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## early MGB Ford Sierra Gearbox Conversion Fitting Instructions

This gearbox conversion kit is designed for adapting the 5-speed Ford Type 9 gearbox, as fitted to the Ford Sierra 1983-1987, to the MGB. This gearbox is referred to as „N“ type in Haynes Owner's Workshop Manual for Ford Sierra.

### Safety

There is considerable work required underneath the MGB when fitting this conversion. Consequently the use of a vehicle inspection pit or vehicle lift is recommended. If these are not available the car will need raising front and back to give sufficient space to work safely and comfortably under the engine/gearbox/propshaft areas. To accomplish this, support the car front and rear with properly sized and located axle stands. Do not use vehicle or trolley jacks for pennant support, only for raising and lowering the car.

The conversion kit comprises the following parts.

1. Cast Aluminium Alloy Bell Housing. Four fixing bolts/washers.
2. Machined aluminium alloy clutch release lever pivot, 2 fixing bolts/washers.
3. Clutch release lever pivot bolt, nut and washer.
4. Gasket. Bell housing to gearbox.
5. Spigot bush (extended). 2 X 1/4 UNF set screws to extract spigot bush if required.
6. Gearbox mounting, two fixing bolts, distance pieces, washers and nuts. One central fixing bolt and spring washer.
7. Replacement crossmember (gearbox support). Four fixing bolts and washers. Four clamp washers for cross member.
8. Modified gear lever assembly, 3 securing screws/spring washer.
9. Propshaft c/w Sierra gearbox nose piece.
10. Speedo cable/circlip
11. LOCTITE

### General Philosophy

The cast aluminium alloy bell housing replaces the Ford cast iron bell housing from the Sierra application. The MGB clutch release lever and clutch slave cylinders are reused on the new bell housing. An extended spigot bush is a force fit into the rear of the crankshaft and this bush supports the shorter Sierra gearbox primary shaft in the correct position. The MGB clutch cover assembly, driven plate and carbon thrust bearing are re-used if in good condition. It is a good policy to re-new them if in any doubt. A new gearbox mounting and cross member is used to support the gearbox. The new crossmember is fixed to the vehicle in the same way as the original pressed steel crossmember, which is not reused. The engine restraint rod fitted to rubber bumper cars is not reused. The engine anti-surge plate on R/L engine mounting on chrome burriper cars is left in place. A new, balanced propeller shaft complete with Sierra gearbox splined nose piece is supplied which replaces the original shaft.

A new speedometer cable is supplied which adapts the Sierra gearbox speedo drive to the MGB instrument, which must be re-calibrated to suit the new gearbox speedo drive ratios. A modified, extended gear lever is supplied, which puts a new MG replica chrome gear lever into the exact position as originally using the same gear lever gaiter and gear knob.

### Sierra gearbox preparation

1. Remove the Sierra bell housing and clutch release mechanism from gearbox and discard.
2. At the front of the gearbox remove the four bolts and withdraw the clutch release bearing guide sleeve, note the orientation of the guide sleeve base. The small protuberance on the base points towards the bottom of the gearbox.
3. Carefully, using a hacksaw, saw off the sleeve at the base leaving approximately 1 cm of sleeve on the base. De-burr and remove filings clean oil seal thoroughly. The sleeve is not required.
4. Lubricate oil seal and shaft and replace base in correct position on gearbox. Replace cork gasket if damaged, again noting orientation, with the gasket cut out at the bottom. Replace and tighten bolts. 7-8lb. ft (9-11 Nm).

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## Vehicle Preparation

1. Remove MGB Engine, gearbox and propeller shaft from the car as per the MGB workshop manual, observing relevant safety precautions.
2. Separate engine and gearbox (if removed as a unit).
3. Remove the clutch slave cylinder from MGB gearbox.
4. Remove the clutch release lever and carbon thrust bearing from the MGB gearbox.
5. Remove the MGB speedometer drive cable from car.
6. Remove the MGB clutch cover and driven plate. If cover plate is to be re-used mark flywheel and cover plate before removal and re-use in the same position to preserve engine balance.
7. Examine the vehicle chassis rails which run on each side of the vehicle, particularly at the gearbox crossmember mounting position. If there is corrosion around these areas it is important to rectify and renew metal in order to preserve strength.

## Assembling the new bell housing

1. Clean the four 12 mm bell housing attachment bolts in solvent to remove oil/grease. Similarly clean the four 12 mm threaded attachment holes on the Sierra gearbox.
2. Remove all paint from the mounting face of the gearbox, and around the guide sleeve base. Remove any protruding cork gasket from around the guide sleeve base with a sharp knife. THIS IS IMPORTANT.
3. Assemble the bell housing and gearbox together, with supplied gasket between.

