

28/02/11



FITTING INSTRUCTIONS FOR

MFK917, MFK917E and MFK917E/6

TURBO 700R-4 and 4L60-E

TO

LAND CRUISER 5 SPEED-19 SPLINE SPLIT TRANSFER CASE

Thank you for purchasing a product manufactured by Marks 4WD Adaptors. The following instructions are intended as a guide. We recommend that you purchase a service manual pertaining to your vehicle for specific torque values, wiring diagrams and other related information.

This kit is designed for 700R-4 and 4L60-E transmissions with the 27-spline rear output shaft. If your automatic transmission has a different spline count, you will need to change the shaft in the automatic transmission.

NOTE: For most applications the transfer case will need to be shifted rearward, this includes Bundera 4-cylinder models fitted with Commodore V6 and V8 engines.

To fit the adaptor to a Bundera split transfer case you will need to drill and tap the M10x1.25 hole located in the adaptor under the transfer case input shaft.

You also need to purchase a transfer case mounting rubber part number 12371-17010. The cross member will need to be modified to fit.

1. Unbolt the extension housing from the automatic transmission.
2. Using an angle grinder or cut off saw, cut the main output shaft so that 138.5mm/5.45" protrudes from the rear of the automatic transmission.

NOTE: When fitting a 4L60E-6 Bolt transmission:

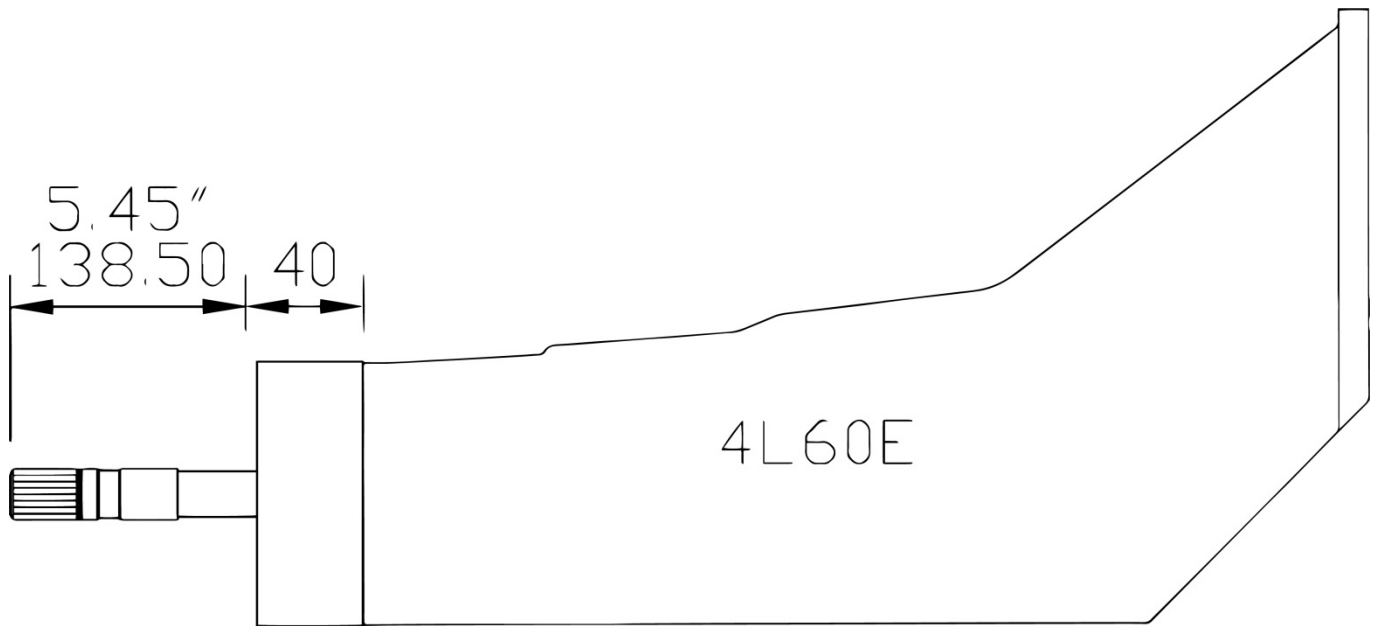
The 6 Bolt adaptor will need to be fitted to the transmission prior to measuring and cutting see image top page 3. For extension housing bolt torque settings see page 5.

