

Driveline Protection — Removal and Installation

Description

Driveline Protection is composed of 5 basic parts, and the associated fasteners.

- Front Differential Protection
- Center Driveline Protection
- Rear Differential Protection
- Transfer Case Skid Plate
- Fuel Tank Skid Plate

Ordinarily, the fuel tank skid plate does not need to be removed.

Related Tasks

The following table lists several common maintenance and repair tasks, and which protection piece requires removal.

Task	Driveline Protection Section	Notes
Replace rear brake pads	Rear Differential Protection	Outboard rear mounting brackets must also be removed.
Replace Halfshaft	Front Differential Protection	Right Front Only
Drain Transfer Case	Transfer Case Skid Plate	
Change Transmission Filter	Center Driveline Protection	

Tools and Supplies

½” and 9/16” Wrenches and Sockets
 9/16” Open-end Wrench

Special Tools

9/16” ratcheting box end wrench

Fasteners

All fasteners consist of a bolt, two flat washers, and a lock nut. One washer is positioned under the head of the bolt, the other under the nut.

Fastener	Wrench Size	Loctite	Torque	Notes / Special Tools
(various)	½”	-	27 lb ft	
(various)	9/16”	-	48 lb ft	

Notes / Special Instructions

- When removing the center Driveline Protection section, center the steering to allow better access to some of the front mounting bolts.
- The Rubber Washers are frequently lost or damaged. A simple replacement can be made from a short section of bicycle inner tube with two holes cut in it to allow the mounting bolt to pass through. The inner tube piece is then slipped over the end of the Driveline Protection. Illustration 3 shows this type of replacement for the rubber washers. The rubber washers are intended to reduce noise and/or vibration, and may safely be omitted.
- Dirt and debris tend to collect on the side plates used to support the center section. Use caution not to get this debris in your eyes (or other orifices). Also, this debris must be cleared away before the fasteners are tightened. Failure to do so may damage the fasteners, and / or cause the center section to come loose.
- Each side plate has 4 bolts attaching to the center section. Conventional automotive wisdom indicates that these bolts should be installed with the nut on the bottom. The supporting theory is that if the nuts come off, the bolts will still help to retain the affected part. In the particular case of these fasteners, if they are installed with the nut on the bottom, the ends of the bolts tend to become damaged. This makes removal and reuse of these bolts very difficult. Since all of the nuts are locknuts they do not tend to come off. Further, these fasteners are not critical to the positioning, retention, or operation of the center section. They are primarily to prevent rattling between the center section and the support brackets.
- During removal, it may be necessary to loosen all fasteners before some may be removed.
- If the Center Section is bent, removal and installation are more difficult. It may be necessary to use a jack to position the section such that the front bolts can be inserted or removed.
- When tightening the fasteners, it is important to tighten the frame cross-member bolts first. These bolts have less allowance for positioning than the others. It is equally important to insert and hand tighten all fasteners before completely tightening any. Tightening the fasteners may cause further misalignment, making further fastener installation quite difficult.



Windrock 2005 photo by Robert DeVore

Procedure

Remove Driveline Protection

1. Remove all fasteners.
 - Illustration 1 shows some of the frame spacers used for attaching the driveline protection. These spacers are not retained in the frame, and may move out of position when the bolt is removed. Leaving the bolt partially in place may help prevent the spacers from slipping out of position.
 - Support Protection section as last fastener(s) are removed
 - Center Driveline Protection Section is HEAVY – approximately 60 lbs. – use care when removing.
 - The rear of the main section is held in place by bolts passing through brackets. It is not necessary to completely remove these brackets. Illustration 2 shows a position of these brackets that will allow removal and reinstallation of the center section.

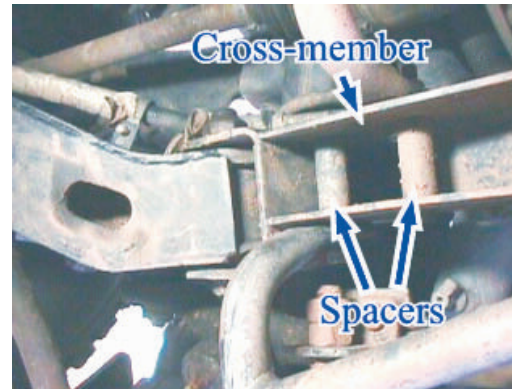


Illustration 1 – Frame Spacers

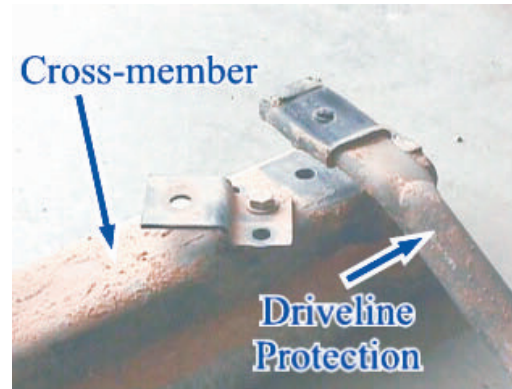


Illustration 2 – Brackets

Reinstall Driveline Protection

1. Position Protection Section and secure with fasteners.
 - Hand tighten only
2. Install all fasteners
 - Be sure all frame spacers are in position.
 - Make sure rear of main section has rubber washers positioned correctly (Illustration 3).
 - Hand tighten only. Tightening fasteners before all other fasteners are in place may prevent insertion of some fasteners.
 - Some bending, jacking, and/or prying may be necessary if the Driveline Protection has been bent, even slightly.
3. Tighten all fasteners to specified torque.
 - Begin with fasteners that attach to the frame cross members.
 - The Frame Cross-member Bolt near the Driver-side front Brake Rotor may require an open-end wrench. A box-end wrench may become captured.

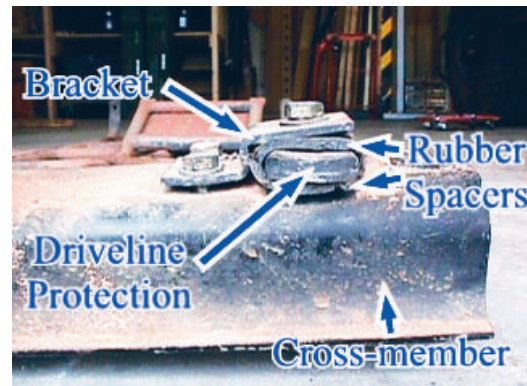


Illustration 3 – Rubber Washers

This is an excerpt from Dave Breggin's CD on HUMMER maintenance. It is available for purchase at www.bluehummer.com