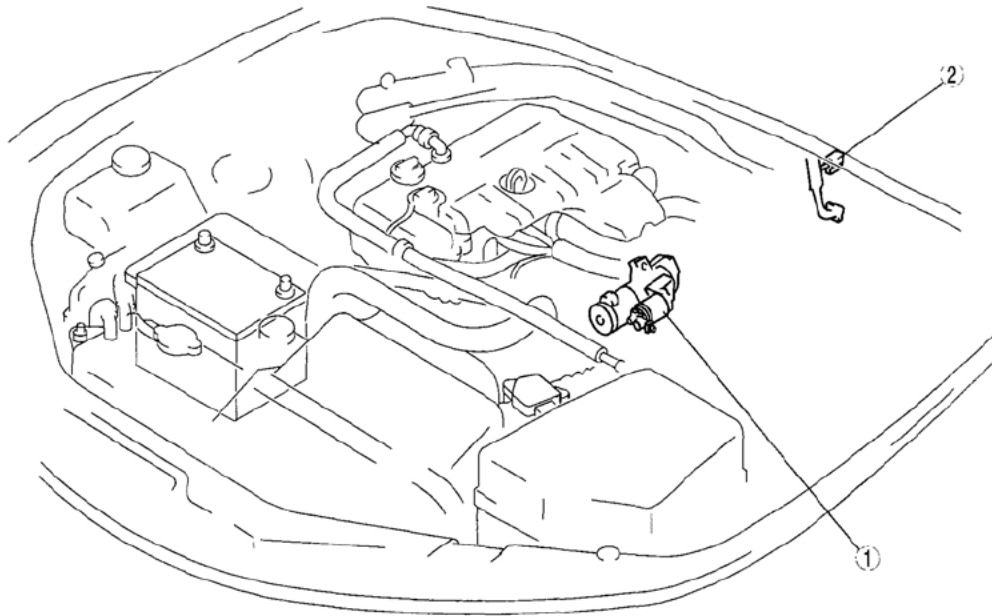


## 2008 ENGINE

### Starting System - MX-5 Miata

## STARTING SYSTEM LOCATION INDEX [LF]



E5U119ZW5001

1	Starter
2	Starter interlock switch (MT)

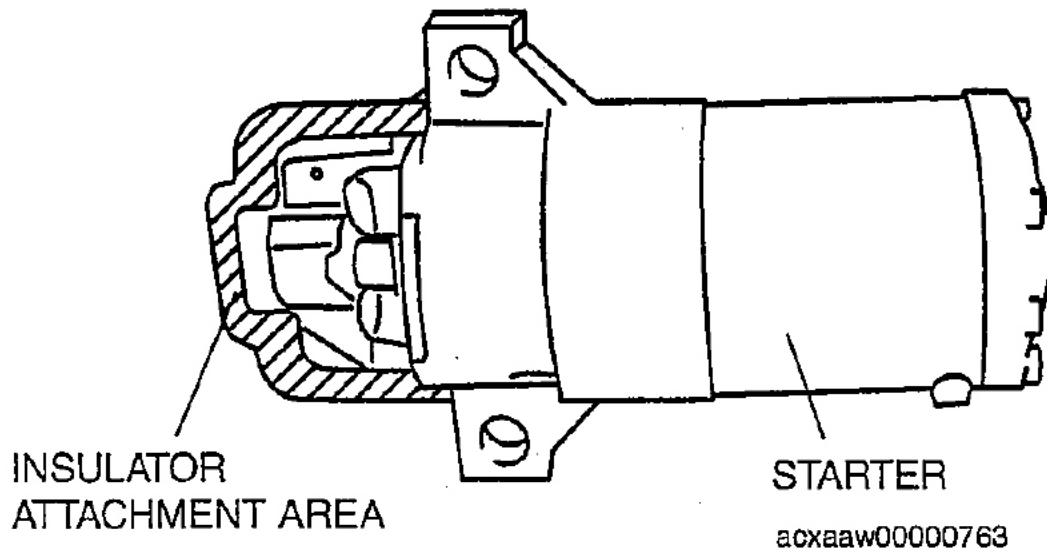
**Fig. 1: Identifying Location Of Starting System Components**  
Courtesy of MAZDA MOTORS CORP.

