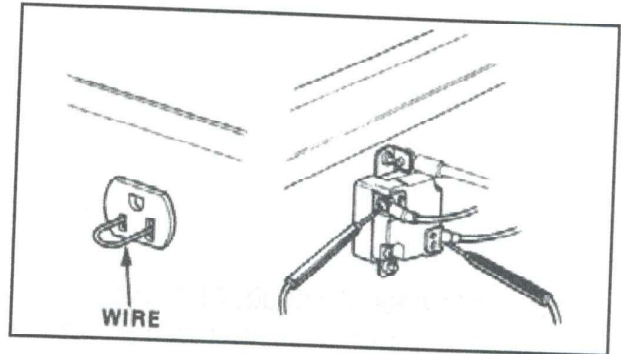


5. CONTROL PANEL INSPECTION

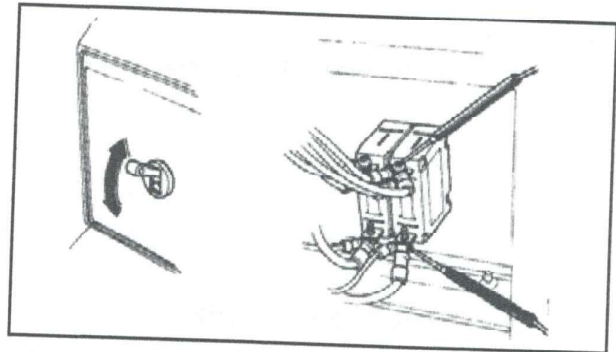
AC RECEPTACLE

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.



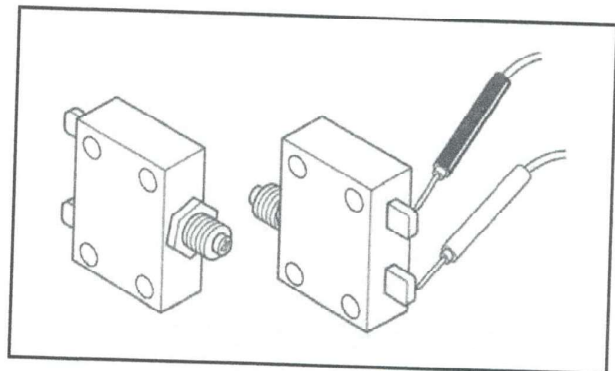
AC CIRCUIT BREAKER

Check for continuity between the terminals. There should be continuity with the breaker switch ON.



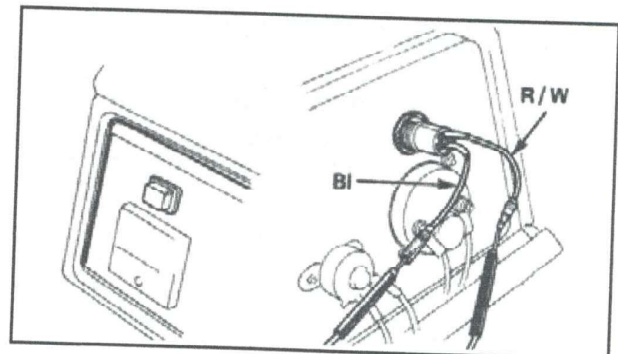
AC CIRCUIT PROTECTOR (EX5500K2/ES6500K2)

Check for continuity between the terminals. There should be continuity between the terminals with the circuit protector in the ON position.



PILOT LAMP

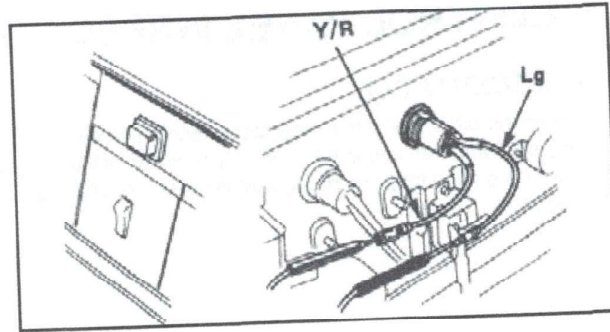
Continuity should exist between the black and red/white wire leads.



DISASSEMBLY AND SERVICE

OIL LAMP

Continuity should exist between the light green and yellow/red wire leads.

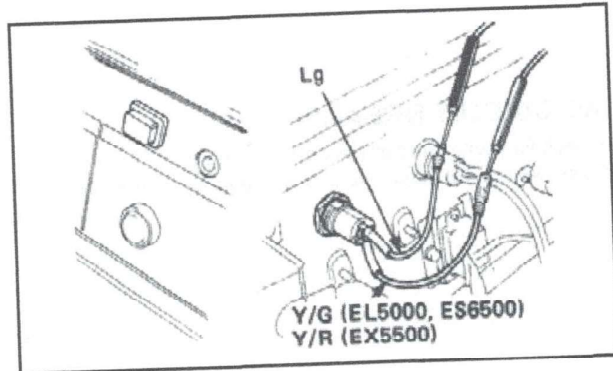


COOLANT LAMP (EL5000, ES6500)

Continuity should exist between the light green and yellow/green wire leads.

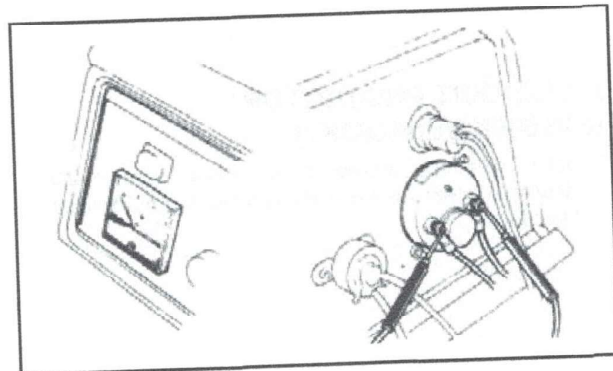
(EX5500)

Continuity should exist between the light green and yellow/red wire leads.



VOLTMETER (EX5500 ONLY)

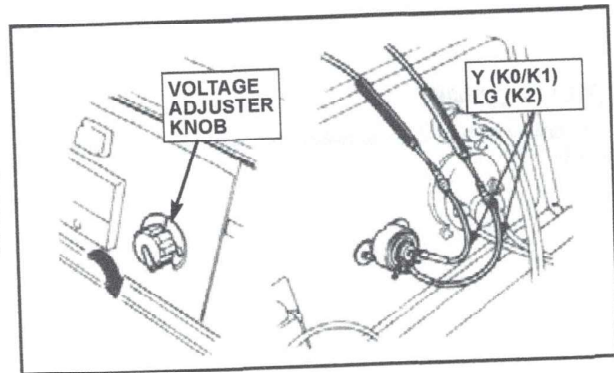
Using an ohmmeter, check for continuity between the terminals. Continuity should exist between them.



VOLTAGE ADJUSTER (VARIABLE RESISTOR) (EX5500 ONLY)

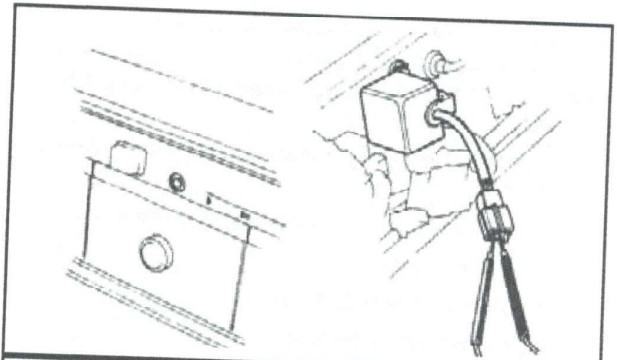
Turn the variable resistor fully clockwise and check for continuity between the wire leads.

Standard	400 Ω (EX5500K0/K1)
	300 Ω (EX5500K2)



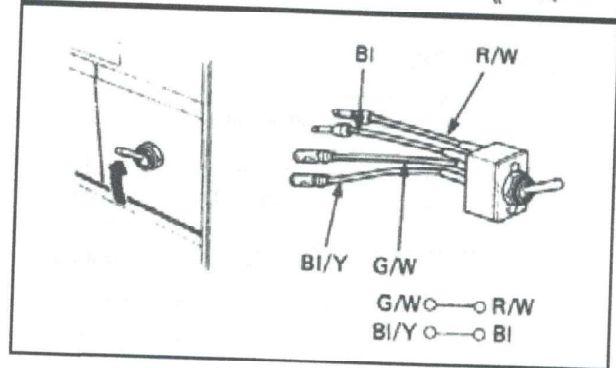
RESET SWITCH

Check for continuity between the terminals. There should be continuity with the reset switch ON.



ENGINE SWITCH (EL5000)

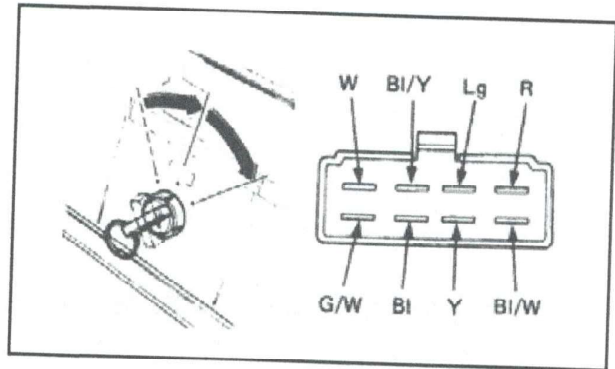
Check for continuity between the wires. There should be continuity with the switch OFF, and no continuity when switched ON.



(EX5500, ES6500)

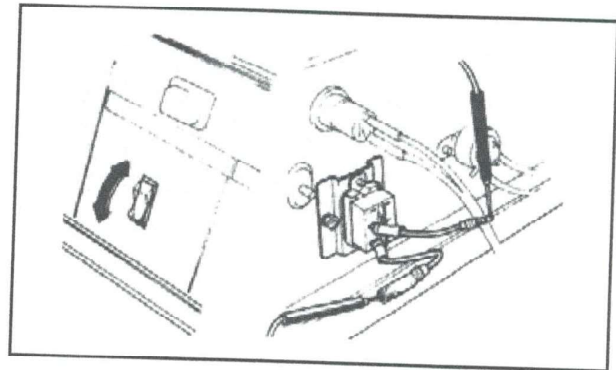
Check for continuity between the terminals with the switch in each position.

Position	WIRE COLOR							
	BI/Y	BI	W	BI/W	Lg	Y	R	G/W
OFF	○	○					○	○
ON			○		○			
START			○	○	○	○		



AUTO THROTTLE SWITCH

Switch is normal if there is continuity between the terminals with the switch in AUTO.



DISASSEMBLY AND SERVICE

AUTO THROTTLE CONTROL UNIT

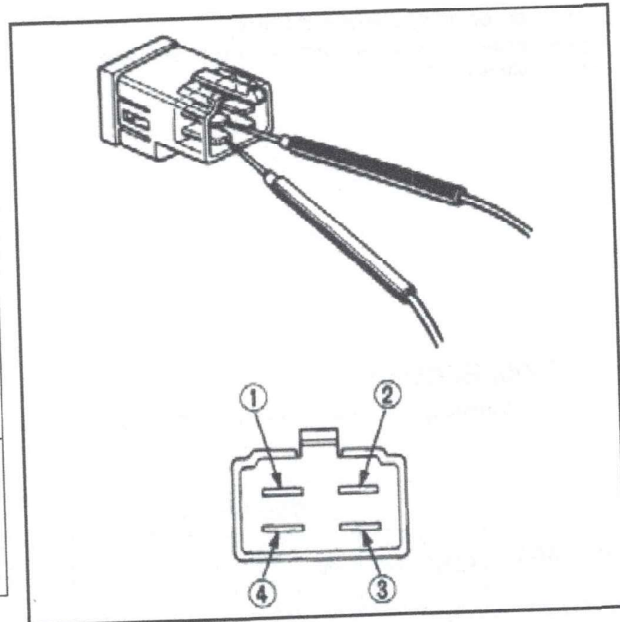
Replace the control unit if the following components have been checked, and the Auto Throttle system still does not function properly.

- AC output wires routed through the control unit from opposite directions
- Sub winding (P. 4-51)-electrical source of the unit
- Auto Throttle switch
- Diaphragm assembly (P. 4-40)
- Vacuum lines (check for leaks)

DIODE STACK

In the diode stack, there are two diodes for protection from reverse current and a diode bridge for rectifying current from the charge coil. If one of them is defective, replace the diode stack. Check the continuity at each terminal according to the chart below.

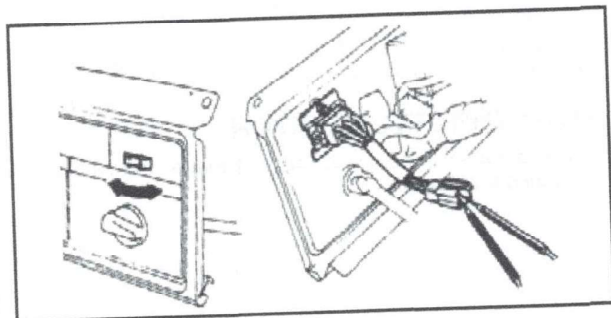
Ohmmeter probes		Continuity
+	-	
①	②	Yes
④	①	
③	②	
④	③	
②	①	No
①	④	
②	③	
③	④	



REMOTE CONTROL SWITCH (EX5500 ONLY)

Switch is normal if there is continuity between the terminals shown with the switch in each position.

Position	Wire color					
	BI	G	G/W	W/BI	W	W/G
OFF		○ — ○			○ — ○	
ON	○ — ○			○ — ○		

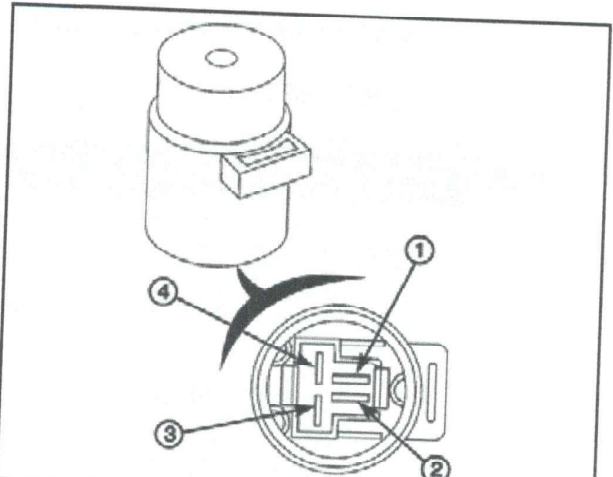


RELAY (EX5500 ONLY)

Check continuity across terminals ① and ②. There should be continuity.

Connect a 12-volt battery across terminals ③ and ④. Check continuity across terminals ① and ②. There should be no continuity.

Replace the relay if the above results are not obtained.

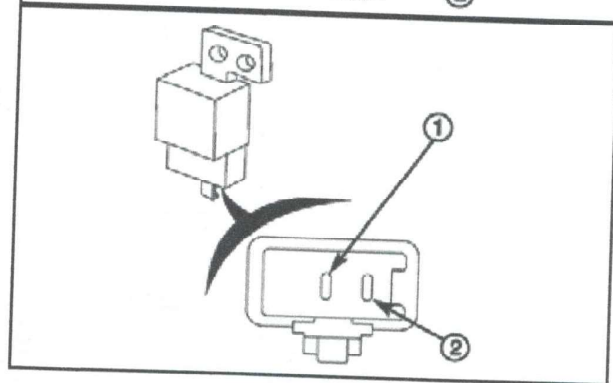


FUSE UNIT (EX5500 AND ES6500 ONLY)

Check resistance across terminals ① and ②.

Resistance	1.8 ~ 2.4 Ω
------------	-------------

Replace the fuse unit if the resistance is out of specification.

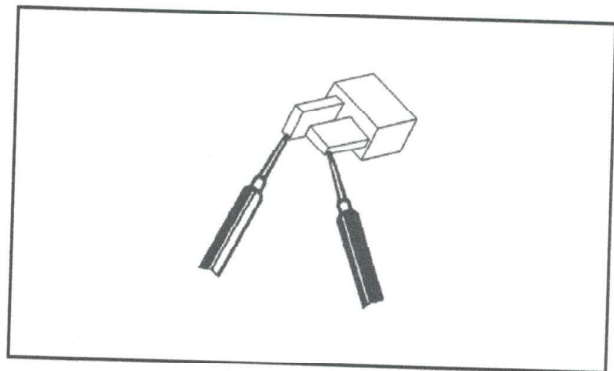


SILICON RECTIFIER (EX5500K1/K2, ES6500K2)

Using an ohmmeter, check continuity between the two terminals.

Reverse the test leads, and check continuity again.

The silicon rectifier is good if there is continuity one way and not the other.



6. RADIATOR/RIGHT SIDE COVER/BATTERY (EX5500)

DISASSEMBLY/REASSEMBLY

CAUTION

Never remove the radiator cap when the engine is hot. The coolant is under pressure and severe scalding could result.

- Drain the coolant (see [page 3-3](#)).
- Place the unit on a blanket or rubber mat to prevent damage to the parts.

SEPARATOR RUBBER SEAL B

REASSEMBLY:
Install with flat side against the cover.

RIGHT SIDE COVER

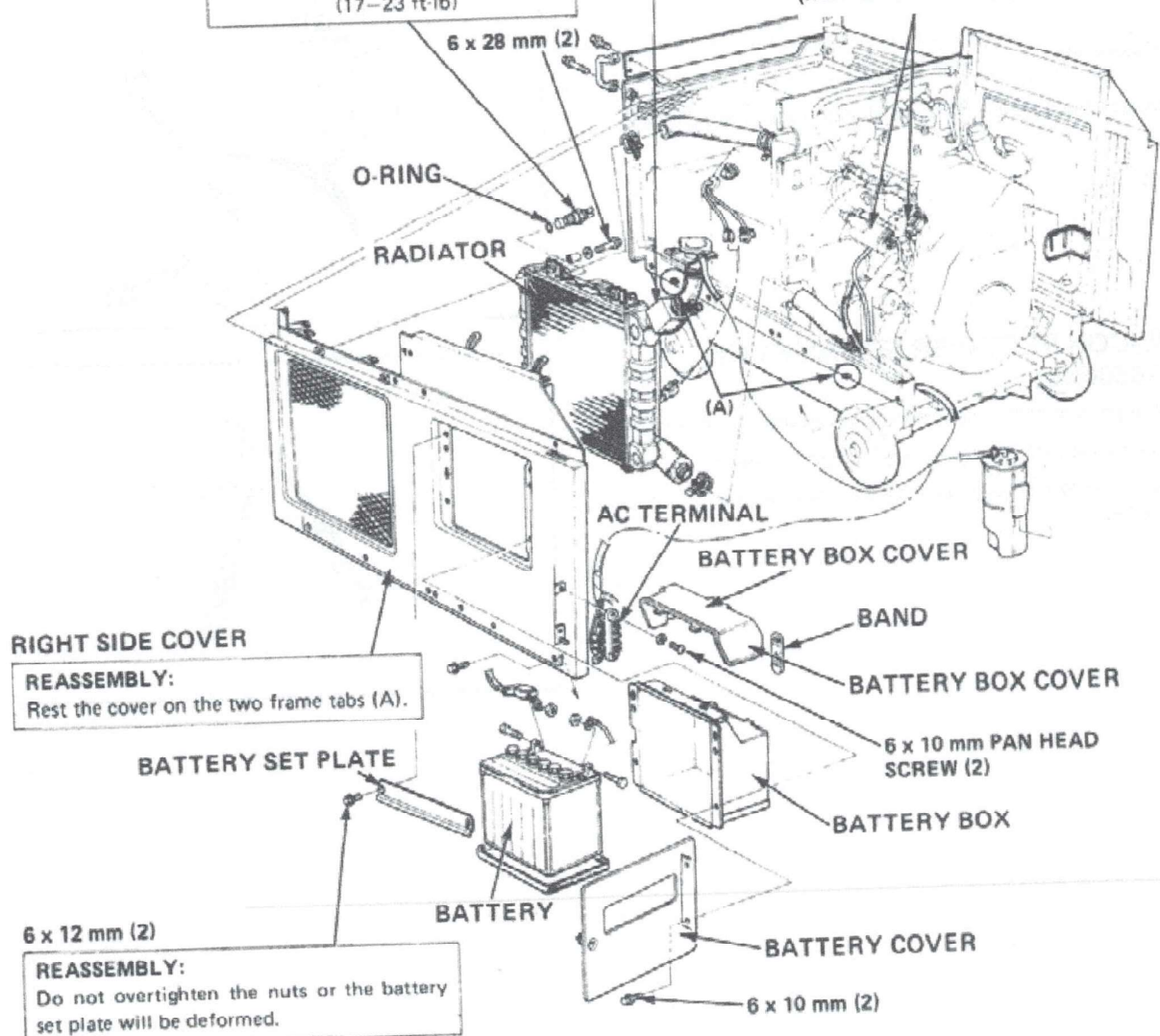
RUBBER SEAL B

THERMOSWITCH

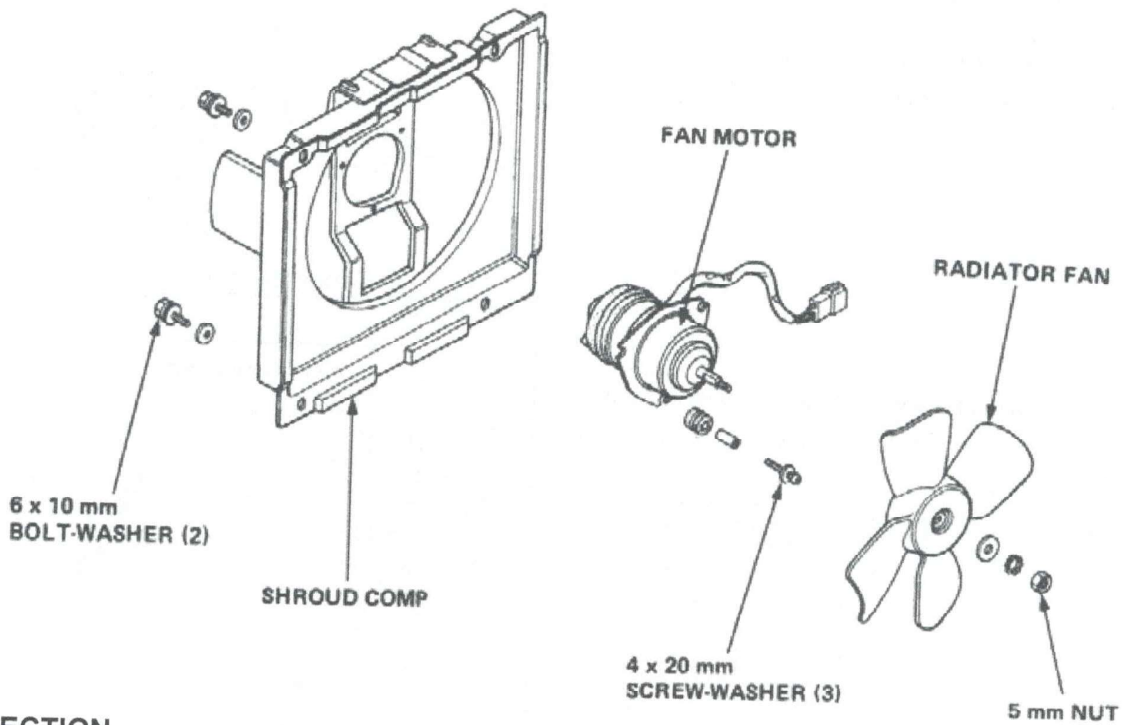
REASSEMBLY:

