



Nomad

Heavy Duty Valve Body

Suitable for:



Aisin AC60 6 Speed Automatic

Toyota Prado 150, Toyota Hilux 8th Gen

Fortuner 160 Series, Isuzu D-Max 3rd Gen

Isuzu MU-X 3rd Gen, Mitsubishi Triton MR

Mazda BT50 TF

WITH THE FOLLOWING ENGINES:

Toyota 1GD-FTV - 2.8L Turbo Diesel - 2015 to Present

Toyota 1GR-FE - 4.0L V6 Petrol - 2015 to Present

Isuzu 4JJ1-TCX & 4JJ3-TCX - 3.0L Turbo Diesel - 2016 to Present

Mitsubishi 4N15 - 2.4L Turbo Diesel - 2019 to Present

Mazda 4JJ3-TCX - 3.0L Turbo Diesel - 2020 to Present

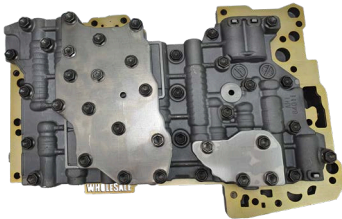
Please read through all of the instructions carefully before proceeding. If any of the information does not appear correct or the diagrams don't match your vehicle, please contact Wholesale Automatic Transmissions on +61 3 9762 8004.

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

AC60 Nomad Heavy
Duty Valve Body



2 x Valve Body to Case
Grommets



Filter



AC60 Rubber Pan
Gasket



Expected Installation Time: 2-3 Hours

IMPORTANT

After the installation of the Aisin AC60 Nomad Valve Body, the transmission adaptive shift values in the Transmission ECU must be reset BEFORE the car is driven. This will most likely require access to a professional scan gauge which is typically available at a dealer, transmission shop, good mechanic workshop.

Do not proceed unless you have access to this tool WITHOUT moving the vehicle. Failure to adhere to this notice may result in transmission failure and may also result in a rejection of warranty claim from Wholesale Automatic Transmissions.

- Socket Wrench
- 14mm Socket
- 10mm Socket
- 8mm Socket
- T55 Torx Bit OR 24mm Socket/Spanner
- 5mm Hex key (Allen Key)
- Magnet
- Magnetic parts tray
- Assembly Lube or Petroleum Jelly
- Torque Wrench suitable for 11nm
- Oil drain pan
- Small flat blade screwdriver
- Small pick or pry tool

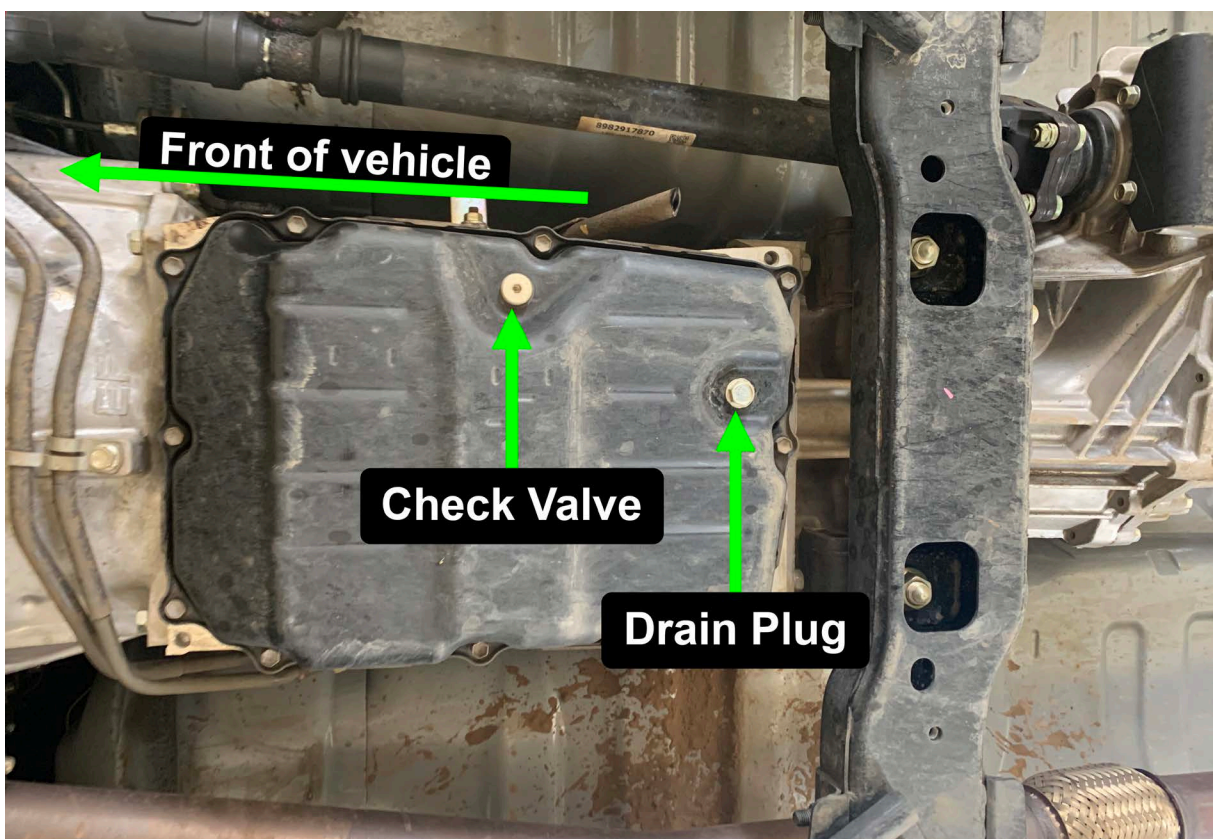
Before commencing work, please take the vehicle for a comprehensive test drive. Note any existing vibrations, shift issues or DTC codes.

The completion of this Valve Body installation requires a workshop/professional Scan Tool that is capable of resetting the adaptive shift parameters with the transmission ECU.

You must not drive the vehicle until the reset procedure has been performed after fitting the Nomad Valve Body upgrade.

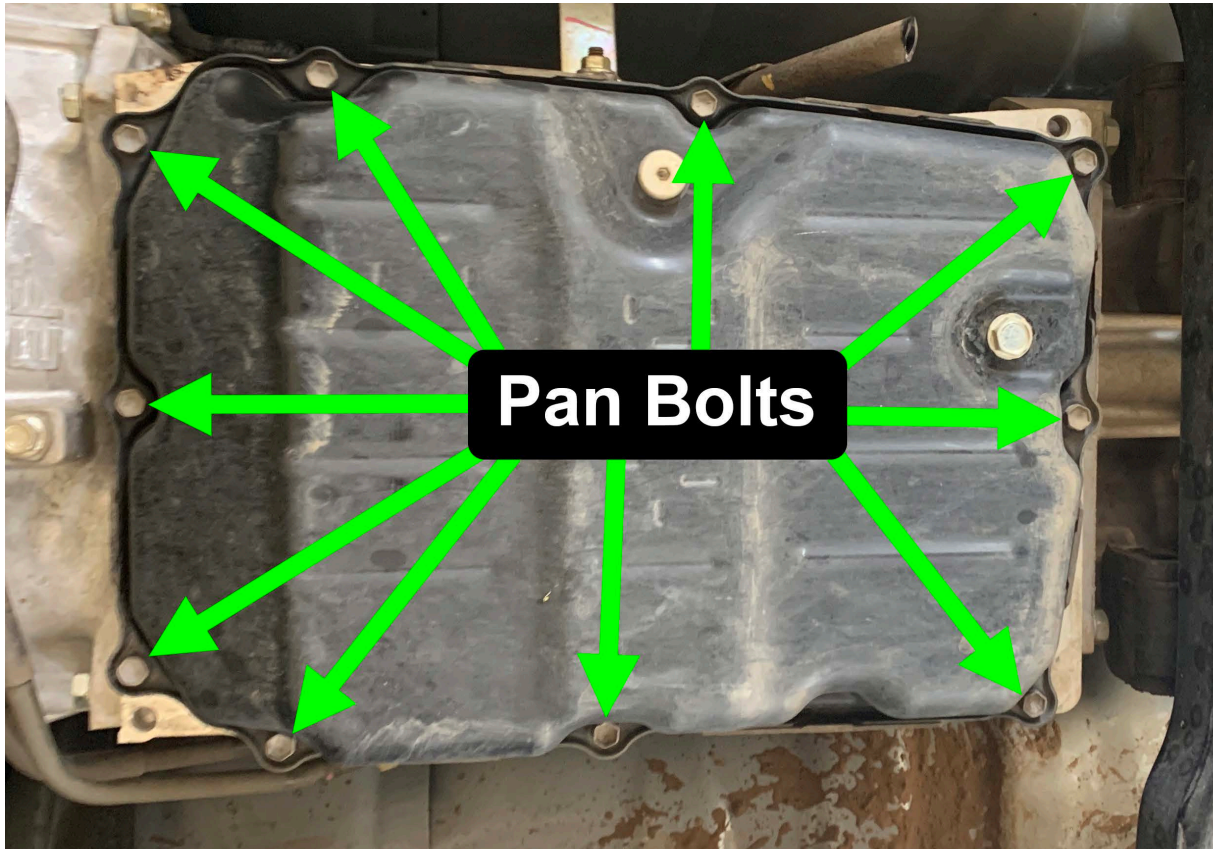
This must be done for warranty compliance.

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 they 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 the process of dropping the pan and valve body will potentially see a lot of fluid spilt. Please be prepared for this. Allow transmission to cool after road test. Transmission fluid can reach temperatures capable of burning. Before proceeding, ensure you have access to a workshop/professional scan tool capable of resetting the adaptive shift parameters. This must be done prior to taking vehicle on a road test, after the fitment of the Nomad Valve Body.
3. Position an oil drain pan under the drain hole. Using a 14mm socket, remove the drain plug from the transmission. Do not remove the Check Valve marked with CHECK. Allow all transmission fluid to drain.