The cutting details are shown in the diagram on the next page.

NOTE: Shield the rear of the automatic from metal particles by using a rag to plug the opening around the shaft.

3. Chamfer the end of the shaft so that the spud shaft supplied in the kit can slide freely over the spline.





4. Remove the transfer case linkages, lock out plate and pivot pin from the old transmission assembly.
5. Remove the cover plate (tin hat) on the rear of the transfer case, undo the rear main shaft nut and remove the washer.
6. Undo the 14 bolts securing the transfer case rear housing to the front housing. Clean the transfer case thoroughly, removing all old gasket material.
7. Remove the rear bearing, two transfer case gears and spacer from the main shaft. Inspect the gears for damage. If the spline or teeth are worn, now is a good time to replace them.

NOTE. Fitting the old gear with a worn internal spline onto the new spud shaft will result in premature wear of the new spud shaft spline.

8. Remove the transfer case front housing by undoing the 4 remaining bolts that attach it to the gearbox, thoroughly clean and remove all the old gasket material.
9. Fit the new seal to transfer case, using a suitable sealer and drift.

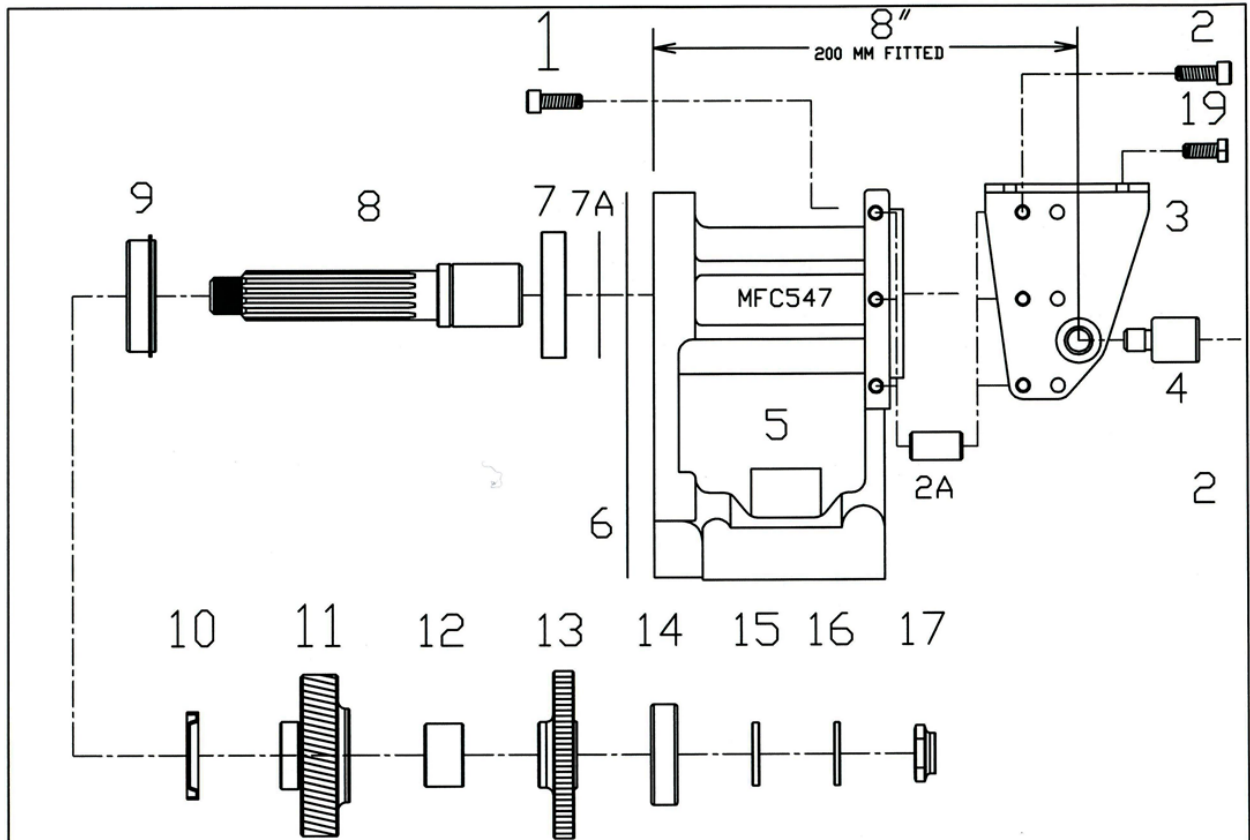
NOTE. Make sure the spring part of the seal faces the automatic transmission.

