

Transfer Case Adaptor Kit

Landcruiser 80 series to Ford Falcon Zf-6

To Suit ZF-6 HP26 to HF2A & HF2AV Transfer Cases

The logo for MECHSN, featuring the word "MECHSN" in a bold, sans-serif font. The letters "S" and "N" are stylized with red outlines. Below the text is a red horizontal line that ends in a diagonal slash.

General Information

This section will develop over time, but this document relates to prototype model adaptors and will be sent in conjunction with the components to create a comprehensive method from start to finish of barra and zf-6 converting your 80 series Landcruiser using the MechSN Transfer Case adaptor.

Toyota Landcruiser Information

Fitment

Many different variations of gearbox and engine configurations exist in these vehicles, and fitment is subject to changes within these models. Each adaptor will be treated case by case for prototyping to ensure the adaptor fit is ideal and operates as necessary. This means that as a prototype, fitment and modification may be a lengthy process, and difficulties may arise that were not expected. Please understand that this will require patience from both parties to create a suitable product. Currently, the adaptor plate has undergone fitment testing and is suitable in the following:

- 2003 HZJ105R Landcruiser, R151 Manual (MechSN mounts)
- 1996 FZJ80 Landcruiser, A442 Automatic (MechSN mounts)
- 1997 HDJ80 Landcruiser, A442 Automatic 1HDFT (Factory front shaft Uni hits with Mckinnons Mounts)
- 1992 FZJ80 Landcruiser, A442 Automatic (Mckinnons mounts)
- FJ80 Landcruiser A442 Automatic (Mckinnons mounts)

Several other models have also been completed

Information is known that Automatic crossmember locations are different although the crossmember is the same, the hole locations for the manual position are visible on all chassis. Please note this during purchasing and work through options of how to correct this with us. Currently some of our customers have had success when flipping the factory rear rubber mount 180 degrees as this moves the transfer case forward.

Transfer case

Several different transfer case models exist within these vehicles. The adaptor shaft has been fitted and is suitable for the following models:

- 1996 FJZ80 HF2A Fulltime 80 series case
- 1996 HDJ80 HF2AV transfer case (V – Viscous coupling long rear housing model).

105 series Landcruiser transfer cases require extensive modification to fit the adaptor shaft, replacing the internal gears with 80 series gears due to the different gear module. This has the benefit of having the low range gear lever mounted to the transfer case rather than having to mount this to the gearbox or body. Whether these adaptor shafts fit the part time transfer cases is also unknown at this stage.

Ford Barra and ZF-6 Information

Many different variants of Ford Barra and ZF-6 combinations were produced. This adaptor is designed for the ZF-6HP26 Variant for FG and BF falcons. It has been tested on the following:

- 2016 FGX Turbo
- 2013 FG NA

The design suits all falcon ZF-6HP26's as tested but variation in bolt positions on the output may require minor changes. Territory ZF-6's will require a redesign, which is not suitable with this current adaptor but on purchase, if you require an adaptor for the Territory ZF-6, this is an option that will be developed if there is a demand.

Components

This adaptor kit comes with the following:

- 2 x 6061 Aluminium Adaptor Plates (Input side, output side)
- 1 x 44T/43T Toyota Replacement to ZF-6HP26 Adaptor Shaft
- 1 x 80 Series Viton Adaptor Seal
- 1 x Zf-6 Viton Adaptor Seal
- 6 x M12 x 45 SHCS
- 7 x M12 x 50 SHCS
- 4 x M10 x 50 SHCS
- 4 x M10 x 70 SHCS
- 13 x M12 Spring Washers
- 8 x M10 Spring Washers

Pricing

2500 + shipping

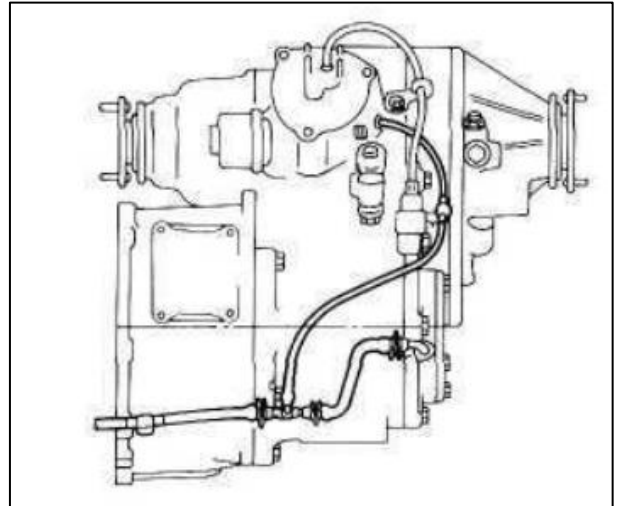
Instructions and Installation

If you are not a qualified mechanic and do not have the relevant skills and ability to install these components, please seek professional assistance. Failure to read and correctly install the adaptor could result in premature failure and subsequent damage to components.