## STARTER REMOVAL/INSTALLATION [LF]

### WARNING:

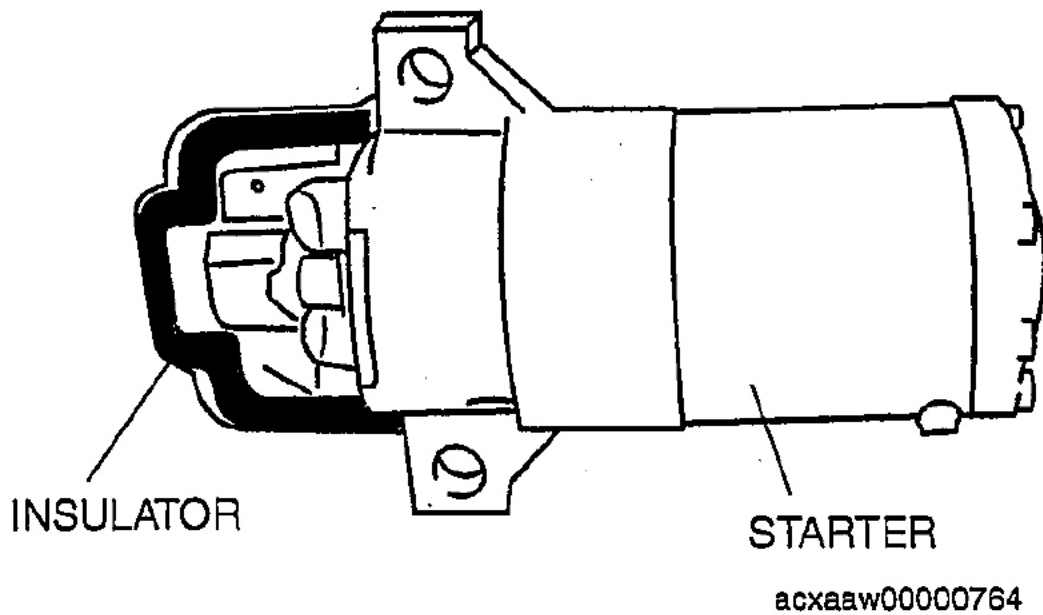
- Remove and install all parts when the engine is cold, otherwise they can cause severe burns or serious injury.
- When the battery cables are connected, touching the vehicle body with starter terminal B will generate sparks. This can cause personal injury, fire, and damage to the electrical components. Always disconnect the negative battery cable before performing the following operation.

1. Remove the battery cover.
2. Disconnect the negative battery cable. (See **BATTERY REMOVAL/INSTALLATION [LF]** .)
3. Remove the side cover. (LH)

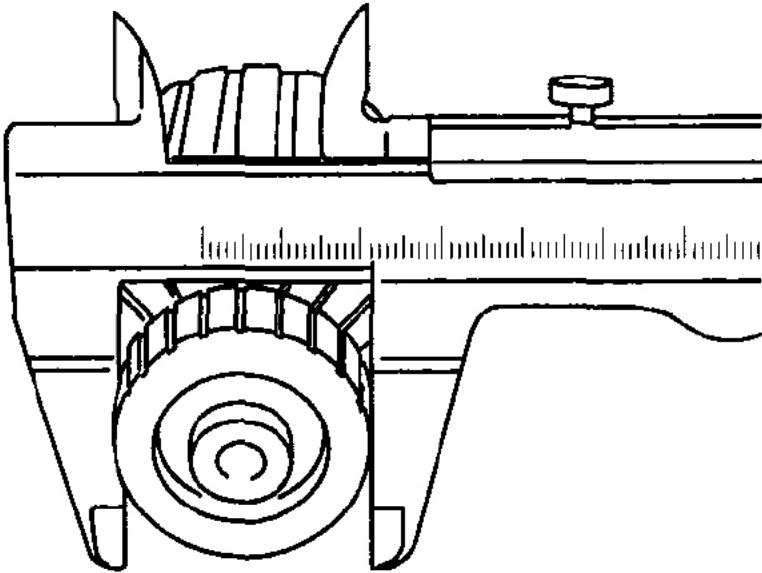


**Fig. 4: Identifying Insulator Attachment Area**

3. Attach a new insulator to the starter.



**Fig. 5: Identifying New Starter Insulator**



CHU0119W019

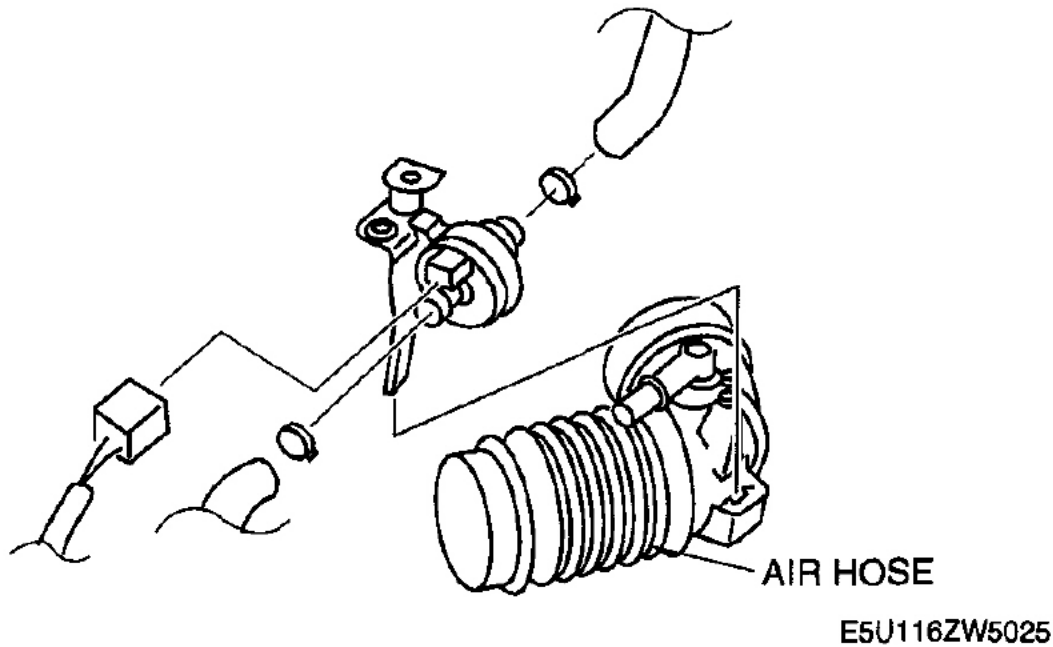
**Fig. 14: Measuring Commutator Diameter**  
Courtesy of MAZDA MOTORS CORP.

