

Oxygen Sensor: Testing and Inspection

Heated Oxygen Sensor (HO2S) and Oxygen Sensor Regulation Before Catalytic Converter, Checking

Heated Oxygen Sensor (HO2S) And Oxygen Sensor Regulation Before Catalytic Converter, Checking

Heated Oxygen Sensor (HO2S) G39

The following procedure is used to diagnose Heated Oxygen Sensor (HO2S) G39 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: Use only gold-plated terminals when servicing terminals in the electrical harness connectors of the Heated Oxygen Sensor (HO2S) G39.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Motronic Engine Control Module (ECM) J623 fuses OK.
- The Oxygen Sensor (O2S) Heater Z19 before catalytic converter OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off. A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

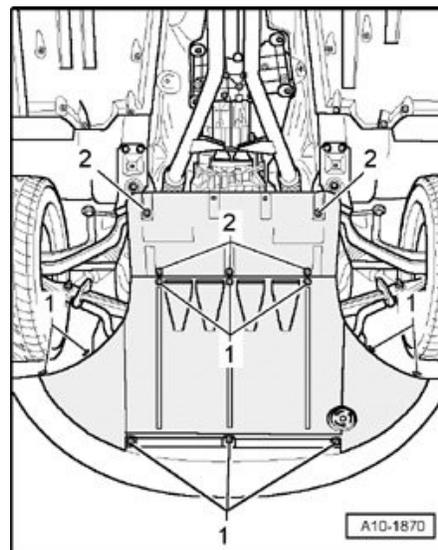
If specified values are obtained:

- End diagnosis and switch the ignition off.

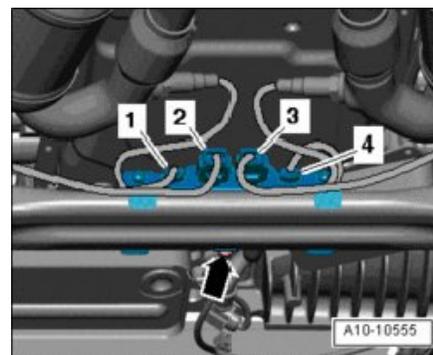
If the specified values are not obtained:

Procedure

- Raise the vehicle.



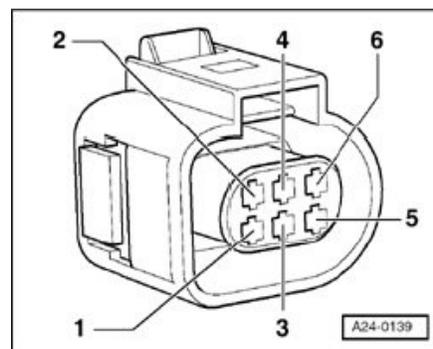
- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Heated Oxygen Sensor (HO2S) G39 electrical harness connector - 3 -.

Checking primary voltage

- Crank the engine.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminals 2 to 6 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was not obtained:

- Replace Heated Oxygen Sensor (HO2S) G39.

If the specified value was obtained:

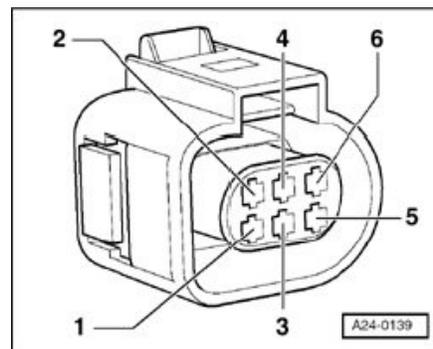
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a Multimeter, check the Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminals to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a terminals for an open circuit.

Heated Oxygen Sensor (HO2S)

Motronic Engine Control Module

G39 electrical harness connector terminals	(ECM) J623 electrical connector T94a terminals or test box sockets
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1	60
2	61
5	81
6	82

Specified value: **1.5 ohms** Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.

Heated Oxygen Sensor (HO2S) 2 G108

The following procedure is used to diagnose Heated Oxygen Sensor (HO2S) 2 G108 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: Use only gold-plated terminals when servicing terminals in the electrical harness connectors of the Heated Oxygen Sensor (HO2S) 2 G108.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Motronic Engine Control Module (ECM) J623 fuses OK.
- The Oxygen Sensor (O2S) 2 Heater Z28 before catalytic converter OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

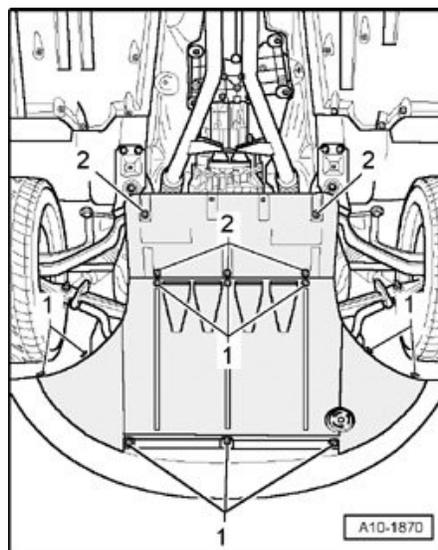
If specified values are obtained:

- End diagnosis and switch the ignition off.

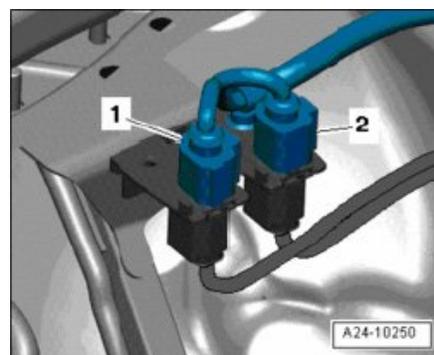
If the specified values are not obtained:

Procedure

- Raise the vehicle.

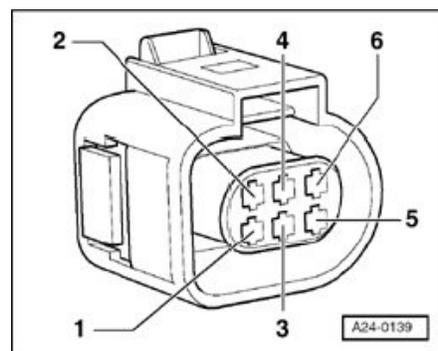


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector - 1 -.

Checking primary voltage



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector terminals 2 to 6 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was not obtained:

- Replace the Heated Oxygen Sensor (HO2S) 2 G108.

If the specified value was obtained:

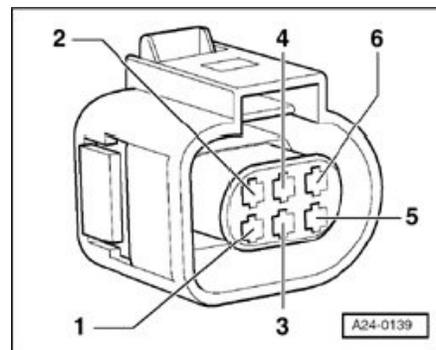
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturer's test box is not being used, perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a Multimeter, check the Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector terminals to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a terminals for an open circuit.

Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector terminals

Motronic Engine Control Module (ECM) J623 electrical connector T94a terminals or test box sockets

1	59
2	84
5	83
6	62

Specified value: **1.5 ohms** Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.

