

2001 ACCESSORIES & EQUIPMENT**Headlight Doors - Corvette****DESCRIPTION & OPERATION**

Headlight doors are actuated by reversible electric motors mounted near each headlight door. Battery voltage is applied at all times to Headlight Doors Module (HDM). HDM also supplies output voltage to door motors.

Depending on mode, headlight switch position or daytime running lights module, if equipped, battery voltage is applied to HDM to activate HDM. See **WIRING DIAGRAMS** .

Based on voltage inputs from headlight switch, HDM directs voltage to headlight door motors to actuate headlight doors. To reverse motor direction, HDM reverses circuit polarity. HDM determines when doors are fully open, closed or jammed, and turns off power to motors to prevent overload.

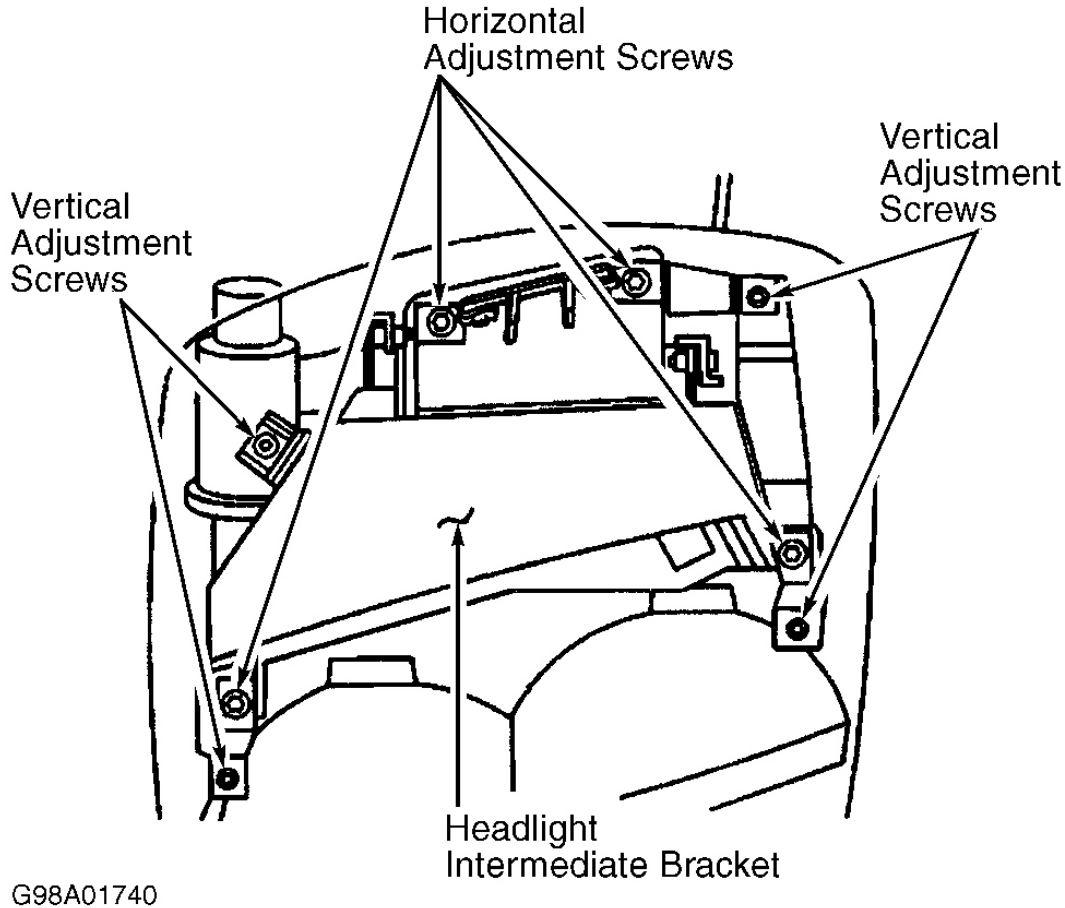
COMPONENT LOCATIONS**COMPONENT LOCATIONS**

Component	Location
Headlight Door Module (HDM)	Below Right Headlight
Headlight Switch	Right Side Of Steering Column
Underhood Fuse Block	Above Battery

ADJUSTMENTS**HEADLIGHT DOORS**

1. Remove both headlight opening doors. See **HEADLIGHT DOOR** .
2. If horizontal adjustment is necessary, loosen headlight intermediate bracket-to-headlight assembly retaining screws. See **Fig. 1** .
3. Position headlight intermediate bracket as required and retighten retaining screw to 17 INCH lbs. (1.9 N.m).
4. If vertical adjustment is necessary, tighten vertical adjusting screws to lower, or loosen screws to raise headlight door. See **Fig. 1** .
5. To adjust headlight opening door stop position, tighten or loosen door stop screw as necessary.

6. To install headlight opening door, reverse removal procedure. Inspect fit of headlight opening door to hood, fender and front fascia. If fit is unsatisfactory, repeat steps 2 to 5 .
7. If fit is satisfactory, install bezel. To complete bezel installation, reverse removal procedure.



