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INSTRUCTION AND RENEWAL PARTS

Form 150, 20-RP

(10E-3-RP)

660

HIGH PRESSURE FLOAT REGULATORS FOR PACKAGED WATER CHILLERS USING 3-3/4" x 3", 2-5/8" x 2-1/4" OPEN AND 2-5/8" BORE HERMETIC TYPE COMPRESSORS

GENERAL

Identification of high pressure Refrigerant-12 and 22 Float Regulators and their parts as used in York Packaged Water Chillers is given in the paragraphs below. Note that the term COOLER designates the shell and tube cooler only, (Model C Cooler). The term CHILLER applies to the complete packaged unit, which includes the cooler, condenser, motor, liquid and oil control and base.

York Packaged Water Chillers using 3-3/4" x 3" and 2-5/8" x 2-1/4" open (shaft seal type compressors) may be classified into two general types or classes as indicated in paragraphs (a) and (b) below.

(a) York Packaged Water Cooling Systems (Chillers) with combination oil stills and dead end traps.
These were the original package type chillers, designated as the PWC Series.

(b) Model 2D, 3B and 3D Packaged Water Chillers.
These chillers are not provided with combination oil stills and dead end traps. Oil is returned instead, directly to the compressor crankcase, which functions as an oil still. These chillers are covered by YORK SERVICE MANUAL Instruction 10E-3, coded 1158.

The float regulator sizes for the above chillers are governed basically by the Model C Cooler Size shown by TABLE 1. Note that cooler sizes are identified by their diameter in inches and their length in feet. For example, a Model C Cooler 16 inches in diameter and 12 feet in length is Model No. 1612. Note also that for the combination oil still and dead end trap type chillers, see paragraph (a) above, the compressor sizes may not always correspond directly to cooler sizes as they do in the Model 2D, 3B and 3D chillers which are shown in TABLE 2, since some of these chillers were equipped with two compressors connected to operate on one cooler.

HIGH PRESSURE FLOAT REGULATORS

The following factors should be taken into consideration when identifying high pressure float regulators:

1. High pressure float regulators for packaged water chillers are not the same as those for remote application, the difference being in the

orifice sizing. All regulators for packaged chillers are identified by an additional "H" in their nomenclature. For example, the 6HF-H float regulator is applied specifically to package water chillers as shown in TABLE 4, but the 6HF float regulator may be used for any remote installation to which this size regulator is applicable. Service and operation for both styles of float regulators are identical and are covered in York SERVICE MANUAL Instruction 6D.

2. In any given size, the float regulator is the same for either Refrigerant-12 or Refrigerant-22, Packaged Water Chillers.
3. For each size of the subject packaged water chiller float regulators except the 7HF-H, there is a different liquid inlet pipe size as follows:

Regulator Size	Liquid Inlet Pipe Size
4HF-H	1" ips
5HF	1-1/2" ips
6HF-H	1-1/2" ips
7HF-H	2" ips

Float Regulators for the subject packaged water chillers therefore, may be identified readily by two simple factors: namely, the lengths and diameters of the coolers, and/or the float regulator liquid inlet pipe sizes. Physical identification of coolers, even if they are insulated, may be simplified if it is kept in mind that cooler lengths vary in two-foot increments.

TABLE 1 shows HP Float Regulator sizes in relation to coolers as used for Packaged Water Chillers with combination oil stills and dead end traps. (See paragraph (a) above).

TABLE 2 shows HP Float Regulator sizes as used for Model 2D, 3B and 3D Packaged Water Chillers. (See paragraph (b) above).

TABLE 3 shows HP Float Regulator sizes as used for 2H series chillers.

TABLE 4 shows York Part Numbers for HP Float Regulators and their parts, as used on the subject York Packaged Water Chillers.

TABLE 1

REFRIGERANT-12 & 22 PACKAGED WATER COOLING SYSTEMS USING
MODEL C COOLERS & COMBINATION OIL STILL & DEAD END SUCTION TRAP

COOLER DIA. INCHES x LGTH. FT.	MODEL NO.	HP FLOAT REGULATOR SIZE	LIQUID INLET IPS
12 x 8	1208	4HF-H	1"
12 x 10	1210	4HF-H	1"
14 x 10	1410	5HF	1-1/2"
14 x 12	1412	5HF	1-1/2"
16 x 12	1612	5HF	1-1/2"
18 x 12	1812	6HF-H	1-1/2"
20 x 12	2012	6HF-H	1-1/2"
22 x 12	2212	6HF-H	1-1/2"
24 x 12	2412	6HF-H	1-1/2"
26 x 12	2612	7HF-H	2"
28 x 12	2812	7HF-H	2"

TABLE 2

PACKAGED WATER CHILLERS
MODEL 2D*, 3B & 3D
(Reference SERVICE MANUAL Instruction 10E-3)

