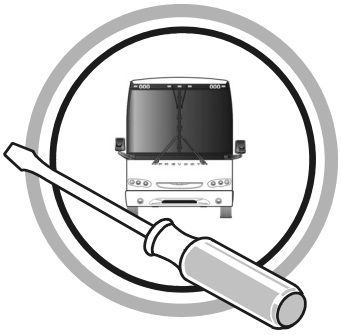


PREVOST

ENREGISTRÉ - REGISTERED
ISO 9001 & ISO 14001

MAINTENANCE INFORMATION Mi06-06

PREVOST

DATE : MAY 2006	SECTION : 07 - Transmission
SUBJECT :	ZF ASTRONIC TRANSMISSION INSPECTION AND LUBRICATION PROCEDURE & HARSH ENGAGEMENT PROBLEM SOLUTION

IMPORTANT NOTICE
This maintenance is recommended by Prevost Car to increase your vehicle's performance. Note that no reimbursement will be awarded for carrying out this procedure.

APPLICATION

Model	
H3-41, H3-45 coaches with ZF transmission Model Year : Since 2004	
X3-45 & XLII-45 coaches with ZF transmission Model Year : Since 2004	

DESCRIPTION

The ZF-Astronic transmission does not require a regular maintenance program. However, to ensure maximum performance and quality, ensuring that the release mechanism is lubricated in regular intervals is beneficial.

In most cases, lubricating the parts at 100 000 miles (160 000 km) or once per year is sufficient.

HARSH ENGAGEMENT

Some customers having vehicles equipped with ZF-Astronic transmission may be experiencing a problem called “harsh engagement”. So far, almost all the problems have been fixed by doing the following inspection and lubrication procedure.

Symptoms:

- **The whole coach shakes after passing from neutral “N” to drive “D”, and also when changing starting gear from 2nd to 3rd or 1st.**
- **Hard shifting and also, gear grinding noise.**
- **Hard downshifting.**
- **Big clunking noise from the transmission when bringing the vehicle to a stop.**

Cause:

- **Mostly caused by a lack of lubrication in the clutch fork and release bearing system.**

RELEASE FORK GREASING PROCEDURE

⚠ WARNING ⚠
Park vehicle safely, apply parking brake, stop engine and set battery master switch(es) to the OFF position prior to working on the vehicle.

⚠ CAUTION ⚠
Ignition as to be set to OFF at all time while performing this inspection.

