

## International Shovel Upgrades

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### Training Schedule

#### 2011 Flanders Training Schedule:

- **JAN 11-12** Flanders, Longview, TX  
FE 01 - Basic Electrical Principles; Level 1
- **JAN 13** Flanders, Longview, TX  
FL - 01 - Developing the Leader Within You
- **JAN 14** Flanders, Longview, TX  
FL 03 - Laws of Teamwork
- **JAN 17** Flanders, Longview, TX  
FL 01 - Developing the Leader Within You
- **JAN 17-18** Basic American Foods, Idaho Falls, ID  
BE / MCTS; Session 2
- **JAN 18** Flanders, Longview, TX  
FL 03 - Laws of Teamwork
- **JAN 18-21** Flanders, Evansville, IN  
SIMATIC S7-300/400 PLC Programming I
- **JAN 19-20** Flanders, Longview, TX  
FE 01 - Basic Electrical Principles; Level 1
- **JAN 19-21** Idaho Falls, ID  
IPC-01 - Instrumentation & Controls Combo
- **JAN 25-26** Basic American Foods, Idaho Falls, ID  
BE/MCTS
- **FEB 1-3** Blythe Energy, Blythe, CA  
IPC - 01 - Instrumentation & Controls Combo
- **FEB 15-18** Gillette College Tech Center  
FE 01 - Basic Electrical Principles; Level 1
- **FEB 16-18** Flanders, Evansville, IN  
SINAMICS AC Drive
- **MAR 16-18** Flanders, Evansville, IN  
6RA70 Master DC Drive
- **MAR 22-24** Gillette College Tech Center  
PLC-01A: Basic PLCs
- **MAR 22-25** Flanders, Evansville, IN  
SIMATIC S5 PLC Programming I

*\*To register, call Flanders Electric at 812-867-7421 and ask for training information or email [feengineering@flanderselectric.com](mailto:feengineering@flanderselectric.com).*

FE Newsletter Questions/Comments-Contact:  
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Flanders Electric recently completed successful P.P.D.D. (Power Performance Digital Drive) shovel drives and control system upgrades for two of our international mining clients. One upgrade was installed on a 4100A shovel located in Central Queensland, Australia. This was the mines first Electric Rope Shovel, which was moved from a mine in North Central Queensland. This system included new digital drives, a new Allen Bradley PLC, and new Flanders Electric excavator duty motors for the crowd and hoist motions. During the upgrade, the Flanders control system interfaced with several OEM options including the latest air filtration system, dipper trip system and operators chair. Interfacing with the OEM systems was seamless due to the open architecture and ease of customization of the Flanders system. The shovel is currently running well and operators have commented on the smooth operation and coordination of the motions. There will soon be a radio link established with this machine which will allow remote monitoring and off-site technical assistance.

Another international upgrade was for a mining client in Canada in November 2010, where Flanders recently completed their first shovel drives and control system install. The install was undertaken by the Field Service group in Canada with the assistance of the mine electricians on the mine's 4100XPB. This project included the replacement of the entire control cabinet beneath the Operator's Cab as well as replacing the shovel's existing hoist motors with Flanders' very own M24 DC electric motors. This project was completed on time with the assistance of Flanders Field Engineers Don Bockman and Manuel Trevino, DCS Field Engineer Tracey Fetter, and Flanders Software Engineer Brandon Goodrid. The shovel went to work to an abundance of praise from the machine operator's as it easily worked through the overburden. To date the shovel has been outperforming initial expectations.

If you would like more information on Flanders Electric shovel upgrades, please contact [mining@flanderselectric.com](mailto:mining@flanderselectric.com).



**Drive being installed on a 4100A Shovel**



**Manuel Trevino, Manager of Flanders Mining Field Engineer Group**



**4100A Shovel walking off the erection pad and onto the pit after upgrades**

## Client Doubles Production After Upgrade

Traditionally, manufacturers of extrusion machines have used DC Motors & Drives for throughput. Now that the equipment is getting older, it is constantly requiring attention. Finding someone with the knowledge and the ability to locate obsolete parts for antiquated DC Drives can be frustrating. Taking a line down for unplanned maintenance can be very expensive.

Recently, one of Flanders plastics clients had a problem with excessive unplanned maintenance downtime. Client had a total of five extruder lines in their plastic pellet manufacturing facility (four 400HP and one 800HP). They were operating all lines with old and unreliable DC motors. In an effort to create good reliability with their machines, they had all of their DC motors thoroughly examined and repaired by another repair shop. Fifty percent of their repaired motors failed within a year. After several visits and lengthy discussions, Flanders provided two options to remedy their repeated motor/drive failures. One option was to perform quality repair/rewind of their DC motors. Second option was to convert to AC motors and drives. Their choice was to convert to AC motors and drives. Flanders provided motors and drives and provided a complete turn-key installation.

