01/05/10

FITTING INSTRUCTIONS FOR

MFK605H AND MFK605HT

HOLDEN V8 TO

NISSAN GQ & GU 5-SPEED

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: **This adaptor kit is manufactured for coil sprung vehicles. If you are fitting it to a vehicle with a leaf sprung front end, please contact our office.**

Engine Removal

1. Remove the bonnet from the vehicle. It is advisable that you mark the position of the hinges on the bonnet in order to aid alignment when refitting the bonnet once the conversion is completed.

2. Disconnect battery cables and remove battery from vehicle.

3. Drain the engine oil and coolant from the original engine, disconnect the radiator and heater hoses.

4. Disconnect and label all wiring attached to the original engine. This will make it easier to identify wires at a latter stage.

5. Remove the radiator and overflow tank from engine bay.

6. If your vehicle is equipped with air conditioning, evacuate the old gas out of the system and disconnect the air conditioning hoses from the compressor.

7. If your vehicle is equipped with power steering, drain the oil and disconnect the hoses attached to the power steering pump.

8. Remove the radiator from the vehicle.

9. Remove the complete exhaust system from vehicle.

10. If you plan to use a different grade fuel, as to what the original engine ran on, drain the fuel tank and fuel lines.

11. 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 still used for the conversion.

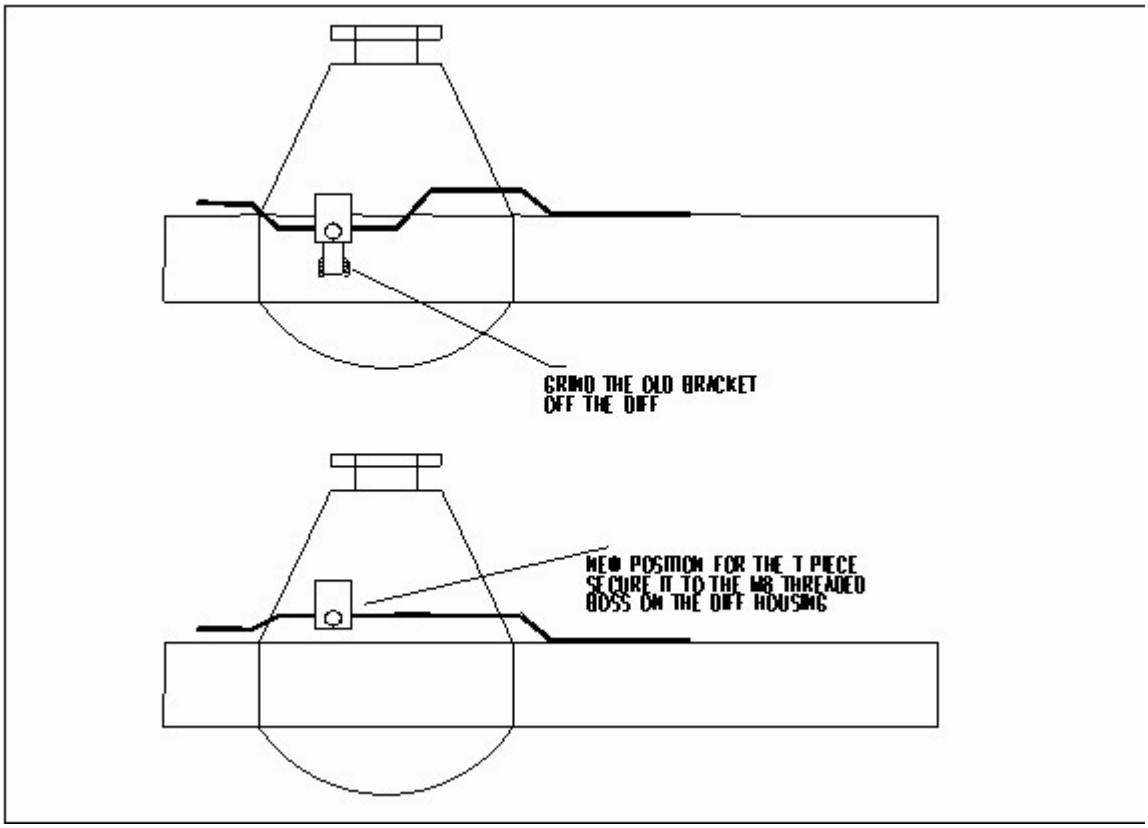
12. Remove the oil pressure and temperature adaptors from the original Nissan engine.

