

# Service Manual

## HomeSite Power 5500 (4EGMBD-5269) 6500 (5EGMBE-5270) Portable Generator Set



# SAFETY PRECAUTIONS

---

Thoroughly read the OPERATOR'S MANUAL before operating the generator set. Safe operation and top performance can only be attained when equipment is operated and maintained properly.

The following symbols, found throughout this manual, alert you to potentially dangerous conditions to operators, service personnel and equipment.

**⚠ DANGER** *This symbol alerts you to an immediate hazard that will result in severe personal injury or death.*

**⚠ WARNING** *This symbol alerts you to a hazard or unsafe practice that can result in severe personal injury or death.*

**⚠ CAUTION** *This symbol alerts you to a hazard or unsafe practice that can result in personal injury or damage to equipment or property.*

Electricity, fuel, exhaust, moving parts and batteries present hazards against which precautions must be taken to prevent severe personal injury or death.

## Exhaust Gas Is Deadly

- Operate the generator set outdoors only. Stay away from the exhaust outlet.
- Make sure generator set exhaust will not enter windows, doors, vents or air intakes of adjacent buildings, vehicles or boats.
- NEVER USE THE GENERATOR SET INSIDE a home, garage, crawl space, barn, shed, cabin, boat, boat house, RV or tent, or in a confined outdoor space such as an alley, ditch, parking garage or courtyard, or in any other space where exhaust can accumulate. Note that HAZARDOUS CARBON MONOXIDE LEVELS FROM ENGINE EXHAUST CAN ACCUMULATE INDOORS EVEN WHEN ALL WINDOWS AND DOORS ARE OPEN AND FANS ARE RUNNING.

## Gasoline is Flammable / Explosive

- Refuel the generator set outdoors only.
- Static electric sparks caused by fuel flowing through a service station pump nozzle can ignite gasoline. Never fill the generator set with a service station pump nozzle. Instead, fill a safety tank sitting on the ground and then slowly transfer fuel to the generator set from the safety tank.
- DO NOT fill fuel tanks while the engine is running. A hot engine can ignite the fuel.
- To prevent fire due to fuel leakage, always close the fuel valve and let the generator set cool before transporting it or storing it in a confined space.
- DO NOT SMOKE OR ALLOW AN OPEN FLAME near the generator set. Keep flames, sparks, electrical switches, pilot lights, electrical arcs, arc-producing equipment and all other sources of ignition well away.

## Generator Voltage is Deadly

- DO NOT CONNECT THE GENERATOR SET DIRECTLY TO ANY BUILDING ELECTRICAL SYSTEM. Back-feed could cause electrocution of utility line workers and damage to equipment. An approved switching device must be used to prevent interconnections. A trained and experienced electrician must make electrical connections when the generator set is used for emergency power.
- Make sure clothing, shoes and skin are dry when handling electrical equipment.
- Never operate the generator set in rain or snow or when it is sitting on wet ground.

## Moving Parts Can Cause Severe Personal Injury or Death

- Before performing any maintenance on the generator set, disconnect the spark plug wire and the negative (–) cable of the battery to prevent accidental starting.
- Always keep hands away from moving parts.
- Do not wear loose clothing or jewelry while servicing the generator set. Loose clothing and jewelry can become caught in moving parts. Jewelry can short out electrical contacts causing sparks, flame and electrical shock.

# SAFETY PRECAUTIONS

---

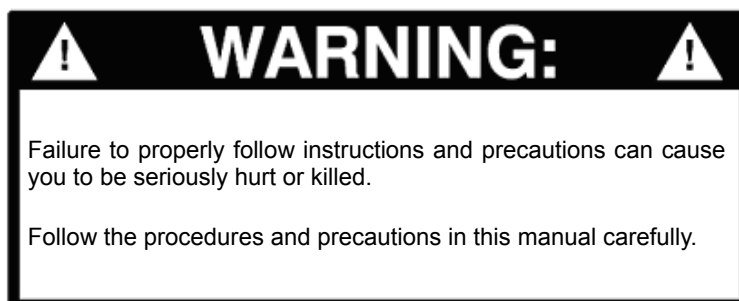
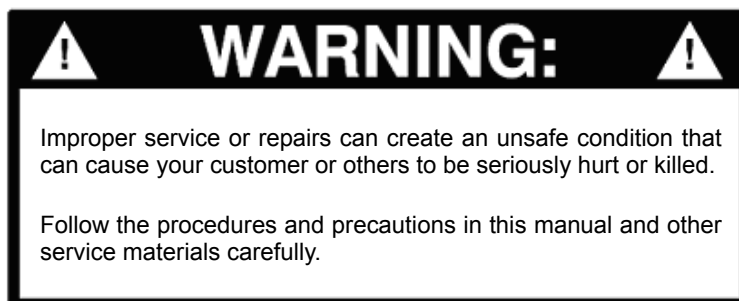
- Make sure that fasteners and clamps on the generator set are tight. Keep guards in position over fans, rotors, etc.

## **Battery Gases are explosive**

- Wear safety glasses when servicing batteries.
- Do not smoke.
- To reduce arcing when disconnecting or reconnecting battery cables, always disconnect the negative (–) cable of the battery first and reconnect it last.

## **General Precautions**

- Keep children away from the generator set.
- Wear hearing protection when near an operating generator set.
- Keep a multi-class ABC fire extinguisher readily at hand. Class A fires involve ordinary combustible materials such as wood and cloth. Class B fires involve combustible and flammable liquids and gaseous fuels. Class C fires involve live electrical equipment. (ref. NFPA No. 10)
- Benzene and lead may be found in gasoline and have been identified by some state and federal agencies as causing cancer or reproductive toxicity. Do not ingest, inhale or contact gasoline.
- Used engine oils have been identified by some state and federal agencies as causing cancer or reproductive toxicity. Do not ingest, inhale or contact used engine oil or its vapors.
- Keep the generator set clean and dry at all times. Excess grease and oil can catch fire and/or accumulate dirt, which can cause overheating.
- Do not store anything on the generator set, such as oil cans, oily rags, chains or wooden blocks. A fire could result or operation could be adversely affected
- Do not work on the generator set when you are mentally or physically fatigued or have consumed alcohol or drugs.



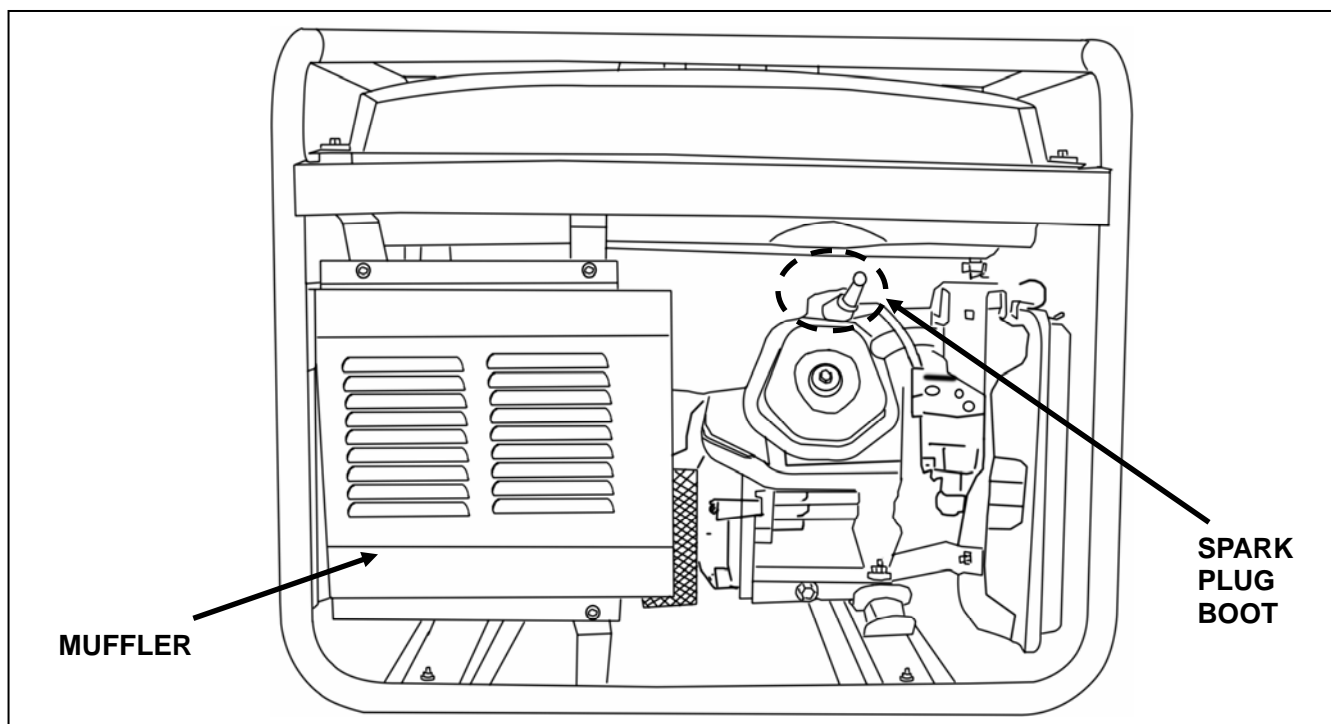
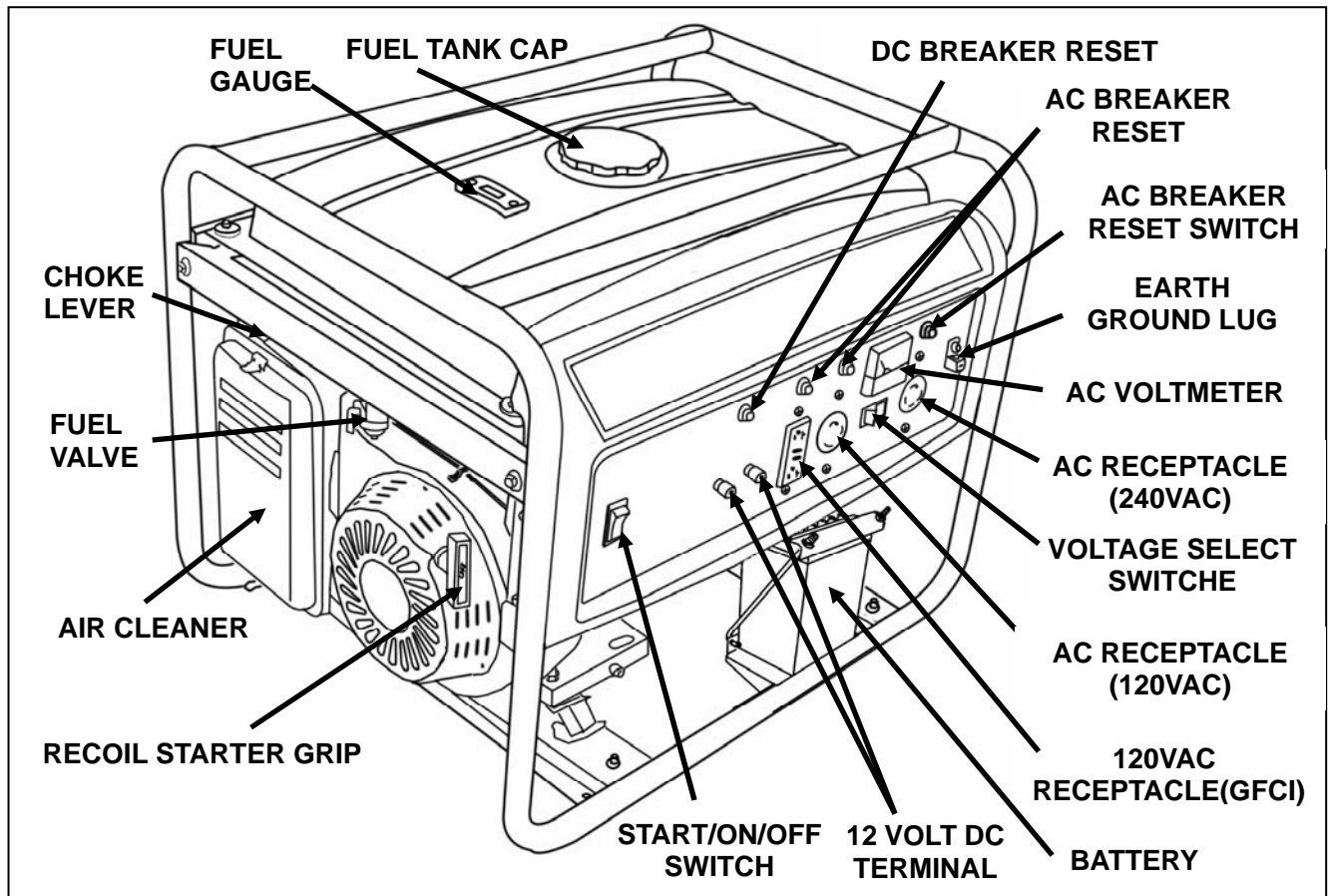
# TABLE OF CONTENTS

---

Title	Page
SECTION 1 INTRODUCTION	1
1-1 Generator Components	1
1-2 Specifications	2
SECTION 2 DIMENSIONS AND TORQUE	3
2-1 Engine Dimensions	3
2-2 Generator Dimensions	7
2-3 Torque Specification	7
2-4 Standard Torques Specification	7
SECTION 3 MAINTENANCE	8
3-1 Maintenance Schedule	8
3-2 Engine Oil	9
3-3 Air Cleaner	10
3-4 Fuel Sediment Cup Cleaning	11
3-5 Spark Arrester	11
3-6 Spark Plug	12
3-7 Valve Clearance	13
3-8 Governor	13
SECTION 4 DISASSEMBLY AND SERVICE	14
4-1 Troubleshooting	14
4-1-1 Hard Starting	14
4-1-2 Low Power	15
4-1-3 Speed Unstable	16
4-1-4 Low Speed Voltage	17
4-1-5 Exhaust Color Abnormal	18
4-1-6 No AC Output Voltage	29
4-1-7 No DC Output Voltage	29
4-2 Preparing to Service	20
4-2-1 Safety Considerations	20
4-2-2 Special Tools	20
4-3 Disassembly Chart	21
4-4 Engine	22
4-4-1 Crankshaft / Piston	22
4-4-2 Flywheel / Starter Motor	28
4-4-3 Cylinder head / Valves	32
4-4-4 Recoil Starter / Fan Cover	36
4-4-5 Air Cleaner	39
4-4-6 Carburetor	40
4-5 Generator	41
4-5-1 Fuel Tank	41
4-5-2 Muffler	42
4-5-3 Generator	43
4-5-4 Control Panel	47
SECTION 5 WIRING DIAGRAMS	52
5-1 The Wiring Diagram of 5500	52
5-2 The Wiring Diagram of 6500	53

# SECTION 1. INTRODUCTION

## 1-1 Generator Components



# SECTION 1. INTRODUCTION

---

## 1-2 Specifications

<b>GENERATOR</b>	5500	6500
AC OUTPUT:		
Frequency (Hertz)	60 Hz	60 Hz
Voltage	120 / 240 Volts	120 / 240 Volts
Rated Power	4000 Watts	5000 Watts
Rated Current	33.3 / 16.7 Amps	41.6 / 20.8 Amps
DC OUTPUT:	12 VDC / 8.3 Amps	12 VDC / 8.3 Amps
<b>ENGINE</b>		
Engine Type	Single Cylinder, Forced Air Cooling, 4-Stroke	
Engine Speed (RPM)	3600	3600
Fuel	Gasoline	Gasoline
Engine Oil Capacity	1.16 US qt (1.1 L)	1.16 US qt (1.1 L)
Spark Plug Type	F7RTC	F7RTC
Spark Plug Gap	0.028 in. (0.7 mm)	0.028 in. (0.7 mm)
Engine Valve Lash (Intake / Exhaust)	0.0039 / 0.006 inches (0.10 / 0.15 mm)	0.0039 / 0.006 inches (0.10 / 0.15 mm)
Ignition Timing (fixed)	25° BTDC	25° BTDC
Starting System	Recoil	Electric / Recoil
Displacement	340 cc	389 cc
<b>GENERATOR SET</b>		
Dry Weight	176 lb ( 80 kg)	182 lb ( 83 kg)
Dimensions:		
Length	27.6 inches (702 mm)	27.6 inches (702 mm)
Width	22.1 inches (562 mm)	22.1 inches (562 mm)
Height	23.0 inches (585 mm)	23.0 inches (585 mm)
Fuel Tank Capacity	6.5 US gal (24.6 L)	6.5 US gal (24.6 L)
Operating Time at Rated Output	11 Hours	9 Hours
Starting Battery Requirements	-	12 Volt, Type 14L-A2

# SECTION 1. INTRODUCTION

---

## 2-1 Engine Dimensions

### 5500

Part	Item	Factory Specification	Allowable limit
Engine	Maximum speed	3750±150 rpm	-
	Idle speed	2000±200 rpm	-
	Cylinder compression	5.0-8.5 kg/cm (1.25 – 2.13 kg/in)at 600 rpm	-
Cylinder	Sleeve I.D.	82.015 mm (3.229 in)	82.17 mm (3.235 in)
Cylinder head	Warpage	-	0.10 mm (0.004 in)
Piston	Skirt O.D.	81.97 mm (3.227 in)	81.85 mm (3.222 in)
	Piston-to-cylinder clearance	0.045-0.075 mm (0.0018-0.0356 in)	0.12 mm (0.0047 in)
	Piston pin bore I.D.	20.002 mm (0.7875 in)	20.042 mm (0.7891 in)
	Pin O.D.	19.998 mm (0.7873 in)	19.95 mm (0.7854 in)
	Piston -to- piston pin bore clearance	0.004-0.016mm (0.00016-0.0006 in)	0.08 mm (0.0031 in)
Piston rings	Ring side clearance Top/second/oil	0.015-0.045 mm (0.0006-0.0018 in)	0.15 mm (0.0006 in)
	Ring end gap    Top/ second Oil	0.2-0.4 mm (0.008-0.016 in)	1.0 mm (0.04 in)
	Ring Width        Top/ second Oil	2.0 mm (0.08 in) 2.8 mm (0.110 in)	1.75 mm (0.0689 in) 2.7 mm (0.1063 in)
Connecting rod	Small end I.D. (Pin End)	20.007 mm (0.7877 in)	20.07 mm (0.790 in)
	Big end I.D. (Crankshaft)	36.015 mm (1.4179 in)	36.07 mm (1.420 in)
	Big end oil clearance	0.024-0.059 mm (0.0009-0.0023 in)	0.12 mm (0.0048 in)
	Big end side clearance	0.25 -0.65 mm (0.0098-0.0256 in)	1.0 mm (0.04 in)
Crankshaft	Crankshaft O.D. (Connecting rod Big end)	35.991 mm (1.47 in)	35.93 mm (1.415 in)

## SECTION 2. DIMENSIONS AND TORQUES

### 5500

Part	Item	Factory Specification	Allowable limit
Valves	Valve Lash IN	0.1±0.02 mm (0.004±0.001 in)	-
	EX	0.15±0.02 mm (0.006±0.001 in)	-
	Stem O.D. IN	6.58 mm (0.259 in)	6.44 mm (0.254 in)
	EX	6.56 mm (0.258 in)	6.40 mm (0.252 in)
	Guide I.D. IN/ EX	6.60 mm (0.0.260 in)	6.66 mm (0.262 in)
	Stem clearance IN	0.02-0.047 mm (0.00078-0.0019 in)	0.11mm (0.004 in)
	EX	0.04-0.067 mm (0.0016-0.0026 in)	0.13 mm (0.005 in)
	Seat width	1.1 mm (0.04 in)	2.0mm (0.08 in)
	Spring free length	39.0 mm (1.54 in)	37.5 mm (1.48 in)
Camshaft	Cam height IN	31.85-32.25 mm (1.254-1.270 in)	31.10mm (1.224 in)
	EX	31.57-31.97 mm (1.243-1.259 in)	31.80 mm (1.252 in)
	Camshaft O.D.	15.984 mm (0.6293 in)	15.92 mm (0.627 in)
Crankcase cover	Camshaft-Bearing I.D.	16.0 mm (0.63 in)	16.05 mm (0.632 in)
Spark plug	Gap	0.7-0.8 mm (0.028-0.031 in)	-
Ignition coil	Resistance Primary coil	0.8-1.0 Ω	-
	Secondary coil	5.9-7.1 KΩ	-
	Air gap (at flywheel)	0.4±0.2 mm (0.016±0.008 in)	-



## SECTION 2. DIMENSIONS AND TORQUES

### 6500

Part	Item	Factory Specification	Allowable limit
Engine	Maximum speed	3750±150 rpm	-
	Idle speed	2000±200 rpm	-
	Cylinder compression	5.0-8.5 kg/cm (1.25 – 2.13 kg/in)at 600 rpm	-
Cylinder	Sleeve I.D.	88.015 mm (3.465 in)	88.17 mm (3.4713 in)
Cylinder head	Warpage	-	0.10 mm (0.004 in)
Piston	Skirt O.D.	87.97 mm (3.463 in)	87.85 mm (3.459 in)
	Piston-to-cylinder clearance	0.045-0.075 mm (0.0018-0.0295 in)	0.12 mm (0.0047 in)
	Piston pin bore I.D.	20.002 mm (0.7875 in)	20.042 mm (0.7891 in)
	Pin O.D.	19.998 mm (0.7873 in)	19.95 mm (0.785 in)
	Piston -to- piston pin bore clearance	0.004-0.016 mm (0.00016-0.0006 in)	0.08 mm (0.0031 in)
Piston rings	Ring side clearance	0.015-0.045 mm (0.0006-0.0018 in)	0.15 mm (0.0006 in)
	Top/second/oil		
	Ring end gap    Top/second Oil	0.2-0.4 mm (0.008-0.016 in)	1.0 mm (0.04 in)
	Ring Width        Top/second Oil	2.0 mm (0.08 in) 2.8 mm (0.110 in)	1.75 mm (0.069 in) 2.7 mm (0.106 in)
Connecting rod	Small end I.D. (Pin End)	20.007 mm (0.7877 in)	20.07 mm (0.790 in)
	Big end I.D. (Crankshaft)	36.015 mm (1.4179 in)	36.07 mm (1.420 in)
	Big end oil clearance	0.024-0.059 mm (0.0009-0.00236 in)	0.12 mm (0.0048 in)
	Big end side clearance	0.25-0.65 mm (0.0048-0.0265 in)	1.0 mm (0.04 in)
Crankshaft	Crankshaft O.D. (Connecting rod Big end)	35.991 mm (1.417 in)	35.93 mm (1.415 in)

## SECTION 2. DIMENSIONS AND TORQUES

### 6500

Part	Item	Factory Specification	Allowable limit
Valves	Valve Lash IN	0.10±0.02 mm (0.004±0.001 in)	-
	EX	0.15±0.02 mm (0.006±0.001 in)	-
	Stem O.D. IN	6.58 mm (0.259 in)	6.44 mm (0.254 in)
	EX	6.56 mm (0.258 in)	6.40 mm (0.252 in)
	Guide I.D. IN/ EX	6.60 mm (0.0.260 in)	6.66 mm (0.262 in)
	Stem clearance IN	0.02-0.047 mm (0.00078-0.0019 in)	0.11mm (0.004 in)
	EX	0.04-0.067 mm (0.0016-0.0026 in)	0.13 mm (0.005 in)
	Seat width	1.1 mm (0.04 in)	2.0mm (0.08 in)
	Spring free length	39.0 mm (1.54 in)	37.5 mm (1.48 in)
Camshaft	Cam height IN	31.85-32.25 mm (1.254-1.270 in)	31.10mm (1.224 in)
	EX	31.57-31.97 mm (1.243-1.259 in)	31.80 mm (1.252 in)
	Camshaft O.D.	15.984 mm (0.6293 in)	15.92 mm (0.627 in)
Crankcase cover	Camshaft-holder I.D.	16.0 mm (0.63 in)	16.05 mm (0.632 in)
Spark plug	Gap	0.7-0.8 mm (0.028-0.031 in)	-
Ignition coil	Resistance Primary coil	0.8-1.0 Ω	-
	Secondary coil	5.9-7.1 KΩ	-
	Air gap (at flywheel)	0.4±0.2 mm (0.016±0.008 in)	-
Starter motor	Brush length	7.0 mm (0.28 in)	3.5 mm (0.14 in)
	Mica depth	1.0 mm (0.04 in)	0.2 mm (0.008 in)
Changing coil	Resistance	3.5±0.5Ω	-

