

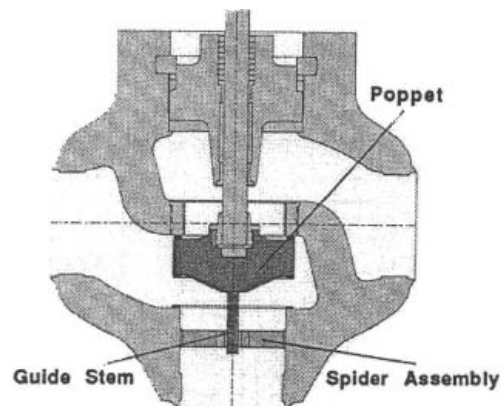
TECHNICAL BULLETIN

Prepared By: Chris Davis	Pages: 3
Reference: ATWOOD & MORRILL® 3-Way Valves	

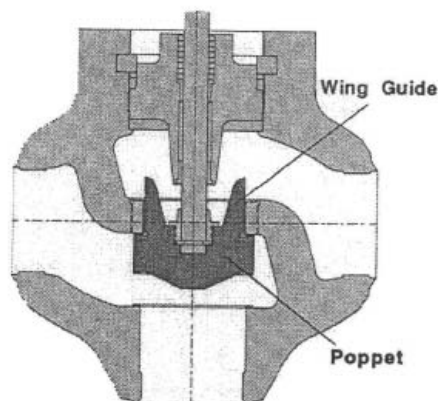
Subject: 3-Way Valve Modification Kits to a Cage Guided Poppet Bulletin No. 4.0 08/10

HISTORY ATWOOD & MORRILL® 3-Way Valves have been in the power industry for many decades. These types of valves are utilized for HP & LP Feedwater Heater By-pass, Economizer Diverting and Continuous Process applications. When first manufactured the 3-Way Valves had a stem guided Poppet to allow the Poppet to seal properly. The Poppet is guided into a Spider Assembly via a Guide Stem that is located on the bottom side of the Poppet. The problem with this design is that the Spider Assembly sees pressures and flows that erodes the assembly and “washes” it away over the years. To remedy this problem we designed a Wing Guided Poppet that was engineered to have three wing guides that went on top of the Poppet to keep them out of the flow path and to guide the Poppet to the seating areas more smoothly. Although this design works well we enhanced the concept to allow for a guide that is more easily manufactured and quicker to manufacture. We now offer our new Modification to a Caged Guided Poppet as described in the following paragraphs. The two drawings below show the two older designs that you might have.

SPIDER DESIGN



WING GUIDED



DIFFERENCES The Caged Guided Poppet (as seen on the next page) provides the following design enhancements:

- The Cage Assembly has a 360-degree guide for the Poppet that is on top of the Poppet and out of the flow path, which prevents it from being washed away.
- The Cage Assembly guides the Poppet to the seating areas smoother with less vibration to the seating areas.
- The Cage Assembly spreads out the friction areas to a much larger area, which reduces operator load.
- The Cage Assembly eliminates the need for the field fit up of the spider assembly, which must be welded in place and then machined to accept the guide stem, which is time consuming.
- Reduces side loading of the stem.
- The Cage Assembly eliminates possible valve failure.

PARTS The Modification Kit for the new Cage Guided Poppet included the following new parts:

- Poppet with Cage Guide
- Stem
- Body Ring
- Poppet Nut
- Split Ring
- Socket Cap Screws & Hex Cap Screws
- Graphite Pressure Seal Ring (if desired)
- Backing Ring
- Five Ring Packing design with Spacer to Reduce Friction on the Stem
- Cover Bushing
- Lock Washers

SERVICE WVC has been installing these Cage Guided Modification Kits across the country utilizing our Service Personnel. We have the expertise to provide Service Personnel to refurbish your valves to assure years of trouble free performance. If you wish to explore the option of using WVC's Service Crew please call the Service Department and we will gladly send you a proposal.

SUMMARY WVC highly recommends that all existing Spider Assembly 3-Way Valves in service be modified to the Cage Guided Modification Kit as described above. This Modification Kit will assure that the 3-Way Valves will provide optimal performance for many years with little maintenance. To obtain a proposal for this modification, please call the Service Department at 978-744-5690 or your local Sales Representative. Please have the valve tag information when calling so we can identify the valve.

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CAGE GUIDED
POPPET DESIGN

