Wipers and Washers

Special Tool(s)

ST1137-A	73III Automotive Meter 105-R0057 or equivalent
ST1138-A	Flex Probe Kit 105-R025B or equivalent

Principles Of Operation

The windshield wiper motor is a smart wiper motor with an integrated electronics module. The internal components of the motor are the high/low relay, washer pump relay and the run/park relay and associated electronics.

The windshield wiper motor receives its inputs from the windshield wiper/washer switch. These signals are ground reference signals. When the switch is placed in different positions, various input signals are selected and sent through circuits to the motor. The windshield wiper motor module identifies these selected input signals and activates the motor to the selected function.

High Speed Windshield Wipers

When the wiper/wash switch is set to the HIGH-speed position, it supplies ground to the high/low-speed relay coil and the run/park relay coil, which causes the windshield wiper motor to operate at high speed. During HIGH-speed operation only, both the high/low-speed relay coil ground and the run/park relay coil ground are controlled directly by the windshield wiper/washer switch. This differs from LOW-speed or INTERMITTENT operation when the run/park relay coil is controlled by the microprocessor. When the switch is placed in the OFF position, the motor continues to operate until the motor returns to the PARK position and the internal Hall-effect sensor senses the motor magnet. The output to the run/park relay deactivates the relay and disconnects the voltage to the motor.

Since the high/low relay coil and the run/park relay coil are both controlled by a hard-wired circuit to the windshield wiper/washer switch, the windshield wipers will still operate in high-speed mode if the internal windshield wiper module fails, but will not automatically park when the windshield wiper/washer switch is turned to the OFF position.

Low Speed Windshield Wipers

When the wiper/wash switch is set to the LOW-speed position, it supplies ground to the internal windshield wiper motor module low-speed input and the windshield wiper motor operates at low speed. During LOW-speed operation, the internal run/park relay is activated by the microprocessor and supplies 12 volts to the low-speed brush of the windshield wiper motor. The run/park relay coil ground is controlled by the internal windshield wiper motor module based on inputs received from the windshield wiper/washer switch. When the switch is placed in the OFF position, the motor continues to operate until the motor returns to the PARK position and the internal Hall-effect sensor senses the motor magnet. The output to the run/park relay deactivates the relay and disconnects the voltage to the motor.

Since the run/park relay is controlled by the internal windshield wiper motor microprocessor, the wipers will only

operate in high-speed mode if the internal windshield wiper motor module fails, and will not automatically park when the windshield wiper/washer switch is turned to the OFF position. This is due to the run/park and high/low relay coils being directly hard-wired to the switch in high speed. The diode prevents current flow through the high/low relay coil so the relay remains in the normally closed LOW-speed position.

Intermittent Wiper Speed Windshield Wipers

When the wiper/wash switch is set to the INTERMITTENT position(s), it supplies ground to the windshield wiper motor module inputs and the windshield wiper motor operates in intermittent mode. During INTERMITTENT operation, the windshield wiper motor activates the run/park relay coil which sends voltage through the high/low relay. The high/low relay remains deactivated, supplying the voltage to the low-speed brush of the windshield wiper motor. The windshield motor continues to operate until the internal Hall-effect sensor senses the magnet (PARK position) and deactivates the run/park relay, which disconnects voltage from the wiper motor. The windshield wipers remain parked until the windshield wiper motor module completes a time-out and then repeats the intermittent windshield wiper cycle.

Software Safe Mode

The windshield wiper motor defaults to software safe mode when the run/park sensor does not sense the Hall-effect magnet inside the wiper motor. This can be caused by an obstruction of the windshield wipers, a binding linkage or loss of the Hall sensor signal. The motor continues to operate in a high/low-speed condition, and when turned off, the wipers immediately park on the windshield. If necessary, the wipers can be turned on and off until they return to the PARK position.

Washer System

When windshield wash is selected on the wiper/wash switch, the windshield wiper motor module activates its integral washer relay which sends voltage to the washer pump to direct fluid to the windshield.

