

SARCO

Alternating **RECEIVERS** *and* *Lift Traps*

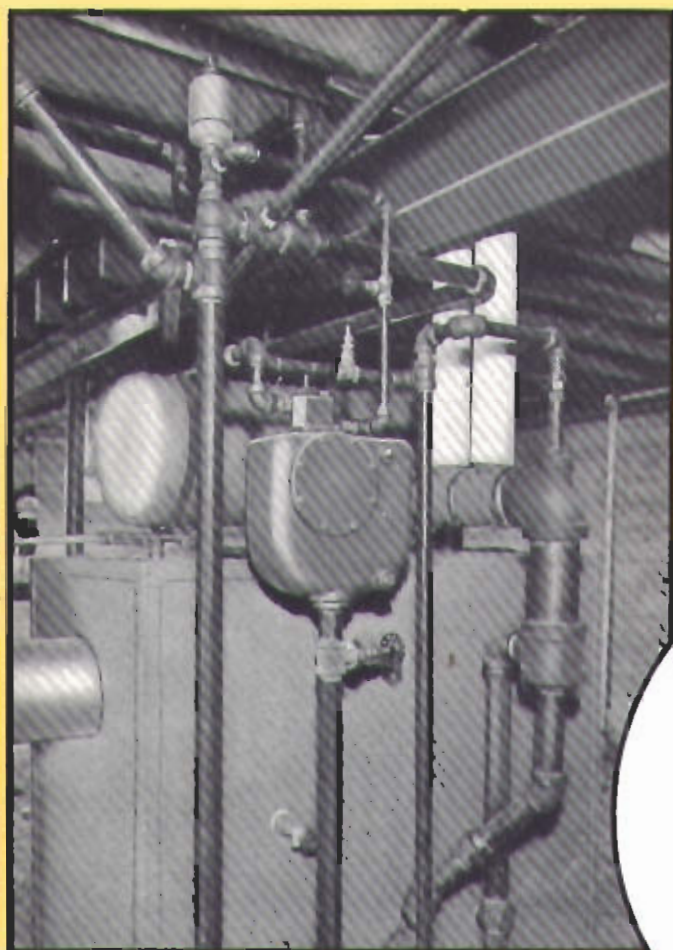
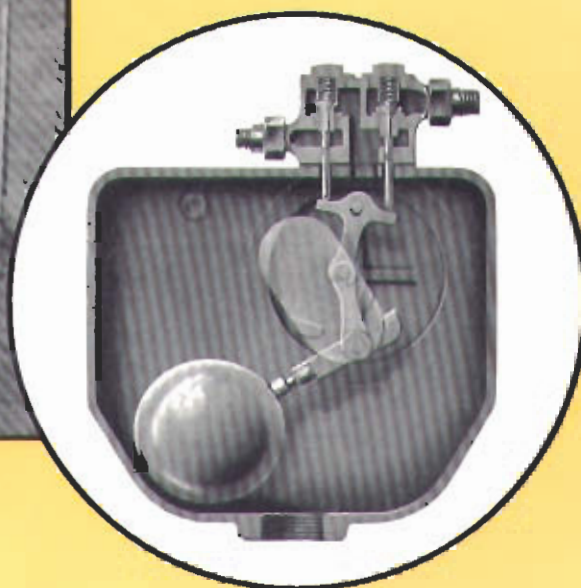


Fig. 1. Sarco Alternating Receiver returning condensate to automatically fired vapor heating boiler



THE principal function of the alternating receiver (or boiler return trap), is to provide a positive means of returning to the boiler all of the condensation formed in the radiators of steam heating systems, without holding up condensation in the returns.

Where condensation is returned to the boiler by gravity, enough head must be built up in the return lines to overcome the boiler pressure. This may cause flooding of the return mains and even of the steam supply lines, and may endanger the boiler by permitting it to go dry. The alternating receiver collects all condensation from dry return lines and periodically discharges it into the boiler. It is an indispensable accessory to any good vapor heating system.

Sarco Receivers are available in three pressure ranges and are used also to lift condensate to overhead returns where the supply pressure alone is insufficient for this purpose.

SARCO COMPANY, INC.

475 FIFTH AVENUE, NEW YORK
Branches in principal cities, Factory at Bethlehem, Pa.

Sarco Canada Ltd., 85 Richmond St. West, Toronto, Ont.