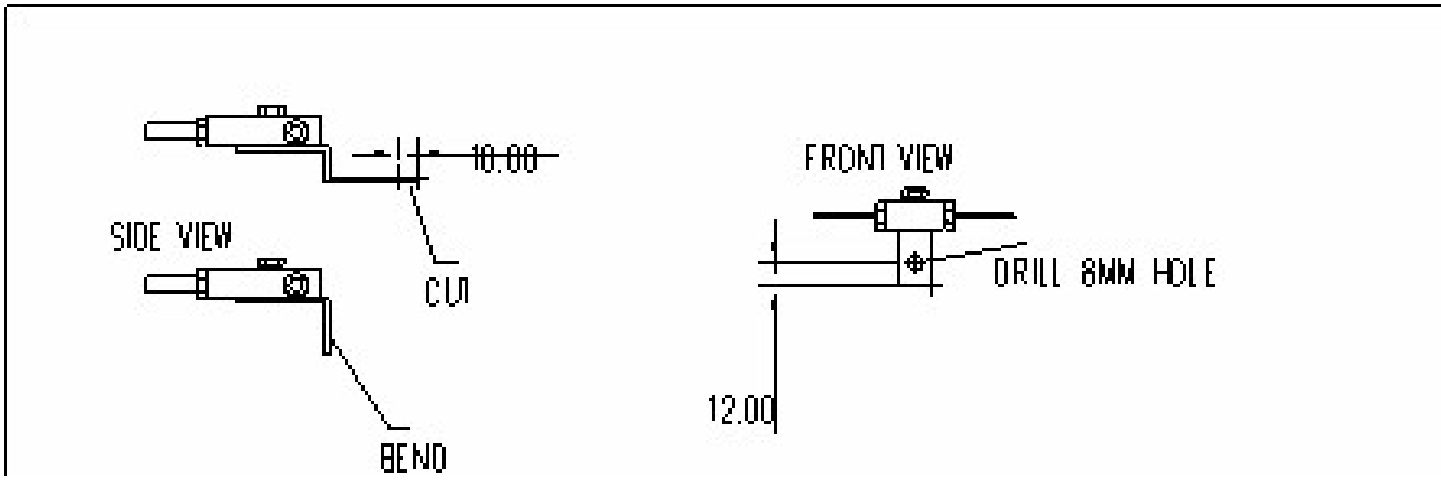
Engine Sump

1. It is necessary to relocate the brake line that is attached to the diff in order to provide greater engine sump to differential clearance. You must use a rear bowl type, sump and pick up as fitted to the HQ Holden.

Brake Pipe to Engine Mounting Clearance

1. Remove the brake block bracket with a small grinder.





2. Cut 10mm off the original bracket.

3. Bend the bracket down by 90 degrees.

4. Drill an 8mm hole in the bracket.

5. Using a M8 X 12mm bolt, fix bracket to vacant mounting block and bend the pipes to follow closely the shape of the diff housing.

Transmission and Bell housing Preparation

1. Fit the 9.5mm dowels in the rear of the adaptor housing. These dowels are supplied in the kit. See photo below:

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.

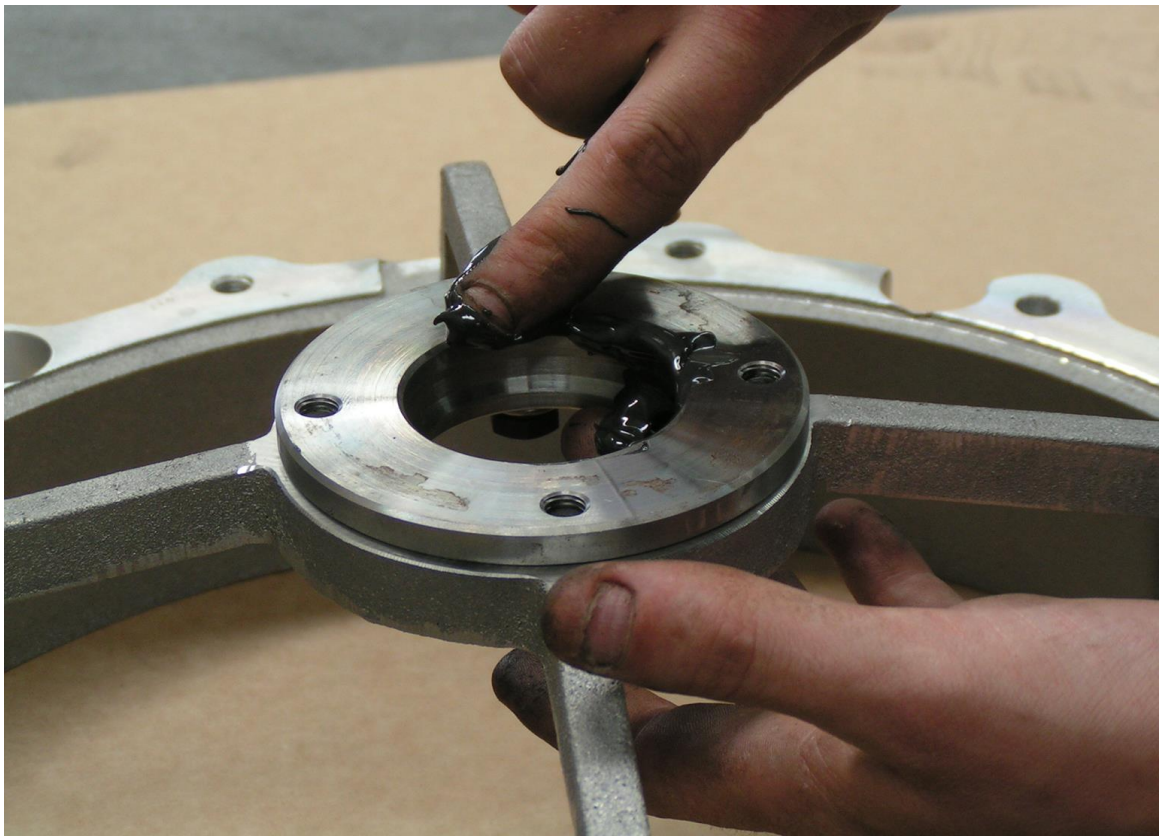
5. Check that the thrust bearing tube slides freely inside the clutch sleeve boss (MFC649). If not remove any burrs with emery.

