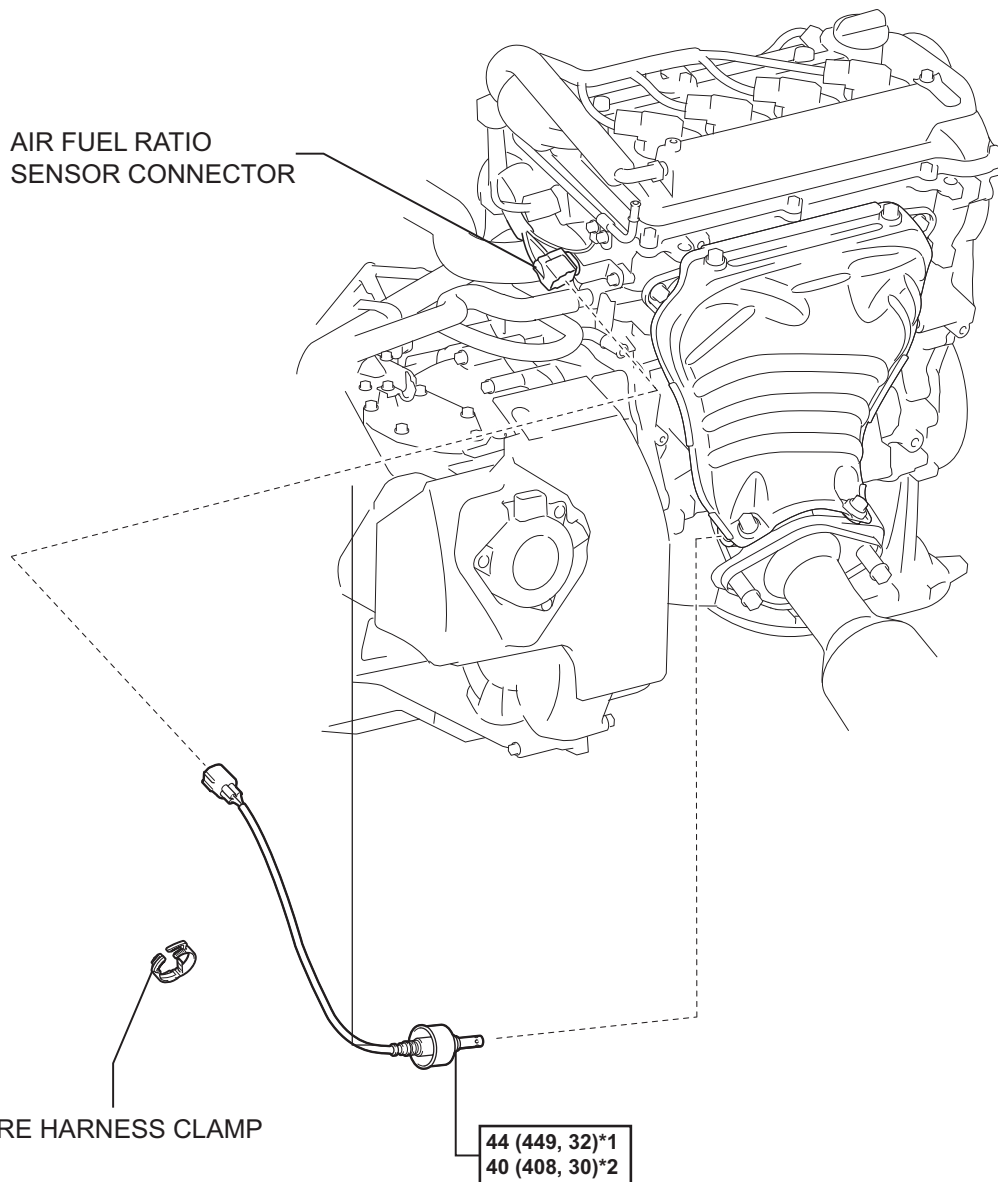


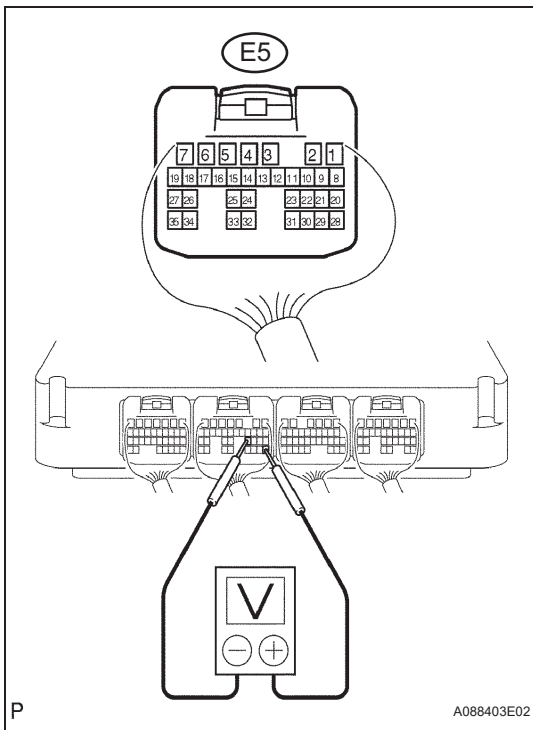
EC



**N\*m (kgf\*cm, ft.\*lbf)** : Specified torque

\*1: For use with SST

\*2: For use without SST



## ON-VEHICLE INSPECTION

### 1. CHECK AIR FUEL RATIO COMPENSATION SYSTEM

- (a) Inspect the voltage.
- (1) Turn the power switch ON (IG).
  - (2) Using a voltmeter, measure the voltage between the ECM terminals.

#### Standard voltage

Tester Connection	Specified Condition
E5-23 (A1A+) - E5-28 (E1)	3.0 to 3.6 V
E5-22 (A1A-) - E5-28 (E1)	2.7 to 3.3 V

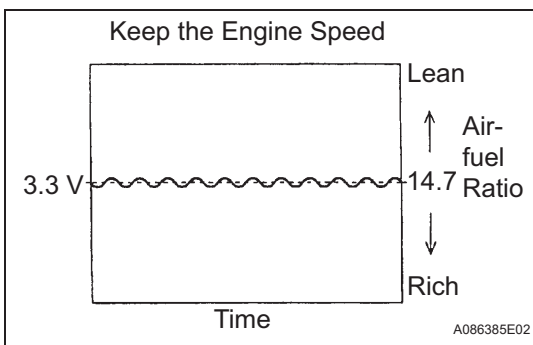
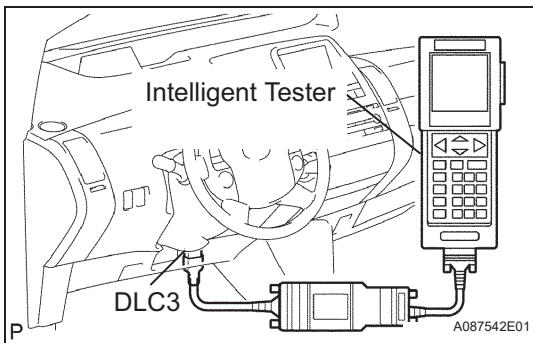
#### NOTICE:

Connect the test leads from the backside of the connector with the ECM connector connected.

#### HINT:

The voltage between the ECM terminals is constant regardless of the output voltage of the air-fuel ratio sensor.

If the result is not as specified, check the air-fuel ratio sensor and wire harness.



- (b) Check the output waveform.
- (1) Set the vehicle to inspection mode (see page [IN-34](#)).
  - (2) Connect the intelligent tester to the DLC3.
  - (3) Turn the power switch ON (READY).
  - (4) Turn the intelligent tester ON.
  - (5) Select the item: DIAGNOSIS / ENHANCED OBD II / DATA LIST / PRIMARY / AFS B1 S1.
  - (6) Warm up the air fuel ratio sensor for approximately 2 minutes at 2,500 rpm of the engine speed.
  - (7) Maintain the engine speed at 2,500 rpm, then check that the waveform of "AFS B1 S1" is output as illustrated.
- HINT:
- The waveform of illustration is a sample.
  - Only the intelligent tester shows the waveform of the air fuel ratio sensor.
- (8) Check that "O2S B1 S2" fluctuates between 0 and 1 V with the engine speed at 2,500 rpm.

