Wholesale
AUTOMATIC TRANSMISSIONS
03-9762 8004

Nomad

Heavy Duty Valve Body

Suitable for:

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

WITH THE FOLLOWING ENGINES:
Duratorq P5AT - 3.2L Turbo Diesel - 2011 to Present
Duratorq ZSD-422 - 2.2L Turbo Diesel - 2011 to Present

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 Wholesale Automatic Transmissions on +61 3 9762 8004.

Safety First

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

Parts List

6R80 Nomad Heavy Duty Valve Body

Black Sleeve

Filter

Pan Gasket

Cooler Valve

Expected Installation Time: 2-3 Hours

Tools List

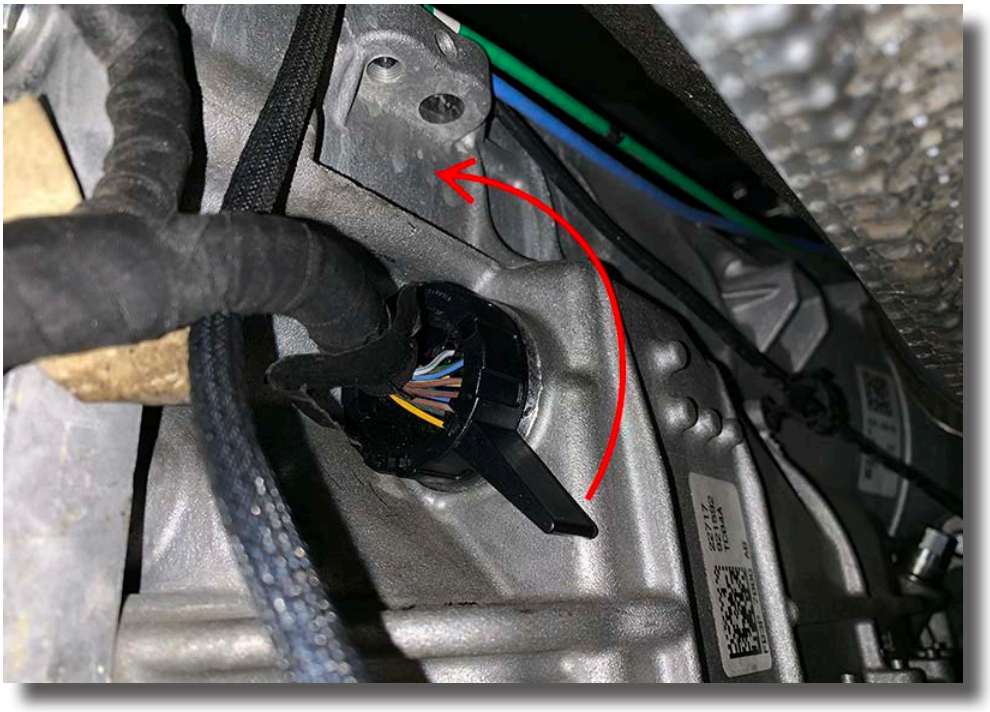
- T27 and T30 Torx Bits
- 10L Full synthetic transmission oil (meeting Mercon LV™ specification)
- Oil drain pan
- 8mm socket and wrench
- Small flat blade screwdriver
- Torque wrench
- 19mm spanner

Before commencing work, please take the vehicle for a comprehensive test drive. Note any existing vibrations, shift issues or DTC codes. This is a warranty requirement.

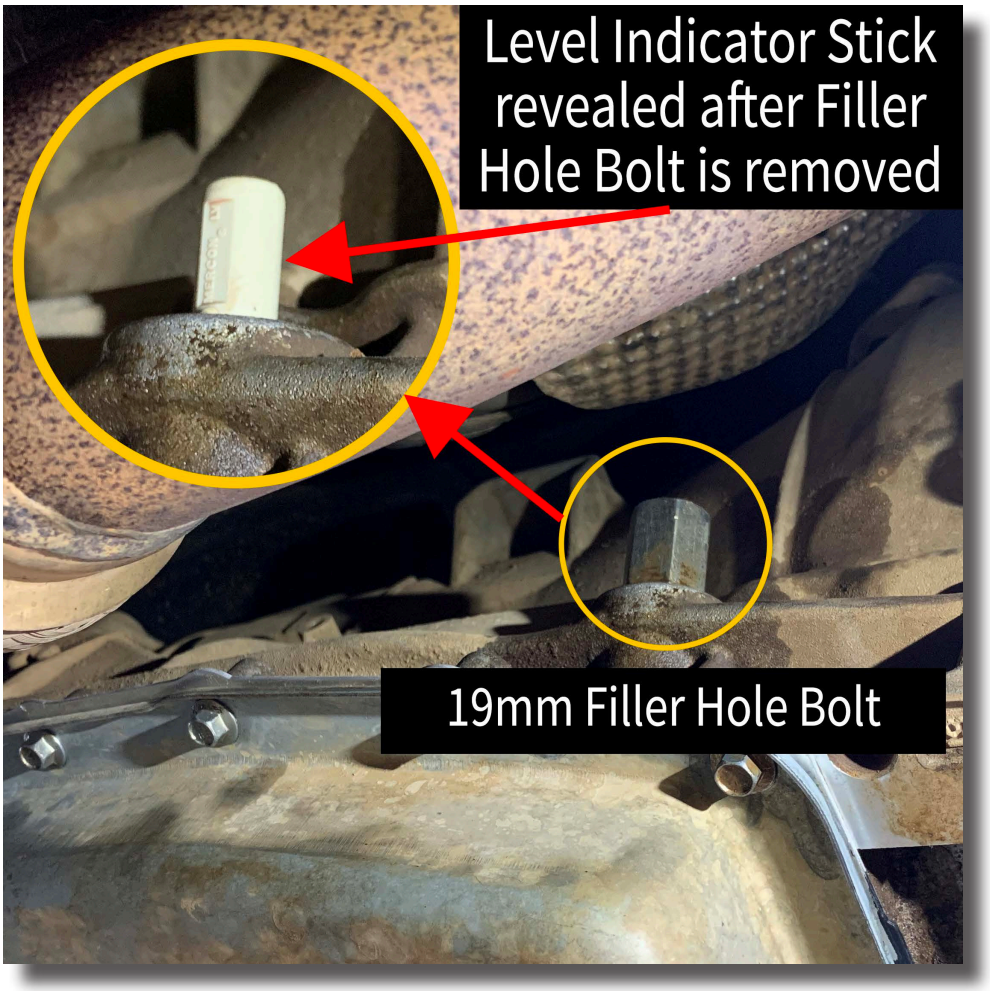
1. Road test vehicle FIRST. Ensure computer is clear of any fault codes and free of any warning lights. Take special note of the shifts and how the feel. Try to use the same roads for this road test and the final road test.

2. It is recommended to use a hoist for performing the valve body swap. As there is no drain plug, the process of dropping the pan to drain the fluid will potentially see a lot of fluid spilled. 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.



