

SPORLAN

PRESSURE-TEMPERATURE CHART

at Sea Level

PSIG	TEMPERATURE °F									
	REFRIGERANT - (Sporlan Code)									
	22 (V)	134a (J)	404A (S)	407A (V)	407C (N)	407F (N)				
			Bubble Point	Dew Point	Bubble Point	Dew Point	Bubble Point	Dew Point	Bubble Point	Dew Point
5*	-48	-22	-58	-57	-56	-44	-53	-41	-58	-46
4*	-47	-20	-57	-55	-54	-43	-52	-39	-56	-45
3*	-45	-19	-55	-54	-53	-41	-50	-38	-55	-43
2*	-44	-18	-54	-52	-52	-40	-49	-36	-53	-42
1*	-43	-16	-52	-51	-50	-39	-48	-35	-52	-41
0	-41	-15	-51	-50	-49	-37	-47	-34	-51	-39
1	-39	-12	-49	-47	-47	-35	-44	-31	-48	-37
2	-36	-10	-46	-45	-44	-33	-42	-29	-46	-35
3	-34	-7	-44	-43	-42	-31	-39	-27	-44	-33
4	-32	-5	-42	-41	-40	-28	-37	-25	-42	-30
5	-30	-3	-40	-39	-38	-26	-35	-23	-40	-28
6	-28	-1	-38	-37	-36	-25	-33	-21	-38	-27
7	-26	1	-36	-35	-34	-23	-31	-19	-36	-25
8	-24	3	-34	-33	-32	-21	-29	-17	-34	-23
9	-22	5	-32	-31	-30	-19	-28	-15	-32	-21
10	-20	7	-31	-29	-29	-17	-26	-14	-31	-20
11	-19	8	-29	-28	-27	-16	-24	-12	-29	-18
12	-17	10	-27	-26	-25	-14	-23	-11	-27	-16
13	-15	12	-26	-24	-24	-13	-21	-9	-26	-15
14	-14	13	-24	-23	-22	-11	-20	-7	-24	-13
15	-12	15	-23	-21	-21	-10	-18	-6	-23	-12
16	-11	16	-21	-20	-19	-8	-17	-5	-22	-11
17	-9	18	-20	-19	-18	-7	-15	-3	-20	-9
18	-8	19	-18	-17	-17	-6	-14	-2	-19	-8
19	-7	21	-17	-16	-15	-4	-13	-1	-17	-7
20	-5	22	-16	-15	-14	-3	-11	1	-16	-5
21	-4	24	-14	-13	-13	-2	-10	2	-15	-4
22	-3	25	-13	-12	-11	-1	-9	3	-14	-3
23	-1	26	-12	-11	-10	1	-7	4	-12	-2
24	0	27	-11	-10	-9	2	-6	6	-11	0
25	1	29	-9	-8	-8	3	-5	7	-10	1
26	2	30	-8	-7	-7	4	-4	8	-9	2
27	4	31	-7	-6	-6	5	-3	9	-8	3
28	5	32	-6	-5	-4	6	-2	10	-7	4
29	6	33	-5	-4	-3	7	-1	11	-6	5
30	7	35	-4	-3	-2	8	1	12	-5	6
31	8	36	-3	-2	-1	9	2	13	-4	7
32	9	37	-2	-1	0	10	3	14	-3	8
33	10	38	-1	0	1	11	4	15	-1	9
34	11	39	0	1	2	12	5	16	-1	10
35	12	40	1	2	3	13	6	17	0	11
36	13	41	2	3	4	14	7	18	1	12
37	14	42	3	4	5	15	8	19	2	13
38	15	43	4	5	6	16	9	20	3	14
39	16	44	5	6	7	17	10	21	4	15
40	17	45	6	7	7	18	10	22	5	16
42	19	47	8	9	9	20	12	24	7	17
44	21	49	10	11	11	21	14	25	9	19
46	23	51	11	13	13	23	16	27	10	21
48	24	52	13	14	14	25	17	29	12	22
50	26	54	15	16	16	26	19	30	14	24
52	28	56	16	17	18	28	21	32	15	25
54	29	57	18	19	19	29	22	33	17	27
56	31	59	20	21	21	31	24	35	18	28
58	32	60	21	22	22	32	25	36	20	30
60	34	62	23	24	24	34	27	38	21	31
62	35	64	24	25	25	35	28	39	23	33
64	37	65	25	26	26	36	29	41	24	34
66	38	66	27	28	28	38	31	42	25	35
68	40	68	28	29	29	39	32	43	27	37
70	41	69	30	30	30	40	34	45	28	38
72	42	71	31	32	32	42	35	46	29	39
74	44	72	32	33	33	43	36	47	30	40
76	45	73	33	34	34	44	37	48	32	42
78	46	75	35	36	35	45	39	50	33	43
80	47	76	36	37	37	47	40	51	34	44
85	51	79	39	40	40	49	43	54	37	47
90	54	82	42	43	42	52	46	56	40	50
95	56	85	45	45	45	55	48	59	43	52
100	59	88	47	48	48	57	51	62	45	55
105	62	90	50	51	50	60	54	64	48	57
110	64	93	52	53	53	62	56	67	50	60
115	67	96	55	56	55	65	59	69	53	62
120	69	98	57	58	58	67	61	71	55	64
125	72	100	60	60	60	69	63	73	57	66
130	74	103	62	63	62	71	65	76	59	69
135	76	105	64	65	64	73	68	78	61	71
140	78	107	66	67	66	75	70	80	63	73
145	81	109	68	69	68	77	72	82	66	75
150	83	112	70	71	70	79	74	84	68	77
155	85	114	72	73	72	81	76	86	69	78
160	87	116	74	75	74	83	78	88	71	80
165	89	118	76	77	76	85	80	89	73	82
170	91	120	78	79	78	87	82	91	75	84
175	92	121	80	81	80	89	83	93	77	86
180	94	123	82	82	82	90	85	95	79	87
185	96	125	83	84	83	92	87	96	80	89
190	98	127	85	86	85	94	89	98	82	91
195	100	129	87	88	87	95	90	100	84	92
200	101	130	89	89	88	97	92	101	85	94
205	103	132	90	91	90	98	94	103	87	95
210	105	134	92	92	92	100	95	104	88	97
220	108	137	95	96	95	103	98	107	92	100
230	111	140	98	99	98	106	101	110	95	103
240	114	143	101	102	101	109	104	113	97	105
250	117	146	104	104	104	111	107	116	100	108
260	120	149	107	107	106	114	110	119	103	111
275	124	153	111	111	110	118	114	122	107	115
290	128	157	115	115	114	121	118	126	111	118
305	132	161	118	119	118	125	122	130	114	122
320	136	165	122	122	121	128	125	133	118	125
335	139	169	125	126	125	132	129	136	121	128
350	143	172	129	129	128	135	132	140	125	132
365	146	176	132	132	132	138	135	143	128	135
380	150	179	135	136	135	141	139	146	131	138
400	154	183	139	140	139	145	143	150	135	141
420	158	187	143	144	143	149	147	153	139	145
440	162	191	147	147	147	152	150	157	143	149
460	166	195	151	151	150	155	154	160	146	152
480	169	198	154	154	154	159	158	164	150	155
500	173	202	157	158	157	162	161	167	153	158