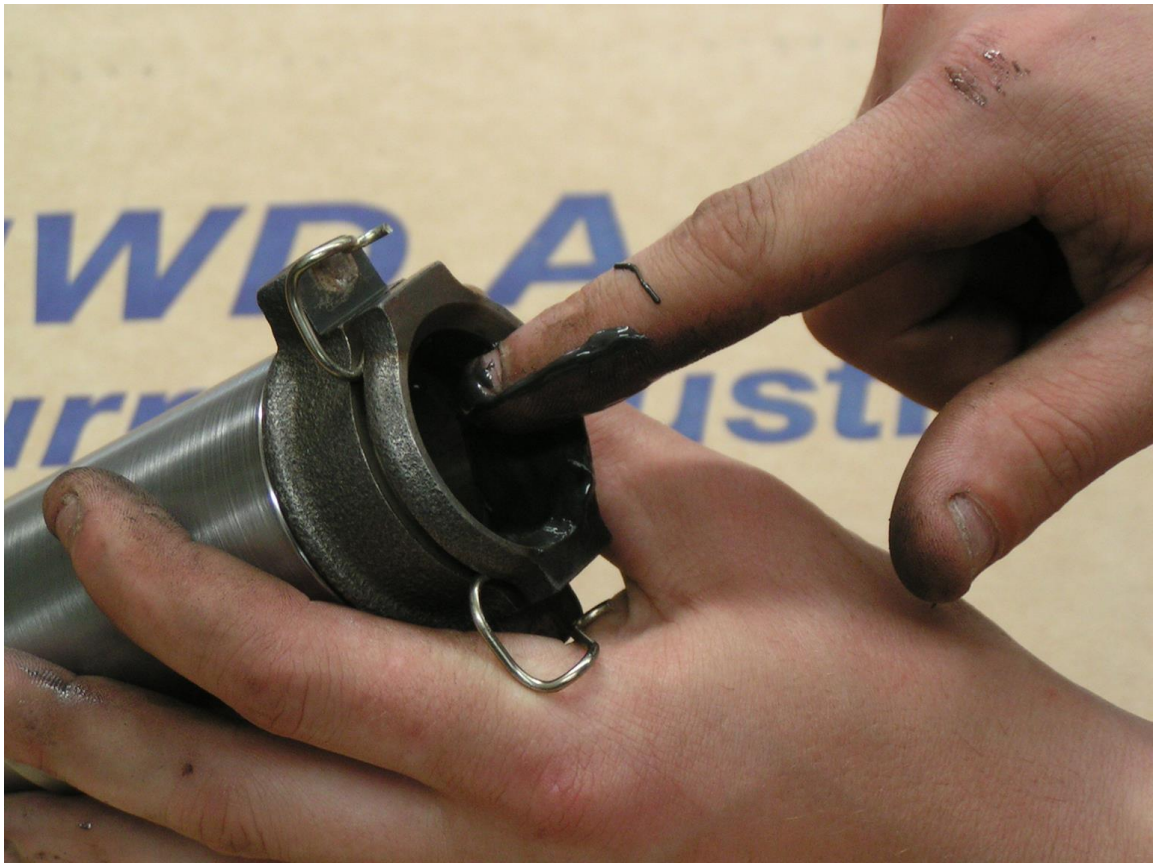
6. Bolt the thrust tube boss to the new adaptor housing using the 4 bolts and washers supplied. ***Note:*** You need only to tighten them using your fingers at this stage. See photo's next page.

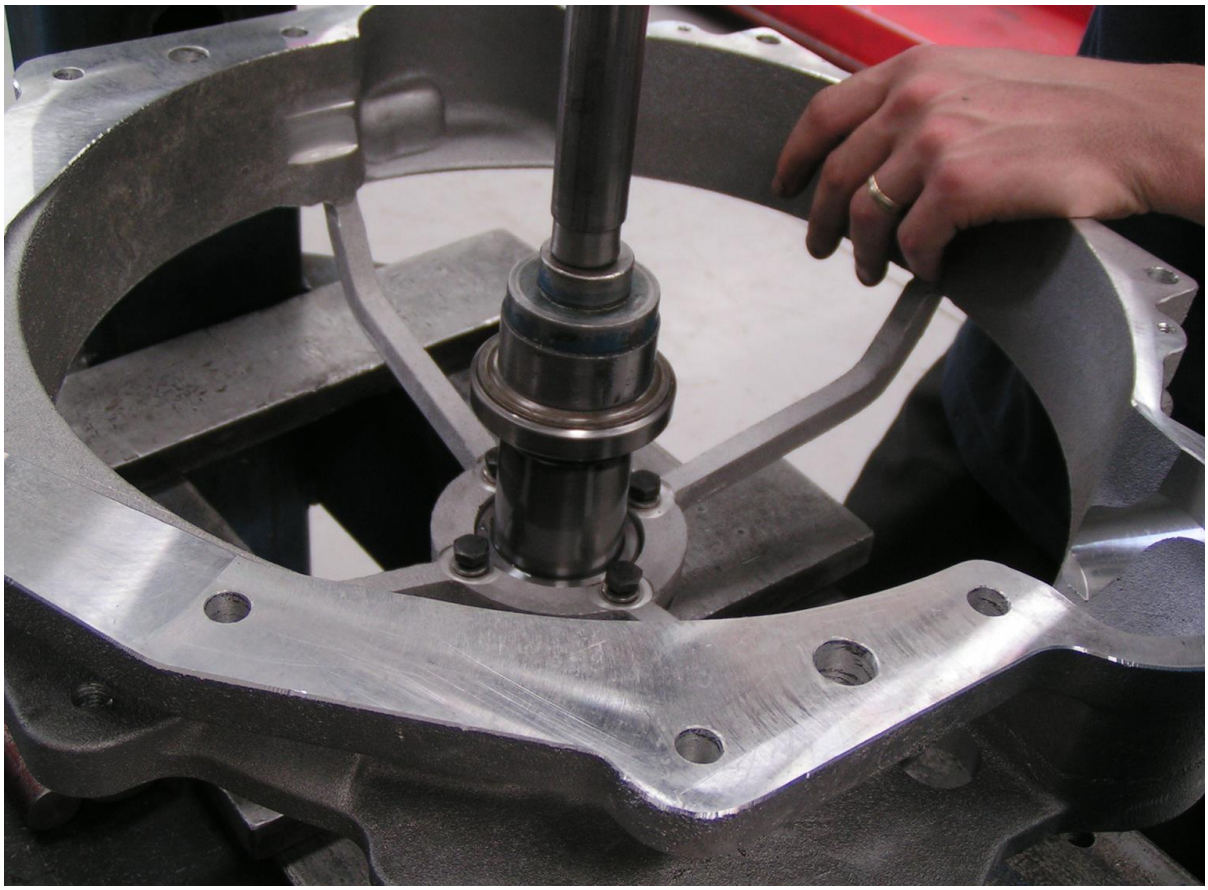
7. Pack the grease groove in the boss with molybdenum grease or similar. See photo's below.

