



## EXTENDED WARRANTY INFORMATION

*Sandy Burns*

### ARMSTRONG AIR EXTENDED WARRANTY

We no longer need the Premium Care Plus application form filled out for the 10-year labor warranty for any Armstrong Air G2D95 units purchased after August 1, 2010. If the labor warranty is ordered at the time of purchase with the furnace, the 10-year labor policy will automatically be put on the serial number of the unit. The 10-year labor warranty for the new A96UHMV modulating furnace will also be attached to the serial number meaning NO paper work is necessary.

**ALL units still need to be registered online at [www.alliedairwarranty.com](http://www.alliedairwarranty.com) to qualify for the 10-year parts coverage.**

### BUDERUS GB142/GB162 5-YEAR EXTENDED WARRANTY

An extended parts and labor warranty is now available on Buderus models GB142 and GB162 installed in *residential* applications. This extended warranty is provided to the *original purchaser* at no-charge providing the boiler is registered with Bosch Thermotechnology (BTC) within **90 days of installation**. This extended 5-year limited warranty is for Buderus boiler models GB142 and GB162 installed on or after September 15th, 2010. The warranty period begins with installation of the boiler. If proof of installation cannot be provided, the warranty period will start from the date of manufacture.

**Qualifying units must be registered with Bosch Thermotechnology Corporation.**

- \* Homeowners may register their product online at [www.buderus.us](http://www.buderus.us) or by completing & mailing the registration card provided with the unit
- \* Contractors can also register product on-line at [www.boschway2grow.com](http://www.boschway2grow.com)
- \* This program is handled internally through Bosch/Buderus (no third party underwriter)
- \* For initial introduction of this program, products can be registered up to March 1, 2011 (grace period)
- \* There is no retroactive warranty before September 15th, 2010

We will be sending a mailing out after the first of the year with all of the information you will need in regards to registration and claims procedures.

# MONROE EQUIPMENT - HYDRONIC POWERHOUSE?

Matt Schneider

I know that a lot of you are concerned about what is going to happen to our market with the passing of the Federal Tax Credit. I wish I had the answer, but unfortunately I don't have a crystal ball. My gut feeling is that volume of sales will not be effected as much as we fear, but product mix will change drastically. Consumers may not be as motivated to invest in ultra high efficiency as they were before. Due to price points, this lack of motivation may hit the high efficient, condensing boiler market the hardest. The question I have is, "Is this the worst thing for the consumer?"

High efficient, condensing boilers comprise more than 25% of the sales in the Midwest although in many cases they may not be the best fit for application. These boilers have efficiency and technology advantages over cast iron, but there is still a definitive advantage to cast iron boilers in certain applications. Let's quickly review some of these advantages.

## REPLACEMENT VS. NEW CONSTRUCTION

Modern, condensing boilers (Buderus GB142) were designed with the influx of new construction residential markets in mind. Many homeowners are choosing in-floor, radiant heating systems for their homes which require low water temperatures and continuous circulation. It is ultimately important that we keep in mind that the lower the water temperature the higher the efficiency of a condensing boiler. Most manufacturer's list their efficiency of these boilers at a water temperature near 120°.

Water temperature of 120° works perfect for in-floor, but what about in a replacement situation with cast iron radiators or copper fin tube? Either of these applications will require water temperatures exceeding 140° and in most cases closer to 180°. If you read between the lines, most of the condensing boiler's efficiency drops out of the range of condensing (<90%) at these water temperatures making a cast iron boiler, such as the 85% efficient Buderus G124X a viable option at half the price. Add a Logamatic Control to this boiler and the fuel consumption may become negligible.

## HEAT EXCHANGER SIZE AND MATERIAL

Anyone who has taken a cast iron boiler down the stairs or, even worse, bust one up in the basement knows that cast iron is heavy! The high mass of cast iron can be a

benefit. Once a cast iron section has absorbed it's energy, it holds it's energy for a long time. This can be a benefit in systems with a small zone. Often this zone is the only zone calling and the left over energy in the cast iron could satisfy this zone without firing the boiler. Condensing boilers do not have this ability to store energy. They must fire their burner in order to produce heat for a zone regardless of the size and in some instances the call for heat in a small zone is satisfied so easily that the boiler short cycles.

All of us have heard of primary/secondary piping, yet it is a concept that few of us are 100% positive that we are doing correctly. All condensing boilers require primary/secondary piping to ensure flow through the heat exchanger. Most cast iron boilers have a large enough capacity that primary/secondary piping is not required. One less step in the installation process.

## LIFESPAN

During my time on the contractor side, I had the opportunity to replace a boiler in an East Side doctor's office. It was a cast iron boiler, original to the building, constructed in 1906. Cast iron boilers have an amazing lifespan. If they are maintained and the internal water is not replaced regularly they will operate a long time. As a contractor, I also replaced quite a few first generation condensing boilers that were only 10 – 15 years old. Cast iron boilers, such as the Buderus G124X, have limited lifetime warranties on the casting because they are so impervious. The silicone injected castings on the Buderus products will even allow you to bring temperate water back to them without the fear of thermal shock.

