

COOLMASTER *OffRoad*

External Transmission Oil Cooler Kit Suitable for:



**Toyota Prado 120 Series with
4 and 5 Speed Automatic Transmissions**

**WITH 1KD-FTV 3.0L D4D TURBO DIESEL &
1GR-FE 4.0L V6 PETROL ENGINE**

*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:



1 x Cooler Bracket with
Cooler Mounted



4 x 8-16mm Stainless
Steel Screw Clamps



2.5m x 10mm Cooler
Line Hose with Conduit



1 x M6x20mm
SEMS Bolts



1 x Air Con Pipe
Support Bracket



5 x 300mm Cable Ties



1 x Aircon Pipe Plastic
Holding Clip

Expected Installation Time: ~ 2 Hours

1. **Summary of Installation - Experienced Fitters**

- Ensure you have enough transmission oil to top up your transmission.
- Remove the plastic radiator cover and front lower bash plates / covers (if fitted).
- Disconnect the "hot line" rubber hose that brings hot transmission fluid into the top right of the radiator. Follow the hose back to where it connects to a metal pipe running from the transmission then disconnect the hose from this metal pipe.
- Remove protective rubber socks from your new transmission cooler fittings.
- Cut the provided cooler line in half. Fit one half of the line to each side of the cooler - FIT IT DRY - DO NOT use lubricant.
- Clamp the cooler lines to the cooler unit fittings using the provided screw clamps.
- Slide the cooler bracket and hoses down in front of the radiator.
- Unbolt/unclip the following from the vehicle: ambient temperature sensor, air conditioner pipe bracket, 2 x horns, the lower bolt that holds the center radiator support
- Mount the cooler and remount the 2 x horns by attaching them to the original horn mounting bolt holes. The horns must be mounted facing the reverse direction (toward the back of the vehicle). Do not fully tighten the bolts at this point.
- Locate the bolt hole at the bottom left of the cooler. Bolt the cooler to your vehicle using this hole. Do not fully tighten the bolts at this point.
- A retainer bracket has been included in your kit to retain the air conditioning pipe. To attach this bracket, locate the last remaining bolt hole on the bottom of the cooler bracket. Pass the bolt through the round hole in the retainer bracket then through the cooler bracket and tighten the bolt into the bolt hole.
- Clip the air conditioning pipe to the retainer bracket using the provided white plastic clip.
- Tighten all cooler bracket bolts.
- Clip the ambient air temperature sensor to the small oval hole on the top of the cooler.
- The two hoses running from the bottom of the cooler can now be connected. One should be routed to the top right of the radiator where the original OEM transmission "hot line" was attached. The other should be routed to the metal pipe coming from the transmission where the other end of the OEM hot line was attached.
- Trim hoses to required lengths and attach using the supplied stainless steel hose clamps.
- Use supplied cable ties to secure hoses as required.
- Top up transmission fluid using appropriate fluid.
- Road test vehicle then re-inspect cooler and fittings for leaks. Tighten if necessary.

2. Detailed Installation Instructions

Before Commencing work, please ensure that you have sufficient transmission fluid to top up at the end of the job.

- 2.1. Ensure the car is fully switched off. It is recommended that the vehicle is cold prior to installation.
- 2.2. Open bonnet.
- 2.3. Remove the plastic shroud covering the radiator by removing the clips.



- 2.4. Remove any lower bash plates / covers (if fitted) below the front of the vehicle.
- 2.5. Remove the cooler and bracket from the supplied kit as well as the cooler line and hose clamps.
- 2.6. Remove cooler rubber protectors as shown.



- 2.7. Cut the supplied cooler line in half. Undo the hose clamps enough to loosely fit over the supplied cooler line.
- 2.8. Slide the first half of the cooler line onto either fitting on the cooler.