5. Measure the segment groove depth of the commutator.
  - If not within the minimum specification, undercut the grooves to the standard depth.

**Segment groove depth of starter commutator**

**Standard: 0.5 mm {0.02 in}**

**Minimum: 0.2 mm {0.008 in}**



**Fig. 19: View Of Purge Solenoid Valve & Air Hose**  
 Courtesy of MAZDA MOTORS CORP.

6. Install in the reverse order of removal.

## PURGE SOLENOID VALVE INSPECTION [LF]

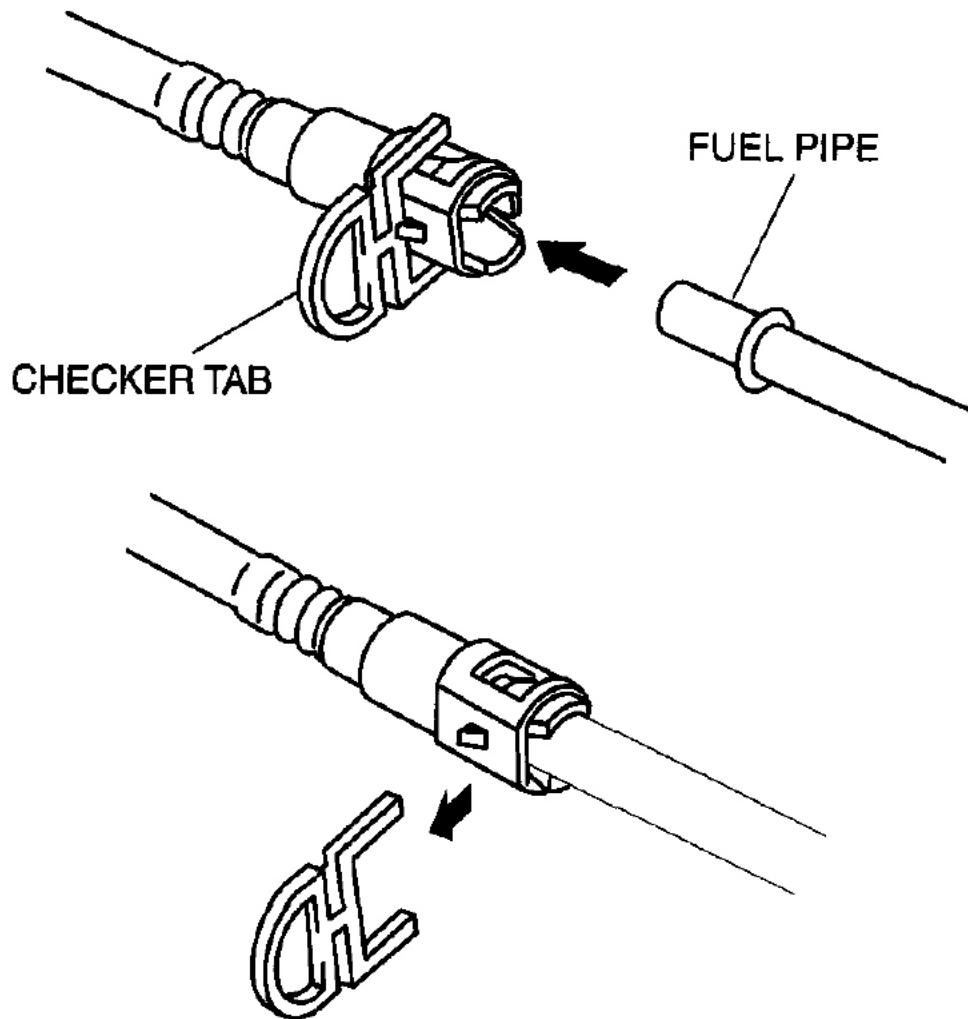
**NOTE:** • Perform the following procedure only when directed.

