

2001/02

***GENERAL MOTORS LSSV MILITARY
VEHICLES***

SERVICE MANUAL SUPPLEMENT

Preface

Caution

Caution: To reduce the chance of personal injury and/or property damage, carefully observe the instructions that follow:

The service manuals of General Motors Corporation are intended for use by professional, qualified technicians. Attempting repairs or service without the appropriate training, tools, and equipment could cause injury to you or others. This could also damage the vehicle, or cause the vehicle to operate improperly.

Proper vehicle service and repair are important to the safety of the service technician and to the safe, reliable operation of all motor vehicles. If you need to replace a part, use the same part number or an equivalent part. Do not use a replacement part of lesser quality.

The service procedures we recommend and describe in this service manual are effective methods of performing service and repair. Some of the procedures require the use of tools that are designed for specific purposes.

Accordingly, any person who intends to use a replacement part, a service procedure, or a tool that is not recommended by General Motors, must first establish that there is no jeopardy to personal safety or to the safe operation of the vehicle.

This manual contains various “Cautions” and “Notices” that you must observe carefully to reduce the risk of personal injury during service or repair. Improper service or repair may damage the vehicle or render the vehicle unsafe. For Cautions and Notices, refer to 2001/02 C/K Truck Service Manual. These “Cautions” and “Notices” are not exhaustive. General Motors cannot possibly warn of all potentially hazardous consequences of your failure to follow these instructions.

This manual covers service procedures to vehicles that are equipped with a Supplemental Inflatable Restraint (SIR). Refer to the “Cautions” in Cautions and Notices and in Restraints. Refer to SIR component and wiring location views in Restraints before performing a service on or around SIR components or wiring. Failure to follow these “Cautions” could cause air bag deployment, personal injury, or otherwise unneeded SIR repairs.

In order to help avoid accidental air bag deployment and personal injury, whenever you service a vehicle that requires repair of the SIR and another vehicle system, we recommend that you first repair the SIR, then go on to the other system.

BLANK

2001/02 General Motors LSSV Military Vehicles Service Manual Supplement

This manual provides information on the diagnosis, the service procedures, the adjustments, and the specifications for the 2001/02 GM LSSV Base Pickup, Crewcab, Extended Cab, Tahoe, Suburban and Chassis Cab.

Information on transmission unit repair (overhaul) can be found in the 2001/02 Transmission/Transaxle/Transfer Case Unit Repair Manual (TURM), available separately. The TURM contains information on automatic and manual transmissions and transaxles including the fluid flow and circuit description information.

The technicians who understand the material in this manual and in the appropriate Dealer Service Bulletins better service the vehicle owners.

When this manual refers to a brand name, a part number, or a specific tool, you may use an equivalent product in place of the recommended item. All information, illustrations and specifications in this manual are based on the latest product information available at the time of publication approval. General Motors reserves the right to make changes at any time without notice.

Published by
GM DEFENSE MILITARY TRUCKS
General Motors Corporation
Troy, Michigan 48083

©2001 GENERAL MOTORS CORPORATION
The information cutoff date is February 15, 2002
PART NO. TXO 17817

ALL RIGHTS RESERVED
LITHO IN U.S.A.

No part of this manual may be reproduced, stored in any retrieval system, or transmitted in any form or by any means (including but not limited to electronic, mechanical, photocopying, and recording) without the prior written permission of General Motors Corporation. This applies to all text, illustrations and tables.

Reporting Errors and Suggestions

If you find an error with this GM service manual supplement, or if you have a suggestion about this GM service manual supplement, we want to hear from you.

When calling, be prepared with the following information:

- Your name
- Your dealership's name/Military organization
- Your dealership's/Military organization's phone number
- The model year and the vehicle line
- The publication part number (if present)
- The vehicle identification number of the vehicle being worked on
- The service manual section and page number(s)
- Any applicable electronic information element identification numbers
- A descriptive explanation of your concern

The GM service manual phone personnel will respond to your concerns in the following ways:

- By delivering your concern to the manual's author
- By eliciting a response from the author
- By supplying you with an answer to your concerns

For paper manual users: The GM service manual phone personnel will also explain how to send in examples or marked-up pages.

The GM service manual comment telephone numbers do not provide technical assistance. For technical assistance, contact your regular technical assistance source.

United States

Please call the following number Monday through Friday with your comments: 1-248-680-2843, fax number 248-680-5275.

United States Owner/Operator

Vehicle owners or operators are encouraged to address their comments and concerns to the applicable Customer Assistance Center. The phone number and address of the Customer Assistance Center are in the Owner's Manual.

General Motors Defense Military Trucks

Contact Information

Department	Phone Number
General Information	1-248-680-5214
Military Service Parts Assistance	1-248-680-5222
Technical/Warranty Assistance	1-248-680-2843
Vehicle Sales	1-248-680-5222

Mailing Address:

GM Defense

Military Trucks

MC: 483-619-114

1996 Technology Drive

Troy, MI 48083

Attention: ILS Manager

Table of Contents

Preface**General Information**

General Information.....	0-3
Maintenance and Lubrication	0-7

Suspension

Front Suspension	3-3
Rear Suspension.....	3-7
Tires and Wheels	3-10

Driveline/Axle

Wheel Drive Shafts.....	4-3
Front Drive Axle.....	4-10
Rear Drive Axle	4-12
Transfer Case.....	4-14

Engine

Engine Electrical.....	6-3
------------------------	-----

Body and Accessories

Wiring Systems	8-3
Lighting Systems	8-40
Instrument Panel, Gages and Console.....	8-84
Horns	8-89
Exterior Trim	8-95
Bumpers.....	8-99
Body Front End	8-117
Seats.....	8-122
Interior Trim.....	8-125
Body Rear End.....	8-150
Paint/Coatings.....	8-161
Frame and Underbody.....	8-162

INDEX	INDEX-1
--------------------	---------

Section 0

General Information

General Information.....	0-3	Maintenance and Lubrication	0-7
Vehicle Identification	0-3	Maintenance	0-7
Military Equipment Options.....	0-5	Owner Checks and Services.....	0-7
2001/02 Commercial Utility/Cargo Vehicle		Periodic Maintenance Inspection	0-7
LSSV Specifications/Options	0-5		
Labels	0-6		

BLANK

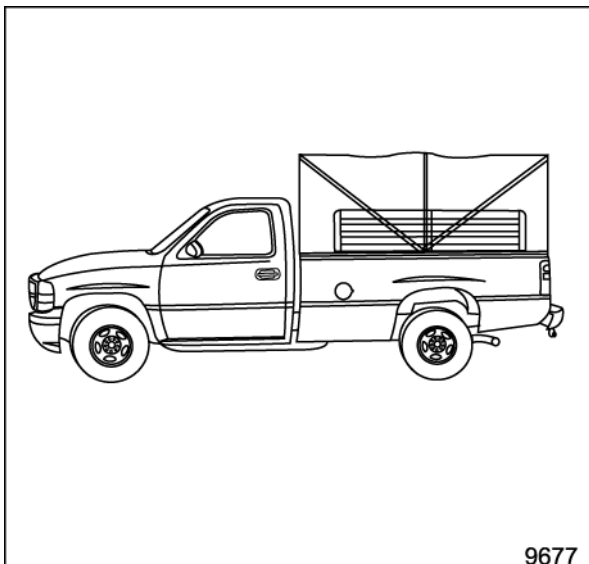
General Information

Vehicle Identification

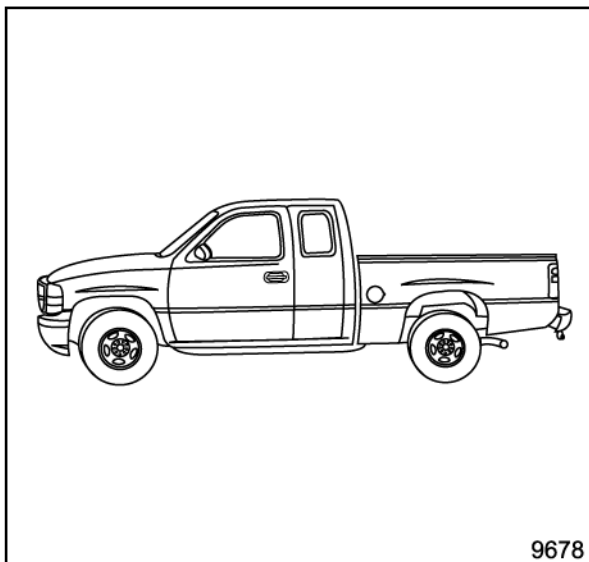
The 2001/02 LSSV series military pickup, Tahoe, Suburban and ambulance models derive from standard commercial vehicles. The utility is a 1500 Tahoe and 2500 Suburban based military command vehicles. The pickup is a 2500HD, or "1-ton" based cargo troop carrier. The pickup chassis is also used for the ambulance.

All 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.

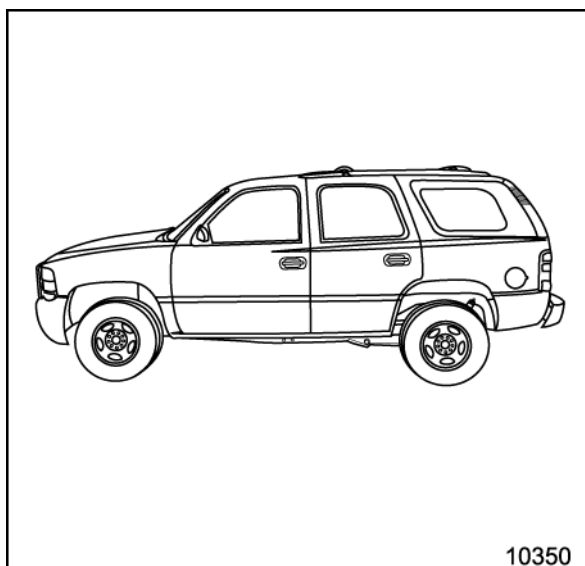
Base Cargo/Troop Carrier



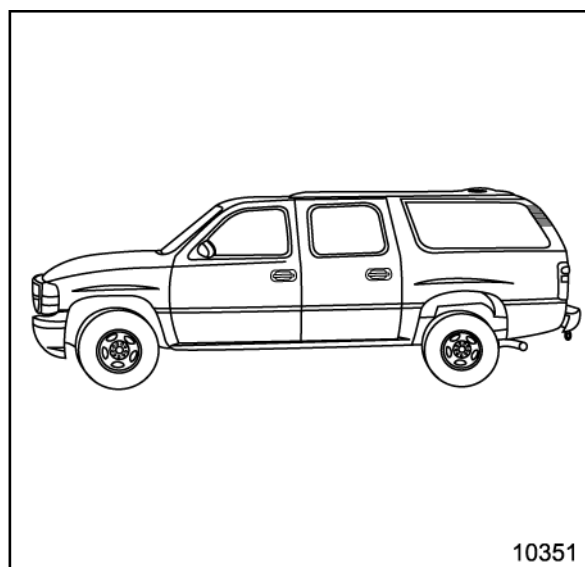
Extended Cab



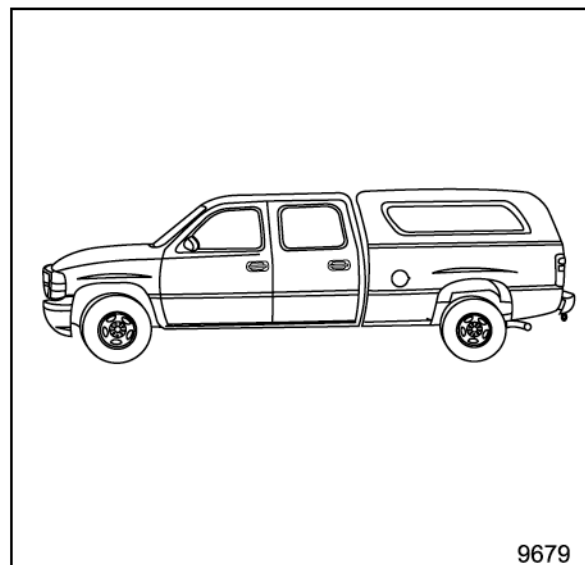
Tahoe



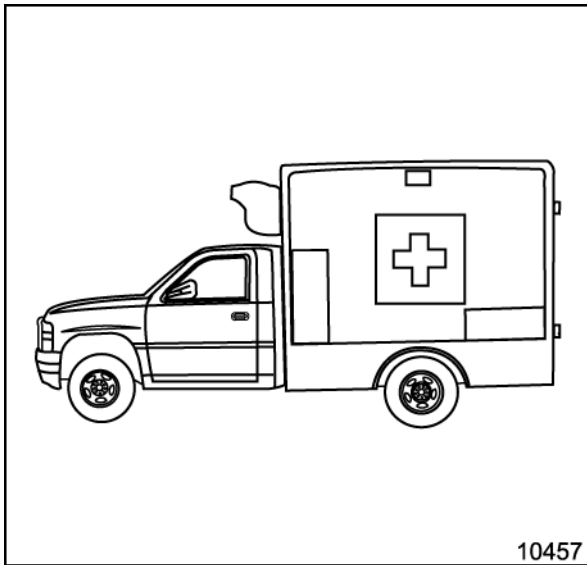
Suburban



Crewcab Cargo/Troop Carrier



Ambulance



The pickup vehicles are equipped with a 6.6L Turbo diesel engine with a 5-speed Allison automatic transmission and 2-speed transfer case. The vehicles have pintle hooks with a max trailer weight (on highway) of 12,000 lbs (5443 kg). Payload capacity is 3,200 lbs (1454 kg) for the pickup vehicle.

The Tahoe vehicle is equipped with a 5.3L gasoline engine with a 4-speed 4L60-E automatic transmission and a 2-speed transfer case. The vehicles have a pintle hook with a max trailer weight (on highway) of 8,700 lbs (3946 kg). Payload capacity is 1,532 lbs (696 kg), varies with equipment.

The Suburban vehicle is equipped with a 6.0L gasoline engine with a 4-speed 4L80-E automatic transmission and 2-speed transfer case. The vehicles have a pintle hook with a max trailer weight (on highway) of 10,000 lbs (4536 kg). Payload capacity is 2,840 lbs (1291kg), varies with equipment.

Each vehicle is equipped with heavy duty shocks front and rear, 4-wheel anti-lock brakes, a locking differential, on-off road tires, front and rear clevis/tie-downs and blackout lighting.

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

The pickup has a cargo cover and troop seating for up to eight or a hard cap with opening windows, all pickup vehicles have cargo hooks mounted on the bed floor. A specially upgraded electrical system can handle 24V communications equipment and charging of the 24V batteries.

Military Equipment Options

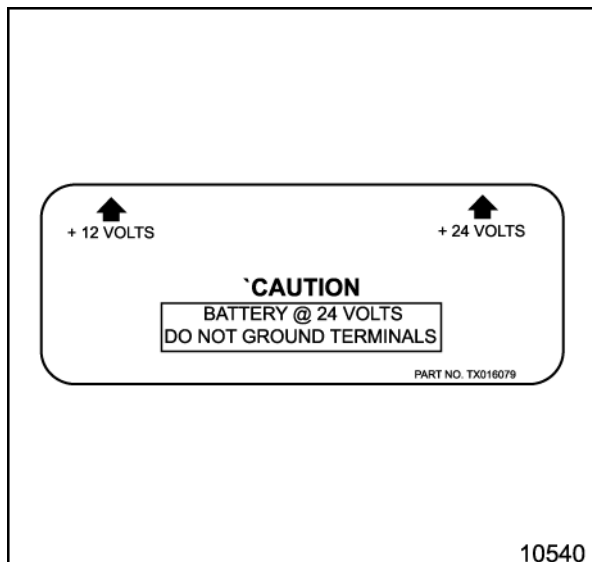
2001/02 Commercial Utility/Cargo Vehicle LSSV Specifications/Options

Your vehicle may be equipped with any combination of options.

Description
12V/24V Power Converter
Blackout Lighting
NATO Slave Start
Brush Guard
Front Clevis/Tie-Downs
Rear Clevis/Tie-Downs
Pintle Hook
Trailer Light Connection
M14/M16 Weapons Mount
Transmission/Transfer Case/Differential Vent Filter
Government Data Plate
Cargo Area Troop Seats
Cargo Tie-Downs
Cargo Cover (Soft-Top)
Combination Front or Rear Mounted Winch with Remote Control (Multi-mount) 9,000 lb capacity
Engine-Mounted High Output Auxiliary Air Compressor (70 CFM @ 150 psi)
Run-Flat Tires
Continuous Output 5,000 W AC/DC Generator
On-Star® Communications Package
Cargo Locking Side/Rear Access Cap
Pioneer Tool Kit
Permanent Front Mount Winch 12,000 lb capacity
Military Rear Receiver Hitch
Factory Rear Receiver Hitch

Labels

24V Battery Caution Label



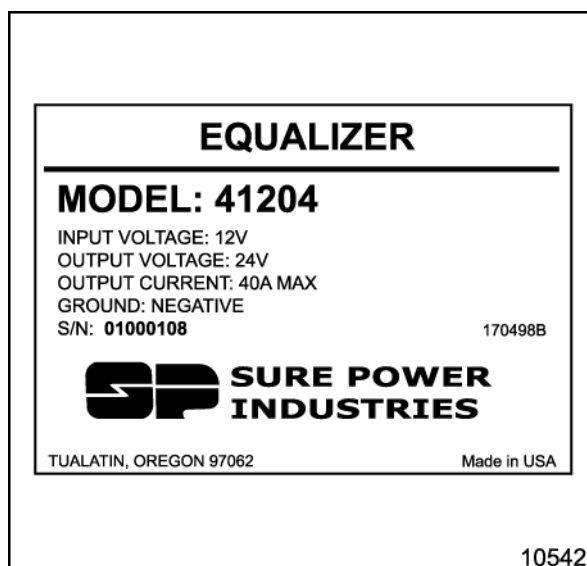
The 24V battery caution label is placed on top of the 24V battery. This battery is on the left side of the engine compartment.

Winch Warning Label



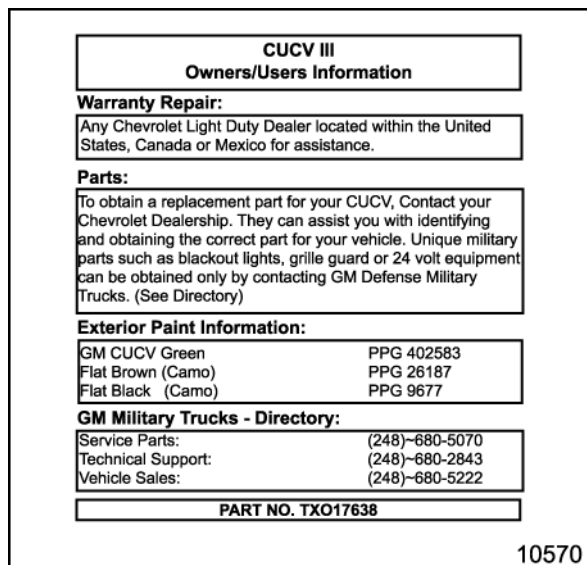
The winch warning label is fixed to the winch cable hook.

Equalizer Label



The equalizer label is located on the side of the equalizer. This label includes information on model number, serial number and voltage specifications.

Owner/User's Label



The owner/user's label is located in the glove compartment and has information pertaining to the vehicle's upfitting. Refer to Paint Codes in Paint/Coatings for current exterior paint part numbers.

Maintenance and Lubrication

Maintenance

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:

- 2001/02 C/K Truck Owner's Manual
- 2001/02 C/K Truck Service Manual
- 2001/02 Diesel Engine Owner's Manual Supplement

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

Periodic Maintenance Inspection

- Inspect the condition of the headlamps, taillamps, turn signals, side lamps, and blackout 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 the Front or Rear Axle Vent Tube Filter Replacement procedure in Driveline/Axle.
- Inspect the transmission/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 Transmission/Transfer Case Vent Tube Filter Replacement Procedure in Driveline/Axle.
- Winch Maintenance. Refer to Warn Industries Operator's Manual found in glove compartment.

Section 3

Suspension

Front Suspension	3-3	Shock Absorber Replacement	3-8
Specifications	3-3	Description and Operation.....	3-9
Repair Instructions.....	3-4	Rear Shock Absorber Description.....	3-9
Shock Absorber Replacement.....	3-4	Tires and Wheels	3-10
Description and Operation	3-6	Repair Instructions	3-10
Front Shock Absorber Description.....	3-6	Tire Hoist Shaft Extension Replacement	3-10
Rear Suspension	3-7	Description and Operation.....	3-11
Specifications	3-7	Tires and Wheels	3-11
Repair Instructions.....	3-8		

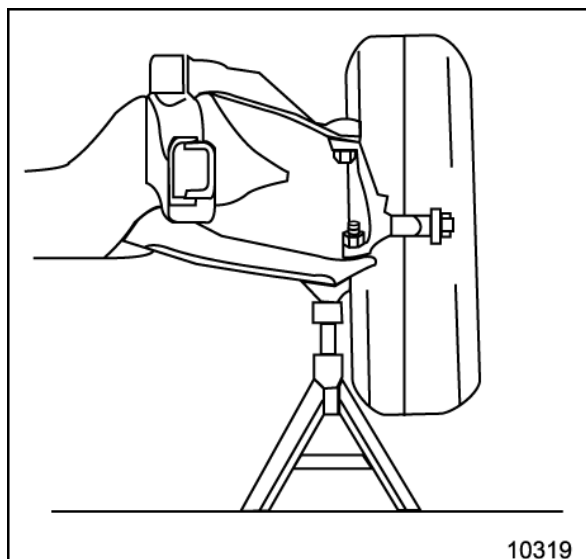
BLANK

Front Suspension

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Shock Absorber Bolt	80 N•m	59 lb ft
Shock Absorber Tennon Nut	20 N•m	15 lb ft



10319

Repair Instructions

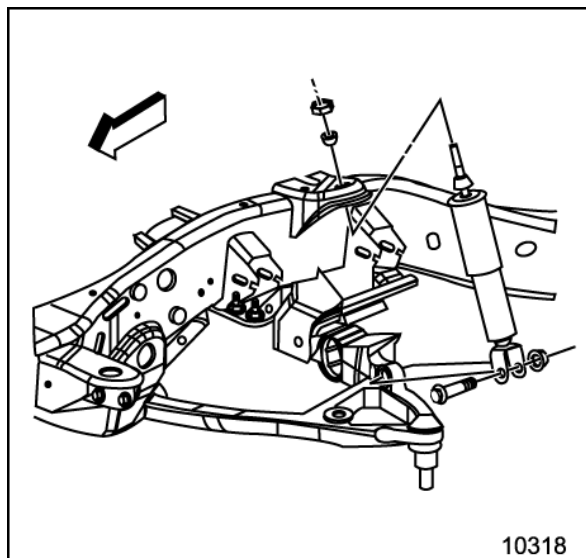
Shock Absorber Replacement

Removal Procedure

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

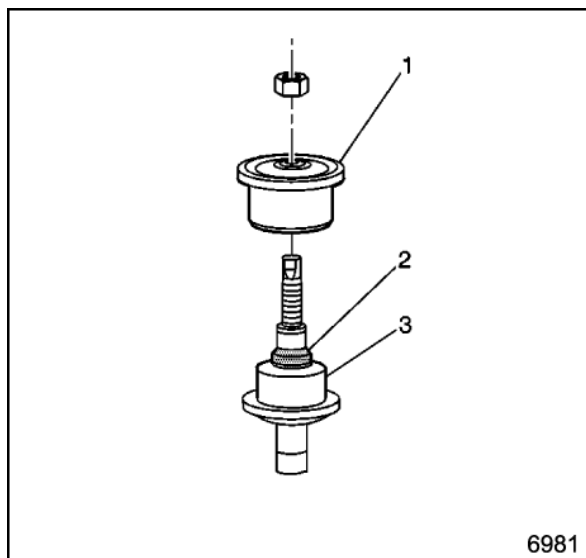
Notice: The front shock absorbers of the vehicle are multifunctional. In addition to contributing to a smooth ride they also provide the only stop to the front suspension when fully extended. Therefore, when servicing the shock absorber, service replacement shock absorbers must be equivalent to original shock absorbers in both extended length and strength. Use of shocks not complying to original equipment or strength could result in suspension over-travel or shock breakage. Suspension over-travel may result in suspension component breakage.

1. Raise and support the vehicle.
2. Support the lower control arm with a jack stand.
3. Hold the tennon end with a wrench while removing the nut.
4. Remove the nut.



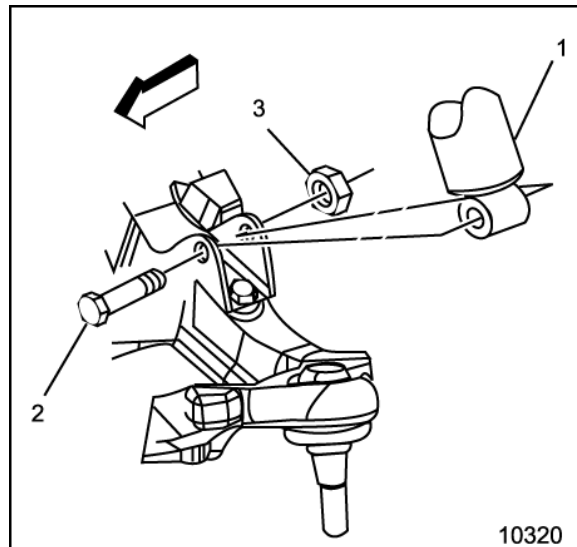
10318

5. Remove the upper insulator (1).



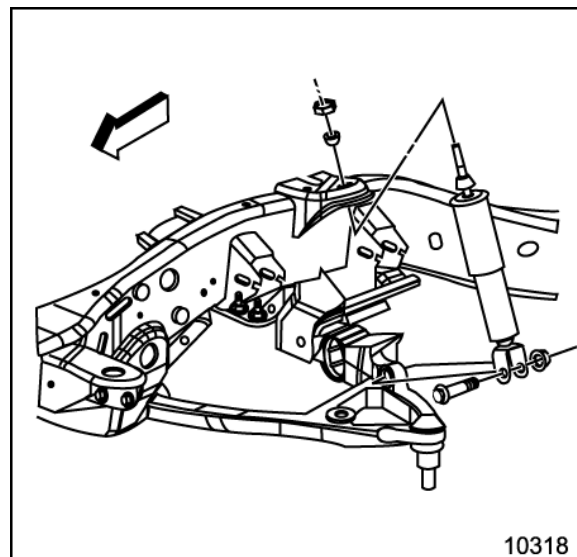
6981

6. Remove the shock absorber mounting bolt (2) and nut (3) at the lower control arm.
7. Remove the shock absorber (1).



Installation Procedure

1. Install the shock absorber. Insert the stem through the hole in the shock bracket on the frame.
2. Align the shock absorber with the mounting holes in the lower control arm.



3. Install the shock absorber through bolt (2) to the lower control arm and shock.

Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the shock absorber through bolt nut (3).

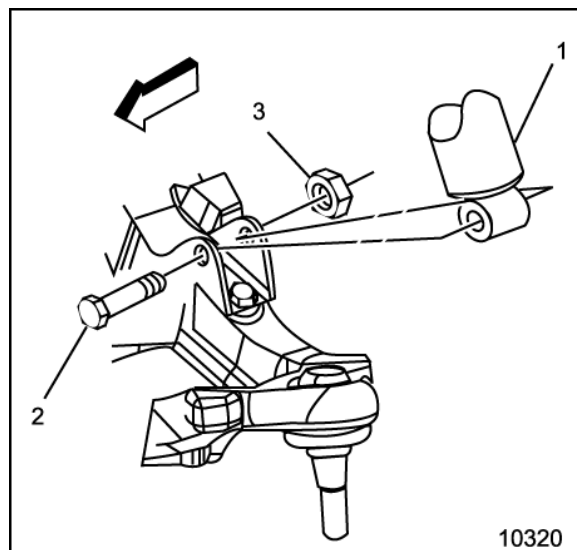
Tighten

Tighten the nut to 80 N•m (59 lb ft).

5. Install the upper insulator to the shock absorber.
6. Install the nut to the tennon end. Hand-tighten only.
7. Remove the safety stands.
8. Lower the vehicle.
9. Hold the tennon end with a wrench while torquing the nut.

Tighten

Tighten the nut to 20 N•m (15 lb ft).



Description and Operation

Front Shock Absorber Description

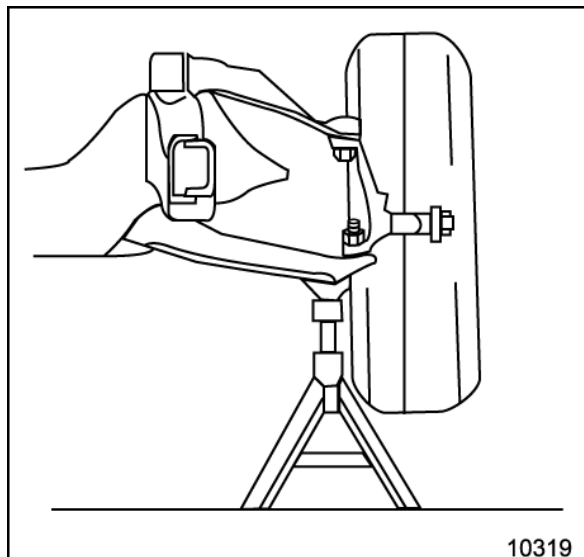
The suspension features a heavy duty shock absorber package (if equipped) necessary for off-road conditions. The replacement procedure is very similar to the procedure for the standard truck.

Rear Suspension

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Shock Absorber Nuts	95 N•m	70 lb ft



10319

Repair Instructions

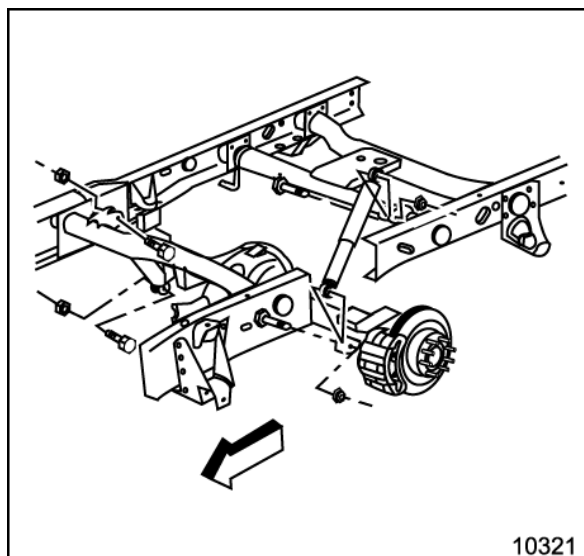
Shock Absorber Replacement

Removal Procedure

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

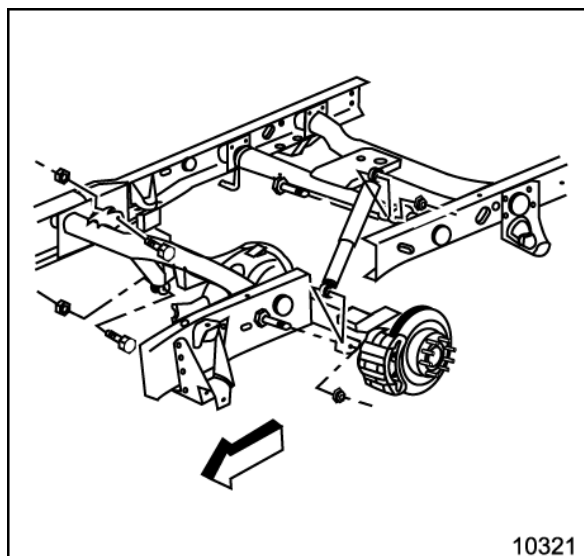
Notice: Original equipment shock absorbers serve additionally as suspension drop cutoffs. Replacement shock absorbers must have a built in suspension cutoff feature and must not be longer than original shocks when they are fully extended or serious vehicle or component damage could result.

1. Raise and support the vehicle.



10321

2. Remove the upper shock absorber nut and bolt.
3. Remove the lower shock absorber nut and bolt.
4. Remove the shock absorber.



10321

Installation Procedure

1. Install the shock absorber.
2. Install the upper shock absorber nut and bolt.

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the lower shock absorber nut and bolt.

Tighten

Tighten the upper and lower nuts to 95 N•m (70 lb ft).

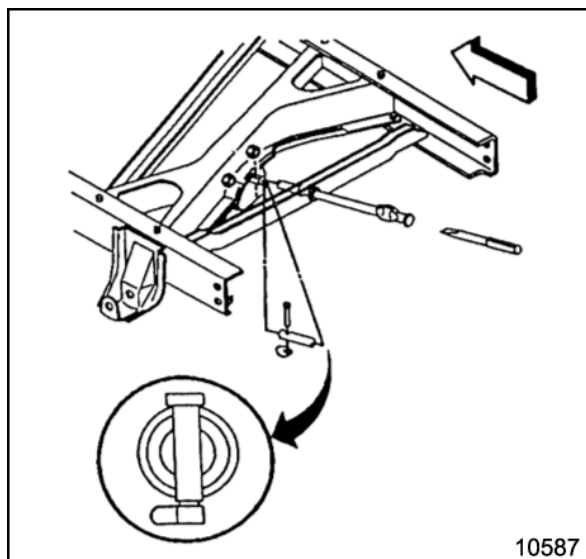
4. Remove the safety stands.
5. Lower the vehicle.

Description and Operation

Rear Shock Absorber Description

The suspension features a heavy duty shock absorber package (if equipped) necessary for off-road conditions. The replacement procedure is very similar to the procedure for the standard truck.

Tires and Wheels

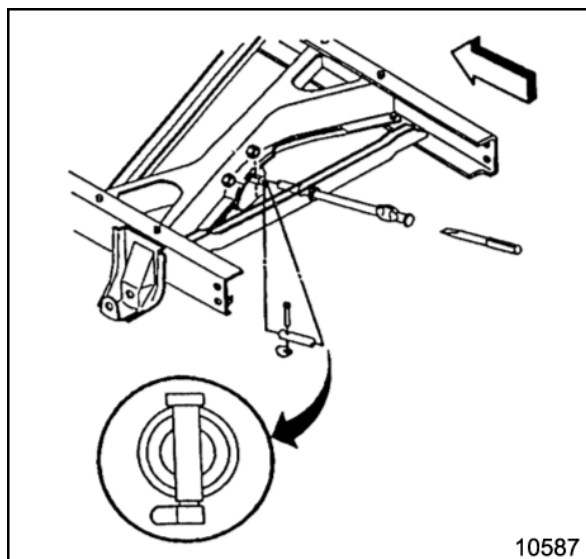


Repair Instructions

Tire Hoist Shaft Extension Replacement

Removal Procedure

1. Remove the spare wheel storage lock cylinder. Refer to vehicle 2001/02 C/K Truck Owner's Manual.
2. Remove the spare tire. Refer to Spare Tire Removal in the 2001/02 C/K Truck Service Manual.
3. Pull the retainer clip and remove the pin.
4. Remove the bar.



Installation Procedure

1. Install the new bar and align.
2. Install the retainer clip and pin.
3. Install the spare tire. Refer to Spare Tire Installation in the 2001/02 C/K Truck Service Manual.
4. Install the spare wheel storage lock cylinder. Refer to vehicle 2001/02 C/K Truck Owner's Manual.

Description and Operation

Tires and Wheels

Spare Wheel Hoist Shaft

The hoist shaft may require replacement (if damaged).

On pickup models, the spare tire is mounted under the rear end of the pickup. On Utility models, the spare tire is mounted under the rear of the vehicle.

Refer to Tire Hoist and Shaft Replacement in the 2001/02 C/K Truck Service Manual

Section 4

Driveline/Axle

Wheel Drive Shafts	4-3	Rear Drive Axle	4-12
Repair Instructions.....	4-3	Repair Instructions	4-12
Wheel Drive Shafts Boot Cover Replacement.....	4-3	Rear Axle Vent Tube Filter Replacement	4-12
Description and Operation	4-8	Description and Operation.....	4-13
Wheel Drive Shaft Boot Covers.....	4-8	Rear Axle Vent Tube Filter Description.....	4-13
Special Tools and Equipment	4-9	Transfer Case	4-14
Front Drive Axle	4-10	Repair Instructions	4-14
Repair Instructions.....	4-10	Transmission/Transfer Case Vent Tube	
Front Axle Vent Tube Filter Replacement	4-10	Filter Replacement	4-14
Description and Operation	4-11	Description and Operation.....	4-15
Front Axle Vent Tube Filter Description.....	4-11	Transfer Case Vent Tube Filter Description.....	4-15

BLANK

Wheel Drive Shafts

Repair Instructions

Wheel Drive Shafts Boot Cover Replacement

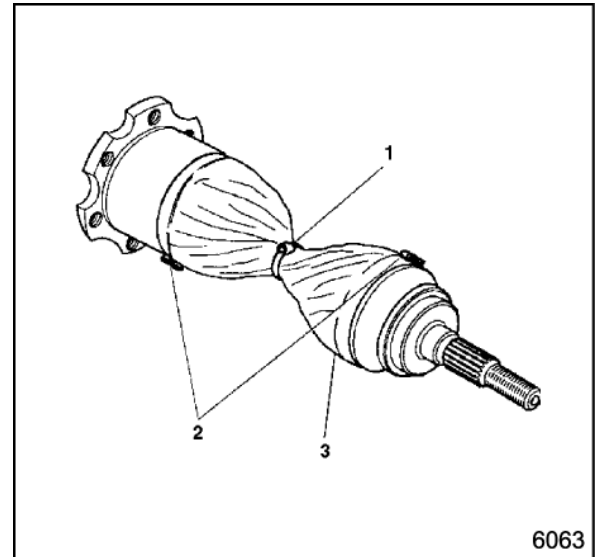
Tools Required

J 41187 Band-it Type Tool

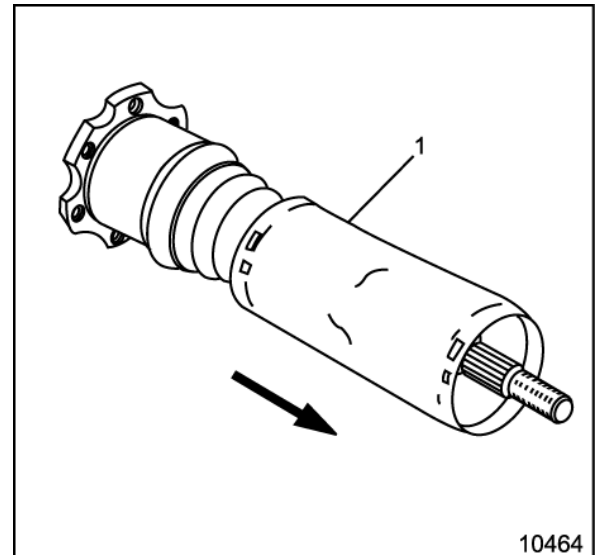
Disassembly Procedure

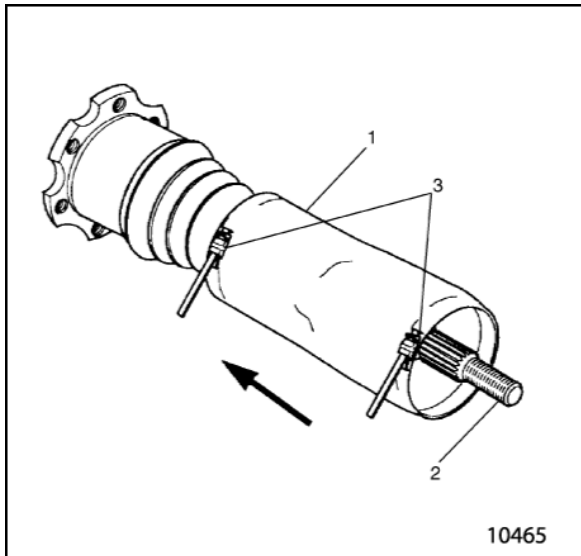
Important: Be careful when removing the clamps from the halfshaft seal cover, if reusing the halfshaft seal cover.

1. Use side cutters to cut the halfshaft seal cover clamps (2) and the nylon strap (1).

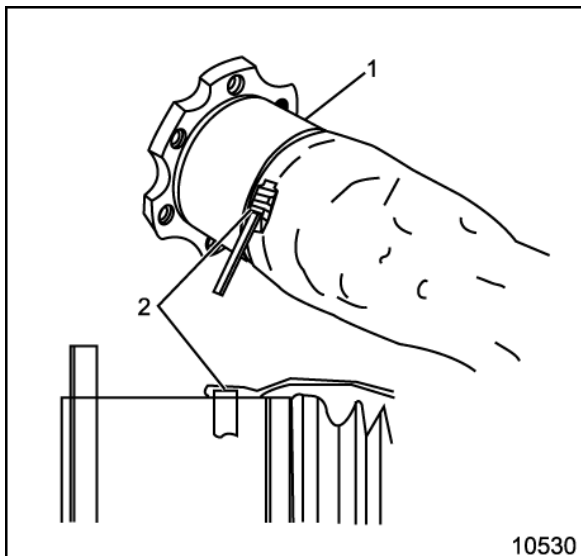


2. Slide the halfshaft seal cover (1) off of the halfshaft, over the CV joint end.
3. Check the halfshaft seal cover (1) for rips, tears, worn spots or other damage. Reuse the halfshaft seal cover (1) if there is no damage visible.

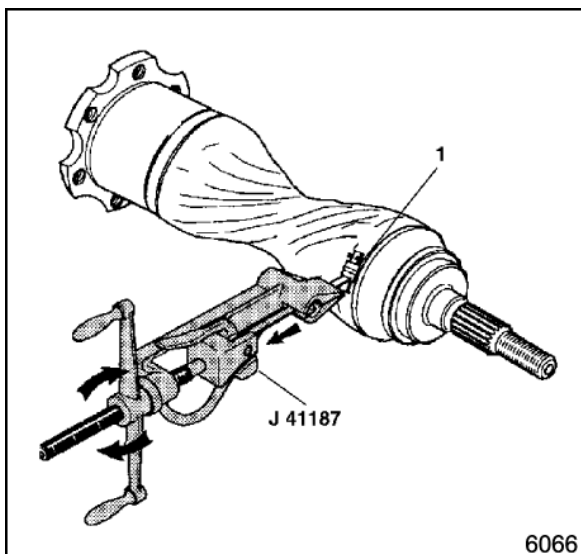


**Assembly Procedure**

1. Insert new clamps (3) into the original halfshaft seal cover (1) if you are reusing the original halfshaft seal cover.
2. Slide the halfshaft seal cover (1) onto the halfshaft assembly (2), starting at the outboard (CV joint) end.



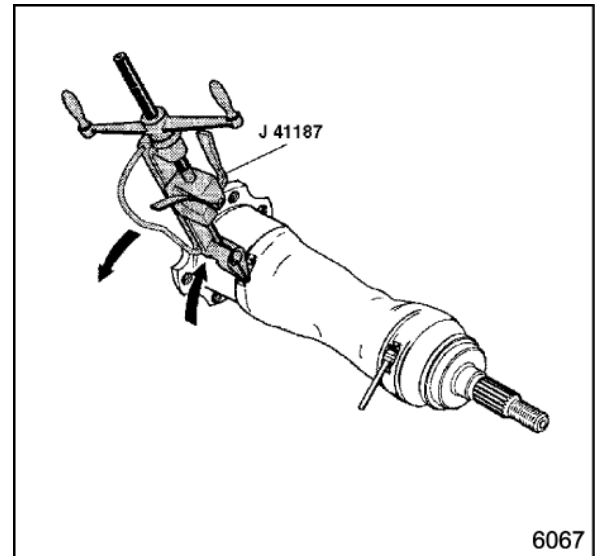
3. Align the inboard clamp (2) on the inboard joint (1). Align the seal cover seam so the seam is straight.



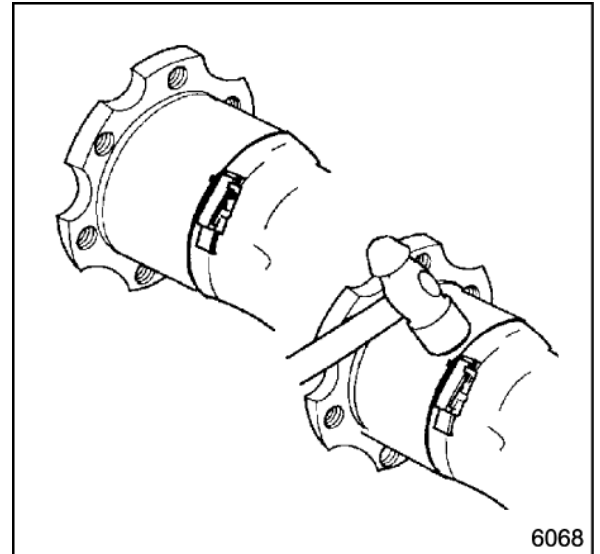
Important: Tighten the seal cover clamp (1) as tight as possible without deforming the retaining clip. Clamps that are not tight enough allow the cover to slide upon the joint. This causes shortened service life.

4. Use J 41187 in order to tighten the inboard seal cover clamp (1).

5. Rotate J 41187 toward the clip in order to bend the band onto the clip.
6. Pull on the tool's cutting handle in order to cut off the excess band.



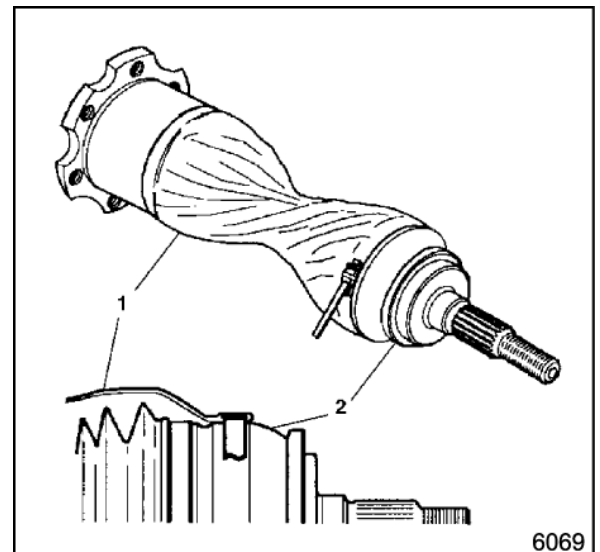
7. Hammer the band flat between the latch tabs. Peen the latch tabs over in order to lock the back into position.

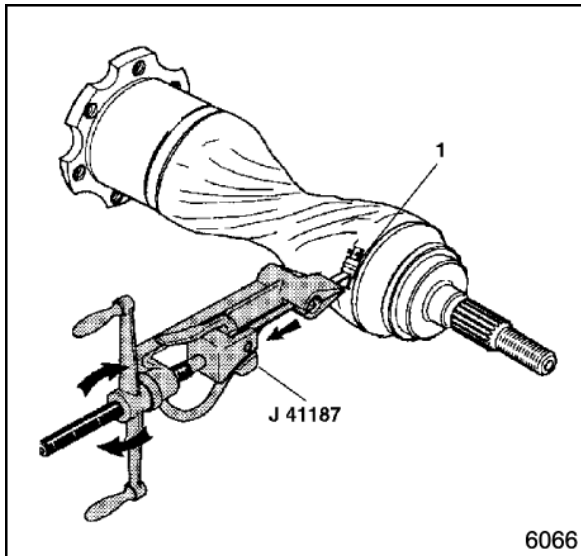


8. Twist the halfshaft seal cover (1) 90 degrees.

Important: Be sure that the inboard tab of the halfshaft seal cover (1) is 180 degrees opposite the outboard tab of the halfshaft seal cover (1) before proceeding.

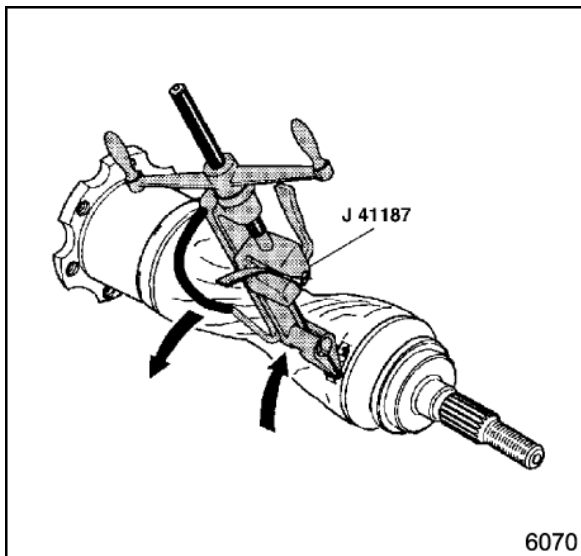
9. Position the outboard end of the halfshaft seal cover (1) over the CV joint (2) flat.



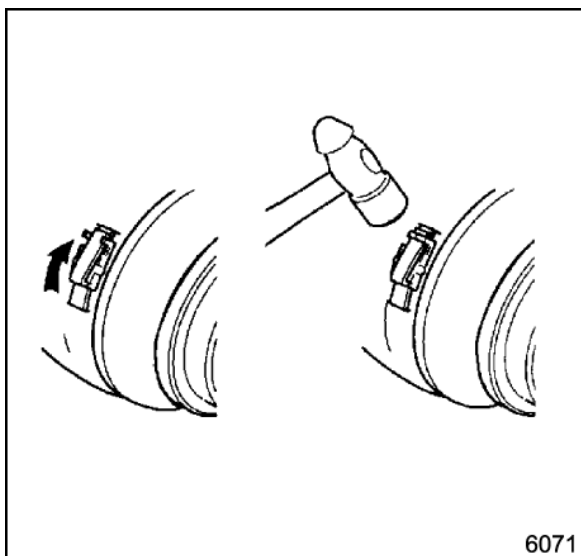


Important: Tighten the seal cover clamp (1) as tight as possible without deforming the retaining clip. Clamps that are not tight enough allow the cover to slide upon the joint. This causes shortened service life.

10. Use J 41187 in order to tighten the outboard cover clamp (1).

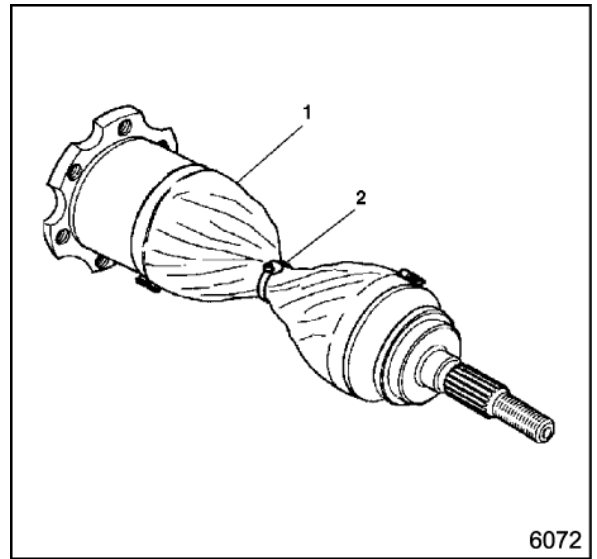


11. Rotate J 41187 toward the clip in order to bend the band onto the clip.
12. Pull the tool's cutting handle in order to cut off the excess band.



13. Hammer the band flat between the latch tabs. Peen the latch tabs over in order to lock the band into position.

14. Gather the halfshaft seal cover material at the center. Wrap the halfshaft seal cover (1) tightly with the nylon strap (2) provided in the kit.



6072

Description and Operation

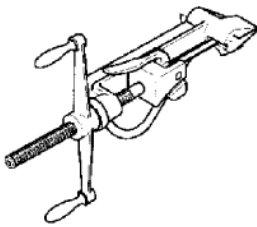
Wheel Drive Shaft Boot Covers

This protective device is intended for off-highway usage.

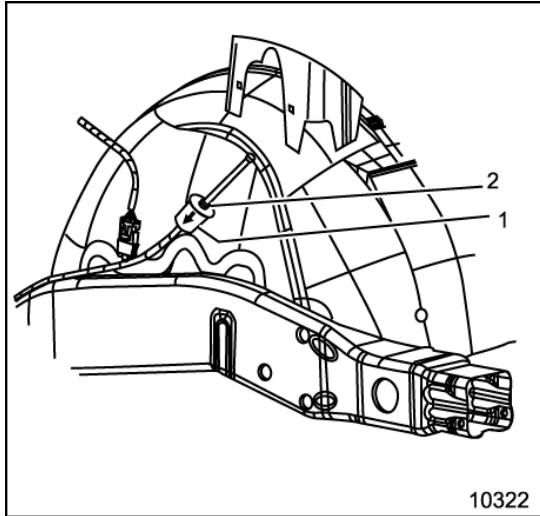
Off-highway usage can result in a buildup of debris (mud/ice/etc.) on the lower control arm. The purpose of this protective device is to sweep as much debris as possible from the lower control arm.

This protective device WILL, during its useful life, take on a ragged appearance while still adequately protecting the drive axle seal. The device is functioning as long as the Kevlar fabric continues to sweep debris from the lower control arm.

Special Tools and Equipment

Illustration	Tool Number/ Description
 6097	<p data-bbox="581 352 678 380">J 41187</p> <p data-bbox="524 415 735 443">Band-it Type Tool</p>

Front Drive Axle

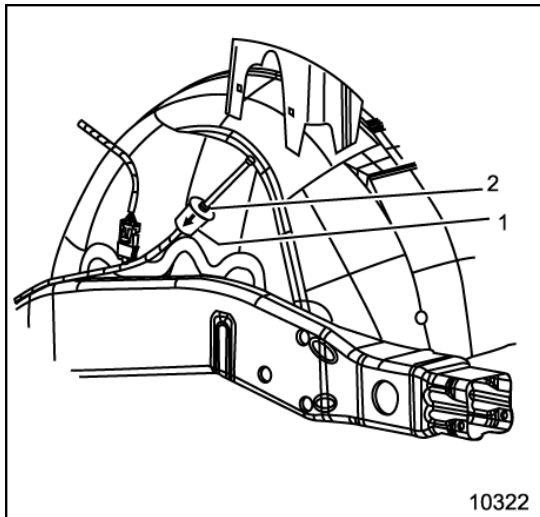


Repair Instructions

Front Axle Vent Tube Filter Replacement

Removal Procedure

1. Remove the clamps (2) holding the filter (1) to the hoses.
2. Remove the filter from the hoses and discard.



Installation Procedure

Notice: 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 the hose clamps (2) and tighten.

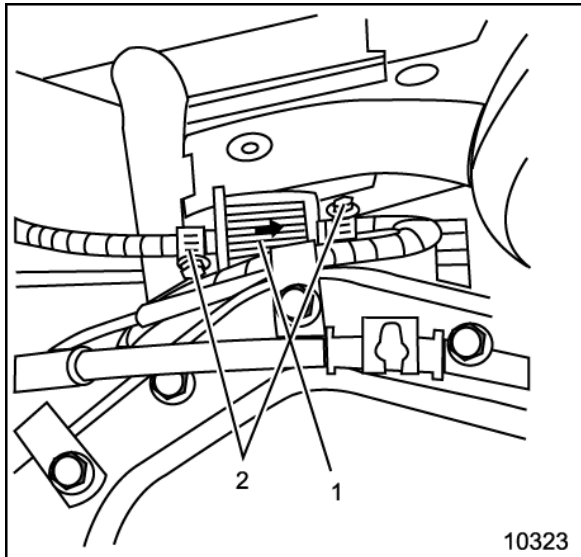
Description and Operation

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 Periodic Maintenance Inspections in Maintenance Schedule section in 2001/02 LSSV Operator's Manual Supplement.

Rear Drive Axle



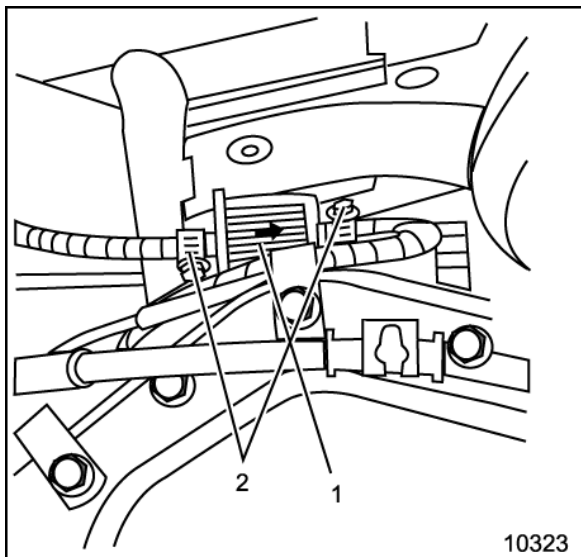
Repair Instructions

Rear Axle Vent Tube Filter Replacement

Removal Procedure

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

1. Raise the vehicle and support with safety stands.
2. Remove the clamps (2) holding the filter (1) to the hoses.
3. Remove the filter and discard.



Installation Procedure

Notice: 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.
Install hose clamps (2) and tighten.
2. Remove safety stands and lower vehicle.

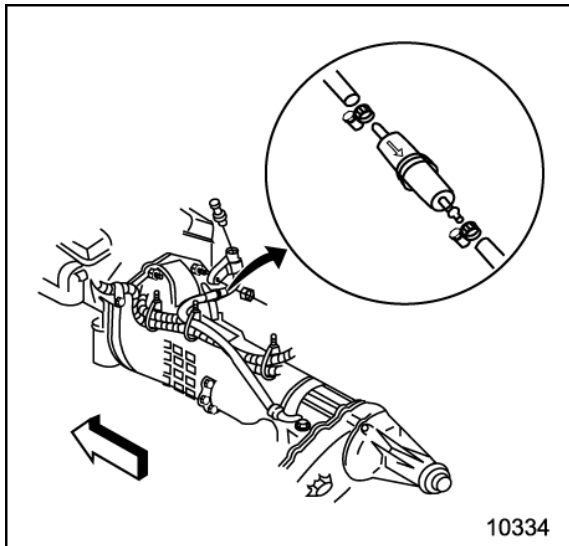
Description and Operation

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 on 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 Periodic Maintenance Inspections in Maintenance Schedule section in 2001/02 LSSV Operator's Manual Supplement.

Transfer Case



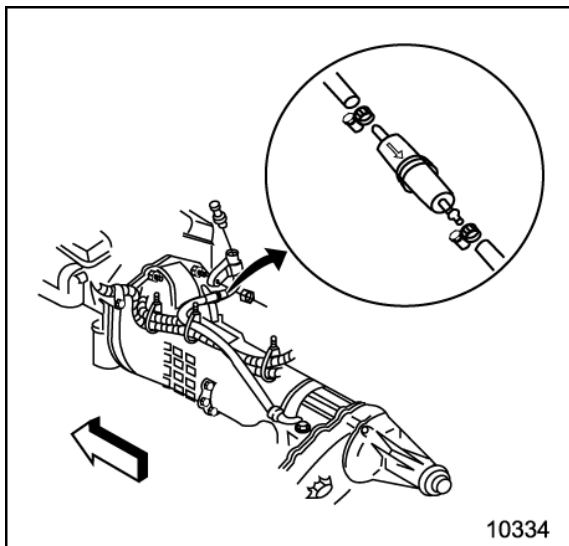
Repair Instructions

Transmission/Transfer Case Vent Tube Filter Replacement

Removal Procedure

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

1. Raise the vehicle and support with safety stands.
2. Remove the hose and filter assembly from the transmission/transfer case by removing the connecting hose clamps. Discard the filter.
3. Remove the two hose clamps holding the filter to the hose. Discard the clamps.



Installation Procedure

Notice: The filter flow arrow must point in the direction of the transmission/transfer case. If replacing the hose, the length of the new hose must match the length of the old hose.

1. Install the new filter to the two hoses with the two new hose clamps.
2. Install the filter assembly with vent cap near the end opposite the transfer case.
3. Push the vent cap end between the filler tube pipe and the transmission. Push to a vertical exit.
4. Secure the vent hose with tie wrap to the nearest electrical harness and the transmission filler tube pipe.
5. Remove safety stands and lower vehicle.

Description and Operation

Transfer Case Vent Tube Filter Description

Each of the vehicles features a five-speed automatic or four-speed automatic transmission with overdrive and a two-speed transfer case. A vent tube is mounted between the transmission/transfer case, which attaches to a hose, filter and vent cap. The filter must be inspected occasionally to see if it needs to be replaced. Refer to Periodic Maintenance Inspections in Maintenance Schedule section in 2001/02 LSSV Operator's Manual Supplement.

Section 6

Engine

Engine Electrical.....	6-3	Jump Starting in Case of Emergency	6-34
Specifications	6-3	24V Converter Fuse Replacement.....	6-36
Schematic and Routing Diagrams	6-3	Circuit Breaker Replacement – 12V or 24V	6-37
Component Locator	6-9	Circuit Breaker Bracket Replacement.....	6-39
Starting and Charging Component Views	6-9	Battery Tray/Battery Replacement.....	6-39
Connector End Views	6-22	Battery Booster/Slave Junction Block	
Starting and Charging Connector End Views ..	6-22	Replacement.....	6-40
Diagnostic Information and Procedures.....	6-25	Description and Operation.....	6-42
Symptom List.....	6-25	Battery Description (12V and 24V)	6-42
Repair Instructions.....	6-31	Starting and Charging System Description	
Voltage Regulator Test.....	6-31	and Circuit Operation	6-42

BLANK

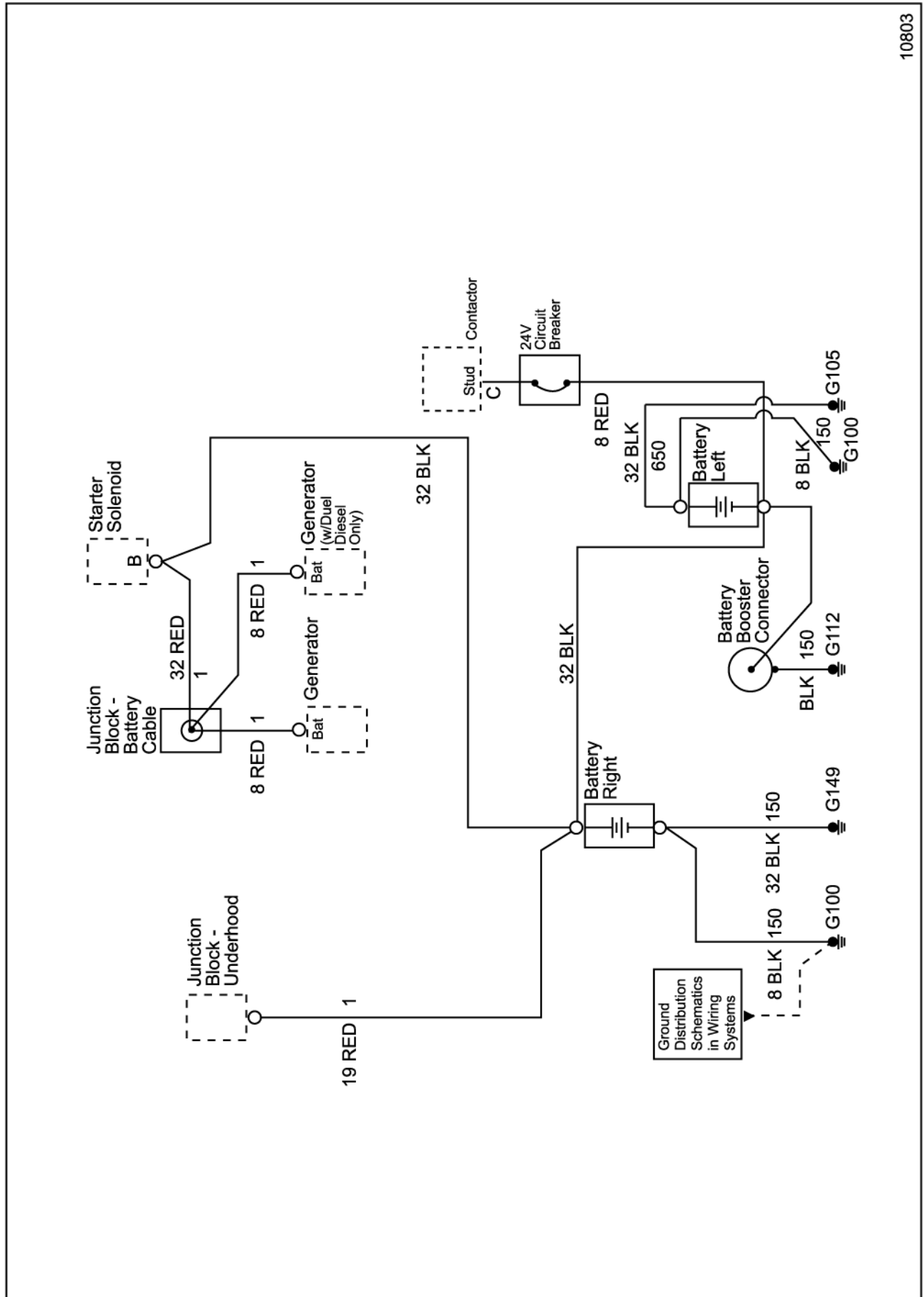
Engine Electrical Specifications

Fastener Tightening Specifications

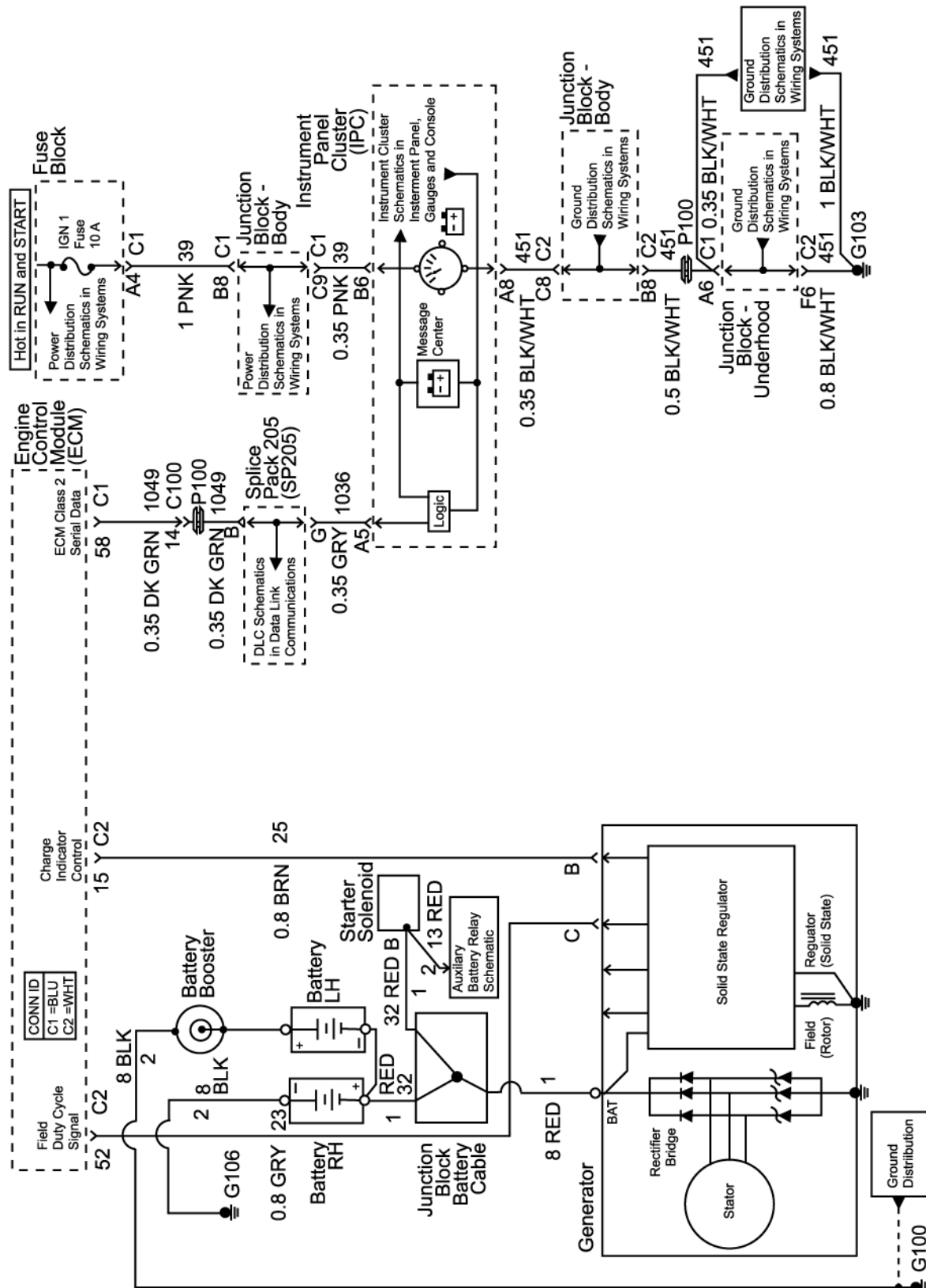
Application	Specification	
	Metric	English
Battery Booster/Slave Junction Block Flange Nuts	14 N•m	10 lb ft
Battery Cable Connections	17 N•m	13 lb ft
Battery Retainer Bolt	25 N•m	18 lb ft
Circuit Breaker Bracket to Support Brace	4-6 N•m	3-4.5 lb ft
Converter Fuse Retaining Nuts	12 N•m	110 lb in
Converter Stud Jam Nuts	12 N•m	110 lb in
Converter Wiring Terminal Nuts	12 N•m	110 lb in

Schematic and Routing Diagrams

Battery Schematics

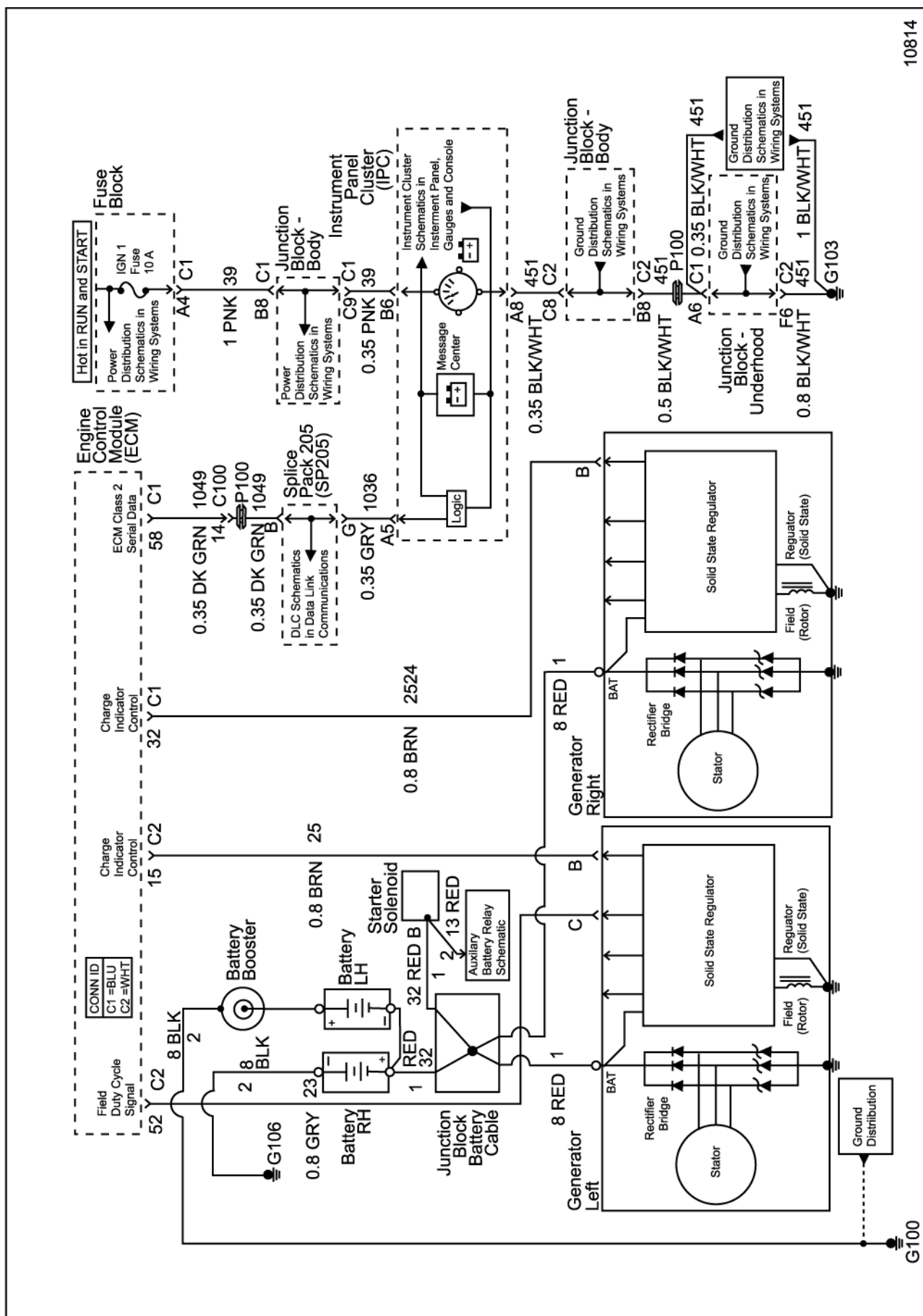


Starting and Charging Schematics

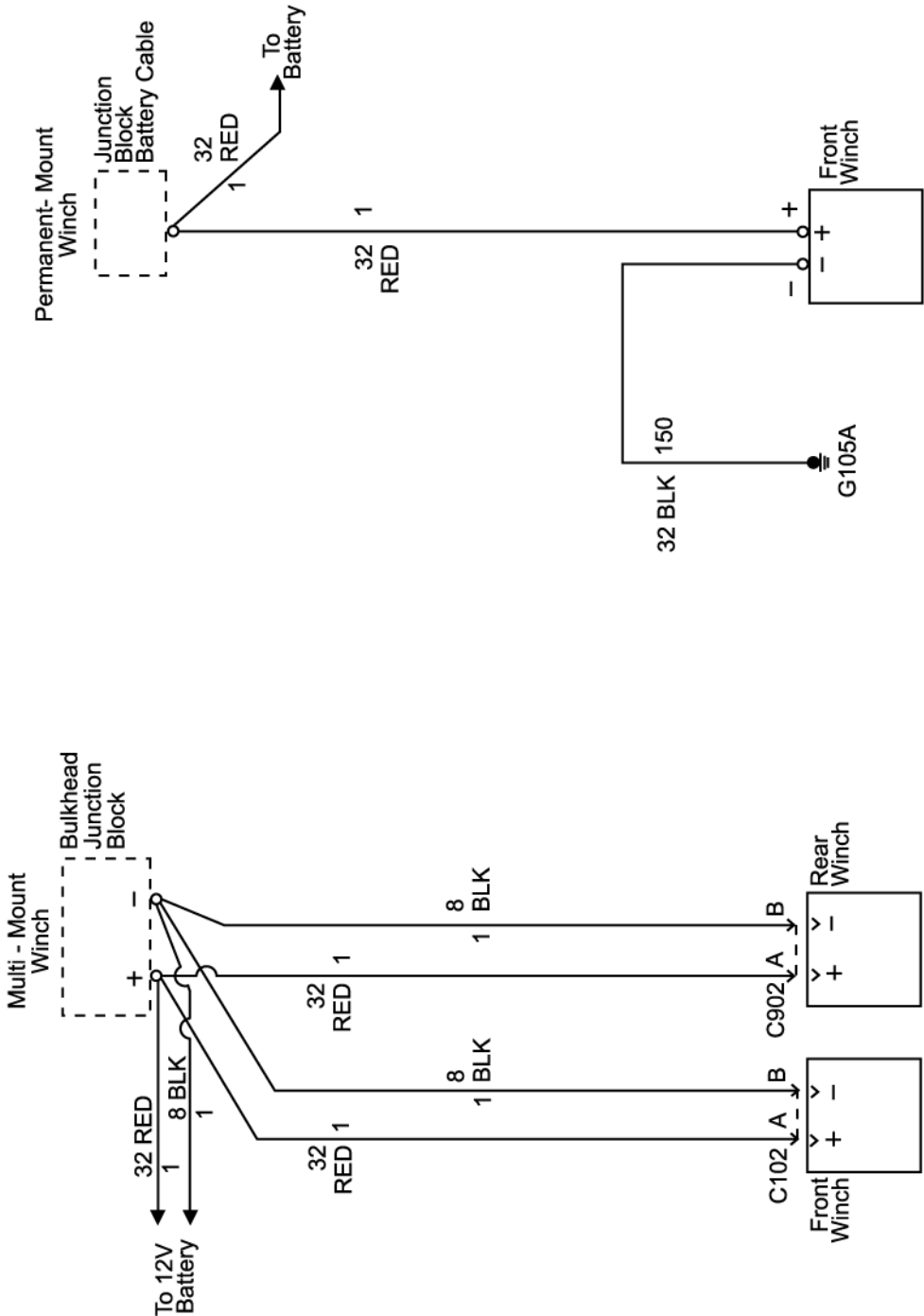


10812

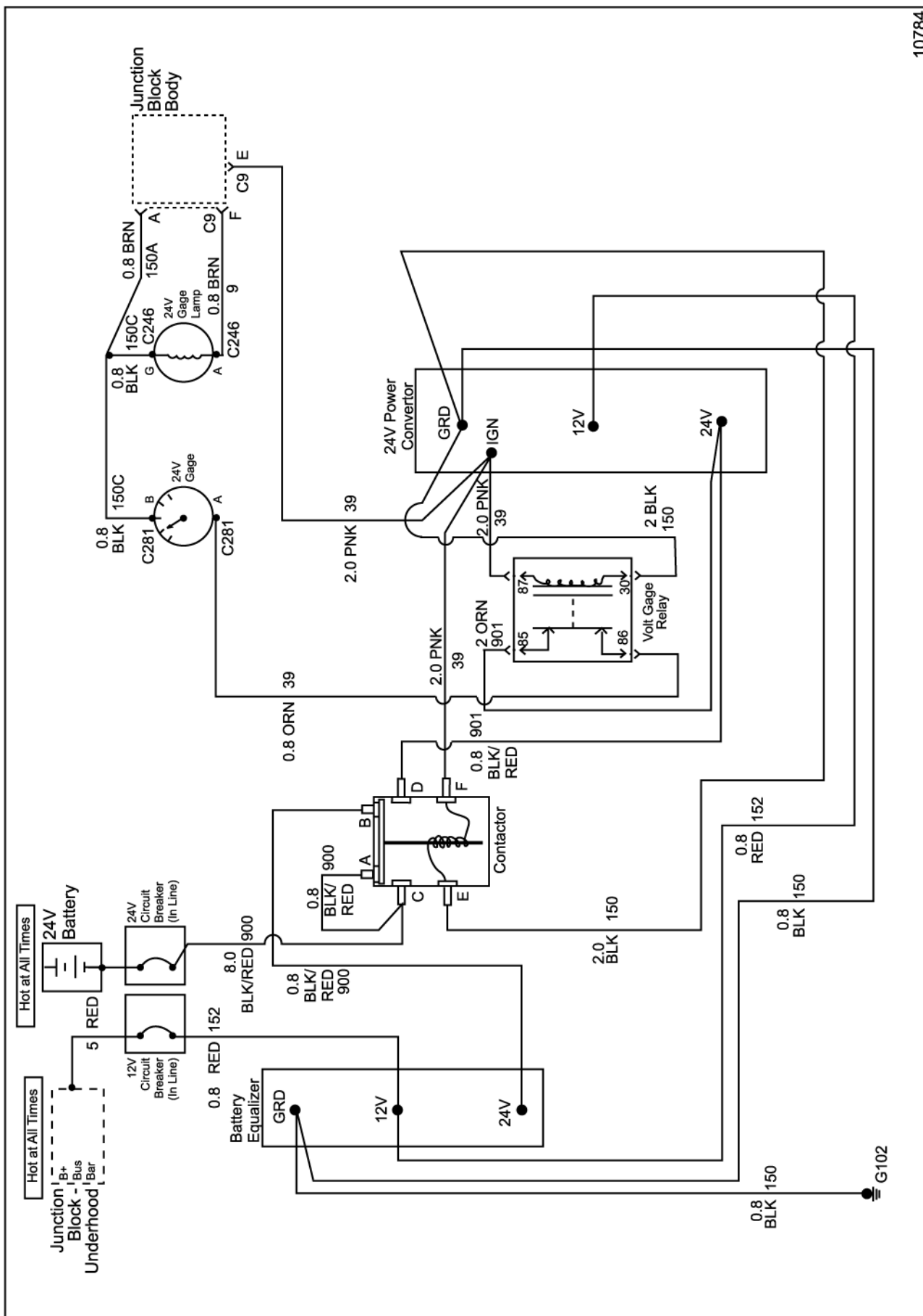
Starting and Charging Schematics



Winch Wiring Schematics



24V Power Converter/Equalizer Schematics

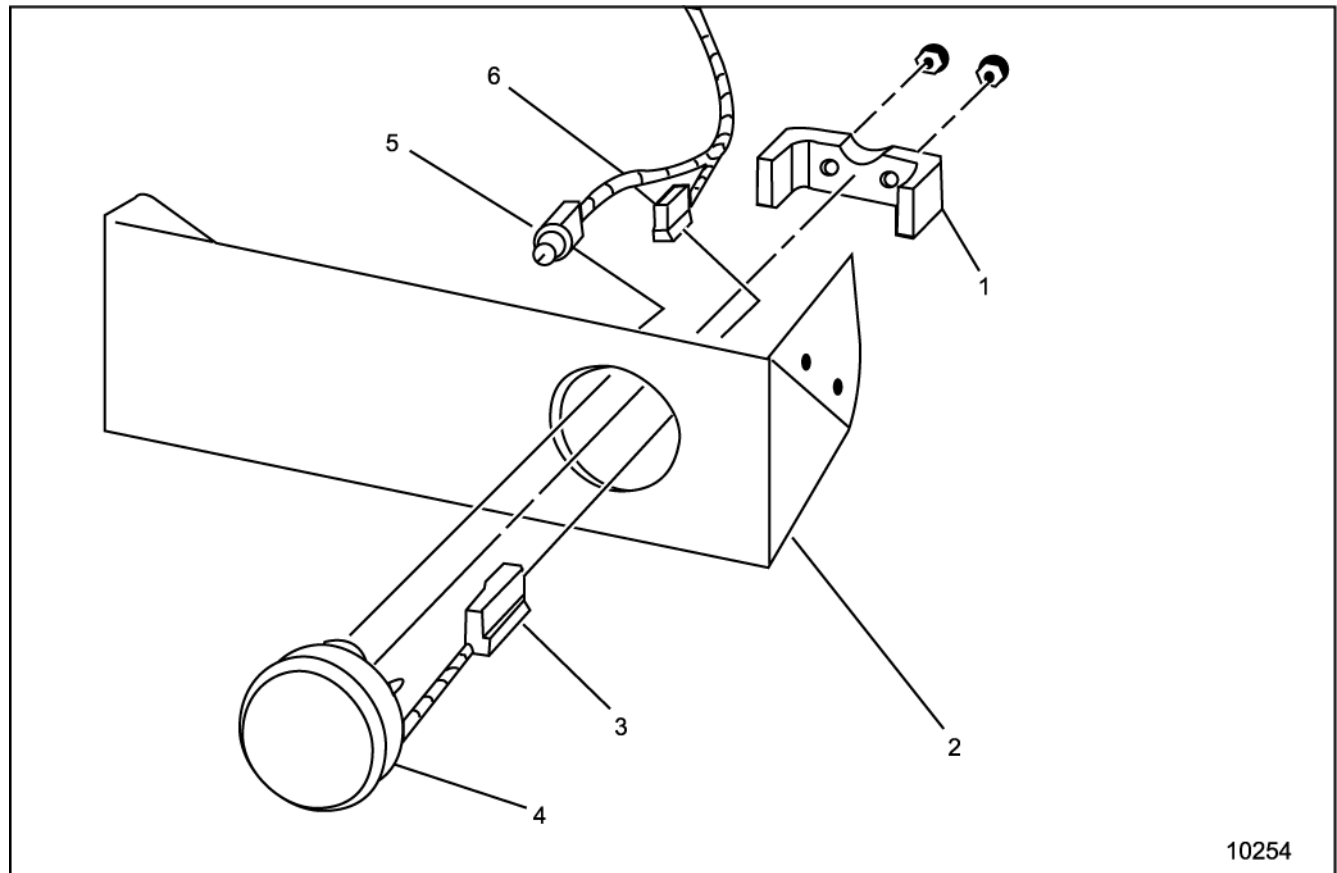


10784

Component Locator

Starting and Charging Component Views

Voltmeter and Lamp

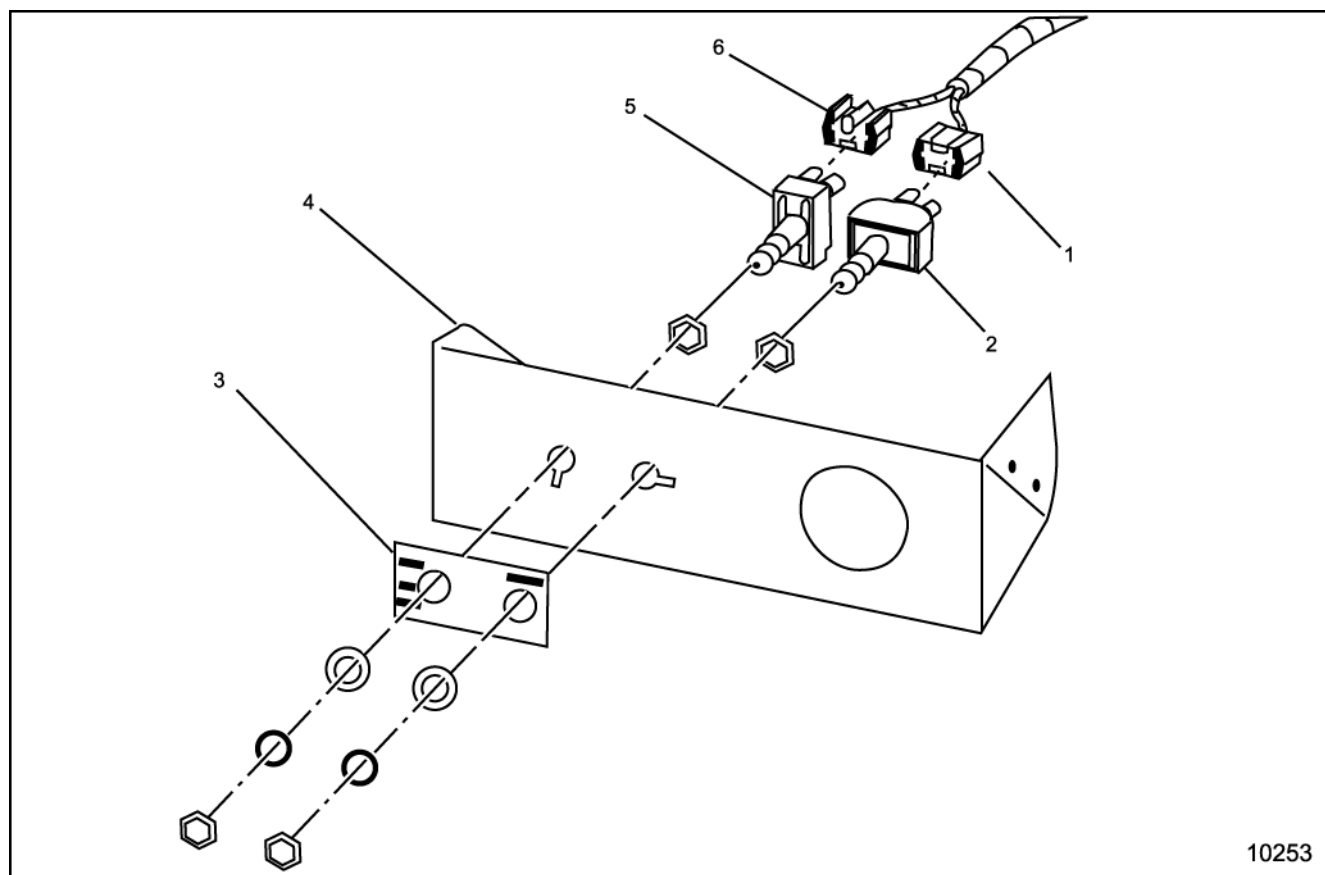


Legend

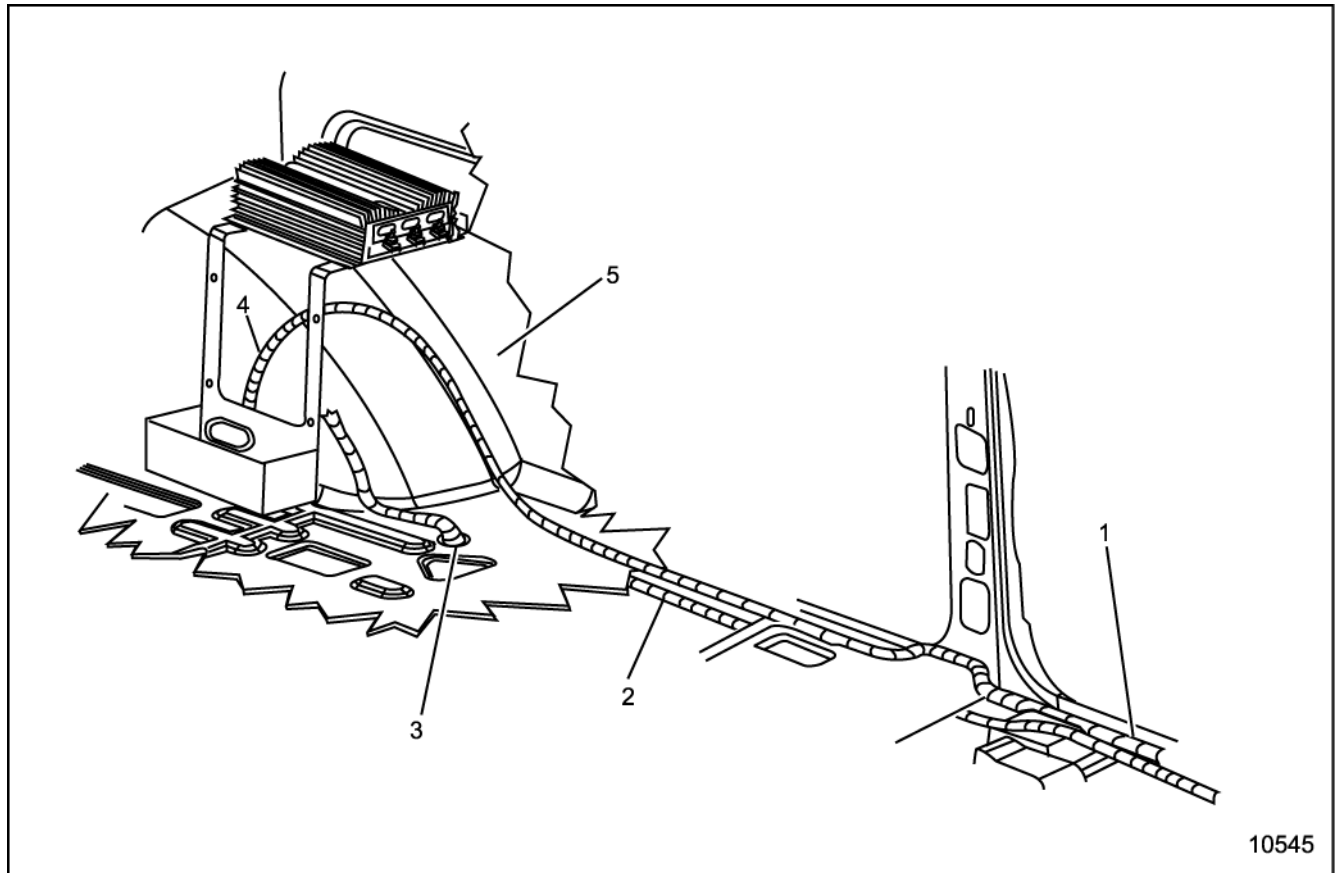
- (1) Voltmeter Bracket
- (2) Mounting Bracket
- (3) Voltmeter Connector