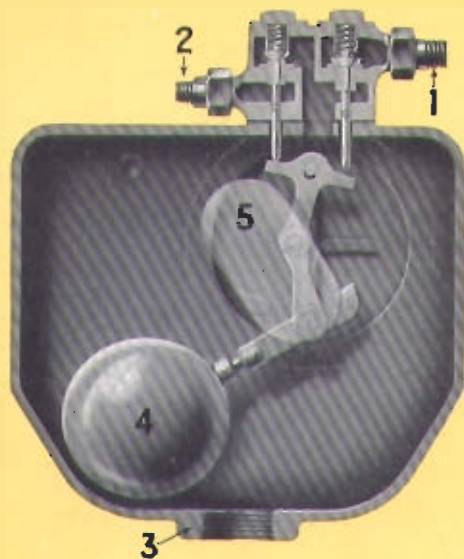


Fig. 2. Construction of Sarco Alternating Receiver

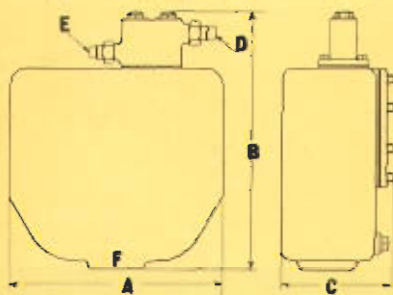
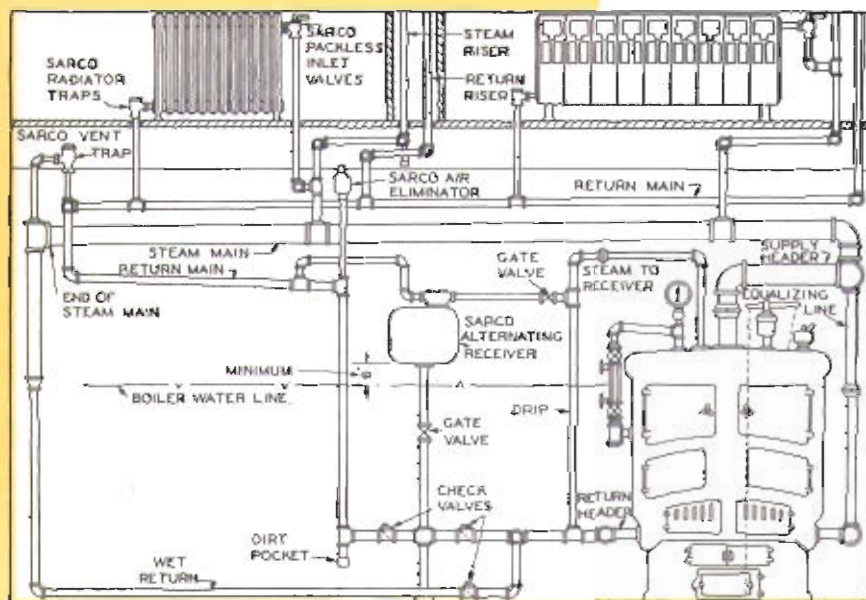


Fig. 3. Dimensions



OPERATION

THE receiver is installed above the water line in the boiler, as shown in Fig. 4. A direct steam connection is taken from the boiler to the equalizing valve 1 (Fig. 2). Valve 2 vents the receiver to atmosphere while filling and should be connected to the dry return at air eliminator connection, as shown.

As condensation enters at inlet 3, it gradually raises float 4. When this reaches its maximum height, it trips the weight 5. As this weight falls over, it reverses the position of valves 1 and 2, opening 1 while simultaneously closing 2.

Pressure on the water in the receiver is thus equalized with that in the boiler, and since the receiver is installed above the water level in the boiler, the condensation will flow thru 3 (now the outlet), to the boiler.

Check valves in the condensate main, as shown in Fig. 4, prevent flow in the wrong direction.

Special Features

The flanged valve housing makes a tight joint against the receiver body so that no troublesome stuffing boxes are necessary on the valve spindles. These valves need no attention in service.

The tripping mechanism is positively locked so that the valve spindles can move only when the weight drops. The valves then open instantly all the way, assuring rapid equalizing of pressures.

Low Pressure Series L for Pressures 0-15 Lbs.

