ALPINE ACV SERIES

AFC Altitude Level Control Valve IOM Manual

A10A Altitude Valve

Altitude Pilot

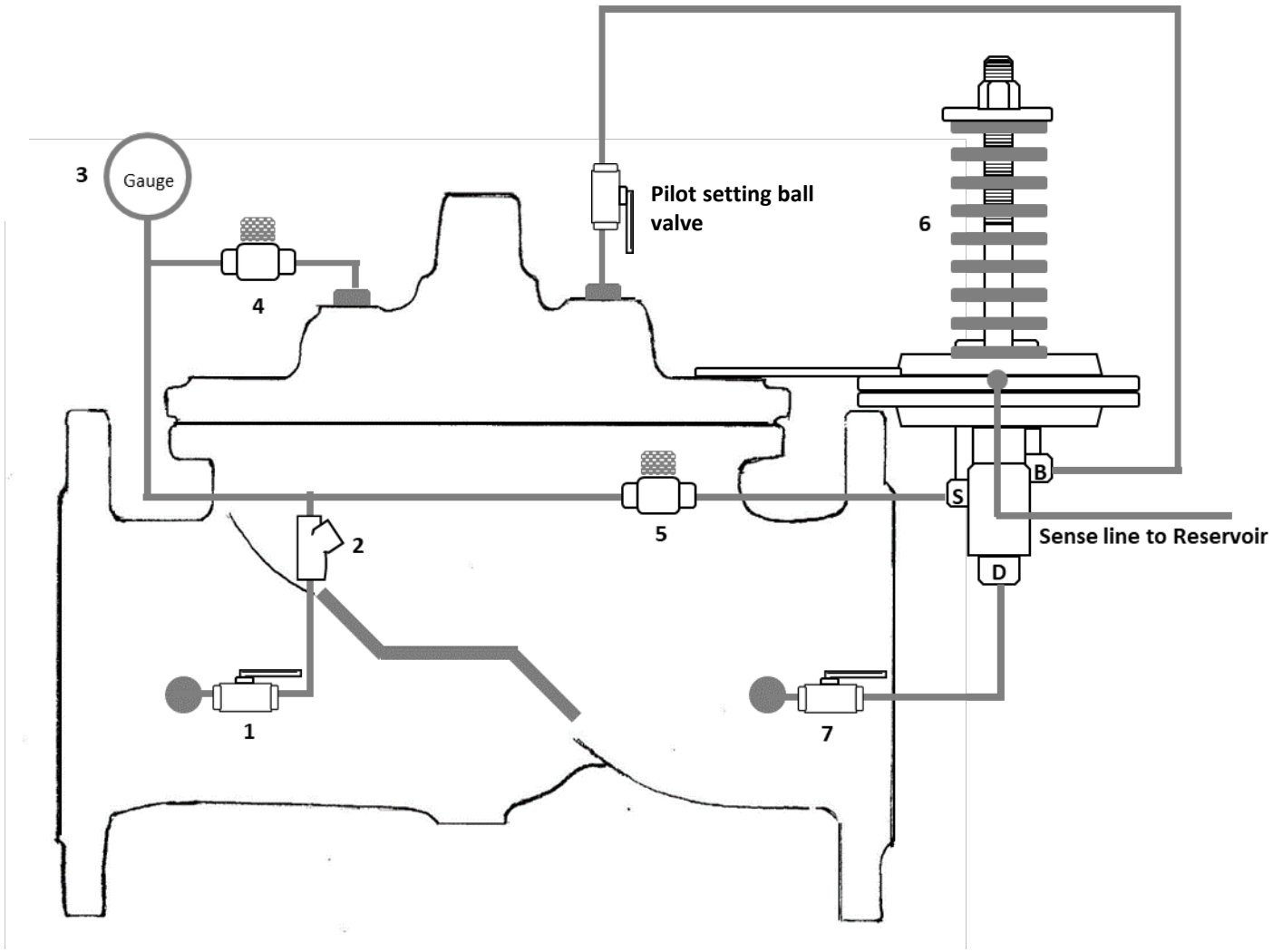
Accelerator (optional)

Installation, Operating and Maintenance Manual – A10A-Altitude Level Control Valve

