

ELECTRICAL

Power Outlets - Canyon, Colorado

SCHEMATIC WIRING DIAGRAMS

CIGAR LIGHTER/POWER OUTLET WIRING SCHEMATICS

12-Volt DC Power Outlets

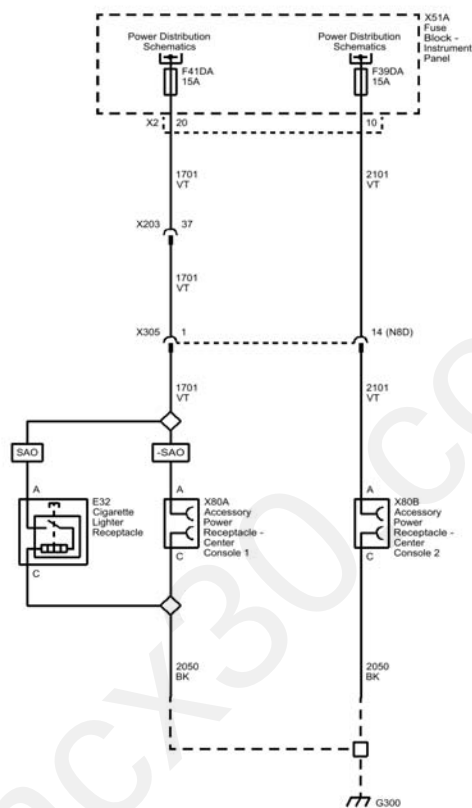


Fig. 1: 12-Volt DC Power Outlets

Courtesy of GENERAL MOTORS COMPANY

DIAGNOSTIC INFORMATION AND PROCEDURES

SYMPTOMS - POWER OUTLETS

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Visual/Physical Inspection

- Inspect for aftermarket devices which can affect the operation of the power outlets. Refer to [Checking Aftermarket Accessories](#)

an accessible system component or the visible system components for obvious damage or for obvious conditions which can cause the symptom	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
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Intermittent

Electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#)

Symptom List

Refer to [Power Outlet Receptacle Malfunction](#) in order to diagnose the system.

POWER OUTLET RECEPTACLE MALFUNCTION

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	1	1	-	-
Battery	1	1	-	-
Ground	-	1	-	-
1. Accessory Power Receptacle Malfunction				

Circuit/System Description

The vehicle is fitted with 12 V accessory power receptacles. The accessory power receptacles are controlled by an ignition operated relay. The accessory power receptacles are operational when the ignition is turned to either the On or the Accessories positions. The accessory power receptacles may be configured to be operational when the ignition is Off by changing the position of the 50A fuse from the F44DA position to the F40DA position.

Diagnostic Aids

It may be helpful to discuss with the customer the usage of any device that may have drawn too much current and caused an open fuse.

Reference Information

Schematic Reference

- [Cigar Lighter/Power Outlet Schematics](#)
- [Power Distribution Schematics](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Outlets Description and Operation

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Circuit/System Verification

1. Ensure the 50A fuse is in the F44DA position.
2. Ignition ON, connect an appropriate device to the X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.
3. Verify the device is powered by the X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.

- **If the device is not powered**

Refer to Circuit/System Testing A

- **If the device is powered**

4. Install the 50A fuse in the F40DA position
5. Ignition ON, connect an appropriate device to the X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.
6. Verify the device is powered by the X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.

- **If the device is not powered**

Refer to Circuit/System Testing Diagnostic B

- **If the device is powered**

7. All OK.

Circuit/System Testing

Diagnostic A

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C and ground.
 - **If greater than 10 Ω**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify that a test lamp illuminates between the control circuit terminal A and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If greater than 2 Ω , repair the open/high resistance in the circuit.

- If less than 2 Ω refer to [Retained Accessory Power Malfunction](#).
- **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. Test for infinite resistance between the control circuit terminal A and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.
- **If the test lamp illuminates**
- 5. Test or replace the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.