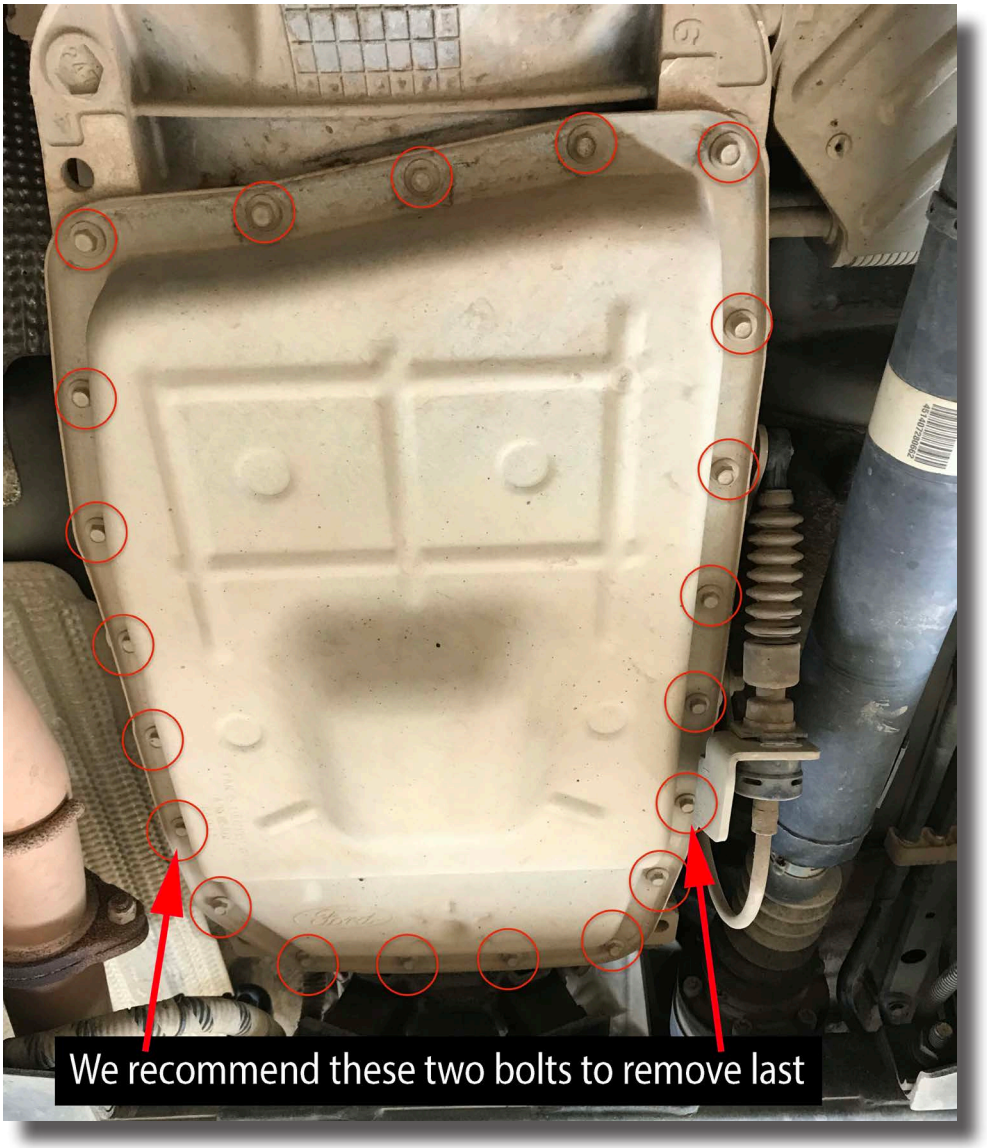
4. Remove the 19mm bolt and level indicator stick from the fill hole, located on the passenger side front portion of the transmission. Put aside safely for use at the end of the instructions for refilling purposes. It is removed now to avoid damaging the fill indicator during valve body remove and refit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



5. As the transmission pan does not have a drain plug, you will need to drop the pan to drain the transmission fluid. This can potentially make a large mess if you are not prepared for it.

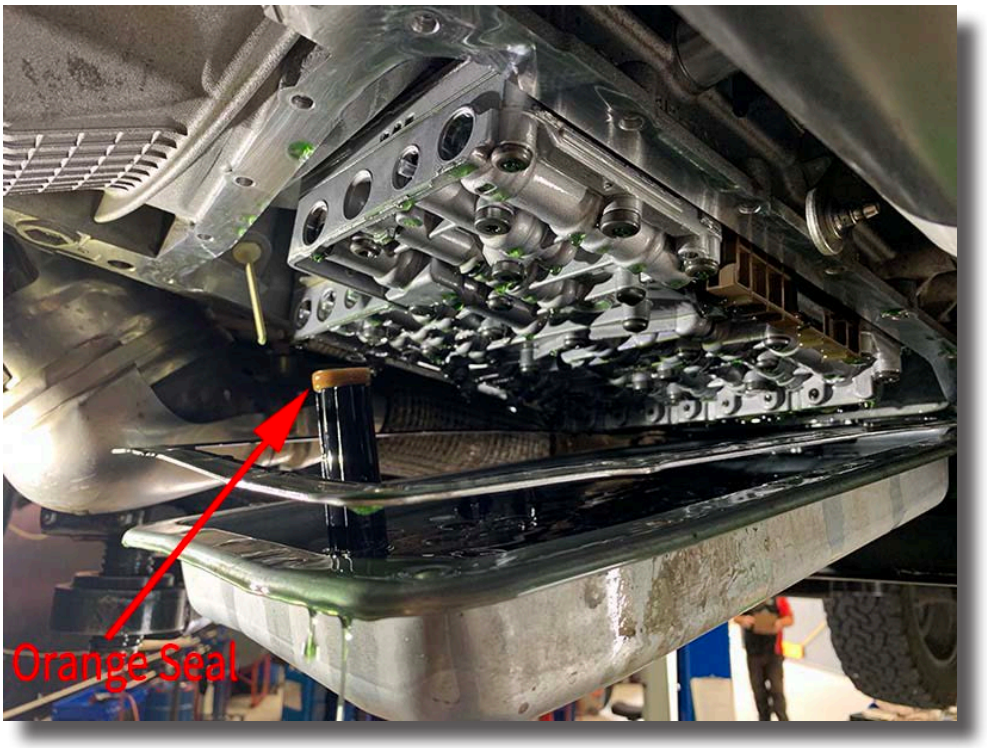
   Pick two bolts opposite each other towards the rear but not covered by the cross-member for easier access - these two bolts are to be loosened and removed last. Remove all other bolts except the two bolts you picked.

6. Loosen the last two bolts until the front of the pan begins to hang down so the oil can drain out. If the two bolts are loose enough but the front of the pan does not start to drop, finger tighten the bolts and then use a screwdriver to pry the pan down carefully. This will break the seal allowing the pan to drop. Once the oil flow has stopped, remove the two bolts, pan, filter and gasket from transmission.



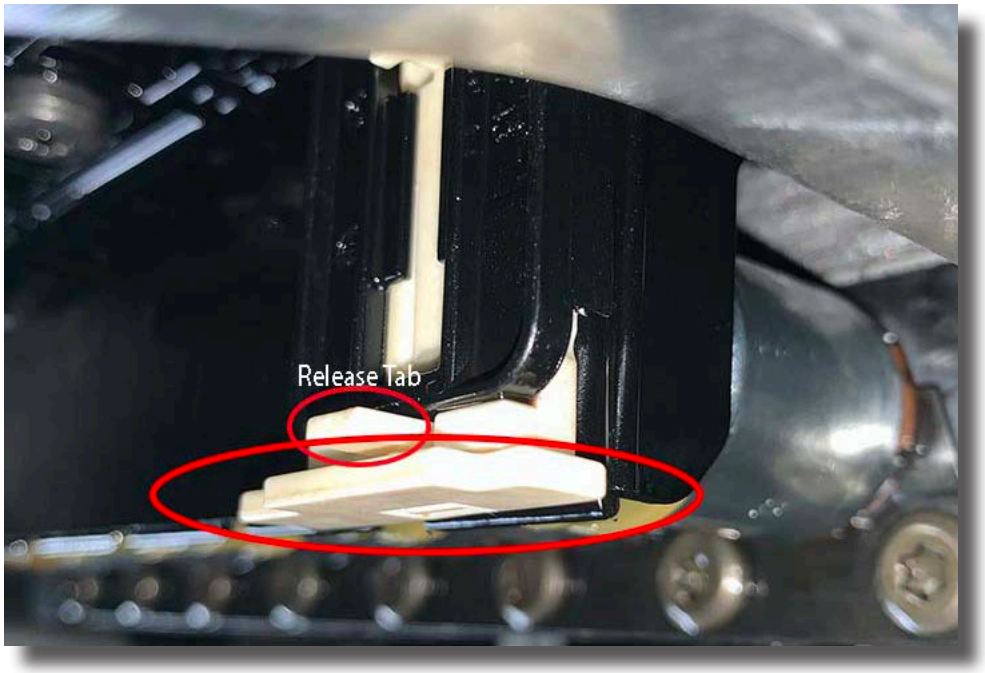
7. Discard the transmission pan gasket.

8. Remove the transmission filter. 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. Remove the seal from the valve body and discard.