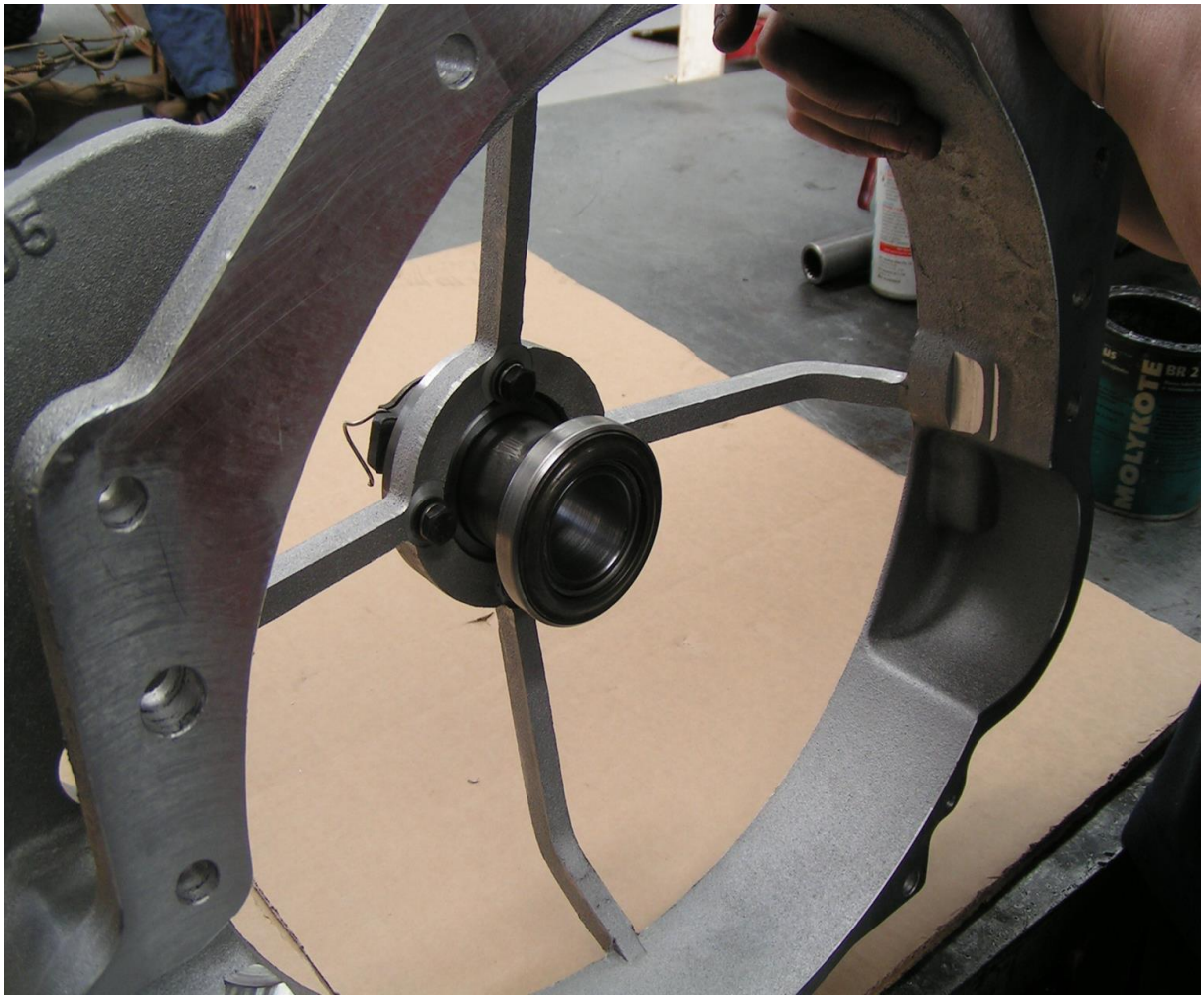
8. Slide the thrust extension tube in from the gearbox side of the boss and press the GM thrust bearing onto the machined shoulder of the tube. See photo's below.