To-date, the drives and motors are successfully running. The operators report that they have significantly increased their production rate since the upgrade. The customer planned to upgrade five lines over a five year period, but after seeing the return on investment, determined this was not aggressive enough. They are now considering all five upgrades within one year with two lines already completed. The customer was also suffering from poor technical support. Not only is Flanders upgrading the outdated lines, but is also providing needed service and support of those lines until the upgrade is implemented. This project is a good example of Flanders capabilities and the people at Flanders who pull together to make a project successful.

With Flanders expert engineering team, we can provide a complete DC to AC Retrofit package. We will provide the mechanical and electrical installation including programming of the drive. Add that with 24/7 support and you see why Flanders Electric has the *Power to Perform!*

Experience the Advantage of a DC to AC Retrofit:

- Reduced Maintenance Downtime; Elimination of Commutator and Brush Maintenance
- Increase in Production; AC drives / Motors can Allow Higher Speed
- Electrical Energy Savings with High Efficiency AC Motors
- Faster Response to Load Changes
- Ability to Provide 100% Torque at Zero Speed without Damage to AC Motor



400 HP DC to AC Extruder Motor Conversion



Extruder 2 - 400HP AC Motor as Installed



400 HP DC to AC Extruder Drive Conversion

## 7000HP Commutator

Recently, Flanders was blessed with an order for two...yes two Westinghouse 7000 Hp 40/80 RPM armature repairs. Since the commutators on these jewels are more than double in size of anything that we have manufactured in the past, we pondered...are we up for the challenge? With a resounding "Yes!" the journey began.

These commutators are one of the largest in the world. They measure a whopping 10 feet over the brush surface, 12 feet over the risers and include 1,944 pieces of copper and mica (972 copper bars). Our first steps were to design and build custom tooling to contain and lift the copper assembly. Material was purchased and the machine shop began working on machining all of the steel components. The photos below display machining of some of the tooling, stacking the commutator and also of the nearly finished commutator.

With the capabilities and equipment available at Flanders, we were able to perform all of the work "in-house".



Michael Hoon and Bobby Meny adjusting copper bar alignment



**From left to right:** Matt Nussmeier, Bobby Meny, Michael Hoon and George Vandensen after final stacking and pressing of the copper assembly



Matt Nussmeier and Matt Kirby setting up to machine the copper assemble prior to assembly onto the installed steel components



Westinghouse 7000HP commutator insulated and ready to finish turn

## Local Businesses Supporting One Another

Flanders has donated three machines to EAB Industries (Evansville Association for the Blind) in which they will produce our DC generator and motor gang insulators. Other equipment was delivered to them late last year for reconditioning of brush boxes and brush arms for the DC repair department. EAB is a not-for-profit organization committed to assisting disabled or disadvantaged persons, particularly the visually impaired, empowering them through diverse services to live and work in the community. Incorporated in the state of Indiana on April 12, 1923, the workshop was originally established to manufacture brooms while offering job opportunities to blind women and men. Today, the workshop is a community rehabilitation facility utilizing individual goals, wages, supportive services and a controlled work environment to help vocationally handicapped persons achieve or maintain maximum potential as workers. The modern industrial operation produces subcontract work for businesses and industries nationally and internationally.

We at Flanders Electric feel that by directing our resources to support these types of organizations and programs, we are promoting a significant force for good for our employees, the communities in which they live, our suppliers, and our partners. EAB is a good place for industries to utilize the benefits offered for small run jobs. For more information on EAB services, please visit them at <http://eab.evansville.edu>.



**From left to right:** Jeff Downey/ Manager of Triplet, Scott Banks/ Coord. of Triplet, Dan Leraris/ Director of Sales & Marketing for EAB



Shear for cutting insulator strips for gang connections for mill motors and generators



Stamping press produces the finished part (shown in bottom right of photo) for mill motors and generators



Nibbling cutter cuts armature insulator strips (shown in photo in bottom right) that fits between armature coils

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## Announcements.....

### *Come See Us:*

- Jan 18-19:** 2011 Drill & Blast Conference & Exhibition in Stockholm, Sweden
- Feb 6-9:** 2011 ISEE-International Society of Explosives Engineers-Booth #519 in San Diego, CA
- Feb 27-Mar 2:** 2011 SME-Society for Mining, Metallurgy & Exploration Conference-Booth #447 in Denver, CO

### **Illinois Shop 1,500 Days No Recordable Injuries**

**Congratulations to the Illinois Shop for reaching 1,500 days with no recordable injuries! On November 21, 2010, the IL Shop surpassed its record number of days of going without an OSHA Recordable Injury. They are currently setting a new record of days without a recordable injury by surpassing their 1,500 day record. We are very proud of the IL Shop employees for their commitment to safety! Congrats!**