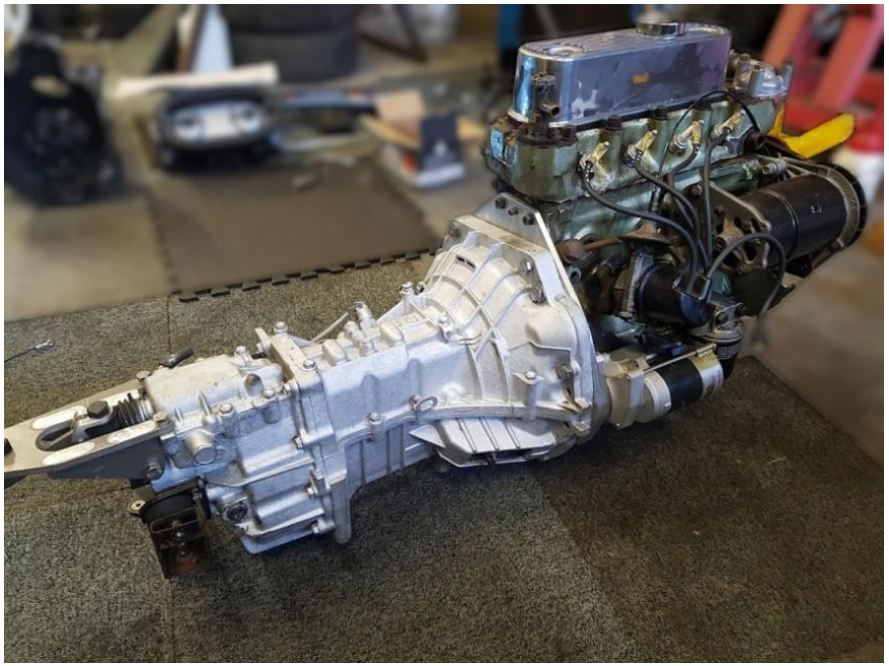
BETD0020

A–SERIES 5–SPEED CONVERSION INSTRUCTIONS



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Read thoroughly prior to assembly.

This document provides a guide to adapt a BMC A–Series engine for use with a Barratt Engineering 5–seed conversion kit for use in an MG Midget or Austin Healey Sprite.

Instructions apply to 948, 1098 and 1275cc versions including inline A+ engines.

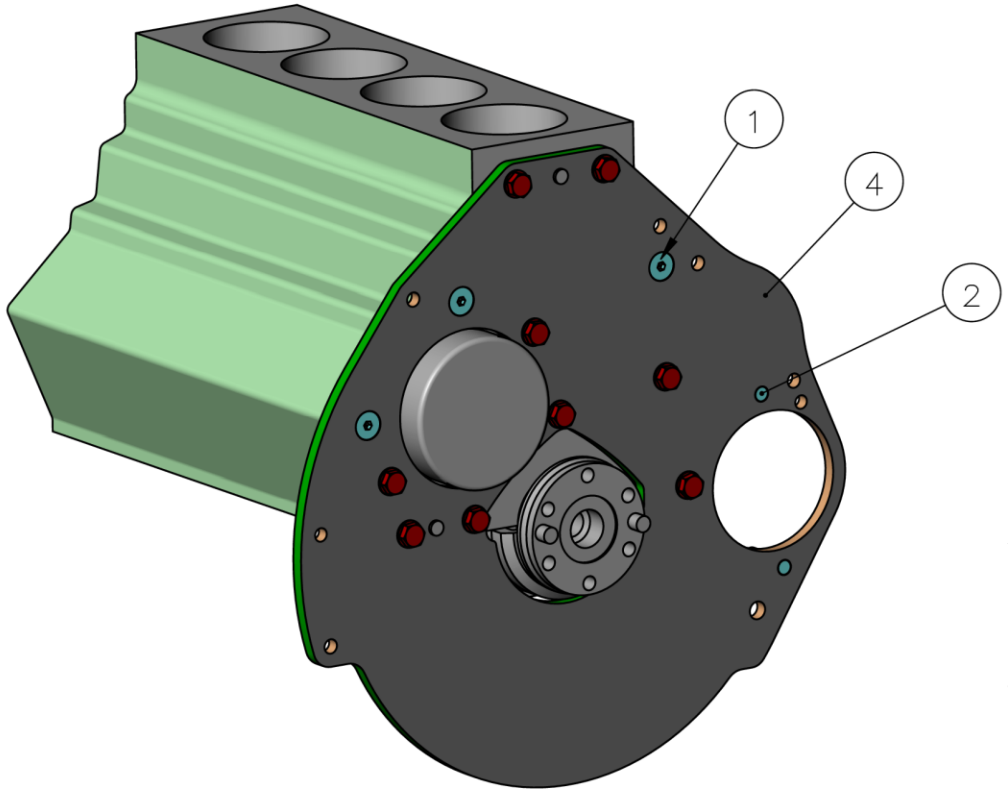
If in doubt – ask

Strip Down

- Remove the engine and gearbox from the vehicle and split the gearbox from the engine
- Remove the clutch and flywheel
- Remove the back plate and oil pump cover, AEG553. Separate the oil pump cover from the back plate
- Remove the gearbox cradle mount
- If fitting a G13B gearbox the spigot bearing must be removed the end of the crankshaft
- Thoroughly clean the back of the engine and oil pump cover

