



SERVICE INFORMATION BULLETIN

Bulletin Number: 13-003 Models: FE/FG Issue Date: October 2013 Page 1 of 6

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge, tools, and equipment to properly and safely perform diagnoses and repairs. It informs service technicians about conditions that may occur in some vehicles, or provides information that could assist in proper vehicle diagnosis, service, or repair, and does not indicate that a defect is present. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or that a described repair applies to any particular vehicle. There can be multiple causes resulting in the same symptoms or conditions, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis.

SUBJECT:
DUONIC ATF Flushing Procedure

POTENTIALLY AFFECTED MODELS:
2012 M/Y and up Canter Vehicles

DESCRIPTION:
The attached procedure describes the proper method for flushing the DUONIC automatic transmission fluid following a DUONIC transmission assembly failure and replacement. (This procedure is not necessary when performing DUONIC campaigns.)

Please initial and route to the following personnel before filing.

Service Mgr.		Warranty Mgr.		Service Technicians - Initial in boxes below.								
Shop Foreman		Parts Mgr.										

DUONIC® ATF Flushing Procedure

This procedure describes how to properly flush the DUONIC ATF when replacing a DUONIC transmission assembly after a component failure.

IT IS NOT NECESSARY TO FLUSH THE ATF WHEN PERFORMING DUONIC CAMPAIGNS!

Warranty Reimbursement

Include the labor reimbursement for flushing on the DUONIC repair WSC submission. In the Warranty Service Claim Labor entry screen, include the following reimbursement entry:

Labor Operation	Work Code	Quantity	Labor Time
222910	59	1	1.5

Flushing Procedure

Park the vehicle on a flat, level surface, turn off the engine, apply the parking brake and chock the wheels.

1. Drain the ATF (Failed Transmission)

Remove the drain plug, and remove approximately 2.0 liters (2.1 quarts) of ATF from the transmission. After draining the ATF, reinstall and tighten the drain plug, then remove the oil pan.

Drain plug tightening torque: 29 ft.lbs. (39 Nm)

CAUTION!

- ATF temperature is still hot just after the stopping the engine.
- Before removing the drain plug, clean the inspection plug and oil pan to prevent dust from contaminating the clutch housing. Keep the work area clean to prevent sand/dust from entering clutch housing.
- Do not use air tools to remove the oil pan.



2. Remove and Clean the Oil Pan (Failed Transmission)

Remove ATF and contaminants from the oil pan using parts cleaner.



3. Reinstall the Oil Pan (Failed Transmission)

Wipe the ATF out of the oil pan, and install the oil pan temporarily. (It is not necessary to replace the oil pan gasket during this step.) Oil pan bolt tightening torque: 7.5 ft.lbs. (10.2 Nm)

CAUTION!

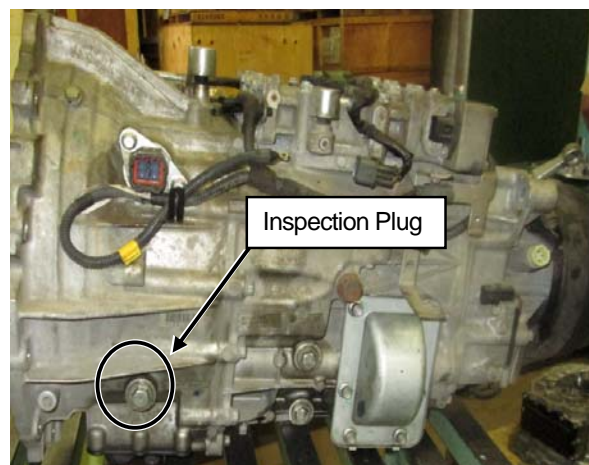
- Do not use air tools to install the oil pan.
- Place a drain pan under the transmission in case a small amount of ATF leaks out during this step.

4. Refill and Circulate the ATF Through the Valve Body and Oil Cooler (Failed Transmission)

(1) Refill the transmission through the inspection plug with approximately 2.0 liters of ATF.

