FREIGHTLINER LLC

August 30, 2006

Dan Smith
Associate Administrator for Vehicle Safety
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Re: Defect Information Report – supplemental information
(FL-478), NHTSA no. 06V-237, Unimog Clutch Release Bearing

Mr. Smith:

In accordance with Part 573 of Title 49 of the Code of Federal Regulations, Freightliner LLC herewith submits supplemental defect information and copies of documents to be distributed to dealers and purchasers.

Please contact me if you have any questions.

Sincerely yours,

Timothy Blubaugh

Cc: Michael Mason, CAL-OSHA
Enclosure
Certified Mail# 7002 3150 0004 1405 4240

FREIGHTLINER® LLC

A DaimlerChrysler Company

Defect Information Report

FL-478, Unimog Clutch Release Bearing; NHTSA no. 06V-237

Supplement No.: 01

(Section 573.6)

August 29, 2006

(c)(1) Manufacturer: DaimlerChrysler AG
UNIMOG Division
70546 Stuttgart, Germany

Designated Agent: Freightliner LLC
P.O. BOX 3849
Portland, Oregon 97208
(503) 745-5219

Brands: Unimog

Section "(c)(3) Total number of vehicles potentially affected: 64" is revised to read:

(c)(3) Total number of vehicles potentially affected: 54

Section "(c)(9) Communications sent to dealers and owners: Copies will be submitted as a supplemental report when available." is revised to read:

(c)(9) Communications sent to dealers:
Dealer bulletins posted on Freightliner website August 18, 2006 (attached).

Communications sent to owners:
Owner notices mailed to all involved owners on August 24, 2006 (attached page #4).

FREIGHTLINER® LLC
A DaimlerChrysler Company

Recall Campaign

August 2006
FL478AB
NHTSA #06V-237

Subject: Unimog Clutch Release Bearing Seals

Models Affected: Specific Unimog U500 vehicles manufactured between November 2003 and September 2005 with "Electronic Auto Shift."

General Information

Freightliner LLC, the agent of DaimlerChrysler AG, has decided that a defect which relates to motor vehicle safety exists on the vehicles mentioned above.

There are approximately 70 vehicles involved in this campaign.

Air in the clutch hydraulic system at the release bearing seal may prevent the clutch from opening completely and potentially prevent the transmission from shifting into neutral. If this happens, the vehicle may roll forward while stopped or be difficult to bring to a complete stop, resulting in possible property damage or personal injury.

The clutch release bearing will be replaced. In addition, the clutch actuation electronic control unit software will be updated and the hydraulic line routing will be checked and corrected if necessary.

Additional Repairs

Dealers must complete all outstanding recall and field service campaigns prior to the sale or delivery of a vehicle. A Dealer will be liable for any progressive damage that results from its failure to complete campaigns before sale or delivery of a vehicle.

Owners may be liable for any progressive damage that results from its failure to complete campaigns within a reasonable time after receiving notification.

Work Instructions

Please refer to the attached work instructions. Prior to performing the campaign, check the vehicle for a completion sticker (Form WAR260).

Replacement Parts

Replacement kits are now available and can be obtained by ordering the kit number(s) listed below from your facing Parts Distribution Center. **Kits must be ordered with the vehicle serial number and special tools must be received prior to the arrival of a vehicle at your dealership. Expedited freight for kits may not be included on claims as all arrangements are to be made in advance.**

IMPORTANT: This recall requires the use of special tools (master cylinder/bleeder adaptor and Star Diagnosis). You must arrange to have them available at your dealership before a vehicle arrives for the recall.

To order:

- Send one e-mail to the following two addresses:

  TraianGrecu@Freightliner.com
  ChuckWhitehead@Freightliner.com

- In the subject line include the recall number, FL478.
- In the body of the e-mail, include your request, the vehicle serial number, and your dealership's contact and shipping information.

Recall Campaign

FREIGHTLINER LLC
A DaimlerChrysler Company

August 2006
FL478AB
NHTSA #06V-237

If our records show your dealership has ordered any vehicles involved in campaign number FL478A, a list of the customers and vehicle identification numbers will be available on AccessFreightliner.com. Please refer to this list when ordering parts for this recall.

Table 1 - Replacement Kit for FL478AB

Campaign Number	Kit Number	Part Description	Part Number	Qty.	Suggested Wholesale*
FL478AB	25-FL478-000	Clutch Release Assembly Kit	A 002 250 72 15 05	1 kit	$478.47 U.S. $692.74 CAN
		Completion Sticker	WAR260	1 ea	

* Please charge all Direct Warranty Customers the above-listed price for the kit, as they are authorized to perform their own Recalls.

Table 1

Removed Parts

Please follow Warranty Failed Parts Tracking shipping instructions for the disposition of all removed parts.

Labor Allowance

Table 2 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
FL478AB	Remove/replace clutch release assembly, update software, check hydraulic line routing	8.0	996-0682A	000-Modifiedx

Table 2

IMPORTANT: When the recall has been completed, locate the base completion label in the appropriate location on the vehicle, and attach the red completion sticker provided in the recall kit (Form WAR260). If the vehicle does not have a base completion label, clean a spot on the appropriate location of the vehicle and first attach the base completion label (Form WAR259). If a recall kit is not required or there is no completion sticker in the kit, write the recall number on a blank sticker and attach it to the base completion label.

Claims for Credit

You will be reimbursed for your parts, labor, and handling by submitting your claim through the Warranty system within 30 days of completing this campaign. Please reference the following information in QuickClaim®:

- Claim type is **Recall**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (**FL478A or FL748B**).
- In the Primary Failed Part Number field, enter **25-FL478-000**.
- In the Parts field, enter the appropriate kit number(s) as shown in the Replacement Parts Table. **Kits and special tools must be ordered with the vehicle serial number in advance (expedited freight for kits may not be included on claims). Customers are being asked to contact dealerships before arriving to have the recall performed. You must arrange to have all necessary items available at your dealership before a vehicle arrives for the recall.**

To order Star Diagnosis and the master cylinder bleeder/adaptor:

- Send one e-mail to the following two addresses:

  TraianGrecu@Freightliner.com
  ChuckWhitehead@Freightliner.com

- In the subject line include the recall number, FL478.
- In the body of the e-mail, include your request, the vehicle serial number, and your dealership's contact and shipping information.

- In the Labor field, first enter the appropriate SRT from the Labor Allowance Table. For administrative time, enter SRT 939-0010A for 0.3 hours.

NOTE: ServicePro® must be viewed prior to performing the recall to ensure the vehicle is involved and the campaign has not been previously completed. Also, check for a completion sticker prior to beginning work.

Contact the Warranty Campaigns Department at (800) 547-0712, from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, Web inquiry at AccessFreightliner.com / Support / Submit an Inquiry, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information.

To return excess kit inventory related to this campaign, U.S. dealers must submit a Parts Authorization Return (PAR) to the Memphis PDC. Canadian dealers must submit a PAR to their facing PDC. All kits must be in resalable condition. PAR requests must include the original purchase invoice number.

The letter notifying vehicle owners is included for your reference.