Windshield Wiper Circuit Function Table

Wiper/Wash Switch Position	Circuit 680 (LB/OG)	Circuit 61 (YE/RD)	Circuit 56 (DB/OG)	Circuit 58 (WH)	Circuit 63 (RD)
OFF	OPEN	OPEN	OPEN	OPEN	OPEN
INT 1	OPEN	OPEN	OPEN	OPEN	GROUND
INT 2	OPEN	OPEN	OPEN	GROUND	GROUND
INT 3	OPEN	OPEN	OPEN	GROUND	OPEN
INT 4	OPEN	OPEN	GROUND	GROUND	OPEN
INT 5	OPEN	OPEN	GROUND	OPEN	OPEN
LOW	OPEN	OPEN	GROUND	OPEN	GROUND
HIGH	OPEN	GROUND	GROUND	OPEN	GROUND
WASH	GROUND	OPEN/GROUND	OPEN/GROUND	OPEN/GROUND	OPEN/GROUND

Inspection and Verification

1. Verify the customer concern.

2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical

• Windshield washer pump hoses • Windshield wiper mounting arm and pivot shaft	• Bussed Electrical Center (BEC) fuse 10 (30A) • Smart Junction Box (SJB) fuse 3 (10A) • Circuitry • Windshield wiper motor • Windshield washer pump • Windshield wiper/washer switch	

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

4. If the cause is not visually evident, verify the symptom and GO to <u>Symptom Chart</u> .

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• The wipers are inoperative	• Fuse(s) • Circuitry • Windshield wiper motor • Windshield wiper/washer switch	• <u>GO to Pinpoint Test A</u> .
• The wipers stay on continuously	• Circuitry • Windshield wiper motor • Windshield wiper/washer switch	• <u>GO to Pinpoint Test B</u> .
• The high/low wiper speeds do not operate correctly	• Circuitry • Windshield wiper/washer switch • Windshield wiper motor	• <u>GO to Pinpoint Test C</u> .
• The intermittent wiper speed does not operate correctly	• Circuitry • Windshield wiper/washer switch • Windshield wiper motor	• <u>GO to Pinpoint Test D</u> .
• The wash and wipe function is inoperative	• Circuitry • Windshield wiper motor • Windshield wiper/washer switch	• If the washer pump is inoperative, <u>GO to Pinpoint Test E</u> . • If the washer pump is operative, INSTALL a new wiper motor. TEST the system for normal operation.
• The washer pump is inoperative	• Circuitry • Windshield wiper motor • Windshield washer pump	• <u>GO to Pinpoint Test E</u> .
• The wipers will not park at correct position	• Linkage • Pivot arm	• If the wipers immediately stop on the windshield as soon as they are turned off, INSTALL a new windshield wiper motor. • ADJUST the pivot arms, REFER to

	adjustment • Windshield wiper motor	Wiper Blade and Pivot Arm Adjustment in this section.

Pinpoint Tests

Pinpoint Test A: The Wipers are Inoperative

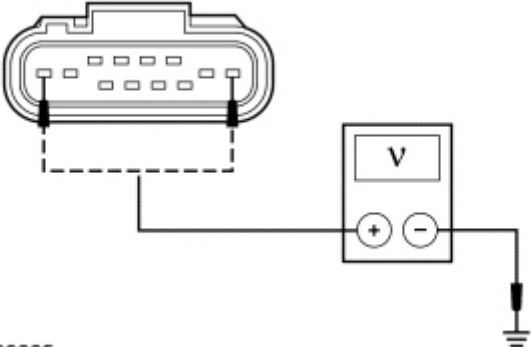Refer to Wiring Diagrams Cell 81 , Wipers and Washers for schematic and connector information.

