

| 1/24/2007       |                                       | Gas Performance Data |            |            |            |            |            |            |            |            |            |            |            |            |             |             |             |             |             |             |             |             |             |    |
|-----------------|---------------------------------------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----|
| PT-150-G        |                                       | 1                    | 2          | 3          | 4          | 5          | 6          | 7          | 8          | 9          | 10         | 11         | 12         | 13         | 14          | 15          | 16          | 17          | 18          | 19          | 20          | 21          |             |    |
| % Burner output |                                       | 0%                   | 5%         | 10%        | 15%        | 20%        | 25%        | 30%        | 35%        | 40%        | 45%        | 50%        | 55%        | 60%        | 65%         | 70%         | 75%         | 80%         | 85%         | 90%         | 95%         | 100%        |             |    |
| 1               | Heat input                            | Btu/hr               | 10,900,000 | 16,500,000 | 24,315,789 | 32,131,579 | 39,947,368 | 47,763,158 | 55,578,947 | 63,394,737 | 71,210,526 | 79,026,316 | 86,842,105 | 94,657,895 | 102,473,684 | 110,289,474 | 118,105,263 | 125,921,053 | 133,736,842 | 141,552,632 | 149,368,421 | 157,184,211 | 165,000,000 | 1  |
| 2               | Gas Flow                              | SCFH                 | 10,900     | 16,500     | 24,316     | 32,132     | 39,947     | 47,763     | 55,579     | 63,395     | 71,211     | 79,026     | 86,842     | 94,658     | 102,474     | 110,289     | 118,105     | 125,921     | 133,737     | 141,553     | 149,368     | 157,184     | 165,000     | 2  |
| 3               | Gas Mod. valve position               | %                    | 0.0        | 4.0        | 8.0        | 10.5       | 13.0       | 15.5       | 18.0       | 20.5       | 23.0       | 25.8       | 28.5       | 30.3       | 32.0        | 35.5        | 39.0        | 40.8        | 44.0        | 47.0        | 53.0        | 60.0        | 100.0       | 3  |
| 4               | Gas Pressure at Train Inlet           | PSI                  | 6.8        | 6.9        | 6.8        | 6.9        | 6.9        | 6.8        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9         | 7.0         | 7.0         | 7.0         | 6.9         | 7.1         | 7.2         | 7.0         | 4           |    |
| 5               | Gas Manifold Pressure                 | "w.c"                | 0.6        | 1.0        | 1.8        | 2.7        | 4.1        | 5.8        | 7.6        | 10.1       | 12.6       | 16.3       | 20.0       | 22.6       | 25.2        | 30.5        | 35.7        | 39.5        | 43.3        | 46.6        | 53.6        | 59.2        | 65.0        | 5  |
| 6               | Dp at gas orifice                     | "w.c"                | 0.1        | 0.2        | 0.5        | 0.9        | 1.5        | 2.0        | 2.8        | 3.7        | 4.5        | 5.9        | 7.2        | 8.4        | 9.7         | 11.6        | 13.6        | 15.5        | 17.4        | 18.6        | 21.6        | 23.7        | 26.2        | 6  |
| 7               | Blower Output                         | %                    | 0.0        | 5.0        | 10.0       | 15.0       | 20.0       | 25.0       | 30.0       | 35.0       | 40.0       | 45.0       | 50.0       | 55.0       | 60.0        | 65.0        | 70.0        | 75.0        | 80.0        | 85.0        | 90.0        | 95.0        | 100.0       | 7  |
| 8               | Blower Body Pressure                  | "w.c"                | 0.6        | 0.9        | 1.1        | 1.4        | 1.8        | 2.2        | 2.6        | 3.1        | 3.6        | 4.2        | 4.8        | 5.5        | 6.1         | 6.9         | 7.7         | 8.6         | 9.5         | 10.4        | 11.5        | 12.5        | 13.7        | 8  |
| 9               | Blower Speed                          | Hz                   | 10.0       | 12.2       | 14.4       | 16.7       | 18.9       | 21.1       | 23.3       | 25.5       | 27.7       | 29.9       | 32.1       | 34.3       | 36.5        | 38.7        | 40.9        | 43.1        | 45.3        | 47.5        | 49.7        | 51.8        | 54.0        | 9  |
| 10              | Combustion Air Motor Power            | HP                   | 1.3        | 1.8        | 2.8        | 3.8        | 5.4        | 7.5        | 9.6        | 12.9       | 16.3       | 21.1       | 25.8       | 31.9       | 38.0        | 45.5        | 53.0        | 62.5        | 72.0        | 82.0        | 95.0        | 108.0       | 125.0       | 10 |
| 11              | Combustion Air Motor Current          | Amp.                 | 31.0       | 31.0       | 31.0       | 32.1       | 34.8       | 37.8       | 41.0       | 46.5       | 52.0       | 58.5       | 65.0       | 72.5       | 80.0        | 88.5        | 97.0        | 105.5       | 114.0       | 123.0       | 132.0       | 141.0       | 150.0       | 11 |
| 12              | Gas Manifold Pressure - Body Pressure | "w.c"                | 0.0        | 0.1        | 0.7        | 1.3        | 2.3        | 3.6        | 5.0        | 7.0        | 9.0        | 12.1       | 15.2       | 17.1       | 19.1        | 23.6        | 28.0        | 30.9        | 33.8        | 36.2        | 42.1        | 46.7        | 51.3        | 12 |
| 13              | Main Air Flow                         | SCFH                 | 369,000    | 450,550    | 532,100    | 613,650    | 695,200    | 776,750    | 858,300    | 939,850    | 1,021,400  | 1,102,950  | 1,184,500  | 1,266,050  | 1,347,600   | 1,429,150   | 1,510,700   | 1,592,250   | 1,673,800   | 1,755,350   | 1,836,900   | 1,918,450   | 2,000,000   | 13 |
| 14              | Excess air                            | %                    | 237%       | 171%       | 118%       | 90%        | 73%        | 62%        | 54%        | 47%        | 43%        | 39%        | 36%        | 33%        | 31%         | 29%         | 27%         | 26%         | 24%         | 23%         | 22%         | 21%         | 20%         | 14 |
| 15              | Flame Length                          | Feet                 | 6/0        | 6/0        | 6/0        | 6/0        | 6/0        | 6/4        | 6/8        | 6/9        | 6/10       | 6.5/11.5   | 7/13       | 7/12.5     | 7/12        | 7/13        | 7/14        | 7.5/14.5    | 8/15        | 7.75/15     | 7.5/15      | 7.75/16.5   | 8/18        | 15 |
| 16              | Flame Diameter                        | Feet                 | 3          | 3.5        | 4          | 4.0        | 4          | 4.3        | 4.5        | 4.8        | 5          | 5.0        | 5          | 5.0        | 5           | 5.0         | 5           | 5.3         | 5.5         | 5.5         | 5.5         | 6.0         | 6           | 16 |

