Workshop Manual

Manual to Automatic Conversion Kit
To suit:

Toyota 70 Series V8 Land Cruiser
using Toyota AB60 6 Speed Tip-Tronic Auto

Instuctions Version: April 2023

Wholesale
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WARNING: PLEASE READ FIRST

No Liability is assumed for damages resulting in the use of the information contained herein.

While all care is taken to ensure that these instructions are as complete and as detailed as possible, it is expected that the fitter has a reasonable amount of experience in custom fitment work. Wholesale Automatic Transmissions accepts no responsibility for incorrect fitment.

If there are elements of the conversion process that you do not understand please read through the remainder of the installation instructions as many of the issues we have encountered have been added to these instructions.

If you feel that there is something that isn't covered in this instructions then please contact Wholesale Automatic Transmissions.

1. COMPUSHIFT Calibration File Request

1.1. A Calibration file from WAT must be loaded prior to test driving. The software in the COMPUSHIFT is capable of running the AB60 transmission however the calibration file is required in order for the COMPUSHIFT to control the transmission correctly. Without the calibration file, the transmission may have shift problems, or worst still, it could cause transmission failure. YOU MUST receive and load the Calibration File from Wholesale Automatics prior to driving the vehicle.

1.2. To request the calibration file, go to the following link or use your smart device camera to read the QR code.

automatictransmission.com.au/vdj-ab60-calrequest/

1.3. You will then receive an email from us with a Calibration File attached that you will use at a later point in the install process. We recommend filling in this form now prior to completing the install in-case there are any delays in WAT getting the calibration file to you.

1.4. On the back of the COMPUSHIFT Pro module is the serial number in the form of CS3-0xxxx. You will need this number for requesting the Calibration file. Until the calibration file is loaded, the transmission will not operate correctly.

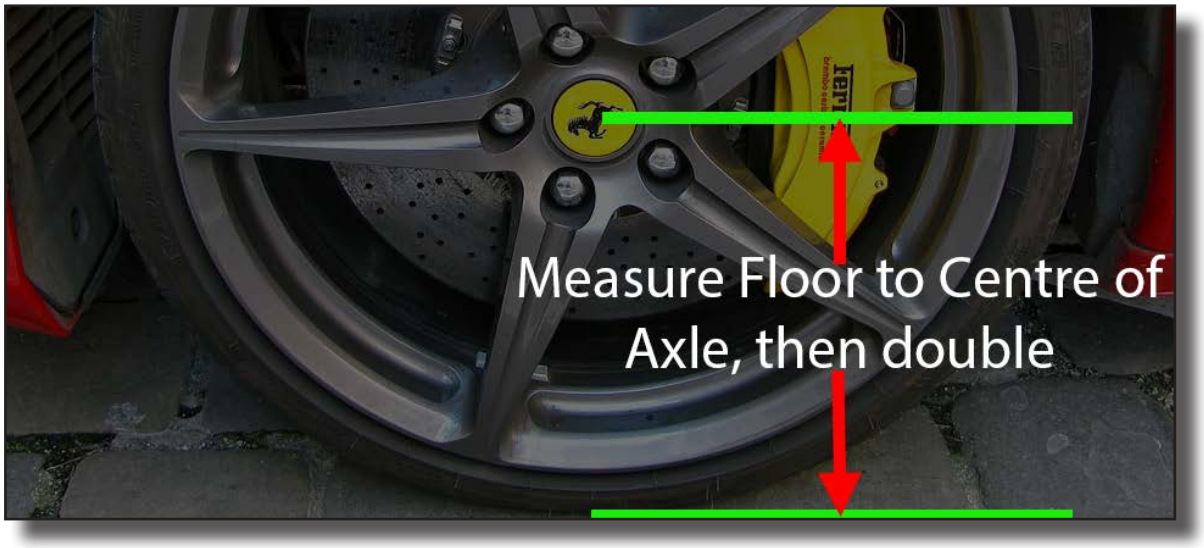
1.5. Just a few notes around filling in the form:

1.5.1 Final Drive Ratio

Final Drive Ratio is also known as Diff Ratio. Toyota 79 Series Standard is 3.909, otherwise enter your custom ratio here. For portal axles, multiply the diff ratio by the portal ratio. eg. 3.909 x 16% = 4.53.

1.5.2 Rolling Tire Diameter

Specifically, with the vehicle on the ground, the rolling tire diameter is the measurement from the ground to the centre of the axle, then double that measurement. Please don't calculate it from the tire size (eg 265/75R16) as this will give you the incorrect measurement.



1.5.3 Gross Vehicle Mass

You can guess this to begin with, however you will most likely need to get a weighbridge certificate for engineering so you can update this later if needed.

1.5.4 Modifications

This is where you can inform us of all the aftermarket modifications that are significant and could affect the transmission operation. The modifications we want to know about are items such as:

- Portal Axles
- Engine Performance Upgrades and Dyno figures
- Turbo and Injector Upgrades
- Or any other non-standard modification to driveline, engine or chassis.

2. Common issues to Consider Prior to Fitting

2.1. Known State of the Vehicle

Before doing any work to the vehicle, we require the vehicle to be test driven to check for any existing issues, vibrations, clunks, problems. This is vitally important to know the current state of the vehicle prior to completing the conversion. If you experience a vibration or issue after the conversion, you will know if the issue was existing or if the conversion has introduced it.

2.2. Vibration at 1500rpm in all gears

This test is important while it is still a manual especially if the vehicle has a piggy back chip or a flashtune installed. To simulate the issue, you need to put the vehicle into 5th gear and at around 1300rpm accelerate. If you experience a slight vibration as you accelerate through 1450rpm-1500rpm then note this on your job tracking card and mention it to the customer. We recommend that the customer returns to the tuning company and ask them to adjust their tuning to suit the automatic transmission as it operates at a much lower RPM than the manual gearbox.

2.3. Cruise Control already fitted to vehicle

With vehicles that have an aftermarket cruise control already fitted (this excludes DPF models that are supplied with a replacement Cruise Control system) it is VITALLY important that the TPS pickup wires for the COMPUSHIFT are wired in the correct location. Wiring to the wrong location WILL cause transmission failure and will not be covered under warranty. Please review the wiring instruction pages carefully to ensure correct fitment. And finally confirm on your test driving that the TRQ number on the COMPUSHIFT display moves up and down when the cruise control is SET.

2.4. Calibration file from WAT must be loaded prior to test driving

The software in the COMPUSHIFT is capable of running the AB60 transmission correctly however if the calibration used is not correct, this can cause shift problems. Or worst still, it could cause transmission failure.

2.5. Security Code must be set prior to delivering vehicle to customer

If you are a workshop and you are fitting this for a customer, once you have completed the conversion, done all test driving and are happy with the final result. You must set the Security Code on the COMPUSHIFT to ensure the settings can't be accidently reset by anyone. We will cover this at the end of these instructions.

2.6. Flash Tuning the Factory Engine ECU

Getting a Flash Tune of the Engine ECU is becoming common place and can provide great improvements to the engine output. However, with the 70 series ECU there is one engine map that must NOT be modified as part of the Flash Tune. This map is used when the Manual gearbox is positioned in first gear as it reduces overall torque of the motor most likely to prevent damage to the drive train.

We use this map and trigger for the purpose of a pretend or pseudo torque management system for the automatic transmission gear changes. This type of management is found in all modern automatic vehicles to improve longevity of the transmission.

If the vehicle has been Flash Tuned already, please contact the company responsible for the Tune and check if they have removed the torque reduction in this map. If they have, you need to reinstate the map prior to fitting the conversion. Driving the vehicle without this torque management could, and has resulted in transmission failure. This is not covered under warranty.

If you are planning on Flash Tuning the vehicle, please check with the tuning company if they are familiar with the First Gear Position Map in the engine ECU prior to having the work done. If they do not understand or are not willing to understand, please consider an alternative tuning company.

2.7. 79 Series Single Cab Non-DPF models

When fitting the shifter cable, it can be quite a tight fit in between a cross beam and the fuel tank. You might find it beneficial to drop the front of the fuel tank to fit the shifter cable and/or drilling the hole for the shifter cable.

To be prepared, we would suggest draining the fuel tank to minimum level to make it easier to maneuver around.

2.8. Throttle Controllers/Booster

Please note that throttle controllers can have an adverse effect on the driveability given the COMPUSHIFT relies on the throttle position. If errors are encountered please disconnect the controller as a first resolution.

3. For Regular Installers - Updates/Changes

The following list outlines changes that may have occurred since you last installed this kit. Please review these changes prior to fitting the conversion.

3.1. Change to Harness Conduit.

The previous hard plastic split conduit has been replaced with a fabric system called Tekflex. Tekflex provides greater flexibility, improved resistance to wire damage, as well as reducing the outer diameter of the harness.

3.2. Neutral Start Relay Removal.

We have been able to improve the solution for inhibiting engine starting when the transmission is in gear. This results in the removal of the Neutral Start Relay.

3.3. Calibration Request Form

We have provided an online form for all calibration requests. This form ensures that the relevant information that we need is captured. Please fill in all the details to the best of your ability to assist us.

3.4. Software Updates

We have been working hard to progress the software for improved user experience. Some of these updates do affect the operation of the vehicle however there are also updates in the background that aren't so obvious.

3.4.1 Improved Torque Converter Application

We have made improvements to the application of the Torque Converter clutch to provide a smoother engagement feel

3.4.2 Upgraded transmission over temperature protection

We have now implemented an error notification screen that flashes the entire display to hopefully bring your attention to the transmission overheating. If this screen shows, use the COMPUSHIFT Setup App to confirm the error and to document the DTC's by tapping on the **!** in the top right of the app screen.

3.4.3 Advanced Sports Mode

With our new Advanced Sports Mode, the selected gear will act as an upshift limiter, but still allowing the transmission to downshift when you come to a stop.

This was a result of feedback from customers who do a lot of towing and loved the manual control of the Sports mode but often forget to downshift when slowing down. This change will now hold the transmission from upshifting past the selected gear.

If you select D4, the transmission will up shift and downshift through 1st to 4th normally as though it is in Drive, but will not upshift to 5th or 6th gear.

3.4.4 Change to Engine Type used

We have added a new Engine Type specific for the Toyota 70 Series V8 engines labelled “Toyota 1VD-FTV Turbo Diesel”. This engine type pre-sets the TPS (Throttle Position Sensor) voltages eliminating the need for TPS Calibration. It also hides various settings that we have seen accidentally modified causing shift issues.

4. Interior Preparation

Before starting the conversion please read all instructions and take note of any NON standard or aftermarket accessories as the removal and refit of these accessories is NOT covered in this guide.

4.1. Interior Strip Out

4.1.1 Disconnect all power sources from the vehicle including Aux batteries and Solar panels

4.1.2 Remove all seats and seat belt buckles and centre consoles from vehicle. Take care if seats are fitted with seat belt warning wiring as this will need to be disconnected before removing seats

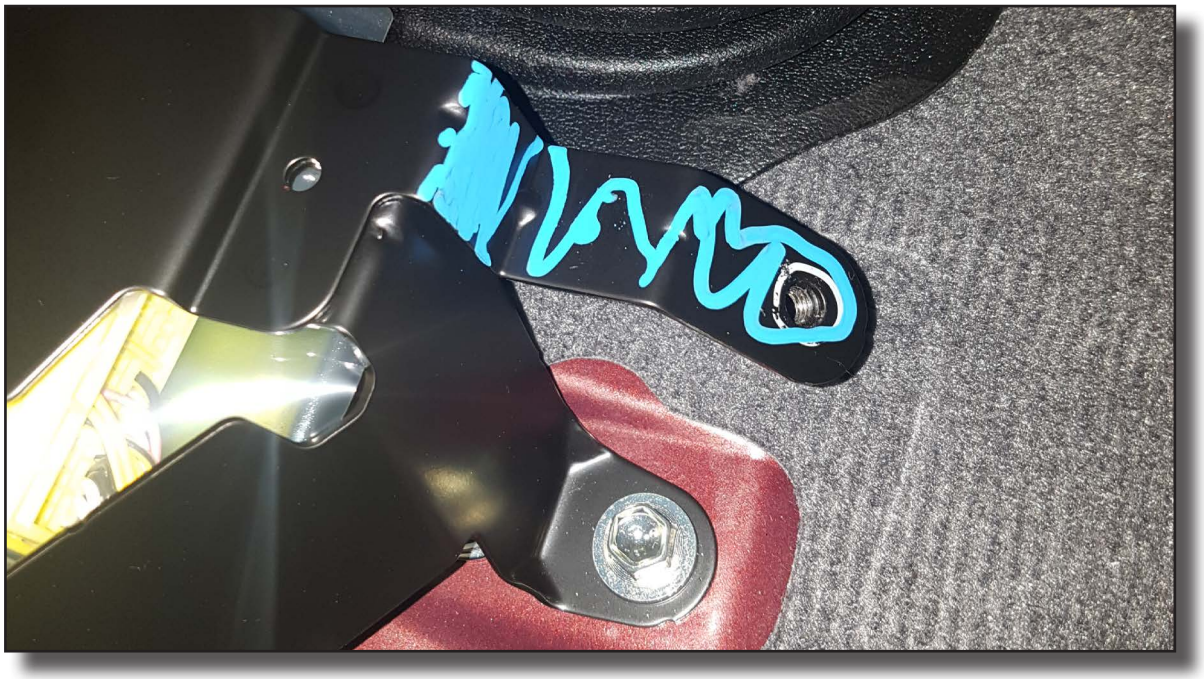
4.1.3 Lift rubber flap on manual stick boot at carpet level and cut with stanley knife through the outer and inner boots all the way around the manual stick.
DO NOT CUT THROUGH HIGH/LOW LEVER BOOT

4.1.4 Lift Boots around manual stick and depress and twist to remove manual stick.

4.1.5 Remove all carpet and underlay

4.1.6 **UTES only:** Remove all parts fitted to the rear wall.

4.1.7 **AIRBAG Models Only:** Unbolt and disconnect airbag module on tunnel
DO NOT DISCONNECT AIRBAG MODULE UNLESS ALL BATTERIES ARE DISCONNECTED AS THIS MAY RESULT IN AIRBAG DEPLOYMENT
Airbag module bracket needs to be removed.
The arm painted in blue needs to be cut off the bracket.



4.1.8 Remove lower cover panels under steering wheel to expose wiring on key barrel. Also remove heater duct assembly located at drivers knee by pushing the centre of the retaining clip on upper right side of duct.

4.1.9 Remove entire clutch pedal assembly including master cylinder.

4.2. Replace Brake Pedal

4.2.1 Remove Brake Pedal by disconnecting the brake linkage, return spring and removing the bolt from the top of the arm.

4.2.2 Remove all bushes, stops and crush tubes from original pedal. These will be transferred to the new brake pedal.

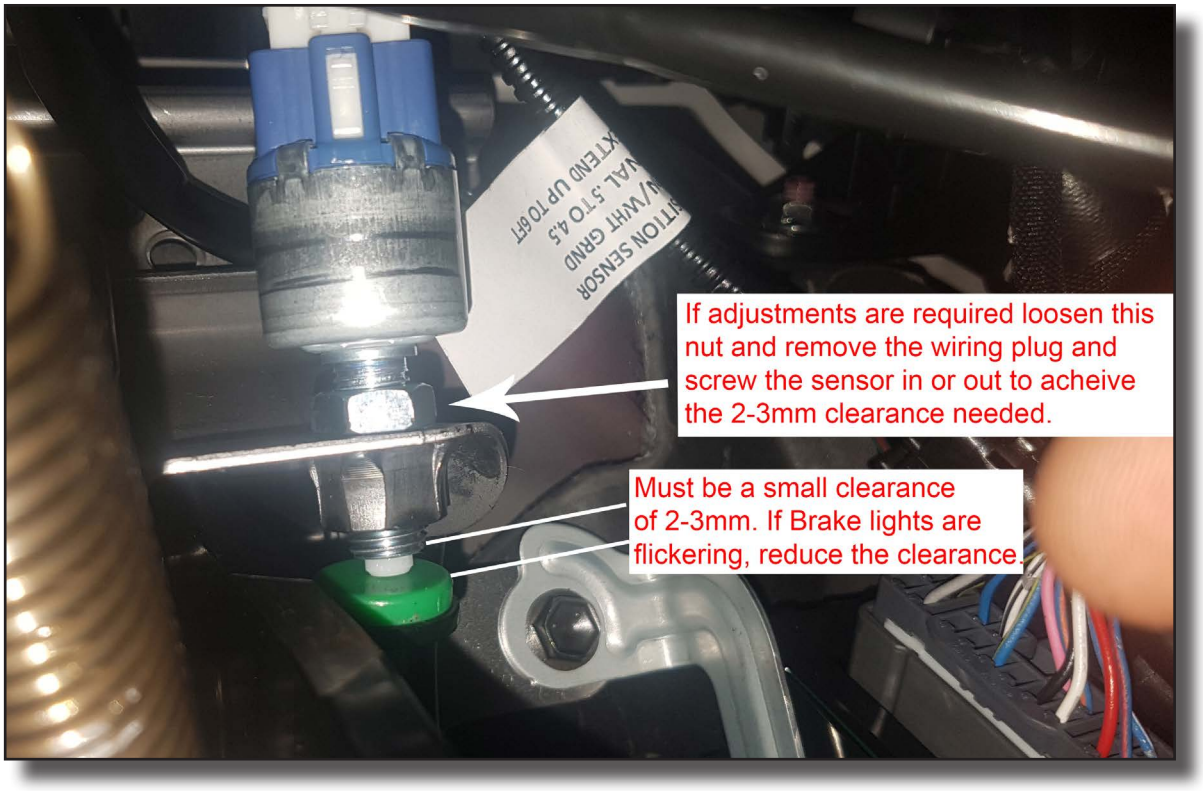
4.2.3 Check width of mounting bush on new pedal to original pedal to verify correct width. If the supplied pedal bush has a larger width to that of the original pedal, please linish the width down to the correct width. Deburr the edges to prevent wear on the nylon spacers

4.2.4 Fit bushes, stops and crush tube from original brake pedal to supplied New Automatic Pedal.

4.2.5 Fit new brake pedal into vehicle. You should be able to tighten the mounting bolt without the pedal movement being hindered by checking that the pedal can move through full range of movement without resistance.

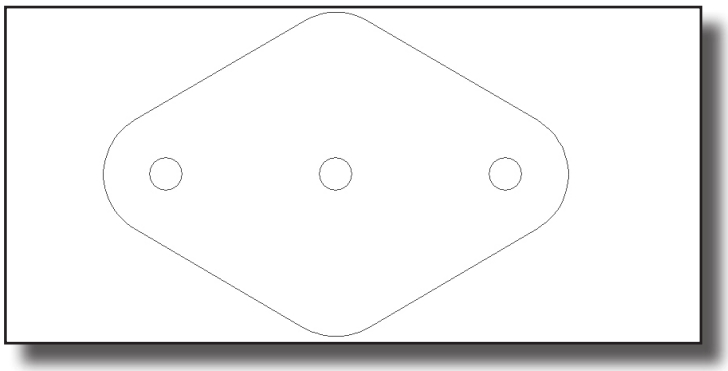
4.2.6 Connect brake linkage and return spring to new brake pedal. Linkage may require adjustment if it does not allow pedal to sit at full out position.

4.2.7 Check clearance of brake pedal switch when pedal is all the way out. There should only be around 2-3mm of clearance from the green switch pad on the pedal and the thread on the switch (Less is better). If there is too much clearance, this can cause the brake lights to flicker on/off while driving which can cause the engine ECU to shutdown the accelerator input believing it has had an Unintended Acceleration event. You may not be able to check this until you have refitted the battery terminals.



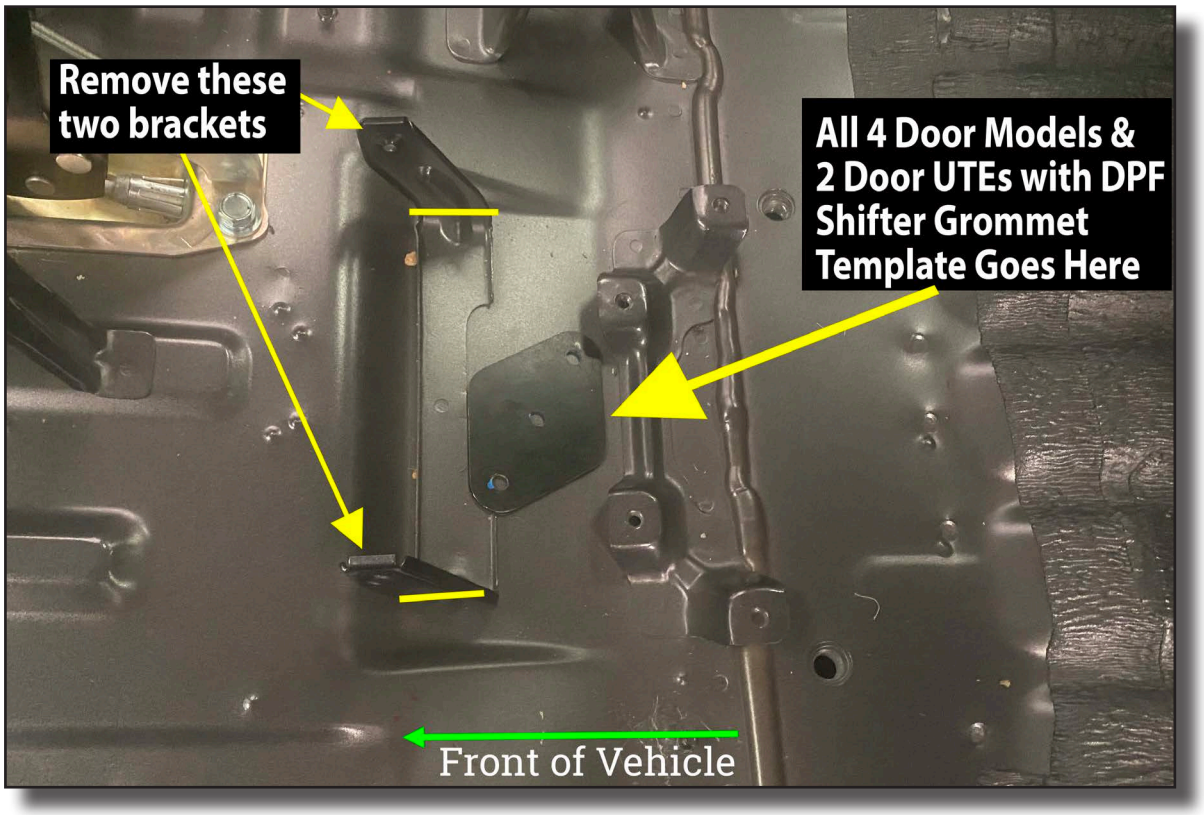
4.3. Shifter Cable Grommet Hole

4.3.1 Next you will need to drill a hole for the shifter cable using the supplied steel shift cable grommet template bracket. Using the metal template PROVIDED as a guide you will need to drill the 2 outside holes to 6.5mm. **Image below is what the template looks like for your reference, this image is NOT the template.**



4.3.2 The centre hole needs to be hole sawed to 48mm. The location of the hole varies depending on which model of LandCruiser you have. Please take note of your vehicle variant in the following steps.

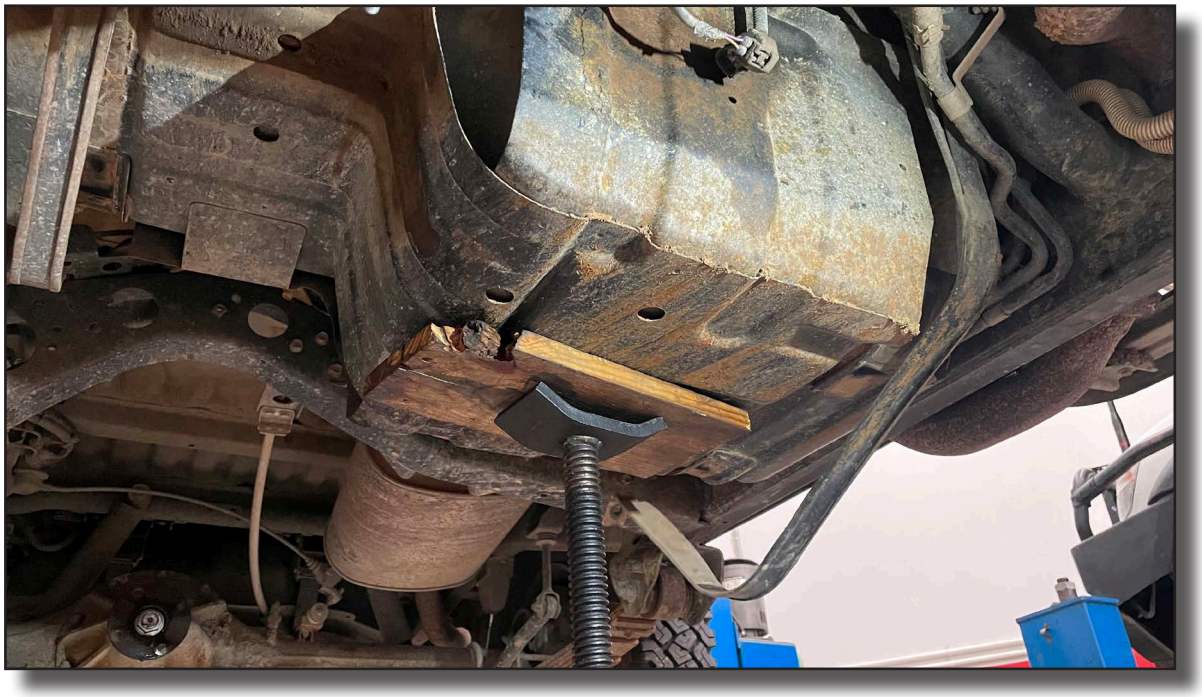
4.3.3 79 Series Dual Cabs (4 Doors)
79 Series Single Cab with DPF (2 Door - Built Aug 2016 onwards)
76 Series Wagons (4 Doors)
There are two brackets on some vehicles with factory centre consoles that will get in the way of fitting the new console.



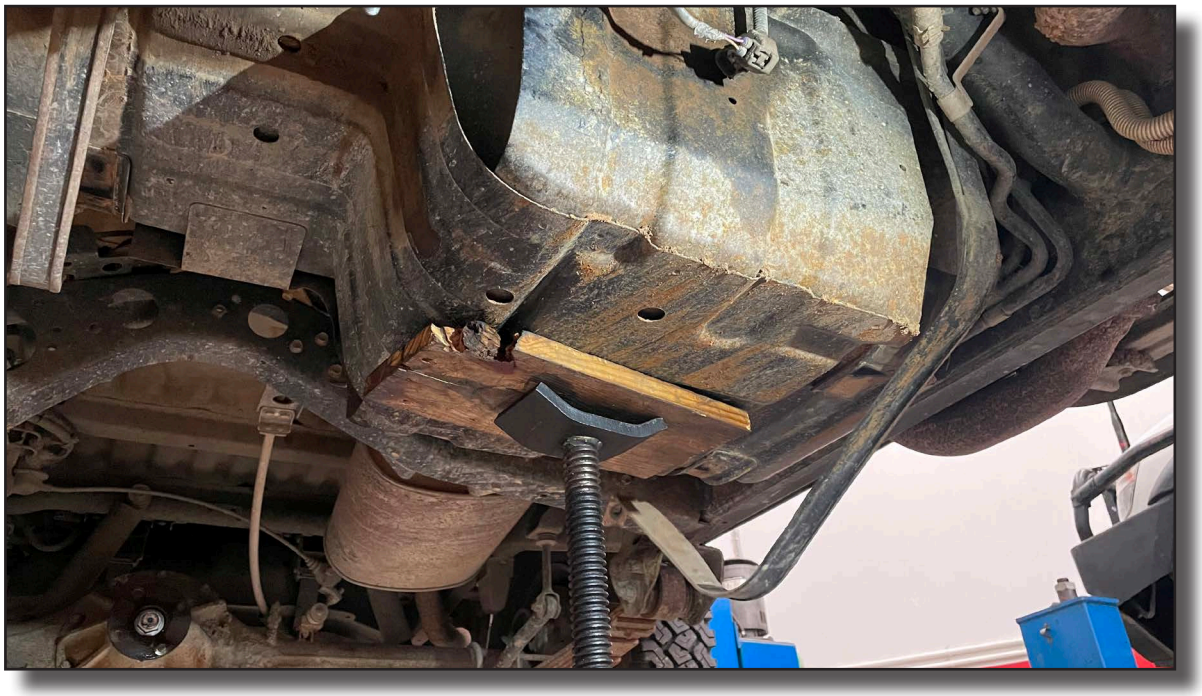
4.3.4 79 Series Single Cab Ute Non-DPF (2 Door - Built prior to Aug 2016) 78 Series Troopys (2 Doors)

This one can be a pain to fit into place as you will need to battle the fuel tank directly below this cabin floor. We have found the easist solution is to drop the front of the fuel tank slightly to aid access and provide space between the cabin floor and the fuel lines while drilling the hole for the cable.

4.3.5 While supporting the tank with a stand, unbolt the rear bolts holding the tank straps.



4.3.6 Gently lower the tank approx 10cm or enough to gain better access. Check there is no wiring that might get stretched or damaged while lowering the fuel tank.



4.3.7 Drill the holes in the cabin floor, taking care not to hit the fuel lines or fuel tank.

4.3.8 Route the shifter cable up between the fuel tank and the chassis crossover tube.

5. Manual Gearbox Removal

5.1. Lift vehicle safely on a hoist

5.2. Drain and remove all parts of the clutch cylinder assembly

5.3. Drain manual gearbox oil

5.4. Drain transfer case oil (Save for reuse if in good condition)

5.5. Remove Ground wire (if fitted) from gearbox and chassis. This will be reconnected to the auto.

5.6. Disconnect all wiring and breathers from transfer case and gearbox.

5.7. **DPF Models:** Disconnect all wiring and hoses from the DPF (Diesel Particulate Filter) and unbolt from Manual Gearbox. The DPF can be left in however it can make it more difficult to work on so we recommend removing it.

5.8. Remove transfer lever linkage from transfer case and remove transfer case lever assembly from side of manual gearbox.

5.9. Unbolt Front and Rear Drive Shafts - take note of shaft phase.

5.10. Remove the Transfer case first.
We highly recommend using a transmission jack to support the weight and assist removing.

5.11. Remove transfer case dowels if still in Manual gearbox extension housing. These need to be transferred to the extension housing on the auto

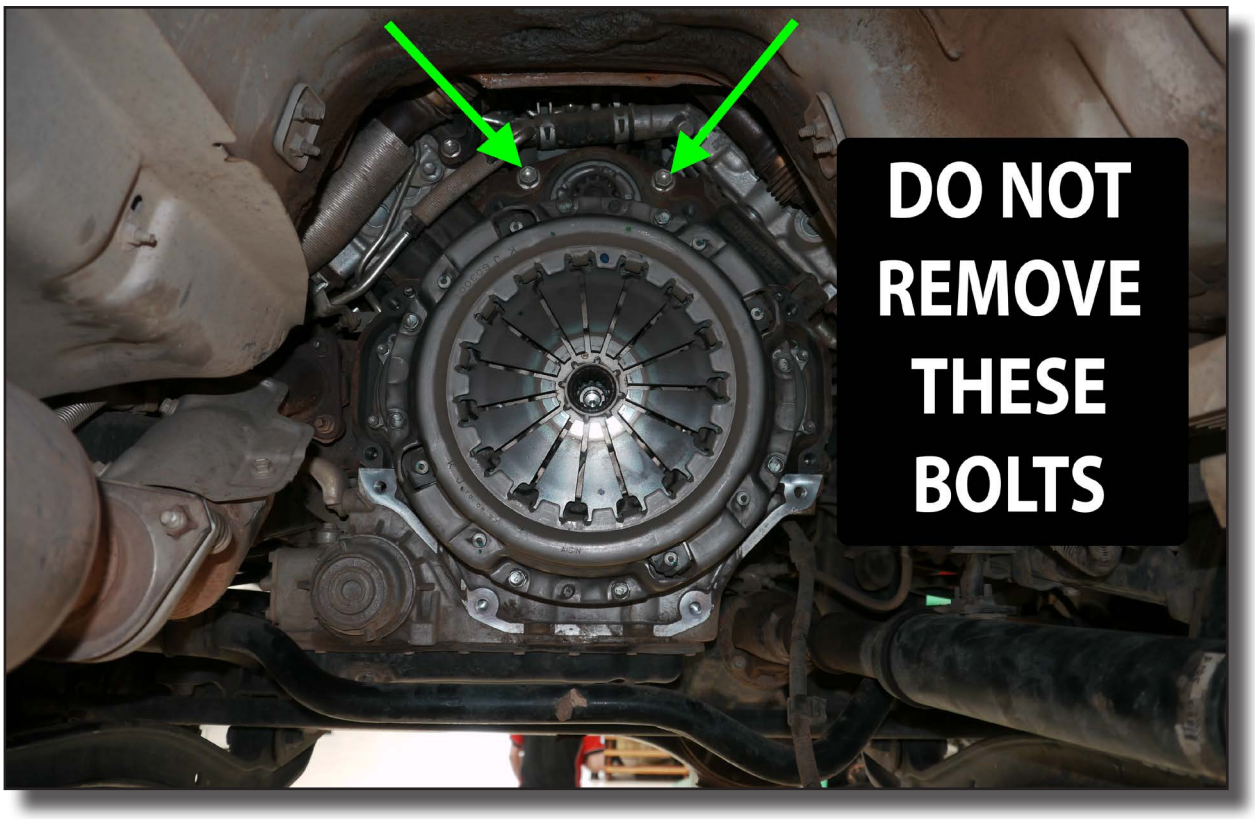
5.12. Remove the Manual Gearbox. Take note of the bell housing bolts to avoid in the photo on next page.
We highly recommend using a transmission jack to support the weight and assist removing.

5.13. Check for the dowels in the engine block. If they are in the manual gearbox bell housing, remove them and relocate into the same position in the engine block.

5.14. Remove Clutch and Flywheel assembly. The flywheel crank bolts are not needed for the conversion as we have supplied new crank bolts that are suitable for the automatic ring gear and counterweight.

5.15. **PSA! Do Not remove these bolts.**

These bolts hold the starter motor in place and could result in ruining your day :)
Ye be warned!!!



6. Sound Suppression Layer Installation

6.1. BEFORE INSTALLING THE SOUND SUPPRESSION LAYER, TAKE NOTE OF ANY IMPORTANT BOLT HOLE LOCATIONS FOR SEATS, SEATBELTS, SENSORS OR CABLES. THESE HOLES NEED MINIMUM 20mm CLEARANCE

6.2. Before installing the sound suppression layer, clean all dirt off the floor that may cause the adhesive to fail. We suggest either welders gloves (felt finish) or a rounded block of wood to knead the layer into all the crevices. Please take care not to 'stretch' the product as it will most likely tear the aluminum backing.

6.3. You also don't need to cover any raised mounting points or brackets with the dynamat. Only cover the actual floor pan of the vehicle.

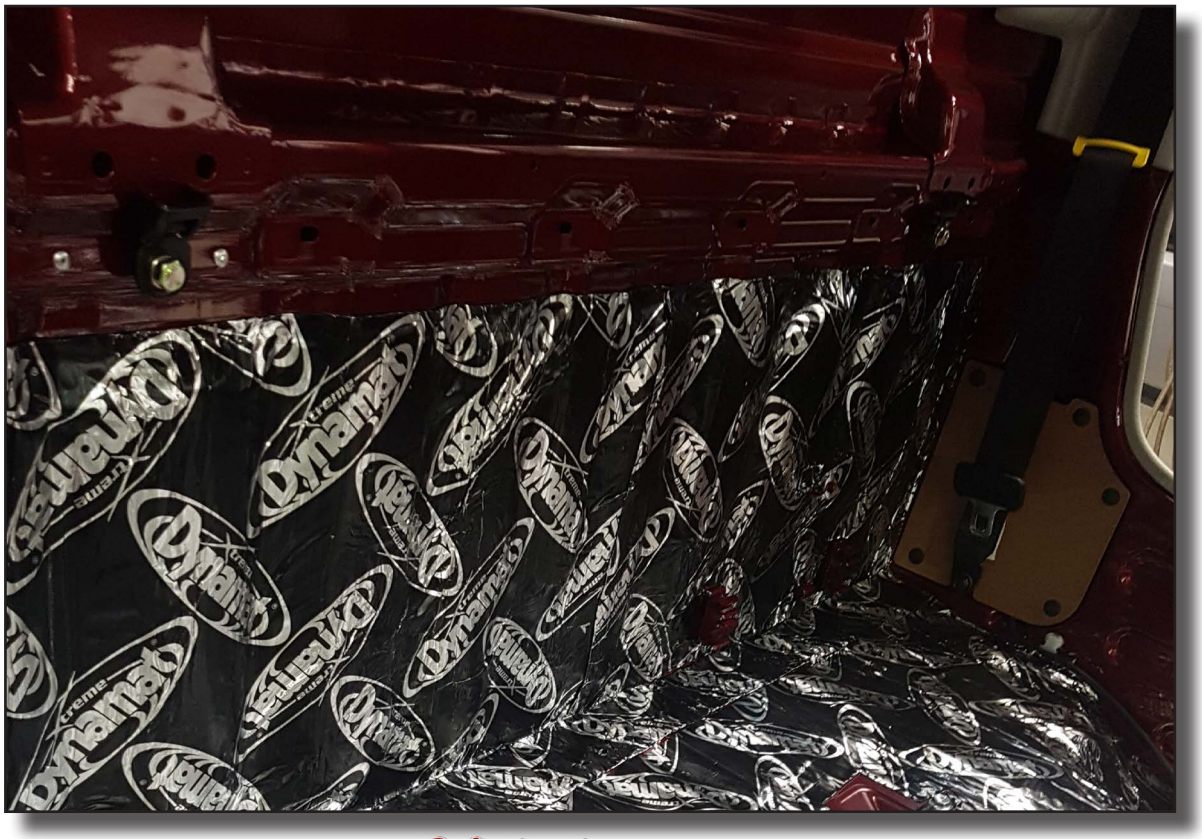
6.4. Start with laying one sheet each in the front foot wells over the top of the existing sound deadening. Line up the outer edge with the edge of the sill and front just under where the carpet starts. Cut out around accelerator pedal with 40mm clearance as the carpet is not a tight fit.

6.5. Work your way to the rear of the vehicle using offcuts to fill in the various nooks.

6.6. Remember to cut out around the rear seat mounts (if fitted) as well as the shifter cable grommet.

6.7. UTE MODELS ONLY

6.7.1 Fit the product to the rear wall allowing 20mm clearance to the edges.



6.7.2 Before gluing, hold the rear wall carpet in place and cut out any brackets or bolt holes needed for mounting the spare tyre levers, wheel jack and the rear wall plastic tray (if fitted to your vehicle)

6.7.3 Once you are confident that the rear wall fits over/around the required points, apply contact adhesive (Not Supplied) to the rear wall carpet backing and also to the dynamat on the rear wall.
(Follow Adhesive manufacturers instructions on tack time and drying time)

7. COMPUSHIFT Installation

7.1. Mounting the COMPUSHIFT Module

7.1.1 Locate mounting bracket for COMPUSHIFT Pro and mount Module to bracket using supplied M5 Hex Head bolts.

7.1.2 Fit the Main Loom to the COMPUSHIFT Pro Module prior to installing into vehicle. NOTE: If you haven't installed the new Brake pedal, you must do this before installing the Module as you can not access the brake pedal bolt after fitting the module. (See Chapter "Interior Strip Out")

7.1.3 The bracket fits to the vehicle so that the module is mounted upside down with the loom facing the rear of the vehicle. The firewall arm (visible at the bottom of previous photo) has a slot in it to make it easy to mount onto the clutch cover stud on the firewall then secure using supplied M6 Flange Nut. The other arm of the bracket mounts to the upper clutch pedal mount using the original bolt.

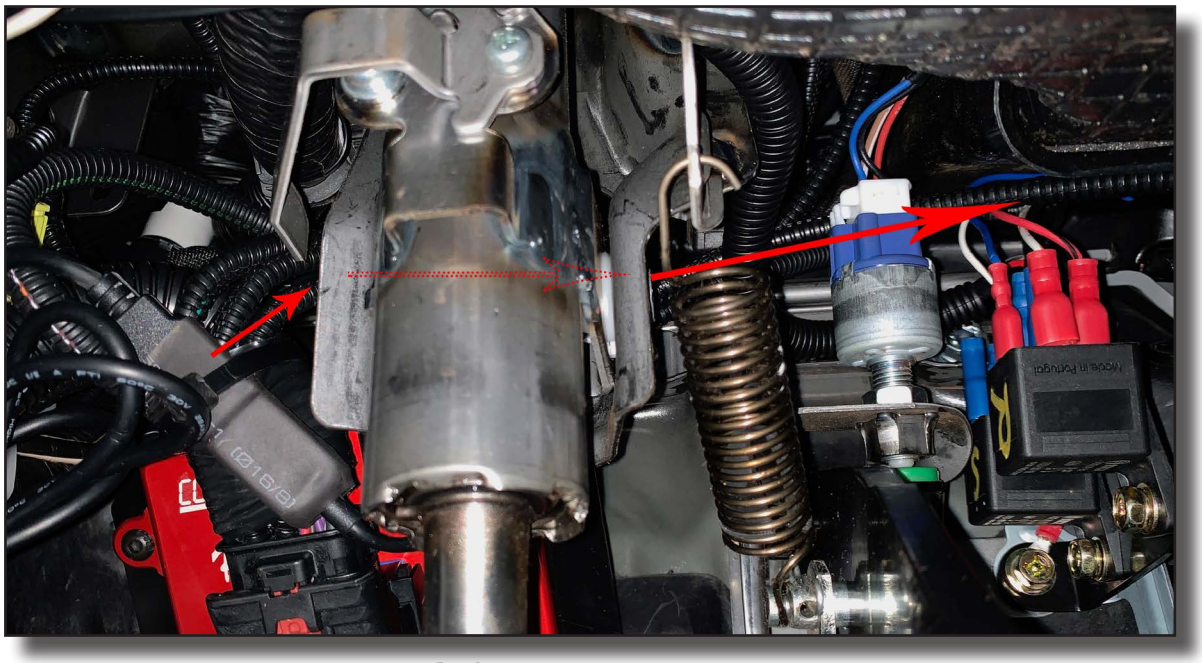
7.2. COMPUSHIFT Harness Routing

7.2.1 Feed Main Transmission Loom behind the metal dash support bracket on the transmission tunnel and leave for now.

7.2.2 Locate the following wire legs/connectors:

- Relay connector - (1 x Black Relay mounting base)
- Throttle Position Sensor wires (1 x Green & 1 x Green/White wire)
- Brake switch wires (1 x Green wire)
- TCC switch loom (1 x Green Switch Connectore, 1 x Light Blue wire)

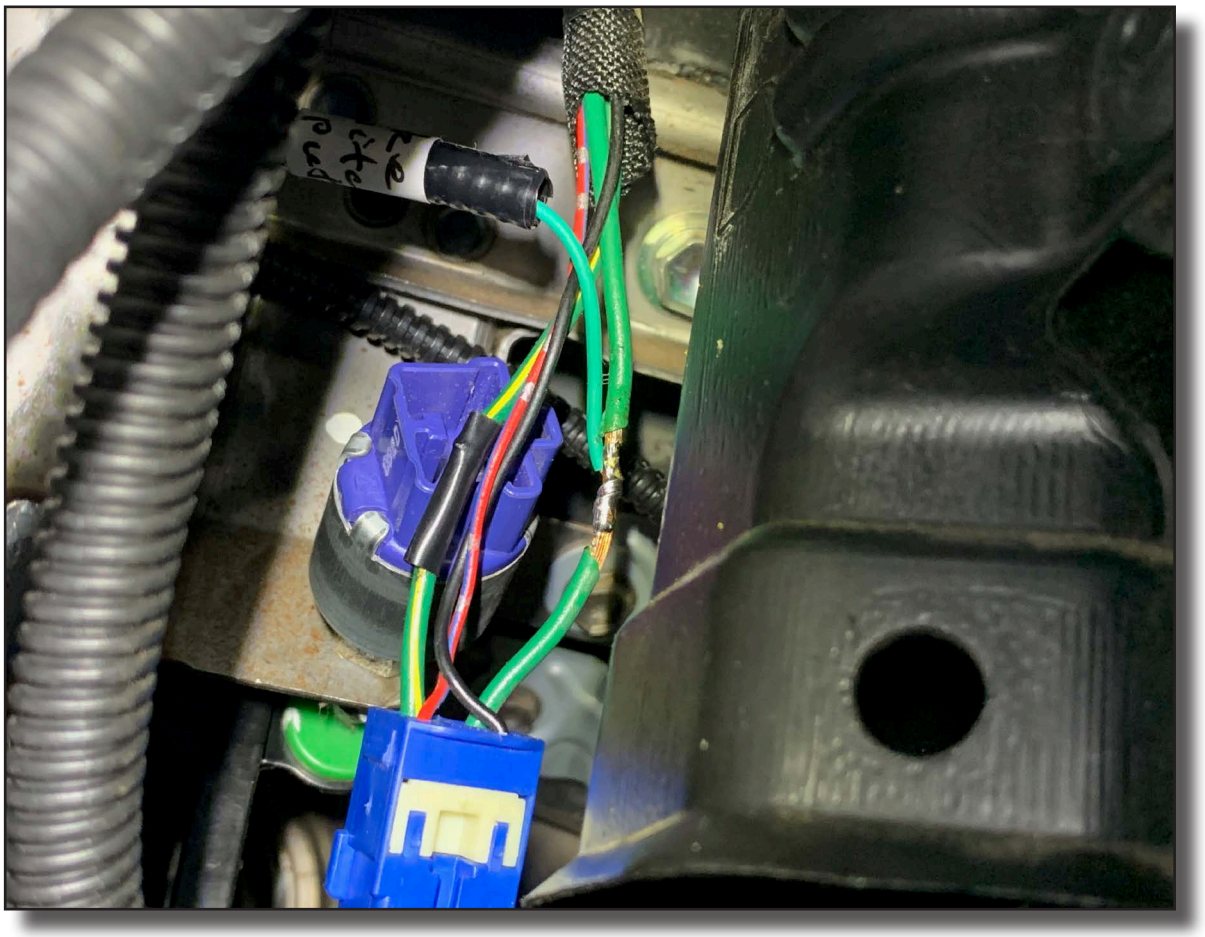
7.2.3 Feed all these wires across the top of the steering column in the location of the mounting bracket as indicated in the photo below. This area is where the steering column surround does not turn, therefore will not catch any wires as the customer drives the vehicle. Secure into place.



7.3. Brake Light Switch Wiring

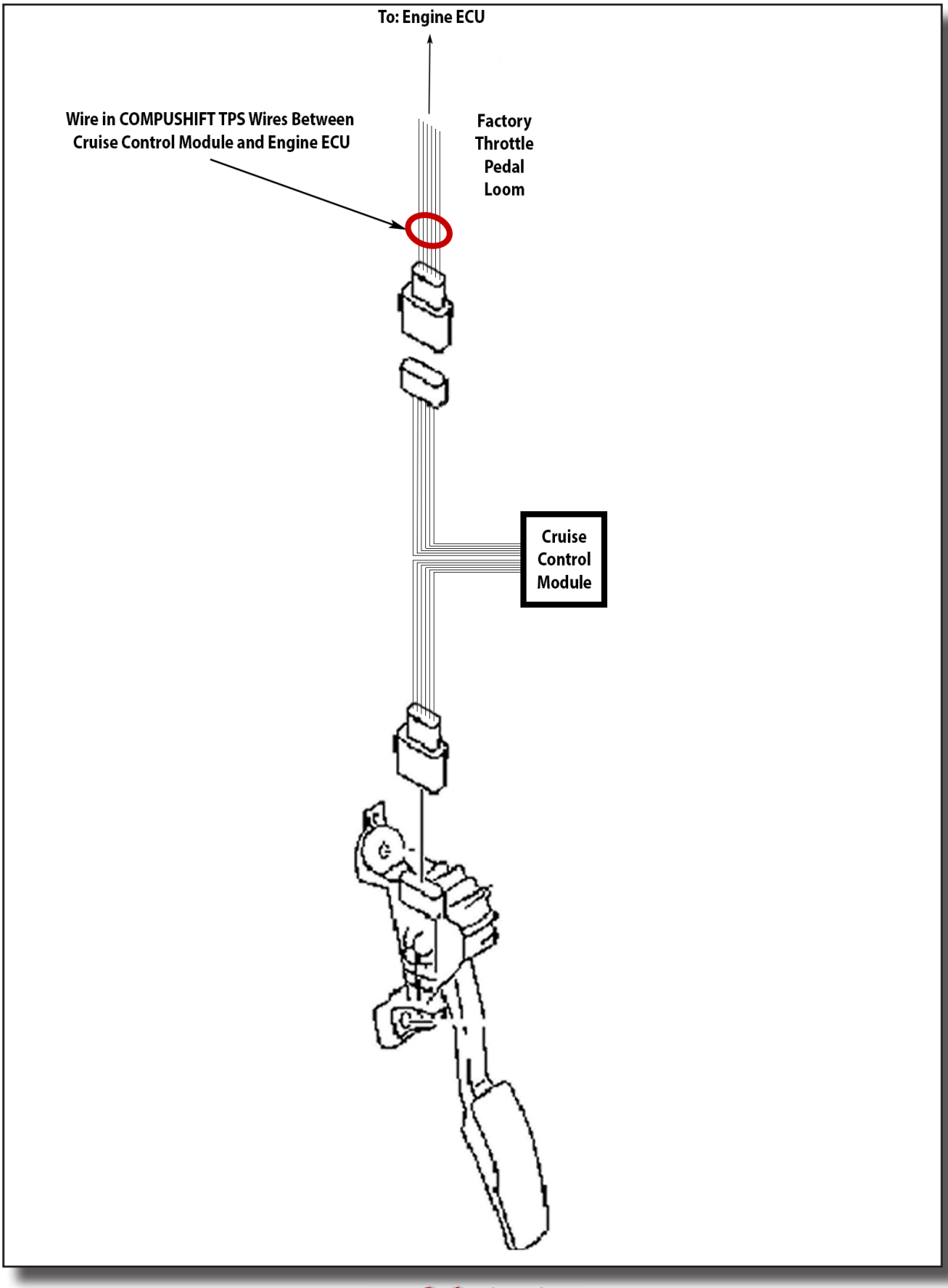
7.3.1 Locate the COMPUSHIFT loom leg labelled **Brake Release**, with a solid green wire. This wire needs to be soldered into the Brake Light switch output wire on the OEM brake light switch connector. There are two possible colour of wires for this connection

CS Wire	Connects to	Used For
Green	Solid Green Wire (Up to approx 2013)	Park Lock Release
Green	Green/White Stripe Wire (Approx 2013 onwards)	Park Lock Release



7.4. Important Note About TPS Wiring Connection

Please take note of the location of where the TPS wires need to be to ensure correct operation of the Transmission Control System. The following pages will identify the correct wiring configuration based on the variant you have.