- Do not forget to install the O-ring.
- Torque: 240–320 kg-cm (17–23 ft-lb)

C.D.I. UNIT & IGNITION COIL
(not used on K1/K2 models)



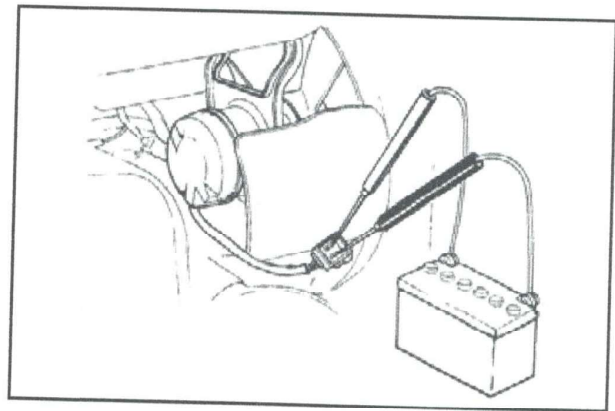
Radiator Fan/Fan Motor



INSPECTION

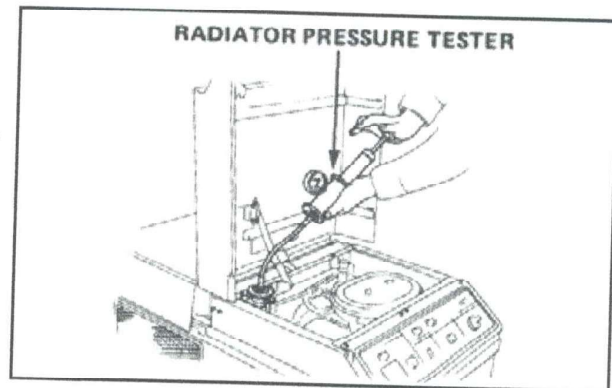
Fan Motor

Connect a fully charged 12V battery to the BLUE (+) and BLACK (-) leads. The motor is normal if it rotates.



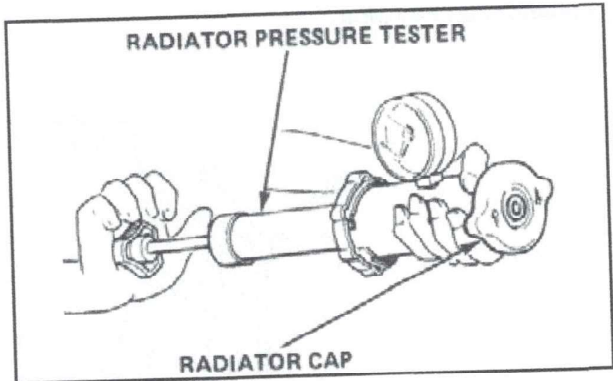
Radiator

1. Wait until the engine is cool, and then carefully remove the radiator cap and fill the radiator with coolant to the top of the filler neck.
2. Attach a pressure tester to the radiator and apply a pressure of 74-103 kPa (10.7-14.9 psi).
3. Inspect for coolant leaks and a drop in pressure.
4. Remove the tester and reinstall the pressure cap.



Radiator Cap

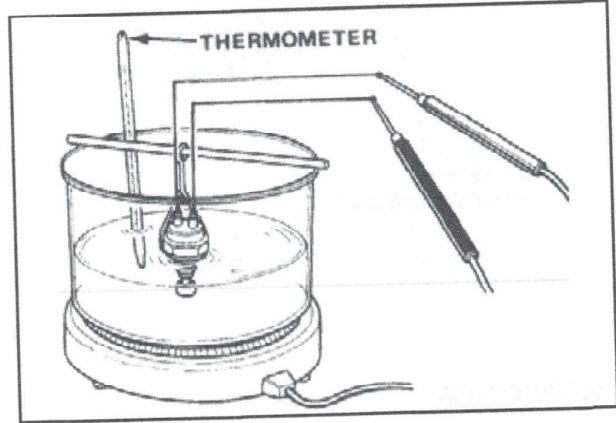
1. Remove the radiator cap, wet its seal with coolant, and install it on the pressure tester.
2. Apply a pressure of 74-103 kPa (10.7-14.9 psi).
3. Check for a drop in pressure.



Thermoswitch

1. Connect the lead wires and immerse the thermoswitch in oil.
2. Heat the oil and measure the oil temperature when continuity occurs.

Temperature for continuity	103 ~ 107°C (217 ~ 225°F)
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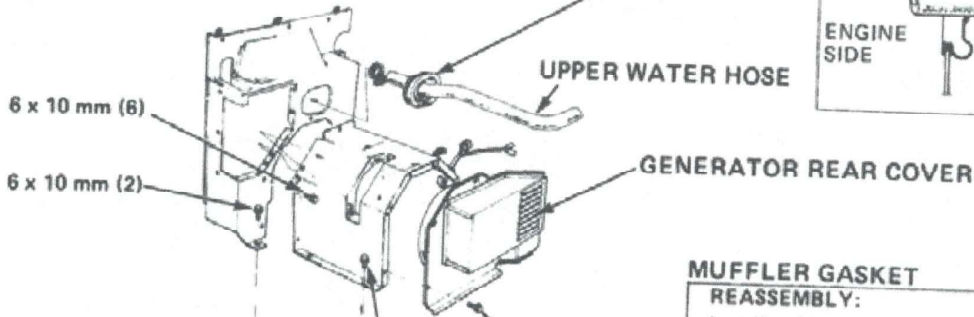
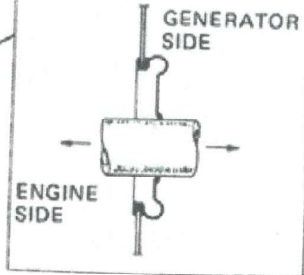
7. LEFT SIDE COVER/REAR COVER/MUFFLER (EX5500)

DISASSEMBLY/REASSEMBLY

Place the unit on a blanket or rubber mat to prevent damage to the parts.

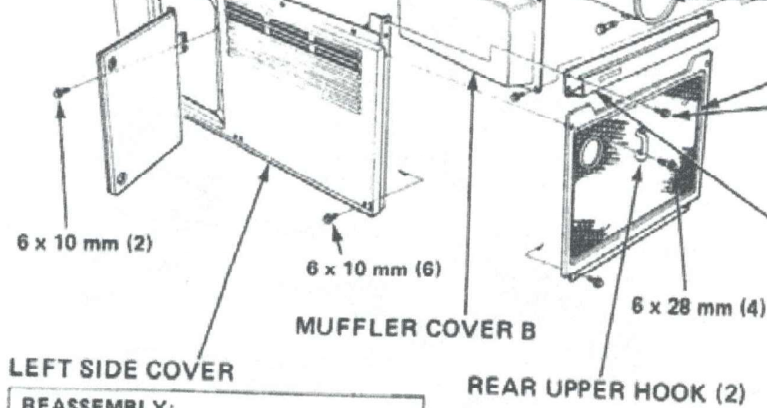
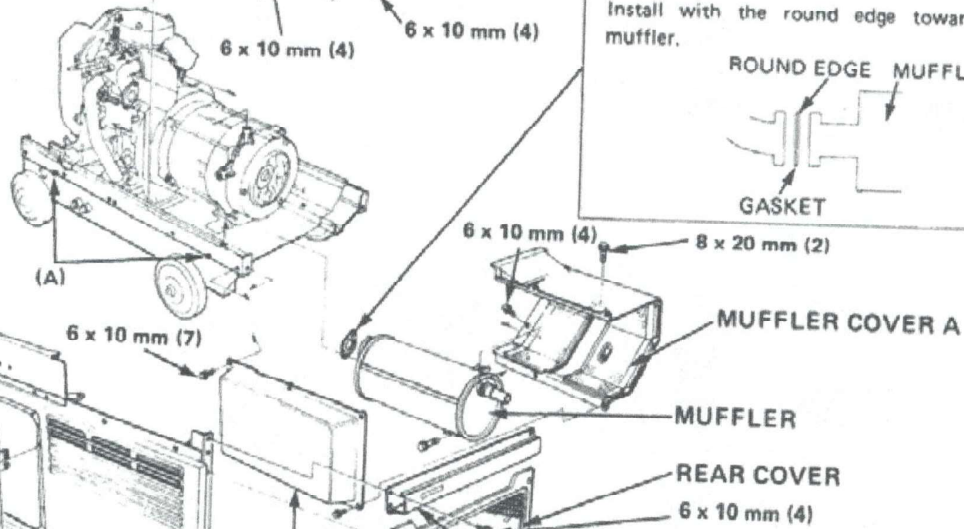
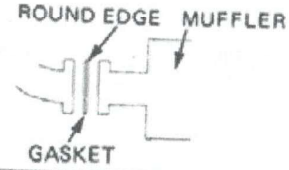
WATER HOSE GROMMET

REASSEMBLY:
Note installation direction.



MUFFLER GASKET

REASSEMBLY:
Install with the round edge toward the muffler.

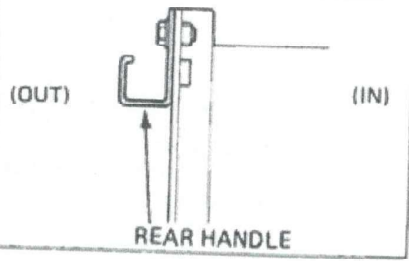


LEFT SIDE COVER

REASSEMBLY:
Rest the cover on the two frame tabs (A).

REAR HANDLE

REASSEMBLY:
Install with the "L" end on the outside.



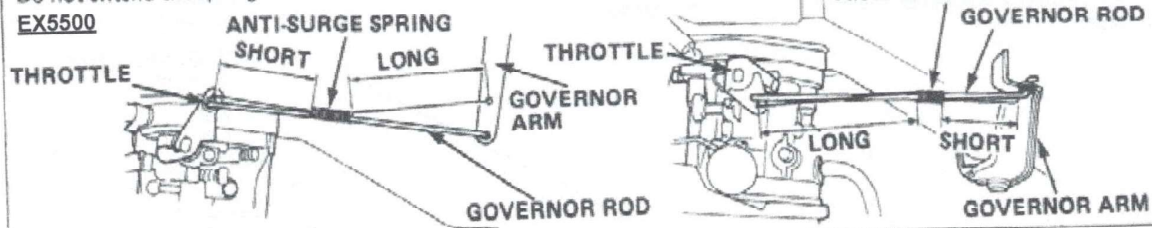
8. CARBURETOR REMOVAL/INSTALLATION (EX5500)

ANTI-SURGE SPRING

DISASSEMBLY:

Do not extend the spring more than necessary to prevent loss of tension.

EX5500



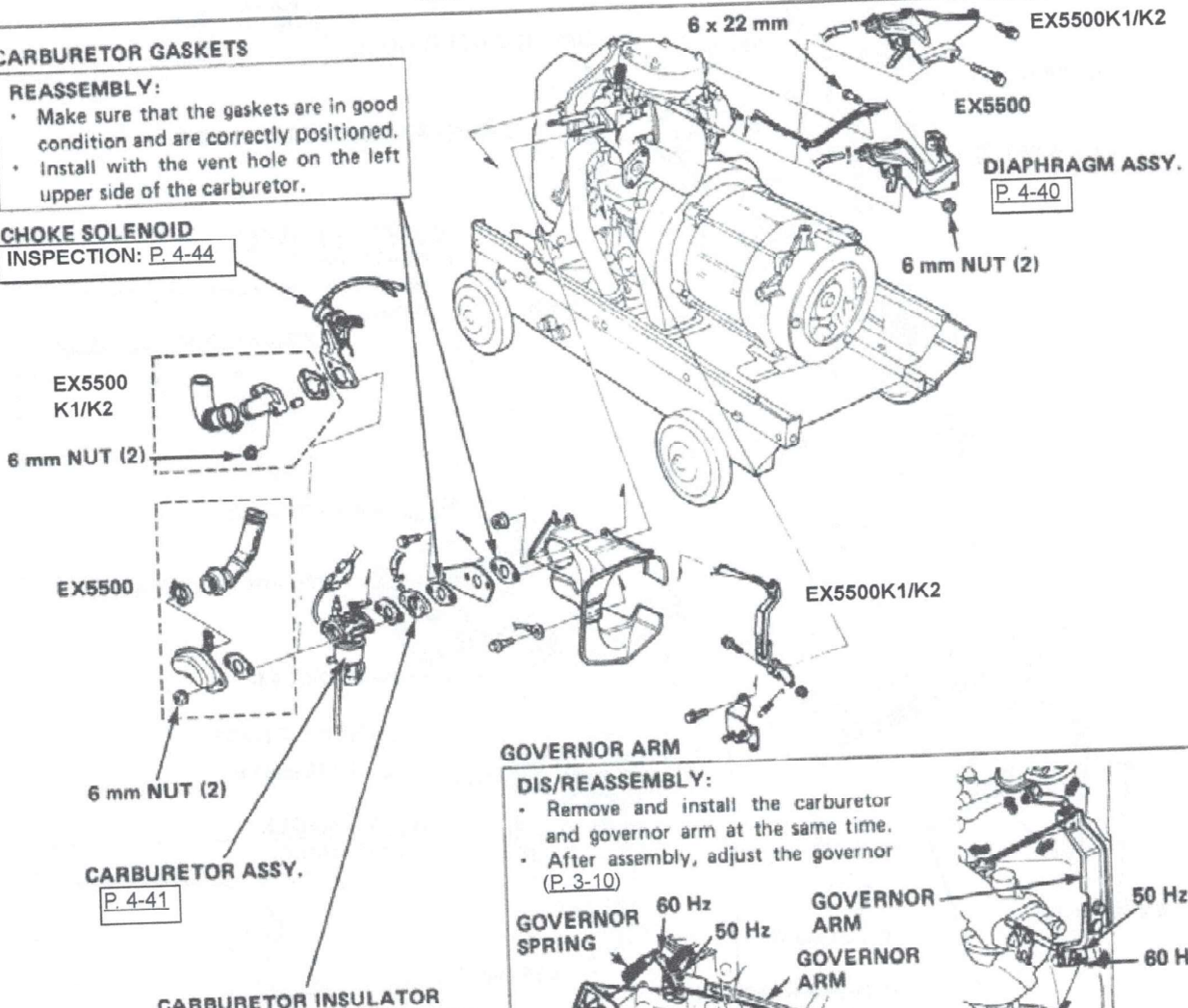
CARBURETOR GASKETS

REASSEMBLY:

- Make sure that the gaskets are in good condition and are correctly positioned.
- Install with the vent hole on the left upper side of the carburetor.

CHOKE SOLENOID

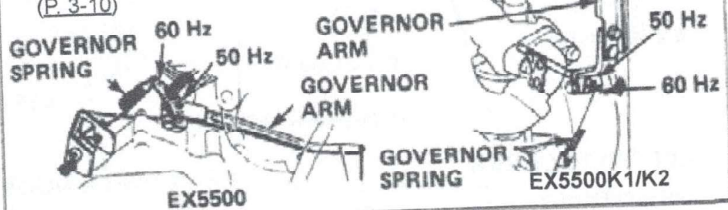
INSPECTION: P. 4-44



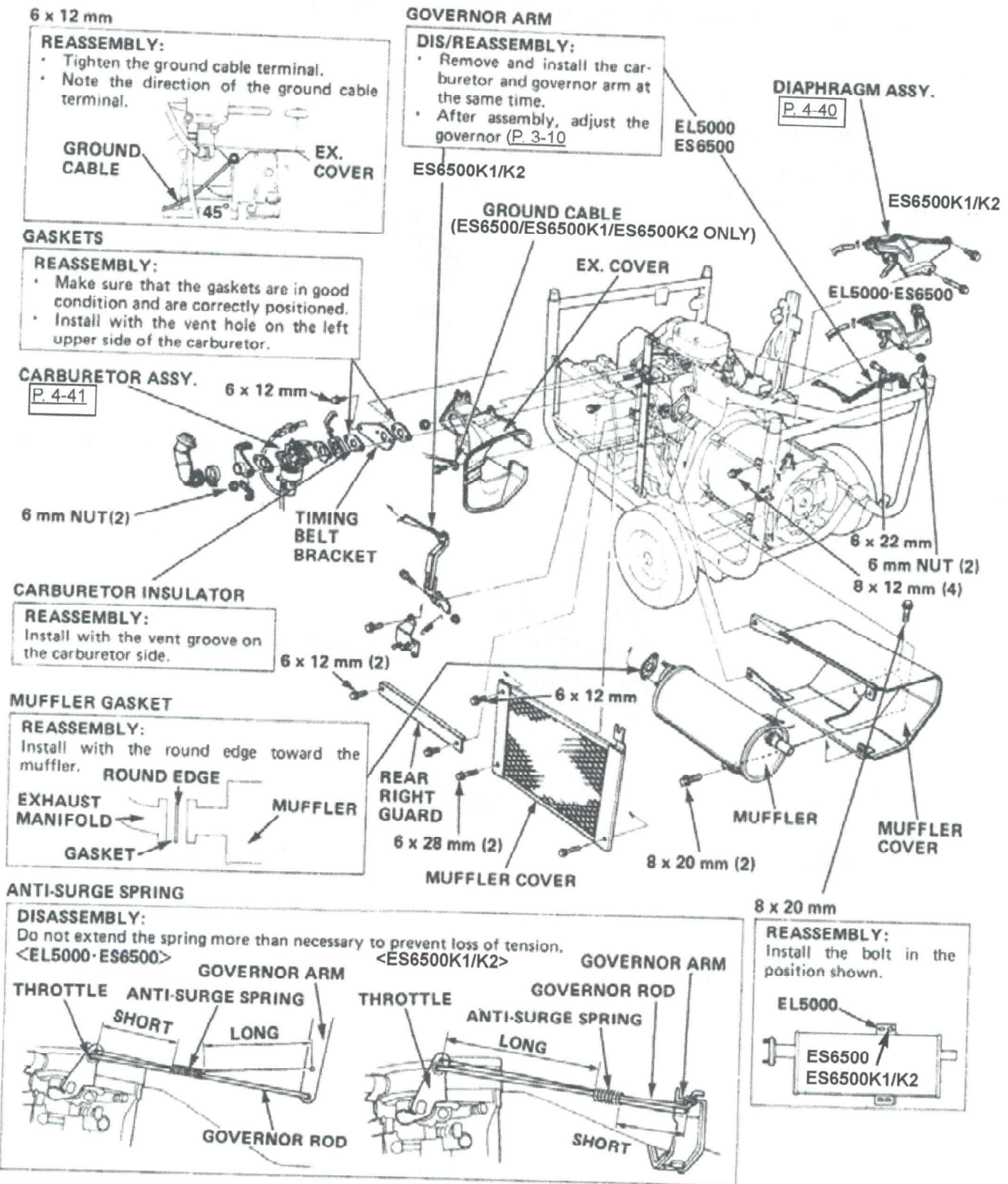
GOVERNOR ARM

DIS/REASSEMBLY:

- Remove and install the carburetor and governor arm at the same time.
- After assembly, adjust the governor (P. 3-10)



9. CARBURETOR REMOVAL/INSTALLATION (EL5000•ES6500)



10. CARBURETOR DISASSEMBLY

IDLE CONTROL DIAPHRAGM (ALL EL5000•EX5500•ES6500)

DIAPHRAGM

REASSEMBLY:

- Check for damage or stiffness and replace if necessary.
- After assembly, check diaphragm operation by applying suction to the vacuum line fitting.

