

01/05/10



Fitting instructions for

MFK371HS/4, MFK371HTS/4, MFK371HS/5 and
MFK371HTS/5

HOLDEN V8 WITH STEEL FLYWHEEL TO LAND CRUISER 4 & 5 SPEED
TRANSMISSIONS

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.

The bellhousing supplied in this kit has been designed to accept all the standard 2F petrol components. To fit this kit to a Land Cruiser previously equipped with a F155 petrol, H or 2H diesel engine some extra parts need to be acquired, second hand or new. The Land Cruiser clutch is used with this kit.

FIRE WALL MODIFICATIONS REQUIRED

Firewall modifications will be required when using this kit. Minimal modifications are required behind the left-hand cylinder head when fitting to FJ, and HJ4# and 70 series vehicles, more extensive modifications will be required for FJ55, FJ6#, and HJ60 models. For this reason we recommend using our MFK560### kit when fitting Holden V8's to FJ55, FJ6#, and HJ6# models. The 560 kits use the Holden V8 flywheel and clutch.

NOTE: The FJ and HJ series Land Cruiser with a single transmission mount may require the early model driver side bellhousing mounting to fit the slave cylinder.

When replacing the pre 1980 H 3.6 litre 6-cylinder, diesel engine the following parts are required:

1. 2F petrol thrust bearing, carrier, and clips.
2. 2F petrol clutch fork and pivot.
NOTE: If a cast iron fork is used, the pivot length is 27.5mm. If a pressed metal fork is used the pivot length is 37.5mm.
3. Clutch fork boot to suit the fork you have purchased.
4. 2F-bellhousing breather plug (fitted to the opposite side of clutch fork boot).
5. 2F Slave cylinder and push rod to suit the clutch fork you have purchased.
6. Land Cruiser 2F or 3F pressure plate.
7. 2F left and right bellhousing mounts including rubbers, chassis brackets and bolts as well as bolts to fasten them to the chassis rails.

When replacing the F155 3.9 litre 6-cylinder, petrol engine the following parts are required:

1. 2F or 3F clutch pressure plate.

When replacing the 2H 4 litre 6-cylinder diesel engine the following parts may be required:

1. 2F/3F petrol clutch fork and pivot.

NOTE: In some models the 2H fork can be used. The distance between the pivot centre and the gearbox centre is slightly shorter on this model. Although this difference exists, the 2H fork can be used without any problems.

Engine Removal

1. Remove the bonnet from the vehicle and tie back the hinges.
2. Disconnect and label all the hoses and wiring attached to the old engine.
3. Remove the air-conditioning compressor and power steering lines (if fitted).
4. Remove the complete exhaust system from vehicle.
5. Drain the radiator and engine of all fluids.
6. Remove the radiator from the vehicle.
7. If you plan to use a different grade fuel, drain the fuel tank and fuel lines.
9. Unbolt the slave cylinder from the original bellhousing.
10. Support the transmission using jack stands or remove it completely.
11. Undo the four bolts holding the gearbox to the bellhousing.
12. Undo the engine mounting bolts and lift the engine to remove the rubbers.
13. Undo the bolts holding the bellhousing side mounts if fitted.
14. Remove the complete engine assembly. Do not discard the old engine, as some parts are required for the conversion.
11. Remove the oil pressure and water temperature senders from the Toyota engine.
12. Remove the engine chassis mounts from the chassis by drilling or grinding the heads off the rivets, then drill or drift the remainder of the rivets through the chassis rails.

Transmission and Bellhousing Preparation

1. Remove the flywheel cover plate.
2. Remove the thrust bearing and clutch fork.
3. Remove the clutch.
4. Remove the flywheel.
5. Remove the bellhousing from the transmission.
6. Remove the clutch fork pivot from the bellhousing.
7. Remove the two 12-mm dowels between the bellhousing and gearbox.
8. Remove the clutch fork boot and breather boot from the bellhousing.

SETTING UP THE NEW BELL HOUSING.

9. Fit the clutch fork pivot to the new bellhousing.
10. Fit the two 12-mm dowels to the rear of the new bellhousing.

WARNING

11. Failing to fit the dowels will result in transmission damage and or incorrect clutch operation.
12. Fit the new bellhousing to the transmission using the original bellhousing bolts.

Vehicles previously equipped with an F155 petrol or H diesel.