## REMOVAL

### 1. PRECAUTION

#### CAUTION:

The hybrid system uses high voltage circuits, so improper handling could cause an electric shock or leakage. During service (e.g. installing or removing the parts, inspection, replacing the parts), be sure to follow the procedures (see page [HV-519](#)).

### 2. REMOVE RADIATOR SUPPORT OPENING COVER (See page [ED-2](#))

### 3. REMOVE ENGINE UNDER COVER LH

### 4. REMOVE ENGINE UNDER COVER RH

### 5. DRAIN HV COOLANT (See page [HX-58](#))

### 6. REMOVE REAR NO. 2 FLOOR BOARD (See page [CH-4](#))

### 7. REMOVE REAR DECK FLOOR BOX (See page [CH-4](#))

### 8. REMOVE REAR NO. 3 FLOOR BOARD (See page [CH-4](#))

### 9. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

#### CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

### 10. REMOVE SERVICE PLUG GRIP (See page [HB-154](#))

### 11. REMOVE FRONT WIPER ARM COVER

### 12. REMOVE FRONT WIPER ARM LH (See page [WW-13](#))

### 13. REMOVE FRONT WIPER ARM RH (See page [WW-13](#))

### 14. REMOVE HOOD TO COWL TOP SEAL (See page [WW-13](#))

### 15. REMOVE COWL TOP VENTILATOR LOUVER LH (See page [WW-13](#))

### 16. REMOVE COWL TOP VENTILATOR LOUVER RH (See page [WW-13](#))

### 17. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page [WW-13](#))

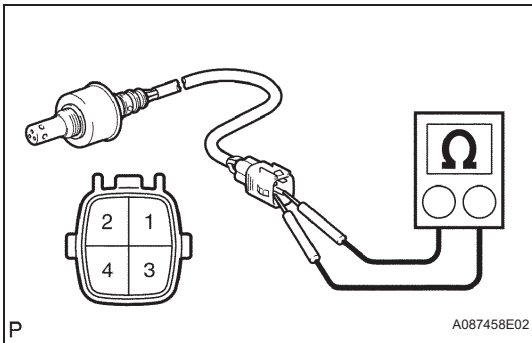
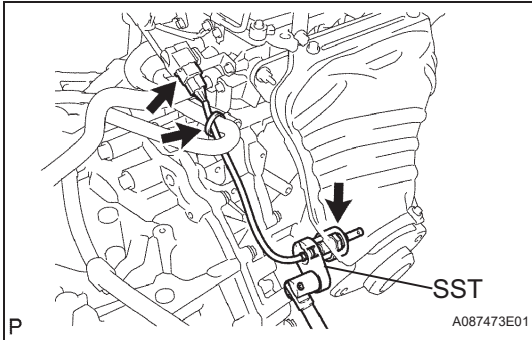
### 18. REMOVE FRONT COWL TOP PANEL OUTER (See page [FU-12](#))

### 19. REMOVE INVERTER COVER (See page [HV-531](#))

### 20. VERIFY THAT VOLTAGE OF INVERTER WITH CONVERTER IS 0 V (See page [HV-532](#))

### 21. DISCONNECT NO. 2 INVERTER COOLING HOSE (See page [HV-532](#))

22. DISCONNECT NO. 1 INVERTER COOLING HOSE (See page HV-532)
23. DISCONNECT NO. 6 INVERTER COOLING HOSE (See page HV-533)
24. DISCONNECT NO. 1 CIRCUIT BREAKER SENSOR (See page HV-533)
25. DISCONNECT FRAME WIRE (See page HV-533)
26. REMOVE CONVERTER WITH INVERTER ASSEMBLY (See page HV-533)
27. REMOVE AIR FUEL RATIO SENSOR (for Bank 1 Sensor 1)
  - (a) Remove the wire harness clamp from the air fuel ratio sensor.
  - (b) Disconnect the air fuel ratio sensor connector.
  - (c) Using SST, remove the air fuel ratio sensor.  
**SST 09224-00010**



## INSPECTION

1. INSPECT AIR FUEL RATIO SENSOR
  - (a) Measure the resistance between the terminals.  
**Standard resistance**

Tester Connection	Specified Condition
1 (HT) - 2 (+B)	1.8 to 3.4 $\Omega$ at 20°C (68°F)
2 (+B) - 4 (AF-)	10 k $\Omega$ or higher

If the result is not as specified, replace the sensor.

