

## Up-rated gearbox parts for Renault transaxles

### Introduction

The upgrade as described below, has withstood full chat from an approx 500hp 420 lbs.ft. Small block Chevy in all gears at probably more than 30 track days in the UK and Europe, with road mileage, a total of 15000 miles. The Chevy broke the standard box (which worked fine with a Small block Ford for 3 years) almost straight away. The kit comprising the following parts, although there's a lot of them, they should drop into the standard castings and mesh with the other shaft with little or no other work needed (it may be necessary to increase clearance between 1<sup>st</sup> and the casting. If you are prepared to dismantle the standard box, then you can fit the kit!

The part descriptions/ref. numbers I use are shown on the enclosed 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 1<sup>st</sup> driven gear to match first motion shaft ❶

New helical second driven gear ditto ❷

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)

Skimmed Spacer plate (K)

You will need a suitable clutch driven plate with the standard Ford 1" dia 23 teeth spline( I use AP racing CP2583 with a sprung centre, Ford spline 4 paddle cerametallic which has shown very little wear so far), but this is much easier to come by than the Renault 24 mm spline!, plus appropriate release bearing setup( I use an AP pressure plate CP2394-46 which is rated at 511 lbs.ft with the CP2583 plate) . I am happy to offer any help I can, but 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

There have been small changes in the design of the some of the Renault gears, I nearly fell foul of the variation in the reverse idler teeth profile. That is why it is preferable to have the relevant parts from your box, then there is no doubt as there is no such thing as a small change when it comes to gears, they either mesh, or tear one another to pieces.

## Next steps

So the following items are needed from the gearbox you intend to use for the upgrade.

First motion (primary) shaft (1)

Roller bearing ( A)

Ball bearing(B )

1<sup>st</sup> driven gear ❶

Second driven gear ❷

5th gear locking gear ( C)

5th gear needle roller bearing sleeve (D)

Thrust washer (E)

Thrust washer (F)

Circlip (G)

Spacer plate (K)

Reverse Idler (L)

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

3<sup>rd</sup> Drive gear ❸ and needle roller bearing (N)

4<sup>th</sup> Drive gear ❹ and needle roller bearing (P)

## Comments

Although the primary and secondary shafts are fitted with locknuts, at the levels of torque I am using, the staking is ineffective, so I use Loctite 601 retainer which does take it and then stake anyway.

Because the 24 mm nut is bigger, check that there is clearance between the nut, and the split black plastic bushes which retain the gear selector cross shaft centreing spring, the OD of the "skirt" may need to be taken down a touch, this doesn't affect operation I have found.

Before building the gearbox up for real, do a trial assembly with just the primary shaft and bearings plus minimum necessary components, and fit into the gearbox halves, attach to bell housing (no clutch fitted) and attach to engine. Check that the spigot on the end of the primary shaft enters the pilot bearing and runs freely with no sideload. In my case location was perfect with the shaft dead centre. With NO flexibility possible apart from bending the shaft in the case of misalignment, something will fail quickly if the shaft is forced out of true by a sideload, if its not in the centre of the pilot bearing, whether bell housing or adapter plate is misaligned. This must be corrected before final assembly

The 24 mm shaft nuts need to be new as the staking cannot be done twice. I can either grind out the bearings (A & B ) from your gearboxes or modify new, likewise the circlip (G). It a question of cost (modest), shall I source new nuts, bearings, washers etc and put it on the bill?