# SECTION 2. DIMENSIONS AND TORQUES

## 2-2 Generator Dimensions

### 5500 (4kW)

Part	Item	Factory specification
Main winding I (Br / W)	Resistance	0.4-0.43 $\Omega$
Main winding II (R / Bu)	Resistance	0.4-0.43 $\Omega$
Field winding	Resistance	45-55 $\Omega$
Exciter winding (Bu / Bu)	Resistance	1.8-2.1 $\Omega$
Main winding(DC) (G / G)	Resistance	0.4-0.6 $\Omega$
Carbon brush	Brush length	5-9 mm

### 6500 (5kW)

Part	Item	Factory specification
Main winding I (Br / W)	Resistance	0.3-0.33 $\Omega$
Main winding II (R / Bu)	Resistance	0.3-0.33 $\Omega$
Field winding	Resistance	50-60 $\Omega$
Exciter winding (Bu / Bu)	Resistance	1.9-2.2 $\Omega$
Main winding (DC) (G / G)	Resistance	0.4-0.6 $\Omega$
Carbon brush	Brush length	9 mm
Battery	Specific gravity of electrolyte	1.270-1.290

## 2-3 Torque Specification

Part	Fastener size	Torque values N·m (kg·cm, lb·ft)
Cylinder head bolt	10×1.25×80 mm	32-38 (320-380, 23.1-28.5)
Pivot bolt	6×0.5 mm	8-12 (80-120, 5.8-8.7)
Pivot adjusting nut	8×1.25 mm	22-26 (220-260, 15.9-18.8)
Crankcase cover bolt	8×1.25×35 mm	22-26 (220-260, 15.9-18.8)
Connecting rod bolt	8×1.25 mm	12-16 (120-160, 8.7-11.5)
Air cleaner wing nut	6×1.0 mm	7-10 (70-100, 5.1-7.2)
Air cleaner mounting nut	6×1.0 mm	7-10 (70-100, 5.1-7.2)
Muffler mounting bolt	8×1.25 mm	20-28 (200-280, 14.5-20.2)
Oil drain bolt	12×1.5 mm	20-25 (200-250, 14.5-18.1)
Fuel tank mounting bolt/ nut	6×1.0 mm	8-12 (80-120, 5.8-8.7)
Fuel valve joint nut	10×1.25 mm	20-25 (200-250, 14.5-18.1)
Oil level switch mounting nut	10×1.25 mm	8-12 (80-120, 5.8-8.7)
Flywheel mounting nut	16×1.5 mm	110-120 (1100-1200, 79.5-86.8)
Starter solenoid terminal nut	6×1.0 mm	3.0-4.5 (30-45, 2.2-3.3)

## 2-4 Standard Torques Specification

Standard torque values	5 mm bolt, nut	4-7 (40-70, 2.9-5.1)
	6 mm bolt, nut	8-12 (80-120, 5.8-8.7)
	8 mm bolt, nut	20-28 (200-280, 14.5-20.2)
	10 mm bolt, nut	35-40 (350-400, 14.5-20.2)
	12 mm bolt, nut	50-60 (500-600, 36.2-43.4)

## SECTION 2. DIMENSIONS AND TORQUES

### 3-1 Maintenance Schedule

Periodic maintenance is essential for top performance. Use Table 3 as a guide. Under hot or dusty operating conditions some maintenance operations should be performed more frequently, as indicated by the footnotes in the table.

Keep a log of maintenance performed and the hours run. Recording maintenance will help you keep it regular and provide a basis for supporting warranty claims.

**⚠ WARNING** *Accidental starting of the generator set during maintenance can cause severe personal injury or death. Before performing maintenance, disconnect the spark plug wire from the spark plug.*

**⚠ WARNING** *A hot generator set can cause severe burns. Always allow the generator set to cool before performing any maintenance or service.*

TABLE 3. PERIODIC MAINTENANCE SCHEDULE

SERVICE THESE ITEMS	SERVICE INTERVAL					
	EACH USE	FIRST MONTH OR 20 HOURS	EVERY 3 MONTHS OR 50 HOURS	EVERY MONTH	EVERY 6 MONTHS OR 100 HOURS	EVERY YEAR OR 300 HOURS
General Inspection	X <sup>1</sup>					
Check Oil Level	X					
Test GFCI	X					
Change Engine Oil		X			X	
Clean Air Cleaner			X <sup>2</sup>			
Clean Cylinder Cooling Fins			X <sup>2</sup>			
Clean Spark Plug					X	
Clean the Spark Arrestor					X	
Clean Fuel Sediment Cup						X <sup>3</sup>
Clean Fuel Tank						X <sup>3</sup>
Adjust Valve Clearance						X <sup>3</sup>
Check fuel line	Every 2 years(Replace if necessary) <sup>3</sup>					

1. See GENERAL INSPECTIONS.

2. Service more frequently when used in dusty environments.

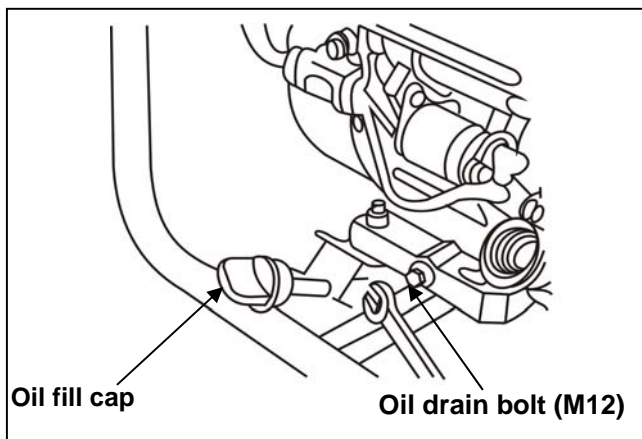
3. These items must be performed by a trained and experienced mechanic (authorized Onan dealer).

## SECTION 3. MAINTENANCE

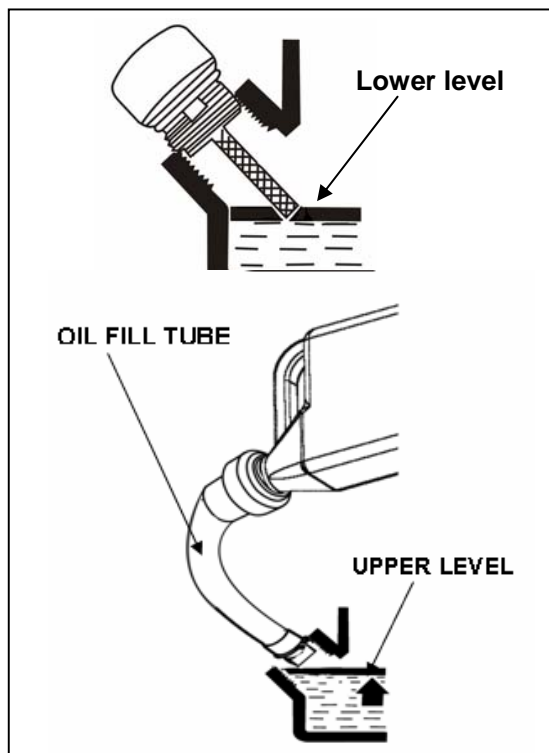
### 3-2 Engine Oil

**NOTE:** Drain the oil while the engine is still warm to assure rapid and complete draining.

- 1) Remove the oil fill cap and drain plug.
- 2) Drain the oil from the crankcase.



- 3) Reinstall the drain plug securely.
- 4) Add new oil up to the bottom edge of the oil fill hole with the engine stopped and in a level position.



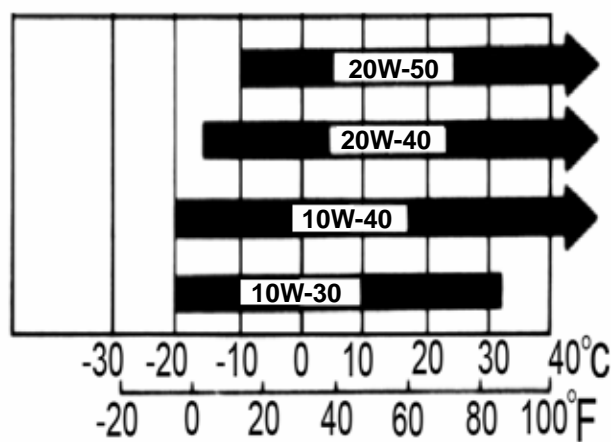
Engine Oil Capacity	1.16 US qt (1.1 L)
---------------------	--------------------

- 5) Reinstall the oil fill cap and tighten it securely.

#### RECOMMENDED ENGINE OIL:

SAE 10W-30 is recommended for general, all temperature use: service classification

SG • SF/CC • CD.



**⚠ WARNING** Used motor oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Thoroughly wash your hands with soap and water as soon as possible after handling used oil.

## SECTION 3. MAINTENANCE

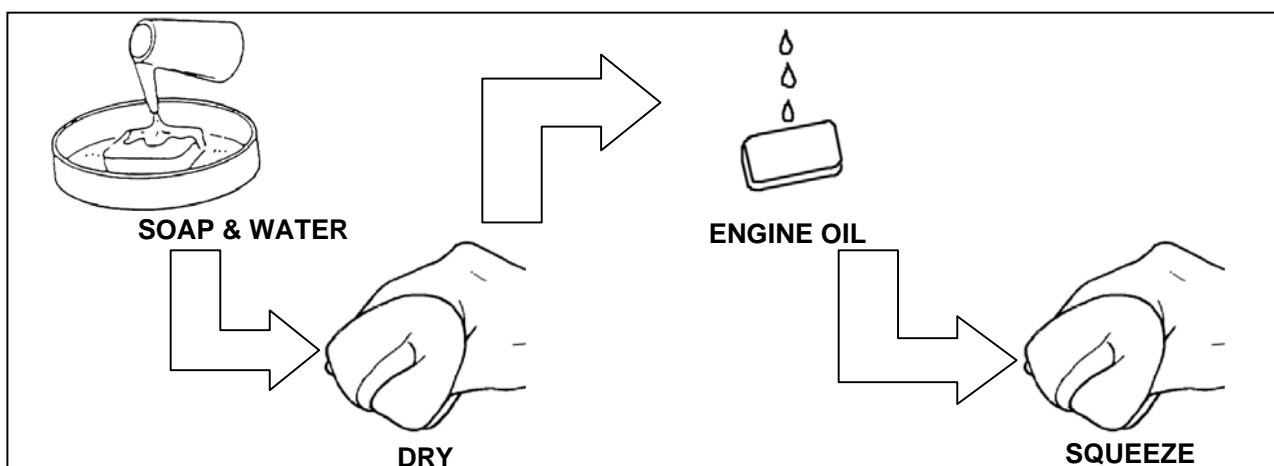
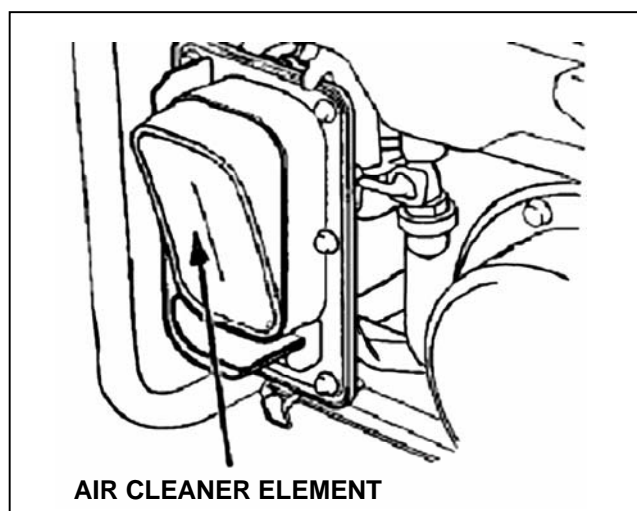
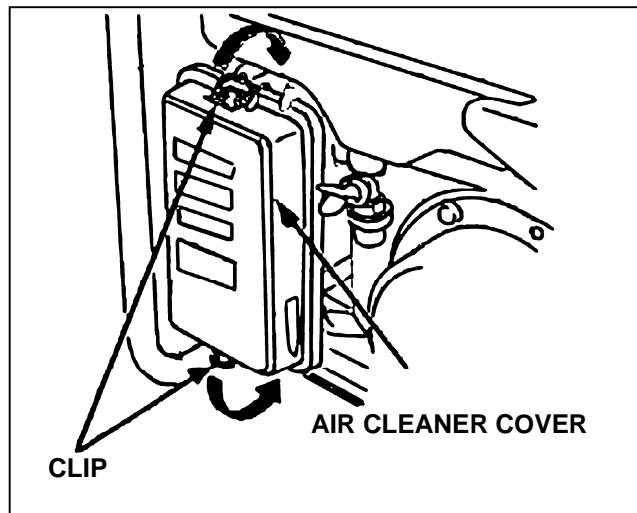
### 3-3 Air Cleaner

**⚠ CAUTION** A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the generator in extremely dusty areas.

**⚠ WARNING** Using gasoline or flammable solvent to clean the filter element can cause a fire or explosion. Use only soapy water or nonflammable solvent.

**⚠ WARNING** Never run the generator without the air cleaner. Rapid engine wear will result.

- 1) Remove the cleaner cover by unsnapping the two spring clips. Clean more often in dusty environments
- 2) Remove the two foam filter elements and thoroughly wash them with soap and water. Let them dry thoroughly.
- 3) Knead in 1 teaspoon (5 cm<sup>3</sup>) of clean engine oil into each foam filter element. The oil should be distributed evenly throughout each filter elements.
- 4) Reinstall the filter elements, the gray filter first (finer pores) and then the black filter (larger pores).
- 5) Secure the cover with the spring clips.

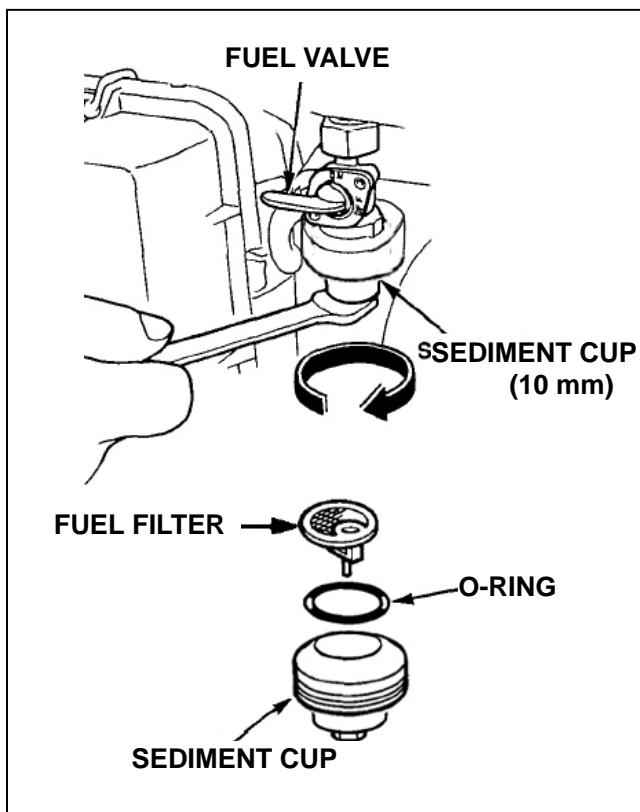


## SECTION 3. MAINTENANCE

### 3-4 Fuel Sediment Cup Cleaning

The sediment cup prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the sediment cup should be cleaned.

- 1) Turn the fuel valve to the OFF position. Remove the sediment cup, and o-ring.
- 2) Clean the sediment cup, and o-ring, in nonflammable or high flash point solvent.
- 3) Reinstall o-ring, and sediment cup.
- 4) Turn the fuel valve ON and check for leaks.



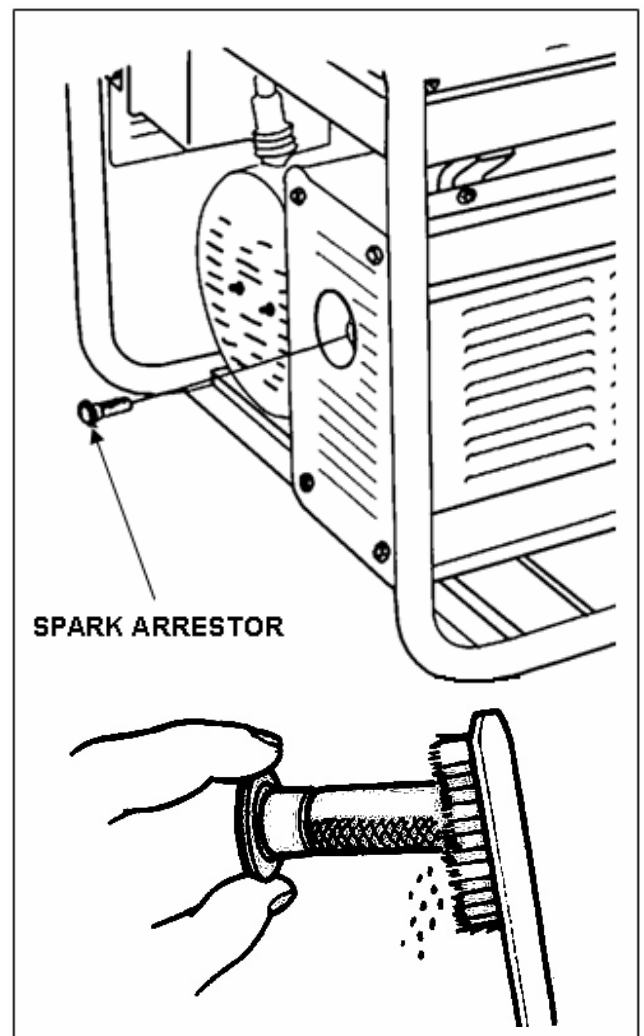
**⚠ WARNING** Gasoline is extremely flammable and is explosive. Do not smoke or allow flames or sparks in the area.

**⚠ WARNING** After reassembly, check for leaks, and make sure the area is dry before starting the engine.

### 3-5 Spark Arrester

**⚠ WARNING** A hot muffler can cause severe burns. Allow the generator set to cool before servicing the muffler.

Refer to MAINTENANCE SCHEDULE for scheduled spark arrester cleaning. After letting the generator set cool down, remove the spark arrester screen. Inspect for damage, and replace if defective. Clean any deposits on the screen with a wire brush. Reinstall the spark arrester, and tighten the screw securely.



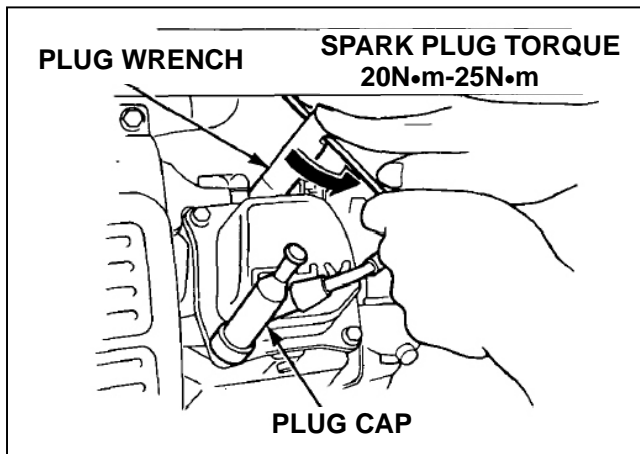
## SECTION 3. MAINTENANCE

### 3-6 Spark Plug

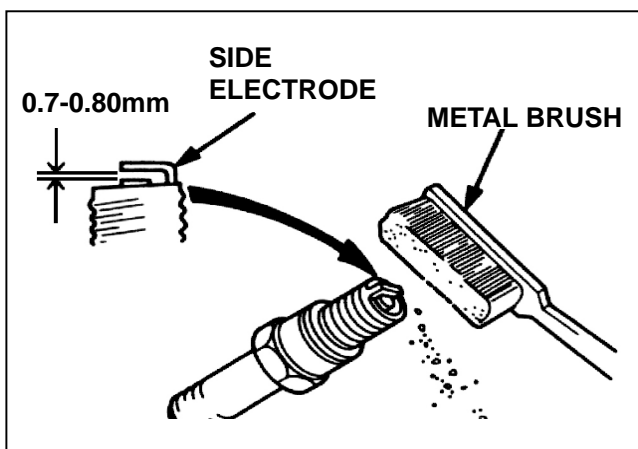
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

If the engine has been running, the spark plug and muffler will be very hot. Be careful not to touch the muffler or spark plug.

- 1) Turn off generator.
- 2) Remove the spark plug cap.
- 3) Clean any dirt from around the spark plug base.
- 4) Use the wrench supplied in the tool kit to remove the spark plug.



- 5) Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
- 6) Measure the plug gap with a feeler gauge. Correct as necessary by carefully bending the side electrode.



The gap should be: 0.70-0.80 mm (0.028-0.031 in).

- 7) Check that the spark plug washer is in good condition, and thread the spark plug in by hand to prevent cross-threading.
- 8) After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

If installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer. If reinstalling a used spark plug, tighten 1/8 - 1/4 turn after the spark plug seats to compress the washer.

**CAUTION** The spark plug must be securely tightened. An improperly tightened spark plug could damage the engine.

**CAUTION** Never use spark plugs which have an improper heat range. Use only the recommended spark plugs or equivalent.



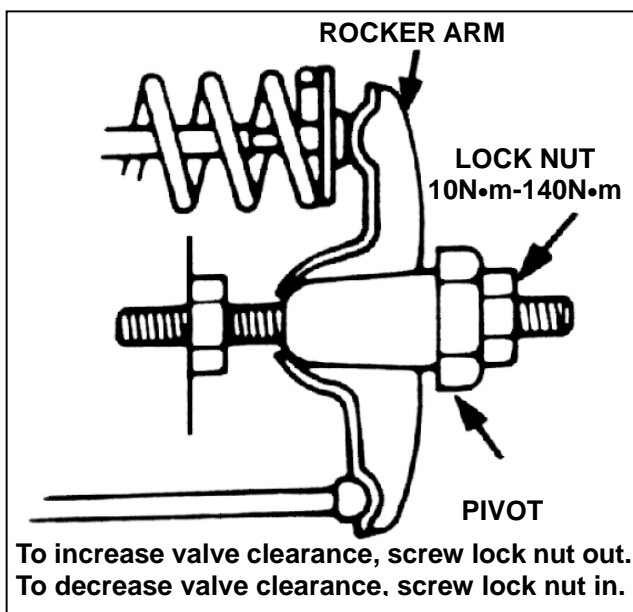
## SECTION 3. MAINTENANCE

### 3-7 Valve Clearance

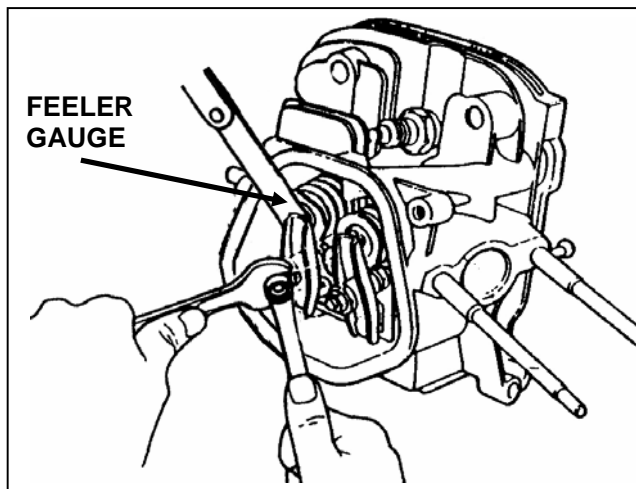
**⚠ CAUTION** Valve clearance inspection and adjustment must be performed with the engine cold.