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Fig. 1: Identifying Headlight Door Opening Adjustment Screws
 Courtesy of GENERAL MOTORS CORP.

TROUBLE SHOOTING

PRELIMINARY INSPECTION

1. Check headlight door fuses HDLP MOT RH fuse No. 3 (10-amp) and HDLP MOT LH fuse No. 4 (10-amp) located in underhood electrical center. Check HDLP circuit breaker No. 54 (20-amp) located in instrument panel fuse block.

2. Check for poor contact at headlight door motor connectors and ground contacts. Check for proper installation of aftermarket electronic equipment which may affect other systems.
3. Check for broken or partially broken wire inside insulation which would cause system malfunction, but check good in continuity/voltage check.
4. Check door linkage for mechanical binding before performing electrical tests, as high torque load may cause headlight door motors to stop operating before reaching end of travel. If problem is not found, perform lighting system diagnostic system check. See **LIGHTING SYSTEMS DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM.

SELF-DIAGNOSTIC SYSTEM

LIGHTING SYSTEMS DIAGNOSTIC SYSTEM CHECK

1. Connect scan tool to Data Link Connector (DLC) located under left side of instrument panel. If scan tool powers up, go to next step. If scan tool does not power up, go to TEST A: SCAN TOOL DOES NOT POWER UP under SYSTEM TESTS in BODY CONTROL MODULES - CORVETTE article.
2. Turn ignition on. Attempt to communicate with Body Control Module (BCM) and Powertrain Control Module (PCM). If scan tool communicates with BCM and PCM, go to next step. If scan tool does not communicate with BCM and PCM, go to TEST B: SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE under SYSTEM TESTS in BODY CONTROL MODULES - CORVETTE article.
3. Display BCM and PCM DTCs on scan tool. If any DTCs are set, go to next step. If no DTCs are set and headlight doors are inoperative, go to **HEADLIGHT DOORS INOPERATIVE** under SYSTEM TESTS.
4. Using scan tool, check for any DTCs that begin with "U" (communication DTCs) stored in BCM. If no communication DTCs exist in BCM or PCM, go to next step. If any communication DTCs exists, go to TEST B: SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE under SYSTEM TESTS in BODY CONTROL MODULES - CORVETTE article.
5. If scan tool displays DTC B0605, go to , go to DTC B0605: BCM INTERNAL MEMORY MALFUNCTION under DIAGNOSTIC TESTS in BODY CONTROL MODULES - CORVETTE article. If scan tool does not display DTC B0605, go to next step.
6. If scan tool displays DTC P0562 or P0563, perform appropriate test. See GENERATORS & REGULATORS - CORVETTE article in STARTING & CHARGING SYSTEM. If scan tool does not display DTC P0562 or P0563, go to appropriate DTC diagnostic and repair procedure for appropriate system that DTC is set in. See BODY CONTROL MODULES - CORVETTE article.

SYSTEM TESTS

NOTE: Headlight doors may be opened and closed manually by rotating knob on headlight door motor.

