



**Before any work is carried out on the valve ensure that the valve is totally isolated from any pressure in the pipeline. Do not attempt to strip valve without first relaxing the compression on the spring.**

### Operation

Each valve is preset to the required surplus pressure before leaving the factory. Small alterations to this pressure can be made by adjusting the spring (26) setting by use of the adjusting screw (23). Large alterations may require a new spring – check with Auld.

The high pressure enters the valve by the inlet branch and acts on the valve lid (15) and ferrule (8), which being of equal area are therefore in equilibrium. The spring exerts an upward force tending to close the valve while at the same time, high pressure is ported via the sensing pipe, through the hollow stud (18) and into the space between the diaphragm (10) and cup (17).

The cup and outer ring (19) are assembled as a unit through the spindle (7) with the diaphragm providing a frictionless tight seal between the fixed and moving parts of the valve.

Should the inlet pressure rise above the valve set pressure, the pressure in the cup increases and the spring force is overcome allowing a net downward force to be generated, pulling the valve lid open and allowing flow to pass through to the discharge side of the valve. When the sensing pressure falls the spring will push the valve spindle assembly upwards and close the valve tightly against the soft face (4).

### Installation

Before installing the valve, the pipes should be blown through thoroughly to remove all scale, jointing and dirt.

It is recommended that the valve be installed in a horizontal pipeline with the spring hanging vertically downwards.

### Maintenance

Ensure that the valve is isolated from pressure and then slacken and remove spring (26). The cup bolts and nuts (22 & 27) may now be removed. Remove the boss nut (13) and spring washer (33) and lift off the cup (17). The inner ring (12) and diaphragm (10) are now exposed. The inner ring studs (11) and hollow stud (18) should now be removed, noting the position where the hollow stud is, and remove the inner ring. The diaphragm can now be stripped off and clean off any traces of rubber adhering to any metal faces.

The spindle assembly can now be withdrawn downwards through the valve body (5) along with the ferrule, washer (29) and retaining ring (36). The valve body should now be carefully cleaned out, ensuring that the balance port on the low pressure side of the valve is clear and the valve seat (9) and the soft valve face (4) inspected for damage and replaced if necessary.

Re-insert the spindle assembly into the valve body and holding the valve in the closed position now check with a straight edge that the bottom face of the washer (29) is flush with the bottom face of the valve body. This ensures that the diaphragm is completely flat when the valve is closed. If it is not flush then loosen off ferrule (8) and then adjust the washer until it is so. Tighten up ferrule against the washer to lock it in position.

Place the outer ring (19) over flange on bottom of valve body and then carefully punch holes to correspond with the positions of the studs holding the inner ring to the diaphragm and the centre hole. Pass the new diaphragm over the end of the spindle (7) and screw it up until it butts against the washer. The spindle assembly should now be rotated to line up the diaphragm holes with tapped holes in the bottom face of the valve body. Now insert the inner ring studs and hollow screw through the inner ring

and diaphragm and tighten to body. Ensure that the diaphragm is still tight against the washer – if not the spindle can be rotated to bring the diaphragm into contact with it.

Outer ring and cup can now be bolted together – note that these bolts and nuts should not be over tightened, slightly more than finger tight should do. Replace the spring washer and boss nut on the end of the spindle and replace spring and spring cap (24).

### **Setting**

Allow some flow through the valve and then the set pressure can be controlled by adjusting the compression of the spring by means of the adjusting screw (23) – turning the screw clockwise will increase the pressure, anti-clockwise will reduce it.

Once the desired pressure has been achieved, lock the adjusting screw in position with the locknut (21).