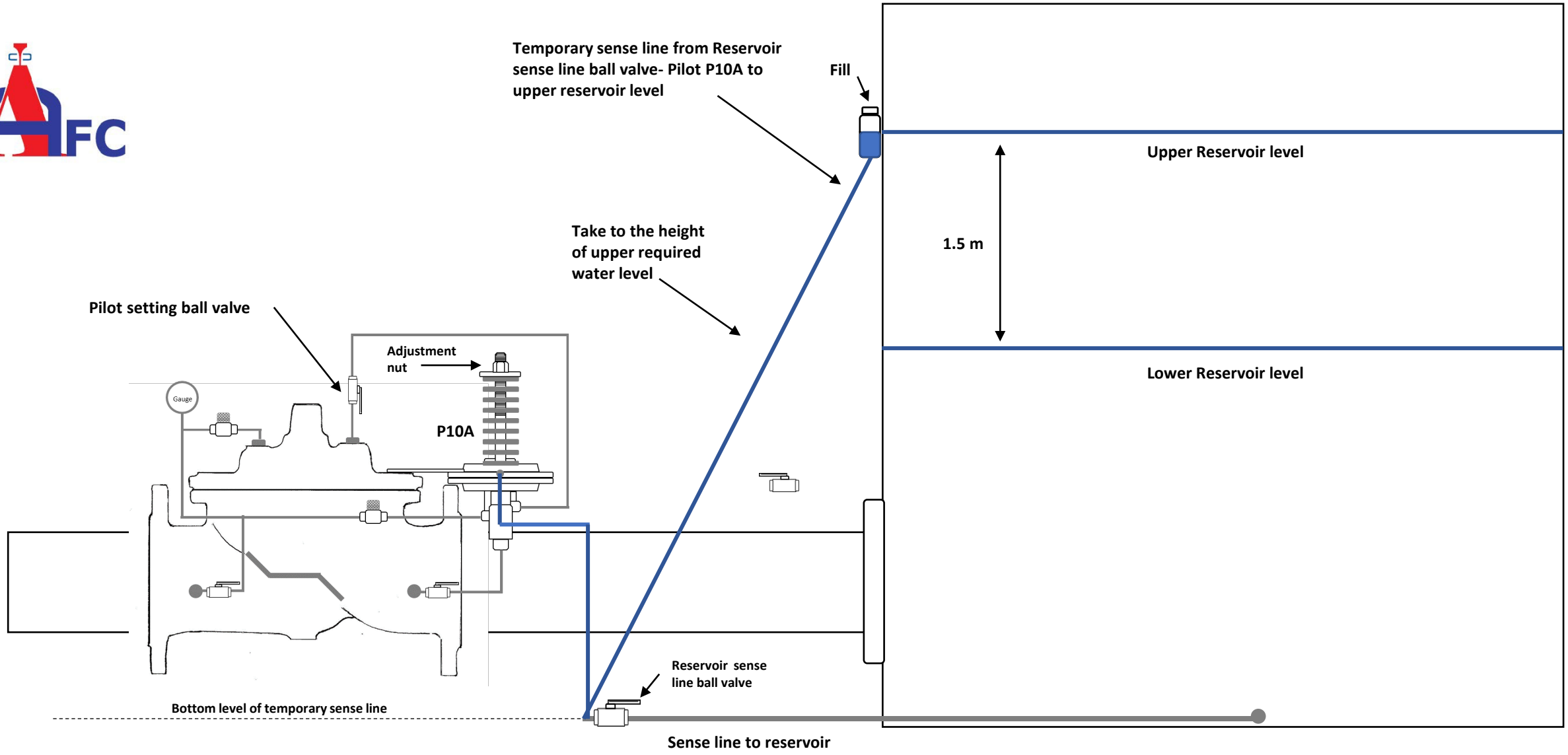
BT127-1 Altitude Level Control Valve

LEGEND

1 Upstream ball valve
2 Y Strainer
3 Upstream gauge
4 Bonnet Flow Controller
5 Pilot P10A Flow Controller
6 Altitude Pilot P10A
7 Downstream ball valve
S P10A Supply
B P10A Bonnet
D P 10A Drain



DRAWING No 2


Temporary sense line from Reservoir sense line ball valve- Pilot P10A to upper reservoir level
Fill
Upper Reservoir level
1.5 m
Take to the height of upper required water level
Lower Reservoir level
Pilot setting ball valve
Adjustment nut
Gauge
P10A
Reservoir sense line ball valve
Bottom level of temporary sense line
Sense line to reservoir

FUNCTION : To maintain the upper and lower water levels in a reservoir at pre-set water levels.

