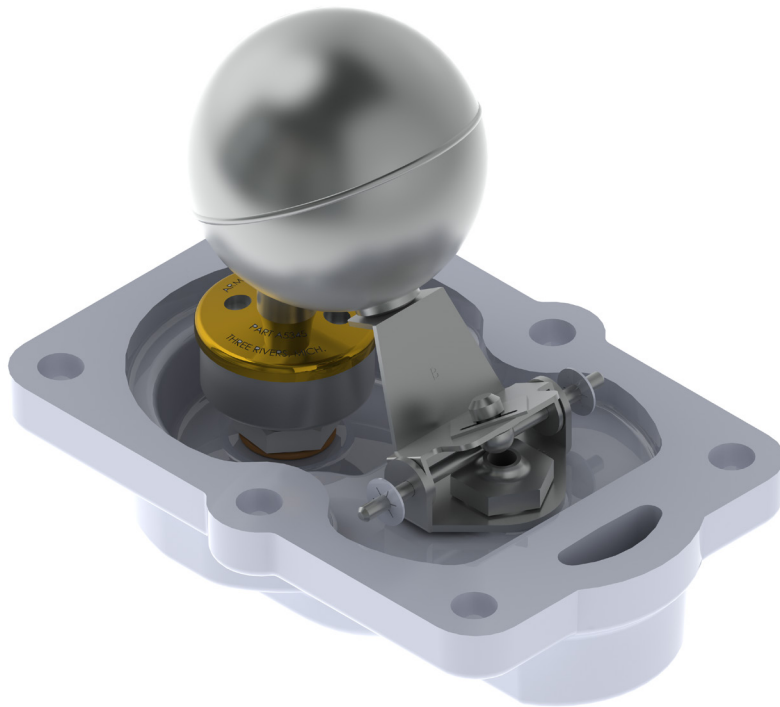


# Float & Thermostatic Replacement Cap Assemblies Installation, Operation, and Maintenance Manual



*This manual should be used by experienced personnel as a guide to the installation and maintenance of Armstrong replacement cap assemblies for Float and Thermostatic Steam Traps. Selection or installation of equipment should always be accompanied by competent technical assistance. We encourage you to contact Armstrong or its local Representative if further information is required.*

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# Safety

## Icon Legend



**WARNING!**

**Injury or death and property damage are possible.**



**CAUTION!**

**Potential property damage, expensive repairs, and/or voiding the equipment warranty may result.**



**BURN HAZARD!**

**Contact with steam, hot water, or hot metal surfaces can cause severe skin burns. Skin exposure to 140°F (60°C) water or metal for only five (5) seconds may cause a second degree burn.**

**Failure to comply with instructions following a safety icon may result in adverse consequences including property damage, personal injury, or, in extreme cases, death.**

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### General Safety Guidelines:

1. Inappropriate use (beyond typical, intended use) could cause damage to the product and other property. It may also result in personal injury or, in extreme cases, death.
2. Only designated, qualified, and competent personnel should operate, maintain, and service this equipment in accordance with the directions in this product instruction manual.
3. Improper setup, operation, or maintenance may void the product warranty.
4. When operating and maintaining this product:
  - a. ALWAYS select and wear appropriate personal protective equipment (PPE) before carrying out any physical work at the job site, per site-specific requirements. Appropriate PPE may include hard hats, safety glasses, gloves, boots or shoes w/ non-slip soles and toe guards, and protective overalls.
  - b. ALWAYS scan the work area and take note of potential hazards before entering. Adjust your travel path or work position to avoid hazards and personal injury.
  - c. ALWAYS observe designated safety procedures when working in hazardous locations (areas containing explosive and combustible gases, vapors, and dusts) and confined spaces (locations where the breathable air supply is limited or variable, or where entrapment could occur).
  - d. ALWAYS use proper lockout-tagout procedures to disconnect power sources and de-energize machinery before conducting installation, service, and repair.
  - e. ALWAYS use great care and appropriate safety gear when working above ground level, especially on ladders and platforms or in the presence of overhead, electrical power lines.
  - f. ALWAYS shut off all “live” steam, water supply, and condensate return lines before breaking or loosening any plumbing joints.
  - g. ALWAYS carefully relieve any residual internal pressure in the system or connecting pipe work before breaking or loosening any plumbing joints.
  - h. ALWAYS allow hot parts to cool before servicing to avoid the risk of skin burns.

# Sizing & Selection

These Float and Thermostatic (F&T) Replacement Cap Assemblies are designed to repair certain Spirax-Sarco Cast Iron Float & Thermostatic Steam Traps (FT-Series). The cap assembly consists of a cap, mechanism, float, thermostatic air vent, gasket and bolts. The kit is completely assembled and ready to install.