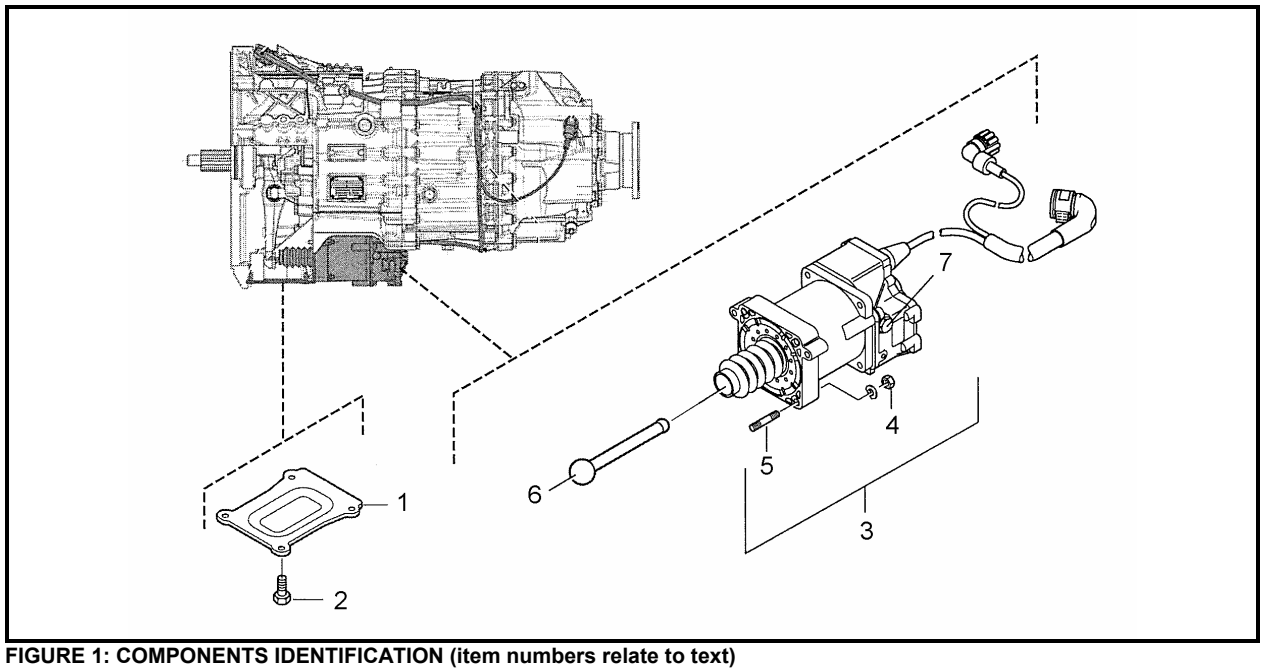


FIGURE 1: COMPONENTS IDENTIFICATION (item numbers relate to text)

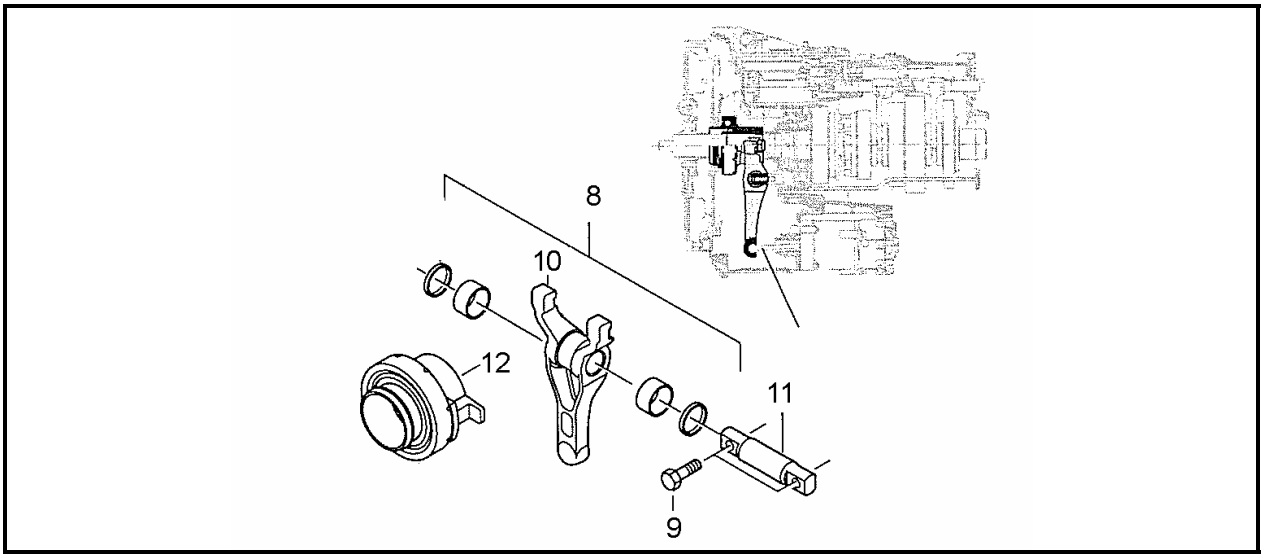
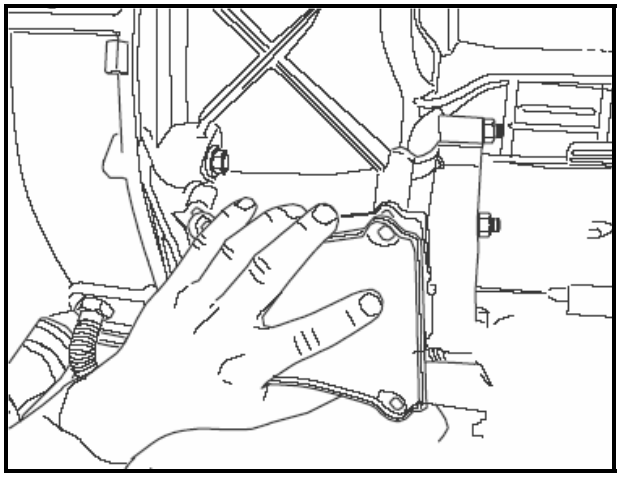
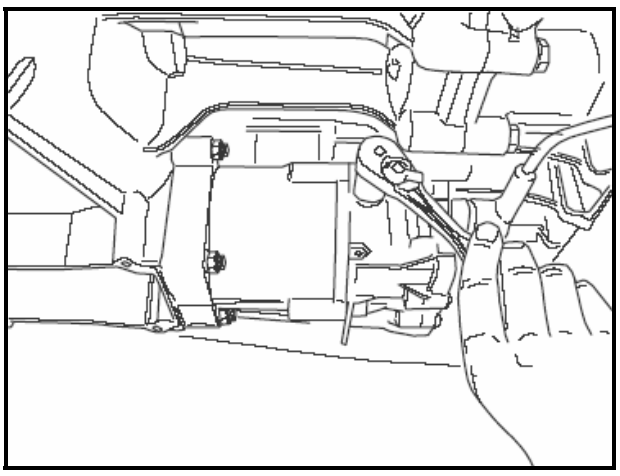