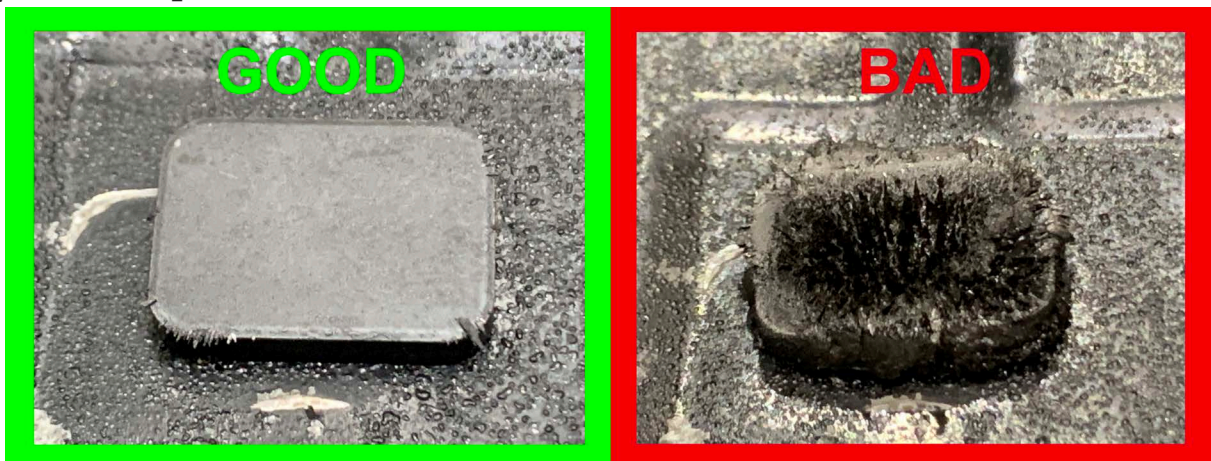


4. After transmission fluid has drained, refit drain plug and washer. Torque to 20Nm (14.8 lbf·ft)(177 lbf·in).

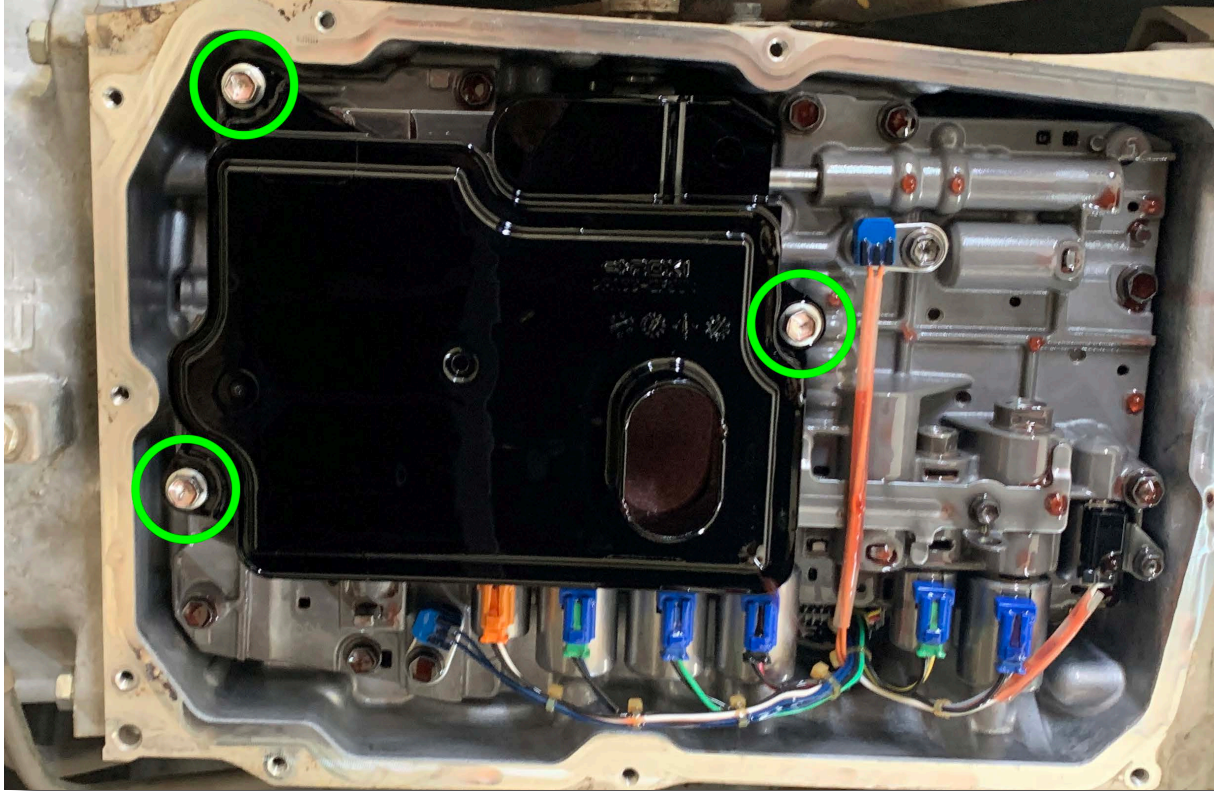
5. Remove the 10 (ten) x 10mm hex head pan bolts. Place pan bolts in magnetic parts tray to keep safe.



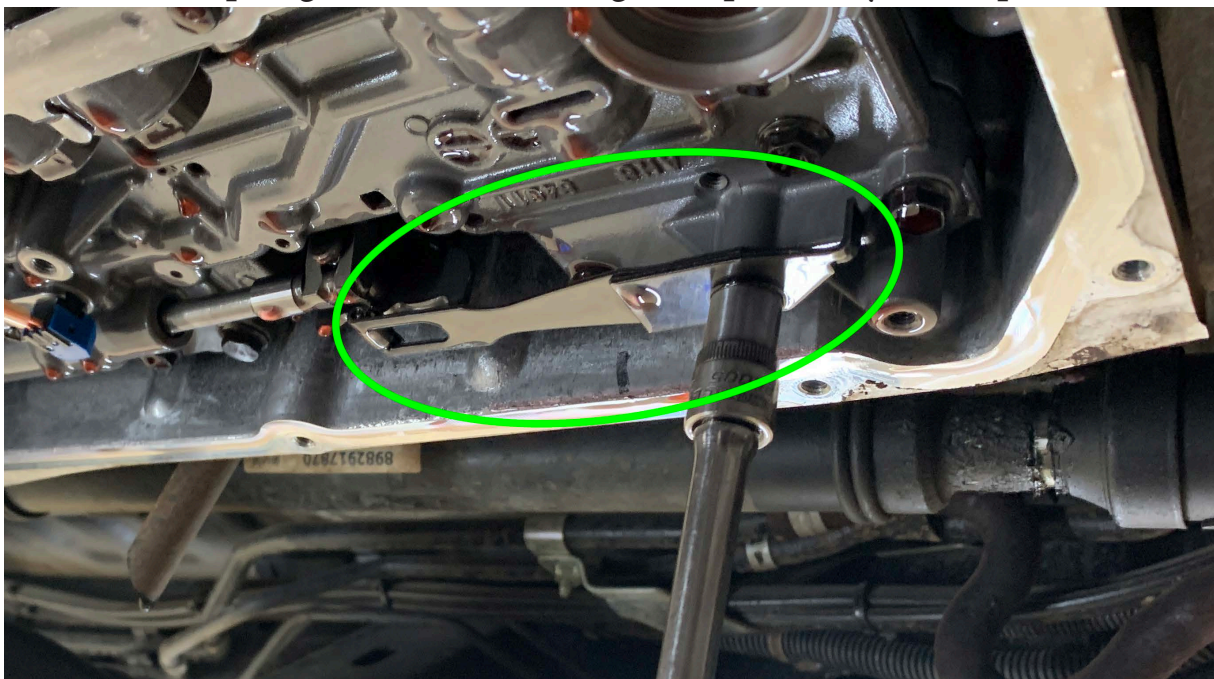
6. Remove transmission pan. Check magnets for metal. Most transmissions will have a very small amount of metal fragments on them - this is normal. Not normal is the magnet completely covered in metal fragments. This may also be accompanied with black sludge on base of the pan. Do not proceed until you have spoken to someone at Wholesale Automatics.



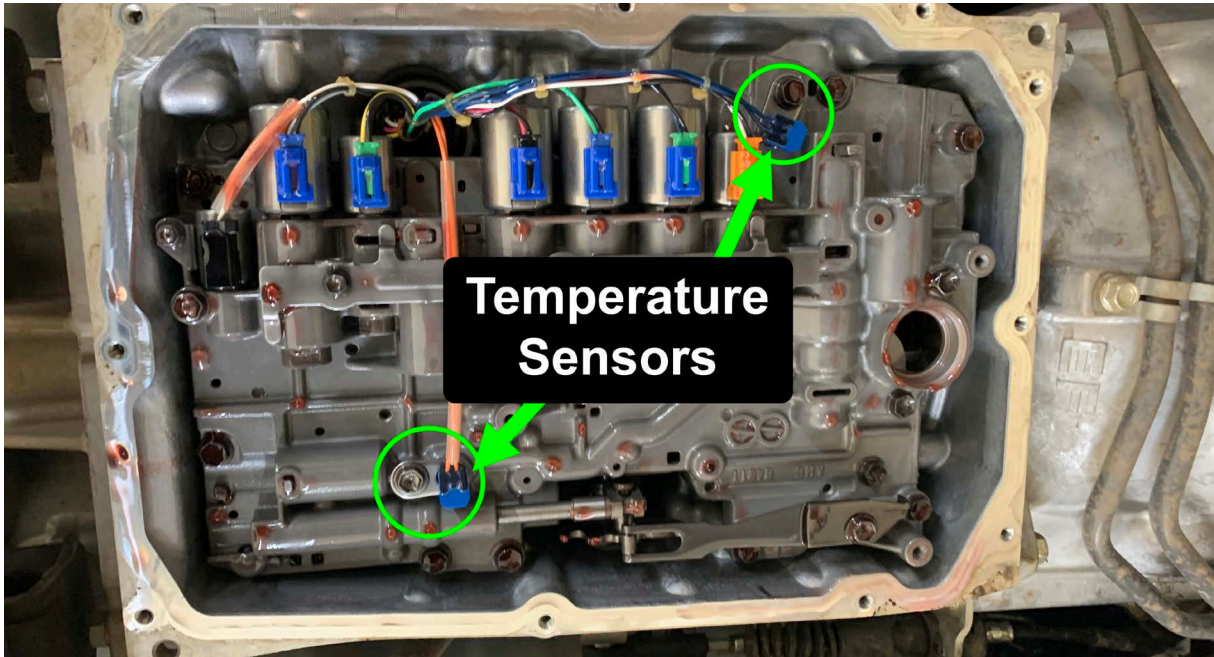
7. Remove the 3 (three) 10mm bolts holding the fluid filter on. Place filter bolts in magnetic parts tray to keep safe. Remove filter and compare to supplied replacement filter to ensure they are the same.



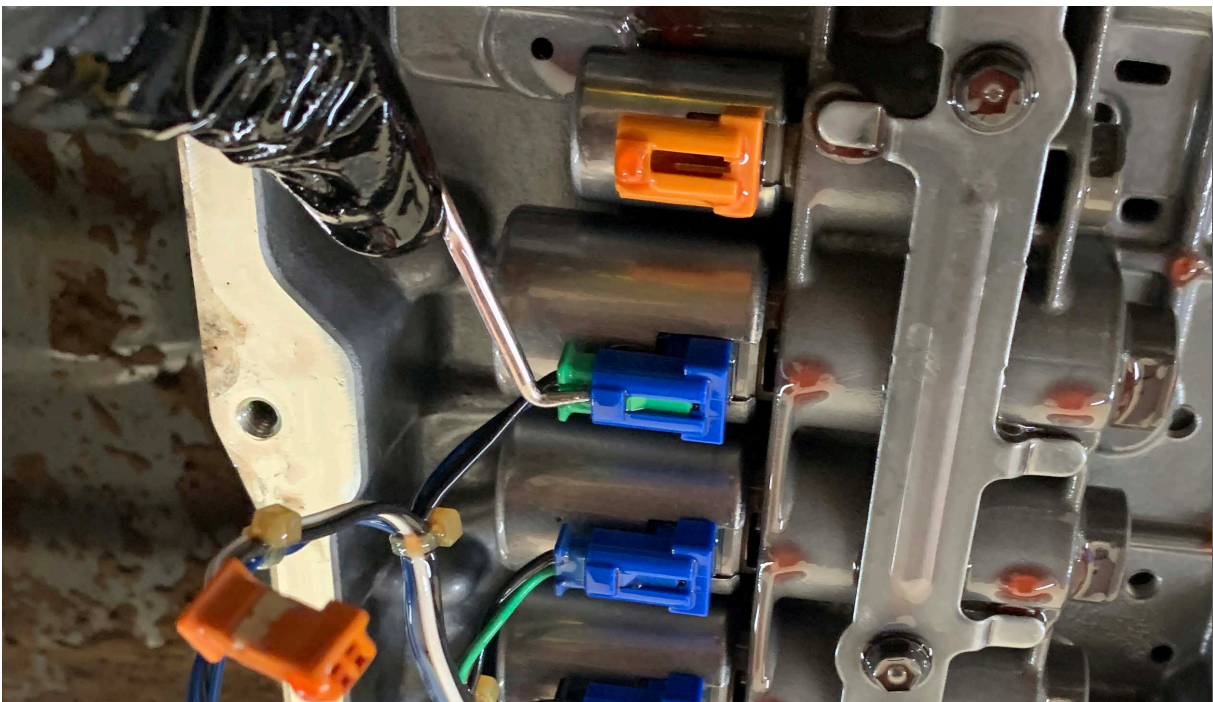
8. Remove the 1 (one) 10mm bolt holding the selector detent spring in place. Place detent spring and bolt into magnetic parts tray to keep safe.



9. Remove the 2 (two) 10mm bolts and retainer clips holding the 2 (two) temperature sensors into the valve body. The temperature sensors have the twin orange wires and the twin blue wires. Place the bolts and retainer clips into the magnetic parts tray to keep them safe. Remove the sensors by gently pulling them straight out. There is an O-Ring that helps seal them in place.