- (4) Voltmeter (24V)
- (5) Voltmeter Illumination Bulb
- (6) Harness Connector

Blackout (B/O) Lamp Switches

**Legend**

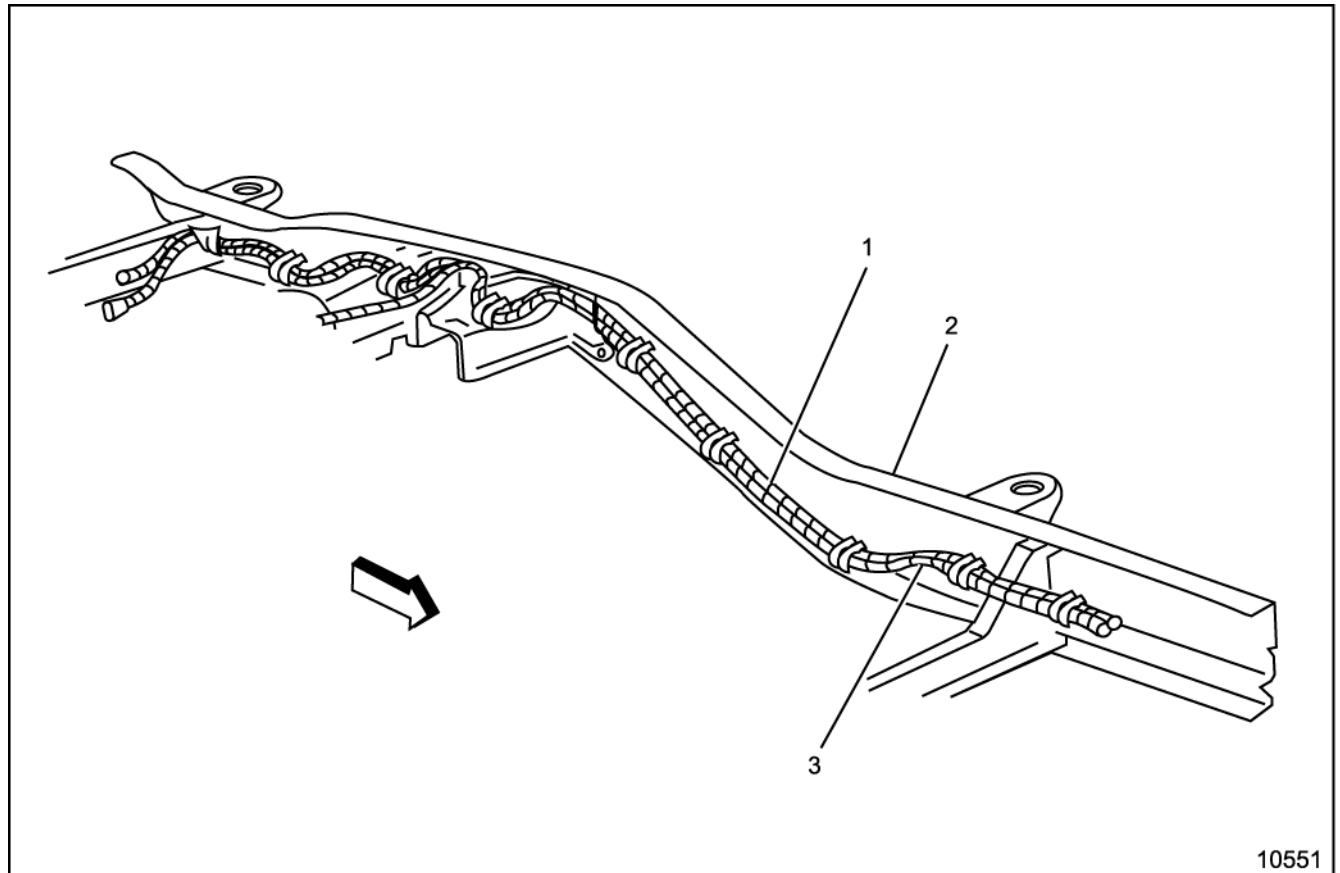
- | | |
|---------------------------|---------------------------|
| (1) Component Connector | (4) Mounting Bracket |
| (2) B/O Control Switch | (5) B/O Drive Lamp Switch |
| (3) Switch Position Label | (6) Component Connector |

Power Converter Harness Routing Body Side View (Utility)**Legend**

- (1) Harness to IP Convenience Center
- (2) Wiring Harness to Circuit Breaker
- (3) Grommet

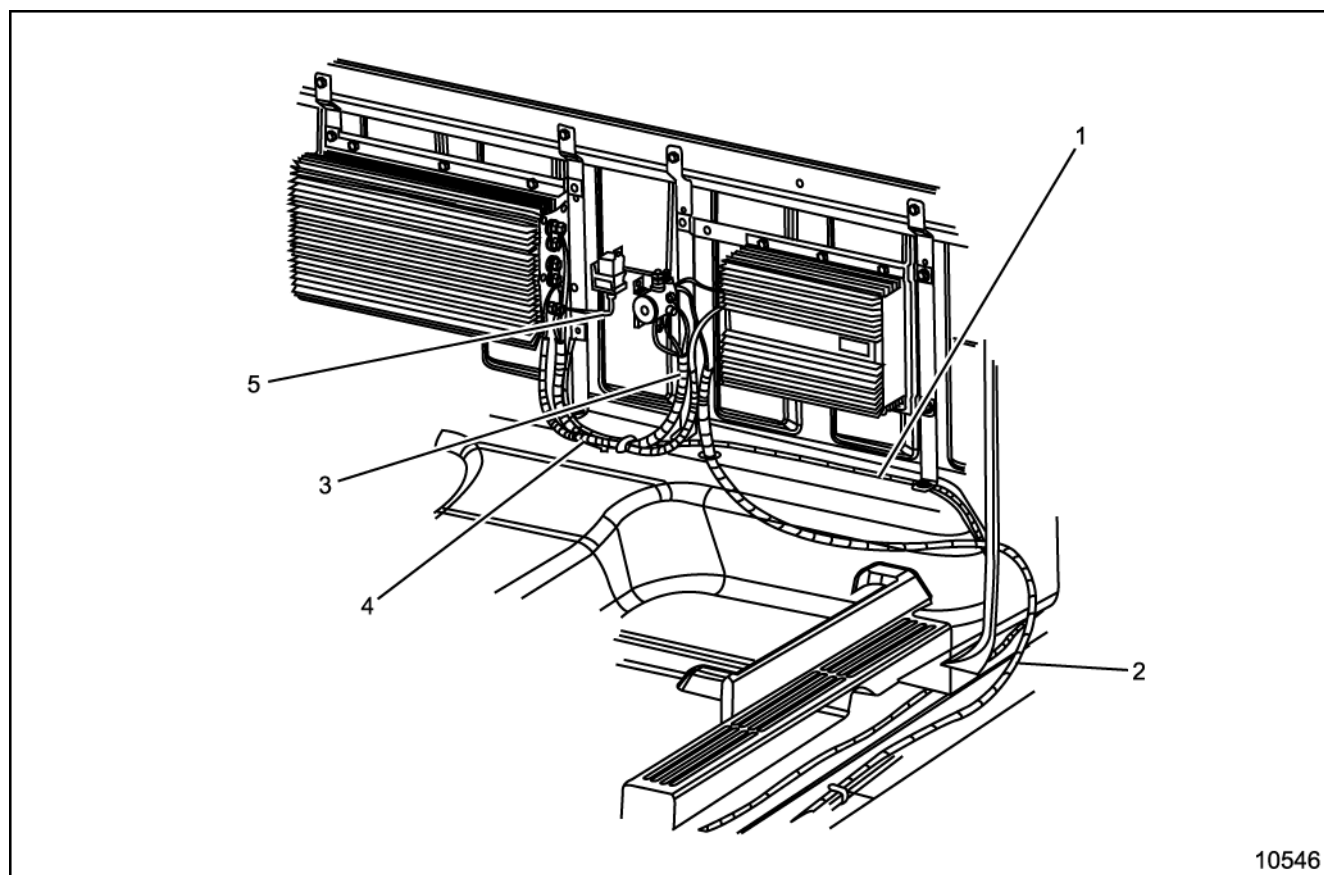
- (4) Wiring Harness to Voltmeter
- (5) Body Side Panel

Power Converter Harness Routing Rear Lamp (Utility)

**Legend**

- (1) Power Converter Harness
- (2) Frame

- (3) Rear Lamp Extension Harness

Power Converter Harness Routing (Pickup)**Legend**

(1) Wiring Harness to Voltmeter

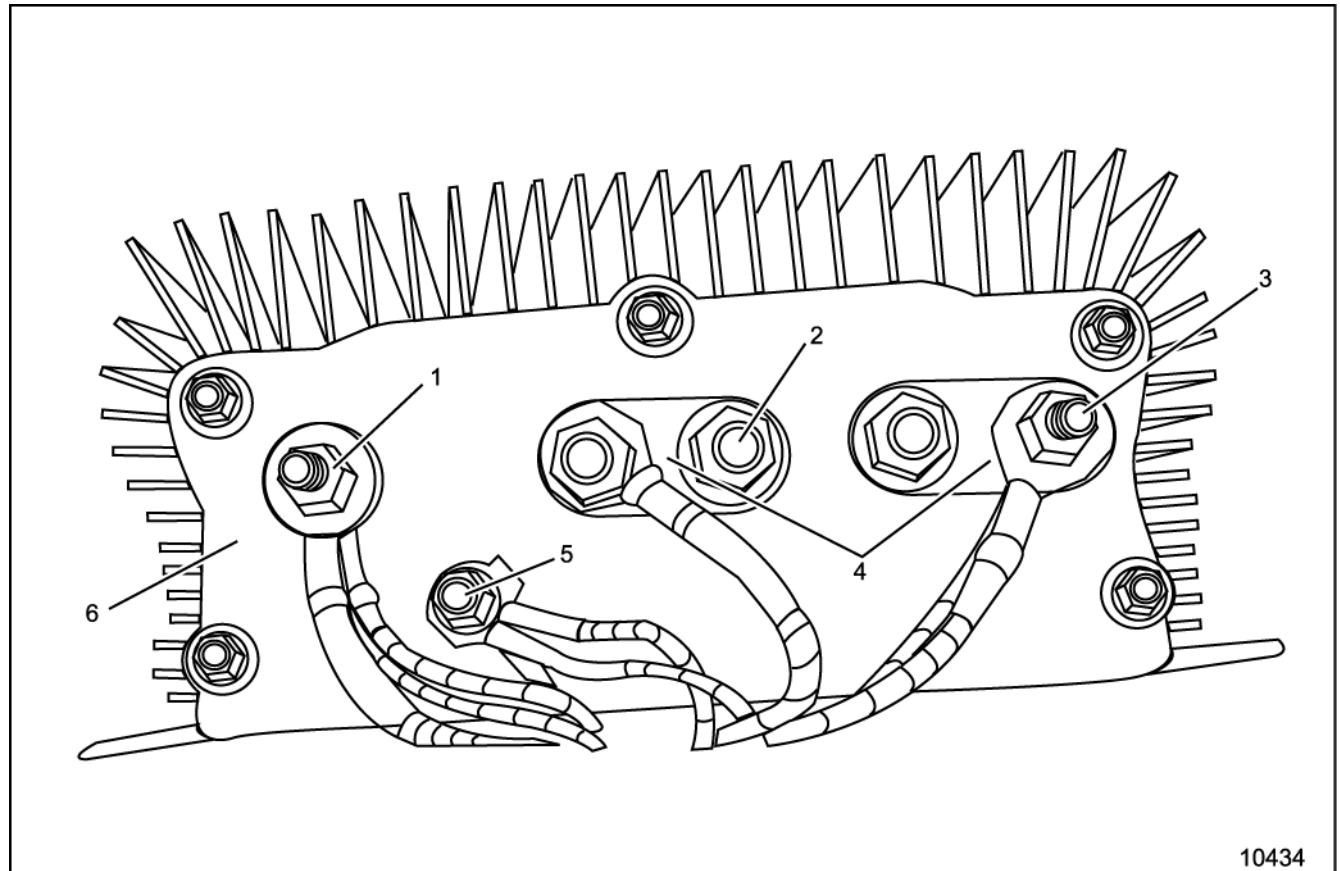
(2) Wiring Harness to Circuit Breaker

(3) Wiring Harness to Contactor

(4) Jumper Wiring Harness

(5) Wiring Harness to Relay

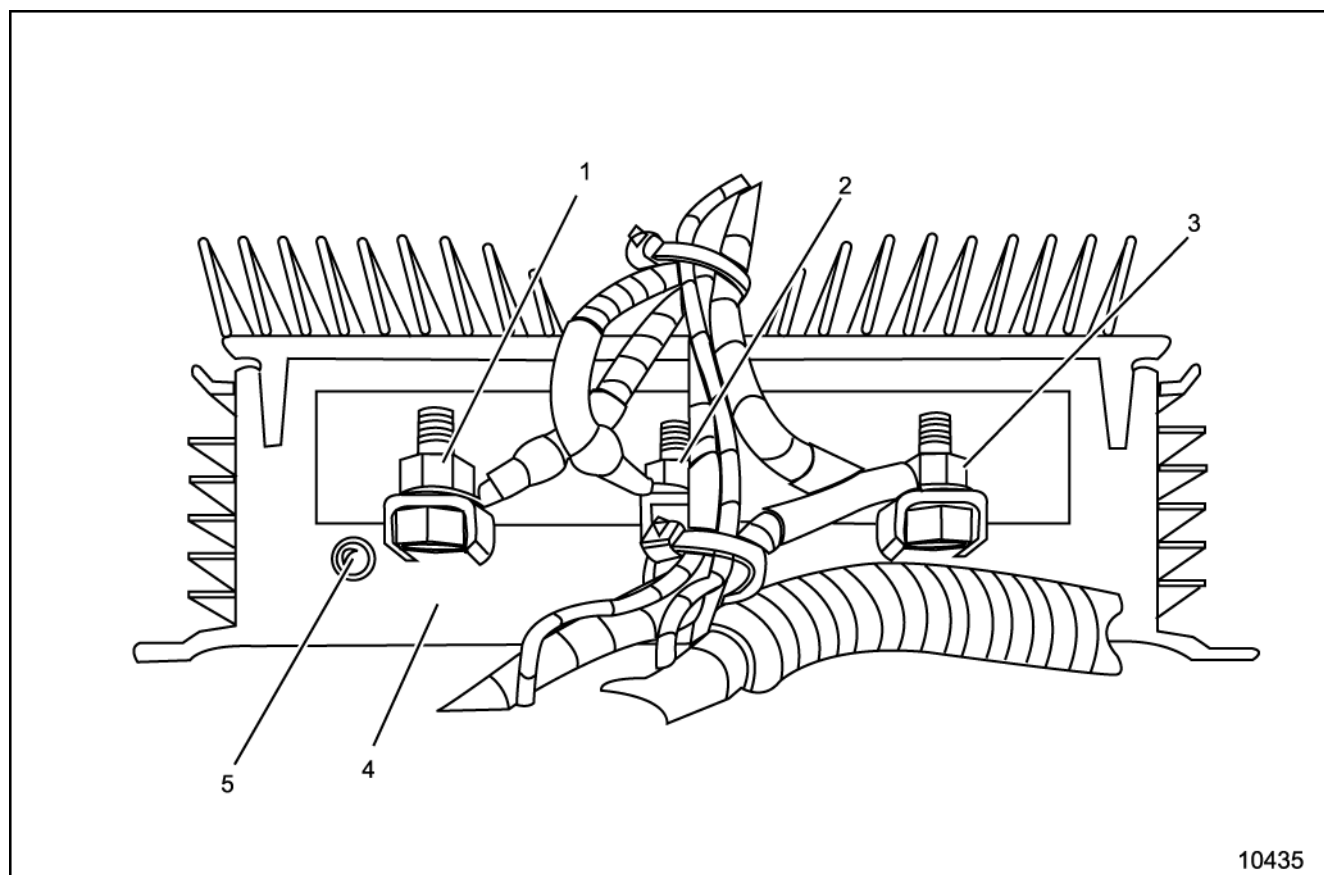
Power Converter

**Legend**

- (1) Ground Connection
- (2) 12 Volt Connection
- (3) 24 Volt Connection

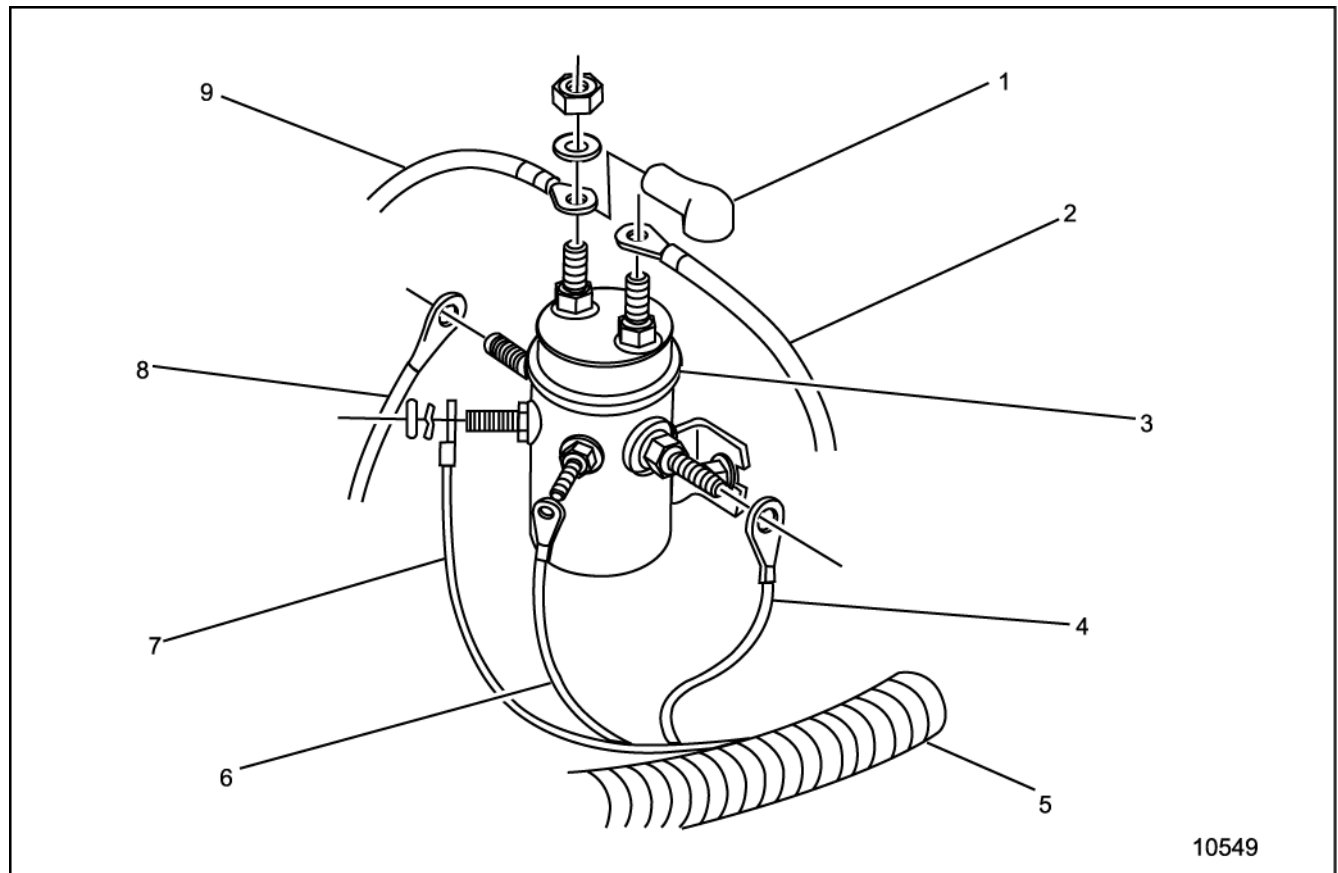
- (4) Fuse Link Covers
- (5) Ignition Connection
- (6) Power Converter

Battery Equalizer

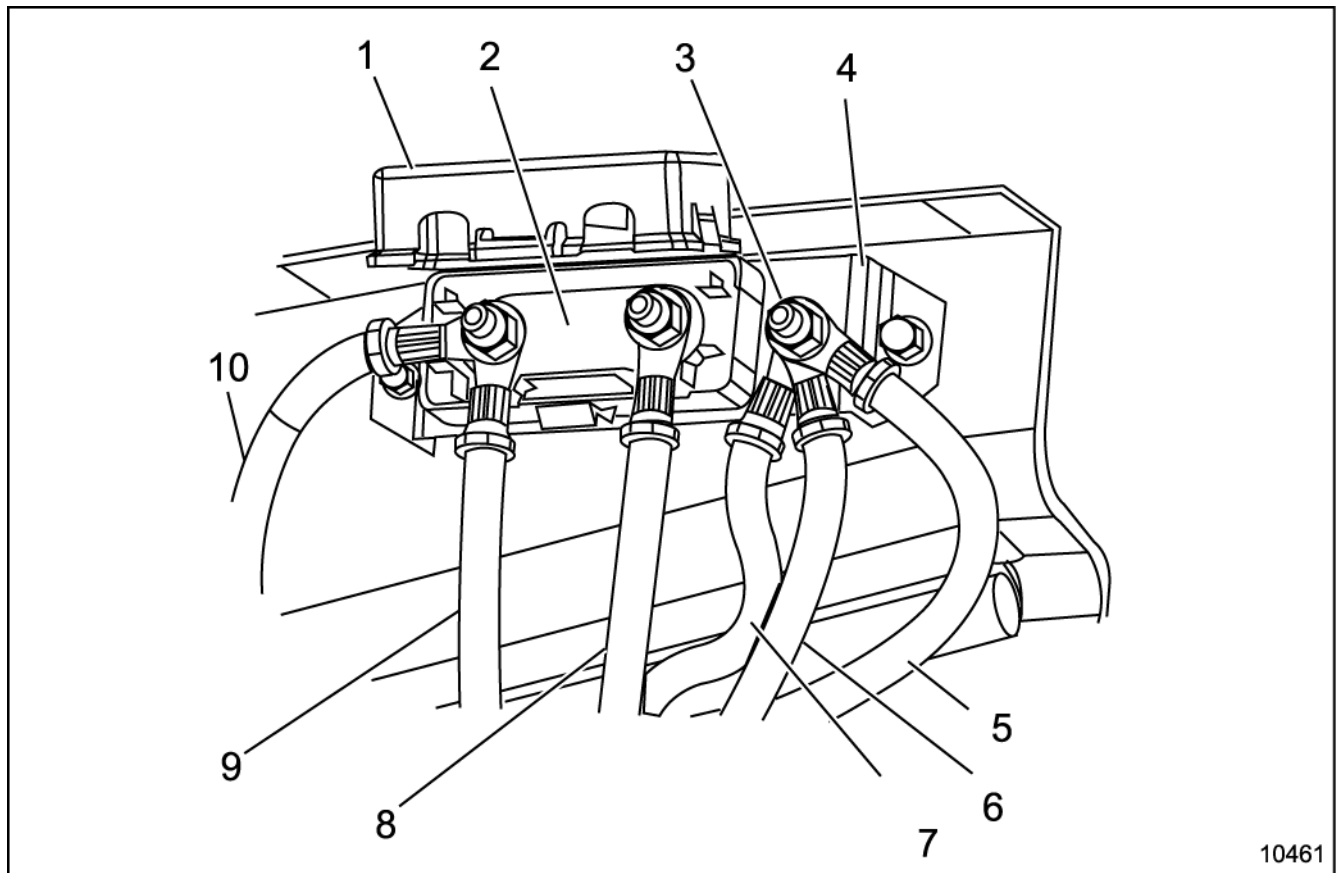
**Legend**

- (1) 24 Volt Connection
- (2) 12 Volt Connection
- (3) Ground Connection

- (4) Battery Equalizer
- (5) LED Status Indicator

Converter Protection Contactor (Starter Relay)**Legend**

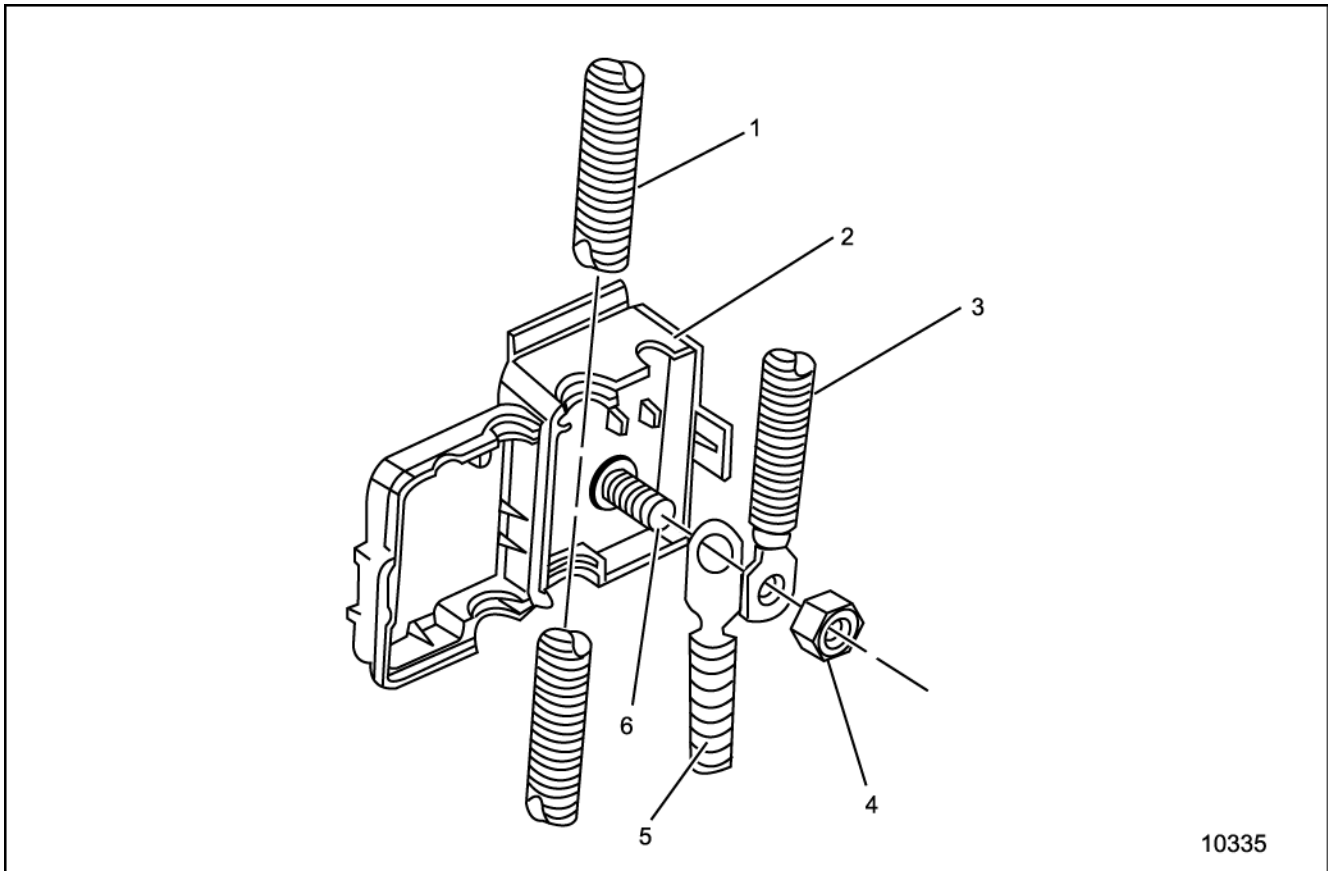
- | | |
|-------------------------------|--|
| (1) Boot | (6) From the Ignition Stud (Power Converter) |
| (2) From 24V Equalizer Stud | (7) Ground from Power Converter |
| (3) Contactor (Starter Relay) | (8) From 24V Circuit Breaker |
| (4) From 24V Converter Stud | (9) From Circuit Breaker 24V Contactor Stud |
| (5) Engine Wiring Harness | |

Bulkhead Junction Block

10461

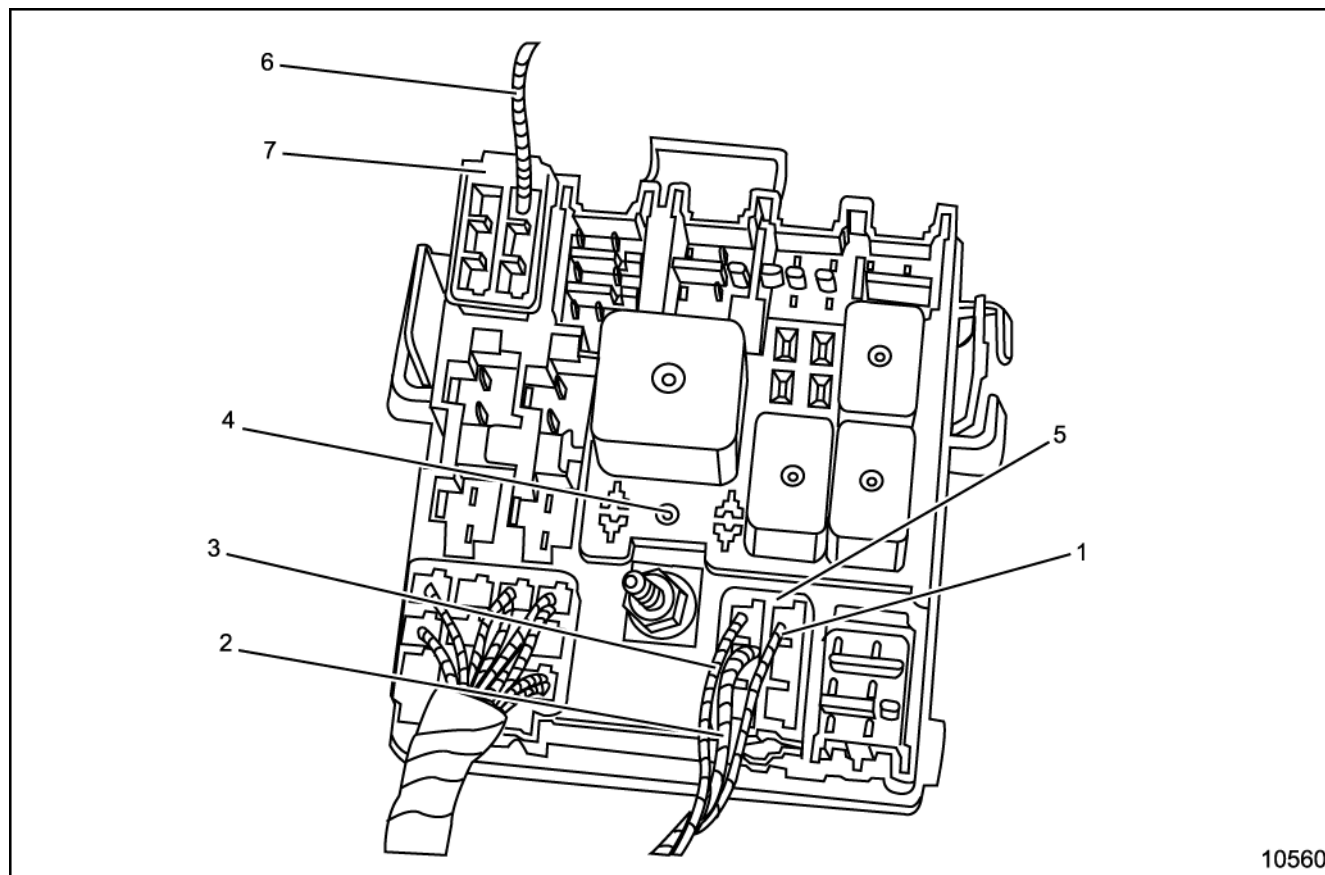
Legend

- | | |
|-------------------------------|--------------------------------|
| (1) Junction Block | (6) Negative Winch Cable Front |
| (2) Jumper Plate | (7) Negative Battery Cable |
| (3) Ground Connection | (8) Positive Battery Cable |
| (4) Mounting Bracket | (9) Positive Winch Cable Front |
| (5) Negative Winch Cable Rear | (10) Positive Winch Cable Rear |

24V Battery Booster and/Starter Cable Junction Block**Legend**

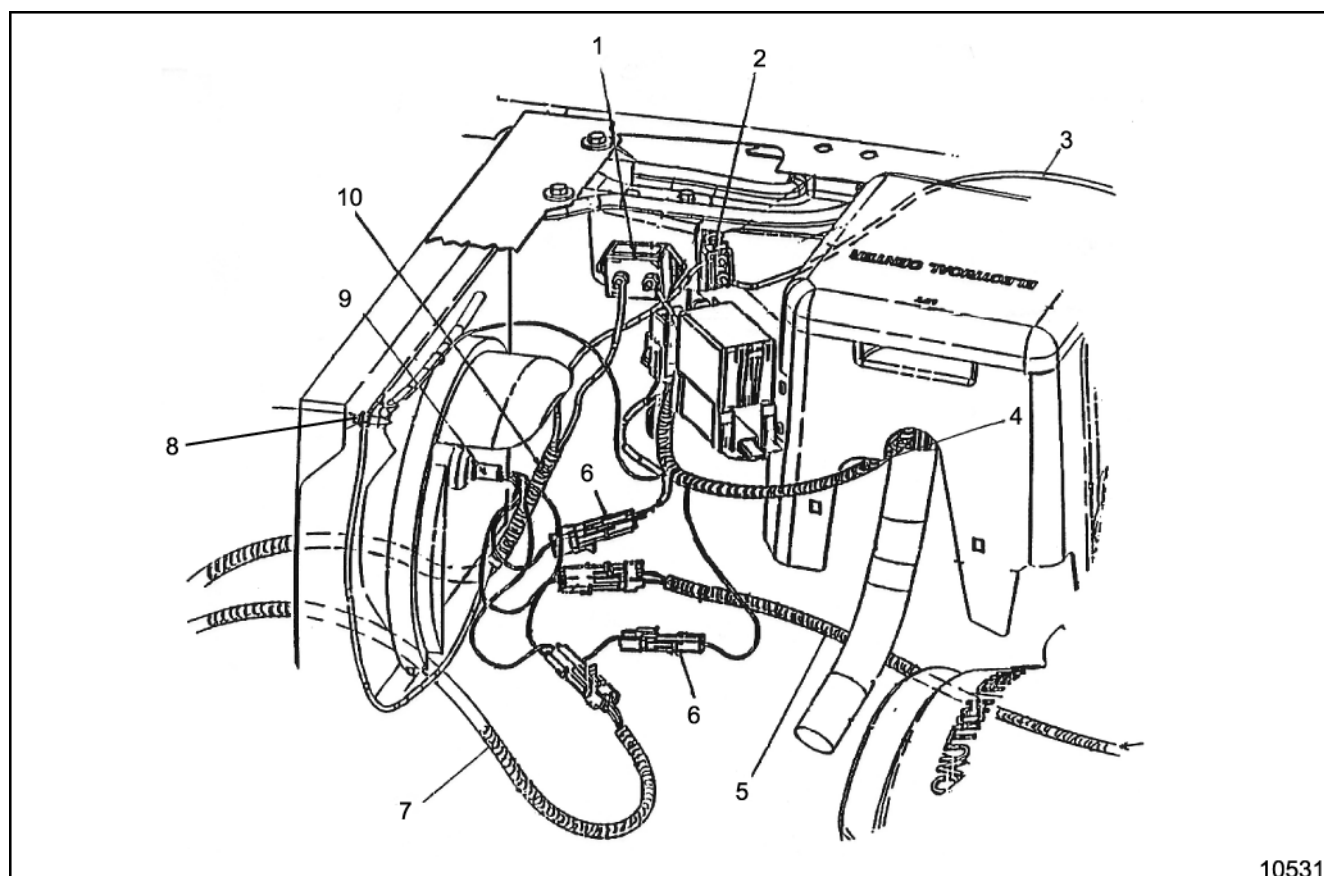
- | | |
|-----------------------------|--|
| (1) Positive Battery Cable | (4) Junction Block Post Nut |
| (2) Junction Block | (5) Positive Winch Cable Permanent Mount |
| (3) Alternator Output Cable | (6) Junction Block Post |
-

Junction Block – IP

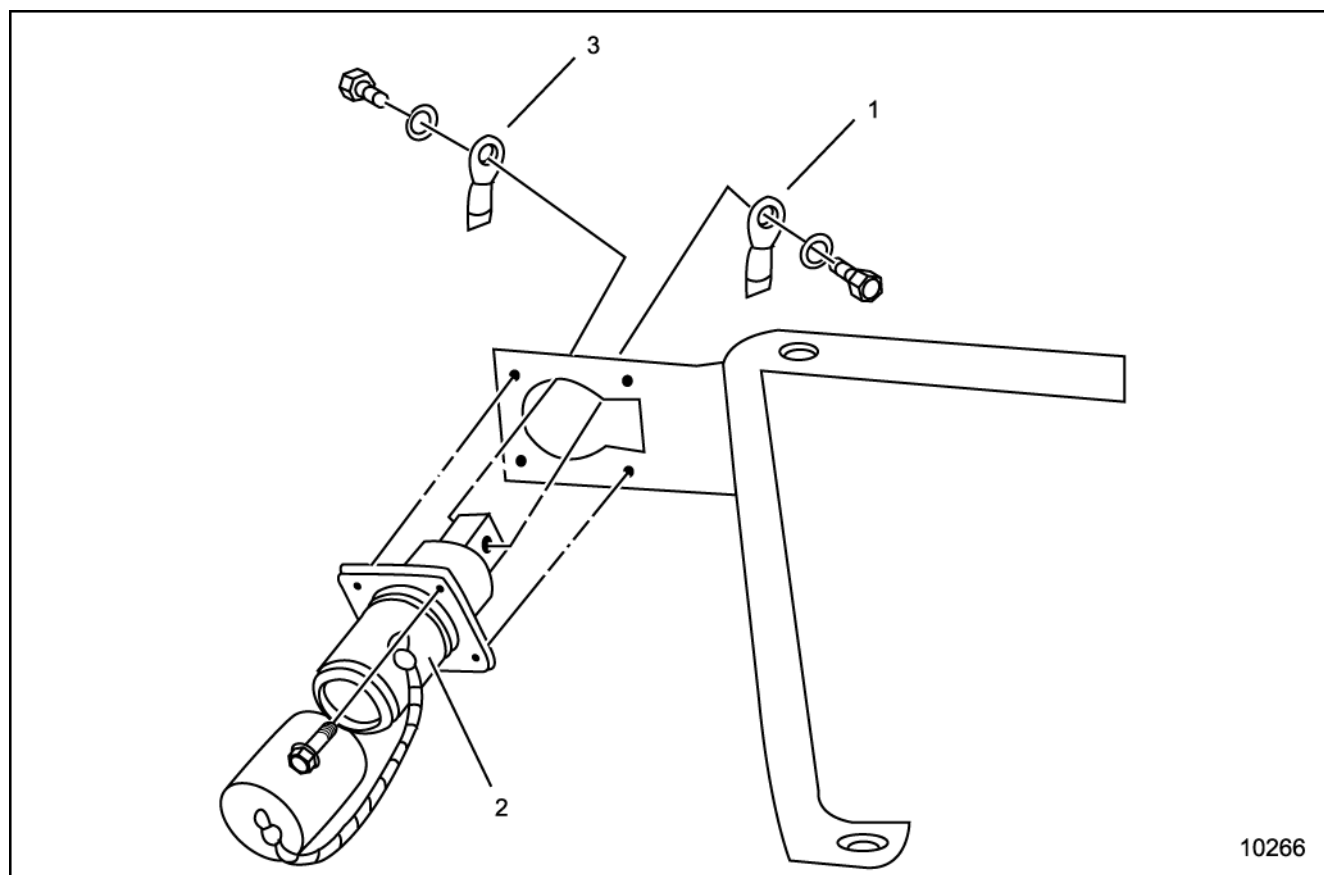
**Legend**

- | | |
|-------------------------|--------------------------------|
| (1) Cavity A | (5) C-9 Connector Location |
| (2) Cavity F | (6) To Underhood Relay Harness |
| (3) Cavity E | (7) C-4 Connector Location |
| (4) Junction Block – IP | |

24V Cables and Circuit Breakers

**Legend**

- | | |
|-----------------------------------|---------------------------------|
| (1) 12V Circuit Breaker | (6) B/O Panel Harness Connector |
| (2) 24V Circuit Breaker | (7) To Rear Extension Harness |
| (3) To 24V Battery | (8) Ground Stud |
| (4) To Junction Block – Underhood | (9) B/O Panel Harness |
| (5) To Front Blackout Lamps | (10) To 24V Converter/Equalizer |

24V Battery Booster Connector**Legend**

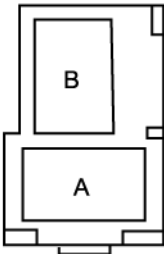
- (1) Battery Positive Ground (RED)
- (2) Booster Connector Assembly

- (3) Battery Negative Ground (BLK)

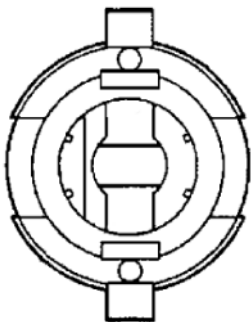
Connector End Views

Starting and Charging Connector End Views

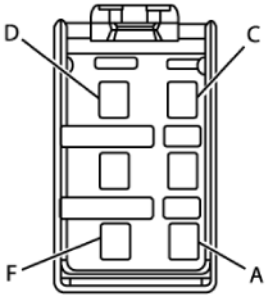
Voltmeter Connector

 <p style="text-align: right;">10547</p>			
Connector Part Information		<ul style="list-style-type: none"> • 02973781 • 2-Way Series 280 (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	ORN	39	Voltmeter Feed
B	BLK	150B	Ground

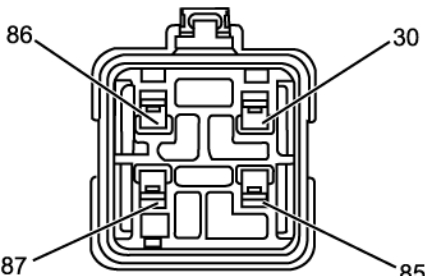
Voltmeter Lamp

 <p style="text-align: right;">7927</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12110053 • Bulb Type W2 Axial 	
Pin	Wire Color	Circuit No.	Function
A	BRN	9	Park Lamp Feed
B	BLK	150	Ground

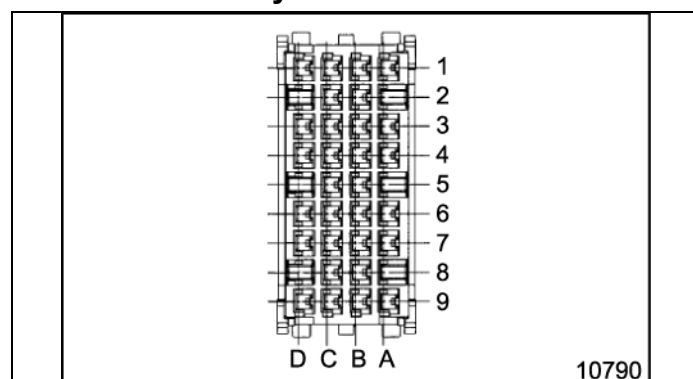
Junction Block – IP – C9

 <p style="text-align: right;">10785</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12193922 • 6-Way F Metric Pack 280 Series Flex-Lock (CRM) 	
Pin	Wire Color	Circuit No.	Function
A	150A	150A	Voltmeter/Lamp Ground
B	---	---	Not Used
C	---	---	Not Used
D	---	---	Not Used
E	PNK	39	Power Converter IGN
F	BRN	9	Voltmeter Lamp Positive

Voltmeter Relay

 <p style="text-align: right;">10550</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12033873 • 5-Way F M/P Series 630 (GRY) 	
Pin	Wire Color	Circuit No.	Function
30	BRN/WHT	901C	B/O Headlamp
85	TAN/WHT	901B	B/O Switch
86	WHT	915	B/O Switch
87	PNK	911E	Service Lamp Switch

Relay Block Module

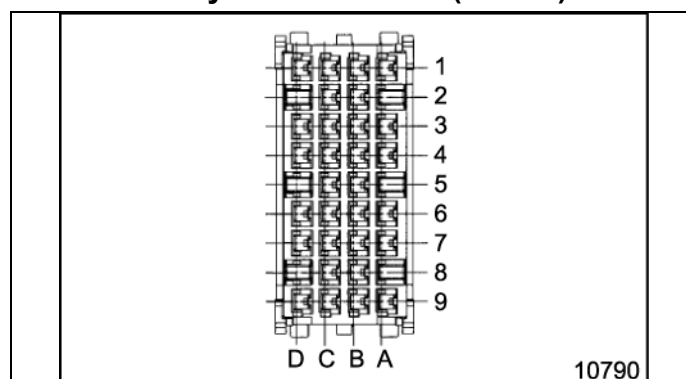


Connector Part Information

- 12146836
- 36-Way F Flex-Lock 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A1	ORN	40B	CTSY Circuit
A2	---	---	Not Used
A3	RED	912B	Relay Jumper
A4	ORN/BLK	240A	Park Lamp Circuit
A5	---	---	Not Used
A6	RED	912B	Relay Jumper
A7	PNK	839A	Back Up Circuit
A8	---	---	Not Used
A9	RED	912A	Relay Power
B1	BLK	150A	Relay Jumper
B2	---	---	Not Used
B3	ORN	40A	CTSY Circuit
B4	BLK	150A	Relay Jumper
B5	---	---	Not Used
B6	ORN/BLK	240B	Park Lamp Circuit
B7	BLK	150A	Relay Jumper
B8	---	---	Not Used
B9	PNK	839B	Back Up Circuit

Relay Block Module (cont'd)

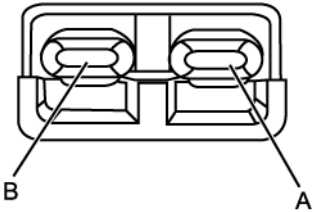


Connector Part Information

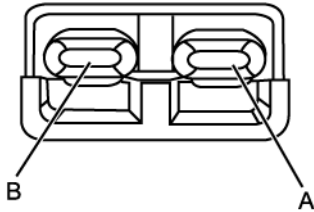
- 12146836
- 36-Way F Flex-Lock 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
C1	WHT	352B	Headlamp Circuit
C2	---	---	Not Used
C3	RED	912B	Relay Jumper
C4	BLU	545B	DRL Circuit
C5	---	---	Not Used
C6	RED	912B	Relay Jumper
C7	GRN	1329A	Horn Circuit
C8	---	---	Not Used
C9	RED	912B	Relay Jumper
D1	BLK	150C	Relay Ground
D2	---	---	Not Used
D3	WHT	352A	HDLP Circuit
D4	BLK	150A	Relay Jumper
D5	---	---	Not Used
D6	BLU	545A	DRL Circuit
D7	BLK	150A	Relay Jumper
D8	---	---	Not Used
D9	GRN	1329B	Horn Circuit

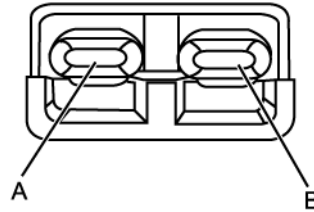
Multi-Mount Winch Vehicle Connector - Front

			
Connector Part Information		<ul style="list-style-type: none"> • TX017639 • 2-Way (Red) 	
Pin	Wire Color	Circuit No.	Function
A	BLK/RED	1	Positive
B	BLK	150	Negative

Multi-Mount Winch Vehicle Connector - Rear

			
Connector Part Information		<ul style="list-style-type: none"> • TX017640 • 2-Way (Red) 	
Pin	Wire Color	Circuit No.	Function
A	BLK/RED	1	Positive
B	BLK	150	Negative

Multi-Mount Winch Connector

			
Connector Part Information		<ul style="list-style-type: none"> • TX017639 or TX017640 • 2-Way (RED) 	
Pin	Wire Color	Circuit No.	Function
A	BLK	150	Negative
B	BLK/RED	1	Positive

Diagnostic Information and Procedures

Symptom List

Note: For vehicle no start condition, refer to Diagnostic System Check in the 2001/02 C/K Truck Service Manual.

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

- Converter No Voltage
- Voltmeter Lamp Inoperative
- Battery Equalizer Inoperative
- Contactor Inoperative
- Voltmeter Inoperative

Converter No Voltage

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Electrical				
1	Did you review the Starting and Charging System Description and Operation?	—	Go to Step 2	Go to Description and Operation
2	Are the batteries properly charged?	—	Go to Step 3	Go to Battery Charging in 2001/02 C/K Truck Service Manual
3	Connect a test lamp between the shorter 12V stud and ground. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 5
4	Connect a test lamp between the shorter 24V stud and ground. Does the test lamp illuminate?	—	Go to Step 11	Go to Step 9
5	Connect a test lamp between the longer 12V stud and ground. Does the test lamp illuminate?	—	Go to Step 6	Go to Step 7
6	Locate and repair the source of the overload and replace the fuse. Did you complete the replacement?	—	Go to Step 25	—
7	Connect a test lamp between the output stud of the 12V circuit breaker and ground. Does the test lamp illuminate?	—	Go to Step 8	Go to Step 10
8	Locate and repair the open in circuit 152. Did you complete the repair?	—	Go to Step 25	—
9	Connect a test lamp between the longer 24V stud and ground. Does the test lamp illuminate?	—	Go to Step 17	Go to Step 16
10	Connect a test lamp between the input stud of the 12V circuit breaker and ground. Does the test lamp illuminate?	—	Go to Step 12	Go to Step 13

Converter No Voltage (cont'd)

Step	Action	Value(s)	Yes	No
11	Connect a test lamp between the IGN stud of the converter and ground. Does the test lamp illuminate?	—	Go to Step 15	Go to Step 19
12	Locate and repair the source of the overload and replace the 12V circuit breaker. Did you complete the repair?	—	Go to Step 25	—
13	Locate and repair the open in circuit 5. Did you complete the repair?	—	Go to Step 25	—
14	Locate and repair the open or high resistance in circuit 901. Did you complete the repair?	—	Go to Step 25	—
15	Connect a self-powered test lamp to the ground terminal of the converter and ground. Does the test lamp illuminate?	—	Go to Step 23	Go to Step 24
16	With the contactor energized, connect a test lamp between terminal D and ground. Does the test lamp illuminate?	—	Go to Step 14	Go to Step 18
17	Locate and repair the source of the overload and replace the fuse. Did you complete the repair?	—	Go to Step 25	—
18	Connect a test lamp between terminal C and ground. Does the test lamp illuminate?	—	Go to Contactor Inoperative	Go to Step 20
19	Locate and repair the open of high resistance in circuit 39. Did you complete the repair?	—	Go to Step 25	—
20	Connect a test lamp between the 24V circuit breaker output terminal and ground. Does the test lamp illuminate?	—	Go to Step 21	Go to Step 22
21	Locate and repair the source of the overload or high resistance and replace the circuit breaker. Did you complete the repair?	—	Go to Step 25	—
22	Locate and repair the open in the power circuit to the 24V circuit breaker. Did you complete the repair?	—	Go to Step 25	—
23	Replace the power converter. Did you complete the replacement?	—	Go to Step 25	—
24	Locate and repair the open in circuit 150. Did you complete the repair?	—	Go to Step 25	—
25	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 2

Voltmeter Lamp Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Electrical				
1	Did you review the Starting and Charging System Description and Operation?	—	Go to Step 2	Go to Description and Operation
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 G 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 bulb. Did you complete the replacement?	—	Go to Step 7	—
6	Locate and repair the open or high resistance in 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

Battery Equalizer Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Electrical				
1	Did you review the Starting and Charging System Description and Operation?	—	Go to Step 2	Go to Description and Operation
2	Connect a test lamp between the 12V terminal of the equalizer and ground. Does the test lamp illuminate?	—	Go to Step 3	Go to Step 4
3	Connect a test lamp between the 24V terminal and ground. Does the test lamp illuminate?	—	Go to Step 6	Go to Step 5
4	Connect a test lamp between the output side of the 12V circuit breaker and ground. Does the test lamp illuminate?	—	Go to Step 8	Go to Step 9
5	Connect a test lamp between terminal B of the contactor and ground. Does the test lamp illuminate?	—	Go to Step 11	Refer to Contactors Inoperative
6	Connect a self-powered test lamp to the ground terminal and ground. Does the test lamp illuminate?	—	Go to Step 7	Go to Step 13
7	Replace the battery equalize. Did you complete the replacement?	—	Go to Step 14	—

Battery Equalizer Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
8	Locate and repair the open or high resistance in circuit 152. Did you complete the repair?	—	Go to Step 14	—
9	Connect a test lamp on the input side of the circuit breaker and ground. Does the test lamp illuminate?	—	Go to Step 10	Go to Step 12
10	Locate the source of the overload and replace the circuit breaker. Did you complete the repair?	—	Go to Step 14	—
11	Locate and repair the open or high resistance between the contactor and converter. Did you complete the repair?	—	Go to Step 14	—
12	Locate and repair the open or high resistance in the power feed circuit. Did you complete the repair?	—	Go to Step 14	—
13	Locate and repair the open or high resistance in circuit 150. Did you complete the repair?	—	Go to Step 14	—
14	Operate the system in order to verify the repair. Did you correct the condition?	—	System OK	Go to Step 2

Contactor Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Electrical				
1	Did you review the Starting and Charging System Description and Operation?	—	Go to Step 2	Go to Description and Operation
2	Are the batteries properly charged?	—	Go to Step 3	Go to Battery Charging in 2001/02 C/K Truck Service Manual
3	With the ignition on, connect a test lamp between terminal F and ground. Does the test lamp illuminate?	—	Go to Step 4	Go to Step 5
4	Connect a test lamp between terminal E and ground. Does the test lamp illuminate?	—	Go to Step 7	Go to Step 6
5	Locate and repair the open in circuit 39. Did you complete the repair?	—	Go to Step 18	—
6	Connect a test lamp between terminal A and ground. Does the test lamp illuminate?	—	Go to Step 8	Go to Step 10

Contactor Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
7	Locate and repair the open in circuit 150. Did you complete the repair?	—	Go to Step 18	—
8	Connect a test lamp between terminal B circuit 900 and ground. Does the test lamp illuminate?	—	Go to Step 11	Go to Step 9
9	Replace the contactor assembly. Did you complete the replacement?	—	Go to Step 18	—
10	Connect a test lamp between terminal C circuit 900 and ground. Does the test lamp illuminate?	—	Go to Step 12	Go to Step 13
11	With the ignition on, connect a test lamp to terminal D and ground. Does the test lamp illuminate?	—	Go to Step 18	Go to Step 9
12	Locate and repair the open in the jumper between terminal A and C circuit 900. Did you complete the repair?	—	Go to Step 18	—
13	Connect a test lamp between the output stud of the 24V circuit breaker and ground. Does the test lamp illuminate?	—	Go to Step 14	Go to Step 15
14	Locate and repair the open or high resistance in circuit 900. Did you complete the repair?	—	Go to Step 18	—
15	Connect a test lamp between the input terminal of the 24V and ground. Does the test lamp illuminate?	—	Go to Step 16	Go to Step 17
16	Replace the 24V circuit breaker. Did you complete the replacement?	—	Go to Step 18	—
17	Locate and repair the circuit that feeds the 24V circuit breaker. 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

Voltmeter Inoperative

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Electrical				
1	Did you review the Starting and Charging System Description and Operation?	—	Go to Step 2	Go to Description and Operation

Voltmeter Inoperative (cont'd)

Step	Action	Value(s)	Yes	No
2	Connect a test lamp between cavity A of the voltmeter and ground. Note: Vehicle must be running for the following steps. Does the test lamp illuminate?	—	Go to Step 3	Go to Step 4
3	Connect a test lamp between cavity B of the voltmeter and ground. Does the test lamp illuminate?	—	Go to Step 5	Go to Step 6
4	Connect a test lamp between cavity 86 of the voltmeter relay and ground. Does the test lamp illuminate?	—	Go to Step 7	Go to Step 8
5	Locate and repair the open in circuit 150. Did you complete the repair?	—	Go to Step 15	—
6	Replace the voltmeter. Did you complete the repair?	—	Go to Step 15	—
7	Locate and repair the open or high resistance in circuit 901. Did you complete the repair?	—	Go to Step 15	—
8	Connect a test lamp between cavity 85 and ground. Does the test lamp illuminate?	—	Go to Step 10	Go to Step 9
9	Locate and repair the open or high resistance in circuit 901. Did you find and correct the condition?	—	Go to Step 15	Go to Converter Inoperative
10	Connect a test lamp between cavity 87 of the voltmeter relay and ground. Does the test lamp illuminate?	—	Go to Step 11	Go to Step 14
11	Connect a test lamp between cavity and ground. Does the test lamp illuminate?	—	Go to Step 13	Go to Step 12
12	Replace the voltmeter relay. Did you complete the replacement?	—	Go to Step 15	—
13	Locate or repair the open or high resistance in circuit 150. Did you complete the repair?	—	Go to Step 15	—
14	Locate and repair the open or high resistance in circuit 39. Did you complete the repair?	—	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

Repair Instructions

Voltage Regulator Test

Tools Required

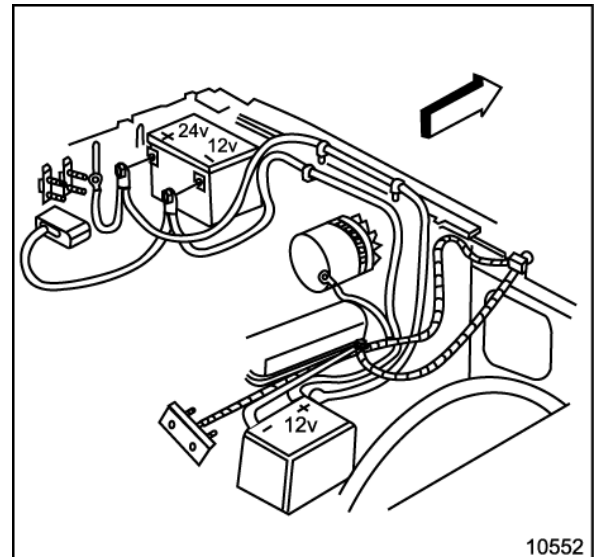
- Digital Voltmeter 5 Amp
- 24V Load
- 12V-20 Amp power Supply
- Test jumpers or cables

Note: 24V load may use two, 12V automotive head lamps wired in series for this load.

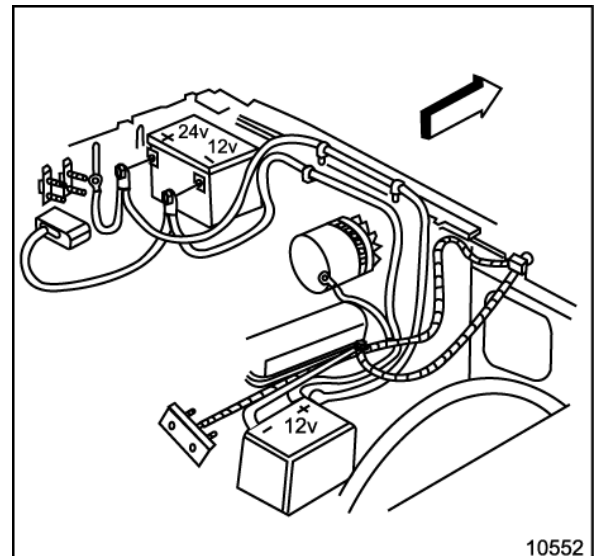
1. Remove the voltage power converter/voltage regulator from the vehicle. Refer to Power Converter Replacement (Tahoe) or Power Converter Replacement (Suburban) in Interior Trim.
2. Remove the fuses and test the unit with an ohmmeter. Replace any faulty fuses.
3. Connect the GND terminal of the unit to the 12V battery ground or a power supply ground.

Notice: The power supply must be set to 12.6V with the power turned ON. A small spark may result.

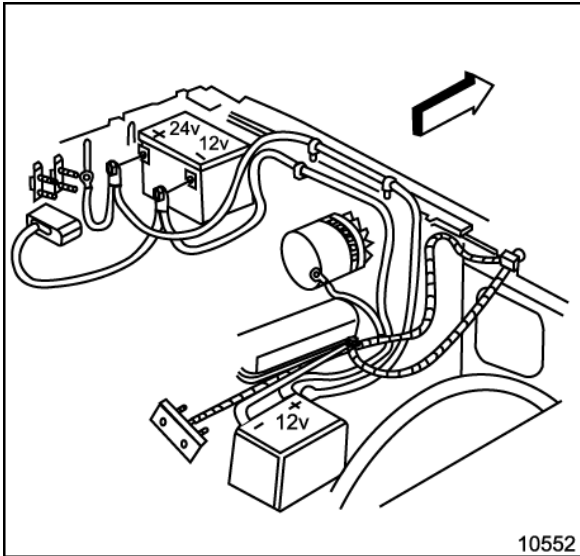
4. Connect the 12V terminal of the unit to the 12V battery positive connection or to a power supply positive connection.
5. Connect the 24V terminal of unit to one a 5 amp, 24V load. Connect the opposite of the load to the GND. A useful 5 amp, 24V load can be built by connecting two, 5 amp, 12V loads in series. Example: Connect two, 12V headlamps in series.
6. Connect the negative terminal of a Digital voltmeter to the 24V terminal of the unit under test. Set the meter to the 24V terminal of the unit under test. Set the meter to 200VDC and turn it on. The meter should read between 11-13V. If two 12V series headlamps are being used for the test load, the lamps should glow at one half intensity. If there is no voltage output, or if the unit is putting out 24V, check the connections. If the connections are accurate, return the unit to the manufacturer (Sure Power) for evaluation.
7. Connect the IGN terminal of the unit to the 12V terminal using a jumper wire. This turns the unit ON.



10552



10552



8. Observe the voltage on the meter and the intensity of the lamps if connected. The lamps should be at full intensity. The voltage should be approximately twice the 12V reading $\pm 1.5V$. For example, if the 12V input is 12.6V, the 24V output should be between approximately 24V and 27V. Verify the input voltage at the 12V and 27V. Verify the input voltage at the 12V terminal. If voltages are less or greater than the indicated range, or if the lamps are not glowing greater than half intensity, return the unit to the manufacturer (Sure Power) for evaluation or call for a calibration.
9. Disconnect the unit under test.

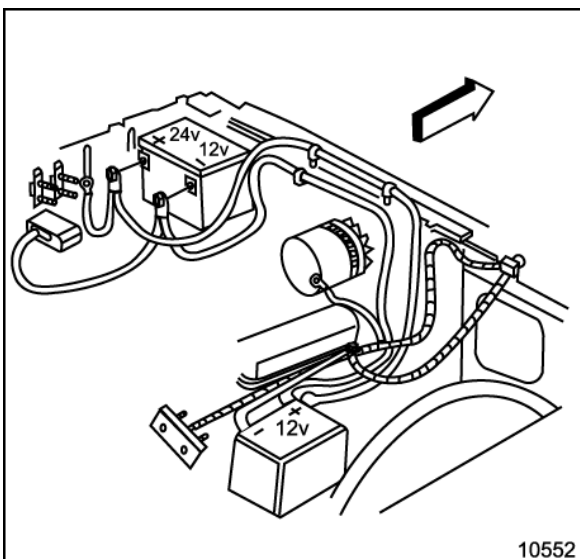
Option 1: Single 24V Battery Bank

Note: The following is used in addition to the Power Converter/Voltage Regulator Replacement instructions as recommended by the manufacturer (Sure Power Industries, Inc.)

1. Mount the voltage regulator close to the battery bank.

Notice: Do not connect to the chassis ground. Improper operation may result.

2. Connect the ground terminal directly to the 12V, A battery ground.
3. Connect the 12V positive terminal to the 12V, A battery positive post.
4. Connect the 24V, output terminal to the 24V, B battery positive post.



Notice: This circuit activates the voltage regulator only and does not act as an ON/OFF switch for the 24V accessories.

5. Connect the ignition terminal to a 12V ignition source.
6. Confirm all connections. Single battery bank A and B batteries should be connected in series.
7. Connect all 12V loads to the A battery positive post. Connect all 24V loads to the B battery positive post.

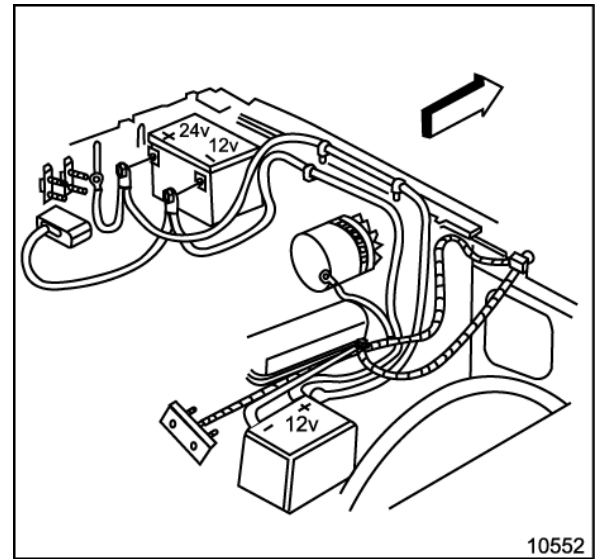
Option 2: Separate 24V Battery Bank

Note: The following is used in addition to the Power Converter/Voltage Regulator Replacement as recommended by the manufacturer (Sure Power Industries, Inc.)

1. Mount the Voltage regulator close to the main, 12V chassis battery.

Notice: Do not connect to the chassis ground. Improper operation may result.

2. Connect the ground terminal directly to the 12V, chassis battery ground.
3. Connect the 12V positive terminal to the 12V, chassis battery positive post.

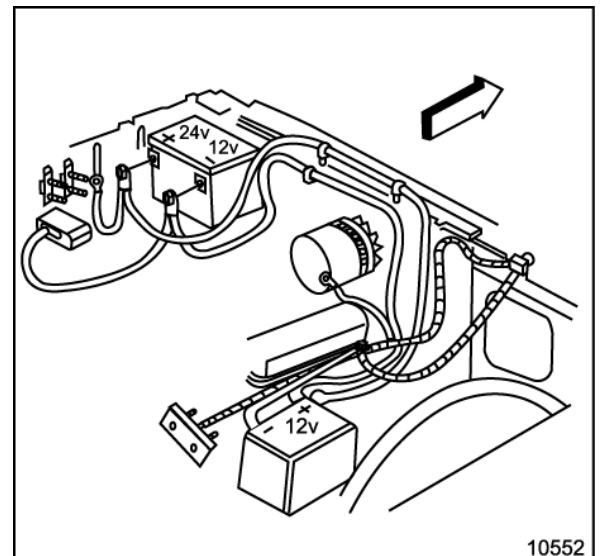


Notice: Do not connect the 12V loads to the A battery of the 24V battery bank. An imbalance condition will result affecting the battery life.

4. Connect the 24V, output terminal to the 24V, B battery positive post.
5. Connect the ignition terminal to a 12V ignition source.
6. Confirm all connections. Maintain a separate 24V battery bank for 24V loads only.

Testing

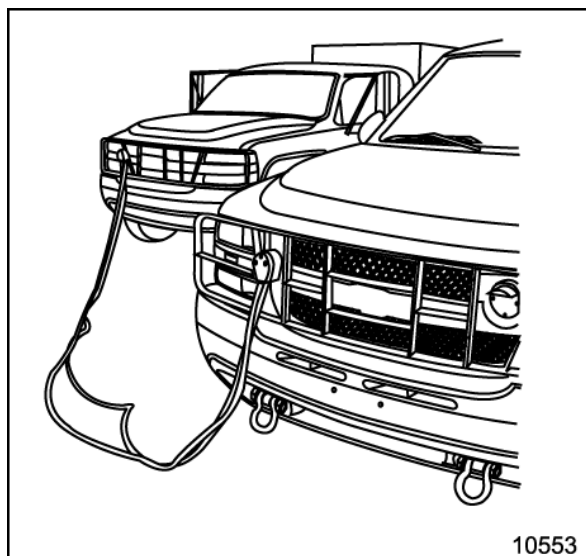
1. Start the engine.
2. Assure that 12V are present at the IGN terminal of the voltage regulator.
3. Apply 10 amps of 24V load.
4. Measure the 12V input voltage and the 24V output voltage. The 24V output voltage should be two times the 12V input voltage. The tolerance is $\pm 0.3V$.
5. Adjust if required.



Adjustment

The voltage adjustment will allow adjustment of the 24V output with respect to the 12V. This adjustment is preset at the factory. If adjustment is necessary it should be made when normal charge voltage is present at the 12V battery (14V). Adjust the 24V under light load to 27.5 to 28V. An isolator may be used in the 24V output. If this is done, the 24V must be adjusted to compensate for the isolator.

Notice: 24V loads drawing current in excess of the rating of the voltage regulator are permissible for short periods of time only (minutes). Prolonged use of these loads will result in improper battery charge and eventual battery deterioration.

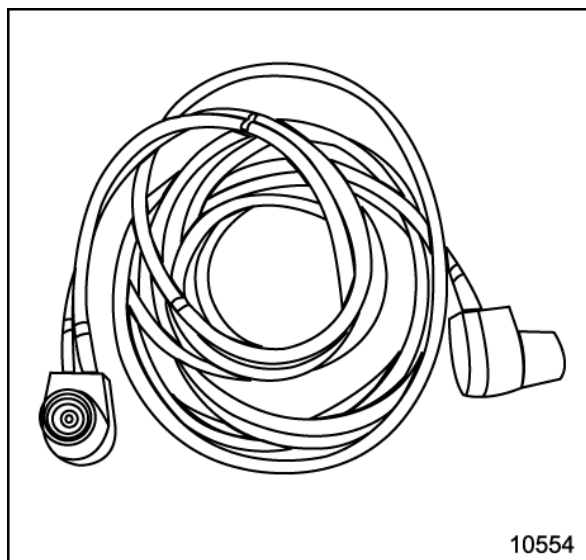


Jump Starting in Case of Emergency

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. In the event the system must be replaced, refer to Slave Connector Replacement in Body Front End.

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



Slave Starting

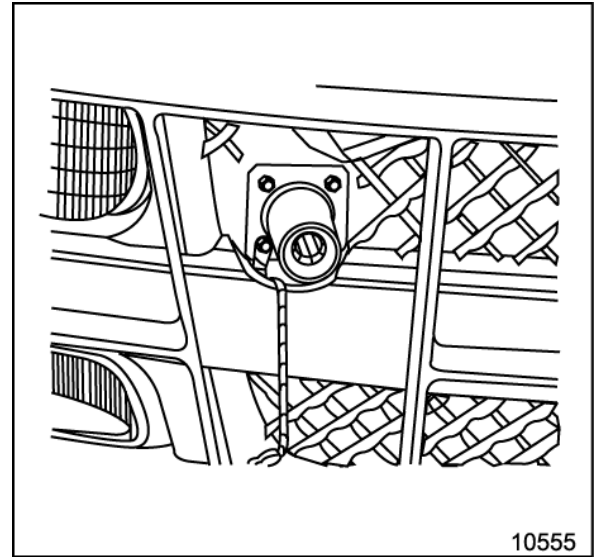
Caution: Batteries can hurt you. They can be dangerous because they contain acid that can burn you. They contain gas that can explode or ignite. They contain enough electricity to burn you. If you don't follow these steps exactly some or all of these things can hurt you.

Notice: Ignoring these steps could result in costly damage to the vehicle. Trying to start your vehicle by pushing or pulling it won't work and it could damage your vehicle.

You should always use the NATO Slave Receptacle and Slave Cable when performing this operation.

NATO Slave Cable

1. Get the vehicles close enough so the slave cable can reach, but be sure the vehicles aren't touching each other. If they are, it could cause a ground connection you don't want. You wouldn't 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 an automatic transmission in PARK (P) or a manual transmission vehicle; 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 aren't needed as well as radios. This will avoid sparks and help save both batteries.
3. Locate the slave receptacles on both vehicles.



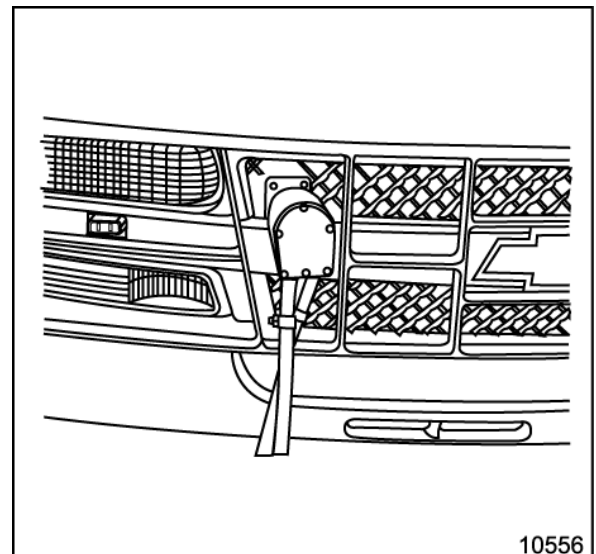
Caution: Using a match near a battery can cause battery gas to explode. People have been hurt doing this, and some have been blinded. Use a flashlight if you need more light. Be sure the batteries have enough water. You don't need to add water to the Delco Freedom® battery (or batteries) installed in every new GM 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 don't explosive gas could be present. Don't 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.

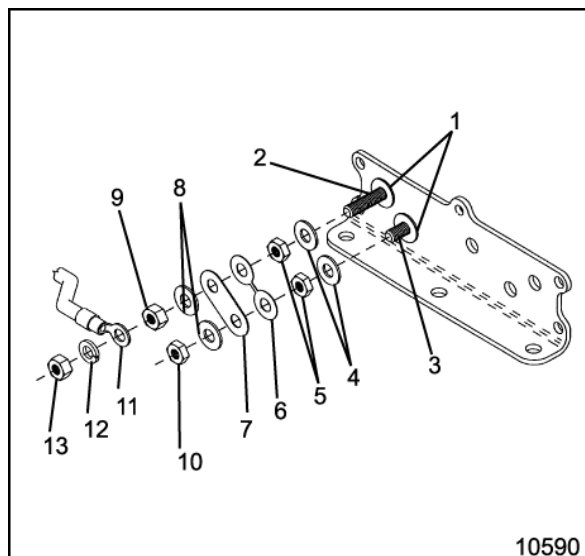
Caution: Fans or other moving engine parts can injure you badly. Keep your hands away from moving parts once the engine is running.

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

Note: It may take up to 30 minutes to charge the battery depending on its state of charge.

8. Start the vehicle with the dead battery.
9. Remove the slave cable in the reverse order that it was installed. Take care not to let the cables touch a metal surface.





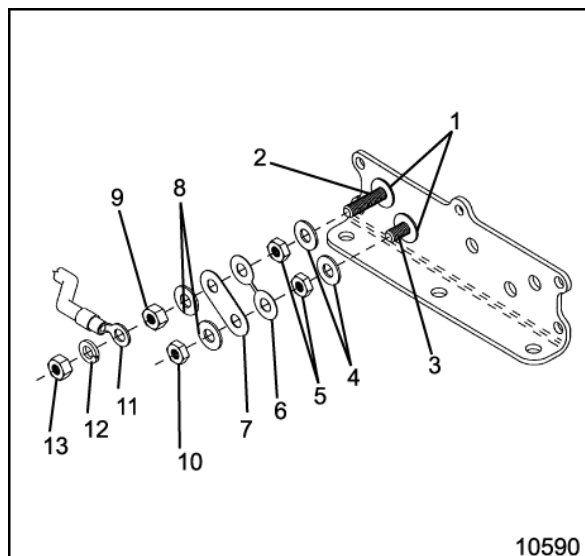
10590

24V Converter Fuse Replacement

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the nuts, wires and fuse hardware from the fuse link studs. Leave nylon shoulder washers (1) on the studs. Note removal of wiring for installation.
3. Clean stud threads with steel wool or a wire brush. Clean the contact surface of the inside jam nuts (5).
4. Disconnect fuse link (6) and discard.



