



Transmission Cooling System Bypass Valve Replacement Suitable for:



**Nissan Patrol Y62 with RE7
7 Speed Automatic Transmission**

WITH THE FOLLOWING ENGINES:
VK56 - 5.6L V8 Petrol - 2010 onwards

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 the hoses and parts from the vehicle,
allow sufficient time for engine and auto to cool.

Parts List



1 x Nissan Y62 Bypass
Valve with o-ring



1 x Circlip



1 x Screw

Expected Installation Time: 2 Hours

1. Summary of Installation - Experienced Fitters

- Ensure you have enough transmission oil to top up your transmission.
- Inspect o-ring on bypass valve, ensuring it is installed correctly. Apply a small amount of AFT as a lubricant for later assembly.
- Remove the front grill and front lower bash plates / covers (if fitted).
- Disconnect air con pressure sensor cable and remove surrounding foam.
- Remove bolt from ambient temperature sensor bracket and move bracket out of the way. This is located on the front of the lower radiator support, on the side opposite the transmission cooler hoses.
- Remove lower transmission cooler ATF hose.
- Remove 2 x bolts holding power steering cooler to vehicle.
- Lower the power steering cooler to reveal bolt holding in transmission cooler.
- Remove upper transmission cooler ATF hose. Be aware this fitting is easily damaged.
- Remove bolt holding in transmission cooler. This is attaching the top bracket located above the air con condenser dryer.
- Remove transmission cooler by lifting it up out of its saddles, pulling it forward slightly, lowering it towards lower radiator support and pulling the bottom of the cooler towards the front of the car to clear the support. Be aware of the top fins of the cooler as they are easily damaged if allowed to scrape against the power steering cooler or radiator support.
- Remove the factory circlip holding in the thermostat.
- Drill a small 3mm pilot hole in the middle of the plastic thermostat retainer.
- Screw in the supplied screw and use it to extract the plastic retainer. Be aware that the thermostat is spring loaded behind this retainer.
- Remove thermostat and spring.
- Insert bypass valve into thermostat housing. Use new supplied circlip to retain.
- Refit transmission cooler to vehicle. Be aware that the factory hard lines are quite soft and easy to damage.
- Reconnect all removed hoses, brackets and bolts.
- Check transmission fluid level and top up where necessary.
- Check for leaks.
- Road test vehicle then re-inspect fittings for leaks. Tighten or adjust clamps if necessary.

2. Detailed Installation Instructions

Before commencing work please ensure that you have approximately 1L of transmission fluid to top up at the end of the job.

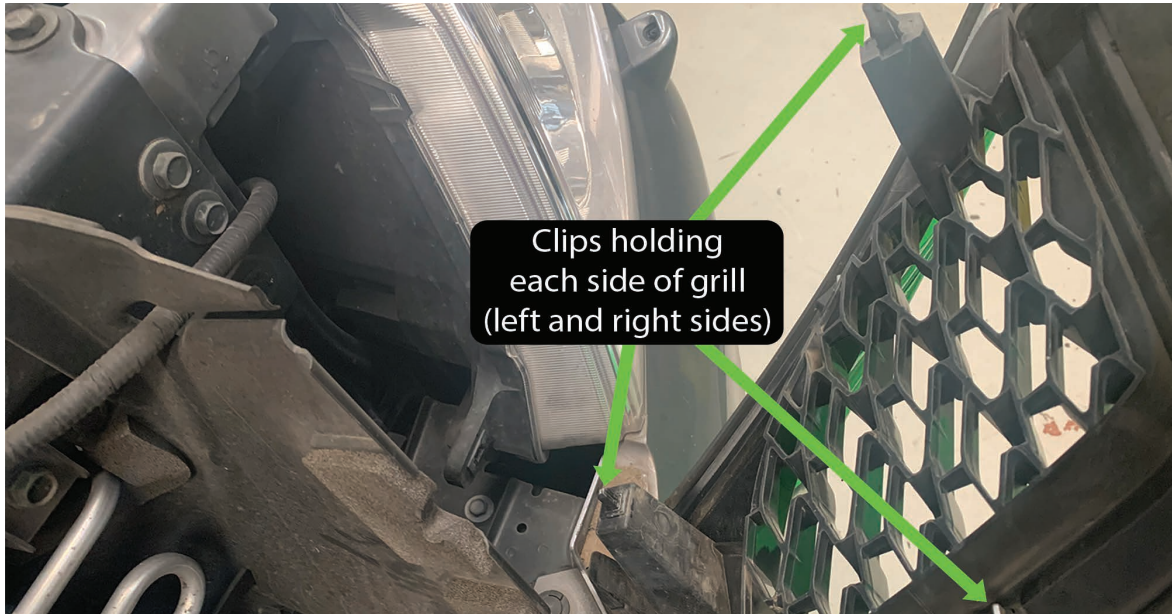
- 2.1. Ensure the vehicle is fully switched off. It is recommended that the vehicle is cold, or has at least cooled down a little, before starting the bypass install.
- 2.2. Inspect bypass valve assembly, making sure the o-ring is correctly seated in its groove and not torn or damaged. Apply a small amount of transmission fluid as a lubricant for later assembly.