| Combustion Air VFD Setup |     |      | Limit Switch Setup        |     |                     |
|--------------------------|-----|------|---------------------------|-----|---------------------|
| Min Ref                  | Hz  | 10   | Blower Proof of Running   | -20 | in H <sub>2</sub> O |
| Max Ref                  | Hz  | 54   | Blower Proof of High Fire | 10  | in H <sub>2</sub> O |
| Ramp Up Time             | Sec | 40   | Blower Proof of Low Fire  | 0.5 | in H <sub>2</sub> O |
| Ramp Down Time           | Sec | 40   | Low Gas Pressure          |     | psi                 |
| Nominal Motor Speed      | rpm | 1780 | High Gas Pressure         | 15  | psi                 |
| Motor Current            | A   |      | Pilot Low Gas Pressure    | n/a | PSI                 |
| Motor Frequency          | Hz  |      |                           |     |                     |
| Motor Voltage            | V   |      |                           |     |                     |
| Motor Power              | kW  |      |                           |     |                     |

Use either chart 1 or chart 2 below to match the natural gas flow to the blower body pressure. Chart 1 shows the relationship between the differential pressure as measured across the gas orifice plate with the appropriate blower body pressure. Chart 2 shows the relationship between the differential pressure as measured between the difference of the gas manifold on the burner body and the burner body pressure and the appropriate blower body pressure. Increase or decrease the fan speed or the gas control valve setting in the burner profile as needed to match the values. Please note that in premix burners gas and air compete for space inside the burner. That means that a change in the pressure or flow of either gas or air will effect the other. You will usually have to adjust both fuel and air to get the the desired pressures. Chart 3 shows natural gas flow against the difference of the gas manifold pressure and the burner body pressure. The unique geometry of the Phoenix Talon allows the gas to be measured this way, eliminating the need for a traditional orifice plate.

