

The following information is an addendum to Smith Meter Bulletin MN03018: Pipeline Strainers Installation/Operation Manual. This reference material is regarding operation and maintenance instructions for Huber-Yale Threaded Closures with "JIB" Hinge, their Bulletin Figure 500, dated January 1979.

## HUBER -YALE FIGURE 500 HINGED CLOSURES WITH "JIB" HINGE

### OPERATION AND MAINTENANCE INSTRUCTIONS

*See illustrations pages 3 and 4*

Figure 500 Hinged Closures are carefully fabricated, adjusted and checked at the factory prior to shipment to insure the closure hinge provides proper alignment between the cap and hub, for smooth thread make-up without undue thread drag, also to verify that full face to face engagement is achieved at the O-ring seal. For proper seal, IT IS IMPERATIVE THAT THE WELDING INSTRUCTIONS PACKAGED WITH EACH ASSEMBLY BE CAREFULLY FOLLOWED BY THOSE MAKING THE SHOP OR FIELD INSTALLATION IN ORDER TO PREVENT HUB WARPAGE AND COMPROMISE OF THE DESIGNED PERFORMANCE.

#### A. ADJUSTMENT- PRIOR TO PLACING IN SERVICE

Failure of the cap to make up readily without thread drag indicates the hinge adjustments made at the factory have probably been disturbed during shop or field installation. Should there be any difficulty turning the cap on the hub, adjust the hinge assembly as follows: (Refer to illustration page 3)

1. Turn cap loose from hub and pull cap back approximately three inches. The cap face must parallel the hub face. This can be checked visually, or by measuring distance at top and bottom.

Adjustment is made by moving the Hinge Elbow (6) laterally along the Cap Center Pin (5) after loosening one or the other of the two Set Collars (4). The cap can tilt either inwardly or outwardly at the top if the cap center of gravity is not directly below Hinge Pivot Pin (10). Should the cap tilt inwardly, move the Hinge Elbow (6) along the pin nearer to the cap. If the tilt is outwardly at the top, move the Hinge Elbow away from the cap. After adjustment, tighten Set Collars (4) to fix the support point.

**CAUTION** - Never leave the outboard set collar loose during adjustment as it would be possible for the cap to slide off the pin and drop free.

2. Vertical Adjustment of the cap is made by tightening or loosening Adjustment Nut (8). Properly adjusted, all the weight of the cap will remain on the hinge without transfer of any weight to the hub during thread make-up.

#### B. MARKING CAP CLOSED POSITION

After closure assembly and the vessel or facility to which it attaches have been hydrostatically tested, the threaded surface of the cap and hub will have been fully seated. The following procedure for establishing the full closed position of the cap is then recommended for it will aid all subsequent closure operations:

With the O-Ring removed, make up the Cap on the Hub, tightening the Cap with the Closure Actuator (17), See page 4, until metal to metal seating between the faces of the parts is evident. (This can be easily determined by placing a finger across the Cap and Hub joint. Stop tightening when motion of the Cap relative to the Hub cannot be felt.) Mark a line across the back of the Cap and Hub, for future reference, to indicate the point at which the threads are fully made up. Open the closure, replace the O-Ring and on subsequent closings MAKE NO ATTEMPT to tighten the cap beyond the referenced point for it can only result in damage to the "Closure Actuator Tool" or the fittings to which it attaches.

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**J. M. HUBER CORPORATION****YALE MACHINE DEPARTMENT**

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**C. OPERATION****1. Closing Cap**

- a. Tighten Cap on Hub using Closure Actuator (17) See page 4. DO NOT TIGHTEN beyond reference marks (See para. B).
- b. Remove Pressure Alert Valve (19) stem from retainer on Cap; insert in valve body on Hub and tighten by hand. DO NOT use wrench to tighten.

**2. Opening Cap**

- a. Remove Pressure Alert Valve (19) stem from valve body in Hub and place in retainer on Cap.
- b. Use Closure Actuator (17) to loosen Cap until it can be turned by hand. Pull Cap back on trolley and swing to side.