### AIRFLOW INSPECTION

1. Remove the purge solenoid valve without disconnecting the evaporative hose. (See **PURGE SOLENOID VALVE REMOVAL/INSTALLATION [LF]** ).
2. Verify that the airflow is as indicated in **PURGE SOLENOID VALVE AIRFLOW REFERENCE TABLE** .
  - If as specified in **PURGE SOLENOID VALVE AIRFLOW REFERENCE TABLE** , perform the **CIRCUIT OPEN/SHORT INSPECTION** .
  - If not as specified in **PURGE SOLENOID VALVE AIRFLOW REFERENCE TABLE** , inspect the purge solenoid valve. (See **PURGE SOLENOID VALVE REMOVAL/INSTALLATION [LF]** .)

### PURGE SOLENOID VALVE AIRFLOW REFERENCE TABLE

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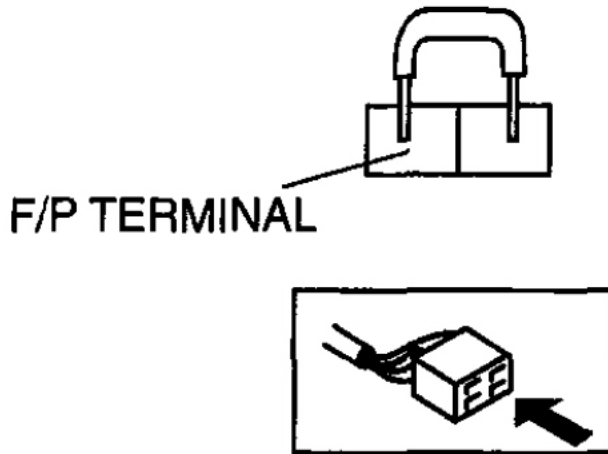


C3U0114S095

**Fig. 50: View Of Checker Tab & Quick Release Connector**  
Courtesy of MAZDA MOTORS CORP.

1. When newly replacing the quick release connector, remove the release tab using the following procedure.
  1. Widen the retainer lock using a flathead screwdriver, then pull out the release tab from the joint port and remove it.

## MAIN FUSE BLOCK (CHECK CONNECTOR)



E5U114ZW5027

**Fig. 51: Identifying F/P Connector Terminal**  
Courtesy of MAZDA MOTORS CORP.

2. Turn the ignition switch to the ON position to operate the fuel pump.
7. Measure the injection volume of each fuel injector.
  - If not within the specification, replace the fuel injector. (See **FUEL INJECTOR REMOVAL/INSTALLATION [LF]** .)

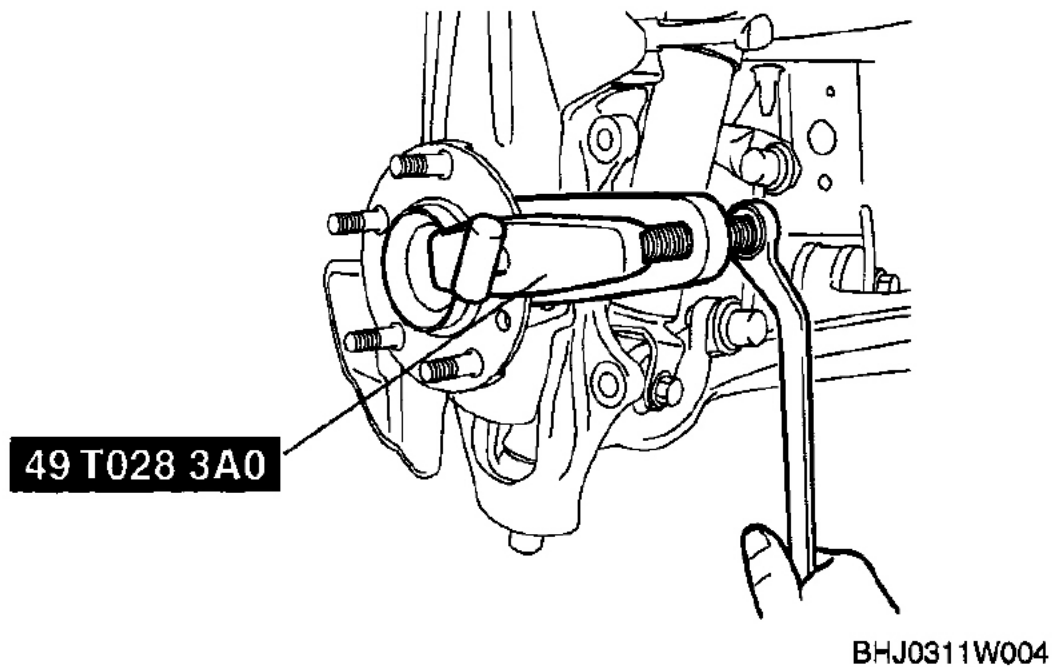
### Fuel injection volume

**204-216 ml {204-216 cc, 12.5-13.1 cu in}/min**

8. Turn the ignition switch to off to stop the fuel pump.
9. Install the fuel injector. (See **FUEL INJECTOR REMOVAL/INSTALLATION [LF]** .)
10. Complete the "AFTER SERVICE PRECAUTION". (See **AFTER SERVICE PRECAUTION [LF]** .)