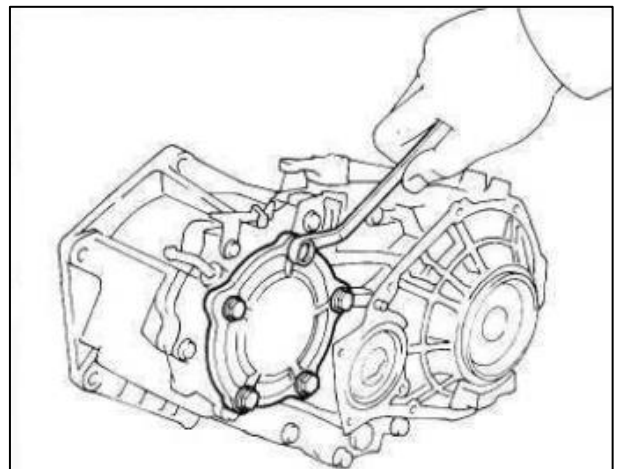
Installing the Adaptor Shaft

Please follow the instructions within the FSM if available. The following assembly requires Loctite 242, three bond 1281 sealant or equivalent, a shop press, a socket set with large sockets for pressing, external circlip pliers, a plastic hammer, regular hammer, brass drift.

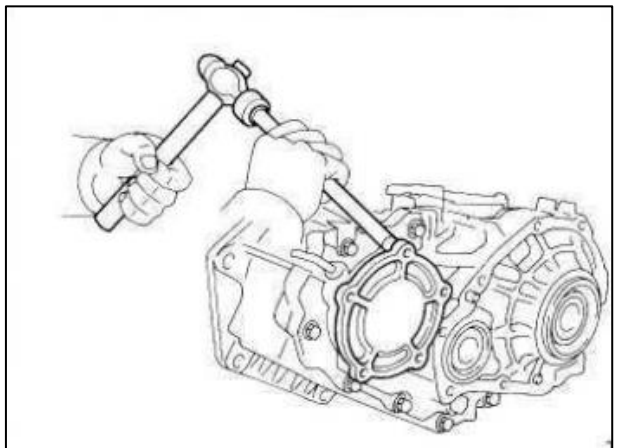
1. Remove the breather hoses.



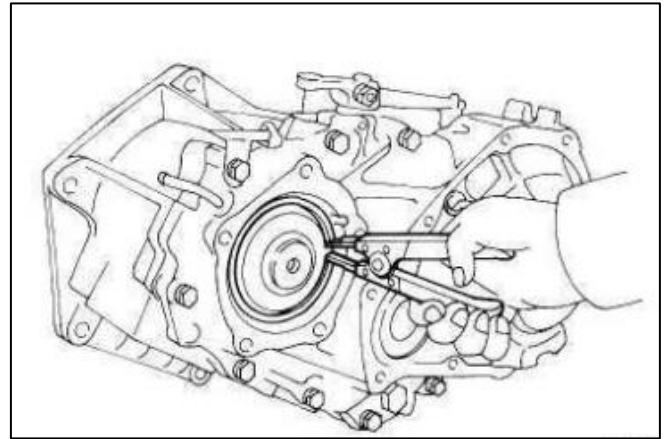
2. Remove case cover bolts. (5)



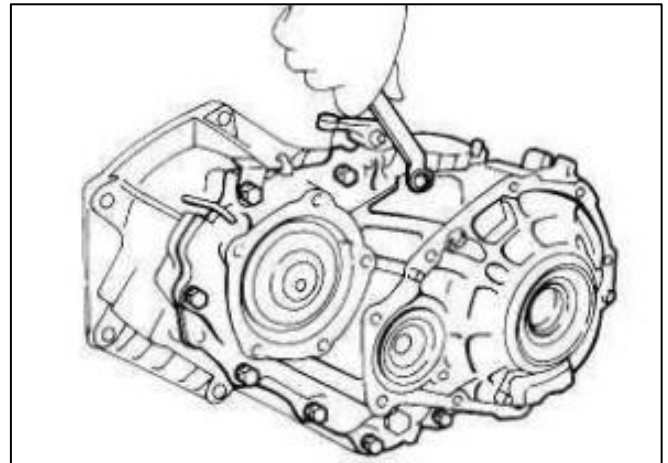
3. Tap the rear cover to remove using a brass bar.



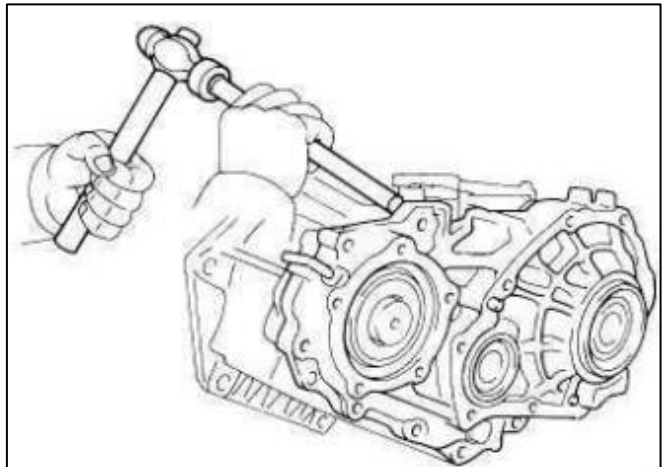
- Using snap ring pliers, remove the captive snap ring.