Heated Oxygen Sensor (HO2S) 3 G285

The following procedure is used to diagnose Heated Oxygen Sensor (HO2S) 3 G285 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: Use only gold-plated terminals when servicing terminals in the electrical harness connectors of the Heated Oxygen Sensor (HO2S) 3 G285.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Engine Control Module (ECM) 2 J624 fuses OK.
- The Oxygen Sensor (O2S) 3 Heater Z62 before catalytic converter OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.

- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

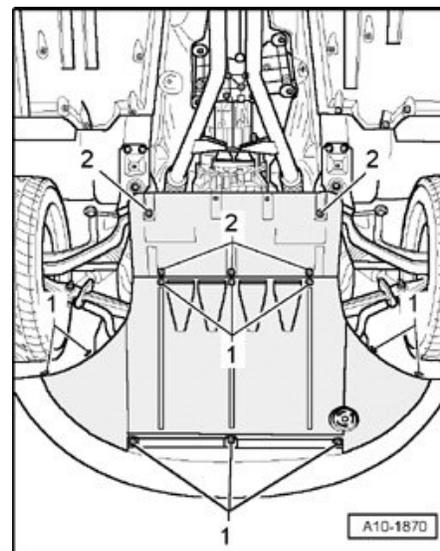
If specified values are obtained:

- End diagnosis and switch the ignition off.

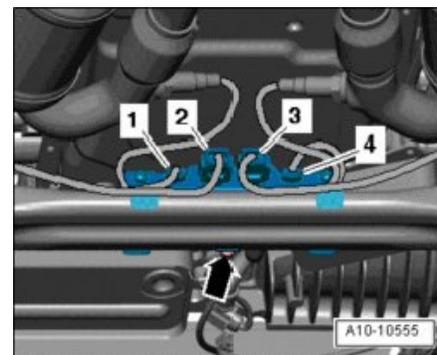
If the specified values are not obtained:

Procedure

- Raise the vehicle.



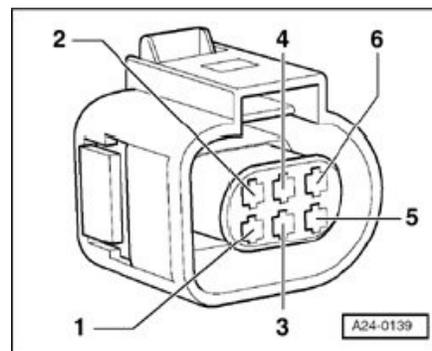
- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the brown Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector - 2 -.

Checking primary voltage

- Crank the engine.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector terminals 2 to 6 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was not obtained:

- Replace Heated Oxygen Sensor (HO2S) 3 G285.

If the specified value was obtained:

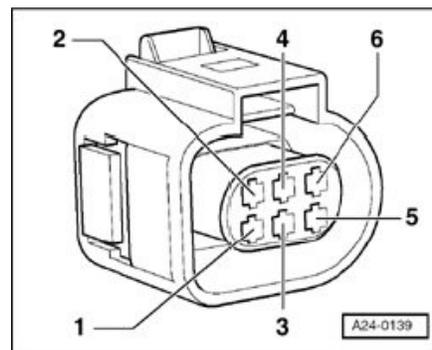
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a Multimeter, check the Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector terminals to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d terminals for an open circuit.

**Heated Oxygen Sensor (HO2S)
3 G285 electrical harness
connector terminals**

**Engine Control Module
(ECM) 2 J624 electrical
connector T94d terminals or test box sockets**

1	60
2	61
5	81
6	82

Specified value: **1.5 ohms Max.**

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Engine Control Module (ECM) 2 J624.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Heated Oxygen Sensor (HO2S) 4 G286

The following procedure is used to diagnose Heated Oxygen Sensor (HO2S) 4 G286 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: Use only gold-plated terminals when servicing terminals in the electrical harness connectors of the Heated Oxygen Sensor (HO2S) 4 G286.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Engine Control Module (ECM) 2 J624 fuses OK.
- The Oxygen Sensor (O2S) 4 Heater Z63 before catalytic converter OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

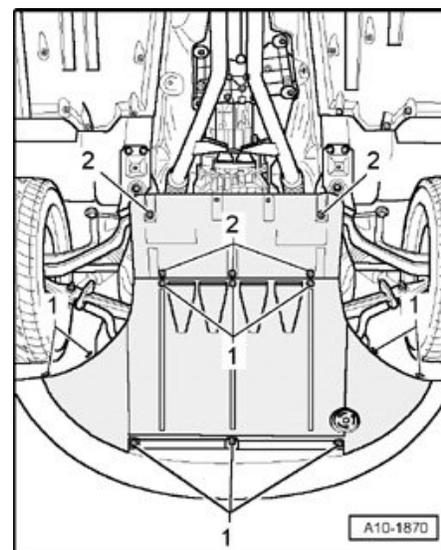
If specified values are obtained:

- End diagnosis and switch the ignition off.

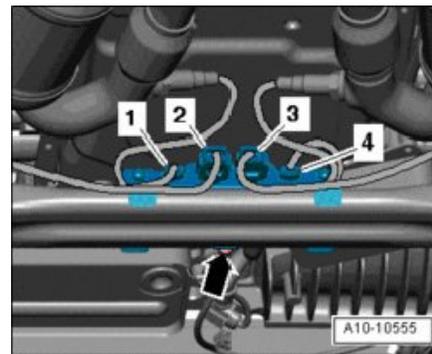
If the specified values are not obtained:

Procedure

- Raise the vehicle.

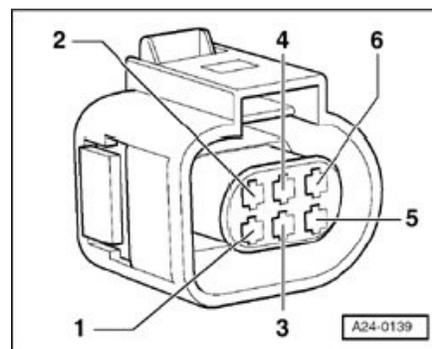


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector - 4 -

Checking primary voltage



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 4 G286 electrical harness connector terminals 2 to 6 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was not obtained:

- Replace the Heated Oxygen Sensor (HO2S) 4 G286.

If the specified value was obtained:

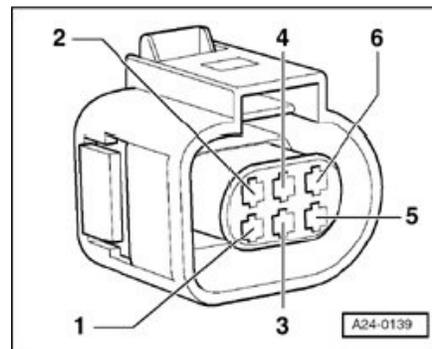
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a Multimeter, check the Heated Oxygen Sensor (HO2S) 4 G286 electrical harness connector terminals to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d terminals for an open circuit.

Heated Oxygen Sensor (HO2S)
4 G286 electrical harness

Engine Control Module (ECM)
2 J624 electrical connector

connector terminals	T94d terminals or test box sockets
1	59
2	84
5	83
6	62

Specified value: **1.5 ohms** Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Engine Control Module (ECM) 2 J624.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.