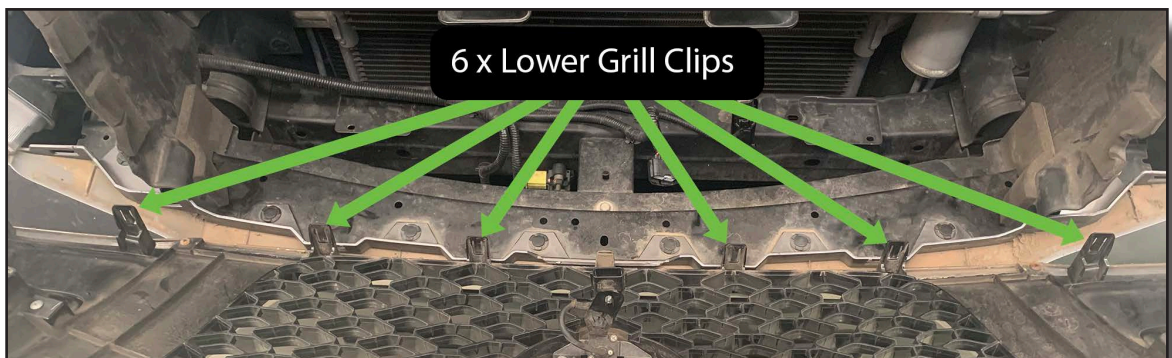
- 2.3. Open bonnet.
- 2.4. Remove the 8 x plastic clips on the top of the grill.



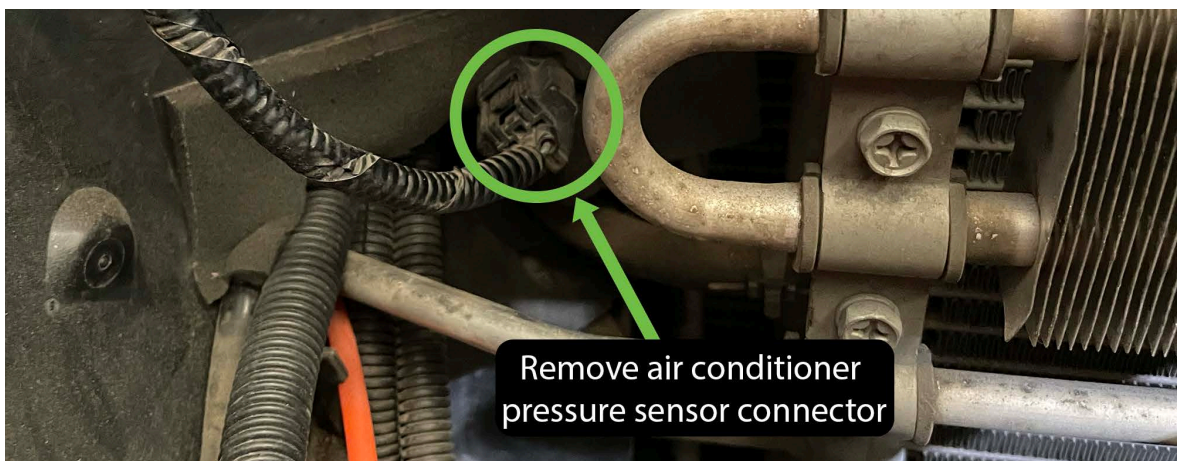
- 2.5. Pull forward gently on the left and right sides of the grill as they are held in place with clips.



- 2.6. Remove the grill by gently lifting up on the 6 x clips at the bottom of the grill.



- 2.7. Unplug the air con pressure sensor cable and move it out of the way. Remove the foam from around the pressure sensor as well to give you a bit more space.