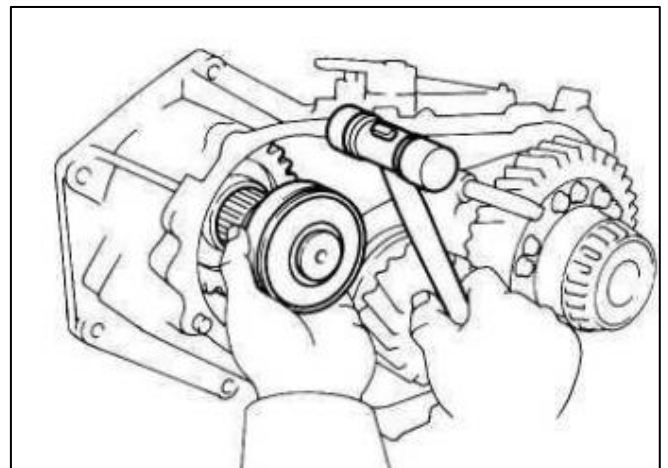
- Remove the bolts to separate the front and rear case (including the exterior bolts on the extension housing, 13 in total)
Removing the extension housing is not necessary.



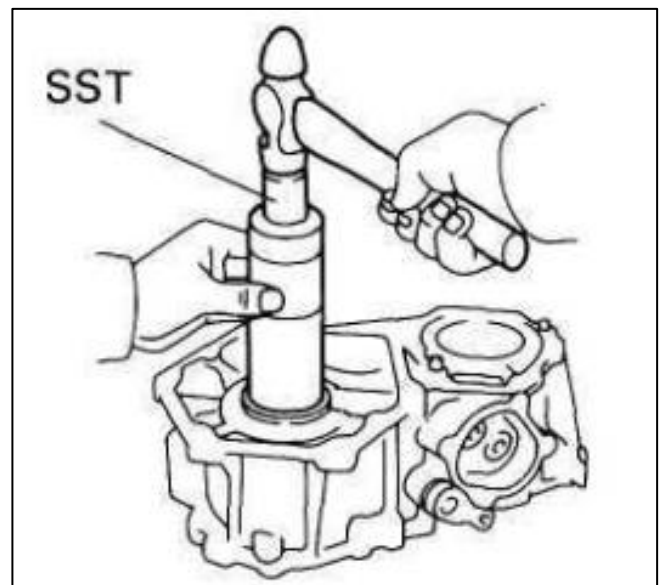
- Using a brass bar and hammer, tap the rear case and separate it.



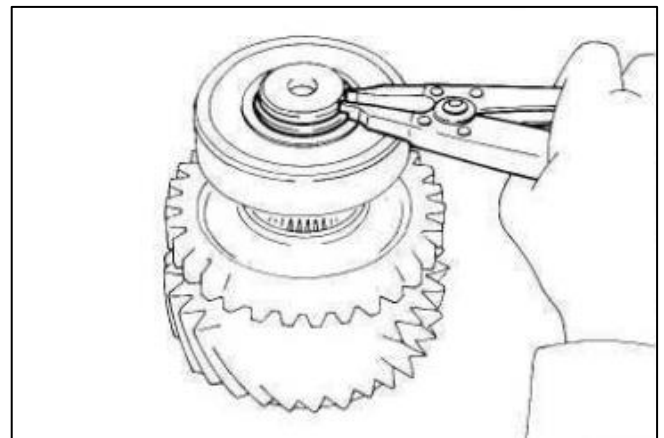
- Using a plastic hammer, remove the input shaft assembly.



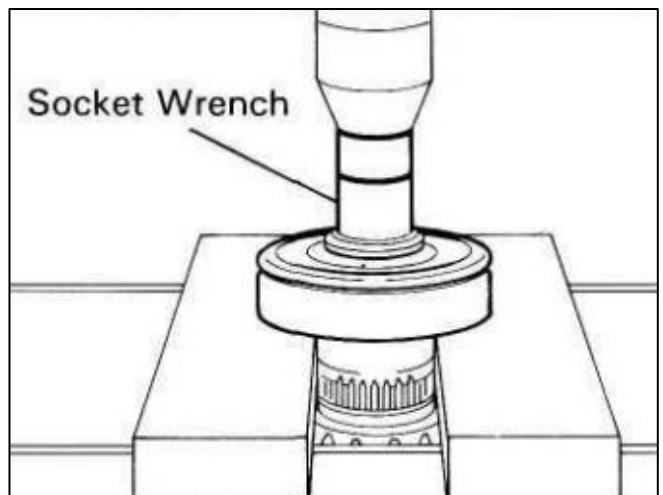
8. If necessary, replace the input shaft seal using a seal removal tool. (Note: this seal is not included in the MechSN adaptor kit.)
(Part no. 9031148025)



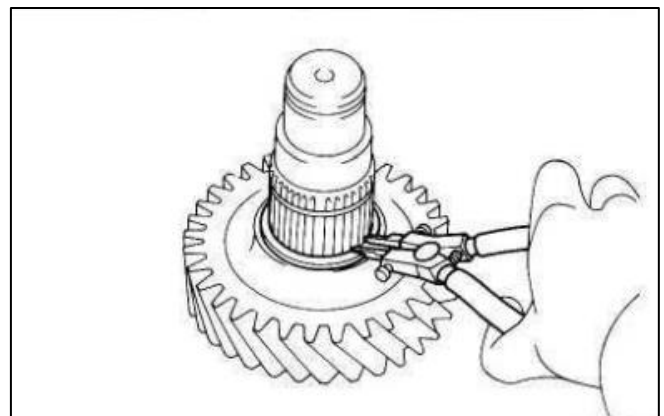
9. Using snap ring pliers, remove the circlip. (note, circlips are recommended to be replaced when removed)