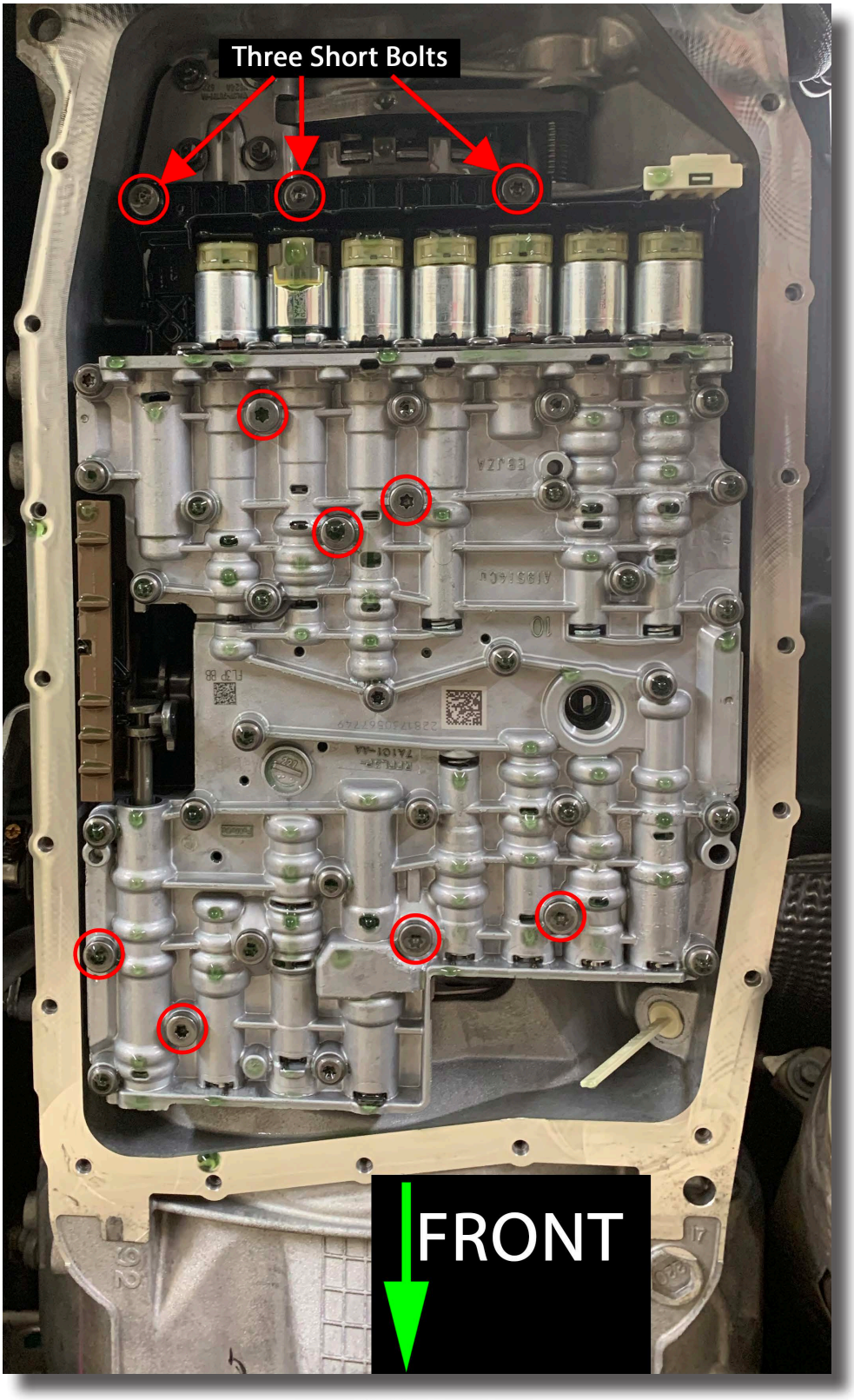
9. Set the transmission filter aside for comparison with the new filter to ensure the new filter supplied is compatible (minor cosmetic differences in appearance are OK). *If you purchased a cast sump with your valve body, you will be supplied with a filter that has a deeper pickup*

10. 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 mechanism down to release the internal connector from the valve body.

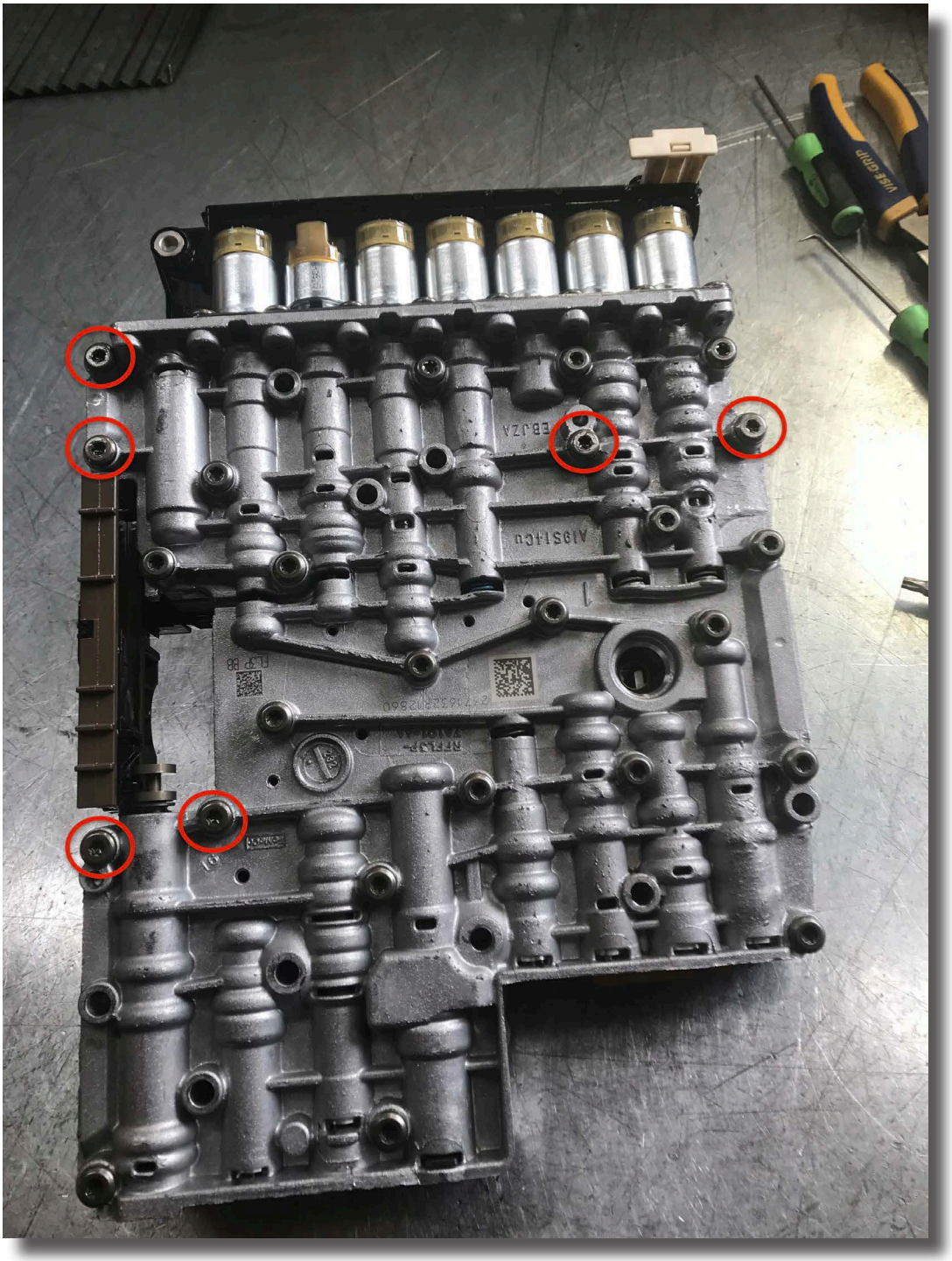


11. Once the white locking mechanism has been pulled down, you will be able to remove the hollow black plastic case sleeve from the rear of the transmission where you had previously disconnected the electrical harness.