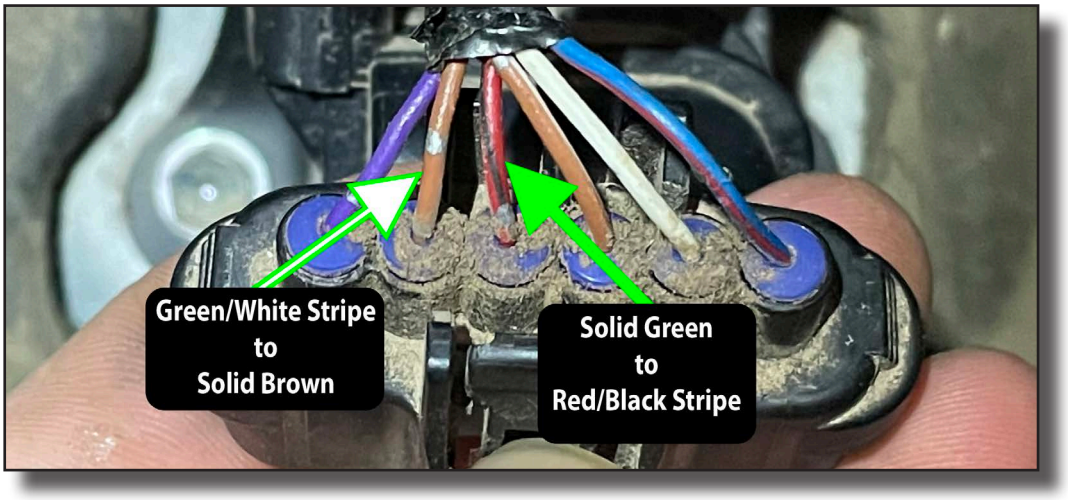
7.5. Throttle Position Sensor Wiring

7.5.1 Throttle Position Sensor Wiring (2009 to 2022)

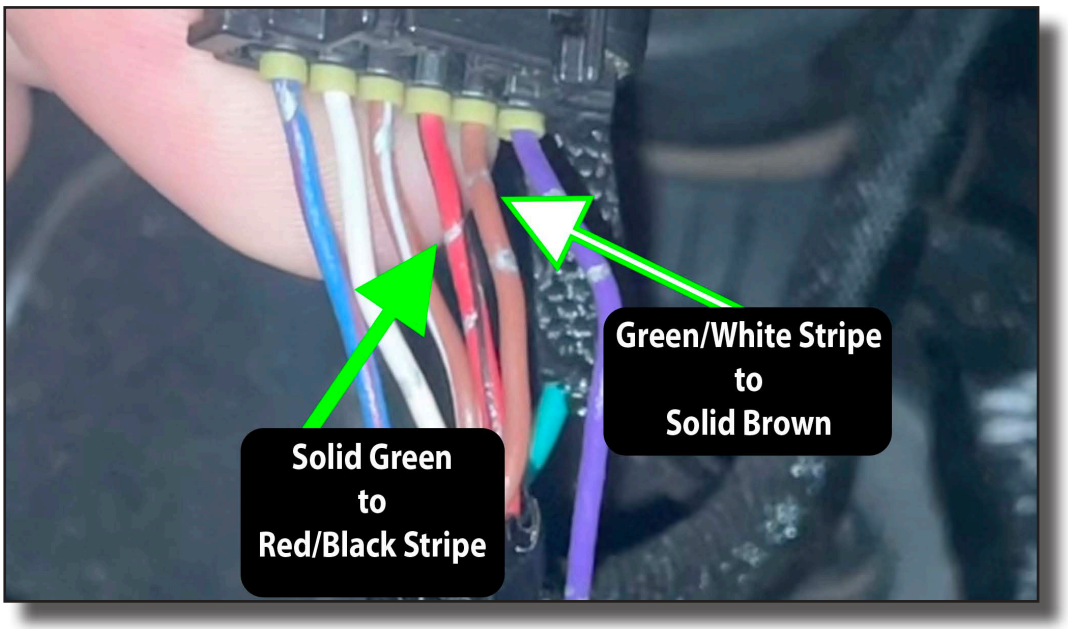
Locate the loom leg labelled **Throttle Position Pickup Wires** with 1x Solid Green and 1 x Green/White Stripe Wire. These wires need to be soldered into the OEM Pedal wiring loom ONLY.

CS Wire	Connects to vehicle wiring via	Used For
Green/White	Pin 2 - Solid Brown wire on OEM Accelerator Pedal Loom	TPS Ground
Solid Green	Pin 3 - Red/Black Stripe wire on OEM Accelerator Pedal Loom	TPS Sweep

7.5.1.1 TPS connector on Models with Metal Dash (2007-2009)



7.5.1.2 TPS connector on Models with Plastic Dash (2009-2022)

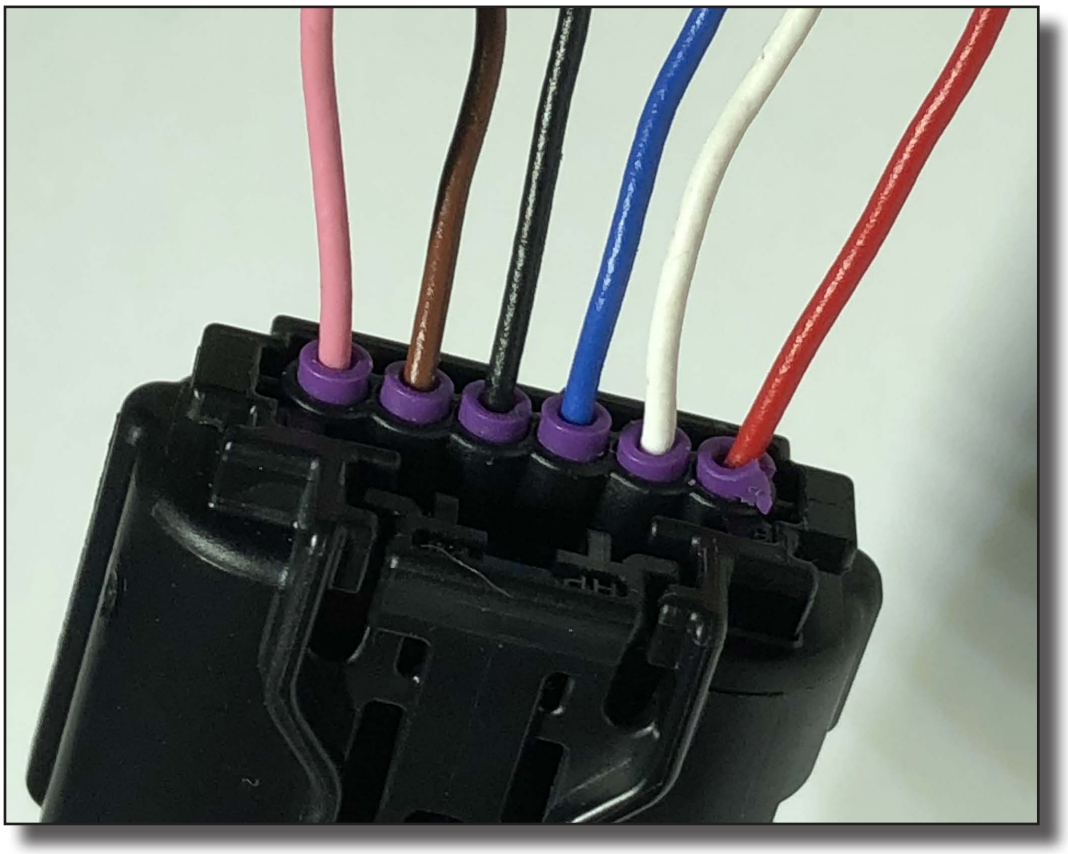


7.5.2 Throttle Position Sensor Wiring (2022 onward)

Locate the loom leg labelled **Throttle Position Pickup Wires** with 1x Solid Green and 1 x Green/White Stripe Wire. These wires need to be soldered into the OEM Pedal wiring loom ONLY.

CS Wire	Connects to vehicle wiring via	Used For
Green/White	Pin 2 - Solid Brown wire on OEM Accelerator Pedal Loom	TPS Ground
Solid Green	Pin 3 - Solid Black wire on OEM Accelerator Pedal Loom	TPS Sweep

7.5.2.1 TPS connector on Models with Pre-Collision (2022 on)



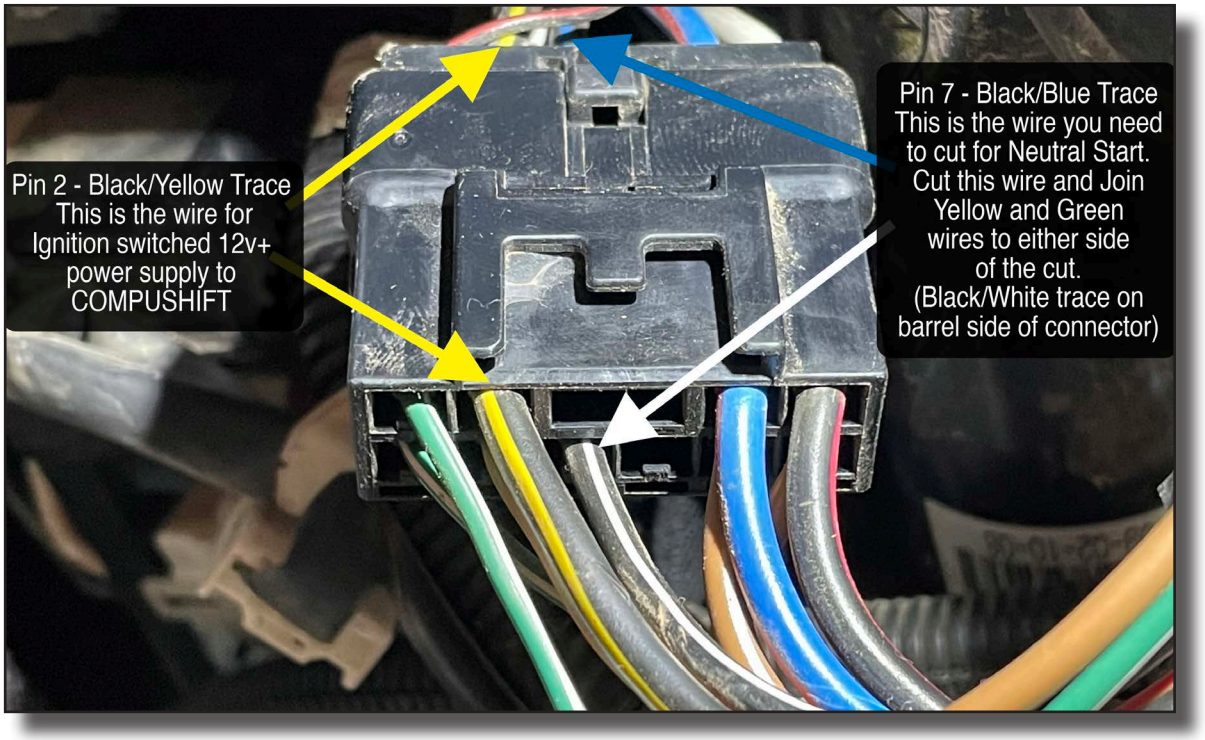
7.6. Ignition Wiring

7.6.1 Ignition Wiring on Early Metal Dash Models

Metal dash ignition barrel wiring runs further down and under the steering column. Follow the ignition barrel wiring until you find a large 10 pin black in-line wire connector. If you look closely you will see that the connector has the pin locations labelled.

The wire colours listed below are for the loom side connector and not the ignition barrel side connector. However, once you locate the correct wire, you can tap in or cut that wire any where that is convenient for you.

CS Loom	Connects to	Used For
Red Wire	Pin 2 - Black/Yellow Stripe Wire	Ignition switched 12v+ Power for COMPUSHIFT
Black Wire	Ground to Factory Earthing Bolt Location NOT STEERING COLUMN	Main Earth for COMPUSHIFT
Yellow Wire	Pin 7 - Black/Blue Stripe wire - Cut wire and join to Loom side of cut	Neutral Start
Green Wire	Pin 7 - Black/Blue Stripe wire - Cut wire and join to Barrel side of cut	Neutral Start

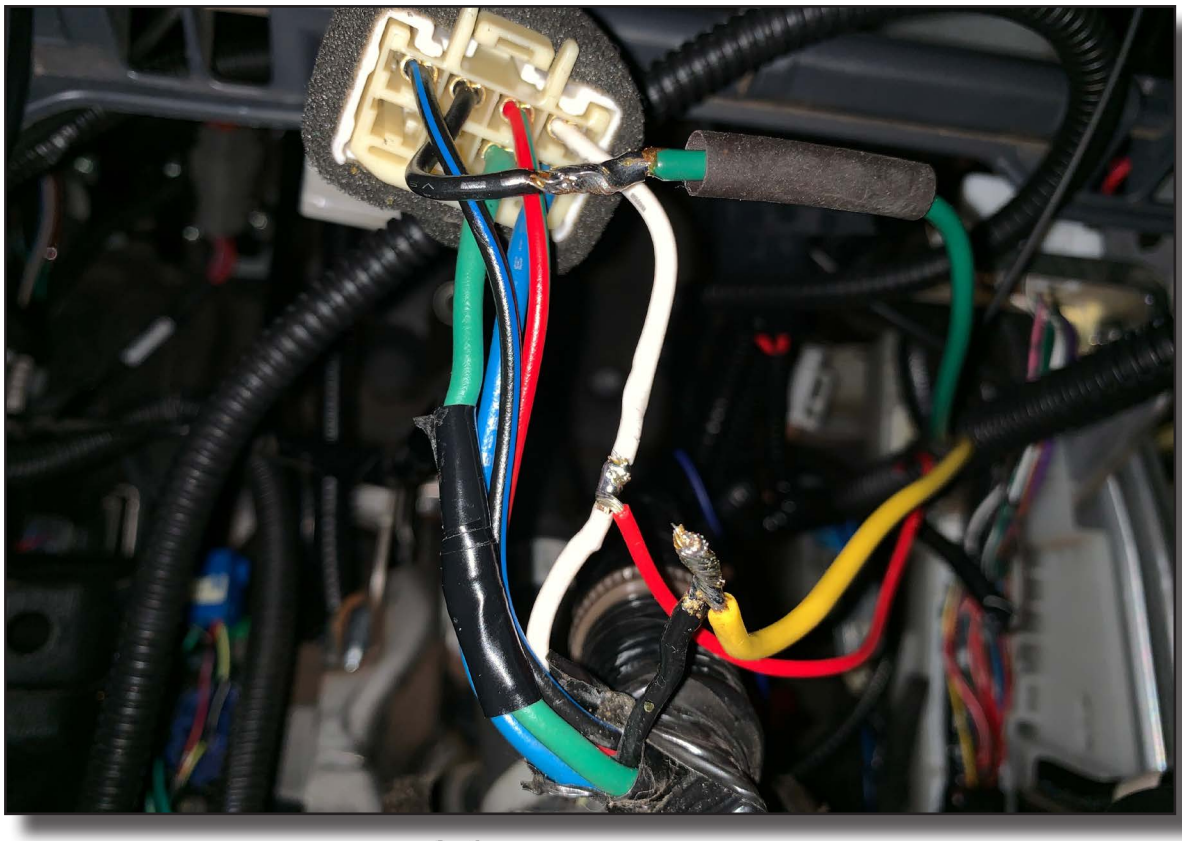


7.6.2 Ignition Wiring Plastic Dash 2009 to Present

Locate the COMPUSHIFT Power loom. Use the following tables and images to wire in the loom:

CS Loom	Connects to	Used For
Red Wire	Ignition Barrel White Wire (IGN 12v+)	Power for COMPUSHIFT
Black Wire	Ground to Factory Earthing Bolt Location NOT STEERING COLUMN	Main Earth for COMPUSHIFT
Yellow Wire	Loom side of cut on solid black wire in ignition barrel connector.	Neutral Start
Green Wire	Connector side of cut on solid black wire in ignition barrel connector.	Neutral Start

Black with Blue Trace (Untouched)	Solid Black Cut and Join Yellow and Green Neutral Start Wires	Red with Green Trace (Untouched)	White Connect 12V + Power for Stand Alone Computer System
No Wire	No Wire	Green (Untouched)	Blue (Untouched)

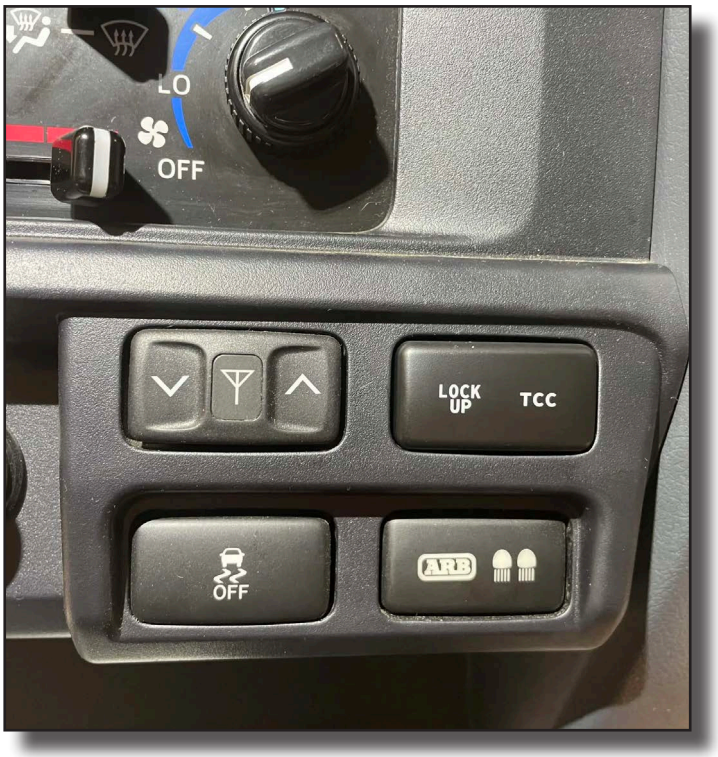


7.7. TCC Switch

7.7.1 There are four switch types that we support:

7.7.1.1 **OEM Style Long Vertical - All Models 2007 - Jun 2021**
Metal dash models replace the Idle Up Switch. Plastic Dash Models locates on switch panel next to dash cluster.

7.7.1.2 **OEM Style Long Horizontal - All Models**
Locates under Air Con panel.



7.7.1.3 OEM Style Short Vertical - Plastic Dash July 2021 On

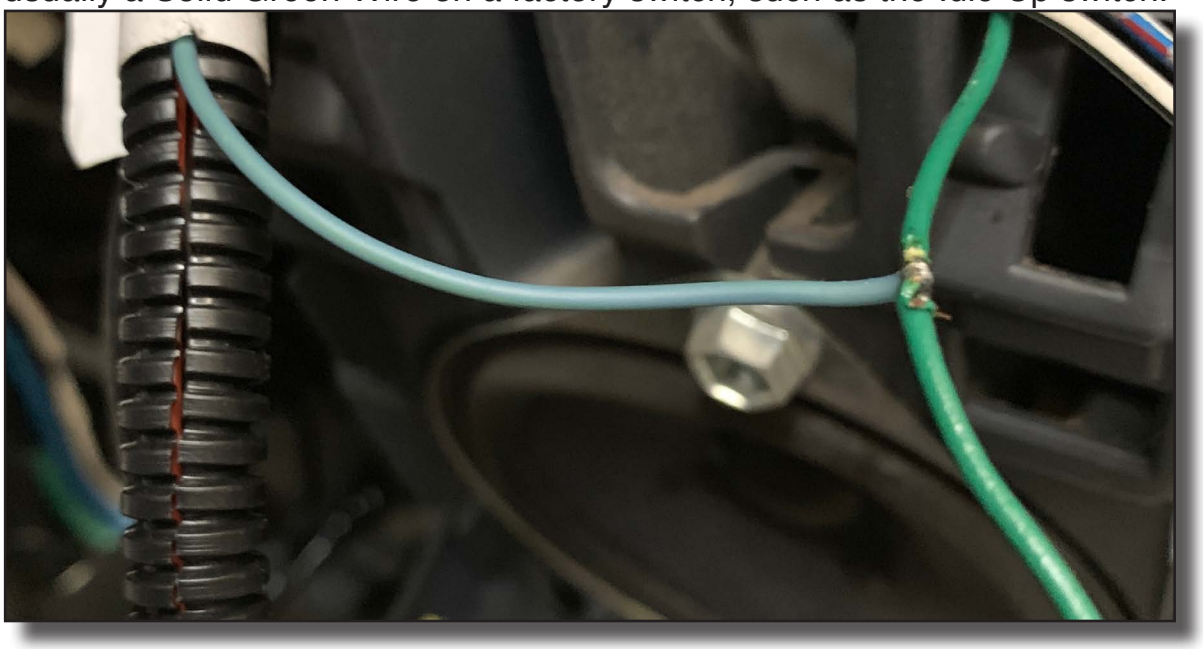
Locates on switch panel next to dash cluster.

7.7.1.4 Carling Rocker Vertical - All Models

Locates in blank in Air Con panel.

7.7.2 Route the switch wiring to the switch panel of choice. If fitting an OEM Style switch, you will need to insert the switch from the rear of the dash panel. If fitting a Carling Rocker switch in the Air Con panel, this mounts from the front after removing the blank.

7.7.3 On the switch wiring leg, there is a wire (Light Blue) that needs to be soldered into the vehicle Park Lights circuit. The Park lights circuit is usually a Solid Green Wire on a factory switch, such as the Idle Up switch.



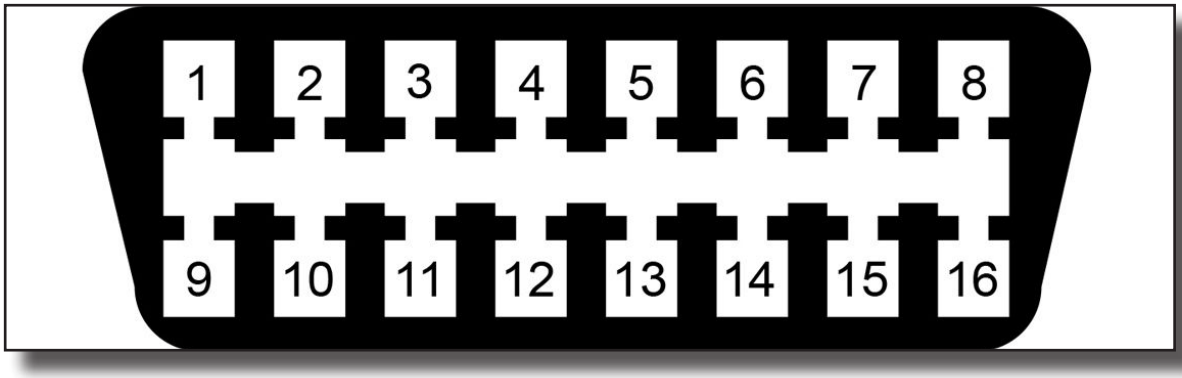
7.8. Relay Mounting

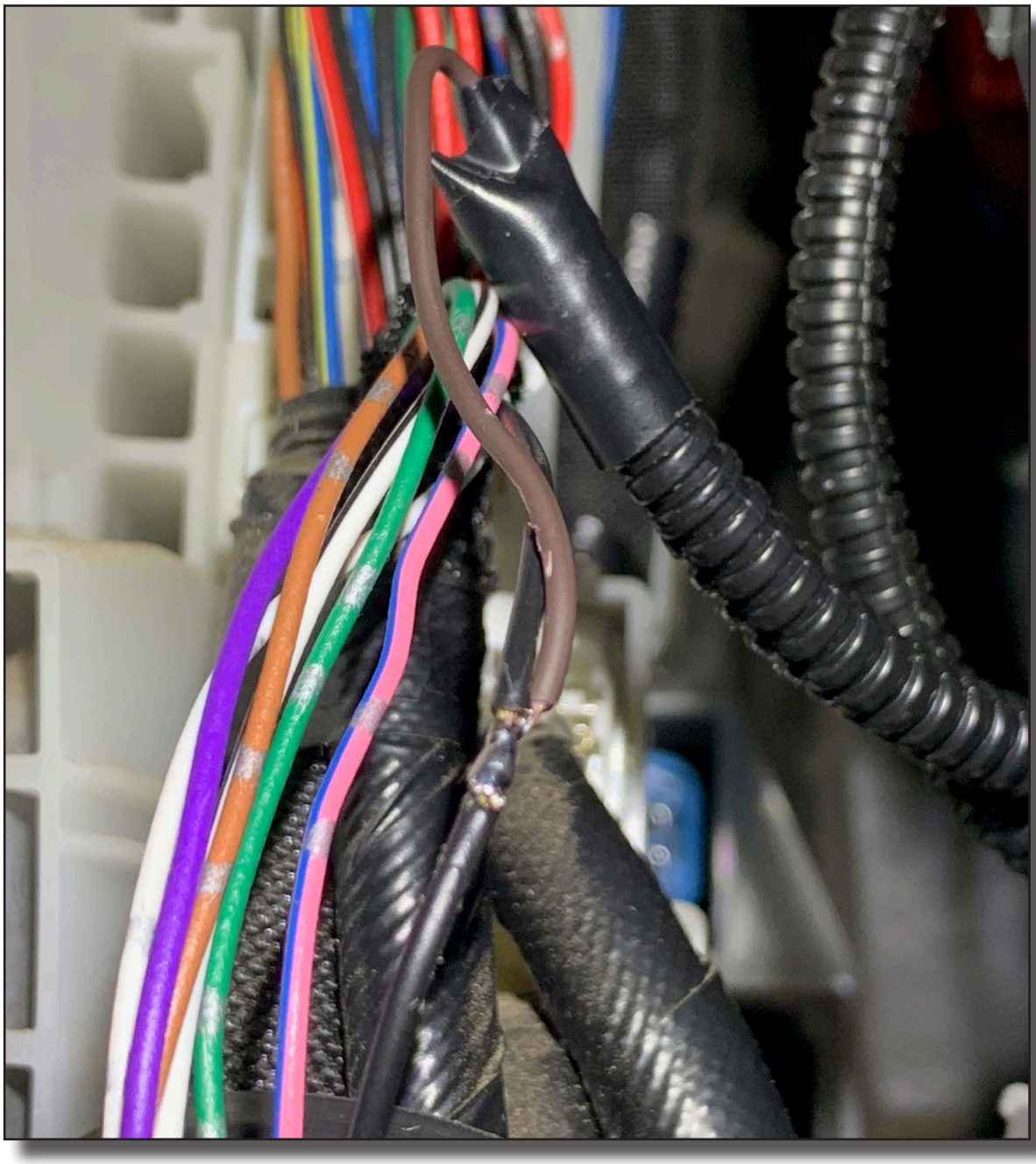
7.8.1 Locate the supplied Bosch Relay for fitting to the relay connector. The standard normally open relay with Bosch part# 332 019 150 must be inserted into the connector for reverse lights operation.

7.8.2 Mount the relay to the supplied relay mounting bracket as in the previous photo and then bolt it beside the brake pedal assembly as shown below. Ensure that the bracket, relay and wiring will not come into contact with any moving parts such as steering column or brake pedal.

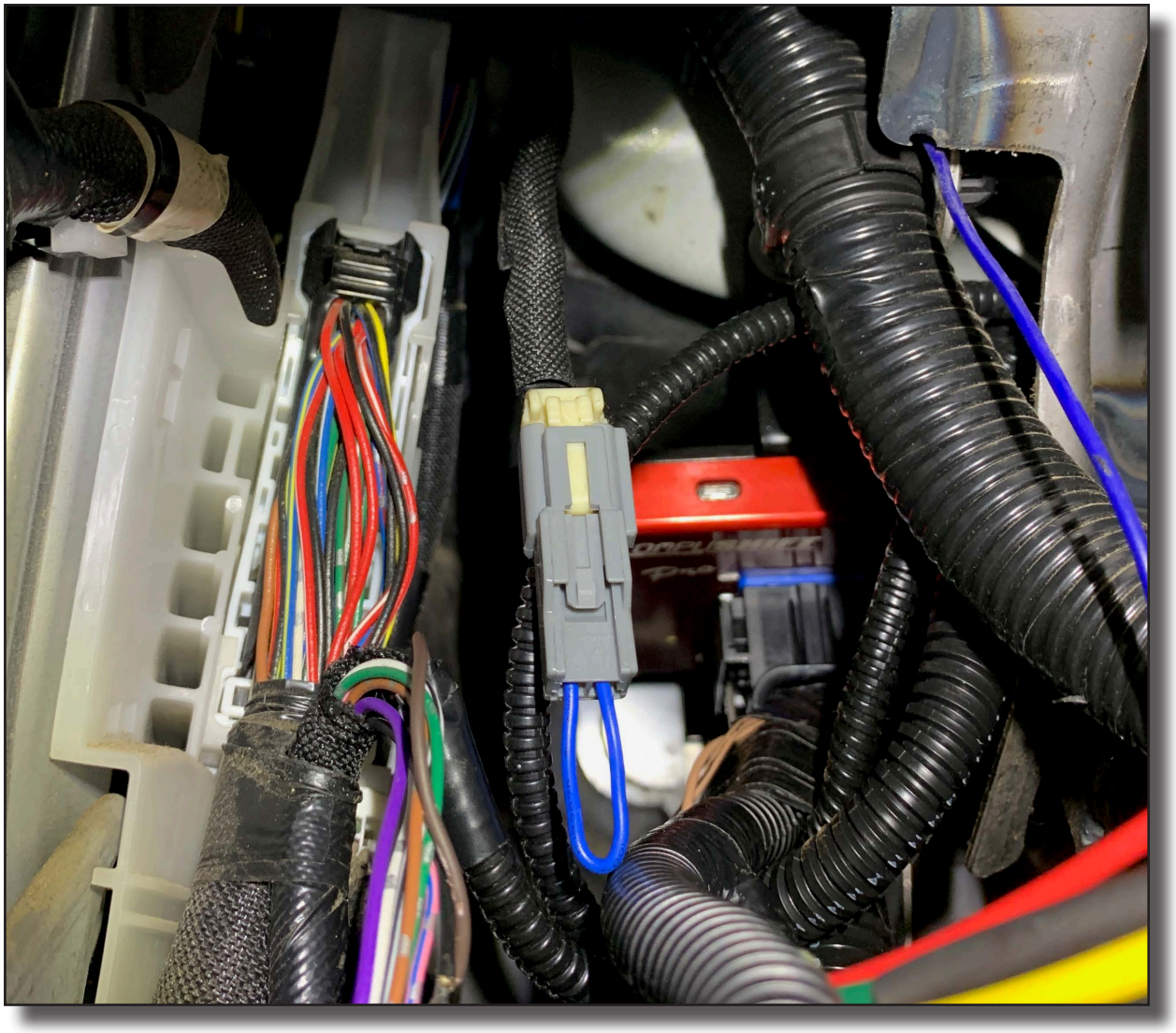
7.9. Tacho and Clutch Pedal

7.9.1 Locate the COMPUSHIFT Tacho Pickup wire (Brown) and solder this to the Black wire in Pin 9 on the factory OBD2 Port under the dash.





7.10. Directly behind the OBD2 Port you will find the connector removed from the Clutch pedal switch. Fit the supplied clutch pedal switch jumper. Secure all wiring into place, again ensuring that no wiring will come into contact with moving parts.



7.11. Main Transmission Leg Routing

7.11.1 Moving your attention to the main transmission harness leg and shifter connector. Locate the Manual Lever Hole Cover plate to fit over the hole where the Manual Lever used to be. The order of items are below:

- Toyota Molded Metal Frame
- WAT Manual Hole Cover Plate
- Rubber Boot (2 x Layers)
- Cabin Floor

7.11.2 The orientation of the plate is specific and will only fit one way. 3 new bolts are supplied as the factory bolts are not long enough.

7.12. Replacement Cruise Control - DPF Models only

7.12.1 The OEM Toyota Cruise Control is not compatible with the Automatic conversion. The OEM Cruise Control monitors the ratio between the engine RPM and the wheel speed sensors to determine if there is any slip on the manual clutch. When using with the Automatic Transmission it will not stay engaged. Additionally, our Transmission Control System is unable to see the virtual throttle signal when the OEM cruise control is engaged.

Therefore we supply a replacement Cruise Control system that will use the OEM Stalk to maintain the factory look.

7.12.2 Fit the replacement Cruise Control System by following the instructions supplied in Cruise Control box.

8. Console Wiring and Interior Tidy Up

8.1. We recommend running new wiring for the USB Sockets and 12v outlet sockets to the vehicle electrical system and terminate the socket end to prevent shorting.

DO NOT USE FACTORY 12v Outlet (CIG) SOCKET WIRES - THE WIRES ARE TOO SMALL.

If the vehicle has a dual battery system then we recommend wiring to the aux battery. Due to the numerous options and configurations of dual battery systems, we leave the connection of these outlets to the installer to choose the best and most appropriate method of wiring and fusing the connections.

We have provided wire size and fuse size recommendations for the connections as a guide only. When running the wires, be sure to route wiring behind metal dash support to avoid being jammed or shorting out by the console. Also leave around 500mm of slack wire to be able to hook up to the sockets in the console so that if the console needs to be removed for any reason, there is enough room for you hand to reach the wires and remove them without breaking off the sockets.

Socket	Recommended Wire Gauge	Fuse
12v Outlet	4mm (1.84mm^2) for up to 2m length or 6mm (4.59mm^2)	15Amp
USB	4mm (1.84mm^2) for up to 4m length or 6mm (4.59mm^2)	10Amp

The wires will be connected once the console is fitted at a later point

8.2. FOR AIRBAG Models: Refit airbag module and modified module cover (see Interior Strip Out Section earlier). Cable tie factory 12volt outlet wires to airbag module to prevent a rattle from under the console.

8.3. Ensure that no wires will come in contact with brake pedal, accelerator pedal or steering column by using cable ties to secure any hanging wires. The brown twisted pair CAN plug is cable tied in an accessible position for potential later use.

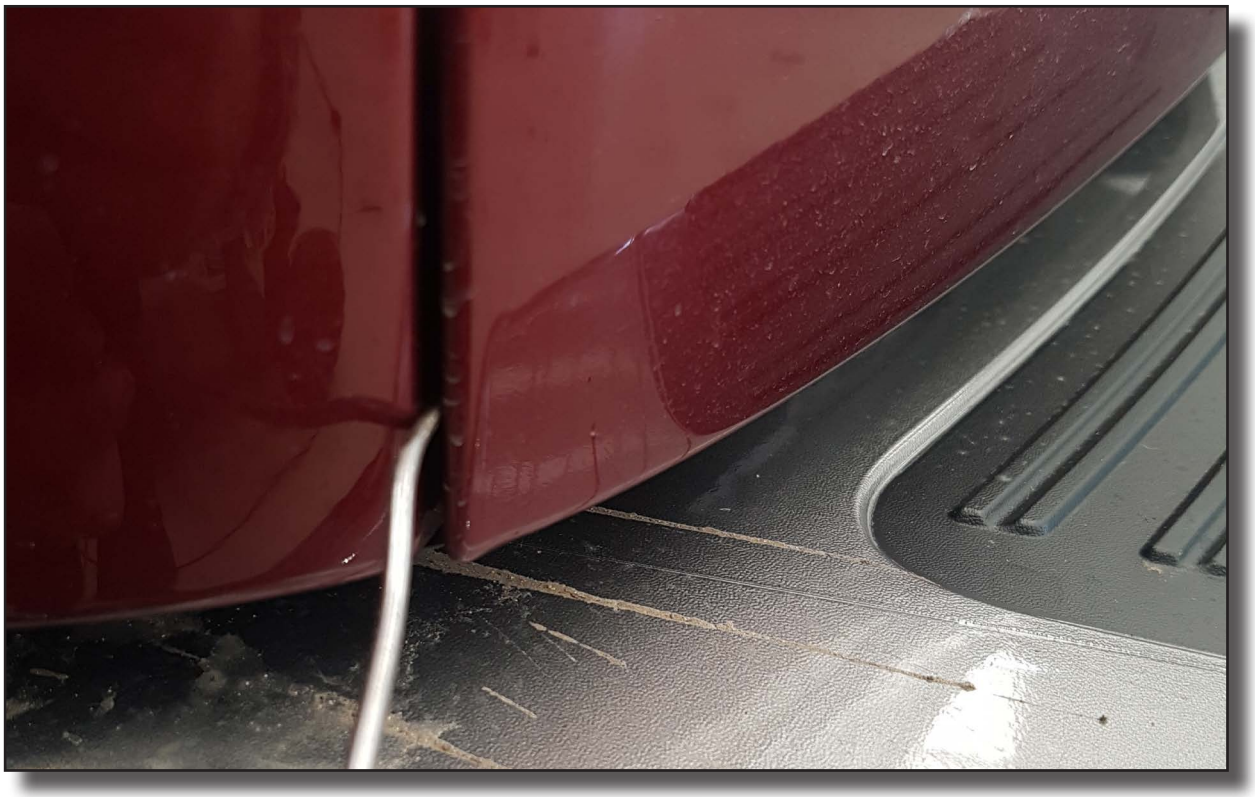
8.4. Clean out the vehicle of any tools and parts then using a vacuum, clean the interior cabin floor of any foreign material.

8.5. Refit any interior parts that were removed. These parts include dash cluster, air duct, dash surrounds, steering column covers, carpets, rear seats, rear seat belts. Ute Models: rear wall tools.
Do not refit front seats or front seat belts as yet - they will be done after the console fitment.

9. Transmission Oil Cooler Installation

9.1. Remove Front Grill from vehicle and any after-market products fitted to the drivers side of the radiator support panel as this is the only location the Transmission Oil Cooler can be fitted.

9.2. Using thin wire or a small pick, remove painted trim strip under headlights.



9.3. Unbolt the centre support and move to the side while fitting cooler as two of the brackets fit behind the centre support.

9.4. If fitted - move the ambient temperature sensor from the centre support to the lower radiator support panel as far from the oil cooler as possible.

9.5. Use bag labeled Cooler Mounting to secure coolers to vehicle.

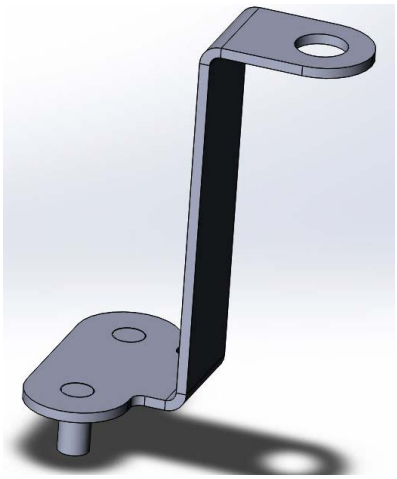
9.6. Connect hoses to cooler before fitting Cooler using the screw clamps to hold the hoses on the cooler
Manipulate the rear lower hose connection so that it does not rub against the A/C Condenser.

9.7. Bolt brackets to the cooler before fitting to vehicle. See following diagrams for bracket locations.

WAT-VDJ-TCB1

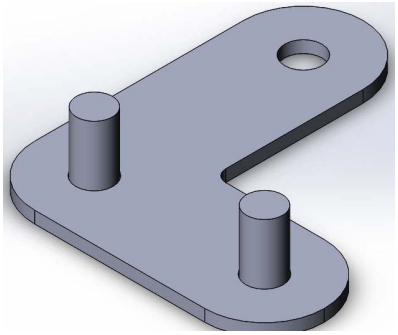
This bracket is used to bolt the Toyota cooler to the radiator support panel. This bracket connects to top left

Please use a hand tool for bolting this bracket to the vehicle as there is a sensor on the other side of this mount.



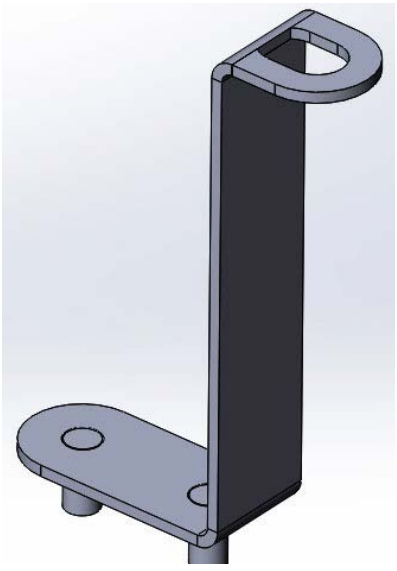
WAT-VDJ-TCB2

This bracket is used to bolt the Toyota cooler to the radiator support panel. This bracket connects to top right



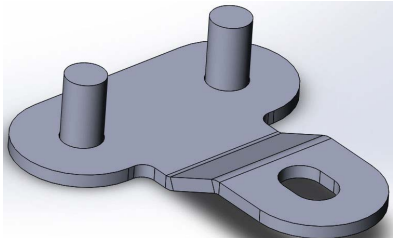
WAT-VDJ-TCB3

This bracket is used to bolt the Toyota cooler to the radiator support panel. This bracket connects to bottom left

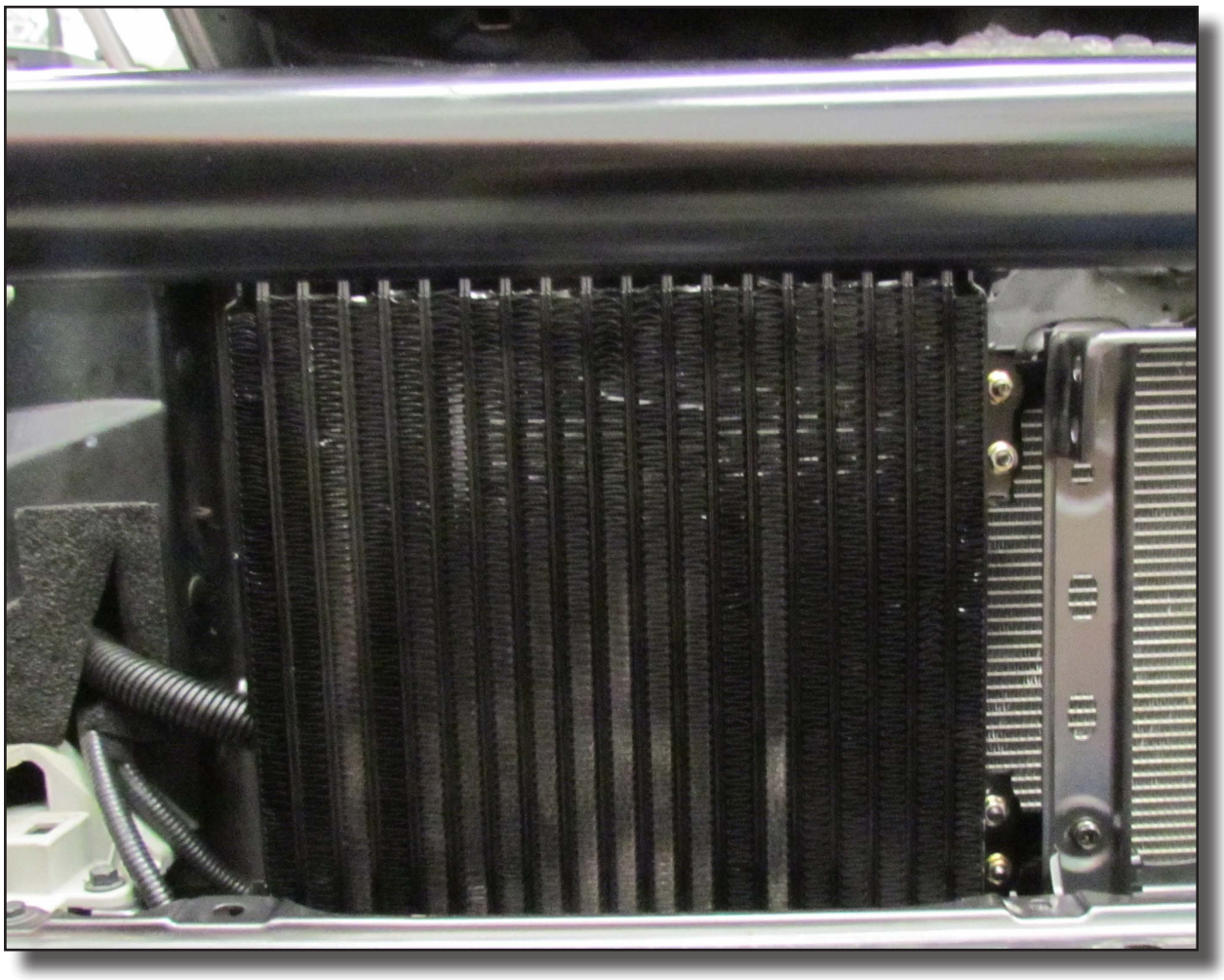


WAT-VDJ-TCB4

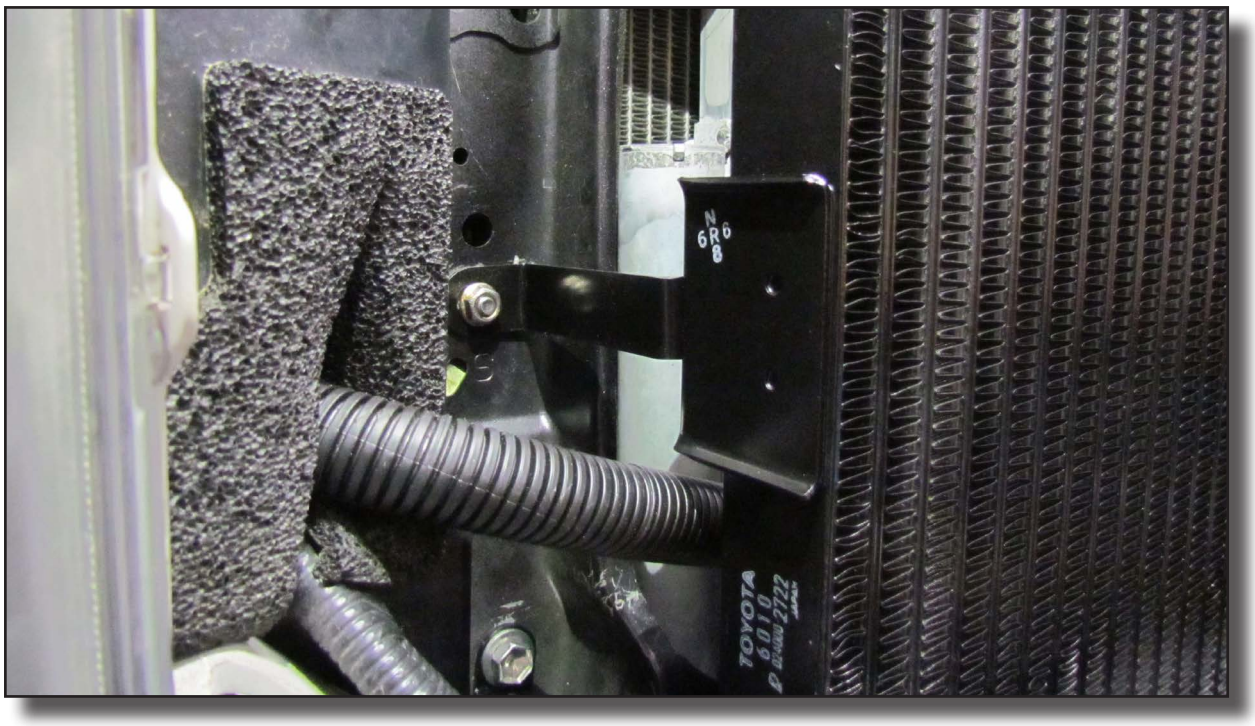
This bracket is used to bolt the Toyota cooler to the radiator support panel. This bracket connects to bottom right



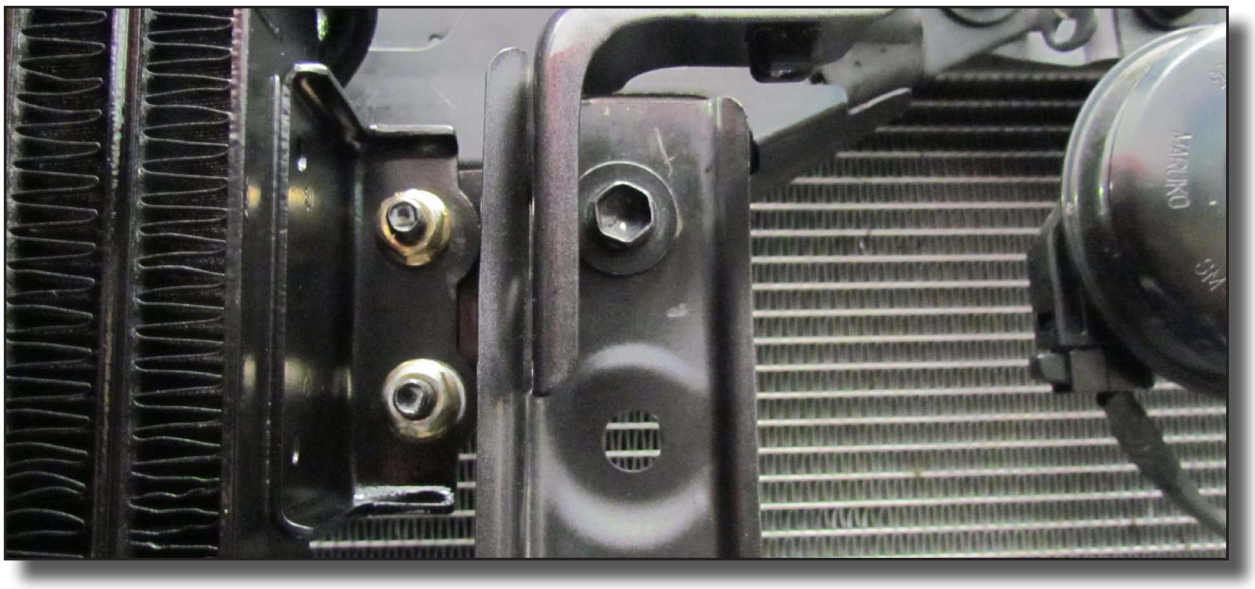
9.8. Finished position of the cooler



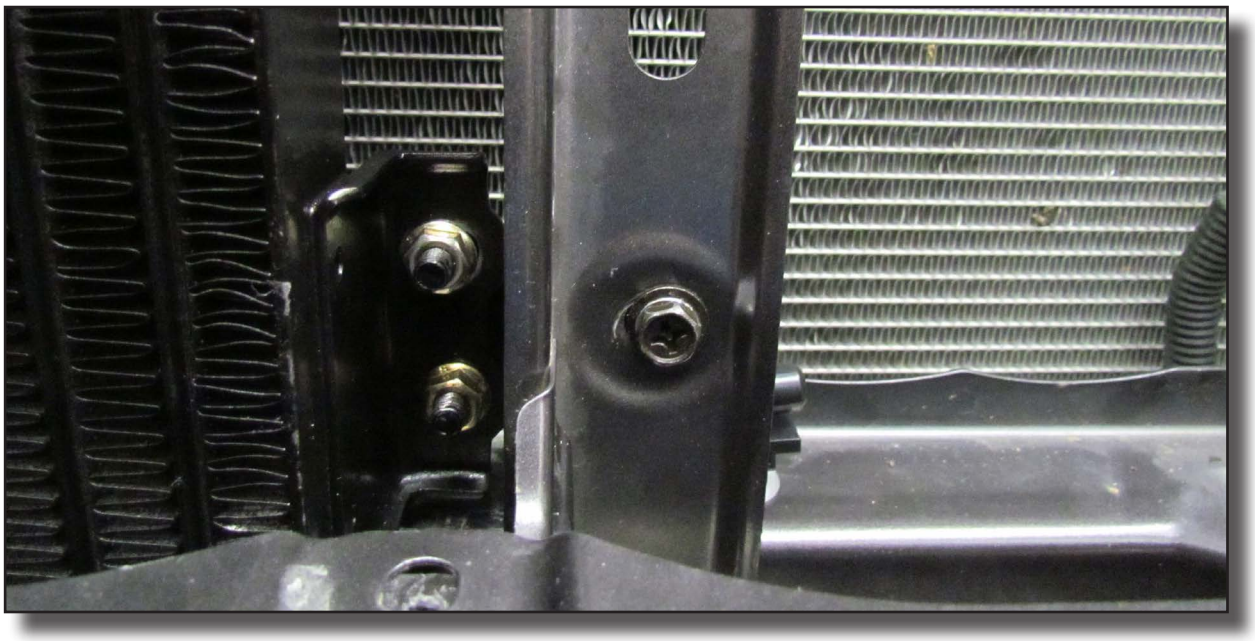
9.9. TCB1



9.10. TCB2



9.11. TCB3



9.12. Once all bolts are in and tightened, the centre support and grill can be refitted.

9.13. When running the cooler lines to the transmission, use the Rubber P-Clips. Please ensure that the P-Clips won't restrict flow and the will not come into contact with the front drive shaft. Please also ensure that the lines are not below the alternator as this may be damaged in extreme offroad circumstances. You can use the WAT-VDJ-BHCL brackets to assist in bolting up the cooler lines to the bell housing.

