

ZF Gearbox Conversion

Courtesy Vic Farrington, Vice President, Stag Owners Club SA Branch

1. Blogs – what people think about the conversion:

- <http://club.triumph.org.uk/cgi-bin/forum10/Blah.pl?m-1194567447/s-all/>
- <http://www.clubtriumph.eu/cgi-bin/forum10/Blah.pl?m-1383083903/>

2. Tate and Lewis ZF conversion includes:

- Reconditioned gearbox and torque converter
- Adaptor plate to mate up the Stag bell-housing to the gearbox
- Correct (and modified) tail-housing for the gearbox so that it can work with the Stag (ZF gearbox does not come with a speedometer drive from the factory unless you acquire a gearbox from a Sherpa van (very rare))
- BW65 Propshaft
- Modified and bespoke cross-member to work with the gearbox
- Oil cooler lines etc.
- All of the above fitted into the car.

3. The ZF conversion – a report after 12 months in use:

For those accustomed to the Borg Warner 35 or 65 gearbox, there are a number of different characteristics:

- At idling speeds (fast or normal), initial gear engagement is positive, but feels “softer”. The driveline gets a much easier time.
- This is not a “clunky” gearbox. Part-throttle upshifts are almost unnoticeable. Once in 4th gear, when the torque converter locks up at about 50 mph, the revs drop to around 26 mph per 1,000 revs, which is similar to a manual box in O/D top gear. Downshifts on a trailing throttle are imperceptible.
- As the car slows down, without any driver input, the ZF box changes down from 4th to 3rd at around 25 mph on a trailing throttle. This obviates “lugging” in the high top gear and, when entering a built-up area or a roundabout, makes for a nice smooth take up of drive when power is re-applied.
- In the high overdrive top gear (around 0.75:1) pulling power and acceleration are understandably not as good as those achieved in BW top (1:1). The ZF box more than compensates for this [as] further pressure on the accelerator pedal produces a smooth and easy part-throttle downshift to third gear. Up a gradient, if the driver maintains a constant accelerator position, a similar part-throttle downshift occurs as needed. Third gear, a similar ratio to BW top, is thus instantly available “fuss-free” on demand.
- The Stag shift lever “autogate” has six indents (P, R, N, D, 2, 1). The ZF box has seven positions (P, R, N, D, 3, 2, 1). In practice, the shift lever moves slightly less between positions in order to fit the seven into the quadrant space that allowed for six. I find that a taller after-market gearshift knob, fitted in place of the standard T-handle, helps when shifting between the now smaller gear range intervals, since it moves in a more extended arc between positions.
- The reduced rpm when cruising in overdrive top makes medium and long trips much more relaxed. Wind noise is now the major problem. Expect a significant fuel saving around 14% compared with the BW box (actual consumption achieved is shown below).

The conversion transforms the character of the automatic Stag. It becomes the civilised long distance tourer it was intended to be.

4. Fuel consumption:

The figures that follow cover twelve months. Fuel quantities bought, and mileometer readings were entered on a spreadsheet that calculates trip miles and mpg achieved for each top-up. Clearly, the most benefit is gained when the overdrive top gear can be used.

- Overall: 319.92 gallons 7973 miles 24.92 mpg.
 1211 litres 12831 kms 11.3 litres per 100 kms
- Typical:
 - Dual Carriageway: 29.08 mpg / 9.7 L per 100 kms.
 - Urban Trips: 21.64 mpg / 13.1 L per 100 kms.
- Best:

Christchurch to Penrith,	358 miles	32.14 mpg
	576 kms	8.8 L per 100 kms.

(Largely Dual and Motorways used.)
- Worst:

Urban Trips:		18.58 mpg / 15.2 L per 100 kms.
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For me, the need to sort out binding brakes, and to rebuild carburettors during the year, has depressed the "Overall" and "Typical" figures slightly. Otherwise, fuel consumption would have been marginally better.

Dellow Gearbox Conversion

This email comes courtesy Ross Harvie, acting on advice from Graeme Oxley:

Jeff Dellow called this morning to say that he'd been looking around in his workshop and had found a casting that he'd made 25 years ago to convert the Triumph V8 to Toyota Supra 5 speed manual. He told me that, like the ZF idea, he would be able to tool up to make a bell-housing or adaptor-plate for this conversion if there was sufficient interest.

Ross Harvie

Mobile 0458 567776, Home 02 6963 4927

Email rivcom1@bigpond.com Griffith NSW.