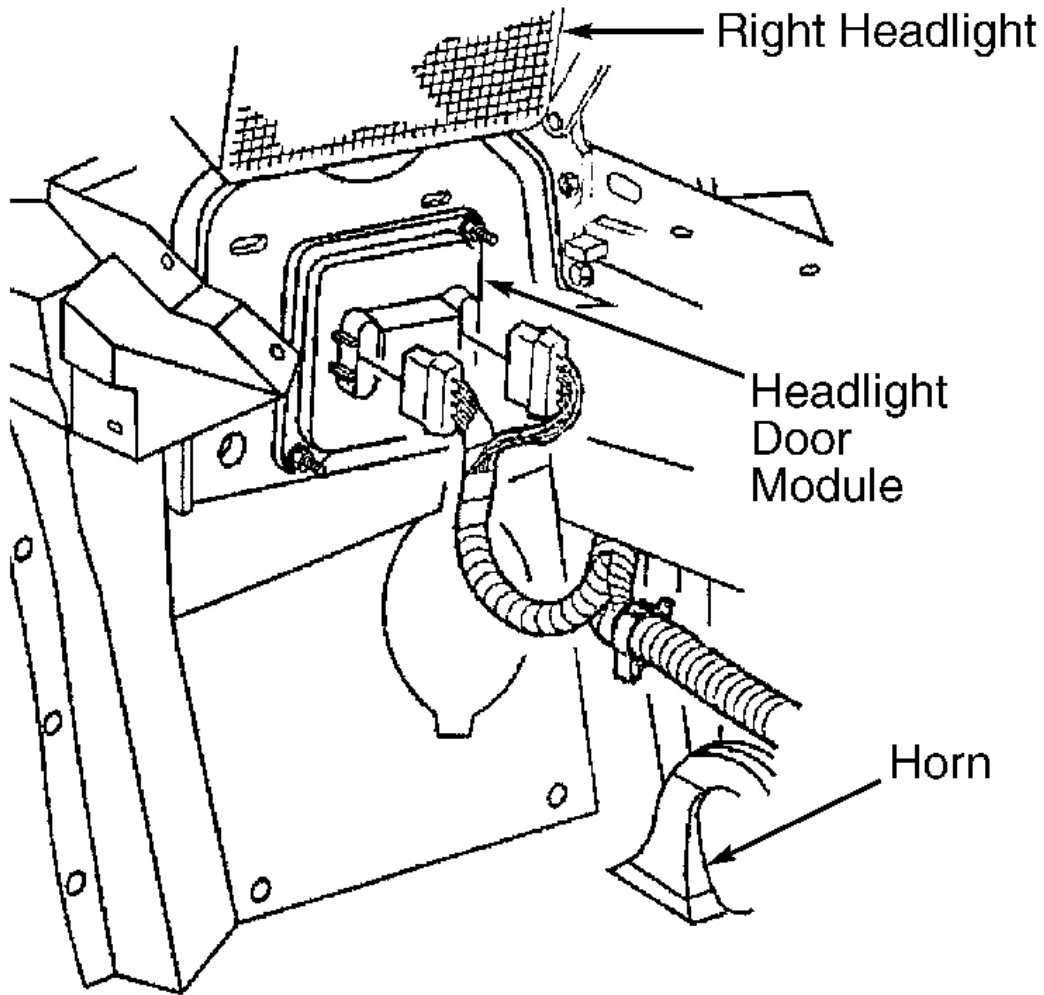
HEADLIGHT DOORS INOPERATIVE

1. If lighting diagnostic system check has been performed, go to next step. If lighting diagnostic system check has not been performed, go to **LIGHTING SYSTEMS DIAGNOSTIC SYSTEM CHECK** under SELF-DIAGNOSTIC SYSTEM. After performing lighting diagnostic system check, go to next step.
2. Turn headlights on and off. If headlight doors open and close, problem may be intermittent. See INTERMITTENTS in BODY CONTROL MODULES - CORVETTE article. If headlight doors do not open and close, go to next step.
3. If only one headlight door is inoperative, go to step 9 . If both headlight doors are inoperative, go to next step.
4. If both headlight doors remain closed at all times, go to next step. If both headlight doors do not remain closed at all times, go to step 7 .
5. Access Headlight Door Control Module (HDM) and disconnect connector C1 and C2. Go to **HEADLIGHT DOOR CONTROL MODULE** under REMOVAL & INSTALLATION. See **Fig. 2** . Turn headlights on. Connect test light between ground and HDM connector C1 terminal "A" (White wire). See **Fig. 3** . If test light illuminates, go to next step. If test light does not illuminate, go to step 14 .
6. Connect test light between HDM connector C1 terminals "A" (White wire) and "D" (Black wire). If test light illuminates, go to step 11 . If test light does not illuminate, go to step 14 .
7. Turn headlights off. Access Headlight Door Control Module (HDM) and disconnect connector C1. Go to **HEADLIGHT DOOR CONTROL MODULE** under REMOVAL & INSTALLATION. See **Fig. 2** . Connect test light between ground and HDM connector C1 terminal "C" (Dark Green wire). See **Fig. 3** . If test light illuminates, go to next step. If test light does not illuminate, go to step 11 .
8. Locate and disconnect 23-pin connector C209. C209 is located on left side of steering column, attached to lower instrument panel bar. Connect test light between ground and C209 connector terminal "T" (Dark Green wire) on side of connector going to steering column. See **Fig. 4** . If test light illuminates, go to step 12 . If test light does not illuminate, go to step 15 .
9. Check for poor connections at HDM connector C1 terminals "B" (Orange wire), "D" (Black wire) and "E" (Orange wire). See **Fig. 3** . Repair as necessary. After repairs, go to step 19 . If connections are okay, go to next step.