9.14. We suggest to leave the cooler lines as a loop until you have the transmission bolted in to cut the lines at the right distance.

10. Transmission Installation

10.1. The fitting of the drive plate assembly must be done in the following order

10.1.1 Counterweight - locate using pin

10.1.2 Drive Plate - raised sections towards transmission

10.1.3 Spacer Plate

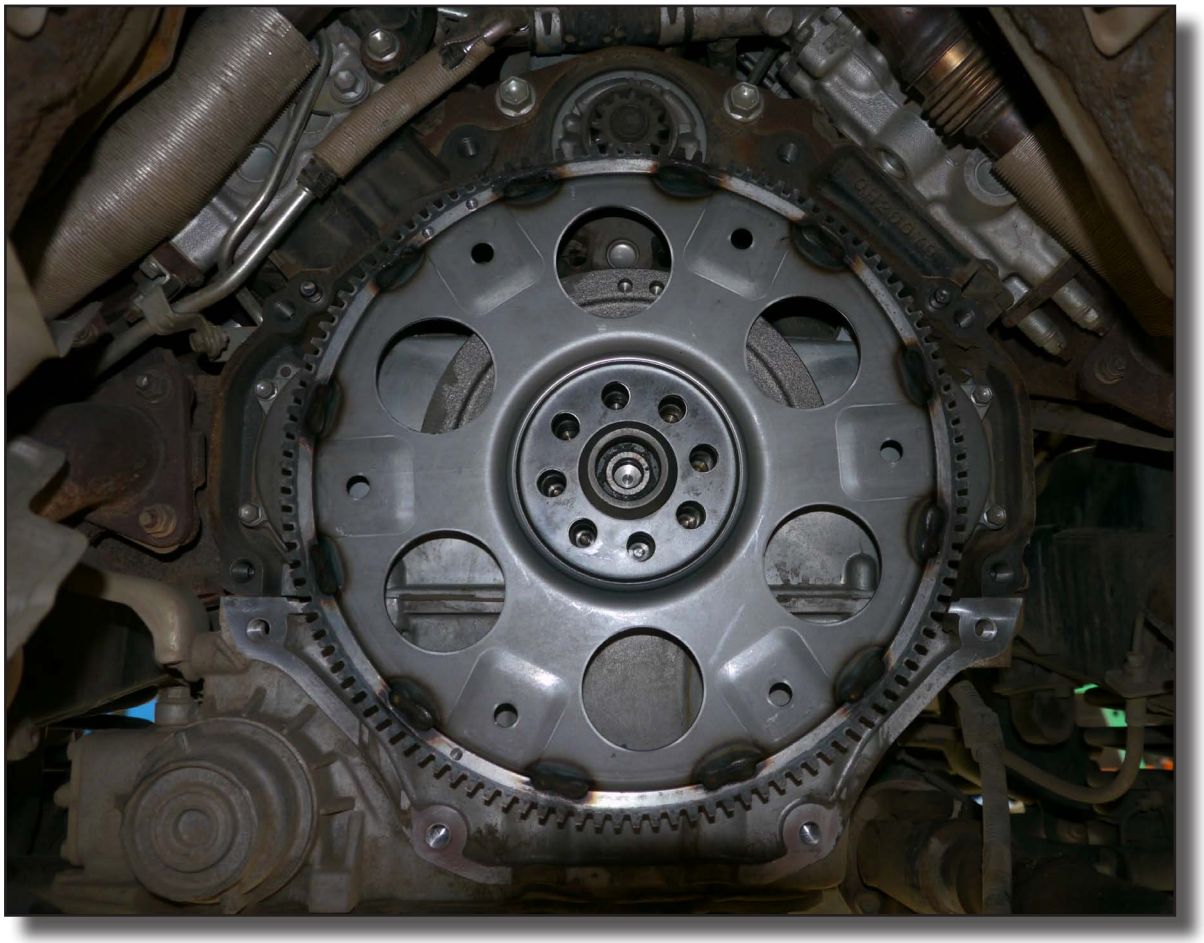
10.1.4 8 x 17mm Crank Bolts

10.1.5 Crank Bolts must be installed with Lock-tite

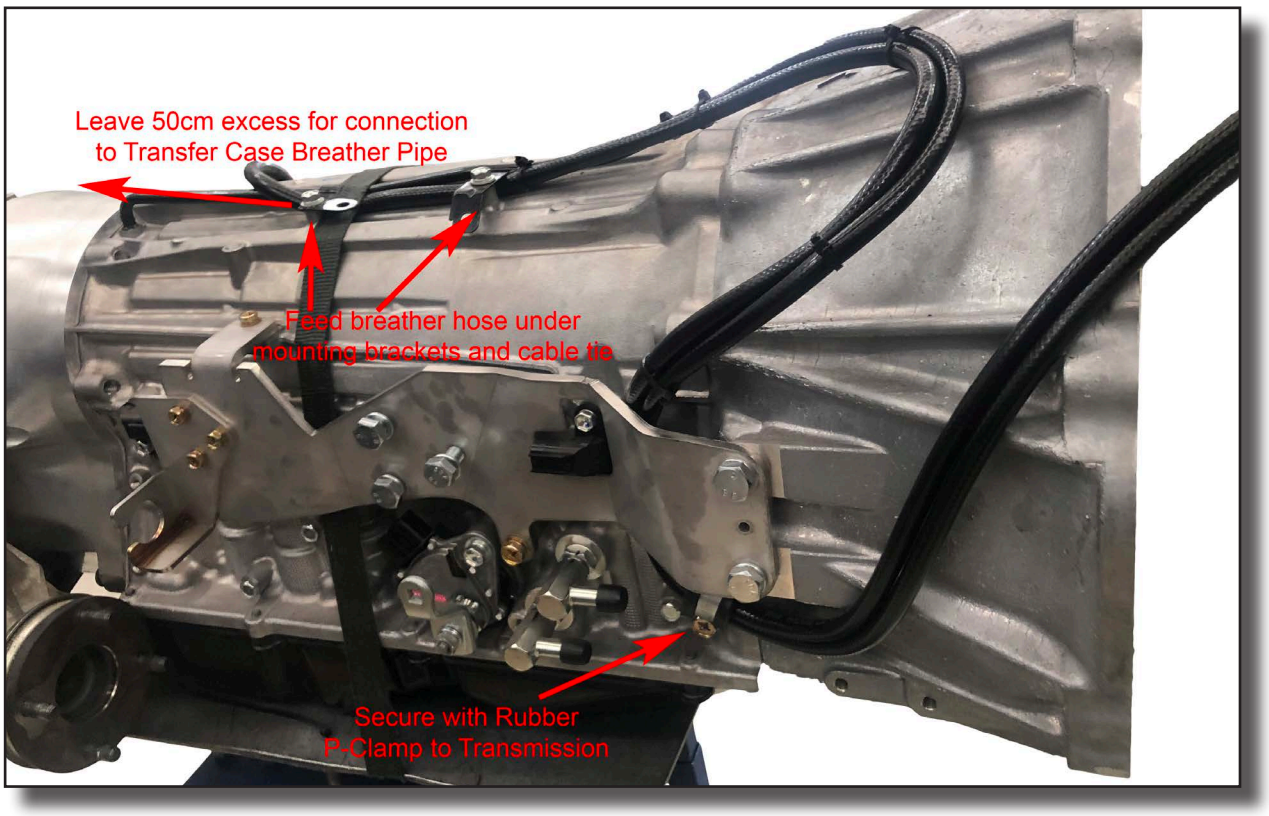
10.1.6 Bolts must be tighten using Torque Wrench (warranty requirement)

10.1.7 First, Hand tighten bolts

10.1.8 Using a drive plate holder tool and a torque wrench, tighten opposing bolts to 60Nm then re-tighten opposing bolts to 120Nm and again repeat the process to final torque of 182Nm.



10.2. Before fitting the transmission, feed one breather hose end under the breather pipe mounting brackets and leave enough to reach the transfer case (approx 50cm). Then connect the other end of the breather hose to the transmission breather pipe. Do not cut the hose for the other end yet. Cable tie both breathers along transmission breather pipe and then run behind the High Low Lever Bracket to meet up with the Cooler Hoses. At a later stage you will run the breather hoses and cooler hoses together to the front of the car.



10.3. While the transmission is still on the ground, check that the 2 x lower bell housing bolts that we supply will fit into the 2 lower bell housing holes. If not, enlarge holes in the bell housing.

10.4. The Transmission can now be moved onto a transmission jack and secured to jack to prevent falling.

10.5. Remove the transport strap holding the torque converter in place and check that the torque converter is fully installed into the transmission pump. It is VITALLY important that it is fully installed into the transmission first.

If the torque converter is not fully seated into transmission, there will be no clearance between the torque converter and the flex plate or you won't be able to close the gap between the engine block and the bell housing. Do not use the bell housing bolts to close the gap as this may cause damage to the torque convertor and pump. You may need to drop the transmission down and re-seat the torque converter.

10.6. Run a dab of grease around the Spigot on the Torque Convertor before fitting.

10.7. Raise the transmission up to the engine and locate dowels between the engine block and transmission and make sure the torque converter spigot goes into crank before installing bell housing bolts.

Be sure that the auto is located on the dowels and fits flush to the engine block without using any bell housing bolts. If the transmission will NOT sit flush against the crank then the torque converter is not installed correctly. Please remove the transmission from the crank and spin the torque converter while applying pressure to ensure it is all the way in.
The convertor must also have at least 3mm of clearance to the drive plate!!

10.8. Use the bolts removed from Manual Transmission Bell housing to secure the automatic in place, with the lower 2 x bolts supplied in the kit. Start all bolts by hand first, check for torque converter clearance of at least 3mm then tighten all bolts to 75nm

10.9. Bolt up torque convertor to drive plate through hole in bottom of bell housing. First screw in black locater bolt then followed by the 5 silver bolts to be finger tight, then remove them one by one and refit with Lock-tite and tighten. As the access is quite limited, we recommend using a cheap 17mm ring spanner that can be modified slightly to aid access. Photos below.

10.10. Install stainless steel cover for torque converter bolts access hole with supplied hardware.

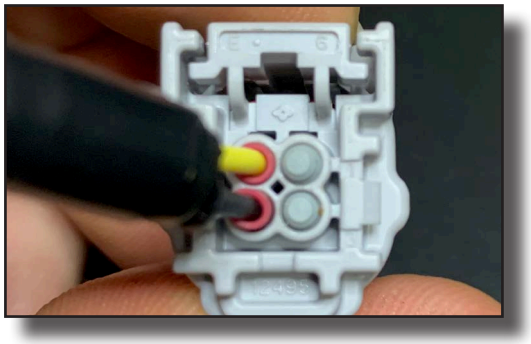
10.11. Do not install transfer case yet to provide better access for wiring connections.

11. COMPUSHIFT Main Harness Installation

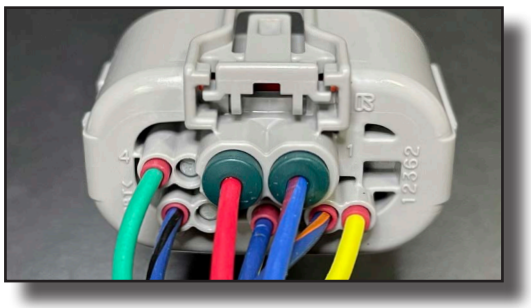
11.1. Blanking Grommet Check

11.1.1 Before connecting the wiring to the transmission, please check that there are still blanking grommets in the following connectors where there is no wires installed. If any are protruding from the connector by more than 2mm, please push them back in until they are flush with the connector. There should be 5x grommets in total.

11.1.2 **Aux Solenoid Connector**
2 x Grommets in Pins 1 & 3



11.1.3 **MLPS Connector**
2 x Grommets in Pins 3 & 8

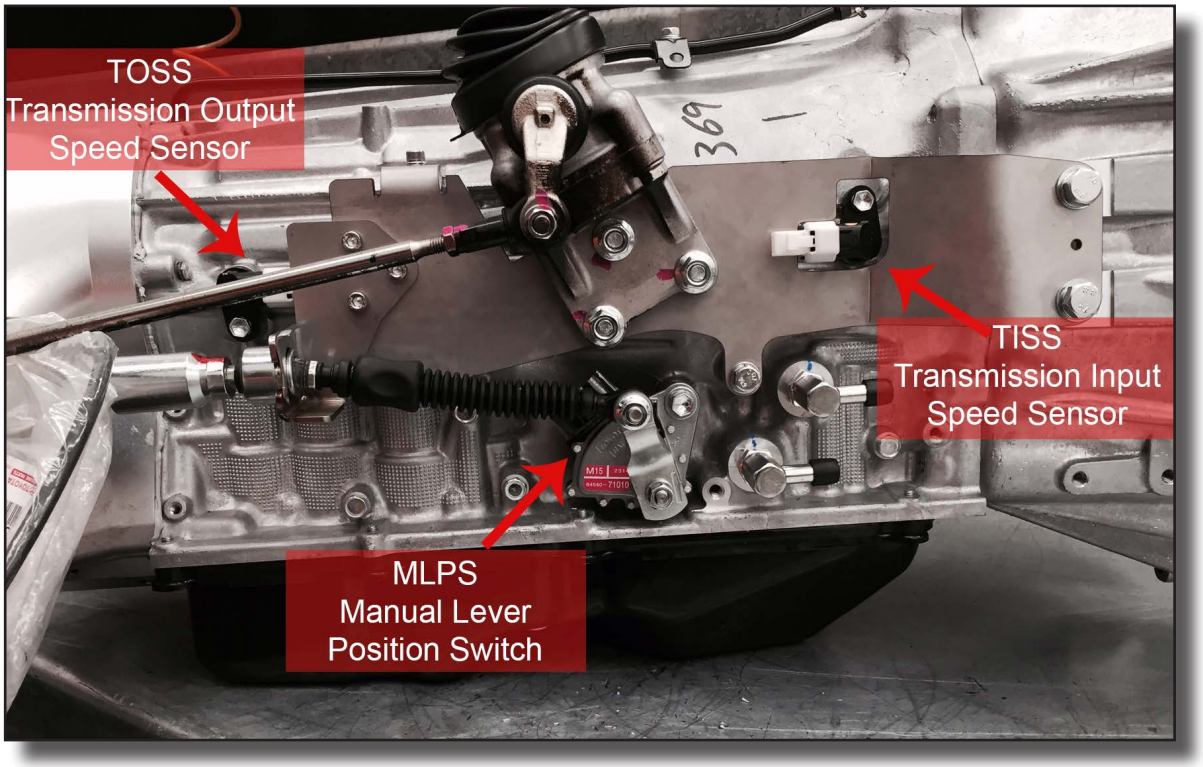


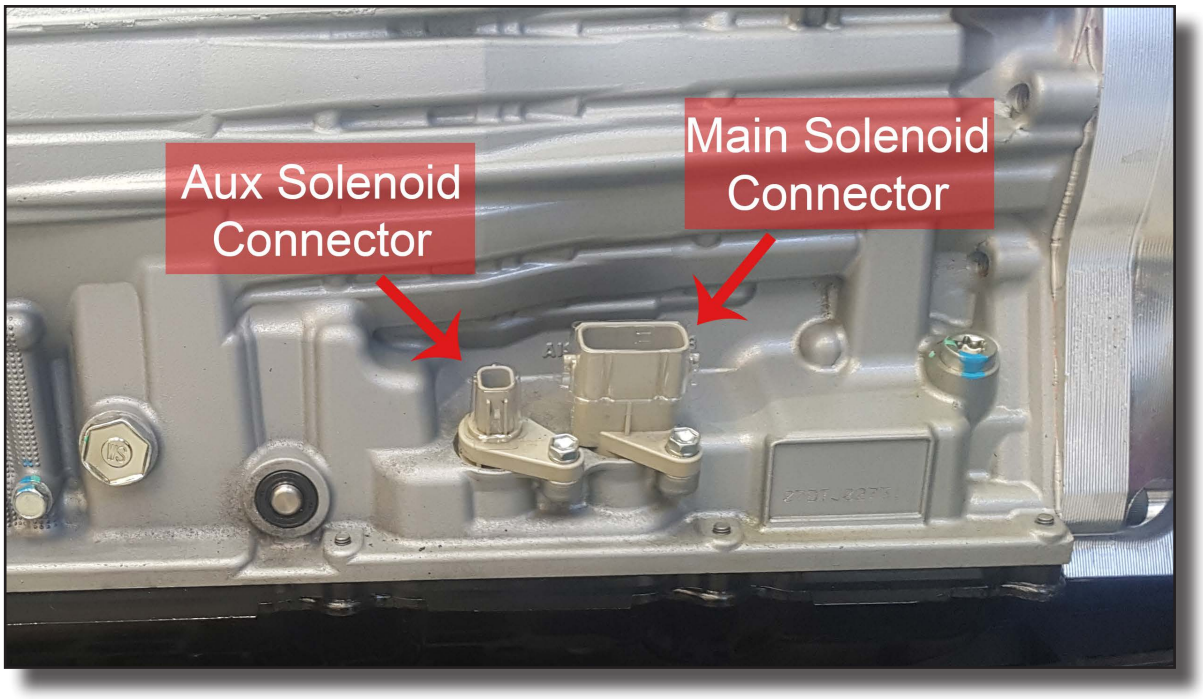
11.1.4 **Torque Modulation Connector**
1 x Grommet in Pin 1

11.2. Transmission Connections

11.2.1 Connector Locations on the Transmission

There are 8 connections to be made under the vehicle. 5 connections go to the transmission, 1 to the transfer case and 2 to the factory manual loom. The following 2 photos describe the locations of the connections for the Transmission.

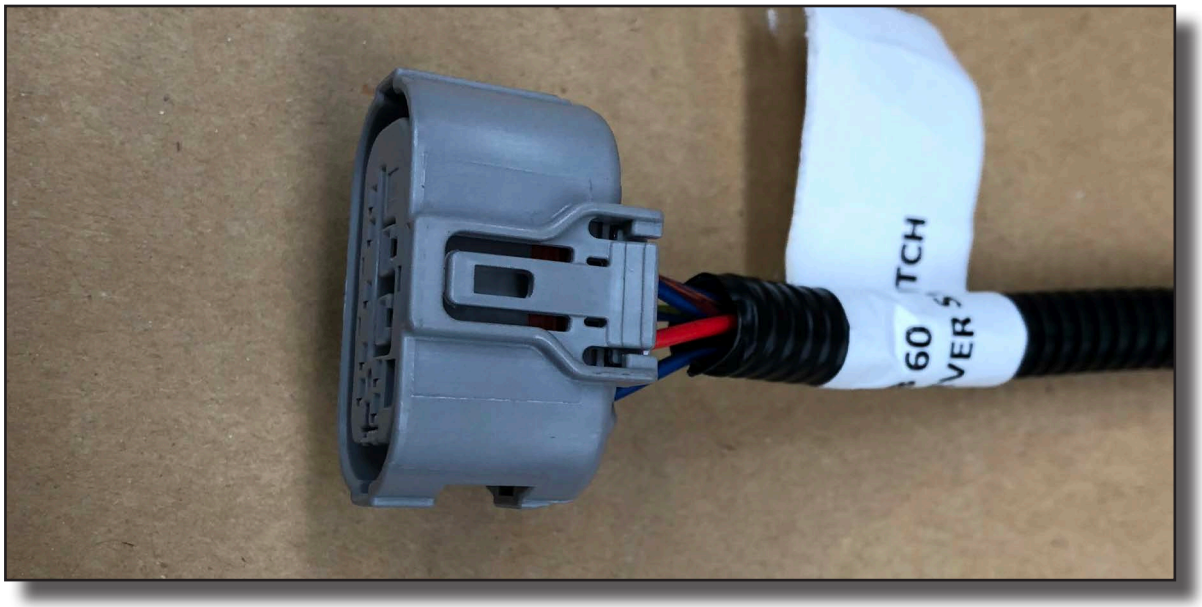




11.2.2 MLPS connector (Manual Lever Position Switch)

9 Pin Oval Connector

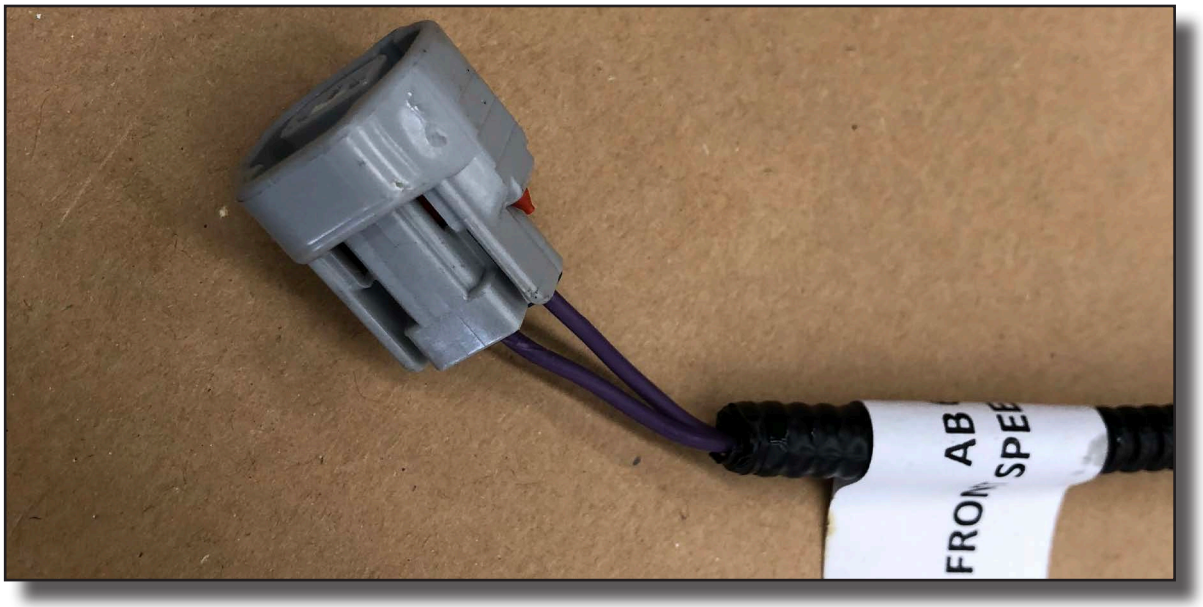
This is the first connection on the transmission as it requires being fed behind the High Low Lever bracket on the side of the transmission and connects to the Manual Lever Position Switch.

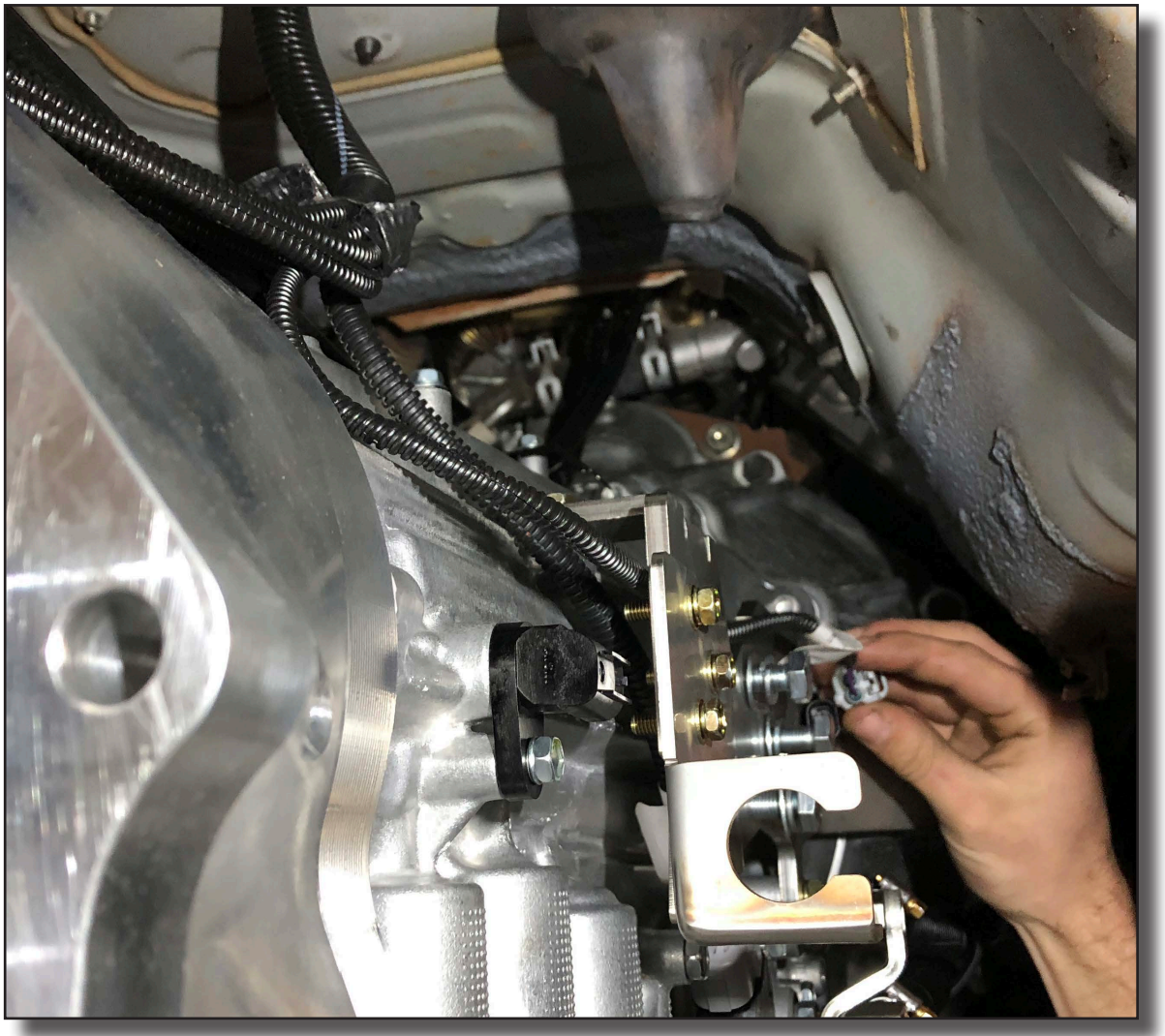


11.2.3 TISS Connector (Transmission Input Shaft Sensor)

2 Pin Connector with Solid Violet wires

Feed the TISS connector under the rear upper mounting flange for the High Low Lever Bracket and then connect to the TISS which is sticking out through the **front** of the High Low Lever Bracket.

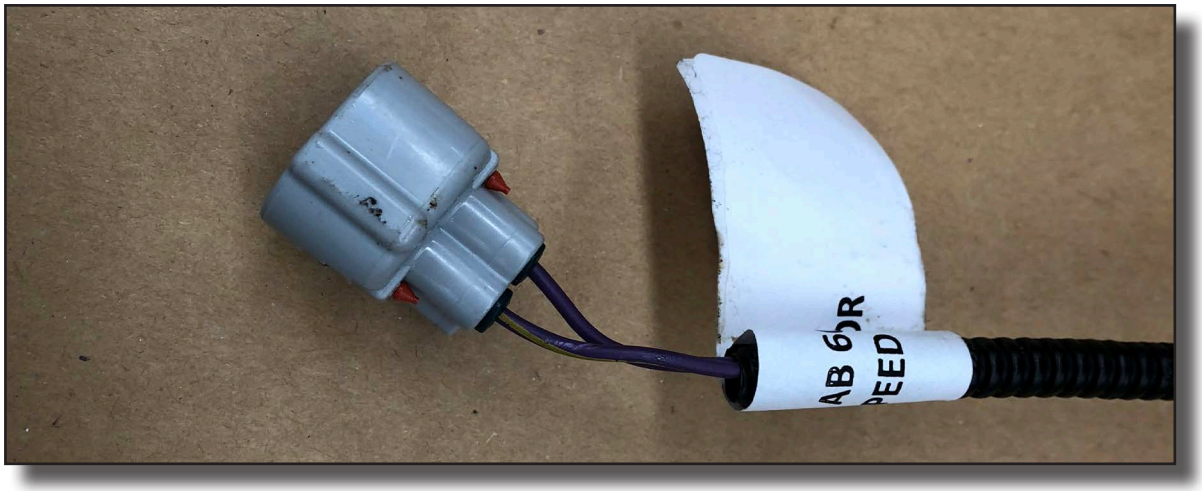


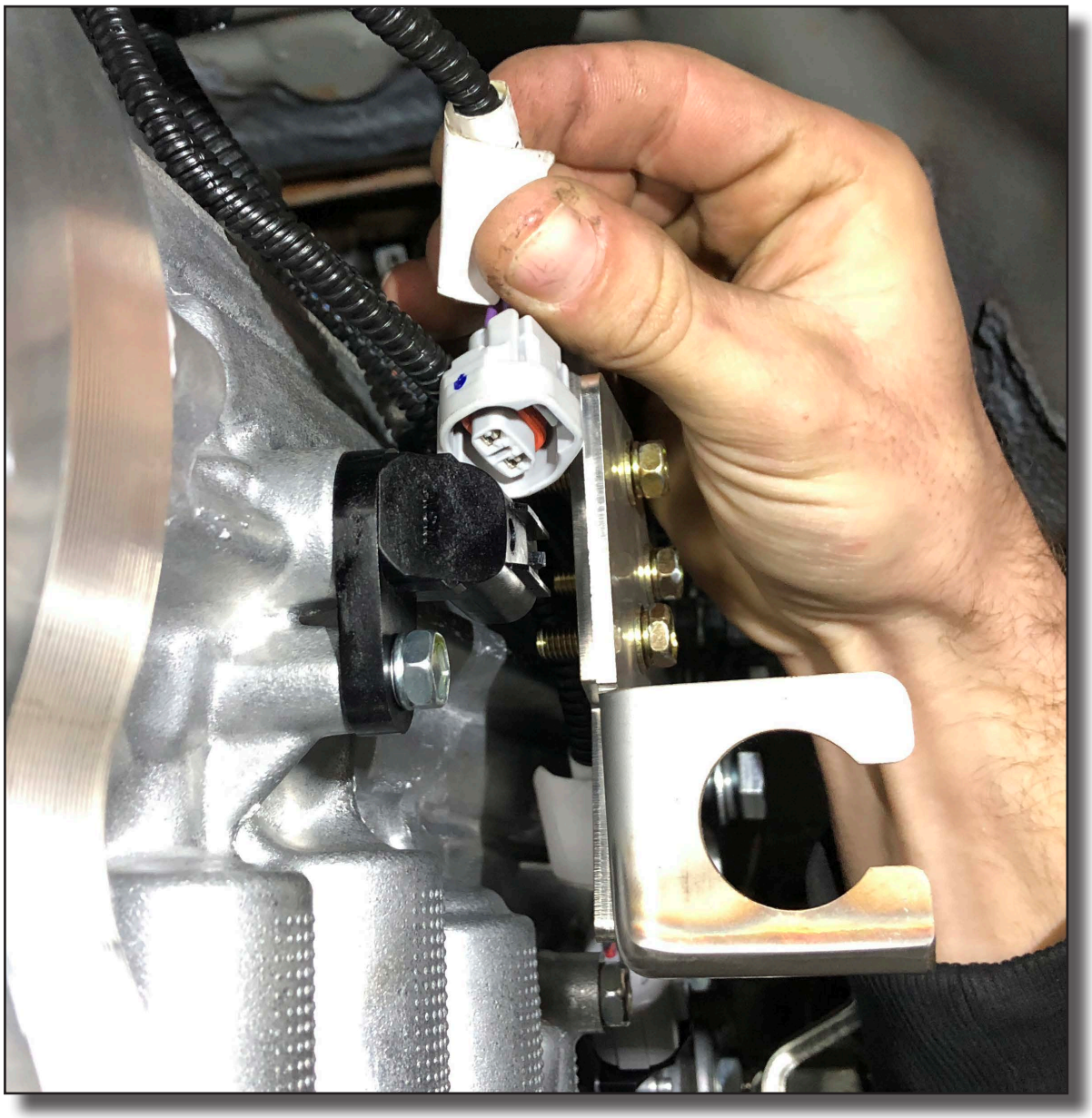


11.2.4 TOSS Connector (Transmission Output Shaft Sensor)

2 Pin Connector with Violet and Yellow Striped wires

The TOSS connector simply plugs onto the rear sensor behind the **rear** of the High Low Lever Bracket.

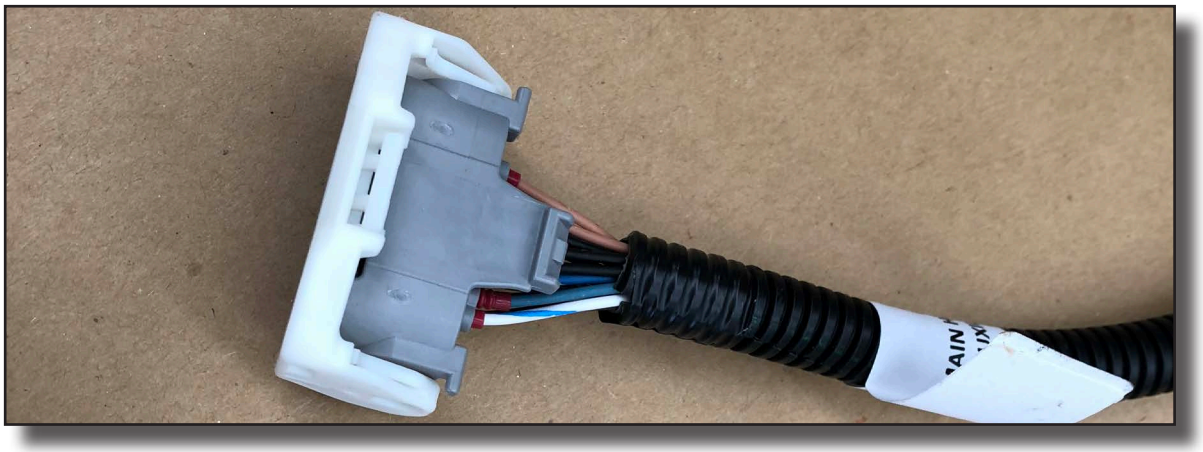




11.2.5 Main Solenoid Connector

15 Pin Lever Style Connector

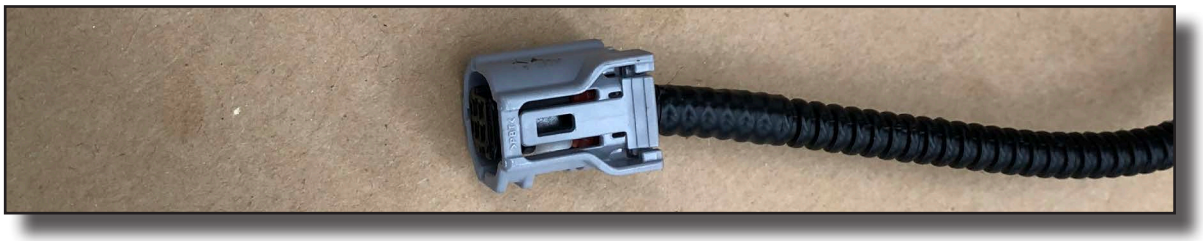
This lever only goes on one way - the lever facing away from the transmission. You will know when the connector is pushed down correctly as the white lever will release from it's open position. Rotate the lever to the upright position to fully engage the connector. It will then click into the locking tab on top of the connector.



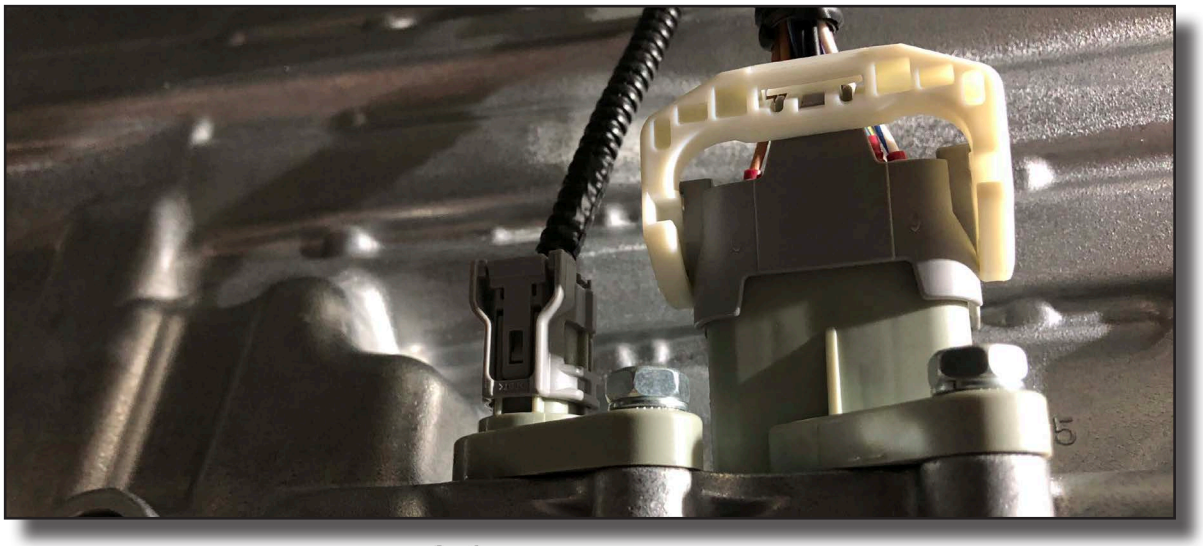
11.2.6 Aux Solenoid Connector

4 Pin Connector

This fits beside the Main Solenoid Connector. It can be difficult to push all the way.



11.2.7 Both Main and Aux Solenoid Connectors Installed

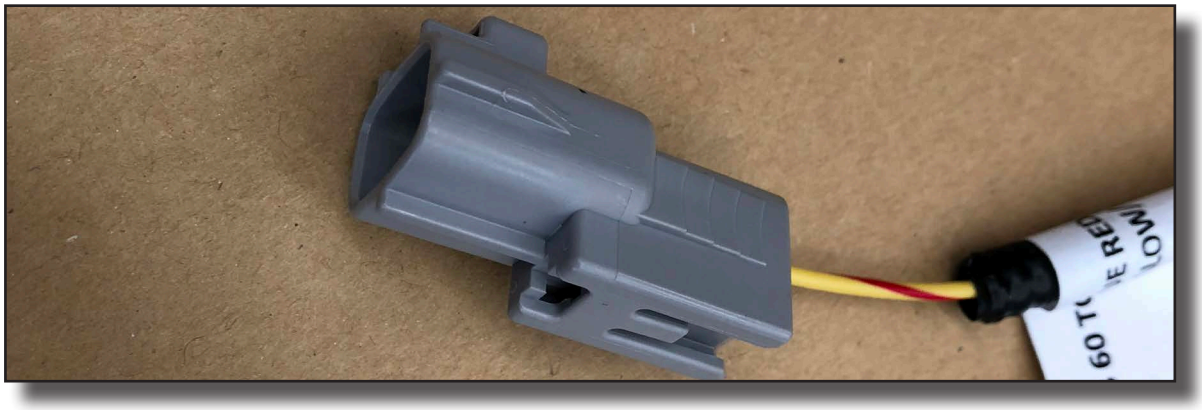


11.3. Non-Transmission Connections under Vehicle

11.3.1 Torque Modulation Connector

2 pin Connector

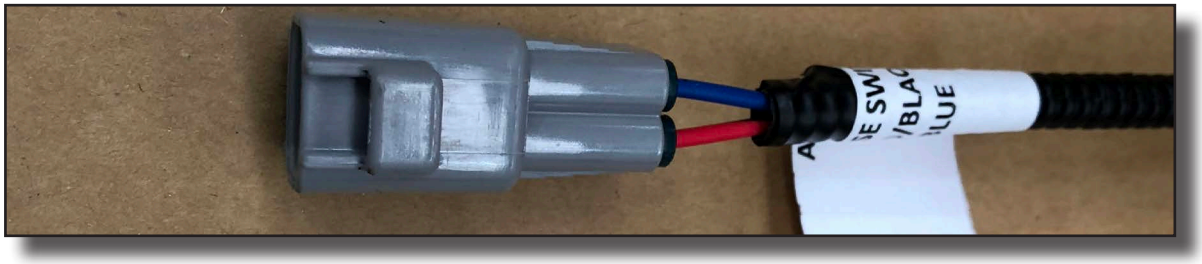
Connects to the OEM Manual Harness Connector that originally was connected to the First Gear Position Sensor on the Manual Gearbox.



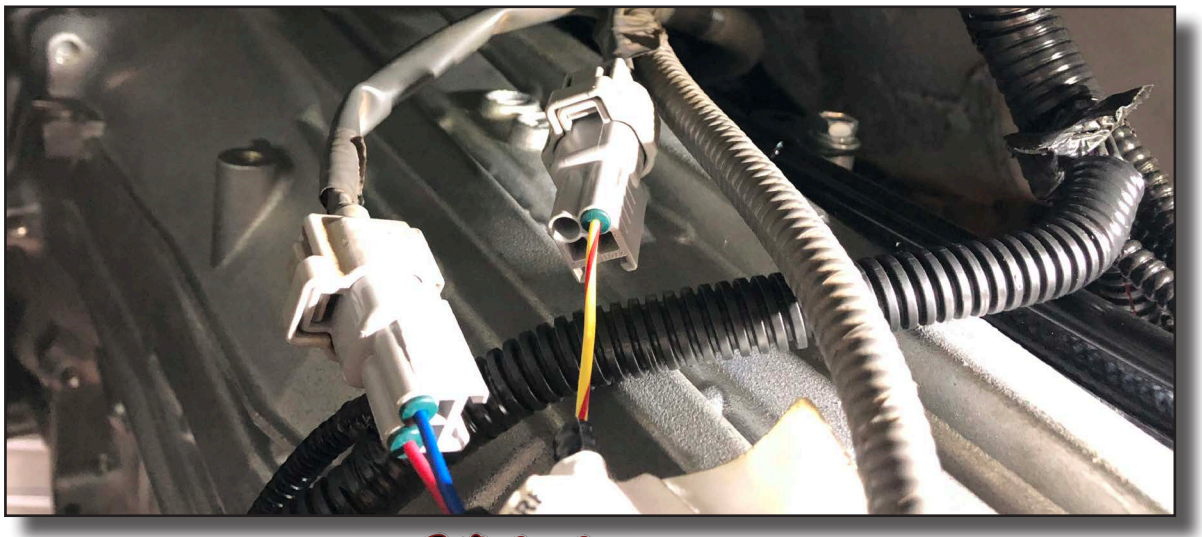
11.3.2 Reverse Light Circuit Connector

2 Pin Connector

Connects to the OEM Manual Harness Connector that originally was connected to the Reverse Gear Position Sensor on the Manual Gearbox

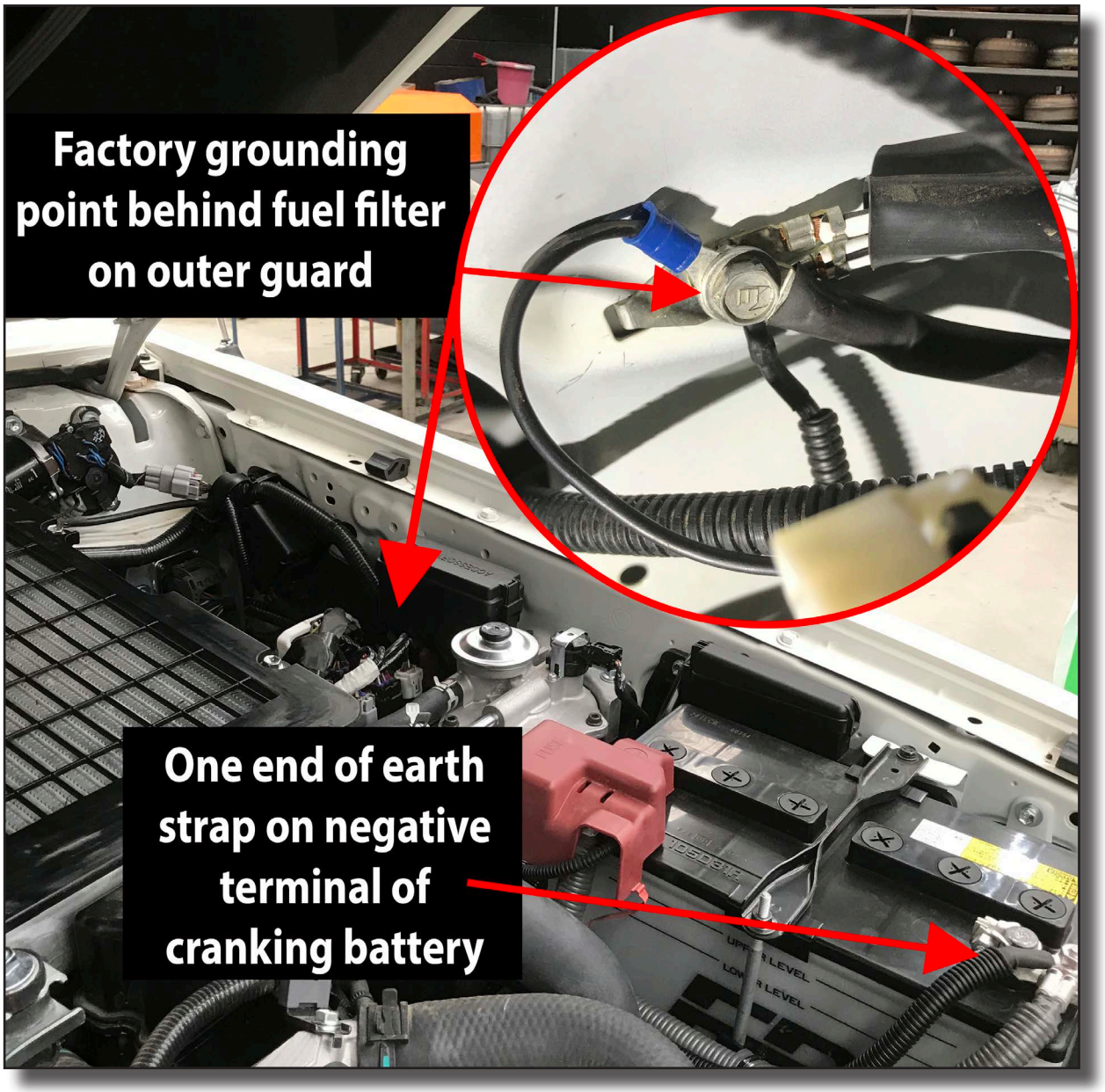


11.3.3 Both Torque Modulation and Reverse Light Connectors Installed

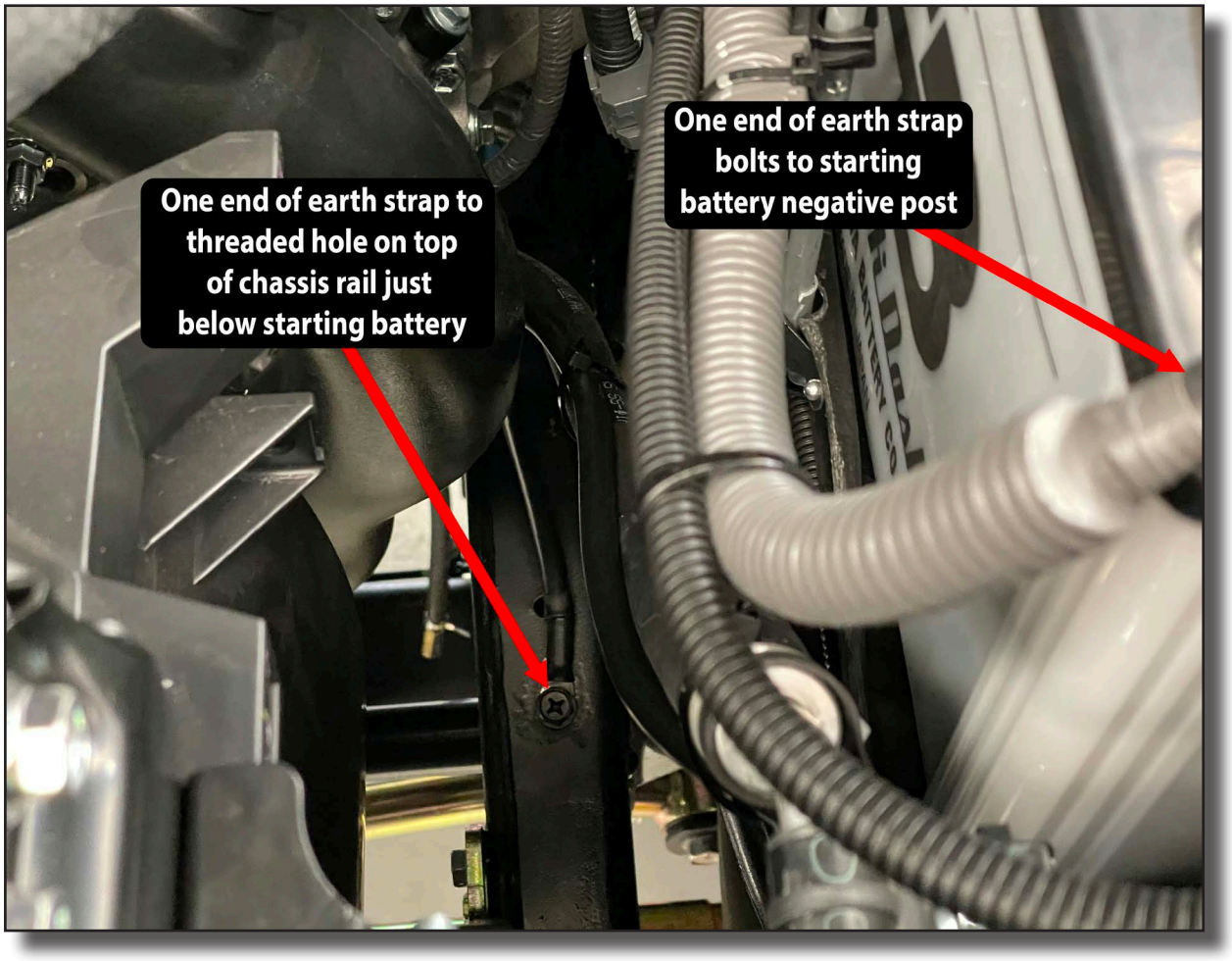


12. Earth Straps

12.1. In the Engine Bay, we need to fit the supplied Earth Straps. One between the Cranking Battery Negative post and the factory grounding point on the inside passenger quarter panel behind factory fuel filter.



