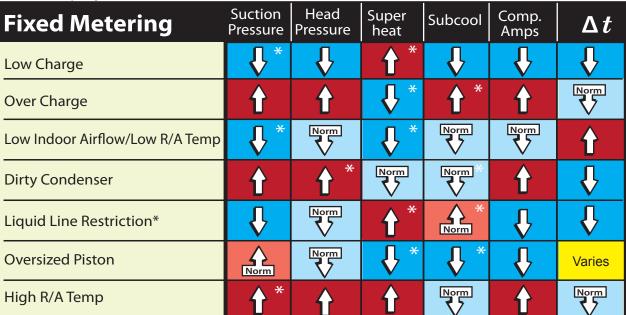
# **HVAC Air / Refrigerant Diagnostic Quick Sheet**



TXV System	Suction Pressure	Head Pressure	Super heat	Subcool	Comp. Amps	$oldsymbol{\Delta t}$
Liquid Line Restriction*	<b>↓</b>	Norm	<b>1</b> *	Norm *	\frac{\lambda}{\lambda}	\bigve{\Pi}
Overfeed / Loose Bulb Bulb uninsulated	1	Ţ	*	Ţ	Ţ	Ţ
Low Charge Slightly	Norm	Ţ	Norm	<b>↓</b> *	Ţ	Norm
Over Charge Slightly	Norm	1	Norm	<b>1</b> *	1	Norm
Low Indoor Airflow/Low R/A Temp	<b>₽</b> *	Norm	<b>↓</b> *	Norm	Norm	1

<sup>\*</sup>Restriction effect on head pressure varies with the exact location of the restriction, system refrigerant capacity, presence of a receiver and whether the charge is correct. Restrictions may show high head with short runtime, or on systems with very small condensers or on systems that have been overcharged in addition to the restriction. In general, restrictions are in the liquid Line and will result in low head after sufficient run time.

#### **Electric Heat**

 $CFM = \frac{Volts \times Amps \times 3.413}{}$ ΔT x 1.08

OR

#### **Furnace**

Cu. Ft. x BTU/cu.ft. x Measured eff ΔT x 1.08

400 CFM per ton of cooling (Nominal) 12,000 BTU per ton of cooling

BTU Sensible Output = CFM  $\times$  TD  $\times$  1.08

1Watt = 3.413 BTUs **1 Kilowatt = 3,413 BTUs** 746 Watts = 1 Horsepower

## Clocking a Gas Meter

3600 x Smallest dial size Cu. Ft. # of seconds for one revolution

### **Testing Capacitors Under Load**

2652 x (Amps of the start winding) (Volts across the capacitor)

Total Heat =  $(H1-H2) \times 4.5 \times CFM$ H1 = Return air wet bulb (converted to enthalpy)

H2 = Supply air wet bulb (converted to enthalpy)

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WB	Enthalpy	
40	15.23	
41	15.70	
42	16.17	
43	16.66	
44	17.15	
45	17.65	
46	18.16	
47	18.68	
48	19.21	
49	19.75	
50	20.30	
51	20.86	
52	21.44	
53	22.02	
54	22.62	
56	23.84	
57	24.48	
58	25.12	
59	25.86	
60	26.46	
61	27.15	
62	27.85	
63	28.57	
64	29.31	
65	30.06	
66	30.83	
67	31.62	
68	32.42	
69	33.25	
70	34.09	
71	34.95	
72	35.83	
73	36.74	
74	38.61	

#### **Estimated Evaporator TD**

76

77

78

79

39.57

40.57

41.58

42.62

AC at 400 CFM/Ton 35° Refrigeration Walk In 10° Refrgeration Reach In 20°

### Gas Appiance Outlet Pressure

Natural Gas 3.5" wc/LP11 " wc

#### **CTOA**

**Estimated Condensing** Temp Over Ambient

 $6-9 SEER = 30^{\circ}$ 

 $10-12 SEER = 25^{\circ}$ 

13-15 SEER = 20°

16+ SEER = 15°