10590

Installation Procedure

1. Install the flat washers (4) over the nylon shoulder washers (1).
2. Install the inside jam nuts (5) as follows: with a wrench tighten and loosen each nut a few times to clean the threads. From a finger tight position, loosen the jam nuts about a 1/4 turn.

Notice: Refer to Fastener Notice in Cautions and Notices.

Note: Do not tighten the inside jam nuts.

3. Install the fuse link (6), fuse cover (7), flat washers (8) and the fuse retaining nuts (9) and (10) full height nut (9) on long stud (2) and jam nut (10) on short stud (3).

Tighten

Tighten fuse retaining nuts to 12 N•m (110 lb in).

4. Install the wiring (11) in the same location as removed.
5. Install the lock washer (12) and the full height nut (13) on the long stud (2) and tighten.

Tighten

Tighten nut to 12 N•m (110 lb in).

6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

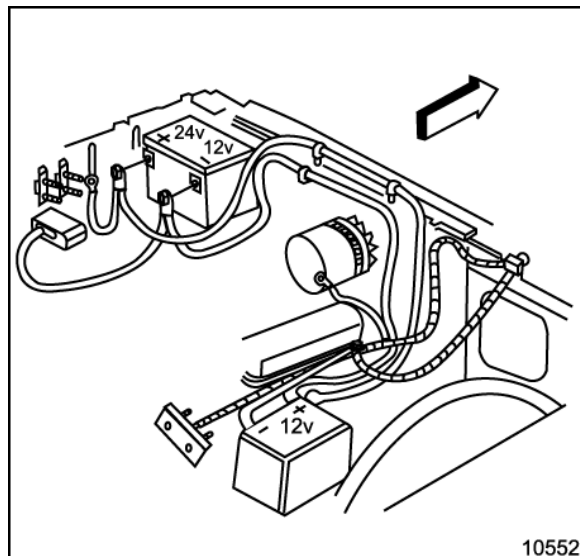
Tighten battery cables to 17 N•m (13 lb ft).

Circuit Breaker Replacement – 12V or 24V

Removal Procedure

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

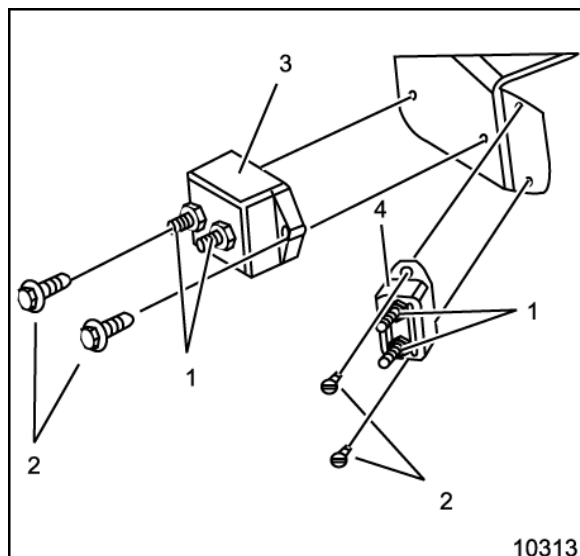
1. Remove the negative battery cable of the right battery and the 12V and 24V cables of the left battery.



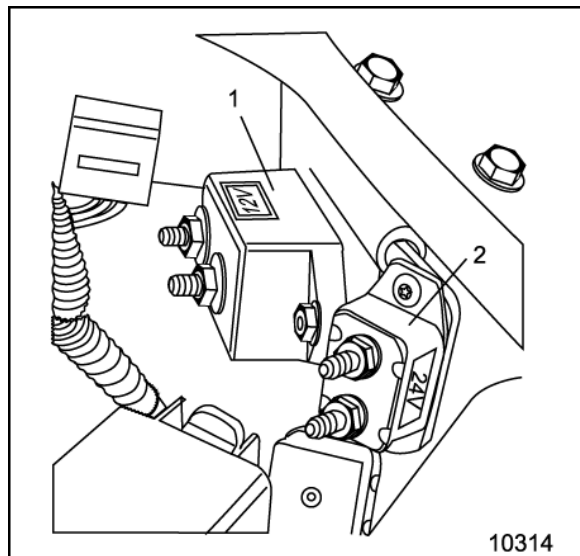
2. Remove nuts (1) holding the wires to the circuit breaker and remove wires.

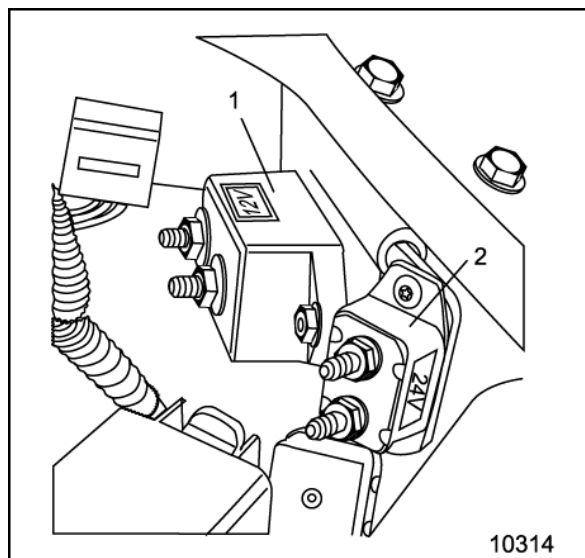
Note: Note location of wires for reassembly.

3. Remove the two bolts (2), holding the 12V (3) or 24V (4) circuit breaker to the fender mount.



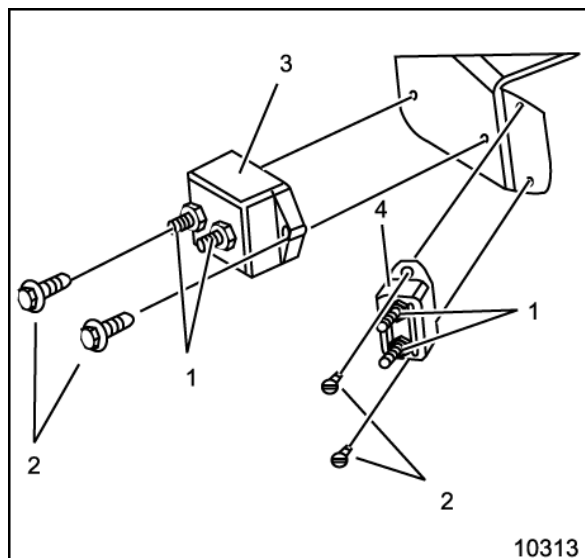
4. Remove the 12V (1) or 24V (2) circuit breaker.





Installation Procedure

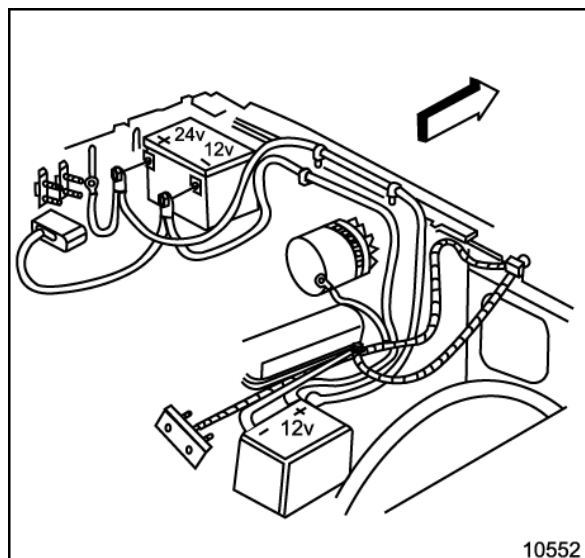
1. Install the 12V (1) or 24V (2) circuit breaker.



2. Install the 12V (3) or 24V (4) circuit breaker to the fender mount with the two bolts (2).

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

3. Install the wires to the circuit breaker with the two nuts (1).



Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

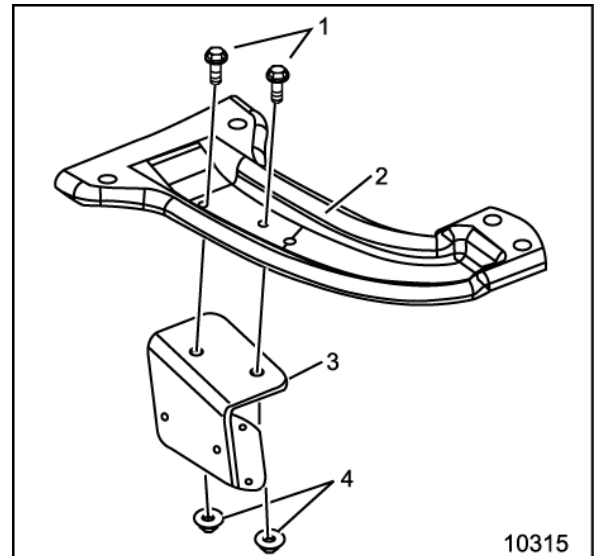
Tighten battery cables to 17 N•m (13 lb ft).

Circuit Breaker Bracket Replacement

Removal Procedure

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

1. Remove the negative battery cable of the right and the 12V and 24V cables of the left battery.
2. Remove the circuit breakers. Refer to Circuit Breaker Replacement – 12V or 24V.
3. Remove bolts (1) and nuts (4) attaching bracket (3) to fender/cowl support (2).



Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

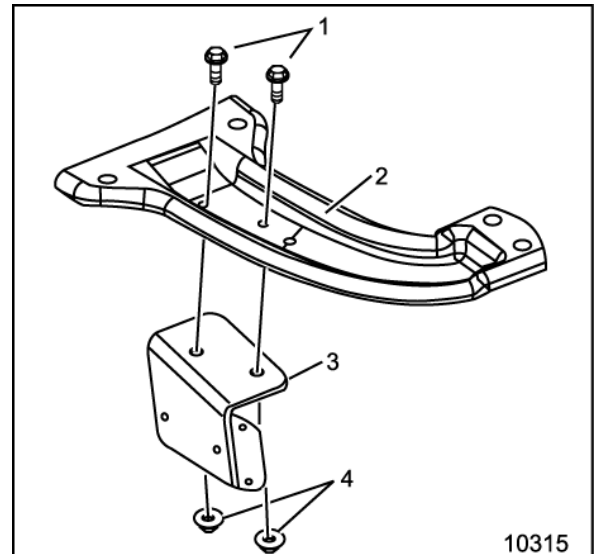
1. Install bracket (3) to fender/cowl (2) and tighten bolts (1) and nuts (4).
2. Install circuit breakers. Refer to Circuit Breaker Replacement - 12V or 24V.
3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten bracket bolts to 4-6 N•m (3-4.5 lb ft).

Tighten

Tighten battery cables to 17 N•m (13 lb ft).

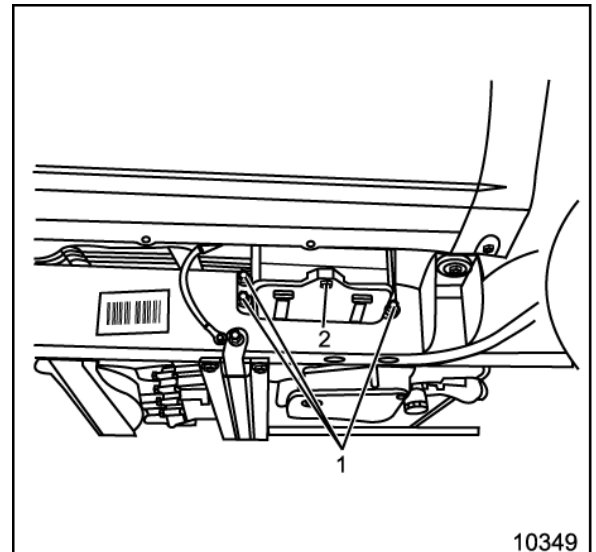


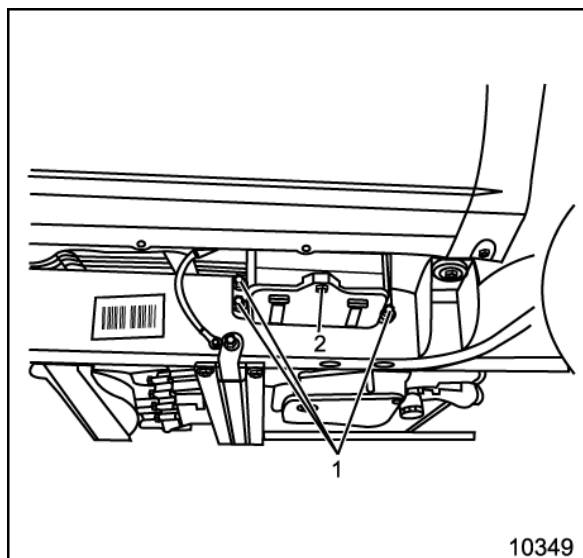
Battery Tray/Battery Replacement

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Loosen bolts (1). Push up battery tray (2) and remove from frame.
3. Unsnap the positive battery cable cover if equipped.
4. Remove positive and negative battery cables.
5. Remove retainer bolt and remove battery.





Installation Procedure

1. Install battery in tray.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install battery retainer and tighten bolt.

Tighten

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

3. Install positive and negative cables and tighten.

Tighten

Tighten cables to 17 N•m (13 lb ft).

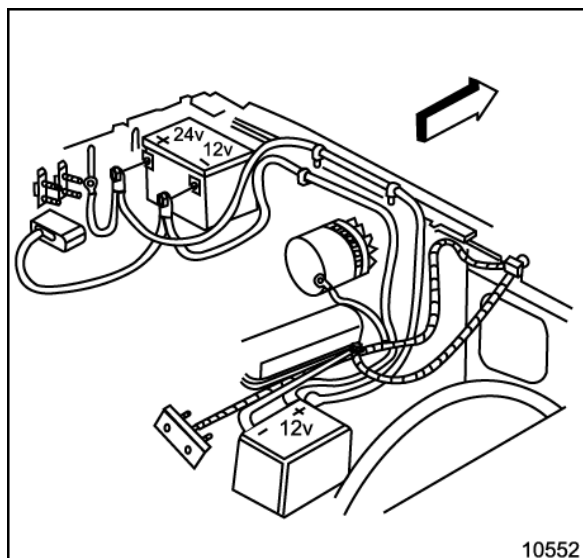
4. Snap the positive battery cable cover closed.

5. Lift battery tray onto bolts on frame and tighten.

6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cables to 17 N•m (13 lb ft).

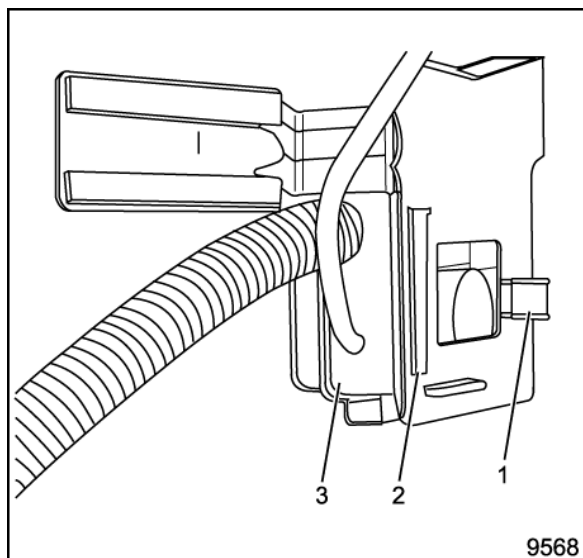


Battery Booster/Slave Junction Block Replacement

Removal Procedure

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

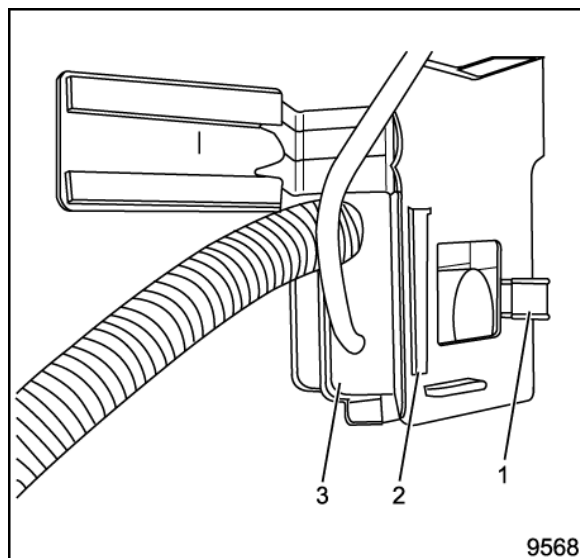
1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Release the junction block cover tab and open the cover.
3. Remove the nut and washer holding the positive booster cable and the starter cable junction box.
4. Remove the cables.



5. Release tab (1) and lift out of slot (2) and remove junction block (3).

Installation Procedure

1. Install the junction block (3) into slot (2). Push until tab (1) engages in bracket.



Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the cables with flanged nut and washer.

Tighten

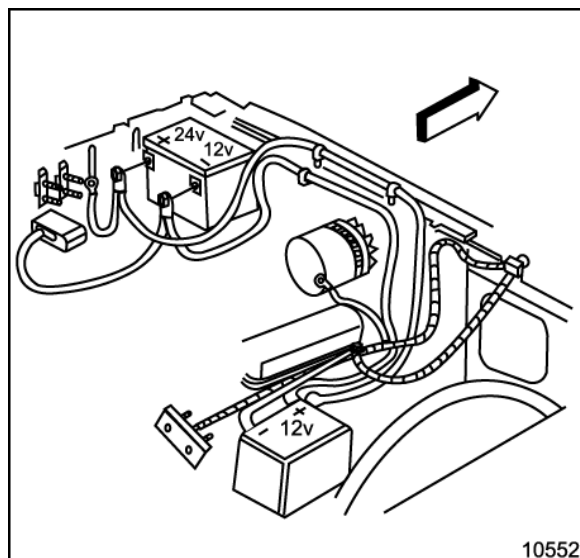
Tighten the flange nut to 14 N•m (10 lb ft).

3. Close the junction block cover securely.

4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cables to 17 N•m (13 lb ft).



Description and Operation

Battery Description (12V and 24V)

The engine electrical options include the slave/booster receptacle, a power converter/voltage regulator, 12- and 24-Volt circuit breakers, a protection contactor, and a two- or three-battery power system.

The two batteries in series provide 24V of power which is isolated by the power converter and controlled by the circuit breakers. These step the power down to 12V from 24V. Greater power is needed for the higher load used by optional radio communications, the 24V starter or for compatibility with other booster/slave receptacles on other vehicles.

Refer to 2001/02 C/K Service Manual for further details. Refer to Replacement procedures in this manual for repairs on various electrical components.

Maintenance

The 24V power system makes each vehicle capable of accepting a power boost through its slave connection from any vehicle similarly equipped. This 24V system requires specific maintenance.

Each power converter panel contains a circuit breaker. Refer to Circuit Breaker Replacement – 12V or 24V.

Note: Repairs in this manual are limited to the specific military equipment included in the LSSV options most commonly ordered.

Starting and Charging System Description and Circuit Operation

Starter

Battery voltage is available at all times through fuse 6 located in the underhood fuse-relay center. Voltage is made available at the ignition switch through CKT 242 (RED) wire. When the ignition switch is placed in start, contacts in the switch close to apply voltage to the crank fuse 8 of the I/P fuse block. From the crank fuse, voltage is sent on CKT 806 (PPL) to the transmission range switch for automatic transmission.

If the automatic transmission is in the park or neutral position, contacts are closed which applies voltage to the CKT 1035 (PPL) wire at pin G of the transmission range switch. The CKT 1035 (PPL) wire applies voltage to pin F of the power converter protector relay located on the upper left hand side of the bulkhead. The power converter protector relay coil is connected to pin F and to pin E. The CKT 150 (BLK) wiring from pin E provides a ground path to ground G105 and the power converter protector relay coil is energized.

When the power converter protector relay coil is energized, contacts are closed to apply voltage to the starter solenoid. The CKT 900 (RED) wire from the LH battery to pin C of the power converter protector relay provides voltage, which is sent through the CKT 6 (PPL) wire, connected at the power converter protector

relay pin D to starter solenoid terminal S. This provides voltage to the hold-in winding and the pull-in winding of the solenoid.

Both solenoid windings are energized. The circuit through the pull-in winding is completed to ground through the starter motor. The windings work together magnetically to pull in and hold the plunger. The plunger moves the shift lever. This action causes the starter drive assembly to rotate as it engages the flywheel ring gear on the engine. At the same time, the plunger also closes the solenoid switch contacts in the starter solenoid. Full battery voltage is supplied directly to the starter motor and it cranks the engine.

As soon as the solenoid switch contacts close, voltage is no longer supplied through the pull-in windings, since battery voltage is supplied to both ends of the windings. The hold-in winding remains energized, and its magnetic field is strong enough to hold the plunger, shift lever and drive assembly solenoid switch contacts in place to continue cranking the engine.

When the ignition switch is released from the start position, battery voltage is removed from the CKT 6 (PPL) wire and the junction of the two windings. Voltage is supplied from the motor contacts through the voltage supplied to the pull-in windings. However, the voltage supplied to the pull-in winding is now opposing the voltage supplied when the winding was first energized. The magnetic fields of the pull-in and hold-in windings now oppose one another. This action of the windings, with the help of the return spring, causes the starter drive assembly to disengage and solenoid switch contacts to open simultaneously. As soon as the contacts open, the starter circuit is turned off.

Charging

The generator provides voltage to operate the vehicle's electrical system and to charge its batteries. A magnetic field is created when current flows through the rotor. This field rotates as the rotor is driven by the engine, creating an AC voltage in the stator windings. The AC voltage is converted to DC by the bridge rectifier and is supplied to the electrical system at the battery terminals. The RH and LH batteries are wired in series with the LH battery providing 24V to the starter circuit. The RH battery supplies splices off to supply the 12V system. The 24V system is provided from the positive post of the LH battery. This generator's regulator uses digital techniques to supply the rotor current and thereby controlling the output voltage. The rotor current is proportional to the width of the electrical pulses supplied to it by the regulator. When the ignition switch is placed in run, narrow width pulses are supplied to the rotor, creating a weak magnetic field. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controlling the pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation.

The digital regulator controls the bat indicator lamp with a solid state lamp driver. The lamp driver turns on the lamp whenever undervoltage, overvoltage or a stopped generator is detected.

Voltage is available to the indicator lamp and the generator when the ignition switch is in "run," bulb test or "start." The 20 amp gauges fuse 4 located in the I/P fuse block provides voltage through the CKT 39 (PNK) wire to instrument cluster pin 22. When there is no current flowing, battery voltage is available at pin 19 and provides the generator through the CKT 25 (BRN) wire. Generator connector cavity B connects to generator pin L. This voltage input provides operating power for the regulator. This switch closure allows current to flow which causes the charge warning indicator to light.

For vehicles with the diesel engine, the tachometer input is sensed at pin P of the generator. Generator connector cavity A connects to generator pin P to send the pulsing voltage signal to pin 6 of the instrument cluster through the CKT 121 (WHT) wire. The instrument cluster converts the voltage frequency to engine rpm.

Power Converter Regulator

Battery voltage is available at all times through the 24V circuit breaker which is located on the LF fender bracket. Voltage is made available through CKT 900 (RED) to stud A of the power converter regulator. When the ignition switch is placed in START the power converter 24V stud A and the ignition stud B provide voltage to the voltmeter relay. Stud C of the power converter protector connector. The power converter regulator is grounded at G112 and the voltmeter relay is grounded through the power converter regulator. The power converter regulator converts 12V to 24V to provide voltage throughout the entire vehicle. The power converter is equipped with replaceable fuse links to protect against reverse polarity and output shorts to ground conditions. The 24V source is used only in military auxiliary equipment and military radio equipment.

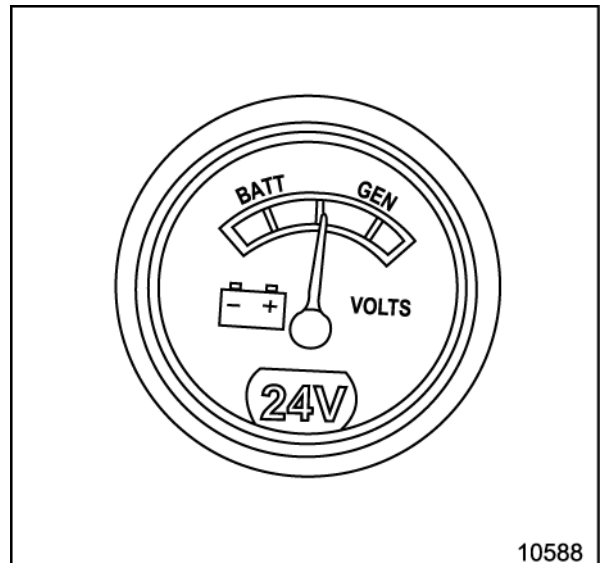
Battery Equalizer

The primary function of the Battery Equalizer is to maintain battery balance or equalization charge in a predominately 24V system which requires clean, regulated 12V power. The Battery Equalizer can deliver up to 150 amps of continuous, clean 12V current for practically any 12V load, such as two-way radios, blackout lighting and other military options.

24V Voltmeter

Voltage is available through CKT 901 (ORN) wire of the voltmeter relay. When the ignition switch is placed in the ON position voltage is applied to the power converter 24V regulator that provides voltage to the voltmeter relay. The voltmeter is grounded at G200 through the convenience center.

The voltmeter needle should be in the green band during normal load operation. During no load situation the voltmeter needle should be between the yellow and green bands.



Section 8

Body and Accessories

Wiring Systems.....	8-3	Description and Operation.....	8-94
Specifications	8-3	Horn with Blackout (B/O) Control Circuit	
Schematic and Routing Diagrams.....	8-3	Operation	8-94
Component Locator	8-10	Exterior Trim	8-95
Power and Grounding Component Views	8-13	Specifications.....	8-95
Connector End Views	8-25	Repair Instructions	8-96
Power and Grounding Connector End Views.....	8-25	Radiator Grille Replacement.....	8-96
Repair Instructions.....	8-32	Description and Operation.....	8-98
Auxiliary Lamp Harness Replacement - Front.....	8-32	Exterior Trim Description.....	8-98
Auxiliary Lamp Extension Harness		Bumpers	8-99
Replacement – Rear	8-33	Specifications.....	8-99
Lamp Harness Replacement – Rear	8-34	Repair Instructions	8-100
Trailer Wiring Harness Replacement.....	8-35	Front Bumper Replacement	
Winch Connector/Harness Replacement –		(Tahoe/Suburban).....	8-100
Front	8-36	Front Bumper Replacement (Pickup Models) ..	8-101
Winch Connector/Harness Replacement –		Radiator Grille Brush Guard Replacement	8-103
Rear	8-37	Clevis/Tie-Down Replacement – Front	8-103
Relay Mounting Bracket Replacement	8-37	Clevis/Tie-Down Support Replacement –	
Description and Operation	8-39	Front (Pickup Models).....	8-104
Wiring Description.....	8-39	Clevis/Tie Down Support Replacement –	
Lighting Systems.....	8-40	Front (Utility)	8-105
Specifications	8-40	Bumper Replacement – Rear (Factory Hitch) ..	8-106
Schematic and Routing Diagrams.....	8-40	Bumper Replacement – Rear (Military Hitch) ..	8-109
Component Locator	8-54	Clevis/Tie-Down Support Replacement –	
Lighting Systems Component Views	8-54	Rear Factory Hitch (Pickup Models).....	8-112
Connector End Views	8-63	Clevis/Tie-Down Bracket Replacement –	
Lighting Systems Connector End Views.....	8-63	Rear (Utility/Extended Cab).....	8-112
Diagnostic Information and Procedures.....	8-66	Clevis/Tie-Down Bracket Replacement –	
Symptom List.....	8-66	Rear (Crewcab).....	8-113
Repair Instructions.....	8-76	Pintle Hook Replacement.....	8-114
Headlamp Replacement – Blackout (B/O).....	8-76	Clevis/Tie-Down Replacement – Rear	8-114
Headlamp Bulb Replacement – Blackout (B/O) ..	8-76	Description and Operation.....	8-116
Marker Lamp Replacement – Front		Bumpers	8-116
Blackout (B/O)	8-77	Body Front End.....	8-117
Marker Lamp Replacement – Rear		Specifications.....	8-117
Blackout (B/O)	8-78	Repair Instructions	8-118
IP Compartment Lamp Replacement –		Slave Connector Replacement	8-118
Voltmeter	8-80	Winch Mount Replacement (Pickup Models) ..	8-118
Description and Operation	8-81	Winch Replacement (Pickup Models)	8-119
Blackout (B/O) Lighting Circuit of Operation ..	8-81	Description and Operation.....	8-121
Backup Lights	8-81	Body Front End Description	8-121
Instrument Panel, Gages and Console ..	8-84	Seats.....	8-122
Specifications	8-84	Specifications.....	8-122
Repair Instructions.....	8-85	Repair Instructions	8-123
Voltmeter Replacement.....	8-85	Seat Replacement – Troop (Pickup Models) ..	8-123
Voltmeter, Blackout (B/O) Switch Panel		Description and Operation.....	8-124
Replacement	8-85	Troop Seats Description.....	8-124
Blackout (B/O) Switch Replacement	8-86	Interior Trim	8-125
Description and Operation	8-88	Specifications.....	8-125
Instrument Panel and Gages Description.....	8-88	Repair Instructions	8-126
Horns	8-89	Rear Compartment Side Trim Panel	
Schematic and Routing Diagrams.....	8-89	Replacement (Tahoe/Suburban)	8-126
Diagnostic Information and Procedures.....	8-91	Floor Mat Replacement (Pickup Models).....	8-128
Symptom List.....	8-91	Floor Mat Replacement (Tahoe/Suburban)	8-129

Government Vehicle Data Plate Replacement	8-130	Repair Instructions	8-151
Weapons Support Replacement – Lower	8-131	License Plate Bracket Replacement	8-151
Weapons Mount Replacement – Upper	8-132	Cargo Cover Side Rail and Hinge Replacement	8-151
Weapons Mount Replacement – Floor Mount	8-132	Cargo Cover Front End Rail Replacement	8-153
24 Voltmeter Relay Replacement (Pickup Models)	8-133	Cargo Cover Rear End Rail Replacement	8-154
24 Voltmeter Relay Replacement (Tahoe)	8-134	Cargo Cover Strut Replacement	8-155
24 Voltmeter Relay Replacement (Suburban)	8-135	Cargo Cover Top Bows Replacement	8-156
Contacto Replacement (Pickup Models)	8-136	Cargo Cover Replacement	8-157
Contacto Replacement (Tahoe)	8-138	Fiberglass Top Replacement	8-157
Contacto Replacement (Suburban)	8-138	Cargo Tie-Down Eye Replacement	8-158
Power Converter/Bracket Replacement (Pickup Models)	8-140	Cargo Cover Stowage Replacement	8-159
Power Converter Replacement (Tahoe)	8-141	Description and Operation	8-160
Power Converter Replacement (Suburban)	8-142	Body Rear End	8-160
Battery Equalizer/Bracket Replacement (Pickup Models)	8-143	Paint/Coatings	8-161
Battery Equalizer Replacement (Tahoe)	8-144	Paint Codes	8-161
Battery Equalizer Replacement (Suburban)	8-145	Frame and Underbody	8-162
Power Converter/Equalizer Bracket Replacement (Tahoe)	8-146	Specifications	8-162
Power Converter/Equalizer Bracket Replacement (Suburban)	8-147	Repair Instructions	8-163
Description and Operation	8-149	Military Rear Receiver Hitch Replacement	8-163
Interior Description	8-149	Front Winch Receiver Replacement	8-163
Body Rear End	8-150	Description and Operation	8-165
Specifications	8-150	Frame and Underbody Description	8-165

Wiring Systems

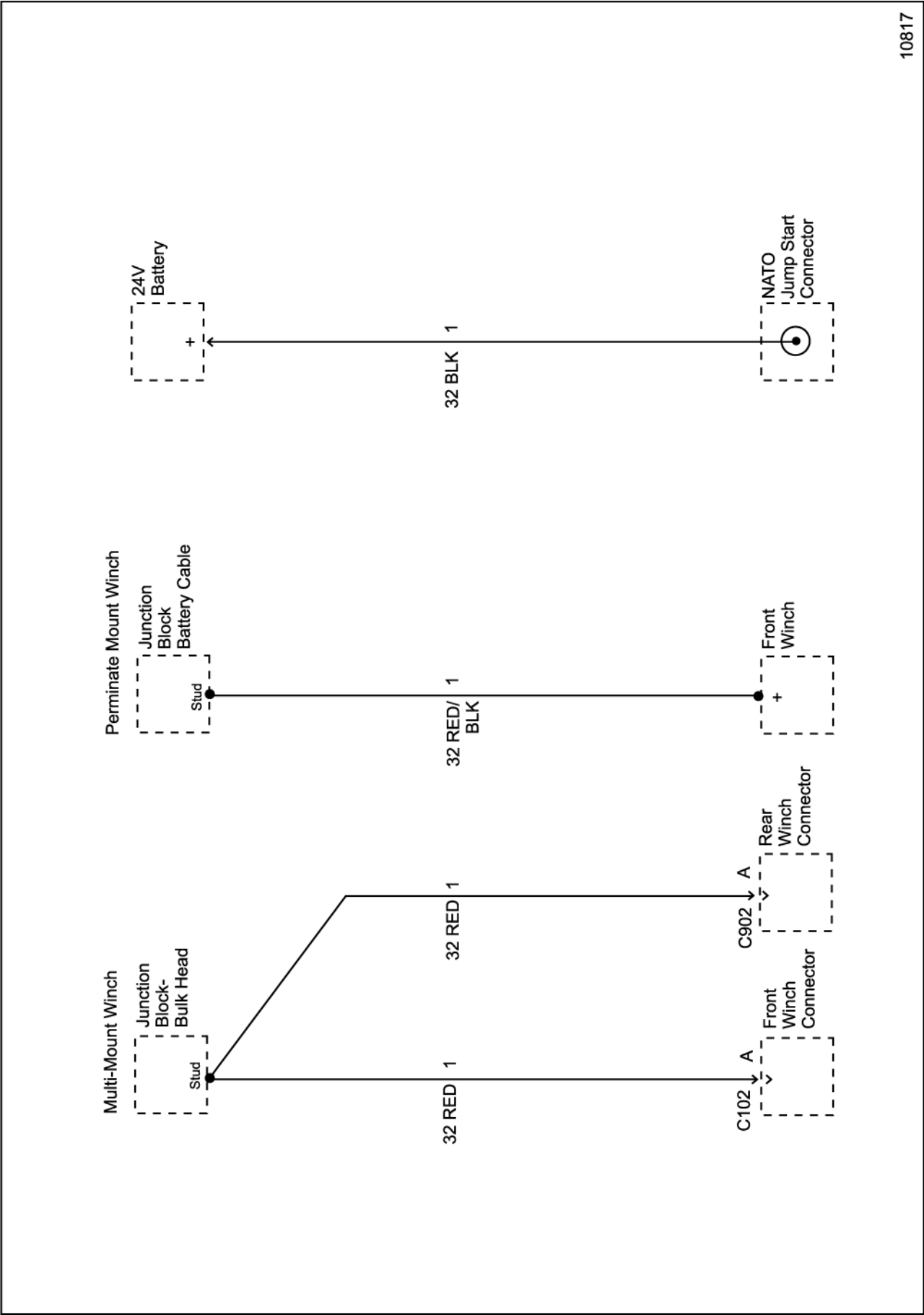
Specifications

Fastener Tightening Specifications

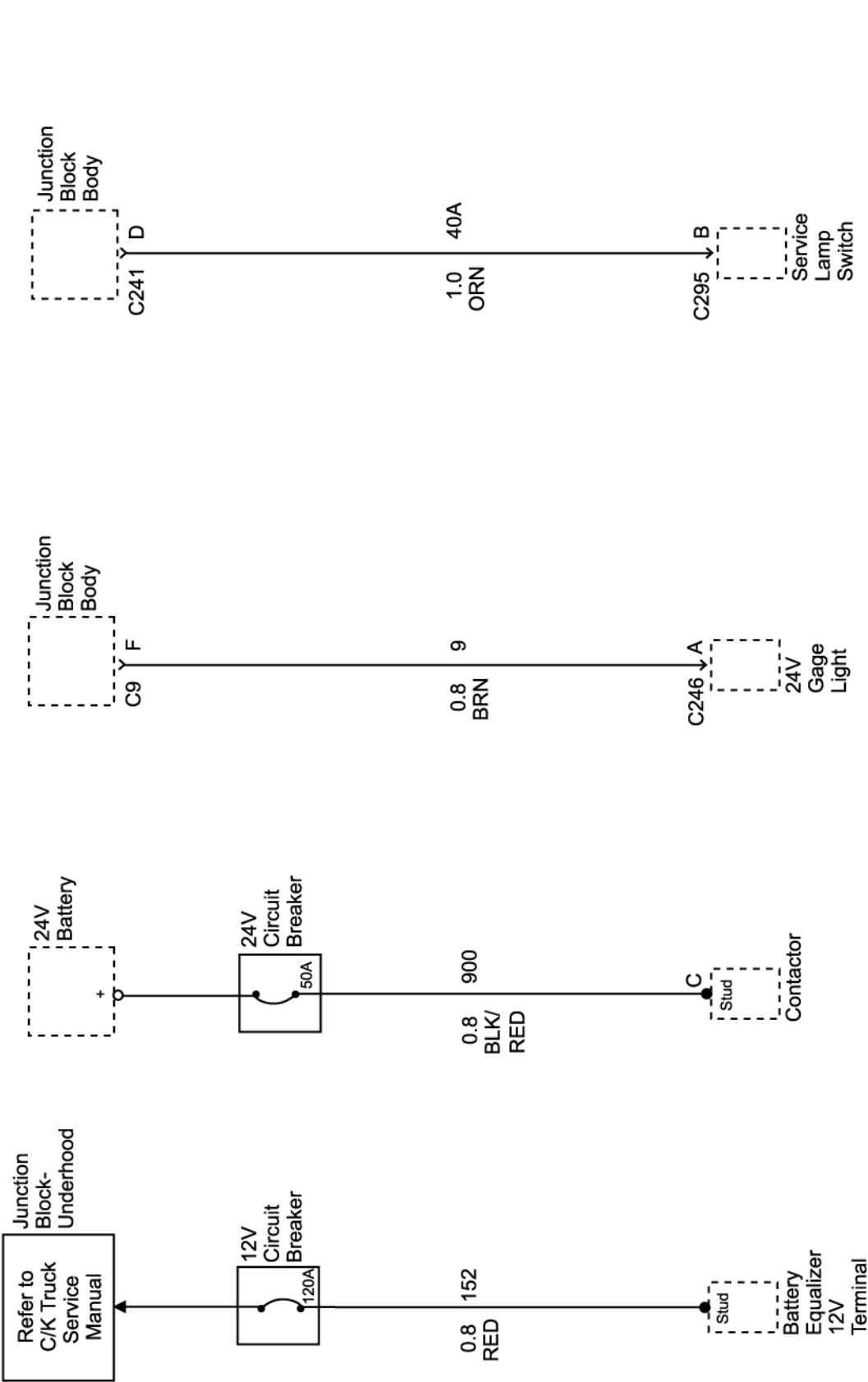
Application	Specifications	
	Metric	English
Battery Cable Connections	17 N•m	13 lb ft
Fender Brace Bolts	25 N•m	18 lb ft
Trailer Wiring Harness Bracket Bolts	5 N•m	4 lb ft

Schematic and Routing Diagrams

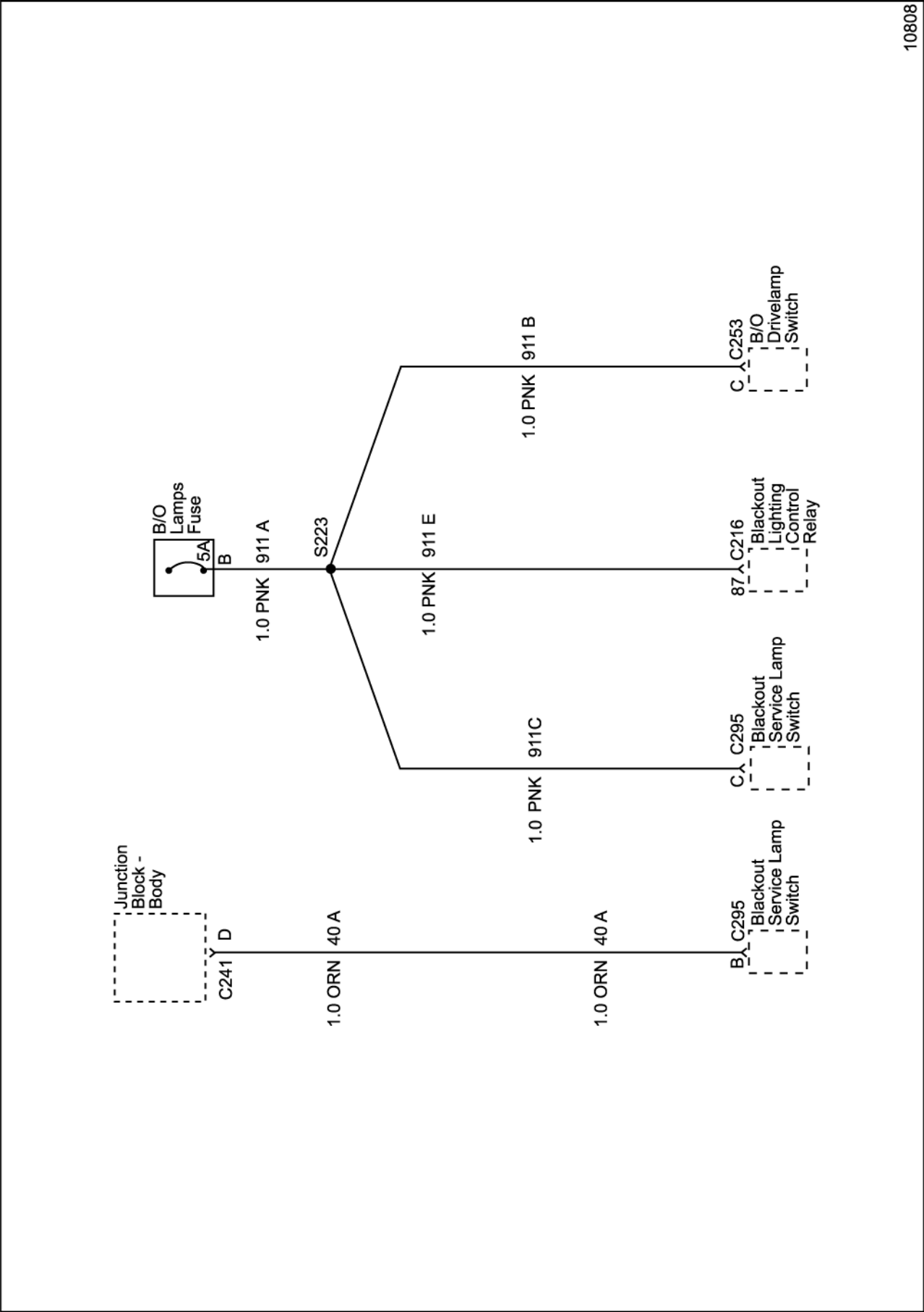
Power Distribution Schematics



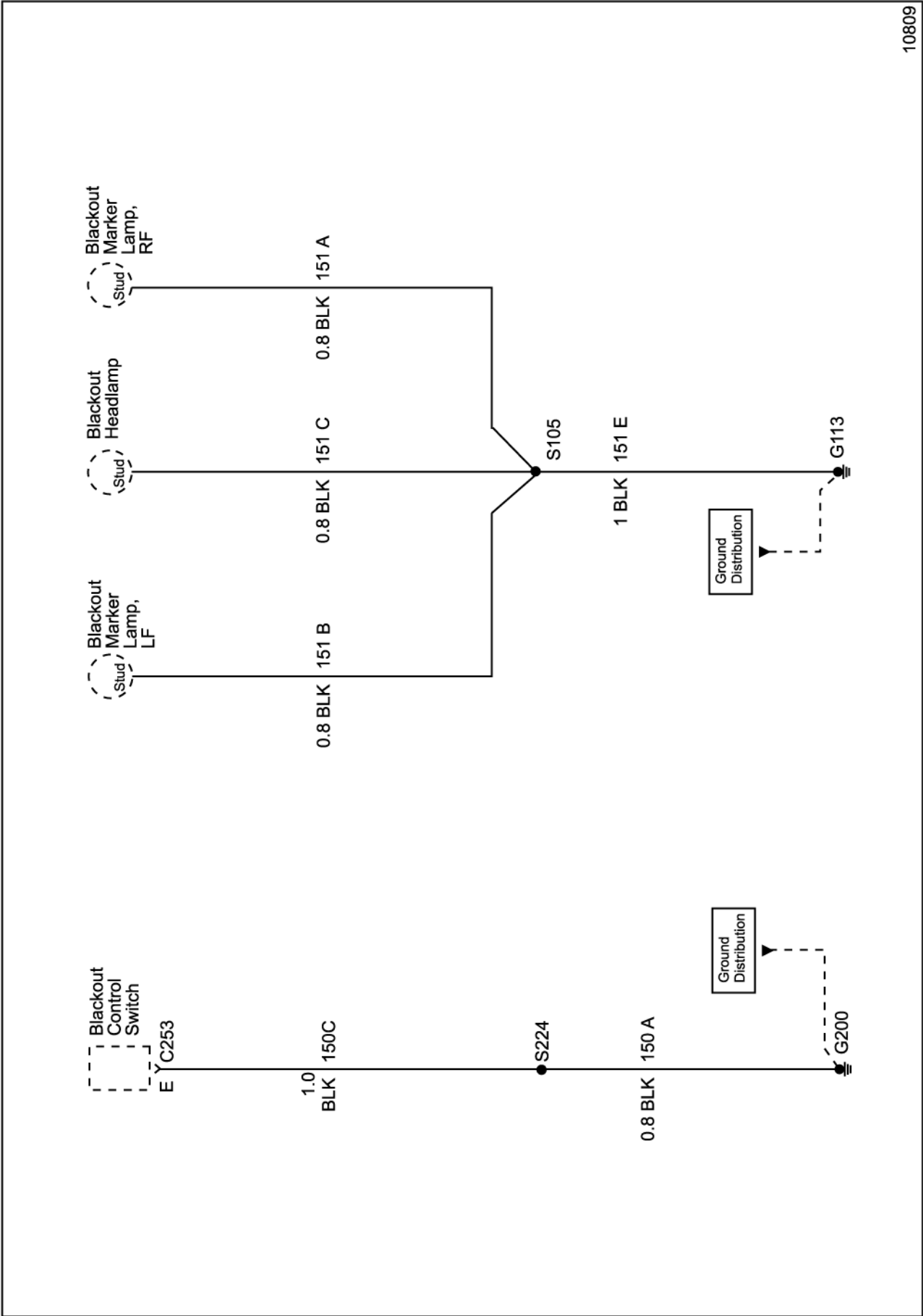
Power Distribution Schematics



Switches and Relay (Blackout Features)

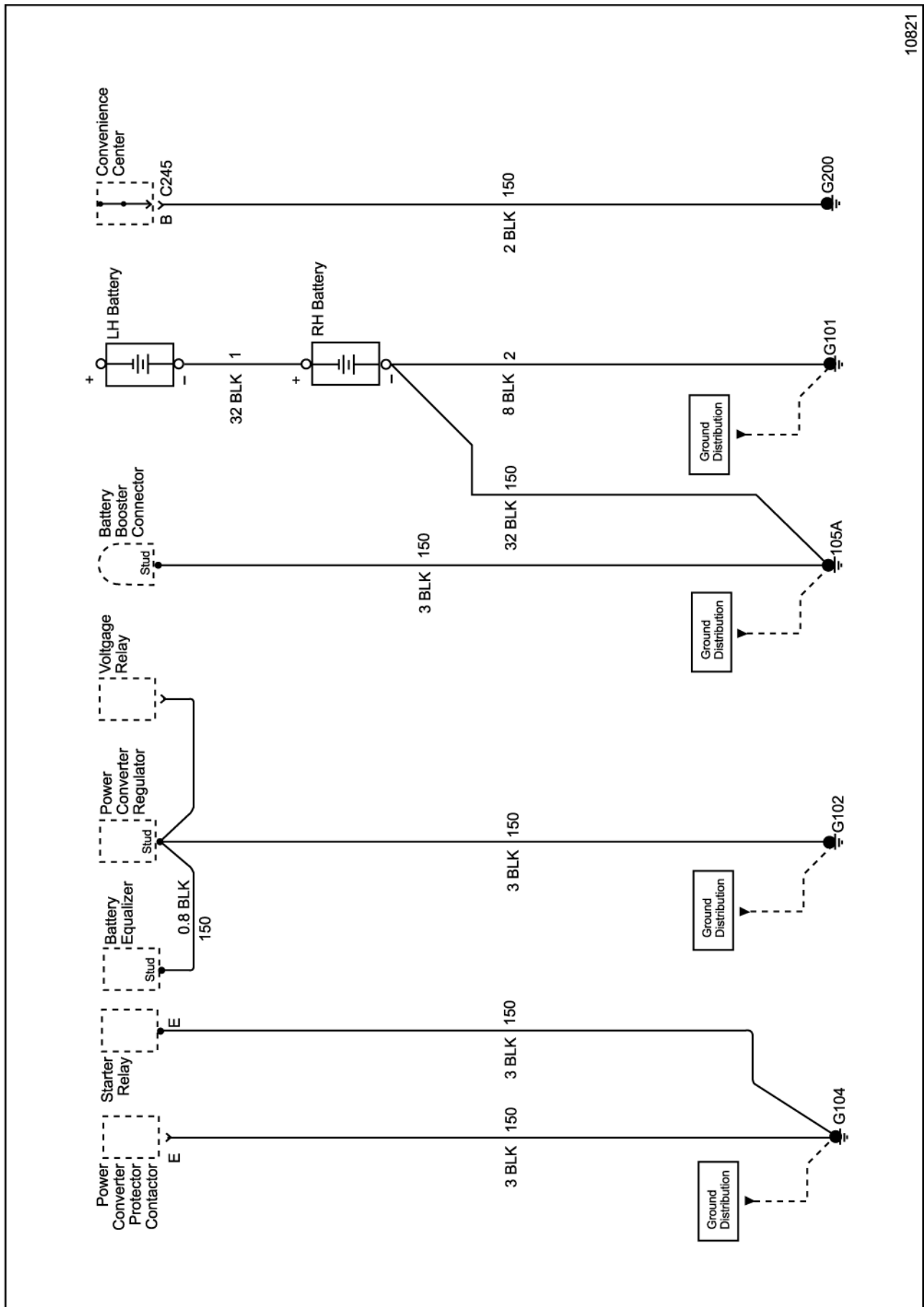


Ground Distribution Schematics (Blackout Features)

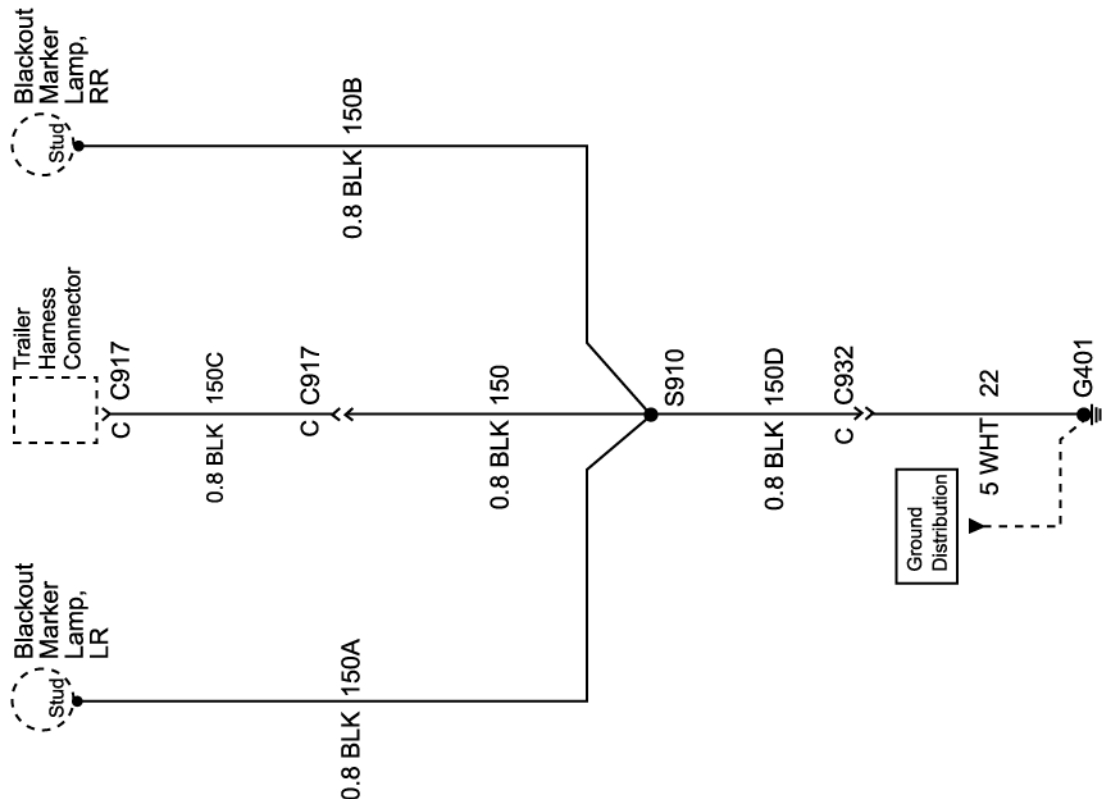


10809

Ground Distribution Schematics (Blackout Features)



Ground Distribution Schematics (Blackout Features)



Component Locator

Power and Grounding Components

Name	Location	Locator View	Connector End View
Battery Booster Connector	In the grille, near the RH headlamp	Engine Electrical Component Views in Engine Electrical	—
Battery, LH	At the LF engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
Blackout Control Relay	Inline auxiliary IP harness	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Headlamp	At the LH of the grille	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Lighting Control Relay	On the auxiliary IP, behind the brake booster	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Service Drive Switch	In the center lower IP	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Switch (Headlamp)	In the center lower IP	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Stop/Marker Lamp, LH	In the left front grille	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Stop/Marker Lamp, RH	In the left front grille	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Stop/Marker Lamp, LR	At the LH of the rear bumper	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Blackout Stop/Marker Lamp, RR	At the RH of the rear bumper	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Circuit Breaker 12V	In the engine compartment, on the LH fender brace	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Circuit Breaker 24V	In the engine compartment, on the LH fender brace	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
Power Converter Protector Relay	Between Converter and Equalizer	Engine Electrical Component Views in Engine Electrical	Engine Electrical Component Views in Engine Electrical
Fuse B (Inline)	Inline auxiliary IP, 10 cm right of IP jumper harness breakout	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems

Power and Grounding Components (cont'd)

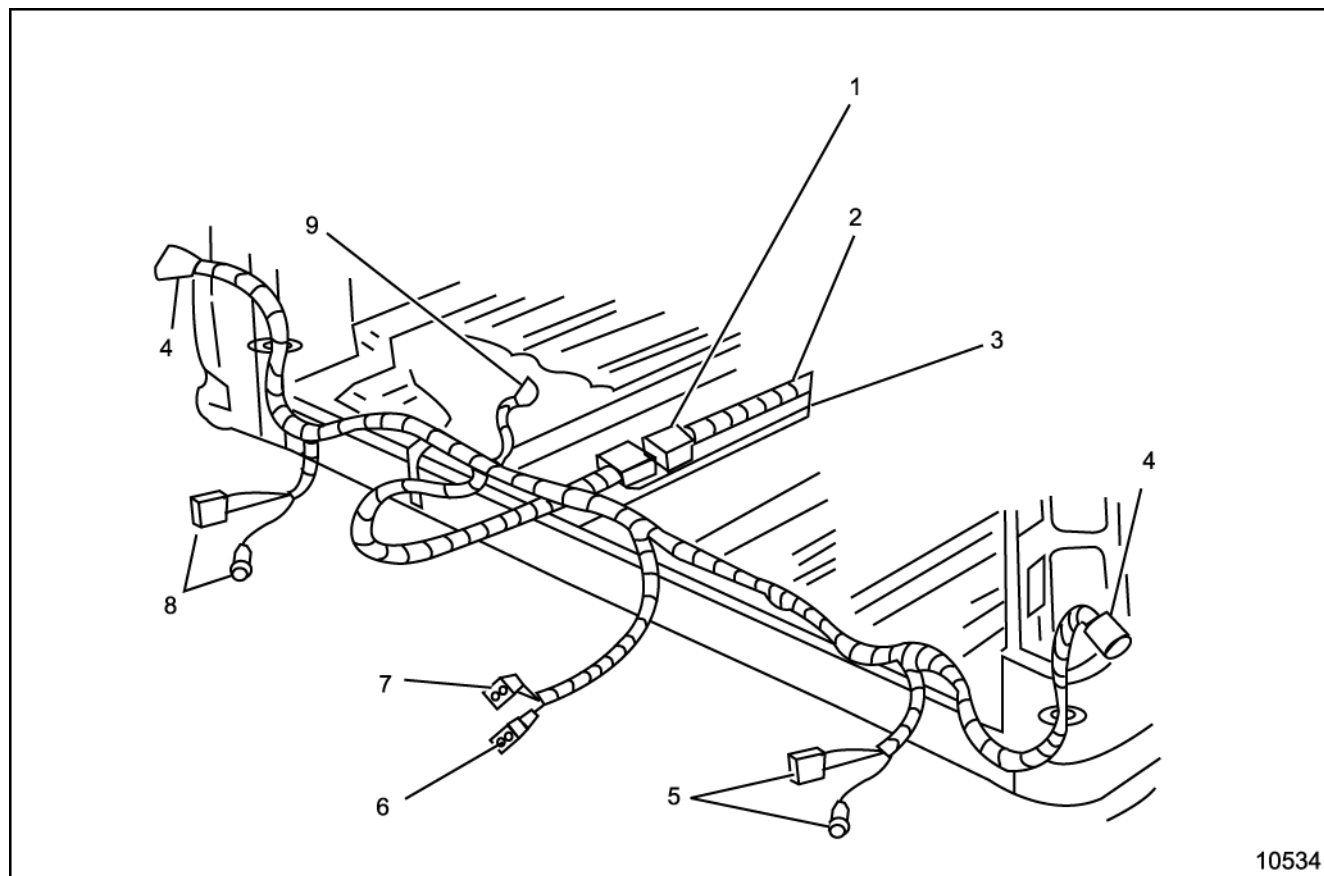
Name	Location	Locator View	Connector End View
Junction Block	Left of RH battery	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
Power Converter (Utility)	On the LR body panel	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
Power Converter (Pickup)	Rear body panel – behind seat	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
Trailer Harness Connector	Near the center of the rear bumper	Lighting Component Views in Lighting Systems	Lighting Connector End Views in Lighting Systems
24 Voltmeter Lamp	Mounted in the lower center IP	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
24 Voltmeter Relay	On the power converter	Engine Electrical Component Views in Engine Electrical	Engine Electrical Connector End Views in Engine Electrical
C133	In the upper LH of engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C134	In the upper LH of engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C135	In the lower LH of engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C202A	In auxiliary IP harness at stoplamp switch	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C202B	In auxiliary IP harness at stoplamp switch	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C155	Interrupt relay block RH engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C135	Interrupt relay block RH engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C241	To convenience center	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C932	Center under endgate to RR lamp extension	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C917	Center under endgate, inline to trailer harness	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C993	Center under endgate, inline to trailer harness	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C191	Interrupt harness RH engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
C192	Interrupt harness RH engine compartment	Wiring Component Views in Wiring Systems	Wiring Connector End Views in Wiring Systems
G113	On the radiator support, near the LH headlamp	Lighting Component Views in Lighting Systems	—

Power and Grounding Components (cont'd)

Name	Location	Locator View	Connector End View
G123	The LF stud on the intake manifold	Lighting Component Views in Lighting Systems	—
G200	Behind the LH of the IP, below the IP fuse block	Lighting Component Views in Lighting Systems	—
G401	At the LR frame rail, behind the bumper	Lighting Component Views in Lighting Systems	—
P103	On the rear of the IP, behind the brake booster	—	—
S102	Approx. 31.5 cm left of blackout headlamp breakout	—	—
S105	Approx. 31.5 cm right of blackout headlamp breakout	—	—
S223	Approx. 21.5 cm left of blackout headlamp switch	—	—
S224	Approx. 36.5 cm left of inline IP harness connector breakout	—	—
S229	Approx. 31.0 cm left of inline IP harness connector breakout	—	—
S281	Approx. 46.5 cm right of inline IP harness connector breakout	—	—
S282	Approx. 34.5 cm right of inline IP harness connector breakout	—	—
S402	Approx. 25 cm left of trailer connection jumper	—	—
S403	Approx. 40.0 cm left of taillamp extension breakout	—	—
S407	Approx. 45.0 cm left of trailer connector jumper harness breakout	—	—
S408	Approx. 37.5 cm right of taillamp extension breakout	—	—
S412 (Fleetside)	Approx. 45 cm right of taillamp extension breakout	—	—
S422	Approx. 5 cm right of trailer connection jumper	—	—

Power and Grounding Component Views

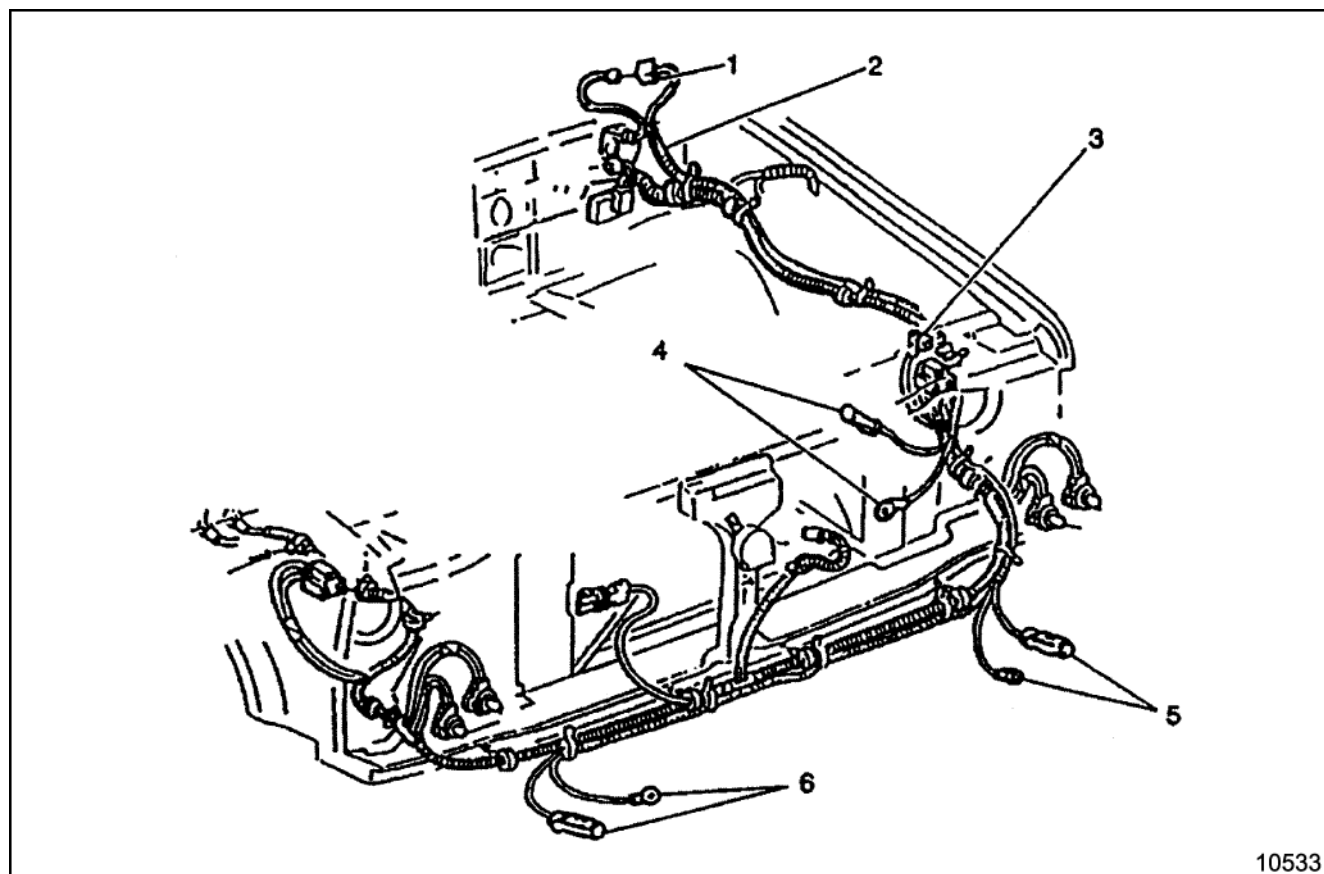
Rear Lamp Harness



Legend

- | | |
|---|----------------------------|
| (1) C992 | (6) C917 |
| (2) Auxiliary Rear Lamp Extension Harness | (7) C993 |
| (3) Rear Lamp Extension Harness | (8) To B/O Marker Lamp, LH |
| (4) Taillamp Connector | (9) Ground |
| (5) To B/O Marker Lamp, RH | |

Forward Blackout (B/O) Lamp Harness

**Legend**

(1) C192

(2) Forward Lamp Harness

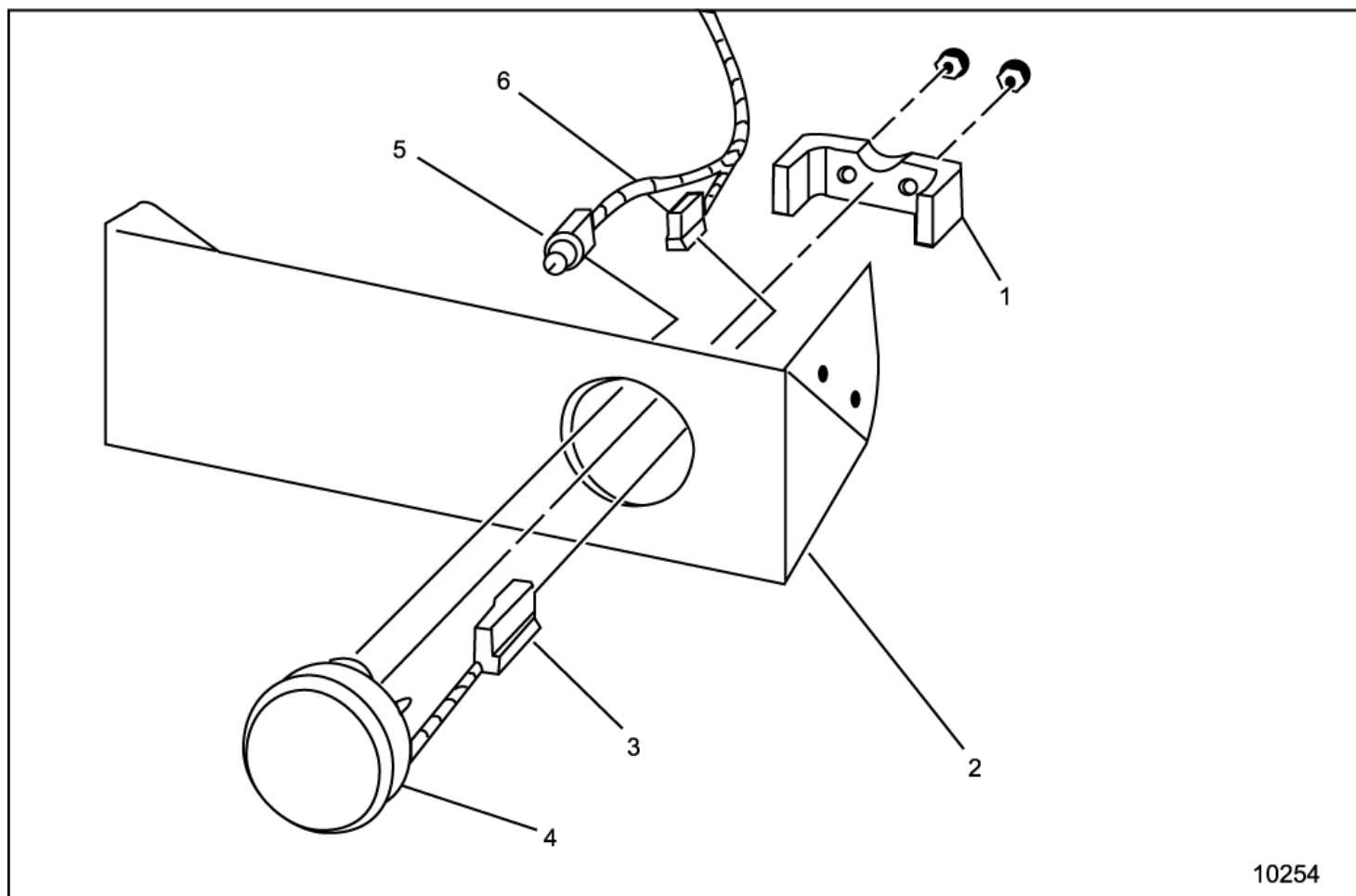
(3) G113

(4) To B/O Headlamp

(5) To B/O Marker Lamp, LF

(6) To B/O Marker Lamp, RF

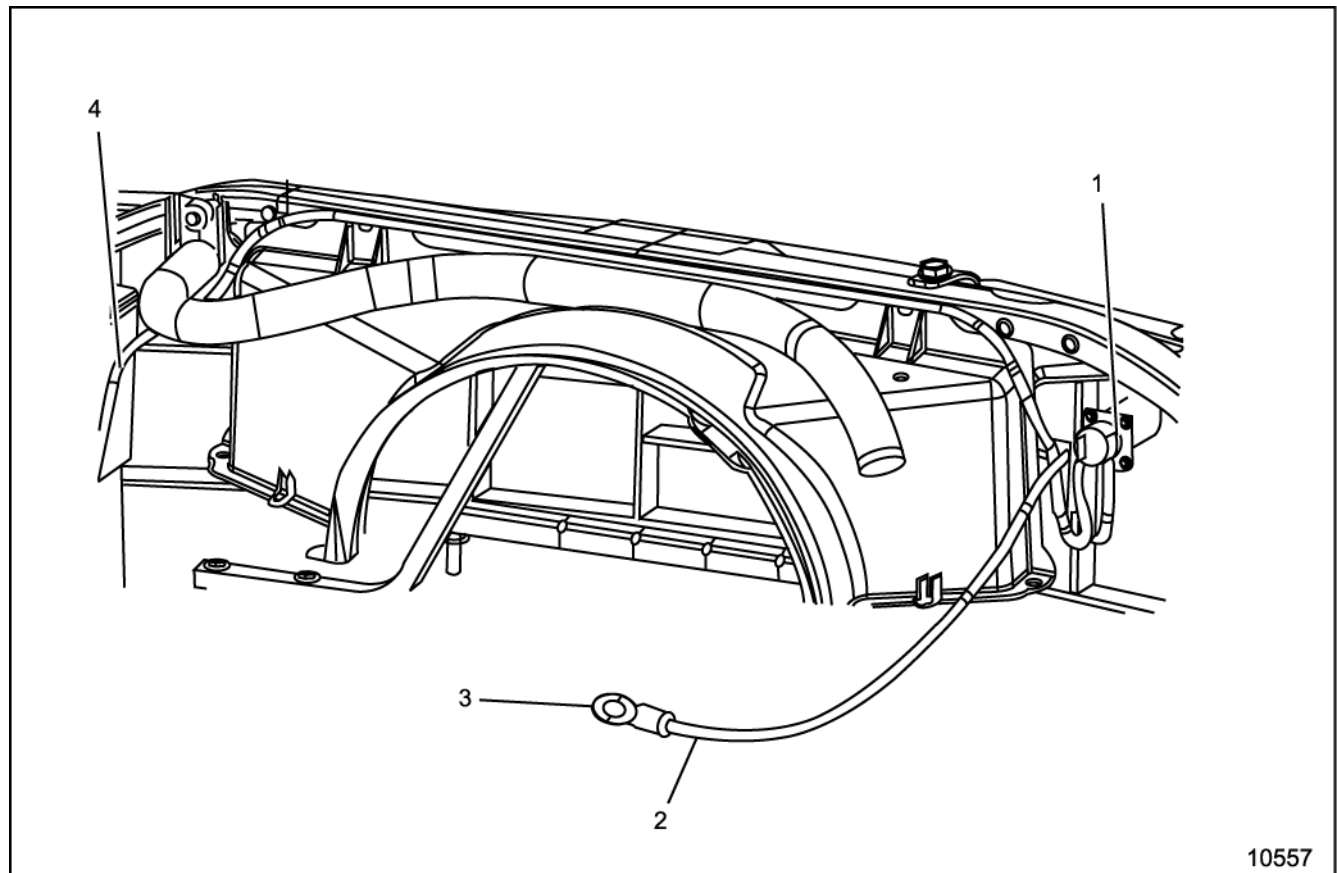
Voltmeter and Lamp

**Legend**

- (1) Voltmeter Bracket
- (2) Mounting Bracket
- (3) Voltmeter Connector

- (4) Voltmeter (24V)
- (5) Voltmeter Illumination Bulb
- (6) Harness Connector

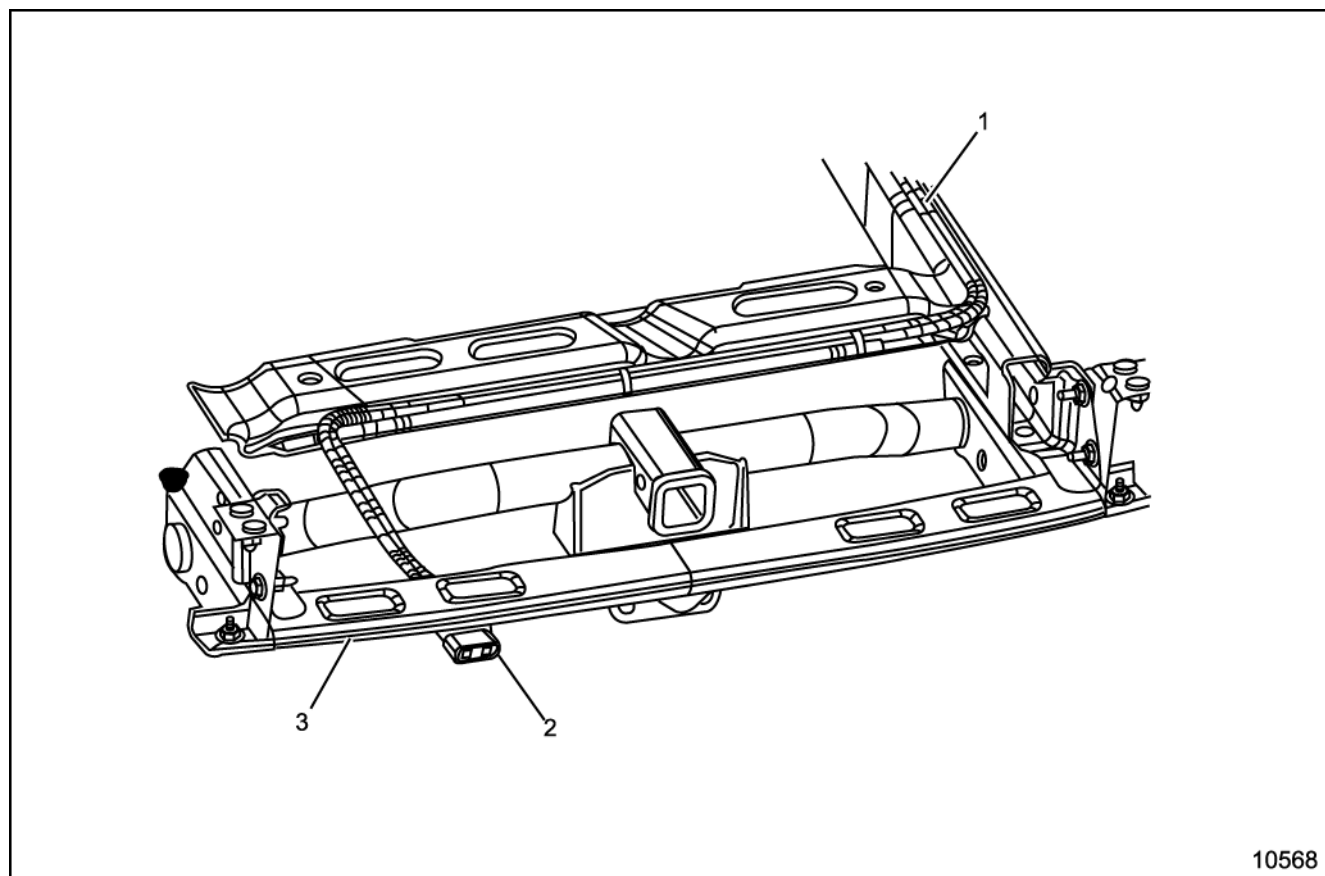
Slave Start Harness Routing

**Legend**

- (1) Slave Start Receptacle
- (2) Negative Cable

- (3) Negative Connection to Engine Block
- (4) Positive Cable to Junction Block

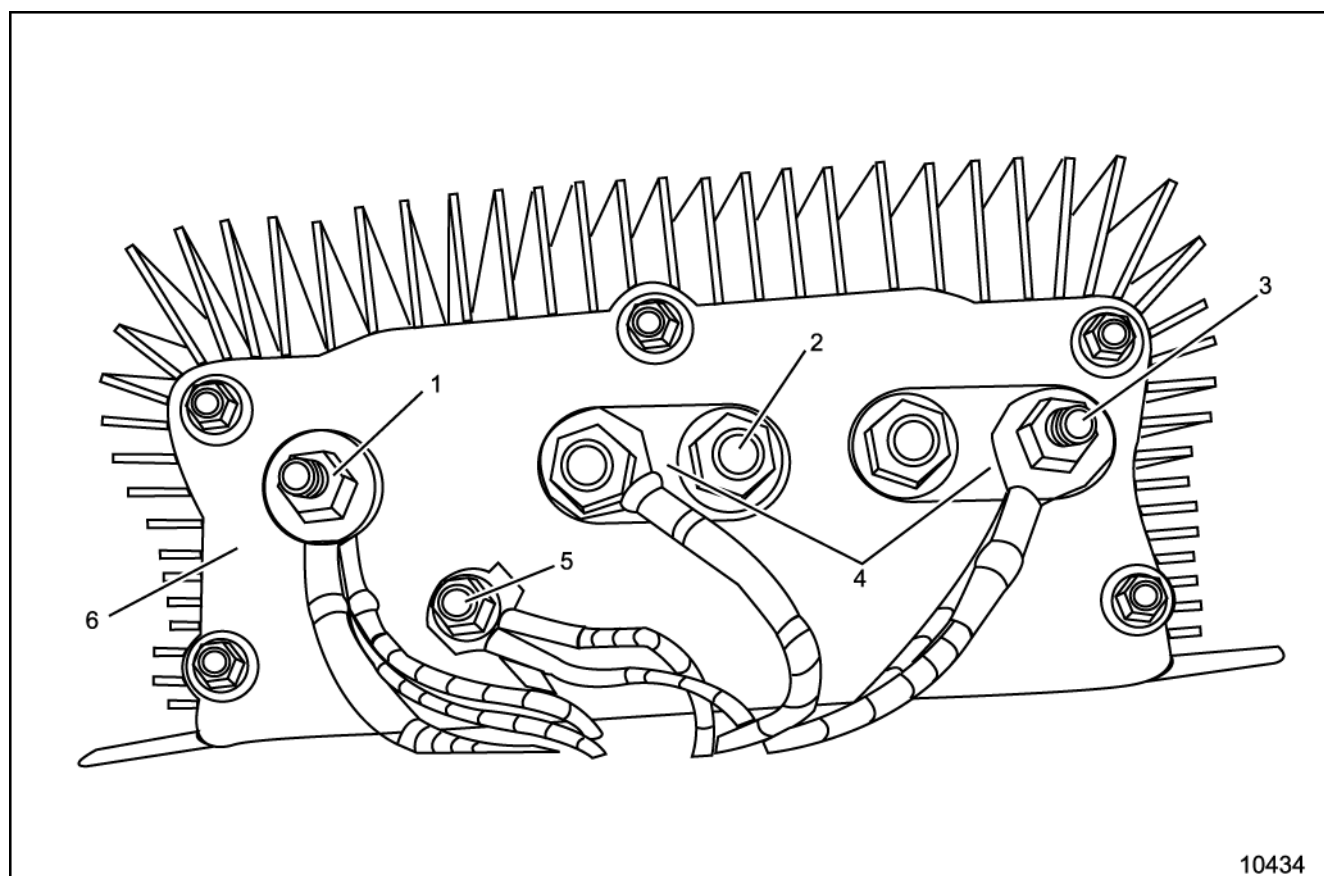
Winch Harness Routing Rear

**Legend**

- (1) Harness to Junction Block
- (2) Winch Connector

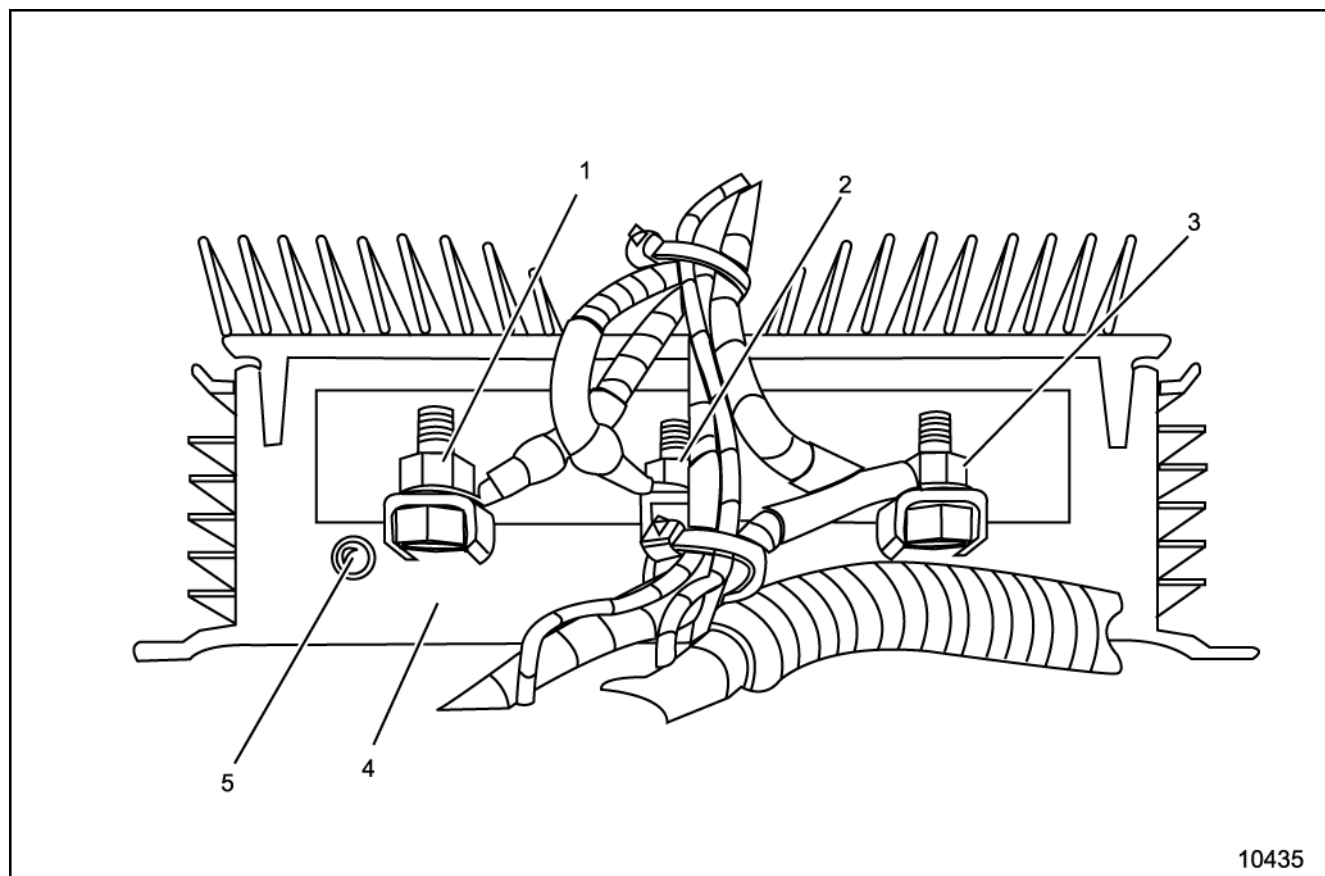
- (3) Rear Frame

Power Converter

**Legend**

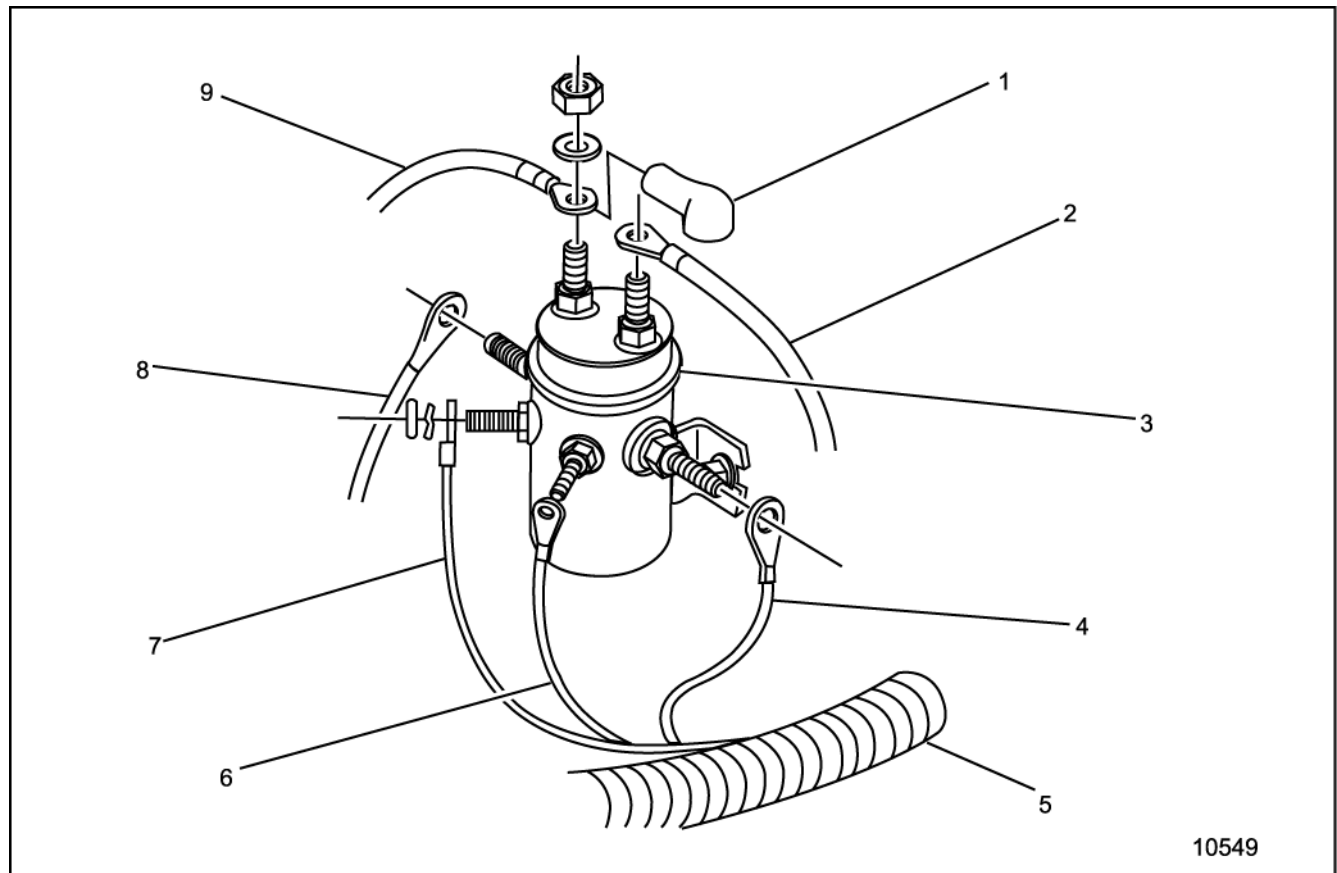
- (1) Ground Terminal
- (2) 12V Terminal
- (3) 24V Terminal