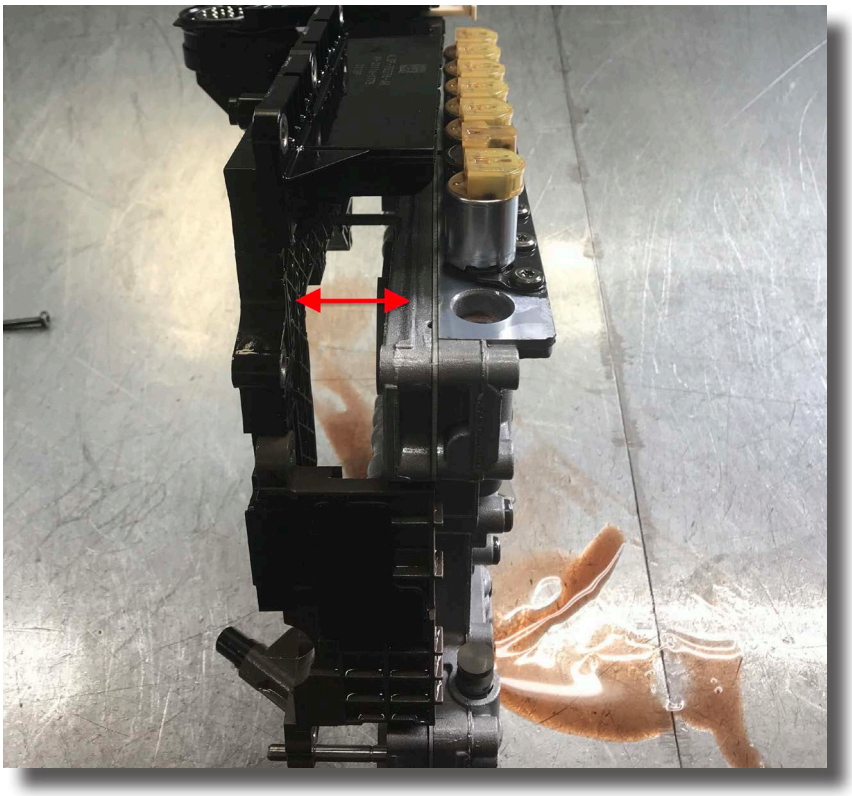
12. ONLY Remove the 11 bolts indicated using a T30 Torx screwdriver from the valve body as shown below and remove the assembly. The thermostat valve may fall from the transmission case. Note that the three (3) rear bolts are shorter than the other eight (8) valve body bolts.



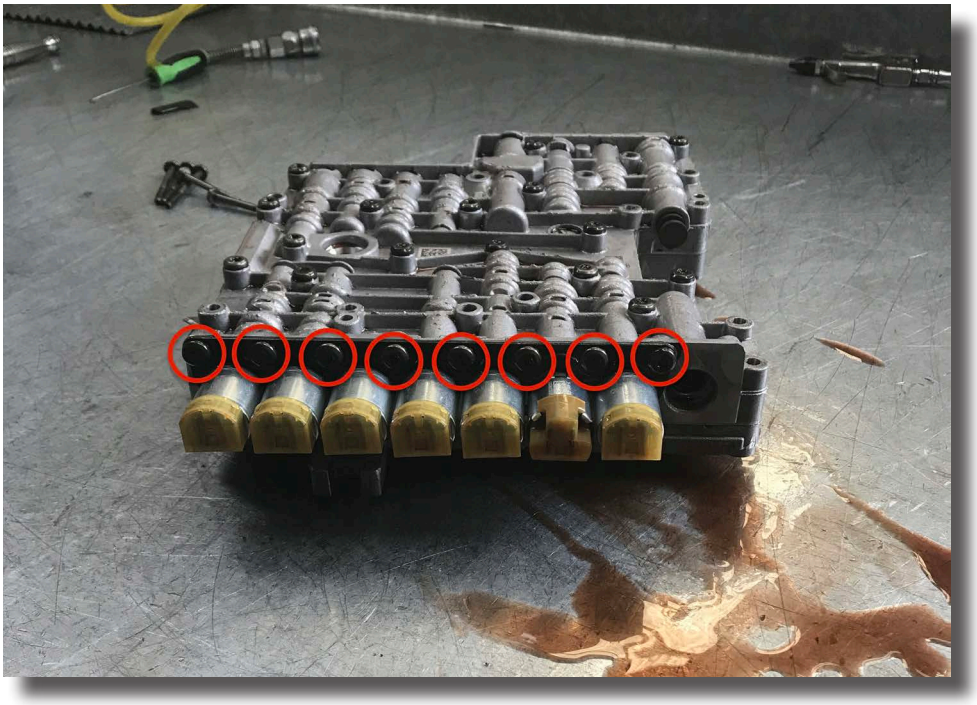
13. Remove plastic lead frame from the valve body by first removing six (6) x T27 Torx Bolts.



14. Gently and evenly pry the plastic lead frame from the valve body.



15. Remove the eight (8) x T27 Torx bolts and the metal solenoid bracket.

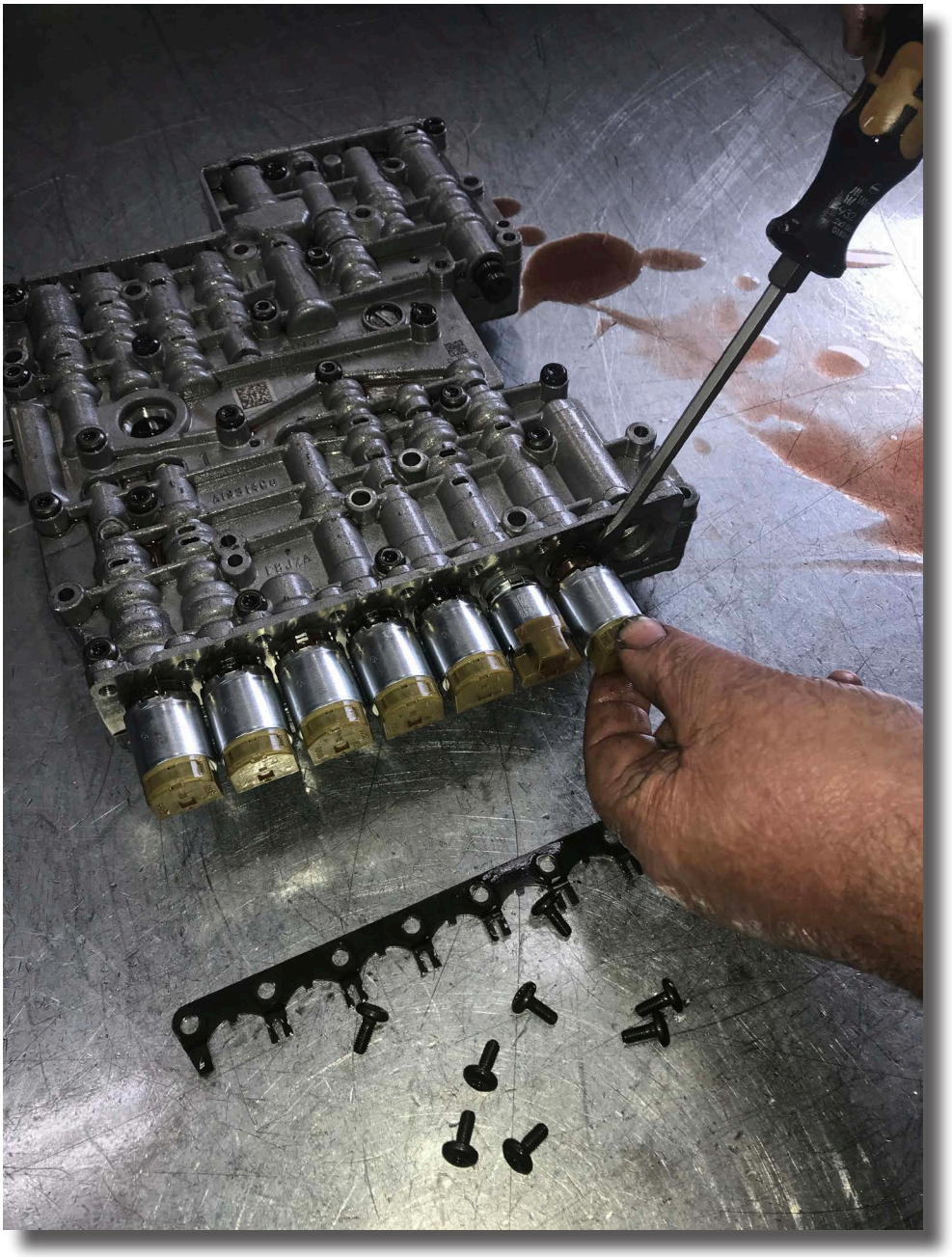


16. Place both old valve body and new valve body on a bench side by side, lining up in the same direction with solenoids closest to you.