FIGURE 2: COMPONENTS IDENTIFICATION (item numbers relate to text)

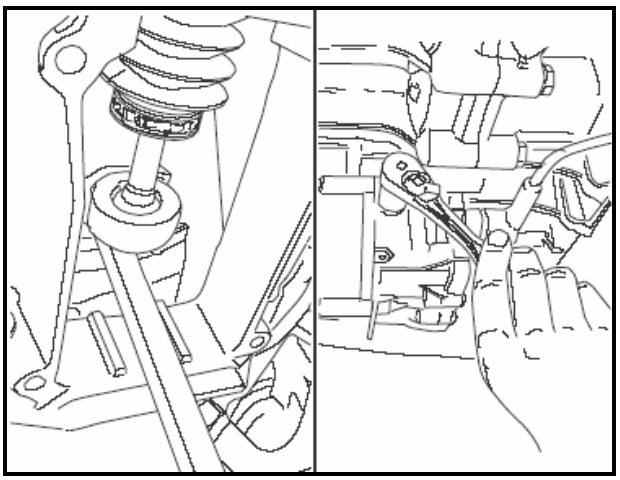
1. Place transmission into neutral “N”.
2. Turn off the engine.
3. Drain ZF compressed air tank.
4. Using a 13mm wrench, remove the clutch inspection cover (1).



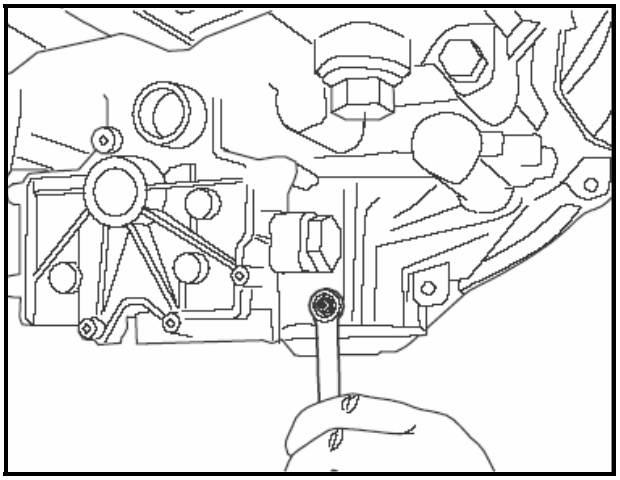
5. Using a 17mm wrench, remove the clutch actuator vent plug (7) to release the air trapped into the clutch actuator (3).