9. Pack the grease groove in the thrust bearing carrier. See photo's below.

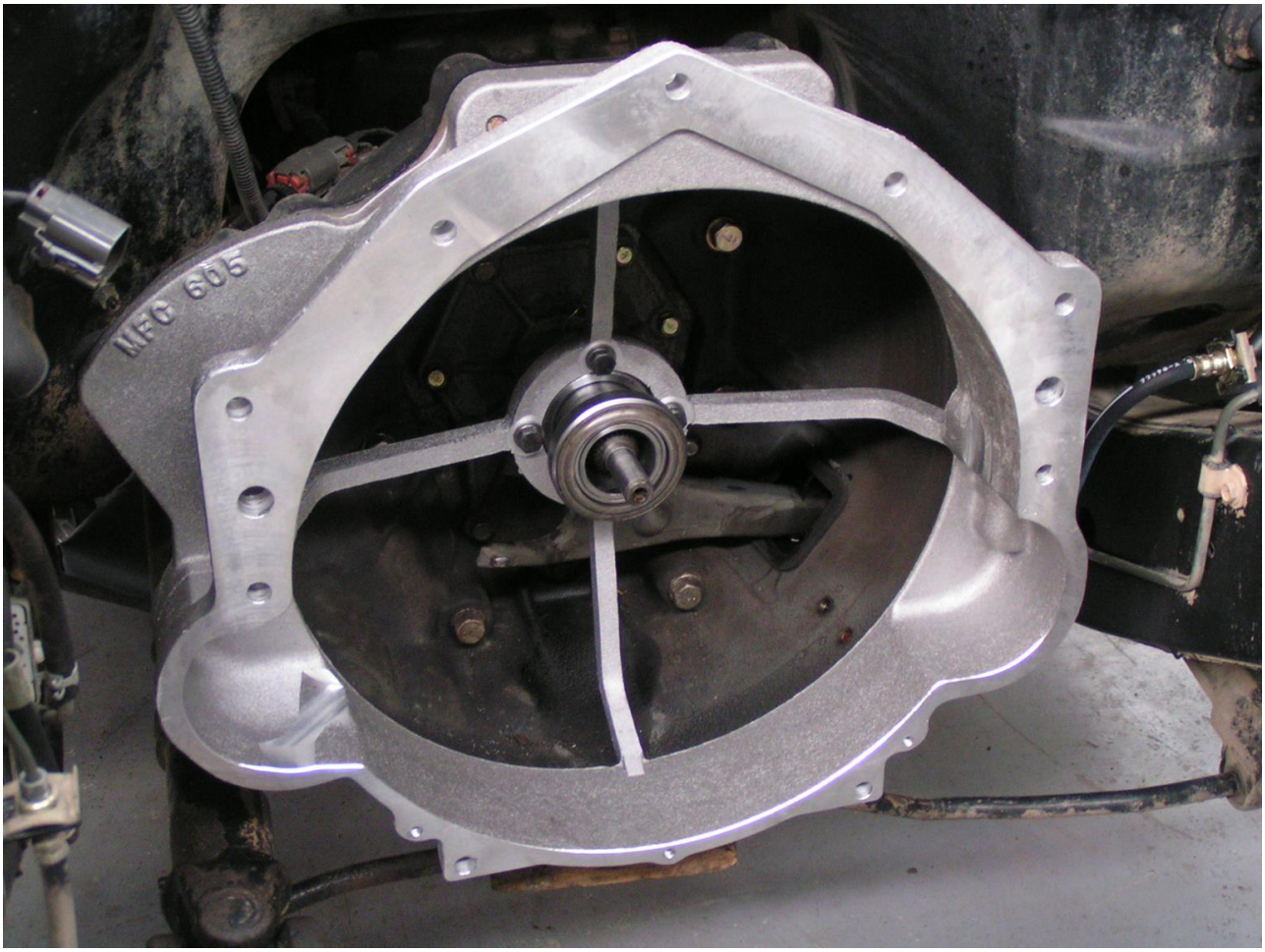







MOLYKOTE

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.

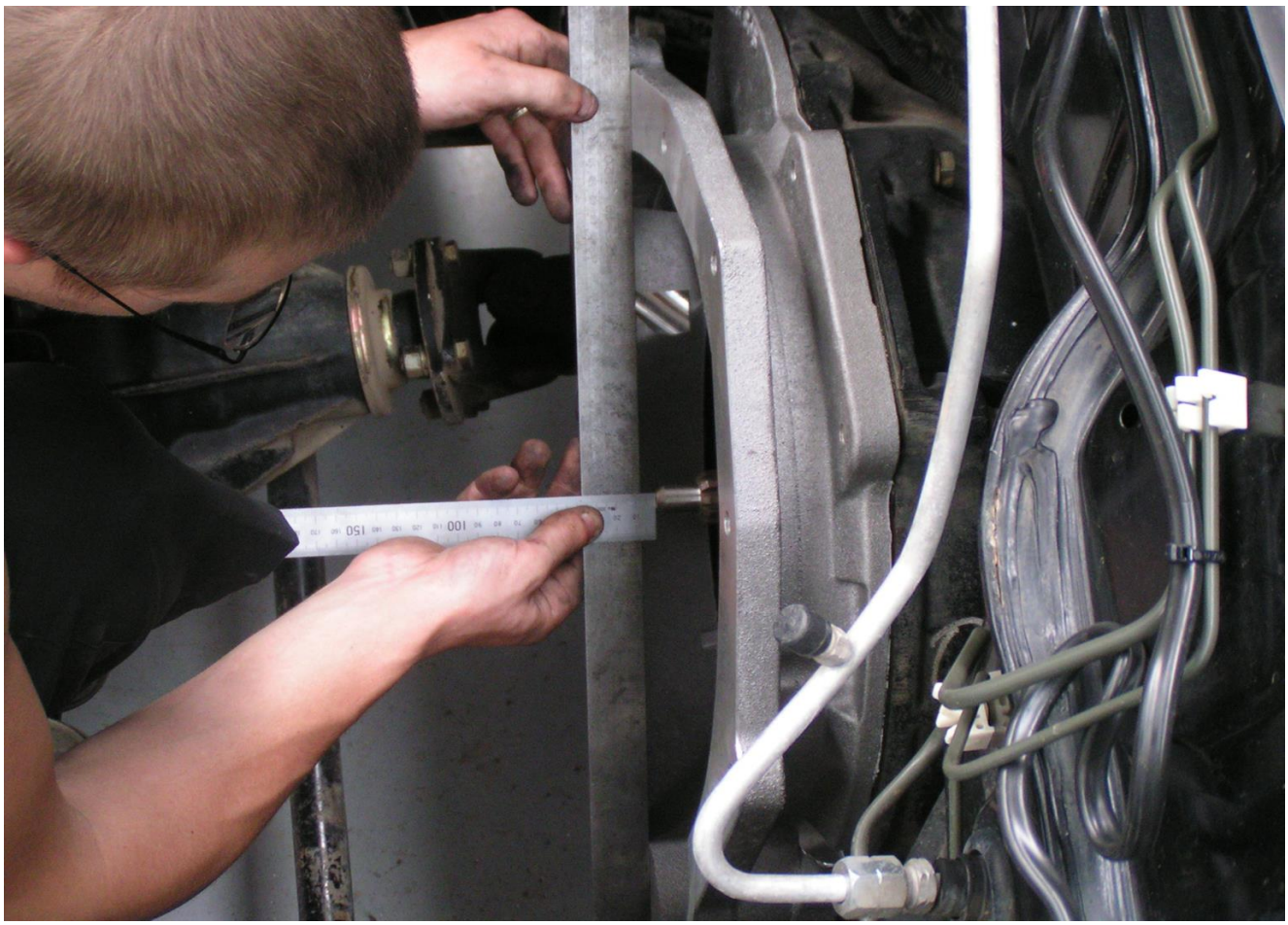
14. Centralise the thrust ring in the housing and then tighten the 4 bolts. After tightening the bolts, make sure the thrust tube slides freely, if not re adjust the thrust ring position until it does.