- 1) Remove the cylinder head cover, and set the piston at top dead center of the compression stroke (both valves fully closed). Pull the starter until the piston is at top dead center of the compression or exhaust stroke.
- 2) Insert a feeler gauge between the rocker arm and valve to measure valve clearance.

Standard valve clearance	IN.	$0.15 \pm 0.02$ mm ( $0.006 \pm 0.001$ in)
	EX.	$0.20 \pm 0.02$ mm ( $0.008 \pm 0.001$ in)



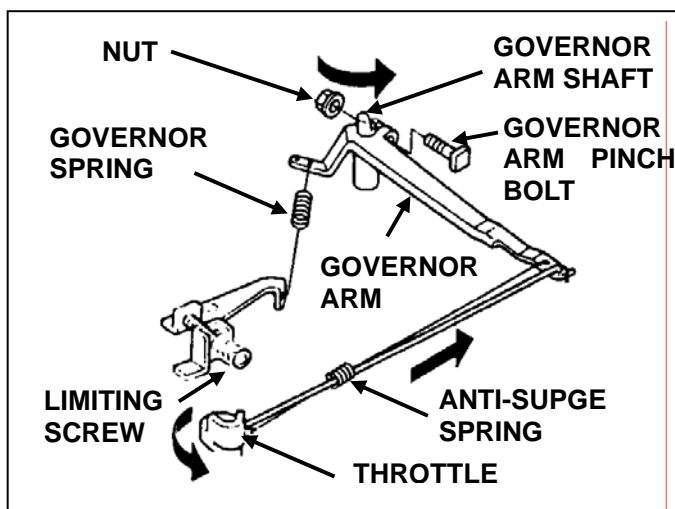
- 3) If adjustment is necessary, proceed as follows:
  - a) Hold the rocker arm pivot and loosen the pivot lock nut.
  - b) Turn the rocker arm pivot to obtain the specified clearance.
  - c) Retighten the lock nut while holding the rocker arm pivot.
  - d) Recheck valve clearance after tightening the lock nut.



### 3-8 Governor

- 1) Take down the fuel tank.
- 2) Loosen the nut on the governor arm pinch bolt.
- 3) Move the arm until the throttle is completely open, and hold it in that position.
- 4) Rotate the governor arm shaft as far as it will go in same direction it was just moved by the governor arm, and then tighten the governor arm pinch bolt.
- 5) Whether Check the arm and throttle move smoothing.
- 6) Install the fuel tank.
- 7) Start the engine and adjust the limiting screw to produce the standard until the engine warm up to normal operating temperature.

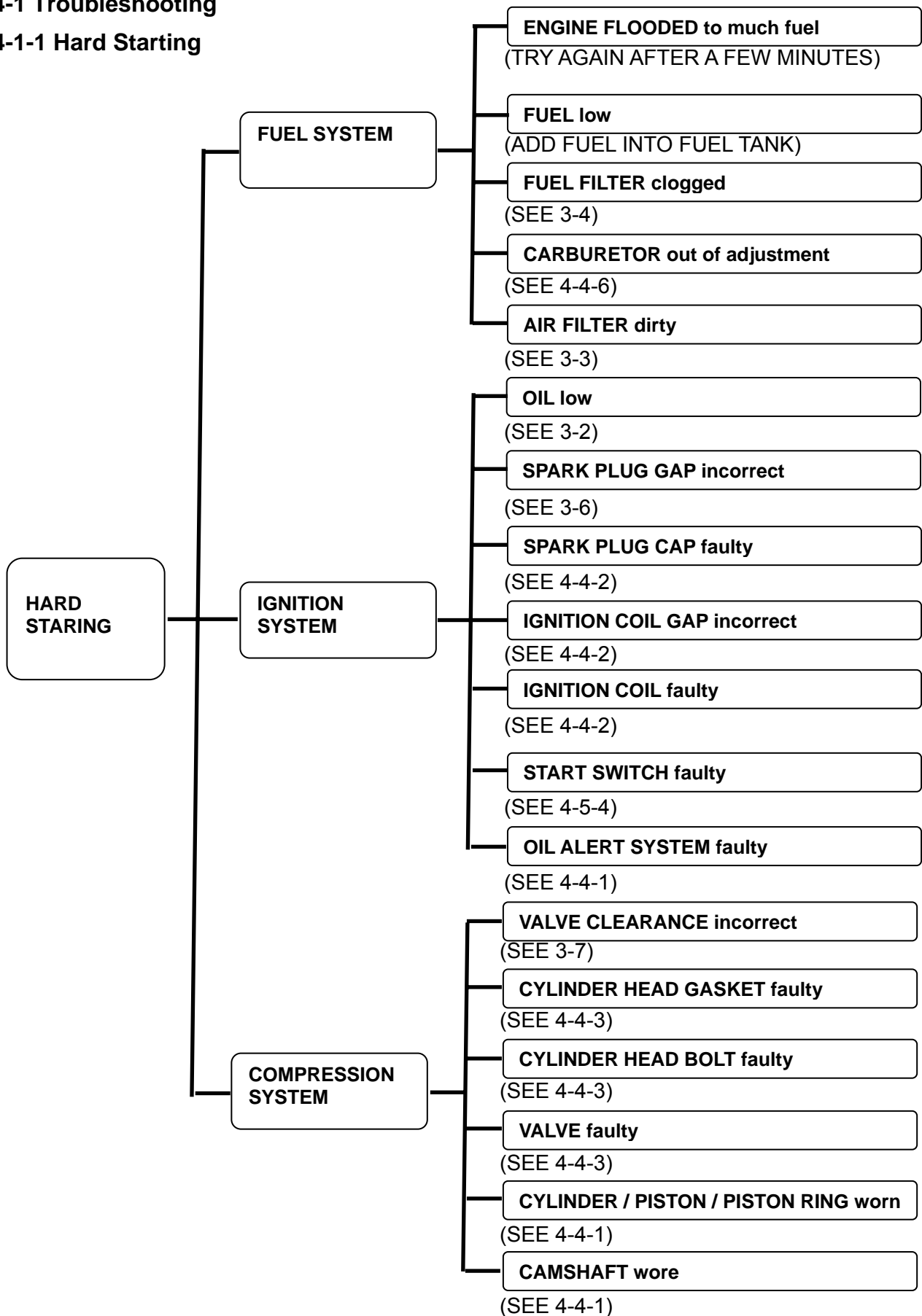
Idle speed	$3600 \pm 150$ rpm
------------	--------------------



# SECTION 4. DISASSEMBLY AND SERVICE

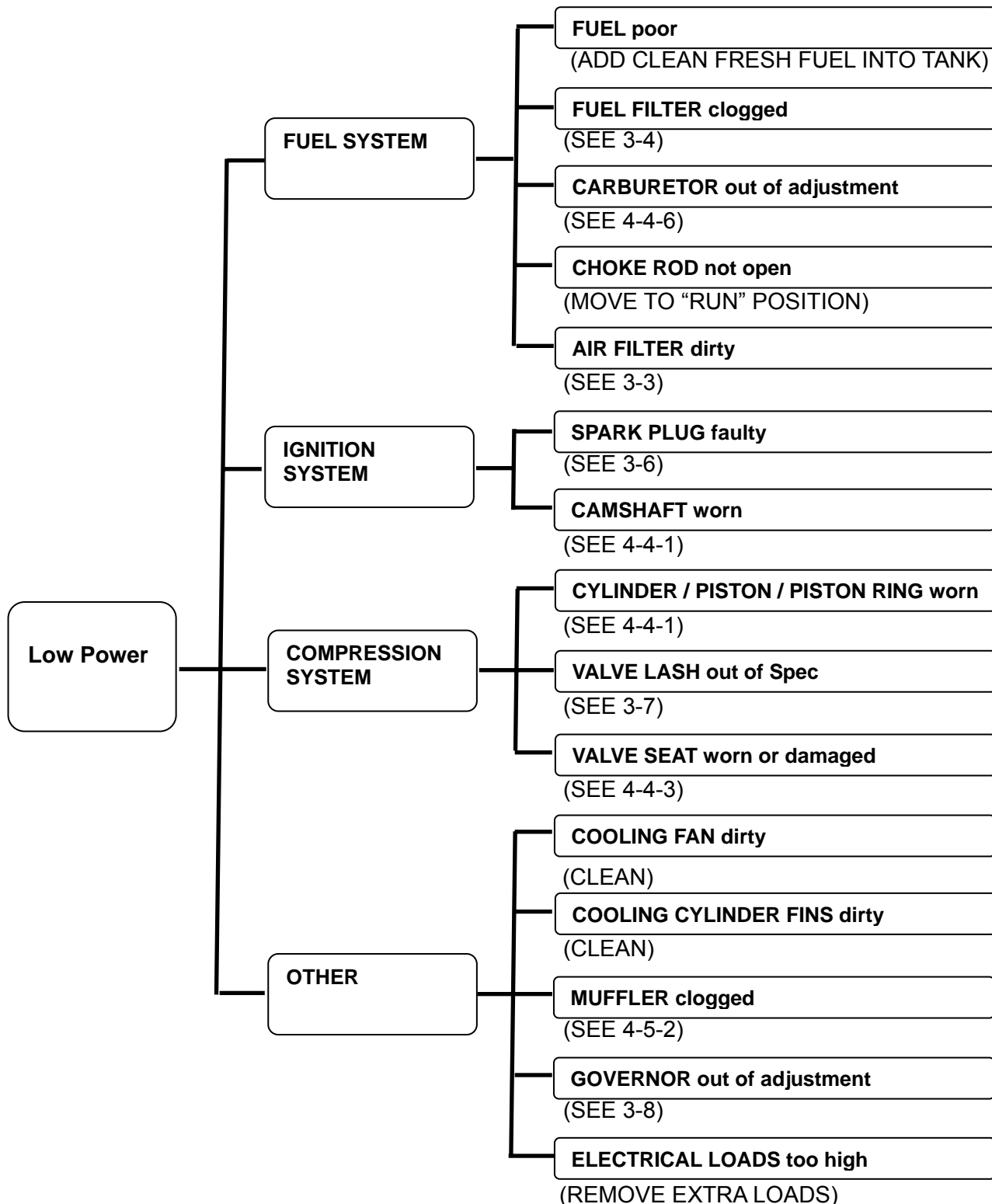
## 4-1 Troubleshooting

### 4-1-1 Hard Starting



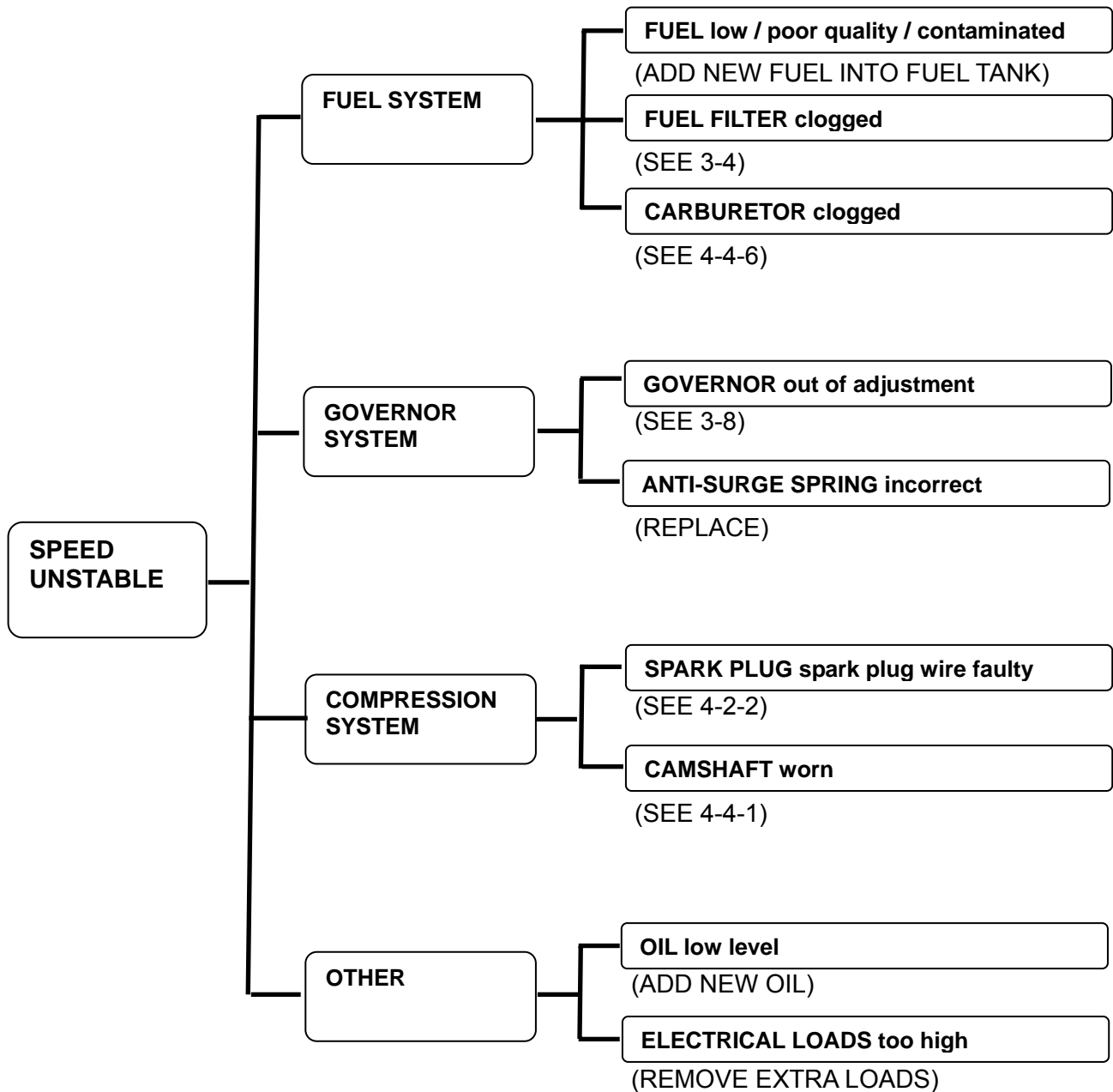
# SECTION 4. DISASSEMBLY AND SERVICE

## 4-1-2 Low Power



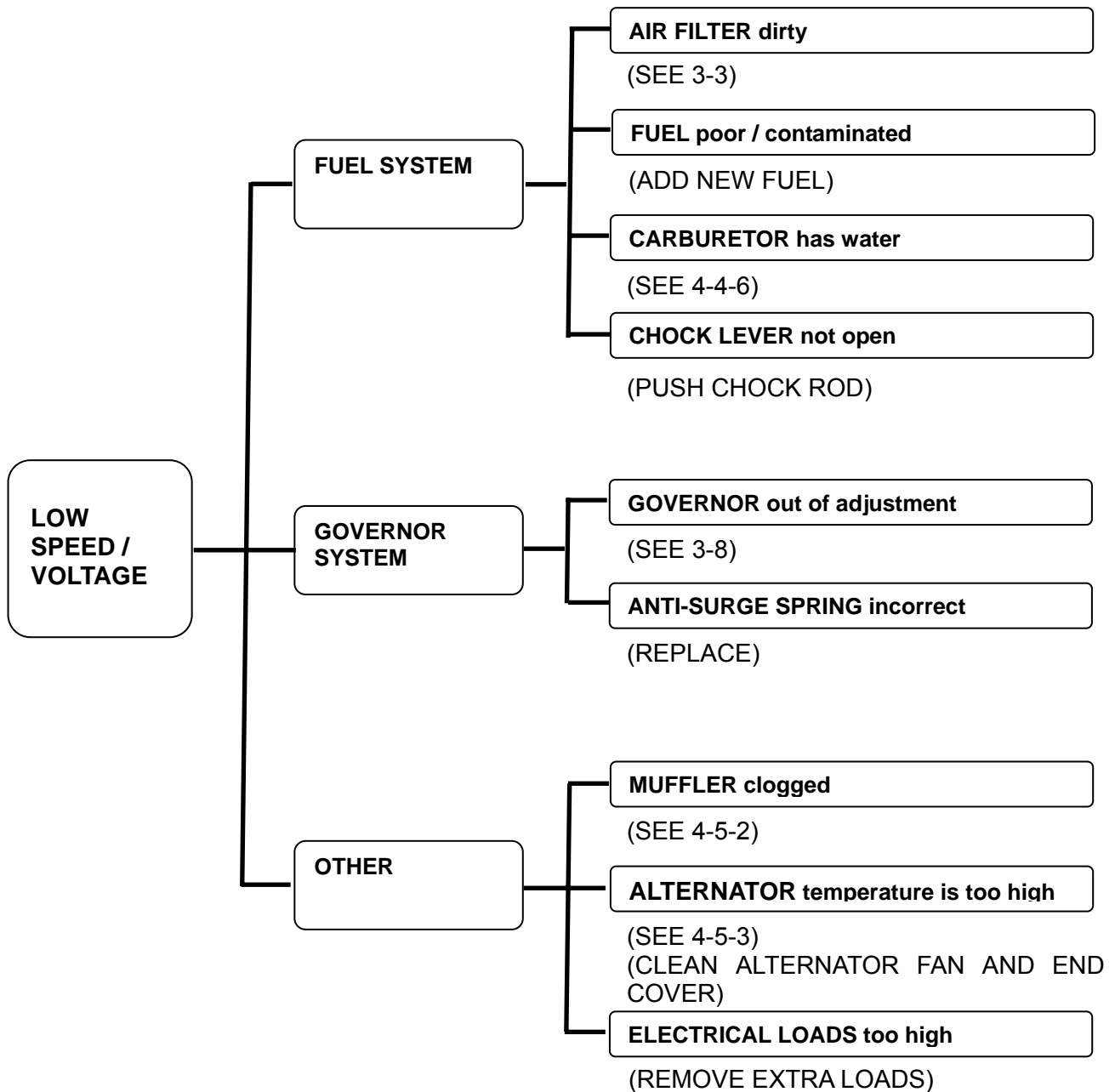
# SECTION 4. DISASSEMBLY AND SERVICE

## 4-1-3 Speed Unstable



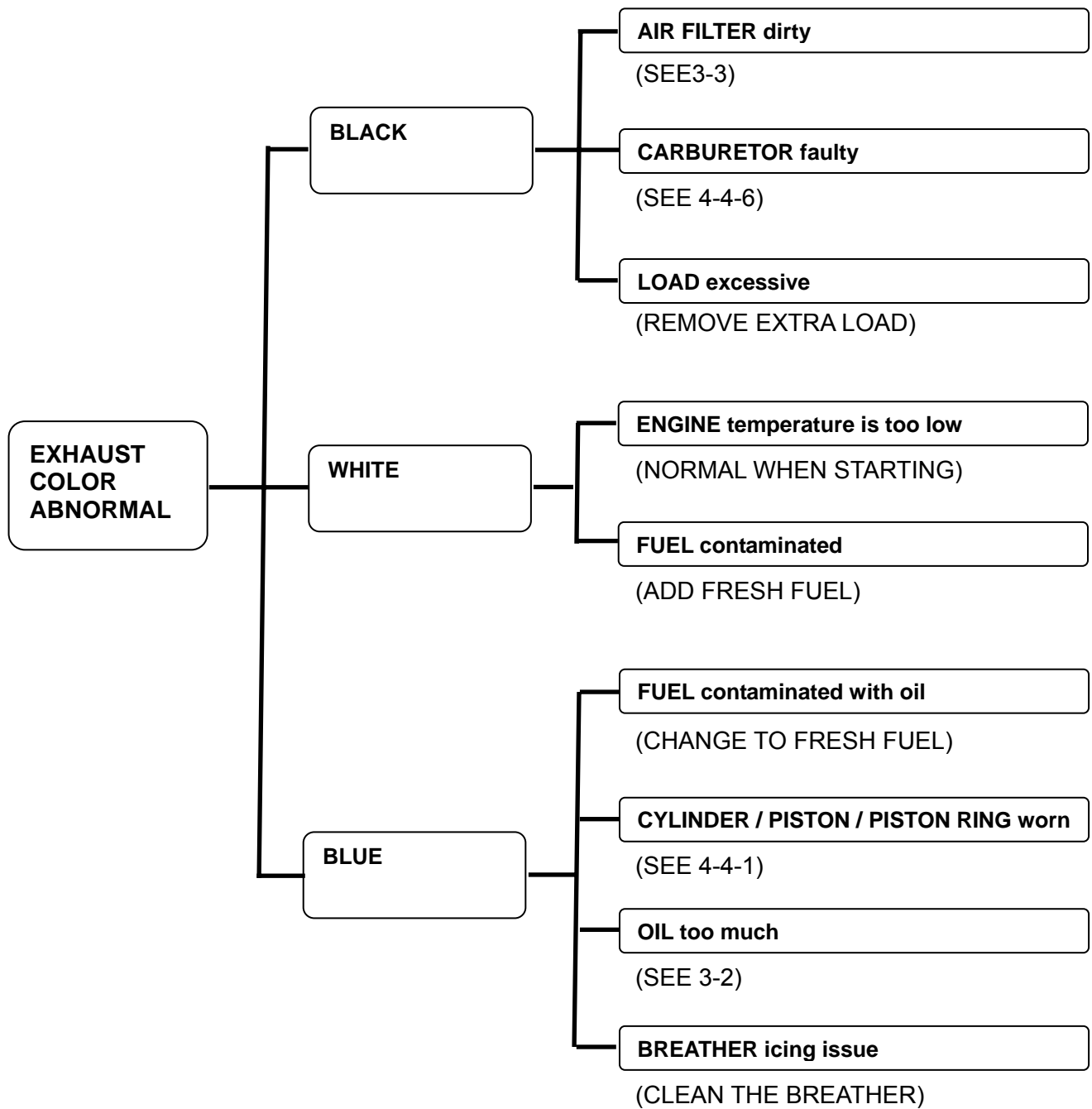
# SECTION 4. DISASSEMBLY AND SERVICE

## 4-1-4 Low Speed / Voltage



# SECTION 4. DISASSEMBLY AND SERVICE

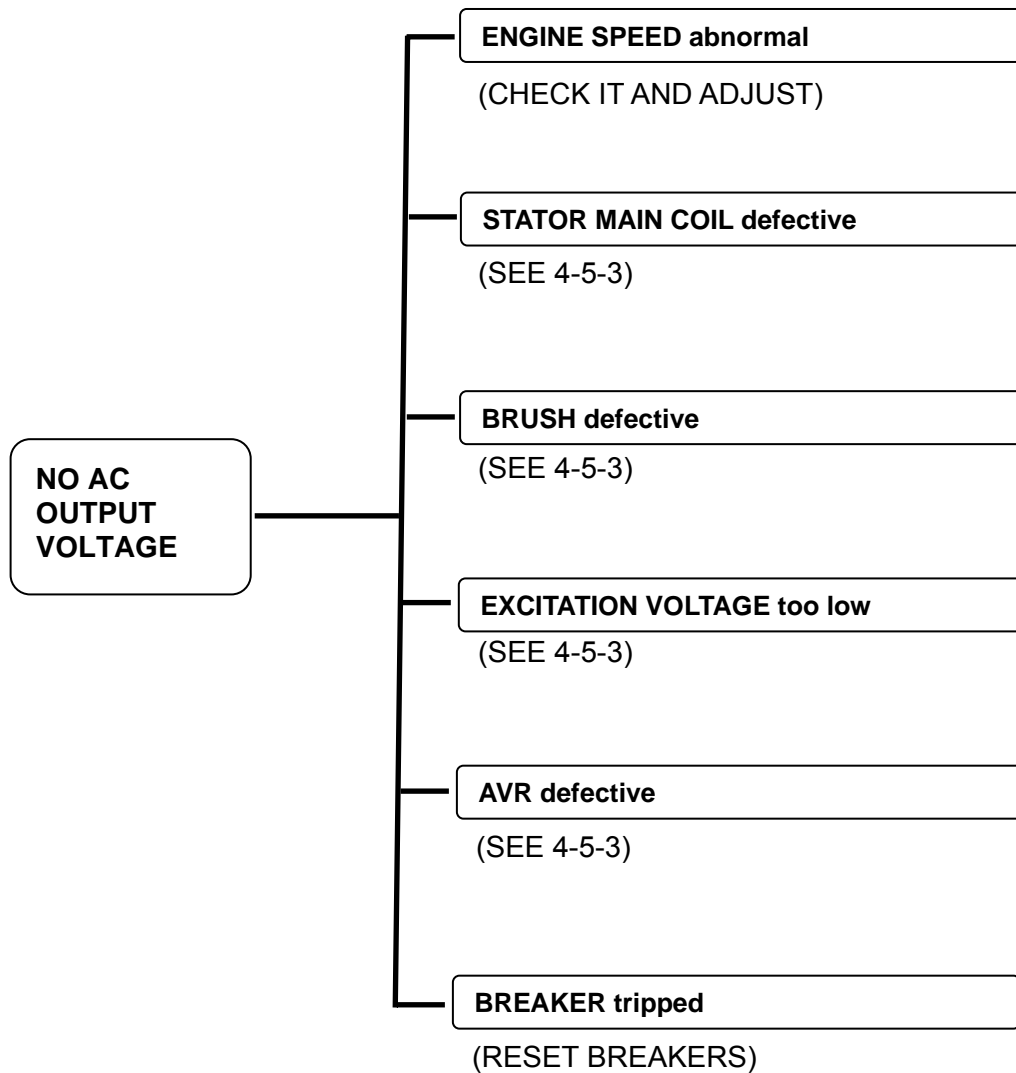
## 4-1-5 Exhaust Color Abnormal



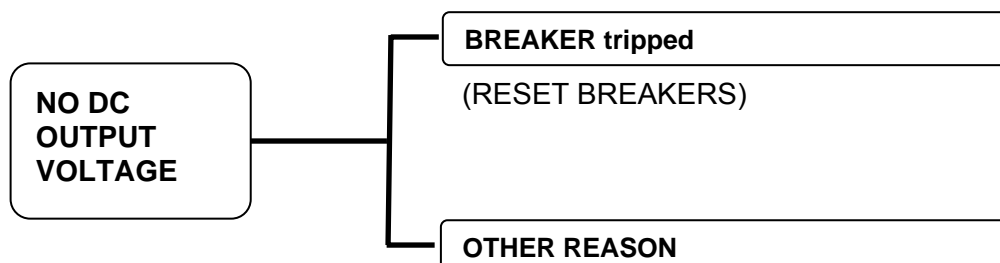
# SECTION 4. DISASSEMBLY AND SERVICE

---

## 4-1-6 No AC Output Voltage



## 4-1-7 No DC Output Voltage



# SECTION 4. DISASSEMBLY AND SERVICE

## 4-2 Preparing to Service

### 4-2-1 Safety Considerations

There are hazards in servicing gensets. Study Safety precautions and become familiar with the hazards listed in table 4-1. Note the following safeguards and ways of avoiding hazards.