Designed particularly for vapor heating systems. Receiver body is made of fine grained cast iron, valve body cast brass. Copper float, brass tripping mechanism, bronze valve trim.

List Prices, Low Pressure

Type	List Price	Shipping Weight Lbs.	Capacity* Sq. Ft. Direct Radiation
31-L	\$50.00	82	2000
32-L	77.00	90	3000
33-L	114.00	185	7500
34-L	125.00	307	14000

*Capacities are based on one complete cycle per minute, with receiver bottom installed at least 6" above boiler water level and a condensation rate of $\frac{1}{4}$ lb. per sq. ft. per hour. To arrive at correct size needed, include load of risers and mains if these are dripped thru the receiver.

Dimensions, Low Pressure

(See Fig. 3)

Type	DIMENSIONS, INCHES					
	A	B	C	D	E	F
31-L	13	16 $\frac{13}{16}$	7 $\frac{5}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
32-L	13 $\frac{1}{4}$	16 $\frac{3}{4}$	7 $\frac{5}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{2}$	2
33-L	17 $\frac{13}{16}$	19 $\frac{7}{8}$	11 $\frac{7}{8}$	1 $\frac{3}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$
34-L	20	22 $\frac{1}{4}$	14 $\frac{5}{16}$	1	1 $\frac{3}{4}$	2 $\frac{1}{2}$

Fig. 4. Standard piping arrangement for Sarco Alternating Receiver for Vapor Heating System

Medium Pressure, Series M

This series is provided for medium pressure steam heating systems. It is also used for raising condensate to high overhead returns. In such cases, the receiver may be installed at any level consistent with gravity flow of the water to the receiver. Power to operate it is obtained by connecting valve 1 (Fig. 2) to a source of steam or compressed air of sufficient pressure to lift the water to the level desired. Vent valve 2 is connected to any convenient line to atmosphere. The receiver is cast iron, the valve body of red brass; copper float, brass tripping mechanism, composition G bronze valve trim.

List Prices, Medium Pressure

Type	List Price	Shipping Weight Lbs.	Capacity* Lbs. Per Hour	Maximum Operating Pressure
31-M	\$70.00	82	250	35 lbs. sq. in.
32-M	95.00	90	320	45 lbs. sq. in.
33-M	140.00	185	800	45 lbs. sq. in.
34-M	225.00	308	1400	45 lbs. sq. in.

Details and prices of larger sizes on request.

*Capacities shown are based on one complete cycle every 2½ minutes, with receiver bottom installed at least 3 ft. above boiler water level.

Dimensions, Medium Pressure

(See Fig. 3)

Type	DIMENSIONS, INCHES					
	A	B	C	D	E	F
31-M	13	16 ³ / ₁₆	7 ³ / ₁₆	1/2	1/2	1 1/2
32-M	13 ³ / ₄	16 ³ / ₄	7 ³ / ₁₆	3/4	1/2	2
33-M	17 ³ / ₁₆	19 ³ / ₈	11 ³ / ₈	3/4	1/2	2 1/2
34-M	20	22 ³ / ₄	14 ³ / ₁₆	1	3/4	2 1/2

High Pressure, Series H

Applications are the same as for series M, but for higher pressures as shown below. The receiver and valve bodies are semi-steel; copper float, brass tripping mechanism, stainless steel valve trim.

List Prices, High Pressure

Type	List Price	Shipping Weight Lbs.	Capacity* Lbs. per hour	Maximum Operating pressure lbs
32-H	\$110.00	90	250	75
33-H	170.00	185	550	100
34-H	275.00	308	1000	100

Details and prices of larger sizes on request.

*Capacities shown are based on one complete cycle every 3½ minutes, with receiver bottom installed at least 3 ft. above boiler water level.

