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Service Information Bulletin

SUBJECT	DATE
Symptom Diagnostics - Range Up or Down Shift Issue	June 2018

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0140	DT12	Range Up or Down Shift Issue	Changed step 9b and added additional steps.

DiagnosticLink users: Please update the troubleshooting guides in DiagnosticLink with this newest version. To update the tool troubleshooting guide, open DiagnosticLink and from the Help – Troubleshooting Guides menu, select the appropriate troubleshooting manual, then click Update.

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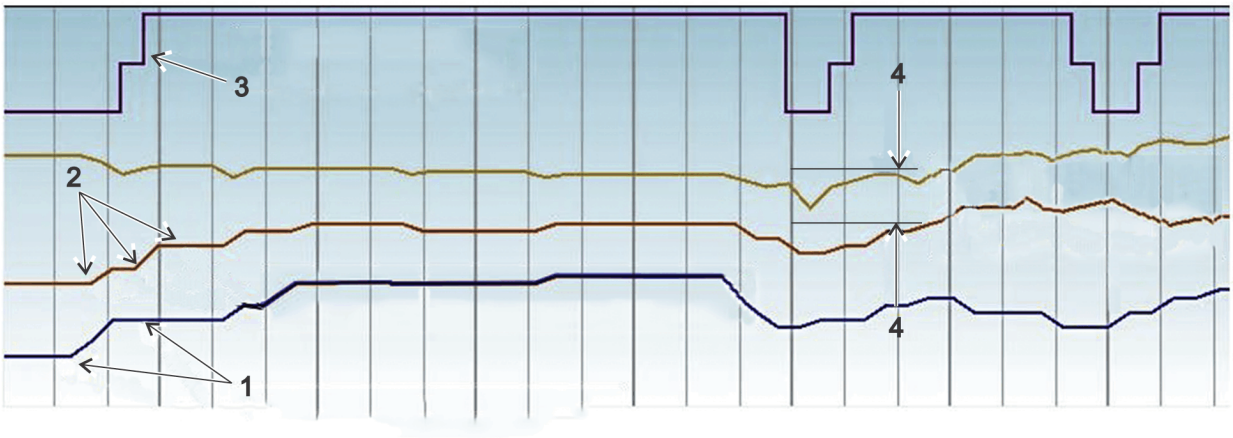
2 Range Up or Down Shift Issue

NOTE: Due to skip-shifting, complaint may be 5-7 shift, 6-8 shift or any other shift combination where low-to-high range is required.

Check as follows:

1. Shut off the engine, apply the parking brake, chock the wheels, and perform any other applicable safety steps.
2. Is the TCM software level NAMT130600 and the transmission is stuck in Low Range (gears 1-6)?
   a. Yes; program TCM to software level NAMT130800 (or higher).
   a. No; Go to step 3.
3. Inspect the air lines / fittings from the shift controller to the range cylinder housing. Was a leak found?
   a. Yes; repair air leaks and retest.
   b. No; Go to step 4.
4. Connect with Diagnostic Link ® 8.07 SP2 or higher.
5. Attempt to duplicate the shifting issue during road test (loaded trailer preferred).
6. Review road test log file.
7. Chart the following instruments:
   - 2309 range group actuator position: range group actuator position
   - 2311 air supply pressure: air supply pressure
   - msd08 actual gear: gear engaged
   - msd07 desired gear: desired gear



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1. Desired 5 th to 7 th Shift
2. Actual Gear 5 th, 6 th, 7 th Shift
3. Range Hesitation
4. Drastic Drop in Air Pressure

Figure 1. Range Shift Example

8. Look for hesitations, incomplete range shifts, or drop in air pressure (See Figure 1). Were any issues observed?
   a. Yes; reseal the range cylinder O-rings. Refer to section "Installation of the Range Cylinder". Save and reset abort counters; verify repair.

b. No; Go to step 9.

9. View the transmissions shift abort counters in DiagnosticLink service routine. Are low or high range aborts present (see figure below)?
   a. Yes; reseal the range cylinder O-rings. Refer to section "Installation of the Range Cylinder".
   b. No; Go to step 10.

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Figure 2. Abort Counter Range

10. Under the Actions menu, select Transmission heading and then choose Countershaft Brake Test; execute routine. Note that the test may result in a “Timeout.” If this occurs, perform the Gear/Split/Range routine prior to executing another Countershaft Brake Test. Unit needs to be up to full operating temperature. Does the result indicate a successful completion test pass?
    a. Yes; perform another road test (preferably with loaded trailer if available). Review log for engine flare. If unable to duplicate after second road test, release vehicle. If flare is present, Go to step 11.
    b. No; Go to step 11.
11. Remove transmission and countershaft brake.
    Refer to section "Removal of the Transmission".
    Refer to section "Removal of the Countershaft Brake Valve".
12. Rebuild countershaft brake.
    Refer to section "Removal of the Countershaft Brake Seals and Clutch".
    Refer to section "Installation of the Countershaft Brake Seals and Clutch".
13. Install transmission. Refer to section "Installation of the Transmission".
14. Replace transmission fluid. Refer to Original Equipment Manufacturer (OEM) procedures.
15. Take unit on an extended test drive to confirm repairs. Note that the engine rpm may flare at first during shifts and then dissipate as the discs begin to seat.