Oxygen Sensor: Testing and Inspection

Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC), Oxygen Sensor Regulation Behind Catalytic Converter, Checking

Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) And Oxygen Sensor Regulation Behind Catalytic Converter, Checking

Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130

The following procedure is used to diagnose Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing the electrical harness connector terminals of the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130, use only gold-plated terminals.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Motronic Engine Control Module (ECM) J623 fuses OK.
- Oxygen Sensor (O2S) 1 (behind Three Way Catalytic Converter (TWC)) Heater Z29 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, selector lever in position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

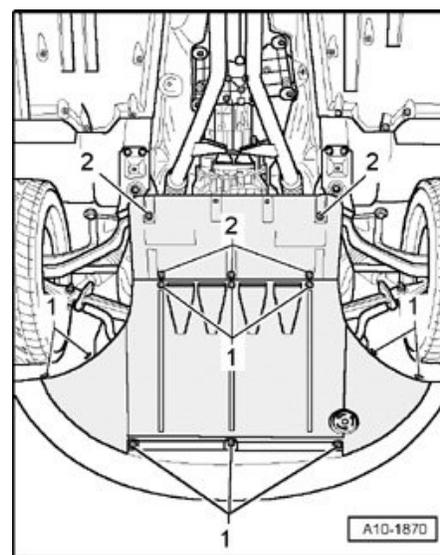
If specified values are obtained:

- End diagnosis and switch the ignition off.

If the specified values are not obtained:

Procedure

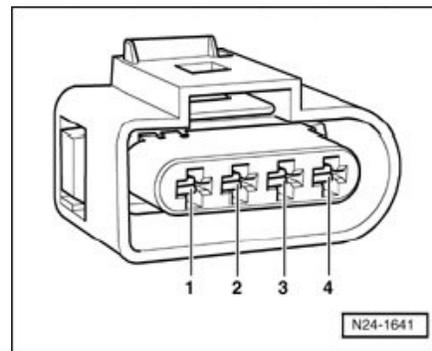
- Raise the vehicle.



- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.
- Disconnect the black Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector - 2 -.

Checking primary voltage

- Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector terminals 3 to 4 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was obtained:

- Replace the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130.

If the specified value was not obtained:

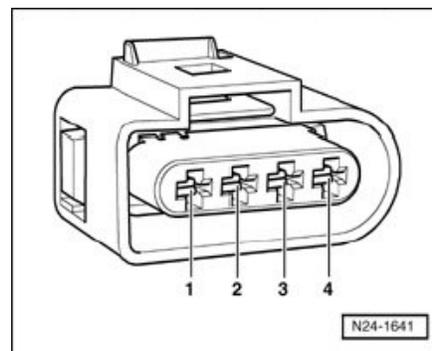
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a Multimeter, check the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector terminals to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a terminals for an open circuit.

**Oxygen Sensor (O2S) Behind
Three Way Catalytic Converter
(TWC) G130 electrical harness
connector terminals**

**Motronic Engine Control Module
(ECM) J623 electrical connector
T94a terminals or test box sockets**

3
4

76
77

Specified value: **1.5 ohms Max.**

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, lose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.

Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131

The following procedure is used to diagnose Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing the electrical harness connector terminals of the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131, use only gold-plated terminals.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Motronic Engine Control Module (ECM) J623 fuses OK.
- Oxygen Sensor (O2S) 2 (behind Three Way Catalytic Converter (TWC)) Heater Z30 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, selector lever in position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

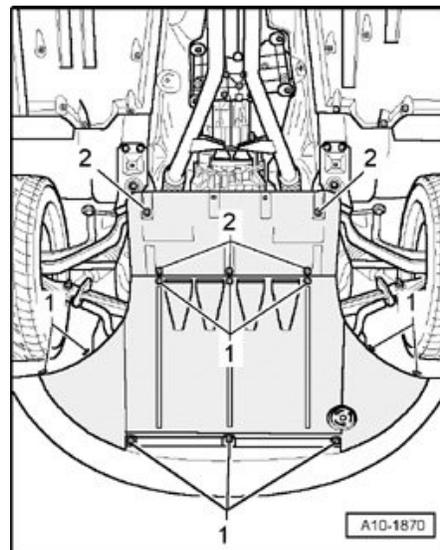
If specified values are obtained:

- End diagnosis and switch the ignition off.

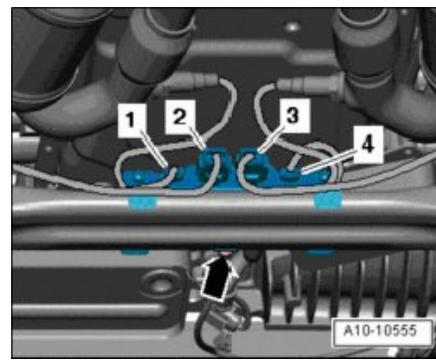
If the specified values are not obtained:

Procedure

- Raise the vehicle.



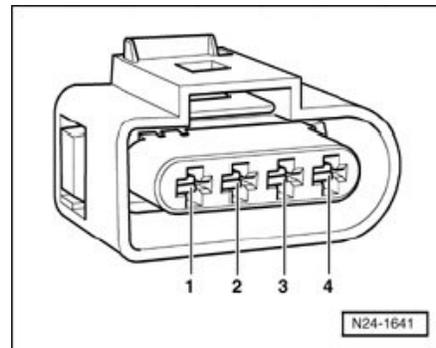
- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector - 4 -.

Checking primary voltage

- Switch the ignition on.



- Using a multimeter, check the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminals 3 to 4 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was obtained:

- Replace the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131.

If the specified value was not obtained:

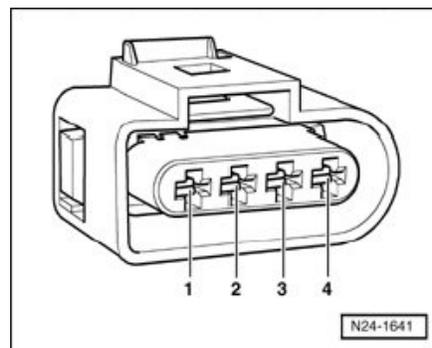
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a Multimeter, check the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminals to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a terminals for an open circuit.

Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminals

Motronic Engine Control Module (ECM) J623 electrical connector T94a terminals or test box sockets

3	54
4	55

Specified value: **1.5 ohms** Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287

The following procedure is used to diagnose Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: When servicing the electrical harness connector terminals of the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287, use only gold-plated terminals.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Engine Control Module (ECM) 2 J624 fuses OK.
- Oxygen Sensor (O2S) 3 (behind Three Way Catalytic Converter (TWC)) Heater Z64 OK.

- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, selector lever in position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

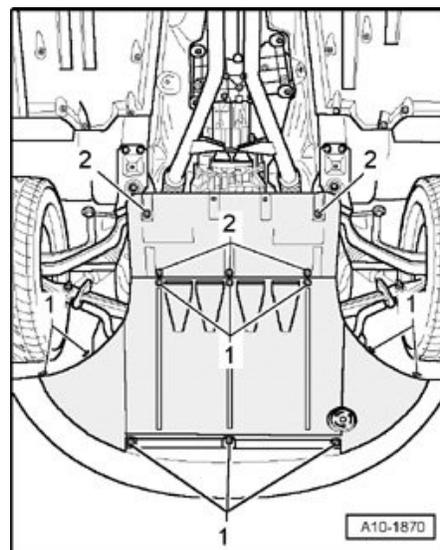
If specified values are obtained:

- End diagnosis and switch the ignition off.

