FITTING INSTRUCTIONS FOR

MFK1515-3.74L (85%) and MFK1515-2.86L (43%)

NISSAN GQ and GU PATROL

3.74:1 and 2.86:1

LOW RANGE TRANSFER CASE GEARS

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.

PLEASE NOTE:

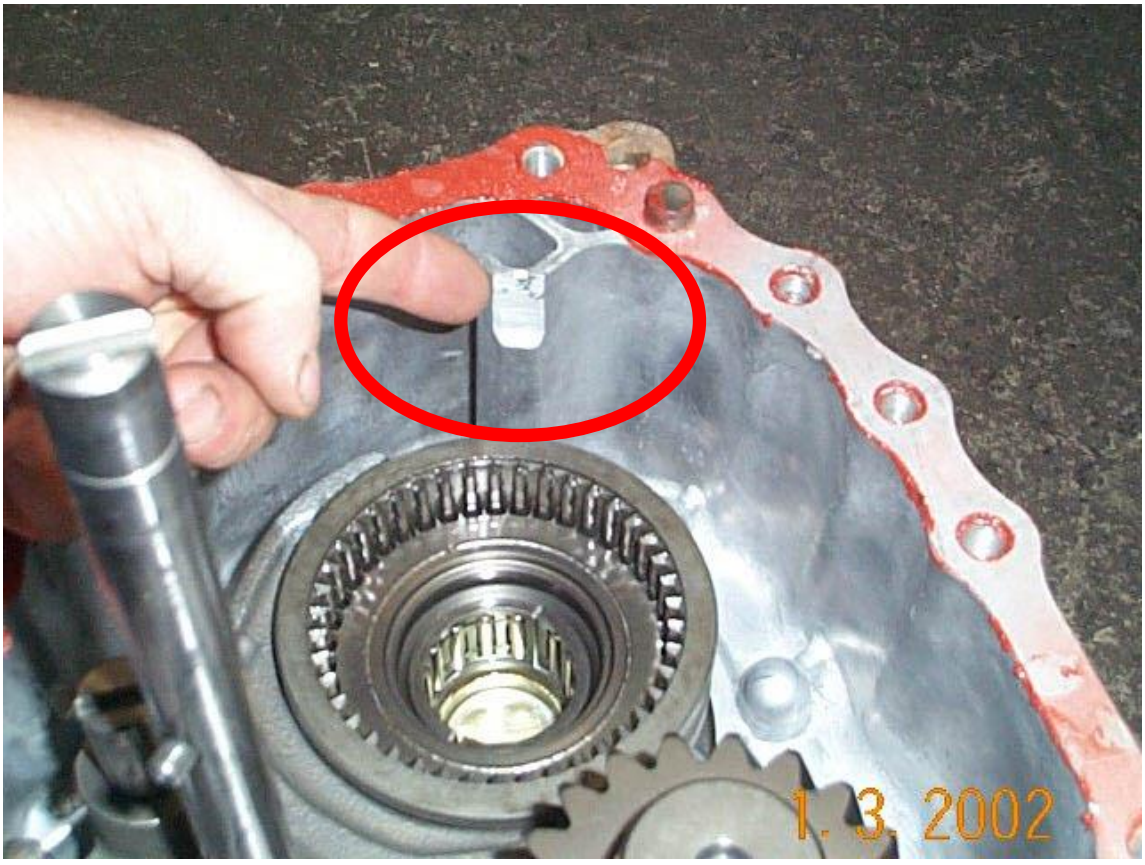
You will notice your new transfer case gears make a slight whine at high RPM in low range when compared with the original gears.

The reasons are, firstly they are manufactured in low volume. Secondly the input gear is spinning roughly 80% or 40% faster than the original input gear. The idler and output gears are also larger and can generate more harmonic noise.

1. Drain the transfer case oil.
2. Remove the transfer case from the vehicle.
3. Remove the detent retaining bolts, springs and balls.
4. Remove the 4WD and Low range (if fitted) light switches. Mark the case and switch positions as they are interchangeable at the transfer case end, but have different connector housings on the loom.

Note: There are a number of ball bearings behind the switch.

5. Dismantle the transfer case and clean all parts.
6. Purchase all bearings and seals as required.
7. Grind away the side of the oil duct that is cast into the front and centre transfer case castings. This is required to allow clearance for the new output gear. The two photos below show this modification on the housings.