The 2F-bellhousing side mounts you have purchased will need to be set up on your chassis.

This is done as follows:

13. Cut the front lug off both bellhousing mounts to fit them into the recesses at the side of the bellhousing. **NOTE:** The right hand mount supports the slave cylinder, loose fit the slave cylinder as you tighten the mounting bolts, alignment of the slave cylinder bolts will be much easier.
14. Bolt the bellhousing mounts to the new bellhousing.
15. Fit the right hand bellhousing chassis bracket to the chassis. There should be some holes already drilled to accept them.

16. Use high tensile bolts to secure the bracket to the chassis. **NOTE:** If you are unsure of the mounting position on the chassis, fit the complete engine and transmission assembly into the vehicle. Set the position using the front and rear drive shafts along with the gear lever position to find the correct position and then mark the chassis.
 17. Mark the left-hand chassis for the new mounting position.
 18. Remove the engine.
 19. Drill the right hand chassis rail and secure the bracket with high tensile bolts.
 20. Drill the left-hand chassis rail. **NOTE:** The left hand mounting sits on top of the chassis, to drill the hole you may need to cut a large hole in the floor pan to gain access, this could be plugged with a rubber grommet.
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21. Make sure that the bellhousing mounting rubbers you have are in good condition.
 22. Fit the clutch fork, and thrust bearing to the bellhousing. **NOTE:** Apply some fresh grease to the grease groove inside the thrust-bearing carrier.
 23. Fit the clutch fork boot, and bellhousing breather boot.
 24. Fit the thrust carrier retaining clips.
 25. **Early 4-Speed models.** Fit the slave cylinder and push rod to the bellhousing side-mounting bracket and bellhousing, using the original Toyota bolts.
 10. **Late 4-Speed Split T/Case and Early 5-Speed Models.** Fit the slave cylinder and push rod to the bellhousing. Use the original Toyota front bolt, with the 28.5-mm spacer (MFC1169), the M10x1.25x80 bolt (MFC1196) and spring washer (MFC475) in the rear.

Engine Mount Set Up

The most accurate way of determining the position of the new engine chassis mounts is to trial fit the engine.

NOTE: When fitting a Holden V8's to 4# series vehicles the engine oil pump housing may interfere or be too close to the left hand chassis rail. Should this problem arise Marks 4WD Adaptors manufacture a special oil pump adaptor kit that will angle the oil filter housing away from the chassis rail. Part No. MFK425.

1. Make sure that your Holden engine has the original engine block brackets fitted. **NOTE:** Early model block brackets are 45-mm high and late model brackets are 60-mm high.
2. For some installations, the 60-mm high brackets may be required to correctly fit the new chassis brackets.

