

21/06/12



FITTING INSTRUCTIONS FOR

MFK605C153 and MFK605C168

CHEVY V8 PETROL & DIESEL ENGINES

TO

NISSAN GQ/GU 3.0ltr, 4.2ltr, 4.5ltr, and 4.8ltr 5-Speed Gearbox

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. **Note:** Read the instructions fully, before you start.

A. ENGINE REMOVAL

1. Remove the bonnet from the vehicle.
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 it is not being re-used).
4. Remove the complete exhaust system from the vehicle.
5. Drain radiator and engine of all fluids.
6. Remove the radiator from the vehicle.
7. If you plan on using a different grade fuel, drain the fuel tank and fuel lines.
8. Support the original transmission using a jack stand and remove the complete engine assembly using suitable engine lifting equipment. Do not discard the old engine as some parts are required for the conversion.
9. Remove the oil pressure and temperature senders from the original Nissan engine.

B. WELD IN ENGINE MOUNTING PREPARATION

When fitting the weld in chassis brackets it is necessary to relocate the brake line t-piece attached to the top of the diff in order to provide greater engine mount to differential clearance. See the diagrams next page.

1. Remove the brake block bracket with a small grinder. Refer to diagram A.

2. Cut 10mm off the original bracket. Refer to diagram B.
3. Bend the bracket down 90 degrees. Refer to diagram B.
4. Drill a 8mm hole in the bracket. **Refer to diagram B.**
5. Using an M8 X 12mm bolt, fit the bracket to the vacant mounting block on the diff housing. If your diff doesn't have this mounting block use the top diff stud. Bend the pipes to follow closely the shape of the diff housing. Refer to diagram A.

Diagram A (Weld in mounts only).

