Southwind

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Reminder: Seats are Limited for 2014 Fall Conference Technical Program October 2 in Myrtle Beach

Friday and Saturday, October 3 and 4, EASA Senior Technical Support Specialist Chuck Yung will present the following technical seminars:

- **Root Cause: Winding & Rotor Failures**
- **Root Cause: Bearing & Shaft Failures**
- **Electrical Testing of 3-Phase Motors**

Senior Technical Support Specialist Chuck Yung

Seats are limited and this program will sell out. Please do not risk disappointment! You should have already received registration materials by email or post, but you can also download forms from http://easasoutheast.org/FallConference.htm or call the chapter office for more information. This is a unique opportunity that you don't want to miss!

Reservations can be made for the Sheraton Myrtle Beach Convention Center Hotel at https://www.starwoodmeeting.com/Book/EASASE2014 or you can register by calling 888-627-8203. Rooms are only **$119 per night** (plus tax and 3% "facilities fee") and include free self-park onsite.

Proposed Bylaws Amendment Approved by Board of Directors

At its spring meeting, the EASA Southeastern Chapter Board of Directors approved a proposed amendment to the chapter bylaws that would create a new standing committee. The Affiliate Committee would be composed of the Affiliate Representative as chair and up to three representatives of different Affiliate member firms. Its purpose would be to assist the Affiliate Representative in facilitating communication between the Affiliate members and the board, and to organize and coordinate chapter support activities undertaken by the Affiliate members. Complete text of this amendment can be found on page 3. This proposal must be ratified by the chapter membership before it can take effect, and a motion for said approval has been placed on the agenda of the Annual Meeting of the Chapter, to be held Saturday, October 4 during the 75th Annual Fall Conference in Myrtle Beach, South Carolina.

Taking Data on DC Armatures - Part 3 (Conclusion)

By Leo Letourneau

Presented at the Southeastern Chapter 38th Annual Technical Forum

Dead Coils and Bars

Because of the relationship between the number of commutator bars, the number of slots and the number of poles in a wave wound armature, the use of dead coils or idle commutator bars make it possible to use a core and a commutator together that would otherwise be mathematically incorrect for one another.

The rules and formulas for wave wound armatures still apply. When taking data on a wave wound armature, be aware of the possibility of dead bars and coils. This technique is less common on modern design armatures.

Taking Data on a DC Armature

The data sheet or card should contain information about the armature—make, model, type, frame, horsepower, volts, amps, RPM, number of poles, coils per slot, coil pitch, winding end measurement, fan placement measurement, lamination stack length and diameter measurement, commutator placement measurement, commutator riser diameter, brush diameter, bar length, connection data, retrogressive or progressive wire placement, ir:i commutator in relation to slot-coil-pitch, turns, wire size, wires in parallel and equalizer connections. Also notations should be made on slot fill, slot cell insulation and top sticks.

Coil Excitation

Place the leads from a low voltage AC Power Supply on two adjacent bars—the voltage should be adjustable to accommodate different winding impedance. Place a hacksaw feeler blade on the lamination stack and feel for the slot with the strongest attraction. This test will also provide the lead connections in relation to the coil. If the slot-coil-pitch is on the quarter it is a four-pole winding. If nearly on the half it is a two pole winding, etc.

After marking the bars that correspond to the slot, excite the bars to the left and right of the first attraction. Mark the bars that still magnetize the original slot. When the hacksaw blade is no longer attracted to that slot, all of the lead ends that go to that slot have been identified. After the slot-coil-pitch and commutator connections have been found, the correct polarity needs to be identified.

Polarity Identification

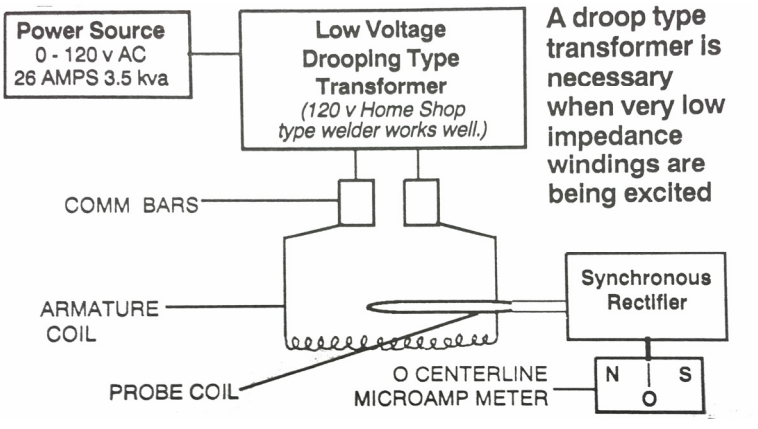
SYNCHRONOUS RECTIFIER METHOD: In this method a probe (a 16D common nail is insulated, then wound with approximately 2000 turns of evenly distributed #33 wire), is placed in the magnetic field of the slot-coil-pitch which is being induced by low voltage AC. The AC output from the probe is synchronously rectified and applied to a zero center line micro amp meter. The resulting meter deflections would be as if direct current was being applied and read.