Please note that the National Traffic and Motor Vehicle Safety Act, as amended (Title 49, United States Code, Chapter 301), requires the owner's vehicle(s) be corrected within a reasonable time after parts are available to you. The Act states that failure to repair a vehicle within 60 days after tender for repair shall be prima facie evidence of an unreasonable time. However, circumstances of a particular situation may reduce the 60 day period. Failure to repair a vehicle within a reasonable time can result in either the obligation to (a) replace the vehicle with an identical or reasonably equivalent vehicle, without charge, or (b) refund the purchase price in full, less a reasonable allowance for depreciation. The Act further prohibits dealers from selling a vehicle unless all outstanding recalls are performed. Also, any lessor is required to send a copy of the recall notification to the lessee.

Recall Campaign

FREIGHTLINER® LLC
A DaimlerChrysler Company

August 2006
FL478AB
NHTSA #06V-237

Copy of Letter to Owner

Subject: Unimog Clutch Release Bearing Seals

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act. This notice is also sent in accordance with the Canadian Motor Vehicles Safety Act.

Freightliner LLC, the agent of DaimlerChrysler AG, has decided that a defect which relates to motor vehicle safety exists on specific Unimog U500 vehicles manufactured between November 2003 and September 2005 with "Electronic Auto Shift."

Air in the clutch hydraulic system at the release bearing seal may prevent the clutch from opening completely and potentially prevent the transmission from shifting into neutral. If this happens, the vehicle may roll forward while stopped or be difficult to bring to a complete stop, resulting in possible property damage or personal injury.

The clutch release bearing will be replaced. In addition, the clutch actuation electronic control unit software will be updated and the hydraulic line routing will be checked and corrected if necessary.

Repair kits are now available for authorized dealers to order. **IMPORTANT: Please contact your authorized dealer in advance so that replacement parts and special tools for the recall can be ordered and available prior to your arrival.** To locate a dealer, search online at www.UnimogTrucks.com or www.FreightlinerTrucks.com or contact the Warranty Campaigns Department for assistance.

When you contact your dealer, refer to campaign number **FL478**. Once kit(s) are received at the dealership, the modification will take approximately eight and a half hours and will be performed at no charge to you.

IMPORTANT: When the recall has been completed, please ensure that a label has been affixed to your vehicle referencing **FL478.**

If you do not own the vehicle that corresponds to the identification number(s) which appears on the Recall Notification, please return the notification to the Warranty Campaigns Department with any information you can furnish that will assist us in locating the present owner. If you have leased this vehicle, Federal law requires that you forward this notice to the lessee within 10 days.

If you are not able to have the defect remedied without charge and within a reasonable time, which is not longer than 60 days after you tender the vehicle for repair, please contact the Warranty Campaigns Department at (800) 547-0712, 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, e-mail address WarrantyCampaigns@freightliner.com, or the Customer Assistance Center at (800) FTL-HELP or (800) STL-HELP, after normal business hours. You may also wish to submit a complaint to the Administrator, National Highway Traffic Safety Administration, 400 7th Street SW, Washington, DC 20590; or call the Vehicle Safety Hotline at (888) 327-4236 (TTY: 800-424-9153); or to http://www.safercar.gov. If your vehicle is involved in the Canadian portion, you may wish to notify Transport Canada, ASFAD, Place de Ville Tower C, 330 Sparks Street, Ottawa, ON K1A 0N5, or phone (800) 333-0510.

We regret any inconvenience this action may cause but feel certain you understand our interest in motor vehicle safety.

WARRANTY CAMPAIGNS DEPARTMENT

Enclosure

Work Instructions

Subject: Unimog Clutch Release Bearing Seals

Models Affected: Specific Unimog U500 vehicles manufactured between November 2003 and September 2005 with "Electronic Auto Shift."

IMPORTANT: Kits must be ordered with the vehicle serial number and special tools must be received prior to the arrival of a vehicle at your dealership (expedited freight for kits may not be included on claims). Customers are being asked to contact dealerships before arriving to have the recall performed. The use of special tools (master cylinder adaptor and Star Diagnosis) is required.

To order:

- Send one e-mail to the following two addresses:

  TraianGrecu@Freightliner.com
  ChuckWhitehead@Freightliner.com

- In the subject line include the recall number, FL478.
- In the body of the e-mail, include your request, the vehicle serial number, and your dealership's contact and shipping information.

Electronic Auto Shift Clutch Release Bearing Procedures

1. Check the base label (Form WAR259) for a completion sticker for FL478 indicating this work has been done. The base label is usually located on the passenger-side door about 12 inches (30 cm) below the door latch. If a completion sticker is present, no further work is needed. If there is no completion sticker, go to the next step.
2. Park the vehicle on a level surface. Shut down the engine, set the parking brake, and chock the tires.
3. Before beginning work, ensure all necessary tools and parts are at your dealership:
   - Star Diagnosis with update 05/2006 or newer—provided by Unimog N.A., see ordering instructions under "Replacement Parts" or "Claims for Credit" sections of this bulletin.
   - Clutch bleeder unit—provided by Unimog N.A., see ordering instructions above or under "Replacement Parts" or "Claims for Credit" sections of this bulletin.
   - Replacement parts required for the recall, Kit 25-FL478-000.

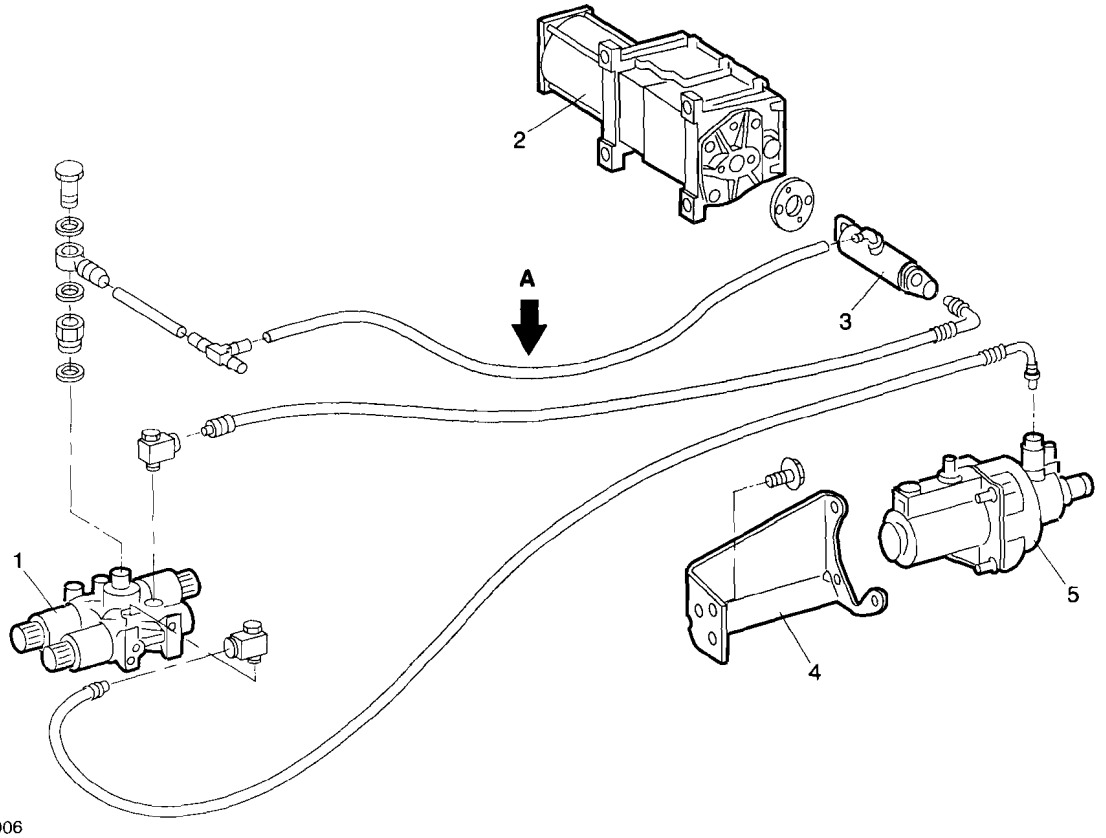
     IMPORTANT: During the assembly procedures, apply Loctite 242 to all bolts before they are installed.
4. After completing all repair procedures in this bulletin, clean a spot on the base label (Form WAR259). Attach a completion sticker (Form WAR260) for recall FL478 to the base label. Remove the chocks.