- **Use personal protection:** Wear appropriate protective safety equipment, such as safety shoes and safety glasses.
- Do not wear rings or jewelry and do not wear loose or damp clothing that might get caught in equipment or conduct electricity.
- **Reduce the hazard:** A safety, order workshop area and well-maintained reduce the hazard potential. Keep guards and shields in place on machinery and maintain equipment in good working condition. Store flammable liquids in approved containers; away from fire, flame, spark, pilot light, switches, arc-producing equipment and other ignition sources. Keep the workshop clean and well-lighted and provide adequate ventilation.
- **Develop safe work habits:** Unsafe actions cause accidents with tools and machines. Be familiar with the equipment and know how to use them safely. Use the correct tool for the job and check its condition before starting. Comply with the warnings in this manual and take special precautions when working around electrical equipment. Do not work alone if possible and take no risks.
- **Be prepared for an accident:** Keep fire extinguishers and safety equipment nearby. Agencies such as the Red Cross and public safety departments offer courses in first aid, CPR and fire control. Take advantage of this information to be ready to respond to an accident. Learn to be safety-conscious and make safety procedures part of the work routine.

**TABLE 4-1 HAZARDS AND THEIR SOURCES**

Fire and Explosion	<ul style="list-style-type: none"><li>• Leaking or spilled fuel</li><li>• Hydrogen gas from battery</li><li>• Oily rag improperly stored</li><li>• Flammable liquids improperly stored</li></ul>
Burns	<ul style="list-style-type: none"><li>• Hot exhaust pipes</li><li>• Hot engine and generator surfaces</li></ul>
Poisonous Gas	<ul style="list-style-type: none"><li>• Operating genset where exhaust gases can accumulate</li></ul>
Electrical Shock (AC)	<ul style="list-style-type: none"><li>• Improper generator connections</li><li>• Faulty wiring</li><li>• Working in damp conditions</li><li>• Jewelry touching electrical components</li></ul>
Rotating Machinery	<ul style="list-style-type: none"><li>• Fan guards not in place</li></ul>
Slippery Surfaces	<ul style="list-style-type: none"><li>• Leaking or spilled oil</li></ul>
Heavy Objects	<ul style="list-style-type: none"><li>• Removing genset from vehicle</li><li>• Removing heavy components</li></ul>

### 4-2-2 Special Tools

#### Engine

A complete set of standard and metric shop tools are required to service the engine.

#### Control and Generator

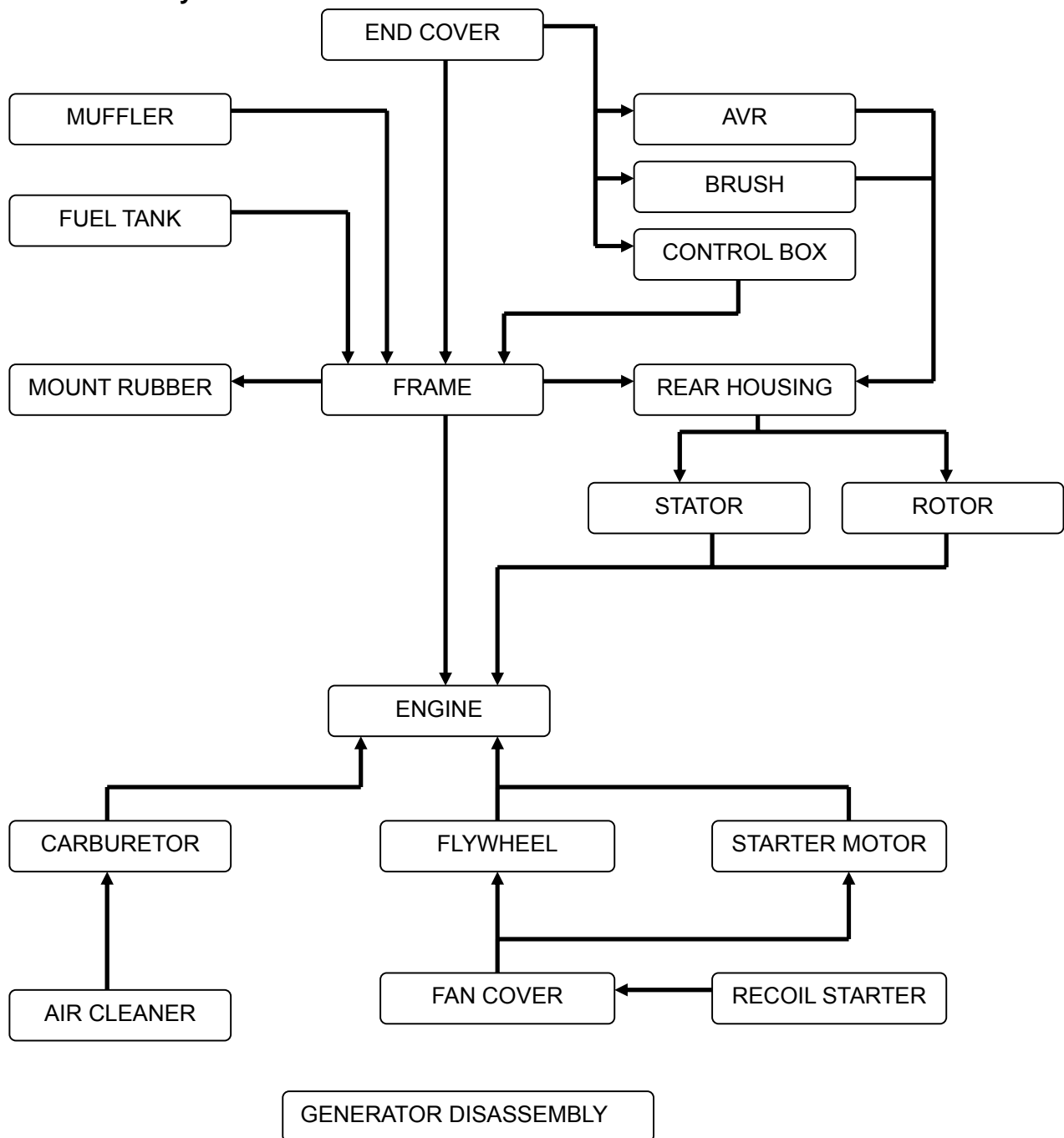
A complete set of standard and metric shop tools are required to service the control and generator. Also needed are:

- ✧ Lead or dead blow hammer
- ✧ Battery hydrometer
- ✧ Torque wrench
- ✧ VOM Meter
- ✧ Frequency meter
- ✧ Armature growler
- ✧ Load bank
- ✧ Jumper wires
- ✧ Rotor Puller



## SECTION 4. DISASSEMBLY AND SERVICE

### 4-3 Disassembly Chart



**This chart is a quick-reference guide for disassembling the product. Be sure to follow the sequence shown here for better and safer work.**

Example: To remove the frame.

- Remove the end cover.
- Remove the control box.
- Remove the fuel tank
- Remove the muffler
- Remove the frame

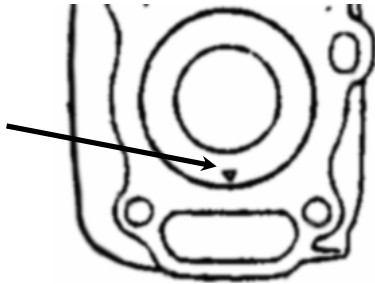
# SECTION 4. DISASSEMBLY AND SERVICE

## 4-4 Engine

### 4-4-1 Crankshaft / piston

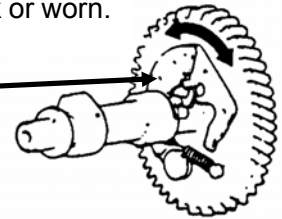
#### a.DISASSEMBLY/ ASSEMBLY

REASSEMBLY:  
Install with the  
triangle mark  
toward the push  
rods.

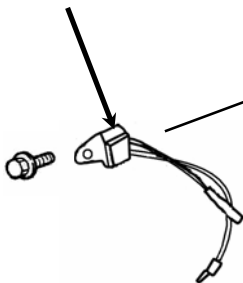


REASSEMBLY:  
Check that the decompressor  
weight moves smoothly, and  
the spring is not weak or worn.

DECOMPRESSOR  
WEIGHT

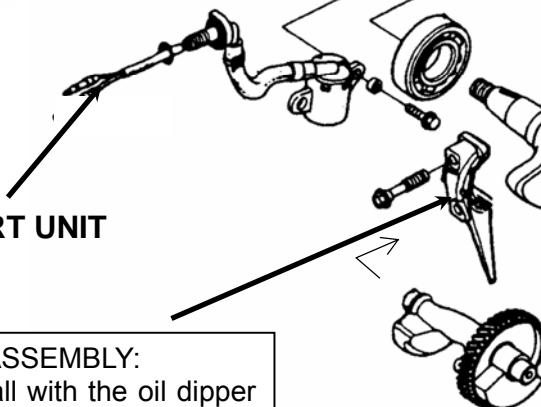


OIL LEVEL SWITCH



OIL ALERT UNIT

REASSEMBLY:  
Install with the oil dipper  
toward the camshaft and  
the ribs on the cap and  
connecting rod must be  
aligned.



REASSEMBLY:  
Install the tappets immediately  
before installing the camshaft.



REASSEMBLY:  
Push in until the bearing  
touches the crankcase. Be  
careful not to damage the oil  
seal.



## SECTION 4. DISASSEMBLY AND SERVICE

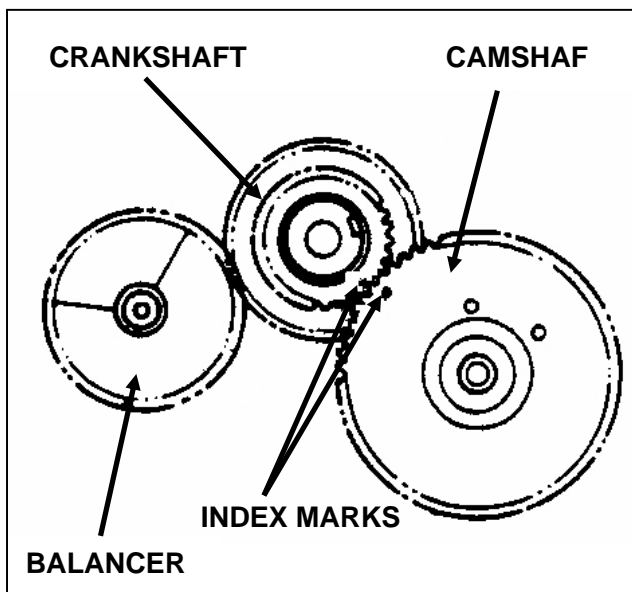
---

### c.CAMSHAFT/ CRANKSHAFT

**REASSEMBLY:**

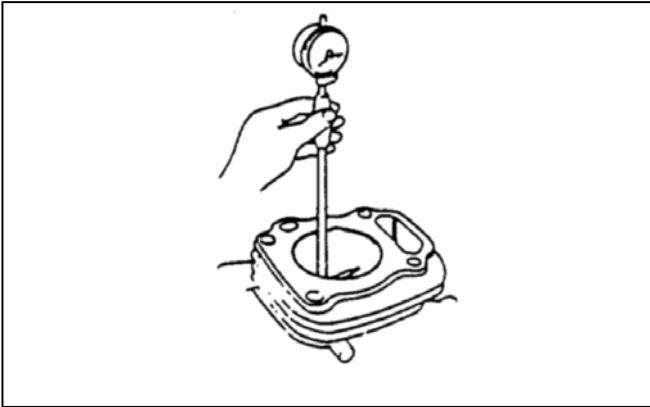
Install the balancer first, and then install the camshaft.

- 1) Align the index marks on the balancer and balancer drive gear.
- 2) Align the index marks on the camshaft and timing gear.



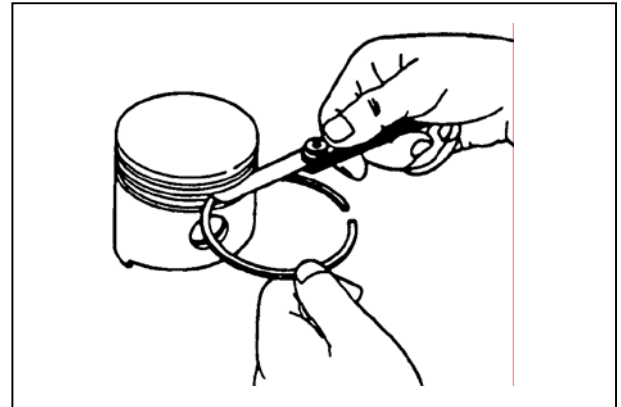
## SECTION 4. DISASSEMBLY AND SERVICE

### d.INSPECTION



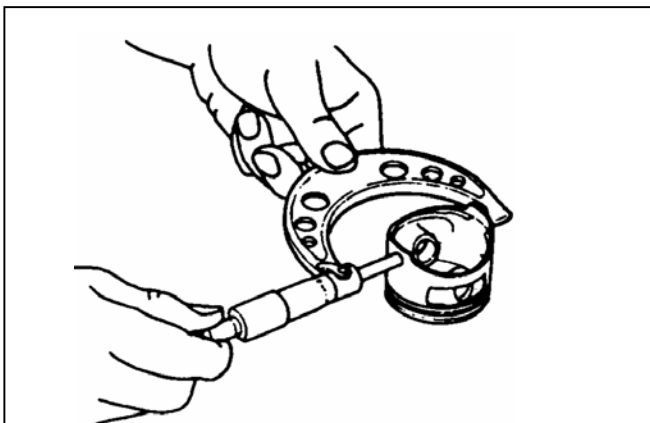
**CYLINDER ID(Inside Diameter)**

Model	Factory Specification	Allowable limit
5500	82.015 mm (3.229 in)	82.17 mm (3.235 in)
6500	88.015 mm (3.465 in)	88.17 mm (3.412 in)



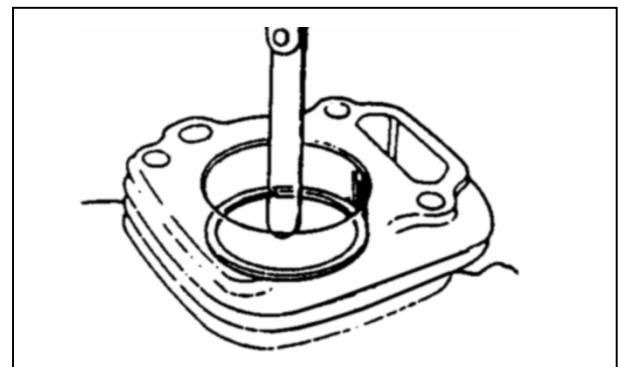
**PISTON RING SIDE CLEARANCE**

Factory Specification	Allowable limit
0.030-0.060 mm (0.0012-0.0024 in)	0.15 mm (0.006 in)



**PISTON SKIRT OD(Outside Diameter)**

Model	Factory Specification	Allowable limit
5500	81.97 mm (3.227 in)	82.85 mm (3.222 in)
6500	87.97 mm (3.463 in)	87.85 mm (3.459 in)



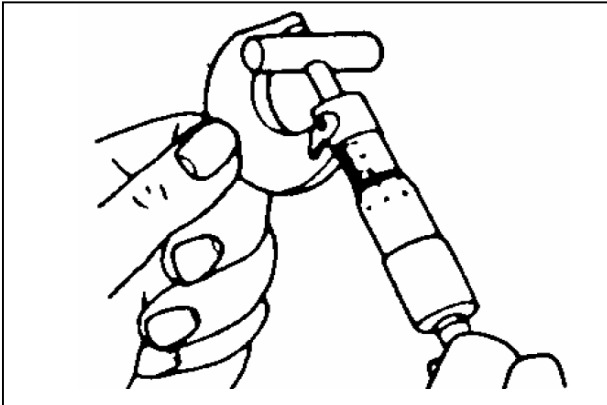
**PISTON RING END GAP**

Factory Specification	Allowable limit
0.2-0.4 mm (0.008-0.016 in)	1.0 mm (0.04 in)

**PISTON-TO CYLINDER CLEARANCE**

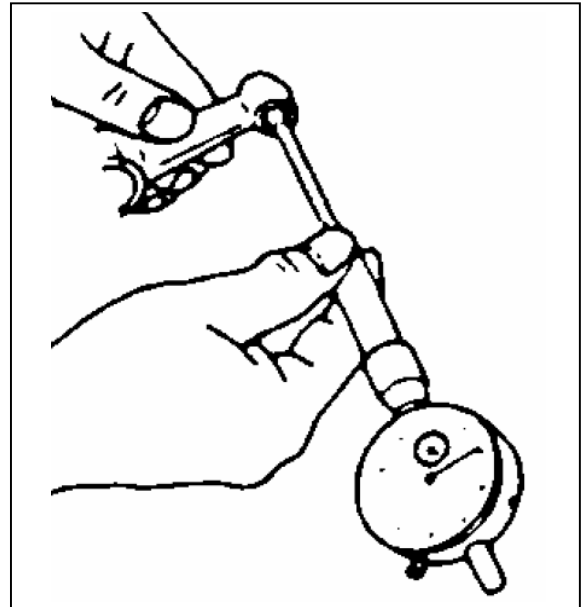
Factory Specification	Allowable limit
0.045-0.075 mm (0.0018-0.0295 in)	0.12 mm (0.005 in)

## SECTION 4. DISASSEMBLY AND SERVICE



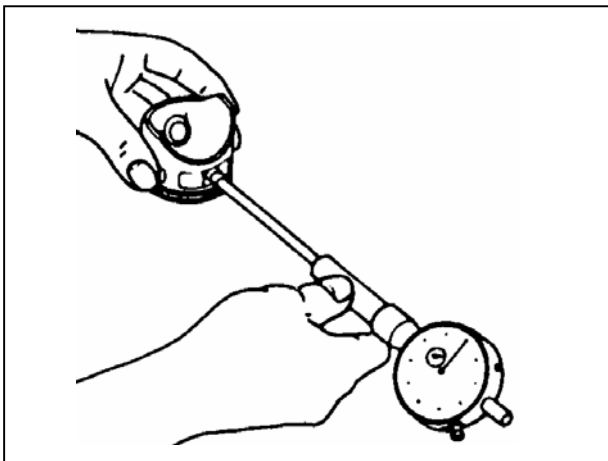
**PISTON PIN OD**

Factory Specification	Allowable limit
20.007 mm (0.7877 in)	19.95 mm (0.785 in)



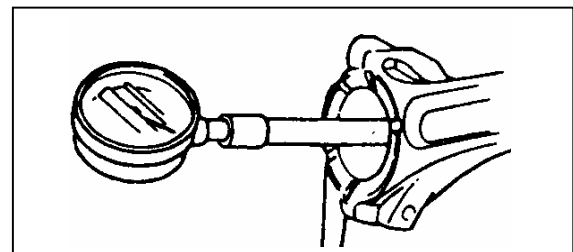
**CONNECTING ROD SMALL END ID**

Factory Specification	Allowable limit
20.007 mm (0.7877 in)	20.07 mm (0.790 in)



**PISTON PIN BORE ID**

Factory Specification	Allowable limit
20.002 mm (0.7875 in)	20.042 mm (0.7891 in)



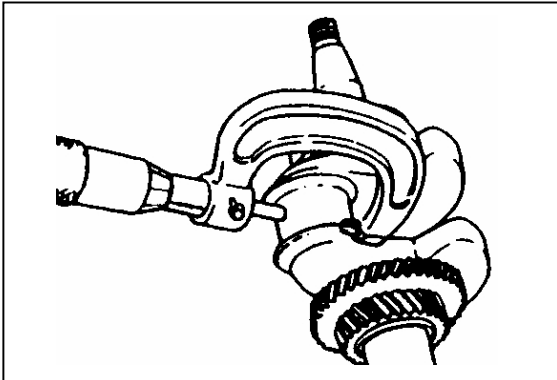
**CONNECTING ROD BIG END ID**

Factory Specification	Allowable limit
36.015 mm (1.4179 in)	36.070 mm (1.4201 in)

**PISTON-TO-PISTON PIN BORE CLEARANCE**

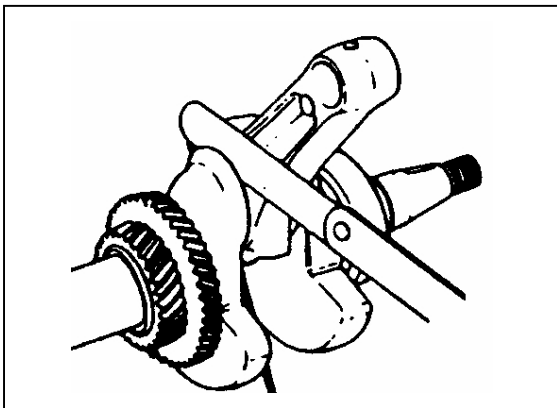
Factory Specification	Allowable limit
0.004-0.016 mm (0.00016-0.0006 in)	0.08 mm (0.003 in)