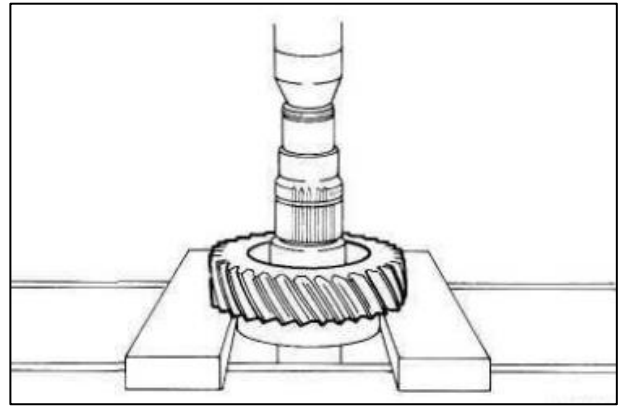
10. Using a press and socket, press the bearing off the input gear.



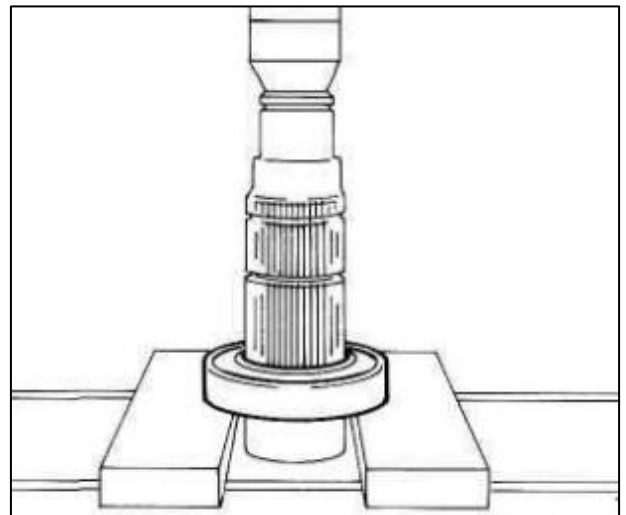
11. Using snap ring pliers, remove the snap ring holding the input gear captive.



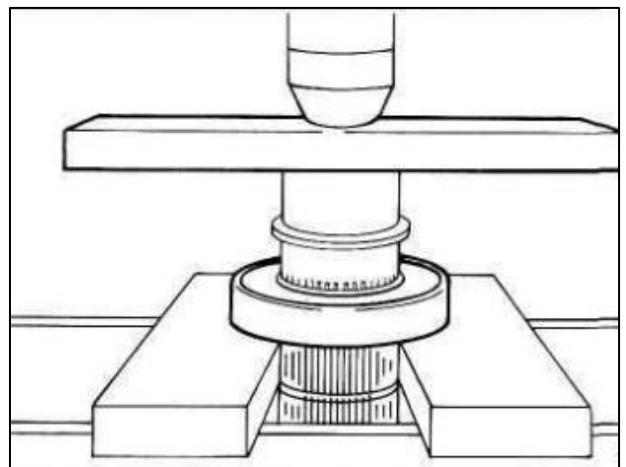
12. Using a press, remove the input gear.



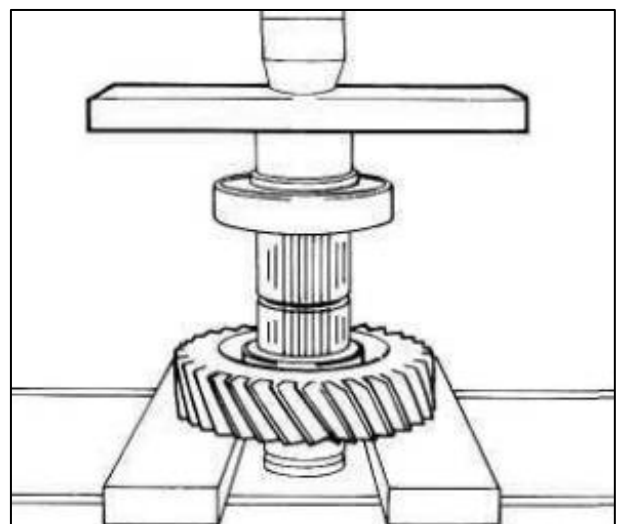
13. Using a press, remove the input bearing.