Apply LOCTITE (supplied) to the threads of the attachment bolts and gearbox attachment hole threads. Using the spring washers with the 12 mm bolts torque them to 55 lb. ft each (75 Nm).

4. Bolt the aluminium alloy clutch release lever pivot into position using the M8 bolts and spring washers supplied, clean all threads and apply LOCTITE as in (1) above, torque the bolts to 15 lb.ft.(20 Nm)
5. Assemble the original MGB clutch release lever and carbon thrust bearing into position, secure the release lever with the pivot bolt supplied, fit washer, locknut and tighten. Apply a little engine oil to

the pivot bolt/ bearing. Do not over-tighten, and lock the release lever.

6. Remove the original spigot bush from the rear of crankshaft, ensure that the vacated hole is smooth and without damage.
7. Position the new spigot bush into the hole in the rear of the crankshaft and drive it in as far as it will go. This is an interference fit into the crankshaft. Use an aluminium or copper drift or a hide mallet to drive it in without damage. The new spigot bush can be removed using the 2 X 1/4 UNF set screws as extractors, supplied with the kit.
8. Apply a little grease to the centre hole of the spigot bush to lubricate.
9. Assemble the clutch cover plate/ new driven plate in the normal way. (use a Sierra clutch alignment tool if available.)
10. At this point it is a good idea to assemble the gearbox/ bell housing to the engine to see if all is well. Bolt gearbox/ bell housing to the engine using original bell housing bolts.
11. Fit gear lever assembly with attachment bolts.
12. Remove engine sparking plugs, rotate engine and verify that all gears can be obtained and everything rotates freely and easily.
13. Remove bell housing / gearbox assembly from engine, remove gear lever assembly.

## Fitting Gearbox to Car

1. Place a support under the car below the position of the gearbox and place the gearbox / bell housing in position as far back as possible, with the tail end above the fixed crossmember.
2. Replace the engine in position, and carefully guide the gearbox input shaft into the clutch assembly on the engine. When engaged, bring engine / bell housing together and bolt together. Bolt up engine mountings.
3. As an alternative to 1. and 2. above, the engine and gearbox assembly can be bolted up as in 10. above before installing in car and installed as a complete unit. Then bolt up engine mountings, supporting gearbox from underneath.

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4. Bolt new gearbox mounting onto gearbox extension casing „v“ mounting point with M12 bolt / spring washer supplied using LOCTITE. Torque to 37 lb.ft (50 Nm)  
Note: the highest side of mounting should be towards the front of car.
5. Lower gearbox tail end until it is possible to offer up crossmember to contact the bottom of the rubber mounting.
6. Line up holes in crossmember with rubber mounting and from the top fit the long retaining bolts, distance pieces (lateral safety stop) with bolt heads uppermost. Fit washers and nuts.
7. Raise up gearbox tail end until new crossmember just contacts side of chassis rails.  
Do not continue raising tail end as this will damage rubber mounting. Fit clamp plates to the ends of the crossmember with 3/8" UNF setscrews and spring washers and lightly bolt in place.
8. Fit new propshaft. Lubricate spline and outer surface of nose piece with gearbox oil before pushing into place through oil seal. Bolt up rear flange as before - use new locknuts.
9. Torque up crossmember bolts to 35lb.ft (47 Nm). Torque up the two 5/16" gearbox mountings retaining bolts to 20 lb.ft (27 Nm).

**Fitting Speedo Cable:**

10. The speedo cable takes the same route as the original. The gearbox termination is secured with a circlip. You will need a fine pair of internal circlip pliers. This is not easy to fit.

**Gear Lever and Gaiter:**

11. Fit new gear lever through hole in tunnel deck and fit M8 security set screws and lock washers. A small ratchet 13 mm socket will be useful here, one screw may need to be tightened from below as access is difficult.
12. Refit original gaiter. Check movement and gear selection. Check all gears can be obtained with good gear lever clearance in the hole.
13. Fill gearbox with Ford synthetic oil. Fill to level hole on LH side of gearbox. Access is only from underneath.
14. Ensure all engine services/ parts are correctly installed.

15. Fit clutch slave cylinder, push rod clevis pin / split pin. Renew push rod clevis pin if worn.
16. Attach flexible hydraulic pipe.
17. Bleed clutch system - test.
18. Check car for roadworthiness.
19. Road Test
20. The speedometer will need re-calibrating to the new gearbox. A data sheet is enclosed for Speedy Cables who can do this work. Any competent instrument company can do this.
21. After 100 miles (160 km), recheck tightness of all newly installed bolts / nuts.
22. At normal service intervals, lubricate propshaft as per vehicle service manual, and always check and replenish gearbox oil level as necessary.