## CONCLUSION

The rise in popularity of condensing boilers has been beneficial for all, but with the lack of knowledge of how the marketplace is going to look in 2011 we should prepare ourselves to adapt to the changing landscape. It is important to remember that just because a piece of equipment has a 90+% label on it doesn't mean that it is the best choice for the consumer. I would recommend that in 2011 you educate the customer to all of the options, make recommendations with the type of system you are dealing with and remember to always ask for the order!

*\*This article was inspired by and some information used from the December 2010 edition of the HVAC Insider.*



# FLAME RECTIFICATION & FLAME SENSORS

Kenneth Jung

In the first article of the *Monroe Igniter*, I wrote about Hot Surface Igniters, then jumped to a topic more relevant to the season. Well, now it is time to get back on track and tie up loose ends ... besides heating season is here again!

In the heating mode, a furnace, whether it is firing on natural gas or LP gas, needs to function properly and more importantly safely, in order to provide the reliable warmth the home owner has come to expect. This article will focus on the proper operation and safe functioning of electronic ignition systems in a modern gas furnace.

Believe it or not, thermocouples are still considered a part of “modern” heating technology and rightly so if you look at the fact that most water heater and space heater manufacturer’s still use a thermocouple (or thermopile) for the primary safety control device of their equipment. The basic premise was that a small electric voltage was produced when two dissimilar metals were heated. This was just enough power to energize a coil of wire in order to hold a safety plunger located in the gas valve in the open position. If the pilot flame went out, the voltage dropped and the plunger would spring closed inside the valve stopping all gas from flowing.

Technology has since evolved. Now just about every appliance from furnaces to water heaters, gas stoves and gas dryers, all utilize some type of electronic ignition system. Specifically for this article, furnaces rely on a process called “Flame Rectification” as the safety control mechanism to insure proper and safe burner operation.

The base word “rectify” as taken from Webster’s New World Dictionary, means “To convert (alternating current) to direct current.” The process of using flame rectification is actually quite unique. Once discovered, electronic engineers found it quite easy to create electronic devices that measure electrical current in order to prove or disprove that a flame was present. The process was to simply pass an electrical current from the sensor through a flame to ground. Based on the mass of the sensor to that of the equipment chassis when the AC electrical current is passed through the flame, a certain part of the electrical sine wave is blocked out or canceled. A rectified DC current is now present. The electronic engineers were able to develop reasonably priced, simple control systems (ignition control modules) that could detect and respond to this DC current. This technology has long since developed beyond residential and light commercial applica-

tions to the point where it is even used as a safe and reliable means of burner safety control on large commercial and industrial power burners.

So why use flame rectification? Besides being reasonably priced, it may be the safest form of flame sensing available. It is virtually impossible to fool the



Sample ignition module for reference.

ignition module into thinking a flame is present when it is not. It’s fast to respond, requires no cool down or intermittent time period to work within and if an unsafe condition exists, it can interrupt power to the gas valve or other device instantly before an unsafe condition occurs.

With flame rectification, one of the most important items for proper flame sensing operation is to insure that there is a good electrical ground. Make sure that all electrical connections to the ignition module and any ground connections are tight and not corroded. A stable pilot or burner flame that engulfs the flame sensor and has direct contact with some type of ground contact is also important. Ignition and sensing wires that are not properly routed or that lay on the bottom of the equipment could also cause false or irregular flame signal readings.

Let’s focus on the DC current that the ignition module is looking for to verify proper operation. This signal is a very low current measurement rated in microamps (microampere). This is a very small unit of measurement that is actually equivalent to  $10^{-6}$ , or one millionth of an amp (0.000001).

Most manufacturers ignition modules have a low threshold value that require a minimum of 8 tenths (0.8) of one microamp to allow the burner to continue to function before dropping or locking out. More normal readings are within the 1 to 3 DC microamp range and some manufacturers equipment even have normal readings that exceed 10µa.

What to look for...

**Reading of 0 Microamps:** Look for an open or grounded sensor wire or flame rod or even a defective ignition control module. Check the sensor and wire for continuity

*Continued on page 4*

## FLAME RECTIFICATION & FLAME SENSORS CONT'.

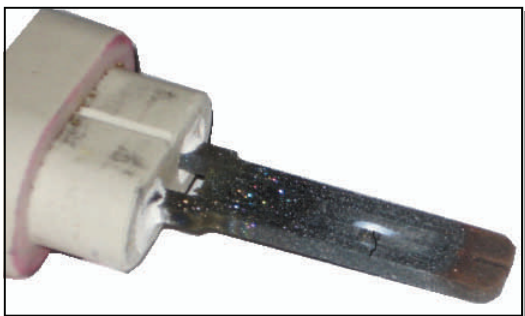
with an ohm meter. Replace the ignition control as a last resort.

**Rapid Fluctuating Reading:** Excessive or weak pilot flame. Either the flame is way too harsh and is blowing past the sensor or it is weak and wavering, again not making proper contact with the sensing electrode.

**Readings Less Than 0.8 Microamps:** Again a weak flame that does not properly engulf the sensor. Also check for good ground connections both inside the furnace and with the main electrical power supplying the furnace.