The proper replacement cap assembly for the float and thermostatic steam trap depends on the connection size, FT-Series model number and the maximum operating pressure. The model number marked on the replacement cap assembly **MUST** be the same as the model number on the nameplate of the steam trap to be repaired to assure proper steam trap operation. Consult the table below.

Replacement cap assemblies are available for the following models:

Connection Size	Model	Max. Operating Pressure	Use Armstrong Replacement Cap Part#
3/4" - 1"	FT-15	15 psig (1.03 barg)	D114713
	FT-30	30 psig (2.06 barg)	D114714
	FT-75	75 psig (5.17 barg)	D114717
	FT-125	125 psig (8.62 barg)	D114718
1-1/4"	FT-15	15 psig (1.03 barg)	D114715
	FT-30	30 psig (2.06 barg)	D114716

**NOTE:** Replacement Cap Assemblies are **NOT** available for the following models:

- \*FT-75 and FT-125 with 1-1/4", 1-1/2", or 2" connections
- \*FT-15 and FT-30 with 1-1/2" or 2" connections
- \*FTI-series inline steam traps

Also Fits 3/4" & 1" Float & Thermostatic models:

- Barnes & Jones FT2015-3, FT2015-4
- Hoffman FT015H-3 FT015H-4
- Erwel FT15
- Watts WFT-15
- Nicholson FTN-15
- Watson McDaniel WFT-015-13 WFT-015-14
- Tunstall TA-FT3-15 TA-FT4-15

## Recommended Installation Tools

1. Closed end wrench (1/2-in size), socket wrench, or breaker bar w/ 6-pt, 1/2-in socket.
2. Torque wrench (1/4-in drive, capable of measuring 15-ft\*lbs (20.34N-m) of torque, min.)
3. Gasket scraper or putty knife (1-in wide blade, typ.)
4. Screw thread tap, 5/16-18 UNC
5. Gasket remover chemical, abrasive pad, or abrasive paper (emery cloth)
6. Rust penetrant or fastener penetrating oil
7. Anti-seize, thread compound

# Installation & Operation



## WARNING!

### SHUT OFF FLOW TO AND FROM STEAM TRAP

Isolate the steam trap by closing the steam supply valve and condensate return valve before attempting to install the replacement cap assembly.



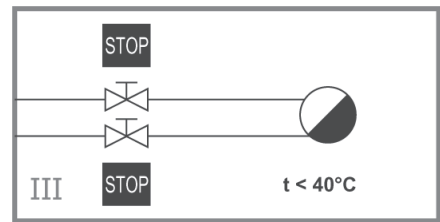
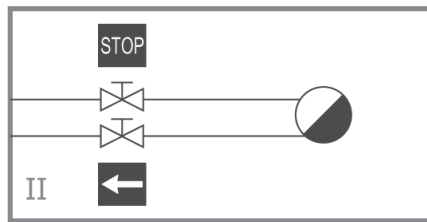
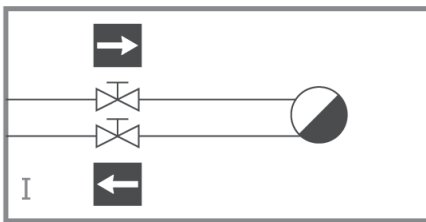
## BURN HAZARD!

### ALLOW TRAP TO COOL BEFORE SERVICING

Allow trap to cool to <math><100^{\circ}\text{F}</math> (<math>40^{\circ}\text{C}</math>) before attempting to install the replacement cap assembly.

**Note:** It is not necessary to remove the steam trap body from the piping to install the replacement cap assembly.

1. Shut off the steam supply to the steam trap. Refer to Figure I below.
2. Shut off the condensate return valve for the steam trap. Refer to Figure II below.



3. Ensure that trap is cold (less than 100°F/40°C), then drain the body of any remaining condensate. Refer to Figure III above.
4. Consider treating trap bolts w/ rust penetrant before attempting to remove them from the body of the trap.
5. Remove and recycle or discard the bolts from the steam trap cap. Use a breaker bar w/ a socket to remove 'frozen' bolts, as required.
6. Remove and recycle or discard old cap assembly and remove the gasket from the trap body.
7. Use a gasket scraper, putty knife, or abrasive pad to clean and remove all traces of the old gasket from the flange surface of the trap body.
8. Inspect trap body for damage or erosion. If badly damaged, the body may need to be replaced. Clean out any dirt or debris if present.

**Note:** If feasible, run a thread tap into each of the bolt holes in the trap body to clear out corrosion and debris in the screw threads.

