Disk brake boosters – drain grommet removal

Introduction

BPW disk brake boosters are different to that of drum brake boosters. The service section of the disk brake booster contains a bellow as indicated in Figure 1. This bellow acts as a seal to protect the disk brake calliper from moisture and dirt. The front of the service section has a rubber O-ring, which is part of the bellow (see Figure 2) and seals the unit when it is tightened to the disk brake calliper.

Figure 1: Service section of the disk brake booster

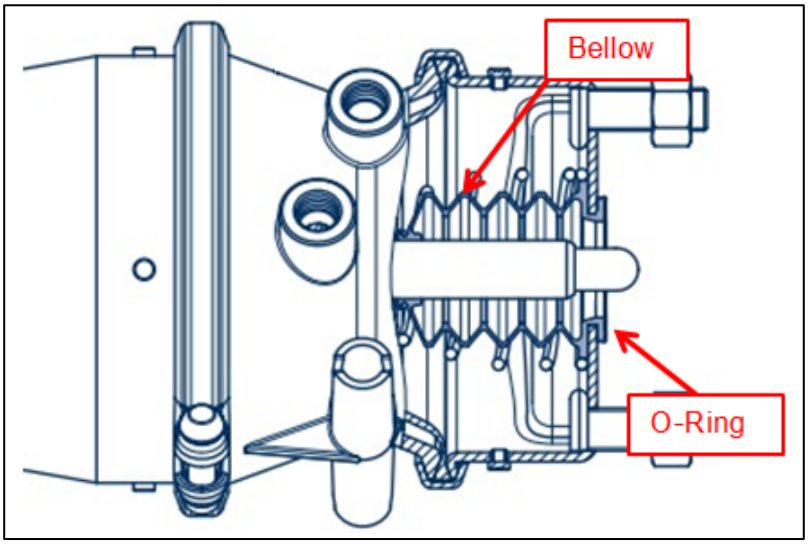

Figure 2: Rubber O-ring on front section of the brake booster

In addition the service section is sealed off to the rest of the brake booster via the diaphragm, see Figure 3.

Figure 3: Diaphragm sealing off the service section

Importance of removing the drain grommets

Once the brake booster is installed onto the disk brake calliper, it is very important for the drain grommets to be removed from the lowest drain hole, Figure 4. All other grommets must be kept in place.

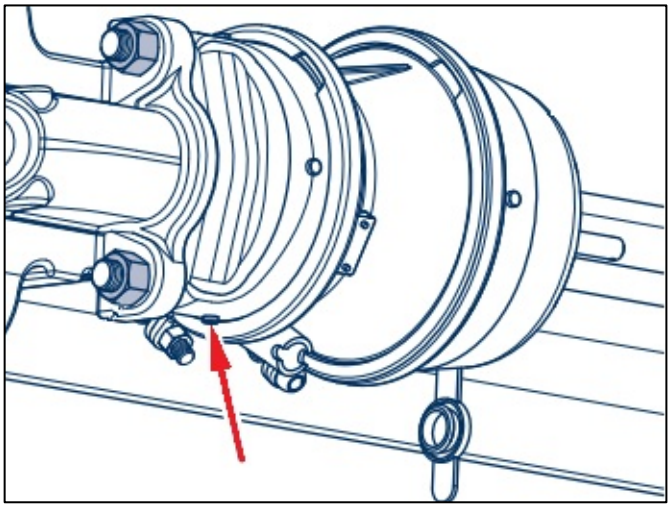

Figure 4: Drain grommet removal

When the brake is actuated, compressed air is applied to the primary chamber, Figure 5, of the air cylinder. The diaphragm tries to displace the air from the secondary chamber. If the drain grommets are still within the drain holes the air only escapes very slowly and an over pressure builds up in the secondary chamber. Once the air has escaped from the secondary chamber and the brake pedal is released, a vacuum is created and the piston rod of the cylinder remains in the extended position since the force of the resetting spring is no longer sufficient to push the membrane back.

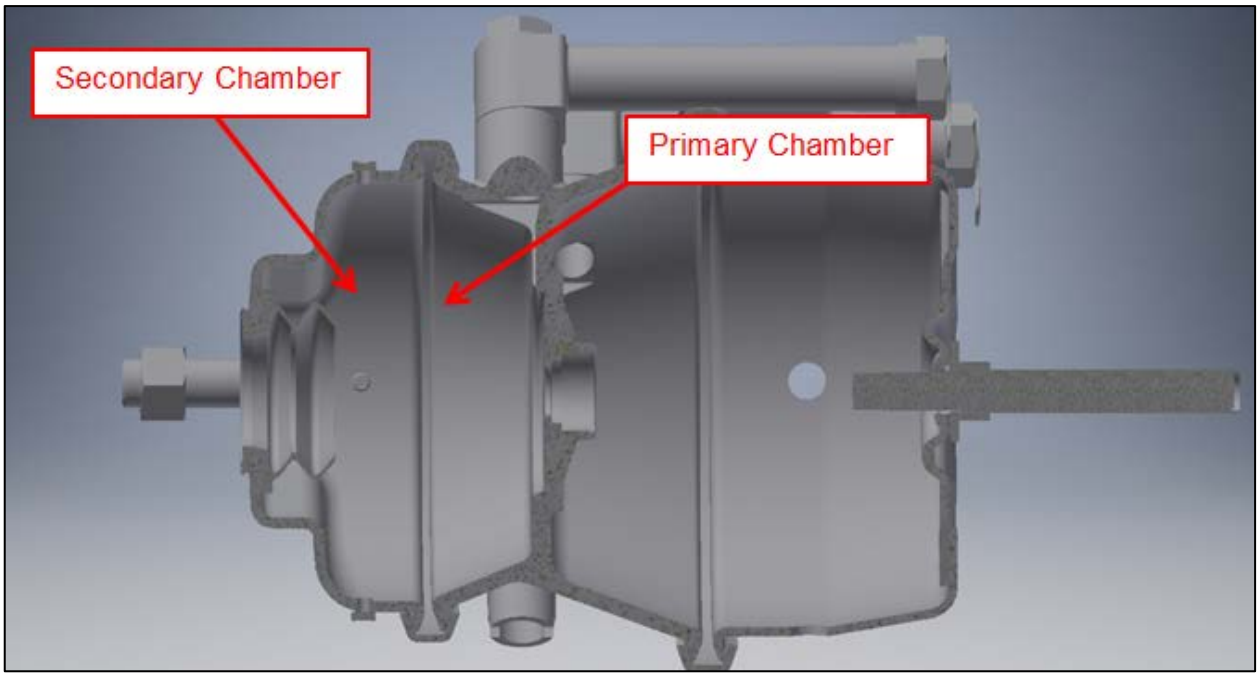

Figure 5: Air cylinder layout

Correct removal of the drain grommet

It is important that the drain grommet be removed correctly without damaging them. This is done by using a flathead screwdriver and carefully prying the grommet loose. Care should be taken not to damage the paint around the drain hole as the paint acts as a protective coating to the housing of the air cylinder.
Incorrect removal of the drain grommet, as shown in Figure 6, which shows that the shank of the grommet is still within the drain hole. The shank can be pushed into the service part of the brake booster. This will cause scuffing to the diaphragm with every brake application and release, resulting in premature diaphragm failure and consequential brake failure. It is always important that manufactures instruction are adhered to, in order to prevent future failures.

Figure 6: Left over piece of grommet in the brake booster