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2012 FORD Ranger Regular Cab OEM Service and Repair Workshop Manual





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- Ignition ON.
- Measure:

LH (left-hand)

Positive Lead	Measurement / Action	Negative Lead
C521-10		Ground
C521-9		Ground
C521-20		Ground
C521-11		Ground

RH (right-hand)

Positive Lead	Measurement / Action	Negative Lead
C622-10		Ground
C622-9		Ground
C622-20		Ground
C622-11		Ground

C622-9	Ω	Ground
C622-20	Ω	Ground
C622-11	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to E5
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No	REPAIR the circuit in question.
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E5 CHECK THE SUSPECT EXTERIOR MIRROR POSITION SENSOR CIRCUITS FOR AN OPEN

- Measure:
LH (left-hand)

Positive Lead	Measurement / Action	Negative Lead
C521-10	Ω	C501B-8
C521-9	Ω	C501B-20
C521-20	Ω	C501B-19
C521-11	Ω	C501B-7

(501-09 Rear View Mirrors, Removal and Installation).

TEST the system for normal operation. If the concern is still present, GO to [E7](#)

No

REPAIR the harness as necessary. If the harness cannot be repaired, INSTALL a new exterior mirror.

REFER to: [Exterior Mirror - Vehicles With: Long Arm Mirrors](#)

(501-09 Rear View Mirrors, Removal and Installation).

REFER to: [Exterior Mirror - Vehicles With: Short Arm Mirrors](#)

(501-09 Rear View Mirrors, Removal and Installation).

E7 CHECK FOR CORRECT DDM (DRIVER DOOR MODULE) / PDM (PASSENGER DOOR MODULE) OPERATION

Normal Operation and Fault Conditions REFER to: [Rear View Mirrors - System Operation and Component Description](#)

(501-09 Rear View Mirrors, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
DDM (driver door module) B1163:11	Left Mirror Heater Output: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the DDM (driver door module) if the DDM (driver door module) detects a higher than expected current draw when voltage is applied to the LH (left-hand) exterior mirror heater circuit.
DDM (driver door module) B1163:15	Left Mirror Heater Output: Circuit Short To Battery Or Open	A continuous and on-demand DTC (diagnostic trouble code) that sets in the DDM (driver door module) if the DDM (driver door module) detects a lower than expected current draw when voltage is applied to the LH (left-hand) exterior mirror heater circuit.
PDM (passenger door module) B1164:11	Right Mirror Heater Output: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the PDM (passenger door module) if the PDM (passenger door module) detects a higher than expected current draw when voltage is applied to the RH (right-hand) exterior mirror heater circuit.
PDM (passenger door module) B1164:15	Right Mirror Heater Output: Circuit Short To Battery Or Open	A continuous and on-demand DTC (diagnostic trouble code) that sets in the PDM (passenger door module) if the PDM (passenger door module) detects a lower than expected current draw when voltage is applied to the RH (right-hand) exterior mirror heater circuit.

Possible Sources

- Wiring, terminals or connectors
- Exterior mirror glass
- Exterior mirror
- Door module

Visual Inspection and Pre-checks

- Inspect the suspect exterior mirror housing and glass for damage.

REFER to: [Glass, Frames and Mechanisms - Vehicles With: One-Touch Open and Close Front Windows](#)

(501-11 Glass, Frames and Mechanisms, Diagnosis and Testing).


F3 CHECK THE EXTERIOR MIRROR HEATER OUTPUT VOLTAGE AT THE EXTERIOR MIRROR

NOTICE


The following step uses a test lamp to simulate normal circuit loads. Use only a Rotunda Test Lamp (SGT27000) or 250-300mA incandescent bulb test lamp. To avoid connector terminal damage, use the Rotunda Flex Probe kit for the test lamp probe connection to the vehicle. Do not use the test lamp probe directly on any connector.

- Ignition OFF.
- Disconnect: Exterior Mirror C521 or C622.
- Start the engine.
- Connect:

LH (left-hand)

Lead 1	Measurement / Action	Lead 2
C521-1		C521-8

RH (right-hand)

Lead 1	Measurement / Action	Lead 2
C622-1		C622-8

- With the engine running, activate the rear window defrost.


Does the test light illuminate when the rear window defrost is activated?
only

Yes	GO to F11
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The following step uses a test lamp to simulate normal circuit loads. Use only a Rotunda Test Lamp (SGT27000) or 250-300mA incandescent bulb test lamp. To avoid connector terminal damage, use the Rotunda Flex Probe kit for the test lamp probe connection to the vehicle. Do not use the test lamp probe directly on any connector.