- (4) Fuse Link Covers
- (5) Ignition Terminal
- (6) Power Converter

Battery Equalizer**Legend**

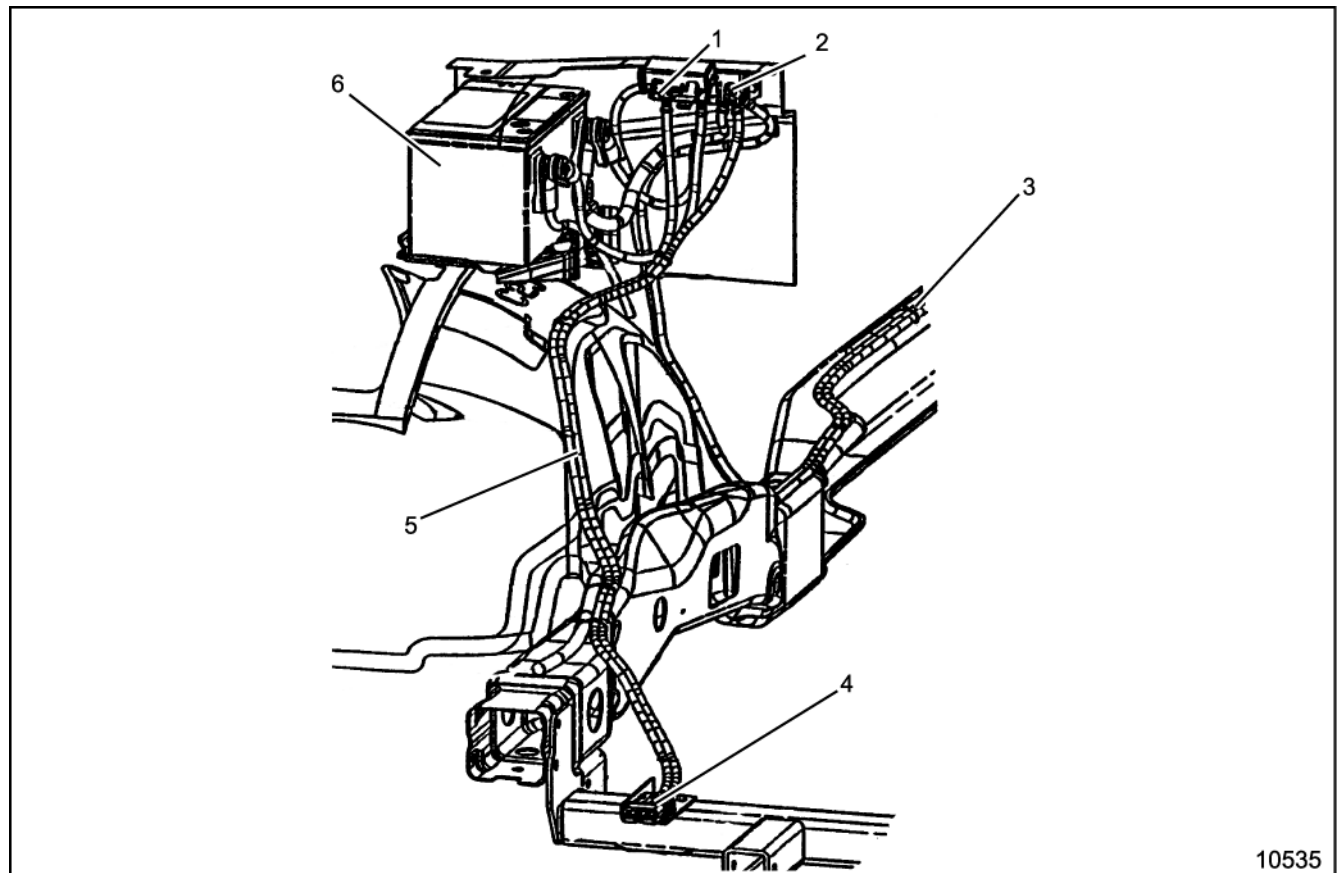
- (1) 24V Terminal
- (2) 12V Terminal
- (3) Ground Terminal

- (4) Battery Equalizer
- (5) LED Status Indicator

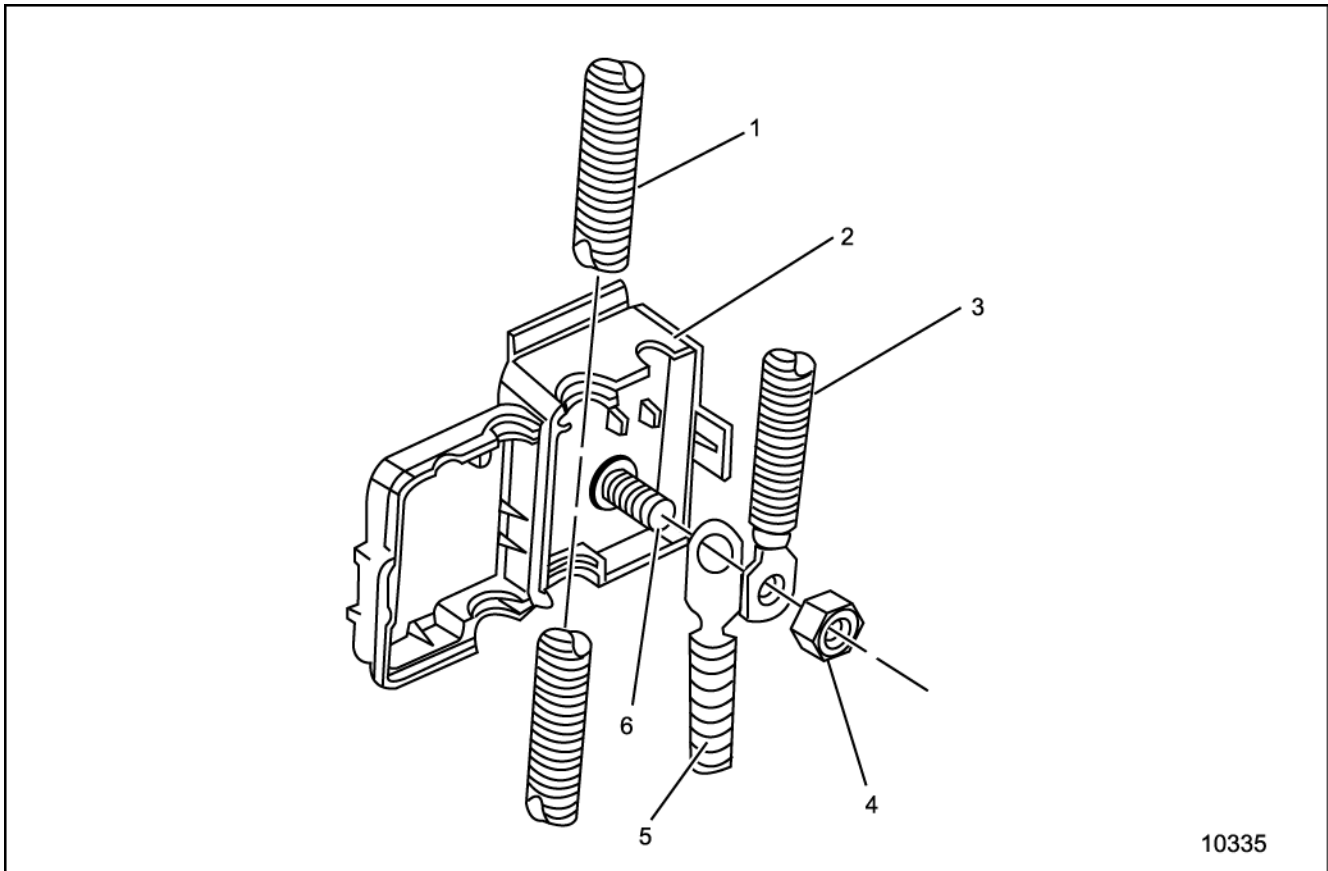
Converter Protection Contactor (Starter Relay)**Legend**

- | | |
|-------------------------------|--|
| (1) Boot | (6) From the Ignition Stud (Power Converter) |
| (2) 24V Equalizer Stud | (7) Ground from Power Converter |
| (3) Contactor (Starter Relay) | (8) From 24V Circuit Breaker |
| (4) 24V Converter Stud | (9) From Circuit Breaker 24V Converter Stud |
| (5) Engine Wiring Harness | |

Front Winch Harness Routing

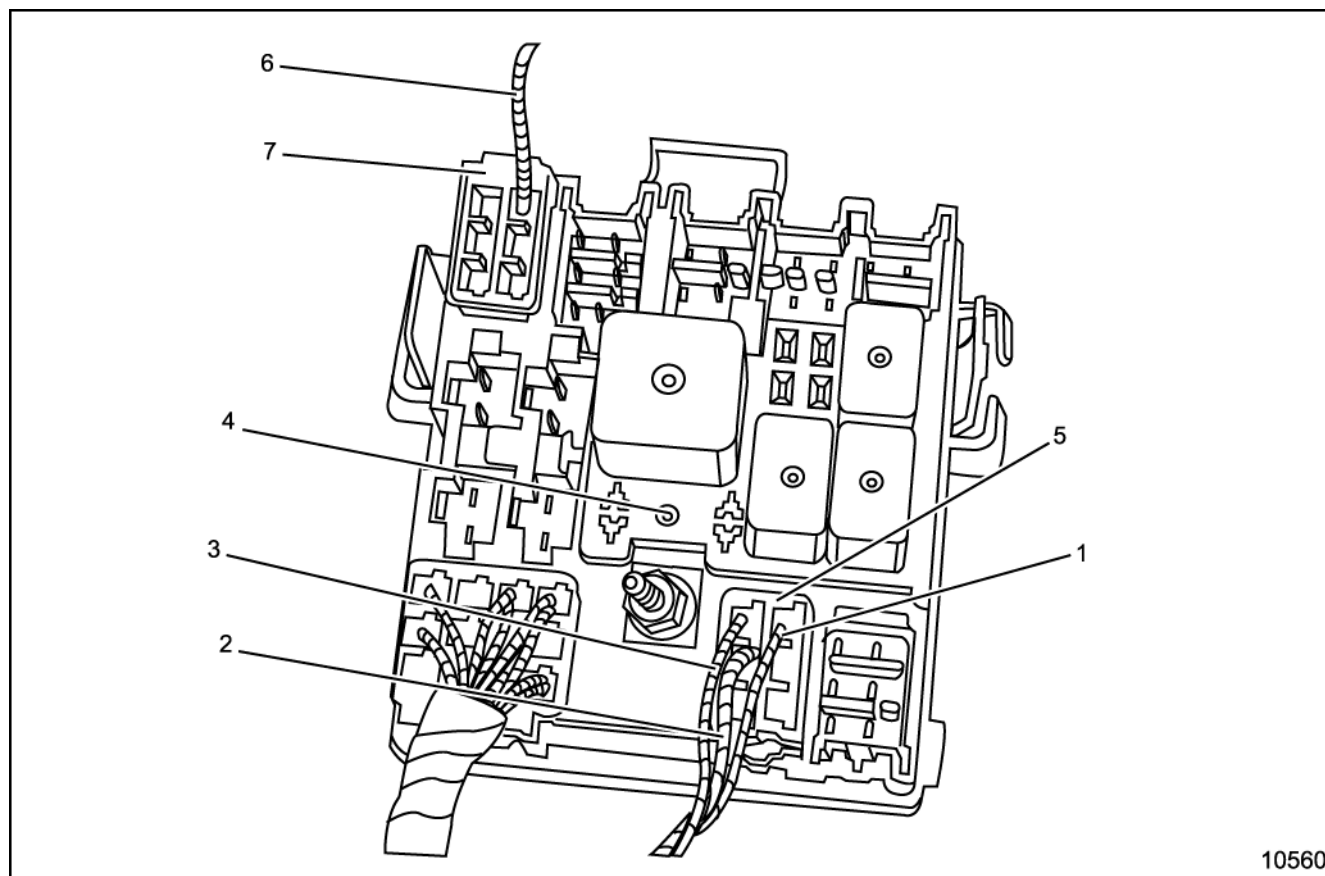
**Legend**

- | | |
|-------------------------------|---------------------------|
| (1) Positive Cable Connection | (4) Front Winch Connector |
| (2) Negative Cable Connection | (5) Front Winch Harness |
| (3) To Rear Winch Connector | (6) 12V Battery |

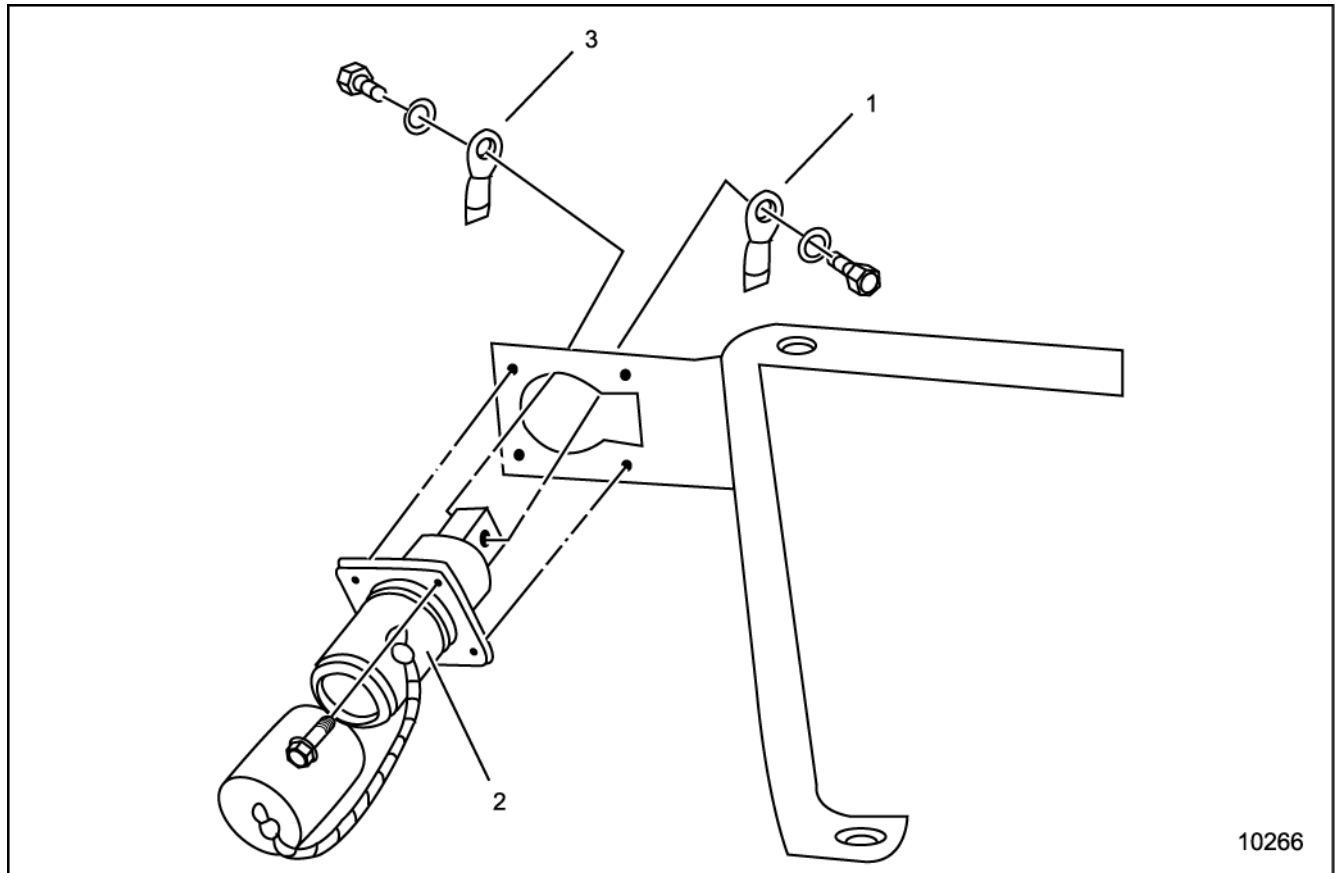
24V Battery Booster and Starter Cable Junction Block**Legend**

- | | |
|-----------------------------|--|
| (1) Positive Battery Cable | (4) Junction Block Post Nut |
| (2) Junction Block | (5) Positive Winch Cable Permanent Mount |
| (3) Alternator Output Cable | (6) Junction Block Post |

Junction Block – IP

**Legend**

- | | |
|-------------------------|--------------------------------|
| (1) Cavity A | (5) C-9 Connector Location |
| (2) Cavity F | (6) To Underhood Relay Harness |
| (3) Cavity E | (7) C-4 Connector Location |
| (4) Junction Block – IP | |

24V Battery Booster Connector**Legend**

(1)) Battery Positive Ground (RED)

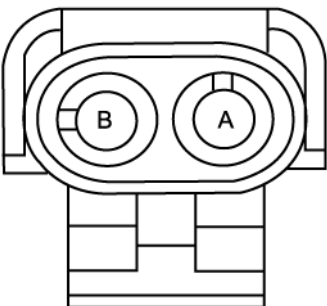
(3) Battery Negative Ground (BLK)

(2) Booster Connector Assembly

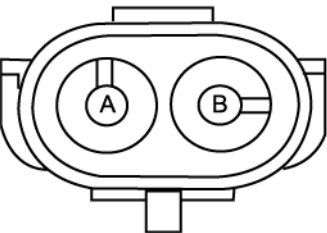
Connector End Views

Power and Grounding Connector End Views

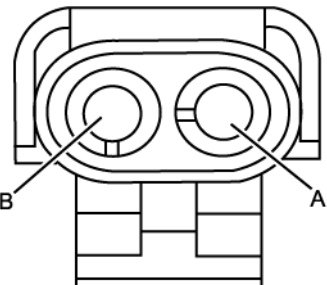
Inline Harness Connector C133

 <p style="text-align: right;">10571</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12089040 • 2-Way M Weather Pack TWR (MED GRY) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900B	B/O Marker Lamps
B	DK GRN/WHT	902	B/O Stop Lamps

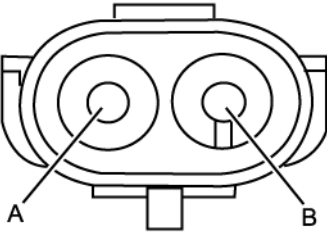
Inline Harness Connector C133

 <p style="text-align: right;">10572</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12034074 • 2-Way F Weather Pack TWR (MED GRY) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900B	B/O Marker Lamps
B	DK GRN/WHT	902	B/O Stop Lamps

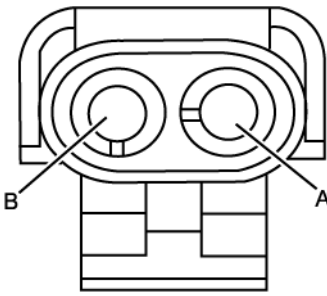
Inline Harness Connector C134

 <p style="text-align: right;">10573</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way F Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	TAN/WHT	901	B/O Head Lamp
B	BRN/WHT	900A	B/O Marker Lamps

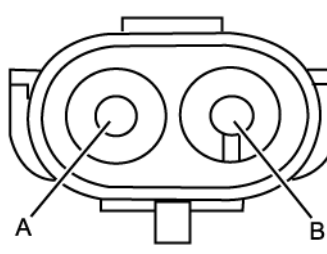
Inline Harness Connector C134

 <p style="text-align: right;">10574</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12015792 • 2-Way M Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	TAN/WHT	901A	B/O Head Lamp
B	BRN/WHT	900A	B/O Marker Lamps

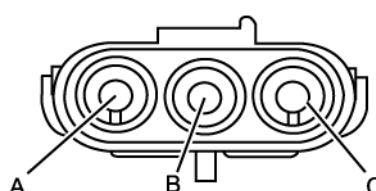
Inline Harness Connector C992

 <p style="text-align: right;">10573</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way F Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900B	B/O Marker Lamps
B	DK GRN/WHT	902	B/O Stop Lamps

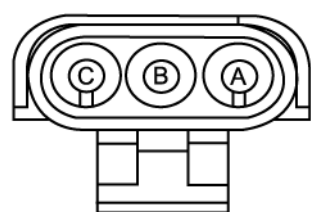
Inline Harness Connector C992

 <p style="text-align: right;">10574</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12015792 • 2-Way M Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900A	B/O Marker Lamps
B	DK GRN/WHT	902A	B/O Stop Lamps

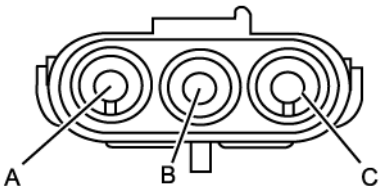
Inline Harness Connector C917

 <p style="text-align: right;">10581</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010717 • 3-Way F Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900D	B/O Marker Lamps
B	YEL	18C	S/T Lamp Feed
C	BLK	150C	Ground

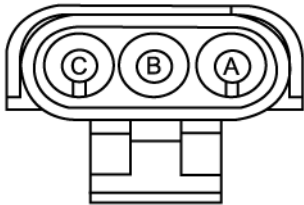
Inline Harness Connector C917

 <p style="text-align: right;">10582</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12015793 • 3-Way M Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	900D	B/O Marker Lamps
B	YEL	18C	S/T Lamp Feed
C	BLK	150C	Ground

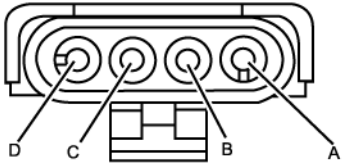
Inline Harness Connector C993

			
10581			
Connector Part Information		<ul style="list-style-type: none"> • 12010717 • 3-Way F Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	GRN	9B	Park Lamp Feed
B	DK GRN/ WHT	902D	B/O Stop Lamps
C	BRN	19C	S/T Lamp Feed – RR

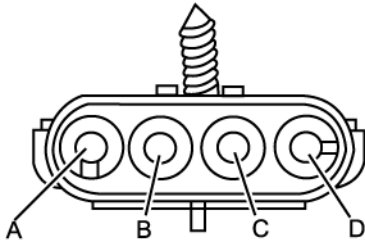
Inline Harness Connector C993

			
10582			
Connector Part Information		<ul style="list-style-type: none"> • 12015793 • 3-Way M Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	9B	Park Lamp Feed
B	PPL	902D	B/O Stop Lamps
C	PPL	19C	S/T Lamp Feed – RR

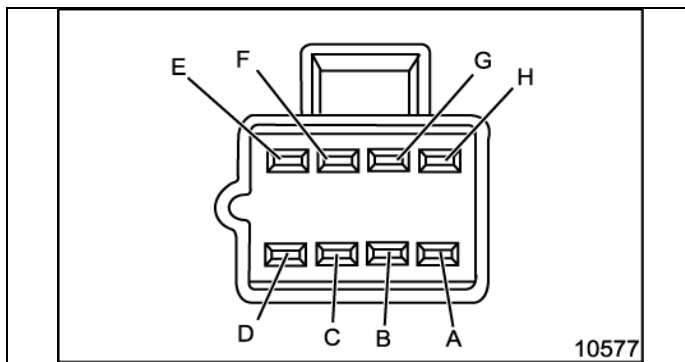
Inline Harness Connector C932

			
10584			
Connector Part Information		<ul style="list-style-type: none"> • 12020832 • 4-Way F Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	9A	Park Lamps
B	YEL	18C	S/T Lamps
C	BLK	1500	Ground
D	DK GRN	19C	S/T Lamps

Inline Harness Connector C932

			
10583			
Connector Part Information		<ul style="list-style-type: none"> • 12020830 • 4-Way M Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	2109	Park Lamps
B	YEL	1618	S/T Lamps
C	WHT	22	Ground
D	DK GRN	1619	S/T Lamps

Inline Harness Connector C202A

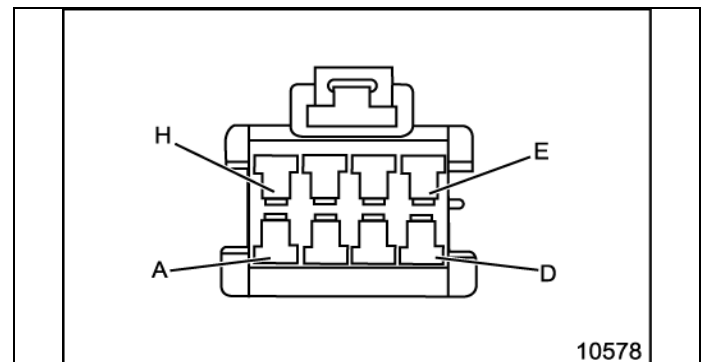


Connector Part Information

- 12064998
- 8-Way F M/P Series 280 (BLK)

Pin	Wire Color	Circuit No.	Function
A	BRN	441	Pass Thru Circuit
B	PPL	420	Pass Thru Circuit
C	BLU	1134	Pass Thru Circuit
D	GRN/ WHT	1135	Pass Thru Circuit
E	ORN	1540	Pass Thru Circuit
F	WHT	913	Stop Lamp Switch Signal
G	LT GRN	584	Pass Thru Circuit
H	GRY	48	Pass Thru Circuit

Inline Harness Connector C202A

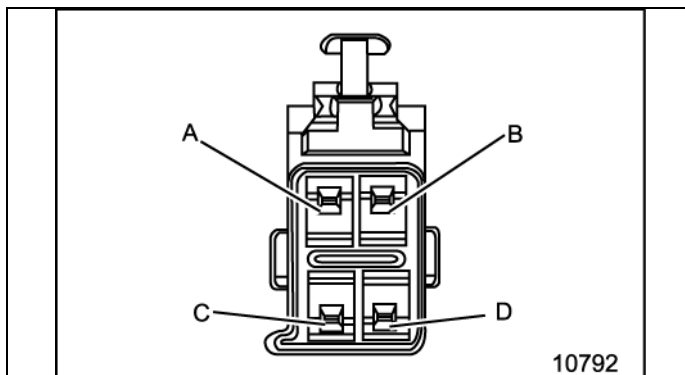


Connector Part Information

- 15358651
- 8-Way M M/P Series 280 (BLK)

Pin	Wire Color	Circuit No.	Function
A	BRN	441	Pass Thru Circuit
B	PPL	420	Pass Thru Circuit
C	LT BLU	1134	Pass Thru Circuit
D	DK GRN/ WHT	1135	Pass Thru Circuit
E	ORN	1540	Pass Thru Circuit
F	WHT	17	Stop Lamp Switch Signal
G	LT GRN	584	Pass Thru Circuit
H	GRY	48	Pass Thru Circuit

Inline Harness Connector C155

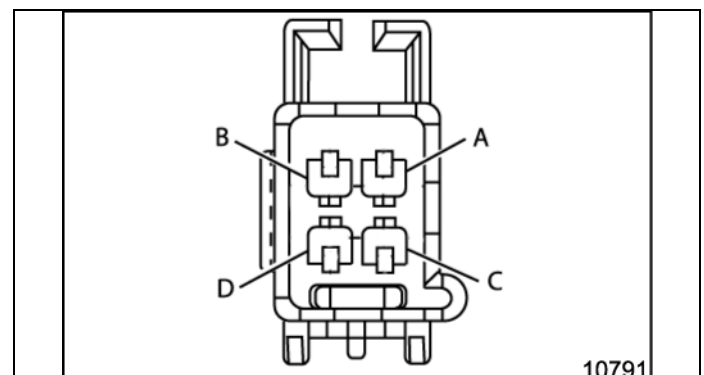


Connector Part Information

- 12129136
- 4-Way F Flex-Lock 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	ORN	240	Park Lamps
B	WHT	352	Head Lamps
C	ORN	40	CTSY Lamps
D	PNK	839	Back Up Lamps

Inline Harness Connector C155

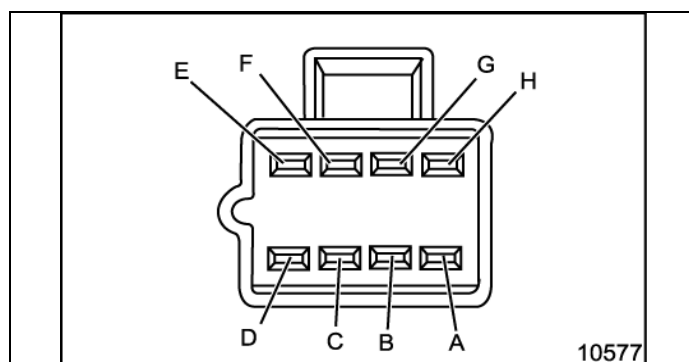


Connector Part Information

- 12129135
- 4-Way M M/P 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	ORN/BLK	240B	Park Lamps
B	WHT	352B	Head Lamps
C	ORN	40B	CTSY Lamps
D	PNK	839B	Back Up Lamps

Inline Harness Connector C202B

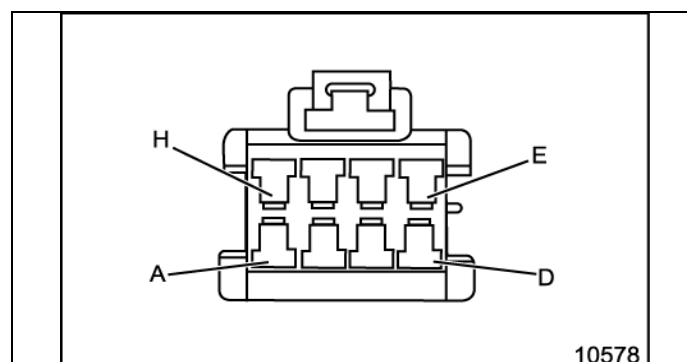


Connector Part Information

- 12064998
- 8-Way F M/P Series 280 (BLK)

Pin	Wire Color	Circuit No.	Function
A	BRN	441	Pass Thru Circuit
B	PPL	420	Pass Thru Circuit
C	LT BLU	1134	Pass Thru Circuit
D	DK GRN/ WHT	1135	Pass Thru Circuit
E	ORN	1540	Pass Thru Circuit
F	WHT	17	Stop Lamp Signal
G	LT GRN/ BLK	584	Pass Thru Circuit
H	GRY	48	Pass Thru Circuit

Inline Harness Connector C202B

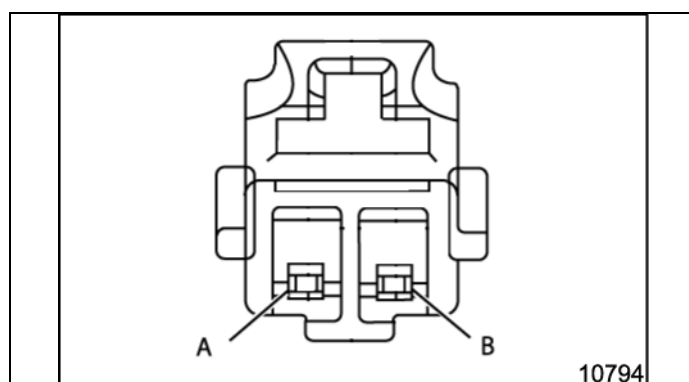


Connector Part Information

- 15358651
- 8-Way M M/P Series 280 (BLK)

Pin	Wire Color	Circuit No.	Function
A	BRN	441	Pass Thru Circuit
B	PPL	420	Pass Thru Circuit
C	BLU	1134	Pass Thru Circuit
D	LT GRN/ WHT	1135	Pass Thru Circuit
E	ORN	1540	Pass Thru Circuit
F	WHT	17	Stop Lamp Switch
G	LT GRN	584	Pass Thru Circuit
H	GRY	48	Pass Thru Circuit

Inline Harness Connector C135

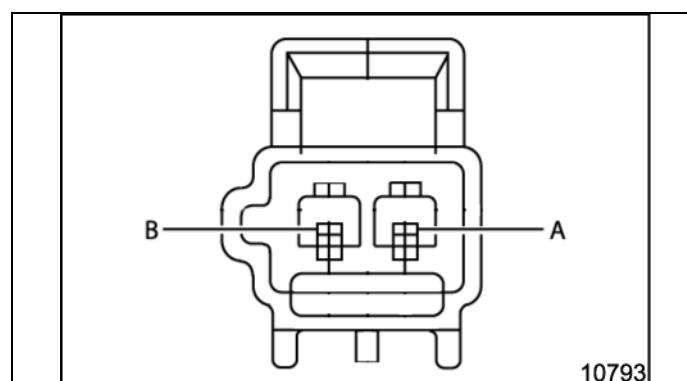


Connector Part Information

- 12129081
- 2-Way F Flex-Lock 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	DK BLU	545	DRL
B	DK GRN	1329	Horn

Inline Harness Connector C135

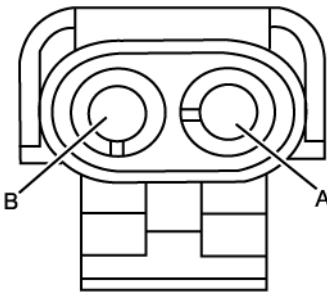


Connector Part Information

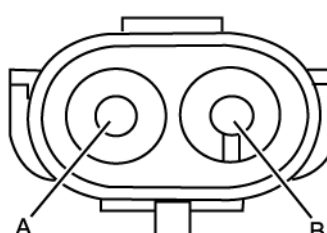
- 12129155
- 2-Way M M/P 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	DK BLU	545A	DRL
B	DK GRN	1329B	Horn

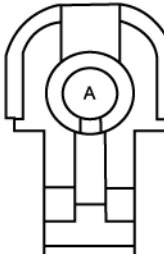
Inline Harness Connector C192

 <p style="text-align: right;">10573</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way F Weather Pack SHD (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	PNK	139A	Ignition 1 Voltage In
B	PNK/ WHT	139B	Ignition 1 Voltage Out

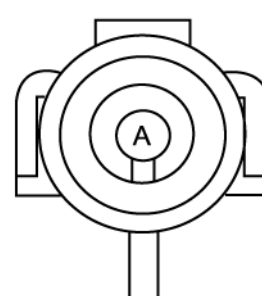
Inline Harness Connector C192

 <p style="text-align: right;">10574</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12015792 • 2-Way M Weather Pack TWR (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	PNK	139A	Turn Signal Relay Pin 87
B	PNK/ BLK	139B	Turn Signal Relay Pin 30

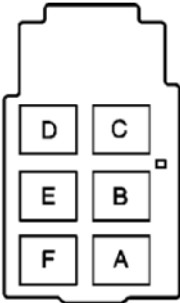
Inline Harness Connector C191

 <p style="text-align: right;">10561</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	RED	912A	Power to Relay Module

Inline Harness Connector C191

 <p style="text-align: right;">10565</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	ORN	912A	Power to Relay Module

Junction Block Body C241

			
1560			
Connector Part Information		<ul style="list-style-type: none"> • 12193930 • 6-Way F M/P Series 280 Series (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	—	—	Not Used
B	—	—	Not Used
C	—	—	Not Used
D	ORN	40A	Service Lamp Switch Power
E	—	—	Not Used
F	—	—	Not Used

Repair Instructions

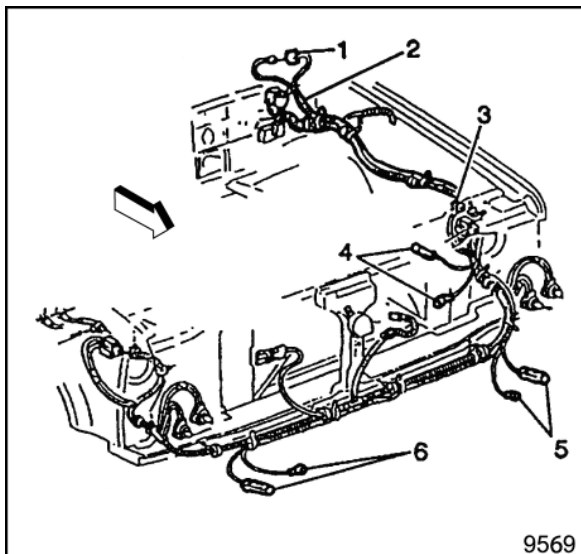
Auxiliary Lamp Harness Replacement - Front

Removal Procedure

1. Remove the radiator grille. Refer to Radiator Grille Replacement in Exterior Trim.
2. Remove the filler panel.
3. Trace the auxiliary harness connections to the original harness.

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

4. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
5. Remove the connector from the right hand blackout marker lamp (6) and the left hand blackout marker lamp (5) and the ground nut to the ground lead and all tie wraps connecting the auxiliary harness.
6. Remove connector (4) and ground from blackout headlamp mounting stud.
7. Trace the auxiliary harness under the washer fluid reservoir and remove the tie wrap along the fender interior.
8. Trace the auxiliary harness under the battery tray area and remove the wrap.
9. Remove the forward auxiliary harness (2) from the vehicle.
10. Remove the tie wraps near the bulkhead and disconnect the forward connector of the auxiliary harness from the auxiliary IP harness connector and tie wrap holding it to the harness connector.



Installation Procedure

1. Connect the forward connector of the auxiliary harness to the auxiliary IP 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 tie wrap.
4. Install the auxiliary battery and tray. Make modifications using a drill, drill holes to allow the mounting of the tray. Refer to Battery Tray Replacement in the 2001/02 C/K Truck service manual.
5. Install the auxiliary harness under the washer fluid reservoir area and install the tie wrap along the fender interior.
6. Install the connector to the right hand blackout marker lamp (6) and the left hand blackout marker lamp (5) and the ground nut to the ground lead and all tie wraps connecting the auxiliary harness.

7. Install connector (4) and the ground to blackout headlamp mounting stud.

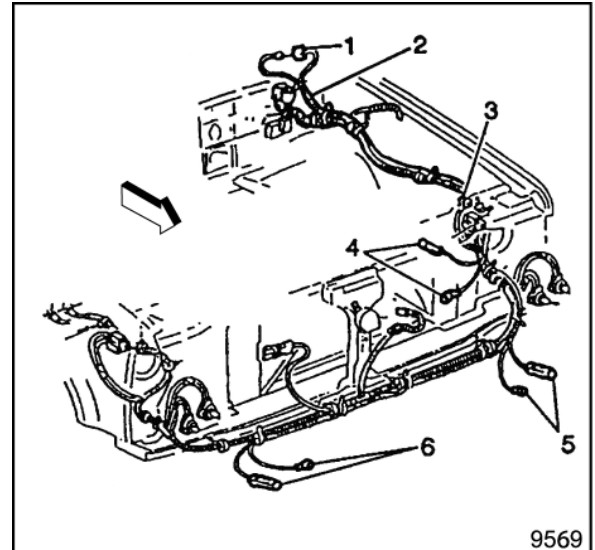
Notice: Refer to Fastener Notice in Cautions and Notices.

8. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

9. Install the filler panel.
10. Install the auxiliary harness connections to the original harness.
11. Install the radiator grille. Refer to Radiator Grille Replacement in Exterior Trim.

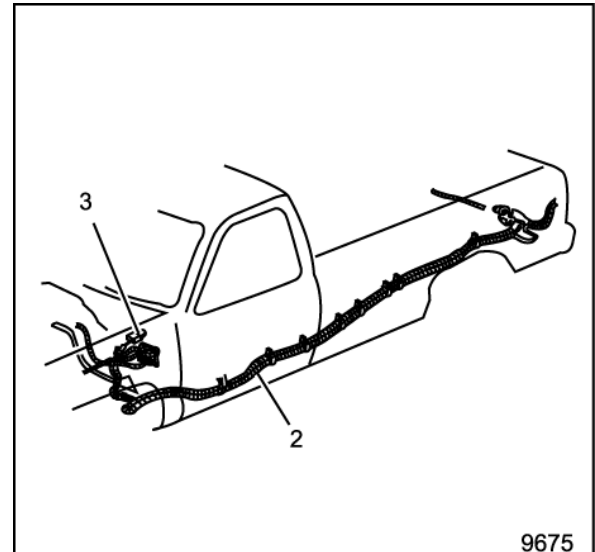


Auxiliary Lamp Extension Harness Replacement – Rear

Removal Procedure

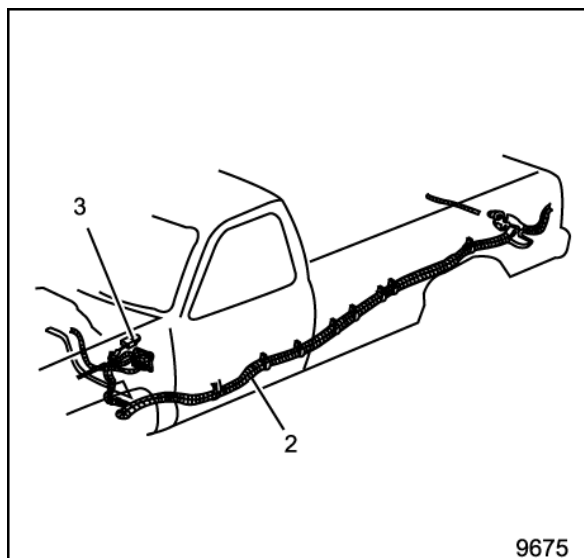
Caution: Refer to Battery Disconnect Caution in Cautions and Notices.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Access the auxiliary rear lamp extension harness from the engine compartment at the left side of the bulkhead.
3. Remove the connector (3) from the IP auxiliary harness and tie wrap connecting to the forward lamp harness.



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

4. Raise and support the vehicle on a hoist and trace the auxiliary rear lamp harness extension along the path of the existing harness and vehicle frame.
5. Remove the connector to the rear lamp harness.



Installation Procedure

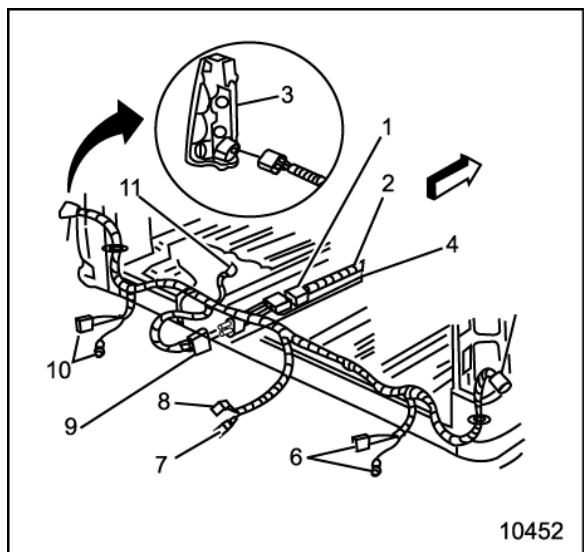
1. Install the connector to the rear lamp harness.
2. Remove supports and lower the vehicle and install the auxiliary rear lamp harness extension along the path of the existing harness and vehicle frame.
3. Install the connector (3) to the IP auxiliary harness and tie wrap holding to the forward lamp harness.
4. Install the auxiliary rear lamp extension harness to the engine compartment location at the left side of the bulkhead.

Notice: Refer to Fastener Notice in Cautions and Notices.

5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



Lamp Harness Replacement – Rear

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the rear lamp harness connector from the left tail lamp connector.
3. Remove the ground lead and connector for the left blackout marker lamp.
4. Remove the vehicle ground lead bolt, washer and harness ground.
5. Remove the rear lamp harness connector from the auxiliary rear lamp extension harness.
6. Remove the rear lamp harness connector from the rear lamp extension harness.
7. Remove the two rear lamp harness connectors (7, 8) from the trailer jumper.
8. Remove the ground lead nut, ground lead and connector from the right blackout marker lamp.
9. Remove the rear lamp harness connector from the right and left taillamp connectors.

Installation Procedure

1. Install the rear lamp harness connector to the right and left taillamp connectors.
2. Install the ground lead nut, ground lead and connector to the right blackout marker lamp.
3. Install the two-rear lamp harness connectors (7, 8) to the trailer jumper.
4. Install the rear lamp harness connector to the auxiliary rear lamp extension harness.
5. Install the rear lamp harness connector to the auxiliary rear lamp extension harness.
6. Install the vehicle ground lead bolt, washer and harness ground.

Important: For the Utility models: Route the ground lead over the rear lamp harness connectors. For the Pickup models: Route the ground lead to the hole in the left frame rail.

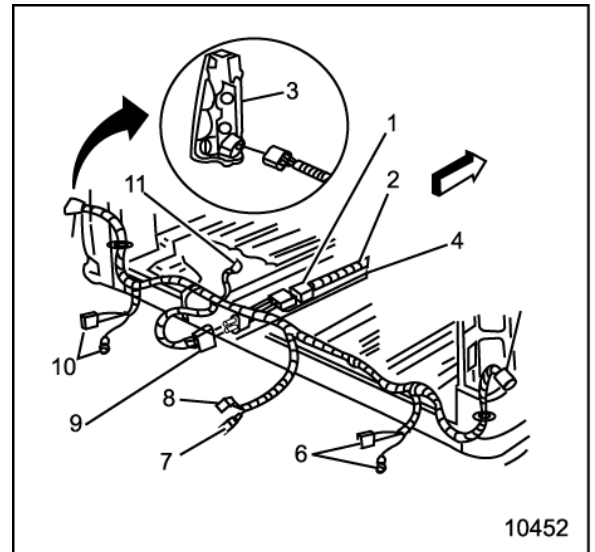
7. Install the ground lead and connector for the left blackout marker lamp.
8. Install the rear lamp harness connector to the left taillamp connector.

Notice: Refer to Fastener Notice in Cautions and Notices.

9. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



10452

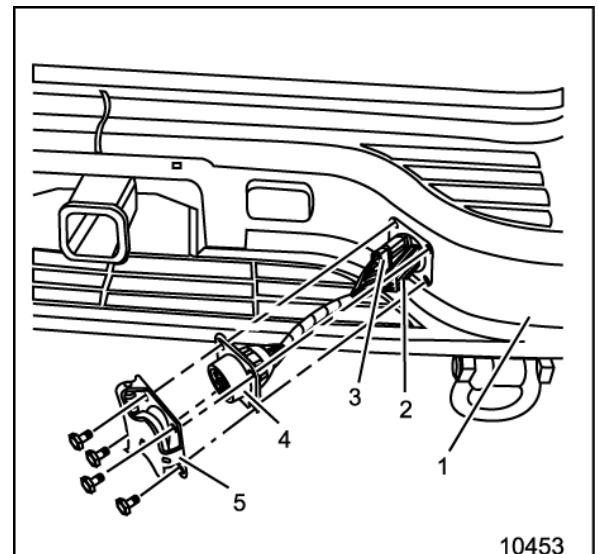
Trailer Wiring Harness Replacement

Removal Procedure

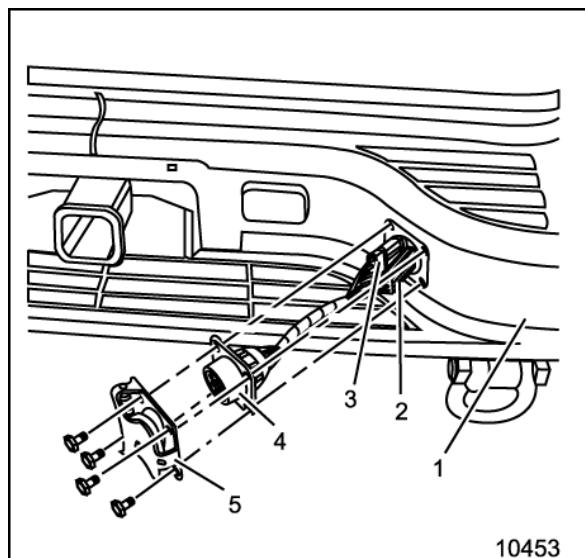
1. Remove the rear bumper. Refer to Bumper Replacement - Rear or Bumper Replacement – Rear (Military Hitch) in Bumpers.

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

2. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
3. Remove the two trailer connections (2, 3) from the rear lamp wiring harness jumpers.
4. Remove the four bolts, washers and nuts holding the harness assembly mounting bracket (4) and door (5) to the rear bumper.
5. Remove the trailer wiring harness through the hole.



10453



Installation Procedure

1. Insert the harness through the harness hole.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the four bolts, washers and nuts holding the harness assembly mounting bracket (4) and door (5) to the rear bumper.

Tighten

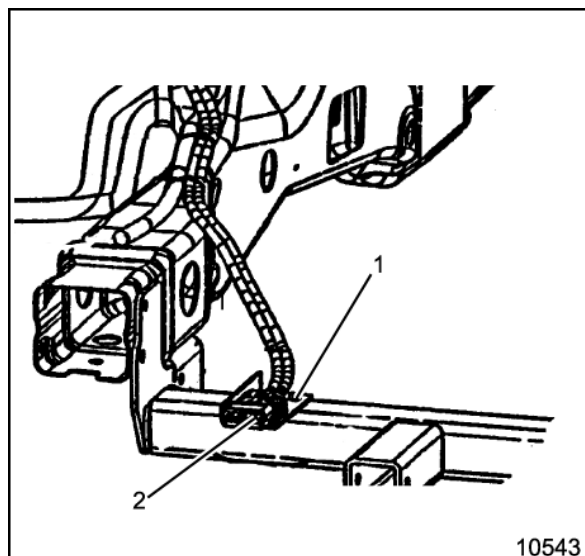
Tighten the four bolts to 5 N•m (4 lb ft).

3. Install the two trailer connectors (2,3) to the rear lamp harness connectors.
4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

5. Install the rear bumper. Refer to Bumper Replacement – Rear or Bumper Replacement – Rear (Military Hitch) in Bumpers.

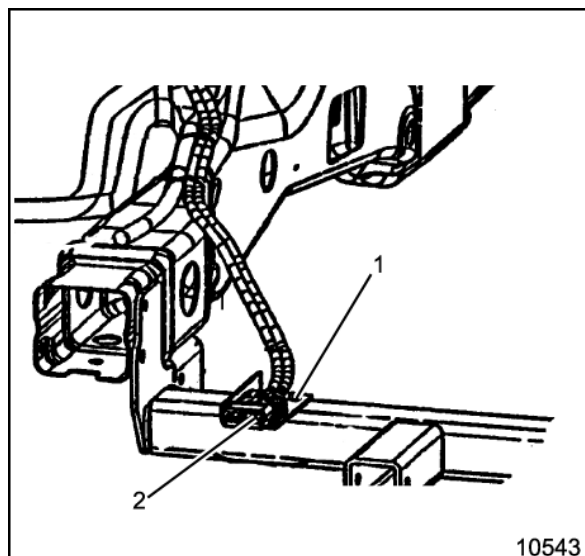


Winch Connector/Harness Replacement – Front

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V of the left battery.
2. Remove bolt (1) securing the electrical connector (2) to the front receiver.
3. Remove ty-wraps securing cables. Note routing for installation.
4. Remove cable connections at the junction block.



Installation Procedure

1. Install cable connections at the junction block.
2. Route cable in same locations as removed and ty-wrap.
3. Install connector (2) on receiver and tighten bolt (1).

Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the negative battery cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

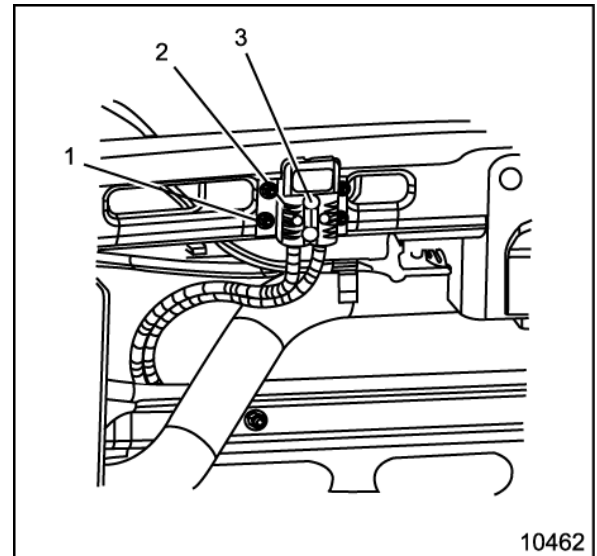
Tighten battery cable connections to 17 N•m (13 lb ft).

Winch Connector/Harness Replacement – Rear

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V of the left battery.
2. Remove bolts (1) securing connector (2) to frame.
3. Remove ty-wraps securing harness. Note routing for installation.
4. Remove cable from junction block.



Installation Procedure

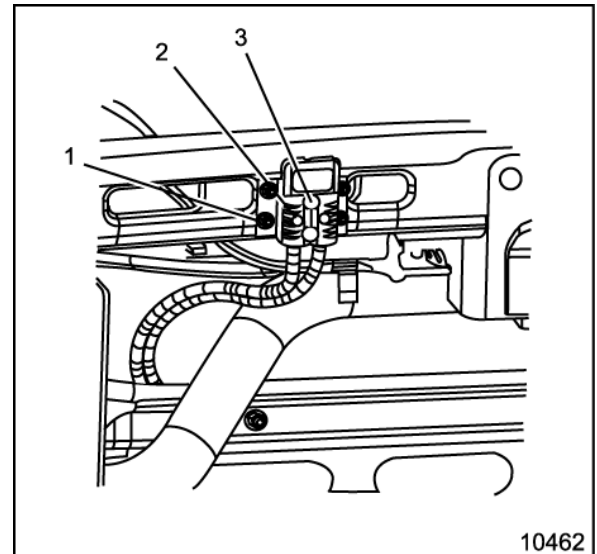
1. Install harness in original routing locations and secure with ty-wraps.
2. Install cable ends to the junction block and tighten.
3. Install connector (2) to the frame install bolts (1) and tighten.

Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the negative battery cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

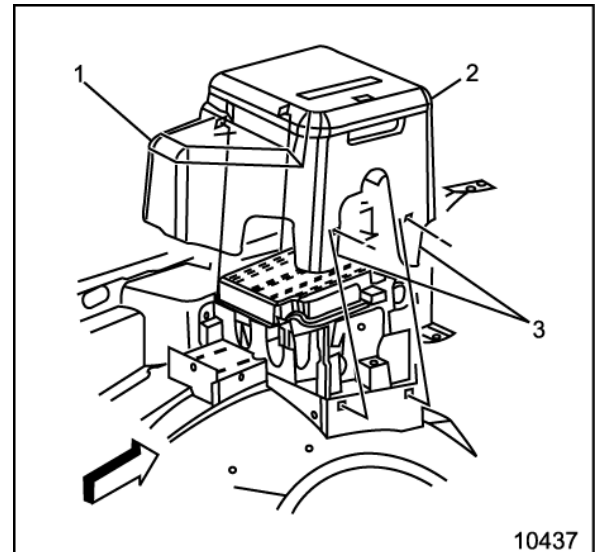


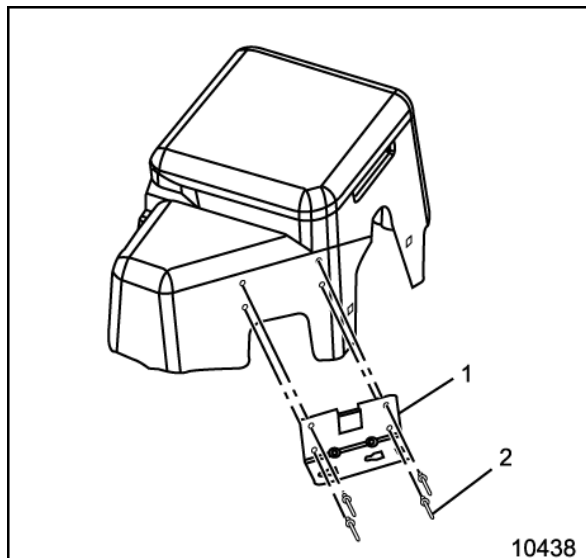
Relay Mounting Bracket Replacement

Removal Procedure

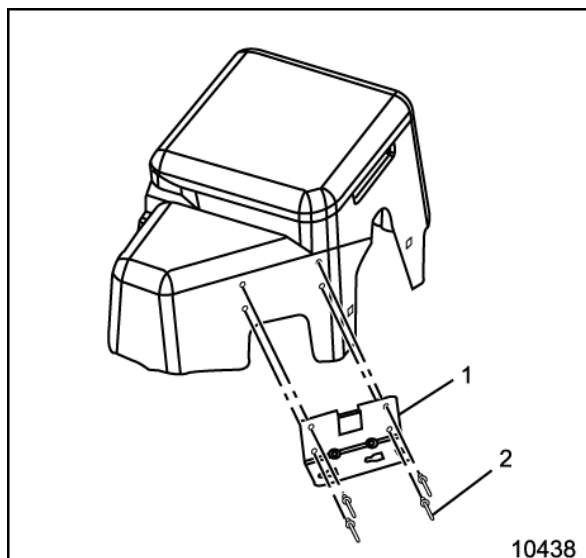
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the left fender upper brace.
3. Remove top cover (2).
4. Remove the electrical center cover assembly by lifting the cover (3) outwards to clear the tabs.



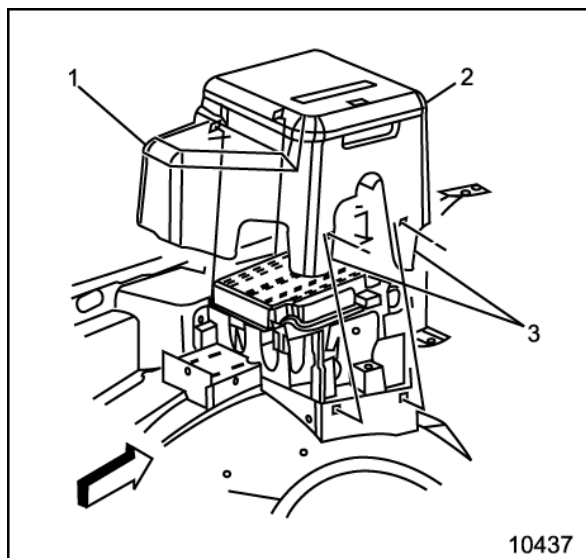


5. Drill out the rivets (2) and remove bracket (1).



Installation Procedure

1. Rivet the bracket (1) to the electrical center cover.



2. Set the electrical center block in its resting position till the tabs (3) lock into place.
3. Install the lower part of the cover (1).
4. Install the upper cover (2).
5. Install the fender upper brace.

Notice: Refer to Fastener Notice in Cautions and Notices.

6. Install the 4 fender upper brace bolts.
Tighten
Tighten the 4 retaining bolts to 25 N•m (18 lb ft).
7. Install the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
Tighten
Tighten battery cable connections to 17 N•m (13 lb ft).

Description and Operation

Wiring Description

Several changes offered by the military options require new wiring configurations. Auxiliary wiring attaches to the original wiring providing power to the blackout lighting, the slave receptacle, the power converter/voltage regulator, and the circuit breakers and relays. All auxiliary harnesses are outlined in schematics. Several are described in repair procedures in this manual.

Access to fuses can be found on the power converter/voltage regulator, under the dash and under the hood.

Lighting Systems

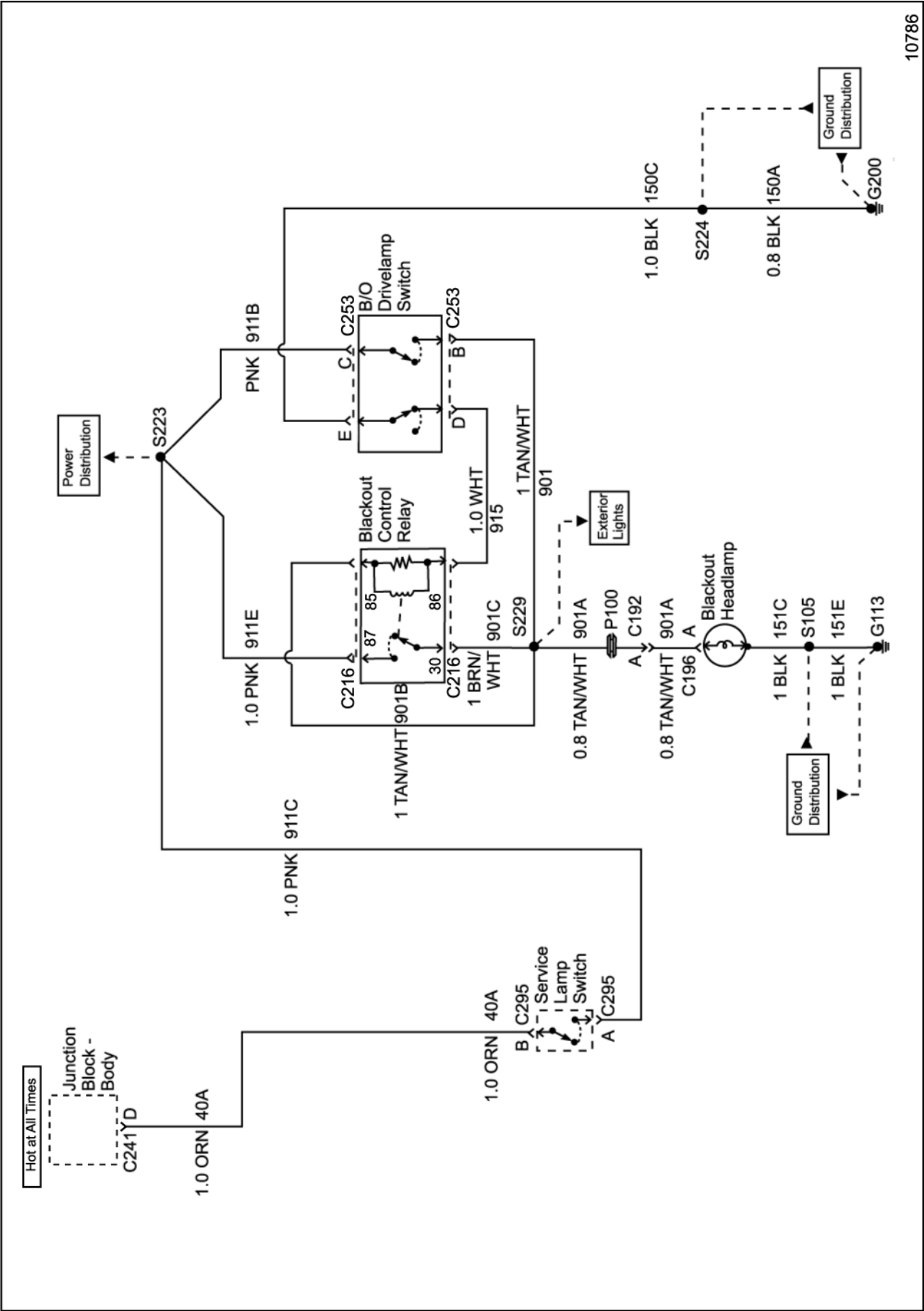
Specifications

Fastener Tightening Specifications

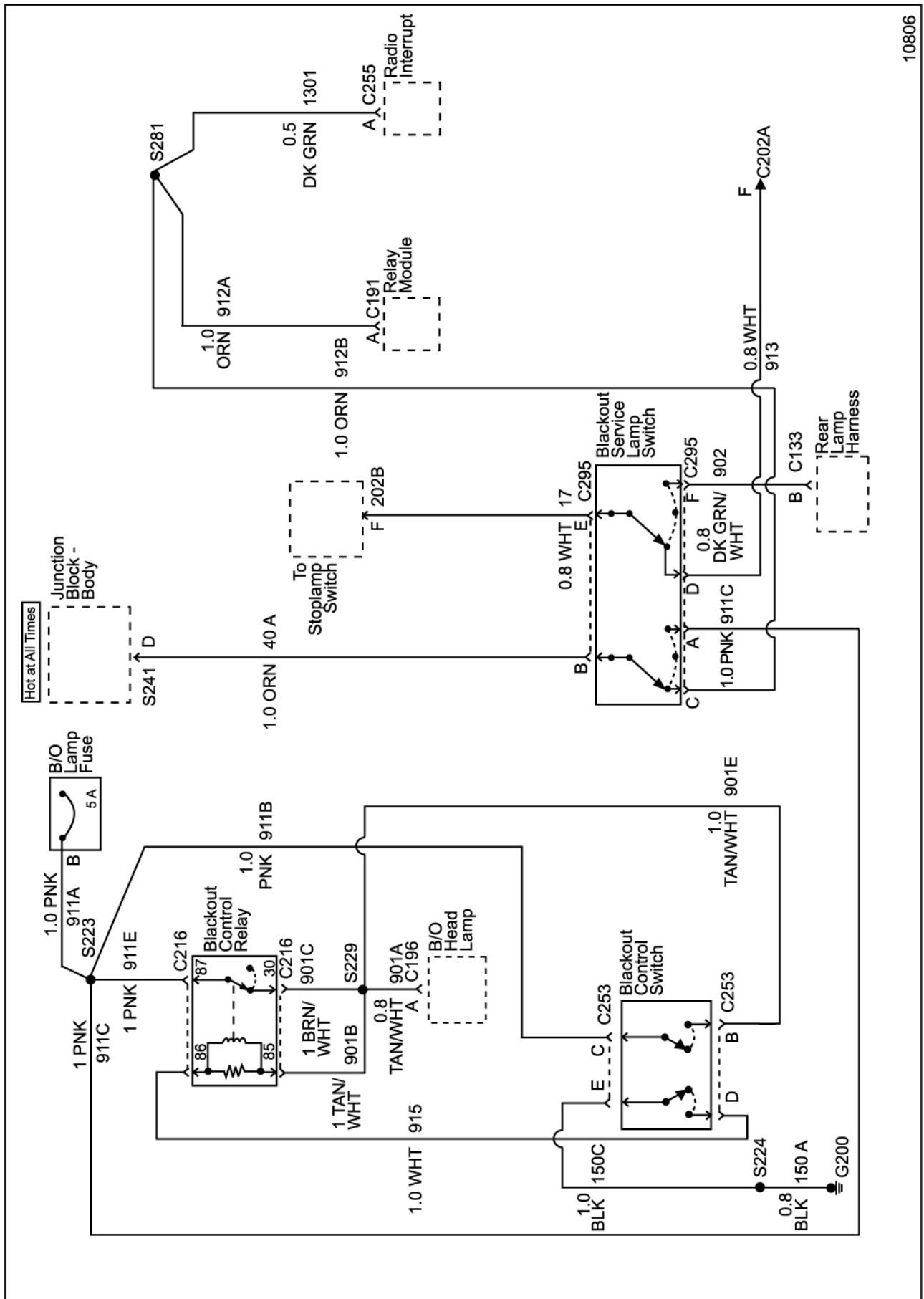
Application	Specification	
	Metric	English
Battery Cable Connections	17 N•m	13 lb ft
Blackout Headlamp Stud Nut	10 N•m	7 lb ft
Front Blackout Marker Lamp Nuts	2 N•m	1.5 lb ft
Rear Blackout Lamp Nuts	2 N•m	1.5 lb ft
Voltmeter Lamp Nuts	2.8 N•m	2.0 lb ft

Schematic and Routing Diagrams

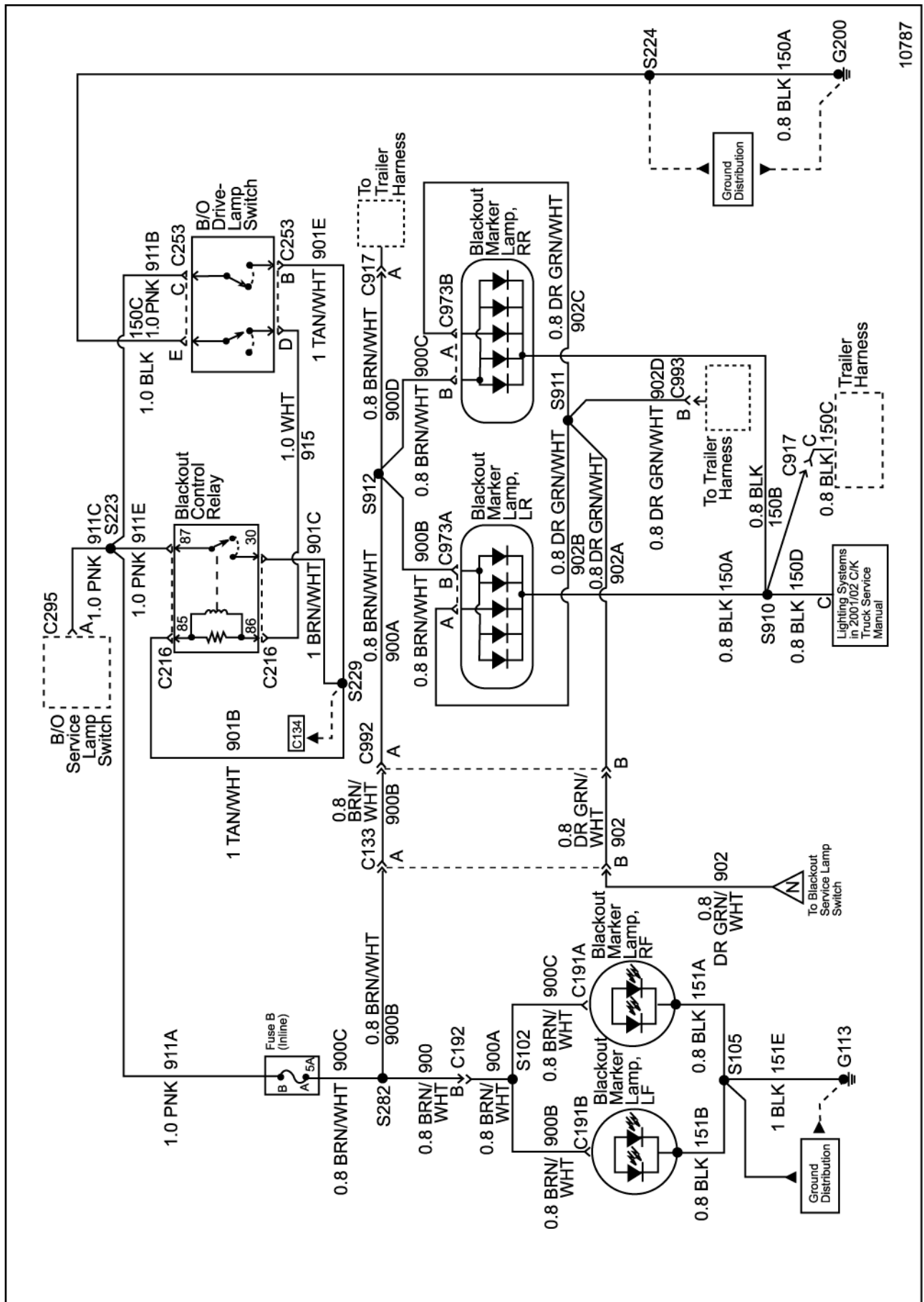
Headlights Schematics (Blackout Headlamp)



Exterior Lights Schematics (Blackout Lighting Controls)

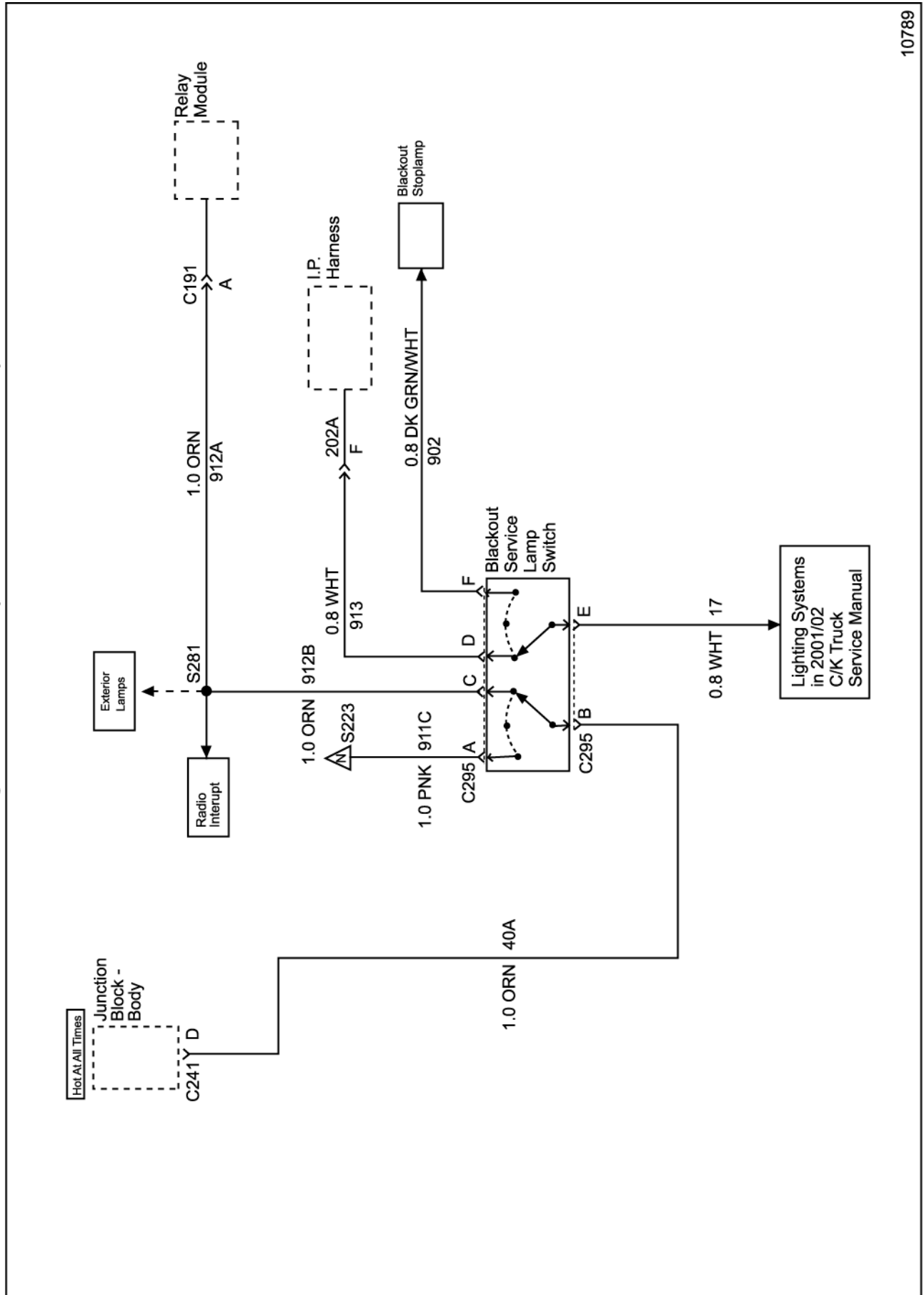


Exterior Lights Schematics (Blackout Marker Lamps)



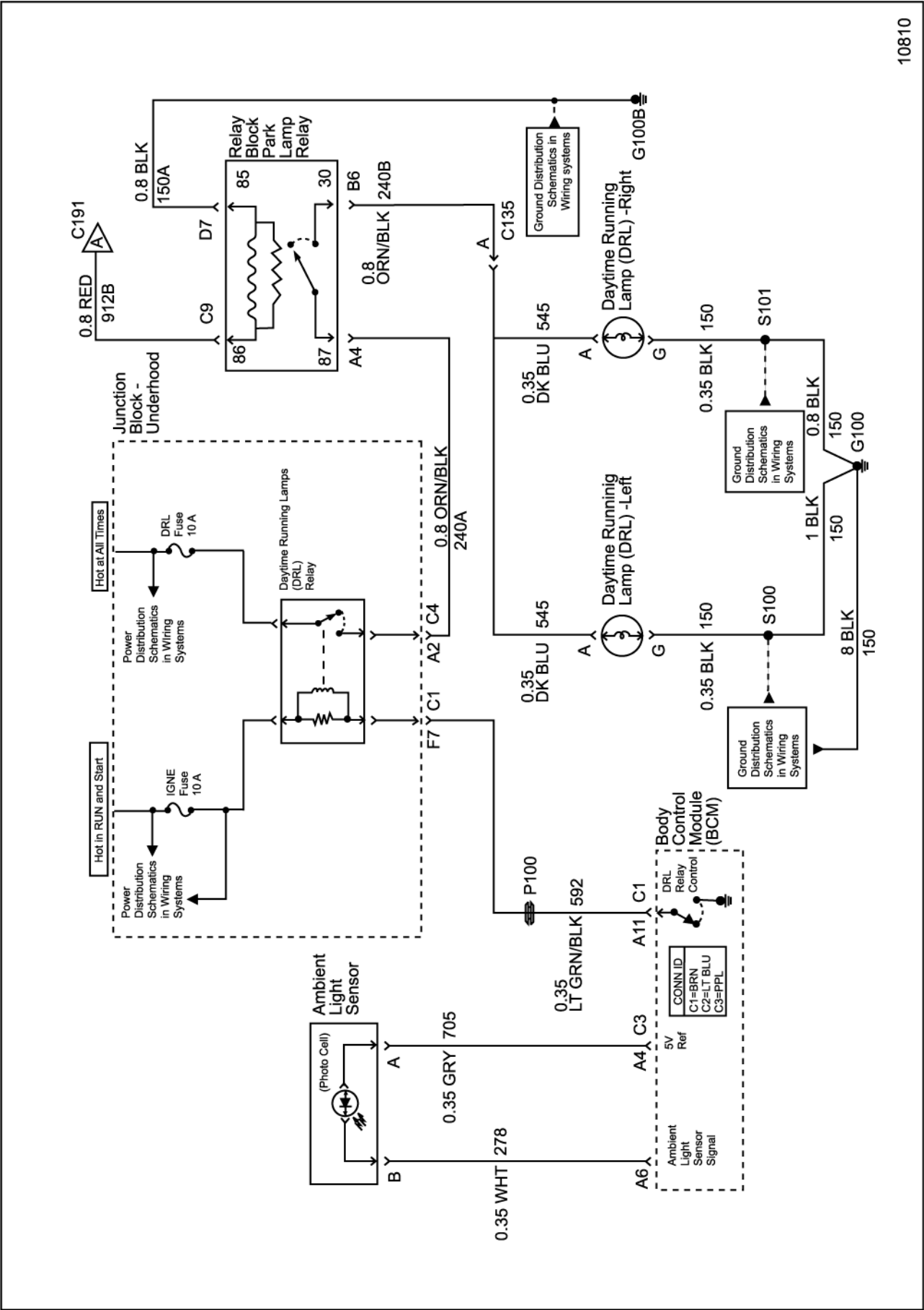
10787

Exterior Lights Schematics (Blackout Stop Lamps)