The main focus here is to troubleshoot and not immediately condemn the ignition module and the sensor. Use a DC microamp meter in series with the flame sensor to accurately measure the flame signal. Don't guess.

Onto the flame sensor. This is nothing more than a piece of metal specifically designed to endure continually being engulfed in a flame and having a glass or porcelain insulator at the base. If the flame sensor should become dirty or coated with oxide, it needs to be cleaned.



*Sample igniter  
from a jobsite.  
The picture  
has been  
enlarged to  
show detail.*

Now think of what the sensor looked like when it was new. It was clean, smooth and almost polished. 80 grit sandpaper is NOT the answer. Fine steel wool or a cotton rag does an excellent job of cleaning and polishing the flame sensor. Nothing more aggressive is needed. With coarse grit sandpaper, all that happens is grooves are scored into the sensor making it more difficult to detect a proper flame.

I hope you have found this article interesting and that it helps you on your next ignition related service experience.

Wishing everyone a Happy New Year!

## COMPETITIVE NEW PRODUCTS FOR 2011

*Larry Bellman*

**W**e have recently increased the Hart & Cooley Flex Duct line. We now carry 4" through 20" poly black and metalized jackets in R4 and R8.

We are also in the process of adding FAMCO products which are metal and plastic louvered vents for fresh air and exhaust. Another big change has been the addition of Champion Metals as our new sheet metal line.

We hope that all of the products we have added will be of help to your project quoting. Look for more new and exciting products offerings in the New Year.

As you may know, we've added another CSR to the Monroe family. Please welcome Rich Taylor, he is a great addition to the Monroe team.

We sincerely thank you for your support in 2010 and look forward to a prosperous 2011.



## GETTING TO KNOW YOU

Donna Inman

**L**et me introduce Greg Olszowy – we often just call him Greg O. His last name is often pronounced just like it is written. But his family and close friends pronounce it like “old Chevy”. Greg drives a white convertible Mustang so maybe he will have to change his name or drive a different car!

Greg came to Monroe Equipment, Inc. 24 ½ years ago to work in our warehouse and just decided to stay for awhile. He is a busy man here at Monroe. He is our Warehouse Manager and also takes charge of shipping and receiving of equipment.

One of his goals is to have the right product at the right time delivered in perfect condition. Combining our own fleet of delivery vehicles with our very own “equipment chauffeurs” and regional freight companies, the goal is to get products delivered anywhere in the state within

24-hours or the next business day. Monroe’s fleet has regular delivery routes, yet manages to squeeze in those emergency needs that do arise.

With a kazillion square feet of warehouse space and oodles of items to work with, product is moving in and out constantly. Greg enjoys hard work and the everyday challenges that occur with helping customers, trucks to load and unload, product to put away and pull, as well as finding space for the new products that we carry for you.

When not at work, Greg enjoys spending time with his wife, Teresa, whether it be watching movies or boating on Lake Winnebago as well as some of the smaller lakes. Greg is also a hunter and fisherman. He and Teresa take pleasure in traveling to visit the kids when time allows: Jon and his wife in Fond du Lac, Jake in La Crosse and Jenny and her husband in Virginia.



*Greg Olszowy - Warehouse Manager*

Greg’s day starts very early. He has a 45-minute drive to work and starts his day here at Monroe at 6:30 a.m. Greg says the toughest part of his job is dealing with Jolene and me here at Monroe.

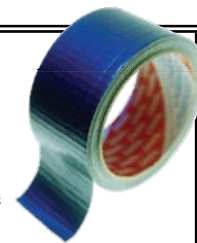
I would say he has a great life!

### TECH TIP

#### Header Boxes and Drain Fittings

On a new installation, when you are installing the drain fitting (PVC, CPVC or Nylon fittings) into the “cold header box” on either the new or older style of furnace, use care not to over tighten or bury the fitting into the threaded opening.

This threaded connection point is not pressurized and is typically under a negative pressure. Even though the fitting to the header box connection needs to be leak free, the use of Teflon tape or a good pipe thread sealant with hand tightening and an additional ½ to ¾ turn should be adequate to create a leak free seal. If excessive force or torque is applied, the header box can crack, creating a condensate leak and an unnecessary call back.



# THANK YOU

Lisa Swance

**A**t the close of 2010, we all want to take this opportunity to thank you for your business. We look forward to a prosperous New Year for all.

Our goal for 2011 is to improve all aspects of our service and gain more of your business. If there is something you would like us to do, or not to do, please email your request to [Lswance@monroeequipment.com](mailto:Lswance@monroeequipment.com). We want to be your **#1 Supplier** and will try our best to meet your needs.

**Have a safe and happy New Year and THANK YOU!**

Handwritten signatures of Monroe Equipment staff and customers:

- Matt
- Gandy
- Lisa
- Fred
- Jane
- Lynn
- Donna
- Jeff
- Andy
- Jim
- Joe
- Rich
- Ken
- Sandy
- Tim
- Lang
- Chuck
- Ronnie
- Jeff
- Debbie
- Mark K.
- Ron
- Randy
- Jeff

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