**D. PREVENTIVE MAINTENANCE**

The following procedures are recommended to assure that the closures will consistently operate and seal easily without make-up difficulties:

**When Closure is Opened:**

1. ALWAYS clean cap and hub threads, then grease liberally.
2. ALWAYS clean O-ring groove, hub face, and cap sealing face, then grease liberally.
3. ALWAYS clean O-ring and grease liberally. Replace O-ring when tears or breaks are evident. (See O-Rings, para. E)

**At Regular Intervals:**

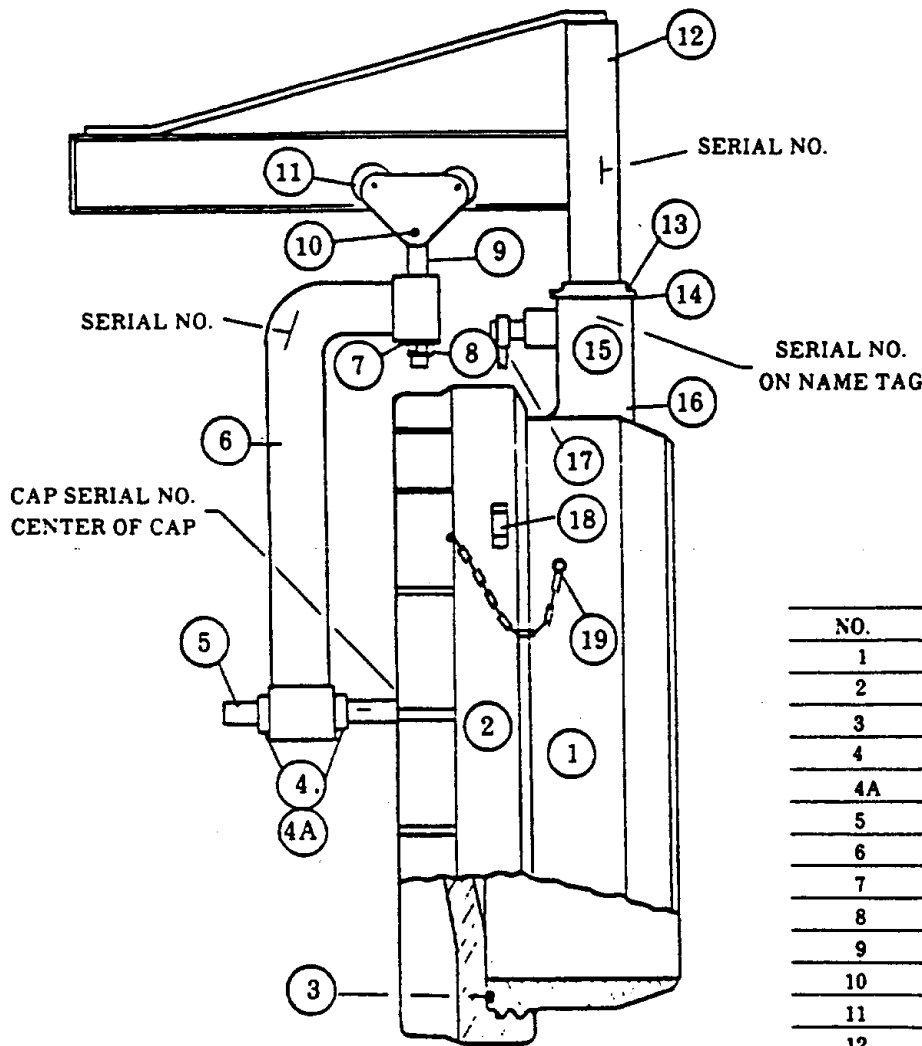
1. Lubricate "Closure Actuator" (17) thread<sup>s</sup> and bearing.
2. Grease following lubricating zerks.
  - (a) Cap Pin (5) bushing
  - (b) Trolley Wheels (11)
  - (c) Hinge Socket (15)

**E. O-RING INFORMATION**

Closure O-Rings are specially designed for Huber-Yale Closures. To insure satisfactory closure operation, replacement O-Rings should be obtained from the factory for the following reasons:

1. O-Rings for standard closures are one-piece die molded to exact size.
2. O-Ring cross-section diameter varies on certain size closures and it is essential that the O-Ring cross-section size matches the O-Ring groove size.
3. O-Ring compounds are specially selected to provide "minimal swell" in hydrocarbons and excellent low temperature properties.
4. To meet special customer requirements, O-Rings of other compounds are available.

