

ohmmeter leads to terminals. Resistance should be 0.41-0.51 ohms for 7E1 models or 1.49-1.82 ohms for 7E3 models. Renew stator if desired resistance readings are not obtained.

OVERHAUL

To disassemble generator, remove end

cover then disconnect and remove control box. Disconnect and remove brush holder assembly. Unbolt and remove mounting cushions from stator housing. Unscrew four through bolts securing stator housing and remove stator housing. Unscrew rotor through bolt, then using a slide hammer, break rotor loose from crankshaft taper and remove

rotor.

Inspect components and reassemble generator by reversing disassembly procedure. Refer to wiring schematic for proper wiring connections. Tighten rotor bolt to 18.6 N·m (14 ft.-lbs.) and stator through bolts to 7.8 N·m (6 ft.-lbs.).

ENGINE

Model	Cyls.	Bore	Stroke	Displ.
MF180	1	65 mm (2.559 in.)	54 mm (2.126 in.)	179 cc (10.9 cu. in.)
MF260	1	73 mm (2.874 in.)	61 mm (2.402 in.)	256 cc (15.6 cu. in.)

MAINTENANCE

SPARK PLUG. Recommended spark plug is a Champion L87Y or NGK BP-6HS. Spark plug electrode gap is 0.6-0.7 mm (0.024-0.028 in.).

CARBURETOR. MF180 models are equipped with a Mikuni BV18-15 carburetor while MF260 models are equipped with a Keihin BB24-17 carburetor. Initial setting of idle mixture screw is 1¼ turns on BV18-15 carburetor or 1⅞ turns on BB24-17 carburetor. Refer to following tables for carburetor specifications:

Mikuni BV18-15

Fuel inlet valve	2.0
Main jet	80
Pilot air jet	3.0
Pilot jet	57.5

Keihin BB24-17

Fuel inlet valve	2.0
Main air jet	130
Main jet	85
Pilot jet	40

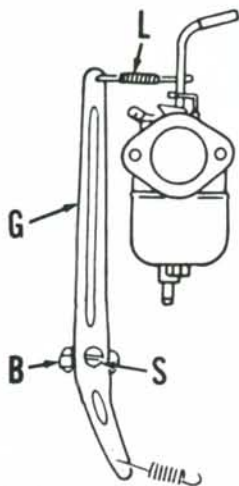


Fig. Y2-6—Drawing of governor linkage. Refer to text for operation.

IGNITION AND TIMING. All models are equipped with a capacitor discharge ignition system. The trigger coil and charge coil are attached to a stator plate behind the flywheel while the ignition module is attached to the fan housing. Ignition timing is not adjustable.

To check trigger coil and charge coil, remove fan housing, disconnect coil leads and remove flywheel. Connect an ohmmeter to trigger coil lead and coil base. Ohmmeter should read 603-737 ohms; if not, renew trigger coil. Connect ohmmeter to charge coil lead and coil base. Ohmmeter should read 342-418 ohms; if not, renew charge coil. When reinstalling flywheel, tighten flywheel nut to 54 N·m (40 ft.-lbs.) on MF180 models or 74 N·m (54 ft.-lbs.) on MF260 models.

Note that an erratic or faulty ignition system may be due to an oil warning system malfunction. Refer to LUBRICATION section.

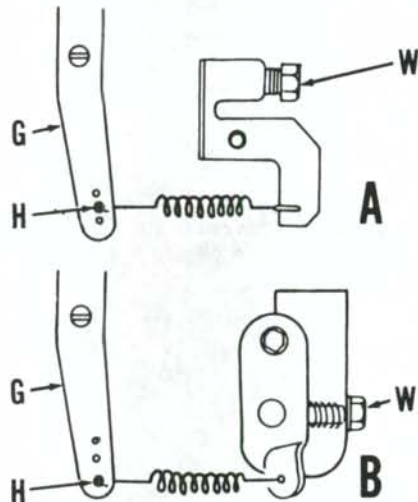


Fig. Y2-7—Adjust governed engine speed as outlined in text. Note position of spring end in hole (H) for MF180 models in View A or for MF260 models in View B.

GOVERNOR. All models are equipped with a flyweight type governor attached to and driven by the camshaft gear. The governor forces governor shaft (S—Fig. Y2-6) to rotate according to engine speed. Pinch bolt (B) secures governor arm (G) to shaft (S). Movement of governor arm (G) is transmitted by link (L) to carburetor throttle arm.

