

NEWS & VIEWS

Sept, 2019

The Pacific NW Heating Cooling Association
Serving Oregon and SW Washington



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September 5th @ Johnstone Supply Corporate offices ECM Motors

The **September 5th ORACCA meeting** is scheduled to be held at the **Johnstone Supply Corporate Office 11632 NE Ainsworth Cir, Portland, OR 97220. Lunch and the meeting facility is being provided by Johnstone Supply**, so bring your appetite and join your fellow HVAC contractors to network and hear about this exciting program.

Presenting will be Darryl, with Regal Beloit, makers of the Genteq brand, such as the Evergreen EM motor line.

Regal is one of the world's largest motor producers with technology and manufacturing centers spanning the globe. Regal motor designs include HVAC, fractional, and integral and medium voltage AC and DC motors in IEC and NEMA enclosures. Innovative motors include axial and radial flux designs with integrated controls for optimum performance. Regal builds "Mission Critical" motors for many unique industry applications like HVAC, pumping, fans and blowers, compressors, and industrial machinery.



What is an ECM Motor?

ECM stands for an "electronically commutated motor" which basically means a motor that uses electronic controls to vary its speed. There are three types of ECM motors: constant cfm, constant rpm, and constant torque. Since cfm, rpm and torque are all related, the basic principles are the

same. But for ease of discussion, I'm going focus on a Constant Torque ECM motor.

A Constant Torque ECM is made up of two parts, the motor and ECM Microprocessor, that are both housed in one shell. The microprocessor is the "brains" of the motor. It holds the logic that controls the motor. The logic is a math equation or algorithm that figures out the ideal airflow for each specific piece of HVAC equipment out there and uses a formula to maintain that airflow using a calculation of the precise relationship between motor speed and torque.

It should be noted that the ECM motor programming is specific to each model of HVAC equipment, so programming is ONLY done at the factory, not in the field. When ordering a replacement ECM motor, techs must know the specs of the model in which the motor will be installed for it to work properly.

How does an ECM Motor work?

Once the settings are programmed into microprocessor in the factory and the control board dip switches are set in the field, the motor torque and airflow (CFM) should remain steady*. What WILL change is the speed of the motor (RPM). Depending on system conditions, the motor will need to spin faster or slower in order to keep a steady torque and airflow. This was where me and the folks in my office really got stuck. We couldn't figure out what could

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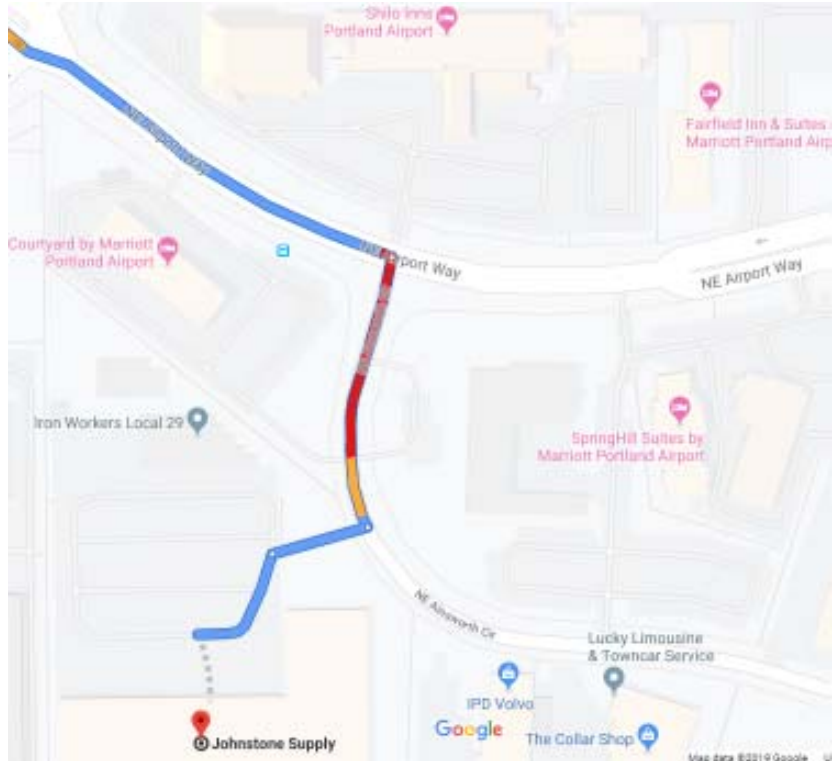
What? ECM Motors

11:30AM , September
5th
at
Johnstone Supply
Corporate Office
11632 NE Ainsworth
Cir, Portland, OR
97220.

ECM Motors

**Johnstone Supply
Corporate Office
11632 NE Ainsworth Cir,
Portland, OR 97220.**

**September 5, 2019
11:30AM**



initiate a change in torque? It turns out it's static pressure in the system.

When the load or demand on the system increases (like it's really hot outside, for example), a higher static pressure is present. Higher cooling demand increases condensation on the evaporator coil, reducing air flow (hence higher static pressure). Resistance to air flow can also be caused by a clogged filter or dirty coil, which will also increase static pressure. This higher pressure increases the torque on the motor. An increased torque basically means that it requires more "muscle" to turn a motor. Higher pressure essentially creates additional resistance on the blades of the fan motor, which is why it needs more "muscle" or torque to turn the motor.