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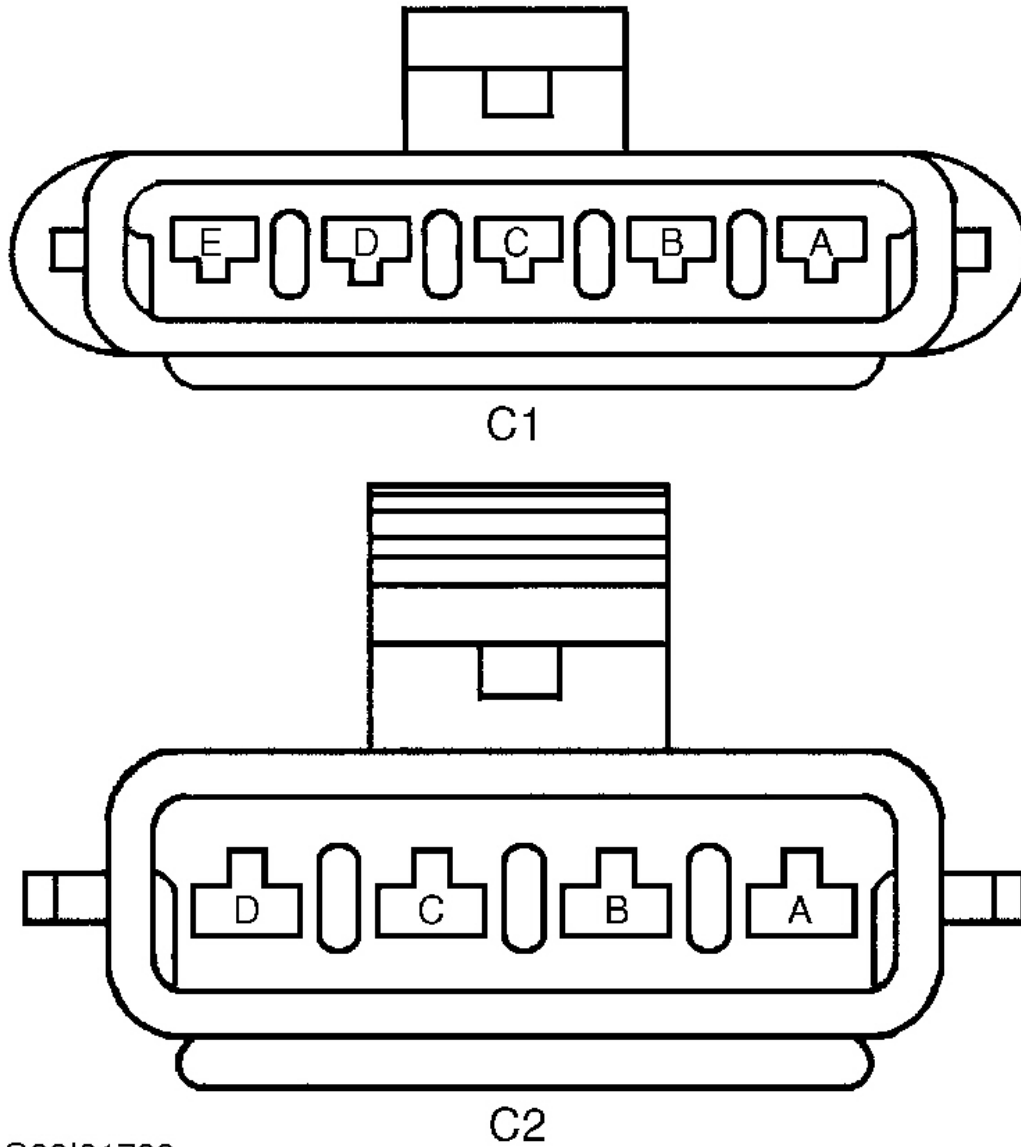
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10. Check for poor connections at suspect headlight door assembly. Repair as necessary. After repairs, go to step 19 . If connections are okay, go to step 16 .
11. Check for poor connections at HDM. Repair as necessary. After repairs, go to step 19 . If connections are okay, go to step 17 .
12. Check for poor connections at connector C209 terminals. Repair as necessary. After repairs, go to step 19 . If connections are okay, go to step 18 .
13. Repair poor connection or open in White wire between HDM and ACL HDLP relay No. 44 located in instrument panel fuse block. White wire also runs through underhood fuse block at connector C2 terminal F4 and connector C3 terminal A4. See **Fig. 5** and **Fig. 6** . After repairs, go to step 19 .
14. Repair poor connection or open in Black wire between HDM connector C1 terminal "D" and ground connection located on top of right frame rail behind right headlight assembly. After repairs, go to step 19 .
15. Repair short to voltage in Dark Green wire between HDM connector C1 terminal "C" and connector C209 terminal "T". After repairs, go to step 19 .
16. Replace suspect headlight door assembly. See **HEADLIGHT ASSEMBLY** under REMOVAL & INSTALLATION. After repairs, go to step 19 .
17. Replace HDM. See **HEADLIGHT DOOR CONTROL MODULE** under REMOVAL & INSTALLATION. After repairs, go to step 19 .
18. Replace multifunction switch. See MULTIFUNCTION SWITCH under REMOVAL & INSTALLATION in STEERING COLUMN SWITCHES - CORVETTE article. After repairs, go to next step.
19. Recheck headlight operation to verify repairs. If headlight doors operate properly, repair is complete. If headlight doors do not operate properly, go to step 2 .