14. Fit the input bearing on the adaptor shaft.

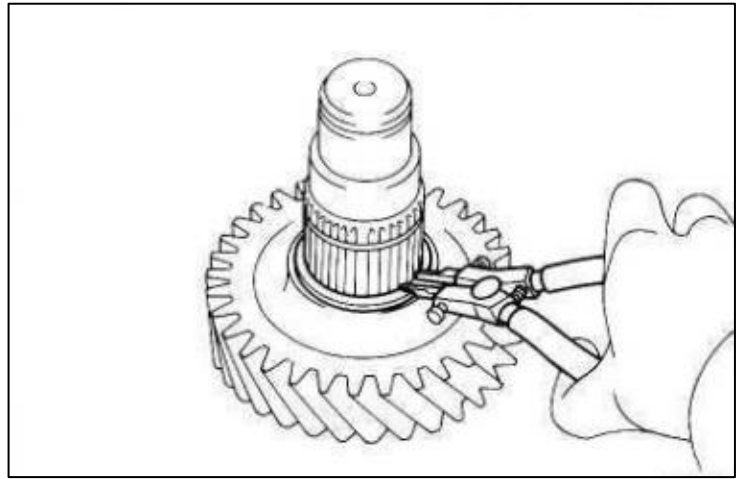


15. Fit the input gear onto the adaptor shaft.



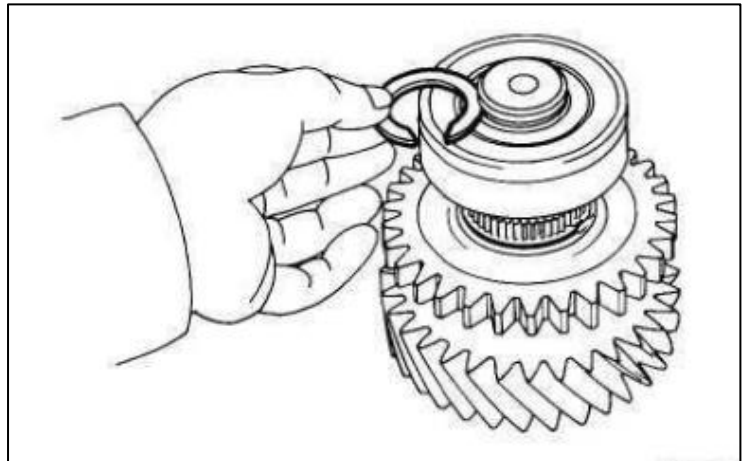
16. Fit a Circlip that allows minimal axial play.

Mark	Thickness	mm (in.)
A	2.0	(0.0787)
B	2.1	(0.0827)
C	2.2	(0.0866)
D	2.3	(0.0906)
E	2.4	(0.0945)
F	2.5	(0.0984)
G	2.6	(0.1024)
H	2.7	(0.1063)
J	2.8	(0.1102)

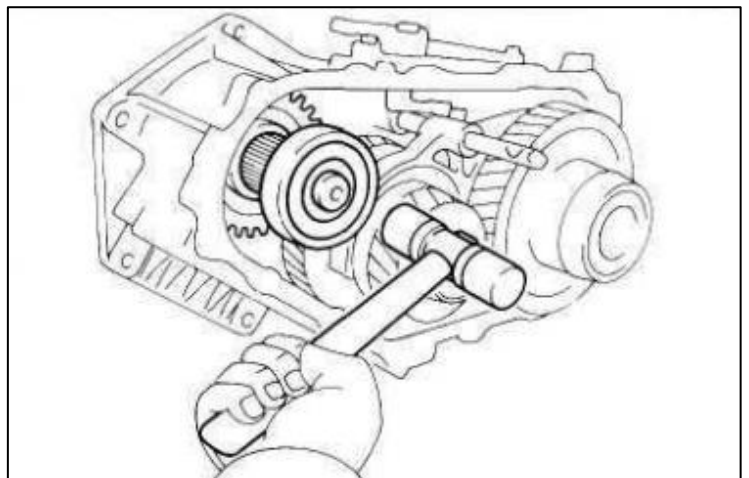


17. Install rear ball bearing using a press and install a circlip that allows minimal axial play.

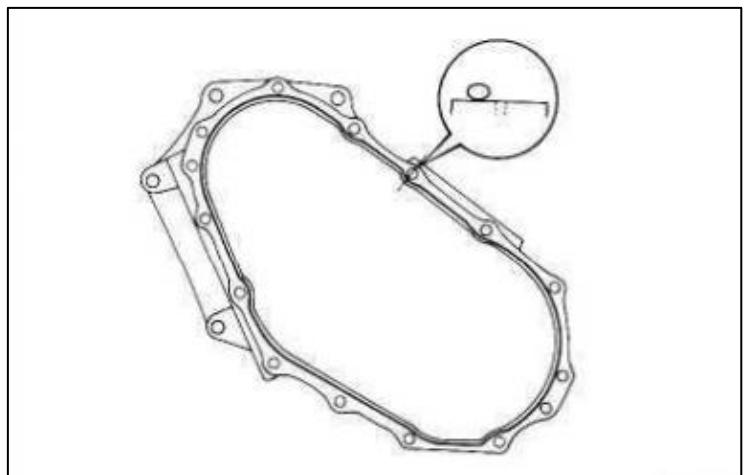
Mark	Thickness	mm (in.)
A	2.0	(0.0787)
B	2.1	(0.0827)
C	2.2	(0.0866)
D	2.3	(0.0906)
E	2.4	(0.0945)



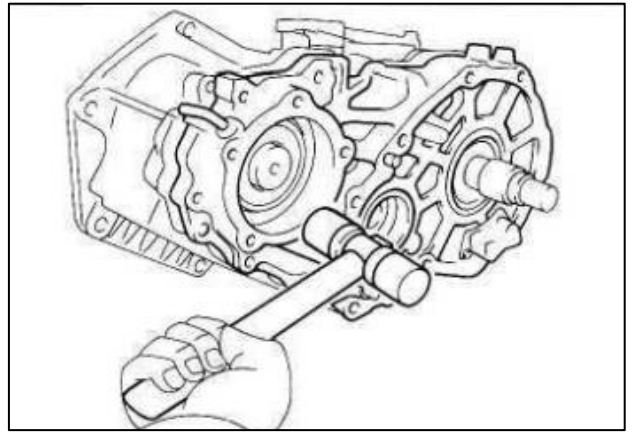
18. Using a plastic hammer, install the input shaft.



