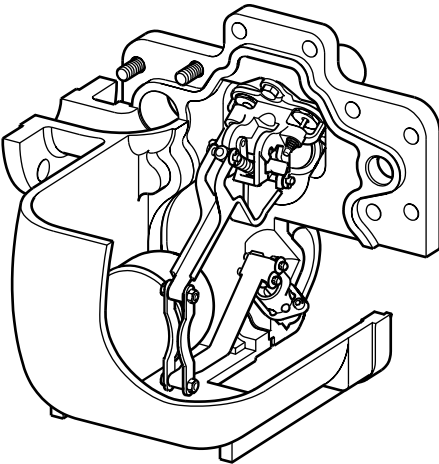


APT14

Spares 2

Installation and Maintenance Instructions



1. *Safety information*
2. *Replacement of trap and outlet check valve mechanism*
3. *Replacement of Steam inlet / exhaust valves and seats*

1. Safety information

Before any installation or maintenance procedure, ensure that all steam or condensate lines are isolated.

Ensure any residual internal pressure in the product or connecting lines is carefully relieved. Also ensure any hot parts have cooled to prevent risk of injury from burns.

Always wear appropriate safety clothing before carrying out any installation or maintenance work.

A lifting point is cast into the top of the body. On no account should this be used to lift anything more than the total weight of the product (45 kg / 100 lbs). Always use suitable lifting gear and ensure the product is safely secured.

When dismantling this product, care should be taken to prevent injury from the snap action mechanism.

Always handle with care.

2. Replacement of trap and outlet check valve mechanism

Please ensure the safety recommendations are observed before commencing with any maintenance of this product.

Tools required

19 mm A/F socket, 4 mm Allen key, Flat blade screw driver, Torque wrench, Long nose pliers

To fit the new trap and outlet check valve mechanism

1. Disconnect all connections to the cover. Remove the cover bolts using a 19 mm A/F socket, then carefully slide the cover assembly away from the body (250 mm minimum withdrawal distance will be needed). Lift the cover assembly to a bench or other convenient working surface and clamp securely, avoiding contact with the gasket face.
2. Gently remove used gasket material from the body and cover being careful not to damage the gasket sealing faces.
3. Carefully fit a new gasket (item 2) into the existing body.
4. Remove split pin, washer and shaft from the trap pivot (V) (See Fig. 1).
5. Remove split pin, washer and shaft from the trap 1st stage valve (W).
6. The floats and levers (items 5, 6, 7) can now be swung out of the way leaving access to the trap and check valve assembly.
7. Using the 4 mm Allen key unscrew the two M5 cap screws (item 21).
8. The whole trap and check valve assembly can now be carefully withdrawn from the cover.
9. There are no serviceable parts within this assembly; the replacement spares kit contains all new parts.
10. Before fitting a new mechanism, clean the trap housing bore within the cover ensuring any sludge or scale is carefully removed and the 'O'-ring sealing face is free from dirt.

- 11. Assembly is the opposite to removal**, to ease fitting, it may be necessary to lubricate the new 'O'-ring with silicone grease.
- 12.** Tighten the two M5 cap screws item 21 to 5 ± 1 N m (4 ± 1 lbf ft).
- 13.** Refit the two shafts (V and W) (length 38 mm) - remembering to use new split pins and washers - to the trap housing (item 9) and trap 1st stage valve (item 22).
- 14.** Move the floats to their upper and lower limits to ensure the trap mechanism operates smoothly and both the 1st stage and 2nd stage valves (items 22, 8) slide smoothly within their guides.
- 15.** With the mechanism fully assembled, refit the cover assembly to the body, ensuring the gasket faces are carefully aligned and no parts of the gasket are trapped or pinched outside the sealing areas. To ensure accurate alignment of the cover and body, it is recommended the lower part of the cover's gasket seal is located into the body first. The top part of the seal can then be easily aligned.
- 16.** Refit the cover bolts ensuring they are sequentially tightened in opposing pairs, gradually increasing torque to 63 ± 5 N m (46.5 ± 4 lbf ft).
- | Bolt size | Socket size | Tightening torque |
|-----------|-------------|---------------------------------------|
| M12 x 45 | 19 mm A/F | 63 ± 5 N m (46.5 ± 4 lbf ft) |
- 17.** Carefully reconnect the motive steam supply and the exhaust lines to the connections marked (IN) and (OUT). The APT14 is now ready to recommission.