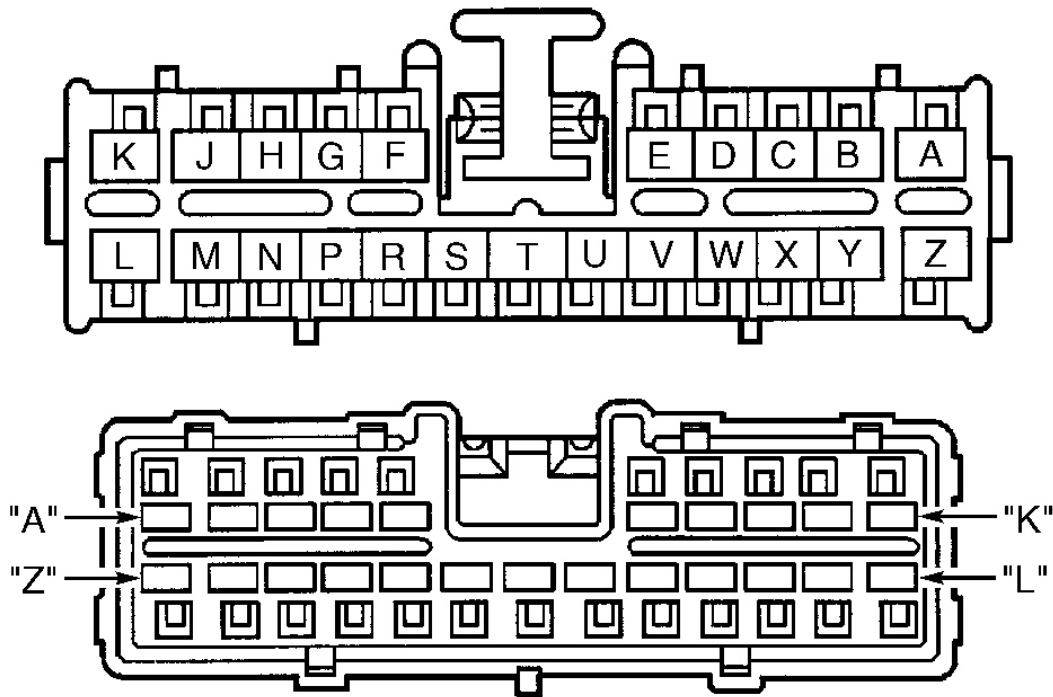
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Fig. 2: Locating Headlight Door Control Module
Courtesy of GENERAL MOTORS CORP.



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Fig. 3: Identifying Headlight Doors Control Module Connector Terminals
Courtesy of GENERAL MOTORS CORP.



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Fig. 4: Identifying Connector C209 Terminals
Courtesy of GENERAL MOTORS CORP.