Diagnostic B

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal C and ground.
 - **If greater than 10 Ω**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Verify that a test lamp illuminates between the control circuit terminal A and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If greater than 2 Ω , repair the open/high resistance in the circuit.
 - If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. Test for infinite resistance between the control circuit terminal A and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.
 - **If the test lamp illuminates**
4. Test or replace the appropriate X80 Accessory Power Receptacle or E32 Cigarette Lighter Receptacle.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

[Accessory Power Receptacle Replacement.](#)

REPAIR INSTRUCTIONS

ACCESSORY POWER RECEPTACLE REPLACEMENT

EL 42059 Cigar Lighter Socket Remover

For equivalent regional tools, refer to [Special Tools](#).

Removal Procedure

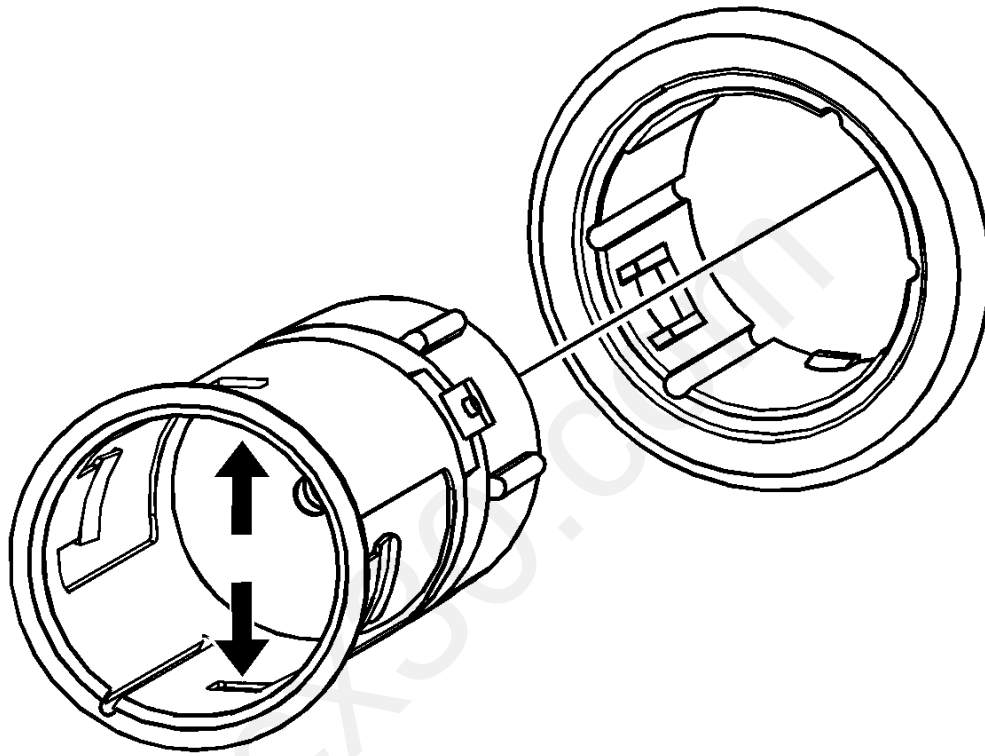


Fig. 2: View Of Cigar Lighter Socket/Accessory Power Outlet
Courtesy of GENERAL MOTORS COMPANY

1. Remove the auxiliary power outlet fuse from the fuse block.
2. Remove the receptacle:
 1. Look into the receptacle. There are two 3 mm (0.11 in) tab windows 12 mm (0.47 in) from the front of the receptacle. The **EL 42059** Remover pushes the plastic latches from these tab windows and the receptacle can be pulled straight out.
 2. Place one side of the "T" portion of the **EL 42059** Remover into the tab window. The **EL 42059** Remover will not fit straight into the receptacle. Angle the **EL 42059** Remover slightly for insertion into the receptacle.
 3. Insert the other side of the "T" into the opposite tab window.

You must move the **EL 42059** Remover handle toward horizontal to engage the other tab window.

the **EL 42059** Remover to pull the receptacle straight out.