- Turn the rear window defrost off.
- Connect:

LH (left-hand)

Lead 1	Measurement / Action	Lead 2
C521-1		Ground

RH (right-hand)

Lead 1	Measurement / Action	Lead 2
C622-1		Ground

- With the engine running, activate the rear window defrost.

Does the test light illuminate?

Yes	REPAIR the ground circuit.
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No	GO to F6
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F6 CHECK FOR AN OPEN IN THE HEATER CIRCUIT BETWEEN THE MIRROR AND THE DOOR MODULE

- Ignition OFF.
- Disconnect: DDM (driver door module) C501B (LH (left-hand) concern) or PDM (passenger door module) C652B (RH (right-hand) concern).
- Measure:

LH (left-hand)

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror C521 (LH (left-hand) concern) or C622(RH (right-hand) concern).
- Ignition ON.
- Using a diagnostic scan tool, clear the DDM (driver door module) or PDM (passenger door module) Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, perform the DDM (driver door module) or PDM (passenger door module) self-test.

Is DDM (driver door module) DTC (diagnostic trouble code) B1163:15 or PDM (passenger door module) DTC (diagnostic trouble code) B1164:15 present?

Yes	GO to F8
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No	For a LH (left-hand) concern, GO to F9 For a RH (right-hand) concern, GO to F10
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F8 CHECK THE HEATER CIRCUIT FOR A SHORT TO GROUND AT THE EXTERIOR MIRROR

- Ignition OFF.
- Disconnect: DDM (driver door module) C501B (LH (left-hand) concern) or PDM (passenger door module) C652B (RH (right-hand) concern).
- Measure:

LH (left-hand)

Positive Lead	Measurement / Action	Negative Lead
C521-1	Ω	Ground

RH (right-hand)

Positive Lead	Measurement / Action	Negative Lead
C622-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

- Reconnect the PDM (passenger door module) connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to determine if the concern is still present.

Is the concern still present?

Yes	<p>CHECK OASIS (Online Automotive Service Information System) for any applicable Technical Service Bulletins (TSBs). If a TSB (Technical Service Bulletin) exists for this concern, DISCONTINUE this test and FOLLOW the TSB (Technical Service Bulletin) instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new PDM (passenger door module) .</p> <p>REFER to: Passenger Door Module (PDM) (419-10 Multifunction Electronic Modules, Removal and Installation).</p>
No	<p>The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.</p>

F11 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror glass for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	<p>INSTALL a new exterior mirror glass.</p> <p>REFER to: Exterior Mirror - Vehicles With: Long Arm Mirrors (501-09 Rear View Mirrors, Removal and Installation).</p> <p>REFER to: Exterior Mirror - Vehicles With: Short Arm Mirrors (501-09 Rear View Mirrors, Removal and Installation).</p>
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Normal Operation and Fault Conditions REFER to: [Rear View Mirrors - System Operation and Component Description](#)

(501-09 Rear View Mirrors, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
DDM (driver door module) B11F6:11	Driver Folding Mirror Motor: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the DDM (driver door module) if the DDM (driver door module) detects a higher than expected current draw when voltage is applied to the horizontal mirror motor circuit.
DDM (driver door module) B11F6:15	Driver Folding Mirror Motor: Circuit Short To Battery Or Open	A continuous and on-demand DTC (diagnostic trouble code) that sets in the DDM (driver door module) if the DDM (driver door module) detects a lower than expected current draw when voltage is applied to the horizontal mirror motor circuit.
PDM (passenger door module) B11F7:11	Passenger Folding Mirror Motor: Circuit Short To Ground	A continuous and on-demand DTC (diagnostic trouble code) that sets in the PDM (passenger door module) if the PDM (passenger door module) detects a higher than expected current draw when voltage is applied to the horizontal mirror motor circuit.
PDM (passenger door module) B11F7:15	Passenger Folding Mirror Motor: Circuit Short To Battery Or Open	A continuous memory DTC (diagnostic trouble code) that sets in the PDM (passenger door module) if the PDM (passenger door module) detects a lower than expected current draw when voltage is applied to the horizontal mirror motor circuit.

Possible Sources

- The power fold mirror motor lockout feature is active
- Binding or obstructed power fold mirror
- Power fold mirrors not synchronized
- Communication network concern
- Power window concern
- Wiring, terminals or connectors
- Exterior mirror fold switch (integral to the LH (left-hand) front door window control switch)
- Exterior mirror