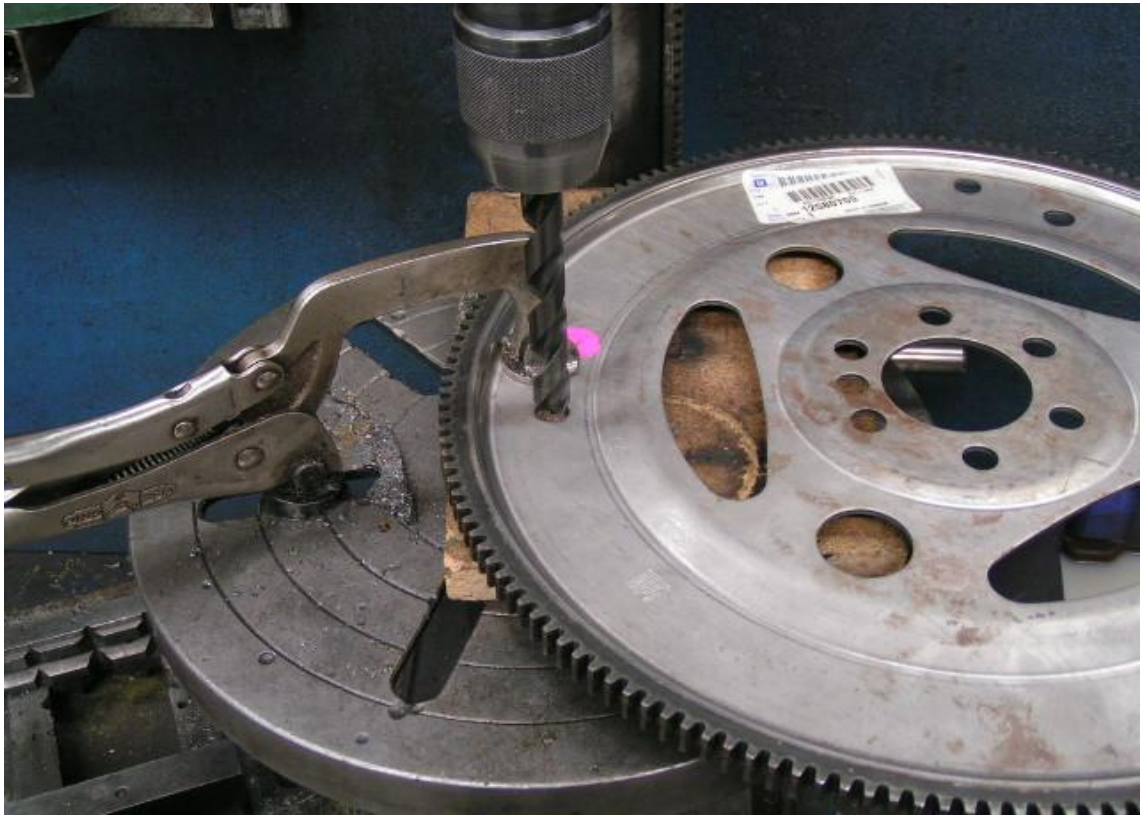
3. If the engine is being fitted to a 4# series requiring the oil pump adaptor kit the left hand block bracket behind the oil pump will require some modification. See the MFK425 instructions for details.
4. Fit the new engine rubbers supplied in the mounting kit.
5. Loosely fit the new chassis brackets to the engine rubbers using the bolts, nuts and washers supplied in the kit.
6. The smaller bracket is fitted to the left hand, (passengers side) of the vehicle and the larger bracket to the right hand, (drivers side).
7. Make sure that the two dowels are fitted to the rear of the GM engine.
8. Guide the engine into place and secure it using only 2 of the side bolts supplied in the kit.
9. Lower the engine so that the top flange on the chassis bracket sits on top of the chassis rail. **NOTE:** Some models may require a new section to be cut out of the top flange to fit around the chassis rivets.
10. When satisfied with the engines positioning tack weld or bolt the brackets to the chassis.

NOTE: Some chassis rails are not perfectly flat under the top flange. For these installations, the top flange may need to be heated with an oxy torch and flattened down to the chassis before welding is completed.

11. Remove the engine and complete the welding or bolting of the chassis brackets.
12. Paint the chassis brackets and welded area.