7a. Remove the front and rear bearings from the old lay shaft.

NOTE: The large toothed plates on the ends of the lay shaft with their associated wave washers and spacer washers are backlash eliminators. Early model GQ transfer cases had them fitted to both ends of the idler and late models including GU patrols on the large end only. The new gear set is supplied with one new backlash eliminator for the large end of the idler gear. **See the photo on next page:**

GQ Patrol

8. 9.0 Install the new backlash eliminator, spring washer, spacer and 6208C3 bearing onto the lay shaft.
   NOTE: The new idler gear does not have provision for the circlip behind the bearing. We have omitted the circlip as Nissan did on later models.

GU Patrol

9. Install the new backlash eliminator, spring washer, spacer and 6208C3 bearing onto the lay shaft.

All Models

10. Fit the (TM207) bearing into the main housing.
    NOTE: A bearing shim may have been used to reduce lay shaft end float and should be reinstalled. Given that you are installing new gears and possibly new bearings it is critical that no load is placed on the bearings otherwise gear chatter and ultimately bearing failure will result. Nissan specify between 0.00 mm and 0.20-mm end float. Various shims are available from Nissan as listed below.

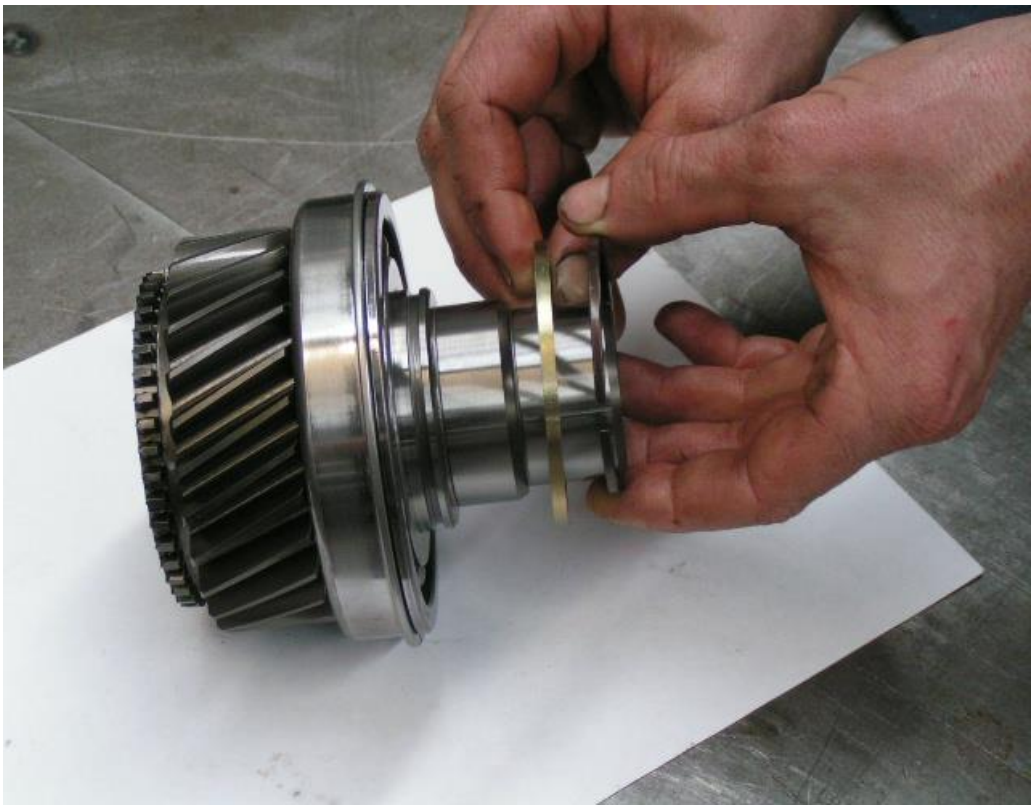
THICKNESS - MM	PART NUMBER
0.1	33112-C6900
0.2	33112-C6901
0.3	33112-C6902
0.4	33112-C6903
0.5	33112-33G00
0.6	33112-33G01

11. Fit the output gear, drive dog and circlip to the output shaft.
    NOTE: The layshaft rear bearing must be fitted in the centre housing with the end float adjusting shim prior to fitting the output gear on the output shaft.