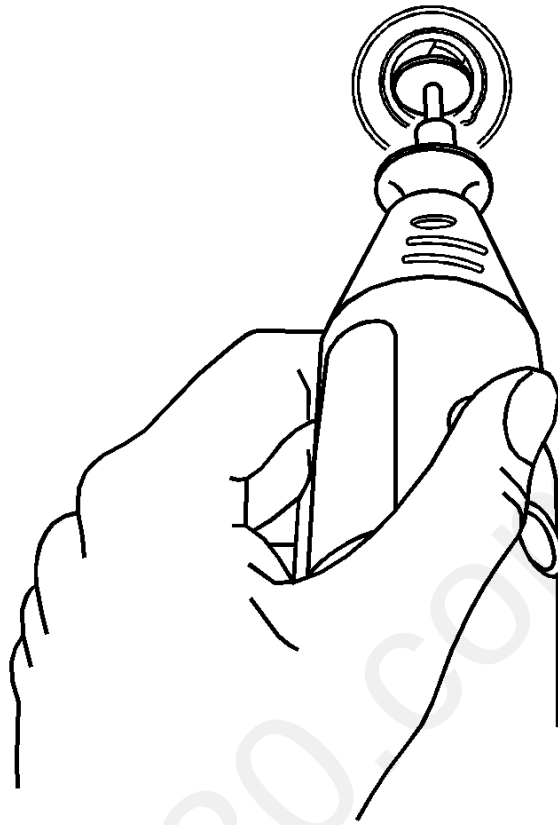


Fig. 3: Cigar Housing And Grinding Tool

Courtesy of GENERAL MOTORS COMPANY

3. If **EL 42059** Remover tool fails to release the lighter socket from the retainer, perform the following alternate method:
 1. Insert a small grinding tool with a cutoff wheel into the socket.
 2. Remove the plastic latches in the 3 mm (0.11 in) square windows.
 3. Use the **EL 42059** Remover as directed above to remove the socket.

