

SERVICE MANUAL 2005

Light Service Support Vehicle
(LSSV)
Enhanced Mobility Package
(EMP)

Includes: General Information
Military Components

VOLUME 1 OF 1
LSSVSM05



Cautions and Notices

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Cautions and Notices

Battery Disconnect Caution

Caution: *Before servicing any electrical component, the ignition key must be in the OFF or LOCK position and all electrical loads must be OFF, unless instructed otherwise in these procedures. If a tool or equipment could easily come in contact with a live exposed electrical terminal, also disconnect the negative battery cable. Failure to follow these precautions may cause personal injury and/or damage to the vehicle or its components.*

Vehicle Lifting Caution

Caution: *To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed.*

Fastener Notice

Notice: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

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Section 0

General Information

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General Information

Introduction

Vehicle Identification

The 2005 LSSV series pickup models derive from standard commercial vehicles. The pickup is a 2500HD, or "9200 GVW" based pickup.

The pickup vehicles have rugged designs intended for all types of roads or infrequent off-road travel. They can ford water obstacles for three minutes without stalling at depths of 51 cm (20 in) at 8 kph (5 mph). These limits are met without causing permanent damage or requiring immediate maintenance.

The pickup vehicles are equipped with heavy duty shocks front and rear, 4-wheel anti-lock brakes, a locking differential, on-off road tires, front and rear D-rings and blackout (B/O) lighting.

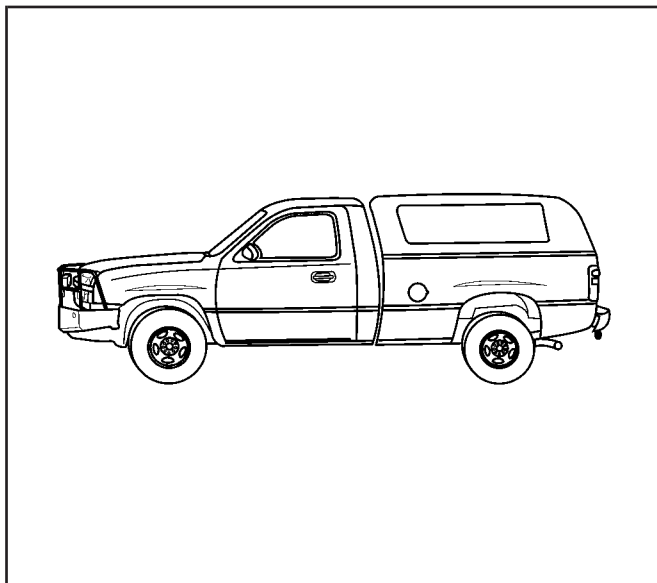
A slave receptacle is mounted on the front of the vehicles, protected by a radiator brush guard.

Pickup Vehicle Information

The pickup vehicles are equipped with a 6.6L Turbo diesel engine with a 5-speed Allison automatic transmission and 2-speed transfer case. Payload capacity is not to exceed the gross axle weight rating of the front and rear axle.

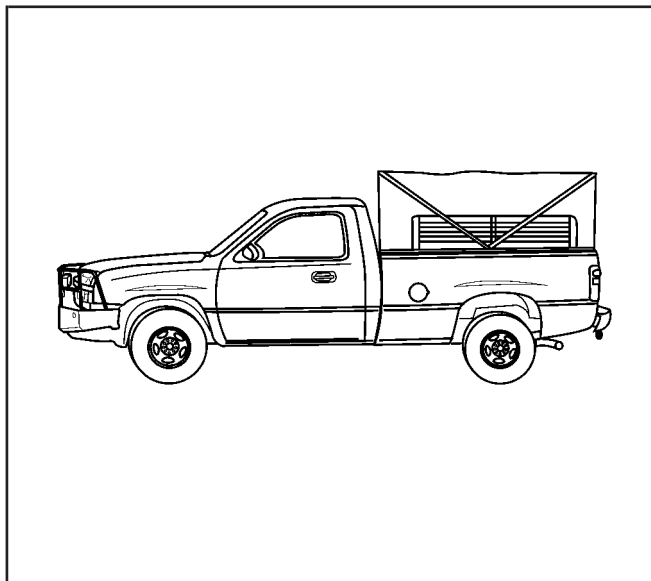
The pickup has a cargo cover and troop seating for up to eight or a hard cap with opening windows. A specially upgraded electrical system can handle 24V communications equipment and charging of the 24V battery.

Cargo Carrier Base



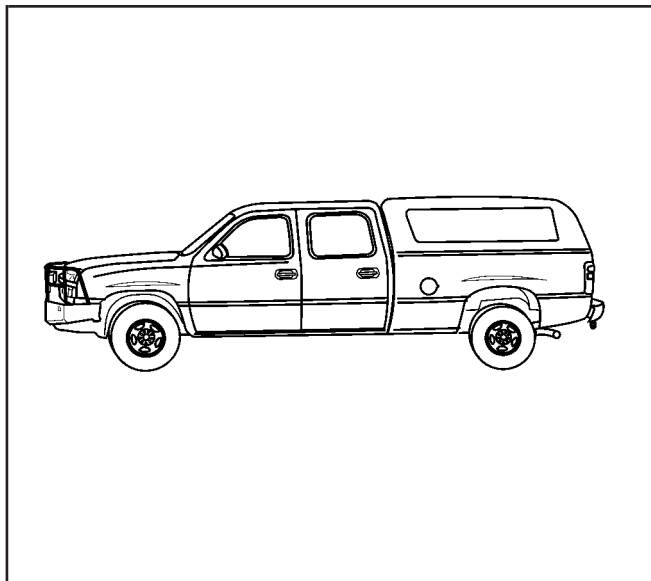
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Cargo/Troop Carrier Base

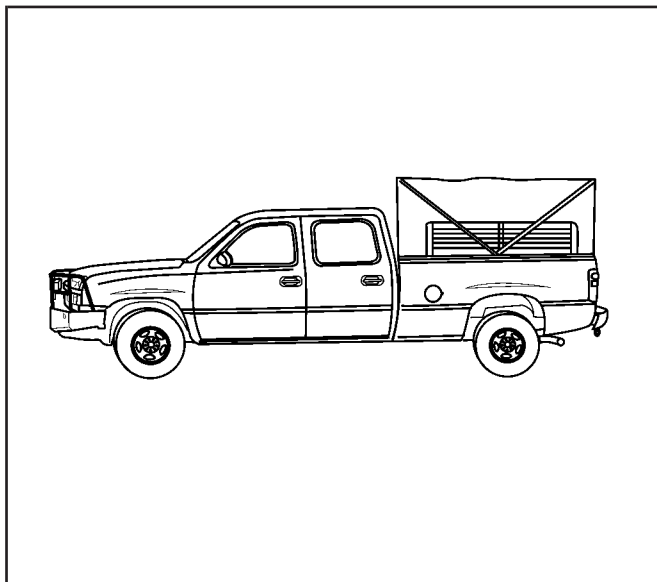


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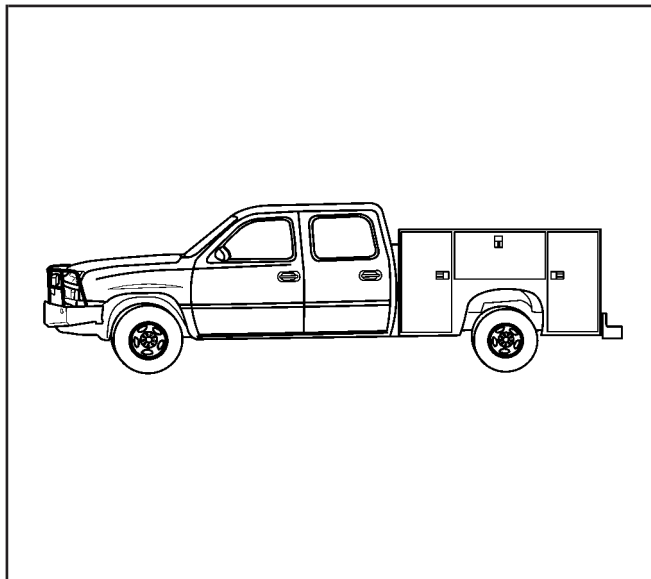
Cargo Carrier Crew Cab



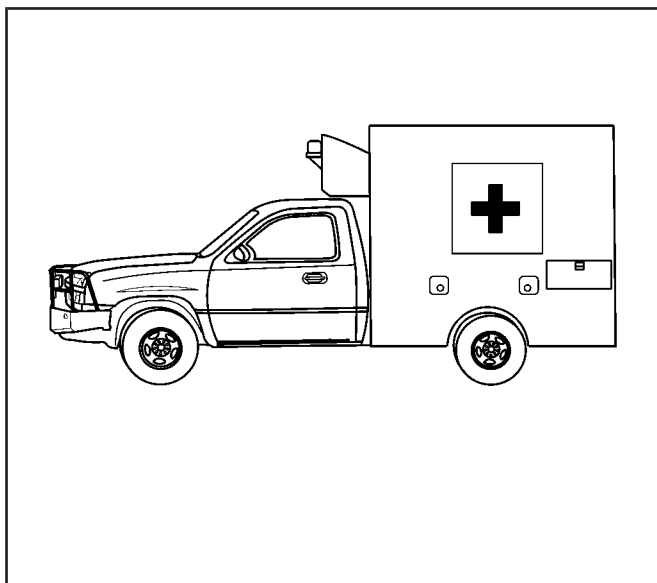
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Cargo/Troop Carrier Crew Cab

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Maintenance Body Information

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Ambulance Body Information

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The ambulance vehicle is equipped with a 6.6L Turbo diesel engine with a 5-speed Allison automatic transmission and 2-speed transfer case. The vehicle is not designed for towing a trailer. Payload capacity is not to exceed the gross axle weight rating of the front and rear axle. For ambulance body parts and maintenance refer to the ambulance Parts and Maintenance manual.

The maintenance vehicle is equipped with a 6.6L Turbo diesel engine with a 5-speed Allison automatic transmission and 2-speed transfer case. Payload capacity is not to exceed the gross axle weight rating of the front and rear axle.

The maintenance body has multiple compartments and a large open cargo space. There are adjustable shelves and material trays that organize the storage units. The storage doors are keyed alike and are double panel steel and incorporate weather tight seals. The endgate of the body can be folded down for easy loading and unloading of cargo.

RPO Code List**RPO Table**

RPO	Description
The production/process codes provide the description of the LSSV Option.	
APF	Troop Seats with Canvas Top
BNA	Optima Battery (LSSV only)
EM7	Enhance Mobility Package
MNB	Military Upfit
PPG	Green Flat Paint (LSSV only)
PPT	Tan Flat Paint (LSSV only)
PUC	Pickup Cap with Bumper Mounted Swing Away Spare Tire Carrier

LSSV Equipment Options

2005 Light Service Support Vehicle – LSSV Specifications/Options

Your vehicle may be equipped with any combination of the following options.

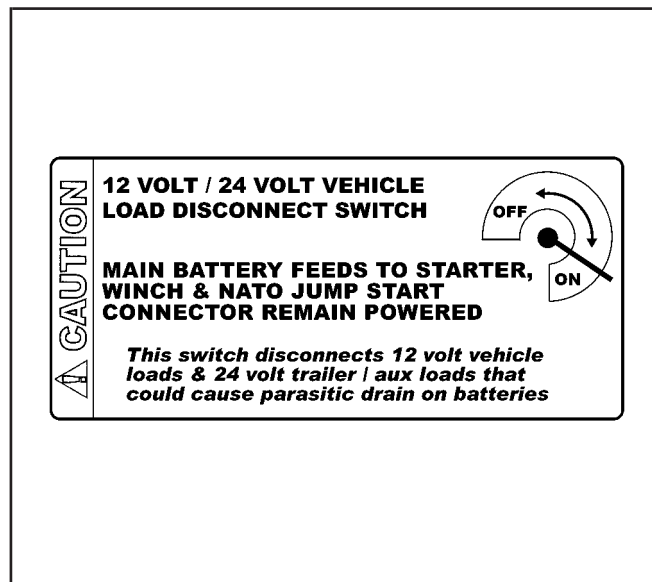
LSSV Equipment Options

Description
Blackout (B/O) Lighting
Slave Start
Rear D-Rings
Pintle Hook
Trailer Light Connection
Gun Rack
Transfer Case/Differential Vent Filters
Government Data Plate
Cargo Area Troop Seats
Cargo Cover (Soft-Top)
Combination Front or Rear Mounted Winch Prep
Cargo Locking Side/Rear Access Fiberglass Top
Pioneer Tool Kit
Factory Rear Receiver Hitch
Heavy Duty Front Bumper with Brush Guard and D-Rings
Heavy Duty Rear Bumper with D-Rings and Receiver Hitch
24V System
Enhanced Suspension
Tire Pressure Monitoring System
Beadlock Tires
Interior Air Cleaner Restrictor Gage
AGM (Absorbed Glass Mat) Battery (Optima)

LSSV Labels

Your vehicle may have some or all of the following labels.

Vehicle Load Disconnect Switch Caution Label

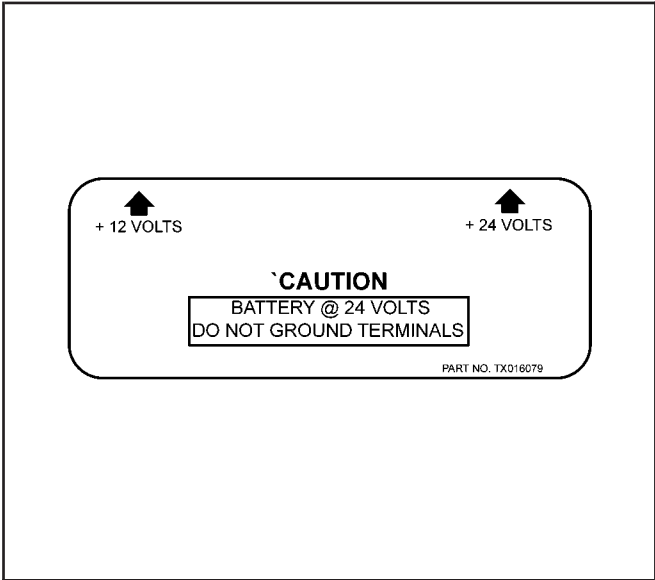


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If the vehicle is equipped with a load disconnect switch, the switch disconnects 12V vehicle loads and 24V trailer/aux loads that could cause a parasitic drain on the batteries.

The switch should be placed in the OFF position when the vehicle is parked for an extended period of time. The load disconnect switch is located on the underhood fuse block. The underhood fuse block is located on the driver's side of the vehicle, to the rear of the battery or under the accessory panel of the ambulance body.

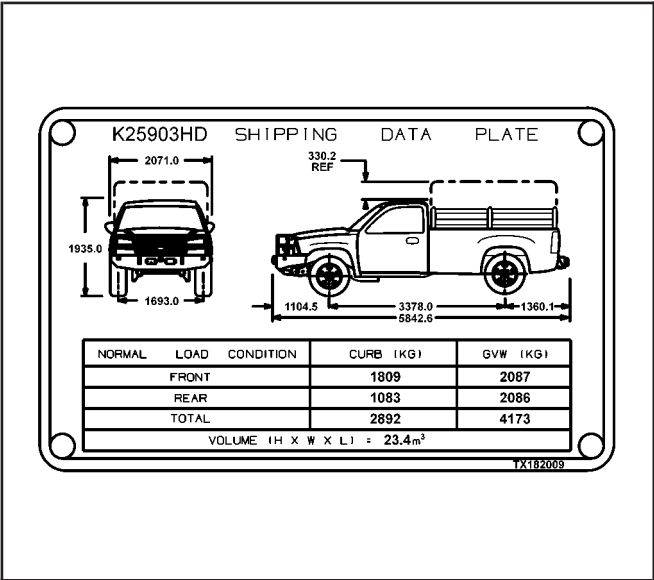
24V Battery Caution Label



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The 24V battery caution label is placed on top of the radiator support near the 24V battery. This battery is on the left side of the engine compartment.

Shipping Data Plate



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The shipping data plate is located on the left front inner door panel above the vehicle identification plate. This plate includes the loading and dimensions.

Vehicle Identification Plate



1704112

The vehicle identification plate is located on the left front inner door panel under the shipping data plate. This plate includes the identification number, contract number and vehicle variant.

Maintenance and Lubrication

Specifications

Capacities - Approximate Fluid

See *Fluid and Lubricant Recommendations* for more information. All capacities are approximate. When adding, be sure to fill to the approximate level, as recommended in this manual. Recheck fluid level after filling.

Capacities - Approximate Fluid

Application	Specification	
	Metric	English
Cooling System		
Ambulance Body	26.0 liters	27.0 quarts

Fluid and Lubricant Recommendations

The Recommended Fluids and Lubricants information will be found in the Owners Manual and Owners Manual Supplement. Refer to the Maintenance Schedule subsection of the Owners Manual.

Tire Inflation Pressure Specifications

Important: These pressures and specifications are for Enhanced Mobility Package (EMP) or RPO EM7 only.

Tire Inflation Pressure Specifications* (EMP Only)

Terrain	Deflection	Maximum Speed	Load	Minimum Inflation
Highway ** Front Axle	—	93 mph (149 km/h)	2400 lbs (1089 kg)	45 PSI (3.10 Bar)
Highway ** Rear Axle	—	93 mph (149 km/h)	3042 lbs (1390 kg)	65 PSI (4.48 Bar)
Highway ***	18%	93 mph (149 km/h)	2300 lbs (1043 kg)	40 PSI (2.76 Bar)
Cross Country ***	25%	30 mph (48 km/h)	2300 lbs (1043 kg)	23 PSI (1.59 Bar)
Mud, Sand, Snow ***	30%	10 mph (16 km/h)	2300 lbs (1043 kg)	18 PSI (1.24 Bar)

* Option Package EMP (Enhanced Mobility Package) vehicles only. Non-EMP vehicles refer to the Tire and Loading Information label attached to the vehicles center pillar (B-pillar), below the driver's door lock post (striker).

** Inflation pressure needed to obtain the Gross Vehicle Weight Rating (GVWR).

*** All Axles

Tire Pressure Monitoring System Settings (EMP Only)

Tire Pressure and Slope

Terrain	Cold Inflation Pressure	Slope
Highway * Front Axle	45 PSI (3.10 Bar)	55
Highway * Rear Axle	65 PSI (4.48 Bar)	75
Highway **	40 PSI (2.76 Bar)	51
Cross Country **	23 PSI (1.60 Bar)	34
Mud, Sand, Snow **	18 PSI (1.24 Bar)	29

Tire Pressure Alerts and Warnings

Terrain	Deviation Pressure Alert ***	Low Pressure Warning
Highway * Front Axle	±5 PSI (0.34 Bar)	33 PSI (2.28 Bar)
Highway * Rear Axle	±5 PSI (0.34 Bar)	40 PSI (2.76 Bar)
Highway **	±5 PSI (0.34 Bar)	30 PSI (2.07 Bar)
Cross Country **	±5 PSI (0.34 Bar)	17 PSI (1.17 Bar)
Mud, Sand, Snow **	±5 PSI (0.34 Bar)	13 PSI (0.90 Bar)

* Factory Tire Pressure Setting

** All Axles

*** From Cold Pressure Tire Setting

Maintenance Items

The Normal Maintenance Replacement Parts information will be found in the Owners Manual and Owners Manual Supplements. Refer to the Maintenance Schedule subsection of the Owners Manual.

Maintenance

Maintenance Schedule

The Maintenance Schedule information will be found in the Owners Manual and Owners Manual Supplement. Refer to the Maintenance Schedule subsection of the Owners Manual.

Owner Checks and Services

If the engine, controls, instruments or gages do not operate as described in this supplement manual, refer to one of the following manuals:

- 2005 C/K Truck Owners Manual
- 2005 C/K Truck Service Manual
- 2005 Diesel Engine Owners Manual Supplement
- 2005 LSSV Owners Manual Supplement

If the concern still has not been corrected, shut down the engine and notify your maintenance unit or dealership.

Periodic Maintenance Inspection

- Inspect the condition of the headlamps, taillamps, turn signals, side lamps, and blackout (B/O) lamps before beginning to operate the vehicle each time.
- Inspect the axle vent tube filter for blockages every six months and more often when difficult off-road conditions are encountered. Replace as needed. Refer to *Front Axle Vent Tube Filter Replacement* in Front Drive Axle or *Rear Axle Vent Tube Filter Replacement* in Rear Drive Axle.
- Inspect the transfer case vent tube filter for blockages every six months and more often when difficult off-road conditions are encountered. Replace as needed. Refer to *Transfer Case Vent Tube Filter Replacement* in Transfer Case NVG 261-NP2.

Section 1

HVAC

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Heating, Ventilation and Air Conditioning

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Booster Pump/Shield Bolts	9 N·m	80 lb in
Water Shut Off Valve Bolts	9 N·m	80 lb in

Refrigerant System Capacities

Important: These capacities apply only to the ambulance body vehicles. For pickup and maintenance body vehicles, refer to the 2005 C/K Truck Service Manual.

Refrigerant System Capacities (Ambulance Body)

Application	Specification	
	Metric	English
PAG Oil GM P/N 12378526 for United States PAG Oil GM P/N 88900060 for Canada		
R-134a		
Total System Refrigerant Charge	3.0 kg	6.6 lb
Total System PAG Oil Capacity with Rear A/C	328 ml	11.1 oz

Repair Instructions

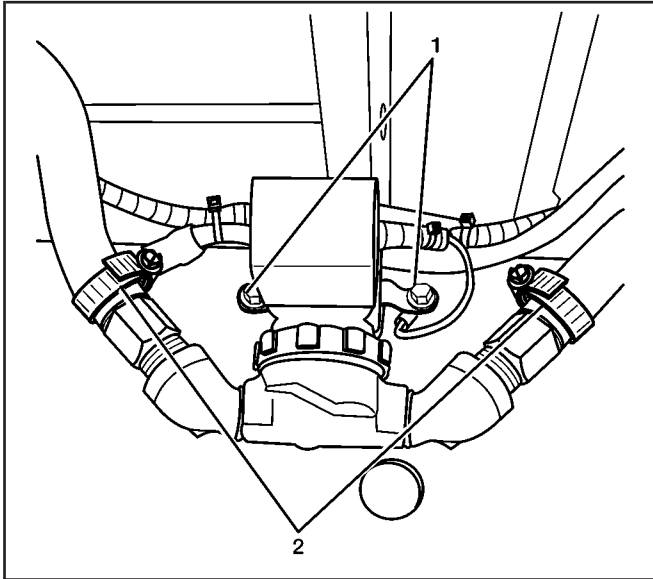
Heater Water Valve Replacement (Ambulance Body)

Removal Procedure

1. Drain the engine coolant. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

2. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
3. Loosen the hose clamps (2) from the heater water shut off valve inlet and outlet.
4. Remove the inlet and outlet hose from the heater water valve.
5. Disconnect the heater water shut off valve wiring.
6. Remove the heater water shut off valve retaining bolts (1).
7. Remove the heater water shut off valve.



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Installation Procedure

1. Install the heater water shut off valve.

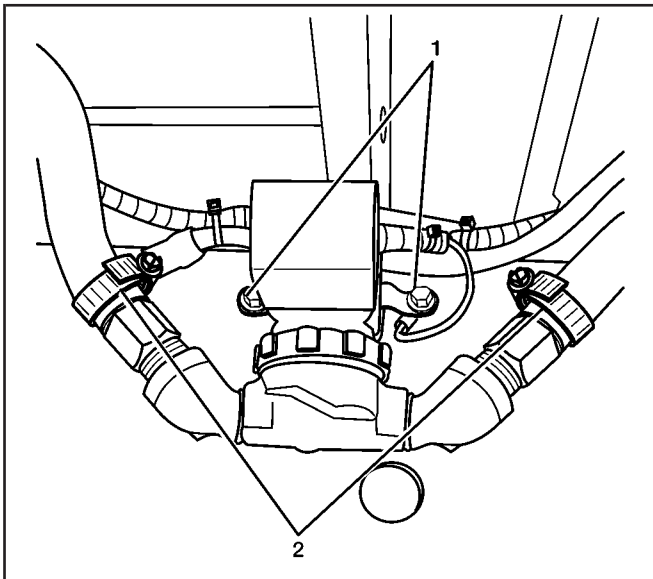
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the heater water shut off valve retaining bolts (1).

Tighten

Tighten the bolts to 9 N·m (80 lb in).

3. Connect the heater water shut off valve wiring.
4. Reposition and tighten the hose clamps (2) on the heater water shut off valve inlet and outlet.
5. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
6. Fill the engine coolant. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.



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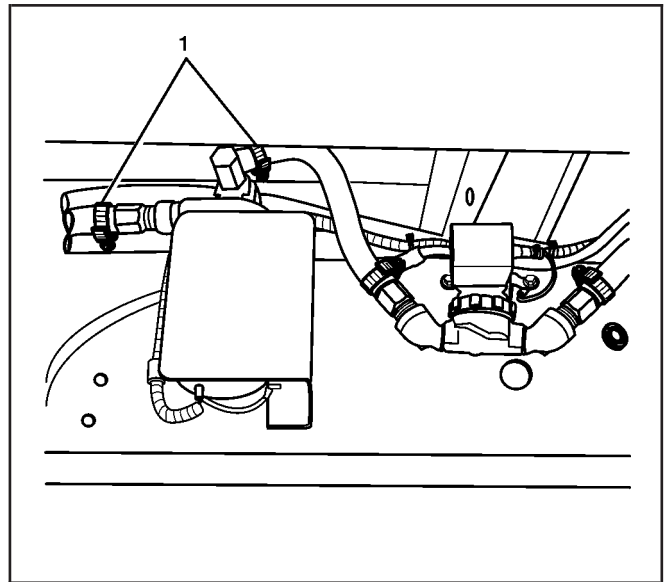
Coolant Booster Pump Replacement (Ambulance Body)

Removal Procedure

1. Drain the engine coolant. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.

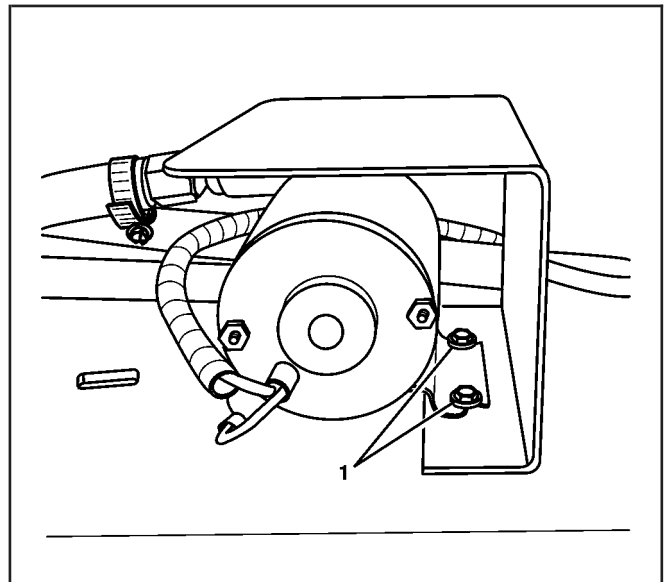
Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

2. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
3. Loosen the hose clamps (1) from the coolant booster pump inlet and outlet.



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4. Disconnect the coolant booster pump wiring.
5. Remove the coolant booster pump/shield retaining bolts (1).
6. Remove the coolant booster pump and shield.



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Installation Procedure

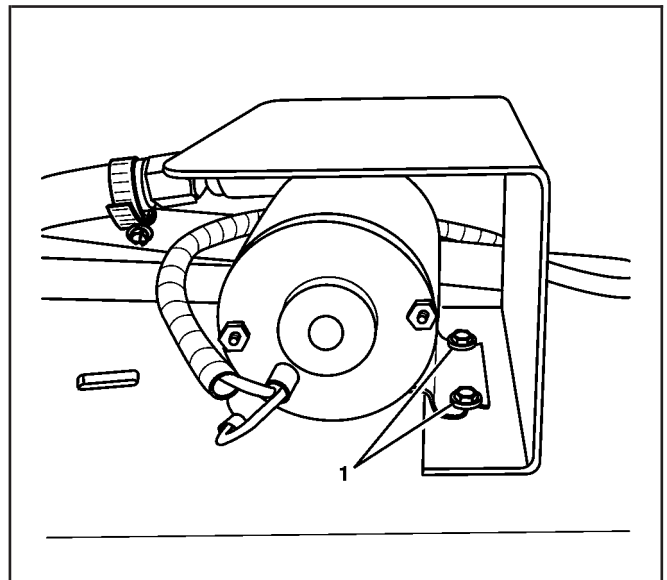
1. Install the coolant booster pump and shield.

Notice: Refer to *Fastener Notice* Fastener Notice in Cautions and Notices.

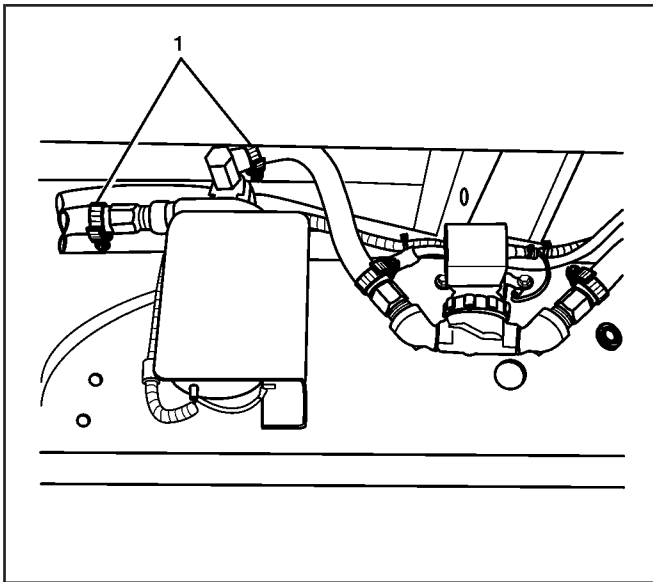
2. Install the coolant booster pump retaining/shield bolts (1).

Tighten

Tighten the bolts to 9 N·m (80 lb in).



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3. Connect the coolant booster pump wiring.
4. Reposition and tighten the hose clamps (1) to the heater water booster pump inlet and outlet.
5. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
6. Fill the engine coolant. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.

Description and Operation

Ambulance Heating System

The purpose of the auxiliary heating system is to supply heat to the interior of the ambulance body. The HVAC control panel is located on the front interior wall of the ambulance body and controls HVAC operation. Placing the HVAC switch in the OFF position turns on the solenoid closing the water valve. This action will not allow coolant to flow through the booster pump or auxiliary heater core. The location of the water valve is under the vehicle on the right outer frame rail. When heat is desired the HVAC switch is in the ON position and the valve is opened. Coolant will then flow to the booster pump. The booster pump electrically pumps the coolant through the heater core of the rear HVAC module. The booster pump is located under the vehicle on the right outer frame rail.

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Steering

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Power Steering System

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Power Steering Pump Heat Shield Bolts	8 N·m	71 lb in

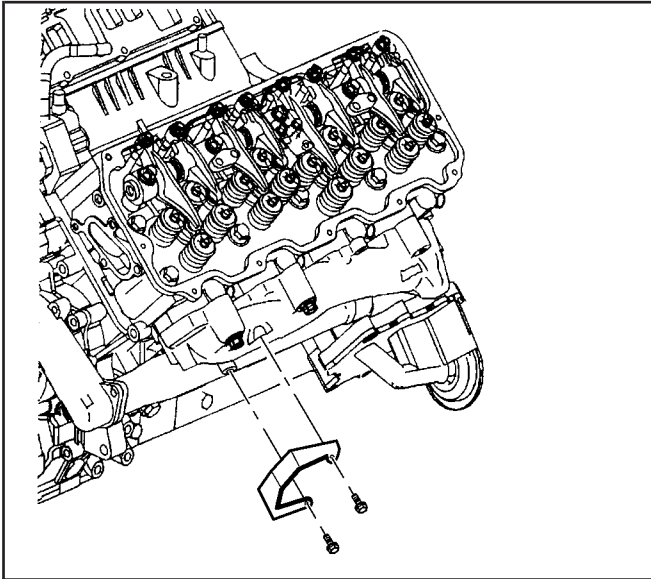
Repair Instructions

Power Steering Pump Heat Shield Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Lower the vehicle in order to work through the front wheelhouse opening.
3. Remove the power steering pump heat shield bolts.
4. Remove the heat shield from the vehicle.



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Installation Procedure

1. Install the exhaust manifold heat shield.

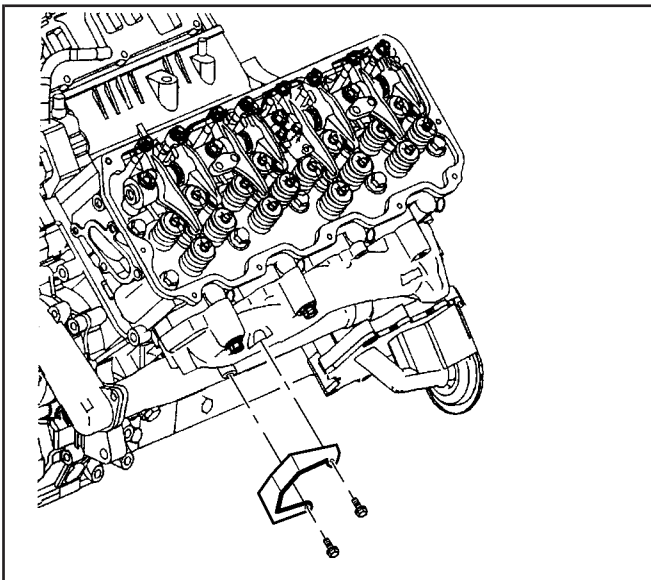
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the exhaust manifold heat shield bolts.

Tighten

Tighten the bolts to 8 N·m (71 lb in).

3. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.



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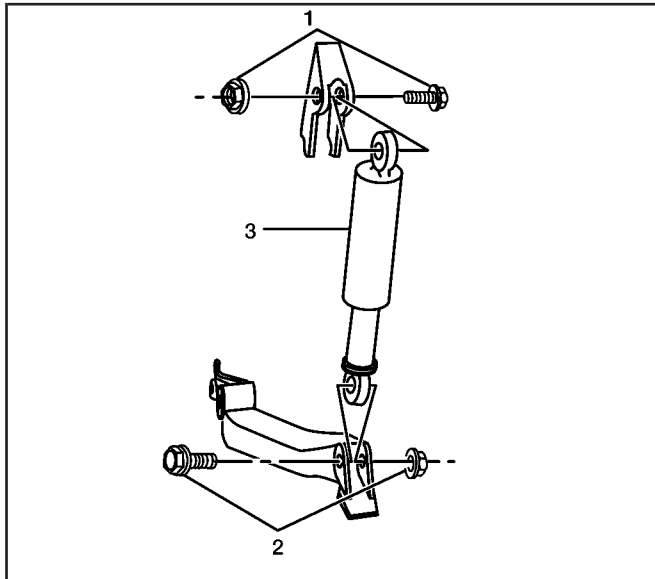
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Front Suspension

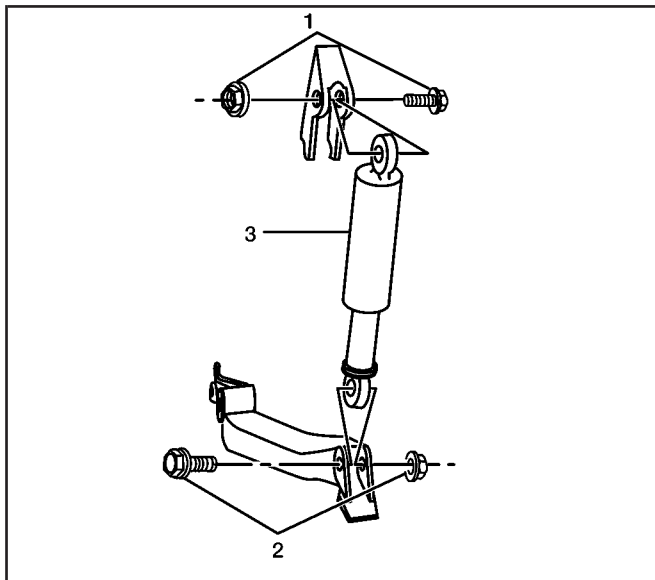
Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Jounce Shock Lower Bolt	125 N·m	92 lb ft
Jounce Shock Upper Bolt	125 N·m	92 lb ft
Lower Jounce Control Arm Brace Bolt	72 N·m	53 lb ft
Lower Jounce Control Arm Pivot Bolt	244 N·m	180 lb ft



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Repair Instructions

Jounce Shock Absorber Replacement

Inspection Procedure

Prior to replacement inspect the following:

- Oil leaks on the shaft or around the schrader valve
- Rod guide to shaft end should be 2.75 in \pm 0.15 in (7.0 cm \pm 4.0 mm)

Pry up on the alignment arm and release the arm should smoothly extend without binding.

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

Important: Do not discharge the internal pressure of the jounce shock. The loss of oil during discharge may affect the performance setting.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the tire and wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
3. Remove the lower shock nut and bolt (2).
4. Remove the upper shock nut and bolt (1).
5. Remove the jounce shock (3) from the vehicle.

Installation Procedure

1. Install the jounce shock (3) onto the vehicle. Ensure that the pressure fitting is facing the outside of the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the upper nut and bolt (1).

Tighten

Tighten bolt to 125 N·m (92 lb ft).

3. Install lower nut and bolt (2).

Tighten

Tighten bolt to 125 N·m (92 lb ft).

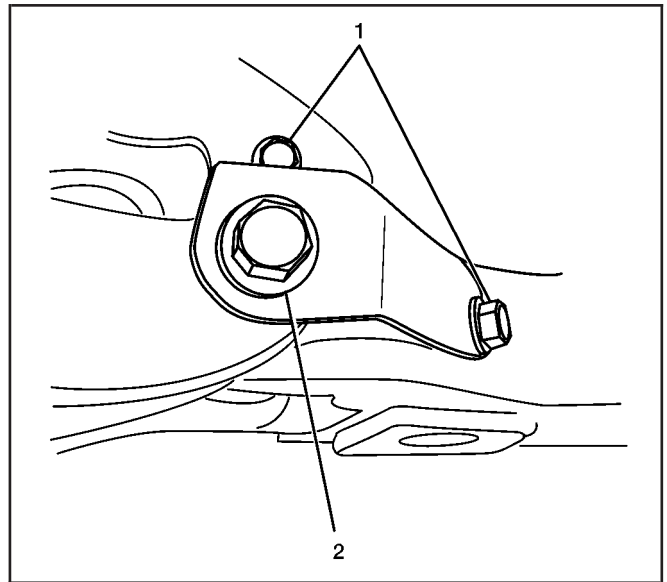
4. Install the tire and wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
5. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

Lower Jounce Shock Control Arm Replacement

Removal Procedure

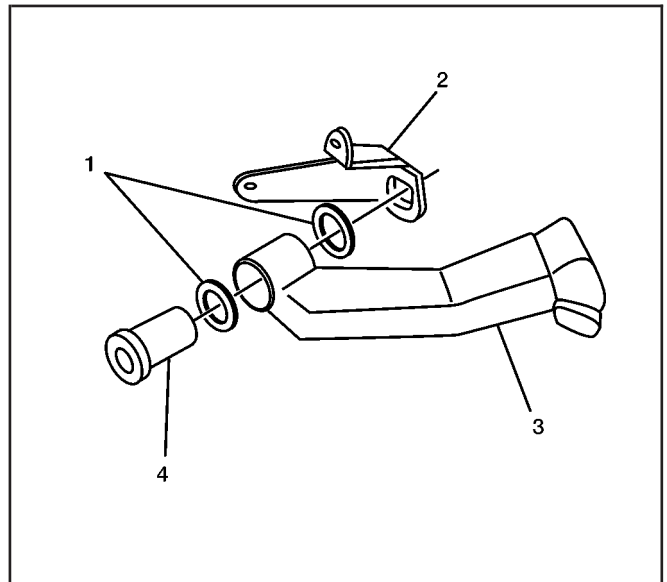
Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the tire and wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
3. Remove the jounce shock absorber. Refer to *Jounce Shock Absorber Replacement*.
4. Remove the 2 control arm brace bolts (1).
5. Remove the control arm pivot bolt (2) and washer.



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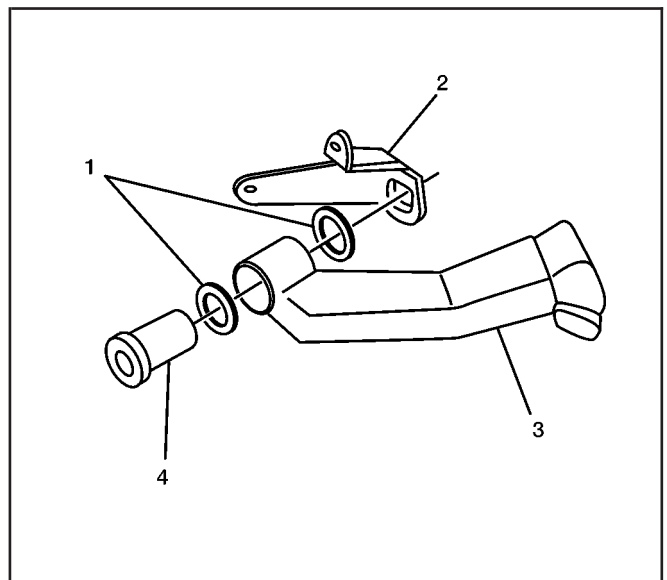
6. Remove the control arm brace (2).
7. Remove the outer shim (1).
8. Remove the control arm (3).
9. Inspect both shims (1) and pivot nut (4). Replace if worn.



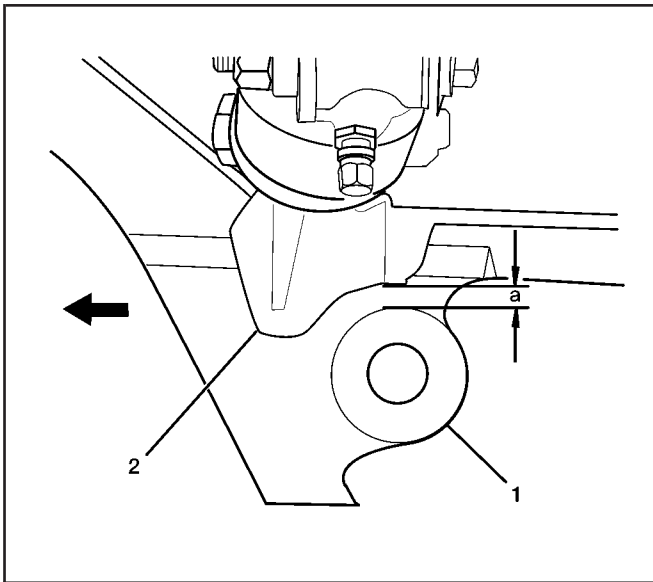
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Installation Procedure

1. Install the inner shim (1) and control arm (3) onto the pivot nut (4).



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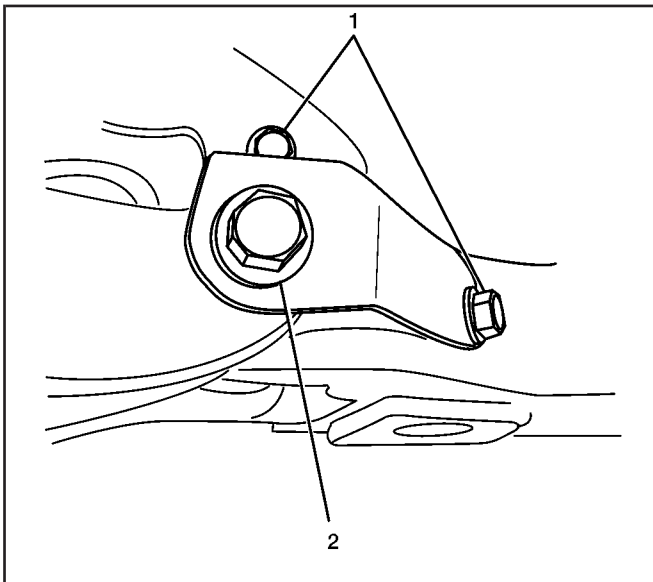


1700955

2. Verify that the alignment of the jounce lower control arm (2) and stabilizer bushing link (1) of the factory control arm are within the specification. Add shims until the specification is correct.

Specification A

5 mm \pm 3.5 mm (0.20 in \pm 0.14 in).



1700951

3. Install the outer shim and control arm brace, ensure that the pivot nut and brace slots are aligned.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the 2 brace bolts (1) and tighten.

Tighten

Tighten bolts to 72 N·m (53 lb ft).

5. Install the washer and pivot bolt (2).

Tighten

Tighten bolt to 244 N·m (180 lb ft).

6. Verify the control arm pivots freely and that the final alignment is correct.
7. Install the jounce shock absorber. Refer to *Jounce Shock Absorber Replacement*.
8. Install the tire and wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
9. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

Description and Operation

Front Enhanced Suspension

The front suspension has two primary purposes:

- Isolate the driver from irregularities in the road surface.
- Define the ride and handling characteristics of the vehicle.

The front suspension absorbs the impact of the tires traveling over irregular road surfaces and dissipates this energy throughout the suspension system. This process isolates the vehicle occupants from the road surface. Ride characteristics are designed into the suspension system and are not adjustable.

A heavy-duty shock absorber is used in conjunction with heavy-duty hydraulic bumpers or struts to absorb dissipative energy at the end of the road wheel arm jounce travel. This enhanced system will dampen out the oscillations of the torsion bar spring.

Front Hydraulic Jounce Bumper Description

A hydraulic jounce bumper is a basic hydraulic cylinder. The hydraulic jounce bumper aids the shock absorber in increased energy absorption and improved endurance. The top of the jounce bumper is mounted to the frame and the lower is mounted to the lower control arm. The hydraulic jounce bumper is used in conjunction with the factory jounce bumper.

Rear Suspension

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Jounce Shock Frame Mount Bracket Bolts	72 N·m	53 lb ft
Jounce Shock to Mount Bolt	12 N·m	9 lb ft
Shock Absorber Cover Bolts	35 N·m	26 lb ft
Shock Absorber Lower Nuts	90 N·m	66 lb ft

Repair Instructions

Rear Jounce Shock Absorber Replacement

Inspection Procedure

Prior to replacement inspect the following:

- Oil leaks on the shaft or around the schrader valve
- Correct shaft to pad contact location
- Rod guide to shaft end should be 4.20 in \pm 0.15 in (10.67 cm \pm 0.15 mm)

Pry up on the shaft end and release the arm should smoothly extend without binding.

Removal Procedure

1. Remove the rear jounce shock absorber mount. Refer to *Rear Jounce Shock Absorber Mount Replacement*.
2. Remove the nut and bolt (1) from the rear mount (2).
3. Remove the jounce shock (3) by sliding it out of the mount (2).

Installation Procedure

1. Slide the jounce shock (3) into the mount (2).

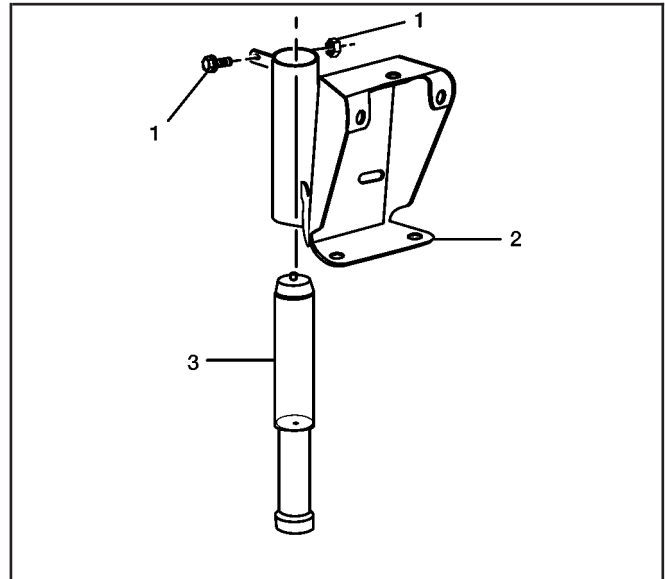
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nut and bolt (1) through the mount.

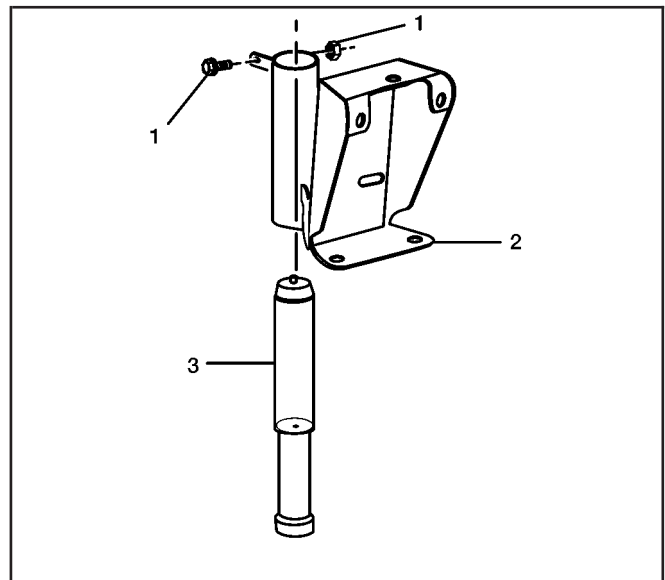
Tighten

Tighten nut and bolt to 12 N·m (9 lb ft).

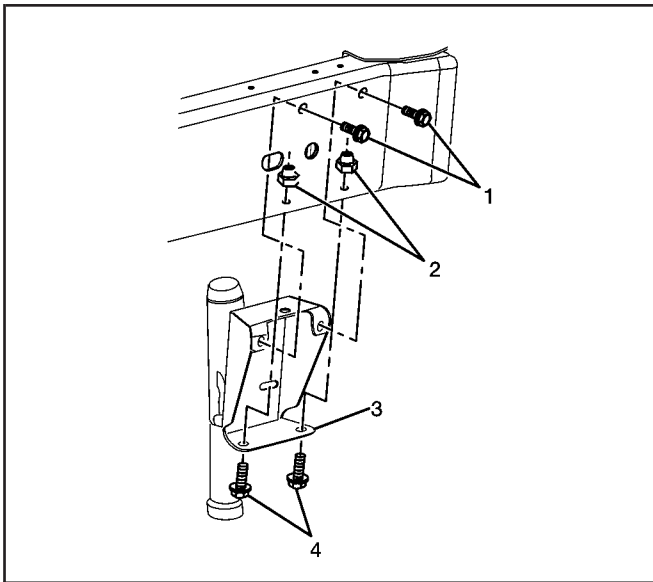
3. Install the rear jounce shock mount. Refer to *Rear Jounce Shock Absorber Mount Replacement*.



1700962



1700962

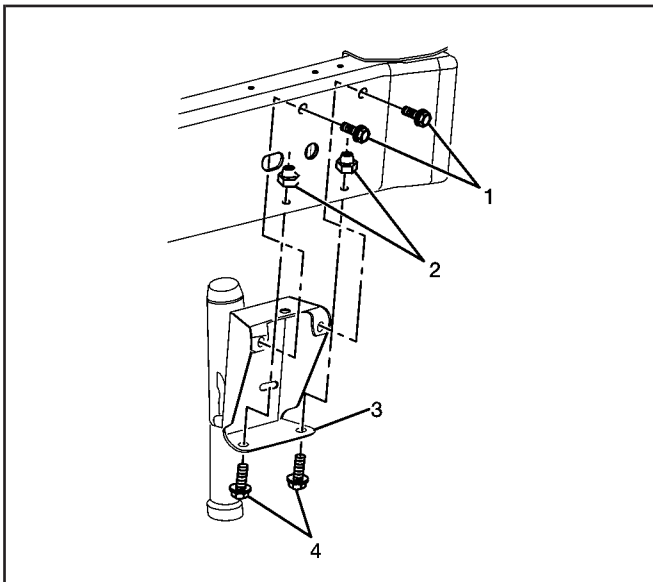


1700961

Rear Jounce Shock Absorber Mount Replacement

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the nuts (2) and bolts (4) from the mount.
3. Remove bolts (1) from the mount.
4. Remove the mount (3) and shock as an assembly from the vehicle.



1700961

Installation Procedure

1. Install the mount (3) and shock into position on the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install bolts (1) through frame and into the mount.

Tighten

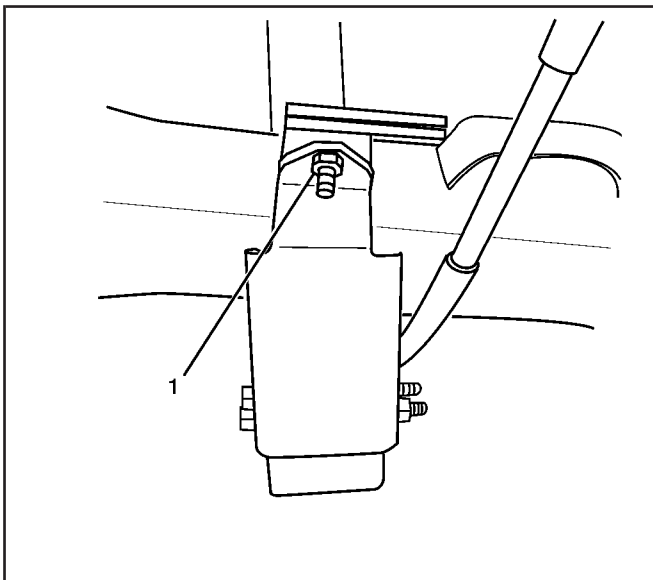
Tighten bolts to 72 N·m (53 lb ft).

3. Install bolts (4) and nuts (2) into mount.

Tighten

Tighten nuts and bolts to 72 N·m (53 lb ft).

4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1700958

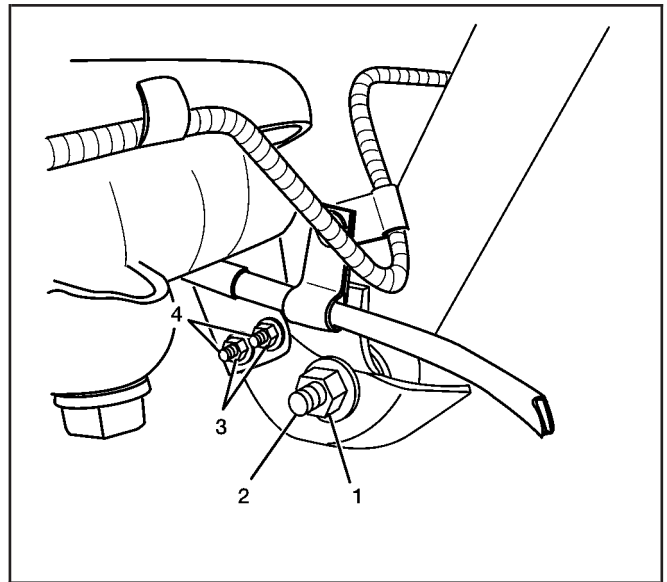
Shock Absorber Cover Replacement - Left

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the top cover bolt (1).

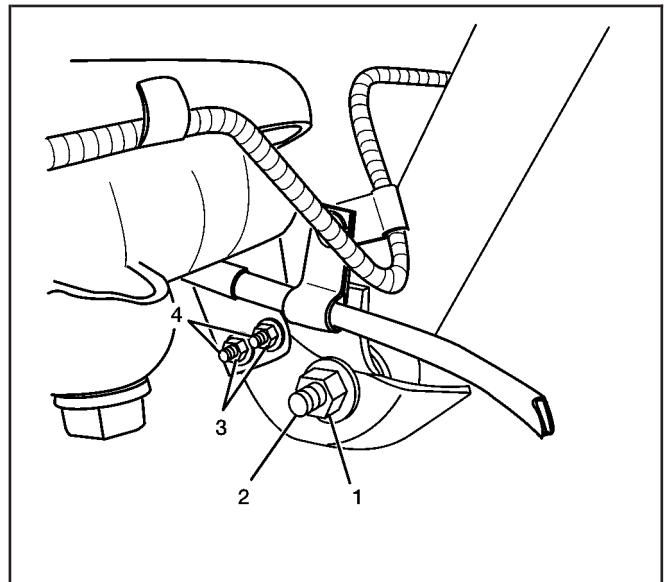
3. Remove shock cover nuts (3) and bolts (4).
4. Remove the lower shock nut (1) and bolt (2).
5. Remove the shock cover pieces from the axle.



1700959

Installation Procedure

1. Install the shock cover pieces on the axle. Ensure that the tab on the upper cover is in the slot of the lower cover.
2. Install the lower shock bolt (2) and nut (1).
3. Install bolts (4) and nuts (3) into the shock cover.



1700959

4. Install the top shock cover bolt (1).

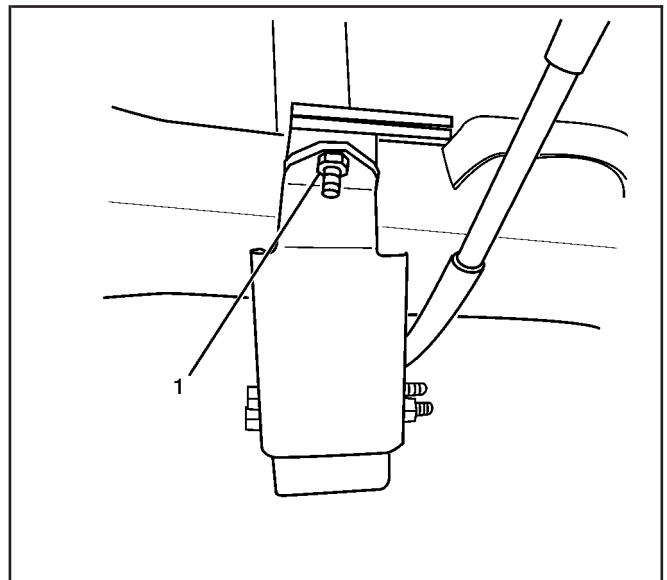
Notice: Refer to *Fastener Notice* in Cautions and Notices.

5. Ensure that the contact pad of the jounce shock is aligned with the jounce shock.

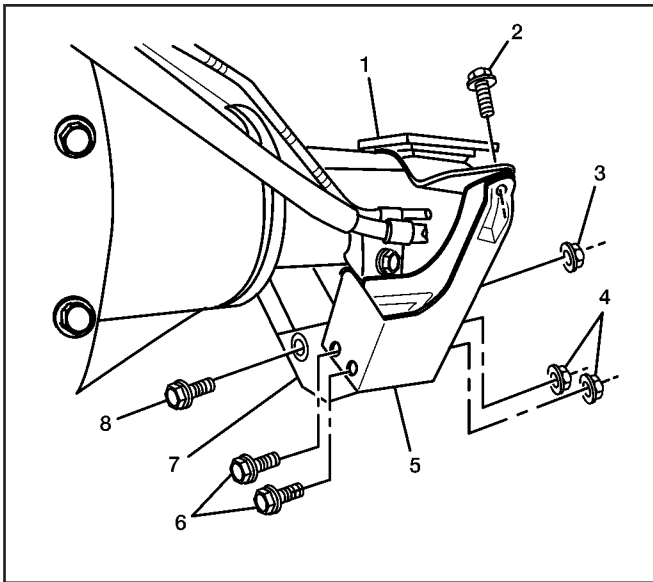
Tighten

- Tighten lower shock bolt to 90 N·m (65 lb ft).
- Tighten shock cover bolts to 35 N·m (26 lb ft).

6. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1700958



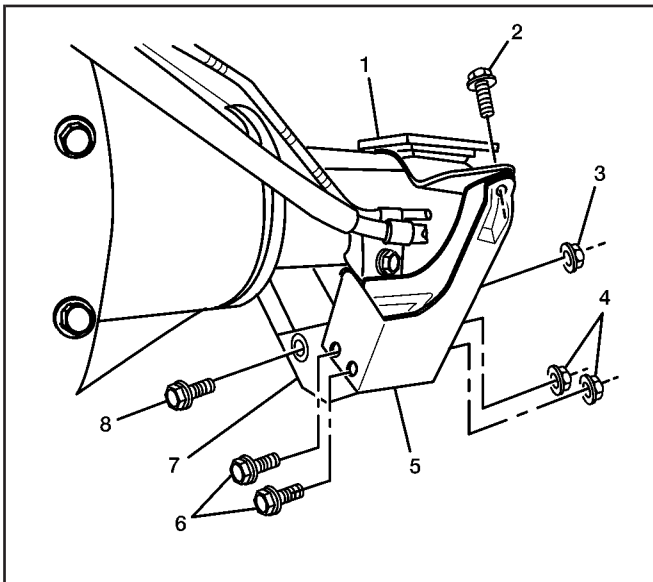
1700957

Shock Absorber Cover Replacement - Right

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove bolts (6) and nuts (4) from the cover.
3. Remove bolt (2) from the shock cover.
4. Remove nut (3) and bolt (8) from the shock.
5. Remove shock covers pieces (1, 5, 7) from the axle housing.



1700957

Installation Procedure

1. Install the shock cover pieces (1, 5, 7). Ensure that the tab in cover piece (1) fits into the slot in cover piece (5).
2. Install bolt (2) at the top of the cover.
3. Install shock bolt (8) and nut (3).
4. Install bolts (6) and nuts (4).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

5. Ensure that the contact pad of the jounce shock is aligned with the jounce shock.

Tighten

- Tighten lower shock bolt to 90 N·m (70 lb ft).
 - Tighten shock cover bolts to 35 N·m (26 lb ft).
6. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

Description and Operation

Rear Enhanced Suspension

All models use a rear spring suspension system and a solid rear axle suspension system. The rear axle is attached to the multi-rear springs by U-bolts. The front of the spring ends are attached to the frame at the front hangers through rubber bushings. The rear of the spring ends are attached to the frame with shackles that allow the springs to change their length, due to the spring compressing, while the vehicle is in motion. Two identical direct dual-action shock absorbers and hydraulic jounce bumpers provide the ride control. The jounce bumpers are frame mounted.

Rear Shock Absorber Description

The suspension features a heavy-duty shock absorber package necessary for off-road conditions. A shock absorber is a base hydraulic cylinder. The shock is filled with oil and has a moveable shaft that connects to a piston inside the shock absorber. Valves inside the shock absorber offer resistance to oil flow and consequently inhibit rapid movement of the piston and shaft. The shocks are angle-mounted between the frame and the brackets, which are attached to the axle tubes.

Rear Shock Absorber Cover Description

The suspension features heavy-duty shock absorber covers that protect the shock absorber against damage from severe off road usage while providing full function suspension.

Rear Hydraulic Jounce Bumper

A hydraulic jounce bumper is a basic hydraulic cylinder. The hydraulic jounce bumper aids the shock absorber in increased energy absorption and improved endurance. The jounce bumper is mounted to the frame above the rear axle.

Tires and Wheels

Specifications

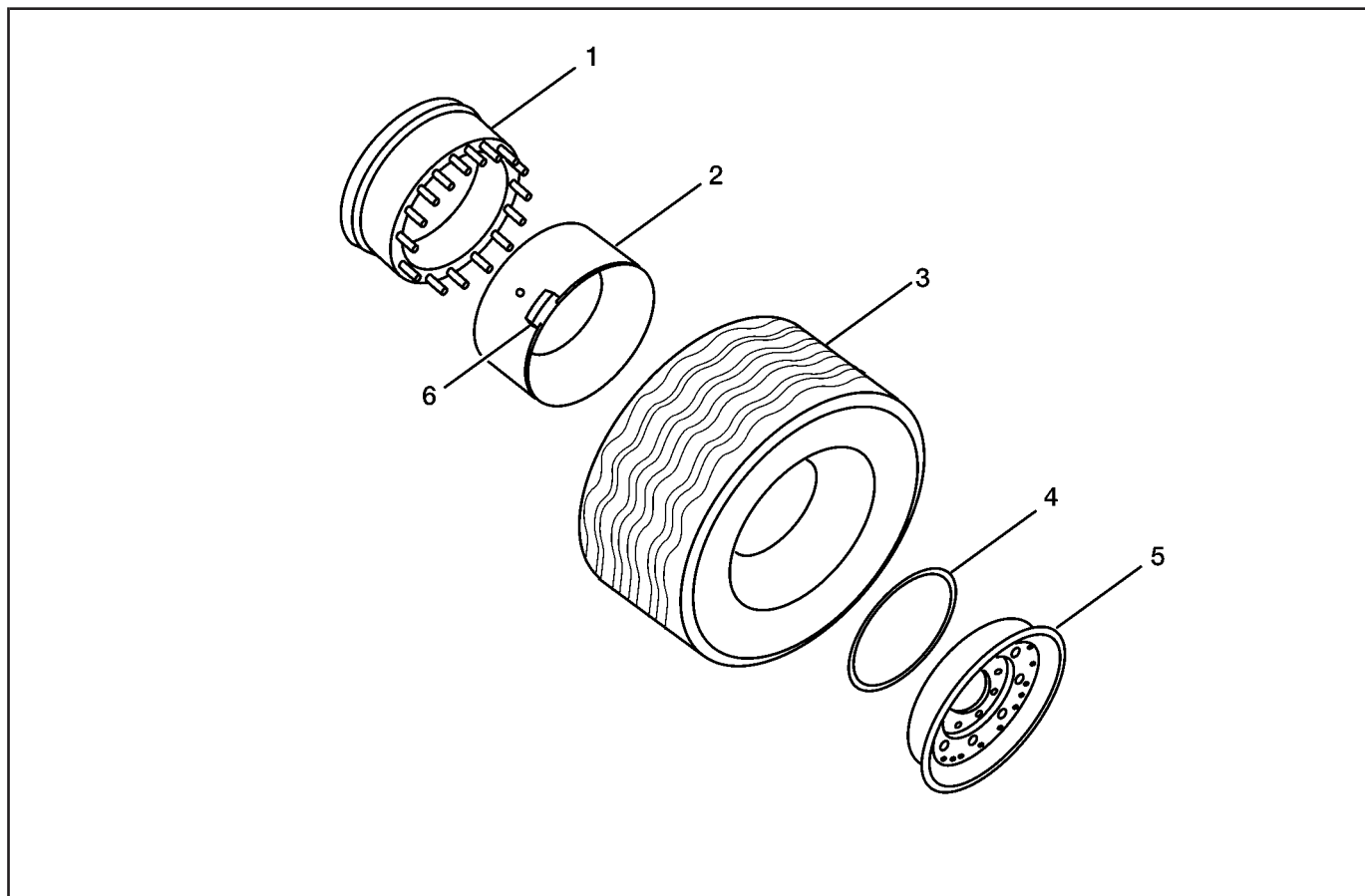
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Beedlock Wheel Nuts (First Pass)	81 N·m	60 lb ft
Beedlock Wheel Nuts (Second Pass)	102-108 N·m	75-80 lb ft
Spare Tire Carrier Hex Bolts (In Vehicle)	35 N·m	26 lb ft
Spare Tire Carrier Isolator Screw	9 N·m	80 lb in
Spare Tire Carrier Latch Mechanism Bolt	25 N·m	18 lb ft
Spare Tire Carrier Latch Mounting Bolts	97 N·m	72 lb ft
Spare Tire Carrier Mount Bolts (Bed Mount)	68 N·m	50 lb ft
Spare Tire Carrier Pivot Bolt Bracket Bolts	97 N·m	72 lb ft
Spare Tire Carrier Torx Bolts (In Vehicle)	53 N·m	39 lb ft
Spare Tire Carrier Wheel Nuts (Bed Mount)	90 N·m	66 lb ft
Spare Tire Carrier Wheel Nuts (Swing Away)	50 N·m	37 lb ft

Component Locator

Tires and Wheels Component Views

Beadlock Wheel



1697955

Legend

- | | |
|------------------------|---|
| (1) Rear Half of Wheel | (5) Front Half of Wheel |
| (2) Beadlock | (6) Tire Pressure Monitor Sensor and Retaining Clip |
| (3) Tire | |
| (4) O-ring Seal | |

Repair Instructions

Tire Mounting and Dismounting (Beadlock)

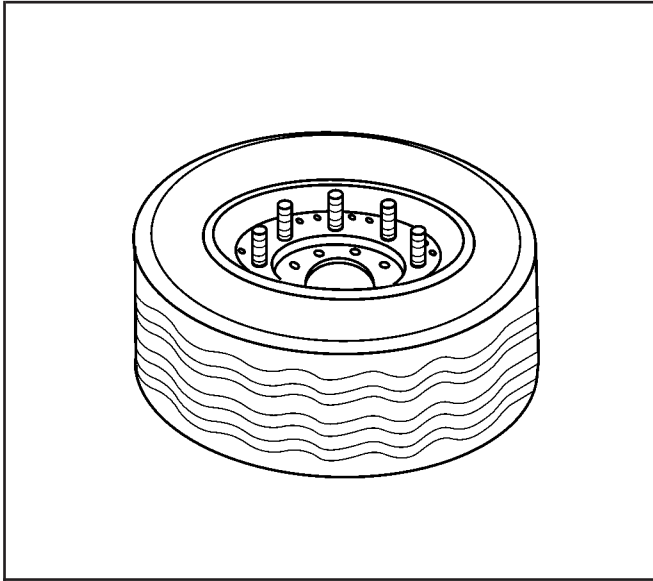
Tools Required

D528235-H1 Run Flat Lubricant

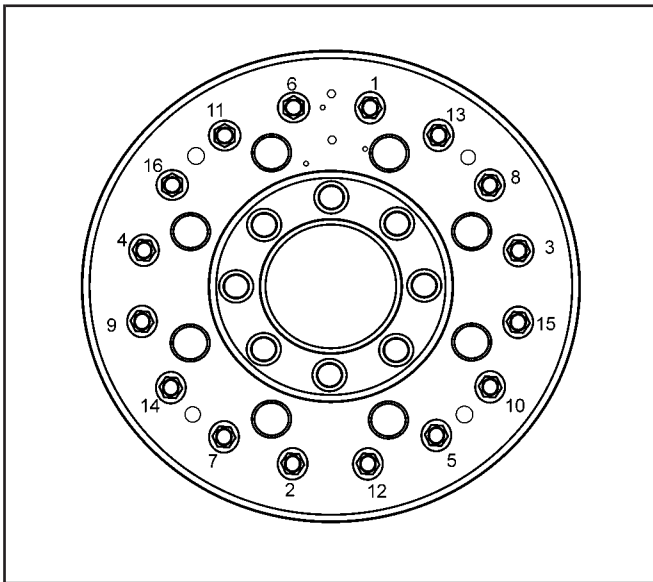
Dismounting Procedure

Outer Half

1. Remove the air valve core to fully deflate the tire. Ensure that valve air passage is not blocked.
2. Remove all balance weights from the wheel flange.
3. Place the tire on a flat surface with the nuts facing up.
4. Loosen all the nuts in a star pattern until all the nuts have been removed.



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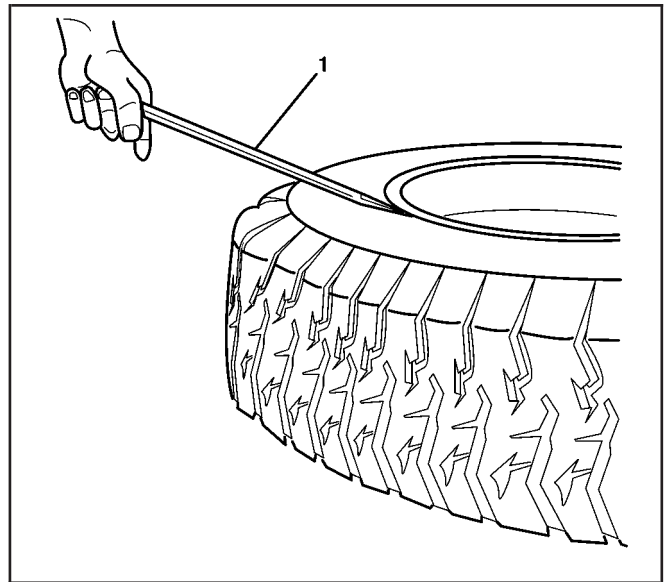


1697942

5. Apply tire soap to the edge of the outer rim flange.

Important: Gently pry the outer flange away from the tire bead in 3 locations around the rim.

6. Install a 7/16 in tire spoon (1) between the flange and the tire and pull down until the spoon is horizontal with the working surface.

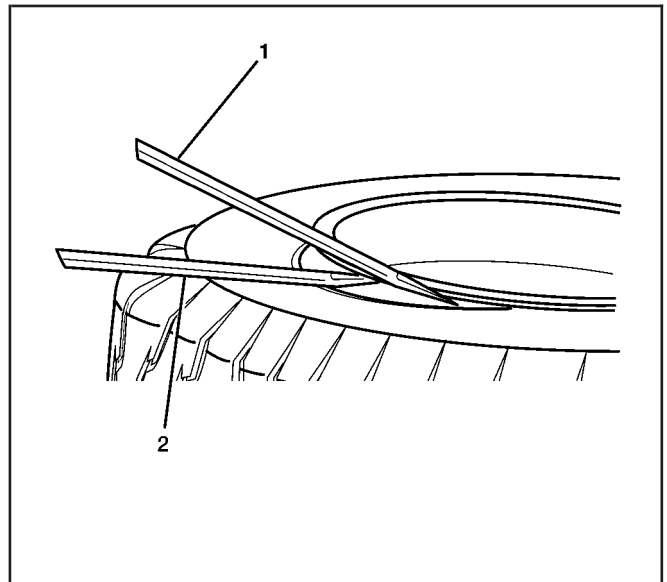


1697944

7. Install the pry bar between the flange and the tire then push up. The blade of the pry bar will push the tire down and off of the 5° beadseat.
8. Using the tire spoon (2) and pry bar (1) at intervals of 45°, work around the wheel and tire.

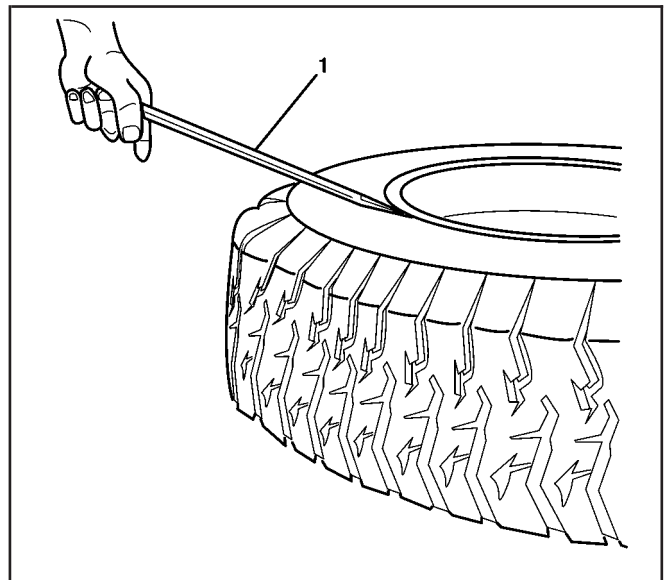
Important: Ensure that the wheel half is placed with the O-ring side facing up to avoid scratching the surface.

9. Remove the outer wheel from the tire and remove the O-ring and discard.

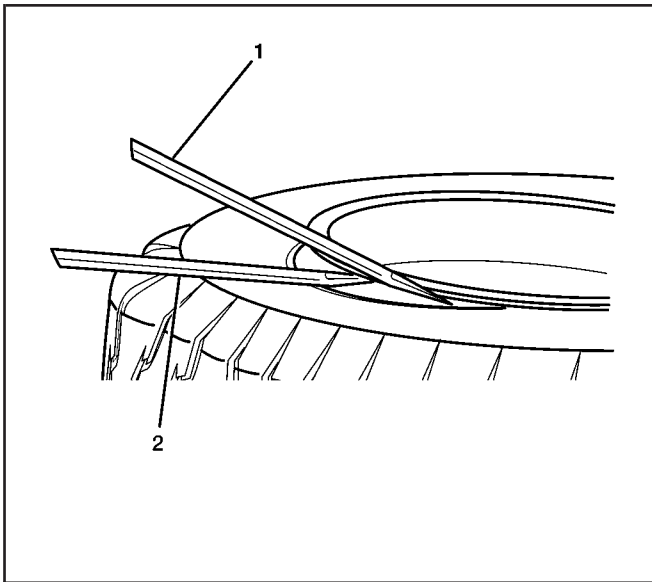


1697945

10. Flip the tire assembly over and apply tire soap to the inner flange.
11. Using the pry bar and tire spoon, gently pry the inner flange from the tire bead in 3 locations.
12. Using the tire spoon (1) between the flange and tire, push the tire spoon down until it is horizontal to the working surface to lift the wheel flange up.



1697944

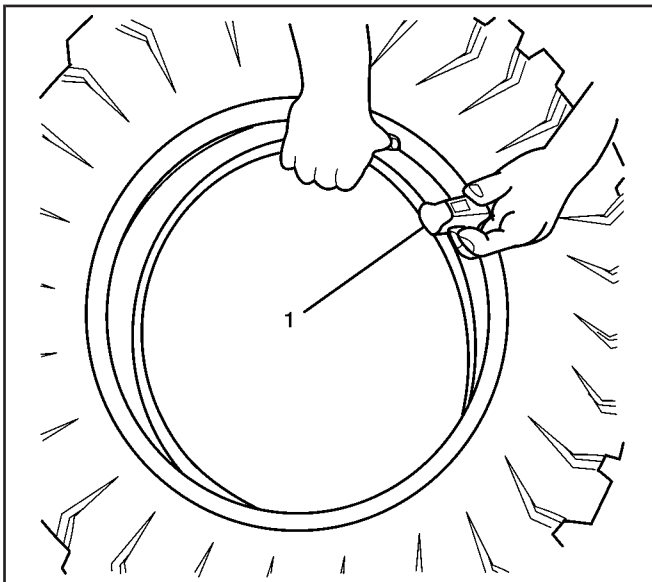


1697945

13. Using the pry bar between the flange and tire push the tire bead down. The pry bar will push the tire down and off of the 5° bead seat.
14. Using the prybar (1) and tire spoon (2) work your way around the tire at intervals of 45°.

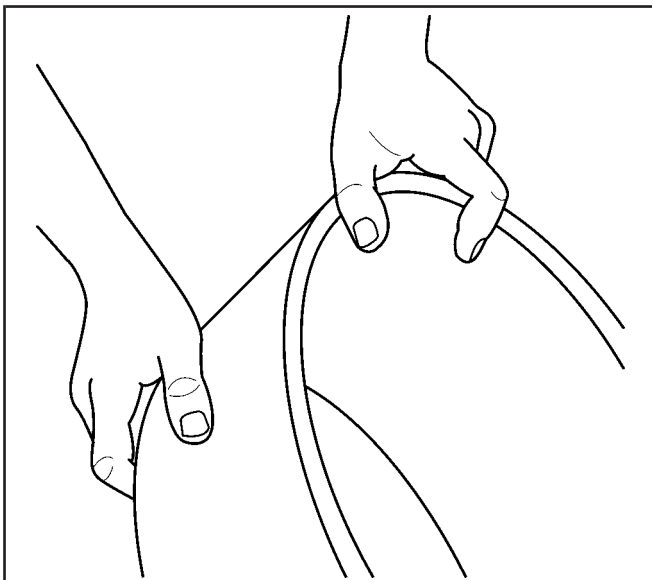
Important: Ensure that the wheel half is placed with the O-ring side facing up to avoid scratching the surface.

15. Remove the inner wheel half from the tire.



1697946

16. Locate the air pressure sensor (1) and compress the beadlock insert down enough to expose the sensor.
17. Remove the sensor from the beadlock insert.

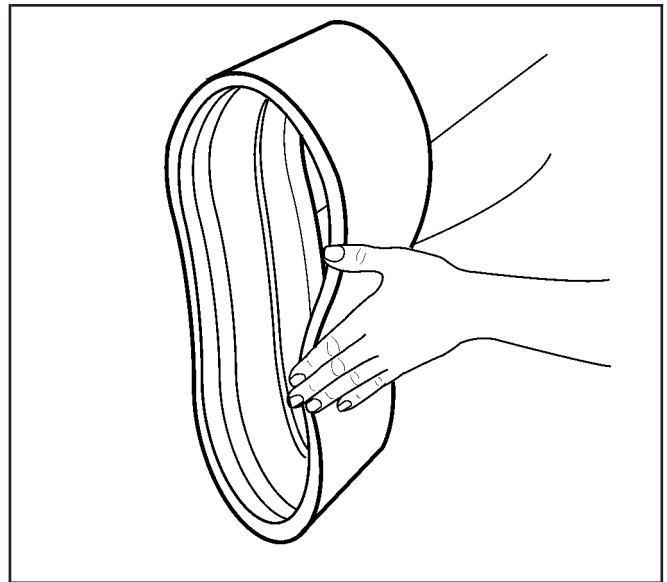


1697947

18. Stand the tire on end allowing one side of the beadlock to fall off-center into the tire chamber.
19. Place the tire back on the ground and compress the beadlock in an oval shape and twist and pull out of the tire cavity.

Cleaning and Inspection Procedure

1. Clean the following areas:
 - Degrease the rim bead seats with denatured alcohol and dry with a clean towel. Allow to dry.
 - Clean the tire beads with a clean towel, to remove any dirt or foreign materials.
 - Clean the beadlock edges with a clean towel and remove any foreign materials.
 - Wipe the O-ring groove with a clean towel and remove any foreign material from the groove.
 - Clean the mating surfaces on the outer and inner wheel halves.
2. Inspect the following areas:
 - Outer wheel half for wear, damage or warpage.
 - Inner wheel half for wear, damage or warpage.
 - Beadlock for wear or damage.
 - Replace any worn or damaged parts.



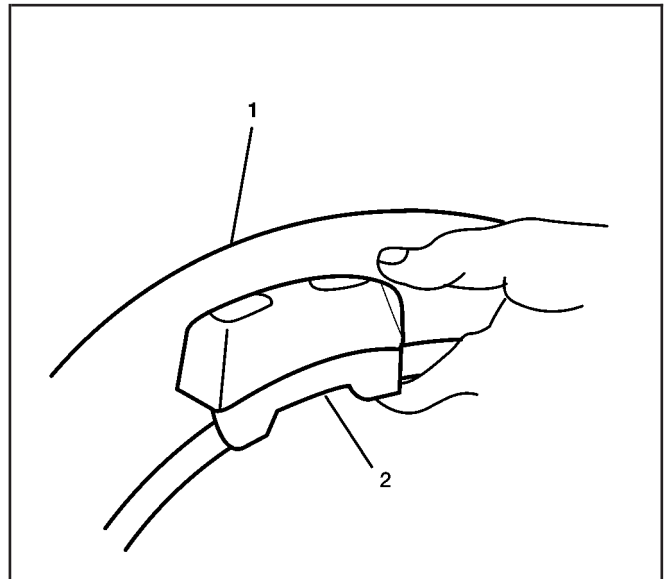
1697948

Mounting Procedure

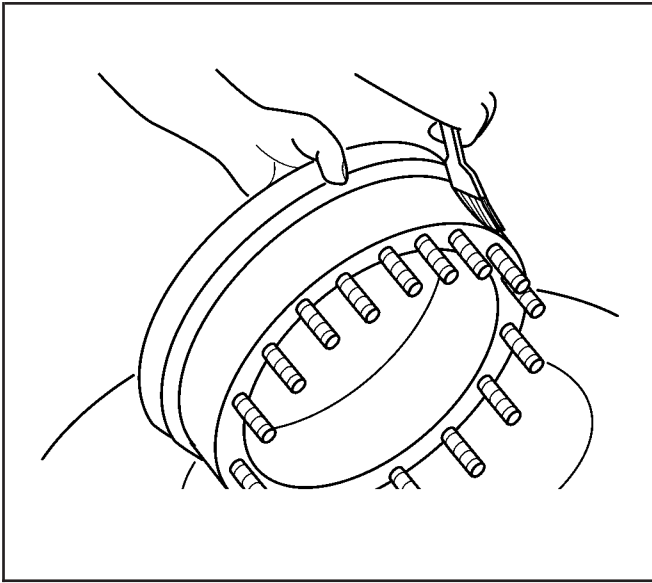
1. Place the tire on a horizontal surface. Compress the beadlock from its round shape into an oval.
2. Holding the beadlock with both hands, rotate it and place it into the tire cavity.

Important: The sensor must be opposite one of the two beadlock grooves (2).

3. Install the tire pressure sensor assembly (1) within the beadlock groove (2).

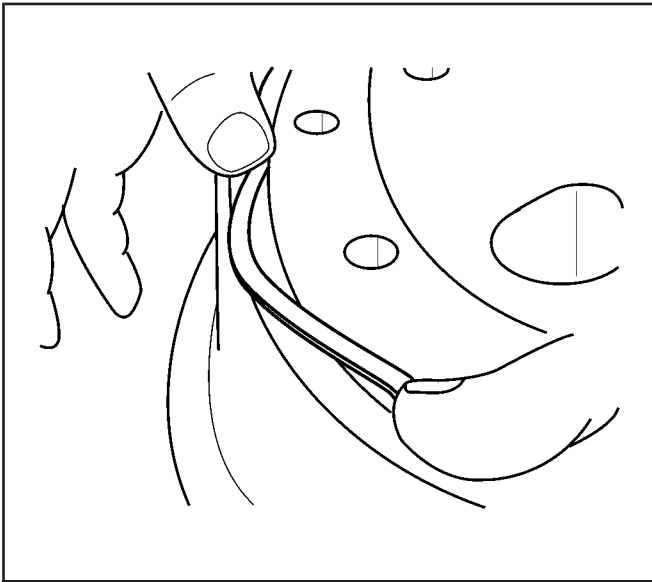


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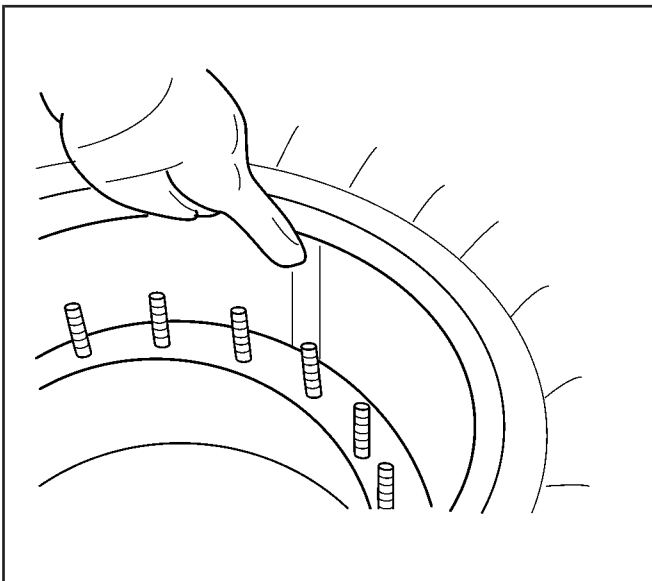
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4. Position the beadlock, centering it between the tire beads.
5. Lubricate the inner edge of the beadlock wheel and tire beads with tire soap to aid installation of the wheel.



1697938

6. Center the wheel air fitting with one of the grooves in the beadlock and press inner wheel into tire.
7. Install the air valve into the rim pulling into position.
8. On the outer wheel apply a small amount of run flat lubricant *D528235-H1* to the O-ring groove and install the O-ring. Remove excess of lubricant.

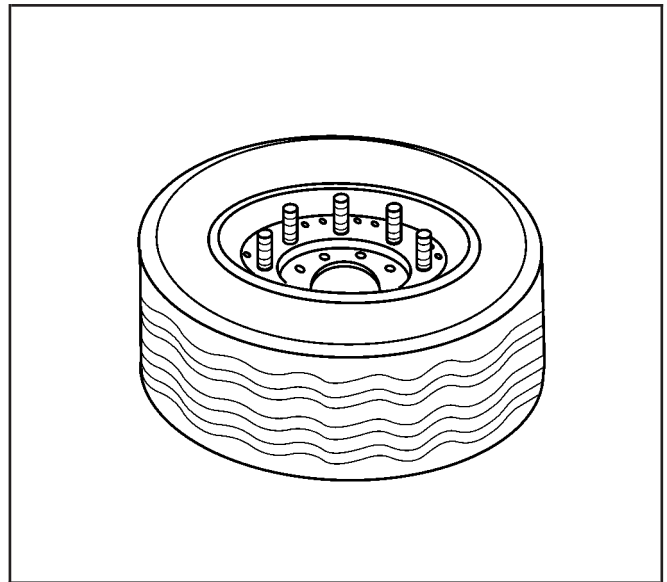


1697939

Important: Ensure that both inner wheel sealing surfaces are completely free of any debris.

9. Install the outer wheel into the tire. Ensure that the air fitting is in line with one of the grooves.

10. With the inner wheel studs facing up, install the wheel nuts by hand to a minimum of 4 threads.



1697941

Notice: Refer to *Fastener Notice* in Cautions and Notices.

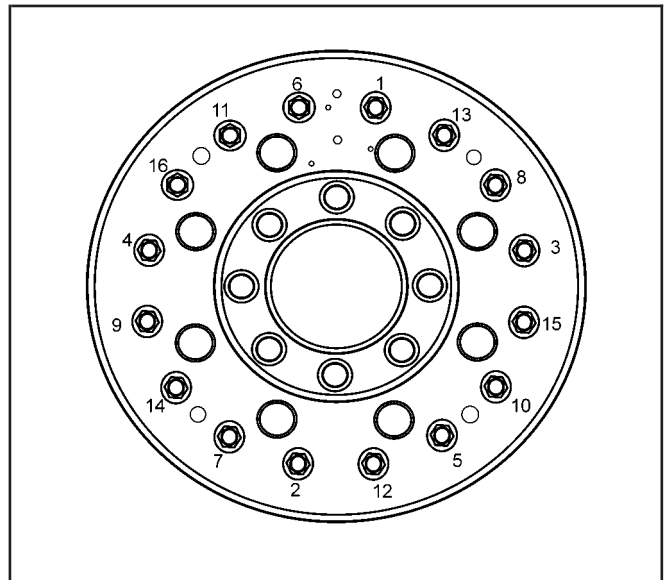
Important: The specified torque pattern must be followed to prevent damage or improper sealing.

Important: Retorque wheel nuts in a star pattern at 80-161 KH (50-100 MI) and 8047 KH (5,000 MI) thereafter retorque to 102-108 N·m (75-80 lb ft).

11. Using the torque pattern, tighten the nuts.

Tighten

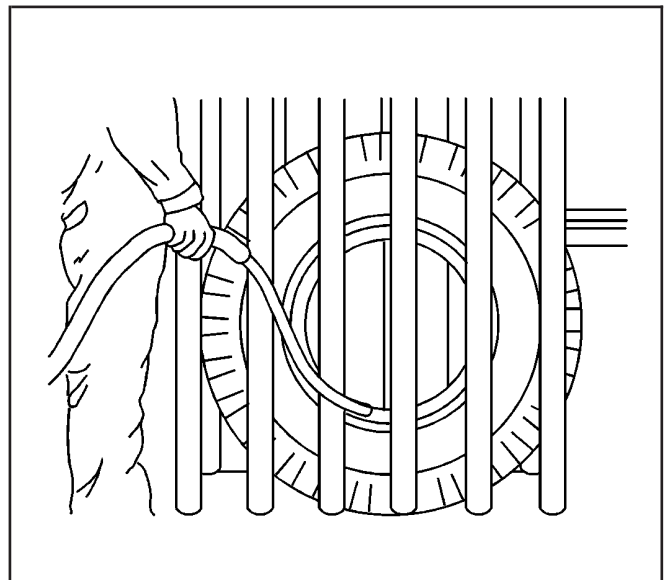
- Tighten the wheel nuts (first pass) to 81 N·m (60 lb ft).
- Tighten the wheel nuts (second pass) to 102-108 N·m (75-80 lb ft).



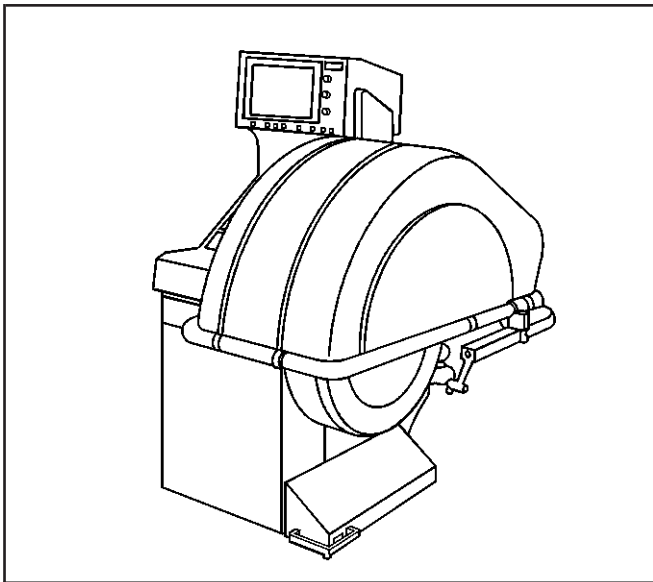
1697942

Caution: *Allowing pressure to continue to build up within a tire in an attempt to seat the bead is a dangerous practice that can result in a broken tire bead and possible serious injury to the technician.*

12. Place the tire in an approved inflation safety cage and inflate to 30 psi (206 kPa).
13. Check the tire bead seating for space between the wheel flange and the tire. While the wheel is lying flat, inspect the entire circumference of the wheel flange. If this condition exists disassemble and restart by inspecting the O-ring.
14. Inflate the tire to air pressure and inspect for leaks, by placing the wheel in a water tank or letting it sit for 48 hours. If the pressure loss is less than 1 psi (7 kPa) the tire is acceptable for use.



203182



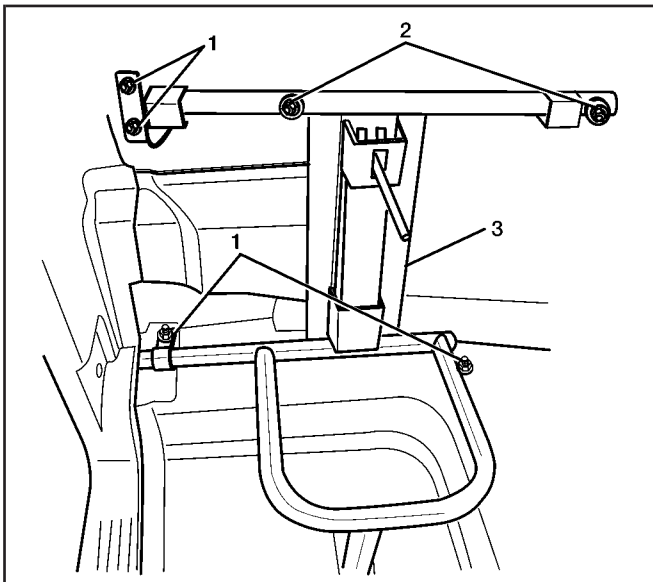
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15. Dynamically balance the tire using a maximum balance weight of 170 g (6 oz) per side. Refer to *Tire and Wheel Assembly Balancing - Off-Vehicle* in *Vibration Diagnosis and Correction 2005 C/K Truck Service Manual*.

Spare Tire Carrier Replacement (In Vehicle)

Removal Procedure

1. Remove the spare tire. Refer to *Spare Tire Replacement (In Vehicle)*.
2. Remove the hex bolts (1) from the carrier.
3. Remove the torx bolts (2) from the carrier.
4. Remove the carrier (3) from the vehicle.



1697959

Installation Procedure

1. Install the carrier (3) into the vehicle.

Notice: Refer to *Fastener Notice* in *Cautions and Notices*.

2. Install the torx bolts (2) and tighten.

Tighten

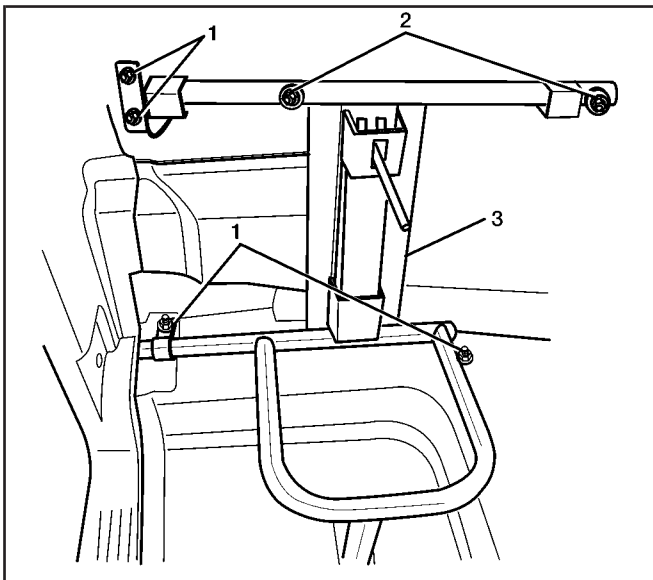
Tighten the torx bolts to 53 N·m (39 lb ft).

3. Install the hex bolts (1) and tighten.

Tighten

Tighten the hex bolts to 35 N·m (26 lb ft).

4. Install the spare tire. Refer to *Spare Tire Replacement (In Vehicle)*.



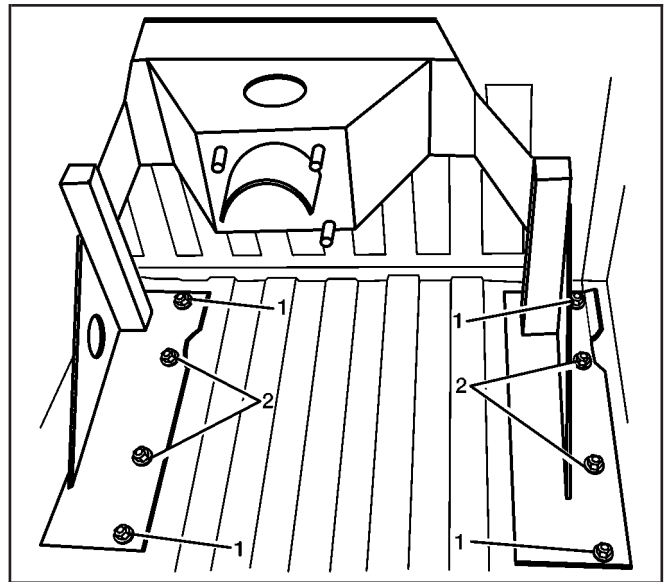
1697959

Spare Tire Carrier Replacement (Bed Mounted)

Removal Procedure

Caution: Be careful not to drop tire and wheel assemblies on your hands and feet. Lift properly, using your legs as well as your body. Tires and wheels are heavy and can cause injury if not handled correctly.

1. Remove the spare tire wheel nuts.
2. Remove the spare tire from the spare tire carrier.
3. Remove the short bolts (2) from both sides of the carrier.
4. Remove the long bolts (1) from both sides of the carrier.
5. Remove the carrier from the bed of the vehicle.



1698279

Installation Procedure

1. Install the carrier into the vehicle bed over the mounting holes.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

Important: Tighten the bolts in the following sequence.

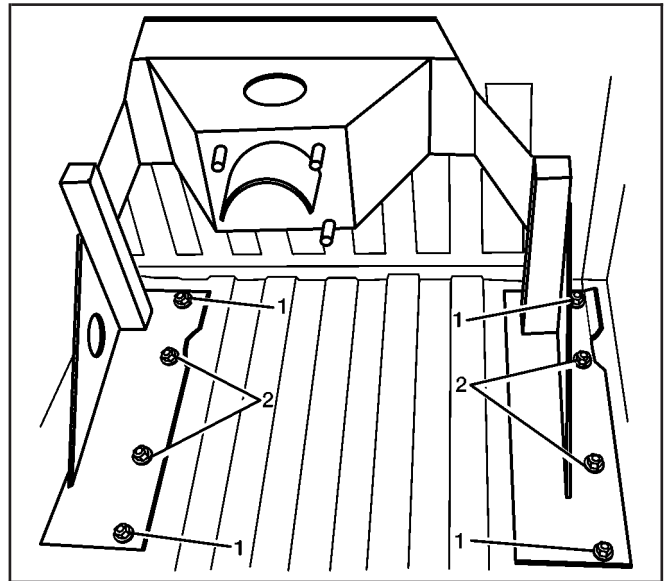
2. Using the aid of an assistant position the reinforcement bracket under the bed and install bolts (1, 2).

Tighten

- 2.1. Tighten the long carrier bolts (1) to 68 N·m (50 lb ft).
- 2.2. Tighten the short carrier bolts (2) to 68 N·m (50 lb ft).
3. Install the spare tire onto the spare tire carrier.
4. Install the wheel nuts onto the studs.

Tighten

Tighten the spare tire nuts to 90 N·m (66 lb ft).



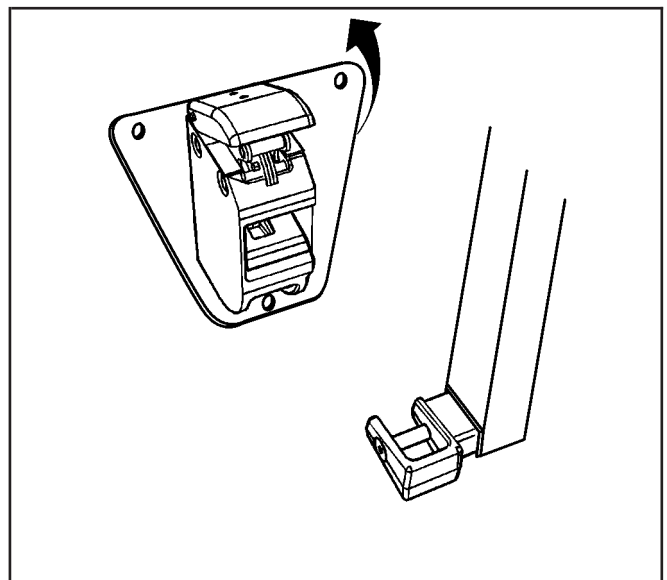
1698279

Spare Tire Carrier Replacement (Swing Away)

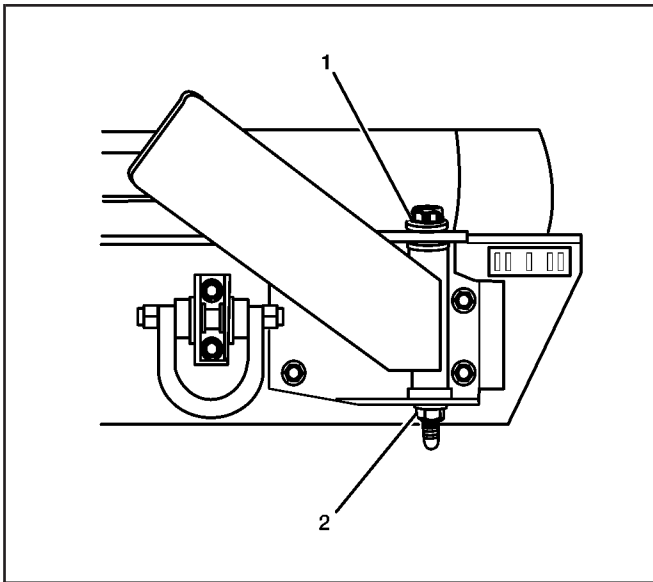
Removal Procedure

Caution: Be careful not to drop tire and wheel assemblies on your hands and feet. Lift properly, using your legs as well as your body. Tires and wheels are heavy and can cause injury if not handled correctly.

1. Remove the spare tire wheel nuts.
2. Remove the spare tire from the spare tire carrier.
3. Unlatch and open the spare tire carrier swing arm.

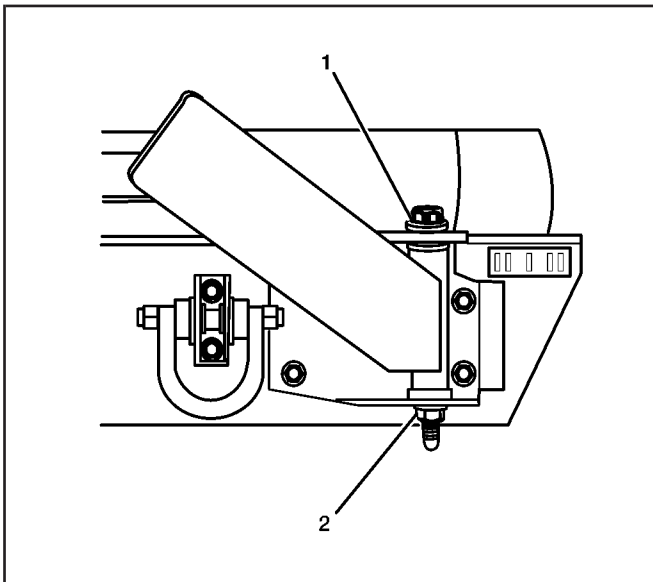


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1696175

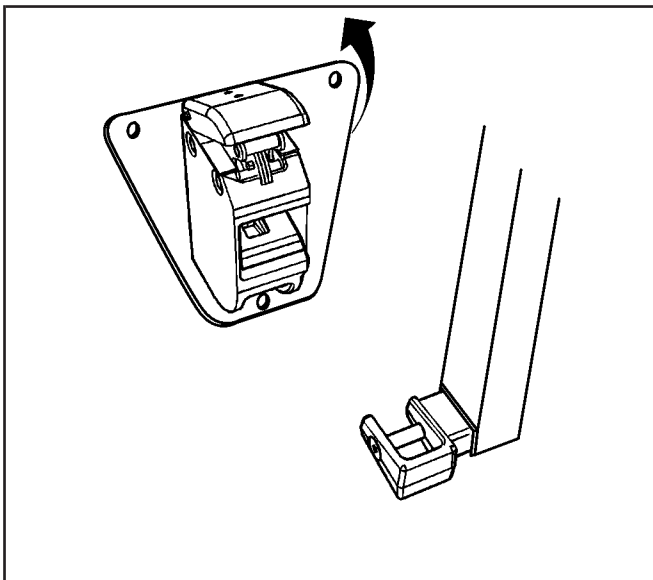
4. Remove the nut (2) from the pivot bolt.
Note location of any shims or washers before removing the pivot bolt.
5. Hold the carrier and remove the pivot bolt (1).
6. Remove the carrier from the mount.



1696175

Installation Procedure

1. Install the carrier into the bracket.
2. Install any shims or washers and install the pivot bolt (1).
3. Lubricate the pivot joint with chassis lubricant.
Refer to *Fluid and Lubricant Recommendations* in Maintenance and Lubrication.
4. Install the nut (2) onto the pivot bolt and tighten until slight pivoting resistance is felt.



1696173

5. Install the spare tire onto the spare tire carrier.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

6. Install the wheel nuts onto the studs.

Tighten

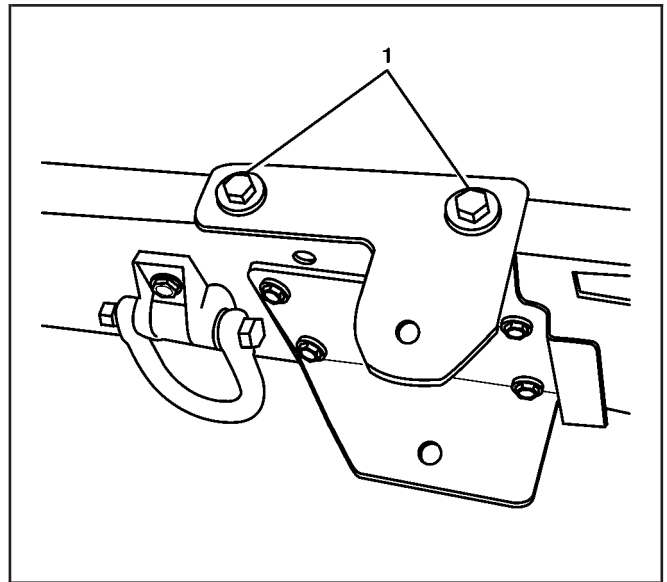
Tighten the wheel nuts to 50 N·m (37 lb ft).

7. Adjust the carrier latch. Refer to *Spare Tire Carrier Latch Adjustment (Swing Away)*.
8. Close and ensure that the spare tire carrier is latched.

Spare Tire Carrier Pivot Bracket Replacement (Swing Away)

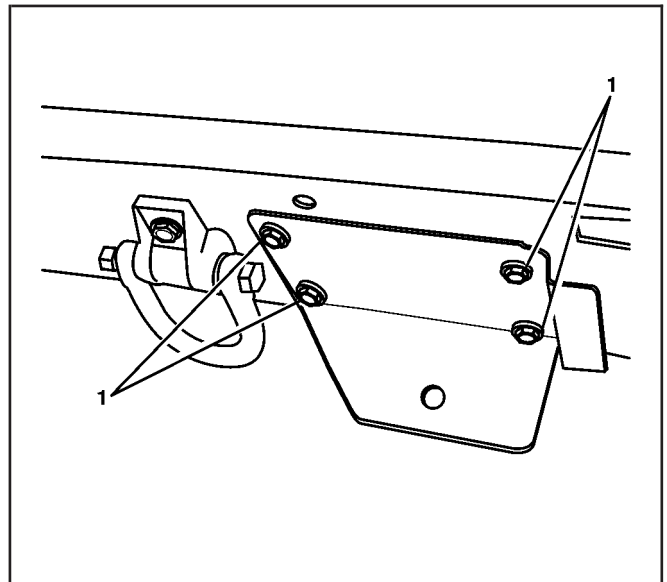
Removal Procedure

1. Remove the spare tire carrier. Refer to *Spare Tire Carrier Replacement (In Vehicle)* or *Spare Tire Carrier Replacement (Bed Mounted)* or *Spare Tire Carrier Replacement (Swing Away)*.
2. Remove the top pivot mount bolts (1).



1698248

3. Remove the lower pivot mount bolts (1).



1698250

Installation Procedure

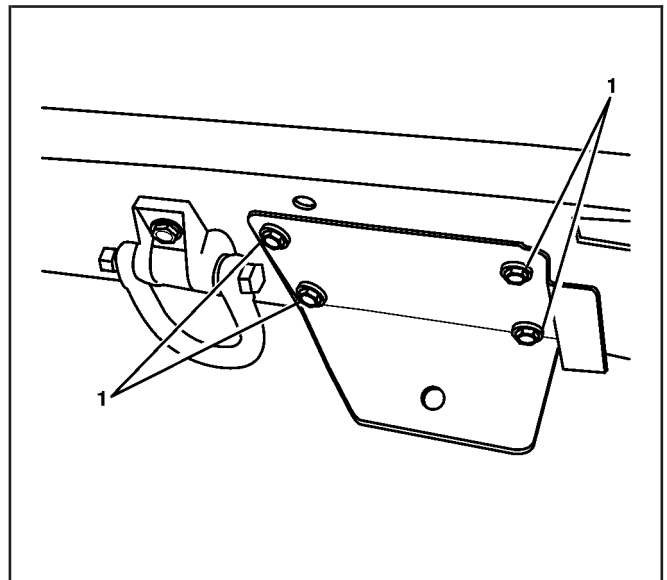
Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the lower pivot bracket onto the bumper and install the bolts (1).

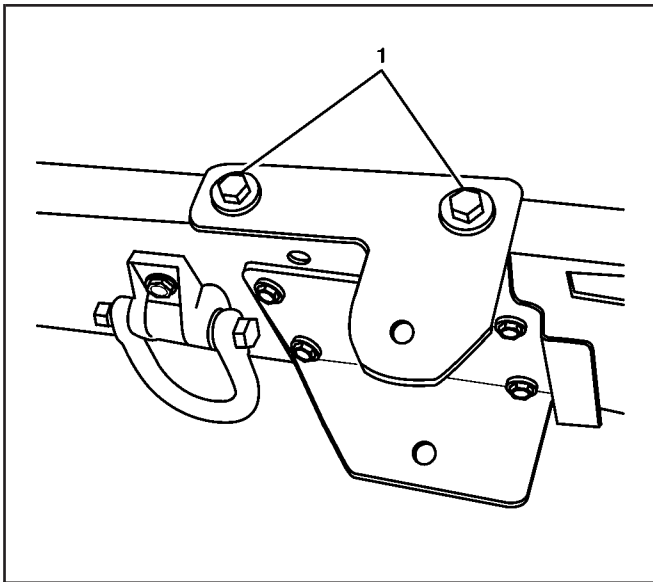
Tighten

Tighten the lower pivot mount bolts to 97 N·m (72 lb ft).

2. Install the upper mount onto the bumper and install the pivot bolt through both mounts.



1698250



1698248

3. Install the upper mount pivot bolts (1).

Tighten

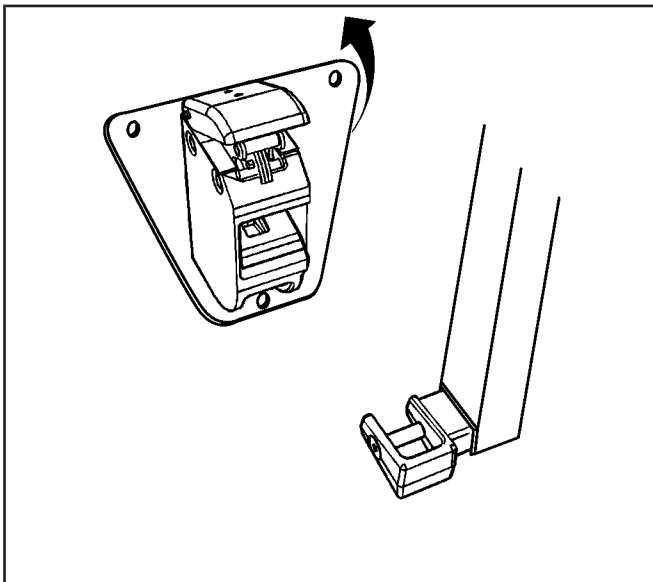
Tighten the upper pivot mount bolts to 97 N·m (72 lb ft).

4. Remove the pivot bolt and install the spare tire carrier. Refer to *Spare Tire Carrier Replacement (In Vehicle)* or *Spare Tire Carrier Replacement (Bed Mounted)* or *Spare Tire Carrier Replacement (Swing Away)*.

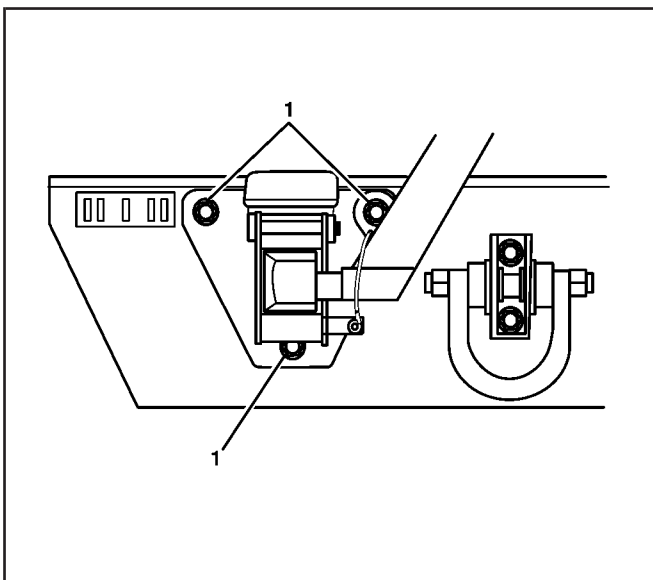
Spare Tire Carrier Latch Replacement (Swing Away)

Removal Procedure

1. Unlatch and open the spare tire carrier swing arm.



1696173

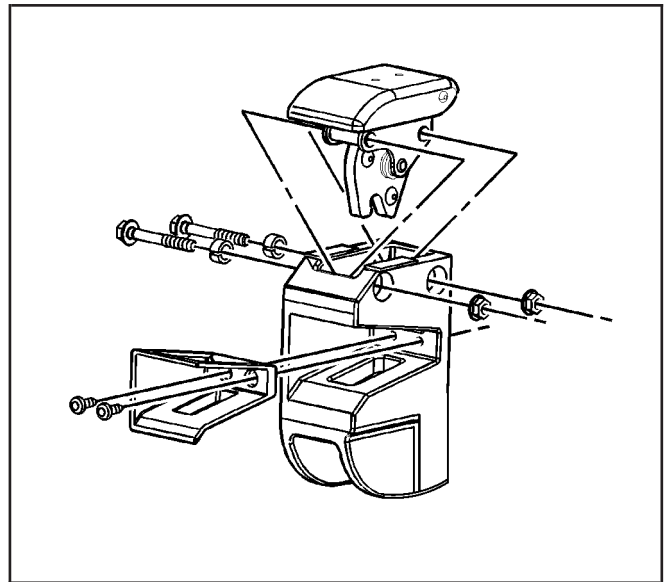


1696176

2. Remove the bolts (1) securing the latch to the bumper.
3. Remove the latch from the vehicle.

Disassemble Procedure

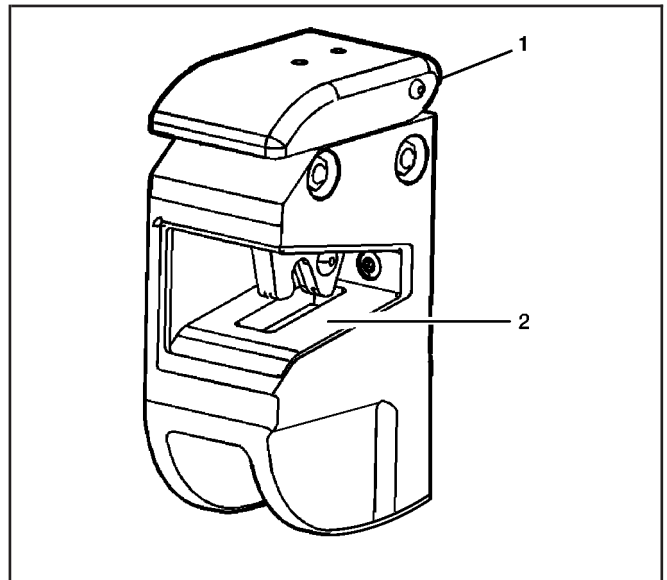
1. Remove the latch mechanism bolts, nuts, and spacers.
2. Remove the latch mechanism.
3. Remove the latch mechanism isolator bolts.
4. Remove the latch mechanism isolator.



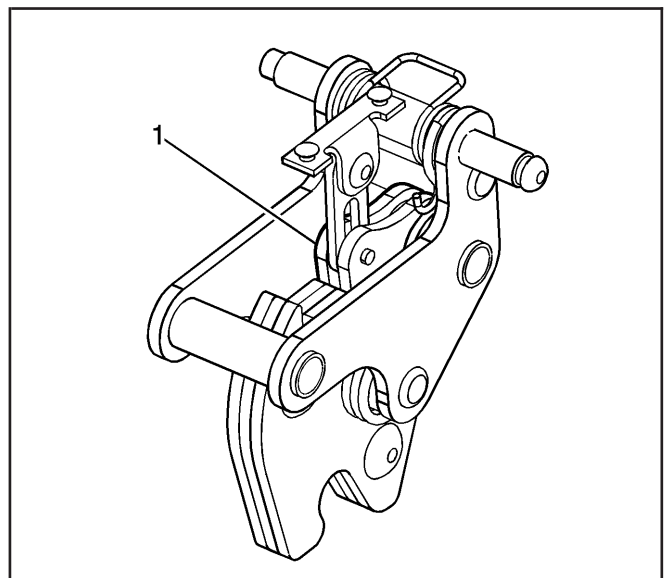
1696178

Service/Maintenance Information

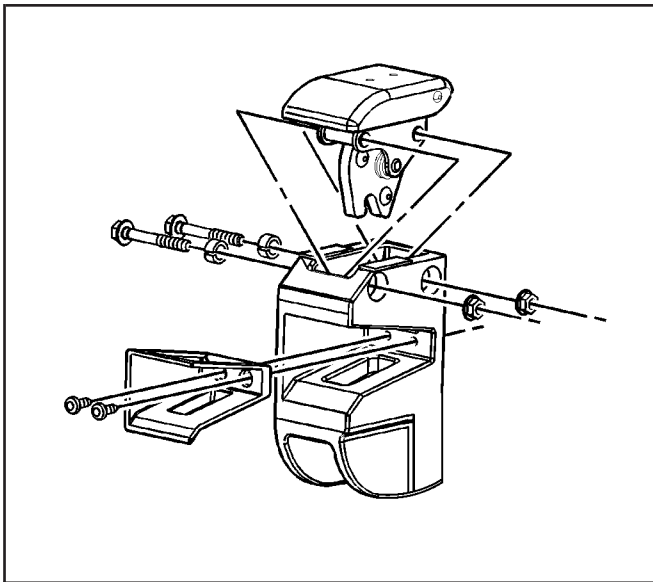
1. Check the latch isolator (2) for damage, replace as required.
 2. Thoroughly clean the latch casting surfaces and bond the NEW isolator in place using Loctite Black Max 380[®] adhesive or equivalent.
-
3. Check for operation and apply Teflon dry lube GM P/N 12371287 (Canadian P/N 10953437) to the latch mechanism (1) as required.



1696179



1504091



1696178

Assembly Procedure

1. Install the latch mechanism isolator, if necessary.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the latch mechanism isolator screws.

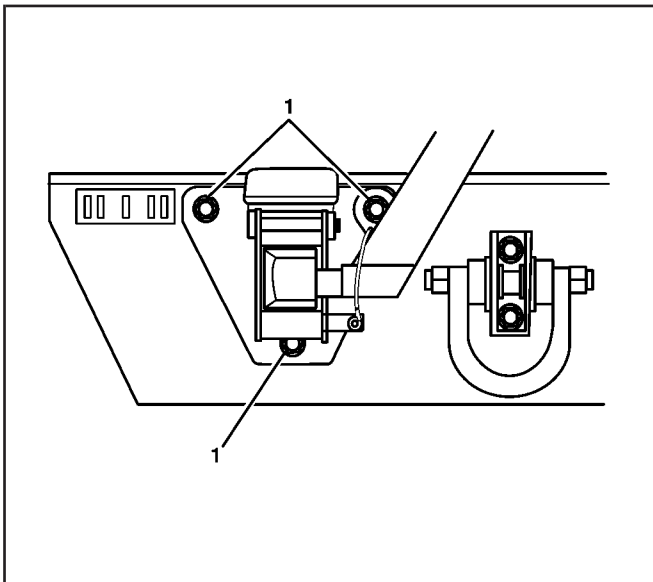
Tighten

Tighten the screws to 9 N·m (80 lb in).

3. Install the latch mechanism, if necessary.
4. Install the latch mechanism bolts, spacers, and nuts.

Tighten

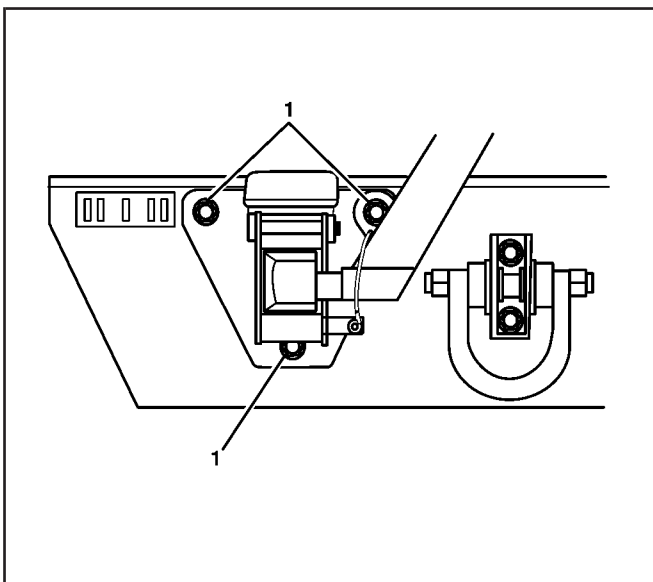
Tighten the bolts to 25 N·m (18 lb ft).



1696176

Installation Procedure

1. Install the latch bolts (1) on the bumper. Ensure that the secondary latch cable is also installed and is facing down.
2. Adjust the carrier latch. Refer to *Spare Tire Carrier Latch Adjustment (Swing Away)*.
3. Close and ensure that the spare tire carrier is latched.



1696176

Spare Tire Carrier Latch Adjustment (Swing Away)

1. Loosen the latch bolts (1).
2. Swing the carrier into the latch pocket so the striker pin touches the latch mechanism.

3. Insert a shim (1) between the striker bottom and the latch pocket.
4. Early carriers with a red striker sleeve will require a 5 mm (0.20 in) shim, all other carriers with a yellow sleeve will require a 3 mm (0.12 in) shim.

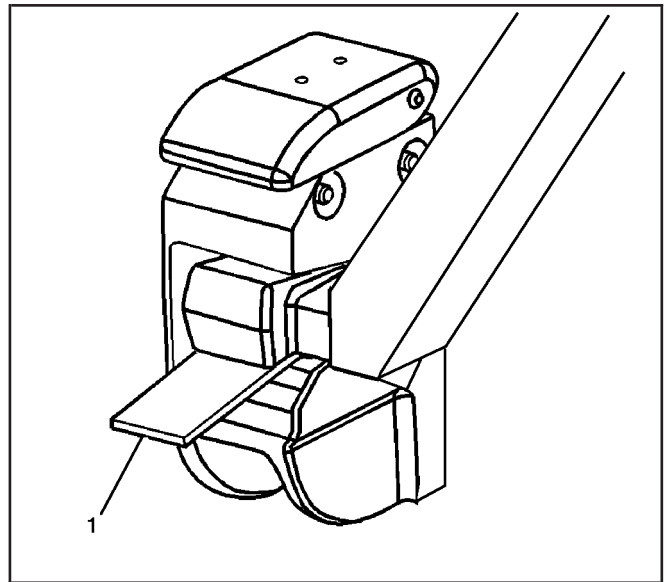
Notice: Refer to *Fastener Notice* in Cautions and Notices.

5. Secure the latch bolts, ensure that the cable tether is facing down.

Tighten

Tighten latch bolts to 97 N·m (72 lb ft).

6. Remove the shim (1). The carrier is now aligned and ready for use.



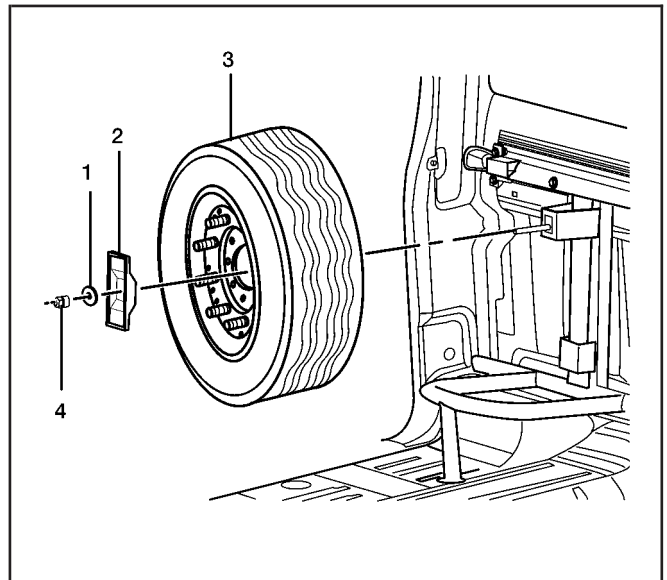
1696177

Spare Tire Replacement (In Vehicle)

Removal Procedure

Caution: Be careful not to drop tire and wheel assemblies on your hands and feet. Lift properly, using your legs as well as your body. Tires and wheels are heavy and can cause injury if not handled correctly.

1. Remove the wheel nut (4) and washer (1).
2. Remove the spare tire retainer (2).
3. With the aid of an assistant remove the spare tire (3) from the vehicle.



