

# AMOT CONTROLS

Quality and reliability for over 50 years

## Internally Sensed Valves Maintenance & Troubleshooting Guide (Model B)

### Maintenance

AMOT thermostatic valves require minimal maintenance. Elements in normal service are designed for many years of trouble-free operation.

Excessive temperatures, chemical, electrolytic attack or cavitation can shorten the life of the elements, seats, sleeves and seals. All of these are replaceable parts.

Water additives and synthetic based lubricants may cause swelling of O-rings to a point that valve action may be impaired. Distorted O-rings should be replaced. Should this occur, contact the factory for alternative materials

Carbonates, limescale and other solids must not be permitted to build up on sliding valves or element cup surfaces. The valve and elements may be cleaned with mild acid solutions. Hard scale may require wire brushing. Unless definite problems are detected during operation, valves usually do not require inspection more than every 12 to 24 months.

### Dismantling

To dismantle the valve, the following procedure should be followed:-

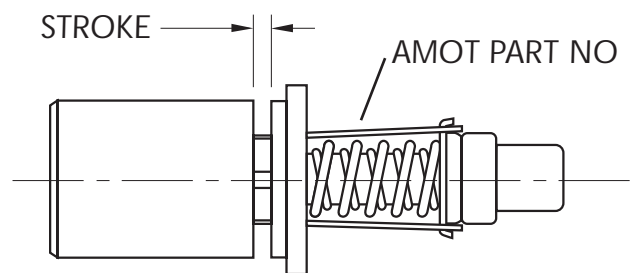
- 1 Mark valve port connections to ensure correct replacement and remove from system.
- 2 Remove valve cover or split housings (depending on valve type.)
- 3 All internals are then accessible and can easily be removed and inspected with no special tools required.
- 4 Inspect all parts and replace those with any indication of wear or damage.
- 5 Any spares required are readily available from AMOT. When ordering spare parts, specify valve part number, serial number and nominal temperature. If unsure, all elements are stamped with Amot part number and nominal temperature (in degrees Fahrenheit).
- 6 When re-assembling any valves, it is recommended that O-rings are lightly greased prior to fitting to ease assembly.
- 7 Some valves with manual override fitted require the removal of a roll pin before element can be removed.

### Checking Element Operation

AMOT elements can be checked for correct operation as follows:-

- 1 Note element part number stamped on element, last three numbers denote nominal temperature in degrees Fahrenheit.

- 2 Heat a suitable volume of water with the element cartridge fully immersed. Agitate water to ensure even heat distribution.
- 3 Monitor the temperature as it increases; when 5°C below the nominal, the element should start to stroke.
- 4 At 5°C above, it should be fully stroked. In the case of element assemblies having sliding valves, full stroke should be approximately 8mm.