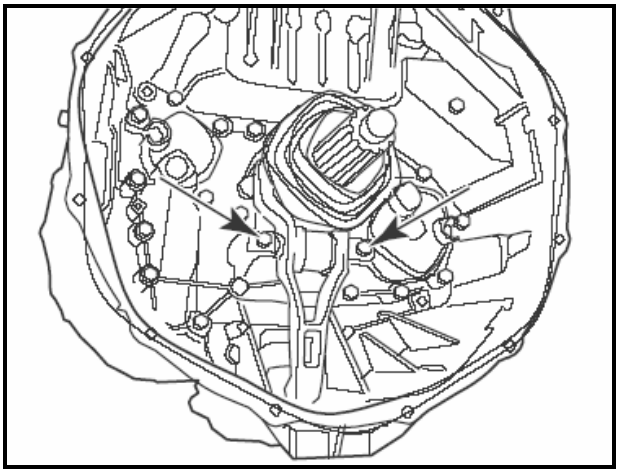
6. With the clutch fork pried back, reinstall the vent plug. This will compress the return spring and eliminate the load on the fasteners.



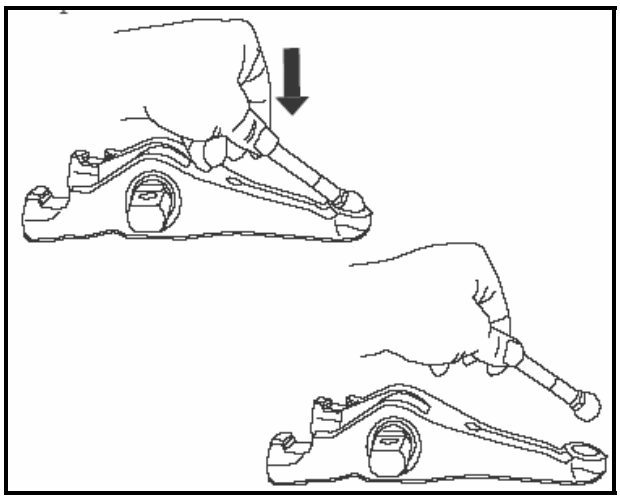
7. Using a 13mm wrench, remove the four nuts (4) that secure the clutch actuator housing (3).
8. Pull back and remove the clutch actuator (3).



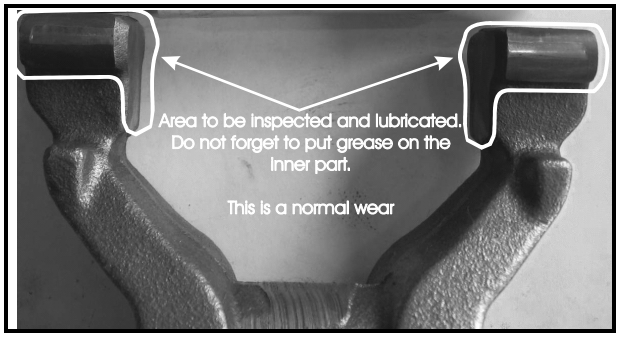
9. Working through the clutch inspection cover access, use a 19mm socket and ratchet to remove the 2 fasteners (9) that secure the release fork assembly (8) to the transmission.