2.9. Tighten the hose clamp.



2.10. Repeat the previous steps to attach the second half of the cooler line to the other side of the cooler.

2.11. Unbolt/unclip the following from the vehicle and retain all bolts:

- Ambient temperature sensor
- Air conditioner pipe bracket (this will be secured later)
- Both of the horns
- The lower bolt that holds the radiator support

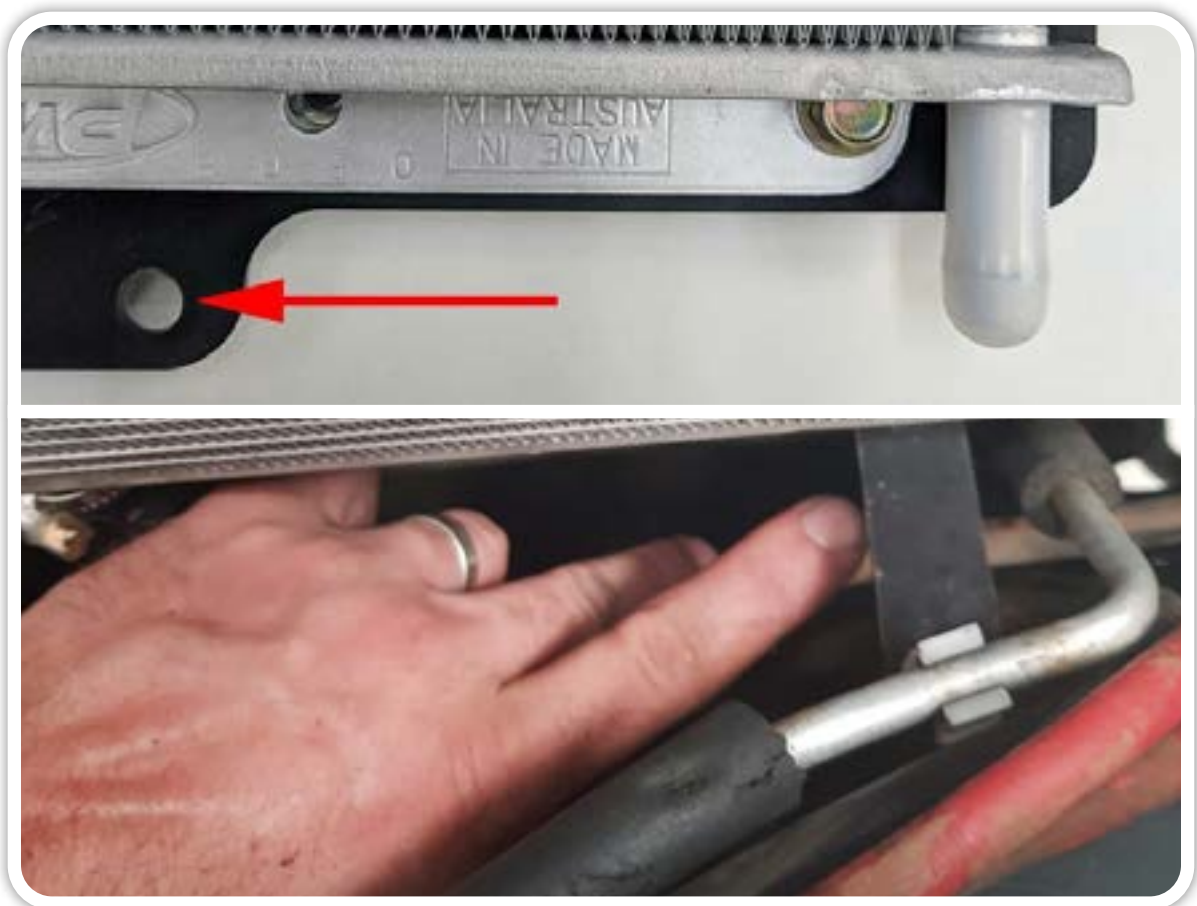
2.12. The cooler can now be mounted to the radiator support panel. Using the two OEM bolts that held the horns in place, bolt the two top cooler mounts with the horns positioned between the cooler bracket and the radiator support panel. You will need to face the horns backwards to fit. Leave bolts finger tight for now.