12.2. The second earth strap needs to be installed between the Cranking Battery Negative post and the chassis rail.



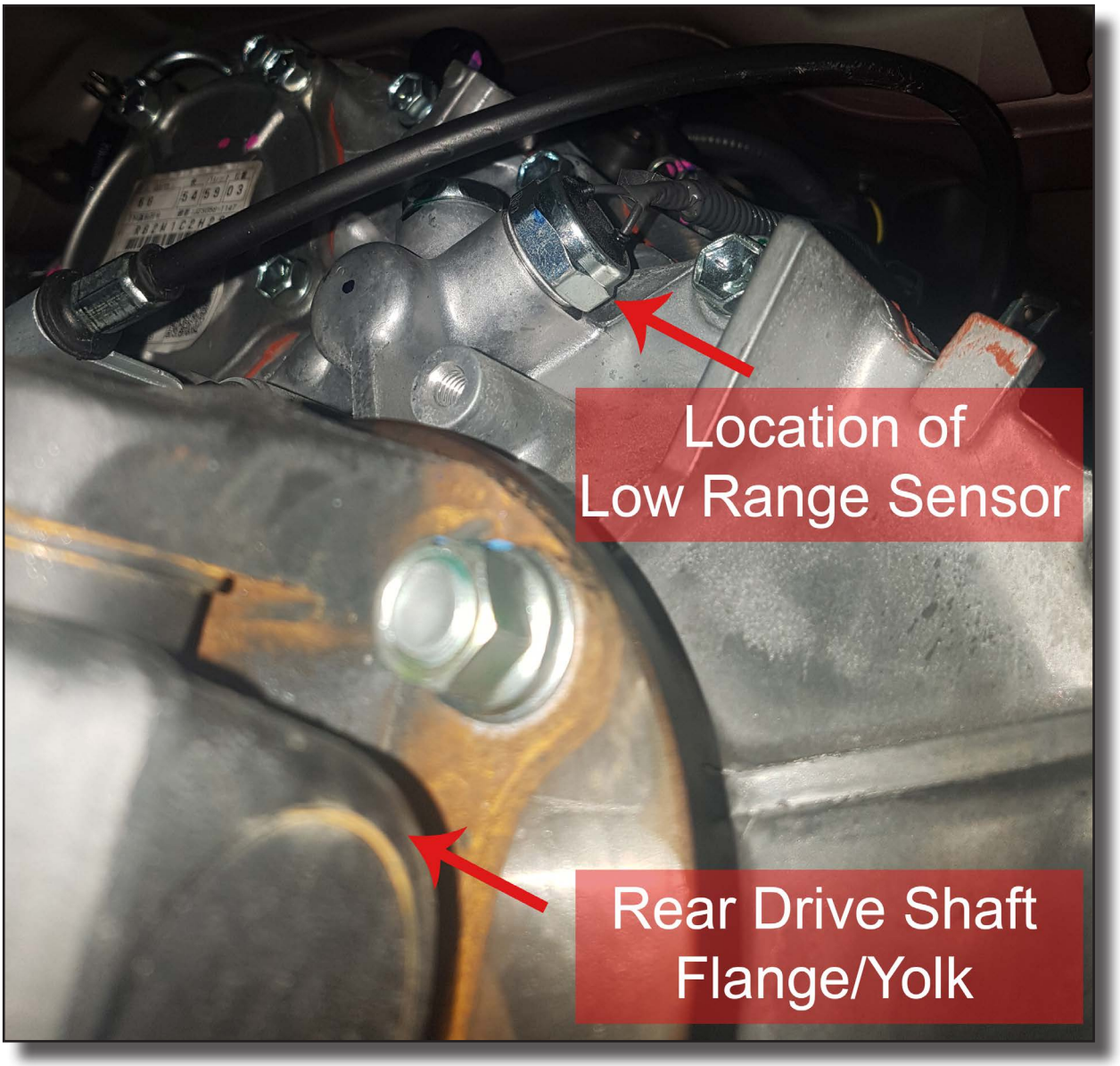
12.3. Last re-connect OEM ground strap from chassis to transmission. Usually it will bolt to the same bolt that is used for the high low lever mount on the bell housing. If there is insufficient clearance or it won't reach a bolt on the transmission, move the wire to the transfer case and the round tube that runs between the two chassis rails.

13. Transfer Case Installation

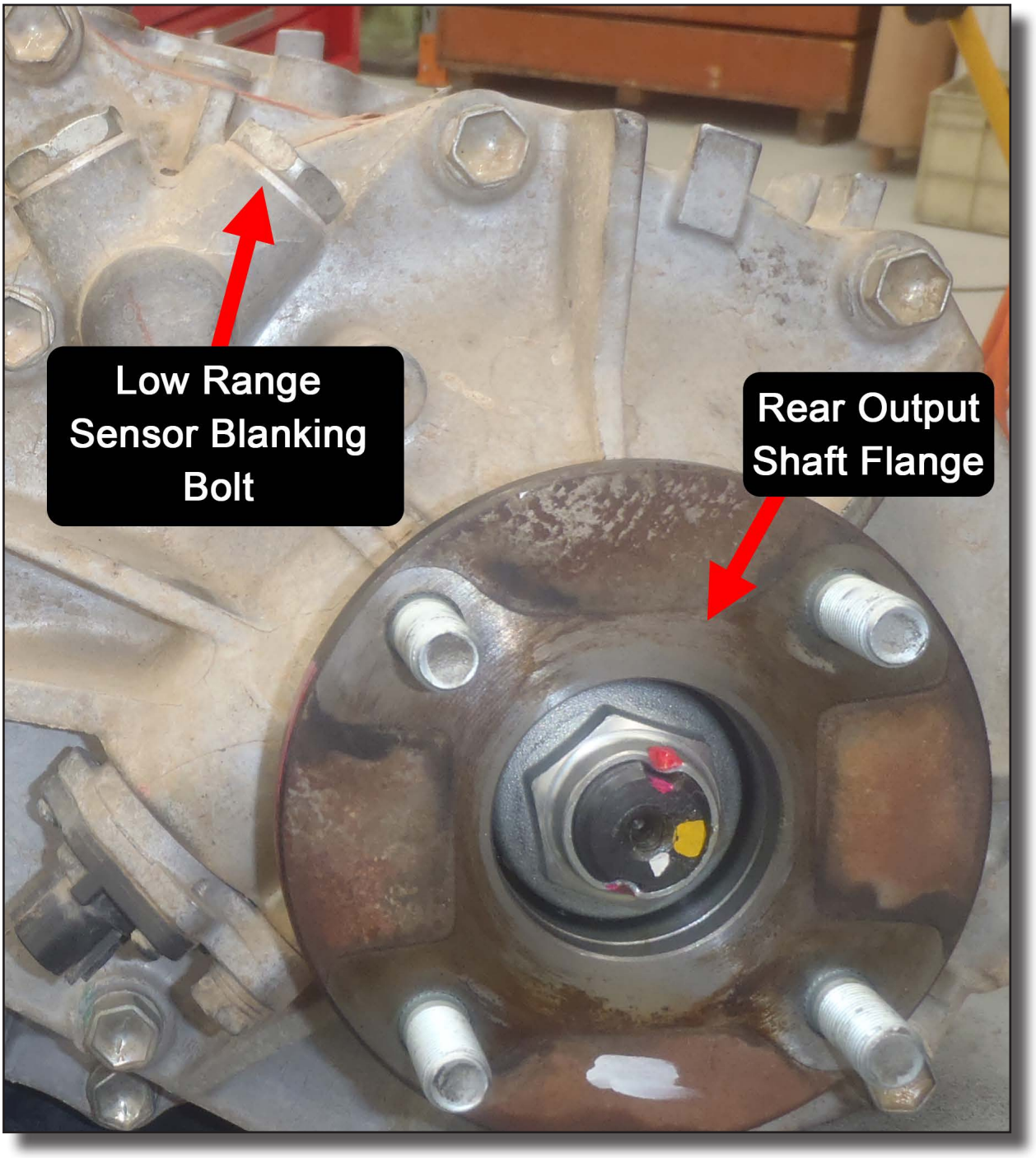
13.1. Transfer Case Differences

Depending on the model you have, the transfer case may already have the Low Range sensor installed and connector to the vehicle wiring. Looking at the rear of the Transfer Case where the rear drive shaft connects, the sensor is directly above the rear drive shaft flange. You will notice there is a position for two sensors in that location. One is roughly at the 11 O'Clock position and the other is located at a 2 O'Clock position. The sensor we are looking for is the one at the 2 O'Clock position.

The image below is a example of the transfer case with the Low Range sensor already fitted and wired to the vehicle. For this style of transfer case, please follow the section "**Transfer Case with OEM Low Range Sensor**"



If your transfer case has a blanking bolt in the same 2 O'Clock position then we will need to install a sensor so that the COMPUSHIFT knows when you have shifted into Low Range. Please follow the steps in the section "**Transfer Case without OEM Low Range Sensor**"

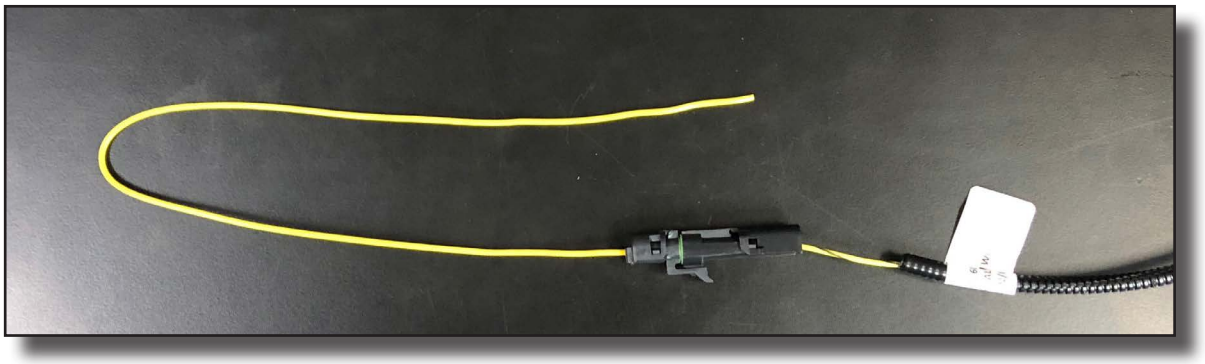


13.2. Transfer Case with Existing Low Range Sensor

13.2.1 Low Range Signal Tail

Yellow Tail with Connector

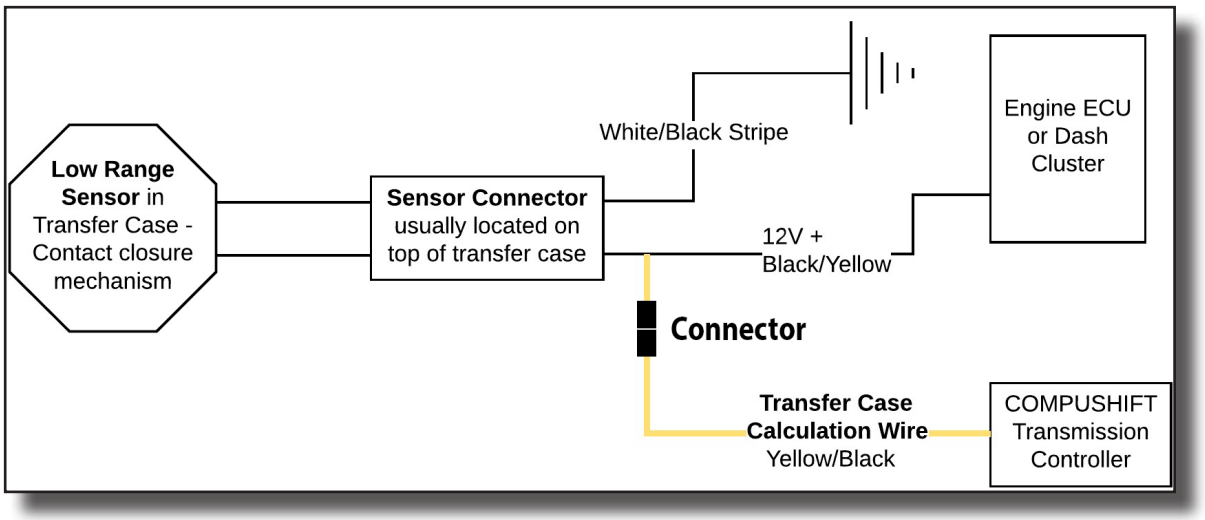
This is a single Yellow/Black wire that connects to the Hot side of the OEM Low Range Sensor to let the COMPUSHIFT computer know when you have shifted in to low range.



13.2.2 Splice into Low Range Signal

The Yellow wire from the COMPUSHIFT splices into the Black/Yellow trace wire on the factory loom with a single pin weatherpak connector in between.

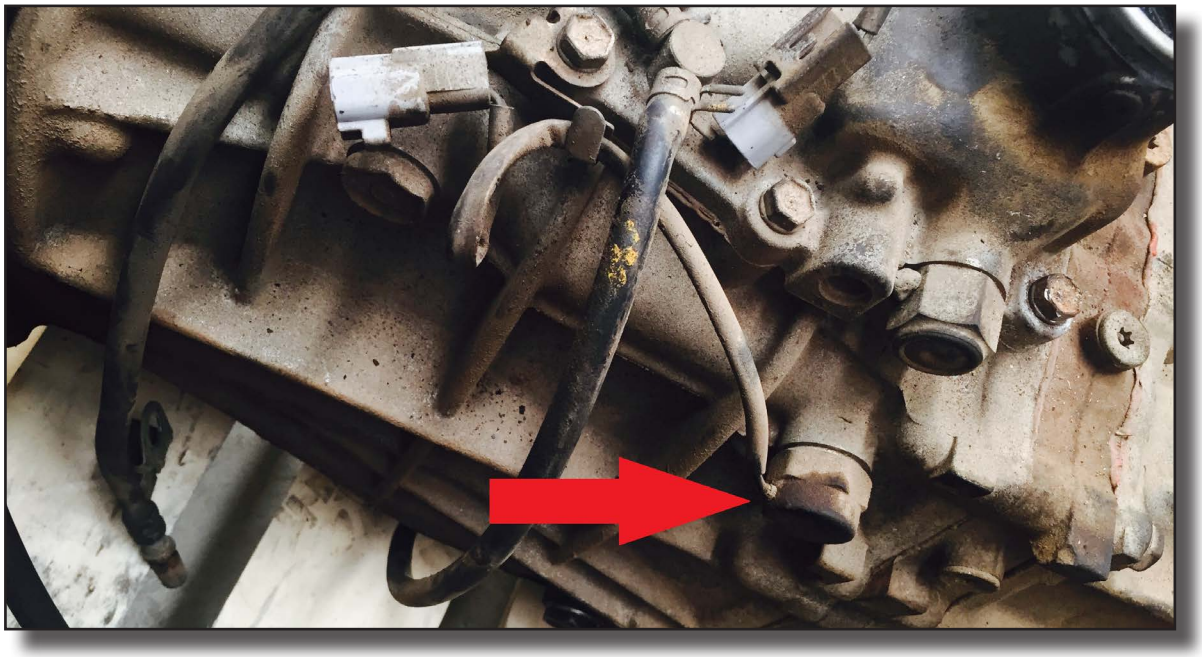
NOTE There is an intermediate connector on the factory sensor which only has the 2 x black wires coming from the sensor on one side of the connector. You need to be on the ECU side of that connector to find the Black/Yellow wire.



13.3. Transfer Case without Existing Low Range Sensor

13.3.1 Remove Reverse Sensor from Manual Gearbox

If your transfer case does NOT have the OEM low range sensor then you will need to raid the sensor for reverse detection on the manual transmission and fit that into your transfer case. Be sure to grab the washer.



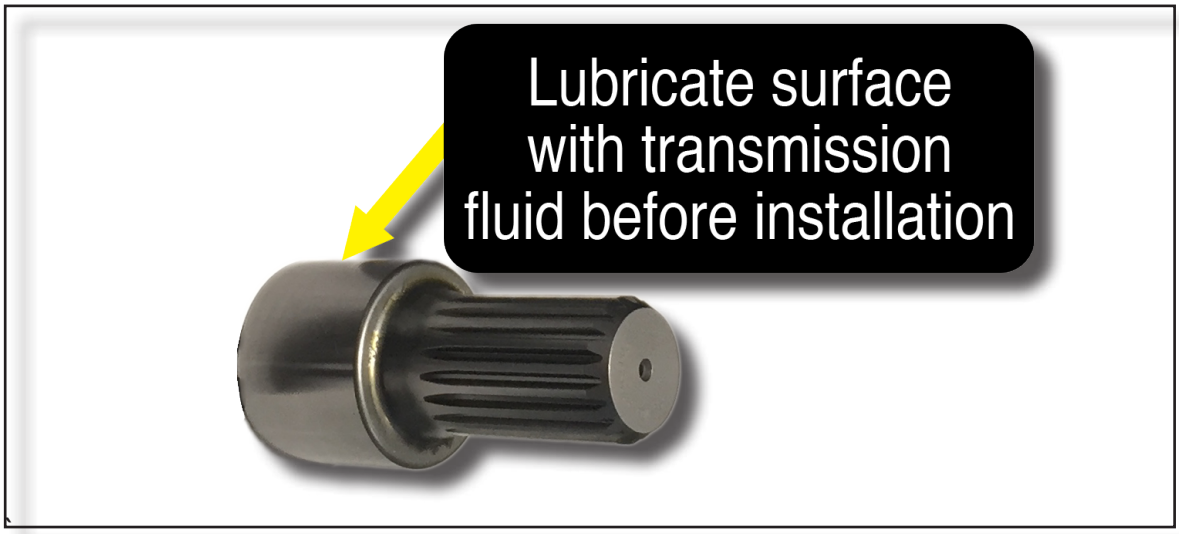
13.3.2 Install Reverse Sensor into Transfer Case

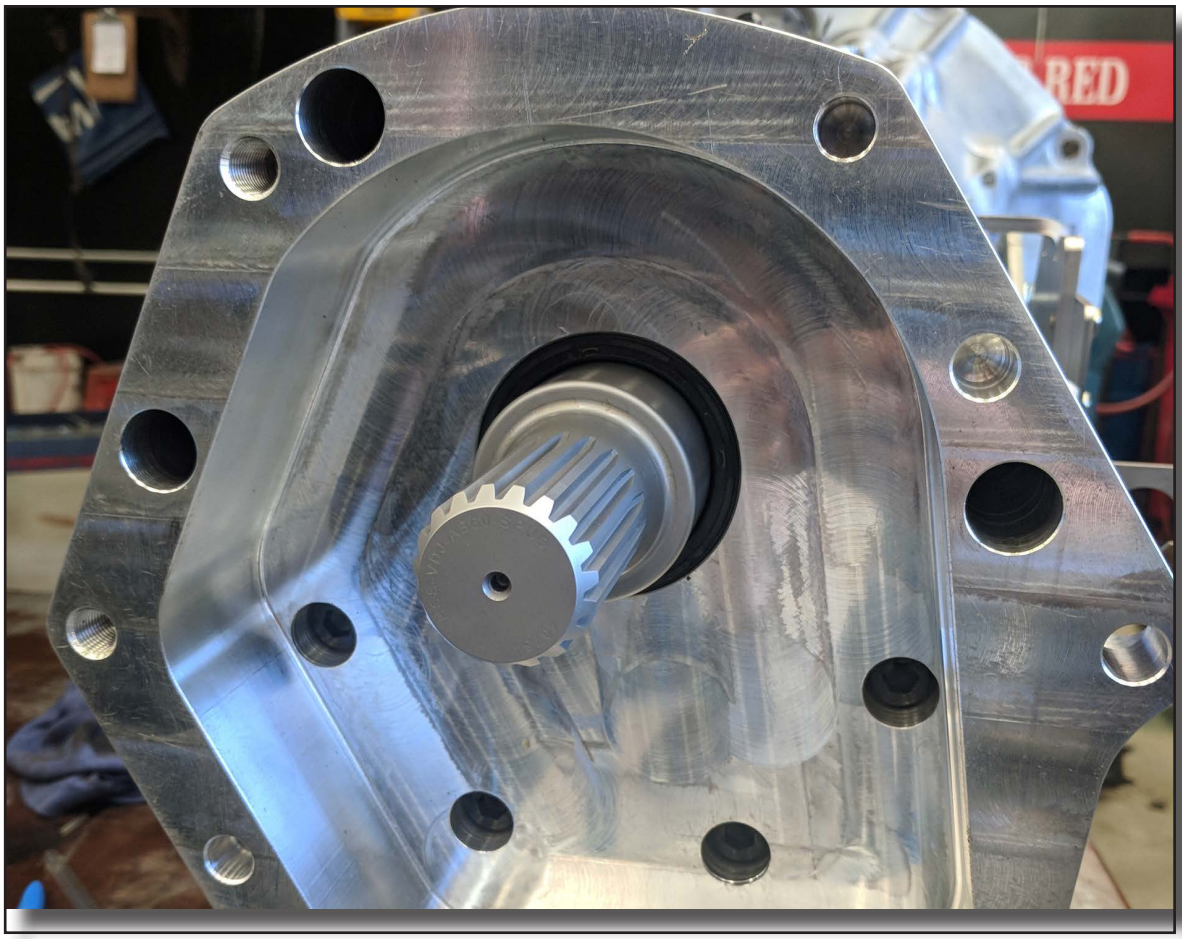
Fit the sensor into the blank that is located at the 2 O'Clock position on the rear of the transfer case. Ensure washers are used as per original installation on the manual gearbox. Cut off the OEM Connector from the sensor and install a ring terminal onto one of the black wires. Bolt ring terminal to a open threaded hole on the transfer case. Solder Yellow/Black tail from harness to the other black wire.

13.4. Fitting Transfer Case

13.4.1 Fit Spud Shaft

Before installing the transfer case, we need to install the Spud shaft that connects the output of the Transmission to the input of the transfer case. Remove the spud shaft from the packaging and lubricate the smooth surface with transmission fluid to avoid damage to the seal.





13.4.2 Transfer OEM Dowels

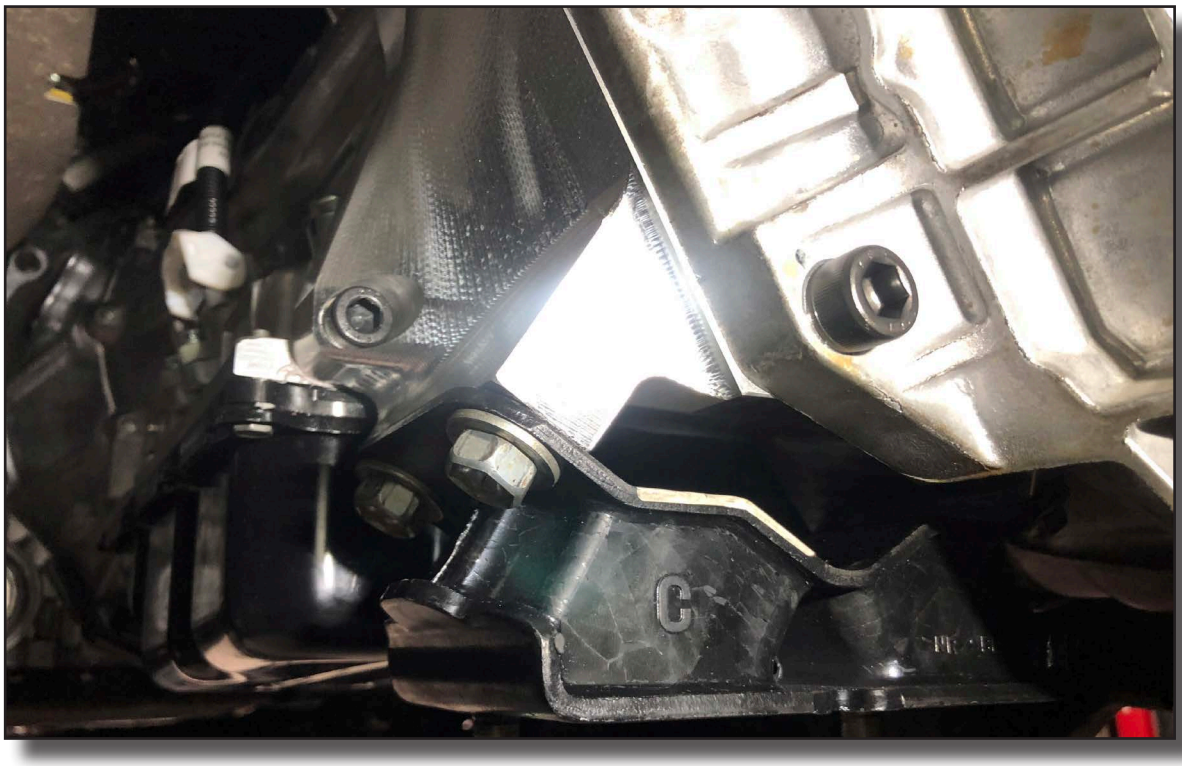
Remove the OEM Dowels from the rear of the Manual Gearbox and install into the rear of the transfer case adaptor.

13.4.3 Install the Transfer Case

The Transfer Case can now be fitted to transmission using the supplied 6 x M12 x 40 bolts. Ensure the dowels are fitted prior to installing the transfer case.

13.4.4 Fit Crossmember Rubber Mount

Fit supplied rubber mount using factory mounting bolts. There is a letter ‘D’ and a letter ‘C’ moulded into the rubber on the supplied transmission mount. The letter D faces the Automatic Transmission Pan and the letter ‘C’ faces the transfer case.



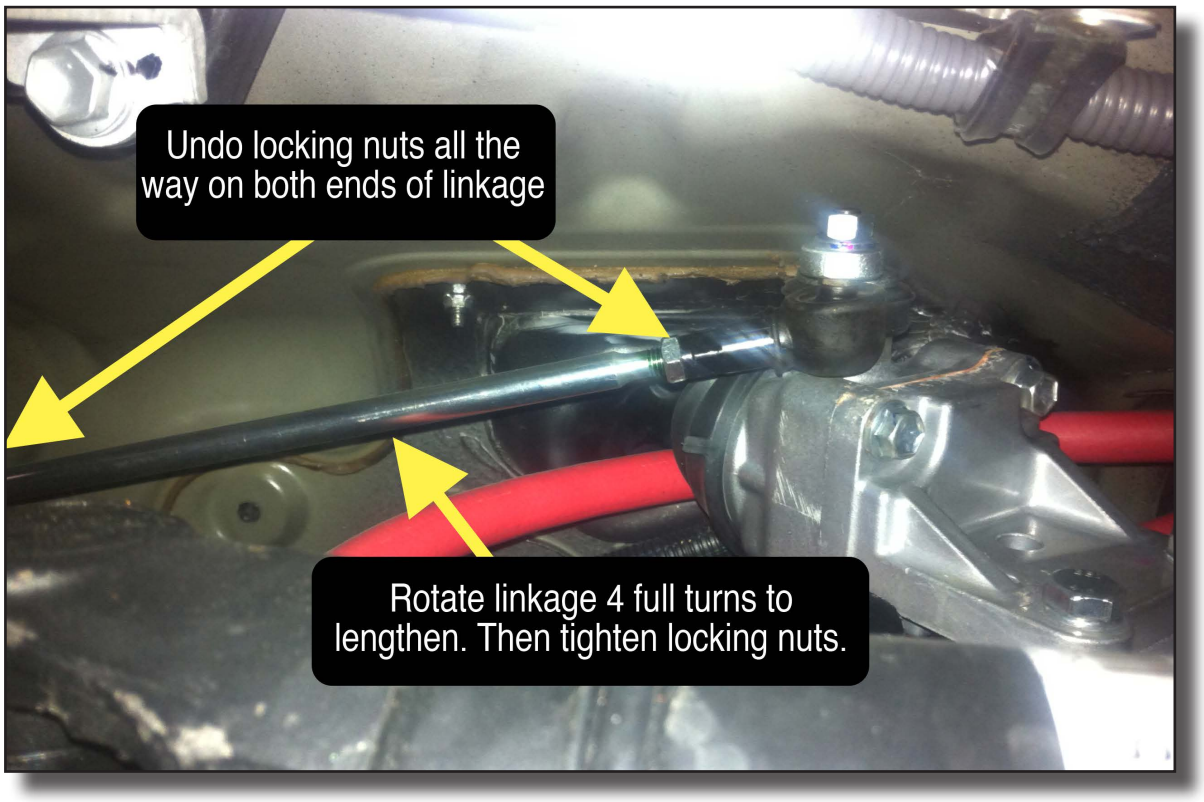
13.4.5 Once transfer case is re-installed, all remaining factory wiring connections on the transfer case can now be re-connected. Please make sure to secure all wiring to avoid them interfering with any moving parts.

13.4.6 The transfer case will be close to the transmission pan - Approx 3mm. This is normal and not a problem as the flange will not move in relation to the transmission. Just make sure you have the dowels in place.

13.5. Transfer Case Shifter

13.5.1 Prepare Transfer Case Shifter

Remove the dowels from the OEM Transfer Case Lever. Also adjust the linkage between the shifter and the transfer case lever arm. Undo the two locking nuts on each end first. Usually it requires 4 full turns of the rod to lengthen the linkage, but that may vary. You will need to check clearance to the cabin floor and also the dash in high range and in low range once everything is fitted.



13.5.2 Fit the Transfer Case Shifter

Bolt the Transfer Case Shifter assembly to the Transfer Case Lever Bracket on the side of transmission using supplied bolts. Be careful not to jam any wires or hoses between the lever and the mount or tie up any wires around the High Low Lever Linkage.

13.5.3 Check Clearances

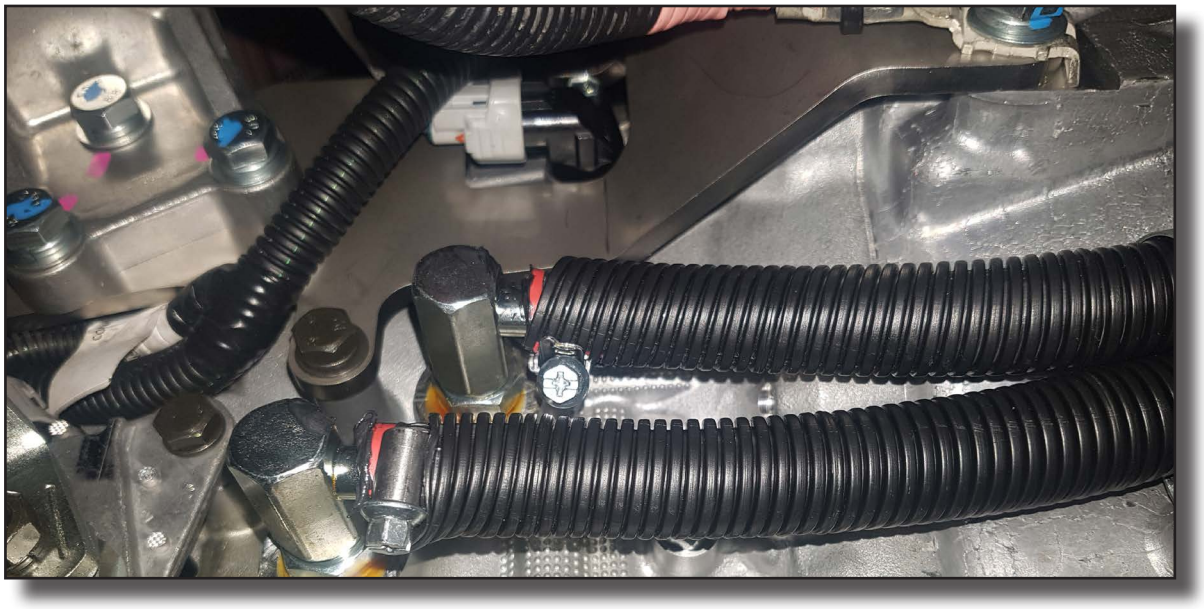
There should be good clearance between the Transfer Case Shifter Linkage and the Cabin Floor to allow for movement.

14. Finishing Off Under Vehicle

14.1. Cooler Line Connections

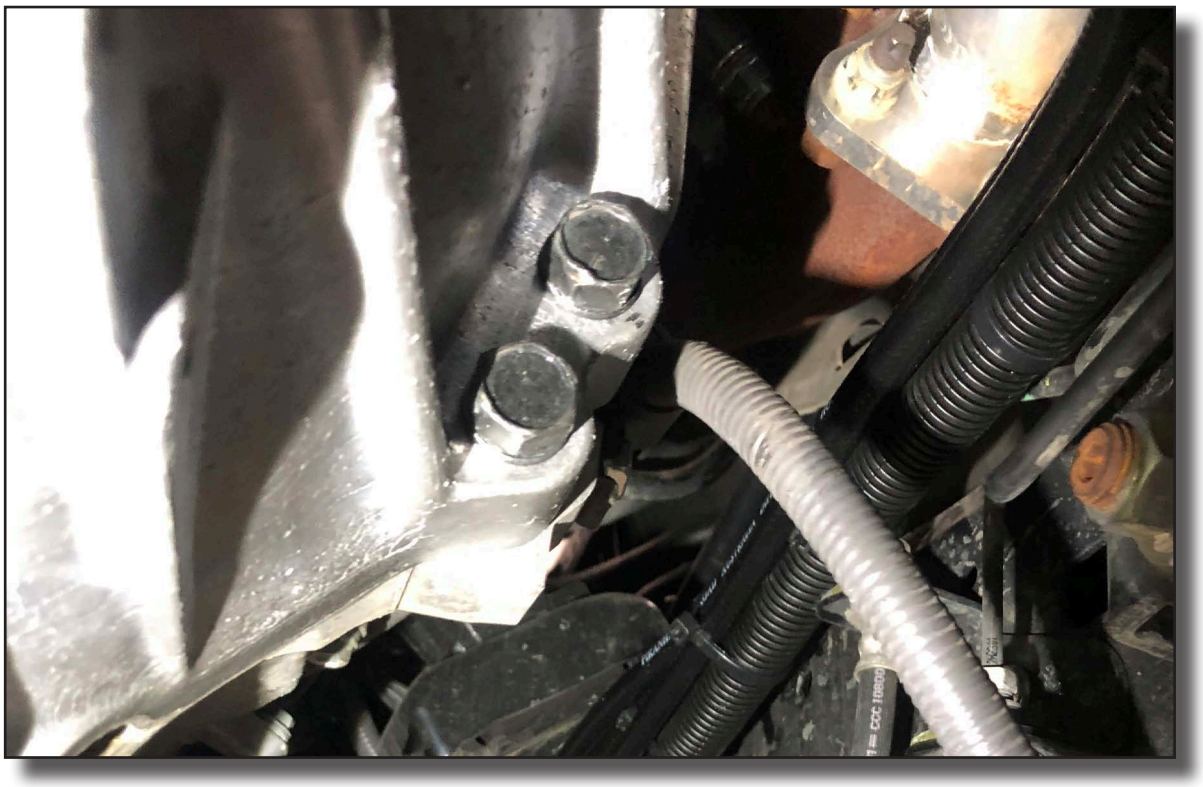
14.1.1 Route the cooler lines so they are cable tied to the lines on the chassis rail. Ensure there is sufficient slack to allow for the rotational moment of the engine and transmission.
Note: It does not matter which way the cooler lines are connected, the oil cooler will flow both ways.

14.1.2 When you are happy with the way the cooler lines are routed and they are secured up and away from the drive shaft, cut the hoses to length first and fit to the cooler unions on the side of the transmission and secure with supplied screw clamps. Then cut the conduit to length.



14.2. Breather Line Routing

14.2.1 Route the breather hoses alongside the cooler hoses and secure to each other. The breathers can be mounted anywhere that is high and out of direct water contact however we generally recommend to mount them on the brake cylinder at the rear of the engine bay. To avoid the exhaust manifold and cross-over pipe, they need to take the long way around.



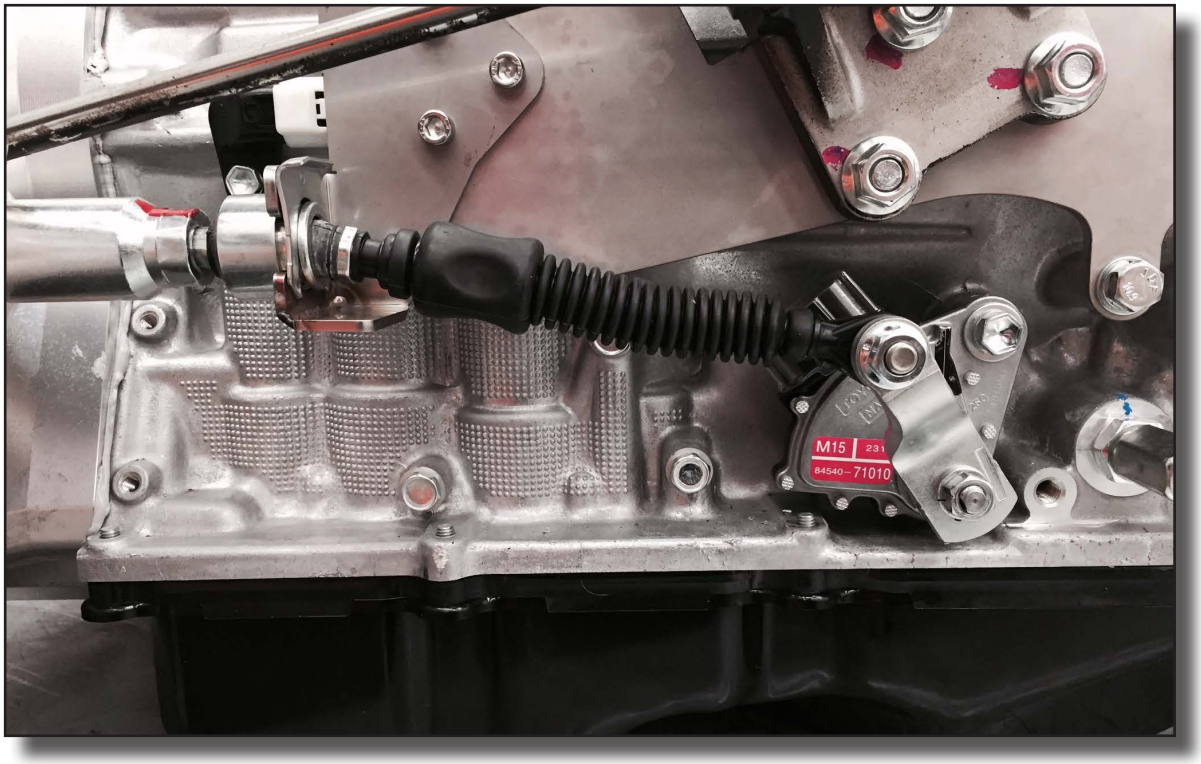
14.2.2 The breathers will follow the cooler lines until you reach the front of the engine bay, then the breather lines will run up into the engine bay just beside the air intake filter box on the drivers side.

14.2.3 Run the breather lines to the rear of the engine bay running under the air intake box. Before cutting the breathers, ensure they are secured and can not come in contact with any moving part or exhaust.

14.2.4 Cut the lines to length then feed a supplied Toyota Breather through the mounting bracket and then sandwich the mounting bracket between the hose and the breather flange. The bracket can then be bolted to a spare thread on the outside wall of the engine bay or alternatively if the engine bay is jam packed full of accessories you can mount it to the brake cylinder bolt as shown below.

14.3. Installing Transmission Shifter Cable

14.3.1 Fit Shifter Cable to mounting bracket with Retaining Clip and secure to transmission shift lever.



14.3.2 The cable grommet can now be secured to the cabin floor using the supplied M6 Nuts. (Don't bolt the securing bracket that slides on the shifter cable yet as this will hinder fitting to the console. This will be done at the end)

14.4. Exhaust Mount

14.4.1 Mount exhaust bracket to automatic transmission and bolt to exhaust system.

DPF MODELS: The bracket will fit between the transmission and the DPF but you need to angle it correctly to fit. Start bottom bolt on transmission first then twist bracket to start top bolt. Start both bolts on DPF first before tightening. Refit all sensor wiring and shields.

14.4.2 The rear drive shaft can now be re-fitted. Ensure yolks are in phase.

14.4.3 We will be working inside the vehicle after this step, we recommend washing and cleaning hands and any tools that you may have been using or that may need to be used inside the vehicle.

15. Console Installation

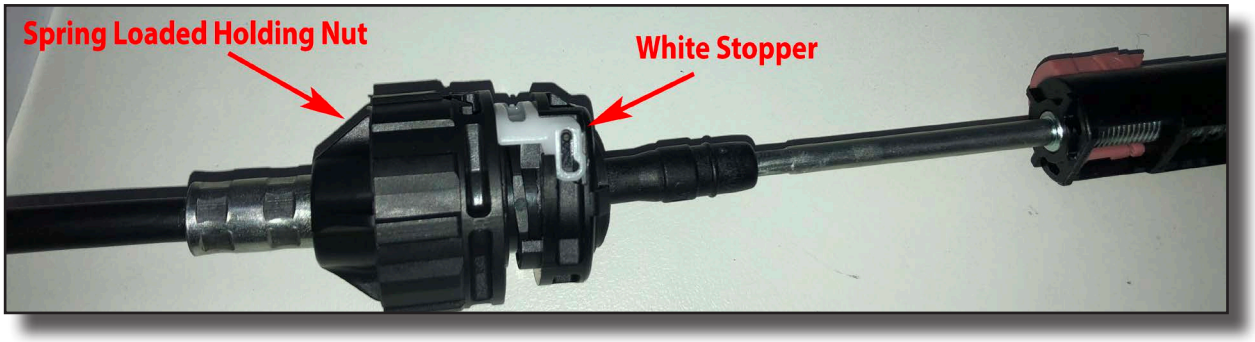
15.1. For all models with Safety Airbags - prior to installing the console, the Airbag ECU needs to be re-mounted into it's original location on top of the tunnel near the dash. Secure in place using orignal factory bolts. Also fit the modified black frame over the top.

15.2. Unwrap console carefully. DO NOT USE A KNIFE.
You will need a clean, flat, scratch free surface to place the console once unwrapped. NOTE: These consoles are checked and photographed before being packed and any damaged caused by a knife is not covered under warranty.

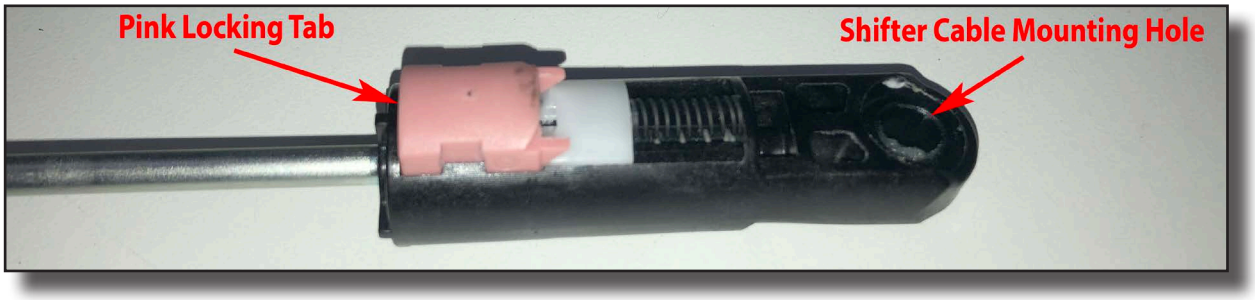
15.3. Locate and remove the false floor in the rear compartment as well as the small bag of spares usually located under the console, stapled to the timber.

NOTE: The photos used in this chapter are with the shifter assembly out of the console for the sole purpose of being able to photograph them. If you need to remove the shifter assembly for any reason, please contact Wholesale Automatics for further assistance.

15.4. Check that the Transmission Shifter lever **on the side of the transmission** is in the rear most position before fitting cable to the shifter. Move the console mounted shifter to the D position. Check shifter cable Spring Loaded Holding Nut has a White Stopper fitted to prevent nut from closing automatically.



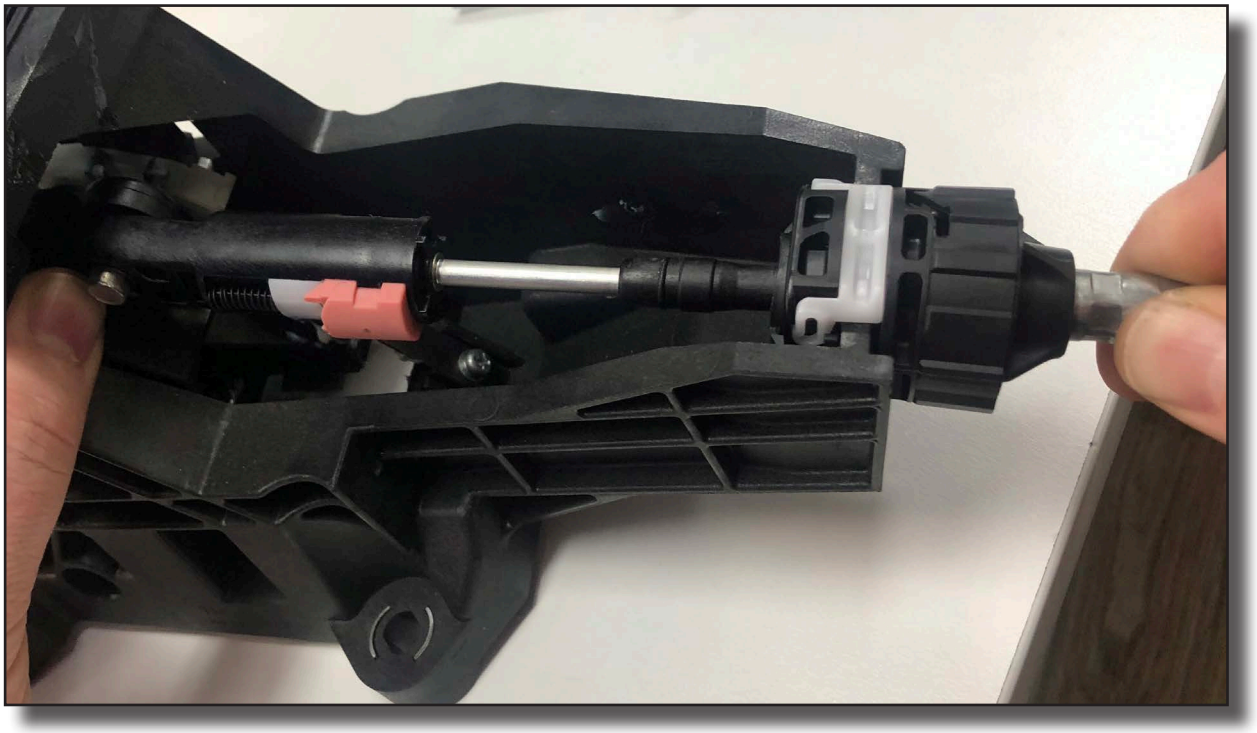
15.5. Locate the Pink Locking Tab on the end of the shifter cable. Check the locking tab is up and the black mounting unit can move against the spring.



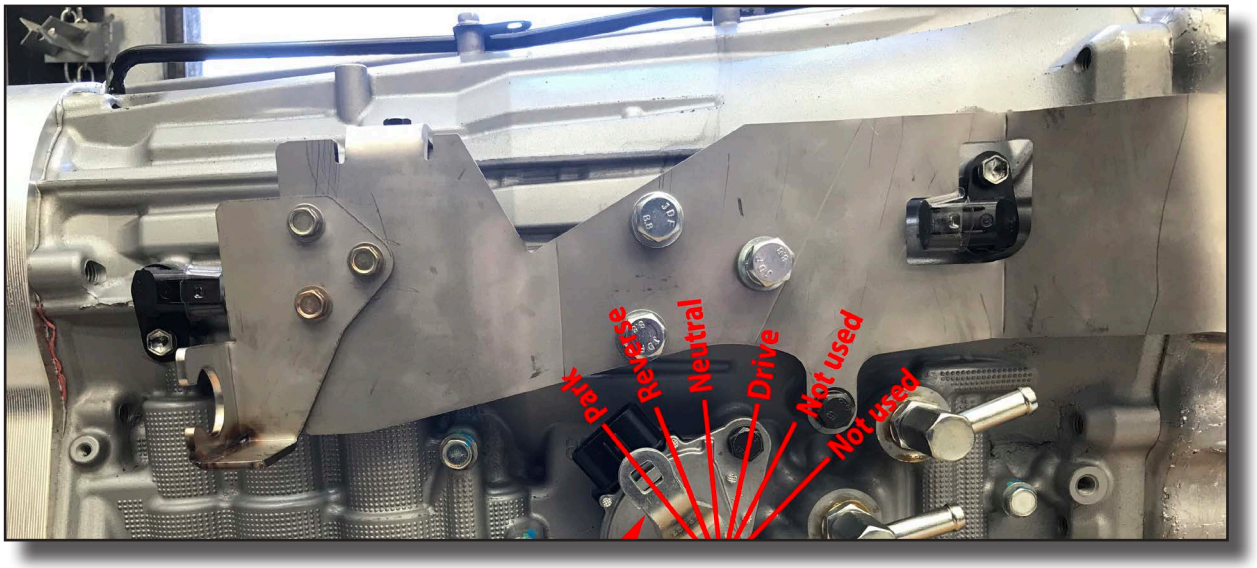
15.6. Remove base cover panel inside console compartment to expose lower mounting bracket. Remove front panel inside compartment by removing the screws holding the cover to expose the access hole for fitting the shifter cable to the shifter.