GQ Patrol

12. Remove the 6212C3 bearing, spacer and circlip from the input shaft.

13. Reinstall the 6212C3 bearing, spacer (supplied) and circlip onto the new input shaft. See photos below.



GU Patrol

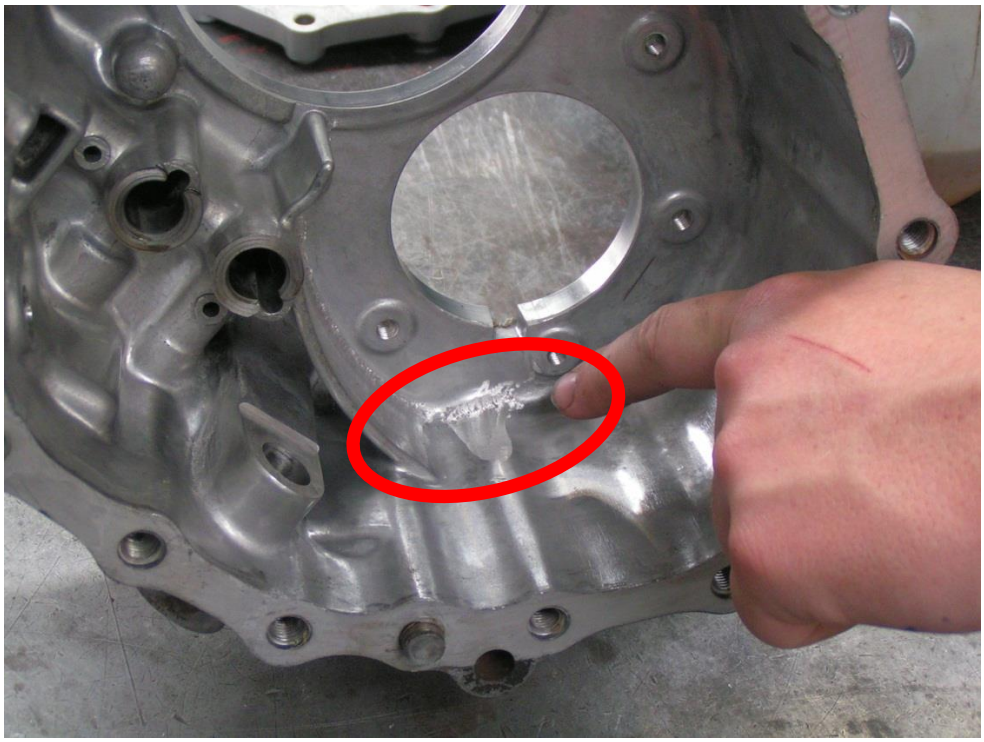
14. Remove the 6212C3 bearing, and circlip from the input shaft.

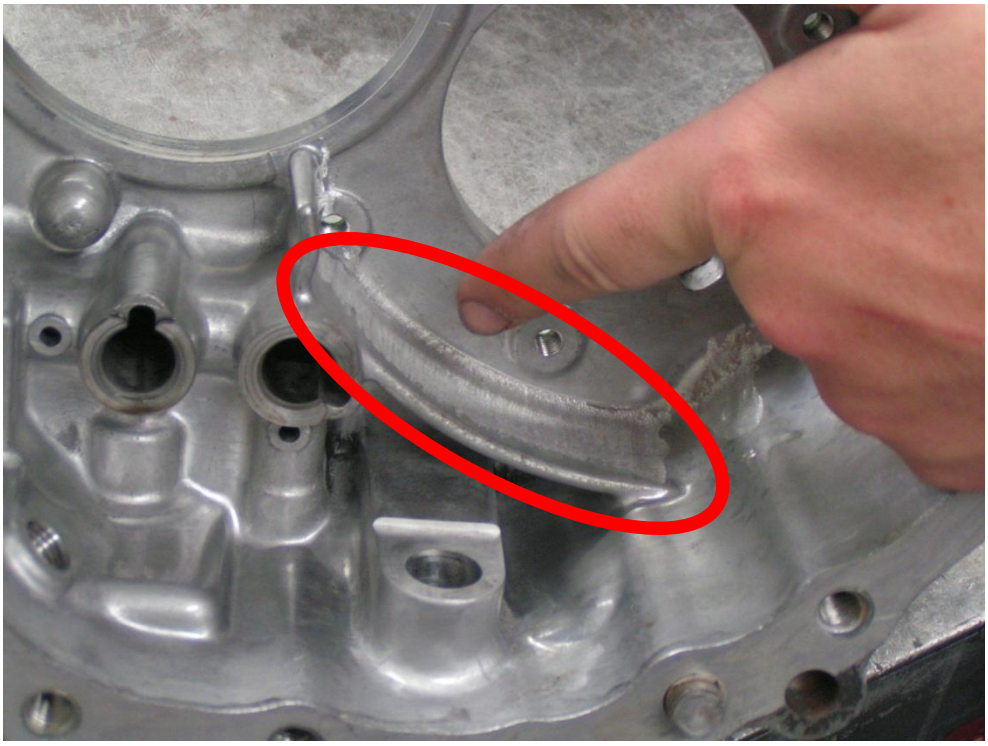
15. Press the 6212C3 bearing onto the new gear. Fit the spacer (supplied) and circlip onto the new input shaft. ***NOTE:*** The spacer must be fitted between the bearing and the circlip. See previous photo.