10. Using a small pick, carefully unlatch and remove the wiring connectors from the solenoids.



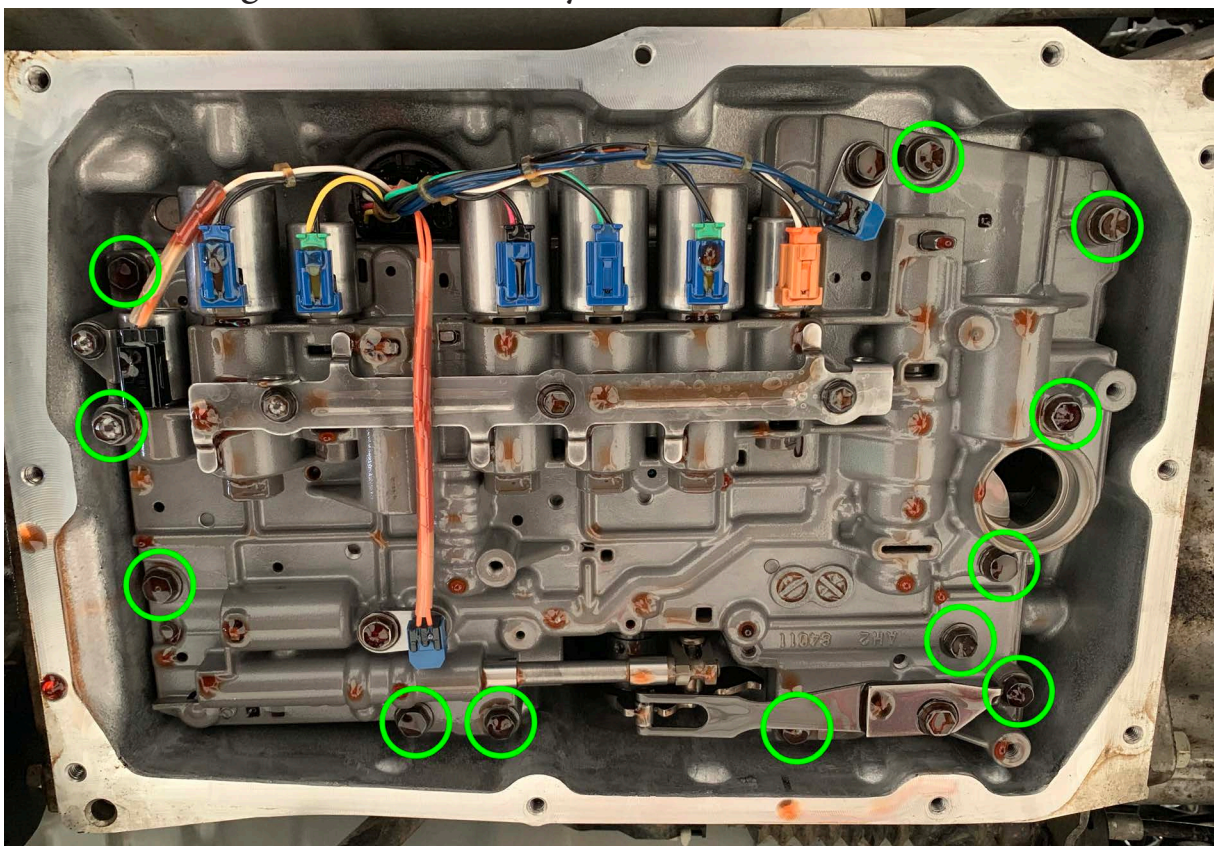
11. Before proceeding with removal of the valve body ensure you have a clean flat surface to place the removed valve body assembly on that is large enough for both valve body assemblies side by side. From this point, we will refer to the valve body removed from the transmission as the 'Original' valve body and the new supplied one as the 'Nomad' valve body.

Removing the original valve body will result in further fluid draining from the transmission so have the drain pan ready.

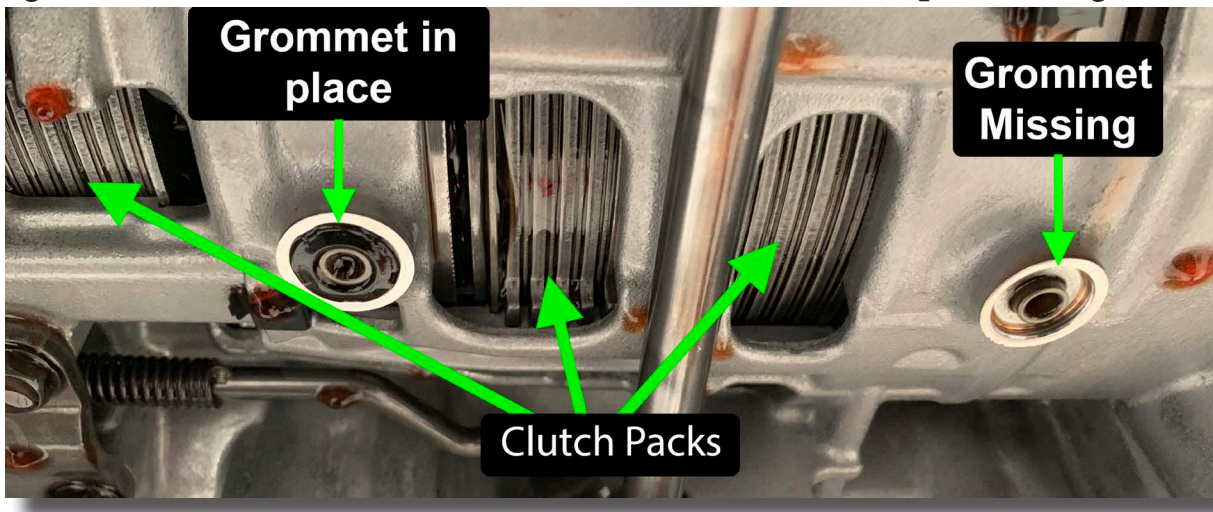
Once all the connectors have been removed, remove the 12 (twelve) 10mm bolts holding the valve body to the case. Place the valve body bolts into the magnetic tray to keep safe. Take note that there are three different length bolts holding the valve body to the transmission. We will provide the details during refit for which go where.

TIP**

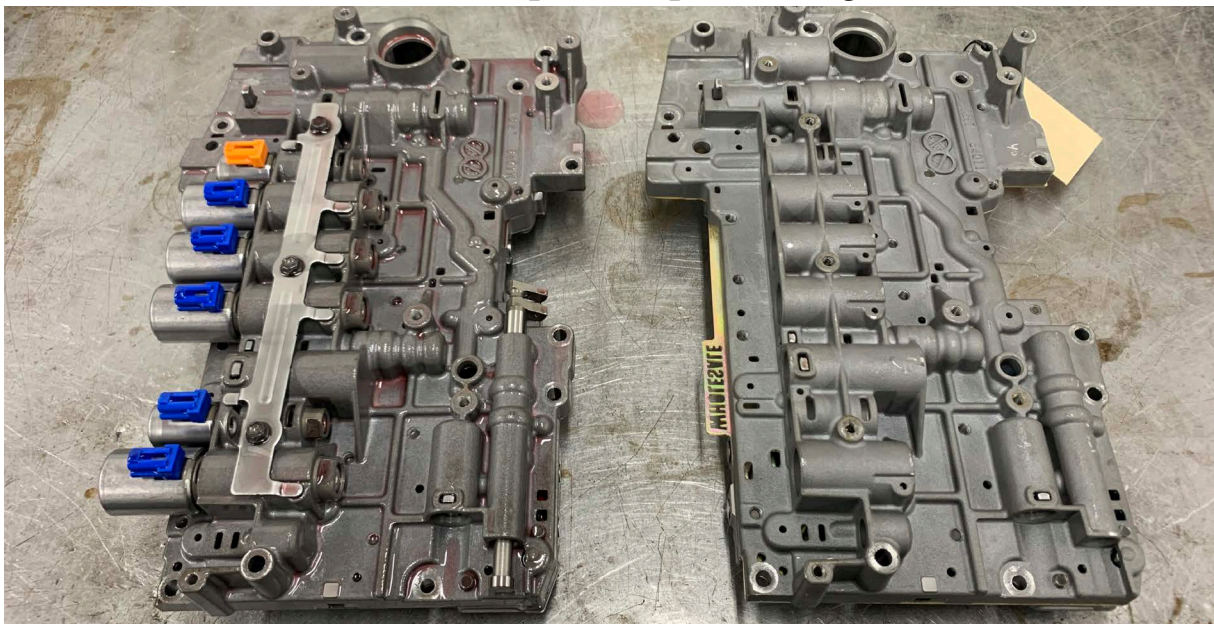
Remove all bolts except one. Leave that last bolt finger tight. This way, without tools in your hand, you can support the valve body with one hand, while removing the last bolt with your other hand.



12. Remove the 2 (two) valve body to case grommets. If one or both of the grommets are missing from the case, it's possible that they may have fallen out during valve body removal or may be stuck to the top of the valve body. Either way, we supply 2 (two) new replacement grommets. Also, while you can see the clutch packs easily, inspect for damage. Black heat spots are the most common symptom that can be seen which also indicates a fairly serious problem. If you see something that doesn't look right, contact Wholesale Automatics for advice before proceeding.



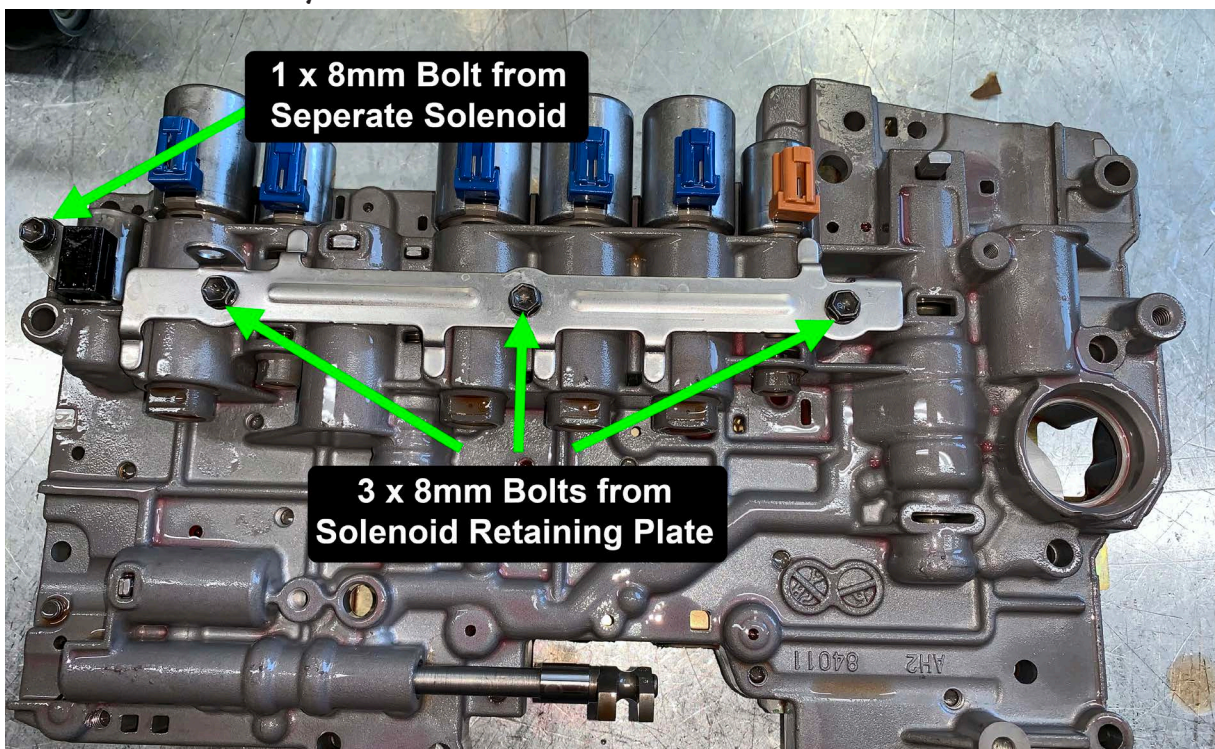
13. Place both valve body assemblies on the flat clean surface facing the same way with the solenoids on the top. Always compare both valve body assemblies to ensure they look the same. If anything doesn't match, please contact Wholesale Automatics prior to proceeding.



