

Auxiliary Switches

Inspection and Verification

Refer to Wiring Diagrams Cell 140 for schematic and connector information.

It will be necessary to refer to upfitter documentation a for additional wiring information.

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#) (100-00 General Information, Description and Operation).

1. Verify the customer concern.
2. Not all auxiliary switches may be used by upfitter. Confirm the auxiliary switches that are used.
3. Visually inspect for obvious signs of mechanical or electrical damage:
 - Upfitter relay(s)
 - Upfitter (auxiliary) switches
 - Wiring, terminals or connectors
4. Verify BJB upfitter relay fuses:

Component	Fuse	Rating
Supply	F29	40A
AUX 1	F47	20A
AUX 2	F48	20A
AUX 3	F71	15A
AUX 4	F73	15A

AUX 5	F98	10A
AUX 6	F100	10A

5. Verify BCM fuse 19 (5A).
6. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
7. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

Symptom	Possible Sources	Action
All auxiliary switch controlled components are inoperative.	Refer to the pinpoint test.	GO to Pinpoint Test B
Some, but not all, auxiliary switch controlled component are inoperative.	Refer to the pinpoint test.	GO to Pinpoint Test A
All auxiliary switch ON indicators are inoperative.	Refer to the pinpoint test.	GO to Pinpoint Test B
Some, but not all, auxiliary switch ON indicators are inoperative.	Upfitter (auxiliary) switch assembly	INSTALL a new auxiliary switch assembly REFER to: Auxiliary Switches (419-10 Multifunction Electronic Modules, Removal and Installation).

● To install the upfitter switches on a vehicle that was not originally equipped from the factory.	● None	● For truck body builder advisory service bulletins, REFER to www.fleet.ford.com.
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Pinpoint Tests

An Auxiliary Switch Controlled Component is Inoperative

Refer to Wiring Diagrams Cell 140 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Auxiliary Switches](#) (419-10 Multifunction Electronic Modules, Description and Operation).

Possible Sources

- Upfitter (auxiliary) switch assembly
- BJB upfitter relays or fuses
- Fuses
- Wiring, terminals or connectors

PINPOINT TEST A : AN AUXILIARY SWITCH CONTROLLED COMPONENT IS INOPERATIVE

A1 PERFORM INSPECTION AND VERIFICATION	
● Perform Inspection and Verification procedure in this section.	
Was an obvious cause for an observed or reported concern found?	
Yes	Correct the cause as necessary.
No	GO to A2

A2 CHECK THE AUXILIARY SYSTEM

- Ignition ON.
- Operate all the upfitter accessories.

Are all the upfitter accessories inoperative?

Yes	GO to Pinpoint Test B
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No	GO to A3
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A3 CHECK THE UPFITTER RELAY

- Ignition OFF.
- Substitute suspect upfitter relay with a known good relay.
- Ignition ON.
- Place the upfitter switch in question to the ON position.

Does the upfitter accessory operate?

Yes	INSTALL a new upfitter relay.
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No	REMOVE the known good relay. GO to A4
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A4 CHECK UPFITTER RELAY SUPPLY VOLTAGE

- For the auxiliary system in question, measure:

NOTE: For relay and pin assignments, Refer to Wiring Diagrams Cell 11 for schematic and connector information.

Positive Lead	Measurement / Action	Negative Lead
Upfitter Relay Pin 3		Ground

Is the voltage greater than 11 volts?

Yes	GO to A5
No	INSTALL a new BJB.

A5 CHECK THE UPFITTER RELAY CONTROL CIRCUIT FOR OPEN

- Ignition ON.
- Turn the auxiliary switch for the circuit in question ON.
- For the auxiliary switch in question, measure:

NOTE: For relay and pin assignments, Refer to Wiring Diagrams Cell 11 for schematic and connector information.

Positive Lead	Measurement / Action	Negative Lead
Upfitter relay pin 1		Ground

Is the voltage greater than 11 volts?

Yes	GO to A7
No	GO to A6

A6 CHECK THE UPFITTER RELAY CONTROL CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Disconnect Upfitter Switch C9120.

Is the resistance less than 3 ohms?

Yes	INSTALL a new upfitter switch assembly. REFER to: Auxiliary Switches (419-10 Multifunction Electronic Modules, Removal and Installation).
No	REPAIR the circuit.

A7 CHECK THE UPFITTER RELAY GROUND CIRCUITS

- Ignition OFF.
- For the auxiliary switch in question, measure:

NOTE: For relay and pin assignments, Refer to Wiring Diagrams Cell 11 for schematic and connector information.

Positive Lead	Measurement / Action	Negative Lead
Upfitter Relay Pin 2	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to A8
No	REPAIR the upfitter relay ground circuit in question for an open.

A8 BYPASS THE UPFITTER RELAY

- Ignition OFF.
- Disconnect the suspect upfitter relay.
- For the auxiliary system in question, connect a fused jumper wire:

NOTE: For relay and pin assignments, Refer to Wiring Diagrams Cell 11 for schematic and connector information.

Positive Lead	Measurement / Action	Negative Lead
Upfitter Relay Pin 3		Upfitter Relay Pin 5

- Check for voltage at the upfitter device.

Is the voltage greater than 11 volts?

Yes	REPAIR the upfitter system.
No	REPAIR the upfitter supply circuit in question for an open.

All Auxiliary Switch ON Indicators are inoperative

Refer to Wiring Diagrams Cell 140 for schematic and connector information.

Normal Operation and Fault Conditions

The upfitter switch indicators have a unique ground circuit. If an upfitter device operates, but the indicator does not illuminate, then the switch or ground is bad.

REFER to: [Auxiliary Switches](#) (419-10 Multifunction Electronic Modules, Description and Operation).

Possible Sources

- Upfitter (auxiliary) switch assembly
- Wiring, terminals or connectors

PINPOINT TEST B : ALL AUXILIARY SWITCH ON INDICATORS ARE INOPERATIVE

B1 PERFORM INSPECTION AND VERIFICATION

- Perform Inspection and Verification procedure in this section.

Was an obvious cause for an observed or reported concern found?

Yes	Correct the cause as necessary.
No	GO to B2

B2 CHECK THE UPFITTER SYSTEM

- Ignition ON.
- Operate all the upfitter accessories.

Do the upfitter accessories operate?

Yes	GO to B3
No	GO to B4

B3 CHECK THE UPFITTER SWITCH INDICATOR GROUND

- Ignition OFF.
- Disconnect Upfitter switch C9120.

Is the resistance less than 3 ohms?

Yes	INSTALL a new upfitter switch assembly. REFER to: Auxiliary Switches (419-10 Multifunction Electronic Modules, Removal and Installation).
No	REPAIR the circuit.

B4 CHECK FOR VOLTAGE TO THE AUXILIARY SWITCH

- Ignition OFF.
- Disconnect Upfitter switch C9120.
- Ignition ON.

Is the voltages greater than 11 volts?

Yes	INSTALL a new upfitter switch assembly. REFER to: Auxiliary Switches (419-10 Multifunction Electronic Modules, Removal and Installation).
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No	REPAIR the affected circuit.
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