- 2.8. Remove the bolt from the bottom of the ambient temperature sensor bracket and move the bracket out of the way. This is located on the front of the lower radiator support, on the side opposite from the transmission cooler fittings.
- 2.9. Remove the lower cooler hose from the transmission cooler. This is located about half way down the side of the cooler, near the air con pressure sensor. Squeeze the spring clamp with a pair of pliers and push it along the hose until it has cleared the barb on the cooler fitting. Make sure to leave the clamp in an orientation that makes it easy to grab when reassembling. Be prepared for transmission fluid to leak from the fitting once the hose is removed.

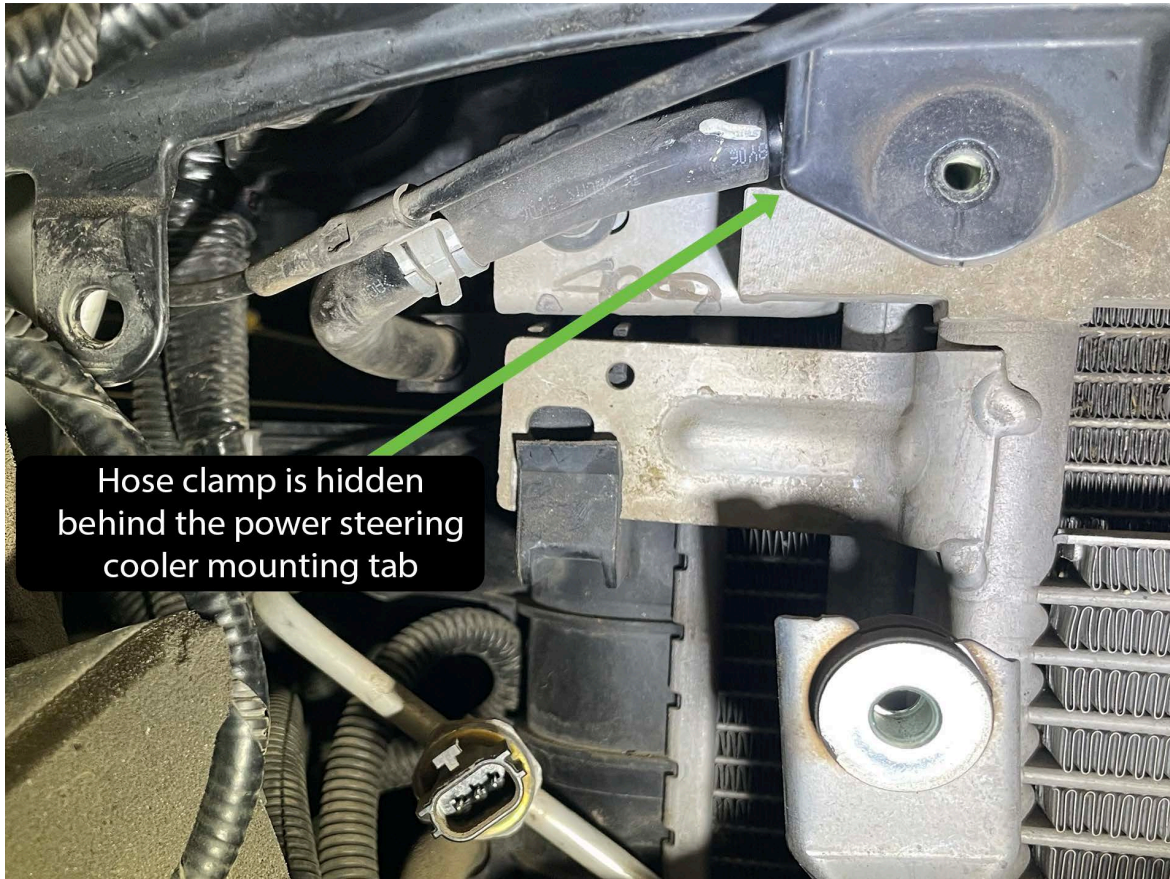


- 2.10. Remove the 2x bolts holding in the power steering cooler.