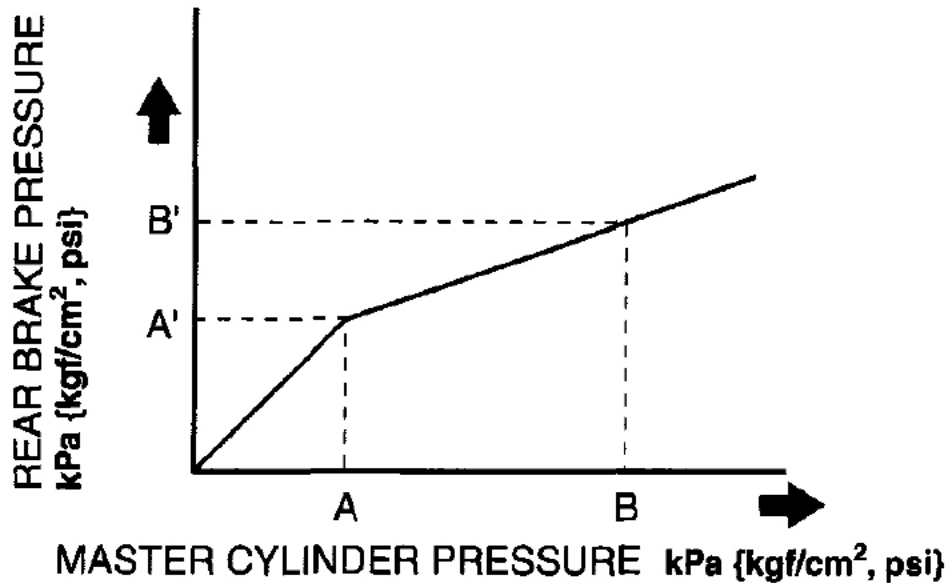
### ATOMIZATION INSPECTION

1. Inspect the atomization status.
  - If not normal, replace the fuel injector. (See **FUEL INJECTOR REMOVAL/INSTALLATION**



**Fig. 3: Removing Wheel Hub Bolt Using SST**  
Courtesy of MAZDA MOTORS CORP.

3. Place a new wheel hub bolt in the wheel hub.
4. Install the wheel hub bolt by placing a proper sized washer on the hub, and tightening the nut as shown in **Fig. 4**.



E5U411ZW5020

**Fig. 29: Dual Proportioning Valve Fluid Pressure Graph**  
 Courtesy of MAZDA MOTORS CORP.

**DUAL PROPORTIONING VALVE FLUID PRESSURE SPECIFICATIONS**

MASTER CYLINDER PRESSURE (kPa {kgf/cm <sup>2</sup> , psi})	REAR BRAKE PRESSURE (kPa {kgf/cm <sup>2</sup> , psi})
A: 3,430 {34.98, 497.5}	A': 3,130 {31.92, 453.9} - 3,730 {38.04, 540.9}
B: 5,880 {59.96, 852.8}	B': 4,010 {40.9, 581.7} - 4,810 {49.05, 697.6}

**FRONT BRAKE (DISC) INSPECTION**

**BRAKE JUDDER REPAIR HINTS**

**Description**

1. Brake judder concern has the following 3 characteristics:

**Steering Wheel Vibration**

1. Steering wheel vibrates in the rotation direction. This characteristic is most noticeable when applying brakes at a vehicle speed of **100-140 km/h {62.1-86.8 mph}** .

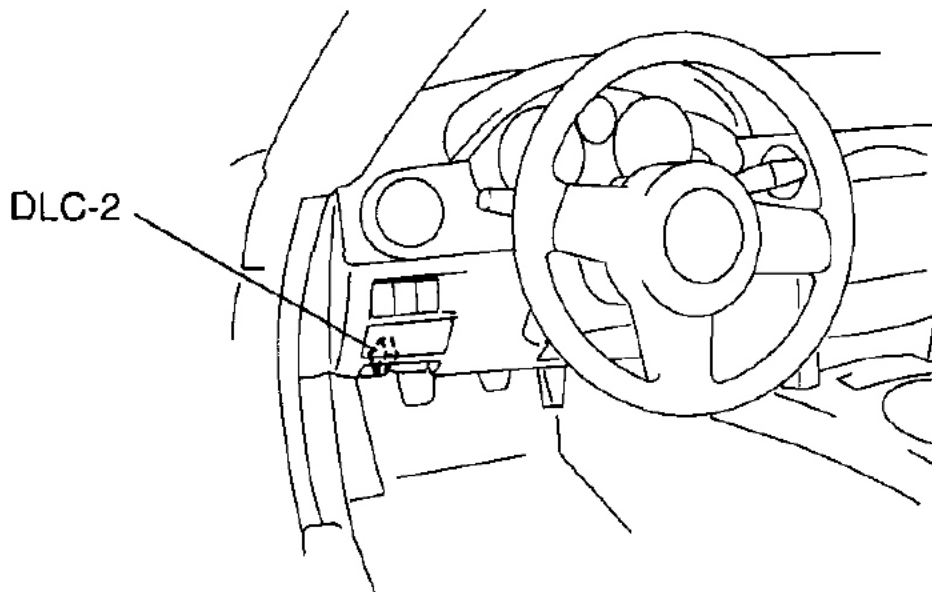
**Floor Vibration**



## SENSOR OUTPUT VALUE INSPECTION

- CAUTION:**
- Resistance inspection using other testers may cause damage to the ABS wheel-speed sensor internal circuit. Be sure to use the M-MDS or equivalent to inspect the ABS wheel-speed sensor.