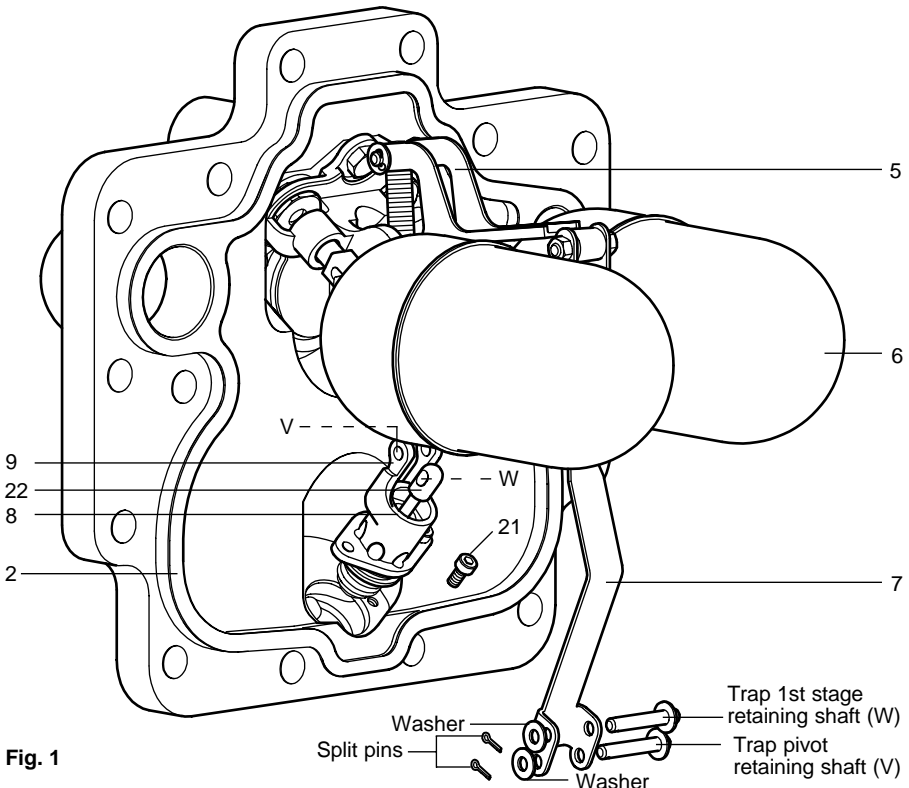


Fig. 1

3. Replacement of *steam inlet/exhaust valves and seats*

Please ensure the safety recommendations are observed before commencing with any maintenance of this product.

Tools required

13 mm, 19 mm A/F sockets, 24 mm Deep series A/F sockets, Flat blade screw driver, Torque wrench, Long nose pliers.

To replace the steam inlet and exhaust valve and seats

1. Remove the cover and old gasket (see cover gasket replacement procedure).
2. Lift the cover assembly to a bench or other convenient working surface and clamp securely, avoiding contact with the gasket face.
3. Carefully remove the circlip, washer and the inlet valve spring (item 27) from the end of the steam inlet valve (item 17).
4. Remove the three M8 bolts (items 20) using the 13 mm A/F socket.
5. Lift away the pump bracket assembly as this will allow access to the valve seats.
6. Using the 24 mm socket unscrew both the steam inlet and exhaust seats.
7. The seats, metal gaskets and steam inlet valve can now be removed.
8. Carefully clean the threads and gasket faces within the cover assembly ensuring all residues are removed.
9. Insert the replacement steam valve assembly (items 16 and 17) according to Fig. 2.
10. Place a new metal gasket (item 19) onto the threads of the seat before tightening into the cover.
11. Tighten the seat using the 24 mm socket to 125 ± 7 N m (92 ± 5 lbf ft).
12. The exhaust seat can be replaced in a similar way.
13. Refit the bracket to the cover and tighten the three M8 bolts using the 13 mm A/F socket to 18 ± 2 N m (13 ± 1.5 lbf ft).
14. It is important to ensure a new circlip is fitted to the steam inlet valve after the bracket has been bolted in place.
15. To remove the exhaust valve (item 18), remove split pins, washers, and shafts (X and Y) from the top spring pivot point and pump pivot point (See Fig. 3).
16. Allow the spring to drop free.
17. Draw the actuator arm downwards within its slots until the whole spring and actuator arm assembly with the exhaust valve comes free. It may be necessary to slide the exhaust valve backwards against its internal spring to free it from the pump bracket guide (item 13).
18. Align the slot in the exhaust valve (item 18) with the tang of the actuator arm (item 24) (See Fig. 3).
19. Gently rotate the exhaust valve away from the tanged spigot of the actuator arm.
20. **Fitting the replacement exhaust valve is the opposite to removal**, remembering to compress the small spring within the new valve before refitting to the tanged spigot of the actuator arm.

