The Monroe Igniter

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MAKE-UP AIR UNITS FOR VEHICLE STORAGE

Ben Lane

As many of you may be aware, with Wisconsin's adoption of the 2009 International Codes in September of 2011, came a significant change in the ventilation requirements for enclosed parking garages. The ½ CFM per square foot of floor area that we had all been so accustomed to for so many years for both continuous and intermittent ventilation systems was increased by 50% for intermittent systems, while the requirement for continuous ventilation systems remained unchanged.

In this region of the country, we require heating for so many months out of the year that intermittent systems make the most sense and are most commonly used. This has a major impact on the way we bid, design and construct these systems. If 50% more airflow is required, it stands to reason that more fan capacity, heating capacity, space, and most importantly, capital are all required.

How do we balance all of these issues and provide a system that both satisfies code requirements but doesn't break the bank at the same time? Consider using a dedicated make-up air unit for your vehicle storage heating and ventilating needs. A make-up air unit requires less space, less installation cost and has a similar unit cost while saving upwards of 20% in combustion efficiency when compared to a similarly sized system using gas-fired unit heaters for heating and ventilating.

Let's examine what the requirements might be for a typical 20,000 s.f. parking garage. A 20,000 s.f. parking garage with an intermittent ventilation system requires 15,000 CFM of exhaust and make-up air at: 20,000 s.f. x 0.75 CFM/s.f. = 15,000 CFM. The amount of heat required to bring this outside air up to the nominal 50 degree set point for this type of space is expressed as follows: 1.08 X 15,000 CFM X 60 degrees (temperature difference between outside air and indoor air) = 972,000 BTUH. Using traditional unit heaters at a maximum input rate of 400,000 BTUH with a heating output of 320,000 BTUH, this parking garage will require just over the heating output of three of these unit heaters. Once we include any transmission losses through the walls, floor and doors of the garage, our total heating requirements will necessitate the need for four of these units.

Installing a single make-up air unit rather than multiple unit heaters saves valuable space in a parking garage. An ADP SEP-400 unit heater (nominal 400 MBH input) is approximately 41" wide by 31" deep, consuming almost 9 s.f. of floor area each for a total of 36 s.f. or as many as four parking spaces (with the case above) depending on the configuration of the parking garage and the placement of heaters. An equivalent sized make-up air unit in this CFM range is a Titan TA-122. The Titan TA-122 is 78" wide by 95" deep or just over 51 s.f., making it the ideal size to fit into a single parking stall. Parking spaces are valuable real estate to a building owner and the idea of only having to designate a single stall to mechanical equipment is a definite selling point.

The installation cost of a single make-up air unit versus multiple unit heaters is also less. Using a single make-up air unit for your ventilation needs means gas and electrical are only run to one location and depending on the options included with your unit, all of your controls could be wired from a single cabinet. Make-up air units can be ordered from the factory with time clock functionality, room temperature control, discharge air temperature control and exhaust fan starters all built-in to a single panel. This eliminates the need to order separate components and the need for a technician to engineer the control system at the jobsite.

Continued on page 3

OSHKOSH BRANCH GRAND OPENING

Brian Dulka

I would personally like to invite you all to the **Grand Opening of our Oshkosh Branch April 11-12, 2013**. Stop in for our FREE lunch, mini-classes, vendor displays and giveaway specials. You can also earn "Monroe Bucks" towards future purchases. Our Schedule of Events for the Grand Opening is below.

I would also like to introduce Jason Schultz as our new part-time driver for deliveries from our Oshkosh Branch.