The following steps refer to the diagram below.

10. Press TM307 bearing onto spud shaft with the circlip end first.

NOTE: This bearing is a special type of transmission bearing and has been fitted with special seals to prevent metal particles from entering but still allows the oil in for lubrication.

11. Fit the spud shaft and bearing assembly into the front of the transfer case housing.
12. **NOTE:** The circlip fits inside the circlip groove, which is machined into the transfer, case front housing. The main part of the bearing slides inside the transfer case housing.
13. Fit the two new M12x20 dowels into adaptor housing.



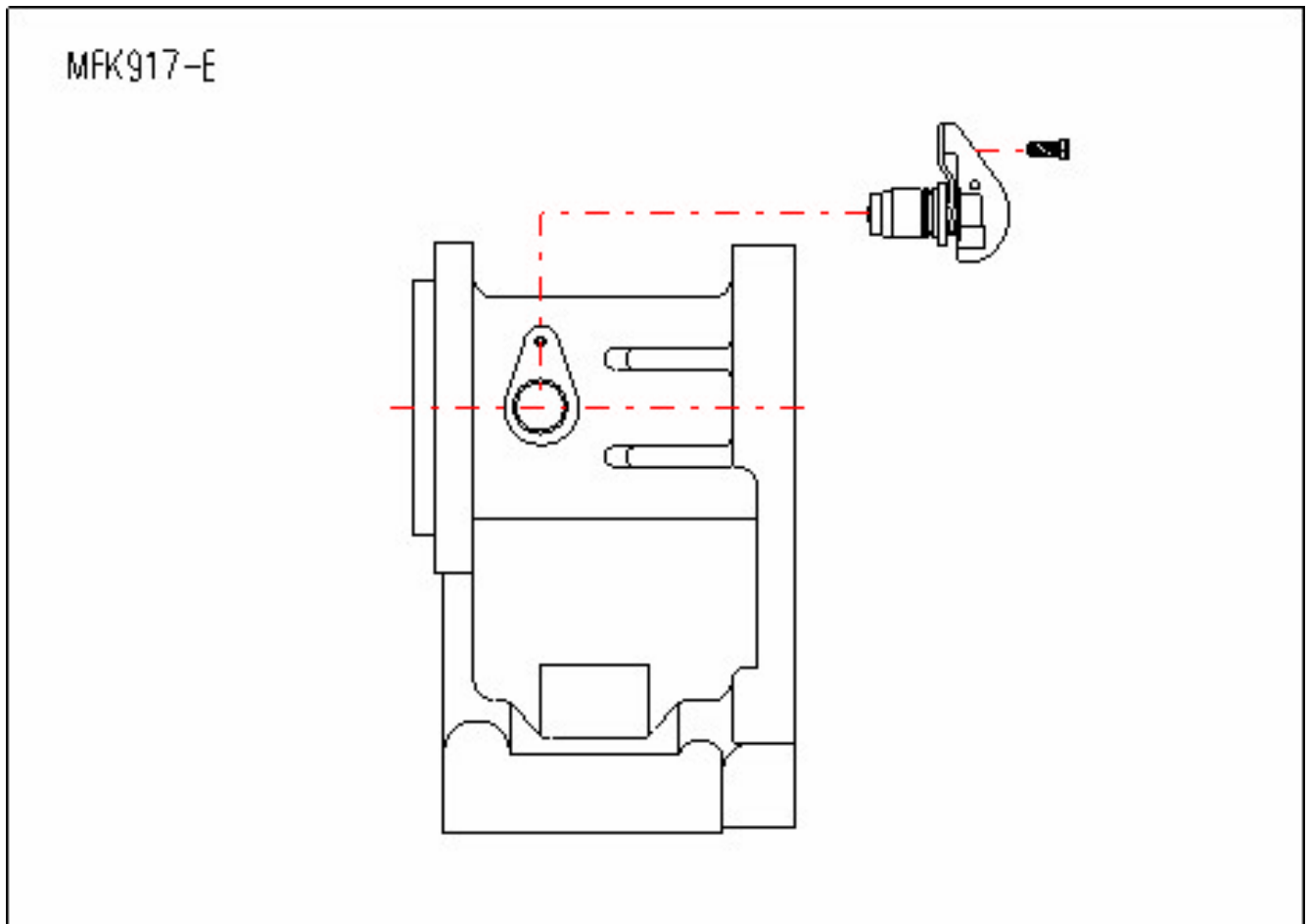
KEY	PART NO.	QTY.	DESCRIPTION
1	MFC099	4	SHCS M10x1.5x40 LATE 700R-4'S
1	MFC194	4	SHCS 3/8"x1 1/2" EARLY 700R-4'S
2	MFC377A	3	SHCS 3/8"UNCx1"
2	MFC613	3	SHCS 3/8"UNCx2 1/2" (IF REQUIRD)