Refer to the relevant vehicle service manual for further details

Back Plate Assembly, R7ME



1. FIT ADAPTOR BACKPLATE (4) WITH GASKET
2. FASTEN WITH 3x COUNTERSUNK SCREWS (1) SUPPLIED AS SHOWN
3. RE-USE ORIGINAL FASTENERS IN ALL OTHER PLACES, SHOWN IN RED
4. FIT 2x STARTER MOTOR STUDS (2). LOCTITE 243 MAY BE USED. ENSURE STUDS DO NOT PROTRUDE ABOVE THE GEARBOX SIDE OF THE PLATE

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	3	00198	BOLT, COUNTERSUNK, 5/16UNFX3/4, B18.3
2	2	00282	STUD, M10X35, DIN976
3	1	00283	GASKET, BACKPLATE
4	1	00378	ADAPTOR PLATE, A-SERIES R7ME

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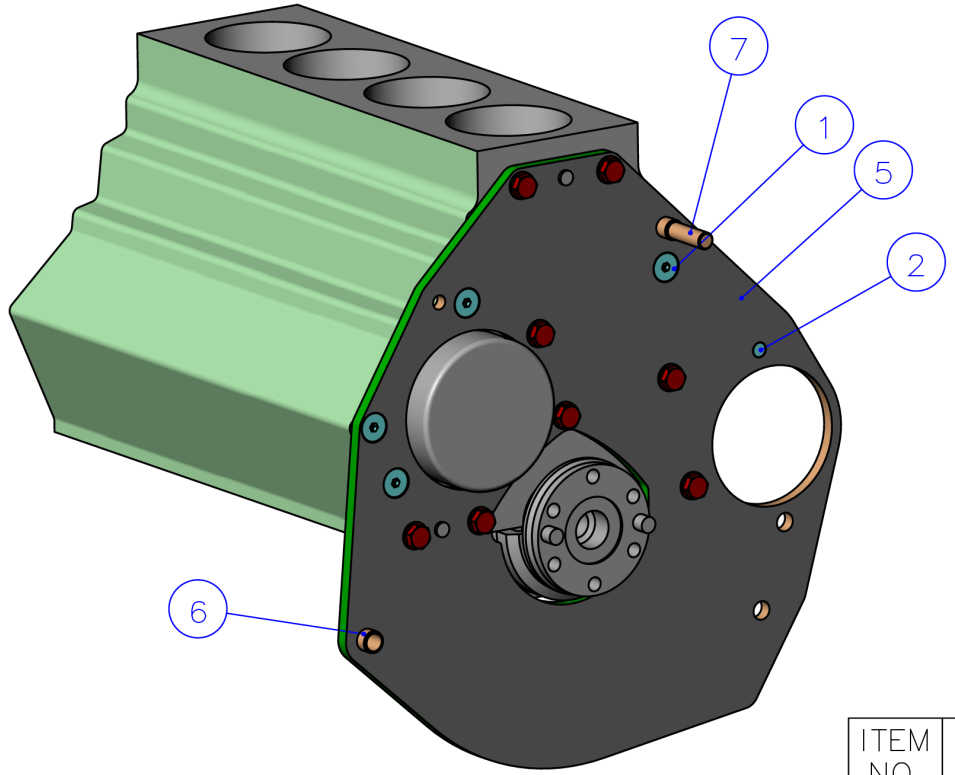
Back Plate Assembly, G13B



1. FIT ADAPTOR BACKPLATE (5) WITH GASKET
2. FASTEN WITH 4x COUNTERSUNK SCREWS (1) SUPPLIED AS SHOWN
3. RE-USE ORIGINAL FASTENERS IN ALL OTHER PLACES, SHOWN IN RED
4. FIT BELLHOUSING STUD (7) WITH LOCTITE 243
5. PUSH FIT RING DOWEL (6). ENSURE DOWEL DOES NOT PROTRUDE ABOVE THE ENGINE SIDE OF THE PLATE
6. FIT STARTER MOTOR STUD (2) . LOCTITE 243 MAY BE USED. ENSURE STUD DOES NOT PROTRUDE ABOVE THE GEARBOX SIDE OF THE PLATE

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	4	00198	BOLT, COUNTERSUNK, 5/16UNFX3/4, B18.3
2	1	00282	STUD, M10X35, DIN976
3	1	00284	GASKET, EXHAUST MANIFOLD
4	1	00283	GASKET, BACKPLATE
5	1	00379	ADAPTOR PLATE, A-SERIES G13B
6	1	00404	13mm RING DOWEL
7	1	00413	STUD, G13B BELLHOUSING