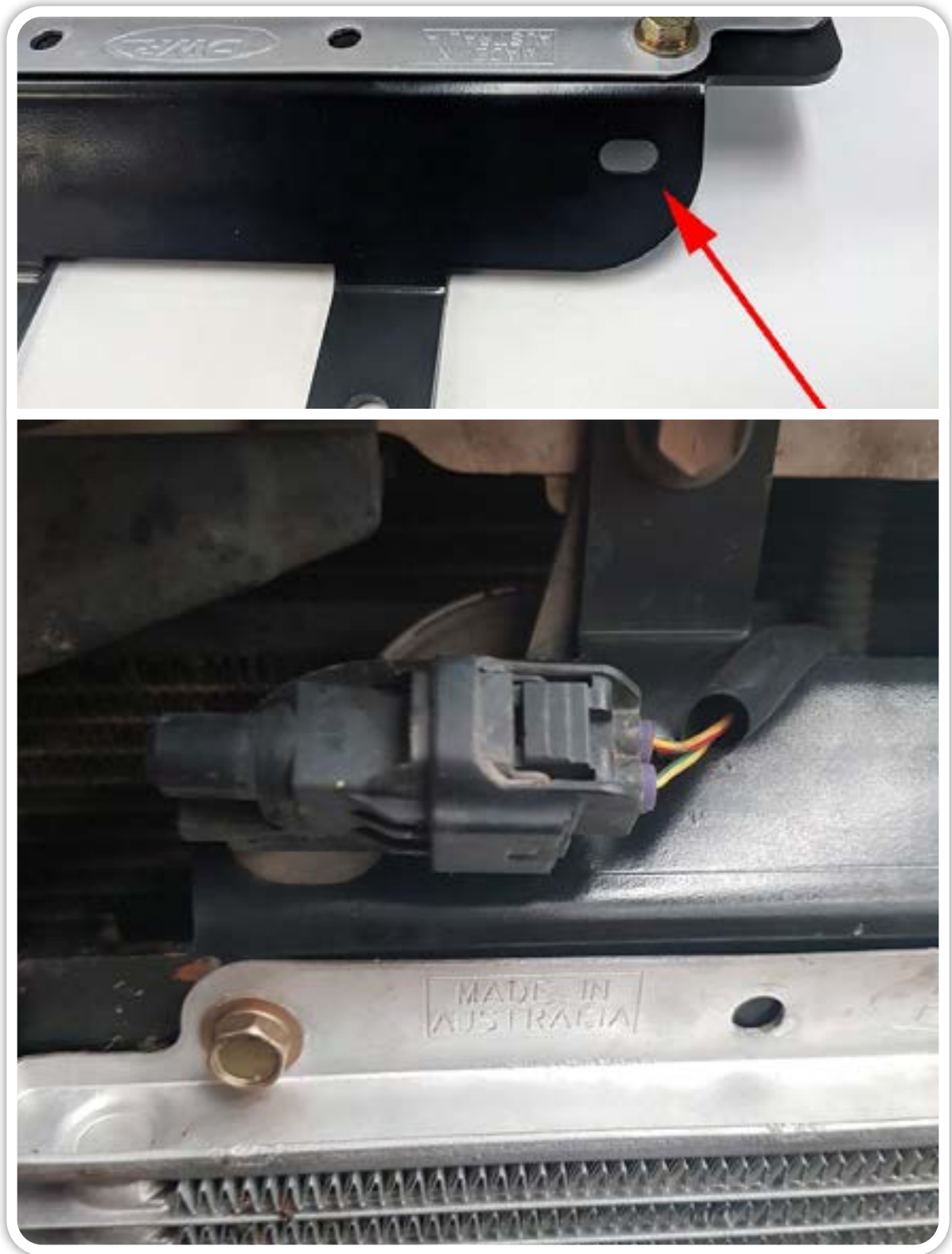
- 2.13.** Use the OEM bolt at the bottom of the centre radiator support to secure the bottom of the cooler bracket. Leave finger tight for now.



- 2.14.** Use the supplied support bracket, plastic clip and M6x20 SEMS bolt to hold the air conditioning pipe in place. Bolt the bracket through the remaining hole in the bottom of the cooler bracket into the lower radiator support panel.



- 2.15.** Now fully tighten all bolts fixing the cooler to the vehicle.
- 2.16.** Clip the ambient air temperature sensor to the small oval hole on the top of the bracket as indicated below by the red arrow.



- 2.17.** Locate the “hot line” rubber hose that brings hot transmission fluid into the top drivers side of the radiator. Disconnect this hose from the radiator. Follow the hose back to where it connects to a metal pipe coming from the transmission and disconnect the hose from this fitting. Discard the hose.



- 2.18.** The two hoses running from the bottom of the cooler can now be connected to the fittings now open from removing the OEM hose. Route one line to the drivers side top of the radiator. The other line will route to the steel line under the engine the comes from the transmission.
When routing the cooler line hose, ensure the hose does not bend tightly around any corners that may result in the hose kinking. Especially when hot.