17. Carefully and patiently remove one solenoid at a time and install in new valve body in the same location before moving on to the next solenoid.

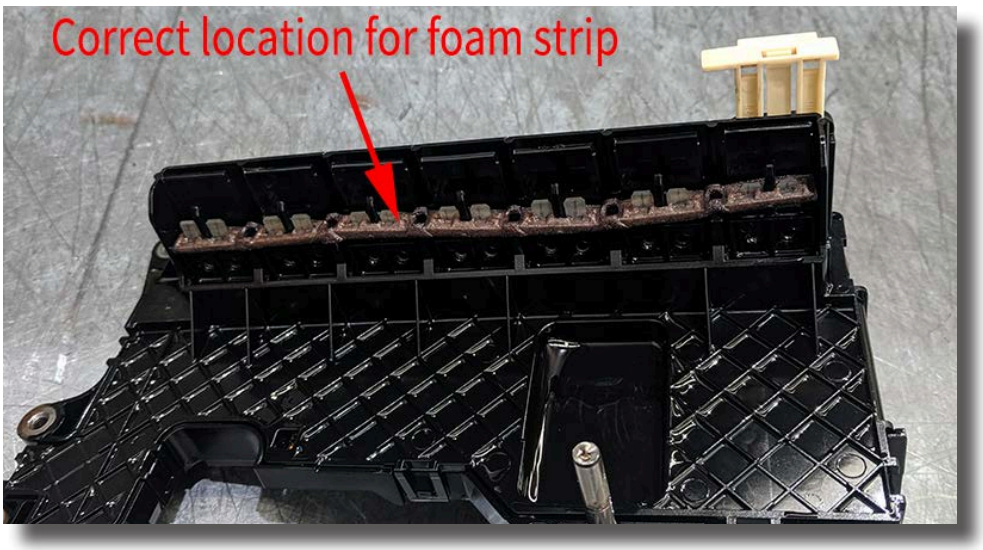
***Solenoids MUST go in the same location on the new valve body as they are not interchangeable!**

Pay special attention to solenoid direction and locking pin before removing and when installing.

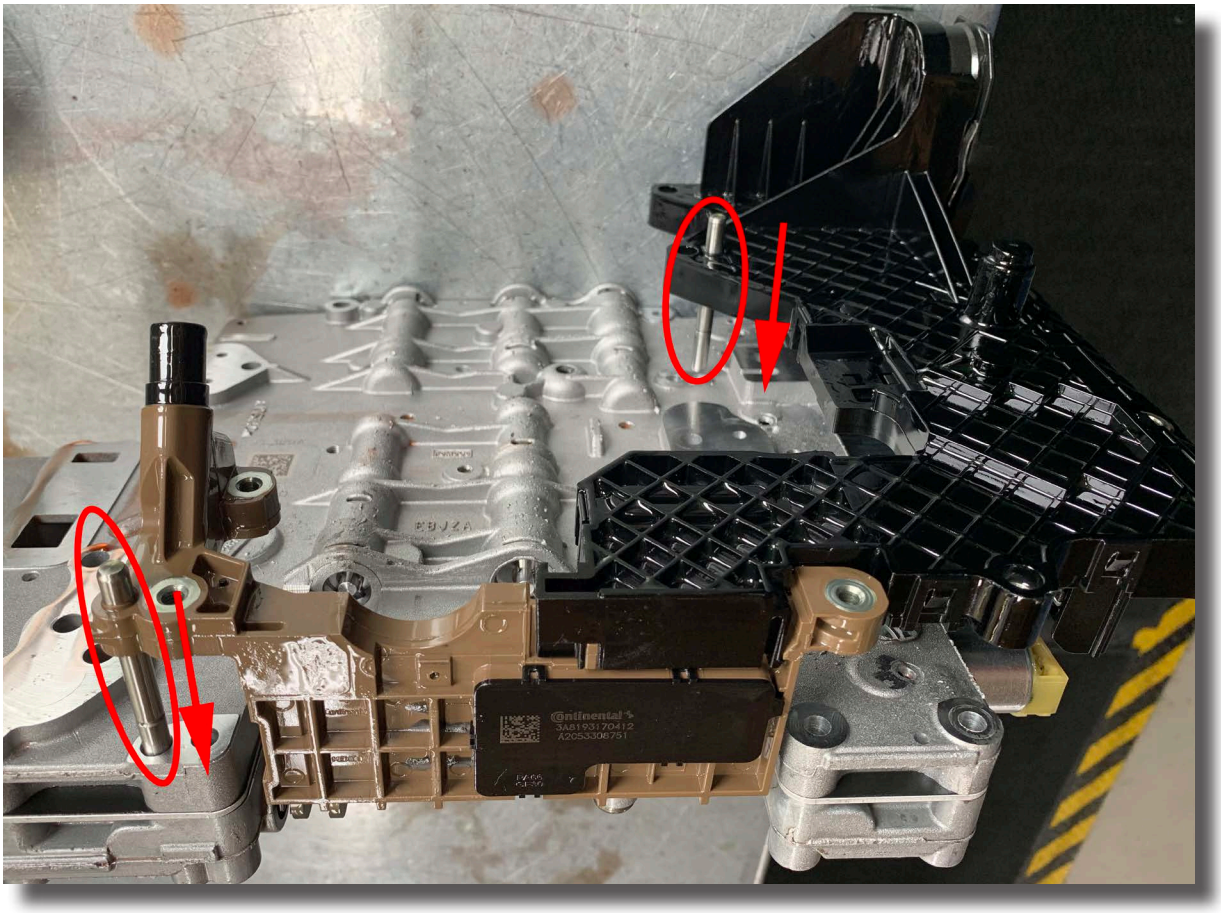


18. Reinstall the metal solenoid bracket that was removed in previous step on to new valve body with solenoids correctly installed. Secure with eight (8) x T27 Torx Bolts. Tighten to 6 Nm (53 lb-in).

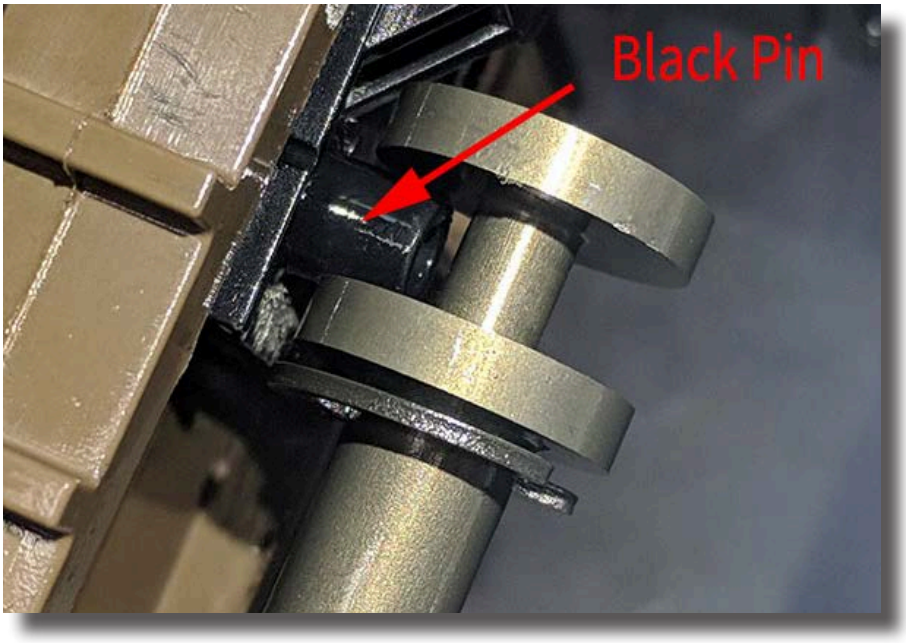
19. Prepare the electrical support frame for installation by checking the foam strip is still in place. If not, return it to the correct location as shown below. Note that not all vehicles come with this foam strip fitted.



