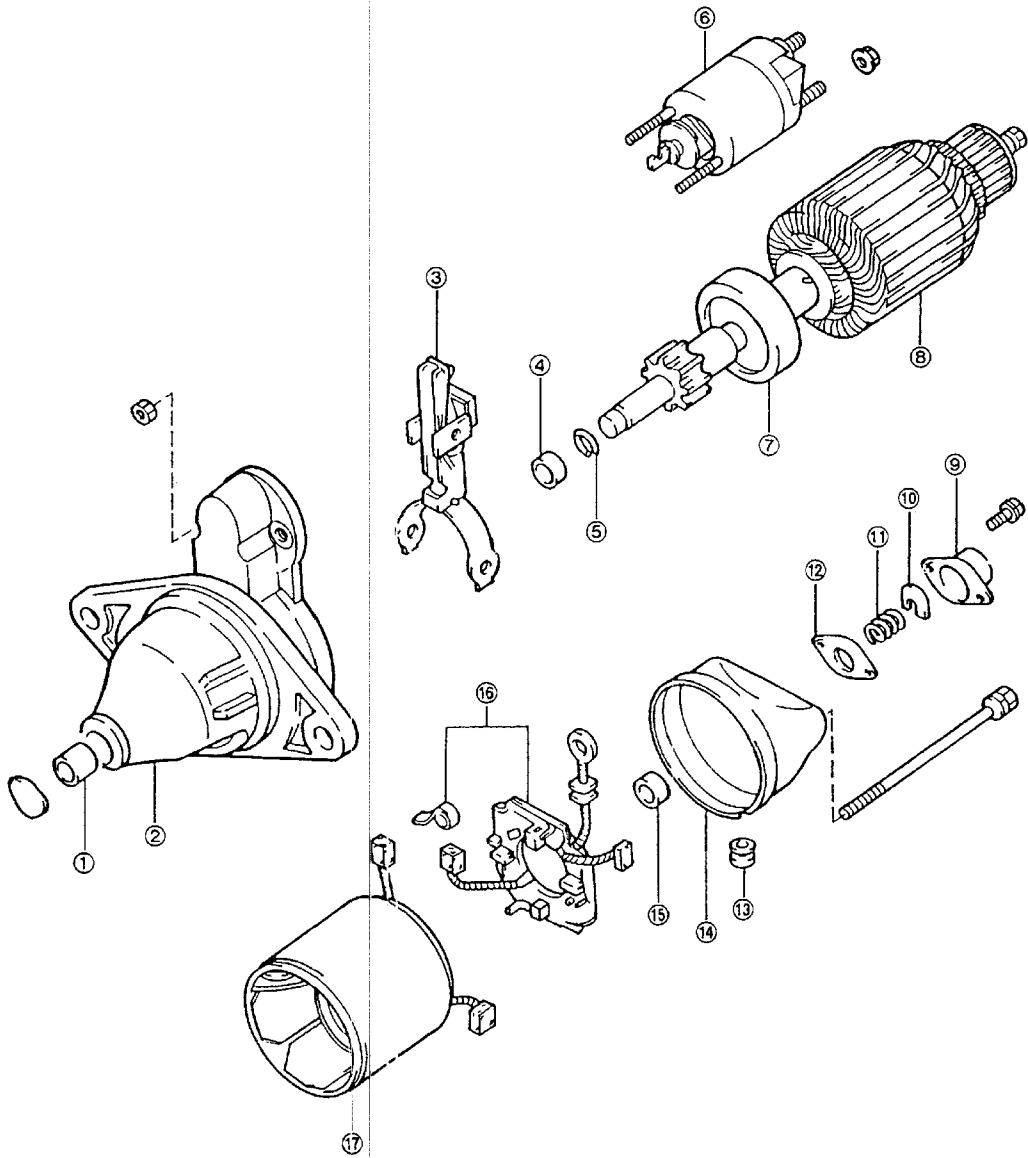


ENGINE ELECTRICAL SYSTEM

STARTER

COMPONENTS OF STARTER

[CB-23 M/T, CB-61 Engine & CB-80 Engine with General Specification]



- ① Screw
- ② Starter drive housing
- ③ Starter pinion drive lever
- ④ Stop collar
- ⑤ Snap ring
- ⑥ Magnetic switch
- ⑦ Starter clutch
- ⑧ Armature
- ⑨ Bearing cover