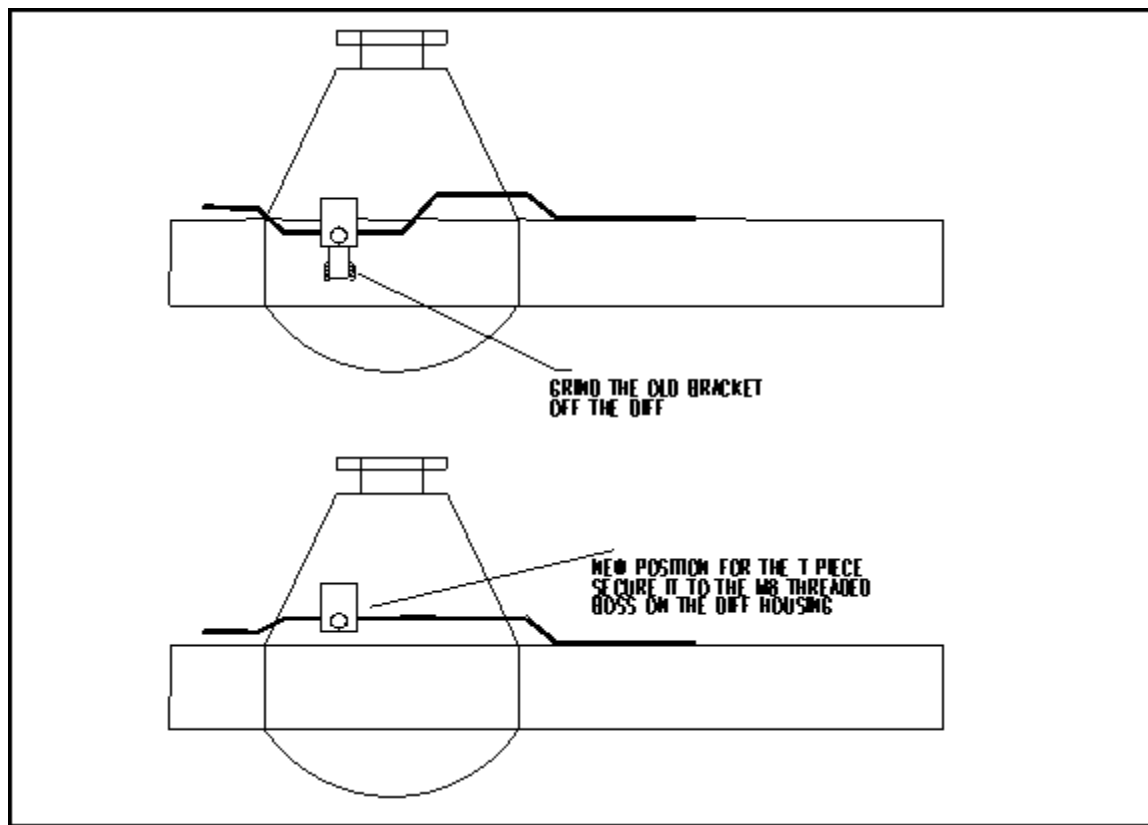
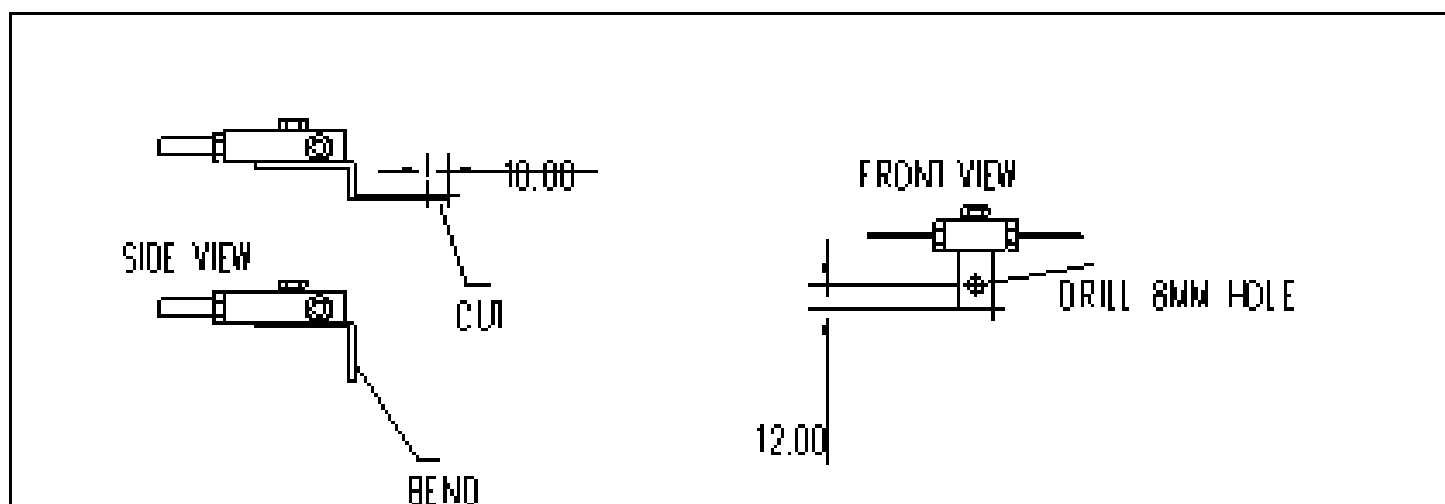
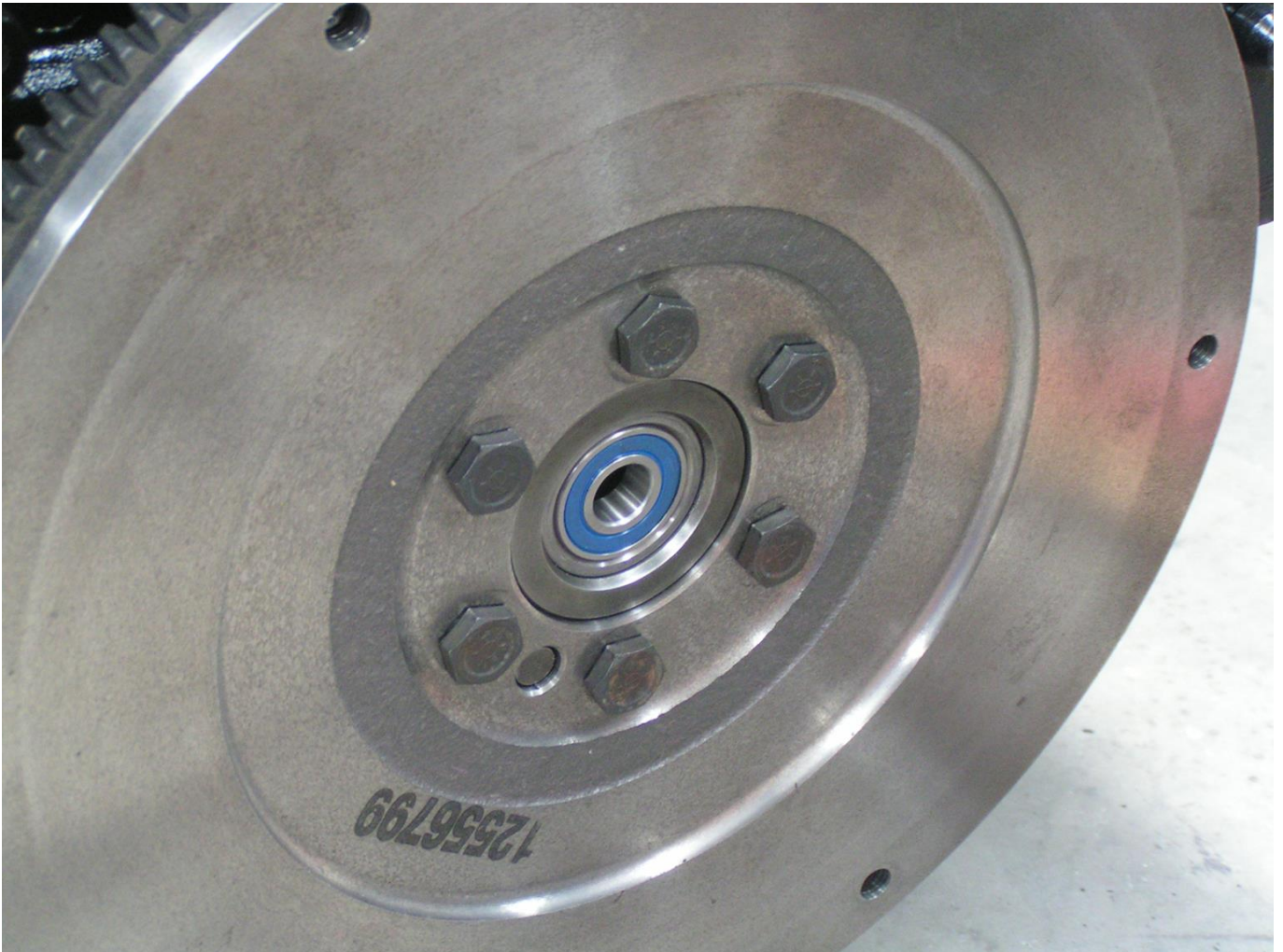


Diagram B (Weld in mounts only).