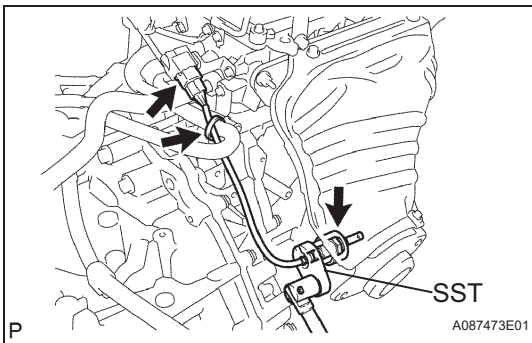
## INSTALLATION

1. INSTALL AIR FUEL RATIO SENSOR (for Bank 1 Sensor 1)
  - (a) Using SST, install the sensor.  
**SST 09224-00010**  
**Torque: 44 N\*m (449 kgf\*cm, 32 in.\*lbf) for use with SST**  
**40 N\*m (408 kgf\*cm, 30 ft.\*lbf) for use without SST**

### HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81 in.).

- (b) Connect the sensor connector.
- (c) Install the wire harness clamp to the sensor.
2. INSTALL CONVERTER WITH INVERTER ASSEMBLY (See page HV-536)
3. CONNECT FRAME WIRE (See page HV-537)
4. CONNECT NO. 1 CIRCUIT BREAKER SENSOR (See page HV-537)
5. CONNECT NO. 6 INVERTER COOLING HOSE