**SPECIAL NOTE**

The propeller shaft supplied with this kit is manufactured to the original manufacturer's specification:  
Torque rating (short duration) 570 Nm MAXIMUM (422 lb.f.ft)  
Rpm rating of propeller shaft: 7000 rpm. MAXIMUM  
This corresponds to an engine speed of 5740 rpm in 5th gear (ratio 0.82:1), or an engine speed of 7000 rpm in 4th gear (ratio 1:1).

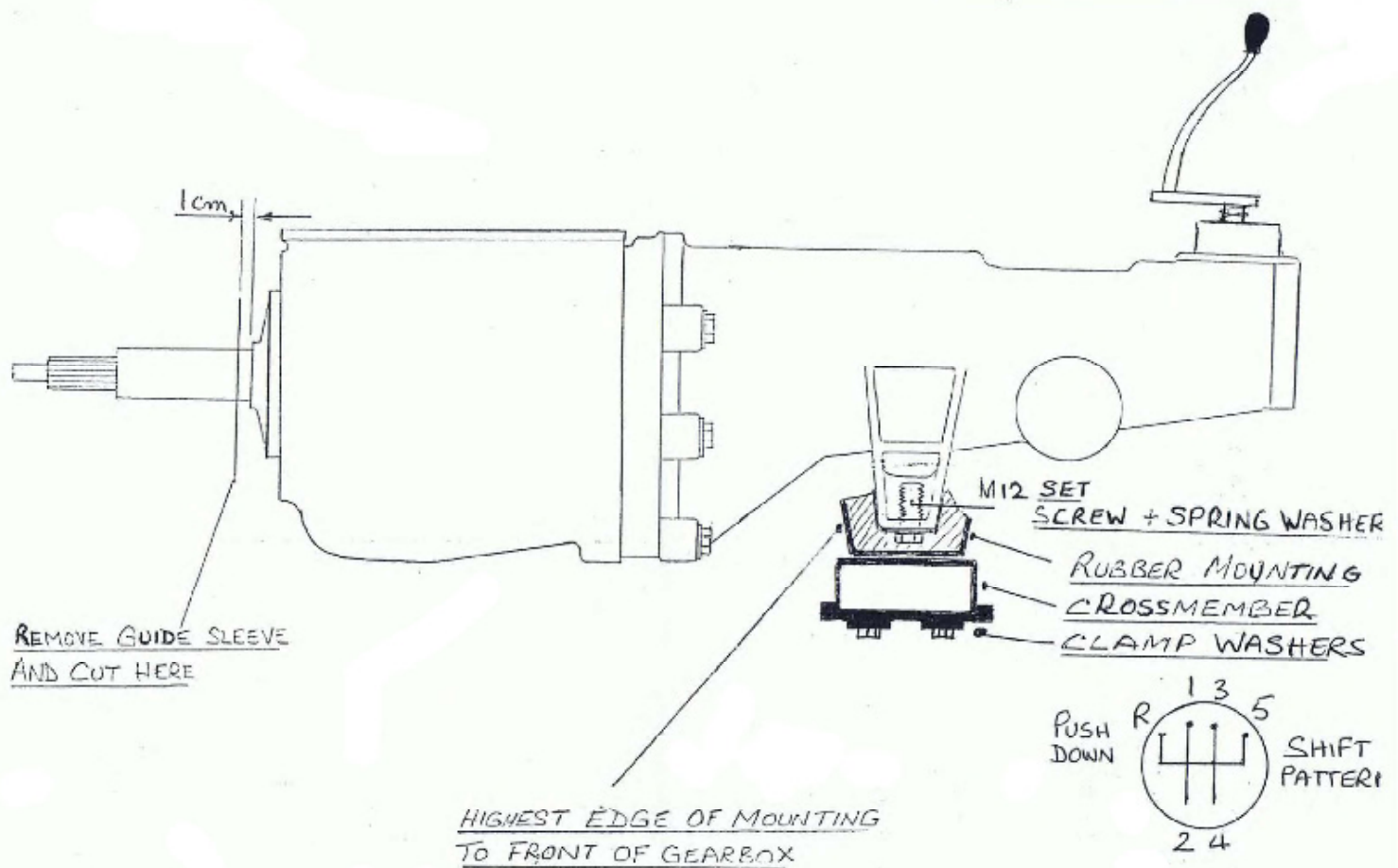
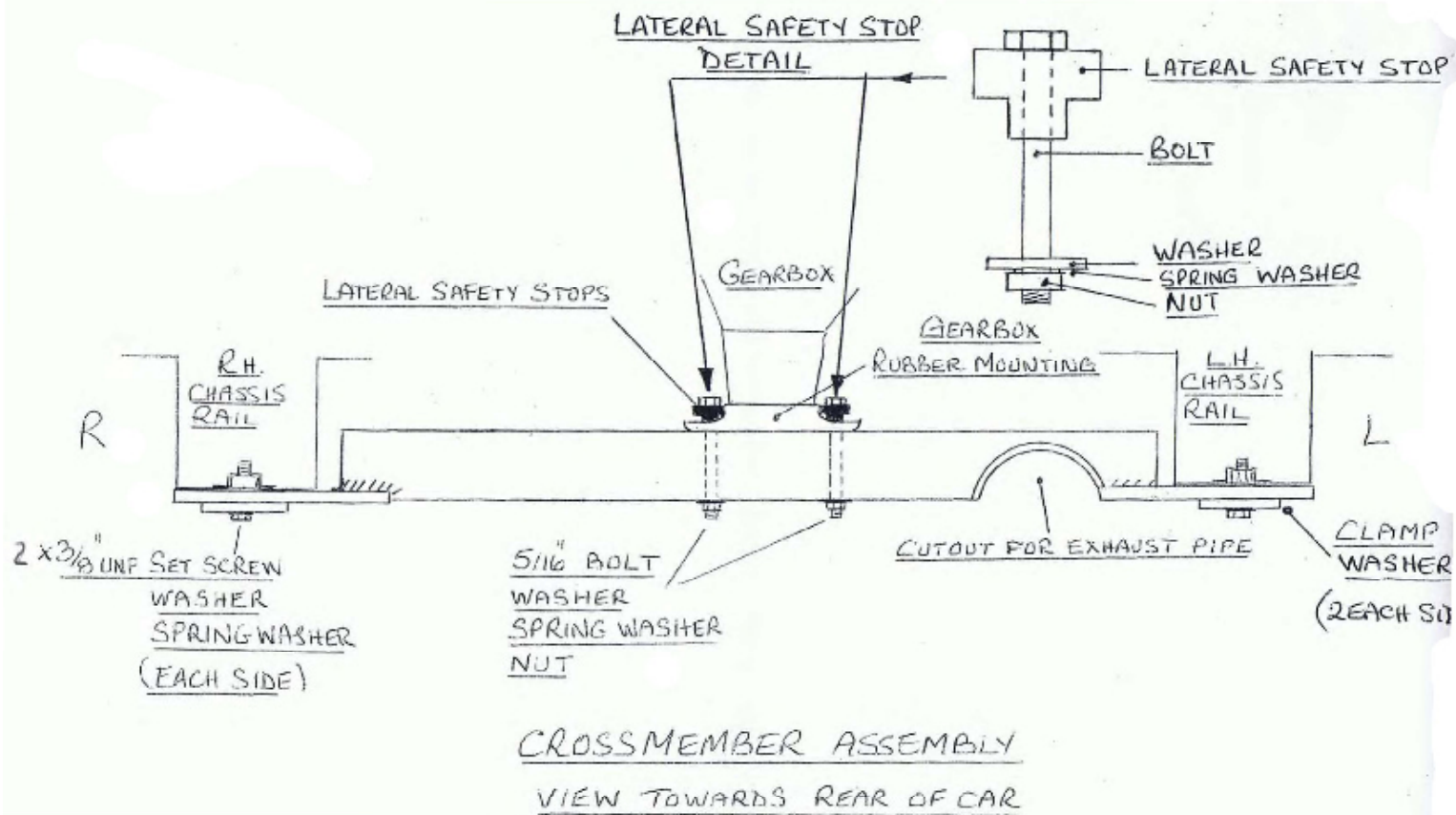
**OILS FOR TYPE 9 GEARBOXES**

Specification 75W90 Gear Oil to API GL4

DO NOT USE GL5 The extra antifriction additives\* will cause irreversible damage to the gearbox bearings. This will invalidate guarantee.

DO NOT USE ATF FLUID (Automatic transmission fluid)  
DO NOT crank, start or run the engine without the correct grade of oil IN THE GEARBOX, otherwise damage to gearbox will occur.

\*current API GL5 formulations contain more antifriction additives than earlier API GL5 formulations.



GEARBOX PREPARATION DETAILS

MGB.(EARLY)