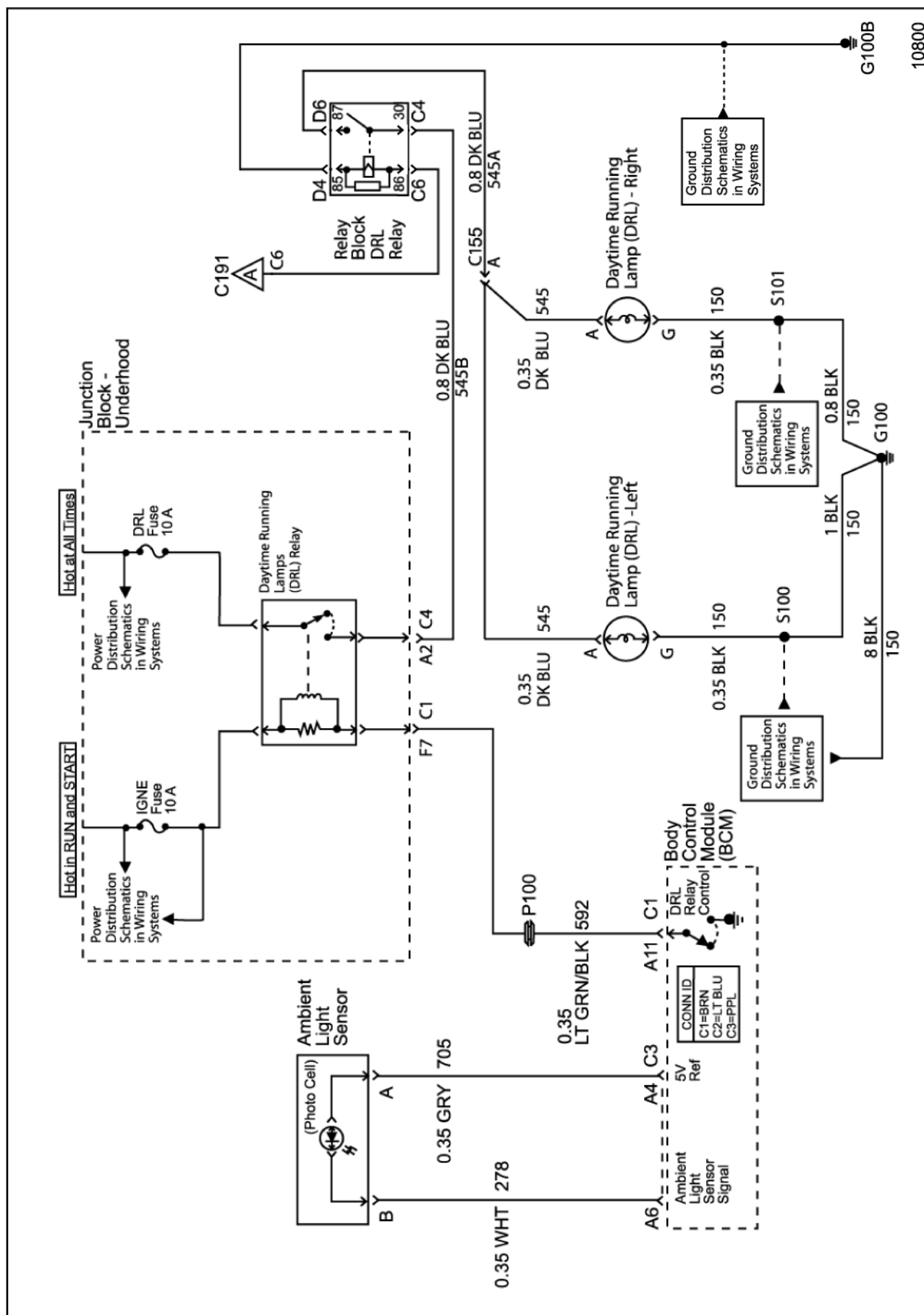


10789

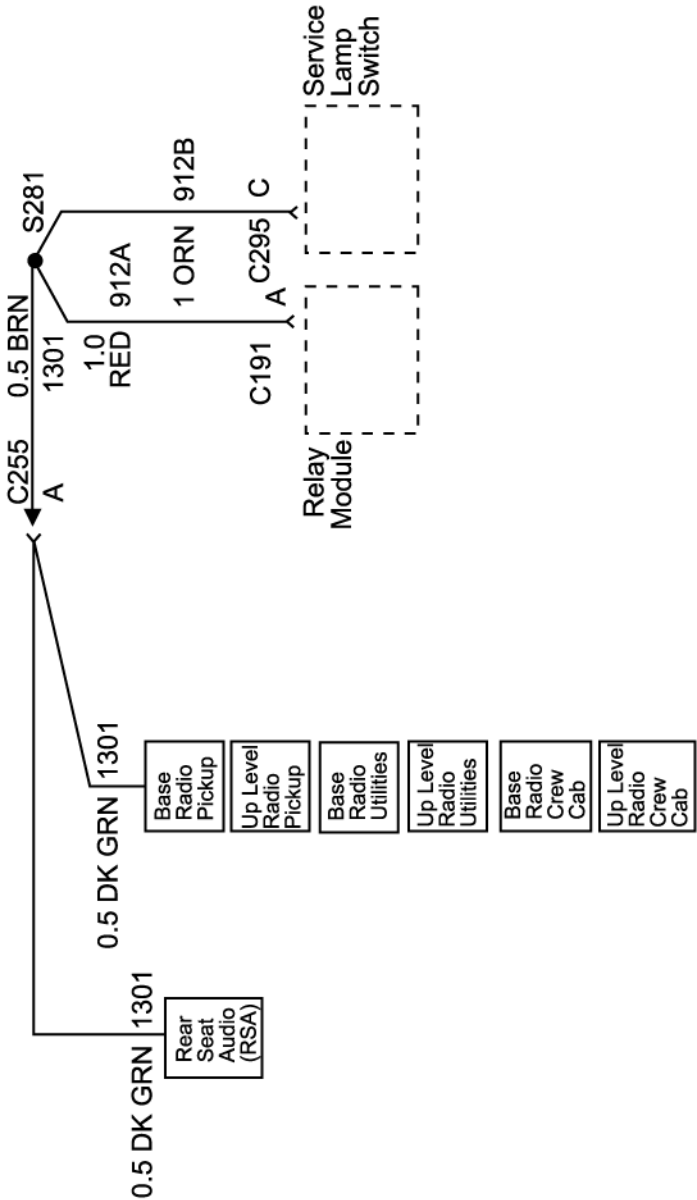
Headlights/Daytime Running lights (DRL) Schematics



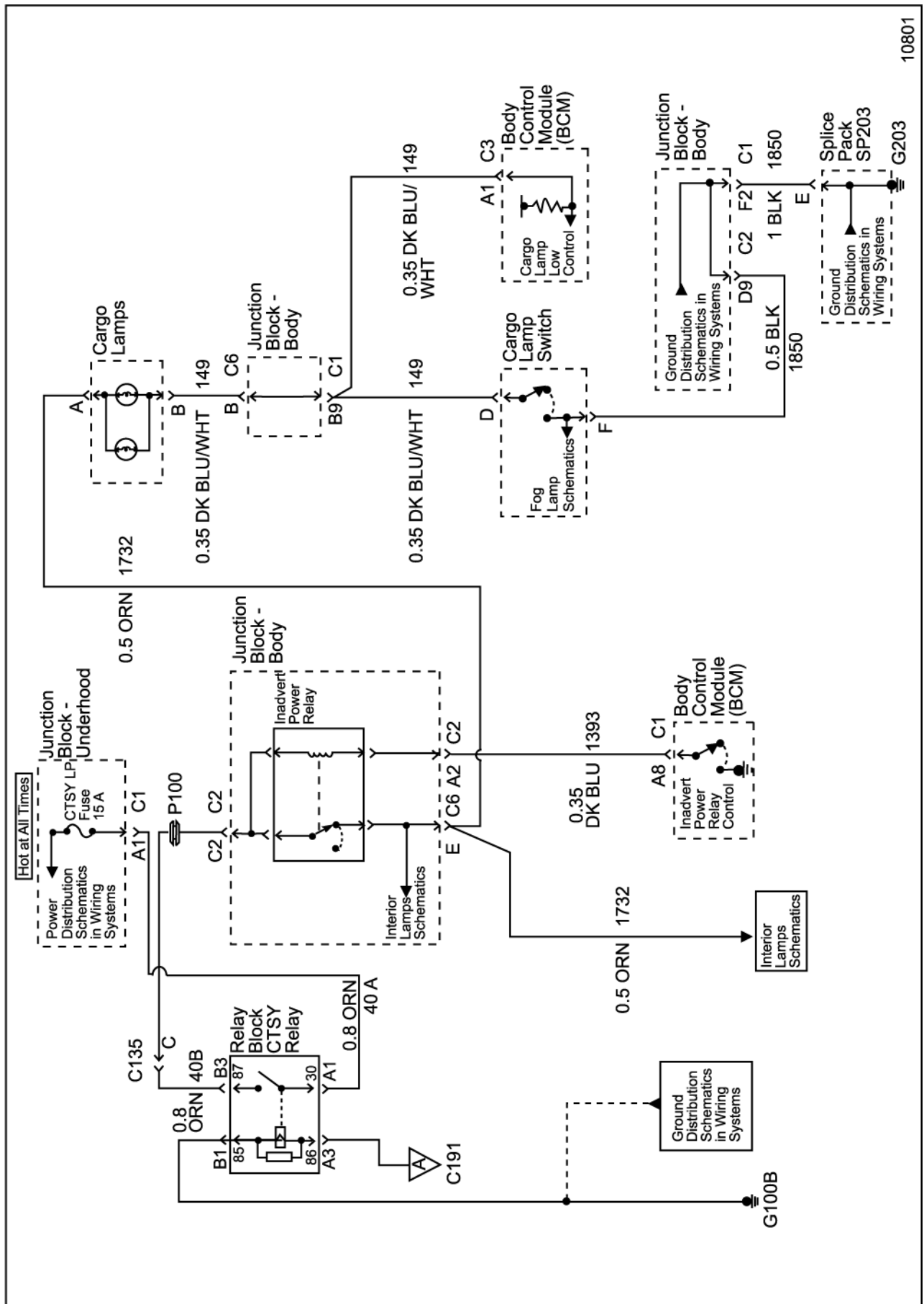
Headlights/Daytime Running Lights (DRL) Schematics



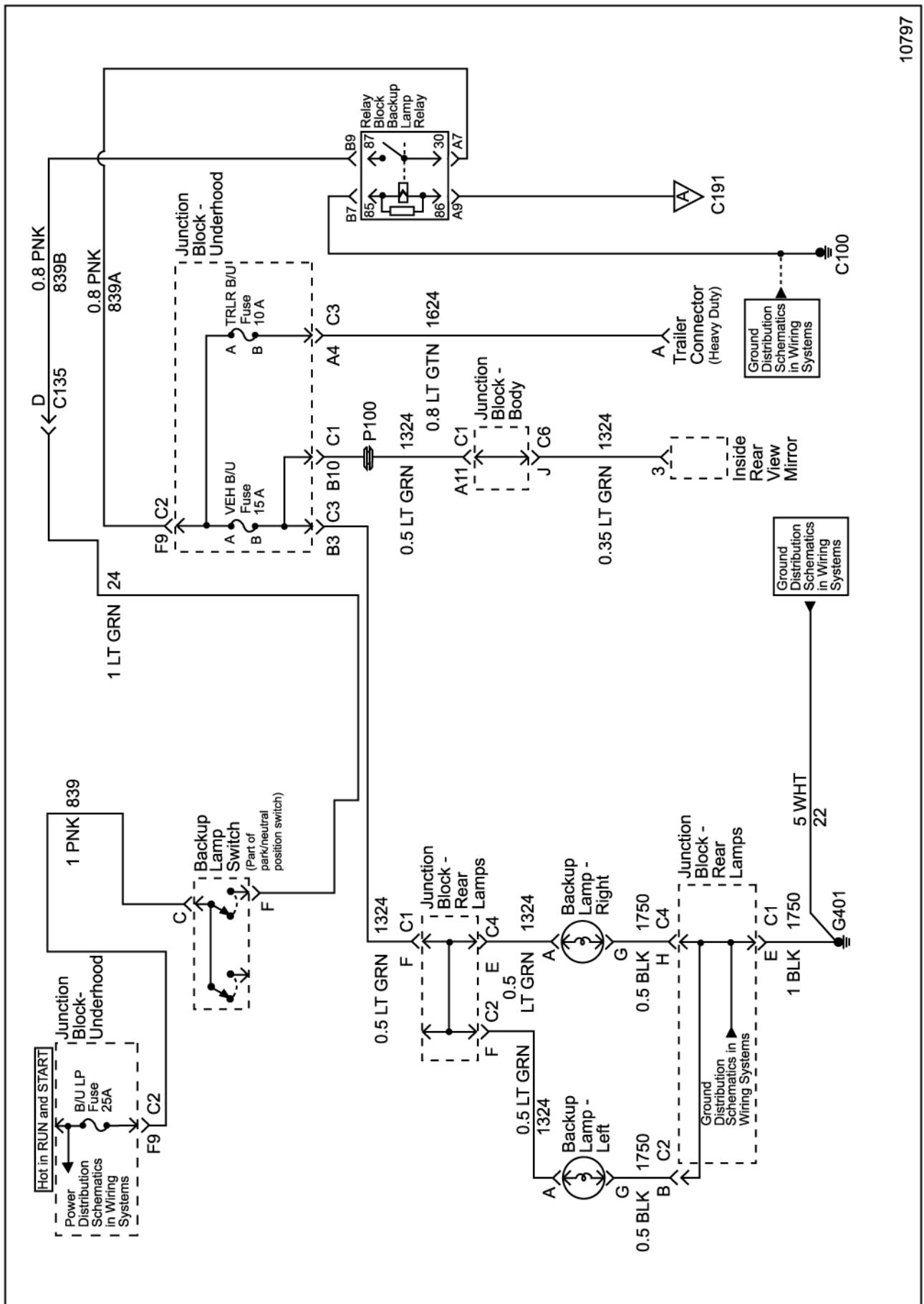
Radio Interrupt Schematic



Exterior Lights Schematics (H/D Trailer Wiring) (Cargo Lamps and Inadvertent Power Relay)

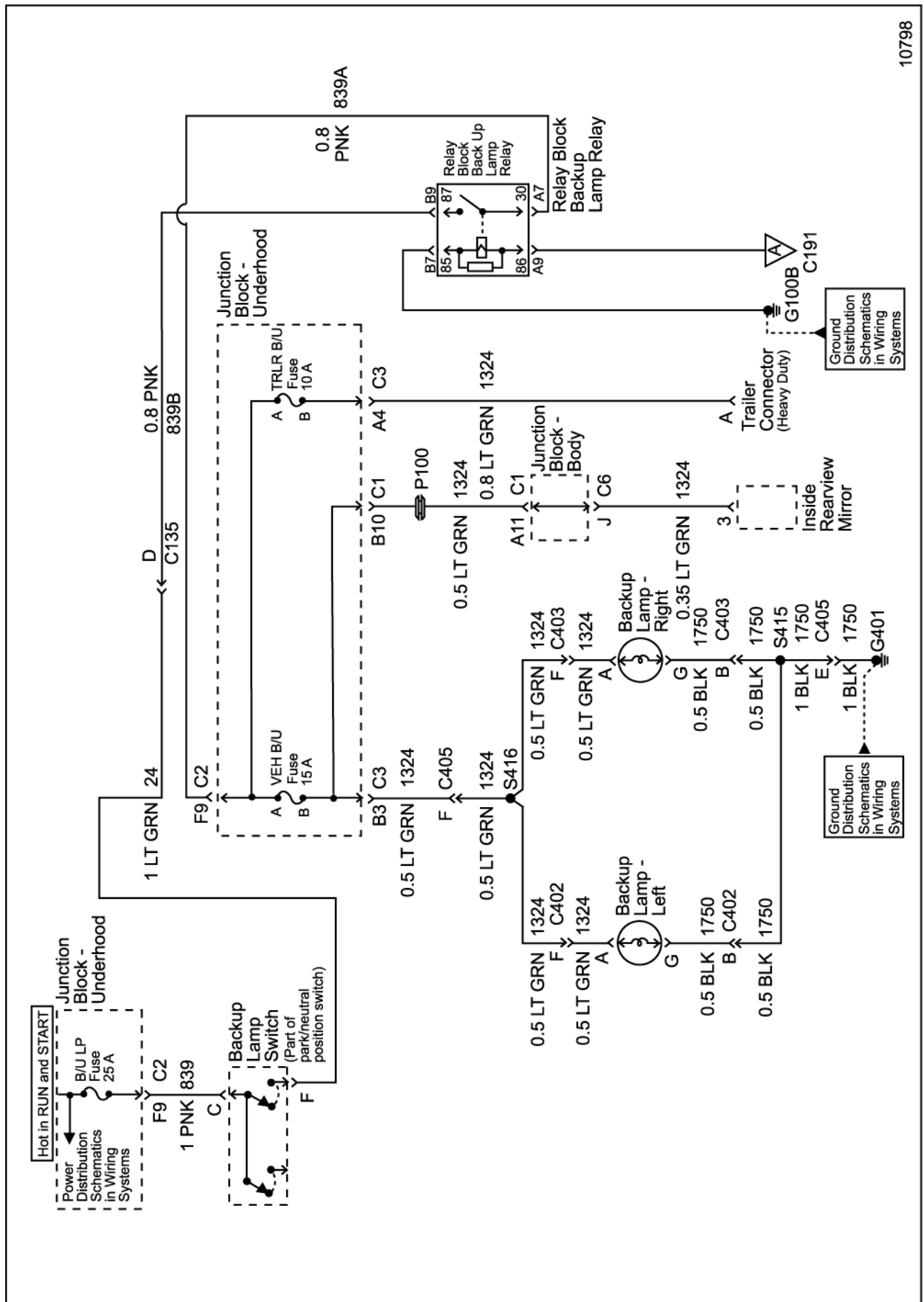


Backup Lights Schematics (Pickup)

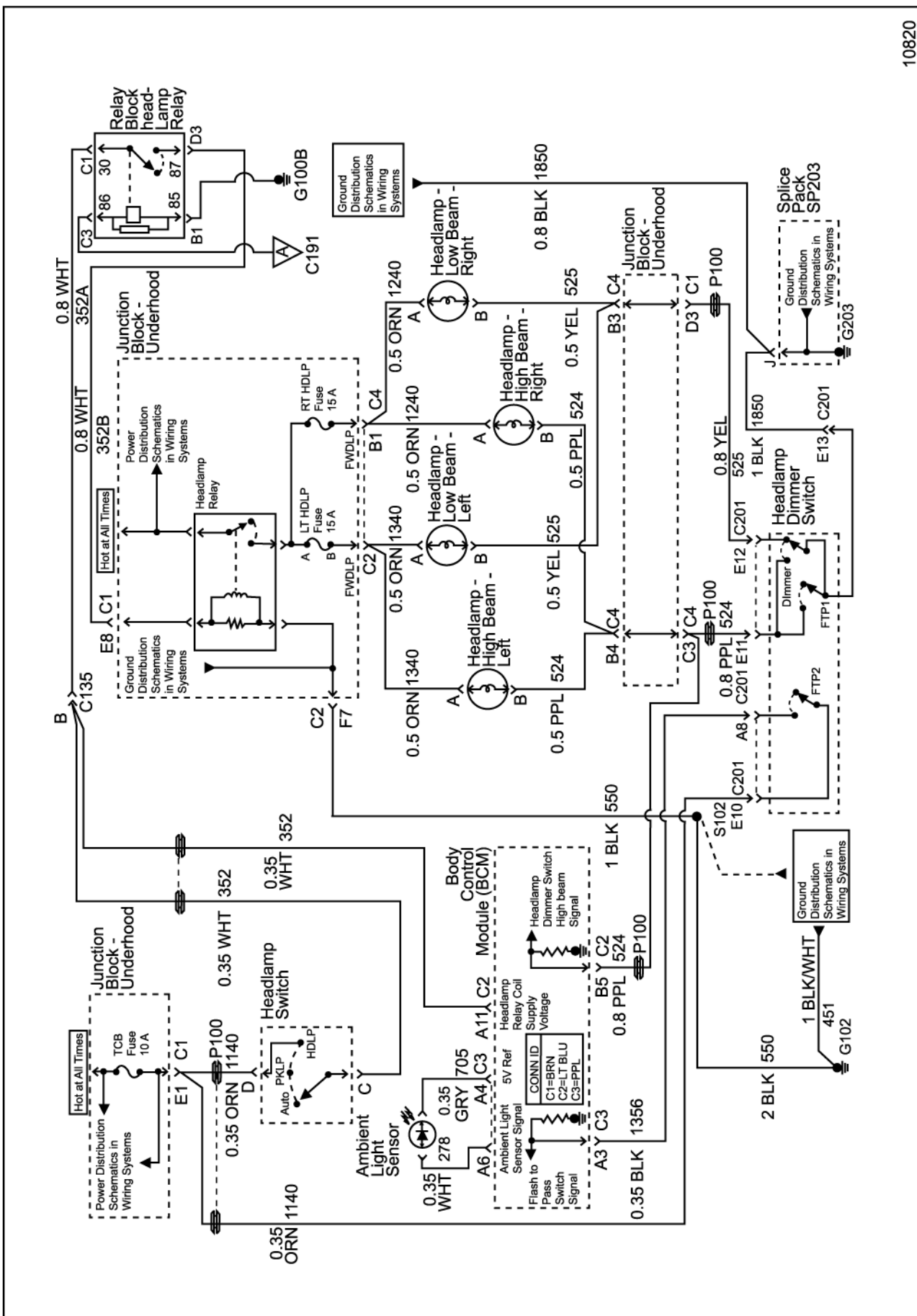


10797

Backup Lights Schematics (Utilities)



Headlights Schematics (Blackout Lighting Controls)

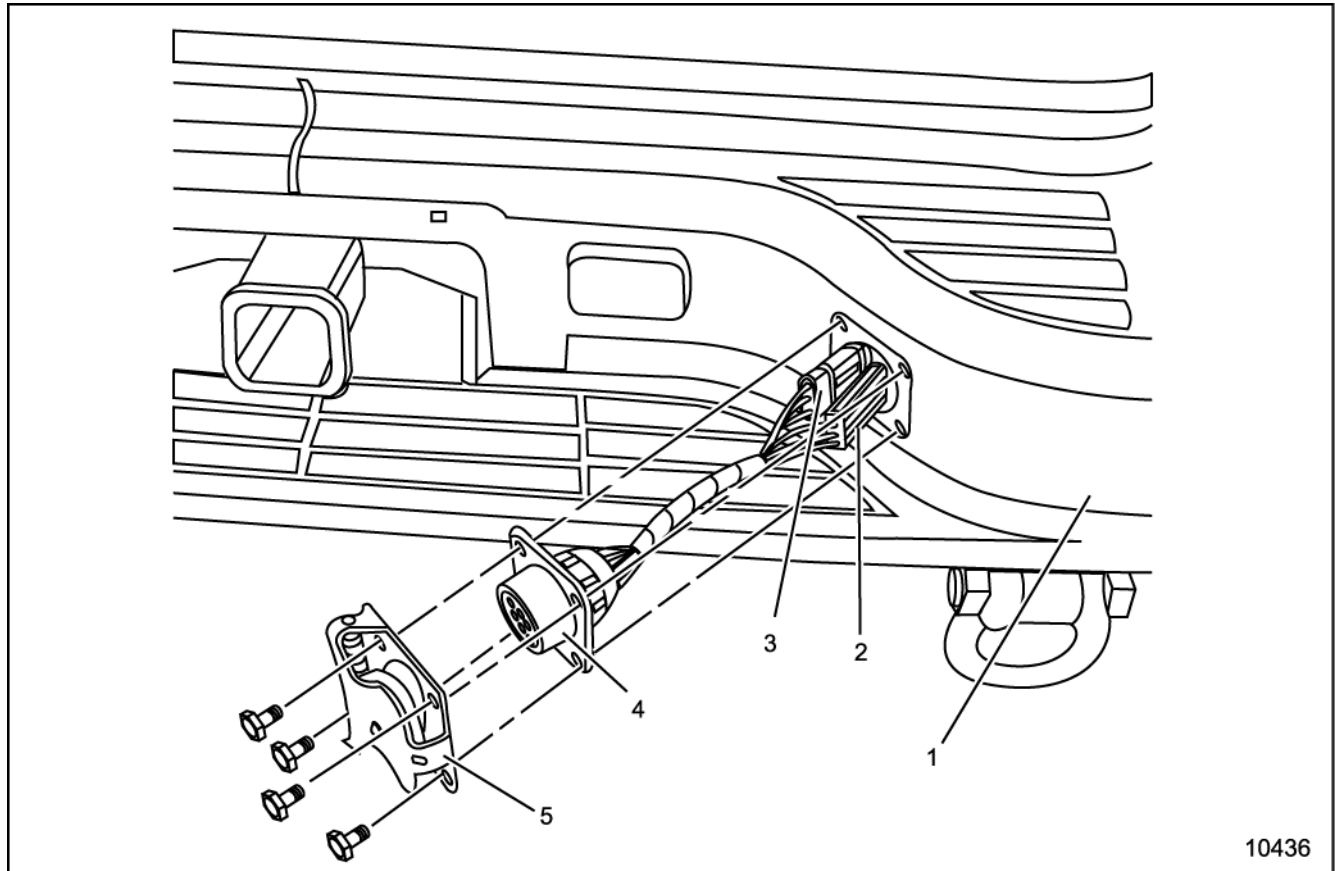


[illegible]

Component Locator

Lighting Systems Component Views

Trailer Wiring Harness

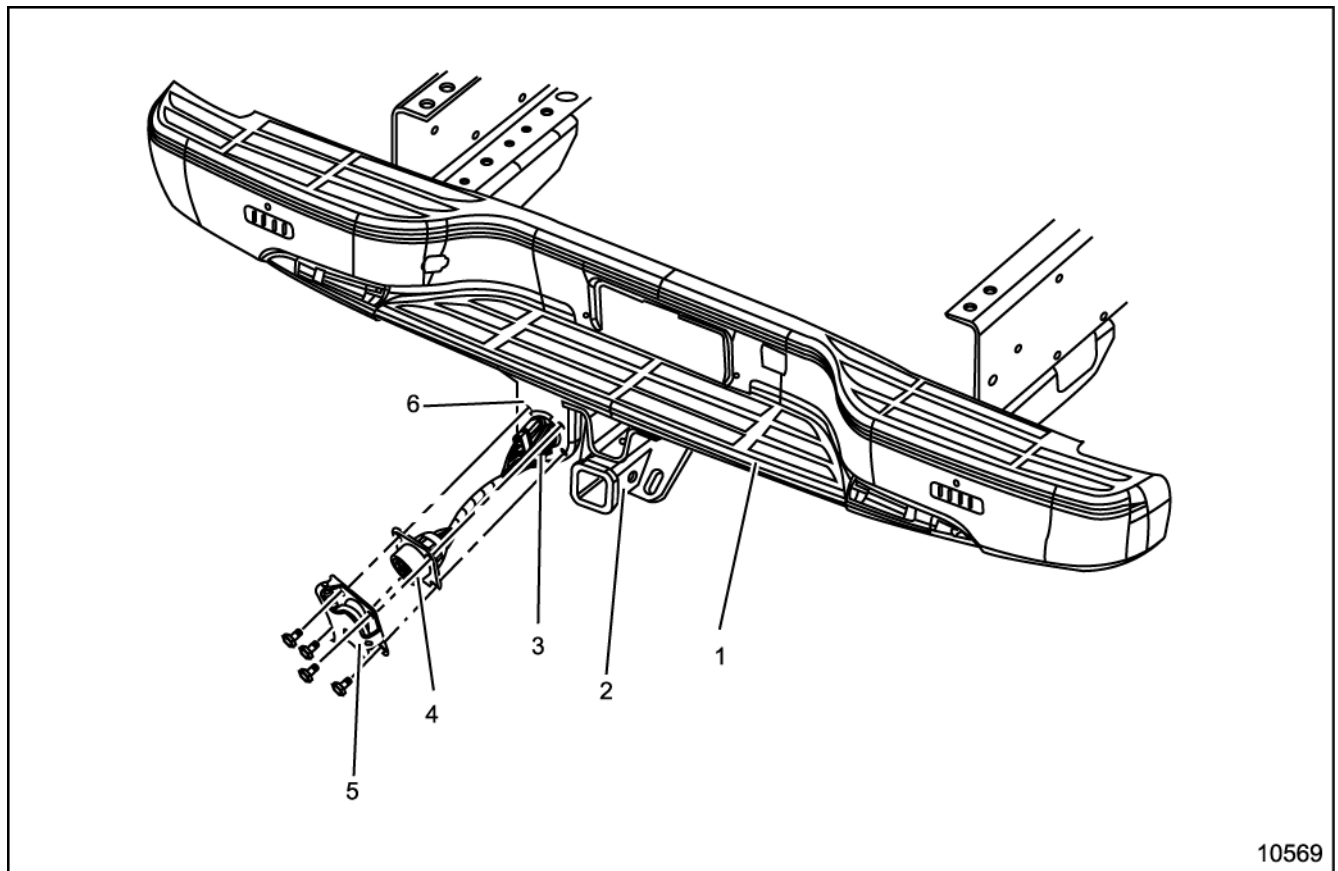


Legend

- (1) Bumper
- (2) C197
- (3) C993

- (4) Trailer Connector
- (5) Trailer Connector Cover

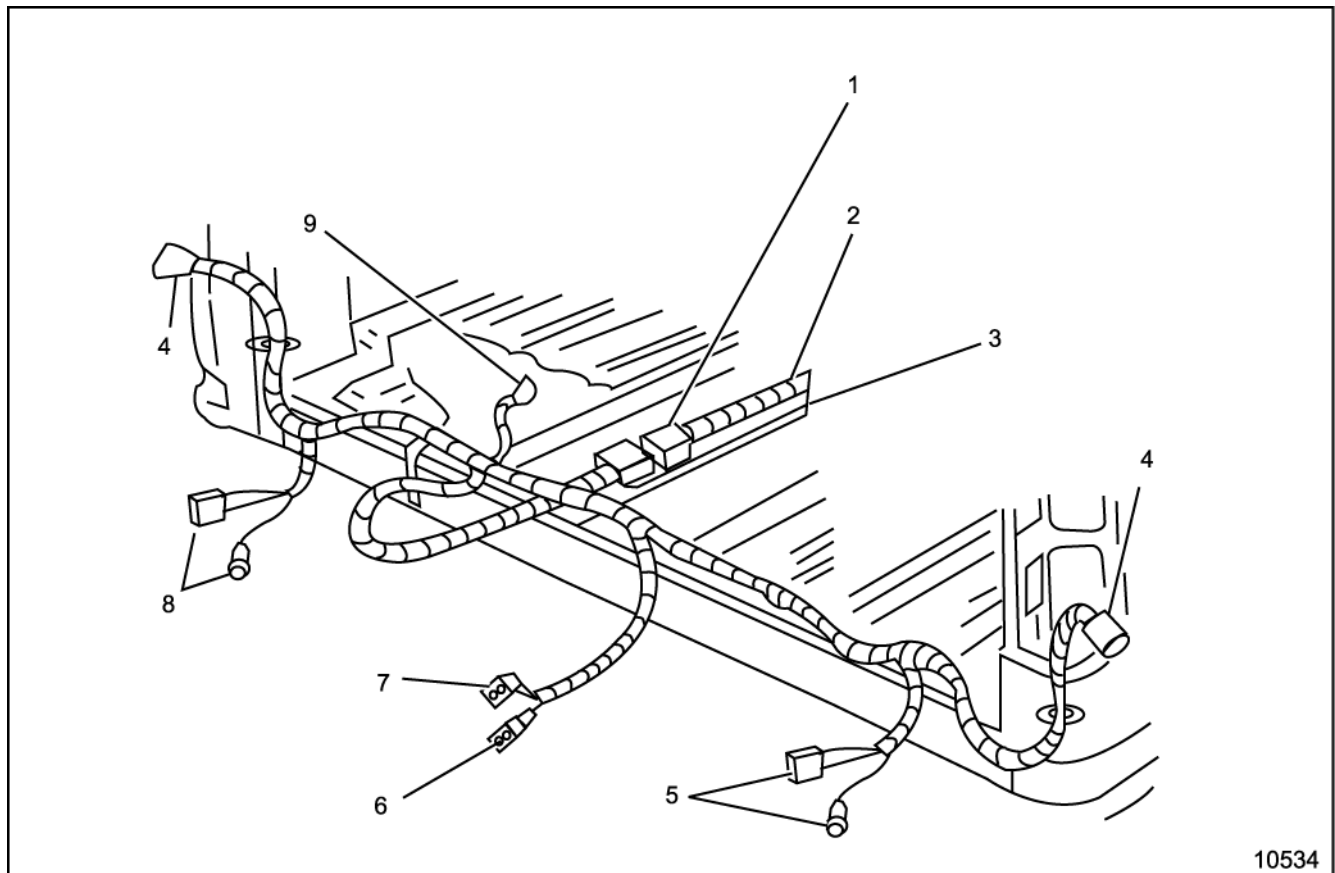
Trailer Wiring Harness Factory Receiver

**Legend**

- (1) Rear Bumper
- (2) Factory Receiver
- (3) C917

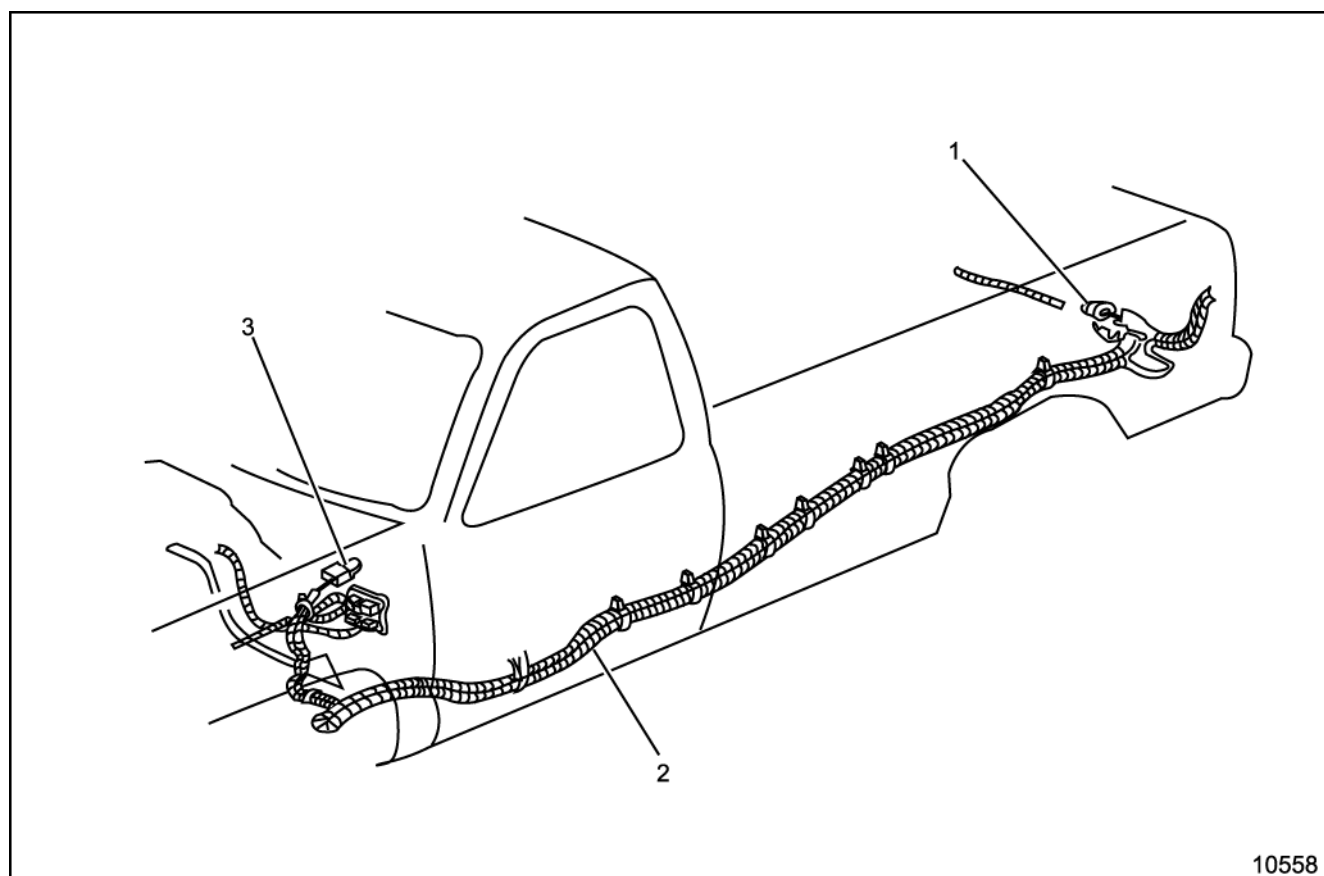
- (4) Trailer Connector
- (5) Connector Cover
- (6) C993

Rear Lamp Harness

**Legend**

- | | |
|---|----------------------------|
| (1) C992 | (6) C917 |
| (2) Auxiliary Rear Lamp Extension Harness | (7) C993 |
| (3) Rear Lamp Extension Harness | (8) To B/O Marker Lamp, LH |
| (4) Taillamp Connector | (9) Ground |
| (5) To B/O Marker Lamp, RH | |

Auxiliary Rear Lamp Harness (Pickup Shown, Utility Similar)

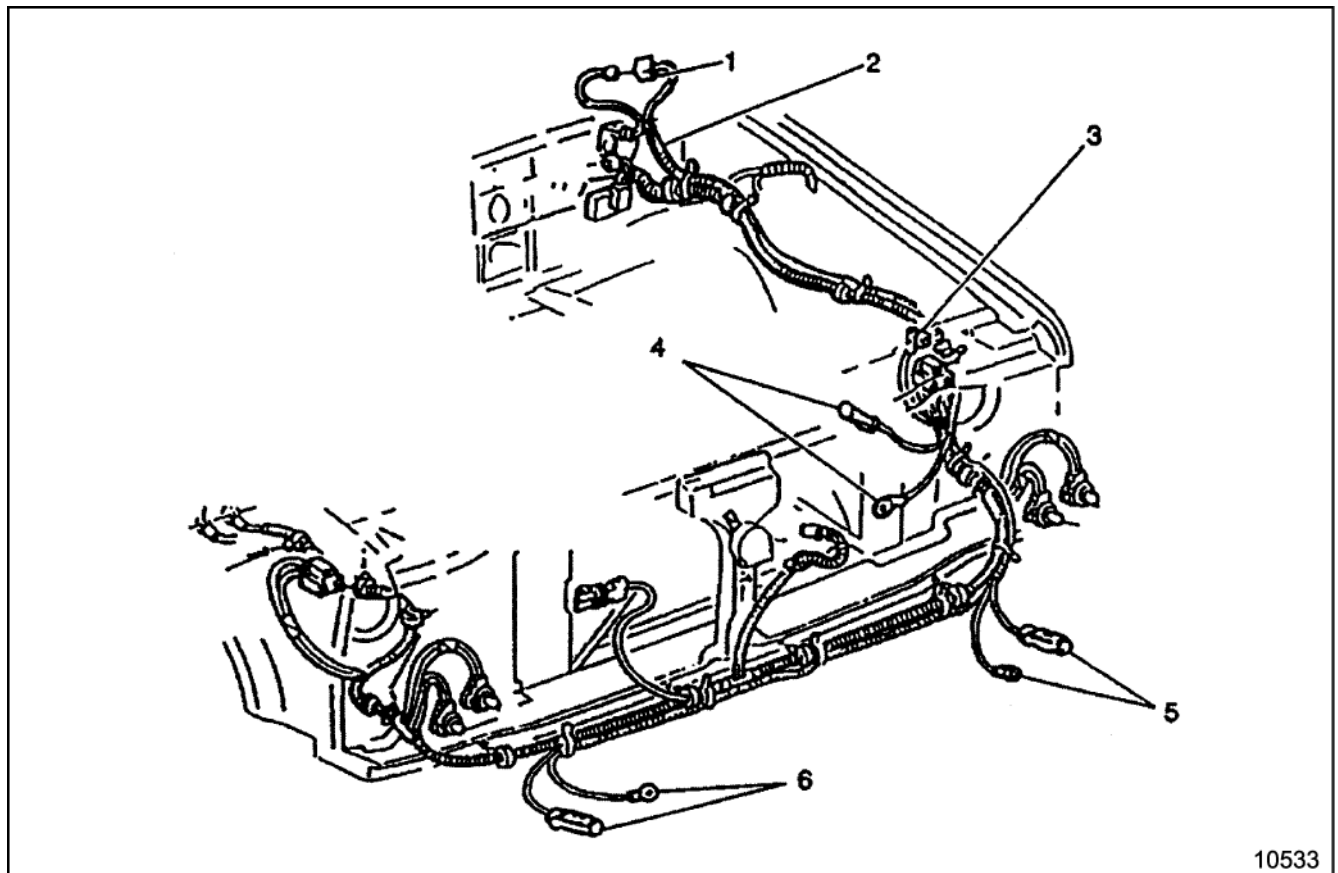
**Legend**

(1) C992

(3) C133

(2) Auxiliary Rear Lamp Harness

Forward Blackout (B/O) Lamp Harness

**Legend**

(1) C192

(2) Forward Lamp Harness

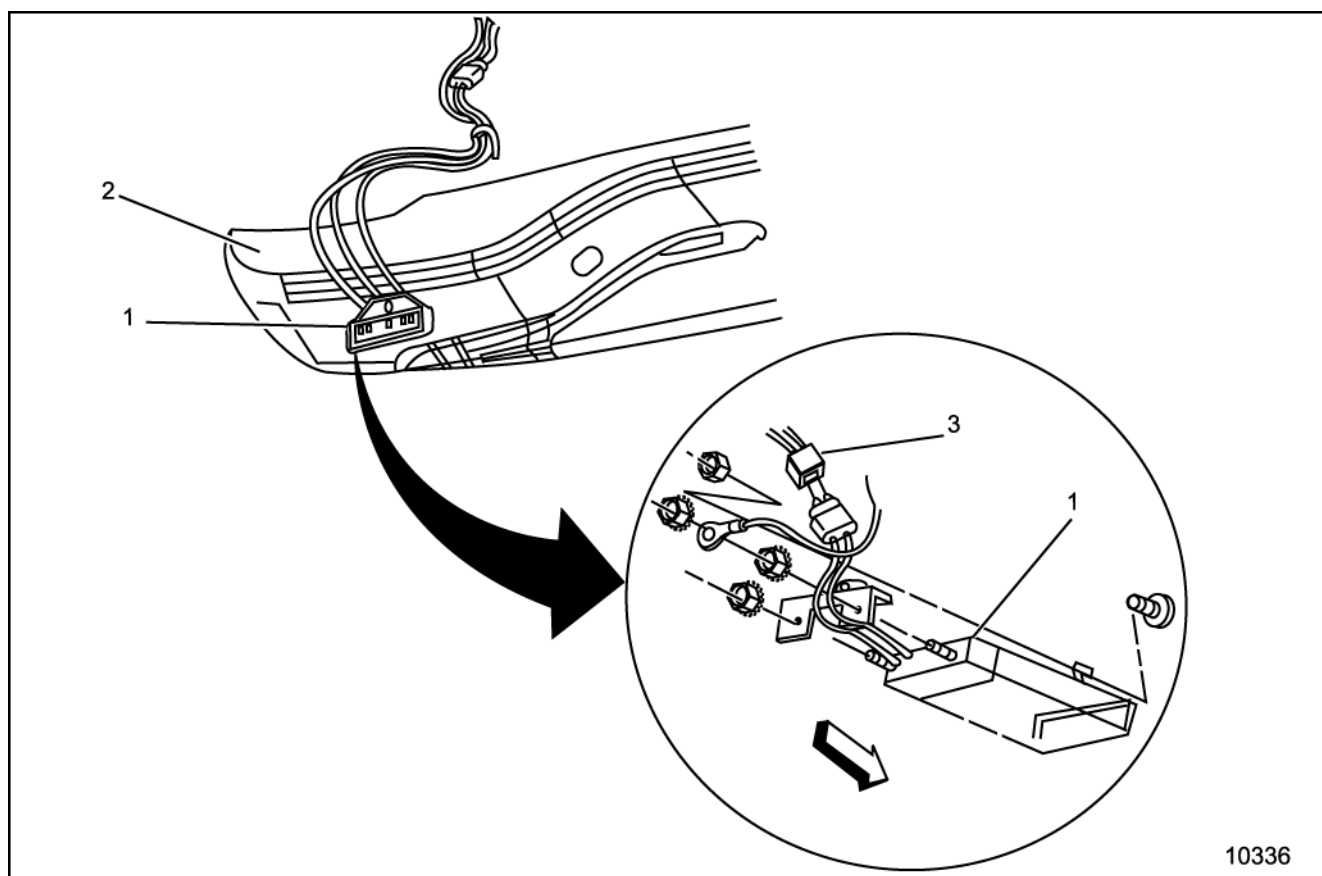
(3) G113

(4) To B/O Headlamp

(5) To B/O Marker Lamp, LF

(6) To B/O Marker Lamp, RF

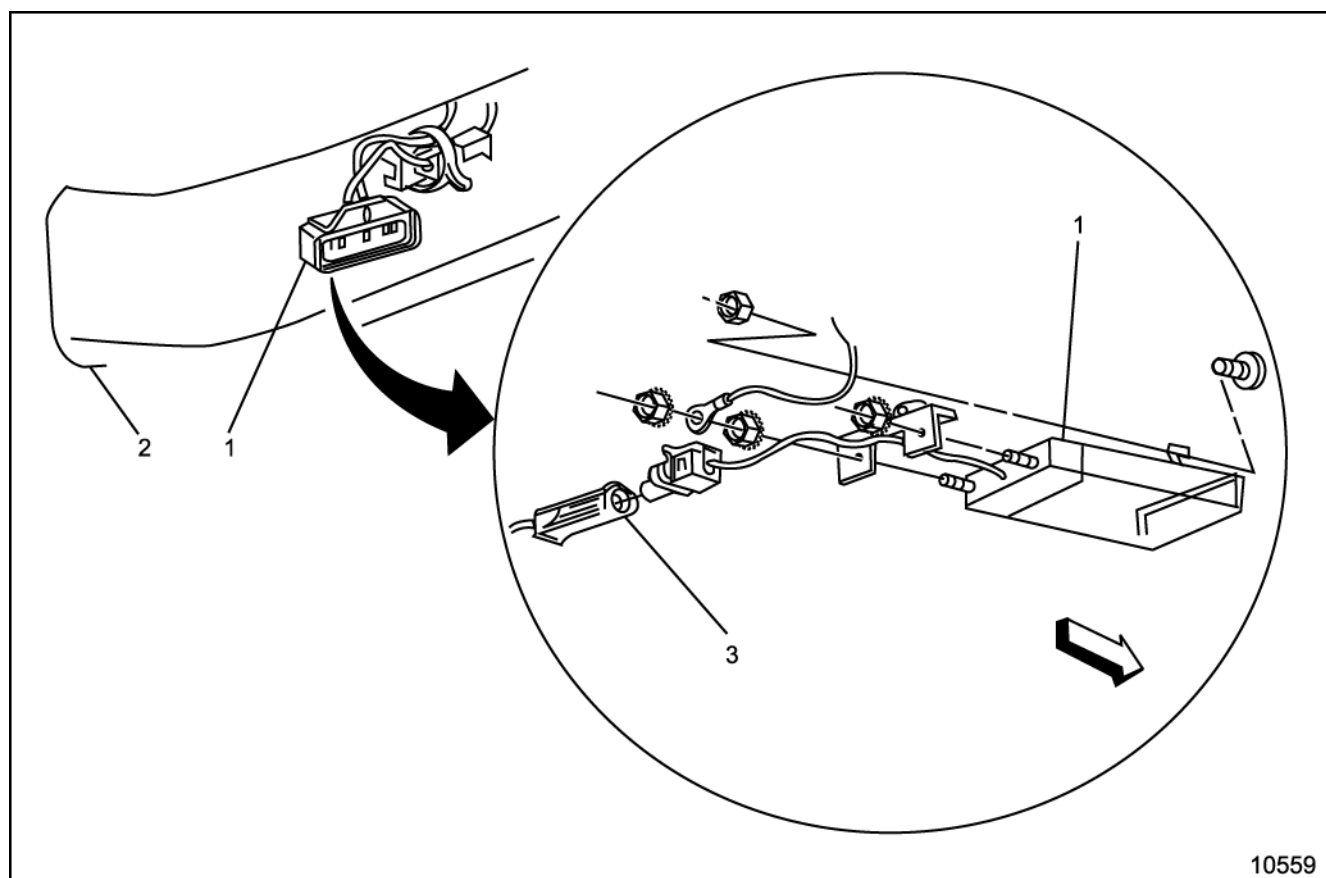
Rear Blackout (B/O) Lamps

**Legend**

- (1) B/O Lamp Assembly
- (2) Rear Bumper

- (3) Rear Lamp Harness Connector

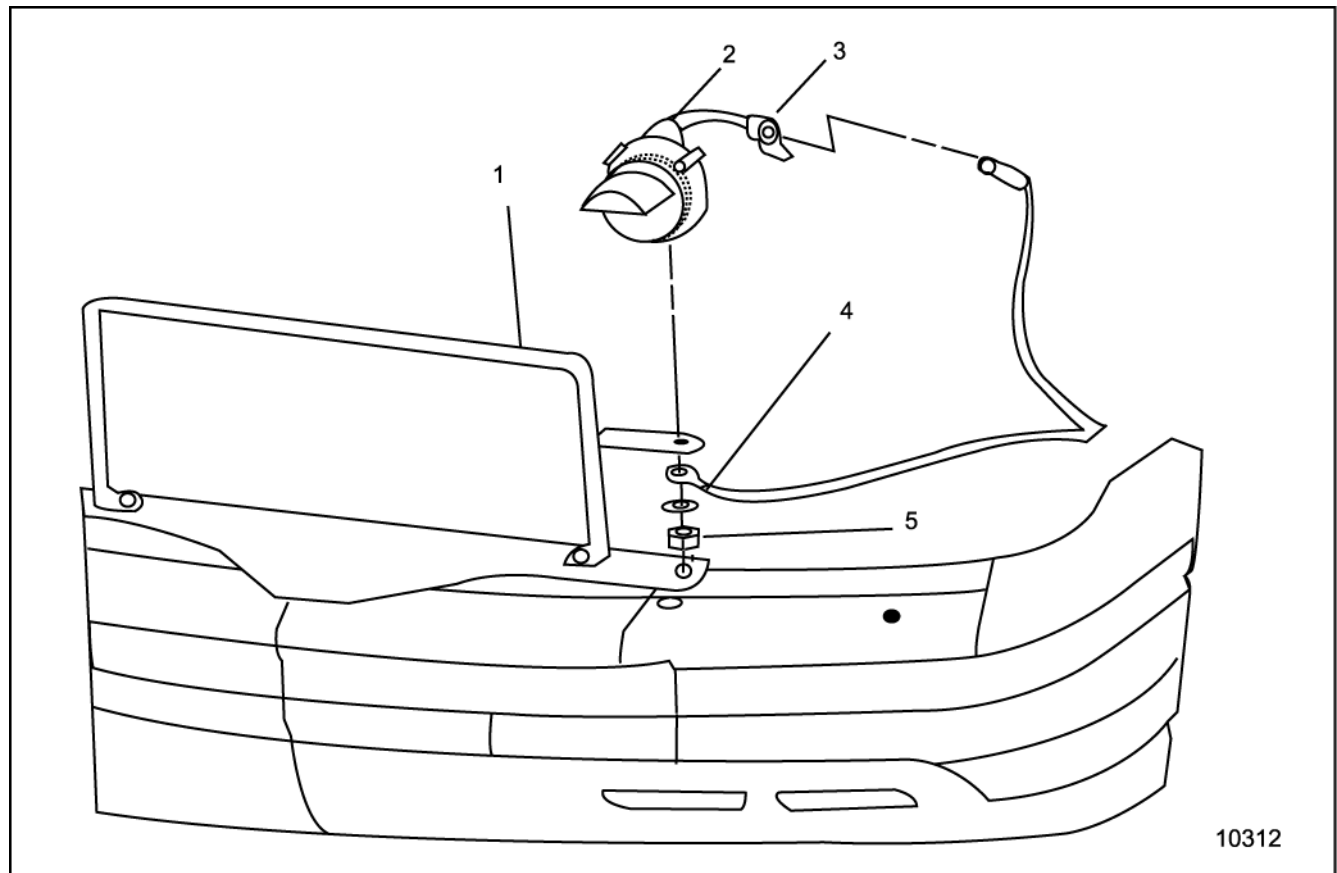
Front Blackout (B/O) Marker Lamps

**Legend**

- (1) B/O Lamp Assembly
- (2) Front Grille

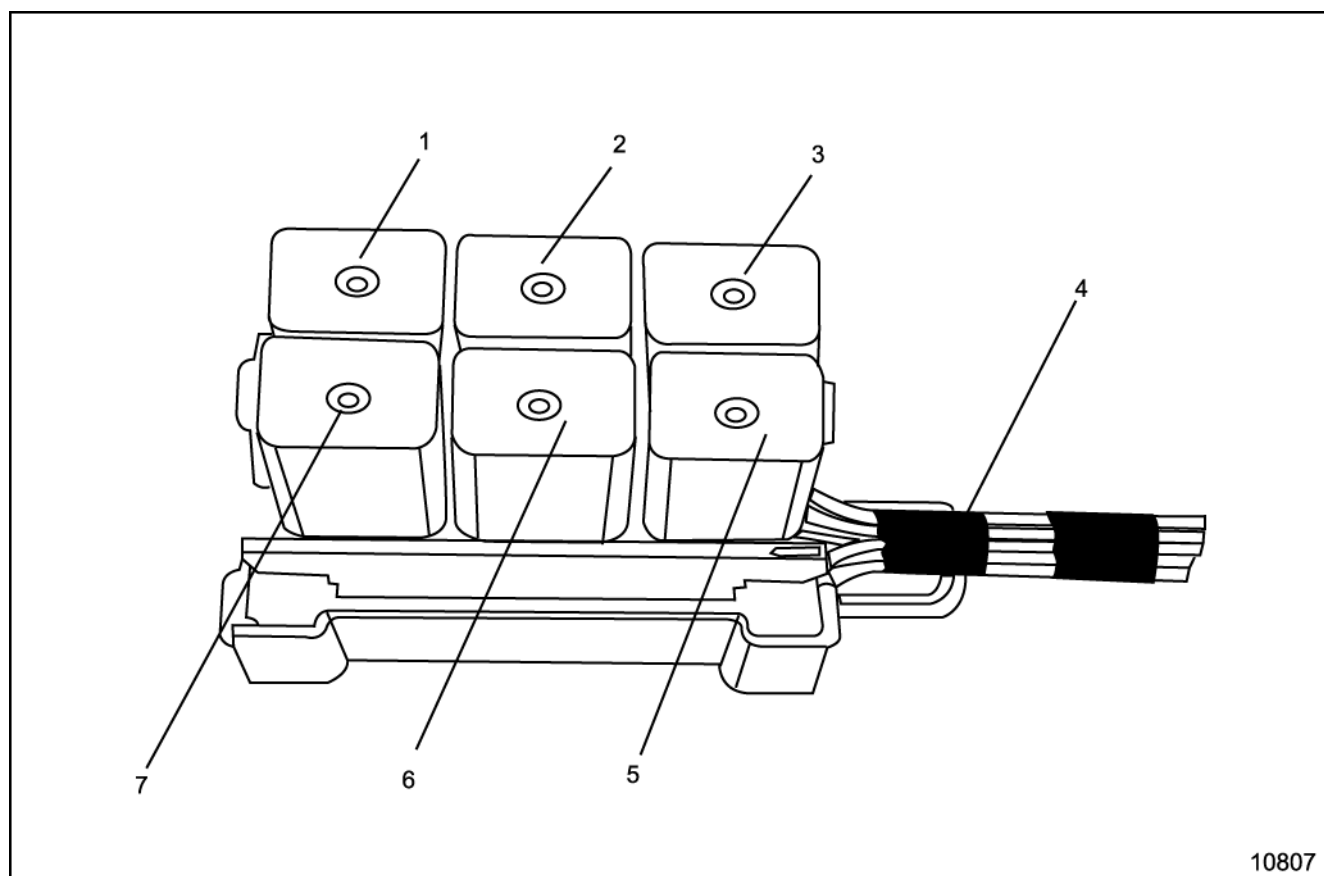
- (3) Forward Lamp Harness

Blackout (B/O) Headlamp

**Legend**

- | | |
|------------------------------|-------------------|
| (1) Brace Assembly | (4) Ground Lead |
| (2) Blackout Headlamp | (5) Fastening Nut |
| (3) Wiring Harness Connector | |

Relay Block

**Legend**

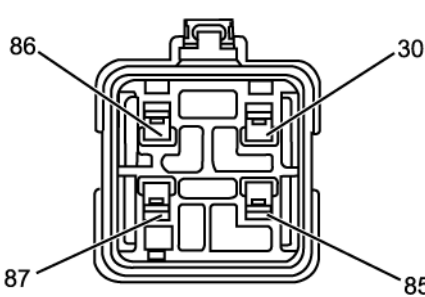
- (1) Back Up Lamp Relay
- (2) Park Lamp Relay
- (3) CTSY Relay
- (4) Harness TXO 17535

- (5) Headlamp Relay
- (6) DRL Relay
- (7) Horn Relay

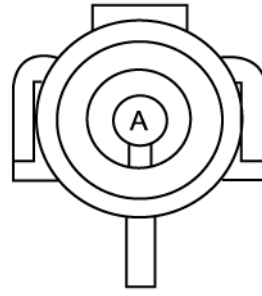
Connector End Views

Lighting Systems Connector End Views

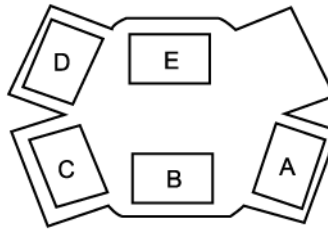
B/O Control Relay

 <p>10550</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12129716 • 5-Way F M/P Series 630 (BLK) 	
Pin	Wire Color	Circuit No.	Function
86	WHT	915	B/O Relay Feed from B/O Control Switch
85	TAN/WHT	901B	B/O Drive Lamp
87	PNK	911	Power to B/O Controls
30	BRN/WHT	901	B/O Drive Lamp

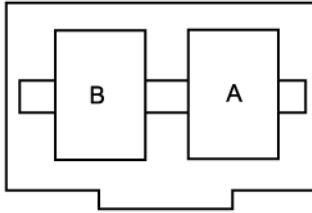
B/O Headlamp

 <p>10565</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010996 • 1-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	TAN/WHT	901	B/O Driver Lamps

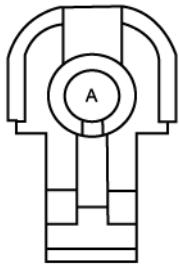
B/O Drive Lamp Switch

 <p>10566</p>			
Connector Part Information		<ul style="list-style-type: none"> • 08911352 • 5-Way F Series 56 (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	—	—	Not Used
B	TAN/WHT	901E	B/O Drive Lamp
C	PNK	911B	Power to B/O Control Switch to B/O Relay Feed
D	WHT	915	B/O Stop Lamps
E	BLK	150C	Ground

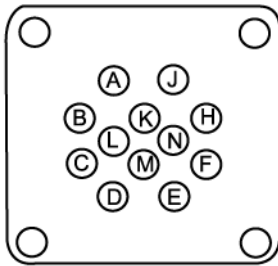
B/O Lamps Fuse

 <p>10567</p>			
Connector Part Information		<ul style="list-style-type: none"> • 12010105 • 2-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900C	B/O Marker Lamps
B	PNK	911A	Power to B/O Controls

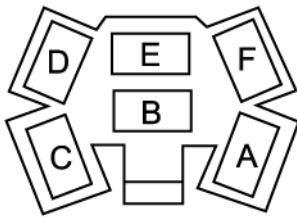
B/O Marker Lamp (Front)

			
10561			
Connector Part Information		<ul style="list-style-type: none"> • 12015791 • 1-Way F Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN/WHT	900	B/O Marker Lamps

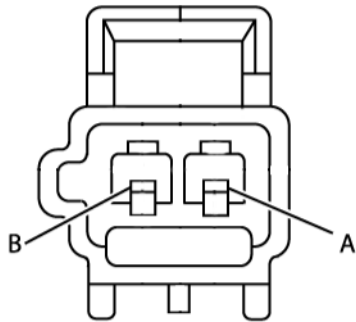
Trailer Lamp Connector

			
10562			
Connector Part Information		<ul style="list-style-type: none"> • 08917884 • 12-Way Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	900	B/O Marker Lamps
B	YEL	18	Brake/Tail Lamp Feed
C	BRN	900	B/O Control Circuits
D	BLK	913	Service Stoplamps
E	BRN/WHT	17	Stoplamp Switch Output
F	DK PPL	902	B/O Brakelamps
H	BRN	900	B/O Brakelamp
J	PPL	19	Brake/Tail Lamp Feed, RR
K-N	---	---	Not Used

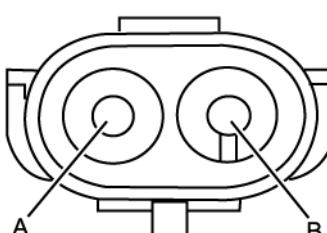
Service Lamp Switch

			
10563			
Connector Part Information		<ul style="list-style-type: none"> • 08917695 • 6-Way F M/P Series 280 (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	PNK	911C	Power to B/O Control
B	ORN	40A	Junction Block-Body
C	ORN	912B	B/O Control Circuits
D	WHT/BLK	913	Service Stoplamps
E	WHT	17	Stoplamp Switch Output
F	DK GRN/ WHT	902	B/O Stoplamps

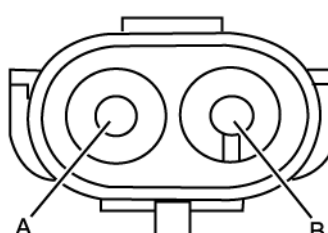
Radio Interrupt

			
10795			
Connector Part Information		<ul style="list-style-type: none"> • 12129155 • 2-Way M M/P 280 Series 	
Pin	Wire Color	Circuit No.	Function
A	GRN	1301	RAP Fuse Supply Voltage
B	---	---	Not Used

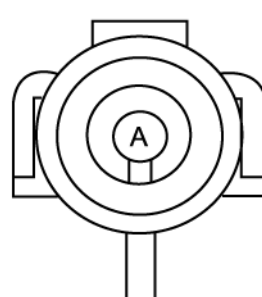
B/O Lamps (Right Rear)

			
10574			
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	GRN/WHT	902C	Service Lamp Switch
B	BRN/WHT	900C	B/O Lamps Fuse

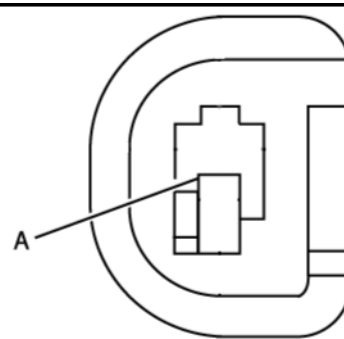
B/O Lamps (Left Rear)

			
10574			
Connector Part Information		<ul style="list-style-type: none"> • 12010973 • 2-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	GRN/WHT	902B	Service Lamp Switch
B	GRN/BRN/WHT	900B	B/O Lamps Fuse

License Plate Lamp

			
10565			
Connector Part Information		<ul style="list-style-type: none"> • 12010946 • 1-Way M Weather Pack (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BRN	9C	License Plate Lamp

Steering Column Connector

			
10796			
Connector Part Information		<ul style="list-style-type: none"> • 12047683 • 1-Way M M/P 150 Series (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	PNK/WHT	139B	Ignition 1 Voltage

Diagnostic Information and Procedures

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
- Stoplamps 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

Blackout (B/O) Headlamp Inoperative

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
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 service lamp switch in blackout mode. 2. Turn blackout headlamp switch to ON position. 3. Connect a test lamp to CKT 901 (TAN/WHT) at connector C192 cavity A of the blackout headlamp and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 7
4	1. Disconnect the blackout lamp. 2. Connect a self-powered test lamp at CKT 151C (BLK) and ground. Does the test lamp illuminate?	Go to Step 6	Go to Step 5
5	Locate and repair open CKT 151 (BLK) between blackout headlamp and G113. Did you complete the repair?	Go to Step 20	—
6	Replace blackout headlamp. Did you complete the replacement?	Go to Step 20	—

Blackout (B/O) Headlamp Inoperative (cont'd)

Step	Action	Yes	No
7	1. Place blackout switch to on position. 2. Connect a test lamp at CKT 901B (TAN/WHT) wire between blackout control relay cavity 85 connector C216 and ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 9
8	Locate and repair open in CKT 901B (TAN/WHT) wire between blackout lamp cavity A and blackout control relay cavity 85 connector C216. Did you complete the repair?	Go to Step 20	—
9	Connect a test lamp at CKT 911E (PNK) wire between blackout control relay cavity 87 and ground. Does the test lamp illuminate?	Go to Step 10	Go to Step 11
10	Connect test lamp at CKT 915 (WHT) wire cavity 86 and cavity 87 of the blackout control relay. Does the test lamp illuminate?	Go to Step 13	Go to Step 15
11	Connect a test lamp from blackout service drive switch cavity A CKT 911A (PNK) and ground. Does the test lamp illuminate?	Go to Step 12	Go to Step 14
12	Locate and repair open in CKT 911A (PNK) between blackout service lamp switch and blackout control relay. Did you complete the repair?	Go to Step 20	—
13	Replace blackout control relay. Did you complete the replacement?	Go to Step 20	—
14	Connect a test lamp from the blackout service lamp switch at cavity B CKT 40A (ORN) and ground. Does the test lamp illuminate?	Go to Step 19	Go to Step 18
15	1. Disconnect blackout headlamp switch. 2. Connect a self-powered test lamp between blackout headlamp switch cavity E CKT 150C (BLK) and ground. Does the test lamp illuminate?	Go to Step 16	Go to Step 17
16	Replace blackout headlamp switch. Did you complete the replacement?	Go to Step 20	—
17	Locate and repair open in CKT 150C (BLK) wire between blackout headlamp switch and ground. Did you complete the repair?	Go to Step 20	—
18	Locate and repair open in CKT 40A (ORN) wire between connector C241 and blackout service lamp switch cavity B. Did you complete the repair?	Go to Step 20	—
19	Replace blackout service drive switch. 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: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go Description and Operation
2	Place blackout service lamp switch in all out mode. Connect a test lamp between blackout service drive switch cavity A CKT 911C (PNK) to ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 4
3	Replace blackout service lamp switch. Did you complete the replacement?	Go to Step 5	—
4	Repair short to power or inoperable blackout 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: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Place blackout service lamp switch into the blackout mode. 2. Connect a test lamp from cavity 85 at the blackout lighting control relay and ground. Does the test lamp illuminate?	Go to Step 4	Go to Step 3
3	Replace blackout control relay. Did you complete the replacement?	Go to Step 5	—
4	Replace blackout service lamp switch. 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

Backup Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	Is only one backup lamp inoperative?	Go to Step 3	Go to Step 4
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 Step 17	Go to Step 5

Backup Lamps Inoperative (cont'd)

Step	Action	Yes	No
4	1. Inspect the condition of the backup lamp fuses. 2. Is the fuse open, locate and repair the source of the overload and replace fuse. Did you find and correct the condition?	Go to Step 17	Go to Step 6
5	Test the ground circuit of the inoperative bulb for high resistance or an open. Did you find and correct the condition?	Go to Step 17	Go to Step 13
6	Connect a test lamp between connector C1 cavity F (Pickup) of the junction block – rear lamps and ground or C405 cavity F (Utility) and ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 8
7	Connect a test lamp between connector C3 cavity B3 and ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 9
8	Locate and repair the open or high resistance in circuit 1324. Did you complete the repair?	Go to Step 17	—
9	Connect a test lamp between cavity A7 of the interrupt relay and ground. Does the test lamp illuminate?	Go to Step 10	Go to Step 11
10	Locate and repair the open in circuit 839A. Did you complete the repair?	Go to Step 17	—
11	Connect a test lamp between cavity B9 of the interrupt relay and ground. Does the test lamp illuminate?	Go to Step 14	Go to Step 12
12	Connect a test lamp between cavity F of the backup lamp switch and ground. Does the test lamp illuminate?	Go to Step 15	Go to Step 16
13	Replace the bulbs. Did you complete the repair?	Go to Step 17	—
14	Replace the interrupt relay. Did you complete the repair?	Go to Step 17	—
15	Locate and repair the open or high resistance in circuit 24 or 839A. Did you complete the repair?	Go to Step 17	—
16	Replace the backup lamp switch. Did you complete the replacement?	Go to Step 17	—
17	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

Stoplamps Inoperative

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	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 3	Go to Step 4
3	Make necessary repairs. Did you complete the repairs?	Go to Step 11	—
4	1. Disconnect blackout service lamp switch. 2. Connect test lamp between CKT 913 (WHT) cavity D wire and ground. Does the test light illuminate?	Go to Step 6	Go to Step 5
5	Locate and repair the open or high resistance in circuit 913. Did you correct the condition?	Go to Step 11	—
6	Using a fused jumper, connect cavity D to cavity F of the blackout service lamp switch connector. Do the brake lamps illuminate?	Go to Step 7	Go to Step 8
7	Replace blackout service lamp switch. Did you complete the replacement?	Go to Step 11	—
8	Connect a test lamp between terminal A of the rear B/O stop lamp and ground. Did the test lamp illuminate?	Go to Step 10	Go to Step 9
9	Locate and repair the open or high resistance in circuit 902. Did you correct the condition?	Go to Step 11	—
10	Replace the blackout stop lamp(s). Did you complete the replacement?	Go to Step 11	—
11	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 Inoperative

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	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 3	Go to Step 4
3	Make necessary repairs. Did you complete the repairs?	Go to Step 14	—

Blackout (B/O) Marker Lamps Inoperative (cont'd)

Step	Action	Yes	No
4	1. Place blackout drive lamp in blackout mode. 2. Connect a test lamp at cavity A CKT 911 (PNK) wire at blackout service drive switch and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 10
5	Connect a test lamp between inline fuse B cavity B CKT 911 (PNK) wire and ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 6
6	Locate and repair open in CKT 911 (PNK) wire between inline fuse B and blackout service drive switch. Did you complete the repair?	Go to Step 14	—
7	Disconnect blackout marker lamp(s) and connect test lamp between cavity A CKT 900 (BRN/WHT) front and CKT 900 (BRN/WHT) rear to ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 9
8	Replace blackout marker lamp(s) assembly. Did you complete the replacement?	Go to Step 14	—
9	Locate and repair open in CKT 900 (BRN/WHT) front and CKT 900 (BRN/WHT) rear wire between inline fuse B and blackout marker lamp assembly. Did you complete the repair?	Go to Step 14	—
10	Connect a test lamp between blackout service drive switch to CKT 40 (ORN) cavity B and ground. Does the test lamp illuminate?	Go to Step 11	Go to Step 12
11	Replace blackout service drive switch. Did you complete the replacement?	Go to Step 14	—
12	Connect a test lamp at MBEC junction block-body connector C241 cavity D CKT 40 (ORN) wire and ground. Does the test lamp illuminate?	Go to Step 13	Refer to 2001/02 C/K Truck Service Manual
13	Locate and repair open in CKT 40 (ORN) wire between junction block-body connector C4 cavity D and blackout service drive switch. Did you complete the repair?	Go to Step 15	—
14	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: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation

Blackout (B/O) Marker Lamps Always On (cont'd)

Step	Action	Yes	No
2	Inspect 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 and correct the condition?	Go to Step 3	Go to Step 4
3	Make necessary repairs. Did you complete the repair?	Go to Step 7	—
4	1. Disconnect blackout service lamp switch. 2. Connect a test lamp between CKT 911 (PNK) cavity A wire and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Repair short to power in CKT 911 (PNK) or CKT 900 (BRN/WHT) wire(s) between blackout service lamp switch and blackout marker lamps. Did you complete the repair?	Go to Step 7	—
6	Replace blackout service lamp switch. Did you complete the replacement?	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

DRL Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Place the blackout service lamp switch in the blackout mode. 2. Connect a test lamp at cavity C of the blackout switch and ground. Does the test light illuminate?	Go to Step 3	Go to Step 4
3	Replace the blackout service lamp switch. Did you complete the replacement?	Go to Step 9	—
4	Connect a test lamp to cavity C6 of the relay block and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Locate and repair the short to voltage on circuit 912B (RED). Did you complete the repair?	Go to Step 9	—
6	Remove DRL interrupt relay from the relay module. Are the DRL's illuminated?	Go to Step 8	Go to Step 7
7	Replace the DRL relay. Did you complete the replacement?	Go to Step 9	—

DRL Operate in Blackout (B/O) Mode (cont'd)

Step	Action	Yes	No
8	Locate and repair the short to voltage on circuit 545A (DK BLU). 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 Operate in Blackout (B/O) Mode

Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Place the blackout service lamp switch in the blackout mode. 2. Connect a test lamp at cavity C of the blackout switch and ground. Does the test light illuminate?	Go to Step 3	Go to Step 4
3	Replace the blackout service lamp switch. Did you complete the replacement?	Go to Step 9	—
4	Connect a test lamp to cavity A9 of the relay block and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Locate and repair the short to voltage on circuit 912B (RED). 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 839A (PNK). 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: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation

Park Lamps Operate in Blackout (B/O) Mode (cont'd)

Step	Action	Yes	No
2	1. Place the blackout service lamp switch in the blackout mode. 2. Connect a test lamp at cavity C of the blackout switch and ground. Does the test light illuminate?	Go to Step 3	Go to Step 4
3	Replace the blackout service lamp switch. Did you complete the replacement?	Go to Step 9	—
4	Connect a test lamp to cavity C4 of the relay block and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Locate and repair the short to voltage on circuit 240A (ORN/BLK). 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 240A (ORN/BLK). 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

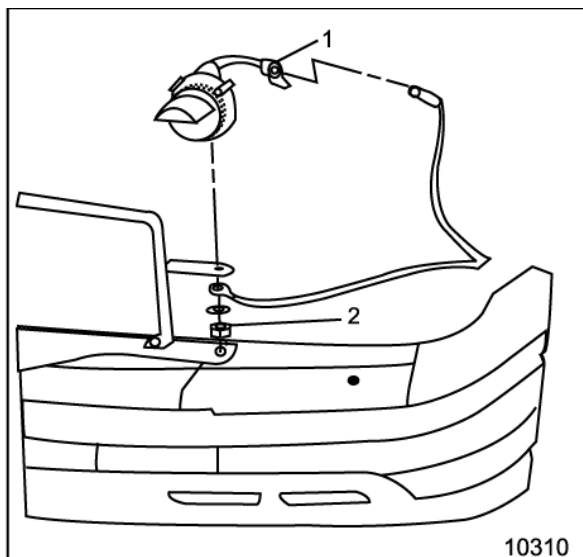
Step	Action	Yes	No
Schematic Reference: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Place the blackout service lamp switch in the blackout mode. 2. Connect a test lamp at cavity C of the blackout switch and ground. Does the test light illuminate?	Go to Step 3	Go to Step 4
3	Replace the blackout service lamp switch. Did you complete the replacement?	Go to Step 9	—
4	Connect a test lamp to cavity A3 of the relay block and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Locate and repair the short to voltage on circuit 912B (RED). Did you complete the repair?	Go to Step 9	—

CTSY Lamps Operate in Blackout (B/O) Mode (cont'd)

Step	Action	Yes	No
6	Remove the CTSY interrupt relay from the relay module. Are the CTSY lamps illuminated?	Go to Step 8	Go to Step 7
7	Replace the CTSY interrupt relay. Did you complete the replacement?	Go to Step 9	—
8	Locate and repair the short to voltage on circuit 40B (ORN). 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: Lighting Systems Schematics			
1	Did you review Blackout (B/O) Lighting Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Place the blackout service lamp switch in the blackout mode. 2. Connect a test lamp at cavity C of the blackout switch and ground. Does the test light illuminate?	Go to Step 3	Go to Step 4
3	Replace the blackout service lamp switch. Did you complete the replacement?	Go to Step 9	—
4	Connect a test lamp to cavity 85 circuit 912B of the turn signal relay and ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Locate and repair the short to voltage on circuit 912B (RED). Did you complete the repair?	Go to Step 9	—
6	Remove the turn signal interrupt relay. Do 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 139B (PNK/BLK). 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

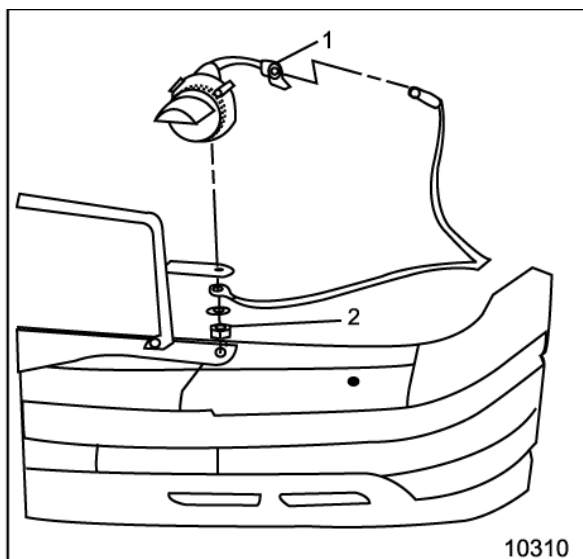


Repair Instructions

Headlamp Replacement – Blackout (B/O)

Removal Procedure

1. Remove the radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement in Bumpers.
2. Remove upper grille baffle.
3. Remove radiator grille.
4. Remove the nut (2) and washer, from the lamp stud at the base of the mounting bracket.
5. Remove the ground lead by sliding it off the stud.
6. Remove the auxiliary wiring harness lead by releasing the connector tab (1).
7. Remove the blackout lamp assembly from the mounting bracket.



Installation Procedure

1. Install the blackout lamp assembly to the mounting bracket.
2. Install the auxiliary wiring harness connector (1).
3. Install the ground lead by sliding on the stud.

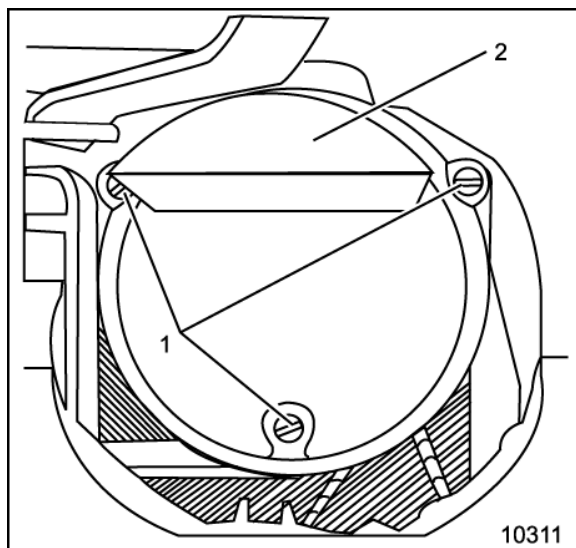
Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the washer and nut (2) to the lamp stud.

Tighten

Tighten the nut to 10 N•m (7 lb ft).

5. Install the radiator grille.
6. Install upper grille baffle.
7. Install the radiator brush guard. Refer to Radiator Brush Guard Replacement in Bumpers.



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 and O-ring.
3. Remove the bulb.

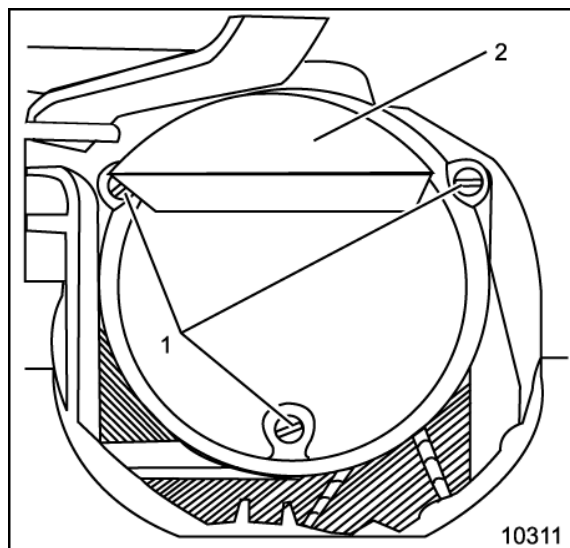
Important: Use a standard 1973 bulb for replacement.

Installation Procedure

1. Install the new bulb in the assembly.

Notice: The O-ring installation must be a proper fit.

2. Install the O-ring with the lens cover.
3. Install the three screws (1) to the assembly.

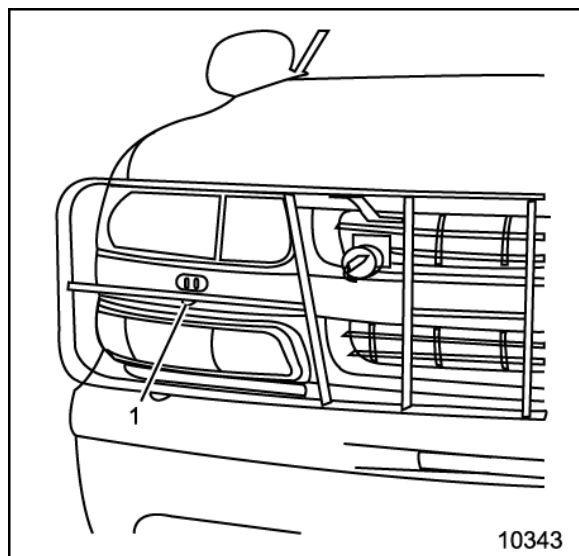


Marker Lamp Replacement – Front Blackout (B/O)

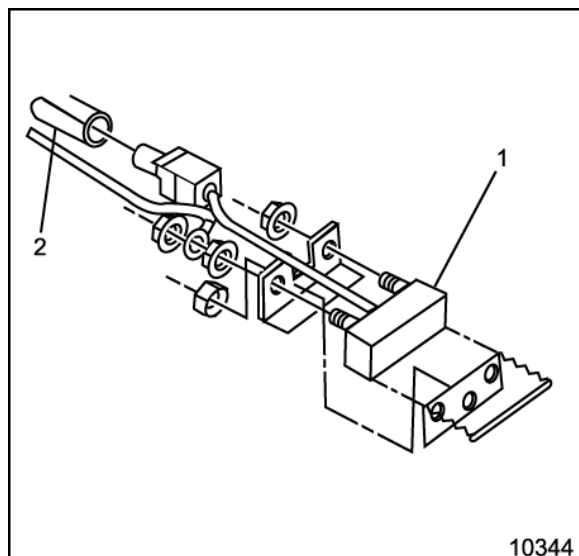
Removal Procedure

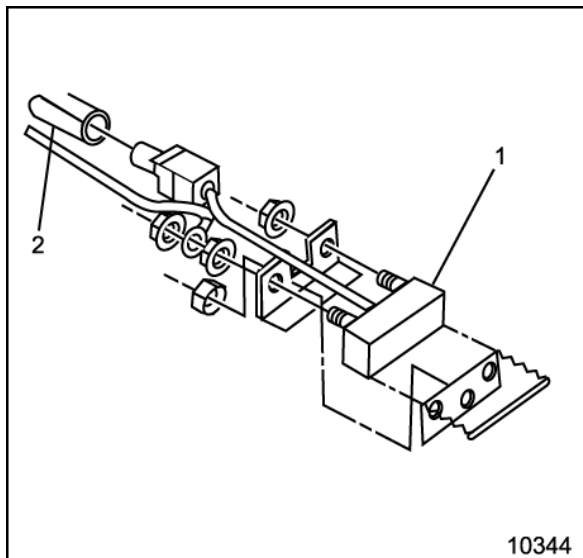
Caution: Refer to Battery Disconnect Caution in Cautions and Notices.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove bolt (1) on brush guard and slide out the blackout marker light assembly from grille.



3. Remove the harness connector (2) by releasing the connector tab.
4. Remove the nut holding the ground lead and stud to the marker mounting bracket.
5. Remove the nut holding the lamp stud to the marker mounting bracket.
6. Remove the blackout marker lamp assembly (1).

