

The breakage of a shear pin is a symptom of a problem with the ease of movement of the mixing valve. The following trouble shooting guide is included to help identify what may be causing the problem and the corrective actions that can be taken to prevent further shear pin failures.

### *Symptoms, Possible cause:*

- Foreign material in system causing jam in valve port.
- Corrosion build up on valve bonnet or inside walls of valve. Water not treated or leak in heating system.
- Failure of end stop switches within the Actuating Motor. If the control operates the close and open output at the same time, damage to the actuating motor end switches may occur.
- Piping arrangements when using 2 1/2" to 4" valves.
- Valve "sits" for the summer months or long time intervals without any movement.
- Valve used on potable water (open) system.
- Leaking valve stem from top of bonnet. "O" ring seals damaged on valve stem. Leak in any part of the heating system.

### *Possible result, Corrective action:*

- Once jammed, the glass fibre reinforced plastic flap assembly in the 1" to 2" mixing valves may break along with the shear pin. Ensure that all pieces of the flap are accounted for before restarting the system. If it is not possible to recover all of the pieces of the flap assembly, the system may experience pump failures. Install a strainer in the system to remove foreign material.
- Possible damage to flapper assembly (1" to 2" valves), broken shear pin, bent bottom plate on actuating motor. Do water treatment as described in D 016, Corrosion Control.
- Actuating motor drives back of handle into mounting bolts. Damage to the handle will be apparent. Return control and actuating motor for repair.
- If you pipe pumps in series with the larger valves, the forces within the valve when the valve is trying to close from the 2 to 0 position may exceed the rating of the motor (310 in lbs) of force. Use primary - secondary piping arrangements.
- Valve flapper may "freeze" to the valve body. During fall start up, coupler is broken. Manually exercise and check water quality on a regular basis. Most tekmar controls automatically exercise the mixing valve.
- Incorrect application for this type of valve. Replace with a non-ferrous material.
- Leaking systems will introduce a continuous flow of new oxygen rich water. Net result will be deteriorated water quality. Fix leak(s). Recommend a low water cut off switch with water feed "turned off".

## Installation

### STEP ONE — GETTING READY

Check the contents of this package. If any of the items listed below are missing or damaged, please refer to the Limited Warranty and Product Return Procedure on the back of Data Brochure D 011 and contact your wholesaler or local tekmar representative.

#### **M3029** includes

- Data Brochure D 011, Data Brochure D 010 A addendum, Data Brochure D 016
- Zinc die-cast coupler
- Shear pin
- Spring
- Screws, 2 pieces

## STEP TWO ——— SERVICING

Loosen nuts from actuating motor mounting plate.  
Remove mounting bolts and actuating motor from valve.

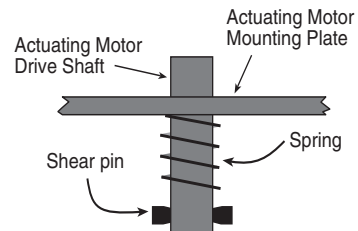
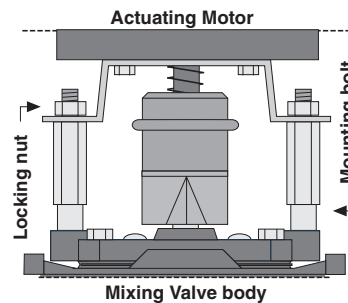
### 4-Way Mixing Valve Service, Data Brochure D 016

**Note** Have valve seal kit on hand (Part # M3022 or M3023 or M3024).

- If the mixing valve is equipped with stop pins, remove the two stop pins from the position indicator plate and discard.
- Replace stop pins with supplied screws.
- Isolate valve from system.
- Remove the four bolts that hold the flap assembly to valve.
- Carefully remove flap assembly from valve body.
- Clean inside valve body, check valve flap assembly for integrity.
- Reinstall flap assembly with new seal kit.

### Replacing the Shear Pin

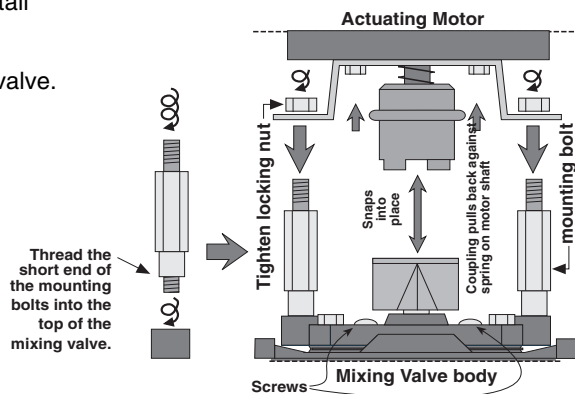
- While supporting shaft, drive shear pin out from shaft with punch and hammer.
- Remove old spring from shaft.
- Install new spring onto shaft.
- Install new shear pin centering it in the actuating motor shaft.
- Remove any burrs from shaft.
- Install new coupling and ensure smooth movement on drive shaft.
- Check back mounting plate of actuating motor. If bent, remove and straighten, or if badly bent, replace plate.



## STEP THREE ——— ASSEMBLY

Follow the instructions in Data Brochure D 011, Step Two to reinstall actuating motor to valve.

**Note** It is important to have proper alignment of the motor to the valve.



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