* Inches mercury below one atmosphere

MAKE A SYSTEMATIC ANALYSIS

Based on the complaint and measurements taken

Changing Parts Might Be The First Reaction

BUT...

1. May not be necessary and...
2. Does not always solve the problem



SUPERHEAT AND SUCTION PRESSURE

symptoms can provide the real cause

POSSIBLE CAUSES

1. Oversized valve
2. TEV seat leak
3. Low superheat adjustment
4. Bulb installation
 - a. Poor thermal contact
 - b. Warm location
5. Wrong thermostatic charge
6. Bad compressor – low capacity
7. Moisture, dirt, wax
8. Incorrectly located external equalizer



POSSIBLE CAUSES

1. Moisture, dirt, wax
2. Undersized valve
3. High superheat adjustment
4. Gas charge condensation
5. Dead thermostatic element charge
6. Wrong thermostatic charge
7. Evaporator pressure drop — no external equalizer
8. External equalizer location
9. Low refrigerant or capped external equalizer
10. Low refrigerant charge
11. Liquid line vapor
 - a. Vertical lift
 - b. High friction loss
 - c. Long or small line
 - d. Plugged drier or strainer
12. Low pressure drop across valve
 - a. Same as #11 above
 - b. Undersized distributor nozzle or circuits
 - c. Low condensing temperature



POSSIBLE CAUSES

1. Low load
 - a. Not enough air
 - b. Dirty air filters
 - c. Air too cold
 - d. Coil icing
2. Poor air distribution
3. Poor refrigerant distribution
4. Improper compressor-evaporator balance
5. Evaporator oil logged
6. Flow from one TEV affecting another's bulb