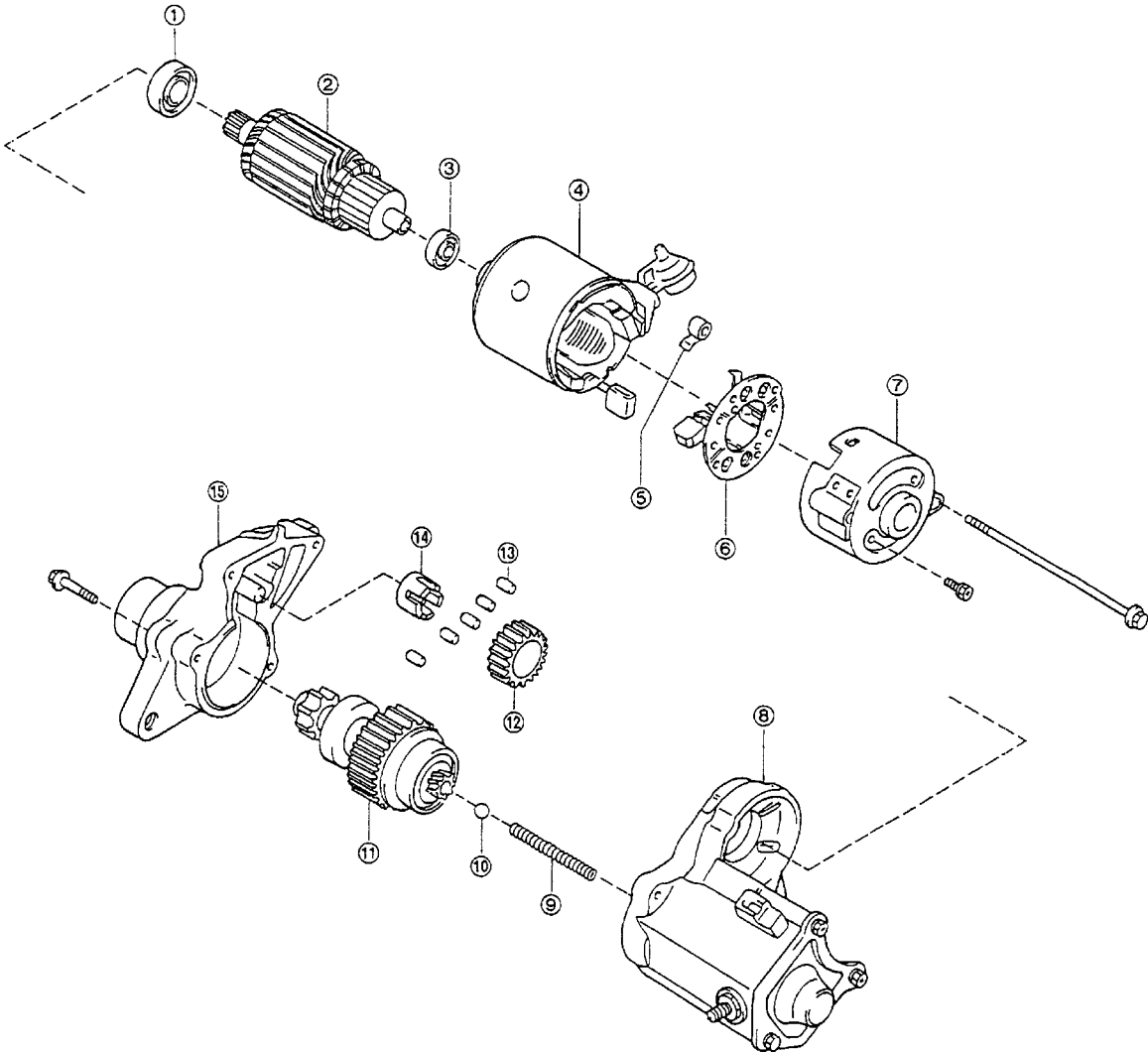
- ⑩ Lock plate
- ⑪ Spring
- ⑫ Cover
- ⑬ Dust protector
- ⑭ Commutator end frame
- ⑮ Bush
- ⑯ Bush holder
- ⑰ Field frame

Fig. 10-29

WM-10034

ENGINE ELECTRICAL SYSTEM

[CB-23 Engine A/T & CB-80 Engine with ECE & EEC Specification]



- | | |
|---------------------------|-------------------------|
| ① Bearing | ⑨ Spring |
| ② Armature | ⑩ Ball |
| ③ Bearing | ⑪ Starter clutch |
| ④ Starter yoke | ⑫ Idle gear |
| ⑤ Spring brush | ⑬ Roller |
| ⑥ Brush holder | ⑭ Retainer |
| ⑦ Drive housing | ⑮ Starter drive housing |
| ⑧ Magnetic starter switch | |

Fig. 10-30

WM-10035

ENGINE ELECTRICAL SYSTEM

PERFORMANCE TEST

CAUTION:

Each of the following tests must be performed within three to five seconds to avoid burning out the coil.