## SECTION 4. DISASSEMBLY AND SERVICE



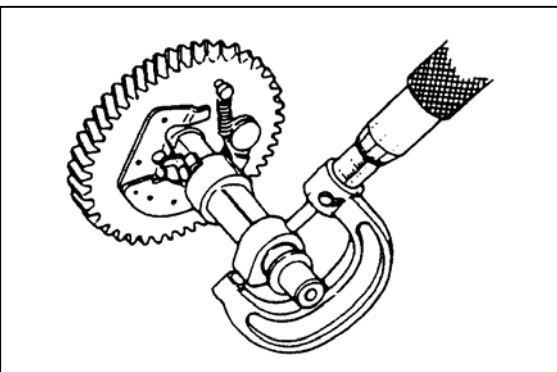
**CRANKPIN OD**

Factory Specification	Allowable limit
35.991mm (1.417 in)	35.930 mm (1.4146 in)



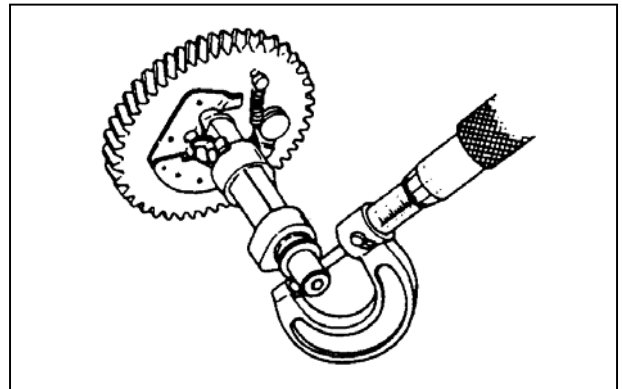
**CONNECTING ROD BIG END SIDE CLEARANCE**

Factory Specification	Allowable limit
0.1-0.7 mm (0.0040.028 in)	1.1 mm (0.043 in)



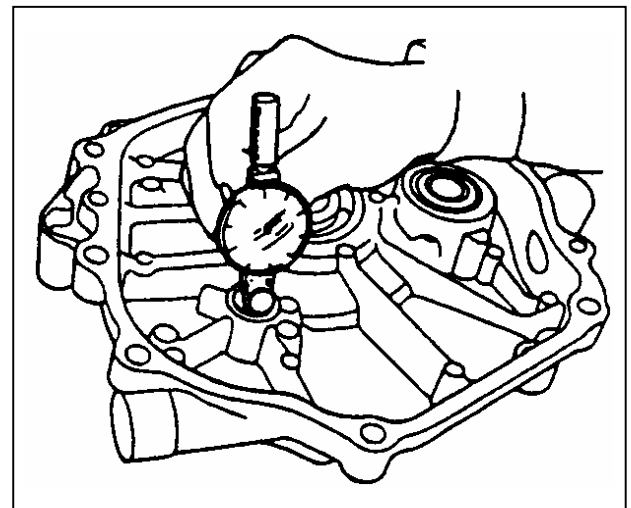
**CAMSHAFT CAM HEIGHT**

	Factory Specification	Allowable limit
IN	32.05 mm (1.26 in)	31.80 mm (1.252 in)
EX	31.77 mm (1.25 in)	31.52 mm (1.241 in)



**CAMSHAFT DIAMETER**

Factory Specification	Allowable limit
15.984 mm (0.6293 in)	15.92 mm (0.627 in)



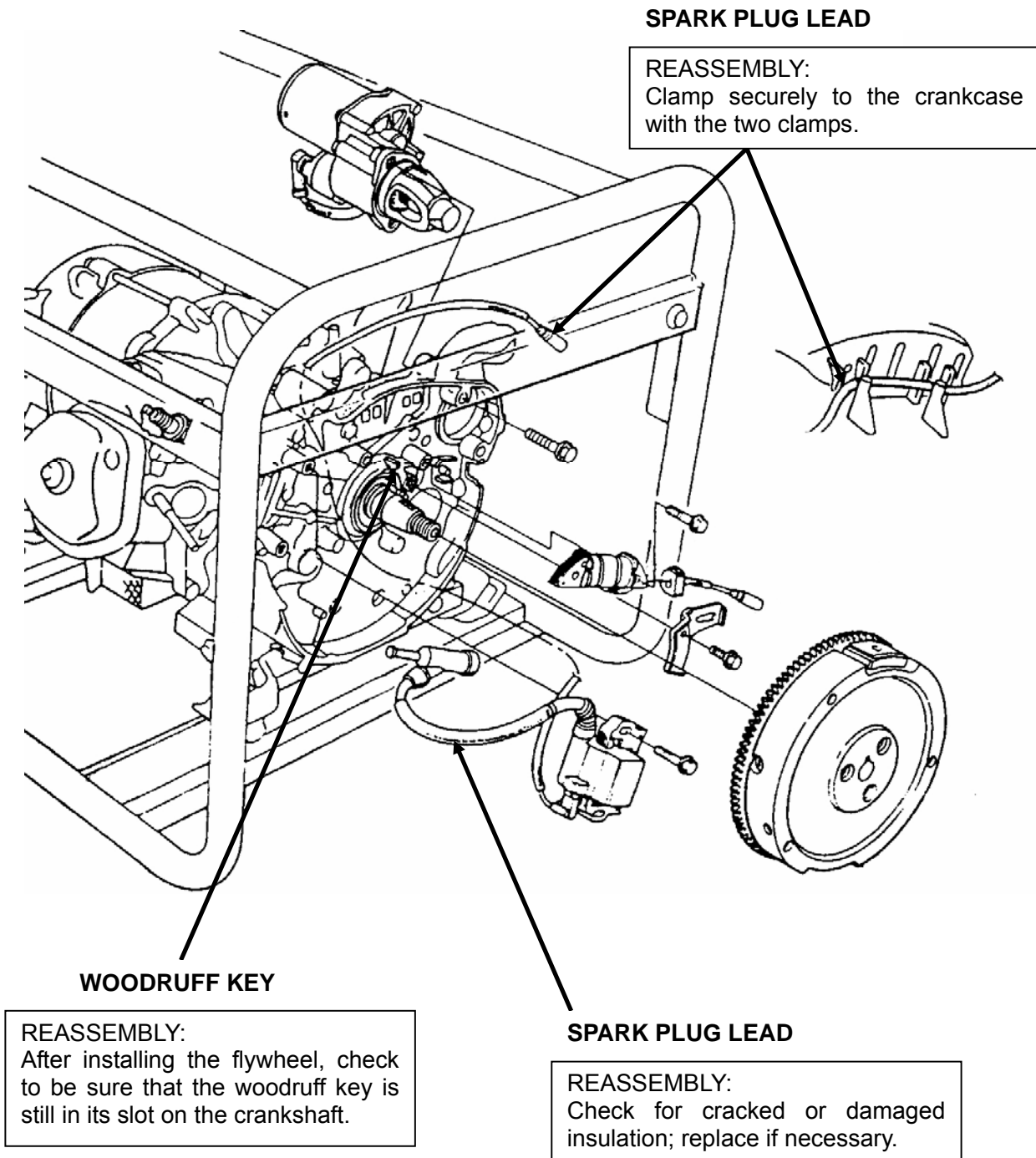
**CAMSHAFT HOLDER ID**

Factory Specification	Allowable limit
16.00 mm (0.630 in)	16.05 mm (0.632 in)

## SECTION 4. DISASSEMBLY AND SERVICE

### 4-4-2 Flywheel / Starter Motor

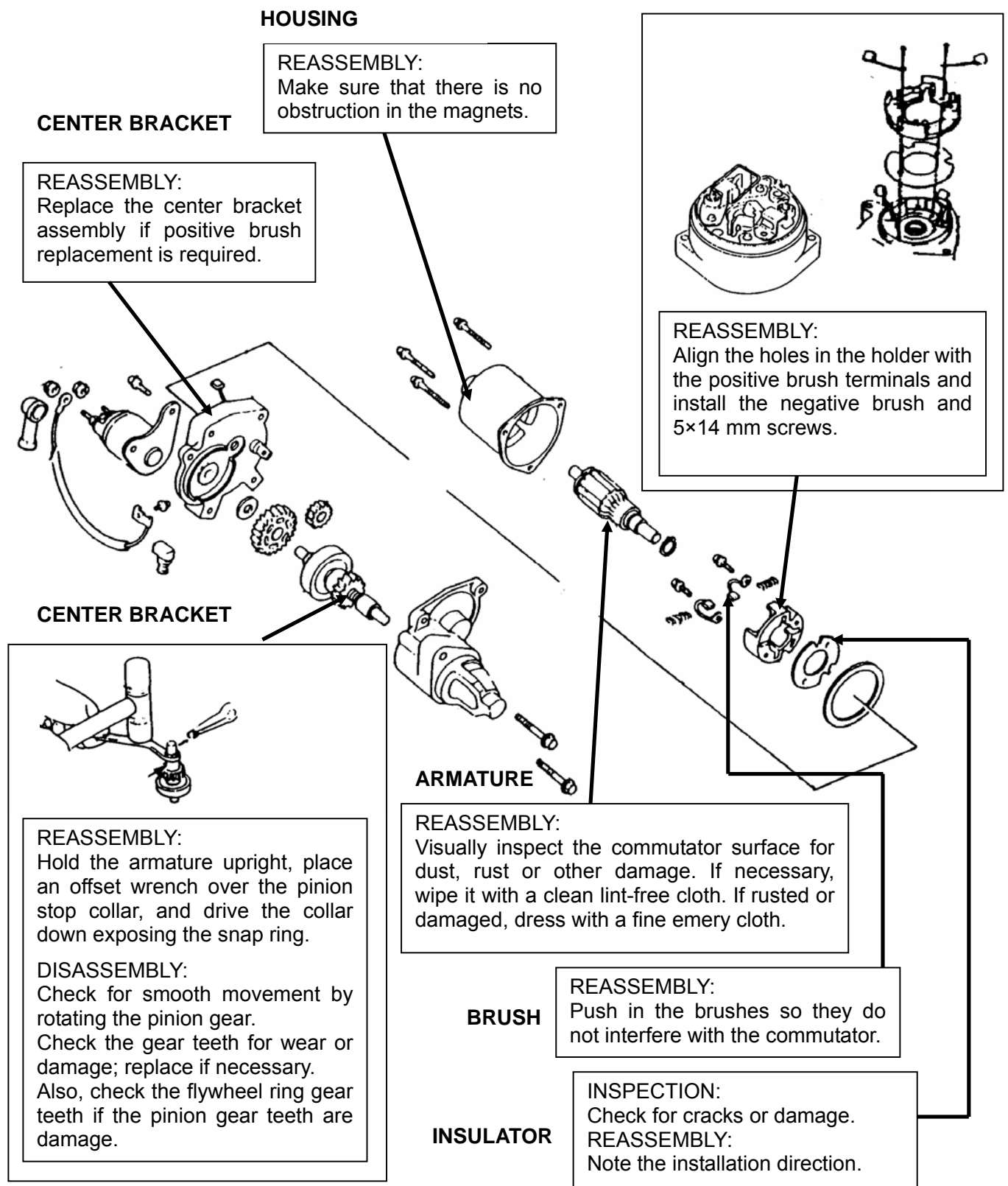
#### a.DISASSEMBLY/ ASSEMBLY





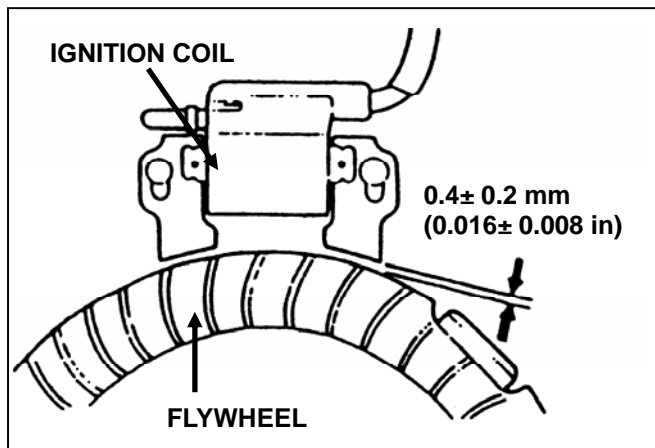
# SECTION 4. DISASSEMBLY AND SERVICE

## b.STARTER MOTOR



## SECTION 4. DISASSEMBLY AND SERVICE

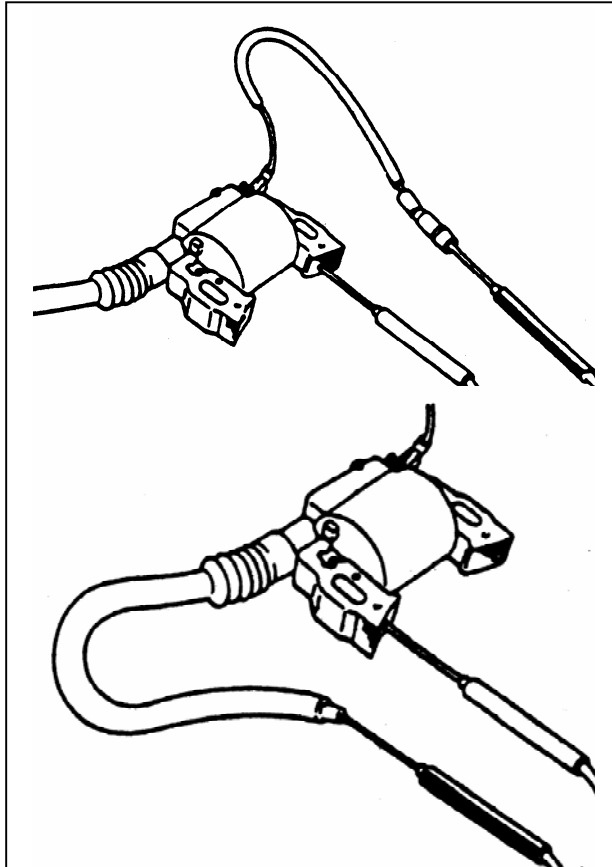
### c.INSPECTION



#### AIR GAP (AT FLYWHEEL)

Measure the air gap between of the ignition and flywheel by thickness gauge.

Air gap (at flywheel)	$0.4 \pm 0.2 \text{ mm}$ ( $0.016 \pm 0.008 \text{ in}$ )
--------------------------	--



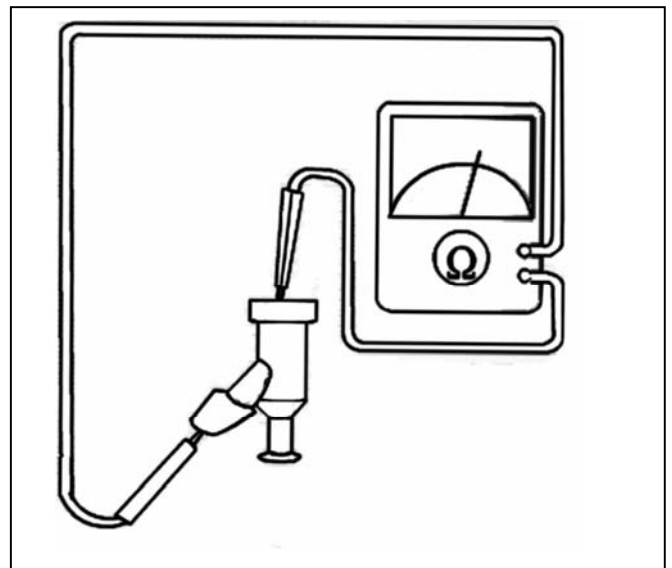
### IGNITION COIL RESISTANCE

Primary side resistance value	0.8-1.0 $\Omega$
Secondary side resistance value	5.9-7.1 K $\Omega$

1. Measure the resistance of the primary coil by attaching one ohm-meter lead to the ignition coil's primary lead while touching the other test lead to the iron core.
2. Measure the resistance of the secondary side of the coil by removing the spark plug cap and touching one test lead to the spark plug lead wire while touching the other test lead to the iron core.

**Note:** A false reading will result if the spark plug cap is not removed.

If the resistance is not as specified, replace the ignition coil.



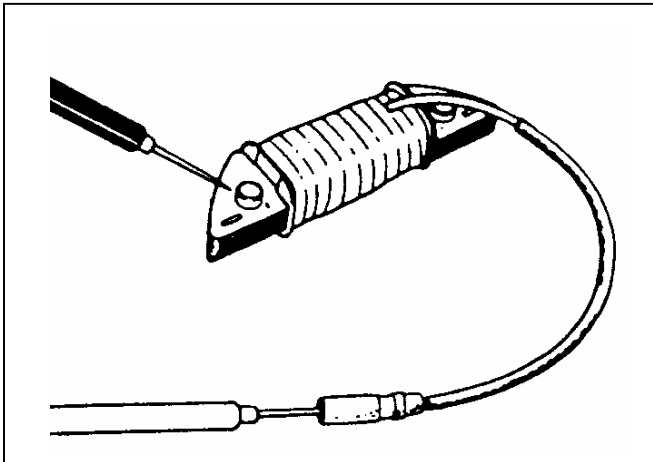
#### SPARK PLUG CAP

Measure the resistance of the spark plug cap by attaching an ohmmeter.

If the resistance is not as specified, replace the spark plug cap.

Spark Plug Cap	5K
----------------	----

## SECTION 4. DISASSEMBLY AND SERVICE

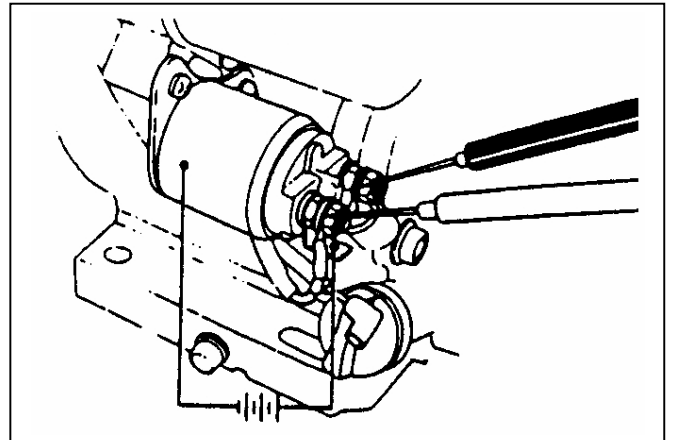


### CHARGING COIL (6500 model only)

Measure the resistance between the wire terminal and ground.

RESISTANCE	7.5-12.5 K $\Omega$
------------	---------------------

If the resistance is not as specified, replace the charging coil.



### STARTER SOLENOID (6500 model only)

Connect a 12 V battery between the starter terminal and the solenoid body and check for continuity between the terminals. Continuity should exist when the battery is connected and not exist when the battery is disconnected.

RESISTANCE	>1 M $\Omega$
------------	---------------

If the resistance is not as specified, replace the starter.

## SECTION 4. DISASSEMBLY AND SERVICE

### 4-4-3 Cylinder Head / Valves

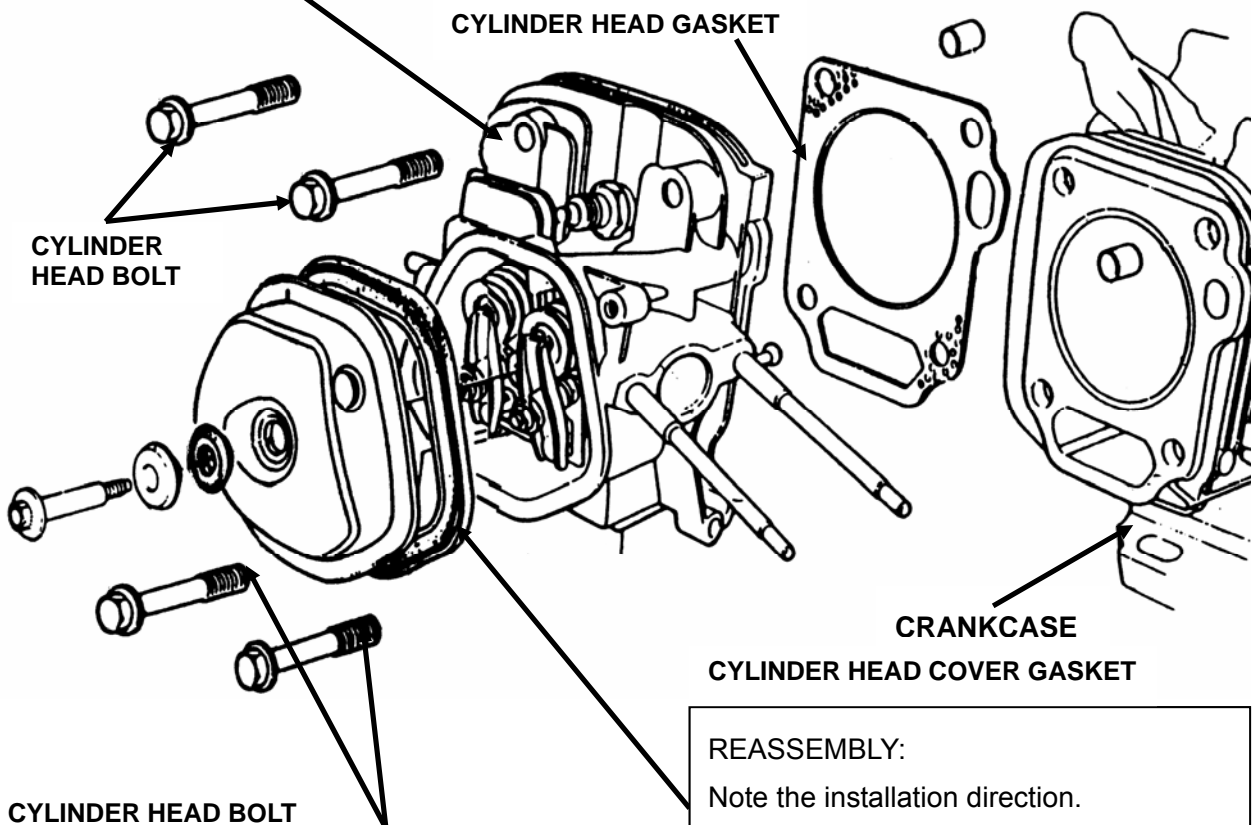
#### a.DISASSEMBLY/ ASSEMBLY

##### CYLINDER HEAD

###### REASSEMBLY:

Before installation, remove carbon deposits from the combustion chamber and inspect the valve seats.

Measure the compression of the cylinder head after reassembly.



##### CYLINDER HEAD BOLT

###### TORQUE:

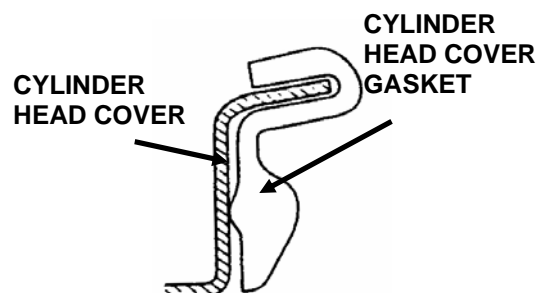
32-38 N·m (320-380 kg·cm, 23.1-28.5 ft·lb)

###### ASSEMBLY/ DISASSEMBLY:

Tighten and untighten using a cross pattern.

###### REASSEMBLY:

Note the installation direction.



## SECTION 4. DISASSEMBLY AND SERVICE

### VALVE ROTATOR

#### REASSEMBLY:

Check the pivot bolt, push rod and rocker arm before installing.

### SPARK PLUG

#### REASSEMBLY:

Before installation, clean and adjust the spark plug.

### EXHAUST VALVE

#### REASSEMBLY:

Check both ends for wear and check the rod for straightness.