GRAND OPENING
Schedule of Events

THURSDAY, APRIL 11, 2013

8:00 - 10:00 a.m.	FREE Donuts and Coffee
10:30 a.m.	Evergreen Motors/Appion Recovery Units
11:30 a.m.	Buderus Boilers
11:30 a.m. - 1:30 p.m.	FREE Lunch
1:00 p.m.	Honeywell Indoor Air Quality

FRIDAY, APRIL 12, 2013

8:00 - 10:00 a.m.	FREE Donuts and Coffee
10:30 a.m.	EWC Zone Systems
11:30 a.m.	"Dare to Compare" Concord
11:30 a.m. - 1:30 p.m.	FREE Lunch
1:00 p.m.	Fieldpiece Products

FORMS NOW AVAILABLE ON WEBSITE

Lynn Beine

We recently added the ability for dealers to download forms from our web-site. On our home page at www.monroeequipment.com you will find a new button on the left side, above the *News & Specials* section called OUR FORMS. You will find our credit application, warranty forms, and rebate forms available for download. (Please note that you may need to be logged on to access certain forms). We hope to keep adding our most requested forms to this list.

If you have any questions about our website, please feel free to contact me directly at 262.432.3251.

WISCONSIN COMMERICAL BUILDING CODE REFRESHER

Allyse Panaro

I had the pleasure of attending the Wisconsin Commercial Building Code Refresher course put on by the Department of Safety & Professional Services in conjunction with the University of Wisconsin-Madison, on February 19th. The state puts these programs on annually at this time of the year for building design and construction professionals as a refresher on current construction codes and standards.

Even though there have been no major code updates since last year, it was good to hear what the plan reviewers thought to be the top plan review issues for the past year. A few of the top plan review issues identified were:

1. HVAC calculations do not agree with the equipment sizes specified
2. Incomplete application forms
3. Incomplete or vague designs or details on alteration projects
4. Inadequate ventilation for occupancy of space
5. Required clearances between exhaust & intake air terminations not being maintained
6. Parking garage ventilation requirements not being satisfied

I encourage all of you to attend next year's code refresher class. It is a unique opportunity to talk to the inspectors and plan examiners about what specifically they are looking for when they are inspecting our projects and reviewing our plans. If you should have any questions regarding these or any other commercial plan review requirements, please don't hesitate to contact our engineering department today.

Make-Up Air Units Continued from page 1

Further reducing installation costs is the elimination of vent piping. A direct fired make-up air unit has no associated vent pipes as would be required with an indirect fired appliance such as a unit heater.

A single make-up air unit is also comparably priced upfront to a series of unit heaters of the same capacity. A single 400 MBH unit heater can run nearly $2,000, depending upon heat exchanger type and by the time vent piping, controls and accessories are added. If we require four of these, as was the case above, we'd be looking at nearly $8,000 in materials just to have these units installed. A single Titan model TA-122, depending on controls and accessories included, could be as little as $10,000 and potentially less. If nothing else, don't let the idea of a higher upfront cost prevent you from considering a make-up air unit for your application as it can be a very cost effective solution.

Make-up air units are also much more efficient than unit heaters. A direct fired make-up air unit has no associated stack losses and all of its heat is transferred directly to the incoming air. Unit heaters on the other hand have heat exchangers and are typically 80% efficient. The efficiency savings between the two is upwards of 20%. Whatever higher upfront cost on the equipment side can be quickly made up on the efficiency end.

A simple annual fuel cost comparison between the two system types that considers the heat loss of the space, degree days for the climate zone, temperature difference and fuel cost for our sample, could show an estimated annual fuel cost savings of as much as $2,000 at current rates. This is all dependent of course on how the space is to be occupied and what temperature is being maintained. These types of savings speak for themselves and building owners are generally willing to listen when they hear of ways they can save money.

With the significant change in the ventilation requirements for enclosed parking garages, make-up air units are becoming a more and more attractive option. The use of a dedicated make-up air unit for ventilation purposes in these applications has also been shown to require less space and installation cost when compared to similarly sized unit heater systems. Make-up air units also save an enormous amount of energy and no longer require substantially more upfront cost than a unit heater system would. Consider using a dedicated make-up air unit for your vehicle storage heating and ventilating needs.

GB142 BOILER - CLEANING THE HEAT EXCHANGER

Kenneth Jung

It is fundamentally important that all heating equipment receive periodic maintenance and cleaning to operate safely and at peak efficiency. With smaller heat exchanger designs and tighter passages for the flue products to travel through, keeping these appliances clean becomes even more important. I will address the cleaning procedure for the die-cast aluminum heat exchanger of the GB142 series boilers.

