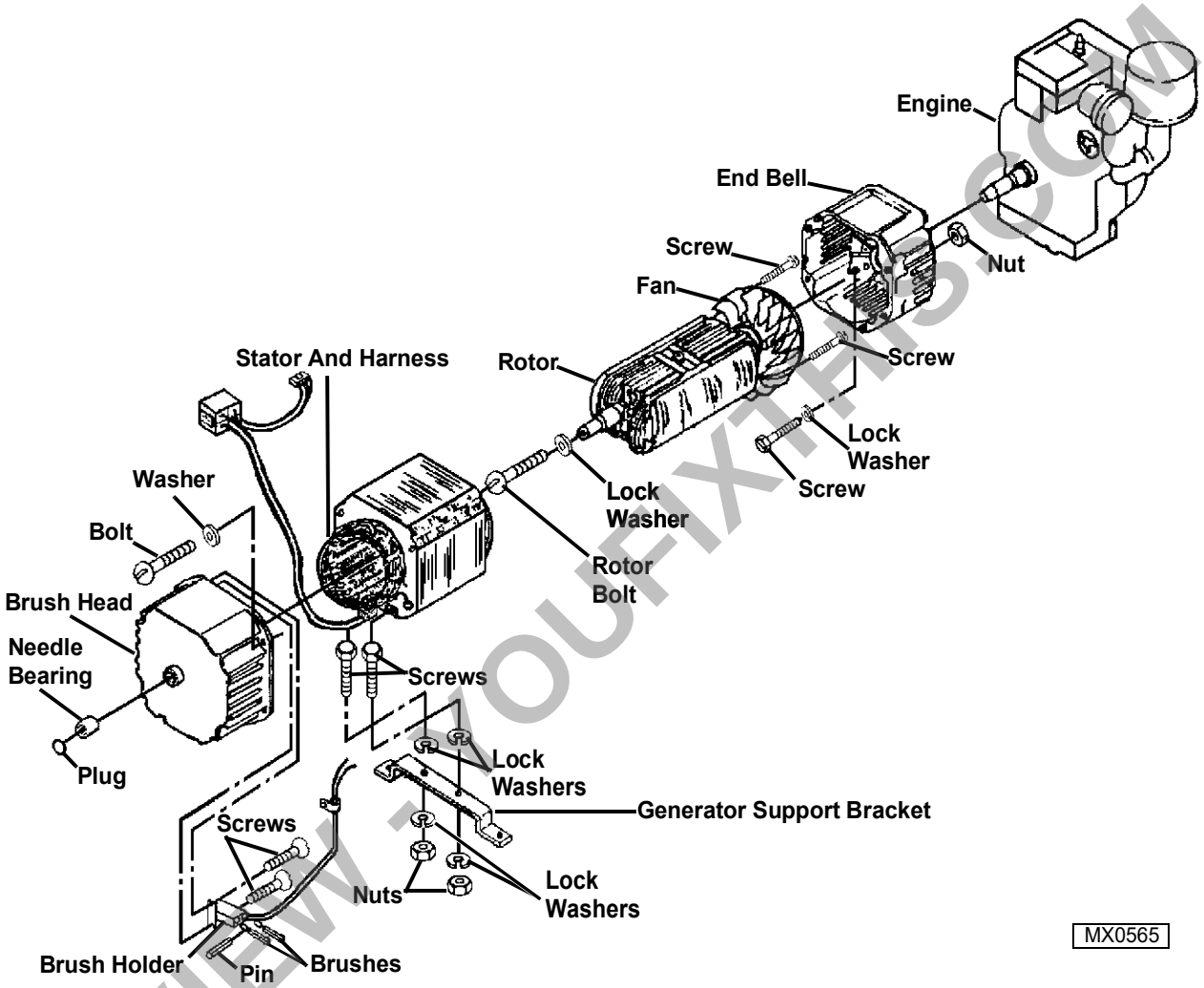
The same component name and identification code are used consistently on all diagrams in this section. Components can be easily cross-referenced.



