COOLMASTER OFFROAD

Transmission Cooling System Bypass Valve Replacement

Suitable for:

Ford Ranger PX & Mazda BT50 with 6 Speed 6R80 Automatic Transmissions

& DURATORQ P5AT (3.2L) & ZSD-422 (2.2L) TURBO DIESEL ENGINES

Please read through all of the instructions carefully before proceeding. If any of the information does not appear correct or the diagrams don't match your vehicle, please contact your local ALLTRANZ branch.

Safety First

Hot engines and hot transmissions can cause serious injury. Before removing the hoses and parts from the vehicle, allow sufficient time for engine and auto to cool.

Parts List:

Cooler Valve

Tools List

- *T30 Torx Bits*
- *At least 10L Full synthetic transmission fluid (meeting the Ford Mercon LV™ specification)*
- *Oil drain pan*
- *8mm socket and wrench*
- *Small - medium flat blade screwdriver*
- *Torque wrench*
- *19mm spanner*
- *Vaseline or Assembly Gel*

Expected Installation Time: ~ 2 Hours

Detailed Installation Instructions

Before commencing work,
please take the vehicle for a compehensive test drive.
Note any existing vibrations, shift issues or DTC codes.

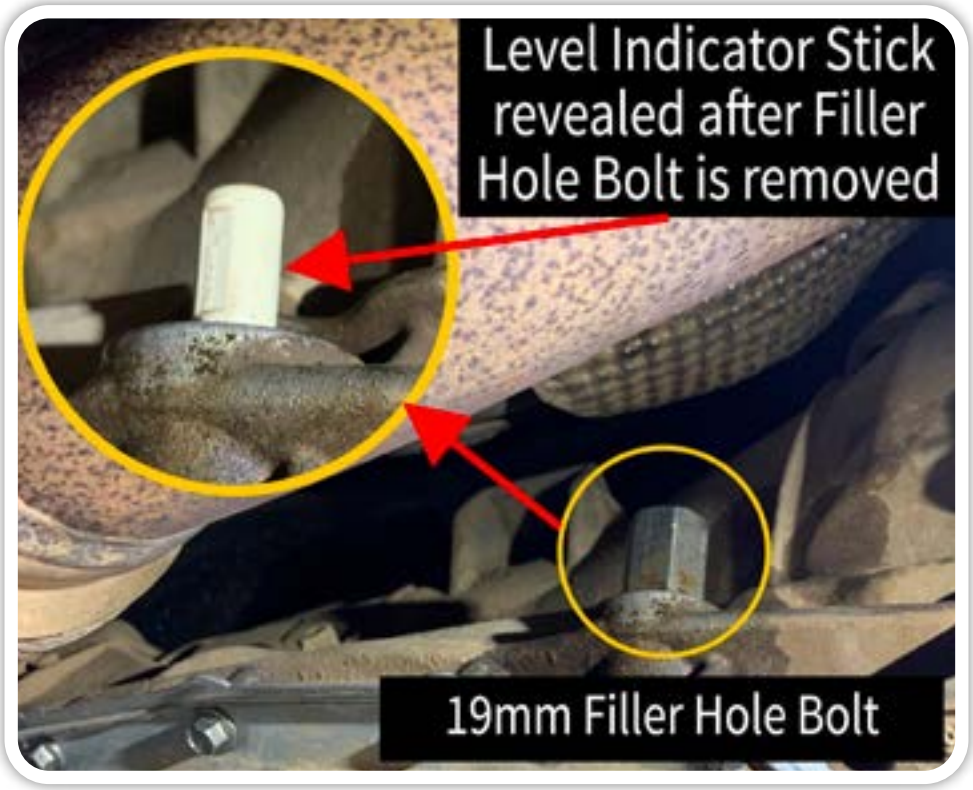
1. *Road test vehicle **first**. Ensure computer is clear of any fault codes and free of any warning lights. Take special note of the shifts and how the feel. Try to use the same roads for this road test and the final road test.*

2. *It is recommended to use a hoist for performing the bypass valve swap. As there is no drain plug, the process of dropping the pan to drain the fluid will potentially see a lot of fluid spilt. Please be prepared for this.*

3. *Disconnect the transmission case connector that is found on the driver's side rear of the transmission. Twist the connectors outer shell counter-clockwise and pull back on the connector gently.*