Clutch Release Bearing Replacement

1. Before beginning the clutch release bearing replacement, go to the Electronic Auto-Shift (EAS) Data Sheet in **Appendix A** at the end of these work instructions, make a copy of the form, and complete: 1) the VIN information, 2) the date, and 3) the "Initial Measured Value" column. After the clutch release bearing assembly has been replaced and the clutch hydraulic lines have been bled, complete the "Final Measured Value" column. **Fax the completed data sheet to Unimog N.A., Attention: Traian Grecu at FAX: (503) 745-6225 before filing the recall claim.**

2. Turn the engine ON and raise the tipper bed. Support it with the safety strut.
3. Turn the engine OFF. At the battery box, turn the battery isolation switch to OFF.
4. Check the cab for loose items, **open the hood**, then tilt the cab and support it with a safety brace.
5. Check for pinched hydraulic clutch lines. If a line is pinched, it must be replaced with the line in the recall kit. Be especially attentive to the hydraulic fluid line, from the fluid reservoir to the master cylinder, indicated by arrow A in **Fig. 1.**
6. If the vehicle has an N05 (rear engine) PTO, it is necessary to remove the PTO from the engine before proceeding. Remove the PTO drive-shaft shield, PTO driveshaft, and N05 PTO. The N05 PTO has one air line, one electrical connection, and five bolts. Clean the mating surfaces and check the O-ring seal before reinstalling the N05 PTO. Apply Loctite and torque the nuts to 30 N·m (22 lbf·ft). See **Fig. 2.**

NOTE: If the vehicle has Vario-Power, the Vario-Power sub-frame DOES NOT have to be removed.



A. Hydraulic Fluid Supply Line

1. Safety Valve
2. EAS Clutch Activator
3. EAS Hydraulic Clutch Master Cylinder
4. Booster Mounting Bracket
5. Booster

Fig. 1, Clutch Hydraulic Lines

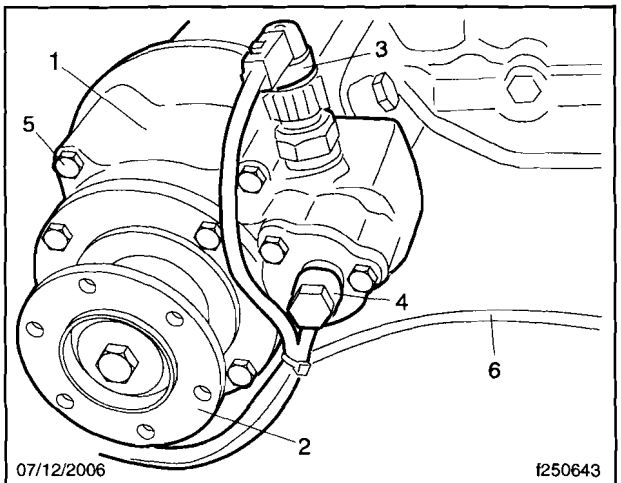
7. If the vehicle has a vertical exhaust, remove the exhaust pipe assembly from the outlet side of the muffler. See **Fig. 3**.
   7.1 Unbolt the exhaust pipe at the muffler.
   7.2 Unbolt the support clamps for the exhaust pipe at the rear of the cab.
   7.3 Work the exhaust pipe assembly back and forth until loose in the muffler, then remove it.
8. Remove the output shaft from the coupling flange on the clutch housing. See **Fig. 4**.
9. Disconnect the clutch sensor connector on the clutch housing. See **Fig. 5**.
10. Disconnect the hose and wiring clamps on the bottom of the clutch housing. See **Fig. 5**.

NOTE: Remove the clip from the fitting that secures the hose, then reinstall the clip into the fitting. During installation, push the hose through the clip and into the fitting, until it clicks into place.

11. Disconnect the pressure line on the clutch housing. See **Fig. 5**.
12. Remove the three nuts that fasten the booster to the mounting bracket. Then remove the booster. See **Fig. 6**.
13. Remove the three bracket mounting bolts. Discard the bracket; a new one will be installed during assembly.
14. Remove the bolts that secure the top of each side of the clutch housing to the mounts. See **Fig. 7**.
15. Place a support device under the rear engine timing cover, and raise the engine slightly. An overhead lifting device connected to the engine lifting eyes on the rear of the engine may be used. Raise the engine a maximum of 3/8 inches (1 cm).