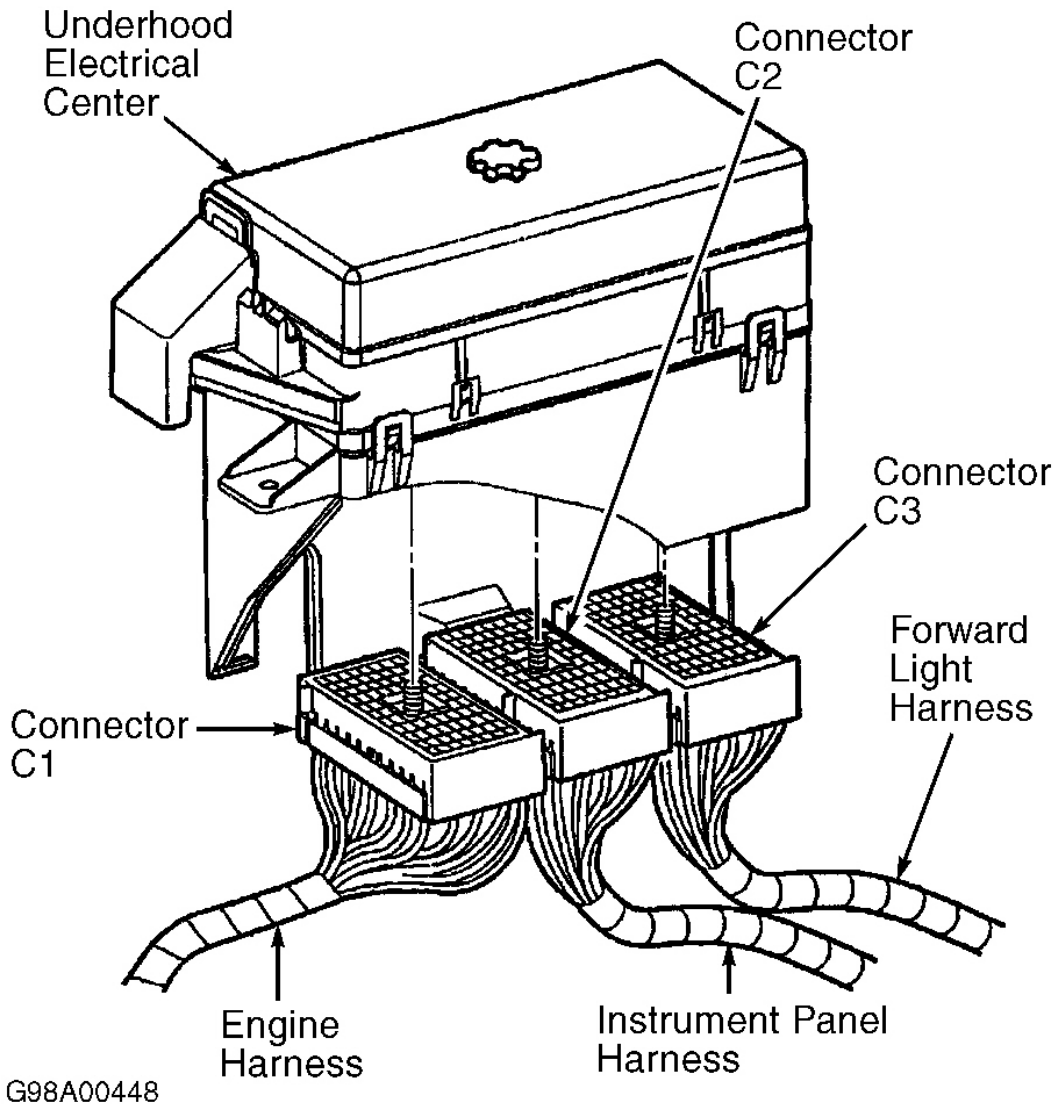
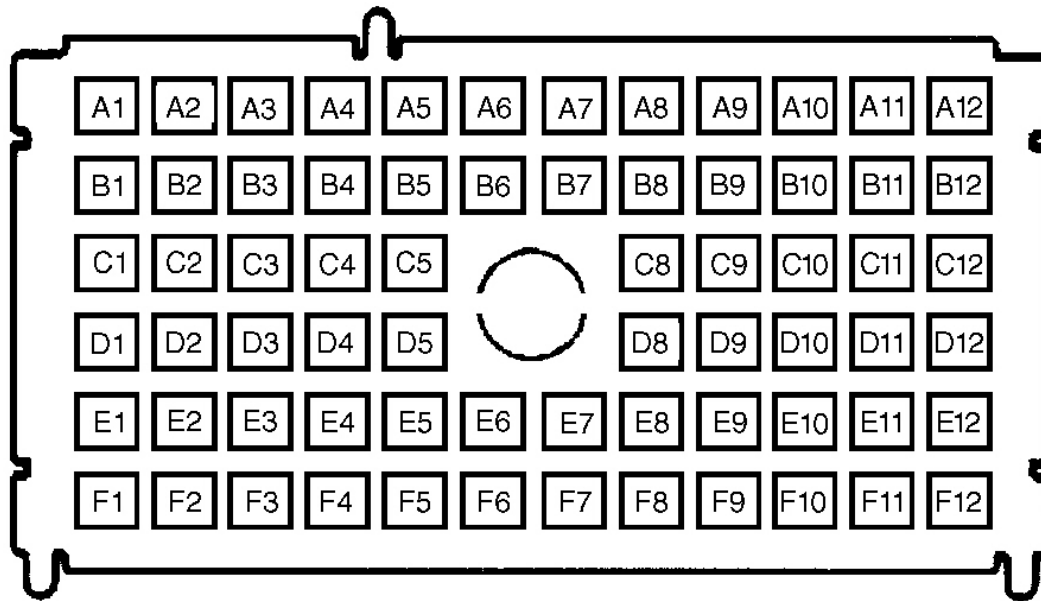


Fig. 5: Identifying Underhood Fuse Block Connectors
Courtesy of GENERAL MOTORS CORP.



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Fig. 6: Underhood Fuse Block Connector Terminals
 Courtesy of GENERAL MOTORS CORP.

REMOVAL & INSTALLATION

WARNING: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See **COMPUTER RELEARN PROCEDURES** article in **GENERAL INFORMATION** before disconnecting battery.

NOTE: Headlight doors may be opened and closed manually by rotating knob on headlight door motor.

HEADLIGHT CAPSULE (LENS)

Removal & Installation

1. Open hood. Disconnect negative battery cable. Remove headlight manual headlight control knob cover. Disconnect headlight assembly harness connector. Turn manual headlight control knob counterclockwise to raise headlight. Place masking tape around edges of

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fender and hood to prevent damage.

2. Remove screws for headlight bezel. Pull rear sides of bezel out slightly, then begin to raise rear sides and pull bezel away from headlight opening door. Pull bezel to release bezel tab from retaining clip on underside of headlight door.
3. Remove headlight capsule retaining screws. Disconnect headlight bulb/socket electrical connectors. Remove capsule from headlight pivot and adjusting bracket. To install, reverse removal procedure. Torque headlight capsule retaining screws to 35 INCH lbs. (4 N.m).

HEADLIGHT DOOR

Removal & Installation

1. Open hood. Disconnect negative battery cable. Remove 2 screws at rear of headlight door. Remove headlight manual headlight control knob cover. Disconnect headlight assembly harness connector. Turn manual headlight control knob counterclockwise to raise headlight. Place masking tape around edges of fender and hood to eliminate damage.
2. Remove screws for headlight bezel. Pull rear sides of bezel out slightly, then begin to raise rear sides and pull bezel away from headlight opening door. Pull bezel to release bezel tab from retaining clip on underside of headlight door.
3. Remove 2 screws holding sides of headlight door to headlight assembly. Remove headlight door. To install, reverse removal procedure. Torque headlight door screws to 18 INCH lbs. (2 N.m).