Chiller Model No.	Float Liquid Inlet Size IPS	HP Float Regulator Size	COMPRESSORS (Open Type)			Refrig- erant	Cooler Dia. (In.) x Lgth. (Ft.)
			Size	No. Cyl.	Drive		
2D20*	1"	4HF-H	2-5/8" x 2-1/4"	6	Direct	12	12 x 8
2D30*	1"	4HF-H	2-5/8" x 2-1/4"	6	Direct	22	12 x 8
2D50*	1"	4HF-H	2-5/8" x 2-1/4"	9	Direct	22	14 x 10
3D50	1-1/2"	5HF	3-3/4" x 3"	6	Direct	12	14 x 12
3D75	1-1/2"	6HF-H	3-3/4" x 3"	6	Direct	22	18 x 12
3D100	1-1/2"	6HF-H	3-3/4" x 3"	8	Direct	22	20 x 12
3D125	1-1/2"	6HF-H	3-3/4" x 3"	16	Direct	12	22 x 12
3D150	1-1/2"	6HF-H	3-3/4" x 3"	12	Direct	22	24 x 12
3D200	2"	7HF-H	3-3/4" x 3"	16	Direct	22	28 x 12
3B-1	1-1/2"	5HF	3-3/4" x 3"	4	V-Belt	22	14 x 12
3B-2	1-1/2"	5HF	3-3/4" x 3"	4	V-Belt	22	16 x 12
3B-3	1-1/2"	5HF	3-3/4" x 3"	6	V-Belt	22	16 x 12

* Model 2D Chillers have been replaced by Model 2H Chillers. (See TABLE 3).

TABLE 3

YORK PACKAGED WATER CHILLERS-2H SERIES-EQUIPPED WITH 2-5/8" BORE
HERMETIC TYPE COMPRESSORS
(Reference SERVICE MANUAL Instruction 10E-5)

Chiller Model No.	Float Liquid Inlet Size IPS	HP Float Regulator Size	Compressors (Hermetic Type)		Refrig- erant	Cooler Dia. (In.) x Lgth. (Ft.)
			Size	No. Cyl.		
2H20	1"	4HF-H	2-5/8" x 2-1/4"	6	12	8 x 12
2H25	1"	4HF-H	2-5/8" x 1-7/8"	6	22	8 x 12
2H30	1"	4HF-H	2-5/8" x 2-1/4"	6	22	8 x 12
2H45	1"	4HF-H	2-5/8" x 2-1/4"	9	22	10 x 14

TABLE 4

YORK PART NUMBERS - HIGH PRESSURE FLOAT REGULATORS
FOR SUBJECT PACKAGED WATER CHILLERS-REFRIGERANTS-12 & 22 (See Fig. 1)

HP FLOAT REGULATOR MODEL NO.	4HF-H	5HF	6HF-H	7HF-H
Part Name	Part No.	Part No.	Part No.	Part No.
Valve, Float Regulator	68-8012	68-8070	68-8124	68-8125
1. Body	68-1546	69-7976	68-7976	68-8127
2. Head	68-8011	68-1661	68-7997	68-8139
3. Needle, Float	68-1603	68-1670	68-1670	68-8132
4. Valve, Float	68-8133	68-1675	68-8122	68-8123
5. Swivel, Needle Link	68-1633	68-1672	68-1672	68-1685
6. Locknut, Swivel, Needle Link	21-461	21-466	21-466	21-483
7. Lock Washer, Swivel, Needle Link	21-5246	21-5247	21-5247	21-5249
8. Pins, Cotter, Toggle	21-7777	21-1080	21-1080	21-7834
9. Pin, Toggle	68-1637	68-1669	68-1669	68-1682
10. Link, Movable	68-1636	68-1671	68-1671	68-1684
11. Support, Toggle	68-1559	68-1674	68-1674	68-1688
12. Screws - Nut, Support Toggle	21-1758	21-8073	21-8073	21-8074
13. Rod, Float	68-1634	68-1668	68-1668	68-1681
14. Nut, Rod Float	21-574	21-2876	21-2876	21-578
15. Nut, Ball, Rod Float	21-574	21-574	21-574	---
16. Ball, Float	22-533	22-535	22-535	22-942
17. Gasket, Head	28-876	28-551	28-551	28-882
18. Tube, Bleeder	68-1643	68-1673	68-1673	68-1686
19. Plug, Pipe	23-1983	23-1983	23-1983	23-1983
20. Plug, Pipe, Oil Drain	23-1974	23-1987	23-1987	23-1987
21. Plug, Pipe, Sq. Head	---	23-4020	23-4020	23-4020