Normal Operation

The windshield wiper motor receives open and ground inputs from the windshield wiper/washer switch through circuits 56 (DB/OG), 58 (WH), 61 (YE/RD) and 63 (RD) to activate the wipers to the appropriate modes. The internal wiper motor module controls the internal wiper run/park relay to control the windshield wiper motor in conjunction with the internal wiper high/low relay. The windshield wiper motor receives voltage from circuit 2026 (RD/OG) and is grounded through circuit 1205 (BK). The windshield wiper motor internal microprocessor and relays receive voltage from circuit 2025 (RD/YE) and are grounded through circuit 1205 (BK).
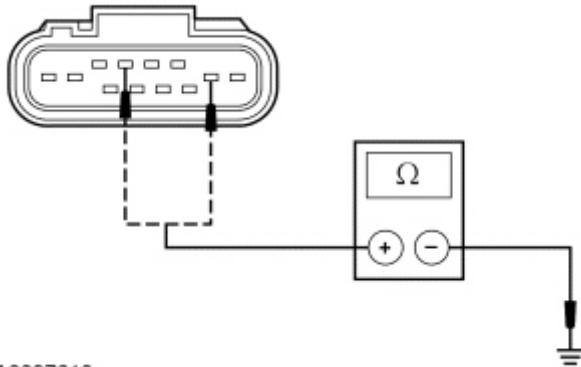
This pinpoint test is intended to diagnose the following:
- Fuse(s)
- Wiring, terminals or connectors
- Windshield wiper/washer switch
- Windshield wiper motor

PINPOINT TEST A: THE WIPERS ARE INOPERATIVE

Test Step	Result / Action to Take
A1 CHECK CIRCUITS 2025 (RD/YE) AND 2026 (RD/OG) FOR VOLTAGE	
• Ignition OFF. • Disconnect: Windshield Wiper Motor C125. • Ignition ON. • Measure the voltage between the windshield wiper motor C125-5, circuit 2026 (RD/OG), harness side and ground; and between windshield wiper motor C125-8, circuit 2025 (RD/YE), harness side and ground. A0039065 • **Are the voltages greater than 10 volts?**	**Yes** GO to A2 . **No** VERIFY the Smart Junction Box (SJB) fuse 3 (10A) and Bussed Electrical Center (BEC) fuse 10 (30A) are OK. If OK, REPAIR the circuit(s) in question. If not OK, REFER to the Wiring Diagrams Manual to identify the possible causes of the circut short. TEST the system for normal operation.
A2 CHECK CIRCUIT 1205 (BK) FOR AN OPEN	
• Ignition OFF.	**Yes**

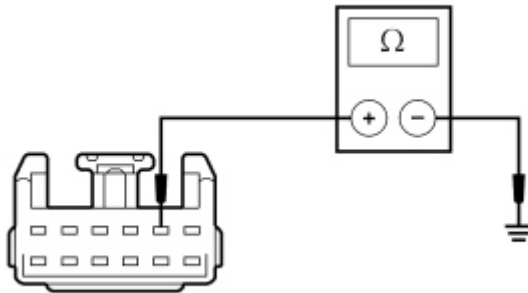|	
• Measure the resistance between the windshield wiper motor C125-3, circuit 1205 (BK), harness side and ground; and between windshield wiper motor C125-6, circuit 1205 (BK), harness side and ground. A0037610 • **Is the resistance less than 5 ohms?**	GO to <u>A3</u> . **No** REPAIR the circuit. TEST the system for normal operation.
A3 CHECK THE WINDSHIELD WIPER/WASHER SWITCH	
• Disconnect: Windshield Wiper/Washer Switch C2137. • Carry out the windshield wiper/washer switch component test. Refer to Wiring Diagrams Cell <u>149</u> for component testing. • **Does the windshield wiper/washer switch pass the component test?**	**Yes** GO to <u>A4</u> . **No** INSTALL a new windshield wiper/washer switch. REFER to <u>Wiper/Washer Switch</u> in this section.
A4 CHECK CIRCUIT 1205 (BK) FOR AN OPEN	
• Measure the resistance between the windshield wiper/washer switch C2137-2, circuit 1205 (BK), harness side and ground. N0011977 • **Is the resistance less than 5 ohms?**	**Yes** GO to <u>A5</u> . **No** REPAIR the circuit. TEST the system for normal operation.
A5 CHECK FOR SHORTS IN THE WINDSHIELD WIPER MOTOR HARNESS	
• Measure the resistance at windshield wiper motor C125 using the following chart:	**Yes** GO to <u>A6</u> . **No** REPAIR the circuit. TEST the system for normal operation.