10. Remove the clutch actuator rod (6) from the clutch fork.

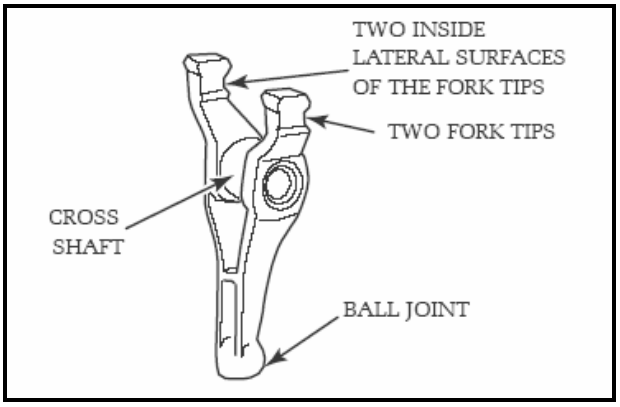


11. Check for abnormal wear on the release fork-to-release bearing (12) mating surface.

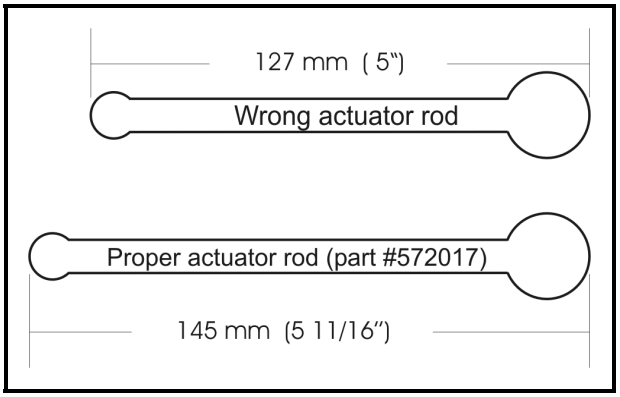


12. Remove old grease residue from affected area.
13. Lightly grease the fork in six locations using Optimol Olista Longtime 3 EP grease. Grease the two fork tips, the two inside surfaces of the fork (where the release bearing slides), the cross shaft (11), and the ball joint socket. Make sure the release fork rotate smoothly on the shaft.

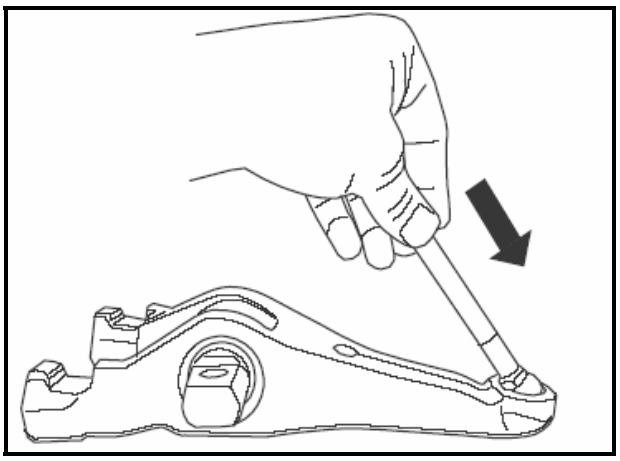
USE ONLY OPTIMOL OLISTA LONGTIME 3 EP GREASE (part #684754)



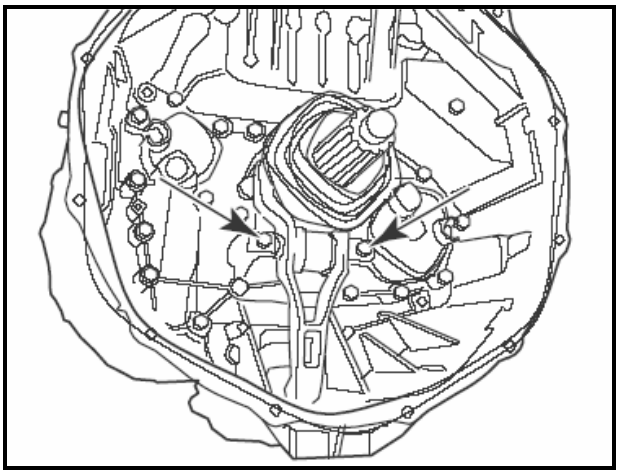
14. Measure the clutch actuator rod (6) length. It should be 5 $^{11}/_{16}$" (145mm). Having a shorter thrust rod can lead to strange transmission behavior.



15. If the rod is the proper one, lube both ends with OPTIMOL grease and reinstall into the ball joint socket.

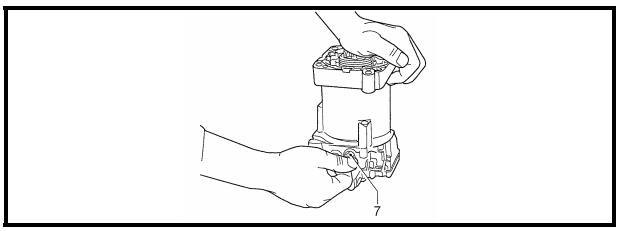


16. Working through the clutch inspection cover access, install the release fork assembly (8) to the transmission. Use a 19mm socket and torque wrench to tighten the fasteners (9) to 85 lbf·ft.