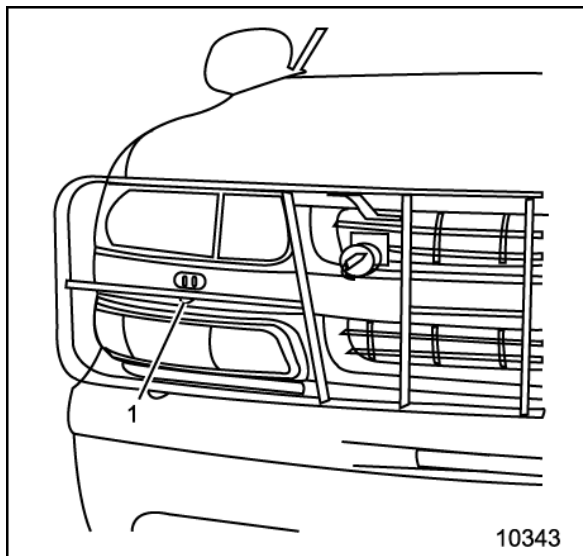




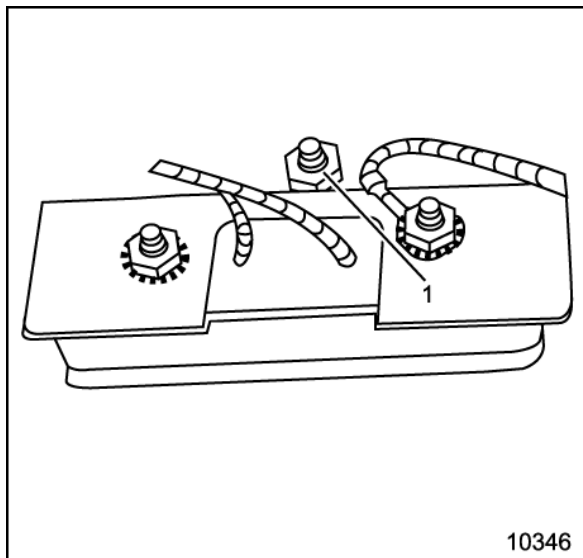
Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install mounting bracket to blackout marker and lamp assembly (1).
Tighten
Tighten marker lamp nuts to 2 N•m (1.5 lb ft)
2. Install ground lead to blackout marker lamp stud.
Tighten
Tighten ground lead nut to 2 N•m (1.5 lb ft)
3. Install harness connector (2) to marker lamp connector.



4. Install marker lamp assembly into opening in grille and install bolt (1) to brush guard.
5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.
Tighten
Tighten battery cable connections to 17 N•m (13 lb ft)



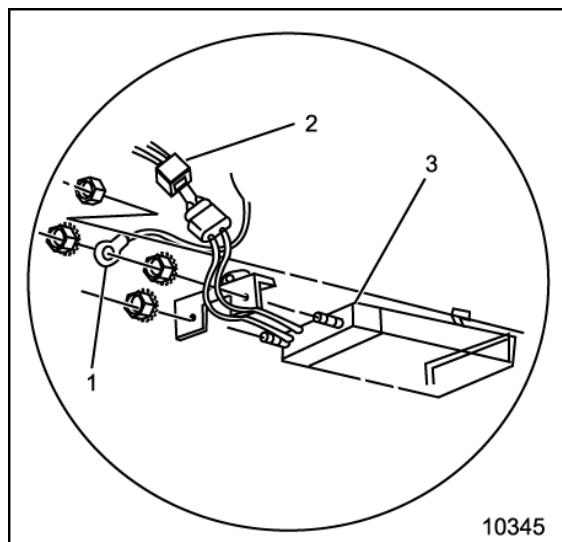
Marker Lamp Replacement – Rear Blackout (B/O)

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the nut (1) from the bracket and remove marker lamp assembly.

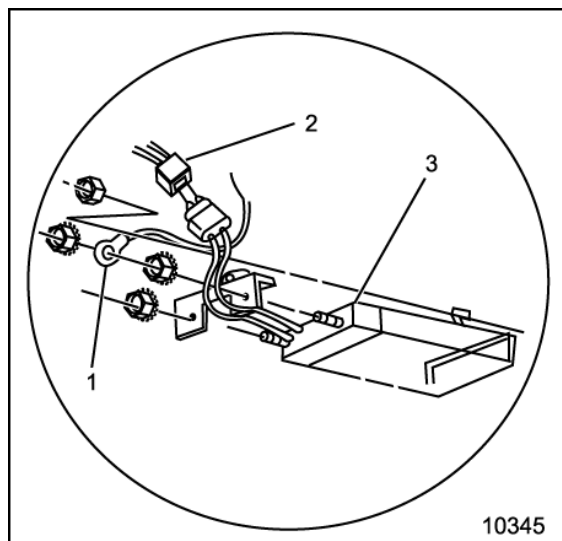
3. Remove the harness connector (2) by releasing the connector tab.
4. Remove the nut holding the ground lead (1) and the nut to the stud.
5. Remove the opposite nut holding the to the other stud.
6. Remove the blackout marker lamp assembly (3) from the bracket.



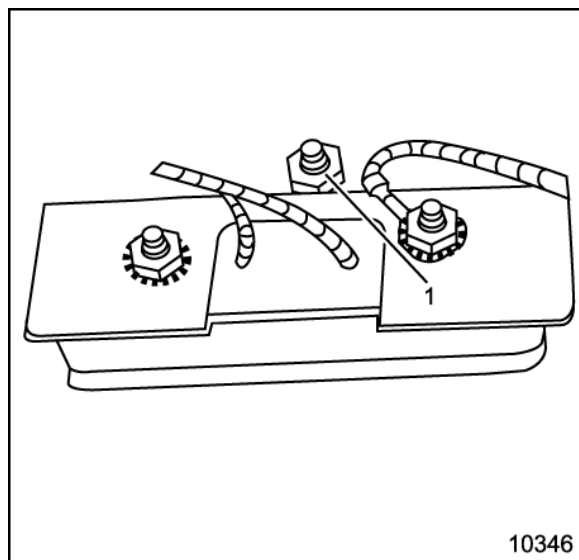
Installation Procedure

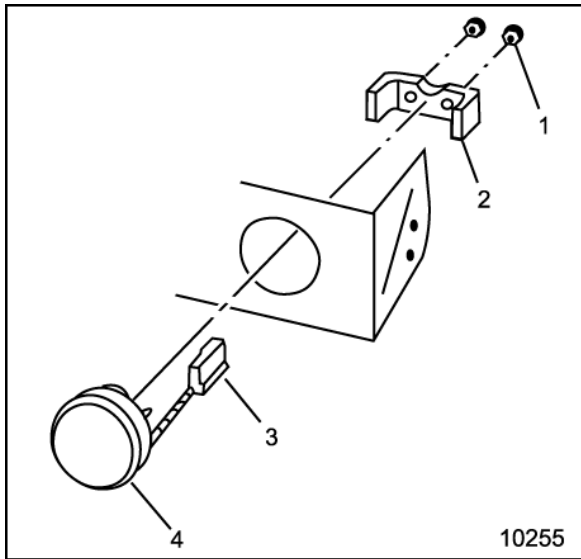
Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the marker lamp (3) to the bracket with nuts and tighten.
Tighten
Tighten the nuts to 2 N•m (1.5 lb ft).
2. Install the ground lead to the stud with a nut and tighten.
Tighten
Tighten the nut to 2 N•m (1.5 lb ft).
3. Install the harness connector (2) to the lamp connector.



4. Install marker lamp assembly into opening in bumper and tighten nut (1).
5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.
Tighten
Tighten battery cable connections to 17 N•m (13 lb ft)



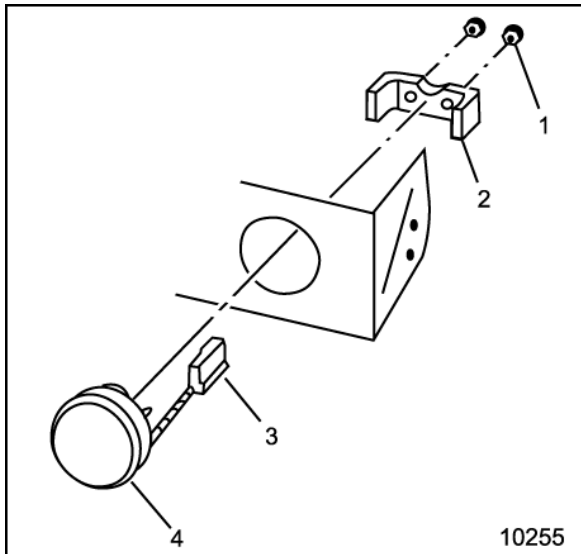


IP Compartment Lamp Replacement – Voltmeter

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the nuts (1) and washers holding the rear bracket (2) to the voltmeter (4).
3. Remove the voltmeter lamp bulb from the gage.



Installation Procedure

Important: Use a standard 194 bulb for replacement.

1. Install the voltmeter lamp bulb to the gage.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the voltmeter rear bracket (2) with the two nuts (1) and washers.

Tighten

Tighten the two nuts to 2.8 N•m (2 lb ft).

3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft)

Description and Operation

Blackout (B/O) Lighting Circuit of Operation

Voltage for the blackout marker lamps is supplied through the Maxi Fuse 8® located in the under-hood relay center to the battery junction block. From there the ORN (40) wire and inline fuse A supply voltage to the blackout service drive switch. When the blackout service switch is placed in blackout mode, voltage is applied to PNK (911) wire to inline fuse B. Voltage is then applied to the BRN (900) wire for front blackout marker lamps and BRN/WHT (900) wire for rear blackout marker lamps. Ground for the front blackout marker lamps is supplied through G113 for the front and G401 for the rear.

The blackout stoplamps voltage is supplied through fuse A GRN (40) wire to the TCC/stoplamp switch at all times. When the brake pedal is depressed the stoplamp switch is closed and powers the WHT (17) wire to the blackout service drive switch. When in blackout mode, voltage is applied from the DKGRN/WHT (902) wire to the blackout stoplamps. The blackout stoplamps receive constant ground through G401.

Backup Lights

Backup Lamps Circuit of Operation

When the ignition switch is in run, voltage is applied through the turn/bu fuse to the taillamp relay. When the blackout service drive switch is placed in service position, voltage is applied to the taillamp relay control circuit through the ORN (912) wire. The relay contacts are normally closed allowing voltage to the backup lamp switch through the PNK (139) wire.

With the transmission in “reverse,” voltage is applied to the LH and RH backup lamps, which are permanently grounded. When voltage is applied to LTGRN (24) wire, the backup lamps are on. When the blackout service drive switch is placed in blackout position, the taillamp relay is deactivated and the backup lamps are inoperative. The LTGRN (24) wire also supplies input to the electrochromatic rearview mirror dimming function. Connection is also provided for the trailer-tow capability.

Blackout (B/O) Lighting Description

This section focuses on the function and service of the blackout headlamp, the front and rear blackout marker lamps, the service/blackout lamp switch and the voltmeter lamp. All other lamps are covered in the 2001/02 C/K Truck Service Manual. As military options the blackout lamps provide a stealthy, low illumination alternative to standard lighting systems, also available on these vehicles. The blackout headlamp is identical on these vehicles. The front blackout marker lamps are mounted in the grille of both vehicles. The rear blackout marker lamps are arranged in the same relative positions on each of the rear bumpers.

The voltmeter lamp provides illumination to the voltmeter mounted in the dash.

The service/blackout lamp switches, mounted at the lower center dash, control blackout lamp and standard lamp functions. A pair of toggles operates these switches. The blackout 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 & auxiliary lamps. When the switch is moved to Blackout ON only the blackout lighting will work, which includes the blackout markers, front and rear, and the blackout 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 toggle is in the ON position.) All warning lamps in the IP remain functional regardless of the toggle position. If the vehicle is parked for over 24 hours place the service switch in All OFF.

To operate the blackout drive light switch pull it out and left to the ON position; this will activate the front blackout headlamp. This will occur provided the service light/blackout switch remains in the ON or down position. Pulling the left blackout drive light switch out and right 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 are function tables for the service light/blackout control switch and determines under what conditions various exterior and interior lighting functions activate. Additional details are found in the Owner's Manual.

Exterior Lights

Exterior Lamp or Device	Service Switch	Blackout Drive Light Switch
Headlamps and Taillamps	ON	OFF
Daytime Running Lamps	ON	OFF
Fog Lamps (If Equipped)	ON	OFF
Parking Lamps	ON	OFF
Front/Rear Sidemarker Lamps	ON	OFF
Marker Lamps: Roof, Fender and Tailgate (If Equipped)	ON	OFF
Brakelamps	ON	OFF
Back-up Lamps	ON	OFF
License Plate Lamp (If Equipped)	ON	OFF
Front/Rear Turn Signals	ON	OFF
Hazard Warning Lamps	ON	OFF
Cargo Lamp (If Equipped)	ON	OFF
Horn	ON	OFF
Front/Rear Blackout Marker Lamps	B/O	ON/OFF
Blackout Stoplamps	B/O	ON/OFF
Blackout Drive Lamp (Headlamp)	B/O	ON

General Description

Interior Lights

Interior Lamp or Device	Service Switch	Blackout Drive Light Switch
Instrument Panel/Switch Illumination	ON	OFF
Radio/Clock ILLUMINATION (If Equipped)*	ON	OFF
Headlamp High-Beam Indicator	ON	OFF
Turn Signal/Hazard Warning Indicators	ON	OFF
Four-Wheel-Drive Indicator	ON	OFF
Dome/Courtesy Lamps	ON	OFF
Ashtray Lamp	ON	OFF
Glove Compartment Lamp	ON	OFF
Underhood Lamp	ON	OFF
Warning Chime: Headlamps On, Safety Belt and Key in Ignition	ALL POSITIONS	OFF
Instrument Cluster Warning Lights*	ON	ON/OFF
* Clock numerals and DRL indicator will remain illuminated.		

Interior Lights

Mechanical Device	Service Switch	Blackout Drive Light Switch
Brake-Transmission Shift. Interlock (BTSI)	ON	ON/OFF
Torque Converter Lockup Clutch	ON	ON/OFF

Instrument Panel, Gages and Console

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Cable Connections	17 N•m	13 lb ft
Blackout Switch Nuts	2.8 N•m	2 lb ft
Voltmeter Bolts	2.8 N•m	2 lb ft

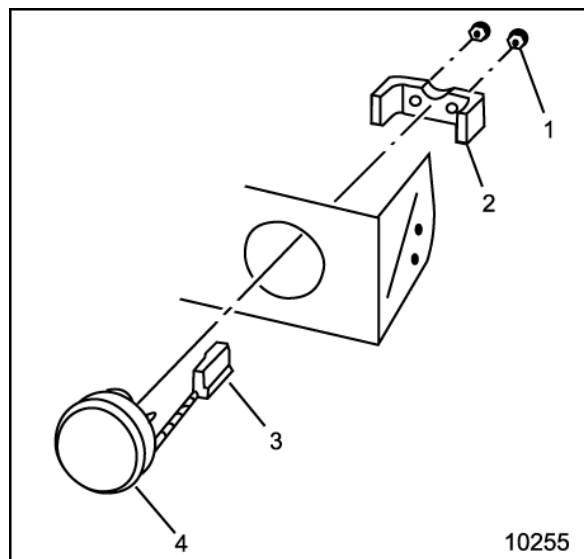
Repair Instructions

Voltmeter Replacement

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the connector (3) and the bulb harness from the back of the voltmeter and mounting bracket.
3. Remove the two nuts (1) from the back of gage.
4. Remove bracket (2).
5. Remove voltmeter (4) from opening.

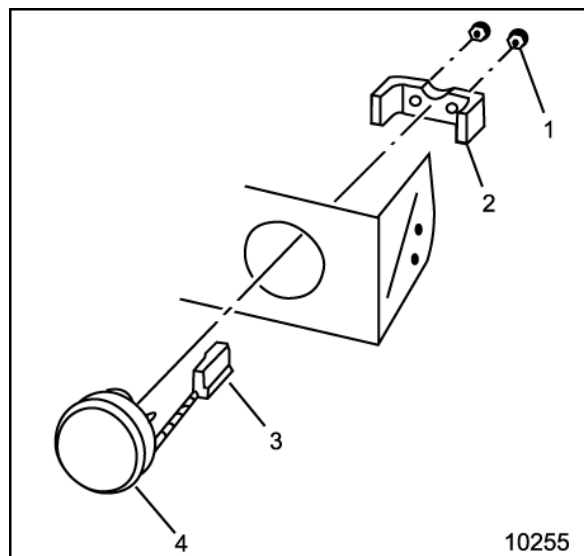


Installation Procedure

1. Install the voltmeter (4) in the bracket opening.
2. Install bracket (2) on back of voltmeter.

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install nuts (1) and tighten.
Tighten
Tighten nuts to 2.8 N•m (2 lb ft).
4. Connect connectors (3) and the bulb harness to the gage.
5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.
Tighten
Tighten the battery cable connection to 17 N•m (13 lb ft).

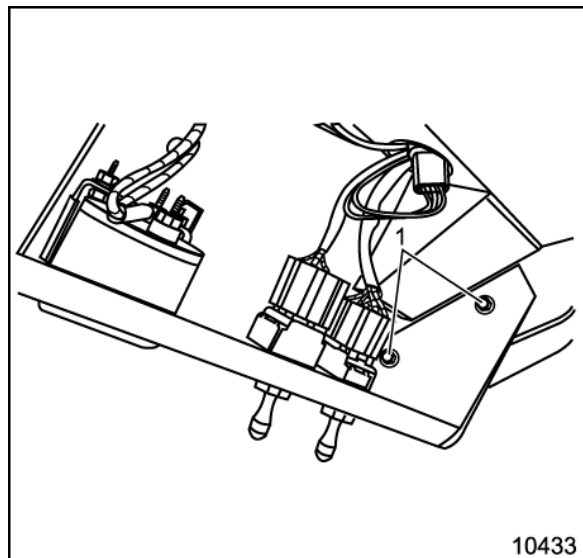


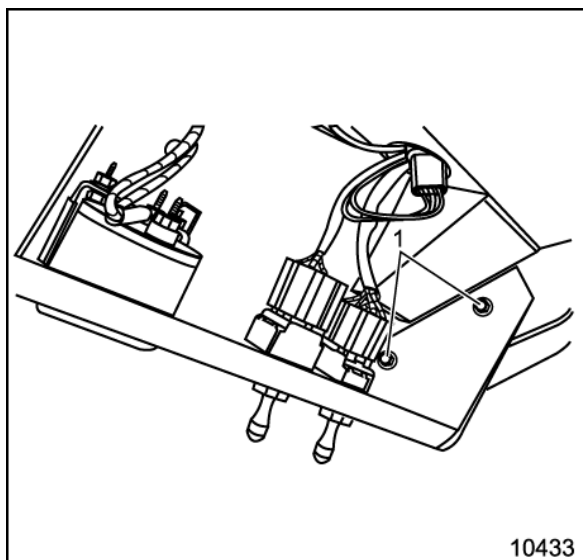
Voltmeter, Blackout (B/O) Switch Panel Replacement

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the voltmeter. Refer to Voltmeter Replacement.
3. Remove the blackout switch. Refer to Blackout (B/O) Switch Replacement.
4. Remove the screws (1) holding the panel to the IP. Left side shown, right side similar.





Installation Procedure

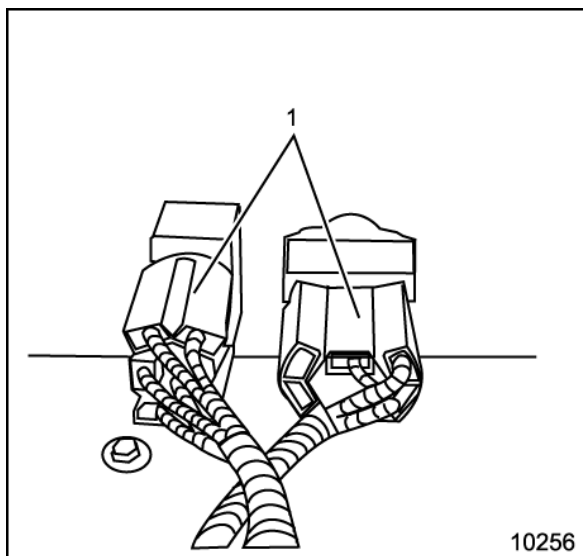
1. Install the panel on the IP. Hand-tighten the screws (1). Left side shown, right side similar.
2. Install the blackout switch to the panel. Refer to Blackout (B/O) Switch Replacement.
3. Install the voltmeter to the panel. Refer to Voltmeter Replacement.

Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten the battery cable connection to 17 N•m (13 lb ft).

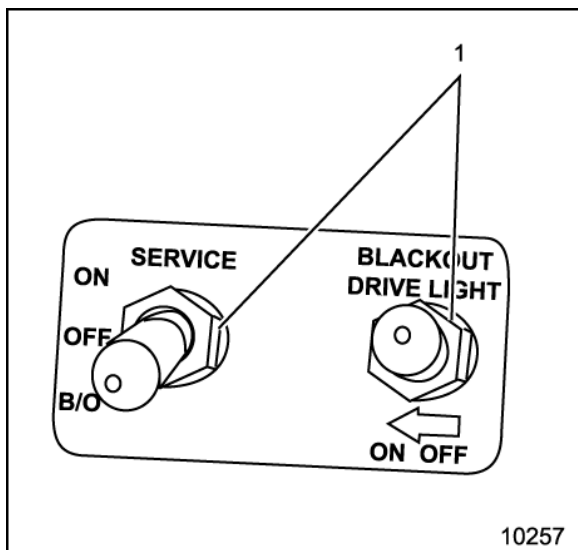


Blackout (B/O) Switch Replacement

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Unplug the connectors (1) from the switches.



3. Remove the nuts and washers holding the blackout switch toggles/knobs.
4. Remove the keyed washers from behind the IP mounting panel and pull the toggles/knobs out.

Installation Procedure

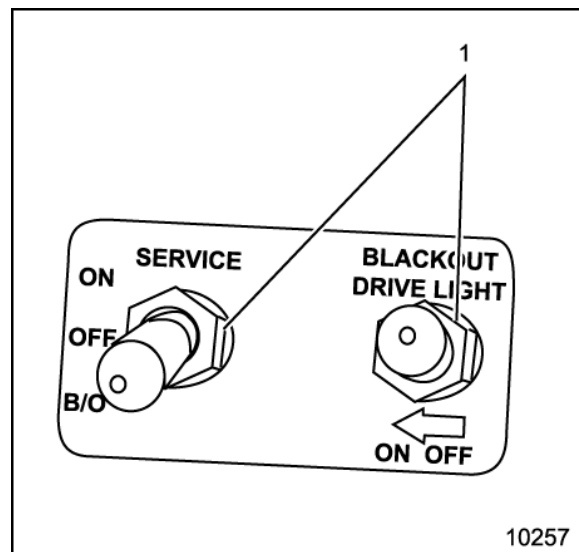
1. Install the keyed washers behind the IP mounting panel.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Insert the toggles/knobs through the IP mounting panel holes and attach with the washers and nuts (1).

Tighten

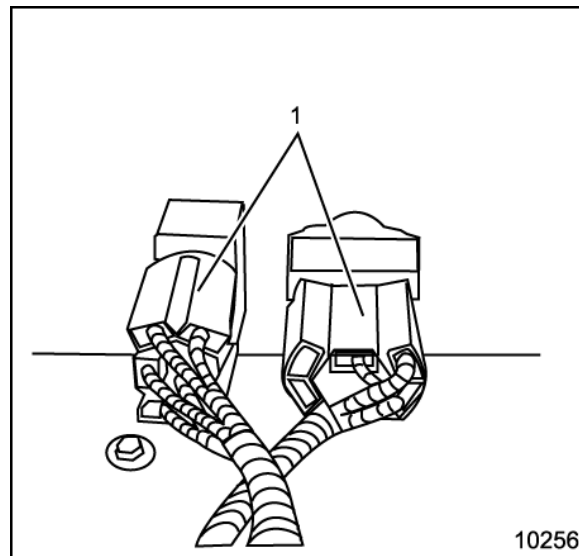
Tighten the two nuts to 2.8 N•m (2 lb ft).



3. Plug the connector (1) to the switches.
4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft)



Description and Operation

Instrument Panel and Gages Description

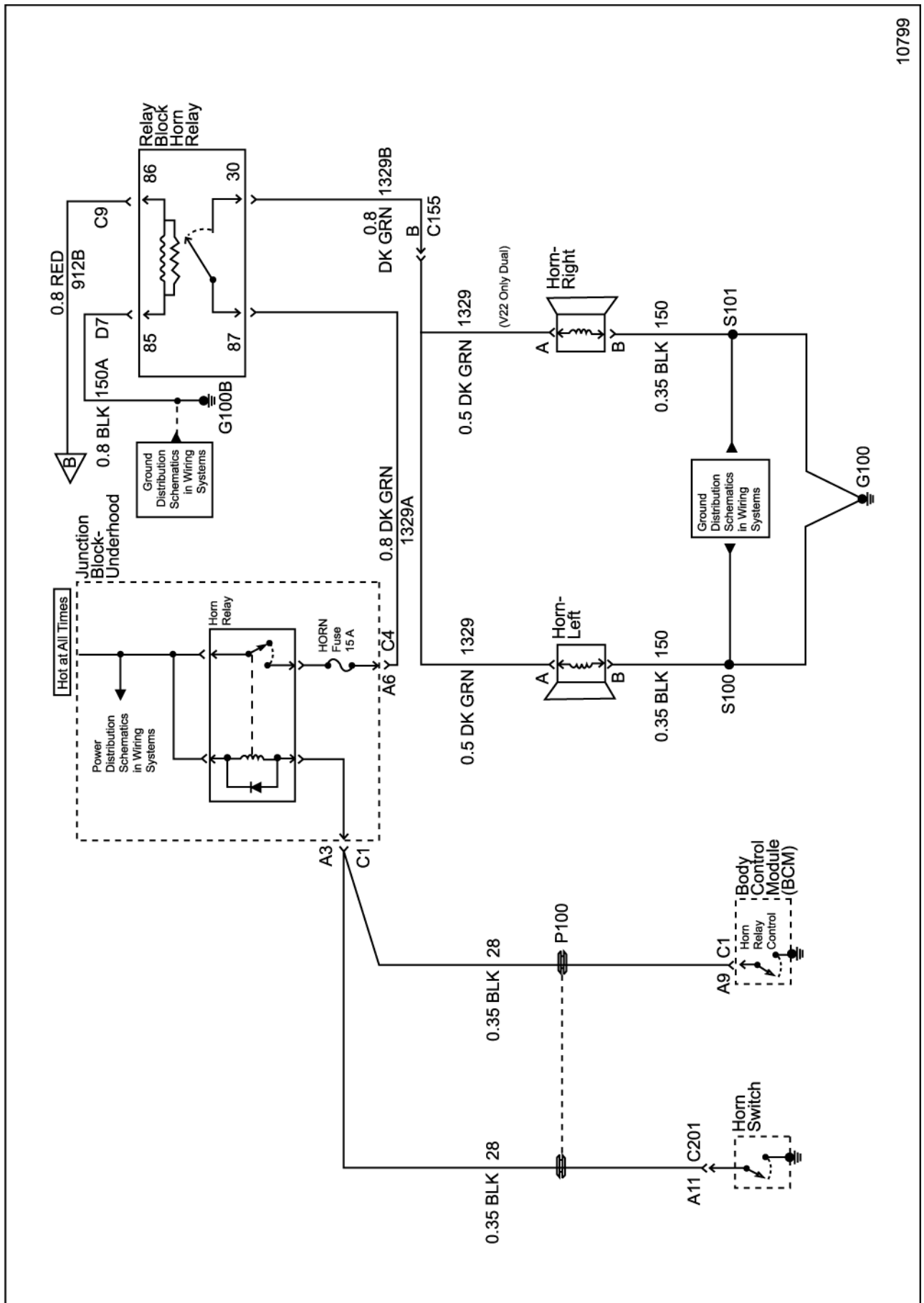
The instrument panel has been modified by removal of the lower panel beneath the ashtray. A bracket mounted in this space houses the blackout lighting switches and 24V meter. The instrument panel houses auxiliary harnesses as well as standard indicators.

Some modification has been made to the instrument panel to accommodate auxiliary harness connections and convenience/fuse centers.

Horns

Schematic and Routing Diagrams

Horns Schematics



Diagnostic Information and Procedures

Symptom List

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

- Horns Inoperative
- Horns Operate in Blackout (B/O) Mode

Horns Inoperative

Step	Action	Yes	No
Schematic Reference: Horns Schematic			
1	Did you review Horns Description and Operation?	Go to Step 2	Go to Description and Operation
2	Inspect inline fuse A and B, check for damaged or corroded inline connectors, check for broken or partially broken wires inside insulation and properly installed aftermarket equipment. Did you find and correct the condition?	Go to Step 3	Go to Step 4
3	Locate and repair as needed and repair circuit. Did you complete the repair?	Go to Step 25	—
4	Depress and hold the horn switch. Does the LH horn operate?	Go to Step 5	Go to Step 10
5	Backprobe the RH horn connector with a test lamp from cavity A to B+. Does the test lamp illuminate?	Go to Step 7	Go to Step 6
6	Locate and repair open in BLK 250 wire between the RH horn and G112. Did you complete the repair?	Go to Step 25	—
7	Backprobe the RH horn connector with a test lamp from cavity B to ground. Depress and hold the horn switch. Does the test lamp illuminate?	Go to Step 8	Go to Step 9
8	Replace the RH horn. Did you complete the replacement?	Go to Step 25	—
9	Locate and repair open in DK GRN 29 wire between the RH horn and S124. Did you complete the repair?	Go to Step 25	—
10	Disconnect the LH horn connector. Connect a test lamp from the LH horn connector cavity B to ground press horn. Does the test lamp illuminate?	Go to Step 11	Go to Step 14
11	Connect a test lamp from the LH horn connector cavity A to B+. Does the test lamp illuminate?	Go to Step 12	Go to Step 13
12	Replace the LH horn. Did you complete the replacement?	Go to Step 25	—

Horns Inoperative (cont'd)

Step	Action	Yes	No
13	Locate and repair open in BLK 250 wire between the LH horn and G112. Did you complete the repair?	Go to Step 25	—
14	Reconnect the LH horn connector. Remove the horn relay from the horn relay socket. Connect a test lamp from the horn relay cavity C3 to ground. Does the test lamp illuminate?	Go to Step 16	Go to Step 15
15	Locate and repair open ORN 740 wire from horn Mini Fuse® to the horn relay. Did you complete the repair?	Go to Step 25	—
16	Momentarily connect a fused jumper from the horn relay cavity C3 to cavity D1. Do the horns operate?	Go to Step 18	Go to Step 17
17	Locate and repair open in DK GRN 29 wire between the horn relay and the LH horn. Did you complete the repair?	Go to Step 25	—
18	Connect a test lamp from the horn relay cavity D3 to ground. Does the test lamp illuminate?	Go to Step 20	Go to Step 19
19	Locate and repair open in ORN 140 and 912 wire between the stop/hazard fuse cavity D3 of the horn relay. Did you complete the repair?	Go to Step 25	—
20	Connect a test lamp from the horn relay cavity C1 to B+. Does the test lamp illuminate?	Go to Step 21	Go to Step 22
21	Replace the horn relay. Did you complete the replacement?	Go to Step 25	—
22	Disconnect the horn switch connector in the steering wheel, connect a test lamp from the horn switch terminal (feed side) to B+. Press the horn button. Does the test lamp illuminate?	Go to Step 24	Go to Step 23
23	Replace the horn switch. Does the test lamp light? Did you complete the replacement?	Go to Step 25	—
24	Locate and repair open in BLK 28 wire between the horn switch and the horn relay or in the horn brush/horn slip ring. Did you complete the repair?	Go to Step 25	—
25	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: Horns Schematic			
1	Did you review Horns Description and Operation?	Go to Step 2	Go to Description and Operation
2	1. Disconnect blackout service drive switch. 2. Connect a test lamp from cavity C to ground. Does the test lamp illuminate?	Go to Step 3	Go to Step 4
3	Replace blackout control relay. Did you complete the replacement?	Go to Step 5	—
4	Replace blackout service drive switch. Did you complete the replacement?	Go to Step 5	—
5	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 inline A fuse and the horn Mini Fuse®. The blackout service drive switch is used to control the horn relay. Power is applied through ORN (CKT 40) to the blackout service drive switch which is a normally 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 (G112) the horns will sound as long as the horn switch is depressed.

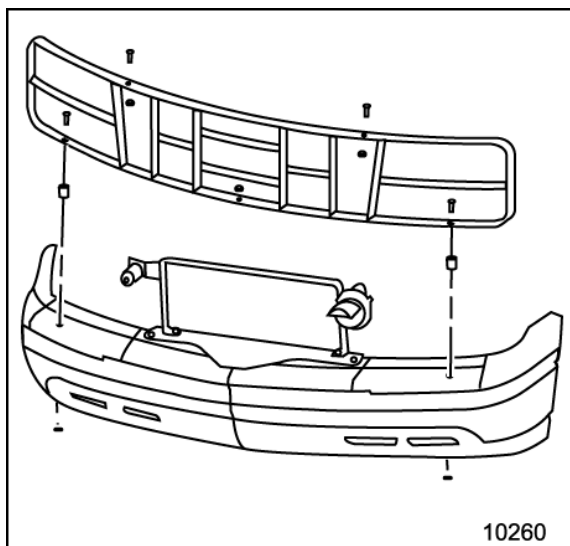
The blackout service drive switch is used to disable the horn relay when placed in the blackout mode. When the blackout service drive switch is in the ON position, power to the horn relay is disrupted leaving the horns inoperative.

Exterior Trim

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Radiator Grille Bolts	9 N•m	75 lb in

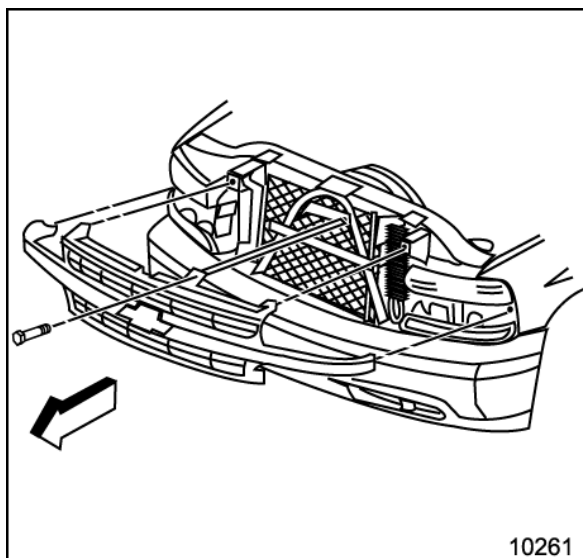


Repair Instructions

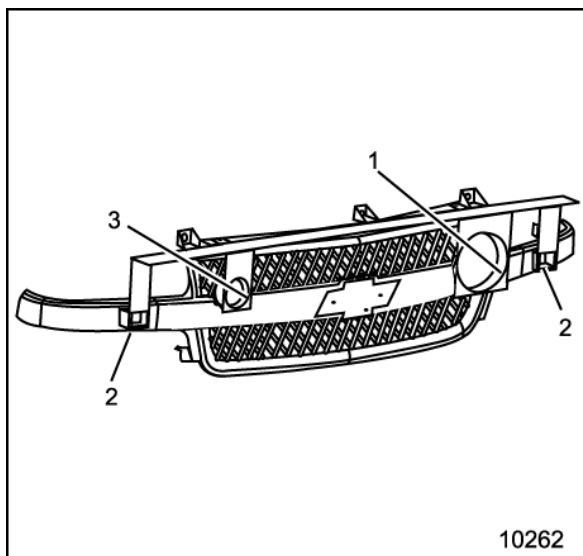
Radiator Grille Replacement

Removal Procedure

1. Remove the radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement in the Bumper section.
2. Remove the upper grille baffle.



3. Remove the fasteners holding the radiator grille to the radiator support.
4. Remove the radiator grille.



Installation Procedure

1. Modify the new radiator grille using a hole saw. Cut a 82.55 mm (3.25 in) diameter hole (3) in the designated area left of the right headlamp, for the battery booster/slave connector. Cut another 152.4 mm (6.00 in) diameter hole (1) in the designated area of the left headlamp for the blackout headlamp. Cut opening (2) in the designated area between headlamp and turn signal for the marker lamps.

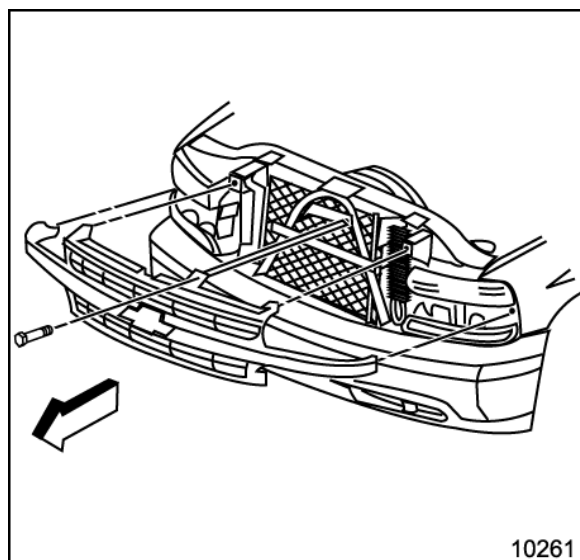
2. Paint the new radiator grille. Refer to Paint Codes in Paint/Coatings section.
3. Install the radiator grille and bolts.

Notice: Refer to Fastener Notice in Cautions and Notices.

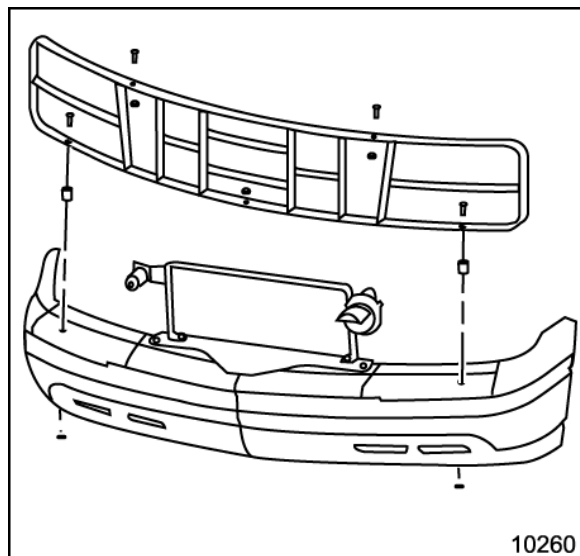
4. Install the upper grille baffle.

Tighten

Tighten bolts to 9 N•m (75 lb in).



5. Install the radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement in the Bumper section.



Description and Operation

Exterior Trim Description

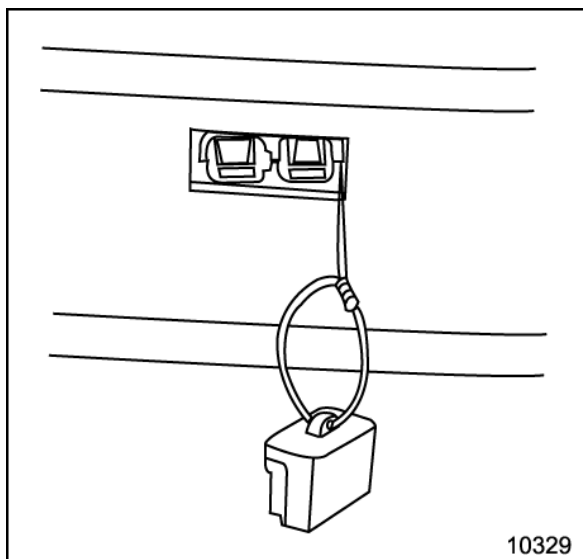
The exterior grille has been modified to accept the blackout headlamp, marker lamps and the slave start receptacle. The front emblem has been removed and the grille is painted.

Bumpers

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Cable Connections	17 N•m	13 lb ft
Front Clevis/Tie-Down Support Bolts (Pickup Models)	80-95 N•m	59-70 lb ft
Front Bumper Bracket Bolts (Pickup Models)	85 N•m	63 lb ft
Front Bumper Frame Brace Bolts (Pickup Models)	85 N•m	63 lb ft
Front Bumper Bracket Bolts (Tahoe/Suburban)	85 N•m	63 lb ft
Front Bumper Frame Brace Bolts (Tahoe/Suburban)	55 N•m	41 lb ft
Front Clevis Bolts	200 N•m	148 lb ft
Front Clevis/Tie-Down Support Bolts (Tahoe/Suburban)	80-95 N•m	59-70 lb ft
Radiator Grille Brush Guard Bolts	88 N•m	65 lb ft
Rear Bumper Brace Bolts	80-100 N•m	59-74 lb ft
Rear Bumper Nuts (Factory Hitch)	80-100 N•m	59-74 lb ft
Rear Bumper Frame Bolts	80-100 N•m	59-74 lb ft
Rear Clevis Bolts	200 N•m	148 lb ft
Rear Clevis/Tie Down Support Bolt (Factory Hitch)	78 N•m	58 lb ft
Rear Clevis/Tie Down Support Bolts	67-88 N•m	49-65 lb ft
Rear Clevis/Tie Down Support Vertical Bolt	88-115 N•m	65-85 lb ft



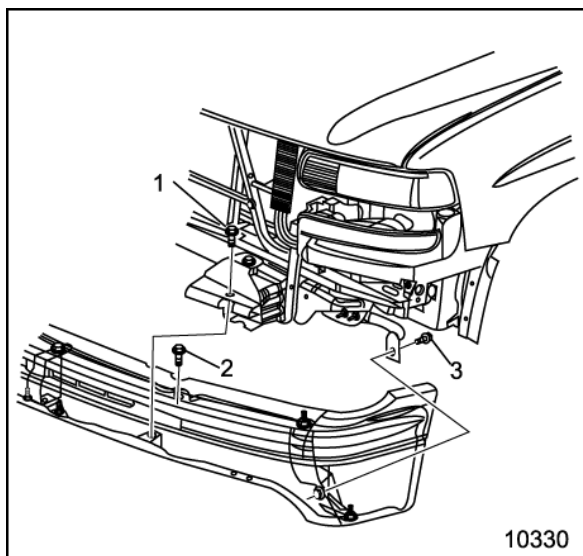
Repair Instructions

Front Bumper Replacement (Tahoe/Suburban)

Removal Procedure

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

1. Remove the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement.
3. Remove the front grille. Refer to Radiator Grille Replacement in Exterior Trim.
4. Remove front clevis. Refer to Clevis/Tie-Down Replacement – Front.
5. Remove the winch connector from the bracket (if equipped).
6. Remove the retaining bolts (1,2) from the front bumper.
7. Remove the brace bolt (3) from the front bumper.
8. Remove the front bumper assembly from the vehicle sliding it over the winch receiver (if equipped).



Installation Procedure

1. Position the front bumper assembly on the vehicle.

Notice: Refer to Fastener Notice in Cautions and Notices.

Important: Tighten the bolts in the following sequence.

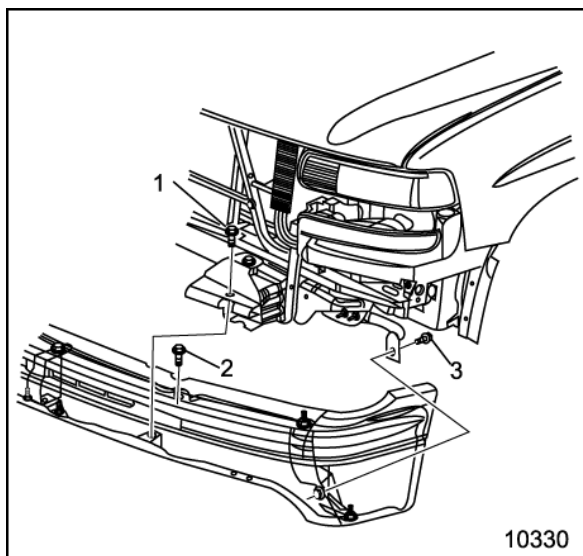
2. Install the retaining bolts (1,2) to the front bumper.

Tighten

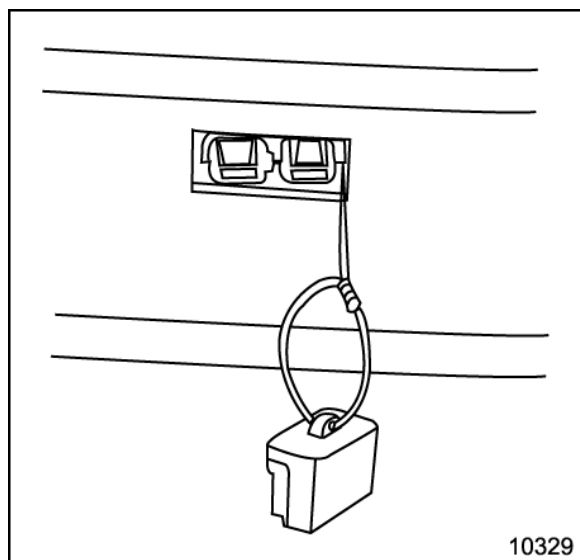
Tighten the bracket bolt (1) to 85 N•m (63 lb ft).

Tighten the bracket bolt (2) to 85 N•m (63 lb ft).

Tighten the brace bolt (3) to 55 N•m (41 lb ft).



3. Install the winch connector to mounting bracket (if equipped).



10329

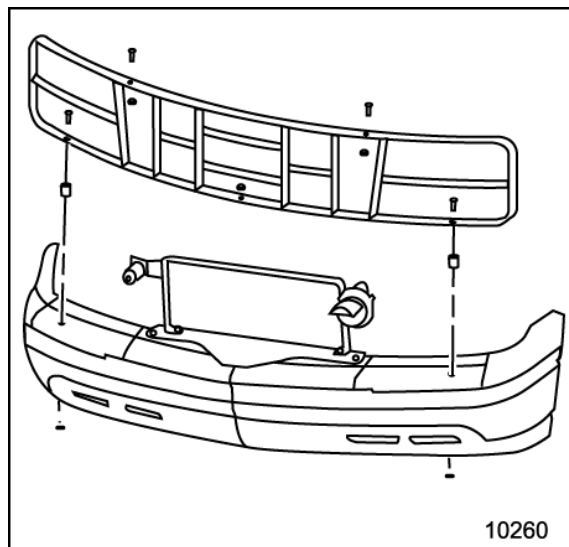
4. Install front clevis. Refer to Clevis/Tie-Down Replacement – Front.
5. Install the front radiator grille. Refer to Radiator Grille Replacement in Exterior Trim.
6. Install the radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement.

Notice: Refer to Fastener Notice in Cautions and Notices.

7. Install the negative battery cable of the right battery and the 12V and the 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



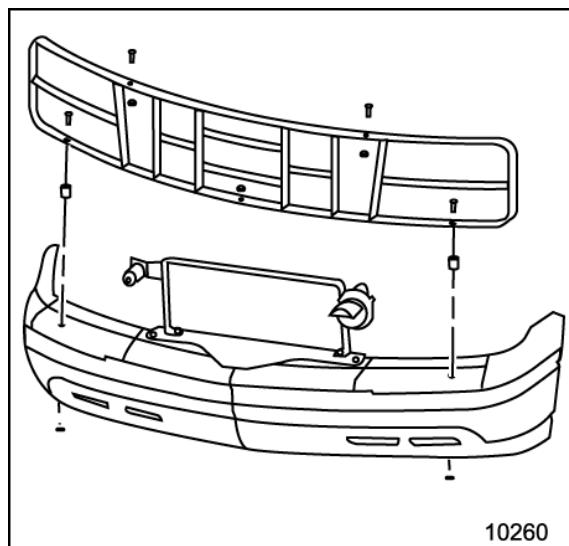
10260

Front Bumper Replacement (Pickup Models)

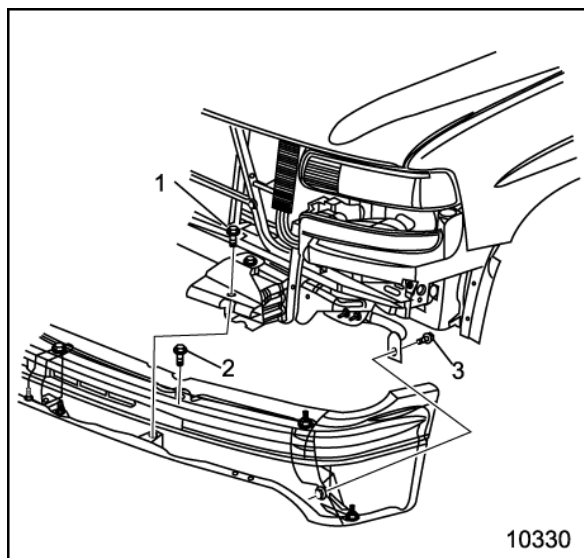
Removal Procedure

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

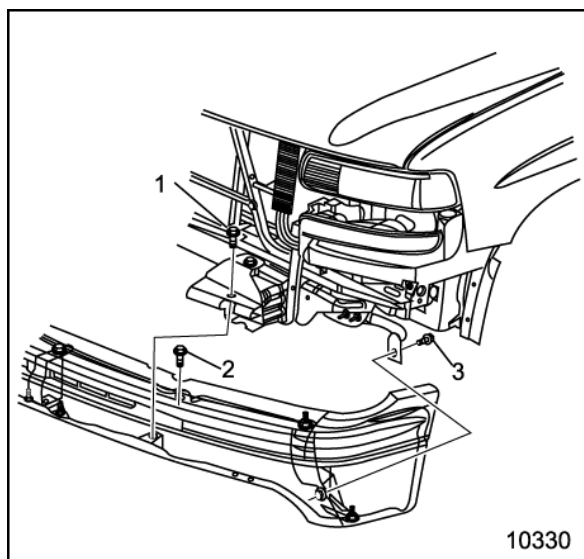
1. Remove the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement.
3. Remove the front grille. Refer to Radiator Grille Replacement in Exterior Trim.
4. Remove the winch mount (if equipped). Refer to Winch Mount Replacement (Pickup Models) in Body Front End.



10260



5. Remove the retaining bolts (1,2) from the front bumper.
6. Remove the brace bolt (3) from the front bumper.
7. Remove the front bumper assembly from the vehicle.



Installation Procedure

1. Position the front bumper assembly on the vehicle.

Notice: Refer to Fastener Notice in Cautions and Notices.

Important: Tighten the bolts in the following sequence.

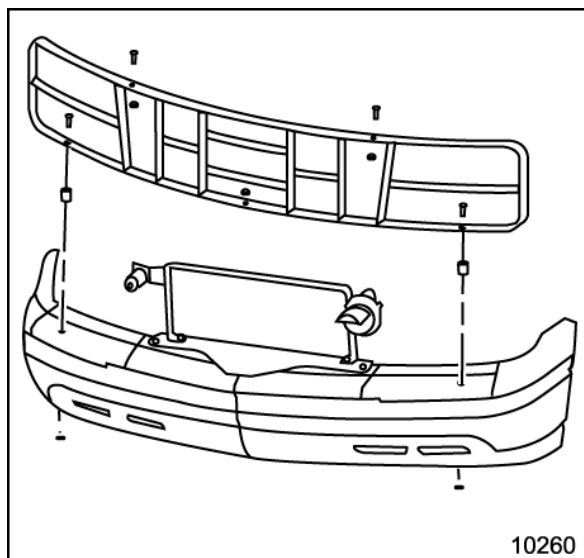
2. Install the retaining bolts (1,2) to the front bumper.

Tighten

Tighten the bracket bolt (1) to 85 N•m (63 lb ft).

Tighten the bracket bolt (2) to 85 N•m (63 lb ft).

Tighten the brace bolt (3) to 55 N•m (41 lb ft).



3. Install winch mount (if equipped). Refer to Winch Mount Replacement (Pickup Models) in Body Front End.
4. Install the front radiator grille.
5. Install the radiator grille brush guard. Refer to Radiator Grille Brush Guard Replacement .
6. Install the negative battery cable of the right battery and the 12V and the 24V cables of the left battery.

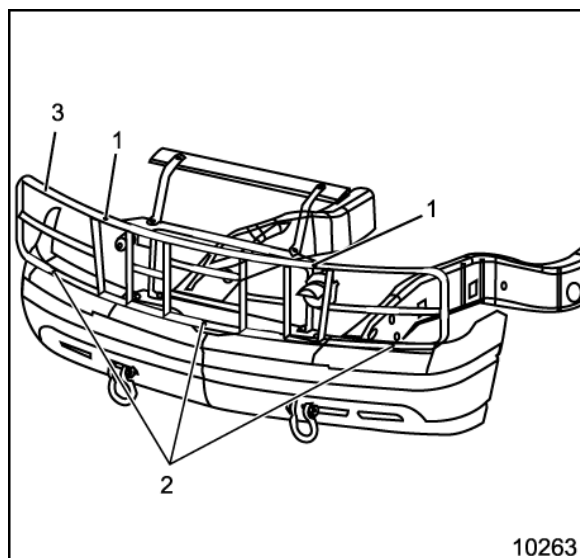
Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

Radiator Grille Brush Guard Replacement

Removal Procedure

1. Remove the two bolts (1), washers and nuts holding the brush guard to upper supports.
2. Remove three lower fasteners (2) from the bumper.
3. Remove the radiator grille brush guard assembly (3).



Installation Procedure

1. Install the radiator brush guard assembly (3).

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the brush guard to the front bumper with the three fasteners (2), washers and nuts.

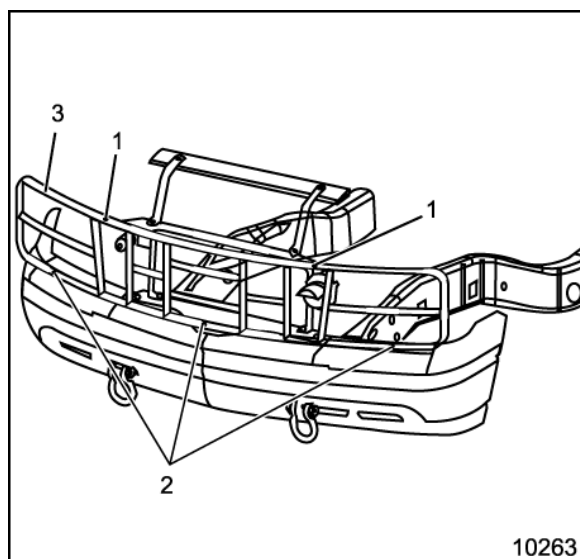
Tighten

Tighten the three nuts to 88 N•m (65 lb ft).

3. Install the two bolts (1) washers and nut to the upper supports and tighten.

Tighten

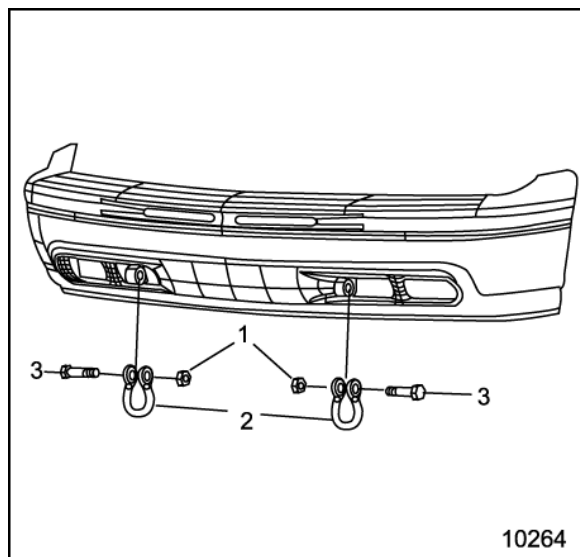
Tighten the bolts to 88 N•m (65 lb ft).

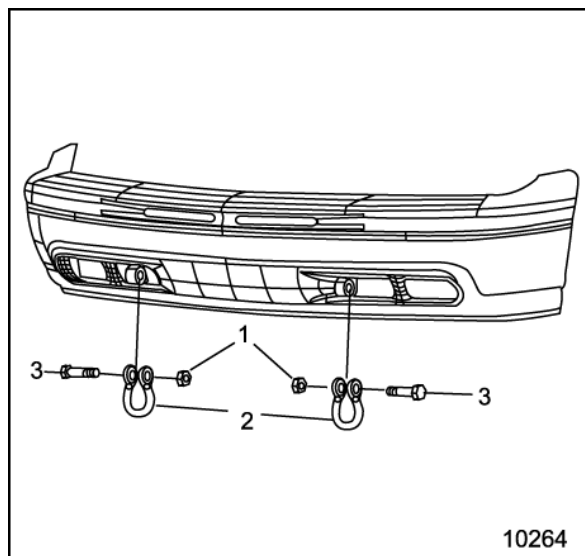


Clevis/Tie-Down Replacement – Front

Removal Procedure

1. Remove nut (1) and bolt (3).
2. Remove clevis (2) from mount.





Installation Procedure

1. Install clevis (2) to the mount.

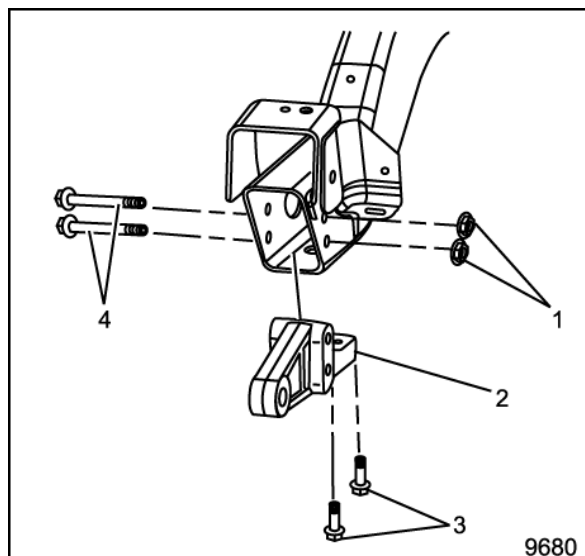
Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install bolt (3) and nut (1) and tighten.

Notice: Clevis must move once torqued. Do not over torque.

Tighten

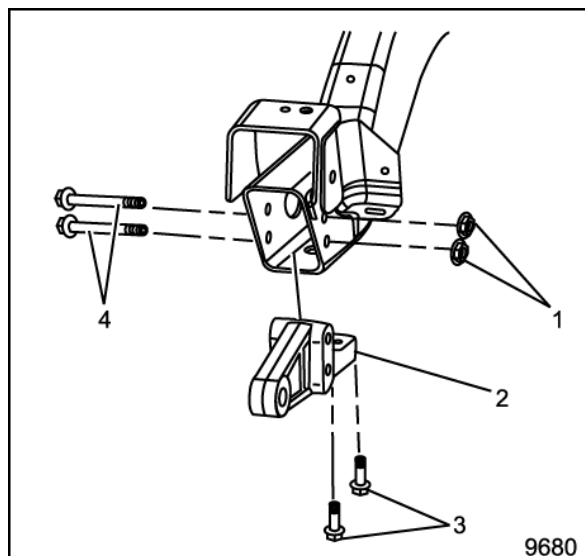
Tighten nut and bolt to 200 N•m (148 lb ft).



Clevis/Tie-Down Support Replacement – Front (Pickup Models)

Removal Procedure

1. Remove the engine shield.
2. Remove the front clevis/tie-down. Refer to Clevis/Tie-Down Replacement – Front.
3. Remove the front bumper. Refer to Front Bumper Replacement (Pickup Models).
4. Remove the bottom mounting bolts (3), washers and nuts holding the front clevis tie-down support to the frame rail.
5. Remove the side mounting bolts (4), washers and nuts (1) holding the front clevis tie-down support to the frame rail.
6. Remove the front clevis tie-down support (2).



Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the front clevis tie-down support (2) with the side mounting bolts (4), washers and nuts (1).

Tighten

Tighten the side mounting bolts to 80-95 N•m (59-70 lb ft).

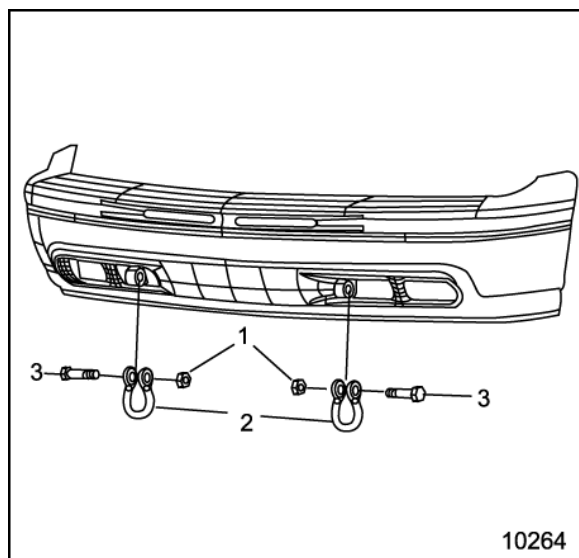
2. Install the bottom of the tie-down support with the two bottom mounting bolts (3).

Tighten

Tighten the two bottom mounting nuts to 80-95 N•m (59-70 lb ft).

3. Install the front bumper. Refer to Front Bumper Replacement (Pickup Models).

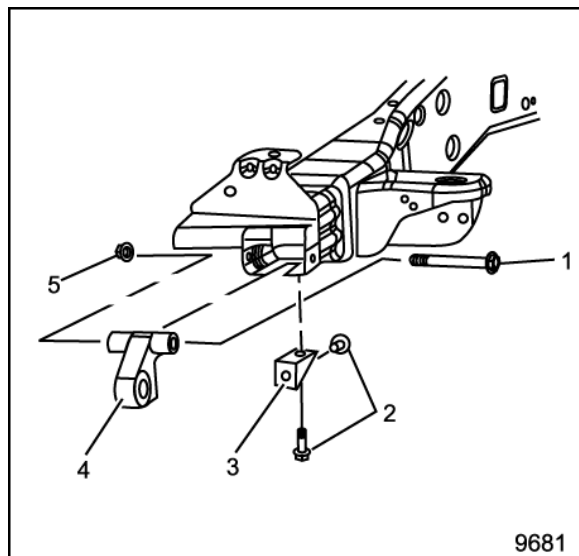
4. Install the front tie-down clevis (2). Refer to Clevis/Tie-Down Replacement – Front.
5. Install the engine shield.



Clevis/Tie Down Support Replacement – Front (Utility)

Removal Procedure

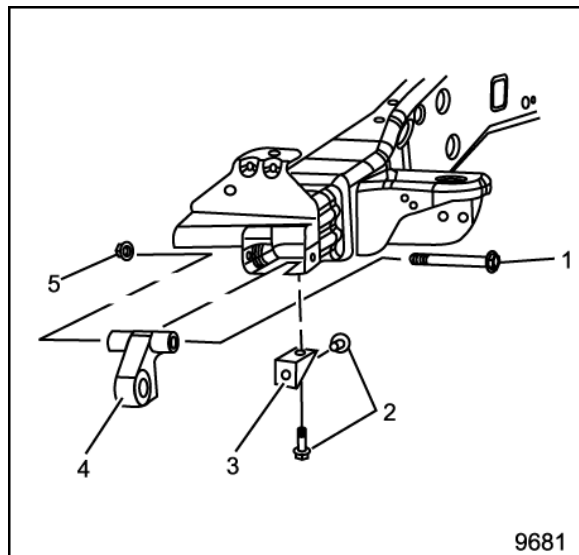
1. Remove engine shield.
2. Remove the front clevis tie-downs. Refer to Clevis/Tie-Down Replacement – Front.
3. Remove the Front Bumper. Refer to Front Bumper Replacement (Tahoe/Suburban).
4. Remove bracket (3) by remove bolts (2).
5. Remove the side mounting bolt (1), washer and nut (5).
6. Remove the front clevis/tie-down support (4).

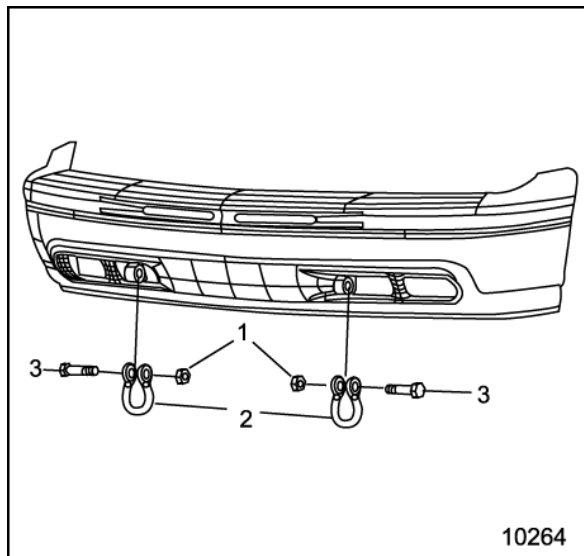


Installation Procedure

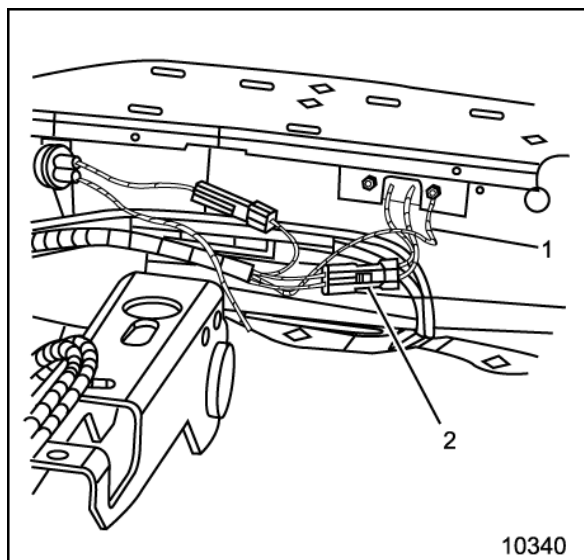
Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the front clevis/tie-down support (4) with side mounting bolt (1), washer and nut (5).
Tighten
Tighten side mounting bolts to 80-95 N•m (59-70 lb ft).
2. Install the bracket (3) with bolts (2) and tighten.
Tighten
Tighten bracket bolts to 80-95 N•m (59-70 lb ft).
3. Install the front bumper. Refer to Front Bumper Replacement (Utility).





4. Install the front clevis/tie-downs (2). Refer to Clevis/Tie-Down Replacement – Front.
5. Install engine shield.

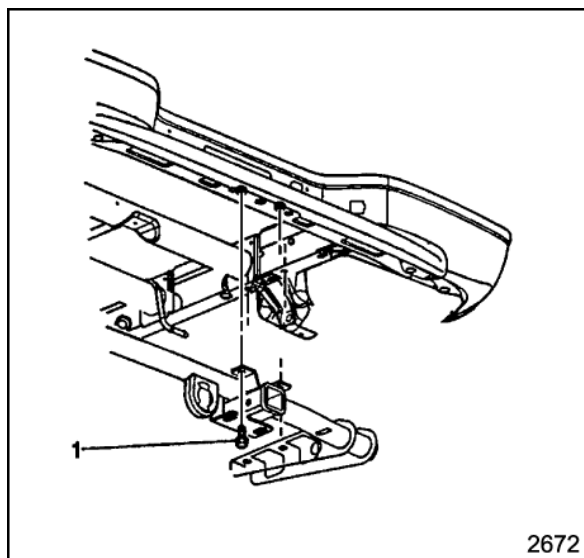


Bumper Replacement – Rear (Factory Hitch)

Removal Procedure

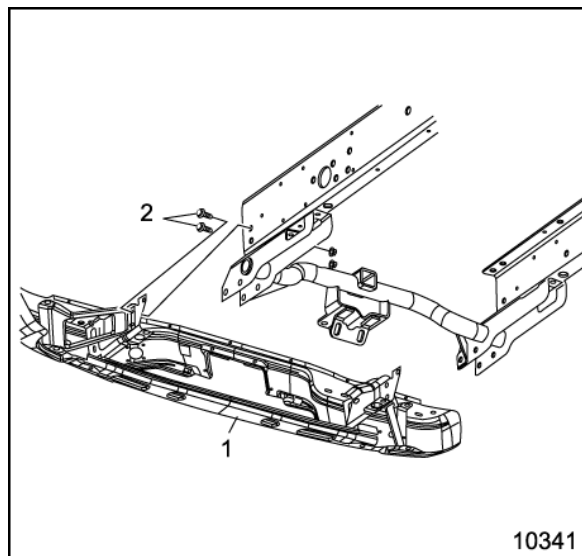
Caution: Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Disconnect the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Disconnect the blackout marker lamps by depressing the tab releases (2), and remove the ground (1) from the mounting stud.



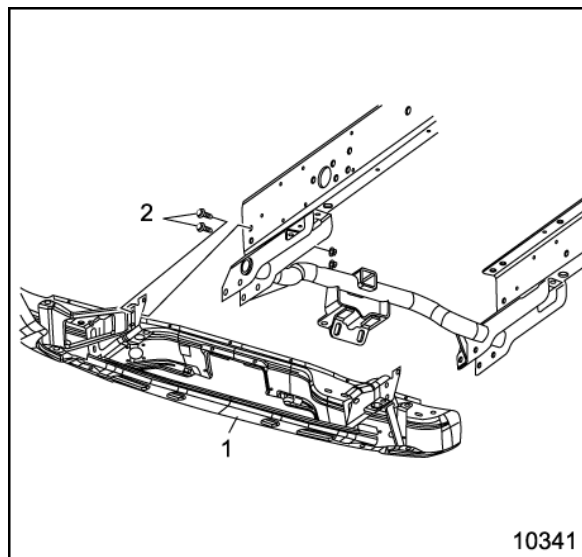
3. Disconnect the trailer lamp, connectors by depressing the tab releases.
4. Remove the pintle tow hook. Refer to Pintle Hook Replacement.
5. Remove upper and lower step pads.
6. Remove bolts (1) attaching bumper to receiver.

7. Remove the bolts, washers and nuts holding the rear bumper to the bumper braces.
8. Remove the bolts, washers and nuts holding the rear bumper to the frame (2).
9. Remove the rear bumper (1).

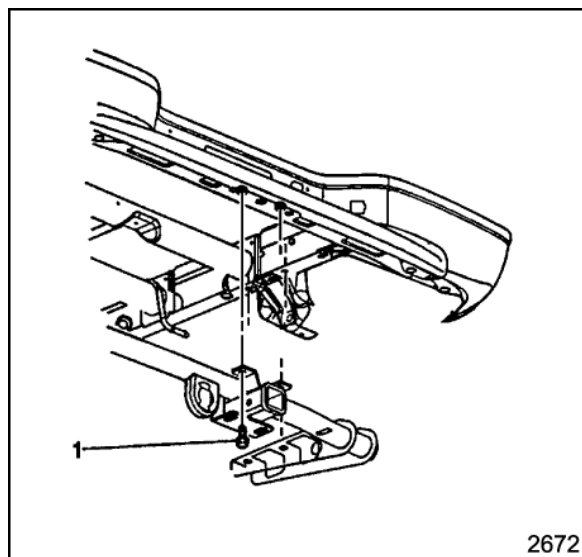


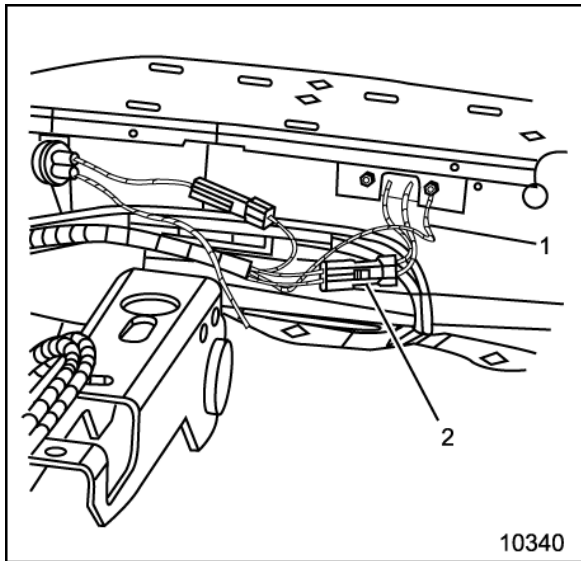
Installation Procedure

1. Install the rear bumper (1) loosely to the frame brackets with the bolts, washers and nuts (2).
2. Install the rear bumper loosely to the bumper braces with the bolts, washers and bolts.

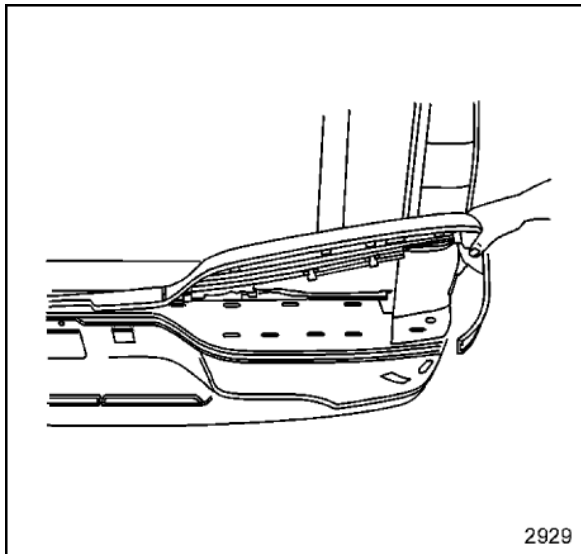


3. Install bolts (1) attaching bumper to receiver.
4. Connect the trailer lamp connectors.





5. Connect the blackout marker lamp connectors (2) and the ground leads (1) from mounting stud.



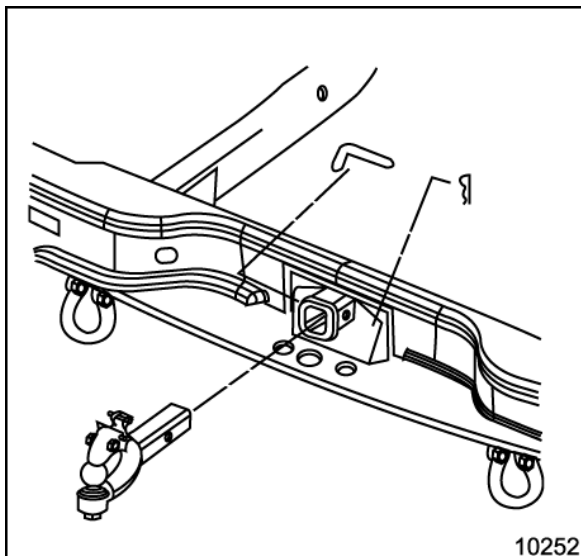
Notice: Refer to Fastener Notice in Cautions and Notices.

6. Finish installing all attaching hardware.

Tighten

Tighten the frame bracket nuts to 80-100 N•m (59-74 lb ft)
Tighten the four brace nuts to 80-100 N•m (59-74 lb ft)

7. Install the upper and lower step pads.



8. Connect the 12V and 24V cables of the left battery and the negative cable of the right battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

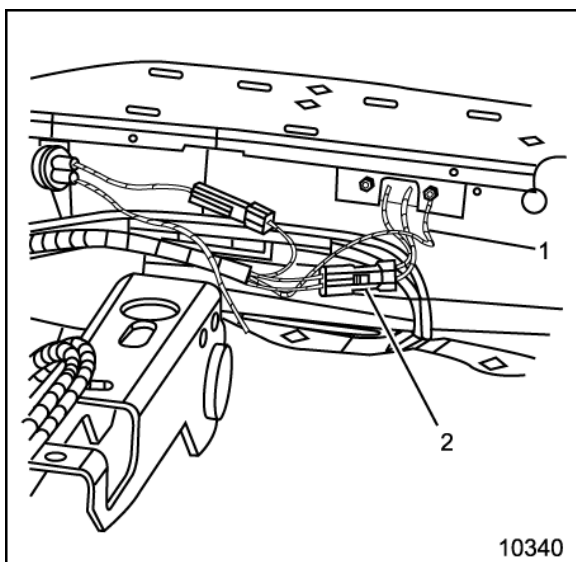
9. Install the Pintle tow hook. Refer to Pintle Hook Replacement.

Bumper Replacement – Rear (Military Hitch)

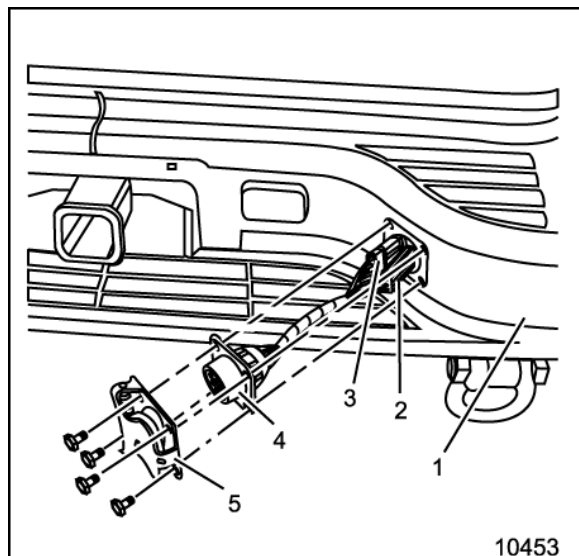
Removal Procedure

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

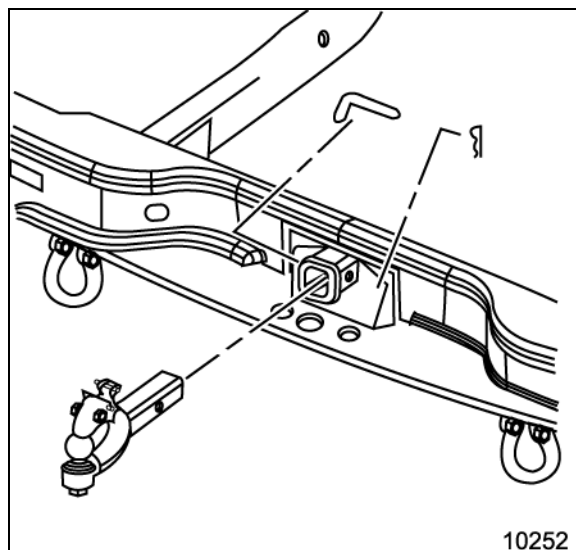
1. Disconnect the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Disconnect the blackout marker lamps by depressing the tab releases (2), and remove the ground (1) from mounting stud.

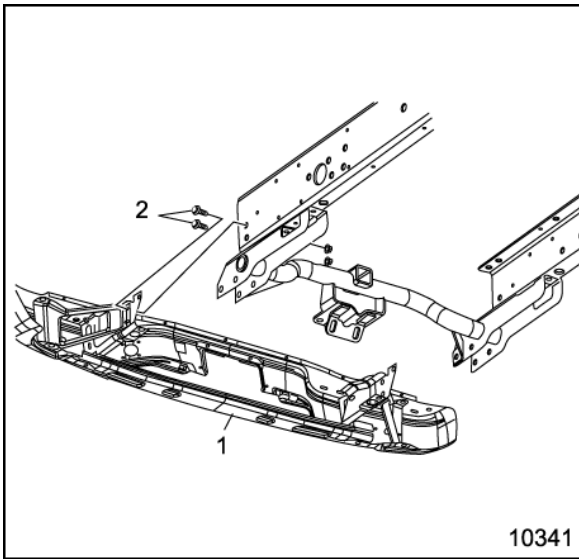


3. Disconnect the trailer lamp, connectors (2,3) by depressing the tab releases.

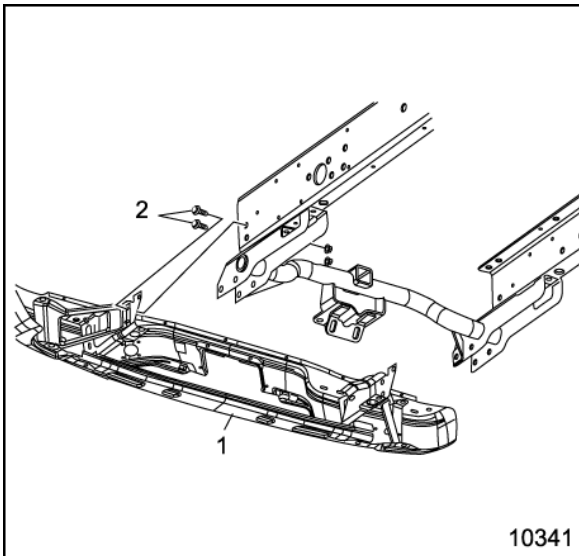


4. Remove the clevis/tie-down. Refer to *Clevis/Tie-Down Replacement – Rear*.
5. Remove pintle hook from the receiver.



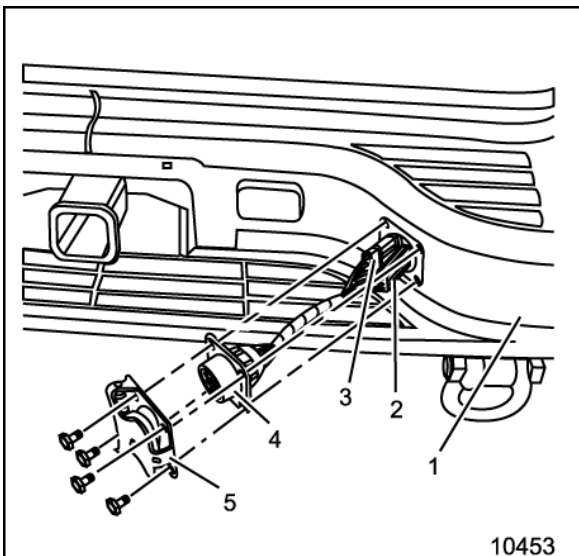


6. Remove the lower step pad.
7. Remove lower bolts attaching bumper to receiver.
8. Remove the bolts and nuts holding the rear bumper to the brace(s), at the lower attaching points.
9. Remove the bolts and nuts holding the rear bumper to the brace(s), at the upper attaching points.
10. Remove the bolts, washers and nuts holding the rear bumper to the frame rail.
11. Remove the rear bumper (1).



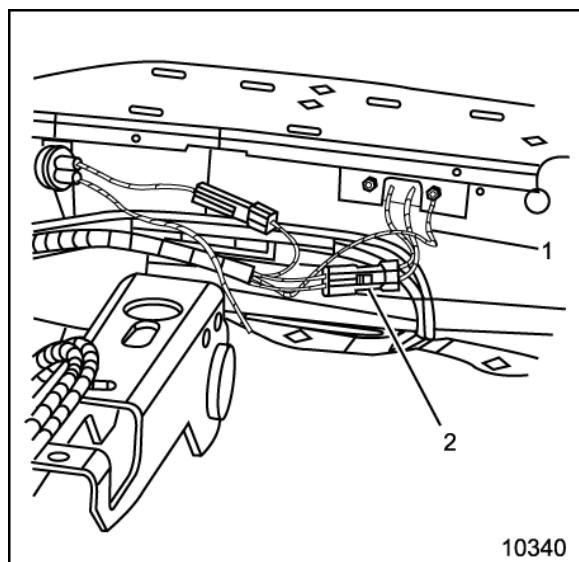
Installation Procedure

1. Install the rear bumper (1) loosely to the frame rail with the bolts and the washers and nuts.
2. Install the rear bumper loosely to the brace(s), at the upper attaching points with the bolts and nuts.
3. Install the rear bumper loosely to the brace(s), at the lower attaching points with the bolts and nuts.



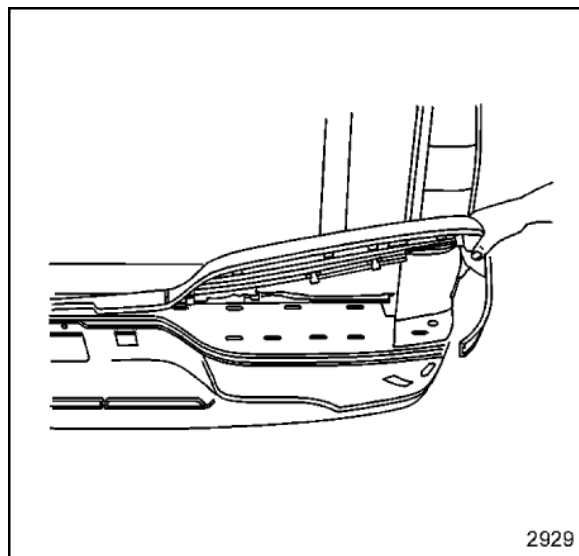
4. Connect the trailer lamp connectors (2,3).

