



Technical Note: 10000050

Single Sensor Head with Shutter (SS-104) Replacement of Bellows Assembly

The shutter assembly SS-104 is virtually maintenance-free. However, like any of the moving mechanical parts, it has its limits. One component that may need replacement is the bellows assembly. It is advisable that the complete assembly be sent back to the manufacturer for repair. If it is not possible, please follow the following instruction to replace the used bellows assembly with a new one. This instruction is applied to all DSH models.

Tools required:

- #4 Philip Head Screwdriver
- 1/4" open wrench or a small pair of pliers
- 1/16" Allen wrench
- 5/64" Allen wrench

Procedure:

(See Figure 1 below.)

Removing the old bellows assembly.

- Use the 1/4" open wrench or a small pair of pliers to hold on to the LINK (E).
- Use the 1/16" Allen wrench to unscrew and remove the SHOULDER SCREW (A). Make sure LINK (E) does not move when you loosen the SHOULDER SCREW (A).
- Use the #4 Philip Head Screwdriver to unscrew and remove both of the #4 Philip mounting SCREWS (F).
- Remove the bellows assembly from the DSH. If the air tube is attached to a feedthrough, remove it from the feedthrough.

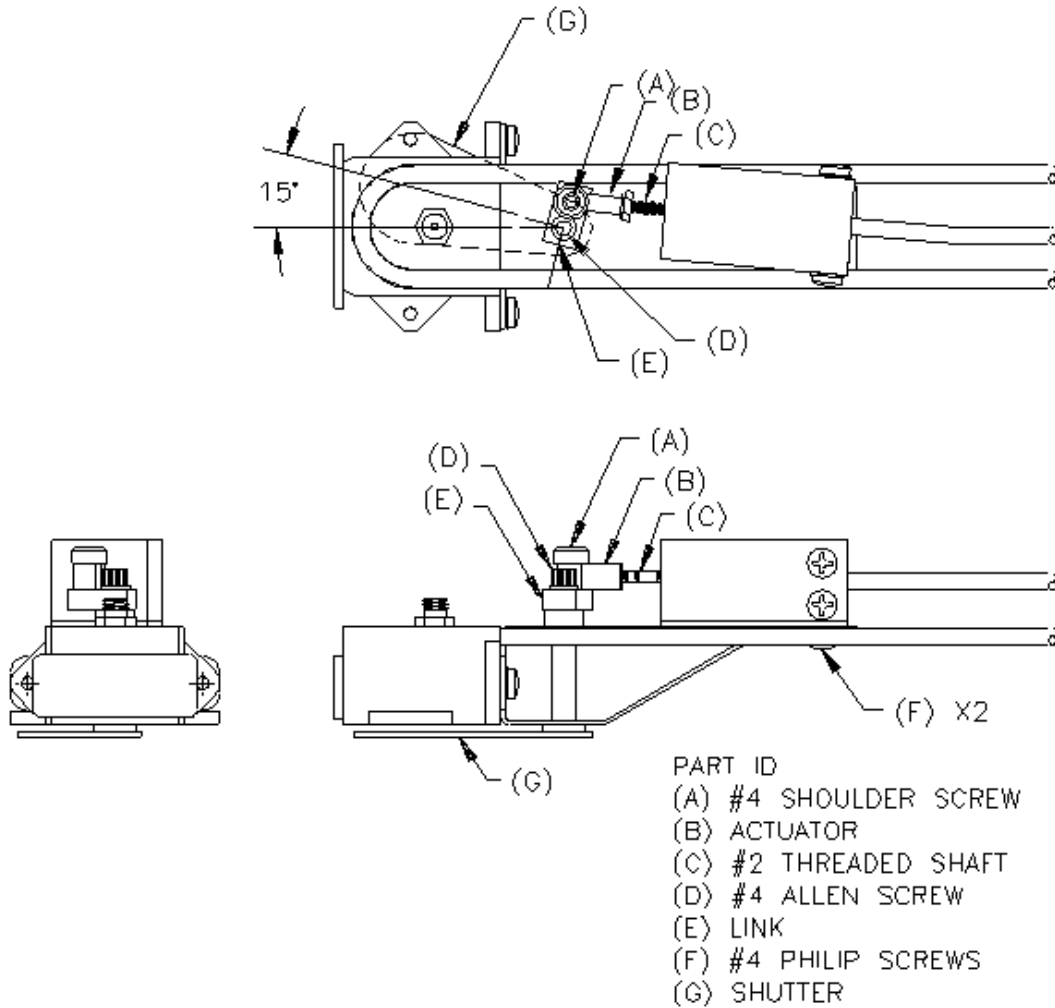
Attaching the new bellows assembly.

Attaching the new bellows assembly basically involves the reverse order of the above steps. However, it may require extra steps to set the shutter opening threshold pressure.

- Attach the new bellows assembly using the 2 #4 Philip mounting SCREWS (F). Make sure that the bellows housing is aligned with the mounting plate. Use the #4 Philip Head Screwdriver to tighten the screws.
- Attach the ACTUATOR (B) to the LINK (E) using the SHOULDER SCREW (A). Screw it all the way down, but do not tighten. The shutter should be about 15° off of the centerline.
- Apply 15 6 1 PSI air pressure to the bellows. The shutter should move and align with the head centerline covering the entire crystal aperture. If the shutter does not cover the crystal, the total length of the ACTUATOR (B) and THREADED SHAFT (C) need to be adjusted. If the shutter moved past the centerline, the actuator length needs to be shortened up. If the shutter never reached the centerline, the actuator length needs to be lengthened.
- To shorten the actuator length, remove the SHOULDER SCREW (A), screw the ACTUATOR (B) clockwise into the THREADED SHAFT (C).

- To lengthen the actuator length, remove the SHOULDER SCREW (A), unscrew the ACTUATOR (B) counter clockwise out from the THREADED SHAFT (C).
- Repeat steps 2 through 5 until the shutter covers the crystal aperture at 15 PSI.

Use the 1/16" Allen wrench to tighten the SHOULDER SCREW (A) to the LINK (E). Again, Use the 1/4" open wrench or a small pair of pliers to hold on to the LINK (E). Make sure LINK (E) does not move when you tighten the SHOULDER SCREW (A).



Document Title:	Single Sensor Head with Shutter (SS-104) Replacement of Bellows Assembly
Document ID:	10000050
Creation Date:	
Modified Date:	5/17/2005
Related Products:	SS-104 , SH-101/SH-102
Product Line:	Thin Film / Vacuum
Notes:	Originally released as THIN FILM TECHNICAL NOTE V 150