DIAPHRAGM COVER

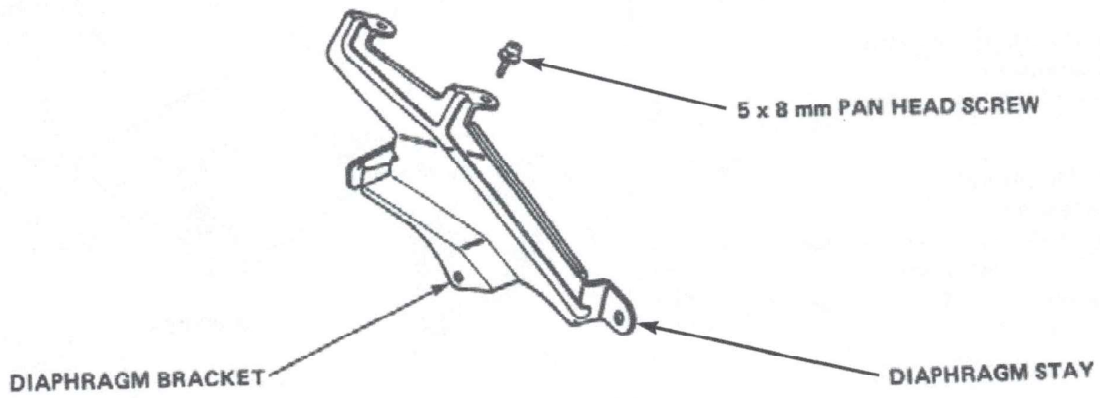
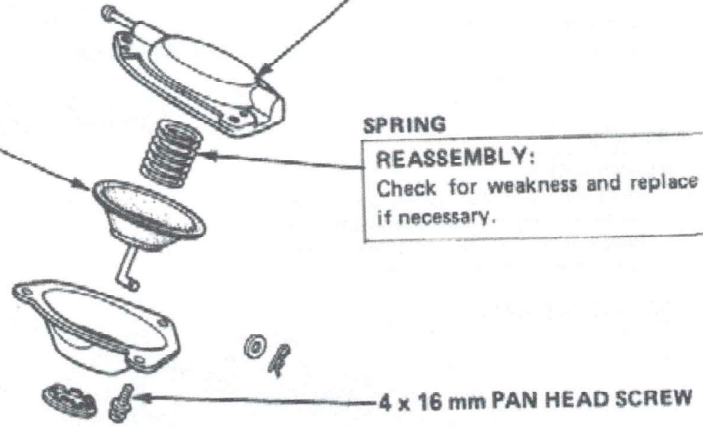
REASSEMBLY:

Note installation direction.

SPRING

REASSEMBLY:

Check for weakness and replace if necessary.



CARBURETOR (EL5000•EX5500•ES6500)

5 x 10 PAN HEAD SCREW

REASSEMBLY:
Push in the choke cable knob fully, then tighten with the choke lever in the fully open position.

5 x 10
4 x 8
CHOKE CABLE

NOTICE
Tampering is a violation of federal and California law.

AIR INTAKE PIPE
6F NUT (2)
4 x 8 PAN HEAD SCREW
CABLE HOLDER

CARBURETOR BODY
REASSEMBLY:
Clean internal passages and orifices with compressed air before installing.

MAIN NOZZLE
REASSEMBLY:
Clean thoroughly with compressed air before installing.

MAIN JET
REASSEMBLY:
Clean thoroughly with compressed air before installing.

Standard	EX5500 #95
	EL5000•ES6500 #102

FLOAT VALVE
REASSEMBLY:
Check for worn valve or weak spring. Replace if necessary. Set the valve on the float arm properly as shown.

FLOAT
REASSEMBLY:
Check for smooth movement after installation.

GASKET
REASSEMBLY:
Make sure the gasket is in place before installing the float chamber.

SET BOLT
REASSEMBLY:
After assembly, check for any sign of fuel leakage.

FUEL TUBE (3.5 x 320)
DRAIN SCREW
REASSEMBLY:
Clean thoroughly with compressed air and check for leaks after installation.

FUEL CUT SOLENOID VALVE
5 x 12 SCREW-WASHER (2)

CARBURETOR (EX5500K1•ES6500K1)

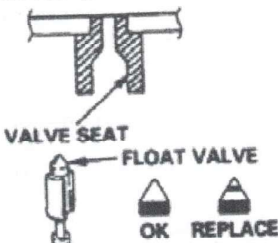
WARNING
 Fuel vapor or spilled fuel may ignite. Remove the drain screw and drain the carburetor before disassembling.

NOTE
 - Clean the outside of the carburetor before disassembly.
 - The limiter cap is cemented on the pilot screw and should not be removed unless the carburetor is overhauled.

PILOT JET
REASSEMBLY:
 - Clean thoroughly with compressed air before installation.
 - Lightly lubricate the O-ring to ensure easy installation into carburetor body.



FLOAT VALVE
REASSEMBLY:
 Check for worn float valve seat, float valve or weak spring before installation.



THROTTLE STOP SCREW
 ADJUSTMENT: P. 4-46

PILOT SCREW
 REPLACEMENT: P. 4-46

LIMITER CAP
 REPLACEMENT: P. 4-46

NOTICE
 Tampering is a violation of federal and California law.

FLOAT
REASSEMBLY:
 Check for smooth movement after installation.

MAIN NOZZLE
REASSEMBLY:
 Clean thoroughly with compressed air before installation.

MAIN JET
 EX5500K1: #95
 ES6500K1: #92
REASSEMBLY:
 Clean thoroughly with compressed air before installing.



FLOAT CHAMBER

DRAIN SCREW
DISASSEMBLY:
 After assembly, check for any sign of fuel leakage.

SET BOLT
DISASSEMBLY:
 After assembly, check for any sign of fuel leakage.

FUEL CUT SOLENOID VALVE (EX5500 K1 ONLY)
 INSPECTION: P. 4-44

5 x 12 mm SCREW-WASHER (2)

CARBURETOR (EX5500K2•ES6500K2)

Clean the outside of the carburetor body before disassembly.
The limiter cap is cemented on the pilot screw and should not be removed unless the carburetor is overhauled.

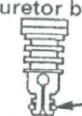
⚠ WARNING

Fuel vapor or spilled fuel may ignite. Remove the drain screw and drain the carburetor before disassembling.

PILOT JET

REASSEMBLY:

- Clean thoroughly with compressed air before installation.
- Lightly lubricate the O-ring to ensure easy installation into carburetor body.



O-RING

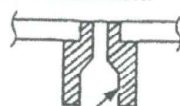
NOTICE

Tampering is a violation of federal and California law.


CARBURETOR BODY
CLEANING: P. 4-45

FLOAT VALVE

REASSEMBLY:
Check for worn float valve seat, float valve or weak spring before installation.

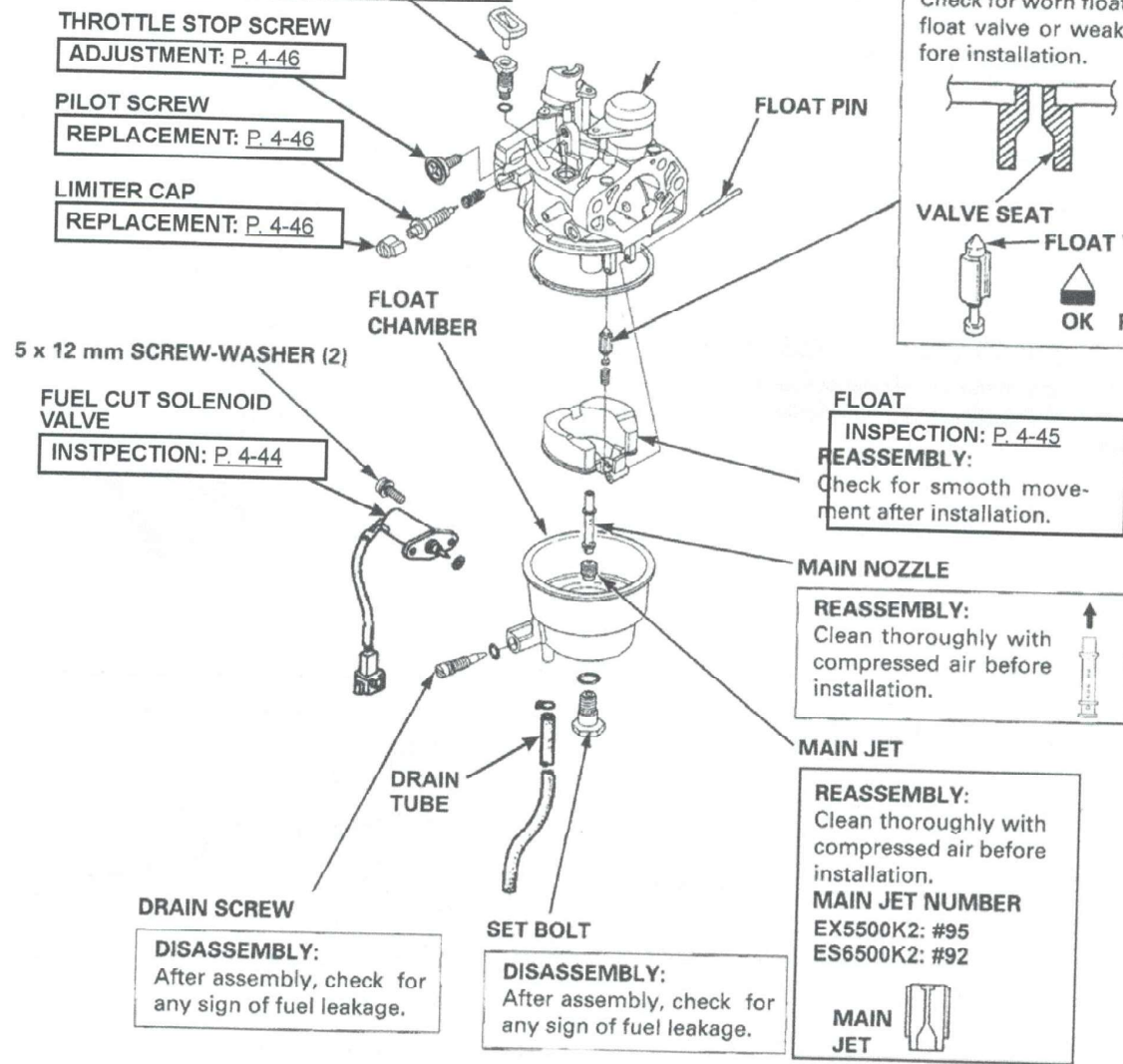


VALVE SEAT



FLOAT VALVE

OK REPLACE



CHOKE SYSTEM (EX5500 ONLY)

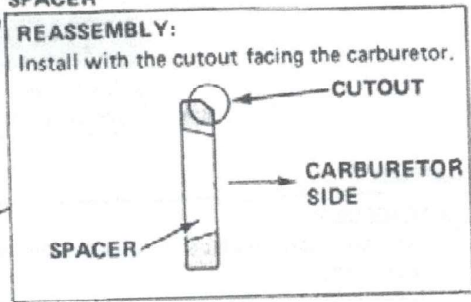
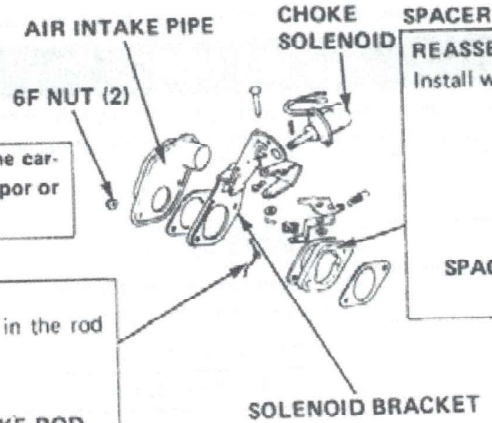
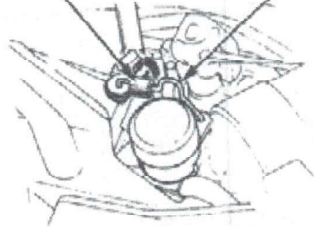
Loosen the drain screw and drain the carburetor before disassembling. Fuel vapor or spilled fuel may ignite.

CHOKE ROD

REASSEMBLY:

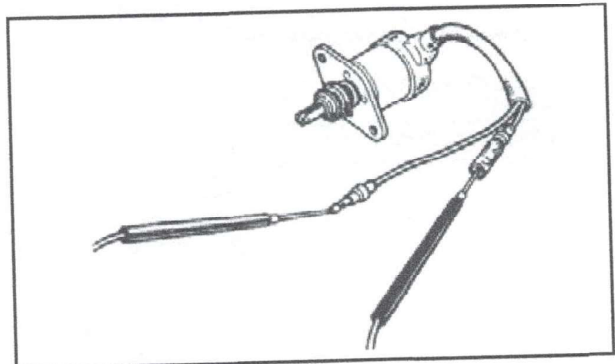
After installation, be sure to insert in the rod holder.

CHOKE ROD HOLDER CHOKE ROD



CHOKE SOLENOID VALVE (EX5500 ONLY)

Connect a 12V battery to the choke solenoid valve leads, and make sure that solenoid valve needle moves out. If not, replace with new valve.

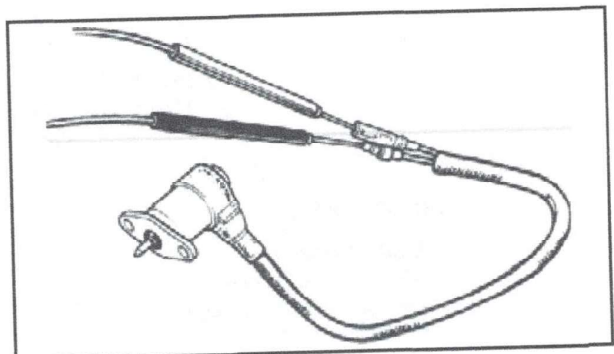


FUEL CUT SOLENOID VALVE (EX5500 ONLY)

Momentarily (less than 3 seconds) connect a 12V battery to the fuel cut solenoid valve leads, and check the operation.

EX5500 and EX5500K1	The solenoid valve needle moves out of the valve body.
EX5500K2	The solenoid valve needle retracts into the valve body.

If the operation is not as shown in the table, replace with a new valve.

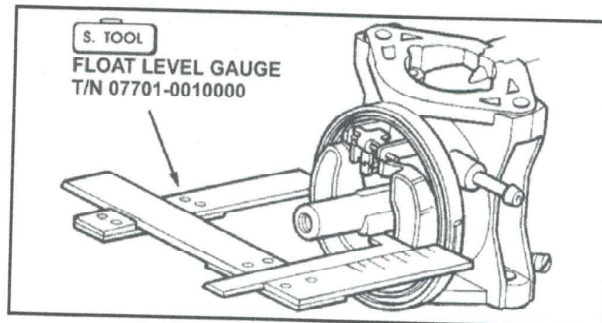


FLOAT HEIGHT INSPECTION

Place the carburetor in an upright position and measure the distance between the float top and carburetor body when the float just contacts the float valve.

Standard float height	13.2 mm (.52 in)
-----------------------	------------------

- Float height cannot be adjusted.
- If the height is out of specification, replace the float or float valve.



CLEANING

Use an aerosol carburetor cleaner with a discharge straw to clean/check carburetor passages. Always wear a face shield to protect against the spray mist being directed back toward you.

Some commercially available chemical carburetor cleaners are very caustic. These cleaners may damage parts such as O-rings, plastic floats, choke valves, and painted surfaces. Check the container for instructions. If you are in doubt, do not use these products to clean the carburetor.

High air pressure may damage the carburetor. Use low pressure settings when cleaning passages and ports.

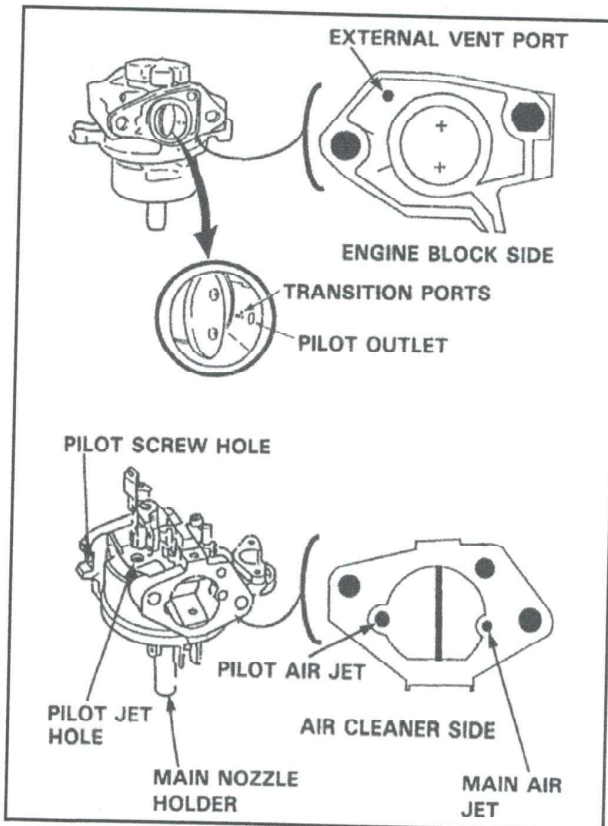
Air blow guns create flying particles that can cause eye injury.

Wear a safety face shield to protect yourself when using compressed air.

1. Clean the carburetor body with high flash point solvent.

2. Use low air pressure and clean the following parts and passages:

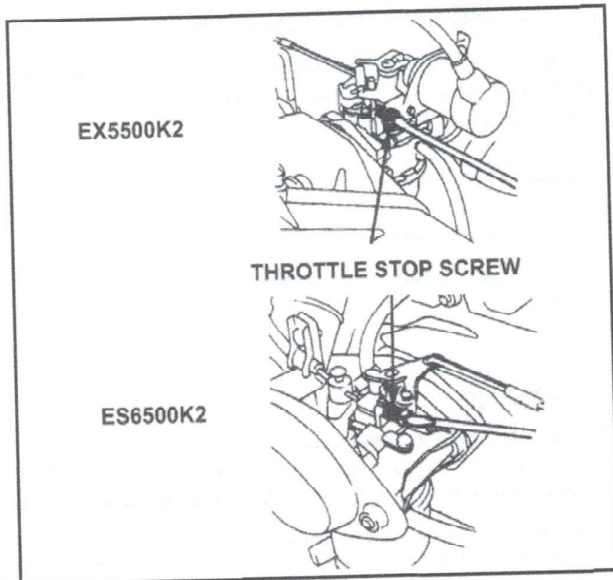
- External vent port
- Pilot screw hole
- Pilot jet hole
- Pilot air jet
- Main air jet
- Transition ports
- Pilot outlet



IDLE SPEED ADJUSTMENT

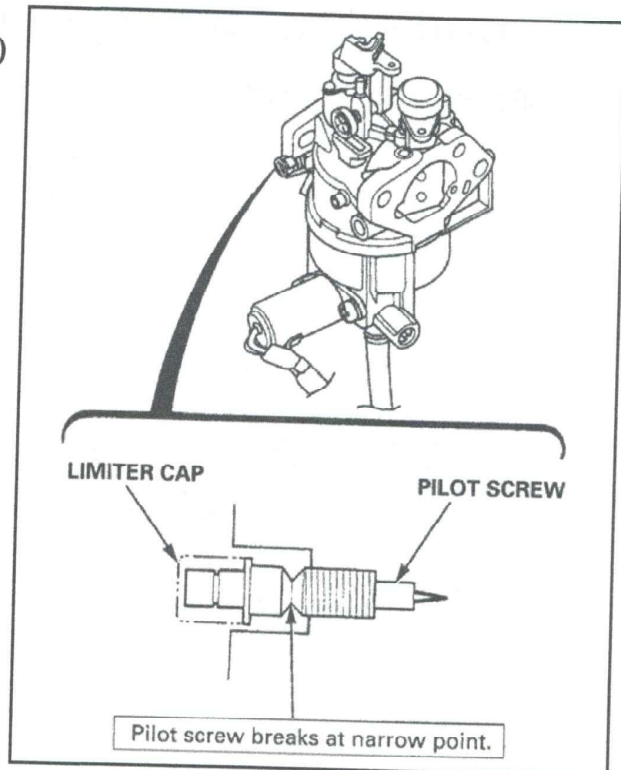
With the engine at normal operating temperature, the auto throttle switch in the AUTO position, and no load connected to the generator, turn the throttle stop screw to obtain the specified auto throttle speed.