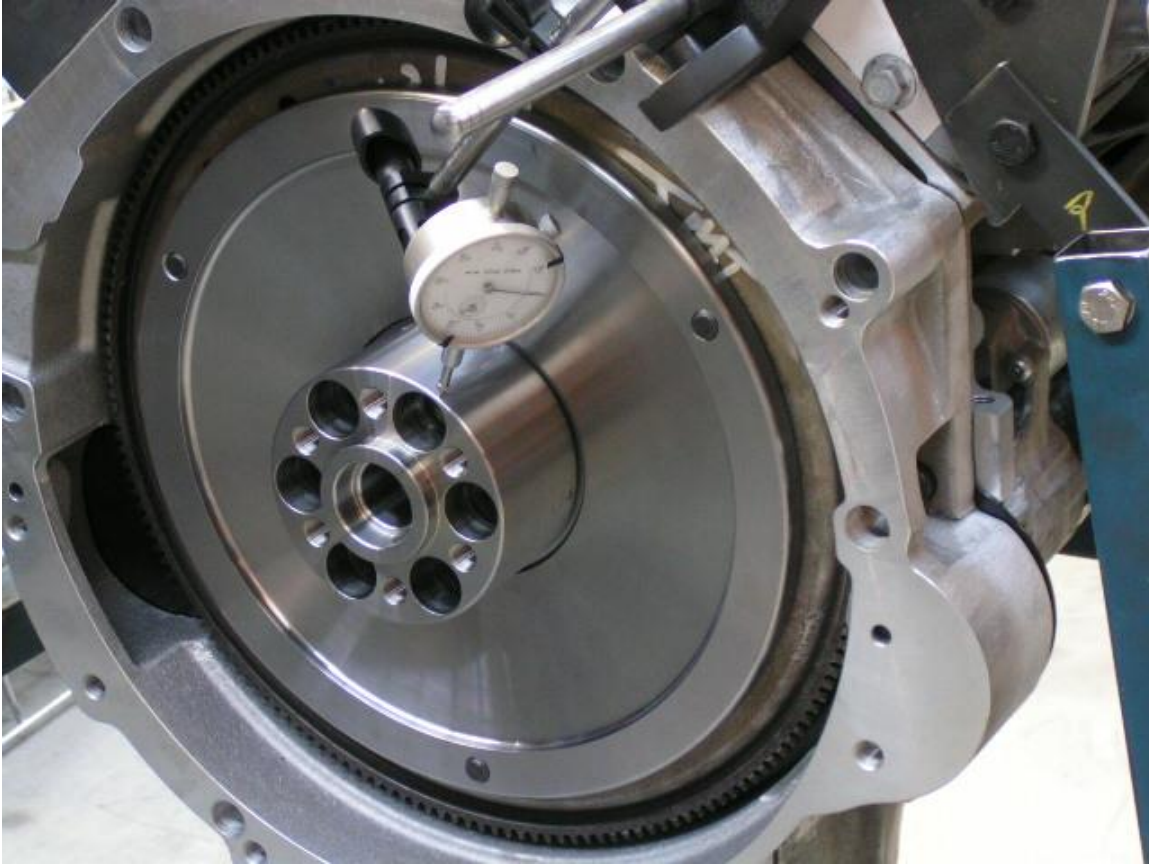
GM Engine Preparation

13. Fit the flexplate to the back of the new flexplate stiffener. **Note:** you may need to drill one of the converter bolt holes out to suit the bolts supplied in the kit. See the following photos.
14. Use the aligning bung supplied in the kit, this will ensure perfect alignment between the two parts.
15. Secure them using the bolts and washers supplied in the kit. Check the packing list for clarification of the bolts used. Torque the M10 bolts to 61nm/45ftlb.