14. Slide the manual valve out of the Original valve body, and slide it into the same position on the Nomad valve body.

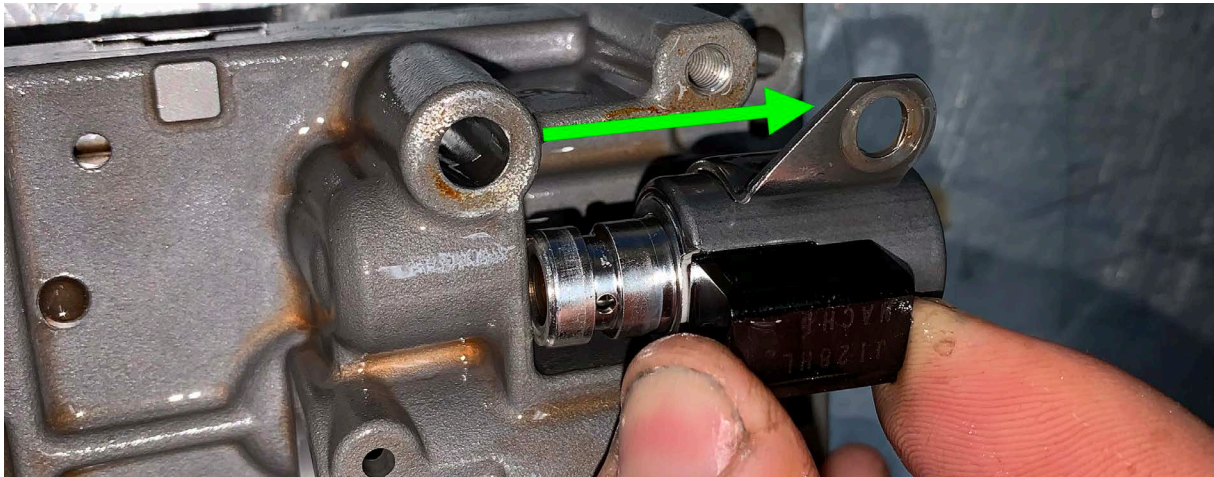


15. Remove the 3 (three) 8mm bolts from the solenoid locating pin retaining plate and 1 (one) 8mm bolt from the separate solenoid. Remove the retaining plate from the Original valve body and set aside for reuse on the Nomad valve body.

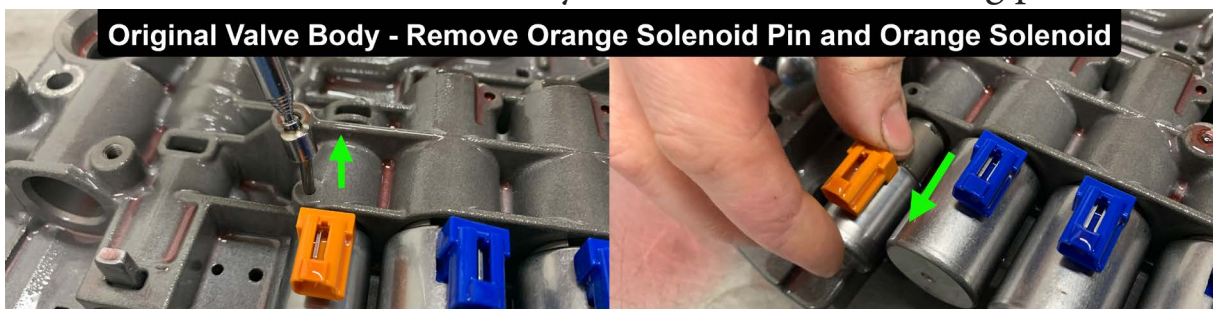


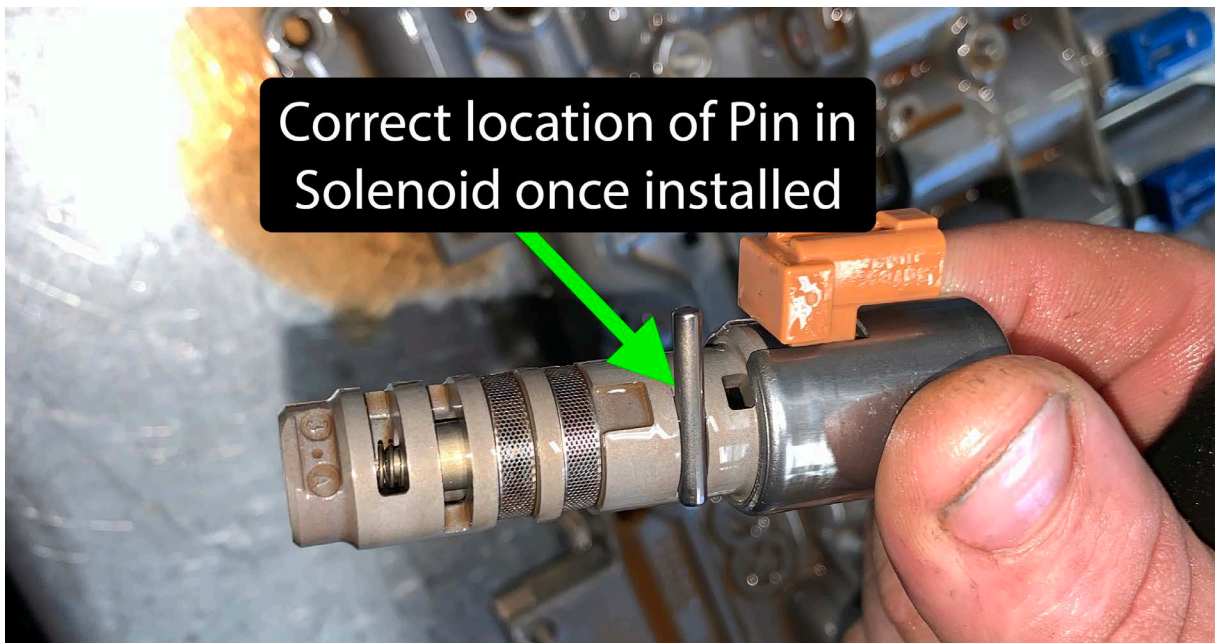
16. *****IMPORTANT***** It is vital that the solenoids and the locating pins are placed in the exact same location on the Nomad valve body. These solenoids are NOT interchangeable.

Remove the separate solenoid from the Original valve body and install into the same location in the Nomad valve body. Secure with 1 (one) 8mm bolt removed earlier. Torque to 6.4Nm (4.7 lbf-ft) (56 lbf-in).



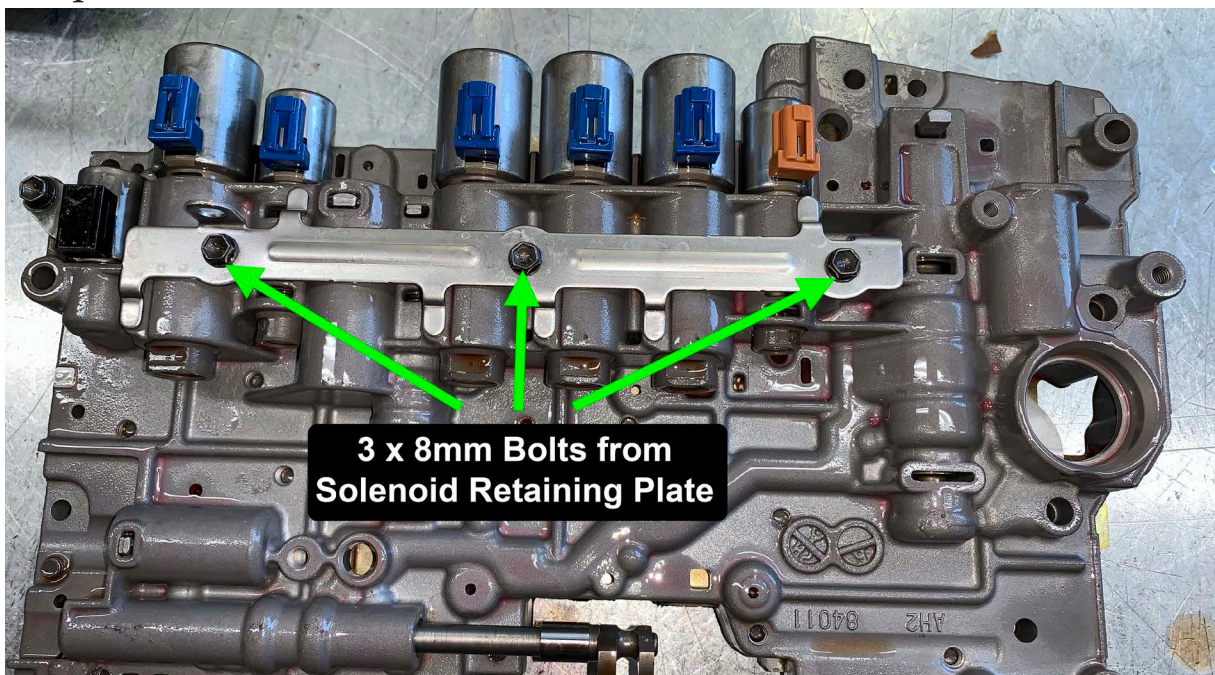
17. Using your magnet, remove the first solenoid locating pin and then the solenoid from the Original valve body and transfer the solenoid to the same location in the Nomad valve body. Secure with the locating pin.



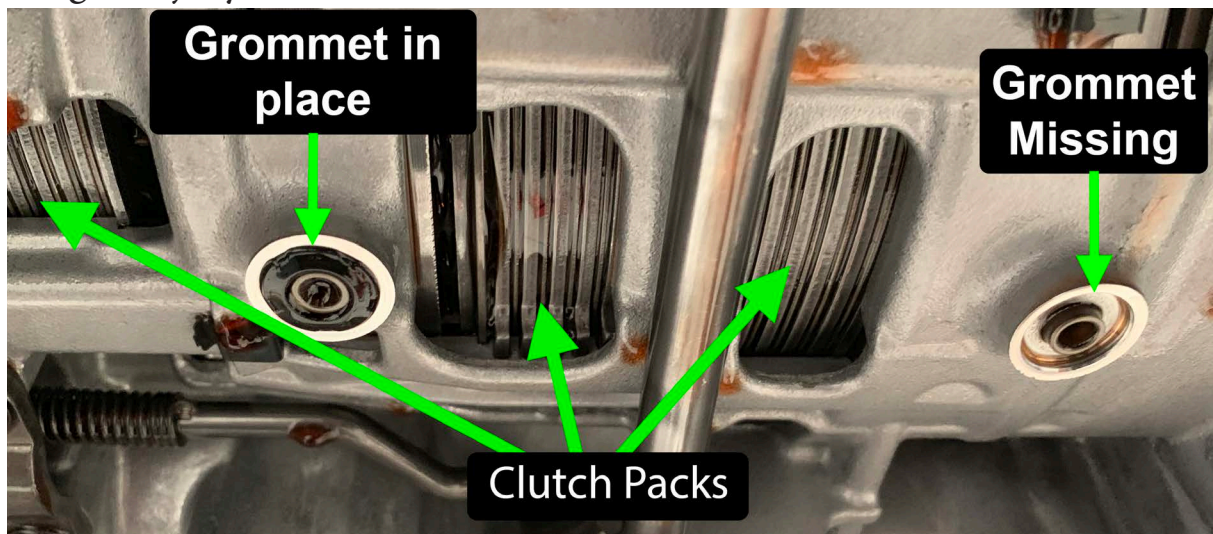


18. Continue transferring the remaining solenoids, one at a time, using the same process as the first solenoid.

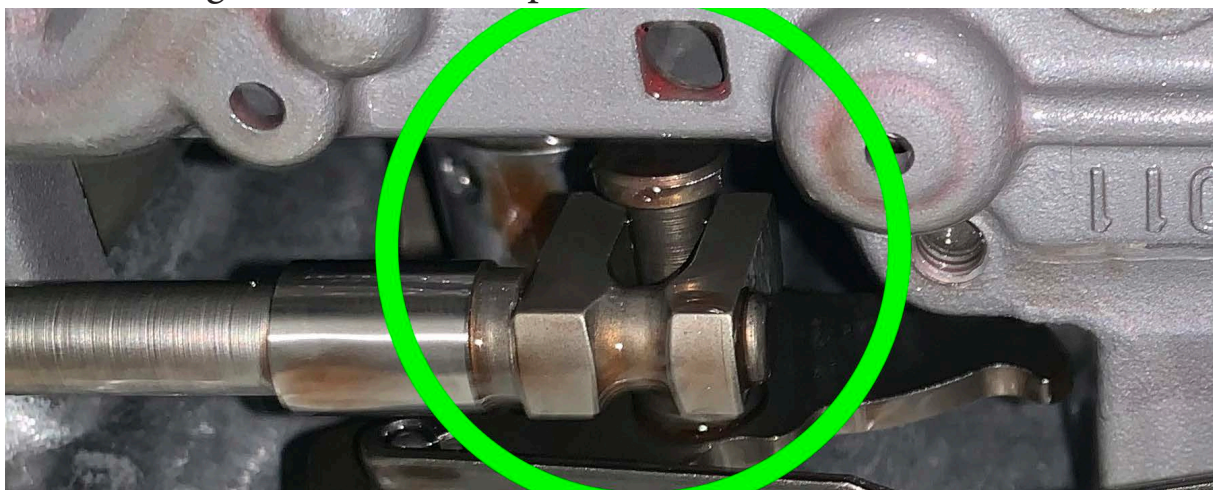
Once all solenoids and the locating pins have been installed into the Nomad valve body, install the solenoid locating pin retaining plate and the 3 (three) 8mm bolts removed from the Original valve body. Torque bolts to 6.4Nm (4.7 lbf·ft) (56 lbf·in).