Auto Throttle Speed (Idle Speed)	2,200 ± 100 rpm
----------------------------------	-----------------



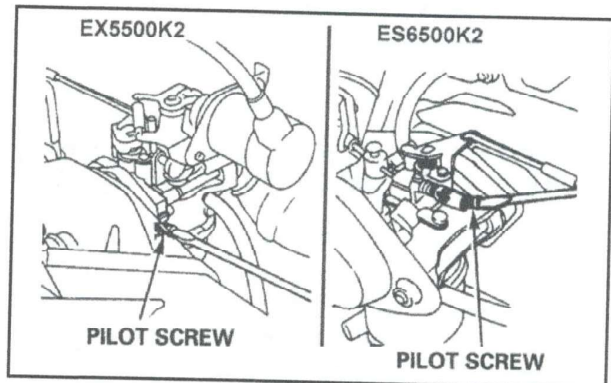
PILOT SCREW AND LIMITER CAP REPLACEMENT (EX5500K1/K2•ES6500K1/K2)

The limiter cap is an emission-related part. Leave the pilot screw and limiter cap in place during carburetor cleaning. Remove only if necessary for carburetor repair. Removal of the limiter cap requires breaking the pilot screw. A new pilot screw and limiter cap must be installed.



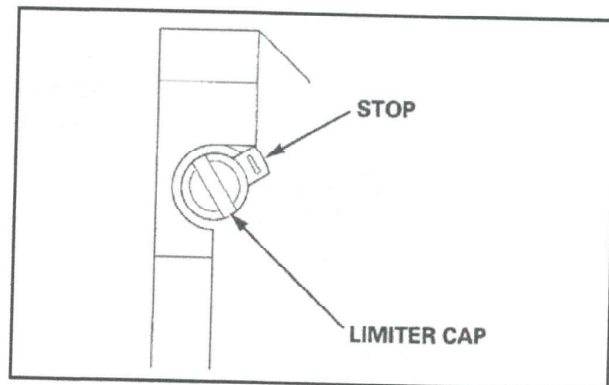
1. When the limiter cap has been broken off, remove the broken pilot screw.
2. Place the spring on the replacement pilot screw, and install it on the carburetor.
3. Turn the pilot screw in until it is lightly seated, and then turn the screw out the required number of turns.

Pilot opening screw	EX5500 K1/K2	1-1/4 turns out
	ES6500 K1/K2	1-7/8 turns out



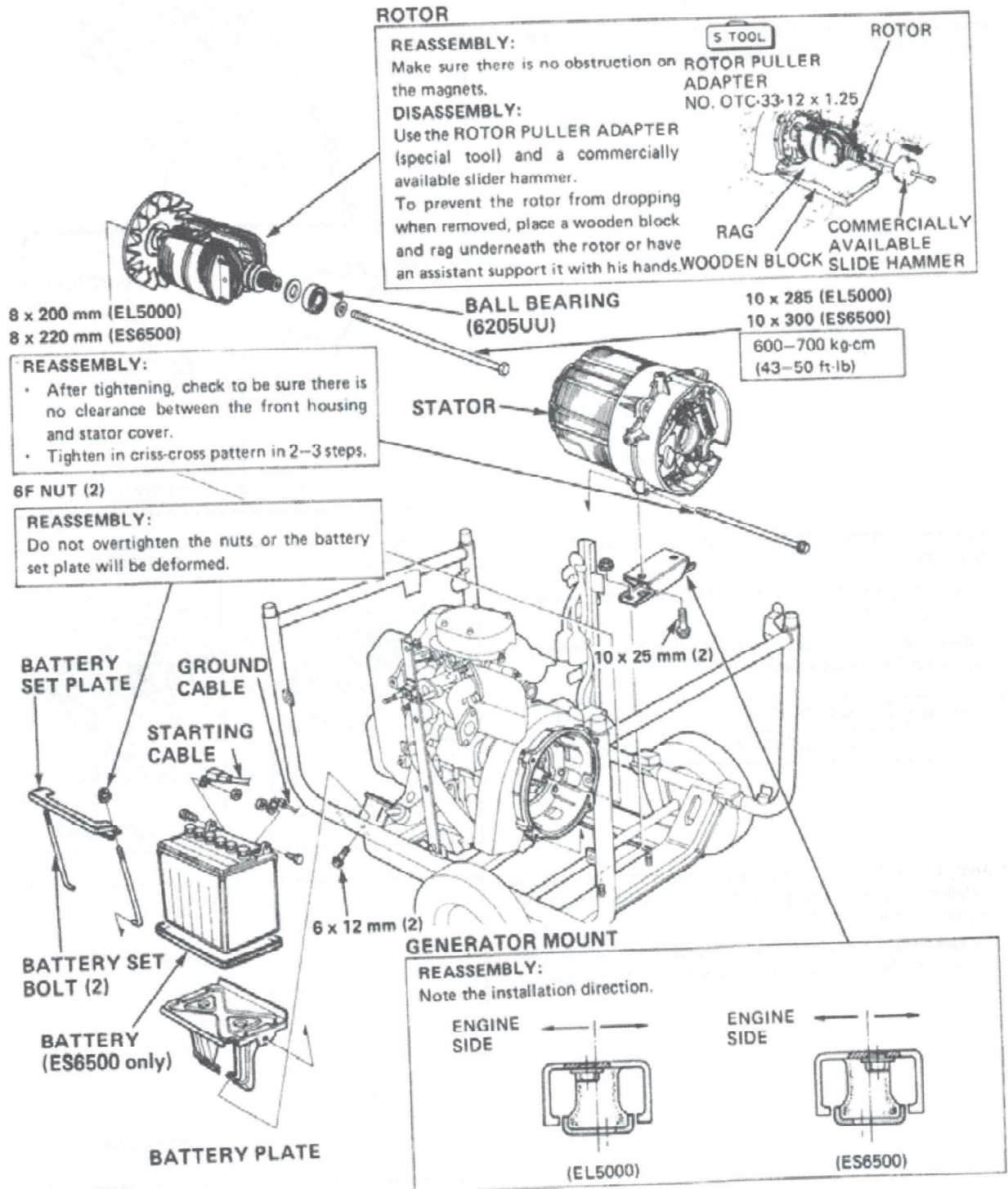
4. Apply LOCTITE® 638 to the inside of the limiter cap, and then install the cap so its stop prevents the pilot screw from being turned counterclockwise.

Be careful to avoid turning the pilot screw while installing the limiter cap. The pilot screw must stay at its required setting.



11. ROTOR/STATOR/BATTERY (EL5000•ES6500)

DISASSEMBLY/REASSEMBLY



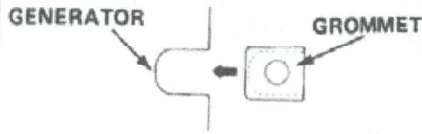
12. ROTOR/ STATOR (EX5500)

DISASSEMBLY/REASSEMBLY

GROMMET

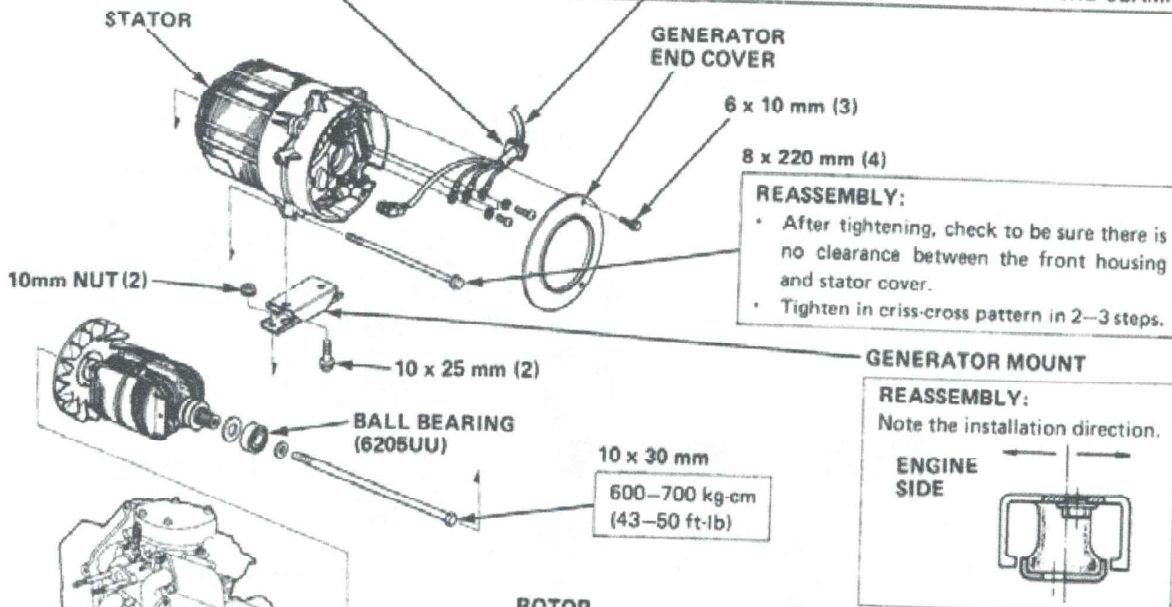
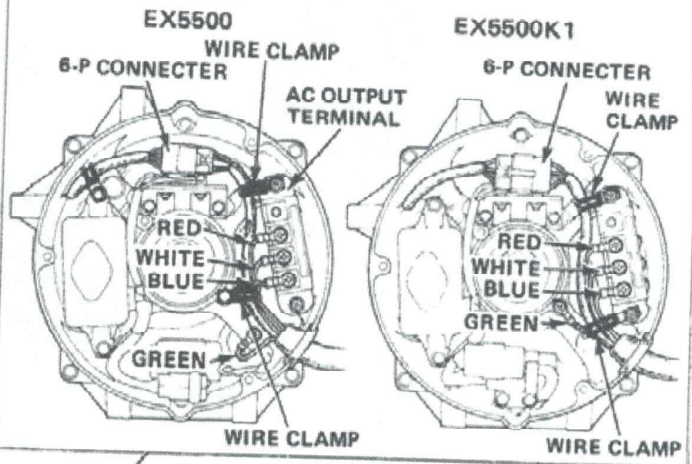
REASSEMBLY:

Check to be sure the grommet is inserted securely.



CONNECTING WIRE HARNESS

REASSEMBLY:



ROTOR

REASSEMBLY:

Make sure there is no obstruction on the magnets.

DISASSEMBLY:

Use the ROTOR PULLER ADAPTER (special tool) and a commercially available slide hammer.

To prevent the rotor from dropping when removed, place a wooden block and rag underneath the rotor or have an assistant support it with his hands.

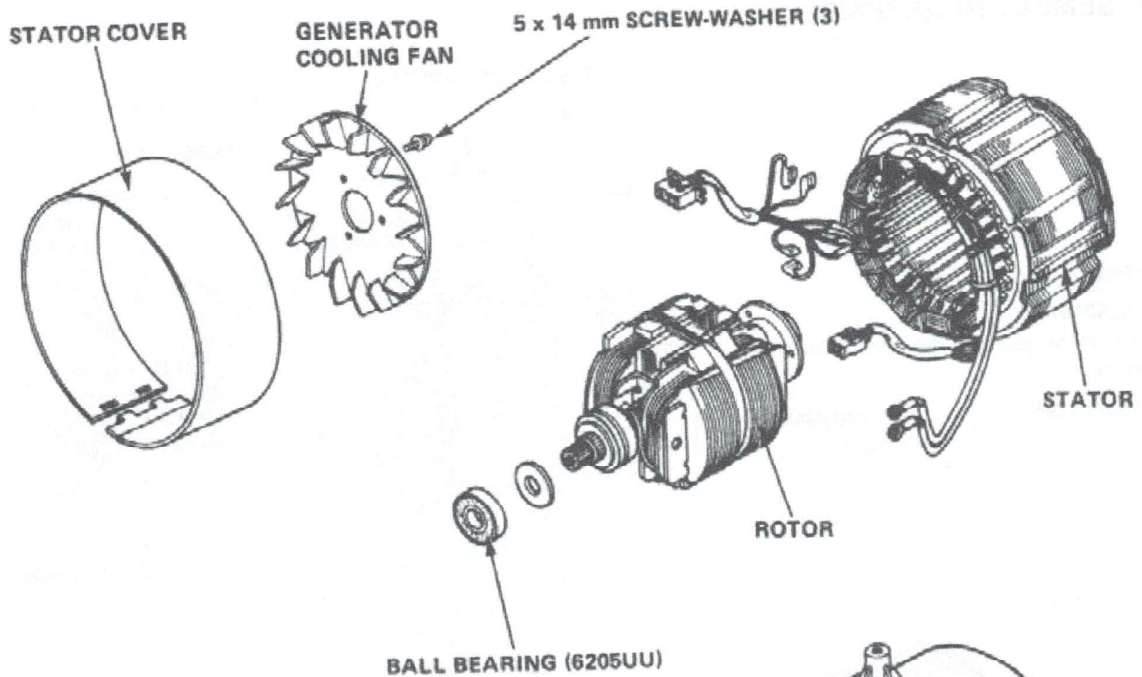


WOODEN BLOCK

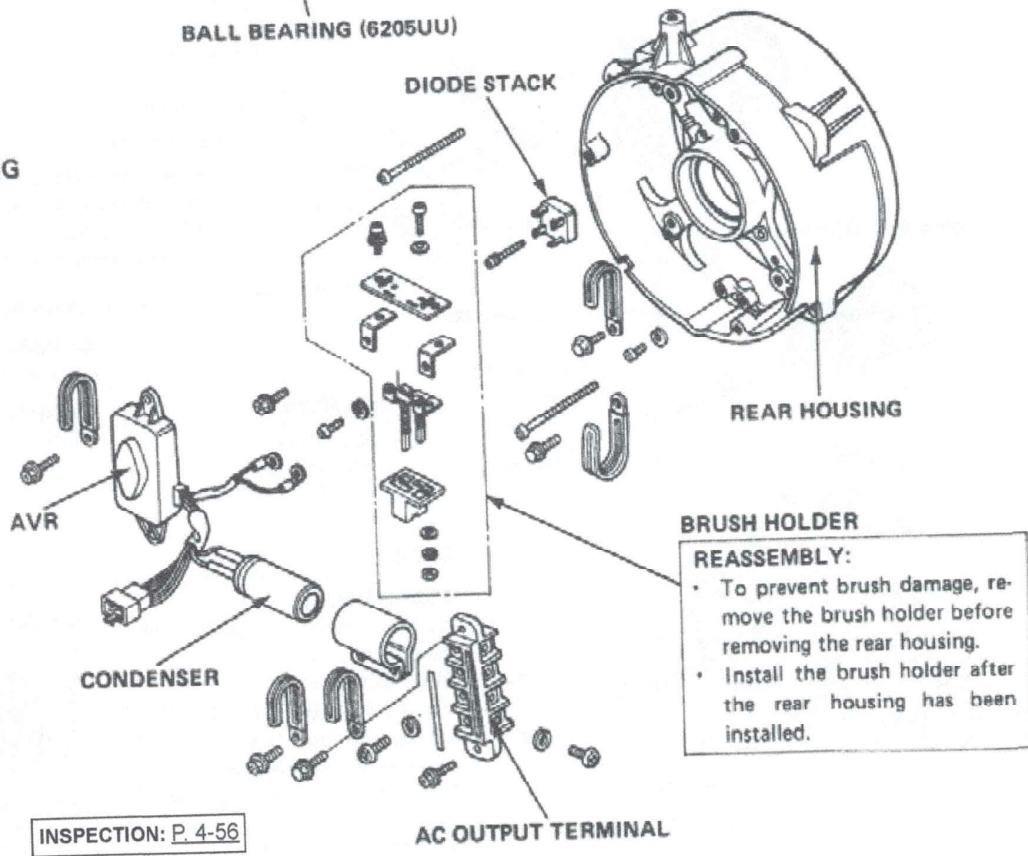
RAG

COMMERCIAALLY AVAILABLE SLIDE HAMMER

Stator/Rotor



• REAR HOUSING



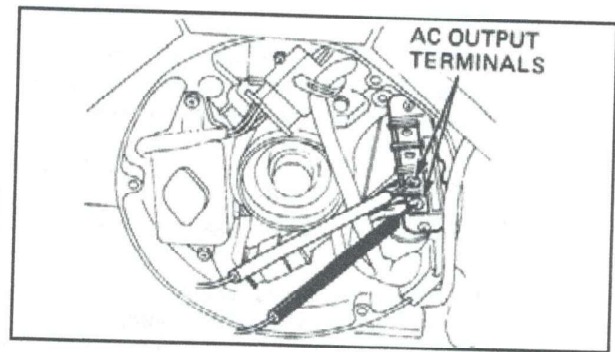
INSPECTION

Main Winding (AC)

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

Specified resistance	EL5000	0.32 Ω
	EX5500, ES6500	0.24 Ω

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

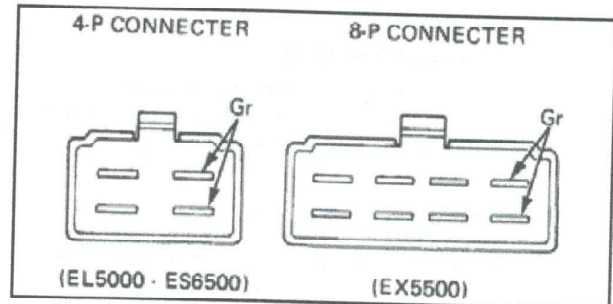


Sub Winding

Using an ohmmeter, measure the resistance between the gray wire leads at the connector.

Specified resistance	EL5000	0.27 Ω
	EX5500, ES6500	0.22 Ω

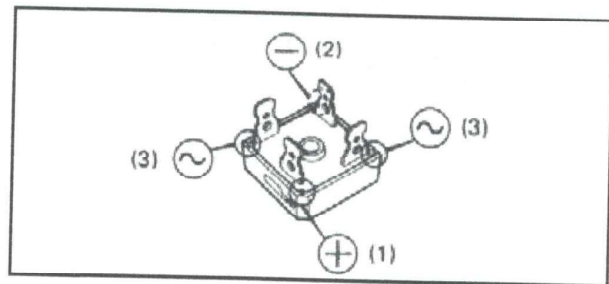
If the resistance is other than specified, replace the stator.



DC Diode

Remove the connector and check the continuity at each terminal according to the chart below.

Ohmmeter probes		Continuity
+	-	
①	②	Yes
③	②	
①	③	
②	①	No
②	③	
③	①	

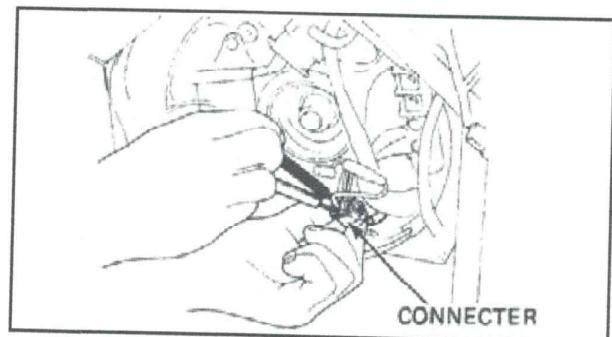


Exciter Winding

Using an ohmmeter, measure the resistance between the light green/red and green in the connector.

Specified resistance	EL5000	1.92 Ω
	EX5500	1.45 Ω
	ES6500	1.65 Ω

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



AVR

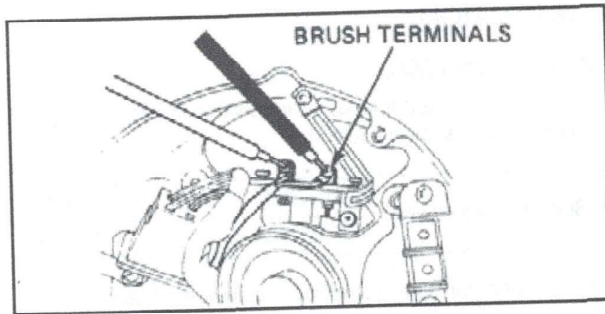
Follow the troubleshooting procedure described on [page 2-12](#).

Field Winding

Measure field winding resistance at the brush terminals with the wires disconnected. If the specified field winding resistance is not obtained, remove the brushes and measure resistance between the slip rings.

Specified resistance	EL5000	52 Ω
	EX5500, ES6500	57 Ω

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, replace the rotor.

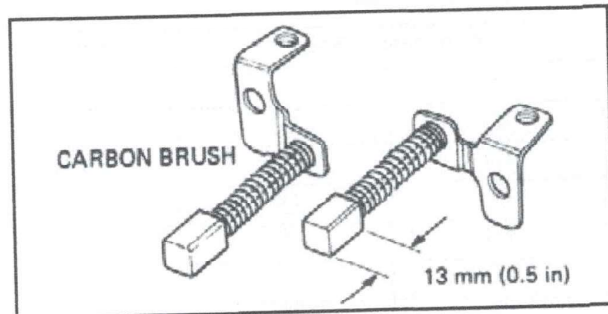
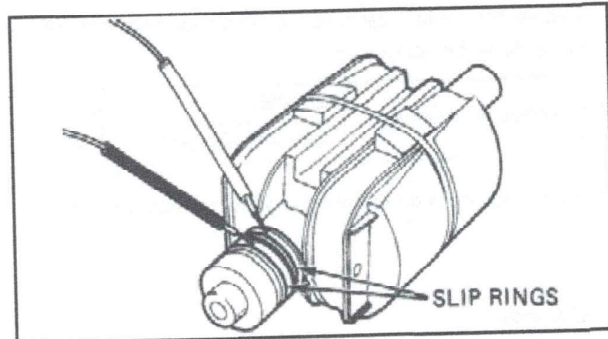


Carbon Brush and Slip Ring

Remove the carbon brushes from the brush holder.
 Check the brush for length, wear condition, or any other defect.
 Replace if the length is less than 13 mm (0.5 in).