CAUTION!

- After refilling with ATF, install the inspection plug quickly to prevent dust from entering the clutch housing.



Circulate the ATF through the valve body and oil cooler

- Start the Engine. (To circulate the ATF through the Valve body)
- Move the shift lever from N to D, D to R(D→N→R), R to D(R→N→D) at 10 second intervals with the parking brake and service brake applied. (To circulate the ATF through the oil cooler lines)

CAUTION!

- If the shift position does not change from to D or N on the indicator (due to shifting failure), please perform the operation using the 'Oil cooler ON' actuator test using Fuso Diagnostics. (It will automatically switch off after 30 seconds.)
- It is not required to adjust ATF temperature before this procedure. (Any ATF temperature is acceptable)
- If the system appears to be "sucking air", add additional ATF.

The screenshot shows the 'Actuations' tab for the TCM DUONIC Control unit (A28). The '003 Oil cooler ON' actuator is selected. The interface displays the following information:

Requirement for actuation

Name	Actual value	Specified value
Gear engaged (CAN Instrument panel)	Fault: 53336/6058	
⚠ Engine speed (CAN)	0 1/min	≥ 400

Status of associated actual values

Name	Actual value	Specified value
Control valve Oil cooler	NOT ACTIVATED	
Oil temperature of transmission	0.0°C	

At the bottom of the actuator selection area, there are 'ON' and 'OFF' buttons. The 'ON' button is highlighted with a green box, and the 'OFF' button is highlighted with a red box. A 'Continue' button is located at the bottom right of the actuator selection area.

5. **Drain the ATF and Gear Oil (Failed Transmission for Core Return)**
6. **Install the replacement DUONIC transmission assembly**
7. **Refill and Circulate the ATF Through the Valve Body and Oil Cooler (Replacement Transmission)**
 - Follow Step 4.
8. **Perform DUONIC initialization (Replacement Transmission)**
 - Refer to Group 22E of the Canter Service Manual.
9. **Drain the ATF (Replacement Transmission)**
 - Follow Step 1.

10. Remove and Clean the Oil Pan (Replacement Transmission)

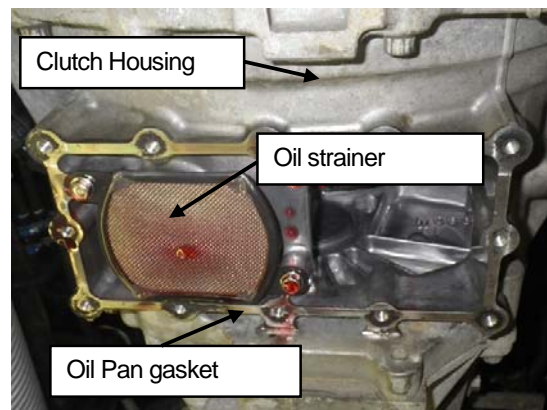
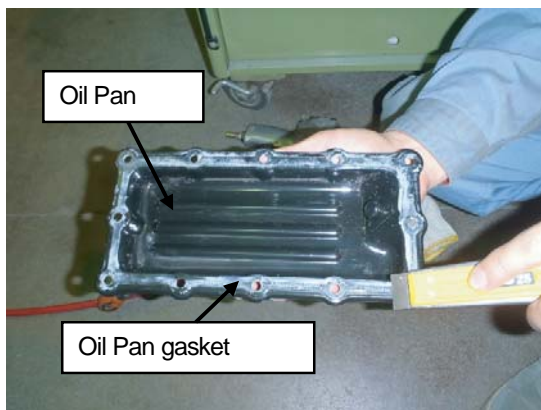
- Follow Step 2.