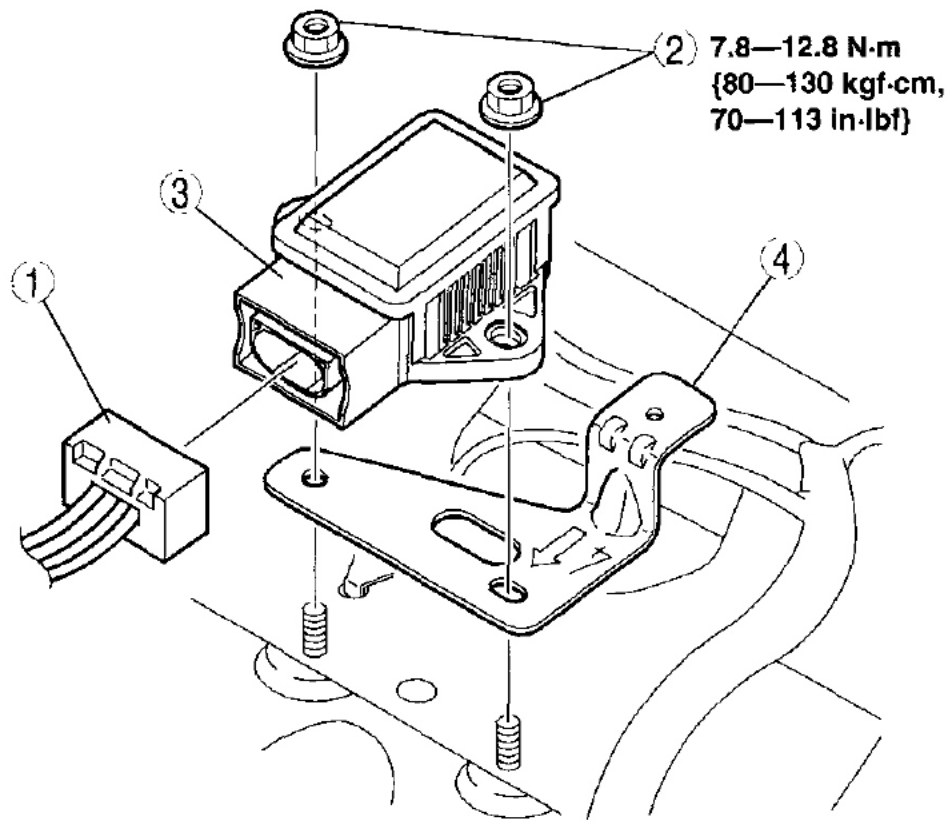
1. Turn the ignition switch off.
2. Connect the M-MDS or equivalent to the DLC-2.



E5U402AW5001

**Fig. 13: Locating DLC-2 Connector**  
Courtesy of MAZDA MOTORS CORP.

3. Select the following PIDs using the M-MDS or equivalent:
  - LF\_WSPD  
(LF wheel-speed sensor)
  - RF\_WSPD  
(RF wheel-speed sensor)
4. Start the engine and drive the vehicle.
5. Verify that the display of the M-MDS or equivalent shows the same value as the speedometer



E5U415ZW5010

1	Combined sensor connector
2	Nut
3	Combined sensor
4	Bracket

**Fig. 13: Combined Sensor (With Torque Specifications)**

Courtesy of MAZDA MOTORS CORP.

3. Install in the reverse order of removal.
4. After installation, perform the combined sensor initialization procedure. (See **COMBINED SENSOR INITIALIZATION PROCEDURE**.)