**HUBER-YALE FIGURE 500 CLOSURE WITH "JIB" HINGE  
FOR ATTACHMENT TO HORIZONTAL VESSELS**



**PARTS LIST**

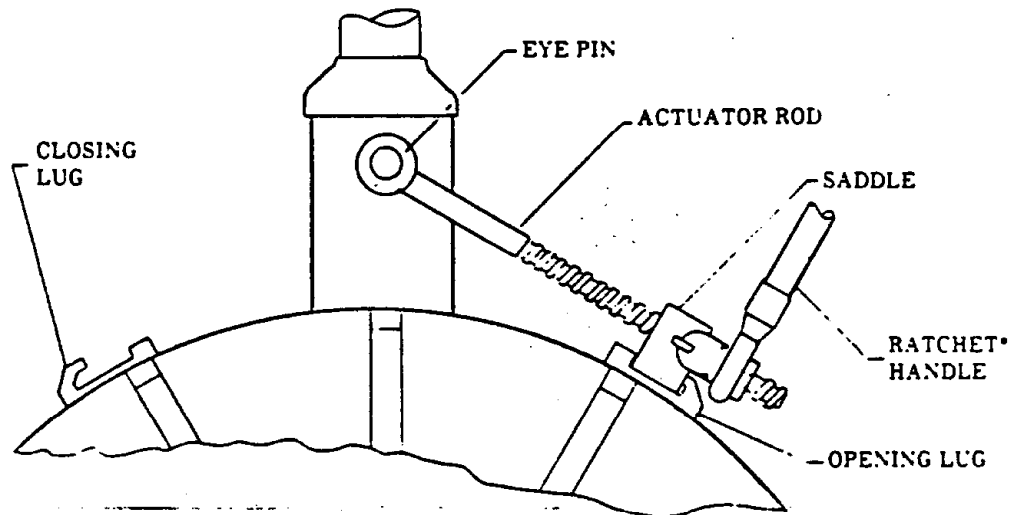
NO.	DESCRIPTION
1	HUB
2	CAP
3	O-RING
4	SET COLLARS (FOR TILT ADJUSTMENT)
4A	CAP PIN BEARINGS*
5	CAP CENTER PIN
6	HINGE ELBOW
7	ADJUSTMENT NUT BEARING**
8	VERTICAL ADJUSTMENT NUT
9	ADJUSTMENT SCREW
10	HINGE PIVOT PIN
11	TROLLEY
12	JIB COLUMN
13	BEARING COVER
14	TOP RADIAL BEARING
15	HINGE SOCKET
16	THRUST BEARING
17	CLOSURE ACTUATOR (CAT) See Pg. 4
18	CAT LUG
19	PRESSURE ALERT VALVE (PAV)

WHEN ORDERING PARTS, SPECIFY HORIZONTAL JIB HINGE, CLOSURE SIZE AND DESIGN PRESSURE

\*Used only on large-high pressure closures

\*\*Used only with 4" dia. Hinge Elbow

## CLOSURE ACTUATOR "CAT" INSTRUCTIONS



ACTUATOR SHOWN INSTALLED TO OPEN

### TO OPEN CLOSURE

Hook eye of Actuator rod over eye pin and slip saddle into opening lug. Set ratchet control (knurled knob with arrow in center) to point at ratchet handle. Pull ratchet handle repeatedly until cap can be turned by hand.

### TO CLOSE CLOSURE

Hook eye of Actuator rod over eye pin and slip saddle into closing lug. Set ratchet control arrow to point away from ratchet handle and operate ratchet until closure cap stops moving.

### CAUTION

**DO NOT OVERTIGHTEN** — Overtightening will damage the Actuator. Place finger across joint between Cap and Hub. Cease tightening when motion of Cap relative to Hub cannot be felt.

\*Ratchet furnished with large closures only. Smaller closures have hex nut for turning with separate hand wrench.