15.7. Move the console into roughly the correct position in the cabin. Ensure the console mounted shifter is in the D location. You may need to press the shift lock release button next to the shift lever to move the shifter out of the park location. With one hand feed the shifter cable up into console in front of the rear storage compartment and then with the other hand through the front of the storage compartment, push the Shifter Cable Mounting Hole over the stud on the shifter mechanism as photo below.

15.8. Orientate the Spring Loaded Holding Nut vertically then push down over the mount on the back of the assembly without twisting the nut so that the white stopper is not released until fully inserted. You will know the cable is inserted correctly when the white stopper is pushed up and the Spring Loaded Holding Nut is securely against the shifter assembly base.



15.9. Once fitted you will notice that the shifter is quite spongy. This is because the cable adjustment mechanism needs to be locked using the pink locking tab. To ensure that the adjustment is correct, both the console mounted shifter and the transmission shift lever on the side of the transmission need to be in the N (Neutral) position before locking.
The N position on the transmission shift lever on the side of the transmission is the 3rd detent position from the rear.



15.10. When both the console mounted shifter and the transmission shift lever on the side of the transmission are in the N position, hold the shifter firmly in the N position to prevent it from moving and reach into the shifter and engage the Pink Locking Tab to lock it in place. This should be reasonably easy to push however if you find it difficult, it may be trying to lock onto the edge of the thread. You may need to slightly jiggle the shifter or cable.

15.11. Check that the shifter moves between all the gear positions and that it firmly shifts into each location. If the shifter does not happily sit in each location then you will need to remove the cable and release the adjustment tab as per image below. Repeat earlier steps to refit.

15.12. Once shifter is moving freely and engages all locations, refit the front storage compartment cover. Do not fit the false floor yet, this is done after bolting the console in.

15.13. Connect the wiring run in a previous step to the USB and 12volt outlet sockets. You may need to move the console back slightly to access the socket terminals. Ensure that the Positive and Negative wires are connected to the appropriate terminals

15.14. Connect the Shifter Loom coming from the console to the Shifter Loom Receptacle on the Main Loom.

15.15. Do not secure console to vehicle yet. We recommend testing the shifter and electrical parts first to ensure everything is working correctly.

15.16. Reconnect all batteries and connections needed to power up the vehicle and the COMPUSHIFT Transmission Controller. Please make sure that any loose battery terminals are tightened.

16. Download the COMPUSHIFT Setup App

16.1. Installing COMPUSHIFT Setup onto Apple Devices

This chapter will cover finding, downloading and confirming that the COMPUSHIFT Setup App is ready to communicate with your COMPUSHIFT Module using an Apple® mobile device. This applies to the COMPUSHIFT Pro, COMPUSHIFT Sport and the COMPUSHIFT Mini modules.

The COMPUSHIFT Setup App is a free to download app available from the Apple® App Store®. You may require an Apple ID in order to download applications from the Apple® App Store®.

Minimum system requirements for your Apple mobile device to run the COMPUSHIFT Setup App are:

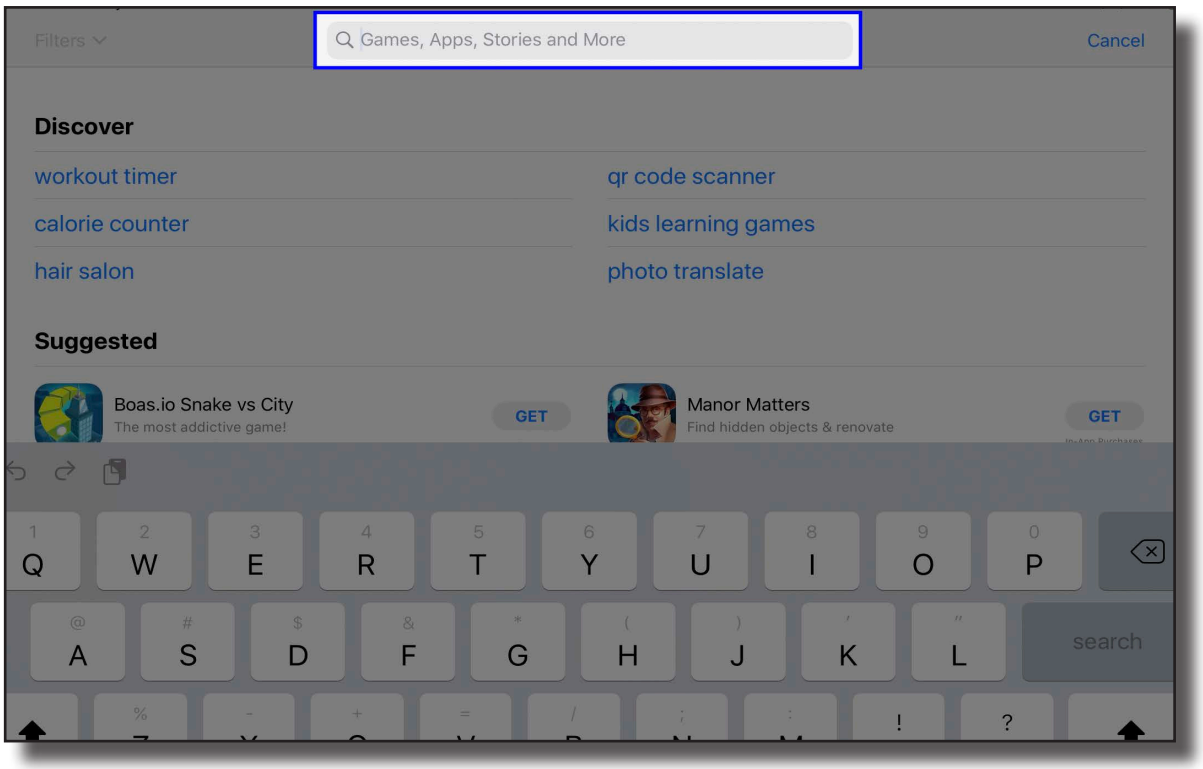
- Apple® iPhone® mobile digital device with iOS version 11 or later
- Apple® iPad® mobile digital device with iPadOS® version 11 or later
- Internet Access (only required for Firmware Update)

If your Apple mobile device operating system does not meet these requirements, you may not be able to download the app. Please follow the instructions provided by Apple® to update your devices operating system first then try downloading the COMPUSHIFT Setup app again.

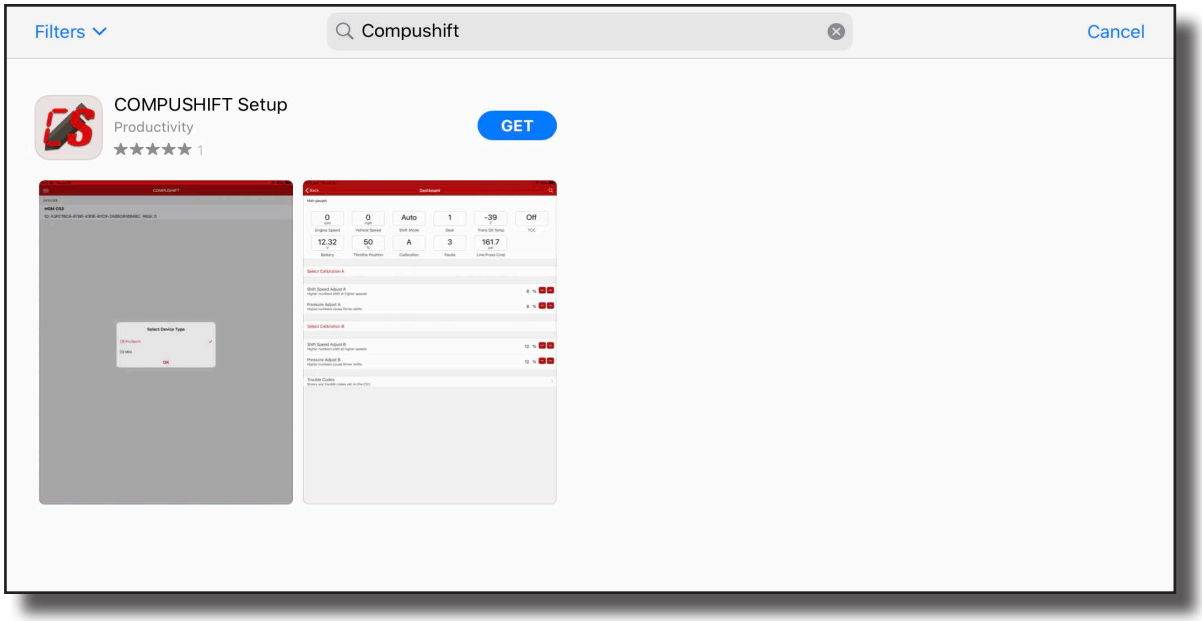
16.1.1 On your Apple device, open the **App Store®** application.

16.1.2 Tap on the **Search** button at the bottom of the App Store screen.

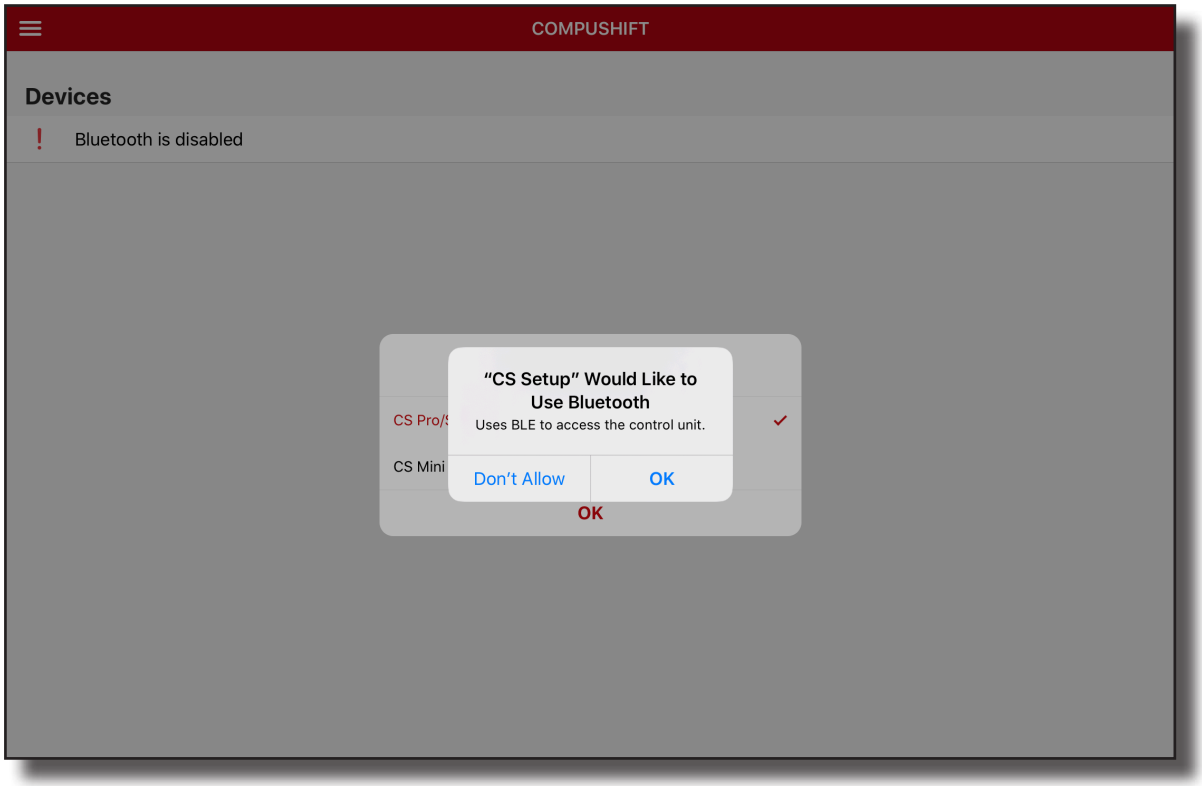
16.1.3 In the search field type “compushift” and press enter/search.



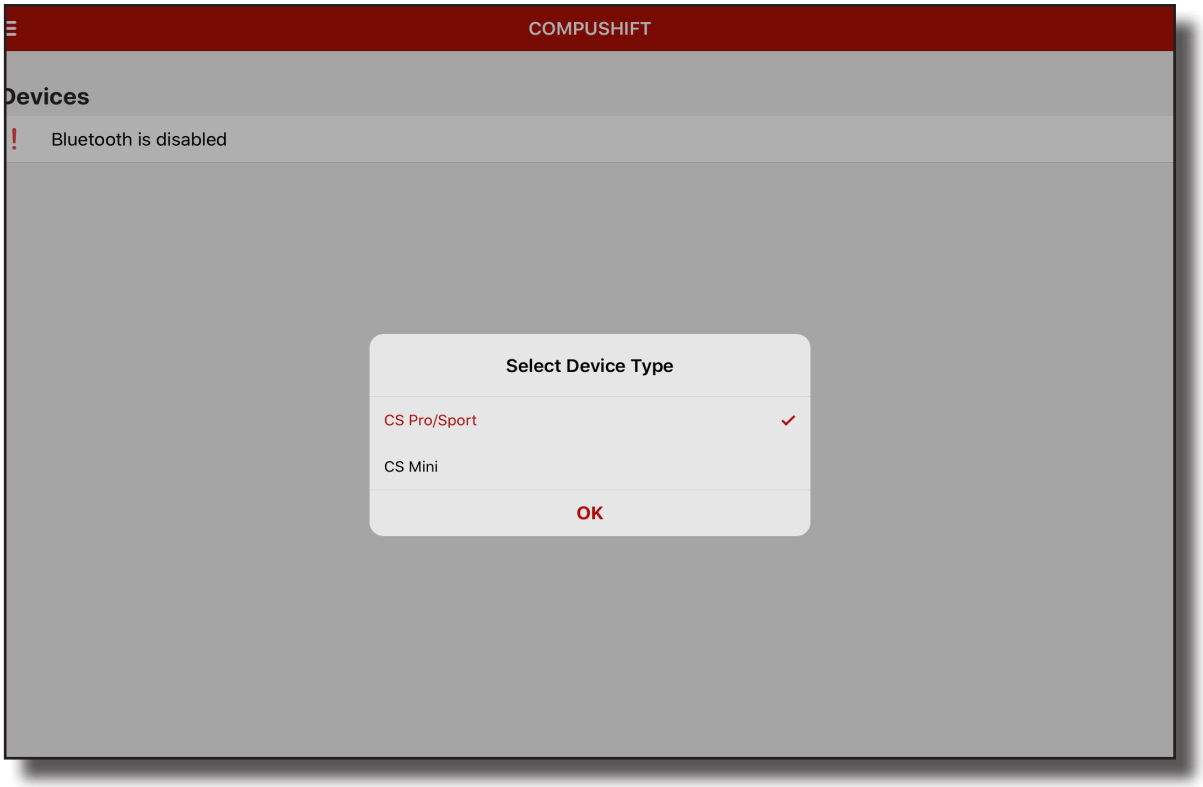
16.1.4 Locate the app called **COMPUSHIFT Setup** in the results and tap on Get. You may be asked to enter your Apple ID® username and password details to download. This is a free app, you will not be charged.



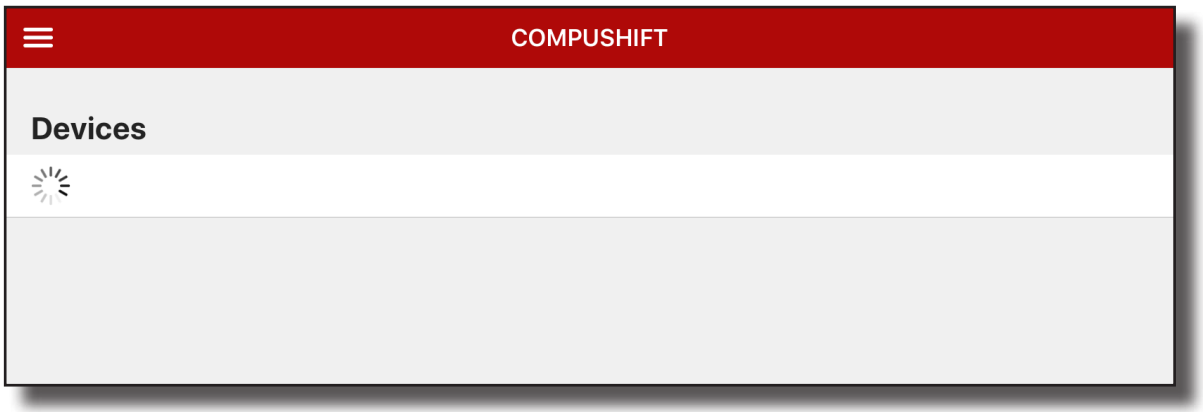
16.1.5 Once the App has finished downloading, tap on the icon to open. The first time you open the COMPUSHIFT Setup app, it will ask permission to use the devices Bluetooth® communication system to access the COMPUSHIFT Module. Please select OK.



16.1.6 Next the COMPUSHIFT App will ask you to select which type of module you wish to communicate with. For COMPUSHIFT Pro or COMPUSHIFT Sport Modules, select ‘CS Pro/Sport’ then tap OK



16.1.7 The App will now search for any COMPUSHIFT Modules within range that are powered up. If you are not in range of your COMPUSHIFT Module or it is not powered up, then the app will only show a spinning wheel indicating that there is no module in range.



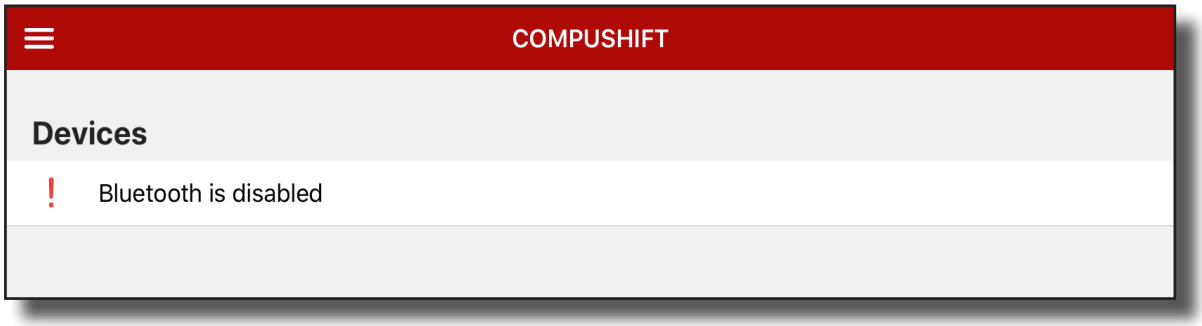
16.1.8 If you have reached this step, then the app is installed and ready to connect to a COMPUSHIFT Module. You can skip to the next Chapter **“Initial Setup of COMPUSHIFT for Testing Transmission Installation”.**

16.2. Troubleshooting Installation on Apple Devices

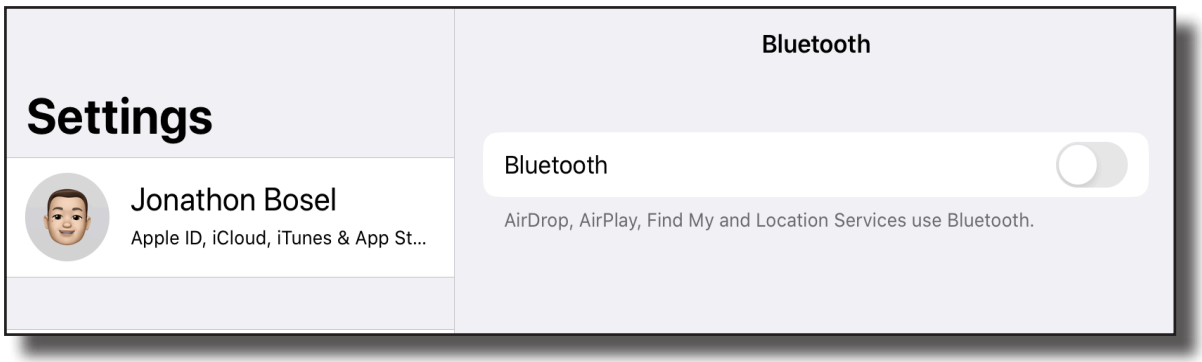
If you have not made it to the final steps for the installation process, the following chapter will cover some basic troubleshooting steps to get you sorted.

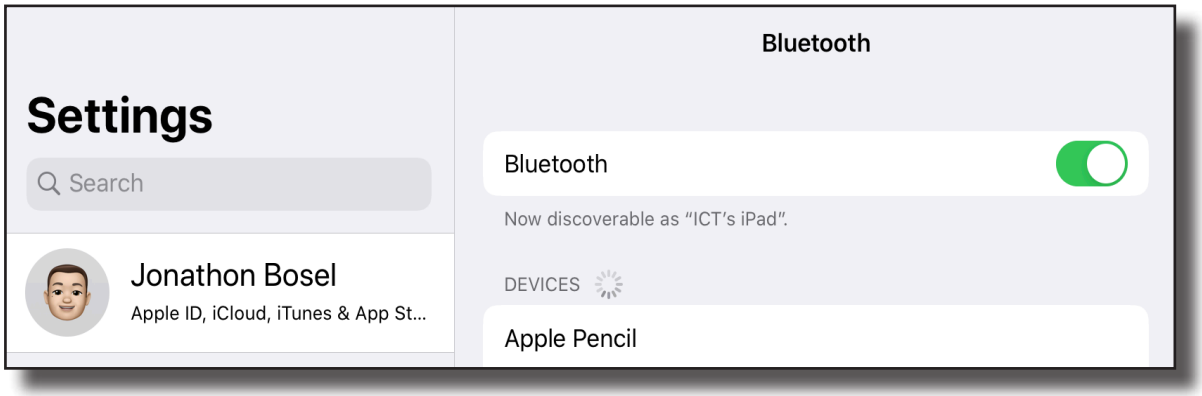
16.2.1 If the App says '**! Bluetooth is Disabled**' then it means that the Bluetooth communication in your smart device is not functioning correctly. Most commonly this is due to the Bluetooth being turned off completely or it could be that the COMPUSHIFT Setup App has not been authorised to use Bluetooth yet.

16.2.2 First, close the app down and then quit the app by swiping up from the bottom or double pressing the home button and then swipe up on the app. Re-open the App. If the '**! Bluetooth is Disabled**' message still remains continue to the next step.

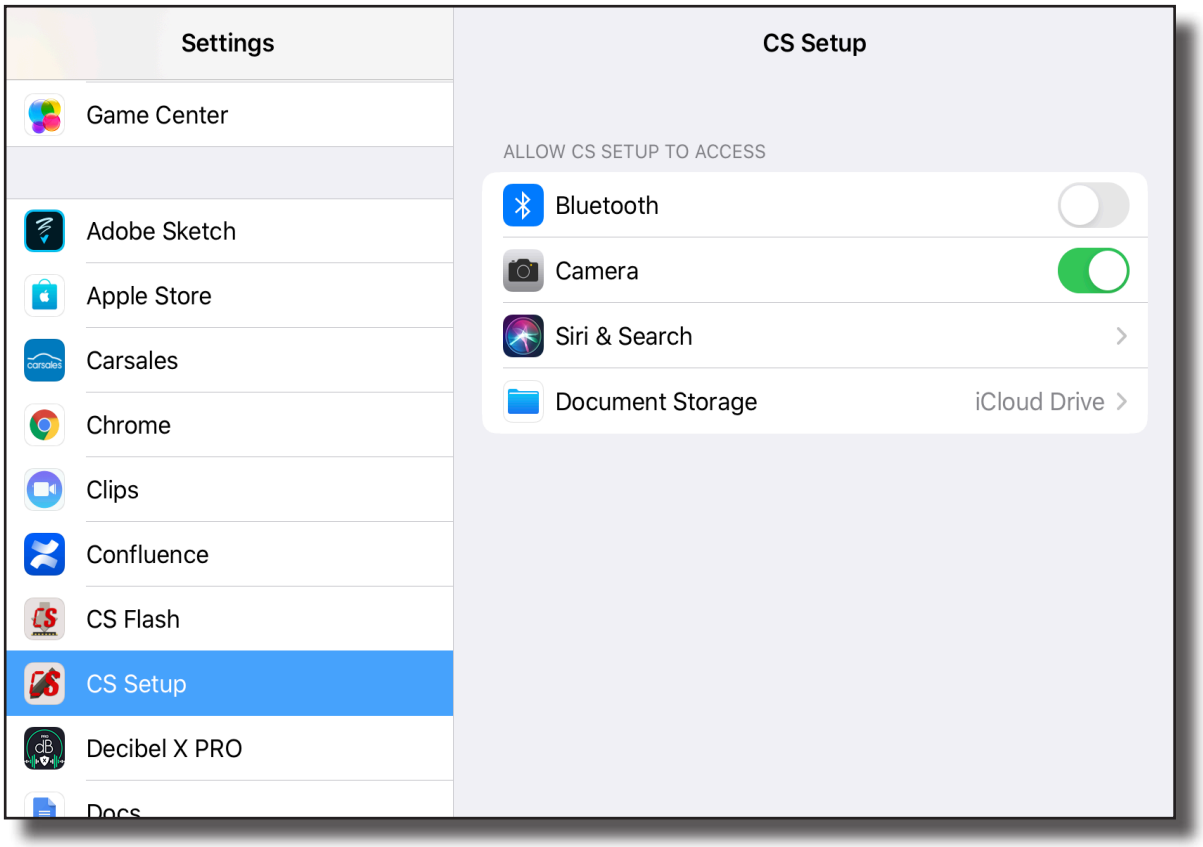


16.2.3 Open the Settings App and select Bluetooth. If Bluetooth is switched off, please turn it on. Close the settings app and re-open the COMPUSHIFT Setup App. You should no longer see the '**! Bluetooth is Disabled**' message, instead it should be replaced with the spinning wheel.





16.2.4 If you are still seeing the '**! Bluetooth is Disabled**' message, open the Settings App and scroll down the menu to CS Setup. Tap on CS Setup and verify that the Bluetooth access is enabled for the App. If not, switch access on. Return to the CS Setup App and check you are no longer seeing the '**! Bluetooth is Disabled**' message, instead you should be seeing the spinning wheel.



16.2.5 If none of these items have worked, please close the App. Tap and hold on the CS Setup app icon and select Delete App. Then power your device off then on. Start from the beginning and download the app again.

16.2.6 If you are still unable to get rid of the '! Bluetooth is Disabled' message, please contact Wholesale Automatic Transmissions for further assistance.

16.3. Installing COMPUSHIFT Setup onto Android Devices

This chapter will cover finding, downloading and confirming that the COMPUSHIFT Setup App is ready to communicate with your COMPUSHIFT Module using an Android® mobile device. This applies to the COMPUSHIFT Pro, COMPUSHIFT Sport and the COMPUSHIFT Mini modules.

The COMPUSHIFT Setup App is a free to download app available from the Google Play Store®. You may require a Google Account in order to download applications from the Google Play Store®.

Minimum system requirements for your Android® mobile device to run the COMPUSHIFT Setup App are:

• Android™ operating system version 4.4 or later

• Internet Access (only required for Firmware Update)

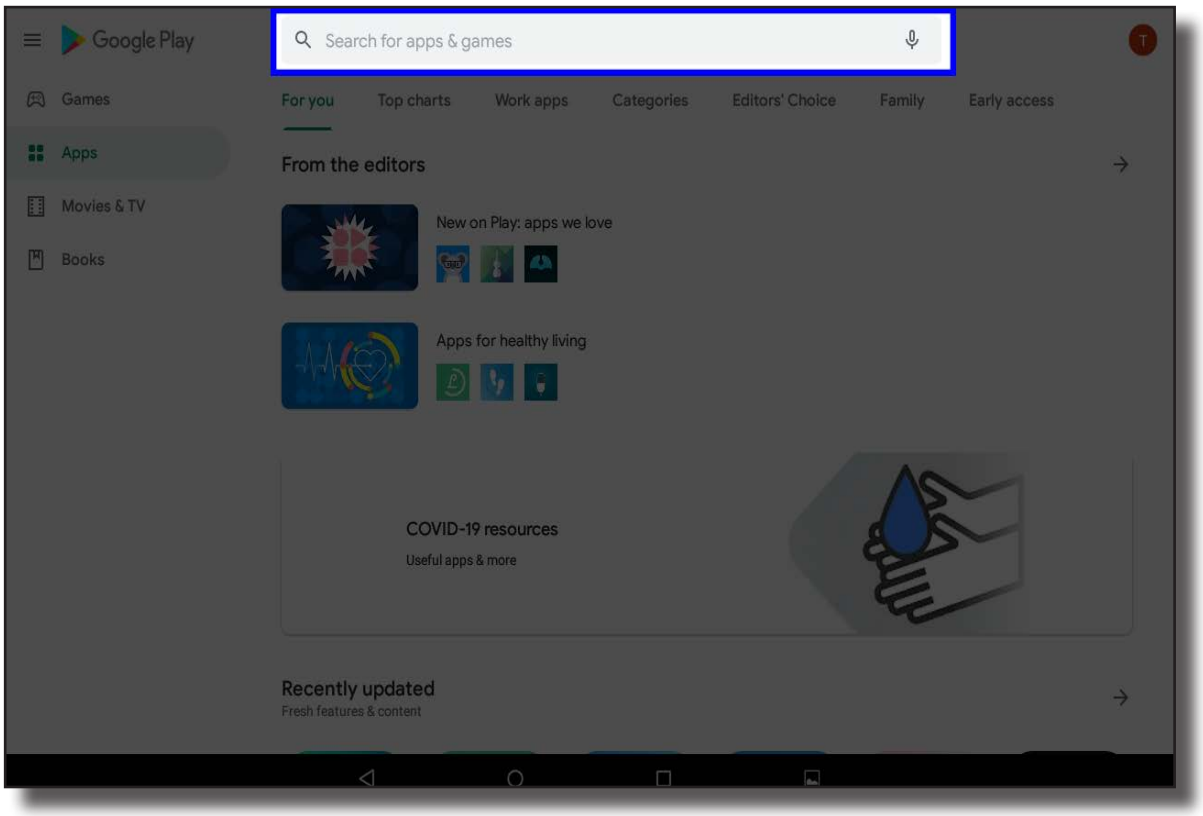
If your Android mobile device operating system does not meet these requirements, you may not be able to download the app. Please follow the instructions provided by your device manufacturer to update your devices operating system first then try downloading the COMPUSHIFT Setup app again.

If the operating system on your Android mobile device is unable to be updated to a compatible version, you will need to locate an alternative smart device that does meet the requirements.

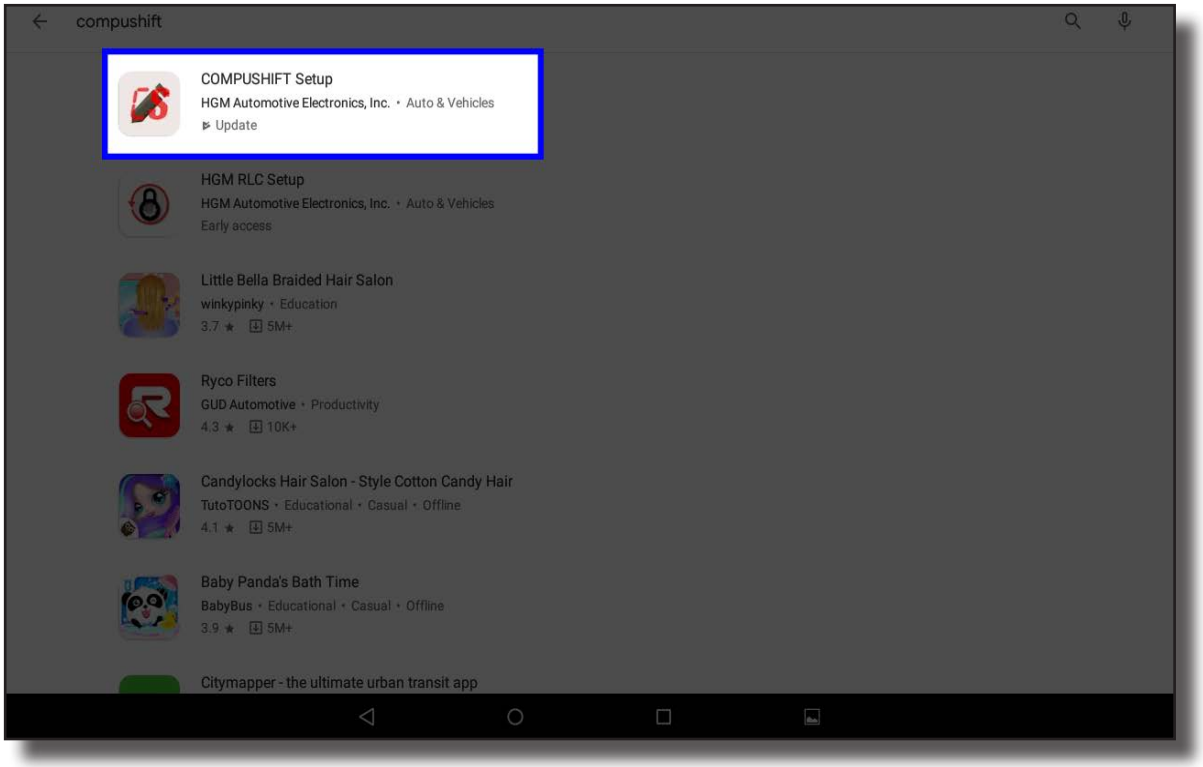
You will require Internet access on your Android mobile device to download the COMPUSHIFT Setup app.

16.3.1 On your Android device, open the **Google Play Store®** application.

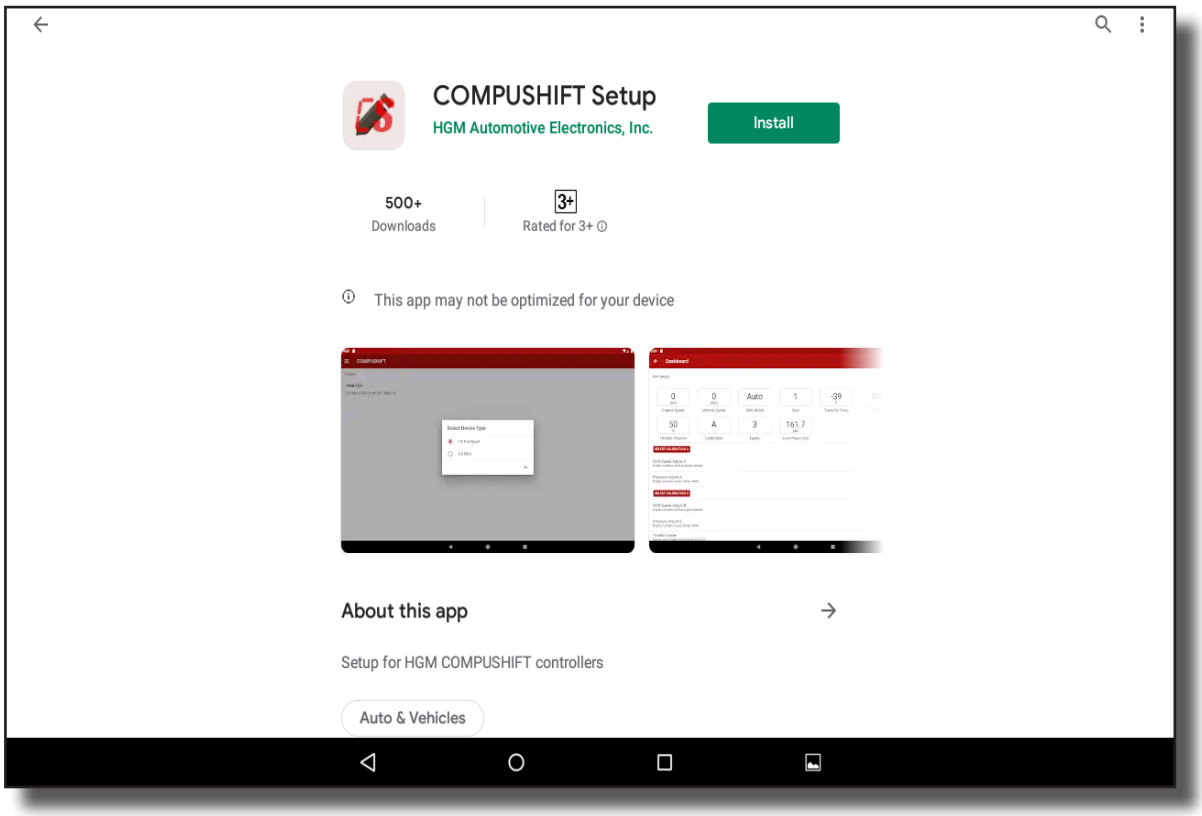
16.3.2 Tap on the **Search** field at the top of the Google Play Store screen.



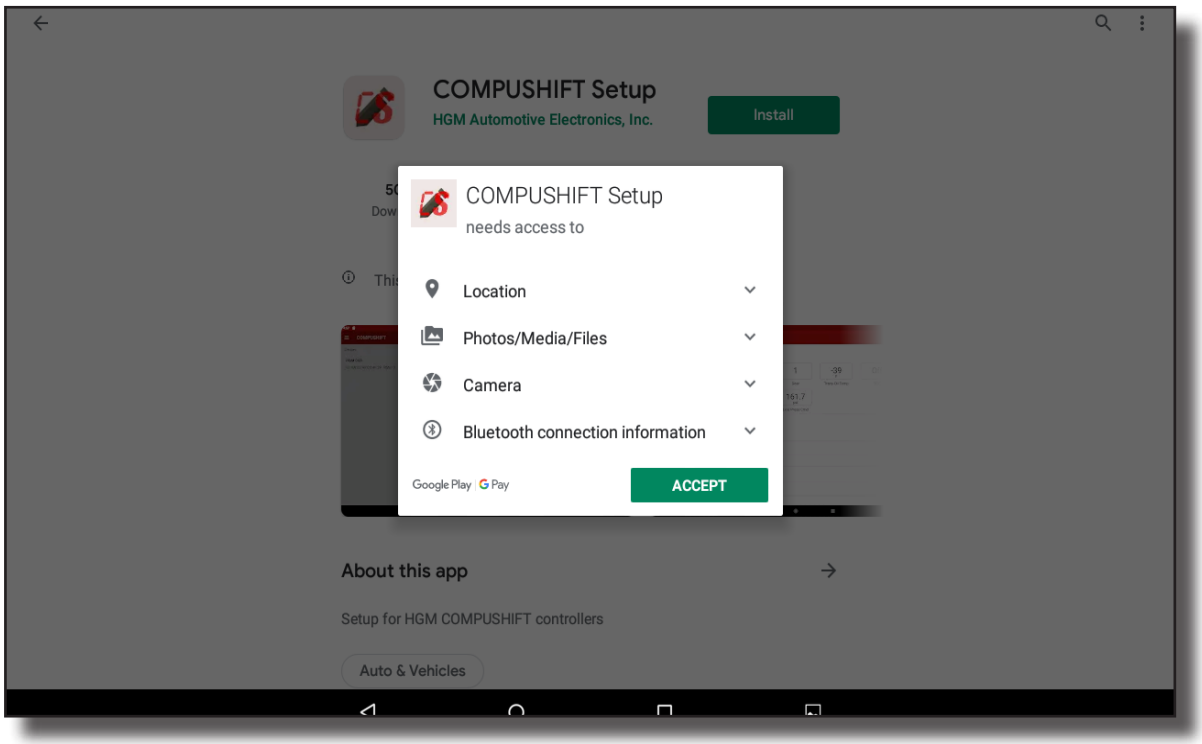
16.3.3 In the search field type “compushift”. The results will show the COMPUSHIFT Setup app at the top. Tap on this to show the App page.



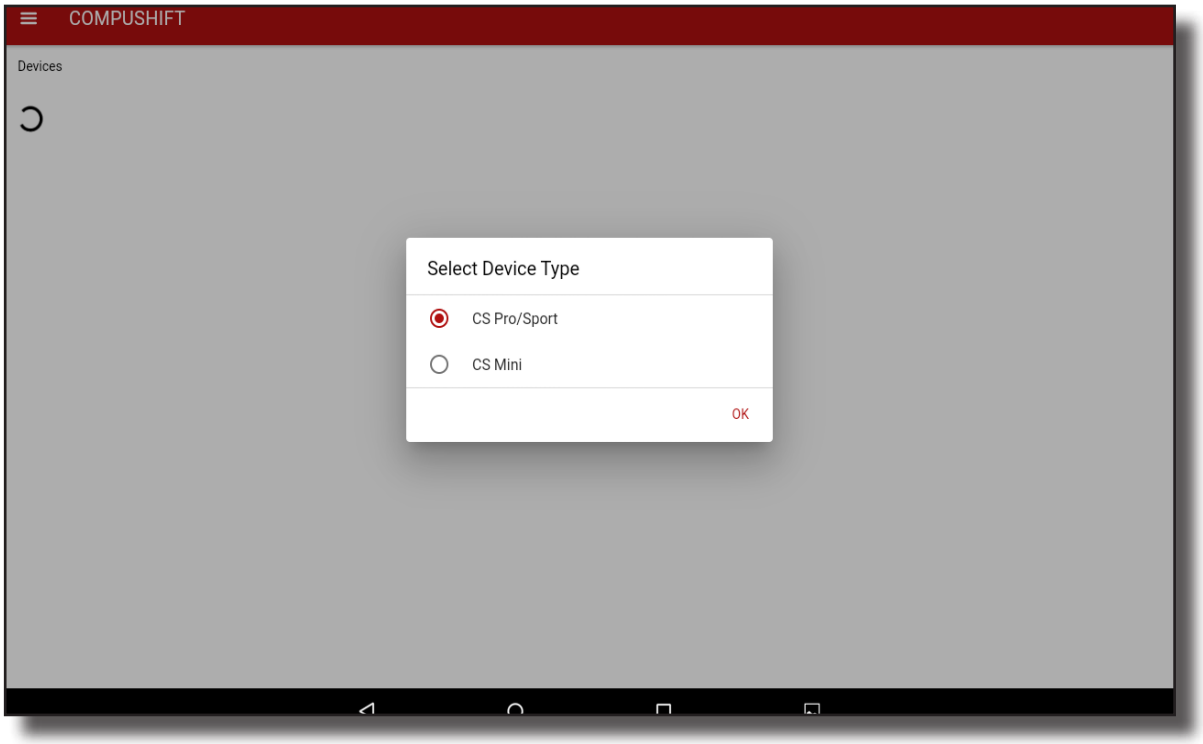
16.3.4 On the App page, tap on Install. This is a free app, you will not be charged.



16.3.5 There will be a small window pop up for the COMPUSHIFT App to ask permission to use parts of the Android device to operate correctly. Tap Accept to commence the installation process.



16.3.6 Once the App has finished downloading, tap on the icon to open. The first time you open the COMPUSHIFT Setup app you will be asked to select which type of module you wish to communicate with. For COMPUSHIFT Pro or COMPUSHIFT Sport Modules, select ‘CS Pro/Sport’ then tap OK



16.3.7 The App will now search for any COMPUSHIFT Modules within range that are powered up. If you are not in range of your COMPUSHIFT Module or it is not powered up, then the app will only show a spinning wheel indicating that there is no module in range.

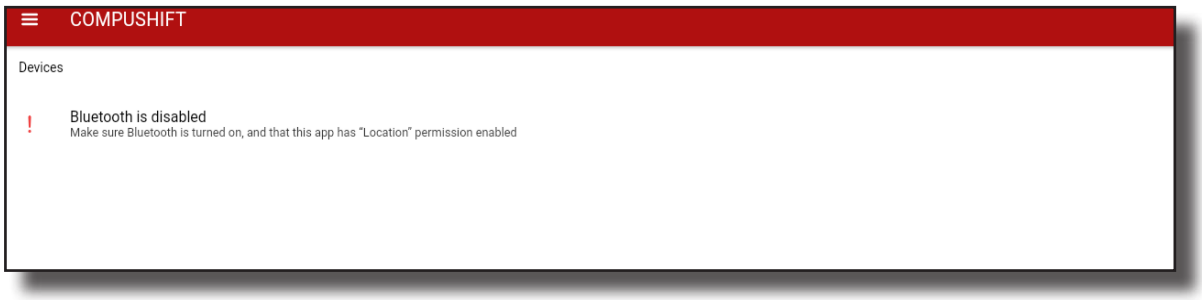
16.3.8 If you have reached this step, then the app is installed and ready to connect to a COMPUSHIFT Module. You can skip to the next Chapter **“Initial Setup of COMPUSHIFT for Testing Transmission Installation”.**

16.4. Troubleshooting Installation on Android Devices

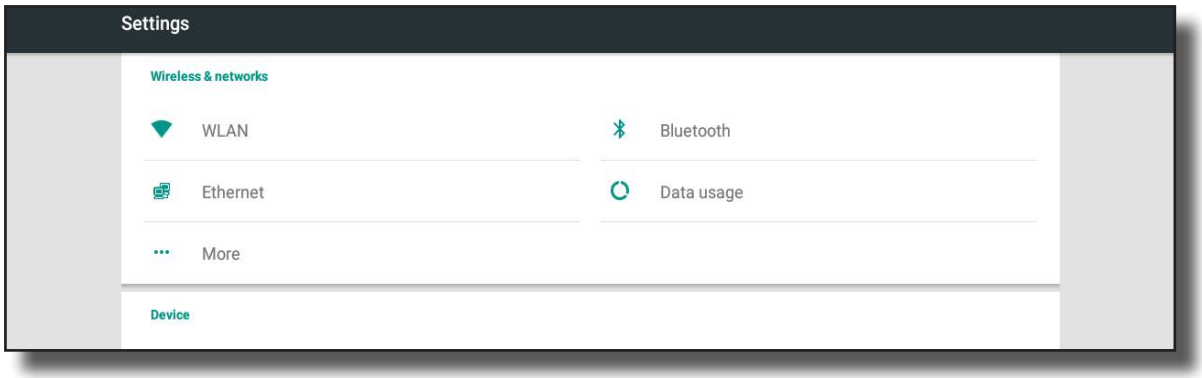
If you have not made it to the final steps for the installation process, the following chapter will cover some basic troubleshooting steps to get you sorted.

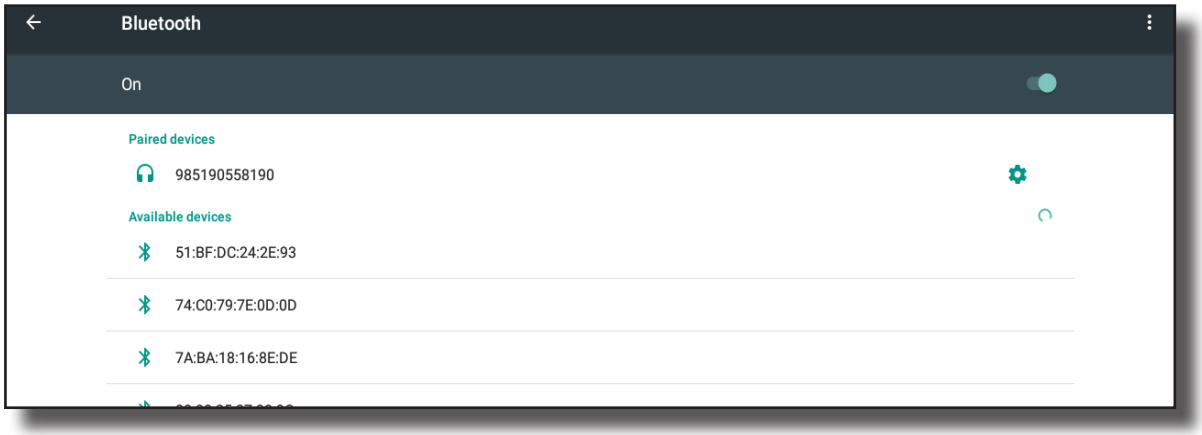
16.4.1 If the App says '**! Bluetooth is Disabled**' then it means that the Bluetooth communication in your smart device is not functioning correctly. This could be because you app did not recognise that it has access to your Bluetooth system, Bluetooth is turned off completely or it could be that the COMPUSHIFT Setup App has not been authorised to use Bluetooth yet.

16.4.2 First, close the app down completely by quiting the App. Re-open the App. If the '**! Bluetooth is Disabled**' message still remains continue to the next step.