Be sure the rod ends are firmly seated in the lifter.

### VALVE ROTATOR

#### REASSEMBLY:

**CAUTION** If the valve rotator is not installed, the valve may drop into the cylinder when starting the engine.

### PUSH ROD

#### REASSEMBLY:

Before installation, remove carbon deposits and inspect the valve.

### INTAKE VALVE

#### REASSEMBLY:

Do not interchange with the exhaust valve.



**CAUTION** Do not remove the valve spring retainers while the cylinder head is installed, or the valves will drop into the cylinder.

#### DISASSEMBLY:

Compress the valve spring and slide the retainer out to the side, so the valve stem slips through the hole at the side of the retainer.

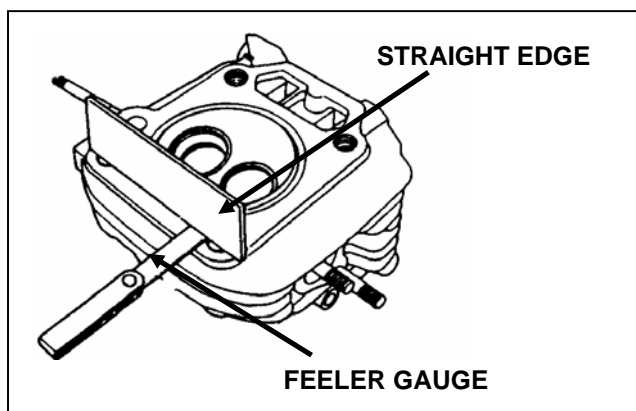
#### VALVE HEAD DIAMETER:

IN: 24 mm  
(0.94 in)

EX: 22 mm  
(0.87 in)

## SECTION 4. DISASSEMBLY AND SERVICE

### b.INSPECTION



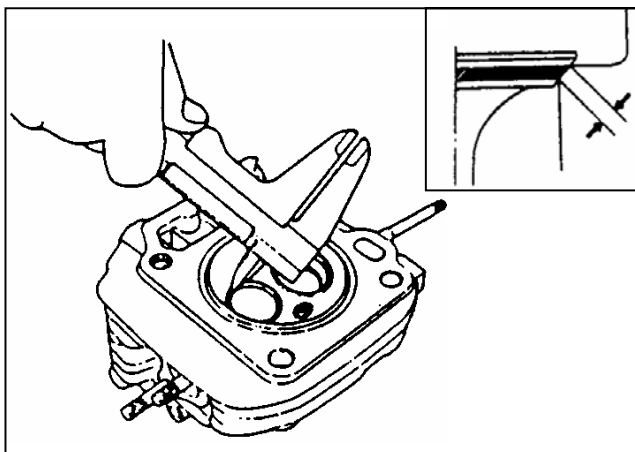
#### CYLINDER HEAD

Remove carbon deposits from the combustion chamber. Clean off any gasket material from the cylinder head surface.

Check the spark plug hole and valve areas for cracks.

Check the cylinder head for warpage with a straight edge and a feeler gauge.

Allowable limit	0.1 mm (0.004 in)
-----------------	-------------------

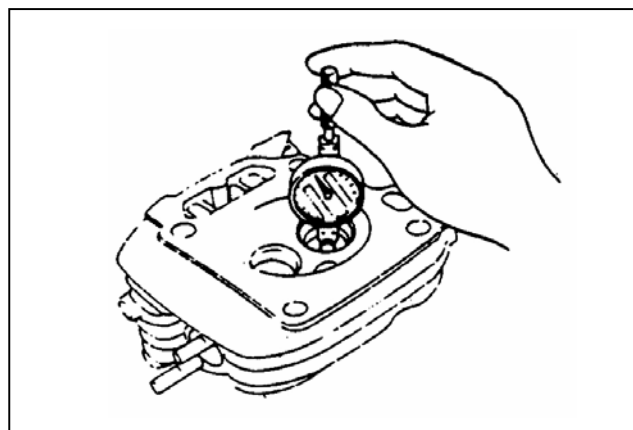


#### VALVE SEAT WIDTH

Measure the valve seat width.

If the valve seat width is under the factory specification, or over the service limit, recondition the valve seat.

Factory Specification	Allowable limit
1.1 mm (0.043 in)	2.0 mm (0.08 in)



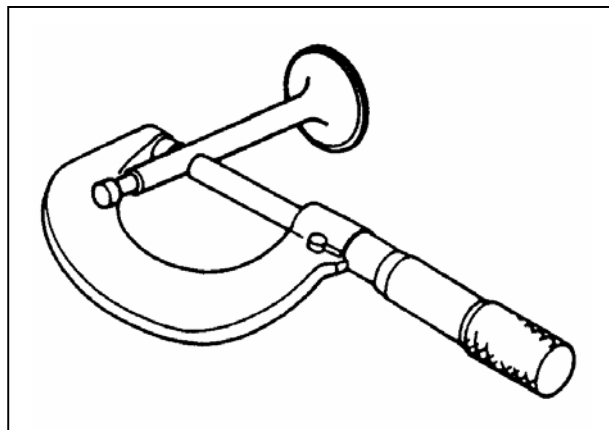
#### VALVE GUIDE ID

NOTE: Ream the valve guides to remove any carbon deposits before measuring.

Measure and record each valve guide I. D.

Factory Specification	Allowable limit
6.60 mm (0.260 in)	6.66 mm (0.262 in)

Replace the cylinder header if they are over the allowable limit.



#### VALVE STEM OD

Inspect each valve for face irregularities, bending or abnormal stem wear. Replace the valve if necessary. Measure and record each valve stem O.D.

	Factory Specification	Allowable limit
IN	6.58 mm (0.259 in)	6.44 mm (0.254 in)
EX	6.56 mm (0.258 in)	6.40 mm (0.252 in)

## SECTION 4. DISASSEMBLY AND SERVICE

Replace the valves if their O.D. is smaller than the allowable limit.

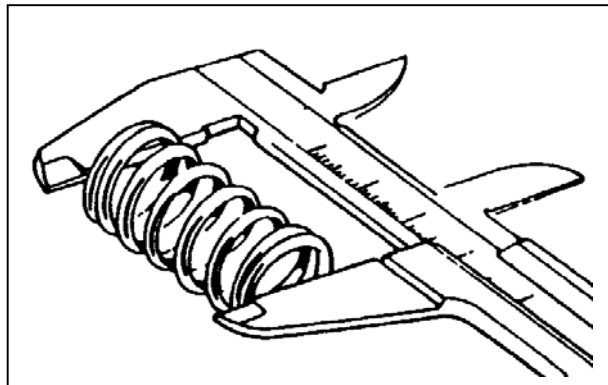
### GUIDE TO STEM CLEARANCE

Subtract each valve stem O.D. from the corresponding guide I.D. to the stem to guide clearance.

	Factory Specification	Allowable limit
IN	0.02-0.047 mm (0.0008-0.0019 in)	0.10 mm (0.004 in)
EX	0.04-0.067 mm (0.0016-0.0026 in)	0.12 mm (0.005 in)

If the stem to guide clearance exceeds the allowable limit, determine if the new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guide as necessary and ream to fit. If the stem to guide clearance exceeds the allowable limit with new guides, replace the valves as well.

**NOTE:** Recondition the valve seats whenever the valve guides are replaced.



### VALVE SPRING FREE LENGTH

Measure the free length of the valve springs.

Factory Specification	Allowable limit
39.0 mm (1.54 in)	37.5 mm (1.48 in)

Replace the springs if they are shorter than the allowable limit.

## SECTION 4. DISASSEMBLY AND SERVICE

### 4-4-4 Recoil Starter / Fan Cover

#### a.DISASSEMBLY/ ASSEMBLY

##### STARTER PULLEY

###### REASSEMBLY:

Install by aligning the hole in the pulley with the lug on the cooling fan.

##### FLANGE NUT 16mm

###### DISASSEMBLY/ REASSEMBLY:

Hold the flywheel by placing a screwdriver into the pulley.

##### FAN COVER

###### DISASSEMBLY/ REASSEMBLY:

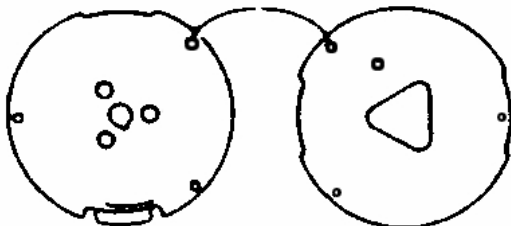
Remove and install with the recoil starter ASSY.

##### COOLING FAN

###### REASSEMBLY:

Install by aligning the three lugs on the rear side of the fan with the small hole in the flywheel.

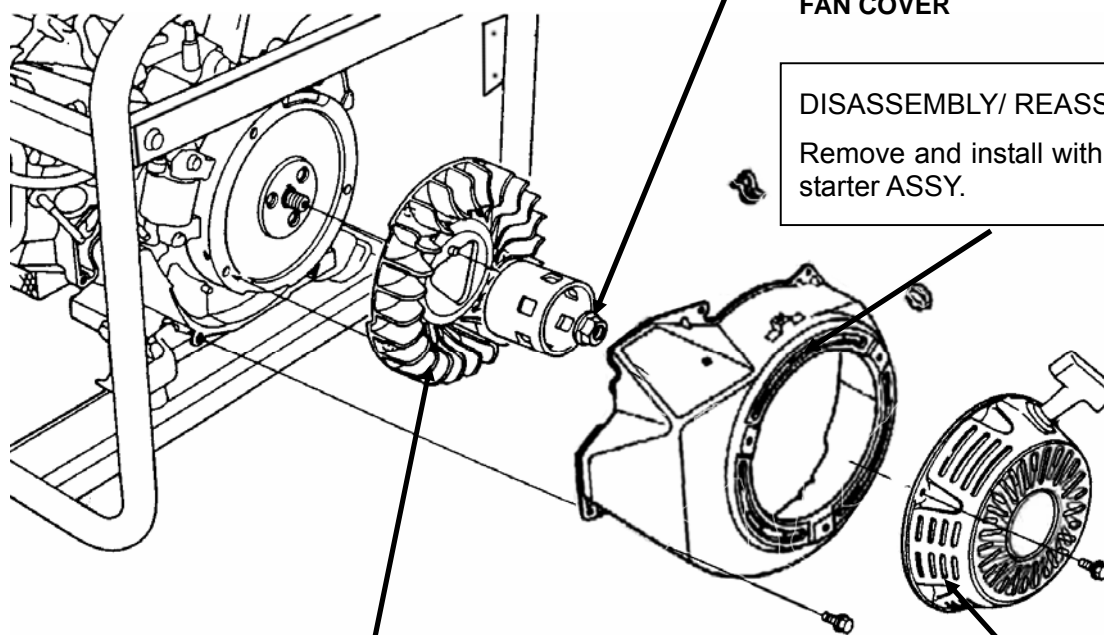
When disassembling and assembling, take care not to damage the fan blades.



##### RECOIL STARTER ASSY

###### REASSEMBLY:

Install with the starter grip position as shown.



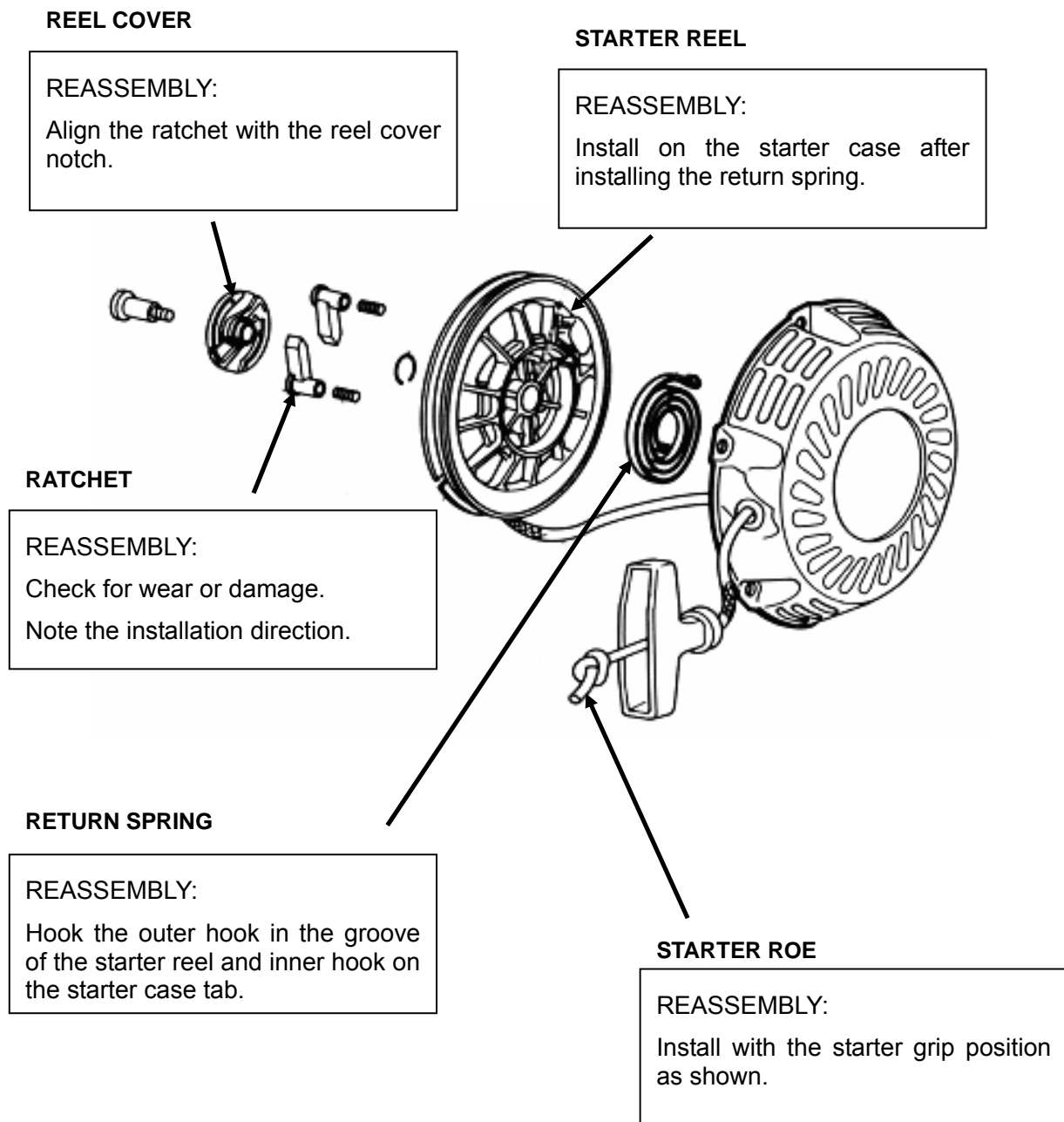


## SECTION 4. DISASSEMBLY AND SERVICE

### b.DISASSEMBLY (RECOIL STARTER ASSY)



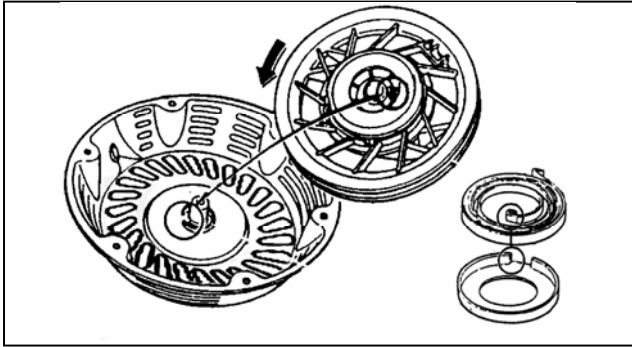
**WARNING** The recoil starter can cause personal injury, Wear safety glasses. Do not let the recoil spring snap.



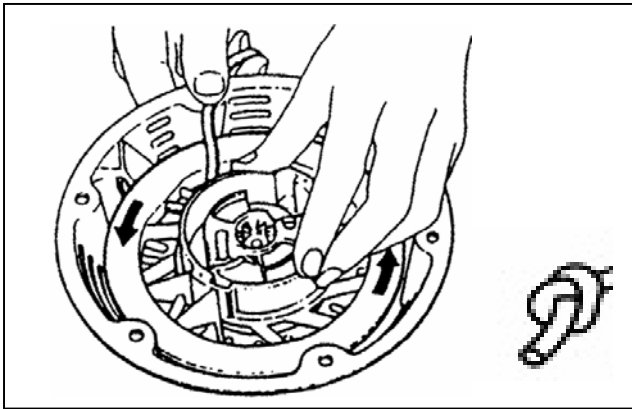
## SECTION 4. DISASSEMBLY AND SERVICE

### c. RECOIL STARTER ASSEMBLY

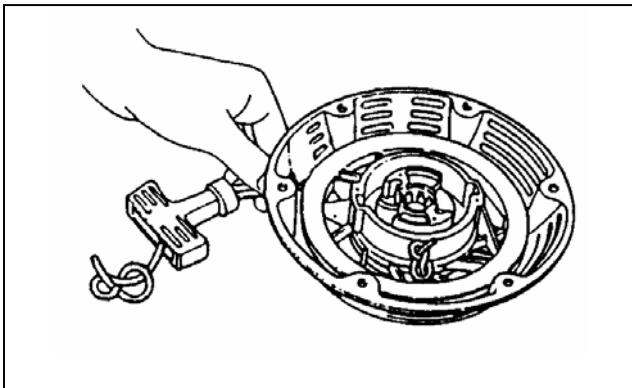
**⚠ WARNING** The recoil starter can cause personal injury. Wear safety glasses. Do not let the recoil spring snap out of the case, feed it through the starter grip, and tie a knot in the end of the rope.



- a) Hook the spring outer hook in the reel groove, and install the reel on the starter case, so that the spring inner hook is hooked to the starter case tab by turning the reel counterclockwise.

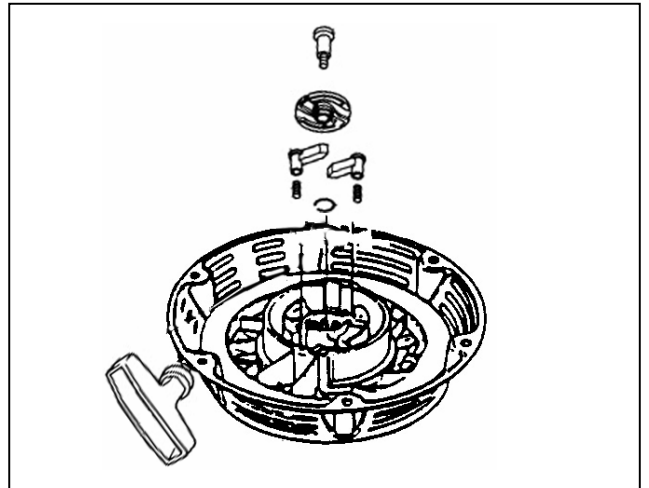


- b) Feed the end of the rope through the hole in the starter reel, and tie the rope end. Wind the rope onto the direction shown, and wedge the rope end in the notch on the edge of the reel.

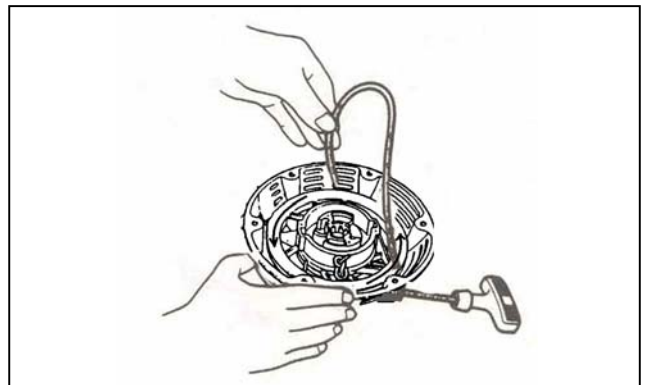


- c) With a short length of the rope extending from the starter reel notch, pull the end of the rope

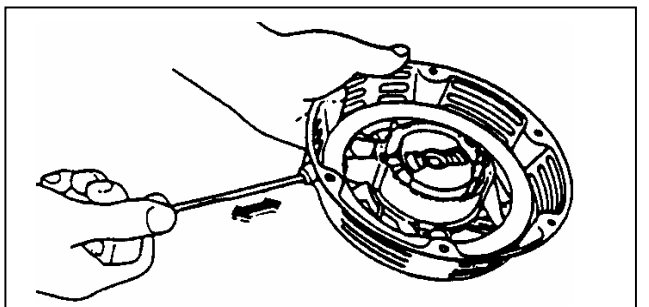
out of the case, feed it through the starter grip, and tie a knot in the end of the rope.



- d) Install the friction plates, friction spring, ratchet pin, guide plate, and reel cover. Tighten the reel cover bolt.



- e) Rotate the reel three full turns in the direction of the arrow.



- f) Check the operation of the ratchet by pulling the starter rope out several times.

# SECTION 4. DISASSEMBLY AND SERVICE

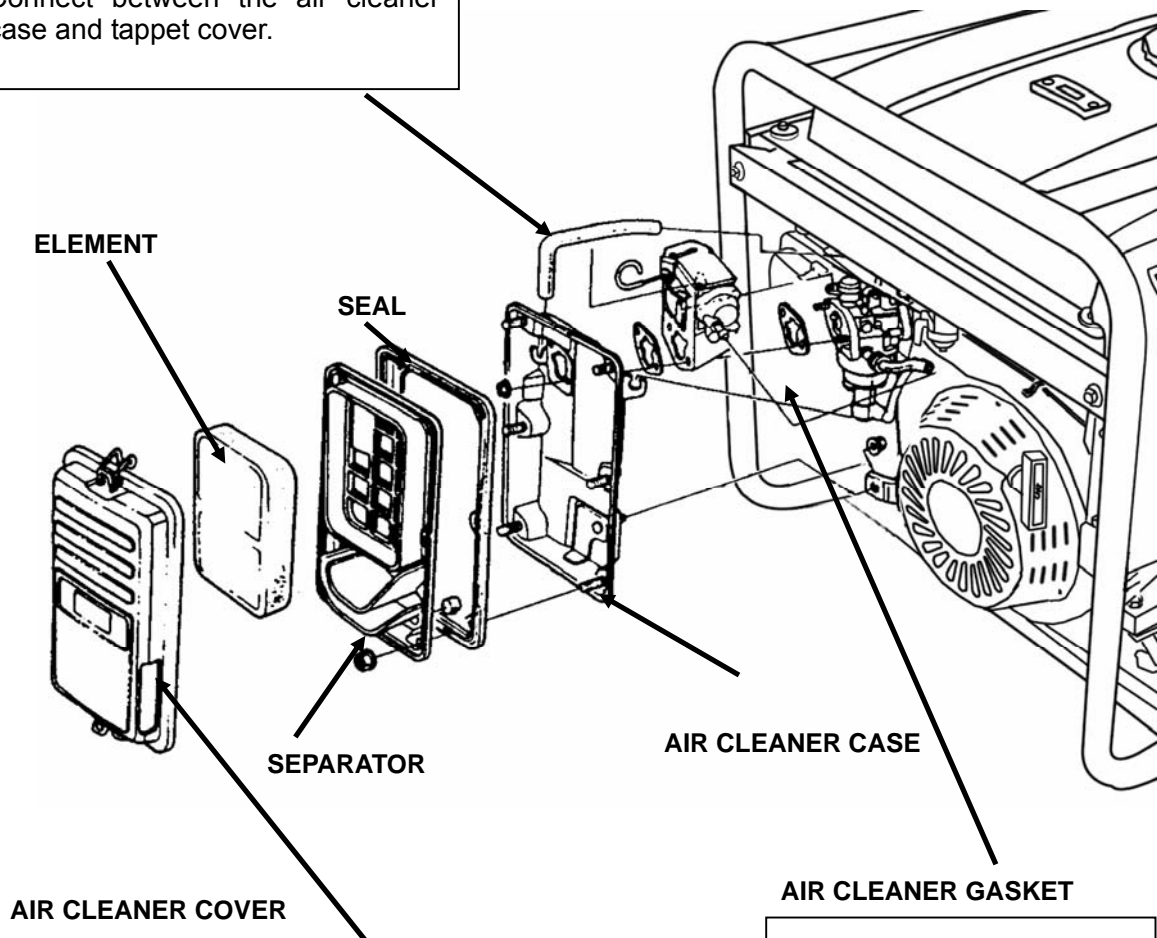
## 4-4-5 Air Cleaner

### DISASSEMBLY/ REASSEMBLY

#### BREATHER TUBE

##### REASSEMBLY:

Connect between the air cleaner case and tappet cover.