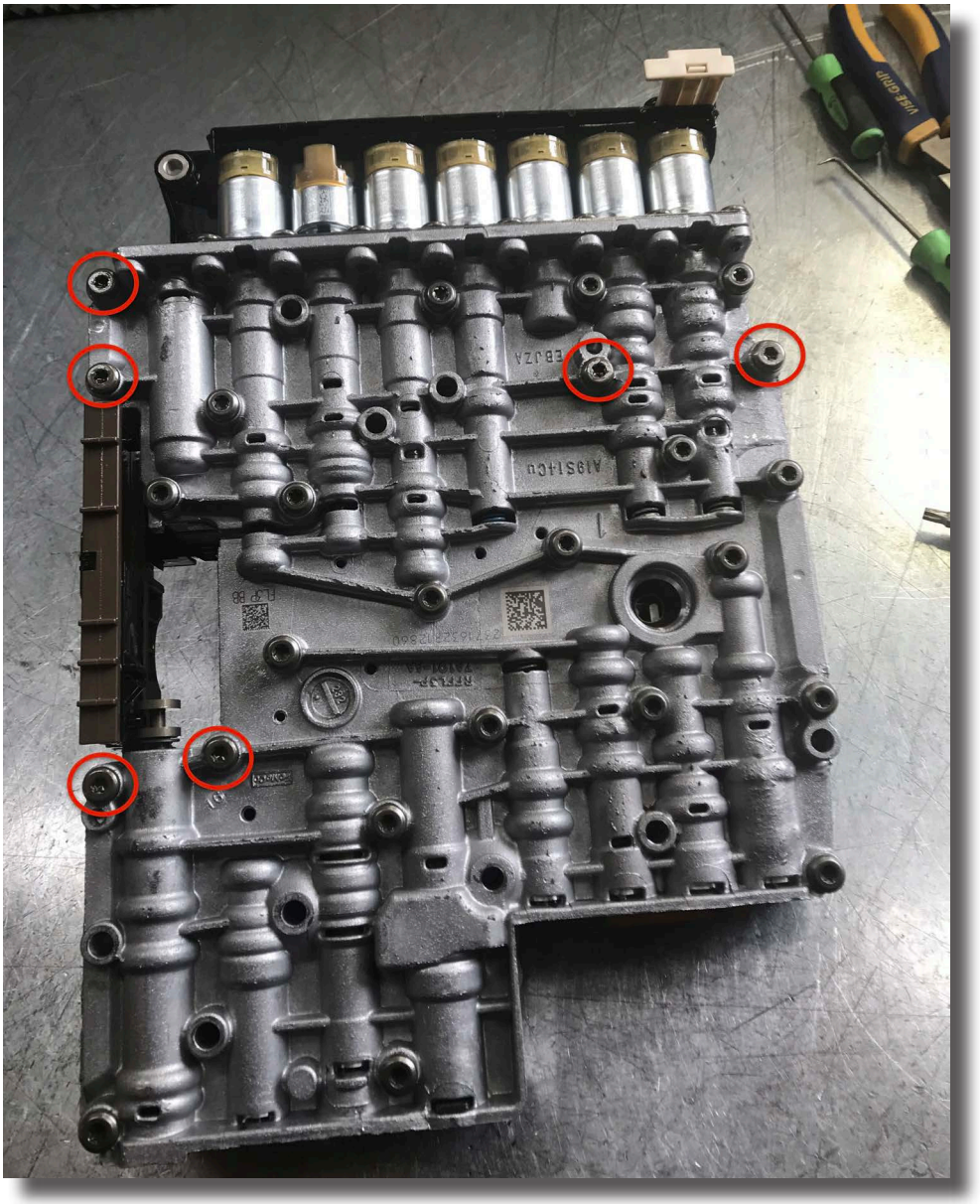
20. Reinstall original plastic lead frame by lining up the two locating pins as shown below.



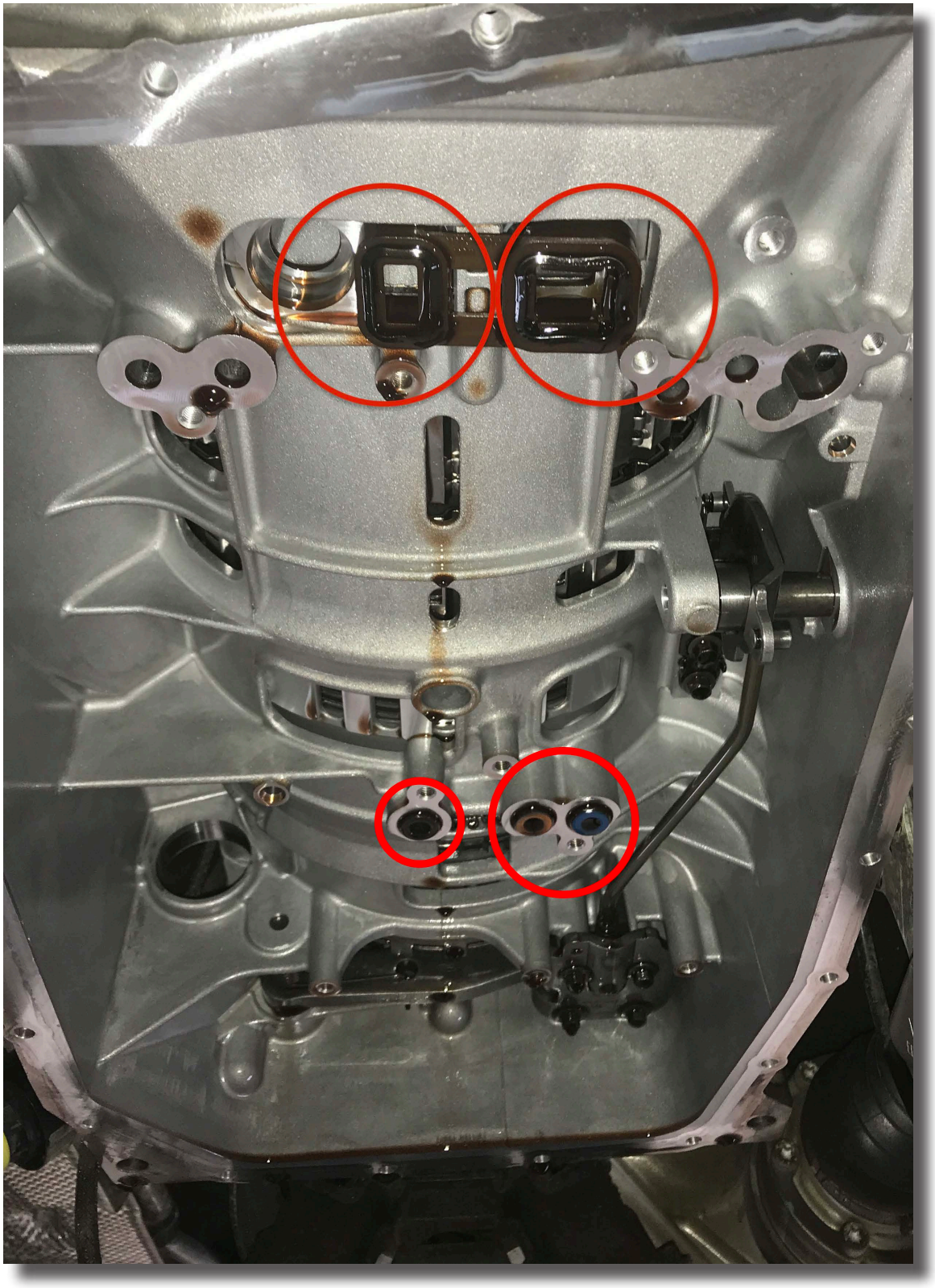
21. As you slide the lead frame down onto the valve body, check that the Lever Position Sensor (black pin) locates into the Manual Valve.