Note in Fig. Y2-7 that governor spring end is connected to middle hole (H) of MF180 governor arm (G) or to lower hole (H) of MF260 governor arm (G).

To adjust governed speed, loosen pinch bolt (B—Fig. Y2-6). Pull upper end of governor arm (G) to left (away from carburetor) so carburetor throttle is fully open. Turn governor shaft (S) counterclockwise until stop is contacted then retighten pinch bolt (B). With engine running under no load, turn adjusting screw (W—Fig. Y2-7) so maximum governed speed is 3800 rpm. If available, a frequency meter may be connected to an outlet and maximum governed speed adjusted so desired current frequency is obtained.

LUBRICATION. Crankcase capacity is 680 cc (0.7 qt.) on MF180 models or 950 cc (1.0 qt.) on MF260 models. Use SAE

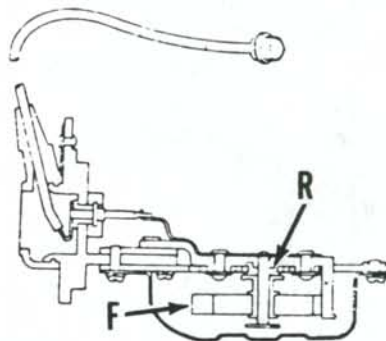


Fig. Y2-8—Cross-sectional view of oil level warning system.

30 oil if ambient temperature is above 15°C (60°F), SAE 20 if temperature is between 0°C (32°F) and 15°C (60°F), and SAE 10 if temperature is below 0°C (32°F).

All models are equipped with a low-oil safety system which disables the ignition system and lights a warning bulb when engine oil level is critically low. A float (F—Fig. Y2-8) mounted in the engine crankcase monitors oil level and when the oil level lowers to less than 325 cc (0.34 qt.) on MF180 models or to less than 450 cc (0.48 qt.) on MF260 models, a magnet in the float closes the contacts in reed switch (R) thereby grounding the ignition and lighting the oil warning light.

Refer to OVERHAUL section to service oil warning system.

OVERHAUL

TIGHTENING TORQUES. Recommended tightening torques are as follows:

Connecting rod	
MF180	11.8 N·m (104 in.-lbs.)
MF260	15.7 N·m (139 in.-lbs.)
Crankcase cover	
MF180	9.8 N·m (7 ft.-lbs.)
MF260	17 N·m (12 ft.-lbs.)
Cylinder head	19.6 N·m (14.5 ft.-lbs.)
Flywheel	
MF180	54 N·m (40 ft.-lbs.)
MF260	74 N·m (54 ft.-lbs.)

CYLINDER HEAD. The cylinder head is removable. Be sure head gasket is installed as shown in Fig. Y2-9 or Y2-10. Tighten cylinder head screws to 19.6 N·m (14.5 ft.-lbs.) in sequence shown in Fig. Y2-11.

VALVE SYSTEM. Valve tappet gap is 0.05-0.15 mm (0.002-0.006 in.) on

MF180 models or 0.1-0.3 mm (0.004-0.012 in.) on MF260 models. Different length valves are available if valve tappet gap is incorrect. Valves are marked "0, 1 or 2". Note valve lengths in following tables:

Valve Marking	Length	
	MF180	MF260
0	91.70- 91.80 mm (3.610- 3.614 in.)	104.55- 104.65 mm (4.116- 4.120 in.)
1	91.80- 91.90 mm (3.614- 3.618 in.)	104.65- 104.75 mm (4.120- 4.234 in.)
2	91.90- 92.00 mm (3.618- 3.622 in.)	104.75- 104.85 mm (4.124- 4.128 in.)

Intake valve stem diameter for all models is 6.955-6.970 mm (0.2738-0.2744 in.). Exhaust valve stem diameter is 6.950-6.970 mm (0.2736-0.2744 in.) on MF180 models or 6.915-6.930 mm (0.2722-0.2728 in.) on MF260 models. Valve seat width should be 0.7-0.9 mm (0.027-0.035 in.) for all valves. Valve spring free length is 33.5 mm (1.319 in.) for MF180 models or 37.0 mm (1.457 in.) for MF260 models.