NOTE: IT DOES NOT MATTER WHICH LINE ON THE COOLER GOES WHERE AS THE COOLER IS BIDIRECTIONAL.

- 2.19.** Cut each cooler line hose to the correct length, slide a supplied screw clamp onto the hose then install onto the open fitting. Tighten each screw clamp.
- 2.20.** Cut the protective conduit up to the screw clamps.
- 2.21.** Use supplied cable ties to secure hoses as required.
- 2.22.** Check all bolts, screw clamps and connections are tight and secure.

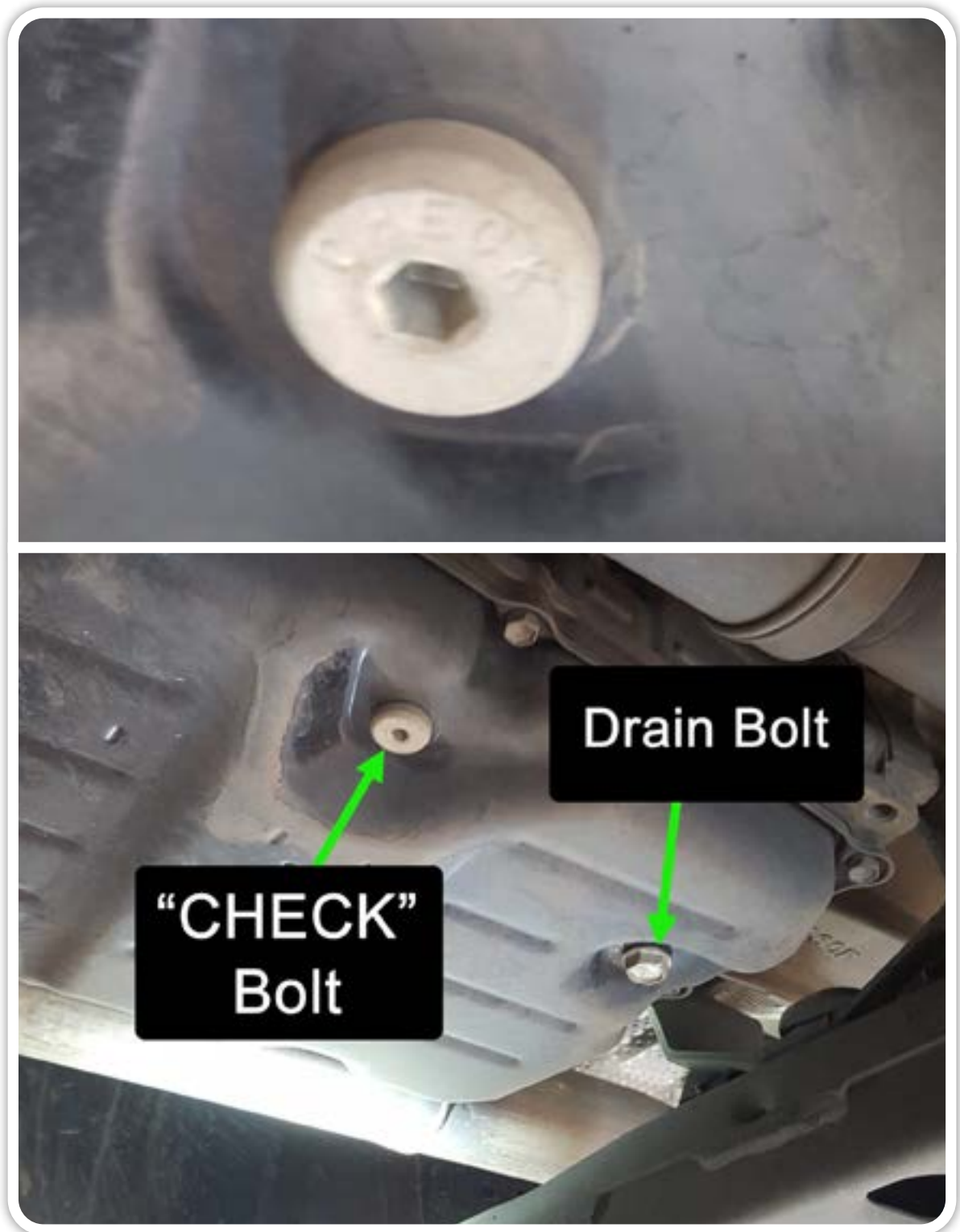
3. Fluid Top Up Instructions for A750 5 Speed Auto

