Shell Air Valve Maintenance

Product

ThermoFlex Wide II

Machines affected Sleeve capable devices – only applies to shells built before Dec 2005

Background

The shells have four small valves in the tailstock end. These valves control the flow of high pressure air to holes on the surface of the shell to create an air bearing that allows the movement of sleeves on the shells.

To maintain proper operation, the air valves in the shell may need periodic cleaning due to poor quality inlet air or debris collected from the environment. In severe cases the valves can clog completely.

Air valves that have started to leak or are damaged must be replaced.

Parts required

Part Number	Part Name	Quantity
	• M3x30 screw for 15-42 in. repeat shells	-
	• M2x25 screw for 12-15 in. repeat shells	-
	• O-ring lubricating grease·	
89-0054	• Loctite 222·	
316-00109 (4.5 mm) 316-00123 (3 mm)	• O-rings (4-4.5 mm x 1 mm for valves in 15-42 in. repeat shells, or 4 – 3.0 mm x 1 mm for valves in 12-15 in. repeat shells)·	4
	• Isopropyl alcohol (IPA)·	-
	• Plastic cotton swabs·	-
252-08487A	• Replacement valve nuts	4

Tools required

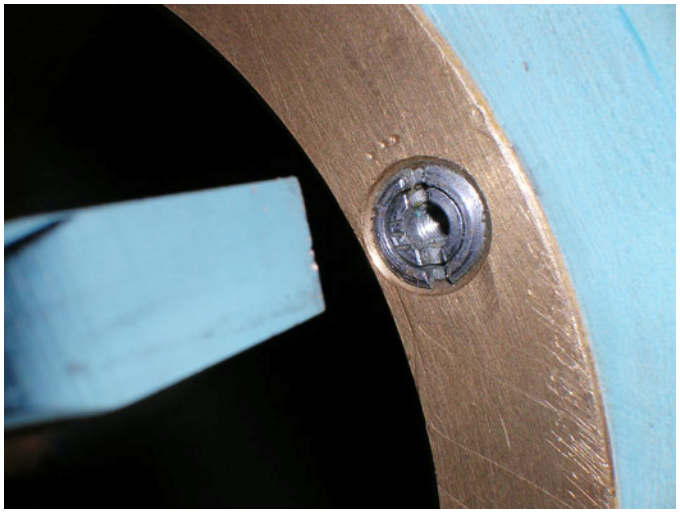
- Small flat screwdriver (blade width 4-5 mm)·
- Medium flat screwdriver (blade width 7-8 mm)·

To ensure that the valves are installed in the same ports that they were removed from, remove, clean, and install the valves one valve at a time. Repeat the procedure for all four valves.

Removing the air valve

1. Ensure that the air bearing is off if the shell is in the ThermoFlex device.
2. Pull back and swing the tailstock out of the way.
3. Using a small screwdriver, align the slot of the valve to the slot in the nut.

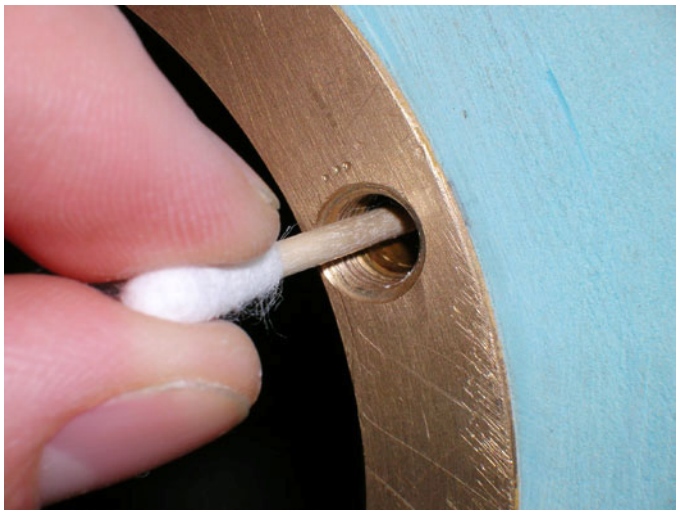
4. Carefully remove the nut by inserting a medium screwdriver into the slot in the end of the nut and turning it—the nut is held in place with Loctite and may be difficult to crack.
   Note: Be very careful not to strip the slot in the nut as it is very thin and delicate. If the slot is damaged or there is other damage to the nut, discard the nut and replace it with a new one.



5. Screw a M3 screw for 15-42 in. shells, or a M2 screw for small shells, into the thread in the valve and pull the valve out of the port.

Cleaning the air valve and port

1. Inspect the air hole in the valve and clean if necessary.
2. Clean the air passage in the bushing of the shell beyond the valve port.



3. Clean the threads of the valve port with IPA and cotton swabs.

Installing the air valve

1. Inspect the valve's o-ring and replace it if it is damaged.
2. Apply a small amount of grease to the o-ring and the exterior of the valve body.
3. Thread the nut into the port threads about 1 to 1½ turns.
4. Using a cotton swab, apply a small amount of Loctite to the outside of the nut and continue to thread the nut into place until it stops.
   Note: Be very careful to not get Loctite between the nut and the valve as it will prevent the valve from turning.
5. Using a small screwdriver, try to turn the valve. If it will not turn, back off the nut incrementally by 1/8 of a turn until the valve turns somewhat freely.
6. Make sure that the nut or valve is not protruding from the end surface of the bushing. If it is, replace the nut or valve with one that will not protrude.

Repeat the removal, cleaning, and installation procedure for all four valves before proceeding to the next section on adjusting the air valves.

Adjusting the air valves

If the air valves are not correctly adjusted, they could impede the flow of air causing difficulty in the loading and unloading of sleeves. Two of the valves control the outboard set of holes and are indicated by a single punched dot or number "1" near the valves. The other two valves control the inboard set of holes and are indicated by a double set of punched dots or number "2" near the valves.

In normal operation, only the outboard set of holes must be turned on. The inboard set of holes are only turned on to unload bridge sleeves.

1. Turn on the outboard set of holes by turning the valves so that the indicator lines are in line with the single punched dots.
2. Turn off the inboard set of holes by turning the valves so that the indicator lines are turned 180 deg away from the double set of punched dots.

See also	500-02308A (assembly drawing) 500-02304A (assembly drawing)
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