Dimensions, High Pressure

(See Fig. 3)

Type	DIMENSIONS, INCHES					
	A	B	C	D	E	F
32-H	13 ³ / ₄	16 ³ / ₄	7 ³ / ₁₆	3/4	1/2	2
33-H	17 ³ / ₁₆	19 ³ / ₈	11 ³ / ₈	3/4	1/2	2 1/2
34-H	20	22 ³ / ₄	14 ³ / ₁₆	1	3/4	2 1/2

Fig. 7. Sarco Alternating Receiver returning condensate to high pressure boiler

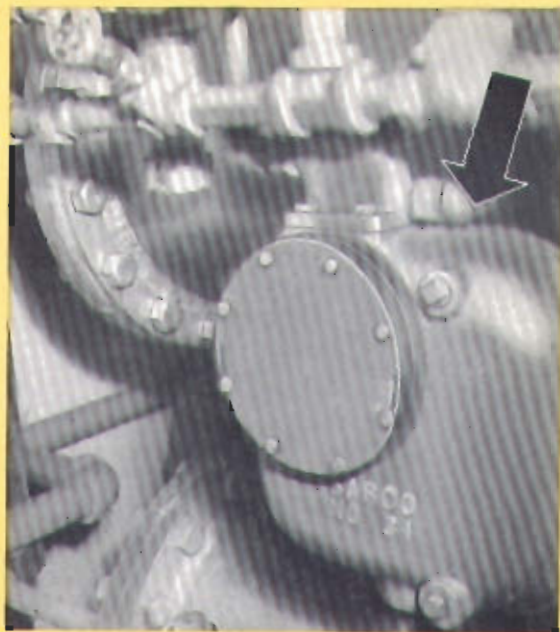


Fig. 5. Sarco Lift Trap pumping condensate from heat exchanger to floor above

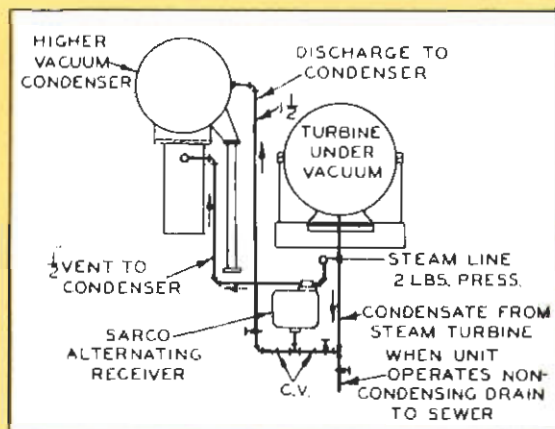
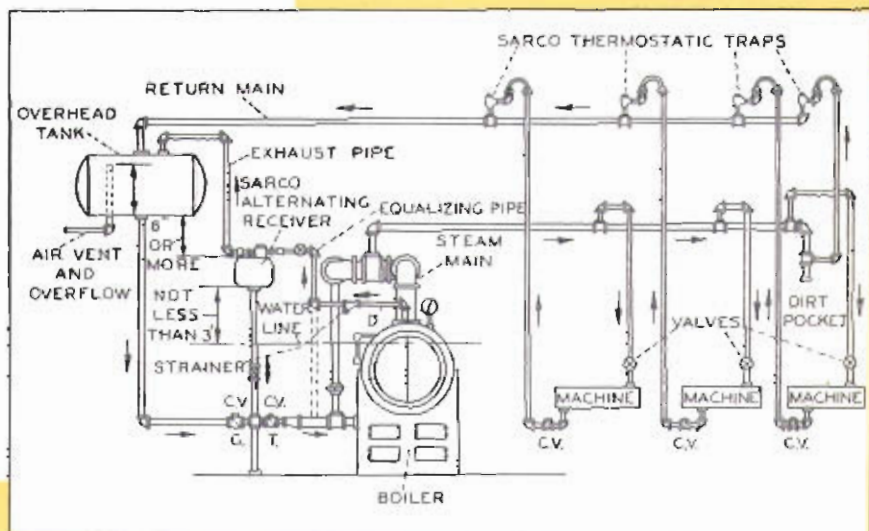


Fig. 6. Elevating condensate under vacuum from turbine casing to surface condenser