9. Install the new gasket on the trap body.
10. Install the new replacement cap assembly on the trap body.

**Note:** Coat all new bolt threads w/ an anti-seize compound. Insert each bolt through the cap and into the trap body and turn the bolts in to a 'finger-tight' condition.

11. Starting with the center bolts and working outward in a circular pattern, partially tighten the new cap bolts evenly using a torque wrench to a maximum torque of 12-14 lbf-ft (16-19 N-m). Refer to Figure IV below.

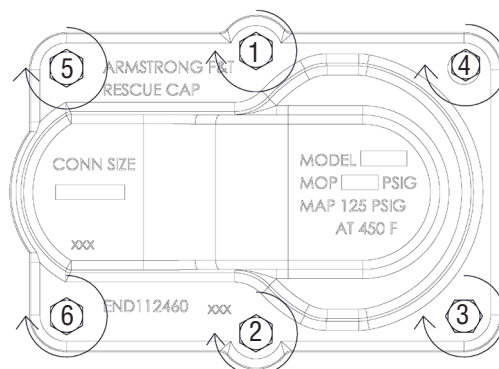
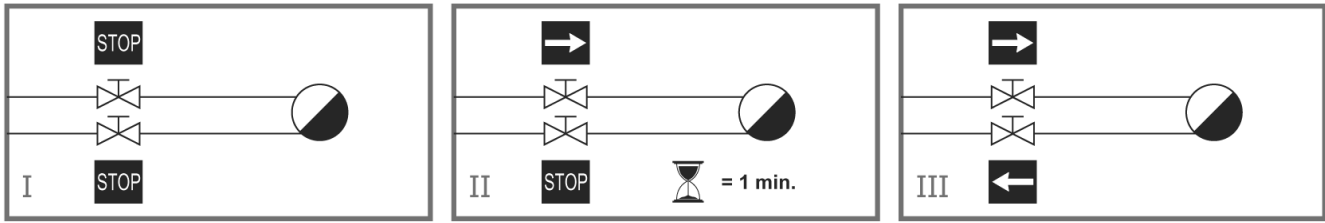


Figure IV. Sequence of Bolt Tightening

12. Slowly open steam valve to trap, wait ~1 minute, then slowly open the condensate return valve. Refer to Figures I, II, and III, below.



13. Confirm trap appears to be operating correctly by observing trap discharge if possible. Verify that air vent opens at startup and closes, and that trap discharges only condensate with no live steam.

**Contact Armstrong or your local Representative if you have any questions regarding installation or use of Armstrong Float and Thermostatic Steam Trap Repair Kits.**

## Maintenance

To ensure continuous optimum performance from any steam trap, inspect trap operation according to the following schedule:

Suggested Yearly Trap Testing Frequency				
Operating Pressure psig (barg)	Application			
	Drip	Tracer	Coil	Process
0 - 100 (0 - 7)	1	1	2	3
101 - 250 (7 - 17)	2	2	2	3
251 - 450 (17 - 31)	2	2	3	4
451+ (31+)	3	3	4	12

If poor trap operation is found, e.g. a "cold" trap or a "blow-through" trap is identified, shutdown the trap according to steps 1 through 3, under "Installation" above. Then, disassemble and clean the trap, refer to Installation steps 4 through 8, above, before conducting an internal inspection."

### Inspection Tips:

1. Linkages should not be bound or worn. Excessive wear is indicated by very shiny surfaces in the area of contact. Guide pin holes should be round, not elongated.
2. A properly seating valve has a bright narrow ring all the way around its circumference.
3. A properly wearing seat has a sharp edge with no nicks or gaps.
4. Thermostatic elements should be discarded or recycled if they are misaligned or ruptured. They should be open at room temperature and move toward the seat when submerged in boiling water. If an FT trap is malfunctioning, replacing the bellows element (part# A5345 for FT-15/FT-30 replacement caps and part# A9739 for FT-75/FT-125 replacement caps) is recommended.

**Contact Armstrong, or your local Representative, if you have any questions regarding inspection or require replacement parts.**

Finally, reassemble the trap and place it back in service according to steps 9 through 13, under "Installation" on page 5.

# Limited Warranty and Remedy

Armstrong International, Inc. or the Armstrong division that sold the product (“Armstrong”) warrants to the original user of those products supplied by it and used in the service and in the manner for which they are intended, that such products shall be free from defects in material and workmanship for a period of one (1) year from the date of installation, but not longer than 15 months from the date of shipment from the factory, [unless a Special Warranty Period applies, as listed below]. This warranty does not extend to any product that has been subject to misuse, neglect or alteration after shipment from the Armstrong factory. Except as may be expressly provided in a written agreement between Armstrong and the user, which is signed by both parties, Armstrong **DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

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