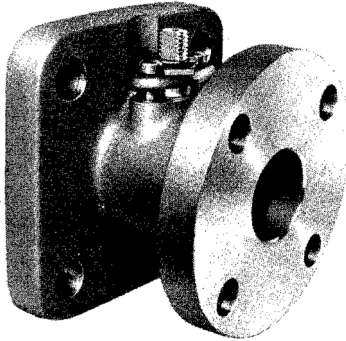


## IMO - 86

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### INSTALLATION, MAINTENANCE, AND OPERATING INSTRUCTIONS



## 2" (DN 50) AFFU TANK CAR TOP LOADING AND UNLOADING VALVES

Read entire instructions carefully before installation or servicing

### 1 GENERAL

This instruction manual contains important information regarding the installation, operation, and troubleshooting of Jamesbury 2" (DN 50) AFFU Tank Car Top Loading and Unloading Valves. Please read the instructions carefully and save them for future reference.

#### 1.1 WARNING

FOR YOUR SAFETY, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE TANK CAR OR BEFORE ANY DISASSEMBLY.

1. EXERCISE NORMAL SAFETY PRECAUTIONS TO PROTECT YOURSELF AGAINST BOTH THE FLUID AND POSSIBLE UNRELIEVED PRESSURES IN THE VALVE ITSELF.
2. DO NOT REMOVE THE VALVE FROM A LOADED TANK CAR.
3. TURN THE VALVE FROM FULLY CLOSED TO FULLY OPEN AND BACK AGAIN TWO TIMES BEFORE REMOVAL FROM THE EMPTY TANK CAR. THIS RELIEVES ANY RESIDUAL PRESSURES.
4. AFTER REMOVAL AND BEFORE DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES (AS IN NO. 3).

#### 1.2 Description

The Jamesbury 2" (DN 50) AFFU ball valve is of cast one-piece construction. The flanges are designed to meet the special requirements of pressure cars.

Jamesbury valves manufactured for railroad use meet all appropriate AAR specifications.

### 2 INSTALLATION

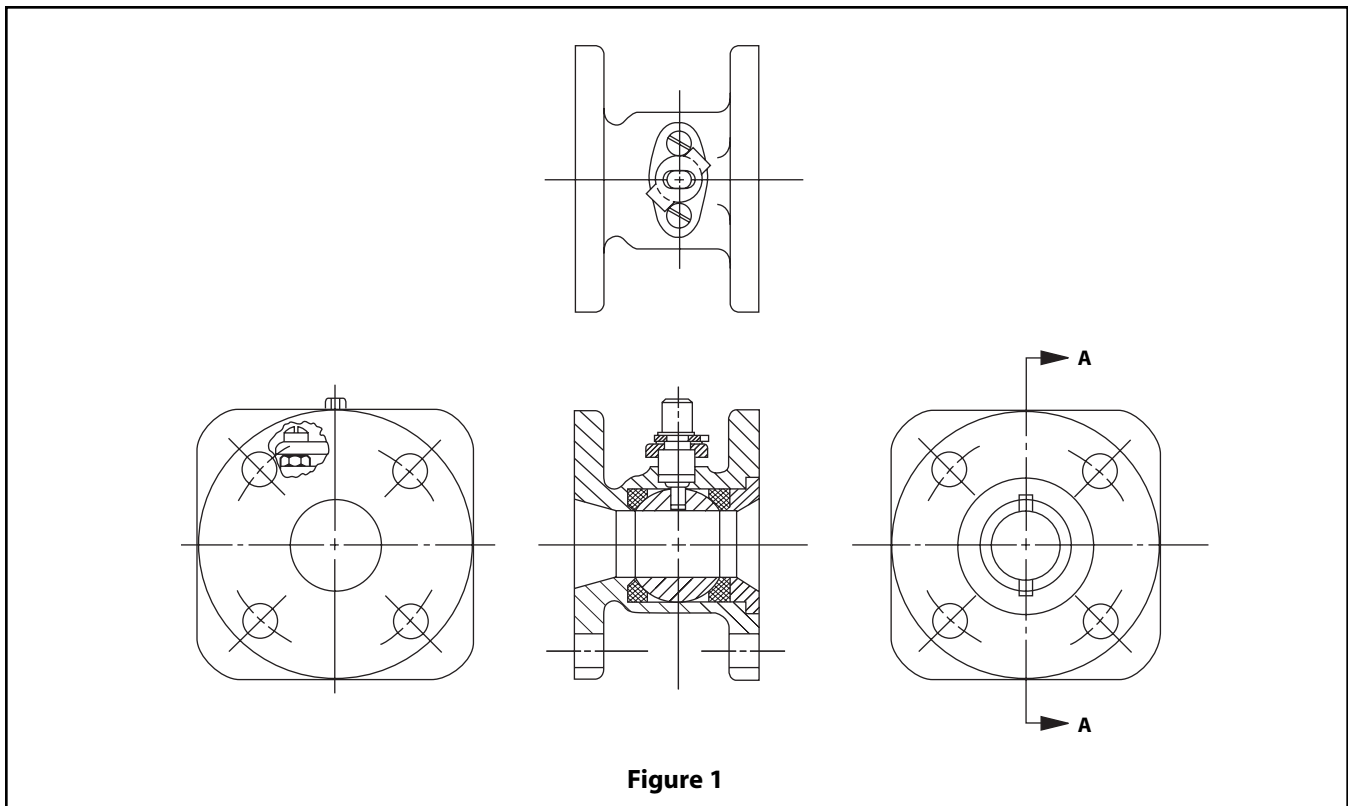
The valve must be installed with tongue inserted into the corresponding groove on the tank car.

