DIFFERENTIAL BREATHER KIT

ARB 4x4 ACCESSORIES

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Description

A differential / axle breather serves the important purpose on a 4X4 of venting the air pressure in your drivetrain assemblies such as differentials, gearbox and transfer case to atmosphere. When these assemblies heat up under normal operation the air inside them expands, increasing the pressure, and needs to be vented to atmosphere. Likewise, when the assembly cools down the air inside contracts, creating a vacuum.

Many drivetrain assemblies are fitted with a breather from the factory. The factory breather is usually a one-way valve mounted directly to the axle housing or remotely on a short tube. The problem with the factory breathers arises particularly when driving through water crossings. In this scenario the drivetrain assembly will cool rapidly creating a vacuum. This sucks the one-way valve tightly shut, causing air to be instantly drawn into the assembly through the axle/shaft seals. However because the seals are probably still below water, then water will be drawn into the drivetrain contaminating the oil and possibly damaging drivetrain components or your Air Locker. The contaminated oil will then need to be changed.

The ARB Differential Breather Kit is designed to eliminate these shortcomings by providing a high flow, zero backpressure, zero vacuum breather system. This is achieved with a central high flow air filter and manifold that will allow up to four drivetrain assemblies to be vented to one central location on the vehicle that will be above the water level at all times. This kit is intended to replace your factory breathers or add new breathers and it contains enough fittings and tubing to connect at least two drivetrain assemblies. More tubing and fittings can be purchased separately to connect up to four to the central manifold.

The ARB Differential Breather Kit is unique in that it uses 8mm tubing (where most other kits use 6mm tubing). The larger size tubing is essential in 4X4 applications where off camber driving can cause oil to enter and block smaller breather lines.

Kit Contents

The ARB Differential Breather Kit includes:

- Manifold with 5 ports and 2 mounting holes
  - 4 x 1/8"BSP ports for connecting up to 4 breather lines
  - 1 x 1/4" NPT ports for the air filter
- Air filter assembly
- 4 x 8mm-1/8"BSP push in fittings
- 3 x 1/8"BSP plugs for plugging unused ports
- 8m x 8mm Polyethylene tubing
- 2 x self tapping screws
- 25 x cable ties

Installation

- The differential breather manifold and filter should be mounted above expected water levels that you may encounter. An ideal location is in the engine compartment at the top of the fire wall. Make sure you have some access around it to connect the tubing.

  Self tapping screws are provided in the kit for quick installation, but the mounting holes in the manifold are large enough to use an M6 [1/4"] bolt if desired.

The manifold and air filter can be mounted in multiple orientations allowing for flexible installation options some of which are shown below.

- Next you need to determine how to attach the tubing at the drivetrain assembly. There are several possibilities:
  - If replacing a factory breather that has a threaded connection then unscrew the factory breather. Many factory breathers have a 1/8"BSP thread in which case screw the supplied 1/8"BSP to 8mm push-in fitting into the existing threaded hole. If the thread is different then you will need a fitting to adapt from the existing thread to 1/8"BSP, or drill and tap a new hole as described later.
  - If replacing a factory breather that has a hose barb connection then pull the factory breather tube off the hose barb. The supplied tubing can usually be pushed onto the hose barb and secured with a cable tie. To make the tubing easier to push onto the hose barb it can be softened in hot water.
  - If adding a new breather to an assembly then you need to choose a location that is above the oil level inside the assembly, the higher the position the better. The position also needs to be clear at all possible suspension travel positions. Then you will need to drill and tap a 1/8"BSP hole. This will probably require draining the oil from the assembly and using some clean rags inside the assembly to stop the drill swarf from contaminating the assembly.
- Finally route the tubing from the drivetrain assembly back to the manifold then trim it to length. Following the vehicle brake lines or wiring harness is usually a good path to follow. Avoid routing the tubing alongside hot areas such as the exhaust, turbo or radiators.

  If tight radius bends are needed then it is recommended to soften the tubing under hot water to avoid kinking the tube.
- Secure the tubing at regular intervals using the cable ties provided.