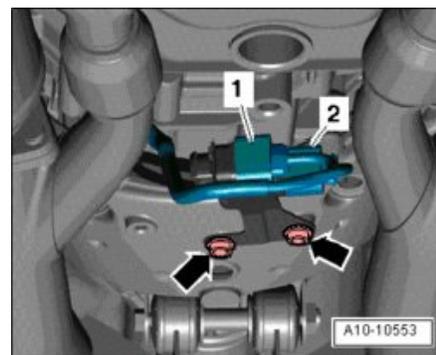
If the specified values are not obtained:

Procedure

- Raise the vehicle.



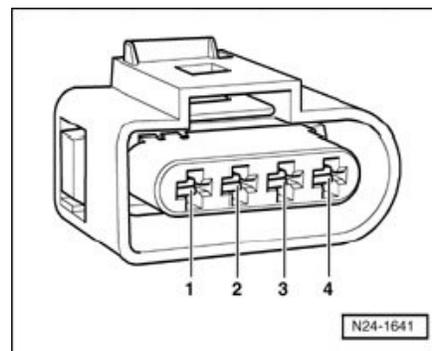
- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the brown Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector - 1 -.

Checking primary voltage

- Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector terminals 3 to 4 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was obtained:

- Replace the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287.

If the specified value was not obtained:

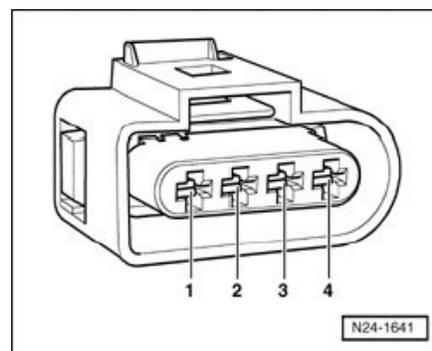
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a Multimeter, check the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector terminals to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d terminals for an open circuit.

**Oxygen Sensor (O2S) 3 Behind
Three Way Catalytic Converter
(TWC) G287 electrical harness
connector terminals**

**Engine Control Module (ECM)
2 J624 electrical connector T94d
terminals or test box sockets**

3 76
4 77

Specified value: **1.5 ohms Max.**

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Engine Control Module (ECM) 2 J624.

- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288

The following procedure is used to diagnose Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: When servicing the electrical harness connector terminals of the Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288, use only gold-plated terminals.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

Test requirements

- The Engine Control Module (ECM) 2 J624 fuses OK.
- Oxygen Sensor 02S) 4 (behind Three Way Catalytic Converter (TWC)) Heater Z65 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, selector lever in position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Exhaust system between catalytic converter and cylinder head properly sealed.
- Coolant Temperature at least **80 degrees C**.

Function test

- Perform the function test located in diagnostic mode 06. Refer to See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 6: Check Test Results Of Components That Are Not Continuously Monitored.

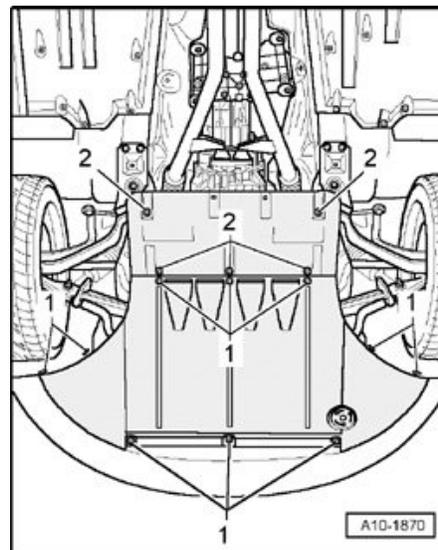
If specified values are obtained:

- End diagnosis and switch the ignition off.

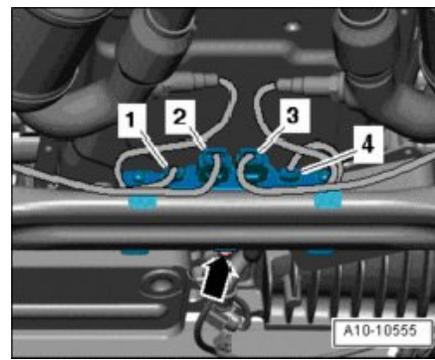
If the specified values are not obtained:

Procedure

- Raise the vehicle.



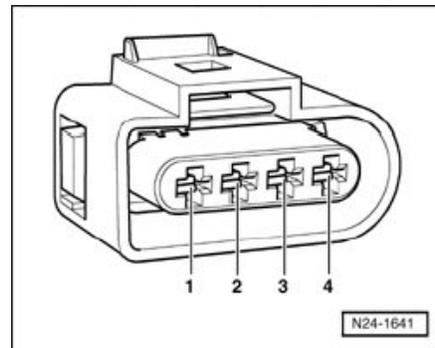
- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the brown Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288 electrical harness connector - 1 -.

Checking primary voltage

- Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288 electrical harness connector terminals 3 to 4 for voltage.

Specified value: **0.400 to 0.500 Volts**

- Switch the ignition off.

If the specified value was obtained:

- Replace the Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288.

If the specified value was not obtained:

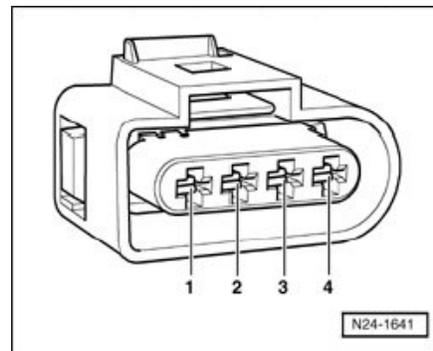
Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturer's test box is not being used, perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a Multimeter, check the Oxygen Sensor (O2S) 4 Behind Three Way Catalytic Converter (TWC) G288 electrical harness connector terminals to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d terminals for an open circuit.

**Oxygen Sensor (O2S) 4 Behind
Three Way Catalytic Converter
(TWC) G288 electrical harness
connector terminals**

**Engine Control Module (ECM)
2 J624 electrical connector T94d
terminals or test box sockets**

3	54
4	55

Specified value: **1.5 ohms** Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is found in the wiring:

- Replace the Engine Control Module (ECM) 2 J624.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.

Oxygen Sensor: Testing and Inspection

Oxygen Sensor (O2S) Heater Before Catalytic Converter, Checking

Oxygen Sensor (O2S) Heater Before Catalytic Converter, Checking.

Oxygen Sensor (O2S) Heater Z19

The following procedure is used to diagnose Oxygen Sensor (O2S) Heater Z19 for Heated Oxygen Sensor (HO2S) G39 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing electrical harness connector terminals for the Heated Oxygen Sensors, use only gold-plated terminals.