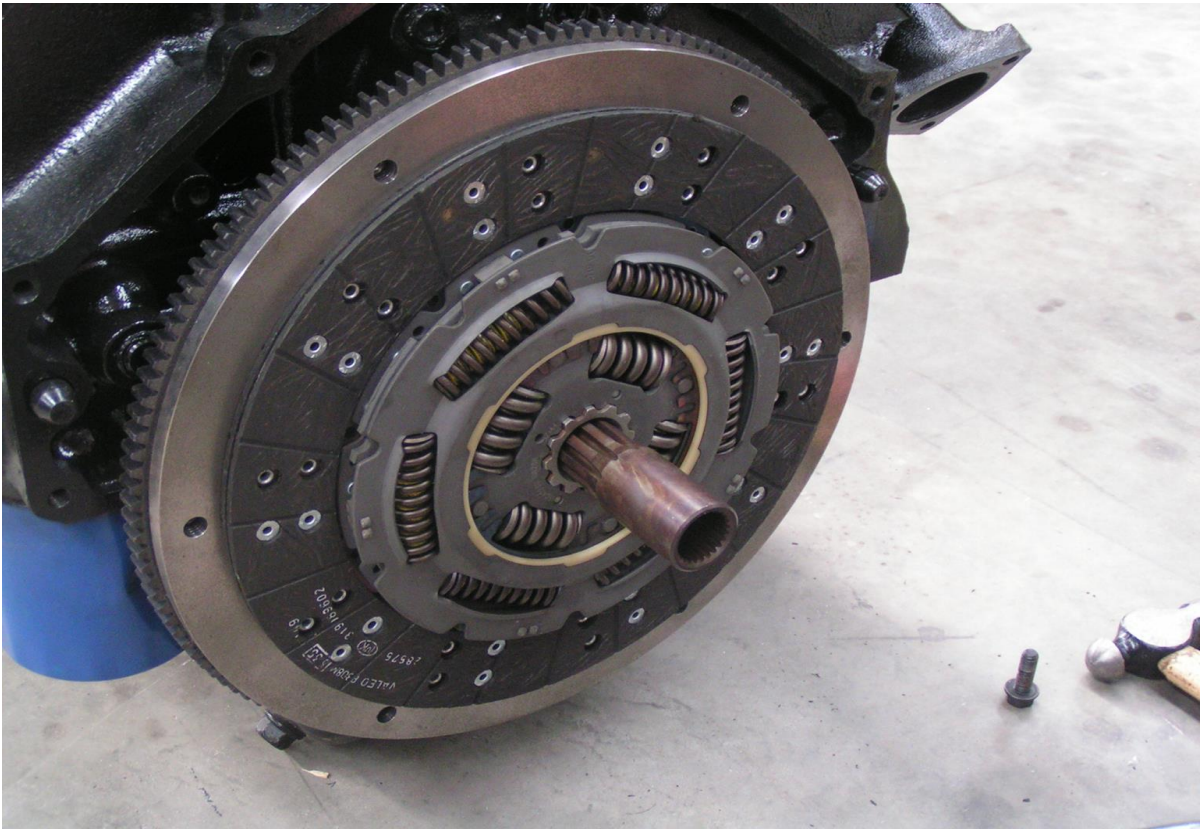


GM ENGINE PREPARATION.

1. Fit the spigot bearing adaptor to the crankshaft using a suitable drift.
2. Fit the spigot bearing inside the bearing adaptor also using a suitable drift.



1. Fit the clutch assembly to the flywheel using the input shaft extension as a clutch aligning tool. See the photos.

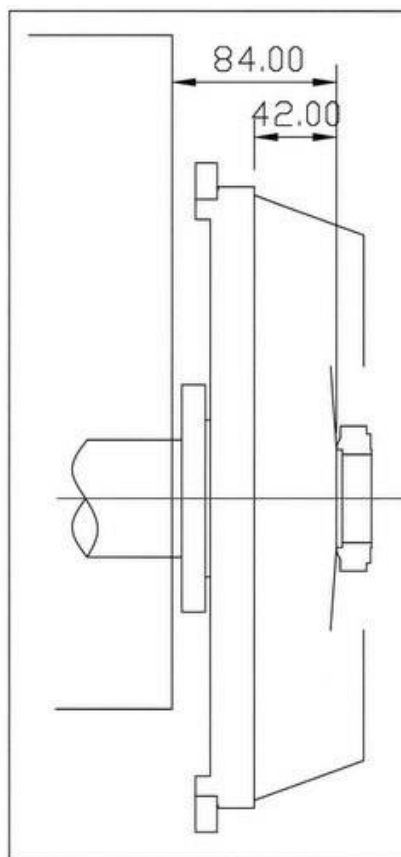


Note 1: The clutch size will vary depending on the flywheel you have eg. 153T or 168T ring gear. If you intend using an 11" clutch and pressure plate you will need to fit the clutch hydraulic kit part number MFK605CHK. This kit includes a new master cylinder and slave cylinder and will give enough throw to fully disengage the clutch. The thrust bearing normally supplied with the GM clutch kit is not used. You must use the thrust bearing supplied with the conversion kit. **Note 2:** The new clutch master cylinder in the MFK605CHK will only suit the boosted type Nissan clutch.

Thrust Bearing to Pressure Plate Clearance

Diagram D

With the clutch kit bolted to the rear of the flywheel take a measurement from the highest point of the pressure plate fingers to the rear of the block. This dimension is needed to determine if the clutch will work as there are various clutch pressure plates used in GM vehicles. The dimension is _____ and should be between 6mm and 10mm less than the dimension obtained from diagram C. Spacers are supplied in the kit and are used to adjust the bearing position if required, the spacers fit between the thrust tube shoulder and the thrust bearing.