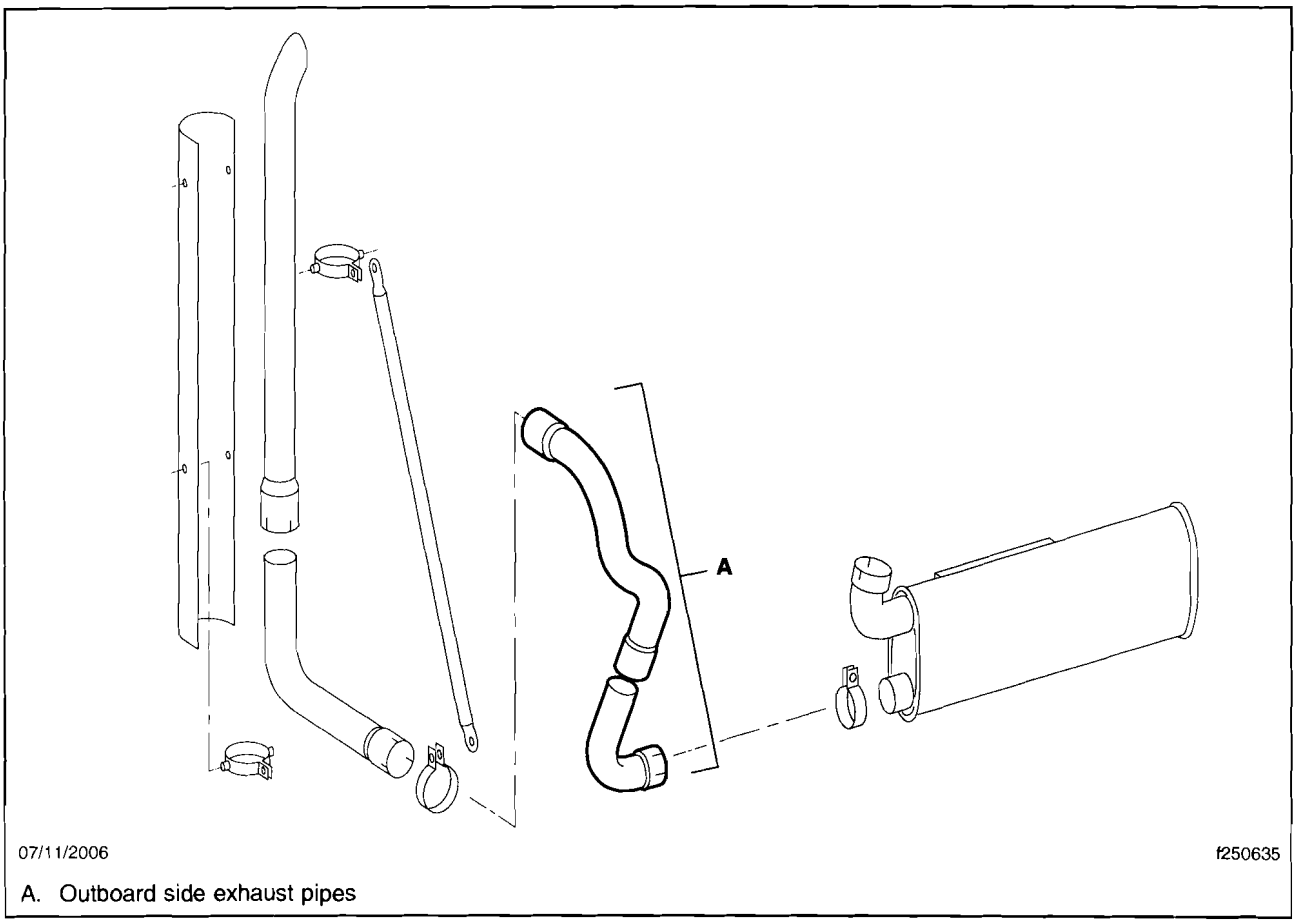
⚠ WARNING

Do not place the lifting device under the engine oil pan. It cannot support the weight of the engine, and damage to the vehicle or personal injury may result.



1. PTO Housing
2. Flange
3. Position Sensor
4. Actuator Connector
5. Mounting Bolt
6. Engine Bell Housing

Fig. 2, N05 PTO



A. Outboard side exhaust pipes

Fig. 3, Vertical Exhaust

16. Remove the bolts that attach the clutch housing to the engine rear timing cover.
17. Carefully slide the clutch housing off the clutch assembly, and remove it from the vehicle.

NOTE: A lifting device may be used to support the clutch housing.

18. Remove the pressure line fitting and bleeder fitting from the housing. Note that the bleeder line fitting must be in the lower position during installation. See **Fig. 8**. Remove the clutch sensor bulkhead connector.
19. Remove the three bolts that attach the release bearing assembly to the clutch housing. See **Fig. 9**.

IMPORTANT: Apply Loctite 242 to all bolts before installing them.

20. Install a new clutch release bearing assembly. See **Table 3** for torque specifications when installing the clutch release bearing and housing.
21. Install the clutch-sensor bulkhead connector onto the clutch housing.
22. Replace the O-rings for the pressure line fitting and the bleeder line fitting, then install them onto the clutch housing, with the bleeder line fitting located in the lower hole. See **Fig. 8**.
23. Apply Loctite 242 to the fasteners, then install the clutch housing.
24. Apply Loctite 242 to the three mounting bolts, then attach the new clutch booster bracket. See **Fig. 10**.

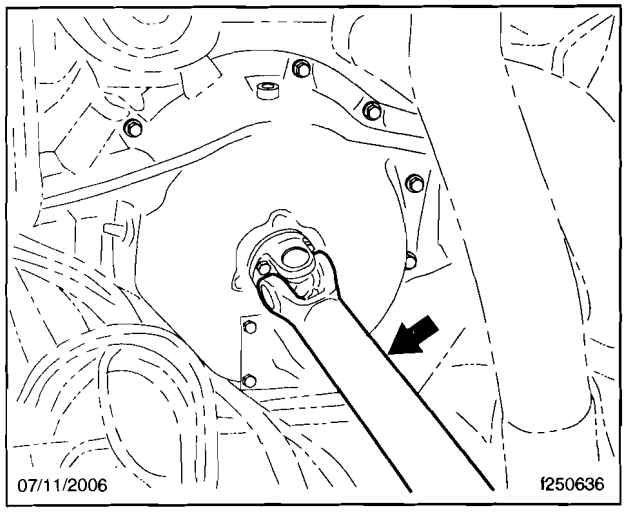
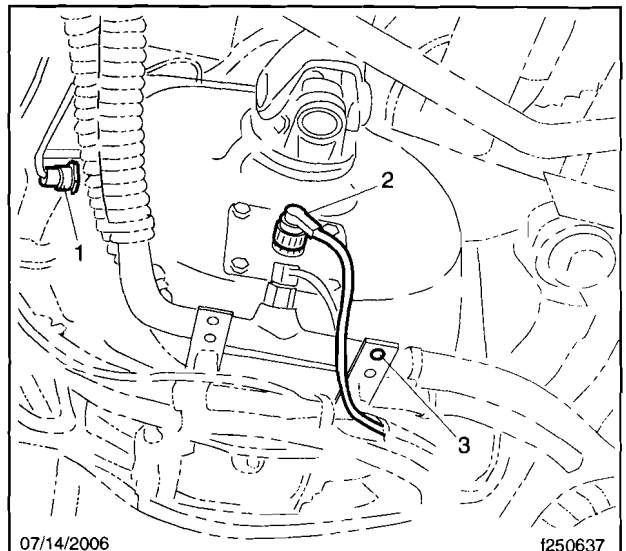


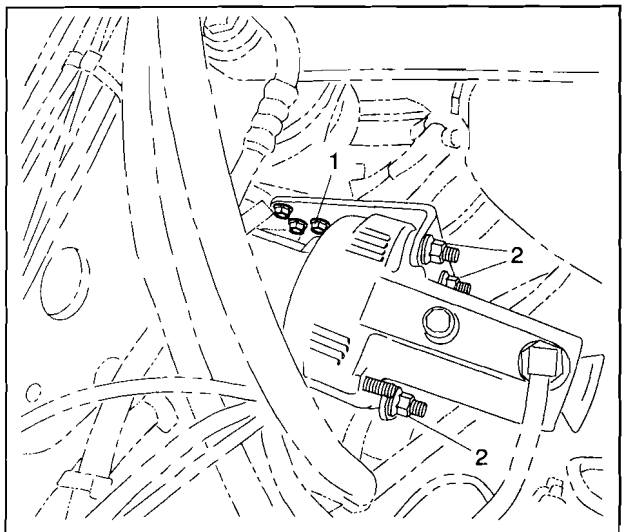
Fig. 4, Output Shaft



Viewed from below.

