

Up-rated gearbox parts for Renault UN1 transaxles

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Introduction

The upgrade kit is supplied as a set of parts which have been proven in various high performance track cars, for track use. It has not been approved for road use and no responsibility will be accepted for use on the road. As is standard for race car parts, they are guaranteed in terms of quality of workmanship and materials, but are not unbreakable, although, no one has broken the kit yet!

The kit will be supplied by MDA Ltd.

The kit comprises the following parts, although there's a lot of them, they should drop into the standard casings, and mesh with the other shaft with little or no other work needed (it may be necessary to increase clearance between 1st and the casing).

In the case of the UN1-26/27/28 from the Esprit, the larger diameter of the upgrade first motion shaft requires a larger bearing, which hence requires the rear upper bearing bore in the casings to be enlarged from the standard UN1-26/27/28 of 52 mm to 62 mm which is standard for most UN1's, this is not required on most other versions of the UN1. Machined casings can be supplied as part of the Esprit version of the upgrade on an exchange basis.

The part descriptions/ref. numbers used are shown on the exploded drawing of the gearbox internals.

The upgrade comprises:-

Up-rated first motion (primary) shaft

Enlarged bore version of roller bearing (A)

Enlarged bore version of double ball bearing(B)

New straight cut 1st driven gear to match first motion shaft ❶

New helical second driven gear ditto❷

Modified 5th gear locking gear (C)

Enlarged bore 5th gear needle roller bearing sleeve (D)

Enlarged bore thrust washer (E)

Enlarged bore thrust washer (F)

Enlarged bore circlip (G)

24 mm bore dished washer(H)

M24 locknut (J)

A suitable clutch driven plate with the standard Ford 1" dia 23 teeth spline is absolutely necessary (but see Esprit Version below). The clutch bits are not part of the Kit! as you may each want to do different things, but you must have a Ford spline driven plate. Esprit twin plate clutches can be supplied if required

Esprit Version

If enough Esprit owners want to retain the 24 mm clutch spline, then a batch could be made with this spline. Bear in mind however that the Renault spline is smaller and therefore weaker, and that the Ford spline version of the clutch is little more than half the price of the Ford version, see William Ives review at <http://www.lotusespritworld.com/EModifications/Gearbox.html> and hence there is a saving going forward by having changed to the Ford spline.

Next steps

Some parts of the kit are modified from the original parts. This is to keep costs down, and also in the case of the Esprit version, because of a shortage of spare parts. So the following items must be supplied from the gearbox you intend to use for the upgrade.

UN1 –26/7/8 type (Esprit) only:-

Both halves of the main gearbox casing

UN1 –26/7/8 type (Esprit) only:-

Gearbox rear cover

First motion (primary) shaft (1)

Roller bearing (A)

Ball bearing(B)

1st driven gear ❶

Second driven gear ❷

5th gear locking gear (C)

Thrust washer (E)

Thrust washer (F)

Circlip (G)

Reverse Idler (L)

1st/2nd Synchro unit/reverse driven gear (M)

3rd Drive gear ❸ and needle roller bearing (N)

4th Drive gear ❹ and needle roller bearing (P)

If these items cannot be supplied at the time of ordering the upgrade, kits can be offered on an exchange basis but the **difference between the outright price of the upgrade and the exchange price will be required before the order is accepted**, this deposit will be refunded in full when all the necessary parts arrive and are in a fit condition for further use. It is realised that this is a nuisance, but as has already been stated, some parts are getting difficult and therefore expensive and time consuming to source.

As with any mass produced item, It is possible that a particular gearbox has production variations which affect the use of the upgrade. This is another reason why the above parts are requested. If there is a problem you will be contacted to decide on the best way to solve the problem.

Already damaged gearboxes

The most cost effective way to upgrade is to do so on a gearbox in good condition if it is known to be at risk because of history of the type or power levels in use. This may even increase the value

of a car when fitted. But if the gearbox is already in distress, it can be repaired as part of fitting the upgrade.

The upgrade is costed on the basis that it is to be fitted to a gearbox in good condition. If JTM are to fit the upgrade, the gearbox will be cleaned and rebuilt with all new gaskets and seals. If some components need to be replaced you will be contacted to decide how to proceed.

If the gearbox has had a serious failure such as the 5th gear end of the first motion shaft failing, contact MDA/D Bell in advance to clarify the situation and possible costs. Experience to date suggests that the following items are likely to need replacing in this case:-

5th gear driven

5th gear driver

5th gear needle roller bearings

end cover complete

5th gear selector fork

Lotus list price cost approx £1300. Depending on the details of the failure, possibly a new crown wheel and pinion at a further £930. Lower cost alternatives may be possible.

Comments

Although the primary and secondary shafts are fitted with locknuts, at the levels of torque the upgrade has been used at, the staking is ineffective, so use Loctite 601 retainer which does take the torque and then stake anyway.

Because the 24 mm nut is bigger than the standard first motion shaft rear nut, check that there is clearance between the nut, and the split black plastic bushes which retain the gear selector cross shaft centring spring, the OD of the "skirt" may need to be taken down slightly, this shouldn't affect operation.

The ATB type limited slip diff can also be supplied and fitted as part of the upgrade, this result in probably the ultimate UN1 version for high power track use.

The following gear ratios will be proved by the upgraded gearbox, if you have a different 5th gear, this will affect the gearing for 5th. First and second are both raised resulting is a closer ratio gearbox (see <http://www.lotusespritworld.com/EModifications/Gearbox.html>)

Ratios for UN1-13					Ratios for UN1				
Driver	Driven	Inc	Final Drive Ratio	Step	Driver	Driven	Inc	Final Drive Ratio	Step
			3.44:1					3.88:1	
11	33	3.000	10.333		11	33	3.000	11.640	
15	29	1.933	6.659	1.552	15	29	1.933	7.501	1.552
21	29	1.381	4.757	1.400	21	29	1.381	5.358	1.400
27	28	1.037	3.572	1.332	27	28	1.037	4.024	1.332
39	32	0.821	2.826	1.264	39	32	0.821	3.184	1.264

UN1 Gearbox Parts Needed for modification and or reference