Note:
 Connect the light green/white 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 freedom from dust, rust, or other fault. If necessary, wipe them with a clean, lint-free cloth. If they are rusted or damaged, remove the rotor and dress with a fine emery cloth (No. 500-600).




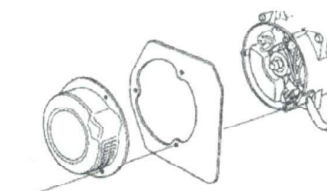
13. ROTOR/STATOR (EX5500K2•ES6500K2)

REMOVAL/INSTALLATION

GENERATOR ASSEMBLY

DISASSEMBLY/REASSEMBLY: P. 4-54

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

EX5500K2	ES6500K2
	

CRANKCASE COVER

SPACER RING

STATOR CORE

BRUSH HOLDER

DISASSEMBLY:
Remove the brush holder before removing the stator.

HARNESS CONNECTION

EX5500K2: P. 2-31
ES6500K2: P. 2-48

ROTOR

REASSEMBLY:
Make sure there is no foreign material on the magnets.

DISASSEMBLY:
Use the ROTOR PULLER ADAPTER (special tool) and a commercially available slide hammer.
To prevent the rotor from dropping when removed, place a wooden block and rag underneath the rotor or support it with your hand.

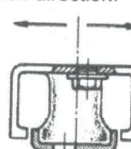
ROTOR PULLER ADAPTER
OTC-33-12x1.25

S. TOOL

GENERATOR MOUNT

REASSEMBLY:
Note the installation direction.

ENGINE SIDE



REASSEMBLY:

- Tighten in crisscross pattern in 2-3 steps.
- After tightening, make sure there is no clearance between the crankcase cover, the spacer ring, and the stator core.

TORQUE: 20 N•m (2.0 kgf•m, 14 lbf•ft)

TOOL ORDERING INFORMATION

SPECIAL TOOLS:

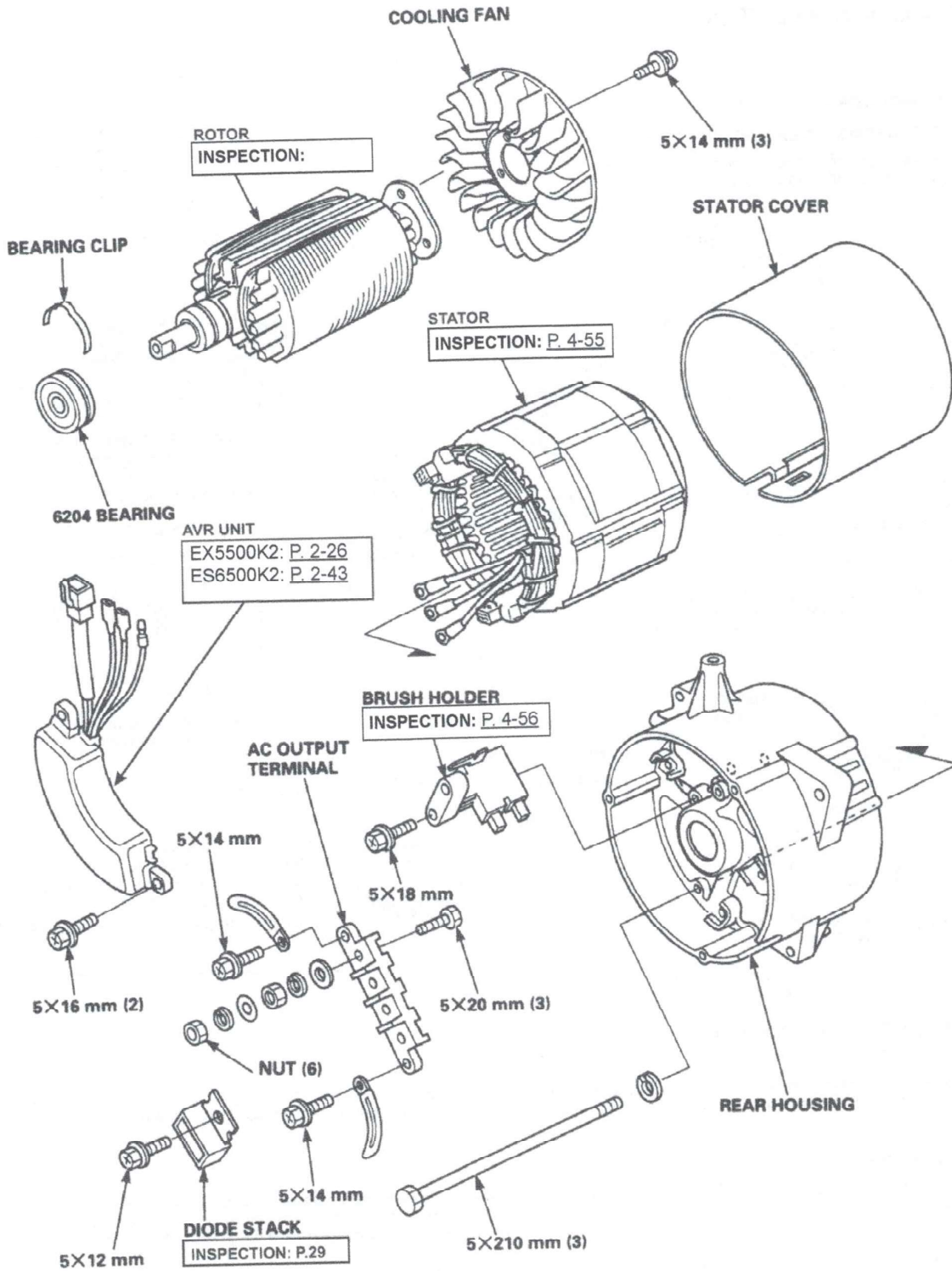
These tools are distinguished by the **S. TOOL** special tool box icon and normally starts with a "07" tool number. They are available through the American Honda Parts Department and ordered by using normal American Honda Parts ordering procedures.

COMMERCIAALLY AVAILABLE TOOLS:

These tools are distinguished by the words (commercially available). They are **not** available through the American Honda Parts Department. Most commercially available tools shown in this shop manual can be ordered through the Honda Power Equipment Tool and Equipment program by calling (888) 424-6857. Refer to the catalog for a complete tool listing.

4-53

DISASSEMBLY/REASSEMBLY

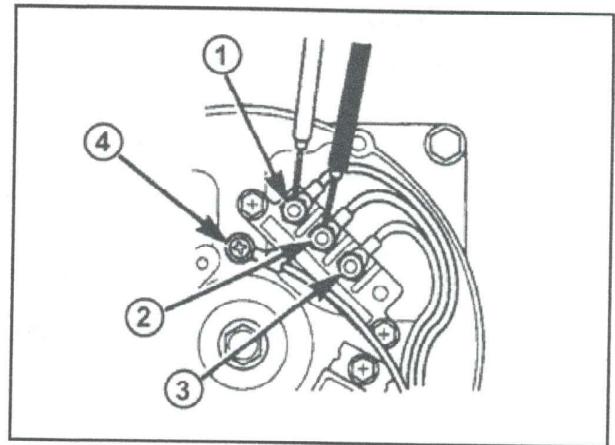


INSPECTION

Stator Main Windings

Using an ohmmeter, measure the resistance between the main winding output terminals.

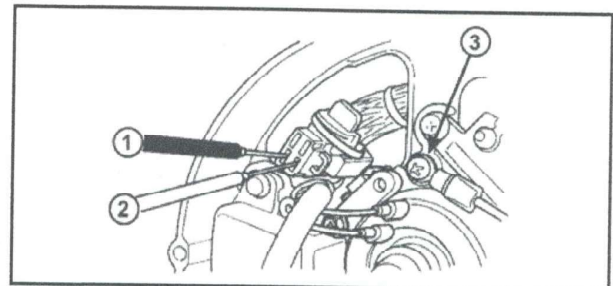
Position Number	Specified Resistance
1 & 2	0.2 – 0.4 Ω
2 & 3	0.2 – 0.4 Ω
1 & 3	0.5 – 0.8 Ω
1 & 4	∞
2 & 4	∞
3 & 4	∞



Stator Exciter Winding

Using an ohmmeter, measure the resistance between the exciter winding terminals and each terminal to ground.

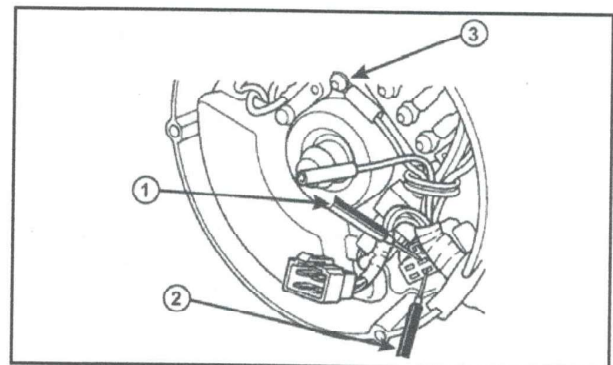
Position Number	Specified Resistance
1 & 2	0.8 – 1.3 Ω
1 & 3	∞
2 & 3	∞



Stator DC Winding

Using an ohmmeter, measure the resistance between the dc winding terminals and each terminal to ground.

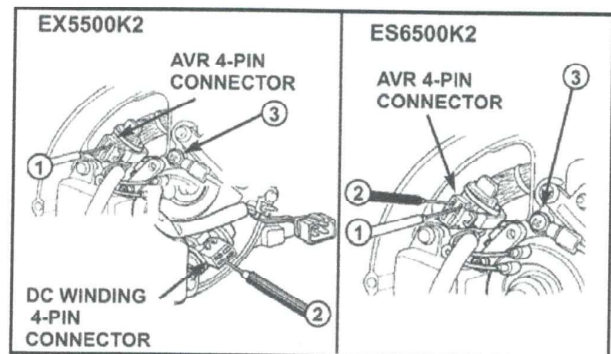
Position Number	Specified Resistance
1 & 2	0.2 – 0.4 Ω
1 & 3	∞
2 & 3	∞



Stator Sensor Winding

Using an ohmmeter, measure the resistance between the sensor winding terminals and each terminal to ground.

Position Number	Specified Resistance
1 & 2	0.1 – 0.2 Ω
1 & 3	∞
2 & 3	∞



Rotor (Field Winding)

Using an ohmmeter, measure the resistance across the brush terminals.

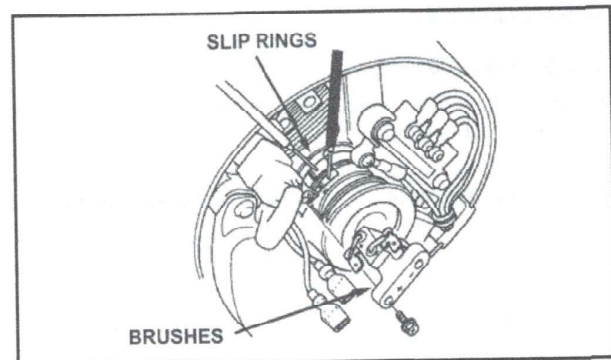
Specified resistance	0.8 – 1.3 Ω
----------------------	-------------

If your measurement is not within the specified range, remove the brushes and measure across the slip rings.

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

If the specified resistance is not obtained at the sliprings, clean the slip rings with emery cloth (No. 500–600) and recheck the resistance.

If the your resistance reading is still out of the specified range, replace the rotor.



Brush Assembly

Remove the brush assembly from the generator.

Check each brush for wear or any other defect.

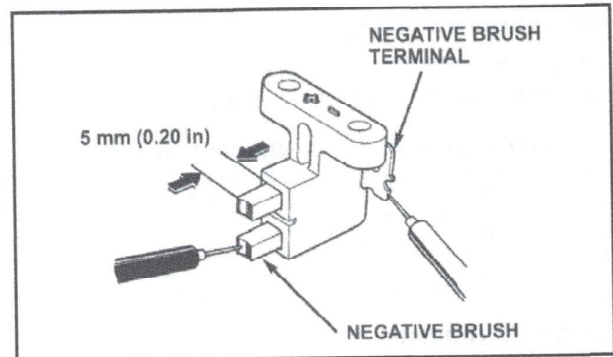
Check the brush length as shown. Replace the brush assembly of worn beyond the wear limit.

Specified wear limit	5 mm (0.20 in)
----------------------	----------------

Using an ohmmeter, check for continuity across the brush terminal and brush tip.

When reassembling the brush assembly, make sure the red wire connects to the positive (+) brush terminal.

Avoid damaging the brush assembly when installing.



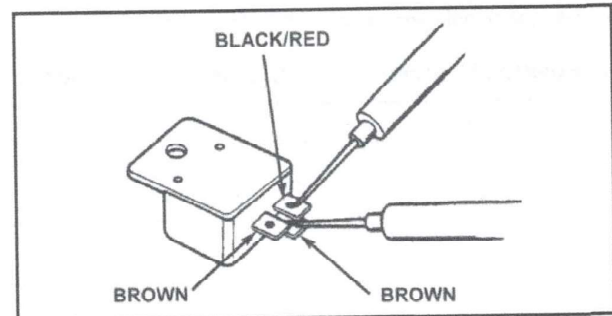
DC Diode

Using an ohmmeter, check for continuity between the diode terminals.

		+ Lead		
		Black/Red	Brown	Brown
- Lead	Black/Red		○	○
	Brown	X		X
	Brown	X	X	

○ : Continuity

X : No continuity



14. ENGINE/FRAME/WHEELS (EL5000•ES6500)

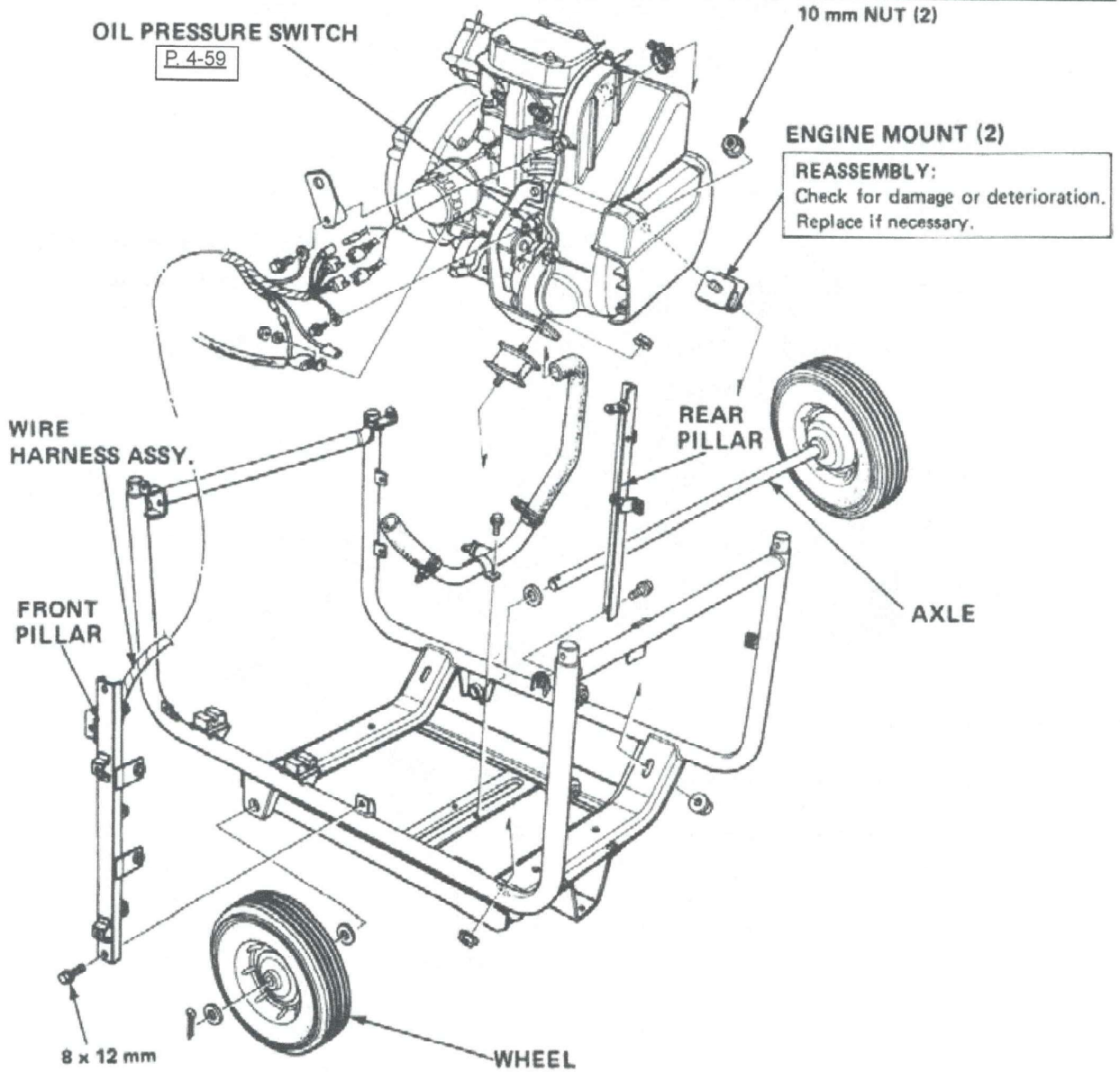
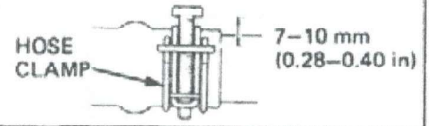
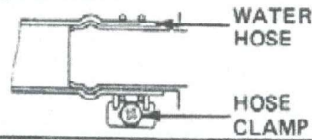
DISASSEMBLY/REASSEMBLY

WATER HOSE CLAMP

REASSEMBLY:

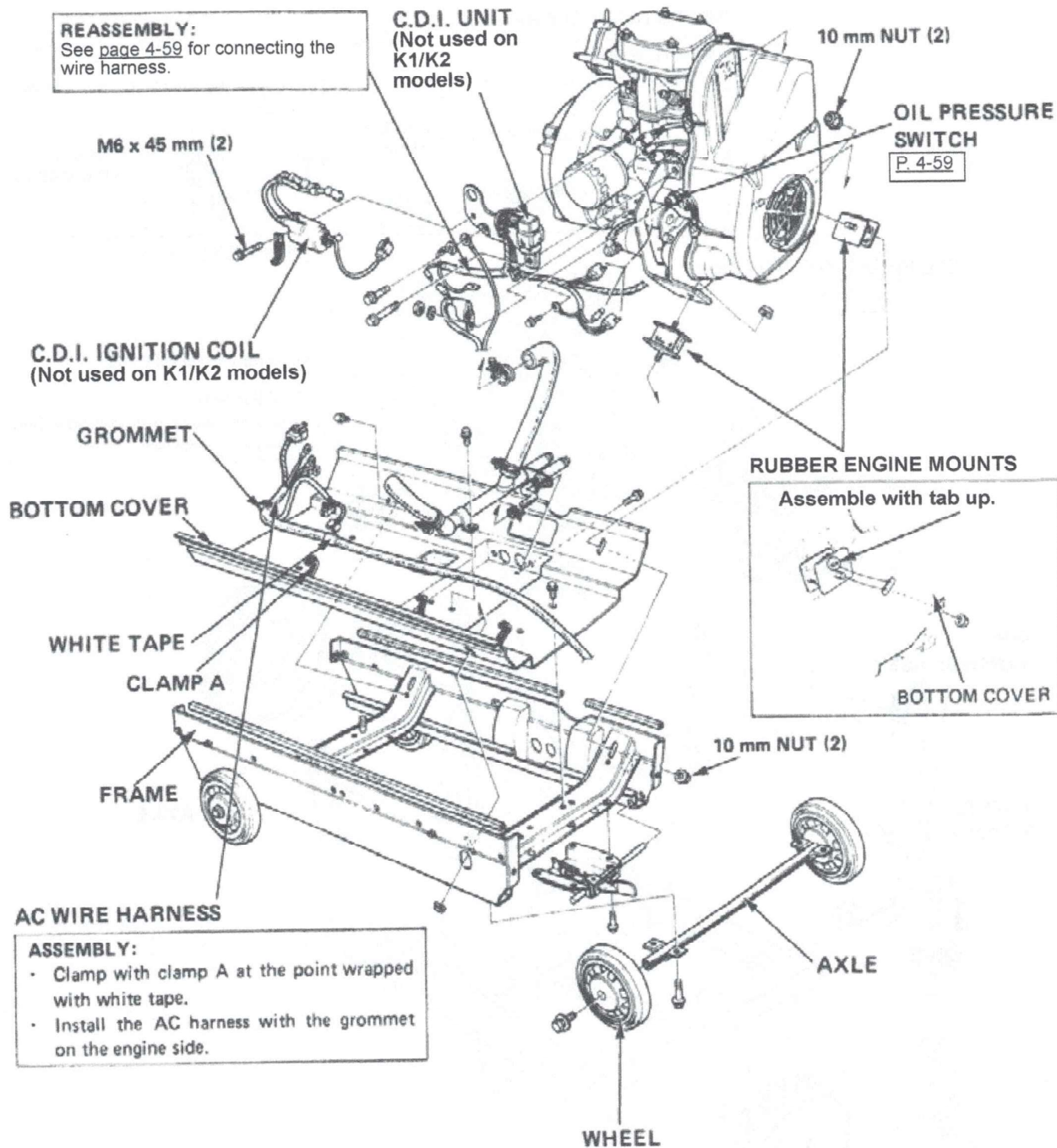
- Place the clamp beyond the inlet pipe ridge, as shown.