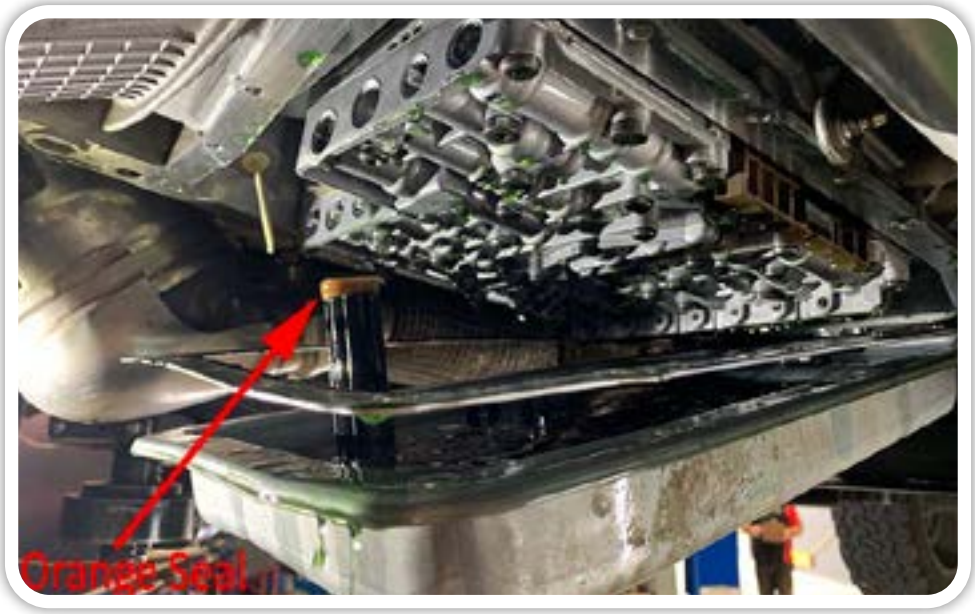
** DO NOT PULL ON THE WIRE HARNESS TO DISCONNECT*
AS THIS CAN PULL THE TERMINALS OUT OF THE CONNECTOR.

4. *Remove the 19mm bolt and level indicator stick from the fill hole, located on the passenger side front portion of the transmission. Put aside safely for use at the end of the instructions for refilling purposes. It is removed now to avoid damaging the fill indicator during valve body remove and refit process.*

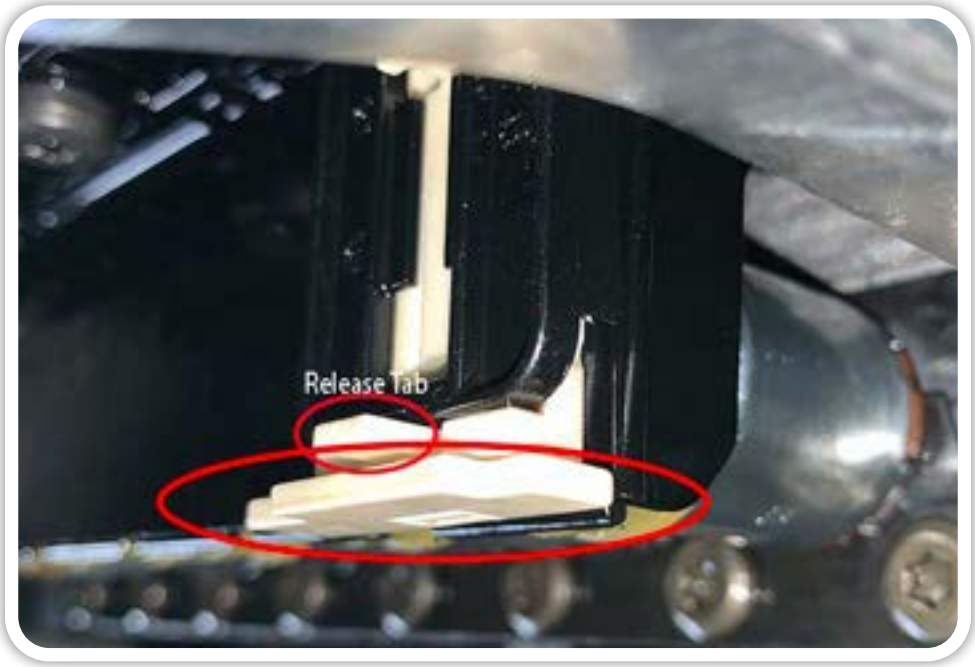


5. *You will need to drop the pan to drain the transmission fluid. This can potentially make a large mess. Loosen and remove pan bolts (8mm Socket) except the two marked. Loosen the last two bolts until the front of the pan begins to hang down so the oil can drain out. Carefully use a screwdriver to pry the pan down. Remove the last two bolts, pan, filter and gasket.*