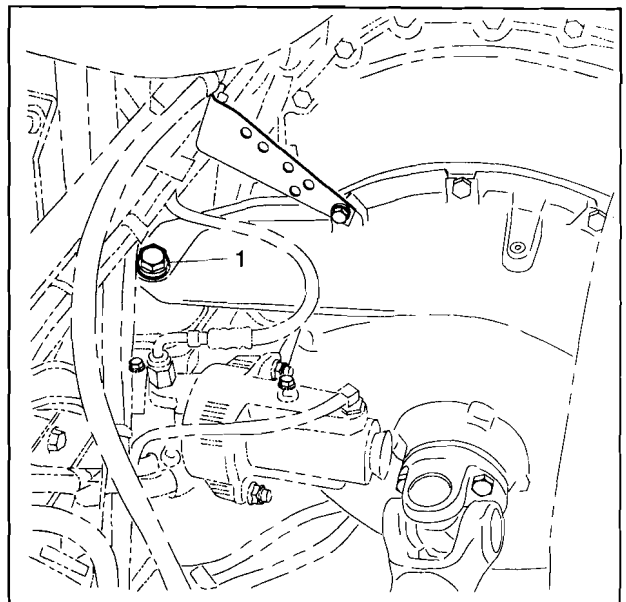
1. Clutch Pressure Line
2. Clutch Sensor
3. Clamps

Fig. 5, Clutch Housing



1. Mounting Bracket Bolts
2. Booster Mounting Nuts

Fig. 6, Clutch Booster Mounting



1. Upper Mounting Bolt

Fig. 7, Clutch Housing Mounting

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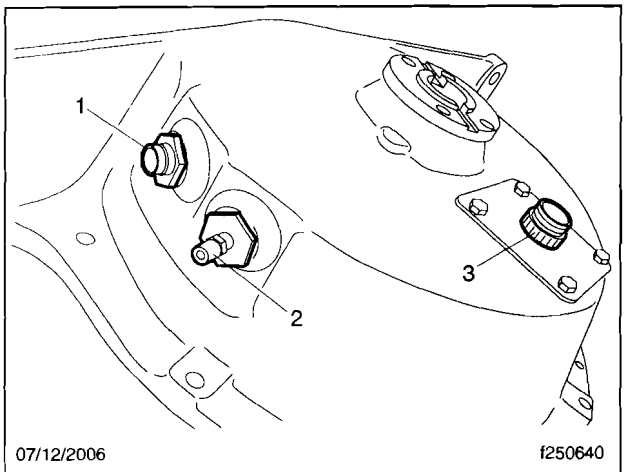
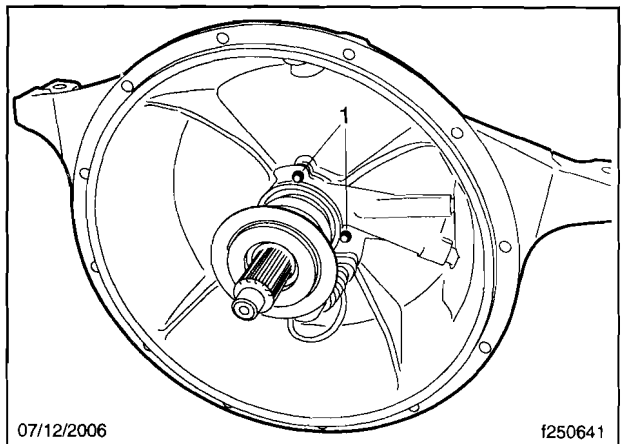


1. Pressure Line Fitting
2. Clutch Release Bearing Bleeder Valve
3. Clutch Sensor Bulkhead Connector

Fig. 8, Clutch Housing



1. Mounting Bolts (qty. 3)

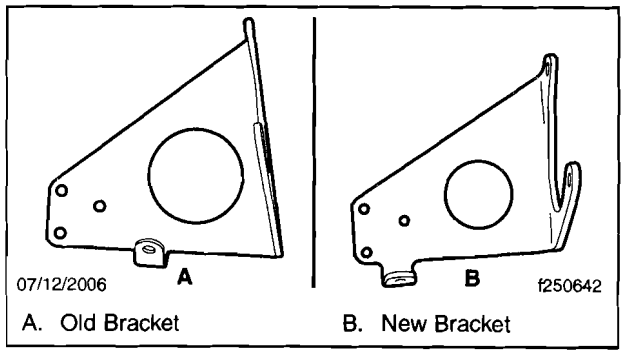
Fig. 9, Clutch Release Bearing Mounting

25. Apply Loctite 242 to the three nuts, then attach the booster onto the new bracket.
26. Apply Loctite 242 to the fasteners, then install the output shaft onto the coupling flange on the clutch housing.
27. Apply Loctite 242 to the fasteners, then install the exhaust pipes.
28. Lower the cab, then turn the battery isolation switch to ON.
29. Continue to the *Pedal Circuit Bleeding* procedure.

Pedal Circuit Bleeding

1. Fill the reservoir tank of the bleeder unit more than half full of DOT 4 Plus, brake fluid. See **Fig. 11**.
2. Remove the cap from the hydraulic clutch fluid reservoir (located behind the dash panel on the lower left of the steering column), and attach the reservoir adapter supplied in the bleeder kit in its place. See **Fig. 12** and **Fig. 13**.

NOTE: It may be necessary to loosen the reservoir mounting strap before attaching the reservoir adaptor.



A. Old Bracket B. New Bracket

Fig. 10, Booster Brackets

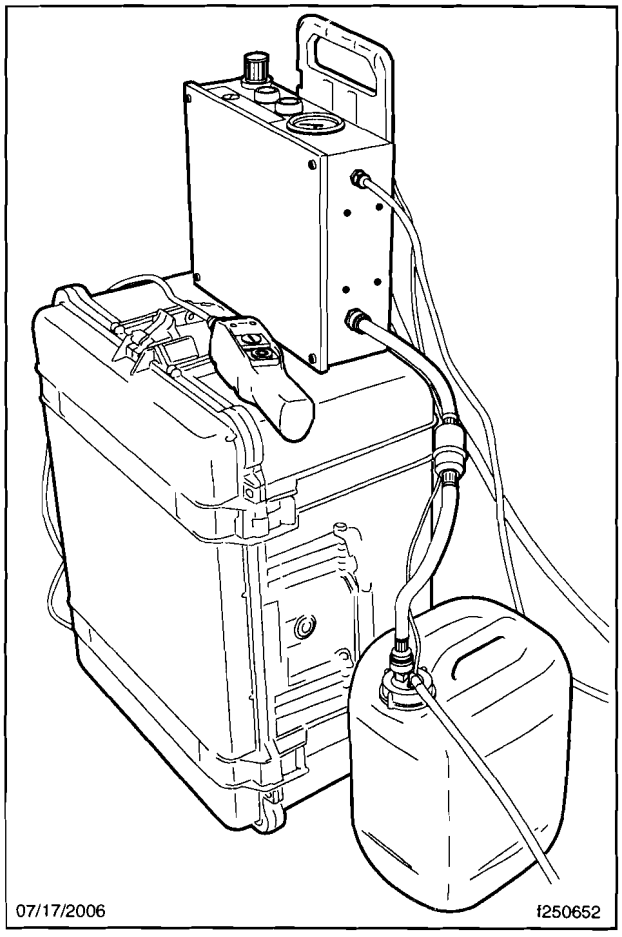
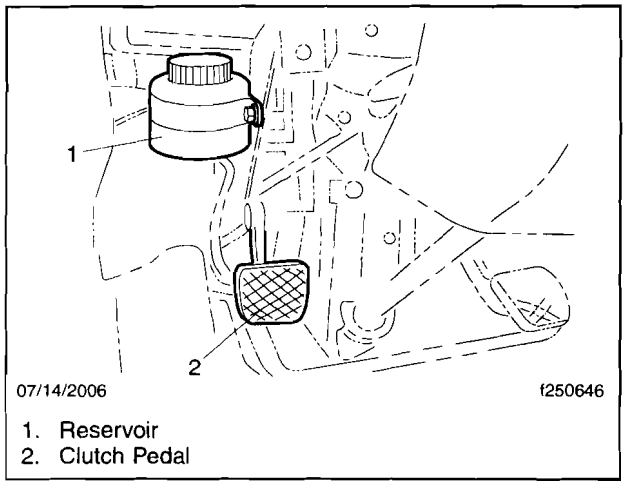