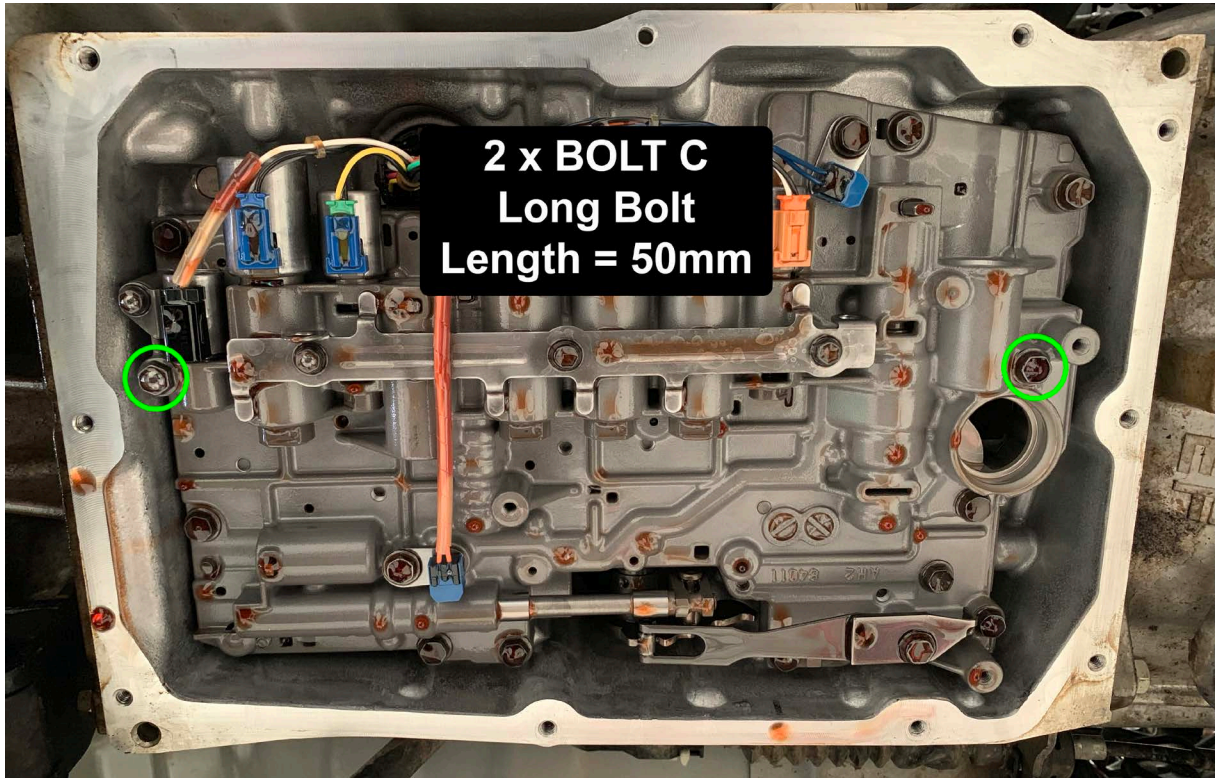
19. You are now finished with the Original Valve Body. Do your best to drain as much of the fluid out of it as possible prior to returning for exchange purpose. When you wrap it, please use rags and multiple plastic bags to seal it up so there is no cleaning surcharge from the freight companies.
20. Locate the 2 (two) rubber clutch seal grommets supplied. Fit them into place on the transmission using assembly gel or petroleum jelly to hold them in place. If your transmission is quite warm, you may have only seconds before the gel or jelly dissolves.



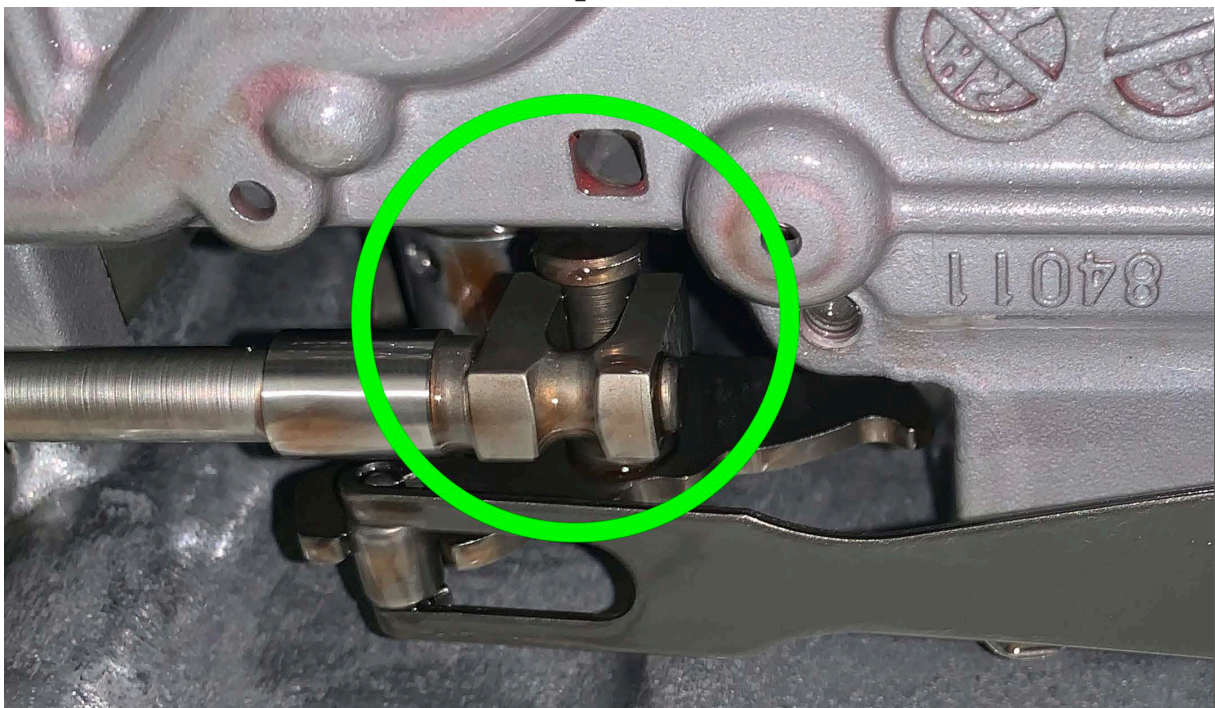
21. You can now fit the Nomad valve body to the vehicle. You may find it easier to have a helper while installing the valve body as it can be difficult to align the manual valve, insert the bolts, support the valve body and not have one of the clutch grommets fall out. The manual valve should align with the shifter linkage as shown in the photo below.



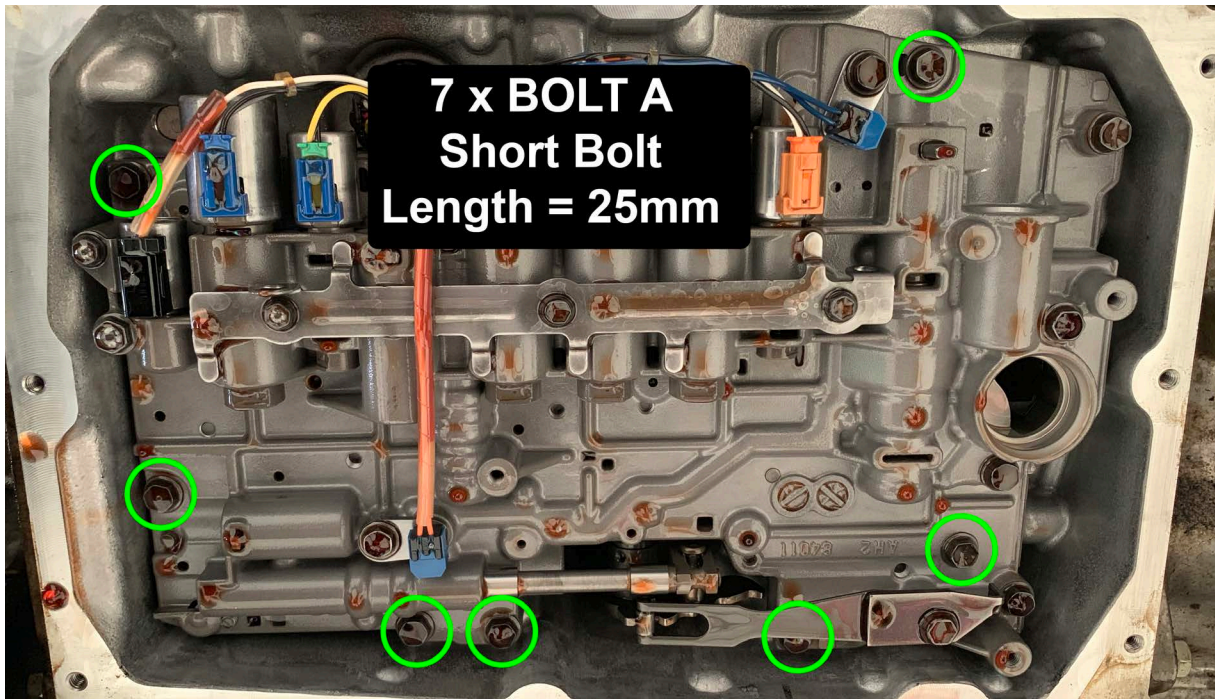
22. While supporting the Nomad valve body, insert the two long valve body to case bolts (Bolt C) into each of the holes indicated below. Finger tight only.



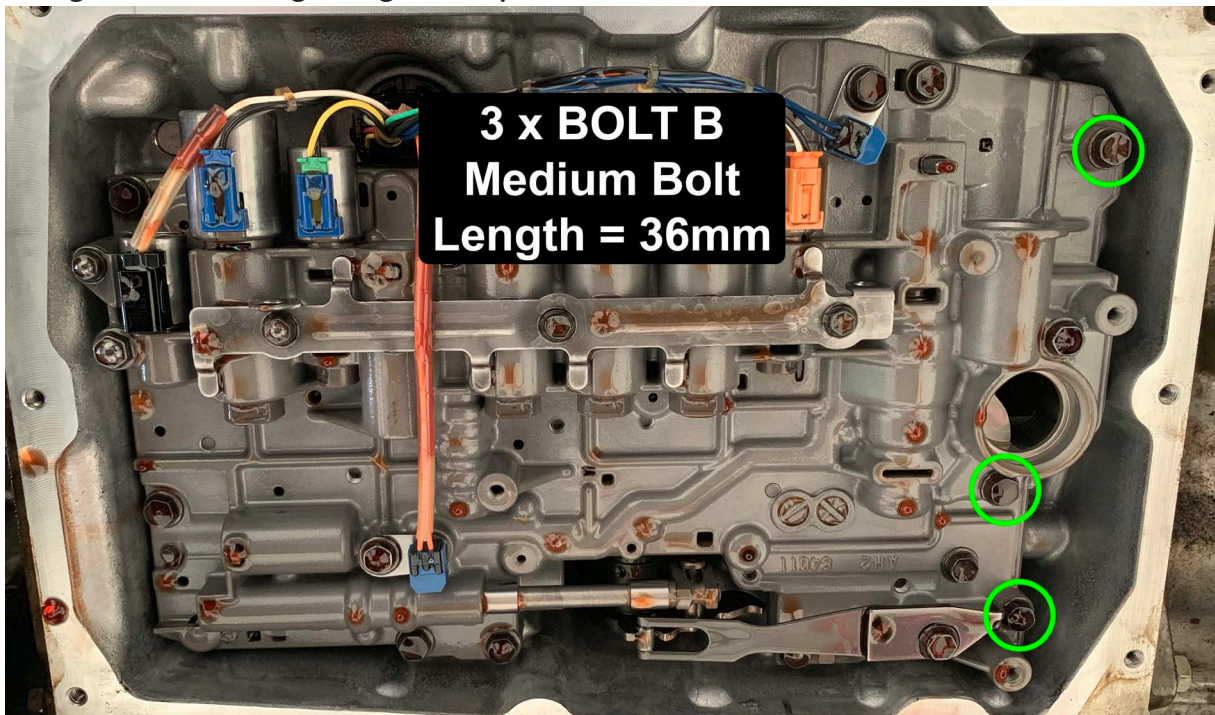
23. Before inserting the remainder of the valve body to case bolts, re-verify that the manual valve is in the correct position.