6. *If the orange seal is not attached to the top of the filter tube (as shown above) then it may still be stuck in the valve body.*

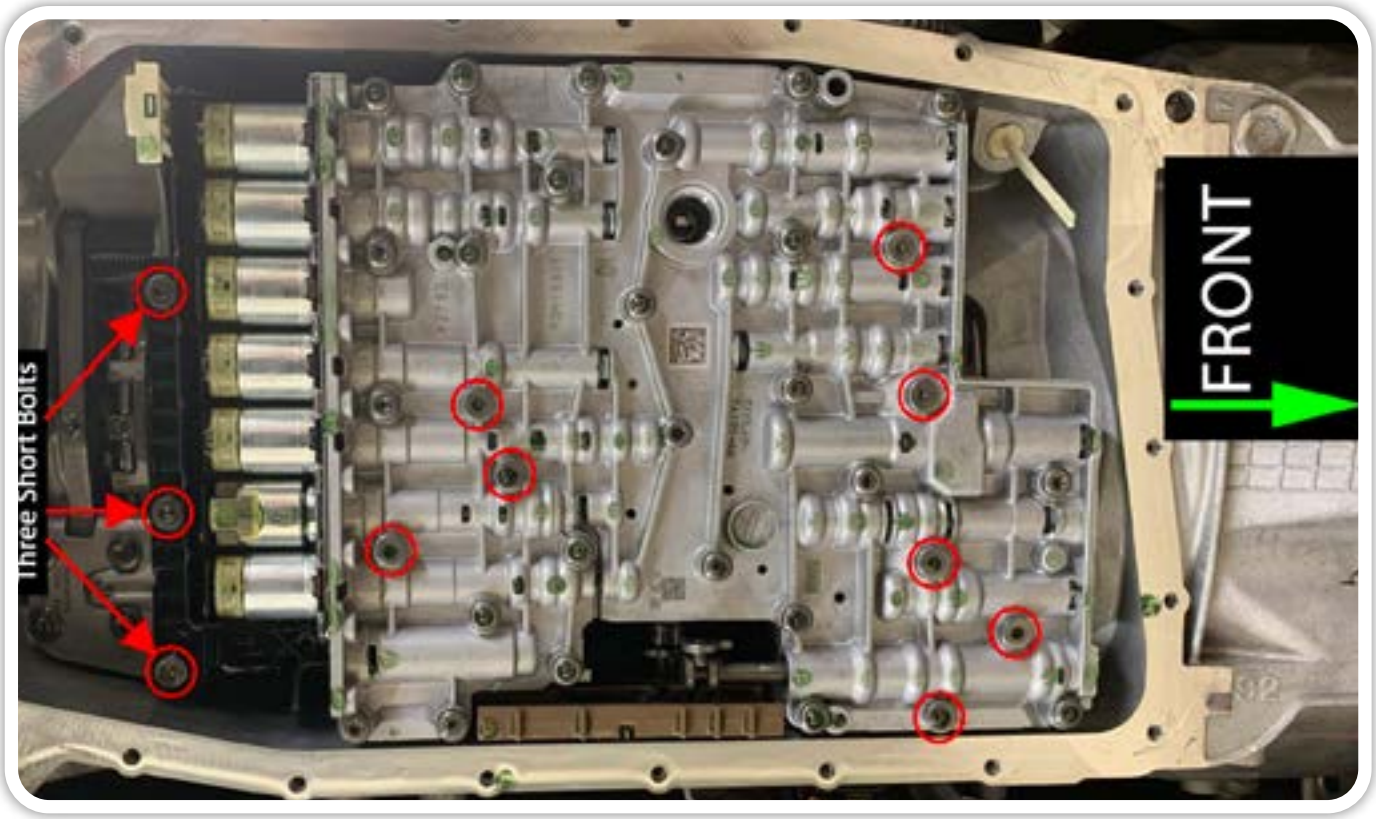


7. *On the right hand rear of the valve body you will find a white locking mechanism (shown below) on the electrical connector. Squeeze the release tab above then pull the locking mech down to release the internal connector from the valve body.*

