



# Service Article #2

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## “Clutch Release Bearing”

By Tony Cripps

The most famous of BMC/Leyland cars are of course the front wheel drive models, and in particular, Mini and Moke. Many examples can still be found on the road and spare parts have never been easier to find – except that most of the spare parts now available are reproductions. In this article, we take a look at the clutch release bearing for the Mini range.

When first introduced in Australia in 1961, the clutch release bearing was Part No. 7MJT5/8 which is a Ransom and Marles thrust bearing 5/8” ID (BMC Part No 2A3653). This original bearing is instantly recognisable as having a rather narrow thickness and a large flat face on the thrust side.

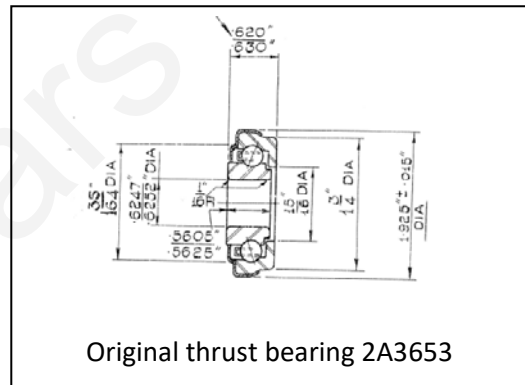
Over the years, this would change to Part Numbers 3/W5/8, CR5/8B, GRB201, GRB238 and DAM1654.

By the time we get to DAM1654 of the mid 1970s, the bearing is markedly different in appearance having a thickness of 0.685” as opposed to 0.620”, or a difference of 1.6mm. The outer diameter has also changed from 1.925” to 1.575”. The thrust face on DAM1654 has a narrow landing compared to the flat face of the former part.

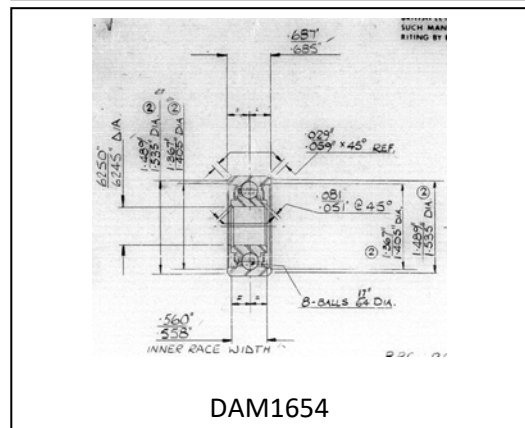
Are these differences significant? I think they are, especially when seen in context of the throwout flange on the clutch cover.

Originally, with the coil spring clutch, the throwout flange 2A3651 was a heavy pressed steel affair with a 1 3/4” dia bearing surface. This matched the 1 3/4” bearing surface of the original thrust bearing 2A3653.

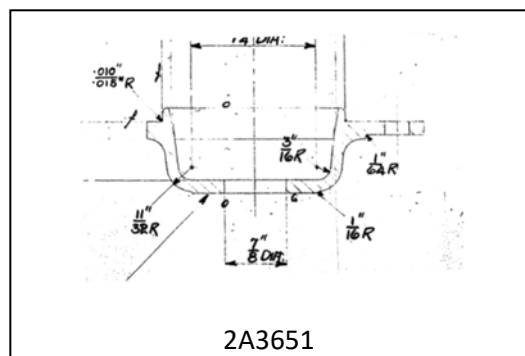
When the diaphragm spring clutch was introduced in 1964, the bearing surface of the clutch release “plate” 75306 (22G364) was quite a different matter to the throwout flange used previously.



Original thrust bearing 2A3653



DAM1654



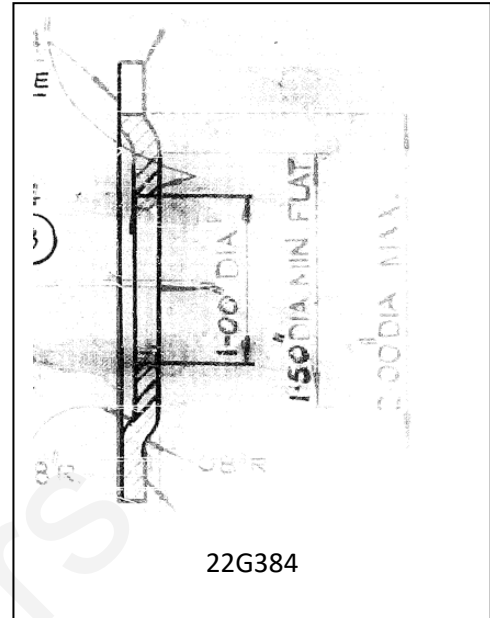
2A3651

Although the Parts List shows this as having a centre hole of 7/8", the drawing actually shows 1". More importantly, the outside diameter of the flat face is now 1.5". The 3W5/8 bearing is still the old style "flat face" type but the new release plate makes reduced contact with it. The total thickness of the plate is shown as 0.240 – 0.248", but interestingly, for YDO23 (Clubman GT), the thickness is given as 0.253 – 0.255".