### Trouble-Shooting

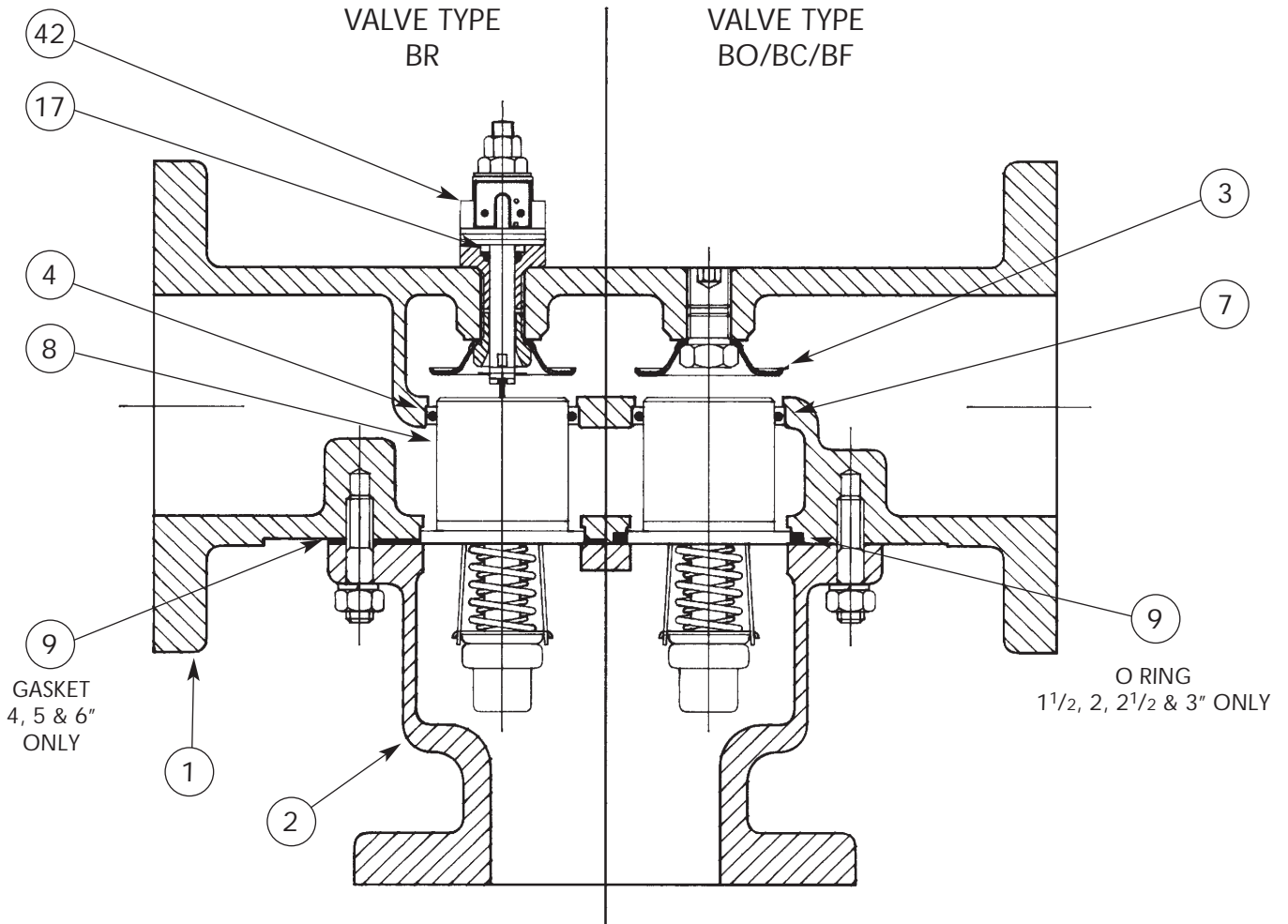
In the event that the cooling system does not operate close to the desired temperature, the following guide may help to identify or locate the problem.

#### System temperature too cold

- 1 Insufficient heat rejected to coolant to maintain temperature.
- 2 Wrong nominal element temperature selected.
- 3 Thermostatic valve greatly oversized or cooling capacity of system much greater than required.
- 4 Thermostatic valve installed backwards, thus sending water to cooler at low temperatures.
- 5 Worn or leaking O-rings allowing leakage to cooler.
- 6 Excessive pressure drops across the valve.
- 7 Foreign matter preventing closure of elements.
- 8 Bi-metallic type thermometers will indicate low if calibrated in oil.

#### System temperature too hot

- 1 Cooling capacity of system inadequate.
- 2 Thermostatic valve too small for flow rate causing high pressure drops and possible cavitation problems.
- 3 Valve installed backwards, reducing flow to cooler as temperature increases.
- 4 By-pass will not close due to worn or pitted seats, sliding valve, seals, etc.
- 5 Elements may have seen sufficient over-temperature to prevent full movement, thus preventing full cooling.
- 6 Solids building up on element sliding valve preventing correct operation.
- 7 Foreign matter stuck between sliding valve and seat.



### Service Kits

Several spares kits are available; these include all seals and gaskets required to service the unit. Refer to Table A for part number and number of elements per valve size. Standard kits are for nitrile (buna N) seals – for viton or neoprene, consult factory. Kits only include Item Numbers 7, 9 and 17.

**Note:** Kits do not include element assemblies, seats or sleeves (Items 3, 4 and 8) – for these, refer to **Table B**, noting one of each is required per element position. Refer to **Table A** for number of elements if unsure.

Manual operator components are not available individually, but a service kit is available. The kit can also be used to convert valve type BO to BR. Please contact factory for details.

**Table A SERVICE KITS**

Valve Size inches (mm)	Valve Types		No. of Elements
	BO, BC, BF, BH	BR, BM	
1 1/2B (40)	46342X151	N/A	1
2B (50)	46342X201	46342X204	1
2 1/2B (65)	46342X251	46342X254	2
3B (80)	46342X301	46342X304	2
33B (80)	46342X351	46342X334	3
4B (100)	46342X401	46342X404	4
5B (125)	46342X501	46342X504	6
6B (150)	46342X601	46342X604	9

**Table B REPLACEMENT WEAR PARTS**

Item	Description	Freshwater/Lub Oil	Salt Water
3	Seat	9585L001	9585L001
4	Sleeve	1182	1182P
8	Element BR & BM	2433X (Temp)	6938S (Temp)
8	Element (BO,BC,BF,BH)	1096X (Temp)	6836S (Temp)

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