24. Starting with the 7 (seven) x short valve body to case bolts (Bolt A) insert into the positions shown in the image below. Finger tight only.

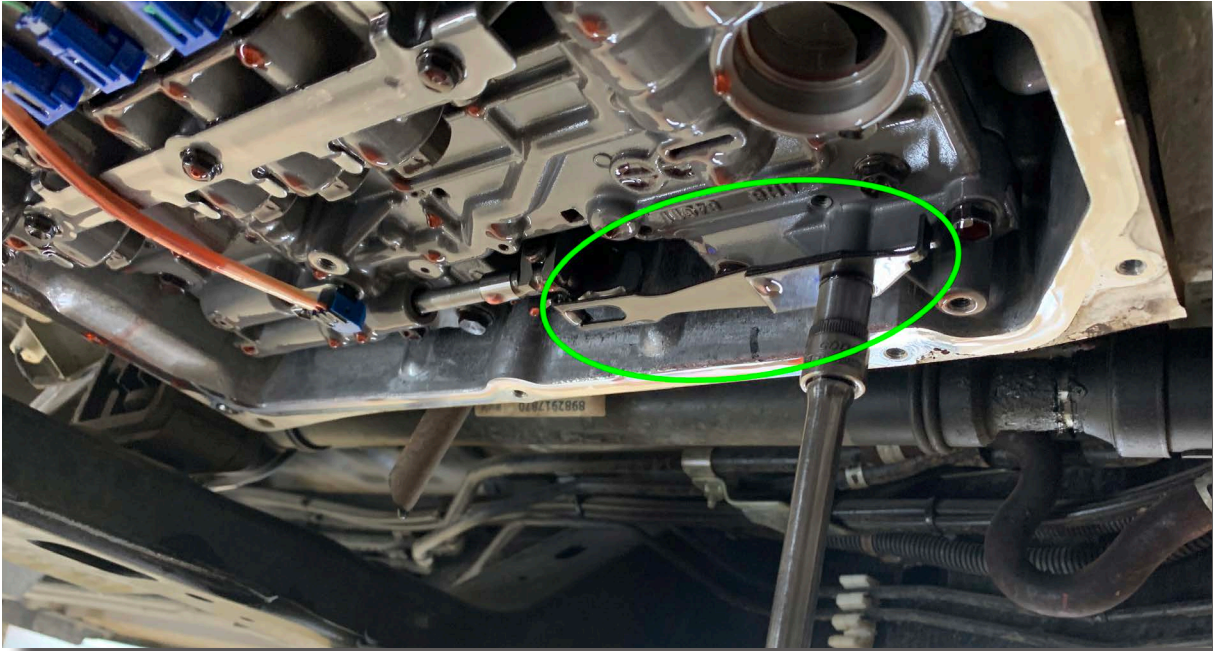


25. The remaining valve body to case bolts should only be the 3(three) x medium length bolts (Bolt B). These insert into the positions shown in the image below. Finger tight only.

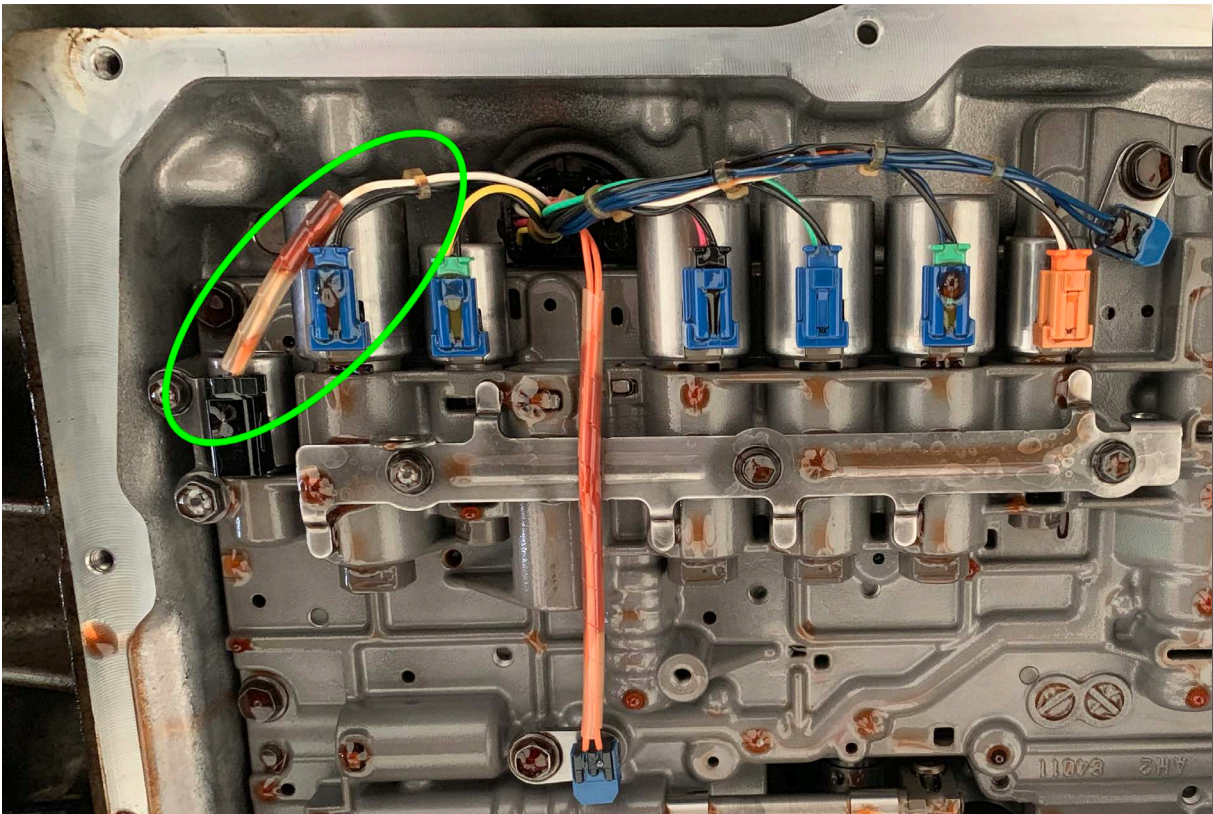


26. Tighten all valve body to case bolts then torque to 11Nm(8.1 lbf·ft)(97 lbf·in)

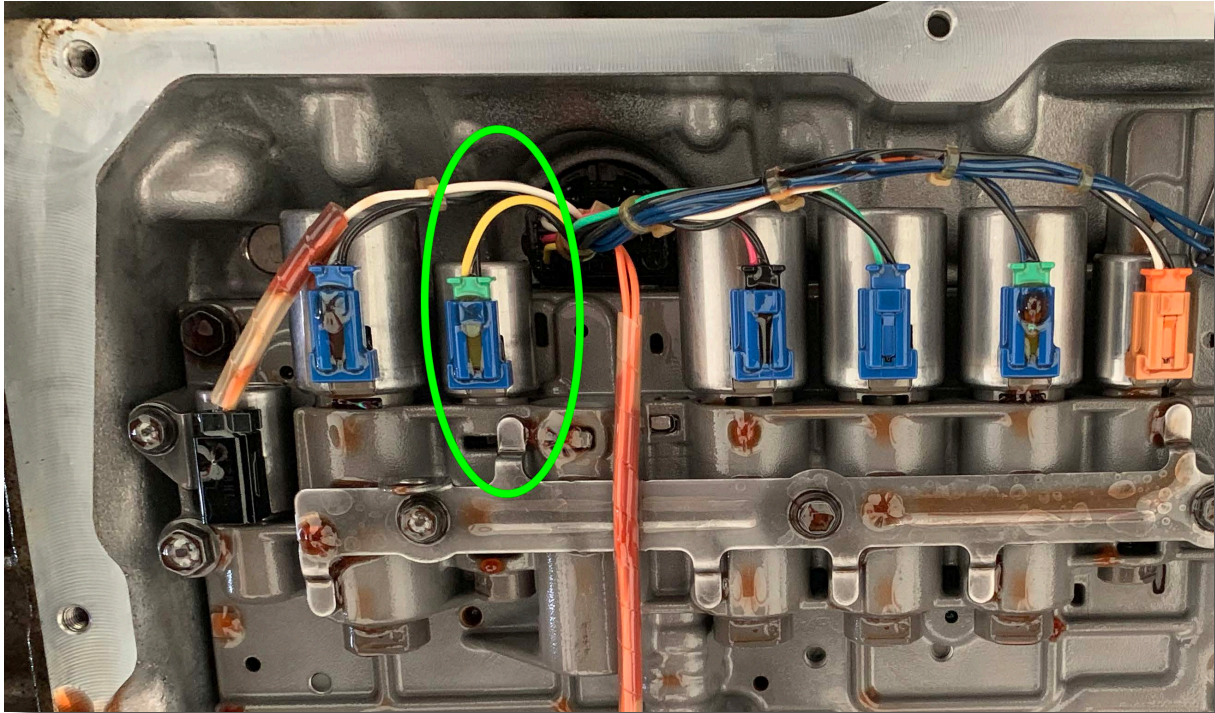
27. Refit the selector detent spring using a 10mm bolt.
Torque to 10Nm (7.4 lbf-ft) (88.5 lbf-in).



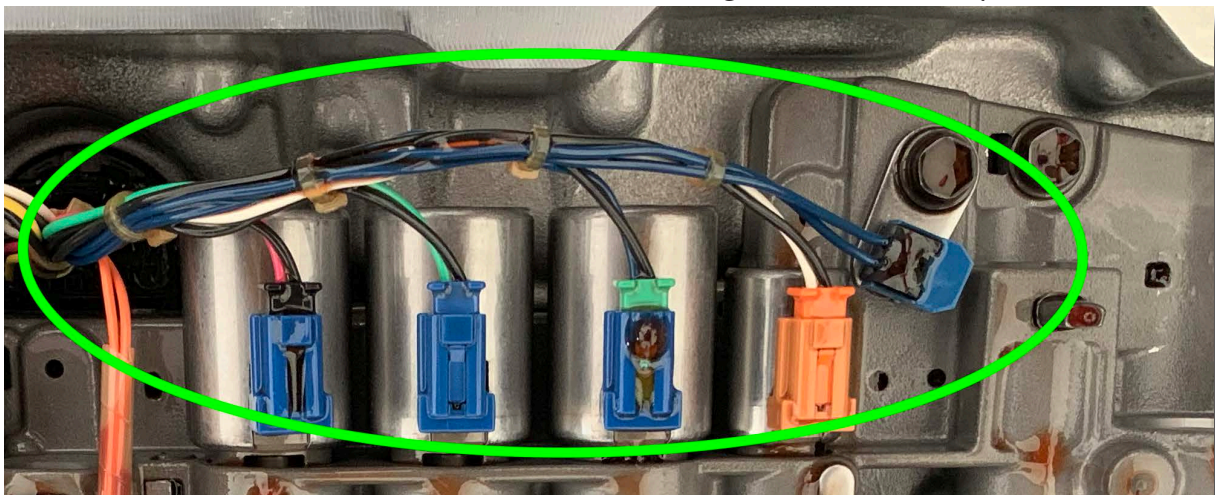
28. Locate the 2 connectors cable tied together, they connect to the two rear solenoids. You will notice the two connectors are different as this indicates which solenoid it needs to be installed to. Connectors will click into place.