All Models

16. Fit the new welsh plug supplied to the input gear. Loctite should be used when fitting the plug.

17. Fit the new lay shaft into the front transmission housing to check for clearance, grind the housing if required for a minimum clearance of 1mm. See photos below

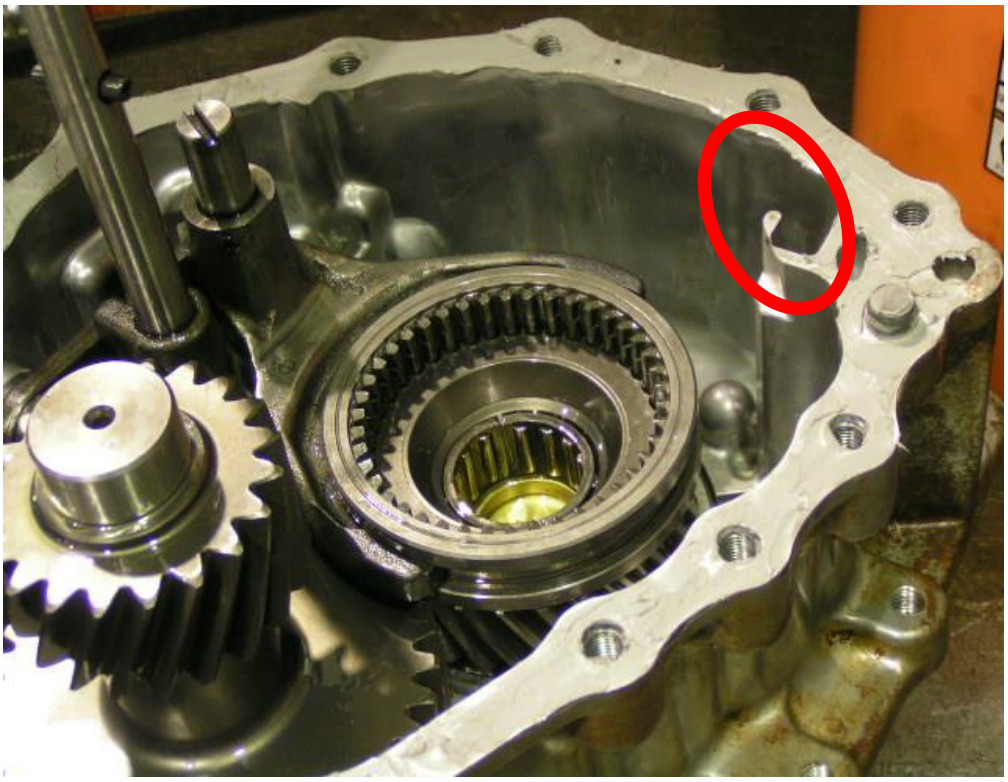




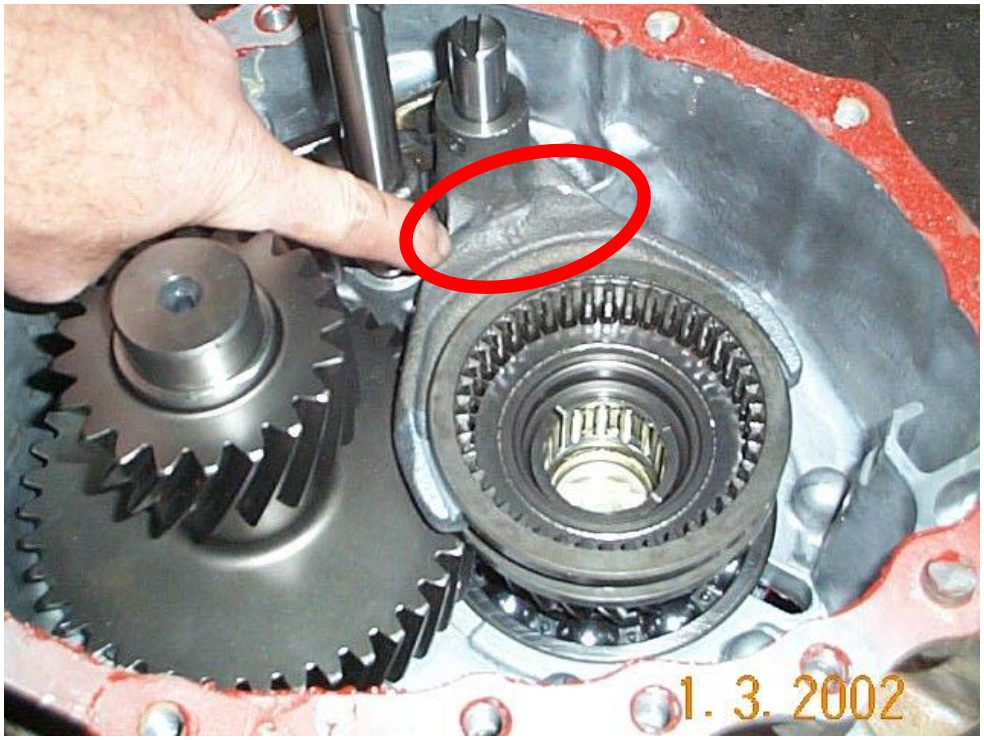
18. Fit the new input shaft and lay shaft into the front transmission housing. See the photo below.
    NOTE-1: They must be fitted at the same time.
    NOTE-2: The layshaft rear bearing must be fitted in the centre housing with the end float adjusting shim prior to fitting the output gear on the output shaft.

19. Fit the circlip to the input bearing.

20. The HI/LOW selector fork will need to be ground to allow the fork to clear the output gear. 1 to 2mm clearance is required and can be checked by sliding the drive ring over the output gear with the fork fitted.



See the photo below.



21. Fit the selector shafts, fork and drive ring as seen in the photo above.
    NOTE 1: Make sure you install the lockout plunger in the housing between the two selector shafts.
    NOTE 2: Make sure that the drive ring orientation is correct. The grove must be facing you (away from the engine) as per the above photo.
22. Fit the two halves of the input shaft needle bearing as seen above.
23. Apply a small amount of oil to all of the bearings.
24. Apply a suitable sealer to the mating surfaces of the transfer case housing.