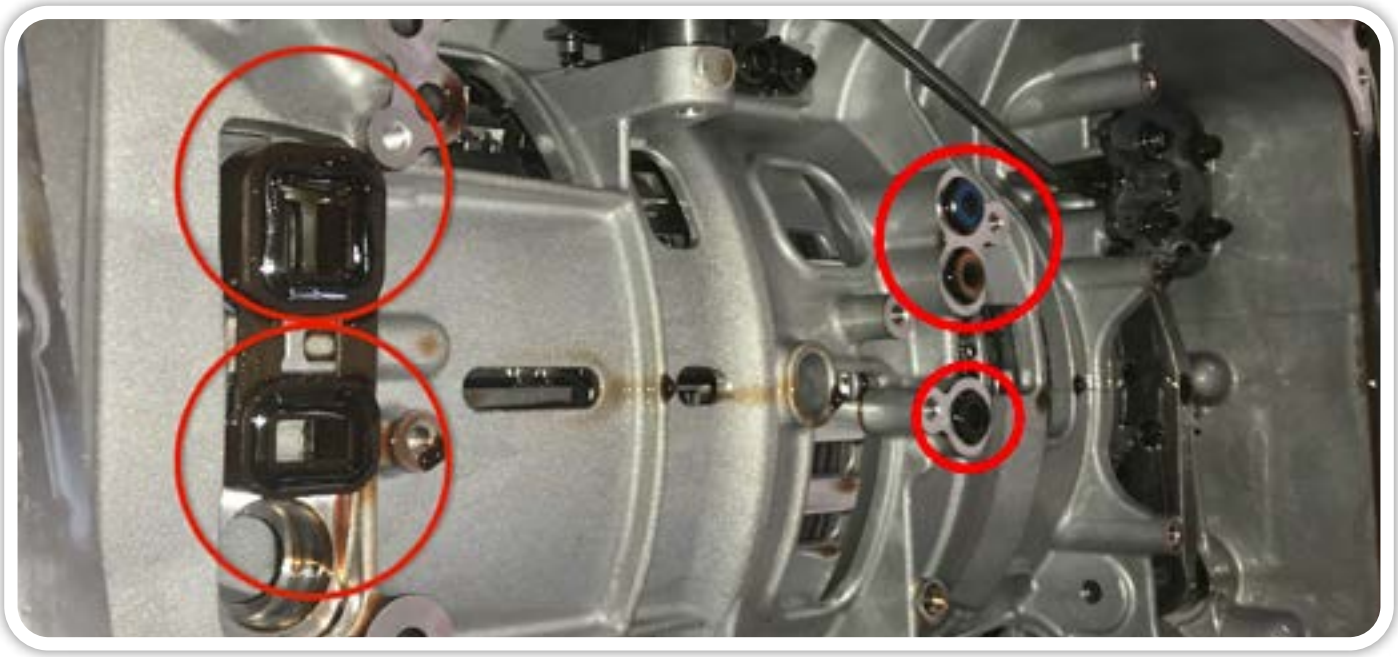


8. *Once the white locking mech has been pulled down, you will be able to remove the hollow black plastic case sleeve from the rear of the transmission where you had previously disconnected the electrical harness.*

9. ***Only*** *remove the 11 bolts indicated using a T30 Torx screwdriver from the valve body as shown below and remove the assembly. The thermostat valve may fall from the transmission case. Note that the three (3) rear bolts are shorter than the other eight (8) valve body bolts.*



10. *Please check that the case grommets are still in place as the may have remained stuck to the valve body assembly during removal. Fit all grommets to the transmission case at this time. Use vaseline to hold seals in place if they will not stay in place.*