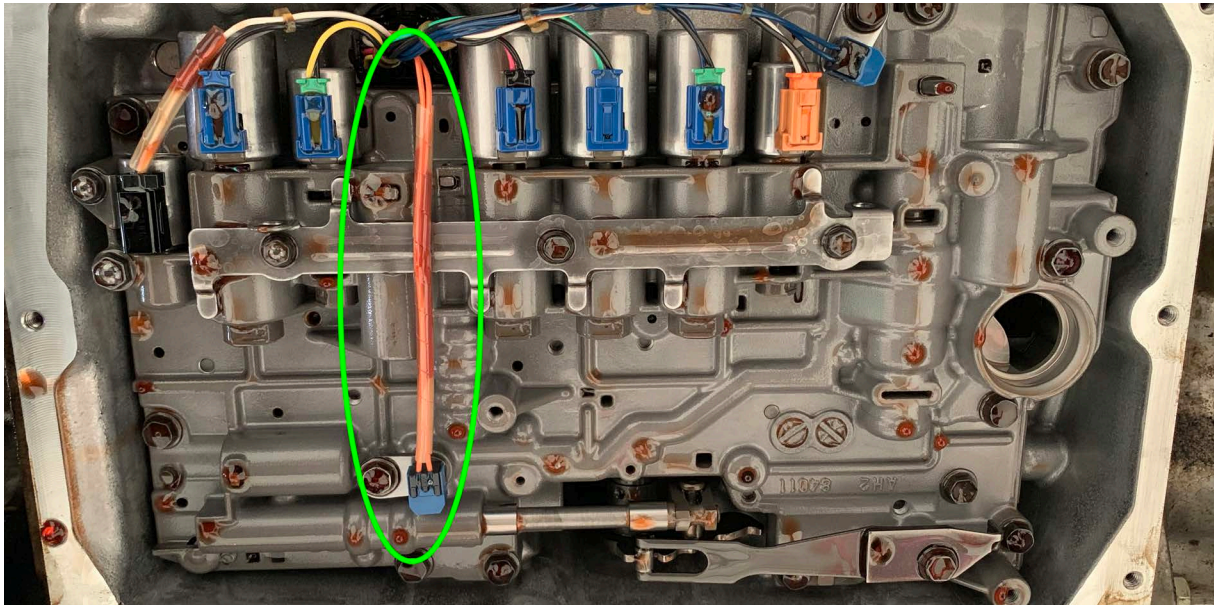
29. The connector on it's own is the next (smaller) solenoid that is right beside the wiring entry point. Install connector into solenoid until it clicks.



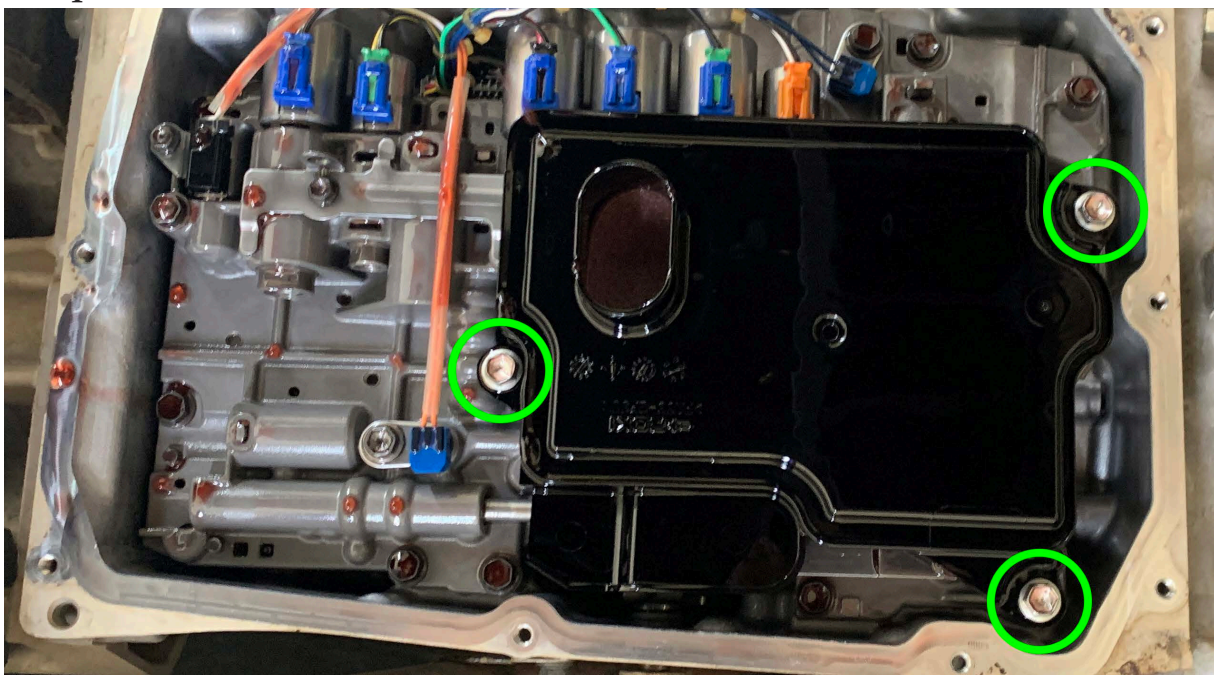
30. The group of 4 connectors with the temp sensor cable tied together then fits the 4 forward solenoids and the temp sensor fits to the hole just in front of the solenoids. The wiring lengths and position of cable ties will tell you which connector fits to which solenoid. Insert all 4 connectors into their respective solenoids until they click. Prior to inserting the temp sensor, run a bead of transmission fluid around the rubber O-ring to lubricate it. Fully insert temp sensor into opening in valve body before securing with metal bracket and 10mm bolt removed from Original valve body.



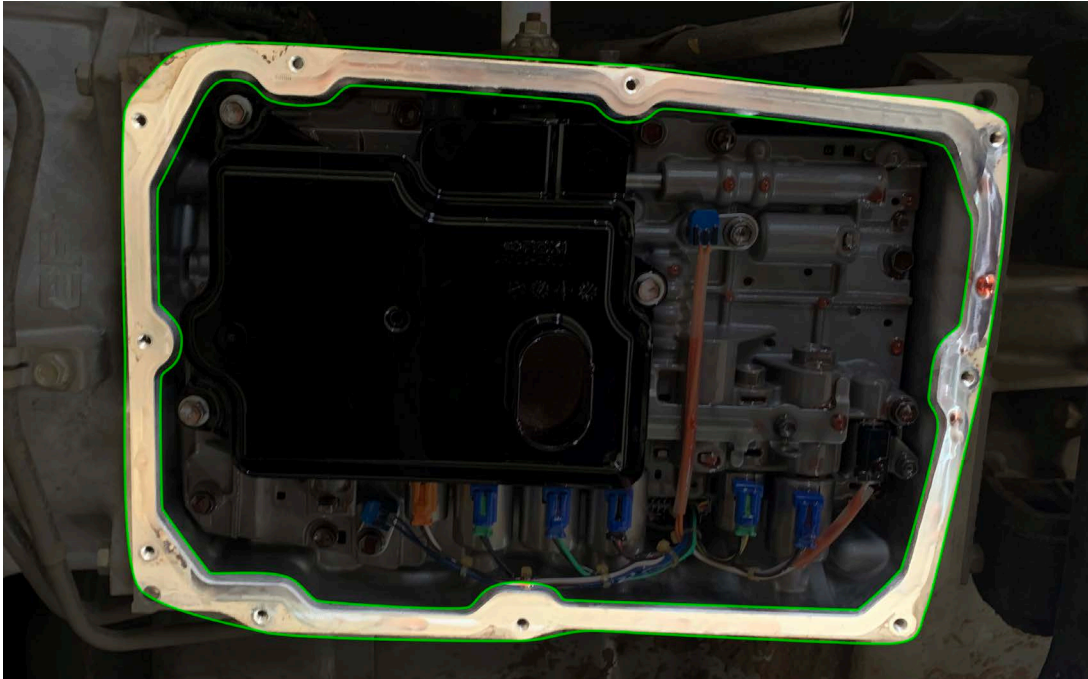
31. Lastly, the remaining temp sensor on it's own, fits to the temp sensor hole on the other side of the valve body. Prior to inserting the temp sensor, run a bead of transmission fluid around the rubber O-ring to lubricate it. Fully insert sensor into opening in valve body before securing with metal bracket and 10mm bolt removed from Original valve body.



32. Locate supplied new filter and apply a light coating of transmission fluid around the rubber O-Ring on the filter neck for lubrication. Fit filter into place and secure with 3 (three) x 10mm bolts. Torque to 10Nm (7.4 lbf-ft) (88.5 lbf-in).



33. Check the flat surface of the transmission where the pan gasket will mate with is completely flat. Remove any debris, silicone, or gunk to reduce the chances of leaking. You can carefully use a scraper blade if needed. Then wipe with a clean rag to remove any remaining fluid or debris.



34. If you were supplied new steel collars with your pan gasket, insert them into the 10x holes in the supplied new pan gasket. If your pan gasket was not supplied with steel collars, transfer the 10x steel collars from the original pan gasket to the supplied new gasket.



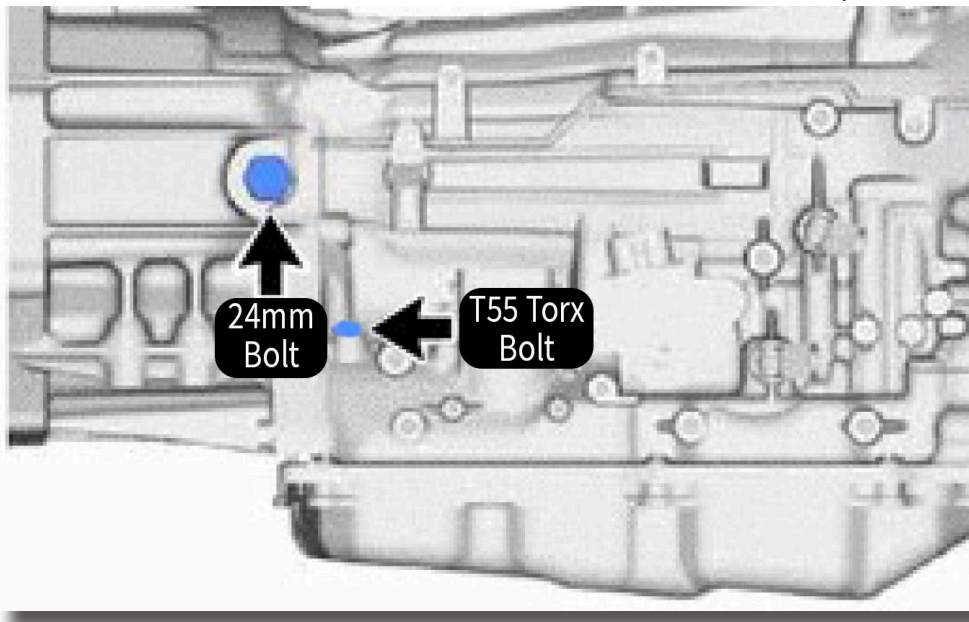
35. Place the pan gasket into position on the transmission pan and lift pan and gasket into place and secure with at least two bolts to hold everything in place. Insert by hand all remaining transmission pan bolts ensuring that each bolt goes through the steel collars and into the transmission case thread freely. Do not do this part by air/power tool as the risk of cross threading is high. Torque all transmission pan bolts to 7.4Nm (5.5 lbf·ft) (65 lbf·in)