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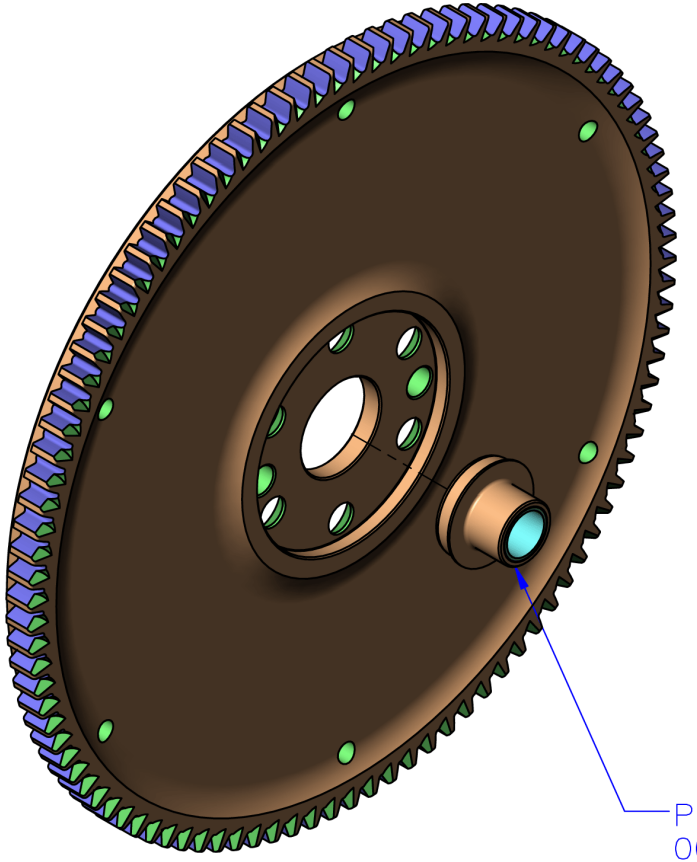
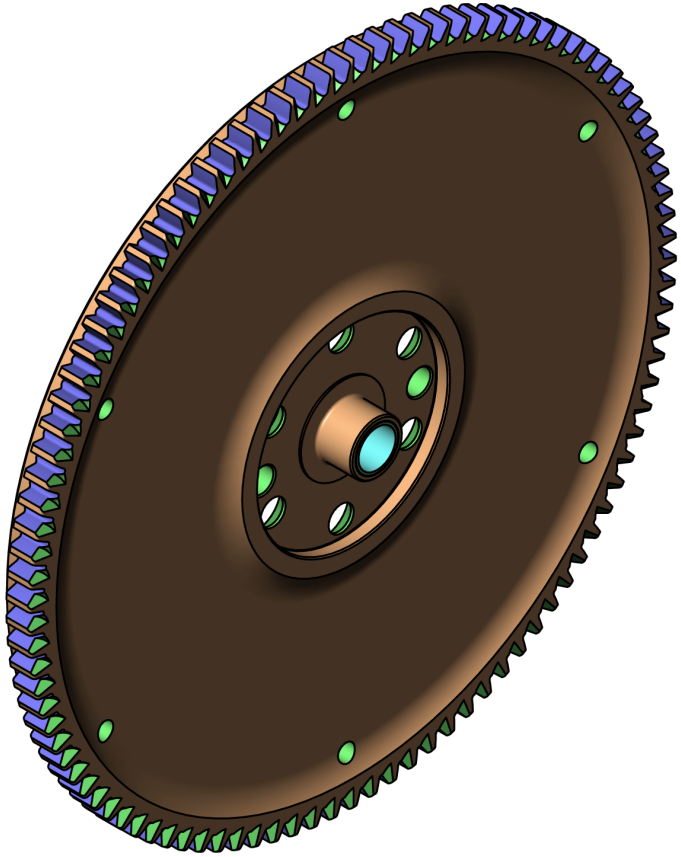
Spigot Bearing Installation, R7ME