When the microprocessor senses increased torque, it automatically increases the speed of the motor. A faster motor creates more airflow to make sure that CFM stays steady despite the resistance in the system from conditions like clogged filter or a hard-working evaporator. More airflow also reduces static pressure, which reduces torque. At the same time, increased airflow also provides the additional oomph of airflow that the system needs to provide additional cooling or heating capacity during high demand times for the system.

* Ideal airflow will be different in heating and cooling modes. The control board dipswitch settings (usually set in the field) need to be set up properly for proper seasonal operation.

How does an ECM Motor save energy?

The energy savings come into play when demand and static pressure decreases. When it is not needed at full speed, the motor can slow down, which uses far less energy. A motor running at full speed uses nearly 8 times the energy of a motor running at half speed. So any time you can slow it down, even a little, saves you big bucks. And since you don't NEED the motor to run at full speed all the time, it's a no-brainer energy savings technique!



11:30am.

2019 Calendar

On the back page of this newsletter is the 2019 calendar of events for ORACCA. Please take a moment to review these dates and post them to your personal calendars, so you will not miss out on some very important and informative meetings in 2019.



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TRAINING/ TESTING

On-Demand Training /Testing. This means the tests are scheduled with both your availability and that of the the Proctor in mind. Once you feel comfortable to take the test, a date and place are set up through the ORACCA office. Call 360-824-3805 for information. These on demand trainng/testing sessions include the following:

EPA 608 CFC Training/Test - Now Available!
NATE Training/Test Core, Gas Heat and Heat Pump

Brazing Certification Test,

October 18, 2019, PCC @ Swan Island Facility

Not a member? We'd love to serve you, too.

For additional information visit www.oracca.org or call 360-834-3805. Email dick@oracca.org

PRESIDENT Mark DeFrancisco Heat Relief 503/261-9915	Planning Ahead	BOARD OF DIRECTORS Mark DeFrancisco Clyde Burton Mert Gagle Dennis Klink Dan Pfau Randy Preston Buck Sheppard Trennis Smith Loren Watts Kelly Wilhite
	MEETING DATES 2019	
VICE-PRESIDENT Dan Pfau BlairCo 360-573-1331	January 17 - Codes Update @NW Natural , Sherwood - NATE CEU (1.0), CCB CE (1.0) February 7 - Utility Update @ PGE Wilsonville - NATE CEU (1.0), CCB CE (1.0) March 7- All Day Tech Training @ Airefco , Vancouver, WA.- NATE CEU (8.0), CCB CE (1.0) March 22nd - Brazing Test, 8:00AM PCC, Swan Island 2019 April 18 - Codes Update, Gas Pipe Sizing Presentation @ Interstate Roofing, Tigard. NATE CEU (1.0), CCB CE (2.0) May 2 - VRV Ductless Systems & Honeywell @ Mar-Hy. - NATE CEU (1.0) CCB CE (1.0) June 14 - Brazing Test, 8:00AM PCC, Swan Island 2019 June 15 - Shoot Out - Canby Rod & Gun Club June 20 - Codes Update@Mfg. Reprs Presentation, Rinnai @ NW Natural , Sherwood- NATE CEU (1.0), CCB CE (2.0) July 15 - Golf Tournament - Oregon City Golf Course August - No Meeting Sept. 5 - ECM Motor Presentation Johnstone Supply @ Johnstone Corp - NATE CEU (1.0), October 17 - Minor Label Review, Codes Update@NW Natural , Sherwood - NATE CEU (1.0) & CCB CE 2.0 October 18 - Brazing Test, 8:00AM PCC, Swan Island 2019 Nov. 7 - H/R Recruiting BDR @ Platt Electric, Beaverton - NATE CEU (1.0), CCB CE (1.0) Dec. 4 - Xmas Party @ Lennox Dec. 13 - Brazing Test, 8:00AM PCC, Swan Island 2019	ASSOC. BOARD MBRS Keith Barrow Eric Falk Larry Johnson John Karasaki Stewart Mercer Eric Scholibo Jeff Schmidt
SEC-TREASURER Loren Watts Watts Heating 360-786-2858	<div style="text-align: center;"> <p>Visit our Website for information on the association's activities.</p> <p>www.oracca.org</p> </div> 	EXECUTIVE DIRECTOR Suzanne M. Stilwill Association Management 360/834-3805 Fax: 503/914-1999 <i>"We Meet on Thursday !</i>
LEGISLATIVE-CODES-ENERGY Mert Gagle Gagle's Htg. & AC 503/581-2972		
IMMED. PAST PRESIDENT Buck Sheppard 503/ 936-9672		
EDUCATION/ APPRENTICESHIP TRADE SHOW/ PROMOTION		

ORACCA

Oregon Air Conditioning Contractors of America
P.O. Box 87907
Vancouver, WA. 98687-7907
360-834-3805

ORACCA - ECM Motors
September 5th @ Johnstone Supply
Corporate Office

To:

Are you a member? We'd love to serve you, too!
For additional information visit www.oracca.org or call 360-834-3805. Email dick@oracca.org