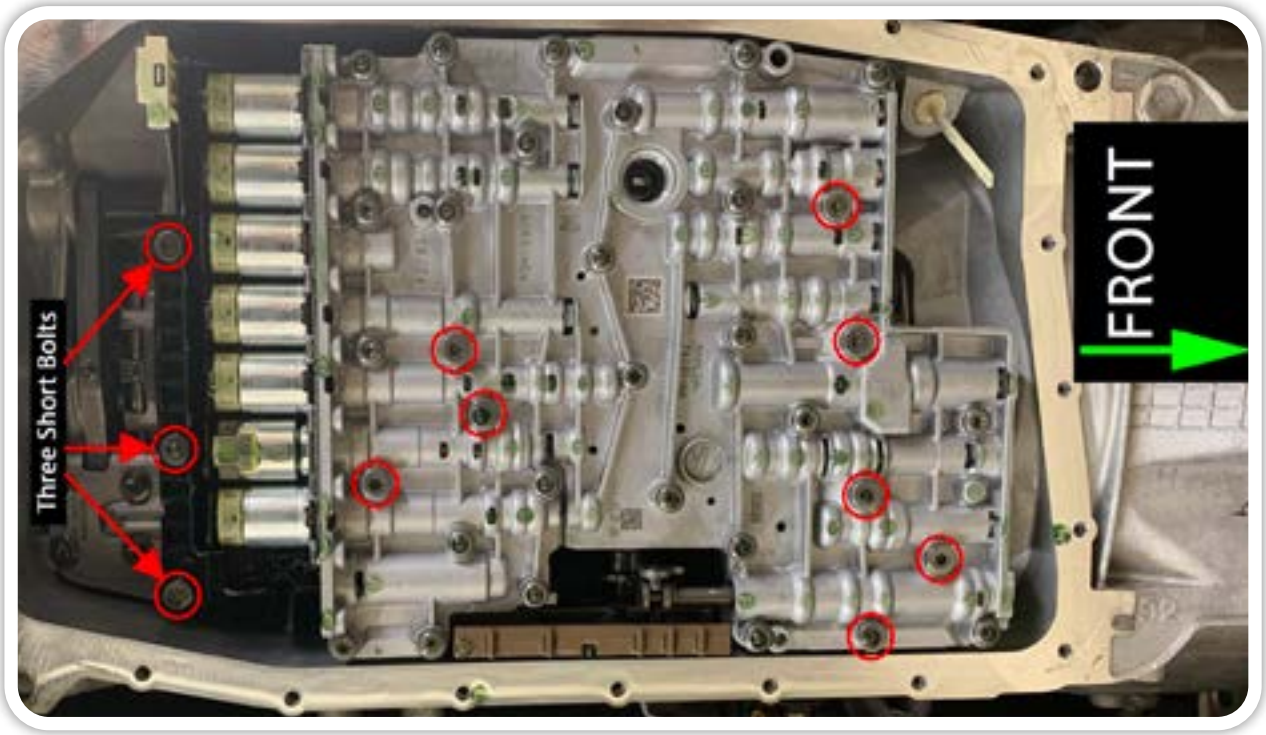
11. *Install the replacement cooler bypass valve as supplied. Ensure this valve is held in place when reinstalling the valve body as shown below. It is recommended to use a generous amount of Vaseline to hold the new valve in place during assembly (Vaseline dissolves as the transmission warms up).*

12. *Position valve body in place. Ensure that the bronze coloured manual control valve is fully engaged with the pin on the silver selector arm when reinstalling the valve body as shown below.*

13. *Install the eleven (11) bolts indicated using a T30 Torx screwdriver. Confirm that the manual control valve remains in the correct location once finished.*

*** TIGHTEN TO 8 NM (71 LB-IN).**

THE THREE (3) SHORTER BOLTS ARE USED AT THE REAR OF THE LEAD FRAME.



14. *With the white release tab on the rear of the electrical frame still in the down position (unlocked), match the keyway to the locating pin and install the new case sleeve. Lubricate the sleeve with transmission oil to assist install. Discard the old case sleeve as they are prone to leaking.*

*** TAKE YOUR TIME, BE PATIENT AND TRIPLE CHECK THIS STEP. NOT COMPLETING THIS STEP CORRECTLY WILL RESULT IN A VARIETY OF MAJOR FAULTS.**

When the sleeve is in the correct position, push up on the white tab to lock the case sleeve to the electrical frame. You may need to add pressure to the sleeve to make sure the white locking tab is fully seated.

