

## TR2-6 GEARBOX AND OVERDRIVE REBUILD CRITERIA.

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This information sheet explains what can be expected from a Revington TR rebuilt gearbox or overdrive, improvements that are included and those that are charged extra.

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All Revington TR rebuild gearboxes are built to the highest practical standards. This is important to understand as we are rebuilding a Triumph gearbox that was not perfect in the first place. It is a well recorded fact that the works TR4 rally cars often broke down whilst competing due to gearbox and/or overdrive failure. And that was with brand new parts put together but the companies who designed and manufactured the parts.

Over the production period of Triumph gearboxes from TR2 to TR6 certain improvements were introduced which we can retro fit to earlier gearboxes. There are also modifications that have been developed post Triumph production which help with reliability too.

Whilst all this helps us to build a gearbox that will do its job, given that many parts are 50+ years old it is reasonable to expect no more than 20,000 miles out of a rebuilt unit although in many cases many more miles are achieved especially with gentle driving. To this should be factored that we cannot under any circumstances guarantee gears. If one breaks, it's just bad luck. We would have to crack detect every gear at huge expense to have the highest confidence.

*Revington TR strive to use the best available parts and the most competent technicians to give the best balance of performance against cost. However, gearboxes can and will still fail; they were never particularly reliable when new. Revington TR therefore offer rebuilt gearboxes and overdrives only on acceptance of our special Gearbox and overdrive Terms and Conditions which in brief are: Revington TR warrant the gearbox and/or overdrive for 12 months from date of purchase only (not date of fitment or date of first running). This 12 month period, in the case of gearboxes/overdrives is finite and will not be extended. We warrant workmanship and parts but do not under any circumstances warrant gear teeth breakage. We expressly exclude any consequential loss of any kind. We expressly exclude the cost of removal and refit or transport to Revington TR even if the unit(s) is subsequently found to be faulty. These conditions, specific to Gearboxes and Overdrives are appended (page 5) from the full terms and conditions.*

*Regular customers of Revington TR will know that this is not our normal practice and that we regularly extend warranty periods to what is 'reasonable'. However due to the inherent unreliability of gearboxes and overdrives we have been forced to take this firm stance. Needless to say we put as much care and attention into gearboxes and overdrives as we do with every other service and part we supply in support of our untarnished reputation of which we are justifiably proud.*

The TR range of gearboxes were shared with other vehicles and over the years parts have been interchanged. TR2-3B gearboxes, known as the 3 synchromesh gearbox were used in the Vanguard range of cars too but these cars are so rare now not to affect us. More importantly the basic design of the TR4-6 gearbox which we know as the 4 synchromesh gearbox was shared with the Triumph 2000, 2500 range, the Dolomite and Stag. This means that when you present us with your gearbox or overdrive for rebuild we may find it is either not a TR unit at all or is a

## TR2-6 GEARBOX AND OVERDRIVE REBUILD CRITERIA.

mish-mash of parts from a variety of vehicles. This might result in additional cost or retention of part of your deposit.

Lastly, it may come as a surprise to learn that TR4-6 gearboxes up to 1973 suffered from a design fault that only manifested itself on rare occasions in certain gearboxes; the fault being jumping out of 3<sup>rd</sup> and occasionally 2<sup>nd</sup> gear on overrun. We have no way of knowing if this will occur, although it is rare. If this problem should occur in a rebuilt gearbox we will accept the gearbox back at the customer's expense and will fit, subject to availability at the customer's expense, the very rare post 1973 gear hub outer ring part number 153844X that cures the problem and return the gearbox at the customer's expense. In the event of us working on a customer's own unit this outer hub can be specified at the time of us taking instructions to rebuild the gearbox subject to the additional cost of the outer hub.

### DEPOSITS

There are three ways we can supply you with a gearbox and/or overdrive.

1. You supply us with your unit(s) and we rebuild them to your specification. If anything needs to be done that falls outside the normal rebuild process we will inform you of any extra cost before proceeding.
2. We supply you with unit(s) we have rebuilt to your specification using our core unit(s). You then return your unit(s) and if anything needs to be done to them that falls outside the normal rebuild process we will inform you of this extra cost and this will be deducted from the deposit you paid before refunding the deposit.
3. We supply you with unit(s) we have rebuilt to your specification using our core unit(s). You choose to return nothing and we do not refund the deposit you paid as the deposit effectively 'buys' the core units.