2A	MFC898	3	SPACER 38x20x10 (IF REQUIRD)
3	MFC236	1	BRACKET HI/LOW LEVER MOUNTING
4	MFC548	1	EXTENSION HI/LOW PIVOT
5	MFC547	1	HOUSING 700R-4 TO LANDCRUISER
6	3314260030	1	GASKET
7	MFC397	1	SPACER T/C INPUT BEARING
7A	MFC397A	1	SHIM .25 SPACER T/C INPUT BRG
8	MFC917	1	SHAFT T700 TO L/C 5SP T/CASE
9	TM307	1	BEARING
10	9031648002	1	SEAL T/CASE INPUT
11		1	GEAR ORIGINAL TOYOTA T/CASE INPUT
12		1	SPACER ORIGINAL TOYOTA
13		1	GEAR ORIGINAL TOYOTA PTO
14		1	BEARING ORIGINAL TOYOTA REAR MAINSHAFT
15	MFC103	1	SPACER SPUD SHAFT
16		1	WASHER ORIGINAL TOYOTA
17	MFC504	1	NUT MAINSHAFT LOCK
18	MFC175	1	BOLT M10x1.25x20

14. Fit the Toyota main shaft spacer, transfer case input gear, PTO gear, rear bearing, spud shaft spacer (MFC103 if required), the main shaft washer and the new main shaft nut (MFC504), do not fully tighten the nut.