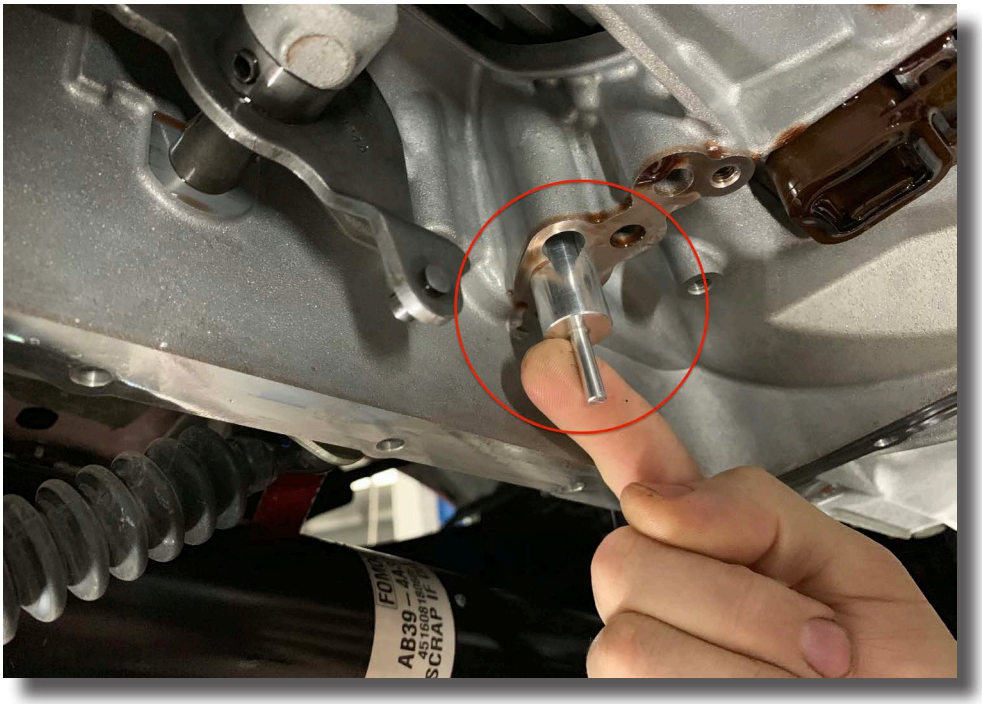
22. Secure Lead Frame by using the original six (6) x T27 Torx Bolts removed previously in the same original locations as shown below.
Tighten to 6 Nm (53 lb-in).



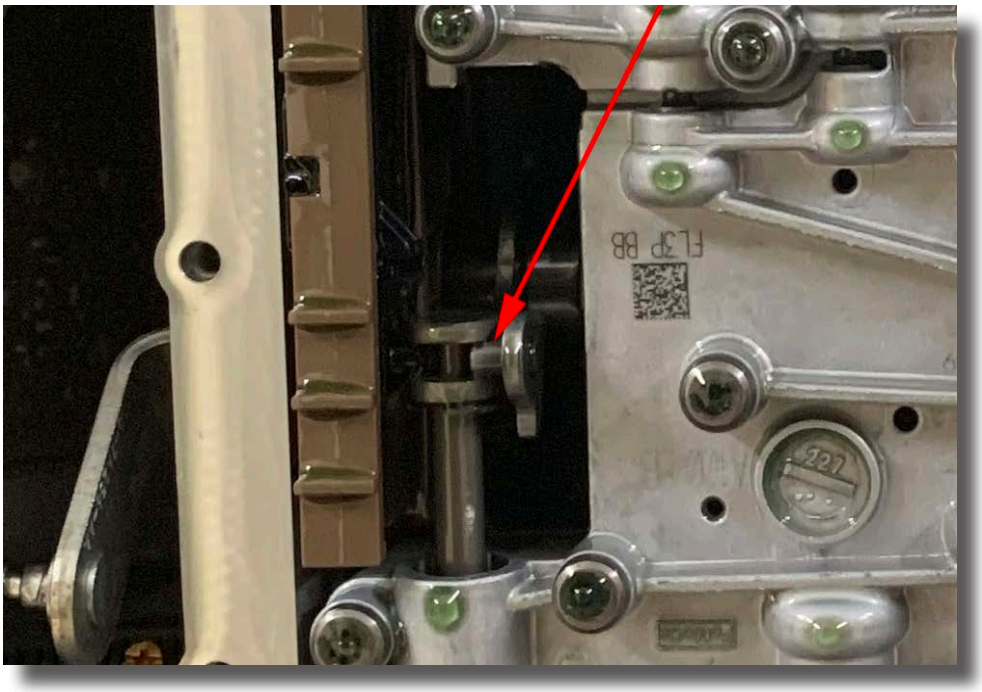
23. Also note that one or more of the case grommets may have remained stuck to the valve body assembly during removal and should be installed into the transmission case at this time. Use Vaseline to hold seals in place if they will not stay in place.



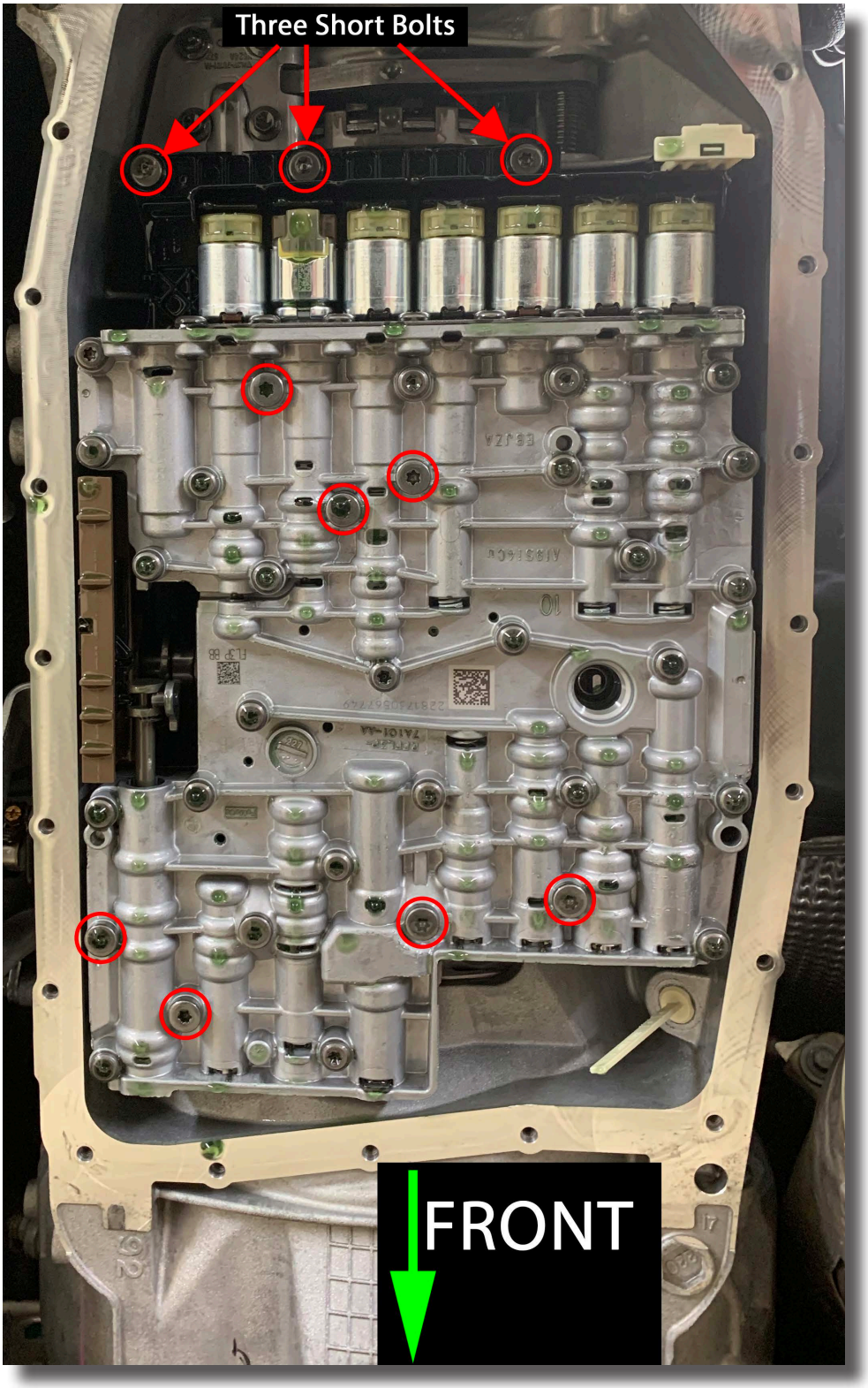
24. Install the new upgraded cooler bypass valve as supplied. Ensure this valve is held in place when reinstalling the valve body as shown below. It is recommended to use a generous amount of Vaseline to hold the new valve in place during assembly (Vaseline dissolves as the transmission warms up).



25. 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.



