

CHARGING INFORMATION FOR 13HPD UNIT SHIPPED WITH DRY NITROGEN CHARGE

This unit is factory shipped with a nitrogen gas holding charge to prevent moisture infiltration. The 13HPD unit is intended as a replacement component for an existing (previously installed) system. For best results, indoor temperature should be between 70°F (21°C) and 80°F (27°C). Be sure to monitor system pressures while optimizing charge. Charging should be done with unit operating in the cooling mode.

Initial Weigh-In Charge

1. After evacuation of the outdoor unit, line set, and indoor unit is complete, close the manifold gauge set valves. Disconnect vacuum pump from center hose of gauge set.
2. Connect the center hose of the gauge set to a cylinder of HCFC-22 and purge the hose. Then, place the cylinder upside down on a scale.
3. Open the high side manifold gauge valve and weigh in liquid refrigerant. Refer to unit nameplate to determine correct weigh-in charge.
4. Close the high side manifold gauge valve when proper charge has been weighed in.

Optimizing System Charge

NOTE — Refrigerant tank should be turned right-side-up to deliver refrigerant gas during charge optimizing procedure.

1. Move the low side manifold gauge hose from the vapor line service valve to the true suction port (see figure 1 in the unit installation instruction). **Make sure the refrigerant cylinder is right-side-up so that it will deliver gas during the charge optimizing procedure.**
2. Set the thermostat for a cooling demand. Turn on power to the indoor unit and close the outdoor unit disconnect switch to start the unit.
3. Allow unit to run for five minutes to allow pressures to stabilize.
4. Check and adjust indoor airflow using procedure provided below.
5. Use either **approach** or **subcooling** method (see table 3 and 4 for TXV system, or table 1 for RFC system) to optimize system charge. Adjust charge as necessary.

NOTE — Complete procedures for approach or subcooling methods are located in the unit installation instruction.

6. Close gauge set valves and disconnect gauge set.
7. Replace the stem and service port caps and tighten.

Adjusting Indoor Airflow

NOTE — Be sure that filters and indoor and outdoor coils are clean before testing. To determine temperature drop across indoor coil (Delta-T), measure the entering air dry bulb (DB) and wet bulb (WB) temperatures at the indoor coil. Find Delta-T

in table 1. Measure coil's leaving air DB and subtract that value from entering air DB. The measured difference should be within +3°F (+1.8°C) of table value; if too low, decrease the indoor fan speed. If the Delta-T is too high, increase the indoor fan speed. Repeat charging procedure and Delta-T (air flow adjustment) procedure until both are correct.

Example: Assume entering air DB - 72, WB - 64, leaving DB - 53. Therefore, Delta-T should be 15 (per table); delta across coil is 72 - 53 or 19 (which is 4°F higher than table value); action necessary: increase fan speed.

Charging Temperatures and Pressures							
Model	-18	-24	-30	-36	-42	-48	-60
Table 1 - Subcooling Values Saturation Temperature minus Liquid Line Temperature °F (°C) ± 1°F (0.5°C)							
Temp. °F (°C)	6 (3.3)	11 (6.0)	8 (4.4)	6 (3.3)	6 (3.3)	4 (2.2)	9 (5.0)
Table 2 - Approach Values Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C) ± 1°F (0.5°C)							
Temp. °F (°C)	7 (3.9)	8 (4.4)	9 (5.0)	13 (7.2)	7 (3.9)	9 (5.0)	6 (3.3)
Table 3 - Normal Operating Pressures (Liquid ±10 and Suction ±5 psig)							
<i>The values below are typical pressures; indoor evaporator match up, indoor air quantity, and evaporator load will cause the pressures to vary.</i>							
*Temp. °F (°C)	Liquid Line Pressure / Vapor Line Pressure						
Cooling							
65 (18)	141 / 81	148 / 80	146 / 78	154 / 78	139 / 67	146 / 75	145 / 72
75 (24)	163 / 82	176 / 82	171 / 79	180 / 80	163 / 74	171 / 77	171 / 75
85 (29)	191 / 84	206 / 83	201 / 80	216 / 81	191 / 81	198 / 78	199 / 77
95 (35)	222 / 85	240 / 84	233 / 81	246 / 81	220 / 84	229 / 79	230 / 78
105 (41)	256 / 87	277 / 86	271 / 81	284 / 82	256 / 85	268 / 81	266 / 79
115 (45)	296 / 89	322 / 87	313 / 83	328 / 85	294 / 87	308 / 81	304 / 81
Heating							
50(10)	192 / 64	185 / 60	198 / 58	196 / 58	204 / 59	197 / 39	212 / 57
40 (4)	180 / 53	176 / 50	188 / 47	185 / 47	195 / 49	189 / 31	200 / 47
30 (-1)	172 / 43	165 / 49	175 / 35	176 / 37	184 / 39	181 / 25	187 / 38
20 (-7)	164 / 34	162 / 31	163 / 26	170 / 30	178 / 32	175 / 18	174 / 34
<i>*Temperature of the air entering the outside coil.</i>							

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