

FORM

Job Site Reference: _____
Fail Date: _____
Installation date: _____

[illegible]

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SPP TECHNICAL EVALUATION FORM

REFERENCE CHARTS

PRESSURE - TEMPERATURE CHART

Temp °F	R-22	R-410A
	Pressure	Pressure
-50	6.2	3.5
-45	2.7	8.5
-40	0.5	11.6
-35	2.6	14.9
-30	4.9	18.5
-25	7.4	22.5
-20	10.1	26.9
-15	13.2	31.7
-10	16.5	36.8
-5	20	42.5
0	23.9	48.6
5	28.2	55.2
10	32.8	62.3
15	37.7	70
20	43	78.3
25	48.7	87.3
30	54.9	96.8
35	61.5	107
40	68.5	118
45	76	129.7
50	84	142.2
55	92.5	155.5
60	101.6	169.6
65	111.2	184.6
70	121.4	200.6
75	132.2	217.4
80	143.6	235.3
85	155.7	254.1
90	168.4	274.1
95	181.8	295.1
100	195.9	317.2
105	210.7	340.5
110	226.3	365
115	242.7	390.7
120	259.9	417.7
125	277.9	445.9
130	296.8	475.6
135	316.5	506.5
140	337.2	539
145	358.8	572.8
150	381.5	608.1

QUICK SYSTEM ANALYSIS (✓)

SYSTEM PROBLEM	OPERATING TRENDS (LOW-NORMAL-HIGH)											
	SUCTION PRESSURE			DISCHARGE PRESSURE			SUPERHEAT			SUBCOOLING		
	L	N	H	L	N	H	L	N	H	L	N	H
Overcharge			●			●	●	●			●	●
Condenser (Air) Restricted			●			●	●	●		●		●
Non-Condensibles in System			●			●	●	●		●		●
High Evaporator Load			●			●		●		●		●
Loose TXV Feeder Bulb												
- Oversized TXV												
- Leaking TXV Seat			●			●	●	●		●		●
- Wrong Equalizer Connection												
- Uninsulated Feeder Bulb												
Undercharge	●			●					●	●		●
Liquid Line Restriction	●			●					●		●	●
Low Outdoor Ambient	●			●					●		●	●
Suction Line Restriction	●			●					●		●	●
Evaporator Air (Cooler Liquid) Restricted	●			●			●			●	●	
Undersized TXV												
- Leaking Feeder Bulb	●			●					●		●	●
- No External Equalizer												
Inefficient Compressor			●	●					●		●	●
ACTUAL SYSTEM OPERATION (■)												

SYSTEM CAPACITY CALCULATOR

Temperature	Enthalpy	Temperature	Enthalpy	Temperature	Enthalpy	Temperature	Enthalpy	Temperature	Enthalpy	Temperature	Enthalpy
Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB
40	15.23	48	19.21	56	23.84	64	29.31	72	35.83	80	43.69
41	15.7	49	19.75	57	24.48	65	30.06	73	36.74	81	44.78
42	16.17	50	20.3	58	25.12	66	30.83	74	37.66	82	45.9
43	16.66	51	20.86	59	25.78	67	31.62	75	38.61	83	47.04
44	17.15	52	21.44	60	26.46	68	32.42	76	39.57	84	48.22
45	17.65	53	22.02	61	27.15	69	33.25	77	40.57	85	49.43
46	18.16	54	22.62	62	27.85	70	34.09	78	41.58		
47	18.68	55	23.22	63	28.57	71	34.95	79	42.62		

INDOOR COIL (EVAPORATOR)				OUTDOOR COIL (CONDENSOR)			
W.B.	ENTERING	LEAVING	DIFFERENCE	(Air) D.B.	ENTERING	LEAVING	DIFFERENCE
Enthalpy			Δh = Btu/LB				ΔT = °F
EVAPORATOR CAPACITY BTUH = 4.5 x cfm x Δh				CONDENSOR CAPACITY BTUH = 1.10 x COND. Cfm x ΔT			

Due to varying field conditions, a tolerance of 10% must be expected when comparing test data to actual performance.

AIRFLOW	SYSTEM CAPACITY
Electric Heat Temp Rise Method	Htg. System Capacity btu output =(cfm)(1.08)(ΔT)
cfm = $\frac{(\text{Volts})(\text{Amps})(3.413)}{1.08(\Delta T)}$	
cfm = $\frac{\text{Furnace btu output}}{1.08(\Delta T)}$	FIRING RATE OUTPUT
INDOOR DRY BULB ADJUSTMENT	**Firing Rate = $\frac{\text{Heat Content (Btu/cu.ft)} \times 3600(\text{sec/hr})}{\text{seconds per revolution (assume 1 cu.ft dial)}}$
Use equations below in conjunction with unit's "Tech Label" information for total and sensible capacities @ indoor dry bulbs other than 80°F entering coil.	

Sensible Capacity at Indoor db LOWER than 80°F = $\left(\frac{(\text{MBh} \times \text{S/T}) - (80 - \text{Indoor db}) \times 835 \times \text{Indoor cfm}}{1000} \right)$

Sensible Capacity at Indoor db HIGHER than 80°F = $\left(\frac{(\text{MBh} \times \text{S/T}) + (\text{Indoor db} - 80) \times 835 \times \text{Indoor cfm}}{1000} \right)$

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