36. Check drain plug is installed with washer.
Torque to 20Nm. (14.8 lbf·ft)(177 lbf·in)

Flushing Procedure for Transmission

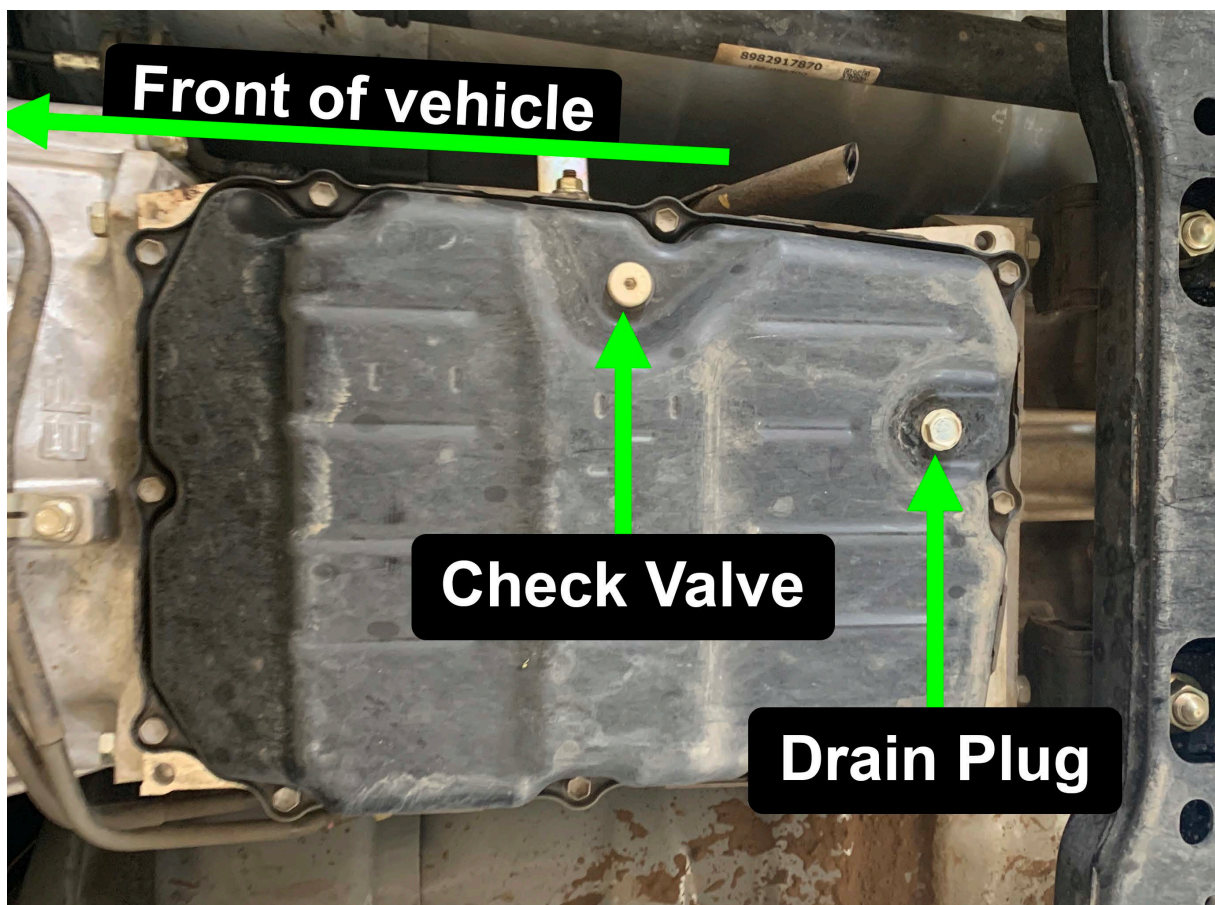
37. It is recommended that you perform a flush of the transmission fluid as part of the Valve Body fitting process. If you are doing a flush without a flushing machine, we have provided a simple guide in the next few steps. It is recommended to be done with two people - one underneath to pump in fluid in to the transmission while the other is in the drivers seat.
38. There are two re-fill holes on this transmission. First is a T55 Torx bolt beside the main solenoid connector, just above the pan, in a vertical orientation. Please note there is an O-Ring on this bolt, ensure you don't loose it when you remove the bolt as this bolt will leak without the O-Ring.

The other is a 24mm head bolt located higher up on the extension housing at the rear of the transmission. The bolt will be stamped with "WS". We recommend the Torx Bolt as the first choice as it is usually easier to access.

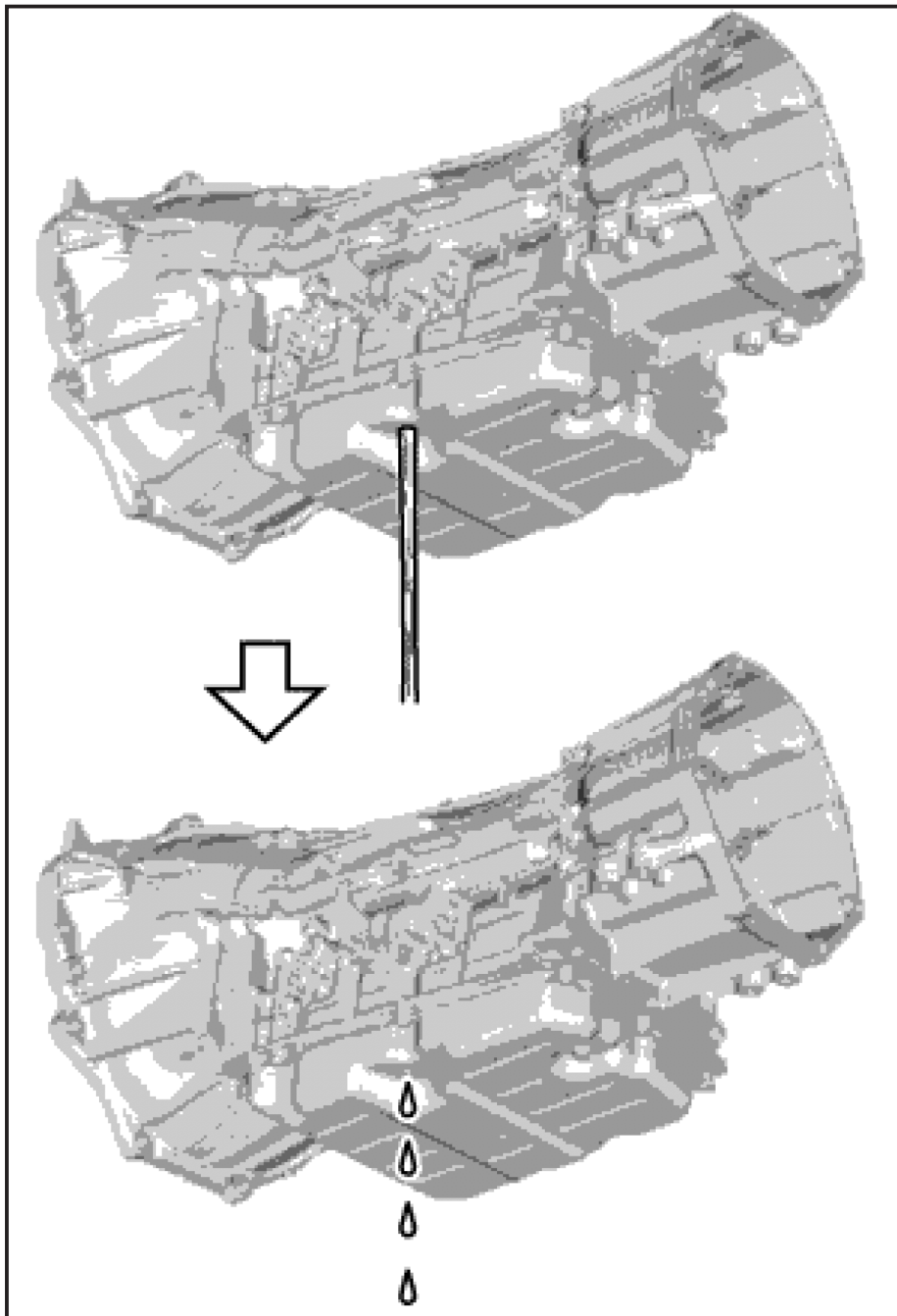


39. Remove the Transmission Cooler return line (the one that brings the fluid from the cooler back to the transmission) and drop line into a waste oil container. Depending on vehicle configuration, this may be under the engine where the rubber lines change to steel lines or at the side of the transmission itself. The return line for the transmission is always the top line on the side of the transmission. The waste container must be able to hold at least 20 Litres.

40. Before starting engine, fill transmission with transmission fluid. If you are using the T55 Torx bolt, fill to the hole. If using the “WS” bolt, add only 5 Litres to begin with.
41. Start vehicle and continue to pump transmission fluid into the re-fill hole until the transmission fluid coming out of the return line is clean and clearly visible that it is the new fluid.
42. The AC60 Transmission holds a total of 9.5Litres.
43. Immediately have the person in the vehicle switch off the engine while you reconnect the return line and secure using original clamp.
44. Have the person in the vehicle start the engine again. After 10 seconds, remove the Check Tube bolt labelled “CHECK” from the transmission pan to check for the level of the transmission fluid. It requires a 5mm Allen key.



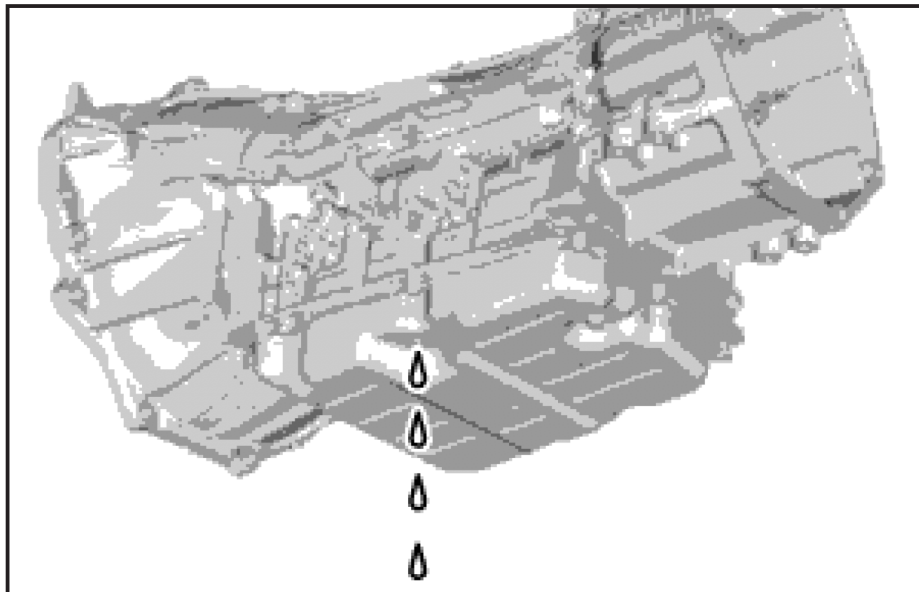
45. While the engine is running, continue to fill the transmission with fluid until the fluid starts to come out of the CHECK tube hole.
46. Have the person in the vehicle move the shifter between the various positions, P, R, N, D for 10 seconds each.
47. When the fluid reaches a dribble (see image below), reinstall the CHECK tube bolt back into place.
Torque CHECK tube bolt to 20Nm. (14.8 lbf·ft)(177 lbf·in)



48. The engine can now be switched off and the re-fill bolt can be reinstalled. For both re-fill bolts, torque to 39Nm.
49. Clean up any transmission fluid from under the vehicle.
50. Take the opportunity to recheck any bolts that have been touched during work to ensure you haven't missed any.
51. Before test driving, you must connect a workshop scan tool to the vehicle and reset the adaptive shift system. If you have missed the warnings at the beginning of the instructions please review warnings before proceeding.
52. Once the adaptive shifts have been reset, you are now ready to take the vehicle for a test drive for at least 10 mins to get the transmission fluid up to temperature.

Test Driving

53. It is extremely important that the person who drove the vehicle prior to starting work, also drives the vehicle again after the work has been completed to verify any changes from original valve body. We also recommend driving the exact same route.
54. After completing the test drive, we want to verify that the transmissin fluid level is still correct. During the road test it is possible that you have forced an air pocket through the system. This wil mean the fluid level may be slightly lower than what it should be.
55. Leave the engine running and recheck the fluid level by removing the CHECK tube bolt from the transmission pan again. If fluid is still dribbling out, then that is good. Reinstall CHECK tube bolt and torque to 20Nm. Please be careful as the transmission fluid may be hot.



56. If no fluid is coming out of the CHECK tube, then you need to add more transmission fluid as you may have had an air lock previously. Repeat test drive and recheck until the fluid dribbles from the Check Tube after test driving.
57. Clean the vehicle to remove any marks or fingerprints.

This page has been left blank intentionally because we couldn't think of anything else to say!

This now completes the installation of the
Nomad Heavy Duty Valve Body Upgrade Kit
to suit:
Aisin AC60 6 Speed Automatic Transmission

Remember to put a service sticker on the customers windscreen to remind them of their next transmission service in 2 years or 40,000km from now.

Please Provide us with Feedback

If you have a minute to provide us with some feedback about your experience with Wholesal Automatic Transmissions and our products, that would be greatly appreciated.

Using your smart phone or device's camera app, point at the QR code below to take you straight to our feedback page for you to choose the most appropriate feedback method.