PRESS FIT SPIGOT BEARING
00399 INTO BACK OF
FLYWHEEL

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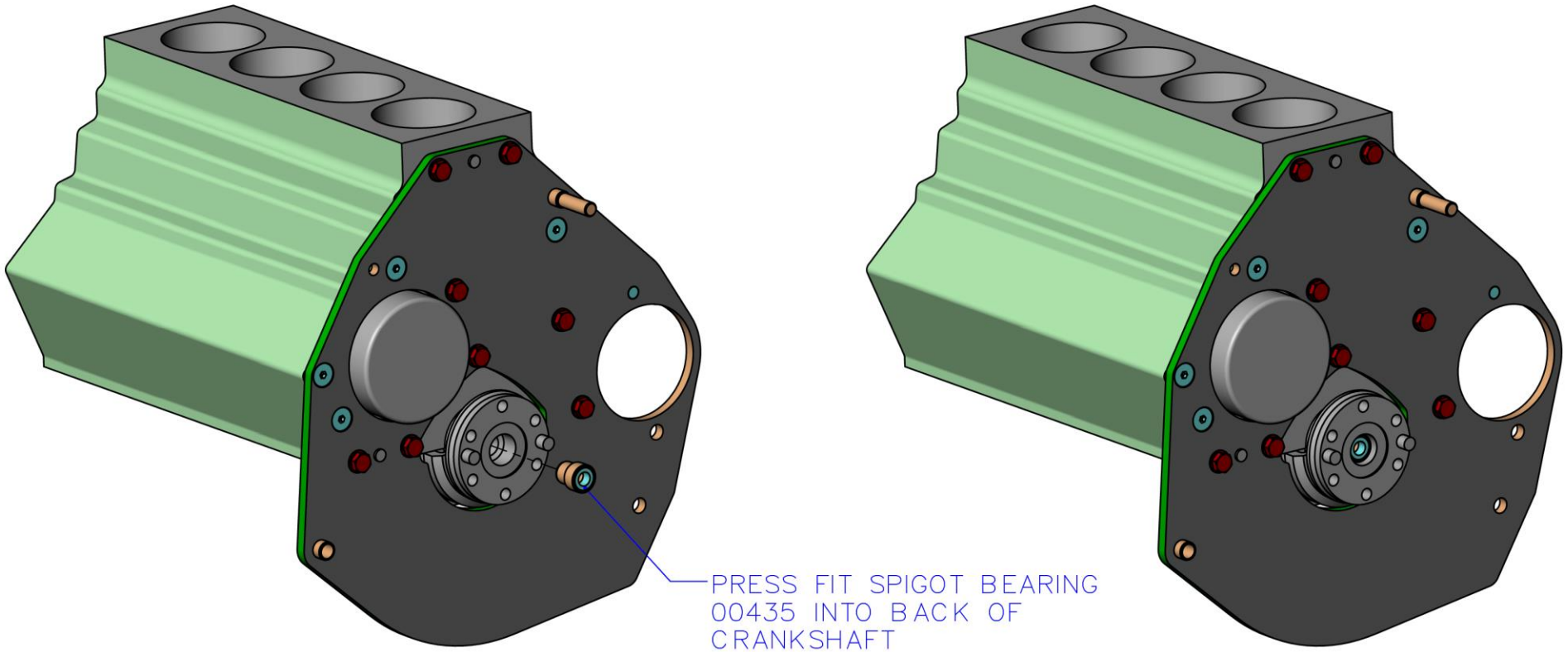
Spigot Bearing Installation, G13B



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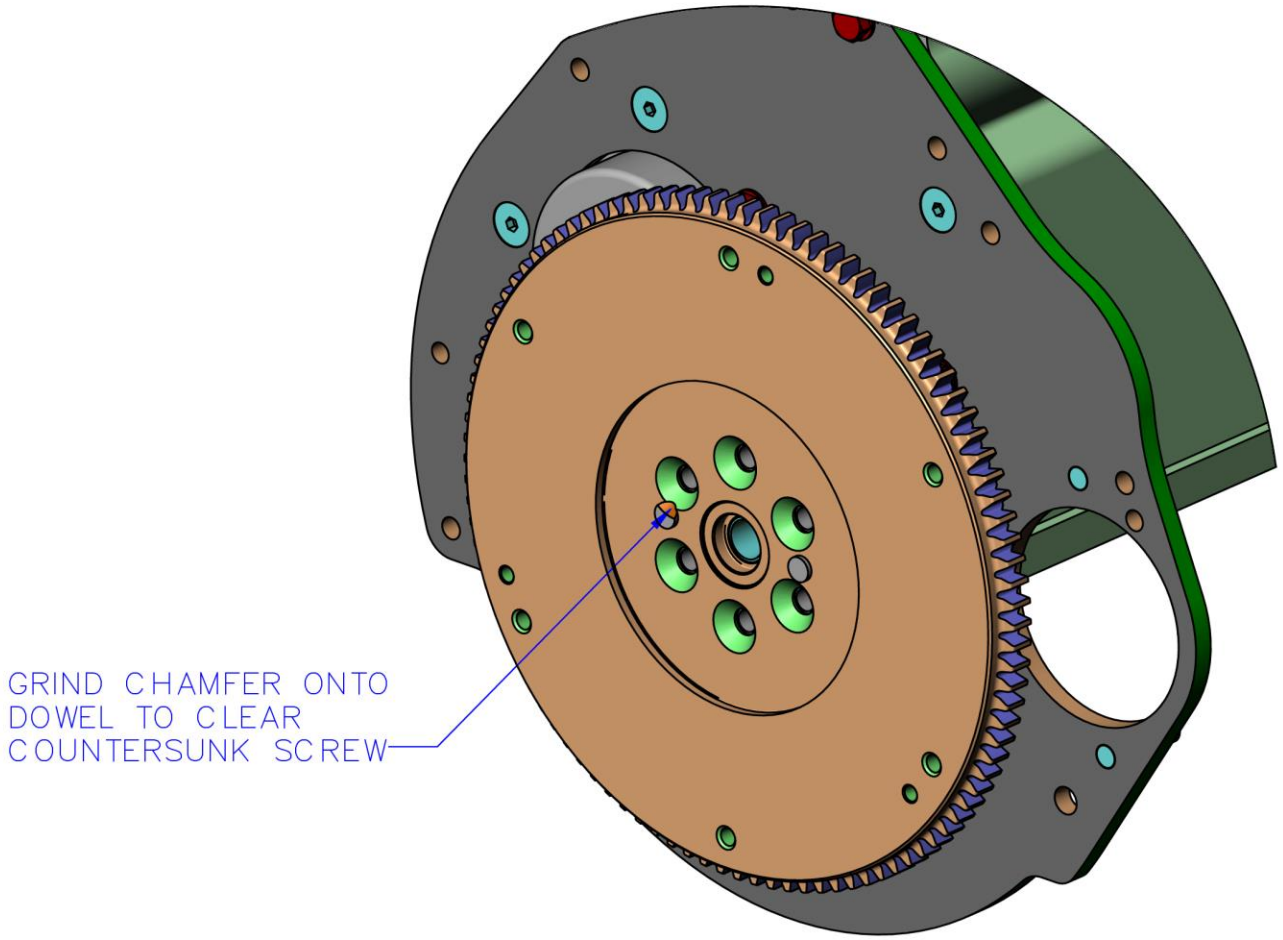
Crank Dowel Modification, 1275cc A-Series