## COMBINED SENSOR INSPECTION

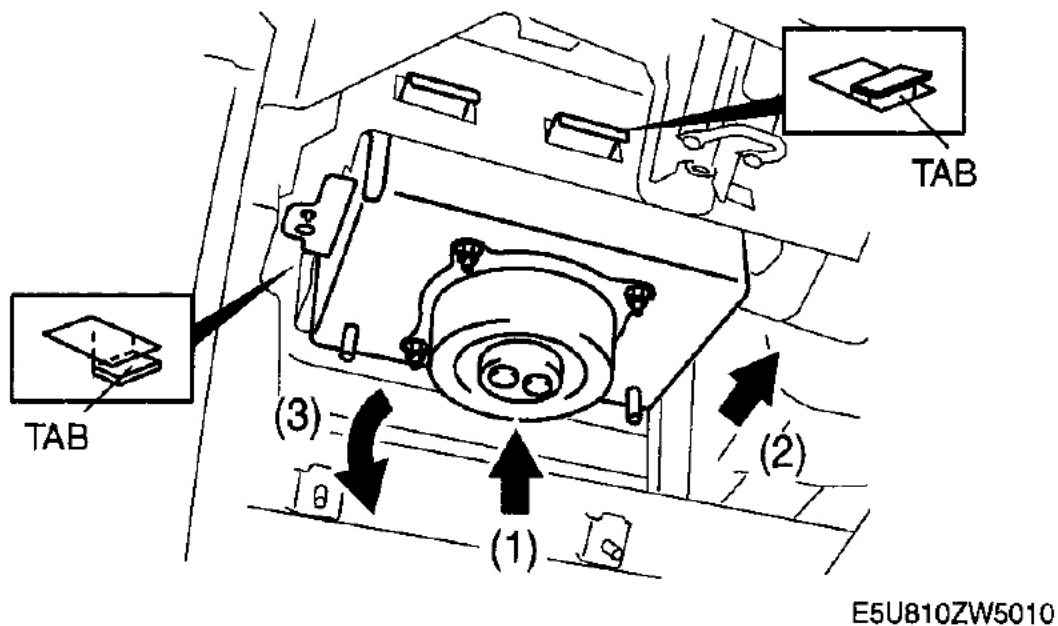
1. Turn the ignition switch off.

**Fig. 12: View Of Passenger-Side Air Bag Module & Components (With Torque Specifications)**  
Courtesy of MAZDA MOTORS CORP.

6. Install in the reverse order of removal.
7. Turn the ignition switch to the ON position.
8. Verify that the air bag system warning light illuminates for **approx. 6 s** and goes out.
  - If the air bag system warning light does not operate, refer to **RESTRAINTS -- ON-BOARD DIAGNOSTIC** system (air bag system) and perform inspection of the system.

#### PASSENGER-SIDE AIR BAG MODULE REMOVAL NOTE

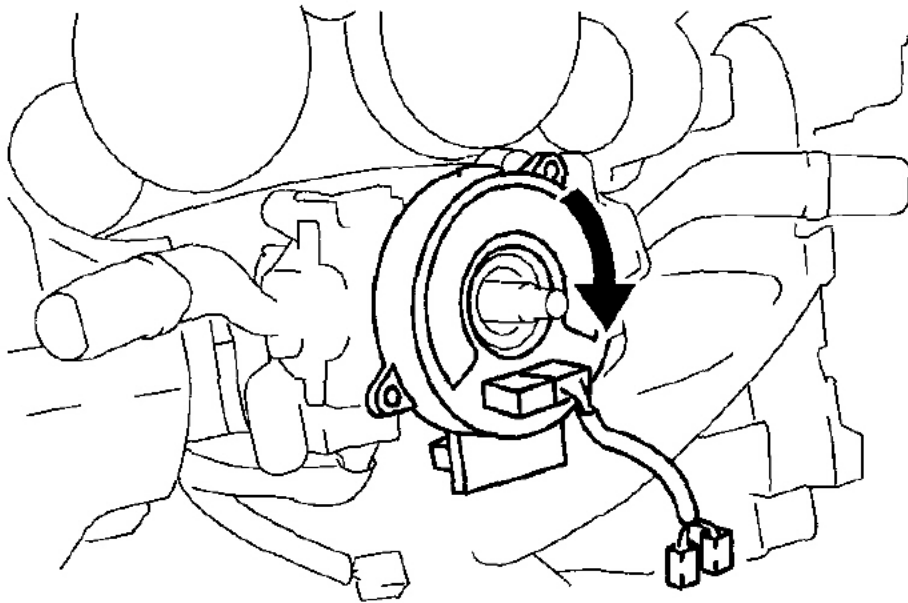
1. Remove the passenger-side air bag module in the order indicated below.
  1. Disengage the tab locks by sliding the passenger-side air bag module upward.
  2. Slide the passenger-side air bag module rearward.
  3. Remove the passenger-side air bag module by pulling it from the backside and then down.



**Fig. 13: View Of Passenger-Side Air Bag Module**  
Courtesy of MAZDA MOTORS CORP.

#### CONNECTOR REMOVAL NOTE

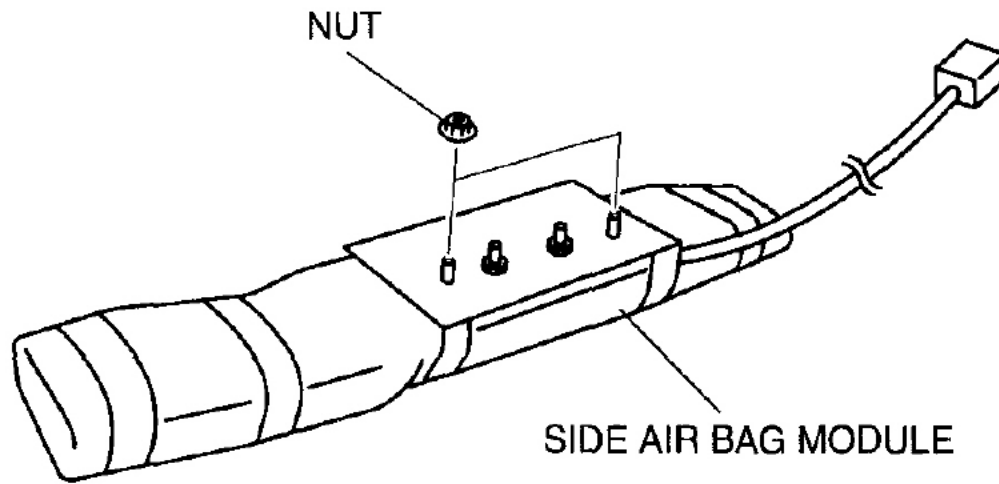
1. Using a flathead screwdriver, pry out the connector stopper plate.