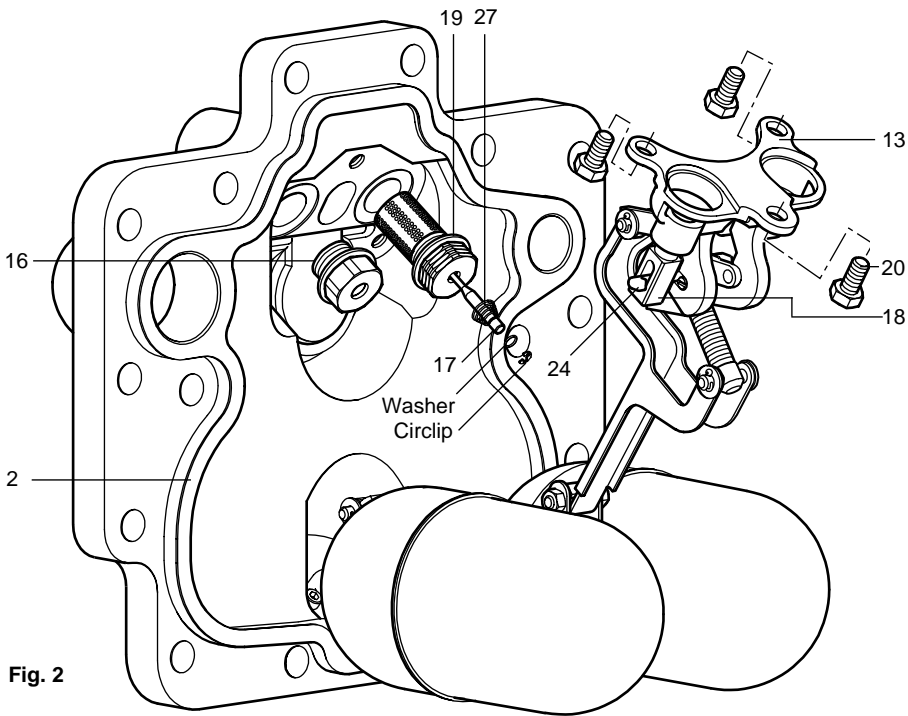


Fig. 2

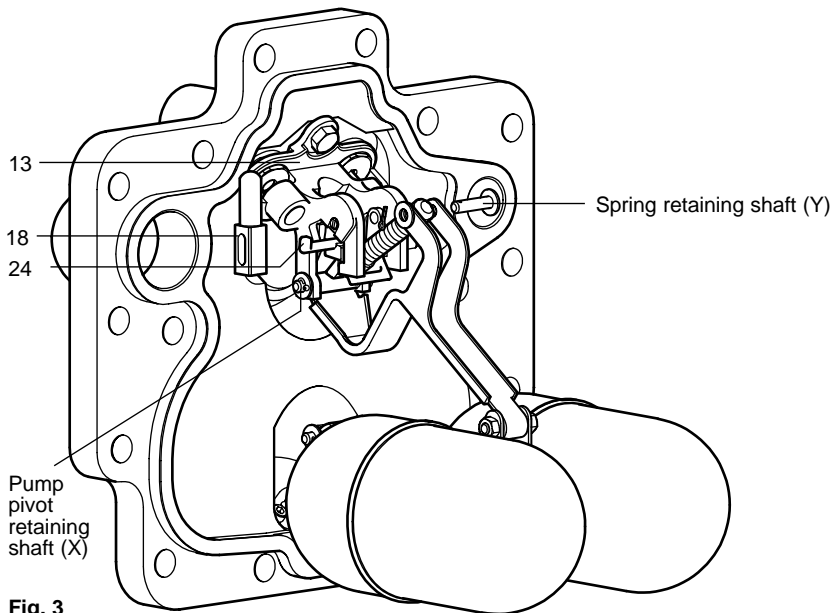


Fig. 3

19. Ensure the actuator is correctly aligned and located within the slots of the pump bracket (item 13).
20. Once this is correctly located, ensure the exhaust valve can slide easily within its guides.
21. When refitting the spring retaining shaft (Y) (30 mm long) and pump pivot retaining shaft (X) (52 mm long), always use new split pins and washers.
24. Check that the mechanism snaps over and opens and closes the valves by moving the floats to their upper and lower limits of travel.
Note: The valve gear has been designed to be adjustment-free, simplifying the fitting of new parts. If after assembly the mechanism does not operate correctly, check all the parts are assembled and aligned as per Fig. 4.
