Maintenance Tips

The Humat 4-way valve is essentially maintenance free, since there are no packing glands or sophisticated seals used in it. Adjustment of the butterfly can be done externally. See "Butterfly Replacement and Adjustment" for adjustment procedures (below).

Lubrications, such as a mixture of oil and graphite or equivalent, is recommended for the threads. The pellets bearings and races of the female swivel do not require lubrication; however, the swivels will turn more easily when lubricated. If a lubricant is used, dry graphite is recommended. Remove the slotted set screw on the swivel and apply a small amount of graphite through the set screw hole. An oil based lubricant will tend to pick-up dirt and debris which prevents smooth turning of the swivel.

When replacing a broken female swivel, remove set screw and then remove pellets (don't lose pellets). Check that receiver groove has had no damaged. With the receiver and new female together replace the pellets, once this is done replace with new set screw. CAUTION: do not over tighten the set screw. Check assembly by rotation of flange to assure free spinning. Then using a hammer and screwdriver stake the new set screw into place.

All flanged fittings can be removed by simply removing the bolts holding the flange on the valve body. When replacing a flange, be sure the o-ring seal is properly seated in the groove provided. A good procedure is to place the o-ring in the groove, place the flange in position and hold it there until you have one bolt on either side of the flange finger-tight. This should hold the o-ring in position until all bolts are replaced and tightened securely.

The clapper disc operates automatically by differential water pressure. It has two seats, one between the large and small chambers and one at the small chamber inlet. Should leakage be observed at the small chamber inlet while the valve is under hydrant pressure, the clapper is not seating properly. After shutting down the hydrant, check the surface of the clapper disc where it comes in contact with the small-chamber seat. Run the tip of your index finger around the small chamber-seat to determine if any debris has accumulated. Any foreign matter present on the clapper or its seat must be removed to maintain a good seal.

After checking for debris, the clapper should be checked to be sure there is some "play" where the clapper is attached to its stainless steel shaft. The "play" enables the clapper to seat itself.

BUTTERFLY DISC REPLACEMENT

1. Remove flanged fitting from outlet of large chamber. (Usually male fitting.)

2. Move operating handle toward closed position so the two 7/16" bolts securing the butterfly valve in shaft are accessible. Remove the two 7/16" bolts.

3. Place operating handle in the open position and slide butterfly valve disc out of the shaft and valve body. (It may be necessary to give the disc a sharp tap with a hammer handle or rubber mallet to get it started.)

4. Remove shaft from valve body and clear any silicone rubber sealer from slot in the

shaft. Slot should be completely clean and free of dust and grease. Use solvent if necessary, but be sure to dry surface completely because solvents affect curing of sealer. Now check butterfly fit into shaft. Look for burrs and notice area in slot to be filled with sealer in next step.

5. (In this step use only Dow Corning or GE Silicone Rubber Sealer.) Apply liberal amount of sealer at each end of slot, common screwdriver blade to press sealer into corners of slot. Smooth sealer carefully and tapper it about out up the sides of shaft towards bolt holes. Also smooth some sealer on butterfly edges where it seats inside shaft to aid adhesion when assembled.

6. Replace shaft in valve body, making certain there is no sealer on outside of shafts.

7. Place the butterfly valve disc in valve body and shaft slot. Do not allow butterfly disc to pass to far thru slot. Some may slide thru - others will need to be pushed.

8. Whole holding butterfly disc in position, turn operating handle toward closed position until you can see the holes in shaft and disc enough to align them. Apply a small amount of sealer around the underside of the 1/4" hex head bolts. Later models will have o-rings on bolts. Replace the two 1/4" bolts and tighten only finger tight.

9. Wipe off excess sealer on the butterfly disc and inside the valve body.

10. Loosen the clamp bolt on the latching plate only enough to allow the latching plate to turn on its boss. Now place a strip of cardboard about twice the match-book cover thickness between the disc and the body wall on side that is farthest away from the engine connection so as to bias the disc to one side of the bore.

11. Move the operating handle toward its closed position until the latching pin engages itself in the locked-closed position. While holding pressure toward the closed position with one hand, with the other hand use a hammer handle or wooden dowel to tap around the circumference of the butterfly disc from the hydrant connection end until it has seated itself. While still holding pressure on the operating handle and latching plate toward the closed position with the one hand, re-tighten the 1/4" bolts holding the butterfly disc. Do not over-tighten - remember these are only 1/4" bolts.

12. Move the operating handle to the locked-open position and use a common screwdriver blade to press a small amount of sealer in the void at each end of the slot between disc and wall. Use a vibrating and packing motion to fully pack void. Shaft can be moved a small distance to one side, then the other to aid in packing. Do this to aid in packing. Do this to both sides from the engine connection then from the hydrant connection end. After applying sealer at both sides from both ends, close the valve and wipe off any excess sealer. Then with a dry cloth open the valve and do the same. Depending on the condition, curing time will vary. Normally the sealer will cure sufficiently in six hours to place the valve back in service. If will fully cure in twenty-four hours.

13. If excess leakage persists at shaft, repacking may be necessary. To place valve in service, adjust latching plate to lock butterfly closed as follows:

ADJUSTMENT OF BUTTERFLY DISC

The butterfly type valve in the large chamber is designed to restrict water flow sufficiently to connect a pumper's soft or hard suction. A small leak at each end of the butterfly shaft is acceptable to most. With the butterfly replacement completed as outlined above, the following adjustments should be made:

1. While the valve is attached to hydrant, or engine suction to aid in holding, lube the scrub area of the o-ring on wall, being careful not to get lube on uncured silicone. Manually close the butterfly valve in the large chamber and place in locked-closed position.

2. Loosen the two 1/4" cap screws that hold the butterfly disc in place in the shaft, just enough to allow the disc to move with fire pressure. Place two opened matchbook covers (with matches and strikers removed) between the disc and the wall at the edge that is closest to the hydrant connection when closed and then close the valve. Remove valve from hydrant and using a hammer handle, tap the disc near the cardboard from the hydrant connection end maintaining pressure on the valve handle. Then re-tighten the two 1/4" cap screws to lock disc in place. Next, remove cardboard and adjust the closing pressure by moving latching plate.

To adjust closing pressure, mount valve on a hydrant or engine source again to aid holding and loosen latching plate clamp. Push latching plate down on boss to provide clearance between it and the operating handle and tighten clamp. If adjusted properly, fire tension should be needed to bring latching pin to seat.

3. These adjustments should virtually eliminate the leak. When adjusted properly, the Humat Valve will have only a negligible amount of leakage past the butterfly disc. It will vary with pressure and use. It may be necessary to experiment with the closing adjustments to find the best operation for your condition. Note that generally, the rule "the tighter the seal - the less leakage" applies.

As part of your routine maintenance if you notice a build-up of diesel exhaust or fire residue or any other foreign materials on your Humat valve, please clean valve **using a natural bio-cleaner.**

Warning!!!! ***Do not use petroleum based products..... As they will break down the seals and silicone.***