- Tighten the clamp screw as shown below.

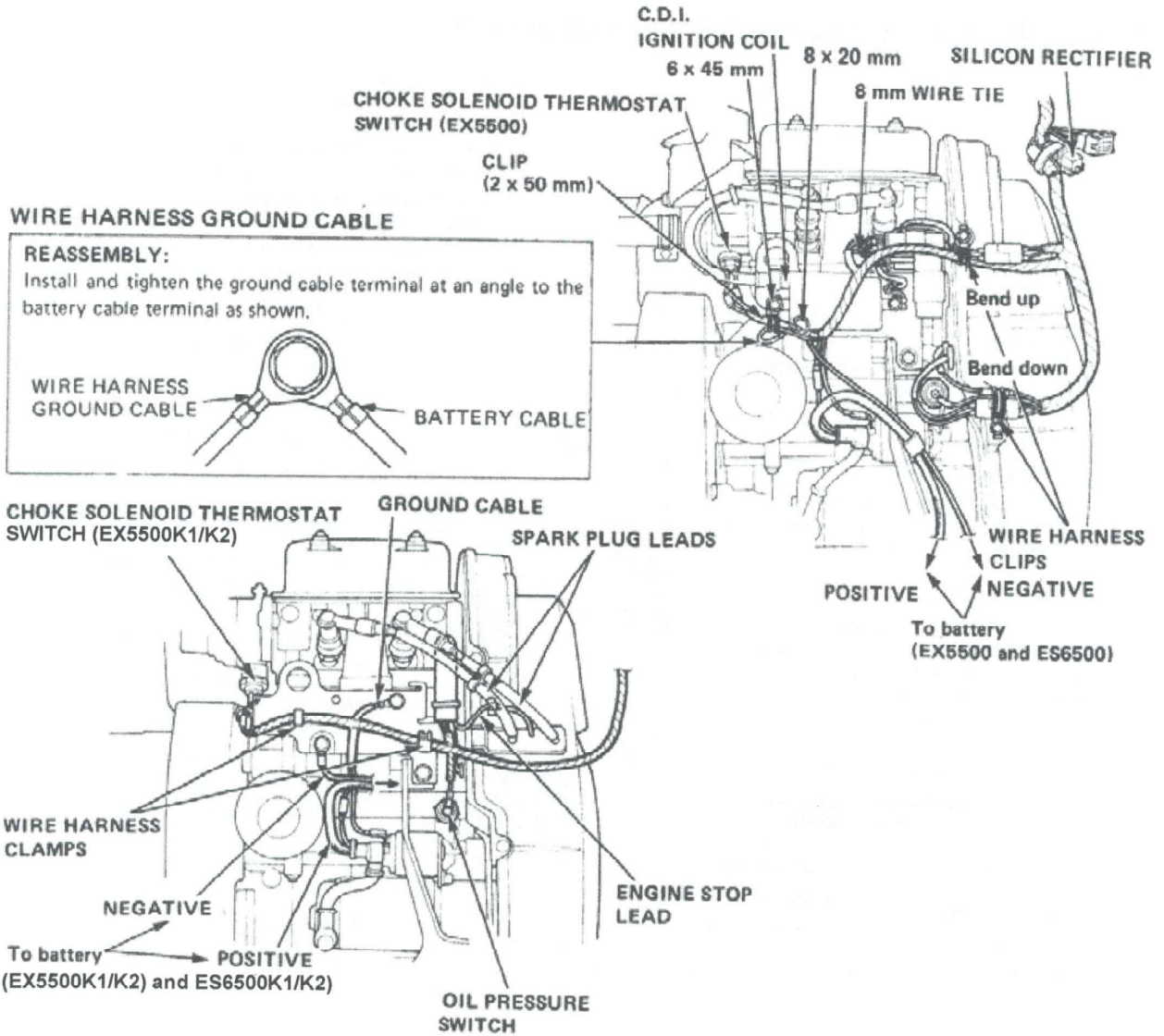


15. ENGINE/FRAME/WHEELS (EX5500)

DISASSEMBLY/REASSEMBLY



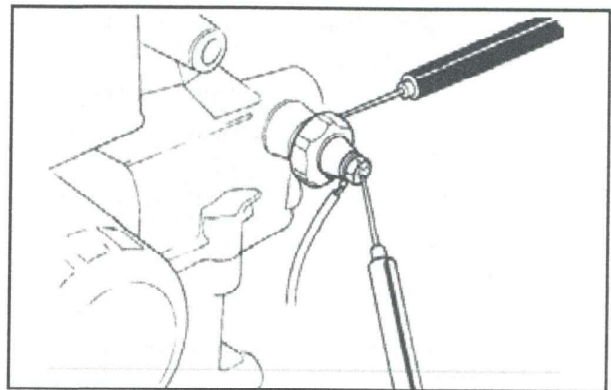
Connecting Wire Harness



INSPECTION

Oil Pressure Switch

Check for continuity between the YELLOW/RED lead and body ground. The switch is normal if there is continuity.



16. FLYWHEEL/TIMING BELT

DISASSEMBLY/REASSEMBLY (EL5000•EX5500•ES6500)

EXCITOR COIL

REASSEMBLY:

- Make sure the coil does not interfere with the flywheel.
- Do not confuse with the charging coil.

LOCK WASHER


REASSEMBLY:

- Align the tab with the keyway.
- Bend up against the nut at two places after tightening the nut.

30 mm LOCK NUT

DISASSEMBLY/REASSEMBLY:

TORQUE: 200–250 kg-cm (15–18 ft-lb)

 LOCKNUT WRENCH
07916-187002

CHARGING COIL
(EX5500 and ES6500)

COOLING FAN

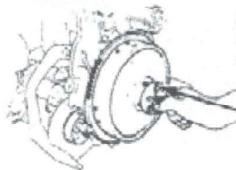
REASSEMBLY:

Align the two lugs on the back with the holes in the flywheel.

FLYWHEEL

DISASSEMBLY:

- Use a FLYWHEEL PULLER (commercially available) and PULLER COLLAR SET special tool to remove.
- Do not use a hammer.



FLYWHEEL PULLER
OTC 7403
(Commercially available)

 PULLER COLLAR SET
07APC-ZY1A100

REASSEMBLY:

- Clean the tapered hole thoroughly before installation.
- Check to be sure the ring gear is not worn or damaged.

TIMING BELT

REASSEMBLY:

- Use a genuine Honda Timing Belt.
- Check that the belt is not worn or cracked.
- Do not bend or twist the belt.
- Before installing the belt, align the marks on the crankshaft pulley and camshaft pulley.
- Timing adjustment (P. 4-64)

O-RING

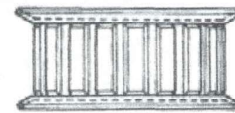
REASSEMBLY:

Use a new O-ring when reassembling.

PULLEY FLANGE

REASSEMBLY:

Install with the flanges facing out.



CAMSHAFT PULLEY

8 x 16 mm

100–140 kg-cm
(7.5–10 ft-lb)

WOODRUFF KEY

REASSEMBLY:

- Do not forget to install.
- Check to be certain the key is seated in the keyway properly.

WATER PUMP

TIMING BELT COVER (A)

6 x 10 mm (5)

FAN COLLAR

REASSEMBLY:

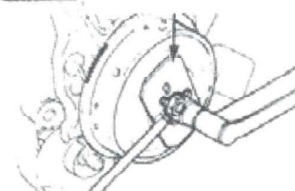
Do not forget to install.

16 mm SPECIAL NUT

DISASSEMBLY/REASSEMBLY:

TORQUE: 1,100–1,200 kg-cm (80–87 ft-lb)

 FLYWHEEL HOLDER
07APB-Z28A100



DISASSEMBLY/REASSEMBLY (EX5500K1•ES6500K1)

TIMING BELT

REASSEMBLY:

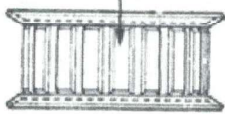
- Use a genuine Honda Timing Belt.
- Check that the belt is not worn or cracked.
- Do not bend or twist the belt.
- Before installing the belt, align the marks on the crankshaft pulley and camshaft pulley.
- Timing adjustment (P. 4-64)

PULLEY FLANGE

REASSEMBLY:

Install the flanges as shown.

TIMING PULLEY



TRANSISTORIZED IGNITION COIL

INSPECTION/ADJUSTMENT: P. 4-63

CHARGING COIL
(EX5500K1/K2•ES6500K1/K2)

16 mm SPECIAL NUT

DISASSEMBLY/REASSEMBLY:

TORQUE: 1,100–1,200 kg-cm
(80–87 ft-lb)

BAND STRAP WRENCH
(Commercially available)

FLYWHEEL

DISASSEMBLY:

- Use the FLYWHEEL PULLER (commercially available) to remove. Do not use a hammer.



FLYWHEEL PULLER
(Commercially available)

REASSEMBLY:

- Clean the tapered hole thoroughly before installation.
- Check to be sure the ring gear is not worn or damaged.

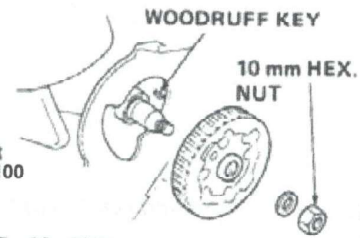
CAMSHAFT

DISASSEMBLY:



ROTOR PULLER
No. 07AMC-400A100

ASSEMBLY:



TORQUE: 32–38 N.m
(320–380 kg-cm, 23.1–27.5 ft-lb)

O-RING

REASSEMBLY:

Use a new O-ring when reassembling.

6 x 16 mm
(Engine No. 1000001
to 1142975)

100–140 kg-cm
(7.5–10 ft-lb)
CAUTION: Use thread
locking compound when
reassembling.

**WATER PUMP
LOCK WASHER**

REASSEMBLY:

- Align the tab with the keyway.
- Bend up against the nut at two places after tightening the nut.

TIMING BELT COVER

30 mm LOCK NUT

DISASSEMBLY/REASSEMBLY:

TORQUE: 200–250 kg-cm (15–18 ft-lb)

LOCK NUT WRENCH

No. 07916–1870001 or
07916–1870002



CRANKSHAFT HOLDER
No. 07923–ZA00100

FAN COLLAR

REASSEMBLY:

Do not forget to install.

COOLING FAN

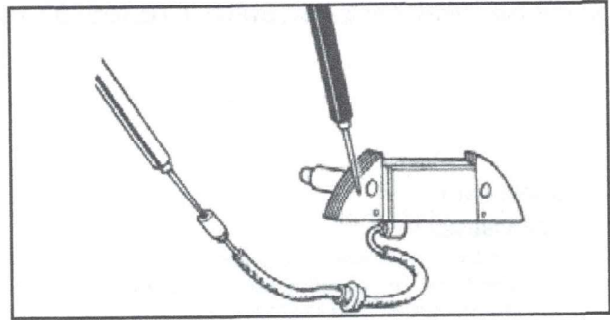
REASSEMBLY:

Align the two lugs on the back with the holes in the flywheel.

INSPECTION AND ADJUSTMENT***Exciter Coil (not used on K 1 models)***

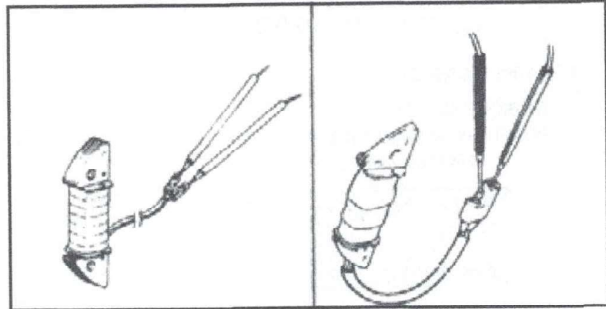
Measure the resistance between the lead and core.

RESISTANCE	311 ~ 380 Ω
------------	--------------------

***Charging Coil (not used on EL5000 models)***

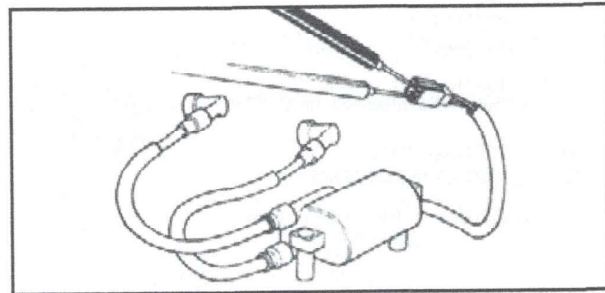
Using an ohmmeter, check for continuity between the two wire leads.

Replace the coil if there is no continuity.

***C.D.I. Ignition Coil (not used on K 1 or K2 models)*****Primary Side**

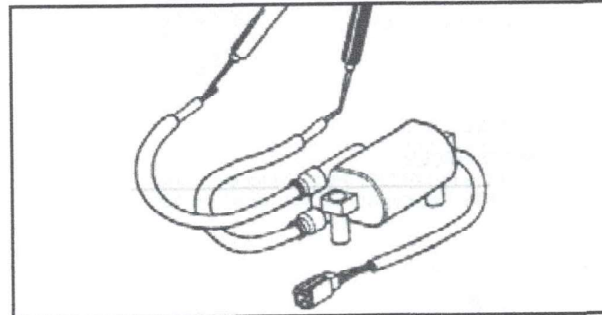
Measure the resistance of the primary coil by attaching two ohmmeter leads to the terminals of the 2P connector.

Primary side resistance value	0.51 ~ 0.63 Ω
-------------------------------	----------------------

**Secondary side**

Measure the resistance of the secondary side of the coil by removing the spark plug caps and touching two test leads to the two spark plug leads.

Secondary side resistance value	6.4 ~ 9.6 k Ω
---------------------------------	----------------------

***C.D.I. Unit Troubleshooting***

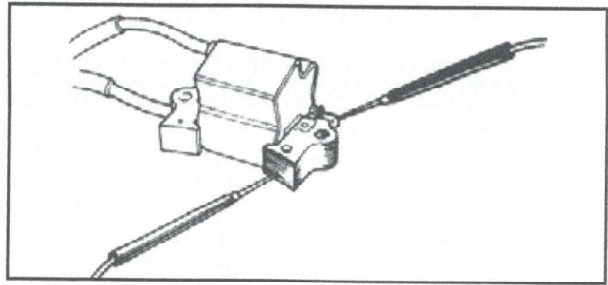
Follow the troubleshooting procedure described on [page 2-10](#).

Transistorized Ignition Coil
(EX5500K1/K2· ES6500K1/K2)

Primary Windings

Measure the resistance of the primary coil by attaching one ohmmeter lead to the coil terminal and the other lead to the iron core.

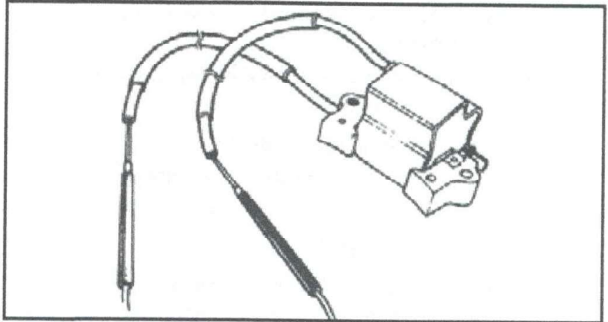
Primary side resistance value	0.8 ~ 1.2 kΩ
-------------------------------	--------------



Secondary Windings

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 wire, while touching the other lead to other spark plug wire.

Secondary side resistance value	8.8 ~ 13.2 kΩ
---------------------------------	---------------

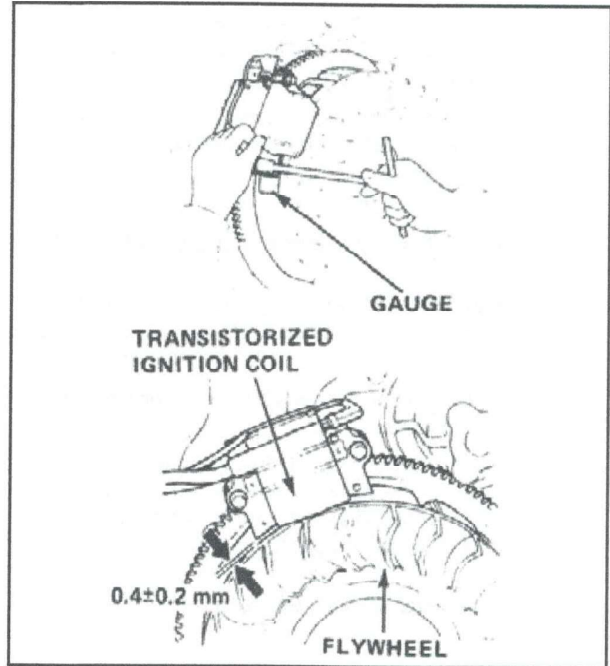


Air Gap Adjustment

1. Loosen the transistorized ignition coil tightening bolts.
2. Insert a long thickness gauge or a piece of paper of the proper thickness between the transistorized ignition coil and the flywheel. Both gaps should be adjusted simultaneously.
3. Push the transistorized ignition coil firmly toward the flywheel and tighten the bolts.

Specified clearance	0.4 ± 0.2 mm (0.016 ± 0.008 in)
---------------------	---------------------------------

Note:
Avoid the magnet part of the flywheel when adjusting.



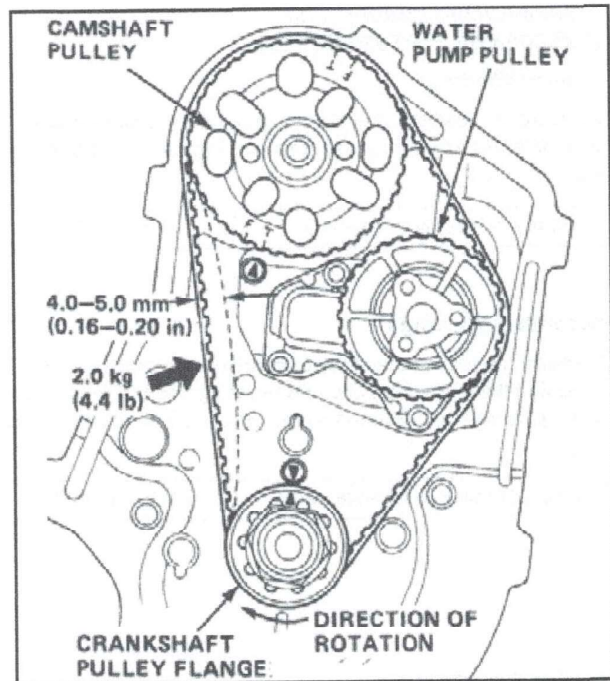
Timing Belt Replacement/Valve Timing**⚠ CAUTION**

Unless the cooling system is drained, there will be some coolant leakage when the water pump is loosened. Do not loosen the water pump if the coolant is hot.

1. Loosen the water pump pulley bolts and slide the pump inward. If the cooling system has not been drained, temporarily retighten the bolts.
2. Align the "T" mark on the camshaft pulley with the "▲" mark on the cylinder block.
3. Align the "▲" mark on the crankshaft pulley flange with the "▼" mark on the cylinder block.
4. Place the timing belt over the pulleys.
5. Adjust the timing belt, and tighten the water pump bolts. Check to be sure the timing marks are properly aligned.

Timing Belt Adjustment

1. Turn the crankshaft clockwise until the timing marks are aligned; this will ensure that there is no load on the side of the belt where deflection is measured.
2. Press against the belt with a force of 2.0 kg (4.4 lb) midway between the camshaft pulley and crankshaft pulley. The belt should deflect 4.0 ~ 5.0 mm (0.16 ~ 0.20 in).
3. If adjustment is necessary, loosen the water pump bolts and slide the pump to obtain the correct belt tension. Retighten the water pump bolts.

**C.D.I. Ignition Timing (does not apply to K 1 models)**

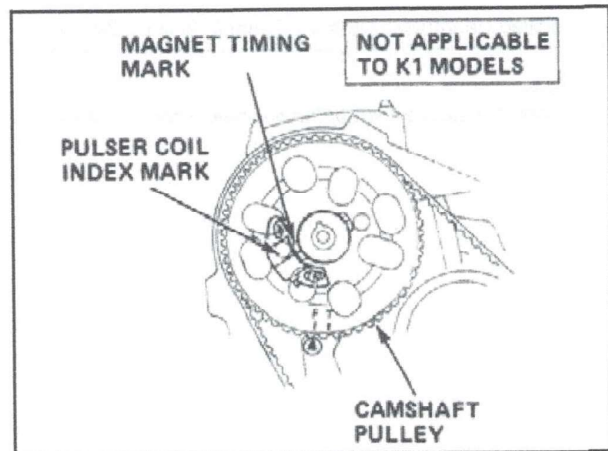
Note:

The Capacitive Discharge Ignition (CDI) system is factory preset and requires no adjustments except when the pulser coil is removed or when the timing belt is replaced.

1. Align the "F" mark on the camshaft pulley with the "▲" mark on the cylinder block.
2. Check that the index mark on the pulser coil is aligned with the timing mark on the camshaft pulley magnet. If adjustment is necessary, loosen the two pulser coil attaching screws, and move the pulser coil to align the marks.

