SAFETY

Safety - consult Blakeborough publication ‘Safety’ before starting any maintenance work.

The valve and actuator should be handled and installed with care. Consult publication ‘Good Installation Practices’ for details.

Before any maintenance work it is essential to ensure that the actuator is isolated and depressurised.

GENERAL

Maintenance such as diaphragm, packing, or trim replacement can be done without removing the valve from the line. Since most valve locations are not suited for repair operations, these instructions assume that the valve is taken to a workshop for servicing.

See the relevant instruction book supplement for actuator maintenance.

VALVE DISASSEMBLY

1. Remove all instruments and any existing check nut from the end of the stem connector.

2. The valve plug must be off the seat ring while the stem connector is being separated. Apply air if necessary.

3. Remove the stem connector screw nut and partly remove the stem connector screw.

4. The two connector halves can then be sprung apart and removed from the actuator stem.

5. Disconnect the air supply and any electrical connections to the actuator.

6. Unscrew the hammer lug clamp nut (25) from the bonnet threads and lift the nut over the plug stem. The actuator is removed from the body as a unit, without disturbing the packing box bolting. The actuator yoke will pass over the packing flange.

7. Lift or hoist the actuator off the valve taking care to avoid damaging the plug stem, instruments, or tubing.

8. Refer to ‘Packing Instructions’ in separate bulletin.

9. Remove the body/bonnet stud nuts (10).

10. While holding the plug stem (8), lift the bonnet (2) taking care not to damage the packings.

11. Lift the plug stem (8) carefully out of the valve body.

12. Withdraw the plug and stem (6 & 8) out of the bonnet.

13. Remove upper cage gasket (43).

14. Lift out the valve cage (7) and seat ring/diffuser (5) if fitted.

15. Remove the lower cage gasket (42).

VALVE ASSEMBLY

Assembly of the stem and pin

1. Screw the plug tightly onto the stem.

2. Drill through the plug shank and stem.

3. Insert the pin. The new pin should be the same diameter as the original pin (19).

Completing the body assembly

1. Clean the inside of the body thoroughly, particularly the gasket surfaces. It is essential that all gasket contact surfaces in contact with the gaskets i.e., on the bonnet spigot, should be clean and all traces of the previous gaskets removed before replacement is carried out.
2. Fit the lower cage gasket (42) into the body.

3. Lower the seat/diffuser (5) (if fitted) into the body and locate on the lower cage gasket (42).

4. Fit the cage (7) ensuring it sits squarely in the body and on top of the seat (5).

5. Fit the upper cage gasket (43) into the recess in the body.

6. Lower the plug (6) carefully through the cage (7) until it rests on the seat.

7. Lower the bonnet (2) over the stem (8) and onto the gaskets.

8. Lubricate the studs with a smear of molydisulphide grease.

9. Replace the body stud nuts (10) and tighten them in a diagonal sequence. The bonnet should be pulled down squarely to ensure an even and uniform compression of the gaskets. The most accurate way of achieving this is by using a suitable torque wrench and working to the figures shown below.

10. Pack the stuffing box (see packing instructions).

11. Fit stem nut (39) onto the valve stem.

**Mounting the actuator**

1. Assemble and adjust the actuator as instructed in the appropriate actuator instructions.

2. Lower the actuator over the plug stem and packing flange to sit squarely on the bonnet.

3. Rotate the actuator to a convenient position, then screw the hammer lug clamp nut (25) onto the bonnet threads and tighten securely.

4. For connecting the actuator stem to the plug stem the plug must be on its seat while the actuator stem is being connected.

**Connecting the stem connector**

1. Place the two halves of the stem connector, over the actuator and plug stems so that the ends of both stems are equidistant from the stem connector screw holes.

2. Replace the stem connector screw and tighten by hand ensuring that the stem connector threads are in proper engagement with the actuator stem and the valve plug stem.

3. Replace and tighten the nut by hand.

**Note:** It is not essential at this stage to ensure that the position marking slot in the indicator pointer, coincided with the 'shut' mark on the travel indicator scale, because the indicator scale position can be adjusted by loosening the two securing screws.

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Establishing valve travel and seating tension

1. Maintain the actuator stem at its lowest position of travel.

2. In case the plug was moved off the seat during the stem connection procedure: Prevent the stem connector from rotating, then unscrew the plug stem from the connector until the plug is firmly seated.

3. Move the plug off the seat then unscrew the plug stem an additional one half turn out of the connector to ensure positive seating.

4. Tighten the connector screw securely.

5. Tighten the plug stem nut (39) securely.

6. Seat the valve plug firmly by means of the actuator.

7. Adjust the travel scale so that the 'shut' mark is opposite the travel pointer on the coupling.

8. Disconnect the air line used for assembly procedure then apply the check nut or attachments (if any) to the connector screw.

Refer to Packing Instructions for details of packings.
Basic BV502 Globe & BV503 Angle Valves With Standard Trim Combinations

- Spline Trim With Diffuser
- Spline Trim
- BV502 Series Globe Valve With DC Series Trim
- DC Series Trim With Soft Face And Shroud
- DC Series Trim With Soft Face
- Multi Flow Trim
- 2 Stage Spline Trim With Diffuser
- 3 Stage Spline Trim With Diffuser
- BV503 Series Angle Valve With DC Series Trim
- Step Cone Trim

Refer to Safety With Valves Before Starting Work