CONSIDERATIONS :

- The pressure entering a reservoir should not be above 4 Bar / 400Kpa
- If the upstream pressure is above 4 Bar / 400KPa. A Pressure Reducing valve or a Fixed Ratio valve should be installed upstream of the Altitude valve
- The OD of the sense line should be ½ inch – ¾ inch in diameter
- The sense line should be connected to the bottom of the reservoir away from inlet or outlet valves

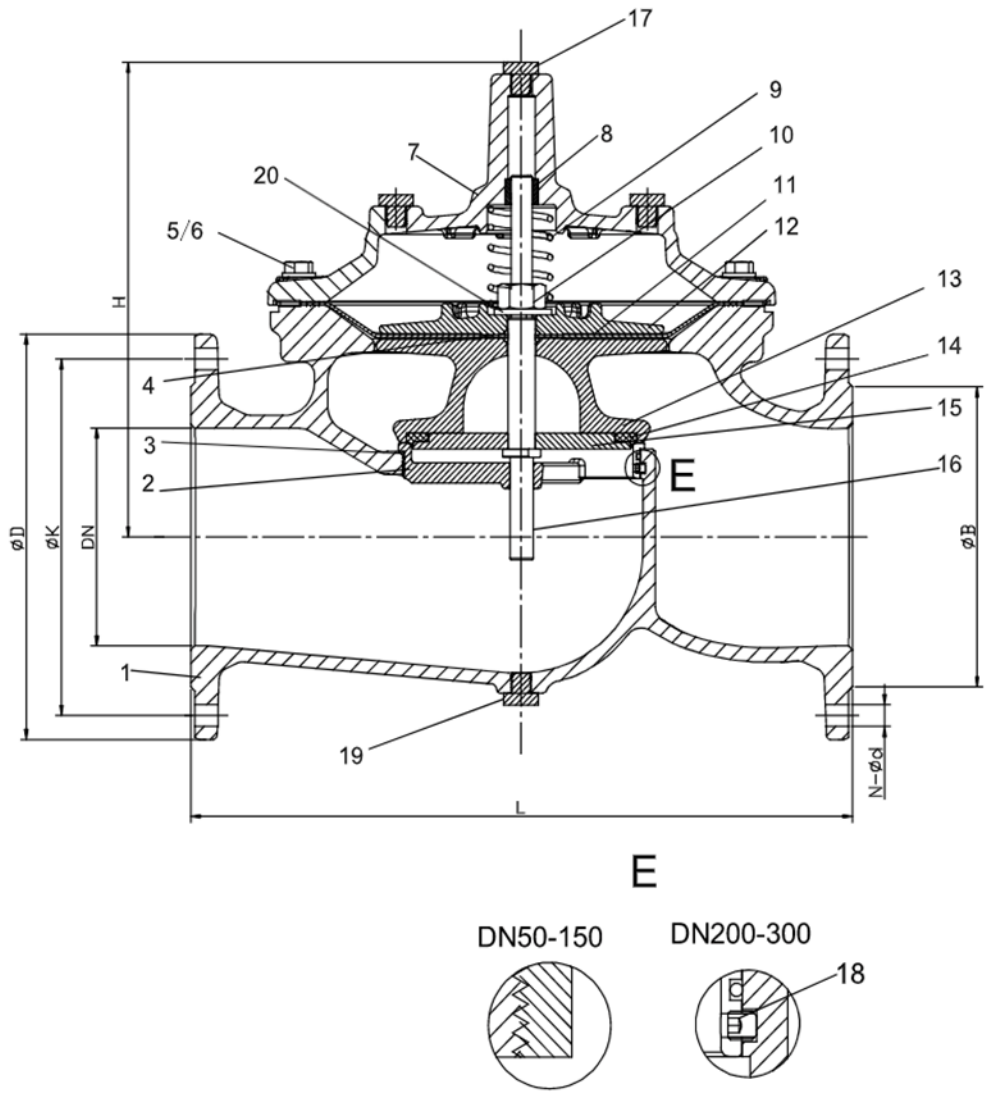
BALL VALVE CONTROL

Closing Upstream ball valve No 1, will open the valve manually
Closing Downstream ball valve No 7, will close the valve manually
Closing the pilot setting ball & The Downstream ball valve, will allow work on the altitude pilot