#### AIR CLEANER COVER

##### REASSEMBLY:

Make sure to seat the gasket in the groove on the edge of the case all the way around properly.

#### AIR CLEANER GASKET

##### REASSEMBLY:

Make sure the gasket is not damaged, broken or bent. Install correctly as shown.



# SECTION 4. DISASSEMBLY AND SERVICE

## 4-4-6 Carburetor

### DISASSEMBLY/ REASSEMBLY

**⚠ WARNING** Gasoline is flammable and explosive. Close the fuel shut off valve, and drain the carburetor before servicing the carburetor.

#### PILOT SCREW

##### REASSEMBLY:

Check the screw head for wear or damage before installing. INITIAL OPENING: 1-5/8 turns out.

#### FLOAT VALVE

##### REASSEMBLY:

Check for worn valve or weak spring before installation.

#### FLOAT

##### REASSEMBLY:

Check for smooth movement after installing.

#### DRAIN SCREW

##### REASSEMBLY:

Clean thoroughly with compressed air and check for leaks after installation.

#### SET BOLT

##### REASSEMBLY:

After assembly, check for any sign of fuel leakage.

#### CARBURETOR BODY

##### REASSEMBLY:

Clean internal passages and orifices with compressed air before installing.

#### O-RING

##### REASSEMBLY:

Check for correct installation.

#### MAIN NOZZLE

##### REASSEMBLY:

Clean thoroughly with compressed air before installation.



#### MAIN JET

##### REASSEMBLY:

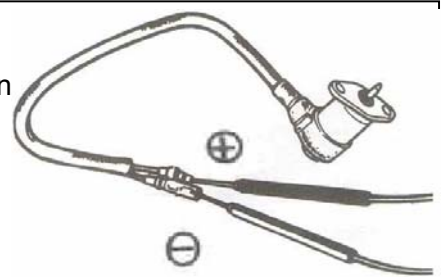
Clean thoroughly with compressed air before installation.



#### FUEL CUT-OFF SOLENOID

##### INSPECTION:

Check continuity between the double green wires of the solenoid valve. If there is no continuity, Replace the solenoid.



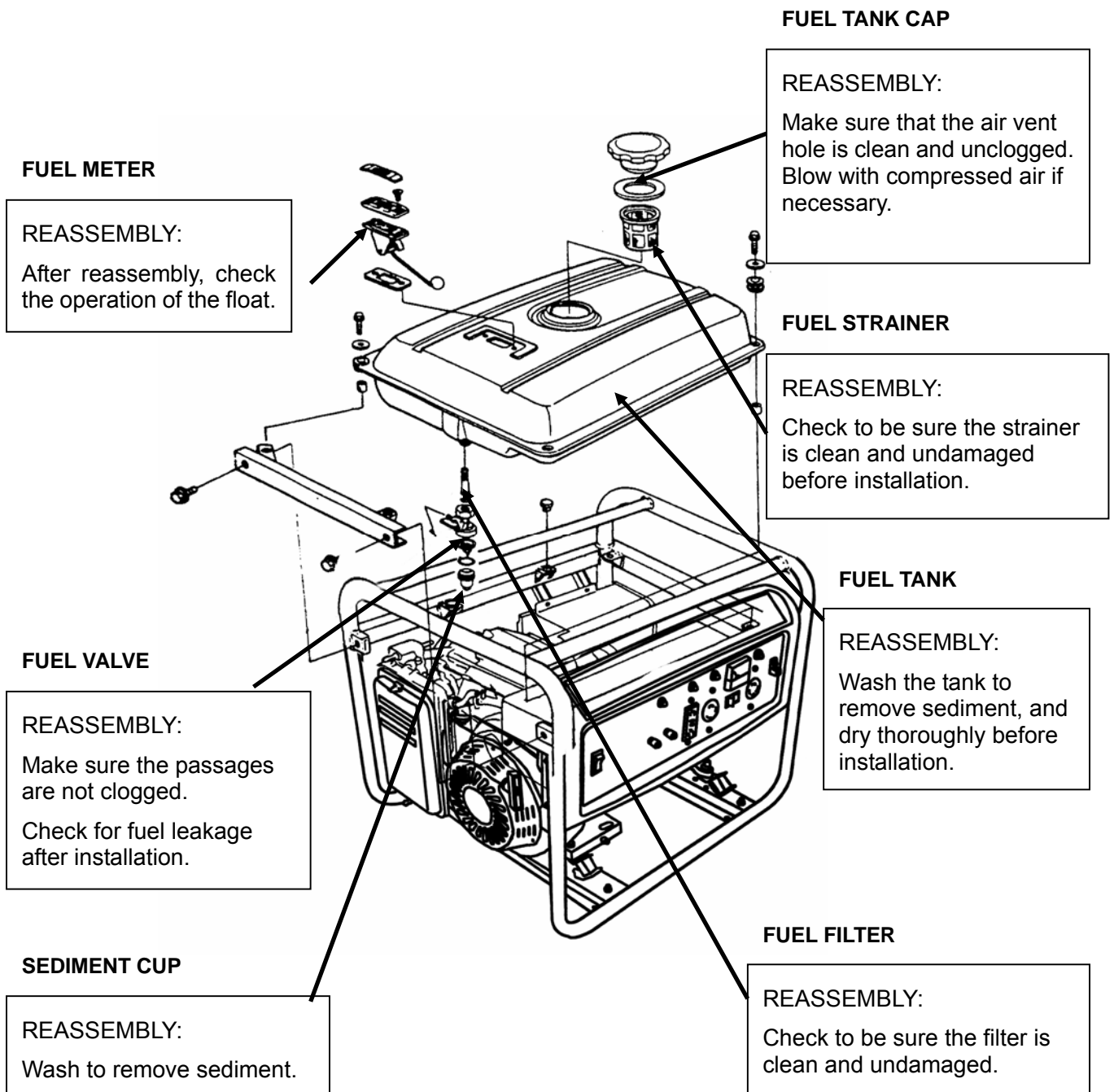
# SECTION 4. DISASSEMBLY AND SERVICE

## 4-5 Generator

### 4-5-1 Fuel Tank

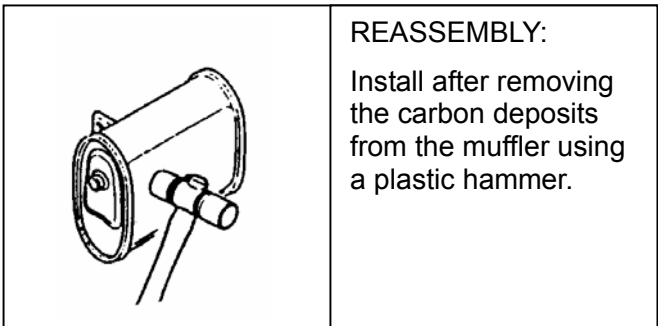
#### DISASSEMBLY/ REASSEMBLY

**⚠ WARNING** Gasoline is flammable and explosive. Drain the fuel tank and fuel line before disassembly. Wipe up spilled fuel immediately.



## 4-5-2 Muffler

### DISASSEMBLY/ REASSEMBLY



# SECTION 4. DISASSEMBLY AND SERVICE

## 4-5-3 Generator

### a. DISASSEMBLY/ REASSEMBLY

#### GENERATOR ASSY

##### REASSEMBLY:

Wipe dirt or oil off the tapered portion of the rotor and crankshaft before installing.

#### CRANKCASE GROMMET

##### REASSEMBLY:

Check to be sure the grommet is inserted securely.

#### BRUSH HOLDER ASSY

##### DISASSEMBLY:

Remove the brush holder before the rotor and stator.

#### ROTOR BOLT

##### REASSEMBLY:

43-47 N·m (430-470 kg·cm,  
31.0-33.9 ft·lb)

#### STATOR BOLT

##### REASSEMBLY:

Tighten in crisscross pattern  
in 2-3 steps.

After tightening, make sure  
there is no clearance  
between the crankcase  
cover and stator cover.

8-12 N·m (80-120 kg·cm,  
5.8-8.7 ft·lb)

#### RUBBER MOUNT

##### REASSEMBLY:

Insert the alignment tabs onto the holes.

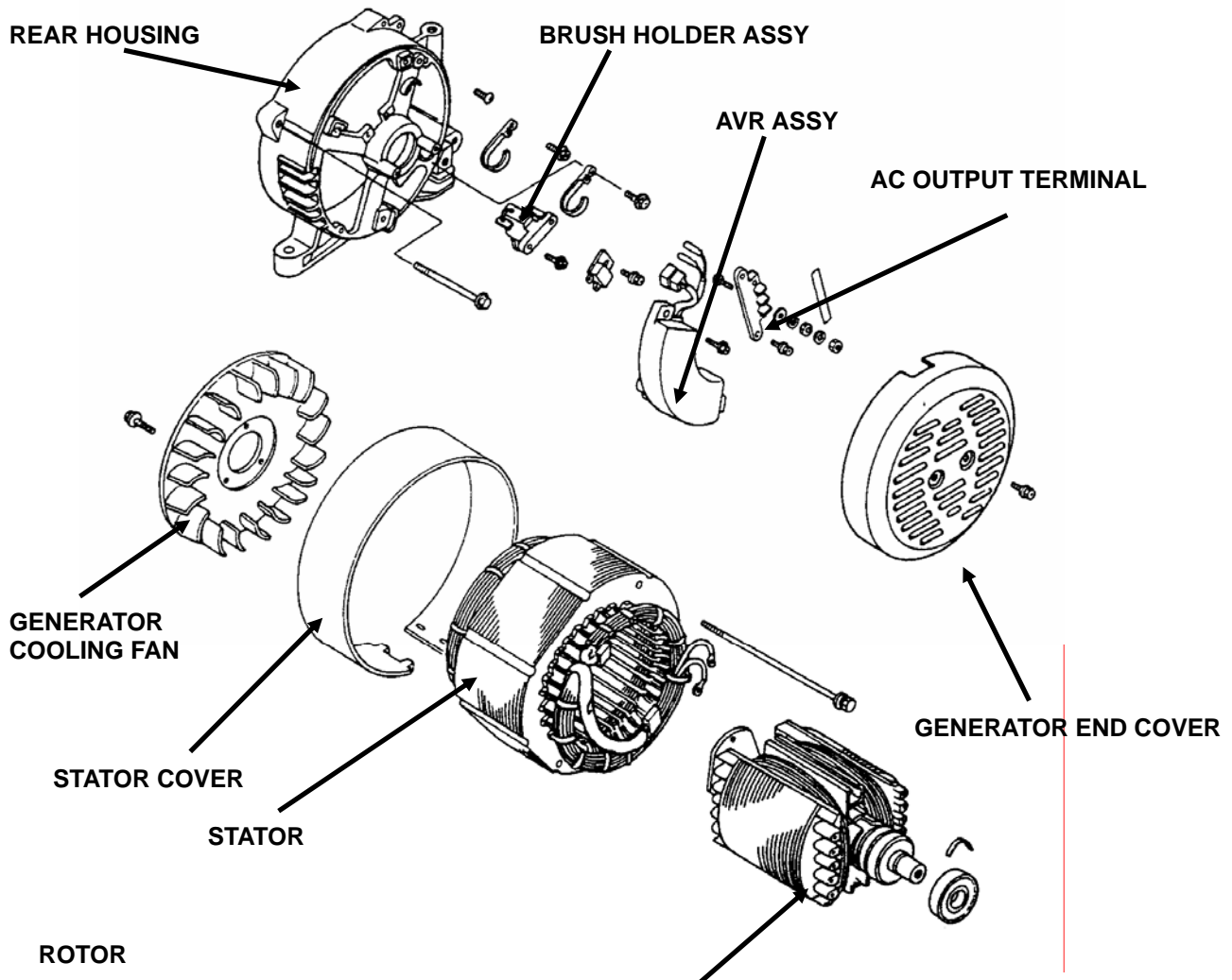
Make sure the rubber is not chipped, hard or worn.

Note the installation direction.



## SECTION 4. DISASSEMBLY AND SERVICE

### REAR HOUSING



### ROTOR



#### DISASSEMBLY:

Install the appropriate rotor puller (special tool), hold the flywheel and torque the puller to 6.9 Kg-cm (50 ft-lb).

**CAUTION** To avoid damaging the rotor, place a wooden block and a shop rag under the rotor for support.

#### NOTE:

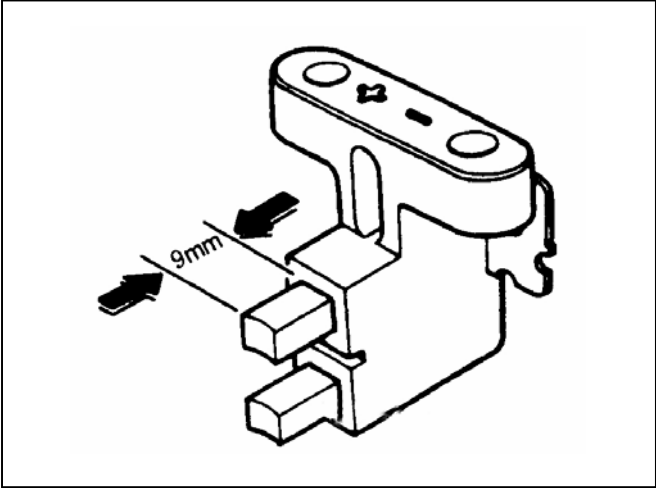
If torquing the rotor puller does not free the rotor from the crankshaft, tap the end of the puller with a brass hammer to help loosen the rotor.

**WARNING** To prevent eye injury, always wear safety glasses or goggles when striking the end of the rotor puller.



# SECTION 4. DISASSEMBLY AND SERVICE

## b. INSPECTION



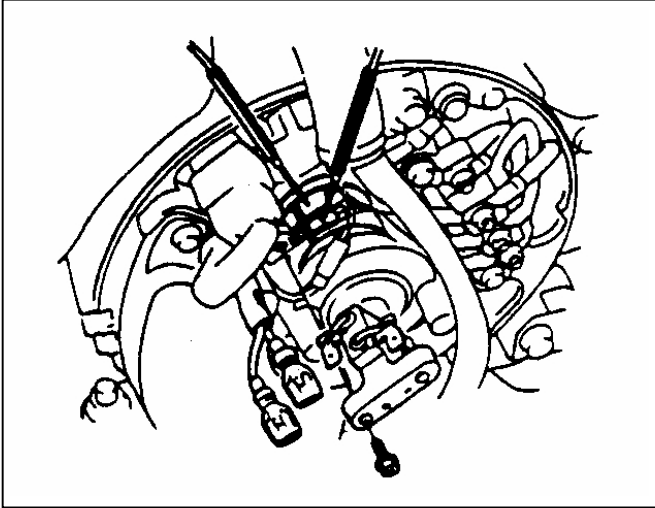
### CARBON BRUSH/ SLIP RING

Remove the carbon brushes from the brush holder. Check the brush for length, wearing condition or any other defect. Replace if the length is less than 5 mm (0.20in).

NOTE:

- Connect the Blue wire lead to the positive (+) side of the brush holder.
- Avoid damaging the brushes when removing and installing the brush holder.

Visually inspect the slip rings for free dust, rust or other damage. If necessary, wipe them with a clean lint-free cloth. If they are rusted or damaged, remove the rotor and wipe with fine emery cloth.



### FIELD WINDING

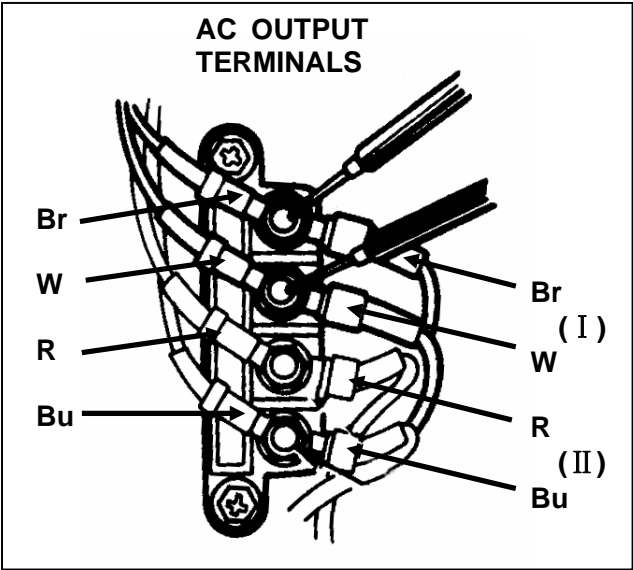
Remove the brushes and measure resistance between the slip rings.

RESISTANCE	5500	45-55 $\Omega$
	6500	50-60 $\Omega$

If the specified resistance is obtained at the slip rings, but not at the brush terminals, clean or replace the brushes.

If the specified resistance is not obtained at the slip rings, clean or replace the rotor.

# SECTION 4. DISASSEMBLY AND SERVICE



## MAIN WINDING

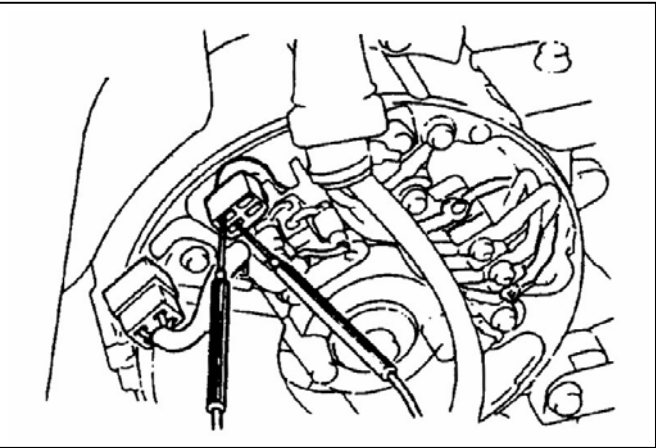
Using an ohmmeter, measure the resistance between the AC output terminals.

RESISTANCE	5500 ( I )	0.4-0.43 Ω
	5500 ( II )	0.4-0.43 Ω
	6500 ( I )	0.3-0.33 Ω
	6500 ( II )	0.3-0.33 Ω

### NOTE:

Set the voltage selector switch to 120 V only position.

If the resistance is zero or infinity, replace the stator.

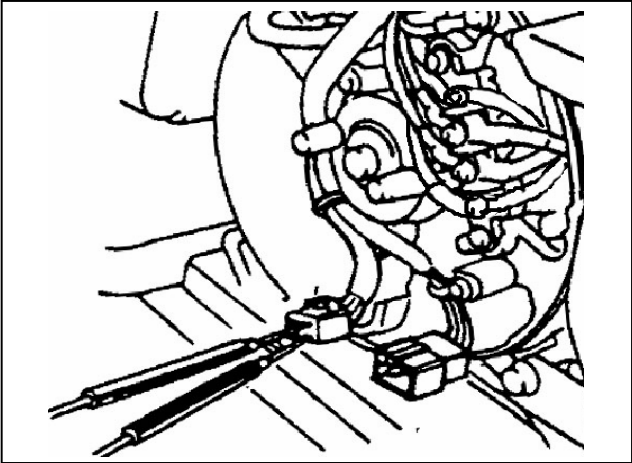


## EXCITER WINDING

Using an ohmmeter, measure the resistance between the Light green/ Red and Green wires in the 4P coupler.

RESISTANCE	5500	1.8-2.1 Ω
	6500	1.9-2.2 Ω
	Slip ring - Ground	∞

If the resistance is zero or infinity, replace the stator.



## DC WINDING

Using an ohmmeter, measure the resistance between the brown wire leads at the DC diode connector.

RESISTANCE	0.4-0.6 Ω
------------	-----------

If the resistance is out of specification, replace the stator.

## SECTION 4. DISASSEMBLY AND SERVICE

---

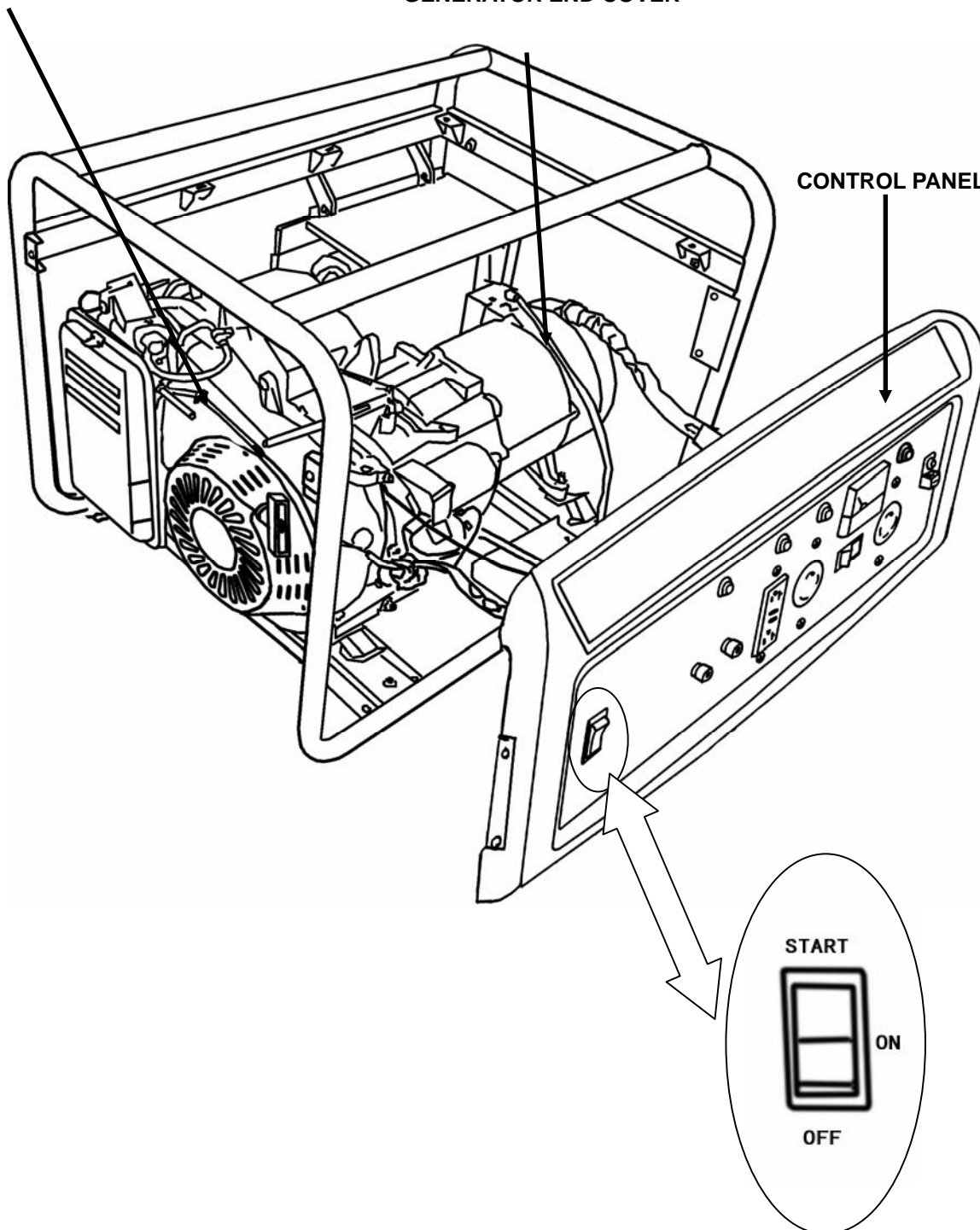
### 4-5-4 Control Panel

#### a. DISASSEMBLY/ REASSEMBLY

FUEL CUT-OFF SOLENOID LEAD  
(Green & Green/ White)