C1 INPUT SHAFT EXTENSION

1. Apply a light smear of grease to the input shaft spline. ***NOTE:*** 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.

2. 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 next page



Engine Mounting Set Up

The most accurate way of determining the position of the new mounts is to trial fit the engine. ***NOTE:*** Two types of GM engine block brackets are available, the ones used in this conversion where from an EFI engine and measure 60mm in height. The brackets from the early model carburettor engines measure 45mm in height and must not be used. The 45mm high brackets do not give adequate adaptor housing to drive shaft clearance.

Heavy duty front springs are also recommended for adaptor housing clearance, along with the fitting of a 25mm high spacer fitted to the driver side front differential bump stop. See photo below.

1. Remove the original six cylinder chassis mounts from the chassis.

2. Make sure that your engine has the original GM engine block to rubber brackets fitted (60mm high).

3. Loosely fit the new chassis posts to the GM rubbers and then to the engine brackets. The new chassis brackets supplied are identical between the drivers and passenger side.

4. Make sure the dowels are fitted to the rear of the GM engine. Guide the engine into place. Bolt the engine to the bellhousing using the new bolts supplied.

5. Once satisfied with the engines positioning tack weld the chassis brackets to the chassis. ***Note:*** The two protruding lugs on the brackets must be pushed hard up to the chassis before welding.

6. Remove the engine and weld the front and back flanges to the chassis. ***NOTE:*** It may be easier to remove the engine by first removing the engine mount rubbers and block brackets.

7. Heat the top flaps on the chassis mounts with an oxy and tap down to suit the profile of the chassis.

8. Complete the welding.

9. Paint the welded area.

Final Engine Preparation

1. Fit the spigot bush, adaptor and bearing supplied. ***NOTE:*** Use a large socket, or a piece of pipe as a drift to fit the bush in the rear of the GM crankshaft this should prevent any burring of the adaptor ring. Check the crank depth and the position of the spigot bearing. This can be done by measuring the position of the input shaft spigot with a straight edge across the new bellhousing and by measuring from the block face to the inside of the new spigot bearing. There should be 2 or 3 mm difference. This will insure that there is no thrust pressure on the spigot bearing. The photo of the Chevy flywheel below uses the same parts as your Holden EFI engine.

2. Fit the flywheel to the GM engine using loctite on the bolts and torque to specification.

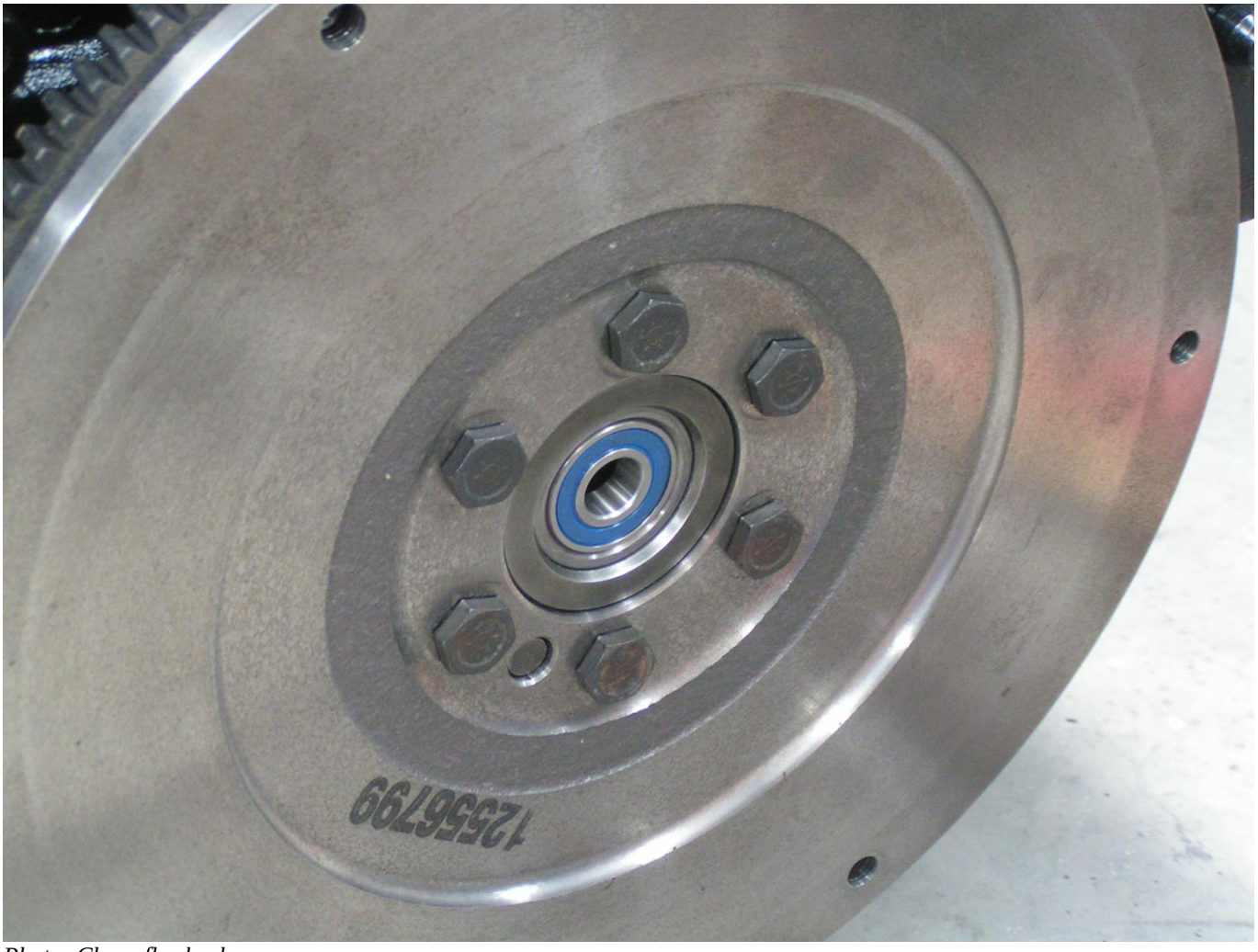


Photo: Chevy flywheel

3. Fit the clutch assembly to the flywheel using the input shaft extension as a clutch aligning tool. ***NOTE:*** It is recommended that you use our clutch kit part number MCK117. Attempting to use a one toner type or heavy-duty clutch will result in insufficient clutch disengagement.

