

## Galiso Hydraclose Heads

### Operation

**Pneumatic air** at 85-90 psi enters head at the "Seal pressure in" connection. This expands the test jacket seal and seals the head into the jacket. It also pressurizes under the diaphragm lifting the stem, expanding the cylinder neck "speed seals" to seal the cylinder.

High pressure from the pump enters the cylinder via the stem

### Head types:

There are 2 types: (You can view/print a sketch of each type by clicking on the link)

The "**G" style head** has a quick-change cylinder connection spud. This makes it easier and quicker if you are testing frequently changing cylinder sizes that have different threads.

The "**H" style head** is similar, although the cylinder connection spuds are threaded onto the top plate and are recommended where large, heavy cylinders need to be lifted into the jacket.

Both types allow for different adapters to be fitted to accommodate cylinders of different thread sizes and design.

### Fault finding:

Use the following diagnosis chart to locate suspect area in the head:-

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION (WHAT TO DO)</b>
<b><u>Expansion Increasing</u></b>	Head Seal Leak	Switch heads (if another is available). If problem ceases, repair faulty head. If another head is not available, using proper Head Retaining Device, leak check head around diaphragm and boot. If any leaks exist, repair head.
<b><u>Expansion Decreasing</u></b> In ONE Jacket only (Negative expansion)	Head Boot not sealing against Jacket	Check inside sealing surface of Test Jacket to ensure that the surface is smooth. Check Boot itself for deformations.
<b><u>Pressure</u></b>	Test Head has High Pressure Leak, check in inspection plug for internal water inside head	Switch test heads. If problem goes to the other Jacket, Test Head needs rebuilding.

### **Pressure (water) faults**

Characterized by pressure drop from the head itself when isolated from the test system.

1. With the head removed from the jacket, remove the brass nut and speed seals and fit a blanking adaptor to the end of the stem to blank the high pressure outlet.
2. Apply pressure to the test pressure inlet and monitor the pressure drop.
3. If the pressure is dropping more than 10 psi per minute, suspect a high pressure leak inside the head.

<b>Symptom</b>	<b>Solution</b>
Water inside head or around HP connections in head cavity	Remove top of head and tighten connections
Water escapes from the air connection when it is removed from the head.	Remove top of head and tighten stem connection

### **Pneumatic faults**

**Important:**

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**NEVER EVER connect air to the test head without fitting a proper retaining band around the boot and a suitable adaptor to the test spud.**

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Characterized by air pressure drop from the head itself when isolated from the test system.

1. With the head removed from the jacket, fit an adaptor to the spud, ensuring the speed seals are correctly fitted.
2. Fit a retaining band around the boot. This **MUST** be able to withstand the force exerted by the expanding boot.
3. Apply air pressure and monitor pressure drop.

4. Apply soap solution to the diaphragm and boot and check for bubbles.

Symptom	Solution
Leak inside head shows as bubble from inspection hole when cap removed	Remove top of head and tighten connections or replace LP tubes
Leak around boot	Replace boot
Leak around diaphragm	Replace diaphragm
Air leak through HP fitting	Remove top of head and tighten stem connection

## **Repair**

### **Lid removal**

- To remove the lid, place a boot clamping band around the outside of the head.
- Undo the top bolts in a diagonal sequence and remove tilt one side.
- Insert a spanner and loosen the High and Low Pressure (HP and LP) connections.
- The entire lid can now be removed.

### **Diaphragm removal**

- Remove the nuts, speed seals and washer.
- Undo the spud or quick connect (if fitted).
- Undo the bolts in a diagonal sequence and remove.
- With a spanner of the stem assembly center adapter, remove the stem
- Undo the spanner ring with a stilson or pipe grip
- Remove diaphragm and O-rings

## **Assembly**

**Ensure all parts are cleaned and free of loose rust, old silicone and are painted with a zinc based self galvanizing paint**

## Diaphragm fitting

- Install O-ring on adapter (40-81-6118).
- Install backing plate with the 3 grooves facing toward the spud plate.
- Form a bead of duct seal 3mm x 75mm long in your hand. Do not roll duct seal on table, it will pick up particles that will cause sealing problems. Lay the bead on top of the of the backing plate and press into the threads of the adapter.
- Install the diaphragm and repeat step #3. Lay the bead of duct seal on top of the diaphragm around the adapter. Press into threads of the adapter.
- Install the spanner ring using an 18" pipe wrench, tighten until diaphragm starts to cup or roll a little.
- Install the spud into the spud plate
- Position the spud and spud plate assembly over the stem and install a bolt into every other mounting hole (hand tight) in most cases 4 bolts depending on head type.
- Apply silicone sealant to the remaining bolts and fill the remaining holes.
- Install each of the silicone covered bolts into each of the filled mounting holes and tighten to 40 foot lb.
- Remove the hand tight bolts and repeat the silicone steps from above. (steps 8 and 9)

**The stem can be fitted before or after diaphragm fitting**

## Lid fitting

- Fit boot to steel band and place over internal studs on lower plate.
- Align manufacturing marks when reassembling.
- Fit retaining band around outside of boot and tighten clamps.
- Fit HP line as tight as possible. LP line goes under HP line.
- Inset bolt and tighten diagonally evenly. Tighten to 35-40 lb ft.