Windshield Wiper Motor	Circuits	Windshield Wiper Motor
C125-10	56 (DB/OG)/63 (RD)	C125-1
C125-10	56 (DB/OG)/61 (YE/RD)	C125-9
C125-10	56 (DB/OG)/58 (WH)	C125-11

C125-11	58 (WH)/63 (RD)	C125-1
C125-11	58 (WH)/61 (YE/RD)	C125-9
C125-1	63 (RD)/61 (YE/RD)	C125-9

- **Is the resistance greater than 10,000 ohms for all measurements?**

Test Step	Result / Action to Take
A6 CHECK FOR CORRECT WINDSHIELD WIPER MOTOR OPERATION - Disconnect all the windshield wiper motor connectors. - Check for: - corrosion. - pushed-out pins. - Connect all the windshield wiper motor connectors and make sure they seat correctly. - Operate the system and verify the concern is still present. - **Is the concern still present?**	**Yes** INSTALL a new windshield wiper motor. REFER to Wiper Motor in this section. TEST the system for normal operation. **No** The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test B: The Wipers Stay On Continuously

Refer to Wiring Diagrams Cell 81 , Wipers and Washers for schematic and connector information.

Normal Operation

The windshield wiper motor receives open and ground inputs from the windshield wiper/washer switch through circuits 56 (DB/OG), 58 (WH), 61 (YE/RD) and 63 (RD) to activate the wipers to the appropriate modes. The module (internal) controls the run/park relay (internal) using internal circuitry to control the windshield wiper motor in conjunction with the high/low relay (internal).

> **This pinpoint test is intended to diagnose the following:**
- Wiring, terminals or connectors
- Windshield wiper motor
- Windshield wiper/washer switch

PINPOINT TEST B: THE WIPERS STAY ON CONTINUOUSLY

Test Step	Result / Action to Take
B1 CHECK THE WINDSHIELD WIPER/WASHER SWITCH - Ignition OFF. - Disconnect: Windshield Wiper/Washer Switch C2137. - Carry out the windshield wiper/washer switch component test. Refer to Wiring Diagrams Cell 149 for component testing. - **Does the windshield wiper/washer switch pass the component test?**	**Yes** GO to B2 . **No** INSTALL a new windshield wiper/washer switch. REFER to Wiper/Washer Switch in this section.
B2 CHECK CIRCUITS 56 (DB/OG), 58 (WH), 61 (YE/RD) AND 63 (RD) FOR A SHORT TO GROUND - Disconnect: Windshield Wiper Motor C125. - Measure the resistance between ground and windshield wiper	**Yes** GO to B3 .

motor:
   ■ C125-1, circuit 63 (RD), harness side.
   ■ C125-9, circuit 61 (YE/RD), harness side.
   ■ C125-10, circuit 56 (DB/OG), harness side.
   ■ C125-11, circuit 58 (WH), harness side.
	No
	REPAIR the circuit(s) in question. TEST the system for normal operation.
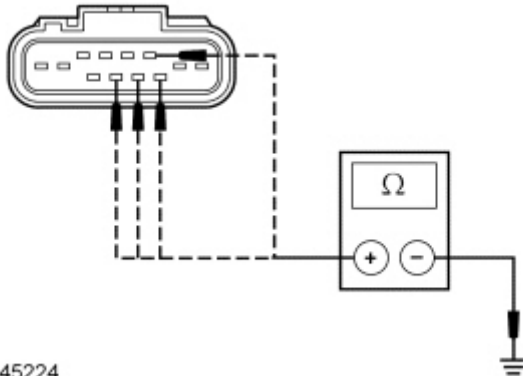
 A0045224 ● **Are the resistances greater than 10,000 ohms?**	
B3 CHECK FOR CORRECT WINDSHIELD WIPER MOTOR OPERATION	

● Disconnect all the windshield wiper motor connectors.
● Check for:
   ■ corrosion.
   ■ pushed-out pins.
● Connect all the windshield wiper motor connectors and make sure they seat correctly.
● Operate the system and verify the concern is still present.
● **Is the concern still present?**
	Yes
	INSTALL a new windshield wiper motor. REFER to Wiper Motor in this section. TEST the system for normal operation.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test C: The High/Low Wiper Speeds Do Not Operate Correctly

Refer to Wiring Diagrams Cell 81 , Wipers and Washers for schematic and connector information.