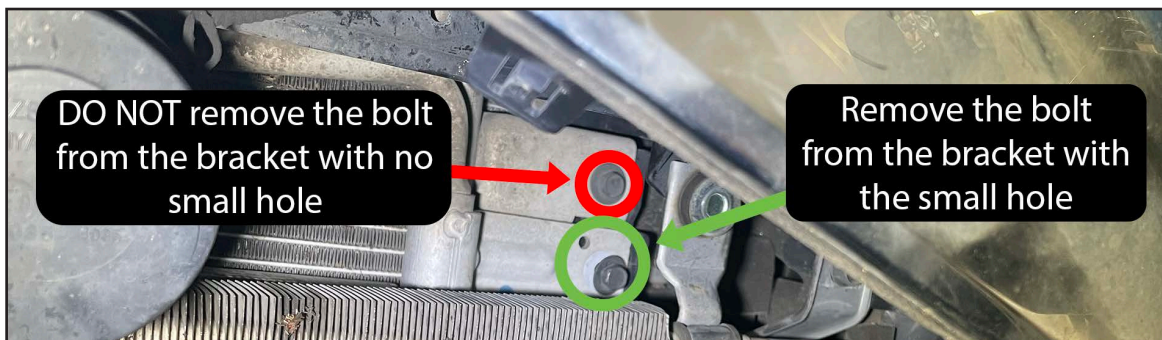


- 2.11. With the power steering cooler still connected to its flexible hoses, lower the power steering cooler down away from upper radiator support. Be aware that the flexible section of the hoses aren't very long, and the fittings that the hoses connect to have very thin walls and are easy to bend or damage.

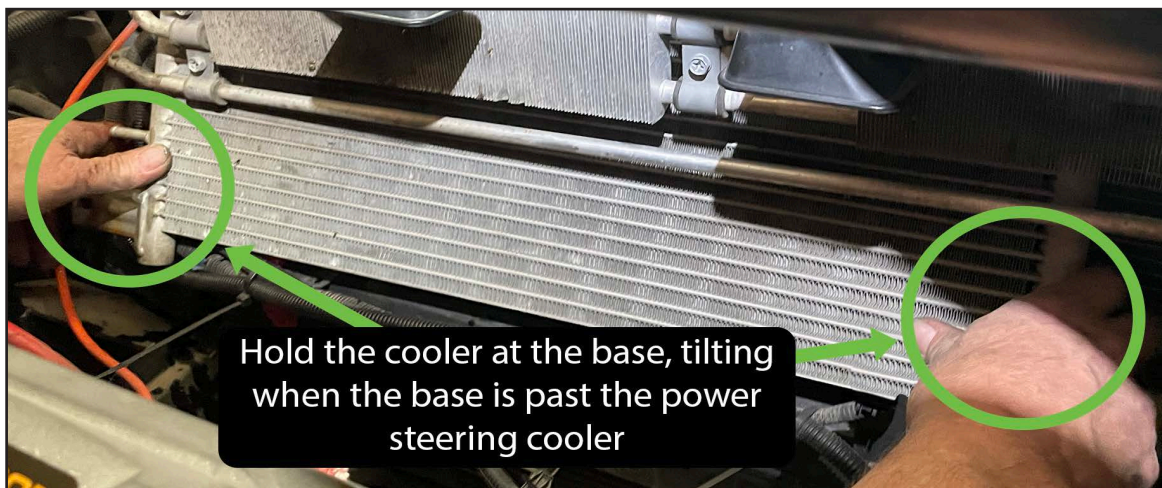
- 2.12. Remove the upper cooler hose from the transmission cooler. This is located on the same side as the lower cooler hose, but at the top of the cooler. Squeeze the spring clamp with a pair of pliers and push it along the hose until it has cleared the barb on the cooler fitting. Make sure to leave the clamp in an orientation that makes it easy to grab when reassembling.



