



**Before any work is carried out on the valve carefully measure dimensions 'X' and 'Y' and 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 springs.**

### Pipeline cleanliness

Welding slag, scale or foreign matter which is allowed to enter the valve immediately after installation is very likely to damage the seat of the safety valve, thereby causing it to malfunction usually by leaking. It is therefore imperative to ensure that the pipeline is completely clean before installing the valve in position.

### General

Safety valves are critical items of plant safety, it is therefore important that they are installed by experienced and competent personnel.

### Operation check

Auld Valves recommend that the safety valve is floated to check the spring operating settings before the valve is returned to normal service.

### Maintenance - general

For prolonged accurate and reliable operation, the valve should be stripped, cleaned and examined at yearly intervals and any worn or damaged parts replaced. Spare parts may be ordered individually or as spares packs. All sub-assemblies are designed for direct installation with no fitting required.

### Maintenance - main valve

- Accurately measure and note the distance 'X' between the top of the adjusting screw (16) and the top face of the cover (4) as shown on the cross sectional drawing.
- Slacken off the main spring compression by unscrewing the adjusting screw (16)
- Remove the nuts holding the column (3) (or pillar assembly) to the valve body (1), then remove spring (11) and column (3)
- Grip the spindle (5) and firmly tap upwards against the underside of the cylinder (10)
- When the cylinder is free, lift off the complete assembly thus exposing the valve (7) and valve seat (6) to view.
- Carefully examine both valve and seat for damage i.e. pitting, wire-drawings etc. If damage is not severe, carefully grind the valve and valve seat using fine carborundum grinding paste
- On completion, clean off all traces of abrasive materials
- Should the valve (7) require to be replaced, remove the valve pin (8) and lap the new valve to the seat with fine carborundum paste, wiping off all traces when finished
- Inspect the piston (9) and the cylinder for scoring
- Should the valve seat require replacement, slacken off and remove the nuts securing the valve body (1) to the inlet piece (2) and lift off the valve chest. Using a suitable soft metal drift, tap out the valve seat (6) and replace.
- Re-assemble by reversing the above steps and observing maximum cleanliness of parts during these operations. Re-set the adjusting screw (16) to the measured setting 'X'.

### Maintenance - pilot valve

- Accurately measure the distance 'Y' between the top of the adjusting screw (37) and top of the face of the column (27).
- Slacken off the pilot spring compression by unscrewing the adjusting screw (37).
- Remove the nuts holding the column (3) to the valve body (1).
- Grasp the spindle and the column (27), then firmly tap upwards to free the valve guide (33) seating in the valve body (26).
- Lift off the complete upper assembly thus exposing the valve (21) and the valve seat (29) to view.
- Examine the valve and seat for damage and repair or replace as described for the main valve.
- Re-assemble and reset the distance 'Y' on the pilot valve.

### Setting the safety valve

The safety valve may be set on line if convenient or on a test rig. Firstly, remove the locking ferrules from the main valve and pilot valve then proceed as follows:

#### Setting the main valve

- 'Gag' the pilot valve by screwing down the spring adjusting screw (37) to substantially beyond its set point.
- Increase the inlet pressure until a light discharge occurs at the main valve. Note the pressure and adjust the main spring compression screw (16) as necessary.
- **Caution** - take care not to rotate the main valve spindle and lid when turning the adjusting screw.

#### Setting the pilot valve

- Lower the inlet pressure to just below the set pressure of the main valve
- Relax the pressure on the pilot valve spring by turning the adjusting screw in an anti-clockwise direction until the pilot valve starts to operate, indicated by the commencement of lift of the main valve piston (9).
- **Caution** - avoid rotation of the pilot valve spindle and lid during adjustment.
- Slightly increase the pilot valve spring compression until the pilot valve operates when the inlet pressure is slightly above the set point of the main valve (approximately 1.0 to 3.0% above main valve setting).
- Refit the locking ferrules to main and pilot valve

### Spares packs

Complete spares packs for the DA full lift safety valve are available to suit the valve size. Spares packs include the following items:

<b>Main valve:</b>	Valve seat	Item No.6	<b>Pilot valve:</b>	Valve seat	Item No.29
	Internal valve lid	Item No.7		Valve plug	Item No.31
	Spring	Item No.11		Spring	Item 34
	Spring cap (2)	Item No.12 & 13		Spring cap (2)	Item 35 & 36

### Safety warnings

- Before stripping the valve it should be totally isolated from any pressure in the pipeline - beware leaking isolating valves.
- Ferrules c/w lead seals and wire are fitted directly under the adjusting screw to maintain the factory setting of the valve – if these are missing then the safety valve set pressure should be verified before using on the system.
- Process fluid can escape from vents, therefore adequate precautions should be taken to prevent personal injury / damage to equipment. The fitting of deflector shields are advised if personnel are in the immediate vicinity of the valve. Better practice would be to site the valve away from such areas.
- The valve may be heavy so care should be exercised when lifting the valve – check mass of valve before any attempts to lift it are made.
- Valve inlet and outlet ports are blanked off when leaving the factory – these coverings should be left in place until valve is ready to be fitted to the pipeline.
- Care should be exercised to ensure that no blockages of the inlet port can occur during fitting as this could render the valve inoperable or impair it's performance.
- The valve may discharge unexpectedly and therefore it should be approached with extreme caution whilst it is subjected to system pressure.
- The valve may get hot during operation and therefore care should be exercised if working close to it.
- When fitting the valve to the line, ensure that the valve spindles are not rotated as this will cause damage to the valve faces and cause the valve to malfunction.
- Any external pipes that may be fitted to the valve are not handling points and valves should be lifted using safe slinging practice with slings fitted around the flange necks.