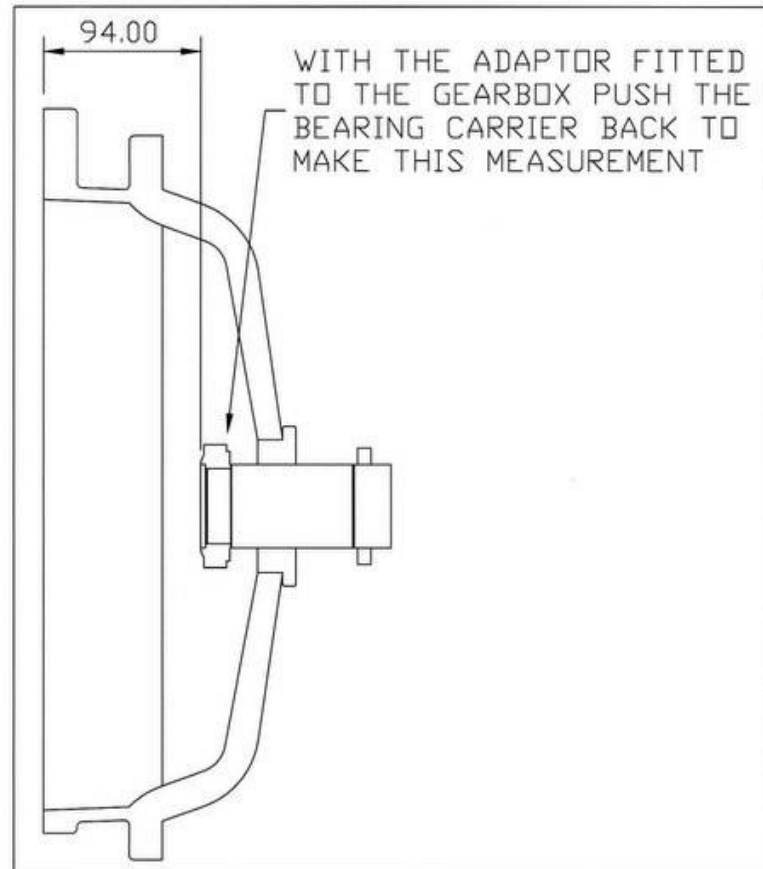


1. Push the thrust bearing back toward the gearbox as far as it will go. The push rod and slave cylinder must be fitted to obtain the correct measurement. Measure the distance between the front of the thrust bearing and the front of the adaptor. The diagram below shows the distance required for a flat finger pressure plate. A high finger clutch requires a distance of around 110mm Distance A _____ See the following diagram and photo.

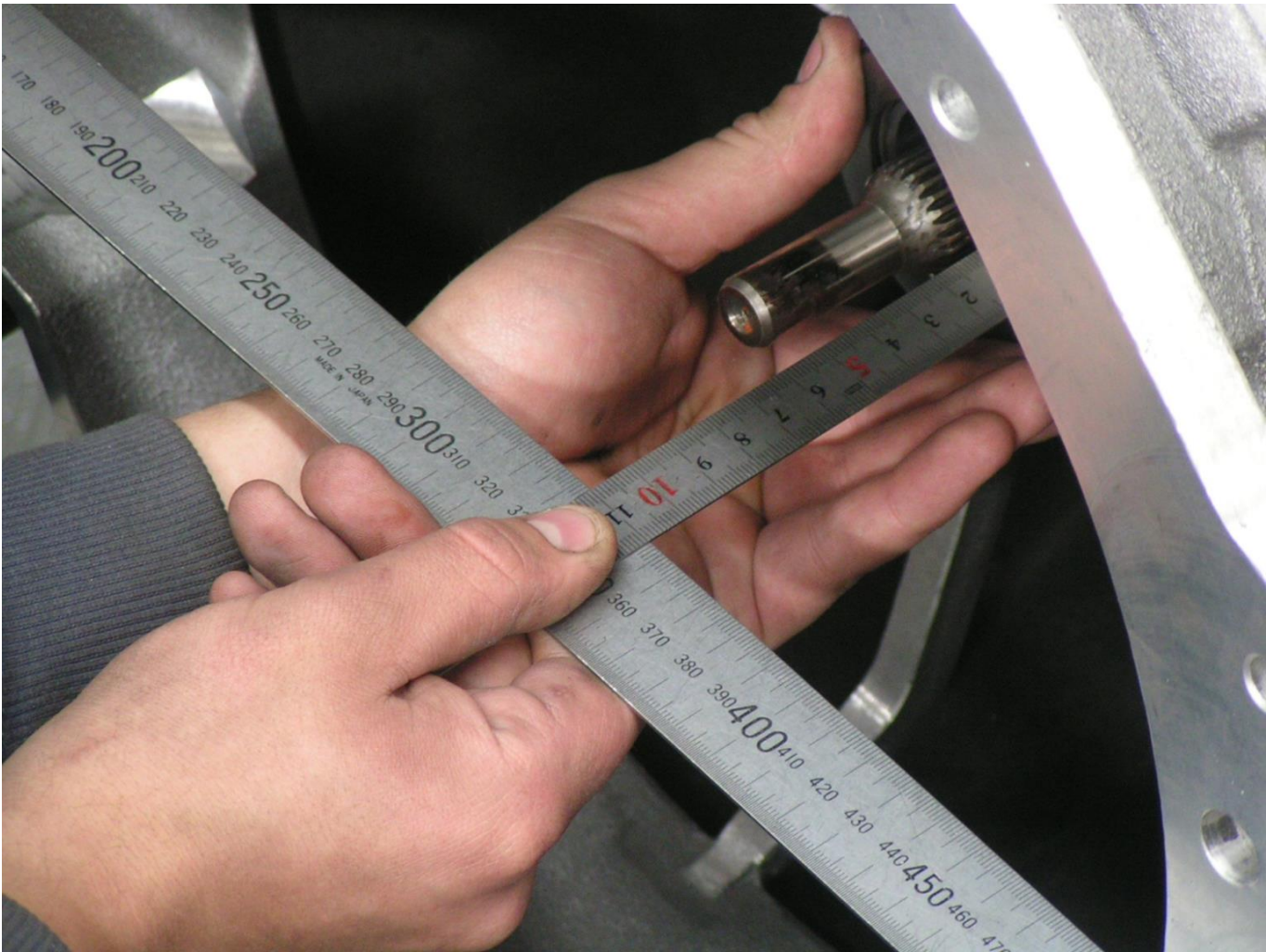
2. Diagram C

3. **NOTE 1:** The clutch fork and slave cylinder must be fitted when taking the following measurement.
4. **NOTE 2:** The measurement can be made without the thrust bearing being fitted however you will need to measure the thrust bearing length and subtract it from the measurement.