The north and south readings are relative; therefore it is imperative that the polarity of the AC voltage applied to the commutator bars remains constant. One lead should be permanently marked positive and one negative (even though it is AC), and connected to the commutator bars in the same manner every time. The probe must always be placed across the coils in the same position.

To accurately interpret north and south reading as retrogressive or progressive connection a test coil must be connected to the power source with the leads not crossed, (progressive), and the needle direction noted for that polarity. Then the leads should be crossed, (retrogressive), and the needle direction noted for that polarity.

HALF WAVE RECTIFIED DC METHOD: In this method a diode (either polarity) is connected in series with one of the AC lines that is used to excite the armature winding.

The AC component in the half wave DC provides enough inductance to excite the probe coil which is connected to a 50-0-5 DC micro amp meter. The north and south readings are relative, therefore it is imperative that the polarity of the AC applied to the commutator bars remain constant. One lead should be permanently marked positive and one negative (even though it is AC), and connected to the commutator bars in the same manner every time. The probe must always be placed across the coils in the same position.



Reference materials and drawings from *Direct Current Motors and Generators*, by Samuel Heller, P.E., M.S.E., Permission from Datarule Publishing Company, New Canaan, Conn.

Text of Proposed Bylaws Amendment Approved by Board of Directors

RESOLVED,
That the bylaws of the Southeastern Chapter be and the same are hereby amended as follows:

The following paragraph shall be inserted in Article VI, Section 16:
(c) Chair and direct the activities of the Affiliate Committee, which shall consist of the Affiliate Representative and one representative each from up to three different Affiliate Member firms. The Affiliate Committee will assist the Affiliate Representative in facilitating communication between the Affiliate Members and the Board, and will perform other duties as may be prescribed by the Board from time to time.

Article IX, Section 1 shall be amended to read as follows [Added text underlined]:
Section 1. Standing Committees
Standing committees of the Chapter shall be the Executive Committee (Article VII, Section 1), the Nominating Committee (Article X, Section 1), the Audit Committee (Article XIV, Section 4), the Affiliate Committee (Article IX, Section 1) and the Meeting Planning Committee. Unless otherwise provided for herein, members of these committees shall be appointed by the President in accordance with these bylaws.

If you are unable to attend and would like to send a representative to vote in your stead, please give them a written proxy to that effect. The proxy must be signed by the designated voting representative of the EASA Member firm. Please present all proxies upon check-in at the conference registration desk.

EASA
The Electro•Mechanical Authority
SOUTHEASTERN CHAPTER

2014

Southeastern Chapter Handbook

The 2014 Chapter Member Handbook is ready for download on the chapter website "resources" page. However, the handbook is available to chapter members only.

If you are a member of the Southeastern Chapter and you receive your newsletter electronically, the cover email should contain your login and password.

If you are a member of the Southeastern Chapter and you receive your newsletter by post, your address label on this issue of *Southwind* should include a login name and password. (See example below.) If you believe that you are a member of the chapter and your label does *not* include this information, please contact the chapter Executive Secretary/Treasurer at rkpaden@easasoutheast.org for more information.

CHARLIE ANDREWS
LOGIN : PASSWORD
ABC ELECTRIC COMPANY
PO BOX 413
WALLYTAR FL 35333

EASA
The Electro•Mechanical Authority
SOUTHEASTERN CHAPTER
Raymond K. Paden, Exec Sec/Treas
1395 Hampton Locust Grove Road
Locust Grove, GA 30248
(678) 782-5961 FAX (888) 511-6336

Make your reservations now for the 2014 Fall Conference, to be held at the beautiful Sheraton Myrtle Beach Convention Center Hotel.

NEW MAILING ADDRESS and PHONE NUMBERS for the Southeastern Chapter!

EASA Southeastern Chapter
1395 Hampton Locust Grove Road
Locust Grove, GA 30248

(678) 782-5961
(888) 511-6336 FAX

New Chapter Handbooks Now Available for Download on the Chapter Website

The 2014 Membership Handbook is now available for download on the chapter website at www.easasoutheast.org/resources.

The membership handbook includes listings of chapter officers, meeting history and the chapter bylaws, as well as company and contact information for all members. As has always been the case, this handbook is only available to *members* of the Southeastern Chapter. If you are not an Active, Affiliate or Privileged member of the chapter and you would like a copy of this handbook, please contact the chapter office to see how you can join. Affiliate membership is open to vendors who serve our industry, Privileged membership is open to individuals who have worked in the industry in the past and wish to stay "connected." Active membership in the chapter is open to Active EASA members, regardless of their geographical location. Look for more information inside this issue of *Southwind.*