Normal Operation

The windshield wiper motor receives open and ground inputs from the windshield wiper/washer switch through circuits 56 (DB/OG), 58 (WH), 61 (YE/RD) and 63 (RD) to activate the wipers to the appropriate modes. The module (internal) controls the wiper run/park relay (internal) using internal circuitry to control the motor in conjunction with the high/low relay (internal).

    This pinpoint test is intended to diagnose the following:
● Wiring, terminals or connectors
● Windshield wiper/washer switch
● Windshield wiper motor

PINPOINT TEST C: THE HIGH/LOW WIPER SPEEDS DO NOT OPERATE CORRECTLY

Test Step	Result / Action to Take
C1 CHECK THE WINDSHIELD WIPER/WASHER SWITCH	
● Ignition OFF. ● Disconnect: Windshield Wiper/Washer Switch C2137.	**Yes** GO to C2 .

|	
• Carry out the windshield wiper/washer switch component test. Refer to Wiring Diagrams Cell 149 for component testing. • **Does the windshield wiper/washer switch pass the component test?**	**No** INSTALL a new windshield wiper/washer switch. REFER to Wiper/Washer Switch in this section.

C2 CHECK CIRCUITS 56 (DB/OG), 61 (YE/RD) AND 63 (RD) FOR AN OPEN

• Disconnect: Windshield Wiper Motor C125. • Measure the resistance between windshield wiper/washer switch C2137, harness side and windshield wiper motor C125, harness side using the following chart:	**Yes** GO to C3 . **No** REPAIR the circuit(s) in question. TEST the system for normal operation.

Windshield Wiper/Washer Switch	Circuit	Windshield Wiper Motor
C2137-12	56 (DB/OG)	C125-10
C2137-4	63 (RD)	C125-1
C2137-6	61 (YE/RD)	C125-9
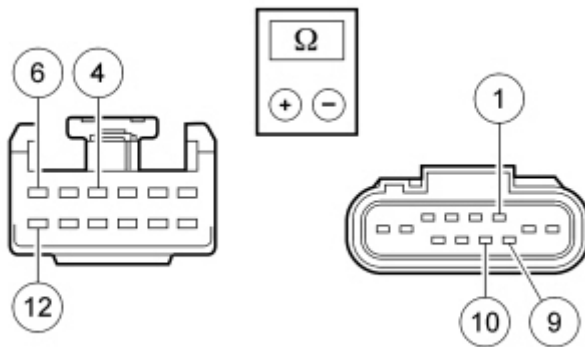
N0085491

• **Is the resistance less than 5 ohms?**

C3 CHECK CIRCUITS 56 (DB/OG), 61 (YE/RD) AND 63 (RD) FOR A SHORT TO GROUND

• Measure the resistance between grond and windshield wiper motor:
  ■ C125-1, circuit 63 (RD), harness side.
  ■ C125-9, circuit 61 (YE/RD), harness side.
  ■ C125-10, circuit 56 (DB/OG), harness side.
	Yes
	GO to C4 .
	
	No
	REPAIR the circuit(s) in question. TEST the system for normal operation.
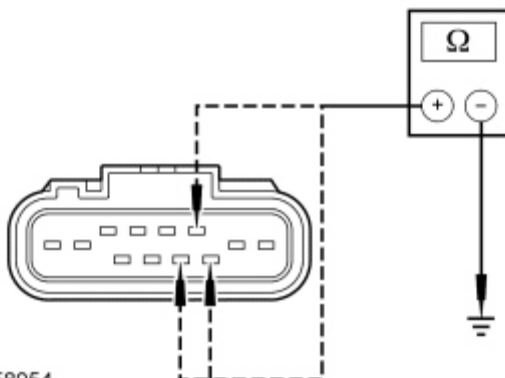
N0058054