GM CLUTCH INFORMATION.



1. When fitting a Chevy petrol engine a standard Chevy flat fingered diaphragm pressure plate assembly 10.5" or 11" should be used.
2. When fitting a big block Chevy petrol, 6.5ltr or 6.2ltr Chevy Diesel with the Chevy 12" diesel clutch you will need to replace the clutch fork pivot with the longer one supplied in the kit. This longer pivot places the clutch fork closer to the window at the slave cylinder end allowing for the extra travel of the slave cylinder, the spacers may also be required to position the thrust bearing correctly.

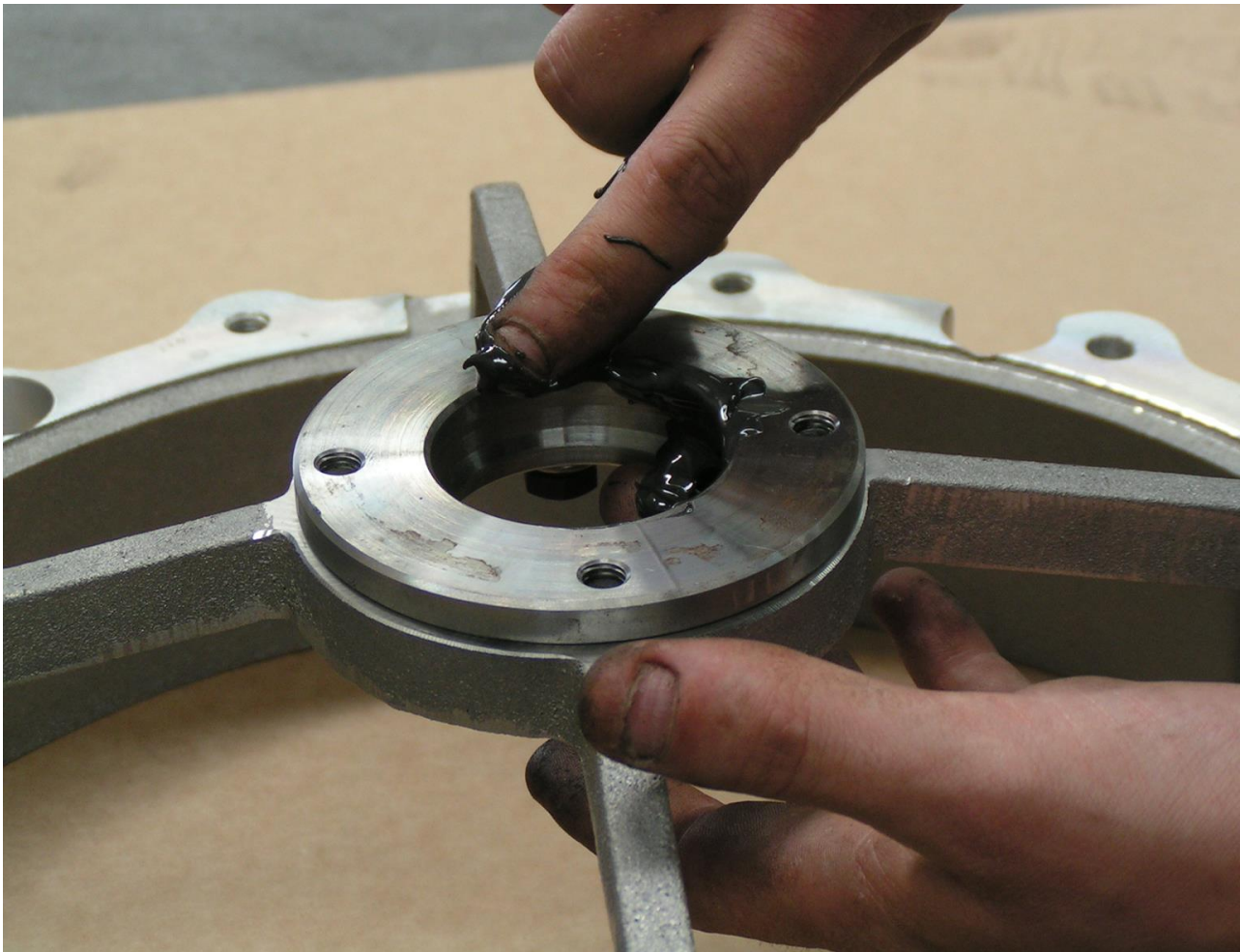


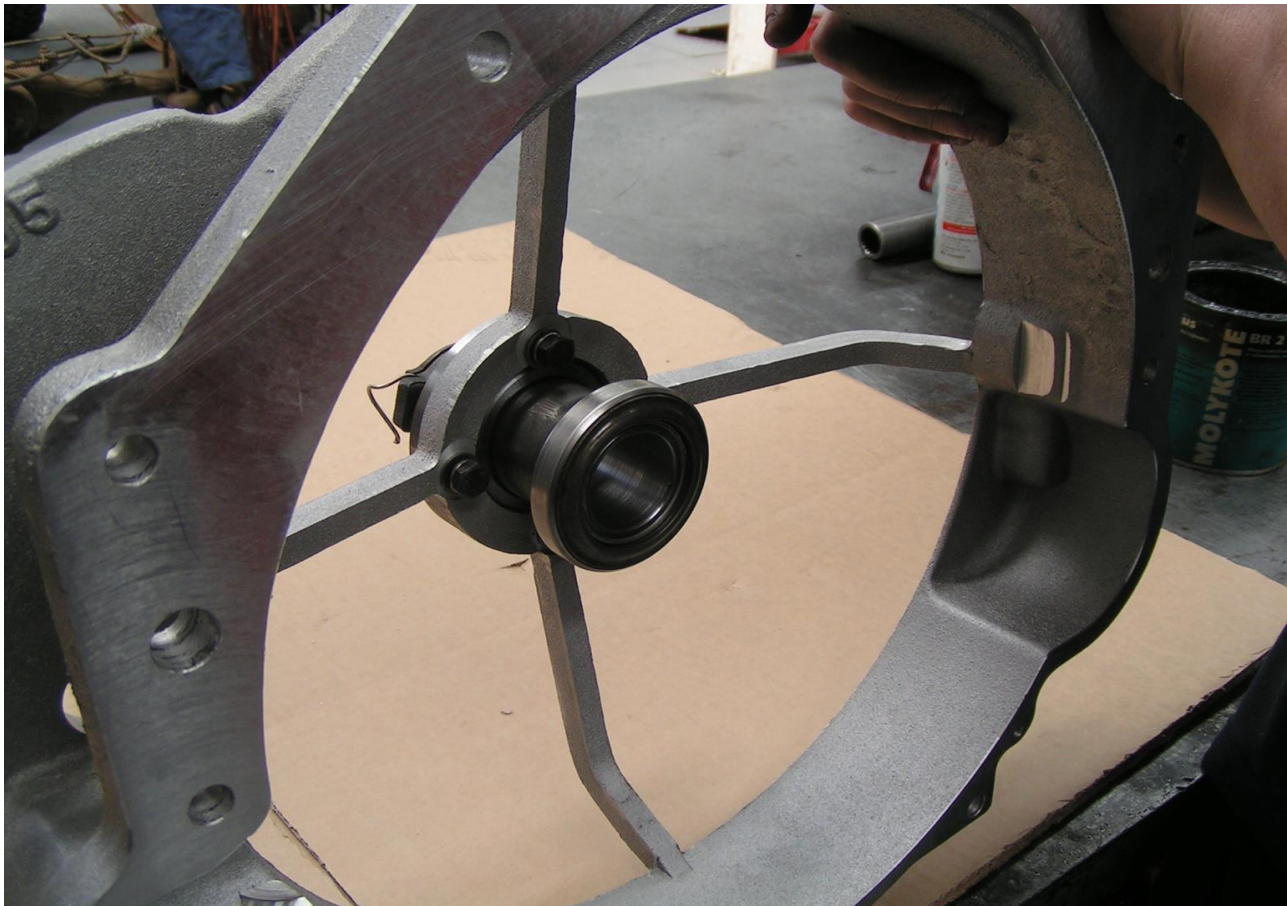
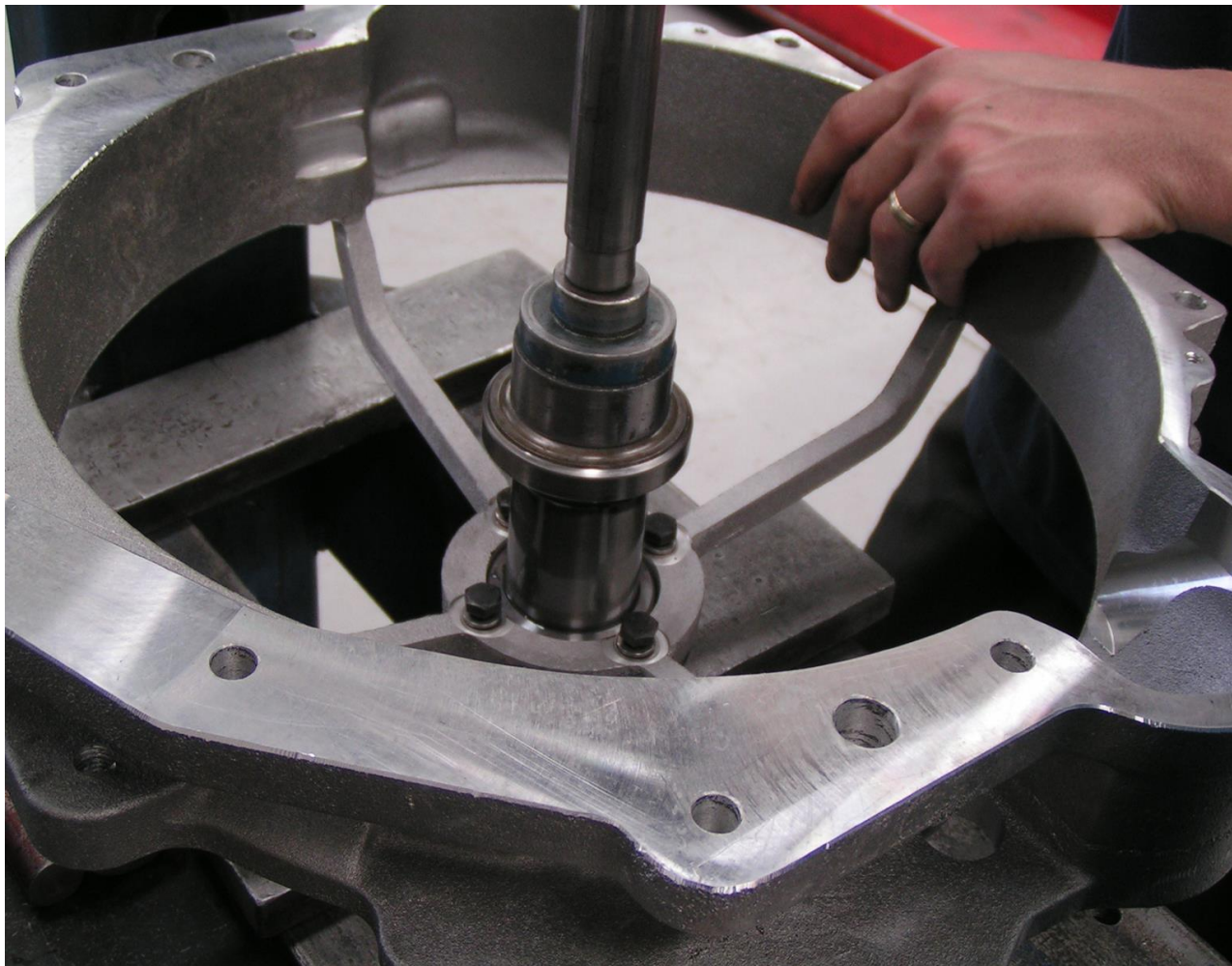
TRANSMISSION AND BELL HOUSING PREPARATION