PISTON, PIN AND RINGS. Piston and connecting rod are removed as a unit after cylinder head and crankcase cover are removed. Piston oversizes available are 0.25 mm (0.010 in.) and 0.05 mm

(0.020 in.). Piston clearance should be 0.085 mm (0.0033 in.) for MF180 models or 0.070 mm (0.0027 in.) for MF260 models. Piston ring end gap should be 0.2-0.4 mm (0.008-0.016 in.). Install piston so arrow on crown points towards valve side of engine as shown in Fig. Y2-12. Piston pin is fully floating in piston and rod. Piston pin retaining clips should be renewed if removed.

CONNECTING ROD. The connecting rod and piston are removed as a unit after cylinder head and crankcase cover are removed. The aluminum rod rides directly on crankpin. Connecting rod to crankpin clearance is 0.016-0.034 mm (0.0006-0.0013 in.). Connecting rod side clearance is 0.2-0.8 mm (0.008-0.032 in.). Match marks (M—Fig. Y2-13) must be aligned when installing rod. Note that oil dipper on MF260 models is cast into rod cap while oil dipper on MF180 models is separate and fits between rod cap and lock plate as shown in Fig. Y2-14. Tighten rod screws to 11.8 N·m (104 in.-lbs.) on MF180 models or to 15.7 N·m (139 in.-lbs.) on MF260 models.

CAMSHAFT AND GOVERNOR. The camshaft rides directly in crankcase and crankcase cover. Inspect camshaft lobes, gear and bearing surfaces for damage and excessive wear. Crankshaft and camshaft timing marks must be aligned as shown in Fig. Y2-15 during assembly.

The governor weights, spring and actuating collar are mounted on camshaft as shown in Fig. Y2-16. Nine governor weights are held by governor spring on MF260 models while only four weights are used on MF180 models. Be sure collar properly engages groove (G) in weights (W). Install governor fork (F—Fig. Y2-17) on governor shaft (S) of MF260 models so pads on fork ends are towards camshaft.

CRANKSHAFT AND CRANKCASE. The crankshaft is supported by ball bearings. Inspect crankshaft for excessive wear, straightness and damage.

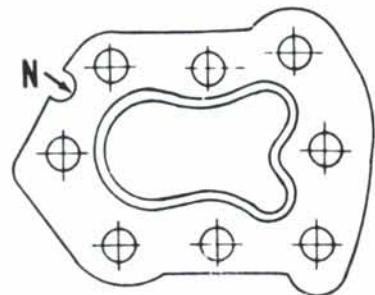


Fig. Y2-9—Install head gasket on MF180 models so notch (N) is towards flywheel side of engine.

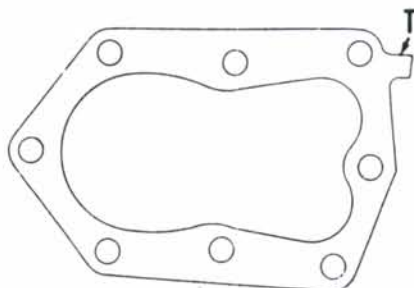


Fig. Y2-10—Install head gasket on MF260 models so tab (T) is towards flywheel side of engine.

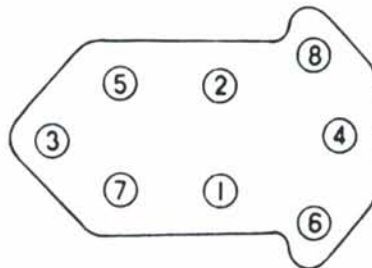


Fig. Y2-11—Tightening sequence for cylinder head screws.

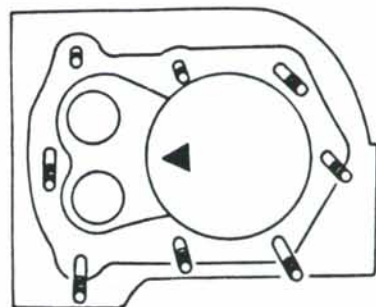


Fig. Y2-12—Install piston so arrow on crown points towards valves.

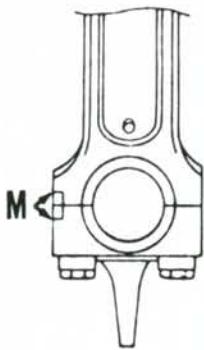


Fig. Y2-13—Match marks (M) on side of rod and cap must be aligned during assembly.