• **Is the resistance greater than 10,000 ohms?**

C4 CHECK FOR SHORTS IN THE WINDSHIELD WIPER MOTOR HARNESS	
• Measure the resistance at windshield wiper motor C125 using the following chart: | Windshield Wiper Motor	Circuits	Windshield Wiper Motor | |---|---|---| | C125-10 | 56(DB/OG)/63 (RD) | C125-1 | | C125-10 | 56 (DB/OG)/61 (YE/RD) | C125-9 | | C125-10 | 56 DB/OG)/58 (WH) | C125-11 | | C125-11 | 58 (WH)/63 (RD) | C125-1 | | C125-11 | 58 (WH)/61 (YE/RD) | C125-9 | | C125-1 | 63 (RD)/61 (YE/RD) | C125-9 | • **Is the resistance greater than 10,000 ohms for all measurements?**	**Yes** GO to C5 . **No** REPAIR the circuit. TEST the system for normal operation.

C5 CHECK FOR CORRECT WINDSHIELD WIPER MOTOR OPERATION	
• Disconnect all the windshield wiper motor connectors. • Check for: ▪ corrosion. ▪ pushed-out pins. • Connect all the windshield wiper motor connectors and make sure they seat correctly. • Operate the system and verify the concern is still present. • **Is the concern still present?**	**Yes** INSTALL a new windshield wiper motor. REFER to Wiper Motor in this section. TEST the system for normal operation. **No** The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test D: The Intermittent Wiper Speed Does Not Operate Correctly

Refer to Wiring Diagrams Cell 81 , Wipers and Washers for schematic and connector information.

Normal Operation

The windshield wiper motor receives open and ground inputs from the windshield wiper/washer switch through circuits 56 (DB/OG), 58 (WH), 61 (YE/RD) and 63 (RD) to activate the wipers to the appropriate modes. The module (internal) controls the wiper run/park relay (internal) using internal circuitry to control the motor in conjunction with the high/low relay (internal).

> **This pinpoint test is intended to diagnose the following:**
• Wiring, terminals or connectors
• Windshield wiper motor
• Windshield wiper/washer switch

PINPOINT TEST D: THE INTERMITTENT WIPER SPEED DOES NOT OPERATE CORRECTLY

Test Step	Result / Action to Take
D1 CHECK THE WINDSHIELD WIPER/WASHER SWITCH	
• Ignition OFF. • Disconnect: Windshield Wiper/Washer Switch C2137.	**Yes** GO to D2 .

|	
• Carry out the windshield wiper/washer switch component test. Refer to Wiring Diagrams Cell 149 for component testing. • **Does the windshield wiper/washer switch pass the component test?**	**No** INSTALL a new windshield wiper/washer switch. REFER to Wiper/Washer Switch in this section.

D2 CHECK CIRCUITS 56 (DB/OG), 58 (WH) AND 61 (YE/RD) FOR AN OPEN

• Disconnect: Windshield Wiper Motor C125. • Measure the resistance between windshield wiper/washer switch C2137, harness side and windshield wiper motor C125, harness side using the following chart:	**Yes** GO to D3 . **No** REPAIR the circuit. TEST the system for normal operation.

Windshield Wiper/Washer Switch	Circuit	Windshield Wiper Motor
C2137-12	56 (DB/OG)	C125-10
C2137-6	61 (YE/RD)	C125-1
C2137-1	58 (WH)	C125-9
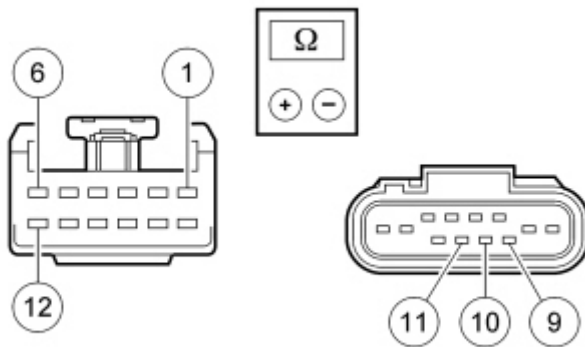
N0085492