WM-10036

1. Perform the pull-in test.
 - (1) Disconnect the field coil lead from the terminal C.
 - (2) Connect the battery to the magnetic switch as shown in the right figure. Ensure that the pinion moves outward.
If the pinion does not move, replace the magnetic switch.

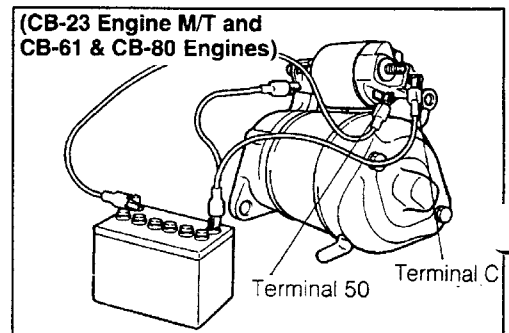


Fig. 10-31

WM-10037

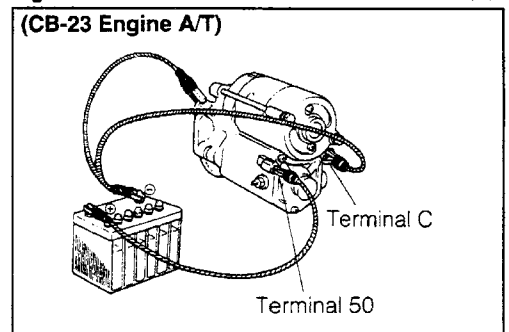


Fig. 10-32

WM-10038

2. Perform the hold-in test.
While still connected above and with the pinion out, disconnect the negative lead from the terminal C.
Ensure that the pinion remains out.
If the pinion returns inward, replace the magnetic switch.

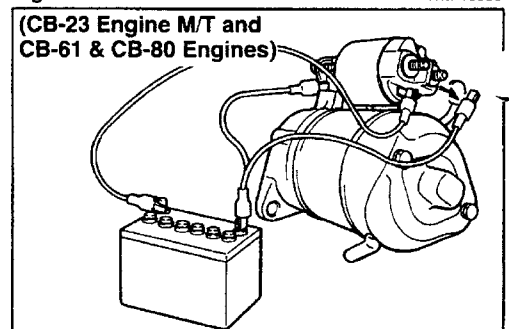


Fig. 10-33

WM-10039

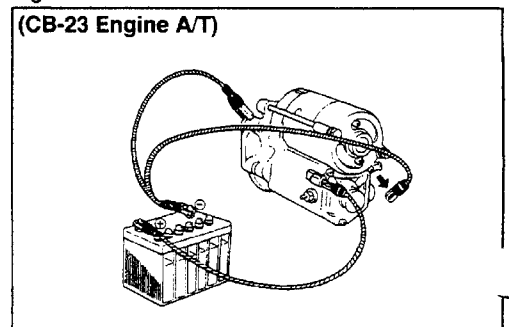


Fig. 10-34

WM-10040

ENGINE ELECTRICAL SYSTEM

- 3. Check the pinion return. Disconnect the negative lead from the switch body. Ensure that pinion returns inward. If the pinion does not return, replace the magnetic switch.