15. *Attach the transmission wiring harness. Twist the lever clockwise to secure the harness as shown below. The image below shows the lever in the locked position.*

16. *Check that all pan and pan gasket mating surfaces are wiped clean ready for installation of the transmission pan and supplied pan gasket. As there is no bolts to secure filter to valve body, you will need to have the transmission pan and pan gasket ready to go before installing filter as the filter will fall out if left for more than a couple of seconds.*

17. *Check that the filter seal is lubricated with transmission fluid then install neck into position in the valve body.*

18. *Fit transmission pan and pan gasket into place. Install two bolts halfway along on each side finger tight to keep pan balanced. Install all remaining bolts finger tight. Working in a criss cross pattern, similar to doing up wheel nuts, proceed to tighten all transmission pan bolts.*

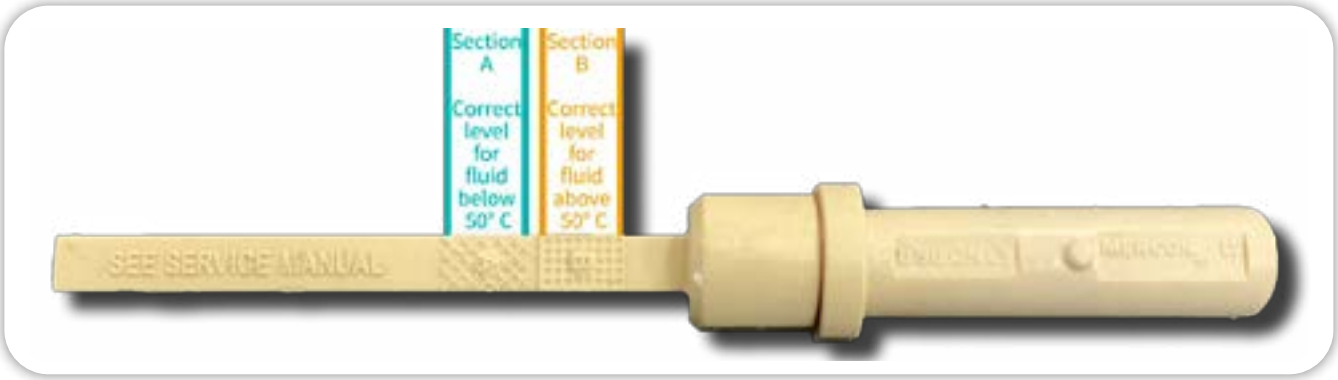
* Pan Bolts torque specs are 11 Nm (97 lb-in).

19. *If the original transmission fluid is discoloured or smells burnt, then it is recommended to flush the transmission fluid out and use all new fluid. Otherwise us the original transmission fluid to re-fill the transmission.*

20. *Before starting engine, fill transmission with transmission fluid through the fill plug removed at the beginning. Fill all the way up to the fill plug.*

21. *Start the engine, when safe to do so, while keeping your foot firmly on the brake. Also keep hand-brake on to ensure safety at all times.*

22. *Insert the level indicator, wait 10 seconds then check the level of the transmission fluid is correct.*
Above 50° C - the fluid level needs to be in the "B" section of the indicator.
Below 50° C - the fluid level needs to be in the "A" section of the indicator.



23. *If the fluid is low, remove the indicator stick and add small amounts of transmission fluid at a time. Allow 10 seconds to settle and then re-check with the indicator until it reaches the correct level.*

24. *If the fluid is too high, you will need to drain some fluid until you achieve the correct level.*

25. *Move the shifter to Reverse and hold for 10 seconds. Then shift to Drive for 10 seconds. Repeat x 1. Return to Park.*

26. *Check the fluid level once more, if still not correct repeat steps 22 to 26.*

27. *After the fluid level is correct, insert the indicator stick and reinstall the 19mm Filler Hole Bolt and tighten. You may switch off the engine now.*

28. *Clean up all fluid from under the vehicle and re-check all bolts, and cooler connections that were loosened. If the vehicle has any bash plates, please wait until test driving is complete before re-installing.*

29. *Take the vehicle out for test drive. Drive carefully to begin with. If you experience any issues, cancel the road test and contact us to discuss.*

30. *While test driving, check that all shifts feel positive and there is no slipping or flaring during the drive. It is recommended that the original test driver does both the before and after test drives to compare how the vehicle drives.*

31. *After test driving, keep the engine running and re-check the transmission fluid level. Adjust as necessary to acheive the correct level.*

32. *Check for any leaks from the pan, pan gasket, or electrical sleeve. Also, clean all transmission fluid from under the vehicle. Refit any bash plates removed.*