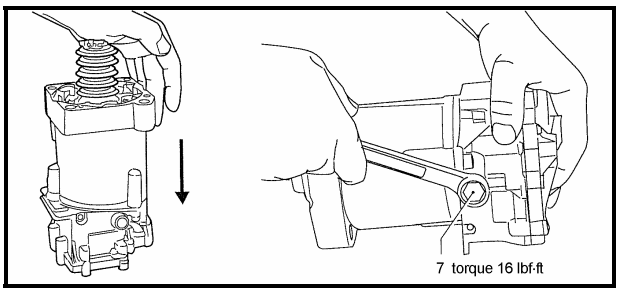


TESTING OF THE CLUTCH ACTUATOR

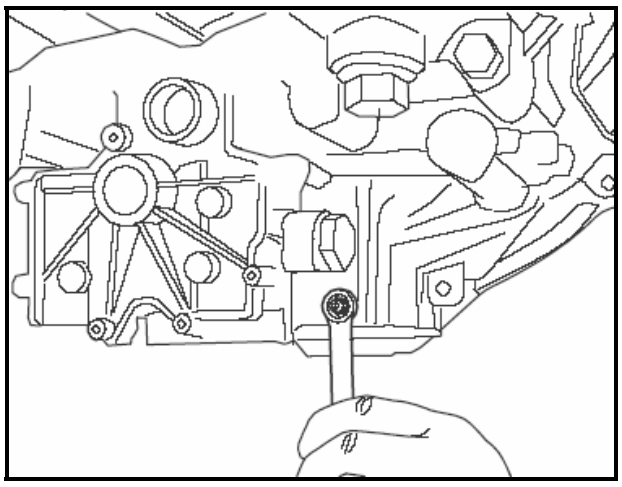
17. Using a 17mm wrench, remove the clutch actuator vent plug (7).



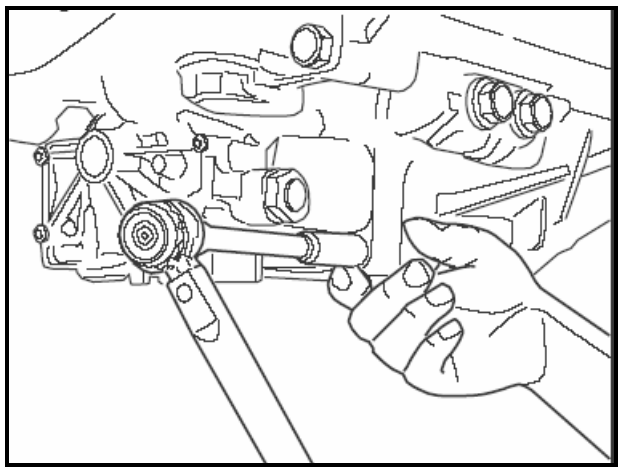
18. Press the piston all the way back *in* and then reinstall and tighten the vent plug (7). The piston should stay *in*. If the piston is going back *out*, it means that the inside solenoid is leaking and the actuator has to be replaced.



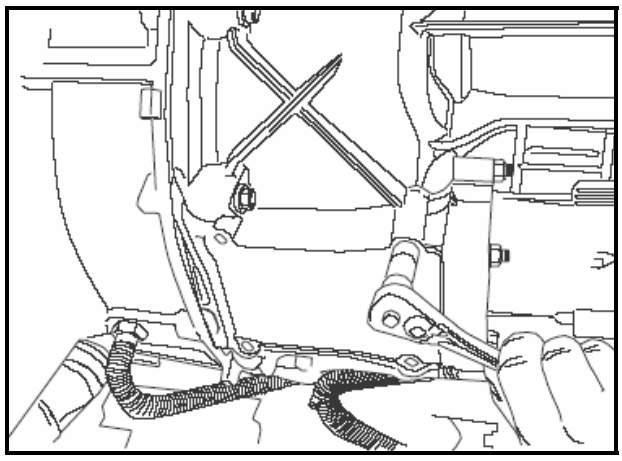
19. Use a 13 mm wrench to install the clutch actuator assembly onto the transmission case. To do so, leave the piston all the way in.



20. Tighten nuts (4) to a torque of 17 lbf·ft. Make sure that the actuator rod is correctly seated in release fork and clutch actuator.
21. Loosen vent plug (7) and wait until piston is extended. Once again, make sure that the actuator rod is correctly seated in release fork and clutch actuator.
22. Retighten the vent plug to a torque of 16 lbf·ft.