### WHAT GETS DONE?

#### ALL GEARBOXES: -

Strip, clean, remove external staining as much as possible from the casing, inspect for damage/cracks, dress the top and rear faces to ensure good oil tight sealing surfaces. Dress both internal laygear thrust faces to remove debris and ensure the distance between them is correct.

Tap filler and drain plug holes to clean the threads thus ensuring the plugs will seal

Shorten gearbox nose to 2" as per later units if not already at this length.

Strip remote change cover, clean, ensure mating face to gearbox is good. Replace 3 'O' rings and selector springs.

Test for correct action and adjust as necessary. Replace fork/s worn beyond circa 0.005" and shafts that are corroded or bent.

Assemble gearbox to customers' requirements. This will mean certain upgrades as a minimum; steel bushes on the mainshaft and uprated laygear with double bearings at the front.

Gearboxes will usually receive new layshaft thrust washers, layshaft bearings, layshaft, constant bearing, main bearings, mainshaft circlip, mainshaft bushes, 1<sup>st</sup> and 2<sup>nd</sup> gear thrust washers as required. Synchromesh rings will be changed as necessary, the aim being to keep the gearbox within recommended tolerances and using original components rather than reproduction parts where possible.

Front and rear oil seals and of course all gaskets are new.

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## TR2-6 GEARBOX AND OVERDRIVE REBUILD CRITERIA.

Revington TR gearboxes will always be fitted with uprated steel mainshaft bushes and the uprated laygear arrangement (TR4-6 only) unless a customer specifically instructs otherwise.

Assuming an overdrive will be fitted at the time of rebuilding, the units will be filled to the top with oil for 24 hours to ensure they are as leak free as a TR Gearbox can be (which is not particularly!).

All of the above is included in the cost of a standard rebuild: RTR1065EX in the table below.

The following may also be necessary and will be charged additionally. See RTR1066-1, -2, -3 and 153844X in the table below.

- The unit may be converted to overdrive specification. This will mean including a shorter mainshaft and drilling and tapping the remote lid for the inhibitor switches and a reverse light switch.
- Roller thrusts to Stag specification
- Change a none-overdrive gearbox to TR specification by changing the input shaft and nose.

In the case of an exchange gearbox, or when rebuilding a customer's gearbox any parts outside the scope of a rebuild that cannot be reused will be charged separately such as: -

- Damaged gears (damaged teeth for instance), damaged hubs, broken, cracked, distorted or repaired casings.

### **OVERDRIVES: -**

Specification for a standard rebuild.

Strip and clean, assess what is necessary to rebuild to standard specification and test run. Then assuming it will be fitted to a gearbox, filled with oil to leak test. See Gearboxes above.

Parts will be replaced as follows: -

A TYPE RTR1016EX

Cone clutch, bronze thrust washers, annulus bearings, rear seal, solenoid plate, 'O' ring, gasket and fibre drain plug seal. Accumulator spring (to pressure selected), Accumulator 'O' ring, bridge piston 'O' rings.

If the accumulator piston rings are damaged, an exchange accumulator will be fitted to an improved specification at extra cost.

Any additional damaged parts e.g. Uni-Directional Clutch, Annulus, Planet Gear assembly, Brake Ring, Adaptor plate, will be costed separately.

The solenoid will be tested, refitted and reset, if unsatisfactory a new one will be fitted.

J TYPE RTR1017EX

Cone clutch, annulus bearings, all 'O' rings, sump gasket.

### **UPGRADES**

A-TYPE RTR1016-1

Ratio may be changed at extra cost

**TR2-6 GEARBOX AND OVERDRIVE REBUILD CRITERIA.**

Higher pressure accumulator spring, longer operating pistons to quicken engagement. Oversize cushioned drive accumulator piston assembly, or replacement of cushioned piston with an early specification one to speed up engagement (not recommended for IRS TR's), with appropriate pair of springs  
 The standard 'A' type TR overdrive ratio is 22%. The ratio can be changed to 28% although the components are getting difficult to find, but 22% is usually adequate as a higher ratio can cause too great an engine speed drop especially if the engine has a non-standard camshaft fitted.