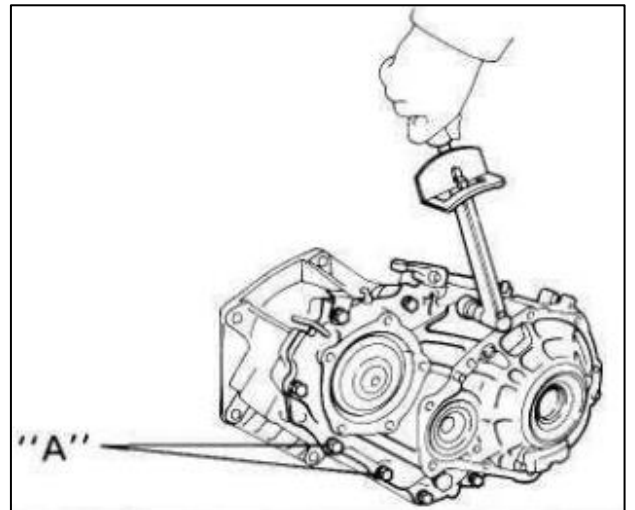
19. Assemble front and rear case applying Part No. 08826-00090 three bond 1281 or equivalent to the housing as shown.



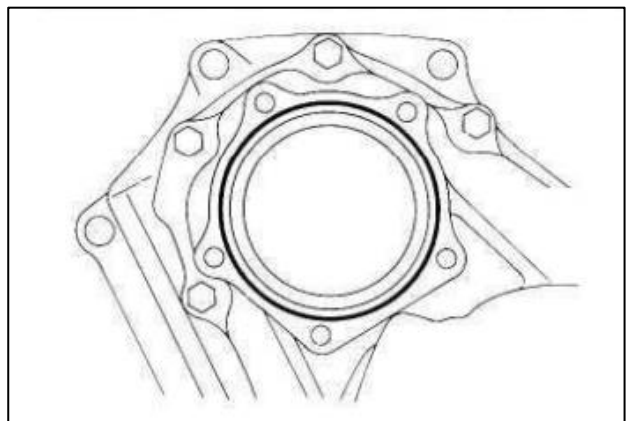
20. With a plastic hammer, tap the front and rear case together.



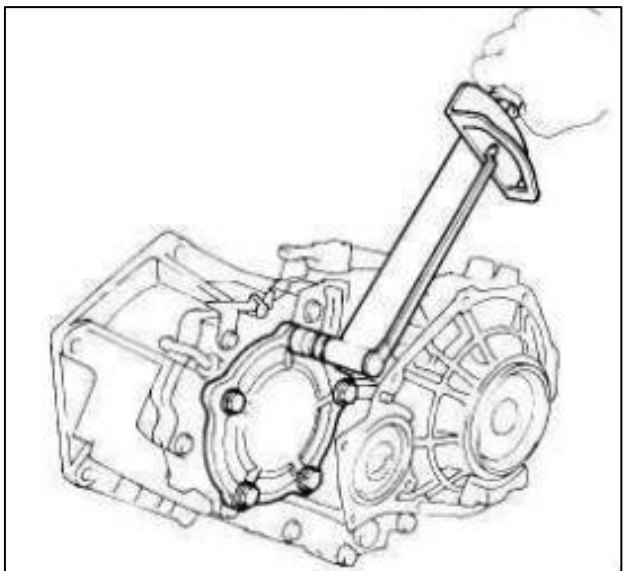
21. Apply Loctite 242 to the bolts annotated "A" and torque the 14 bolts (including extension housing bolts) to 37 Nm (27 Ft-lbf).



22. Install the case cover applying seal packing Part No. 08826-00090 three bond 1281 to the rear case as shown.



23. Apply Loctite 242 to all 5 bolts and torque to 37 Nm (27 ft-lbf)



Installing the Adaptor Plate

If you are not a qualified mechanic and do not have the relevant skills and ability to install these components, please seek professional assistance. Failure to read and correctly install the adaptor could result in premature failure and subsequent damage to components.

The following is included to complete the assembly:

- 2 x 6061 Aluminium Adaptor Plates (Input side, output side)
- 1 x 80 Series Viton Adaptor Seal
- 1 x Zf-6 Viton Adaptor Seal
- 6 x M12 x 45 SHCS
- 7 x M12 x 50 SHCS
- 4 x M10 x 50 SHCS
- 4 x M10 x 70 SHCS
- 13 x M12 Spring Washers
- 8 x M10 Spring Washers
- 5 x M12 x 20 Dowels

As supplied, 3 locating dowels are installed prior to shipment to locate the adaptor plates together. The two extra dowels are supplied to locate the transfer case as referred to later.



The M12 x 50 SHCS and 7 M12 spring washers are pre-installed to assemble the plates with Loctite 242.