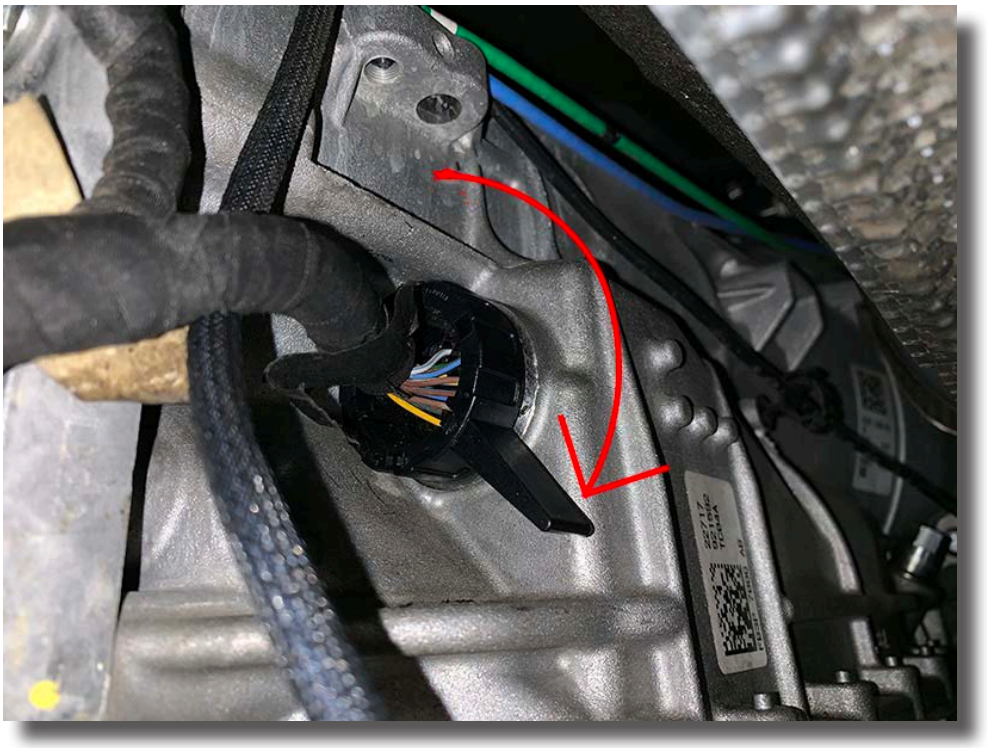
26. Install the eleven (11) bolts indicated using a T30 Torx screwdriver. Confirm that the manual control valve remains in the correct location once finished. *Tighten to 8 Nm (71 lb-in). The three (3) shorter bolts are used at the rear of the lead frame.



27. Ensure that the white release tab on the rear of the lead frame is still in the down position (unlocked). Ensure the sleeve bore is clean and free of burrs first. Use a light down the bore to check the location of the key way for the locating pin on the inside of the supplied black sleeve. Match the key way to the locating pin and install the supplied new black sleeve. Discard the old black sleeve.
***Take your time, be patient and triple check this step. Not completing this step correctly will result in a variety of major faults.**

When sleeve is in the correct position, press upwards on the white tab to lock the case sleeve to the valve body. Make sure the white locking tab is fully seated.

28. 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.



29. 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.

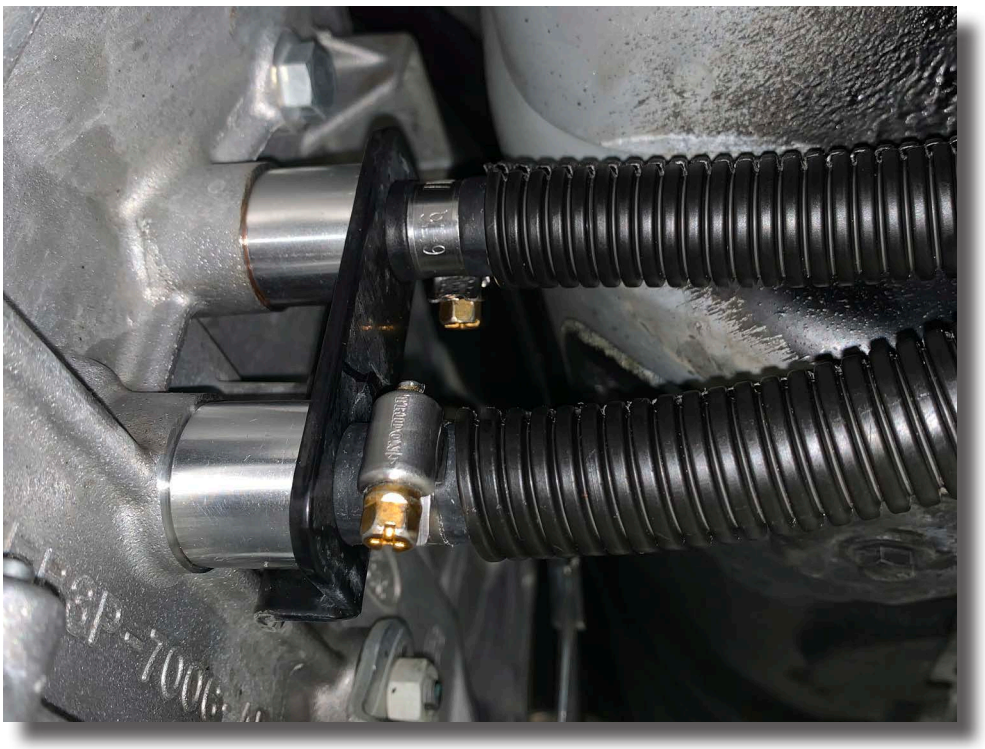
30. Lubricate the supplied filter seal with transmission fluid then install neck into position in the valve body.

31. Fit transmission pan and pan gasket into place. Take care not to put pressure horizontally on the filter as this may damage the neck. 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).

32. It is recommended that you perform a flush of the transmission fluid as part of the Valve Body fitting process. If you are doing a flush without a flushing machine, we have provided a guide in the next few steps.
It is recommended to be done with two people - one underneath to pump in fluid in to the transmission while the other is in the drivers seat. This guide on flushing is only applicable if you have one of our External Oil Cooler Kits already fitted.

33. 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.

34. Remove the upper transmission cooler line from the upper cooler union and either extend the hose with a joiner to a bucket or secure a bucket to catch the fluid.



35. Start engine when safe keeping a foot on the brake and handbrake on to ensure safety at all times.

36. As the transmission fluid starts to flow out of the cooler line, the fluid level in the pan will start to drop. Continue pumping fluid into the fill plug to keep the pan area as full as possible.

37. Once you see the fluid in the waste bucket changing colour to the new fluid, wait 10 seconds and then turn the engine off, reconnect the cooler line to the cooler union and secure with the original screw clamp.

38. Restart the engine and using the level indicator, check the level of the transmission fluid is correct.
For transmission fluid above 50° C then the fluid level needs to be in the "B" section of the indicator.
For transmission fluid below 50° C then the fluid level needs to be in the "A" section of the indicator.

39. Have the person in the drivers seat, while their foot stays firmly on the brake pedal and the handbrake remains on, shift to Reverse and hold for 10 seconds. Then shift to Drive for 10 seconds. Repeat x 1. Return to Park.

40. If the fluid is low, remove the indicator stick and add small amounts of transmission fluid at a time. Allow 20 seconds to settle and then re-check with the indicator until it reaches the correct level.

41. If the fluid is too high, you will need to remove the upper cooler line from the cooler union again and drain some more fluid into the waste bucket until you achieve the correct level. Then reconnect the cooler line and secure with original screw clamp.

42. 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.

43. Clean up all fluid from under the vehicle and re-check all bolts, and cooler connections that were loosened.

44. If the vehicle has any bash plates, please wait until test driving is complete before re-installing.

45. Take the vehicle out for test drive. Drive carefully to begin with. If you experience any issues of concern, cancel the road test and contact Wholesale

Automatics to discuss.

46. 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.

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

48. Check for any leaks from the transmission pan, pan gasket, or electrical sleeve.

49. Clean all transmission fluid from under the vehicle

50. Refit any bash plates removed.

51. When oil level is in the 'B' range on the indicator stick, cycle through the gears (while stationary) moving the T-Bar up and down slowly from P to D and back.

    Repeat steps to refill the transmission after this process and the fluid will now have dropped and will need to be topped up.

52. Road test vehicle, ensure computer is clear of any fault codes and free of any warning lights. Recheck the transmission oil level and top up if required.

53. This completes the installation.