1697958

Installation Procedure

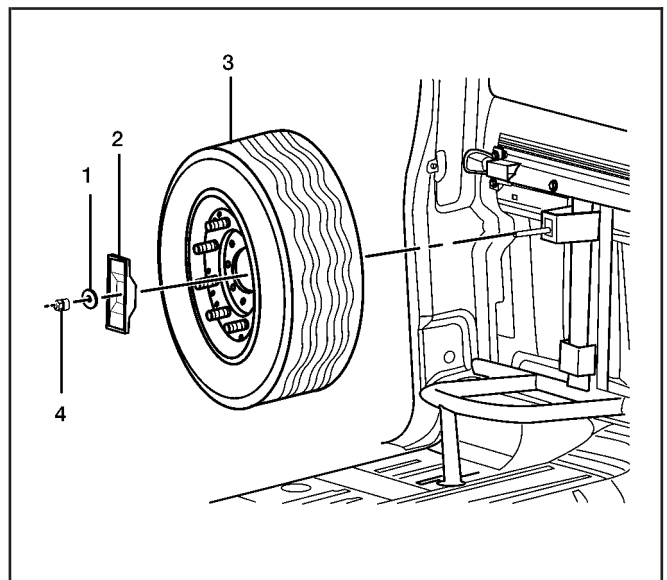
1. With the aid of an assistant, place the tire (3) into the carrier.
2. Install the retainer (2).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the washer (1) and wheel nut (4).

Tighten

Tighten the nut to allow a minimum of 5 visible threads on the stud.



1697958

Description and Operation

General Description

The spare tire is located under the rear end of non EMP vehicles. For exact locations refer to the 2005 LSSV Owners Manual Supplement.

The hoist shaft allows a link between the tire hoist and the rear bumper. The factory spare tire hoist tools are used to remove the spare. An access hole in the rear of the bumper is provided to allow access. If the tire hoist is damaged it must be replaced.

Refer to *Tire Hoist and Shaft Replacement* in Tires and Wheels in the 2005 C/K Truck Service Manual.

EMP vehicles spare tire can be mounted in three different locations depending on vehicle content. The locations are as follows:


- In vehicle, behind the passenger front seat
- In the front right corner of the large area
- On the rear bumper on a swing away mount

Tires Description

The beadlock system can only be used on multiple-piece wheels. This device fits securely between the tire beads and positively locks the tire to the wheel rim flange. Beadlocks allow vehicle operations at the low tire air pressure conditions required for better mobility in mud, sand and snow. By reducing the air pressure, the tire footprint is increased significantly, thus allowing a greater area of traction or contact. The beadlock also performs as a safety device to insure that the tire does not “unseat” from the rim or rotate on the wheel at these low air pressure settings, while also preventing the entry of foreign objects, debris or water into the tire’s air chamber. It is used in conjunction with the tire pressure monitoring system.

The replacement tire for the beadlock rim is a LT 285/75 R16 Goodyear.

Special Tools and Equipment

Illustration	Tool Number/ Description
	<p data-bbox="1258 884 1391 921">D528235-H1 Run Flat Lubricant</p>

Tire Pressure Monitoring

Schematic and Routing Diagrams

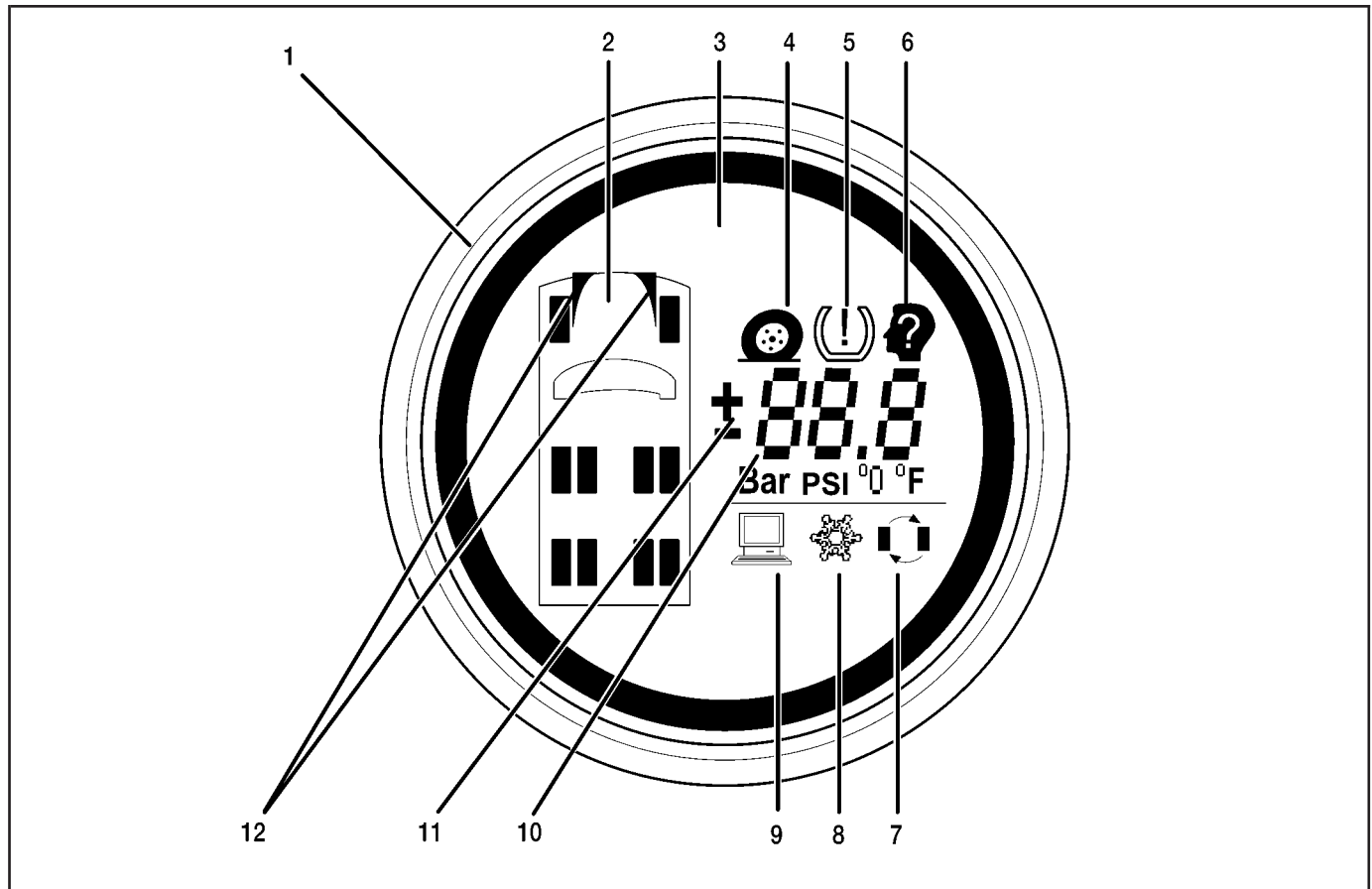
3-32 Tire Pressure Monitoring



Component Locator

Tire Pressure Monitoring System Component Views

Monitoring Gage

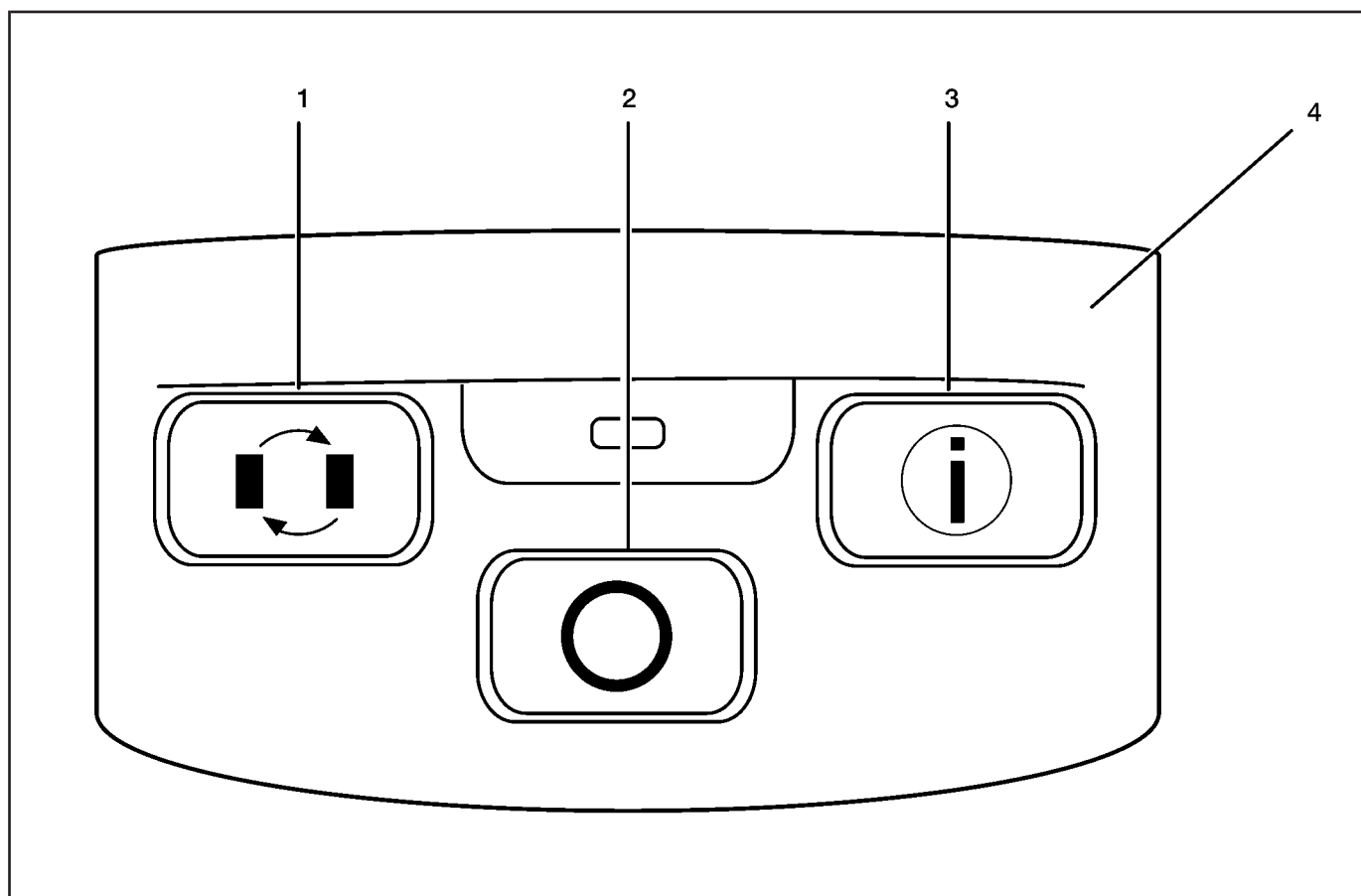


1641375

Legend

- | | |
|-------------------------------|---------------------------------------|
| (1) Function Display Gage | (7) Tire Rotation Program |
| (2) Programmed Wheel Position | (8) Cold Pressure Program |
| (3) Alarm Light | (9) Programming Mode |
| (4) Low Pressure Indicator | (10) Units of Pressure or Temperature |
| (5) Alert Indicator | (11) Numerical Display |
| (6) Learn Mode | (12) Towing Vehicle Indicator |

Switch Panel



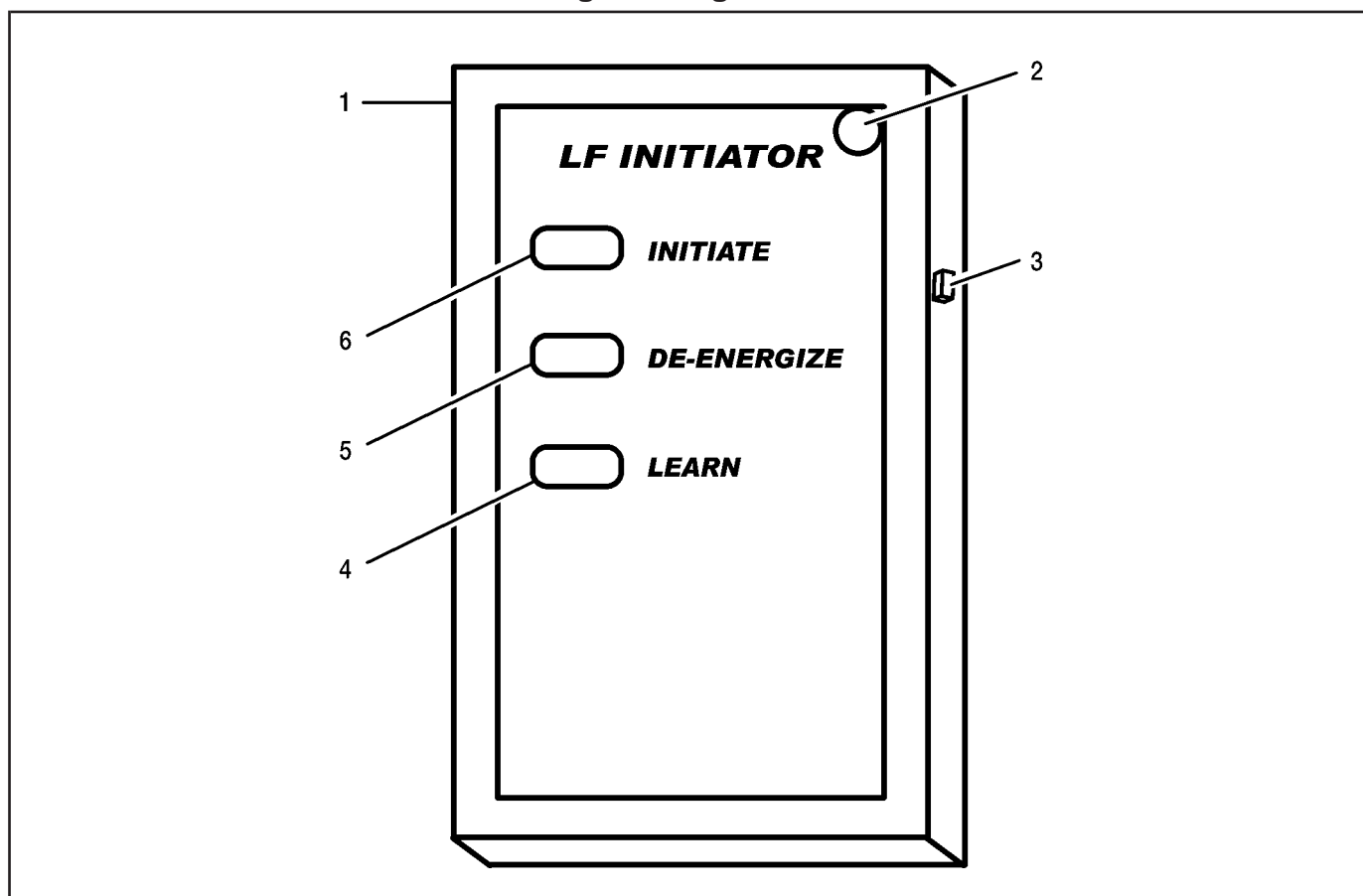
1692802

Legend

- (1) Learn Mode
- (2) Set Button

- (3) Mode Button
- (4) System Switch Panel

Programming Initiator



1693366

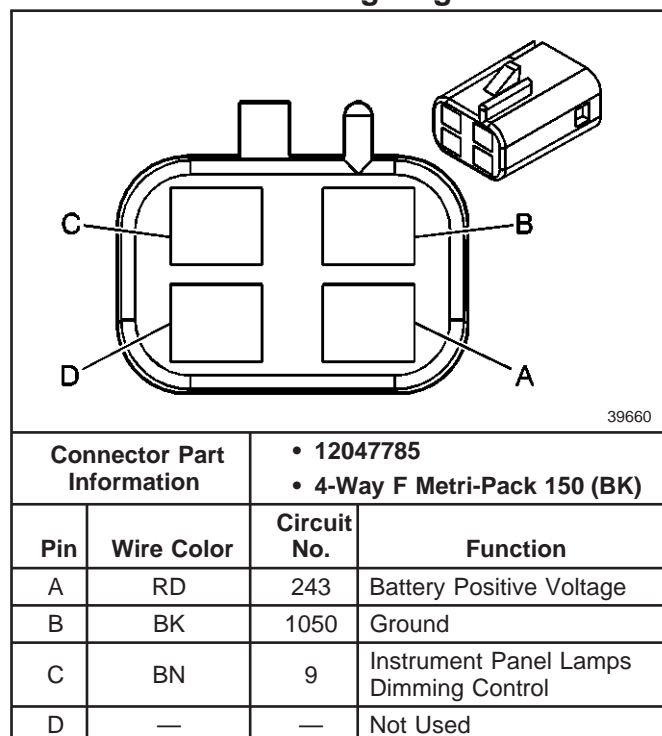
Legend

- (1) Programming Initiator
- (2) Status LED
- (3) ON/OFF Switch

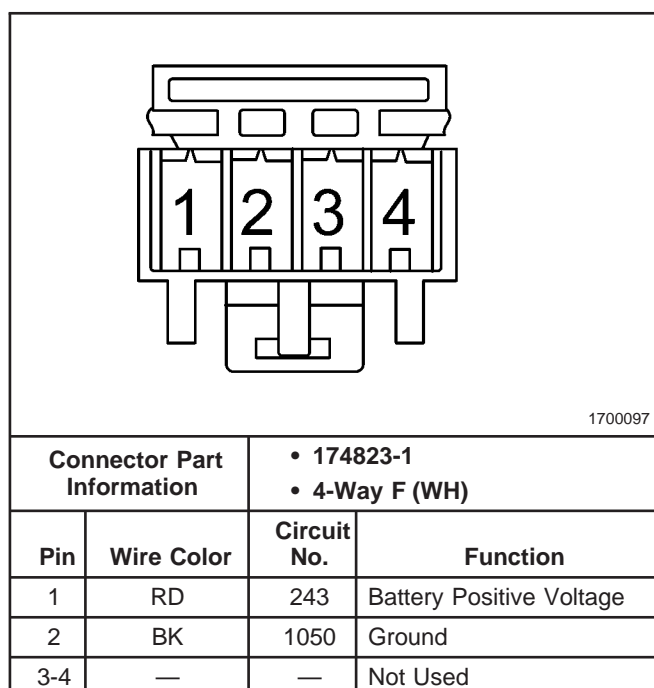
- (4) Learn Button
- (5) De-Energize Button
- (6) Initiate Button

Tire Pressure Monitoring System Connector End Views

Monitoring Gage



Receiver



Diagnostic Information and Procedures

DTC E1

Conditions for Setting the DTC

This DTC indicates that there may be broken tire sensors or a malfunctioning receiver unit. Mismatches in tire sensor ID may also cause this problem.

DTC E1

DTC	Component	Symptom	Action(s)
E1	Sensor(s) receiver	<ul style="list-style-type: none"> • Not Transmitting • RF Section Malfunction 	If no transmission received within 5 minutes of driving, contact dealer

DTC E2

Conditions for Setting the DTC

This DTC indicates that there is a problem with the data in the receiver and/or display units. Causes of this DTC can include:

- Corrupted custom profile
- Corrupted factory profile

The following may help identify the problem better.

Power the unit OFF and ON.

If the DTC has cleared — Operating with the incorrect settings. Contact dealer.

If the DTC persists — Receiver or display may have to be replaced.

DTC E2

DTC	Component	Symptom	Action(s)
E2	Receiver and/or display	EEPROM Fault	Contact Dealer

DTC E3

Conditions for Setting the DTC

These DTCs will usually represent an internal fault.
Try powering the unit OFF and ON to clear these DTCs. If these DTCs continuously occur the unit may have to be replaced.

DTC E3

DTC	Component	Symptom	Action(s)
E3	Receiver and/or display	Oscillator Fault	Contact Dealer

DTC E4

Conditions for Setting the DTC

These DTCs will usually represent an internal fault.
Try powering the unit OFF and ON to clear these DTCs. If these DTCs continuously occur the unit may have to be replaced.

DTC E4

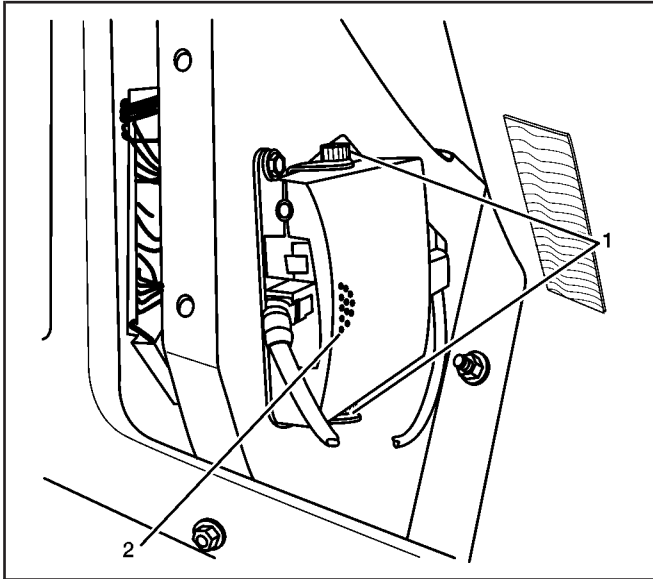
DTC	Component	Symptom	Action(s)
E3	Receiver and/or display	Internal Bus Fault	Contact Dealer

Repair Instructions

Tire Pressure Monitoring Receiver Replacement

Removal Procedure

1. Remove the I/P knee bolster panel. Refer to *Knee Bolster Replacement* in Instrument Panel, Gages and Console in 2005 C/K Truck Service Manual.
2. Disconnect the power cable from the receiver.
3. Disconnect the display cable from the receiver.
4. Remove the screws (1) and remove the receiver (2).



1692811

Installation Procedure

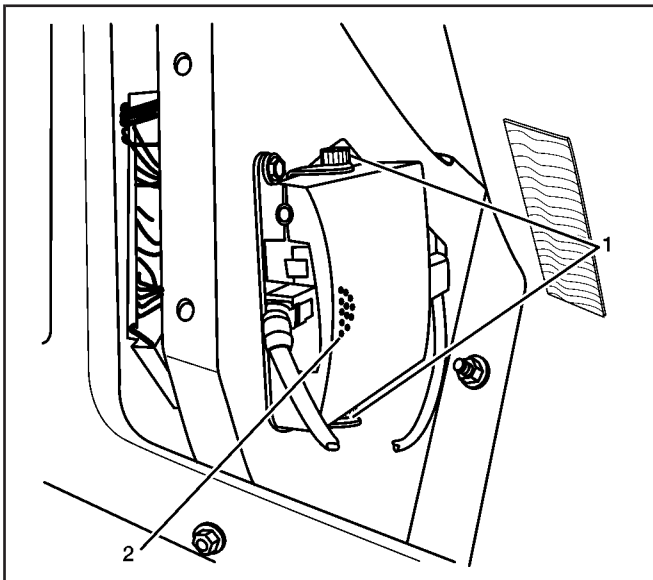
Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the receiver (2) into the bracket and install bolts (1).

Tighten

Tighten the bolts to 0.8 N·m (7 lb in).

2. Connect the display cable into the receiver.
3. Connect the power cable into the receiver.
4. Install the I/P knee bolster panel. Refer to *Knee Bolster Replacement* in Instrument Panel, Gages and Console in 2005 C/K Truck Service Manual.
5. Program the TPMS. Refer to *Tire Pressure Monitoring Sensor Programming*.

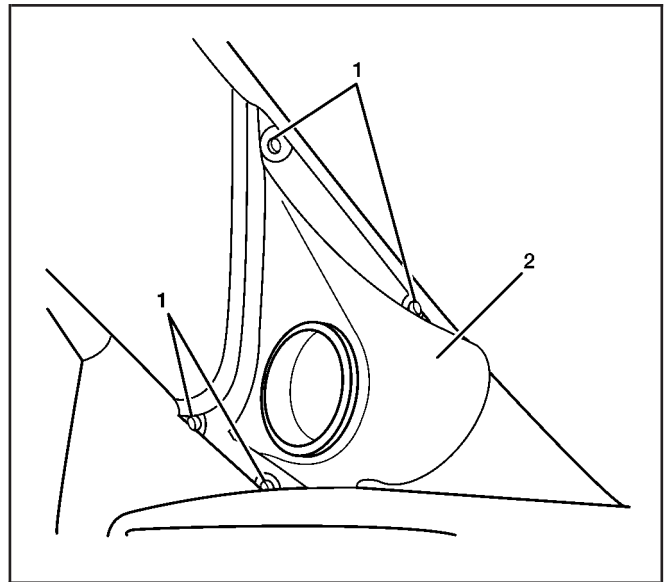


1692811

Tire Pressure Monitoring Gage Replacement

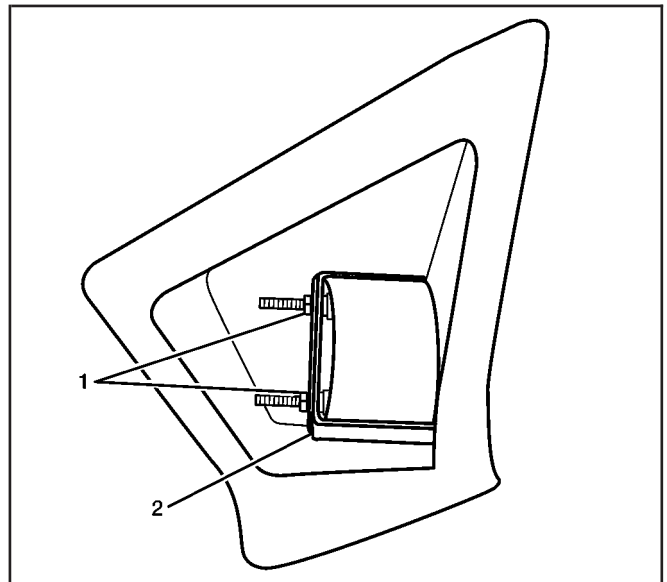
Removal Procedure

1. Remove the garnish molding. Refer to *Garnish Molding Replacement - Windshield Pillar* in Interior Trim in 2005 C/K Truck Service Manual.
2. Remove the push pins (1) from the gage housing.
3. Pull the housing (2) out enough to remove the gage electrical connectors.
4. Remove the housing from the vehicle



1693468

5. Remove the nuts (1) from the back of the gage.
6. Remove the gage bracket (2).
7. Remove the gage from the housing.



1693469

Installation Procedure

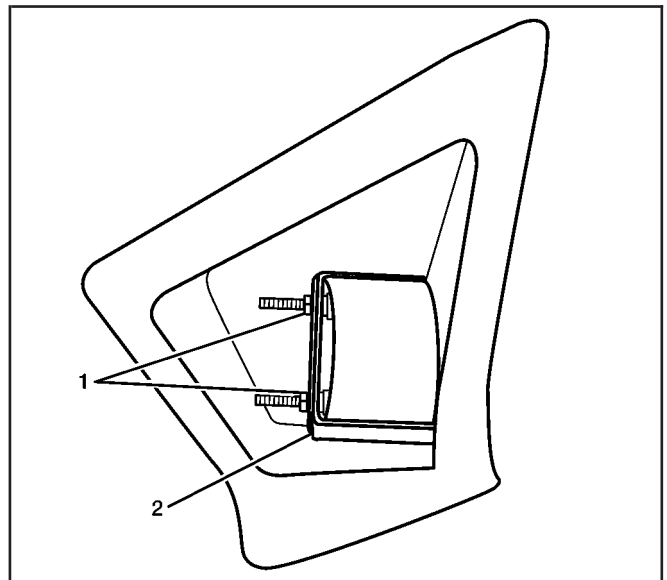
1. Install the gage into the housing opening.
2. Install the bracket (2) on the back of the voltmeter.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

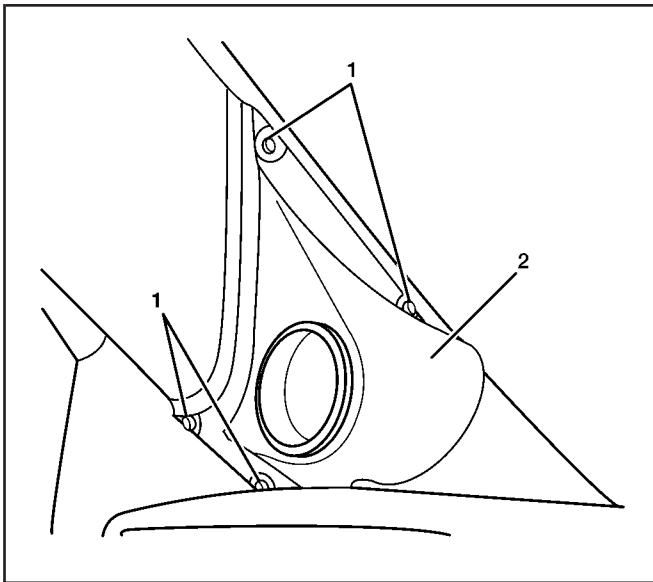
3. Install the nuts (1) on the gage studs.

Tighten

Tighten the bolts to 0.8 N·m (7 lb in).



1693469



1693468

4. Install the electrical connectors onto the gage.
5. Install the housing (2) onto the A pillar molding and install the push pins (1).
6. Remove the garnish molding. Refer to *Garnish Molding Replacement - Windshield Pillar* in Interior Trim in 2005 C/K Truck Service Manual.

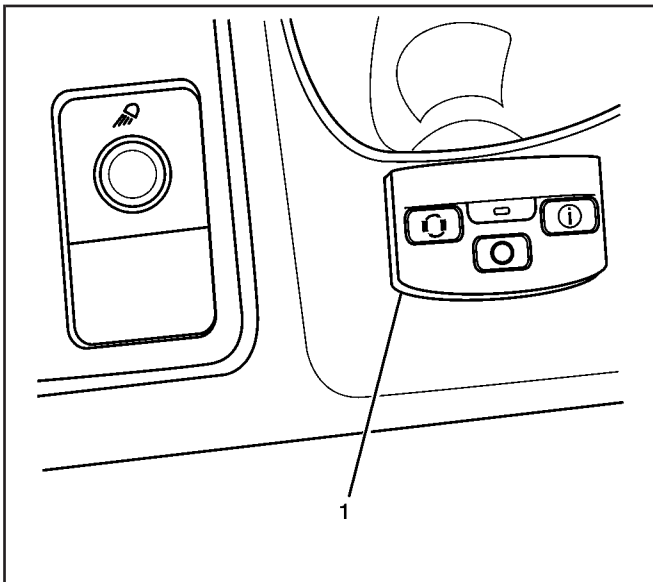
Tire Pressure Monitoring Switch Panel Replacement

1. Remove the I/P knee bolster panel. Refer to *Knee Bolster Replacement* in Instrument Panel, Gages and Console in 2005 C/K Truck Service Manual.
2. Disconnect the switch panel cable from the receiver.
3. Remove any wiring harness straps securing the cable to the vehicle.

Note position of straps for reinstallation.

4. Pull the switch Panel off of the instrument panel cluster (IPC) trim plate bezel.
5. Remove the switch panel (1), routing panel cable through the hole in the IPC bezel.

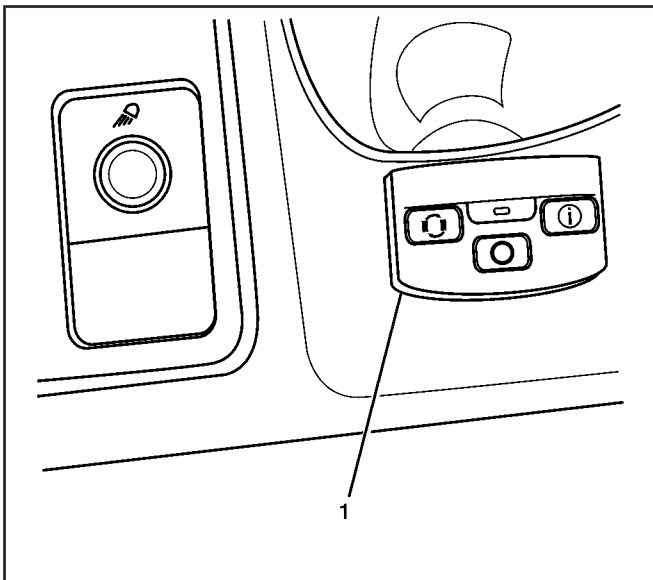
Note cable routing position for reinstallation.



1693471

Installation Procedure

1. Apply Velcro strip to the back of the new switch panel.
2. Install the switch panel (1), routing panel cable through the hole in the IPC bezel in the same locations as removed.
3. Press the switch panel in place on the instrument panel cluster (IPC) trim plate bezel.
4. Connect the switch panel cable to the receiver and secure with wiring harness straps in the same locations as removed.
5. Install the I/P knee bolster panel. Refer to *Knee Bolster Replacement* in Instrument Panel, Gages and Console in 2005 C/K Truck Service Manual.
6. Verify correct operation of the Tire Pressure Monitoring System.



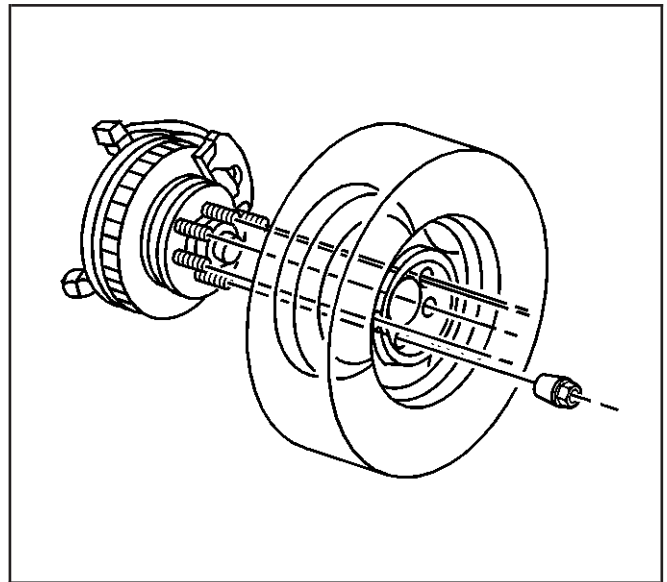
1693471

Tire Pressure Monitor Sensor Replacement

Removal Procedure

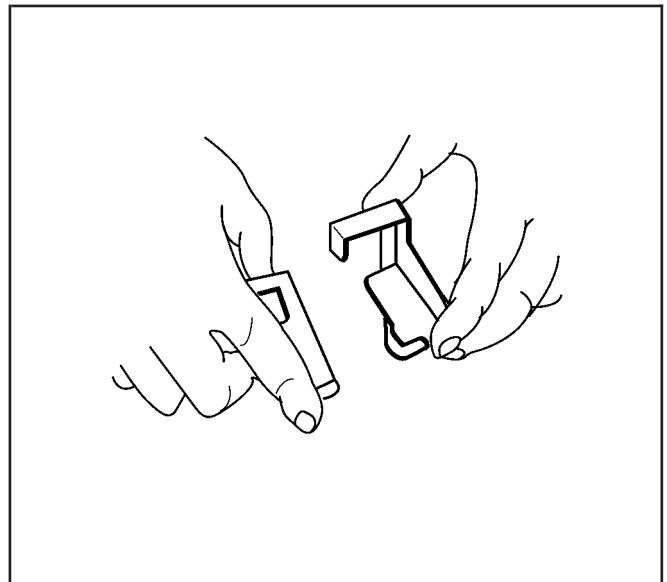
Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the affected wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
3. Remove the pressure transmitter sensor assembly. Refer to *Tire Mounting and Dismounting (Beadlock)* in Tires and Wheels.



1698015

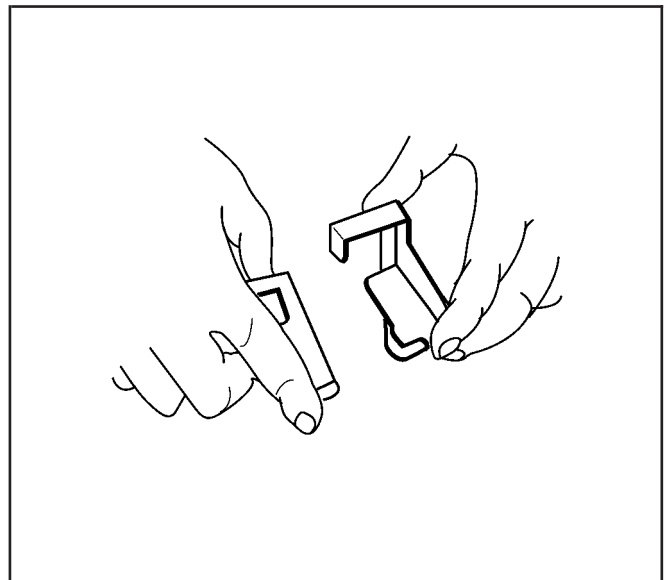
4. Separate the transmitter sensor from the bracket.
5. Inspect all parts and replace as needed.



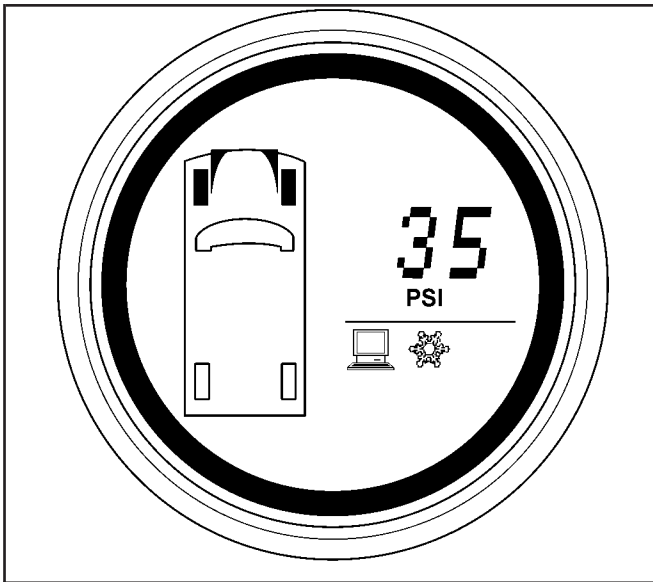
1698016

Installation Procedure

1. Install the transmitter sensor into the bracket.
2. Install the pressure transmitter sensor assembly. Refer to *Tire Mounting and Dismounting (Beadlock)* in Tires and Wheels.
3. Install the tire. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
5. Program the system. Refer to *Tire Pressure Monitoring Sensor Programming*.



1698016



1641503

Tire Pressure Monitoring Sensor Programming

Entering Programming Modes

1. Ensure the power is turned on.
2. Press and hold set button in normal mode to enter programming modes.
 - 2 seconds for Level 1
 - 5 seconds for Level 2

Level 1

Cold Inflation Pressure

Important: This function changes the cold inflation pressure for each axle.

For tire pressure setting specifications refer to *Tire Inflation Pressure Specifications* in Maintenance and Lubrication.

Factory default 35 psi (2.41 Bar).

1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. Press the TIRE button to scroll to the desired axle. The tires of the selected axle are filled in.
3. Press the MODE button to view the current value.
4. Press the TIRE button to increase the value.
5. Press the MODE button to decrease the value.
6. Press the SET button to save when the desired value is reached.

Important: Repeat programming steps 2-6 until Cold Inflation Pressure levels are set for all axles as desired.

7. Press the SET button to exit.
8. Press the SET button again to revert to normal view.

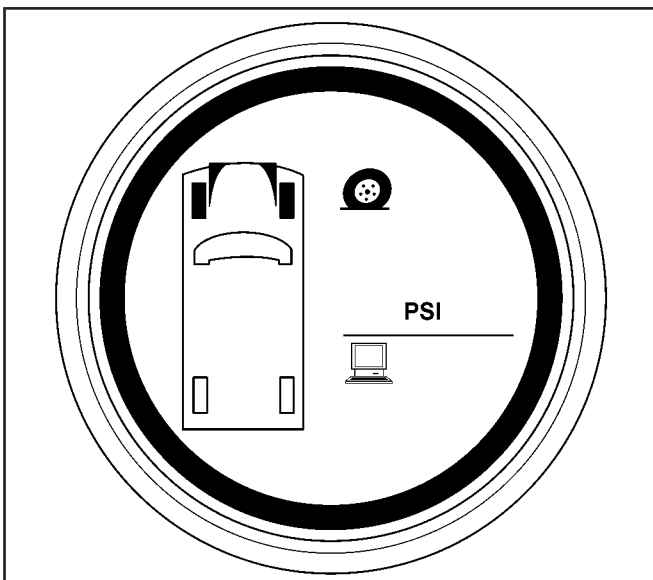
Low Pressure Warning

Important: This function changes to low-pressure warning threshold for each axle.

For tire pressure setting specifications refer to *Tire Inflation Pressure Specifications* in Maintenance and Lubrication.

Factory default 18 psi (1.24 Bar).

1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. To enter this function press the MODE button until the flat tire icon and pressure units are displayed.
3. Press the TIRE button to scroll to the desired axle. The tires of the selected axle are filled in.

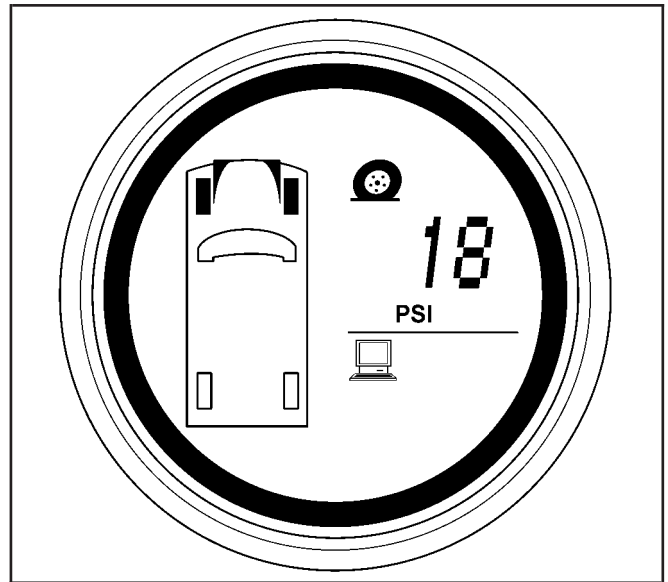


1641537

4. Press the MODE button to view the current value.
5. Press the TIRE button to increase the value.
6. Press the MODE button to decrease the value.
7. Press the SET button to save when the desired value is reached.

Important: Repeat programming steps 2-7 until Low-Pressure warning levels are set for all axles as desired.

8. Press the SET button to exit.
9. Press the SET button again to revert to normal view.



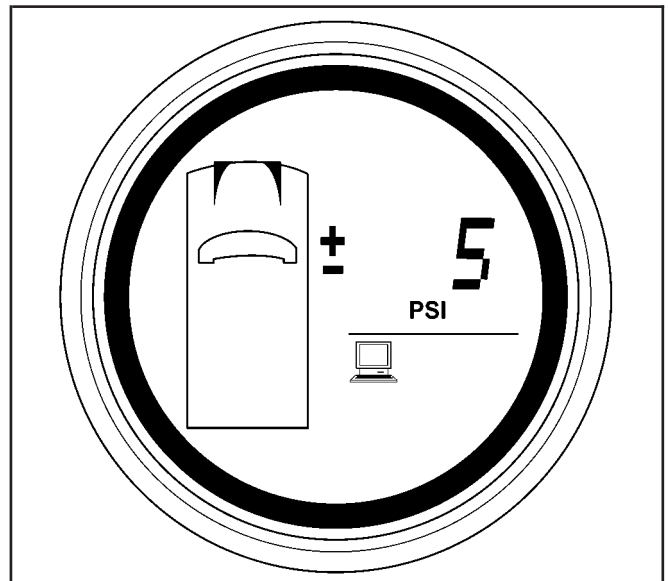
1641549

Pressure Deviation Alert

Important: This function sets the pressure deviation alert threshold for all tires.

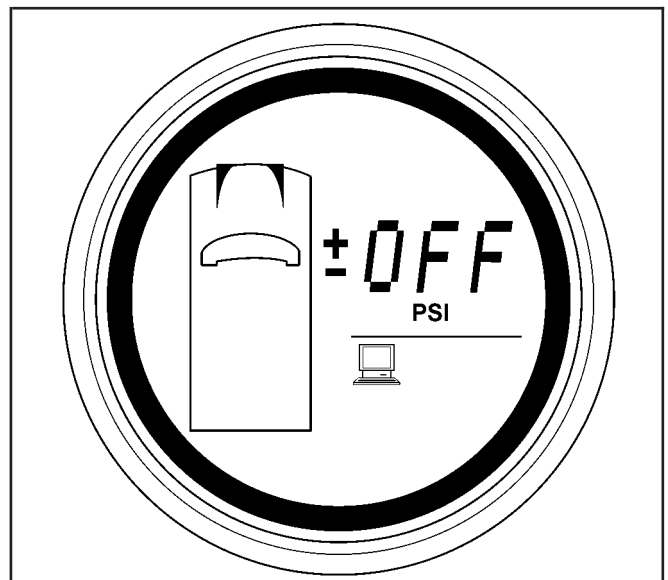
Factory Default 5 psi (34 Bar).

1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. To enter this function press the MODE button until the + - icon and pressure units are displayed.
3. Press the TIRE button to scroll to the desired axle. The tires of the selected axle are filled in.
4. Press the MODE button to enter and display the current value.
5. Press the TIRE button to increase the value.
6. Press the MODE button to decrease the value.

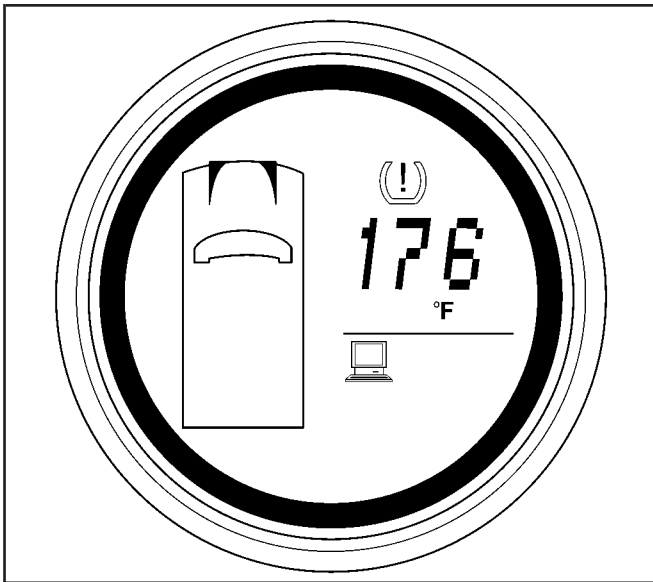


1641550

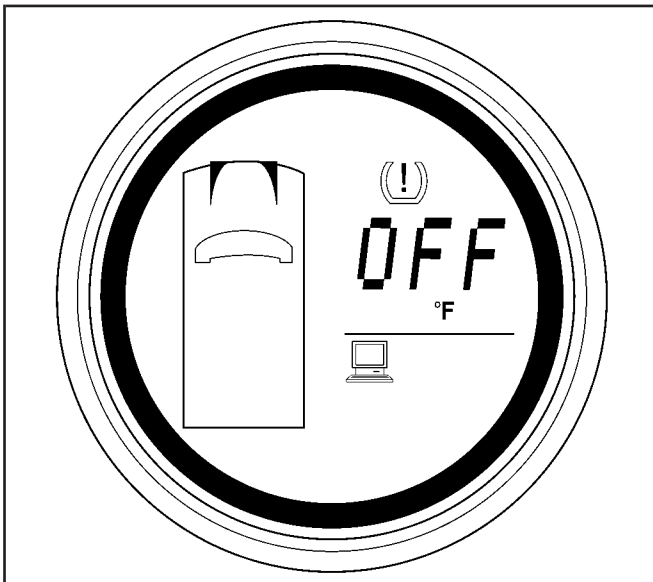
7. Press the MODE button until the display shows OFF to disable this feature.
8. Press the SET button to save when the desired value is reached.
9. Press the SET button again to revert to normal view.



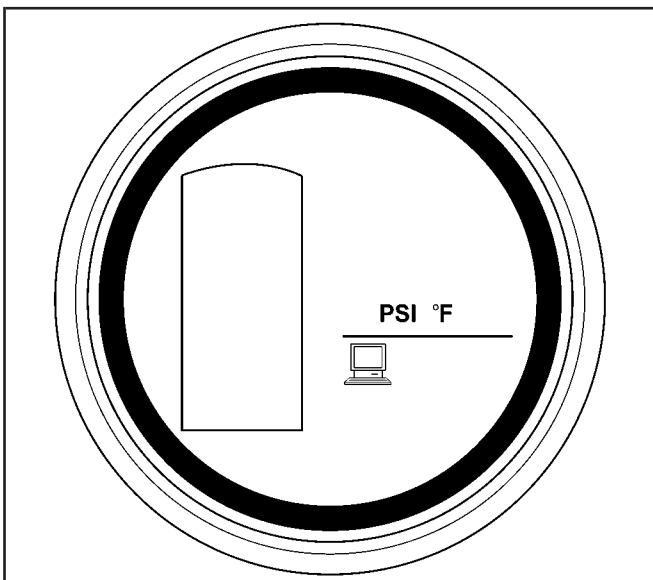
1641551



1641552



1641554



1641555

High Temperature Alert

Important: This function changes the high-temperature alert threshold.

Factory Default 80°C (176°F).

1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. To enter, press the MODE button until the alert icon and temperature until are displayed.
3. Press the TIRE button to enter and display the current value of High Temperature Alert.
4. Press the TIRE button to increase the value.
5. Press the MODE button to decrease the value.
6. To disable this feature press the MODE button until the display reads OFF.
7. Press the SET button to save and exit this mode when the desired value is reached.
8. Press the SET button again to revert to normal mode.

Metric or Imperial Measurement Selection

Important: Use this mode to select the combination of pressure and temperature units.

Unit Combinations are PSI - °F, Bar - °F, Bar - °C, psi - °C

Programming Steps

1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. To enter this function press the MODE button until the pressure and temperature units are displayed (psi/Bar, °C/°F).
3. Press the TIRE button to enter.
4. Use the TIRE or MODE button to scroll through the four combinations of the unit settings.

5. When the desired combination is displayed press the SET button to save and exit this mode.
6. Press the SET button again to revert to normal mode.

Tire Rotation

Important: This function is used after the tires are rotated and the new position needs to be updated. This procedure is valid for four tire locations only.

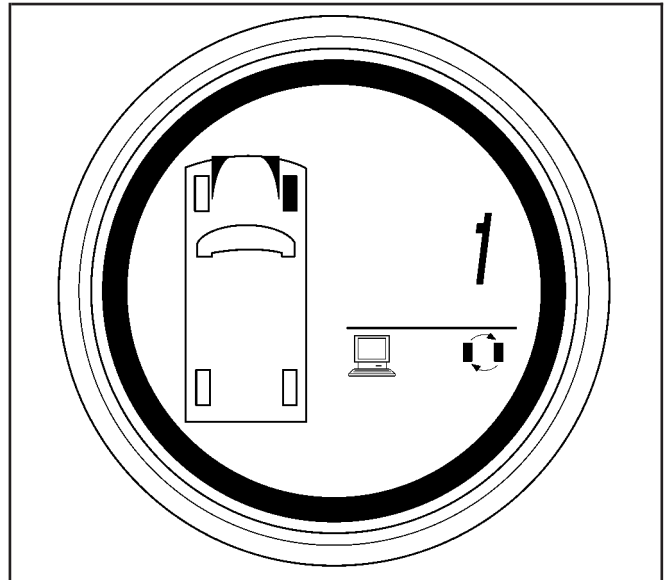
1. Enter Level 1 Programming Mode. Refer to Entering Programming Modes.
2. To enter, press the MODE button until the tire rotation icon is displayed.
3. Press the TIRE button to scroll to a tire position.

Important: The current tire position number will be displayed.

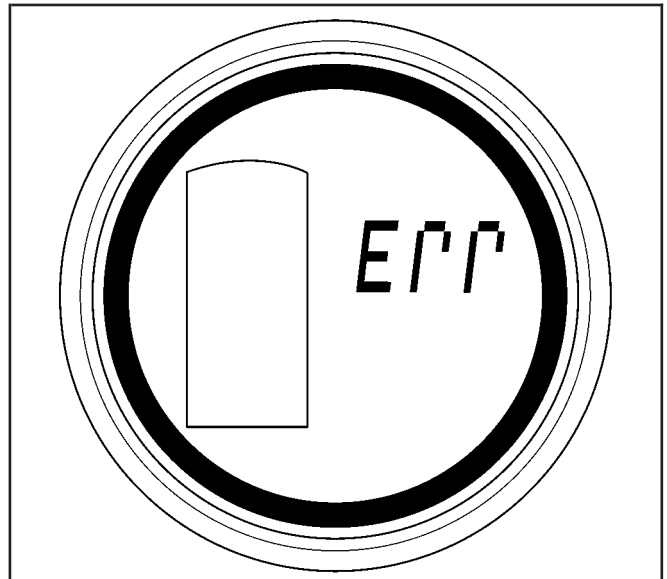
4. Press the MODE button to select it for editing.
5. Use the TIRE or MODE button to adjust the value to the number determined in step 4.
6. Press the SET button when the number representing the desired sensor is achieved. This returns the display to the tire selection menu. Scroll to a different tire location and edit the sensor numbers as above.
7. Press the SET button to save and exit this mode.

Important: If more than one tire location contains the same sensor number, the display will prompt an error with the conflicting tires filled in and the associated sensor number.

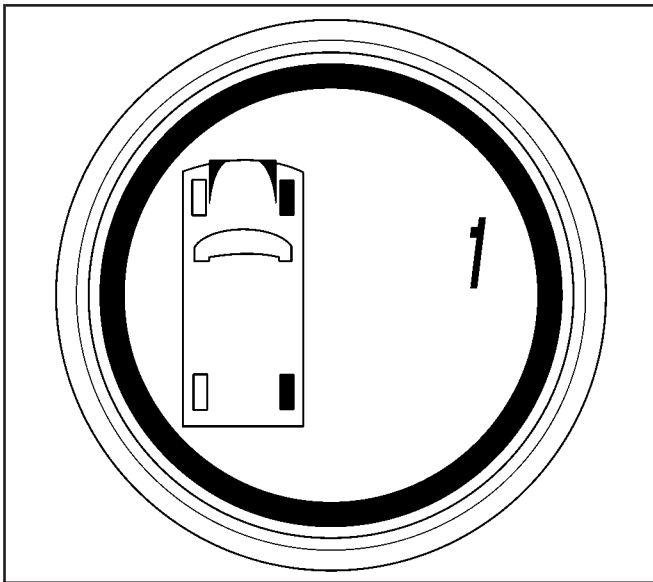
8. Press any button to return the tire selection menu and make necessary corrections.



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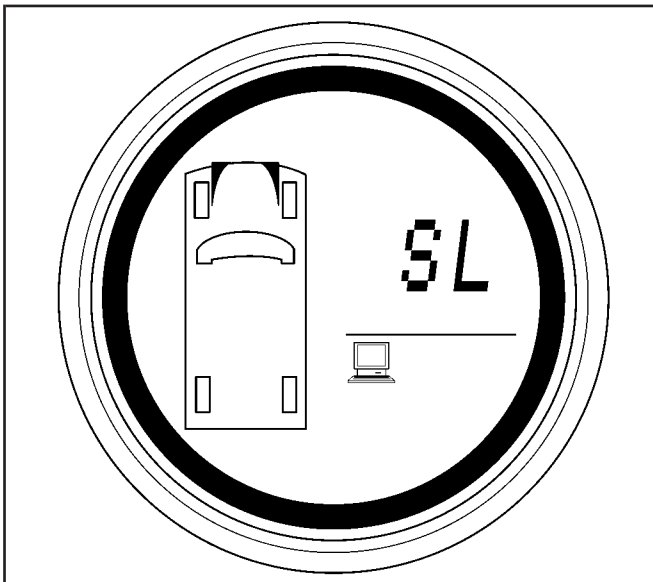
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Important: This display indicates that ID 1 is programmed in two locations causing the error.

9. Press the SET button again to revert to normal mode.



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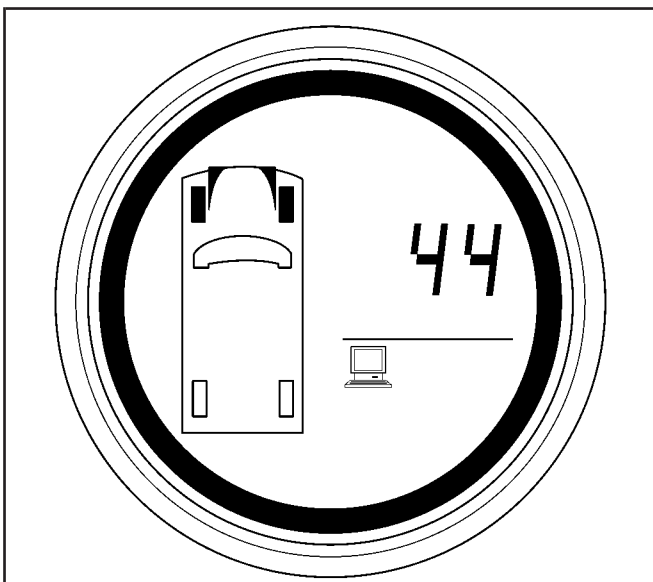
Level 2

Slope

For Tire Pressure Setting Specifications refer to *Tire Inflation Pressure Specifications* in Maintenance and Lubrications.

Important: Factory Default 44. The slope is a value corresponding to the rate of pressure change due to temperature for a particular tire. This value affects the calculation to determine pressure deviation value.

1. Enter Level 2 Programming Mode. Refer to Entering Programming Modes.
2. Press the TIRE button to scroll to the desired axle, the tires of the selected axle are filled in.
3. Press the MODE button to display the current value of slope for the selected axle.



1641562

4. Press the TIRE button to increase the value.
5. Press the MODE button to decrease the value. The minimum value is 10 and the maximum is 160.
6. Press the SET button to save the value.

Important: Repeat steps 2-6 until the slope level is set for all axles desired.

7. Press the SET button to exit.
8. Press the SET button again to revert to normal mode.

Learn Mode

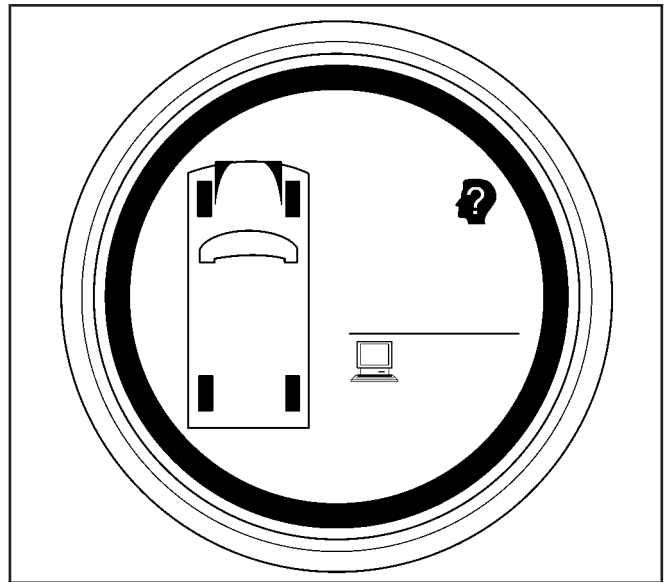
Important: This mode is used to add or remove transmitters from the system.

Learn Procedure W/O Special Tool

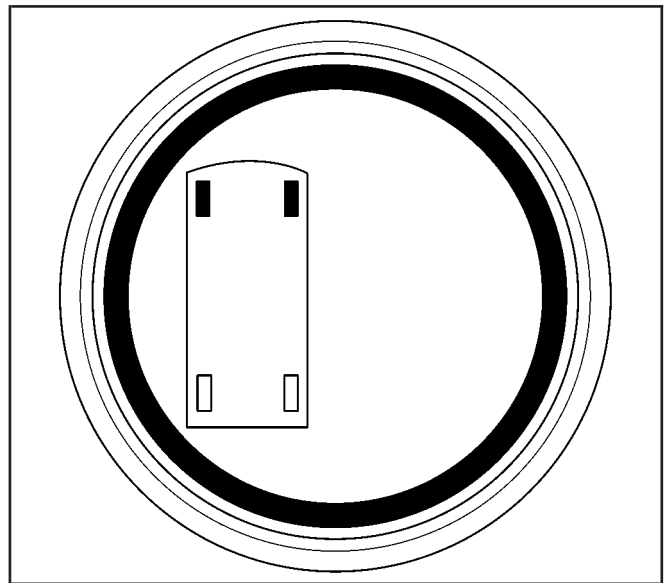
1. Enter Level 2 Programming Mode. Refer to Entering Programming Modes.
2. Press the MODE button to select the learn mode icon.
3. Press the TIRE button to display the ten possible wheel positions for the towing vehicle. The currently installed transmitter positions are now indicated with a filled in tire indicator.
4. Use the TIRE button to scroll to the desired position. The outline of the wheel position to be programmed will flash.
5. A new transmitter identification can be learned in two ways:
 - Vigorously shake the transmitter to provoke a transmission.
 - By inflating or deflating the tire by more than 3 psi (0.2 Bar).
6. To remove the transmitter from the selected tire location, press the MODE button.

Important: To prevent the last identification from being erased, scroll to the next tire position before driving. A beep and rapid flashing of the alarm light indicate a transmission was received. The new ID is stored.

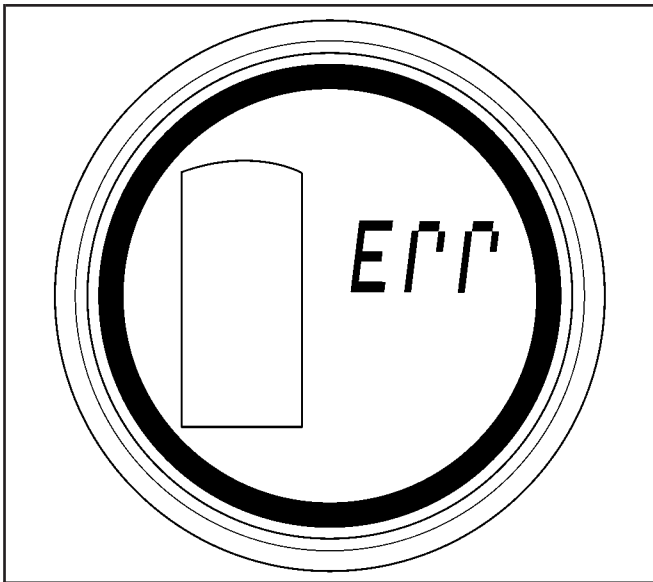
7. Press the TIRE button to scroll to another position and repeat step 4 or 5 as required.
8. Press the SET button to save and exit.



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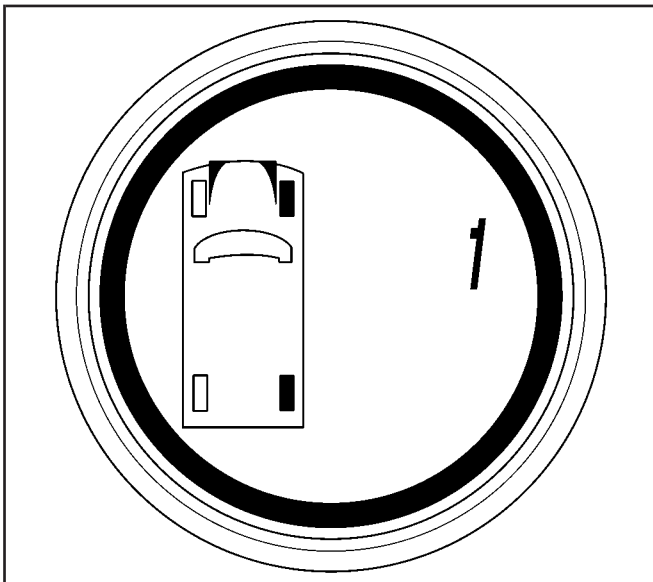


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If no error is found, the system will reset and go to normal mode. If more than one tire location contains the same sensor ID, the display will prompt an error and flash between this message and the display, with the conflicting tires filled in. If so indicated repeat the programming procedure above.



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Learn Procedure with Initiator

Tools Required

090.0006 Programming Initiator

Learn Mode Description

Important: To ensure proper operation, the Programming Initiator must be held facing the sensor for at least 5 seconds after the appropriate button is pressed. Sensors are normally located next to the valve. Hold the initiator against the tire and point it towards the sensor from a position slightly outside the rim flange.

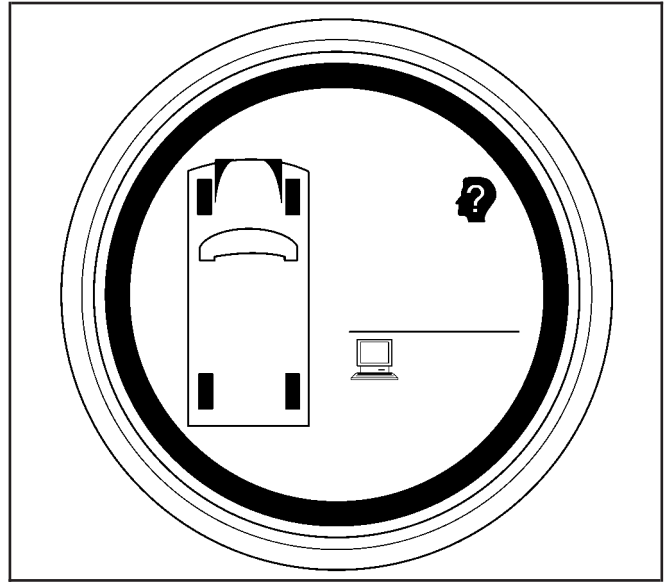
The receiver that is installed on the vehicles needs to have a unique sensor identification code for each wheel position programmed into it to ensure proper orientation of the system. Each wheel assembly has a sensor in it that can be activated using the initiator. When the sensor is activated, it sends out its unique identification code, which is then stored in the memory of the receiver so that it knows which sensors belong to that vehicle. The vehicle does not have to be moving to accomplish this task, which allows programming of receivers to be carried out very easily.

Learn Mode Calibration

1. Turn ON the ignition, with the engine OFF.
2. Apply the parking brake.

Important: Install the sensors on the wheels. Refer to *Tire Pressure Monitor Sensor Replacement*. If sensors are already installed on the vehicle, make sure the vehicle is stationary for 20 minutes before proceeding to step 3.

3. Turn ON the initiator, ensure the LED is green.
4. Enter Level 2 Programming Mode. Refer to *Tire Pressure Monitoring Sensor Programming*.
5. Press the MODE button to select learn mode, which is indicated by a head with a question mark icon.
6. Press the TIRE button to display the possible wheel positions for the towing vehicle (a windshield can also be seen to indicate that the towing vehicle is selected). The outline of the wheel position to be programmed will flash. If a sensor already exists in this position (the tire icon is filled in), it is recommended to remove the sensor by pressing the MODE button.

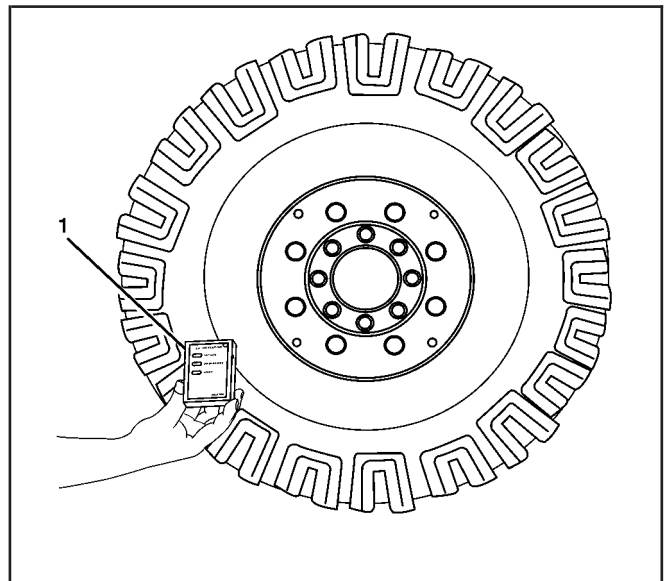


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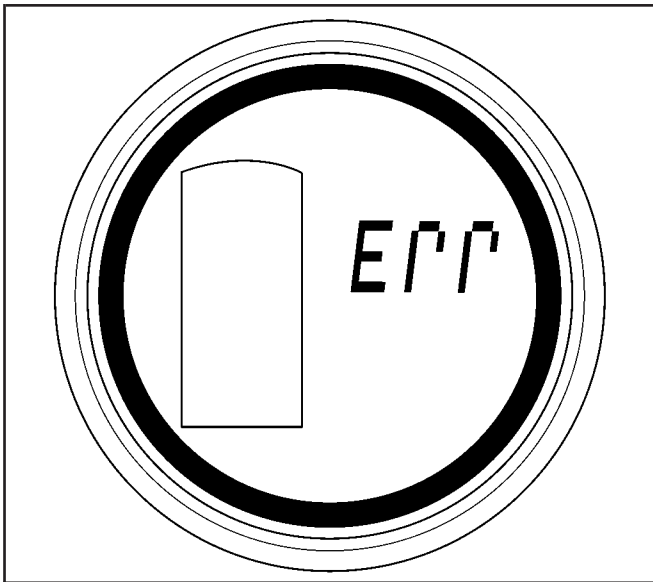
7. Determine the actual sensor location (normally located adjacent to the valve stem) on the wheel to be programmed. Position the initiator (1) against the tire's sidewall for that sensor location, press the LEARN button and hold the unit steady for at least 5 seconds. The flashing wheel icon on the gage display will become filled in when the sensor ID has been successfully captured by the receiver. (If this does not occur, repeat step 7.)

Important: Waiting too long to select the next tire position or exiting the LEARN mode increases the likelihood of inadvertently overwriting the recently learned sensor by receiving signals from other sensors installed on the vehicle or from other vehicles in close proximity.

8. If programming more sensors into the system, immediately select the next tire position on the gage display and repeat step 8 until all sensor ID numbers and their appropriate positions have been learned by the receiver.



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Important: If an ERR message is displayed together with flashing tire positions, those indicated positions have been programmed with the same sensor ID numbers. In this case, press the TIRE button on the system switch panel to re-enter the receiver LEARN mode and reprogram the sensor positions that were flashing.

9. Immediately exit the receiver LEARN mode by pressing the SET button on the system switch panel.

Verifying Correct Sensor Position

1. Turn ON the ignition, with the engine OFF.
2. Apply the parking brake.
3. Place the initiator next to each sensor position but this time press the INITIATE button to cause each sensor to transmit ID number and tire data to drive the vehicle above 6 mph.
4. If the correct tire sensor positions are not being received. Refer to Learn Procedure with Initiator.

Description and Operation

Tire Pressure Monitor Description and Operation

The system is a sensing device designated to identify and display tire operating data and activate an alert or warning when tire pressure or temperature irregularities are detected.

Tire Monitoring

The system consists of wheel mounted sensor/transmitters inside each tire which measure contained air pressure and temperature then transmit this data to a receiver within view of the driver.

System Operation

The system operates continuously, transmitting air pressure and temperature data.

Important: Use of Chemicals. Temporary resealing or reinflation products containing internal sealers or propellants in any tire/wheel assembly may adversely affect the operation of the Sensor/Transmitters.

- At approximately 5-minute intervals when the vehicle is moving faster than 10 kph (6 mph) unless pressure changes, then data is transmitted within 7 seconds.
- Every 15 minutes when the vehicle is parked and pressure drops to 18 psi (124 kPa) or lower.

Initiator Programming

Programming

The initiator is a handheld tool that assists the service technician during installation of the SmarTire system. The initiator is designed to interact with a high pressure sensor to provoke a data transmission or to place the sensor in a different state. The initiator assists the technician in programming newly installed sensors and in verifying the correct installation of these sensors.

Initiator Functions

Button	Function
Initiate	This function is used after the sensors are installed to confirm whether the sensor positions were properly programmed in the receiver. Pressing this button while holding the initiator against the tire sidewall adjacent to the sensor causes the sensor to transmit its ID, tire pressure and temperature data.
De-energize	This function should only be used when the sensors are taken out of the tire and need to be shipped back to the supplier. Pressing this button while holding initiator next to the side of the sensor causes it to stop transmitting.
Learn	This function is used to provoke a Learn transmission from the sensor in order to program the receiver. Pressing this button while holding the initiator against the tire sidewall adjacent to the sensor causes it to transmit its Learn signal.

LED Functions

LED	Function
Green	SmarTire Initiator is working properly.
Red	SmarTire Initiator is not working properly. Contact SmarTire regarding repair or replacement.
Orange	Battery is low.

Powering On the SmarTire Initiator

The SmarTire Initiator is powered with a 9 volt battery that is installed by opening the battery access panel on the back. An ON/OFF switch is located on the right side and this should be pushed upward to turn the initiator ON and downward to turn SmarTire initiator OFF.

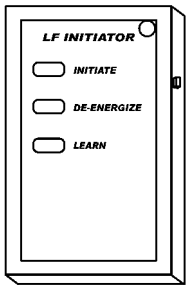
Understanding Temperature Compensated Pressure Readings

An important feature of the SmarTire Full Function Display system is that pressure deviation alerts are initiated from a comparison of the temperature compensated pressure to the measured tire pressure read by the sensor.

The reference pressure, or COLD PRESSURE is the air pressure inside the tire inflated at room temperature 18°C (64°F) to the vehicle manufacturer's recommendation. When a tire heats up, the air pressure inside the tire can also be expected to increase. For example, a normal or "required" pressure at 64°F or 18°C may be 34 psi (2.35 Bar) and a normal pressure at 49°C (120°F) may be 39 psi (2.7 Bar). Both pressure readings are correct at their respective temperatures.

The amount of deviation from the required pressure (at any temperature) can be read by using the Pressure Deviation mode of this SmarTire product. If at any time you are uncertain that the Actual Pressure reading on the display indicates the correct tire pressure, switch to the Pressure Deviation (+-) readout. A blank display indicates that the reading on the display is the correct one. Any (+) or (-) value indicates the tire pressure is incorrect by that value. This value can then be used to correctly inflate the tire.

Special Tools and Equipment

Illustration	Tool Number/ Description
	<p>090.0006 Programming Initiator</p>

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Section 4

Driveline/Axle

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Front Axle Vent Tube Filter Description	4-3	Transfer Case Vent Tube Filter	
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Repair Instructions	4-4	Description and Operation	4-5
Rear Axle Vent Tube Filter Replacement	4-4	Transfer Case Vent Tube Filter	
		Description	4-5

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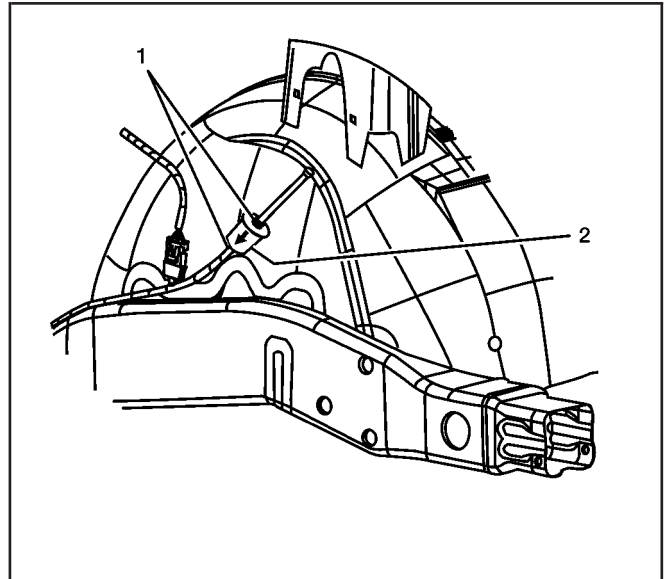
Front Drive Axle

Repair Instructions

Front Axle Vent Tube Filter Replacement

Removal Procedure

1. Loosen the clamps (1) securing the filter (2).
2. Remove the filter from the hoses and discard.

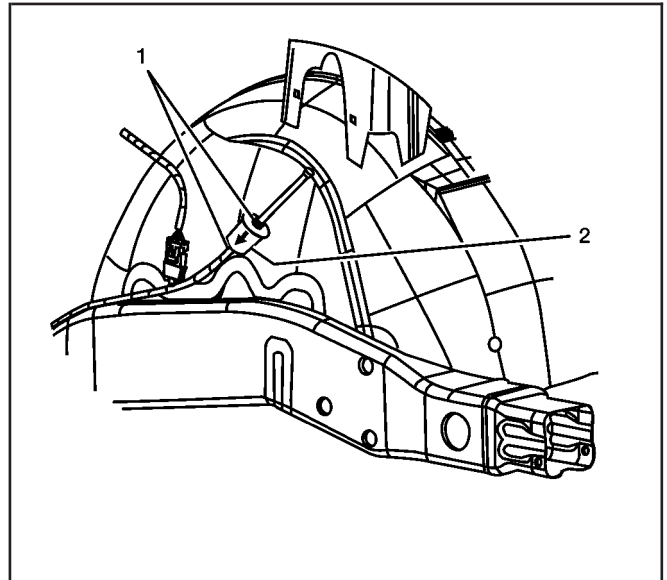


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Installation Procedure

Important: The filter arrow must point toward the axle vent pipe. If replacing the hose, the length of the new hose must match the length of the old hose.

1. Install the filter (2) to the hoses.
2. Position hose clamps (1) and tighten.



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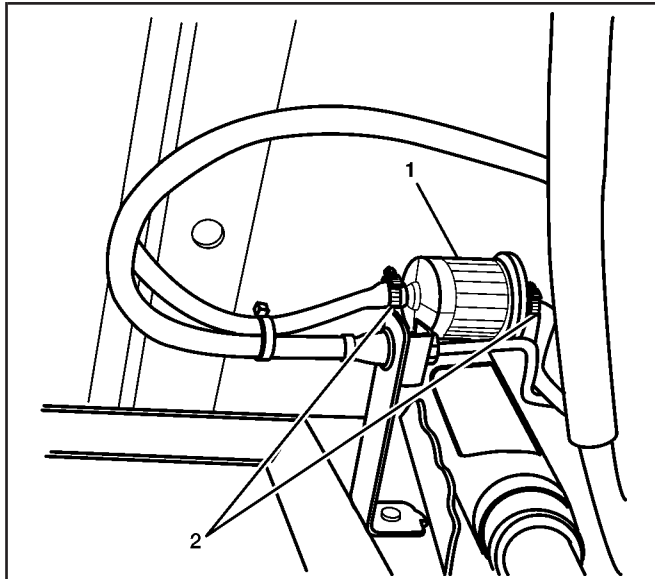
Description and Operation

Front Axle Vent Tube Filter Description

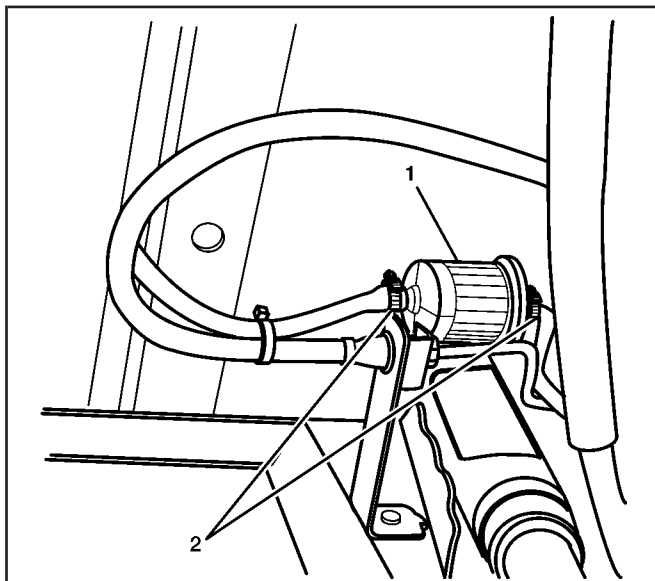
The front axle is specially equipped with a vent tube filter to protect the axle from contaminants found in the off-road environment. The vent filter is attached to a hose with a vented cap at the end, and is mounted in the engine compartment next to the left inner wheel housing.

The filter must be inspected occasionally to see if it needs to be replaced. Refer to *Owner Checks and Services* in Maintenance and Lubrication.

Rear Drive Axle



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Repair Instructions

Rear Axle Vent Tube Filter Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Install safety stands.
3. Remove the clamps (2) holding the filter (1) to the hoses.
4. Remove the filter and discard.

Installation Procedure

Important: The filter arrow must point toward the axle vent pipe. If replacing the hose, the length of the new hose must match the length of the old hose.

1. Install the filter (1) to the hoses.
2. Install hose clamps (2) and hand tighten.
3. Remove the safety stands.
4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

Description and Operation

Rear Axle Vent Tube Filter Description

The rear axle is specially equipped with a vent tube filter to protect the axle from contaminants found in the off-road environment. It is attached to a hose with a vented cap at the end. The rear axle vent filter is mounted near the top of the axle housing and the hose is attached to the brake bracket on the driver's side frame rail.

The filter must be inspected occasionally to see if it needs to be replaced. Refer to *Owner Checks and Services* in Maintenance and Lubrication.

Transfer Case - NVG 261-NP2

Repair Instructions

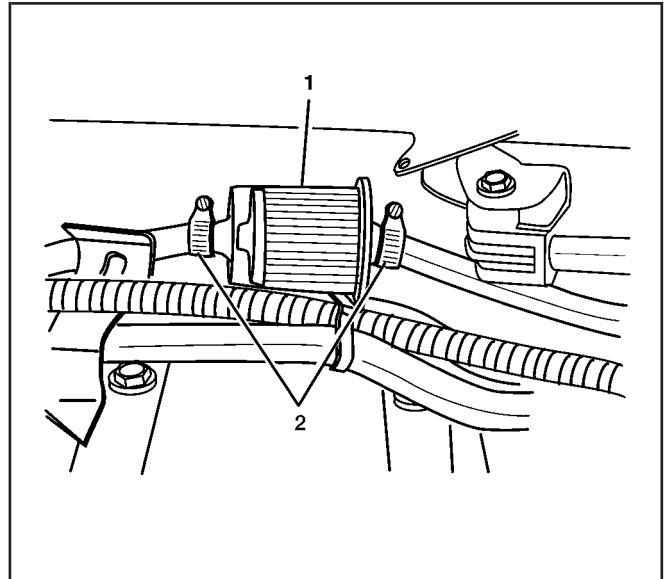
Transfer Case Vent Tube Filter Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

Important: The filter is located on the left side of the vehicle.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Install safety stands.
3. Remove the clamps (2) holding the filter (1) to the hoses.
4. Remove the filter and discard.

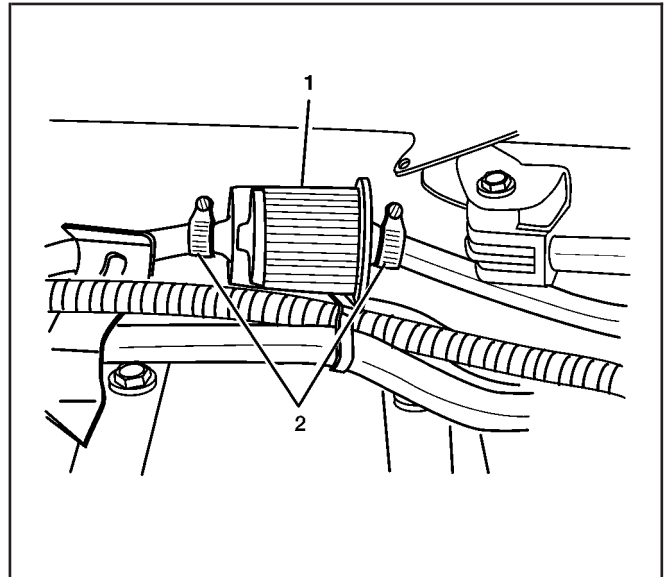


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Installation Procedure

Important: The filter arrow must point toward the axle vent pipe. If replacing the hose, the length of the new hose must match the length of the old hose.

1. Install the filter (1) to the hoses.
2. Install hose clamps (2) and hand tighten.
3. Remove the safety stands.
4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1701844

Description and Operation

Transfer Case Vent Tube Filter Description

The transfer case is specially equipped with a vent tube filter to protect the transfer case from contaminants found in the off-road environment. The vent filter is attached to a hose with a vented cap at the end, and is mounted under the vehicle next to the left side of the transfer case.

The filter must be inspected occasionally to see if it needs to be replaced. Refer to *Owner Checks and Services* in Maintenance and Lubrication.

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Section 5

Brakes

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Disc Brakes

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Brake Caliper Bolt	108 N·m	80 lb ft
Brake Caliper Bracket Bolt	300 N·m	221 lb ft
Brake Caliper Nut	45 N·m	33 lb ft

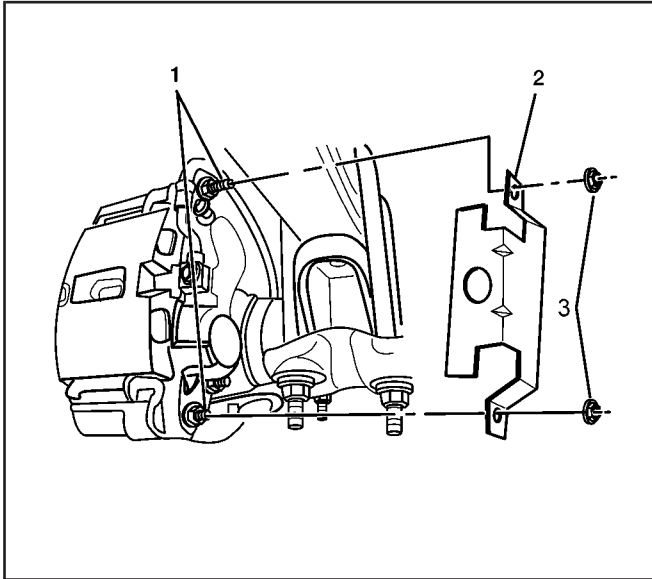
Repair Instructions

Rear Brake Caliper Cover Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
2. Remove the cover nuts (3).
3. Remove the caliper cover (2).
4. If damaged, remove the caliper bolts (1). Refer to *Rear Brake Caliper Bolt Replacement*.



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Installation Procedure

1. If removed, install the caliper slide pins (1). Refer to *Rear Brake Caliper Bolt Replacement*.
2. Install the caliper cover (2).

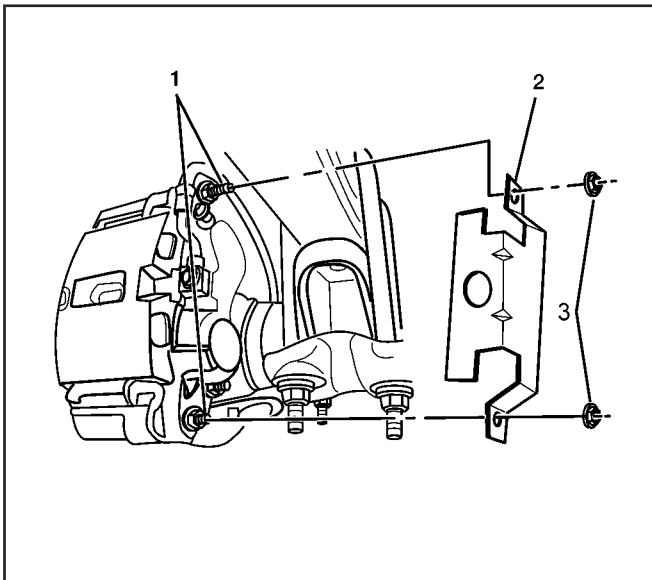
Notice: Refer to *Fastener Notice* Fastener Notice in Cautions and Notices.

3. Install the cover nuts (3).

Tighten

Tighten cover nuts to 45 N·m (33 lb ft).

4. Remove supports and lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.



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Rear Brake Caliper Bolt Replacement

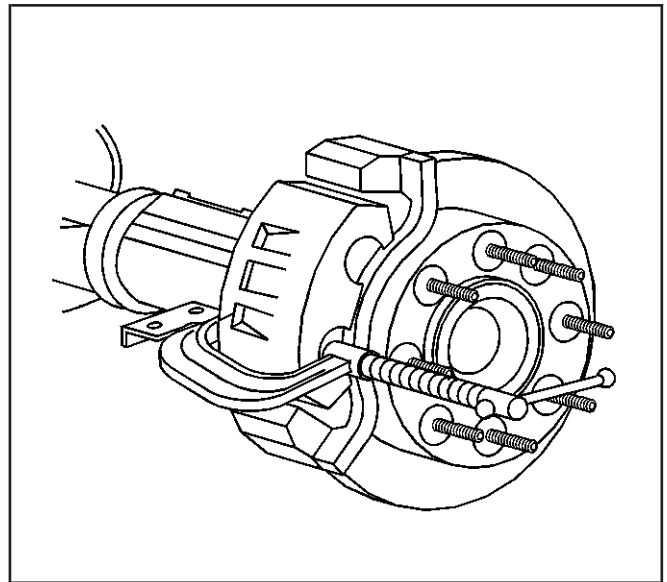
Removal Procedure

Caution: Refer to *Brake Dust Caution in Cautions and Notices in 2005 C/K Truck Service Manual*.

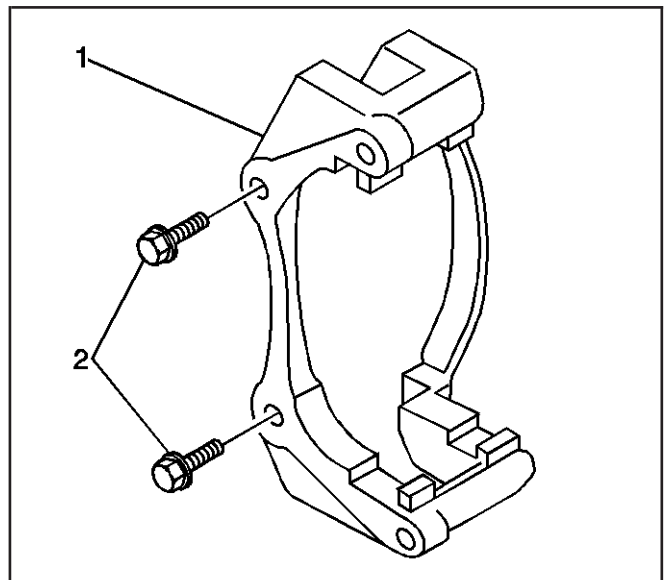
1. Inspect the fluid level in the brake master cylinder reservoir.
2. If the fluid level is midway between the maximum - full point, and the minimum allowable level, no fluid needs to be removed from the reservoir before proceeding.
3. If the fluid level is higher than midway between the maximum - full point, and the minimum allowable level, remove fluid to the midway point before proceeding.
4. Remove the tire and wheel assembly. Refer to *Tire and Wheel Removal and Installation in Tires and Wheels in the 2005 C/K Truck Service Manual*.
5. Compress the brake caliper pistons.
 - Install a large C-clamp over the top of the caliper housing and against the back of the outboard pad.
 - Slowly tighten the C-clamp until the pistons are pushed completely into the caliper bores.
 - Remove the C-clamp from the caliper.
6. Remove the rear brake caliper cover. Refer to *Rear Brake Caliper Cover Replacement*.
7. Loosen the rear brake caliper mounting bolts. Do not remove.
8. Remove the brake caliper bracket bolts (2).

Notice: Refer to *Brake Caliper Notice* in Cautions and Notices in 2005 C/K Truck Service Manual.

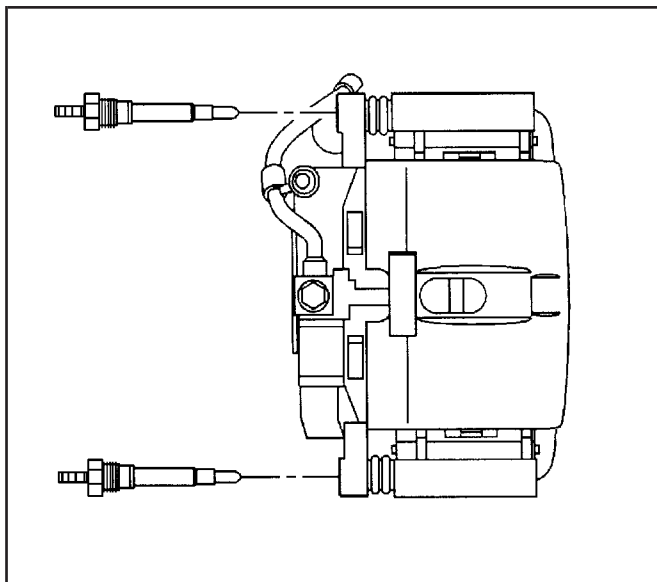
9. Remove the caliper bracket (1) and brake caliper as an assembly.



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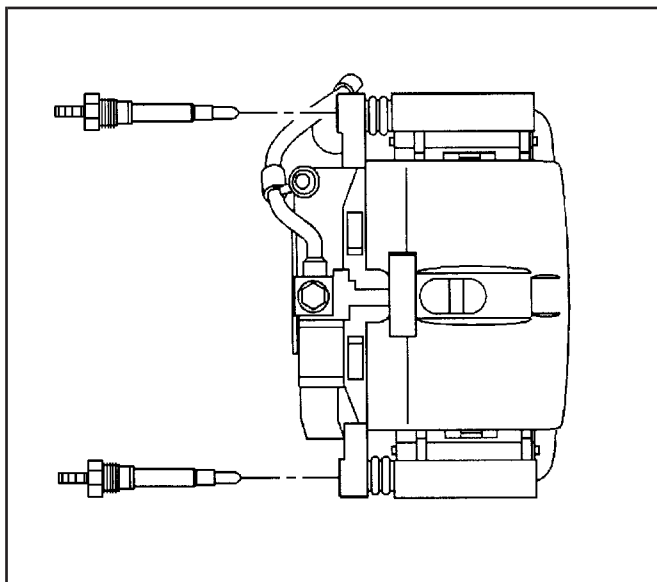


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1702787

10. Remove the caliper bolts from the caliper bracket. DO NOT disconnect the hydraulic brake hose from the caliper.



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Installation Procedure

1. Install the brake caliper bolts to the caliper bracket. DO NOT tighten.

2. Install the caliper and caliper bracket (1) as an assembly.
3. Perform the following procedure before installing the caliper bracket bolts.
 - Remove all traces of the original adhesive patch.
 - Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.
 - Apply Threadlocker GM P/N 12345493 (Canadian P/N 10953488) to the threads of the bolt.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the brake caliper bracket bolts (2).

Tighten

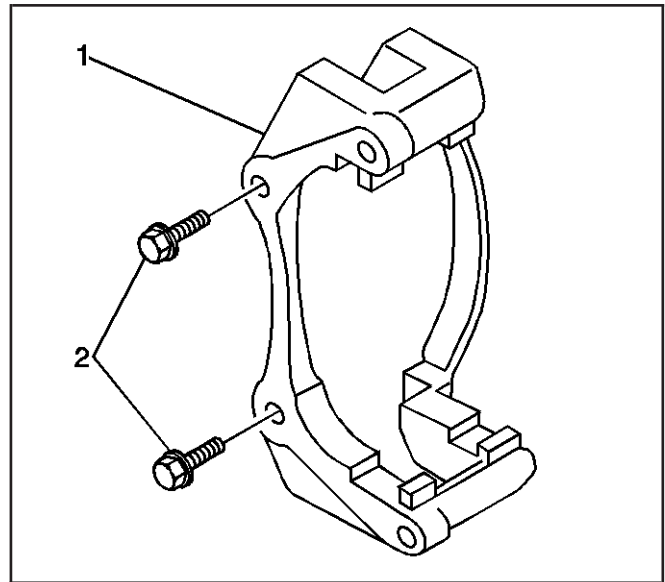
Tighten the bolts to 300 N·m (221 lb ft).

5. Tighten the brake caliper bolts (2).

Tighten

Tighten the bolts to 108 N·m (80 lb ft).

6. Install the rear brake caliper cover. Refer to *Rear Brake Caliper Cover Replacement*.
7. Install the tire and wheel assembly. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in the 2005 C/K Truck Service Manual.
8. With the engine OFF, gradually apply the brake pedal to approximately 2/3 of its travel distance.
9. Slowly release the brake pedal.
10. Wait 15 seconds, and then repeat steps 8-9 until a firm pedal is obtained. This will properly seat the brake caliper pistons and brake pads.
11. Fill the master cylinder reservoir to the proper level with clean brake fluid, if necessary. Refer to *Master Cylinder Reservoir Filling* in Hydraulic Brakes in the 2005 C/K Truck Service Manual.



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Section 6

Engine

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Engine Cooling

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Engine Block Coolant Drain Plug	60 N·m	44 lb ft
Engine Coolant Heater Bolt	2 N·m	18 lb in

Repair Instructions

Draining and Filling Cooling System (Ambulance Body)

Tools Required

- J 26568 Coolant and Battery Tester
- J 38185 Hose Clamp Pliers

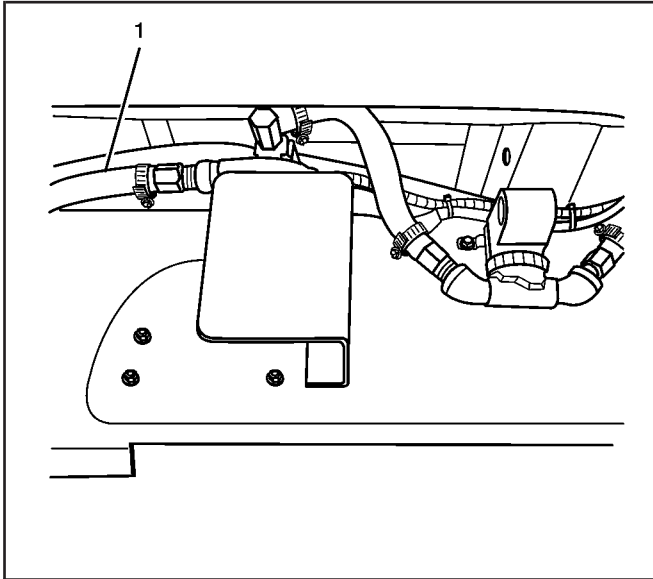
Draining Procedure

Caution: To avoid being burned, do not remove the radiator cap or surge tank cap while the engine is hot. The cooling system will release scalding fluid and steam under pressure if radiator cap or surge tank cap is removed while the engine and radiator are still hot.

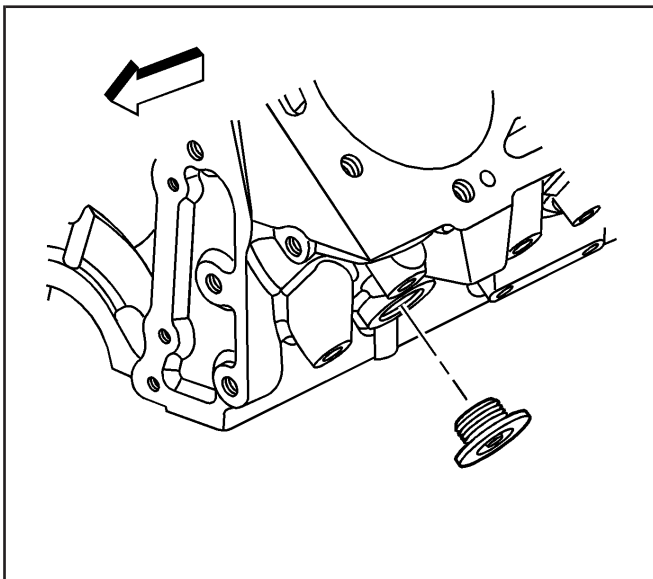
- Follow the steps below in order to remove the surge tank fill cap.
 - Slowly rotate the cap counterclockwise.
 - Stop rotating and allow the hissing to stop.
 - After all the hissing stops, continue turning counterclockwise in order to remove the cap.

Caution: Refer to Vehicle Lifting Caution in Cautions and Notices.

- Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
- Place a drain pan under the lower radiator hose.
- Using the J 38185, reposition the lower radiator hose clamp.
- Remove the lower radiator hose from the radiator.
- Remove the supply hose (1) at the rear of the coolant booster pump.
- Drain the cooling system.
- If a complete engine block drain is required, remove the left and right engine block coolant drain plugs.

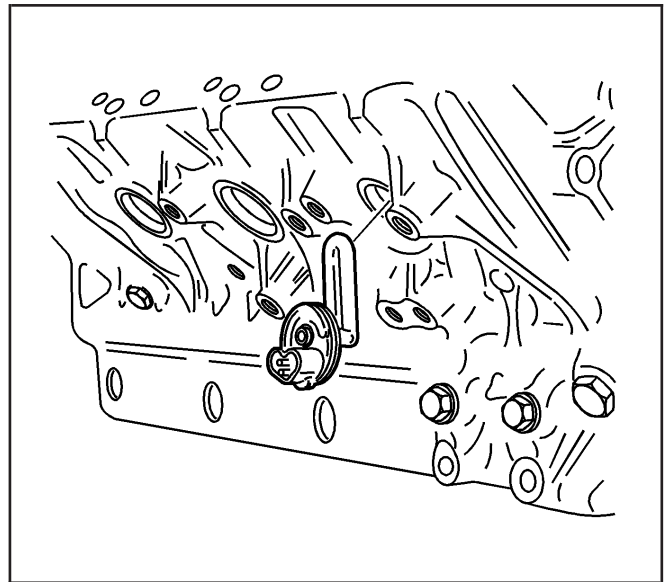


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9. Remove the engine block coolant heater, if equipped. Refer to *Coolant Heater Replacement*.



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10. Inspect the coolant.
11. Follow the appropriate procedure based on the condition of the coolant.
 - Normal in appearance—Follow the filling procedure.
 - Discolored—Follow the flush procedure. Refer to *Flushing* in Engine Cooling in 2005 C/K Truck Service Manual.

Filling Procedure

Notice: The procedure below must be followed. Improper coolant level could result in a low or high coolant level condition, causing engine damage.

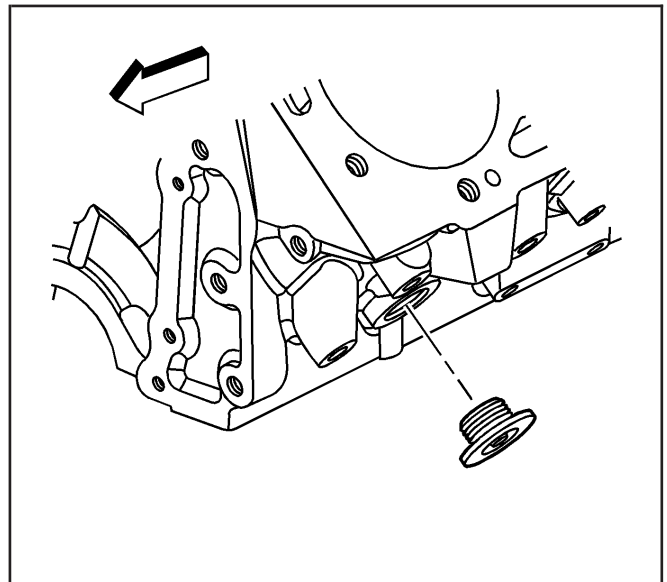
1. Install the lower radiator hose to the radiator.
2. Using the *J 38185* reposition the lower radiator hose clamp.
3. If the left and right engine block coolant drain plugs were removed, perform the following.
 - 3.1. Apply pipe sealer to the drain plugs.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

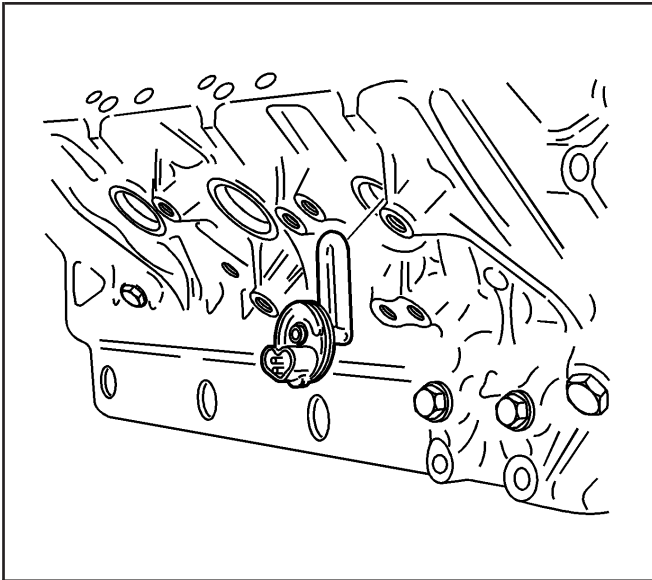
- 3.2. Install the drain plugs.

Tighten

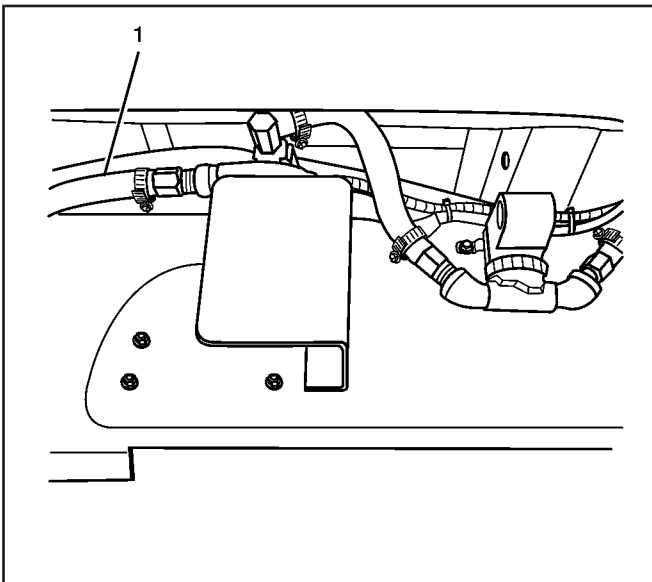
Tighten the drain plugs to 60 N·m (44 lb ft).



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4. Install the engine block coolant heater, if equipped. Refer to *Coolant Heater Replacement*.

5. Install the supply hose (1) at the rear of the coolant booster pump.
6. Lower the vehicle.
7. Open the cooling system bleeder screws.

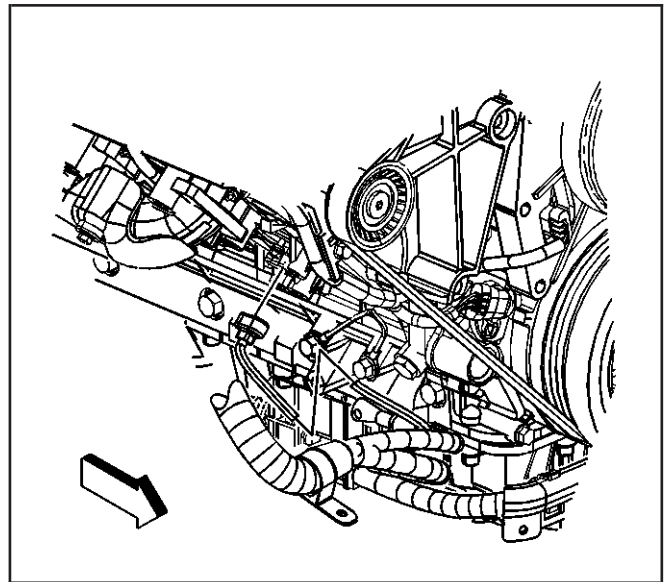
Important: Use a 50/50 mixture of DEX-COOL antifreeze and clean, drinkable water.

8. Slowly fill the cooling system with a 50/50 coolant mixture. Refer to *Capacities - Approximate Fluid* in Maintenance and Lubrication.
9. Close the cooling system bleeder screws.
10. Remove the return hose at the heater core of the rear HVAC and insert a funnel into the hose.
11. Add coolant until full and activate pump until coolant starts to flow out of the heater core.
12. Deactivate the pump and install return hose at the core.
13. Install the coolant pressure cap.
14. Start the engine.
15. Run the engine at 2,000–2,500 RPM until the engine reaches normal operating temperature.
16. Allow the engine to idle for 3 minutes.
17. Shut the engine OFF.
18. Allow the engine to cool.
19. Top off the coolant as necessary.
20. Turn on the rear HVAC and set in the full heat position.
21. Start the engine.
22. Run the engine at 2,000–2,500 RPM until the engine reaches normal operating temperature.
23. Allow the engine to idle for 3 minutes.
24. Shut the engine OFF.
25. Allow the engine to cool.
26. Top off the coolant as necessary.
27. Inspect the concentration of the engine coolant using the *J 26568*.
28. Rinse away any excess coolant from the engine, engine compartment and the rear HVAC compartment.

Coolant Heater Replacement

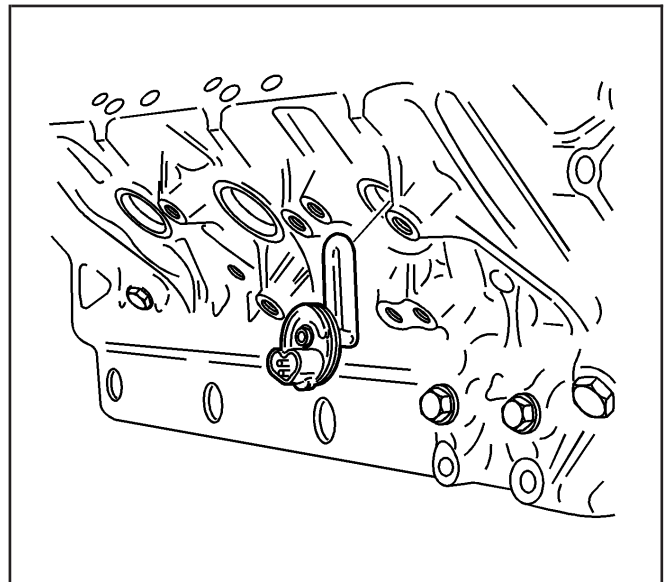
Removal Procedure

1. Drain the cooling system. Refer to *Draining and Filling Cooling System (Ambulance Body)*.
2. Remove the right front tire and wheel. Refer to *Tire and Wheel Removal and Installation in Tires and Wheels* in 2005 C/K Truck Service Manual.
3. Remove the right engine mount. Refer to *Engine Mount Replacement - Right* in Engine Mechanical - 6.6L (LLY) in 2005 C/K Truck Service Manual.
4. Disconnect the engine coolant heater cord.



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5. Loosen the coolant heater bolt.
6. Remove the engine coolant heater from the engine block.
7. Do not score the machined surface of the hole.
8. Grasp the plug with pliers.
9. Pull the plug from the engine block.
10. Clean the core plug hole in order to remove the following substances:
 - Burrs
 - Compound
 - Paint
 - Rough spots



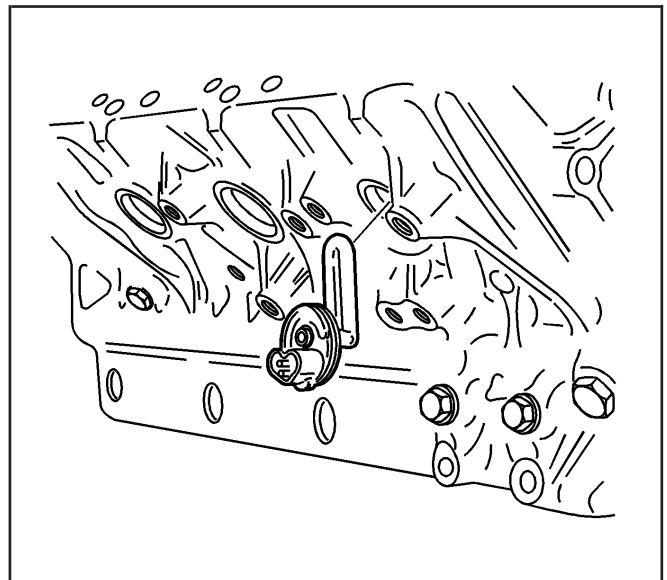
663089

Installation Procedure

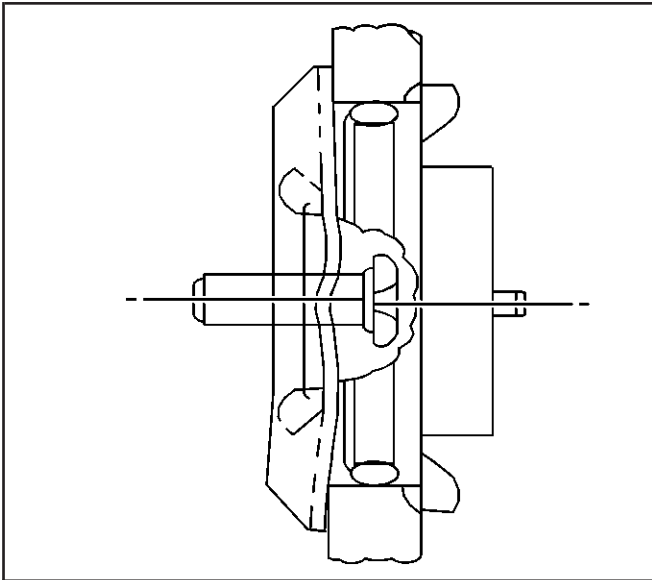
1. Coat the O-ring seal and the cleaned surface of the plug opening with water resistant high-temperature grease lubricant GM P/N 1052196 (Canadian P/N 5264008), or the equivalent.

Important: Avoid element contact with the inside walls of the engine block.

2. Align the coolant heater element to point towards the top of the engine.
3. Tightly push the coolant heater into the engine block.



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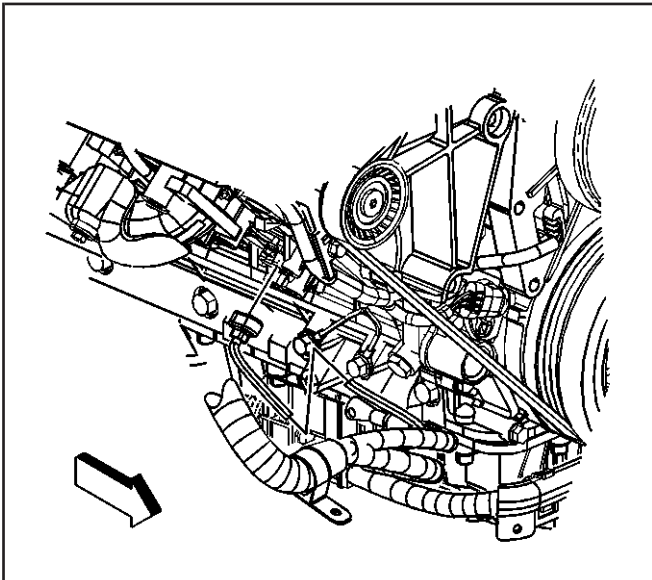
312945

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Tighten the bolt on the engine coolant heater until both of the locking wings draw tightly against the inner wall of the engine block.

Tighten

Tighten the bolt to 2 N·m (18 lb in).

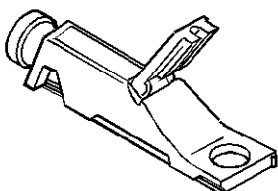
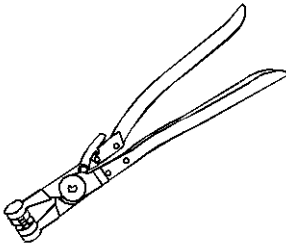


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Notice: The heater cord must not touch the engine, hot pipes, manifold, or any moving parts. Route the cord to the left front of the engine compartment securing with tie straps as necessary to prevent damage.

5. Connect the heater cord to the coolant heater.
6. Remove the right engine mount. Refer to *Engine Mount Replacement - Right* in Engine Mechanical - 6.6L (LLY) in 2005 C/K Truck Service Manual.
7. Install the right front tire and wheel. Refer to *Tire and Wheel Removal and Installation* in Tires and Wheels in 2005 C/K Truck Service Manual.
8. Fill the cooling system. Refer to *Draining and Filling Cooling System (Ambulance Body)*.
9. Inspect for coolant leaks.