Installation Procedure

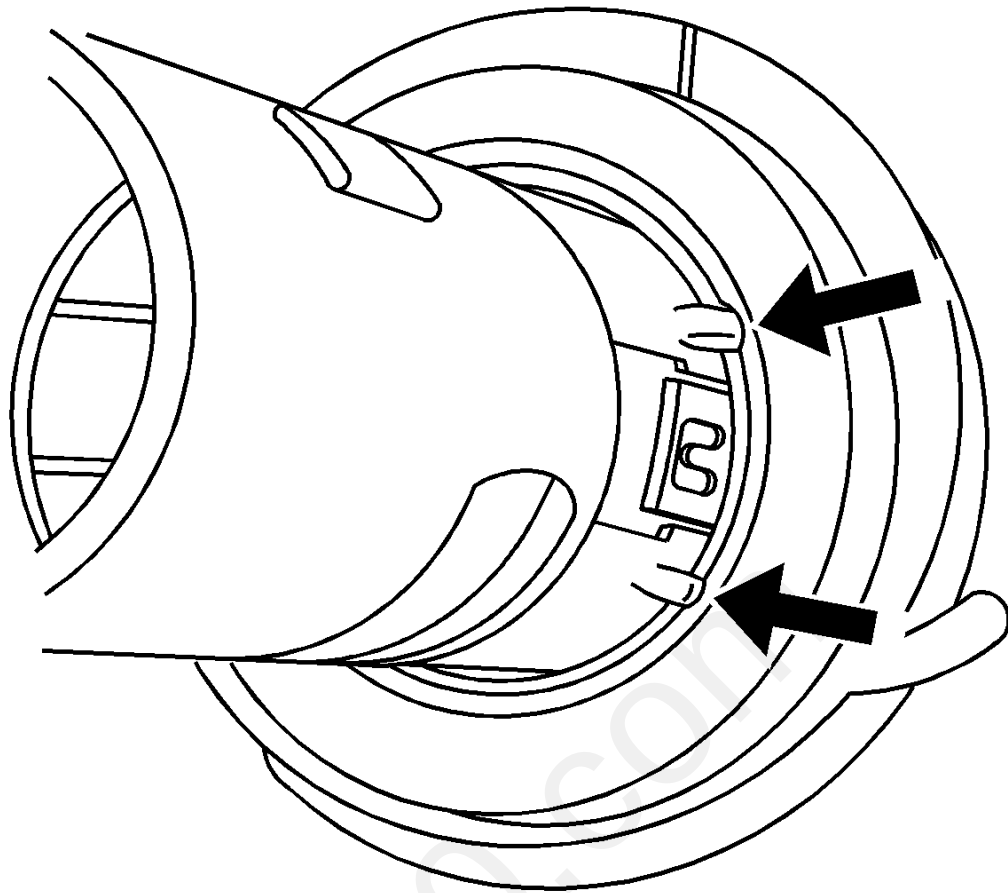


Fig. 4: View Of Receptacle Tabs & Retainer Slots
Courtesy of GENERAL MOTORS COMPANY

1. Route the connector through the retainer. Align the accessory power receptacle retainer to the slot in the opening.
2. Install the retainer by pressing into place fully seated.
3. Connect the electrical connector to the receptacle.
4. Align the tabs on the receptacle to the slots in the retainer. Install the accessory power receptacle by pressing into place until fully seated.
5. Install the accessory power receptacle fuse.

DESCRIPTION AND OPERATION

POWER OUTLETS DESCRIPTION AND OPERATION

Power Outlet Receptacle Description and Operation

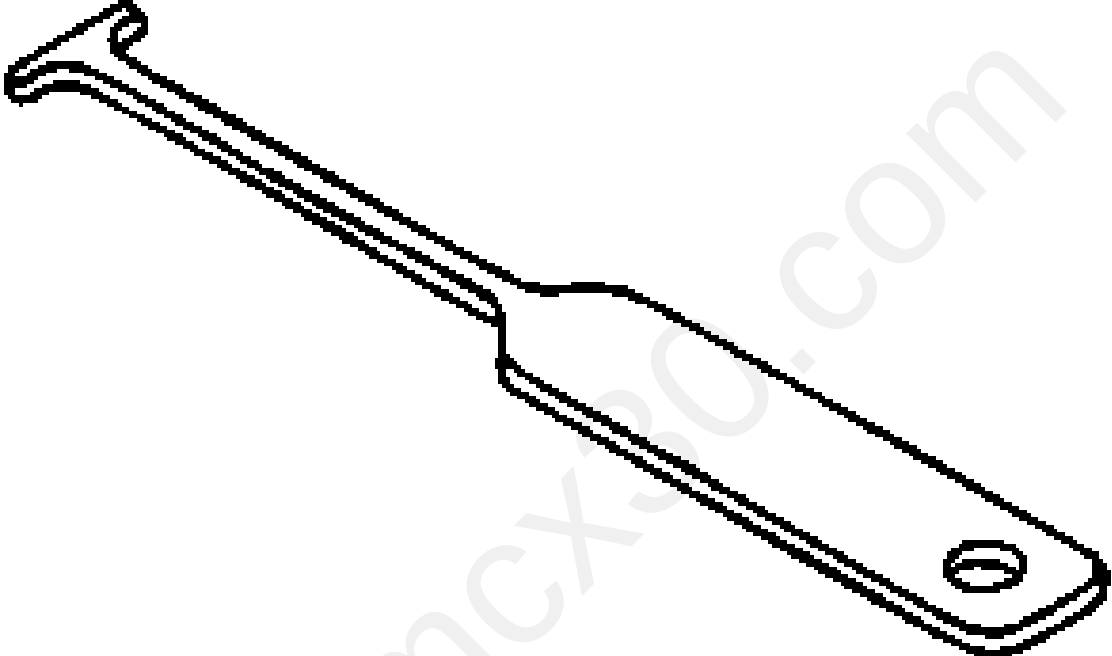
The vehicle is fitted with 12 V accessory power receptacles. The accessory power receptacles are controlled by an ignition operated relay. The accessory power receptacles are operational when the ignition is turned to either the On or the Accessories positions. The accessory power receptacles may be configured to be operational when the ignition is Off by changing the position of the 50A fuse from the F44DA position to the F40DA position in the instrument panel fuse block.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration

**Tool
Number/
Description**

Illustration	Tool Number/ Description
	EL 42059 Cigar Lighter Socket Remover