1. Fit the new 9.5mm dowels (supplied in the kit) to the rear of the new adaptor housing. See photo



2. Remove the thrust bearing and carrier from the front of the transmission.
3. Remove the old thrust bearing from the carrier.
4. Press the new thrust bearing extension tube onto the carrier. See photo's next page
5. Check that the thrust bearing tube slides freely inside the clutch sleeve boss (MFC649). If not remove any burrs with emery.
6. Bolt the thrust tube boss to the new adaptor housing using the 4 bolts and washers supplied.
Note: You need only to tighten them using your fingers at this stage. See photo's next page
7. Pack the grease groove in the boss with molybdenum grease or similar. See photo's next page
8. Slide the thrust extension tube in from the gearbox side of the boss and press the new thrust bearing onto the machined shoulder of the tube. **Note:** The hardened face presses against the pressure plate fingers. The bearing in the photos is a SF0914 and is used with a flat finger pressure plate. See photo's next page
9. Pack the grease groove in the thrust bearing carrier. See photo's next page.





10. Guide the thrust bearing carrier over the transmission nose cone as you fit the adaptor housing to the Nissan bellhousing. Use the original Nissan bellhousing bolts to secure the adaptor.



11. The clutch fork should be left loose in the bellhousing not fitted to the pivot.
12. Apply some silastic to the face of the bellhousing. Do not block the drain slot with silastic.
13. Fit the clutch fork to the carrier and then to the pivot.
14. Centralise the thrust ring in the housing and then tighten the 4 bolts. Remove and refit each bolt one at a time applying Loctite and tighten. After tightening the bolts, make sure the thrust tube slides freely, if not re adjust the thrust ring position until it does.