Special tools, testers and auxiliary items required

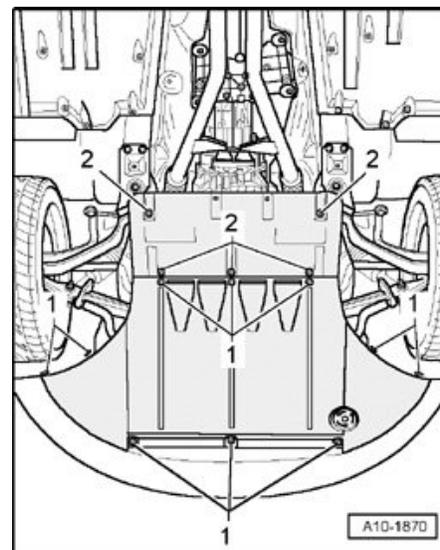
- Multimeter.
- Wiring diagram.

Test requirements

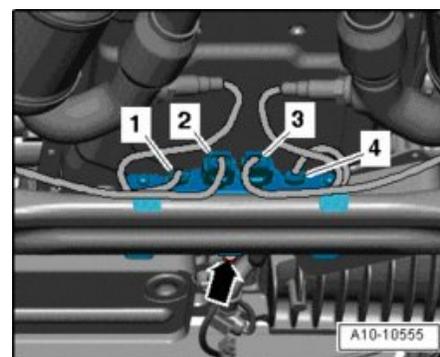
- Fuse SC6 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

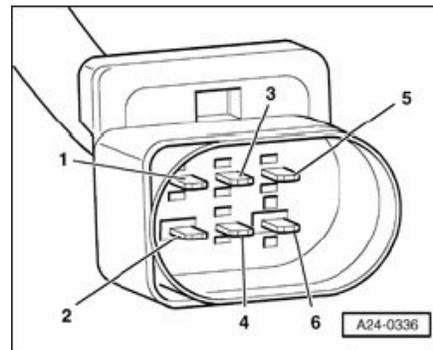


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Heated Oxygen Sensor (HO2S) G39 electrical harness connector - 3 -.

Checking internal resistance



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) G39 terminals 3 to 4 for resistance.

Specified value: **2.5 to 10.0 ohms** (at approx. **20 degrees C**)

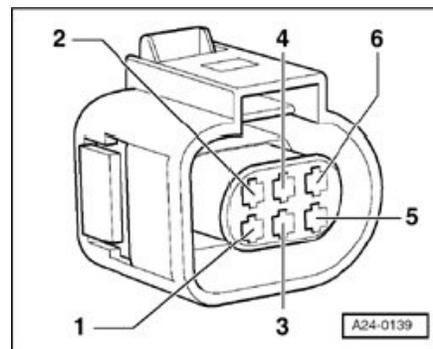
If the specification was not obtained:

- Replace Heated Oxygen Sensor (HO2S) G39.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminal 4 to Ground (GND) for voltage.

Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminal

Measure to

4

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- Check the wiring from the Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminal 4 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND), or an open circuit.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

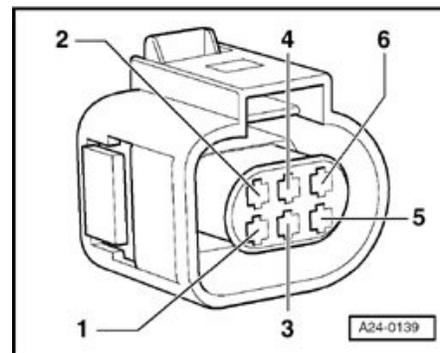
Checking Ground (GND) activation

If the manufacturer's test box is being used. Perform the following step.

- Install the test box.

If the manufacturer's test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) G39 electrical harness connector to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a for an open circuit.

**Heated Oxygen Sensor (HO2S)
G39 electrical harness
connector terminal**

**Motronic Engine Control Module
(ECM) J623 electrical connector
T94a terminal or test box socket**

3

51

Specified value: **1.5 ohms max.**

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), Ground (GND) or an open circuit.
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Motronic Engine Control Module (ECM) J623.

Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 2 Heater Z28

The following procedure is used to diagnose Oxygen Sensor (O2S) 2 Heater Z28 for Heated Oxygen Sensor (HO2S) 2 G108 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing electrical harness connector terminals for the Heated Oxygen Sensors, use only gold-plated terminals.

Special tools, testers and auxiliary items required

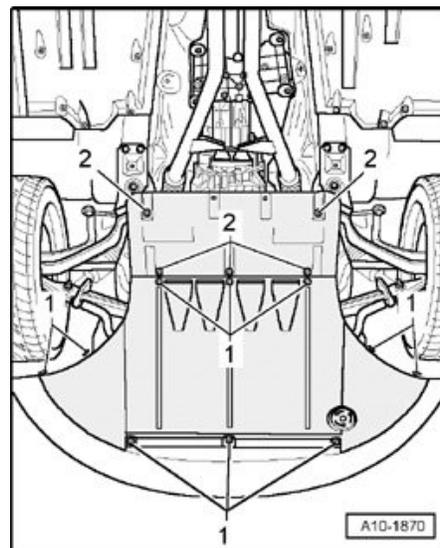
- Multimeter.
- Wiring diagram.

Test requirements

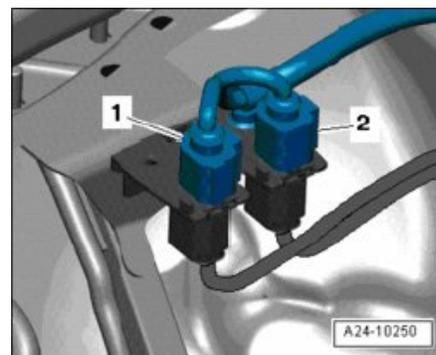
- Fuse SC6 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

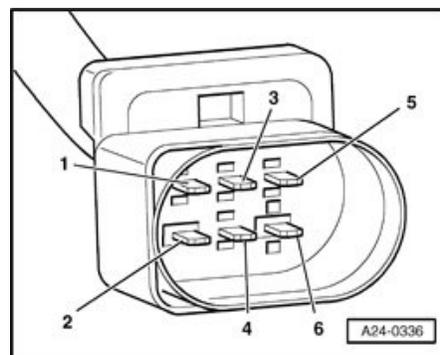


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector - 1 -.

Checking internal resistance



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 2 G108 terminals 3 to 4 for resistance.

Specified value: **2.5 to 10.0 ohms** (at approx. **20 degrees C**)

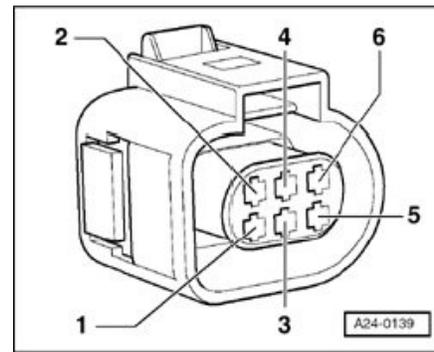
If the specification was not obtained:

- Replace Heated Oxygen Sensor (HO2S) 2 G108.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector terminal 4 to Ground (GND) for voltage.