• **Is the resistance less than 5 ohms?**

D3 CHECK CIRCUITS 56 (DB/OG), 58 (WH) AND 61 (YE/RD) FOR A SHORT TO GROUND

• Measure the resistance between ground and windshield wiper motor: ▪ C125-9, circuit 61 (YE/RD), harness side. ▪ C125-10, circuit 56 (DB/OG), harness side. ▪ C125-11, circuit 58 (WH), harness side.	**Yes** GO to D4 . **No** REPAIR the circuit(s) in question. TEST the system for normal operation.
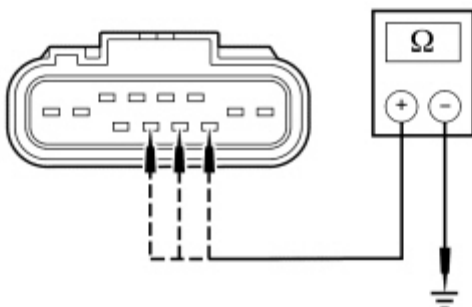
N0058187

• **Is the resistance greater than 10,000 ohms?**

D4 CHECK FOR SHORTS IN THE WINDSHIELD WIPER MOTOR HARNESS

- Measure the resistance at windshield wiper motor C125 using the following chart:

Windshield Wiper Motor	Circuits	Windshield Wiper Motor
C125-10	56 (DB/OG)/63 (RD)	C125-1
C125-10	56 (DB/OG)/61 (YE/RD)	C125-9
C125-10	56 (DB/OG)/58 (WH)	C125-11
C125-11	58 (WH)/63 (RD)	C125-1
C125-11	58 (WH)/ 61 (YE/RD)	C125-9
C125-1	63 (RD)/61 (YE/RD)	C125-9

- **Is the resistance greater than 10,000 ohms for all measurements?**

Yes
GO to D5 .

No
REPAIR the circuit. TEST the system for normal operation.

D5 CHECK FOR CORRECT WINDSHIELD WIPER MOTOR OPERATION

- Disconnect all the windshield wiper motor connectors.
- Check for:
  - corrosion.
  - pushed-out pins.
- Connect all the windshield wiper motor connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

Yes
INSTALL a new windshield wiper motor. REFER to Wiper Motor in this section. TEST the system for normal operation.

No
The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test E: The Washer Pump is Inoperative

Refer to Wiring Diagrams Cell 81 , Wipers and Washers for schematic and connector information.

Normal Operation

When activated, the windshield wiper/washer switch sends a ground signal through circuit 680 (LB/OG) to the windshield wiper motor. The windshield wiper motor then supplies voltage through circuit 941 (BK/WH) to activate the windshield washer pump motor. Ground is provided to the windshield washer pump through circuit 1205 (BK).
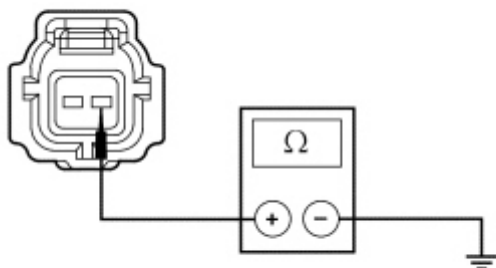
This pinpoint test is intended to diagnose the following:
- Wiring, terminals or connectors
- Windshield wiper motor
- Windshield washer pump