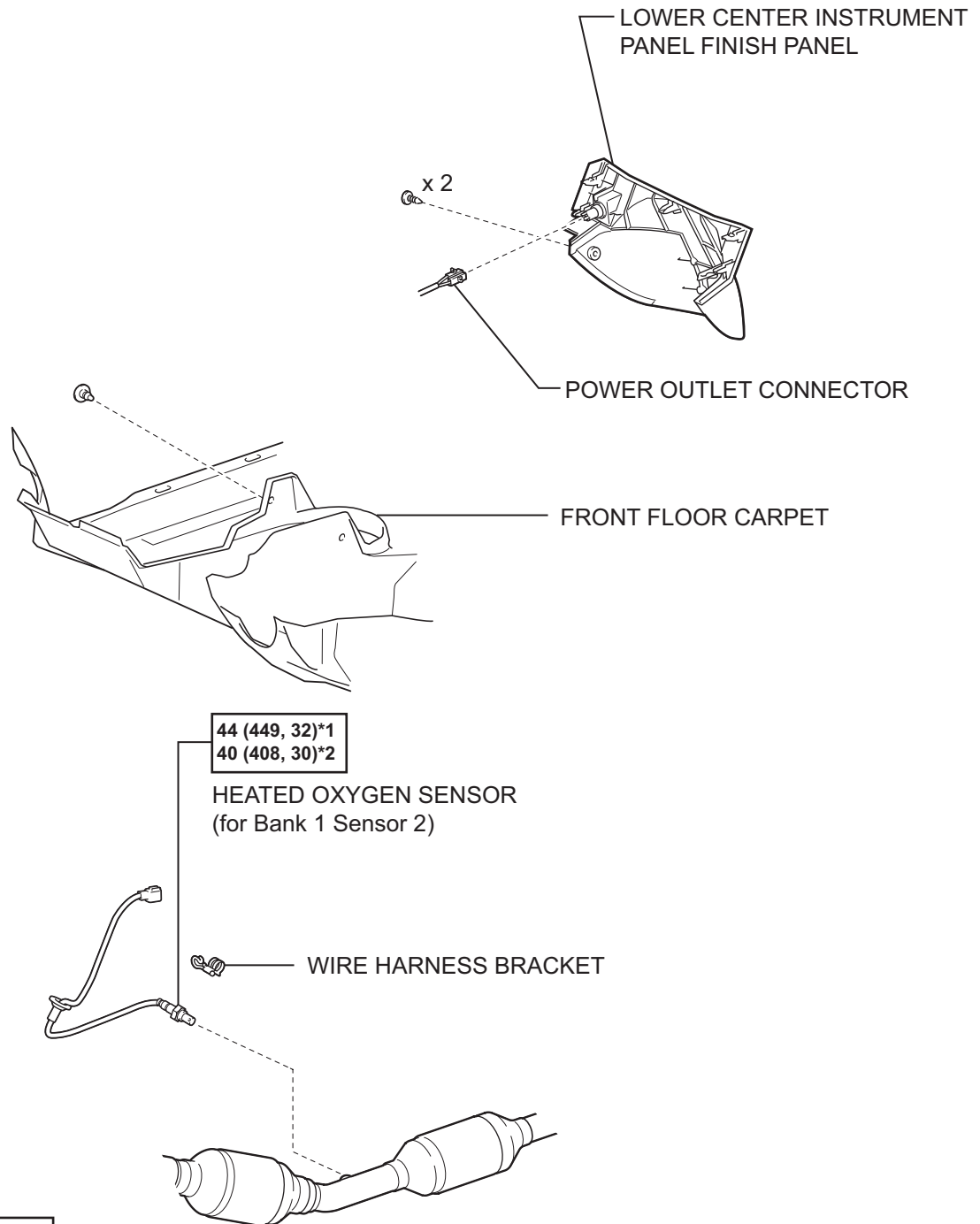


6. CONNECT NO. 1 INVERTER COOLING HOSE
7. CONNECT NO. 2 INVERTER COOLING HOSE
8. INSTALL INVERTER COVER (See page [HV-538](#))
9. INSTALL FRONT COWL TOP PANEL OUTER (See page [FU-19](#))
10. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page [WW-16](#))
11. INSTALL COWL TOP VENTILATOR LOUVER RH
12. INSTALL COWL TOP VENTILATOR LOUVER LH
13. INSTALL HOOD TO COWL TOP SEAL
14. INSTALL FRONT WIPER ARM LH (See page [WW-16](#))
15. INSTALL FRONT WIPER ARM RH (See page [WW-16](#))
16. INSTALL FRONT WIPER ARM COVER
17. INSTALL REAR NO. 3 FLOOR BOARD (See page [CH-8](#))
18. INSTALL REAR DECK FLOOR BOX (See page [CH-8](#))
19. INSTALL REAR NO. 2 FLOOR BOARD (See page [CH-8](#))
20. INSTALL SERVICE PLUG GRIP (See page [HB-154](#))
21. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL (See page [CH-7](#))
22. ADD HV COOLANT (See page [HX-58](#))
23. CHECK FOR ENGINE COOLANT LEAKAGE (See page [HX-59](#))
24. INSTALL ENGINE UNDER COVER RH
25. INSTALL ENGINE UNDER COVER LH
26. INSTALL RADIATOR SUPPORT OPENING COVER (See page [CO-9](#))
27. PERFORM INITIALIZATION
  - (a) Perform initialization (see page [IN-32](#)).

**NOTICE:**  
Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

# HEATED OXYGEN SENSOR

## COMPONENTS



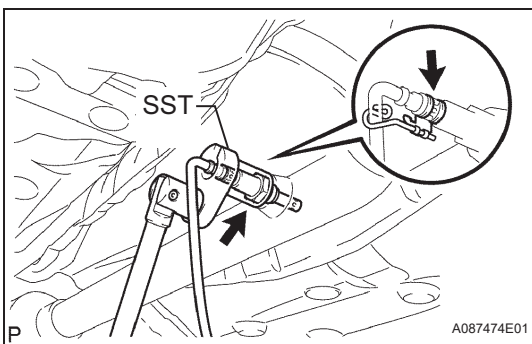
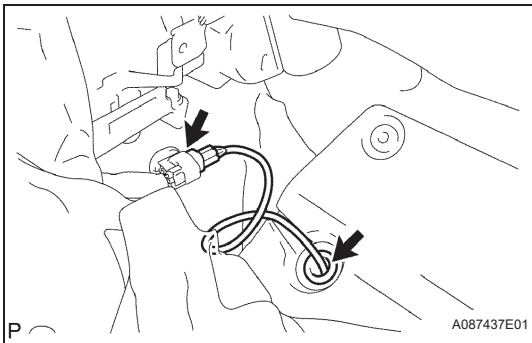
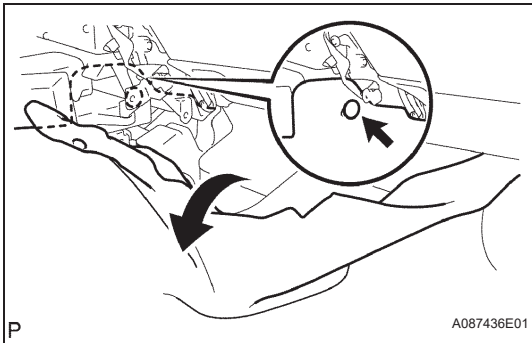
EC