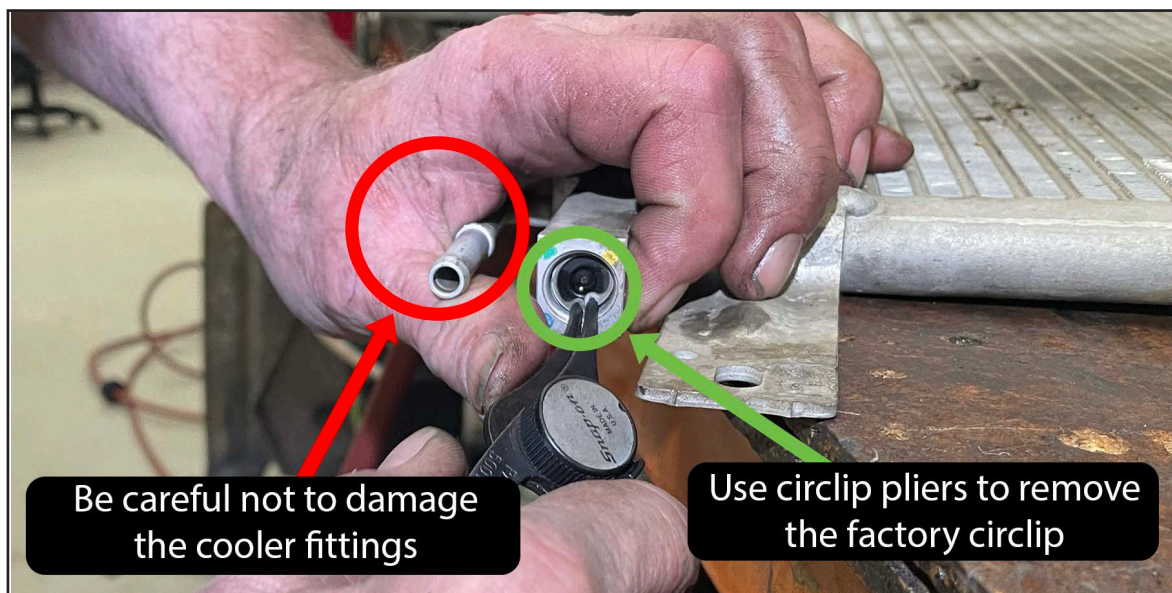
- 2.13. Remove the 1x bolt holding the upper transmission cooler mounting tab to the vehicle. This bolt was previously hidden by the power steering cooler and is located above the air con receiver dryer. Remove the bolt from the bracket that has the small hole in it, DO NOT remove the bolt from the bracket that doesn't have a small hole.



- 2.14. Remove the transmission cooler. The cooler is held in by 3 saddles, two on the side with the cooler hoses and one on the lower bracket on the other side. Holding the cooler at the bottom, lift the cooler straight up towards the upper radiator support until the brackets clear the saddles. Once clear, gently pull the cooler towards the front of the car until the saddles are no longer under the mounting brackets. Lower the cooler towards the lower radiator support, pulling forwards at the base of the cooler to clear the lower radiator support and lowering out the bottom. Be careful that the top of the cooler doesn't scrape against the power steering cooler or the lower radiator support.



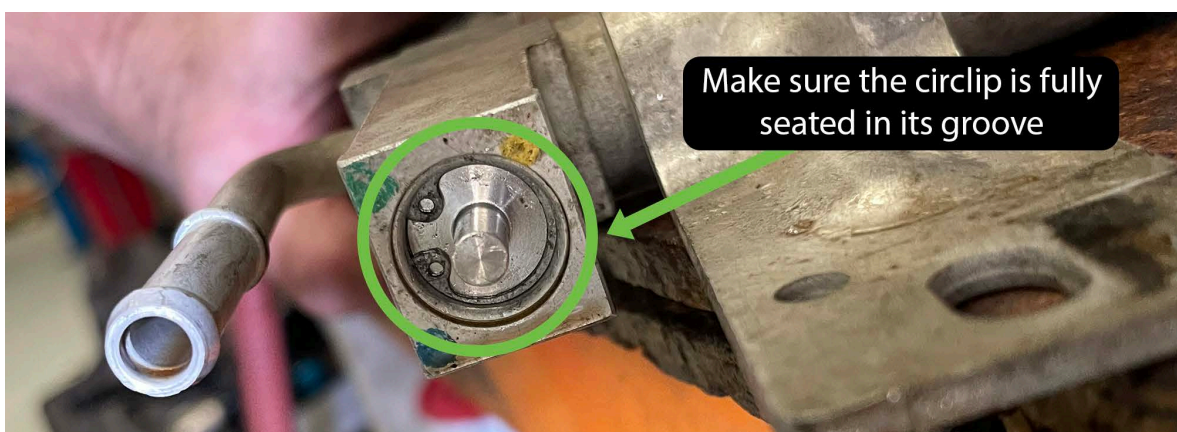
- 2.15. Lay the cooler down gently on a clean, flat bench, making sure there is nothing on the surface that could damage the fin array and that the cooler is supported across its whole width.
- 2.16. Remove the circlip holding in the factory thermostat. This is located in the metal block on the top of the cooler, near the upper hose fitting.