Special Tools and Equipment

Illustration	Tool Number/ Description
 12869	J 26568 Coolant and Battery Tester
 14013	J 38185 Hose Clamp Pliers

Engine Electrical

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Cable Connections	17 N·m	13 lb ft
Battery Cable Frame Bolt	25 N·m	18 lb ft
Battery Retainer Bolt	25 N·m	18 lb ft
Circuit Breaker Bracket Bolts	6 N·m	53 lb in
Front Junction Block Nut	34 N·m	25 lb ft
Generator Mounting Bolts	50 N·m	37 lb ft
Generator Output Stud Nut	9 N·m	80 lb in
Rear Junction Block Nut	9 N·m	80 lb in
Slave Receptacle Cable Nuts	20 N·m	15 lb ft
Slave Receptacle Connector Bolts	8 N·m	71 lb in
Vehicle Load Disconnect Switch Nuts	9 N·m	80 lb in
Winch Connector Bolt	10-15 N·m	7-11 lb ft

Battery Usage (Optima)

LSSV	
Cold Cranking Amperage (CCA)	750 A
Reserve Capacity Rating	120 Minutes
Replacement Battery Number	D 34/78

Generator Usage

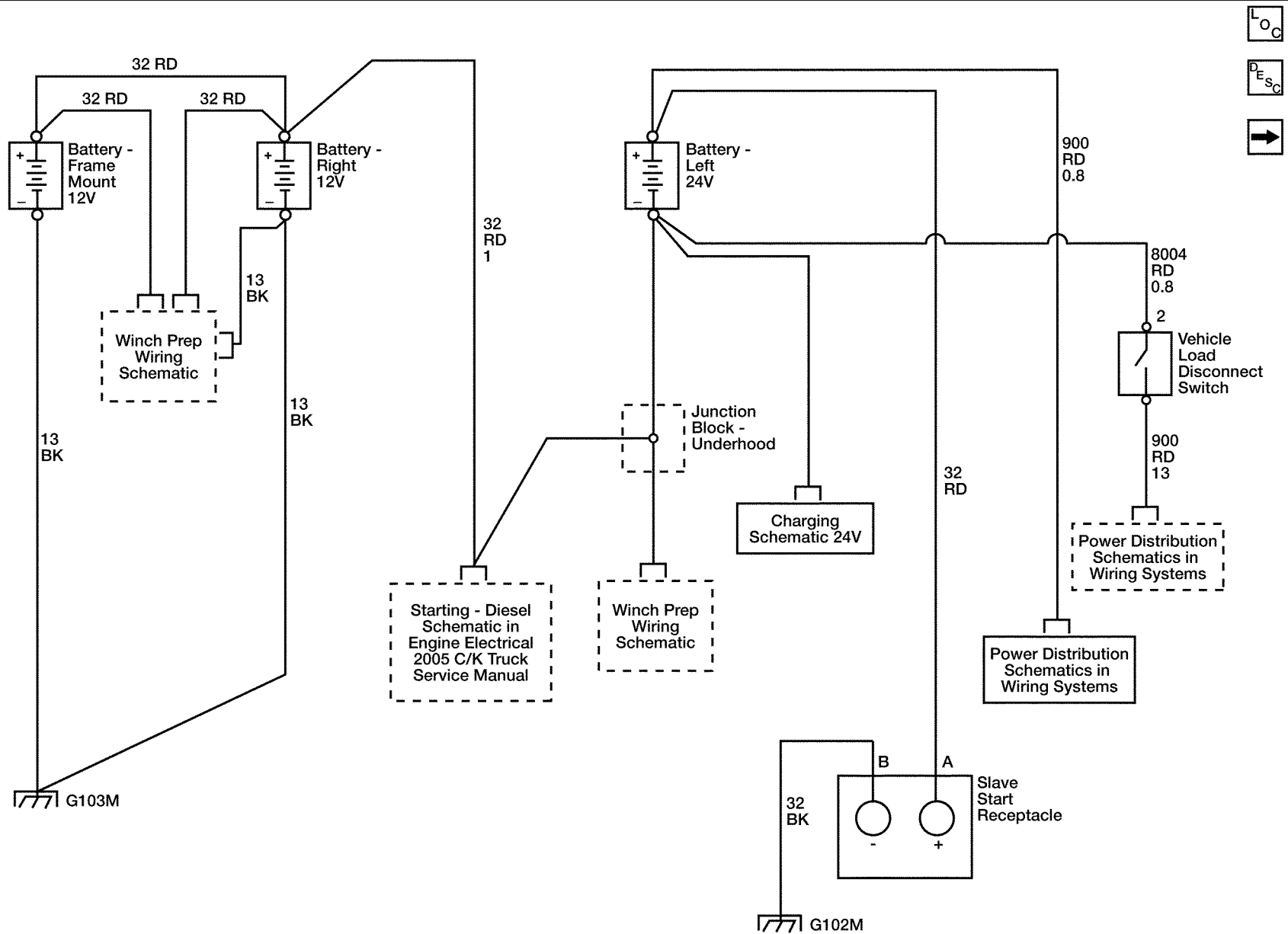
12V	
Generator Model	Delphi AD230
Rated Output	102 A
Load Test Output	71 A
12V (Ambulance)	
Generator Model	Delphi AD244
Rated Output	145 A
24V	
Generator Model	Modified AD230
Rated Output	41A

Battery Charging Specifications (Optima)

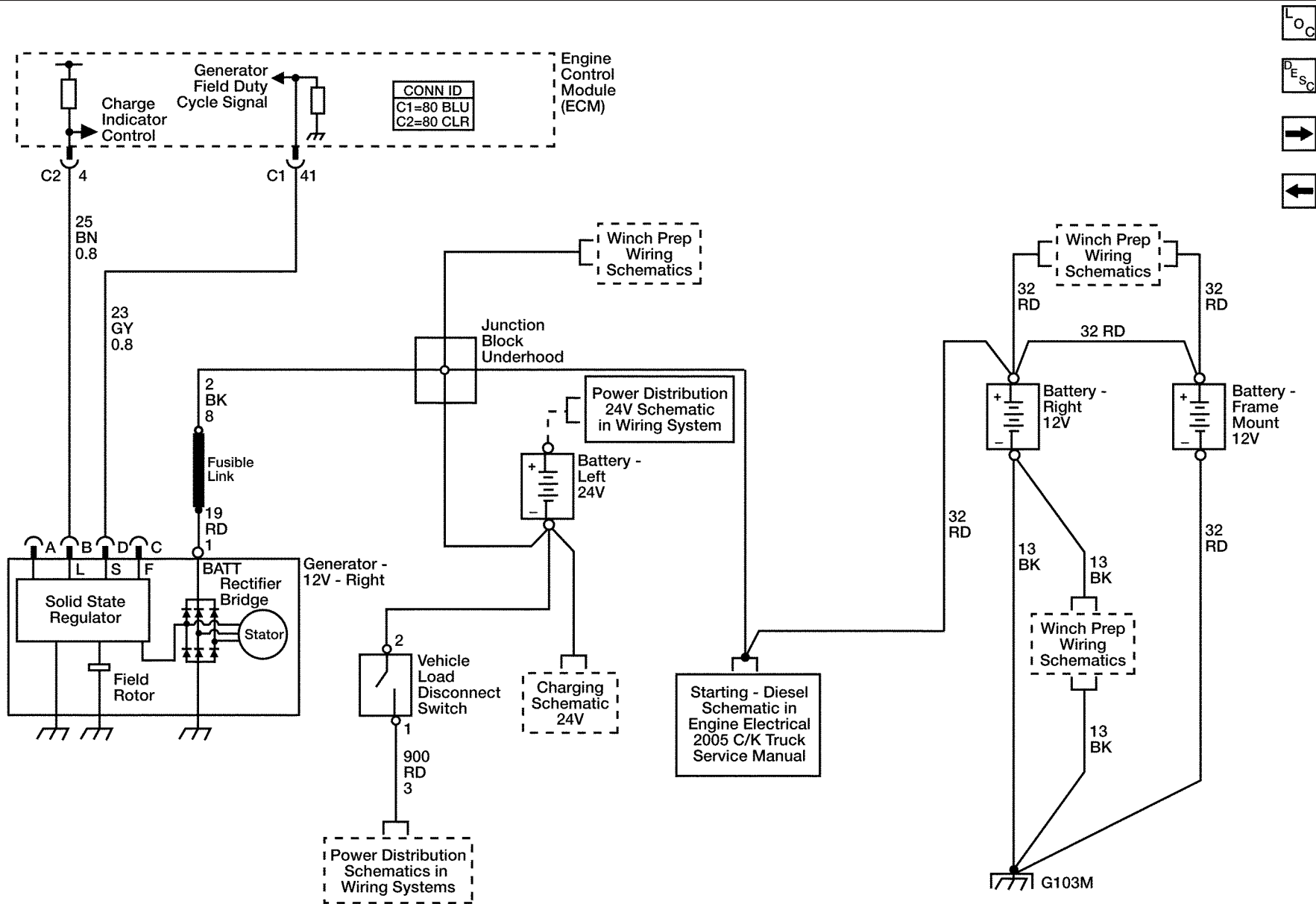
Recommended Charging Rates	
Generator 12V	13.8 V to 15.0 V
Generator 24V	27 V to 32 V
Generator (Amps)	No Limit
Battery Charger Charging	
Battery Charger (12V)	14.8 V
Battery Charger 12V (Amps)	13.75 A
Battery Charger Time (Maximum)	24 Hours
Constant Voltage Charging	
Constant Voltage (Volts)	14.7 V to 15.0 V
Constant Voltage Temperature	122°F (50°C)
Constant Voltage (Amps)	No Limit
Constant Voltage Time	Charging falls below 1 A, then 2 A for 1 hour
Float Charge	13.2 V to 13.8 V

Schematic and Routing Diagrams

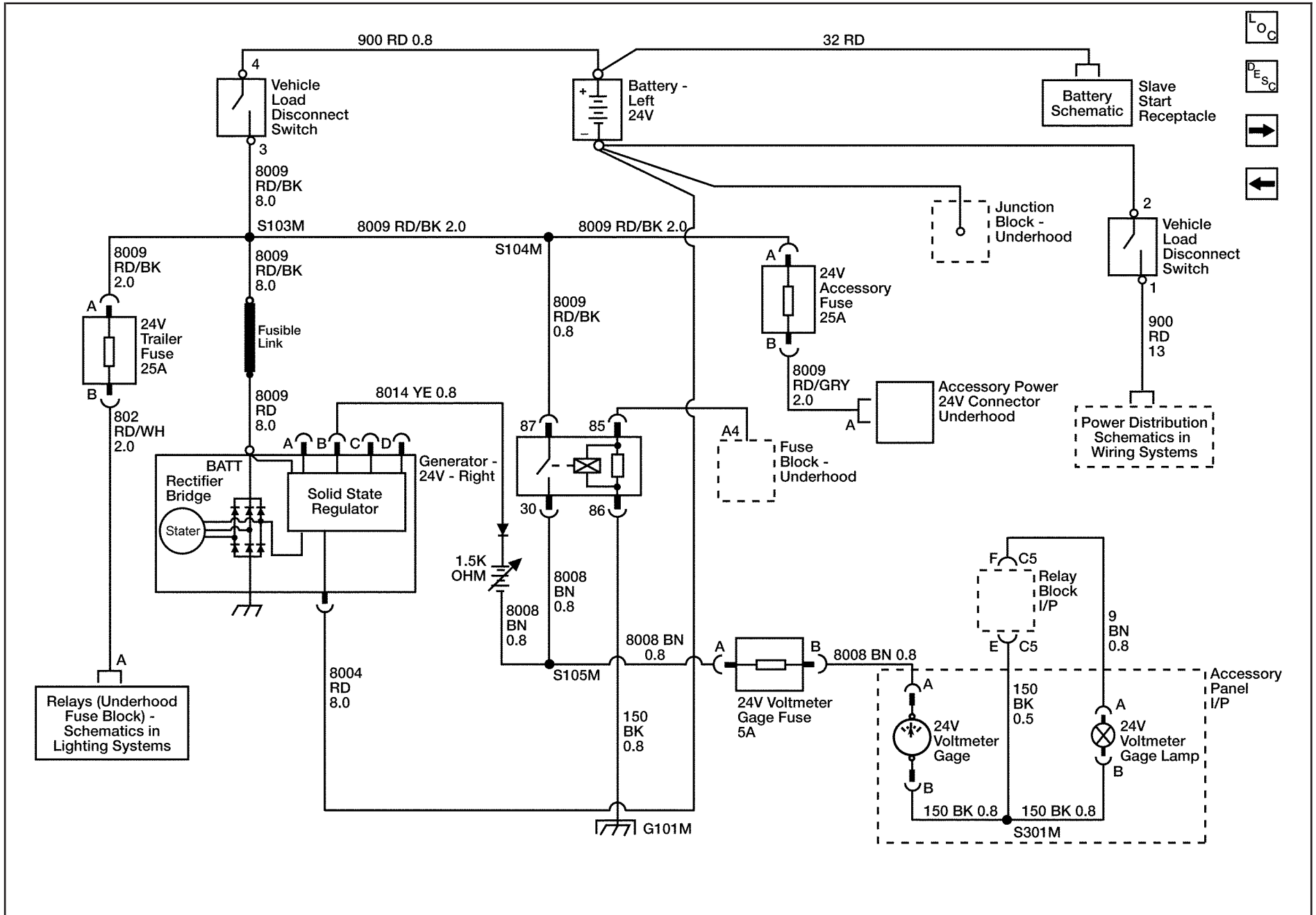
Starting and Charging Schematics (Battery Schematic)



Starting and Charging Schematics (Charging Schematics – 12V)

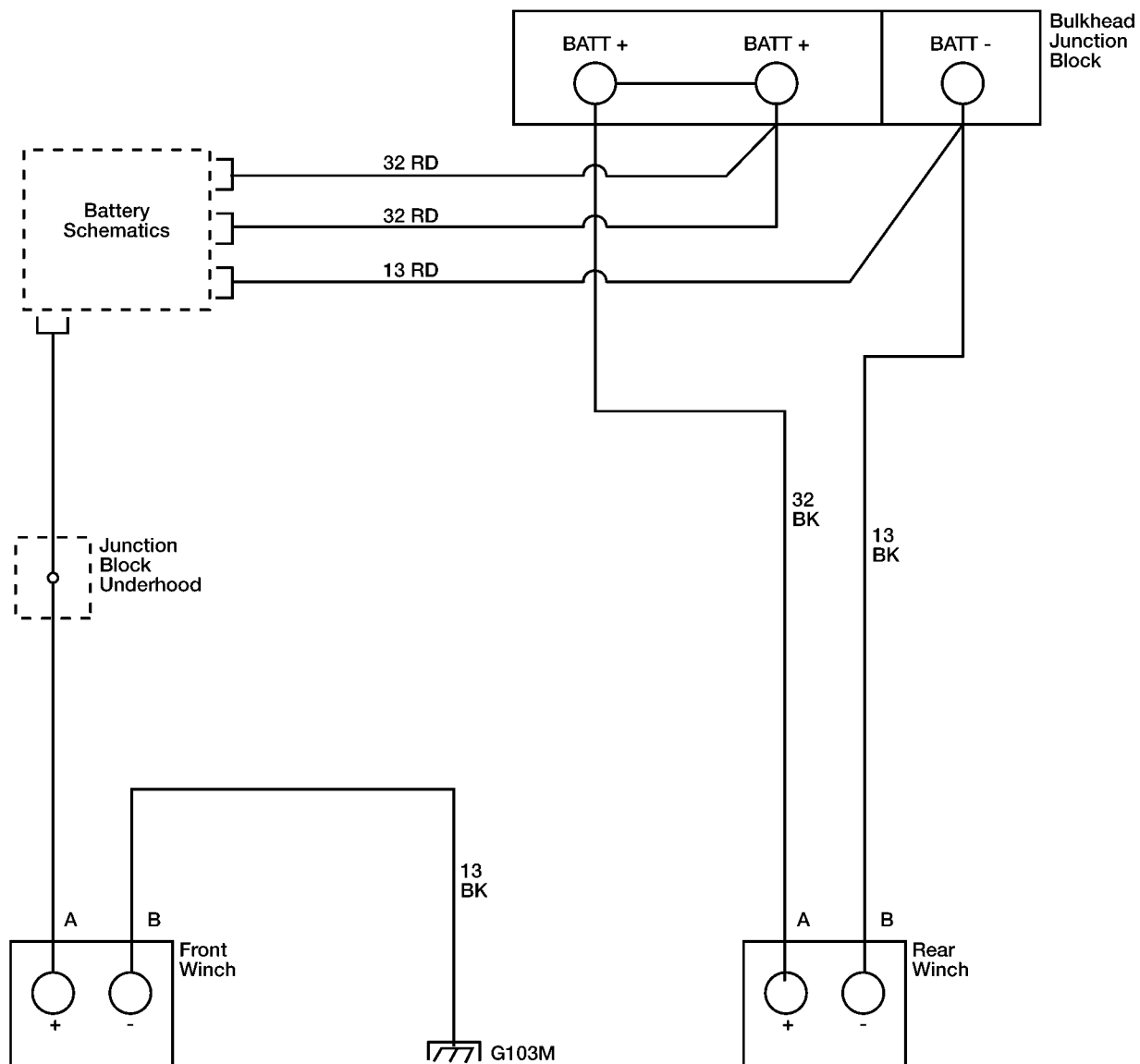


Starting and Charging Schematics (Charging Schematics – 24V)





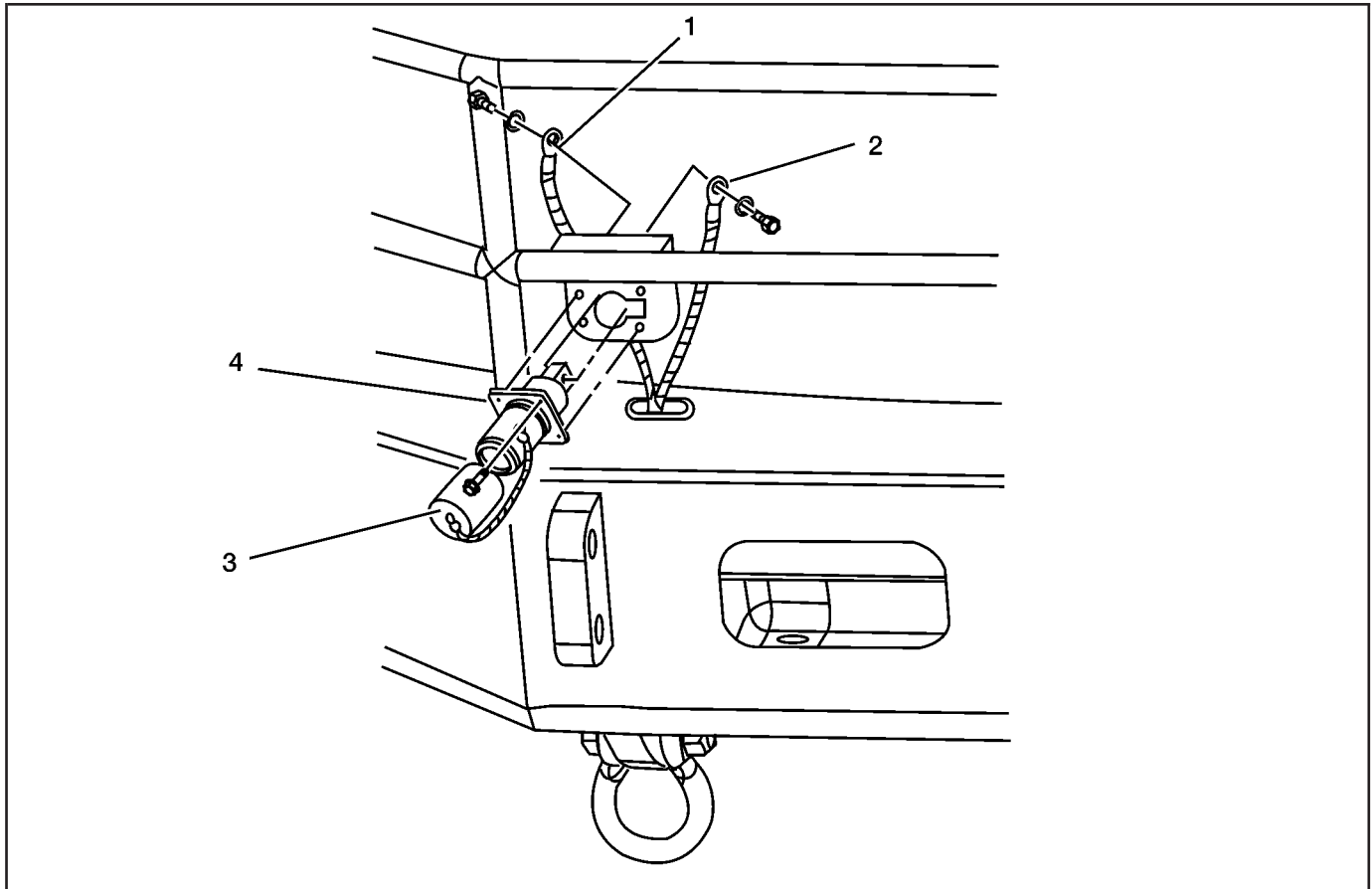
Starting and Charging Schematics (Winch Prep Wiring Schematics)



Component Locator

Engine Electrical Component Views

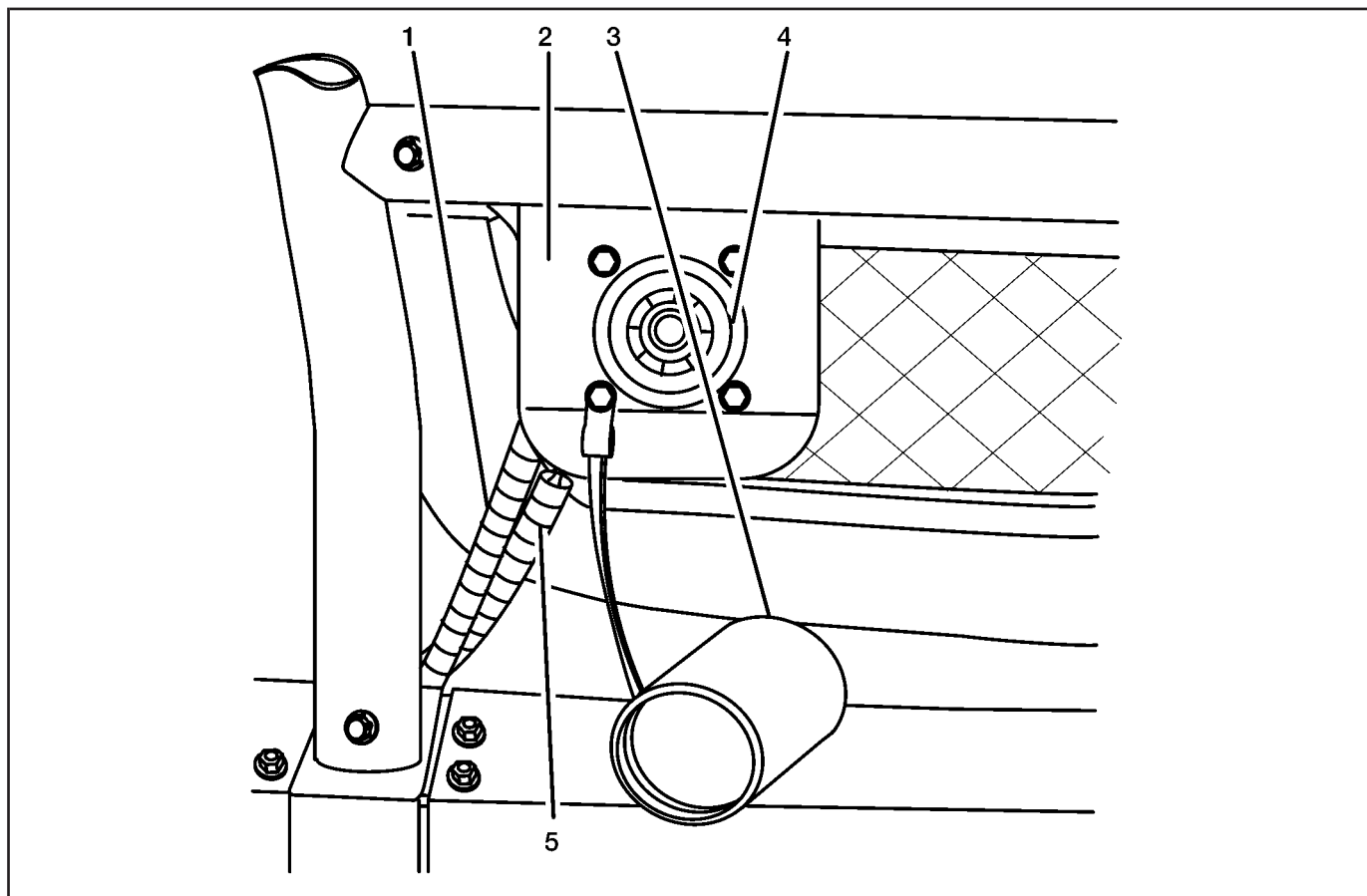
24V Slave Start Receptacle Assembly – Ambulance/Maintenance Body



1704693

Legend

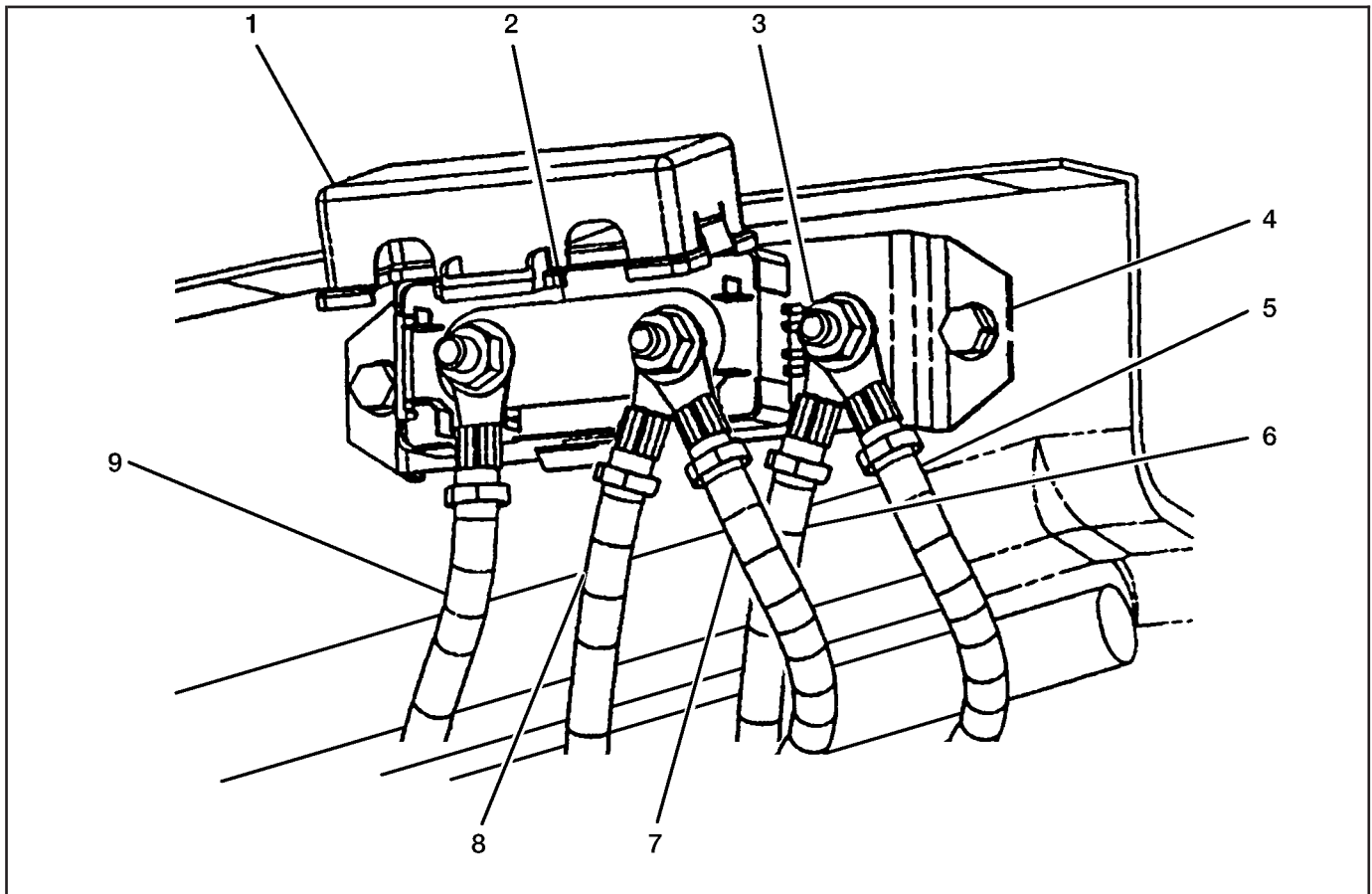
- | | |
|-------------------------------------|----------------------------------|
| (1) Battery Negative Ground (Black) | (3) Slave Start Receptacle Cover |
| (2) Battery Positive Ground (Red) | (4) Slave Start Receptacle |

24V Slave Start Receptacle Assembly – LSSV

1703355

Legend

- | | |
|----------------------------------|----------------------------|
| (1) Battery Negative Cable | (4) Slave Start Receptacle |
| (2) Mounting Bracket | (5) Battery Positive Cable |
| (3) Slave Start Receptacle Cover | |

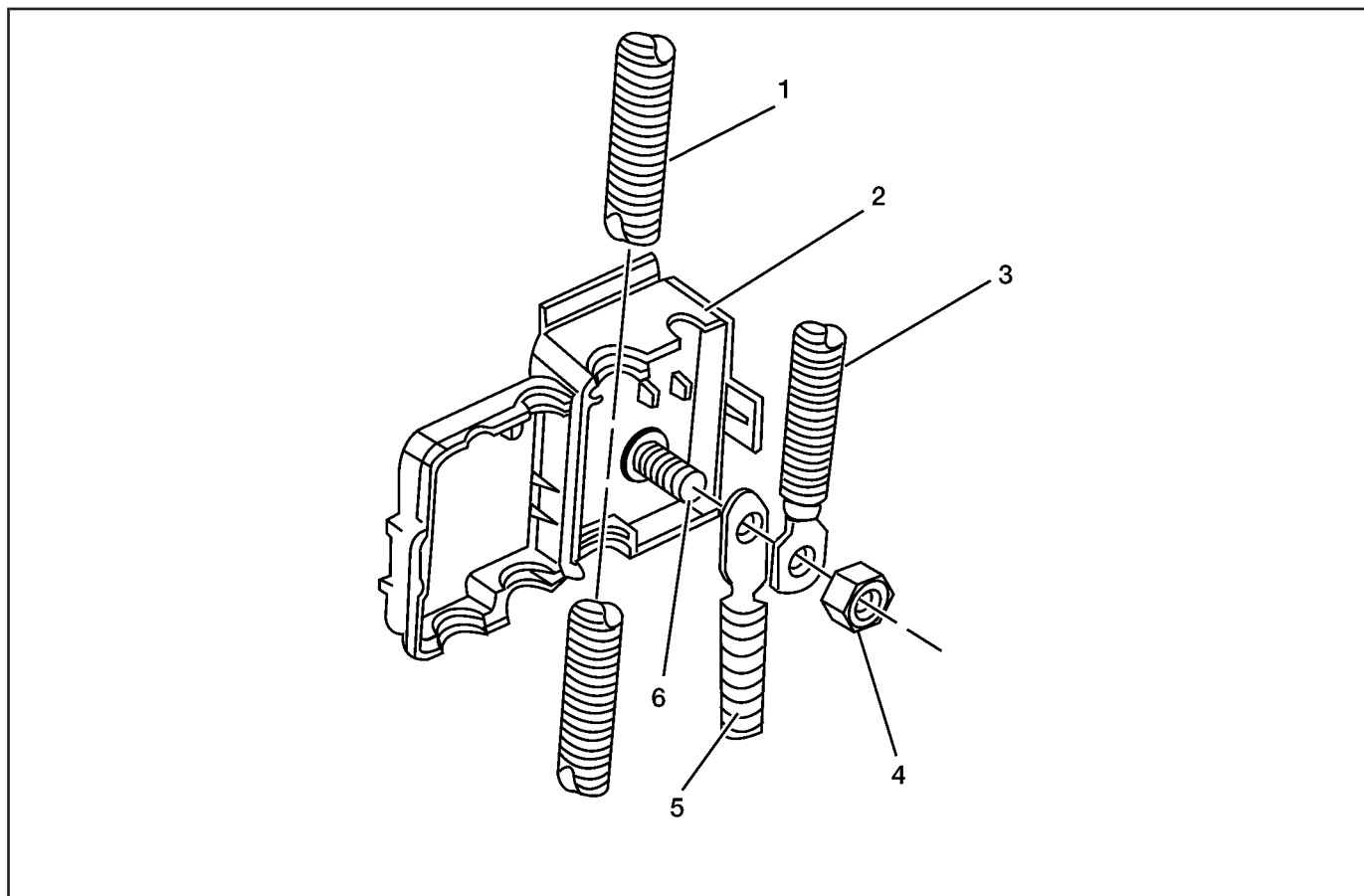
Bulkhead Junction Block

1703356

Legend

- | | |
|------------------------------------|--|
| (1) Junction Block | (6) Negative Winch Prep Cable – Rear |
| (2) Jumper Plate | (7) Positive Winch Prep Cable – Rear |
| (3) Ground Connection | (8) Battery Positive Cable – Right |
| (4) Mounting Bracket | (9) Battery Positive Cable – Frame Mounted |
| (5) Battery Negative Cable – Right | |

Junction Block Underhood

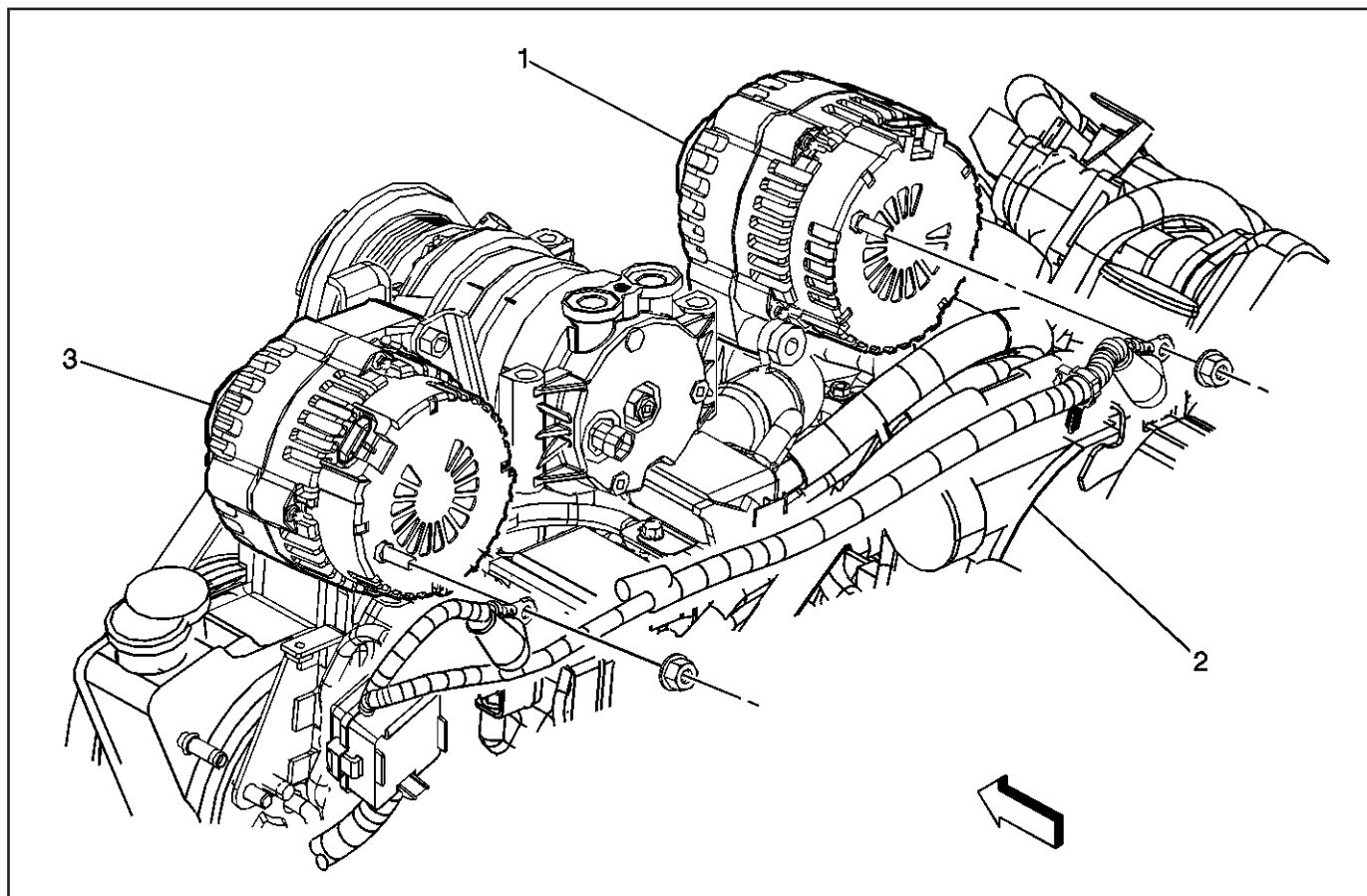


1704696

Legend

- | | |
|----------------------------|---------------------------------------|
| (1) Battery Positive Cable | (4) Junction Block Post Nut |
| (2) Junction Block | (5) Positive Winch Prep Cable – Front |
| (3) Generator Output Cable | (6) Junction Block Post |

Generators – Diesel



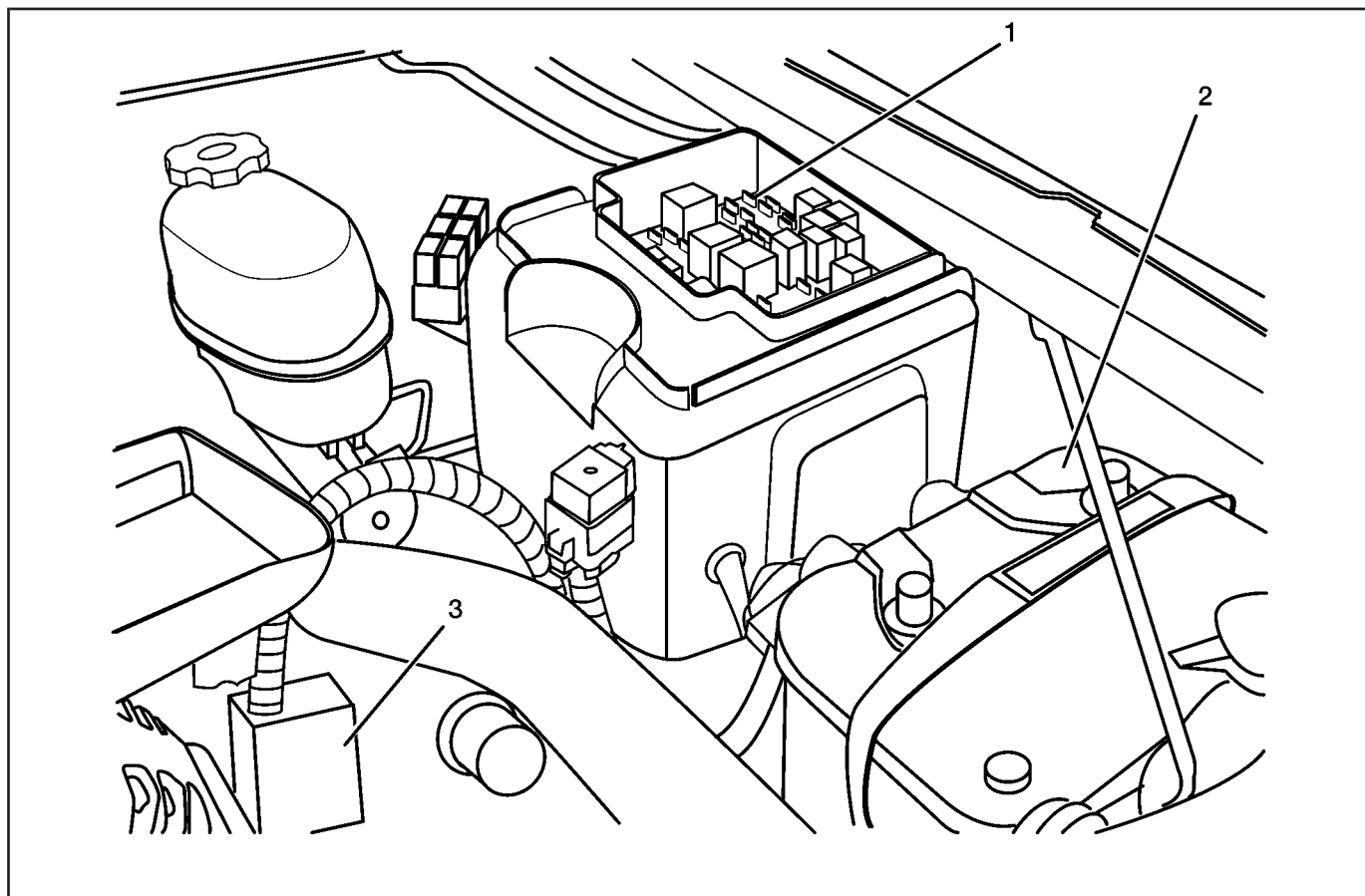
741105

Legend

- (1) Generator – Right (24V)
- (2) Engine

- (3) Generator – Left (12V)

Left Front Corner of the Engine Compartment



1703357

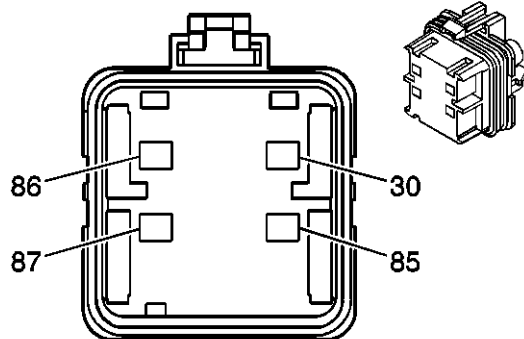
Legend

- (1) Fuse/Relay Center Underhood
- (2) Battery – Left (24V)

- (3) Junction Block Underhood

Engine Electrical Connector
End Views

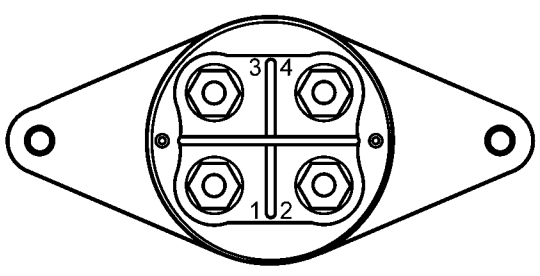
24V Generator Relay



535912

Connector Part Information		• 12129716 • 4-Way F MP Series 280 (GY)	
Pin	Wire Color	Circuit No.	Function
30	BN	8008	Operator Field Duty Cycle Signal
85	PK	8002	UBEC Cavity A3
86	BK	150	Ground
87	RD/BK	8009	24V Battery Supply Voltage

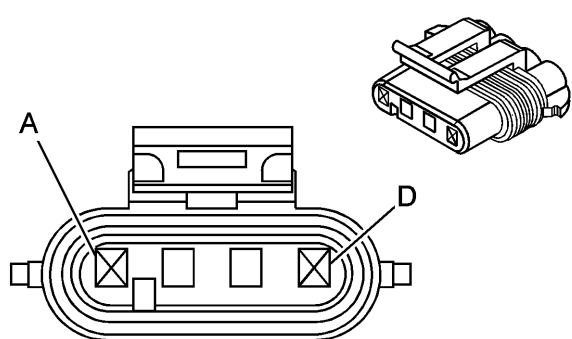
Vehicle Load Disconnect Switch



1703358

Connector Part Information		• 35-223 • 4-Way	
Pin	Wire Color	Circuit No.	Function
1	RD	900	12V Supply to Underhood BUS Electrical Center
2	RD	19	12V Power Supply
3	RD/BK	8009	24V Supply to Generator
4	RD	900	24V Power Supply

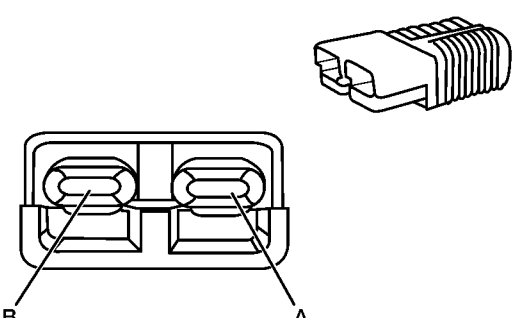
Generator Connector



647991

Connector Part Information		• 15355066 • 4-Way F Metri-Pack 150 Series Sealed (NA)	
Pin	Wire Color	Circuit No.	Function
A	—	—	Not Used
B	YE	8014	Generator Field Duty Cycle Signal
C-D	—	—	Not Used

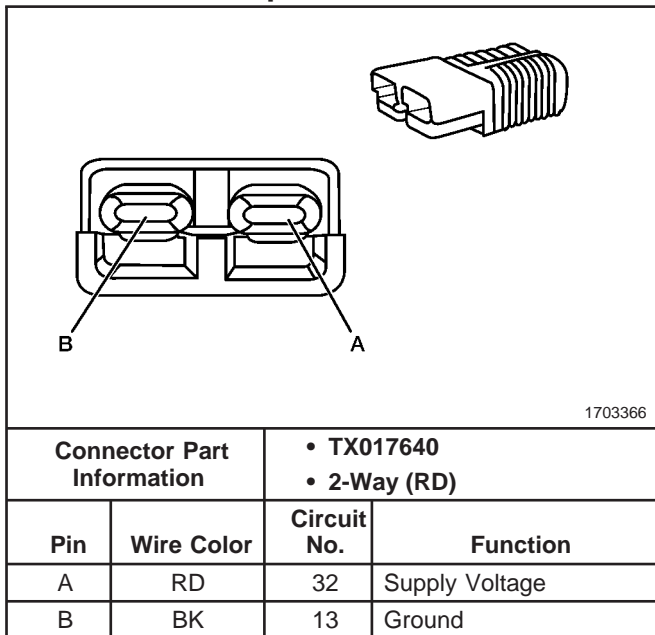
Winch Prep Connector – Front



1703366

Connector Part Information		• TX017639 • 2-Way (RD)	
Pin	Wire Color	Circuit No.	Function
A	RD	32	Supply Voltage
B	BK	13	Ground

Winch Prep Connector – Rear



Diagnostic Information and Procedures

Diagnostic Starting Point - Engine Electrical

Begin the system diagnosis by reviewing the system Description and Operation. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to *Symptoms - Engine Electrical* in order to identify the correct procedure for diagnosing the system and where the procedure is located.

Symptoms - Engine Electrical

Symptom List

Important: For vehicle no start condition, refer to *Diagnostic Starting Point - Engine Electrical* and for Starter Motor Diagnosis refer to *Symptoms - Engine Electrical* in Engine Electrical in 2005 C/K Truck Service Manual.

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- 24V Generator Noise Diagnosis
- 24V Generator Inoperative
- Battery Inspection/Test (Optima)
- Battery Charging (Optima)

Battery Inspection/Test (Optima)

Diagnostic Aids

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

Important:

- Verify that all battery connections are clean and torqued to fastener specification.
- Use the Out of Vehicle test for each battery in the system.

Follow these instructions in order to avoid an incorrect diagnosis:

1. Disconnect the negative battery cables. Refer to the *Battery Cable Disconnect/Connect Procedure*.
2. Install the test adapters on the terminals.
3. Follow the instructions for testing a removed battery.

Important: Use the correct terminal adapters. Do not use any common bolts or a combination of bolts, of nuts, and of washers as adapters when testing the battery. Use the test adapters that are provided with the *J 42000* or GM P/N 12303040 terminal adapters. If the adapters that are provided with the *J 42000* require replacement, use GM P/N 12303040. Any other adapter may not contact the correct areas of the battery terminal, causing a resistance that may result in an invalid battery test result.

4. Replace the battery only if the second test shows a REPLACE BATTERY or BAD CELL-REPLACE result.

Battery Charging (Optima)

Tools Required

J 42000 Battery Tester

- Only use a voltage regulated charger
- The charging area should be well ventilated.
- Do not charge a battery that appears to be frozen; allow the battery to warm to room temperature and test it using the *J 42000* before charging.

Recommended Charging Rates

Use the following values when charging the battery.

Battery Charger: 14.8 volts, 13.75 amps maximum, and 24 hours maximum. Until charging amperage is below 0.5 amp.

Constant Voltage: 14.7 to 15.0 volts, temperature 122° F (50° C), no current limits, continue until current falls below 1 amp, then finish with 2 amp constant current for 1 hour.

Float Charge: 13.2 to 13.8 volts, 1 amp maximum current, time indefinite.

Charging Procedure

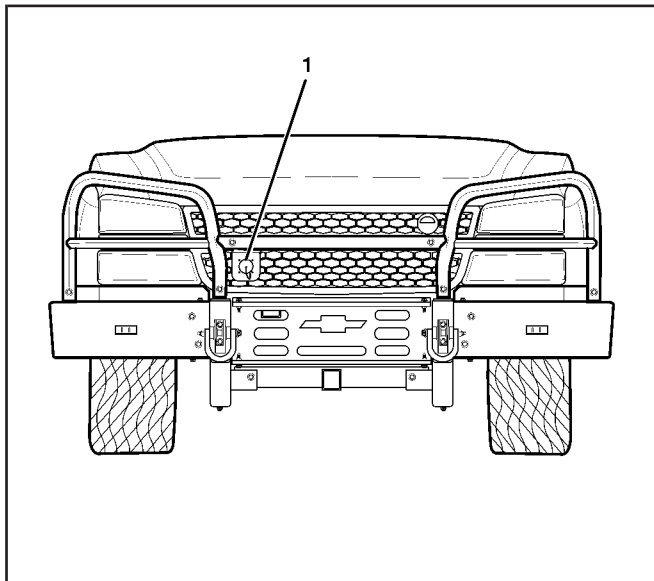
Notice: Turn OFF the ignition when connecting or disconnecting the battery cables, the battery charger or the jumper cables. Failure to do so may damage the PCM or other electronic components.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Ensure that all of the battery terminals are clean.
3. Connect the battery charger per manufacturer's operating recommendations.
4. Turn ON the charger and set the charging voltage. Refer to Recommended Charging Rates.
5. Inspect the battery every half hour after starting the battery. Estimate the battery temperature by feeling the side of the battery.

Tip: If it feels hot to the touch or its temperature is over 45° C (125° F), discontinue charging and allow the battery to cool before resuming charging.

6. After charging, test the battery. Refer to *Battery Inspection/Test (Optima)*.

Jump Starting in Case of Emergency



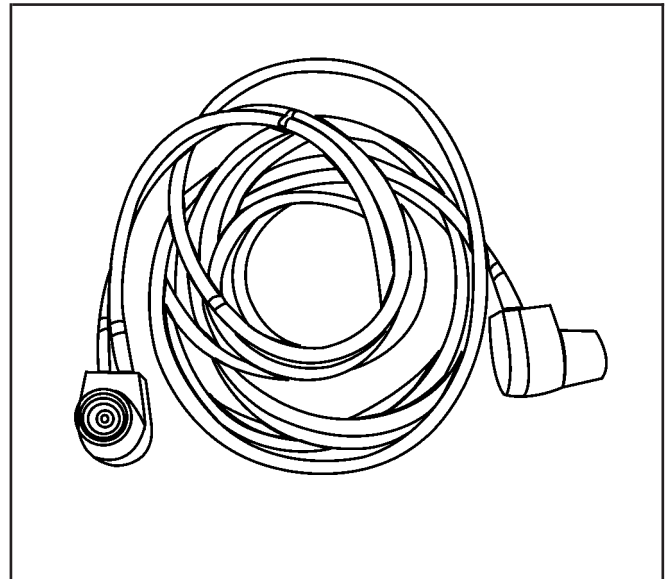
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If the battery (or batteries) on the vehicle has run down and the vehicle will not start, you may want to use another vehicle to provide power to start the vehicle.

The NATO term for this system is slave start receptacle (1). In the event the system must be replaced, refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)*.

NATO Slave Cables are the only recommended method of jump starting similar vehicles.

Slave Starting

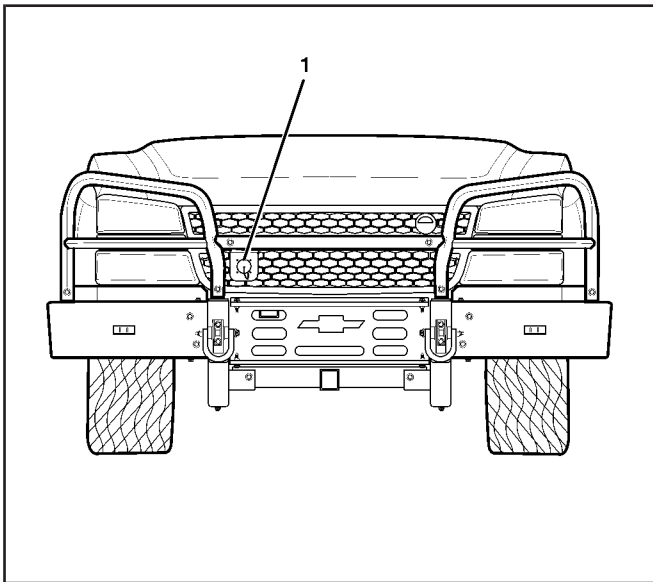


1704708

Caution: Batteries produce explosive gases. Batteries contain corrosive acid. Batteries supply levels of electrical current high enough to cause burns. Therefore, in order to reduce the risk of personal injury while working near a battery, observe the following guidelines:

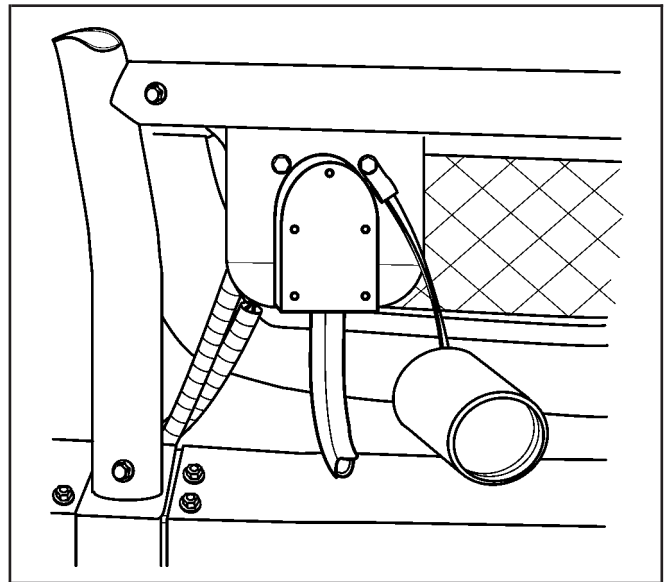
- Always shield your eyes.
- Avoid leaning over the battery whenever possible.
- Do not expose the battery to open flames or sparks.
- Do not allow battery acid to contact the eyes or the skin.
 - Flush any contacted areas with water immediately and thoroughly.
 - Get medical help.

You should always use the slave receptacle (1) and NATO Slave Cable when performing this operation.



1703359

1. Position the vehicles close enough so the slave cable can reach, but be sure the vehicles are not touching each other. If they are, it could cause a ground connection. You would not be able to start your vehicle, and the bad grounding could damage the electrical systems. To avoid the possibility of the vehicles rolling, set the parking brake firmly on both vehicles involved in the jump start procedure. Put the automatic transmission in PARK (P). Be sure the transfer case is not in NEUTRAL (N).
2. Turn OFF the ignition on both vehicles. Unplug unnecessary accessories plugged into the cigarette lighter or accessory power outlets. Turn OFF all lamps that are not needed as well as radios. This will avoid sparks and help save both batteries.
3. Locate the slave receptacles on both vehicles, and unscrew the covers.



1703360

Caution: Using an open flame near a battery can cause battery gas to explode. People have been hurt doing this, and some have been blinded. Use a flashlight if you need more light.

Be sure the batteries have enough water. You do not need to add water to the Optima battery (or batteries) installed in the vehicle. But if a battery has filler caps, be sure the right amount of fluid is there. If it is low, add water to take care of that first. If you do not, explosive gas could be present.

Battery fluid contains acid that can burn you. Do not get it on you. If you accidentally get it in your eyes or on your skin, flush the place with water and get medical help immediately.

Caution: Keep hands, tools, and clothing away from the electric engine coolant fans in order to help prevent personal injury. These fans are electric and can turn on whether or not the engine is running. The fans can start automatically with the ignition in the ON position.

4. Connect the slave cable to the vehicle with the dead battery.
5. Start the vehicle with the good batteries.
6. Connect the slave cable to the vehicle with the good battery.

Important: It may take up to 30 minutes to charge the battery enough to start the vehicle depending on its state of charge.

7. Allow the vehicle with the dead battery to charge for 10 minutes.
8. Start the vehicle with the dead battery.

Important: Never remove the cables with the starter engaged.

9. Remove the slave cable in the reverse order that it was installed. Take care not to let the cables touch a metal surface.
10. Reinstall the slave start covers.

24V Generator Noise Diagnosis

Diagnostic Aids

Noise from a generator may be due to electrical or mechanical noise. Electrical noise, or magnetic whine usually varies with the electrical load placed on the generator and is a normal operating characteristic of all

generators. When diagnosing a noisy generator, it is important to remember that loose or misaligned components around the generator may transmit the noise into the passenger compartment and that replacing the generator may not solve the problem.

24V Generator Noise Diagnosis

Step	Action	Yes	No
1	Test the generator for proper operation using the generator tester. Refer to <i>Charging System Test</i> in Engine Electrical in 2005 C/K Truck Service Manual Is the generator operating properly?	Go to <i>Step 2</i>	Go to <i>Step 10</i>
2	1. Start the engine. Verify that the noise can be heard. 2. Turn OFF the engine. 3. Disconnect the 4-way connector from the generator. 4. Start the engine. 5. Listen for the noise. Has the noise stopped?	Go to <i>Step 10</i>	Go to <i>Step 3</i>
3	1. Turn OFF the engine. 2. Remove the drive belt. Refer to <i>Drive Belt Replacement</i> in Engine Mechanical 6.6 L in 2005 C/K Truck Service Manual. 3. Spin the generator pulley by hand. Does the generator shaft spin smoothly and without any roughness or grinding noise?	Go to <i>Step 4</i>	Go to <i>Step 10</i>
4	Inspect the generator for a loose pulley and/or pulley nut. Is the generator pulley or pulley nut loose?	Go to <i>Step 11</i>	Go to <i>Step 5</i>
5	1. Loosen all of the generator mounting bolts. 2. Tighten the generator mounting bolts to specifications and in the proper sequence if necessary. Refer to <i>24V Generator Replacement</i> . 3. Install the drive belt. Refer to <i>Drive Belt Replacement</i> in Engine Mechanical - 6.6L in 2005 C/K Truck Service Manual. 4. Start the engine.	System OK	Go to <i>Step 6</i>
6	Inspect the generator for the following conditions: <ul style="list-style-type: none"> Strained or stretched electrical connections. Hoses or other vehicle equipment resting on the generator, which may cause the noise to be transmitted into the passenger compartment. Are any electrical connections pulling on the generator or are any hoses, etc. resting on the generator?	Go to <i>Step 7</i>	Go to <i>Step 8</i>
7	1. Reroute the electrical connections to relieve the tension. 2. Reroute the hoses, etc. away from the generator. 3. Start the engine. Has the noise decreased or stopped?	System OK	Go to <i>Step 8</i>

24V Generator Noise Diagnosis (cont'd)

Step	Action	Yes	No
8	Inspect the drive belt for proper tension. Refer to <i>Drive Belt Tensioner Diagnosis</i> in Engine Mechanical - 6.6 L in 2005 C/K Truck Service Manual. Is the drive belt loose?	Go to Step 9	Go to Step 10
9	1. Replace the drive belt tensioner. Refer to <i>Drive Belt Tensioner Replacement</i> in Engine Mechanical – 6.6L in 2005 C/K Truck Service Manual. 2. Start the engine. Has the noise decreased or stopped?	System OK	Go to Step 11
10	Compare the vehicle with a known good vehicle. Do both vehicles make the same noise?	System OK	Go to Step 11
11	Important: If no definite generator problems were found, be sure that all other possible sources of objectionable noise are eliminated before replacing the generator. Replacing the generator may not change the noise level if the noise is a normal characteristic of the generator or the generator mounting. Replace the generator. Refer to <i>24V Generator Replacement</i> . Has the noise decreased or stopped?	Go to Step 12	—
12	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

24V Generator Inoperative

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check – Vehicle?	—	Go to Step 2	Go to <i>Diagnostic System Check - Vehicle</i> in Vehicle DTC Information in 2005 C/K Truck Service Manual
2	Using a DMM, measure the voltage across the 24V battery terminals. Is the voltage between the specified voltage?	18.0-28.5 V	Go to Step 3	Go to <i>Battery Inspection/Test (Optima)</i>
3	1. Start the engine. 2. Using a DMM, measure the voltage between the generator terminal B and ground. Is the voltage greater than the specified voltage?	7 V	Go to Step 4	Go to Step 6
4	Using a DMM, measure the voltage from the BATT terminal and ground. Is the voltage greater than the specified voltage?	7 V	Go to Step 5	Go to Step 7
5	Connect a test lamp between ground terminal of the generator and battery negative. Does the test lamp illuminate?	—	Go to Step 8	Go to Step 10
6	Connect a test lamp between terminal 30 of the 24V relay and ground. Does the test lamp illuminate?	—	Go to Step 9	Go to Step 11

24V Generator Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
7	Repair the generator voltage circuit for an open or high resistance. Did you complete the repair?	—	Go to <i>Step 17</i>	—
8	Test the generator ground circuit for an open or high resistance. Did you find and correct the condition?	—	Go to <i>Step 17</i>	Go to <i>Step 10</i>
9	Repair the generator field circuit for an open or high resistance. Did you complete the repair?	—	Go to <i>Step 17</i>	—
10	Replace the generator. Refer to <i>24V Generator Replacement</i> . Did you complete the replacement?	—	Go to <i>Step 17</i>	—
11	Connect a test lamp between terminal 85 and ground. Did the test lamp illuminate?	—	Go to <i>Step 12</i>	Go to <i>Step 14</i>
12	Connect a test lamp between terminal 86 and ground. Did the test lamp illuminate?	—	Go to <i>Step 16</i>	Go to <i>Step 14</i>
13	Repair the 24V relay control voltage circuit for an open or high resistance. Did you complete the repair?	—	Go to <i>Step 17</i>	—
14	Connect a test lamp between terminal 87 of the 24V relay and ground. Did the test lamp illuminate?	—	Go to <i>Step 15</i>	Go to <i>Step 13</i>
15	Replace the 24V relay. Refer to <i>Relay Replacement - 24V Generator</i> . Did you complete the replacement?	—	Go to <i>Step 17</i>	—
16	Repair the 24V relay ground control circuit for an open or high resistance. Did you complete the repair?	—	Go to <i>Step 17</i>	—
17	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to <i>Step 2</i>

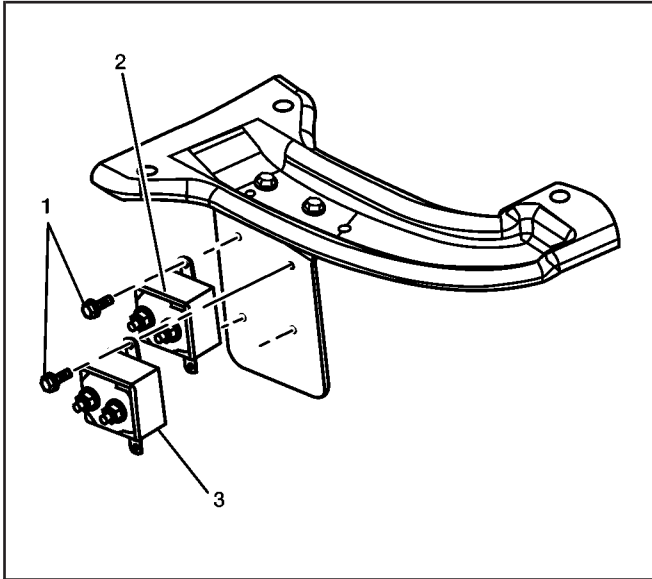
Repair Instructions

Circuit Breaker Replacement - 12V or 24V

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the nuts holding the wires to the circuit breaker and remove the wires.
Note the location of wires for reassembly.
3. Remove the 4 screws (1), holding the 24V (2) or 12V (3) circuit breaker to the fender support.
4. Remove the 24V (2) or 12V (3) circuit breaker.



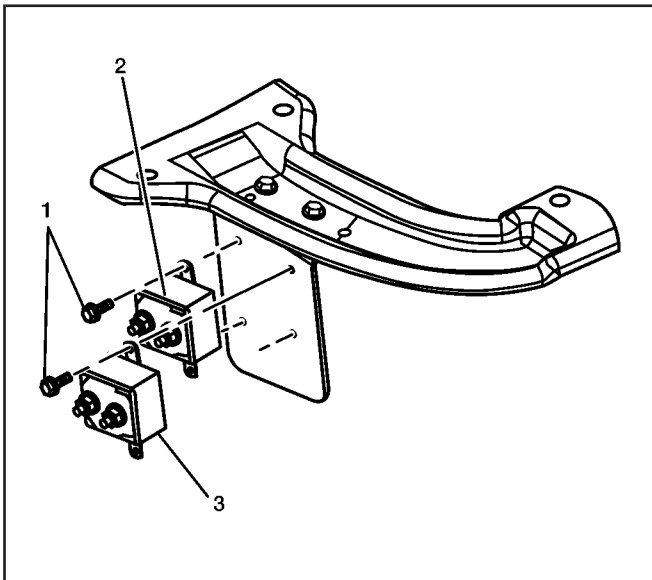
1703361

Installation Procedure

1. Install the 24V (2) or 12V (3) circuit breaker to the fender support with the 4 screws (1).

Tip: Install 24V circuit breaker with auxiliary contact up.

2. Install the wires to the circuit breaker with the two nuts.
3. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



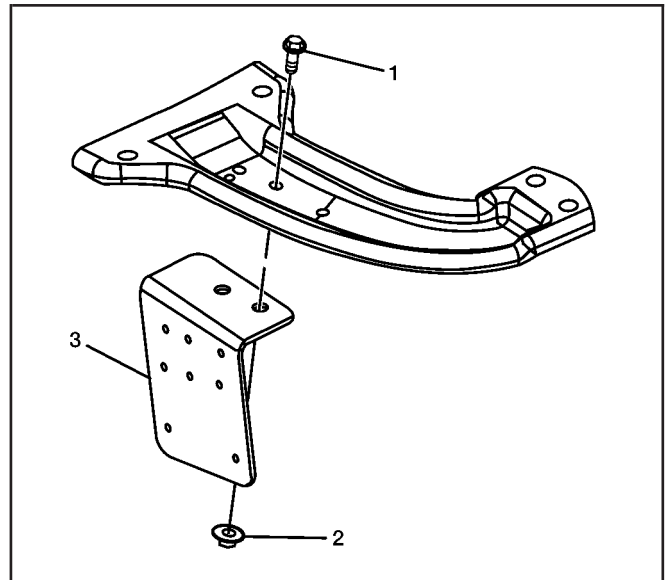
1703361

Circuit Breaker Bracket Replacement

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the circuit breakers. Refer to *Circuit Breaker Replacement - 12V or 24V*.
3. Remove the retainers (1, 2) attaching the bracket (3) to the fender/cowl support.



1704698

Installation Procedure

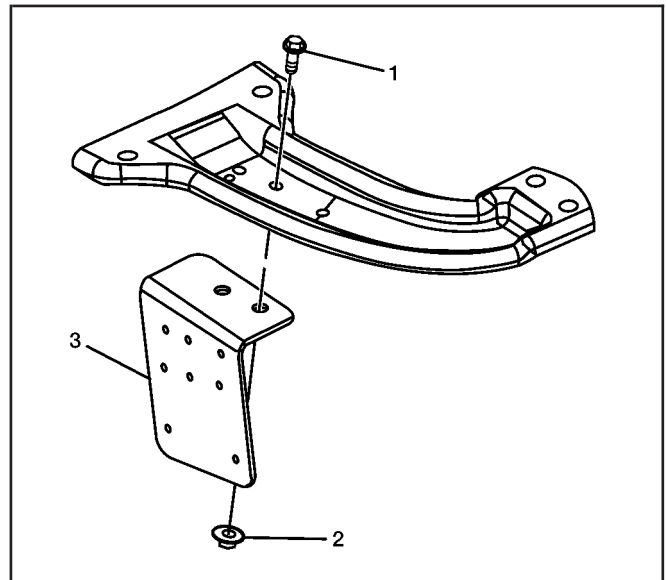
Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the bracket (3) to the fender/cowl support and tighten the retainers (1, 2).

Tighten

Tighten bracket bolts to 6 N·m (53 lb in).

2. Install the circuit breakers. Refer to *Circuit Breaker Replacement - 12V or 24V*.
3. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



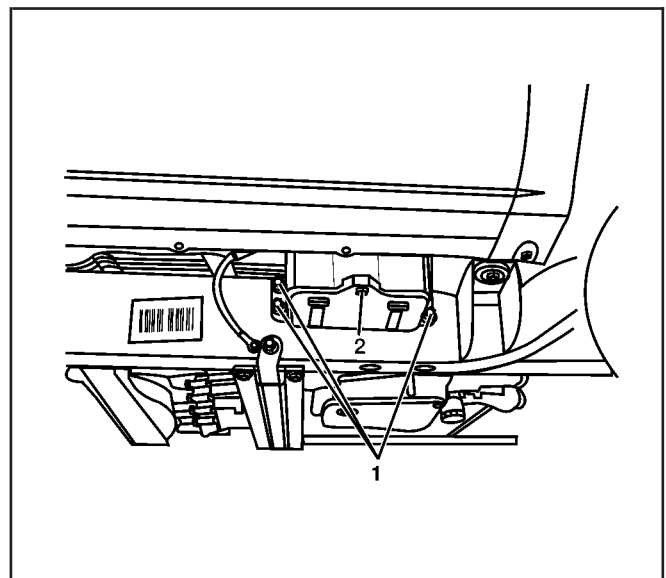
1704698

Battery and Battery Tray Replacement

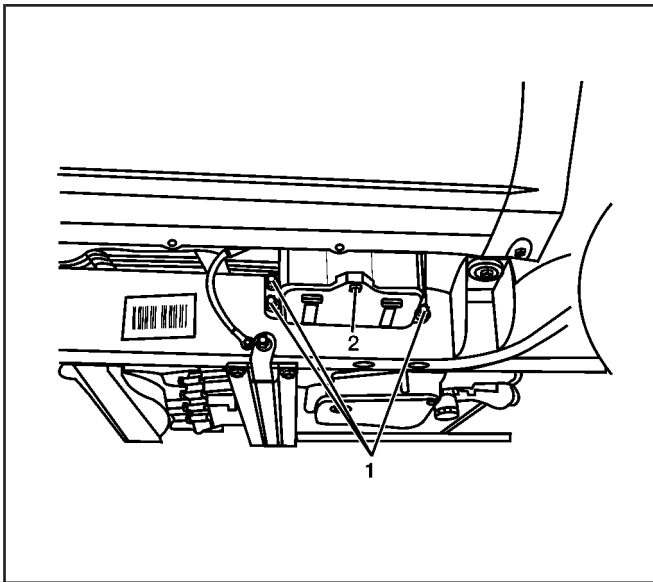
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Loosen the bolts (1). Push up the battery tray (2) and remove from frame.
3. Unsnap the positive battery cable cover.
4. Remove the negative and positive battery cables.
5. Remove the retainer bolt and remove battery.



1704699



1704699

Installation Procedure

1. Install the battery in tray.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the battery retainer and tighten bolt.

Tighten

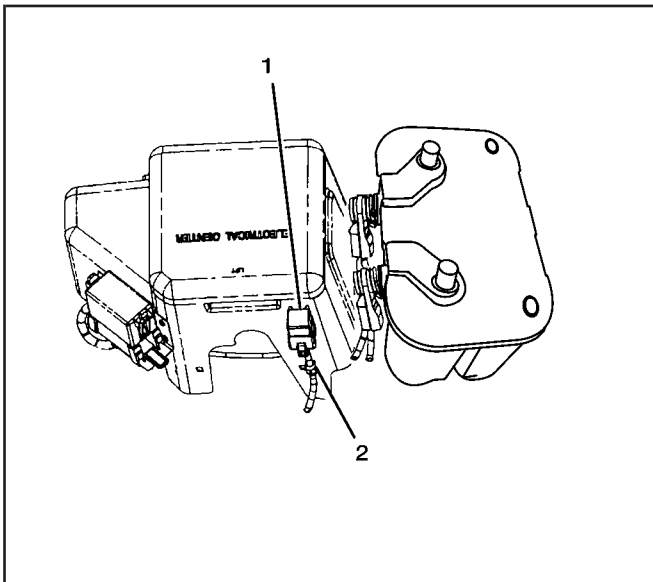
Tighten retainer bolt to 25 N·m (18 lb ft).

3. Install the positive and negative cables and tighten.

Tighten

Tighten cables to 17 N·m (13 lb ft).

4. Snap the positive battery cable cover closed.
5. Lift the battery tray (2) onto the bolts (1) on the frame and tighten.
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

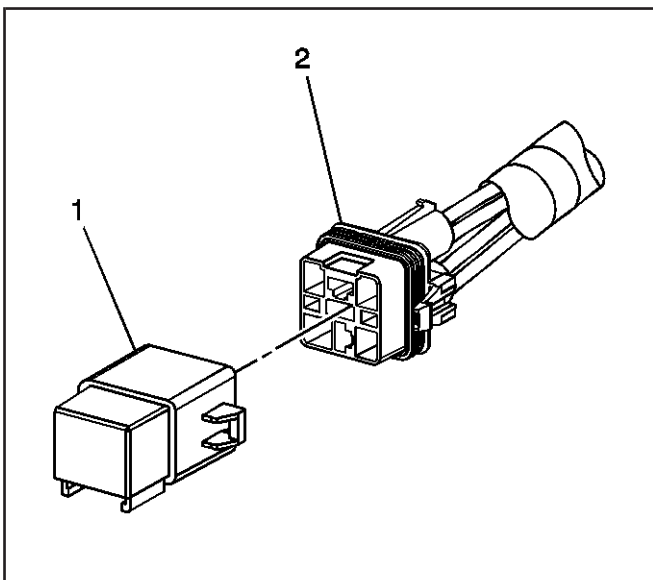


1704700

Relay Replacement - 24V Generator

Removal Procedure

1. Release the clip (2) securing the wiring harness to the underhood electrical center housing.
2. Remove the 24V relay (1) from the underhood electrical center housing.

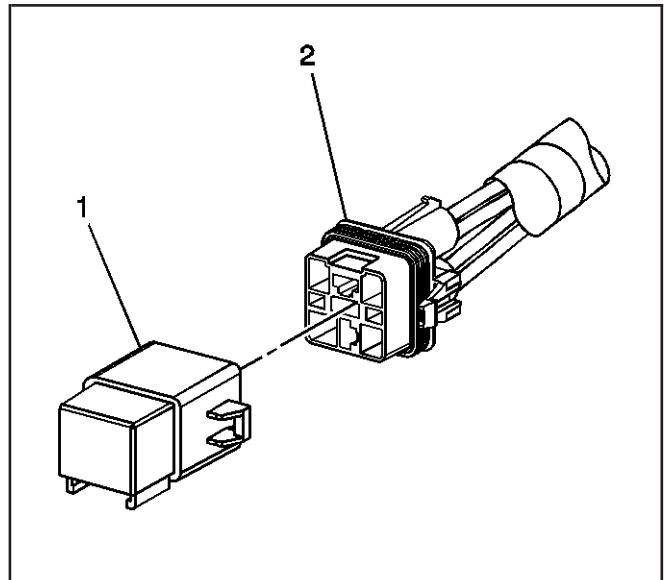


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3. Remove the connector position assurance (CPA) devices or secondary locks.
4. Separate the relay (1) from the wiring harness connector (2).

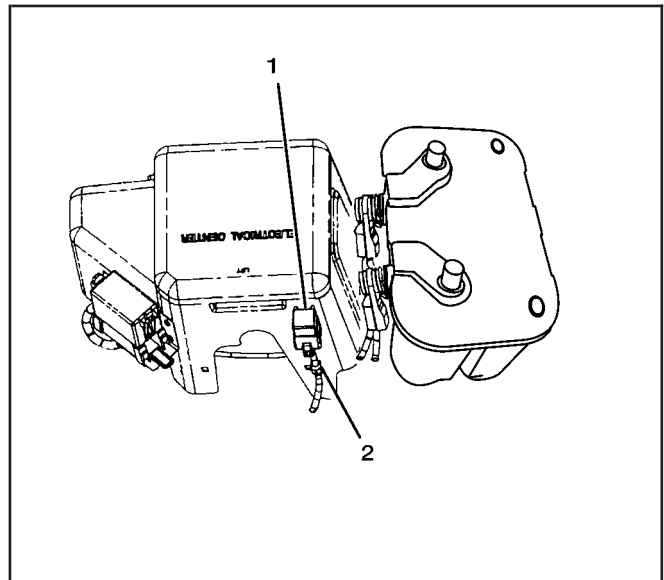
Installation Procedure

1. Connect the relay (1) to the wiring harness connector (2).
2. Install any connector position assurance (CPA) devices or secondary locks.



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3. Install the 24V relay (1) onto the underhood junction block.
4. Secure the wiring harness to the clip (2).



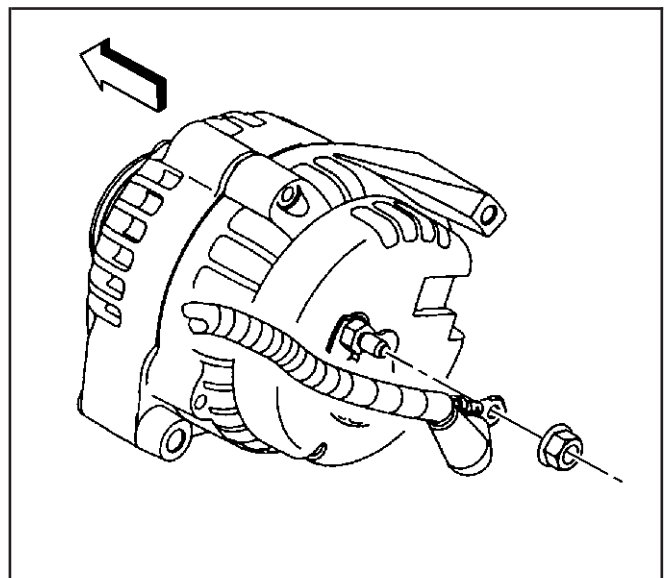
1704700

24V Generator Replacement

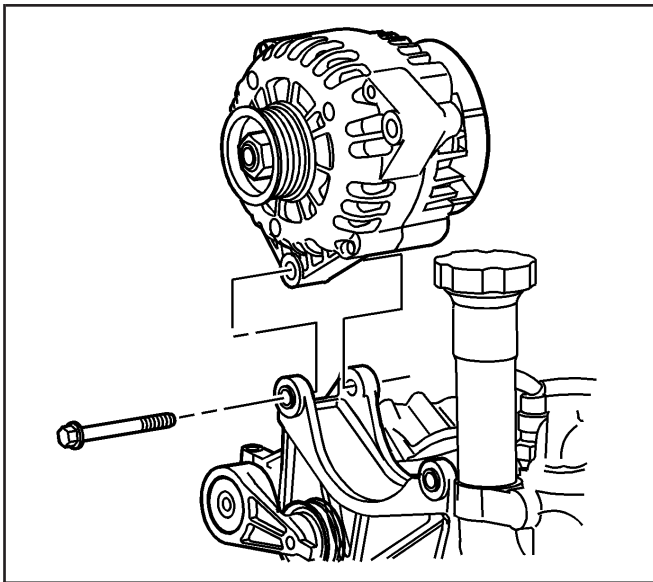
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the drive belt. Refer to *Drive Belt Replacement* in Engine Mechanical – 6.6L in the 2005 C/K Truck Service Manual.
3. Disconnect the generator electrical connector.
4. Remove the cable from the output stud.

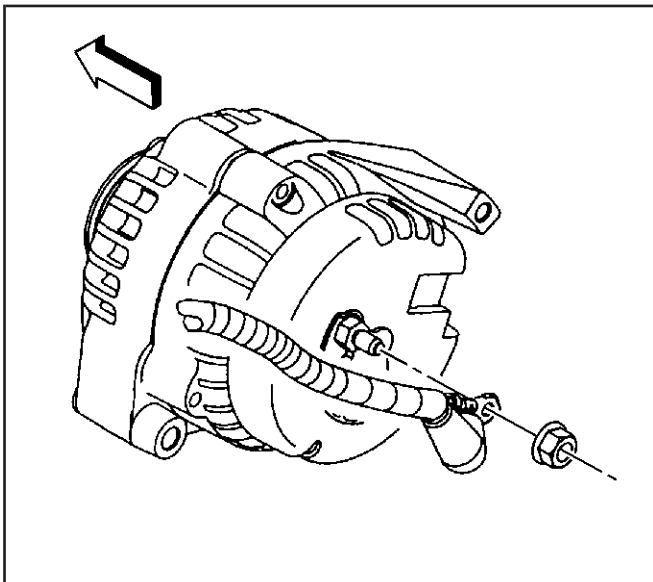


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5. Remove the generator bolts.
6. Remove the generator from the vehicle.



395686

Installation Procedure

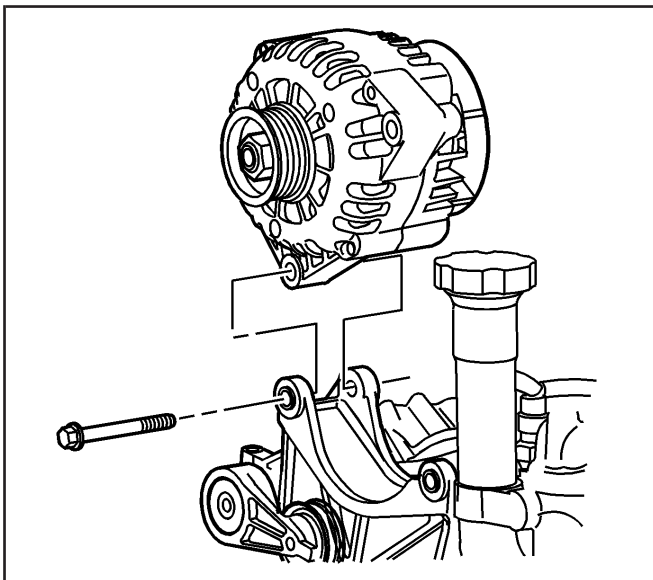
1. Install the cable onto the output stud of the generator.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nut onto the output stud.

Tighten

Tighten output stud to 9 N·m (80 lb in).



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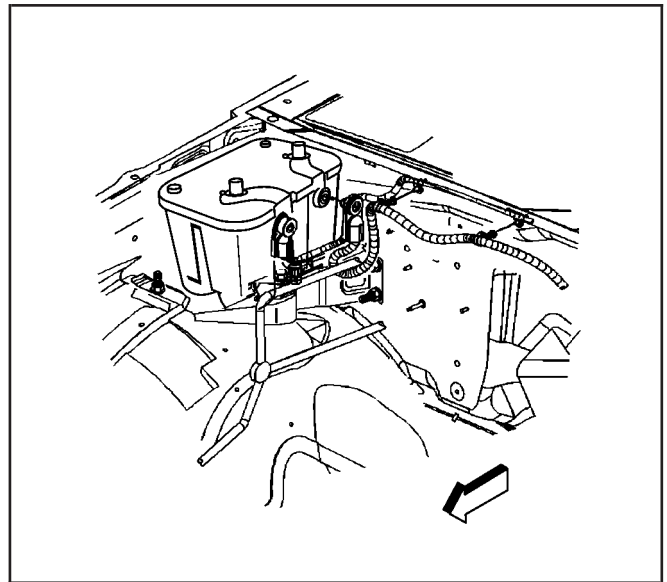
3. Install the generator into the mounting bracket.
 4. Install the generator bolts.
- Tighten**
- Tighten generator bolts to 50 N·m (37 lb ft).
5. Connect the generator electrical connector.
 6. Install the drive belt. Refer to *Drive Belt Replacement* in Engine Mechanical – 6.6L in the 2005 C/K Truck Service Manual.
 7. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

Battery Cable Disconnect/Connect Procedure

Removal Procedure

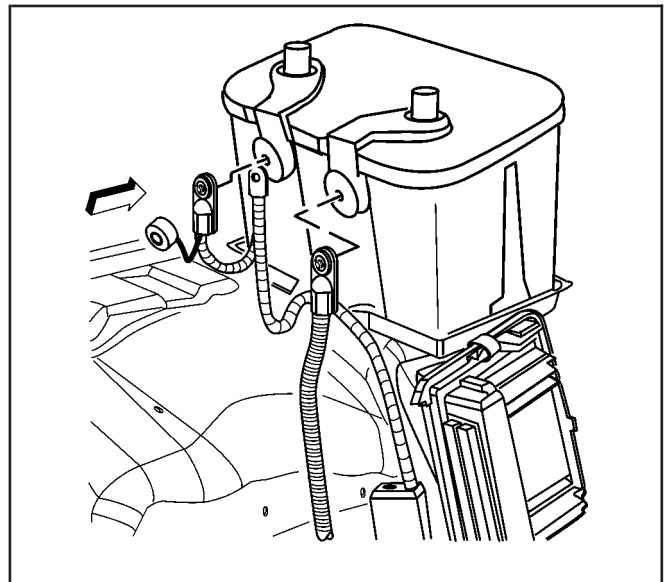
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Turn OFF all the lamps and accessories.
2. Turn OFF the ignition.
3. Remove the negative cable from the frame mounted battery.
4. Remove the battery negative cable from the right underhood battery.



1704765

5. Remove the negative cable of the 24V battery.
6. Remove the positive cable of the 24V battery.



1704702

Installation Procedure

Important: Clean any existing corrosion from the battery terminal bolt flange and the battery cable end.

1. Install the positive cable to the 24V battery.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the battery ground negative cable to the 24V battery.

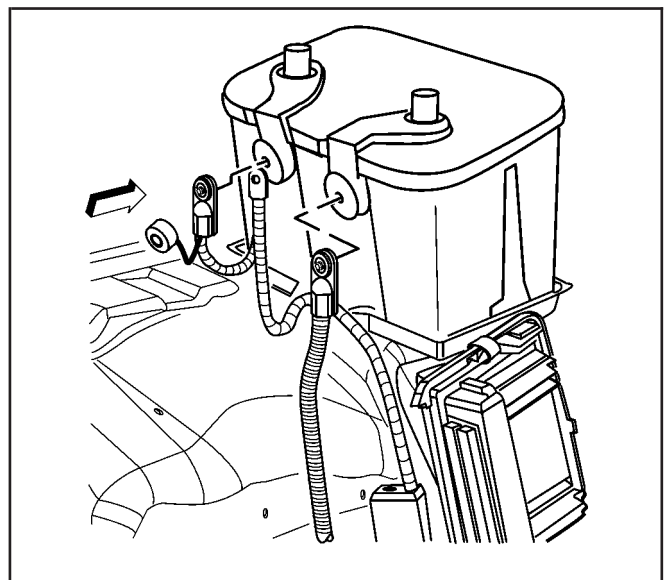
Tighten

Tighten the bolt to 17 N·m (13 lb ft).

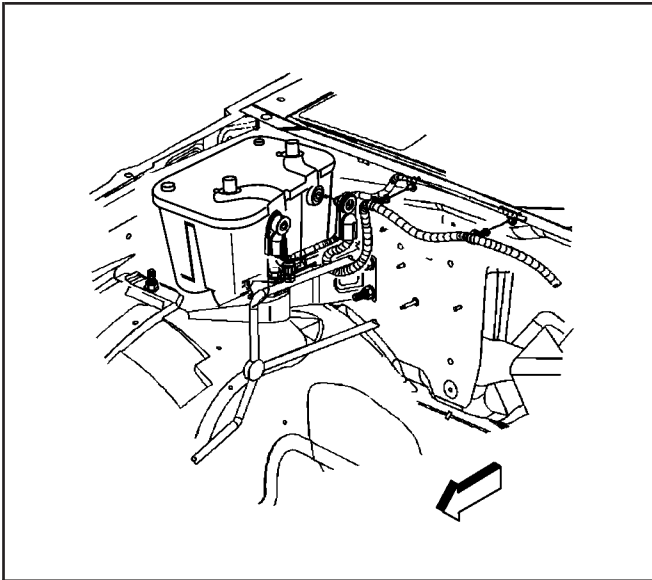
3. Install the negative battery cable to the right underhood battery.

Tighten

Tighten the bolt to 17 N·m (13 lb ft).



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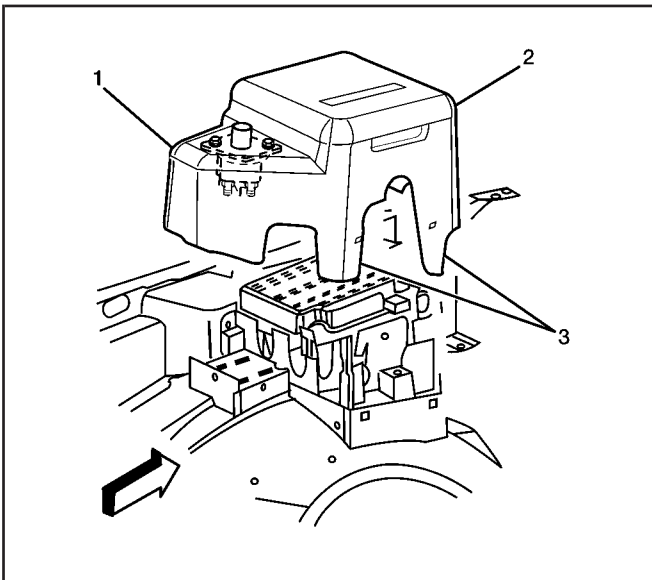


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4. Install the negative cable of the frame mounted battery.

Tighten

Tighten the bolt to 17 N·m (13 lb ft).



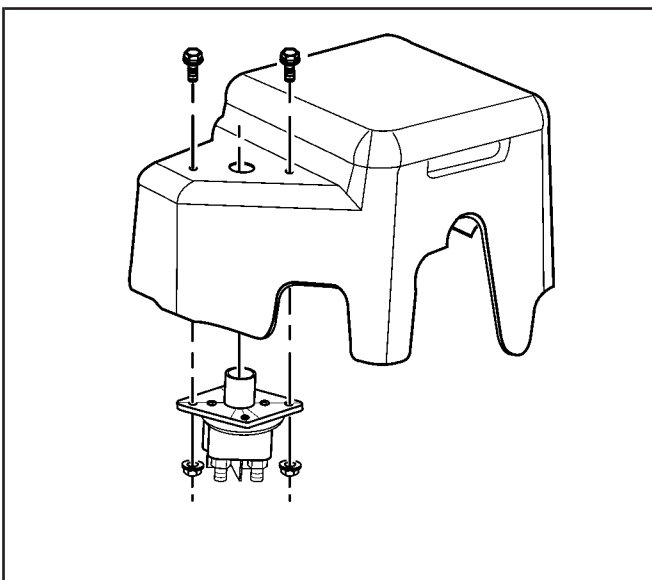
1704703

Vehicle Load Disconnect Switch Replacement (LSSV /Maintenance Body)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the disconnect switch key and the left upper brace.
3. Remove the electrical center cover assembly (1) by lifting the cover outwards to clear the tabs (3).



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4. Remove the switch mounting nuts and bolts.
5. Remove the nuts holding the 24V and 12V cables to the switch and remove the cables.
Note location of cables removed for assembly.

Installation Procedure

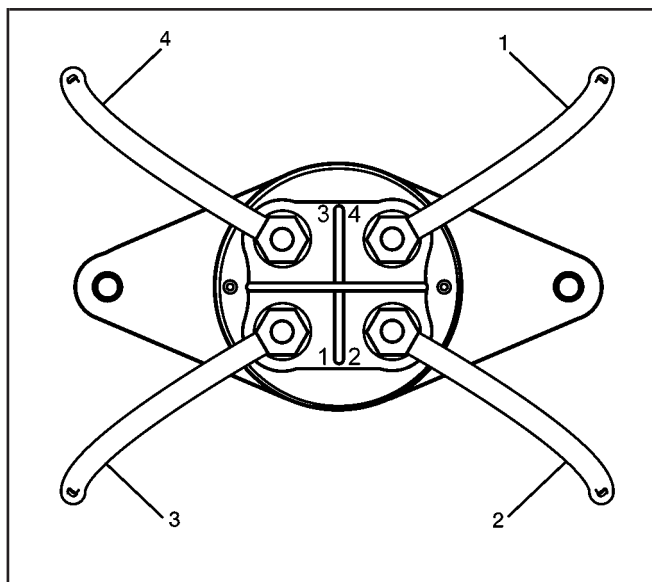
Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the 24V and 12V cables to the switch and install the cable mounting nuts.

Tighten

Tighten the cable mounting nuts to 9 N·m (80 lb in).

- Red cable from 24V battery positive (1) to terminal 4.
- Red/black cable (4) from 24V generator to terminal 3.
- Red cable (3) from UBEC to terminal 1.
- Red cable (2) from 24V battery negative to terminal 2.

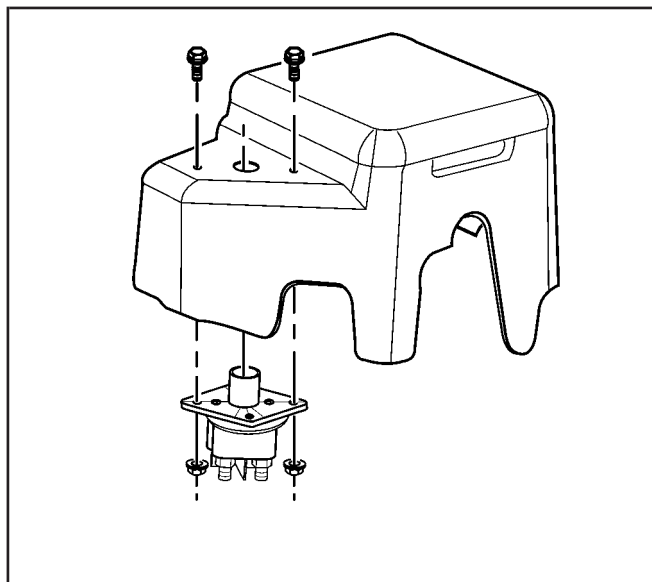


1704706

2. Install the switch to the underhood electrical center cover.

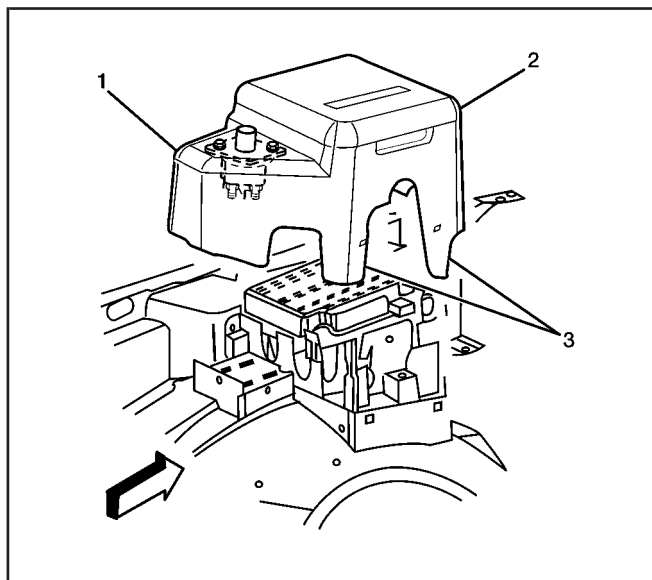
Tighten

Tighten the switch mounting nuts to 9 N·m (80 lb in).

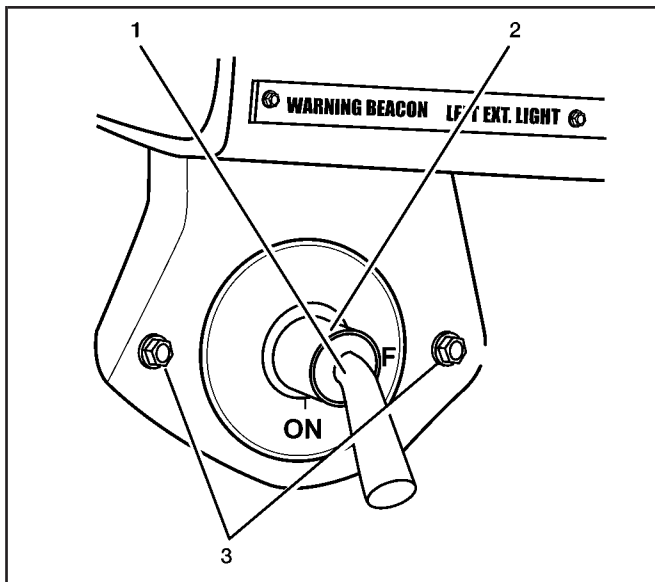


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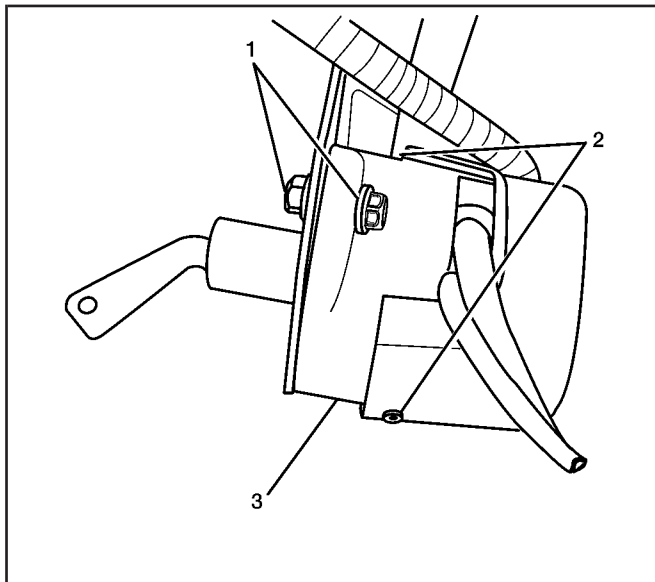
3. Set the electrical center cover assembly in its resting position until the tabs (3) lock into place.
4. Install the fender upper brace and the disconnect switch key.
5. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



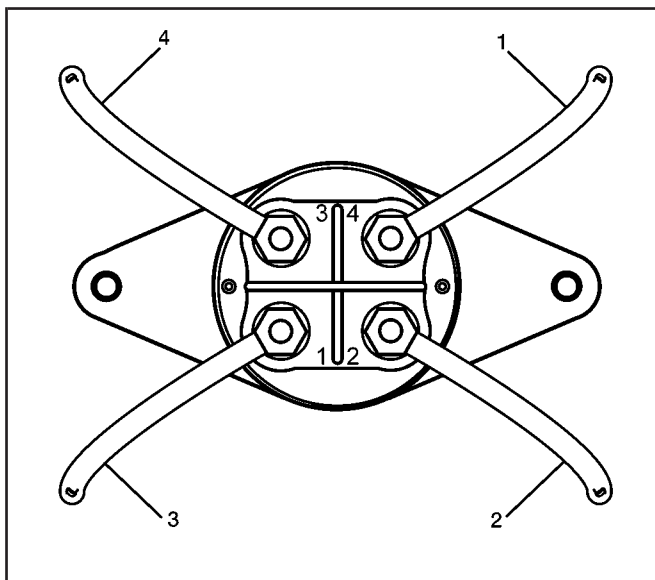
1704703



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1704706

Vehicle Load Disconnect Switch Replacement (Ambulance)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the disconnect switch key (1) from the switch (2).

3. Remove the switch mounting nuts and bolts (1).
 4. Remove the cable cover mounting screws (2).
 5. Remove the switch cable cover (3).
 6. Remove the nuts holding the 24V and 12V cables to the switch and remove the cables.
- Note location of cables removed for assembly.

Installation Procedure

Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Install the 24V and 12V cables to the switch and install the cable mounting nuts.

Tighten

Tighten the cable mounting nuts to 9 N·m (80 lb in).

- Red cable from 24V battery positive (1) to terminal 4.
- Red/black cable (4) from 24V generator to terminal 3.
- Red cable (3) from UBEC to terminal 1.
- Red cable (2) from 24V battery negative to terminal 2.

2. Install the switch cable cover (3).
3. Install the switch cable cover mounting screws (2).

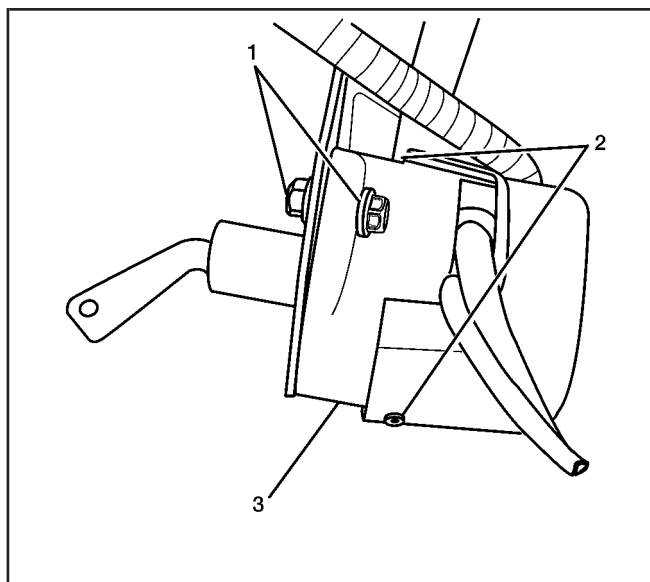
Tighten

Tighten the switch cable cover mounting screws to 1.6 N·m (14 lb in).

4. Install the switch to the mounting bracket and install the mounting nuts and bolts (1).

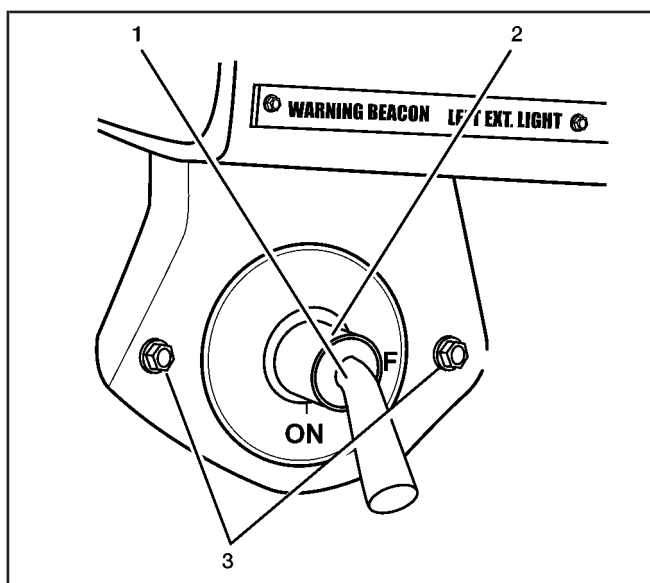
Tighten

Tighten the switch mounting nuts to 9 N·m (80 lb in).



1703363

5. Install the switch key (1) to the switch (2).
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



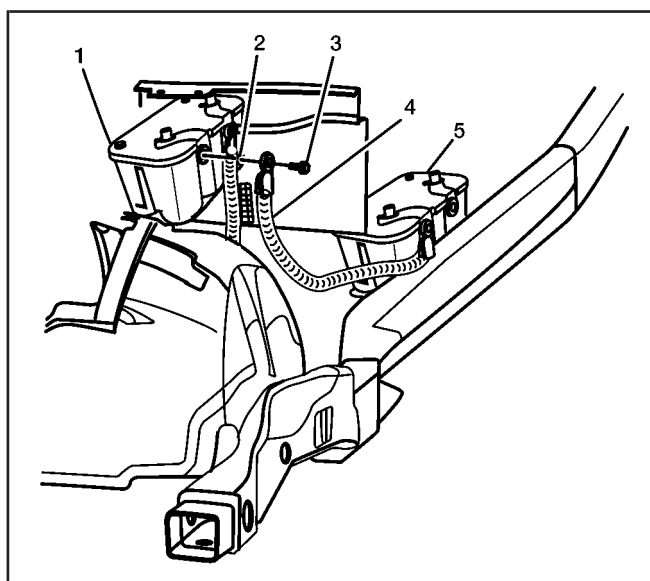
1703362

12V Battery Positive Cable Replacement - Battery to Battery

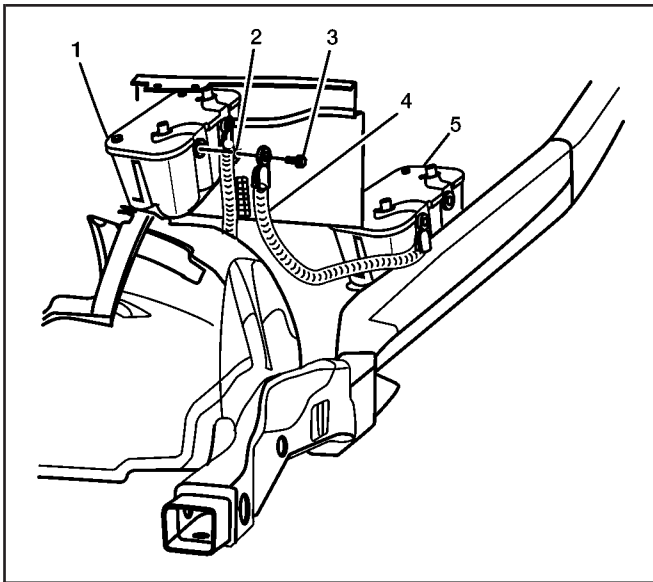
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the positive battery cable bolt (3), cable to starter connection and spacer from the right rear underhood battery.
3. Unsnap the positive battery cable cap from the frame mounted battery.
4. Remove the positive battery cable bolt.
5. Remove wiring harness straps and remove the positive cable (4) from the vehicle.



1703364



1703364

Installation Procedure

Important: Ensure that all battery terminal connections are clean.

1. Install the positive battery cable (4) and secure with wiring harness straps. Route in the same location as removed.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the positive battery cable bolt to the frame mounted battery.

Tighten

Tighten the bolt to 17 N·m (13 lb ft).

3. Snap the positive battery cable cap closed.
4. Install the positive battery cable bolt (2), cable to the starter connection and spacer.
5. Install the positive battery bolt cable bolt (3) through the cable and into the positive battery terminal of the right rear underhood battery.

Tighten

Tighten the bolt to 17 N·m (13 lb ft).

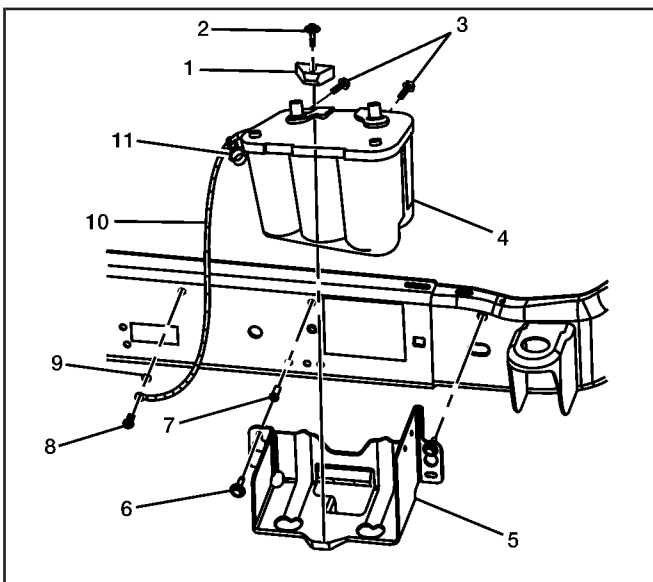
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

12V Battery Negative Cable Replacement - Frame Mounted Battery

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Remove the negative battery cable to frame bolt (8).
3. Remove the negative battery cable (10) from the vehicle.



1703365

Installation Procedure

Important: Ensure that all battery terminal connections are clean.

1. Clean the area around the battery cable to frame bolt.
2. Install the battery cable bolt (8) through the battery cable (10).

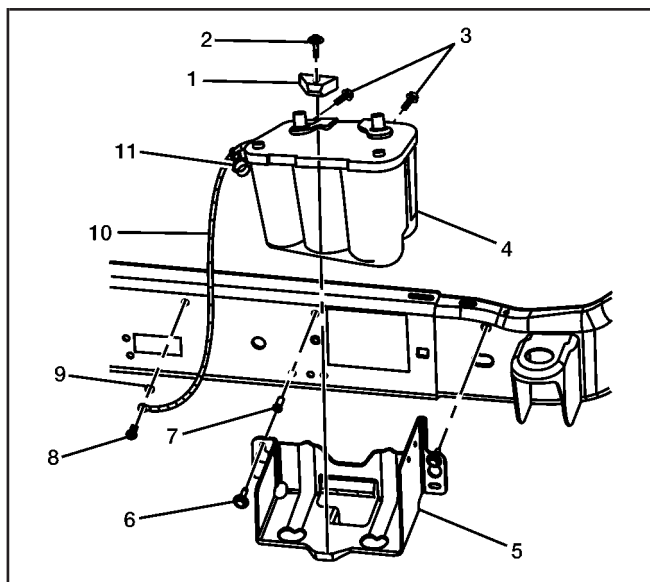
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install a new star washer (9) and tighten bolt into the frame.

Tighten

Tighten the bolt to 25 N·m (18 lb ft).

4. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



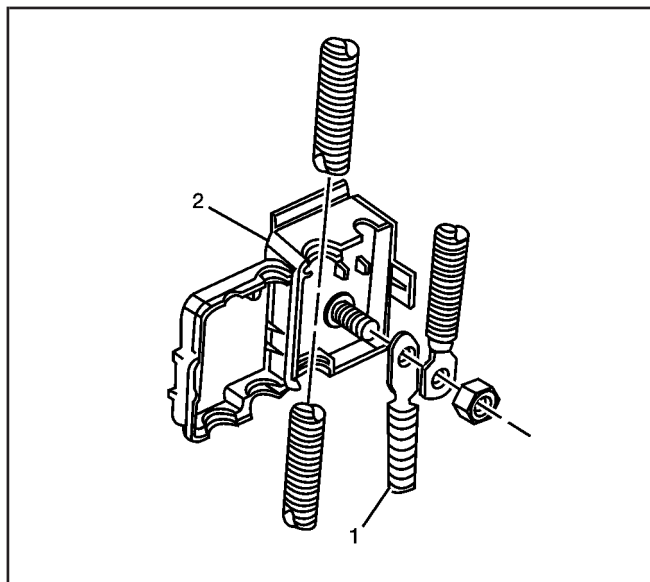
1703365

Front Winch Harness and Connector Replacement

Removal Procedure

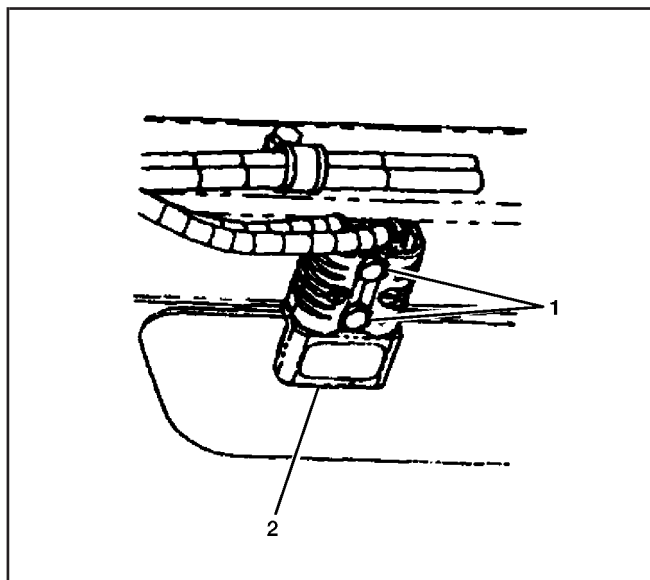
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the positive cable (1) from the junction block (2).
3. Remove the negative cable from the engine block.
4. Remove any wiring harness straps securing the cable to the vehicle.

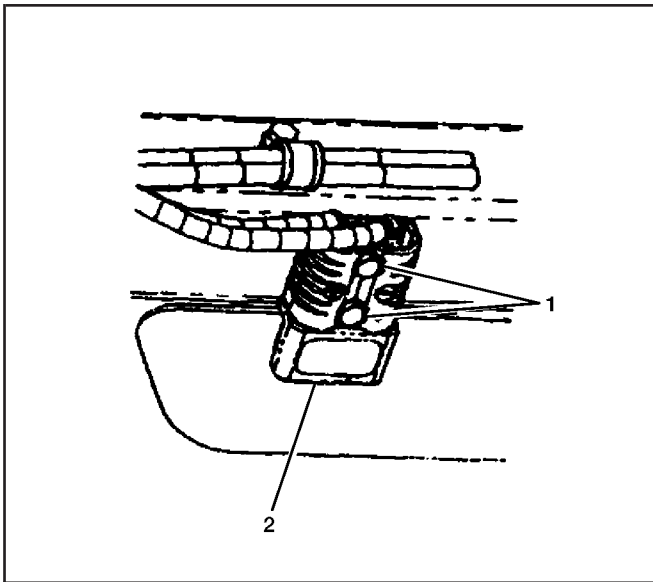


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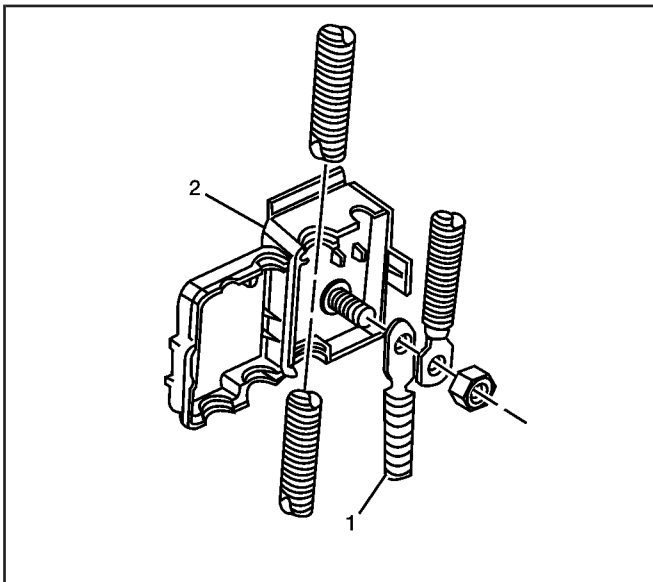
5. Remove the bolts (1) from the winch connector (2).
6. Remove connector/harness from vehicle.
Note cable routing for installation.



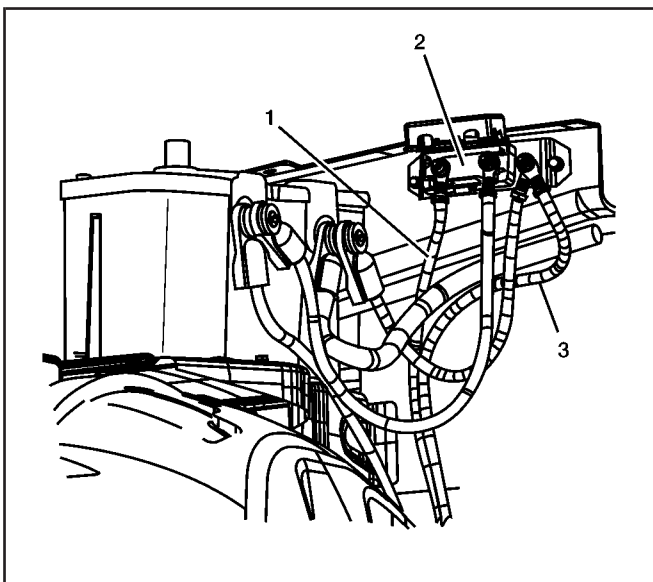
1710976



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1707377

Installation Procedure

1. Install connector/harness to the vehicle in the same routing as removed.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Position the connector (2) on the bumper and install bolts (1).

Tighten

Tighten the connector bolts to 10-15 N·m (7-11 lb ft).

3. Install the negative cable to the engine and the fastening bolt.

Tighten

Tighten the negative cable bolt to 34 N·m (25 lb ft).

4. Install the positive cable (1) to the junction block (2).

Tighten

Tighten the junction block nut to 9 N·m (80 lb in).

5. Install connector/harness to vehicle in original location using wiring harness straps.
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

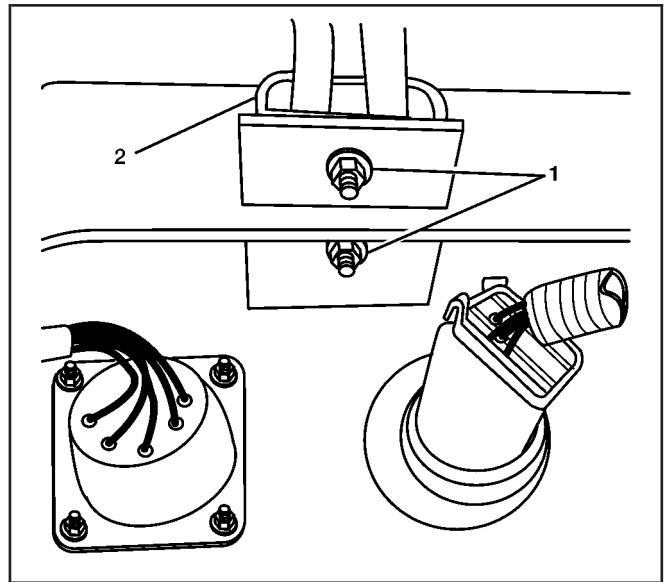
Rear Winch Harness and Connector Replacement (LSSV)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the negative cable (3) from the junction block.
3. Remove the positive cable (1) from the junction block (2).

4. Remove the wiring harness straps securing the cable.
5. Remove the clamp bolt and clamp from cable.
6. Remove the bolt (1) securing cable connector to the bracket.
7. Remove the cable (2) from the vehicle.
Note cable routing for installation.



1707430

Installation Procedure

1. Install the cable (2) onto the vehicle in the same location as removed.

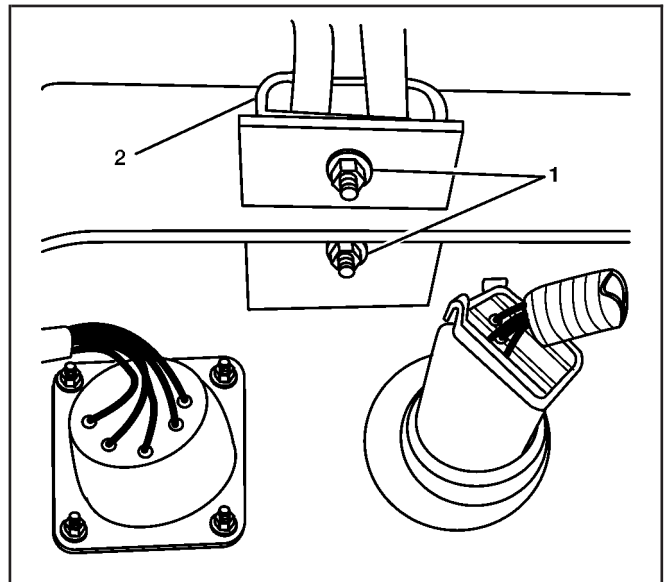
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the connector onto the bracket and secure with bolt (1).

Tighten

Tighten the connector bolt to 10-15 N·m (7-11 lb ft).

3. Install the clamp and secure with bolt.
4. Working from the rear to the front of the vehicle install the wiring harness straps.



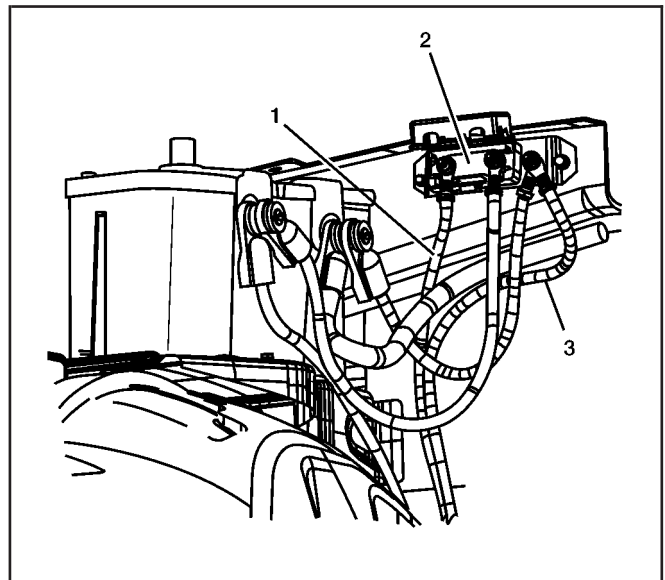
1707430

5. Install the positive cable (1) to the junction block (2).
6. Install the negative cable (3) to the junction block (2).

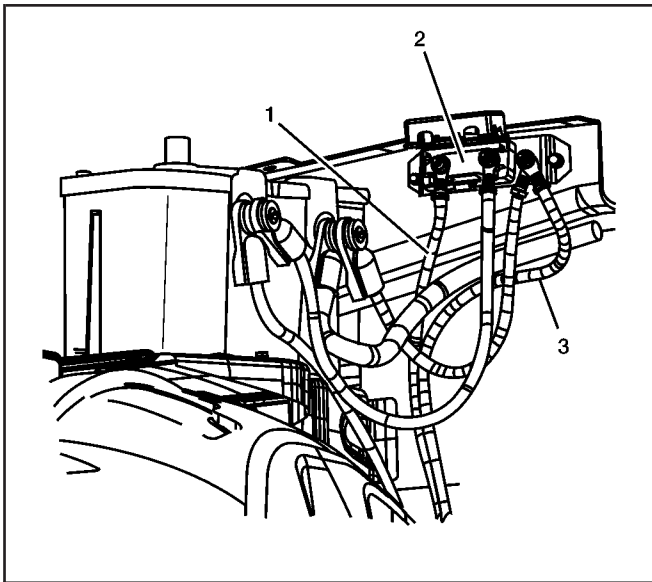
Tighten

Tighten the junction block nuts to 34 N·m (25 lb ft).

7. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



1707377



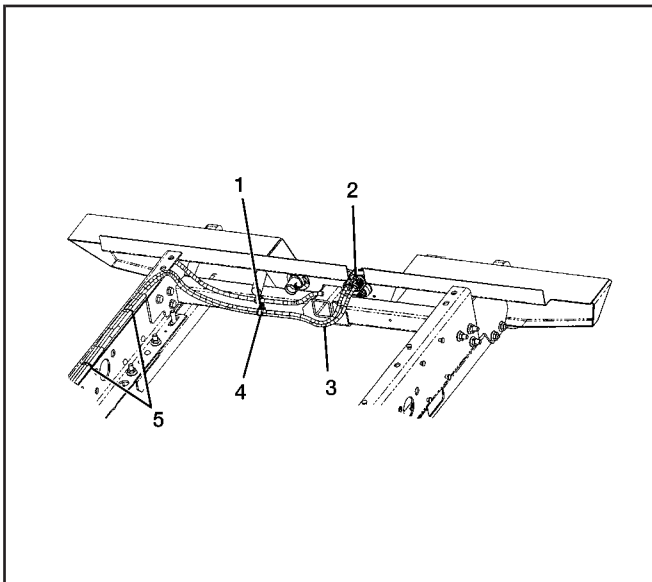
1707377

Rear Winch Harness and Connector Replacement (Maintenance Body)

Removal Procedure

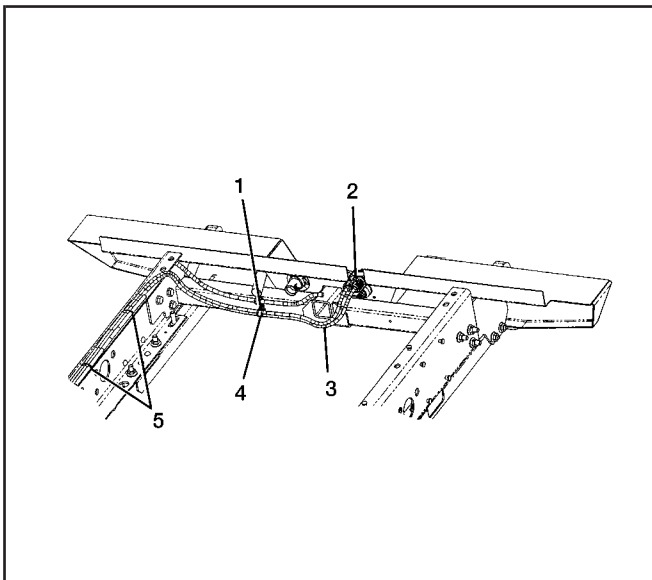
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the negative cable from the engine block.
3. Remove the positive cable (1) from the junction block (2).



1707416

4. Remove the wiring harness straps securing the cable.
5. Remove the bolt (2) securing cable connector to the bracket.
6. Remove the cable (3) from the vehicle.
Note cable routing for installation.



1707416

Installation Procedure

1. Install the cable (3) onto the vehicle in the same location as removed.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the connector onto the bracket and secure with bolt (2).

Tighten

Tighten the connector bolt to 10-15 N·m (7-11 lb ft).

3. Working from the rear to the front of the vehicle install the wiring harness straps.

4. Install the positive cable (1) to the junction block (2).

Tighten

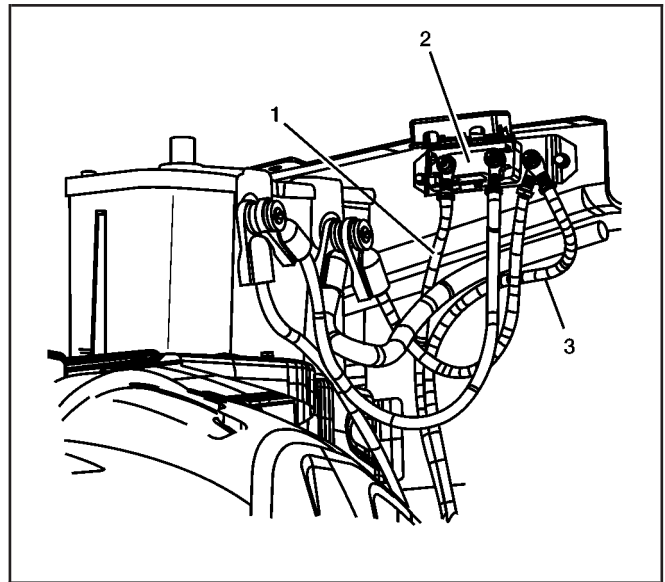
Tighten the junction block nut to 9 N·m (80 lb in).

5. Install the negative cable to the engine block.

Tighten

Tighten the negative cable bolt to 34 N·m (25 lb ft).

6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



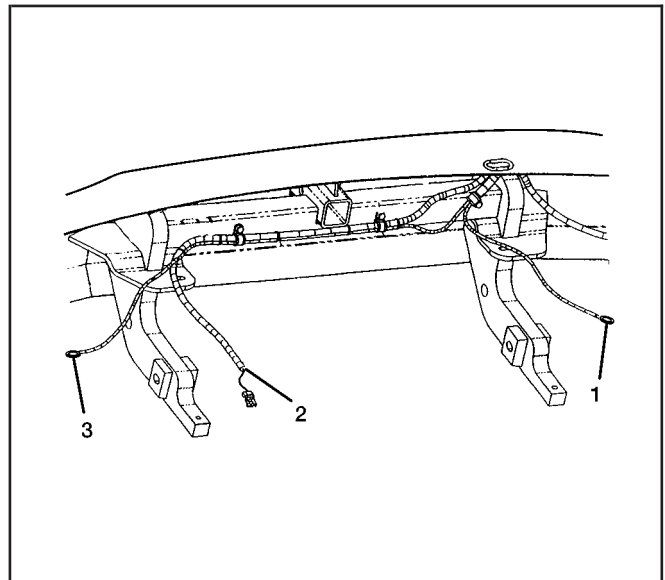
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Slave Receptacle Harness Replacement (Ambulance/Maintenance Body)

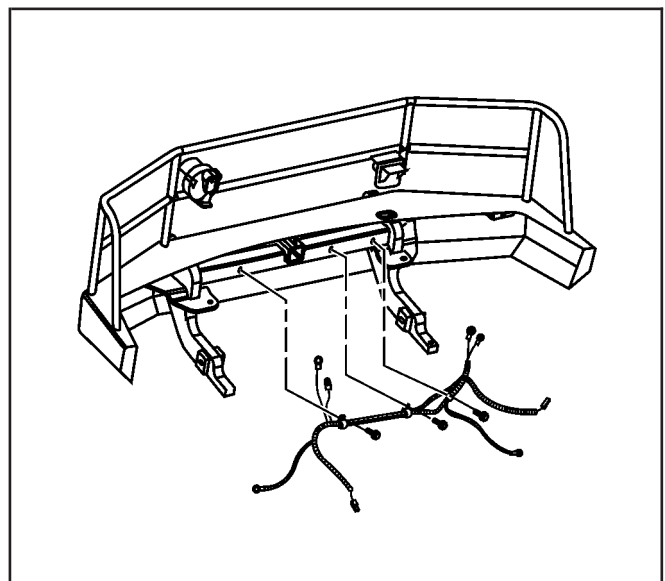
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

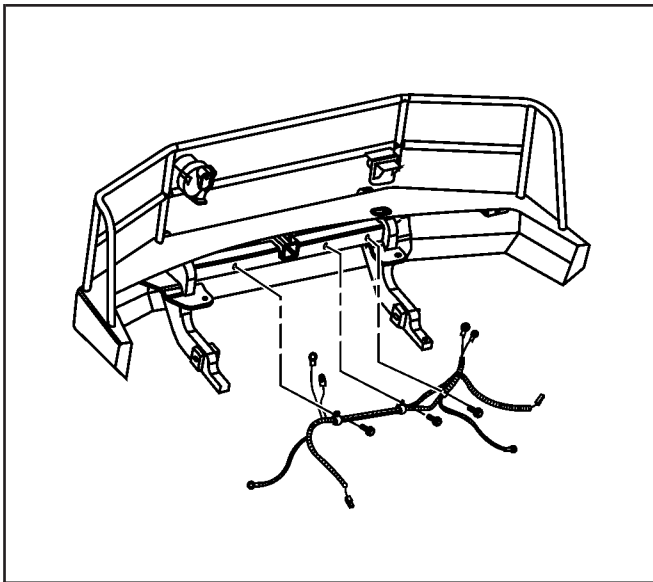
1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Trace the negative slave receptacle cable connector (1) to the cable ground connection.
3. Disconnect the negative slave receptacle ground cable from the ground connection.
4. Trace the positive slave receptacle cable connector (3) to the 24V battery connection.
5. Disconnect the positive slave receptacle cable (3) from the 24V battery connection.
6. Disconnect the slave receptacle connectors from the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)*.
7. Remove the fasteners from the clamps securing the slave receptacle harness and the blackout (B/O) harness.
8. Remove the slave receptacle harness from the bumper assembly.



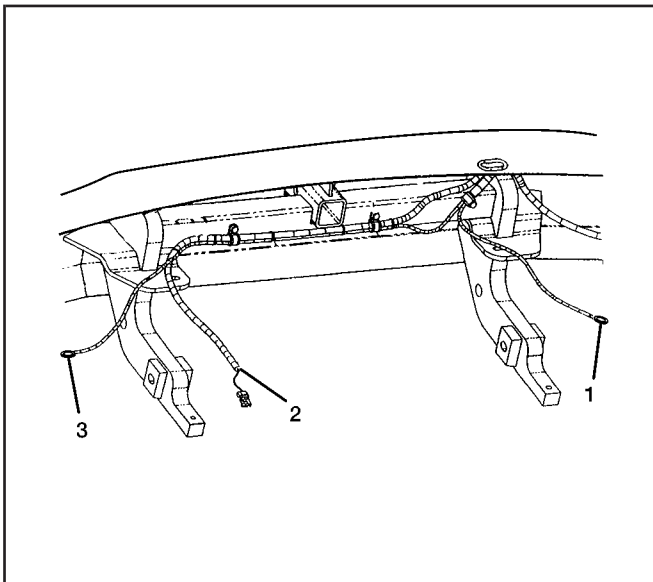
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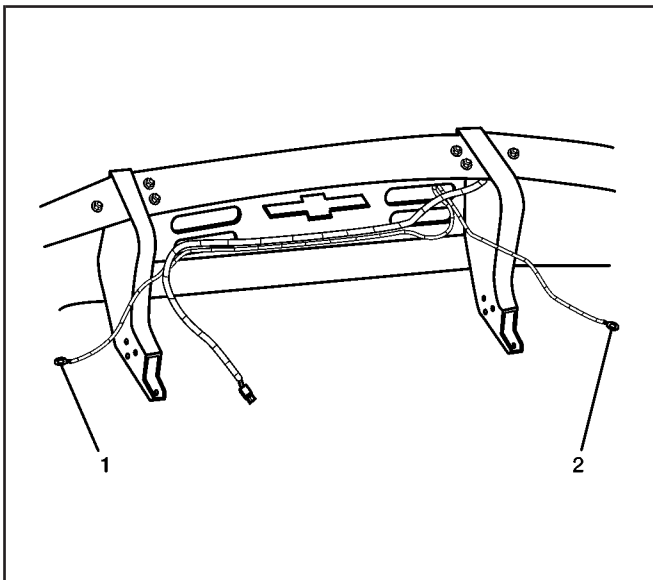
1700940



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Installation Procedure

Important: Verify all connections are clean prior to installation.

1. Position the slave receptacle harness onto the bumper assembly.
2. Install the 3 clamps and the fasteners onto the slave receptacle harness and the blackout (B/O) harness.
3. Connect the slave receptacle connectors to the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)*.
4. Install the positive slave receptacle cable in the same routing location as removed.

5. Connect the positive slave receptacle cable connector (3) to the 24V battery connection.
6. Install the negative slave receptacle cable in the same routing location as removed.
7. Connect the negative slave receptacle connector (1) to the cable ground connection.
8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

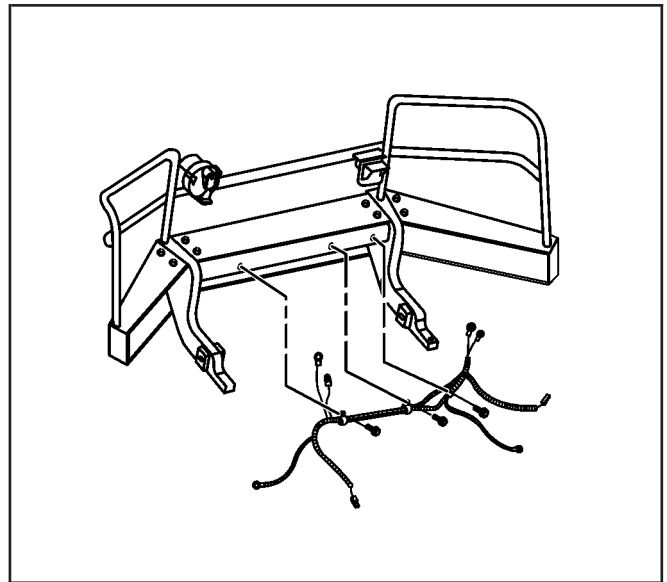
Slave Receptacle Harness Replacement (LSSV)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Trace the negative slave receptacle cable connector (2) to the cable ground connection.
3. Disconnect the negative slave receptacle ground cable from the ground connection.
4. Trace the positive slave receptacle cable connector (1) to the 24V battery connection.
5. Disconnect the positive slave receptacle cable (3) from the 24V battery connection.

6. Disconnect the slave receptacle connectors from the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)*.
7. Remove the wiring harness straps securing the slave receptacle harness and the blackout (B/O) harness.
8. Remove the slave receptacle harness from the bumper assembly.

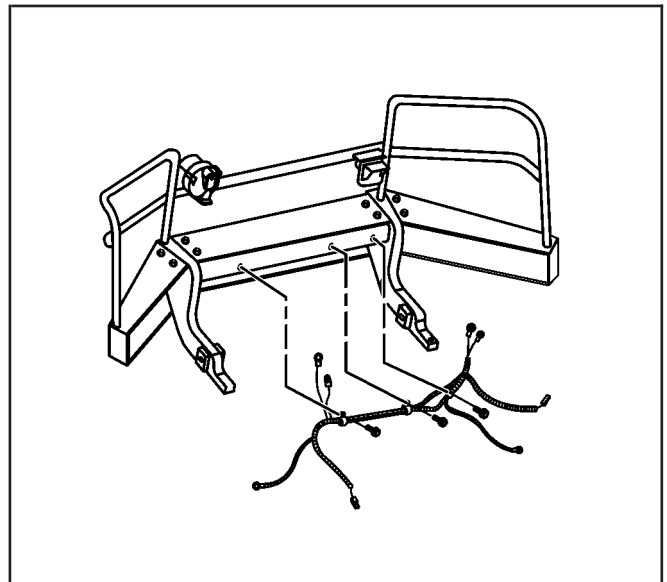


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Installation Procedure

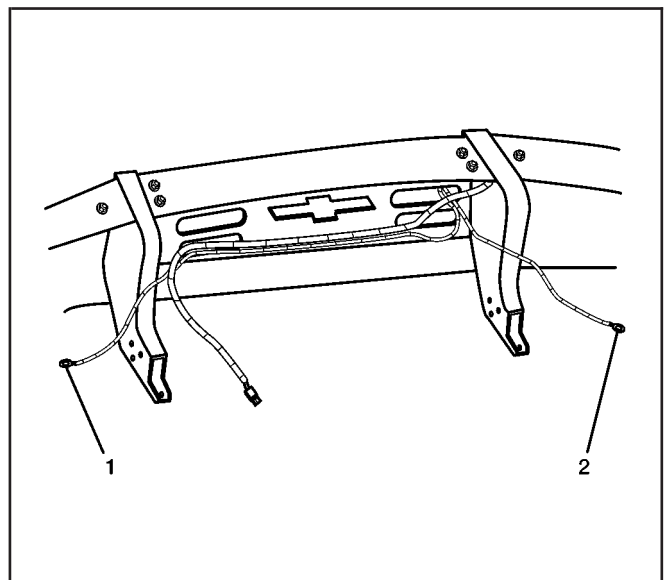
Important: Verify all connections are clean prior to installation.

1. Position the slave receptacle harness onto the bumper assembly.
2. Install the 3 clamps and the fasteners onto the slave receptacle harness and the blackout (B/O) harness.
3. Connect the slave receptacle connectors to the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)*.
4. Install the positive slave receptacle cable in the same routing location as removed.