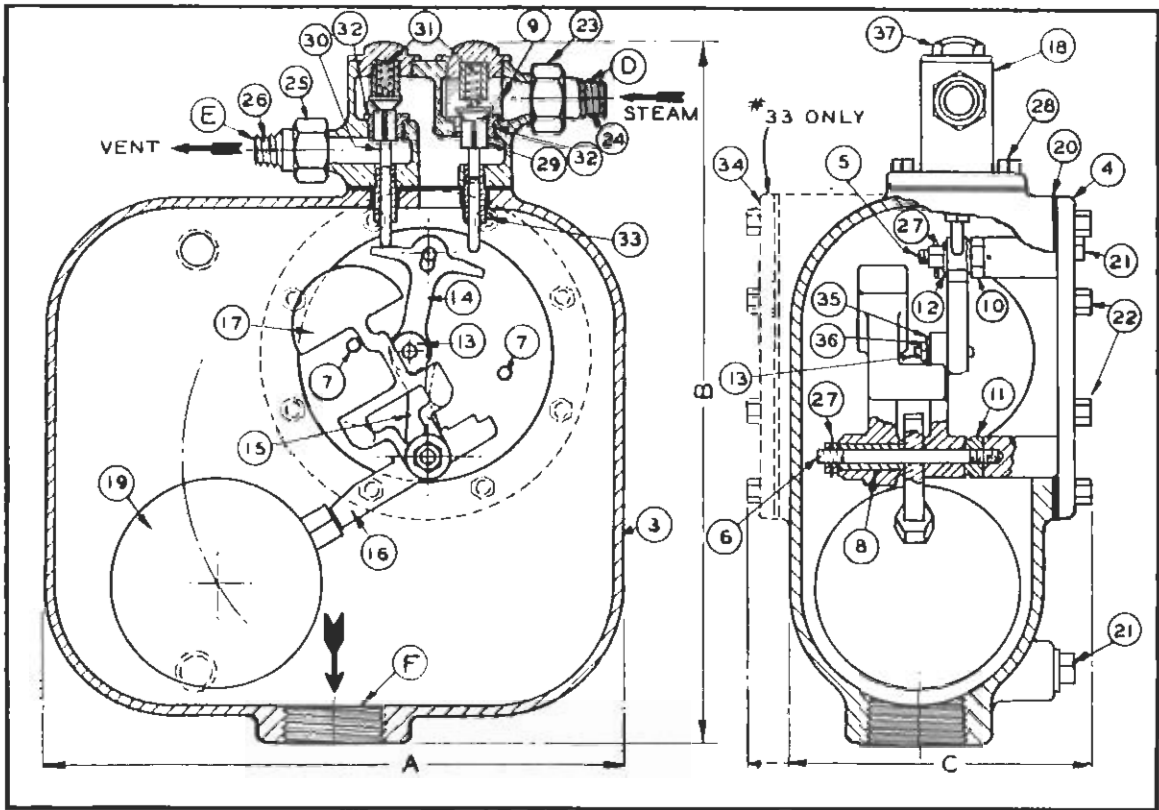


Fig. 5

List Prices of Principal Spare Parts

Type	2 Cover & Assembly without float	19 Copper Float	20 Cover Gasket	23 Union Nut	24 Union Nipple	25 Union Nut	26 Union Nipple	29 Steam Valve	30 Exhaust Valve	31 Valve Spring	32 Valve Seat	33 Valve Stem Guide	37 Valve Cap
31-L	\$30.00	\$6.00	\$.75	\$.50	\$.50	\$.35	\$.35	\$3.00	\$3.00	\$.50	\$1.00	\$.60	\$.85
32-L	35.00	7.00	.85	.50	.50	.35	.35	3.50	3.50	.50	1.10	.60	.85
33-L	40.00	8.00	1.10	.50	.50	.35	.35	4.00	4.00	.50	1.20	.60	.85
34-L	45.00	10.50	1.50	1.00	1.00	.60	.60	5.00	5.00	1.00	2.25	1.50	1.70
31-M	42.00	9.00	.85	.75	.75	.35	.35	3.90	3.90	.50	2.00	.90	.85
32-M	45.00	9.50	.85	.75	.75	.35	.35	5.00	5.00	.50	2.00	.90	.85
33-M	50.00	11.00	1.50	.75	.75	.35	.35	7.50	7.50	.50	2.00	.90	.85
34-M	56.00	13.00	2.00	1.00	1.00	.60	.60	10.00	10.00	1.00	3.00	2.00	2.25
32-H	52.00	14.00	1.00	.80	.80	.35	.35	6.50	6.50	.50	2.25	.90	.85
33-H	57.00	16.90	1.50	.80	.80	.35	.35	10.00	10.00	.50	3.50	.90	.85
34-H	65.00	22.00	2.00	1.00	1.00	.60	.60	14.00	14.00	1.00	4.50	2.00	2.25