Fig. 11, Bleeder Unit



1. Reservoir
2. Clutch Pedal

Fig. 12, Left Side Footwell

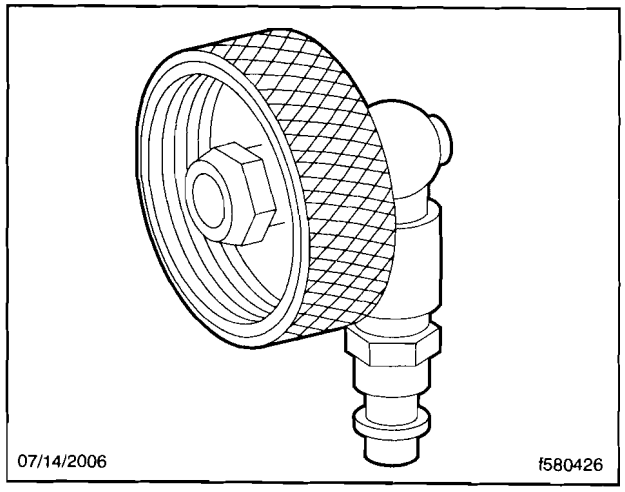


Fig. 13, Reservoir Adaptor

3. Connect a return line between the reservoir and the bleeder valve that is to be bled.
4. Connect the bleeder unit to 120 volts; place the remote control in the cab.
5. Start the engine, charge the vehicle air system, then turn the engine off.
6. Unlock and lower the clutch pedal.

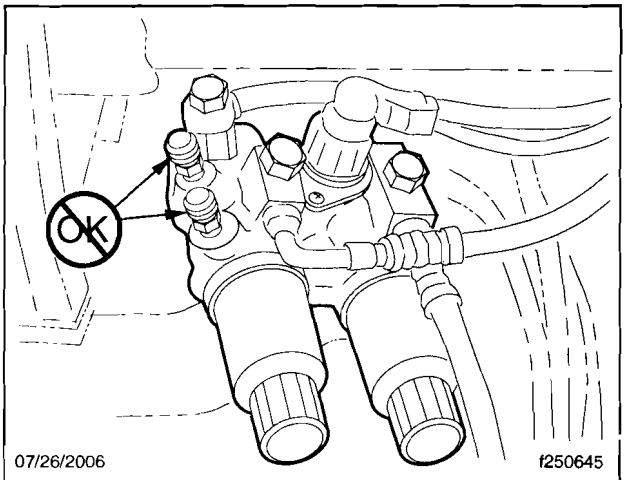
⚠ CAUTION

DO NOT open the bleeder valves on the safety valve located under the hood. See Fig. 14. Air could enter the clutch hydraulic system and compromise the functioning of the safety valves.

7. Using a hose clamp, attach the hose from the bleeder unit to the bleeder valve A on the clutch booster. See **Fig. 15**.
8. Turn the vehicle ignition to ON.
9. Switch on the bleeder unit and set it to 30 psi (2.2 bar).
10. Depress the clutch pedal, then open the bleeder valve and allow the fluid to flow.
11. Close the bleeder valve, then slowly release the clutch pedal.
12. Repeat the bleeding procedure until the brake fluid flows out without bubbles.

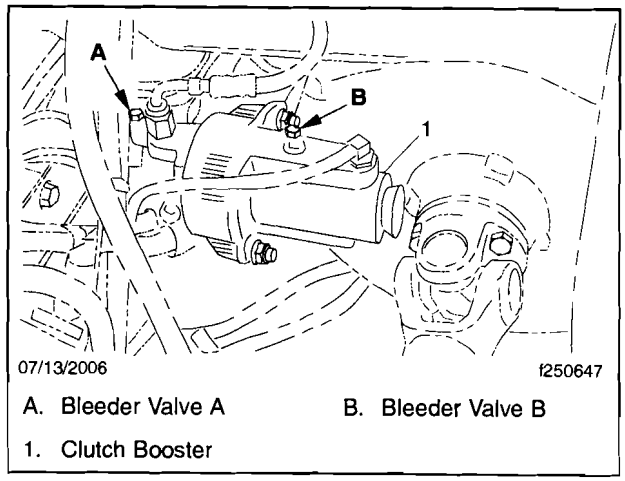
IMPORTANT Always wait 5 seconds between every pedal actuation.

13. Move the bleeder hose to bleeder valve B. Perform the bleeding procedure at least 3 times, or until the fluid flows out without bubbles.
14. Move the bleeder hose to the release bearing bleeder valve. Perform the bleeding procedure at least 3 times, or until the fluid flows out without bubbles. See **Fig. 16**. Leave the return bleeder hose attached to the release bearing bleeder valve.
15. Repeat the procedure in reverse order of the valves, starting at the release bearing bleeder valve and ending at bleeder valve A. See **Fig. 15**.



DO NOT open the bleeder valves on the safety valve.

Fig. 14, Safety Valve



A. Bleeder Valve A
B. Bleeder Valve B
1. Clutch Booster

Fig. 15, Bleeding the Clutch Booster

NOTE: The following bleeding procedure differs from the one just performed.

16. Leave the bleeder return hose connected to bleeder valve A, then open the valve and quickly depress the clutch pedal. When the pedal reaches the floor, close the bleeder valve. Repeat this procedure for bleeder valve A, at least 2 more times, or until the fluid flows without bubbles.
17. Move the hose to bleeder valve B, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles.
18. Move to the release bearing bleeder valve, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles. See **Fig. 16**.
19. Reverse the procedure, starting at the release bearing bleeder valve. Perform the same procedure for each bleeder valve at least 3 times, or until the fluid flows without bubbles.

    Bleeding of the pedal circuit is now complete. Continue to the *Automatic Circuit Bleeding* procedure.

Automatic Circuit Bleeding

IMPORTANT: The clutch pedal must be locked in the up position for this procedure.

Bleeding the System in Forward Gear After the Ignition is ON

1. Start the engine, charge the vehicle air system, then turn off the engine.
2. Turn the ignition key to ON and allow the safety valves to cycle.
3. Switch on the bleeder unit and set it to 30 psi (2.2 bar).
4. Select a forward gear, open bleeder valve A on the clutch booster, and allow the fluid to flow. See **Fig. 15**.

NOTE: To shift to a forward gear, press the function button on the left side of the gearshift. Hold down the function button, push the shift lever forward, then release the button. See **Fig. 17**.

5. Close the bleeder valve and turn the ignition to OFF.
6. Repeat the bleeding procedure at least 2 more times, or until the fluid flows without bubbles.
7. Move the line to bleeder valve B, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles.