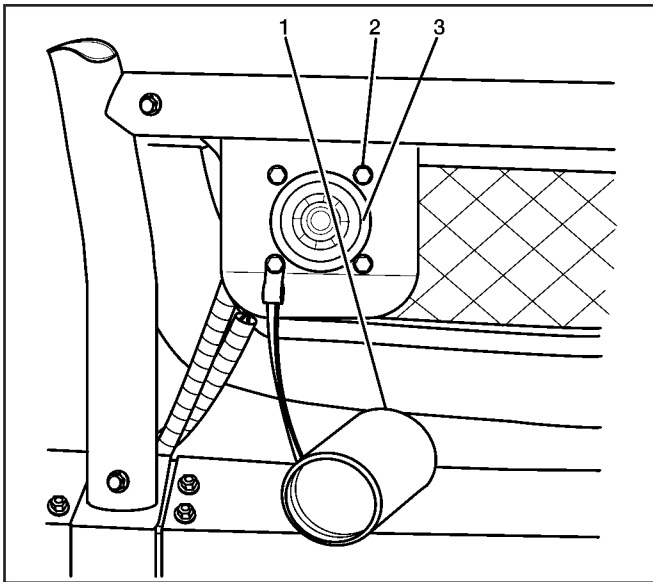


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5. Connect the positive slave receptacle cable connector (1) to the 24V battery connection.
6. Install the negative slave receptacle cable in the same routing location as removed.
7. Connect the negative slave receptacle connector (2) to the cable ground connection.
8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



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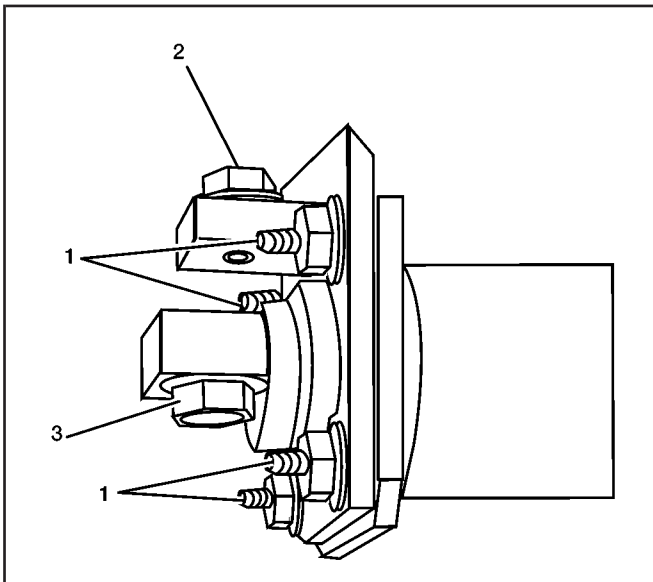
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Slave Receptacle Replacement (LSSV)

Removal Procedure

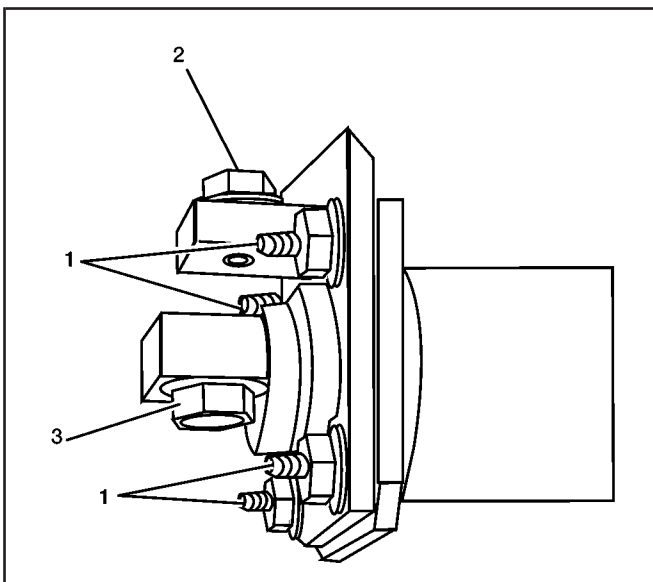
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Unscrew the slave receptacle cover (1).
3. Remove the fasteners (2) securing the slave receptacle to the radiator grille guard bracket.
4. Remove the slave receptacle (3).



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5. Disconnect the negative cable connections (2).
6. Remove the rubber cover from the rear of the positive cable connection.
7. Disconnect the positive cable connection (3).
8. Remove the slave receptacle and the gasket from the bracket.



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Installation Procedure

Important: The gasket must mount to the square back of the slave start connector assembly.

1. Position the slave receptacle with the gasket onto the bracket.
2. Install the positive cable onto the connection (3).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the negative cable onto the connection (2).

Tighten

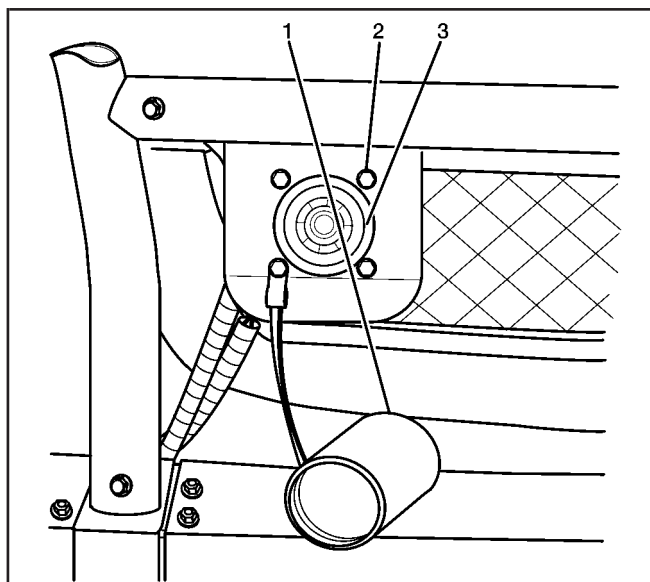
Tighten the connections to 20 N·m (15 lb ft).

4. Install the rubber cover onto the rear of the positive cable connection.
5. Position the slave receptacle cover onto the rear of the bracket.
6. Install the fasteners (2) onto the slave receptacle (3) and the slave receptacle cover (1).

Tighten

Tighten the bolts to 8 N·m (71 lb in).

7. Install the slave receptacle cover (1).
8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



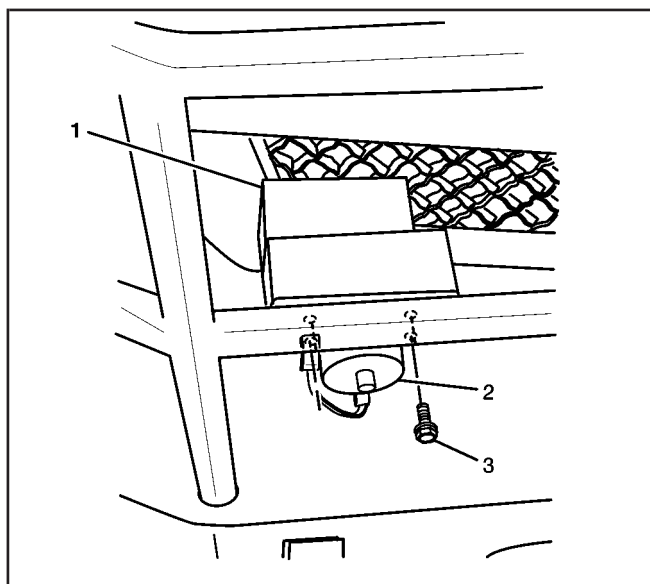
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Slave Receptacle Replacement (Ambulance/Maintenance Body)

Removal Procedure

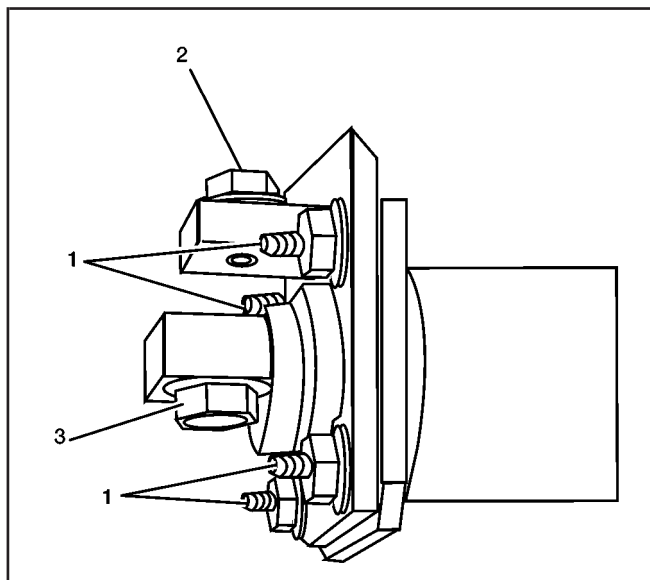
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.
2. Unscrew the slave receptacle cover (2).
3. Remove the fasteners (3) securing the slave receptacle to the slave receptacle and connect the rear connector cover (1).
4. Remove the slave receptacle cover (2).

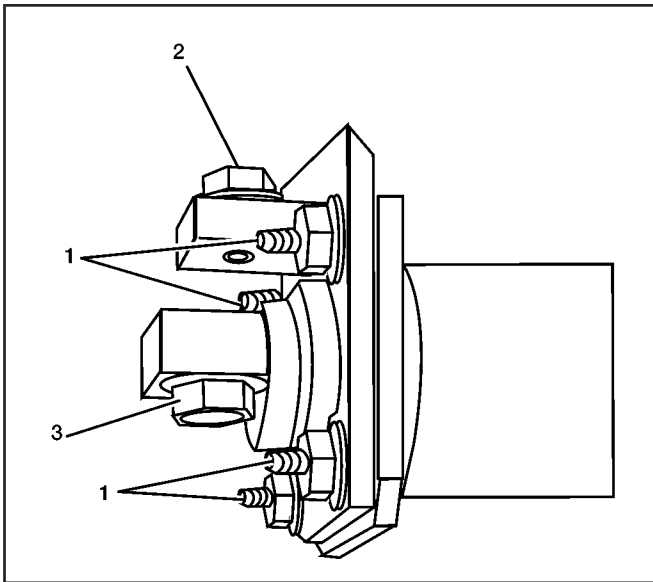


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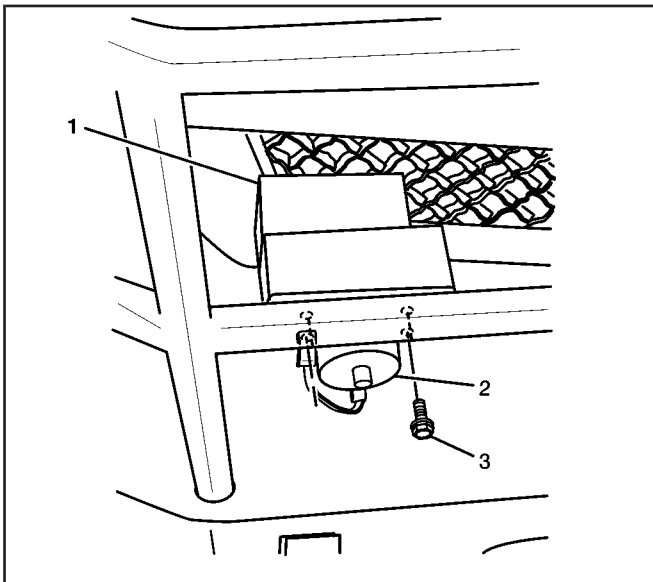
5. Disconnect the negative cable connections (2).
6. Remove the rubber cover from the rear of the positive cable connection.
7. Disconnect the positive cable connection (3).
8. Remove the slave receptacle and the gasket from the bracket.



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Installation Procedure

Important: The gasket must mount to the square back of the slave start connector assembly.

1. Position the slave receptacle with the gasket onto the bracket.
2. Install the positive cable onto the connection (3).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the negative cable onto the connection (2).

Tighten

Tighten the connections to 20 N·m (15 lb ft).

4. Install the rubber cover onto the rear of the positive cable connection.
5. Position the slave receptacle cover (1) onto the rear of the bracket.
6. Install the fasteners (3) onto the slave receptacle and through the slave receptacle rear connector cover.

Tighten

Tighten the bolts to 8 N·m (71 lb in).

7. Install the slave receptacle cover (2).
8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.

Description and Operation

Battery Description and Operation (12V and 24V)

Caution: Batteries produce explosive gases. Batteries contain corrosive acid. Batteries supply levels of electrical current high enough to cause burns. Therefore, in order to reduce the risk of personal injury while working near a battery, observe the following guidelines:

- **Always shield your eyes.**
- **Avoid leaning over the battery whenever possible.**
- **Do not expose the battery to open flames or sparks.**
- **Do not allow battery acid to contact the eyes or the skin.**
 - **Flush any contacted areas with water immediately and thoroughly.**
 - **Get medical help.**

The engine electrical options include the slave receptacle, 24V generator, and a three-battery power system. The two batteries in series provide 24V of power. The 24V battery is located in the left front of the engine compartment. This will provide greater power for the higher load used by optional radio communications, or for compatibility with other slave receptacles on similarly equipped vehicles.

The LSSV vehicles are equipped with Optima batteries. The Optima battery is a sealed, zero-maintenance battery. Periodically inspect your battery terminal connections to ensure they are clean, tighten to the specified torque, and protected from the elements. The Optima battery require a special charging procedure. When charged properly you will not have to worry about leaking, corrosion or gassing. Refer to *Battery Charging (Optima)* procedure.

Battery Storage

Because of Optima's high purity lead grid, it has a self discharge rate much lower than conventional flat plate batteries. This means the Optima can sit for longer periods retaining enough charge to start your vehicle. The vehicle load disconnect switch must be in the OFF position anytime the expected vehicle storage time is to exceed 10 days.

When possible, store your battery in a cool, dry location. Check the battery voltage every 6 months and charge if it falls below 12.6 volts. If the vehicle is to be stored for long periods you should use a maintenance charger to compensate for this drain. This charger should be voltage regulated between 13.2 - 13.8 volts, 1 amp maximum.

Charging System Description and Operation

Charging

The Light Service Support Vehicle (LSSV) vehicles are equipped with a 24V generator. The 24V generator's electronics are isolated from the chassis ground. The 24V configuration provides sufficient capacity and reserve for 24V loads. Electrical loads can be connected indefinitely while the engine is running, and for a limited time when engine is OFF. The 24V battery must be above 7 volts in order for the generator to turn ON. The generator features permanently lubricated bearings. Service should only include the tightening of mounting components. Otherwise the generator is replaced as a complete unit.

The generator is rated at 41 amperes.

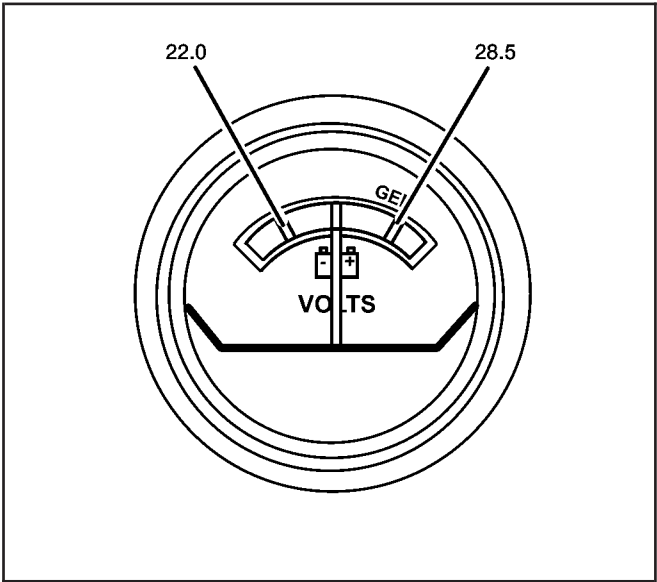
24V Voltmeter Gage

A voltmeter is installed to monitor the status of the 24V battery and the 24V generator.

Voltage is available through a circuit of the 24V 10A fuse. When the vehicle load disconnect switch is placed in the ON position, voltage is applied to the 24V fuse that provides voltage to the voltmeter. The voltmeter is grounded through the I/P relay block.

Color graduations as viewed from the front of the meter from left to right are as follows:

Minimum voltage to activate the pointer	18.0 volts
Red/Yellow Break Point	22.0 volts
Yellow/Green Break Point	26.0 volts
Small Hack Mark (in green)	28.5 volts



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In a no load situation, with the engine OFF, the gage needle should be mid-way between the red band and green band, in the yellow band. If the gage needle is in the lower end of the yellow band, this is unacceptable, and the battery may be weak.

Special Tools and Equipment

Illustration	Tool Number/Description
 404758	J 42000 Battery Tester

Engine Controls - 6.6L (LLY)

Specifications

Enhanced Mobility Package Engine Control Module (ECM) Calibrations

Model Year	Engine	Transmission	New Tire Sizes	Calibration P/N
2003/2004	LB7	M74	LT285/75R16 (628 Rev/Mile) (392 Rev per Kilometer)	15130245
2004	LLY	M74	LT285/75R16 (628 Rev/Mile) (392 Rev per Kilometer)	15130246
2005	LLY	M74	LT285/75R16 (628 Rev/Mile) (392 Rev per Kilometer)	15130247
Please refer to the light duty series GM BODY BUILDER BOOK for further general information regarding vehicle modification.				
Important: New calibrations include maximum vehicle speed of 93 mph (150 km/h). The calibrations are for RPO EM7 (Option Code EMP) only.				

Repair Instructions

Engine Control Module (ECM) Replacement

The ECM for the enhanced mobility package requires a special ECM calibration. Refer to *Engine Control Module (ECM) Replacement* in Engine Controls – 6.6L (LLY) in the 2005 C/K Truck Service Manual and use the ECM Calibrations found in ECM Calibration Chart of this manual.

Description and Operation

Engine Control Module (ECM) Description

The Enhanced Mobility Package (EMP) Engine Control Module (ECM) processes the various input information. The ECM sends the necessary electrical responses to control fuel delivery and other systems.

The input information has an interrelation to more than one output. The option code EMP (RPO EM7) uses tires that have been changed from the original equipment size to those adapted to off-road usage.

The ECM must be reprogrammed using the Enhanced Mobility Package (EMP) Engine Control Module (ECM) Calibration Chart.

BLANK

Section 8

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BLANK

Body Front End

Specifications

Fastener Tightening Specifications

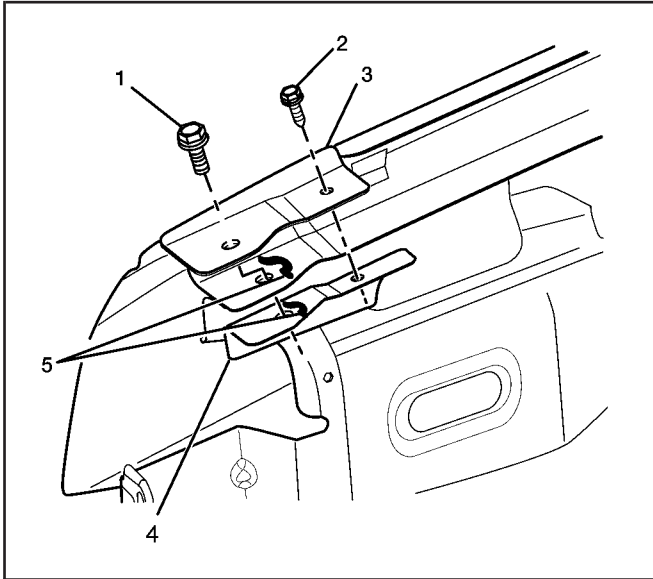
Application	Specification	
	Metric	English
Fender Bolt	25 N·m	18 lb ft
Fender Reinforcement Bolt	10 N·m	89 lb in

Repair Instructions

Upper Front Fender Reinforcement Replacement

Removal Procedure

1. Open the vehicle hood.
2. Remove the reinforcement bolt (2).
3. Remove the fender support bolt (1).
4. Using a flat bladed tool, separate the upper (3) from the bonding adhesive securing it to the fender.
5. Remove the upper reinforcement (3) from the fender.



1703383

Installation Procedure

1. Remove any old panel bonding adhesive from the fender.
2. Apply panel bonding adhesive (5) to the upper reinforcement.
3. Install upper reinforcement (3) onto the fender.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the fender bolt (1).

Tighten

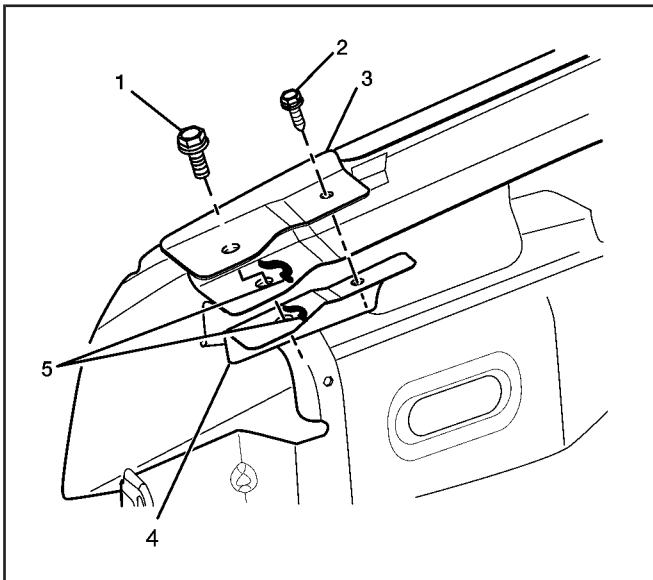
Tighten the bolt to 25 N·m (18 lb ft).

5. Install the reinforcement bolt (2).

Tighten

Tighten the bolt to 10 N·m (89 lb in).

6. Close the vehicle hood. Verify correct fender alignment.

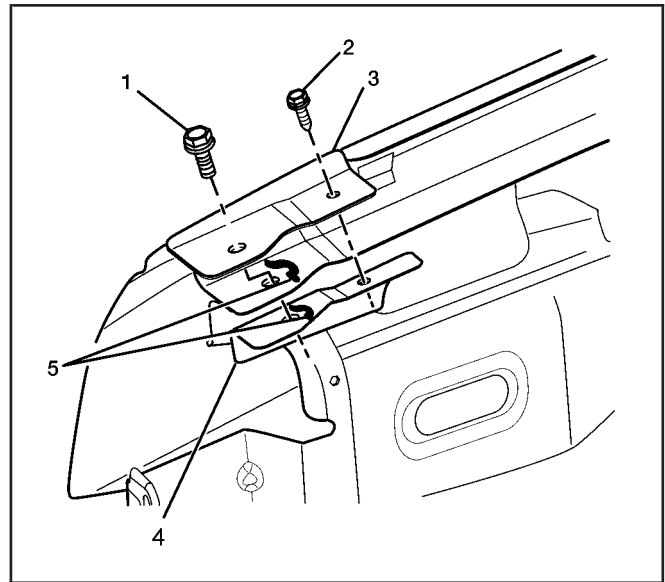


1703383

Lower Front Fender Reinforcement Replacement

Removal Procedure

1. Open the vehicle hood.
2. Remove the reinforcement bolt (2).
3. Remove the fender support bolt (1).
4. Using a flat bladed tool, separate the lower (4) reinforcement from the bonding adhesive securing them to the fender.
5. Remove the lower reinforcement (4) from the fender.



1703383

Installation Procedure

1. Remove any old panel bonding adhesive from the fender.
2. Apply panel bonding adhesive (5) to the upper and lower reinforcements.
3. Install lower reinforcement (4) onto the fender.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the fender bolt (1).

Tighten

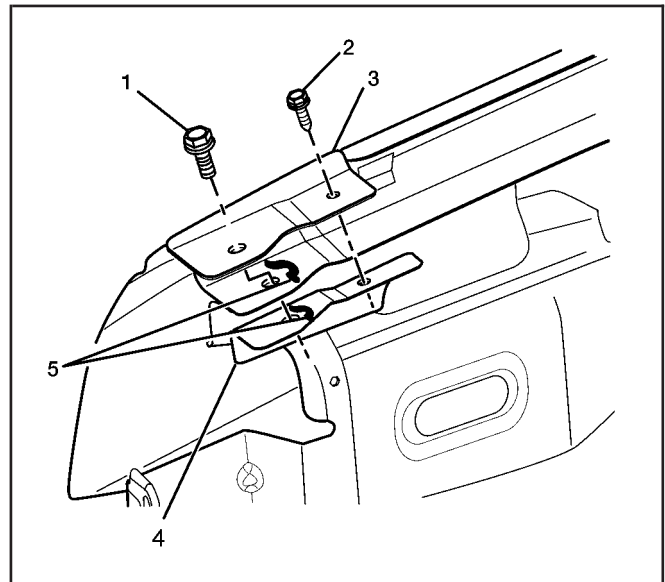
Tighten the bolt to 25 N·m (18 lb ft).

5. Install the reinforcement bolt (2).

Tighten

Tighten the bolt to 10 N·m (89 lb in).

6. Close the vehicle hood. Verify correct fender alignment.



1703383

Body Rear End

Specifications

Fastener Tightening Specifications

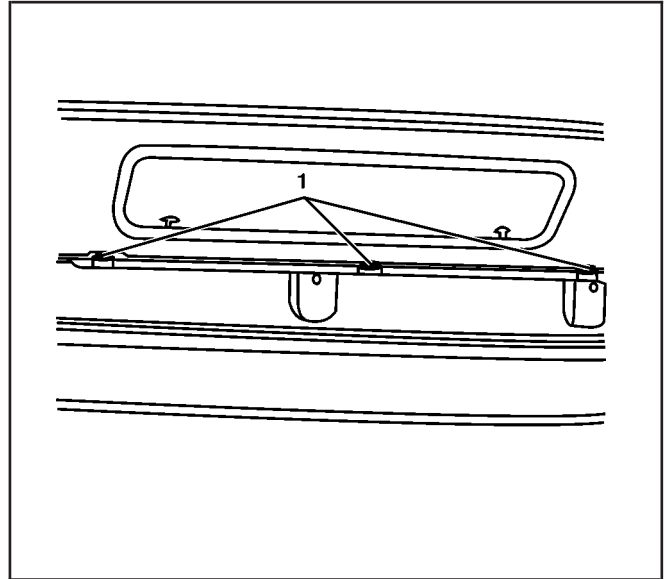
Application	Specification	
	Metric	English
A/C Line Nut	9 N·m	80 lb in
Body Ground Strap Bolt	25 N·m	18 lb ft
Body Mount Bolts (Ambulance Body)	50 N·m	37 lb ft
Body Mount Bolts (Maintenance Body)	80 N·m	59 lb ft
Cargo Cover Bow Strap Retaining Nuts	5 N·m	44 lb in
Cargo Cover Rail Bolts	8 N·m	70 lb in
Cargo Cover Rail and Hinge/Upper Bolts	8 N·m	70 lb in
Cargo Cover Rail Outer Bolts	26 N·m	19 lb ft
Cargo Cover Strut Bolts	5 N·m	44 lb in
Distribution Panel Bolts	0.8 N·m	7 lb in
Distribution Panel Shield Bolts	0.8 N·m	7 lb in
Fiberglass Top Bolts	58-68 N·m	43-50 lb ft
Fuel Filler Bolts	2.3 N·m	20 lb in
Fuel Filler Ground Wire Bolt	9 N·m	80 lb in
Fuel Filler Hose Bracket Bolt	8 N·m	71 lb in

Repair Instructions

Fiberglass Top Replacement

Removal Procedure

1. Disconnect the electrical connection for the dome lamp.
2. Remove the bolts (1) securing the cap to the bed rails.
3. With the aid of an assistant, remove the top from the vehicle.
4. Remove the old sealer tape from the bed rails.



1703177

Installation Procedure

1. Install the new sealer tape to the bed rails.
2. With the aid of an assistant, place the top on the bed rails.

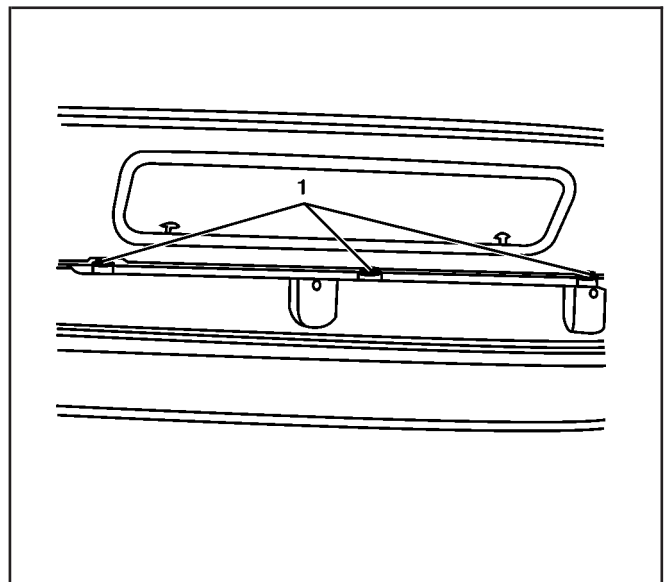
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the bolts (1) and tighten.

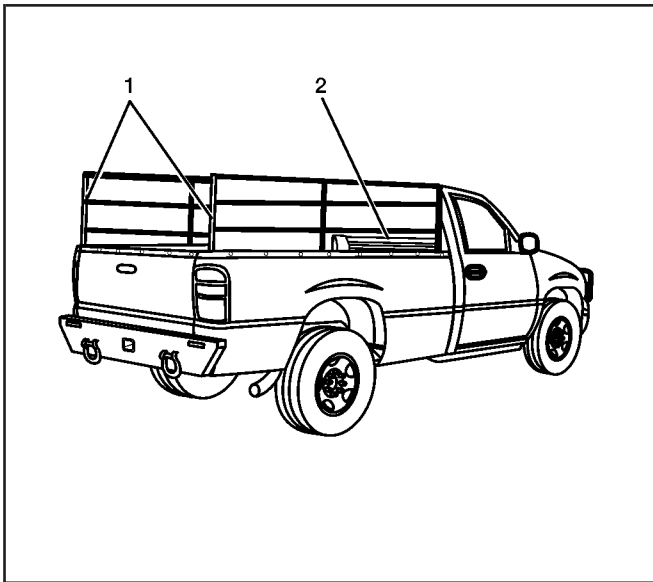
Tighten

Tighten bolts to 58-68 N·m (43-50 lb ft).

4. Connect the electrical connection for the dome lamp.



1703177

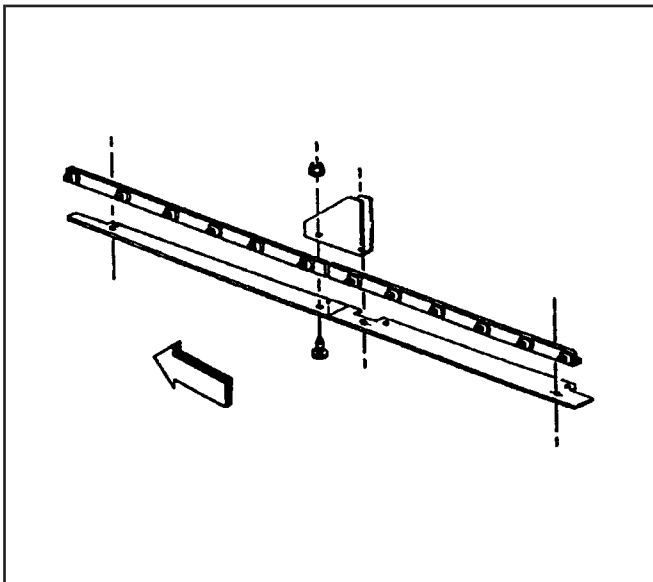


1701838

Cargo Cover Side Rail and Hinge Replacement

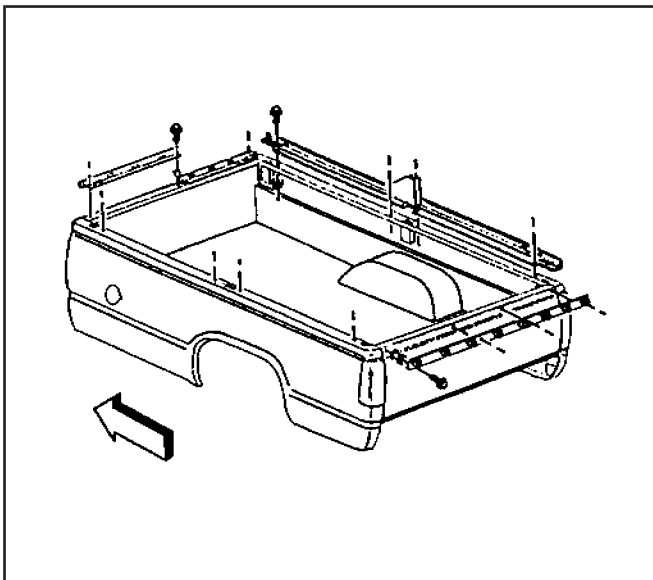
Removal Procedure

1. Remove the cargo cover, the top bows and side struts (2). Refer to *Cargo Cover Top Bows Replacement* and *Cargo Cover Strut Replacement*.
2. Remove the troop seats (1). Refer to *Seat Replacement - Troop in Seats*.



1703179

3. Remove the 4 bolts and nuts holding the 2 rail adapter plates to the side rail.
4. Remove the 2 bolts and nuts holding the bow hinge bracket.
5. Remove the side rail and adapter rail.
6. Remove the bow hinge bracket.

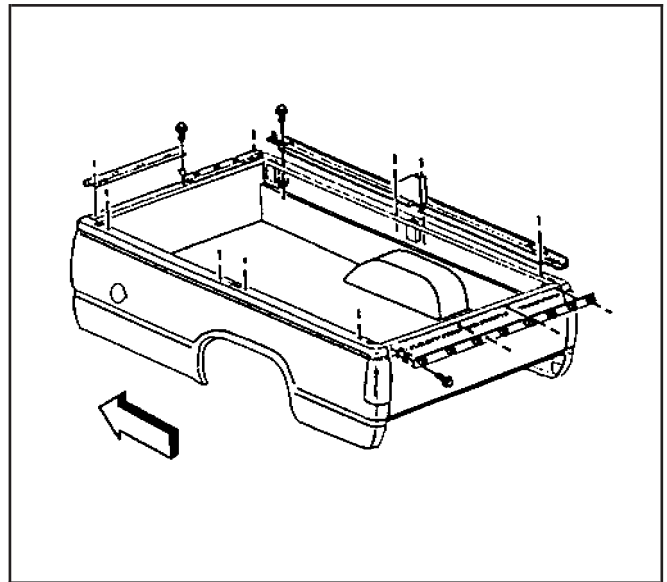


1703181

7. Remove the side rail.
8. Remove the side rail adapter.
9. Drill out the 4 existing rivnuts (if damaged) from the box rail.

Installation Procedure

1. Apply 2 sided foam tape to the underside of the rails and to the edges of the mounting holes.
2. Install rivnuts to the existing holes (if damaged) using a rivnut installer.



1703181

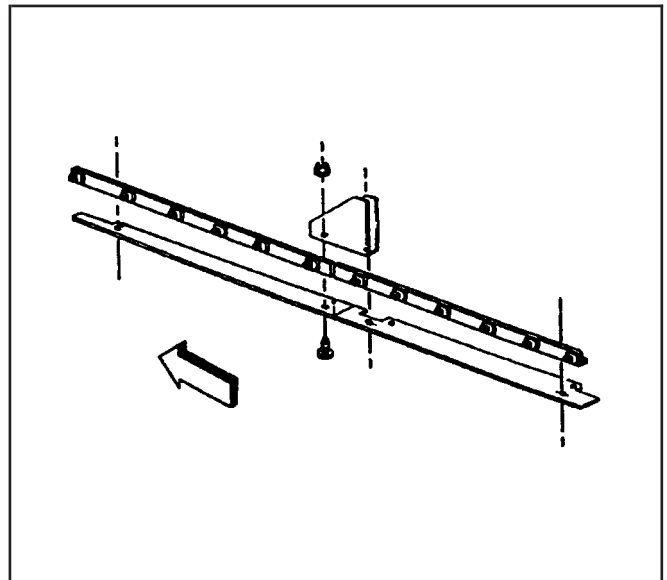
Notice: Refer to *Fastener Notice* in Cautions and Notices.

Important: Do not use the jacknuts supplied in the kit. Use rivnuts (TX016183) instead.

3. Install the side rail over the adapter plates, with the 2 outer bolts and the 2 upper facing bracket bolts and nuts.

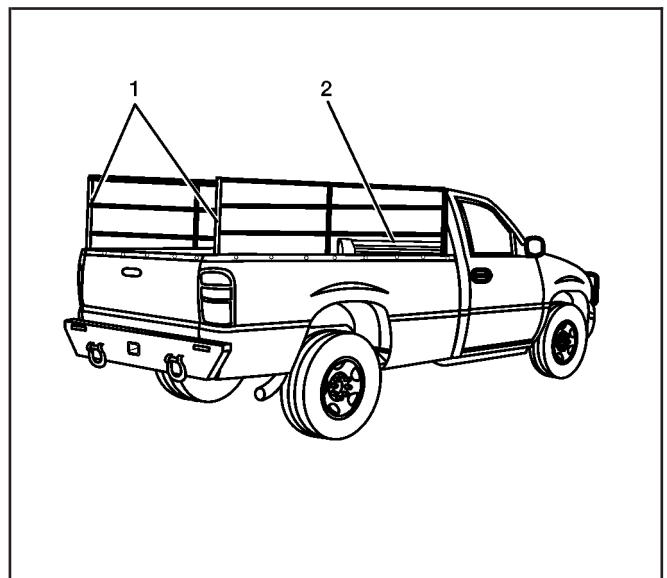
Tighten

- Tighten the 2 outer bolts to 26 N·m (19 lb ft).
- Tighten the 2 upper facing bolts to 8 N·m (70 lb in).

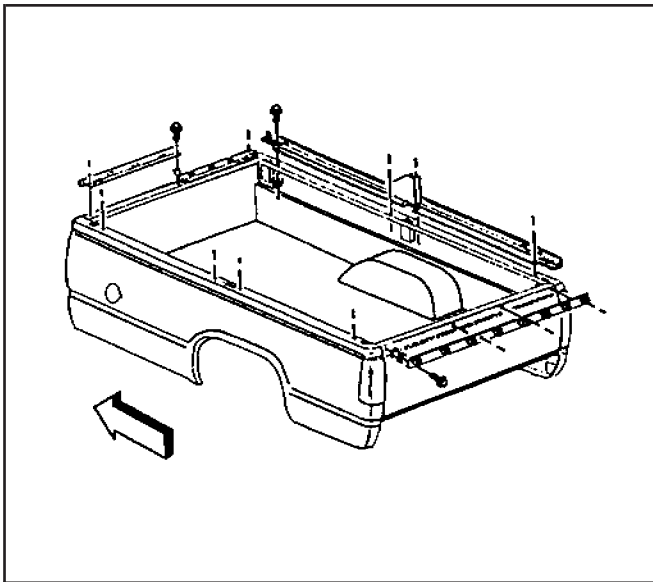


1703179

4. Install side rail adapter plates, front and rear, by aligning the bolt holes to the holes in the box.
5. Install the troop seats (1). Refer to *Seat Replacement - Troop in Seats*.
6. Install the side struts, top bows (2) and cargo cover. Refer to *Cargo Cover Top Bows Replacement* and *Cargo Cover Strut Replacement*.



1701838

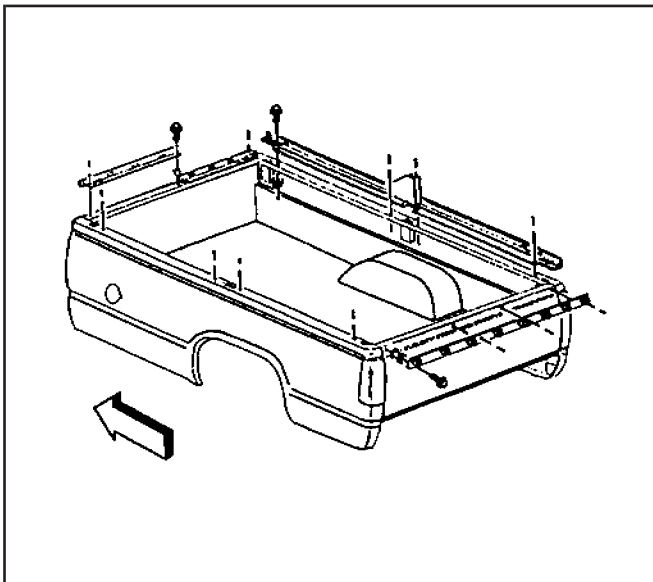


1703181

Cargo Cover Front End Rail Replacement

Removal Procedure

1. Remove the cargo cover from the front of the cargo cover assembly. Refer to *Cargo Cover Replacement*.
2. Remove the 4 bolts from the front end rails as needed.
3. Remove the 4 rivnuts by drilling out (if damaged).



1703181

Installation Procedure

1. Apply 2 sided foam tape to the underside of the rails and to the edges of the mounting holes.

Important: Do not use the jacknuts supplied in the kit. Use rivnuts (TX016183) instead.

2. Install the 4 rivnuts (if damaged) to the mounting holes using a rivnut installer.

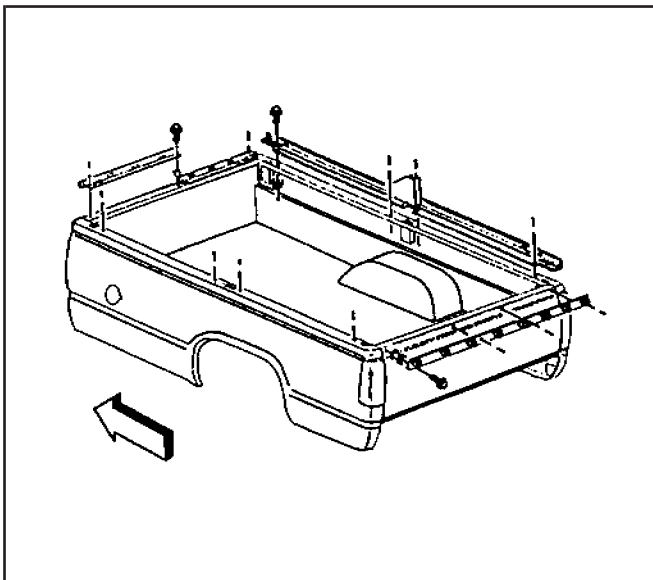
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the 2 front end rails to the front end of the box with 4 bolts over the 4 rivnuts.

Tighten

Tighten the 4 bolts to 8 N-m (70 lb in).

4. Install the front of the cargo cover to the front end rail as needed. Refer to *Cargo Cover Replacement*.



1703181

Cargo Cover Rear End Rail Replacement

Removal Procedure

1. Remove the cargo cover from the end gate side of the cargo cover assembly. Refer to *Cargo Cover Replacement*.
2. Remove the 4 bolts from the end gate rail as needed.
3. Remove the 4 rivnuts by drilling out (if damaged).

Installation Procedure

1. Apply 2 sided foam tape to the underside of the rail and to the edges of the mounting holes.

Important: Do not use the jacknuts supplied in the kit. Use rivnuts (TX016183) instead.

2. Install the 4 rivnuts (if damaged) to the mounting holes using a rivnut installer.

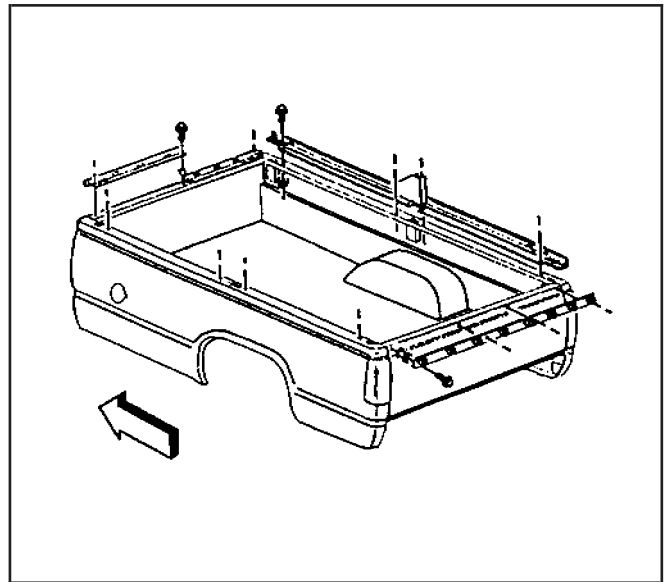
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the end gate rail over 4 rivnuts with 4 bolts.

Tighten

Tighten the 4 bolts to 8 N·m (70 lb in).

4. Install the cargo cover to the rear end as needed. Refer to *Cargo Cover Replacement*.

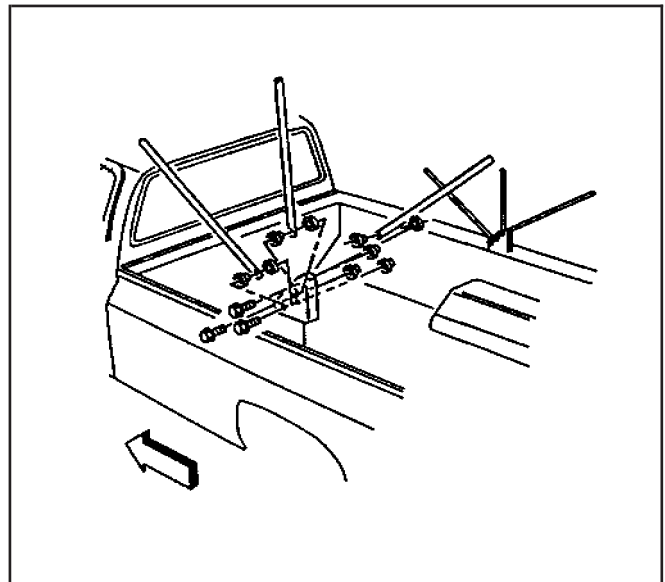


1703181

Cargo Cover Strut Replacement

Removal Procedure

1. Remove the cargo cover, and the top bows. Refer to *Cargo Cover Top Bows Replacement* and *Cargo Cover Strut Replacement*.
2. Remove the 3 front strut bolts holding the 3 side struts to the hinge bracket.
3. Remove the 6 nylock nuts.
4. Remove the 3 side struts with the 6 plastic bushings. (Replace if damaged.)



1703182

Installation Procedure

1. Install the 2 plastic bushings, 1 to the inside and 1 to the outside of the base hole of each side strut.
2. Install the front strut 85.72 cm (33.75 in) inside the base of the hinge bracket at the first hole. Use a nylock nut on the inboard side and a bolt on the outboard side of the bracket.
3. Install the center strut 57.15 cm (22.5 in) inside the bracket at the mid-level hole with a nylock and bolt in similar fashion.

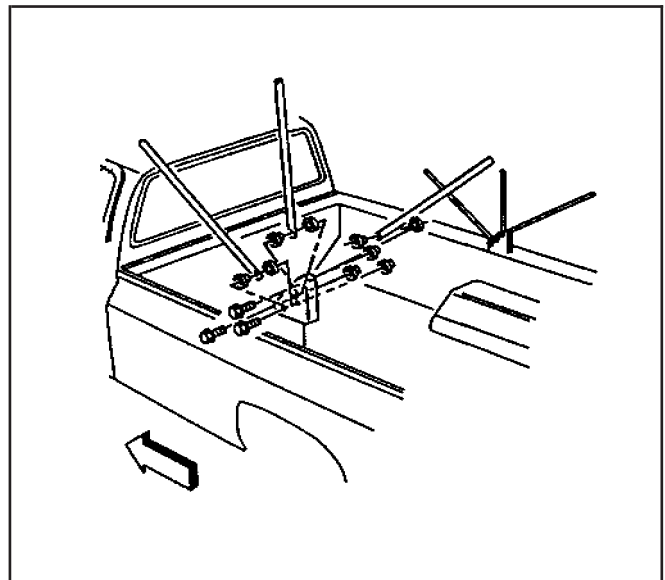
Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the rear strut 82.14 cm (32.34 in) at the top hole with the nylock and bolt in similar fashion.

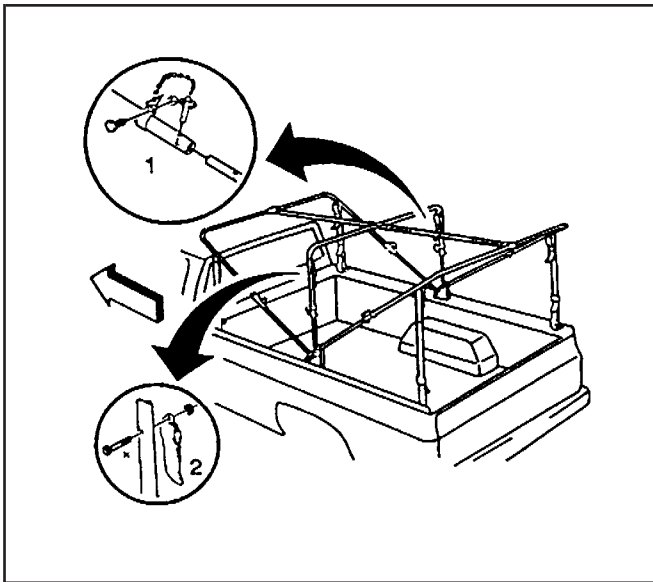
Tighten

Tighten the strut bolt to 5 N·m (44 lb in).

5. Install the cargo cover and top bows. Refer to *Cargo Cover Top Bows Replacement* and *Cargo Cover Strut Replacement*.



1703182

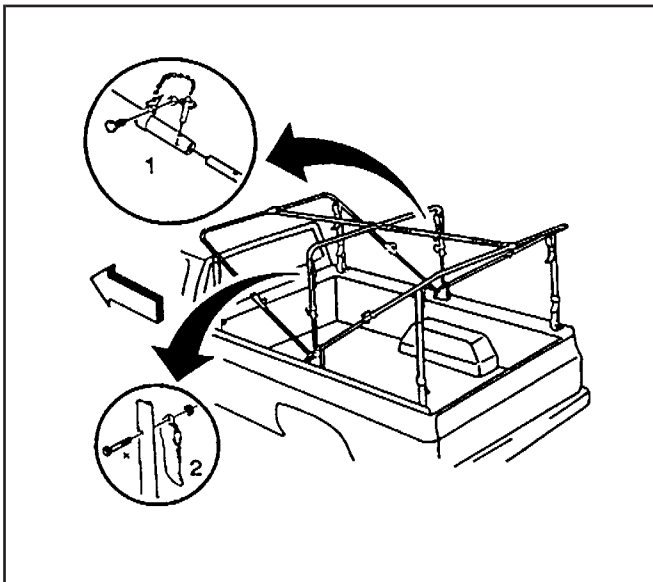


1703184

Cargo Cover Top Bows Replacement

Removal Procedure

1. Remove the cargo cover. Refer to *Cargo Cover Replacement*.
2. Remove the strap tensioners from the front and rear top bows by withdrawing from the side rail loop.
3. Remove the 6 pins (1) holding the 3 top bows to the 6 side struts.
4. Remove the 3 top bows from the struts.
5. Slide the strap off each top bow. Remove the bows from the vehicle.



1703184

Installation Procedure

1. Slide the strap onto the top bows at the center.
2. Attach the retainer pin (1) assembly as shown at the base of each bow end.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Attach the retainer cover strap assembly (2) to the holes on both the left and right sides of the center top bow as shown. Attach the straps to the inboard sides of each with a nut.

Tighten

Tighten the 2 cover strap retaining nuts to 5 N·m (44 lb in).

4. Slide the front roof bow onto the front struts and install the pins into the bow/strut holes.
5. Slide the center roof bow on the center struts and install the pins into the bow/strut holes.
6. Slide the rear roof bow onto the rear struts and install the pins into the bow/strut holes.
7. Install the strap tensioners to the front and rear top bows by threading them through the retainer loop of the side rail.

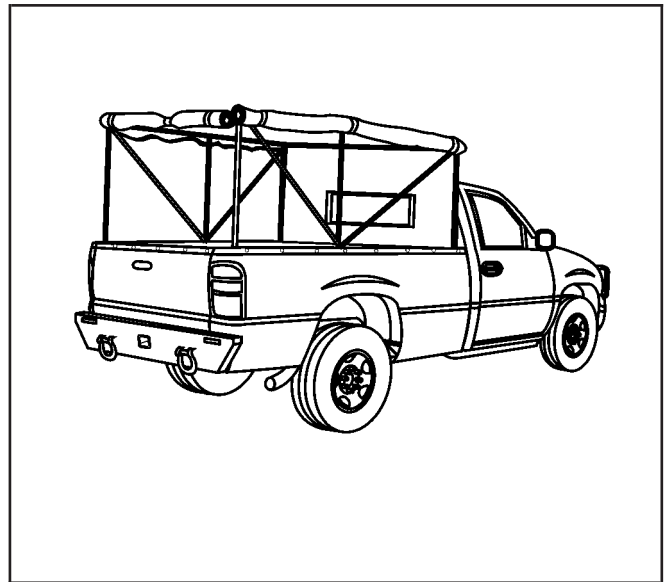
Important: The buckle should face inboard.

8. Install the front of the cargo cover to the front end rail as needed. Refer to *Cargo Cover Replacement*.

Cargo Cover Replacement

Removal Procedure

1. Pull apart the velcro corners of the front and rear flaps and roll the cargo cover up over the top.
2. Remove the cargo cover from the side rail and end gate retainers by releasing tension and removing hook. Pull cover free.
3. Untie, release or unbuckle all cover retainers.
4. Remove the cargo cover.

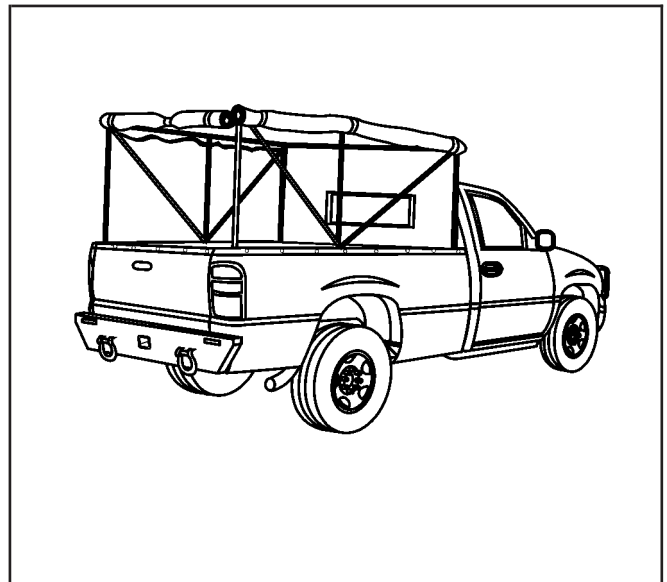


1701839

Installation Procedure

Important: All trailing edges must fall to the proper length at each side of the box rail. All tether ties must appear on the interior. Provide adequate slack between the bow straps and the cover. The new cover will be a tighter fit.

1. Install the cargo cover to the top bows and align so that the velcro strips are at the corners.
2. Install or attach all interior retainers to the bows, struts and loops.
3. Press the velcro flaps down.
4. Install the cover to the front, rear and sides in the hooks and pull strap at the base of the cover as needed.



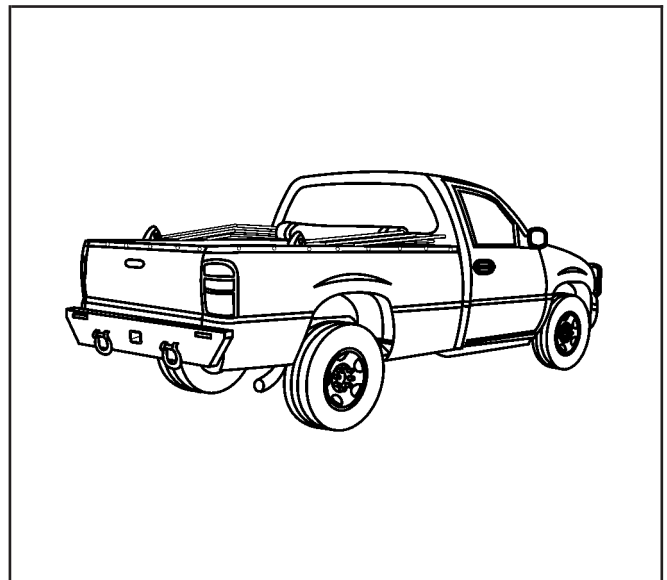
1701839

Cargo Cover Stowage Replacement

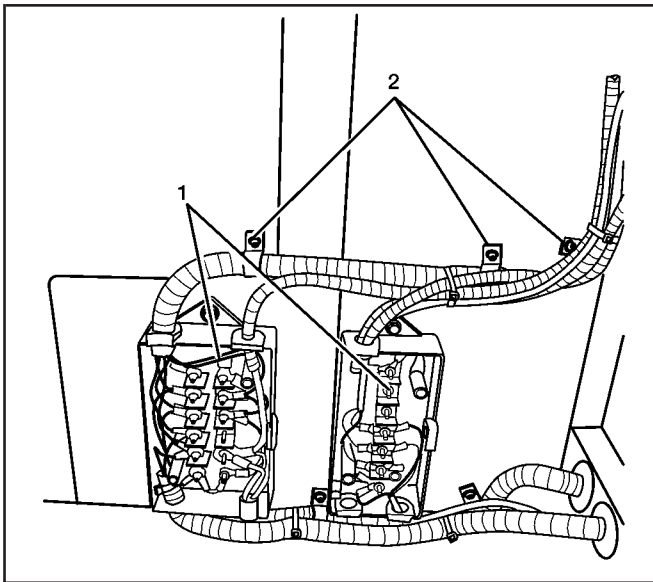
1. Release the front and rear support straps.
2. From the rear of the vehicle, push the bows and canvas forward, folding the canvas around the bows.

Important: The cover may also be folded neatly and stored behind the seat in the cab.

3. Completely fold the bows down against the front of the cargo box and secure them with the front straps.



1701840



1701826

Body Replacement (Ambulance Body)

Tools Required

J 39400-A Halogen Leak Detector

1. Recover the refrigerant. Refer to *Refrigerant Recovery and Recharging* in Heating, Ventilation and Air Conditioning of the 2005 C/K Truck Service Manual.
2. Drain the cooling system. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

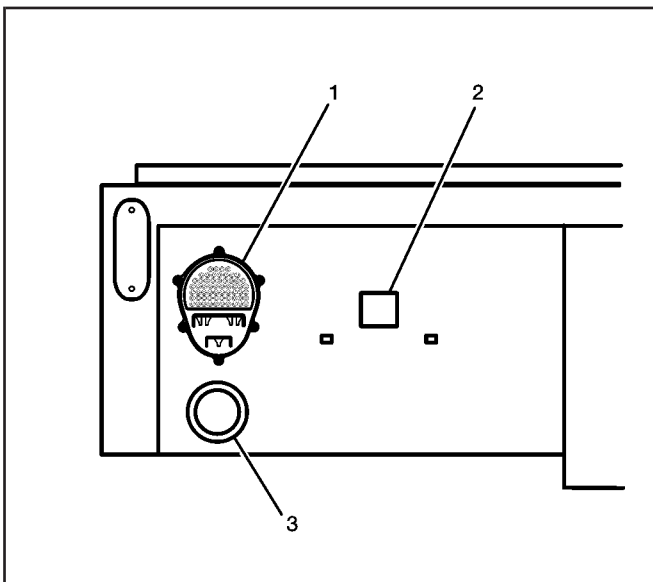
3. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

4. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

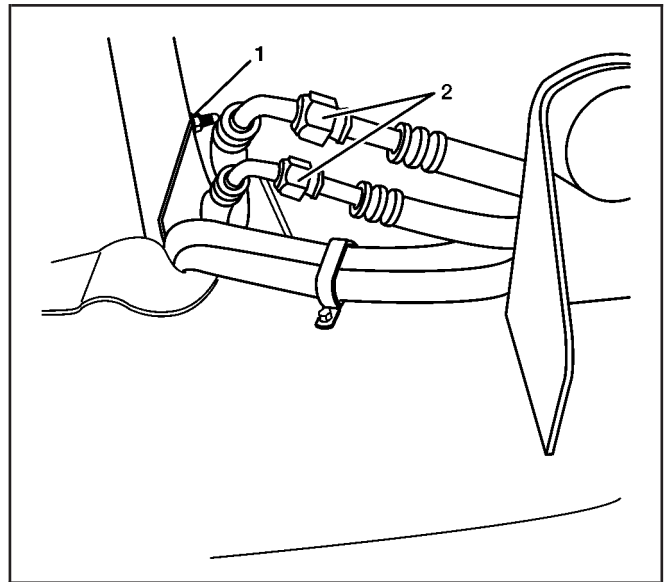
Important: Label all wires and their location for reassembly.

5. Remove the shield, both covers and wires from the distribution panels (1).
6. Remove the wiring harness clamps (2) and lay the harness aside.
7. Disconnect the wiring harness for the taillamps (1). Refer to *Taillamp Replacement (Maintenance Body)* in Lighting Systems.
8. Disconnect the wiring harness for the backup lamps (3). Refer to *Backup Lamp Replacement (Ambulance Body)* in Lighting Systems.
9. Disconnect the wiring harness for the license plate lamp (2). Refer to *License Plate Lamp Replacement (LSSV)* or *License Plate Lamp Replacement (Maintenance Body)* or *License Plate Lamp Replacement (Ambulance Body)* in Lighting Systems.
10. Remove wiring going to the body marker lamps and backup alarm.



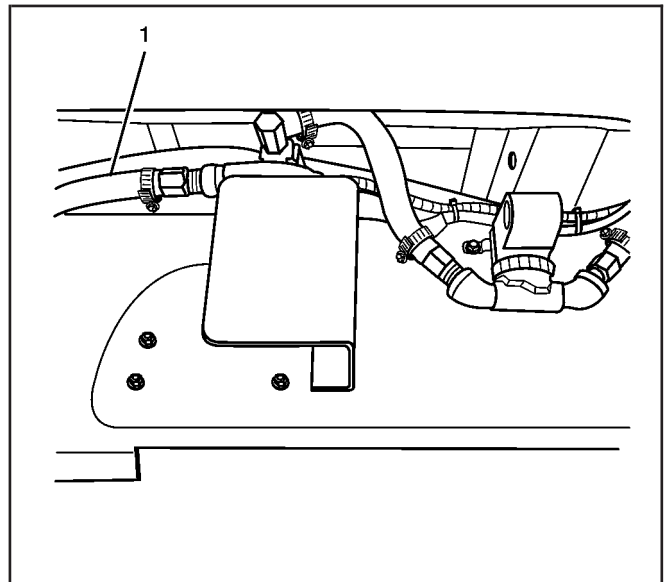
1701835

11. Loosen the tube nuts (2) from the A/C line tubes.
12. Disconnect the tubes from the A/C lines.
13. Remove and discard the O-rings.
14. Remove the bolt (1) and clamp securing the lines to the vehicle.
15. Plug the open A/C lines.



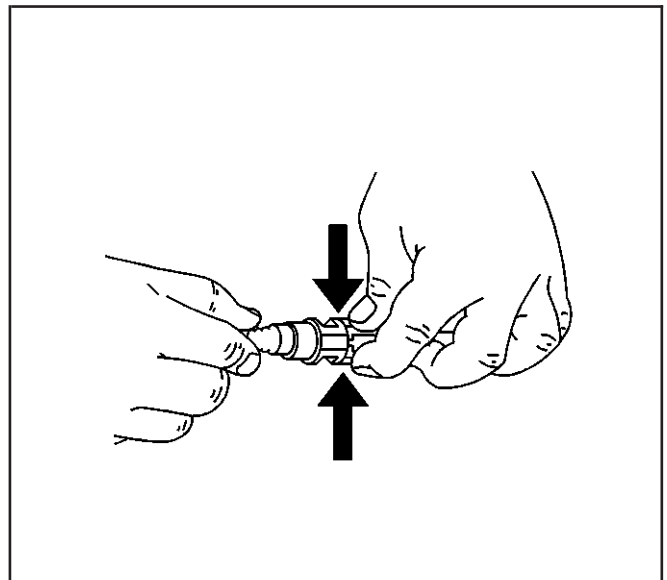
1701827

16. Loosen the clamp and using a twisting motion remove the inlet heater hose (1) from the coolant booster pump.

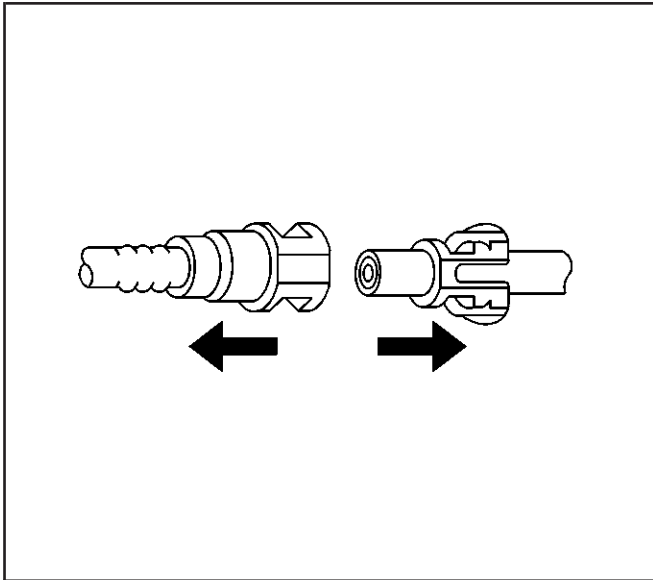


1701828

17. Squeeze the plastic retainer tabs on the inlet hose. The hose connection is located at the bulkhead.

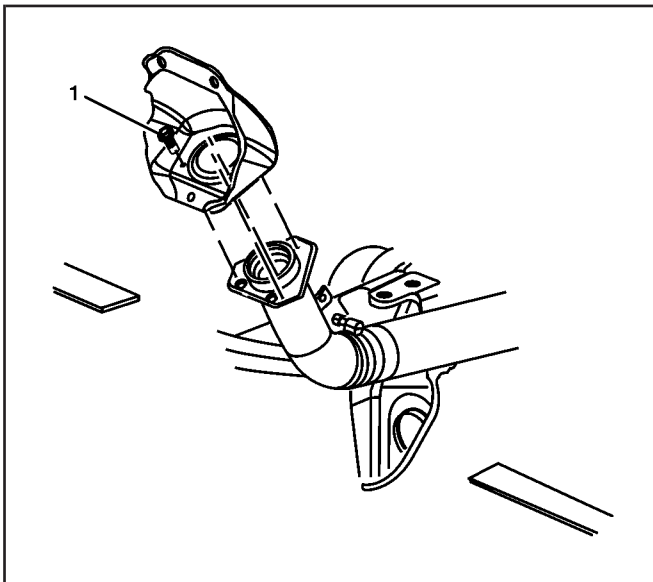


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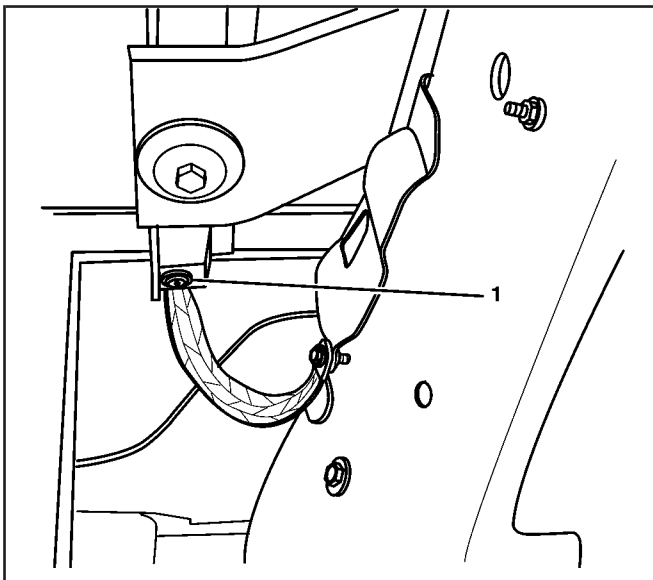
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18. Remove the outlet hose from the vehicle engine compartment and under body.
Note routing location of hose for reassembly.
19. Remove any wiring harness straps or clamps. Do not remove the hoses from the ambulance body.



1701829

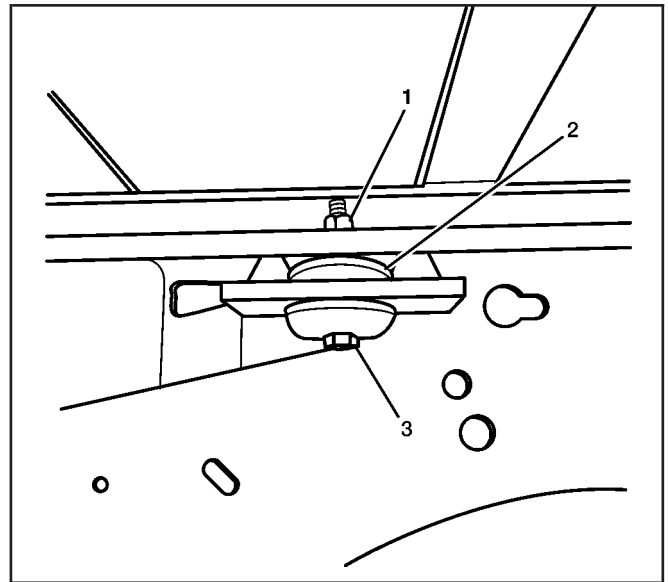
20. Remove the fuel tank filler housing to fuel tank fill pipe bolts (1). Repeat step for other fuel fill.



1701830

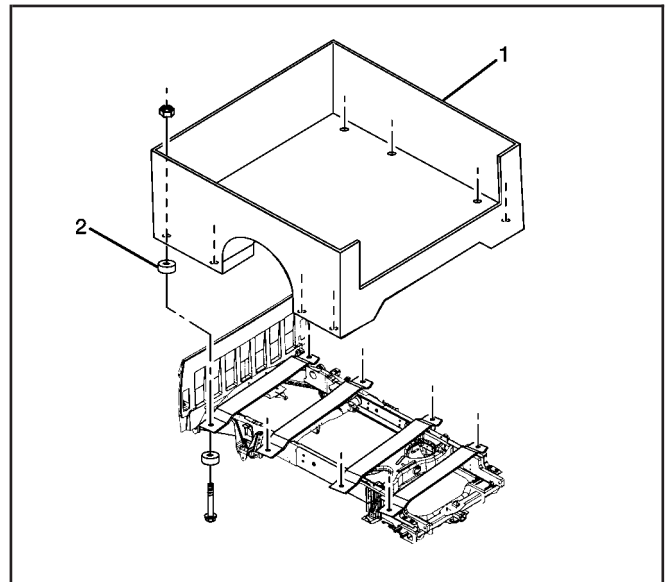
21. Remove the nut and bolt (1) from the ground strap.

22. Remove the upper nut (1), lower mount (2) and lower bolt (3) of the body mount. Repeat this step for the remaining mounts.



1701831

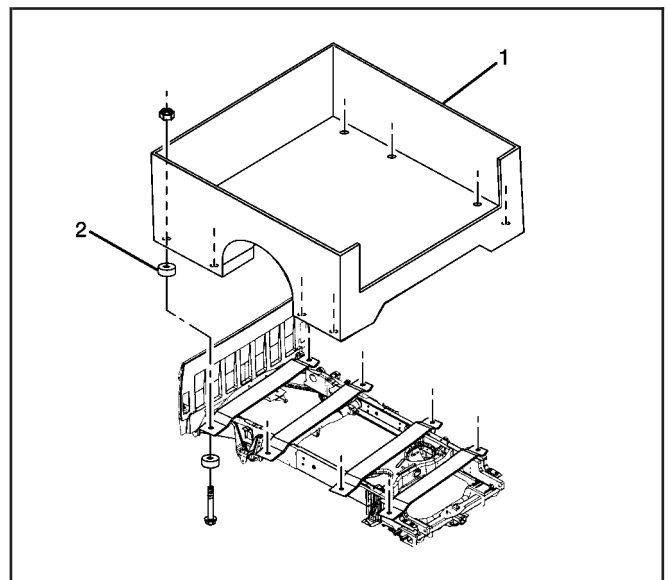
23. Lift and remove the ambulance body (1) and upper mount (2) from the vehicle.



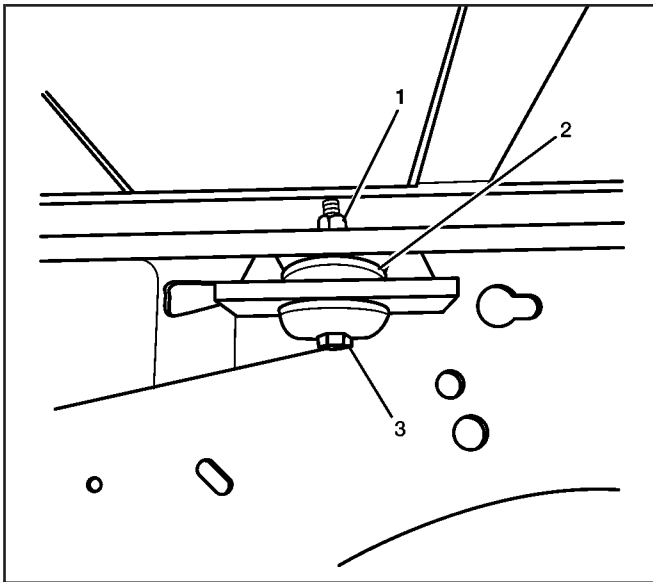
1701833

Installation Procedure

1. Align the ambulance body (1) and the upper mounts (2) on the frame rails.



1701833



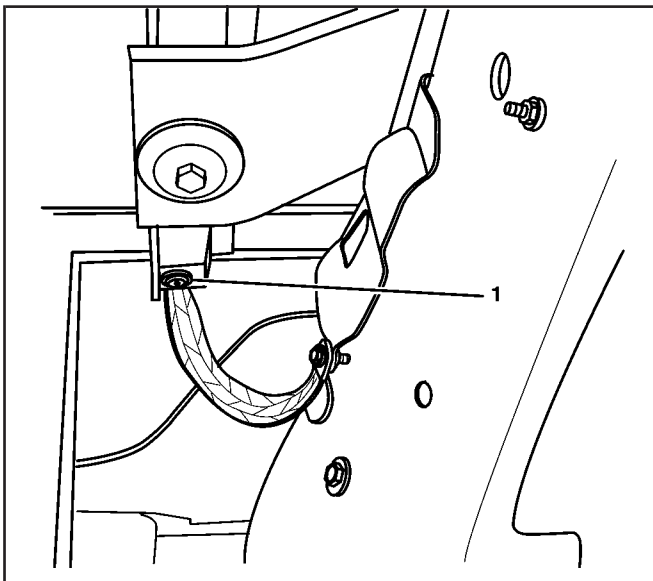
1701831

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Loosely install the lower bolt (3), lower mount (2) and the nut (1). Repeat this step for the remaining mounts.

Tighten

Tighten the retaining bolts to the frame rail to 50 N·m (37 lb ft).



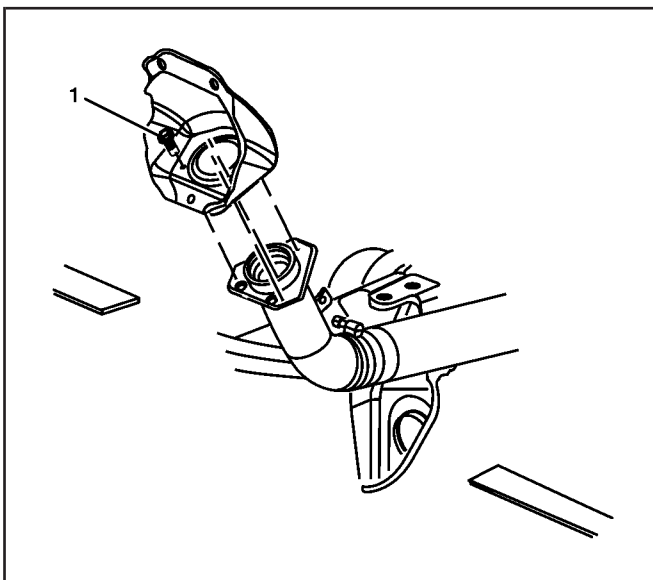
1701830

Important: Clean any existing corrosion or paint from the body bolt flange area and ground strap end.

3. Install the nut and bolt (1) for the ground strap.

Tighten

Tighten the ground strap bolt to 25 N·m (18 lb ft).



1701829

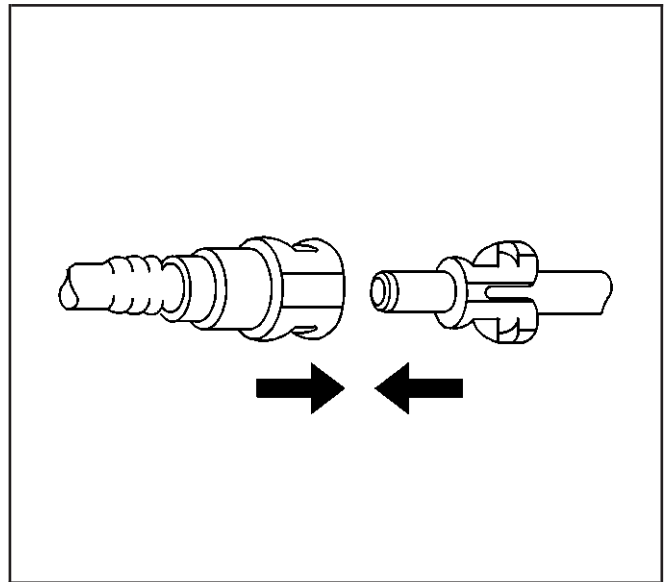
4. Install the fuel tank filler housing to fuel tank fill pipe bolts (1). Repeat step for other fuel fill.

Tighten

Tighten the fuel filler bolts to 2.3 N·m (20 lb in).

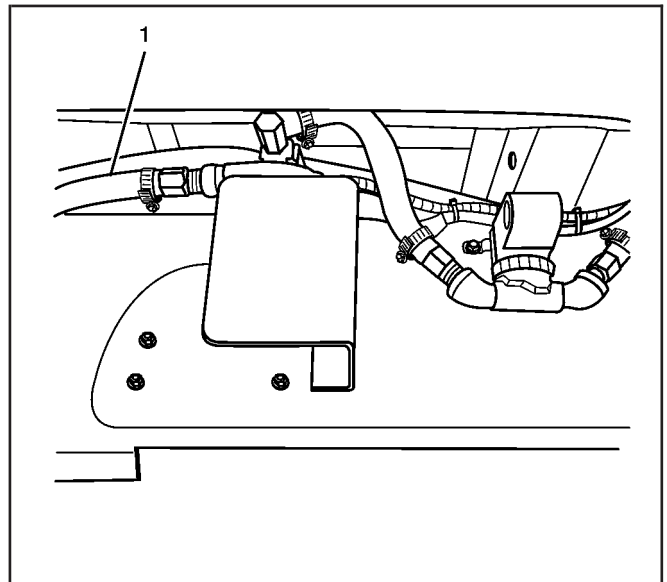
Important: Install the outlet hose in the same position and routing as removed.

5. Install the outlet hose to the vehicle underbody and engine compartment.
6. Install any wiring harness straps or clamps.
7. Install the hose to the connection at the bulkhead.



21855

8. Install the inlet hose (1) to the coolant booster pump and secure clamp.



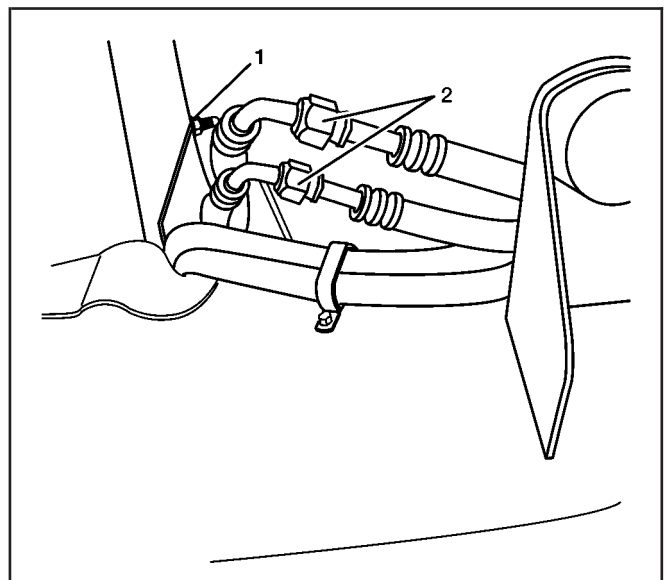
1701828

9. Install the new O-ring onto the A/C tubes. Refer to *O-Ring Replacement* in Heating Ventilation and Air Conditioning in the 2005 C/K Service Manual.
10. Install the A/C hoses tube nuts (2) using a back up wrench on the fitting and tighten the fitting nut.

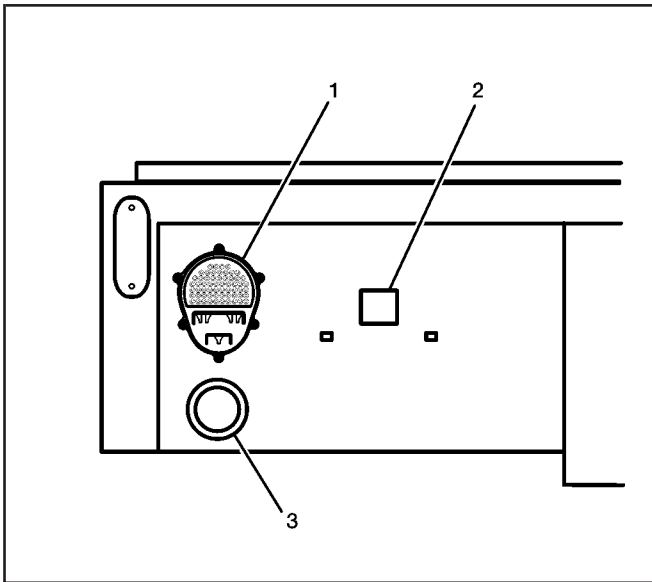
Tighten

Tighten fittings 9 N·m (80 lb in).

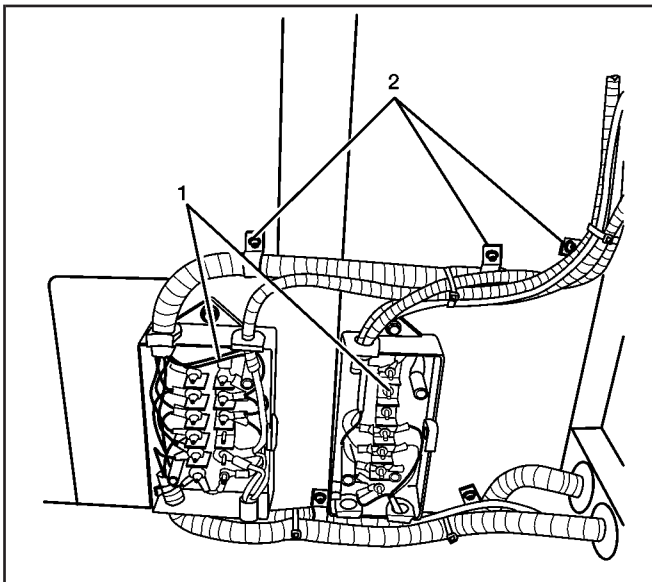
11. Install the bolt (1) and clamp securing the lines to the vehicle.



1701827



1701835



1701826

12. Connect the wiring harness for the taillamps. Refer to *Taillamp Replacement (Maintenance Body)* in Lighting System.
13. Connect the wiring harness for the backup lamps (3). Refer to *Backup Lamp Replacement (Ambulance Body)* in Lighting System.
14. Connect the wiring harness for the license plate lamp (2). Refer to *License Plate Lamp Replacement (LSSV)* or *License Plate Lamp Replacement (Maintenance Body)* or *License Plate Lamp Replacement (Ambulance Body)*.
15. Install the wiring going to the body marker lamps and backup alarm.

16. Install the wiring harness to the ambulance in the same routing as removed.
17. Install the clamps and screws (2).
18. Install the wiring to the distribution panels (1) in the same location as removed.
19. Install the distribution covers.

Tighten

Tighten cover bolts 0.8 N·m (7 lb in).

20. Install the distribution cover shield.

Tighten

Tighten shield bolts 0.8 N·m (7 lb in).

21. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
22. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
23. Fill the cooling system. Refer to *Draining and Filling Cooling System (Ambulance Body)* in Engine Cooling.
24. Evacuate and recharge the A/C system. Refer to *Refrigerant Recovery and Recharging* in Heating, Ventilation and Air Conditioning of the 2005 C/K Truck Service Manual.
25. Leak test the fittings of the component using the J 39400-A.

Body Replacement (Maintenance Body)

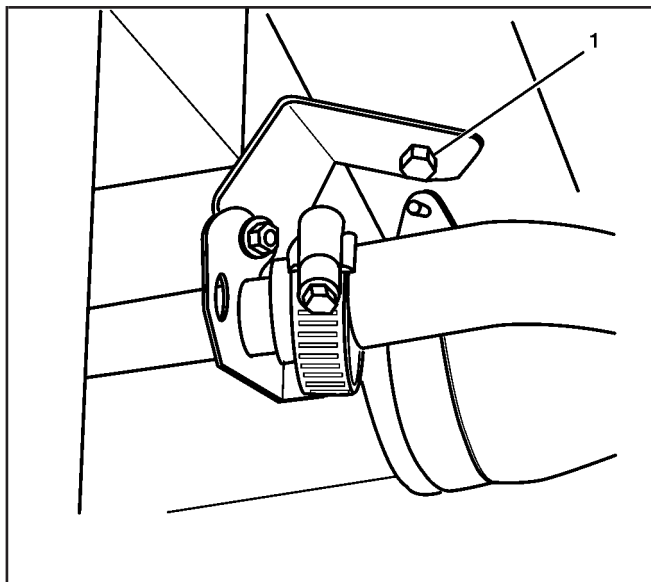
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

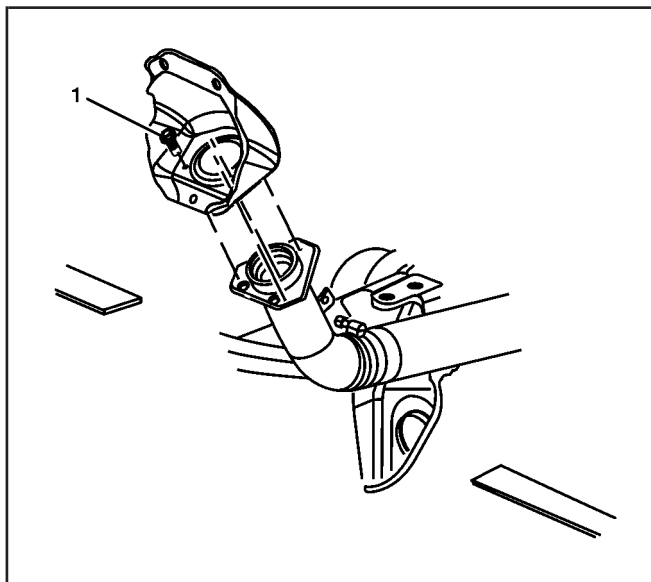
1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

2. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
3. Disconnect the wiring harness for the maintenance body.
4. Remove the fuel fill hose bracket bolt (1).
5. Remove the fuel tank filler housing to fuel tank fill pipe bolts (1).

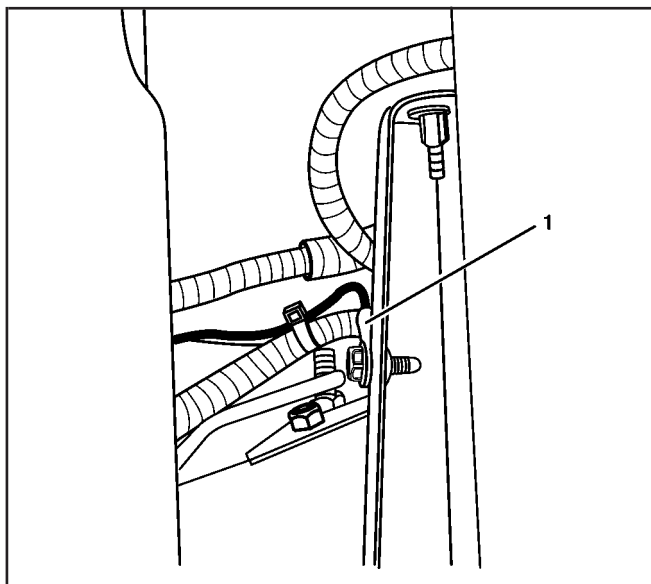


1701836

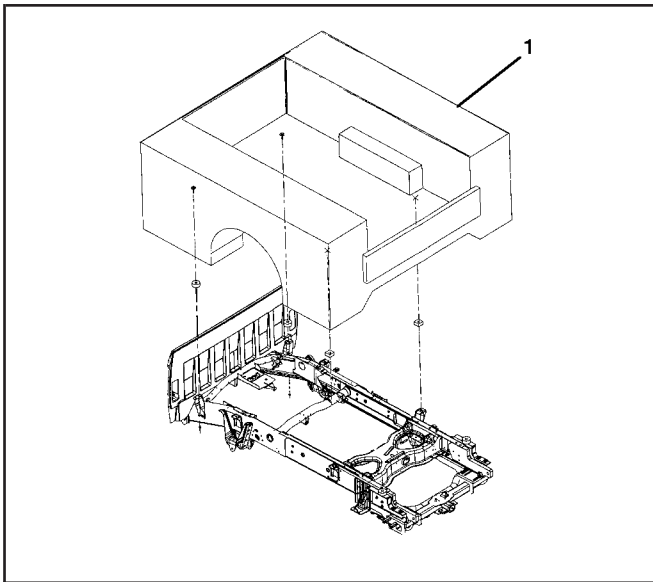


1701829

6. Remove the ground wire bolt (1) for the fuel filler hose.

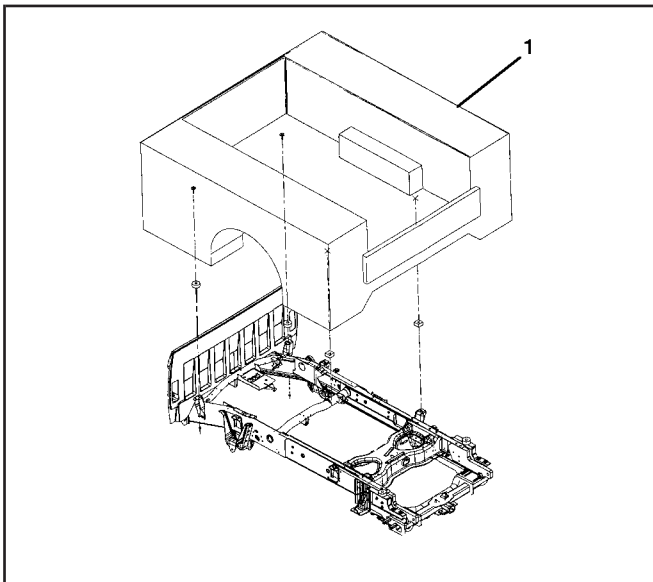


1701837



1703185

7. Remove the maintenance body fasteners from the body mounts.
8. Lift and remove the maintenance body (1) from the chassis.



1703185

Installation Procedure

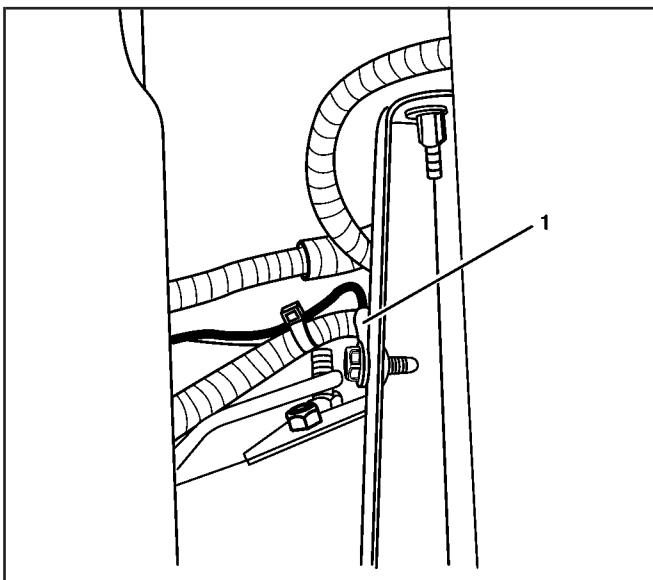
1. Align the maintenance body (1) on the frame rails.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Loosely install the maintenance body fasteners to the body mounts.

Tighten

Tighten the retaining bolts to 80 N·m (59 lb ft).



1701837

Important: Clean any existing corrosion or paint from the bolt and wiring mounting area

3. Install the ground wire bolt (1) for the fuel filler hose.

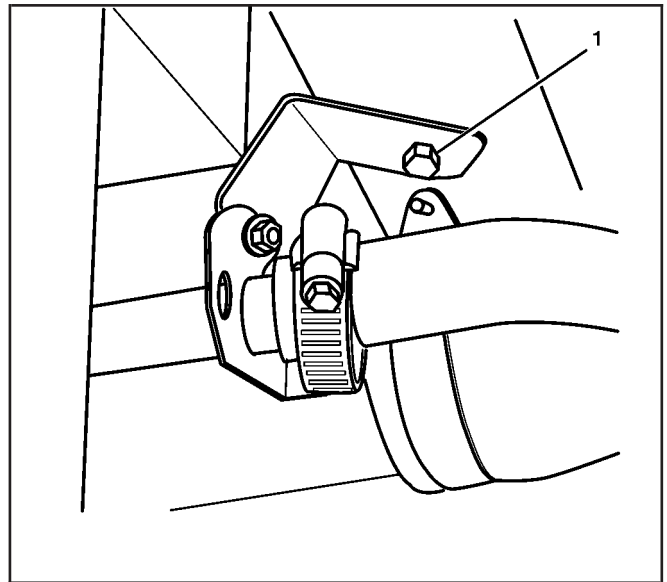
Tighten

Tighten the ground wire bolt to 9 N·m (80 lb in).

4. Remove the fuel fill hose bracket bolt (1).

Tighten

Tighten the bracket bolt to 8 N·m (71 lb in).



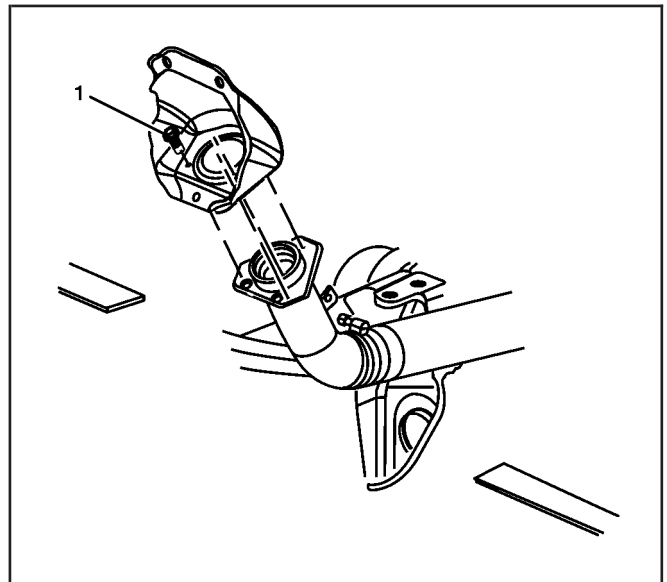
1701836

5. Install the fuel tank filler housing to fuel tank fill pipe bolts (1).

Tighten

Tighten the fuel filler bolts to 2.3 N·m (20 lb in).

6. Connect the wiring harness for the maintenance body.
7. Lower the vehicle.
8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



1701829

Description and Operation

Body Rear End Description

These vehicles are equipped with several options including a cargo cover, troop seats (left and right), fiberglass top, ambulance body and maintenance body.

Cargo Cover

The cargo cover is a rain resistant canvas top cover supported by bows and struts and attached by rails to the cargo box. It can be held down with hooks and buckles or velcroed closed. It may also be rolled up and secured with straps or folded and stowed while not in use.

Cargo Cover Cleaning

If the cargo cover has deteriorated, replace it. The cargo cover is a waterproof, welded, plastic coated polyester. Wash the cover using only mild soap and water. Do not use cleaning agents that are petroleum based, or that contain acid or abrasives. All cleaning agents should be flushed promptly and not allowed to dry on the surface. Do not towel dry or wax the surface. The windows should be washed with a water soaked cloth. Do not rub dry.

Fiberglass Top

The fiberglass top is a hard top cover supported by the bed rails and has side and back windows that are able to open and lock.

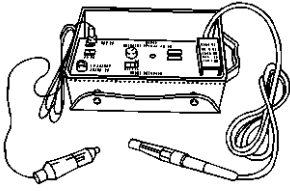
Maintenance Body

The maintenance body is mounted to the pickup chassis using the same attachment locations as a pickup bed. The maintenance body has multiple lighted locking doors and an open cargo space.

Ambulance Body

The ambulance body mounts to special welded frame brackets. There is also an HVAC system and special lighting.

Special Tools and Equipment

Illustration	Tool Number/ Description
 <div>728982</div>	J 39400-A Halogen Leak Detector

Bumpers

Specifications

Fastener Tightening Specifications

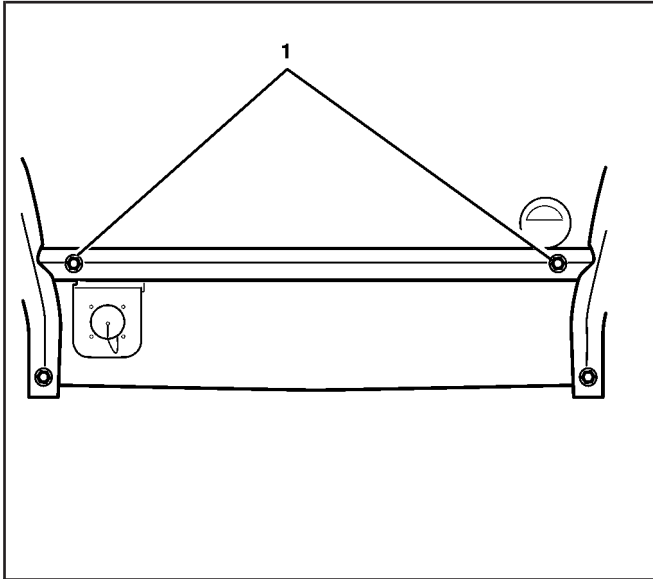
Application	Specification	
	Metric	English
Body Mount Bolts (Maintenance Body)	80 N·m	59 lb ft
Front Bumper Bracket Lower Bolts	68-92 N·m	50-68 lb ft
Front Bumper Bracket Side Bolts	128-148 N·m	94-109 lb ft
Front Bumper Center Bolts	88-98 N·m	65-72 lb ft
Front Bumper Center Bolts (Ambulance/Maintenance Body)	122 N·m	90 lb ft
Front Bumper End Cap Bolts	88-98 N·m	65-72 lb ft
Front Bumper End Cap Brace Bolts	20 N·m	15 lb ft
Front Bumper Lower Support Bolts (Ambulance/Maintenance Body)	77 N·m	57 lb ft
Front Bumper Upper Support Bolts (Ambulance/Maintenance Body)	31 N·m	23 lb ft
Radiator Grille Brush Guard Bolts	20 N·m	15 lb ft
Rear Bumper Bolts	97 N·m	72 lb ft
Rear Bumper Bracket Lower Bolts	155 N·m	114 lb ft
Rear Bumper Bracket Side and Upper Bolts	97 N·m	72 lb ft
Rear Bumper Lower Bolts (Maintenance Body)	50 N·m	37 lb ft
Rear Bumper Side Frame Bolts (Maintenance Body)	120 N·m	89 lb ft
Rear Step Pad Bolts	45 N·m	33 lb ft

Repair Instructions

Center Radiator Grille Brush Guard Replacement

Removal Procedure

1. Remove the blackout (B/O) headlamp. Refer to *Headlamp Replacement - Blackout (B/O) (LSSV)* or *Headlamp Replacement - Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.
2. Remove the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)* in Engine Electrical.
3. Remove the bolts (1) retaining the center brush guard to the bumper.
4. Remove the center brush guard from the vehicle.



1698258

Installation Procedure

1. Install the center brush guard to the vehicle.

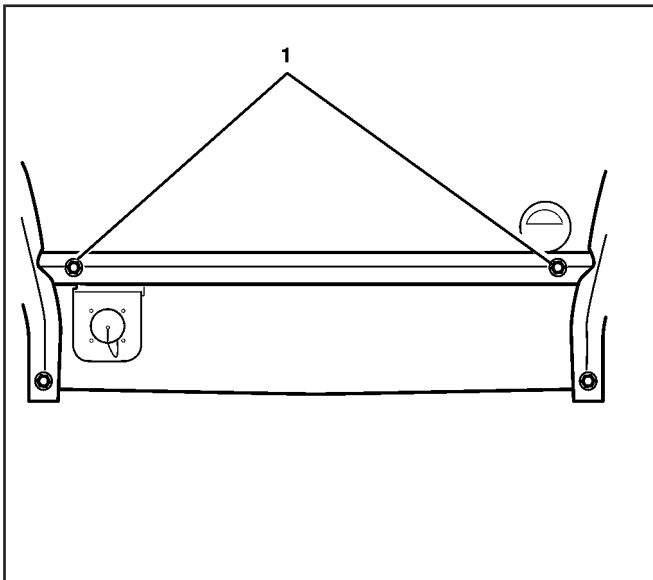
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) retaining the brush guard to the vehicle.

Tighten

Tighten the bolts to 20 N·m (15 lb ft).

3. Install the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)* in Engine Electrical.
4. Install the blackout (B/O) headlamp. Refer to *Headlamp Replacement - Blackout (B/O) (LSSV)* or *Headlamp Replacement - Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.

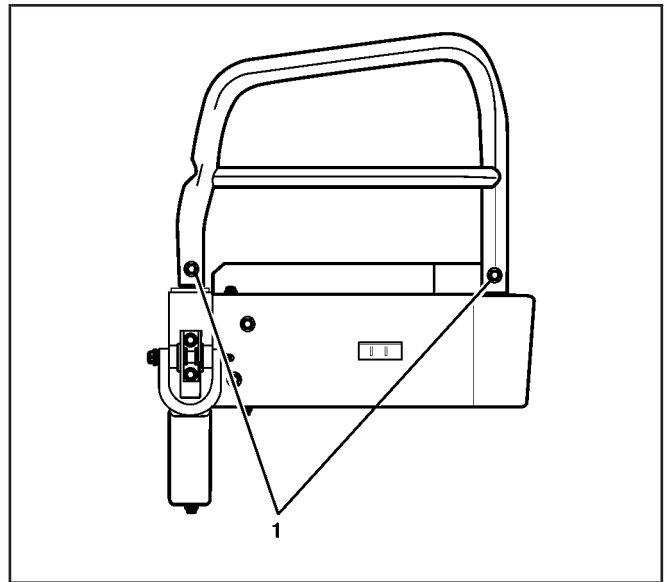


1698258

Outer Radiator Grille Brush Guard Replacement

Removal Procedure

1. Remove the center brush guard. Refer to *Center Radiator Grille Brush Guard Replacement*.
2. Remove the bolts (1) retaining the brush guard end to the bumper.
3. Remove the brush guard end from the vehicle by lifting up off of the mounting posts.



1698260

Installation Procedure

1. Install the center brush guard end to the vehicle.

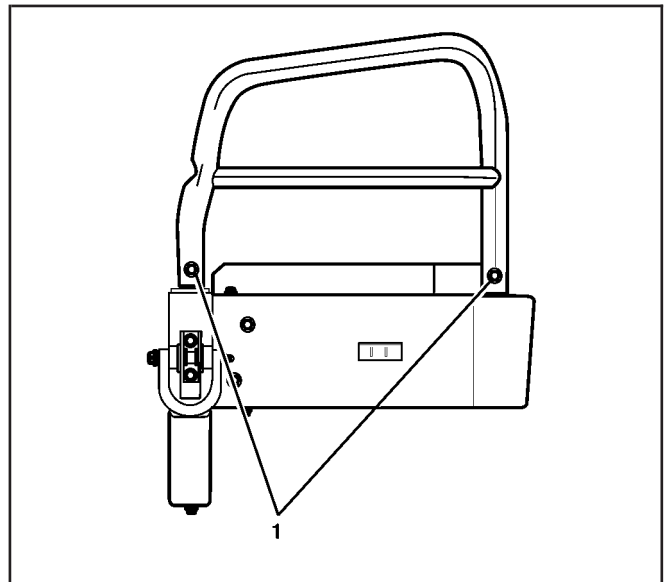
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) retaining the brush guard to the vehicle.

Tighten

Tighten the bolts to 20 N·m (15 lb ft).

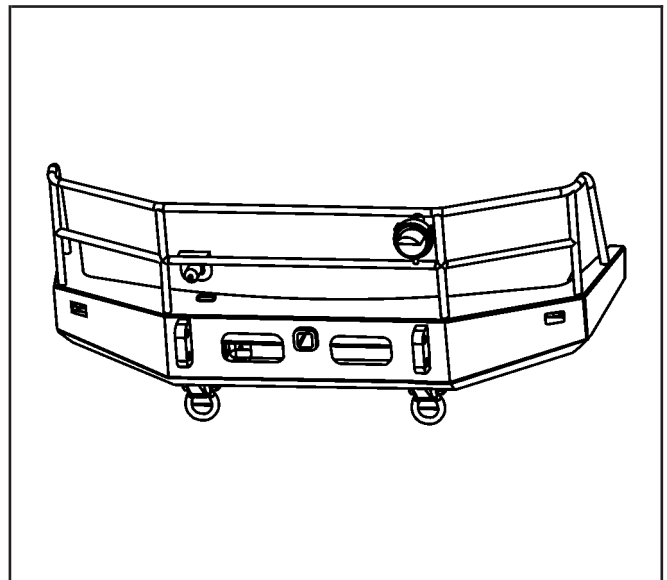
3. Install the center brush guard. Refer to *Center Radiator Grille Brush Guard Replacement*.



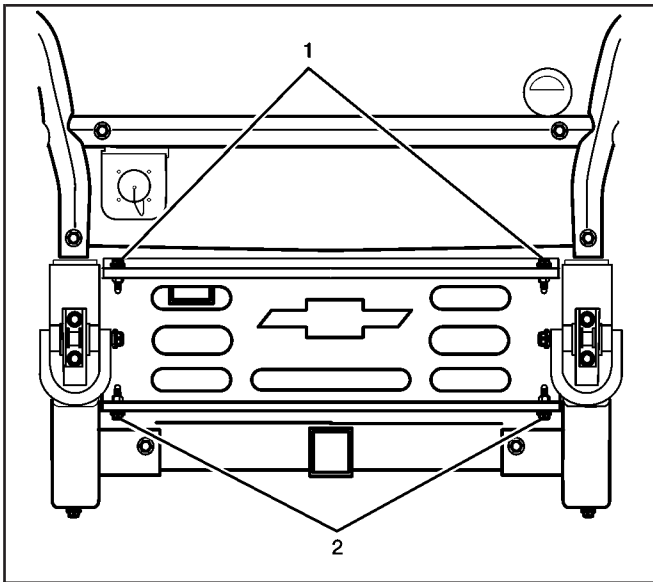
1698260

Radiator Grille Brush Guard Replacement

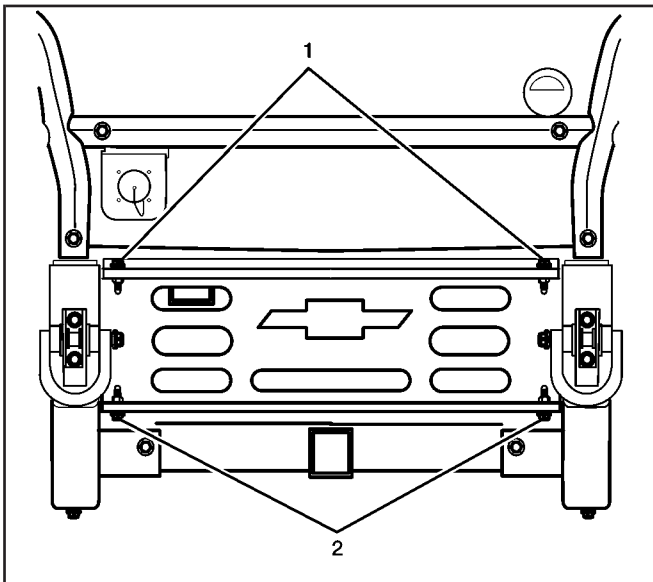
The grille brush guard and front bumper on the ambulance/maintenance body are replaced as a unit. If damaged refer to *Bumper Replacement - Front*.



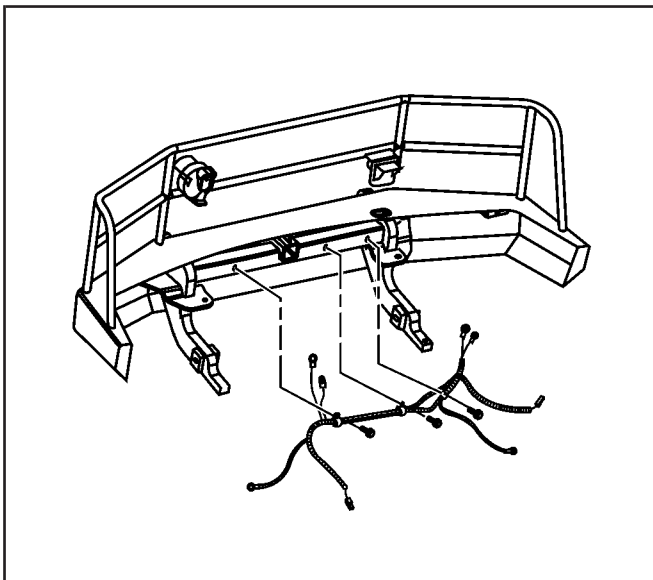
1700949



1698261



1698261



1700940

Center Front Bumper Replacement

Removal Procedure

1. Remove the D-Rings. Refer to *Front D-Ring Bracket Replacement* in Frame and Underbody.
2. Remove the front winch power disconnect (if equipped). Refer to *Front Winch Harness and Connector Replacement* in Engine Electrical.
3. Remove the upper 4 bolts (1) from the bumper.
4. Remove the lower 4 bolts (2) from the bumper and remove from vehicle.

Installation Procedure

1. Install the center bumper onto the frame brackets and install upper bolts (1).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the lower bolts (2) and tighten all bolts.

Tighten

Tighten bumper bolts to 88-98 N·m (65-72 lb ft).

3. Remove the front winch power disconnect (if equipped). Refer to *Front Winch Harness and Connector Replacement* in Engine Electrical.
4. Install the D-Rings to the vehicle. Refer to *Front D-Ring Bracket Replacement* in Frame and Underbody.

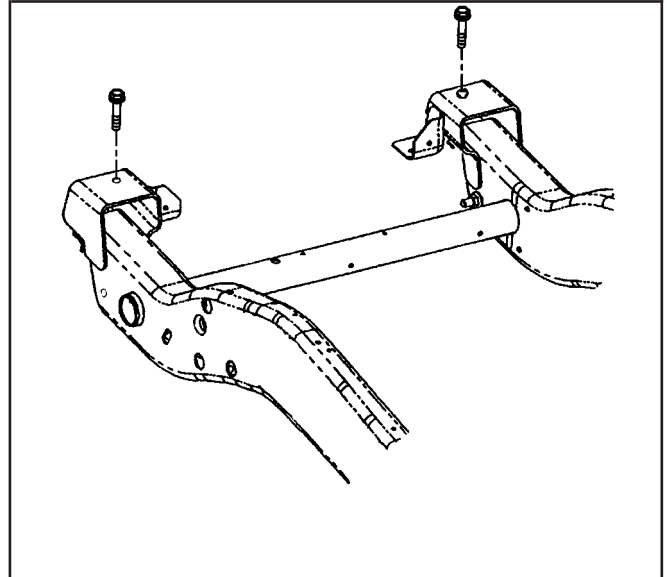
Bumper Replacement - Front

Removal Procedure

Caution: Refer to *Battery Disconnect Caution* in Cautions and Notices.

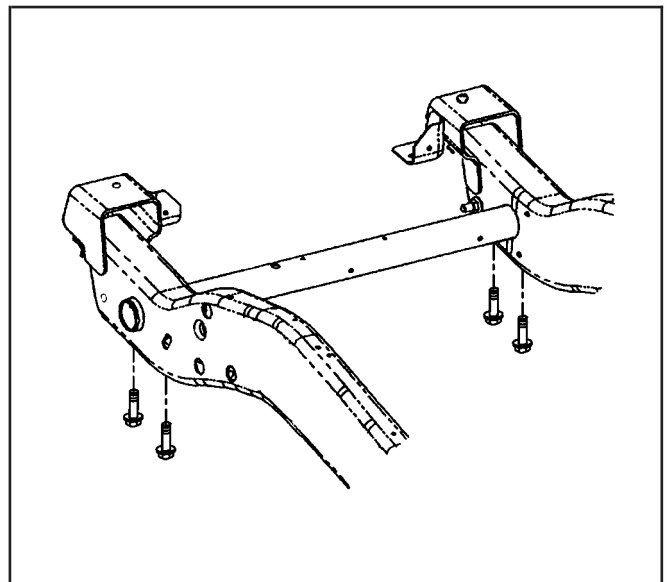
1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the blackout (B/O) headlamp. Refer to *Headlamp Replacement - Blackout (B/O) (LSSV)* or *Headlamp Replacement - Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.
3. Remove the slave receptacle. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)* in Engine Electrical.

4. Remove the blackout (B/O) marker lamp. Refer to *Marker Lamp Replacement - Front Blackout (B/O) (LSSV)* or *Marker Lamp Replacement - Front Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.
5. Remove the 3 bolts and the 3 clamps securing the slave receptacle harness and the blackout (B/O) harness to the bumper assembly.
6. Remove the winch connector. Refer to *Front Winch Harness and Connector Replacement* in Engine Electrical.
7. Support the bumper assembly using an approved support system.
8. Remove the 2 bolts from the upper bumper supports.

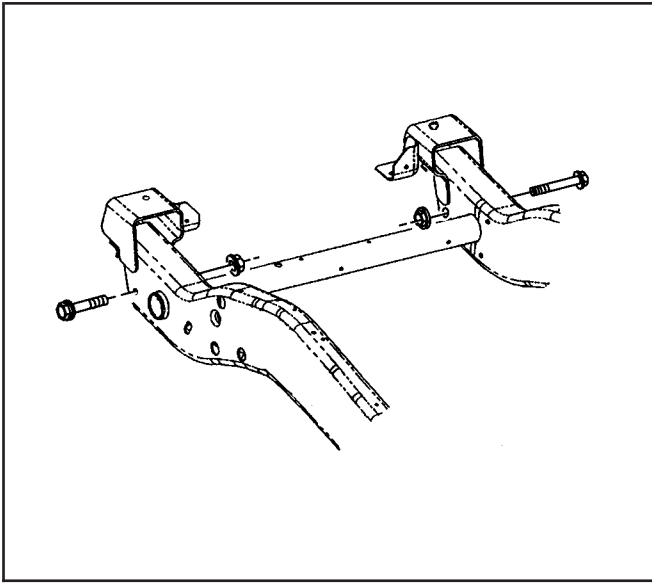


1700943

9. Remove the 4 bolts from the lower supports.

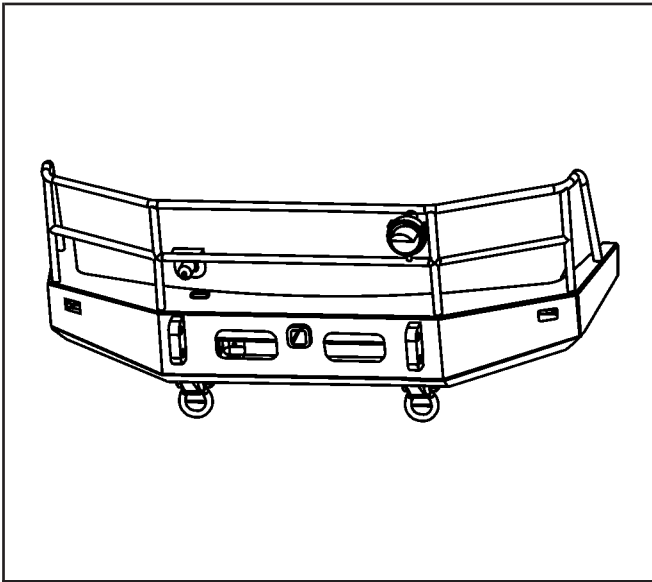


1700944



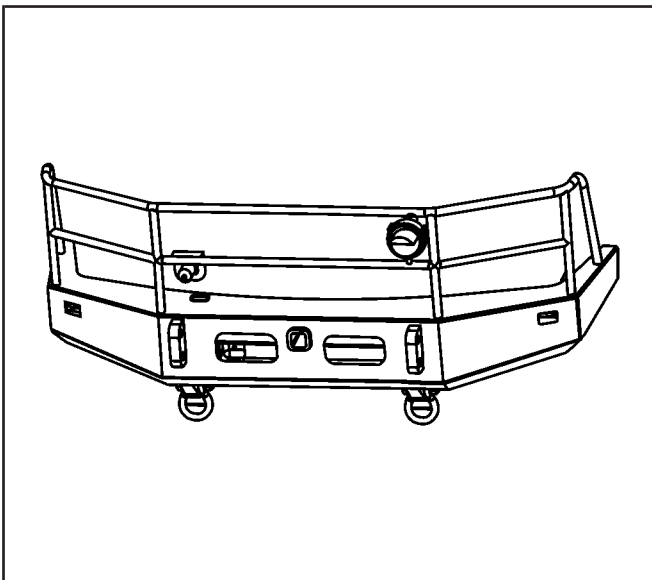
1700946

10. Remove the 2 bolts and the 2 nuts from the center bumper supports.



1700949

11. Using the aid of an assistant, remove the bumper assembly from the vehicle.
12. Remove the D-rings. Refer to *Front D-Ring Replacement (Ambulance/Maintenance Body)* or *Front D-Ring Replacement (LSSV)* in Frame and Underbody.



1700949

Installation Procedure

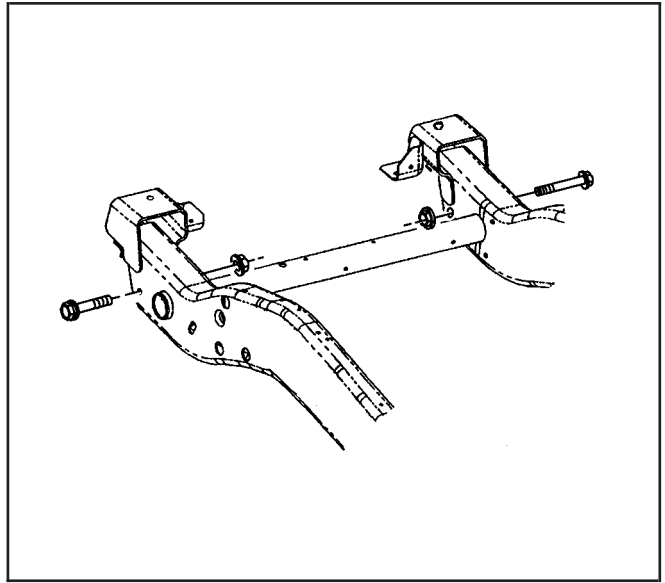
1. Install the D-rings onto the bumper. Refer to *Front D-Ring Replacement (Ambulance/Maintenance Body)* or *Front D-Ring Replacement (LSSV)* in Frame and Underbody.
2. Support the bumper assembly by using an approved support system.
3. Using the aid of an assistant, position the bumper assembly onto the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the 2 bolts and 2 nuts onto the center bumper supports.

Tighten

Tighten the center bumper support bolts to 122 N·m (90 lb ft).

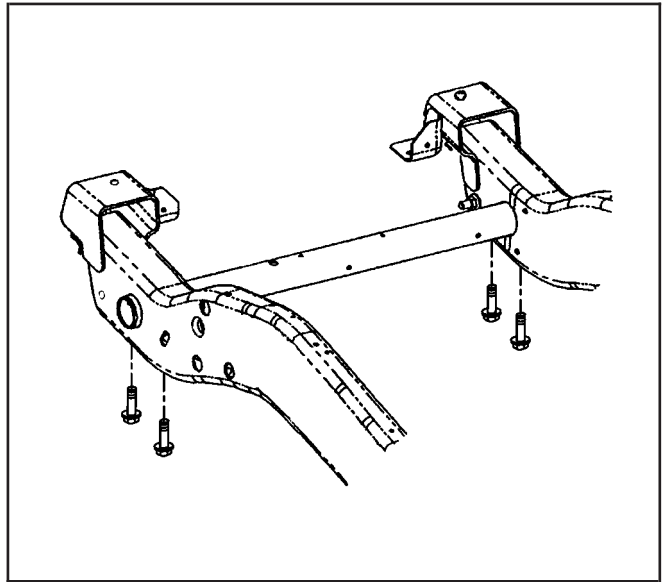


1700946

5. Install the 4 bolts onto the lower bumper supports.

Tighten

Tighten the lower bumper support bolts to 77 N·m (57 lb ft).

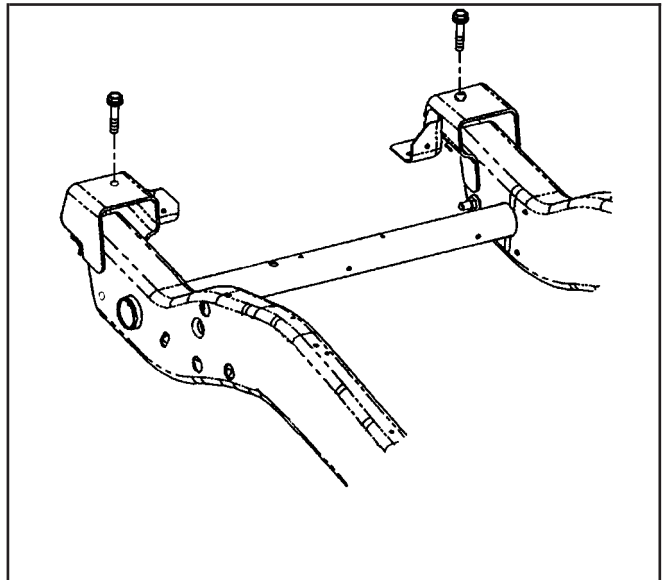


1700944

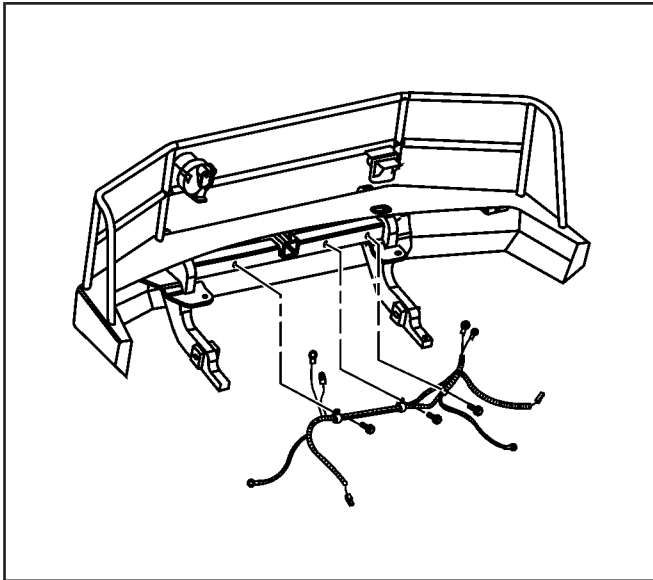
6. Install the 2 bolts onto the upper bumper supports.

Tighten

Tighten the upper bumper support bolts to 31 N·m (23 lb ft).



1700943



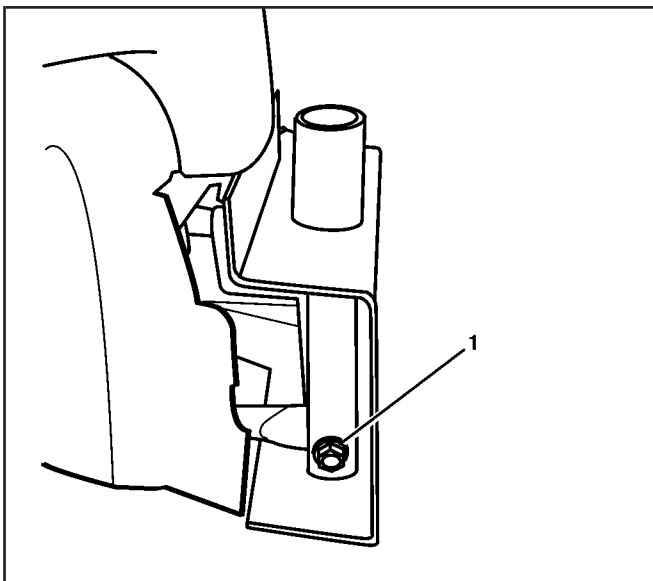
1700940

7. Install the 3 bolts and the 3 clamps onto the blackout (B/O) harness, the slave receptacle and the bumper assembly.
8. Install the blackout (B/O) marker lamps onto the bumper. Refer to *Marker Lamp Replacement - Front Blackout (B/O) (LSSV)* or *Marker Lamp Replacement - Front Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.
9. Install the slave receptacle onto the bumper. Refer to *Slave Receptacle Replacement (LSSV)* or *Slave Receptacle Replacement (Ambulance/Maintenance Body)* in Engine Electrical.
10. Install the blackout (B/O) headlamp onto the bumper. Refer to *Headlamp Replacement - Blackout (B/O) (LSSV)* or *Headlamp Replacement - Blackout (B/O) (Ambulance/Maintenance Body)* in Lighting Systems.
11. Install the front winch connector. Refer to *Front Winch Harness and Connector Replacement* in Engine Electrical.
12. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.

Bumper End Cap Replacement - Front

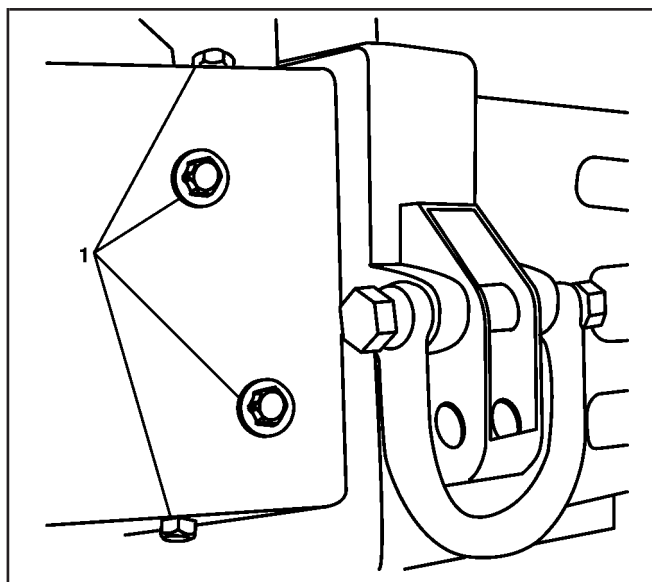
Removal Procedure

1. Remove the center brush guard. Refer to *Center Radiator Grille Brush Guard Replacement*.
2. Remove the brush guard end. Refer to *Outer Radiator Grille Brush Guard Replacement*.
3. Remove the bolts (1) from the end cap brace. If the right side is being removed the ground cable must also be removed.
4. Remove the blackout (B/O) marker lamp. Refer to *Marker Lamp Replacement - Front Blackout (B/O) (LSSV)* or *Marker Lamp Replacement - Front Blackout (B/O) (Ambulance/Maintenance Body)*.