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GENERATOR END 250G and G2500K



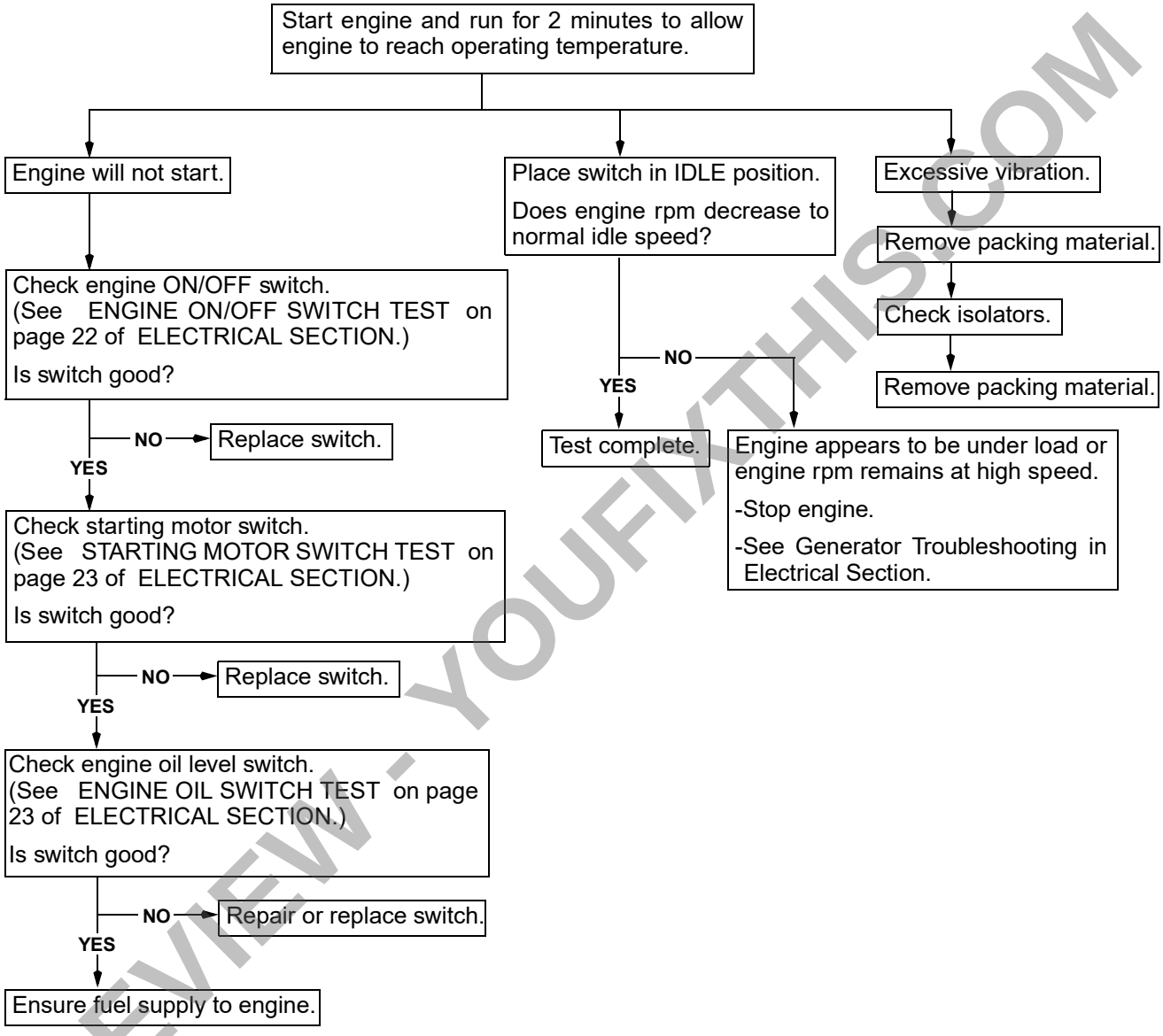
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TROUBLESHOOTING