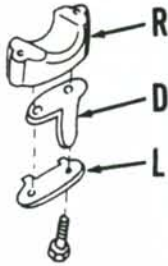


Fig. Y2-14—A separate oil dipper (D) is used on MF180 models between rod cap (R) and lock plate (L).

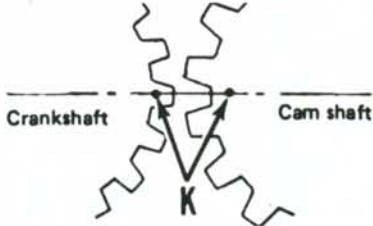


Fig. Y2-15—Align crankshaft and camshaft timing marks (K) during assembly.

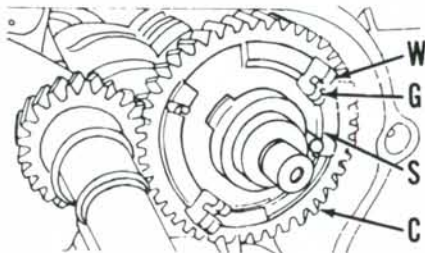


Fig. Y2-16—View of MF180 governor weights (W) and spring (S) installed on camshaft gear (C). MF260 assembly is similar but more weights are used. Governor collar is not shown but must engage groove (G) in weights.

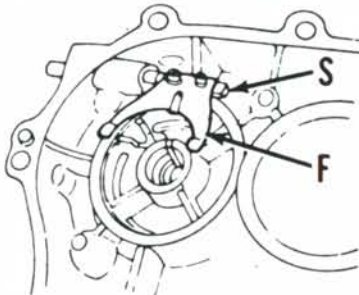


Fig. Y2-17—Install governor fork (F) on governor shaft (S) of MF260 models with pads on fork ends towards camshaft.

Crankpin diameter is 24.952-24.970 mm (0.9824-0.9831 in.) on MF180 models or 28.952-28.970 mm (1.1398-1.1405 in.) on MF260 models. Tighten crankcase cover

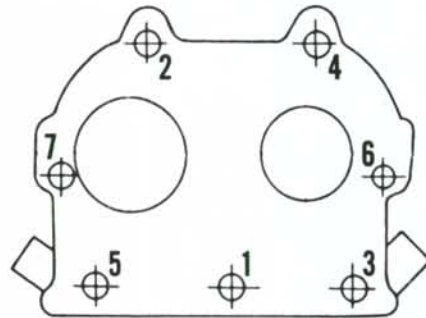


Fig. Y2-18—Tightening sequence for crankcase cover screws on MF180.

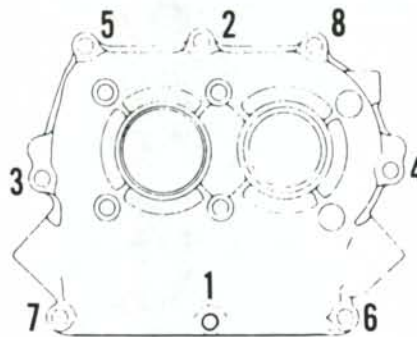


Fig. Y2-19—Tightening sequence for crankcase cover screws on MF260.

screws to 9.8 N·m (7 ft.-lbs.) on MF180 models or to 17 N·m (12 ft.-lbs.) on MF260 models. Refer to Fig. Y2-18 or Y2-19 for tightening sequence.

REWIND STARTER. Refer to Fig. Y2-20 or Y2-21 for an exploded view of rewind starter. With starter removed from engine, untie rope handle from rope and allow rope to wind into starter housing. Unscrew nut (1) to disassemble starter. Use care when removing rope pulley (13) so rewind spring (15) is not dislodged from housing (16). If spring (15) must be removed, use care as uncontrolled uncoiling of spring may cause injury.

When assembling starter, install rewind spring (15) so coil direction is counterclockwise from outer end. Wind rope on rope pulley in counter-clockwise direction as viewed with pulley (13) installed in housing (16). Preload rewind spring by turning rope pulley two turns against spring tension before passing rope through rope outlet in housing.

OIL WARNING SYSTEM. All models are equipped with an oil warning system which disables ignition system when low oil level may damage engine. See LUBRICATION section.