5. Connect the blackout marker lamp connector (2), the ground leads (1) from the mounting bracket.

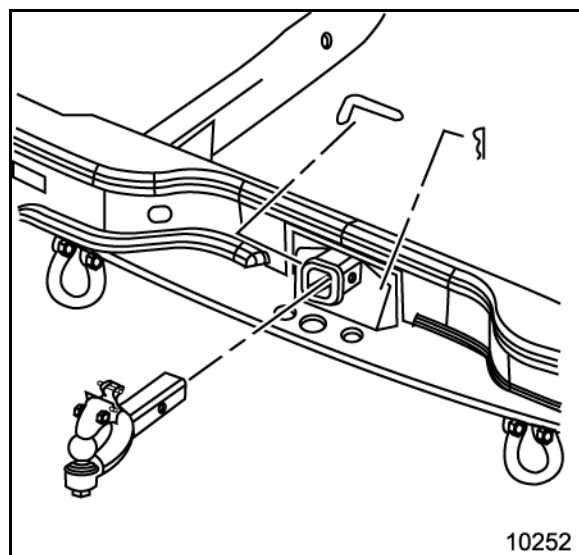


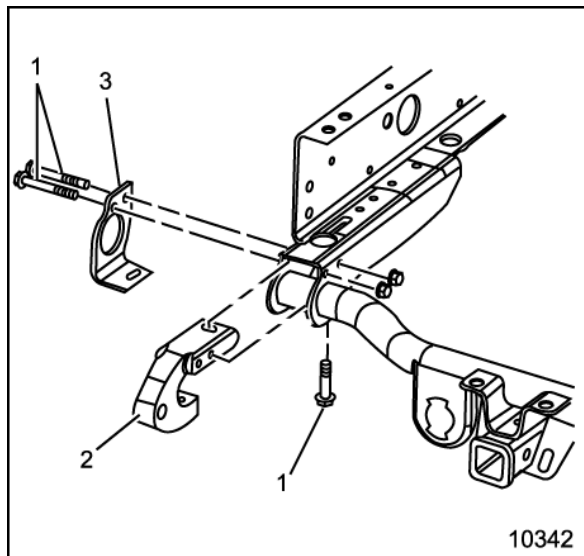
Notice: Refer to Fastener Notice in Cautions and Notices.

6. Finish installing all attaching hardware.
Install the nuts and bolts.
Tighten
Tighten the frame bolts to 80-100 N•m (59-74 lb ft)
Tighten the brace bolts to 80-100 N•m (59-74 lb ft)
7. Connect the 12V and 24V cables of the left battery and the negative cable of the right battery.
8. Install the lower step pad.



9. Install the pintle hook into the receiver.
Tighten
Tighten the battery cable connections to 17 N•m (13 lb ft)

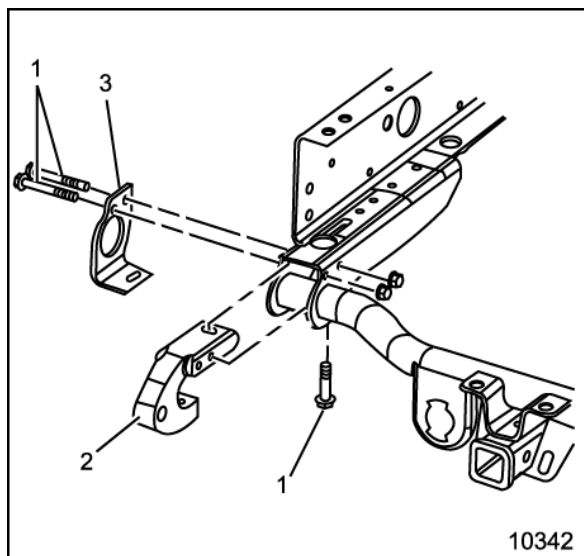




Clevis/Tie-Down Support Replacement – Rear Factory Hitch (Pickup Models)

Removal Procedure

1. Remove the rear bumper. Refer to Bumper Replacement – Rear or Bumper Replacement – Rear (Factory Hitch).
2. Remove clevis. Refer to Clevis/Tie Down Replacement – Rear.
3. Remove the bolts (1), washers and nuts holding the tie-down bracket to the (2) receiver mount.
4. Remove the tie-down bracket (2).



Installation Procedure

1. Install the tie-down bracket (2), aligning the bolt holes.

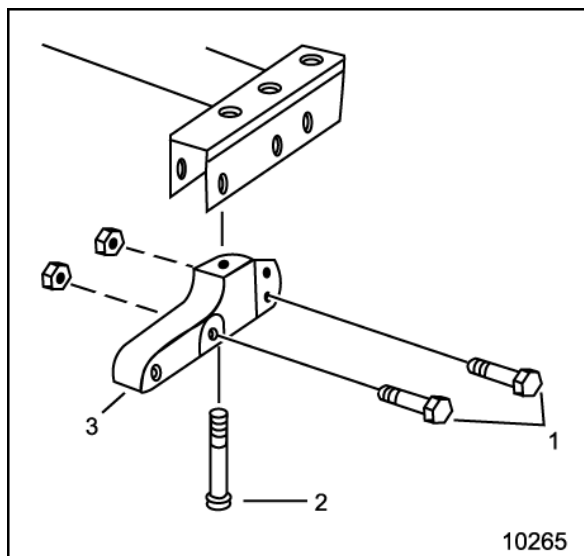
Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install brace (3) and bolts (1).

Tighten

Tighten the bolts to 78 N•m (58 lb ft).

3. Install the rear bumper. Refer to Bumper Replacement – Rear or Bumper Replacement – Rear (Factory Hitch).



Clevis/Tie-Down Bracket Replacement – Rear (Utility/Extended Cab)

Removal Procedure

1. Remove the rear clevis. Refer to Clevis/Tie-Down Replacement – Rear.
2. Remove bolt (2) from clevis mount.
3. Remove nuts and bolts (1) from clevis mount.
4. Remove clevis mount (3) from frame.

Installation Procedure

1. Install clevis mount(s) to frame.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install bolts (1) and tighten.

Tighten

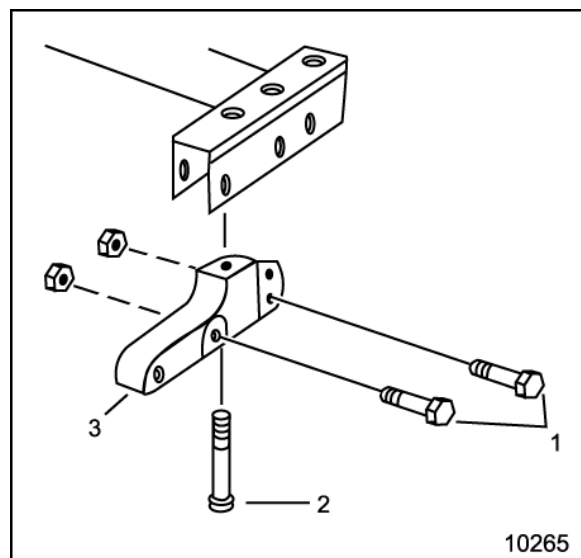
Tighten bolts to 67-88 N•m (49-65 lb ft)

3. Install bolt (2) and tighten.

Tighten

Tighten bolt to 88-115 N•m (65-85 lb ft)

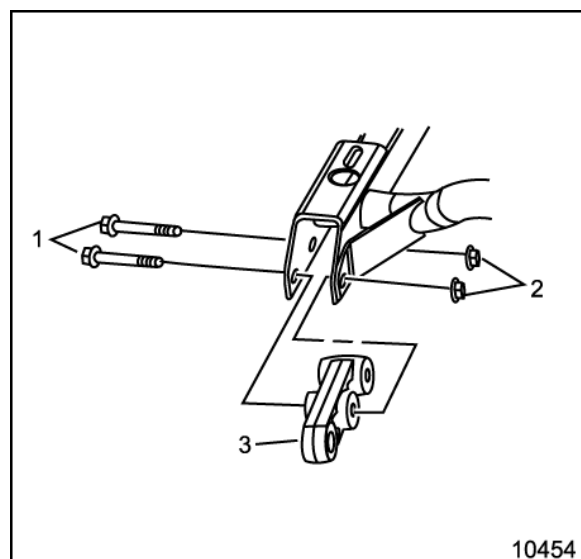
4. Install the rear clevis. Refer to Clevis/Tie-Down Replacement – Rear.



Clevis/Tie-Down Bracket Replacement – Rear (Crewcab)

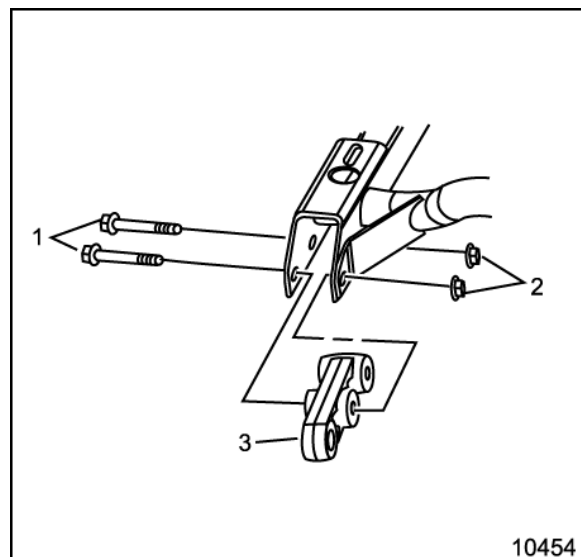
Removal Procedure

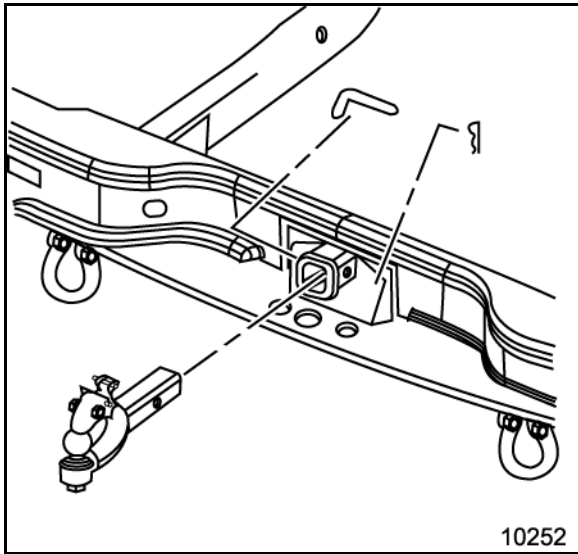
1. Remove the rear clevis. Refer to Clevis/Tie-Down Replacement – Rear.
2. Remove bolts (1) and nuts (2).
3. Remove clevis/tie-down bracket from the receiver.



Installation Procedure

1. Install clevis/tie-down bracket in receiver.
2. Install bolts (1) and nuts (2) and tighten.
3. Install the rear clevis. Refer to Clevis/Tie-Down Replacement – Rear.



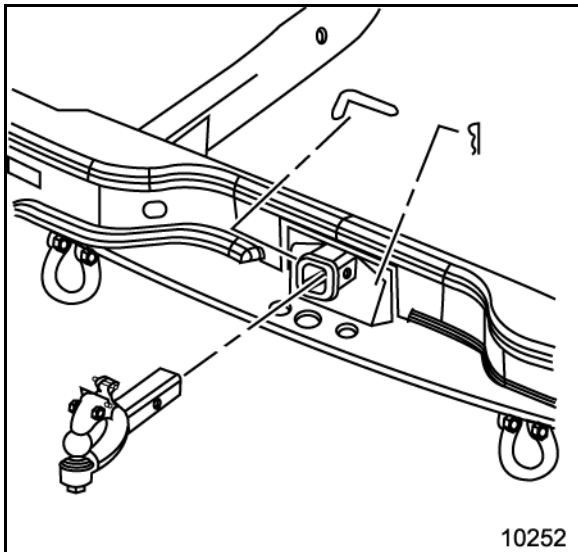


Pintle Hook Replacement

Removal Procedure

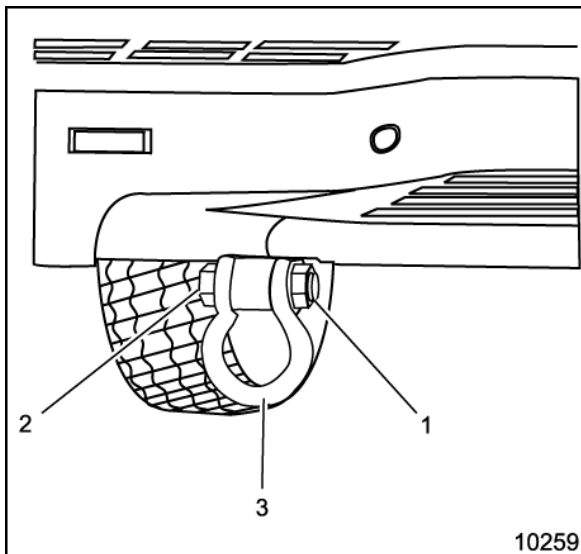
Note: This procedure is the same for the factory receiver.

1. Remove the spring clip from the retaining pin.
2. Remove the retaining pin from the receiver.
3. Pull the tow hook out of the receiver.



Installation Procedure

1. Push tow hook into receiver until holes line up.
2. Install retaining pin into hole.
3. Install spring clip into retaining pin.



Clevis/Tie-Down Replacement – Rear

Removal Procedure

1. Remove nut (1) and bolt (2).
2. Remove clevis (3) from frame.

Installation Procedure

1. Install clevis (3) to frame.

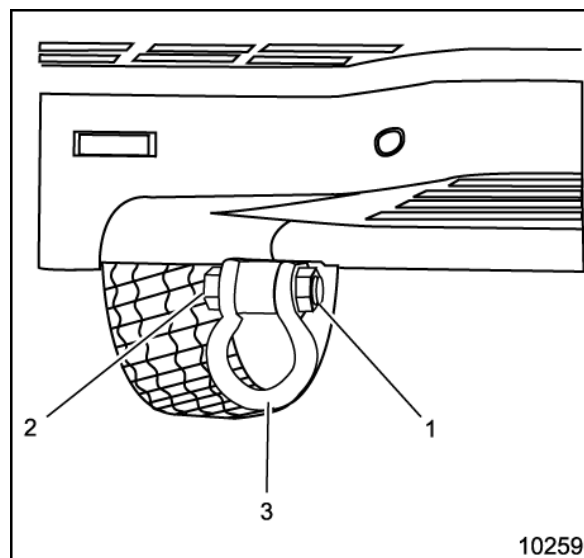
Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install bolt (2) and nut (1) and tighten.

Notice: Clevis must move once torqued. Do not over torque.

Tighten

Tighten nut and bolt to 200 N•m (148 lb ft).



Description and Operation

Bumpers

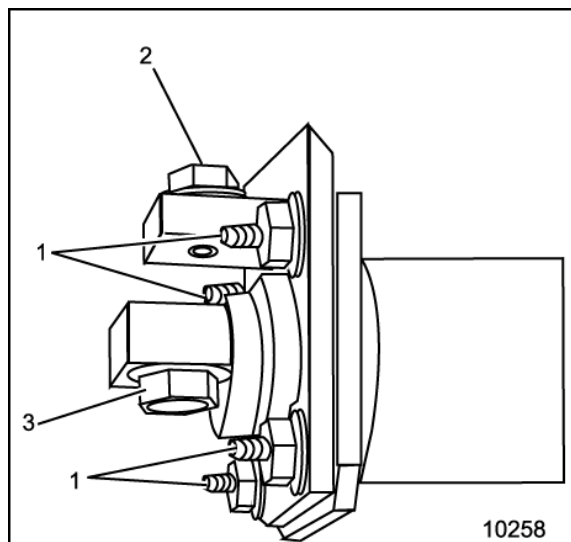
The equipment described includes all bumper assemblies front and rear that are offered or modified for the military vehicles. The bumper components provided in this military package are rugged and durable and are designed for the rigors of limited off-road conditions. Repairs on these items include the radiator brush guard, several reinforcement brackets or braces, clevis tie-down attachments and pintle hooks. The repair of some sub-assemblies require removal of the rear bumpers for access while others require removal of electrical components and lamp harness connections.

Body Front End

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Cable Connection	17 N•m	13 lb ft
Clevis/Tie-Down Bolts	200 N•m	148 lb ft
Slave Connector Bolts	3 N•m	2 lb ft
Slave Connector Terminal Bolts	6 N•m	4 lb ft
Winch Mount Bolts	68 N•m	50 lb ft
Winch to Mount Bolts	47-54 N•m	35-40 lb ft



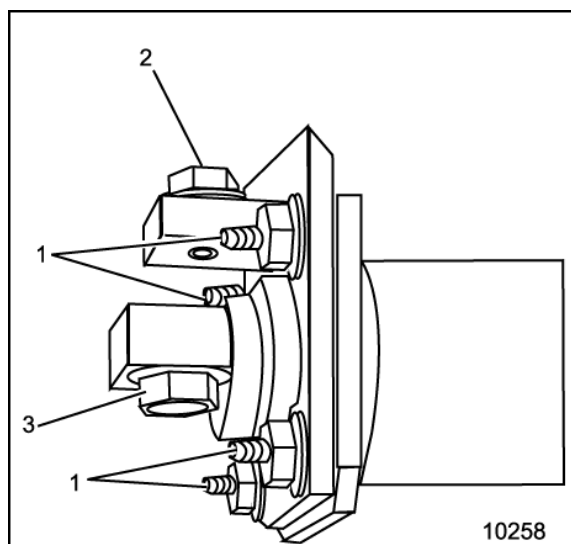
Repair Instructions

Slave Connector Replacement

Removal Procedure

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

1. Disconnect the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove negative cable from connection (2).
3. Remove positive cable from connection (3).
4. Remove the four bolts (1) and nuts holding the booster/slave connector assembly and gasket to the bracket.



Installation Procedure

Notice: The gasket must mount to the square back of the booster/slave connector assembly.

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the booster/slave connector with gasket and tighten bolts (1).

Tighten

Tighten the four bolts to 3 N•m (2 lb ft).

2. Install the positive battery cable to the connection (3).
3. Install the negative battery cable to the connection (2).

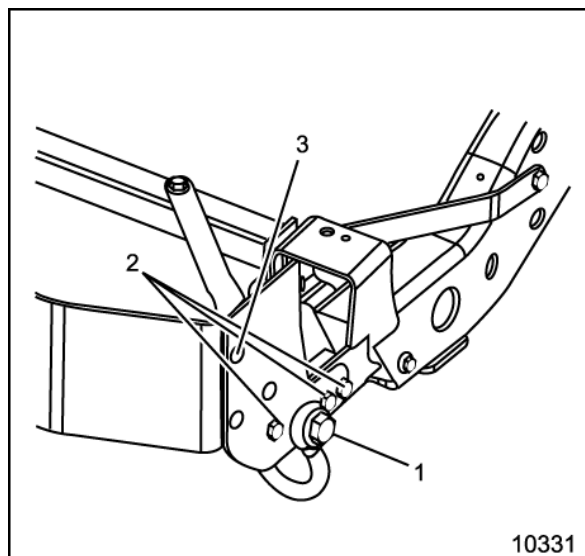
Tighten

Tighten both connections to 6 N•m (4 lb ft).

4. Install the negative cable of the right battery and the 12V and 24V (6) cables of the left battery.

Tighten

Tighten battery cables to 17 N•m (13 lb ft).



Winch Mount Replacement (Pickup Models)

Removal Procedure

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

1. Disconnect the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the winch. Refer to Winch Replacement (Pickup Models).
3. Remove clevis bolts (1). Remove clevises.
4. Remove upper support bolts (3).
5. Remove lower mount bolts (2).
6. Remove mount on left side (right side similar).

Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Place mount on vehicle, install bolts (2) and tighten.

Tighten

Tighten mount bolts to 68 N•m (50 lb ft).

2. Install upper support bolts (3) and tighten.

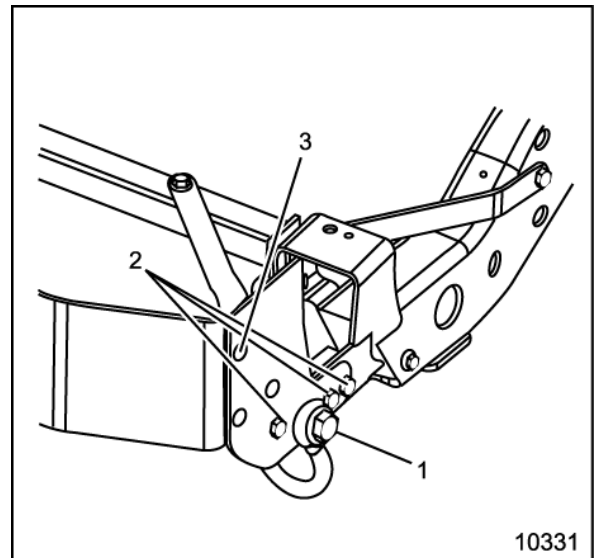
Tighten

Tighten support bolts to 68 N•m (50 lb ft).

3. Install clevises and bolts (1).

Tighten

Tighten clevis bolts to 200 N•m (148 lb ft).



4. Install winch. Refer to Winch Replacement (Pickup Models).
5. Connect electrical connector for the winch.
6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

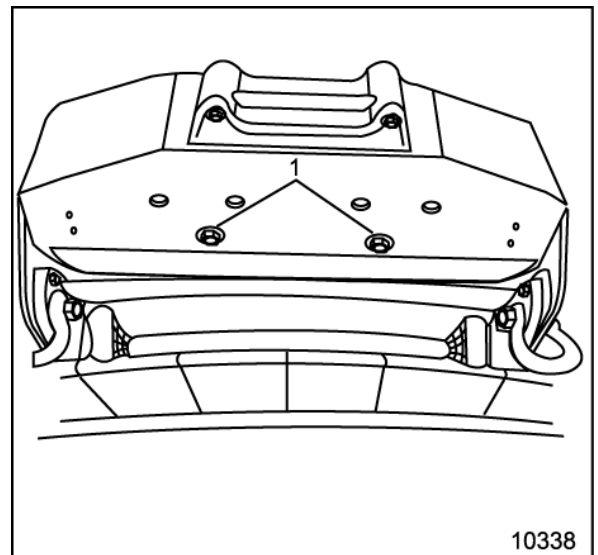
Tighten battery cables to 17 N•m (13 lb ft).

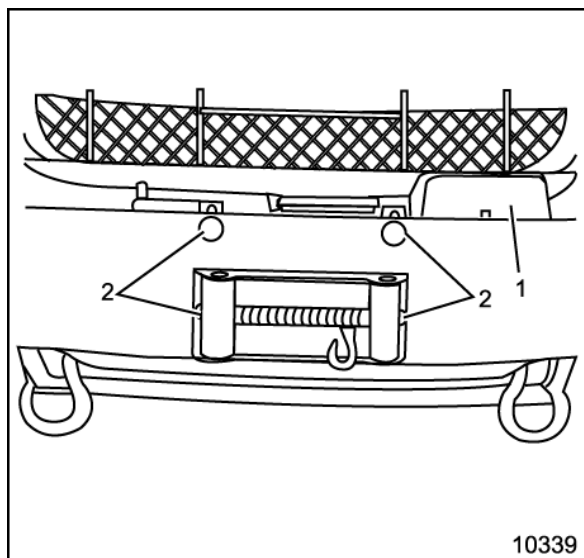
Winch Replacement (Pickup Models)

Removal Procedure

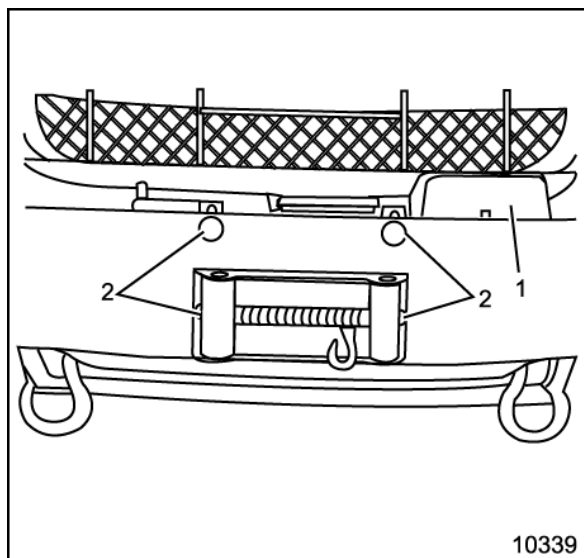
Caution: Refer to Battery Disconnect Caution in Cautions and Notices

1. Disconnect the negative battery cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the two lower bolts (1).





3. Remove winch cover (1).
4. Remove positive and negative cable connection from winch. Note cable routing for installation.
5. Remove the bolts (2) from the front of the winch mount.
6. Remove cable from fairlead. Remove fairlead.
7. Lift winch out of mount.



Installation Procedure

1. Install winch in mount. Verify routing position of positive and negative cables.

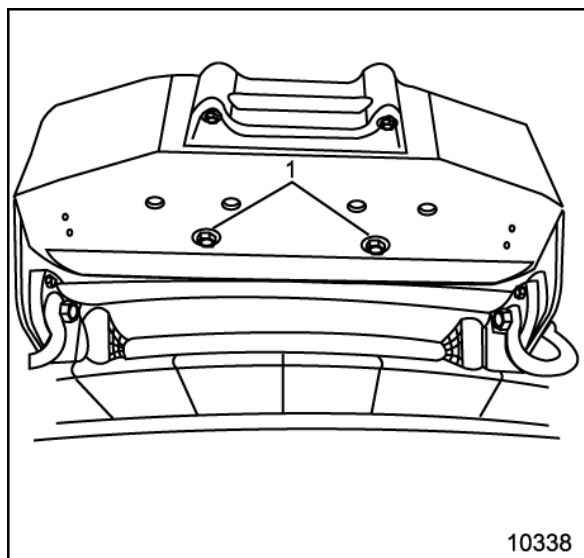
Notice: Refer to Fastener Notice in Cautions and Notices.

2. Position fairlead on front of mount and install winch bolts (2).

Tighten

Tighten bolts to 47-54 N•m (35-40 lb ft).

3. Install positive and negative cable and tighten.
4. Install top winch cover (1).



5. Install lower winch bolts (1) and tighten.

Tighten

Tighten bolts to 47-54 N•m (35-40 lb ft).

6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cables to 17 N•m (13 lb ft).

Description and Operation

Body Front End Description

The body front end consists of a modified radiator grille. It includes three features critical to military vehicles. The slave/booster is mounted in a hole cut into right side of the radiator grille. The blackout headlamp is mounted in a hole cut into the left side of the radiator grille. The front blackout marker lamps are cut into the space between the headlamp and the turn signal on both sides.

The winch mounts, permanent and multi-mount, have been added to both the Pickup models and Tahoe/Suburban models. Refer to applicable procedures for information or the Owner Manual Supplement for how to use the winch.

Seats

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Seat Bolts	88 N•m	65 lb ft

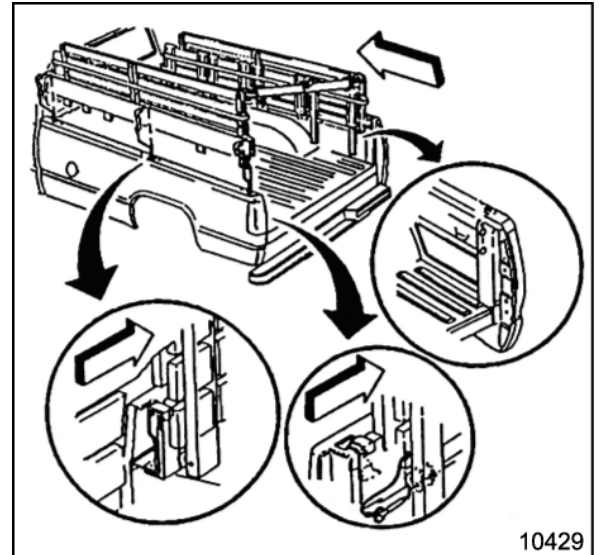
Repair Instructions

Seat Replacement – Troop (Pickup Models)

Removal Procedure

Notice: Note the clamp and stud arrangement for installation later.

1. Remove the two bolts, nuts and clamps holding the seat assembly to the box rail.
2. Fold the seat section to the seatback and install the tether pins to the locking holes for easy removal.
3. Remove the two bolts and nylock nuts from the end of the rail.
4. Remove the troop seat assembly.



Installation Procedure

Notice: 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 two bolts, screws and nuts to the end of the rail.

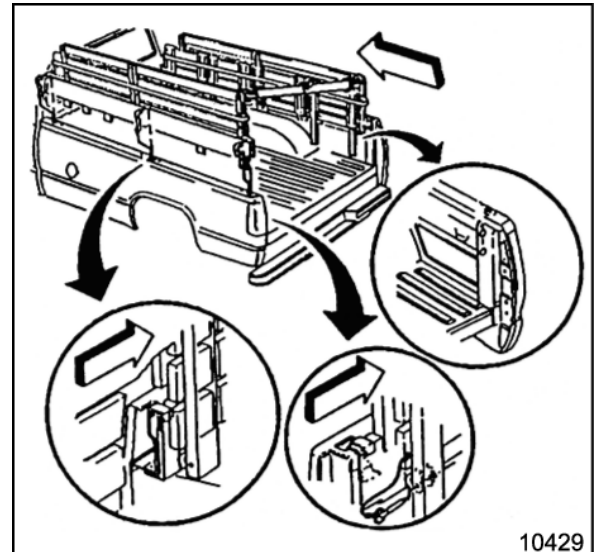
Tighten

Tighten the bolts to 88 N•m (65 lb ft).

3. Install the two 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 88 N•m (65 lb ft).



Description and Operation

Troop Seats Description

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 Owner's Manual Supplement for further details.

Seat Covers

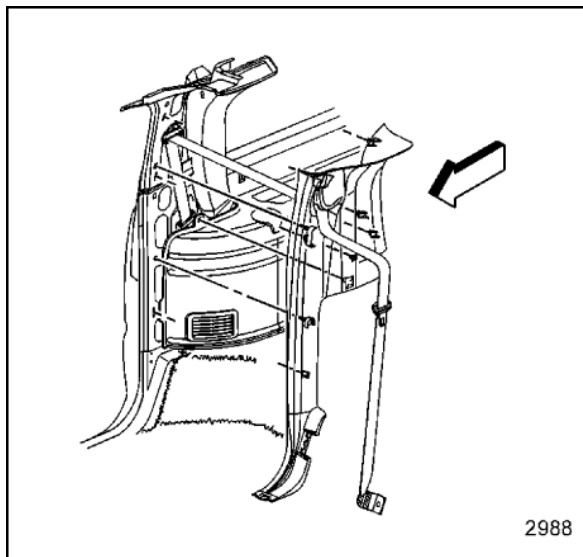
Seat covers are installed on the interior seats to protect the vehicle's interior and are green or tan in color. They allow full function of the seat controls and seat belts.

Interior Trim

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Cable Connections	17 N•m	13 lb ft
Equalizer Connections	12 N•m	110 lb in
Contactor Contact Terminal Nuts	5-6 N•m	45-55 lb in
Contactor Coil Terminal Nuts	1-2 N•m	12-18 lb in
Floor Mount Weapons Bolts	8 N•m	6 lb ft
Lower Weapons Mount Bolts	8 N•m	6 lb ft
Power Converter Connections	12 N•m	110 lb in
Side Trim Panel Screws (Utility)	2 N•m	1.5 lb ft
Upper Weapons Mount Bolts	8 N•m	6 lb ft

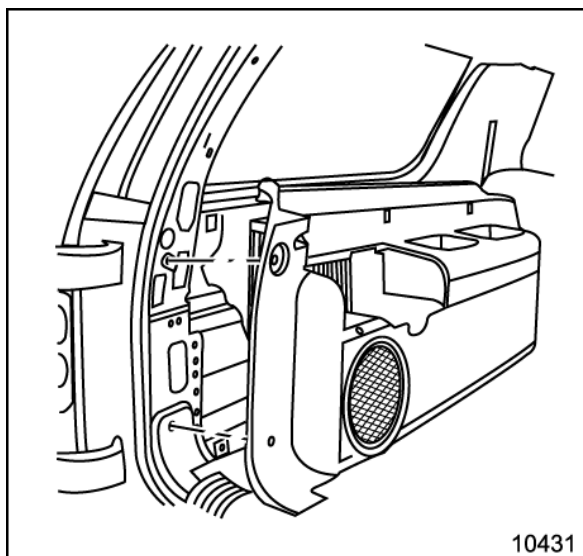
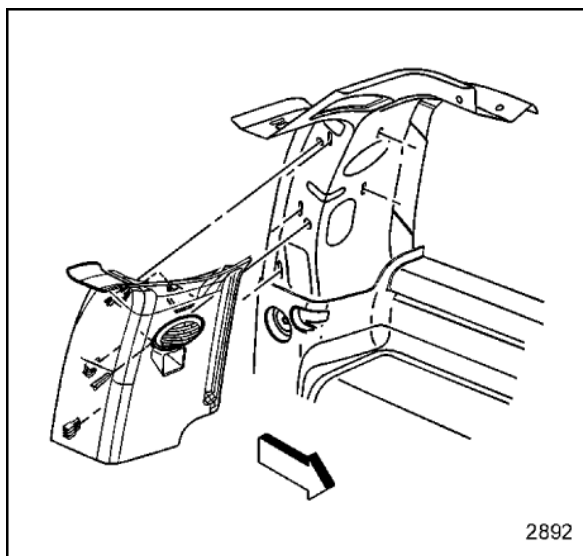


Repair Instructions

Rear Compartment Side Trim Panel Replacement (Tahoe/Suburban)

Removal Procedure

1. Remove the third-pillar garnish molding. Refer to the Trim Replacement – Third Pillar in the 2001/02 C/K Truck Service Manual.
2. Remove the rear corner garnish molding. Refer to the Garnish Molding Replacement – Rear Corner in 2001/02 C/K Truck Service Manual.
3. Remove the screws holding the side trim panel to the side panel.
4. Remove retainer clips holding the trim panel to the vehicle.
5. Remove the side trim panel.



Installation Procedure

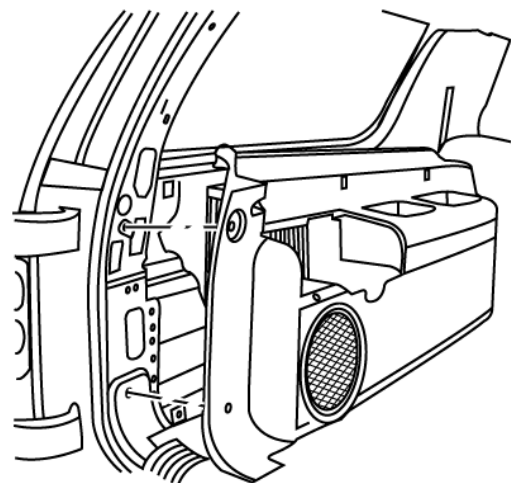
Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the side trim panel with the screws.

Tighten

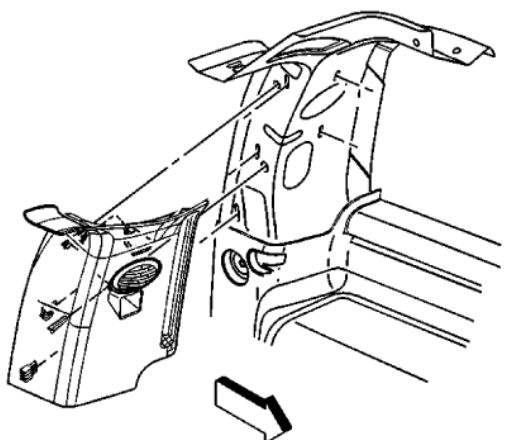
Tighten the screws to 2 N•m (1.5 lb ft).

2. Install the trim panel to the vehicle by pressing on the retainer clips.



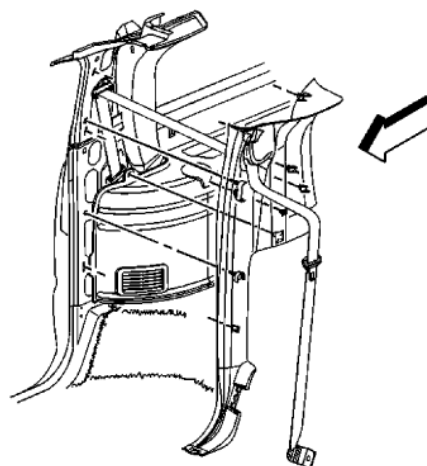
10431

3. Install the rear corner garnish molding. Refer to Rear Corner Garnish Molding Replacement – Rear Corner in the 2001/02 C/K Truck Service Manual.

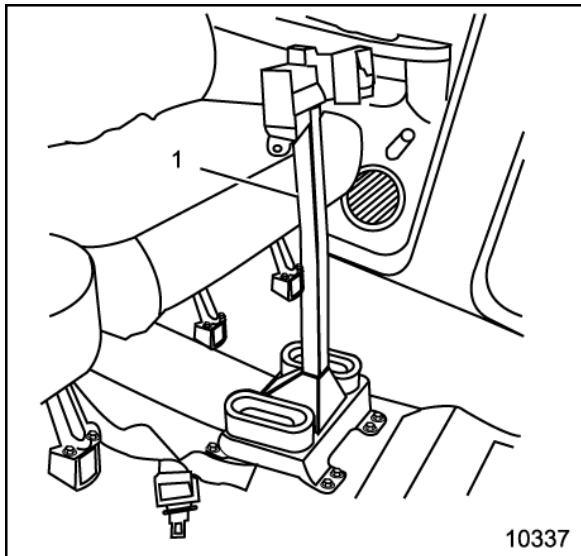


2892

4. Install the third-pillar garnish molding. Refer to Trim Replacement – Third Pillar in the 2001/02 C/K Truck Service Manual.



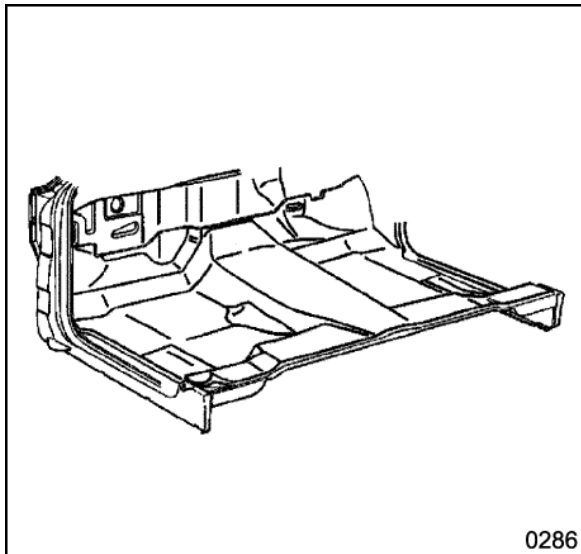
2988



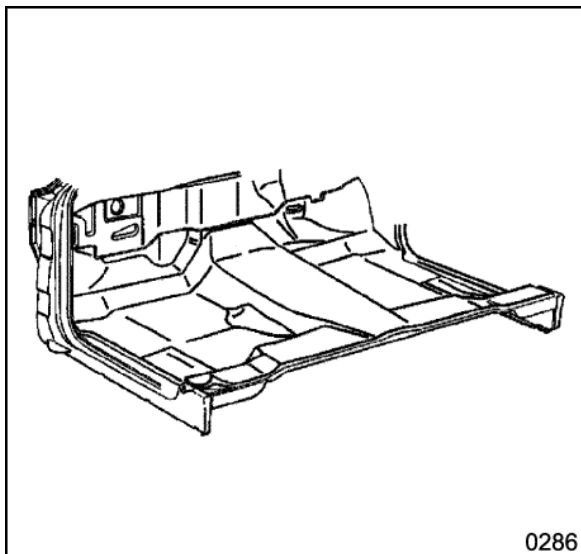
Floor Mat Replacement (Pickup Models)

Removal Procedure

1. Remove bolts securing weapons mount (1) and remove mount.



2. Remove floor mat. Refer to Carpet Replacement – Front and Carpet Replacement – Rear in 2001/02 C/K Truck Service Manual.



Installation Procedure

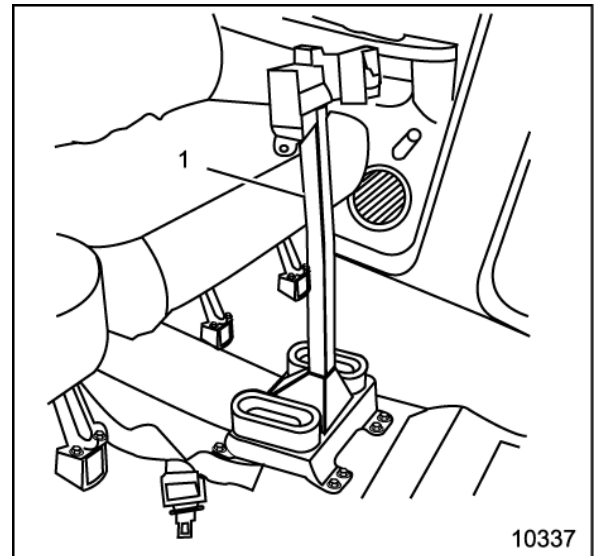
1. Using the old floor mat as a template cut weapons mount holes in the new floor mat.
2. Install the floor mat. Refer to Carpet Replacement – Front and Carpet Replacement – Rear in 2001/02 C/K Truck Service Manual.

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install weapons mount (1) and install bolts.

Tighten

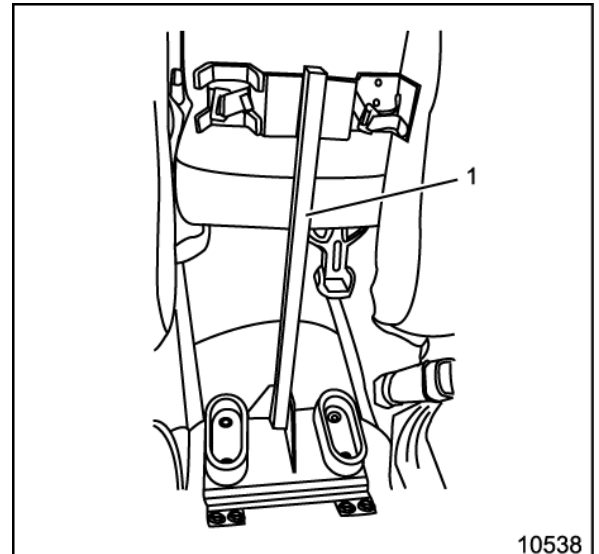
Tighten bolts to 8 N•m (6 lb ft).



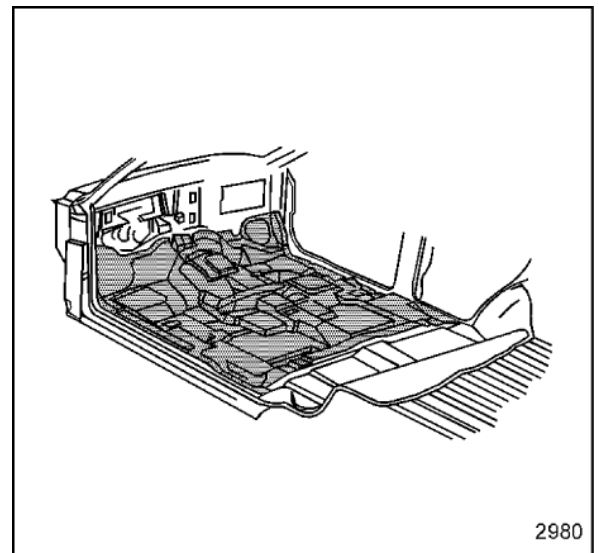
Floor Mat Replacement (Tahoe/Suburban)

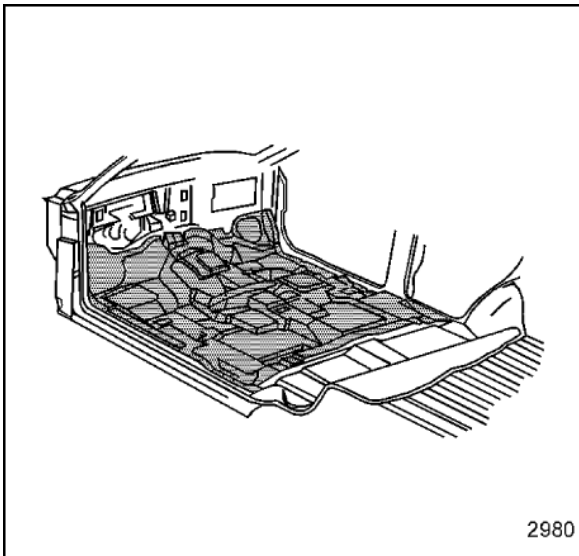
Removal Procedure

1. Remove bolts securing weapons mount (1) and remove mount.



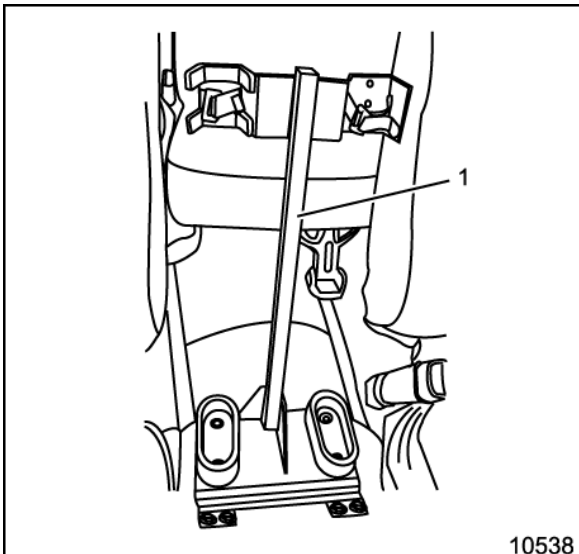
2. Remove floor mat. Refer to Carpet Replacement – Front (Utility) in 2001/02 C/K Truck Service Manual.





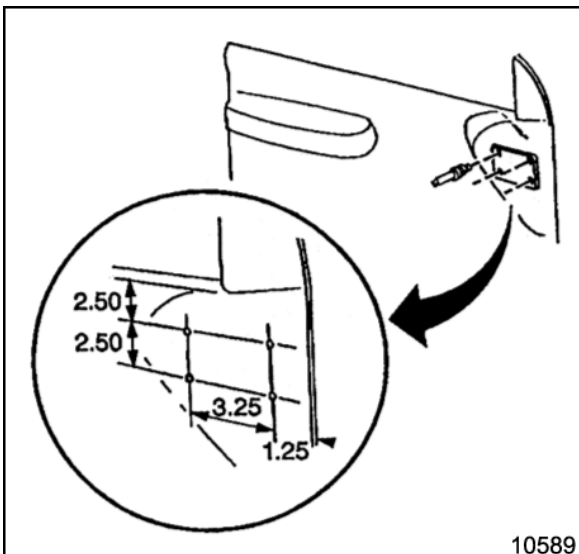
Installation Procedure

1. Using the old floor mat as a template cut weapons mount holes in the new floor mat.
2. Install the floor mat. Refer to Carpet Replacement Front (Utility) in 2001/02 C/K Truck Service Manual.



Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install weapons mount (1). Install fasteners and tighten.
Tighten
Tighten bolts to 8 N•m (6 lb ft).



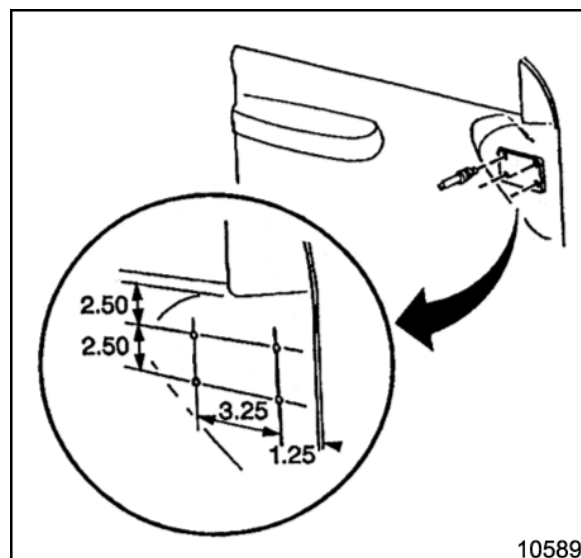
Government Vehicle Data Plate Replacement

Removal Procedure

1. Drill out the four rivets.
2. Remove the plate.

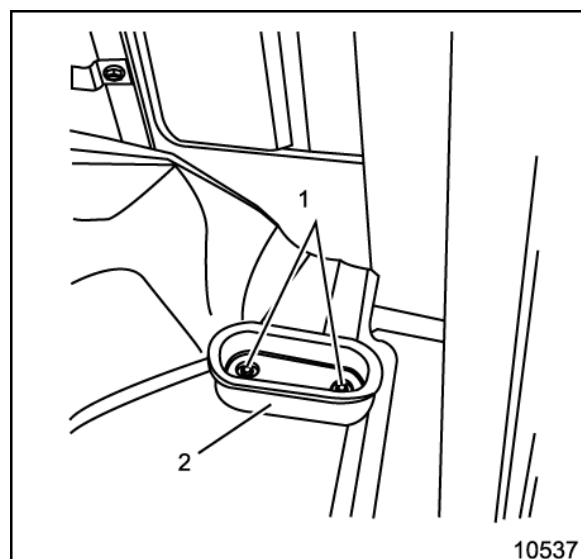
Installation Procedure

1. Install the plate to the original holes by aligning.
Install the new rivets.



Weapons Support Replacement – Lower Removal Procedure

1. Remove the two bolts (1) holding the support to the floor.
2. Remove the support (2).



Installation Procedure

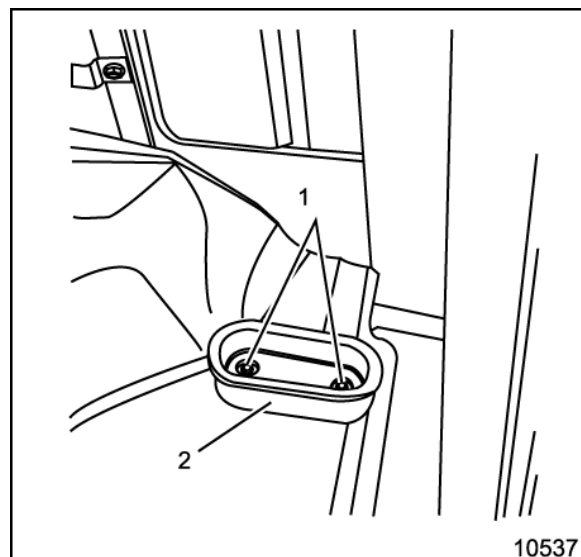
1. Install the support (2) by aligning the bolts holes.

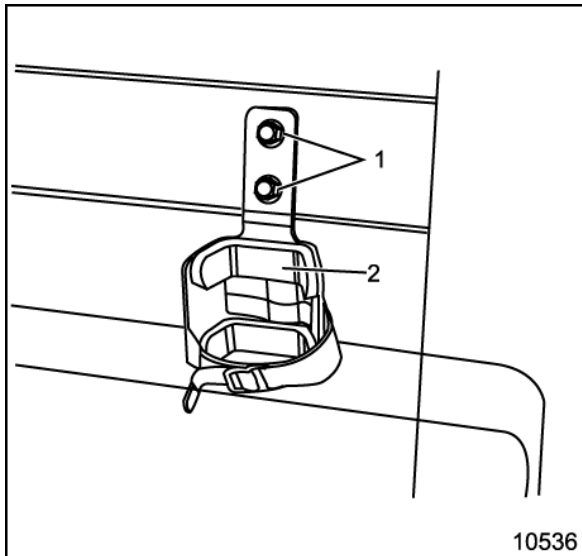
Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the two bolts (1) holding the support to the floor, tighten.

Tighten

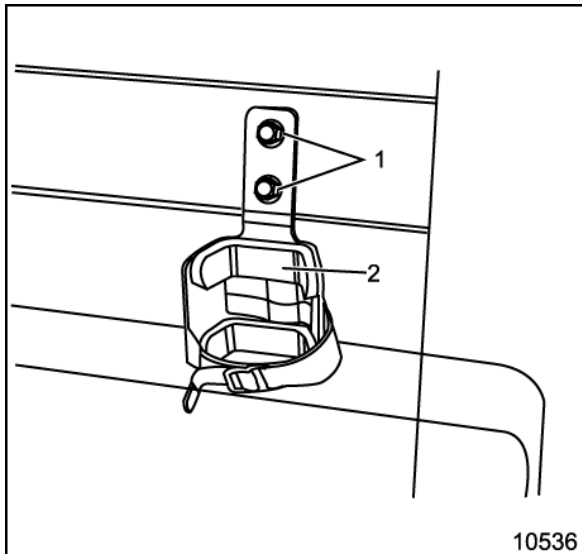
Tighten the two bolts to 8 N•m (6 lb ft).





Weapons Mount Replacement – Upper Removal Procedure

1. Remove the bolts (1) holding the upper mount to the inner body.
2. Remove the upper weapons mount (2).



Installation Procedure

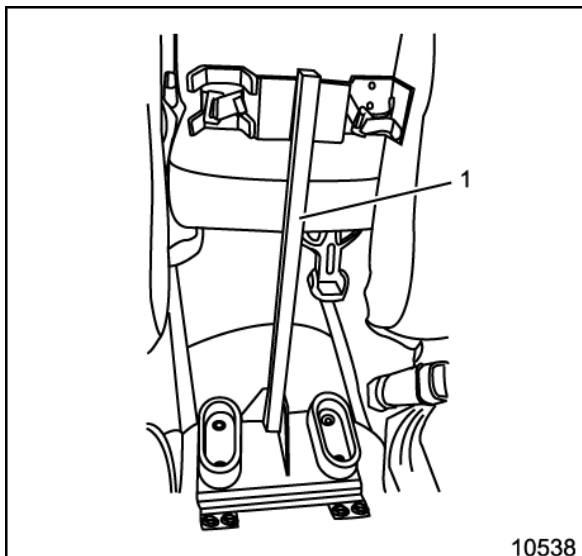
1. Install the upper weapons mount assembly (2) by aligning to the body side inner upper panel.

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 (6 lb ft).



Weapons Mount Replacement – Floor Mount

Removal Procedure

1. Remove bolts securing weapons mount to the floor.
2. Remove weapons mount (1) from vehicle.

Installation Procedure

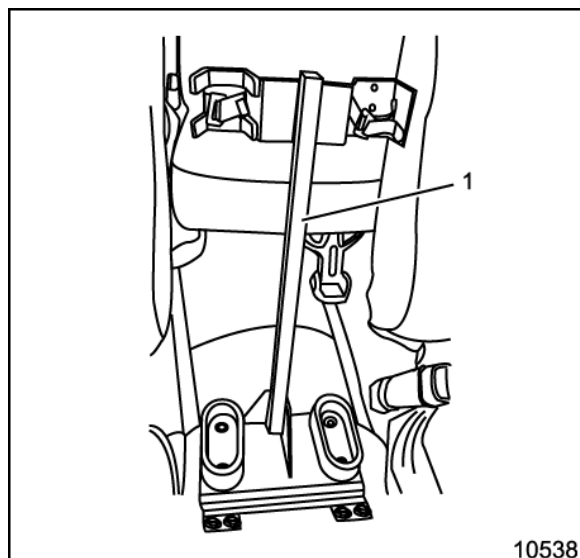
1. Install weapons mount (1) on floor aligning fastener holes.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install bolts in the mount and tighten.

Tighten

Tighten bolts to 8 N•m (6 lb ft).

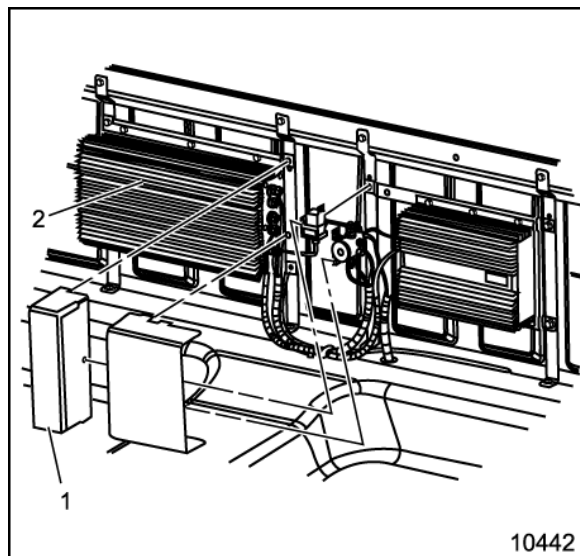


24 Voltmeter Relay Replacement (Pickup Models)

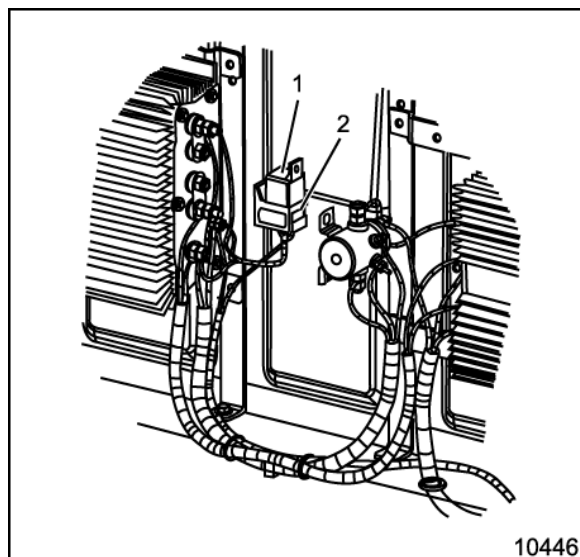
Removal Procedure

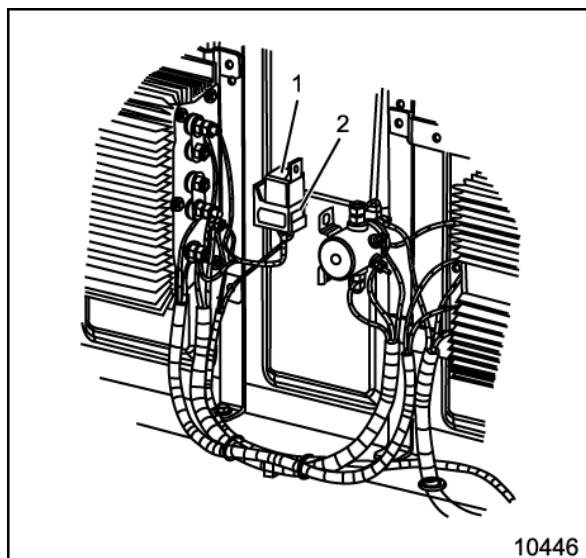
Caution. Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the cover (1) from the power converter (2).



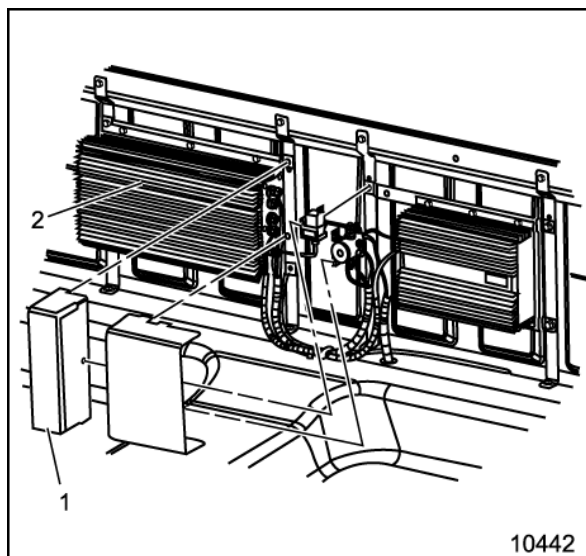
3. Remove voltmeter relay (1) from connector (2).





Installation Procedure

1. Install voltmeter relay (1) into connector (2).



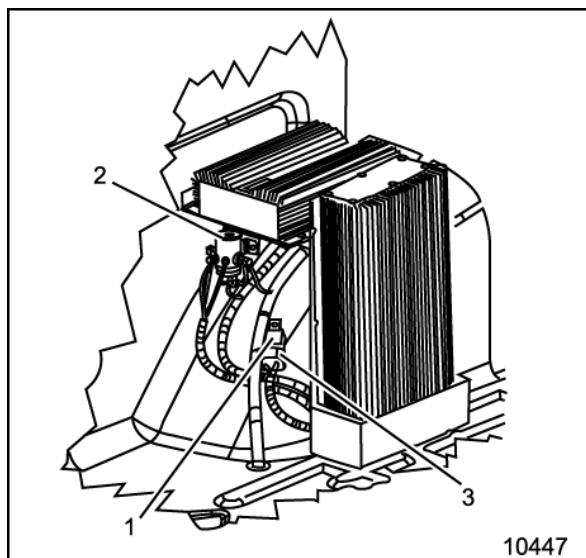
2. Install the cover (1) from the power converter (2).

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



24 Voltmeter Relay Replacement (Tahoe)

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove the cover from the trim panel.
3. Remove the relay (1) from the connector (3).

Installation Procedure

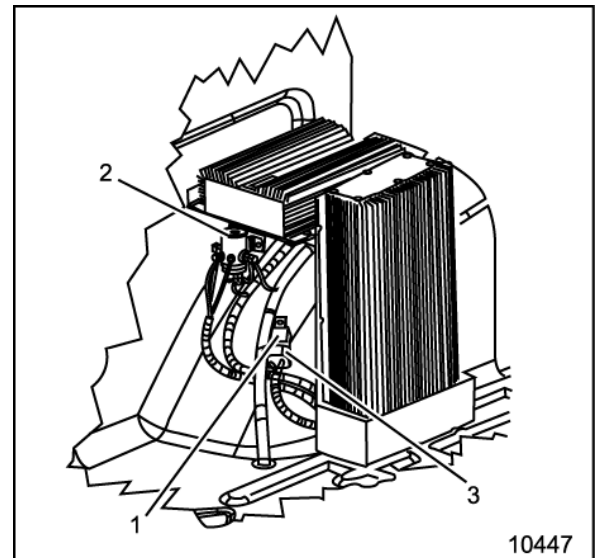
1. Install the relay (1) into the connector (3).
2. Install the cover onto the trim panel.

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

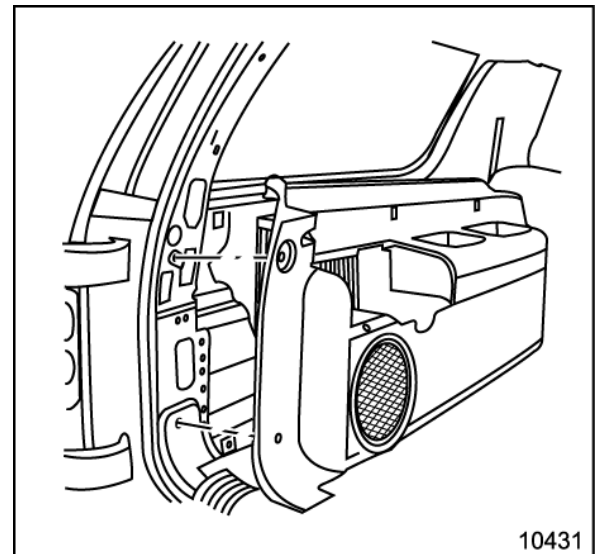
Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

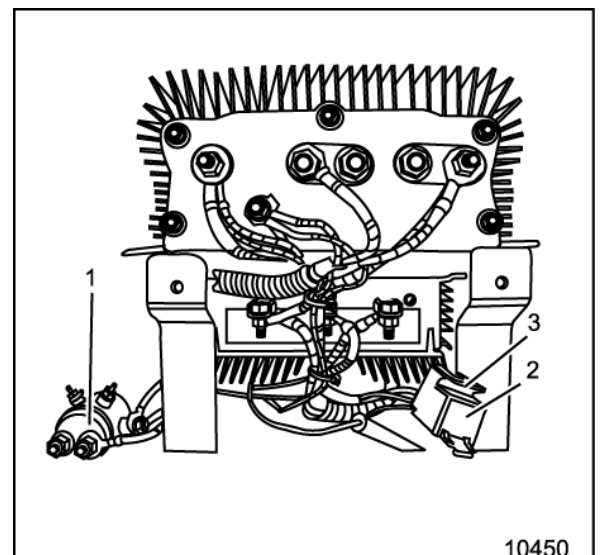
**24 Voltmeter Relay Replacement (Suburban)****Removal Procedure**

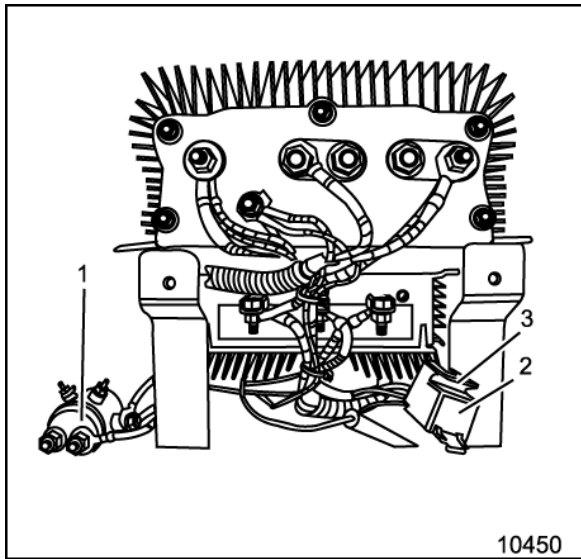
Caution. Refer to *Battery Disconnect Caution in Cautions and Notices.*

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove the left trim panel. Refer to Trim Panel Replacement Rear quarter (utility left) in the 2001/02 C/K Truck Service Manual.



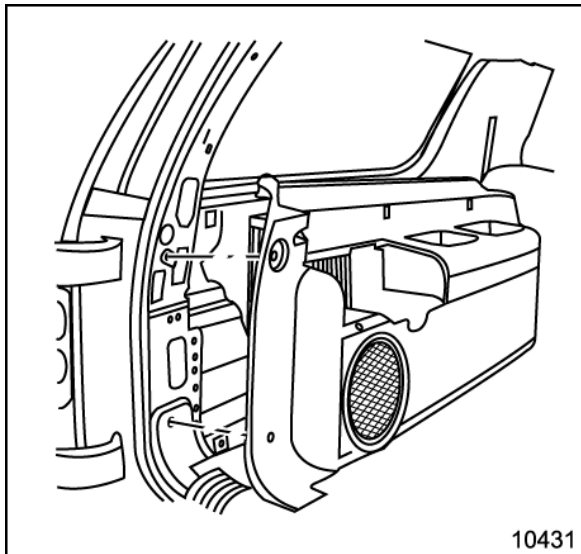
3. Remove the voltmeter relay (2) from the connector (3).





Installation Procedure

1. Install the voltmeter relay (2) into the connector (3).



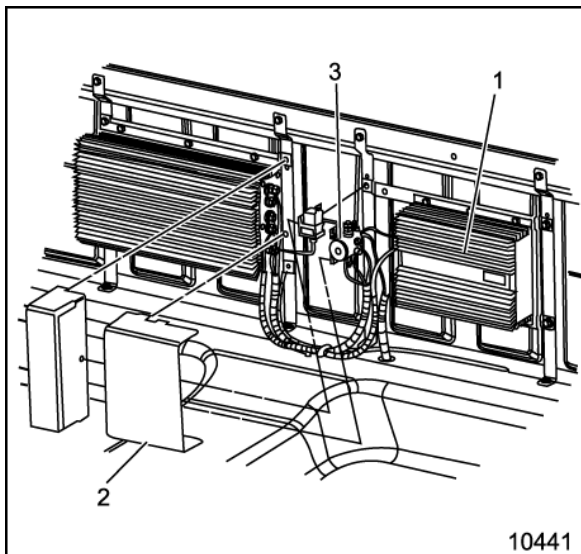
2. Install the left trim panel. Refer to Trim Panel Replacement Rear quarter (utility left) in the 2001/02 C/K Truck Service Manual.

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



Contactor Replacement (Pickup Models)

Removal Procedure

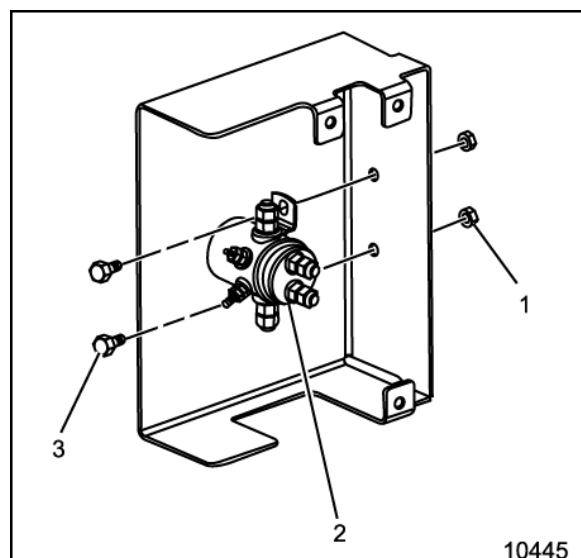
Caution. Refer to Battery Disconnect Caution in Cautions and Notices.

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove the cover (2) from the equalizer (1).

3. Remove the bolts (3) and nuts (1) securing the contactor (2) to the cover.

Notice: A back up wrench must be used to hold the bottom nut stationary.

4. Remove the wiring from the contactor terminals. Note removal position of wiring for installation.



Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the wiring to the contactor terminals in the same position as removed.

Notice: A back up wrench must be used to hold the bottom nut stationary.

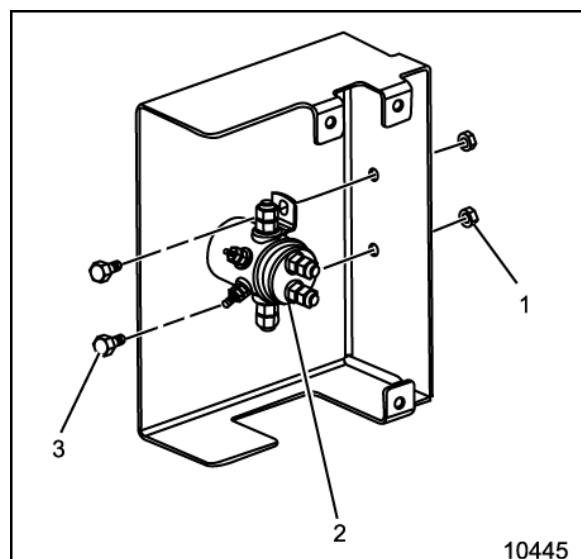
Tighten

Tighten the larger contact terminal nuts to 5-6 N•m (45-55 lb in).

Tighten

Tighten the smaller coil terminal nuts to 1-2 N•m (12-18 lb in).

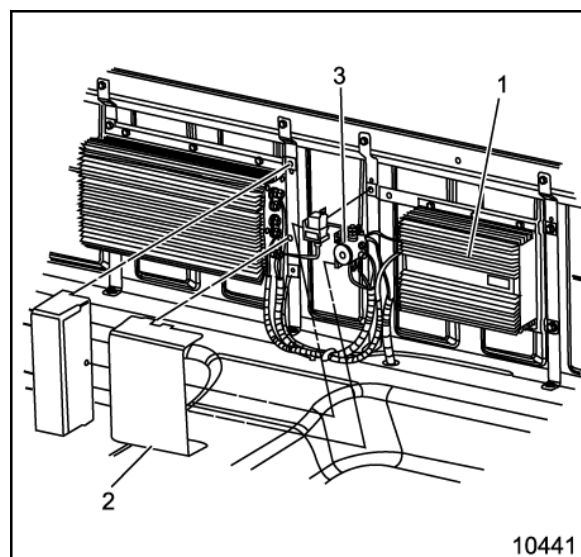
2. Install the contactor (2) to the cover and secure with bolts (3) and nuts (1).

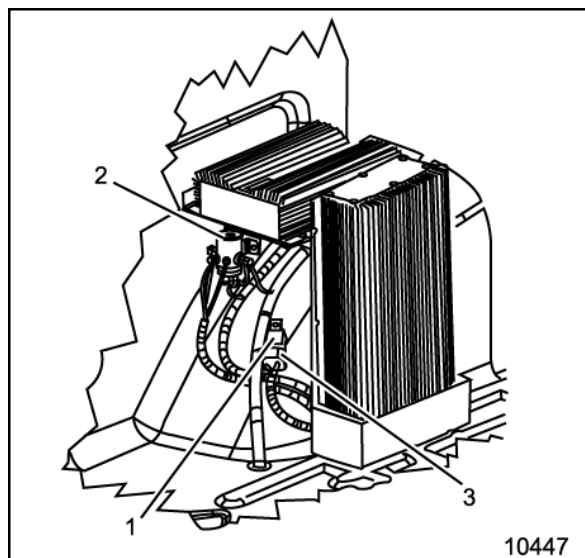


3. Install the cover (2) to the equalizer (1).
4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).





Contactor Replacement (Tahoe)

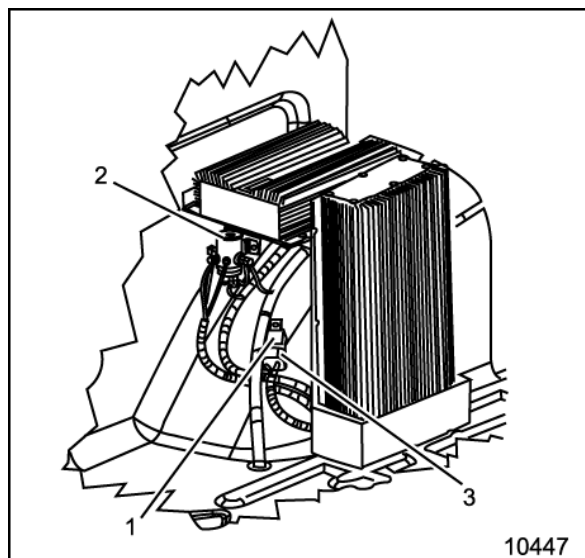
Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove the top cover of the trim panel to gain access to the contactor (2).
3. Remove bolts securing contactor to the bracket.

Notice: A back up wrench must be used to hold the bottom nut stationary.

4. Remove the wiring on the contactor (2). Note position of wiring for installation.



Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install the wiring to the contactor (2). The same position as removed.

Notice: A back up wrench must be used to hold the bottom nut stationary.

Tighten

Tighten the larger contact terminal nuts to 5-6 N•m (45-55 lb in).

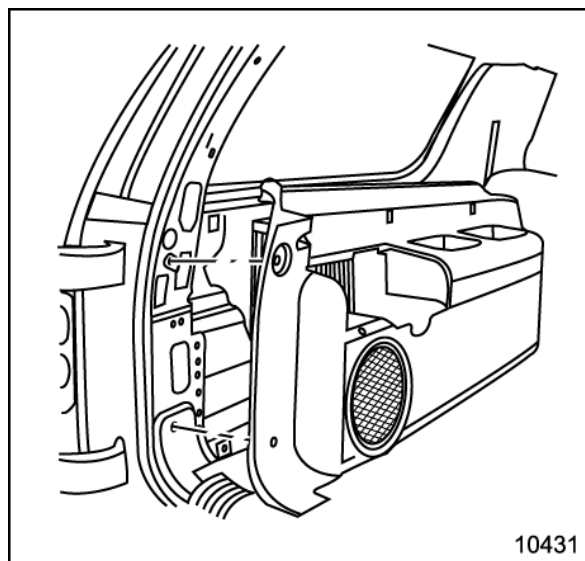
Tighten

Tighten the smaller coil terminal nuts to 1-2 N•m (12-18 lb in).

2. Install the contactor (2) to the mounting bracket.
3. Install the top cover to the trim panel.
4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten the battery cable connections to 17 N•m (13 lb ft).



Contactor Replacement (Suburban)

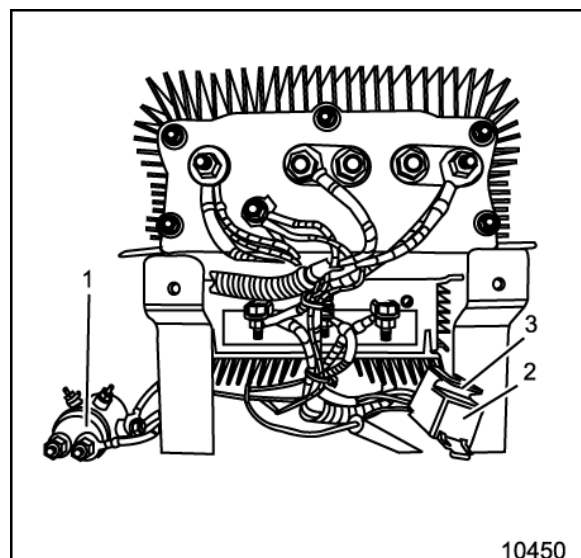
Removal Procedure

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

1. Remove the negative cable of the right battery and 12V and 24V cables of the left battery.
2. Remove the left trim panel. Refer to Trim Panel Replacement-Rear Quarter (Utility Left) in the 2001/02 C/K Truck Service Manual.

Notice: A back up wrench must be used to hold the bottom nut stationary.

3. Remove the wiring from the contactor (1). Note the position of wires for installation.
4. Remove screws securing contactor to the body.



Installation Procedure

1. Install screws securing contactor (1) to the body.

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install wiring to contactor in the same position as removed.

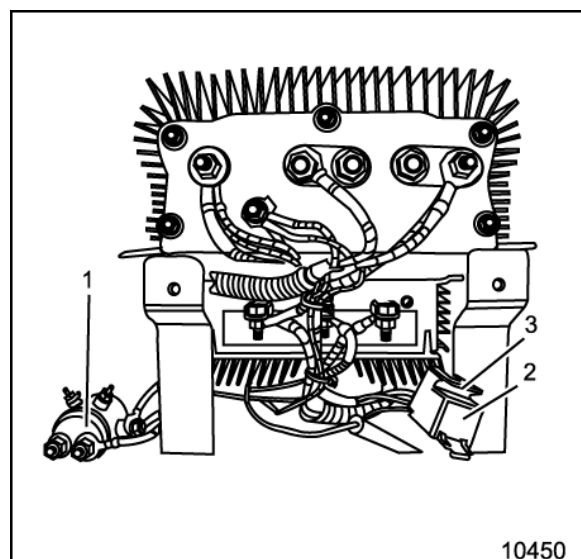
Notice: A back up wrench must be used to hold the bottom nut stationary.

Tighten

Tighten the larger contact terminal nuts to 5-6 N•m (45-55 lb in).

Tighten

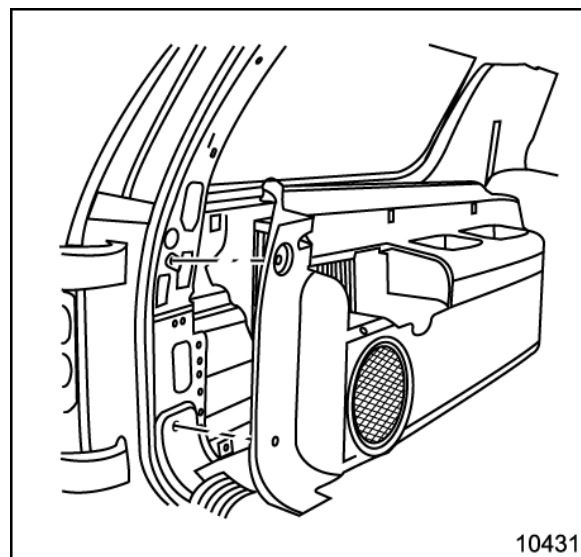
Tighten the smaller coil terminal nuts to 1-2 N•m (12-18 lb in).

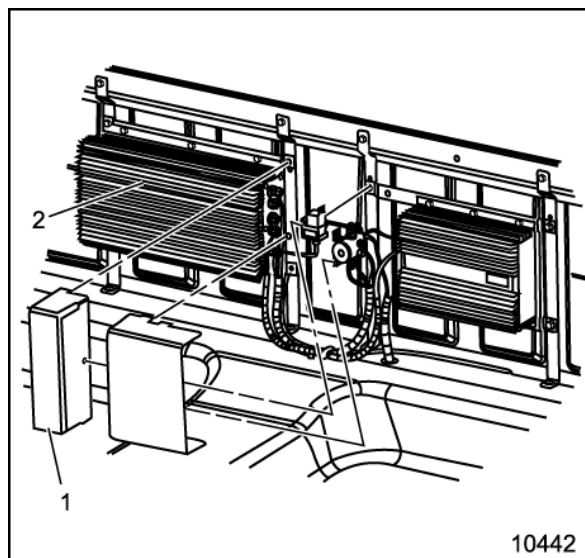


3. Install the left trim panel. Refer to Trim Panel Replacement – Rear Quarter (utility left) in the 2001/02 C/K Truck Service Manual.
4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



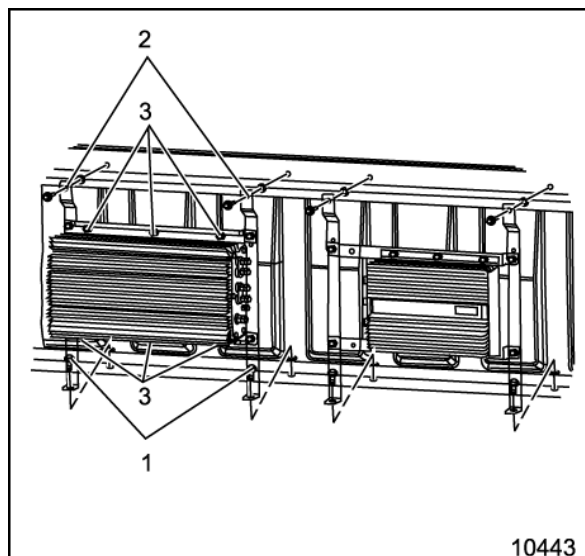


Power Converter/Bracket Replacement (Pickup Models)

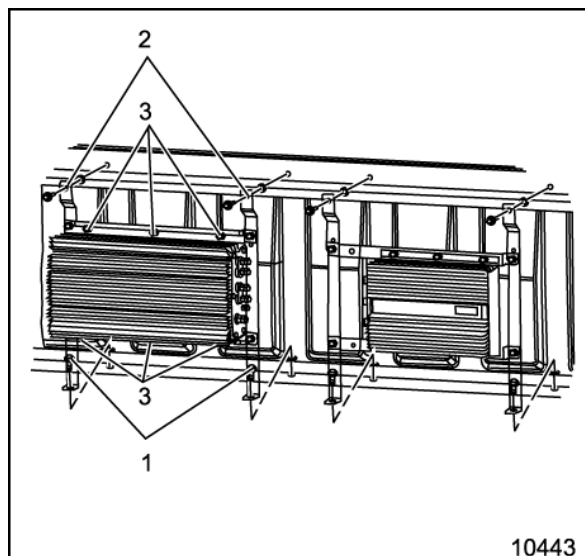
Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove cover (1) from power converter (2).
3. Remove wiring from power converter terminals. Note the removal position of wiring for installation.



4. Remove lower bolts (1) from the power converter bracket.
5. Remove upper bolts (2) from the power converter bracket. Remove bracket with power converter from vehicle.
6. Remove power converter by removing bolts (3).



Installation Procedure

1. Install power converter to bracket and tighten bolts (3).
2. Install mounting bracket to vehicle and tighten lower bolts (1) and upper bolts (2).

Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the wiring to the power converter terminal in the same position as removed.