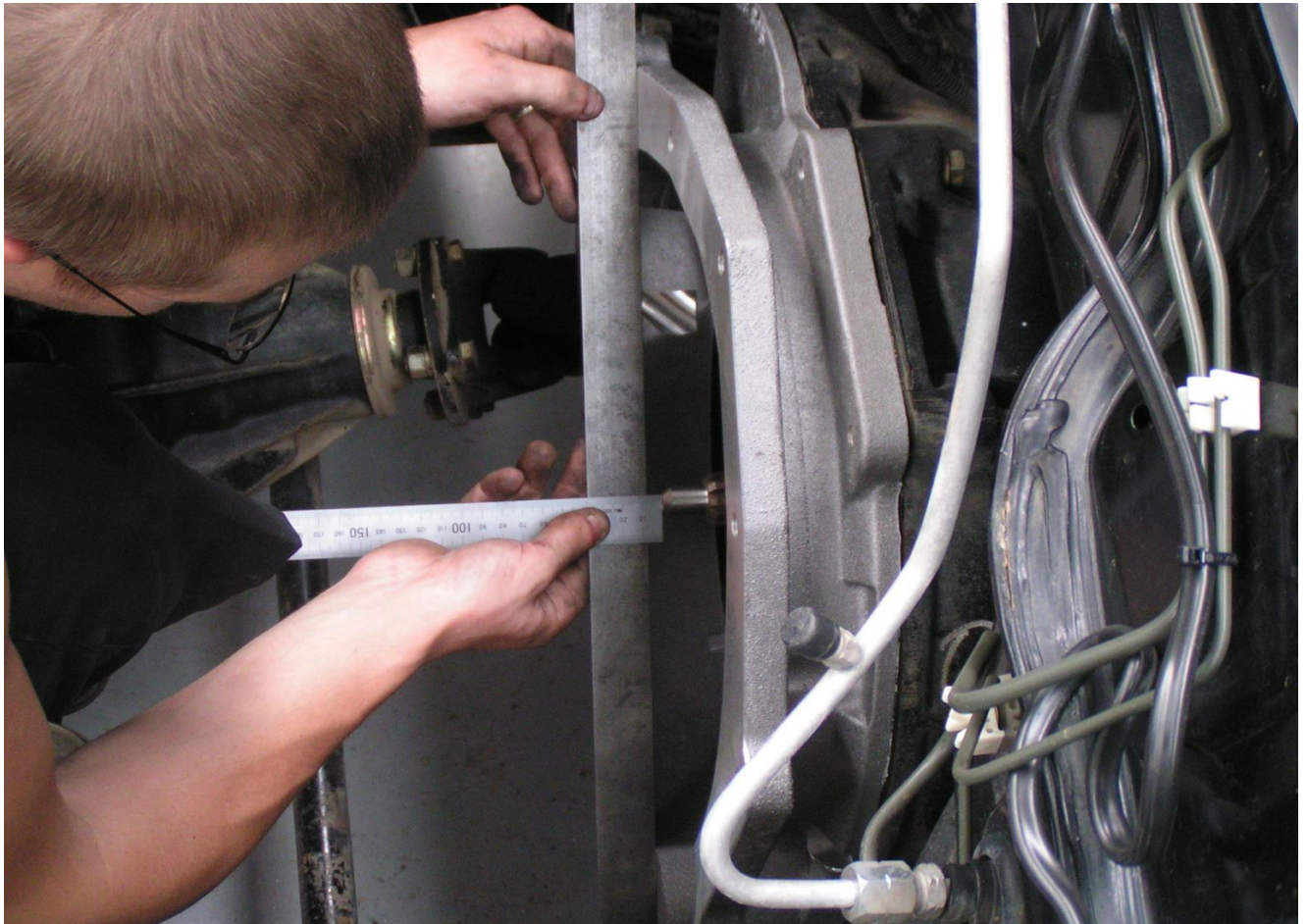
C1. INPUT SHAFT EXTENSION

15. Apply a light smear of grease to the input shaft spline. **NOTE:** If you are using weld in mounts do not fit the input shaft extension until you have completed the welding and painting of the engine mountings.

WARNING: Do not put grease on the input shaft spigot or inside the input shaft extension pocket. This will result in a hydraulic lock, causing the overall length of the input shaft to become longer than intended. This will make the clutch appear faulty, it may appear as if not completely disengaging. It may also destroy the spigot bush and crankshaft or even damage the engine internally.

16. Using a soft face hammer, tap the new input shaft extension onto the original

transmission input shaft. The input shaft should not protrude from the face of the adaptor housing, it should be 4mm to 7mm behind the face. See photo below



D. WELD IN ENGINE MOUNTINGS

The most accurate way of determining the position of the new mounts is to trial fit them. In order to make the trial fitting of the engine easier, remove the clutch and pressure plate.

1. Remove the original 6 cylinder chassis mounts from the chassis.
2. Fit the engine mounting rubbers to the engine block.
3. Loosely fit the chassis brackets to the GM rubbers.

MFC663L – LHS & MFC663R – RHS

4. Make sure that the dowels are fitted to the rear of the GM engine. Guide the engine into position. Bolt the engine to the bellhousing using only the 2 side bolts.
5. Once the engine mounting brackets are positioned tack weld them into place.
6. Remove the engine, then weld the inner chassis rails to the brackets. Heat the top flange of the chassis brackets with an oxy and fold to suit the profile of the chassis.
7. Complete the welding.
8. Clean and paint the welded area.

ENGINE INSTALLATION.

1. Put the gearbox in 4th gear and the transfer case into high range. Jack one of the rear wheels off the ground.
2. Guide the engine into place by rocking the rear wheel backwards and forwards to help with the spline alignment in the clutch plate. Once aligned the engine dowels should locate easily into the adaptor housing. Secure the engine using the bolts, spring washers and flat washers supplied.
NOTE: Before proceeding to the next step check the clutch operation. If you can't spin the rear wheel easily by hand when the clutch pedal is depressed, stop and rectify the problem.
3. Lower the engine over the mounting brackets and fit mounting bolts.
4. Fit the new flywheel cover plate to the adaptor housing using the bolts and washers supplied.

NOTE: Due to various Chevy petrol starter motor offsets, a small portion of the plate may have to be ground out of the starter motor hole. If the hole in the cover plate is in a completely different position, then you may have ordered the incorrect kit. Chevy engines have two different size flywheels and as a result have two different offsets on the starter motor. If you have ordered the kit to suit the smaller 153 tooth flywheel and you are using the 168 tooth flywheel then the hole in the cover plate will be in the wrong location.

STARTER MOTOR REQUIREMENTS.

It is essential that you use the smaller reduction drive starter motor with the conversion. These starter motors are smaller in the main body and will provide greater starter motor to front drive shaft clearance. A McLeod Hi- Torque starter was used on our vehicle and proved to be successful. If you have an IMI Hi – Torque starter the gearbox housing will need to be replaced with our MFC1231 housing. This housing rotates the solenoid to the top giving maximum clearance.

5. Heavy duty front springs are also recommend to give more adaptor housing/starter motor to front drive shaft/diff clearance. **NOTE:** Heavy duty springs also require the use of caster correction bushes, the use of these bushes will also help with clearance as the diff is rotated down at the rear to increase the caster.
6. Fit a 25mm bump stop extension to the driver side differential housing to prevent the diff drive flange from hitting the starter motor when the suspension is fully compressed.



7. Fit the water temperature and oil pressure senders to the engine using the adaptors supplied in the kit.
8. Refit the radiator.

NOTE: For petrol vehicles the original radiator and shroud can be used without modification. There is no need to modify the radiator spout position. It is recommended that you use a long water pump on the GM engine as the long water pump will position the fan in the correct location.

9. Fit the heater and radiator hoses.
10. Fit power steering pump and air-conditioning compressor. Brackets will need to be fabricated if you are using the original items.
11. Connect the air cleaner system.
12. Connect the fuel system.
13. Complete the wiring.
14. Complete the exhaust system. **NOTE:** A heat shield must be fitted between the exhaust and the clutch slave cylinder.
15. Check all fluid levels and fill the fuel tank with the required grade of fuel.
16. Double check that all bolts are tight.
17. Start the engine and check for -

- Fuel leaks.

- Oil leaks
- Water leaks
- Exhaust leaks.

Allow to warm up and recheck above.

18. Refit the bonnet.

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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