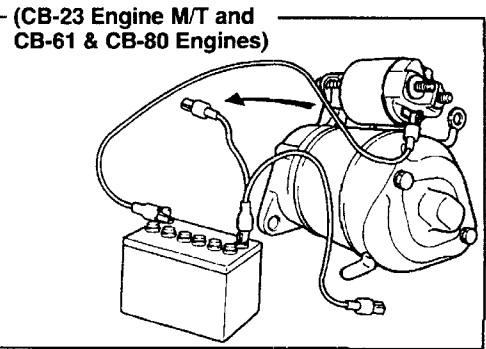


Fig. 10-35

WM-10041

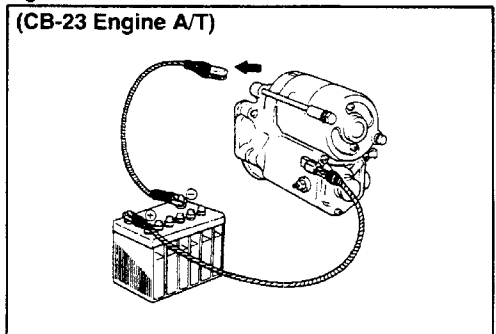


Fig. 10-36

WM-10042

4. Perform the no-load performance (CB-23 Engine M/T and CB-61 & CB-80 Engines)
 - (1) Connect the field coil lead to the terminal C. Make sure that the lead is not grounded.
 - (2) Connect the battery and ammeter to the starter as shown in Fig. 10-40.
 - (3) Ensure that the starter rotates smoothly and steadily with the pinion moving out.
 - (4) Ensure that the ammeter registers the specified current.

Specified Current: Less Than 50 A at 11 V

5. Perform the no-load performance (CB-23 Engine A/T)
 - (1) Connect the battery and ammeter to the starter as shown in the right figure.
 - (2) Ensure that the starter rotates smoothly and steadily with the pinion moving out. Ensure that the ammeter registers the specified current.

Specified Current: Less Than 90 A at 11.5 V

6. Check the pinion clearance. (Except CB-23 Engine A/T)
 - (1) Connect the battery to the magnetic switch as shown in Fig. 10-42.

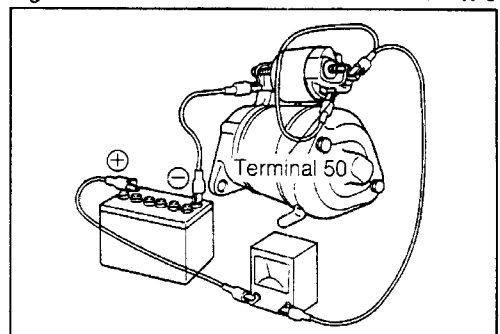


Fig. 10-37

WM-10043

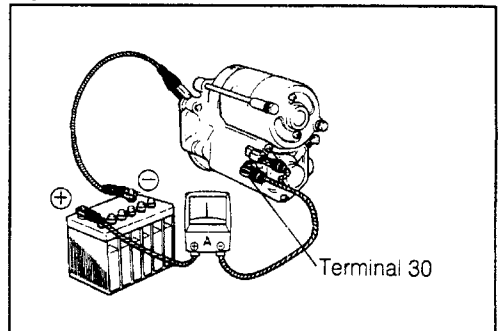


Fig. 10-38

WM-10044

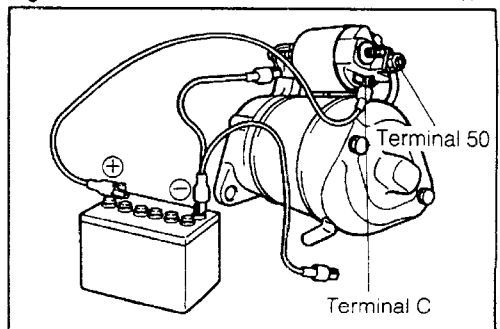


Fig. 10-39

WM-10045

ENGINE ELECTRICAL SYSTEM

- (2) Move the pinion gear toward the armature to remove any play. Measure the clearance between the pinion end and the stop collar.

Specified Clearance: 0.1 - 4.0 mm
(0.004 - 0.157 inch)

DISASSEMBLY

[CB-23 Engine M/T and CB-61 & CB-80 Engines]

1. Remove the magnetic switch.
 - (1) Remove the nut. Disconnect the lead wire from the magnetic switch terminal.
 - (2) Loosen the two nuts holding the magnetic switch to the switch housing. Lift the magnetic switch up and out to unhook the plunger from the drive lever.

2. Remove the end frame.
 - (1) Remove the bearing cover.
 - (2) Using a feeler gauge, check the armature shaft thrust clearance between the lock plate and the end frame.
Thrust clearance: 0.05 - 0.60 mm
(0.0020 - 0.0236 inch)

 - (3) Remove the lock plate, spring and rubber.
 - (4) Remove the two through bolts and pull out the commutator end frame.

3. Remove the brushes and brush holder.
 - (1) Using a piece of steel wire, separate the brush springs. Remove the brushes from the brush holder.
 - (2) Pull the brush holder off the armature.