1698255

5. Remove the bolts (1) from the end cap brace.
6. Remove the end cap from the vehicle.



1700819

Installation Procedure

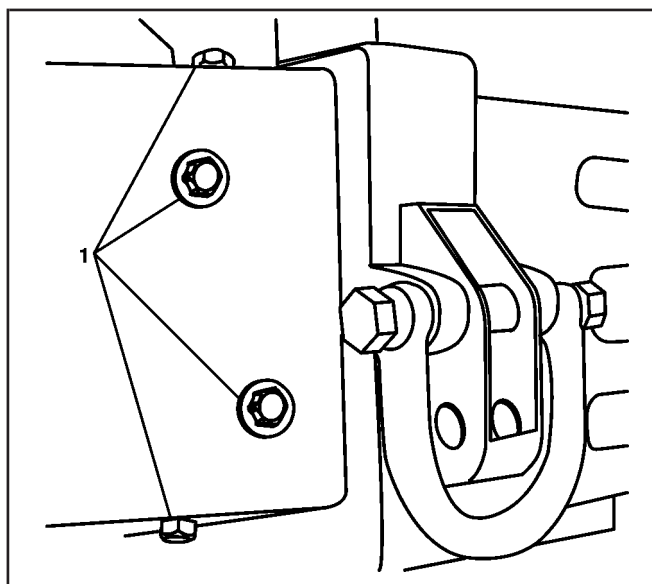
1. Install the end cap to the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) to the end cap.

Tighten

Tighten the bolts to 88-98 N·m (65-72 lb ft).



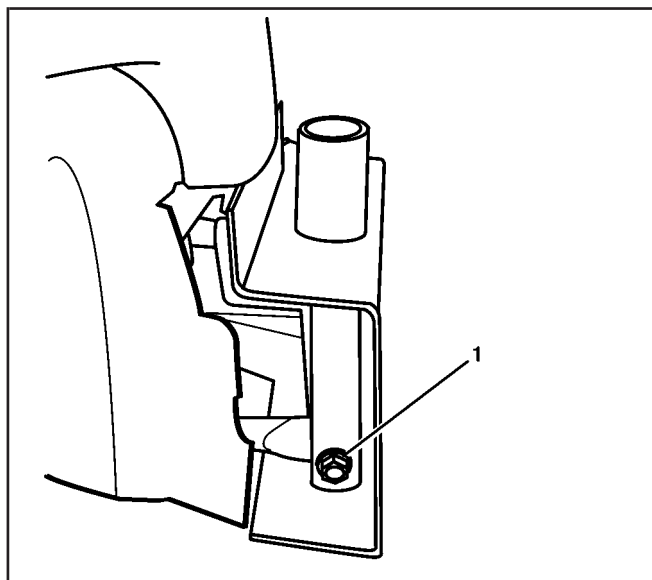
1700819

3. Install the bolts (1) to the end cap brace. If the right side is being installed the ground cable must also be installed.

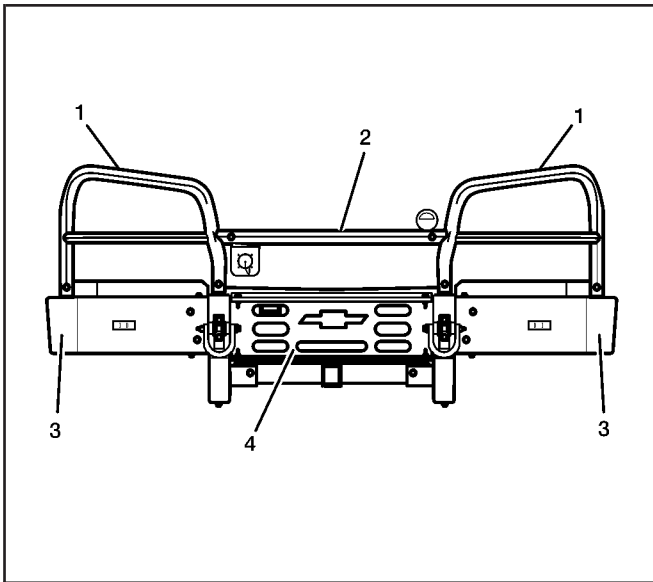
Tighten

Tighten the bolts to 20 N·m (15 lb ft).

4. Install the blackout (B/O) marker lamp. Refer to *Marker Lamp Replacement - Front Blackout (B/O) (LSSV)* or *Marker Lamp Replacement - Front Blackout (B/O) (Ambulance/Maintenance Body)*.
5. Install the brush guard end. Refer to *Outer Radiator Grille Brush Guard Replacement*.
6. Install the center brush guard. Refer to *Center Radiator Grille Brush Guard Replacement*.



1698255

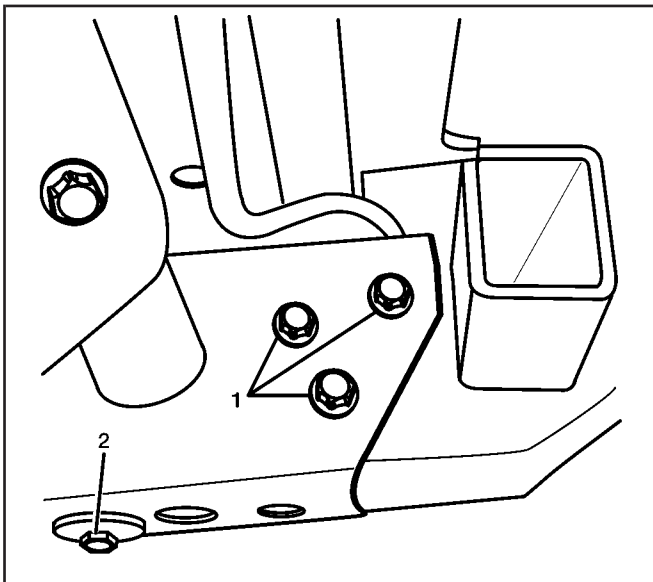


1698266

Bracket Replacement - Front Bumper

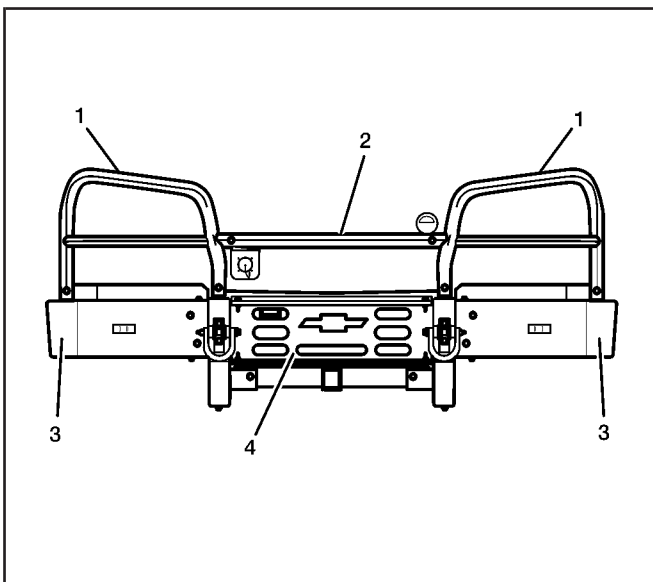
Removal Procedure

1. Remove the center brush guard (2). Refer to *Center Radiator Grille Brush Guard Replacement*.
2. Remove the end brush guard (1). Refer to *Outer Radiator Grille Brush Guard Replacement*.
3. Remove the center bumper (4). Refer to *Center Front Bumper Replacement*.
4. Remove the bumper end cap (3). Refer to *Bumper End Cap Replacement - Front*.



1698263

5. Remove the front winch mount. Refer to *Front Winch Harness and Connector Replacement* in *Engine Electrical*.
6. Remove the side bolts (1) from the inside and outside frame.
7. Remove the lower washered bracket bolt (2) from the frame.
8. Remove the bracket from the vehicle frame.



1698266

Installation Procedure

1. Install the front bumper bracket onto the frame.
2. Install the side and lower bolts, do not tighten at this time.
3. Install the center bumper (4). Refer to *Center Front Bumper Replacement*.
4. Install the bumper end cap (3). Refer to *Bumper End Cap Replacement - Front*.
5. Install the end brush guard (1). Refer to *Outer Radiator Grille Brush Guard Replacement*.
6. Install the center brush guard (2). Refer to *Center Radiator Grille Brush Guard Replacement*.

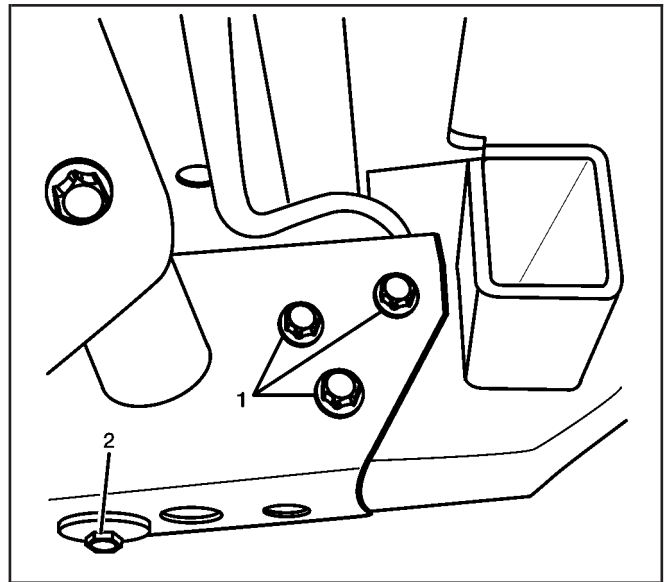
7. Install the front winch mount. Refer to *Front Winch Harness and Connector Replacement* in Engine Electrical.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

8. Align the front bumper and tighten the side frame bolts (1) and lower frame washered bracket bolt (2).

Tighten

- Tighten side bolts to 128-148 N·m (94-109 lb ft).
- Tighten lower bolt to 68-92 N·m (50-68 lb ft).

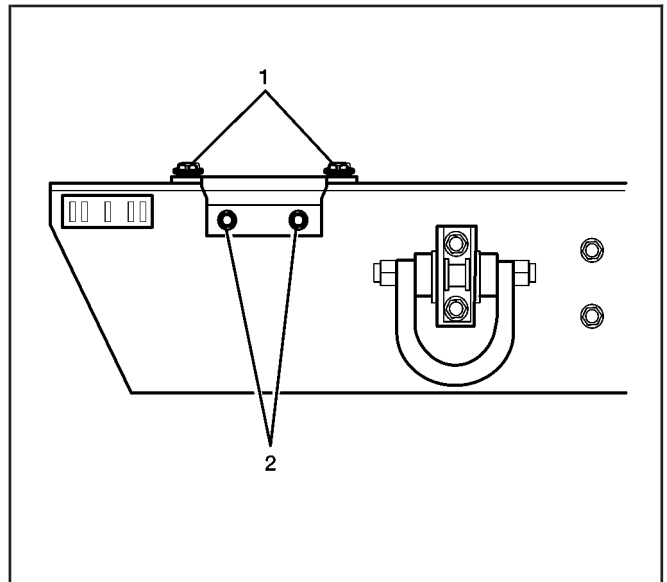


1698263

Step Pad Replacement - Rear Bumper

Removal Procedure

1. Remove the upper mounting bolts (1).
2. Remove the lower mounting bolts (2).
3. Remove the step from the bumper.



1698267

Installation Procedure

1. Install the step onto the bumper.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the upper mounting bolts (1).

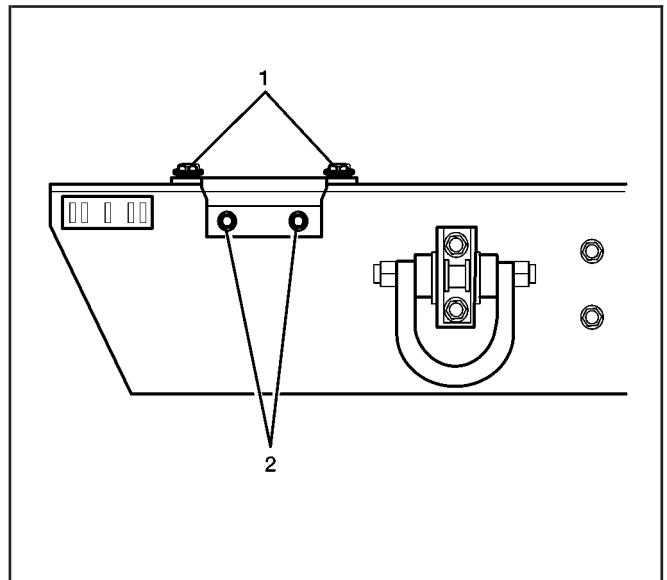
Tighten

Tighten upper bolts to 45 N·m (33 lb ft).

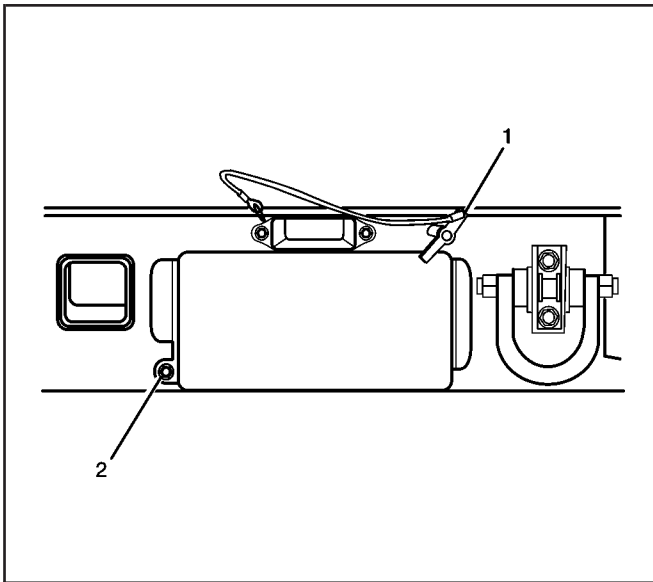
3. Install the lower mounting bolts (2).

Tighten

Tighten lower bolts to 45 N·m (33 lb ft).



1698267

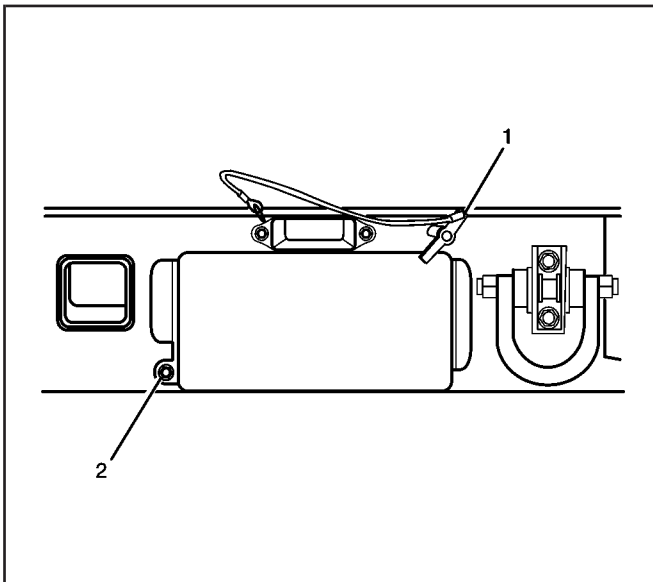


1702051

License Plate Bracket Replacement

Removal Procedure

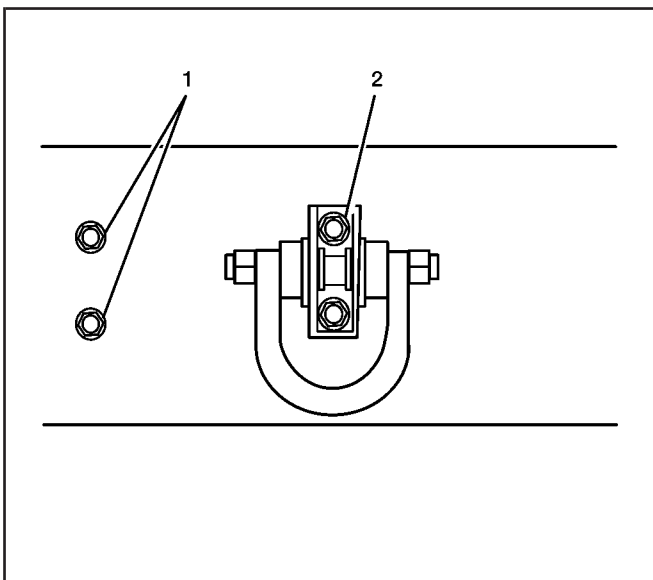
1. Remove the retention pin (1) and pivot the bracket down.
2. Remove the pivot bolt (2) and washer from the bracket.
3. Remove the bracket from the bumper.
4. Remove the license plate from the bracket.



1702051

Installation Procedure

1. Inspect the bracket pivot bushing and replace as needed.
2. Install the license plate on the bracket.
3. Install the bracket on the bumper and install washer and bolt (2). Tighten the bolt until the bracket pivots open freely.
4. Pivot the bracket into the up position and install the retention pin (1).



1698275

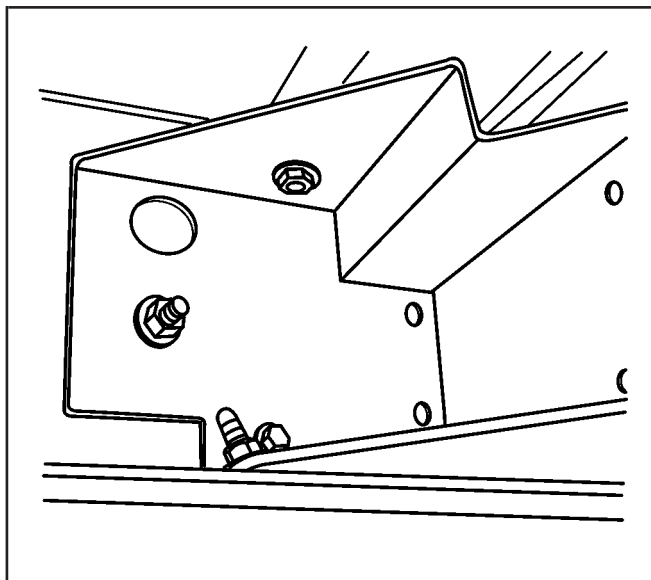
Bracket Replacement - Rear Bumper (LSSV)

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise and suitably support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information of the 2005 C/K Truck Service Manual.
2. Remove the rear D-ring (2) from the appropriate side. Refer to *Rear D-Ring Bracket Replacement (Maintenance Body)* or *Rear D-Ring Bracket Replacement (LSSV)* in Frame and Underbody.
3. Remove the bumper bolts (1).

4. Remove the bumper bracket to frame bolts.
5. Remove the bracket to bumper spacer from the vehicle.



1698278

Installation Procedure

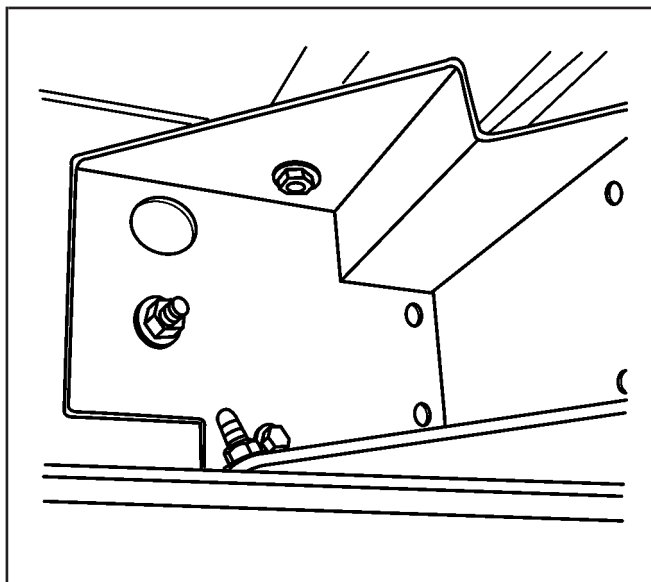
1. Install the bumper bracket and spacer into position.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bracket to frame bolts.

Tighten

- Tighten the side and upper bolts to 97 N·m (72 lb ft).
- Tighten the lower bolt to 155 N·m (114 lb ft).



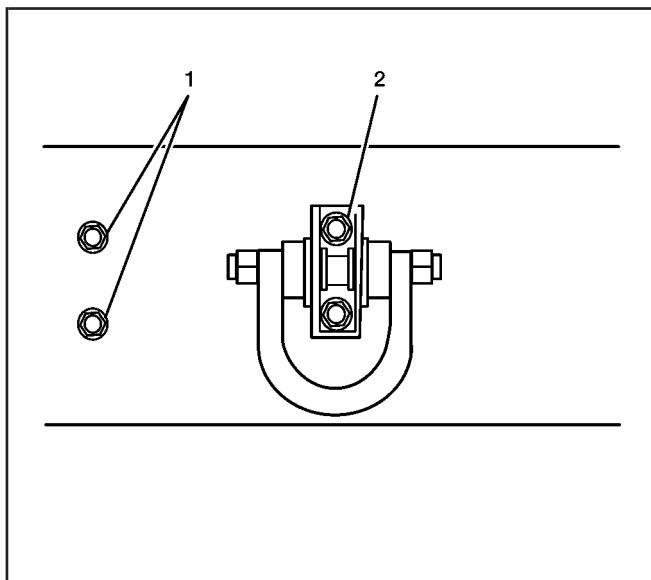
1698278

3. Install the bumper bolts (1).

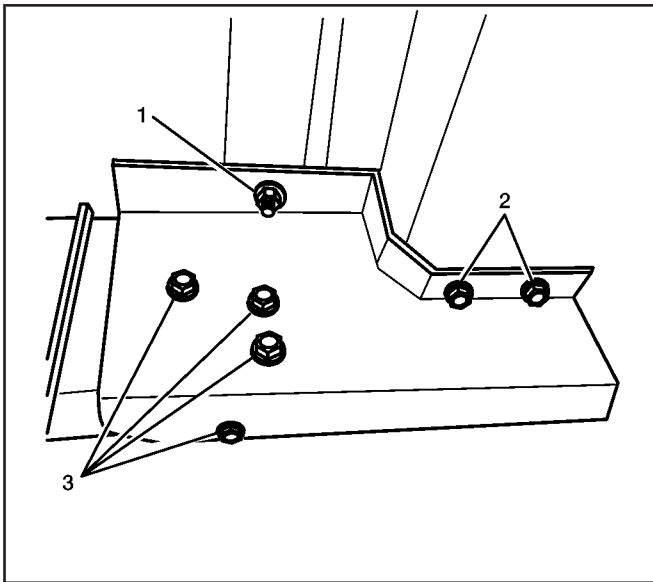
Tighten

Tighten bumper bolts to 97 N·m (72 lb ft).

4. Install the rear D-ring (2) from the appropriate side. Refer to *Rear D-Ring Bracket Replacement (Maintenance Body)* or *Rear D-Ring Bracket Replacement (LSSV)* in Frame and Underbody.
5. Remove the supports and lower the vehicle.



1698275



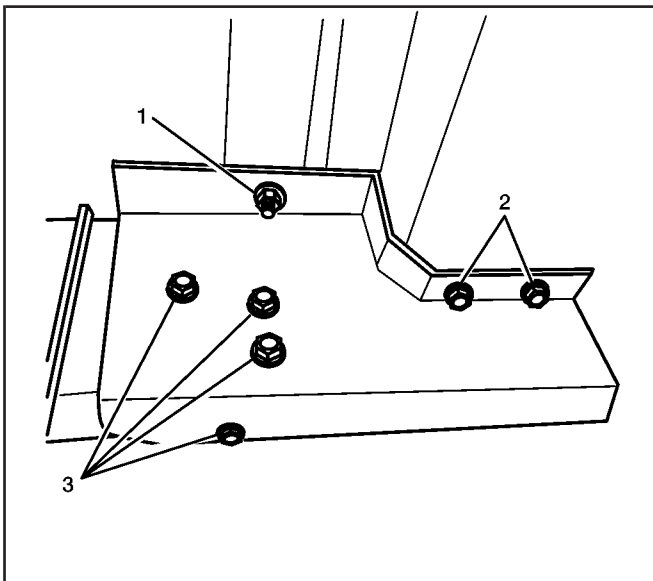
1702050

Bracket Replacement - Rear Bumper (Maintenance Body)

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise and suitably support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information of the 2005 C/K Truck Service Manual.
2. Remove the rear hitch and reinforcement plate. Refer to *Trailer Hitch/Reinforcement Plate Replacement (Maintenance Body)* in Frame and Underbody.
3. Remove the body mount nut (1).
4. Remove the bumper bolts (2).
5. Remove the frame bolts (3) and remove the bracket from the vehicle.



1702050

Installation Procedure

Notice: Refer to *Fastener Notice* in Cautions and Notices.

1. Place the bracket on the vehicle and install the frame bolts (3).

Tighten

Tighten frame bolts to 120 N·m (89 lb ft).

2. Install the body mount bolt (1).

Tighten

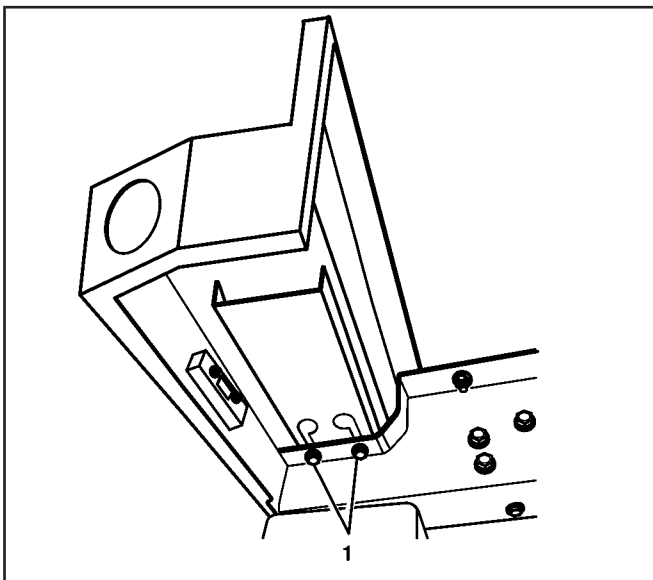
Tighten body mount bolts to 80 N·m (59 lb ft).

3. Install the bumper bolts (2).

Tighten

Tighten bumper bolts to 50 N·m (37 lb ft).

4. Install the rear hitch and reinforcement plate. Refer to *Trailer Hitch/Reinforcement Plate Replacement (Maintenance Body)* in Frame and Underbody.
5. Remove the safety stands and lower the vehicle.



1700950

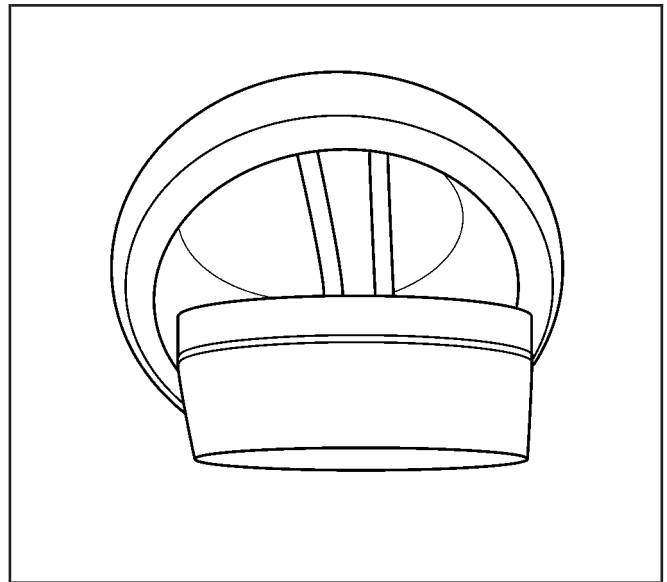
Bumper Replacement - Rear (Maintenance Body)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Caution and Notices*.

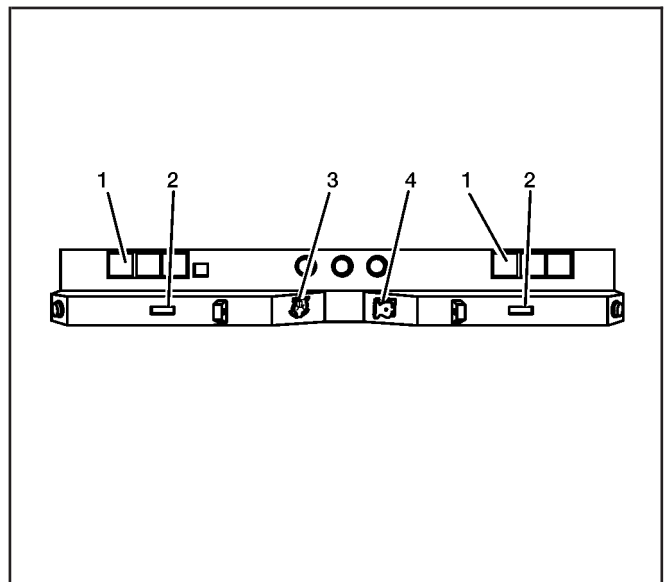
1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the D-rings. Refer to *Rear D-Ring Replacement (Maintenance Body)* or *Rear D-Ring Replacement (LSSV)* in Frame and Underbody.
3. Disconnect the trailer wiring harness.
4. Remove the 4 bumper bolts (1), right side shown left side similar.
5. Using the aid of an assistant, remove the rear bumper from the vehicle by sliding it off the brackets.

6. Remove the trailer wiring harness from the rear bumper. Refer to *12V and 24V Harness Replacement (Maintenance Body)* in Wiring Systems.
7. Remove the marker lamps. Refer to *Rear Marker Lamp Replacement (Maintenance Body)* in Lighting Systems.



1693480

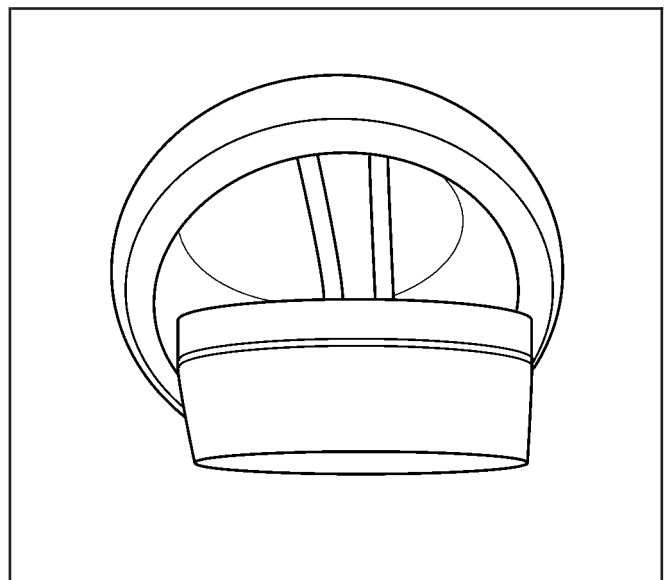
8. Remove the taillamps (1). Refer to *Taillamp Replacement (Maintenance Body)* in Lighting Systems.
9. Remove the blackout (B/O) marker lamps (2). Refer to *Rear Marker Lamp Replacement (Maintenance Body)* in Lighting Systems.
10. Remove the 12-pin trailer connector (4). Refer to *Military Trailer Connector Replacement (LSSV)* or *Military Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
11. Remove the commercial trailer connector (3). Refer to *Commercial Trailer Connector Replacement (LSSV)* or *Commercial Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.



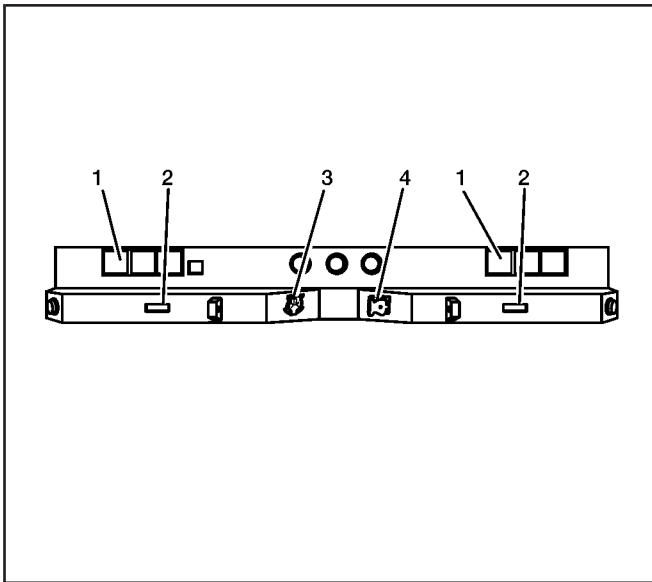
1702052

Installation Procedure

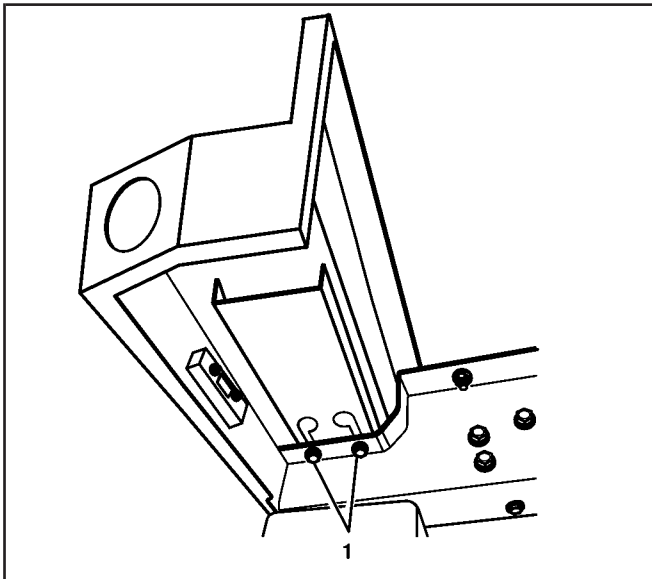
1. Install the marker lamps. Refer to *Rear Marker Lamp Replacement (Maintenance Body)* in Lighting Systems.



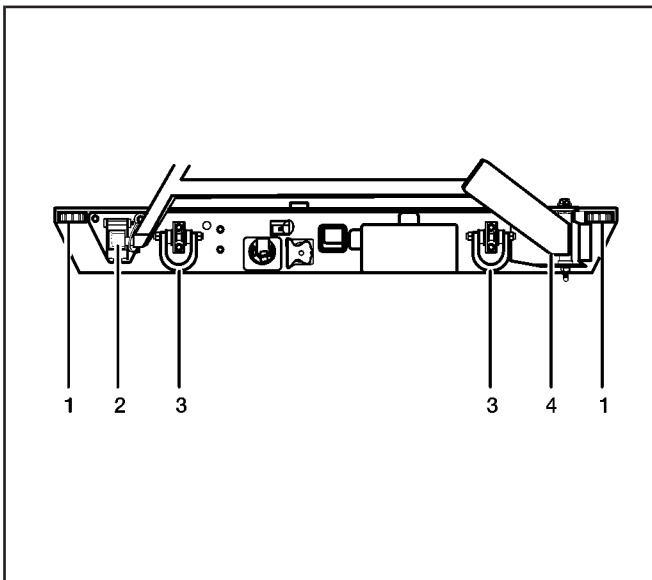
1693480



1702052



1700950



1698269

2. Install the taillamps (1). Refer to *Taillamp Replacement (Maintenance Body)* in Lighting Systems.
3. Install the blackout (B/O) marker lamps (2). Refer to *Rear Marker Lamp Replacement (Maintenance Body)* in Lighting Systems.
4. Install the 12-pin trailer connector (4). Refer to *Military Trailer Connector Replacement (LSSV)* or *Military Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
5. Install the commercial trailer connector (3). Refer to *Commercial Trailer Connector Replacement (LSSV)* or *Commercial Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
6. Install the trailer wiring harness. Refer to *12V and 24V Harness Replacement (Maintenance Body)* in Wiring Systems.
7. Using the aid of an assistant, position the rear bumper onto the vehicle by sliding it on to the tie down plates.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

8. Install the 4 bumper bolts (1), right side shown left side similar.

Tighten

Tighten the bumper bolts to 79 N·m (59 lb ft).

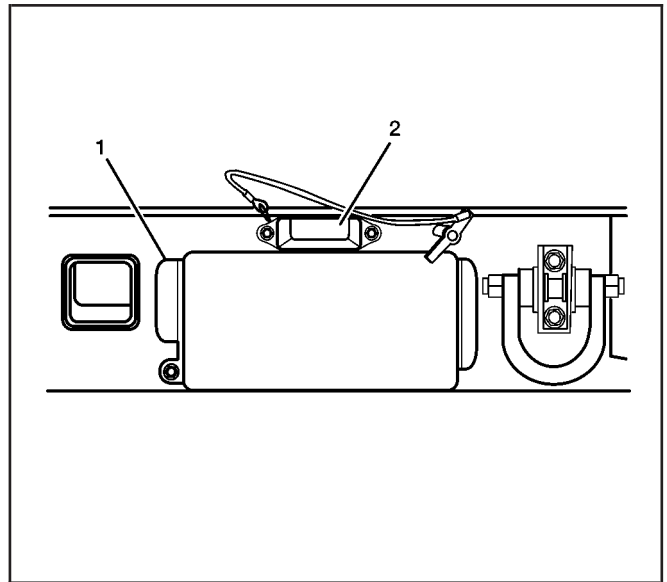
9. Connect the trailer wiring harness.
10. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
11. Install the D-rings. Refer to *Rear D-Ring Replacement (Maintenance Body)* or *Rear D-Ring Replacement (LSSV)* in Frame and Underbody.

Bumper Replacement - Rear (LSSV)

Removal Procedure

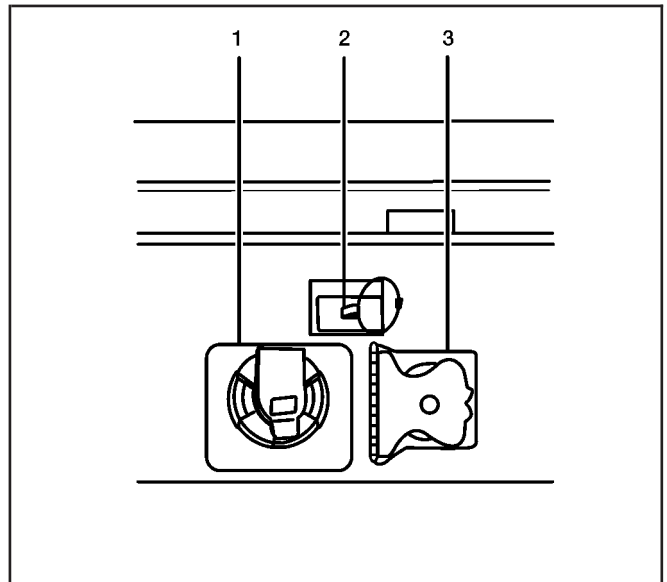
1. Remove the swing away spare tire carrier pivot bracket (4) (if equipped). Refer to *Spare Tire Carrier Pivot Bracket Replacement (Swing Away)* in Tires and Wheels.
2. Remove the swing away spare tire carrier latch (2) (if equipped). Refer to *Spare Tire Carrier Latch Replacement (Swing Away)* in Tires and Wheels.
3. Remove the rear D-ring brackets (3). Refer to *Rear D-Ring Bracket Replacement (Maintenance Body)* or *Rear D-Ring Bracket Replacement (LSSV)* in Frame and Underbody.
4. Remove the rear blackout (B/O) taillamps (1). Refer to *Blackout (B/O) Taillamp Replacement (LSSV)* or *Blackout (B/O) Taillamp Replacement (Maintenance Body)* in Lighting Systems.

5. Remove the license plate lamp (2). Refer to *License Plate Lamp Replacement (LSSV)* or *License Plate Lamp Replacement (Maintenance Body)* or *License Plate Lamp Replacement (Ambulance Body)* in Lighting Systems.
6. Remove the license plate bracket (1). Refer to *License Plate Bracket Replacement*.
7. Remove the rear step pad if equipped. Refer to *Step Pad Replacement - Rear Bumper*.



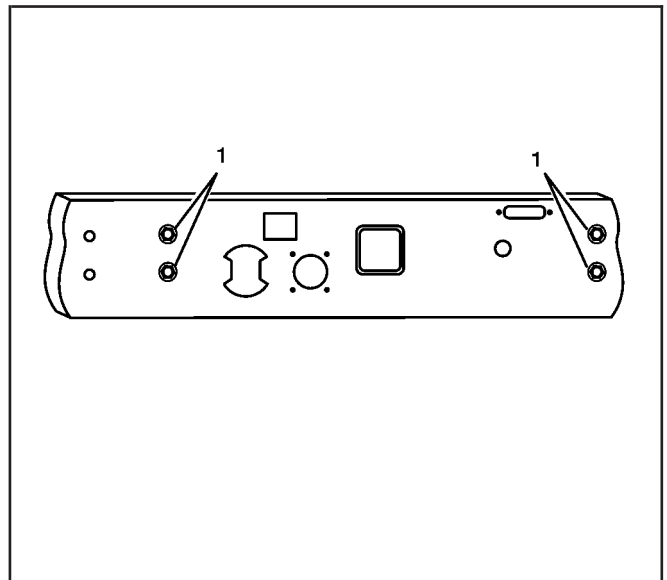
1698272

8. Remove the 24V trailer connector (3). Refer to *Military Trailer Connector Replacement (LSSV)* or *Military Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
9. Remove the 12V trailer connector (1). Refer to *Commercial Trailer Connector Replacement (LSSV)* or *Commercial Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
10. Remove the rear winch power disconnect (2) (if equipped). Refer to *Rear Winch Harness and Connector Replacement (LSSV)* or *Rear Winch Harness and Connector Replacement (Maintenance Body)* in Engine Electrical.

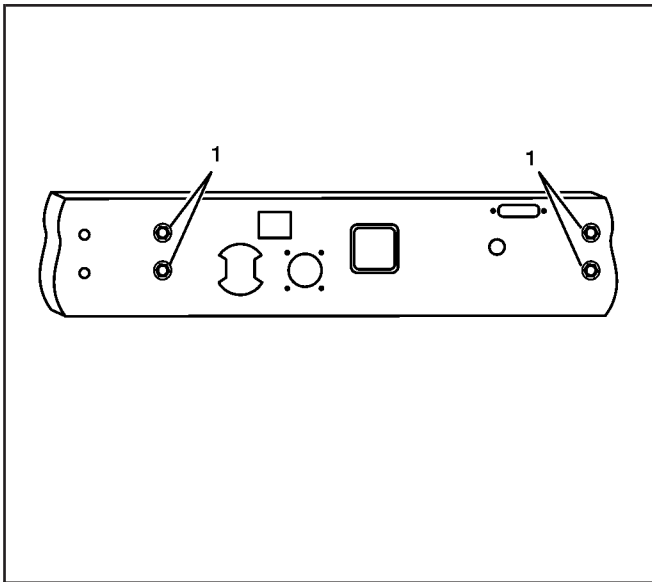


1698270

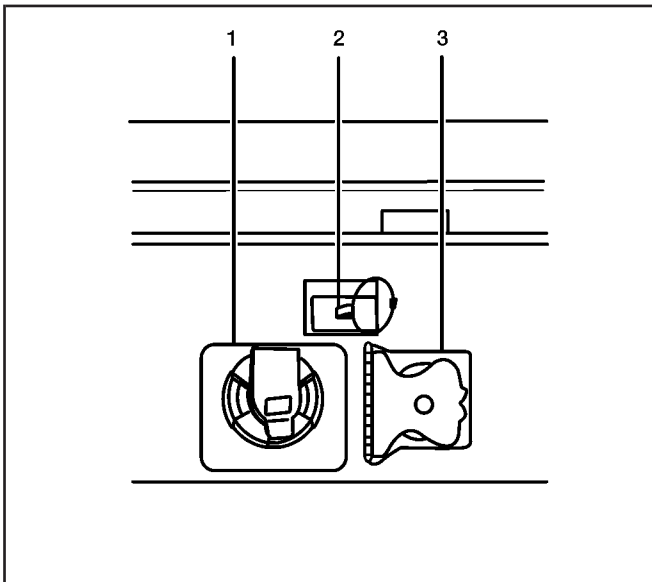
11. Remove the rear relay mounting bracket from the bumper.
12. Remove the rear lamp wiring harness. Refer to *Lamp Harness Replacement - Rear (LSSV)* or *Lamp Harness Replacement - Rear (Maintenance Body)* in Wiring Systems.
13. Remove the bolts (1) securing the bumper to the vehicle.
14. Remove the bumper and spacers from the mounting brackets.



1698274



1698274



1698270

Installation Procedure

1. Position the bumper and spacers to the vehicle and loosely install the bolts (1).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Align the bumper from side to side and tighten bolts.

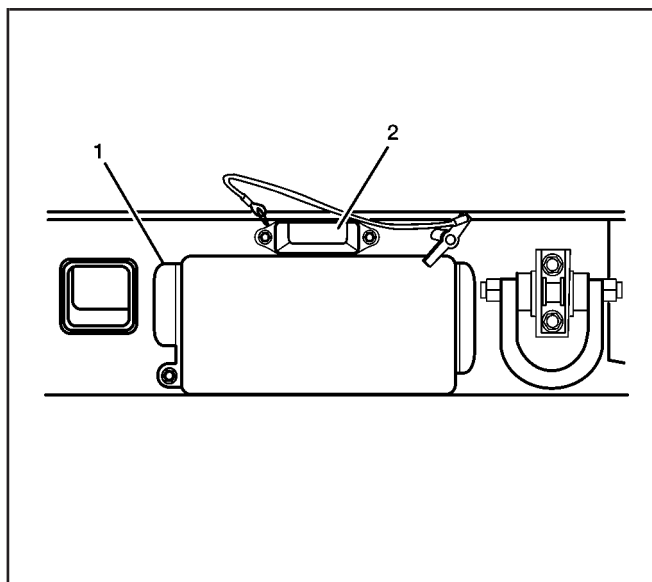
Tighten

Tighten bumper bolts to 97 N·m (72 lb ft).

3. Install the rear lamp wiring harness. Refer to *Lamp Harness Replacement - Rear (LSSV)* or *Lamp Harness Replacement - Rear (Maintenance Body)* in Wiring Systems.
4. Install the rear relay mounting bracket from the bumper.

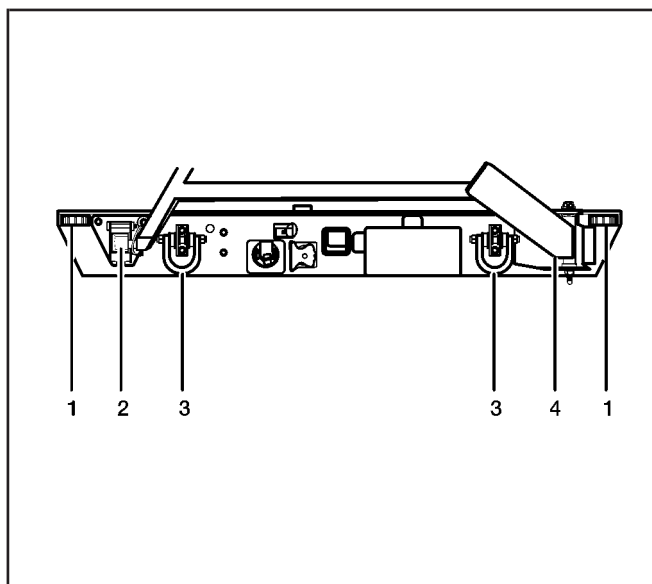
5. Install the rear winch power disconnect (2) (if equipped). Refer to *Rear Winch Harness and Connector Replacement (LSSV)* or *Rear Winch Harness and Connector Replacement (Maintenance Body)* in Engine Electrical.
6. Install the 12V trailer connector (1). Refer to *Commercial Trailer Connector Replacement (LSSV)* or *Commercial Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.
7. Install the 24V trailer connector (3). Refer to *Military Trailer Connector Replacement (LSSV)* or *Military Trailer Connector Replacement (Maintenance Body)* in Lighting Systems.

8. Install the license plate bracket (1). Refer to *License Plate Bracket Replacement*.
9. Install the license plate lamp (2). Refer to *License Plate Lamp Replacement (LSSV)* or *License Plate Lamp Replacement (Maintenance Body)* or *License Plate Lamp Replacement (Ambulance Body)* in Lighting Systems.
10. Install the rear step pads. Refer to *Step Pad Replacement - Rear Bumper*.



1698272

11. Install the rear blackout (B/O) taillamps (1). Refer to *Blackout (B/O) Taillamp Replacement (LSSV)* or *Blackout (B/O) Taillamp Replacement (Maintenance Body)* in Lighting Systems.
12. Install the rear D-ring brackets (3). Refer to *Rear D-Ring Bracket Replacement (Maintenance Body)* or *Rear D-Ring Bracket Replacement (LSSV)* in Frame and Underbody.
13. Install the swing away spare tire carrier latch (2) (if equipped). Refer to *Spare Tire Carrier Latch Replacement (Swing Away)* in Tires and Wheels.
14. Install the swing away spare tire carrier pivot bracket (4) (if equipped). Refer to *Spare Tire Carrier Pivot Bracket Replacement (Swing Away)* in Tires and Wheels.



1698269

Exterior Trim

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Rear Mud Guard Brace Bolts	25 N·m	18 lb ft
Rear Mud Guard Screws	4 N·m	35 lb in

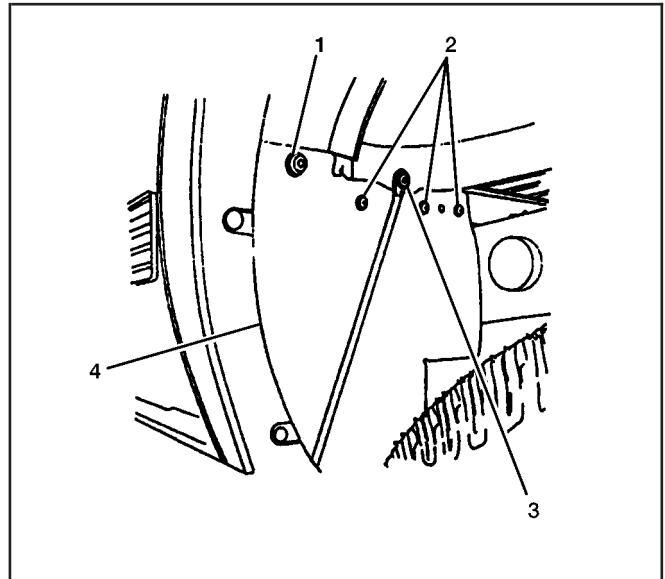
Repair Instructions

Guard Mud - Rear (One or Both) Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the brace bolt (3).
3. Remove the plastic retainer (1).
4. Remove the screws (2).
5. Remove the mud guard (4) from the vehicle.



1707323

Installation Procedure

1. Install the mud guard (4) to the vehicle.
2. Install the plastic retainer (1).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the brace bolt (3).

Tighten

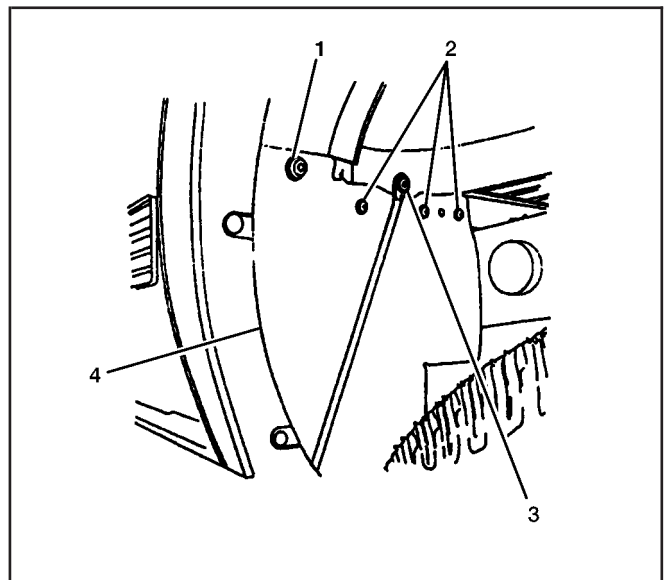
Tighten the brace bolts to 25 N·m (18 lb ft).

4. Install the screws (2).

Tighten

Tighten the screws to 4 N·m (35 lb in).

5. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1707323

Description and Operation

Exterior Trim Description

Mud Guards

These vehicles may be equipped with mud guards at the front of the rear wheel openings to prevent brake damage when exposed to off road conditions.

Frame and Underbody

Specifications

Fastener Tightening Specifications

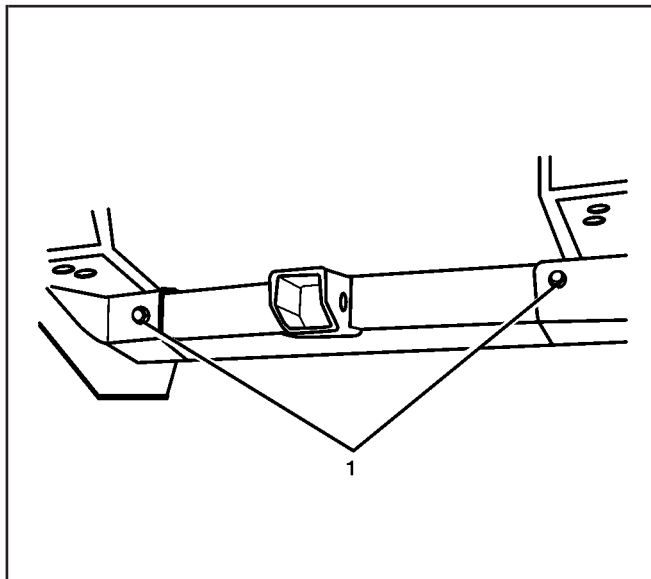
Application	Specification	
	Metric	English
Body Mount Bolt	70 N·m	52 lb ft
Center Support Beam Bracket Bolts (Pass Through)	35 N·m	26 lb ft
Center Support Beam Bracket Bolts (Threaded Hole)	50 N·m	37 lb ft
Front D-Ring Bolts (Ambulance/Maintenance Body)	200 N·m	148 lb ft
Front D-Ring Bracket Bolts	87-97 N·m	64-72 lb ft
Front Fuel Tank Skid Plate Bolts	50 N·m	37 lb ft
Front Outer Fuel Tank Skid Plate Bolts	29 N·m	21 lb ft
Front Skid Plate Bolts (Front)	20 N·m	15 lb ft
Front Skid Plate Bolts (Rear)	35 N·m	26 lb ft
Front Skid Plate Support Beam Bolts	35 N·m	26 lb ft
Front Winch Receiver Bolts	88-98 N·m	65-72 lb ft
Inner Fuel Tank Cover Bolts	29 N·m	21 lb ft
Mid-Skid Plate Support Beam Bolts	50 N·m	37 lb ft
Rear D-Ring Bolts (Maintenance Body)	200 N·m	148 lb ft
Rear D-Ring Bracket Bolts	97 N·m	72 lb ft
Rear D-Ring Bracket Side Bolts	120 N·m	89 lb ft
Rear D-Ring Bracket Upper Bolts	90 N·m	66 lb ft
Rear D-Ring Crossmember Bracket (Maintenance Body)	34-46 N·m	25-34 lb ft
Rear Skid Plate Bolts	35 N·m	26 lb ft
Rear Support Beam Bolts	35 N·m	26 lb ft
Rear Support Beam Bracket Bolts	35 N·m	26 lb ft
Rear Upper Fuel Tank Skid Plate Bolts	85 N·m	63 lb ft
Trailer Hitch Bolts (Maintenance Body)	90 N·m	66 lb ft

Repair Instructions

Front Pull Winch Receiver Replacement

Removal Procedure

1. Remove the center bumper. Refer to *Center Front Bumper Replacement* in Bumpers.
2. Remove the bolts (1) and remove the receiver by lifting up.



1700807

Installation Procedure

1. Install the receiver into the brackets by pushing down.

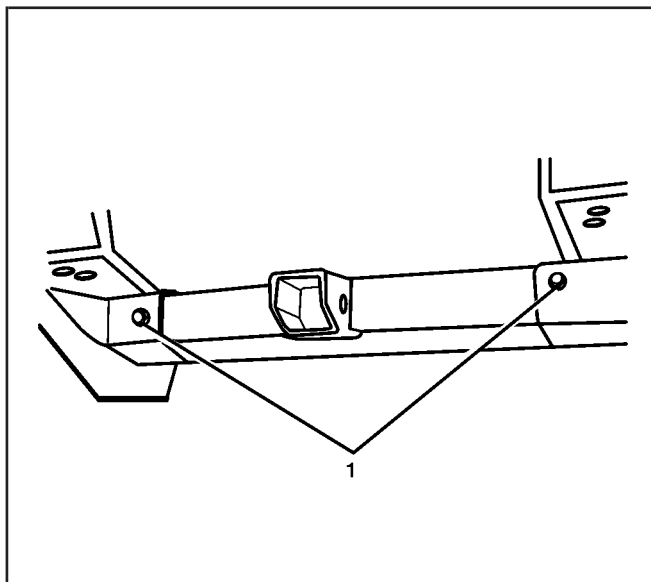
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the receiver bolts.

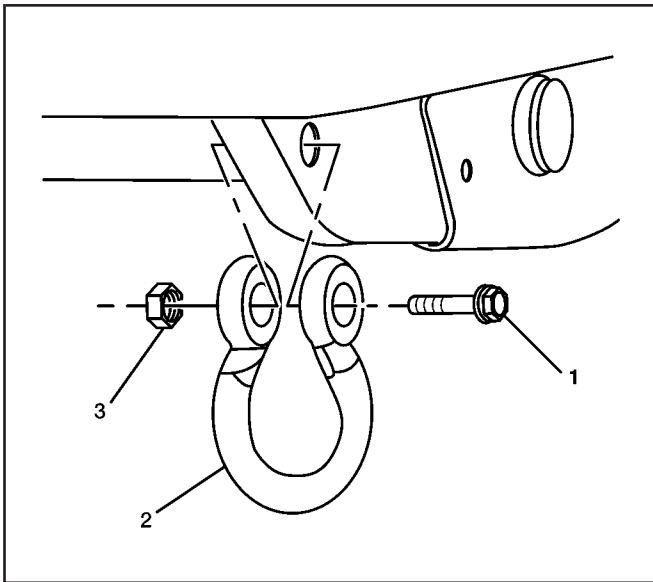
Tighten

Tighten receiver bolts to 88-98 N·m (65-72 lb ft).

3. Install the center front bumper. Refer to *Center Front Bumper Replacement* in Bumpers.



1700807

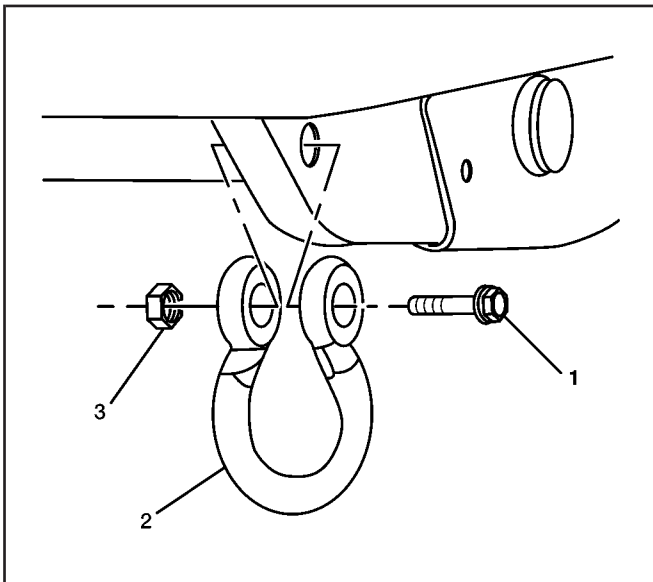


1700612

Front D-Ring Replacement (Ambulance/Maintenance Body)

Removal Procedure

1. Remove the bolt (1) and nut (3).
2. Remove the D-ring (2) from the mount.



1700612

Installation Procedure

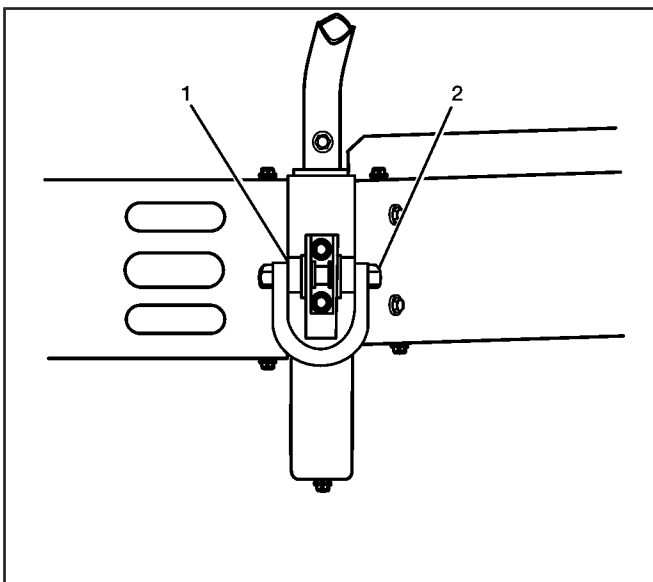
1. Install the D-ring (2) to the mount.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolt (1) and nut (3).

Tighten

Tighten nut and bolt to 200 N·m (148 lb ft).



1700801

Front D-Ring Replacement (LSSV)

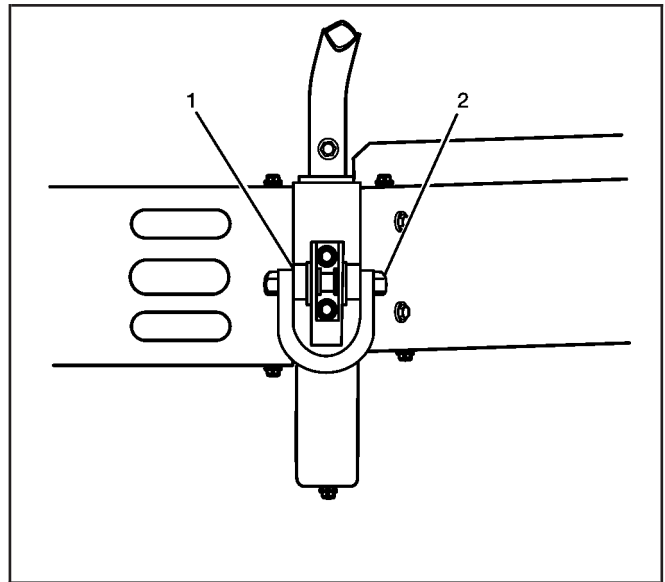
Removal Procedure

1. Remove the nut and bolt (2).
2. Remove the D-ring from the mount.
3. Discard the wave washer (1).

Installation Procedure

Important: The flat side of the D-ring must be facing out.

1. Install the D-ring on the bracket.
2. Slide the new wave washer (1) between the D-ring and the bracket.
3. Install the D-ring nut and bolt (2). Tighten the nut and bolt until the D-ring will stand straight out on its own.

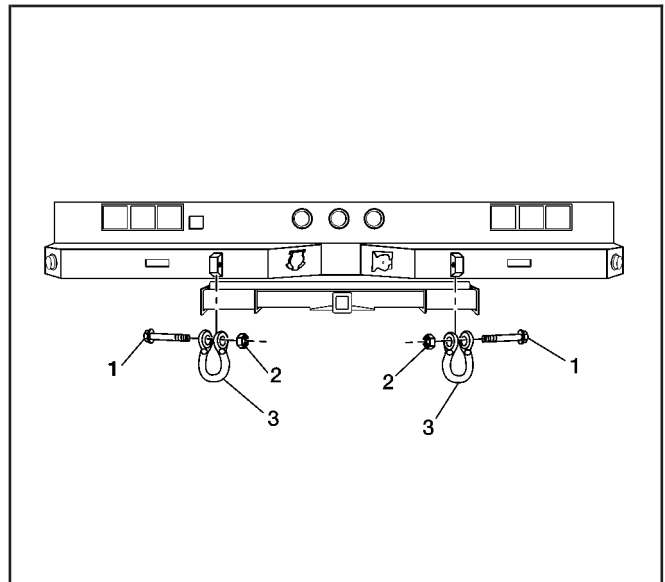


1700801

Rear D-Ring Replacement (Maintenance Body)

Removal Procedure

1. Remove the bolt (1) and nut (2).
2. Remove the D-ring (3) from the bracket.



1700806

Installation Procedure

1. Install the D-ring (3) onto the bracket.

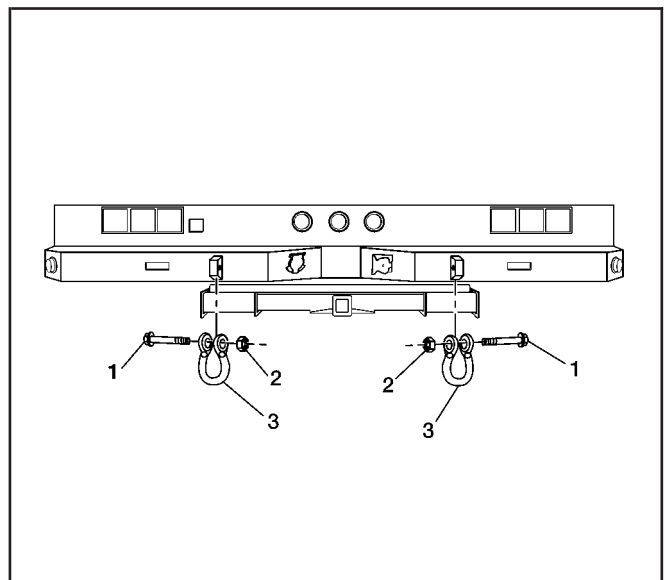
Notice: Refer to *Fastener Notice* in Cautions and Notices.

Important: D-rings must move once torqued. Do not over torque.

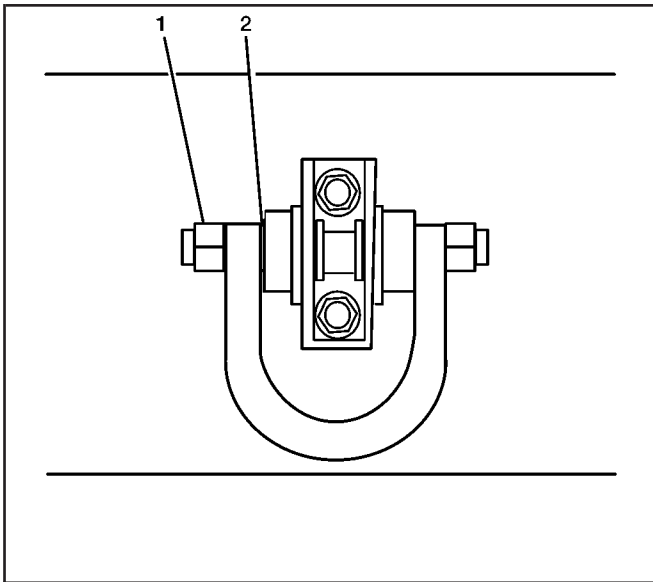
2. Install the bolt (1) and nut (2).

Tighten

Tighten nut and bolt to 200 N·m (148 lb ft).



1700806

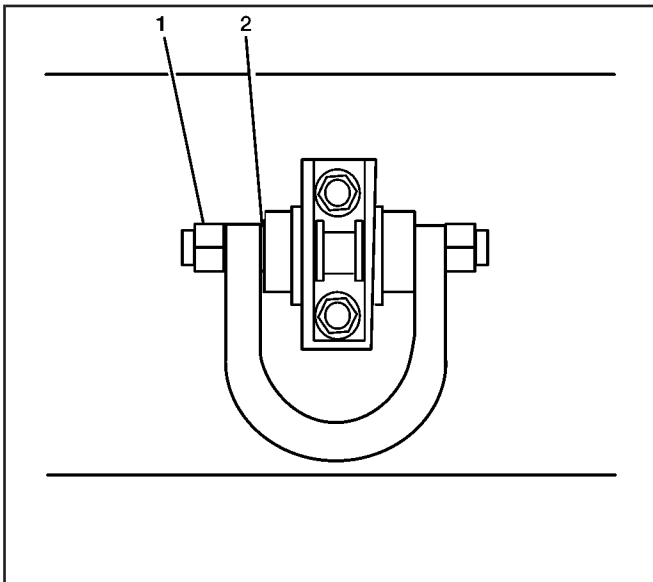


1700816

Rear D-Ring Replacement (LSSV)

Removal Procedure

1. Remove the nut and bolt (1).
2. Remove the D-ring from the mount.
3. Discard the wave washer (2).



1700816

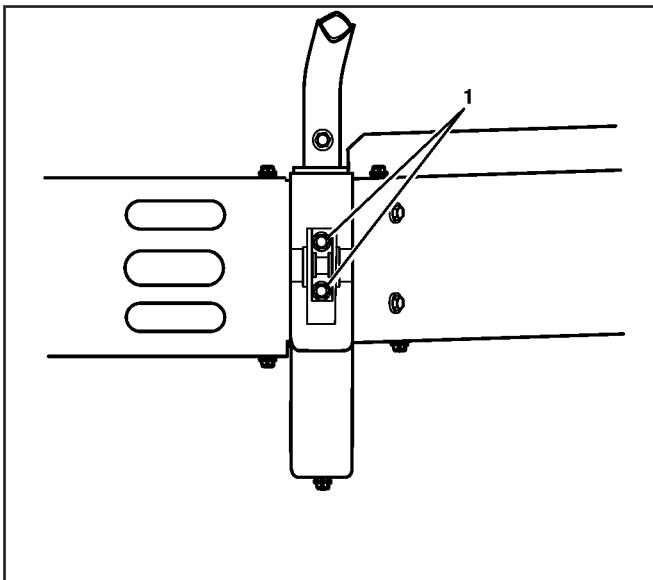
Installation Procedure

Important: The flat side of the D-ring must be facing out.

1. Install the D-ring on the bracket.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Slide the new wave washer (2) between the D-ring and the bracket.
3. Install the D-ring nut and bolt (1). Tighten the nut and bolt until the D-ring will stand straight out on its own.



1700786

Front D-Ring Bracket Replacement

Removal Procedure

1. Remove the D-ring. Refer to *Front D-Ring Replacement (Ambulance/Maintenance Body)* or *Front D-Ring Replacement (LSSV)*.
2. Remove the D-ring mounting bracket bolts (1).
3. Remove the D-ring bracket.

Installation Procedure

1. Install the D-ring bracket to the vehicle.

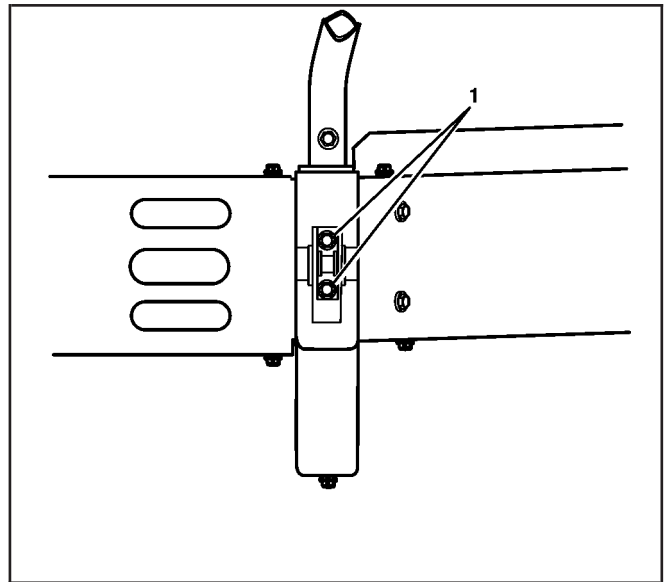
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the D-ring bracket mounting bolts.

Tighten

Tighten the bolts to 87-97 N·m (64-72 lb ft).

3. Install the D-ring. Refer to *Front D-Ring Replacement (Ambulance/Maintenance Body)* or *Front D-Ring Replacement (LSSV)*.

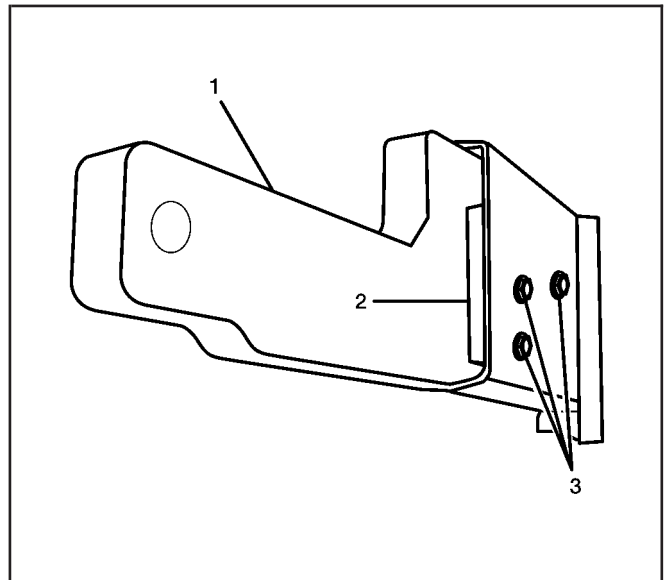


1700786

Rear D-Ring Bracket Replacement (Maintenance Body)

Removal Procedure

1. Remove the rear bumper. Refer to *Bumper Replacement - Rear (Maintenance Body)* or *Bumper Replacement - Rear (LSSV)* in Bumpers.
2. Remove the D-ring bracket crossmember. Refer to *D-Ring Bracket Crossmember Replacement (Maintenance Body)*.
3. Remove the upper frame bolts securing the bracket to the frame.
4. Remove the side bolts (3) and remove the spacer (2) and bracket (1) from the vehicle.



1700804

Installation Procedure

1. Install the bracket (1), spacer (2) and the side bolts (3).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts.

Tighten

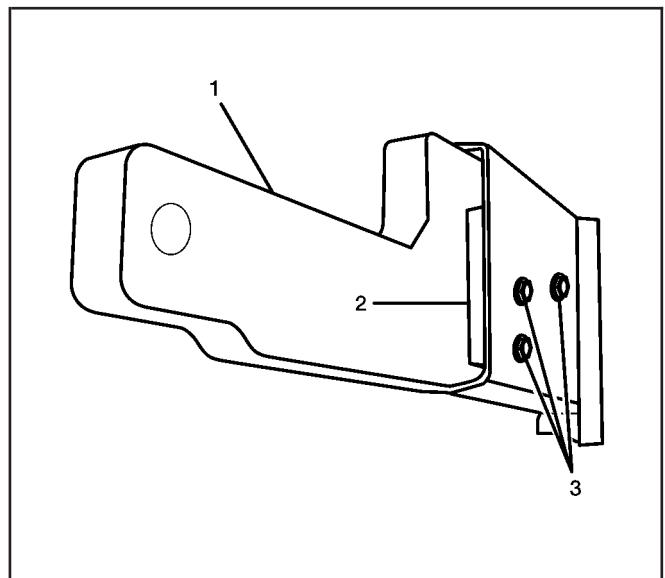
Tighten side bolts to 120 N·m (89 lb ft).

3. Install the upper frame bolts.

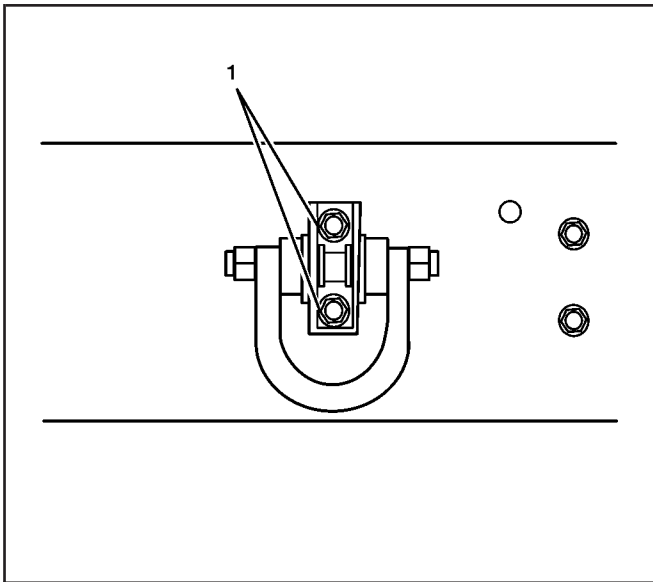
Tighten

Tighten upper bolts to 90 N·m (66 lb ft).

4. Install the D-ring bracket crossmember. Refer to *D-Ring Bracket Crossmember Replacement (Maintenance Body)*.
5. Install the rear bumper. Refer to *Bumper Replacement - Rear (Maintenance Body)* or *Bumper Replacement - Rear (LSSV)* in Bumpers.



1700804

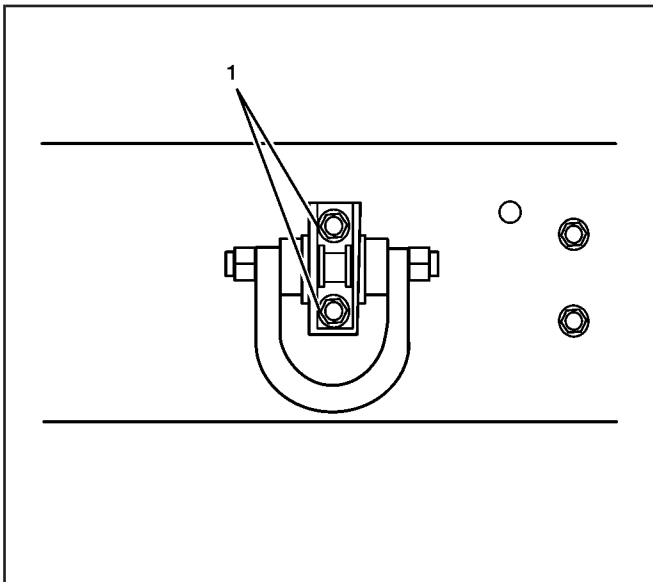


1700813

Rear D-Ring Bracket Replacement (LSSV)

Removal Procedure

1. Remove the D-ring. Refer to *Rear D-Ring Replacement (Maintenance Body)* or *Rear D-Ring Replacement (LSSV)*.
2. Remove the D-ring mounting bracket bolts (1).
3. Remove the D-ring bracket.



1700813

Installation Procedure

1. Install the D-ring bracket to the vehicle.

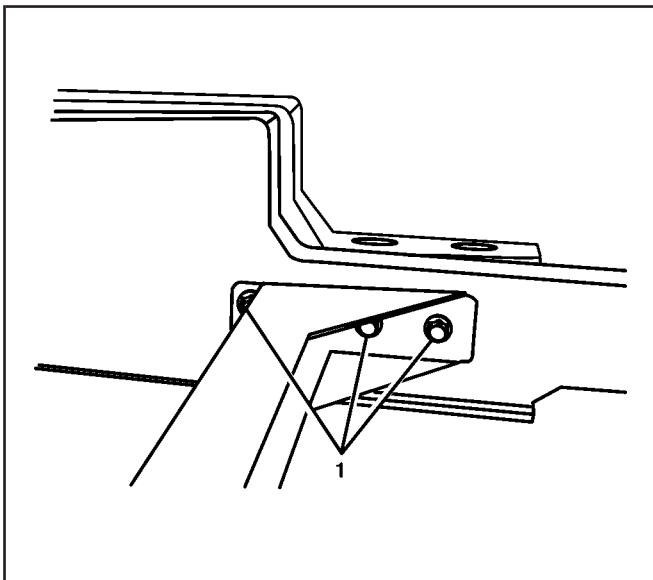
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the D-ring bracket mounting bolts (1).

Tighten

Tighten the bolts to 97 N·m (72 lb ft).

3. Install the D-ring. Refer to *Rear D-Ring Replacement (Maintenance Body)* or *Rear D-Ring Replacement (LSSV)*.



1700805

D-Ring Bracket Crossmember Replacement (Maintenance Body)

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution* in *Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the bolts (1) from both sides of the crossmember.
3. Remove the crossmember from the vehicle.

Installation Procedure

1. Install the crossmember on the vehicle and line up mounting holes.

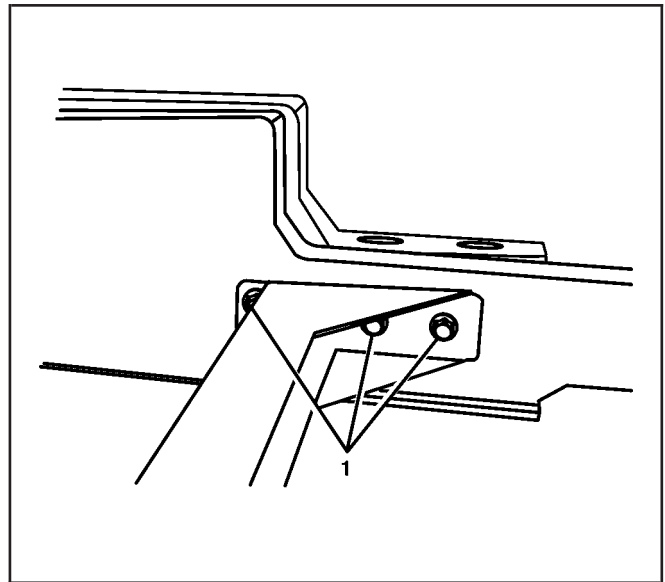
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) on both sides of the crossmember.

Tighten

Tighten side bolts to 34-46 N·m (25-34 lb ft).

3. Lower the vehicle.



1700805

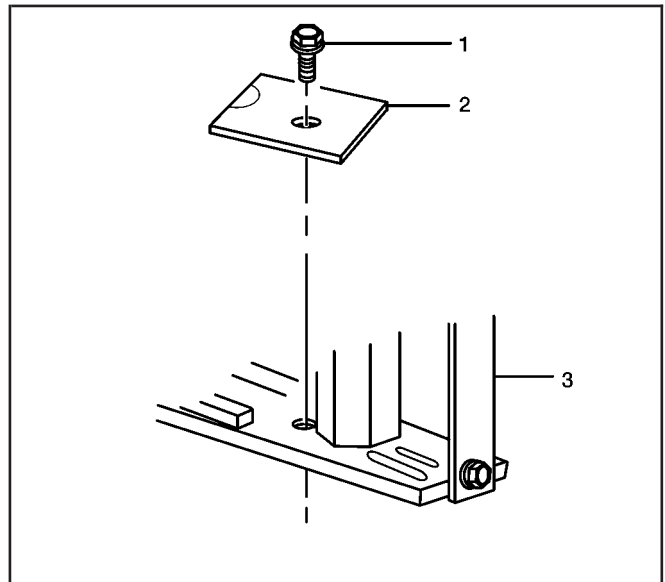
Upper Radiator Support Reinforcement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution* in Cautions and Notices.

Important: Ensure that the vehicle is unloaded prior to reinforcement replacement.

1. Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove body mount bolt (1).
3. Remove the upper reinforcement (2) from the radiator core support (3).



1700812

Installation Procedure

1. Install the upper reinforcement (2) onto the radiator core support (3).
2. Perform the following procedure before installing the bolts.
 - Remove all traces of the original adhesive patch.
 - Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.
 - Apply Threadlocker GM P/N 12345493 (Canadian P/N 10953488).

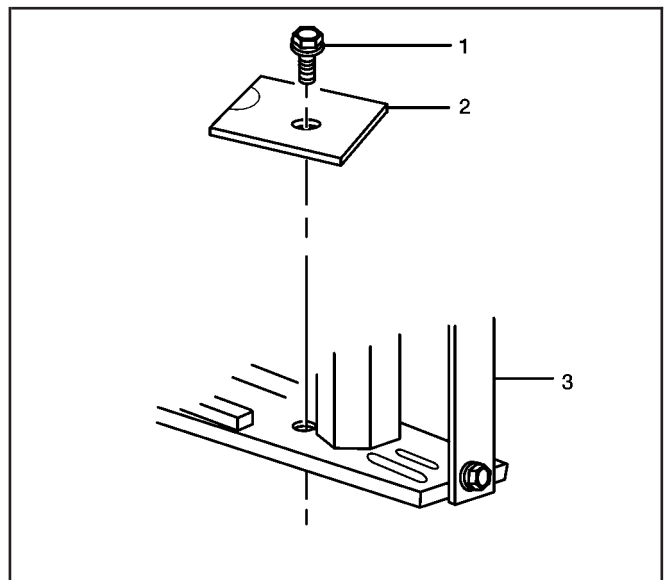
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the body mount bolt (1).

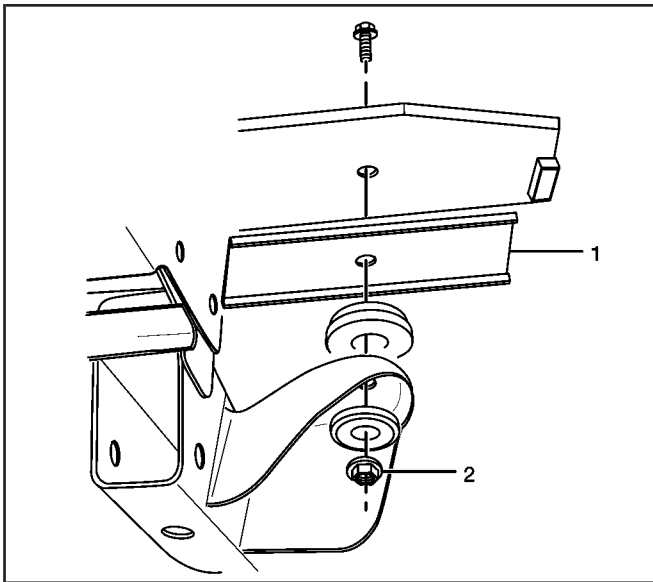
Tighten

Tighten body mount bolt to 70 N·m (52 lb ft).

4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1700812



1700810

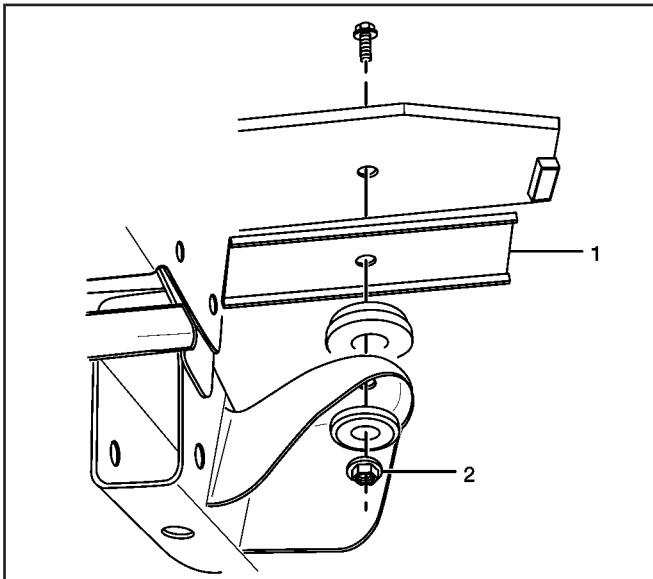
Lower Radiator Support Reinforcement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

Important: Ensure that the vehicle is unloaded prior to reinforcement replacement.

1. Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Loosen the other body mount nuts.
3. Properly support the body in the area that the mounts will be replaced.
4. Remove the nut (2).
5. Lower the chassis accordingly in order to remove the reinforcement as necessary.
6. Remove the lower reinforcement (1) from the vehicle.



1700810

Installation Procedure

1. Install the lower reinforcement (1) onto the radiator support.
2. Raise the chassis accordingly.
3. Perform the following procedure before installing the bolts.
 - Remove all traces of the original adhesive patch.
 - Clean the threads of the bolt with denatured alcohol or equivalent and allow to dry.
 - Apply Threadlocker GM P/N 12345493 (Canadian P/N 10953488).

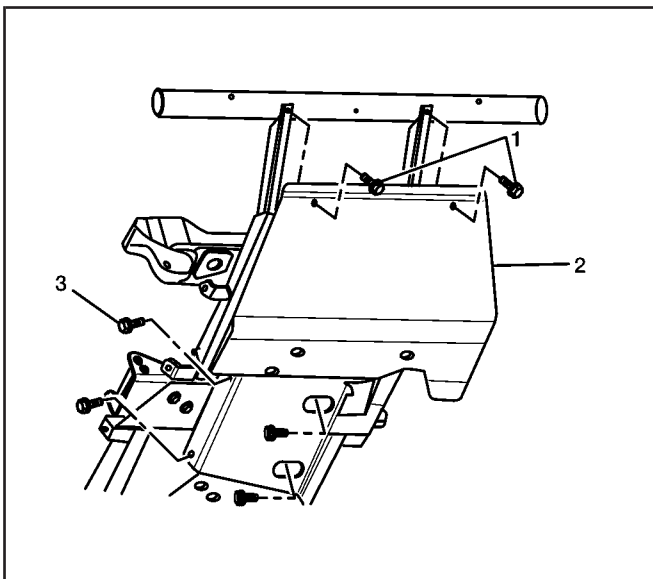
Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the body mount bolt and nut (2).

Tighten

Tighten body mounts to 70 N·m (52 lb ft).

5. Remove the supports and lower the vehicle.



1700619

Front Skid Plate Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Remove the bolts (1) from the front of the skid plate.
3. Remove the bolts (3) from the rear of the skid plate.
4. Remove the skid plate (2) from the vehicle.

Installation Procedure

1. Install the skid plate (2) to the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the rear bolts (3).

Tighten

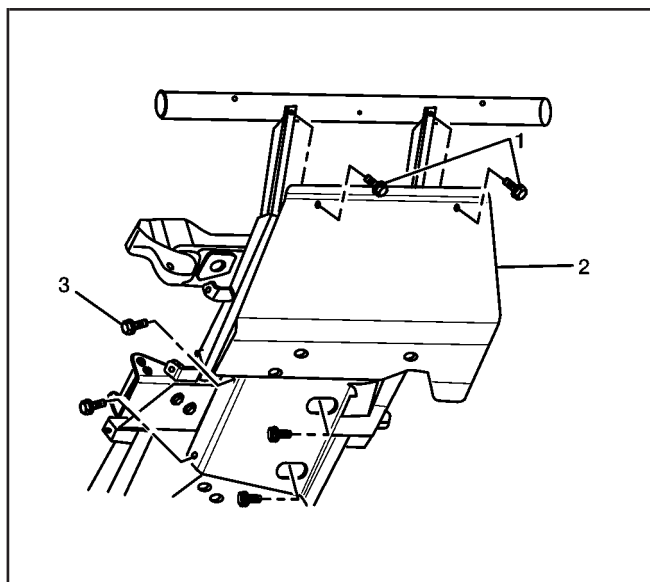
Tighten the bolts to 35 N·m (26 lb ft).

3. Install the front bolts (1).

Tighten

Tighten the bolts to 20 N·m (15 lb ft).

4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



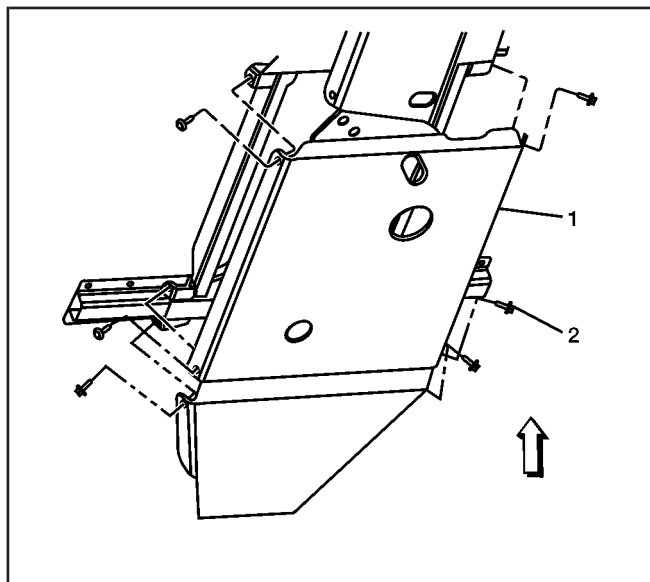
1700619

Rear Skid Plate Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution* in Cautions and Notices.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Support the skid plate and remove the bolts (2).
3. Remove the support and remove the skid plate (1).



1700618

Installation Procedure

1. Install the skid plate (1).

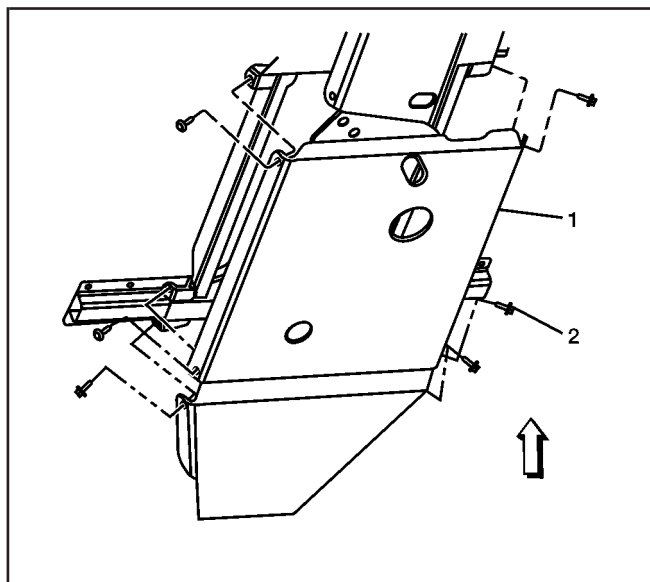
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (2) and remove support.

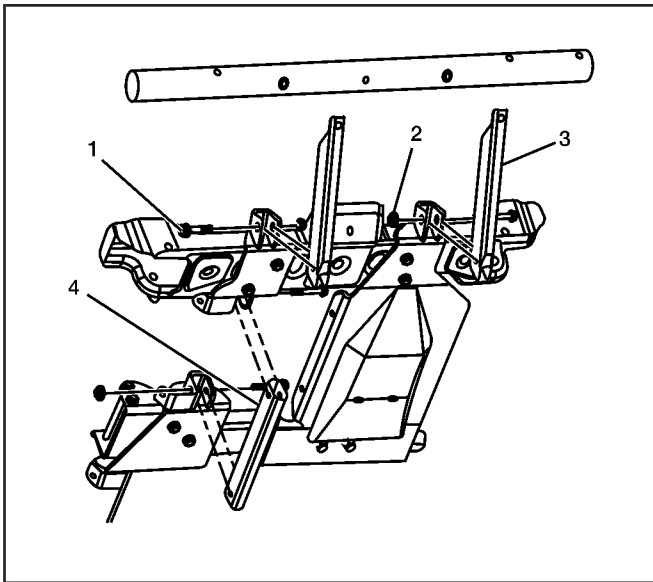
Tighten

Tighten the bolts to 35 N·m (26 lb ft).

3. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.



1700618



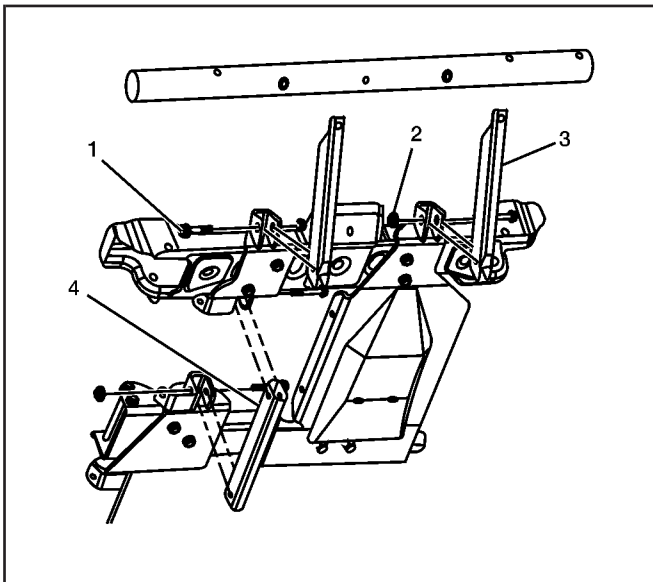
1700615

Front Support Beam Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
2. Remove the front skid plate. Refer to *Front Skid Plate Replacement*.
3. Remove the bolts (1) and nuts (2).
4. Remove the support beam (3) and (4).



1700615

Installation Procedure

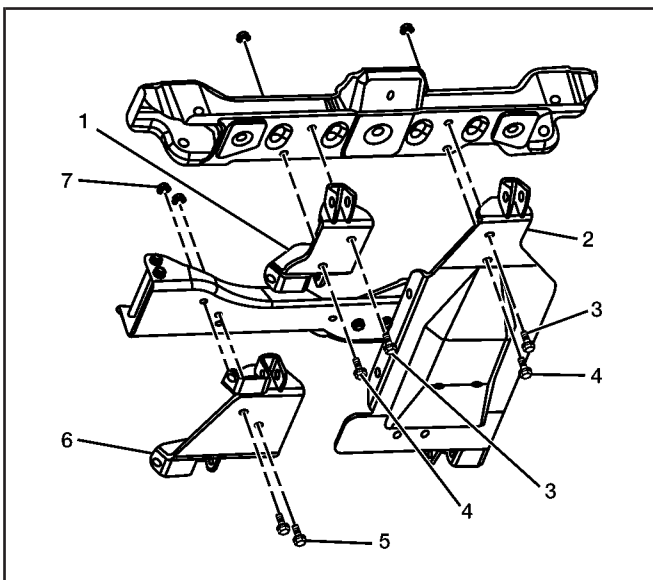
1. Install the support beam (3) and (4).

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) and nuts (2).

Tighten

- Tighten support beam (3) nuts and bolts to 35 N·m (26 lb ft).
 - Tighten support beam (4) nuts and bolts to 50 N·m (37 lb ft).
3. Install the front skid plate. Refer to *Front Skid Plate Replacement*.
 4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.



1700617

Center Support Beam Replacement

Removal Procedure

1. Remove the front skid plate. Refer to *Front Skid Plate Replacement*.
2. Remove the rear skid plate. Refer to *Rear Skid Plate Replacement*.
3. Remove the rear support beams. Refer to *Rear Support Beam Replacement*.
4. Remove the front support beams. Refer to *Front Support Beam Replacement*.
5. Remove the nuts (7) and bolts (3, 4) and (5) securing the brackets to the crossmembers.
6. Remove the brackets (1,2) and (6) from the vehicle.

Installation Procedure

1. Install the brackets (1, 2) and (6) on the vehicle.

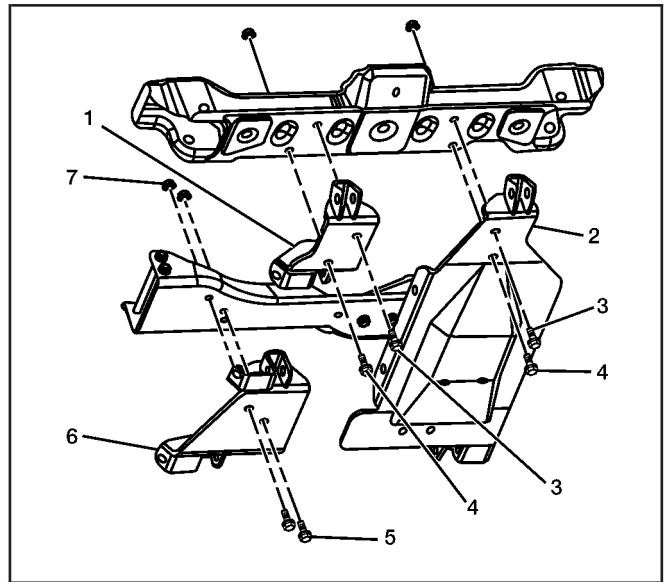
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (3, 4) and (5) and nuts (7).

Tighten

- Tighten bolts (3, 4) to 35 N·m (26 lb ft).
- Tighten bolts (5) to 50 N·m (37 lb ft).

3. Install the front support beams. Refer to *Front Support Beam Replacement*.
4. Install the rear support beams. Refer to *Rear Support Beam Replacement*.
5. Install the rear skid plate. Refer to *Rear Skid Plate Replacement*.
6. Install the front skid plate. Refer to *Front Skid Plate Replacement*.



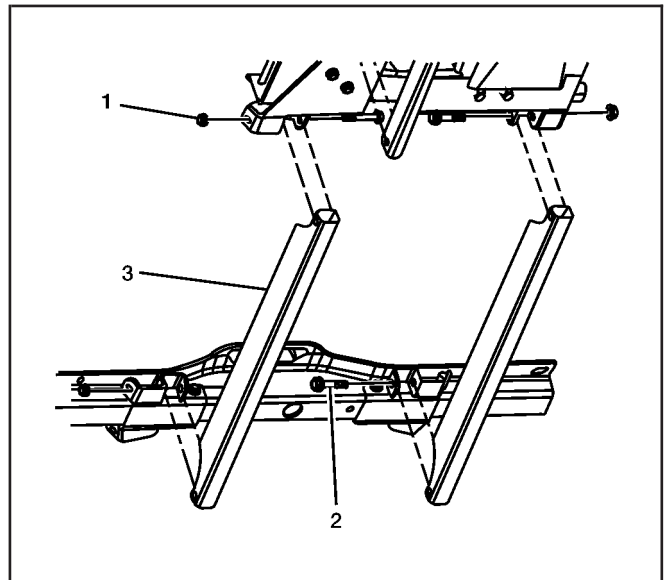
1700617

Rear Support Beam Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution* in *Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
2. Remove the rear skid plate. Refer to *Rear Skid Plate Replacement*.
3. Remove the nuts (1) and bolts (2).
4. Remove the support beams (3).



1700614

Installation Procedure

1. Install the support beams (3).

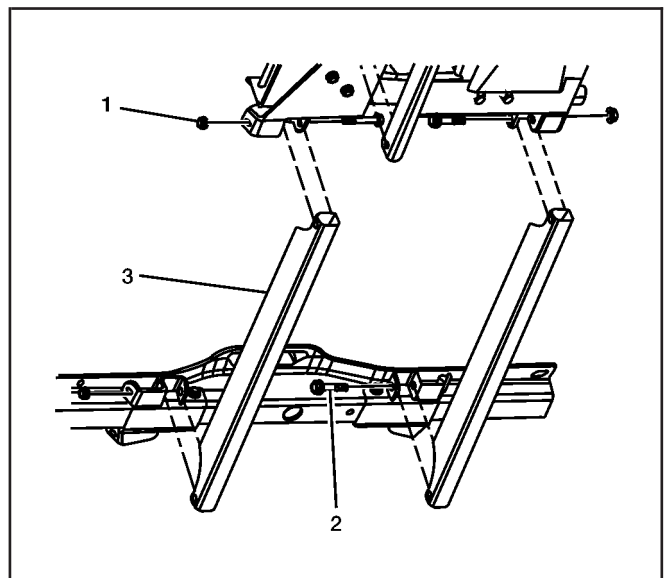
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (2) and nuts (1).

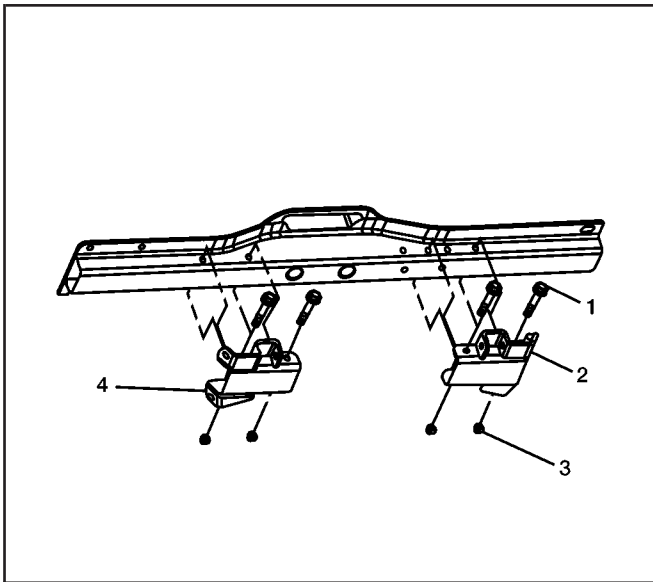
Tighten

Tighten front nuts and and bolts to 35 N·m (26 lb ft).

3. Install the rear skid plate. Refer to *Rear Skid Plate Replacement*.
4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.



1700614



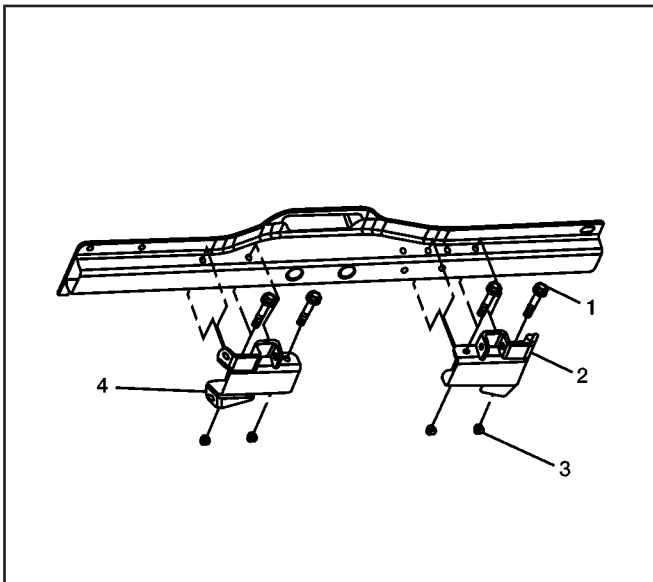
1700616

Rear Frame Bracket Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
2. Remove the rear skid plate. Refer to *Rear Skid Plate Replacement*.
3. Remove the rear support beam. Refer to *Rear Support Beam Replacement*.
4. Remove the nuts (3) and bolt (1).
5. Remove the rear mounts (2) and (4).



1700616

Installation Procedure

1. Install the rear mounts (2) and (4).

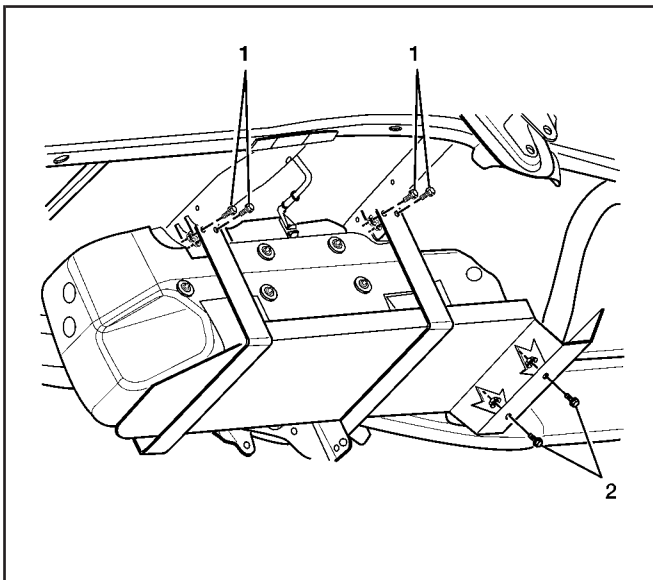
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) and nuts (3).

Tighten

Tighten nuts and bolts to 35 N·m (26 lb ft).

3. Install the rear support beams. Refer to *Rear Support Beam Replacement*.
4. Install the rear skid plate. Refer to *Rear Skid Plate Replacement*.
5. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.



1700620

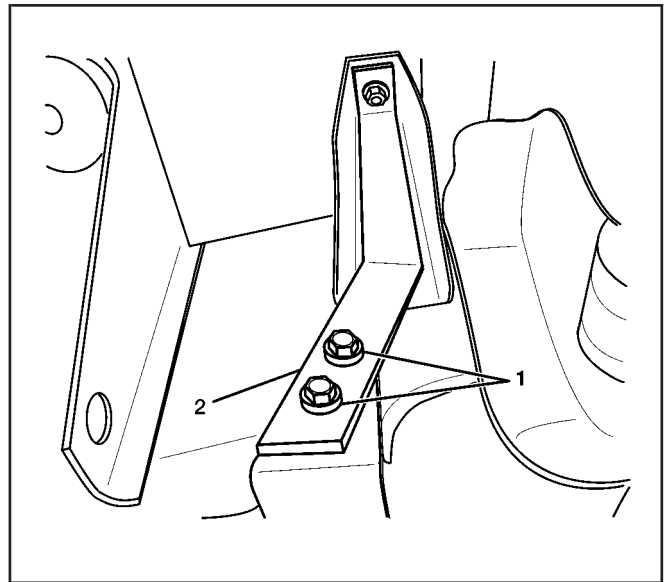
Fuel Tank Skid Plate Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

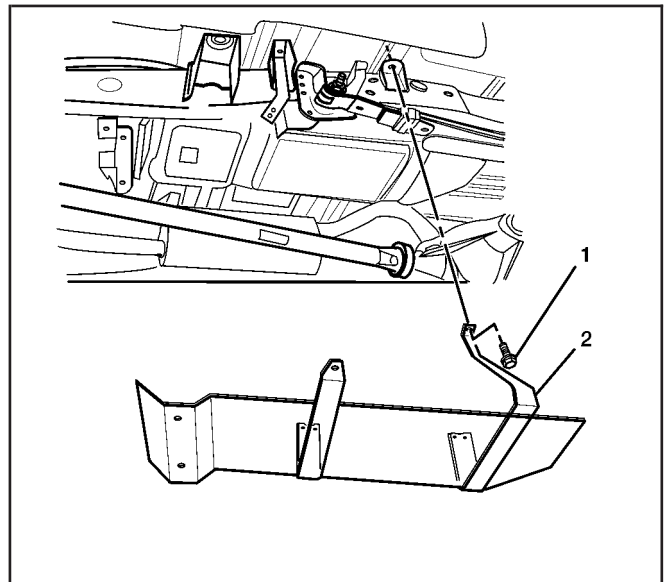
1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.
2. Support the fuel tank cover.
3. Remove the cover bolts (2).
4. Remove the inner cover bolts (1).

5. Remove the outer front cover bolts (1) from the support (2).



1700621

6. Remove the cover bolts (1), remove support and lower the cover (2). Remove from the vehicle.



1700622

Installation Procedure

1. Install the cover and support.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the cover bolts (1).

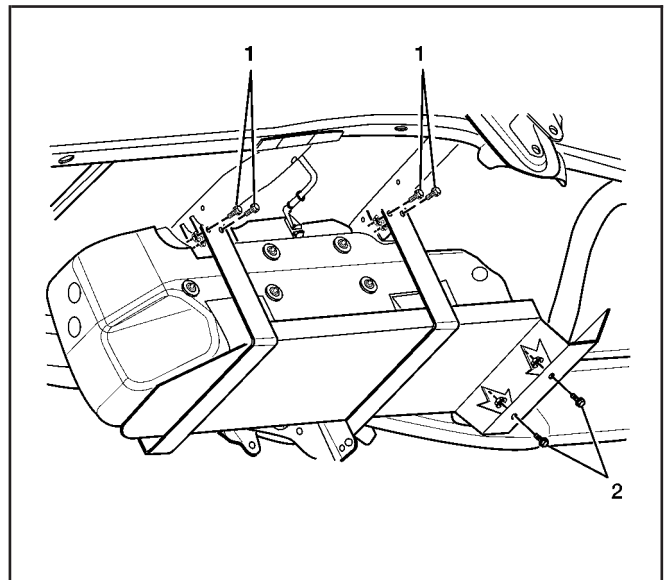
Tighten

Tighten bolt to 29 N·m (21 lb ft).

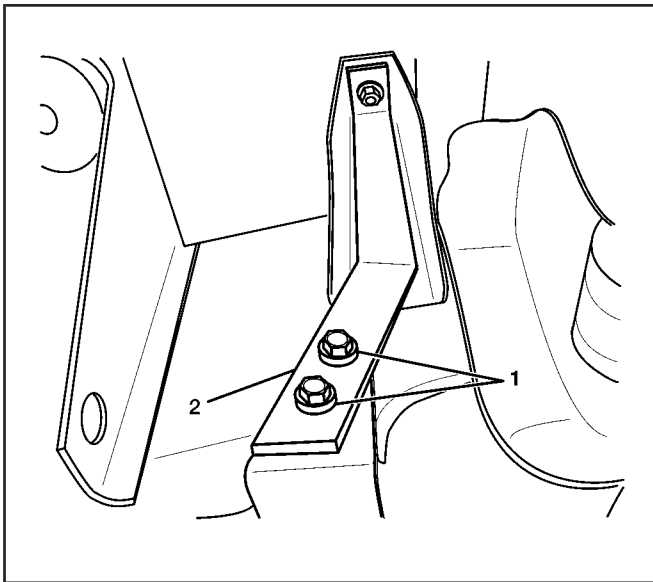
3. Install the front cover bolts (2).

Tighten

Tighten bolts to 50 N·m (37 lb ft).



1700620



1700621

4. Install the upper cover bolt.

Tighten

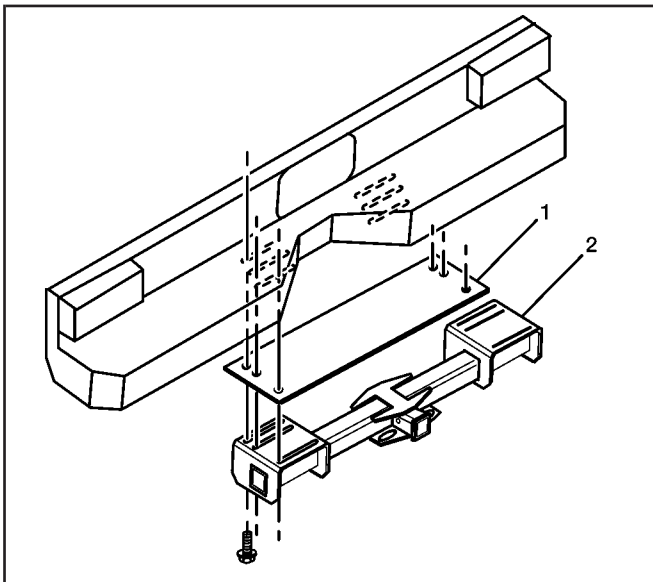
Tighten bolts to 85 N·m (63 lb ft).

5. Install the outer front bolts (1).

Tighten

Tighten bolts to 50 N·m (37 lb ft).

6. Remove fuel tank support.
7. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in 2005 C/K Truck Service Manual.

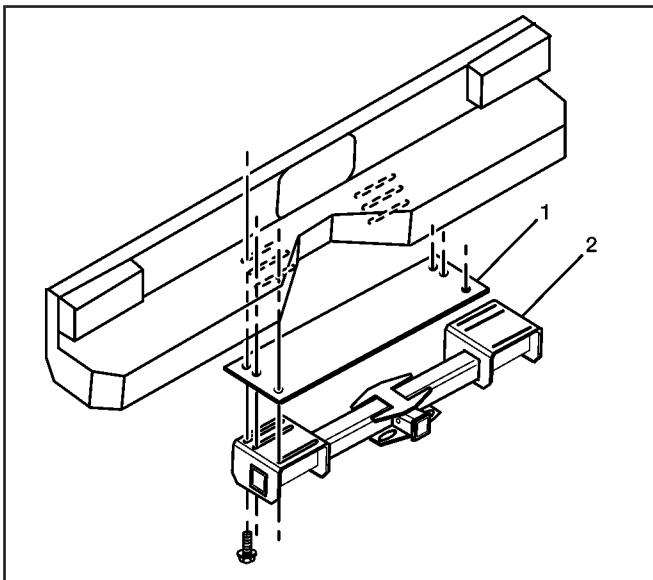


1700803

Trailer Hitch/Reinforcement Plate Replacement (Maintenance Body)

Removal Procedure

1. Remove the winch connector. Refer to *Rear Winch Harness and Connector Replacement (LSSV)* or *Rear Winch Harness and Connector Replacement (Maintenance Body)* in Engine Electrical.
2. Remove the bolts from the hitch.
3. Remove the trailer hitch (2) and reinforcement plate (1) from the vehicle.



1700803

Installation Procedure

1. Position trailer hitch (2) and reinforcement plate (1) to the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the trailer hitch bolts.

Tighten

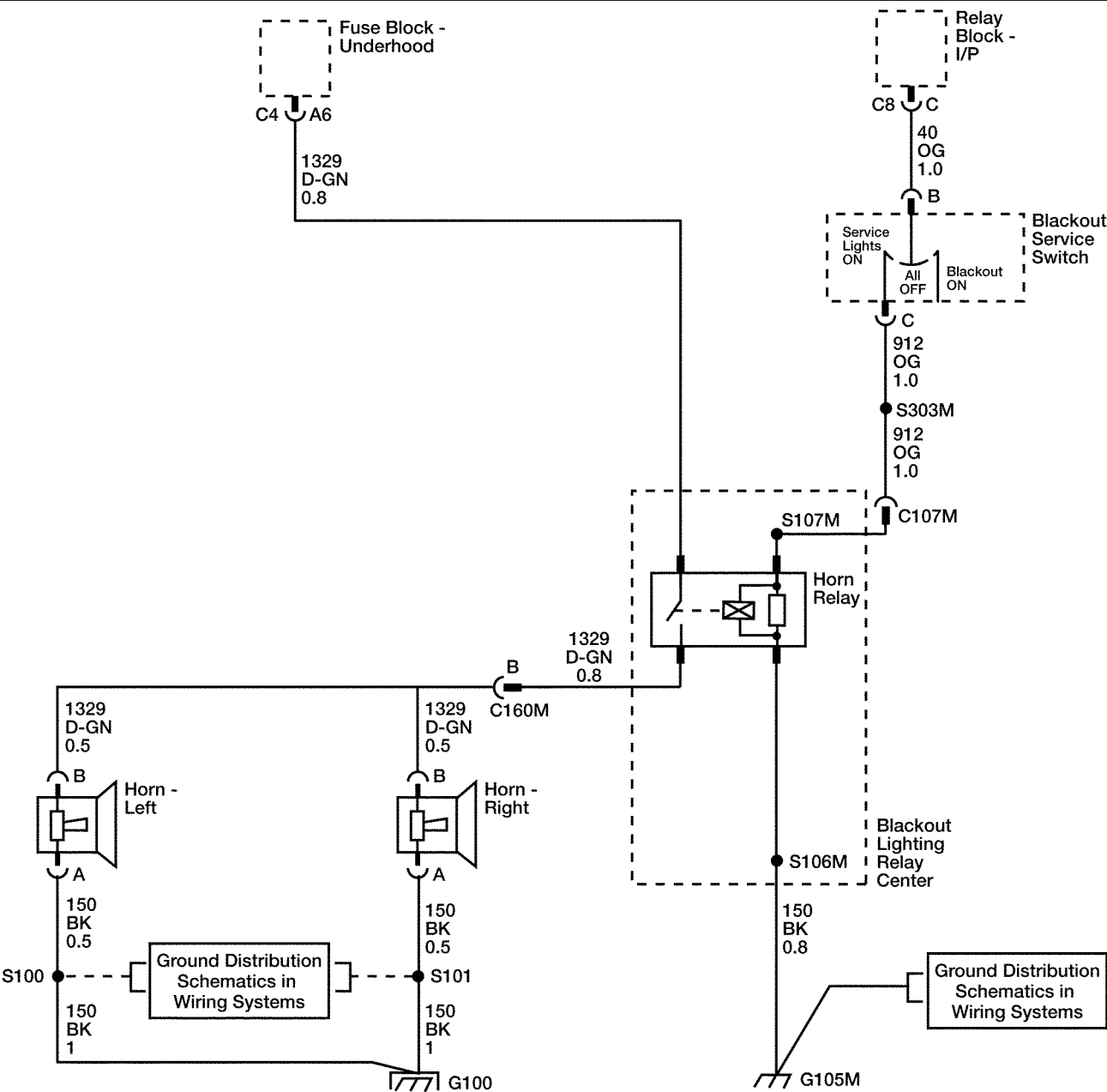
Tighten hitch bolts to 90 N·m (66 lb ft).

3. Install the winch connector. Refer to *Rear Winch Harness and Connector Replacement (LSSV)* or *Rear Winch Harness and Connector Replacement (Maintenance Body)* in Engine Electrical.

Horns

Schematic and Routing Diagrams

Horn Schematics



LOC
DESIGN

Diagnostic Information and Procedures

Symptoms - Horns

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Horns Inoperative in Blackout (B/O) Mode*
- *Horns Operate In Blackout (B/O) Mode*

Horns Inoperative in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Horn Schematics</i>			
1	Did you review Horns Description and Operation?	Go to Step 2	Go to Horn with Blackout (B/O) Control Circuit Operation
2	Depress the horn switch. Does either horn operate?	Go to Horns Inoperative - One Horn in 2005 C/K Truck Service Manual	Go to Step 3
3	1. Remove the horn interrupt relay. 2. Connect a jumper between terminal 30 and 87 of the relay block. Does either horn operate?	Go to Step 4	Go to Horns Inoperative in 2005 C/K Truck Service Manual
4	Connect a test lamp between terminal 86 of the relay block and ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 5
5	Connect a test lamp between terminal C of the blackout (B/O) service switch and ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 8
6	Connect a test lamp between terminal 85 of the relay block and ground. Does the test lamp illuminate?	Go to Step 9	Go to Step 10
7	Repair the open or high resistance in the (OG) circuit 912. Did you complete the repair?	Go to Step 13	—
8	Connect a test lamp between terminal B of the blackout (B/O) service switch and ground. Does the test lamp illuminate?	Go to Step 11	Go to Step 12
9	Repair the open or high resistance in the (BK) circuit 150. Did you complete the repair?	Go to Step 13	—
10	Replace the horn interrupt relay. Did you complete the repair?	Go to Step 13	—
11	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> in Lighting Systems. Did you complete the replacement?	Go to Step 13	—
12	Repair the open or high resistance in the (OG) circuit 40. Did you complete the repair?	Go to Step 13	—
13	Verify the system operation. Do the horns operate properly?	System OK	Go to Step 2

Horns Operate In Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Horn Schematics</i>			
1	Did you review Horns Description and Operation?	Go to Step 2	Go to Horn with Blackout (B/O) Control Circuit Operation
2	Connect a test lamp between terminal 86 of the horn interrupt relay block and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 3
3	Replace the horn interrupt relay. Did you complete the replacement?	Go to Step 7	—
4	1. Disconnect the blackout (B/O) service switch. 2. Connect a test lamp between cavity C of the blackout (B/O) switch connector and ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 5
5	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> in Lighting Systems. Did you complete the replacement?	Go to Step 7	—
6	Repair the short to voltage in the (OG) circuit 912. Did you complete the repair?	Go to Step 7	—
7	Verify the system operation. Do the horns operate properly?	System OK	Go to Step 2

Description and Operation

Horn with Blackout (B/O) Control Circuit Operation

Voltage is applied at all times to the horn relay through the 15A horn fuse in the underhood fuse block. The blackout (B/O) service drive switch is used to control the horn relay. Power is applied through OG (circuit 40) to the blackout (B/O) service drive switch, which is normally a closed switch. When the horn switch is depressed, the horn switch contacts close, providing a

ground to the coil of the horn relay. When the coil of the relay is grounded, the relay energizes and the contacts close, applying battery voltage directly to the LH and RH horn. Because the horns are grounded at ground (G100) the horns will sound as long as the horn switch is depressed.

The blackout (B/O) service drive switch is used to disable the horn relay when placed in the blackout (B/O) mode. When the blackout (B/O) service drive switch is in the ON position, power to the horn relay is disrupted leaving the horns inoperative.