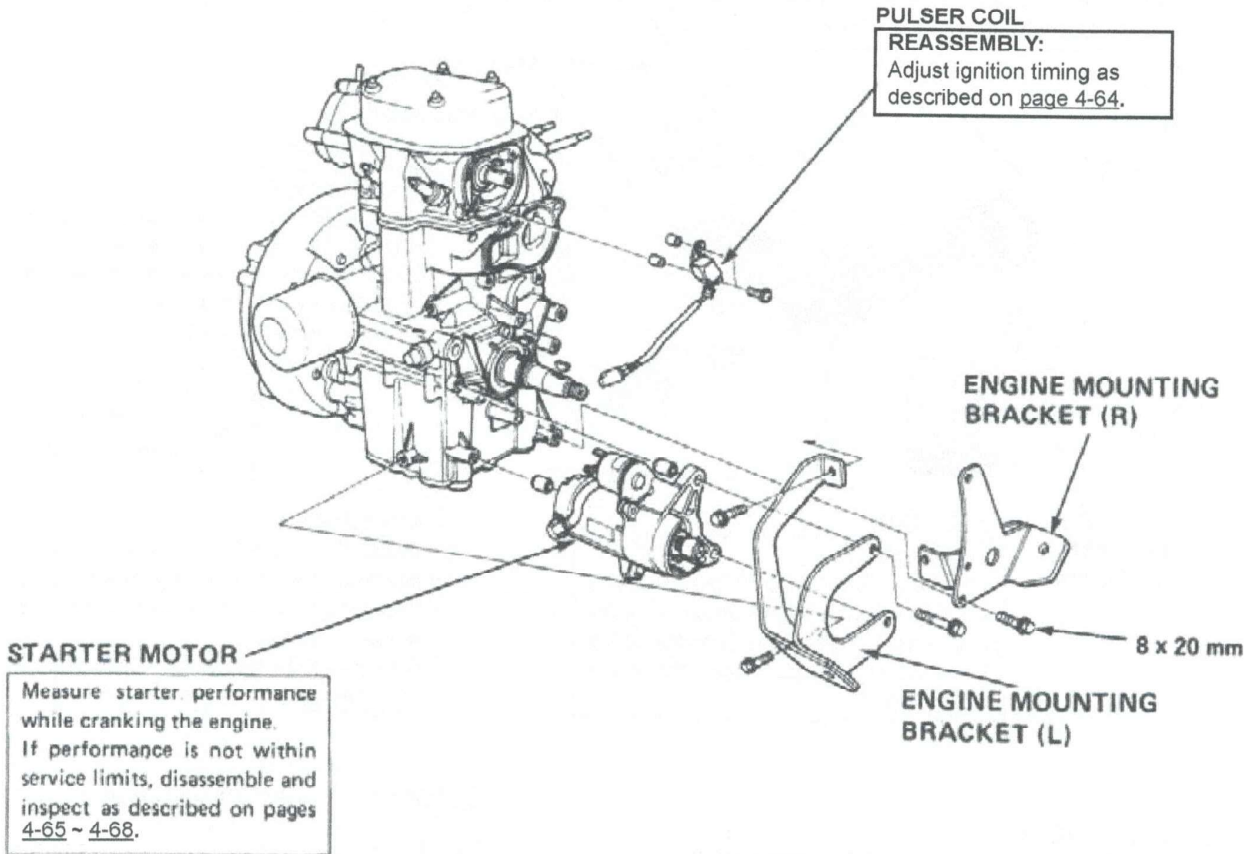
Note:

Adjustment must be made without removing the cam pulley.



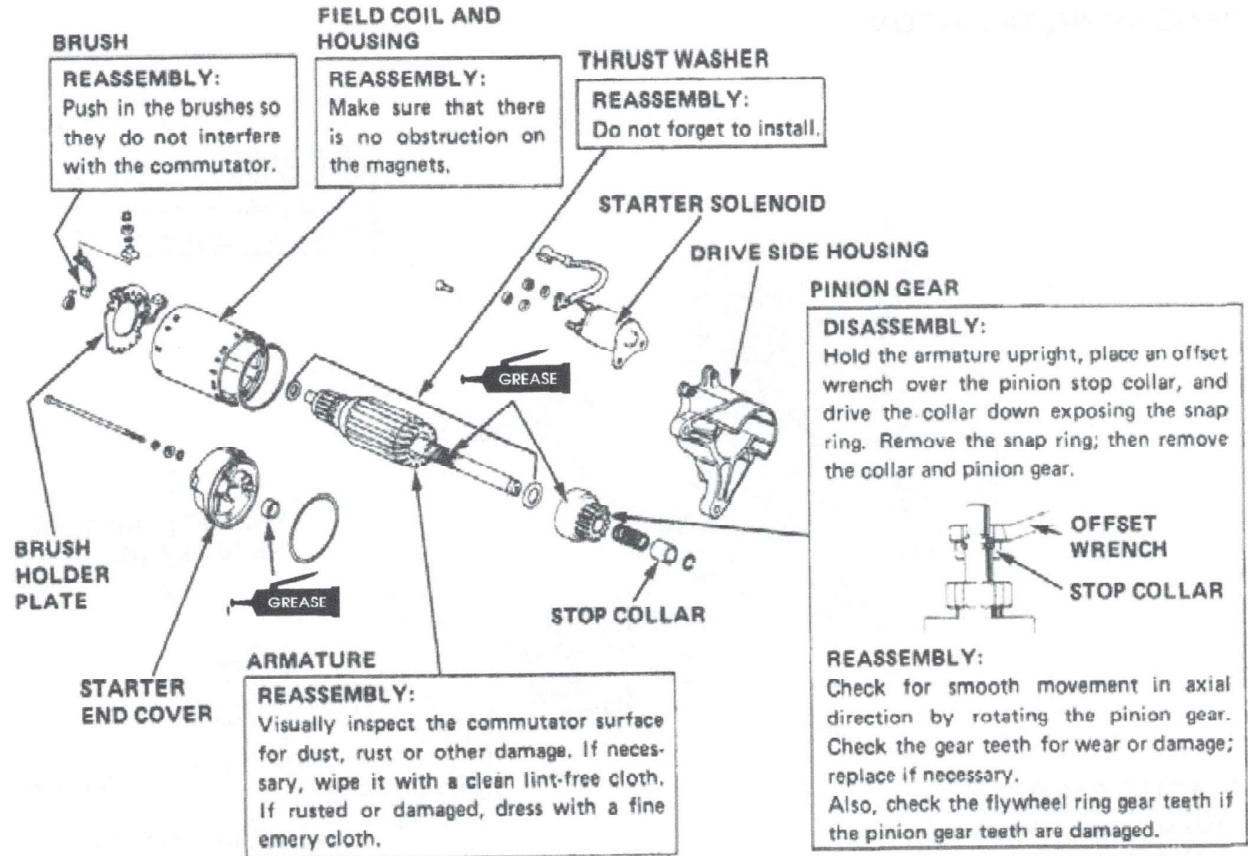
17. STARTER MOTOR (NOT USED ON EL5000 MODEL)

REMOVAL/INSTALLATION



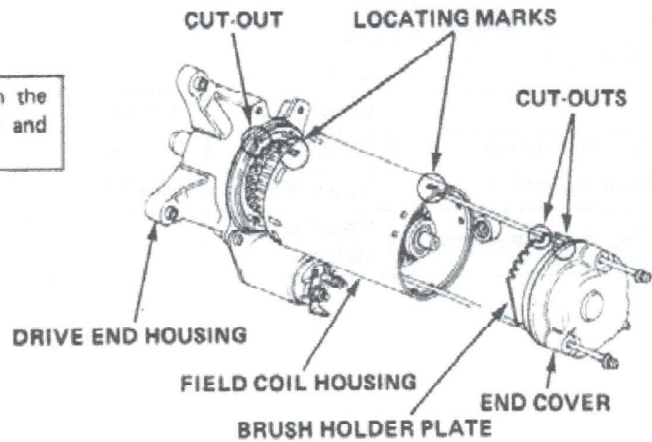
	Under load	No load
Cranking voltage	2.5 VDC	11.5 VDC
Cranking current	Below 165 A	Below 20 A
Engine cranking speed	More than 260 rpm	

DISASSEMBLY/REASSEMBLY



(ASSEMBLY NOTE)

Align the locating marks on the field coil housing with the cut-outs in the drive end housing, brush holder plate and end cover.



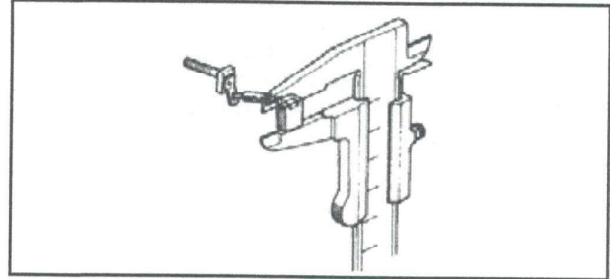
INSPECTING

Brush Length

Measure the brush length.

If brush length is less than standard, replace the brush and brush holder plate.

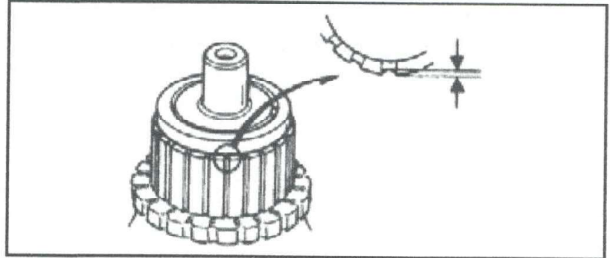
STANDARD	SERVICE LIMIT
14 mm (0.55 in)	9.0mm (0.35 in)



Mica Depth

If the grooves are clogged or mica depth is less than the service limit, recut the grooves, using a hacksaw blade or a small file.

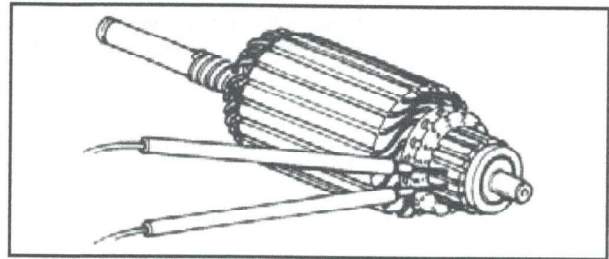
SERVICE LIMIT	0.2 mm (0.008 in)
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Armature

CONTINUITY CHECK—SEGMENTS

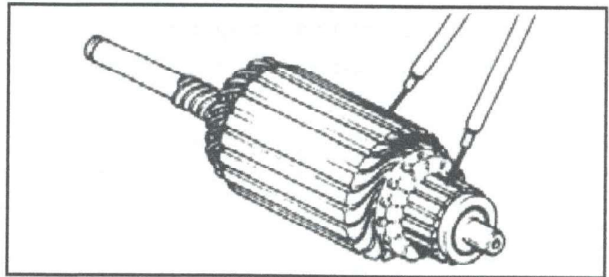
Check for continuity between segments. If an open circuit exists between any two segments, replace the armature.



SHORT CIRCUIT TEST—CORE TO COMMUTATOR

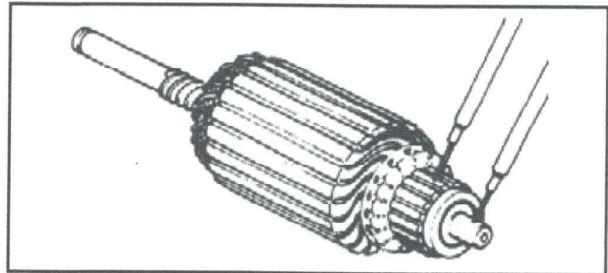
Check for continuity between the commutator and armature coil core.

If continuity exists, replace the armature.



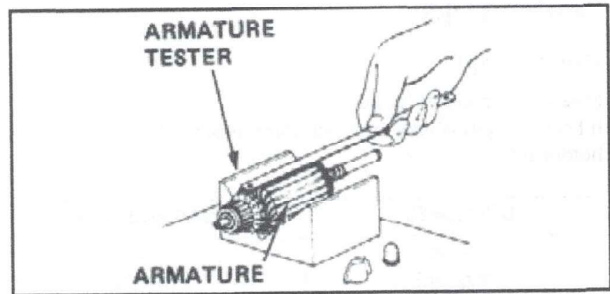
SHORT CIRCUIT TEST—SHAFT TO COMMUTATOR

Check for continuity between the commutator and armature shaft. If there is continuity, replace the armature.



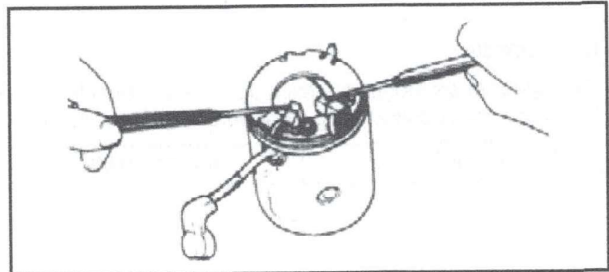
SHORT CIRCUIT TEST—ARMATURE

Place the armature on an armature tester (commercially available).
 Hold a hacksaw blade on the armature core. If the blade is attracted to the core or vibrates while the core is turned, the armature is shorted. Replace the armature.



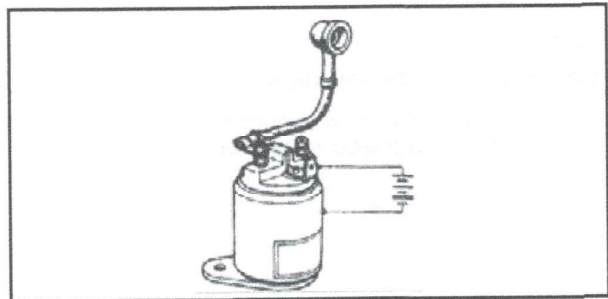
Starter Field Coil

Using an ohmmeter, check for continuity between the brushes.
 If no continuity exists, replace the field coil housing.



Starter Solenoid

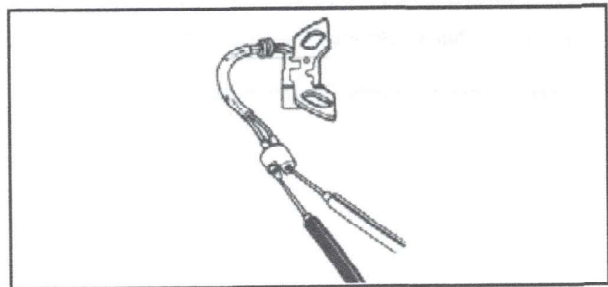
Connect a 12V battery between the terminal and case and listen for the solenoid to operate. If there is no sound, replace the solenoid.



Pulser Coil (not used on K 1 models)

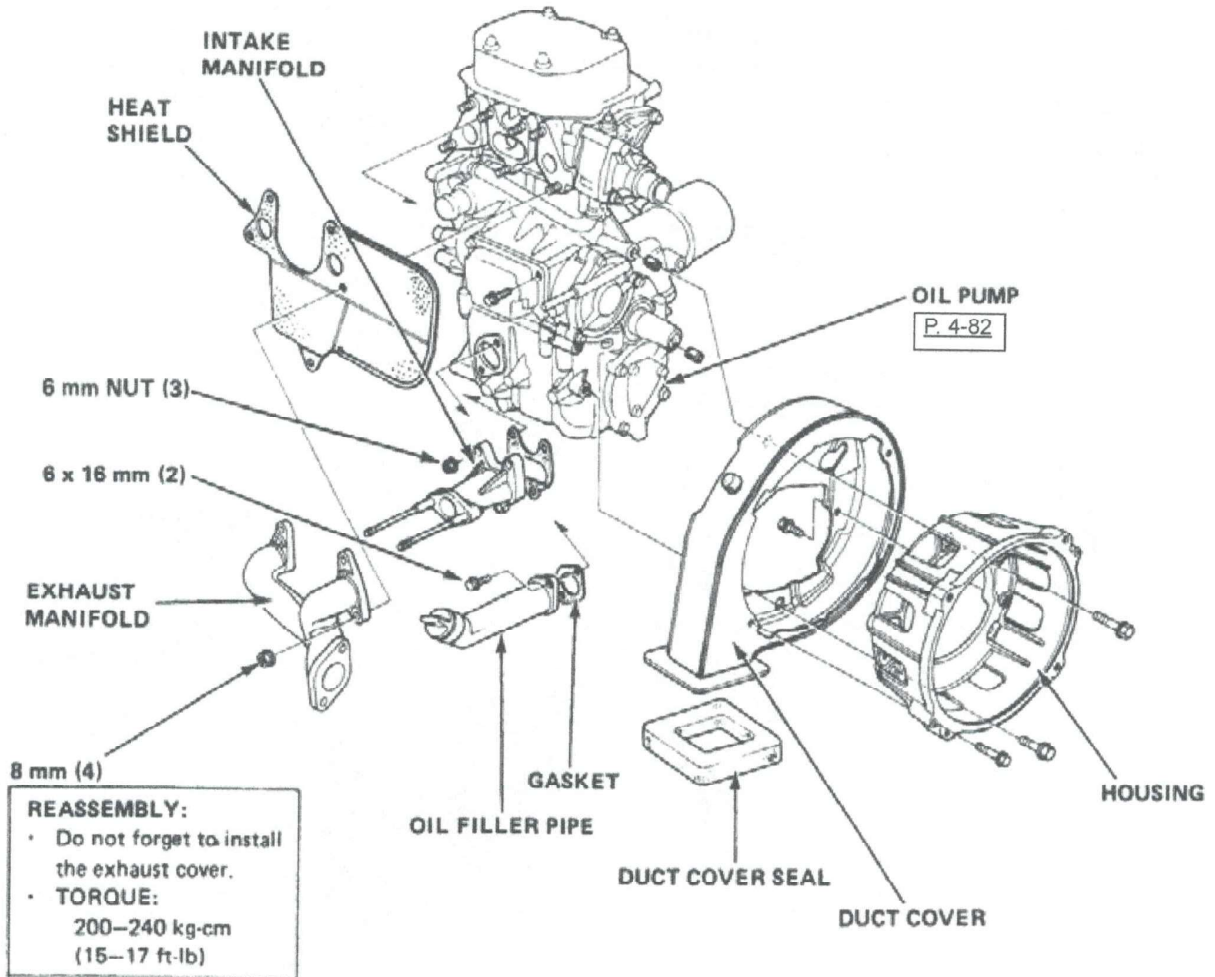
Measure the resistance between the white and green leads.