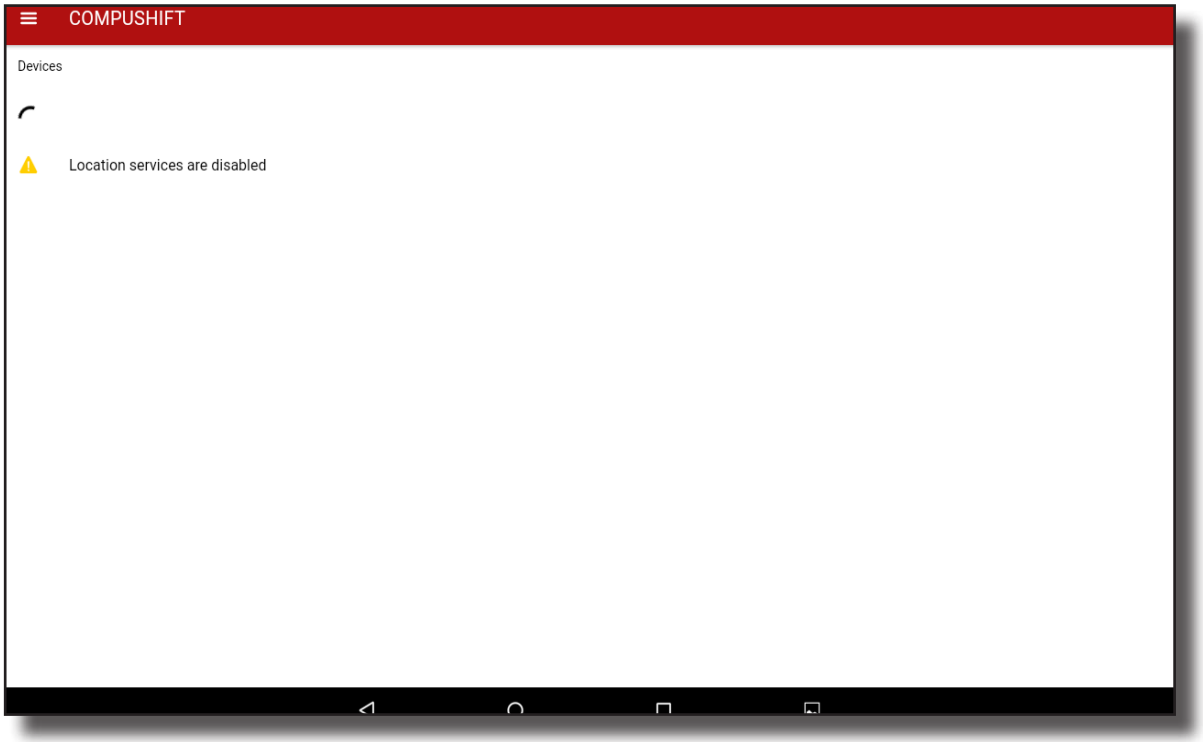


16.4.3 Open the Settings App and select Bluetooth. If Bluetooth is switched off, please turn it on. Close the settings app and re-open the COMPUSHIFT Setup App. You should no longer see the '**! Bluetooth is Disabled**' message, instead it should be replaced with the spinning wheel.





16.4.4 If you are seeing the '**Location services are Disabled**' message, open the Settings App and look for Location. If Location is currently Off, please turn it On. Return to the CS Setup App and check you are no longer seeing the '**Location services are Disabled**' message, instead you should be seeing only the spinning wheel.



16.4.5 If none of these items have worked, please close the App. Tap and hold on the CS Setup app icon and drag to the trash. Then power your device off then on. Start from the beginning and download the app again.

16.4.6 If you are still seeing the '**! Bluetooth is Disabled**' message or the '**Location services are Disabled'** message, please contact Wholesale Automatic Transmissions for further assistance.

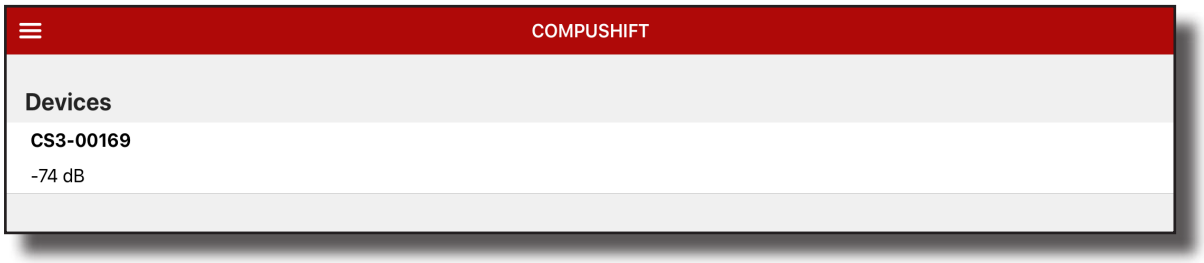
17. COMPUSHIFT Module Firmware Update

It is important to ensure that your COMPUSHIFT Module and COMPUSHIFT Setup App are up to date before setting up a transmission. As we find ways to improve the system, new transmissions and the occasional bug fix, we will release new versions for customers to update using their own mobile device and the COMPUSHIFT Setup App.

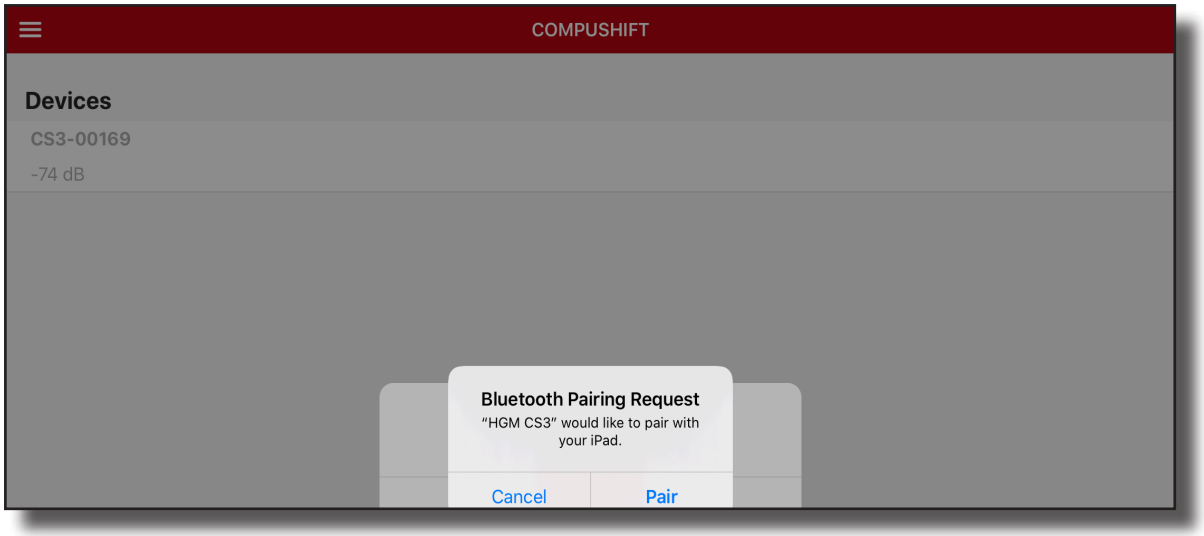
The COMPUSHIFT Setup App is also regularly updated with new functionality and improvements. It is also recommended that you check with your appropriate device application store for any updates available.

17.1. Switch the vehicle power to Ignition which will power up the COMPUSHIFT Module.

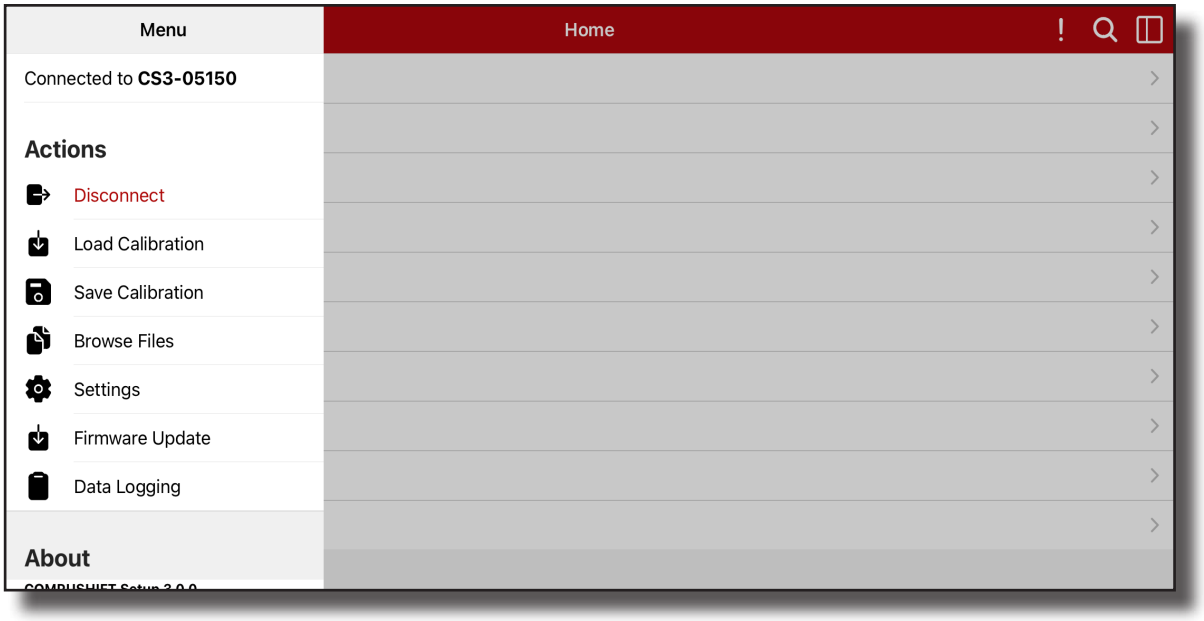
17.2. The App should then search for any COMPUSHIFT Modules within range. If your COMPUSHIFT Module is not displayed, check that the controller is powered up and has either a Red or Green light flashing. If your module shows up in the list, tap on the device to connect.
On older software, the device may show as 'HGM-CS3'.



17.3. If this is the first time you have connected your device to the COMPUSHIFT Module, there will be a popup window asking to Pair the HGM CS3 via Bluetooth. Select **Pair**



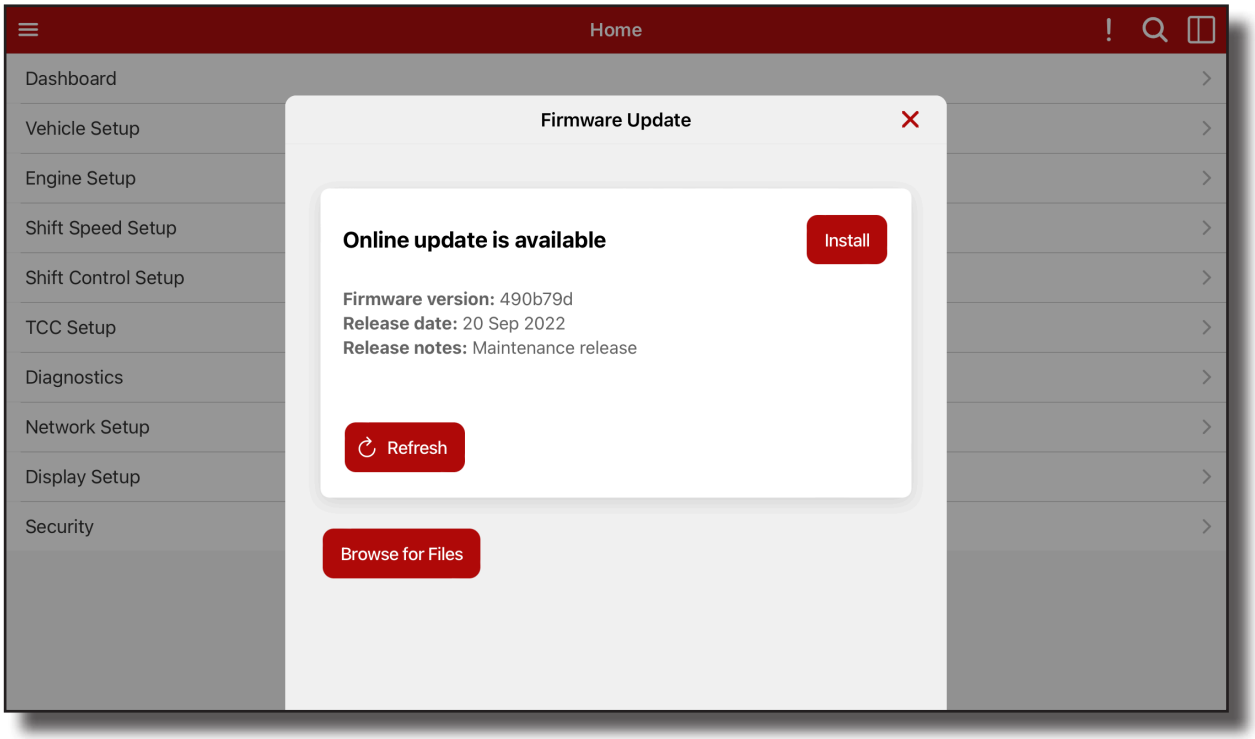
17.4. The App will now show you the Home Menu. Select the 3 x horizontal lines at the top left of the screen to reveal the Actions Menu. Please check that you are running COMPUSHIFT Setup 3.0 or later before proceeding.



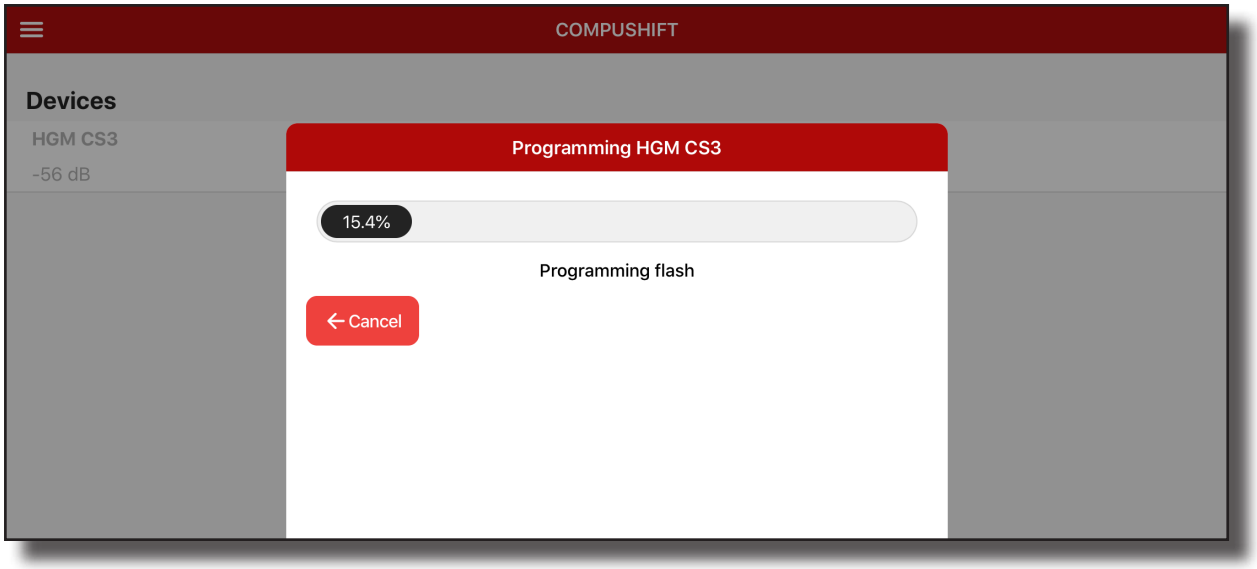
17.5. Tap on Firmware Update. The App will now check for any Firmware updates for your Module. **"The software Release Date MUST be January 2023 or later".**

If there is NO software update available the App will say "Device firmware is up to date". Select **< Back** at the top of the screen and skip to the next Chapter.

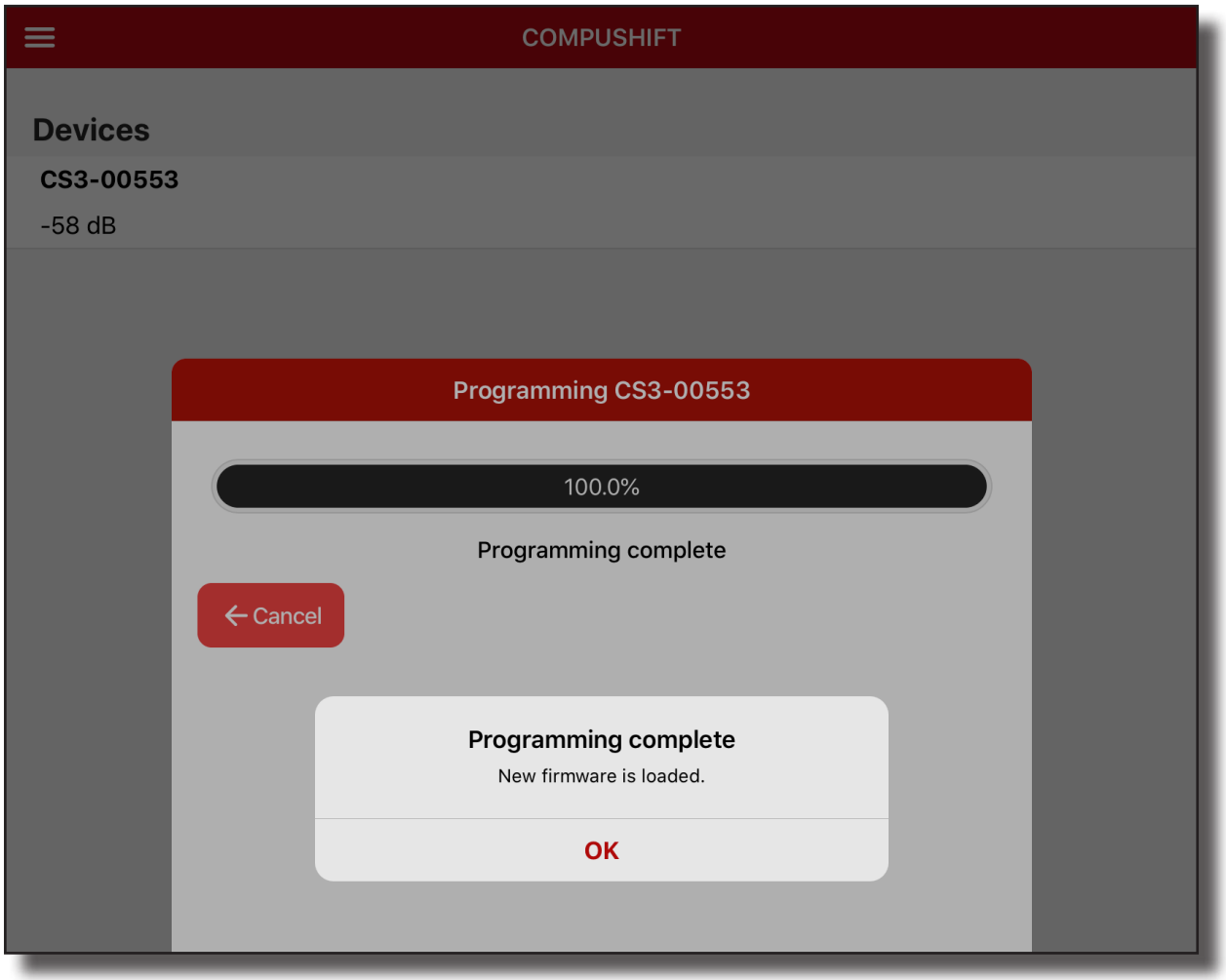
If there IS a software update available, the app will say "Online Update Available" with an Install button beside it. Tap on Install.



17.6. The progress screen will show during the update progress. This will take approx. 10-15 mins to complete. Please keep the app open and keep the screen active during the update process.



17.7. When it's finished, select **OK. Cycle the vehicle power by turning the key off and back to ignition to ensure the COMPUSHIFT module has been rebooted.**



17.7.1 Once the controller has rebooted and the app has reconnected to the controller, you should now be in the Home Menu Screen - If not, keep pressing the **< Back** button located at the top left of the screen.

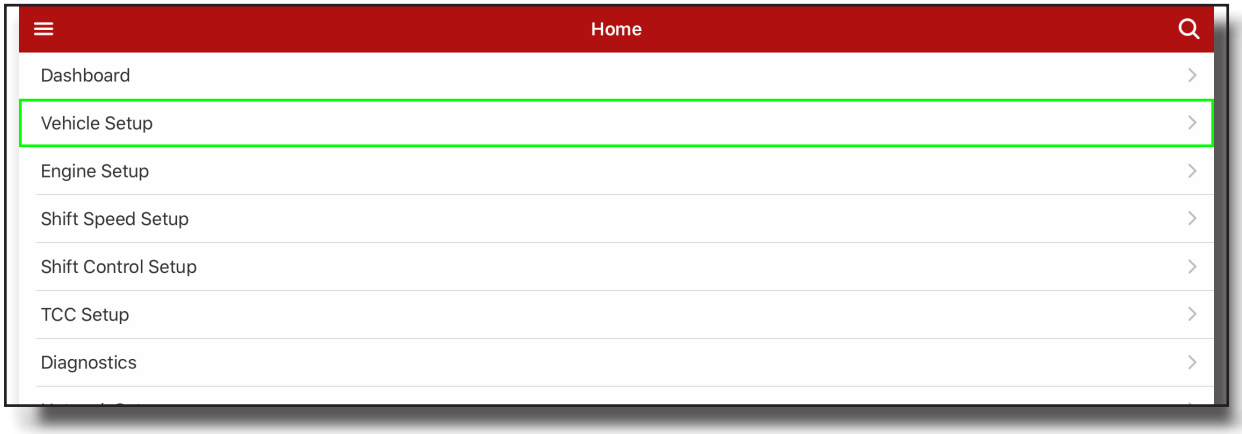
17.7.2 If you receive a phone call or your device goes to sleep during the Firmware Update process, the Firmware Update may fail. If this happens, it is possible the COMPUSHIFT Module may get locked into the Firmware Loading mode which will prevent normal operation.

To solve this, power cycle the COMPUSHIFT Module to check if that resets to normal operation. If not, start the Firmware Update process again. Take care not to allow the device to go to sleep or exit the app while the Firmware Update process is happening. It is recommended to put the phone into airplane mode first, then switch Bluetooth on only so that you prevent incoming phone calls from disrupting the firmware update process.

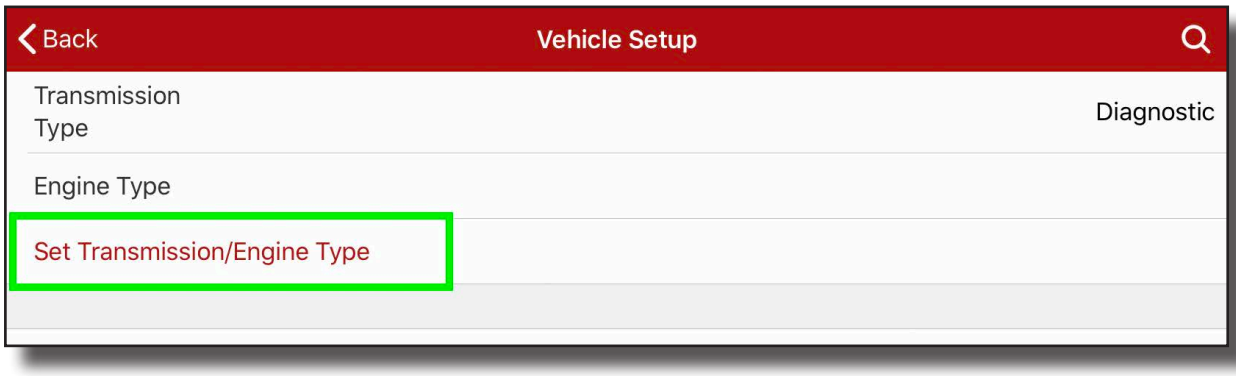
18. Initial Setup of the COMPUSHIFT Controller

This part of the process is to do the initial setup and configuration of the COMPUSHIFT controller so that it is able to communicate with the transmission and the vehicle correctly prior to filling with transmission fluid. It is normal at this stage to hear buzzing noises coming from the transmission, this should stop once the controller has been configured correctly.

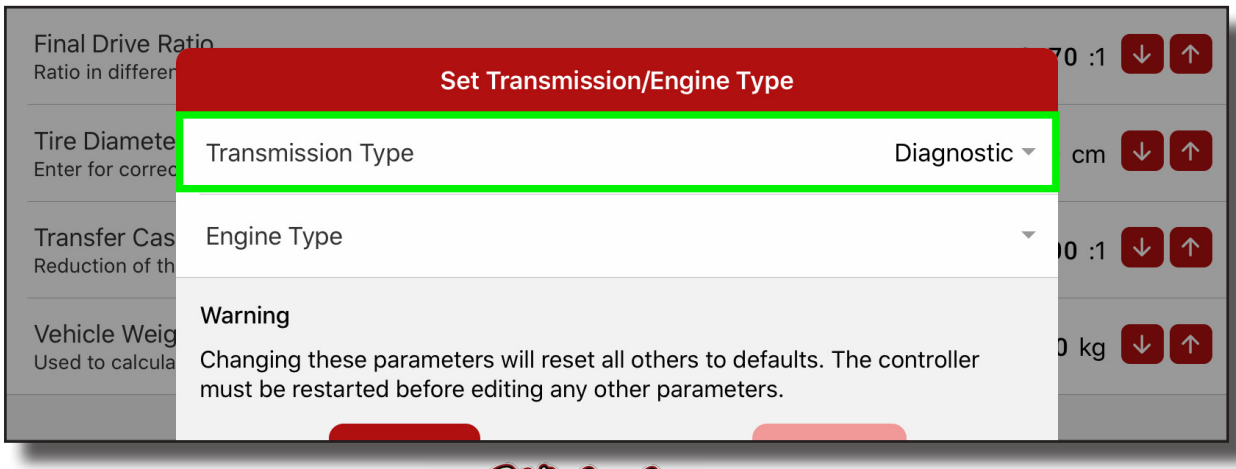
18.1. From the Home menu, select **Vehicle Setup**



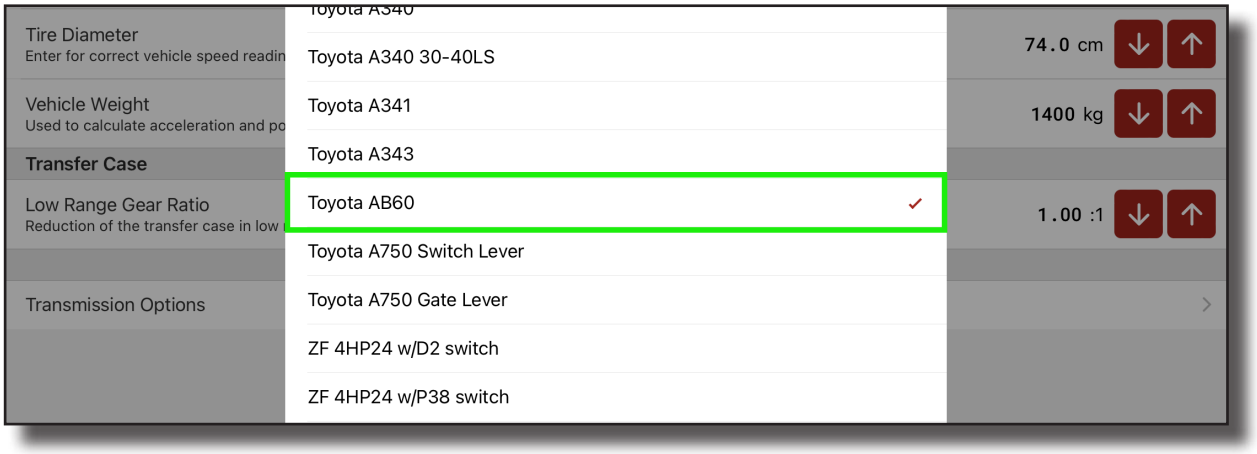
18.2. Select **Set Transmission/Engine Type**



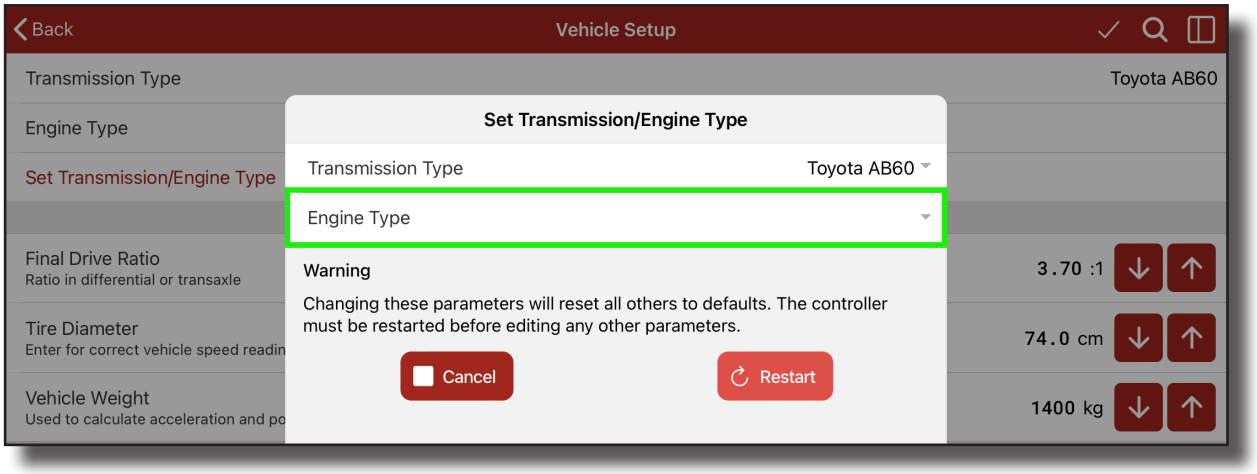
18.3. In the pop up window, select **Transmission Type**.



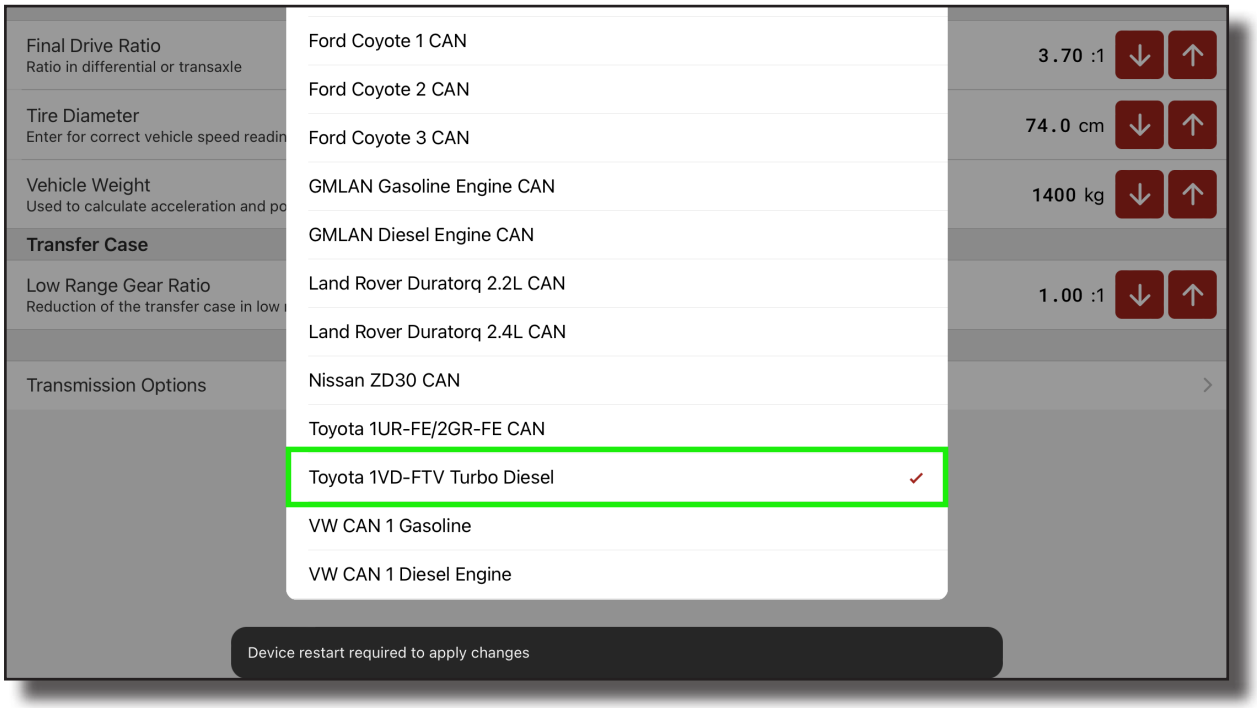
18.4. There will be another pop up window with all of the transmissions that the COMPUSHIFT can control. Please scroll down to **Toyota AB60** then select **OK**.



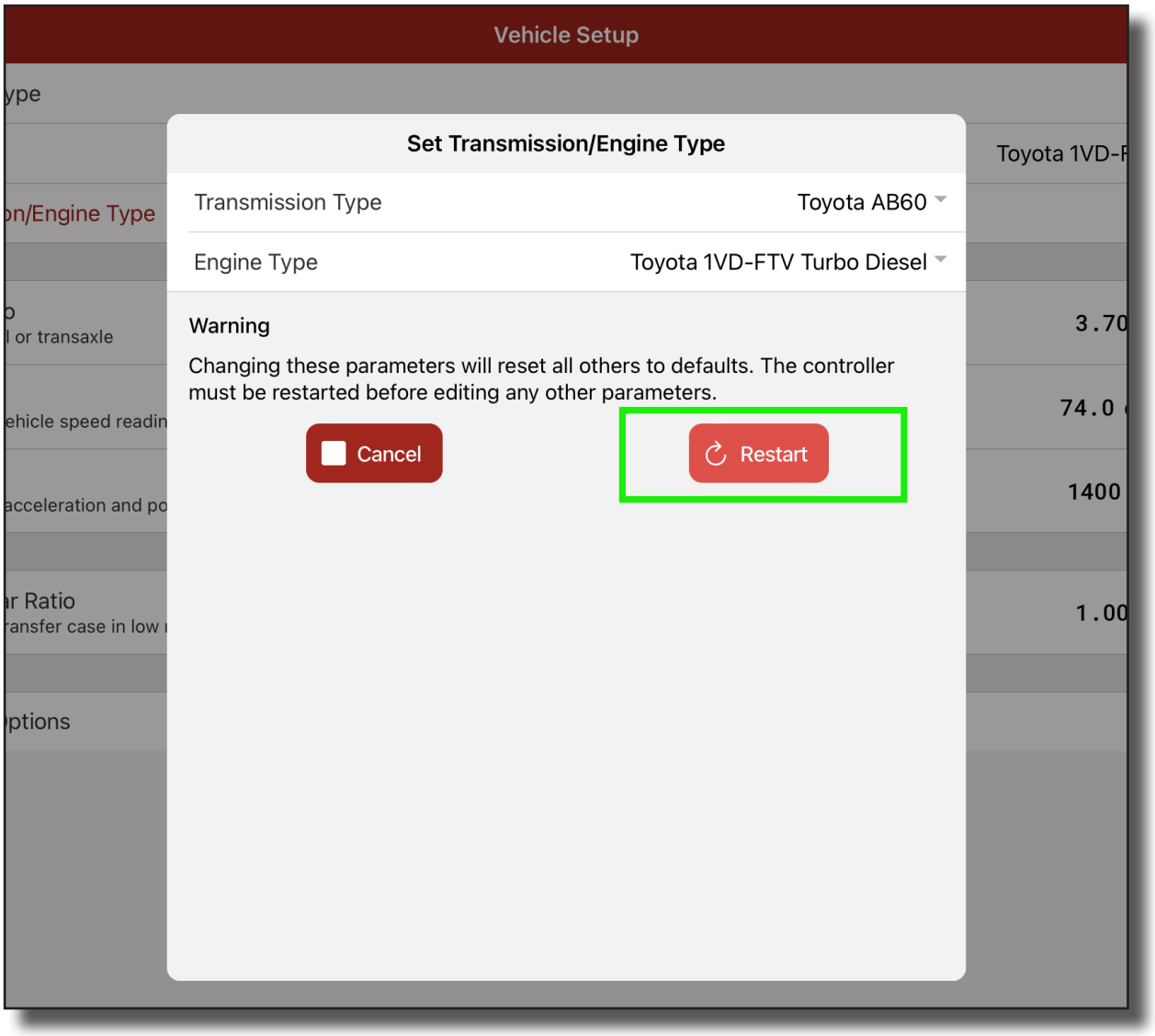
18.5. Select Engine Type



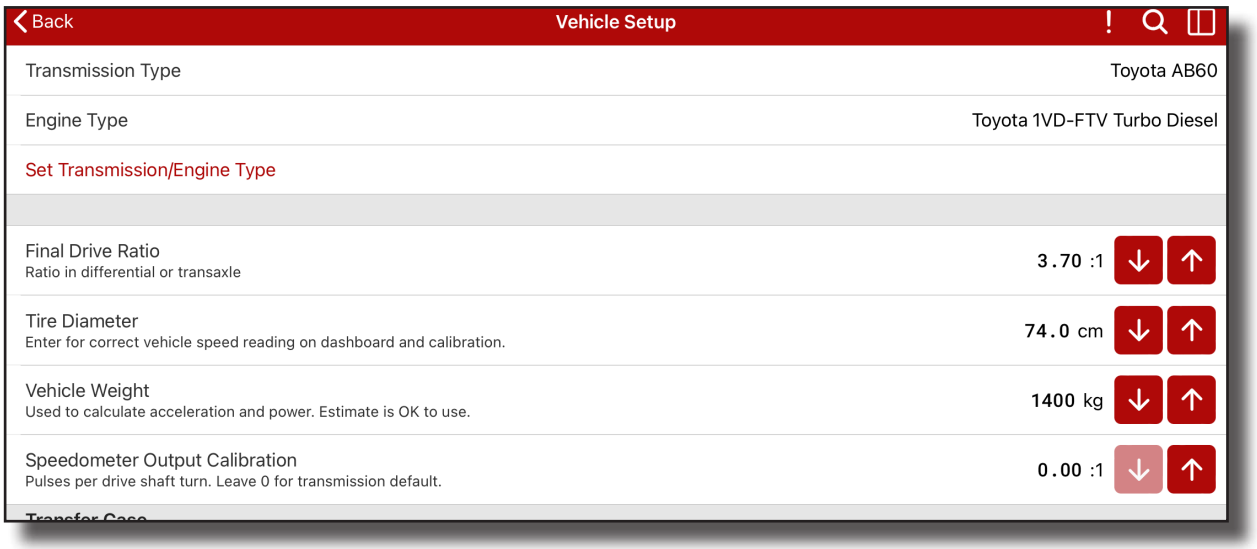
18.6. In the pop up window, select Toyota 1VD-FTV Turbo Diesel.



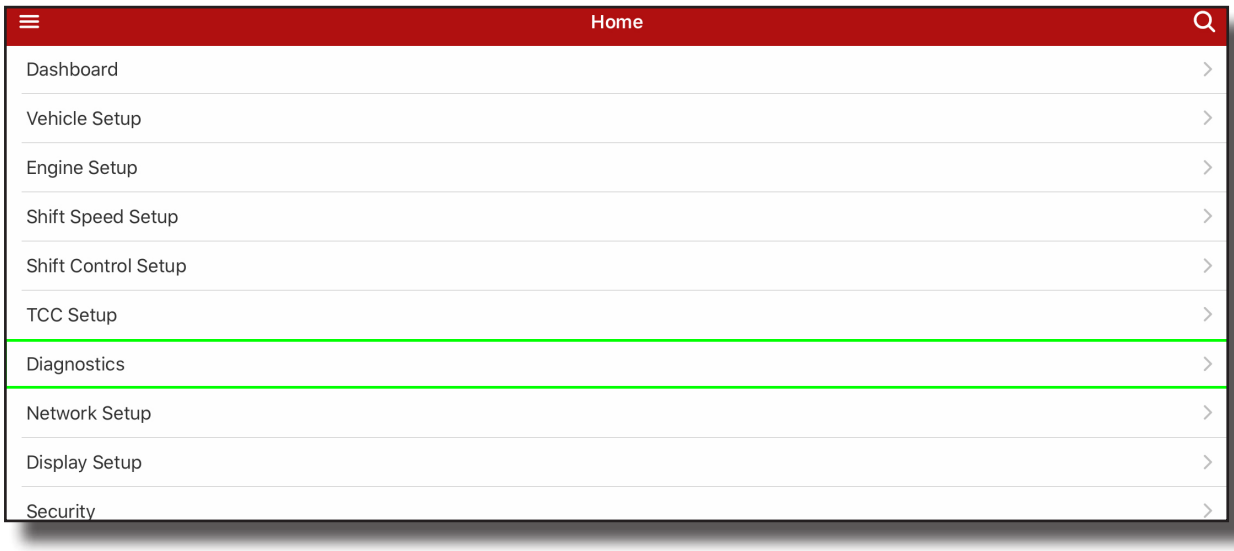
18.7. Select **Restart**. The COMPUSHIFT will apply the changes and reboot.



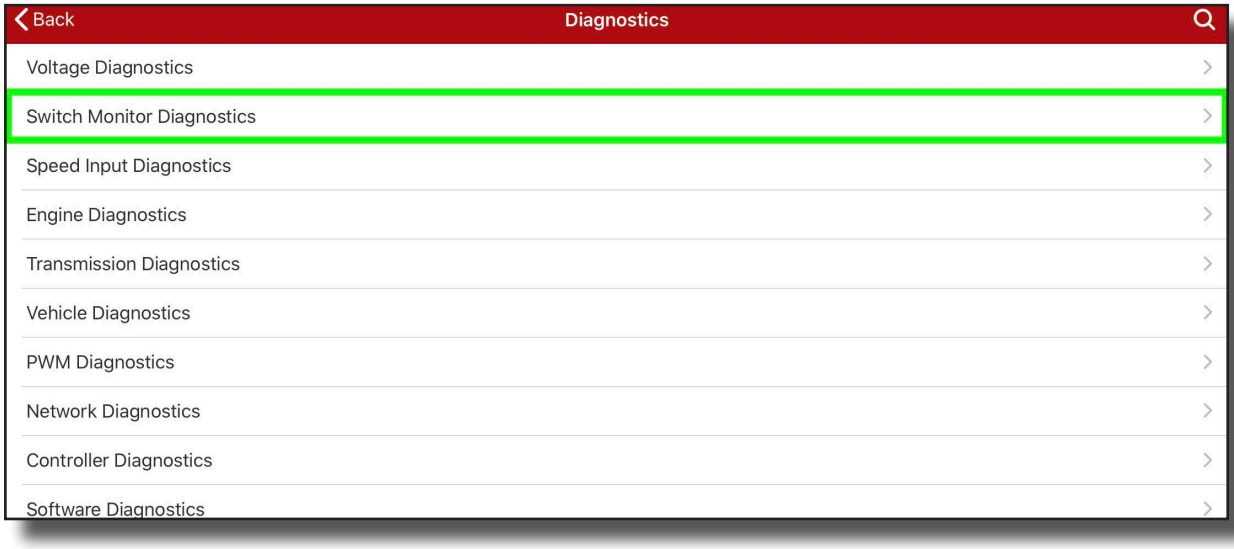
18.8. Once the App reconnects, it will return you to the Vehicle Setup page where you can confirm the changes have saved by checking that the Transmission Type and Engine Type are the same as the following image.



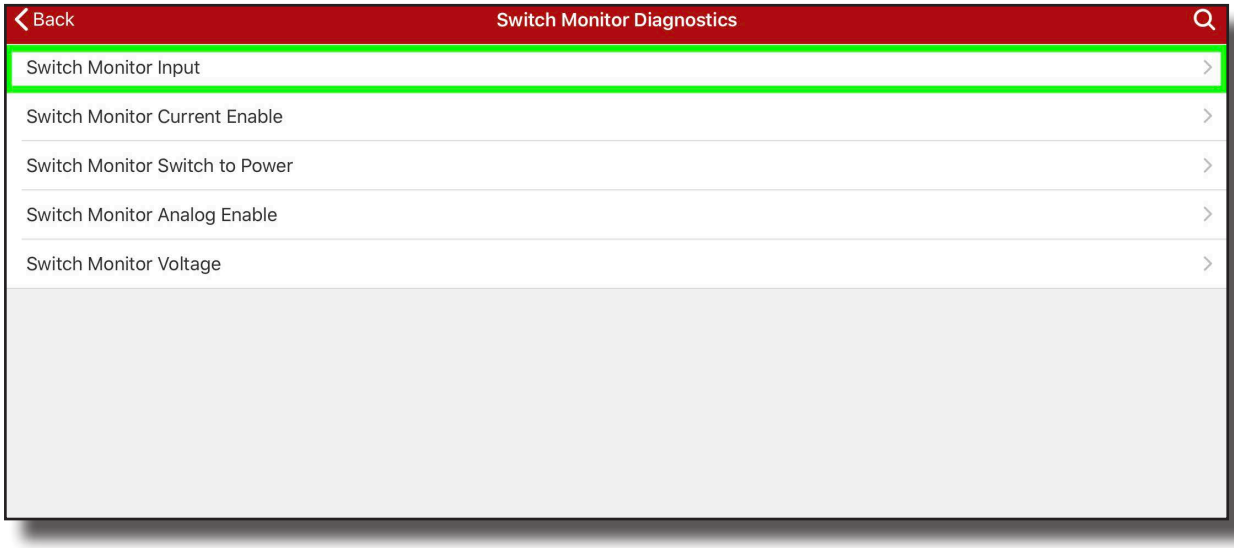
18.9. Navigate **< Back** to the Home Menu. Then select **Diagnostics**.



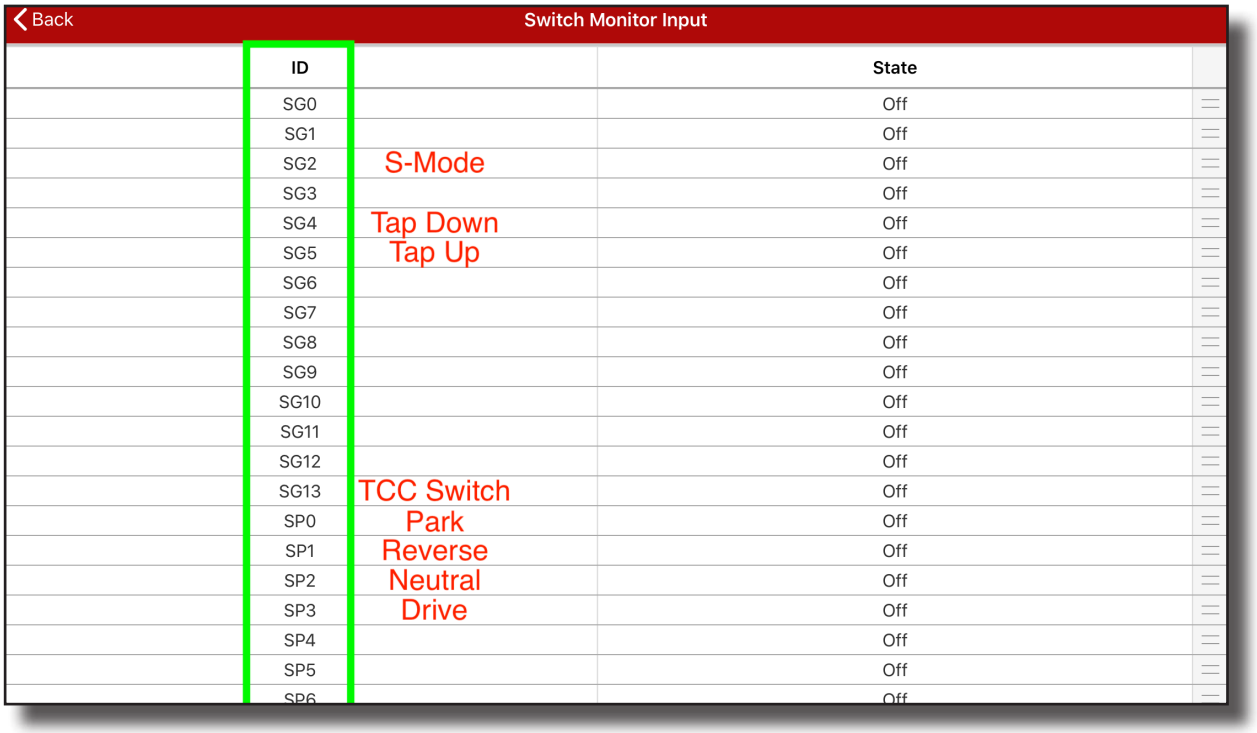
18.10. Select **Switch Monitor Diagnostics**.



18.11. Select **Switch Monitor Input**.



18.12. Locate the following Switch ID's to test the inputs on the COMPUSHIFT. Move the transmission shifter and transfer case shifter to the corresponding locations to check the inputs are triggering correctly. Also push the TCC switch to check wiring.



ID		State
SG0		Off
SG1		Off
SG2	S-Mode	Off
SG3		Off
SG4	Tap Down	Off
SG5	Tap Up	Off
SG6		Off
SG7		Off
SG8		Off
SG9		Off
SG10		Off
SG11		Off
SG12		Off
SG13	TCC Switch	Off
SP0	Park	Off
SP1	Reverse	Off
SP2	Neutral	Off
SP3	Drive	Off
SP4		Off
SP5		Off
SP6		Off

18.12.1 **SG2: S-Mode**

State Off = Shifter in Drive Position
State On = Shifter in S-Mode Position

18.12.2 **SG4: Tap Down**

State Off = Shifter Resting in S-Mode Position
State On = Shifter Pushed rearwards for Tap Down Position

18.12.3 **SG5: Tap Up**

State Off = Shifter Resting in S-Mode Position
State On = Shifter Pushed forwards for Tap Up Position

18.12.4 **SG13: TCC Switch**

State Off = TCC switch not pressed
State On = TCC switch pressed

18.12.5 **SP0: Park**

State Off = Shifter Not in Park Position
State On = Shifter in Park Position

18.12.6 **SP1: Reverse**
State Off = Shifter Not in Reverse Position
State On = Shifter in Reverse Position

18.12.7 **SP2: Neutral**
State Off = Shifter Not in Neutral Position
State On = Shifter in Neutral Position

18.12.8 **SP3: Drive**
State Off = Shifter Not in Drive or S-Mode Position
State On = Shifter in Drive or S-Mode Position

18.12.9 **SP7: Low Range Sensor**
State Off = Transfer Case in High Range
State On = Transfer Case in Low Range

18.13. If any of the sensor inputs do not respond when activated, please re-check all electrical connections on the transmission and shifter assembly. If nothing is out of place, then please contact Wholesale Automatics for further instructions.