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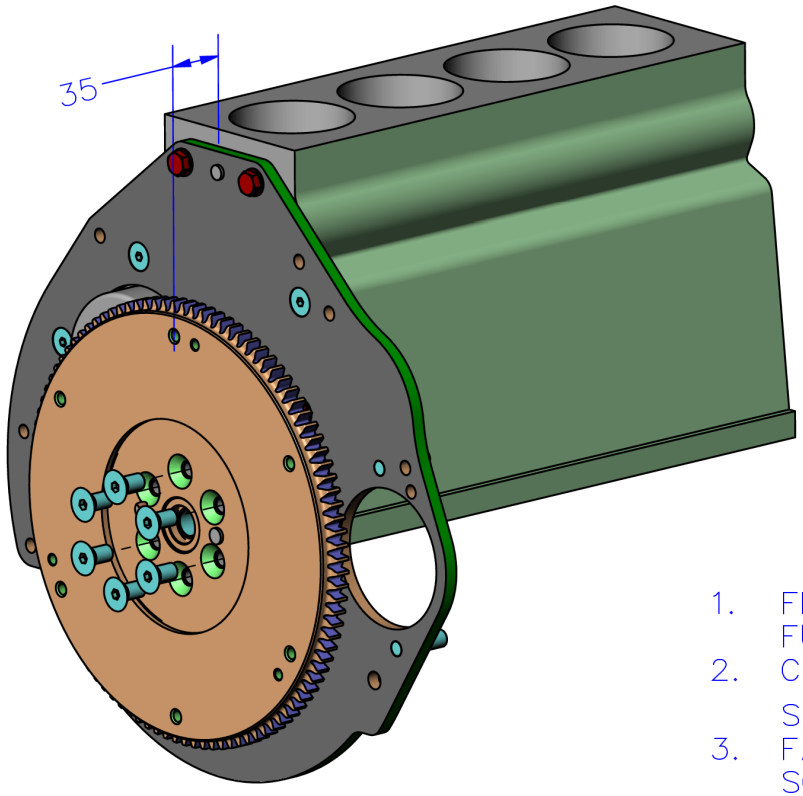
Flywheel Installation, 1275cc A–Series and A+



1. FIT FLYWHEEL, ENSURING IT IS PUSHED FULLY HOME ONTO END OF CRANKSHAFT
2. CLUTCH DRIVE FACE TO ADAPTOR PLATE SHOULD MEASURE 35mm
3. FASTEN USING 6x COUNTERSUNK SCREWS, 00225. APPLY LOCTITE 243 TO THREADS AND TORQUE TO 55 – 60Nm USING A 7/32" HEX DRIVE