11. Install the Oil Pan (Replacement Transmission)

- Remove the remnants of old oil pan gasket from the oil pan and clutch housing. Clean off any remaining ATF residue.
 - Reinstall the oil pan with a new oil pan gasket. Oil pan bolt tightening torque: 7.5 ft.lbs. (10.2 Nm)
- Oil Pan Gasket: **ME536266**

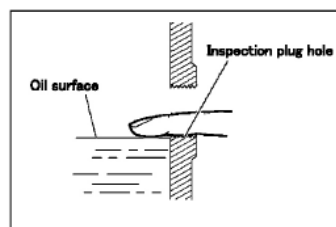
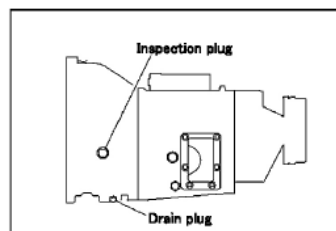
CAUTION!

- Do not use air tools to tighten the oil pan bolts.
- Ensure that no pieces of the old oil pan gasket are left in the clutch housing.
- Always use cloth rags to clean ATF residue. Do not use paper towels!
- Install the oil pan quickly after affixing the new oil pan gasket to ensure that no ATF leaks onto the gasket surface. Leaked ATF deteriorates the sealing ability of the gasket, which could cause future ATF leaks.

**12. Refill the ATF to the proper level (Replacement Transmission)**

Check the ATF level using the following procedure:

- Start the engine and raise the transmission fluid temperature to approximately 120°F (50°C) [using FUSO Diagnostics to monitor the transmission fluid temperature].
- Perform the following procedure to fill the hydraulic circuit with ATF.




Fill the hydraulic circuit with automatic transmission fluid (ATF) as follows:

- Start the engine.
- While depressing the brake pedal, move the gearshift lever between the "R" and "D" positions, holding the lever in each position for three to five seconds. Repeat this operation three times, then place the gearshift lever firmly into the "P" position.
- Turn off the engine.

Remove the inspection plug and check the ATF level to determine if the fluid is filled to the bottom of the plug hole.

- When the inspection is complete, reinstall the inspection plug and gasket and tighten the plug to proper specifications.

CAUTION 

- **After filling the ATF reservoir, promptly reinstall the inspection plug to prevent dirt and dust from entering the clutch housing.**

- Ensure that the parking brake remains fully applied before exiting the cab and check the fluid level **within 10 minutes** of performing the above steps to ensure that the ATF has not drained out of the hydraulic circuit.
- If ATF flows from the inspection plug hole, or if the ATF level is at the bottom of the hole, the level is correct.
- If the ATF level is lower than the bottom of the hole, correct the level.
- Reinstall the inspection plug and gasket and tighten to 60 ft.lbs. (81 Nm).

13. Perform the Procedure for Resetting Learned Values

- a) Park vehicle on flat level ground and chock wheels to prevent from moving
- b) Apply the parking brake
- c) With the key in the ignition and the switch in the "On" position (do not start)
- d) Depress the accelerator to floor (100%) and hold (using right foot)
- e) Depress brake pedal and hold (using left foot)
- f) Move selector lever from Park to Reverse to Neutral and left to Drive position for 1 second
- g) Move selector lever to the left Manual shift position and hold (use your left hand)
Note: The "N" should be displayed in the instrument panel display
- h) Release and Apply parking brake securely (with your right hand) and leave on -
(the "1" should start flashing in the instrument panel display)
- i) Release the selector lever and move it downward to the (-) position
- j) The "6" should start flashing in the instrument panel display
- k) The transmission learned values have been reset to the "Factory" settings
- l) Release the accelerator pedal, move shifter to Park position, and release brake pedal
- m) Turn key to "Off" position. Wait 1 minute for ECU's to complete after-run.
- n) Move the truck a short distance in forward and reverse to allow the TCM to prepare for initialization.
- o) Perform the Duonic Transmission Initialization procedure to learn the transmission shift and pressure values.
- p) Drive the truck and warm up the ATF.
- q) Perform the Initialization procedure again after oil temperature reaches 140 oF (60oC)
- r) Check the ATF oil level within 5 minutes after the road test.