18.14. Check that your 12v Outlet and USB sockets are working.

18.15. If all inputs and sensors operate correctly, then please continue to the next chapter.

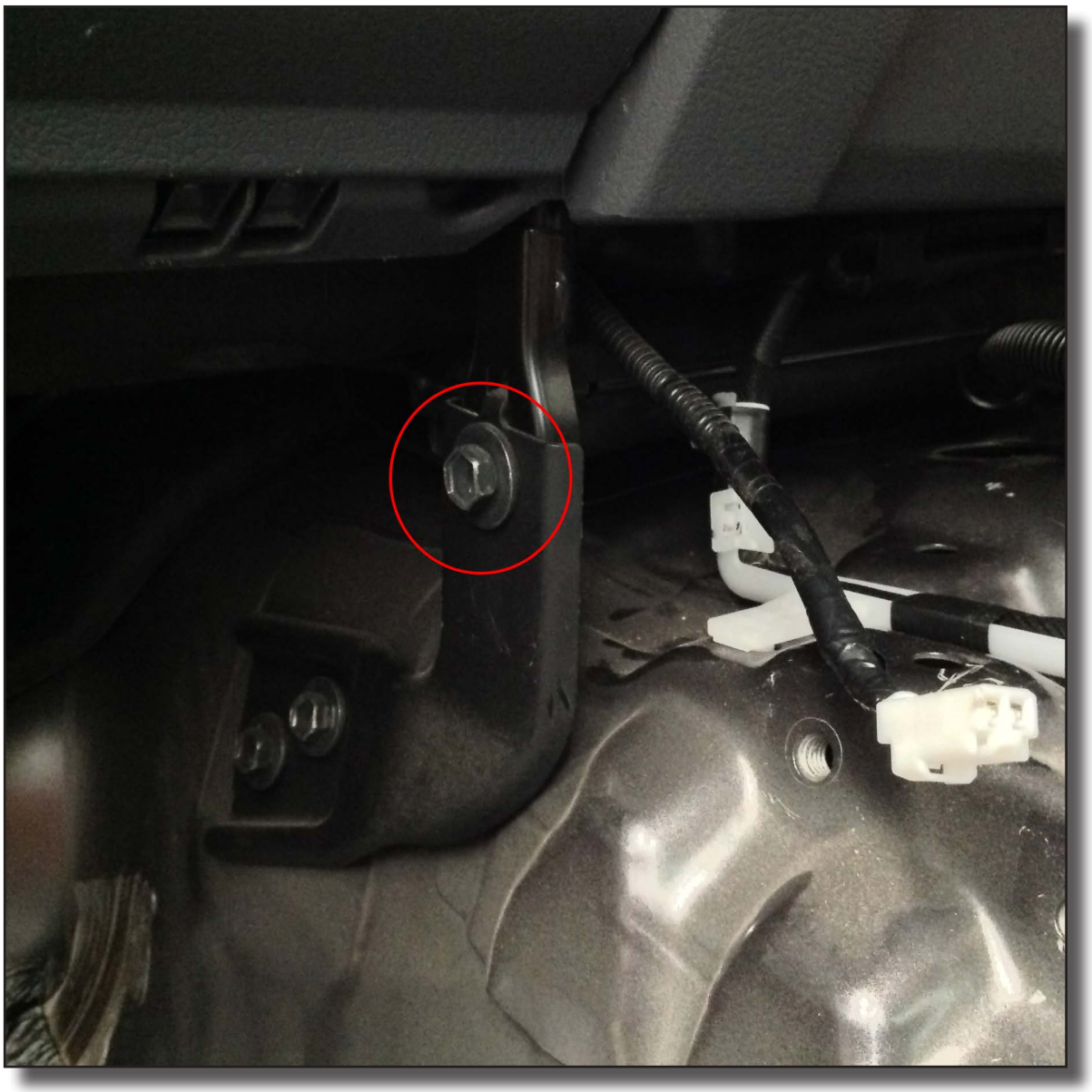
19. Finalise Interior

19.1. Keep the ignition off while you complete the remainder of the interior installation.

19.2. The console differs between the older metal dash models and the later plastic dash models. Please choose the steps appropriate to your vehicle.

19.3. **Plastic Dash Models:**

19.3.1 Remove the single OEM bolt from the passenger side dash support.



19.3.2 Route the display USB cable behind the drivers side dash support so that you can connect the USB cable to the COMPUSHIFT Module after the console is installed.

19.3.3 Move the console into the correct place taking care not to bend the shifter cable too much and pushing any excess cable down through the grommet.

19.3.4 In the spares bag removed when unwrapping the console, locate the large panel washer. Loosely refit the front passenger side bolt with the large panel washer to hold the console in place. Check that there is no wiring that may be crushed or jammed by the console.

19.3.5 Maintain forward pressure on the console, locate the rear console mounting bracket over the factory console mounting holes and secure with the factory console mounting bolts and tighten.

19.3.6 Gently tighten passenger side dash support bolt. Do not over tighten as it may result in damage to the covering.

19.3.7 Replace the rear compartment false floor to finish the installation of the console.

19.4. Metal Dash Models:

19.4.1 Move the console into the correct place taking care not to bend the shift cable too much and pushing any excess cable down through the grommet.

19.4.2 Maintain forward pressure on the console, so that it fits snug under the dash.

19.4.3 Locate the rear console mounting bracket over the factory console mounting holes and secure with the factory console mounting bolts and tighten. Some versions do not have a factory mounting location and are supplied with L brackets to screw to the cabin floor.

19.4.4 Replace the rear compartment storage base to finish the installation of the console.

19.5. Locate the USB cable coming from the COMPUSHIFT Display and route under the dash to the COMPUSHIFT Module avoiding any pedals and the steering column. Add the USB-A to Micro USB Adapter and tape up the USB-A connection to prevent from pulling apart.

19.6. Insert the Micro USB connection into the COMPUSHIFT Module. The orientation of the right angle Micro USB connector will have the wiring pointing to the drivers side of the vehicle. Cable tie that the USB cable to create a strain loop that will prevent pressure on the USB connection in the module.

19.7. Switch on the Ignition momentarily to ensure the screen lights up and display is readable. If all good switch off ignition, otherwise recheck your connections or you may not have updated the software shown in the previous steps.

19.8. Cable tie up all cables to ensure that the wiring can not come into contact with any of the pedals, steering column on any moving part under the dash.

19.9. Refit any dash/steering column shrouds that haven't been refit yet.

19.10. The Front Seat belts and Front Seats can now be re-installed using factory bolts. Also refit any other interior component that has yet to be done.

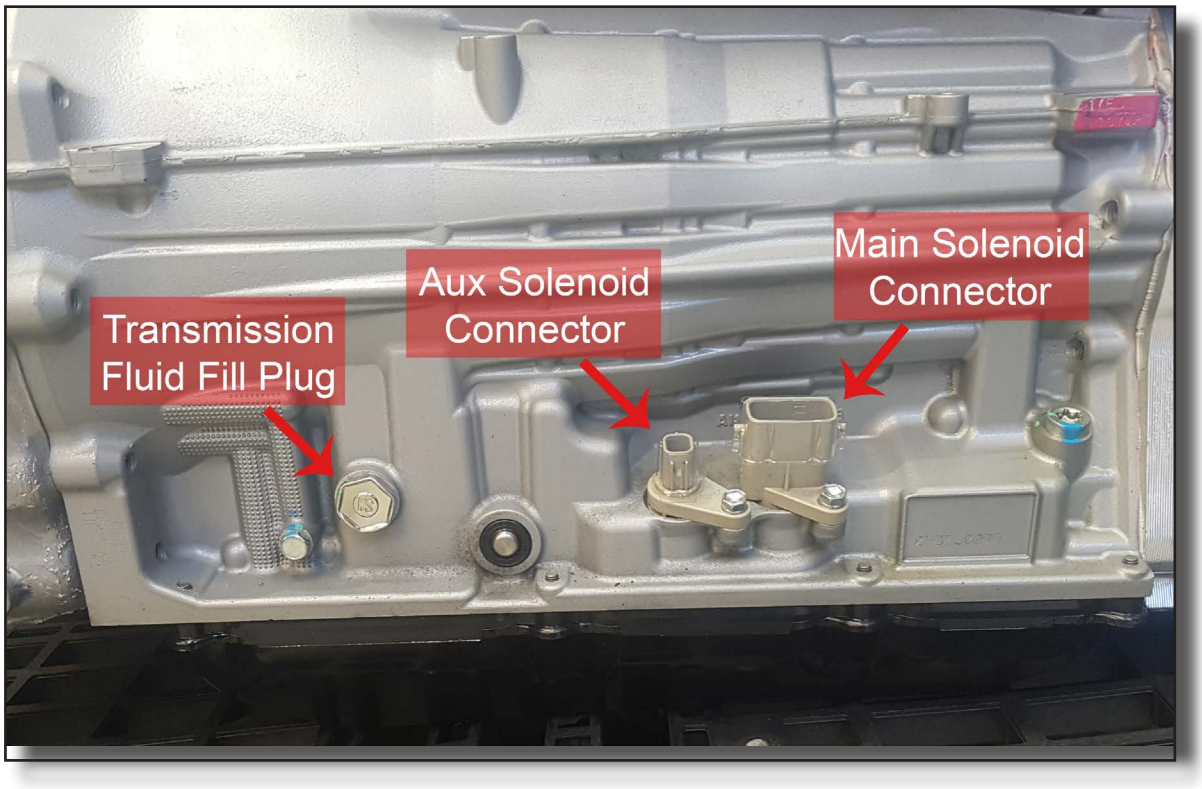
20. Finalise Under Vehicle Work

20.1. Transmission Fluid Filling

20.1.1 Before starting the Transmission Filling process, check that all nuts and bolts for transmission, transfer case, and crossmember are tight.

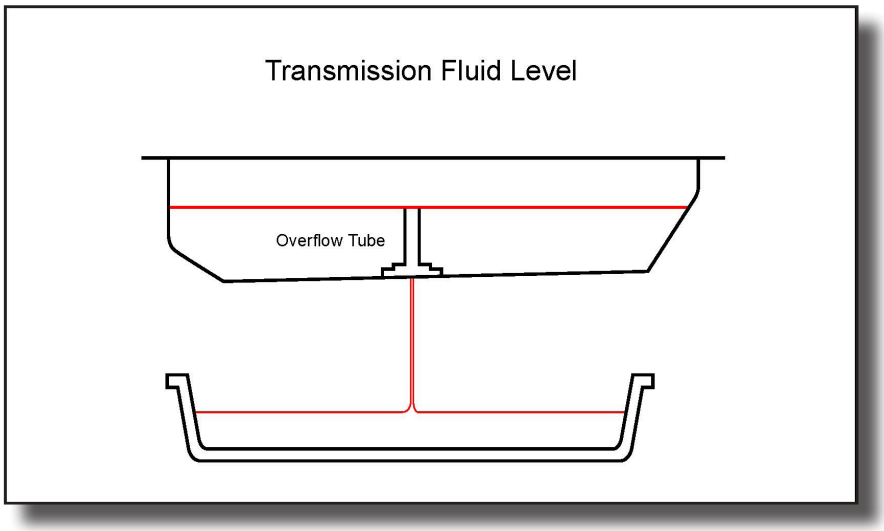
20.1.2 DO NOT START VEHICLE YET.
It will be easier with 2 people during this process.
You will need a 5mm Hex Allen Key and fluid catcher under the transmission before starting.

20.1.3 Unbolt Transmission Fluid Fill Plug on the passenger side (RHD) of the transmission just above the Pan. Fill transmission with Full Synthetic Transmission Fluid until it starts to flow out of the Transmission Fluid Fill Plug hole.



20.1.4 Start vehicle and leave in Park. Allow the vehicle to run for 30 seconds before removing the CHECK bolt on the underneath of the pan, labeled '**CHECK**' (5mm Allen Key). When you remove the CHECK bolt, there may or may not be any fluid coming out of the hole. This is not a problem.

20.1.5 If no fluid is coming out of the CHECK bolt hole, continue to add transmission fluid until it starts to flow. Avoid inserting any nozzle into the Transmission Fluid Fill Plug hole too far to avoid the spinning drum.



20.1.6 When the fluid starts coming out of the CHECK bolt hole, ensure that the handbrake is firmly engaged and with your foot firmly on the brake. Shift the transmission into Drive for 10 Seconds then in Reverse for 10 Seconds.

20.1.7 Put vehicle in park and with engine still running add a little more fluid until it dribbles out CHECK bolt hole again.

20.1.8 Refit CHECK bolt and Transmission Fluid Fill plug. Tighten

20.1.9 Don't refit any bash plates that may restrict access to the CHECK bolt or Fluid Fill Plug as you will need to re-check the level after test driving.

20.2. Bolt and Nut Checks

20.2.1 Whilst under the vehicle, secure the shifter cable stay to the rear of the transfer case using 1 of the 2 vacant threaded holes above the rear drive shaft using supplied 13mm bolt and washer.

20.2.2 Refit front Drive Shaft if you haven't already done so. Recheck the approx 3mm clearance between front drive shaft flange and transmission.

20.2.3 Conduct a bolt and nut check of everything that has been touched during the conversion to confirm it is tight and safe. Using a paint pen, mark all nuts and bolts changed/modified or installed as part of the conversion.

20.2.4 Check that the breather hoses can not come in contact with drive shafts, exhaust or any other hot or moving part.

20.2.5 All wiring is cable tied up and out of the way and can not fall down onto drive shafts, exhausts or any moving parts.

20.2.6 Ensure that cooler lines are secured along the full length at reasonable intervals and can not be impacted by the front axle at full compression.

20.2.7 Check there is sufficient slack in the cooler lines between the last engine/transmission secure point and the first chassis secure point to allow for movement of the engine and transmission.

21. Calibration Files

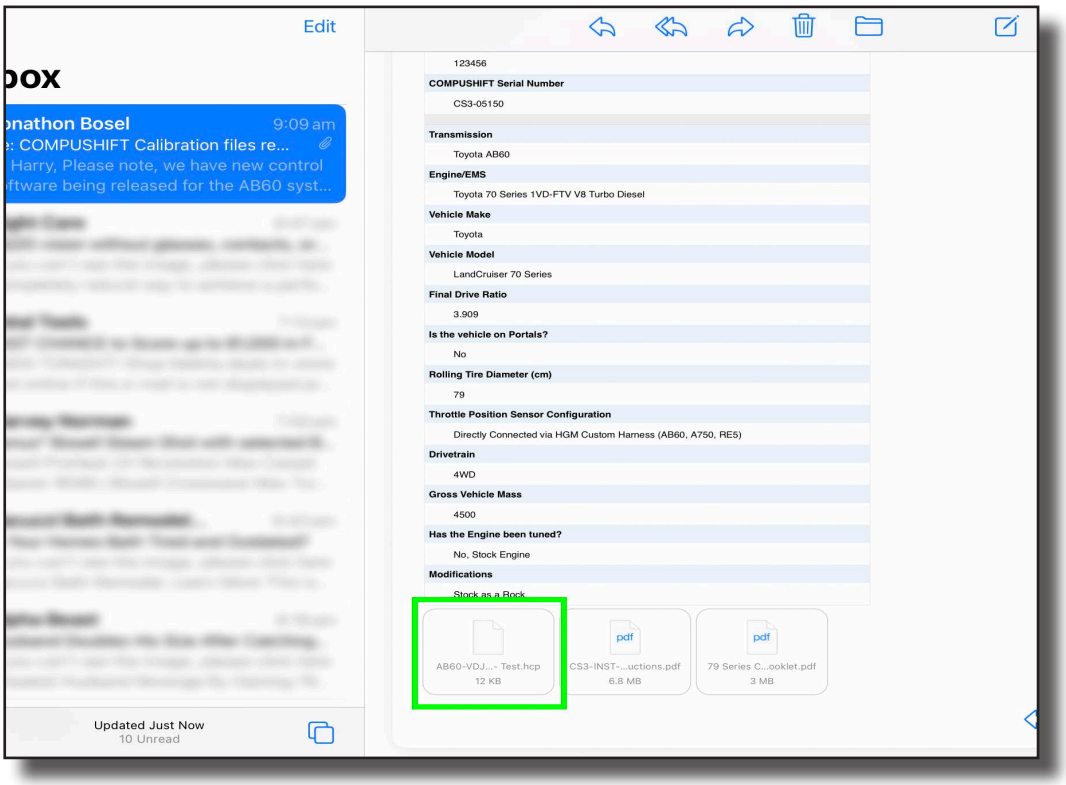
21.1. Calibration File Received via Email

The process to load the calibration file in the COMPUSHIFT Setup app is very similar for both iOS and Android devices. The primary difference being the steps needed to get the calibration file where it needs to be located so that app can access it and load it into your COMPUSHIFT. If you haven't already Downloaded the COMPUSHIFT Setup App, please see Installing Setup App section first.

21.1.1 If you have received an email with the calibration file, on your smart device, first go to the email containing the calibration file. We will provide instructions for the three most common mobile email clients on various platforms: Apple Mail, Microsoft Outlook, and Gmail.

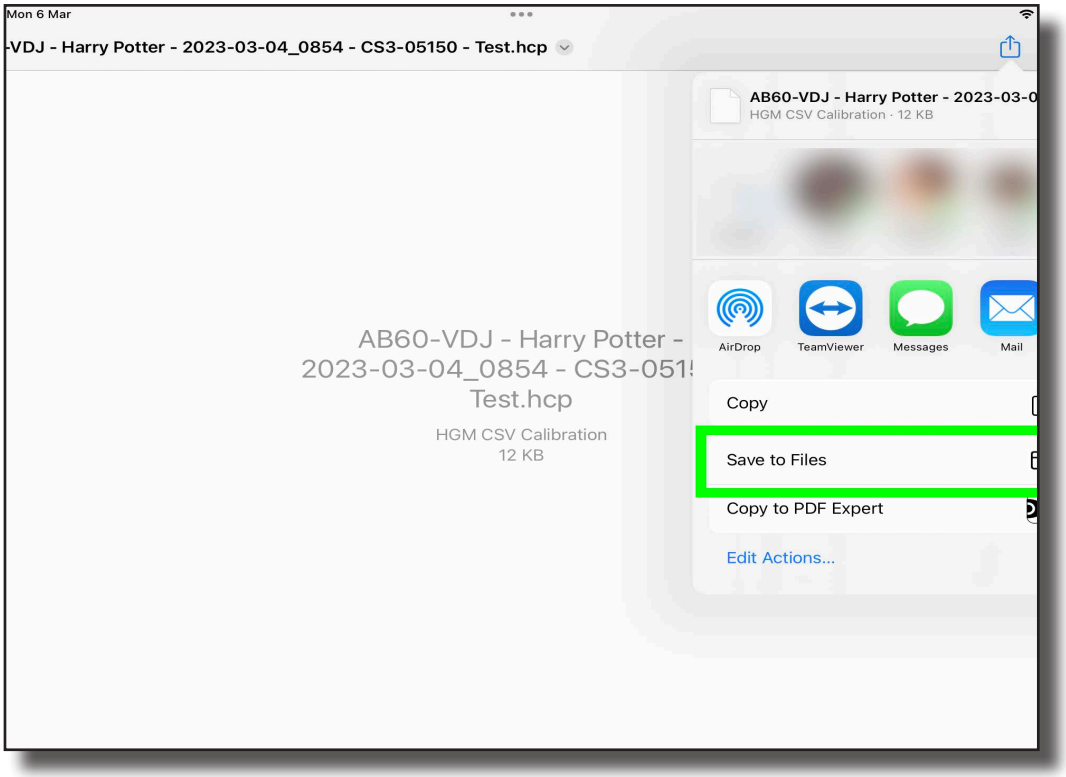
21.1.2 Apple iOS Devices

21.1.2.1 Open the email and look for the file attached. You may need to scroll down to find the attachment.
The filename structure is:
[Transmission]-[Engine] - [Your Name] - [Date & Time] - [Serial Number]
IE: "AB60-VDJ - Harry Potter - 2023-03-04_0854 - CS3-05150"
Tap on the file to open it.

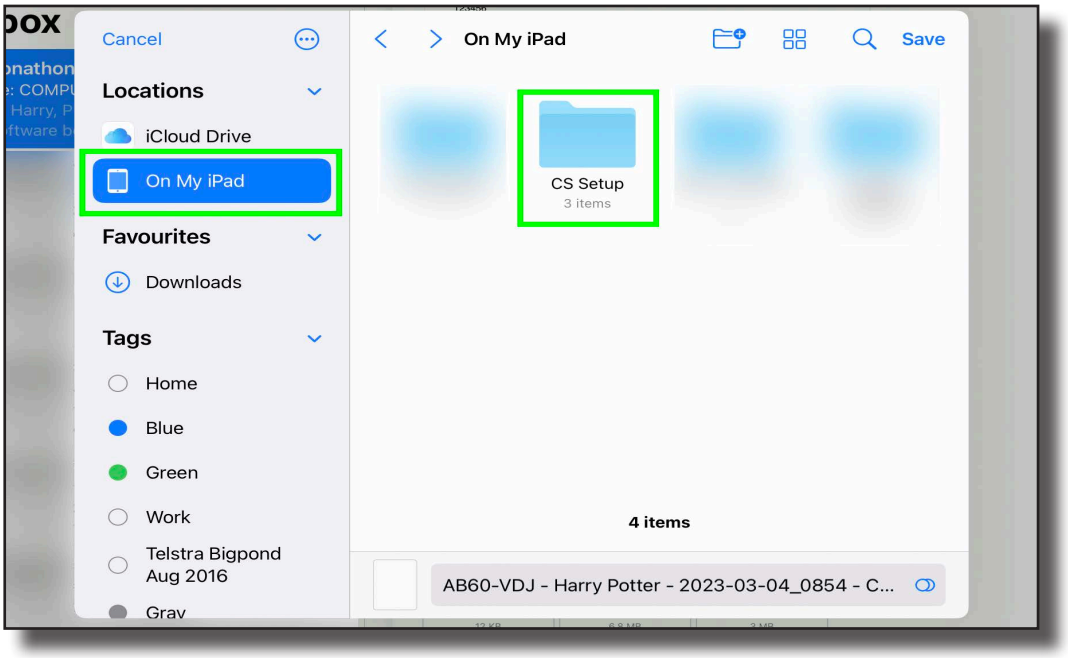


21.1.2.2 There will be no data visible as the device is not capable of reading the data. We need to move it to the correct folder. To do this, tap on the Share icon at the top of the screen.

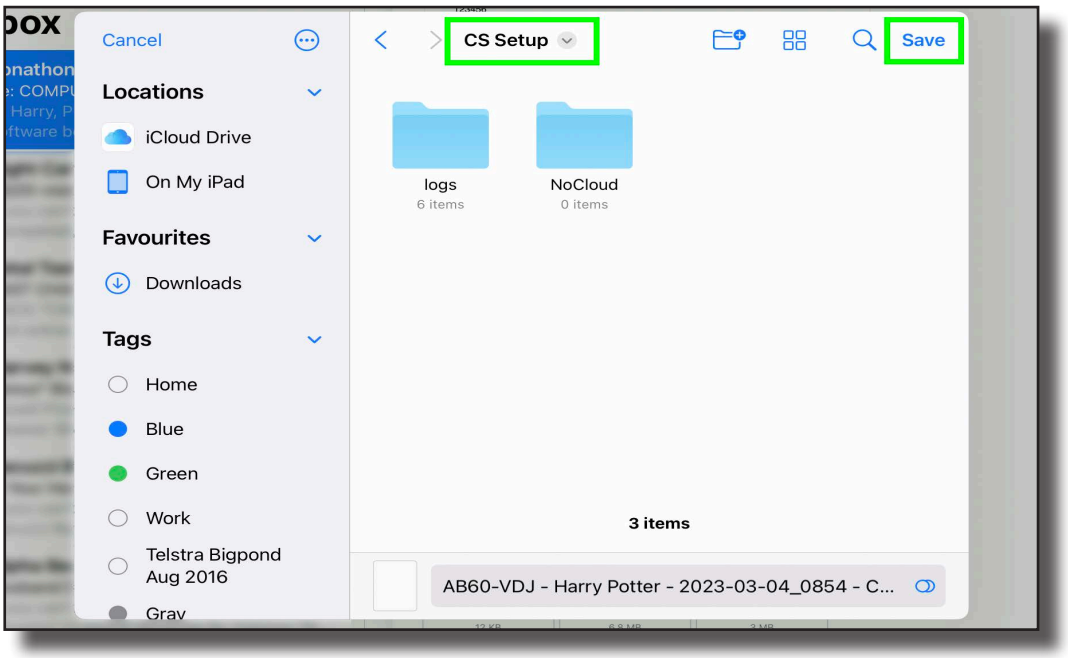
21.1.2.3 Tap on Save to Files. On smaller devices, you may need to slide the sharing panel up in order to see the Save to Files button. In some cases, you may need to tap on Share Files via... before seeing the share panel.



21.1.2.4 Navigate to the folder location on your device as per below and tap the folder to select it.
For Apple iPhone - Save to 'On My iPhone/CS Setup'
For Apple iPad - Save to 'On My iPad/CS Setup'



21.1.2.5 When it shows 'CS Setup' in the current folder location, tap Save



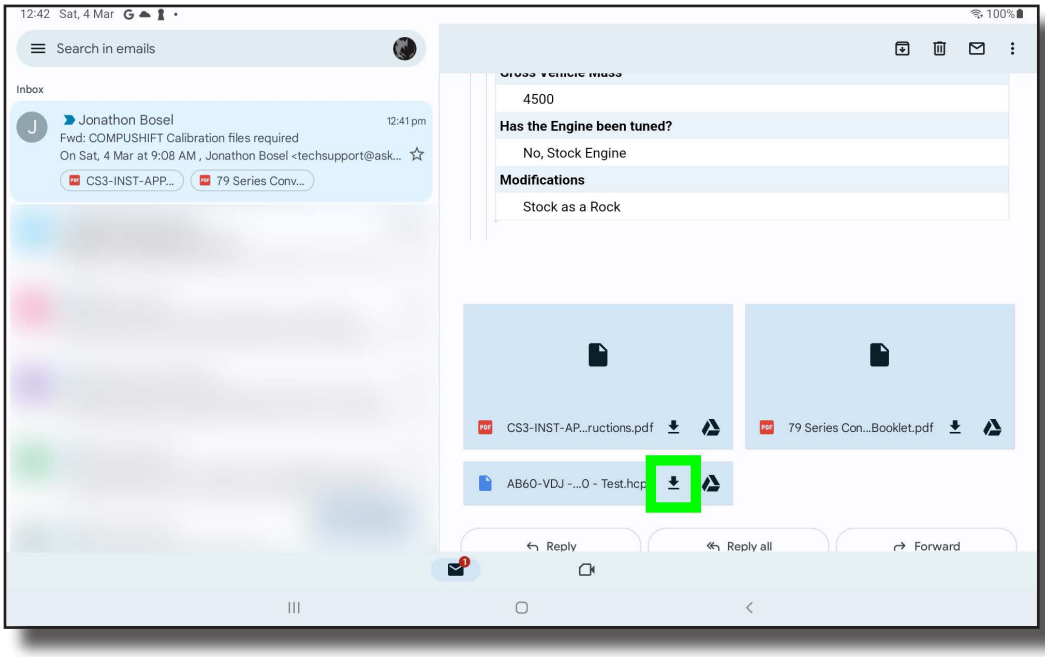
21.1.2.6 Close your Mail client and skip to **Loading Calibration File.**

21.1.3 Android Devices

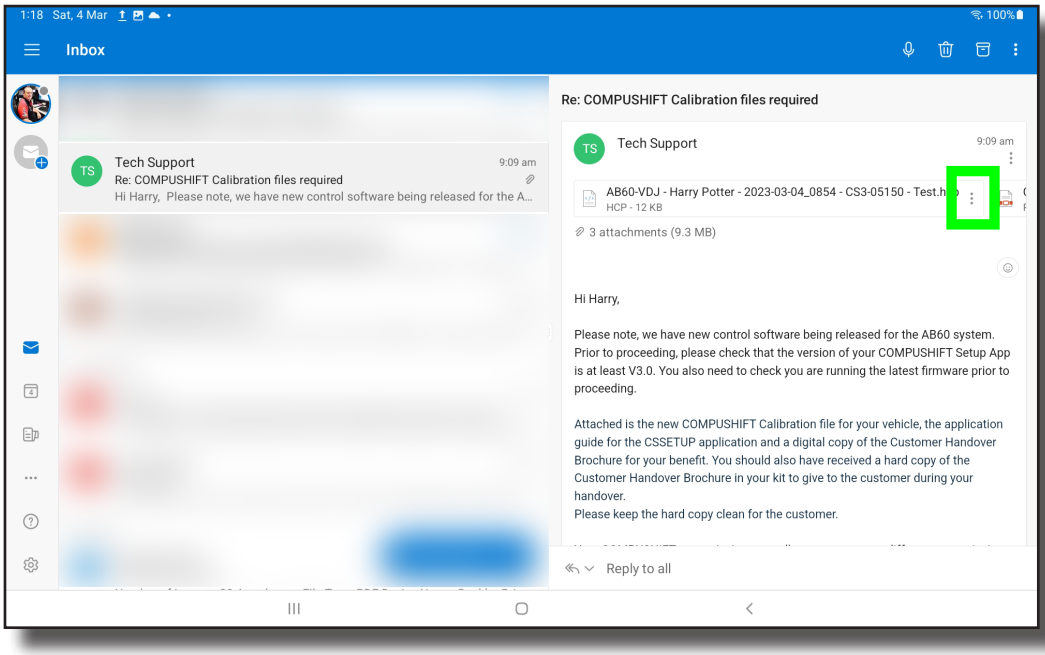
21.1.3.1 Open the email and look for the file attached. You may need to scroll down to find the attachment.

The filename structure is:
[Transmission]-[Engine] - [Your Name] - [Date & Time] - [Serial Number]
IE: “AB60-VDJ - Harry Potter - 2023-03-04_0854 - CS3-05150”

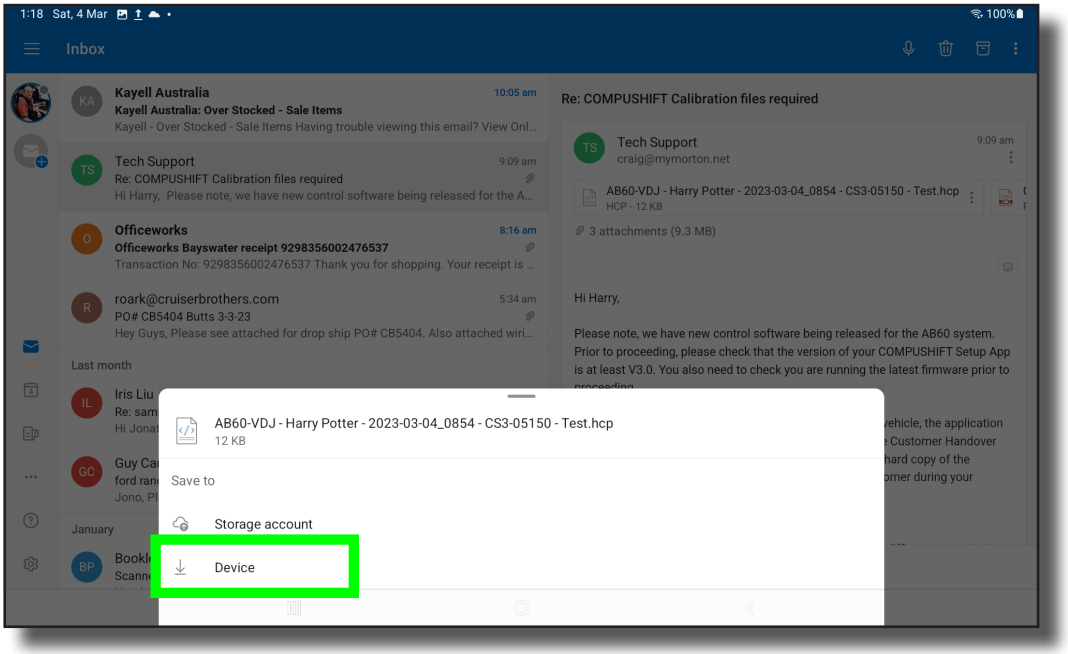
Gmail - Tap on the download icon to save the file to Downloads.



Outlook - Tap on the 3x vertical dots to show the Save to menu



21.1.3.2 Tap on Save to Device.

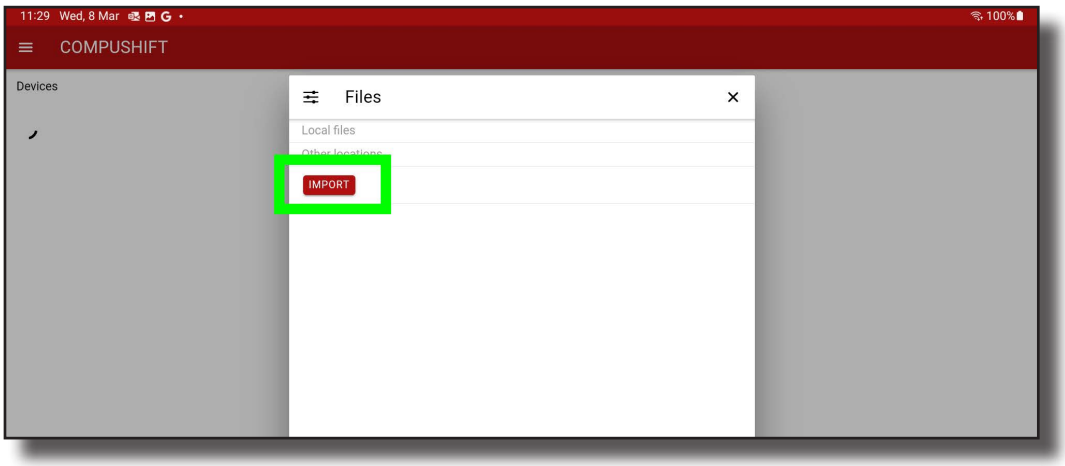


21.1.3.3 Close your email app and open the COMPUSHIFT Setup App

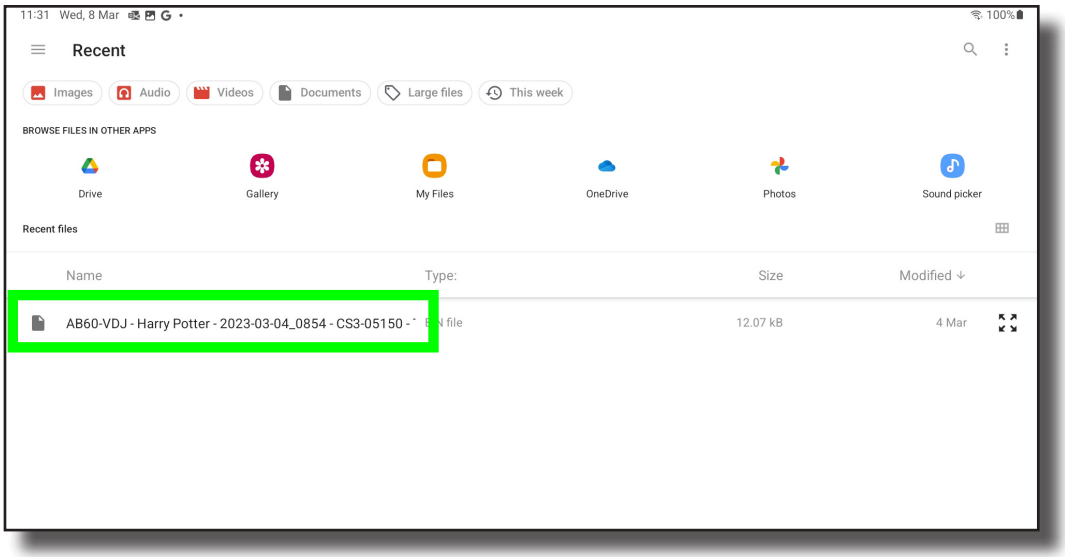
21.1.3.4 On the Home Menu, tap on the 3x lines at the top left to reveal the Actions Menu.

21.1.3.5 Tap on Browse Files

21.1.3.6 Tap Import

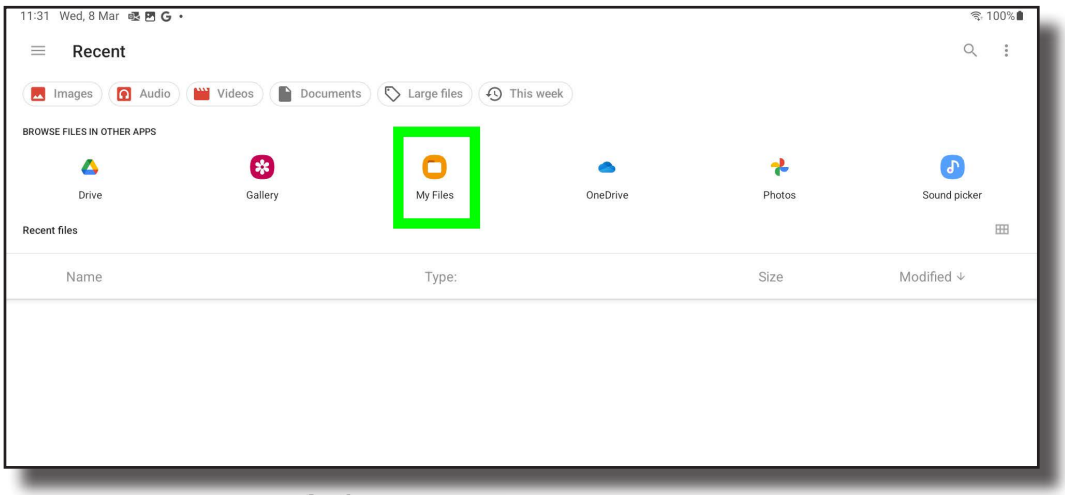


21.1.3.7 The calibration file should show under the Recent files area. If it is there, tap on the file. This will copy it into the CS Setup App.

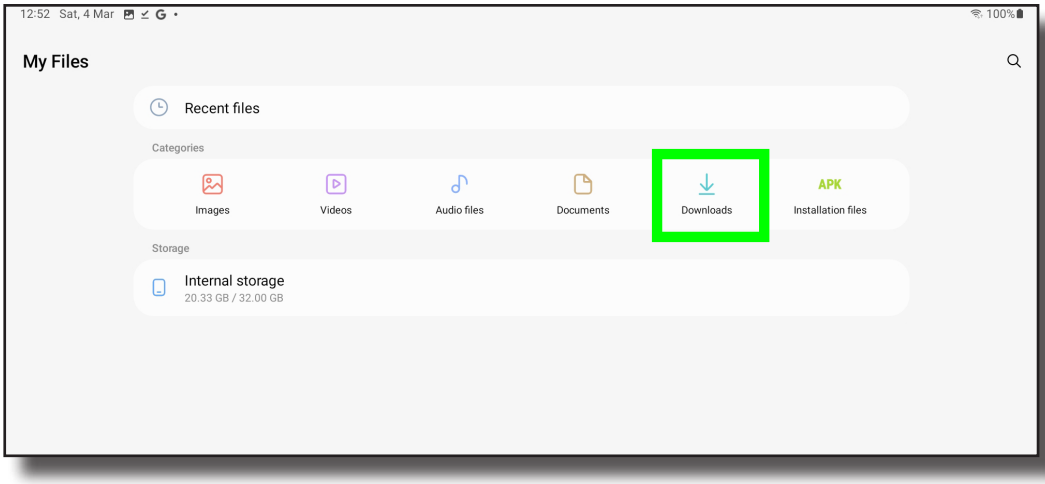


21.1.3.8 Skip to **Load Calibration File**

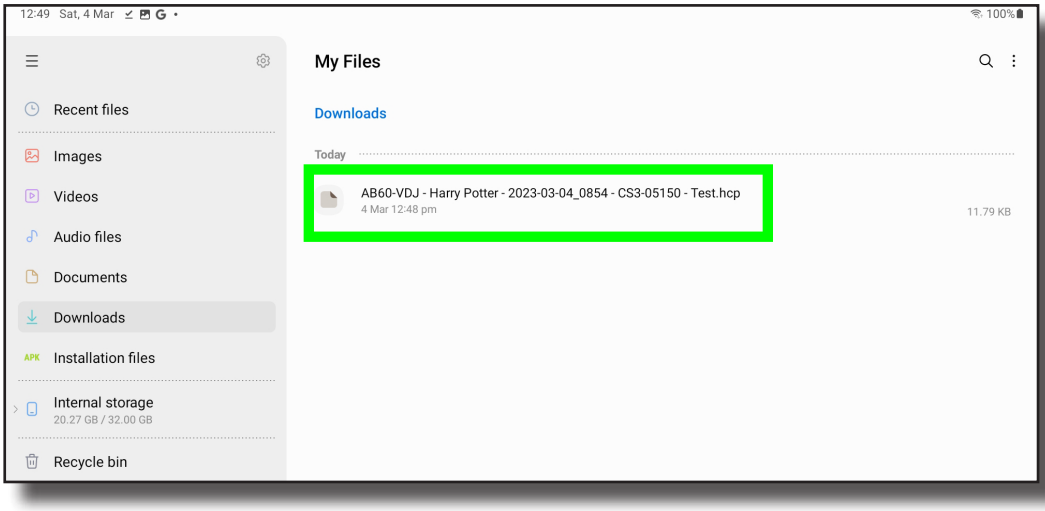
21.1.3.9 If the calibration file is not showing in Recent files area, tap on My Files



21.1.3.10 Select the Calibration File that you previously saved. Then tap Done
This will import the calibration file into the CS Setup App.



21.1.3.11 Tap on the Calibration file. This will copy it into the CS Setup App.



21.1.3.12 Skip to **Load Calibration File**

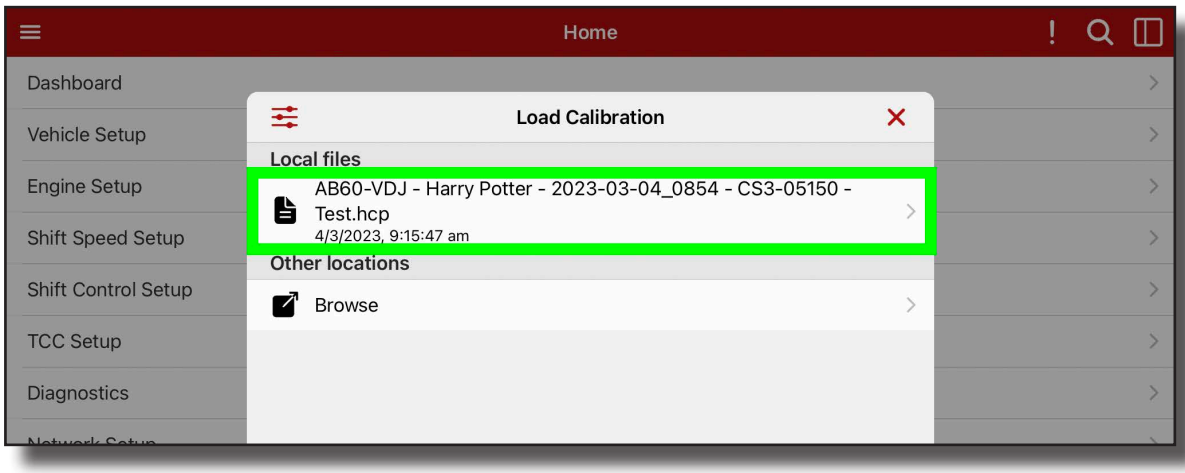
21.2. Load Calibration File

21.2.1 If you are loading a calibration file that you received via email, this chapter assumes you have copied that calibration into the CS Setup app already. If you have not done this already, please review the Calibration Received via Email Chapter prior to continuing.

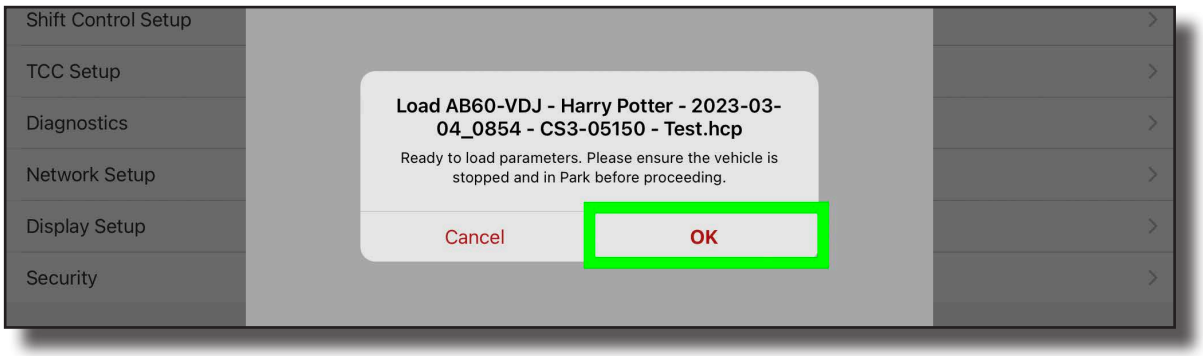
21.2.2 If not on the Home menu, navigate **< Back** at the top left until you see the 3 horizontal lines at the top left of the screen. Tap on the 3 horizontal lines to reveal the hidden Actions Menu.

21.2.3 In the Actions Menu, select **Load Calibration**

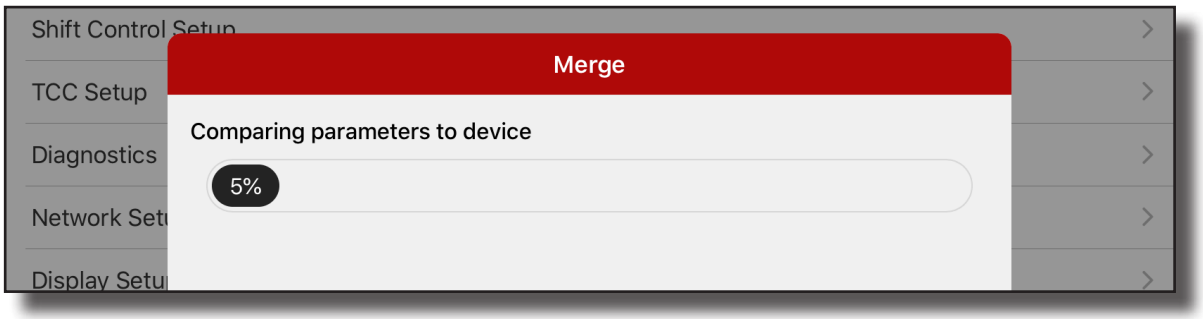
21.2.4 Select the File that you want to Load into your Module.



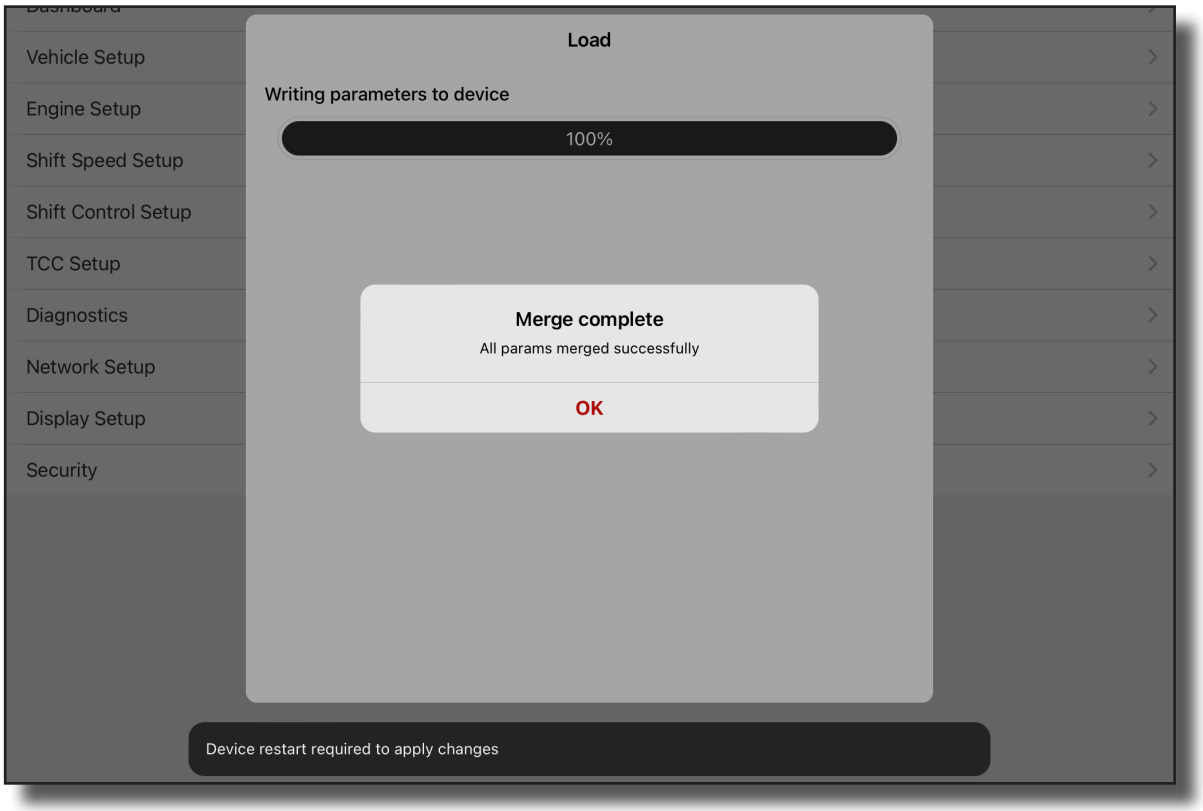
21.2.5 Confirm you are ready to load the Calibration then tap OK



21.2.6 A progress bar will show while it loads the file onto the COMPUSHIFT Module.



21.2.7 The app will show a message confirming the Load is Complete. Tap OK.



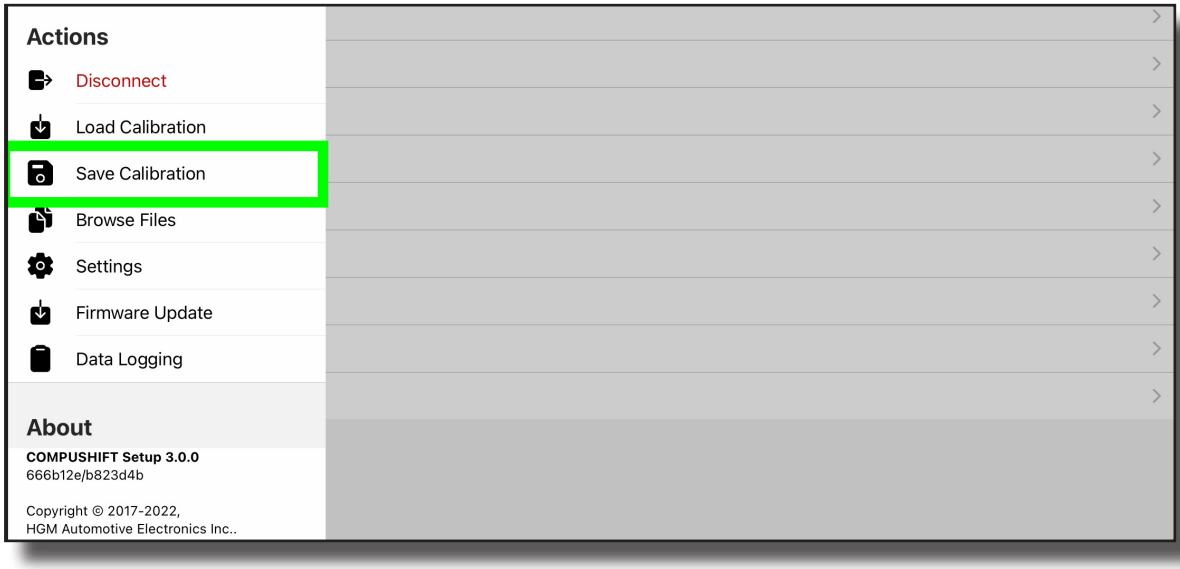
21.2.8 You must now switch off the vehicle and switch back on to cycle the COMPUSHIFT power.