In the mid-1970s, bearing DAM1654 is introduced and the outer diameter of 1.575" (40 mm) mates with the flat face of the release plate 22G384 (OD 1.5").

A revised part AAU7155 is shown for YDO21 and YDO22 models of 1977 with a self-aligning function. This has a depressed concave area compared to the above rather than a flat face as previous. The outer edge of the raised area is shown as 37 mm which compares with 40 mm of the 1.575" OD of the thrust bearing DAM1654.

For many years, bearings of the original flat face type were not available. For the last 20 years or so, replacement bearings have been of the thin face DAM1654 style. Recently, flat face style bearings have appeared on the market and are described as "heavy duty" with a wide face that purports to spread the load on the clutch release plate.



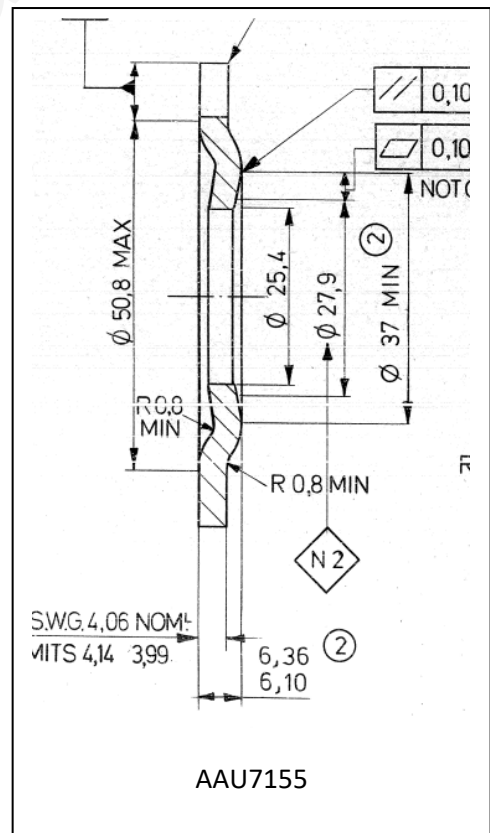
So which bearing goes with which clutch? Certainly the original flat face style of bearing and throwout flange should be used as a pair if at all possible.

With the passage of time and with the variety of slave cylinder pushrods in service (many borrowed from other cars, and lengthened or shortened by owners), mixing and matching bearings and clutch covers may lead to the slave cylinder bottoming out, or worse, the ball end of the clutch lever arm being overloaded and breaking off.

The best recommendation is to make sure that the lever arm is not being stressed unduly in the throwout plunger and that the slave cylinder piston is not bottoming out at full pedal.

So, what's available?

Basically it comes down to two (or three) products. The old style flat face bearings now available appear to be marked KOR brand and is believed to be manufactured in China. Curiously, despite its appearance, the overall thickness is actually *greater* than that of the thin face DAM1654 style! These sell for about \$45.



The thin faced style DAM1654 is readily available and appears with various markings, one of which is shown below stamped FKC from Japan. These sell for about \$35.

It is still possible to purchase an RHP brand MJT5/8 bearing made in England but it is significantly different in outer dimensions from DAM1654. It is clearly marked "thrust". This sells for about \$80. Since the outer diameter is 1.8" (45.7 mm), it is not suitable for use with a diaphragm spring clutch plate and only barely suitable for the older style 2A3651 throwout flange.

A moment's thought will show that these bearings are called upon to provide more than just thrust. There is nothing in particular which ensures that the centre line of the thrust bearing is aligned with the centre line of the crankshaft. The clutch housing cover is a flanged fit into the flywheel housing, which in turn is a dowelled fit on to the transmission case, but the transmission case is only positioned vertically by the thickness of the housing to crankcase gasket. In general, we must assume that the bearing contact face with the clutch bearing plate is not perfectly aligned which means any wobble is taken up by relative lateral movement at the interface, or sideways movement of the plunger in the clutch alloy housing. It is probably worth examining this contact when rebuilding an engine to reduce the offset by as much as possible. One way would be to reduce the flange on the outer housing and centralise the plunger hole with the crankshaft or flywheel and also centralising the clutch spring unit (which floats on the drive straps).

Tony Cripps, 2022