25. Put the two casings together and secure them with the original bolts.
    NOTE: 1. To make the assembly easier, the front gear casing should be face down on something solid. I used an old bellhousing as the gearbox end accommodated the input shaft and bearings.
    NOTE: 2. A soft hammer will be required to bring the two halves together, as the rear lay shaft bearing fitted in the housing is a transition fit on the lay shaft.
26. Reinstall the circlip behind the 4WD/2WD-selector shaft.
27. Make sure you fit the three M10 bolts that hold the front housing to the main housing.
28. Reinstall the speedo drive on the output shaft, if removed.
29. Reinstall the plastic oil duct.
30. Apply a suitable sealer to the mating surfaces of the main transfer case housing and the rear housing.
31. Fit the rear housing and secure it with the original bolts.
32. Fit the front seal and bearing retainer housing.
33. Fit the 4WD light switch and use a suitable sealer.
34. Fit the HI/LOW and 4WD detent balls, springs and retaining bolts.
35. Reinstall the transfer case into the vehicle.
36. Reconnect the drive shafts, HI/LOW linkage, wiring etc.
37. Refill the transfer case with the same fluid or oil that is specified for your vehicle. If you are unsure, please refer to your local Nissan dealer.
38. Road test the vehicle.
39. Recheck the bolts.
40. Check for oil leaks, if any are found fix them immediately and re road test.

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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