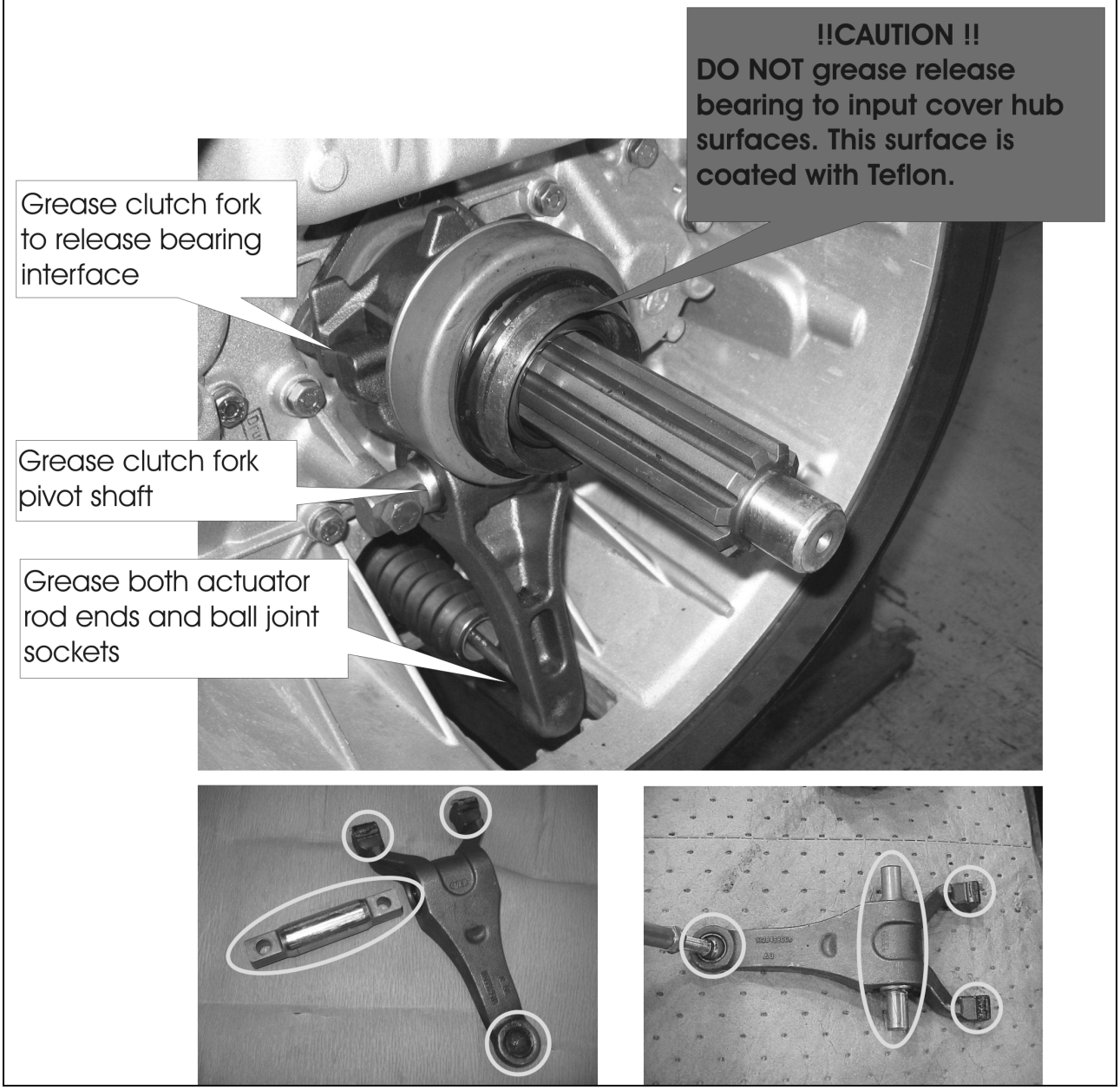


23. Using a 13 mm socket and torque wrench, install clutch inspection cover (1). Tighten fixing bolts (2) to a torque of 17 lbf·ft.



24. Start the engine and wait a few minutes to charge the air system. Perform a road test to see if the transmission functions normally.

OVERVIEW OF GREASE APPLICATION



IMPORTANT
Lubricate every 100 000 miles (160 000 km) or once a year.