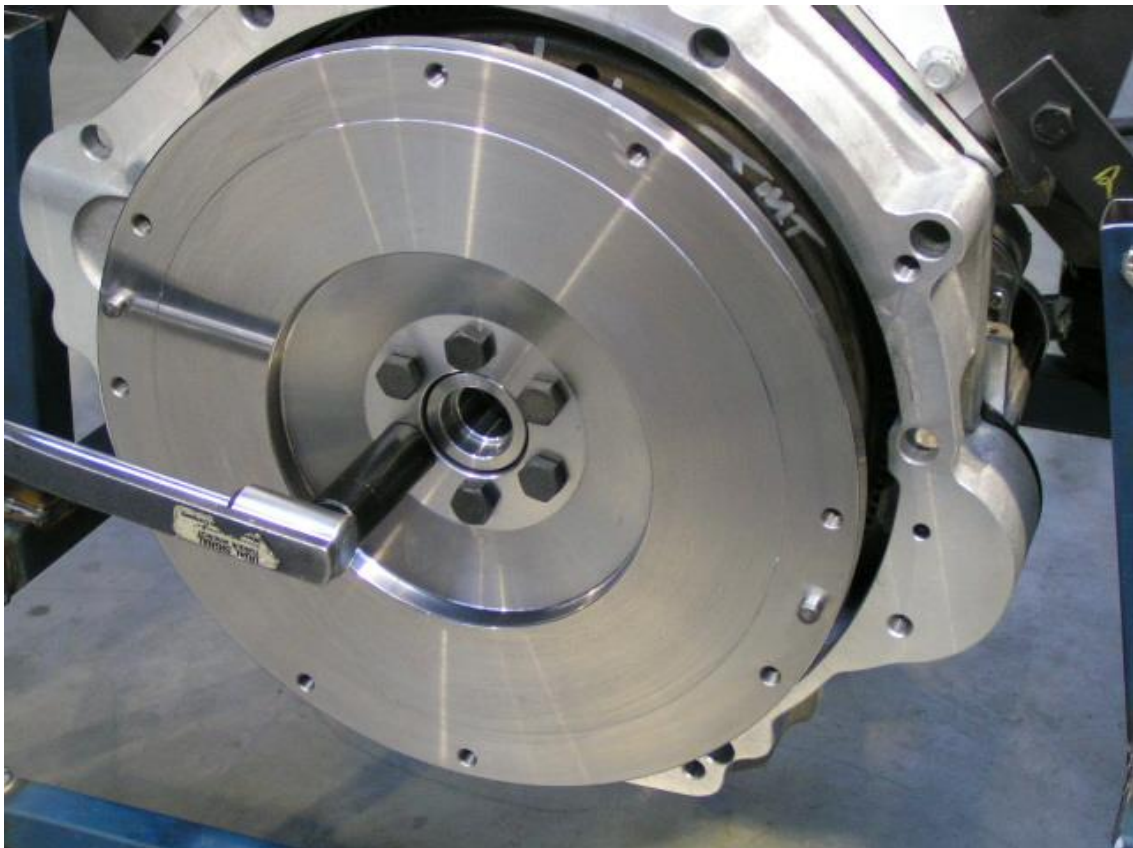


16. Fit the flexplate assembly to the crankshaft with the crankshaft adaptor and secure them using the 7/16"unf socket head cap screws supplied. Torque the 7/16" socket head cap screws to 88nm/64ftlb.
17. Check the crank adaptor for run out, this should not be any more than 0.05mm. If it is you should try to correct it by rotating the adaptor and trying again. See the following photos. **Note:** The following photos are not from this specific conversion, however the parts and torque settings are the same.



18. Fit the new spigot bearing (part No. 6202) into the crankshaft adaptor. Use the flexplate aligning tool a drift, use a soft hammer to drive the bearing in until it sits flush in the bore. **NOTE:** The bearing is pre packed with grease, and fitted with rubber seals, the rubber seals should not be removed.

19. Fit the new flywheel to the crankshaft adaptor and secure it using the new bolts supplied. **NOTE:** Torque the bolts to 95nm/70ftlb and use loctite on bolts.



20. Fit the clutch assembly to the flywheel and secure it using the original 2F, or 3F bolts. Align the clutch plate using a suitable clutch aligning tool. **NOTE:** The original bolts should fit without modification but it is a good idea to double check them in the new flywheel prior to fitting the clutch.

Engine Installation

1. Put the transmission into 4th gear and the transfer case into high range.
2. Raise one of the rear wheels off the ground.
3. Guide the engine into place and at the same time rock the back wheel backward and forward to help align the clutch spline.
4. When aligned secure the engine using the bolts, spring washers and flat washers supplied in the kit.
5. Guide the engine rubbers over the chassis brackets and secure them with the bolts, nuts, and washers supplied in the kit.
6. Fit the clutch hydraulic pipe.
7. Bleed the clutch hydraulics and check the clutch operation. **NOTE:** This can easily be done while the back wheel is off the ground. Make sure the transmission is still in gear, depress the clutch pedal, the rear wheel should turn, release the pedal, and the wheel should stop. If all is well proceed if not rectify the problem.
8. Fit the new flywheel cover plate to the bellhousing using the original bolts and washers. **NOTE:** Check the clearance around the starter motor in some cases the cover may need to be filled or ground to fit. Seal around the cover plate using silastic.
9. Fit the temperature sender using the adaptor supplied in the kit. **NOTE 1:** Use Teflon tape or liquid Teflon if required. **NOTE 2:** VT V8 engines do not have a separate water temp sender for the Commodore gauge, you will need to drill and tap a 1/8" NPSF 27tpi hole into the water jacket of the intake manifold. Then the adaptor supplied can be fitted.
10. Fit the oil pressure sender using the adaptor supplied in the kit.
11. Modify the radiator spouts to correspond with the new engine's outlets.
12. Fit the heater and radiator hoses.
13. Fit power steering pump and air-conditioning compressor if required. Brackets will need to be fabricated if you are using the Toyota units.

14. Complete the wiring. **NOTE:** EFI Engines. If you are using Marks 4WD Adaptors interface wiring loom part No. MFK690 refer to the instructions supplied with the loom.
15. If you have purchased a tachometer interface kit part No. MFK1165 wire it up as per the instructions supplied.
16. Complete the exhaust system.
17. Check all fluid levels and fill fuel tank with required grade of fuel.
18. Double check all mounting bolts are tight.
19. Start engine and check for-
 - Fuel leaks.
 - Oil leaks.
 - Water leaks.
 - Exhaust leaks.Allow the engine to warm up and recheck above.
20. Refit the bonnet.
21. Road test the vehicle for 3 to 5 kms.
22. Check for 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.

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