**J TYPE RTR1017-1 AND -2**

Increased capacity operating valve assembly, longer operating pistons, high friction clutch  
 The standard 'J' type TR overdrive ratio is 25%. The ratio cannot easily be changed as the 28% is quite rare, but 25% is usually adequate as a higher ratio can cause too great an engine speed drop especially if the engine has a non-standard camshaft fitted.

**STANDARD REBUILD AND UPGRADE PART NUMBER TABLE**

Note: - Costs in the table are accumulative. Therefore if you want your none-overdrive TR gearbox rebuilt, modified to accept an overdrive and a 'J' type cushion drive overdrive fitted then the cost would be: RTR1066EX + RTR1066-1 + RTR1017EX + 'J' type deposit.

PART NUMBER	DESCRIPTION
RTR1066EX	Cost to rebuilt Gearbox like for like with mainshaft and laygear improvements
RTR1066-1	Cost to change a none overdrive Gearbox to accept an overdrive
RTR1066-2	Cost to include Stag thrust bearing modification to a Gearbox
RTR1066-3	Cost to change a none TR Gearbox to TR type
153844X	Cost to include the later third gear TR type outer hub
RTR1016EX	Cost to rebuilt like for like an 'A' type Overdrive
RTR1016-1	Cost to upgrade an 'A' type Overdrive for quick operation
RTR1017EX	Cost to rebuilt like for like a 'J' type Overdrive. TR 'cushion' drive
RTR1017-1	Cost to upgrade a 'J' type Overdrive for quick operation. Fast road/rally
RTR1017-2	Cost to upgrade a 'J' type Overdrive for super quick operation. Race only
Deposit: Gearbox	Deposit charged until a reconditionable TR Gearbox is returned
Deposit: 'A' type Overdrive	Deposit charged until a reconditionable TR 'A' type Overdrive is returned
Deposit: 'J' type Overdrive	Deposit charged until a reconditionable TR 'J' type Overdrive is returned

J. Neil Revington

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APPENDIX

Gearbox and Overdrive - Terms and Conditions

8<sup>th</sup> November 2016

The following notes cover the terms and conditions that apply over and above our stated terms and conditions and are specific to gearboxes and overdrives supplied by RevingtonTR, whether an outright purchase or reworked customers own parts.

Conditions under which Revington TR supply outright or exchange gearboxes and overdrives, or work on customers units are listed below. Please ensure you fully understand the **limited warranty** before placing an order with RevingtonTR.

We have a strict warranty policy when we supply exchange gearboxes and overdrives or work on customers units because we are dealing with internal parts that are 40+ years old coupled with reproduction parts such as the synchromesh rings and bearings. We do not crack detect any of the parts reused but only visually inspect them. We do of course endeavour to build gearboxes and overdrives to the highest standards within the restraints of the parts and materials available to us.

The main points are:

- 1. We cannot guarantee the teeth on the gears.
2. Our guarantee covers new parts and workmanship and lasts strictly for 10000 Km (6000 miles) or one year from invoice date.
3. When the units are exchange we will charge a deposit until we receive a suitable gearbox and overdrive back that is in a reconditionable condition...
4. In the case of us working on customers own units, any work required in addition to that estimated at the outset will be agreed with the customer before additional work is commenced.
5. Units are not guaranteed for any motor sport including but not exclusively, track days, timed events, race or rally activity.
6. a) In the unlikely event that a warranty claim needs to be made the cost to return the units to RevingtonTR will be at the customer's expense.
b) If the problem is found to be with the initial build and not a subsequent failure the gearbox will be shipped back to the customer at Revington TR's expense.
7. It may come as a surprise to learn that TR4-6 gearboxes up to 1973 suffered from a design fault that only manifested itself in certain gearboxes; the fault being jumping out of 3rd and occasionally 2nd gear on overrun.
8. We will not be liable for consequential loss of any kind.

Name

Signed

Date