

NISSAN CG FITTING KIT

Read thoroughly prior to assembly. This document provides a guide to prepare a Nissan CG engine for use in an MG Midget or Austin Healey Sprite using a Barratt Engineering conversion kit.



ENGINE MOUNTS

New engine mounts are supplied to mount the Nissan CG engine onto the original rubber AV mounts (2A305) and mounting brackets (CHA218 & CHA219)



BARRATT ENGINEERING LIMITED	REV	DESCRIPTION	BY	DATE
	1	FIRST RELEASE	JCCB	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00129	R/H Engine Mount Assembly	1
2	00056	DIN 933 M10 X 20 A4-80	6
3	00055	DIN 125 A M10 A4	6
4	00131	L/H Engine Mount Assembly	1

NOTES

FASTENER TORQUE 42Nm (DRY)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ARE IN DEGREES TOLERANCES: LINEAR: ±0.15 ANGULAR: ±2° SURFACE FINISH: 3.2Ra max. DO NOT SCALE FROM DRAWING DEBURR AND BREAK SHARP EDGES - IF IN DOUBT, ASK -	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: 8px;">PART NUMBER</td> <td style="font-weight: bold;">00153</td> </tr> <tr> <td style="font-size: 8px;">DESCRIPTION</td> <td>ENGINE MOUNT KIT</td> </tr> <tr> <td style="font-size: 8px;">MATERIAL</td> <td>SEE PARTS</td> </tr> <tr> <td style="font-size: 8px;">SCALE</td> <td>1:2</td> </tr> </table>	PART NUMBER	00153	DESCRIPTION	ENGINE MOUNT KIT	MATERIAL	SEE PARTS	SCALE	1:2
PART NUMBER	00153								
DESCRIPTION	ENGINE MOUNT KIT								
MATERIAL	SEE PARTS								
SCALE	1:2								

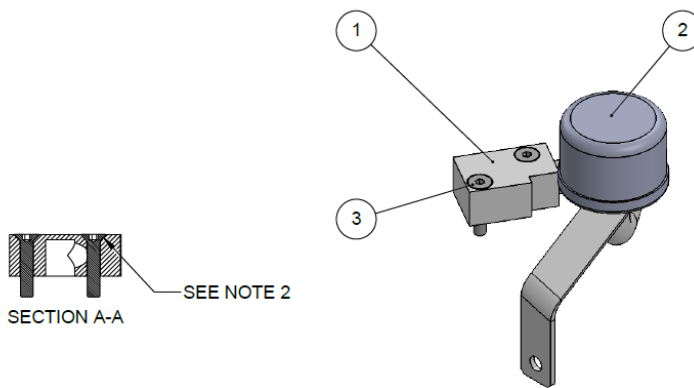
OIL PICKUP

The standard oil pickup pipe must be replaced to clear the modified sump / front chassis crossmember.



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REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JCCB	05/03/2021



NOTES

- 1) FASTENER TORQUE 8Nm
APPLY LOCTITE 243 TO THREADS
- 2) APPLY WELLSEAL TO
COUNTERSINKS BEFORE FITTING

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00121	OIL PICKUP PIPE	1
2	00060	OIL STRAINER	1
3	00043	DIN 7991 M6 X 30 10.9	2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ARE IN DEGREES TOLERANCES: LINEAR: ±0.20 ANGULAR: ±0.05° SURFACE FINISH: 3.2Ra RISE DO NOT SCALE FROM DRAWING DEBURR AND BREAK SHARP EDGES - IF IN DOUBT, ASK -		PART NUMBER	00036
		DESCRIPTION	OIL PICKUP ASSEMBLY
		MATERIAL	SEE PARTS
		SCALE	1:2

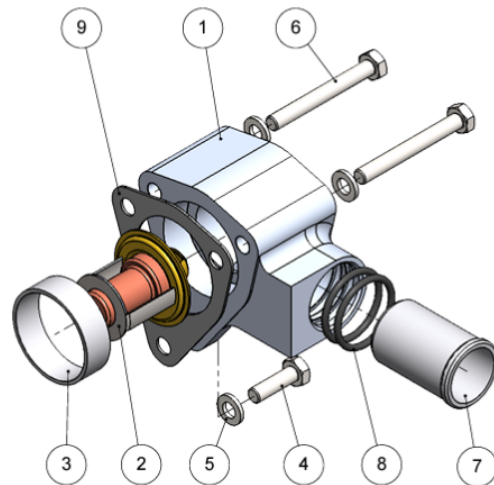
THERMOSTAT HOUSING

The Nissan CG thermostat housing is replaced to clear the battery tray and direct coolant to the radiator to suit the RWD application.



REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JCCB	12/02/2021

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00039	THERMOSTAT HOUSING	1
2	00063	THERMOSTAT	1
3	00065	THERMOSTAT SPACER RING	1
4	00045	DIN 933 M6 X 20 A4-80	1
5	00046	DIN 125 A M6 A4	3
6	00071	DIN 933 M6 X 50 A4-80	2
7	00074	THERMOSTAT HOUSING SPIGOT	1
8	00132	25 x 2.5 NITRILE O-RING	2
9	00141	THERMOSTAT HOUSING GASKET	1



NOTES

FASTENER TORQUE 5Nm (DRY)

O-RINGS MAY BE LUBRICATED WITH A SMALL QUANTITY OF SILICON GREASE TO AID ASSEMBLY

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
ANGLES ARE IN DEGREES
TOLERANCES
LINEAR: ±0.10mm
ANGULAR: -0.5°
SURFACE FINISH: 3.2Ra max.
DO NOT SCALE FROM DRAWING
DEBURR AND BREAK SHARP EDGES
- IF IN DOUBT, ASK -

PART NUMBER	00064
DESCRIPTION	THERMOSTAT ASSEMBLY
MATERIAL	SEE PARTS
SCALE	2:3

SUMP

To fit the Nissan CG engine into a Spridget chassis the sump requires modification in order to clear the front cross member.

Helpfully, the sump is a mild steel pressing, making it easy to modify. New replacement sumps are also readily available for reasonable money, making welding easier as there is no need to contend with baked on engine oil.

Marking Out

The first step is to place the sump on a good flat surface and mark out the cut lines shown in the drawing overleaf.



Cutting

After cutting there are two spot welds which support the baffle which will need to be drilled out. The baffle plate will require trimming back, as shown below.

At this stage a trial fit on the engine, with the Barratt Engineering oil pickup pipe (00036) fitted is recommended to check clearances. Take care to ensure that there is no swarf or debris present in the sump before fitting.



Finishing

To finish the modification, a new fitted plate needs to be made. A cardboard template can be produced before a mild steel plate is cut and bent to shape. Plate between 0.8 and 1.2mm is ideal.

Care should be taken when welding to not overheat and distort the sump. The baffle should also be welded to the new plate internally.

Clearance between the modified sump and crossmember is still quite tight so welds should be ground flush.

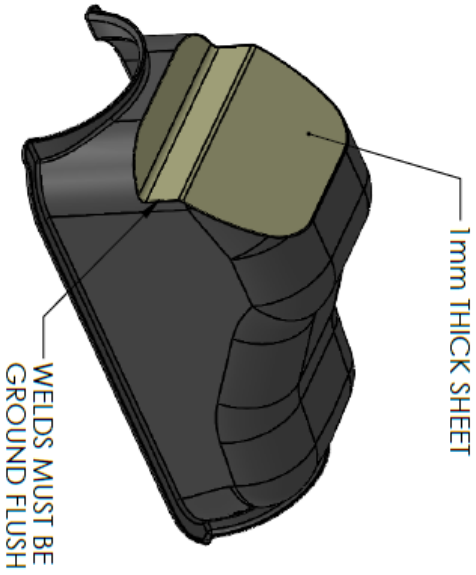
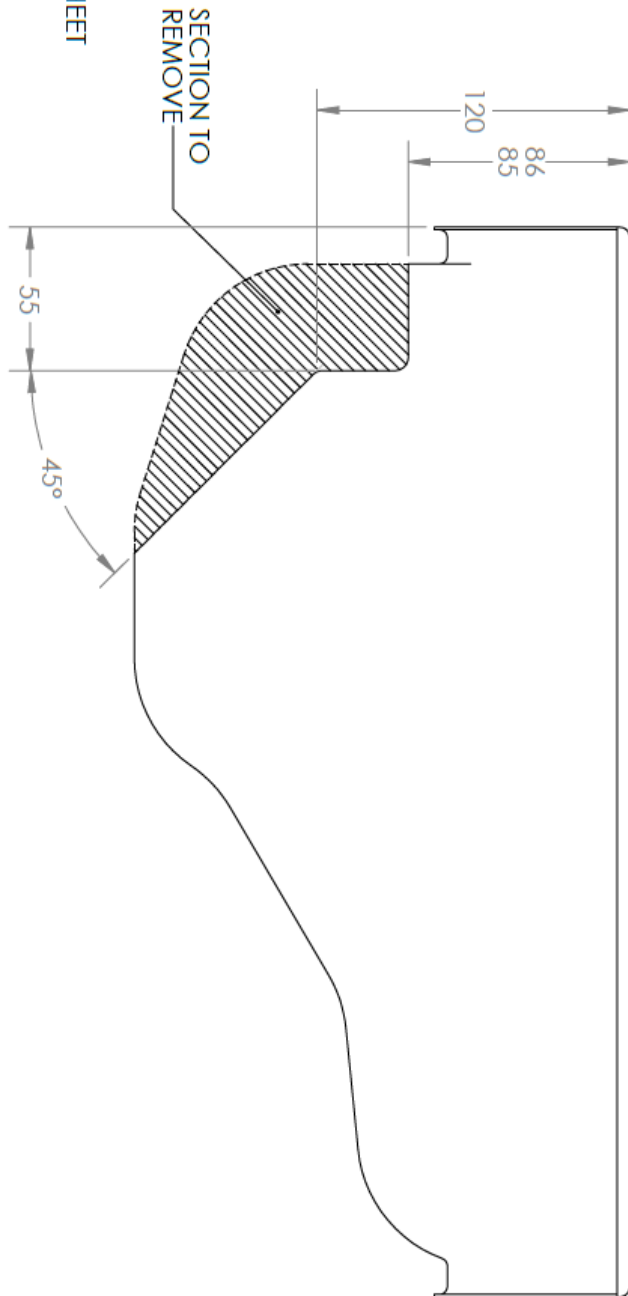
Oil, especially when hot, is very good at finding pin holes in welds. Before fitting it is advised that the sump is thoroughly checked for leaks.