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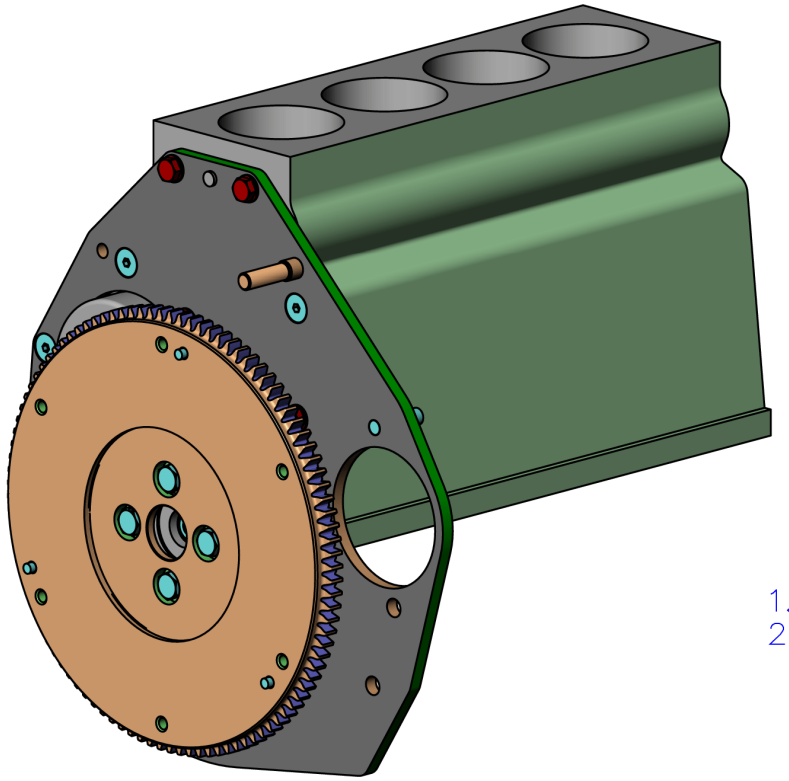
Flywheel Installation, 948 and 1098



1. FIT FLYWHEEL
2. FASTEN USING 4x SCREWS, 00225. APPLY LOCTITE 243 TO THREADS AND TORQUE TO 55 – 60Nm

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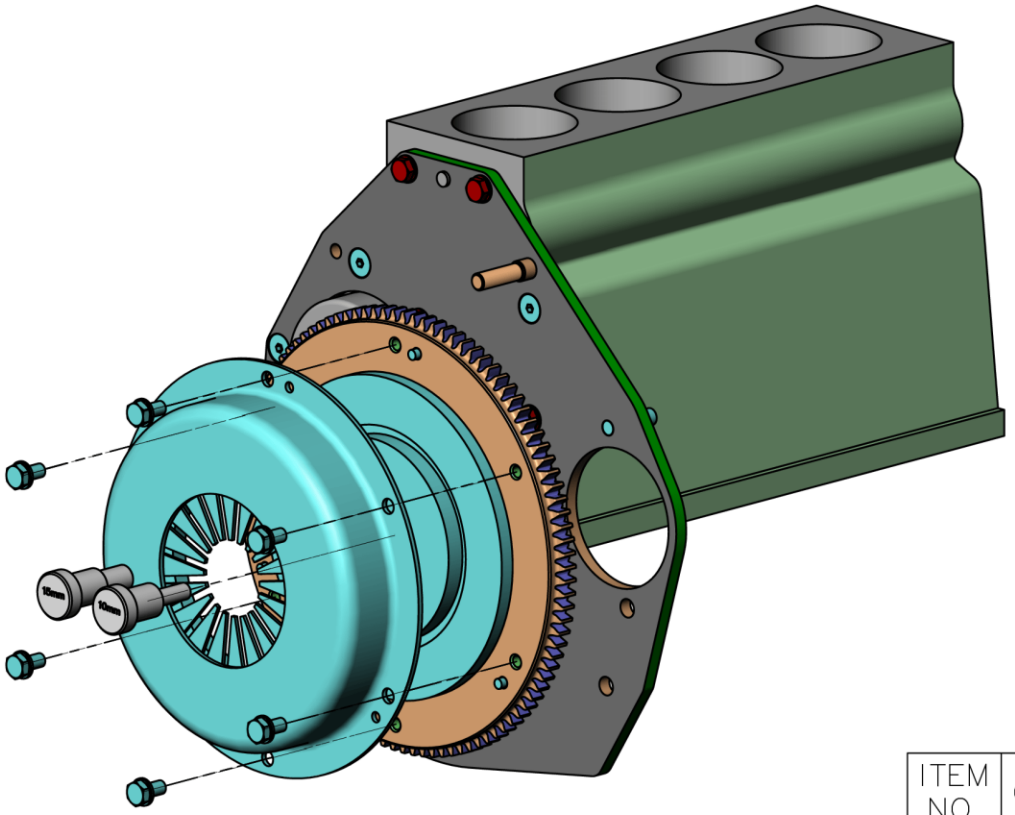
Clutch Installation



1. FIT THE CLUTCH ASSEMBLY USING THE ALIGNMENT TOOL (10mm FOR G13B, 15mm FOR R7ME)
2. THE CLUTCH DISC MUST BE ASSEMLED WITH THE RAISED CENTRE SECTION FACING TOWARDS THE GEARBOX
3. ENSURE THE CLUTCH COVER IS PROPERLY LOCATED ON THE 3x LOCATING DOWEL PINS IN THE FLYWHEEL
4. TORQUE THE 6x BOLTS TO 30Nm