Follow the recommended practices of the gasket manufacturer when tightening flange bolts.

Good operating procedure requires periodic observation to insure that the valve is functioning well. The frequency of observation will depend on the application.

#### 2.1 Disassembly

1. Read the instructions in the **WARNING** Section.
2. Place the valve in the open position.
3. Remove the nut (16), handle (15), retaining ring (14), indicator stop (12), cap screws (11), and nuts (10), bonnet plate (9), stem bearing (8).
4. Pull out the stem (4) and stem seal (7).
5. Place the valve in the vertical position with the insert end up.
6. Unscrew and remove the threaded body insert (2).
7. Lift the body seal (6), seat (5), and ball (3) from the body. If these parts do not lift out easily, place the ball in the closed position, and with a piece of wood or some other soft material gently tap the ball from the end opposite the insert. This will unseat these parts without damaging them.



**Figure 1**

8. Pry the bottom seat (5) out of the body cavity. Use care to prevent damage to the seat face and sealing surface of the body.

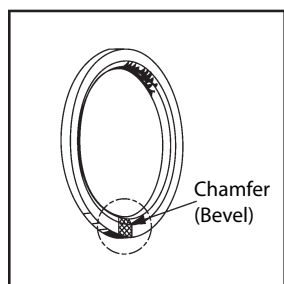
## 2.2 Assembly

A good lubricant compatible with the flow medium should be applied lightly to seats, seals, ball and stem to facilitate assembly and for ease of initial operation.

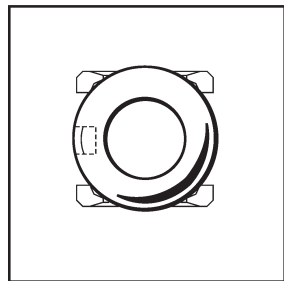
1. Install first seat (5) into body (1) so that the bevel surface (note drawing) will be adjacent to the ball (3).
2. Place the ball (3) into the valve in the open position, and adjust so that the slot faces the stem opening. Insert the stem (4) without the stem seal as a temporary means of holding the ball, and turn the ball to the closed position.
3. Insert the second seat (5) into the body, again with the bevel surface adjacent to the ball. Insert the body seal (6) into the machined sealing area of the body with the chamfer on the I.D. facing away from the ball. **(See Figure 2)**
4. Thread on the insert (2) and screw down until it is flush as shown on **(See Figure 1)**.
5. Rotate the valve to a horizontal position. Remove the stem, and insert the stem seal (7) into the stem hole with the chamfer on the I.D. facing down. Lubricate the stem with a compatible lubricant and insert it. The stem should be tapped into place gently to avoid cutting the PTFE of the stem seal.
6. Place the stem bearing (8) over the stem.
7. Place the bonnet plate (9) over the stem. Insert the two cap screws (11). Thread nuts (10) onto cap screws. Secure the bonnet plate to the valve.
8. Tighten the cap screws until they make contact with the bonnet plate; then, tighten another 3/4 of a turn. Tighten nuts (10) against the top of the bonnet area to prevent the cap screws from backing out.
9. Drop on the indicator stop (12) and secure it with the retaining ring (14).
10. Place the handle (15) on the valve stem and rotate the ball slowly with a gentle back and forth motion to build gradually to the full quarter turn. By rotating slowly, the seat lips will flow into place to maintain a permanent seal against the ball. A quick turning motion at this point may cut the seats before they have a chance to flow into place.
11. Secure handle to valve using nut (16).