HEADLIGHT ASSEMBLY

Removal

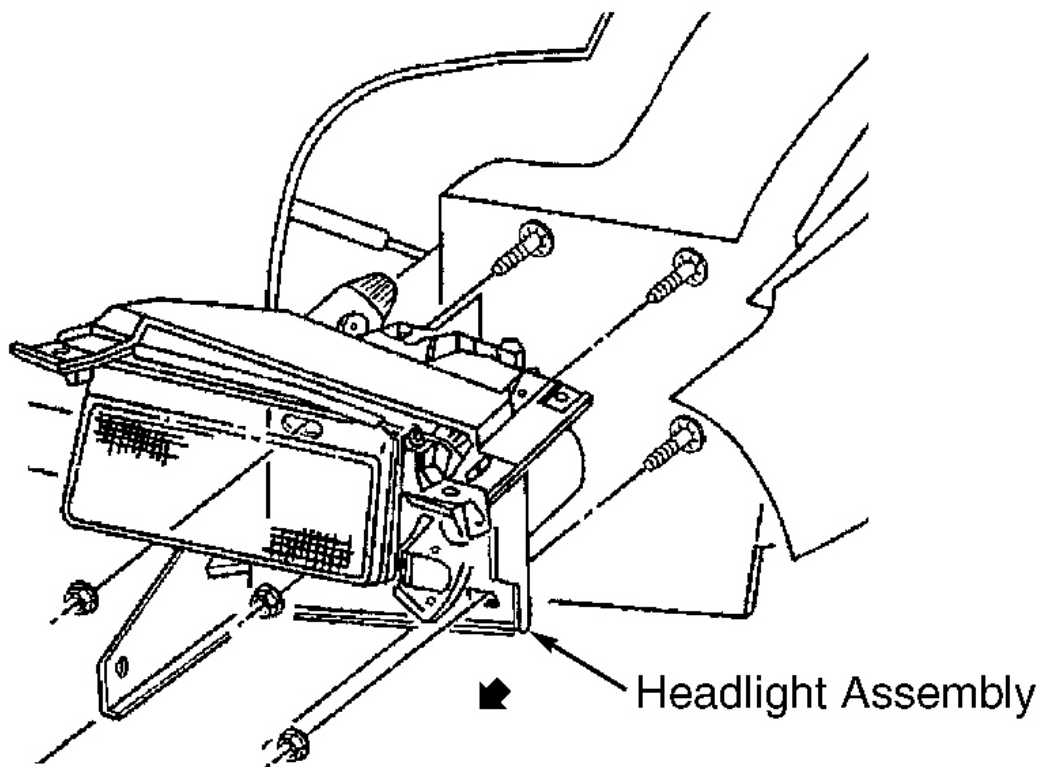
1. Open hood. Disconnect negative battery cable. Remove headlight manual headlight control knob cover. Disconnect headlight assembly harness connector. Turn manual headlight control knob counterclockwise to raise headlight.
2. Remove screws for headlight bezel. Pull rear sides of bezel out slightly, then begin to raise rear sides and pull bezel away from headlight opening door. Pull bezel to release bezel tab from retaining clip on underside of headlight door. Place masking tape around edges of fender and hood to eliminate damage.
3. Raise and support vehicle. Remove front fascia lower close out panel to wheelwell panel bolts. Remove valance panel. Remove front fascia lower close out panel to fascia bolts and remove close out panel.
4. Remove front fascia to energy absorber and front fascia to skid bar bolts. Reposition bottom of fascia outward and up. Slide brake cooling duct rearward off fascia opening. Remove brake caliper cooling duct from wheelhouse panel. Rotate duct and align locking tabs with

slots in wheelhouse panel and pull duct forward to remove from wheelwell panel.

5. On right headlight, disconnect Headlight Door Control Module (HDM) harness connectors. On both headlights, support headlight assembly. Remove 3 headlight bracket-to-headlight stud plate nuts. Remove 2 headlight bracket-to-frame rail bolts. Carefully remove headlight assembly from vehicle. See **Fig. 7**.

Installation

Position headlight assembly in vehicle. Loosely install 2 headlight bracket-to-frame rail bolts. Loosely install 3 headlight bracket-to-headlight stud plate nuts. Starting with upper location, tighten headlight bracket-to-frame rail bolts to 15 ft. lbs. (20 N.m). Starting with upper inner location, tighten headlight bracket-to-headlight stud plate nuts to 89 INCH lbs. (10 N.m). To complete installation, reverse removal procedure. Adjust headlight door. See **HEADLIGHT DOORS** under ADJUSTMENTS. Recheck system operation.