Instrument Panel, Gages, and Console

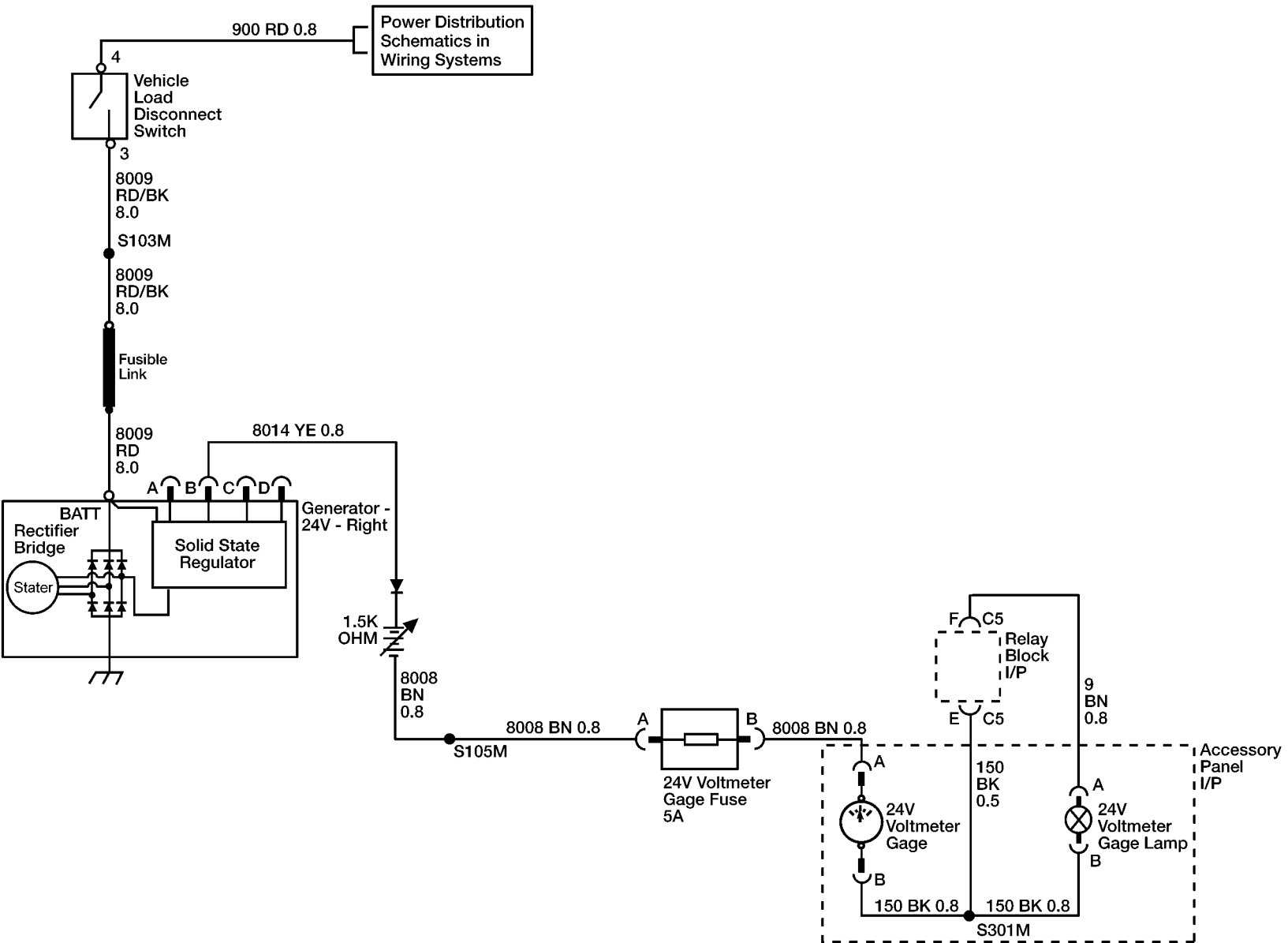
Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Accessory Instrument Panel (I/P) Bolts	8 N·m	71 lb in
Voltmeter Gage Nuts	2.8 N·m	24 lb in

Schematic and Routing Diagrams

Instrument Cluster Schematics (Voltmeter Gage)



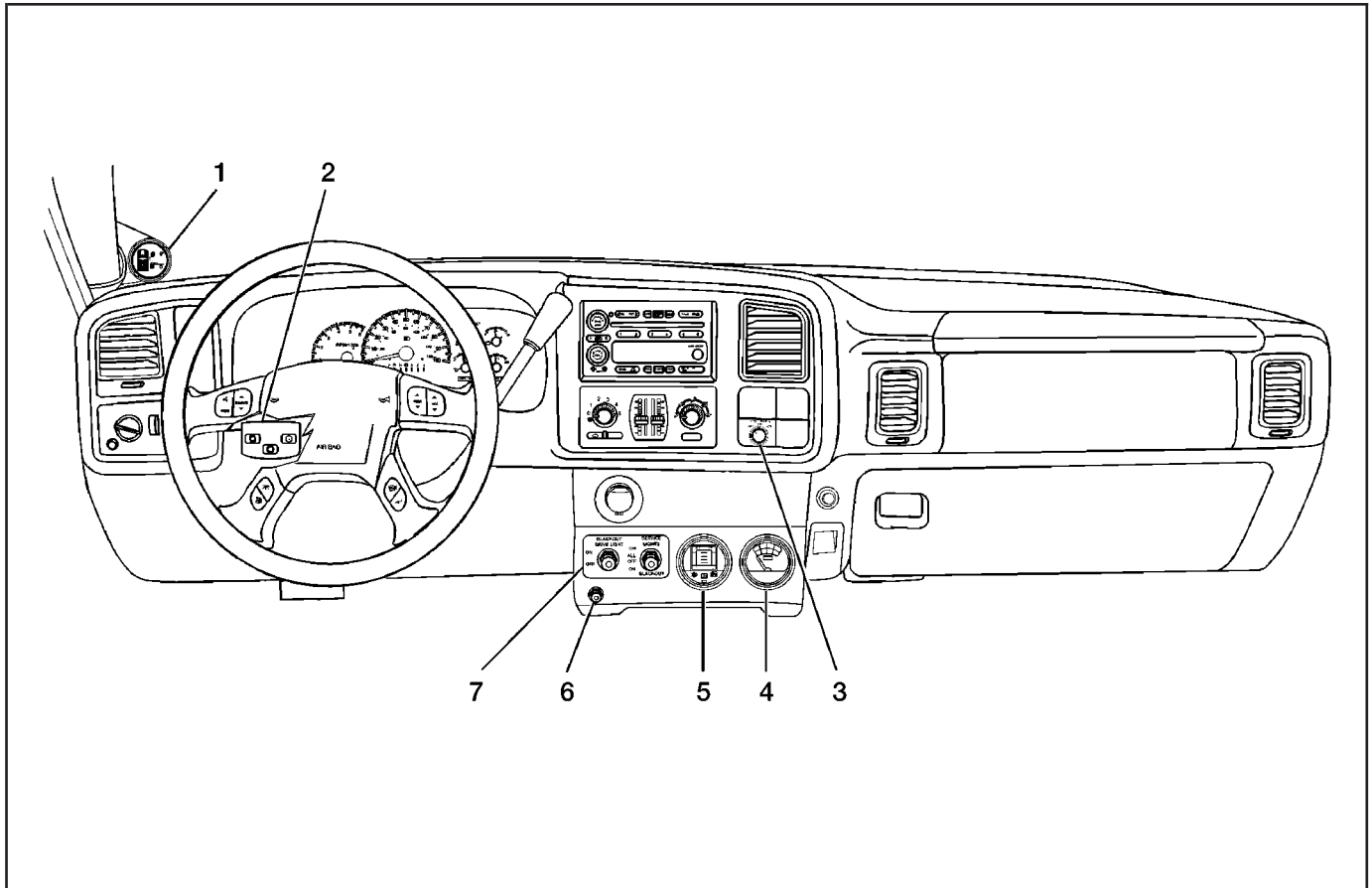
LOC

DES

Component Locator

Instrument Panel, Gages, and Console Component Views

Front Side of the Instrument Panel



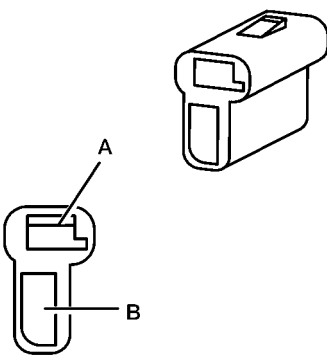
1694851

Legend

- | | |
|--|--------------------------------------|
| (1) Tire Pressure Monitoring System Gage | (5) Air Filter Restriction Gage |
| (2) Tire Pressure Monitoring System Switch Panel | (6) Fiberglass Cap Dome Lamp Switch |
| (3) Power Take Off | (7) Blackout (B/O) Lighting Switches |
| (4) 24 Voltmeter Gage | |

Instrument Panel, Gages, and Console Connector End Views

Voltmeter Gage



1694854

Connector Part Information		<ul style="list-style-type: none"> • 02973781 • 2-Way F 56 Series (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BN	8008	Voltmeter Gage Supply Voltage
B	BK	150	Ground

Diagnostic Information and Procedures

Symptoms - Instrument Panel, Gages and Console

Important: The following steps must be completed before using the symptom tables.

Review the system operation in order to familiarize yourself with the system function. Refer to *Charging System Description and Operation* in Engine Electrical.

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Instrument Cluster Gages. Refer to *Checking Aftermarket Accessories* in Wiring Systems in 2005 C/K Truck Service Manual.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to *Testing for Intermittent Conditions and Poor Connections* in Wiring Systems in 2005 C/K Truck Service Manual.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

Gages and Odometer

Voltmeter Gage Inaccurate or Inoperative

Instrument Cluster Dimming

Voltmeter Gage Lamp Inoperative in Lighting Systems

Voltmeter Gage Inaccurate or Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Instrument Cluster Schematics</i> Connector End View Reference: <i>Instrument Panel, Gages, and Console Connector End Views</i>			
1	Did you perform the Diagnostic System Check – Vehicle?	Go to Step 2	Go to <i>Diagnostic System Check - Vehicle</i> in Vehicle DTC Information in 2005 C/K Truck Service Manual
2	1. Turn the ignition ON, with the engine OFF. 2. With a DMM, measure the voltage of the 24V battery and compare the voltage value with the voltmeter gage display. Does the voltmeter gage display approximately the same value as the battery voltage?	Go to <i>24V Generator Inoperative</i>	Go to Step 3
3	Test the battery voltage circuit of the voltmeter gage for an open, for a short to ground, or for a high resistance. Did you find and correct the condition?	Go to Step 6	Go to Step 4
4	Test the ground circuit 150 of the voltmeter gage for an open or for a high resistance. Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	Replace the voltmeter gage. Refer to <i>Voltmeter Gage Replacement</i> . Did you complete the replacement?	Go to Step 6	—
6	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

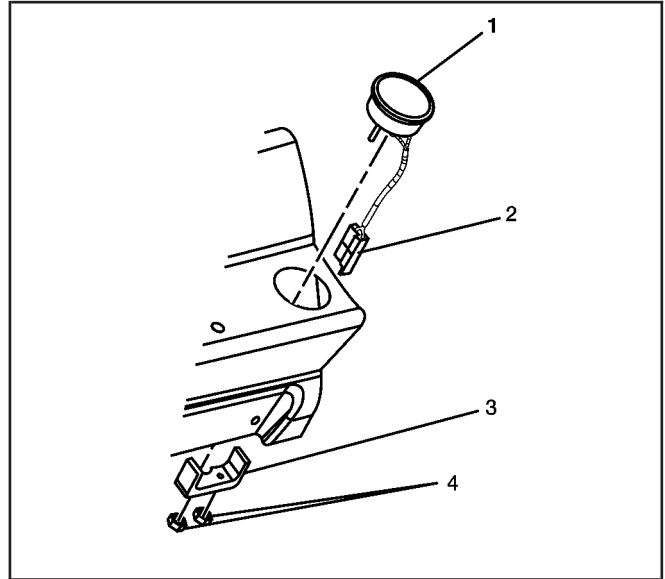
Repair Instructions

Voltmeter Gage Replacement

Removal Procedure

Caution: Refer to *Battery Disconnect Caution*

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement*.
3. Remove the nuts (4) from the back of the voltmeter.
4. Remove the voltmeter gage bracket (3) and remove the voltmeter (1) from the panel.



1694856

Installation Procedure

1. Install the voltmeter (1) into the panel opening.
2. Install the bracket (3) on the back of the voltmeter.

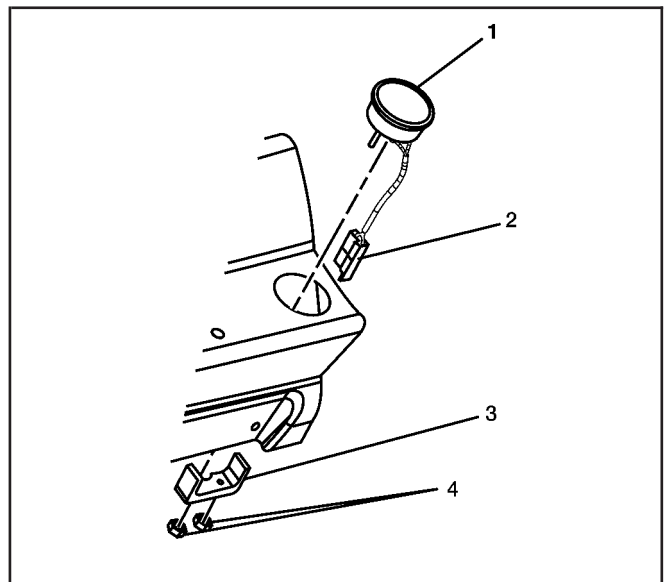
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nuts (4) on the voltmeter gage studs.

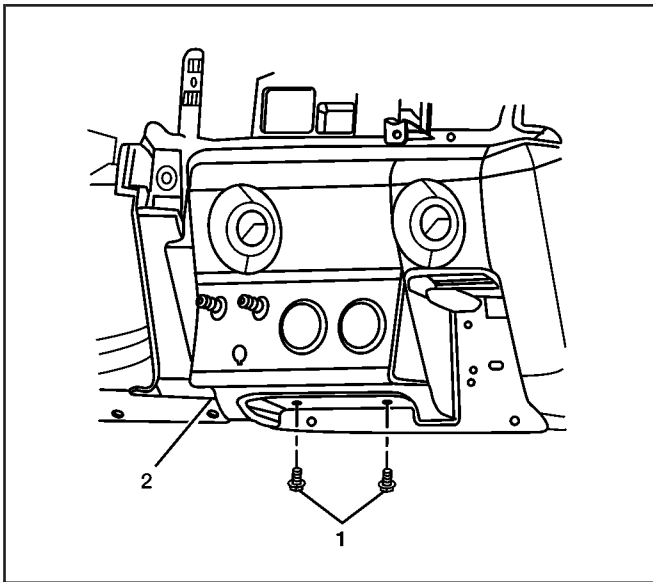
Tighten

Tighten nuts to 2.8 N·m (24 lb in).

4. Install the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement*.
5. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



1694856



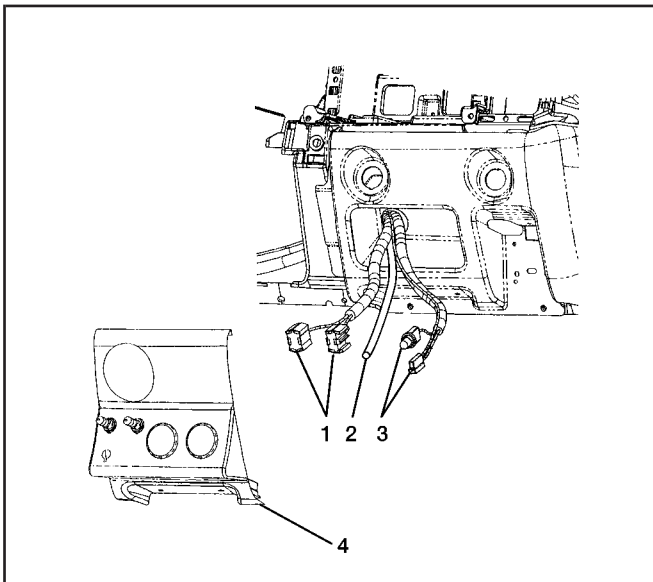
1694852

Accessory Instrument Panel (I/P) Replacement

Removal Procedure

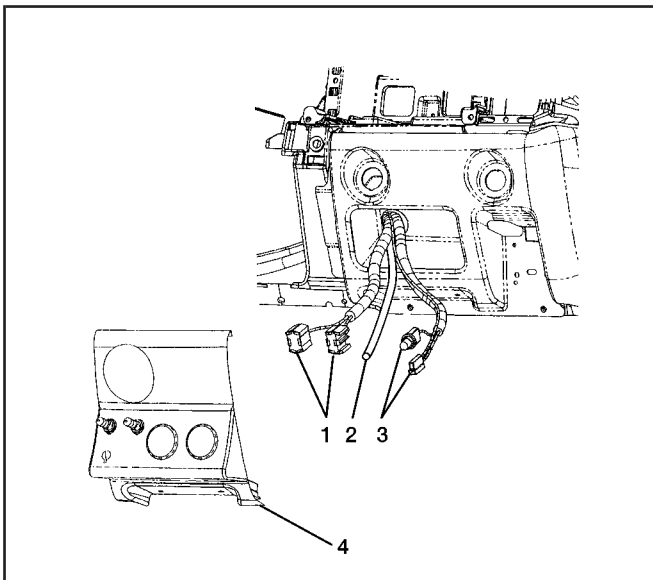
Caution: Refer to *Battery Disconnect Caution*

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the fasteners (1) from the panel.
3. Move the panel (2) out far enough to gain access to the harness connections.



1694853

4. Disconnect the voltmeter gage bulb and harness connectors (3) from the gage.
5. Disconnect the blackout (B/O) harness connectors (1) from the switches.
6. Disconnect the air line (2) from the air filter restriction gage (if equipped).
7. Remove the panel (4) from the vehicle.
8. Remove the parts from the accessory panel. Refer to *Blackout (B/O) Switch Replacement* in Lighting Systems or *Voltmeter Gage Replacement* or *Air Filter Restriction Gage Replacement*.



1694853

Installation Procedure

1. Install the parts removed from the accessory panel. Refer to *Blackout (B/O) Switch Replacement* in Lighting Systems or *Voltmeter Gage Replacement* or *Air Filter Restriction Gage Replacement*.
2. Install the connectors (1) to the blackout (B/O) switches.
3. Install the connector and bulb (3) to the voltmeter gage.
4. Connect the air line (2) on to the air filter restriction gage.

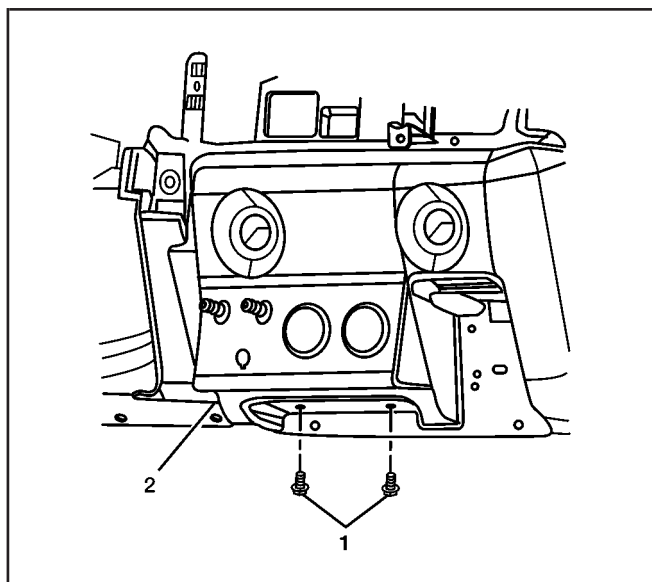
5. Install the accessory panel (2) onto the dash.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

6. Install the fasteners (1) and tighten.

Tighten

Tighten accessory panel bolts to 8 N·m (71 lb in).

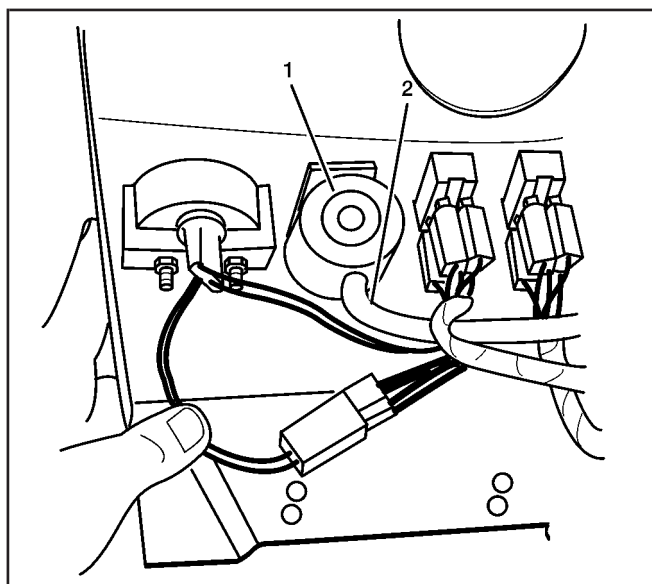


1694852

Air Filter Restriction Gage Replacement

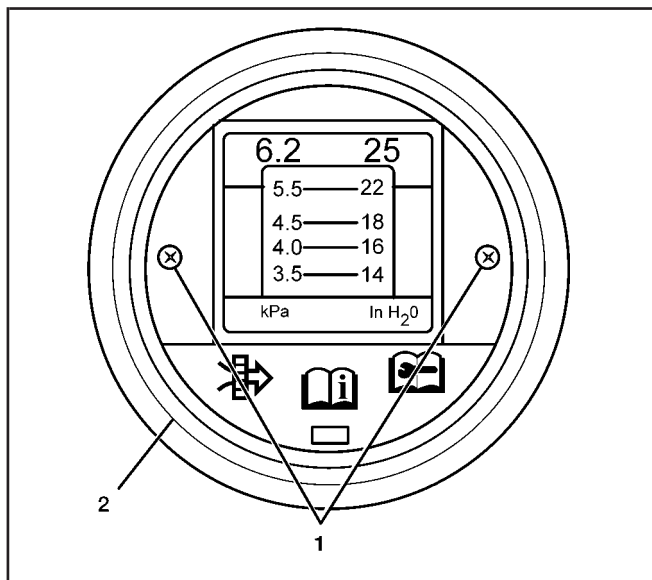
Removal Procedure

1. Remove the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement*.
2. Remove the air line (2) from the gage (1).

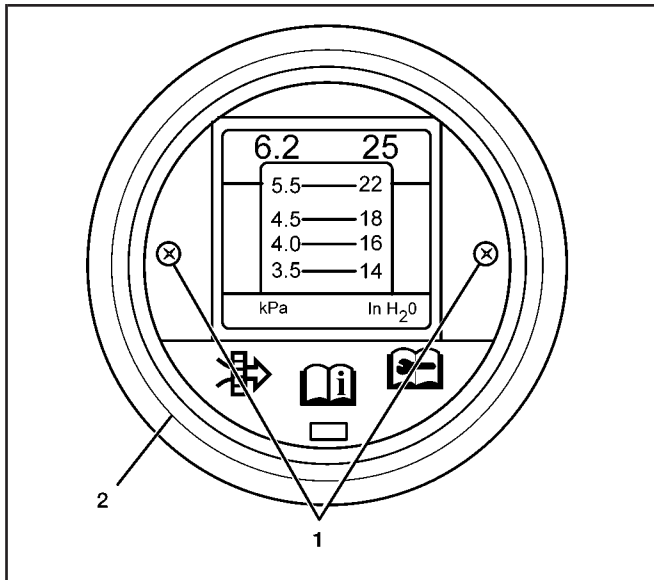


1693472

3. Remove the screws (1) that retain the gage (2) to the instrument panel.
4. Remove the gage from the accessory panel.



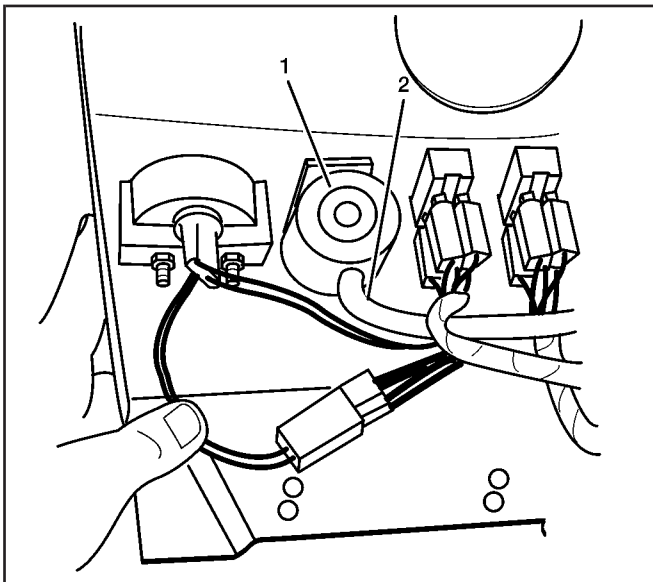
1693481



1693481

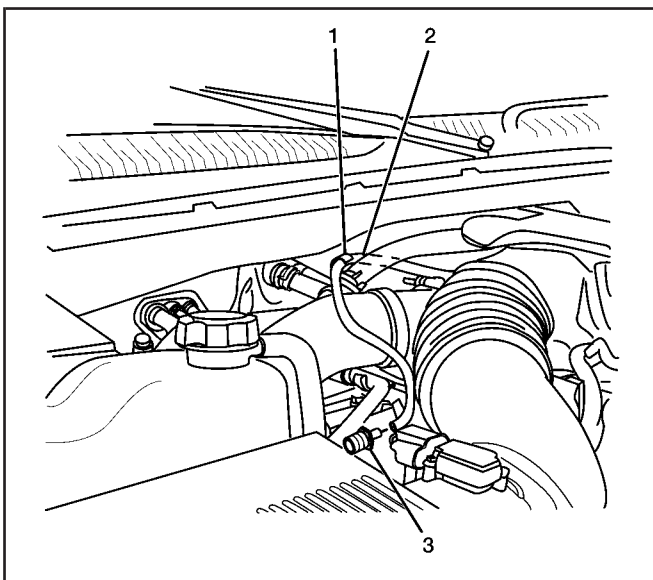
Installation Procedure

1. Install the gage to the accessory panel.
2. Install the screws (1) that retain the gage (2) to the instrument panel. Tighten the screw until fully seated.



1693472

3. Install the air line (2) to the gage (1).
4. Install the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement*.



1694858

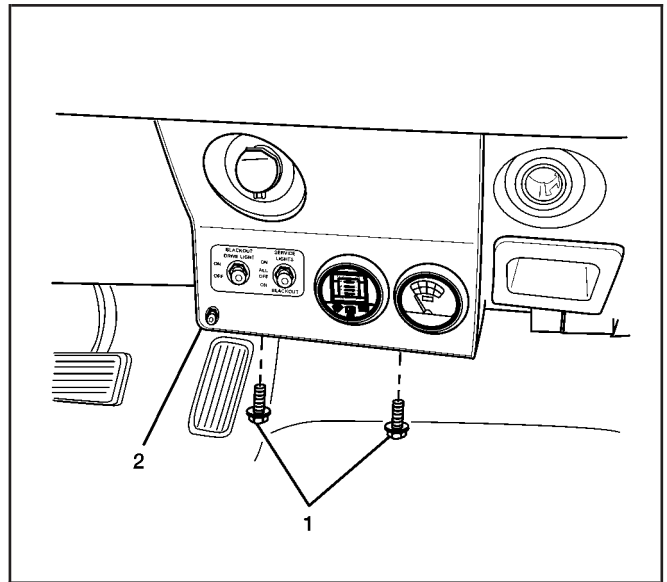
Air Filter Restriction Gage Hose Replacement

Removal Procedure

Note routing position prior to removal of line for installation.

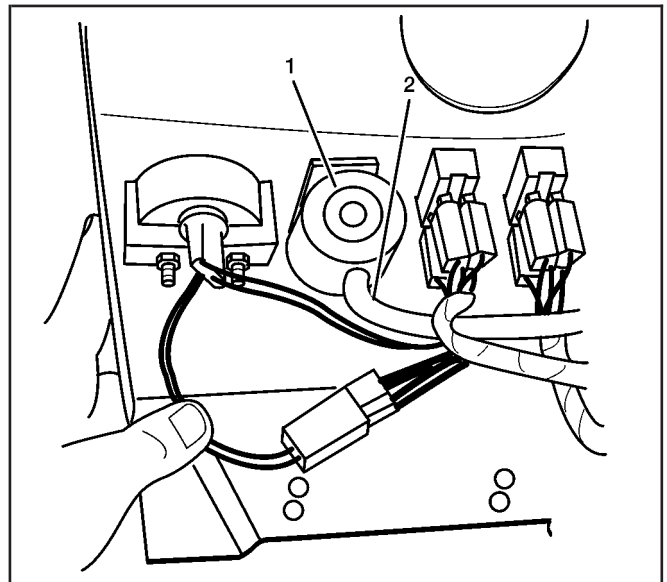
1. Remove the gage hose (2) from the line adaptor (3).
2. Remove the line from the clip (1).

3. Remove the lower bolts (1) of the instrument panel (2).
4. Pull the I/P cluster bezel out at the portion covering the panel.



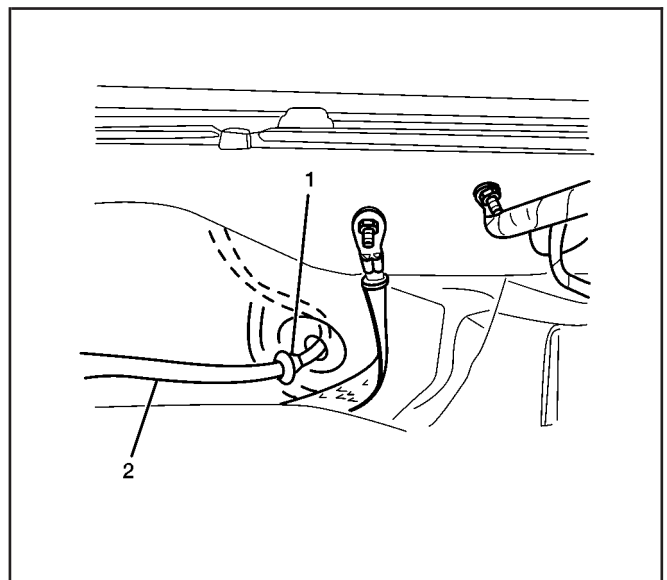
1694848

5. Remove panel enough to gain access to the air line (2).
6. Remove the air line (2) from the flow gage (1).

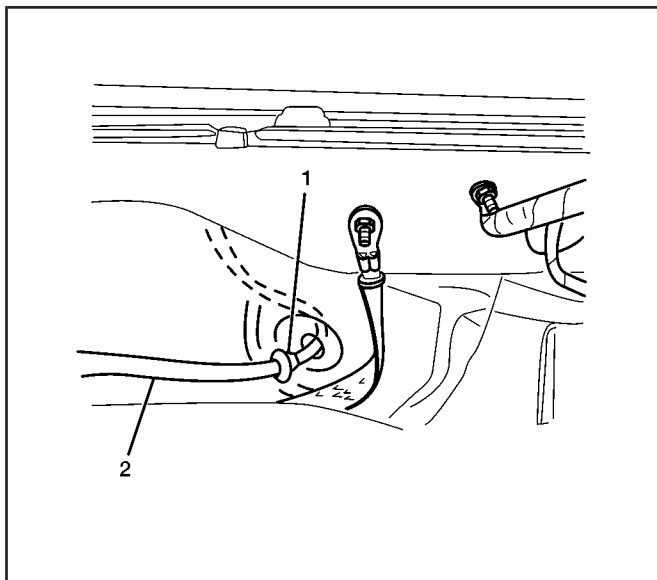


1693472

7. Remove the airflow line grommet (1) from the bulkhead and remove line (2) from the vehicle.



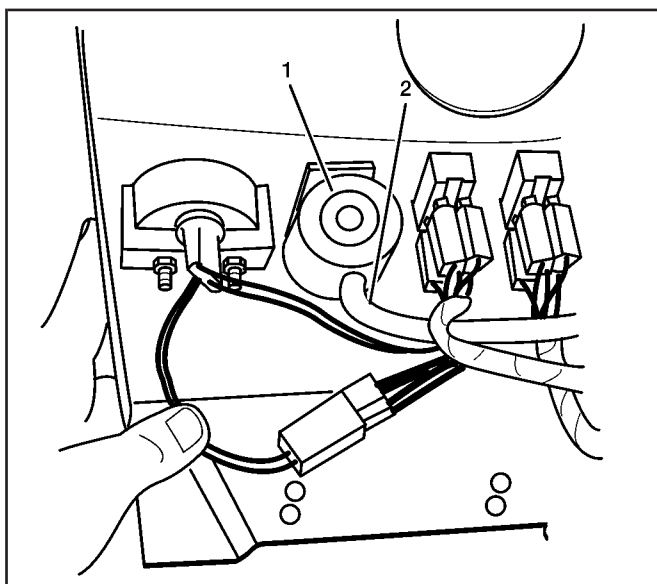
1694860



1694860

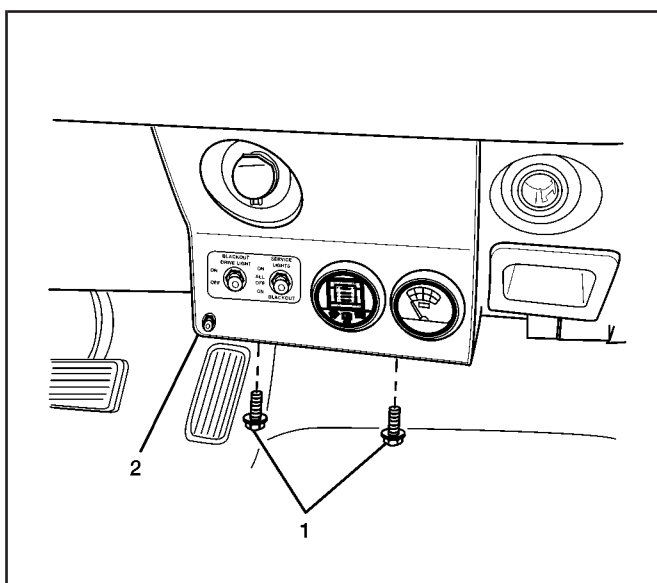
Installation Procedure

1. Install the air line (2) with the grommet (1) and secure the grommet into the bulkhead opening.



1693472

2. Route the air line through the I/P in the same location as removed.
3. Install the air line (2) onto the gage (1).



1694848

Notice: Refer to *Fastener Notice* in Cautions and Notices.

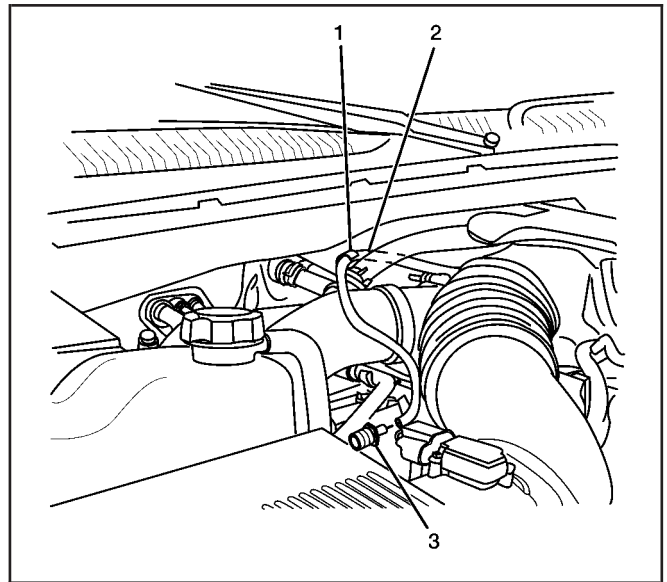
4. Install the accessory panel (2) onto the I/P and install bolts (1).

Tighten

Tighten bolts to 8 N·m (71 lb in).

5. Push the I/P cluster bezel back in place over the panel.

6. Route the air line (2) through the engine compartment as removed.
7. Secure line using the clip (1).
8. Push the line (2) onto the tube adapter (3).

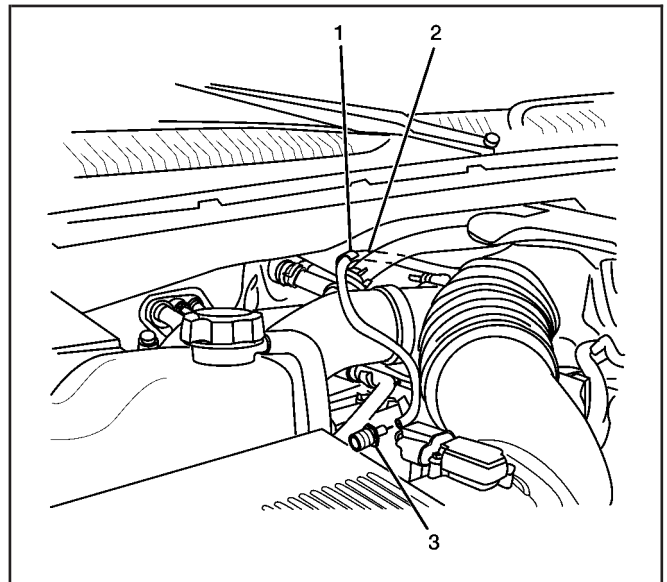


1694858

Air Filter Restriction Gage Adapter Replacement

Removal Procedure

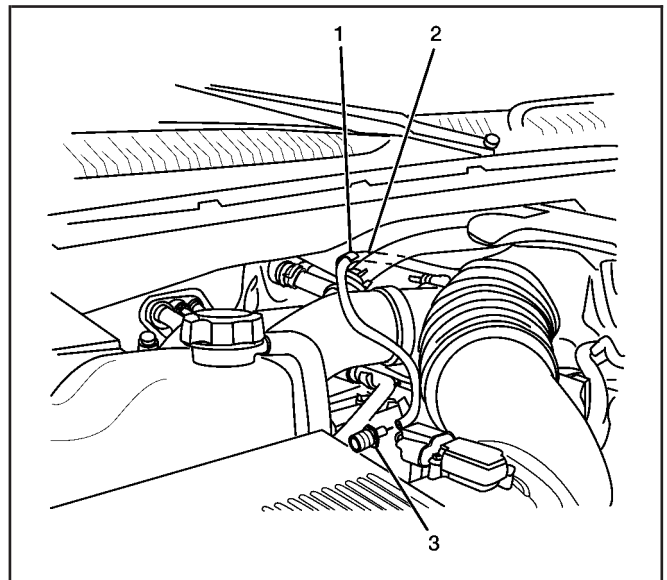
1. Remove the air line (2) from the adapter (3).
2. Remove the adapter (3) from the air cleaner housing grommet.



1694858

Installation Procedure

1. Install the adapter (3) into the air cleaner housing grommet until fully seated.
2. Install the air line (2) onto the adapter (3).



1694858

Description and Operation

Instrument Panel (I/P) Gages

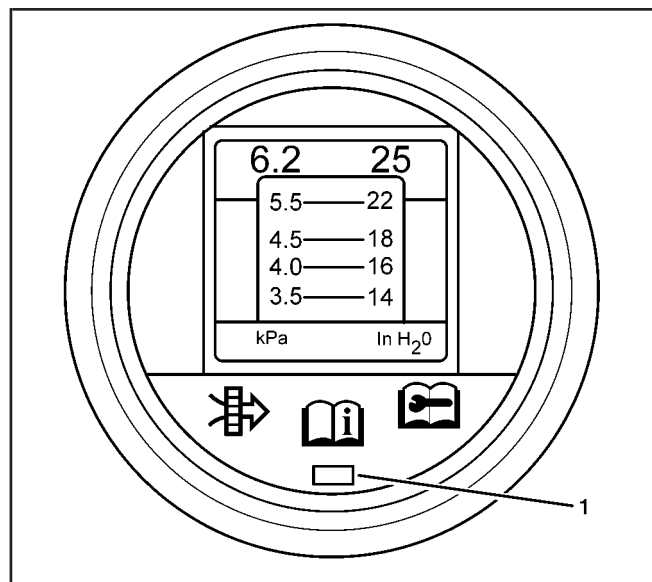
Description

The instrument panel has been modified with an accessory panel mounted below the accessory power outlets. This panel houses the blackout (B/O) lighting auxiliary switches, 24V voltmeter gage and a air filter restriction gage (if equipped). The instrument panel houses auxiliary harnesses as well as standard indicators.

Some modifications have been made to the instrument panel to accommodate auxiliary harness connections and convenience/fuse centers.

Air Filter Restriction Gage

Description



1694861

The air filter restriction gage is located in the accessory trim panel on the lower center of the instrument panel. It monitors the engine air filter.

As the filter gets dirty, the yellow indicator will begin to rise. When it reaches the top of the scale, the filter should be replaced.

After replacing the filter, reset the gage by pressing in the yellow reset button (1) at the bottom of the gage.

Interior Trim

Specifications

Fastener Tightening Specifications

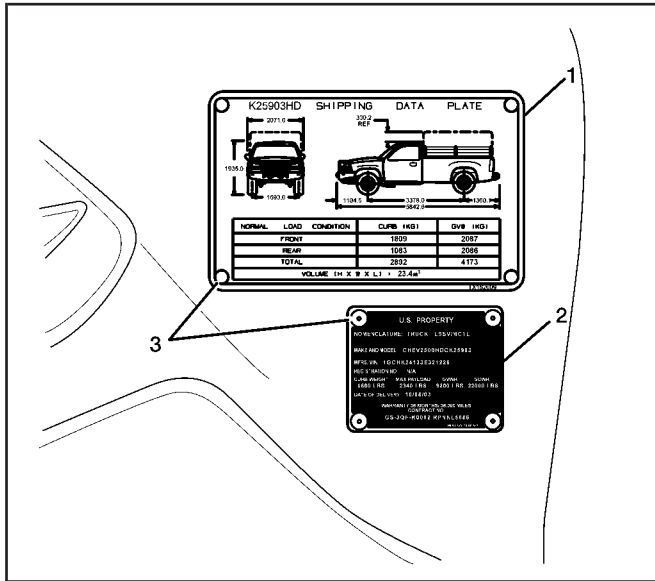
Application	Specification	
	Metric	English
Cab Mount Gun Rack Bolts – Lower	3.5 N·m	30 lb in
Cab Mount Gun Rack Bolts – Upper	8 N·m	70 lb in
Floor Mount Gun Rack Bolts	8 N·m	70 lb in
Floor Mount Gun Rack Bolts – Front	55 N·m	41 lb ft
Floor Mount Gun Rack Nut – Rear	20 N·m	15 lb ft
Jack Bracket Bolts	9 N·m	80 lb in
Jack Bracket Bolts – Extended Cab	9 N·m	80 lb in
Jack Bracket Bolts (In Vehicle Carrier)	53 N·m	39 lb ft
Jack Bracket Nuts – Extended Cab	13 N·m	10 lb ft
Jack Tool Kit Brackets	9 N·m	80 lb in
Pionner Tool Kit Bracket Bolts	8 N·m	70 lb in

Repair Instructions

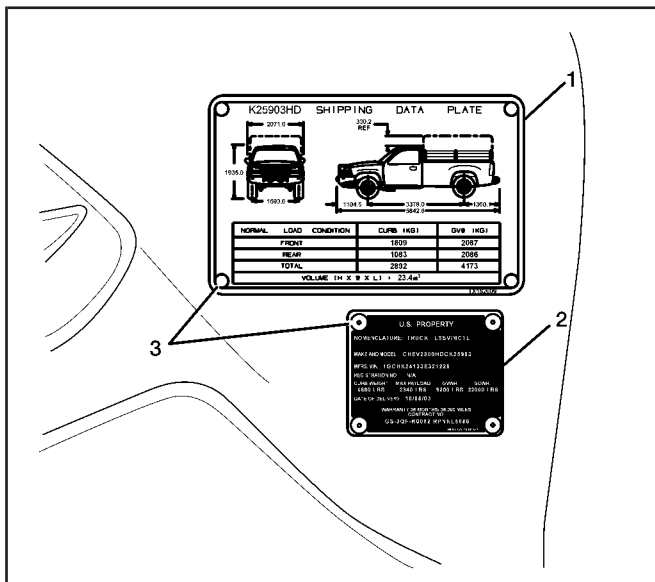
Government Vehicle Data Plate Replacement

Removal Procedure

1. Drill out the 4 rivets (3).
2. Remove the data plate (2).



1703186



1703186

Installation Procedure

1. Install the plate (2) to the original holes.
2. Install the new rivets (3).

Removal Procedure

-
- The diagram illustrates the placement of two identification labels on a vehicle. Label 1, the 'K25903HD SHIPPING DATA PLATE', is located on the front of the vehicle. It features two side-view illustrations of the truck with dimensions: front view (2011.6, 1539.5, 1552.6) and side view (1104, 3378.0, 3542.0, 1303.0). Below the illustrations is a table with the following data:
- | NORMAL LOAD | CONDITION | CLUB (HGT) | DWE (HGT) |
|-------------|-----------|------------|-----------|
| FRONT | 1003 | 2087 | |
| REAR | 1063 | 2086 | |
| TOTAL | 2062 | 4173 | |
- Below the table, it states 'VOLUME (IN X W X L) = 22.4m' and '140-1000'. Label 2, the 'U.S. PROPERTY' label, is located on the side of the vehicle. It contains the following information:
- REGISTRATION: 1963K 13370C11
 - MANUFACTURER: CHEVROLET
 - MODEL: 1963K 13370C11
 - REG. NO.: 1963K 13370C11
 - REG. DATE: 1963
 - REG. STATE: VA
 - REG. EXPIRATION: 1963
 - REG. EXPIRATION DATE: 1963
 - REG. EXPIRATION MONTH: 1963
 - REG. EXPIRATION YEAR: 1963
 - REG. EXPIRATION MONTH: 1963
 - REG. EXPIRATION YEAR: 1963
 - REG. EXPIRATION MONTH: 1963
 - REG. EXPIRATION YEAR: 1963

1703186

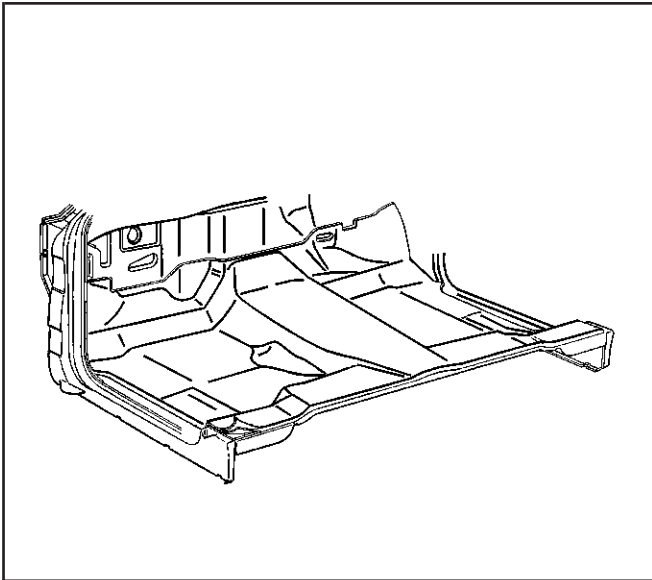
[illegible]

1703186

Removal Procedure

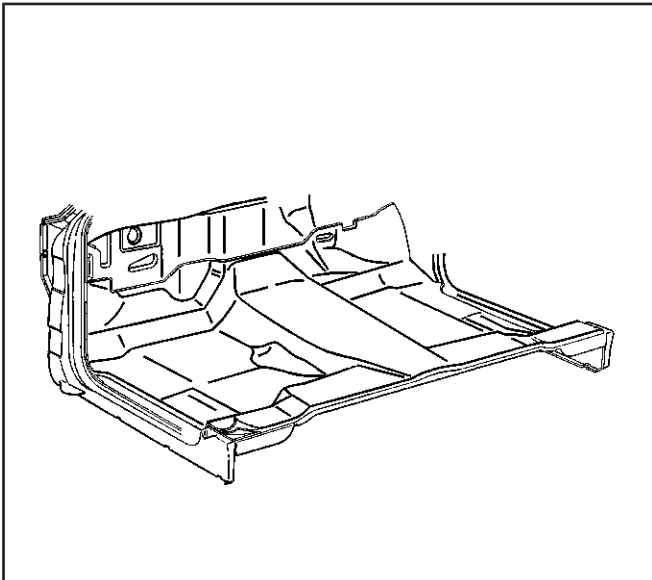
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1703188



276934

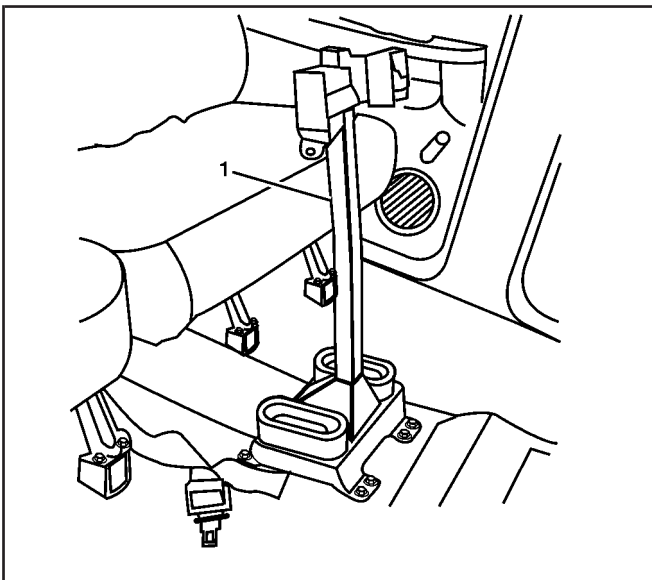
2. Remove floor mat. Refer to *Carpet Replacement - Front* in Interior Trim in the 2005 C/K Truck Service Manual.



276934

Installation Procedure

1. Using the old floor mat as a template cut gun rack holes in the new floor mat.
2. Install the floor mat. Refer to *Carpet Replacement - Front* in Interior Trim in the 2005 C/K Truck Service Manual.



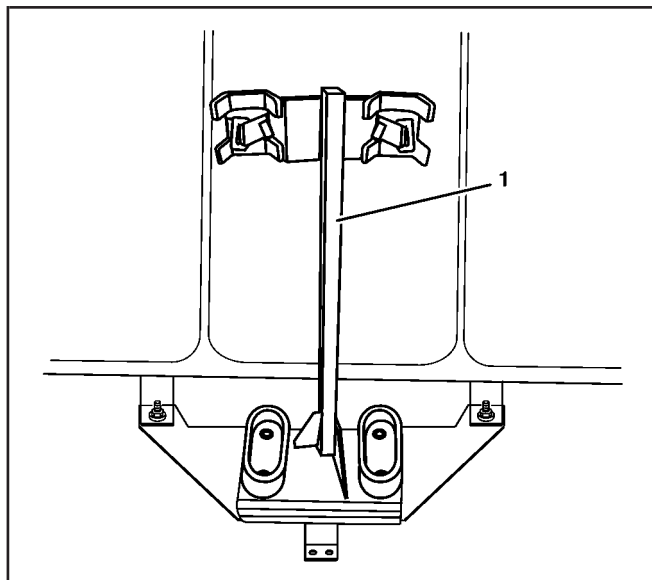
1703188

3. Install gun rack (1) and install bolts. Refer to *Floor Mount Gun Rack Replacement* or *Lower Cab Mount Gun Rack Replacement*.

Floor Mount Gun Rack Replacement

Removal Procedure

1. Remove the rear nut securing gun rack to the floor.
2. Loosen the inner rear front seat bolts enough to slide back.
3. Remove the gun rack (1) from vehicle.



1703189

Installation Procedure

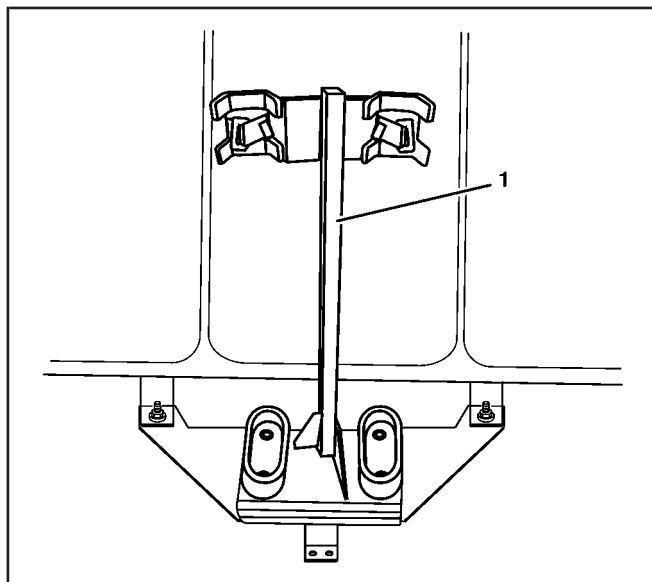
1. Install the gun rack (1) and slide under the front seat bolts.
2. Align the rear gun rack hole with stud in the floor.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut on the stud and tighten.

Tighten

- Tighten the rear nut to 20 N·m (15 lb ft).
- Tighten the front bolts to 55 N·m (41 lb ft).

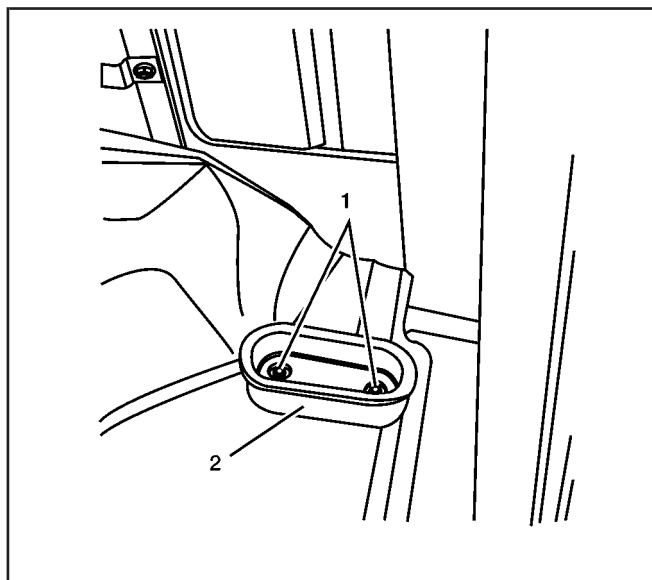


1703189

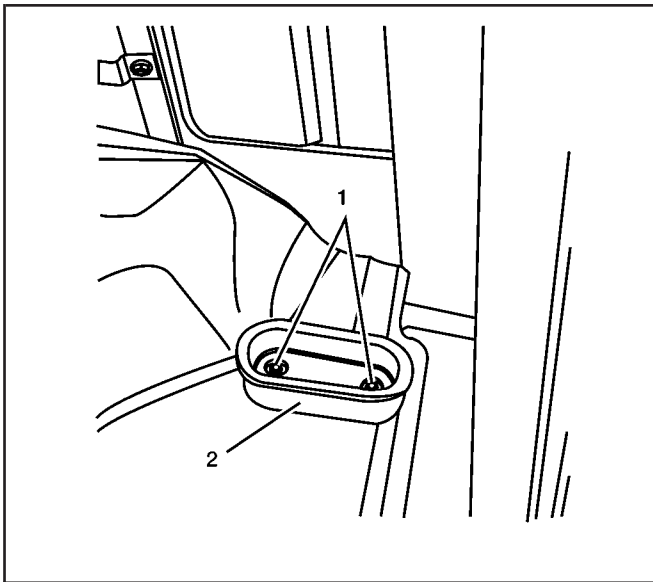
Lower Cab Mount Gun Rack Replacement

Removal Procedure

1. Remove the 2 bolts (1) holding the support to the floor.
2. Remove the support (2).



1703190



1703190

Installation Procedure

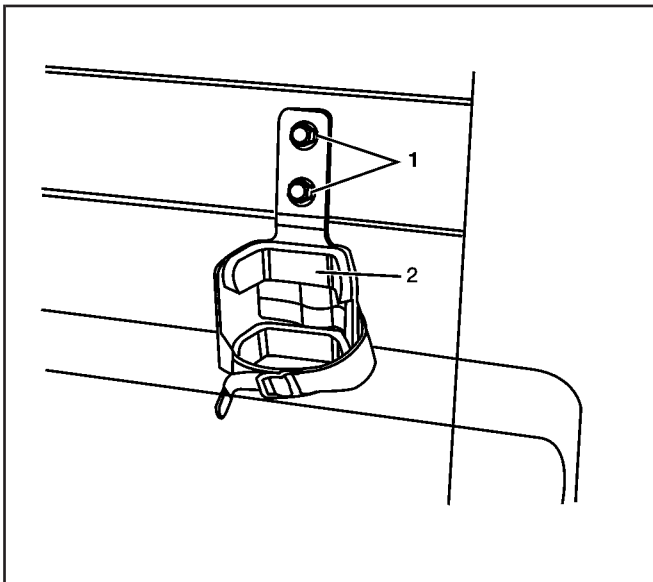
1. Install the support (2) by aligning the bolt holes.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the 2 bolts (1) holding the support to the floor, and tighten.

Tighten

Tighten the bolts to 3.5 N·m (30 lb in).

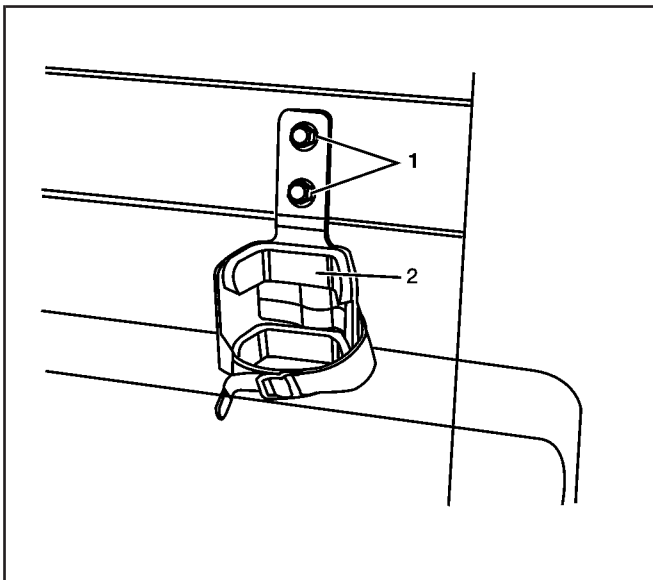


1703191

Upper Cab Mount Gun Rack Replacement

Removal Procedure

1. Remove the lower rear window molding. Refer to *Molding Replacement - Rear Window Lower* in Interior Trim in the 2005 C/K Truck Service Manual.
2. Remove the bolts (1) holding the upper mount to the inner body.
3. Remove the upper gun rack (2).



1703191

Installation Procedure

1. Install the upper gun rack assembly (2) by aligning to the body side inner upper panel.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) to the assembly.

Tighten

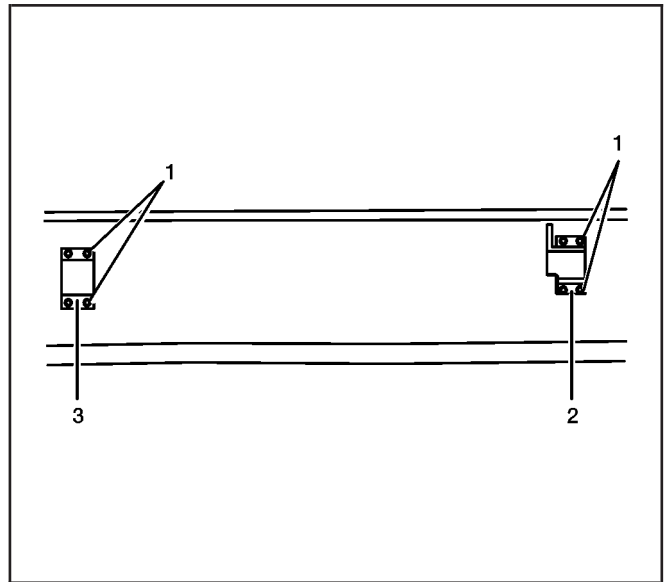
Tighten the bolts to 8 N·m (70 lb in).

3. Install the lower rear window molding. Refer to *Molding Replacement - Rear Window Lower* in Interior Trim in the 2005 C/K Truck Service Manual.

Pioneer Tool Kit Bracket Replacement

Removal Procedure

1. Remove the lower rear window molding. Refer to *Molding Replacement - Rear Window Lower* in Interior Trim in the 2005 C/K Truck Service Manual.
2. Remove the pioneer tool kit.
3. Remove the 4 bolts (1) holding the bracket to the inner body.
4. Remove the left bracket (2) or the right bracket (3).



1702782

Installation Procedure

1. Install the left bracket (2) or the right bracket (3).

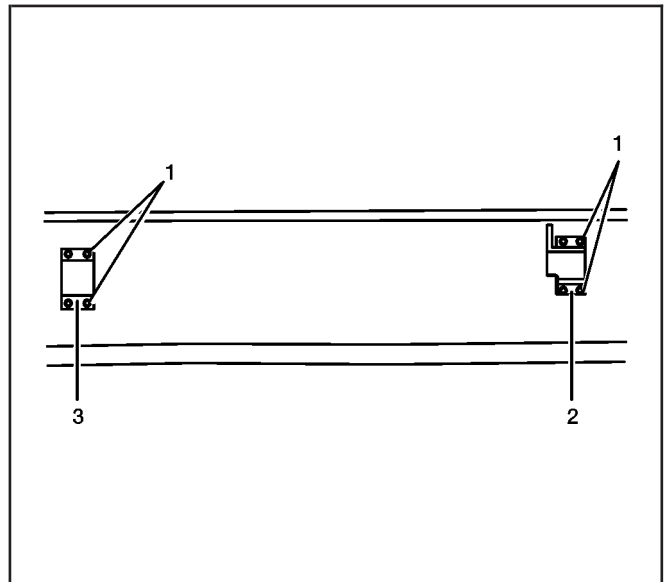
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the 4 bolts (1) to the bracket.

Tighten

Tighten the bolts to 8 N·m (70 lb in).

3. Install the lower rear window molding. Refer to *Molding Replacement - Rear Window Lower* in Interior Trim in the 2005 C/K Truck Service Manual.
4. Install the pioneer tool kit.

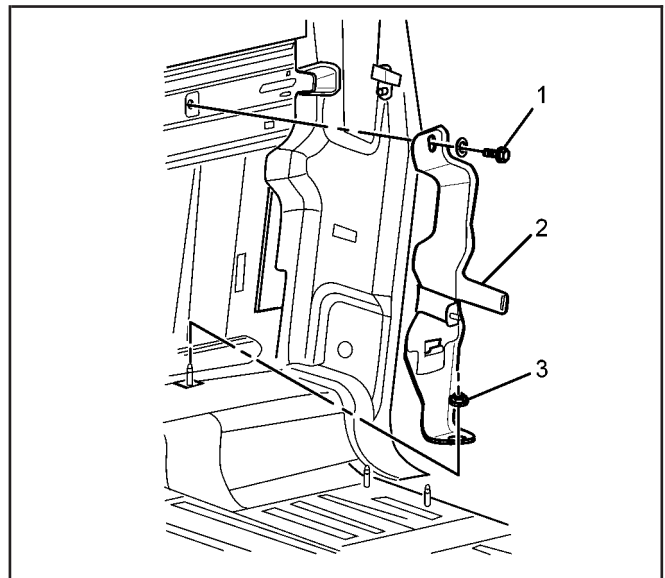


1702782

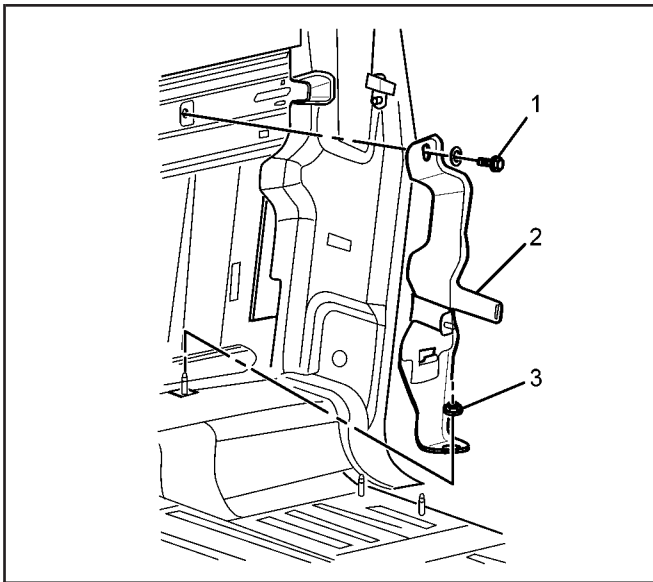
Enhanced Mobility Package Jack Mounting Bracket Replacement (In Vehicle Tire Carrier)

Removal Procedure

1. Remove the vehicle jack from the mount.
2. Remove the lower bracket nut (3).
3. Remove the upper bracket bolt (1) and washer.
4. Remove the mounting bracket (2).



1703193



1703193

Installation Procedure

1. Install the mount bracket (2) in the mounting position.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the washer and upper bracket bolt (1).

Tighten

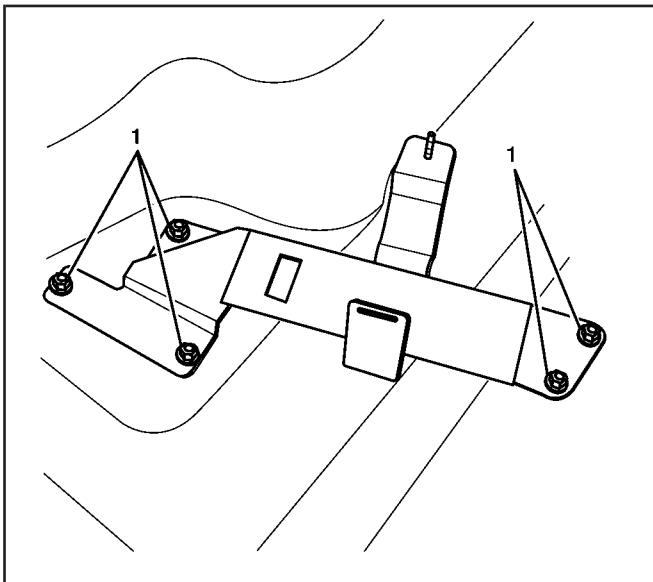
Tighten the bolt to 53 N·m (39 lb ft).

3. Install the lower nut (3).

Tighten

Tighten the nut to 53 N·m (39 lb ft).

4. Install the vehicle jack in the mount.

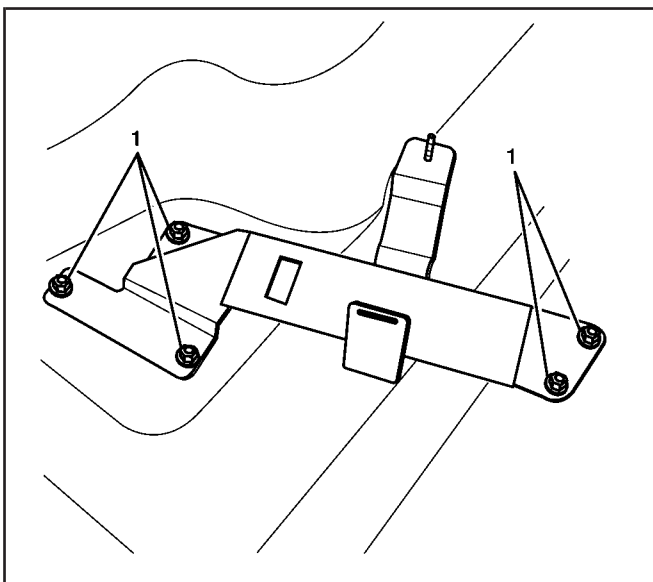


1702785

Enhanced Mobility Package Jack Mounting Bracket Replacement (Regular Cab)

Removal Procedure

1. Slide the front seat to the forward position.
2. Remove the vehicle jack from the bracket.
3. Remove the bracket fasteners (1).
4. Remove the mounting bracket.



1702785

Installation Procedure

1. Install the mount bracket in the mounting position.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bracket fasteners (1).

Tighten

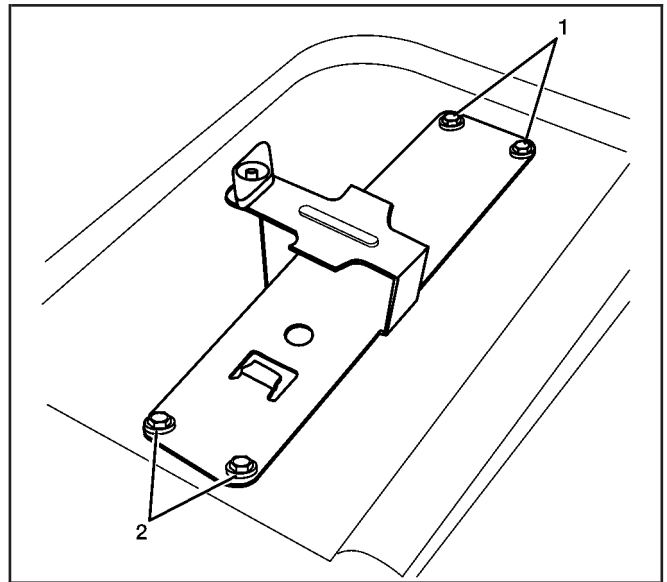
Tighten the fasteners to 9 N·m (80 lb in).

3. Install the vehicle jack in the bracket.

Enhanced Mobility Package Jack Mounting Bracket Replacement (Extended Cab)

Removal Procedure

1. Raise up the rear seat.
2. Remove the vehicle jack from the bracket.
3. Remove the bracket nuts (2).
4. Remove the bracket bolts (1).
5. Remove the mounting bracket.



1702783

Installation Procedure

1. Install the mount bracket in the mounting position.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) into the rivnut.

Tighten

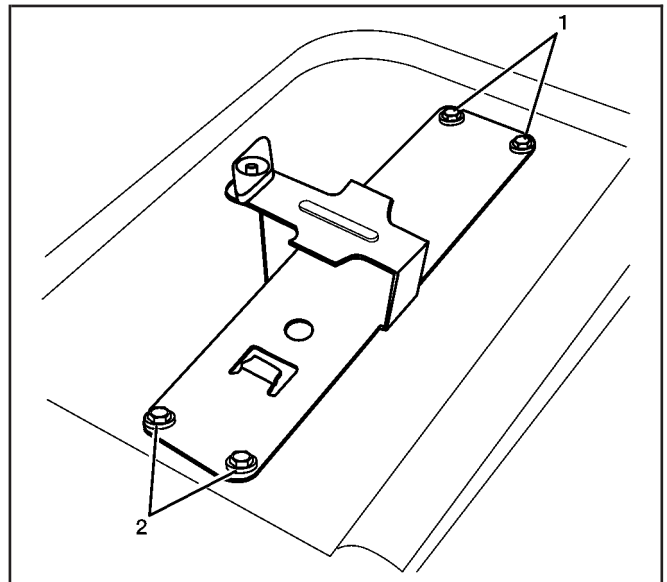
Tighten the bolt to 9 N·m (80 lb in).

3. Install the nuts (2) onto the stud.

Tighten

Tighten the nut to 13 N·m (10 lb ft).

4. Install the vehicle jack in the bracket.
5. Lower the rear seat.

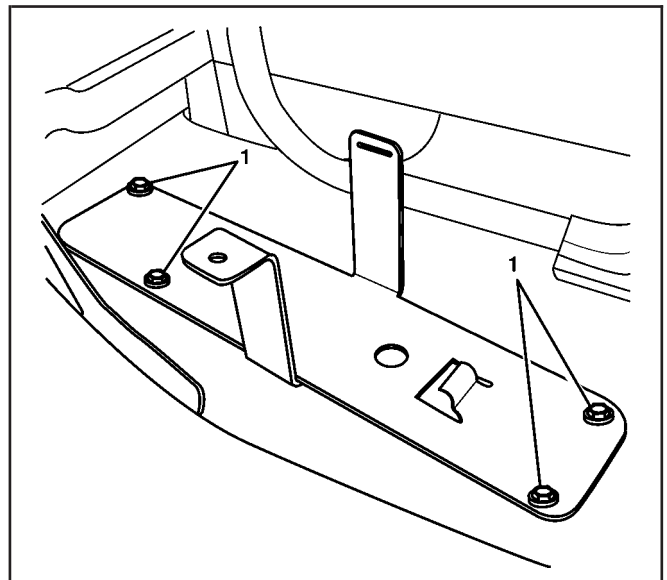


1702783

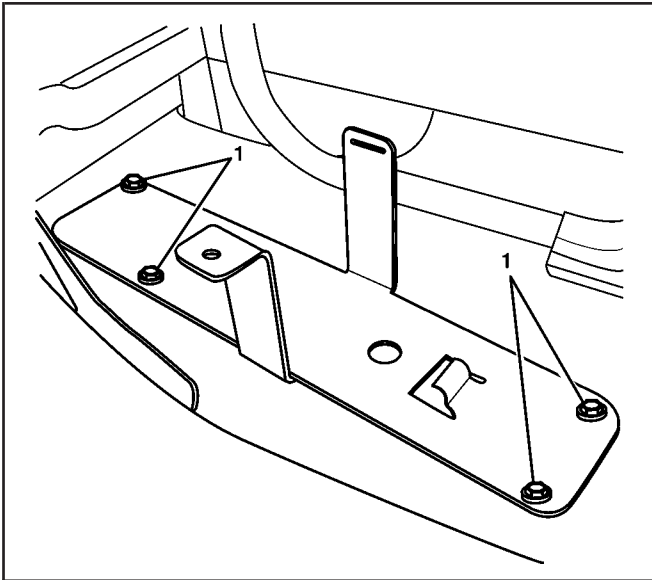
Enhanced Mobility Package Jack Mounting Bracket Replacement (Crew Cab)

Removal Procedure

1. Raise up the rear passenger seat.
2. Remove the vehicle jack from the bracket.
3. Remove the rear bracket bolts (1).
4. Remove the mounting bracket.



1702784



1702784

Installation Procedure

1. Install the mount bracket in the mounting position.

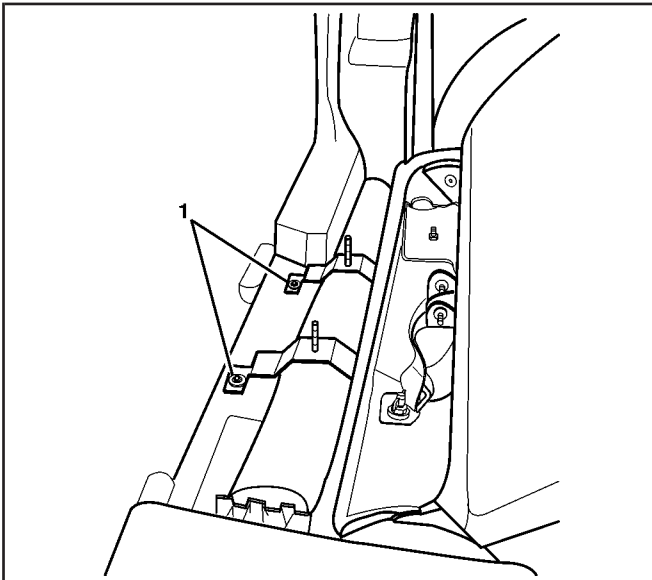
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1).

Tighten

Tighten the bolt to 9 N·m (80 lb in).

3. Install the vehicle jack in the bracket.
4. Lower the passenger rear seat.

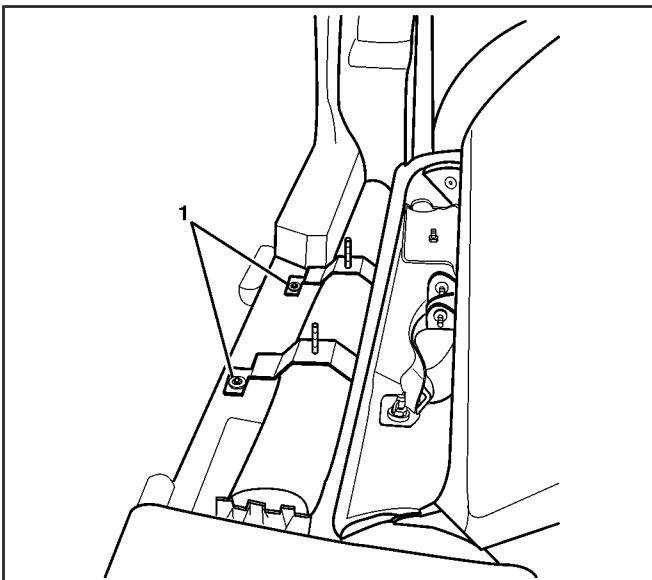


1702786

Enhanced Mobility Package Jack Tools Mounting Bracket Replacement

Removal Procedure

1. Remove the jack tools from the brackets.
2. Remove the bracket nuts (1).
3. Remove the mounting brackets.



1702786

Installation Procedure

1. Install the mount bracket in the mounting position.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts (1) securing the brackets to the vehicle.

Tighten

Tighten the bolt to 9 N·m (80 lb in).

3. Install the vehicle jack tools in the mounts.

Lighting Systems

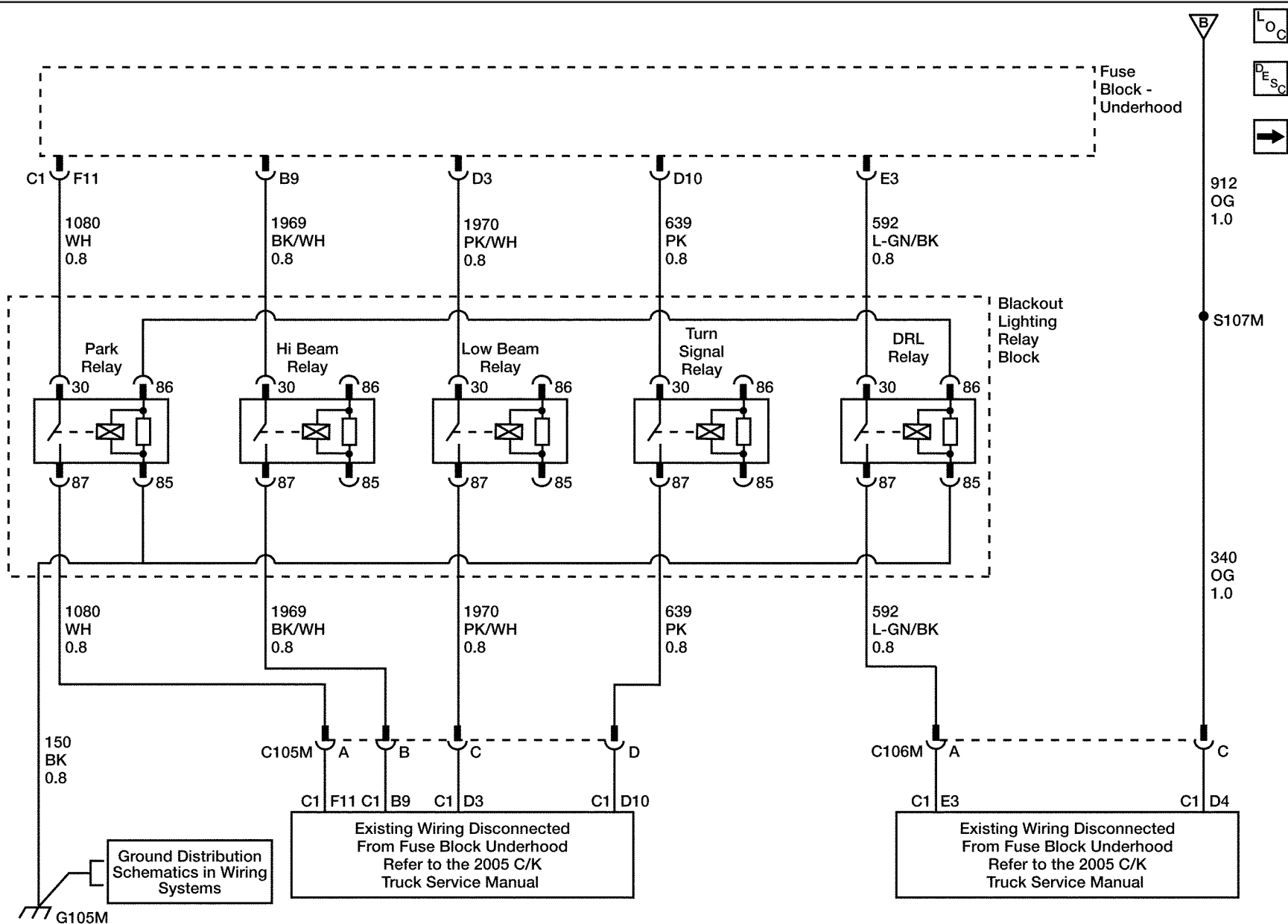
Specifications

Fastener Tightening Specifications

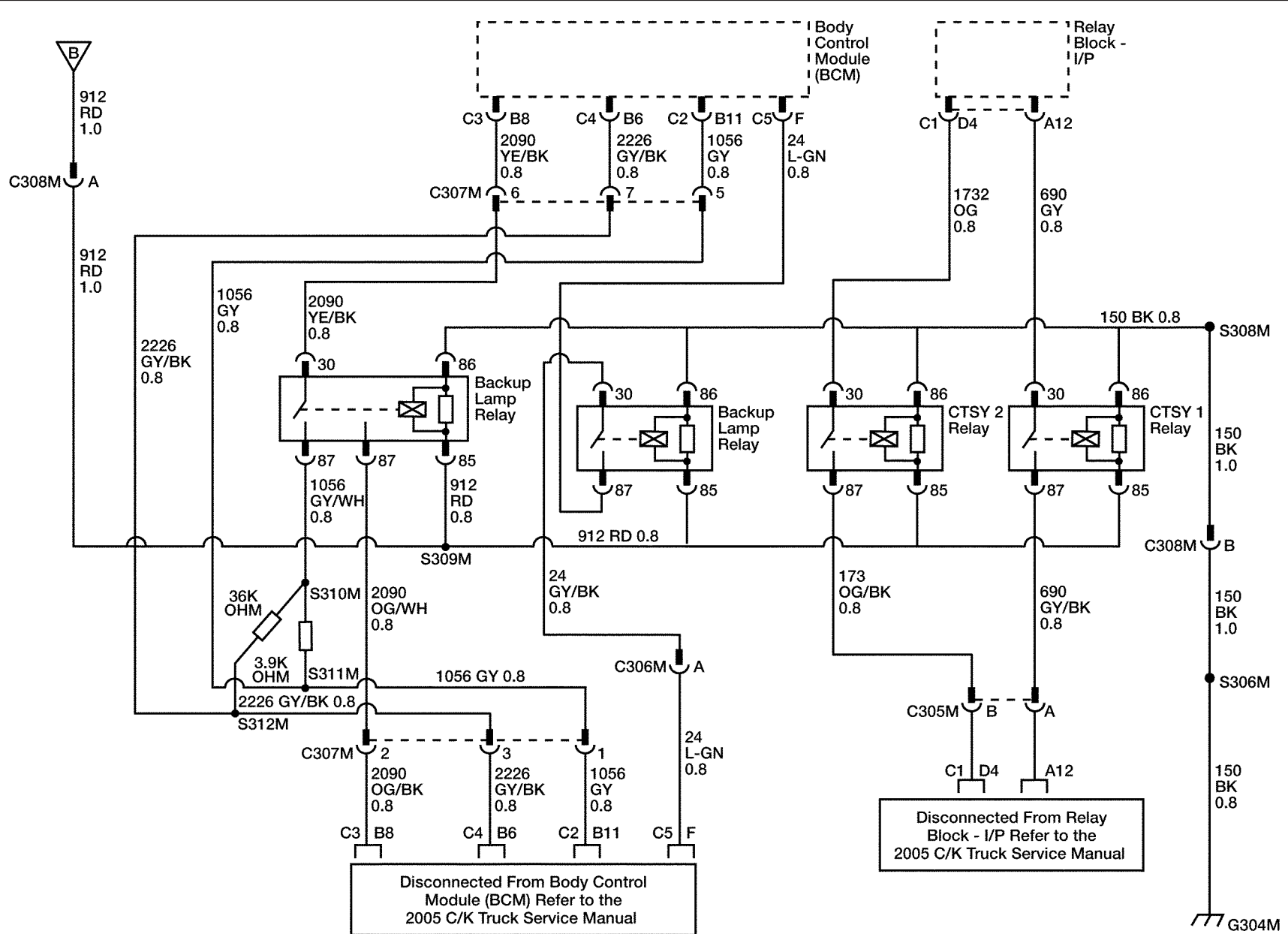
Application	Specification	
	Metric	English
Backup Alarm Bolts	0.8 N·m	7 lb in
Backup Alarm Wiring Connector Nuts	0.8 N·m	7 lb in
Backup Lamps	0.8 N·m	7 lb in
Blackout (B/O) Headlamp Stud Nut	10 N·m	89 lb in
Blackout (B/O) Switch Nuts	2.8 N·m	24 lb in
Front Blackout (B/O) Marker Lamp Nuts	2 N·m	18 lb in
License Plate Lamp Bolts	0.8 N·m	7 lb in
Military Trailer Connector Bolts	5 N·m	44 lb in
Rear Blackout (B/O) Lamp Nuts	2 N·m	18 lb in
Taillamp Bracket to Bumper Nuts	27 N·m	20 lb ft

Schematic and Routing Diagrams

Exterior Lights Schematics (Blackout (B/O) Relay Block)



Exterior Lights Schematics (Interrupt Relays (I/P Fuse Block))



8-92 Lighting Systems

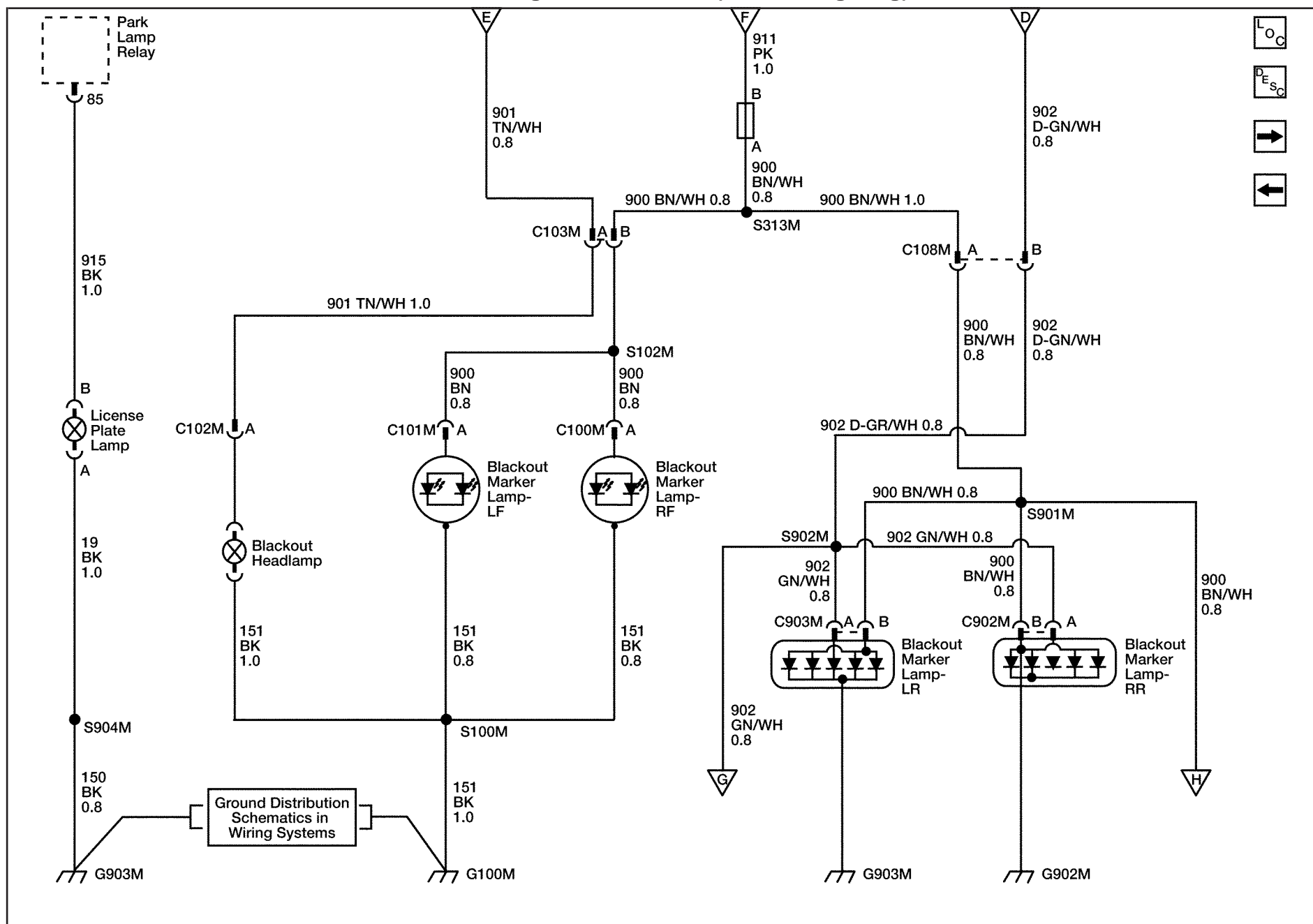


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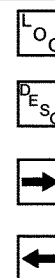
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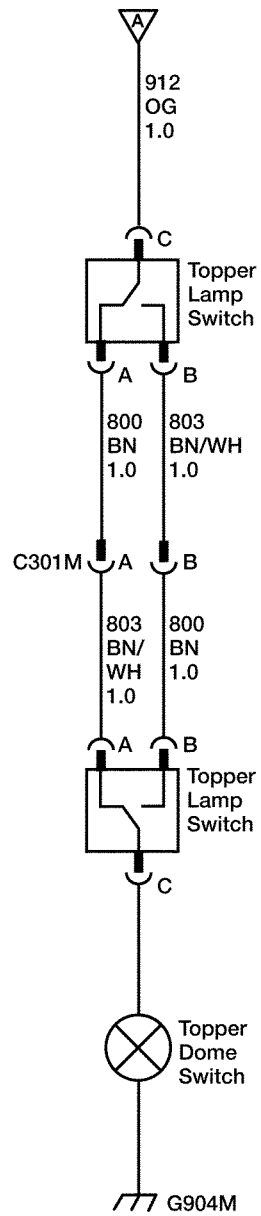
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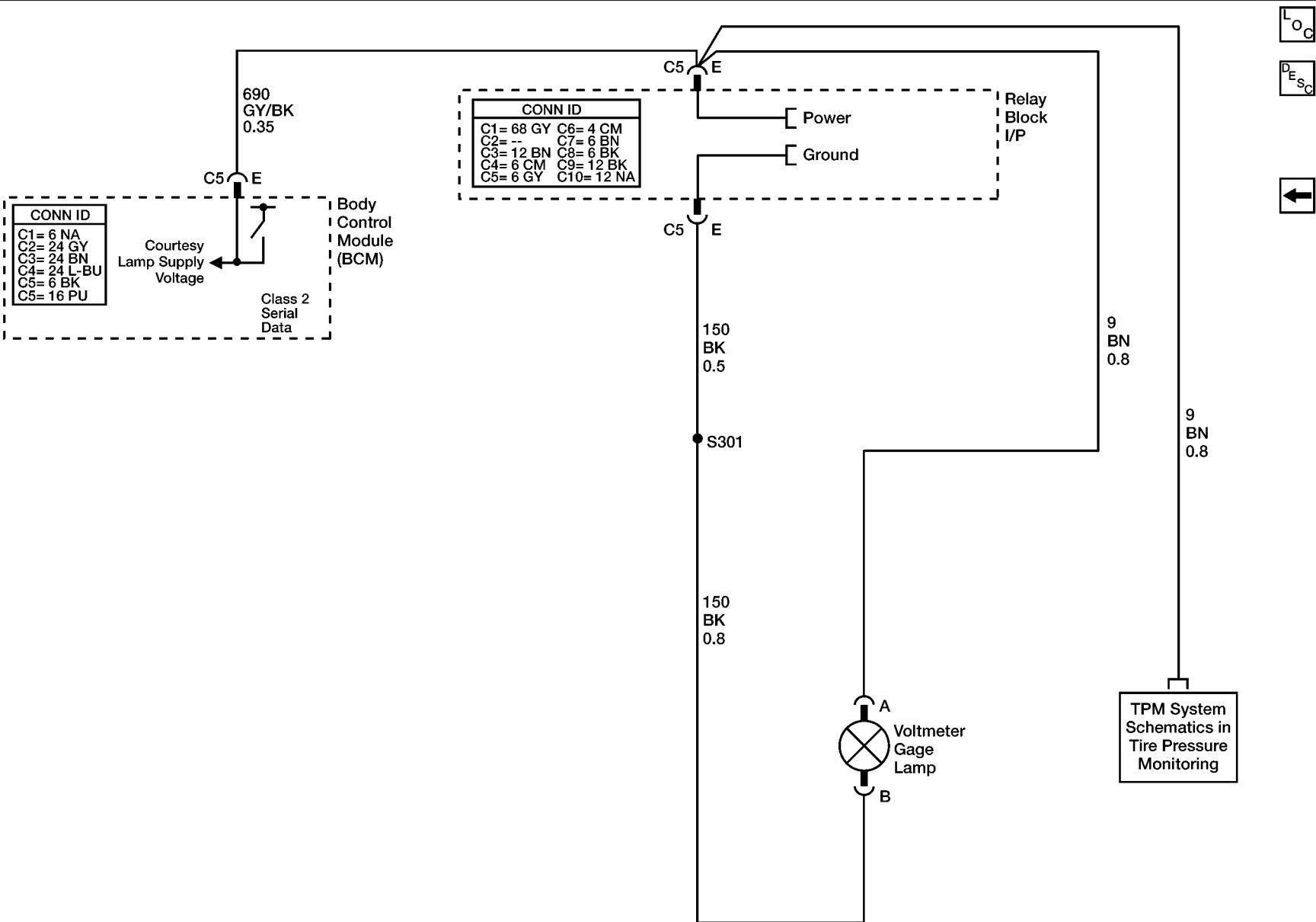
1693292



Interior Lights Schematics (Topper Wiring)



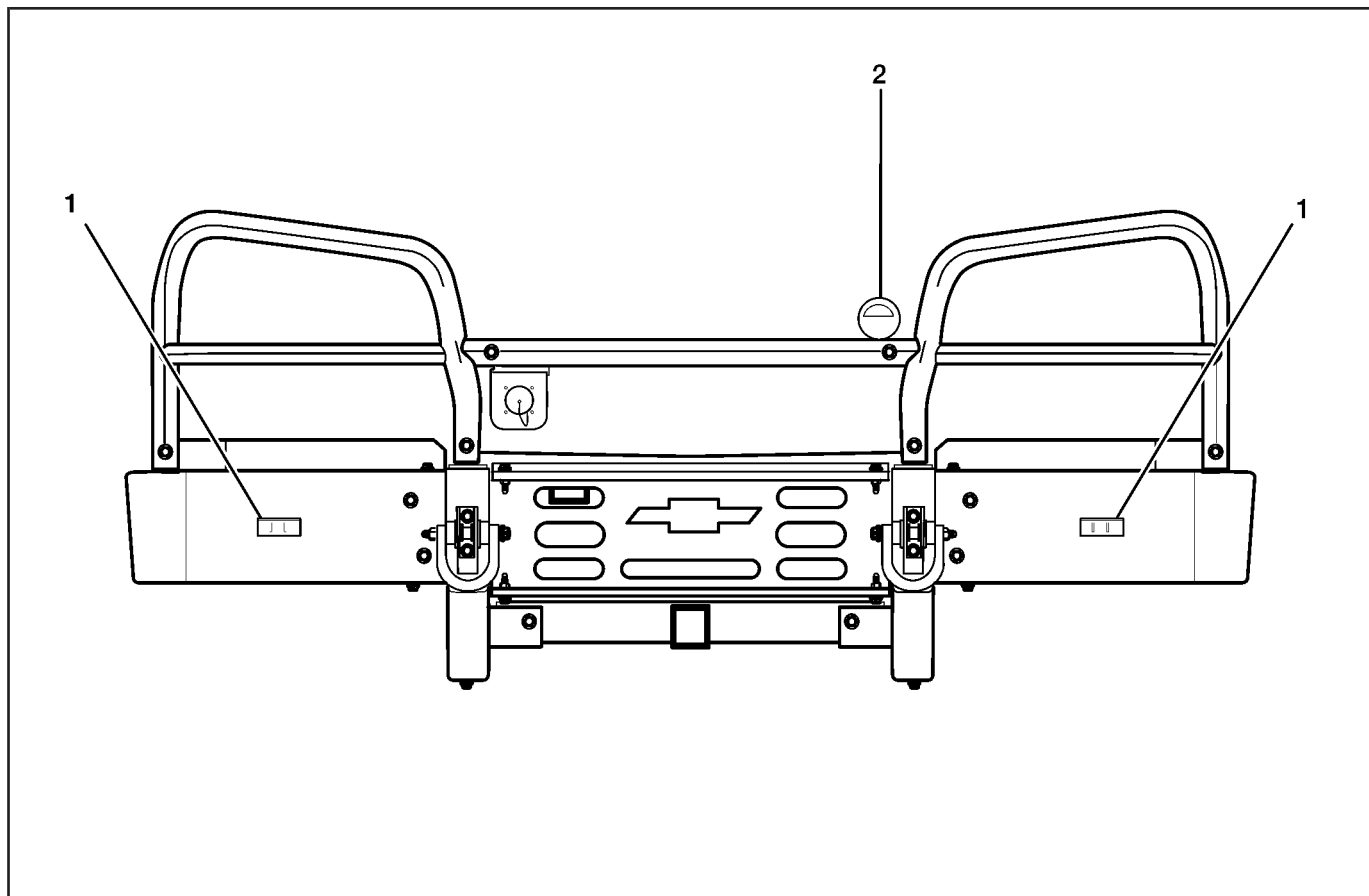
Interior Lights Dimming Schematics



Component Locator

Lighting Systems Component Views

Front Lighting – LSSV



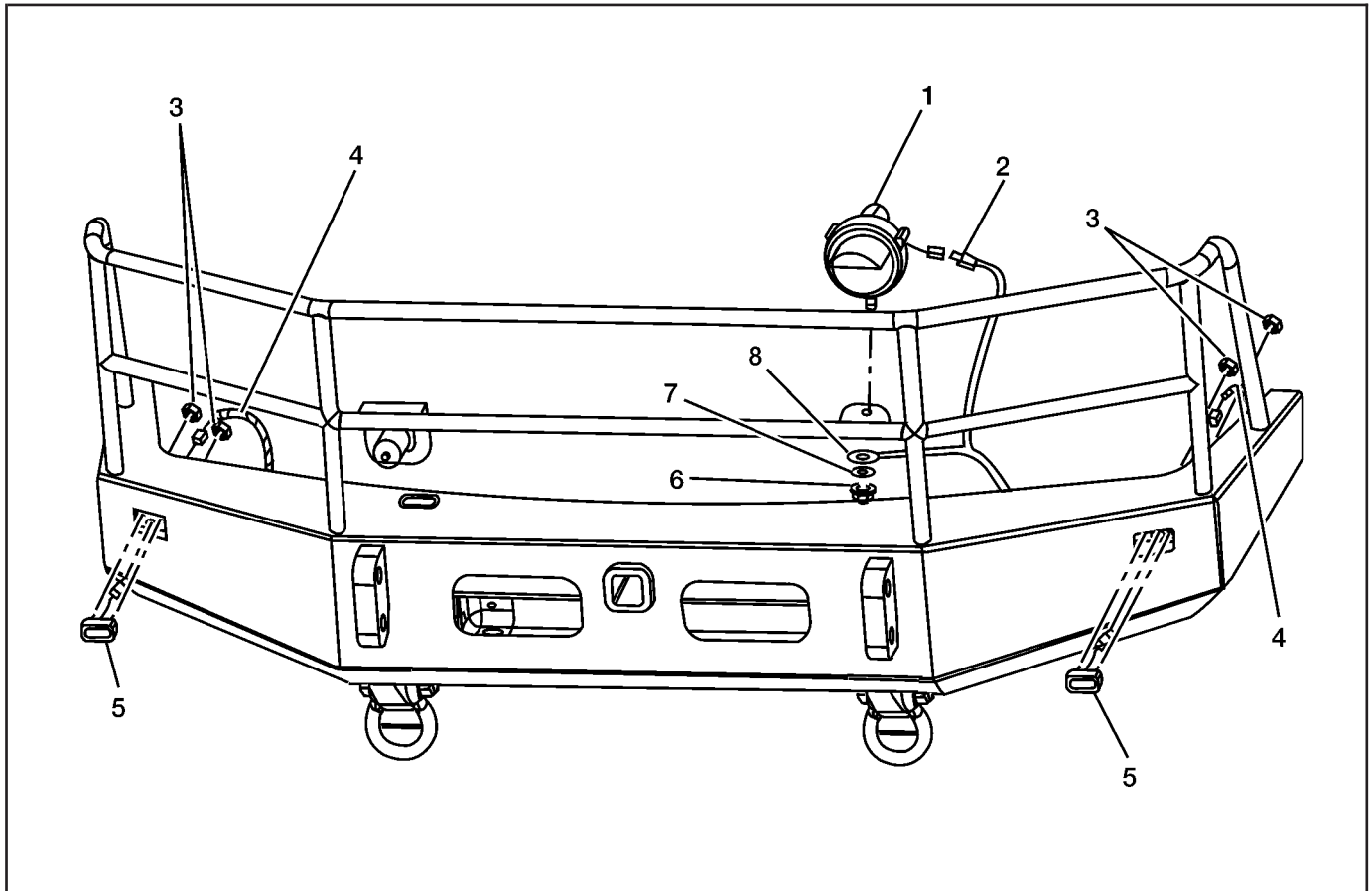
1692532

Legend

(1) Blackout (B/O) Marker Lamps

(2) Blackout (B/O) Headlamp

Front Lighting (Ambulance/Maintenance Body)

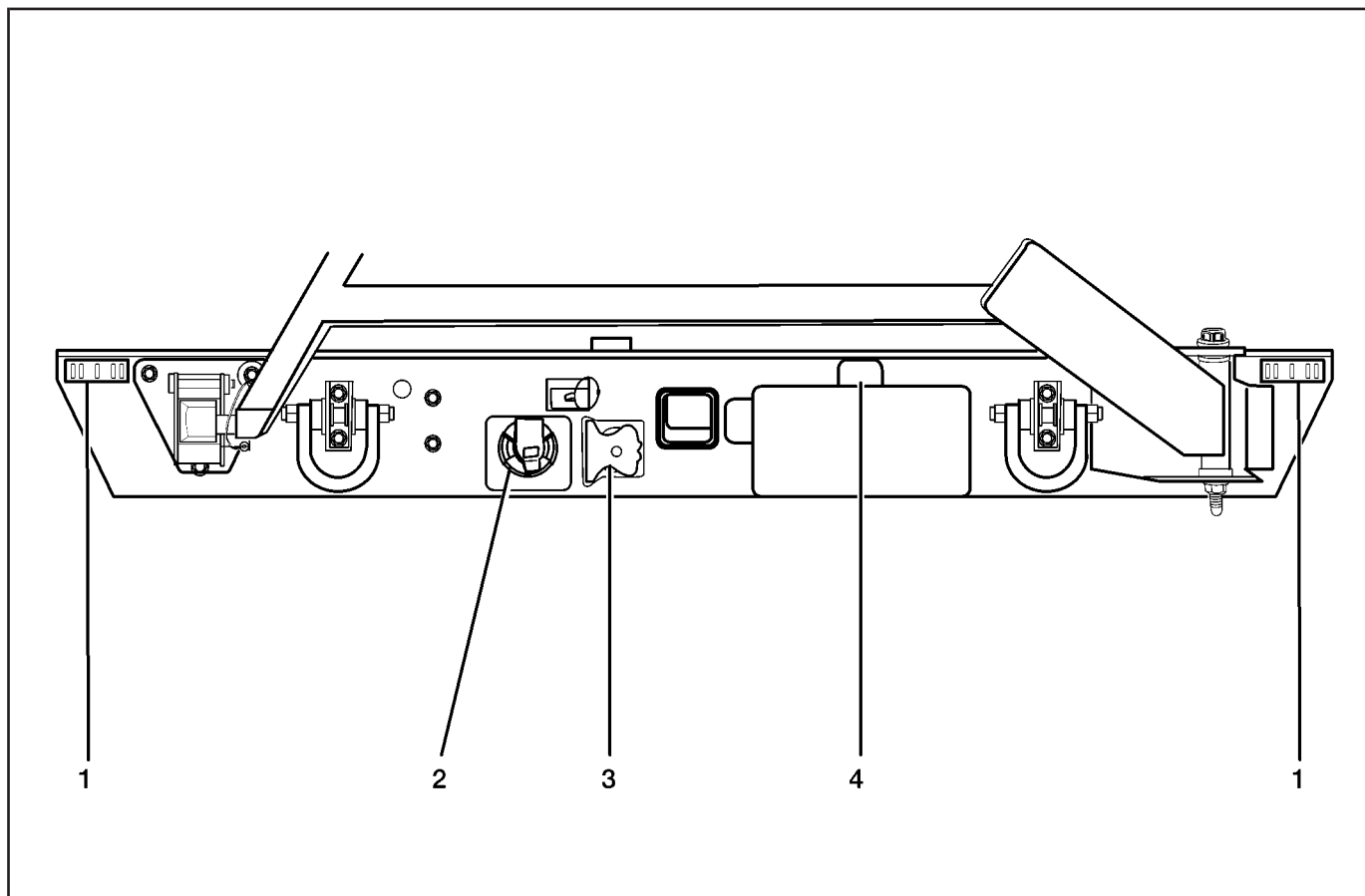


1693355

Legend

- | | |
|---|----------------------------|
| (1) Blackout (B/O) Headlamp | (5) Marker Lamps |
| (2) Headlamp Harness Connector | (6) Headlamp Fastening Nut |
| (3) Blackout (B/O) Marker Lamp Fastening Nuts | (7) Washer |
| (4) Marker Lamp Harness Connector | (8) Headlamp Ground Lead |

Rear Lighting – LSSV

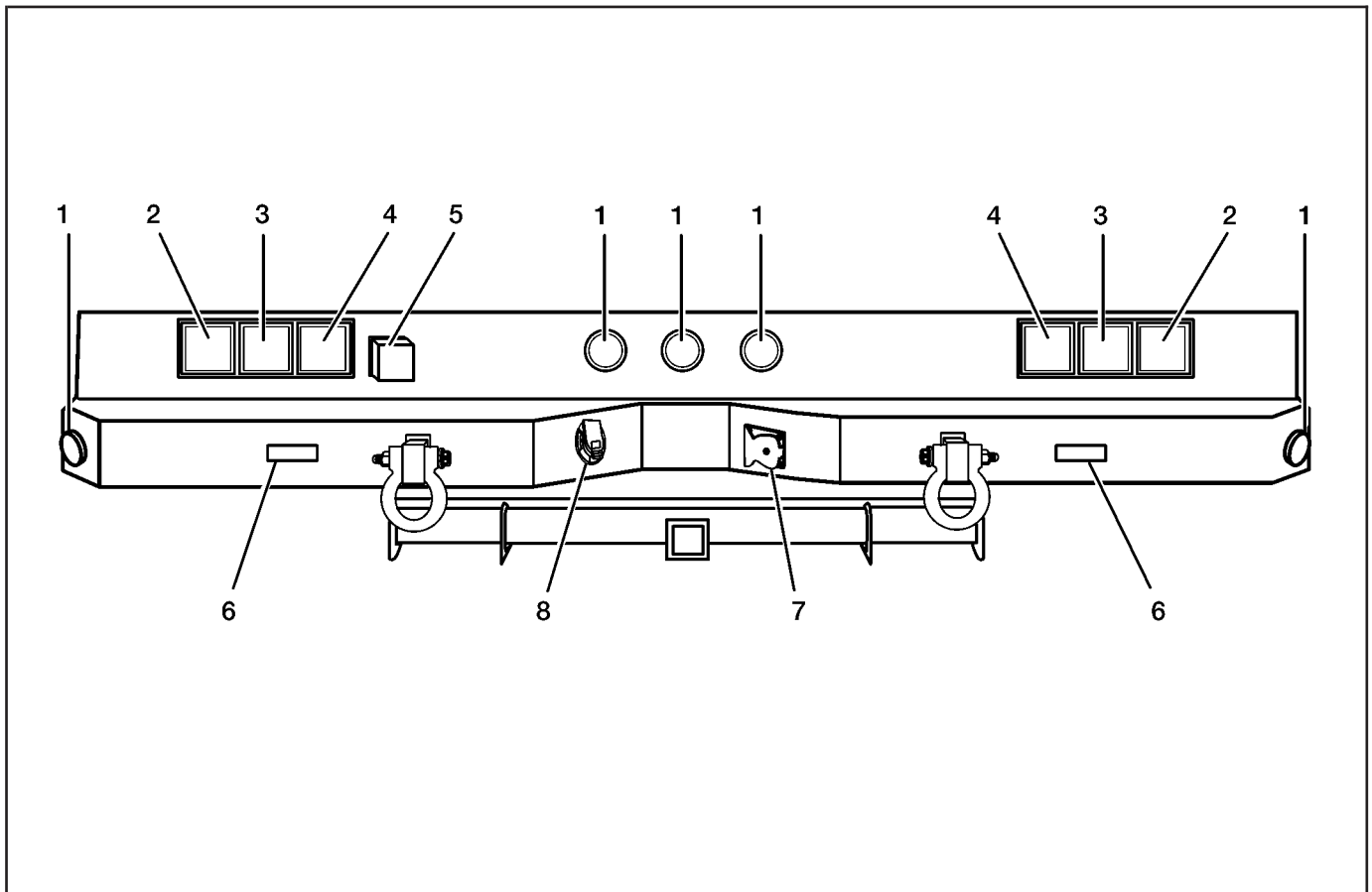


1692716

Legend

- | | |
|-------------------------------------|-------------------------------------|
| (1) Blackout (B/O) Marker/Stoplamps | (3) Trailer Connector (NATO 12 Pin) |
| (2) Trailer Connector (Commercial) | (4) License Plate Lamp |

Rear Lighting – Maintenance Body

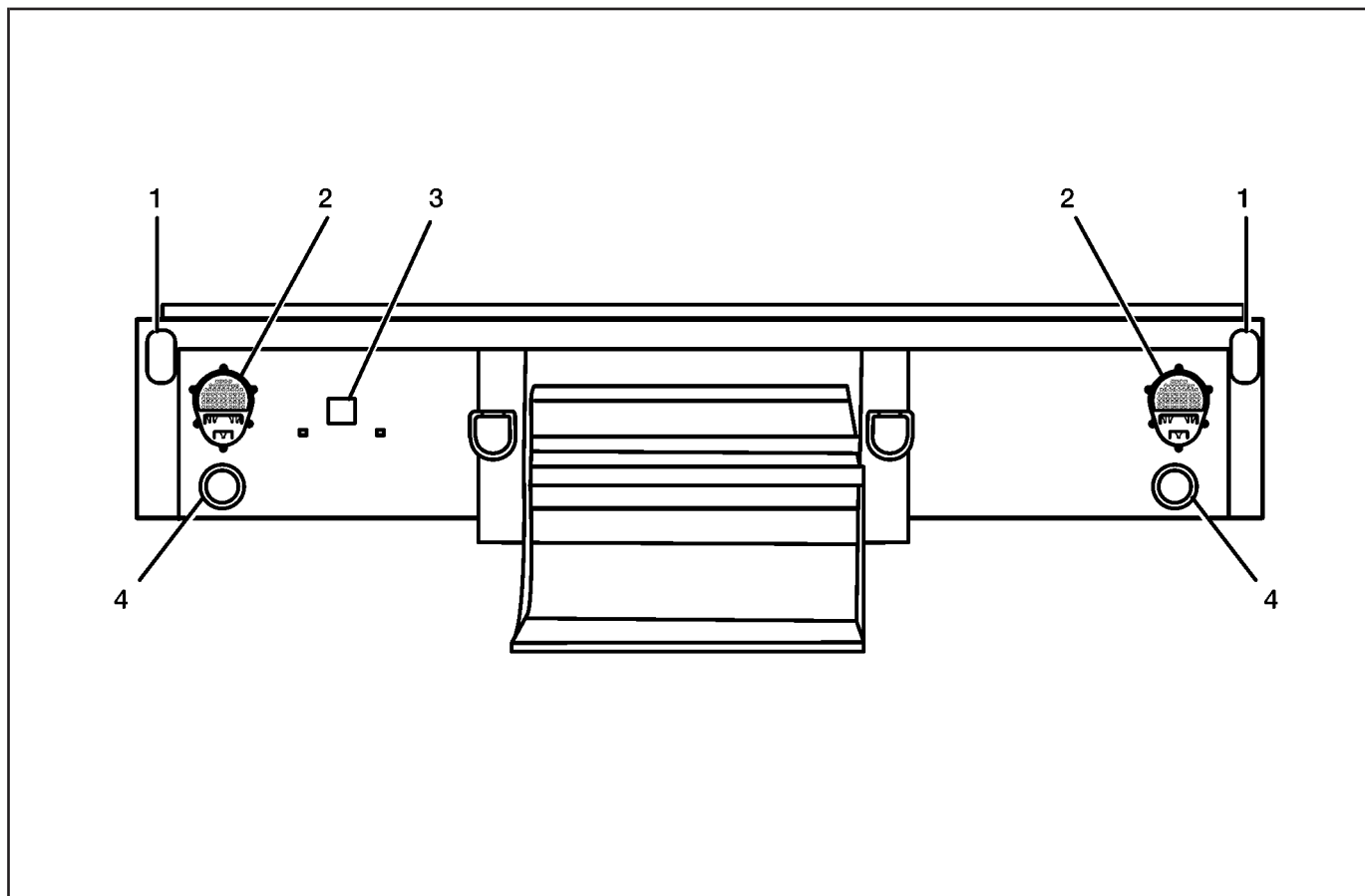


1692529

Legend

- | | |
|-----------------------|--------------------------------------|
| (1) Marker Lamps | (5) License Plate Lamp |
| (2) Turn Signal Lamps | (6) Blackout (B/O) Marker/Stop Lamps |
| (3) Tail/Stoplamps | (7) Trailer Connector (NATO 12 Pin) |
| (4) Backup Lamps | (8) Trailer Connector (Commercial) |

Rear Lighting – Ambulance Body



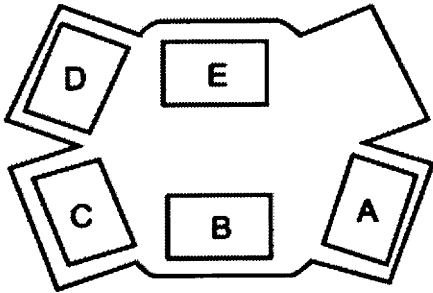
1692527

Legend

- | | |
|---|------------------------|
| (1) Reflectors | (3) License Plate Lamp |
| (2) Taillamps with Blackout (B/O) Lamps (LED) | (4) Backup Lamps |

Lighting Systems
Connector End Views

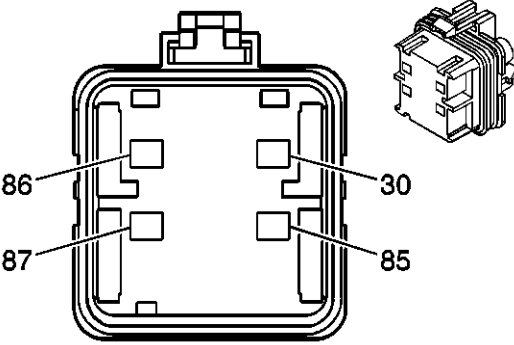
Blackout (B/O) Drive Lamp Switch



1465953

Connector Part Information		• 08911352 • 5-Way F Series 56 (BK)	
Pin	Wire Color	Circuit No.	Function
A	—	—	Not Used
B	TN/WH	901	Blackout (B/O) Headlamp Supply Voltage
C	PK	911	Blackout (B/O) Drive Lamp Switch Supply Voltage
D	WH	915	Blackout (B/O) Control Relay Signal
E	BK	150	Ground

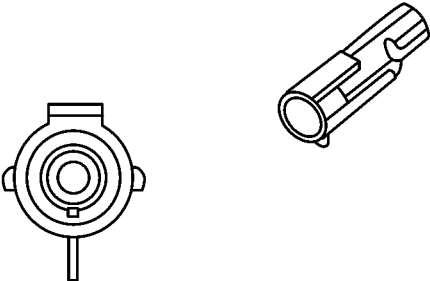
Blackout (B/O) Drive Relay



535912

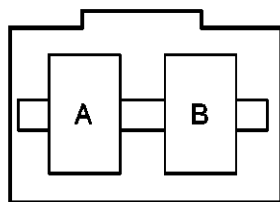
Connector Part Information		• 12129716 • 4-Way F M/P Series 280 (GY)	
Pin	Wire Color	Circuit No.	Function
30	BN/WH	901	Blackout (B/O) Headlamp Switch Signal
85	TN/WH	901	Blackout (B/O) Headlamp Supply Voltage
86	WH	915	Blackout (B/O) Drive Relay Control Voltage
87	PK	911	Blackout (B/O) Controls Signal

Blackout (B/O) Headlamp



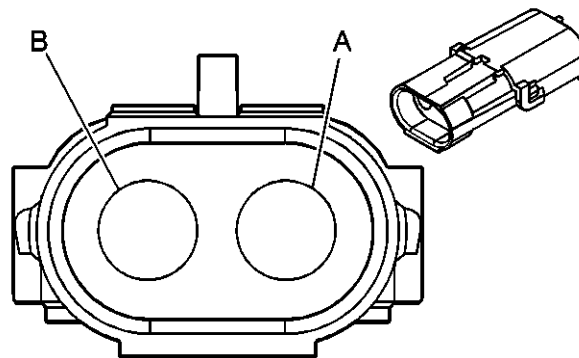
1708840

Connector Part Information		• 12010996 • 1-Way M Weather Pack (BK)	
Pin	Wire Color	Circuit No.	Function
A	TN/WH	901	Blackout (B/O) Headlamp Supply Voltage

Blackout (B/O) Lamps Fuse

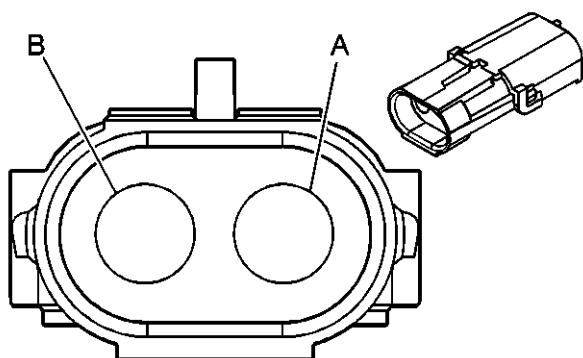
350882

Connector Part Information		<ul style="list-style-type: none"> • 12010105 • 2-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BN/WH	900	Blackout (B/O) Marker Lamps Signal
B	PK	911	Blackout (B/O) Controls Supply Voltage

Blackout (B/O) Lamps (Right Rear)

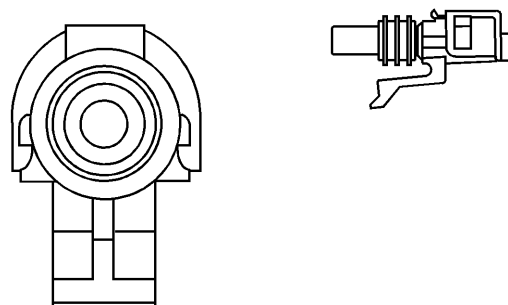
258174

Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function
A	GN/WH	902	Blackout (B/O) Stoplamp Supply Voltage
B	BN/WH	900	Blackout (B/O) Marker Lamp Supply Voltage

Blackout (B/O) Lamps (Left Rear)

258174

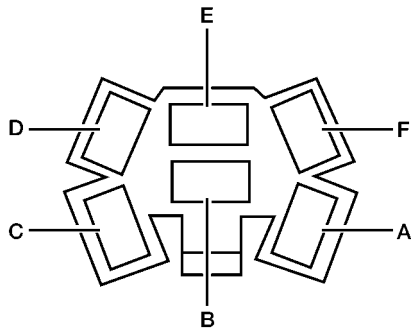
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function
A	GN/WH	902	Blackout (B/O) Stoplamp Supply Voltage
B	BN/WH	900	Blackout (B/O) Marker Lamp Supply Voltage

Blackout (B/O) Marker Lamp (Front)

1391785

Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BR/WH	900	Blackout (B/O) Marker Lamps Supply Voltage

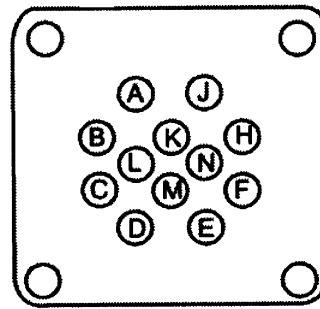
Blackout (B/O) Service Switch



1704989

Connector Part Information		<ul style="list-style-type: none"> • 08917695 • 6-Way F Series 58 (BK) 	
Pin	Wire Color	Circuit No.	Function
A	PK	911	Blackout (B/O) Drive Lamp Switch Signal
B	OG	40	Relay Block I/P Voltage
C	OG	912	Blackout (B/O) Control Signal Circuits
D	WH	913	Fuse Block Left I/P Voltage
E	WH	17	Stoplamp Switch Signal
F	D GN/WH	902	Blackout (B/O) Stoplamps Signal

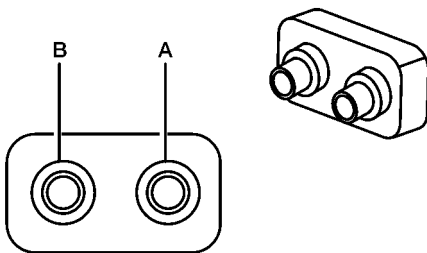
Trailer Lamp Connector



1465963

Connector Part Information		<ul style="list-style-type: none"> • 08917884 • 12-Way Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BR	900	Blackout (B/O) Marker Lamps
B	YE	18	Brake/Taillamp Supply Voltage
C	BN	900	Blackout (B/O) Control Circuits
D	BK	150	Service Stoplamps
E	BN	9	Stoplamp Switch Output
F	D GN	902	Blackout (B/O) Brakelamps
H	BN	900	Blackout (B/O) Brakelamp
J	D GN	19	Brake/Taillamp Supply Voltage
K-N	—	—	Not Used

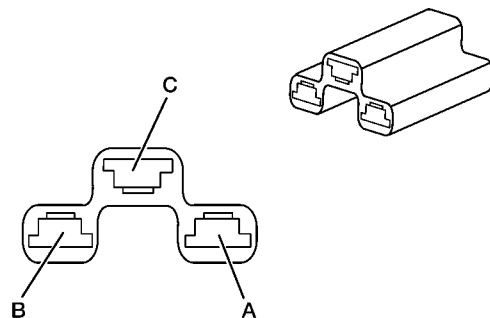
License Plate Lamp



1709553

Connector Part Information		<ul style="list-style-type: none"> • 12110053 • Lamp Socket Type W-2 Axial (L GY) 	
Pin	Wire Color	Circuit No.	Function
A	WH	19	Lamp Supply Voltage
B	BK	915	Ground

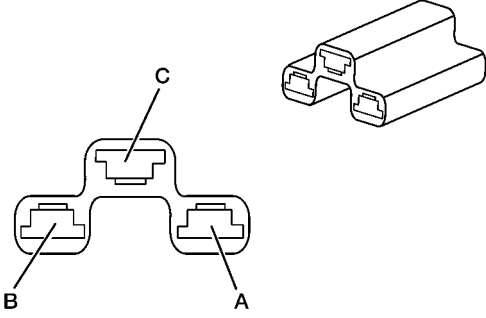
Topper Dome Lamp Switch Connector (Accessory Panel)



1704987

Connector Part Information		<ul style="list-style-type: none"> • 02965114 • 3-Way F 56 Series Unsealed (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BN	800	Switch to Switch Signal
B	BN/WH	803	Switch to Switch Signal
C	OG	912	Switch Supply Voltage

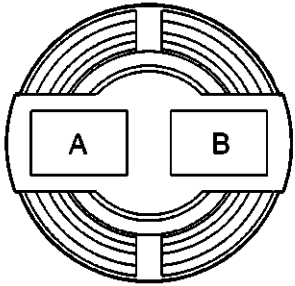
Topper Dome Lamp Switch Connector (Cargo Box)



1704987

Connector Part Information		<ul style="list-style-type: none"> • 02965114 • 3-Way F 56 Series Unsealed (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BN/WH	803	Switch to Switch Signal
B	BN	800	Switch to Switch Signal
C	—	—	Dome Lamp Supply Voltage

Voltmeter Gage Lamp



743312

Connector Part Information		<ul style="list-style-type: none"> • 12004264 • 2F LP SOC Hardshell (BK) 	
Pin	Wire Color	Circuit No.	Function
A	BN	9	Voltmeter Gage Supply Voltage
B	BK	150	Ground

Diagnostic Information and Procedures

Symptoms - Lighting Systems

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- *Blackout (B/O) Headlamp Inoperative*
- *Blackout (B/O) Headlamp Always On*
- *Headlamps Operate in Blackout (B/O) Mode*
- *Backup Lamps Inoperative*
- *Voltmeter Gage Lamp Inoperative*
- *Blackout (B/O) Marker Lamps Inoperative*
- *Blackout (B/O) Marker Lamps Always On*
- *DRL Operate in Blackout (B/O) Mode*
- *Backup Lamps Operate in Blackout (B/O) Mode*
- *Park Lamps Operate in Blackout (B/O) Mode*
- *CTSY Lamps Operate in Blackout (B/O) Mode*
- *Turn Signals Operate in Blackout (B/O) Mode*
- *Hi Beam Headlamps Operate in Blackout (B/O) Mode*
- *Low Beam Headlamps Operate in Blackout (B/O) Mode*
- *Backup Alarm Always On*
- *Backup Alarm Inoperative*

Blackout (B/O) Headlamp Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Inspect condition of fuses. If fuse is open, locate and repair source of overload and replace fuse. Did you find and correct the condition?	Go to Step 20	Go to Step 3
3	1. Place blackout (B/O) service switch in blackout (B/O) mode. 2. Turn ON blackout (B/O) headlamp switch. 3. Connect a test lamp to circuit 901 (TN/WH) at connector C102M cavity A of the blackout (B/O) headlamp and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 7
4	1. Disconnect the blackout (B/O) lamp. 2. Connect a self-powered test lamp at circuit 151 (BK) and ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 5
5	Locate and repair open circuit 151 (BK) between blackout (B/O) headlamp and G100M. Did you complete the repair?	Go to Step 20	—
6	Replace blackout (B/O) headlamp bulb. Did you complete the replacement?	Go to Step 20	—
7	1. Place blackout (B/O) switch to ON position. 2. Connect a test lamp at circuit 901 (TN/WH) wire between blackout (B/O) drive relay cavity 85 and ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 9
8	Locate and repair open in circuit 901 (TN/WH) wire between blackout (B/O) lamp cavity A and blackout (B/O) drive relay cavity 85. Did you complete the repair?	Go to Step 20	—
9	Connect a test lamp at circuit 911 (PK) wire between blackout (B/O) drive relay cavity 87 and ground. Does the test lamp illuminate?	Go to Step 10	Go to Step 11
10	Connect test lamp at circuit 915 (WH) wire cavity 86 and cavity 87 of the blackout (B/O) drive relay. Does the test lamp illuminate?	Go to Step 13	Go to Step 15
11	Connect a test lamp from blackout (B/O) service switch cavity A circuit 911 (PK) and ground. Does the test lamp illuminate?	Go to Step 12	Go to Step 14
12	Locate and repair open in circuit 911 (PK) between blackout (B/O) service lamp switch and blackout (B/O) drive relay. Did you complete the repair?	Go to Step 20	—
13	Replace blackout (B/O) drive relay. Did you complete the replacement?	Go to Step 20	—
14	Connect a test lamp from the blackout (B/O) service switch at cavity B circuit 40 (OG) and ground. Does the test lamp illuminate?	Go to Step 19	Go to Step 18
15	1. Disconnect blackout (B/O) headlamp switch. 2. Connect a self-powered test lamp between blackout (B/O) headlamp switch cavity E circuit 150 (BLK) and ground. Does the test lamp illuminate?	Go to Step 16	Go to Step 17
16	Replace blackout (B/O) headlamp switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 20	—

Blackout (B/O) Headlamp Inoperative (cont'd)

Step	Action	Yes	No
17	Locate and repair open in circuit 150 (BLK) wire between blackout (B/O) headlamp switch and ground. Did you complete the repair?	Go to Step 20	—
18	Locate and repair open in circuit 40 (ORN) wire between connector C241 and blackout (B/O) service lamp switch cavity B. Did you complete the repair?	Go to Step 20	—
19	Replace blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 20	—
20	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Blackout (B/O) Headlamp Always On

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Place blackout (B/O) drive lamp switch in OFF mode. Connect a test lamp between blackout (B/O) drive lamp switch cavity B circuit 901 (TN/WH) to ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 4
3	Replace blackout (B/O) drive lamp switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 5	—
4	Repair short to power in circuit 901 (TN/WH) or inoperable blackout (B/O) control relay. Did you find and correct the condition?	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Headlamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	1. Place blackout (B/O) service switch into the blackout (B/O) mode. 2. Connect a test lamp from cavity 85 at the blackout (B/O) lighting drive relay and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 3
3	Replace blackout (B/O) drive relay. Did you complete the replacement?	Go to Step 5	—
4	Replace blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 5	—
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Blackout (B/O) Stoplamps Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Observe the stoplamps while pressing the brake pedal. Does the system operate normally?	Go to <i>Testing for Electrical Intermittents</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual	Go to Step 3
3	Inspect the fuse(s), check for damaged or corroded inline connectors, check for broken or partially broken wires inside insulation, and properly installed aftermarket equipment. Did you find the condition?	Go to Step 4	Go to Step 5
4	Make necessary repairs. Did you complete the repairs?	Go to Step 15	—
5	Are all the stoplamps inoperative?	Go to Step 6	Go to Step 8
6	1. Disconnect blackout (B/O) service lamp switch. 2. Connect test lamp between circuit 913 (WH) cavity D wire and ground. Does the test lamp illuminate?	Go to Step 10	Go to Step 7
7	Locate and repair the open or high resistance in circuit 913. Did you correct the condition?	Go to Step 15	—
8	Test the supply voltage circuit of the inoperative lamp for high resistance, an open, or a short to ground. Refer to <i>Circuit Testing</i> , and <i>Wiring Repairs</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to Step 15	Go to Step 9
9	Test the ground circuit of the inoperative lamp for high resistance, or an open. Refer to <i>Circuit Testing</i> , and <i>Wiring Repairs</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to Step 15	Go to Step 14
10	Using a fused jumper, connect cavity D to cavity F of the blackout (B/O) service lamp switch connector. Do the brake lamps illuminate?	Go to Step 11	Go to Step 12
11	Replace blackout (B/O) service lamp switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 15	—
12	Connect a test lamp between terminal A of the rear blackout (B/O) stoplamps and ground. Did the test lamp illuminate?	Go to Step 14	Go to Step 13
13	Locate and repair the open or high resistance in circuit 902. Did you correct the condition?	Go to Step 15	—
14	Replace the blackout (B/O) stoplamp(s). Refer to <i>Taillamp/Blackout (B/O) Lamp Replacement</i> . Did you complete the replacement?	Go to Step 15	—
15	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Introduction

Blackout (B/O) Marker Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Verify that the marker lamps are inoperative. Do the marker lamps operate normally?	Go to <i>Testing for Electrical Intermittents</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual	Go to Step 3
3	Are all marker lamps inoperative?	Go to Step 4	Go to Step 8
4	Inspect the fuse(s), check for corroded inline connectors, check for broken or partially broken wires inside insulation, and for properly installed aftermarket equipment. Did you find the condition?	Go to Step 5	Go to Step 6
5	Make necessary repairs. Did you complete the repairs?	Go to Step 14	—
6	1. Place blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity A circuit 911 (PK) wire at blackout (B/O) service switch and ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 14
7	Connect a test lamp between inline fuse cavity B circuit 911 (PK) wire and ground. Does the test lamp illuminate?	Go to Step 11	Go to Step 10
8	Test the supply circuit of the inoperative lamp for high resistance, or an open. Refer to <i>Circuit Testing</i> , and <i>Wiring Repairs</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to Step 18	Go to Step 9
9	Test the ground circuit of the inoperative lamp for high resistance, or an open. Refer to <i>Circuit Testing</i> , and <i>Wiring Repairs</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to Step 18	Go to Step 12
10	Locate and repair an open in circuit 911 (PK) wire between inline fuse B and blackout (B/O) service drive switch. Did you complete the repair?	Go to Step 18	—
11	Disconnect the blackout (B/O) marker lamp(s) and connect a test lamp between cavity A circuit 900 (BN/WH) front and circuit 900 (BN/WH) rear to ground. Does the test lamp illuminate?	Go to Step 12	Go to Step 13
12	Replace blackout (B/O) marker lamp(s) assembly. Did you complete the replacement?	Go to Step 18	—
13	Locate and repair an open in circuit 900 (BN/WH) front and circuit 900 (BN/WH) rear wire between inline fuse and blackout (B/O) marker lamp assembly. Did you complete the repair?	Go to Step 18	—
14	Connect a test lamp between the blackout (B/O) service switch to circuit 40 (OG) cavity B and ground. Does the test lamp illuminate?	Go to Step 15	Go to Step 16
15	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 18	—

Blackout (B/O) Marker Lamps Inoperative (cont'd)

Step	Action	Yes	No
16	Connect a test lamp at I/P relay block connector C8 cavity C circuit 40 (OG) wire and ground. Does the test lamp illuminate?	Go to Step 17	Go to <i>Electrical Center Identification Views</i> in <i>Wiring Systems</i>
17	Locate and repair open in circuit 40 (OG) wire between I/P relay block connector C8 cavity C and the blackout (B/O) service switch. Did you complete the repair?	Go to Step 18	—
18	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Diagnostic Information and Procedures**Voltmeter Gage Lamp Inoperative**

Step	Action	Yes	No
Schematic Reference: <i>Interior Lights Dimming Schematics</i> Connector Reference: <i>Lighting Systems Connector End Views</i>			
1	Did you perform the Diagnostic System Check – Vehicle?	Go to Step 2	Go to <i>Diagnostic System Check - Vehicle</i> in <i>Vehicle DTC Information</i> in <i>2005 C/K Truck Service Manual</i>
2	Connect a test lamp between cavity A of the voltmeter bulb and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 4
3	Connect a self-powered test lamp to cavity B and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
4	Locate and repair the open or high resistance in circuit 9. Did you complete the repair?	Go to Step 7	—
5	Replace the voltmeter gage bulb. Refer to <i>Voltmeter Gage Lamp Replacement</i> . Did you complete the replacement?	Go to Step 7	—
6	Locate and repair the open or high resistance in circuit 150. Did you complete the repair?	Go to Step 7	—
7	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Blackout (B/O) Marker Lamps Always On

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Verify that the marker lamps are always on. Do the marker lamps operate normally?	Go to <i>Testing for Electrical Intermittents</i> in <i>Wiring Systems</i> in 2005 C/K Truck Service Manual	Go to Step 3
3	1. Disconnect the blackout (B/O) service switch. 2. Connect a test lamp between circuit 911 (PK) cavity A wire and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 5
4	Repair a short to power in circuit 911 (PK) or circuit 900 (BN/WH) wire(s) between the blackout (B/O) service switch and blackout (B/O) marker lamps. Did you complete the repair?	Go to Step 6	—
5	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 6	—
6	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

DRL Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the DRL interrupt relay from the relay module. Are the DRLs illuminated?	Go to Step 8	Go to Step 7
7	Replace the DRL relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 592 (L GN/BK). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Backup Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to <i>Step 2</i>	Go to <i>Blackout (B/O) Lighting Circuit Operation</i>
2	Is only one backup lamp inoperative?	Go to <i>Step 3</i>	Go to <i>Step 4</i>
3	Test the backup lamp supply voltage circuit of the inoperative bulb for high resistance, an open, or a short to ground. Did you find and correct the condition?	Go to <i>Step 17</i>	Go to <i>Step 5</i>
4	1. Inspect the condition of the backup lamp fuses. 2. If the fuse is open, locate and repair the source of the overload and replace fuse.	Go to <i>Step 17</i>	Go to <i>Step 6</i>
5	Test the ground circuit of the inoperative bulb for high resistance or an open. Did you find and correct the condition?	Go to <i>Step 17</i>	Go to <i>Step 13</i>
6	Connect a test lamp between connector C1 cavity C of the junction block rear lamps and ground. Does the test lamp illuminate?	Go to <i>Step 7</i>	Go to <i>Step 9</i>
7	Connect a test lamp between connector C1 cavity E and ground. Does the test lamp illuminate?	Go to <i>Step 8</i>	Go to <i>Step 13</i>
8	Locate and repair the open or high resistance in the ground circuit. Did you complete the repair?	Go to <i>Step 17</i>	—
9	Connect a test lamp between cavity 30 of the interrupt relay and ground. Does the test lamp illuminate?	Go to <i>Step 10</i>	Go to <i>Step 11</i>
10	Locate and repair the open in circuit 24. Did you complete the repair?	Go to <i>Step 17</i>	—
11	Connect a test lamp between cavity 87 of the interrupt relay and ground. Does the test lamp illuminate?	Go to <i>Step 14</i>	Go to <i>Step 12</i>
12	Connect a test lamp between cavity F of the backup lamp switch and ground. Does the test lamp illuminate?	Go to <i>Step 15</i>	Go to <i>Step 16</i>
13	Replace the bulbs. Did you complete the replacement?	Go to <i>Step 17</i>	—
14	Replace the interrupt relay. Did you complete the replacement?	Go to <i>Step 17</i>	—
15	Locate and repair the open or high resistance in circuit 1524 or 24. Did you complete the repair?	Go to <i>Step 17</i>	—
16	Replace the backup lamp switch. Did you complete the replacement?	Go to <i>Step 17</i>	—
17	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <i>Step 2</i>

Backup Lamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the backup lamp interrupt relay from the relay module. Are the backup lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the backup interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 24 (GN/BK). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Park Lamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the park lamp interrupt relay from the relay module. Are the park lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the park lamp interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 1080 (WH). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

CTSY Lamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the CTSY 1 interrupt relay from the relay module. Are the CTSY lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the CTSY 1 interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 690 (GY/BK). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Turn Signals Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the turn signal interrupt relay. Are the turn signals operate?	Go to Step 8	Go to Step 7
7	Replace the turn signal interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 639 (PK). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Hi Beam Headlamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the backup lamp interrupt relay from the relay module. Are the backup lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the backup interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 1969 (BK/WH). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Low Beam Headlamps Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i> and <i>Interior Lights Schematics</i>			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Blackout (B/O) Lighting Circuit Operation
2	1. Place the blackout (B/O) service switch in blackout (B/O) mode. 2. Connect a test lamp at cavity C of the blackout (B/O) switch and ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 6
3	1. Disconnect the blackout (B/O) service switch connector from the switch. 2. Connect a test lamp at cavity C of the connector and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 4
4	Replace the blackout (B/O) service switch. Refer to <i>Blackout (B/O) Switch Replacement</i> . Did you complete the replacement?	Go to Step 9	—
5	Locate and repair the short to voltage on circuit 912 (OG). Did you complete the repair?	Go to Step 9	—
6	Remove the backup lamp interrupt relay from the realy module. Are the backup lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the backup interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 1970 (PK/WH). Did you complete the repair?	Go to Step 9	—
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Backup Alarm Always On

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i>			
1	Did you perform the Diagnostic System Check – Vehicle?	Go to <i>Step 2</i>	Go to <i>Diagnostic System Check - Vehicle</i> in Vehicle Controls System in 2005 C/K Truck Service Manual
2	1. Block the wheels and set the parking brake. 2. Turn ON the ignition, with the engine OFF. 3. Place the gear selector in and out of the reverse position. Does the backup alarm operate properly?	Go to <i>Testing for Intermittent Conditions and Poor Connections</i> in Wiring Systems in 2005 C/K Truck Service Manual	Go to <i>Step 3</i>
3	1. Turn OFF the ignition switch. 2. Disconnect the neutral start backup switch. 3. Turn ON the ignition, with the engine OFF. Is the backup alarm on?	Go to <i>Step 5</i>	Go to <i>Step 4</i>
4	Inspect for poor connections at the harness connector of the backup lamp switch. Refer to <i>Testing for Intermittent Conditions and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to <i>Step 7</i>	Go to <i>Step 6</i>
5	Repair the short to voltage in the backup lamp supply voltage circuit. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems in 2005 C/K Truck Service Manual. Did you complete the repair?	Go to <i>Step 7</i>	—
6	Replace the backup lamp switch. Refer to <i>Park/Neutral Position Switch Replacement</i> in Automatic Transmission - Allison in 2005 C/K Truck Service Manual. Did you complete the replacement?	Go to <i>Step 7</i>	—
7	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <i>Step 3</i>

Backup Alarm Inoperative

Step	Action	Yes	No
Schematic Reference: <i>Exterior Lights Schematics</i>			
1	Did you perform the Diagnostic System Check – Vehicle?	Go to <i>Step 2</i>	Go to <i>Diagnostic System Check - Vehicle</i> in Vehicle Controls System in 2005 C/K Truck Service Manual
2	1. Block the wheels and set the parking brake. 2. Turn ON the ignition, with the engine OFF. 3. Place the gear selector in and out of the reverse position. Does the backup alarm operate properly?	Go to <i>Testing for Intermittent Conditions and Poor Connections</i> in Wiring Systems in 2005 C/K Truck Service Manual	Go to <i>Step 3</i>
3	Do the backup lamps operate properly?	Go to <i>Step 4</i>	Go to <i>Backup Lamps Inoperative</i>
4	Inspect for poor connections at the harness connector of the backup lamp switch. Refer to <i>Testing for Intermittent Conditions and Poor Connections</i> and <i>Connector Repairs</i> in Wiring Systems in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to <i>Step 8</i>	Go to <i>Step 5</i>
5	Test the backup alarm supply voltage circuit for a high resistance or an open. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to <i>Step 8</i>	Go to <i>Step 6</i>
6	Test the backup alarm circuit for a high resistance or an open. Refer to <i>Circuit Testing</i> and <i>Wiring Repairs</i> in Wiring Systems in 2005 C/K Truck Service Manual. Did you find and correct the condition?	Go to <i>Step 8</i>	Go to <i>Step 7</i>
7	Replace the backup alarm. Refer to <i>Backup Alarm Replacement</i> . Did you complete the replacement?	Go to <i>Step 8</i>	—
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <i>Step 2</i>

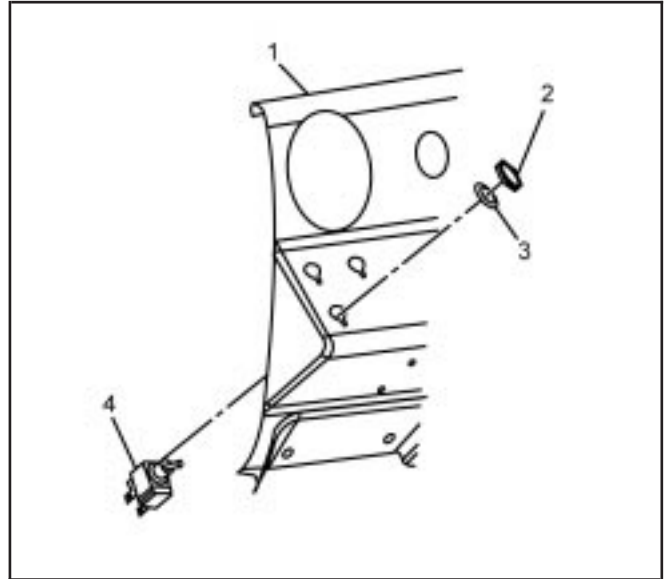
Repair Instructions

Topper Dome Lamp Switch Replacement - Front

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Caution and Notices*.