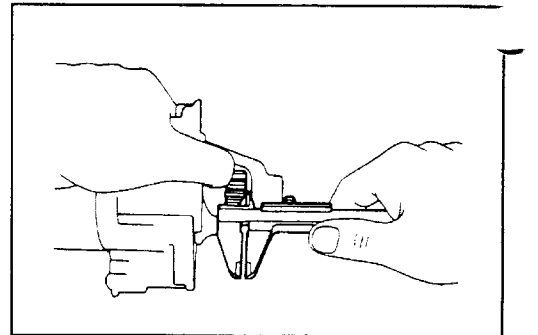


Fig. 10-40

WM-10046

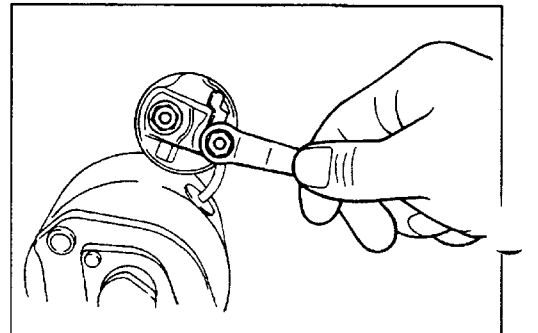


Fig. 10-41

WM-10047

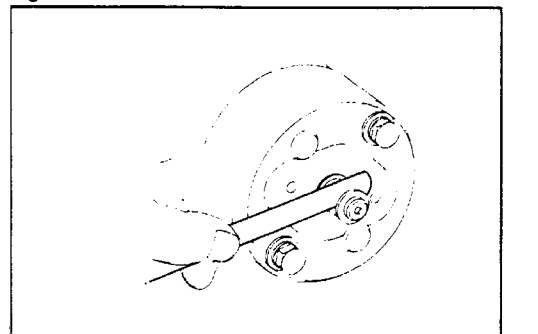


Fig. 10-42

WM-10048

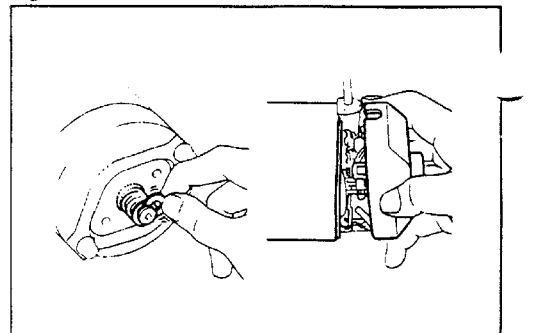


Fig. 10-43

WM-10049

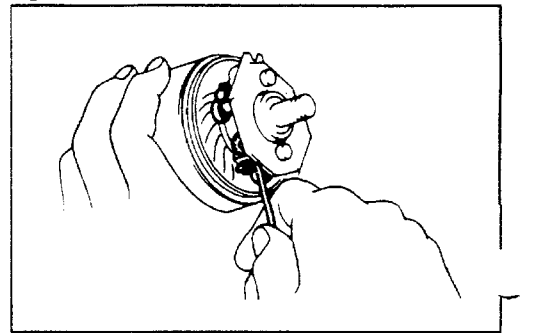


Fig. 10-44

WM-10050

ENGINE ELECTRICAL SYSTEM

4. Remove the field frame from the drive housing.
Pull them apart by hands.
5. Remove the armature.
 - (1) Remove the drive lever from the drive housing.
 - (2) Pull the armature from the drive housing.

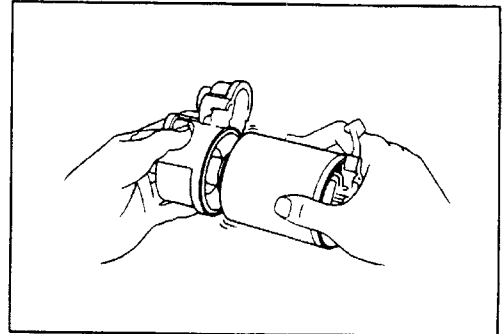


Fig. 10-45

WM-10051

6. Remove the starter clutch.
 - (1) Detach the stop collar, using a screwdriver.
 - (2) Pry off the snap ring, using a screwdriver.
 - (3) Remove the collar from the shaft.

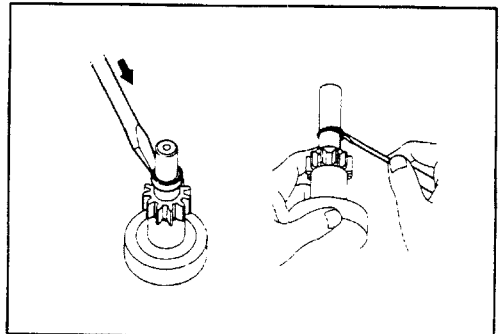


Fig. 10-46

WM-10052

- (4) If any difficult is encountered in pulling out the pinion, smoothen the shaft with an oil stone.
- (5) Remove the starter clutch.