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	6	00053	WASHER, PLAIN, M8, DIN125A
2	1	00230	CLUTCH, DISC, 190mm
3	1	00233	CLUTCH, PRESSURE PLATE, 190mm
4	6	00238	BOLT, HEX HEAD, M8X16, DIN933
5	1	00446	CLUTCH ALIGNMENT TOOL, 10mm
6	1	00456	CLUTCH ALIGNMENT TOOL, 15mm

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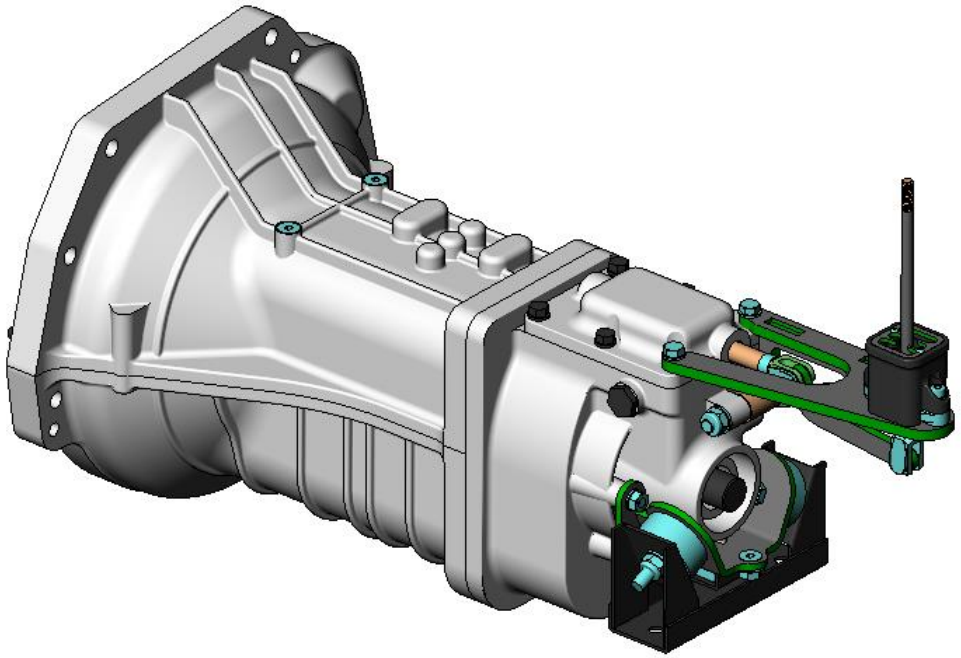
Gearbox Preparation

- Prepare the gearbox for installation as per
  BETD0019 – Suzuki 5–Speed Gearbox Preparation Instructions



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Assembly

- Lift the gearbox and mate with the engine, keeping the input shaft in line with the crankshaft. It may be necessary to rotate the ‘box slightly to align the input shaft splines with the clutch disc.
- Bolt the gearbox to the back plate and fit the starter motor.

Pre–Installation Checks

Before installing the engine and gearbox into the vehicle it is advised that the following checks are made:

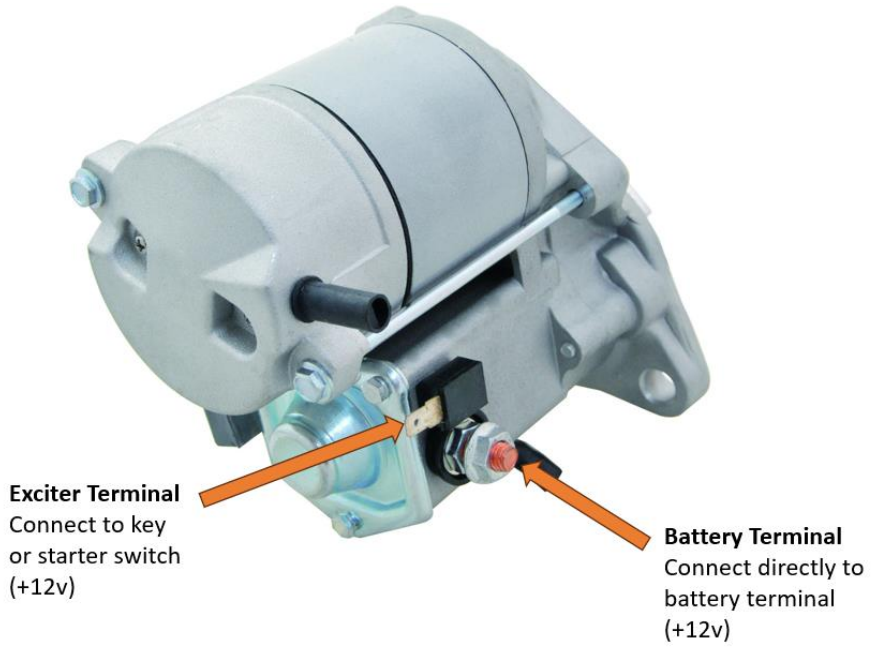
- All gears can be selected
- Clutch fork has free play and the release bearing is not binding
- Clutch cable fits in the release arm
- Engine and gearbox turn smoothly
- Starter motor is able to operate without the pinion catching on the bellhousing
- The fill and drain plugs in the gearbox are not seized
- All fasteners are spanner–checked for tightness and fit
- Gear stick has been removed
- The transmission tunnel is free from obstructions
- Brake and fuel lines are properly routed and not positioned such that they may interfere with or may be damaged by the gearbox on assembly