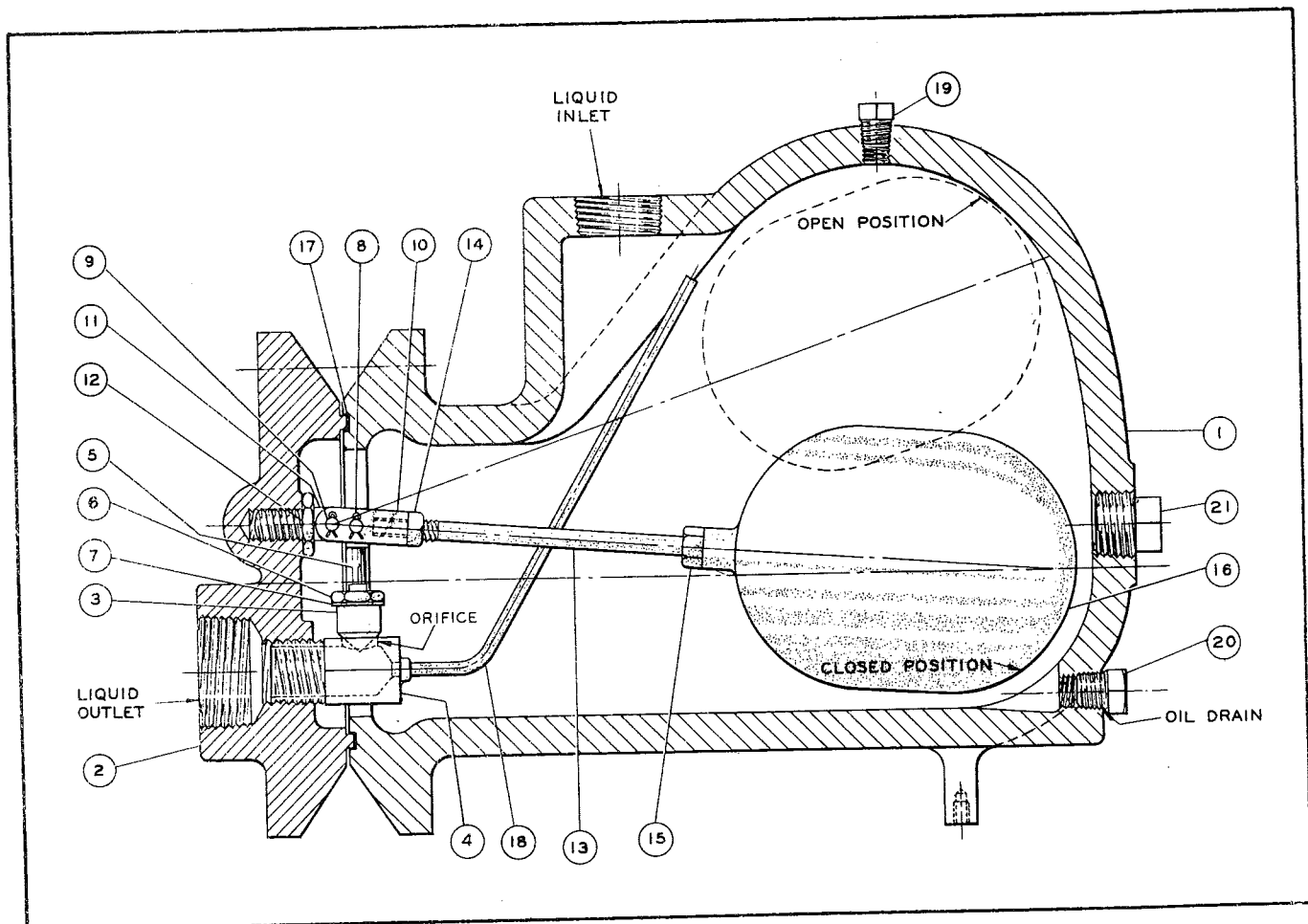


Fig. 1 - High Pressure Float Regulator

TABLE 5 - CAPACITIES - ORIFICE SIZES

Float Size	Diameter Standard Orifice in Float Valve (Item 4)	York Part No.	Maximum Operating Differential Pressure	Refrigerant-12 Tons - 80 psig Differential Pressure	Refrigerant-22 Tons - 125 psig Differential Pressure	Orifice Diameter High Differential Pressure
4HF-H	11/32"	68-8133	179 psig	31 tons	52 tons	5/16"
5HF	11/16"	68-1675	178 psig	90 tons	150 tons	5/8"
6HF-H	11/16"	68-8122	178 psig	125 tons	208 tons	5/8"
7HF-H	7/8"	68-8123	173 psig	184 tons	307 tons	25/32"

Table 5 shows packaged liquid chiller float regulator sizes, orifice diameters and York Part Nos. of standard float valves (Item 4, Fig. 4). Also, maximum operating differential pressures, maximum tons refrigeration at specified differential pressures for Refrigerant-12 and Refrigerant-22 respectively; and orifice diameters for operation above the maximum operating differential pressures. As the maximum differential pressures are approached, the float regulator may not open properly. In this case, the orifice size must be reduced in accordance with the last column of TABLE 5 ("Orifice Diameter - High Differential Pressure") at the sacrifice of

some tonnage.

If the orifice diameter must be changed, the existing orifice in the float valve (Item 4) into which the float needle, (Item 3) fits, should be brazed shut and a new, smaller diameter orifice hole be drilled in another flat of the hexagonal float valve, as shown in the last column of TABLE 5.

When the float valve is re-assembled in the head (Item 2), be sure that the bleeder tube (Item 18) is in the proper position and that it does not interfere with operation of the mechanism.