- 3.1. *Ensure the car is fully switched off. It is recommended that the vehicle is cold prior to installation.*
- 3.2. *The A750 5 Speed Auto is one of the first transmissions that transitioned to a nondipstick configuration. Quite often these 'dipstick-less' transmissions were called 'Sealed for Life' transmissions. This is a misnomer and in fact they are not sealed. The transmission fluid in these transmission can be checked just like any other transmission, they just go about it in a different way.*
- 3.3. *If your A750 5 Speed Auto is one that has a dip-stick, then please refer to the next chapter covering the A340 4 Speed and A750 5 Speed Dipstick transmissions.*
- 3.4. *Start the engine. While the car is running locate and remove the 24mm fill plug on the driver side of the transmission, located in the extension housing at the rear of the transmission. It will be stamped with WS which stands for World Standard. This is the fluid specification used for Aisin Transmissions.*



- 3.5.** After the engine has been running for at least 30 seconds, locate and remove the 5mm Allen key bolt stamped "CHECK". This bolt is located in the sump of the transmission.

NOTE: DO NOT REMOVE THE 14MM BOLT LOCATED NEARBY AS THIS IS THE TRANSMISSION DRAIN PLUG.



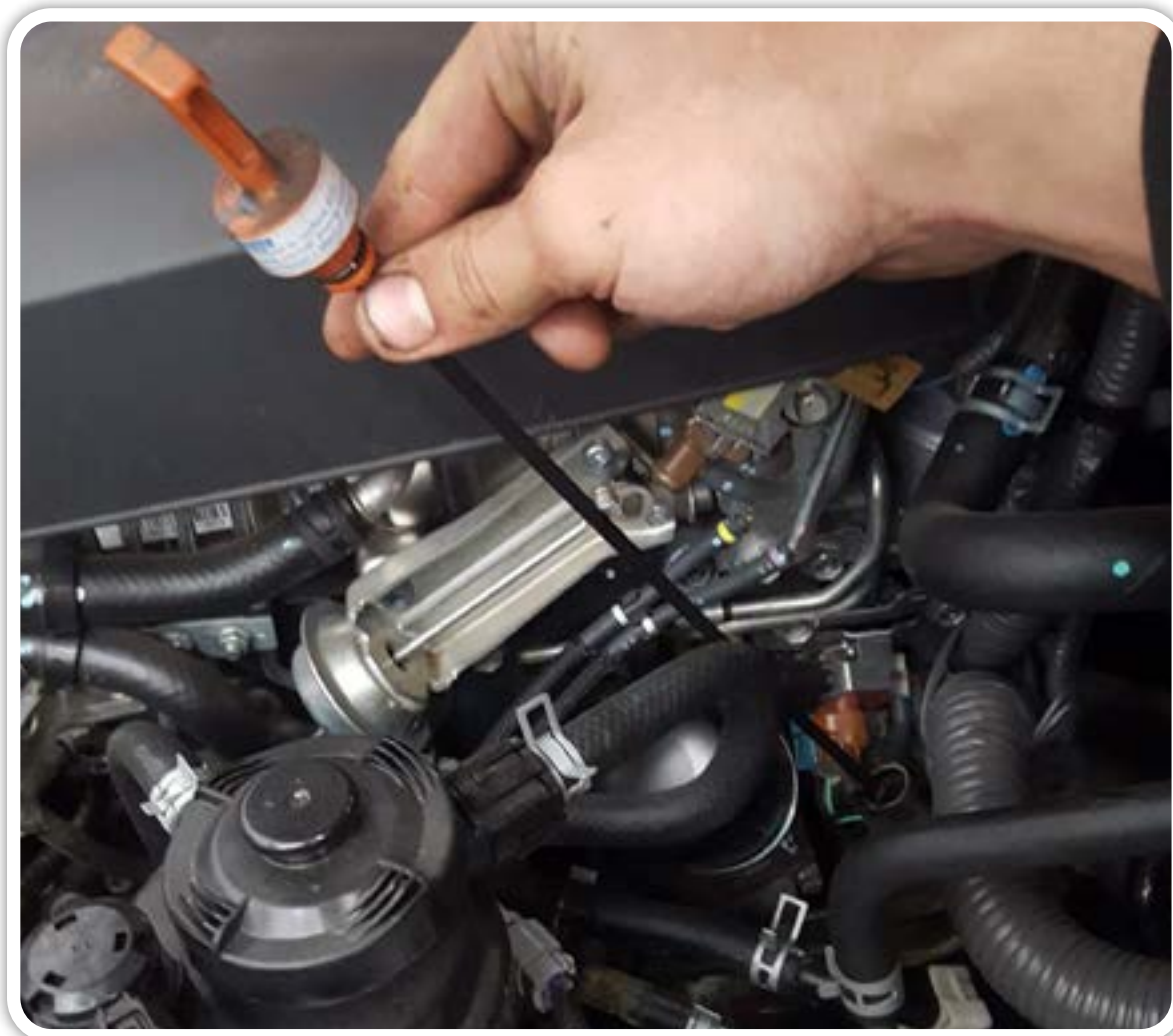
- 3.6.** *If no fluid comes out of the CHECK tube, then this indicates the transmission fluid is low and needs to be topped up. While the amount of fluid used by the new cooler assembly can be measured, there is also the possibility the transmission fluid was low prior to fitting the cooler. Therefore we recommend using this guide to make sure your transmission fluid level is correct.*