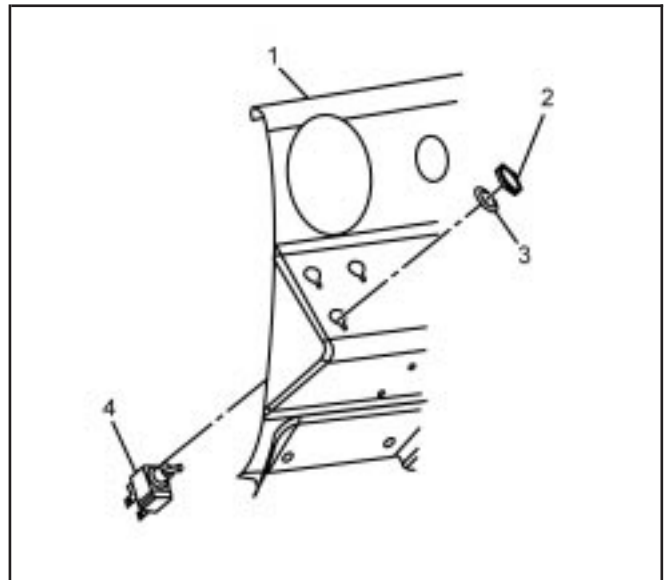
1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.
3. Remove the nut (2) and washer (3) from the switch.
4. Remove the switch (4) from the panel (1).



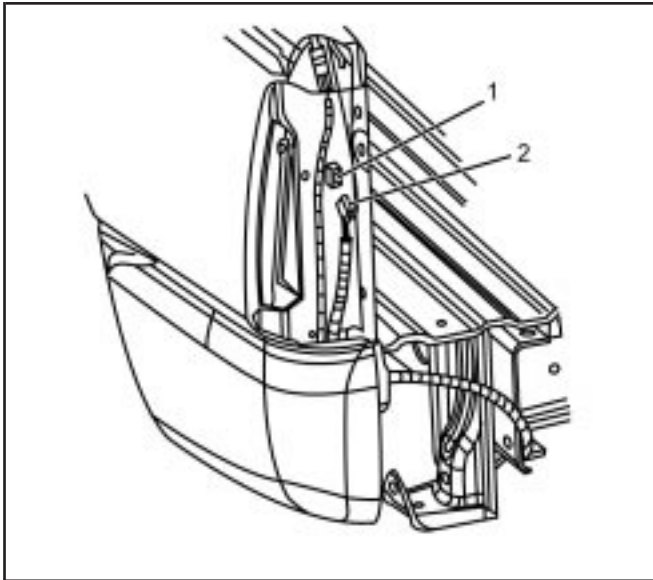
1693483

Installation Procedure

1. Install the switch (4) into the panel (1).
2. Install the washer (3) and nut (2), and tighten.
3. Install the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.
4. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



1693483

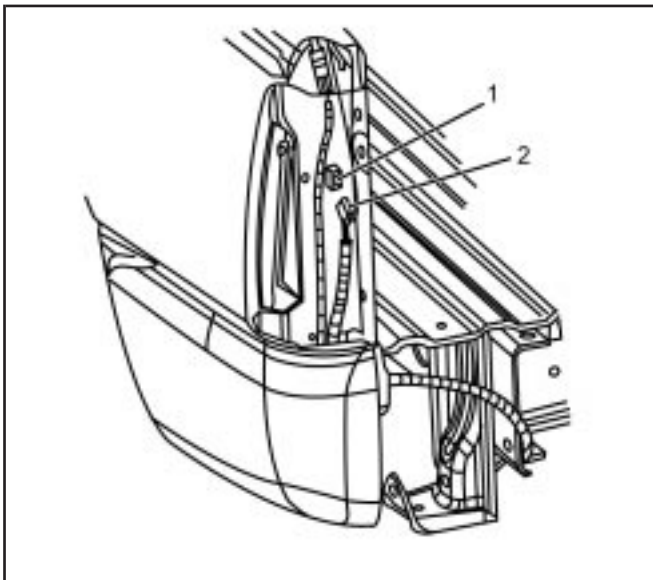


1693482

Topper Dome Lamp Switch Replacement - Rear

Removal Procedure

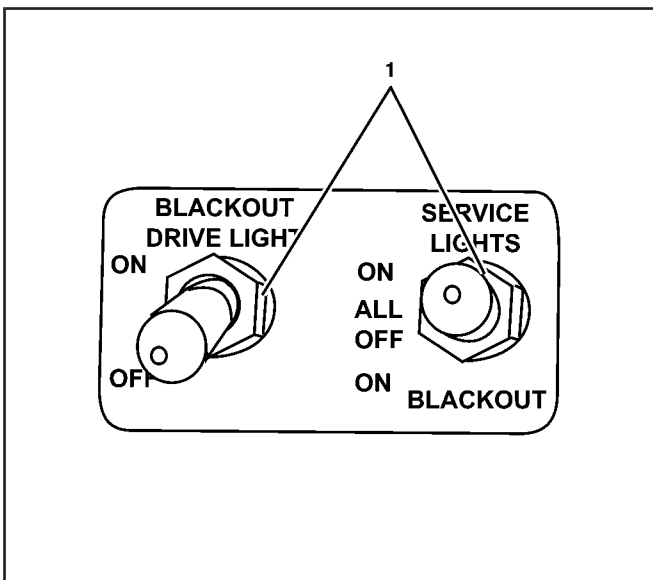
1. Remove the left rear tail/turn signal lamp. Refer to *Tail/Turn Signal Lamp Replacement (Except Stepside)* in Lighting Systems in 2005 C/K Truck Service Manual.
2. Remove the connector (2) from the switch.
3. From inside the cargo area remove the nut from the switch.
4. Remove the switch (1) from the vehicle.



1693482

Installation Procedure

1. Install the switch (1) into the vehicle.
2. From inside the cargo area install the nut onto the switch.
3. Install the connector (2) onto the switch.
4. Install the left rear tail/turn signal lamp. Refer to *Tail/Turn Signal Lamp Replacement (Except Stepside)* in Lighting Systems in 2005 C/K Truck Service Manual.



1693358

Blackout (B/O) Switch Replacement

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.
3. Remove the nuts (1) and washers holding the blackout (B/O) switches.
4. Remove the keyed washers from the accessory panel and pull the switches out.

Installation Procedure

1. Install the switches through the accessory panel.
2. Install the keyed washers on the switches.

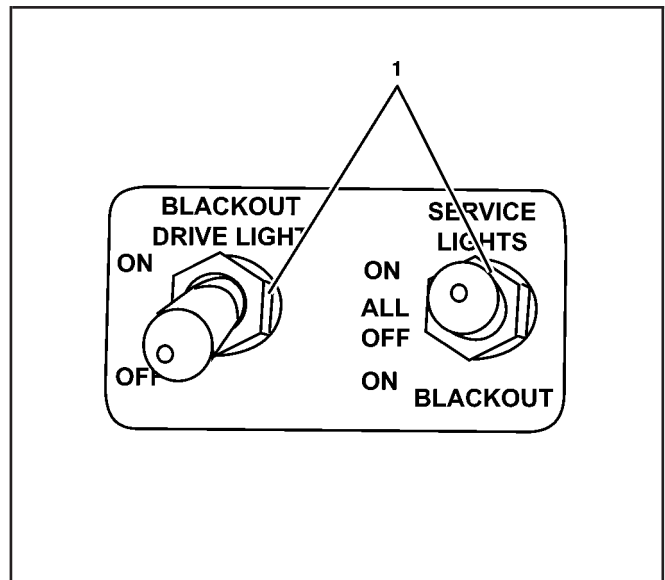
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the 2 washers and nuts (1) on the panel.

Tighten

Tighten the 2 nuts to 2.8 N·m (24 lb in).

4. Install the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.
5. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure*.



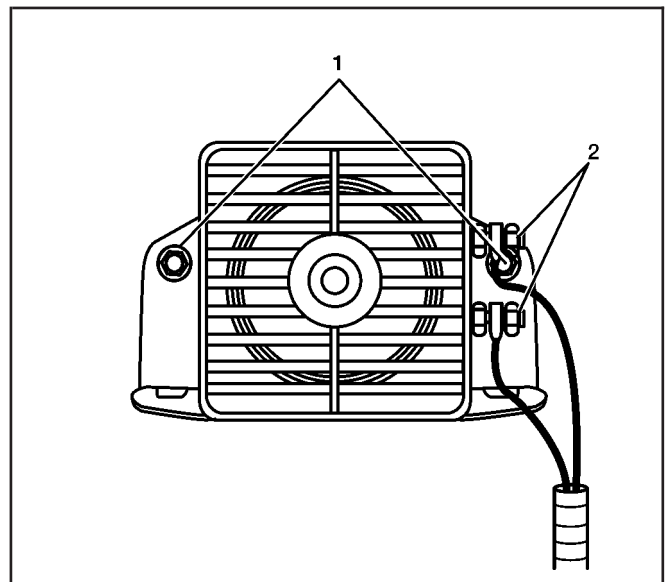
1693358

Backup Alarm Replacement

Removal Procedure

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

1. Raise the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information.
2. Remove the nuts (2) retaining the wiring to the alarm.
3. Remove the bolts (1) retaining the alarm to the vehicle.
4. Remove the alarm from the vehicle.



1706970

Installation Procedure

1. Install the alarm to the vehicle.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the bolts (1) retaining the alarm to the body.

Tighten

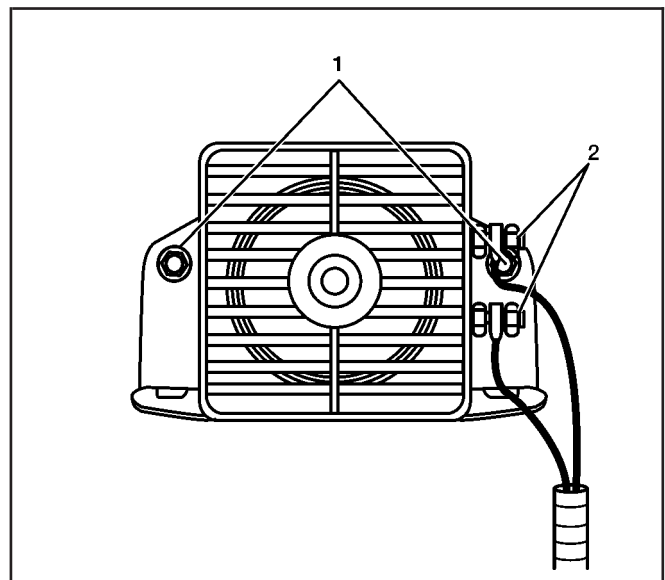
Tighten the alarm bolts to 0.8 N·m (7 lb in).

3. Install the wiring connectors and nuts (2).

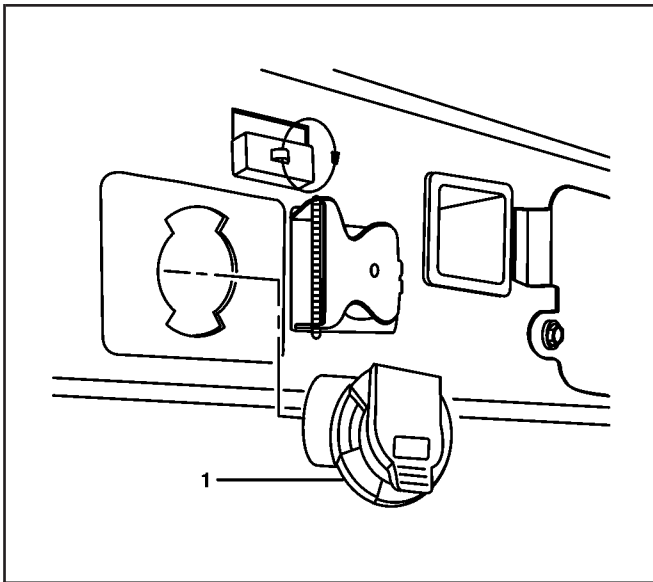
Tighten

Tighten the wiring harness nuts to 0.8 N·m (7 lb in).

4. Lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information.



1706970

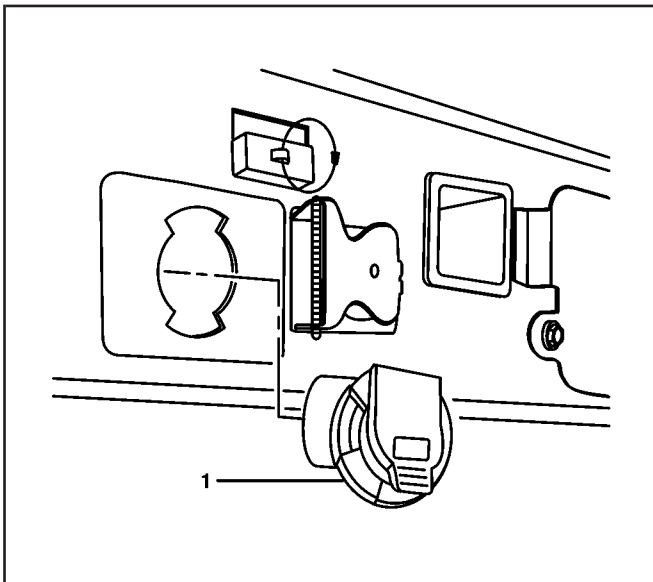


1707001

Commercial Trailer Connector Replacement (LSSV)

Removal Procedure

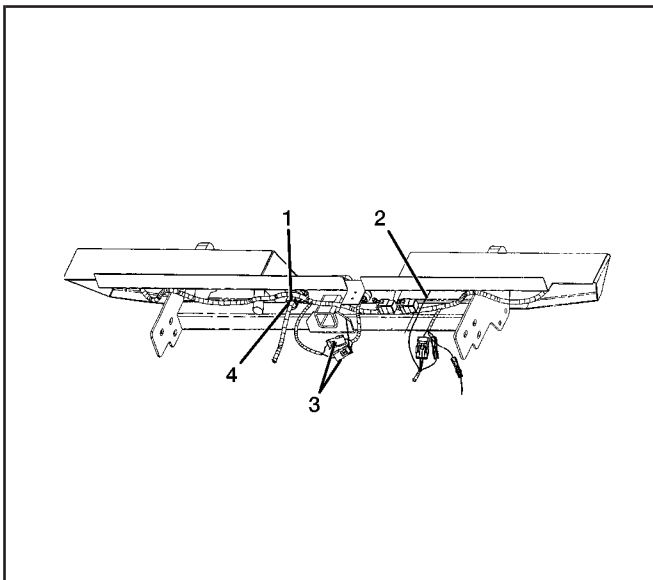
1. Ensure that all lamp switches are in the OFF position.
2. Disconnect the harness connector from the trailer connectors.
3. Release the lock table, turn the trailer connector (1) and pull out from the bumper.



1707001

Installation Procedure

1. Install the trailer connector (1) into the opening in bumper.
2. Turn the connector until lock tabs engage.
3. Connect the harness connector into the trailer lamp connector.



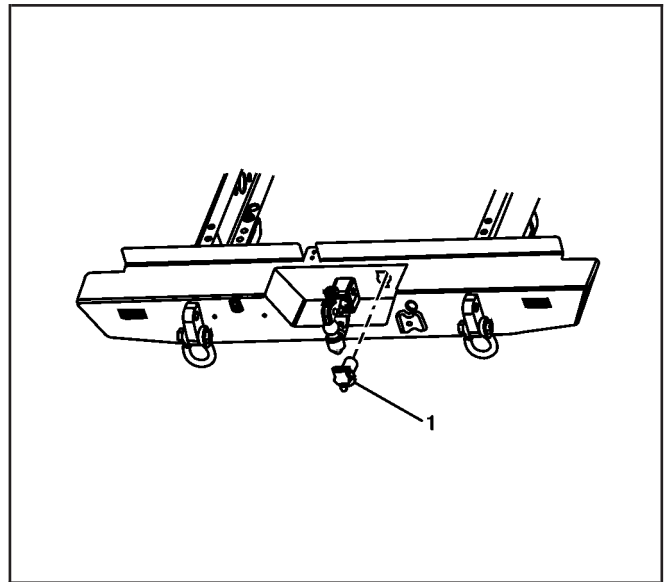
1706657

Commercial Trailer Connector Replacement (Maintenance Body)

Removal Procedure

1. Ensure that all lamp switches are in the OFF position.
2. Disconnect the harness connector (4) from the trailer connectors (1).

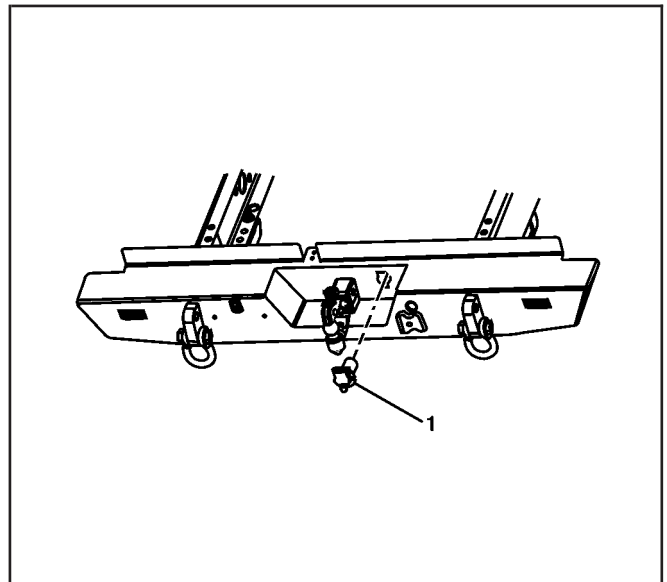
3. Release the lock table, turn the trailer connector (1) and pull out from the bumper.



1706658

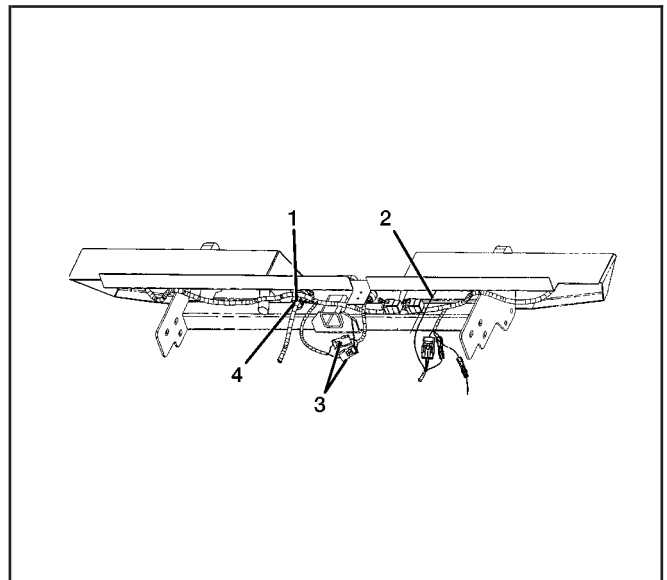
Installation Procedure

1. Install the trailer connector (1) into the opening in bumper.
2. Turn the connector until lock tabs engage.

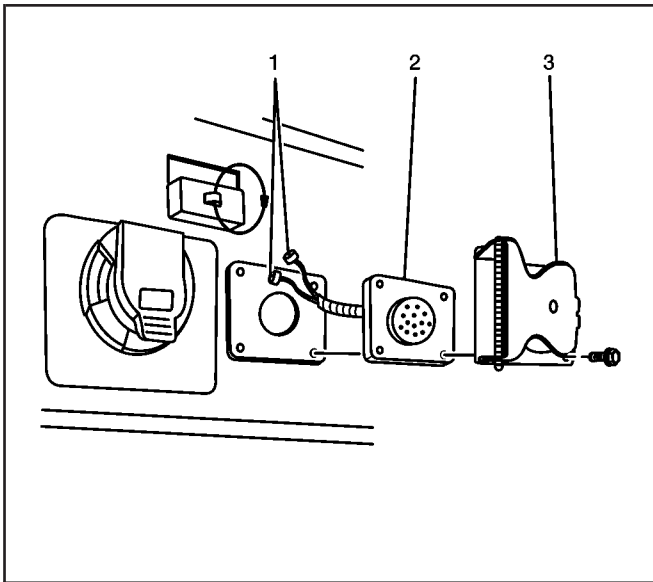


1706658

3. Connect the harness connector (4) into the trailer lamp connector (1).



1706657

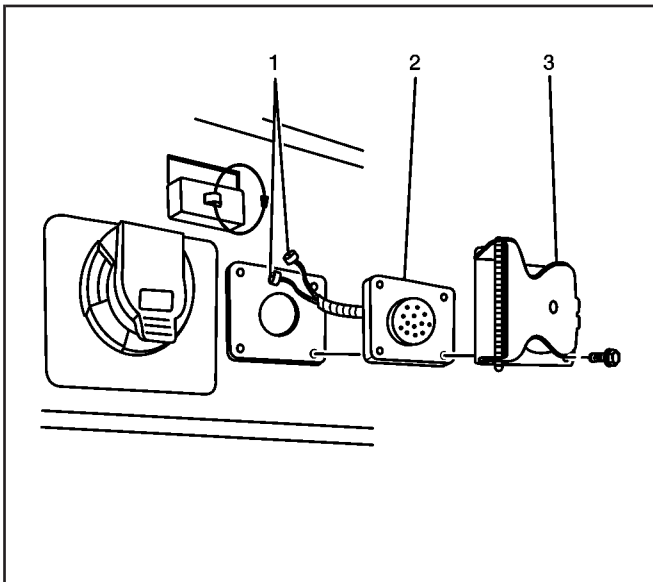


1707000

Military Trailer Connector Replacement (LSSV)

Removal Procedure

1. Ensure that all lamp switches are in the OFF position.
2. Disconnect the trailer harness connectors (1).
3. Remove the fasteners securing the connector to the bumper.
4. Remove the cover (3) and trailer connector (2).



1707000

Installation Procedure

Important: The cover hinge must be installed at the 9 O'clock position.

1. Install the trailer connector (2) and cover (3) onto the bumper.

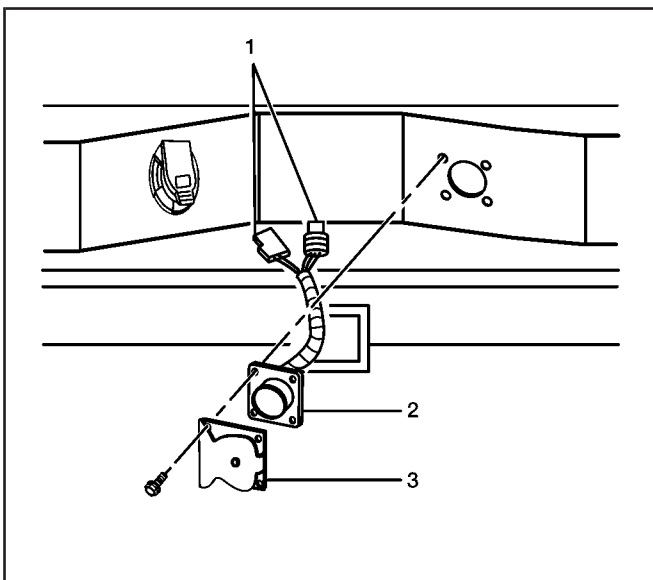
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the fasteners to secure the cover and connector to the bumper.

Tighten

Tighten the connector bolts to 5 N·m (44 lb in).

3. Connect the harness connectors (1).



1706995

Military Trailer Connector Replacement (Maintenance Body)

Removal Procedure

1. Ensure that all lamp switches are in the OFF position.
2. Disconnect the trailer harness connectors (1).
3. Remove the fasteners securing the connector to the bumper.
4. Remove the cover (3) and trailer connector (2).

Installation Procedure

Important: The cover hinge must be installed at the 9 O'clock position.

1. Install the trailer connector (2) and cover (3) onto the bumper.

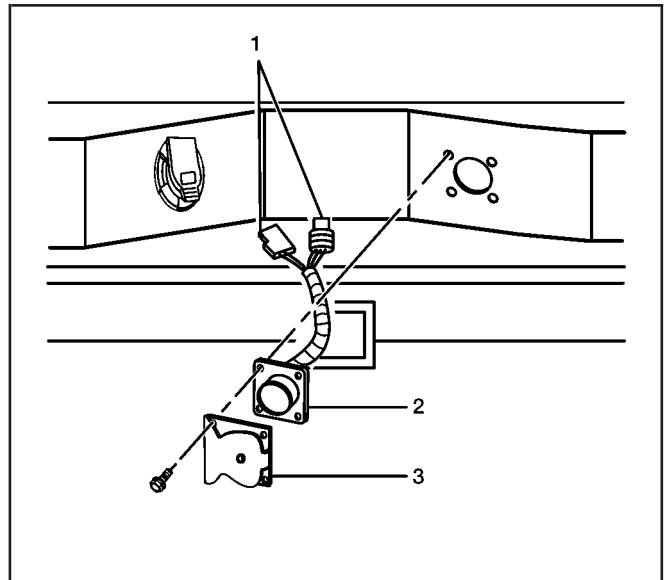
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the fasteners to secure the cover and connector to the bumper.

Tighten

Tighten the connector bolts to 5 N·m (44 lb in).

3. Connect the harness connectors (1).

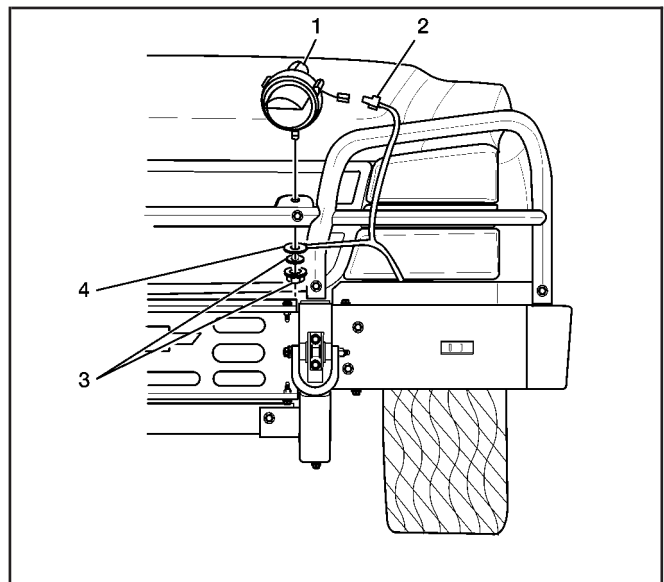


1706995

Headlamp Replacement - Blackout (B/O) (LSSV)

Removal Procedure

1. Remove the nut and washer (3) from the lamp stud at the base of the mounting bracket.
2. Remove the ground lead (4) by sliding it off the stud.
3. Disconnect the auxiliary wiring harness connector (2) from the headlamp.
4. Remove the blackout (B/O) lamp assembly (1) from the mounting bracket.



1692745

Installation Procedure

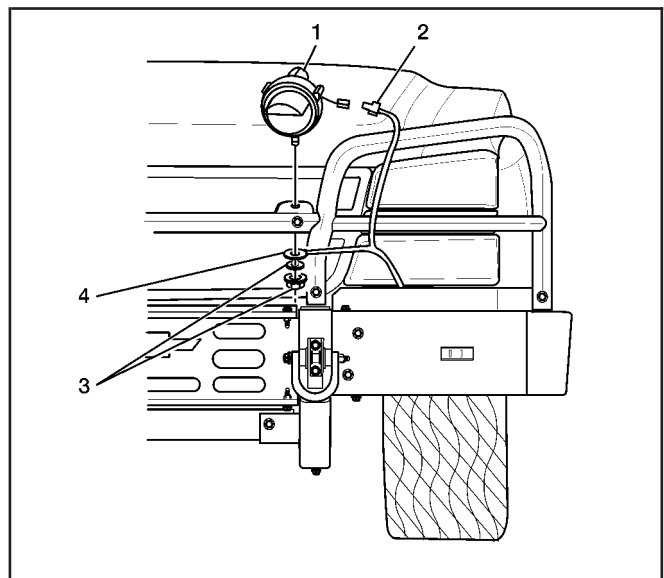
1. Install the blackout (B/O) lamp assembly (1) to the mounting bracket.
2. Connect the auxiliary wiring harness connector (2).
3. Install the ground lead (4) by sliding it on the stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

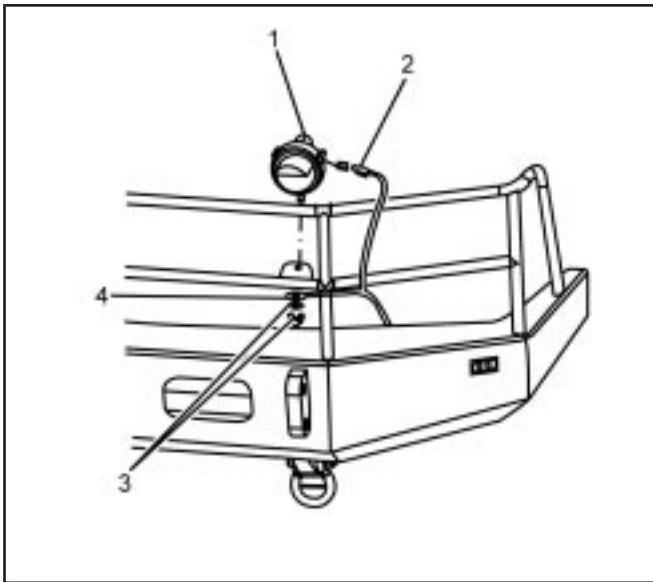
4. Install the washer and nut (3) to the lamp stud.

Tighten

Tighten the nut to 10 N·m (89 lb in).



1692745

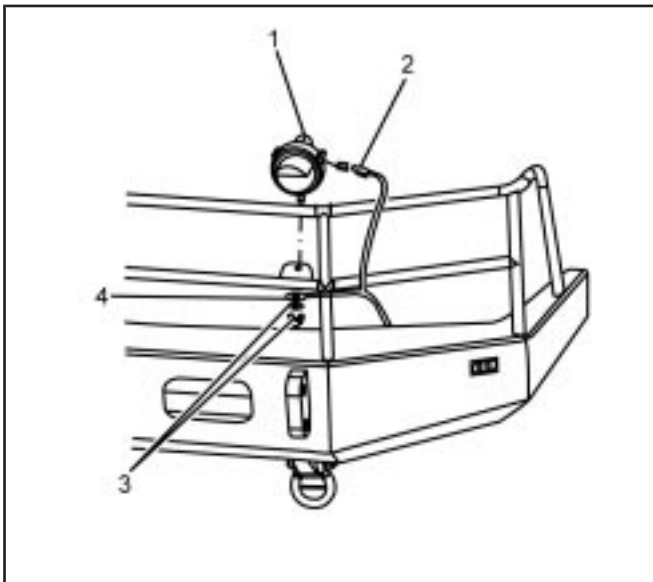


1693484

Headlamp Replacement - Blackout (B/O) (Ambulance/Maintenance Body)

Removal Procedure

1. Remove the nut and washer (3) from the lamp stud at the base of the mounting bracket.
2. Remove the ground lead (4) by sliding it off the stud.
3. Disconnect the auxiliary wiring harness connector (2) from the headlamp.
4. Remove the blackout (B/O) lamp assembly (1) from the mounting bracket.



1693484

Installation Procedure

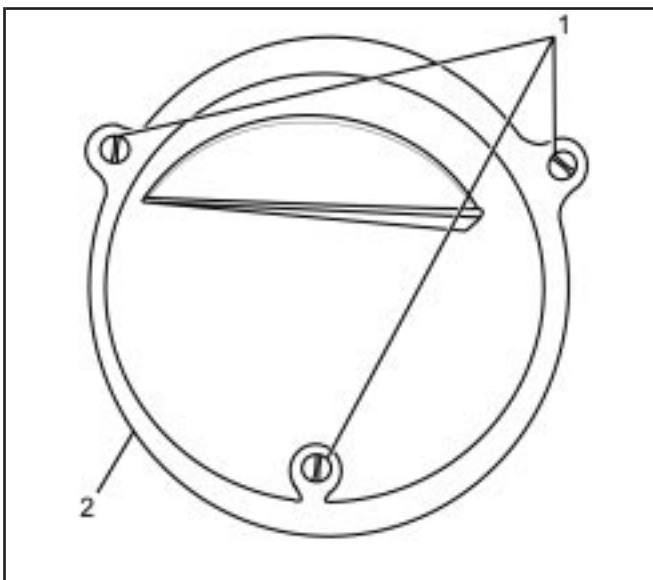
1. Install the blackout (B/O) lamp assembly (1) to the mounting bracket.
2. Connect the auxiliary wiring harness connector (2).
3. Install the ground lead (4) by sliding it on the stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

4. Install the washer and nut (3) to the lamp stud.

Tighten

Tighten the nut to 10 N·m (89 lb in).



1693473

Headlamp Bulb Replacement - Blackout (B/O)

Removal Procedure

1. Remove the screws (1) holding the lens cap to the assembly.
2. Remove the lens cap (2) and O-ring.
3. Remove the bulb from the lamp socket.

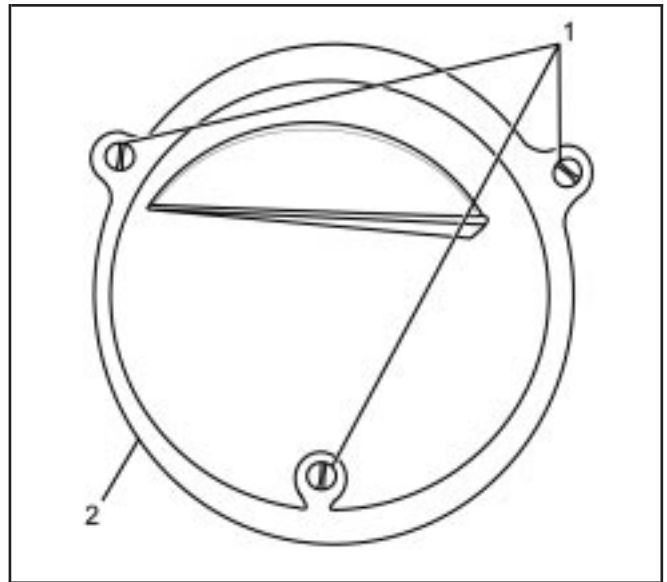
Installation Procedure

Important: Use a standard 1073 bulb for replacement.

1. Install the new bulb in the lamp socket.

Important: The O-ring installation must be a proper fit.

2. Install the O-ring with the lens cap (2).
3. Install the 3 screws (1) to the assembly.

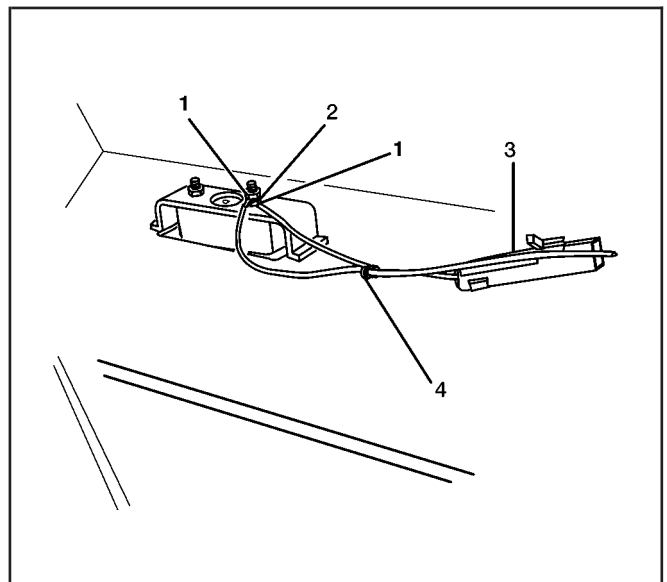


1693473

Marker Lamp Replacement - Front Blackout (B/O) (LSSV)

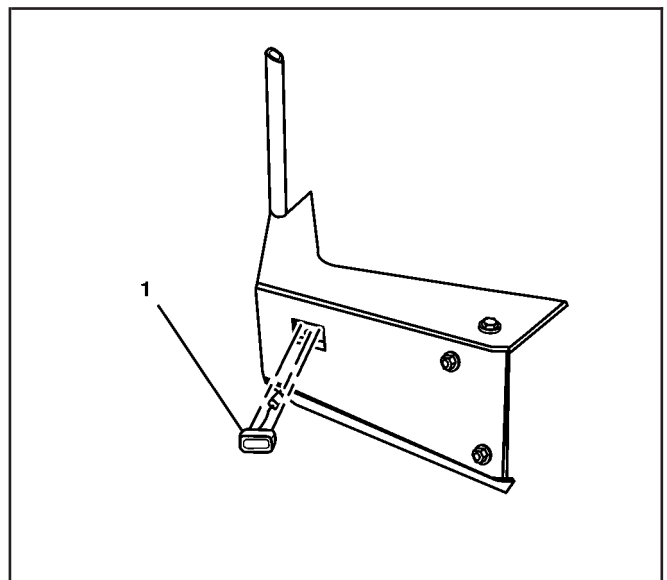
Removal Procedure

1. Ensure all lamp switches are in the OFF position.
2. Remove the wiring harness strap (4) from the marker lamp harness.
3. Remove the harness connector (3) by releasing the connector tab.
4. Remove the nuts (1) and the ground connector (2) from the marker lamp.

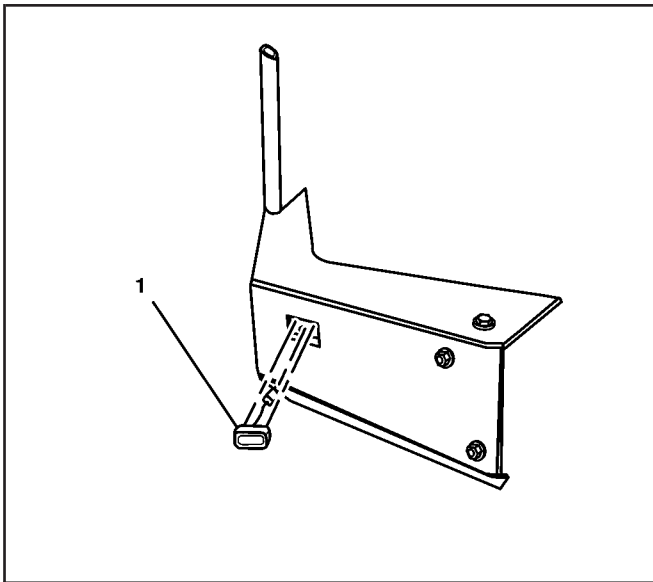


1693474

5. Remove the blackout (B/O) marker lamp assembly (1) from the bumper.



1692783



1692783

Installation Procedure

1. Install the marker lamp (1) into the front bumper opening.

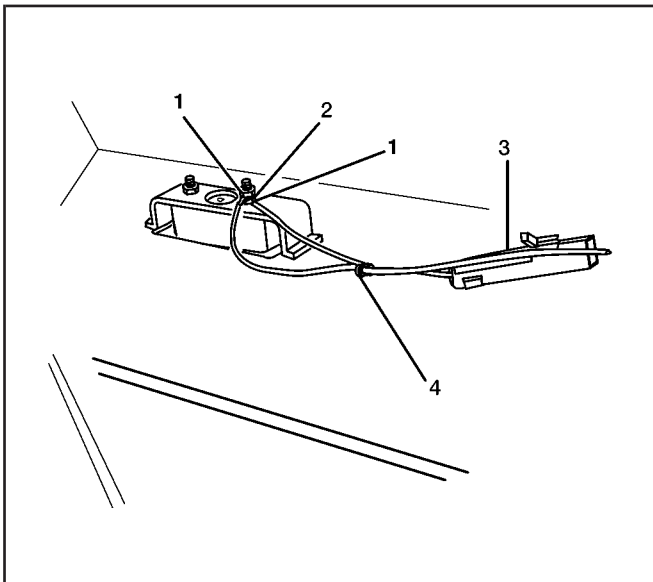
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts (1) and the ground connector (2) onto the marker lamp studs.

Tighten

Tighten the marker lamp nuts to 2 N·m (18 lb in).

3. Install the harness connector (3) to the marker lamp connector.
4. Secure the harness in the original mounting location using the wiring harness strap (4).

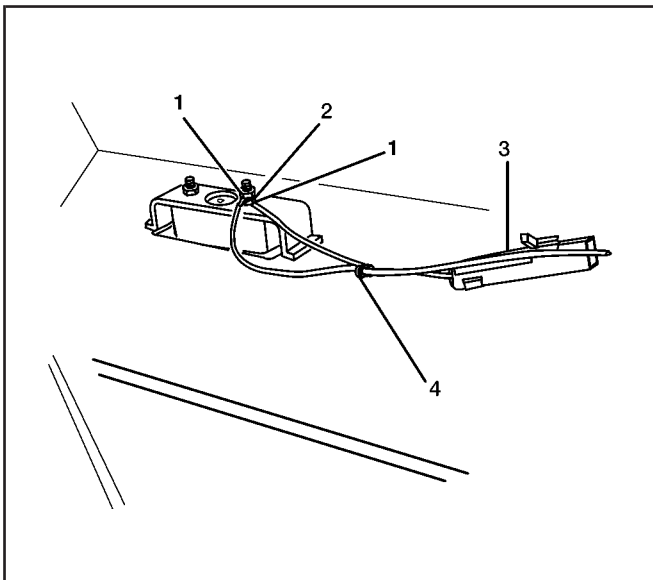


1693474

Marker Lamp Replacement - Front Blackout (B/O) (Ambulance/Maintenance Body)

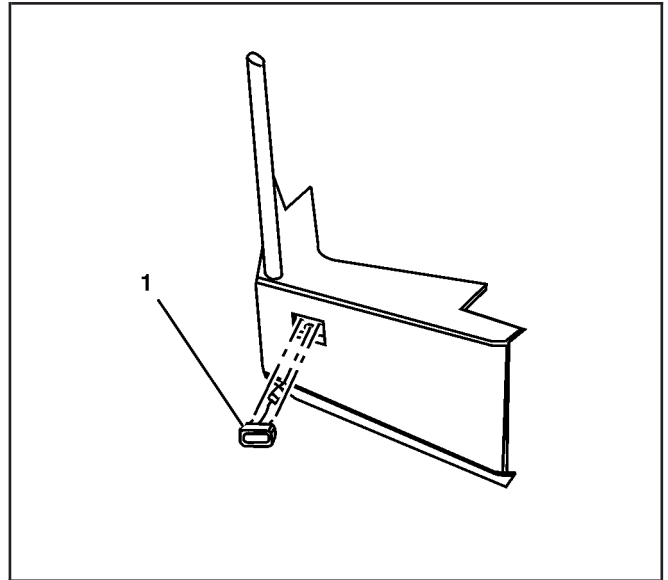
Removal Procedure

1. Ensure all lights are in the OFF position.
2. Remove the wiring harness strap (4) from the marker lamp harness.
3. Remove the harness connector (3) by releasing the connector tab.
4. Remove the nuts (1) and the ground connector (2) from the marker lamp.



1693474

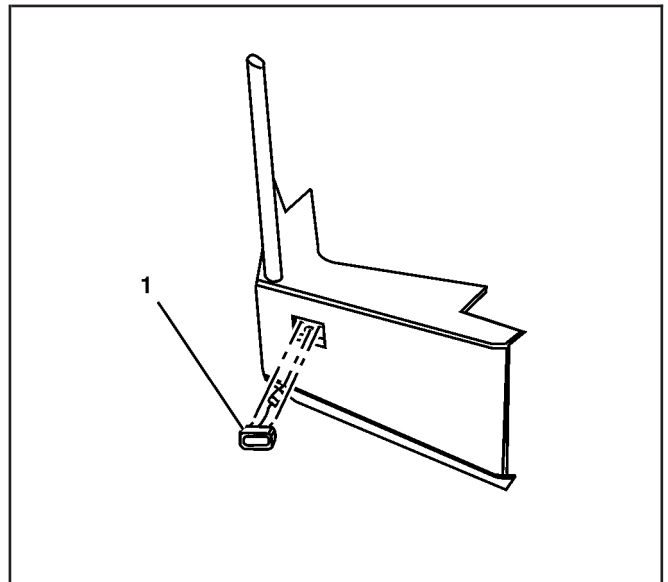
5. Remove the blackout (B/O) marker lamp assembly (1) from the bumper.



1707690

Installation Procedure

1. Install the marker lamp (1) into the front bumper opening.



1707690

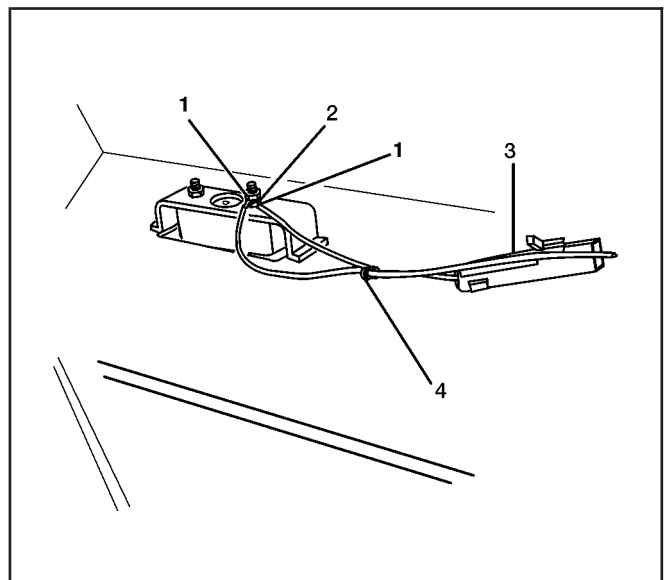
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts (1) and the ground connector (2) onto the marker lamp studs.

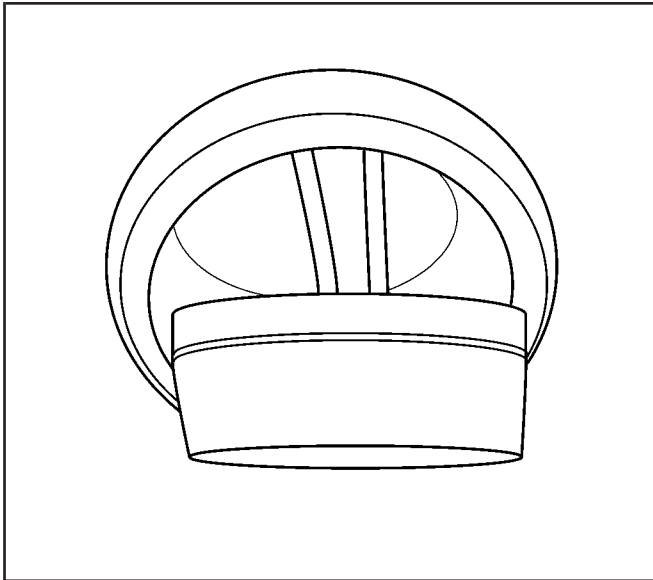
Tighten

Tighten marker lamp nuts to 2 N·m (18 lb in).

3. Install the harness connector (3) to the marker lamp connector.
4. Secure the harness in the original mounting location using the wiring harness strap (4).



1693474



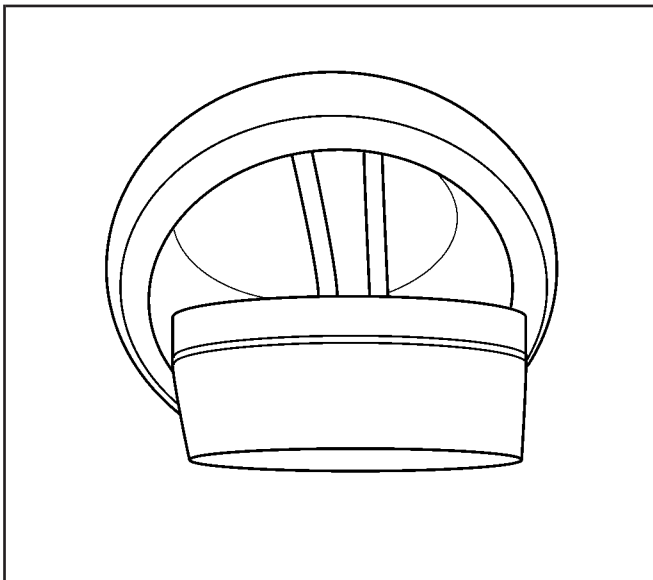
1693480

Rear Marker Lamp Replacement (Maintenance Body)

Removal Procedure

Important: The bulbs in the marker lamps are not replaceable and are serviced as an assembly.

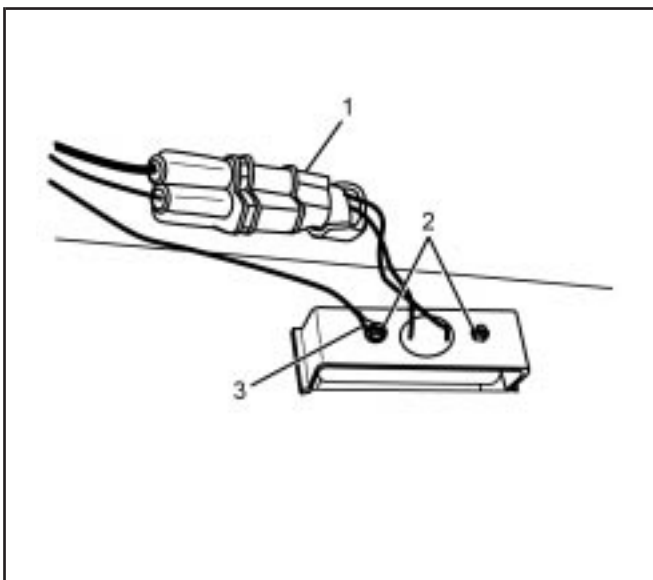
1. Ensure that the headlamp switch is in the OFF position.
2. Using your hands, peel the lens out of the rubber gasket.
3. Disconnect the wire harness from the back of the lens.



1693480

Installation Procedure

1. Connect the wire harness onto the lamp.
2. Install the lens into the rubber gasket.
3. Ensure that the lens is fully installed in the gasket.



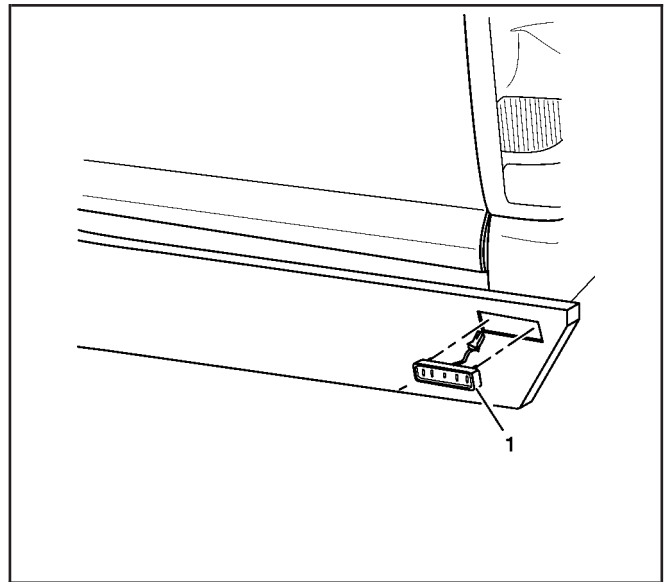
1693476

Blackout (B/O) Taillamp Replacement (LSSV)

Removal Procedure

1. Ensure all lamp switches are in the OFF position.
2. Remove the wiring harness strap from the marker lamp harness.
3. Disconnect the marker lamp harness connector (1) by releasing the tab.
4. Remove the nuts (2) and the ground connector (3) from the rear of the bumper.

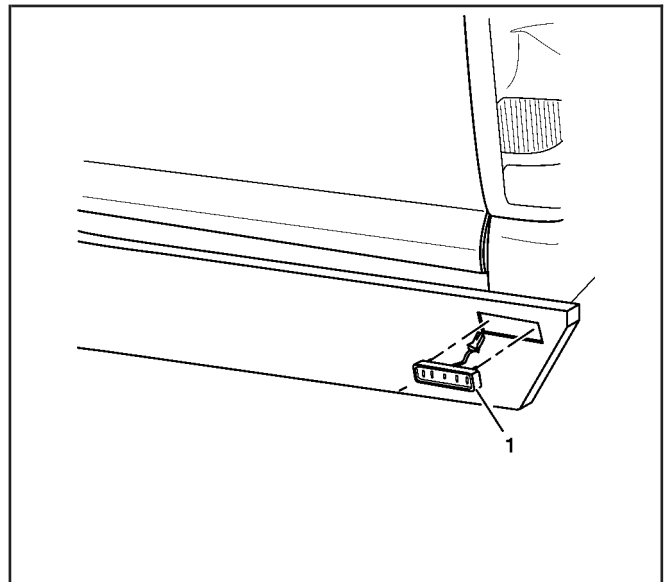
5. Remove the marker lamp (1) from the bumper.



1692787

Installation Procedure

1. Position the marker lamp (1) onto the bumper.



1692787

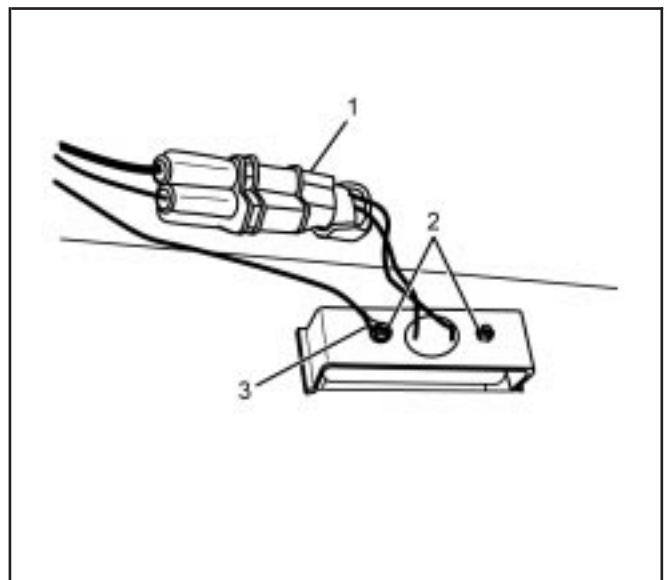
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts (2) and the ground connector (3) onto the mounting studs.

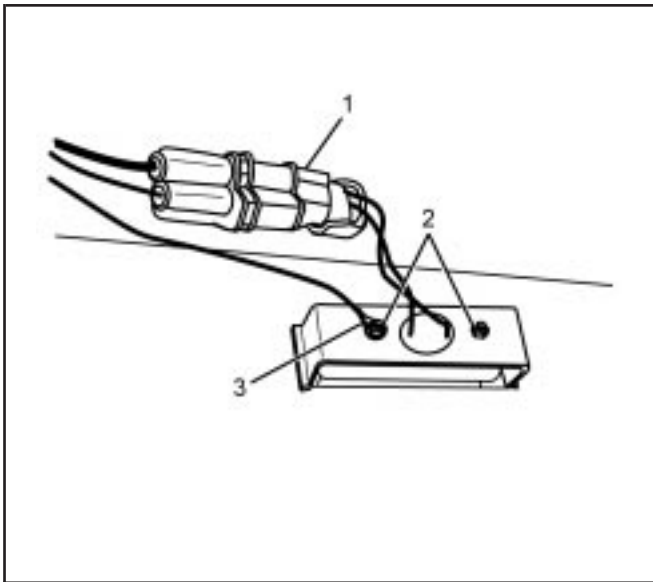
Tighten

Tighten the nuts to 2 N·m (18 lb in).

3. Connect the harness connector (1) to the marker lamp connector.
4. Install the harness into the original mounting location using the wiring harness strap.



1693476



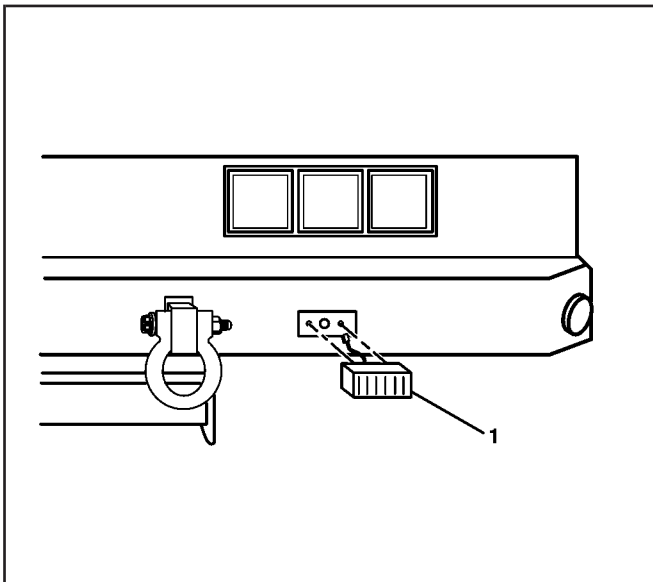
1693476

Blackout (B/O) Taillamp Replacement (Maintenance Body)

Removal Procedure

1. Ensure all lamp switches are in the OFF position.
2. Remove the wiring harness strap from the marker lamp harness
3. Disconnect the marker lamp harness connector (1) by releasing the tab.
4. Remove the nuts (2) and the ground connector (3) from the rear of the bumper.

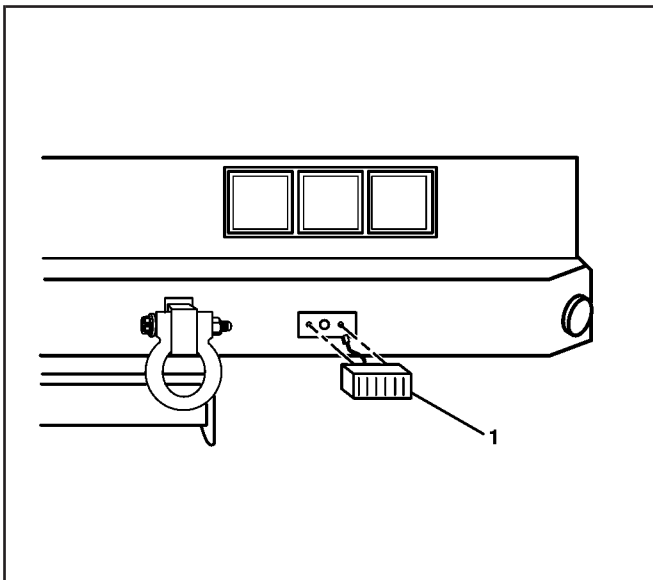
5. Remove the marker lamp (1) from the bumper.



1706998

Installation Procedure

1. Position the marker lamp (1) onto the bumper.



1706998

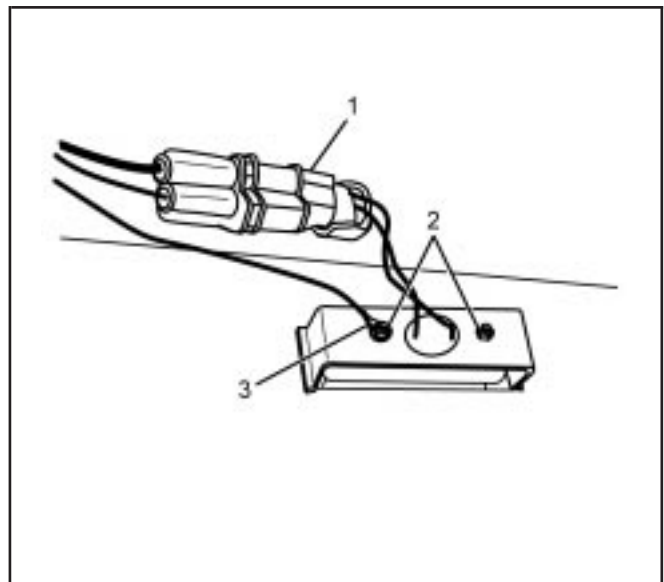
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts (2) and the ground connector (3) onto the mounting studs.

Tighten

Tighten the nuts to 2 N·m (18 lb in).

3. Connect the harness connector (1) to the marker lamp connector.
4. Install the harness into the original mounting location using the wiring harness strap.



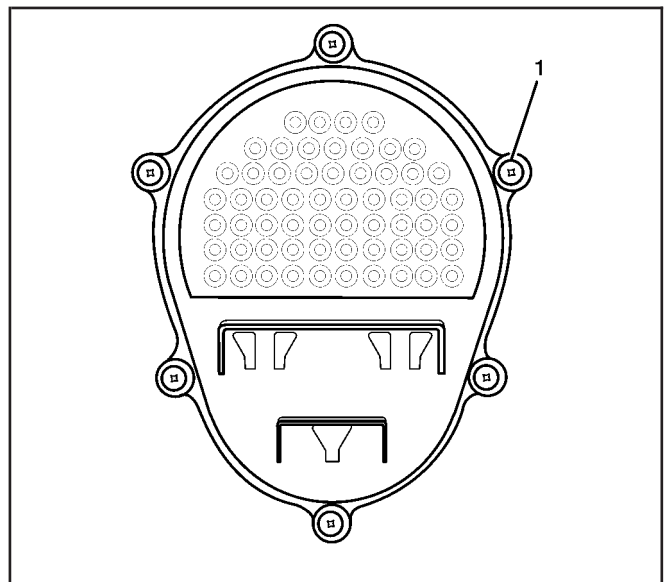
1693476

Taillamp/Blackout (B/O) Lamp Replacement

Removal Procedure

Important: The taillamp and blackout lamps are replaced as an assembly.

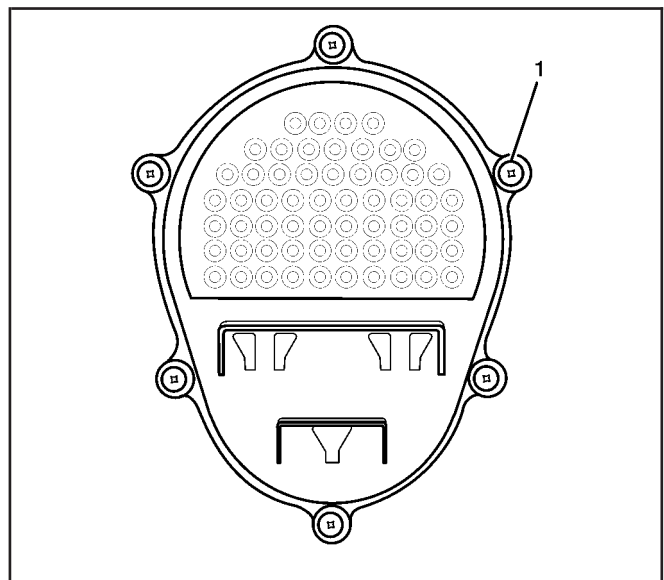
1. Ensure the headlamp switch is in the OFF position.
2. Remove the 6 screws (1) holding the lamp to the body.
3. Disconnect the electrical connector for the lamp harness.



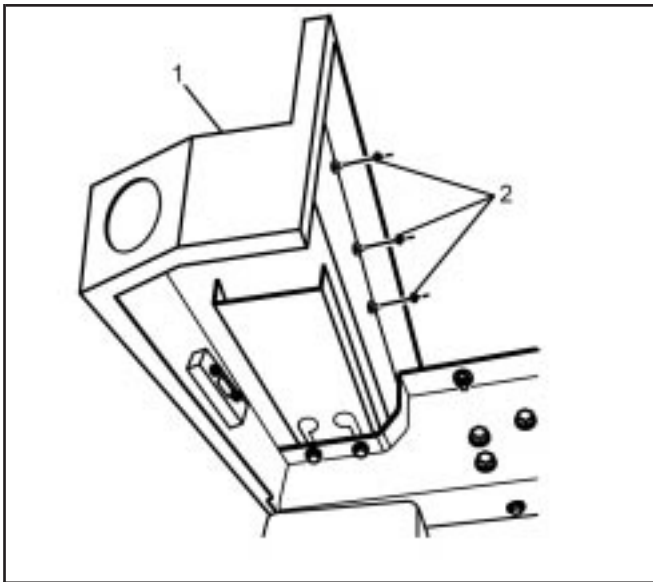
1692754

Installation Procedure

1. Connect the electrical connector for the lamp harness.
2. Install the lamp onto the body, lining up the holes with the body and rear lamp housing.
3. Install the 6 screws (1) to the assembly and tighten.



1692754

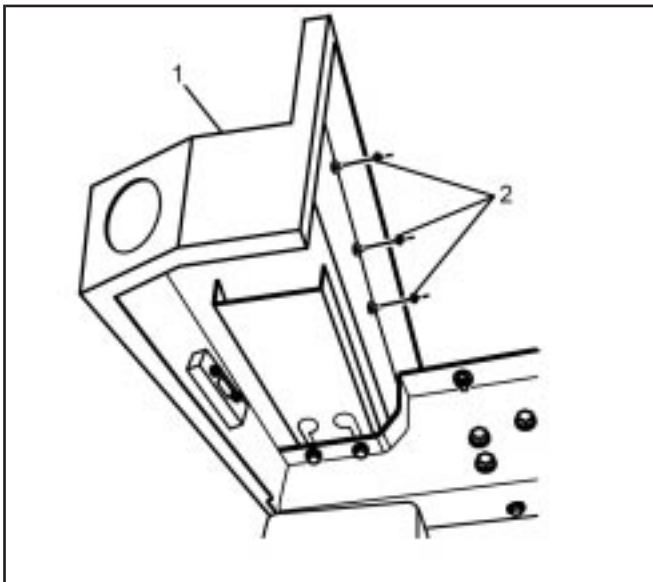


1693478

Taillamp Replacement (Maintenance Body)

Removal Procedure

1. Ensure that the headlamp switch is in the OFF position.
2. Remove the nuts (2) from the rear bumper (1).
3. Remove the lamp from the rear bumper.
4. Disconnect the lamp from the wiring harness.



1693478

Installation Procedure

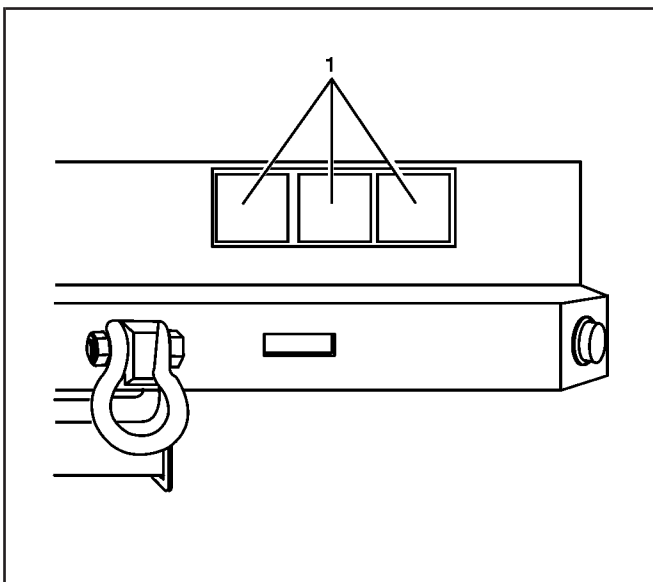
1. Install the wiring harness to the lamp.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the lamp onto the rear bumper (1) and install nuts (2).

Tighten

Tighten the nuts to 27 N·m (20 lb ft).



1693479

Taillamp Bulb Replacement (Maintenance Body)

Removal Procedure

1. Ensure that the headlamp switch is in the OFF position.
2. Using your hands, peel the rubber gasket away from the sides of the lens.
3. Lift the lens (1) off the lamp assembly.
4. Press down and turn the bulb counterclockwise and pull out of the socket.

Installation Procedure

Important: Use the following bulbs for replacement:

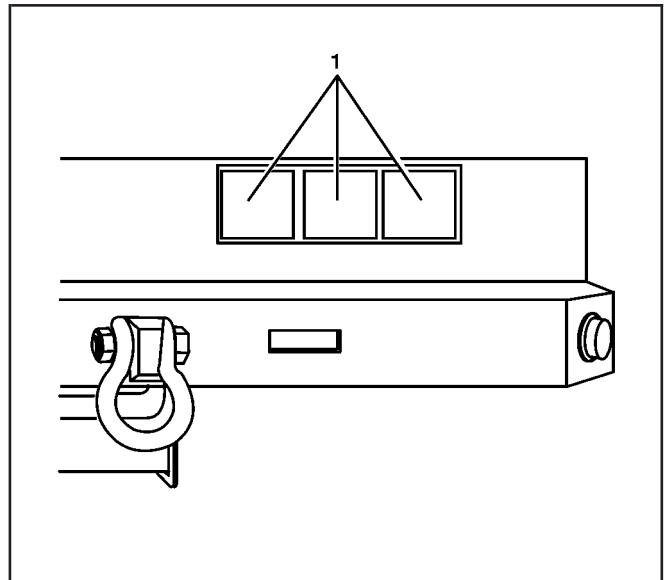
- Park/stoplamp 1157
- Turn signal 1156
- Backup lamp 1156

1. Install the bulb into the socket, press down and turn clockwise until fully seated.

Important: Ensure that the lens is fully installed in the gasket.

The word TOP on the lens (1) must be facing up.

2. Install the lens into the lens gasket.



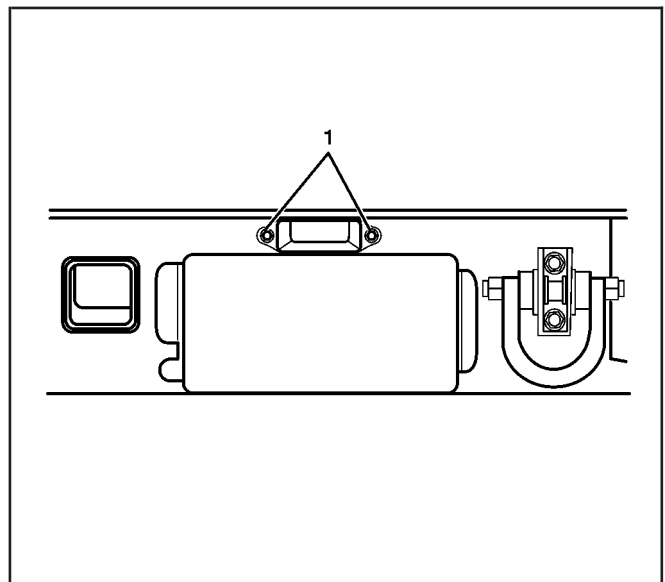
1693479

License Plate Lamp Replacement (LSSV)

Removal Procedure

Important: The bulb is not replaceable but is serviced as a lamp assembly.

1. Ensure the headlamp switch is in the OFF position.
2. Remove the bolts (1) from the lamp.
3. Disconnect the electrical connector.



1692749

Installation Procedure

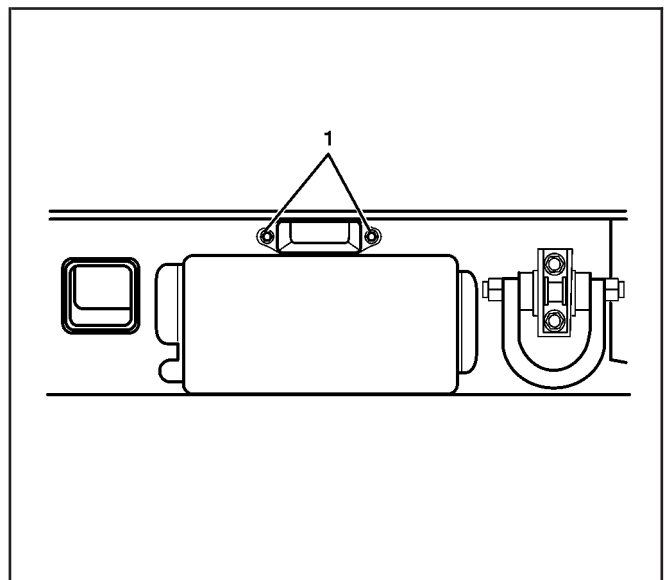
1. Connect the electrical connector.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

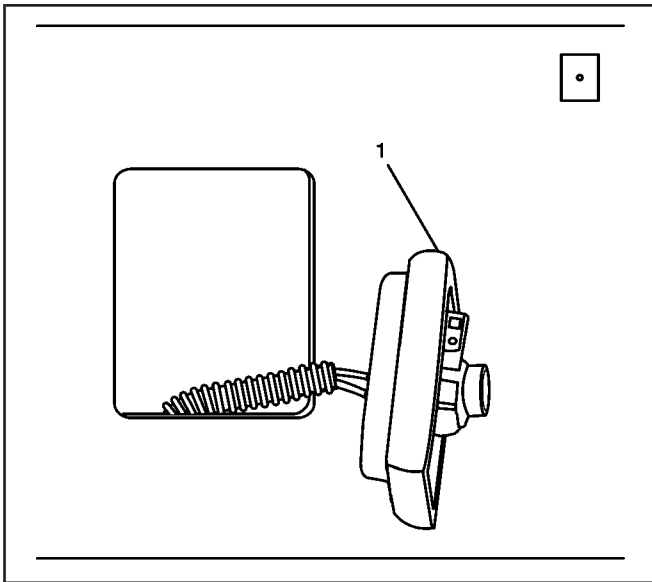
2. Install the lamp and bolts (1) onto the bumper.

Tighten

Tighten the lamp bolts to 0.8 N·m (7 lb in).



1692749

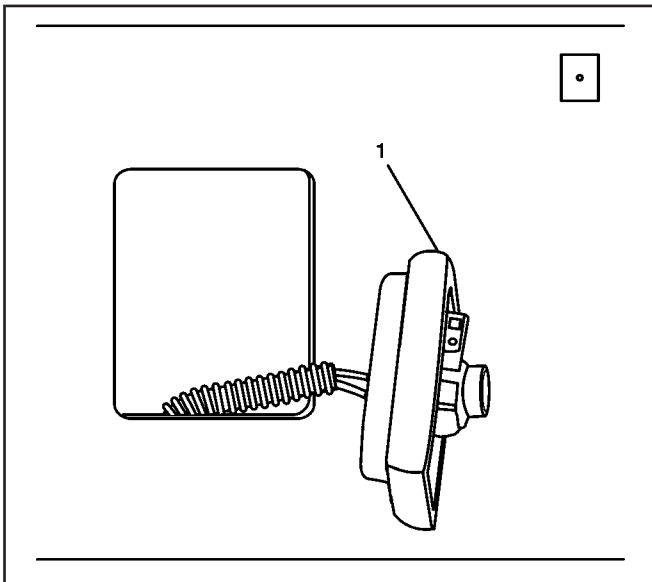


1692761

License Plate Lamp Replacement (Maintenance Body)

Removal Procedure

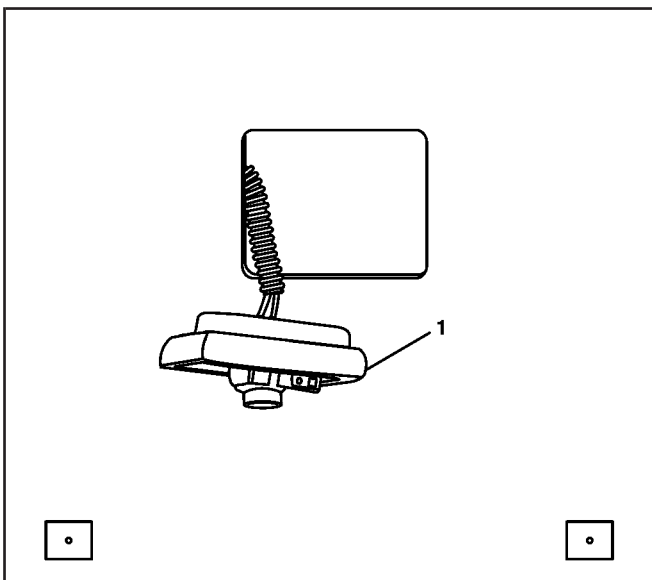
1. Ensure the headlamp switch is in the OFF position.
2. Remove the license plate lamp bulb. Refer to *License Plate Lamp Bulb Replacement (Ambulance Body)* or *License Plate Lamp Bulb Replacement (Maintenance Body)*.
3. Pull the rubber lamp housing (1) out of the opening in the bumper.
4. Disconnect the electrical connector.



1692761

Installation Procedure

1. Connect the electrical connector.
2. Install the lamp housing (1) into the opening in the bumper.
3. Install the license plate lamp bulb. Refer to *License Plate Lamp Bulb Replacement (Ambulance Body)* or *License Plate Lamp Bulb Replacement (Maintenance Body)*.



1692757

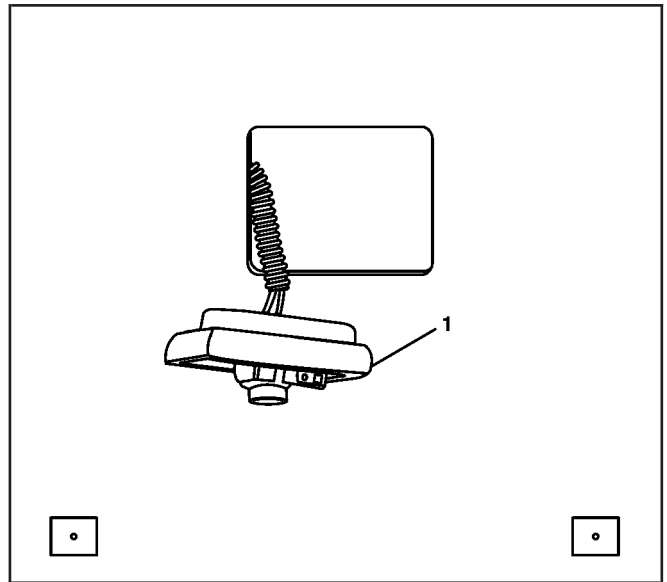
License Plate Lamp Replacement (Ambulance Body)

Removal Procedure

1. Ensure the headlamp switch is in the OFF position.
2. Remove the license plate lamp bulb. Refer to *License Plate Lamp Bulb Replacement (Ambulance Body)* or *License Plate Lamp Bulb Replacement (Maintenance Body)*.
3. Pull the rubber lamp housing (1) out of the opening in the bumper.
4. Disconnect the electrical connector.

Installation Procedure

1. Connect the electrical connector.
2. Install the lamp housing (1) into the opening in the bumper.
3. Install the license plate lamp bulb. Refer to *License Plate Lamp Bulb Replacement (Ambulance Body)* or *License Plate Lamp Bulb Replacement (Maintenance Body)*.

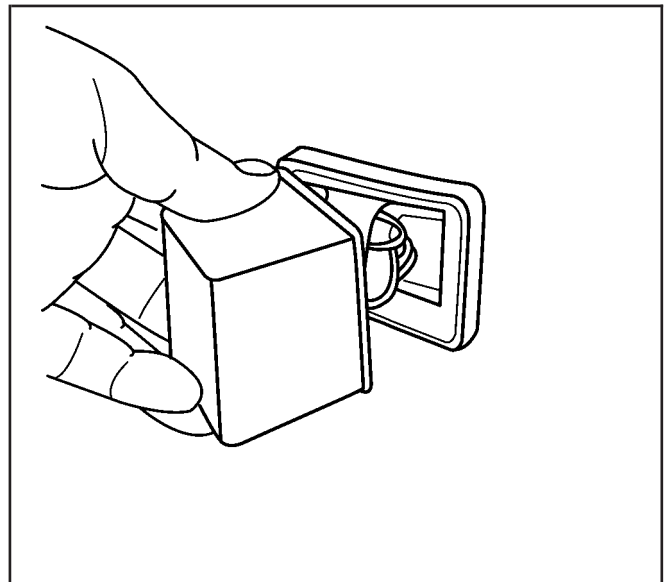


1692757

License Plate Lamp Bulb Replacement (Ambulance Body)

Removal Procedure

1. Ensure the headlamp switch is in the OFF position.
2. Remove the lens assembly by pull it free of the rubber housing.
3. Remove the bulb from the bulb socket.



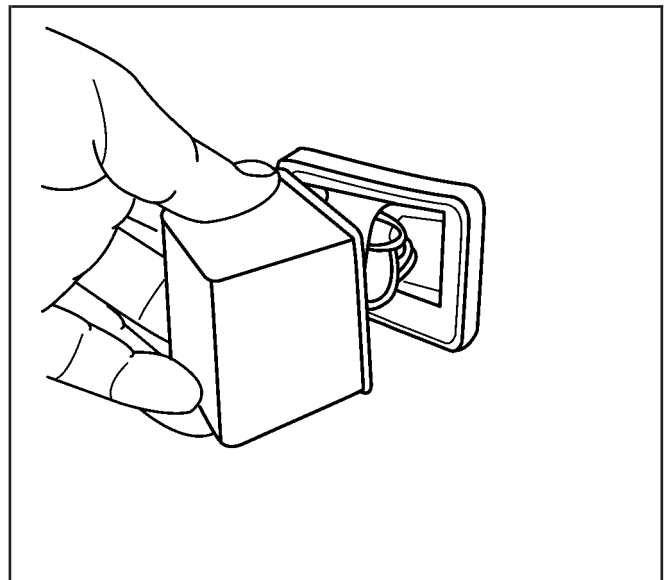
1692752

Installation Procedure

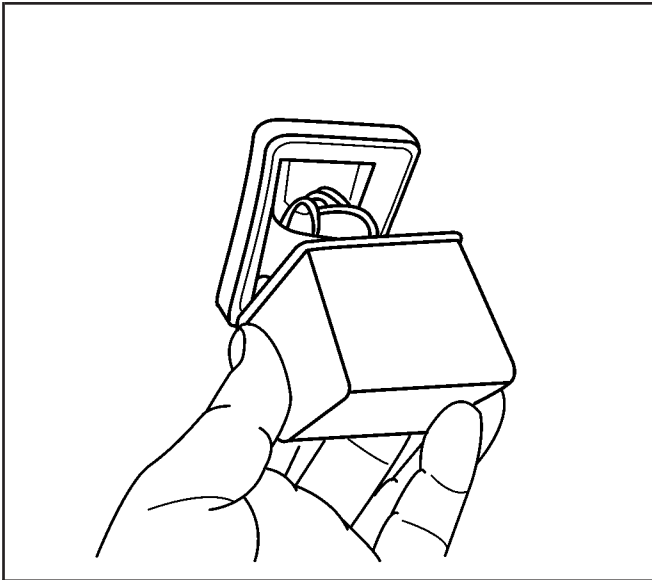
1. Install the bulb into the bulb socket.

Important: Ensure that the housing seal is fully around the lens.

2. Push the lens into the rubber housing until fully seated.



1692752

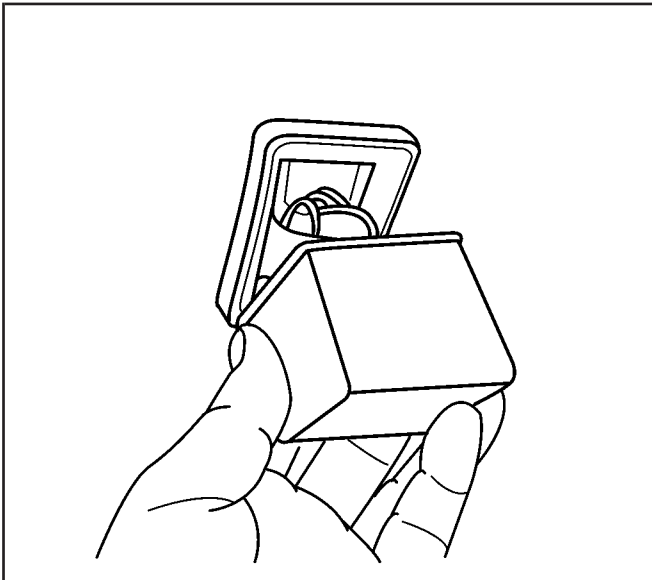


1692755

License Plate Lamp Bulb Replacement (Maintenance Body)

Removal Procedure

1. Ensure the headlamp switch is in the OFF position.
2. Remove the lens assembly by pull it free of the rubber housing.
3. Remove the bulb from the bulb socket.



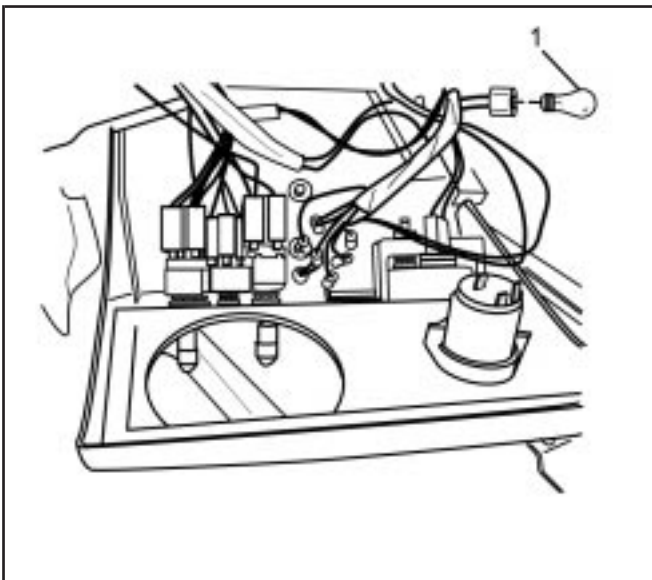
1692755

Installation Procedure

1. Install the bulb into the bulb socket.

Important: Ensure that the housing seal is fully around the lens.

2. Push the lens into the rubber housing until fully seated.



1693477

Voltmeter Gage Lamp Replacement

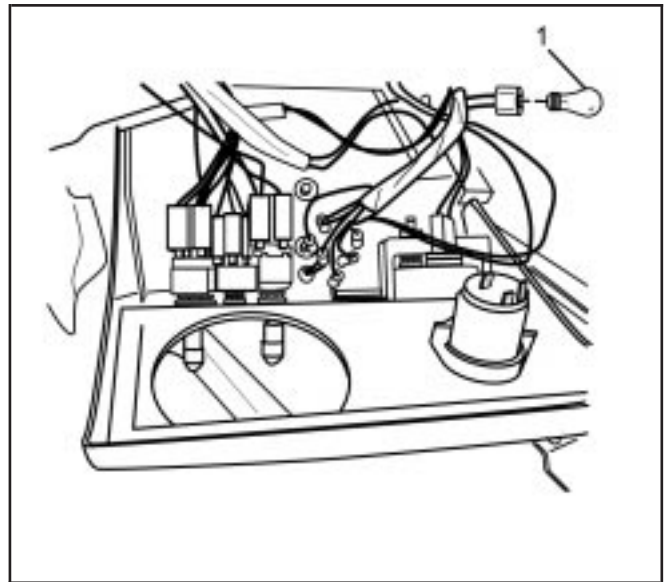
Removal Procedure

1. Ensure all lamp switches are in the OFF position.
2. Remove the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.
3. Remove the voltmeter gage lamp socket from the back of the voltmeter.
4. Remove the bulb (1) from the voltmeter socket.

Installation Procedure

Important: Use a standard 194 bulb for replacement.

1. Install the bulb (1) into the voltmeter gage socket.
2. Install the lamp socket into the voltmeter.
3. Install the accessory panel. Refer to *Accessory Instrument Panel (I/P) Replacement* in Instrument Panel, Gages and Console.

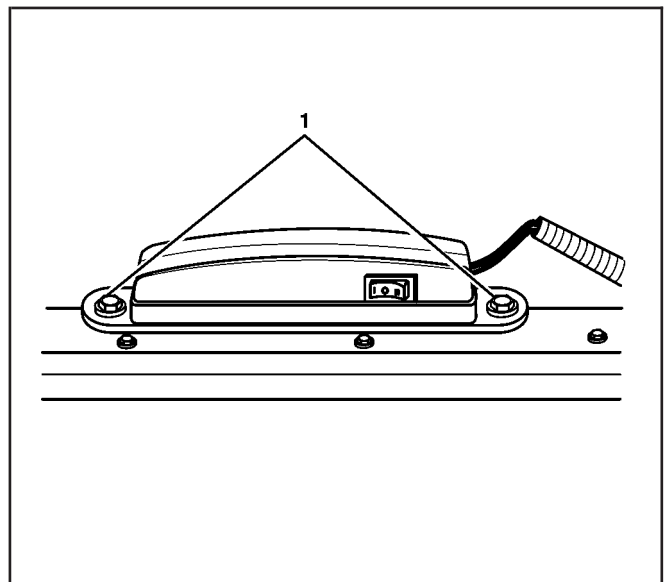


1693477

Topper Dome Lamp Replacement

Removal Procedure

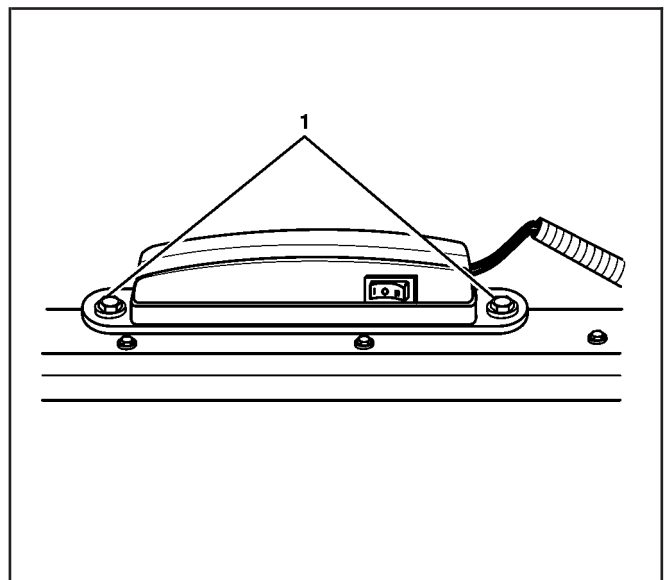
1. Remove the topper dome lamp bulb. Refer to *Topper Dome Lamp Bulb Replacement*.
2. Remove the screws (1) from the lamp.
3. Disconnect the electrical wiring and remove the lamp from the topper.



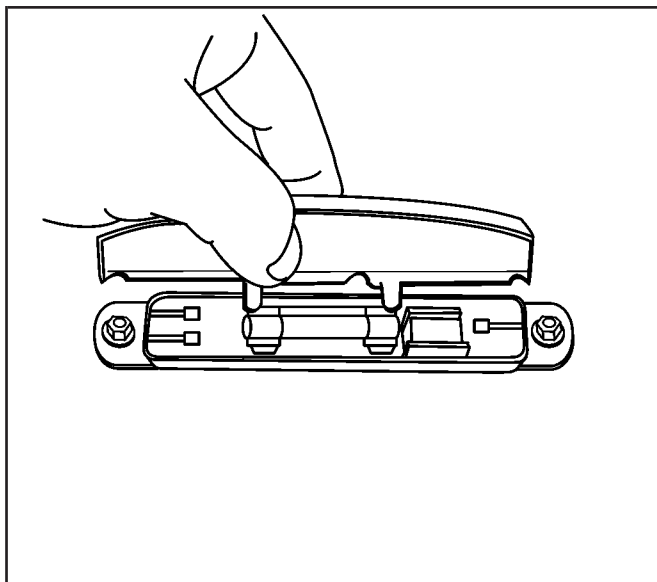
1692781

Installation Procedure

1. Connect the electrical wiring and install the lamp onto the topper.
2. Install the screws (1) and secure.
3. Install the topper dome lamp bulb. Refer to *Topper Dome Lamp Bulb Replacement*.



1692781

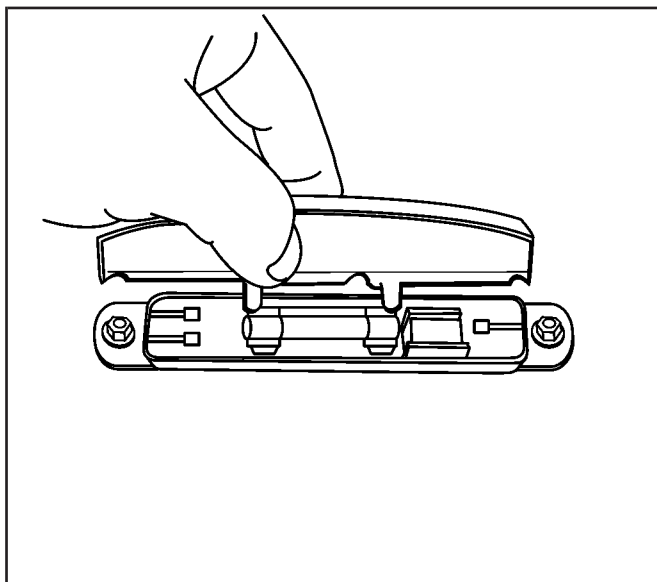


1707699

Topper Dome Lamp Bulb Replacement

Removal Procedure

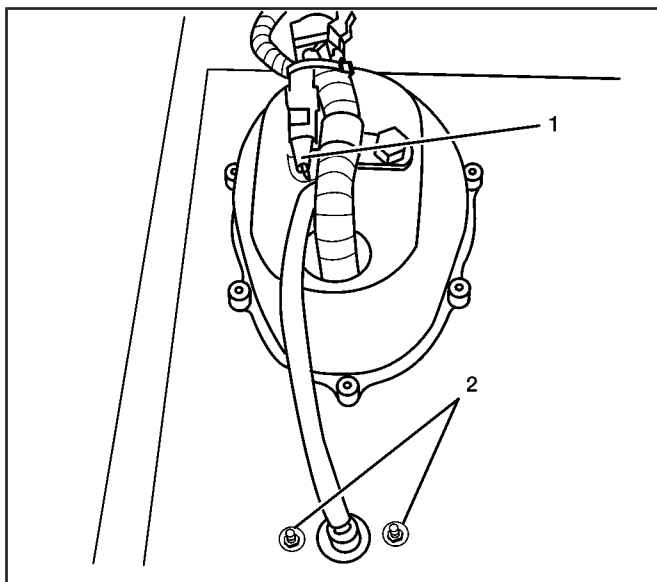
1. Press in on the sides of the lens to release the lens tabs.
2. Remove the bulb from the lamp socket.



1707699

Installation Procedure

1. Install the bulb into the lamp socket.
2. Install the lens into the lamp by pressing until fully seated.



1697906

Backup Lamp Replacement (Ambulance Body)

Removal Procedure

1. Remove the backup lamp bulb. Refer to *Backup Lamp Bulb Replacement*.
2. Remove the backup lamp nuts (2).
3. Disconnect the electrical connector (1) from the backup lamp.
4. Remove the lamp assembly.

Installation Procedure

1. Install the lamp assembly.
2. Connect the electrical connector (1) to the backup lamp.

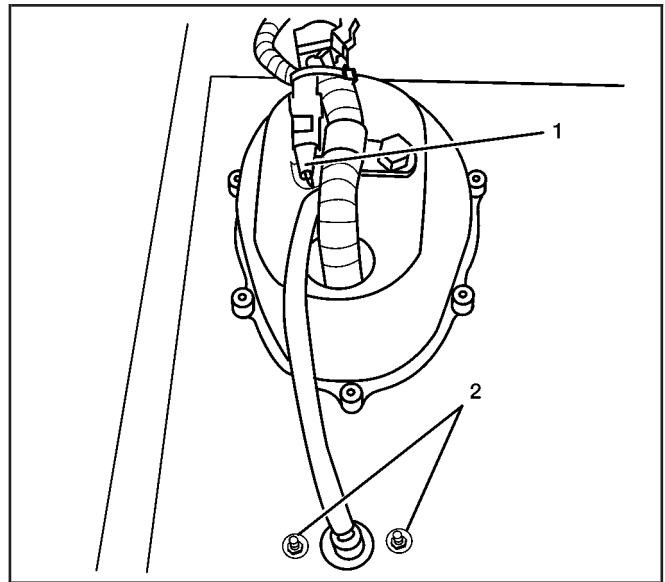
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nuts (2) for the backup lamp.

Tighten

Tighten screws to 0.8 N·m (7 lb in).

4. Install the backup lamp bulb. Refer to *Backup Lamp Bulb Replacement*.

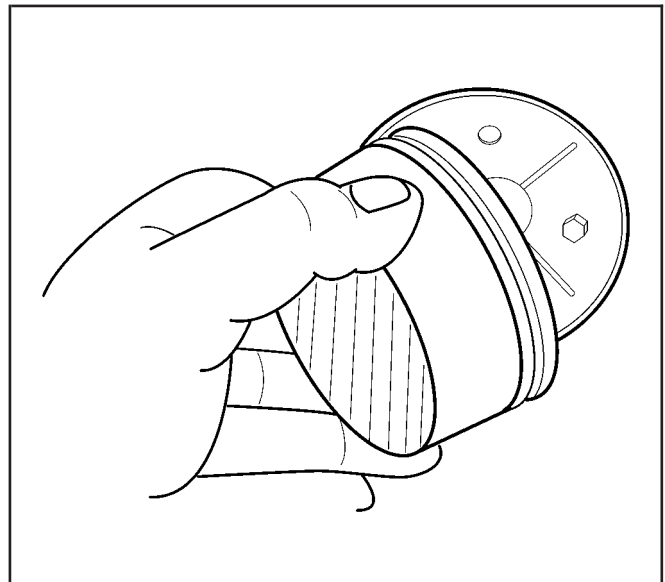


1697906

Backup Lamp Bulb Replacement

Removal Procedure

1. Using your hands, turn the lens counterclockwise and remove from the lamp.
2. Press down on the bulb and turn counterclockwise.
3. Pull the bulb from the socket.



1692753

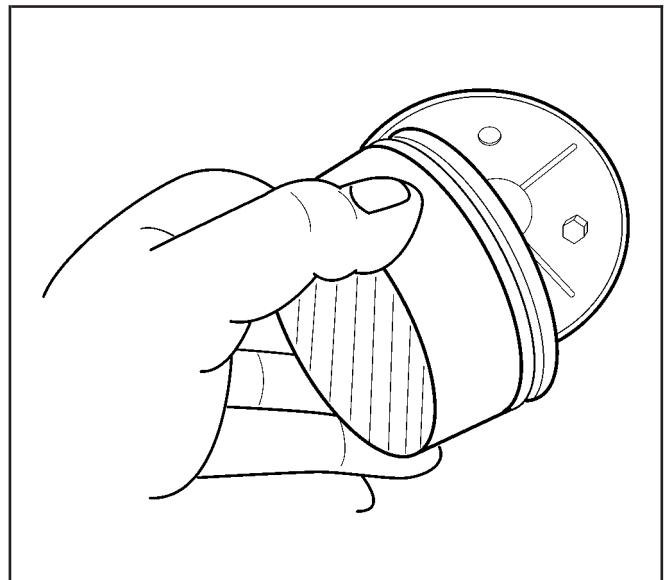
Installation Procedure

Important: Use an 1156 bulb for replacement.

1. Install the bulb into the bulb socket.
2. Press in and turn the bulb clockwise until fully seated.

Important: Ensure that the gasket is fully installed on the lens.

3. Install the lens onto the lamp and turn clockwise. Be sure the lens is installed with the word TOP facing up.



1692753

Description and Operation

Blackout (B/O) Lighting Circuit Operation

Voltage for connector C8, the blackout (B/O) marker lamps, is supplied through the accessory voltage circuit YL (243) located in the I/P relay center. From there the OG (40) wire supplies voltage to the blackout (B/O) service switch. When the blackout (B/O) service switch is placed in blackout (B/O) mode, voltage is applied to the PK (911) wire to inline 5A fuse. Voltage is then applied to the BN/WH (900) wire for front blackout (B/O) marker lamps and BN/WH (900) wire for rear blackout (B/O) marker lamps. Ground for the front blackout (B/O) marker lamps is supplied through G100M for the front and G903M and G902M for the rear.

The blackout (B/O) stoplamps voltage is supplied through the stop LP fuse OG (1540) wire to the TCC/stoplamp switch at all times. When the brake pedal is depressed, the stoplamp switch is closed and powers the WH (17) wire to the blackout (B/O) service switch. When in blackout (B/O) mode, voltage is applied from the DK GN/WH (902) wire to the blackout (B/O) stoplamps. The blackout (B/O) stoplamps receive constant ground through G903M and G902M.

Blackout (B/O) Lighting Description

This section focuses on the function and service of the blackout (B/O) headlamp, the front and rear blackout (B/O) marker lamps, and the service/blackout (B/O) lamp switch. All other lamps are covered in the 2005 C/K Truck Owner Manual. As military options the blackout (B/O) lamps provide a stealthy, low illumination alternative to standard lighting systems, also available on these vehicles. The blackout (B/O) headlamp is identical on these vehicles. The front blackout (B/O) marker lamps are mounted in the bumper of this vehicle. The rear blackout (B/O) marker lamps are arranged in the same relative position on the rear bumpers.

The service/blackout (B/O) lamp switches, mounted at the lower center dash, control blackout (B/O) lamp and standard lamp functions. A pair of toggles operates these switches. The blackout (B/O) drive toggle is mounted on the right. When the service light toggle is moved up to the ON position it activates all service lights and enables all normal service light functions elsewhere to be turned ON if needed. When moved to the ALL OFF position this toggle shuts off all lamps and auxiliary lamps. When the switch is moved to blackout (B/O) ON only the blackout (B/O) lighting will work, which includes the blackout (B/O) markers, front and

rear, and the blackout (B/O) headlamp. Within the rear marker lamps are separate color markers. Yellow will illuminate for the brakes and red will illuminate for drive mode. The front markers illuminate in yellow. (The horn is inoperative while the blackout (B/O) toggle is in the ON position.) All warning lamps in the I/P remain functional regardless of the toggle position. If the vehicle is parked for over 24 hours, place the service switch in the ALL OFF position.

To operate the blackout (B/O)/drive light switch pull it out and up to the ON position; this will activate the front blackout (B/O) headlamp. This will occur provided the service light/blackout (B/O) switch remains in the ON or down position. Pulling the left blackout (B/O) drive light switch out and down to the OFF position will turn it OFF. Releasing the switch from ON or OFF will cause it to return to the center position automatically.

The following Exterior/Interior lights function tables are for the service light/blackout (B/O) control switch and clarify under what conditions various exterior and interior lighting functions activate. Additional details are found in the 2005 C/K Truck Owner Manual.

Topper Dome Lamp Circuit Description

When the ignition switch is ON, voltage is supplied from the blackout (B/O) switch to the interior toggle switch on circuit 912 (OG). The voltage leaves the switch on circuit 800 (BR) or 803 (BN/WH) depending on the switches' position. The voltage on these circuits goes to the rear toggle switch then to the topper dome lamp. The lamp is ground on the CHMSL circuit.

Topper Dome Lamp Description

The topper dome lamp is controlled by two 3-way switches and a lamp mounted switch. The interior switch is mounted in the accessory panel and the other is mounted on the left rear of the pickup bed. The switch mounted on the lamp must be in the ON position for the two 3-way switches to operate the lamp.

Voltmeter Lamp Circuit Description

When the headlamp switch is in the ON position voltage is applied through the BN 9 wire and is grounded through the BK 150 wire.

Voltmeter Lamp Description

The voltmeter lamp provides illumination to the voltmeter mounted in the accessory instrument panel.

Function Tables

The following are function tables for the service light/blackout (B/O) control switch and determines under what conditions various exterior and interior lighting functions activate.

Exterior Lights

Exterior Lamp or Device	Service Lights/Blackout Switch	Blackout Drive Light Switch
Headlamps and Taillamps	SERVICE ON	OFF
Parking Lamps	SERVICE ON	OFF
Front/Rear Side Marker Lamps	SERVICE ON	OFF
Marker Lamps: Roof, Fender and Endgate	SERVICE ON	OFF
Stoplamps	SERVICE ON	OFF
Backup Lamps	SERVICE ON	OFF
License Plate Lamp	SERVICE ON	OFF
Front/Rear Turn Signals	SERVICE ON	OFF
Hazard Warning Lamps	ALL POSITIONS	ON/OFF
Cargo Lamp	SERVICE ON	OFF
Horn	SERVICE ON	OFF
Front/Rear Blackout (B/O) Marker Lamps	BLACKOUT	ON/OFF
Blackout (B/O) Stoplamps	BLACKOUT	ON/OFF
Blackout (B/O) Drive Lamp (Headlamp)	BLACKOUT	ON

Interior Lights

Interior Lamp or Device	Service Switch	Blackout Drive Light Switch
Instrument Panel/Switch Illumination	SERVICE ON	OFF
Radio/Clock-Illumination	SERVICE ON	OFF
Headlamp High-Beam Indicator	ALL POSITIONS	ON/OFF
Turn Signal Indicators	SERVICE ON	OFF
Four-Wheel-Drive Indicator	ALL POSITIONS	ON/OFF
Dome/Courtesy Lamps	SERVICE ON	OFF
Glove Compartment Lamp	SERVICE ON	OFF
Underhood Lamp	SERVICE ON	OFF
Warning Chime: Headlamps On, Safety Belt and Key in Ignition	SERVICE ON	ON/OFF
Tire Pressure Monitoring Gage Illumination	SERVICE ON	ON/OFF
Hazard Warning Indicators	ALL POSITIONS	OFF

Paint/Coatings

Specifications

Paint Codes

Exterior and Interior Colors

Location/Color	Fed.-std.-595 B	PPG No.
Forest Green	34094	CA 8211/I5086
Desert Tan	—	8211/I07036MPY228

For specific paint/coating details, contact PPG Automotive Coatings at 1-818-549-7979.

Repair Instructions

Exterior Painting (LSSV)

Metal Refinishing

Caution: Refer to *Eye Protection Caution in Cautions and Notices in 2005 C/K Truck Service Manual*.

1. Remove all exterior ornaments and emblems from the panel to be painted.

Important: Cut paint at door seals, remove or mask over door seals.

2. Prepare all metal surfaces to be painted.

Important: This is not CARC (Chemical Agent Resistant Coating) paint. The recommended supplier is PPG.

3. Repaint all exterior metal with lustreless paint. Refer to *Paint Codes* for Exterior and Interior Colors Chart for current paint part number.

Important: Exercise care when removing masking and handling vehicle after repainting, to avoid marks and dirt on the new paint. It is very difficult to clean up without leaving noticeable damage.

4. Remove masking tape.

Grille Refinishing (LSSV)

Procedure

Important: Ensure that all chrome areas have 100% coverage.

1. Using a coarse refinishing material, scuff the surface of the grille.
2. Using etching primer, prepare the surface of the grille for the finish coat.

Important: This is not CARC paint. The recommended supplier is PPG.

3. Repaint all exterior metal with lustreless paint. Refer to *Paint Codes* for Exterior and Interior Colors Chart for current paint part number.

Seats

Specifications

Fastener Tightening Specifications

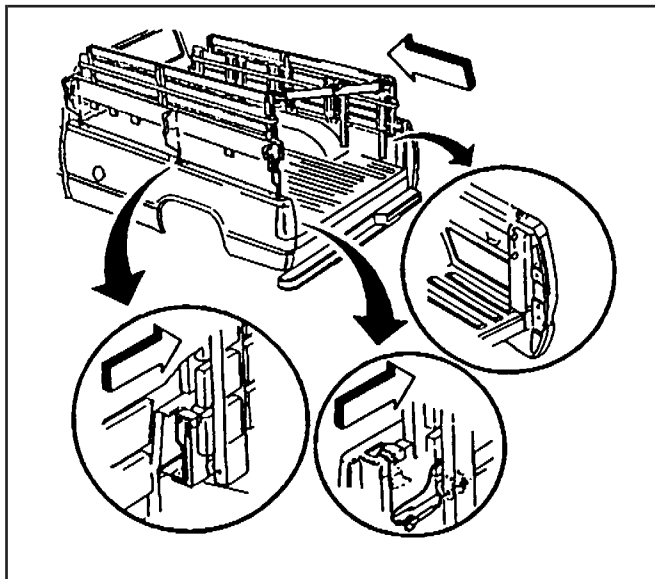
Application	Specification	
	Metric	English
Seat Bolts – Troop	58 N·m	43 lb ft

Repair Instructions

Seat Replacement - Troop

Removal Procedure

1. Remove the 2 bolts, nuts and clamps holding the seat assembly to the box rail.
Note the clamp and stud arrangement for installation later.
2. Fold the seat section to the seatback and install the tether pins to the locking holes for easy removal.
3. Remove the 2 bolts and nylock nuts from the end of the rail.
4. Remove the troop seat assembly.



1703173

Installation Procedure

Important: The left and right seat assemblies are not interchangeable. Match the mounting hole pattern of the seat assembly before attempting to install.

1. Unfold the third seat back (from the cab) down.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. When properly aligned, install the 2 bolts, screws and nuts to the end of the rail.

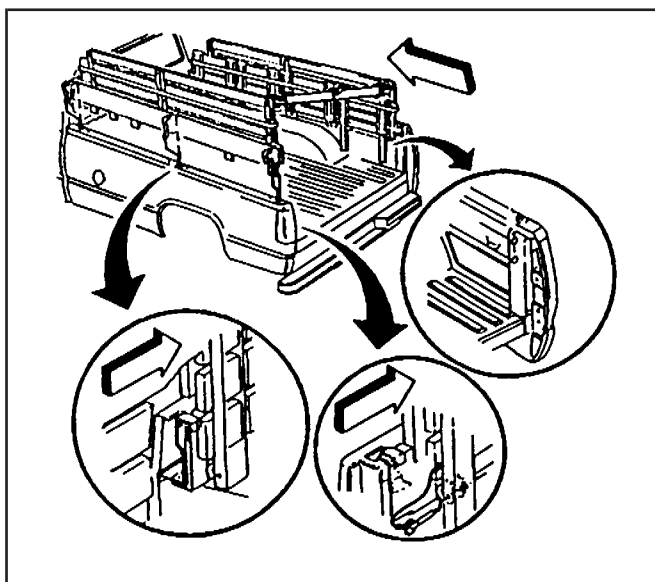
Tighten

Tighten the bolts to 58 N·m (43 lb ft).

3. Install the 2 clamps, bolts and nuts holding the seat assembly to the holes within the openings at the middle and forward end of the box rail.

Tighten

Tighten the bolts to 58 N·m (43 lb ft).



1703173

Description and Operation

Folding Rear Seat - Troop

The troop seats provide two benches with seating for up to four troops on each side. Each bench is anchored by three sets of fasteners to each box rail. The seats can be folded up using tether pins to afford more cargo space. They are equipped with a safety strap, which should be hooked across the rear end of the box when occupied. Refer to the 2005 LSSV Owners Manual Supplement for further details.

Seat Covers

Seat covers are installed on the interior seats to protect the vehicle's interior and are green or tan in color. They allow full function of the seat controls and seat belts.

