



## TVS-812 and TVS-813 Series Trap Valve Station Installation, Operation and Maintenance Instructions

### Operation

In a piston valve, the control of stem and seat leakage is obtained by the tightness of the valve sealing ring to the body and valve plug. The bonnet compresses the valve sealing rings against the body and the valve plug.

The flexible disc springs located under the bonnet nuts, automatically assures a tight seal by exerting pressure on the bonnet, which keeps the valve sealing rings compressed.

### Opening and Closing the TVS Isolation Valve

The isolation valve begins to stop flow when the valve plug enters the lower valve ring.

When the isolation valve is completely closed, the valve plug is in contact with the full height of the valve rings, ensuring the best possible seal. In fact, there is no advantage to be gained in torquing the valve closed. **Armstrong recommends that after closing the isolation valves completely, the handwheel should be turned back one half turn.** This makes it easy to re-open the valve by avoiding metal to metal seizure.

### Troubleshooting — Isolation Valves

A piston valve will retain its leak tightness for several years without maintenance. In severe service, such as rapid heating and cooling, some field maintenance may be required. Depending on the problem, these simple steps may help:

- **Isolation Valve leaks, when the valve is closed.** First, **Check to make sure the isolation valve is actually closed.** Tighten the bonnet nuts with the valve closed until the leak stops (**not beyond 20 ft/lb**). This recompresses the valve rings against the body and the valve plug. If valve continues to leak, replace the isolation valve assembly.
- **Isolation Valve stem leaks.** Same as 1 above.
- **Maintain the isolation valve as soon as leakage starts.** Internal leakage can wear the valve plug or valve sealing rings and they will have to be replaced if leakage continues.

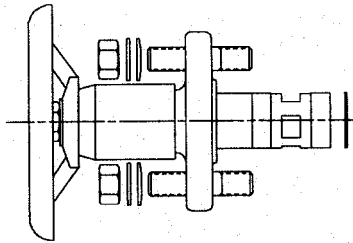
**Caution:** Before tightening the bonnet nuts, make sure the isolation valve is in the **closed** position.

### Replacing the Isolation Valve Assembly

**Special Tools are Required** — Do not attempt to replace the valve sealing rings without the Armstrong Part No. 85259 special valve sealing ring extractor tool. This tool is available from Armstrong International, Inc.

## Removing the valve sealing rings, lantern bushing and valve washer.

- This can be done with the TVS812 and TVS813 Trap Valve Station remaining in the steam line. **Be sure to isolate the TVS812 & TVS813 Trap Valve Stations both up and down stream by using separate shut-off valves before performing any maintenance.**
- Using the handwheel, **open** each valve all the way until it stops.
- Loosen and remove the bonnet nuts.
- Pull isolation valve assembly out of valve body.
- Place the special valve sealing ring extractor into the body of the valve and turn the top square nut of the special valve sealing ring extractor with a wrench in order to allow the spindle to expand under the valve washer.
- Tighten the lower nut of the extractor and pull the extractor out of the valve body. The valve sealing rings, valve washer and lantern bushing will come out on the end of the extractor. Check to see if all components including valve washer at bottom of valve body has been removed. Inspect and clean any debris that might have remained in the valve body.



TVS-812, TVS-513 Isolation Valve Repair Kit  
Part No. 85250

## Installing New Isolation Valve Assembly

- Place isolation valve washer into valve body.
- Insert the new isolation valve assembly, Part No. 85250, into the valve body and position the bonnet over the studs. Lightly tap the isolation valve assembly to the bottom of the valve body. Place two bonnet disc springs (**oval surfaces facing each other**) on each stud. Coat the studs with "never seize". Place the bonnet nuts on the studs and tighten **evenly to 20 ft/lb**. Note two replacement studs are included in the isolation valve repair kit.
- Check the isolation valve for proper operation by opening and closing the valves one or two times leaving them **open**.
- Open separate isolation valves up and down stream from the trap valve station and check for leaks.

Contact Armstrong International or your local representative if you have questions regarding the installation, use or repair of Armstrong Model TVS81 2 or TVS81 3 Trap Valve Stations.



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