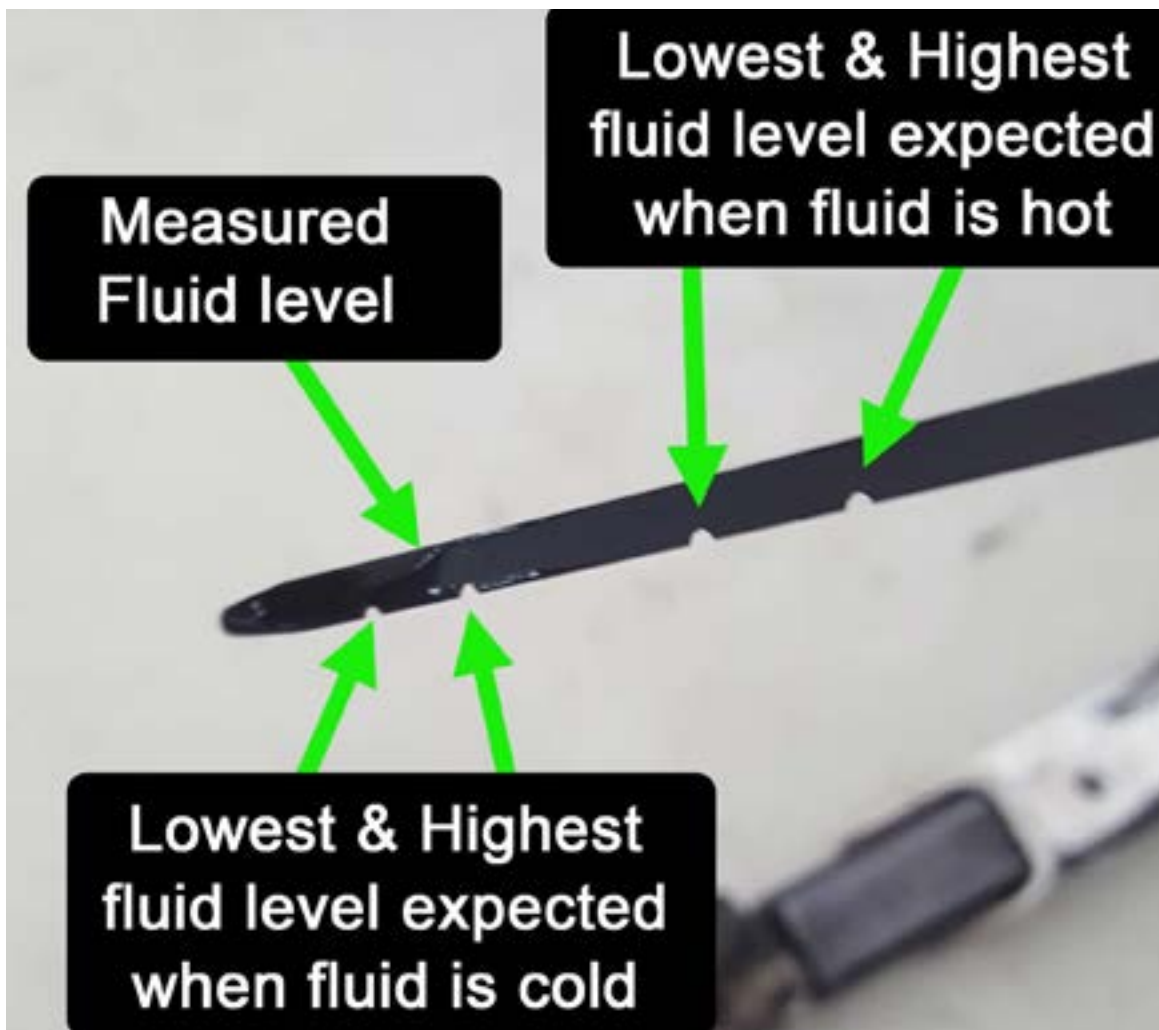
- 3.7.** *Carefully top up the transmission fluid through the fill plug on the side of the transmission until the fluid starts to dribble/flow out of the CHECK tube.*
- 3.8.** *Refit the CHECK bolt before the fluid has completely stopped.*
- 3.9.** *Re-install the Fluid Fill bolt stamped WS into the port on the side of the transmission.*
- 3.10.** *Clean up all spilt fluid on the vehicle and around the transmission. Also visually check the cooler line fittings for any leaks.*
- 3.11.** *Skip to Test Drive Chapter*