COMMISSIONING : Refer to drawing No 1 & 2

- Close the upstream and Downstream isolating valves on either side of the control valve
- Set flow controllers (No 4 & 5) to the halfway position (Clockwise closing)
- Close the downstream ball valve (No 7)
- Make sure the upstream ball valve (No 1) & the setting ball valve are in the open position
- Slowly open the upstream mainline isolating valve
- Bleed off all the accumulated air trapped inside the bonnet of the control valve by loosening one of the gland nuts at the highest point on the valve
- Turn the adjusting nut of the altitude pilot (No 6) all the way out (Anti – clockwise)
- Open the downstream mainline isolating valve. The valve should remain in the closed position.
- Close the pilot setting ball valve
- Remove the bonnet connection from the altitude pilot (B)
- Lead a temporary sense line from the altitude Pilot (No 6) to the bottom of the reservoir from there to the upper required water level
- Connect the temporary sense line to the bottom of a clear plastic bottle so it shows the water level in the sense line
- Pour water into the bottle until the water is visible in the bottle, allow the air bubbles to escape. Hold the bottle at the required upper water level
- Turn the adjusting nut of the altitude pilot in (clockwise) until water spurts out of the bonnet connection of the altitude pilot
- Drop the temporary sense line the spurting will stop.
- The upper altitude pilot is now set to close the control valve when the upper required water level is reached
- The altitude pilot is factory set to re-open after the water level has dropped 1.5 meters
- Re-connect the bonnet connection on the altitude pilot (B). Open the pilot setting ball valve
- Connect the altitude pilot sense line to the reservoir sense line
- Slowly open the downstream ball valve (No 7)
- The control valve will now allow flow into the reservoir

Drawing No 3



PARTS LIST - SPECIFICATIONS

No	Description	Material	Standard
1	Body	Ductile Iron	GJS 500 – 7
2	Seat	Stainless Steel	AISI 304 / 316
3	O-ring	Rubber	NBR
4	O-ring	Rubber	NBR
5	Bolt	Stainless Steel	A2 / A4
6	Washer	Stainless Steel	A2 / A4
7	Bonnet	Ductile Iron	GJS 500 – 7
8	Bush	Bronze	C61900
9	Spring	Stainless Steel	AISI 304 / 316
10	Caulking Nut	Stainless Steel	A4
11	Diaphragm	Nylon Reinforced Rubber	EPDM + Nylon Fabric
12	Fixing Holder	Ductile Iron	GJS 500 – 7
13	Disc Holder	Ductile Iron	GJS 500 – 7
14	Seal	Rubber	EPDM
15	Seal Retainer	Stainless Steel	AISI 304 / 316
16	Stem	Stainless Steel	AISI 304 / 316
17	Plug	Stainless Steel	AISI 304 / 316
18	Screw	Stainless Steel	A2 / A4
19	Plug	Stainless Steel	A2 / A4
20	Washer	Stainless Steel	A2 / A4

MAINTENANCE (Refer Drawing No 3)

The Ultra Altitude level control needs periodic maintenance of 1 – 2 years depending on operating severity
N.B. Make sure there is no pressure In or directly upstream of the valve - Use the mainline isolating valves to ensure personnel safety

- Check the tightness of the Control Loop fittings
- Check the flanges for leaks
- Remove the bonnet and check the diaphragm (11) for Rips or damage
- Lift the diaphragm assembly out
- Check the O Rings (3 & 4) and seal (14)
- Check the Disc Holder (13) for cavitation wear

TROUBLE SHOOTING GUIDE

Valve refuses to open

- Stem Jammed or blockage on top of stem
- Blockage on the downstream Control Loop
- Leak on the upstream Control Loop
- Diaphragm torn
- Reservoir ball valve closed
- Altitude Pilot blocked or damaged
- Low upstream pressure

Valve Refuses to close

* Debris underneath the stem
- Blockage on the upstream Control Loop
- Leak on the downstream Control Loop
- Torn Diaphragm
- Upstream ball valve closed