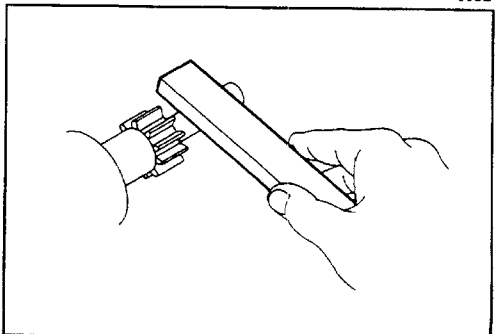


Fig. 10-47

WM-10053

DISASSEMBLY [CB-23 Engine A/T]

1. Remove the field frame with armature from the magnetic switch.
 - (1) Disconnect the lead wire from the magnetic switch terminal.
 - (2) Remove the two through bolts. Pull out the field frame with the armature from the magnetic switch.
 - (3) Remove the left seal.

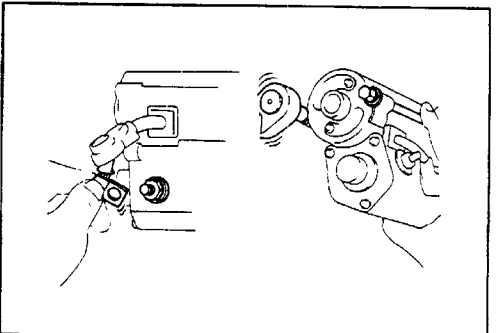


Fig. 10-48

WM-10054

2. Remove the starter housing from the magnetic switch assembly.
Remove the two screws and remove the starter housing with the idler gear and clutch assembly.

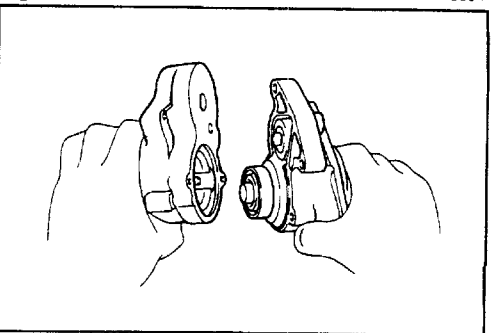


Fig. 10-49

WM-10055

ENGINE ELECTRICAL SYSTEM

3. Remove the clutch assembly and idler gear from the starter housing.
4. Remove the steel ball and spring. Using a magnetic finger, remove the spring and steel ball from the clutch shaft hole.

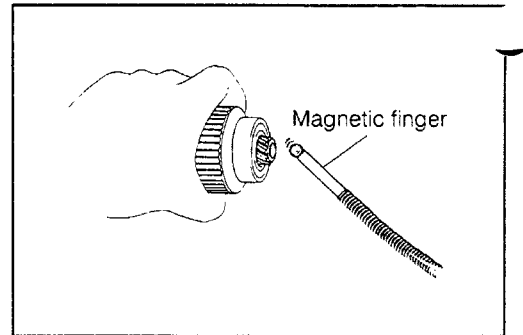


Fig. 10-50

WM-10056

5. Remove the brushes and brush holder.
 - (1) Remove the endcover from the field frame.
 - (2) Separate the brush springs, using a screwdriver or a steel wire. Remove the brushes from the brush holder.
 - (3) Pull the brush holder off the field frame.
6. Remove the armature from the field frame.

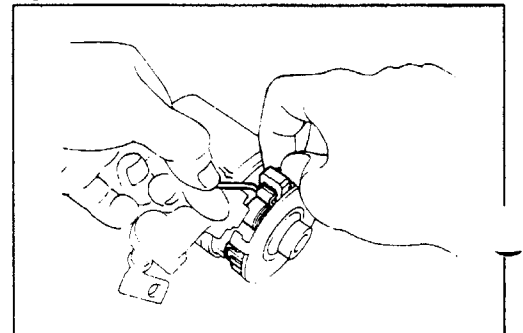


Fig. 10-51

WM-10057

INSPECTION

Armature Coil

1. Ensure that the commutator is not grounded. Using an ohmmeter, ensure that no continuity exists between the commutator and the armature coil core. If continuity exists, replace the armature.
2. Check the commutator for open circuit. Using an ohmmeter, ensure that continuity exists between the segments of the commutator. If no continuity exists between any segments, replace the armature.