\*1: For use with SST

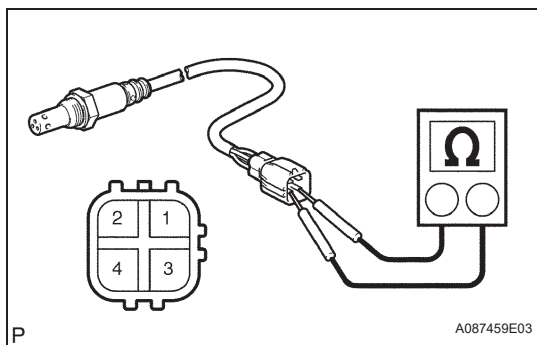
\*2: For use without SST

## REMOVAL

1. REMOVE REAR NO. 2 FLOOR BOARD (See page CH-4)
2. REMOVE REAR DECK FLOOR BOX (See page CH-4)
3. REMOVE REAR NO. 3 FLOOR BOARD (See page CH-4)
4. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL  
**CAUTION:**  
 Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
5. REMOVE LOWER CENTER INSTRUMENT PANEL FINISH PANEL (See page IP-18)
6. REMOVE HEATED OXYGEN SENSOR (for Bank 1 Sensor 2)
  - (a) Using a clip remover, remove the clip.
  - (b) Fold back the floor carpet front.



- (c) Disconnect the sensor connector.
- (d) Remove the grommet of the sensor from the vehicle.
- (e) Remove the wire harness clamp bracket from the sensor.
- (f) Using SST, remove the sensor.  
**SST 09224-00010**



## INSPECTION

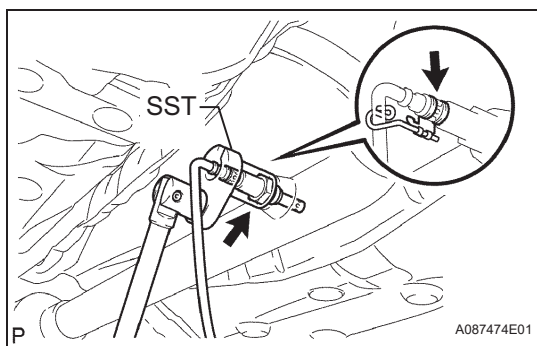
### 1. INSPECT HEATED OXYGEN SENSOR

- (a) Measure the resistance between the terminals.

#### Standard resistance

Tester Connection	Specified Condition
1 (HT) - 2 (+B)	11 to 16 $\Omega$ at 20°C (68°F)
1 (HT) - 4 (E)	10 k $\Omega$ or higher

If the result is not as specified, replace the sensor.



## INSTALLATION

### 1. INSTALL HEATED OXYGEN SENSOR (for Bank 1 Sensor 2)

- (a) Using SST, install the sensor.

**SST 09224-00010**

**Torque: 44 N\*m (449 kgf\*cm, 32 in.\*lbf) for use with SST**

**40 N\*m (408 kgf\*cm, 30 ft.\*lbf) for use without SST**

#### HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81 in.).

- (b) Install the wire harness clamp bracket to the sensor.  
 (c) Install the grommet of the sensor to the vehicle.  
 (d) Connect the sensor connector.  
 (e) Install the floor carpet front with the clip.

### 2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL (See page CH-7)

### 3. CHECK FOR EXHAUST GAS LEAKS (See page EX-4)

### 4. INSTALL LOWER CENTER INSTRUMENT PANEL FINISH PANEL (See page IP-21)

### 5. INSTALL REAR NO. 3 FLOOR BOARD (See page CH-8)

### 6. INSTALL REAR DECK FLOOR BOX (See page CH-8)

### 7. INSTALL REAR NO. 2 FLOOR BOARD (See page CH-8)

### 8. PERFORM INITIALIZATION

- (a) Perform initialization (see page IN-32).

#### NOTICE:

**Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.**