## 3 MAINTENANCE

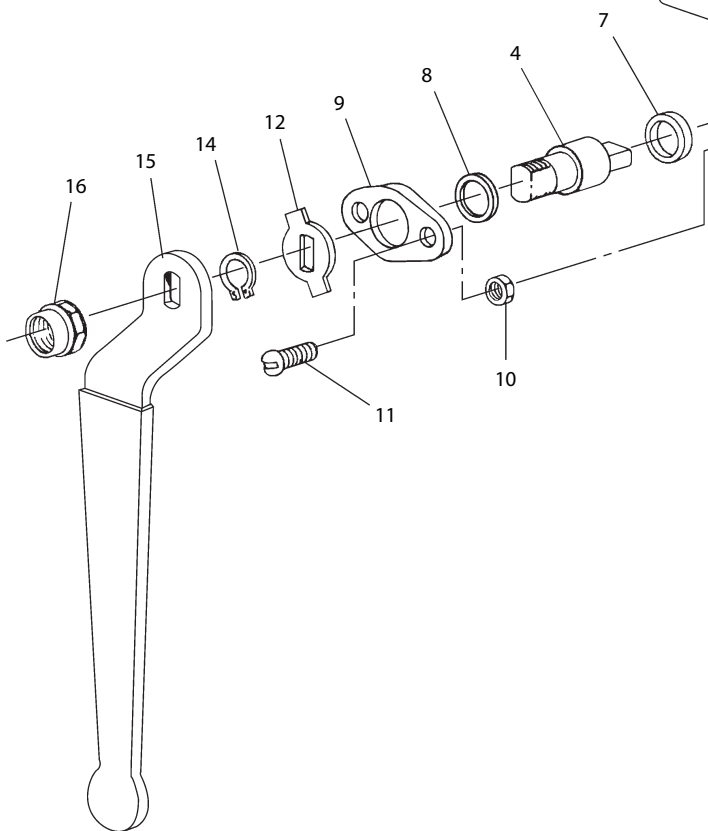
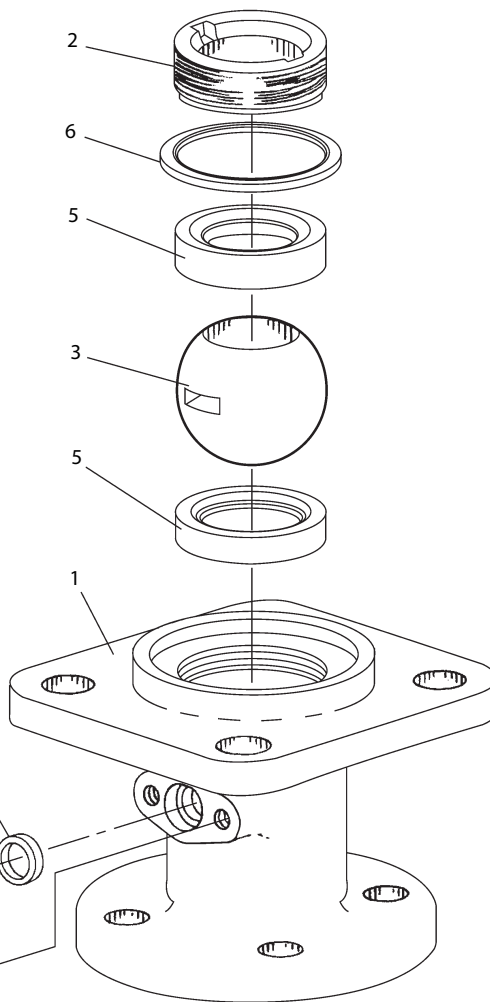
Good operation procedure requires periodic observation to ensure that the valve is functioning well. The frequency of observation will depend on the application.



STEM SEAL (7)



SEATS (5)



PARTS LIST		
Item	Part Name	Qty.
1	Body	1
2	Insert	1
3	Ball	1
4	Stem	1
5	Seat	2
6	Body Seal	1
7	Stem Seal	1
8	Stem Bearing	1
9	Bonnet Plate	1
10	Hex Nut	2
11	Cap Screw	2
12	Indicator Stop	1
14	Retaining Ring	1
15	Handle	1
16	Nut	1

Figure 2

**Stem Packing Adjustment** - Routine maintenance consists of tightening the two bonnet screws (11) periodically to compensate for the wear caused by the stem's turning against the resilient PTFE seats. Loosen the check nuts (10) and tighten the bonnet screws equally 1/2-turn. If weepage still occurs, tighten another 1/2-turn. Retighten the check nuts. The bonnet screws should be tightened uniformly but not be tightened down too severely, since this will destroy the seal by permanently deforming it.

Overhaul maintenance consists of replacing seats and seals. A standard Service Kit consisting of these parts may be obtained by contacting Metso Automation.

SERVICE KITS	
VALVE	KIT CODE
2" (DN 50) AFFU	RKA-6TT

## 4 REPAIR KITS/SPARE PARTS

For further information on spare parts and service or assistance visit our web-site at [www.Jamesbury.com](http://www.Jamesbury.com).

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