RESISTANCE	108 ~ 132 Ω
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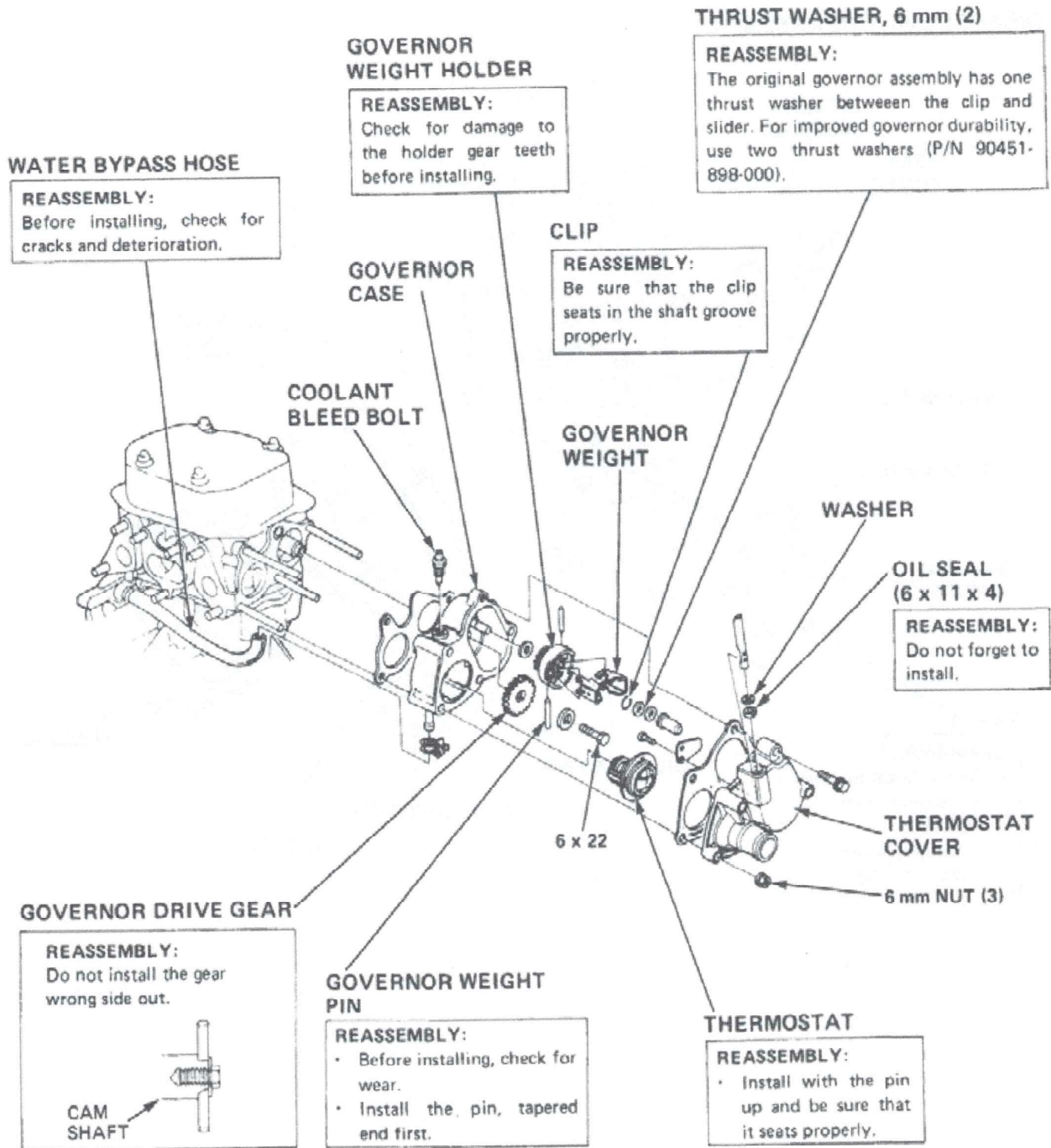


18. REAR HOUSING/MANIFOLD

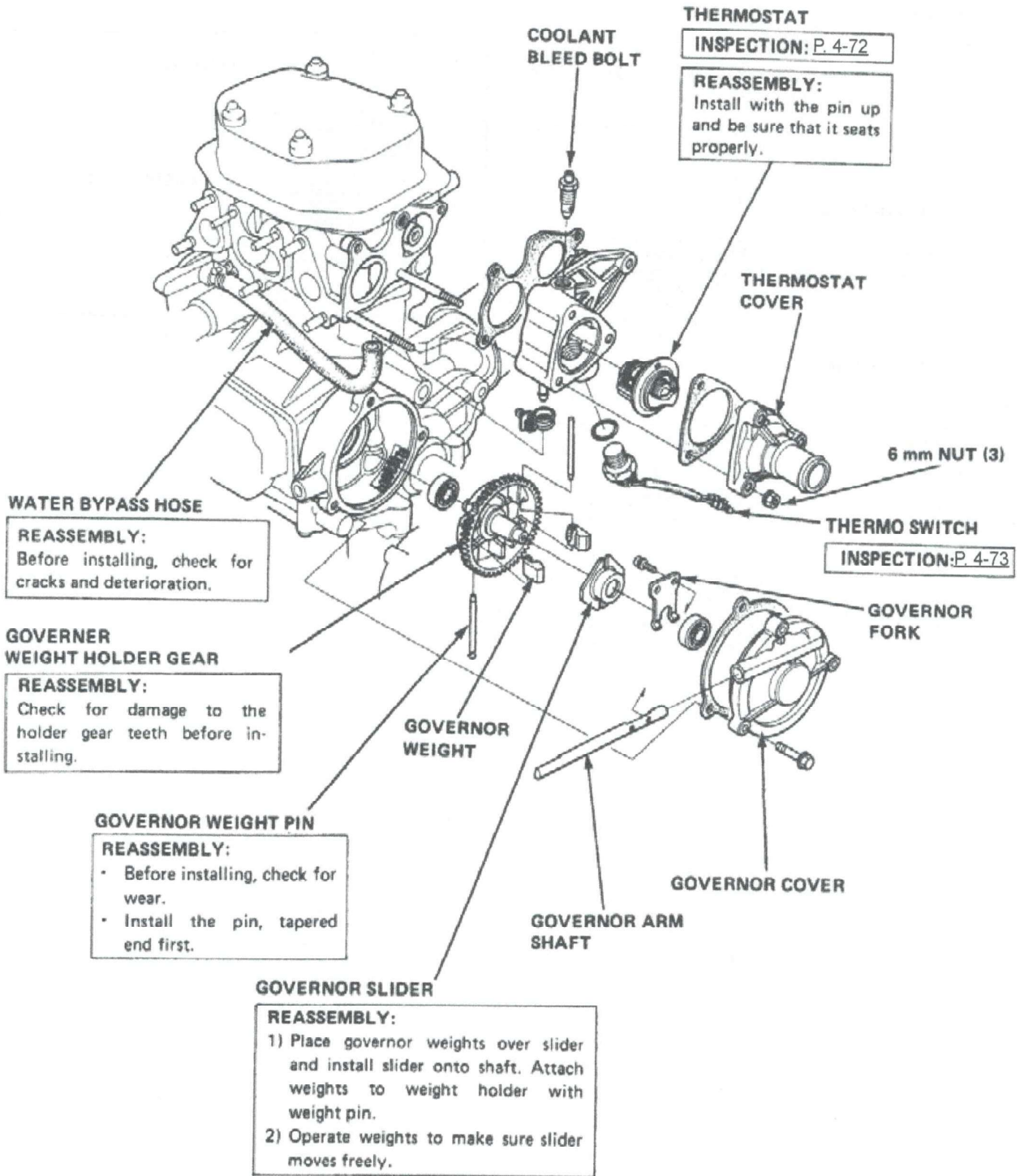
DISASSEMBLY/REASSEMBLY



Thermostat/Governor (EL5000-EX5500-ES6500)



Thermostat/Governor (EX5500K1/K2- ES6500K1/K2)



INSPECTION

THERMOSTAT

1. Immerse the thermostat in water.
2. Heat the water and observe the operation of the thermostat as the water temperature increases.
3. Measure the water temperature when the thermostat starts opening.
4. Measure the lift height when fully open.

EL5000•EX5500•ES6500:

Start opening	80°C (176°F)
Fully open	95°C (203°F)
Lift height	8 mm (0.3 in) min

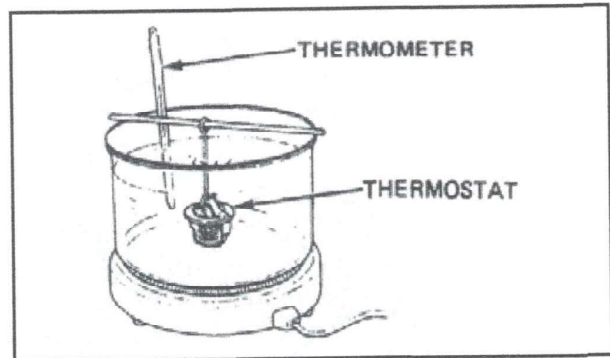
EL5000•EX5500•ES6500:

Sub valve

Start opening	77°C (171°F)
Fully open	82°C (180°F)
Lift height	1.5 mm (0.06 in) min

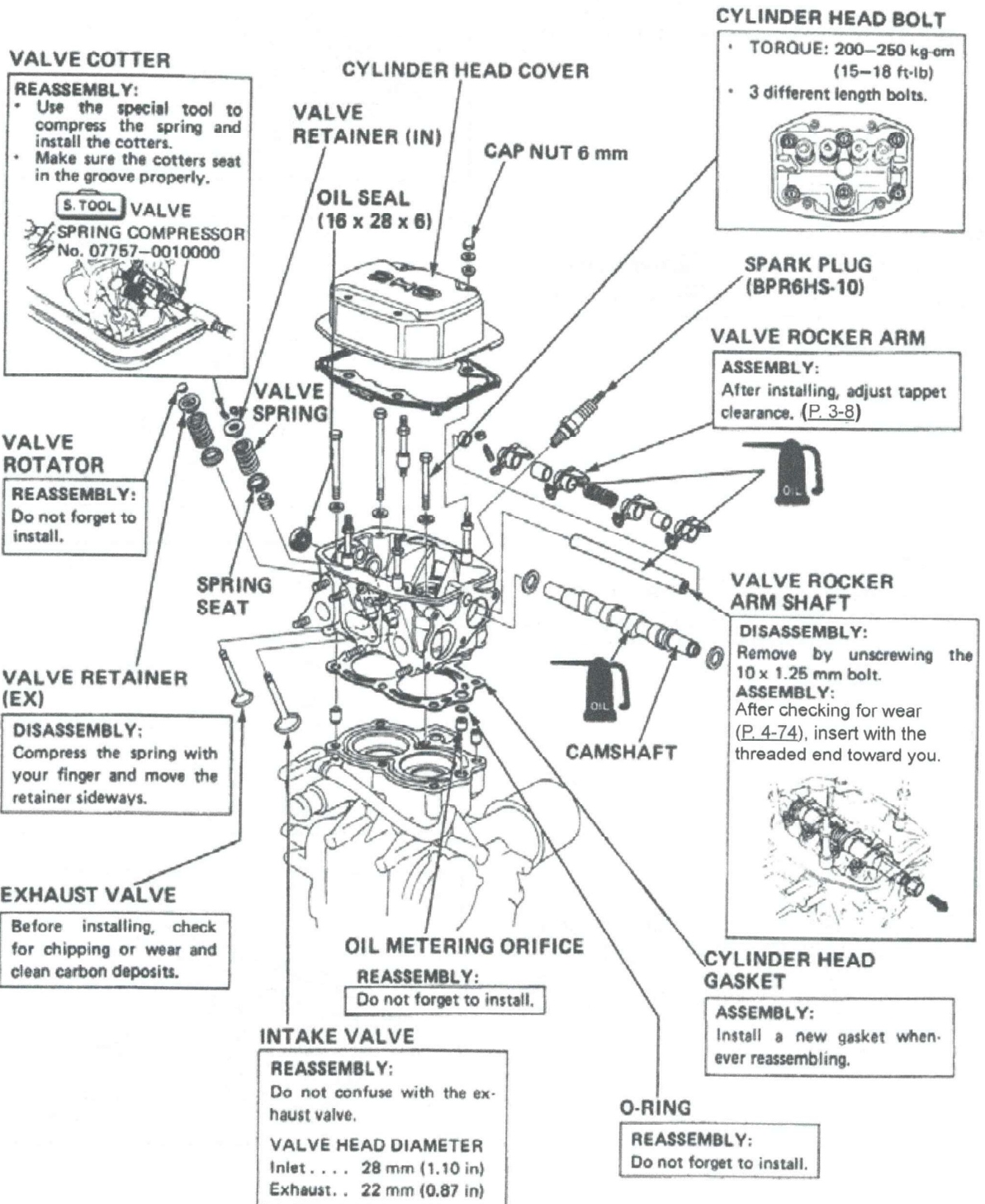
Main valve

Fully open	85°C (185°F)
Lift height	6.5 mm (0.26 in) min



19. CYLINDER HEAD/VALVES/CAMSHAFT

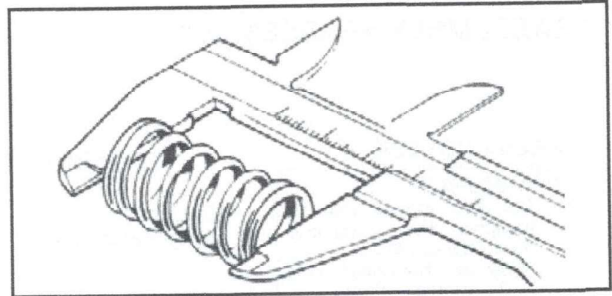
DISASSEMBLY/REASSEMBLY



INSPECTION

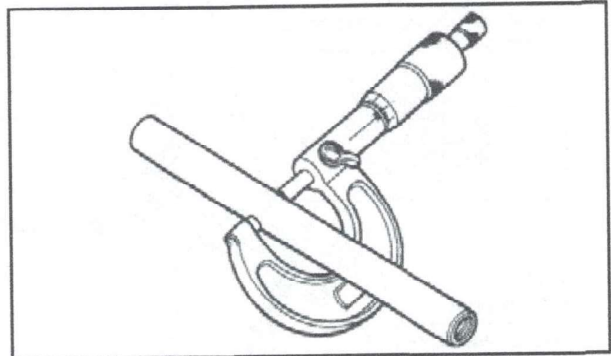
Valve Spring Free Length

STANDARD	SERVICE LIMIT
29.0 mm (1.14 in)	27.5 mm (1.08 in) min



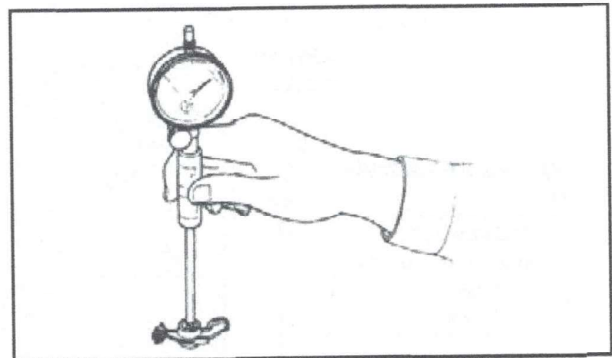
Rocker Arm Shaft O.D.

STANDARD	SERVICE LIMIT
12.957 mm (0.510 in)	12.940 mm (0.509 in) min



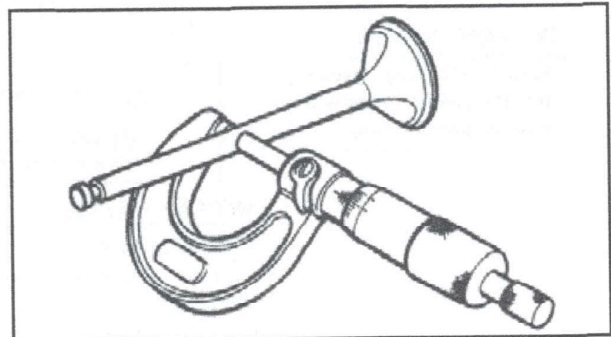
Rocker Arm I.D.

STANDARD	SERVICE LIMIT
13.015 mm (0.512 in)	13.04 mm (0.513 in) max



Valve Stem O.D.

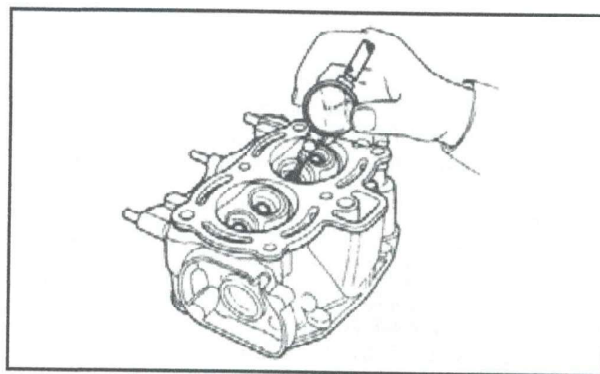
	STANDARD	SERVICE LIMIT
IN	5.48 mm (0.216 in)	5.32 mm (0.209 in) min
EX	5.45 mm (0.215 in)	5.29 mm (0.208 in) min



Valve Guide I.D.

STANDARD		SERVICE LIMIT
5.50 mm (0.217 in)		5.55 mm (0.219 in) max

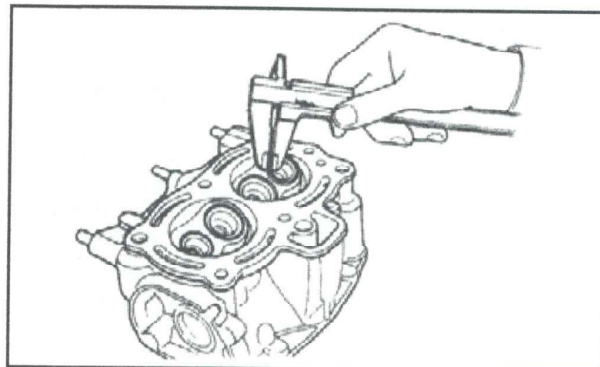
For replacement, see [page 4-76](#).



Valve Seat Width

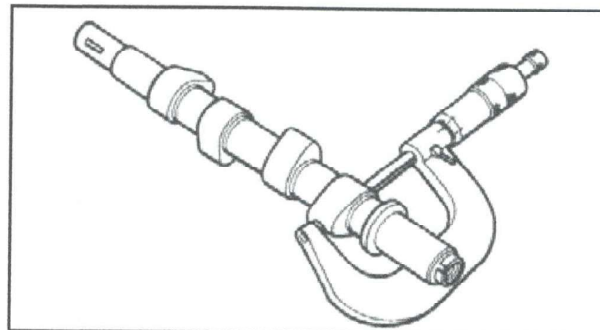
STANDARD		SERVICE LIMIT
IN EX	0.7 mm (0.03 in)	2.0 mm (0.08 in) max

For refacing see [page 4-77](#).



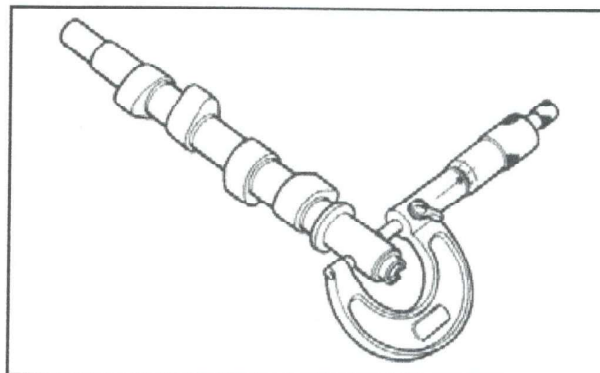
Cam Height

STANDARD		SERVICE LIMIT
IN	26.0 mm (1.024 in)	25.7 mm (1.01 in) min
EX	25.9 mm (1.02 in)	25.6 mm (1.00 in) min



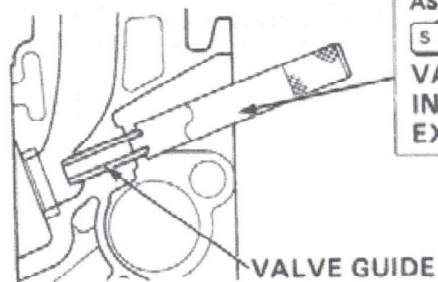
Camshaft O.D.

	STANDARD	SERVICE LIMIT
GOVERNOR SIDE	15.98 mm (0.629 in)	15.9 mm (0.628 in)
TIMING SIDE	15.98 mm (0.629 in)	15.9 mm (0.626 in)



Valve Guides

After installing new guides, ream them to size with the VALVE GUIDE REAMER (special tool).

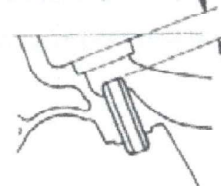
**DISASSEMBLY:**

Drive the valve guide out of the head from the combustion chamber side, using the VALVE GUIDE DRIVERS (IN: No. 07942-8920000; EX: No. 07942-9350000).

ASSEMBLY:

Install the clip on the new guides and drive them to the depths shown.

IN: 15 mm (0.59 in)
EX: 13 mm (0.51 in)



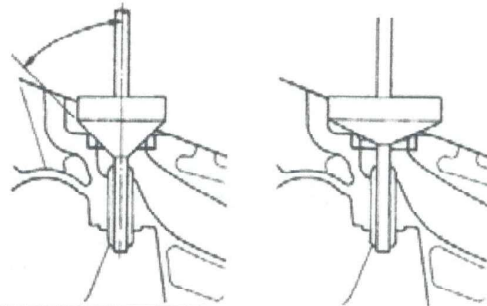
Valve Seat Reconditioning

1. Resurface the valve seat with a 45° cutter, removing only enough material to produce a smooth and concentric seat. Turn the cutter clockwise, never counterclockwise. Continue to turn the cutter as you lift it from the valve seat.

VALVE SEAT CUTTERS
 (Commercially available)

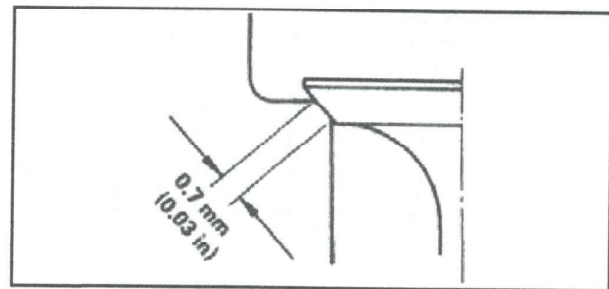
45° CUTTER

32° CUTTER

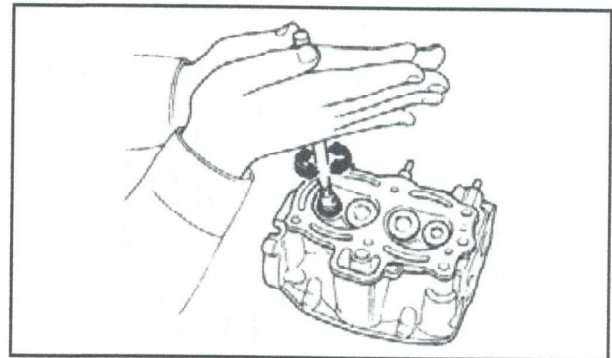


2. Use a 32° cutter to narrow the seat to standard width, and then make a light pass with the 45° cutter to remove any possible burrs at the edge of the seat.

VALVE SEAT WIDTH	0.7 mm (0.03 in)
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3. After resurfacing the seat, inspect for even valve seating. Apply Prussian blue compound to the valve face, insert the valve, then lift it and snap it closed against the seat several times. The valve seating surface, as shown by the Prussian blue compound, should show good contact all the way around.
4. After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure. After lapping, wash any residual compound off the cylinder head and valve.



20. CYLINDER BLOCK/CRANKSHAFT/CRANKCASE

DISASSEMBLY/REASSEMBLY (EX5500K0/K1•ES6500K0/K1)