4. Fluid Top Up Instructions for A340 4 Speed Auto and A750 5 Speed Auto with Dipstick

- 4.1. Before checking the transmission fluid, the vehicle needs to be on a flat level surface otherwise the fluid level indication will not show the correct level.
- 4.2. Start the engine. While the car is running grab a clean rag suitable for wiping the dipstick off when ready.
- 4.3. After the engine has been running for at least 30 seconds, locate the filler tube and dipstick in the engine bay and remove the dipstick.
- 4.4. Wipe any fluid off the dipstick and then re-insert into the filler tube for 10 seconds.
- 4.5. Remove the dipstick and check fluid level on the dipstick.



- 4.6.** Check the dipstick level by comparing the measured fluid level on the dipstick with the notches on the edge of the dipstick. You will note that our measured fluid is correct if the fluid is cold. If the fluid is hot (50° and above) then our fluid level would be considered low and we would need to add more fluid.



- 4.7.** If you determine your fluid level is low, top up the transmission fluid via the filler tube where the dip stick was removed.
- 4.8.** We recommend adding 1/2 liter of transmission fluid, then let the vehicle run for 60 seconds before inserting dipstick to allow the fluid to drain down into the pan.
- 4.9.** Clean the fluid off the dipstick and then insert the dipstick into the filler tube again for 10 seconds. Repeat until the fluid level reaches the required level indicator.
- 4.10.** Return the dipstick to the filler tube and lock into place if applicable.
- 4.11.** Clean any spilt transmission fluid on the vehicle or the ground, and visually check the cooler line connections for leaks.

5. Road Test and Final Steps:

- 5.1. *When taking the vehicle for road test, try to drive in all types of conditions such as coasting, heavy acceleration, engine braking.*
- 5.2. *While test driving, it is best to monitor the transmission fluid for any anomalies such as higher than expect fluid temperatures. This could indicate a blockage or a restriction in the cooler lines.*
- 5.3. *After road test, visually check for leaks at the cooler connections. Re-tighten any fittings as required.*
- 5.4. *With the engine still running, recheck transmission fluid is full. Top up levels as per previous instructions.*

PLEASE NOTE: *THE TRANSMISSION FLUID MAY BE QUITE HOT.*

- 5.5. *If fluid level needs to be topped up, repeat road test and check fluid level again.*
- 5.6. *Check again for any spilt transmission fluid on the vehicle and clean.*
- 5.7. *If bash plates were removed reinstall them in reverse order.*

***This completes the installation of the
Dual External Transmission Oil Cooler Kit to Suit
Toyota Prado 120 Series with 4 and 5 Speed Automatic Transmissions***

***PLEASE REMEMBER ALL AUTOMATIC TRANSMISSIONS HAVE A SERVICE INTERVAL OF
2 YEARS OR 40,000KM TO IMPROVE THE LONGEVITY OF THE TRANSMISSION.***