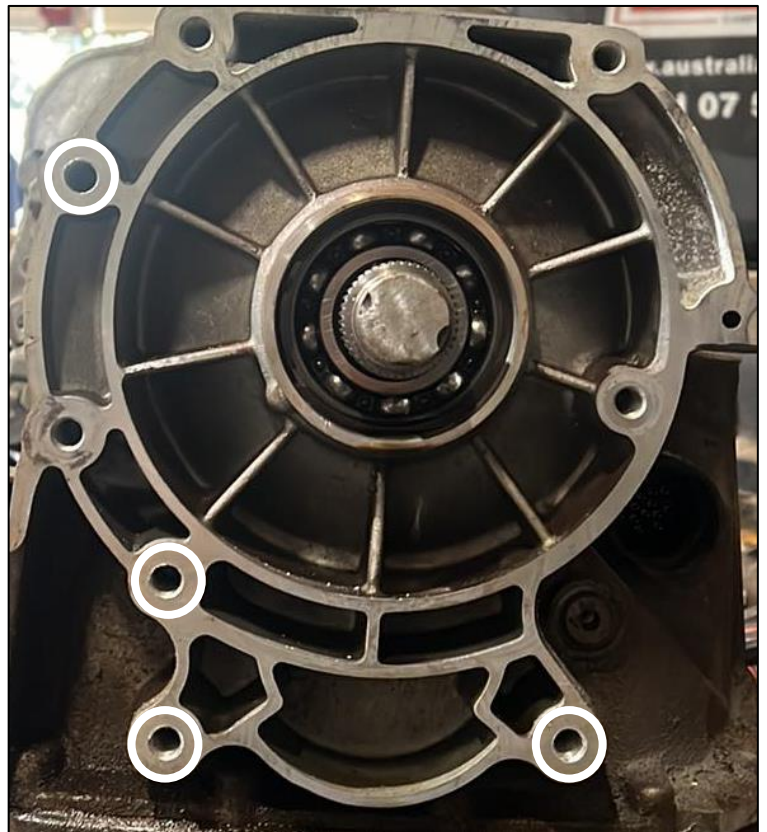
The external and internal Viton seals are pre-fitted.
Lubricate with gear oil during installation.



The following installation requires:

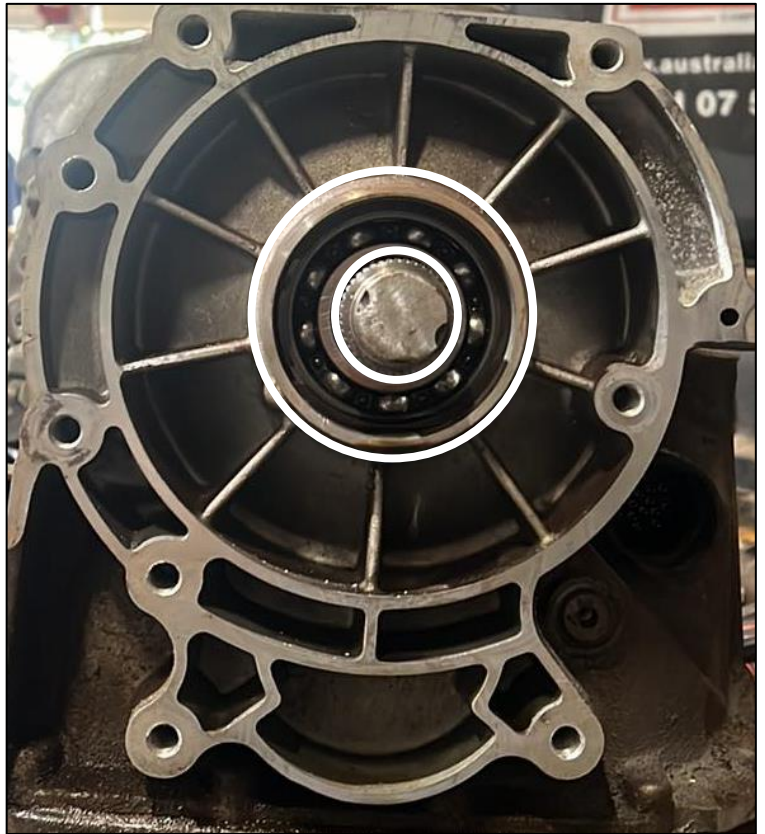
- Metric Allen Key set (1/2" drive ideal)
- M10 x 1.5mm taper and bottoming tap
- 8mm drill bit
- 8.5mm drill bit
- Angle Grinder
- Plastic Hammer
- "Tap Magic" Aluminium Cutting Lubricant

1. Drill the holes displayed in white to 8mm diameter, 30mm deep ensuring that the drill is held square to the rear of the gearbox. Use "Tap Magic" lubricant when drilling all holes to ensure best results. Following the 8mm drill, re-apply cutting lubricant. Increase the drill operating speed and ream the hole to 8.5mm with a drill for the best finish. Clear all chips before continuing.
2. Tap the holes to full depth with the M10x1.5 taper after re-applying lubricant, using a pecking method of tapping. Follow this tap with the bottoming tap ensuring that it is square to the housing.



3. As displayed in the inner white circle, remove the output flange, and castle nut. Cut the spigot off flush with a cutoff wheel, stopping and cooling during the cutting process. Grind the surface until no step can be seen.