25. With the mechanism fully assembled, refit the cover assembly to the body, ensuring the gasket faces are carefully aligned and no parts of the gasket are trapped or pinched outside the sealing areas. To ensure accurate alignment of the cover and body, it is recommended the lower part of the cover's gasket seal is located into the body first. The top part of the seal can then be easily aligned.
26. Refit the cover bolts ensuring they are sequentially tightened in opposing pairs, gradually increasing torque to $63 \pm 5 \text{ N m}$ ($46.5 \pm 4 \text{ lbf ft}$).
27. Carefully reconnect the motive steam supply and the exhaust lines to the connections marked (IN) and (OUT). The APT14 is now ready to recommission.

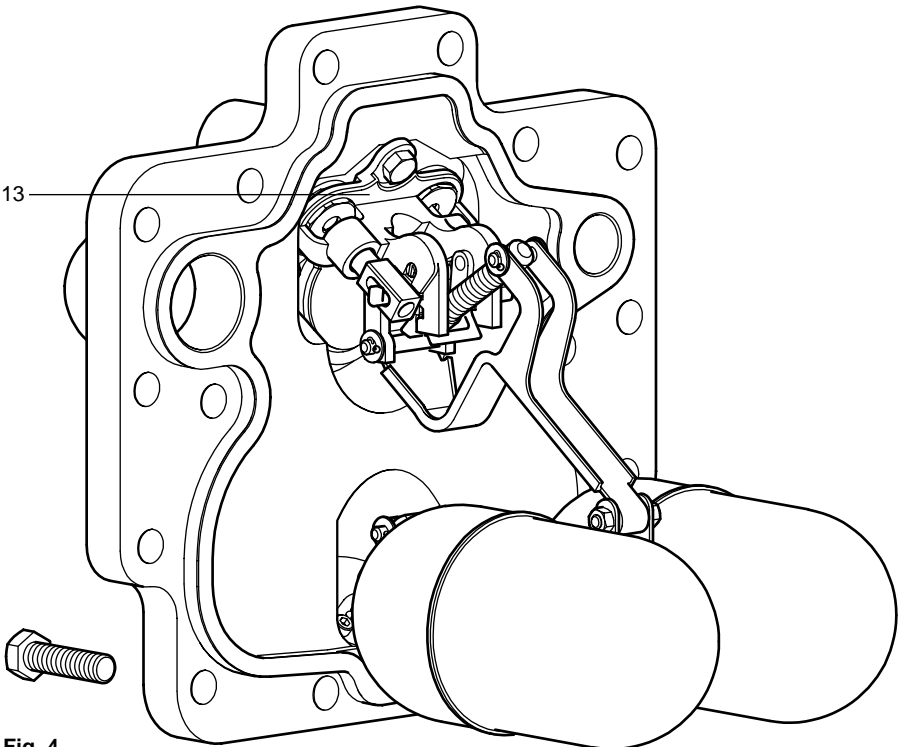


Fig. 4