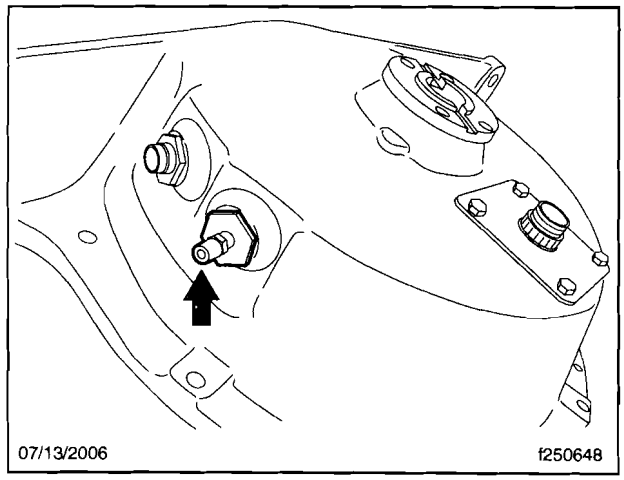


Fig. 16, Release Bearing Bleeder Valve

8. Move to the release bearing bleeder valve, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles.
9. Repeat the same procedure in reverse, starting at the release bearing bleeder valve. Bleed it at least 3 times, or until the fluid flows without bubbles, then move to bleeder valve B, then to bleeder valve A.

Bleeding the System in Forward Gear Before the Ignition is ON

NOTE: The following bleeding procedure differs from the one just performed.

1. With the bleeder return hose still connected to bleeder valve A, open the valve then turn the ignition to ON. Select a forward gear. Once the fluid stops flowing, close the bleeder valve and turn the ignition to OFF. Repeat this procedure for bleeder valve A at least 2 more times, or until the fluid flows without bubbles.
2. Move the hose to bleeder valve B, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles.
3. Move to the release bearing assembly bleeder valve, then perform the same bleeding procedure at least 3 times, or until the fluid flows without bubbles.
4. Reverse the procedure, starting at the release bearing bleeder valve. Perform the same procedure at least 3 times, or until the fluid flows without bubbles.
5. Turn the bleeder unit off and disconnect it from the vehicle.
6. Check that the clutch reservoir fluid level is between the MAX and MIN markings, then install the reservoir cap.
7. Bleeding of the automatic circuit is complete. Complete the EAS Data Sheet column labeled *Final Measured Value* (See **Appendix A**). **Fax the completed data sheet to Unimog N.A., Attention: Traian Grecu at FAX: (503) 745-6225 before filing the recall claim.** Continue to the *KS Control Unit Replacement* procedure.

KS Control Unit Replacement

1. Ensure the parking brake is set, the ignition turned to OFF. At the battery box, turn the battery isolation switch to OFF.
2. Unplug and remove the KS control unit from the electrical panel located behind the right-hand seat. See **Fig. 18**.
3. Place the KS control unit from the kit into the slot, then plug in the electrical connectors.
4. Turn the battery isolation switch to ON.
5. Continue to the *Major Learning Process* below.

Major Learning Process

IMPORTANT: The clutch pedal must be locked in the up position for this procedure.

1. If not already done, set the parking brake, start the vehicle, and charge the air system. Turn the ignition to OFF. Fasten the seat belt (to cancel the alarm).
2. Press and hold the neutral button, located on the right side of the gear shift, for steps 1 through 4. See **Fig. 17**.
3. Switch the ignition to ON.
4. When the "N" for neutral flashes in the multifunction display, start the engine. The instrument panel (INS) will beep and the transmission will shift.
5. When the "N" for neutral displays continuously in the multifunction display, release the neutral button then select a forward gear, and wait 4 to 5 seconds.

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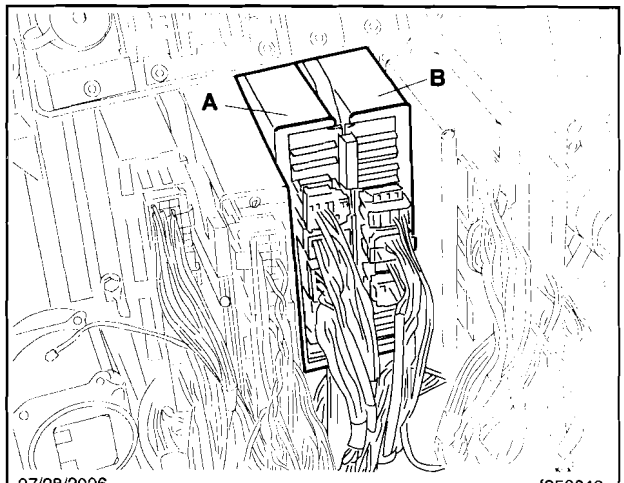
1. Function Button
2. Neutral Button
3. Automatic Mode Selector
4. Manual Mode Selector

Fig. 17, Gear Shift Lever



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A. KS control unit location when the vehicledoes not have CTIS (central tire inflation system)
B. KS control unit location when the vehicle has CTIS

Fig. 18, KS Control Unit Location

6. Press the neutral button then wait 4 to 5 seconds.
7. Turn the ignition to OFF then wait until all control units have shut down. It may take up to 30 seconds for all control units to shut down.

IMPORTANT: During the Major Learning Process, the code GS08 may be displayed in the instrument panel. If this happens shut the vehicle off, let the instrument panel power down, then start the learning process over. This is common when replacing a control unit.

8. The major learning process is complete. Continue to the *Instrument Panel Update* below.

IMPORTANT: If a fault code for the electronic system gear shift displays after performing the major learning process, perform a manual shift sequence as follows, then repeat the major learning process:

- Turn on the ignition.
- Lower the clutch pedal, depress the clutch pedal fully, then release it fully.
- Select a forward gear.
- Depress the clutch pedal and allow the shift to complete.
- Shift to neutral.
- Turn off the ignition.
- Retract the clutch pedal and lock it in the up position.
- Allow the control units to power down completely.

Instrument Panel (INS) Update

NOTE: This procedure requires Star Diagnosis, version 05/2006 or newer.

1. Connect Star Diagnosis to the vehicle.
2. Perform a "Quick Test."
3. Select "INS."

4. Select "Control Unit Adaptations."
5. Select "Parameterization."
6. Select "Add New Languages."
7. Select "Reset Total Range of Languages."
8. Select "Three Languages."
9. Set the desired languages (English, French, Spanish).
10. Carry out download.
11. When download is complete, turn ignition off and then on.
12. Disconnect the Star Diagnosis and check the display for the selected language.

IMPORTANT: Following an extended period of vehicle inactivity, outgassed air can cause fault code KS 4112 to display. Do the following to reset the fault code:

- Set the park brake.
- With the engine off, put the mode selector in the A position (for automatic), lock the clutch pedal in the up position, and put the transmission in neutral. See **Fig. 17**.
- Shift from neutral to starting gear several times, until the code disappears.