Wiring Systems

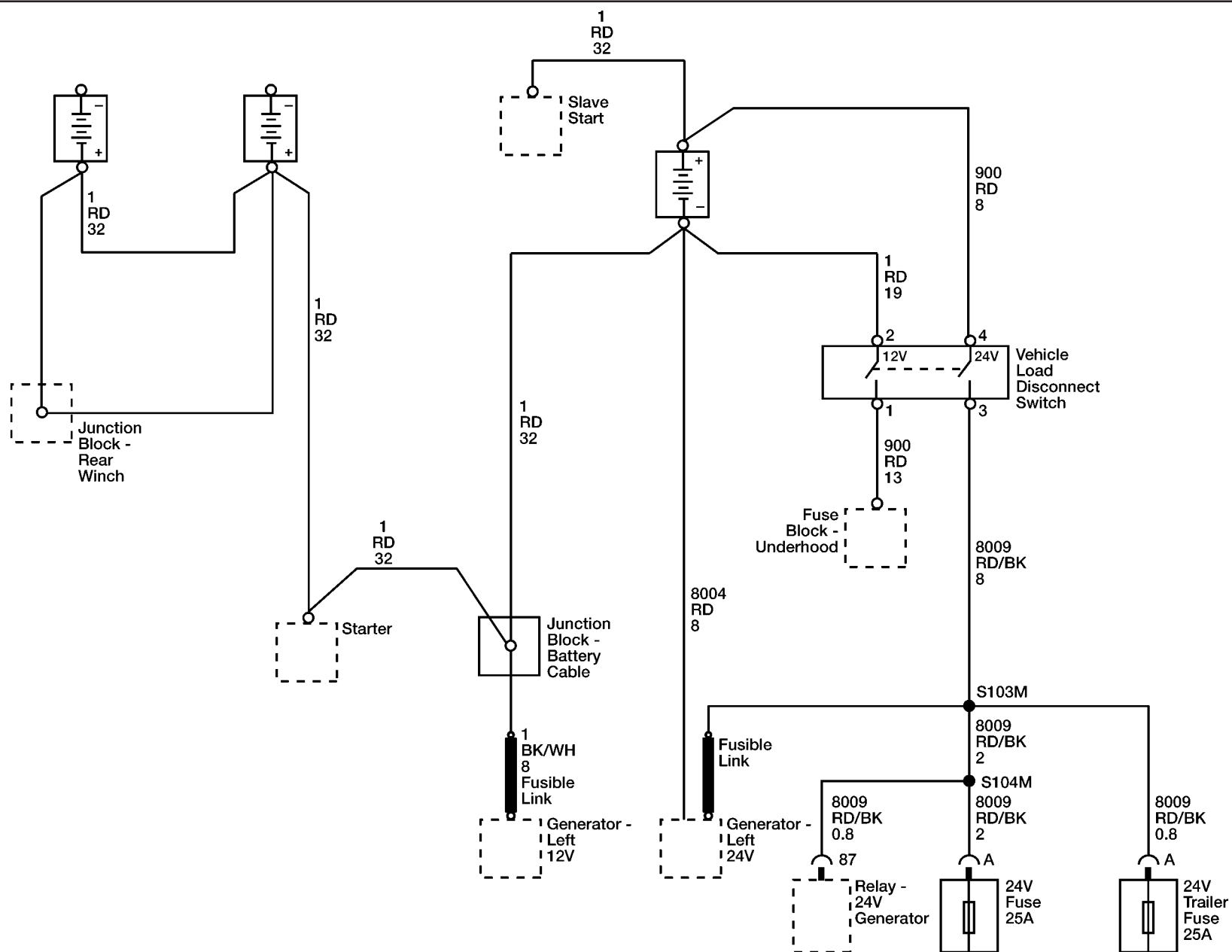
Specifications

Fastener Tightening Specifications

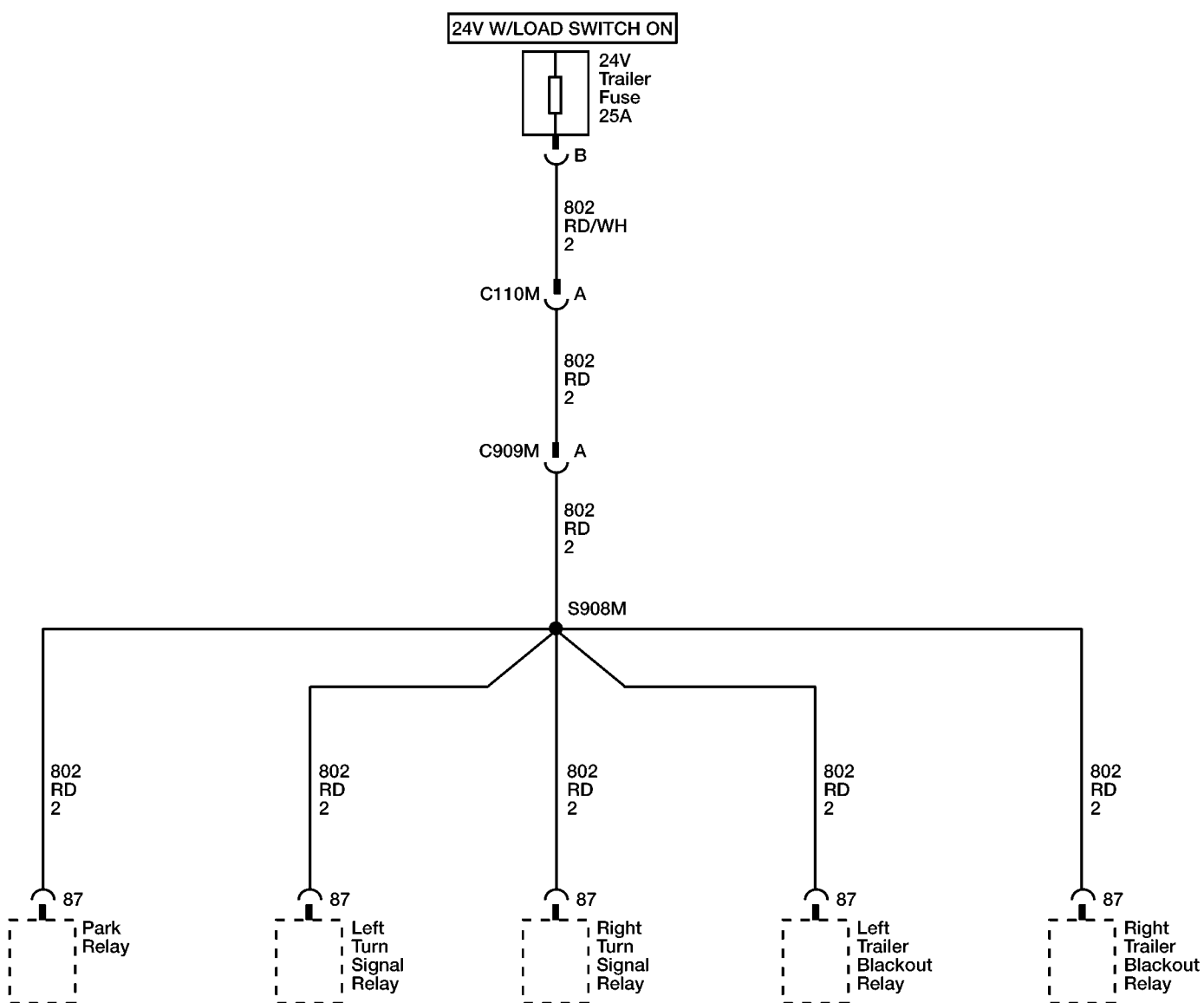
Application	Specification	
	Metric	English
Fender Brace Bolts	25 N·m	18 lb ft

Schematic and Routing Diagrams

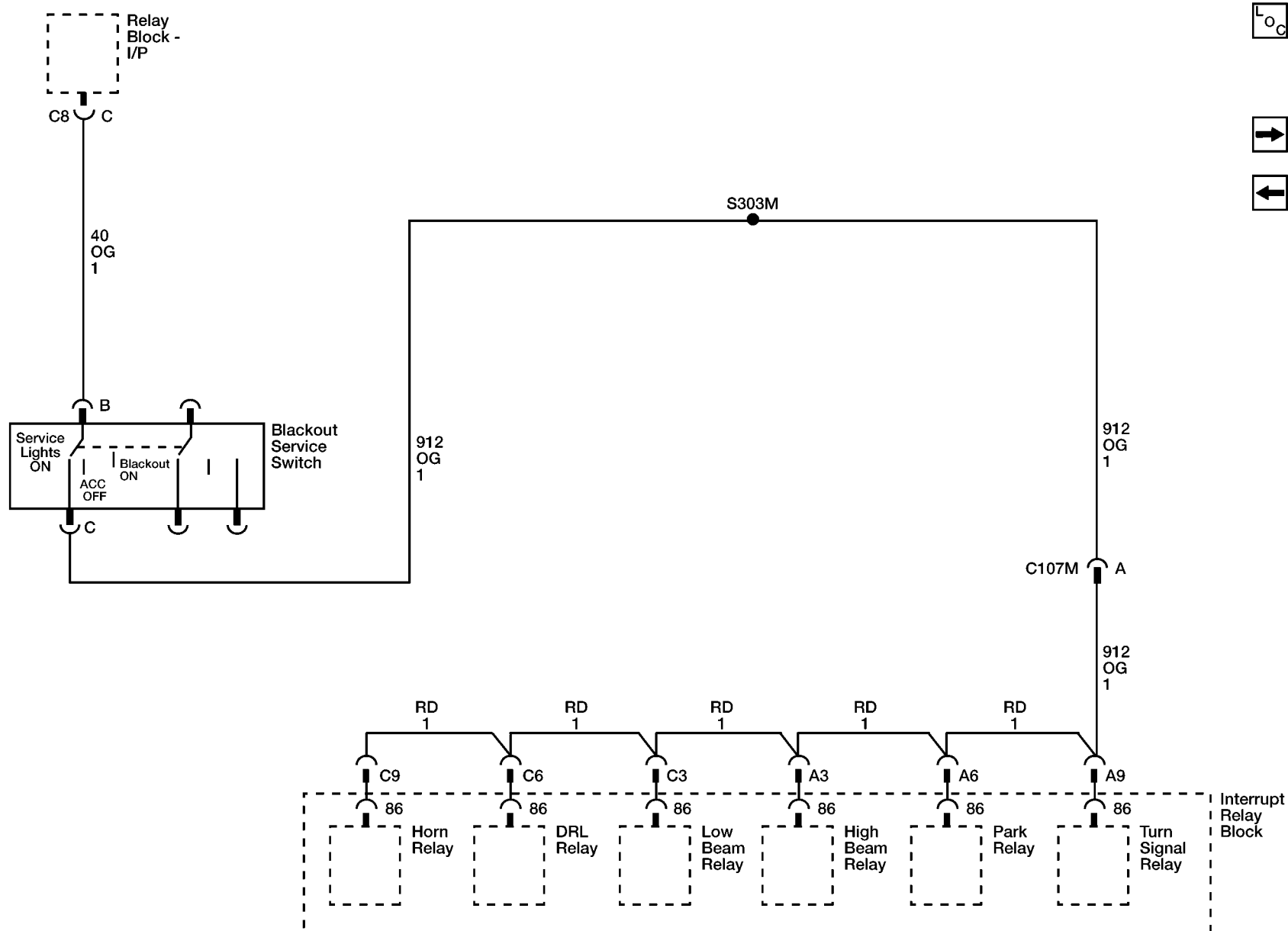
Power Distribution Schematics (12V/24V)



Power Distribution Schematics (24V – Trailer Fuse)



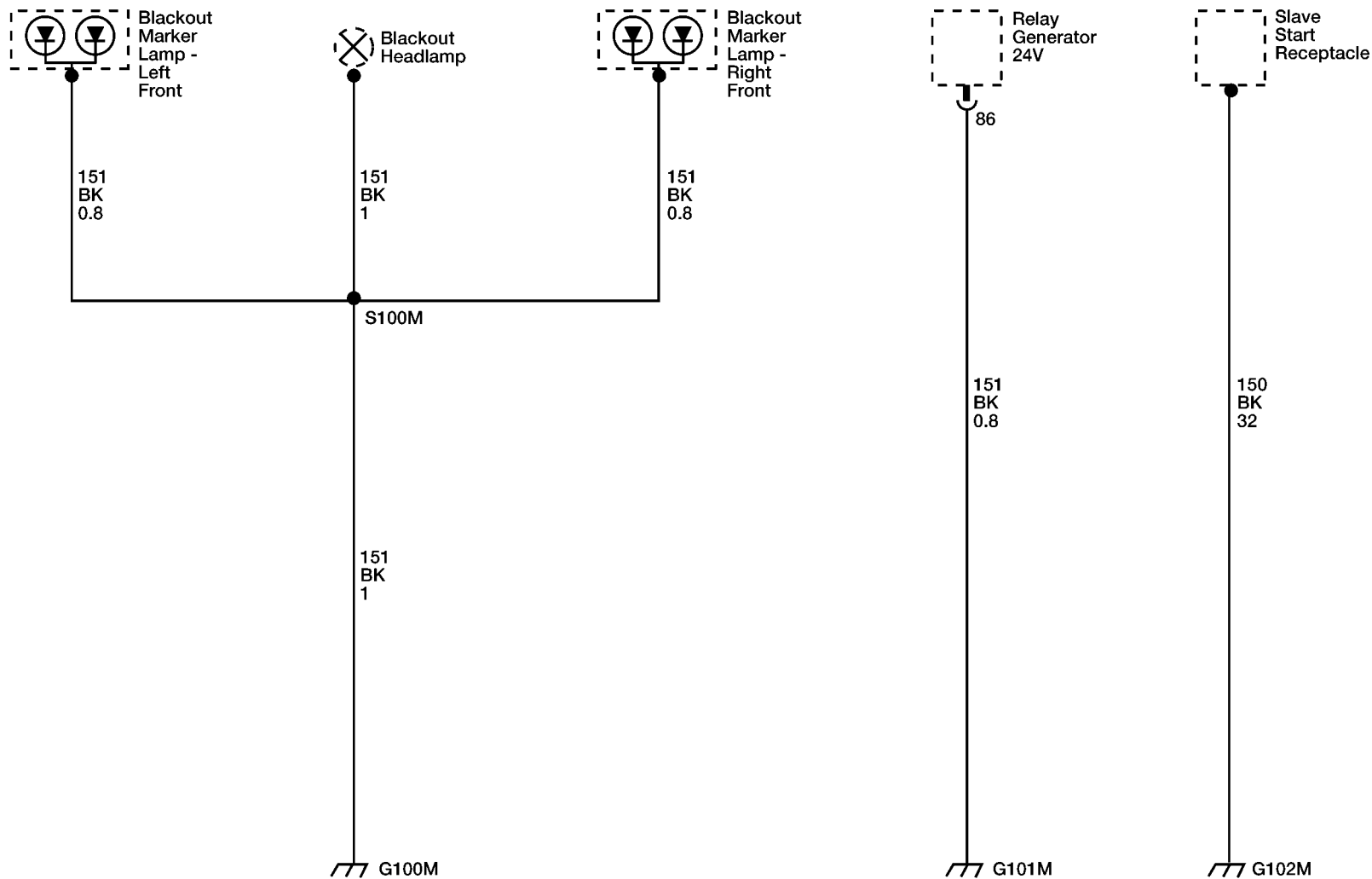
Power Distribution Schematics (Relay Block)



Ground Distribution Schematics (G100M, G101M, G102M)

Body

Wiring Systems 8-151

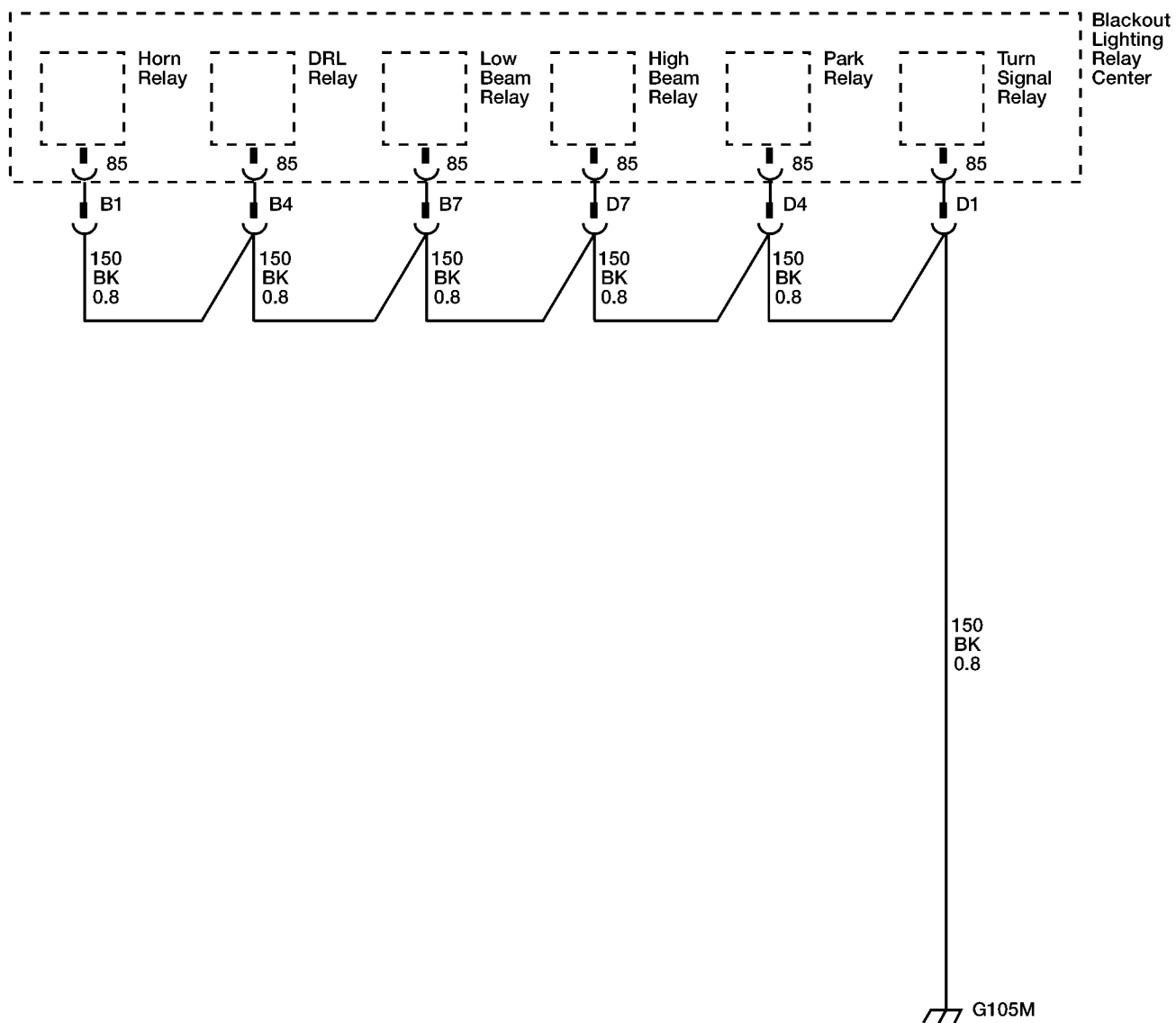


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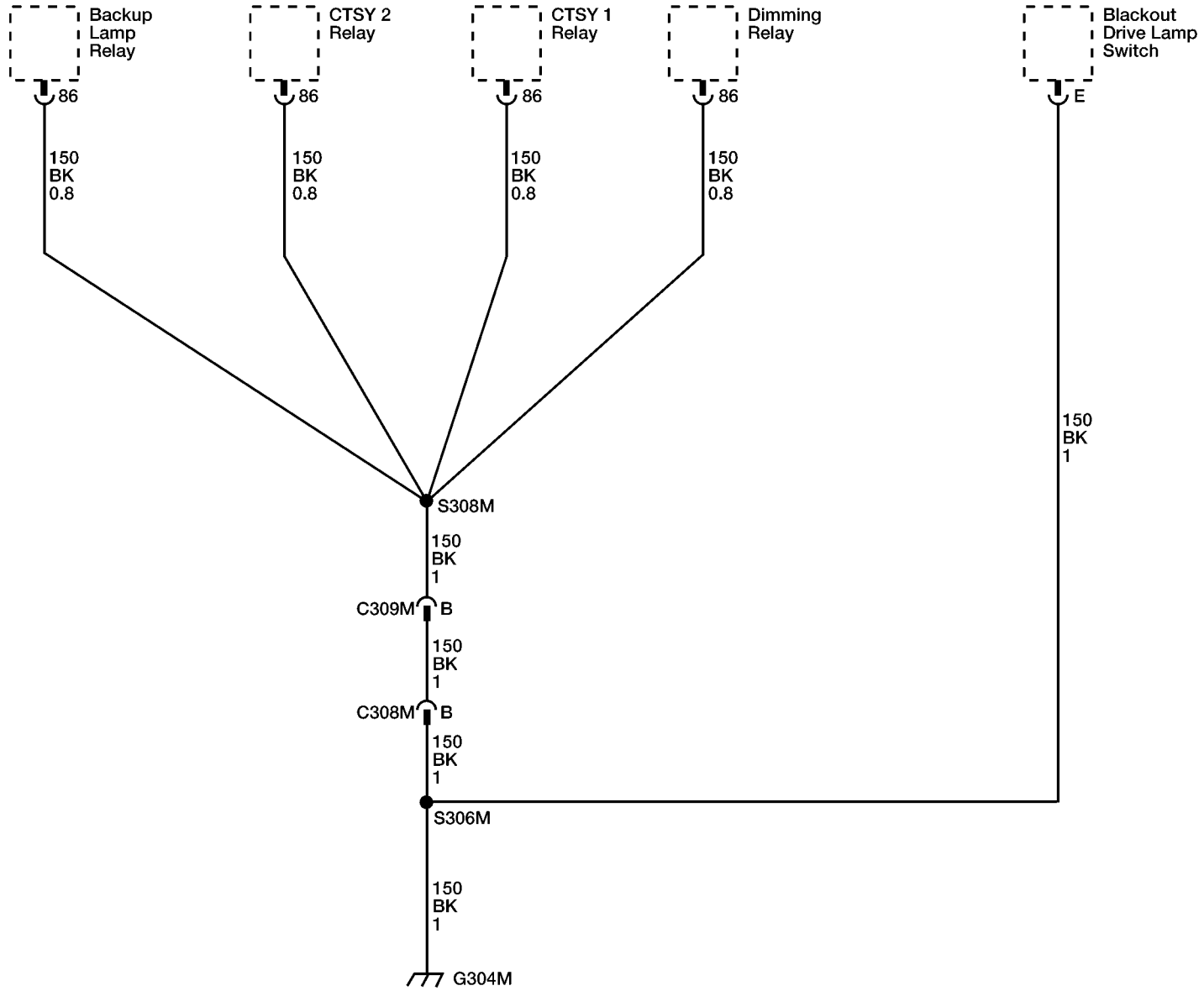
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Ground Distribution Schematics (G105M)



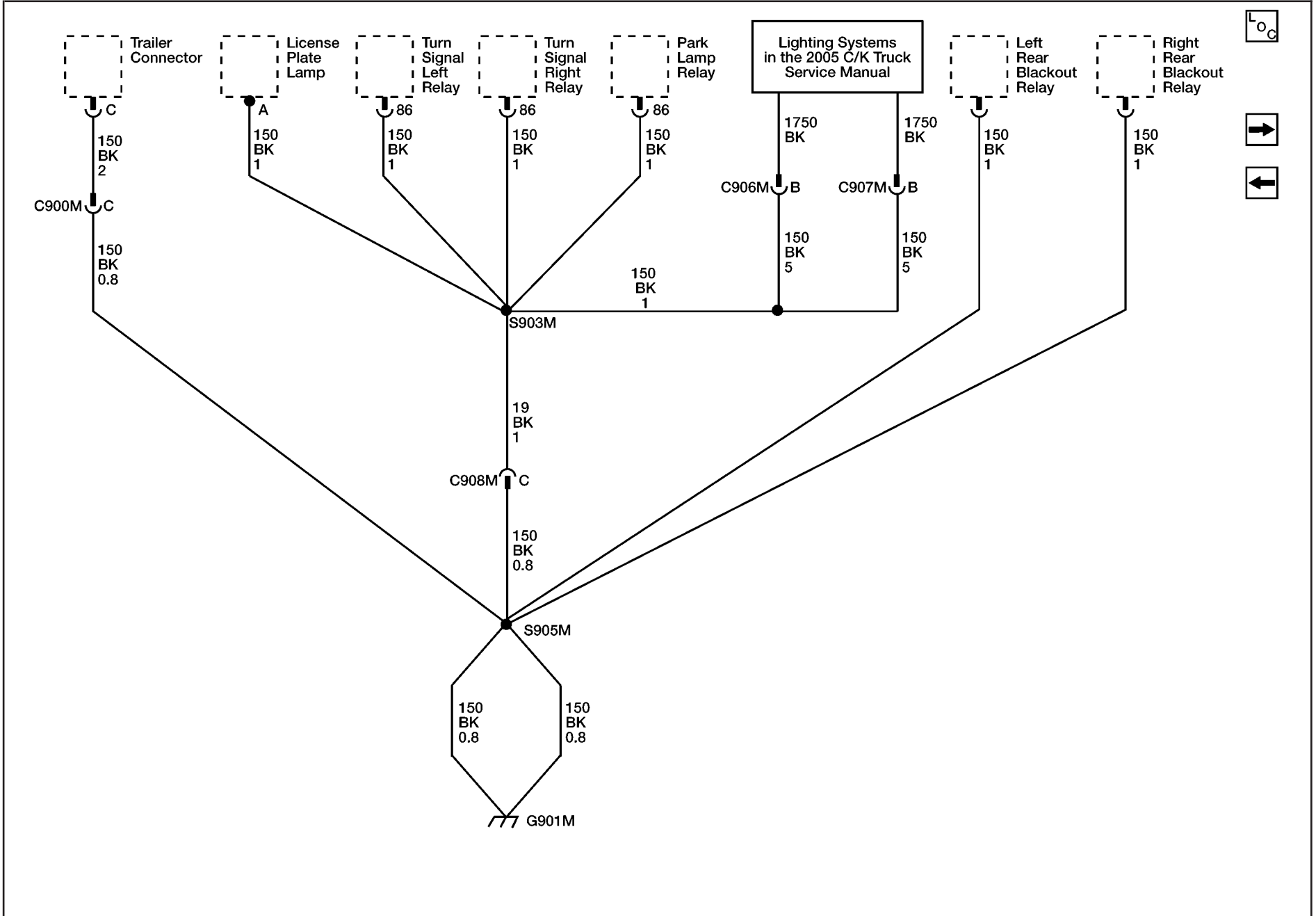
Ground Distribution Schematics (G304M)



L_OC



Ground Distribution Schematics (G901M)



Ground Distribution Schematics (G902M, G903M and G904M)

Right
Rear
Blackout
Lamp



/// G902M

Left
Rear
Blackout
Lamp



/// G903M

Topper
Dome
Lamp



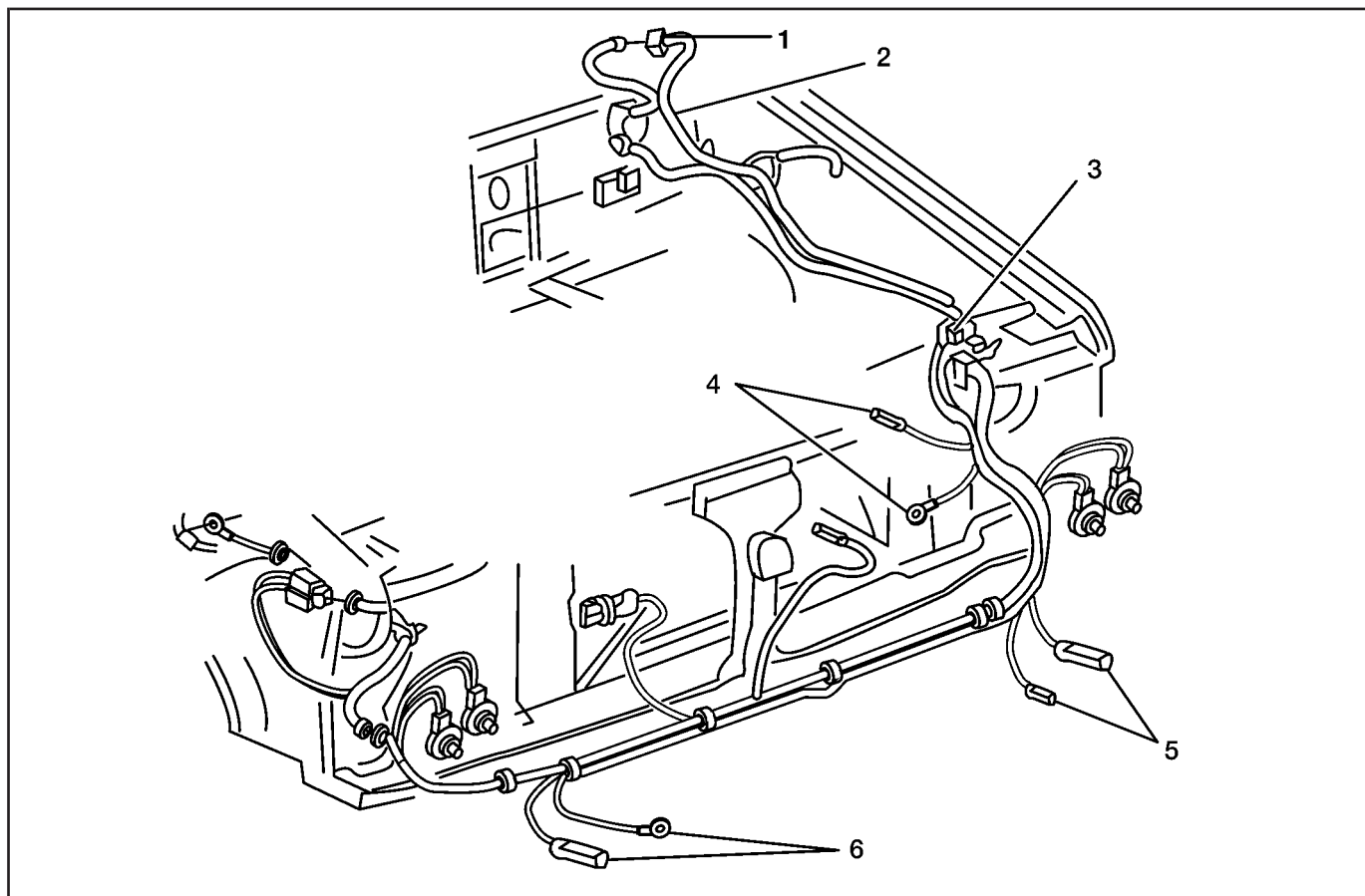
BK

/// G904M

L_OG



Harness Routing Views (Forward Blackout (B/O) Lamp Harness)

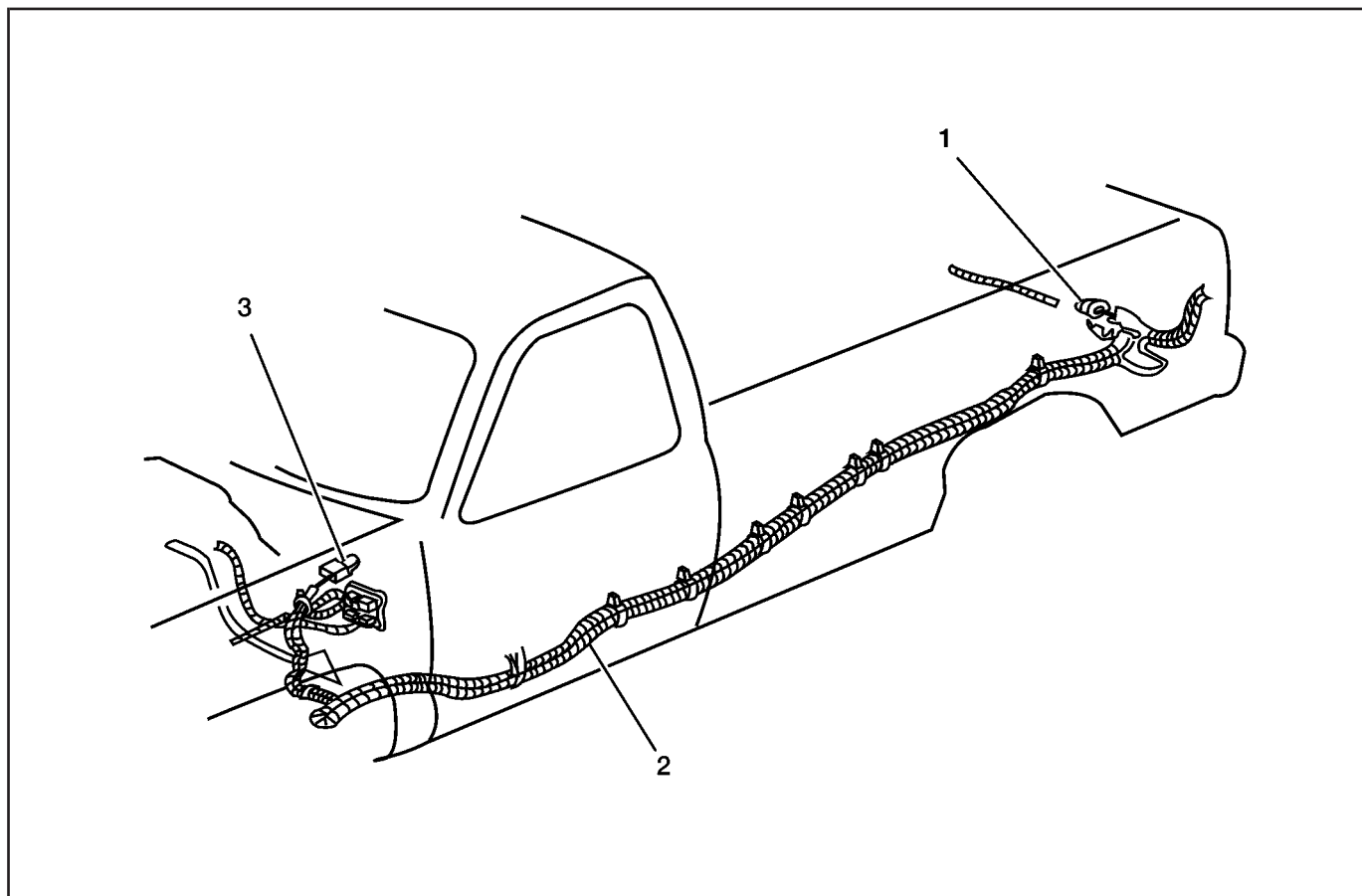


1693354

Legend

- | | |
|---|-----------|
| (1) Instrument Panel (I/P) Wiring Harness | (4) C102M |
| (2) Forward Lamp Harness | (5) C101M |
| (3) G100M | (6) C100M |

Harness Routing Views (Rear Lamp Extension Harness – LSSV)

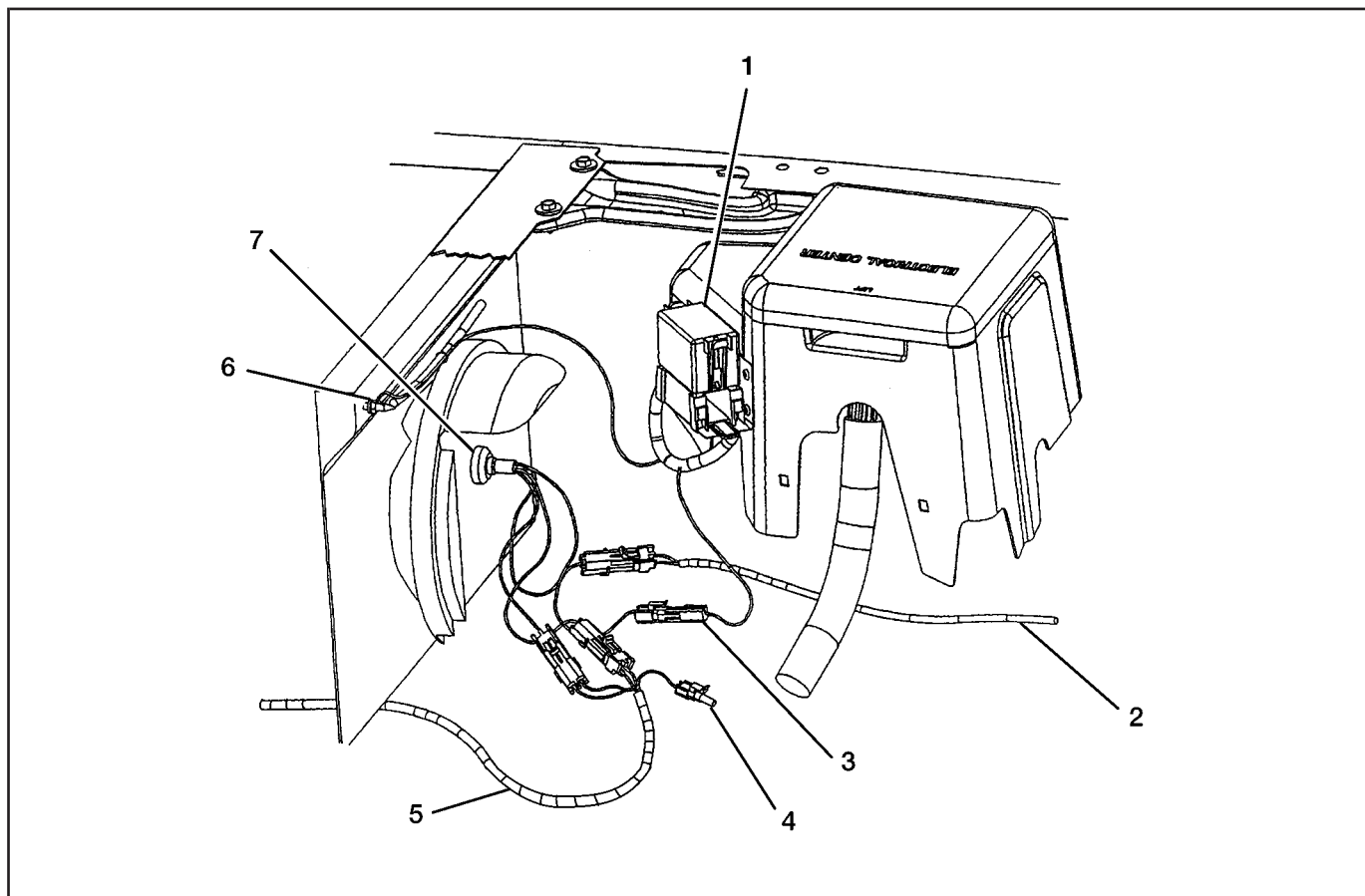


1693353

Legend

- | | |
|--|------------------------|
| (1) C908M | (3) I/P Wiring Harness |
| (2) Auxiliary Rear Lamp Wiring Harness | |

Harness Routing Views (Relay Block Harness)

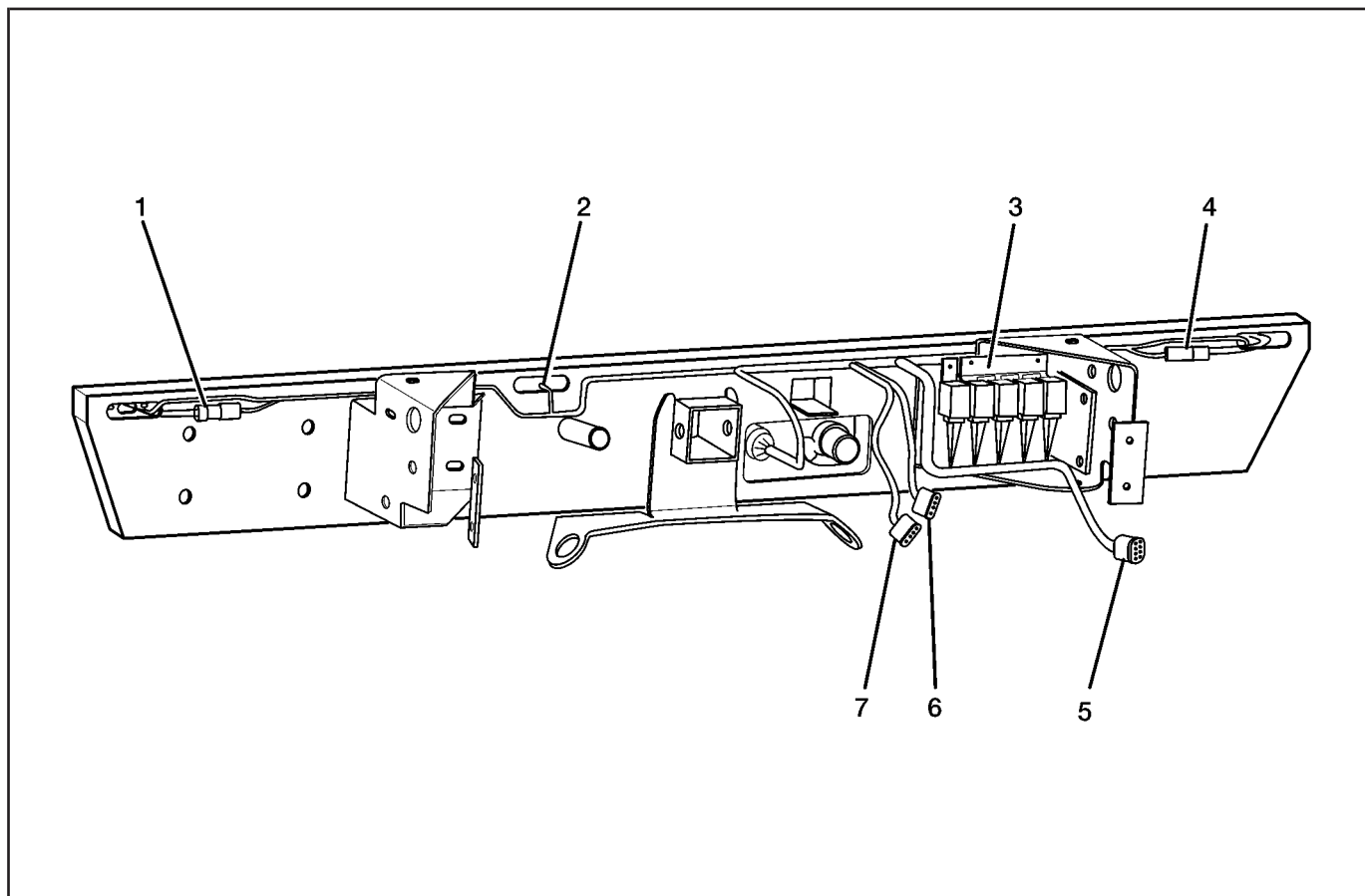


1704988

Legend

- | | |
|-----------------------------------|----------------------------------|
| (1) Interrupt Relays | (5) To Rear Extension Harness |
| (2) To Front Blackout (B/O) Lamps | (6) Ground Stud |
| (3) To Ground Stud | (7) Blackout (B/O) Panel Harness |
| (4) To Engine Harness | |

Harness Routing Views (Rear Lamp Harness)



1704595

Legend

- | | |
|-----------------------------|-----------|
| (1) C902M | (5) C908M |
| (2) License Plate Lamp | (6) C900M |
| (3) Trailer Lighting Relays | (7) C901M |
| (4) C903M | |

Component Locator

Master Electrical Component List

Name	Location	Locator View	Connector End View
24V Slave Receptacle Assembly	On the right side of the bumper brush guard	<i>Engine Electrical Component Views in Engine Electrical</i>	—
24 Voltmeter Gage Lamp	Mounted in the accessory panel on the lower center of the I/P	<i>Engine Electrical Component Views in Engine Electrical</i>	<i>Engine Electrical Connector End Views in Engine Electrical</i>
Backup Lamp Relay	Inline on the interrupt harness under the I/P	—	—
Blackout (B/O) Drive Relay	Inline on the auxiliary I/P harness	<i>Engine Electrical Component Views in Engine Electrical</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Headlamp	On the left side of the bumper brush guard	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Marker Lamp, LF	In the left side of the front bumper	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Marker Lamp, RF	In the right side of the front bumper	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Service Switch	In the accessory panel on center lower I/P next to the 24 voltmeter gage	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Stop/Marker Lamp, LR	In the left side of the rear bumper	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Stop/Marker Lamp, RR	In the right side of the rear bumper	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Blackout (B/O) Drive Lamp Switch (Headlamp)	In the accessory panel on the center lower I/P next to the 24 voltmeter gage	<i>Engine Electrical Component Views in Engine Electrical</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Battery - 12V	Outside of frame rail under passenger seat	—	—
Battery - 12V	At the right rear engine compartment	—	—
Battery - 24V	At the left front of the engine compartment	—	—
Circuit Breaker - 12V	In the engine compartment, on the left fender brace (Ambulance)	<i>Engine Electrical Component Views in Engine Electrical</i>	—
Circuit Breaker - 24V	In the engine compartment, on the left fender brace (Ambulance)	<i>Engine Electrical Component Views in Engine Electrical</i>	—
CTSY 1 and 2 Relay	Inline on the interrupt harness under the I/P	—	—
DRL Interrupt Relay	Interrupt relay block RH engine compartment	<i>Lighting Systems Component Views in Lighting Systems</i>	—
Generator - 24V	The right front of engine	—	—
Generator Relay - 24V	On the cover of the underhood fuse block	—	<i>Engine Electrical Connector End Views in Engine Electrical</i>
Generator Fuses - 24V	In the engine compartment inline with the 24V generator harness	—	<i>Engine Electrical Connector End Views in Engine Electrical</i>
Headlamp Hi and Low Beam Interrupt Relay	Interrupt relay block RH engine compartment	<i>Engine Electrical Component Views in Engine Electrical</i>	—

Master Electrical Component List (cont'd)

Name	Location	Locator View	Connector End View
Horn Interrupt Relay	Interrupt relay block RH engine compartment	<i>Engine Electrical Component Views in Engine Electrical</i>	—
Interrupt Relay Block	RH of engine compartment on the underhood fuse block	<i>Engine Electrical Component Views in Engine Electrical</i>	—
Junction Block	Left of RH battery mounted on the bulkhead	<i>Engine Electrical Component Views in Engine Electrical</i>	—
Park Lamp Interrupt Relay	Interrupt relay block RH engine compartment	<i>Engine Electrical Component Views in Engine Electrical</i>	—
Trailer Harness Connector 12 Pin	Near the center of the rear bumper	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Turn Signal Interrupt Relay	Interrupt relay block RH engine compartment	<i>Lighting Systems Component Views in Lighting Systems</i>	—
C100M (1 Cavity)	Front left of the front bumper for left front blackout (B/O) marker	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C101M (1 Cavity)	Front right of the front bumper for right front blackout (B/O) marker	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C102M (1 Cavity)	Front left center of grille for blackout (B/O) headlamp	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C103M (2 Cavities)	Left side of engine compartment for front lighting harness	—	<i>Inline Harness Connector End Views</i>
C105M (4 Cavities)	Engine compartment by underhood fuse block	—	<i>Inline Harness Connector End Views</i>
C106M (3 Cavities)	Engine compartment by underhood fuse block	—	<i>Inline Harness Connector End Views</i>
C107M (1 Cavity)	Engine compartment by underhood fuse block	—	<i>Inline Harness Connector End Views</i>
C108M (2 Cavities)	Engine compartment by underhood fuse block	—	<i>Inline Harness Connector End Views</i>
C201M	Under steering column	—	<i>Inline Harness Connector End Views</i>
C301M (2 Cavities)	Under I/P for topper lamp	—	<i>Inline Harness Connector End Views</i>
C302M (2 Cavities)	Under I/P for brake lamps	—	<i>Inline Harness Connector End Views</i>
C304M (2 Cavities)	Blackout (B/O) panel for voltmeter	—	<i>Inline Harness Connector End Views</i>
C305M (2 Cavities)	Under I/P for CTSY interrupt	—	<i>Inline Harness Connector End Views</i>
C306M (1 Cavity)	Under I/P for backup lamps	—	<i>Inline Harness Connector End Views</i>
C307M (7 Cavities)	Under I/P Dimming Relay	—	<i>Inline Harness Connector End Views</i>
C308M (2 Cavities)	Under I/P for blackout (B/O) switch	—	<i>Inline Harness Connector End Views</i>
C309M (1 Cavity)	Engine compartment by underhood fuse block	—	<i>Inline Harness Connector End Views</i>
C900M (3 Cavities)	Rear bumper for trailer connector	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C901M (3 Cavities)	Rear bumper for trailer connector	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C902M (2 Cavities)	Rear bumper for right blackout (B/O) marker	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>
C903M (2 Cavities)	Rear bumper for left blackout (B/O) marker	<i>Harness Routing Views</i>	<i>Inline Harness Connector End Views</i>

Master Electrical Component List (cont'd)

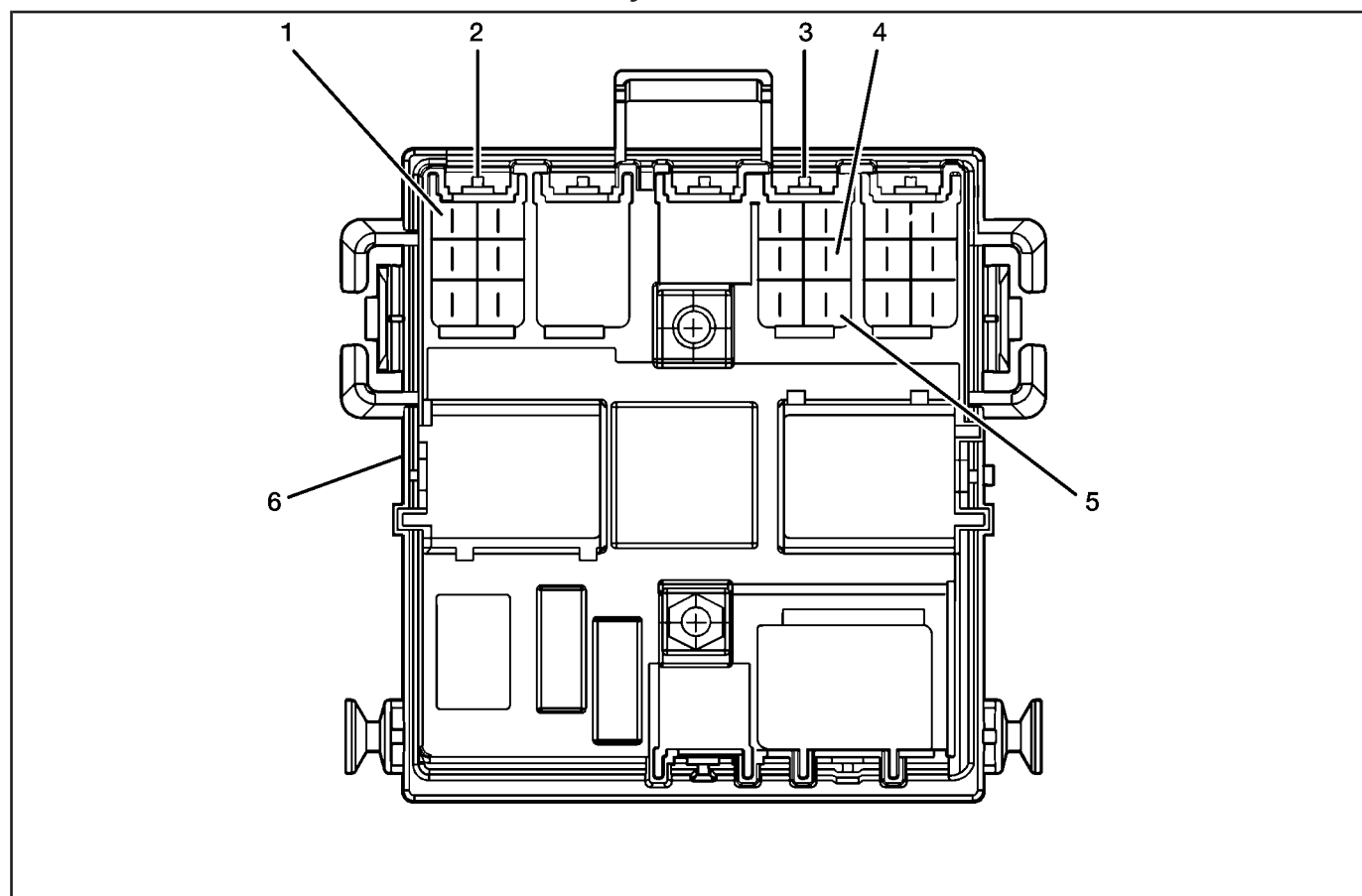
Name	Location	Locator View	Connector End View
C904M (2 Cavities)	Right rear behind taillamp	—	Inline Harness Connector End Views
C905M (2 Cavities)	Left rear frame rail towards rear of the vehicle	—	Inline Harness Connector End Views
C906M (4 Cavities)	Rear of vehicle for trailer connector	—	Inline Harness Connector End Views
C907M (4 Cavities)	Rear of vehicle for trailer connector	—	Inline Harness Connector End Views
C909M (1 Cavity)	Rear bumper for blackout (B/O) relay	—	Inline Harness Connector End Views
G100M	In the front blackout (B/O) harness front of vehicle	Harness Routing Views	—
G101M	In the 24V generator harness	—	—
G103M	Right side of engine block	—	—
G104M	Left side of bulkhead next to the power brake booster	—	—
G105M	Left side of bulkhead next to the power brake booster	—	—
G301M	Right outer side of frame rail	—	—
G304M	Under left side of I/P	—	—
G901M	In the rear blackout (B/O) harness at the rear of the vehicle	Harness Routing Views	—
G902M	Right side of the rear bumper	—	—
G903M	Left side of the rear bumper	—	—
G904M	Around the rear topper dome lamp switch	—	—
S100M	In front bracket wiring harness behind front bumper	—	—
S102M	In the front blackout (B/O) harness at front bumper	—	—
S104M	In the 24V generator harness in the engine compartment	—	—
S105M	In the 24V generator harness in the engine compartment	—	—
S106M	In the relay block harness next to the underhood fuse block	—	—
S107M	In the relay block harness next to the underhood fuse block	—	—
S200M	Under steering column	—	—
S201M	Under steering column	—	—
S202M	Under steering column	—	—
S301M	In the voltage regulator harness under the I/P	—	—
S304M	In I/P wiring harness under I/P	—	—
S306M	In the relay block harness next to the underhood fuse block	—	—
S307M	In the relay block harness next to the underhood fuse block	—	—
S308M	In the interrupt relay harness under the I/P	—	—
S309M	In the interrupt relay harness under the I/P	—	—
S310M	In the interrupt relay harness under the I/P	—	—
S311M	In the interrupt relay harness under the I/P	—	—
S312M	In the interrupt relay harness under the I/P	—	—
S313M	In the I/P harness under the I/P	—	—
S901M	In the rear blackout (B/O) harness at rear bumper	—	—
S902M	In the rear blackout (B/O) harness at rear bumper	—	—

Master Electrical Component List (cont'd)

Name	Location	Locator View	Connector End View
S903M	In the trailer harness at rear bumper	—	—
S904M	In the rear trailer harness at rear bumper	—	—
S905M	In the rear blackout (B/O) harness at the rear bumper	—	—
S907M	In the rear blackout (B/O) harness at the rear bumper	—	—
S908M	In the trailer harness at rear bumper	—	—
S909M	In the trailer harness at rear bumper	—	—

Electrical Center Identification Views

Relay Block – I/P

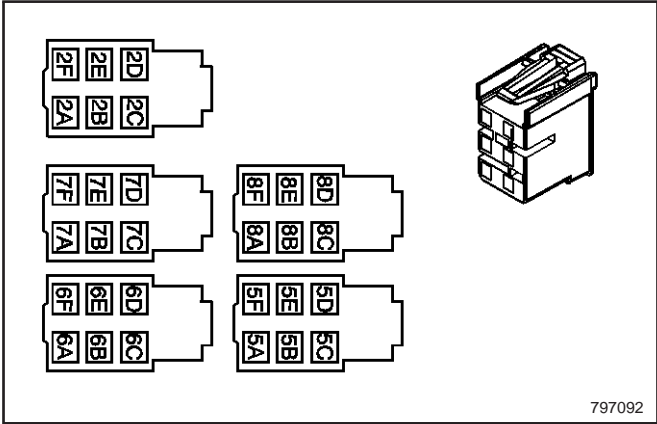


1704596

Legend

- | | |
|--------------------------------------|---|
| (1) Cavity C – Blackout (B/O) Switch | (4) Cavity E – 24 Voltmeter Gage Ground |
| (2) C8 – Connector Location | (5) Cavity F – 24 Voltmeter Gage |
| (3) C5 – Connector Location | (6) Relay Block – I/P |

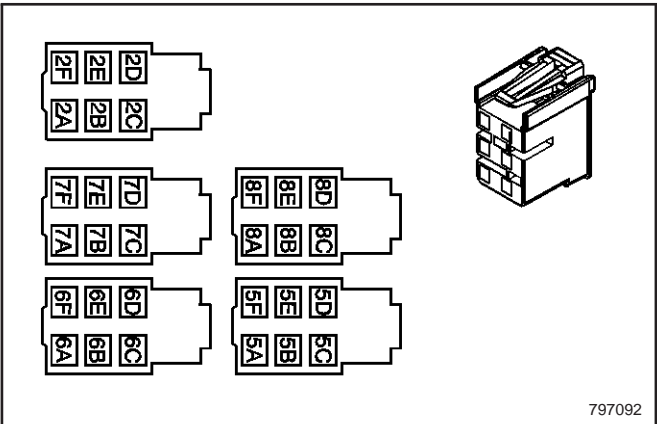
Relay Block – I/P C5



797092

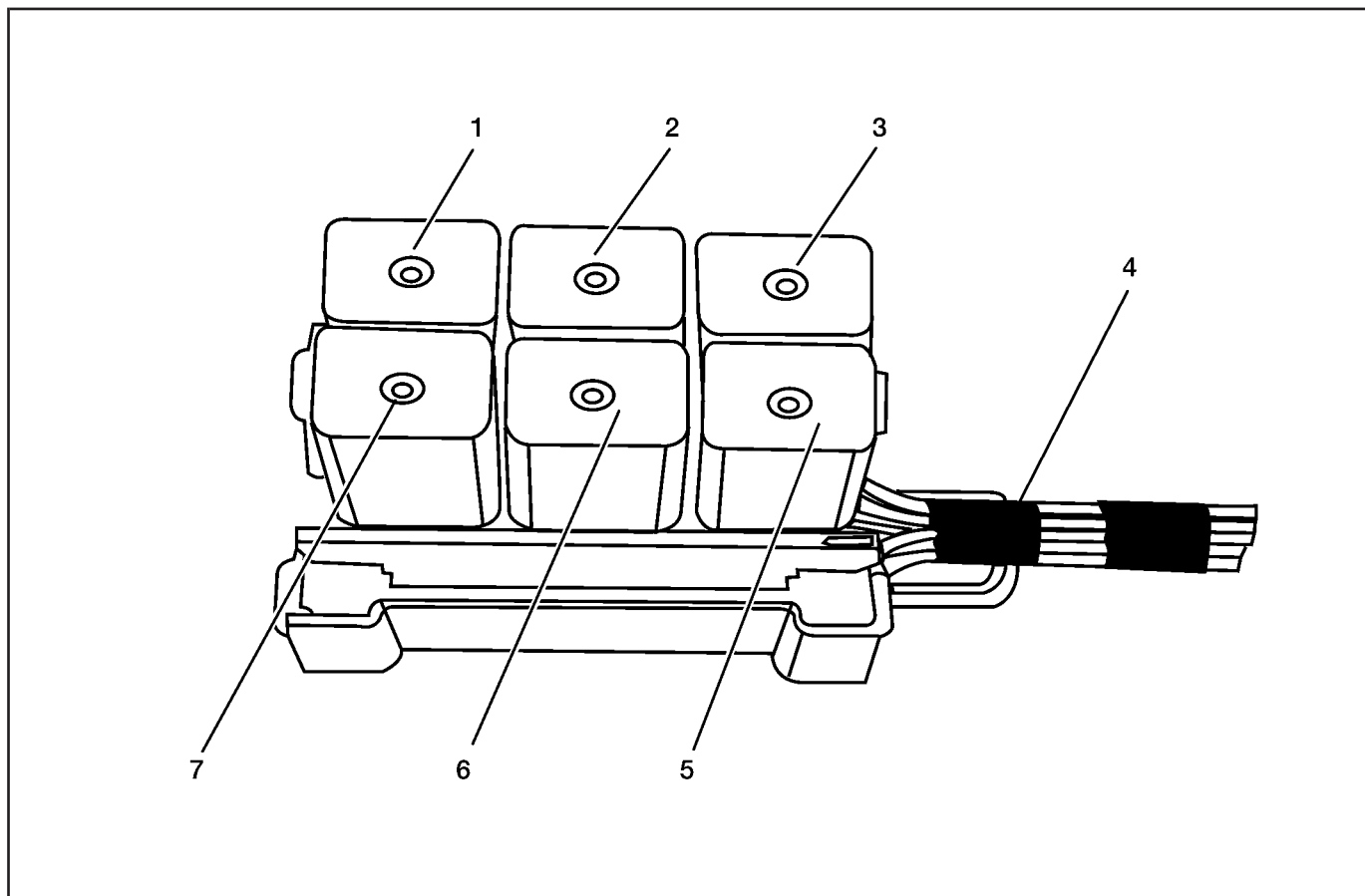
Connector Part Information		• 12193928 • 6-Way F Metri-Pack 280 Series Flexlock (GY)	
Pin	Wire Color	Circuit No.	Function
A	—	—	Not Used
B	PU/WH	1382	LED Dimming Signal (ZX3)
	PU/WH	1382	LED Dimming Signal (5G4/5X7/5Y0/TRW)
C	TN/WH	1384	Selective Ride Control Switch Signal (ZX3)
D	PK	739	Ignition 1 Voltage (ZX3)
E	BK	150	Ground
F	BN	9	24 Voltmeter Gage Supply Voltage

Relay Block – I/P C8



797092

Connector Part Information		• 12193930 • 6-Way F Metri-Pack 280 Series Flexlock (BK)	
Pin	Wire Color	Circuit No.	Function
A	OG	2340	Battery Positive Voltage (5G4/TRW)
B	—	—	Not Used
C	OG	40	Blackout (B/O) Service Switch
D	RD	243	Accessory Voltage (9L4)
E	OG	4540	Battery Positive Voltage (5G4/5X7/5Y0/TRW)
F	BK	1050	Ground (SX7/5Y0/5GY/TRW)

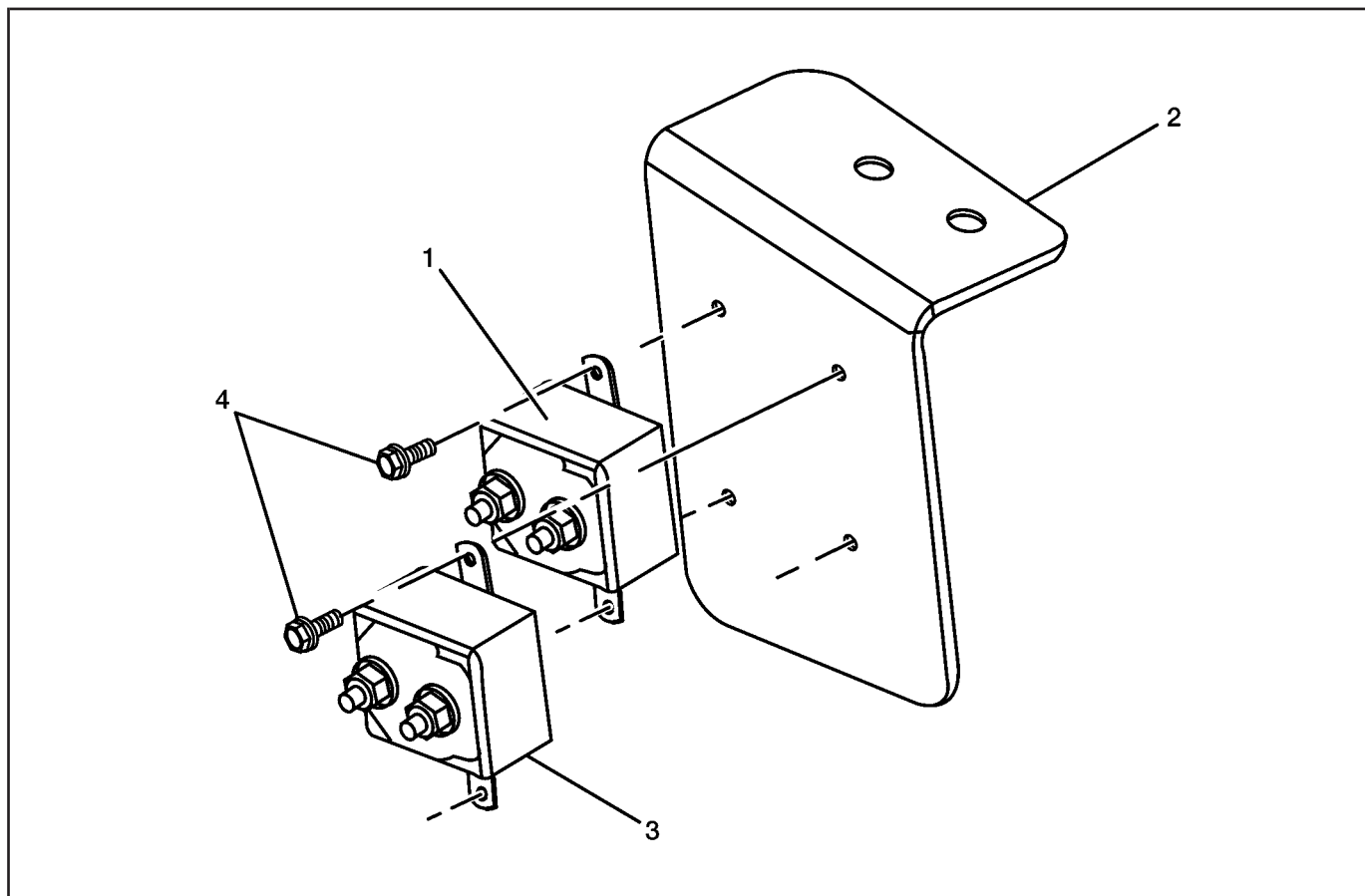
Underhood Relay Block – Blackout (B/O) Lighting

1693357

Legend

- | | |
|------------------------------|-----------------------------|
| (1) Turn Signal Relay | (5) Headlamp Low-Beam Relay |
| (2) Park Lamp Relay | (6) DRL Relay |
| (3) Headlamp Hi-Beam Relay | (7) Horn Relay |
| (4) Interrupt Wiring Harness | |

12V and 24V Circuit Breakers (Ambulance)



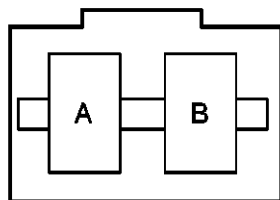
1703354

Legend

- (1) 50 amp 24V Circuit Breaker
- (2) Circuit Breaker Bracket

- (3) 120 amp 12V Circuit Breaker
- (4) Screws

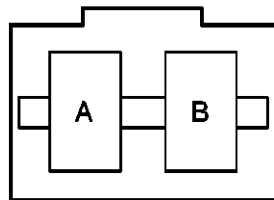
24V Trailer Fuse



350882

Connector Part Information		<ul style="list-style-type: none"> • 12010105 • 2-Way F Auto Fuse Holder 	
Pin	Wire Color	Circuit No.	Function
A	RD/BK	8009	24V Battery Voltage
B	RD/WH	802	Trailer Connector Supply Voltage

24V Accessory Fuse

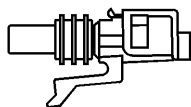
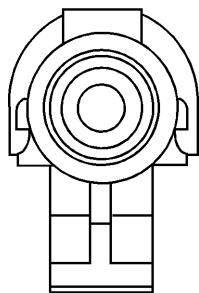


350882

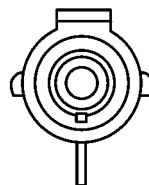
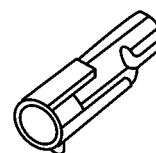
Connector Part Information		<ul style="list-style-type: none"> • 12010105 • 2-Way F Auto Fuse Holder 	
Pin	Wire Color	Circuit No.	Function
A	RD/BK	8009	24V Battery Voltage
B	RD/GY	8009	24V Feed (Not Used)

Inline Harness Connector End Views

C100M Front Blackout (B/O) Harness to Blackout (B/O) Marker Lamp



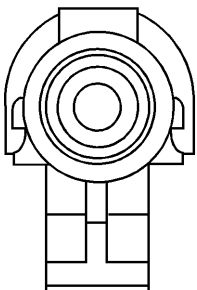
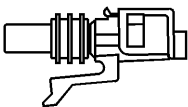
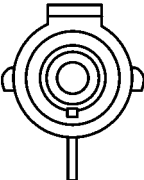
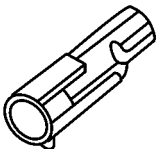
1391785



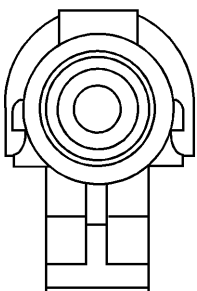
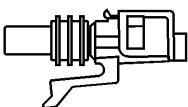
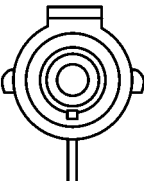
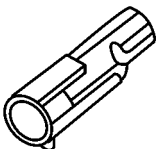
1708840

Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN/WH	900	Blackout (B/O) Marker Lamp (RF) Supply Voltage	A	BK	—	Blackout (B/O) Marker Lamp (RF) Supply Voltage

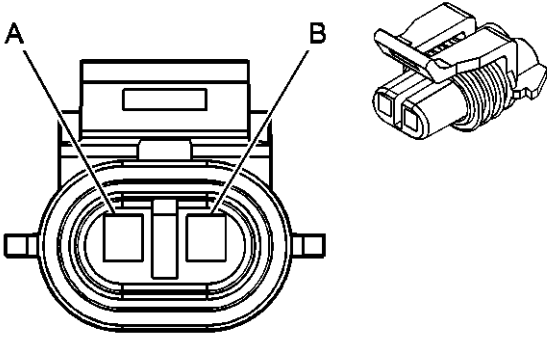
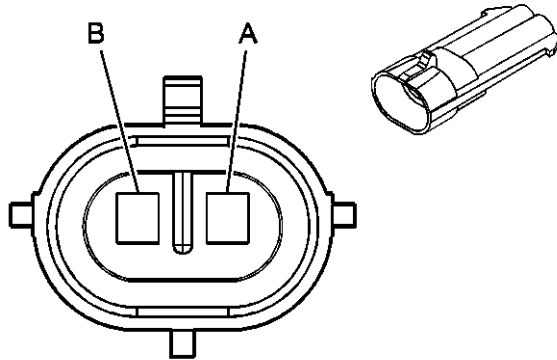
C101M Front Blackout (B/O) Harness to Blackout (B/O) Marker Lamp

 				 			
1391785				1708840			
Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN/WH	900	Blackout (B/O) Marker Lamp (LF) Supply Voltage	A	BK	—	Blackout (B/O) Marker Lamp (LF) Supply Voltage

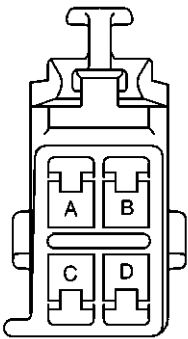
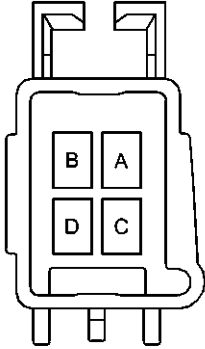
C102M Front Blackout (B/O) Harness to Blackout (B/O) Headlamp

 				 			
1391785				1708840			
Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BK	—	Blackout (B/O) Headlamp Supply Voltage	A	TN/WH	901	Blackout (B/O) Headlamp Supply Voltage

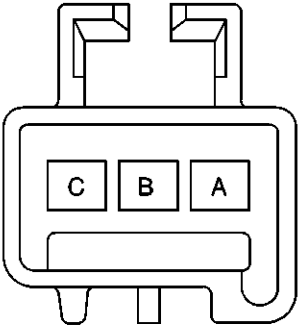
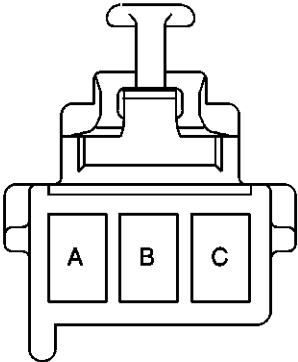
C103M Front Blackout (B/O) Harness to I/P Harness

							
635009				333041			
Connector Part Information		<ul style="list-style-type: none"> • 12010972 • 2-Way F Weather Pack SHD (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12015793 • 2-Way M Weather Pack TWR (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	TN/WH	901	Blackout (B/O) Head Lamp Supply Voltage	A	TN/WH	901	Blackout (B/O) Head Lamp Supply Voltage
B	BN/WH	900	Blackout (B/O) Marker Lamps Supply Voltage	B	BN/WH	900	Blackout (B/O) Marker Lamps Supply Voltage

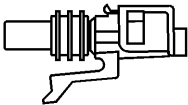
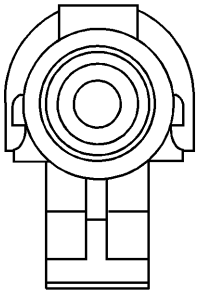
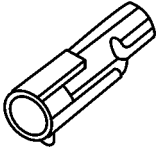
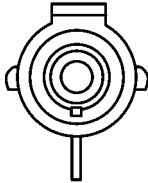
C105M UBEC Harness to Relay Interrupt Harness

							
				95855			
Connector Part Information		<ul style="list-style-type: none"> • 12129136 • 4-Way F Flex-Lock 280 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12129135 • 4-Way M M/P 280 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	WH	1080	Park Lamps Supply Voltage	A	WH	1080	Park Lamps Supply Voltage
B	BK/WH	1969	Head Lamps (Hi Beam) Supply Voltage	B	BK/WH	1969	Head Lamps (Hi Beam) Supply Voltage
C	PK/WH	1970	Head Lamp (Low Beam) Supply Voltage	C	PK/WH	1970	Head Lamp (Low Beam) Supply Voltage
D	PK	639	Turn Signals Supply Voltage	D	PK	639	Turn Signals Supply Voltage

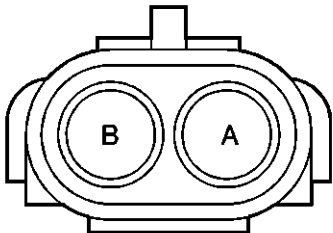
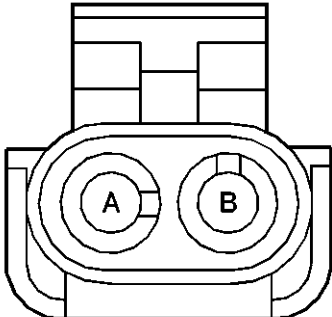
C106M UBEC Harness to Relay Interrupt Harness

<div></div> <div>73249</div>							
Connector Part Information		• 12129489 • 3-Way F M/P Flex-Lock 280 Series (BK)		Connector Part Information		• 12129490 • 3-Way M/P 280 Series (BK)	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	L GN/BK	592	DRL Supply Voltage	A	L GN/BK	592	DRL Supply Voltage
B	DK GN	1329	Horn Supply Voltage	B	D GN	1329	Horn Supply Voltage
C	OG	304	Radio Supply Voltage	C	OG	304	Radio Supply Voltage

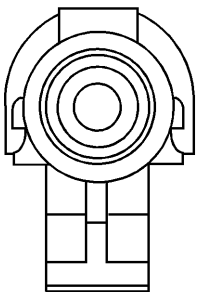
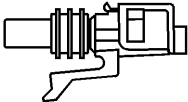
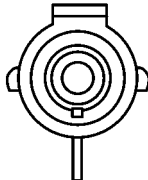
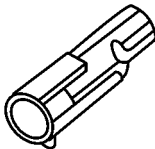
C107M I/P Harness to Relay Block Harness

<div></div> <div>1391785</div>				<div></div> <div>1708840</div>			
Connector Part Information		• 12015791 • 1-Way F Weather Pack (BK)		Connector Part Information		• 12010996 • 1-Way M Weather Pack (BK)	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	OG	912	Supply Voltage to Relay Module	A	OG	912	Supply Voltage to Relay Module

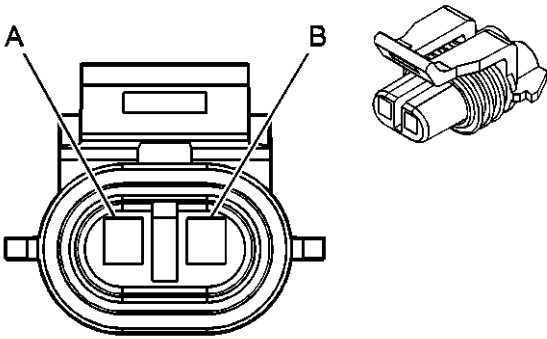
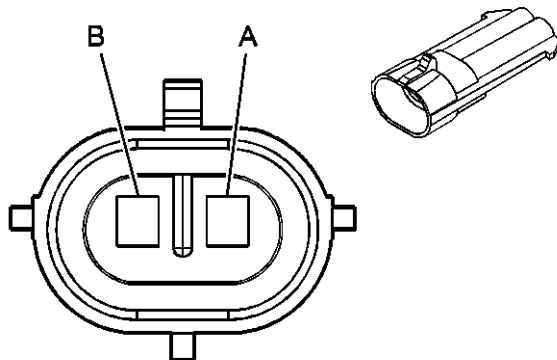
C108M I/P Harness to Rear Lamp Extension Harness

							
				283957			
Connector Part Information		<ul style="list-style-type: none"> • 12103784 • 2-Way F Weather Pack (GY) 		Connector Part Information		<ul style="list-style-type: none"> • 12034014 • 2-Way M Weather Pack (GY) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN/WH	900	Rear Marker Lamp Supply Voltage	A	BN/WH	900	Rear Marker Lamp Supply Voltage
B	D GN/WH	902	Rear Stoplamp Supply Voltage	B	D GN/WH	902	Rear Stoplamp Supply Voltage

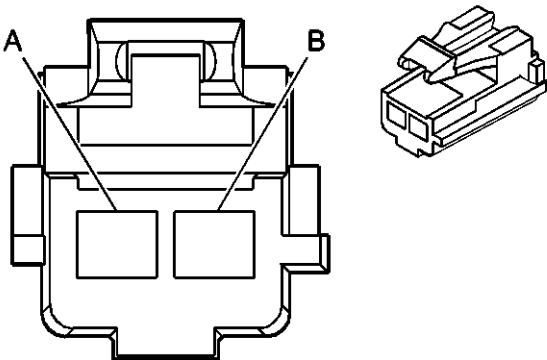
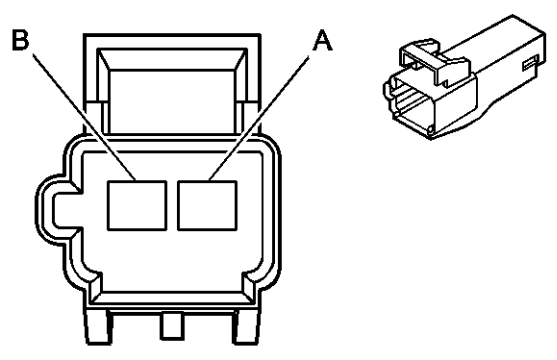
C201M I/P Harness to Tire Pressure Monitoring System Harness

 				 			
				1708840			
Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN	9	Supply Voltage to TPMS Gage Dimming	A	BN	9	Supply Voltage to TPMS Gage Dimming

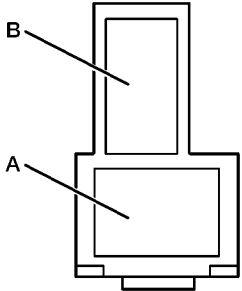
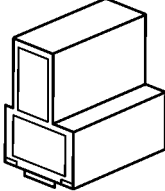
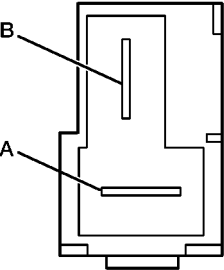
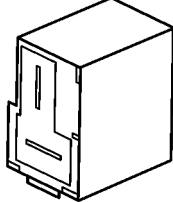
C301M Fiberglass Top Lamp Switch Harness to Switch Extension Harness

							
Connector Part Information		<ul style="list-style-type: none"> • 12052641 • 2-Way F M/P 150 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12162000 • 2-Way M M/P 150 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN/WH	803	To Rear Topper Dome Switch	A	BN	800	From Front Topper Dome Switch
B	BN	800	To Rear Topper Dome Switch	B	BN/WH	803	From Front Topper Dome Switch

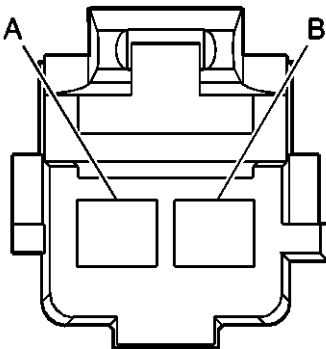
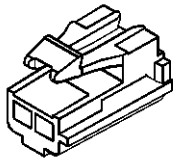
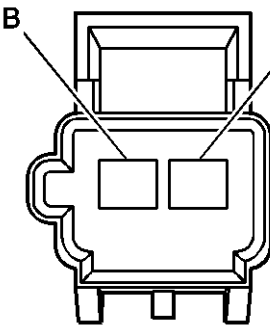
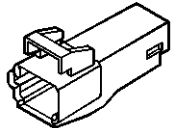
C302M Brake Switch Harness to I/P Harness

							
Connector Part Information		<ul style="list-style-type: none"> • 12129081 • 2-Way F Flex-Lock 280 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12129155 • 2-Way M M/P 280 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	WH	17	Brake Light Switch	A	WH	17	Blackout (B/O) Service Switch
B	—	—	Not Used	B	—	—	Not Used

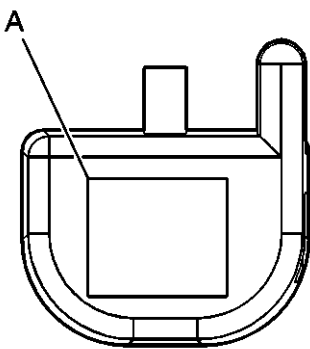
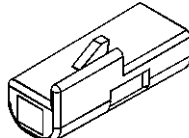
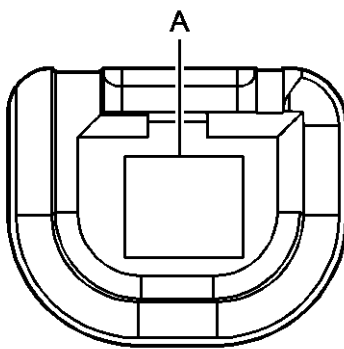
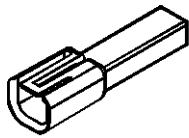
C304M Volt Gage Harness to Generator Harness

 				 			
1708837				1708839			
Connector Part Information		<ul style="list-style-type: none"> • 02973781 • 2-Way F Series 280 (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 02984883 • 2-Way M Series 280 (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN	8008	Volt Gage Supply Voltage	A	BN	8008	Volt Gage Supply Voltage
B	BK	150	Ground	B	BK	150	Ground

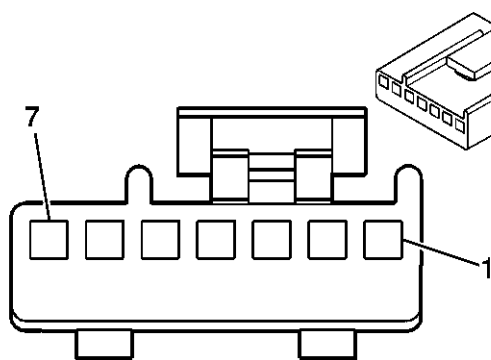
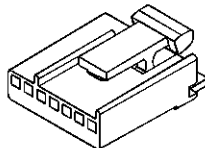
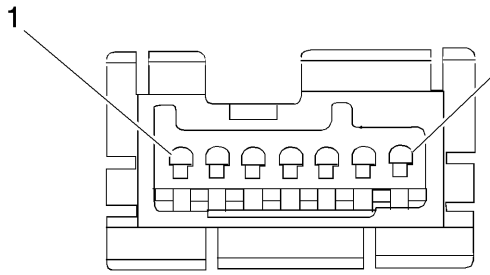
C305M MBEC Harness to Relay Interrupt Harness

 				 			
153645				258179			
Connector Part Information		<ul style="list-style-type: none"> • 12129081 • 2-Way F Flex-Lock 280 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12129155 • 2-Way M M/P 280 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	GY/BK	690	CTSY Supply Voltage	A	GY/BK	690	CTRY Supply Voltage
B	OG/BK	1732	Inadvertent Power Supply Voltage	B	OG/BK	1732	Inadvertent Power Supply Voltage

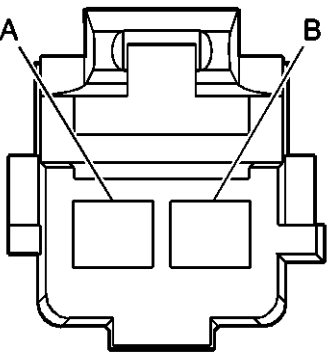
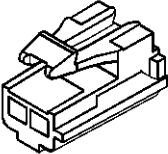
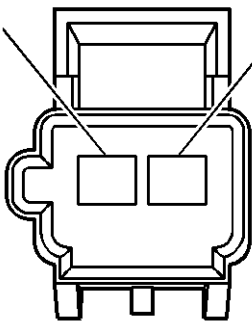
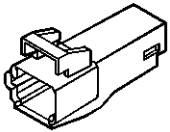
C306M TBC Harness to Relay Interrupt Harness

  <p>439818</p>				  <p>611495</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12047682 • 1-Way F M/P 150 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12047683 • 1-Way M M/P 150 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	GN	24	Backup Lamp Supply Voltage	A	L GY/BK	24	Backup Lamp Supply Voltage

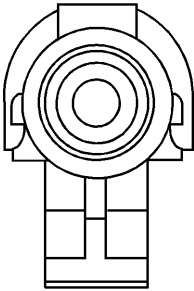
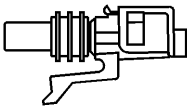
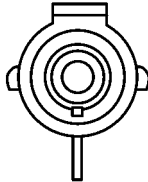
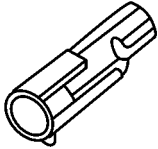
C307M TBC Harness to Relay Interrupt Harness

  <p>258171</p>				 <p>1459214</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12065873 • 7-Way F M/P 100 (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12065874 • 7-Way M M/P 100 (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
1	GY	1056	Dimmer Switch 5V Reference Voltage from Dimming Relay	1	GY	1056	Dimmer Switch 5V Reference Voltage from Dimming Relay
2	OG/BK	2090	Dimmer Switch Signal from Dimming Relay	2	OG/WH	2090	Dimmer Switch Signal from Dimming Relay
3	GY/BK	2226	Dimmer Switch Low Reference from Dimming Relay	3	GY/BK	2226	Dimmer Switch Low Reference from Dimming Relay
4	—	—	Not Used	4	—	—	Not Used
5	GY	1056	Dimmer Switch 5V Reference Voltage from BCM	5	GY	1056	Dimmer Switch 5V Reference Voltage from BCM
6	YE/BK	2090	Dimmer Switch Signal from BCM	6	YE/BK	2090	Dimmer Switch Signal from BCM
7	GY/BK	2226	Dimmer Switch Signal from BCM	7	GY/BK	2226	Dimmer Switch Signal from BCM

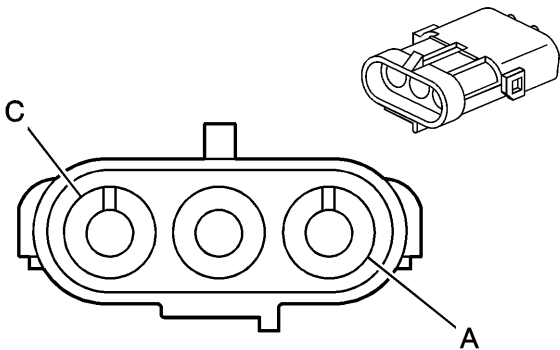
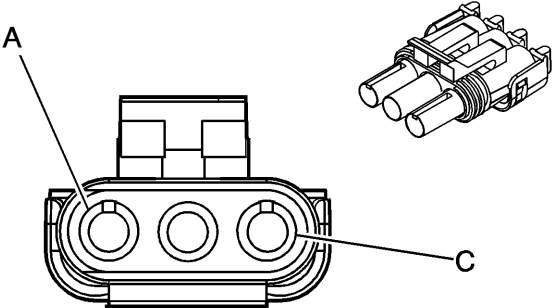
C308M Relay Interrupt Harness to I/P Harness

  153645				  258179			
Connector Part Information		• 12129081 • 2-Way F Flex-Lock 280 Series (BK)		Connector Part Information		• 12129155 • 2-Way M M/P 280 Series (BK)	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	OG	912	Blackout (B/O) Service Switch Voltage	A	OG	912	Blackout (B/O) Service Switch Voltage
B	BK	150	Ground	B	BK	150	Ground

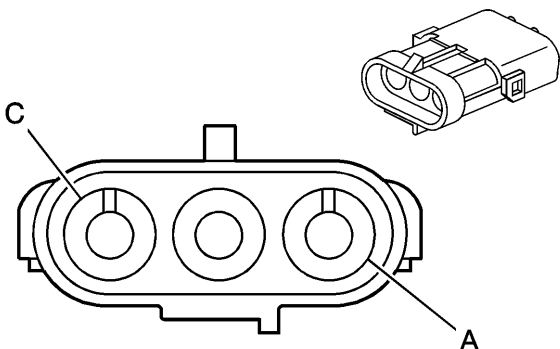
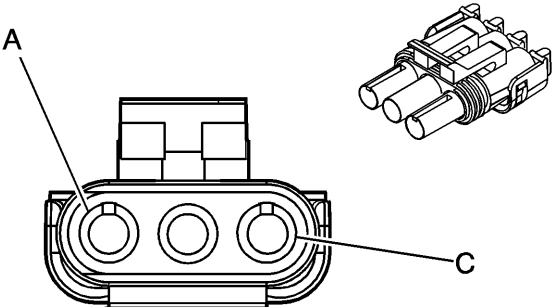
C309 I/P Harness to Relay Block Harness

  1391785				  1708840			
Connector Part Information		• 12015791 • 1-Way F Weather Pack (BK)		Connector Part Information		• 12010996 • 1-Way M Weather Pack (BK)	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	OG	912	Supply Voltage to Relay Module	A	OG	912	Supply Voltage to Relay Module

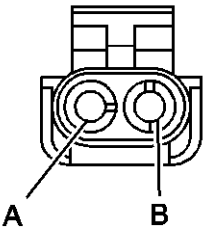
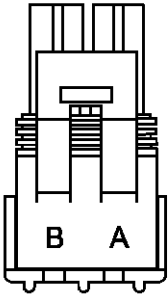
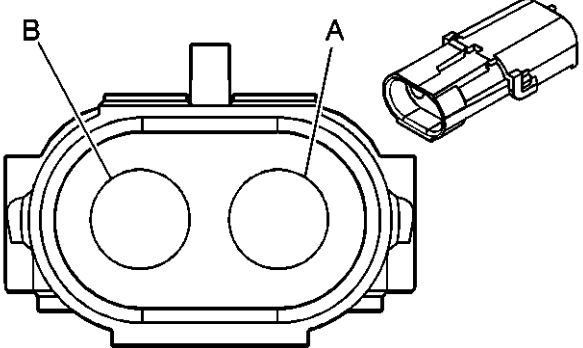
C900M Blackout (B/O) and Trailer Harness to Transfer Connector Harness

							
593204				888059			
Connector Part Information		<ul style="list-style-type: none"> • 12010717 • 3-Way F Weather Pack TWR (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12015793 • 3-Way M Weather Pack TWR (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN	30	Blackout (B/O) Marker Lamps	A	BN	30	Blackout (B/O) Marker Lamps
B	YE	18	S/T Lamp Feed (Left)	B	YE	18	S/T Lamp Feed (Left)
C	BK	150	Ground	C	BK	150	Ground

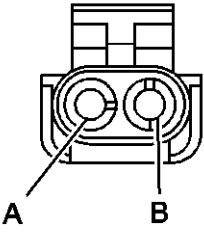
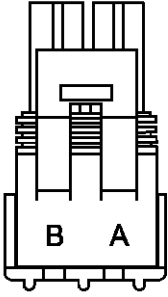
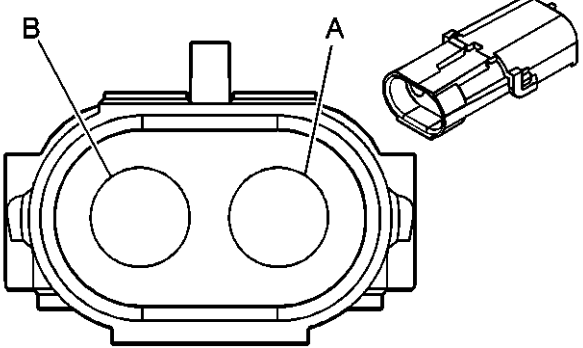
C901M Blackout (B/O) and Trailer Harness to Trailer Connector Harness

							
593204				888059			
Connector Part Information		<ul style="list-style-type: none"> • 12010717 • 3-Way F Weather Pack SHD (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12015793 • 3-Way M Weather Pack SHD (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN	9	Park Lamp Feed	A	BN	9	Park Lamp Feed
B	GN	30	Blackout (B/O) Stoplamps	B	D GN	30	Blackout (B/O) Stoplamps
C	D GN	19	S/T Lamps (Right)	C	D GN	19	S/T Lamps (Right)

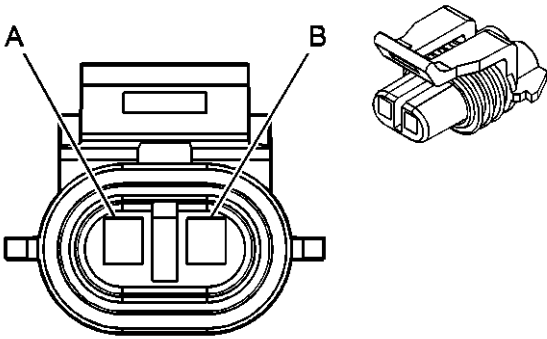
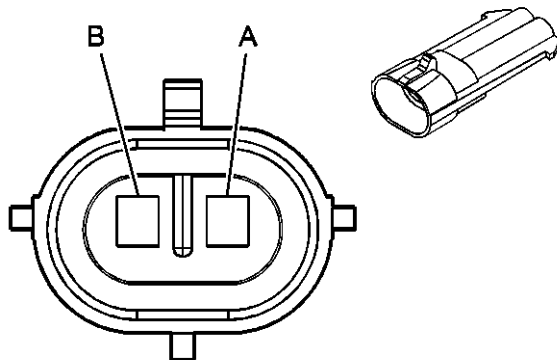
C902M Blackout (B/O) and Trailer Harness to Rear Blackout (B/O) Lamp

 							
781760				258174			
Connector Part Information		<ul style="list-style-type: none"> • 12015792 • 2-Way F Weather Pack TWR (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack TWR (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	GN/WH	902	Right Rear Blackout (B/O) Stoplamps	A	GN/WH	902	Right Rear Blackout (B/O) Stoplamps
B	BN/WH	900	Right Rear Blackout (B/O) Marker Lamps	B	BN/WH	900	Right Rear Blackout (B/O) Marker Lamps

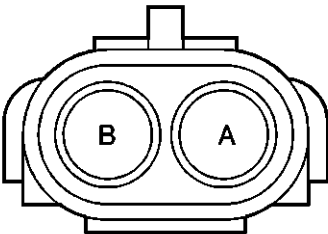
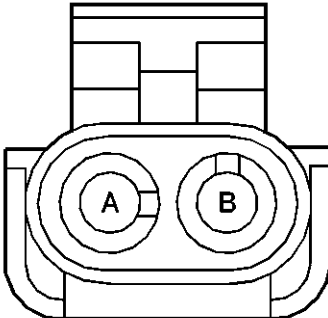
C903M Blackout (B/O) and Trailer Harness to Rear Blackout (B/O) Lamp

 							
781760				258174			
Connector Part Information		<ul style="list-style-type: none"> • 12015792 • 2-Way F Weather Pack TWR (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack SHD (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	GN/WH	902	Left Rear Blackout (B/O) Stoplamps	A	GN/WH	902	Left Rear Blackout (B/O) Stoplamps
B	BN/WH	900	Left Rear Blackout (B/O) Marker Lamps	B	BN/WH	900	Left Rear Blackout (B/O) Marker Lamps

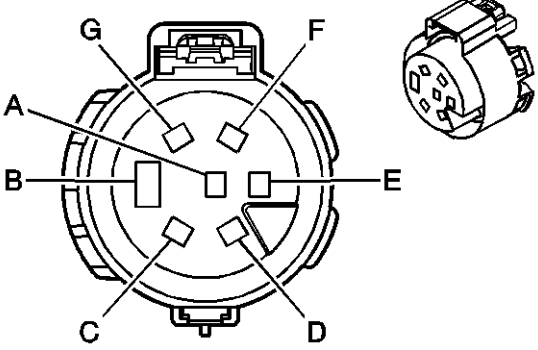
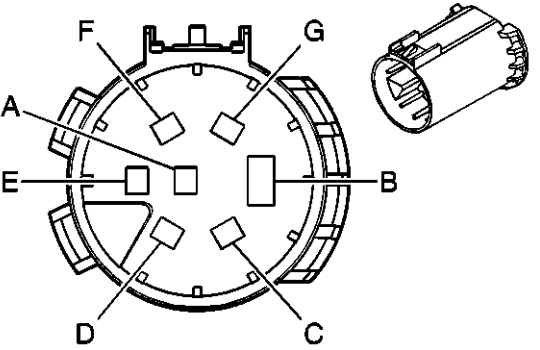
C904M CHSML Harness to CHSML Lamp Harness

							
635009				333041			
Connector Part Information		<ul style="list-style-type: none"> • 12052641 • 2-Way F MP 150 Series (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12162000 • 2-Way M MP 150 Series (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BK	1050	CHML Supply Voltage	A	RD	1620	CHML Supply Voltage
B	BU	1050	Ground	B	BK	1050	Ground

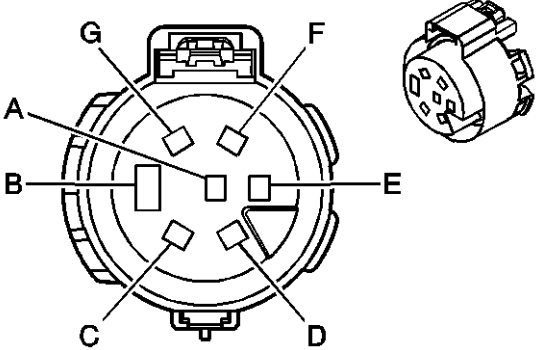
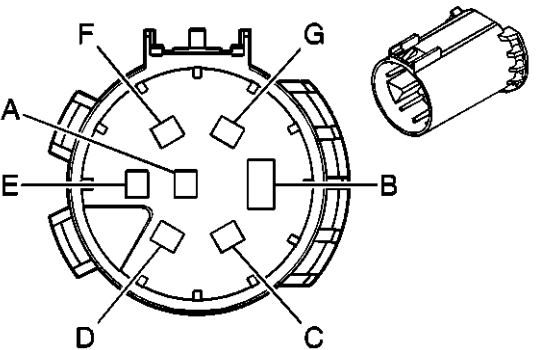
C905 Rear Lamp Extension Harness to Rear Lamp Harness

							
				283957			
Connector Part Information		<ul style="list-style-type: none"> • 12105792 • 2-Way F Weather Pack TWR (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack TWR (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	BN/WH	900	Rear Marker Lamp Supply Voltage	A	BN/WH	900	Rear Marker Lamp Supply Voltage
B	D GN/WH	902	Rear Stoplamp Supply Voltage	B	D GN/WH	902	Rear Stoplamp Supply Voltage

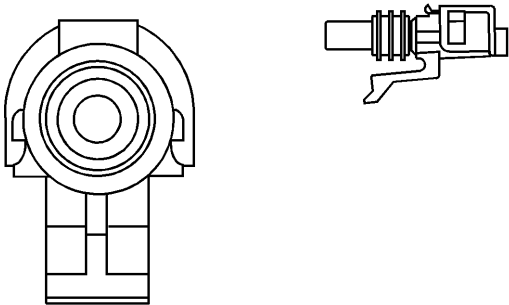
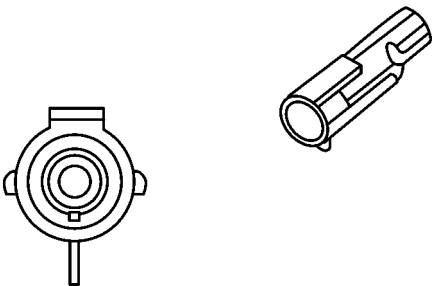
C906M Production Extension Harness to Blackout (B/O) and Trailer Harness

							
525095				366087			
Connector Part Information		<ul style="list-style-type: none"> • 1535465 • 7-Way F Metri Pack 280 Sealed (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 15317327 • 7-Way M Metri Pack 280 Sealed (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	L GN	1624	Trailer Backup Lamps Supply Voltage	A	L GN	1624	Trailer Backup Lamps Supply Voltage
B	BK	1750	Ground	B	BK	1750	Ground
C	BU	47	Trailer Auxiliary Supply Voltage	C	BU	47	Trailer Auxiliary Supply Voltage
D	D GN	1619	S/T Lamps (Right)	D	D GN	1619	S/T Lamps (Right)
E	RD	742	Battery Positive Voltage	E	RD	742	Battery Positive Voltage
F	BN	915	Park Lamps	F	BN	915	Park Lamps
G	YE	1618	S/T Lamps (Left)	G	YE	1618	S/T Lamps (Left)

C907M Blackout (B/O) and Trailer Harness to Production Extension Harness

							
525095				366087			
Connector Part Information		<ul style="list-style-type: none"> • 1535465 • 7-Way F Metri Pack 280 Sealed (BK) 		Connector Part Information		<ul style="list-style-type: none"> • 15317327 • 7-Way M Metri Pack 280 Sealed (BK) 	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	L GN	1624	Trailer Backup Lamps Supply Voltage	A	L GN	1624	Trailer Backup Lamps Supply Voltage
B	BK	1750	Ground	B	BK	1750	Ground
C	BU	47	Trailer Auxiliary Supply Voltage	C	BU	47	Trailer Auxiliary Supply Voltage
D	D GN	1619	S/T Lamps (Right)	D	D GN	1619	S/T Lamps (Right)
E	RD	742	Battery Positive Voltage	E	RD	742	Battery Positive Voltage
F	BN	915	Park Lamps	F	BN	915	Park Lamps
G	YE	1618	S/T Lamps (Left)	G	YE	1618	S/T Lamps (Left)

C909M Rear Blackout (B/O) and Trailer Harness to 12–24V Trailer Harness

 <div>1391785</div>				 <div>1708840</div>			
Connector Part Information		• 12015791 • 1-Way F Weather Pack (BK)		Connector Part Information		• 12010996 • 1-Way M Weather Pack (BK)	
Pin	Wire Color	Circuit No.	Function	Pin	Wire Color	Circuit No.	Function
A	RD	87	Power to Trailer Relays	A	RD	802	Power to Trailer Relays

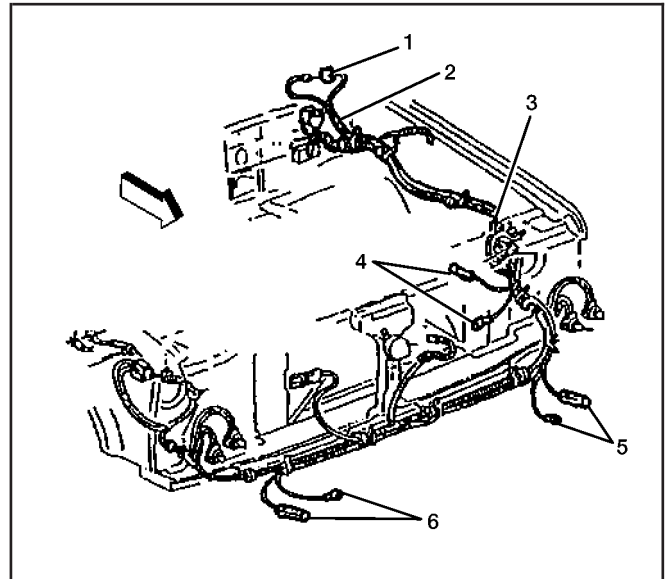
Repair Instructions

Auxiliary Lamp Harness Replacement - Front

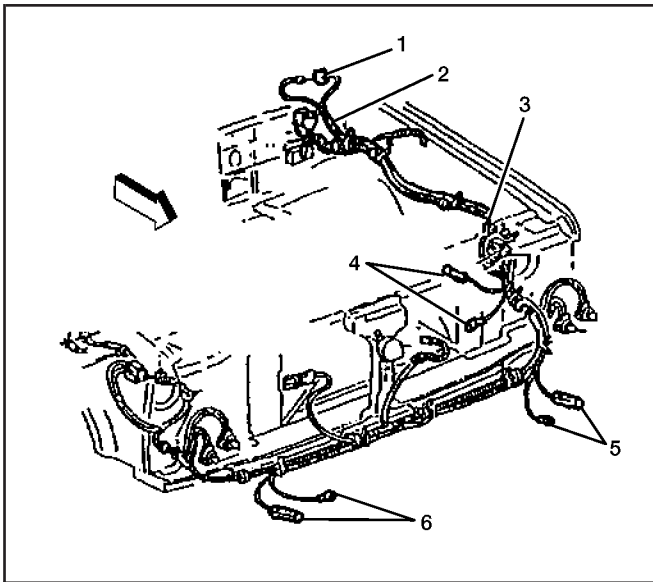
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the radiator grille brush guard. Refer to *Center Radiator Grille Brush Guard Replacement* and *Outer Radiator Grille Brush Guard Replacement* or *Radiator Grille Brush Guard Replacement* in Bumpers.
3. Remove the radiator grille. Refer to *Grille Replacement (GMC)* or *Grille Replacement (Chevrolet)* in Exterior Trim in 2005 C/K Truck Service Manual.
4. Remove the filler panel. Refer to *Radiator Air Baffle and Deflector Replacement - Upper* in Engine Cooling in 2005 C/K Truck Service Manual.
5. Trace the auxiliary harness connections to the original harness.
6. Remove the connector from the right hand (6) and left hand (5) blackout (B/O) marker lamp.
7. Remove the nut to the ground lead and all wiring harness straps connecting the auxiliary harness.
8. Remove connector (4) and ground from blackout (B/O) headlamp mounting stud.
9. Trace the auxiliary harness under the washer fluid reservoir and remove the wiring harness straps along the fender interior.
10. Trace the auxiliary harness under the battery tray area and remove the wrap.
11. Remove the forward auxiliary harness (2) from the vehicle.
12. Remove the wiring harness straps near the bulkhead and disconnect the forward connector of the auxiliary harness from the auxiliary I/P harness connector.



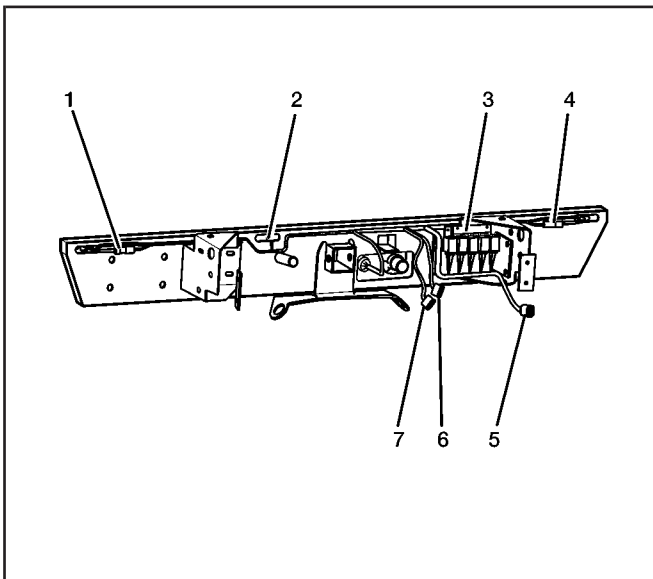
1704990



1704990

Installation Procedure

1. Connect the forward connector of the auxiliary harness to the auxiliary I/P harness connector and attach the tie-wraps.
2. Install the forward auxiliary harness (2) to the vehicle.
3. Install the auxiliary harness under the battery tray area and install the wiring harness straps.
4. Install the auxiliary harness under the washer fluid reservoir area and install the wiring harness straps along the fender interior.
5. Install the connector to the right hand (6) and left hand (5) blackout (B/O) marker lamp and the ground nut to the ground lead and all wiring harness straps connecting the auxiliary harness.
6. Install connector (4) and the ground to blackout (B/O) headlamp mounting stud.
7. Install the filler panel. Refer to *Radiator Air Baffle and Deflector Replacement - Upper* in Engine Cooling in 2005 C/K Truck Service Manual.
8. Install the auxiliary harness connections to the original harness.
9. Install the radiator grille. Refer to *Grille Replacement (GMC)* or *Grille Replacement (Chevrolet)* in Exterior Trim in 2005 C/K Truck Service Manual.
10. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
11. Install the radiator grille brush guard. Refer to *Center Radiator Grille Brush Guard Replacement* and *Outer Radiator Grille Brush Guard Replacement* or *Radiator Grille Brush Guard Replacement* in Bumpers.



1703206

Lamp Harness Replacement - Rear (LSSV)

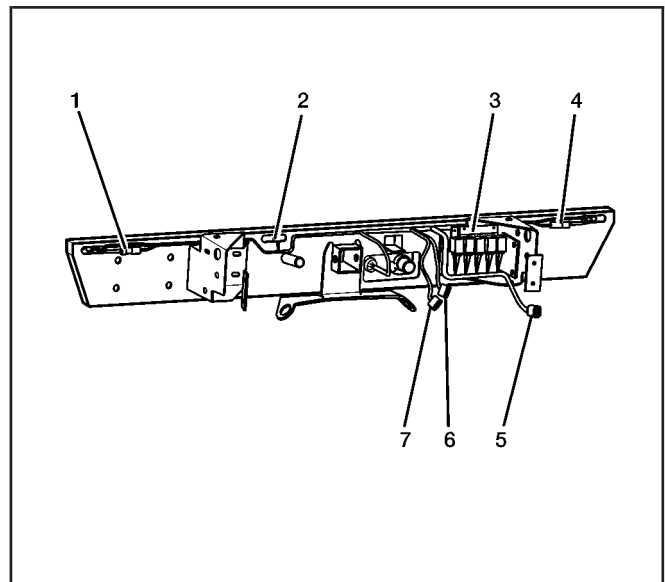
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Disconnect the blackout (B/O) lamp harness connectors from the B/O marker lamp connectors (1, 4).
3. Disconnect the license plate lamp from the harness connector (2).
4. Disconnect the commercial and the military connectors (6, 7) from the harness.
5. Disconnect the relay connectors from the harness on the rear relay block (3).
6. Disconnect the rear lamp harness connector (5) from the extension harness.
7. Remove the rear lamp harness from the vehicle.

Installation Procedure

1. Install the rear lamp harness on the rear bumper.
2. Connect the rear lamp harness (5) to the extension harness.
3. Connect the relay connectors to the relays on the relay block (3).
4. Connect the commercial and the military connectors (6, 7) to the harness.
5. Connect the license plate lamp connector (2) to the harness.
6. Connect the blackout (B/O) lamp harness connectors to the blackout (B/O) marker lamp connectors (1, 4).
7. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



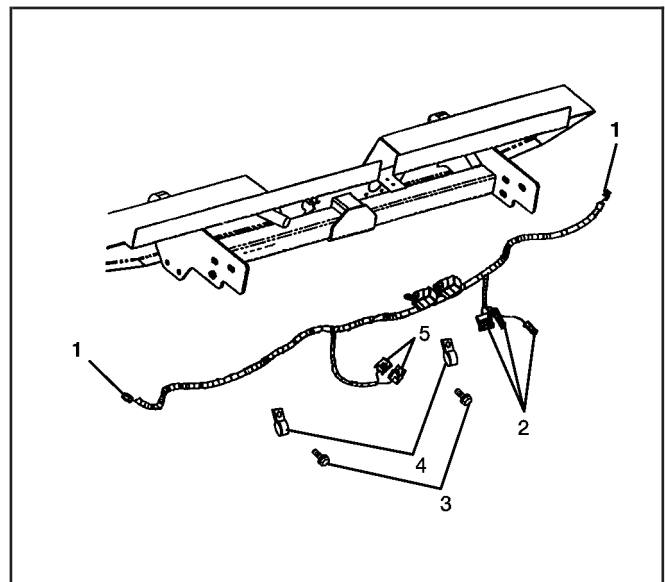
1703206

Lamp Harness Replacement - Rear (Maintenance Body)

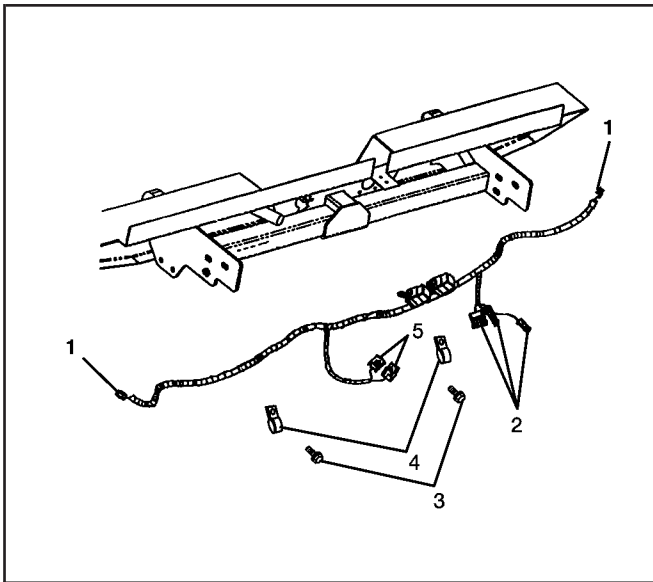
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Disconnect the 2, 24V trailer harness connectors (5) from the 24V trailer connector harness.
3. Disconnect the 3 blackout (B/O) and trailer harness connectors (2).
4. Disconnect the 2 blackout (B/O) marker lamp connectors (1) from the blackout (B/O) marker lamps.
5. Remove the 2 bolts (3) and 2 clamps (4) from the blackout (B/O) and the trailer harness.
6. Remove the blackout (B/O) and the trailer harness from the bumper assembly.



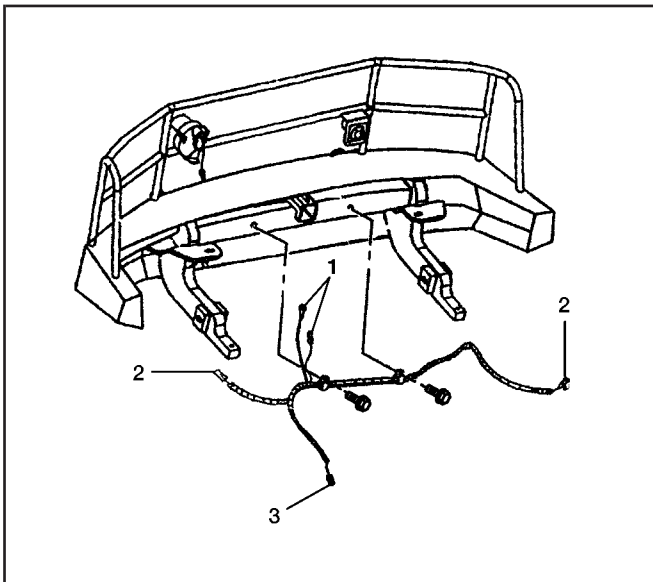
1704993



1704993

Installation Procedure

1. Position the blackout (B/O) and the trailer harness onto the bumper in the same routing location as removed.
2. Install the 2 clamps (4) and the 2 bolts (3) to the blackout (B/O) and trailer harness.
3. Connect the 2 blackout (B/O) marker lamp connectors (1) to the blackout (B/O) marker lamps.
4. Connect the 3 blackout (B/O) and the trailer harness connectors (2).
5. Connect the 2, 24V trailer harness connectors (5) to the 24V trailer harness.
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



1704995

Blackout (B/O) Lamp Wiring Harness - Front (Ambulance/Maintenance Body)

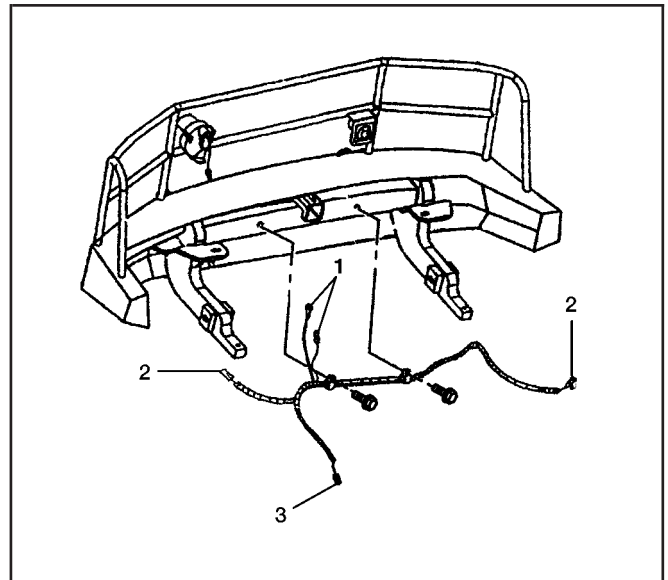
Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Disconnect the blackout (B/O) headlamp connectors (1) from the blackout (B/O) headlamp.
3. Disconnect the blackout (B/O) marker lamp connectors (2) from the blackout (B/O) marker lamp.
4. Trace the blackout (B/O) lamp harness connector (3) to the main harness connector.
5. Disconnect the blackout (B/O) lamp harness connector (3) to the main harness connector.
6. Remove the wiring harness from the vehicle. Note wiring harness routing for installation.

Installation Procedure

1. Position the blackout (B/O) lamp wiring harness onto the vehicle in the same routing location as removed.
2. Connect the blackout (B/O) lamp harness connector (3) to the main harness connector.
3. Connect the blackout (B/O) marker lamp connectors (2) to the blackout (B/O) marker lamps.
4. Connect the blackout (B/O) headlamp connectors (1) to the blackout (B/O) headlamp.
5. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



1704995

Auxiliary Lamp Extension Harness Replacement

Removal Procedure

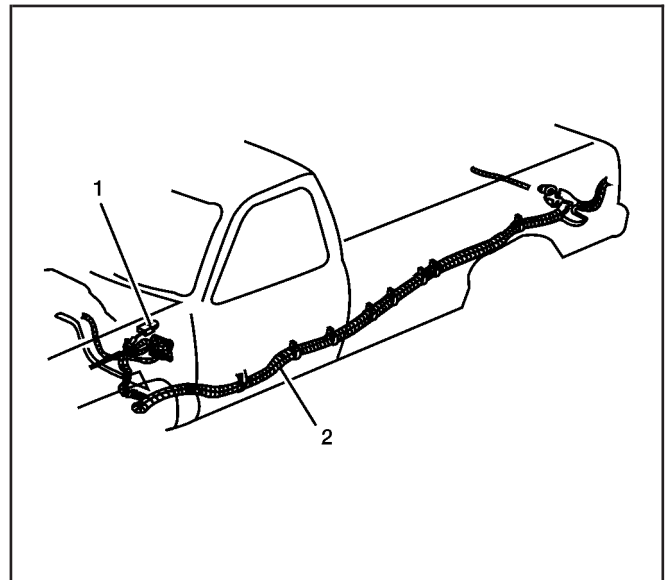
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Access the auxiliary rear lamp extension harness from the engine compartment at the left side of the bulkhead.
3. Remove the connector (1) from the I/P auxiliary harness and wiring harness straps (2) connecting to the lamp harness.

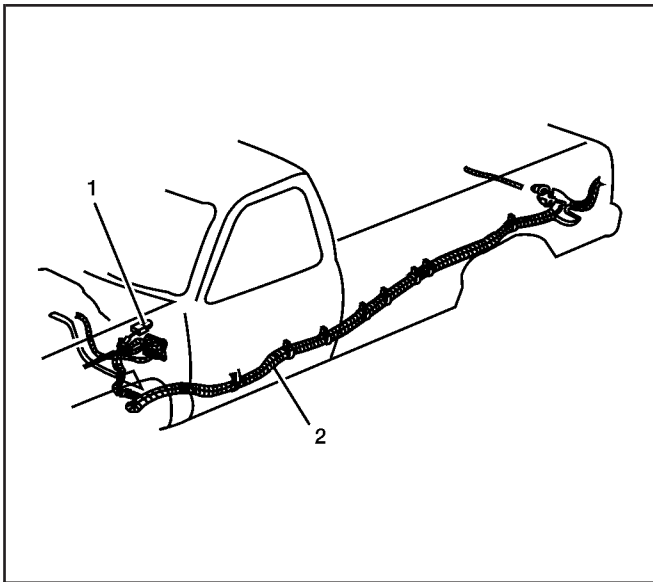
Caution: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed.

Caution: Refer to *Vehicle Lifting Caution in Cautions and Notices*.

4. Raise and support the vehicle on a hoist. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
5. Trace the auxiliary rear lamp harness extension along the path of the existing harness and vehicle frame.
6. Remove the connector to the rear lamp harness.



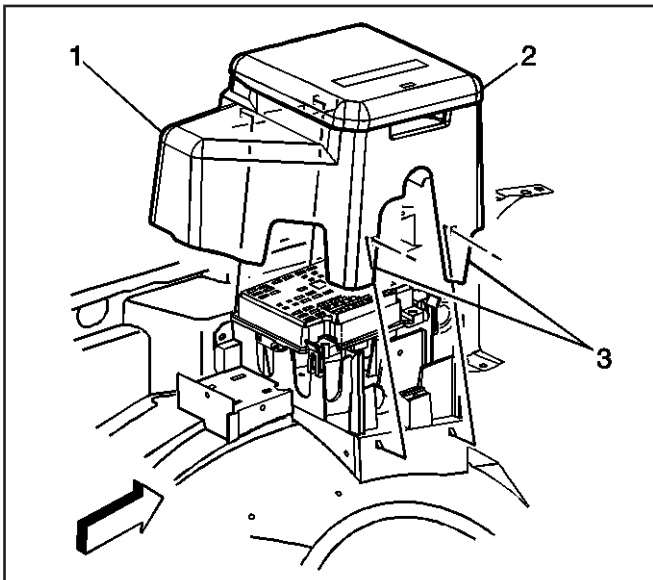
1704991



1704991

Installation Procedure

1. Install the connector to the rear lamp harness.
2. Install the auxiliary rear lamp harness extension along the path of the existing harness and vehicle frame.
3. Remove supports and lower the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information in the 2005 C/K Truck Service Manual.
4. Install the connector (1) to the I/P auxiliary harness and wiring harness straps (2) holding to the lamp harness.
5. Install the auxiliary rear lamp extension harness to the engine compartment location at the left side of the bulkhead.
6. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



749941

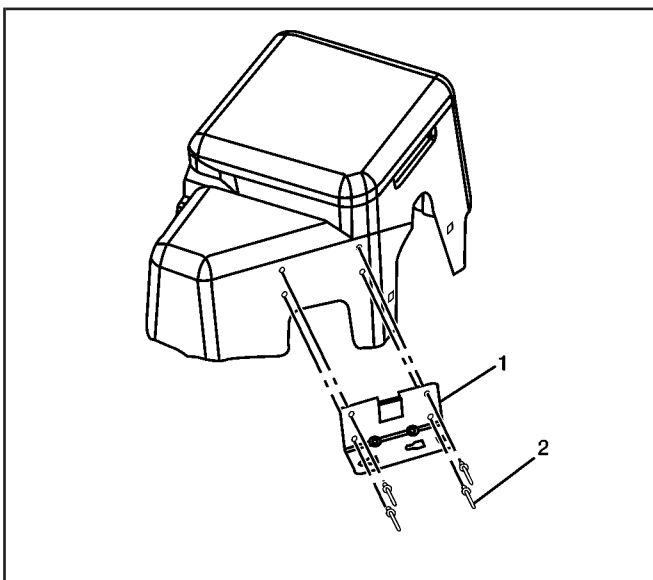
Relay Mounting Bracket Replacement

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Remove the left fender upper brace.
3. Remove top cover (2).
4. Remove the electrical center cover assembly (1) by lifting the cover outwards to clear the tabs (3).
5. Remove the vehicle load disconnect switch (if equipped). Refer to *Vehicle Load Disconnect Switch Replacement (LSSV/Maintenance Body)* or *Vehicle Load Disconnect Switch Replacement (Ambulance)* in Engine Electrical.

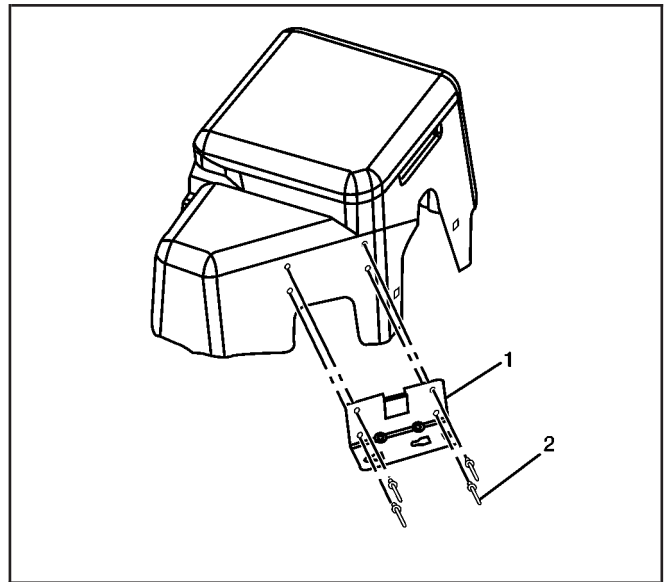
Caution: Approved safety glasses and gloves should be worn when performing this procedure to reduce the chance of personal injury.



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Installation Procedure

1. Rivet the bracket (1) to the electrical center cover.
2. Install the vehicle load disconnect switch (if equipped). Refer to *Vehicle Load Disconnect Switch Replacement (LSSV /Maintenance Body)* or *Vehicle Load Disconnect Switch Replacement (Ambulance)* in Engine Electrical.



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3. Set the electrical center block in its resting position until the tabs (3) lock into place.
4. Install the electrical center cover assembly (1).
5. Install the top cover (2).
6. Install the fender upper brace.

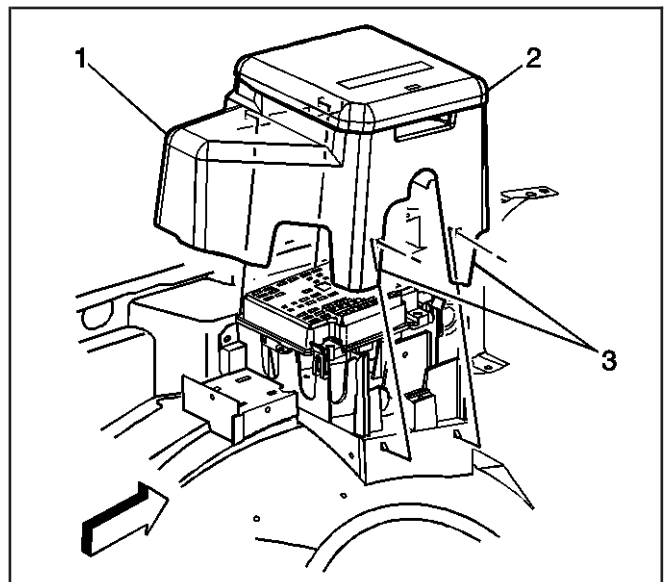
Notice: Refer to *Fastener Notice* in Cautions and Notices.

7. Install the upper brace fasteners.

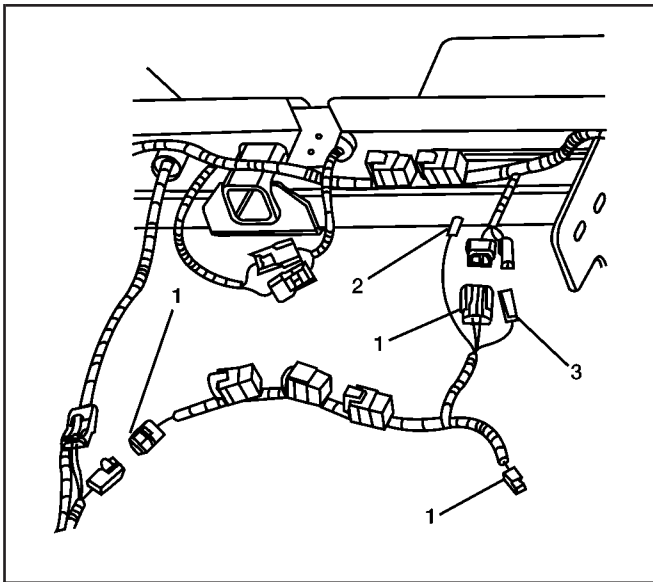
Tighten

Tighten the fasteners to 25 N·m (18 lb ft).

8. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.



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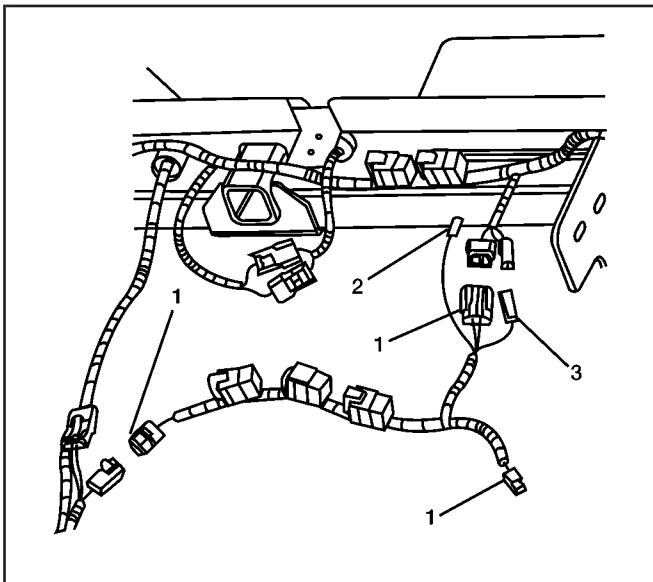
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12V and 24V Harness Replacement (Maintenance Body)

Removal Procedure

Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.
2. Disconnect the 12V and the 24V harness connector (1) from the blackout (B/O) and the trailer harness connectors.
3. Disconnect the license plate lamp connector (2) from the license plate lamp.
4. Disconnect the blackout (B/O) connector (3) from the blackout (B/O) and trailer harness connector.
5. Remove the 12V to 24V harness from the vehicle.



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Installation Procedure

1. Install the 12V to 24V wiring harness in the same routing location as removed.
2. Connect the blackout (B/O) connector (3) from the 12V and 24V harness to the blackout (B/O) and trailer harness connector.
3. Connect the license plate lamp connector (2) from the 12V to 24V harness to the license plate lamp.
4. Connect the 12V to 24V harness connector (1) to the blackout (B/O) and the trailer harness connector.
5. Connect the battery cables. Refer to *Battery Cable Disconnect/Connect Procedure* in Engine Electrical.

SERVICE MANUAL

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Light Service Support Vehicle
(LSSV)

Enhanced Mobility Package
(EMP)