**Heated Oxygen Sensor (HO2S)
2 G108 electrical harness
connector terminal**

Measure to

4

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- Check the wiring from the Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector terminal 4 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND), or an open circuit.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

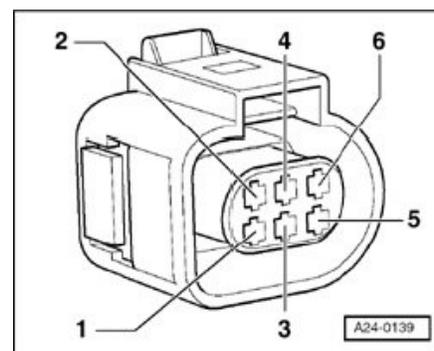
Checking Ground (GND) activation

If the manufacturer's test box is being used. Perform the following step.

- Install the test box.

If the manufacturer's test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 2 G108 electrical harness connector to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a for an open circuit.

**Heated Oxygen Sensor (HO2S)
2 G108 electrical harness
connector terminal**

**Motronic Engine Control Module
(ECM) J623 electrical connector
T94a terminal or test box socket**

4

73

Specified value: **1.5 ohms** max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), Ground (GND) or an open circuit.
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 3 Heater Z62, Checking.

The following procedure is used to diagnose Oxygen Sensor (O2S) 3 Heater Z62 for Heated Oxygen Sensor (HO2S) 3 G285 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: When servicing electrical harness connector terminals for the Heated Oxygen Sensors, use only gold-plated terminals.

Special tools, testers and auxiliary items required

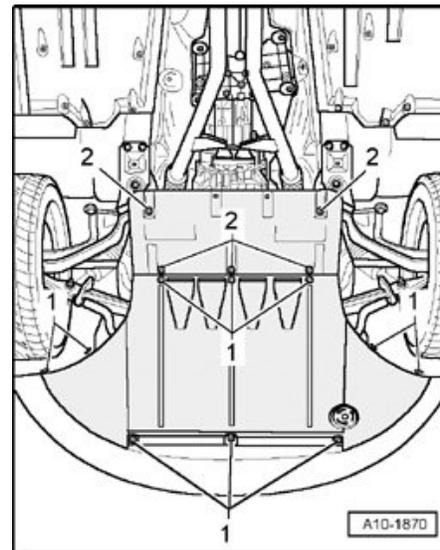
- Multimeter.
- Wiring diagram.

Test requirements

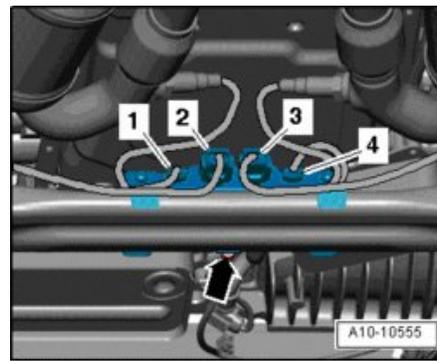
- Fuse SC6 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

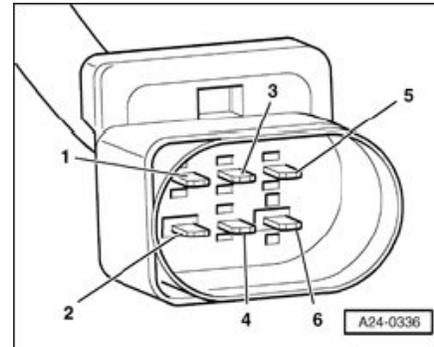


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the brown Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector - 2 -.

Checking internal resistance



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 3 G285 terminals 3 to 4 for resistance.

Specified value: **2.5 to 10.0 ohms** (at approx. **20 degrees C**)

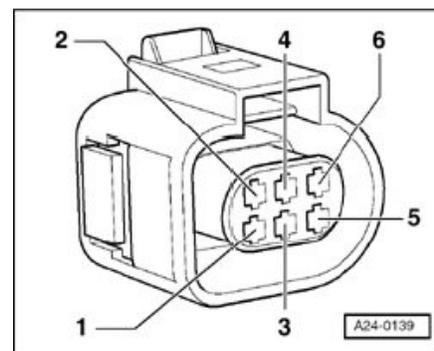
If the specification was not obtained:

- Replace Heated Oxygen Sensor (HO2S) 3 G285.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) G39 electrical harness connector terminal 4 to Ground (GND) for voltage.

**Heated Oxygen Sensor (HO2S)
3 G285 electrical harness
connector terminal**

Measure to

4

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- Check the wiring from the Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector terminal 4 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND), or an open circuit.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

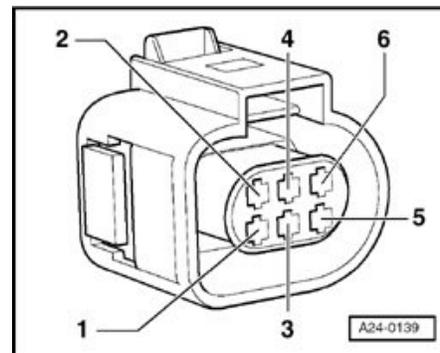
Checking Ground (GND) activation

If the manufacturer's test box is being used. Perform the following step.

- Install the test box.

If the manufacturer's test box is not being used. Perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a multimeter, check the Heated Oxygen Sensor (HO2S) 3 G285 electrical harness connector to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d for an open circuit.

Heated Oxygen Sensor (HO2S)

3 G285 electrical harness connector terminal

3

Engine Control Module (ECM) 2

J624 electrical connector T94d terminal or test box socket

51

Specified value: **1.5 ohms max.**

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), Ground (GND) or an open circuit.
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Engine Control Module (ECM) 2 J624.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 4 Heater Z63, checking

The following procedure is used to diagnose Oxygen Sensor (O2S) 4 Heater Z63 for Heated Oxygen Sensor (HO2S) 4 G286 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: When servicing electrical harness connector terminals for the Heated Oxygen Sensors, use only gold-plated terminals.

Special tools, testers and auxiliary items required

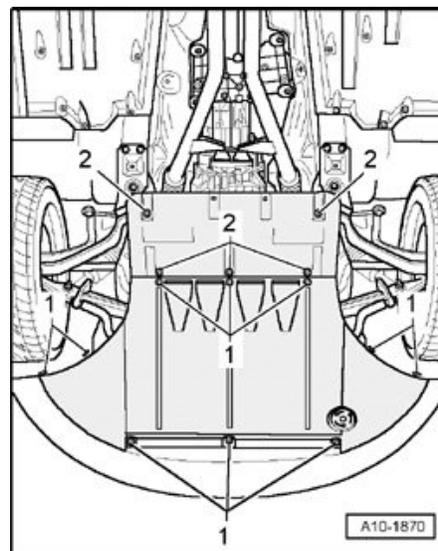
- Multimeter.
- Wiring diagram.

Test requirements

- Fuse SC6 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.



- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.

Oxygen Sensor: Testing and Inspection

Oxygen Sensor (O2S) Heater Behind Catalytic Converter, Checking

Oxygen Sensor (O2S) Heater Behind Catalytic Converter, Checking.

Oxygen Sensor (O2S) 1 (behind Three Way Catalytic Converter (TWC)) Heater Z29, checking

The following procedure is used to diagnose Oxygen Sensor (O2S) 1 (behind Three Way Catalytic Converter (TWC)) Heater Z29 for Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing terminals in harness connector of Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) use only gold-plated terminals.