13. Perform a test drive to verify proper operation of the vehicle.

Specifications

Part Number	Designation	Torque: lbf·ft (N·m)
BA22.10-N-1001-01M	Bolt, rear engine mount to clutch housing, up to VIN 204901	125 (172)
BA22.10-N-1001-01M	Bolt, rear engine mount to clutch housing, as of VIN 204902	60 (80)
BA25.10-N-1001-01J	Bolt, input shaft to coupling flange	42 (57)
BA25.10-N-1002-01J	Bolt, clutch housing to timing case	24 (32)
BA25.20-N-1001-01I	Connection fitting/breather connection to central release bearing	52 (70)
BA25.20-N-1002-01I	Bolt, central release bearing to clutch housing	12 (16)

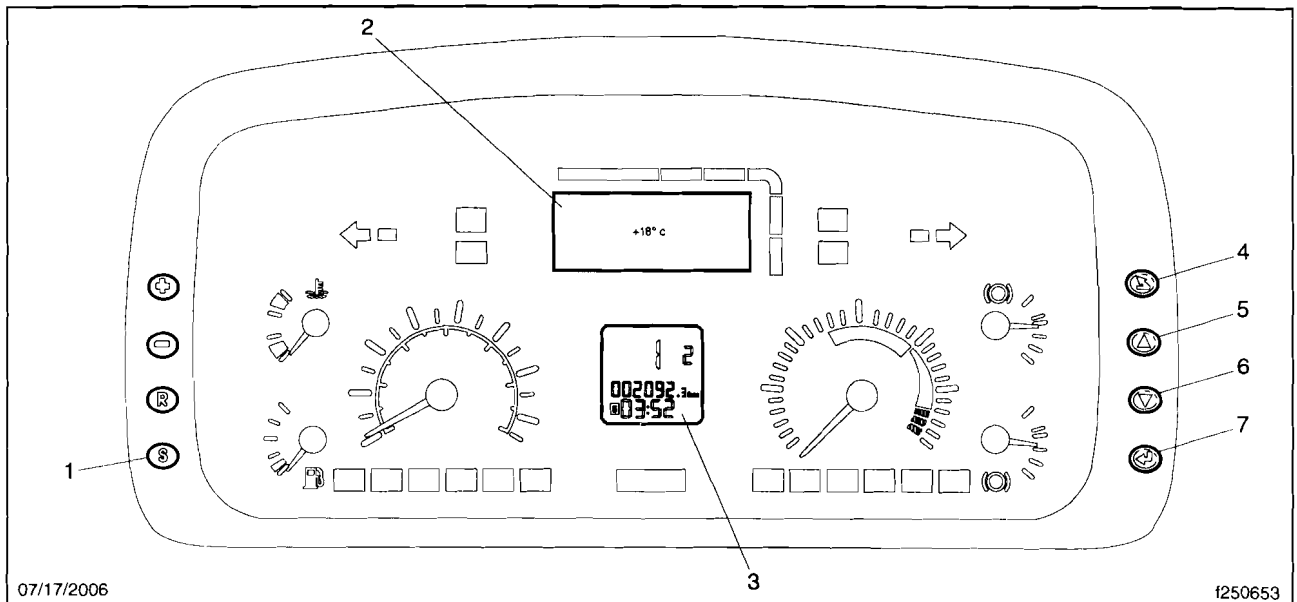
Table 3, Torque Specifications

Appendix A

Electronic Auto-Shift (EAS) Data Sheet Instructions

IMPORTANT: Before beginning the procedures in this bulletin, complete: 1) the VIN information, 2) the date, and 3) the "Initial Measured Value" column of the Data Sheet. After completing the bleeding procedures, fill in the "Final Measured Value" column. **Fax the completed data sheet to Unimog N.A., Attn: Traian Grecu at FAX: (503) 745-6225 before filing the recall claim.**

1. Lock the clutch pedal in the up position. With the engine off, put the shift mode selector in the "A" position (for Automatic Mode), and put the transmission in neutral.
2. Start the vehicle. Charge the air system until it is at maximum, then turn off the engine.
3. Turn the ignition to the ON position.
4. To display the mileage and hours, press the multifunction SELECT button (labeled S) on the left-hand side of the instrument panel, then scroll through the readout. See **Fig. 19**, item 1.
5. To display the driver information system (FIS) values for the before and after readings, press the FIS RETURN button on the right-hand side of the instrument panel. See **Fig. 19**, item 4.
6. Use the scroll buttons to to go to "Diagnosis," see **Fig. 19**, items 5 and 6, then press the FIS SELECT button, item 7.
7. Scroll through the menu to GS, then press the FIS SELECT button.
8. Scroll to MW, Measured Values, then press the FIS SELECT button.



1. Multifunction Select
2. FIS Display
3. Multifunction Display
4. FIS Return
5. FIS Scroll up
6. FIS Scroll down
7. FIS Select

Fig. 19, Driver Information System (FIS) and Multifunction Display (MFD)

9. Scroll to the requested measured value, then fill in the "Initial Measured Value" or "Final Measured Value" column for the data sheet steps 1-15.
10. Start the engine, charge the air system, then shut down the engine. Turn the ignition switch to ON.
11. Press the FIS RETURN button. See **Fig. 19**, item 4.
12. Use the scroll buttons to go to "Diagnosis", then press the FIS SELECT button. See **Fig. 19**, item 7.
13. Use the scroll buttons to go to FR, and press the FIS SELECT button.
14. Scroll through the FR measured values to MW16 and record the reading on the data sheet.

NOTE: The FR MW16 is a good indicator of the clutch system working properly. The following measured values indicate proper clutch functioning. If the measured value for FR MW16 is not as stated below, contact your Unimog N.A. field service manager.

- Gear shift in manual mode, clutch pedal down, engine running, and clutch pedal fully depressed—Measured Value = 95
- Gear shift in manual mode, clutch pedal down, engine running, and clutch pedal fully released—Measured Value = 0
- Gear shift in auto mode, clutch pedal folded up, engine running, and forward gear selected—Measured Value = 100
- Gear shift in auto mode, clutch pedal folded up, engine running, neutral button depressed—Measured Value = 0

EAS Data Sheet

Fax the completed data sheet to Unimog N.A., Attn: Traian Grecu at FAX: (503) 745-6225 before filing the recall claim.

	Date:			
	VIN:	Dealer Code:	Hours:	Miles:
Step	Record Input Data	Initial Measured Value	Final Measured Value	Remarks
1.	Record GS MW15 (measured value).			Clutch closed.
2.	Record GS MW27.			Learned value clutch open.
3.	Record GS MW28.			Learned value clutch closed.
4.	Engage forward gear. Record GS MW15.			Clutch is now open.
5.	Fold down the clutch pedal.	N/A	N/A	
6.	Depress the clutch pedal. Record GS MW15.			
7.	Release the clutch pedal. Record GS MW15.			
8.	Depress the clutch pedal. Record GS MW15.			
9.	Shift to neutral and release the clutch pedal. Record GS MW15.			
10.	Depress the clutch pedal. Record GS MW15.			
12.	Fold up the clutch pedal. Turn ignition OFF and wait 10 seconds.	N/A	N/A	
13.	Turn the ignition ON.	N/A	N/A	
14.	Select FIS Diagnostics. Record GS MW15.			
15.	Engage forward gear and record GS MW15.			
16.	Follow the data sheet instructions to proceed to the FR measured values. Record the FR MW16 reading.			Measured value FR MW16 is the percentage of clutch activation.
17.	Calculate the difference between line 6 and line 9.			Result is greater than 300—OK. If not, repeat the bleeding procedure.
18.	Calculate the difference between line 14 and line 15.			Result is greater than 300—OK. If not, repeat the bleeding procedure.

Table 4, EAS Data Sheet