

# CLOCKING A METER

Last month we covered temperature rise. Recall that input was one of the variables along with airflow which can have an impact on temperature rise. This newsletter will show technicians how to determine natural gas input BTU's using the gas meter.

## Determining Input

The term "Clocking A Meter" refers to the process of using a gas meter to determine the natural gas flow through the meter to an appliance. This is highly useful if you are not sure of the accuracy of your manometer and whether the orifice size on a furnace or boiler is correct.

While setting manifold pressure to the manufacturer's specifications, and making certain that the burner orifices are the correct size will insure correct input clocking the meter will verify the input.

## The Procedure

1. Turn off all gas appliances, except the one you want to test (pilots can be left on since their usage is small).
2. Turn on the appliance you will test.
3. Make certain it does not cycle on and off by a limit, thermostat, or any other control while you are doing the test.
4. Go to the location of the gas meter and determine which dial is the smallest or the one next to it. You are looking for the one that makes 1 revolution in the time you can easily time with your watch.
5. Time how long it takes for the dial you are going to clock to make one complete revolution.
6. Use the following formula to calculate flow.
7.  $CFH = (3600 \times \text{dial size}) / \text{time for one revolution}$ . Where CFH is cubic feet of gas per hour.

Input, in BTU per hour (BTUH or BTU/Hr.) is found by multiplying the CFH X the heat content of one cubic foot of gas. Obtain this number from your utility. Nationally the value is approximately 1,000 BTU per cubic foot.

### Example

Dial size to clock = 1/2 cubic foot  
Time for one revolution 17 seconds

$$\begin{aligned} CFH &= (3,600 \times .5) / 17 \text{ sec.} \\ &= 1,800 / 17 \text{ sec.} \\ &= 105.88 \text{ cubic feet / hour} \end{aligned}$$

We will assume the heating value for 1 cubic foot in our area is 1,000 BTU.

$$\begin{aligned} \text{Input} &= 105.88 \times 1,000 \\ &= 105,880 \text{ BTU / Hour} \end{aligned}$$

Suppose the manufacture's rating plate shows the input to be 106,000 BTUH—the input is correct. If your gas pressure is correct your orifice size is correct. Conversely, if your orifice size is correct your gas pressure is correct.

The formula is the fastest way to use a gas meter to determine flow. If you had lots of time you could simply count how many revolutions the 1 cubic foot dial makes in 1 hour—too time consuming for me.

## Seminars Coming Soon

### HOT WATER BOILER OPERATION AND TROUBLESHOOTING \*

Saturday, November 18, 2006, Farmington Hills, Michigan, 8:30 — 4:00.

Familiarizes the student with various types of residential and light commercial hot water boilers and basic operating principles. Topics covered will include: air elimination, baseboard radiation, circulator pumps, expansion tanks, low water cut-offs, piping, altitude/pressure gauges, backflow preventers, series loop and mono-flo piping, pressure reducing valves, high and low limit adjustments, zone valves, control systems and wiring, and electrical as well as water side troubleshooting. No previous boiler experience necessary. Full day seminar. NATE recognition for re-certification is pending. Email [info@777educate.com](mailto:info@777educate.com) for more information.

### READING WIRING DIAGRAMS \*

Saturday, December 2, 2006, Farmington Hills, Michigan, 8:00 — 4:00.

This course will acquaint technicians with basic electrical terms, components, and circuits found in the HVAC industry. Schematic diagrams will be built from scratch. Each student will also learn to read schematic and pictorial diagrams and fully understand how to determine the sequence of operation of HVAC equipment. This course is **NATE - Recognized** for re-certification credit (*HVAC Schematics*).

No previous experience required for this 7 hour course. Extensive workbook included. Email [info@777educate.com](mailto:info@777educate.com) for more information.

### MICHIGAN COMMERCIAL ENERGY CODE — ASHRAE 90.1

8:30—11:30 a.m. Tuesday, December 5, 2006, Grand Rapids, Michigan, or,

8:30—11:30 a.m. Wednesday, December 13, 2006, New Hudson Michigan.

This course is sponsored by **The Behler-Young Company** and will cover the HVAC and service hot water provisions of this standard. **Many states have adopted ASHRAE 90.1** as their energy “CODE” for buildings except low-rise residential buildings as their energy code. Inspectors are getting training: you should too.

Course duration is 3 hours and includes a booklet for compliance with the standard. The complete standard is not included. For more information visit [www.behler-young.com](http://www.behler-young.com) and click on “DEALER TRAINING” for a registration form.

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