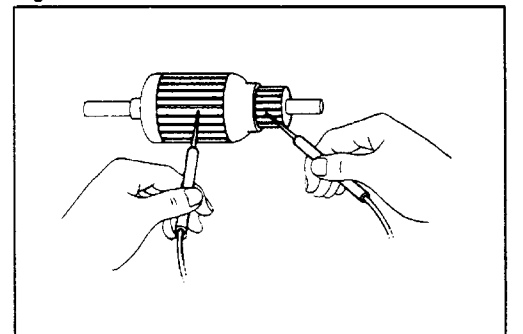


Fig. 10-52

WM-10058

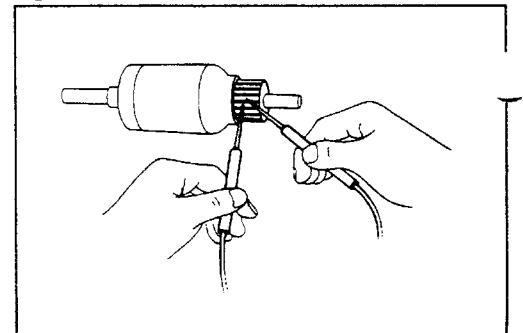


Fig. 10-53

WM-10059

Field Coil

1. Check the field coil for open circuit. Using an ohmmeter, ensure that continuity exists between the lead wire and the field coil brush lead. If no continuity exists, replace the field coil.

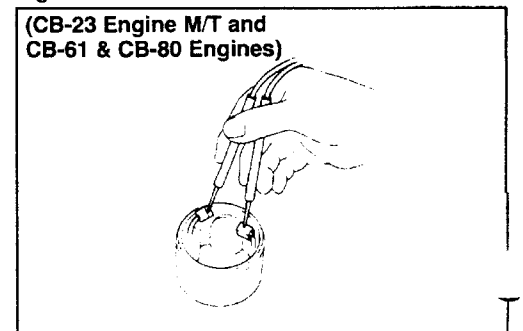


Fig. 10-54

WM-10060

2. Ensure that the field coil is not grounded.
Using an ohmmeter, ensure that no continuity exists between the field coil end and the field frame.
If continuity exists, replace the field coil.

Brush Holder

1. Check the brush holder for insulation.
Using an ohmmeter, ensure that no continuity exists between the positive and negative brush holders.
If continuity exists, repair or replace the brush holder.

Starter Clutch

1. Inspect the pinion gear and spline teeth.
Inspect the pinion gear and spline teeth for wear or damage. If damaged, replace the starter clutch. Also, inspect the flywheel ring gear for wear or damage.
2. Check the clutch.
Rotate the pinion clockwise. Ensure that the pinion is locked. Then, rotate the pinion counterclockwise. Ensure that the pinion rotates freely.

Bearings

1. Inspect the bearings.
Turn each bearing by hands while applying a force to the bearing. If any resistance or binding is felt, replace the bearing.

(CB-23 Engine A/T)