21.2.9 If you do not receive this message, the loading was NOT successful. Please try to load the calibration file again.

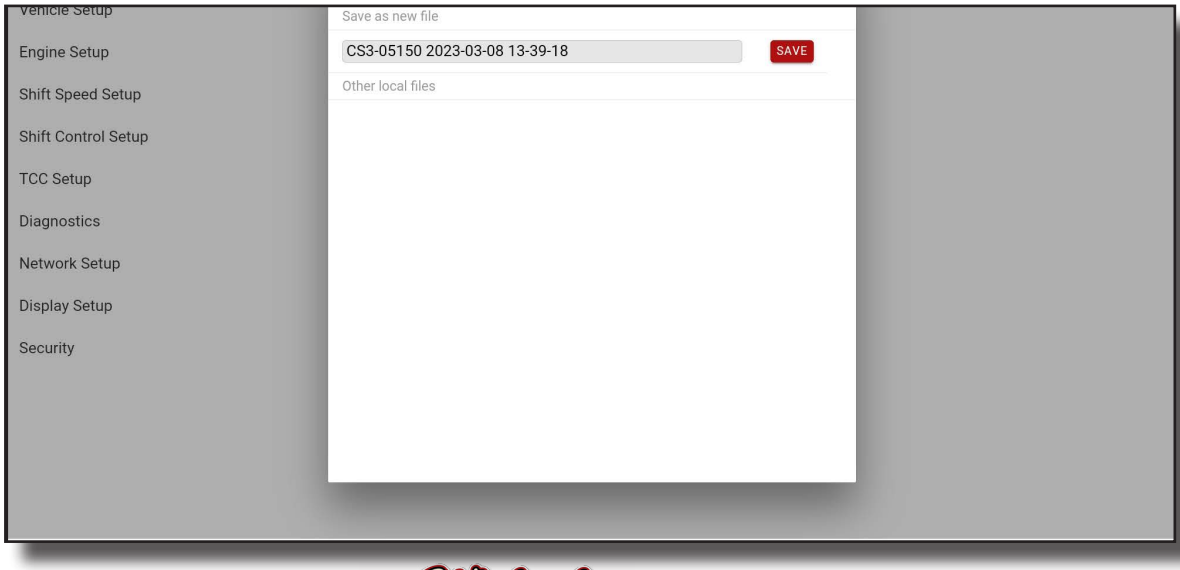
21.3. Save Current Calibration to a File

21.3.1 If not on the Home menu, navigate < Back at the top left until you see the 3 horizontal lines at the top left of the screen. Tap to reveal Actions Menu

21.3.2 Tap on **Save Calibration**

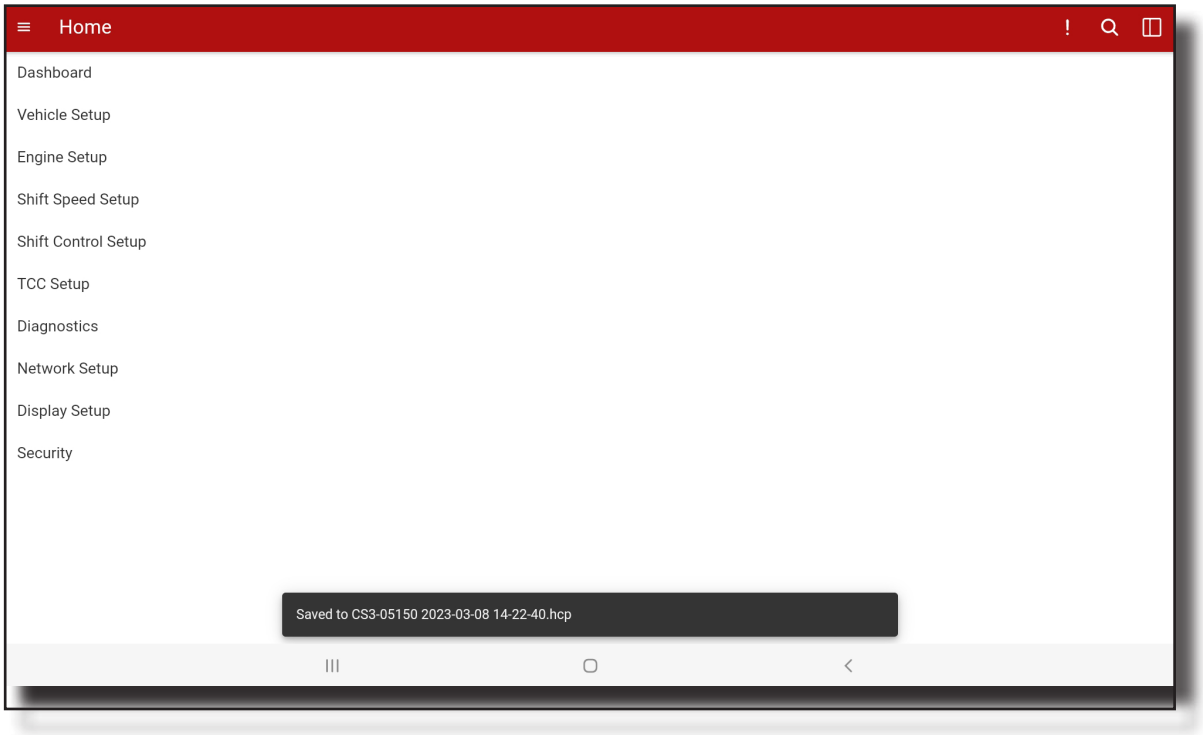


21.3.3 Rename the file if you prefer or tap Save to save the calibration.



21.3.4 The app will now read out all of the calibration data from the COMPUSHIFT Module. This may take up to a minute. During this time you will see a progress bar on the screen.

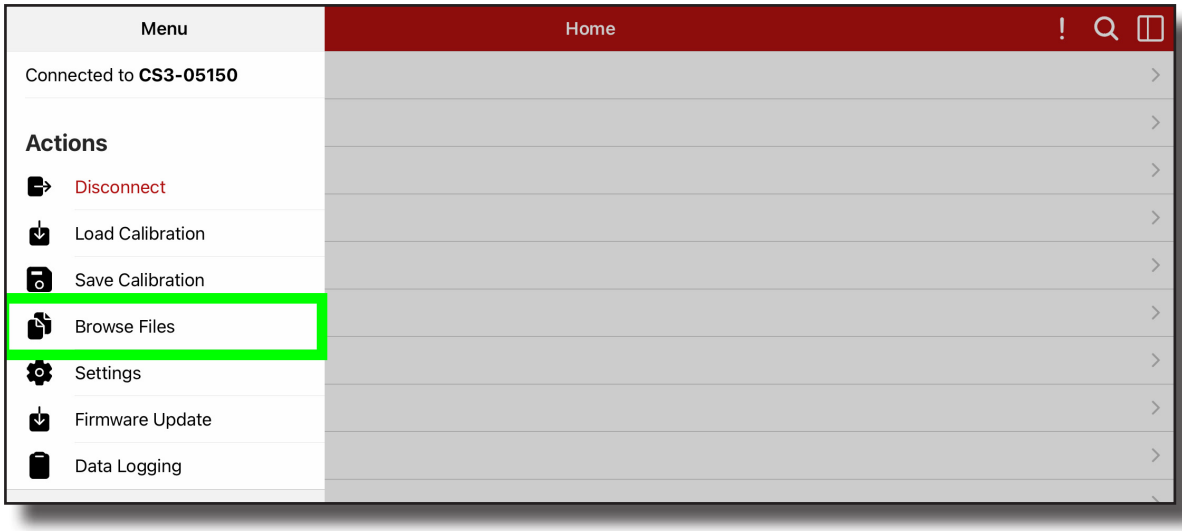
21.3.5 When the calibration has been saved, there will be a 'toast' notification pop up from the bottom of the screen indicating success.



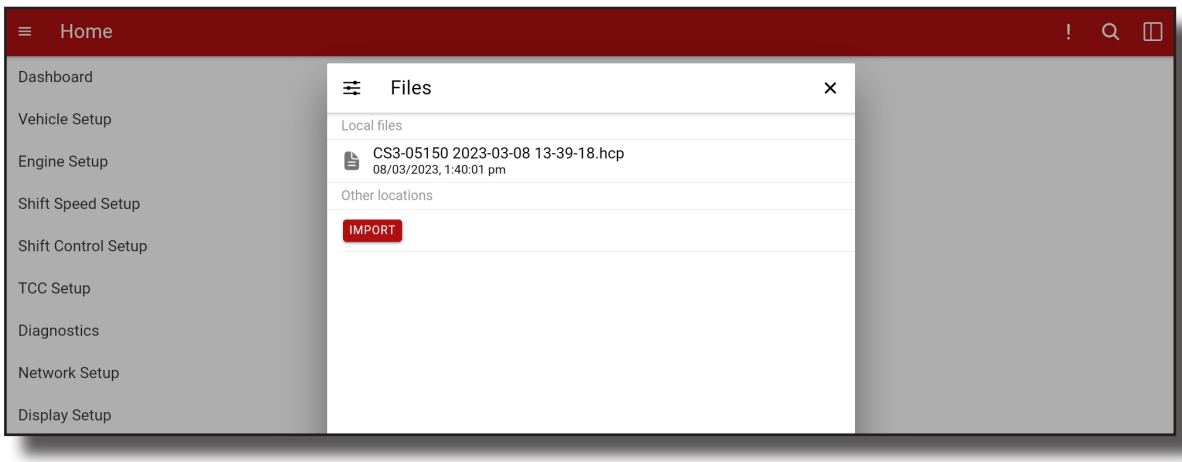
21.4. Emailing Calibration File

21.4.1 To email a saved calibration file, if not on the Home menu, navigate < Back at the top left until you see the 3 horizontal lines at the top left of the screen.
Tap to reveal Actions Menu

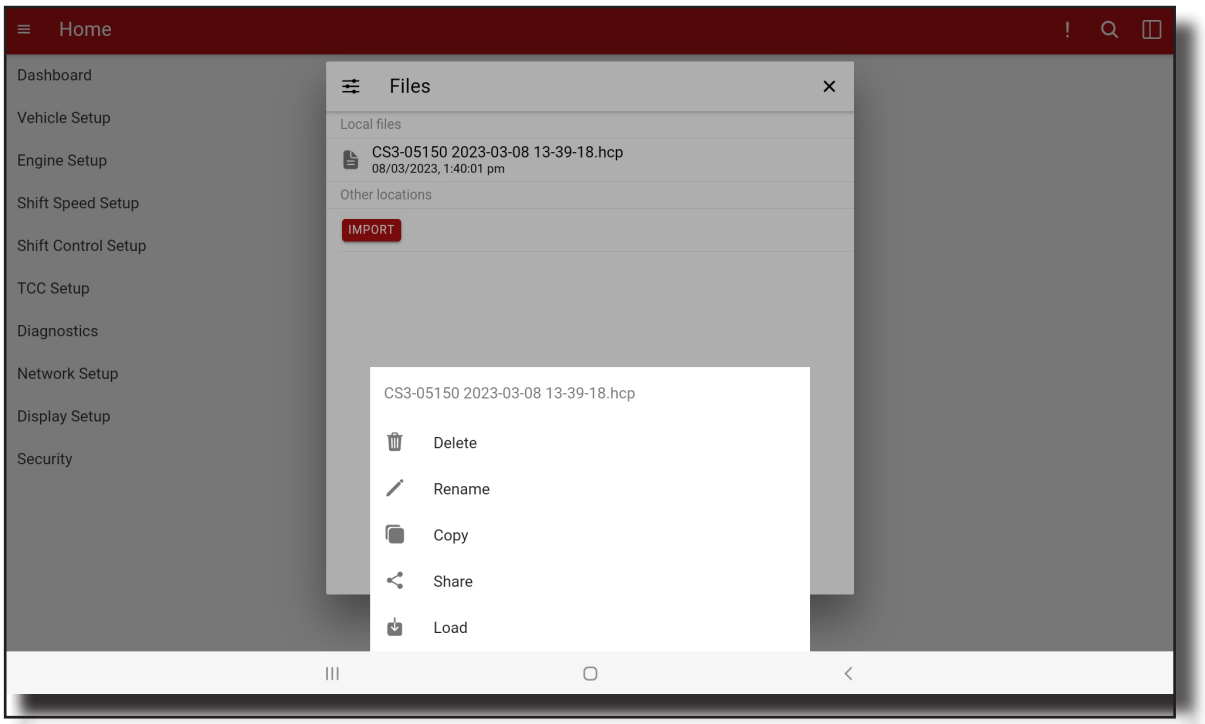
21.4.2 Tap on Browse Files.



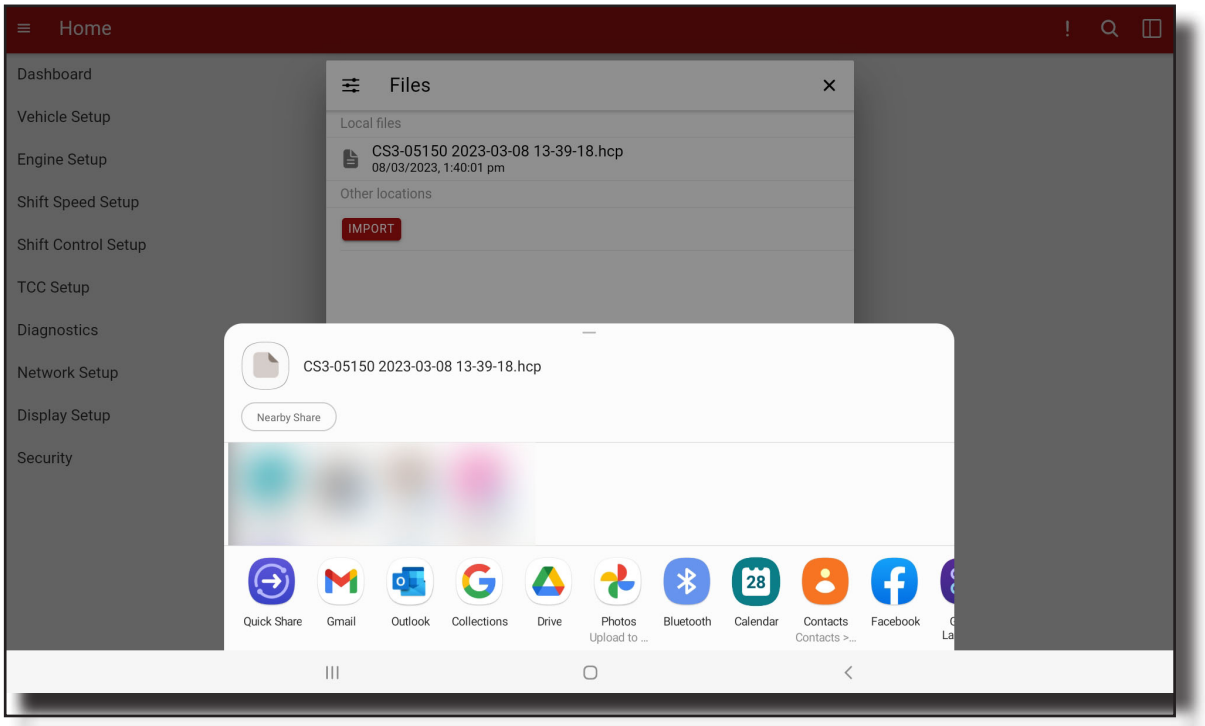
21.4.3 Locate the file in the list that you wish to email and tap on it once to bring up the action menu at the bottom of the screen.



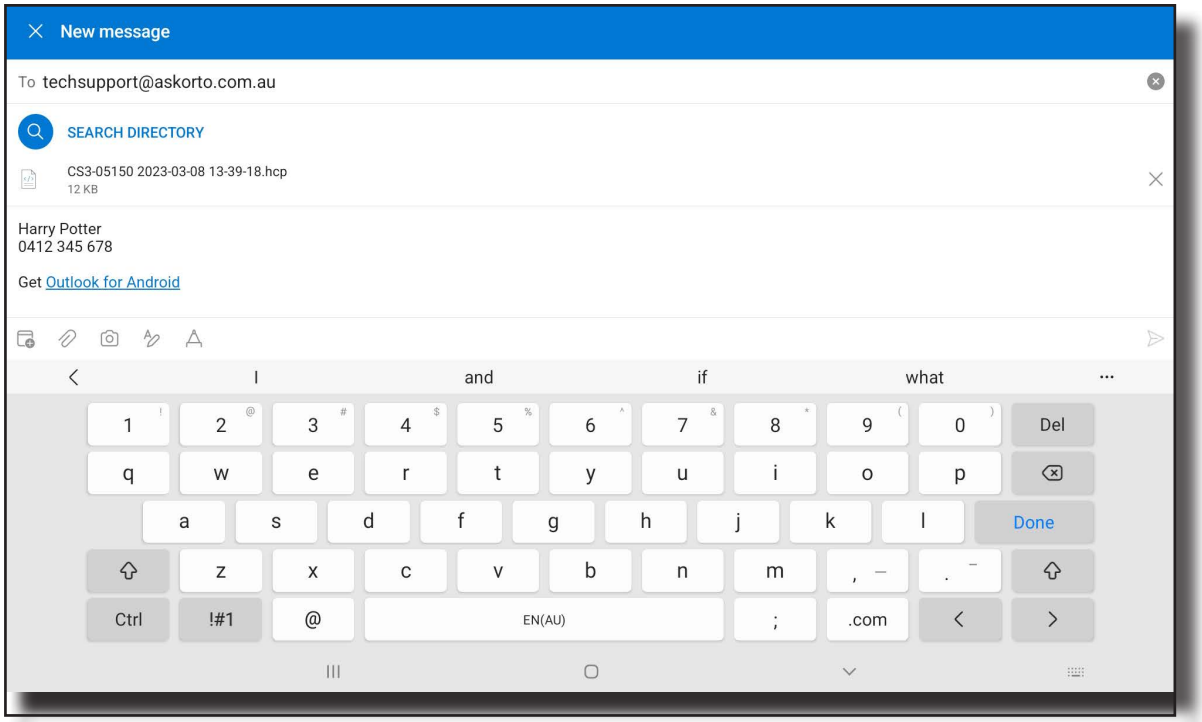
21.4.4 Tap on Share



21.4.5 Select the Email App you wish to use to email the file. This will open the email app and create a new email with the file as an attachment.



21.4.6 In the new email, please enter the email for Wholesale Automatics Tech Support techsupport@askorto.com.au. Or any other email address you wish to send to.



22. Understanding the Dash Display

The primary purpose of the display is to provide a quick and easy readout of the gear information so that you know what gear you are in. This is both helpful while driving but most importantly to satisfy Australian Road Regulations. The Dash Display also provides a readout of the major parameters that need to be monitored on a regular basis plus it provides access to all the same information available as in the App. However it's just a little more difficult to navigate.

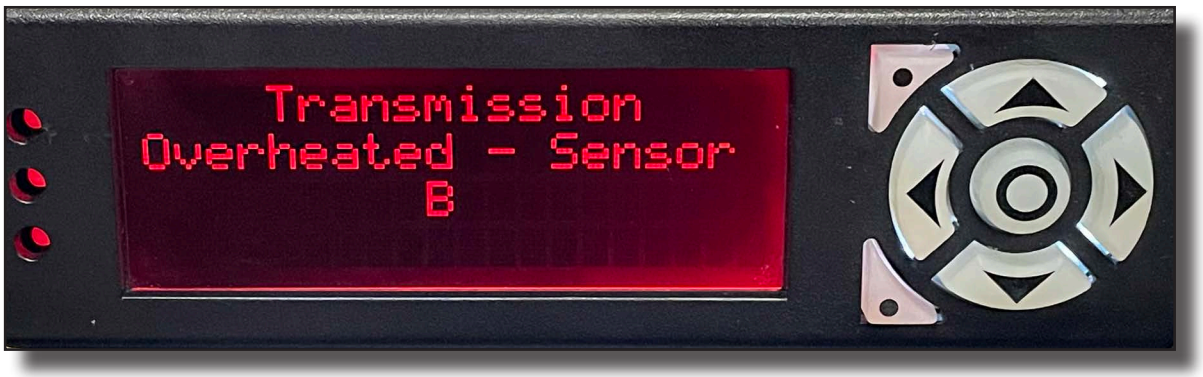
22.1. Standard Display Readout

22.1.1 On the standard display readout, you will find 4 small parameters on the left hand side and a large letter parameter on the right hand side. The 4 small parameters provide information about:

- Current Gear
- Torque Converter Lockup Status
- Transmission Temperature
- Throttle Input Percentage

22.1.2 The large letter parameter on the right of the screen is giving you the Shifter Position or Commanded Gear depending on situation.

22.1.3 There is also a DTC (Diagnostic Trouble Code) indicator to let you know when the COMPUSHIFT has logged a code. The indicator will be Orange for any codes in history and Red for any codes that are active.



22.1.4 Transmission Temperature

Transmission Temperature is a very important parameter to keep an eye on. This will tell you immediately if the transmission is functioning correctly or not. Ideal operating temperature range is 40˚c (104°f) to 125˚c (255°f). Operating below 40˚c (104°f) can result in slightly harsher shifts. This is normal and will stop once the oil has warmed up. Unless your enviroment sees temperatures below 0°c (32°f) during the day, it is unlikely that the fluid will be cold enough to cause issues. If you are in cold environments, start the vehicle and leave running in Park for 5-10mins. Then shift to Drive for 5-10mins to warm up the fluid.

Operating above 125˚c (255°f) can cause excessive wear or premature failure of seals and gaskets and should be avoided.

If the temperature is ignored and continues to rise, the COMPUSHIFT will activate Stage 1 of its temperature protection mode that will flash the screen red with a warning and restrict the upshifting of gears beyond 4th gear.

If the temperature continues to rise, Stage 2 of the its temperature protection mode will limit upshifting of gears beyond 2nd gear.

If this is unable to bring the attention of the driver that something is wrong, then the chance of failure inside the transmission is greatly increased and could result in a significant repair bill.

22.1.5 Torque Converter Lockup Status

Torque Converter Lockup Status provides real time readout of the status of the Torque Converter Lockup Clutch. The Torque Converter Lockup Clutch is a clutch inside the torque converter that engages in automatic vehicles when cruising at over 70 - 75km/h. The idea of this clutch is to provide a direct drive function of the engine through to the Automatic Transmission, thus reducing heat build up and improving fuel economy. This status will change between **“ON”** and **“OFF”** automatically during driving. If the Manual TCC switch is pressed, this will show a status of **“S ON”**

22.1.6 Current Gear

Current Gear indicates the gear that the transmission is actually in. If you command a shift from 1st to 2nd then this parameter will not change until the COMPUSHIFT has confirmed that the transmission has indeed shifted into 2nd gear.
You may notice this parameter has a delay compared to that of the large letter readout. This delay is the time is takes for the transmission to shift into the commanded gear and confirm it has completed the shift.

22.1.7 Commanded Torque

Commanded Torque shows the calculated torque commanded by the driver. In this application it is a direct representation of the Throttle Position. This is useful for determining where you need to make changes to the calibration should you get any shift DTC's as you are able to adjust the pressure at the Torque % that has the issue.
For example: If you are finding that you have no DTC's at light throttle to medium throttle for a 3-4 shift but as soon as you go over 60% Torque then you start seeing DTC's then you know you only need to make adjustments to the 3-4 graphs at 60% and above.

22.1.8 Commanded Gear

This is referring to what you have commanded via the Shifter. This will show any of the following:

- P = Park
- R = Reverse
- N = Neutral
- D = Drive
- Dx = High Range Sports mode with Range Select. The x is the selected maximum gear allowed. ie D4 means disable access to 5th gear and 6th gear.
- Sx = Low Range Sports mode with Manual Select

22.1.9 What does **Range Select** or **Manual Select** mean?

22.1.9.1 Range Select

This allows the driver to control the maximum gear the transmission is permitted to shift up to. The transmission will then shift up or down through the gears from 1st gear, up to the selected gear. If you have D4 as the selected gear, then the transmission will be able to shift or operate with the "Range" of 1st gear to 4th gear. In this case, upshifting to 5th or 6th gear will be disabled.

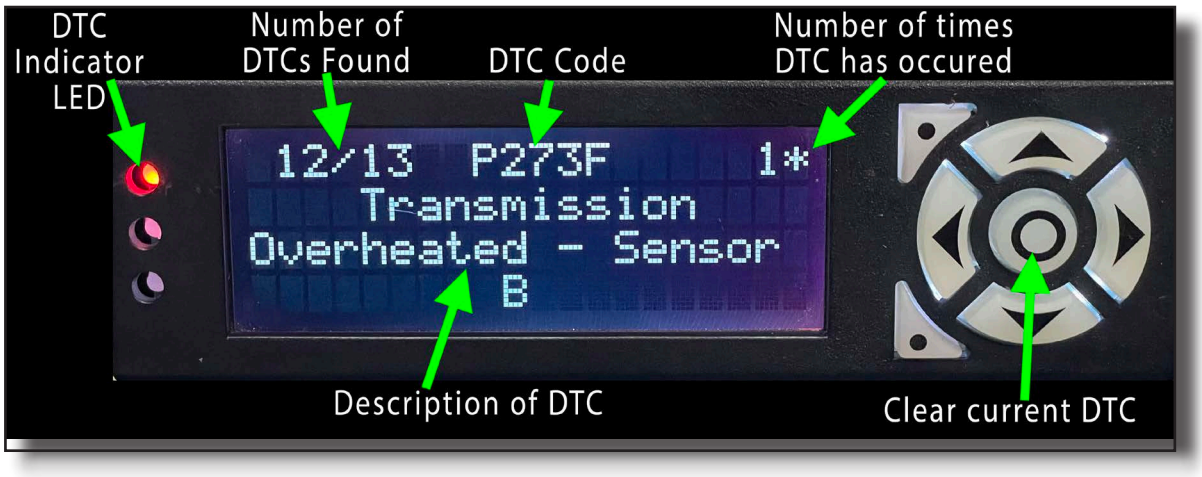
Range Select is used in High Range situations and is perfect for drivers that are towing to control shift oscilations.

22.1.9.2 Manual Select

When shifting into Low Range, the Sports mode will operate as a Manual Select function where the transmission gear selected will be the actual gear the transmission will operate in. If you select S2, then the transmission will be in 2nd gear, even if you come to a stop, it will not shift up or down automatically.

22.2. How to locate DTCs using the Dash Display

22.2.1 If your DTC LED illuminates with Red or Orange, and/or the Display is flashing about Transmission Over Temperature, you will need to find out the error codes to know how to resolve these issues. To identify the errors listed using the Dash Display, press the Left Arrow 4x times until you see the DTC page. Here you will see the errors listed.



22.2.2 If you want to clear a DTC, press the round enter button to clear the current DTC code. Once all DTC's have been cleared, the screen will say No DTCs Found. In the case of a DTC not clearing, it may indicate that the error is ongoing - for example if the DTC - **P0745 Pressure Control Solenoid "A"** code will not clear, then most likely indicates that the solenoid is faulty or the wiring to the solenoid has a break.

In addition, the DTC - **P1700 Transmission ECU Restart Required** code sets whenever a Failsafe condition has been detected. This code will **NOT** clear until the vehicle has been switched off, and then restarted.

23. Test Driving

23.1. Warning about test driving

23.1.1 The initial test driving must be done very carefully to begin with, using light throttle to confirm all shifts are successful. As confidence grows and no errors detected, you can then slowly apply more throttle.

23.1.2 An automatic transmission that is low on fluid or not calibrated correctly can burn out very quickly resulting in a very costly repair bill.

23.1.3 The beginning of the first test drive should be no more than 30% throttle. Use the Sports mode to be able to control when the upshifting happens.

23.1.4 The following is a sequence of testing to conduct in order as shown. Only move to the next test if no DTCs are set or shift issues detected.

23.1.5 This is a significant upgrade to the vehicle and as such should receive a significant test drive to confirm fully operational. We recommend a minimum of 250km of test driving prior to handing vehicle back to the customer.

23.1.6 IF AT ANY STAGE YOU GET A RED or ORANGE LED LIGHT ON THE DISPLAY, STOP IMMEDIATELY AND CALL WHOLESALE AUTOMATICS FOR ASSISTANCE.

23.2. Initial Test Driving

23.2.1 In a safe manner, at no more than 30% throttle, slowly shift up and down through the gears giving it at least 5 seconds in each gear to ensure that each gear engages and that there is no transmission slipping.

23.2.2 If no DTC's appear then repeat test at 50% throttle.

23.2.3 If no DTC's appear then repeat test at 75% throttle.

23.2.4 If no DTC's appear then repeat test at full throttle. You may not see 100% on the throttle read out, this is intentional. As long as you see 90% or more.

23.2.5 While moving at 60km/h, engage the Manual TCC switch. You should feel the engine RPM's pull down when you engage the Manual TCC and it will also hold the Engine RPM's up similar to that of a Manual Gearbox.

23.2.6 Shift from Sports mode, back to Drive to confirm the Manual TCC will switch off when that action is performed.

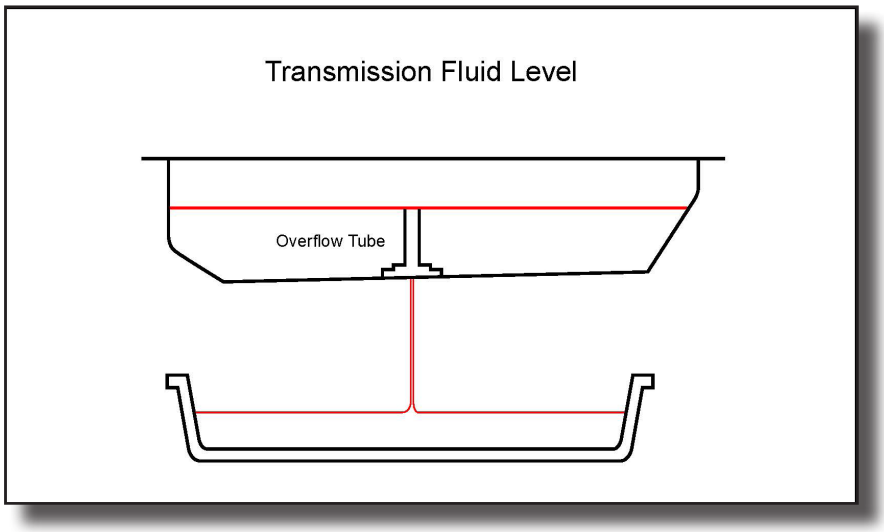
23.3. Confirm Fluid Level

23.3.1 By this stage the transmission should be up to at least 60˚c. Please re-check the fluid level of the transmission to ensure that it is at the correct level. Please refer to the chapter on Transmission Filling for the fluid check procedure.

23.3.2 Leave vehicle running and shift into Park.

23.3.3 Remove the CHECK bolt on the underneath of the pan, labeled '**CHECK**' (5mm Allen Key).

23.3.4 If no fluid is coming out of the CHECK bolt hole, add transmission fluid into the Transmission Fluid Fill Plug until it starts to flow. Avoid inserting any nozzle into the Transmission Fluid Fill Plug hole too far as it may contact the spinning drum.



23.3.5 When the fluid starts coming out of the CHECK bolt hole, refit CHECK bolt and Transmission Fluid Fill plug. Tighten.

23.4. Thorough Road Testing

23.4.1 The transmission now needs a more thorough and lengthy road test. We need the vehicle to experience as many situations as possible looking for DTCs or shift anomolies.

23.4.1.1 Light Throttle Acceleration

23.4.1.2 Medium Throttle Acceleration

23.4.1.3 Full Throttle Acceleration

23.4.1.4 No throttle engine braking down shifts in sequential mode

23.4.1.5 Steep uphill acceleration and while limiting gear upshifting

23.4.1.6 Downhill, no throttle engine braking down shifts in sports mode

23.4.1.7 Light throttle driving as you would in carparks/traffic

23.4.1.8 Freeway driving to check automatic TCC functionality

23.4.1.9 A minimum of 250km of test driving to ensure everything is right.

23.5. Check Cruise Control Operation

23.5.1 Check that Cruise Control operates as expected and that it manipulates the torque signal on the COMPUSHIFT Dash Display when in use.

23.5.2 Check the stalk input responds as expected - Accelerate, Decelerate, Cancel, and Power On/Off.

23.5.3 IT IS IMPERATIVE THAT THE TORQUE (TRQ%) SIGNAL MOVES UP AND DOWN AS THE CRUISE CONTROL IS APPLYING THE VIRTUAL THROTTLE TO MAINTAIN THE SPEED. IF THE TORQUE SIGNAL STAYS ON 0% DURING CRUISE CONTROL USE THEN STOP USING THE CRUISE CONTROL IMMEDIATELY AND REVISE YOUR TPS WIRING.

23.6. Check Low Range operation.

23.6.1 Shifting into low range can be difficult with the auto as the transfer case does not have syncros to assist. We find best solution is to shift ranges without coming to a complete stop.

23.6.2 At a walking pace, shift the transmission into Neutral.

23.6.3 Move the transfer case lever through to low range.

23.6.4 Check that the COMPUSHIFT has detected low range by looking for the letter “L” after the Current Gear Parameter.

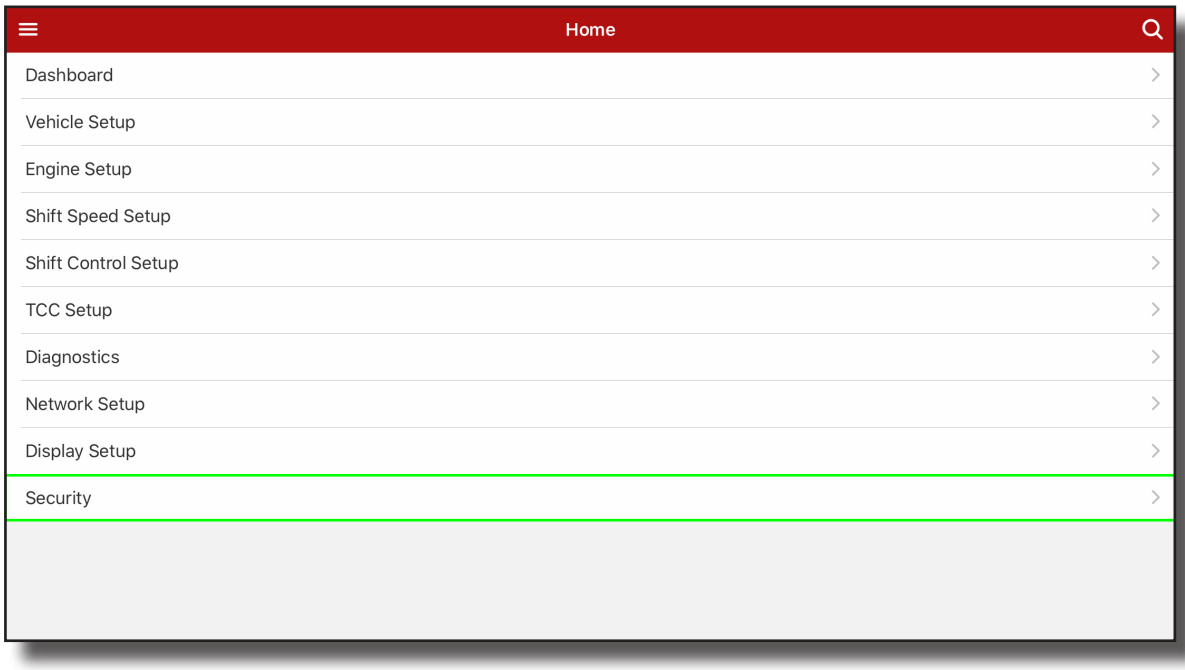
23.6.5 Move the transmission shifter back into Drive. This should give you a readout “GEAR 1L” or “GEAR S1L” for Sports mode.

24. Security Pin

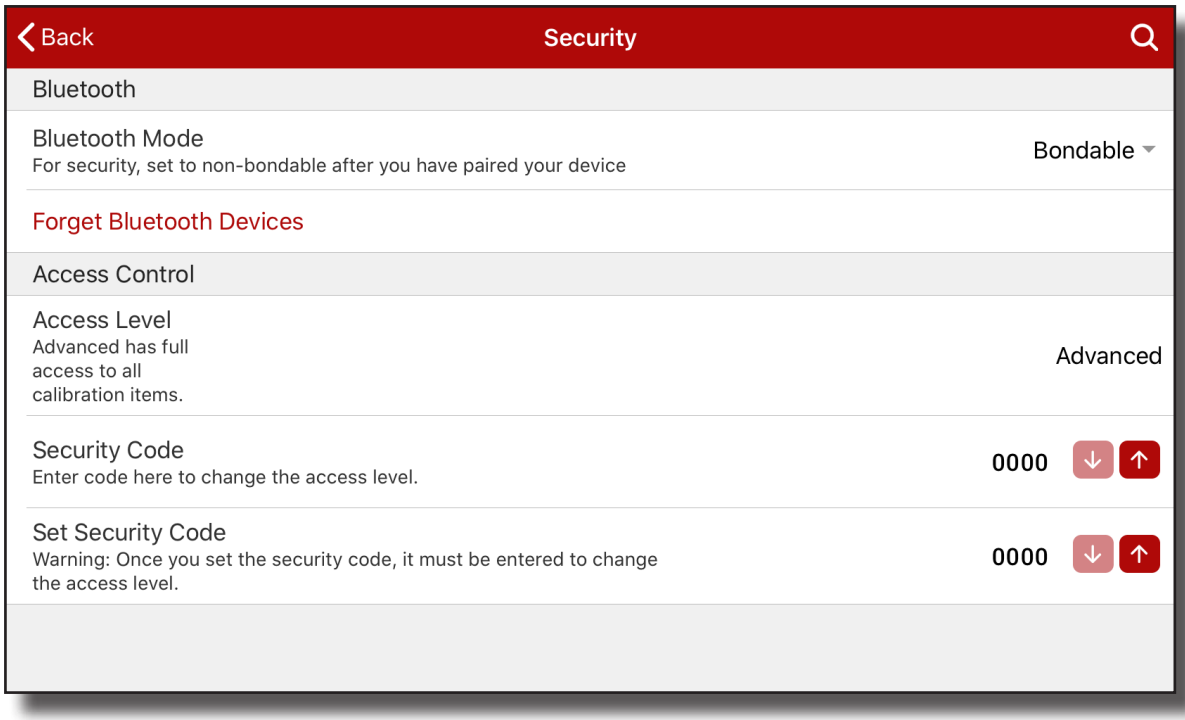
24.1. Protect the COMPUSHIFT from accidental changes

24.1.1 Do not complete this section until the vehicle has been fully installed, test driven and is ready to be handed over to the customer as these following steps locks the settings of the COMPUSHIFT control system.

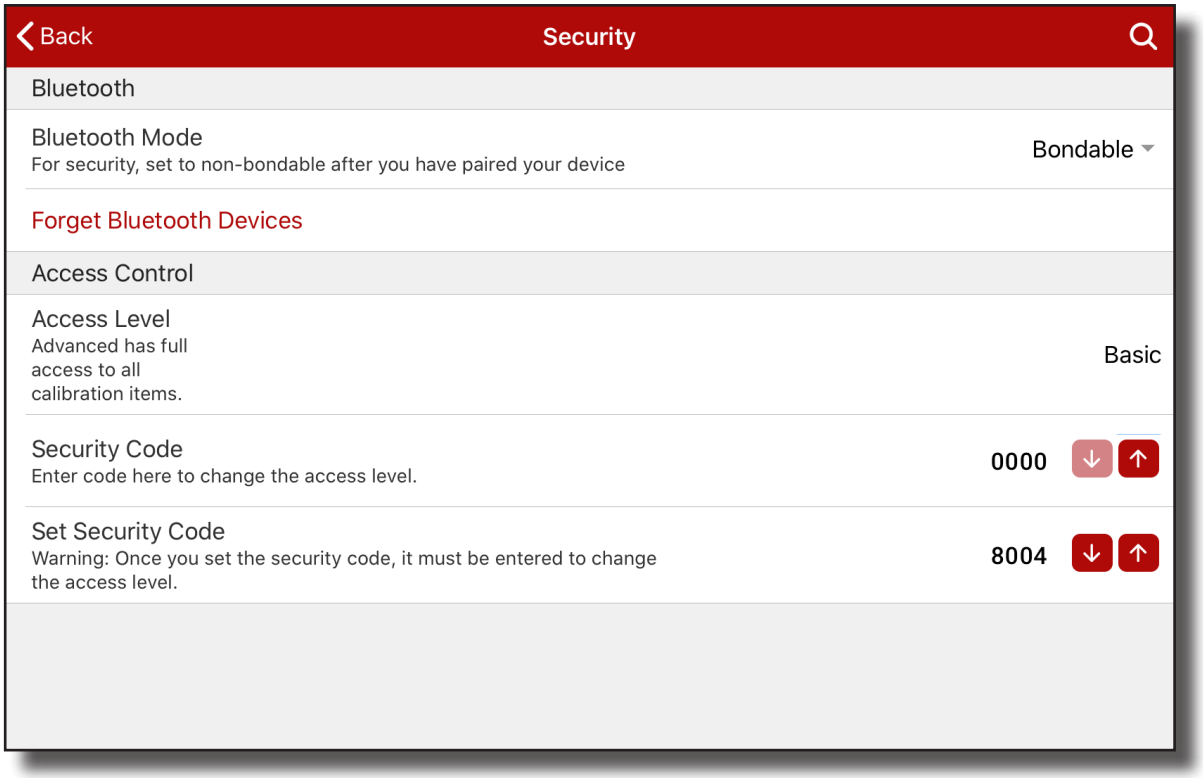
24.1.2 In the Setup app navigate to the Home menu and then select Security.



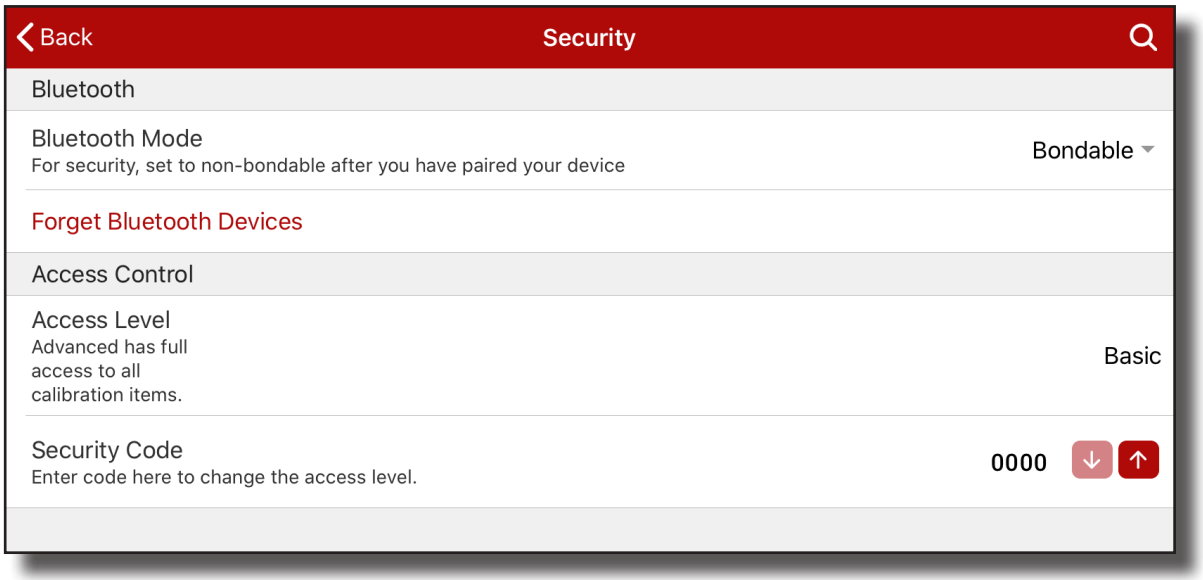
24.1.3 In the Access Control section note that Access Level will be currently set to Advanced.



24.1.4 To set the pin, tap on the 0000 next to Set Security Code and then enter 8004 (the last 4 digits of Wholesale Automatics Phone Number) and press the enter button.



24.1.5 The Access Level will change to ‘Basic’, and you will get a notification the the power needs to be cycled for settings to take affect. After power cycle, the Security page should look like this.



25. Installation Quality Control

We recommend that someone other than the original fitter of the conversion to complete this checklist. You will see the occasional (5 sec) shown in the checklist below - this means to wait 5 seconds before checking again or moving to the next step.

Details of Vehicle	
Customer Name	
Body Type (Ute,Wagon,etc)	
Vehicle VIN Number	

PARTS TO INSPECT	OK
EXTERIOR - Under Bonnet	
1. Oil cooler is fitted using correct brackets and all mounting bolts and nuts are tight	
2. Oil cooler lines are secured to cooler using screw clamps and are tight	
3. Oil cooler lines do not touch the air conditioning condensor	
4. The Bonnet strut is not hindered by oil cooler	
5. If fitted - the factory ambient air sensor is not hidden behind the oil cooler	
6. There is no wiring that will run or strain over or accross the oil cooler	
7. There is nothing that will prevent sufficient air flow through the oil cooler	
8. Cooler lines are covered with protection conduit	
9. Cooler lines are secured and routed so as to not contact exhaust or moving parts	
10. Inspect routing of breather hoses through engine bay are free from moving/hot parts	
11. Inspect breather ends are pushed into hoses fully	
12. Inspect breather mounting bracket is secure and mounted high in engine bay	

PARTS TO INSPECT	OK
EXTERIOR - Bonnet	
1. Bonnet Stickers are fitted	
2. Bonnet Stickers are evenly lined up with no bubbles	
INTERIOR - Shifter and COMPUSHIFT Display	
1. The COMPUSHIFT Display powers up on ignition only - not accessories (5 Sec)	
2. The COMPUSHIFT Display shows 4 small lines on the left - TEMP, TCC, GEAR, TRQ	
3. The COMPUSHIFT Display shows a large letter P (Park) on the right	
4. The Shifter can not be moved out of Park unless you have the brake pedal depressed	
5. The Shifter can be moved out of Park by depressing the Shift Lock Button ONLY	
6. The Shifter detents (or falls into) each position positively. There should be very little movement of the shifter in each position	
7. The lights on the facia light up in correlation to the shifter position	
8. The large letter on the COMPUSHIFT Display correlates with the facia LED's	
9. Move shifter to S mode and confirm LED's and Display correlate	
10. In S Mode, tap the shifter up and down to confirm the gears change (5 sec)	
11. Depress the accelerator pedal and confirm that the TRQ % readout on the COMPUSHIFT Display correlates to the accelerator pedal position	
12. Download the COMPUSHIFT Setup App on your phone or device and connect to the CS3 module. Navigate to the Security menu. In the Security menu there is a setting called 'Access Leve'. Please check that it is currently set to 'Basic'	
INTERIOR - Console and Sockets	
1. Plug a USB cable and device into each of the USB sockets to confirm they are powered	
2. Plug a 12v outlet device into the 12v outlet to confirm it is powered	
3. Inspect the inside of the rear compartment - Lift the false floor to check the console is bolted down and to check the interior carpet on the front face is screwed back in.	

PARTS TO INSPECT	OK
4. Return false floor to rear compartment leaving pull tab accessible	
5. Inspect mounting bolt and large washer are tight on front left side of console under dash	
INTERIOR - TCC Lockup Switch and Cruise Control	
1. Turn on Park lights to confirm switch light labelled TCC illuminates	
2. With Shifter in Drive position, press the TCC Lockup Switch, the COMPUSHIFT Display will show TCC S ON and the TCC Lockup Switch light labelled LOCKUP will illuminate (5 Sec)	
INTERIOR - Brake Pedal	
1. Inspect the brake pedal rubber pad is fitted	
2. Check the brake pedal returns to the full out position without assistance	
3. Check the brake pedal does not feel loose	
4. Check the brake lights do not trigger with vibration or a sideways tap of the brake pedal	
UNDER VEHICLE - Transmission	
1. Inspect all bell housing bolts are tight	
2. Inspect lower bell housing cover plate is installed and the bolts are tight	
3. Inspect all transmission pan bolts are tight with no weeping or leaks from gasket	
4. Inspect routing of cooler lines can not come into contact with any hot or moving parts	
5. Inspect all wiring can not come into contact with any hot or moving parts	
6. Inspect all transmission electronic plugs have connectors on them	
7. Inspect main transmission solenoid connector lever is locked in the vertical position	
8. Inspect cooler union locking nuts are tight	
9. Inspect exhaust mounting bracket is installed, and bolts are tight	
10. Inspect Manual Lever Position Switch adjusting bolt is secure	

PARTS TO INSPECT	OK
11. Inspect Shifter Cable clip is installed fully	
12. Inspect Shifter Cable Lever tie rod and nut are tight	
UNDER VEHICLE - Transfer Case	
1. Inspect all transfer case mounting bolts	
2. Inspect all cross member mounting bolts are tight	
3. Inspect transfer case linkage is installed and free to move	
4. Inspect transfer case electrical plugs all have connectors and wires connected	
5. Inspect rear of transfer case for shifter cable mounting bracket is bolted up and tight	
UNDER VEHICLE - Drive Shafts	
1. Confirm that the front and rear drive shaft has been re-installed and are in correct phase	
2. Confirm that ALL bolts and nuts securing drive shafts are tight	
GENERAL CHECKS	
1. Vehicle has been washed, vacuumed and is free of dirty finger prints	
2. Manual Gearbox components have been packaged for customer to collect (if applicable)	
3. Customer has been given the Handover Guide	
4. Customer had been given a walk through of the basic operations of the auto	
5. Save the calibration to a file and email file to techsupport@askorto.com.au	
6. Scan these pages and email to techsupport@askorto.com.au	

Role	Name	Signature	Date
Fitter			
Inspector			

26. Hand Over Booklet for the Customer

This concludes the fitment of the Automatic Transmission Conversion.

If this is your vehicle, Congratulations and Enjoy the Drive.

Please look over the Customer Handover Guide provided, that will provide you with the basics of how the automatic transmission operates.

If you have fitted this on behalf of a customer, please review the Customer Handover Guide to assist the customer with answering the basics on pickup. We also recommend a thorough vacuum of the interior and a wash on the outside of the vehicle to remove any finger prints caused during fitting.

If you have any questions at this stage that the Customer Handover Guide does not answer, please contact Wholesale Automatics for clarification.

Good Job