



Thread compatibility with replacement back axle breathers

Following Derek Squires highlighting a [useful check](#) worth making on RV8s to ensure the original plastic back axle breather has not broken or vanished, an alternative breather was identified by several members – a **Land Rover part no. 515485** – and generally regarded as a far better quality replacement part. The key concern is whether the thread on the brass breather is compatible with the thread on the recess on the top of the back axle. This topic has a wider interest as plastic back axle breathers were fitted as original equipment on MGBs and MGBGTV8s. This note aims to clarify some of the compatibility concerns.

Why is a breather needed on the back axle?

As the components within the back axle are in use and are subjected to the working loads as the vehicle is driven on roads, they together with the lubricants and air within the back axle heat up. In a sealed space that will generate pressure which needs to be released to avoid leakage around seals. The breather unit allows heated air to vent out with an outlet which impedes the ingress of water when the axles are on wet roads or in the case of Land Rovers where they are off-road in conditions where the axles may be under water.

What thread does the breather have?

In his V8 Bulletin Board posting **Jonathan Buckley** mentioned how he had been “disappointed with the poor quality of the plastic replacement part **ZKC5726** and the “equivalent” MGB part **21H6060**” and was convinced that it would soon go the way of the previous breather tube fitted to his car so “he looked around for a better quality metal breather tube that would hopefully fit the same hole and thread”. He found that the “Land Rover Defender and Range Rover

use a similar rear axle breather (**515845**), but of better quality in brass and incorporating a ball-type non-return valve to exclude water and dirt. These breather valves are widely available from Land Rover dealers and on a well-known auction site generally for less than £5. Jonathan helpfully provided good quality photos of both the replacement plastic breather and the Land Rover brass unit.

In a subsequent posting on the V8BB **Stuart McGuigan** noted the “thread on the back axle breather is not 3/8UNF – at least as far as my RV8 is concerned” - and that the “the LR part **515485** readily available in the replacement parts market has a 1/8 BSP parallel thread. So they are not strictly compatible, however they will screw straight into the back axle thread and with a good sealant (Loctite HVV or Permatex 51D) on the threads, the seal should be adequate for the modest duty seen in this location. It should be tightened firmly but not over-tightened as the thread engagement is limited and the brass quite soft – though a good deal stronger than the horrible plastic original!”

Nic Houslip agrees that “the thread in the axle is definitely a threaded 1/8” BSP with 28 TPI and not 3/8 UNF. A 3/8” UNF thread is 24 TPI and a slightly smaller overall diameter”. George Wilder and Chris Allen have confirmed with Rik Mooy that the axle supplied by GKN Salisbury for RV8s would have been threaded 1/8” BSP in line with British motor industry engineering practice of using BSP on all pipe-like connections. He adds “it’s hard to check what the thread pitch is as the dimensions are so small; a 1/8” BSP thread would have a distance of 0.0358” between pitches and a 3/8 UNF would have a distance of 0.0417” between pitches. The difference being 0.0059” or a tad under 6 thousandths of an inch, which is difficult to see with the naked eye”.

Looking at the replacement plastic breather in the photo above does suggest

the thread is slightly tapered. **Stuart McGuigan** noted he had “measured the thread in the tube in the top of the back axle as best I could, having removed the remains of the nylon breather, and found it to be **1/8BSPT - the T meaning taper**. One would expect to find a taper thread in this location as there is no flange or spot face on the axle for the breather to seat onto, so the seal should be made at the taper thread - as it is on the axle drain and level plugs, for example.”

The original plastic breather thread is not tapered due to the moulding process but is intended to be a taper thread to mate with the tapered thread in the hole in the top of the back axle and to obviate the need for a spot face on the axle and a seating flange on the breather. Thus, the **1/8 BSP parallel thread on the LR brass breather is not strictly compatible with the 1/8 BSPT taper thread in the axle**, but I feel it will be satisfactory in practice, if the breather is fitted with a suitable sealant”. He added “I would not recommend using a fibre washer under the brass breather, as the surface of the axle tube is curved, so that the washer would only contact properly along the axis of the tube. Nor would I recommend using a copper anti-seize compound on the thread, as it may cause the thread to loosen”.

Nic Houslip commented his personal choice would be “the brass part that Land Rover use although the plastic breather, whilst not so robust, does have the advantage of being non corrodible. If members want a brass one then the Land Rover part **515485** is a more solid part, but for the very few who might want authenticity then the **21H6060** is a very close match”.

Can I fit a Land Rover brass breather without the need to modify the thread?

The simple answer is the readily available Land Rover part no **515485** can be fitted as a replacement back axle breather with **no modification**. The quality of several replacement plastic breathers has been reported by several members as “poor” and the likelihood of plastic breathers suffering damage or breaking off in service is high. With replacement brass breathers from £3.75 plus P&P the choice is clear.