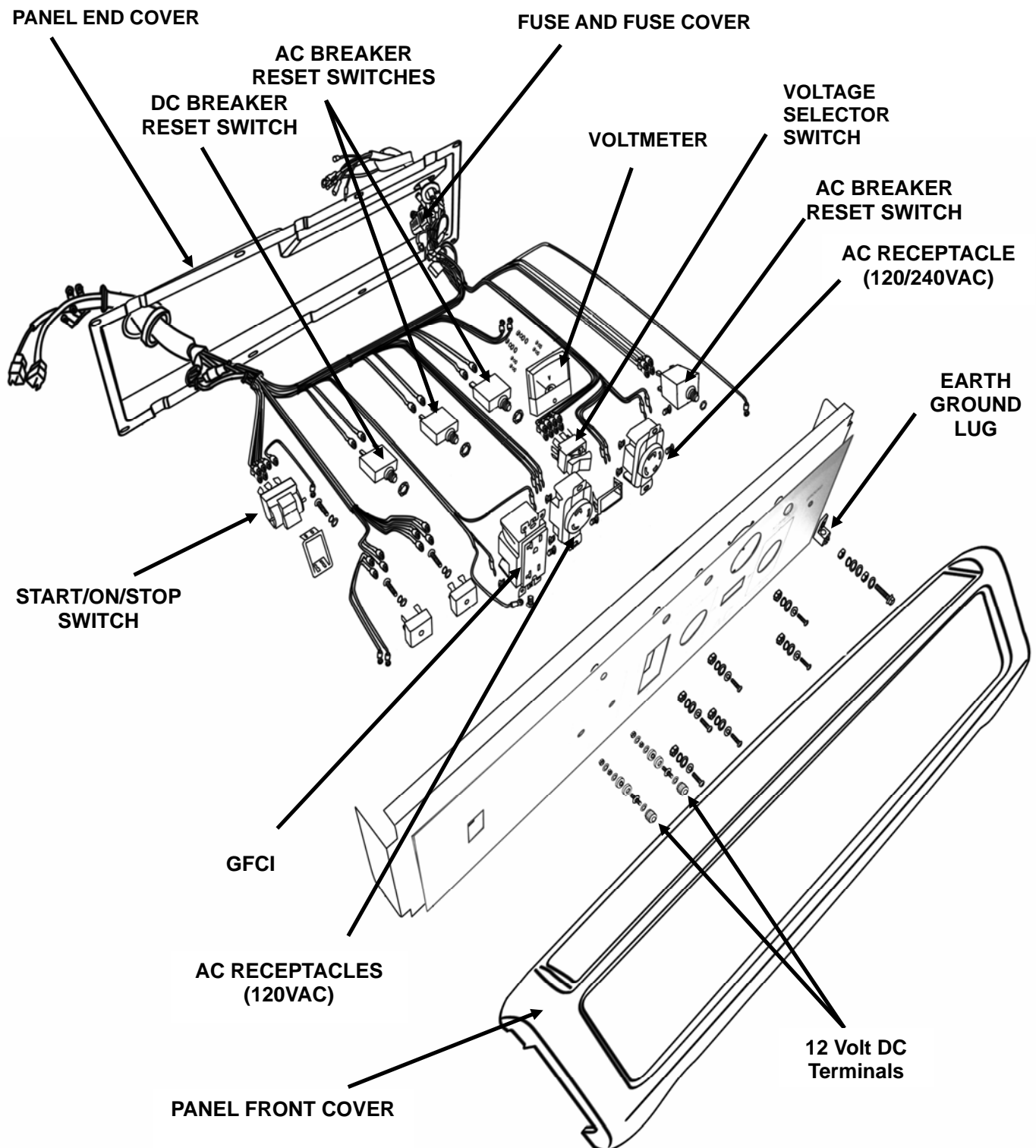
GENERATOR END COVER

CONTROL PANEL

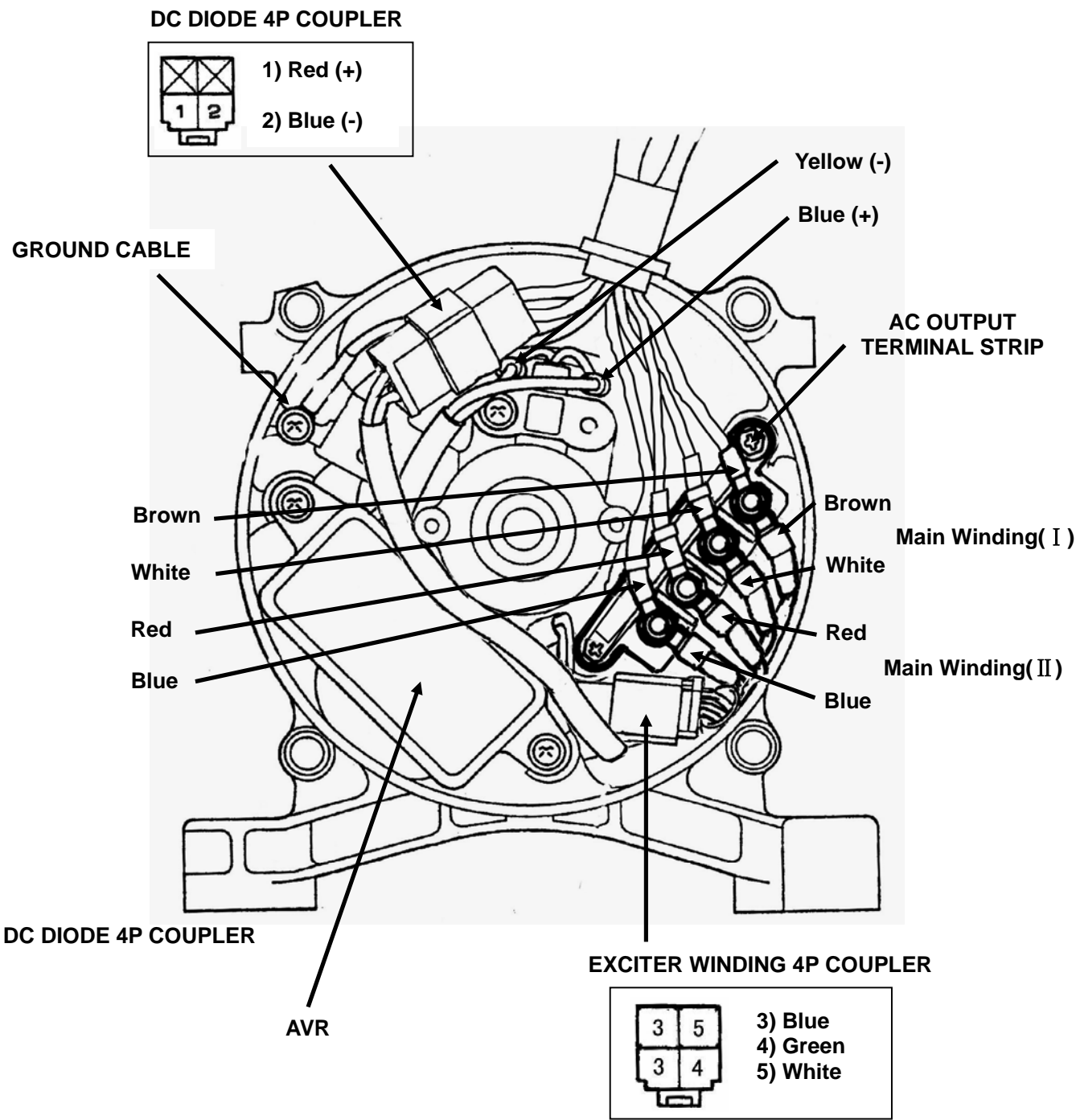


## SECTION 4. DISASSEMBLY AND SERVICE

---



# SECTION 4. DISASSEMBLY AND SERVICE

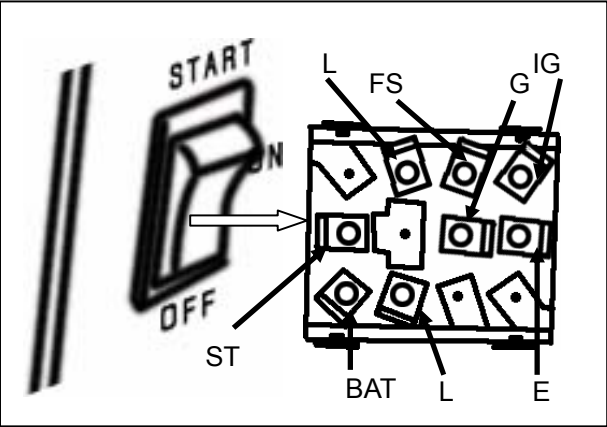


# SECTION 4. DISASSEMBLY AND SERVICE

## b. INSPECTION

### ENGINE SWITCH

Check for continuity between the terminals with the switch in each position.

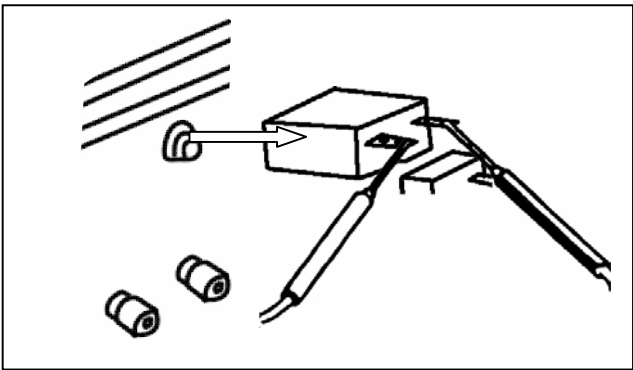


Wire	Yellow/Black	Black	Green/White	Green/White
	IG	E	FS	G
Position				
OFF	● — ●		● — ●	
ON				
START				
Wire	Black/White	Red	Red	White
	ST	BAT	L	L
Position				
OFF				
ON			● — ●	
START	● — ●			

When switch to “OFF” position, IG is connecting to E and FS is connecting to G. When switch to “ON” position, L is connecting to L and when switch to “START” position, St is connecting BAT.

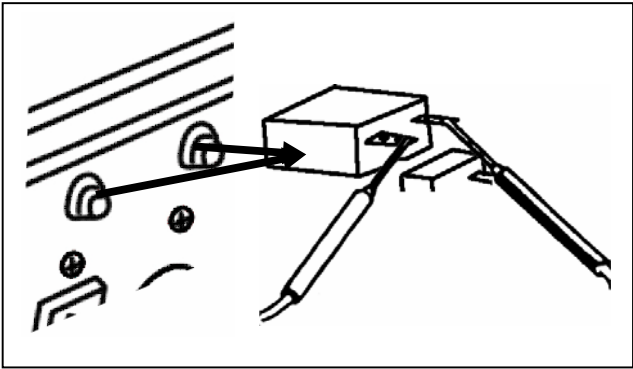
### DC BREAKER RESET SWITCH

Check continuity between the breaker terminals.  
There should be continuity with the breaker button pushed in.



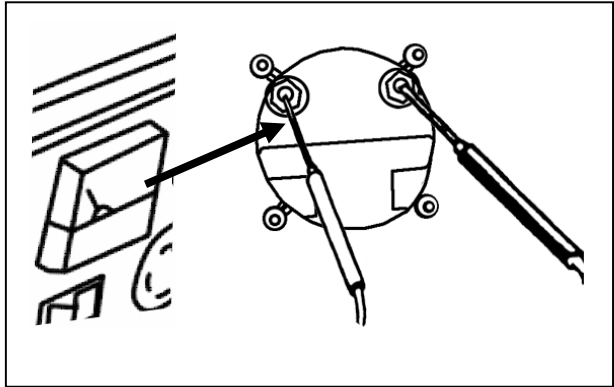
### AC BREAKER RESET SWITCHES

Check continuity between the breaker terminals.  
There should be continuity with the breaker button pushed in.



### VOLTMETER

Using an ohmmeter, check for continuity between the terminals.  
Continuity should exist between them.



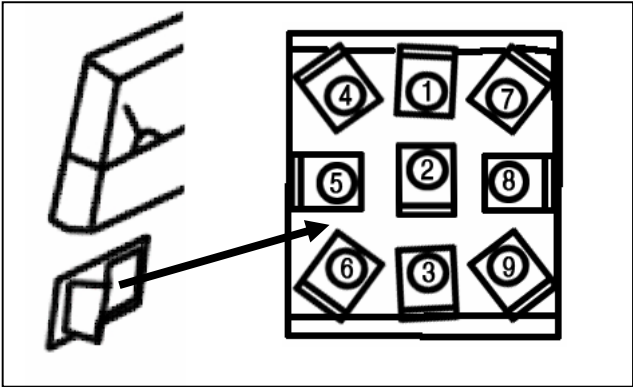
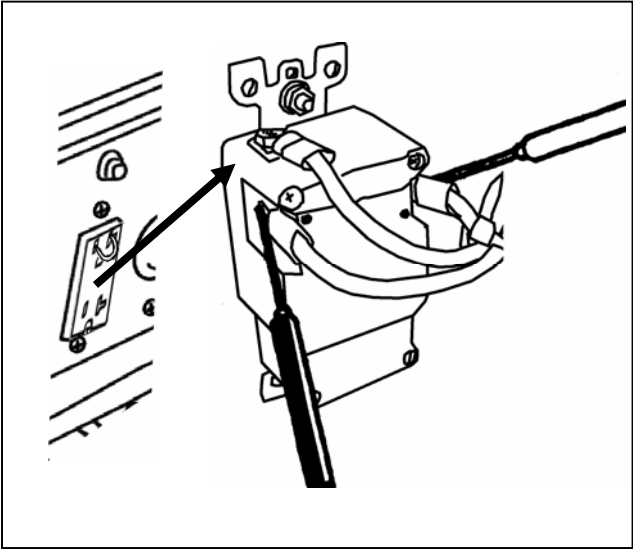
# SECTION 4. DISASSEMBLY AND SERVICE

## AC RECEPTACLE

Connect the terminals of the receptacles with a piece of wire.

Using an ohmmeter, check for continuity between the terminals.

If there is no continuity, the receptacle is defective, and must be replaced.



120 V

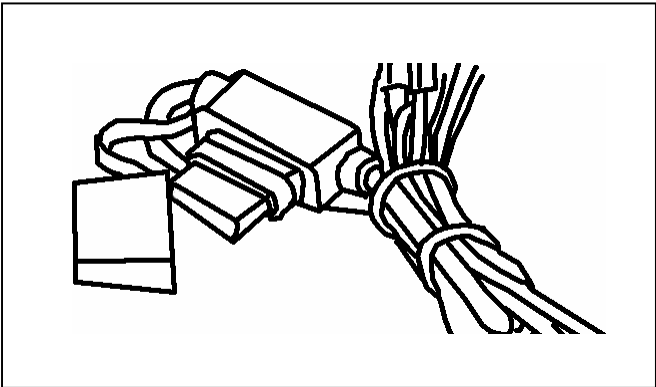
④	● — ●	①	⑦
⑤	● — ●	②	⑧
⑥	● — ●	③	⑨

240 V

④	① ● — ● ⑦
⑤	② ● — ● ⑧
⑥	③ ● — ● ⑨

## FUSE

There should be continuity between the terminals.



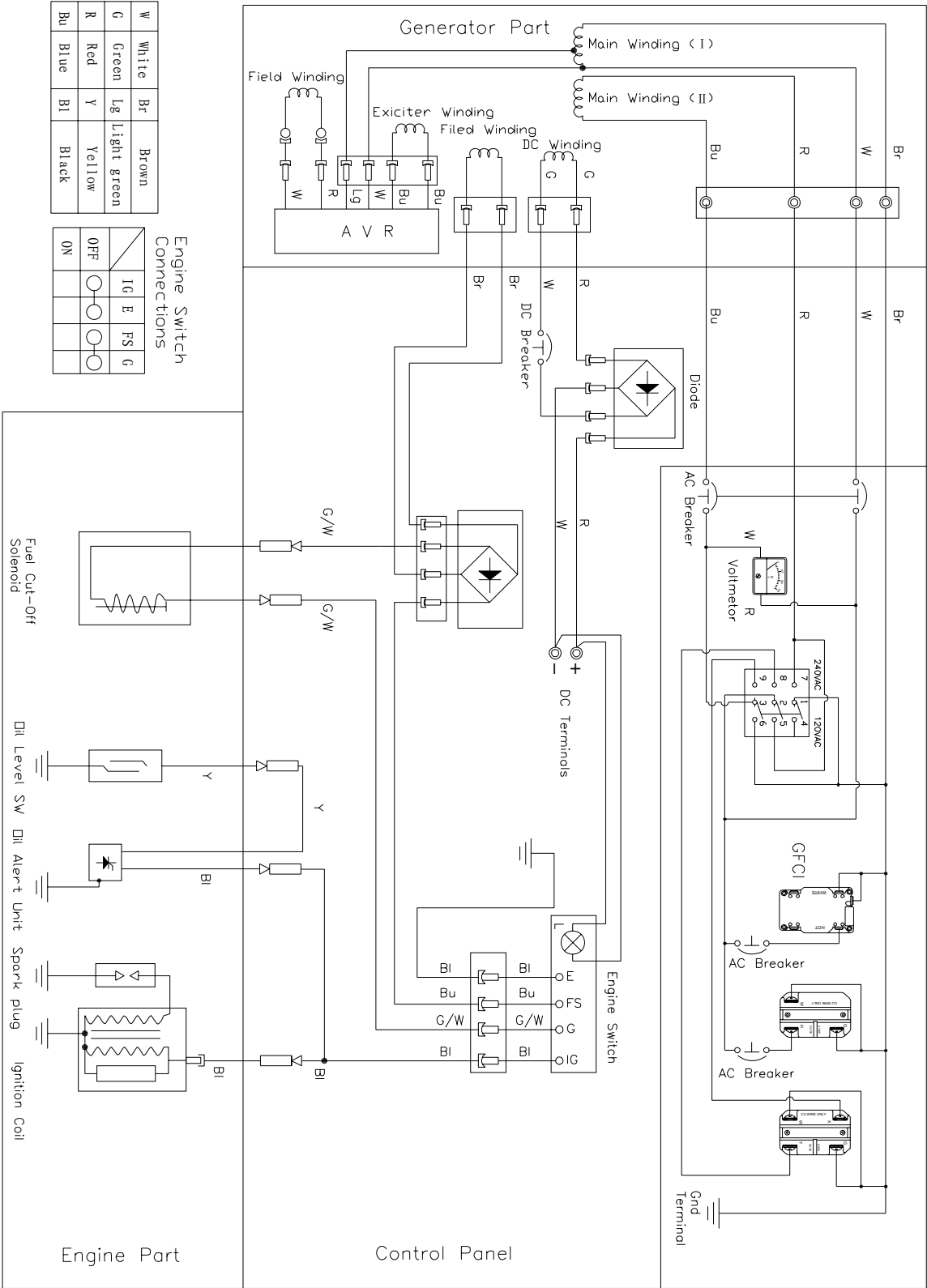
## VOLTAGE SELECTOR SWITCH

Using an ohmmeter, check for continuity between the pins as shown, with the switch wires unplugged.

When voltage selector switch to “120” position, ④ is connecting to ①, ⑤ is connecting to ② and ⑥ is connecting to ③, When voltage selector switch to “240” position, ① is connecting to ⑦, ② is connecting ⑧ and ③ is connecting to ⑨.

# SECTION 5. WIRING DIAGRAMS

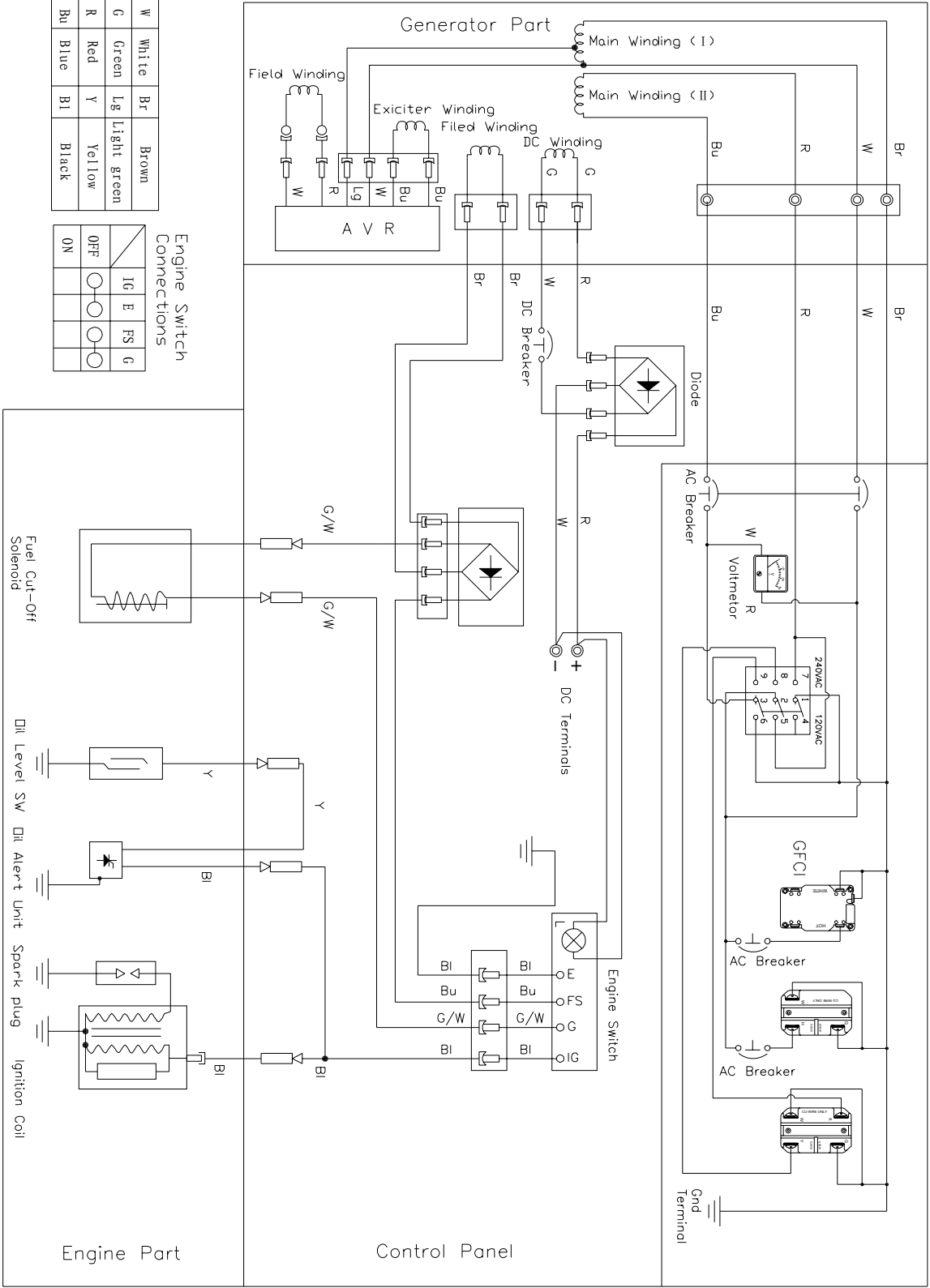
5-1 The Wiring Diagram of 5500





# SECTION 5. WIRING DIAGRAMS

5-2 The Wiring Diagram of 6500





Cummins Power Generation  
1400 73rd Avenue N.E.  
Minneapolis, MN 55432  
763-574-5000  
Fax: 763-528-7229

Cummins and Onan are registered trademarks of Cummins Inc.