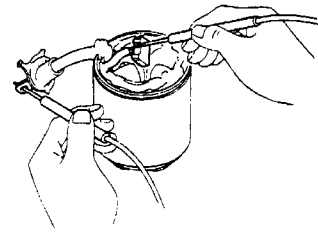


Fig. 10-55

WM-10061

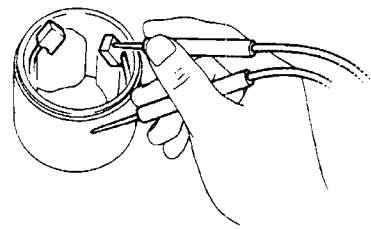


Fig. 10-56

WM-10062

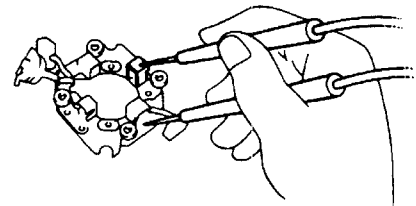


Fig. 10-57

WM-10063

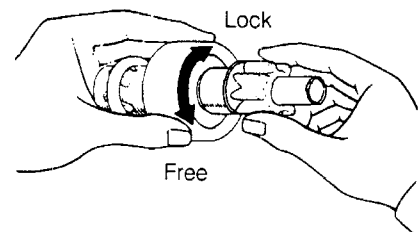


Fig. 10-58

WM-10064

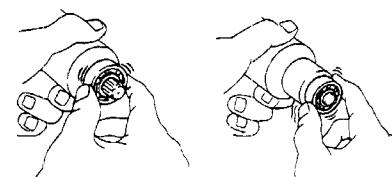


Fig. 10-59

WM-10065

ENGINE ELECTRICAL SYSTEM

2. Replace the bearings, as required.
 - (1) Remove the bearing from the armature shaft, using the following SST.
 - (2) Remove the other bearing from the opposite side.
SST: 09286-46011
 - (3) Tape the front bearing onto the shaft, using the following SST.
SST: 09285-76010
 - (4) Install the rear bearing onto the shaft, using a press.

Magnetic Switch

[CB-23 Engine M/T and CB-61 & CB-80 Engines]

1. Check the plunger.

Push in the plunger and release it. Ensure that it returns quickly to its original position.
2. Perform the pull-in coil open circuit test.

Using an ohmmeter, ensure that continuity exists between the terminal 50 and the terminal C.
If no continuity exists, replace the magnetic switch.
3. Perform the hold-in coil open circuit test.

Using an ohmmeter, ensure that continuity exists between the terminal 50 and the switch body.
If no continuity exists, replace the magnetic switch.

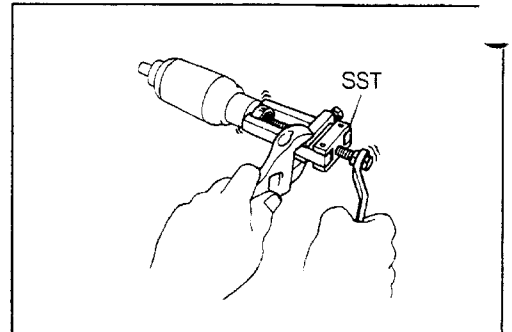


Fig. 10-60

WM-10066

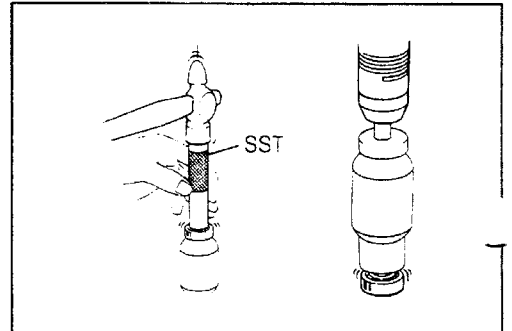


Fig. 10-61

WM-10067

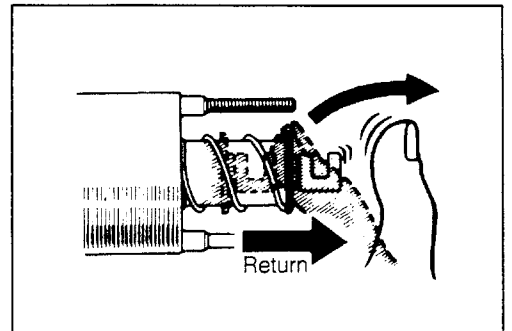


Fig. 10-62

WM-10068

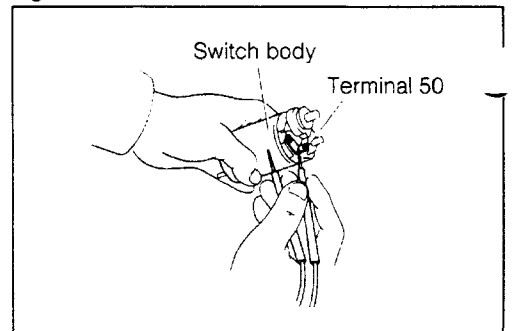


Fig. 10-63

WM-10069

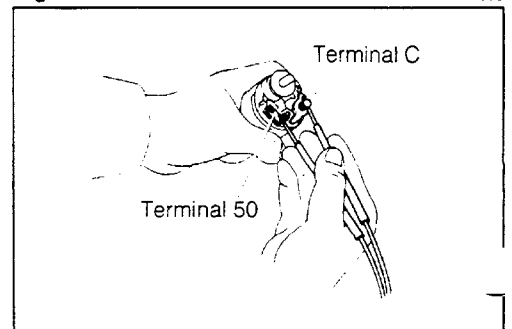


Fig. 10-64

WM-10070