ENGINE OPERATION





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TESTS AND ADJUSTMENTS

ENGINE IDLE ADJUSTMENT

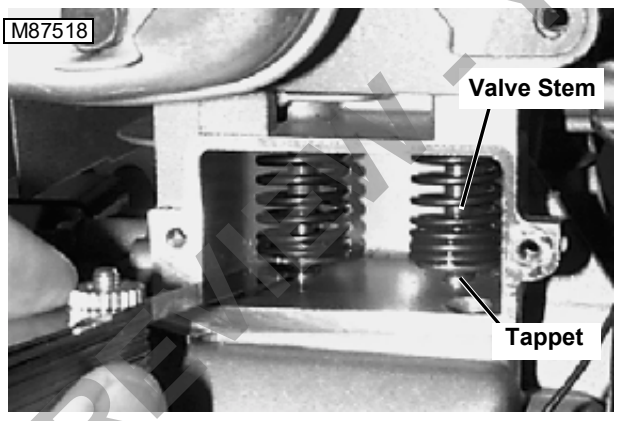
NOTE: The engine slow idle is controlled by the electromagnet and paddle control. The paddle is connected to the governor arm. The electromagnet is adjusted (two nuts) in or out to hold the governor at an idle that provides an 85 to 90 volt output.
When the paddle is held by the electromagnet, the throttle arm should NOT be touching the idle set screw.

(See ELECTROMAGNET ADJUSTMENT on page 21 of ELECTRICAL SECTION.)

VALVE CLEARANCE CHECK

The valve tappet clearance should be checked whenever any valve grinding has been performed, or new valves are installed. Grinding the valve stem changes the valve tappet clearance.

1. Remove fuel tank and breather tube from carburetor.
2. Remove the crankcase breather assembly.
3. Rotate the crankshaft until the piston is at top-dead-center.



4. Check the clearance between the bottom of each valve stem and the tappet using a flat feeler gauge.

Valve Clearance Specification:
Intake. . . . . 0.13 - 0.18 mm (0.005 - 0.007 in.)
Exhaust . . . . . 0.23 - 0.28 mm (0.009 - 0.011 in.)

If necessary, remove and grind the valve stem to obtain the proper clearance.

CRANKCASE BREATHER TEST

1. Remove cap from crankcase oil fill tube.
2. Remove crankcase breather tube from carburetor fitting and try to blow and suck air to and from the tube. Air should not pass into the crankcase freely when blown into, and return easily when sucked on. Reed valve inside breather must be loose and move back and forth with air pressure.
3. Replace breather if clogged, or open in both directions (See CRANKCASE BREATHER REMOVAL on page 12).
4. Replace crankcase oil fill tube.

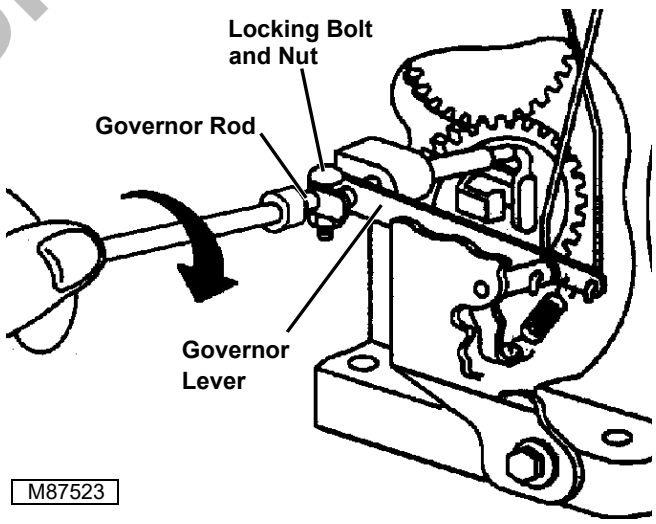
GOVERNOR ADJUSTMENT

Reason:

The governor prevents the engine from running above a preset rpm. Engine overspeeding will generate excessive heat, and the engine will fail prematurely.