Special tools, testers and auxiliary items required

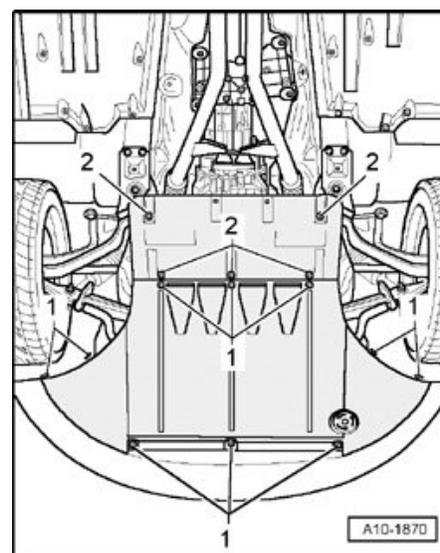
- Multimeter.
- Wiring diagram.

Test requirements

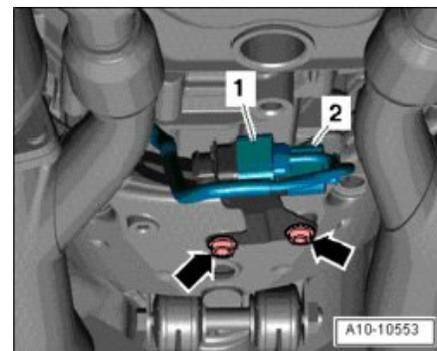
- Fuse SC7 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

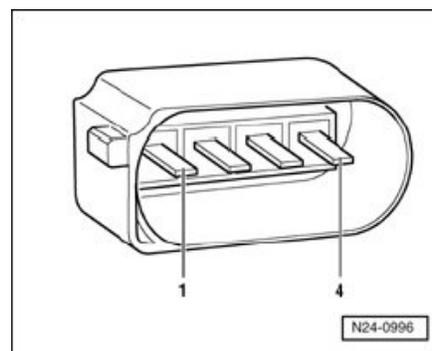


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector - 2 -.

Checking internal resistance



- Using a multimeter, check the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 terminals 1 to 2 for resistance.

Specified value: **1.0 to 20.0 ohms** (at approx. **20 degrees C**)

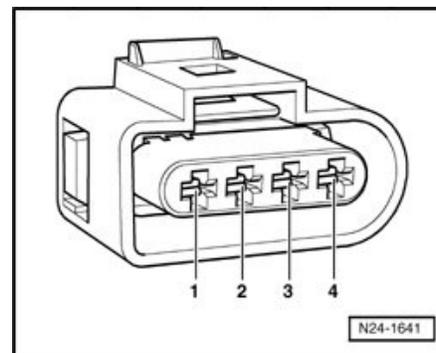
If the specification was not obtained:

- Replace the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector terminal 1 to Ground (GND) for voltage.

**Oxygen Sensor (O2S) Behind
Three Way Catalytic Converter
(TWC) G130 electrical harness
connector terminal**

Measure to

1

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the wiring from the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector terminal 1 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND) or an open circuit.
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

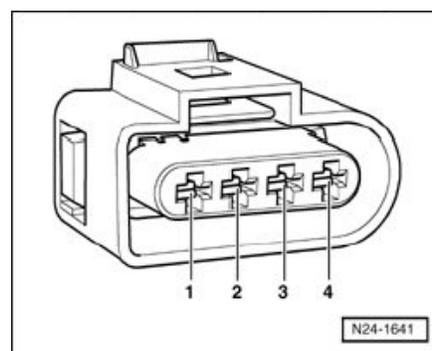
Checking Ground (GND) activation

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a multimeter, check the Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 electrical harness connector to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a for an open circuit.

**Oxygen Sensor (O2S) Behind
Three Way Catalytic Converter
(TWC) G130 electrical harness
connector terminal**

**Motronic Engine Control Module
(ECM) J623 electrical connector
T94a terminal or test box socket**

2

7

Specified value: **1.5 ohms** max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor (O2S) 2 (behind Three Way Catalytic Converter (TWC)) Heater Z30, checking

The following procedure is used to diagnose Oxygen Sensor (O2S) 2 (behind Three Way Catalytic Converter (TWC)) Heater Z30 for Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 which is controlled by the Motronic Engine Control Module (ECM) J623.

NOTE: When servicing terminals in harness connector of Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 use only gold-plated terminals.

Special tools, testers and auxiliary items required

- Multimeter.
- Wiring diagram.

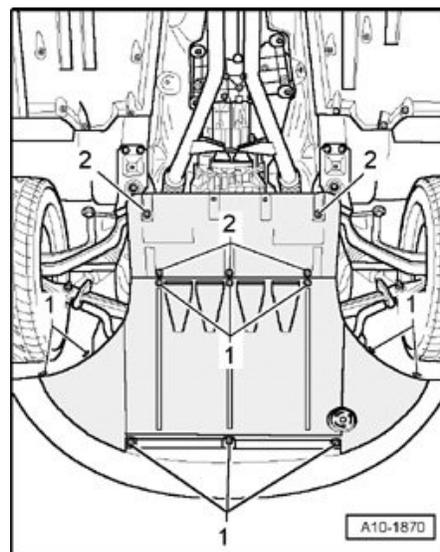
Test requirements

- Fuse SC7 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".

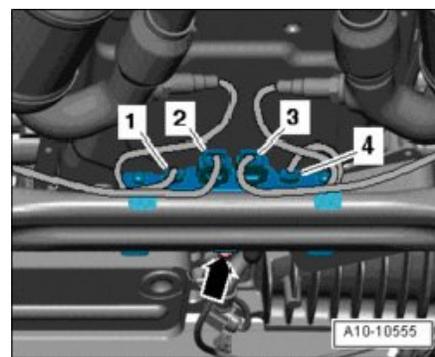
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

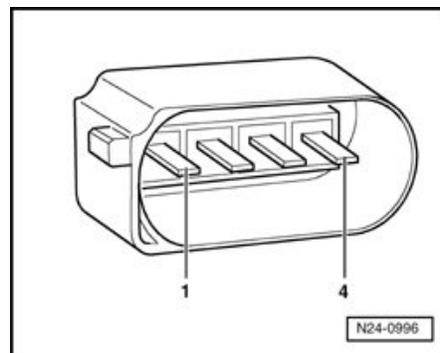


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the black Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector - 4 -.

Checking internal resistance



- Using a multimeter, check the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 terminals 1 to 2 for resistance.

Specified value: **1.0 to 20.0 ohms** (at approx. **20 degrees C**)

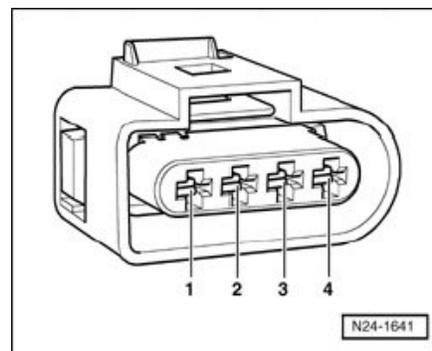
If the specification was not obtained:

- Replace the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminal 1 to Ground (GND) for voltage.

Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminal

Measure to

1

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the wiring from the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector terminal 1 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND) or an open circuit.
- Check the electrical harness connector for damage, corrosion, lose or broken terminals.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

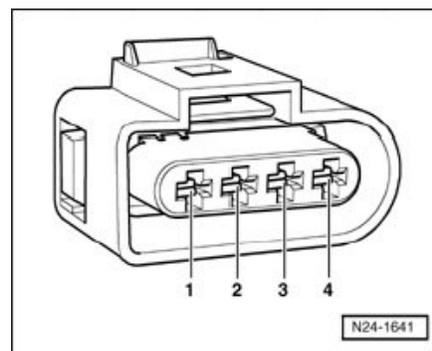
Checking Ground (GND) activation

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Motronic Engine Control Module (ECM) J623.



- Using a multimeter, check the Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter (TWC) G131 electrical harness connector to the Motronic Engine Control Module (ECM) J623 electrical harness connector T94a for an open circuit.

Oxygen Sensor (O2S) 2 Behind Three Way Catalytic Converter

Motronic Engine Control Module (ECM) J623 electrical connector

(TWC) G131 electrical harness connector terminal T94a terminal or test box socket

2 29

Specified value: **1.5 ohms** max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Motronic Engine Control Module (ECM) J623.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
3. If the DTC memory was erased, generate readiness code.

- End of diagnosis.

Oxygen Sensor 02S) 3 (behind Three Way Catalytic Converter (TWC)) Heater Z64, checking

The following procedure is used to diagnose Oxygen Sensor 02S) 3 (behind Three Way Catalytic Converter (TWC)) Heater Z64 for Oxygen Sensor (02S) 3 Behind Three Way Catalytic Converter (TWC) G287 which is controlled by the Engine Control Module (ECM) 2 J624.

NOTE: When servicing terminals in harness connector of Oxygen Sensor (02S) Behind Three Way Catalytic Converter (TWC) use only gold-plated terminals.

Special tools, testers and auxiliary items required

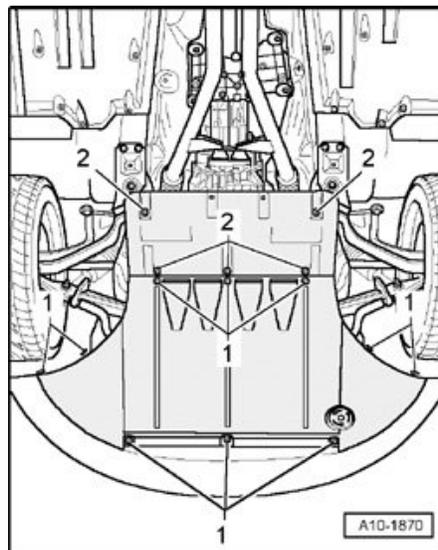
- Multimeter.
- Wiring diagram.

Test requirements

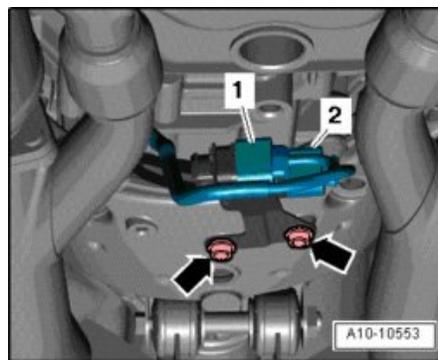
- Fuse SC7 OK.
- Battery voltage at least **12.5 volts**.
- All electrical consumers such as, lights and rear window defroster, switched off.
- Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- A/C switched off.
- Ground (GND) connections between engine/transmission/chassis OK.
- Ignition switched off.

Procedure

- Raise the vehicle.

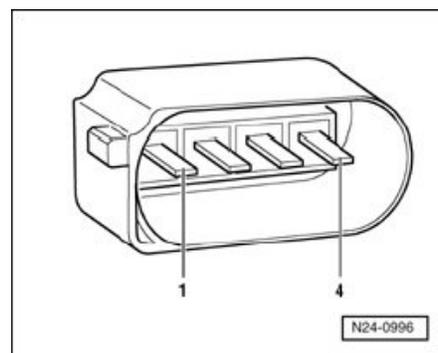


- Loosen the quick release fasteners - 1 - and - 2 - and remove the noise insulation panel.



- Disconnect the brown Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector - 1 -.

Checking internal resistance



- Using a multimeter, check the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 terminals 1 to 2 for resistance.

Specified value: **1.0 to 20.0 ohms** (at approx. **20 degrees C**)

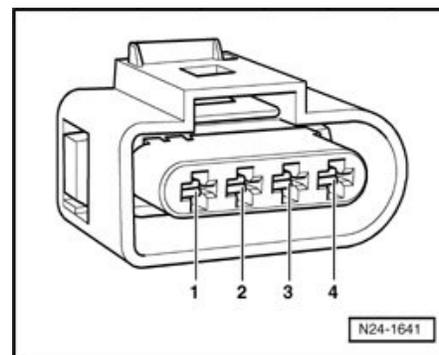
If the specification was not obtained:

- Replace the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287.

If the specification was obtained:

Checking voltage supply

Crank the engine.



- Using a multimeter, check the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector terminal 1 to Ground (GND) for voltage.

Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287

**Oxygen Sensor (O2S) Behind
Three Way Catalytic Converter
(TWC) G130 electrical harness
connector terminal**

Measure to

1

Ground (GND)

Specified value: Battery voltage.

Switch the ignition off.

If the specification was not obtained:

- Check the wiring from the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector terminal 1 to the Engine Component Power Supply Relay J757 socket 2/87 for a short circuit to each other, Ground (GND) or an open circuit.
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If the specification was obtained:

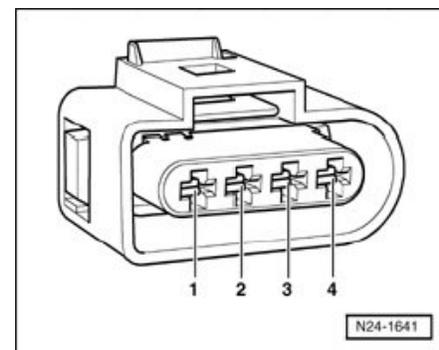
Checking Ground (GND) activation

If the manufacturers test box is being used. Perform the following step.

- Install the test box.

If the manufacturers test box is not being used. Perform the following step.

- Remove the Engine Control Module (ECM) 2 J624.



- Using a multimeter, check the Oxygen Sensor (O2S) 3 Behind Three Way Catalytic Converter (TWC) G287 electrical harness connector to the Engine Control Module (ECM) 2 J624 electrical harness connector T94d for an open circuit.

**Oxygen Sensor (O2S) 3 Behind
Three Way Catalytic Converter
(TWC) G287 electrical harness
connector terminal**

**Engine Control Module
(ECM) 2 J624 electrical connector
T94d terminal or test box socket**

Specified value: **1.5 ohms** max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring and if the voltage supply was OK:

- Replace the Engine Control Module (ECM) 2 J624.
- Assembly is performed in the reverse order of removal.

Final procedures

After repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 3: Interrogating Fault Memory
 2. If necessary, erase the DTC memory. See: Testing and Inspection/Scan Tool Testing and Procedures/Diagnostic Mode 04: Reset/Delete Diagnostic Data.
 3. If the DTC memory was erased, generate readiness code.
- End of diagnosis.