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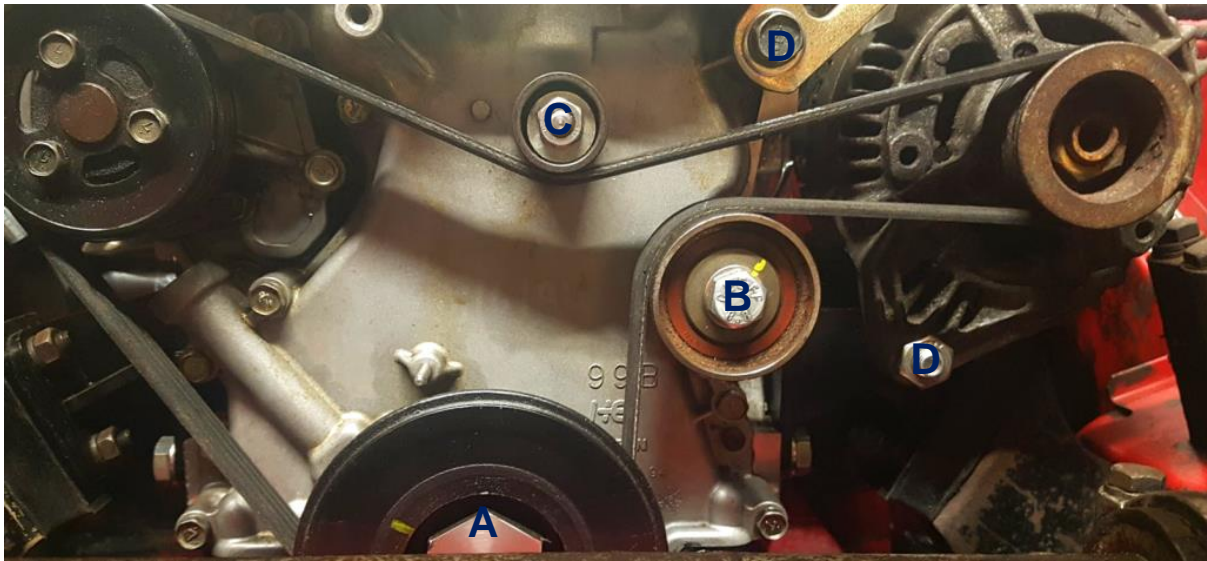
REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JCCB	13/02/2021
2	SHEET THICKNESS SPECIFIED, FRONT STEP HEIGHT TOLERANCE APPLIED	JCCB	25/04/2021



WELDS MUST BE GROUND FLUSH

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ARE IN DEGREES TOLERANCES: UNLESS OTHERWISE SPECIFIED		PART NUMBER	00145
SURFACE FINISH: 3.2Ra max. DEBURR AND BREAK SHARP EDGES - IF IN DOUBT, ASK -		DESCRIPTION	NISSAN CG SUMP MODIFICATION
		MATERIAL	MILD STEEL
		SCALE	2:5

SERPENTINE BELT AND AUXILIARIES



- A) Crankshaft Pulley Bolt Torque: 142Nm
- B) Lower Idler Bolt Torque: 40Nm
- C) Upper Idler Assembly: See below
- D) Alternator and Tensioner Torques: 40Nm

Belt Specification: 4PK965

BARRATT ENGINEERING LIMITED	REV	DESCRIPTION	BY	DATE
	1	FIRST RELEASE	JCCB	

SECTION A-A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00037	IDLER STUD	1
2	00147	VKM 21004 IDLER BEARING	1
3	00053	DIN 125 A M8 BZP	1
4	00054	DIN 934 M8 Grade 8	1

NOTES

PART 1 TO BE FITTED TO ENGINE PRIOR TO ASSEMBLY. TORQUE TO 40Nm (DRY)

PART 4 TORQUE 20Nm (DRY)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ARE IN DEGREES TOLERANCES: ANGULAR ± 30° SURFACE FINISH: 3.2 Ra max. DO NOT SCALE FROM DRAWING DEBURRS AND BREAK SHARP EDGES - IF IN DOUBT, ASK -	PART NUMBER 00166 DESCRIPTION IDLER STUD ASSEMBLY MATERIAL SEE PARTS SCALE 1:1
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CRANKSHAFT PULLEY MODIFICATION

The crankshaft pulley must be removed and the front 6PK wheel removed. This is best achieved on a lathe. Take care to not machine off the ignition timing marks.



Note: this modification is not required for 1500cc cars