- 2.17. Remove the plastic seal from the thermostat housing. This is a tight fit, so drill a small 3mm pilot hole into the plastic cap and then thread the supplied screw in. Pull on the head of the screw to remove the cap. Be aware that the thermostat is spring loaded behind this cap and may be forced out after removal, and there will also likely be transmission fluid leaking from this cavity once the seal is removed.

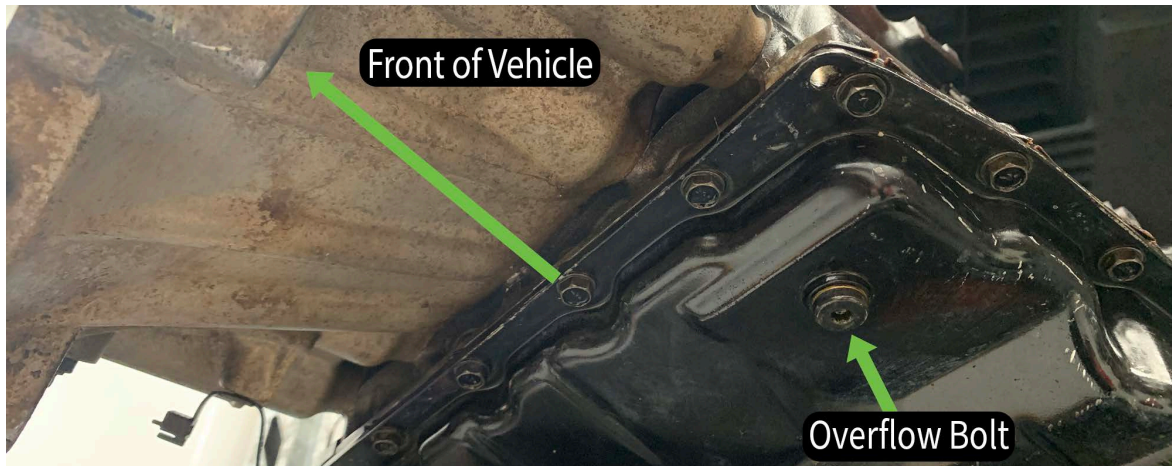


- 2.18. With the cap removed, extract the thermostat and spring if they aren't already out of the housing. The bypass valve does not require either of these parts to be reinstalled.
- 2.19. Using some transmission fluid as lubricant, insert the bypass valve into the thermostat cavity. Make sure it bottoms out in the housing and that you can see the circlip groove in front of the bypass valve.
- 2.20. Using circlip pliers insert the replacement circlip, ensuring it's fully seated in its groove.

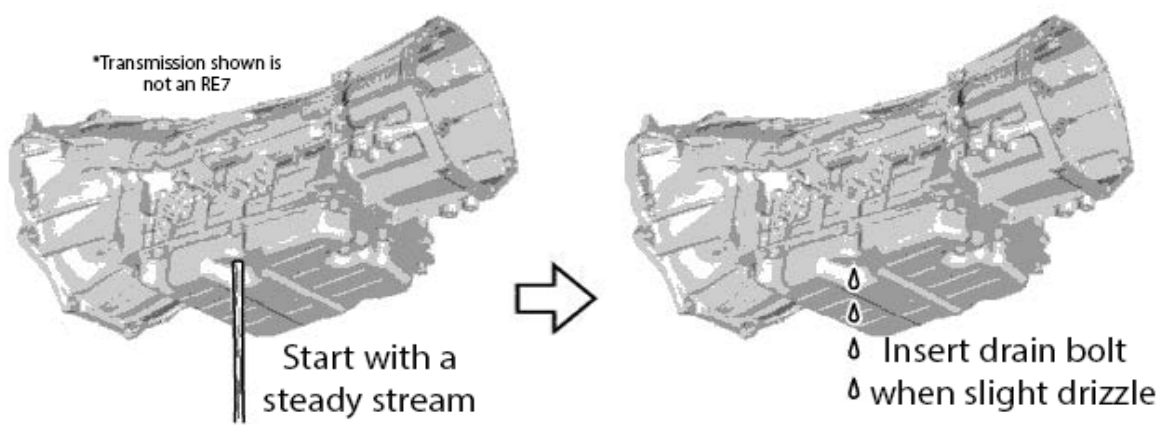


- 2.21. The transmission cooler can now be reinstalled into the car, following the removal steps in reverse. **Be careful when refitting the cooler hoses to the cooler as the factory fittings are very soft and easy to damage.**

- 2.22. With the transmission in park, start the vehicle and verify there are no fluid leaks coming from any of the fittings, or from the bypass valve housing. If no leaks are detected refit the front grill by pushing the lower clips in first, then the left and right clips, and finally inserting the 8 plastic clips on top of the grill.
- 2.23. Before driving the vehicle it is important to confirm the correct fluid level. The Nissan RE7 transmission uses an overflow tube to gauge the fluid level which is located at the front of the transmission pan and is accessed via the 5mm hex bolt.