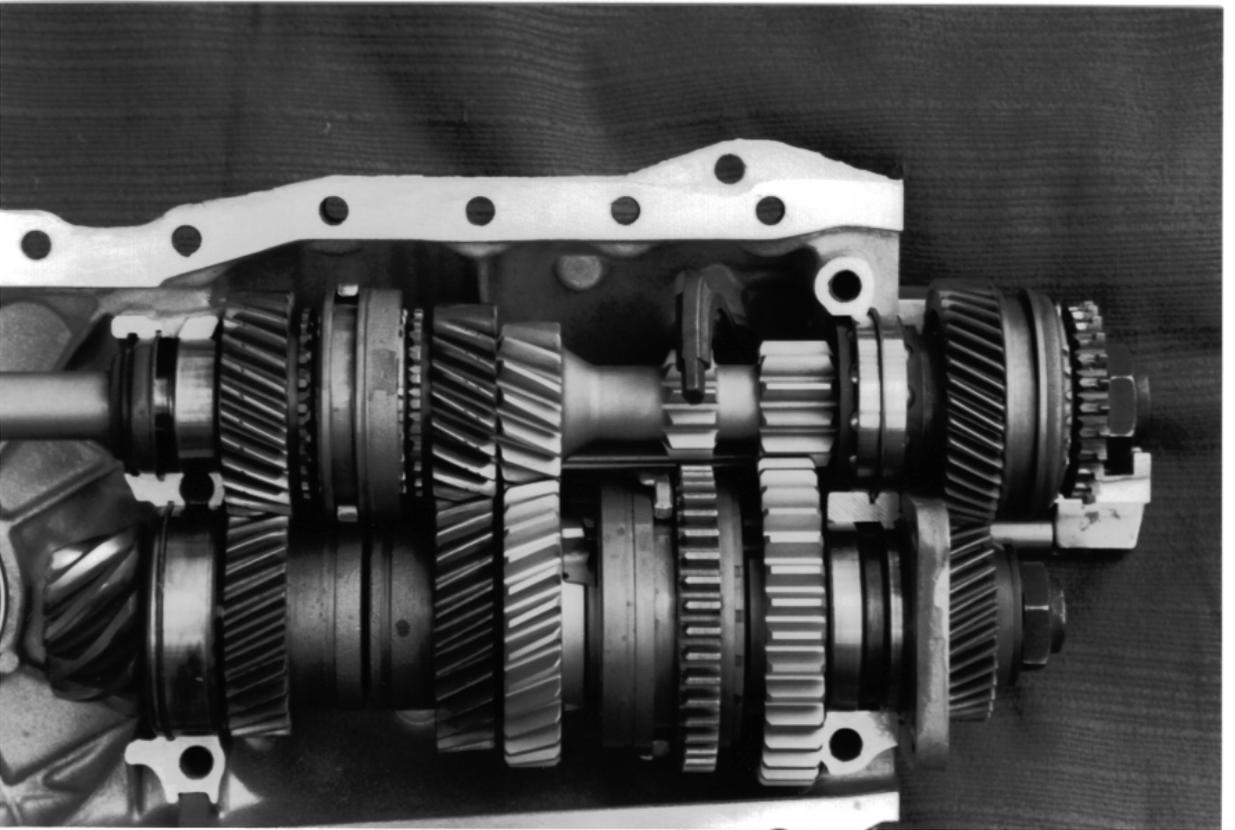
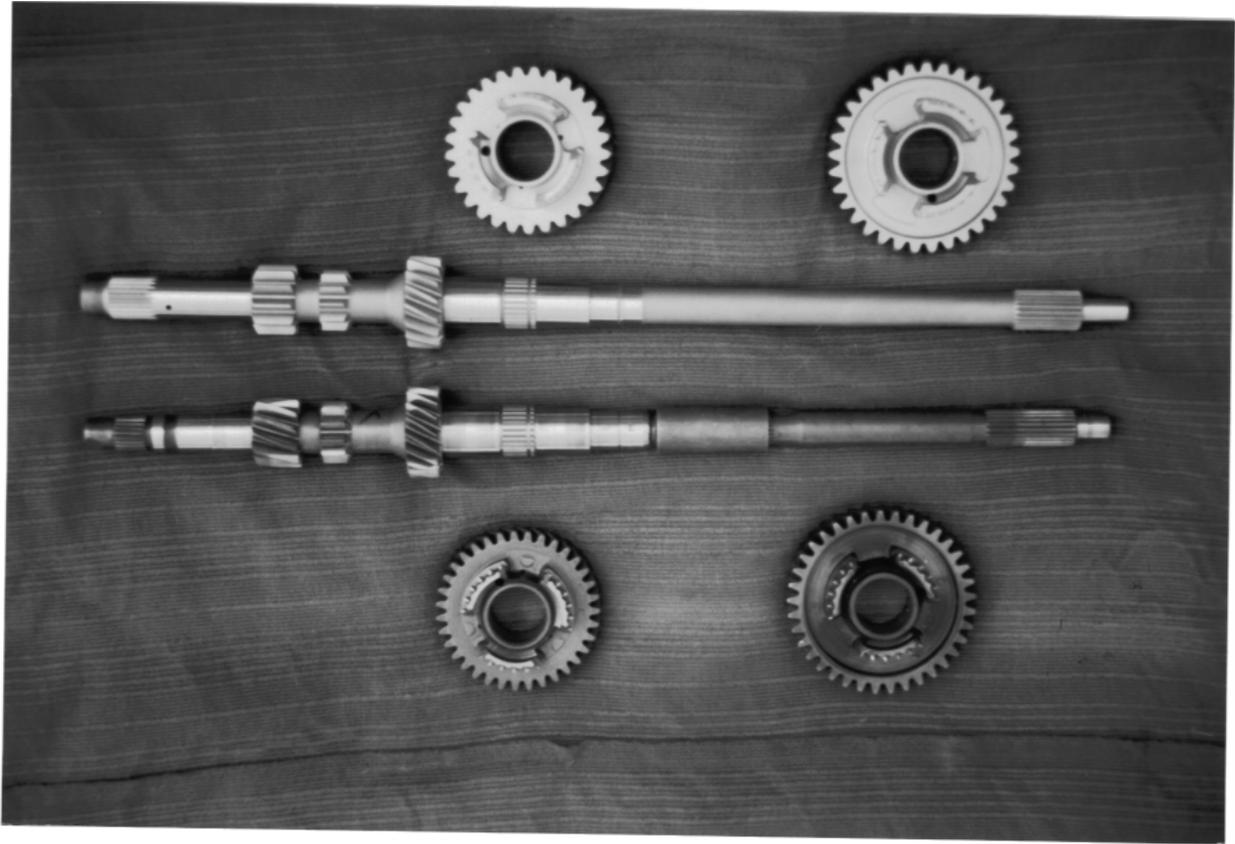
<b>DB Ratios</b>					
<b>for UN1 xFD</b>					
<b>Driver</b>	<b>Driven</b>			<b>Step</b>	
12	36	3.000	10.333		
18	35	1.944	6.698	1.543	
21	29	1.381	4.757	1.408	
27	28	1.037	3.572	1.332	
39	32	0.821	2.826	1.264	

Photos below

The top picture compares the standard shaft and gears with the upgrade.

Note the absence of any small diameter sections between the clutch spline and gears, and how much more massive the 5<sup>th</sup> gear end is. It is also larger in diameter between the gears to reduce flexing . The joining sleeve on the standard shaft hides the small size of the spline which joins them.

The next picture shows the shaft in place with matching gears. The new components can be identified by their silver rather than grey appearance. The finish on the Quaife items is a joy to behold, its a shame to hide it inside the gearbox! This was the prototype box, first ( the small straight cut gear) has been moved a little so that it lines up better. First and second drive gears are noticeably larger diameter than standard( for ratios see chart above, this assumes 3.44: final drive



**UN1 Gearbox Parts Needed for modification and or reference**