PINPOINT TEST E: THE WASHER PUMP IS INOPERATIVE

Test Step	Result / Action to Take
E1 CHECK CIRCUIT 1205 (BK) FOR AN OPEN	

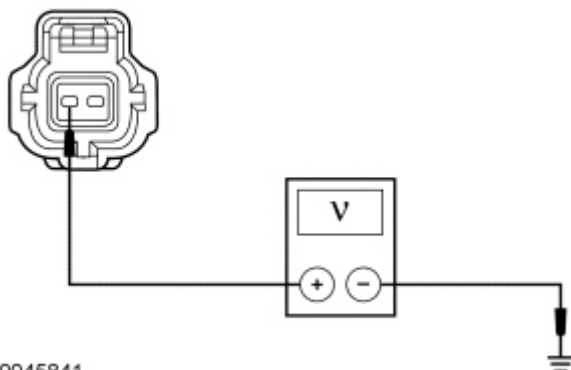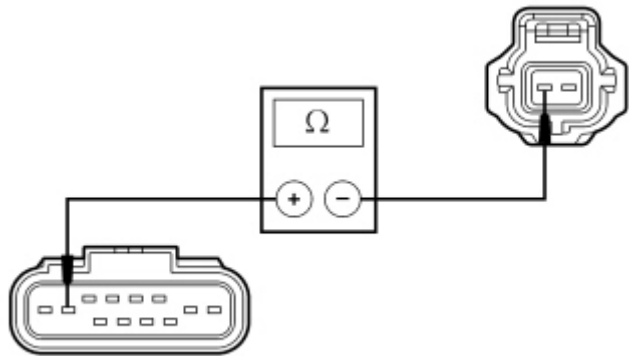|	
- Ignition OFF. - Disconnect: Washer Pump Motor C137. - Measure the resistance between the windshield washer pump C137-2, circuit 1205 (BK), harness side and ground. GK9963-A **Is the resistance less than 5 ohms?**	**Yes** GO to <u>E2</u>. **No** REPAIR the circuit. TEST the system for normal operation.
E2 CHECK THE WINDSHIELD WASHER PUMP FOR VOLTAGE	
- Ignition ON. - Measure the voltage between the windshield washer pump C137-1, circuit 941 (BK/WH) harness side and ground while pressing the windshield wiper/washer switch to the WASH position. A0045841 **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new washer pump. REFER to <u>Washer Pump and Reservoir</u> in this section. **No** GO to <u>E3</u>.
E3 CHECK THE WINDSHIELD WIPER/WASHER SWITCH	
- Ignition OFF. - Disconnect: Windshield Wiper/Washer Switch C2137. - Carry out the windshield wiper/washer switch component test. Refer to Wiring Diagrams Cell <u>149</u> for component testing. **Does the windshield wiper/washer switch pass the component test?**	**Yes** GO to <u>E4</u>. **No** INSTALL a new windshield wiper/washer switch. REFER to <u>Wiper/Washer Switch</u> in this section.
E4 CHECK CIRCUIT 680 (LB/OG) FOR AN OPEN CIRCUIT	
- Disconnect: Windshield Wiper Motor C125. - Measure the resistance between the windshield wiper/washer switch C2137-5, circuit 680 (LB/OG), harness side and windshield wiper motor connector C125-12, circuit 680 (LB/OG), harness side.	**Yes** GO to <u>E5</u>. **No** REPAIR the circuit. TEST the system for normal operation.
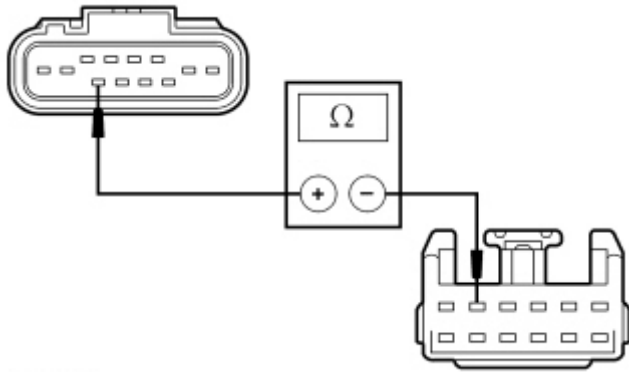
N0011982

- **Is the resistance less than 5 ohms?**

E5 CHECK CIRCUIT 941 (BK/WH) FOR AN OPEN CIRCUIT	
- Measure the resistance between the windshield wiper motor connector C125-7, circuit 941 (BK/WH), harness side and the windshield washer pump connector C137-1, circuit 941 (BK/WH), harness side. N0011983 **Is the resistance less than 5 ohms?**	**Yes** GO to E6 . **No** REPAIR the circuit. TEST the system for normal operation.
E6 CHECK FOR CORRECT WINDSHIELD WIPER MOTOR OPERATION	
- Disconnect the windshield wiper motor connectors. - Check for: - corrosion. - pushed-out pins. - Connect all the windshield wiper motor connectors and make sure they seat correctly. - Operate the system and verify the concern is still present. **Is the concern still present?**	**Yes** INSTALL a new windshield wiper motor. REFER to Wiper Motor in this section. TEST the system for normal operation. **No** The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.