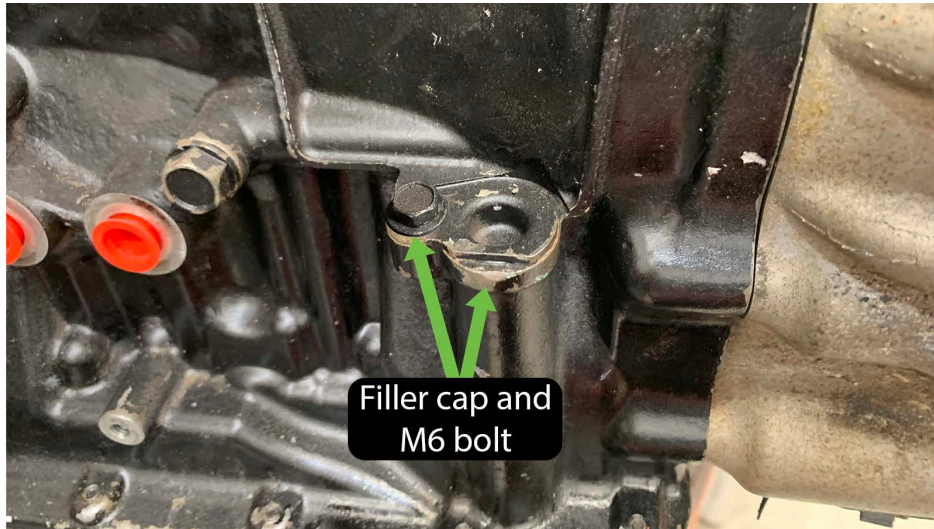


- 2.24. Once the engine has been running for at least 1 minute, move a drain tin into place under the overflow outlet and then remove the 5mm hex bolt.
- 2.25. If the transmission fluid starts to flow out of the overflow tube in a light but steady stream (as indicated in the image below), then there is sufficient fluid inside the transmission. Wait until it slows to a dribble and re-install the overflow bolt. You can now skip to step 2.29.



- 2.26. If there is no fluid flowing/dribbling from the overflow OR there was a small amount of fluid to start with but then stops, this indicates you need to add transmission fluid.

- 2.27. To add fluid, remove the M6 bolt holding a cap over the fill hole just above the front of the pan on the drivers side. Add fluid until there is a light but steady dribble out of the overflow tube. If you add too much and you get a stream of fluid, wait until it slows to a dribble.



- 2.28. Retighten the overflow tube 5mm hex bolt, and reinstall the fill cap and M6 bolt. Tighten both.
- 2.29. Take vehicle for a road test to get the transmission fluid up to the correct operating temperature. Try to cover as many different conditions as possible and also ensure that you have driven in every gear. Road testing should last at least 10 minutes.
- 2.30. After road test, recheck transmission fluid level is correct. Move a drain tin into place under the overflow outlet and then remove the 5mm hex bolt.
- 2.31. If there is no fluid flowing/dribbling from the overflow OR there was a small amount of fluid to start with but then stops, you have most likely cleared some air pockets and will need to add more transmission fluid. Return to step 2.27.
- 2.32. If the transmission fluid starts to flow out of the overflow tube in a light but steady stream then there is sufficient fluid inside the transmission. Wait until it slows to a dribble and re-install the overflow bolt. Re-install the fill cap and bolt if these were removed during this process.
- 2.33. Finally, check again for any leaks from any of the fittings. If you do find a leak you may need to tighten or adjust the clamps.
- 2.34. Cleanup any spilled fluid and refit any other items removed to perform the installation.

This completes the installation of the
Transmission Cooling System Bypass
Valve Replacement to suit:
Nissan Patrol Y62 with RE7 7 Speed
Automatic Transmission

Please remember ALL automatic transmission have a service interval of 2 years or 40,000km to improve the longevity of the transmission.

Please Provide us with Feedback

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