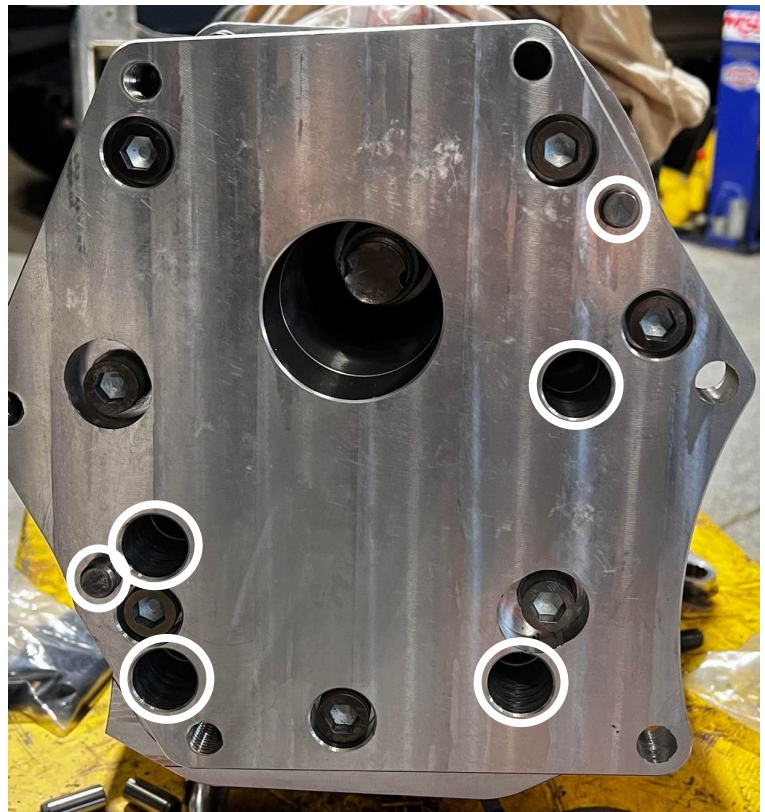
4. Within the outer circle, remove the factory gearbox output seal using a seal pick. Make sure to not mark the machined seal face.



5. Align the spigot and slip the Viton seal into the factory output provision on the rear of the gearbox. Ensure that the O-ring does not pinch during assembly.

6. Fit the 4 M10x1.5x70mm bolts in the counterbored holes highlighted in white. Torque to 37Nm with Loctite 242 and include a spring washer.

7. Fit the two M12x20 Dowel pins as shown with a plastic hammer. Do not force the dowels and ensure they are perpendicular to the plate before hammering in.



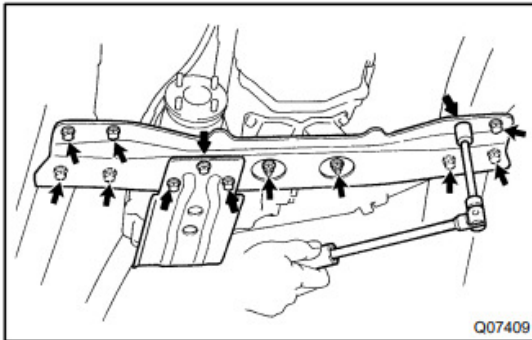
8. Install the 4 M10 x 50mm bolts as indicated with a spring washer, Loctite 242 and torque to 37Nm.



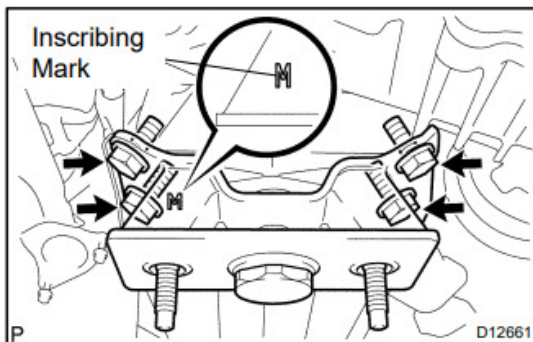
9. Fit the following 6 M12 x 45mm bolts with a spring washer and Loctite 242 torqued to 62 Nm.



10. Following the Factory Service Manual, Complete the processes for the factory crossmember and engine mounting isolator. The engine mounting isolator will now bolt to the MechSN Transfer Case adaptor.



- (b) Remove the 3 bolts and the transfer case protector.
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)
- (c) Remove the 8 bolts, the 2 nuts and the crossmember.
Torque:
Bolt: 50 N·m (510 kgf·cm, 37 ft·lbf)
Nut: 74 N·m (750 kgf·cm, 54 ft·lbf)



- 15. REMOVE ENGINE MOUNTING INSULATOR RR**
Remove the 4 bolts and the engine mounting insulator RR.
Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)

HINT:

At the time of installation, install the insulator rear with the inscribing mark facing backward.

16. REMOVE TRANSMISSION

- (a) Lower the rear end of the transmission unit.
(b) Remove the transmission wire clamp bolt.

Further Modifications Following Adaptor Fitment

Due to being within the initial prototype phase, variation is likely to occur, and this section only acts as a guide of possible modifications that are recommended.

- The transfer case has been offset 20mm rearward from the factory position. This results in an estimated 20mm added to the front shaft, and the rear shaft will need to have 20mm removed.
- Due to minimising transfer case clocking angle, the front driveshaft grease nipple must be relocated, or plugged with a low clearance plug to stop fouling on the gearbox housing. A grease nipple can be then added only when greasing is necessary.
- The low range position shifter must be modified and mounted to a separate location – Please inform us as to how you have done this.