E5U810ZW5018

**Fig. 31: Turning Clock Spring Clockwise**  
Courtesy of MAZDA MOTORS CORP.

3. From the stopped position, turn the clock spring counterclockwise **2 3/4 turns** .



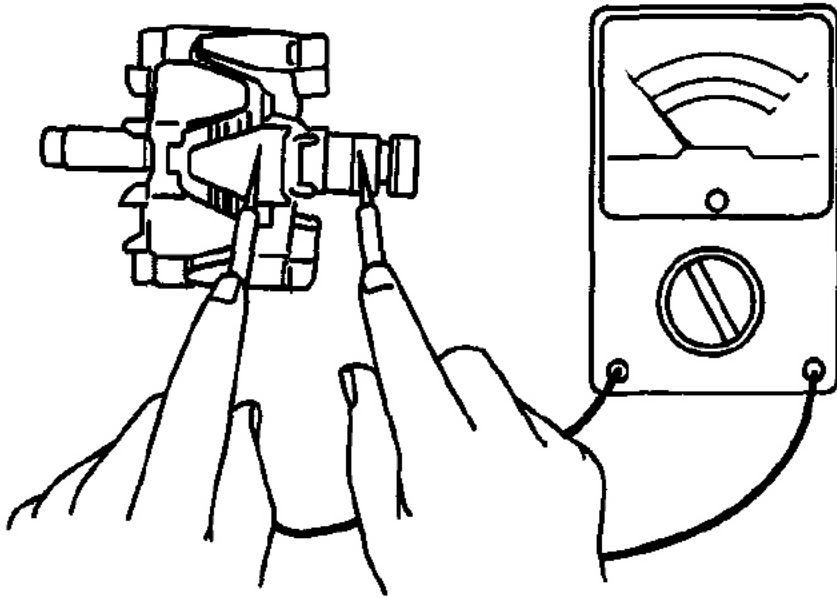
E5U810ZW5031

**Fig. 60: View Of Nuts On Side Air Bag Module & SST (Adapter Harness)**  
Courtesy of MAZDA MOTORS CORP.

3. Place the padded surface of the side air bag module facing the center of the tire as shown in **Fig. 61** . To secure the air bag module to the tire wheel, wrap a wire (cross section  $1.25 \text{ mm}^2$  { $0.002 \text{ in}^2$  } or more ) through the tire and around the bolts at **least 4 times** .

**WARNING:**

- If the air bag module is not properly secured to the tire, the tires may fall over by the impact of operation (deployment) and cause serious injury. To prevent this, secure the air bag module properly with the padded surface facing the center of the tire.



CHU0117W006

**Fig. 11: Verifying There Is No Continuity Between Slip Ring & Core**  
Courtesy of MAZDA MOTORS CORP.

3. Inspect the slip ring surface condition.
  - If the slip ring surface is rough, use a lathe or fine sandpaper to repair it.

#### Stator Coil

1. Verify that the continuity is as indicated in **Fig. 12** .

9. Perform the refrigerant system performance test. (See **REFRIGERANT SYSTEM PERFORMANCE TEST** .)

### CONDENSER INSTALLATION NOTE

1. When replacing the new condenser, add compressor oil to the refrigeration cycle.

**Supplemental amount (approx. quantity)**

**20 ml {20 cc, 0.7 fl oz}**

### CONDENSER INSPECTION

1. Inspect the condenser for cracks, damage, and oil leakage.
  - If there is any malfunction, replace the condenser.
2. Visually inspect the fins for clogging of foreign material.
  - If any fins are clogged, remove the foreign material.
3. Visually inspect the fins for bending.
  - If there is any bending, use the end of a flathead screwdriver to straighten fins.

### REFRIGERANT LINES REMOVAL/INSTALLATION

1. Remove the battery cover.
2. Disconnect the negative battery cable. (See **BATTERY REMOVAL/INSTALLATION [LF]** .)
3. Discharge the refrigerant from the system. (See **REFRIGERANT CHARGING** .)
4. Remove the air cleaner. (See **INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [LF]** .)
5. Remove the splash shield.
6. Remove the under cover.
7. Do not allow remaining compressor oil in the piping and connecting parts to spill, and remove in the order indicated in **Fig. 14** .

**CAUTION:**

- If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise or other malfunction could occur. Always plug open fittings immediately after removing any refrigeration cycle parts.