Installation

- Installation into the car is no different to refitting a standard engine and gearbox.
- We recommend fitting the propshaft prior to installing the engine and gearbox, but not bolting it to the differential. This way the yoke can be installed into the gearbox before the assembly is fully home and access becomes harder.
- Only with the gearbox installed and the propshaft fitted can the gearbox be filled with oil.
- Refer to BETD0019 for oil specifications
- In some cases we have found the starter motor fouls the bulkhead. It can be spaced forward using the plate supplied with the starter motor. In most cases this is not needed.

Starter Motor Wiring

- The starter motors supplied with the kits is are pre–engaged type. To work properly the starter should be wired as shown below.



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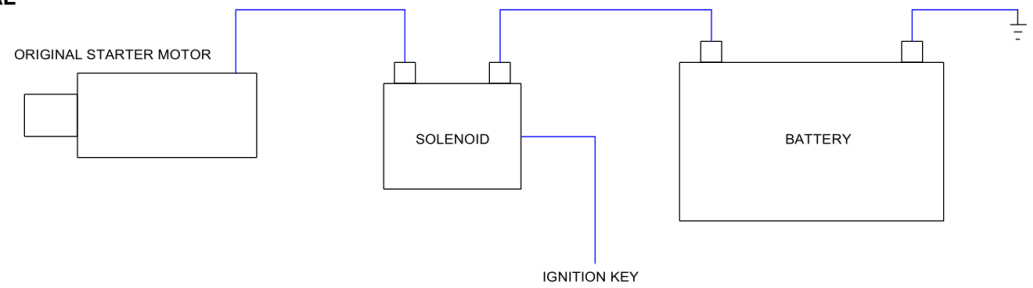
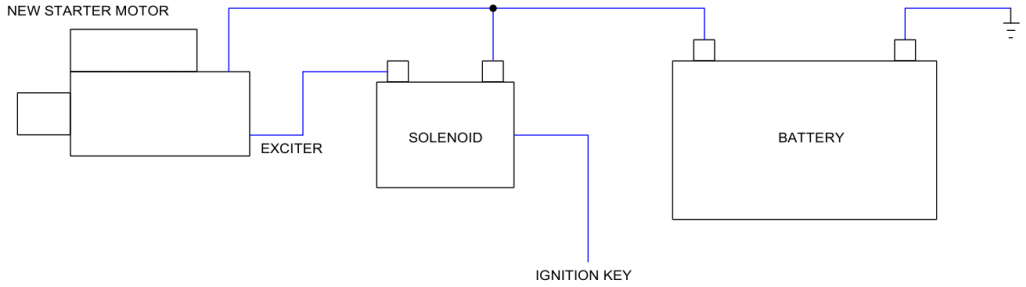
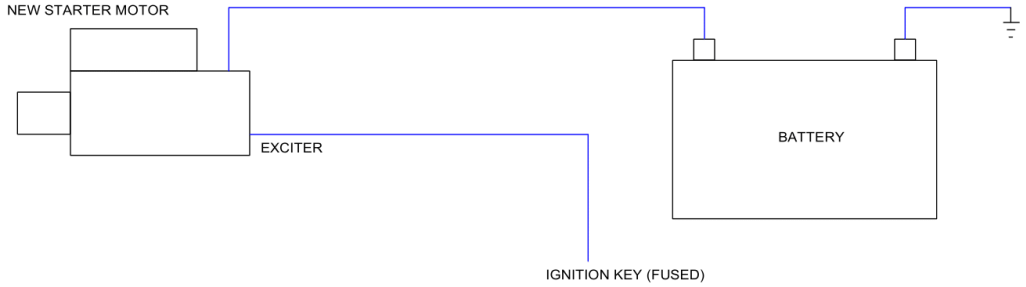
ORIGINAL



OPTION 1 - RETAINING SOLENOID



OPTION 2 - NO SOLENOID



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Author JCCB BARRATT ENGINEERING LIMITED		
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Revision 1.0	Date 31/07/24	Sheets 1 of 1

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Revision Control

Revision	Date	Change(s)
1	02/12/24	First issue, supersedes: • BETD0002 • BETD0015 • BETD0018
2	06/12/24	Public release

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