To inspect oil level assembly, drain engine oil and remove unit from side of

Fig. Y2-20—Exploded view of rewind starter on MF180.

1. Nut
2. Lockwasher
3. Washer
4. Plate
5. Washer
6. Return spring
7. Spring
12. Pawl Assy.
13. Rope pulley
14. Plate
15. Rewind spring
16. Starter housing

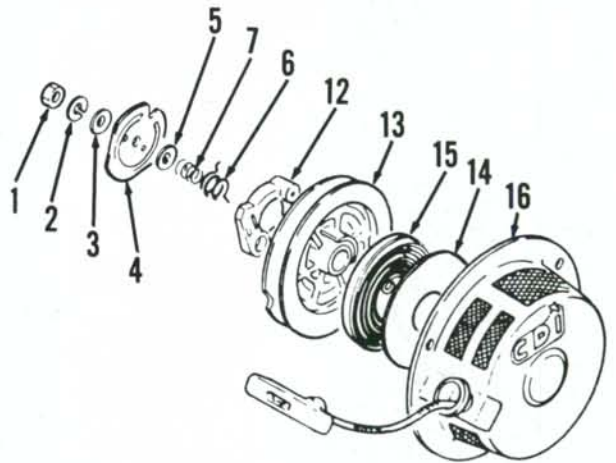
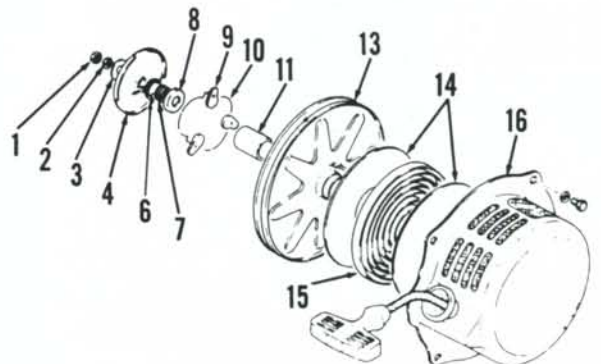


Fig. Y2-21—Exploded view of rewind starter on MF260.

1. Nut
2. Lockwasher
3. Washer
4. Plate
6. Return spring
7. Spring
8. Washer
9. Pawl
10. Spring
11. Bushing
13. Rope pulley
14. Plate
15. Rewind spring
16. Starter housing



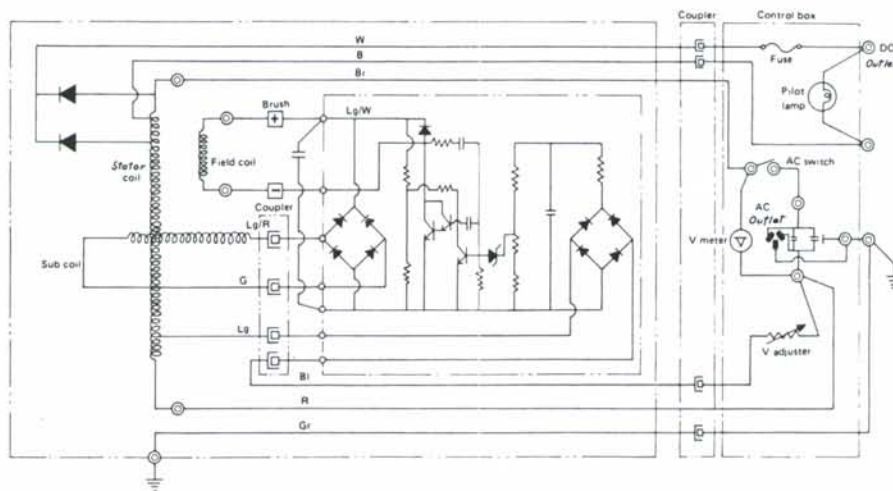


Fig. Y2-22—Generator wiring schematic.

engine. Handle float assembly carefully as reed switch may be damaged if unit is dropped. To check operation of float assembly, connect an ohmmeter to

mounting flange and to wire lead. Do not use a continuity tester as battery may damage reed switch. Ohmmeter should show continuity with float

assembly in normal position and float hanging down. Ohmmeter should read infinity with float assembly inverted. Oil warning light should be checked.

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