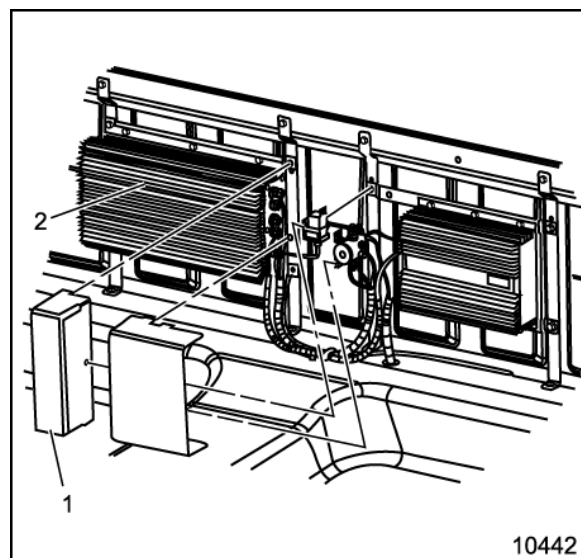
Tighten

Tighten converter connections to 12 N•m (110 lb ft).

4. Install cover (1) on power converter (2).
5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

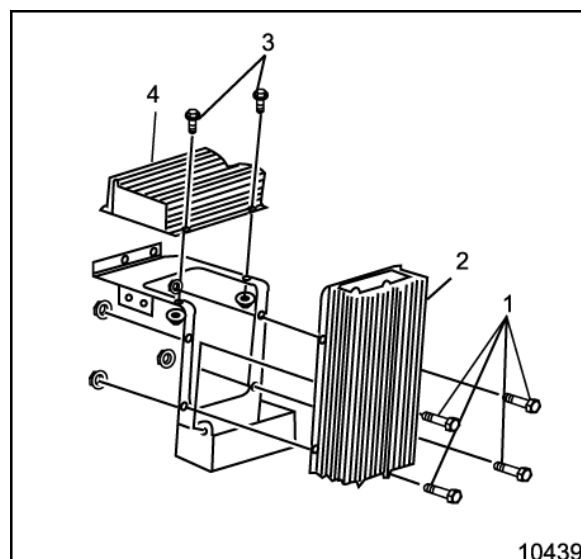


Power Converter Replacement (Tahoe)

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove bolts (1) securing converter to the bracket.
3. Lift converter (2) out of bracket enough to gain access to the wiring connections.
4. Remove the wiring from the connectors. Note removal position of wiring for installation.



Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install wiring to the converter connection in the same position as removed and tightened.

Tighten

Tighten converter connections to 12 N•m (110 lb in).

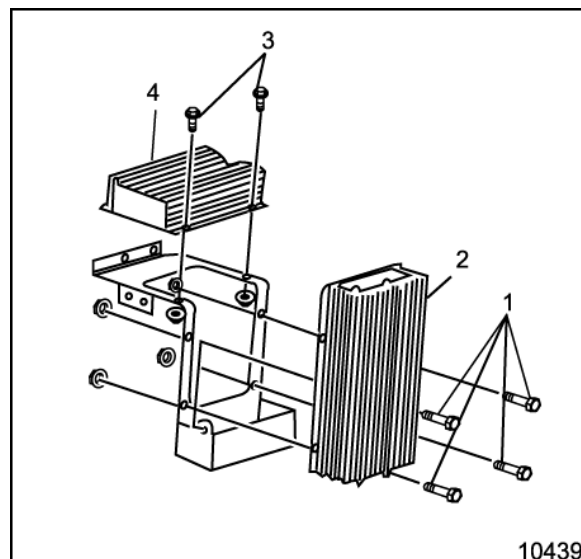
2. Install converter (2) in bracket and tighten bolts (1)

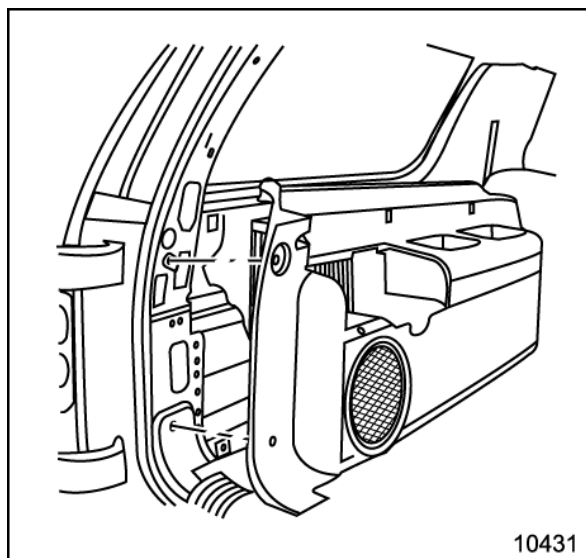
Important: Verify that the wiring is not pinched and that the converter terminals are not touching the metal bracket.

3. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten the battery cable connections to 17 N•m (13 lb ft).





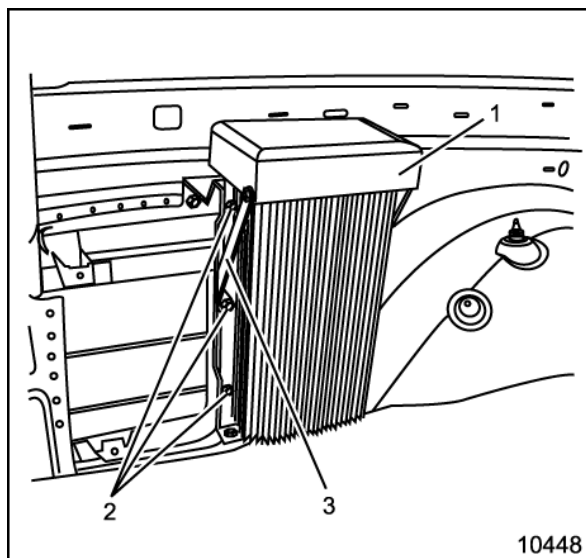
10431

Power Converter Replacement (Suburban)

Removal Procedure

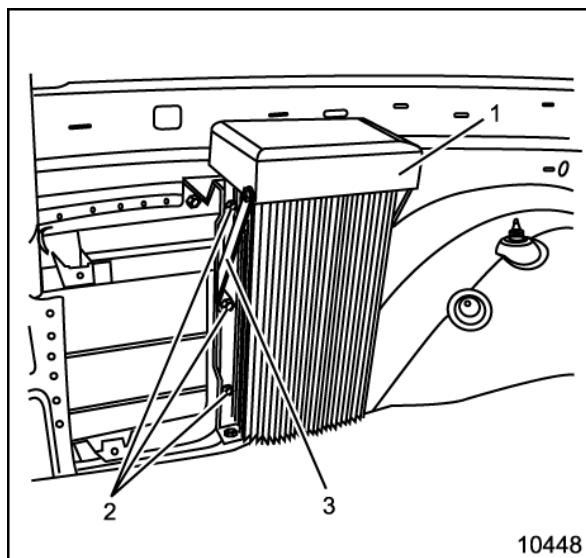
Caution. Refer to *Battery Disconnect Cautions in Cautions and Notices*.

1. Remove the negative cable of the right battery and the 12V and 24V cable of the left battery.
2. Remove the left trim panel. Refer to Trim Panel Replacement – Rear Quarter (utility left) in the 2001/02 C/K Truck Service Manual.



10448

3. Remove cover (1) to gain access to wiring connections.
4. Remove wiring connections from top of converter. Note removal position for installation.
5. Remove bolts (2) and brace (3) left side shown right is similar.
6. Remove power converter from vehicle.



10448

Installation Procedure

1. Install power converter in vehicle.
2. Install brace (3) and bolts (2). Tighten.
3. Install wiring to connections on converter in the same position as removed.
4. Install cover (1) on power converter.

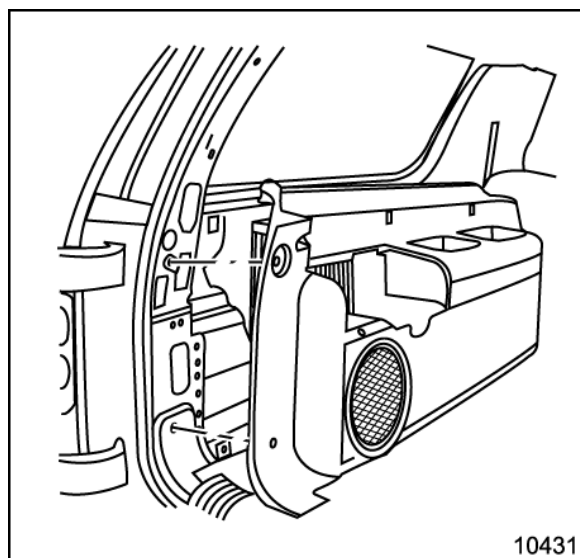
5. Install the left trim panel. Refer to Trim Panel Replacement-Rear Quarter (utility left) in the 2001/02 C/K Truck Service manual.

Notice: Refer to Fastener Notice in Cautions and Notices.

6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



Battery Equalizer/Bracket Replacement (Pickup Models)

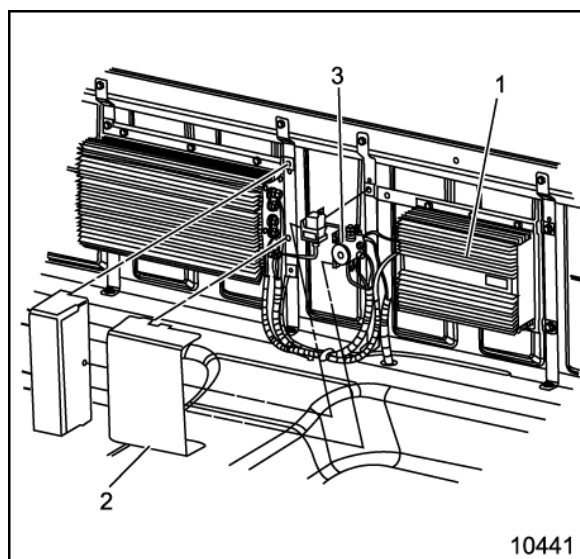
Removal Procedure

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

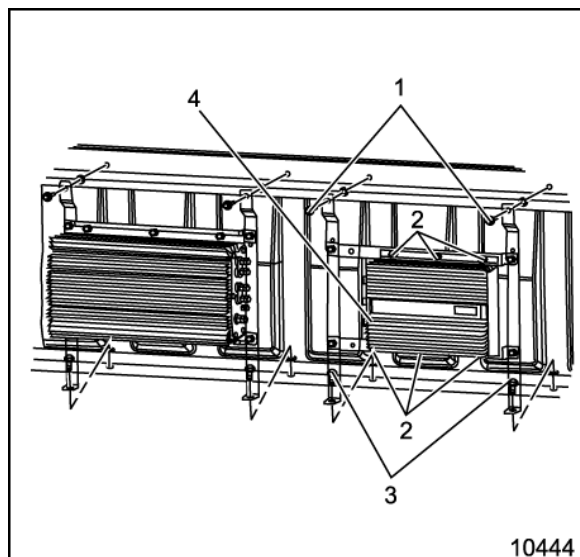
1. Remove the negative cable from the right battery and the 12V and 24V cables of the left battery.
2. Remove cover (2) from equalizer and lay aside.

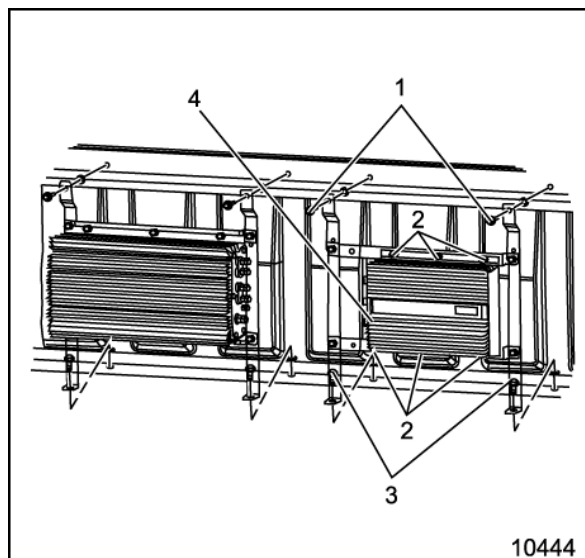
Note: Contactor (3) will remain on the cover.

3. Remove the wiring from the equalizer (1) connections. Note removal positions for installation.



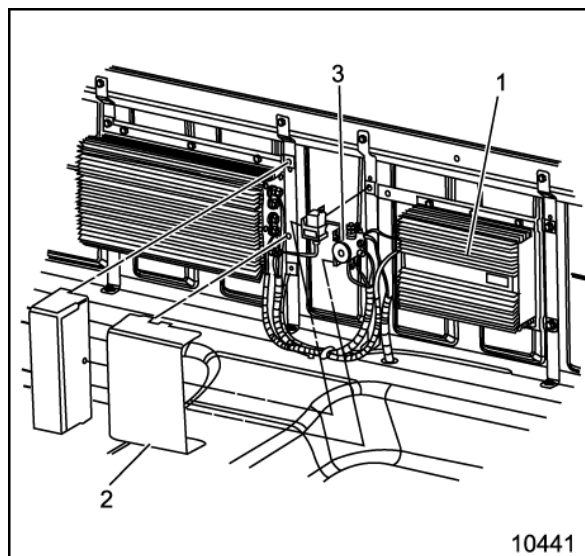
4. Remove lower bolts (3) from bracket.
5. Remove upper bolts (1) from bracket and remove from the vehicle.
6. Remove bolts (2) securing equalizer (4) to the bracket.





Installation Procedure

1. Install equalizer (4) to the bracket and secure with bolts (2).
2. Install bracket with equalizer in vehicle.
3. Secure bracket with lower bolts (3) and upper bolts (1).



Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the wiring to the equalizer connections in the same position as removed.

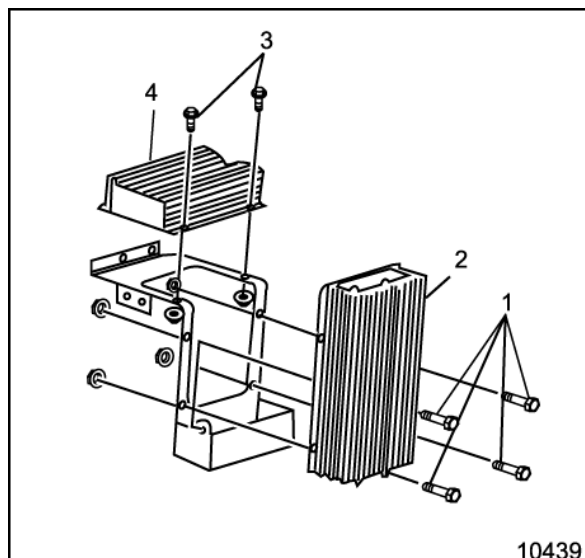
Tighten

Tighten the equalizer connections to 12 N•m (110 lb in).

5. Install cover (2) over the end of the equalizer (1).
6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections 17 N•m (13 lb ft).



Battery Equalizer Replacement (Tahoe)

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the power converter. Refer to Power Converter Replacement (Tahoe).
3. Remove the cover from the side panel to gain access to the equalizer.
4. Remove the bolts (3) securing equalizer (4) to mounting bracket.
5. Remove wiring connections from the equalizer. Note removal position of wiring for installation.

Installation Procedure

Notice: Refer to Fastener Notice in Cautions and Notices.

1. Install wiring to the converter connection in the same position as removed and tighten.

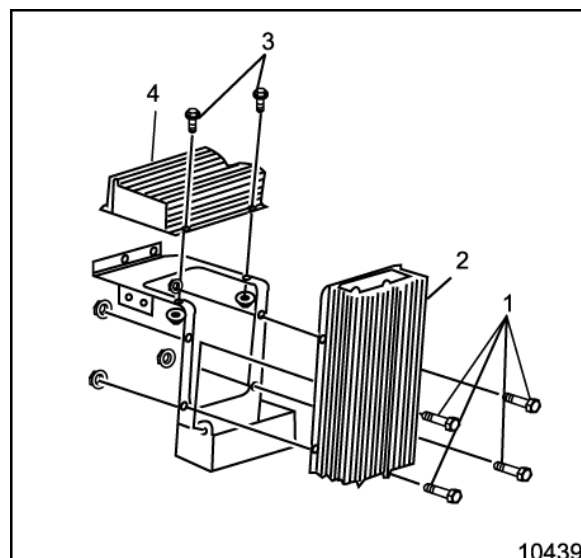
Tighten

Tighten the equalizer connections to 12 N•m (110 lb in).

2. Install equalizer (4) on mounting bracket and tighten bolts (3).
3. Install top trim cover on panel.
4. Install the power converter. Refer to Power Converter Replacement (Tahoe).
5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

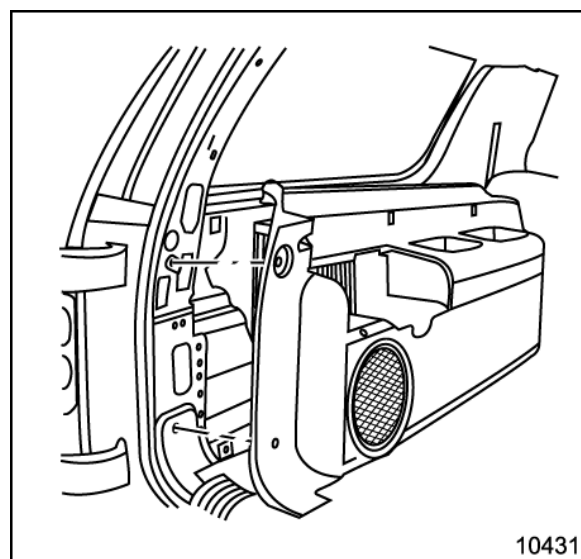


Battery Equalizer Replacement (Suburban)

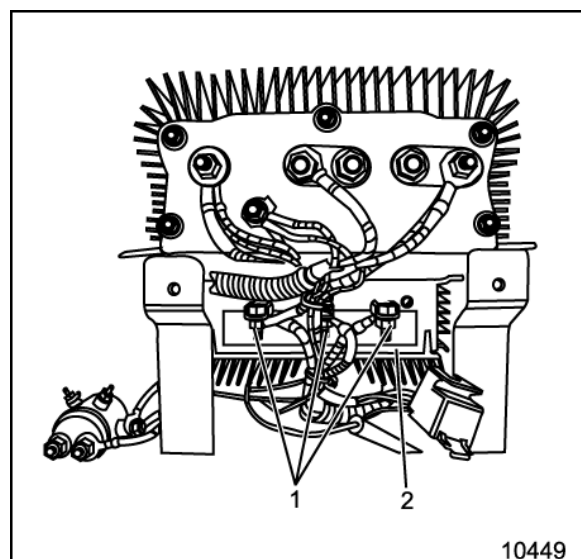
Removal Procedure

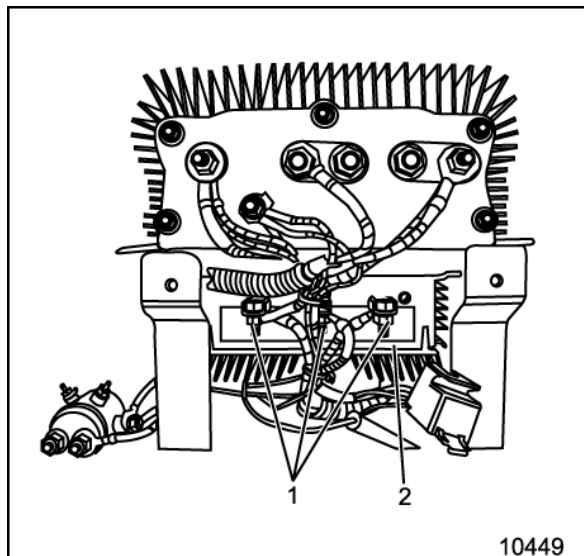
Caution. Refer to *Battery Disconnect Caution in Cautions and Notices*.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the left trim panel. Refer to Trim Panel Replacement Rear Quarter (utility left) in the 2001/02 C/K Truck service manual.



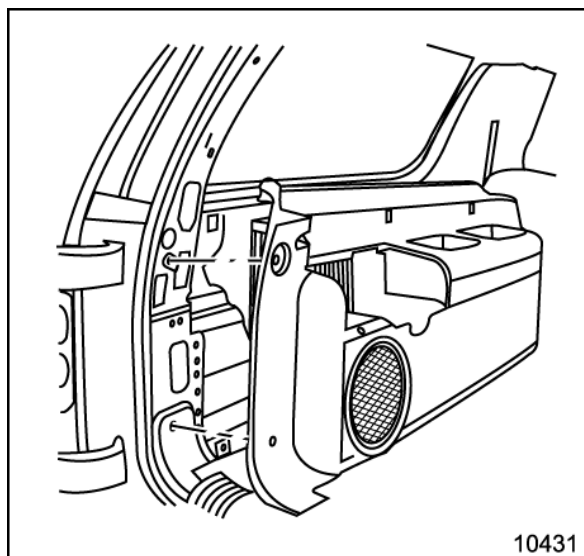
3. Remove equalizer wiring from connectors (1). Note removal position of wiring for installation.
4. Remove bolts securing equalizer (2) to bracket.
5. Slide equalizer from bracket, remove from vehicle.





Installation Procedure

1. Slide the equalizer (2) into bracket and secure with bolts.
2. Install wiring to equalizer connections (1) in same location as removed.



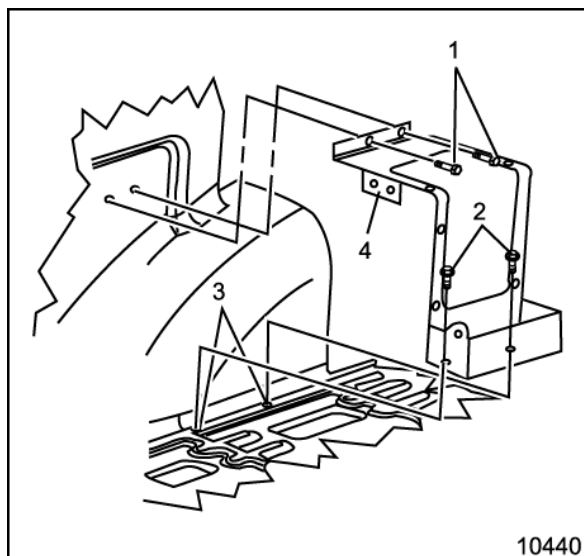
3. Install the left trim panel. Refer to Trim Panel Replacement Rear Quarter (utility left) in the 2001/02 C/K Truck Service Manual.

Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).



Power Converter/Equalizer Bracket Replacement (Tahoe)

Removal Procedure

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

1. Remove the negative cable of the right battery and the 12V and 24V cables of the right battery.
2. Remove the Power Converter. Refer to Power Converter Replacement (Tahoe).
3. Remove the Battery Equalizer. Refer to Battery Equalizer Replacement (Tahoe).
4. Remove the Power Converter contactor mounting bolts from bracket.
5. Remove the upper bolts (1) and lower bolts (2).
6. Remove mounting bracket (4).
7. Drill out rivnuts (3) (TX 016183) if damaged.

Installation Procedure

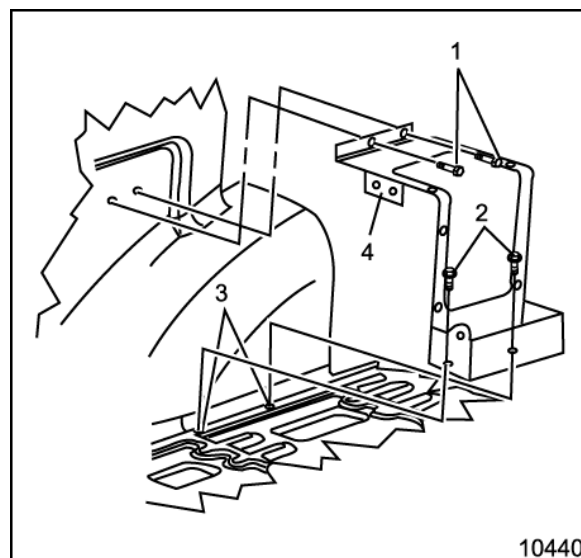
1. Install rivnuts (3) (TX 016183) if removed.
2. Install mounting bracket (4) and tighten lower mounting bolts (2) and upper bolts (1).
3. Install the power converter contactor onto the mounting bracket.
4. Install the battery equalizer. Refer to Battery Equalizer Replacement (Tahoe).
5. Install the power converter. Refer to Power Converter Replacement (Tahoe).

Notice: Refer to Fastener Notice in Cautions and Notices.

6. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

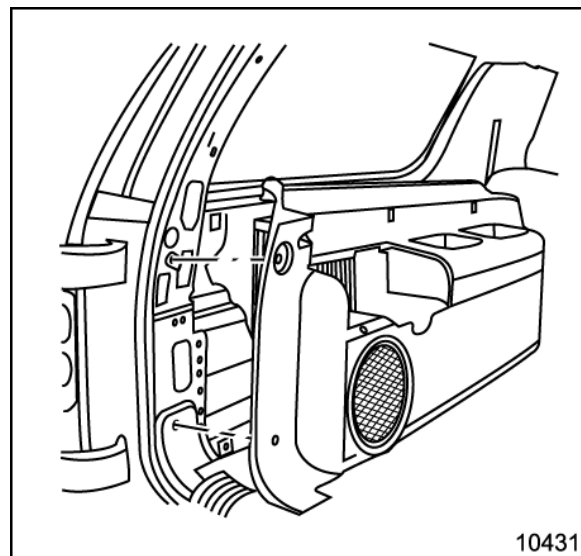


Power Converter/Equalizer Bracket Replacement (Suburban)

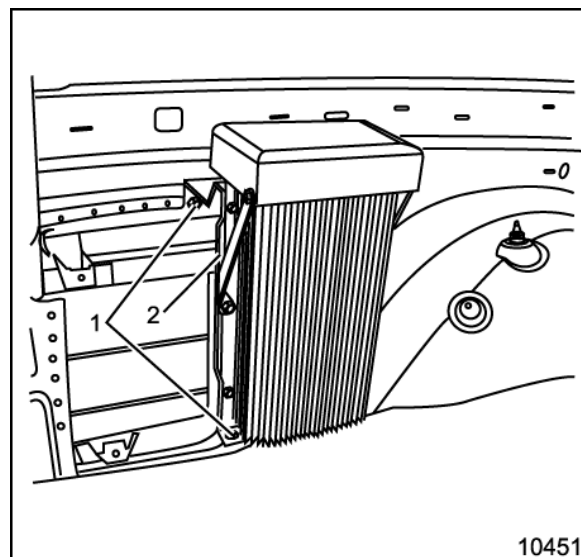
Removal Procedure

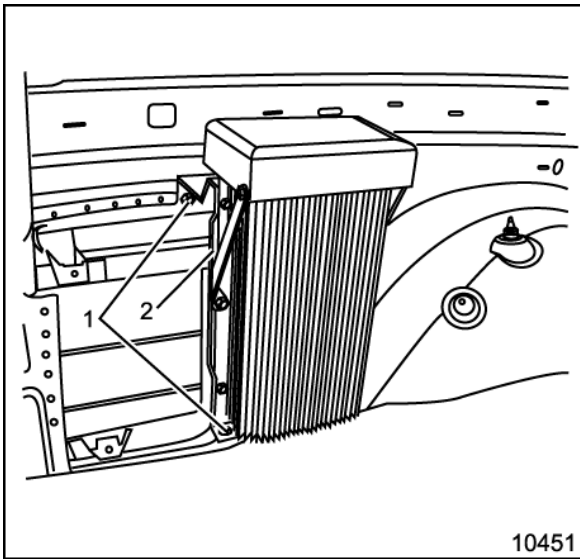
Caution. Refer to Battery Disconnect Caution in Cautions and Notices.

1. Remove the negative cable of the right battery and the 12V and 24V cables of the left battery.
2. Remove the left trim panel. Refer to Trim Panel Replacement Rear Quarter (utility left) in the 2001/02 C/K Truck Service Manual.



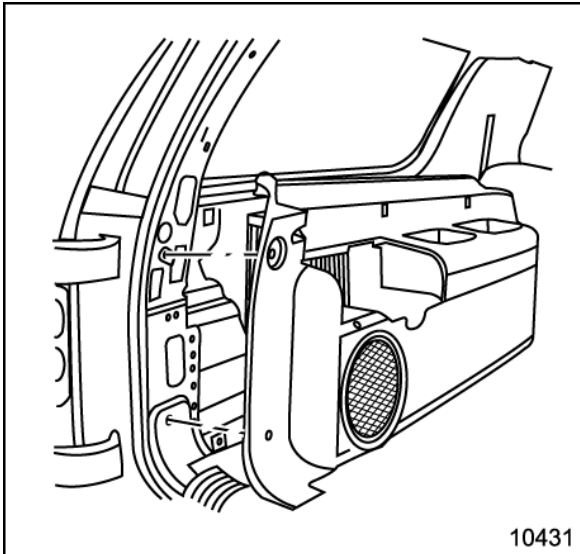
3. Remove the power converter. Refer to Power Converter Replacement (Suburban).
4. Remove the battery equalizer. Refer to Battery Equalizer Replacement (Suburban).
5. Remove bolts (1) securing bracket (2) to vehicle body. Right side shown left side similar.





Installation Procedure

1. Install bolt (1) securing bracket (2) to the vehicle body. Right side shown left side similar.



2. Install the battery equalizer. Refer to Battery Equalizer Replacement (Suburban).
3. Install power converter. Refer to Power Converter Replacement (Suburban).
4. Install the left trim panel. Refer to Trim Panel Replacement Rear Quarter (Utility Left) in the 2001/02 C/K Truck Service Manual.

Notice: Refer to Fastener Notice in Cautions and Notices.

5. Install the negative cable of the right battery and the 12V and 24V cables of the left battery.

Tighten

Tighten battery cable connections to 17 N•m (13 lb ft).

Description and Operation

Interior Description

The interior trim options for these vehicles include special weapons supports for the M14 and M16 firearms as well as a modification to the side trim panel in the utility vehicle for the 12V/24V converter and/or batter equalizer.

Refer to the Owner's Manual Supplement for weapon mount operation and use.

Body Rear End

Specifications

Fastener Tightening Specifications

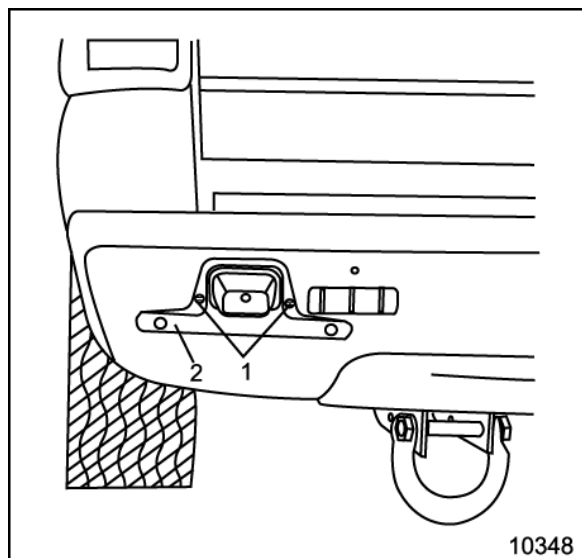
Application	Specification	
	Metric	English
Cargo Cover Bow Strap Retaining Nuts	5 N•m	4 lb ft
Cargo Cover Front End Rail Bolts	8 N•m	6 lb ft
Cargo Cover Rail and Hinge/Upward Bolts	8 N•m	6 lb ft
Cargo Cover Rail Outside Bolts	26 N•m	19 lb ft
Cargo Cover Strut Bolts	5 N•m	4 lb ft
Cargo Tie-Down Eye Bolts	47-65 N•m	35-48 lb ft

Repair Instructions

License Plate Bracket Replacement

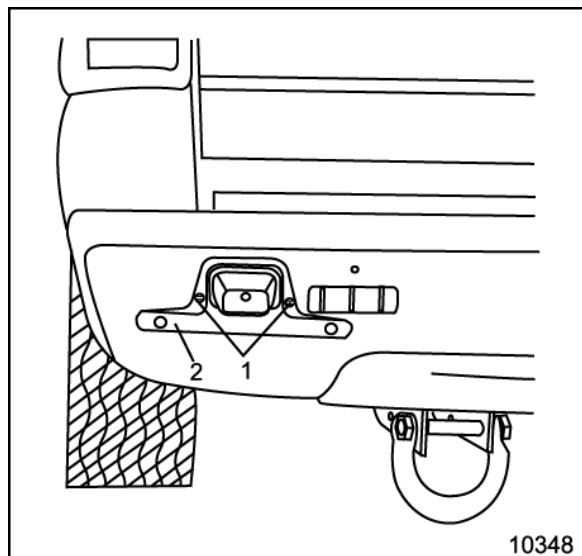
Removal Procedure

1. Remove the license plate from the bracket.
2. Disconnect electrical connector from the bracket.
3. Remove the bolts (1) from the bracket.
4. Remove the bracket (2) from the bumper.



Installation Procedure

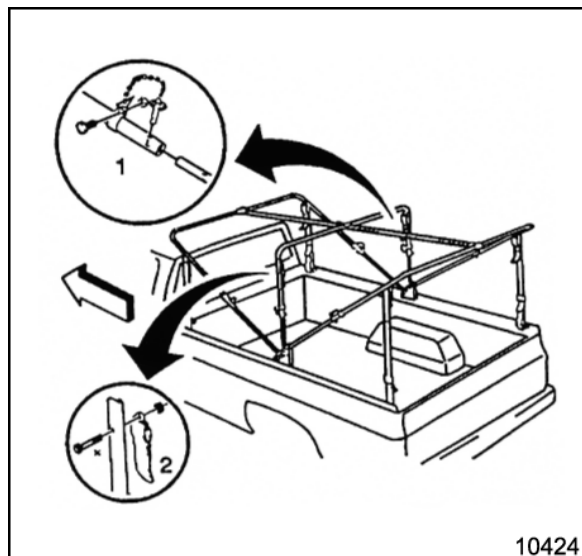
1. Install the bracket (2) onto bumper and align the holes.
2. Install the bolts (1) through bracket and bumper.
3. Connect the electrical connector.
4. Install the license plate onto the bracket.

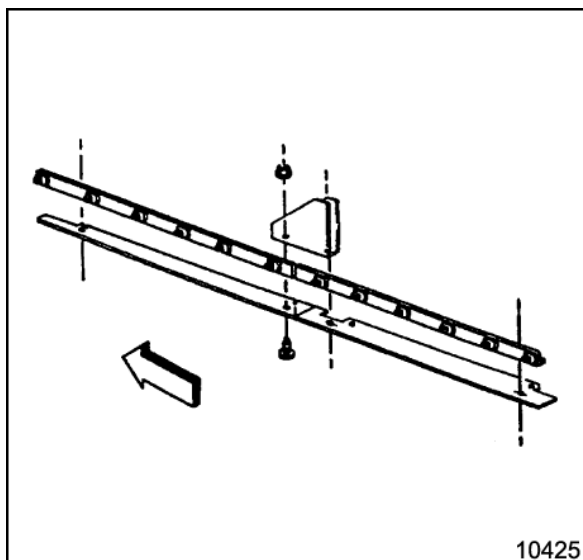


Cargo Cover Side Rail and Hinge Replacement

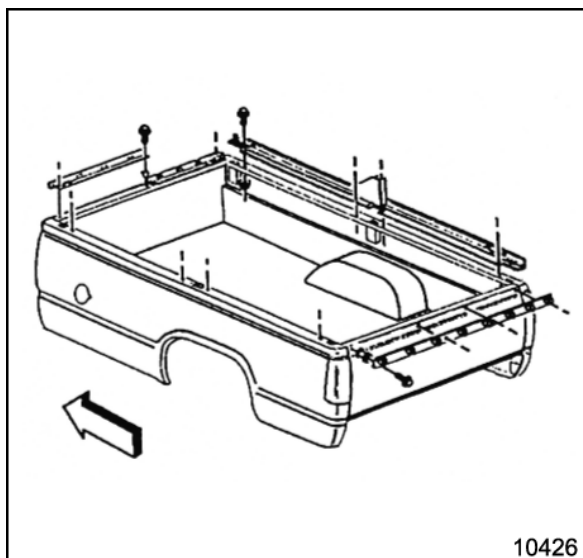
Removal Procedure

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

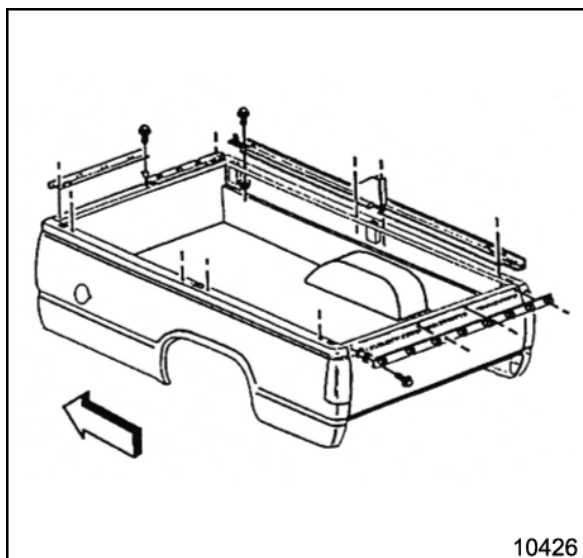




3. Remove the four bolts and nuts holding the two rail adapter plates to the side rail.
4. Remove the two bolts and nuts holding the bow hinge bracket.
5. Remove the side rail and adapter rail.
6. Remove the bow hinge bracket.



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



Installation Procedure

1. Apply two 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.

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

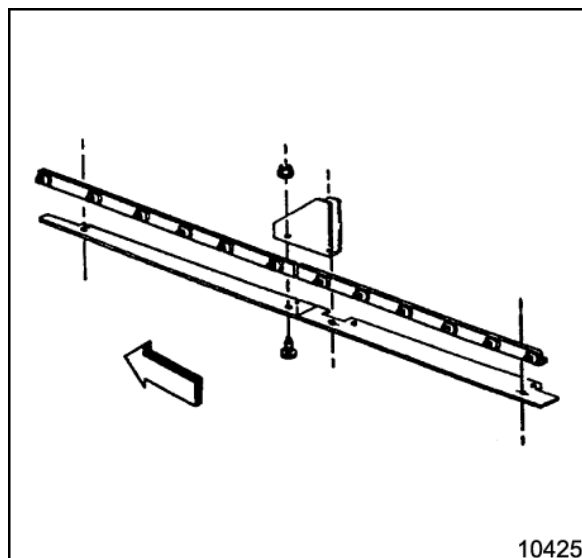
Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the side rail over the adapter plates, with the two outside bolts and the two upward facing bracket bolts and nuts.

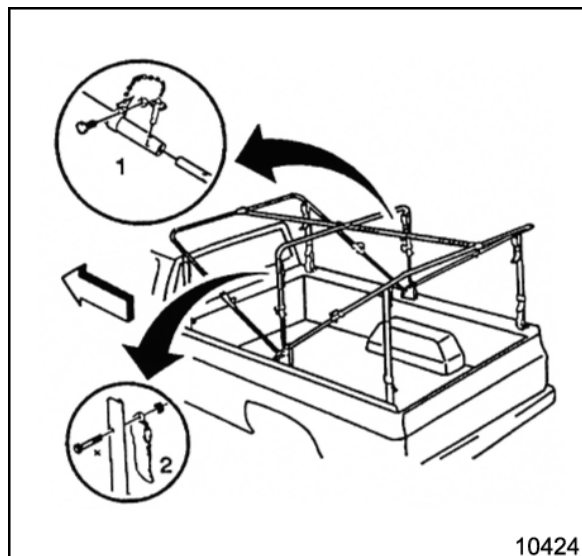
Tighten

Tighten the two outside bolts to 26 N•m (19 lb ft).

Tighten the two upward facing bolts to 8 N•m (6 lb ft).



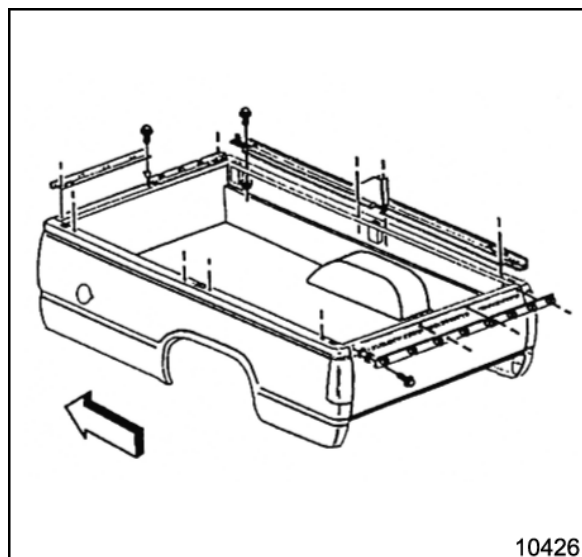
4. Install side rail adapter plates, front and rear, by aligning the bolt holes to the holes in the box.
5. Install the troop seats. Refer to Seat Replacement – Troop (Pickup Models) in Seats.
6. Install the side struts, top bows and cargo cover. Refer to Cargo Cover Strut Replacement and Cargo Cover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

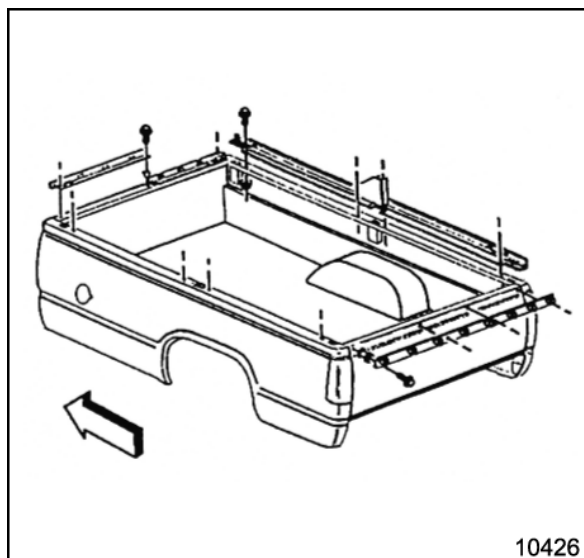


Cargo Cover Front End Rail Replacement

Removal Procedure

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





Installation Procedure

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

Notice: Do not use the jacknuts supplied in the kit. Use rivnuts (TX0016183) instead.

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

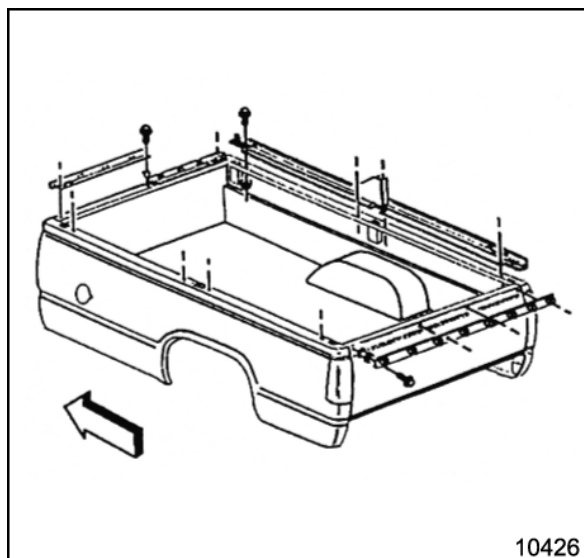
Notice: Refer to Fastener Notice in Cautions and Notices.

3. Install the two front end rails to the front end of the box with four bolts over the four rivnuts.

Tighten

Tighten the four bolts to 8 N•m (6 lb ft).

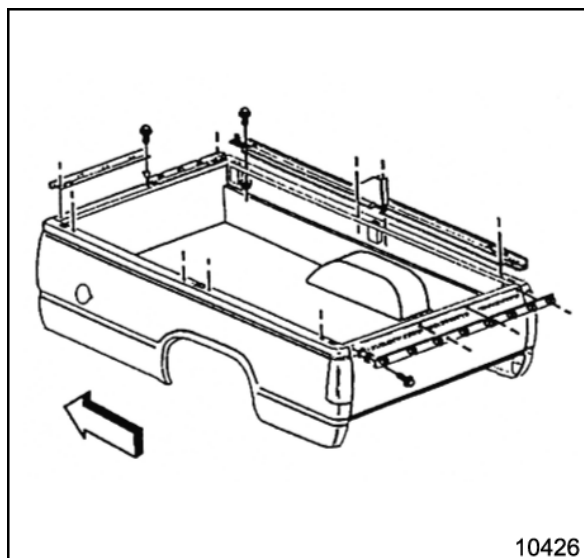
4. Install the front of the cargo cover to the front end rail as needed. Refer to Cargo Cover Replacement.



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 four bolts from the end gate rail as needed.
3. Remove the four rivnuts by drilling out (if damaged).



Installation Procedure

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

Notice: Do not use the jacknuts supplied in the kit. Use rivnuts (TX0016183) instead.

2. Install the four 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 the four rivnuts with four bolts.

Tighten

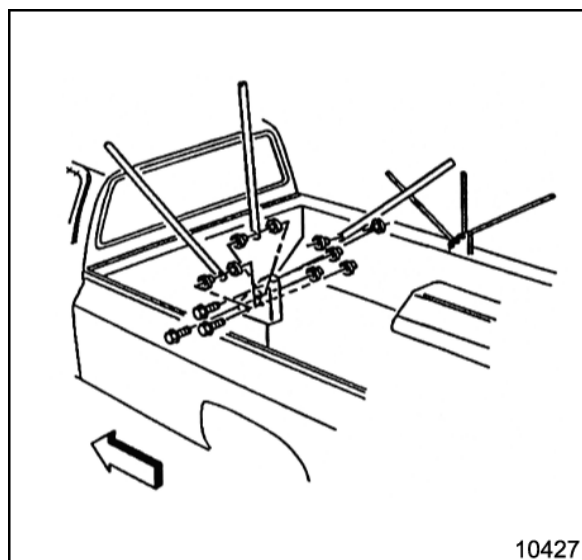
Tighten the four bolts to 8 N•m (6 lb ft).

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

Cargo Cover Strut Replacement

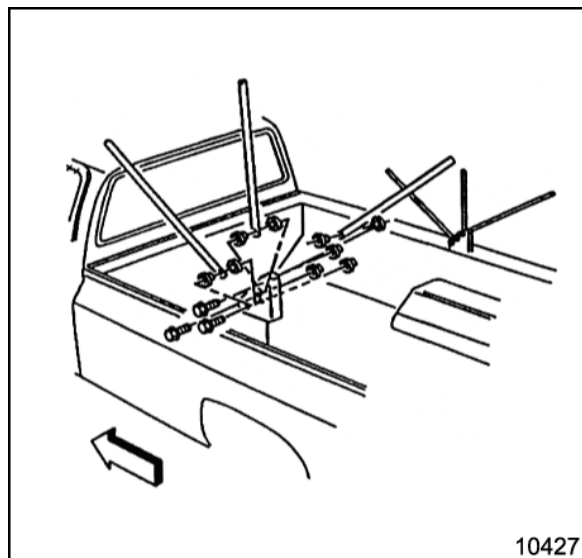
Removal Procedure

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



Installation Procedure

1. Install the six plastic bushings, one to the inside and one to the outside of the base hole of each side strut.
2. Install the front strut 857.25 mm (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 571.50 mm (22.5 in) inside the bracket at the mid-level hole with a nylock and bolt in similar fashion.



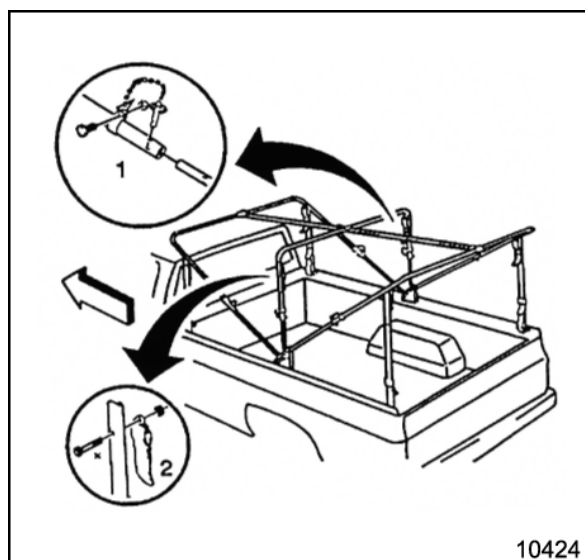
Notice: Refer to Fastener Notice in Cautions and Notices.

4. Install the rear strut 821.43 mm (32.34 in) at the top hole with the nylock and bolt in similar fashion.

Tighten

Tighten the strut bolt to 5 N•m (4 lb ft).

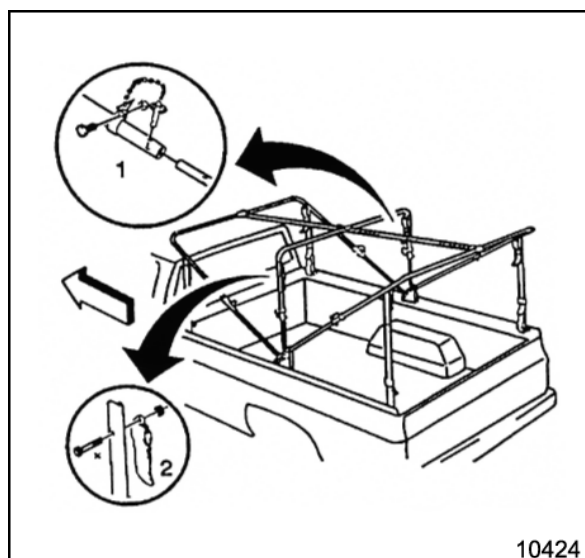
5. Install the cargo cover and top bows. Refer to Cargo Cover Replacement and Cargo Cover Top Bows Replacement.



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 six pins (1) holding the three top bows to the six side struts.
4. Remove the three top bows from the struts.
5. Slide the strap off each top bow. Remove the bows from the vehicle.



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 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 two cover strap retaining nuts to 5 N•m (4 lb ft).

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.

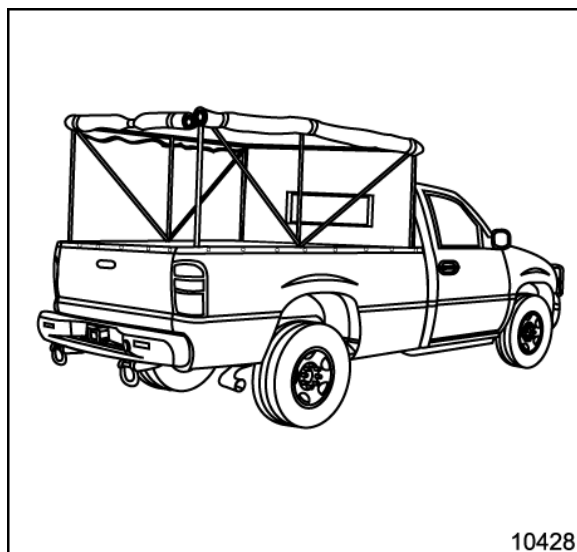
Note: The buckle should face inboard.

8. Install the cargo cover. Refer to Cargo Cover Replacement.

Cargo Cover Replacement

Removal Procedure

1. Unsnap and unzip the 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.

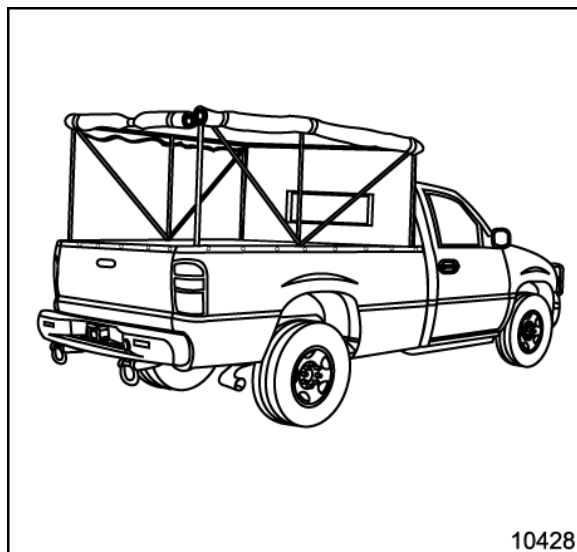


10428

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 zippers are at the corners.
2. Install or attach all interior retainers to the bows, struts and loops.
3. Zip the flaps down and snap on as needed.
4. Install the cover to the front, end and side in hooks and pull strap at the base of the cover as needed.

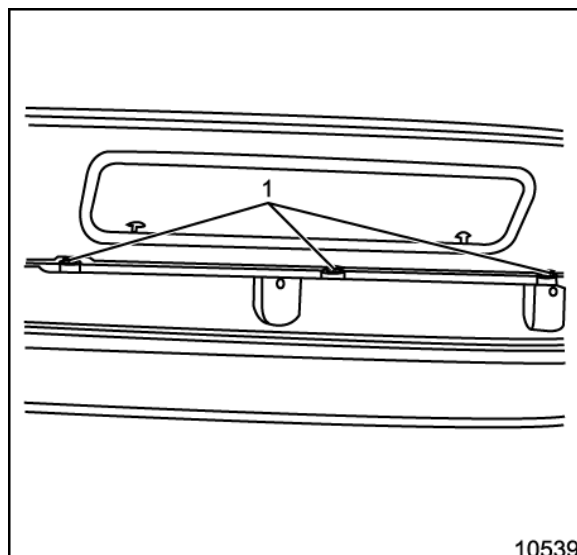


10428

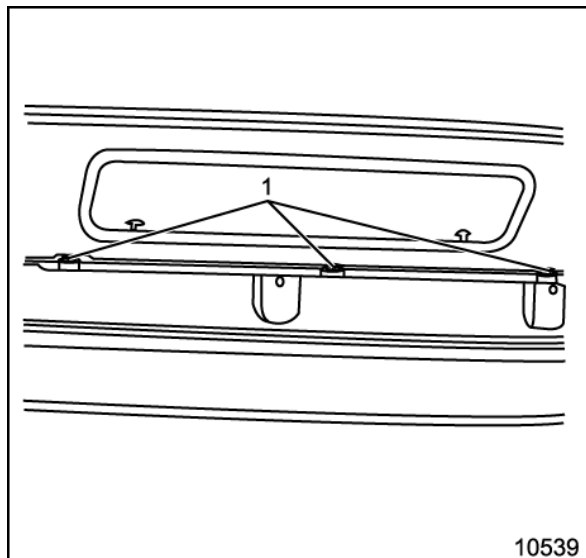
Fiberglass Top Replacement

Removal Procedure

1. Remove electrical connection for light (if equipped).
2. Remove bolts (1) securing cap to bed rails. Left side shown, right side similar.
3. With the aid of an assistant, remove the top from the vehicle.
4. Remove old foam tape from bed rails.

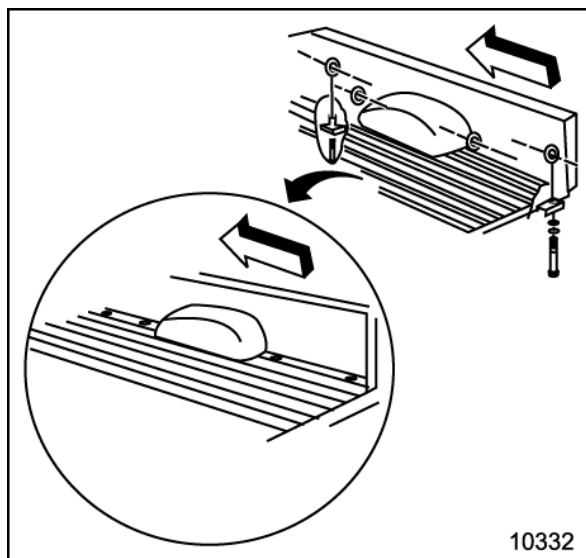


10539



Installation Procedure

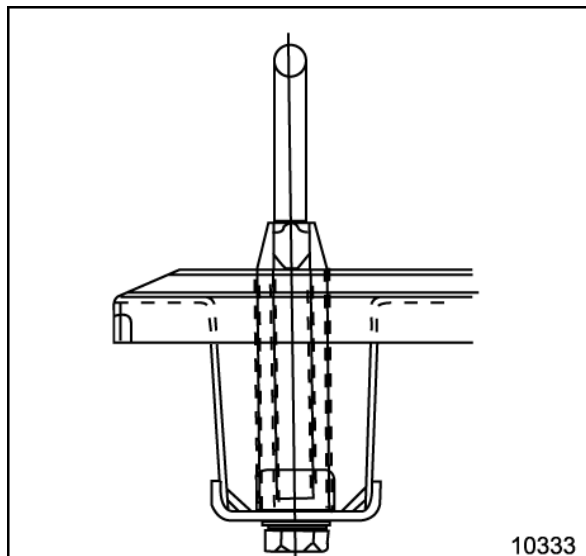
1. Install new foam tape to bed rails.
2. With the aid of an assistant place the top on the bed rails.
3. Install bolts (1) and tighten.
4. Connect electrical connection for light (if equipped).



Cargo Tie-Down Eye Replacement

Removal Procedure

1. Remove the large washer/small-large washer combination and a bolt, depending on the order of arrangement.
2. Remove the damaged cargo eye(s) from the pickup box.



Installation Procedure

1. Install the cargo eye(s) in the mounting hole(s).

Notice: Refer to Fastener Notice in Cautions and Notices.

2. Install the reinforced anchor bolt assembly and tighten.

Tighten

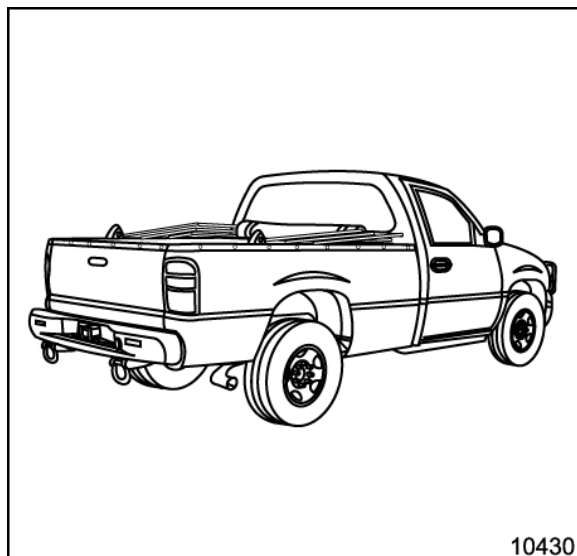
Tighten the bolt assemblies to 47-65 N•m (35-48 lb ft).

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.

Note: 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.



10430

Description and Operation

Body Rear End

The features described here are exclusive to the pickup/cargo vehicle. The pickup or cargo vehicle is equipped with several military options including a cargo cover, troop seats (left and right), tie-down eyes and fiberglass top.

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 buttoned down with hooks and snaps or zipped closed. It may also be rolled up with straps or folded and stowed while not in use.

Cargo Cover Cleaning

Mildewy areas should be cleaned by scrubbing with a dry brush. Never use solvents. If necessary to use water to remove dirt, it should not be used until the mildew has been removed. After removing the mildew, examine the fabric and look for deterioration. If the canvas has deteriorated replace it.

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. Refer to Owner's Manual Supplement for further details.

Tie Down Eyes

The tie-down eyes are metal eyelets bolted into the box bed with reinforced hardware. They are used to secure equipment to the box floor and have a maximum vertical resistance rating of 300 kg (660 lbs) and a maximum horizontal resistance rating of 200 kg (450 lbs).

Paint/Coatings

Paint Codes

Exterior and Interior Colors

Location/Color	Fed.-std.-595 B	PPG No.
Green	34094	CA 8211 / I 5086
Flat Brown (Camo)	34094	CA 8211 / I 7036
Flat Black (Camo)	34094	CA 8211 / I 8007

For specific paint/coating details, contact PPG Automotive Coatings at 1-818-549-7772.

Frame and Underbody

Specifications

Fastener Tightening Specifications

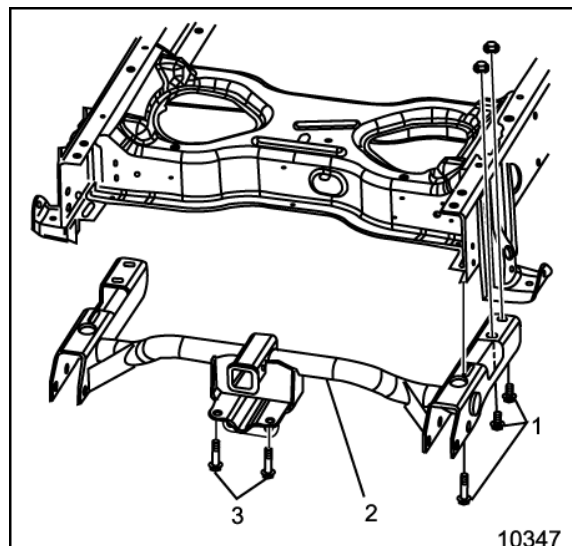
Application	Specification	
	Metric	English
Receiver to Bumper Bolts	125 N•m	92 lb ft
Receiver to Frame Bolts	125 N•m	92 lb ft

Repair Instructions

Military Rear Receiver Hitch Replacement

Removal Procedure

1. Remove the hitch from the receiver.
2. Remove the clevis mounts. Refer to Clevis/Tie-Down Support Replacement – Rear Factory Hitch (Pickup Models) in Bumpers.
3. Remove the bolts (3) from the bumper.
4. Remove the bolts (1) from the frame.
5. Remove the receiver (2) from the vehicle.



Installation Procedure

1. Install the receiver (2) on the vehicle and loosely install the bolts (1) in the frame.
2. Loosely install the bolts (3) in the bumper.

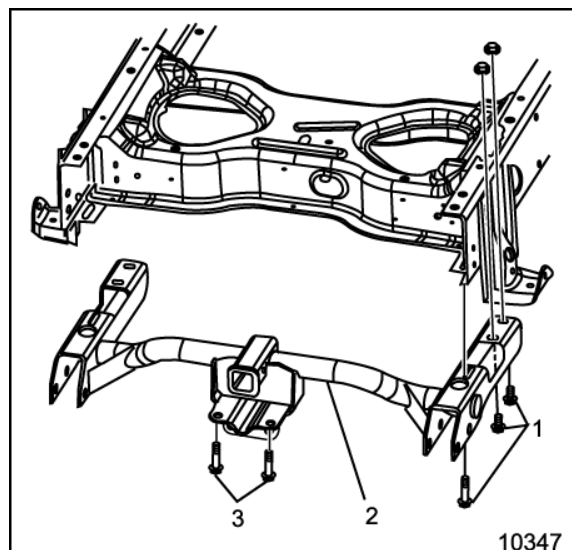
Notice: Refer to Fastener Notice in Cautions and Notices.

3. Tighten the receiver bolts (1) and (3).

Tighten

Tighten the bolts to 125 N•m (92 lb ft).

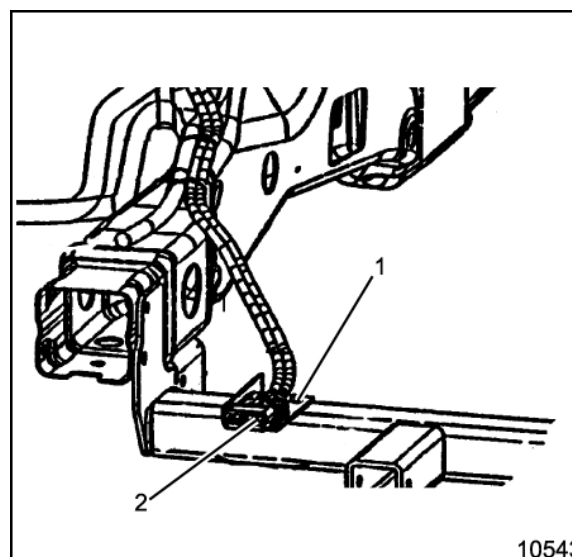
4. Install the clevis mounts. Refer to Clevis/Tie-Down Bracket Replacement – Rear (Crewcab) in the Bumpers section.
5. Install the hitch in the receiver.

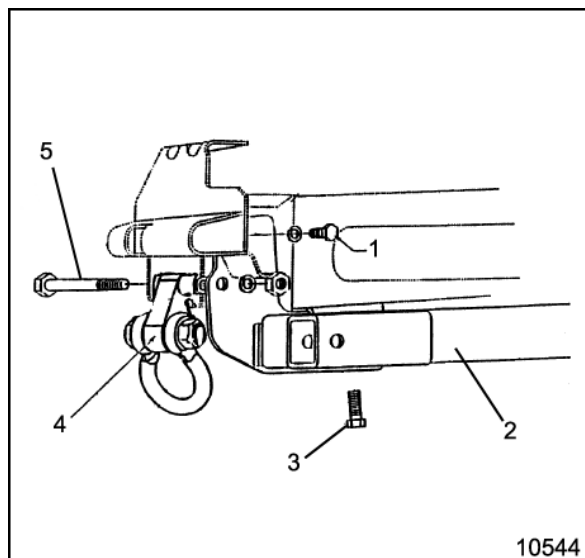


Front Winch Receiver Replacement

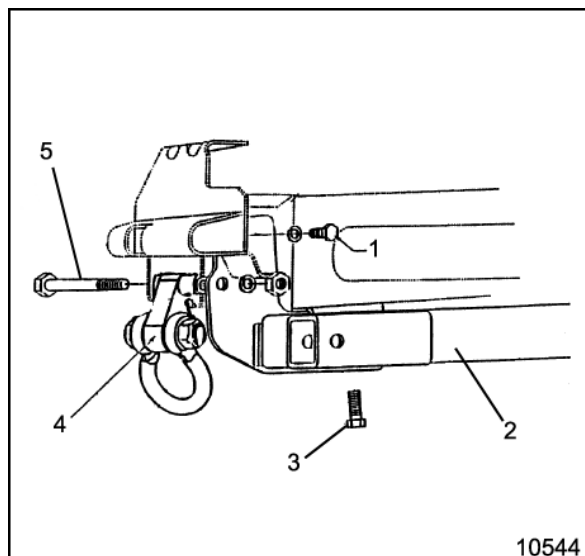
Removal Procedure

1. Remove front bumper. Refer to Front Bumper Replacement (Tahoe/Suburban) or Front Bumper Replacement (Pickup Models) in Bumpers.
2. Remove bolt (1) securing electrical connector (2) to the front receiver.



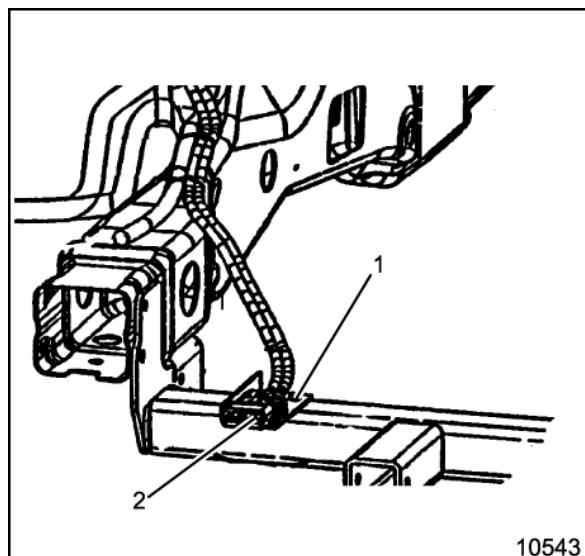


3. Remove bolt (5) and remove clevis/tie-down (4) from frame.
4. Remove bolts (1,3) securing receiver to the frame.
5. Remove receiver (2) from frame.



Installation Procedure

1. Install receiver (2) to the frame and align holes.
2. Install bolts (1,3) securing receiver to frame.
3. Install clevis/tie-down (4) and bolt (5).
4. Tighten all bolts.



5. Install connector (2) on receiver and tighten bolt (1).
6. Install the front bumper. Refer to Front Bumper Replacement (Tahoe/Suburban).

Description and Operation

Frame and Underbody Description

The underbody equipment includes the hitch receiver rear and hitch receiver front.

Hitch Receiver

Hitch receiver is frame mounted. The receiver will allow use of different components such as pintle hook or a multi-mount winch. The hitch receiver is also mounted on the front of the Utility vehicles.

The military hitch receiver is accessible through the rear bumper to accommodate a higher trailer torque height.

The factory hitch receiver is accessible through the bottom of the bumper and will accommodate a standard trailer torque height.

A

Auxiliary Lamp Extension Harness	
Replacement – Rear	8-33
Auxiliary Lamp Harness Replacement - Front	8-32
Axle	
Description	
Front Axle Vent Tube Filter Description	4-11
Rear Axle Vent Tube Filter Description	4-13
Repair	
Front Axle Vent Tube Filter Replacement	4-10
Rear Axle Vent Tube Filter Replacement	4-12

B

Backup Lamps	
Description	
Backup Lamps Circuit of Operation	8-81
Diagnosis	
Backup Lamps Inoperative	8-68
Backup Lamps Operate in Blackout (B/O)	
Mode	8-73
Battery	
Description	
Battery Description (12V and 24V)	6-42
Repair	
Battery Booster/Slave Junction Block	
Replacement	6-40
Battery Equalizer Replacement (Suburban) ..	8-145
Battery Equalizer Replacement (Tahoe)	8-144
Battery Equalizer/Bracket Replacement	
(Pickup Models)	8-143
Battery Tray/Battery Replacement	6-39
Blackout (B/O) Lighting	
Blackout (B/O) Headlamp Always On	8-68
Description	
Blackout (B/O) Lighting Circuit of Operation ...	8-81
Blackout (B/O) Lighting Description	8-81
Diagnosis	
Blackout (B/O) Headlamp Inoperative	8-66
Repair	
Blackout (B/O) Switch Replacement	8-86
Voltmeter, Blackout (B/O) Switch Panel	
Replacement	8-85
Blackout (B/O) Marker Lamps	
Diagnosis	
Blackout (B/O) Marker Lamps Inoperative	8-70
Blackout Lighting	
Diagnosis	
Headlamps Operate in Blackout (B/O) Mode ..	8-68
Blackout Marker Lamps	
Diagnosis	
Blackout (B/O) Marker Lamps Always On	8-71
Body Front End	
Description	
Body Front End Description	8-121

Repair	
Slave Connector Replacement	8-118
Winch Mount Replacement (Pickup Models) ..	8-118
Winch Replacement (Pickup Models)	8-119
Specifications	
Fastener Tightening	8-117

Body Rear End	
Description	
Body Rear End	8-160
Repair	
Cargo Cover Front End Rail Replacement ...	8-153
Cargo Cover Rear End Rail Replacement	8-154
Cargo Cover Replacement	8-157
Cargo Cover Side Rail and Hinge	
Replacement	8-151
Cargo Cover Stowage Replacement	8-159
Cargo Cover Strut Replacement	8-155
Cargo Cover Top Bows Replacement	8-156
Cargo Tie-Down Eye Replacement	8-158
Fiberglass Top Replacement	8-157
License Plate Bracket Replacement	8-151
Specifications	
Fastener Tightening	8-150
Bumpers	
Description	
Bumpers	8-116
Repair	
Bumper Replacement – Rear	
(Military Hitch)	8-109
Bumper Replacement – Rear	
(Factory Hitch)	8-106
Clevis/Tie-Down Bracket Replacement	
– Rear (Crewcab)	8-113
Clevis/Tie-Down Bracket Replacement –	
Rear (Utility/Extended Cab)	8-112
Clevis/Tie-Down Replacement – Front	8-103
Clevis/Tie-Down Replacement – Rear	8-114
Clevis/Tie-Down Support Replacement –	
Front (Pickup Models)	8-104
Clevis/Tie-Down Support Replacement –	
Front (Utility)	8-105
Clevis/Tie-Down Support Replacement –	
Rear Factory Hitch (Pickup Models)	8-112
Front Bumper Replacement	
(Pickup Models)	8-101
Front Bumper Replacement	
(Tahoe/Suburban)	8-100
Pintle Hook Replacement	8-114
Radiator Grille Brush Guard Replacement ...	8-103
Specifications	
Fastener Tightening Specifications	8-99

C

Cargo Cover	
Repair	
Cargo Cover Front End Rail Replacement ...	8-153
Cargo Cover Rear End Rail Replacement	8-154
Cargo Cover Replacement	8-157

Cargo Cover Side Rail and Hinge Replacement	8-151
Cargo Cover Stowage Replacement	8-159
Cargo Cover Strut Replacement	8-155
Cargo Cover Top Bows Replacement	8-156
Cargo Tie-Down Eye Replacement	8-158
Circuit Breaker Repair	
Circuit Breaker Bracket Replacement	6-39
Circuit Breaker Replacement – 12V or 24V	6-37
Clevis/Tie-Down Repair	
Clevis/Tie-Down Support Replacement – Front (Utility)	8-105
Clevis/Tie-Down Bracket Replacement – Rear (Crewcab)	8-113
Clevis/Tie-Down Bracket Replacement – Rear (Utility/Extended Cab)	8-112
Clevis/Tie-Down Replacement – Front	8-103
Clevis/Tie-Down Replacement – Rear	8-114
Clevis/Tie-Down Support Replacement – Front (Pickup Models)	8-104
Clevis/Tie-Down Support Replacement – Front (Utility)	8-105
Clevis/Tie-Down Support Replacement – Rear Factory Hitch (Pickup Models)	8-112
Contactors Repair	
Contactors Replacement (Pickup Models)	8-136
Contactors Replacement (Suburban)	8-138
Contactors Replacement (Tahoe)	8-138

E

Engine Electrical Components	
Starting and Charging Component Views	6-9
Starting and Charging Connector End Views ..	6-22
Description	
Battery (12V and 24V)	6-42
Starting and Charging System	6-42
Diagnosis	
Battery Equalizer Inoperative	6-27
Contactors Inoperative	6-28
Converter No Voltage	6-25
Vohmeter Inoperative	6-29
Vohmeter Lamp Inoperative	6-27
Repair	
24V Converter Fuse Replacement	6-36
Battery Booster/Slave Junction Block Replacement	6-40
Battery Tray/Battery Replacement	6-39
Circuit Breaker Bracket Replacement	6-39
Circuit Breaker Replacement – 12V or 24V	6-37
Jump Starting in Case of Emergency	6-34
Voltage Regulator Test	6-31
Schematics	6-3
Specifications	
Fastener Tightening	6-3

Exterior Trim Description	
Exterior Trim	8-98
Repair	
Radiator Grille Replacement	8-96
Specifications	
Fastener Tightening Specifications	8-95

F

Fiberglass Top Replacement	8-157
Floor Mat Repair	
Floor Mat Replacement (Pickup Models)	8-128
Floor Mat Replacement (Tahoe/Suburban) ..	8-129
Frame and Underbody Description	
Frame and Underbody Description	8-165
Repair	
Front Winch Receiver Replacement	8-163
Military Rear Receiver Hitch Replacement ..	8-163
Specifications	
Fastener Tightening	8-162
Front Drive Axle Description	
Front Axle Vent Tube Filter	4-11
Repair	
Front Axle Vent Tube Filter Replacement	4-10
Front Suspension Description	
Front Shock Absorber	3-6
Repair	
Shock Absorber Replacement	3-4
Specifications	
Fastener Tightening	3-3

G

Government Vehicle Data Plate Replacement	8-130
---	-------

H

Headlamp Repair	
Headlamp Bulb Replacement – Blackout (B/O)	8-76
Headlamp Replacement – Blackout (B/O)	8-76
Horns Description	
Horn with Blackout (B/O) Control Circuit Operation	8-94
Diagnosis	
Horns Inoperative	8-91
Horns Operate in Blackout (B/O) Mode	8-93
Schematics	8-89

I

Identification, Vehicle	0-3
Instrument Panel, Gages and Console	
Description	
Instrument Panel and Gages Description	8-88
Repair	
Blackout (B/O) Switch Replacement	8-86
Voltmeter Replacement	8-85
Voltmeter, Blackout (B/O) Switch Panel	
Replacement	8-85
Specifications	
Fastener Tightening	8-84
Interior Trim	
Description	
Interior Description	8-149
Repair	
24 Voltmeter Relay Replacement	
(Pickup Models)	8-133
24 Voltmeter Relay Replacement	
(Suburban)	8-135
24 Voltmeter Relay Replacement (Tahoe)	8-134
Battery Equalizer Replacement (Suburban) ..	8-145
Battery Equalizer Replacement (Tahoe)	8-144
Battery Equalizer/Bracket Replacement	
(Pickup Models)	8-143
Contactor Replacement (Pickup Models)	8-136
Contactor Replacement (Suburban)	8-138
Contactor Replacement (Tahoe)	8-138
Floor Mat Replacement (Pickup Models)	8-128
Floor Mat Replacement (Tahoe/Suburban) ...	8-129
Government Vehicle Data Plate	
Replacement	8-130
Power Converter Replacement (Suburban) ..	8-142
Power Converter Replacement (Tahoe)	8-141
Power Converter/Bracket Replacement	
(Pickup Models)	8-140
Power Converter/Equalizer Bracket	
Replacement (Suburban)	8-147
Power Converter/Equalizer Bracket	
Replacement (Tahoe)	8-146
Rear Compartment Side Trim Panel	
Replacement (Tahoe/Suburban)	8-126
Weapons Mount Replacement –	
Floor Mount	8-132
Weapons Mount Replacement – Upper	8-132
Weapons Support Replacement – Lower	8-131
Specifications	
Fastener Tightening Specifications	8-125
IP Compartment Lamp Replacement – Voltmeter ..	8-80

J

Jump Starting in Case of Emergency	6-34
--	------

L

Label	
24V Battery Caution Label	0-6

Equalizer	0-6
Owner/User's Information	0-6
Winch Warning Label	0-6
Lamp Harness Replacement – Rear	8-34
License Plate Bracket Replacement	8-151
Lighting Systems	
Components	
Lighting Systems Component Views	8-54
Lighting Systems Connector End Views	8-63
Description	
Backup Lamps Circuit of Operation	8-81
Blackout (B/O) Lighting	8-81
Blackout (B/O) Lighting Circuit of Operation ...	8-81
Diagnosis	
Backup Lamps Inoperative	8-68
Backup Lamps Operate in Blackout (B/O)	
Mode	8-73
Blackout (B/O) Headlamp Always On	8-68
Blackout (B/O) Headlamp Inoperative	8-66
Blackout (B/O) Marker Lamps Always On	8-71
Blackout (B/O) Marker Lamps Inoperative	8-70
CTSY Lamps Operate in Blackout (B/O)	
Mode	8-74
DRL Operate in Blackout (B/O) Mode	8-72
Headlamps Operate in Blackout (B/O) Mode ..	8-68
Park Lamps Operate in Blackout (B/O) Mode ..	8-73
Stoplamps Inoperative	8-70
Turn Signals Operate in Blackout (B/O) Mode ..	8-75
Repair	
Headlamp Bulb Replacement –	
Blackout (B/O)	8-76
Headlamp Replacement – Blackout (B/O)	8-76
IP Compartment Lamp Replacement –	
Voltmeter	8-80
Marker Lamp Replacement – Front	
Blackout (B/O)	8-77
Marker Lamp Replacement – Rear	
Blackout (B/O)	8-78
Schematics	8-40
Specifications	
Fastener Tightening Specifications	8-40

M

Maintenance	
Owner Checks and Services	0-7
Periodic Maintenance Inspection	0-7
Marker Lamp	
Repair	
Marker Lamp Replacement – Front	
Blackout (B/O)	8-77
Marker Lamp Replacement – Rear	
Blackout (B/O)	8-78

P

Paint/Coatings	
Exterior and Interior Colors	8-161
Pintle Hook	
Repair	

Pintle Hook Replacement	8-114
Power and Grounding	
Component Views	8-13
Components	8-13
Connector End Views	8-25
Power Converter	
Repair	
Power Converter Replacement (Suburban) ..	8-142
Power Converter Replacement (Tahoe)	8-141
Power Converter/Bracket Replacement (Pickup Models)	8-140
Power Converter/Equalizer Bracket Replacement (Tahoe)	8-146
Power Converter/Equalizer Bracket Replacement (Suburban)	8-147

R

Radiator	
Repair	
Radiator Grille Brush Guard Replacement	8-103
Radiator Grille Replacement	8-96
Rear Compartment Side Trim Panel	
Replacement (Tahoe/Suburban)	8-126
Rear Drive Axle	
Description	
Rear Axle Vent Tube Filter	4-13
Repair	
Rear Axle Vent Tube Filter Replacement	4-12
Rear Suspension	
Description	
Rear Shock Absorber	3-9
Repair	
Shock Absorber Replacement	3-8
Specifications	
Fastener Tightening	3-7
Relay Mounting Bracket Replacement	8-37

S

Schematics	
Engine Electrical	6-3
Horns	8-89
Lighting Systems	8-40
Wiring	8-3
Seats	
Description	
Troop Seats Description	8-124
Repair	
Seat Replacement – Troop (Pickup Models)	8-123
Specifications	
Fastener Tightening	8-122
Shock Absorber	
Description	
Front Shock Absorber Description	3-6
Rear Shock Absorber Description	3-9
Repair	
Shock Absorber Replacement Front	3-4

Rear	3-8
Slave Connector Replacement	8-118
Special Tools	
Wheel Drive Shafts	4-9
Specifications	
Fastener Tightening	
Body Front End	8-117
Body Rear End	8-150
Bumpers	8-99
Engine Electrical	6-3
Exterior Trim	8-95
Frame and Underbody	8-162
Front Suspension	3-3
Instrument Panel, Gages and Console	8-84
Interior Trim	8-125
Lighting	8-40
Rear Suspension	3-7
Seats	8-122
Wiring	8-3
Starting and Charging	
Component Views	6-9
Connector End Views	6-22
Description	
Starting and Charging System Description and Operation	6-42
Stoplamps	
Diagnosis	
Stoplamps Inoperative	8-70

T

Tire	
Hoist Shaft Extension Replacement	3-10
Tires and Wheels	
Description	
Spare Wheel Hoist Shaft	3-11
Repair	
Tire Hoist Shaft Extension Replacement	3-10
Trailer Wiring Harness Replacement	8-35
Transfer Case	
Description	
Transfer Case Vent Tube Filter	4-15
Repair	
Transmission/Transfer Case Vent Tube Filter Replacement	4-14
Transmission/Transfer Case Vent Tube Filter Replacement	4-14

V

Vehicle Identification	0-3
Voltage Regulator Test	6-31
Voltmeter	
Repair	
Voltmeter Replacement	8-85
Voltmeter, Blackout (B/O) Switch Panel Replacement	8-85

W

Weapons Mount	
Repair	
Weapons Mount Replacement –	
Floor Mount.....	8-132
Weapons Mount Replacement – Upper	8-132
Weapons Support Replacement – Lower	8-131
Wheel Drive Shafts	
Description	
Wheel Drive Shaft Boot Covers	4-8
Repair	
Wheel Drive Shafts Boot Cover	
Replacement	4-3
Special Tools and Equipment	4-9
Winch	
Repair	
Connector/Harness Replacement	
Front.....	8-36
Rear.....	8-37
Front Winch Receiver Replacement.....	8-163
Winch Mount Replacement	
(Pickup Models)	8-118
Winch Replacement (Pickup Models).....	8-119

Wiring

Components

Power and Grounding Component Views.....	8-13
Power and Grounding Components.....	8-13
Power and Grounding Connector	
End Views.....	8-25

Description	8-39
-------------------	------

Repair

Auxiliary Lamp Extension Harness	
Replacement – Rear.....	8-33
Auxiliary Lamp Harness Replacement –	
Front	8-32
Lamp Harness Replacement – Rear.....	8-34
Relay Mounting Bracket Replacement.....	8-37
Trailer Wiring Harness Replacement	8-35
Winch Connector/Harness Replacement	
Front	8-36
Rear	8-37

Schematics	8-3
------------------	-----

Specifications

Fastener Tightening	8-3
---------------------------	-----