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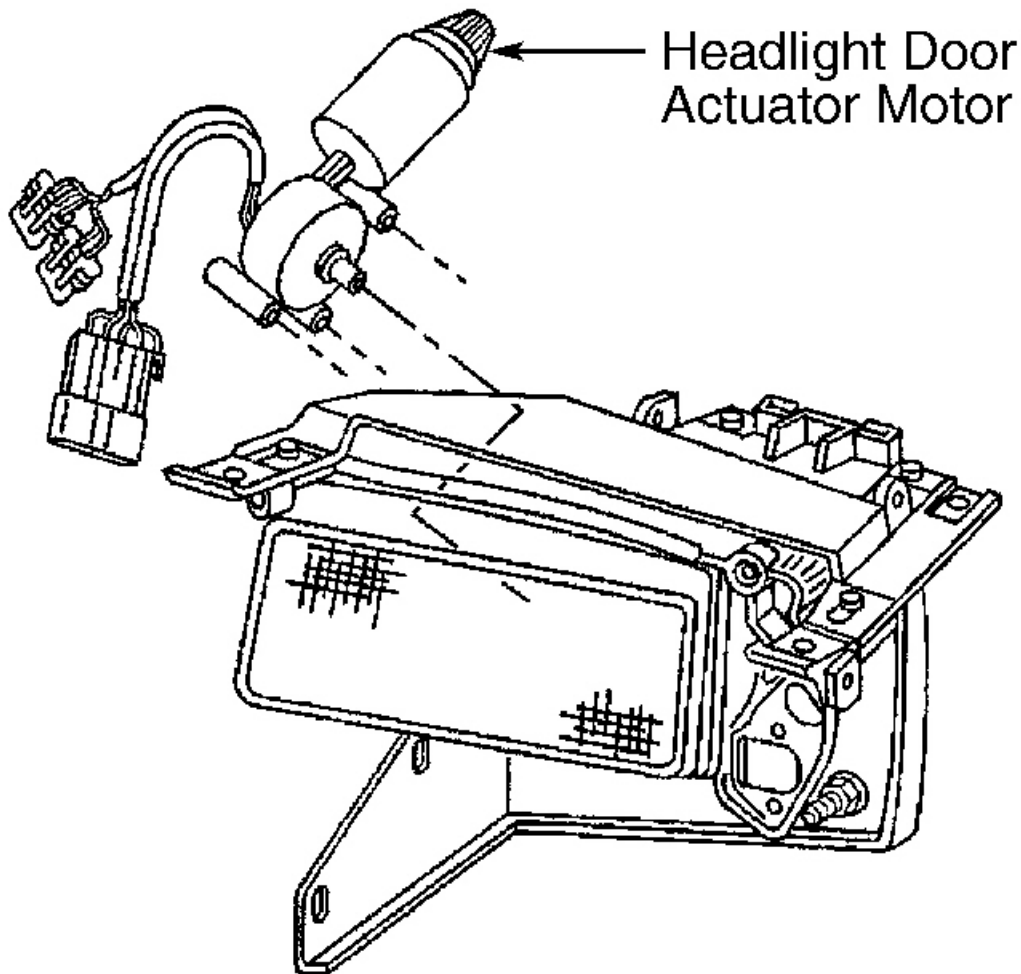
Fig. 7: Removing Headlight Assembly

Courtesy of GENERAL MOTORS CORP.

HEADLIGHT DOOR ACTUATOR MOTOR

Removal & Installation

1. Remove appropriate headlight assembly. See **HEADLIGHT ASSEMBLY** . Disconnect headlight bulb harness connector. Mark linkage-to-motor placement for installation reference. Remove nut securing headlight assembly pivot arm to headlight motor/actuator. Remove 3 motor-to-headlight assembly bolts. Remove headlight door actuator motor. See **Fig. 8** .
2. To install, reverse removal procedure. Tighten headlight motor-to-headlight assembly bolts to 62 INCH lbs. (7 N.m). Tighten headlight assembly pivot arm nut to 53 INCH lbs. (6 N.m).



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Fig. 8: Removing Headlight Door Actuator Motor
Courtesy of GENERAL MOTORS CORP.

HEADLIGHT DOOR CONTROL MODULE

Removal & Installation

1. Headlight Door Control Module (HDM) is located behind right headlight assembly. See **Fig. 2** . Open hood. Disconnect negative battery cable. Remove right headlight manual headlight control knob cover. Disconnect right headlight assembly harness connector. Turn right manual headlight control knob counterclockwise to raise headlight.

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2. Raise and support vehicle. Remove front fascia lower close out panel to wheelwell panel bolts. Remove valance panel. Remove front fascia lower close out panel to fascia bolts and remove close out panel.
3. Remove front fascia to energy absorber and front fascia to skid bar bolts. Reposition bottom of fascia outward and up. Slide brake cooling duct rearward off fascia opening. Remove brake caliper cooling duct from wheelhouse panel. Rotate duct and align locking tabs with slots in wheelhouse panel and pull duct forward to remove from wheel well panel.
4. Disconnect HDM connectors. Remove nuts mounting HDM to headlight bracket. Remove module from vehicle. To install, reverse removal procedure.

WIRING DIAGRAMS

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Fig. 9: Headlight Door System Wiring Diagram (Corvette)