

PREFERRED ANTI-SYPHON VALVE

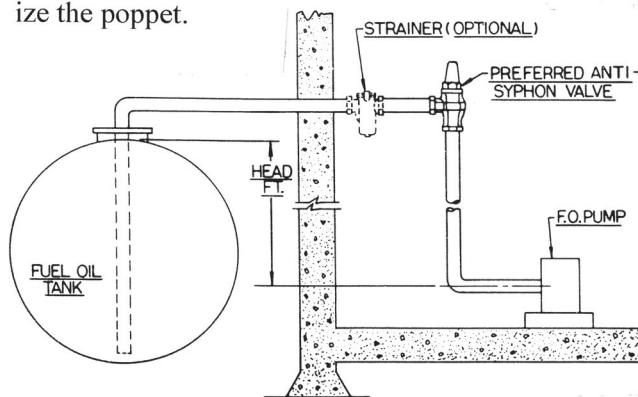
Instructions for Installation

The Preferred Type A Anti-Syphon Valve is designed to prevent syphoning of oil from a storage tank into the boiler room in the event of broken or open suction lines. Many codes require a device of this sort on jobs where the level of oil in storage is higher than the boiler room floor, it is recommended for all such applications.

This valve has been manufactured to present standards for many years. Because of its unique design installers who are not familiar with it will occasionally have problems in adapting it to specific jobs. A careful reading of this sheet before the valve is installed will help to avoid these problems.

INSTALLATION

The Anti-Syphon Valve is installed in a vertical position at the highest point in the suction line with no part of the line between the valve and the tank below maximum oil storage level. Although the valve may be located out of doors, consideration should be given to the possibility that water entrained in the oil might freeze and thereby immobilize the poppet.



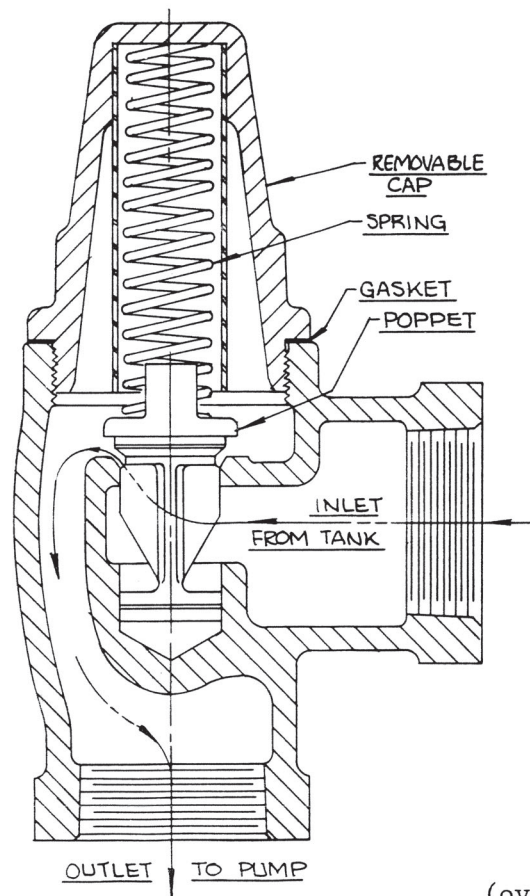
The line below the valve must be primed to provide the required hydrostatic head. This can be accomplished by unscrewing the cap and introducing oil into the line through the crescent shaped orifice near the outer edge. If the suction line is equipped with a check valve above the tank or a foot valve in the tank, the line between this device and the Anti-Syphon Valve can be primed by removing the poppet and introducing oil through the central port below the seat. When the line has been fully primed the Anti-Syphon Valve should be re-assembled, making sure that air cannot be drawn through the valve into the suction line.

MAINTENANCE

Maintenance for the Anti-Syphon Valve is to keep the seat free of accumulations which might prevent a tight seating of the poppet. A strainer installed ahead of the valve will assist in this regard.

OPERATING PRINCIPLE

The spring holds the poppet against the weight of the hydrostatic head so no oil can pass through the valve, the additional vacuum created by the pump lifts the poppet to permit flow. Inasmuch as a combination of forces, the weight of the oil below the valve added to the suction created by the pump, is required to lift the poppet it follows that a deficiency in either force will inhibit flow. A break in the line will dissipate the vacuum, therefore the valve will close and interrupt flow regardless of whether or not the pump is in operation.



(over)

PREFERRED UTILITIES MANUFACTURING CORPORATION

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APPLICATION CONSIDERATIONS

A vacuum of approximately 2" Hg. under design conditions will lift the poppet to permit flow, a slight increase is required to accommodate high flow rates. It must be understood that the term design conditions as used herein represents the maximum head combined with the heaviest oil against which the spring will hold. The maximum head is stamped on the body of each valve while the heaviest grade of oil for each size is given in the table below. The factor of weight (specific gravity) is important, the difference between a light No. 2 oil and a heavy No. 4 oil is fourteen percent while No. 6 oil can be as much as twenty-three percent heavier than No. 2 oil.

Lower heads and oils lighter than design conditions will each reduce the force available to assist the pump in opening the valve. This additional load is automatically transferred to the pump and requires a higher vacuum at the inlet to make-up the deficiency. This requirement is added to the normal drop through the valve, the lift from the storage level to the high point in the suction line, the lift from the low point in the line to the pump inlet, the resistance through strainers, filters, check valves and other devices ahead of the pump and the normal pipe friction for prevailing conditions. With the Anti-Syphon Valve the vertical drop in the suction line does not act to offset the lift out of the tank.

A good oil pump should be able to develop a vacuum of from 20" to 25" Hg., it is essential that

the actual vacuum under operating conditions be limited to a lower value. In those instances where the actual vacuum exceeds the capability of the pump it is necessary to choose between three alternatives:

1. Replace the pump with one having better performance characteristics.
2. Repipe the job to reduce vacuum requirements.
3. Replace the spring in the Anti-Syphon Valve with one better suited to job requirements.

These valves are furnished with springs designed to hold against a maximum head of 5 ft., 10 ft., 15 ft. or 20 ft. as ordered. Intermediate sizes are not available. In some instances the combination of lower heads and lighter oils may permit the use of a lighter spring selected from the table. Replacement springs, plus gaskets are available post-paid providing payment is received with the order thus avoiding a minimum invoicing charge.

IMPORTANT! CAUTION!

Whenever the factory installed spring is replaced in the field the U/L label is voided and the system must be tested to make sure that the valve will hold under job conditions. With the tank full of oil disconnect the suction line at the pump and drain the line back to the Anti-Syphon Valve. If the spring pressure is adequate the flow will stop after this line has completely drained. If the lighter spring will not prevent syphoning, the original spring should be replaced. Be sure to reprime the line after testing.

Pipe Size, in	Maximum Oil Grade	Maximum Flow, gph	Spring Numbers for Various Heads				
			4ft	5ft	10ft	15ft	20ft
3/8 -1/2	2	30		2785	2790	2793	2794
3/4	4	100	10217	2757	2758	2763	2764
1 1/4 -1 1/2-2	6	300	10216	2975	2976	2977	2978
2 1/2 - 3	6	1000		2733	2734	2743	2744