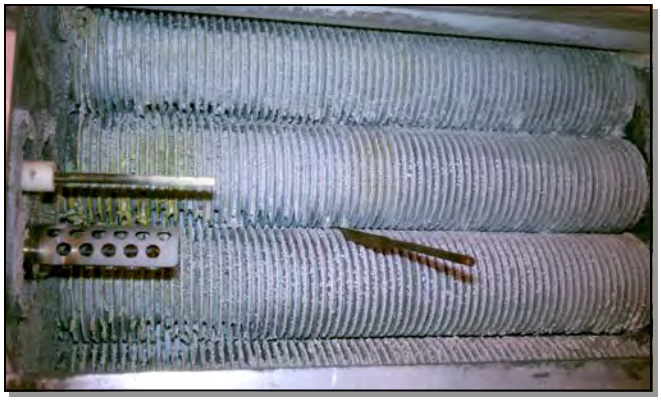
Buderus recommends that the boiler be cleaned annually. Under no condition should heat exchanger maintenance be neglected for longer than two years or excessive plugging and restriction of the flue passages may occur. If the heat exchanger becomes plugged with deposits and is restricted to the point that cleaning cannot clear the flue passages, the heat exchanger may need to be replaced at considerable cost to the owner.

Following the manufacturer's instructions, proceed as follows (Pictures on page 5):

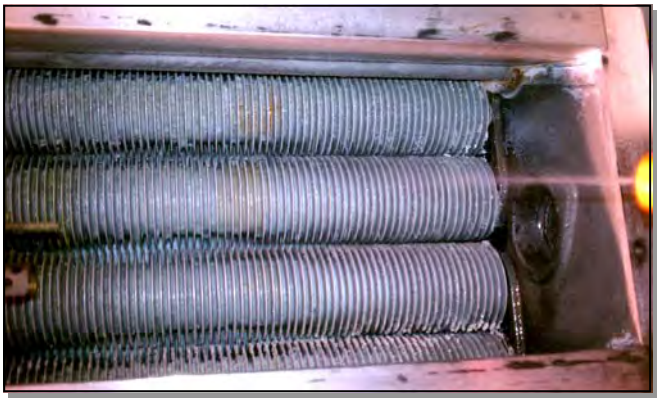
- Disconnect power to the unit.
- Unlatch and remove boiler cover to gain access to the heat exchanger area.
- Un-latch the upper clips, disconnect the electrical plug connections to the inducer (two plugs) and gas valve (one plug). Carefully remove the gas valve, inducer/manifold and burner cover assembly. Remove the gasket, burner mixing plates (may be two plates on smaller btu units) and radiant burner. Inspect burner for cracks or plugging of holes. Lightly brush, but do not scrape or remove protective coating on the underside of the radiant burner. This coating helps to insure a good flame signal. Use compressed air to clear any debris from the small holes in the burner.
- Clean and polish the burner sensor. Inspect the igniter. Check ohm value (100 – 300Ω is a normal value)
- Clean any accumulation of hardened matter from the heat exchanger. Clean with a soft (non-metallic) bristle brush. Vacuum as needed to remove loosened debris. If heat exchanger cleaning has not been performed on a regular basis, hardened deposits may need to be carefully "picked" from the fin/tube heat exchanger openings. *(Pictures 1 & 2)*
- Place a protective covering over the sensor and igniter. With an atomizing spray bottle, liberally spray and coat the heat exchanger fin/tube area with a Mineral Oil/water mixture. Buderus recommends a mixture of 80% water with 20% mineral oil. Once the heat exchanger has been thoroughly saturated, reassemble all burner components including wiring connections. Prepare the unit for operation. *(Picture 3)*
- Press the "chimney sweep button," a small dot will appear in the LCD screen *(Picture 4)*. This will place the boiler in the "manual mode." The boiler will operate and modulate up to the limit setting. Allow the boiler to operate for 8 - 10 minutes in this mode of operation. It may be necessary to turn up one or more thermostats in order to open zone(s) and dissipate the heat being generated.
- After the 8 - 10 minutes, push the "chimney sweep button" again to take the boiler out of "manual mode." Allow the boiler to shut down.
- Remove the entire burner assembly a second time using extreme care as these parts will now be hot. Inspect the heat exchanger. It may be necessary to repeat the above steps multiple times depending on the condition of the heat exchanger by re-spray coating the heat exchanger and re-firing for an additional time period.
- After the heat exchanger has been cleaned with the mineral oil process, use a generous amount of clean water to thoroughly rinse the fin/tube heat exchanger. Flush all debris into the condensate trap.
- Remove the bottom heat exchanger cover (four or six locking clips), clean bottom of heat exchanger fin/tube area, Remove slide in baffle plate if needed. *(Pictures 5 & 6)*
- Remove and flush condensate trap as needed. Refill with clean water to prevent flue gasses from escaping when boiler is placed back in operation.
- Re-assemble boiler. Cycle and test for proper operation.
- Final cleaned heat exchanger *(Picture 7)*

