

- Steering wheel
- Clockspring
- HSWM

DIAGNOSIS AND TESTING > STEERING WHEEL AND COLUMN ELECTRICAL COMPONENTS > PINPOINT TESTS > PINPOINT TEST Q : U210A:11, U210A:15 > PINPOINT TEST Q : U210A:11, U210A:15

 **NOTE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

Q1 CHECK THE HSWM (HEATED STEERING WHEEL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

Ignition OFF.

Review the Diagnostic Trouble Codes (DTCs) from the HSWM self-test.

Is DTC U210A:11 present?

Yes	GO to Q2
No	GO to Q8

Q2 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR REFERENCE CIRCUIT FOR A SHORT TO GROUND

Disconnect HSWM C2406 .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	Ground

Is the resistance greater than 10, 000 ohms?

Yes	GO to Q5
No	GO to Q3

Q3 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR REFERENCE CIRCUIT TO THE CLOCKSPRING FOR A SHORT TO GROUND

Depower the SRS. REFER to: Supplemental Restraint System (SRS) Depowering .

Remove the steering column shrouds to access the clockspring connectors. REFER to: Steering Column Shrouds .

Disconnect Clockspring C218A .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	Ground

Is the resistance greater than 10, 000 ohms?

Yes	GO to Q4
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No	REPAIR the circuit. After the repair, GO to Q12
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Q4 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR FOR A SHORT TO GROUND

Remove the driver airbag. REFER to: Driver Airbag .

Disconnect Clockspring C218B .

On the steering wheel side, measure:

Positive Lead	Measurement / Action	Negative Lead
C218B-1	Ω	Ground

Is the resistance greater than 10, 000 ohms?

Yes	INSTALL a new clockspring. REFER to: Clockspring .
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No	INSTALL a new steering wheel. REFER to: Steering Wheel .
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Q5 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR AND CIRCUIT FOR LOW RESISTANCE

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	C2406-12

Is the resistance greater than 627 ohms?

Yes	GO to Q13
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No	GO to Q6
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Q6 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR CIRCUITS FOR A SHORT

TOGETHER

Depower the SRS. REFER to: Supplemental Restraint System (SRS) Depowering .

Remove the steering column shrouds to access the clockspring connectors. REFER to: Steering Column Shrouds .

Disconnect Clockspring C218A .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	C2406-12

Is the resistance greater than 10, 000 ohms?

Yes	GO to Q7
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No	REPAIR the circuits. After the repair, GO to Q12
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Q7 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR FOR A SHORT

Remove the driver airbag. REFER to: Driver Airbag .

Disconnect Clockspring C218B .

On the steering wheel side, measure:

Positive Lead	Measurement / Action	Negative Lead
C218B-1	Ω	C218B-2

Is the resistance greater than 627 ohms?

Yes	INSTALL a new clockspring. REFER to: Clockspring .
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No	INSTALL a new steering wheel. REFER to: Steering Wheel .
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Q8 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR REFERENCE AND GROUND CIRCUITS FOR A SHORT TO VOLTAGE

Disconnect HSWM C2406 .

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5		Ground

C2406-12		Ground
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Is any voltage present?

Yes	REPAIR the circuit in question.
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No	GO to Q9
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Q9 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR AND CIRCUIT FOR HIGH RESISTANCE

Ignition OFF.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	C2406-12

Is the resistance less than 670, 000 ohms?

Yes	GO to Q13
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No	GO to Q10
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Q10 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR CIRCUITS FOR AN OPEN

Depower the SRS. REFER to: Supplemental Restraint System (SRS) Depowering .

Remove the steering column shrouds to access the clockspring connectors. REFER to: Steering Column Shrouds .

Disconnect Clockspring C218A .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2406-5	Ω	C218A-3
C2406-12	Ω	C218A-2

Are the resistances less than 3 ohms?

Yes	GO to Q11
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No	REPAIR the circuit in question. After the repair, GO to Q12
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Q11 CHECK THE HEATER ELEMENT TEMPERATURE SENSOR FOR HIGH RESISTANCE

Remove the driver airbag. REFER to: Driver Airbag .

Disconnect Clockspring C218B .

On the steering wheel side, measure:

Positive Lead	Measurement / Action	Negative Lead
C218B-1	Ω	C218B-2

Is the resistance less than 670, 000 ohms?

Yes	INSTALL a new clockspring. REFER to: Clockspring .
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No	INSTALL a new steering wheel. REFER to: Steering Wheel .
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Q12 VERIFY THE SRS (SUPPLEMENTAL RESTRAINT SYSTEM) PROVES OUT SUCCESSFULLY

Depower the SRS. REFER to: Supplemental Restraint System (SRS) Depowering .

Connect Clockspring C218A .

Repower the SRS. REFER to: Supplemental Restraint System (SRS) Repowering .

Did the SRS prove out successfully?

Yes	Repair is complete. RETURN the vehicle to the customer.
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No	REFER to: Airbag Supplemental Restraint System (SRS) .
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Q13 CHECK FOR CORRECT HSWM (HEATED STEERING WHEEL MODULE) OPERATION

Disconnect and inspect the HSWM connector.

Inspect for the following and repair as necessary:

corrosion (install new connector or terminals - clean module pins)

damaged or bent pins - install new terminals/pins

pushed-out pins - install new pins as necessary

Reconnect the HSWM connector and all other previously disconnected connectors. Make sure they seat and latch correctly.

Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new HSWM. REFER to: Heated Steering Wheel Module (HSWM) .
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