4. Apply a light smear of grease to the input shaft spline. ***Warning.*** Don't apply grease to the input shaft spigot, or inside the input shaft extension. This will cause the shaft to hydraulic, and will increase the overall length of the input shaft. This will cause the clutch to appear faulty by not completely, disengaging. It will also destroy the spigot bearing and possibly damage the transmission and or engine.

5. With a soft faced hammer tap the new input shaft extension onto the original transmission input shaft. The input shaft should be 4mm to 7mm behind the face of the adaptor housing.

CLUTCH INFORMATION.

1. With the thrust race and tube correctly assembled measure the distance between the front of the new adaptor housing and the thrust race (with the thrust race pushed as far back as possible). This dimension must be greater than 82mm. Approximately 6mm to 10mm of clearance will be sufficient allowance for clutch wear. Refer to diagrams C & D.

2. Should the above clearance be greater 10mm then the thrust bearing should be removed and one of the spacers supplied in the kit should be fitted between the bearing and the shoulder on the thrust tube.

Diagram C

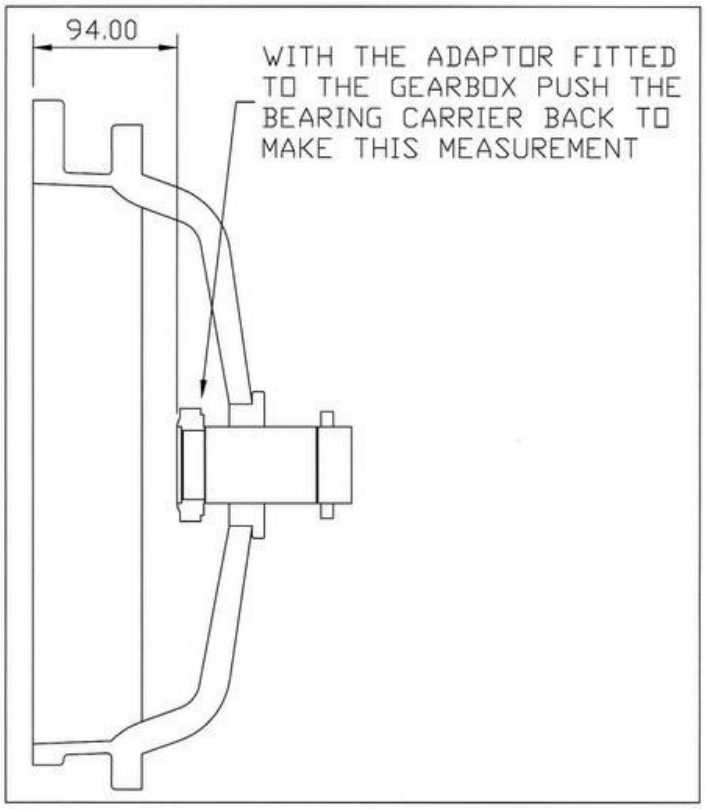
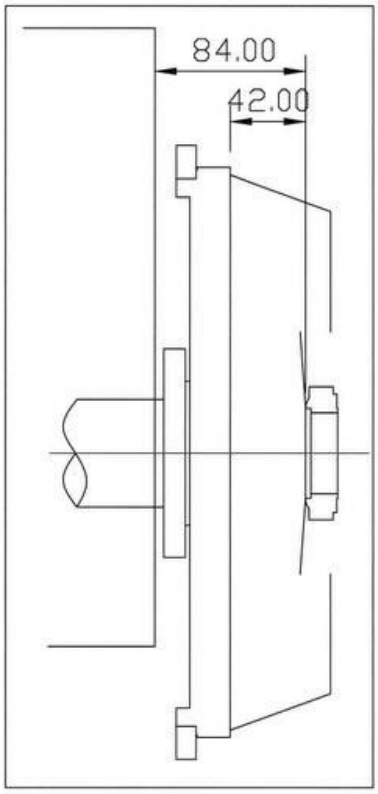


Diagram D



2. Fit the gearbox input extension shaft, See page 6 section ***C1. INPUT SHAFT EXTENSION.***

Engine Installation

1. Put the gearbox in 4th gear and the transfer case into high range. Raise one of the rear wheels off the ground.

2. Guide the engine into place while rocking the back wheel backwards and forwards. This will help with the spline alignment into the clutch plate. Once aligned 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. Refit the engine mounting rubbers and brackets.