Procedure:

1. Stop the engine.



2. Loosen governor lever locking bolt and nut. Move throttle control lever to fast idle position so throttle shaft is against full throttle stop.
3. Using a 3/16 inch socket on end of governor rod, rotate governor rod clockwise until resting against spool on governor gear.
4. Tighten locking bolt and nut.
5.

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AUTOMATIC COMPRESSION RELEASE (A.C.R.) TEST

Reason:

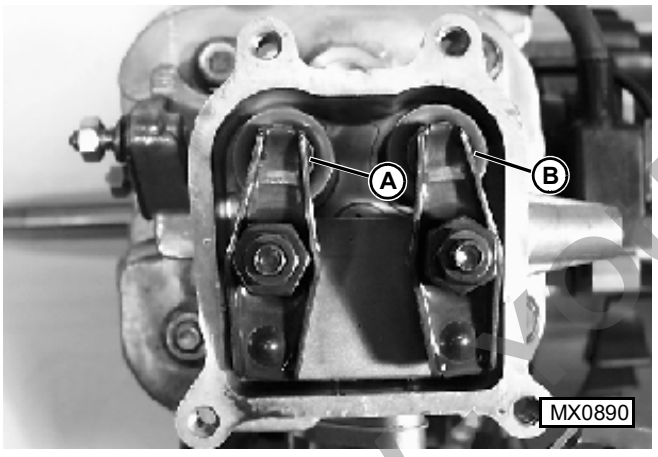
To verify automatic compression release (A.C.R.) mechanism operation.

Procedure:

1. Place engine switch in OFF position.

IMPORTANT: Exhaust valve clearance MUST BE set properly BEFORE this test is performed. (See Valve Clearance Check on previous page.)

Spark plug wire MUST BE GROUNDED or electronic ignition could be damaged.



2. Rotate crankshaft counterclockwise slowly, watch exhaust valve.

Results:

- Exhaust valve (A) must lift briefly, after intake valve (B) closes.

Auto Compression Release:

Standard lift . . . . . 1.1 mm (0.04 in.)
Minimum lift . . . . . 0.6 mm (0.023 in.)

- If A.C.R. lift movement is not within specifications, (See AUTOMATIC COMPRESSION RELEASE INSPECTION on page 17.)

CRANKCASE VACUUM TEST

Reason:

To determine operation of breather, condition of seals, gaskets, rings, piston, and cylinder wall.

Equipment:

- JT03503 Vacuum Gauge
- 8741-F66 Plug
- JT05703 Barb Fitting
- JT05699 Line

Procedure:

1. Place engine switch in OFF position.
2. Connect tubing from gauge to barb fitting and install barb fitting in plug.
3. Start the engine and run engine at slow idle. Quickly remove engine dipstick and insert plug and fitting into dipstick opening.
4. Run engine at FAST idle.
5. Read gauge and check that vacuum is **30 mm (1.18 in.) water movement**.
6. DO NOT TURN ENGINE OFF! Disconnect tube from gauge.
7. Turn engine OFF.
8. Remove plug and install dipstick.

Results:

If crankcase vacuum LESS than specification, check:

- Make sure engine is fully warmed up.
- Breather reed valve clearance and condition
- Seals and gaskets for leakage
- Valve cover gasket for leakage
- Rings, piston, and cylinder walls for wear.
- Valve and valve seats for wear or damage.
- Head warpage.

IGNITION COIL AIR GAP ADJUSTMENT

Reason:

To adjust air gap between ignition coil and flywheel magnets to a specified dimension needed for proper ignition timing.

Equipment:

- Flat bladed feeler gauge.

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