GB142 BOILER - CLEANING PROCEDURE PICTURES

Picture 1



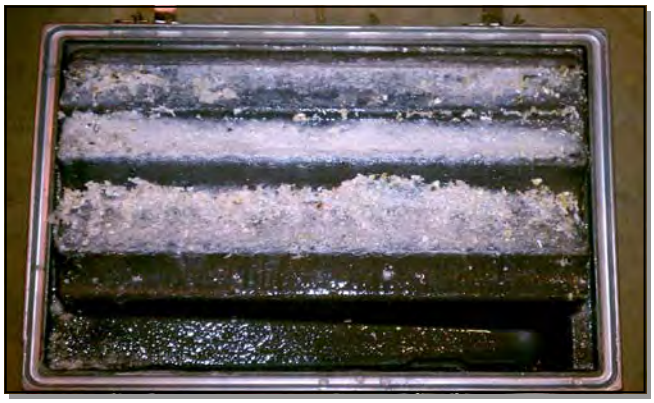
Picture 2



Picture 3

Picture 4

Picture 5



Picture 6

Picture 7

SERVICE NET NOW PART OF AIG

Sandy Burns

Service Net Warranty is now a division of American International Group, Inc (AIG). An updated claim form is attached to this newsletter (forms are also available online at www.monroeequipment.com). Service Net now requires the date of last maintenance be listed on your claims. A copy of Service Net's terms and conditions is also attached. #3 explains the annual maintenance requirements. Please remember to submit all claims within 60 days of service to ensure payment.

If you have any questions or concerns in regards to extended warranties, please feel free to contact me directly at 262.432.3245.

GETTING TO KNOW YOU

Barb Ortlieb

If you have a technical question, Ken Jung is the guy to ask. He is Monroe Equipment's Technical Director and is also a DSR (Distributor Service Rep) for Allied Air. Ken's relationship with Monroe Equipment started 30 years ago when he owned his own shop and Monroe was his supplier. His experience comes from running his own business for 11 years, working for another contractor for eight years, then coming to Monroe Equipment as a Sales Representative. Ken also taught night classes at Waukesha County Technical College (WCTC) for HVAC and Refrigeration four nights a week for 12 years.

Ken Jung

I bet not many know that Ken really wanted to go into dentistry but was talked out of it by his dentist (of all people). He was always a "science guy" and his career path took a turn into the world of HVAC & Refrigeration when he went to a career fair and refrigeration piqued his interest. So off he went to UW Whitewater, then to WCTC.

Ken has been married to Katherine for 28 years and has three children, two cats, and one dog. His hobbies include landscaping his yard, playing volleyball, and scuba diving. He loves hot summers and enjoys relaxing by his pool He is definitely the type of person that enjoys life and likes to have fun with everything he does. "Good Day/All Day/Everyday" is written on his board in his office.

Up Coming Events

APRIL 11-12, 2013
Oshkosh Branch GRAND OPENING!

MAY 25, 2013
Parts CLOSED - Memorial Day Weekend

MAY 27, 2013
Monroe Equipment CLOSED - Memorial Day

The Monroe Igniter **is a quarterly publication created exclusively for customers of Monroe Equipment, Inc.**

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