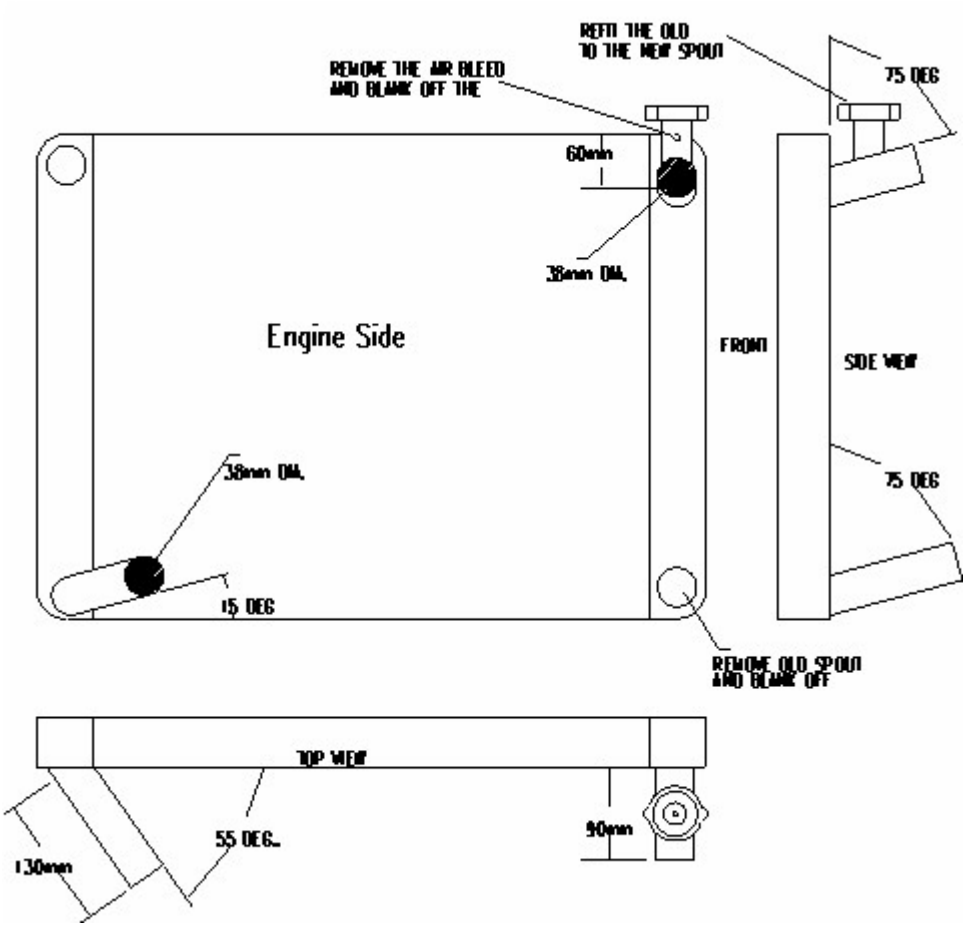
4. Fit the new flywheel cover plate to the adaptor housing. Secure it using the bolts and washers supplied.

5. Fit the starter motor and seal up any gaps with silastic, this will prevent any water or mud from entering the clutch, which can cause premature failure.

6. Fit the temperature and oil pressure adaptors supplied in the kit. Now fit the senders. ***NOTE 1:*** Use Teflon tape or liquid Teflon. ***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.

7. Modify radiator spouts to correspond with the new GM engine's outlets. ***Refer to diagram next page***



8. Refit the radiator.

9. Fit the top and bottom radiator hoses. Part Numbers: CH1385 top and CH1556 bottom.

10. Fit the heater hoses, two required Part Number, CH1326.

11. Fit the Nissan power steering pump using the MFK627 kit.

12. Fit the air-conditioning compressor. ***NOTE:*** Brackets will need to be fabricated if you are using the original Nissan items.

13. When fitting the Holden EFI engine to a Nissan GQ Patrol using the GM air conditioning compressor a modification will be required to clear the front diff when the suspension is fully compressed. The mod is illustrated in the diagram below. ***NOTE 1:*** This conversion was undertaken using the cast aluminum GM bracket part number 92036528 manufacture date on the casting is 01/88. ***NOTE 2:*** Some Nissan patrols also had a steel, fabricated bracket retrofitted to the pan hard rod bracket. This bracket will need to be modified to clear the A/C compressor.

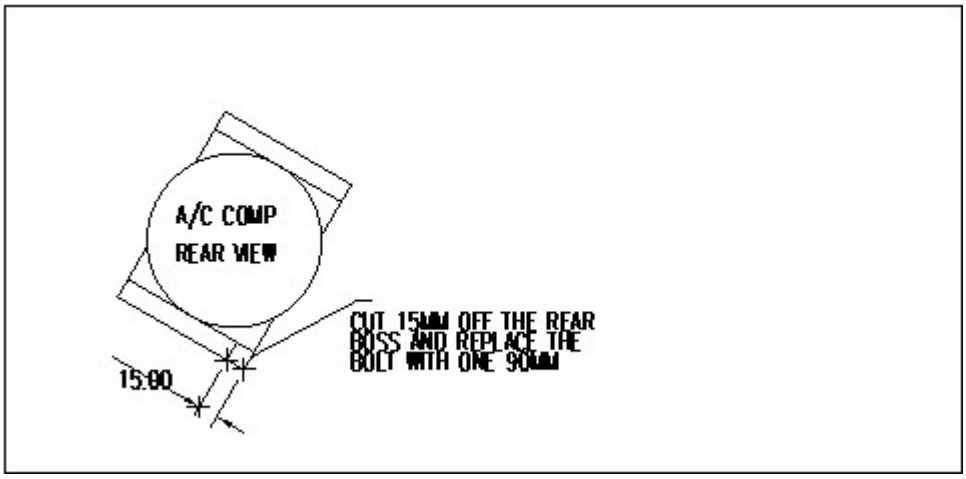
14. Complete the wiring. If you are fitting a fuel injected Holden V8 engine with one our interface looms, refer to the instructions supplied.

15. Connect the tachometer interface (MFK1165) using the instructions supplied.

16. (EFI engines) Fit the air cleaner. A Commodore one can be fitted or alternatively a Donaldson type can be used.

17. Complete the exhaust system.

18. Check all fluid levels and fill fuel tank with required grade of fuel.



19. Double check all-mounting bolts are tight.

20. Start the engine and check for-

Fuel leaks.

Oil leaks.

Water leaks.

Exhaust leaks.

Allow the engine to warm up and recheck above.

21. 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.
Remember an inexpensive phone call can save a costly mistake!

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