TRANSFER CASE INPUT SHAFT

END FLOAT ADJUSTMENT

15. Using a straight edge and a set of feeler gauges measure the distance between the TM307 bearing and the front of the transfer case housing.
16. **HINT:** To measure, sit the transfer case housing on top of a 20ltr drum with the shaft and gears hanging inside.
17. To remove the above measured end float, 5 (MFC397A) .25mm shims have been supplied with the kit. The appropriate number of shims must be fitted inside the 80mm counter bore behind the bearing spacer (MFC397). The spacer must be fitted to the 74mm ID against the shims.
18. Fit original dowels to the front transfer case housing
19. Using the gasket supplied, and a suitable sealant, fit the front half of the transfer case to the adaptor housing and secure it with the original bolts. **NOTE:** A suitable thread sealer should be used on the bolts.
20. The spud shaft bearing is now sandwiched between the transfer case front housing, and the adaptor housing.
21. Proceed with the rest of the transfer case rebuild using the new gaskets and bolts supplied in the kit. Refer to the Toyota workshop manual for this stage.
22. Remove the main shaft nut. Using a small quantity of loctite fit main shaft nut and torque to specification. Using a punch, flatten the rear of the nut over the flat ground on the spud shaft thread.
23. Fit the tin hat.
24. Fit the transfer case and adaptor assembly to the automatic transmission using the socket head cap screws supplied. **Note 1.** Two thread types have been used in the rear of 700R-4 transmissions metric M10x1.5 or 3/8"unc. Take care to select the correct ones from the kit. **Note 2.** Use loctite on the threads and torque the socket head cap screws to 35Nm/26ft/lb. I know this sounds low but this info is from the VR GM manual.
25. Fit the new hi low lever bracket (MFC236) to the side of the adaptor housing. Align the bracket so that the distance between the centre of the threaded boss and the transfer case is 200mm/8". Secure the bracket using the 3 socket head cap screws (MFC377A) supplied. **NOTE:** Supplied in the kit is 3x38mm spacers and 3x2 1/2" SHCS, these additional parts are sometimes required to space the bracket out from the adaptor enabling the 4WD selector to align correctly with the shaft.
26. Screw the pivot shaft extension (MFC548) into the hi/low lever bracket, and then screw the original Toyota pivot shaft into the extension and attach linkages. Refit lockout plate to the new bracket.



4L60E transmission

27. **NOTE:** Some early VR and imported 4L60E transmissions were fitted with a 2" diameter VSS this VSS can't be used in the new adaptor housing. The new adaptor is machined to suit the cheaper and more common 24mm one from VS and later model vehicles. The GM part number for the 24mm VSS is 10456520.
28. (MFK917-E) Fit the 24mm vehicle speed sensor (VSS) to the adaptor housing using the original bolt.
29. Mount the complete assembly into the vehicle. The adaptor housing has a cast, mounting pad on the underside. This mounting pad has been designed to accept the original Toyota mounting rubber and cross member. The cross member will require relocation rearwards. The cross member and mounting brackets may need modification to fit in the new location.
30. Measure the distance between the transfer case output flanges and the diff pinion flanges. This measurement is used to modify the drive shafts.
31. Refit the modified front drive shaft and check the clearance between it and the side of the automatic transmission oil pan. The clearance distance must take into account the front suspension travel. Modify the oil pan if required by removing the corner section. **NOTE:** When modifying the oil pan make sure the modifications do not interfere with the valve body.
32. Fit the modified rear drive shaft.
33. Fit a suitable automatic transmission cooler.

34. Fit the transmission shifter. **NOTE:** A commodore shifter can be used for this conversion. The shifter must be fitted with the sliding decal that shows the actual gear and gear position currently selected. If you find it difficult to install the Commodore decal components you could use Marks 4WD Adaptors MFK1145 shifter display kit.
35. Modify the shifter selector shaft for correct operation. **NOTE:** If you decide to lengthen the lever on the on the shifter you will also have to lengthen the lever on the transmission to maintain correct shift positions.
36. Connect the Commodore shifter inhibit switch and reverse light switch.
37. Fit the hi/low lever, linkages and lockout plate. A new lockout plate top bolt M10x1.25x20 (MFC175) is supplied.
38. Fill the transmission with ATF and the transfer case with 80w90.
39. Road test and check for oil leaks.

The components supplied in the kit are designed for specific type conversions. Modifications to any components without the written consent from Marks 4WD Adaptors will void any possible warranty or return privileges. Should you have any further questions that are not covered in the instruction sheet, please contact our sales department for assistance.

Proudly Manufactured by:
Marks 4WD Adaptors
385-393 Lower Dandenong Road, Dingley Vic. 3172
Tel: (03) 9552 6555, **Fax:** (03) 9551 8060,
E-Mail: sales@marks4wd.com
Catalogue: <http://www.marks4wd.com/>