



LM6000PD Controls Retrofit Project for British Sugar Bury & Wissington, United Kingdom

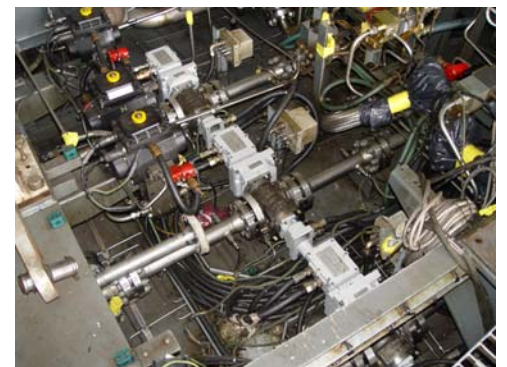
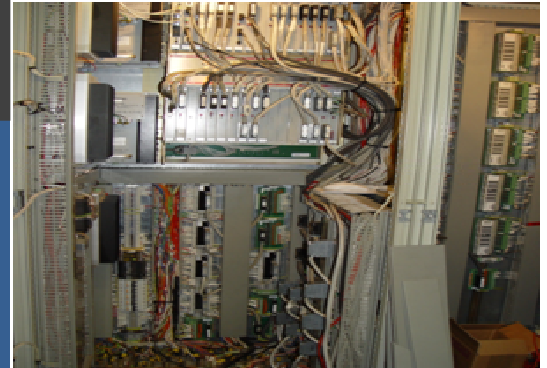
Problem

- Engine upgrade from PD dual fuel to PF dual fuel
- Existing CPU was operating at near full capacity with the PD dual fuel
- End customer's critical application created a desire for a redundant control system

Solution

Right: Existing NetCon control system with Pentium CPU and existing gas fuel delivery system

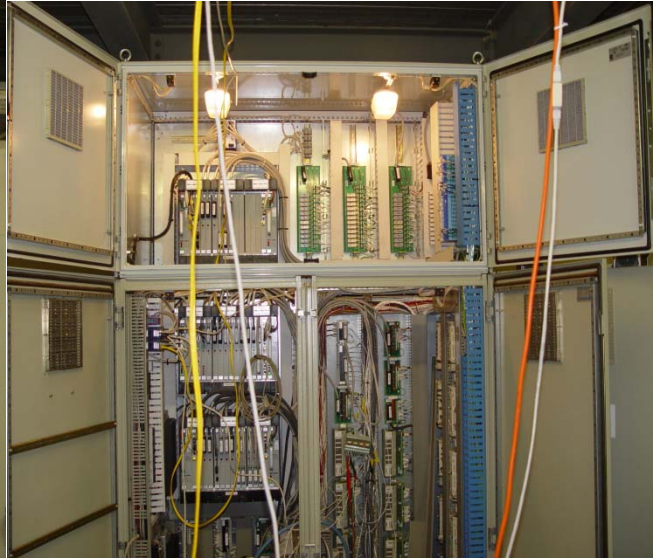
- Controls Hardware Upgrade
 - From NetCon® with Pentium CPU to MicroNet™ Plus chassis
 - Redundant CPU & power supplies
 - Turbine control panel cabinet extension—needed to accommodate third MicroNet Plus chassis
 - Additional I/O modules for Sprint functionality
 - Driver panel extension to accommodate 2 new drivers
 - Control panel cabinet layout and driver panel assembly done at Woodward factory
- Controls Software Upgrades
 - Core engine software and sequencing logic updates
 - Addition of Sprint logic & MicroNet Plus redundancy
 - Standardization of Bury and Wissington software code
 - Full NetSim™ model used for system validation and testing at site
 - HMI update
 - Fix32 to iFix 3.5, redundancy, iHistorian, PC upgrade
- Fuel System Upgrade—Flexible solution
 - From LM6000PD 25 PPM to LM6000PF 15 PPM
 - 5 gas metering valves with flow legs
 - New Honeywell pressure transducer box
 - Added 2 new EM digital drivers
 - 1 new Honeywell pressure transducer Box



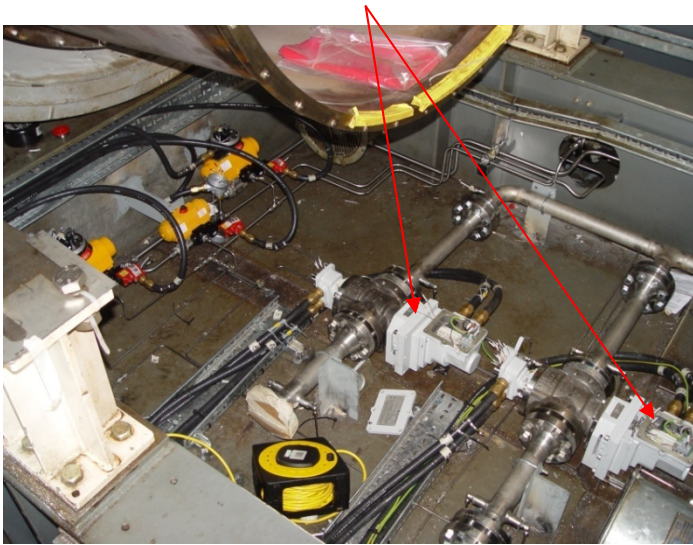
“To rip the heart out of a complex control system and then totally upgrade it in such a short time was amazing, and to see the level of support you guys provided to Jimmy's (GE) team was equally spectacular.”

--Tim Golden, Energy Production Manager, British Sugar

Completed Installation



Installation of 2 new gas fuel valves, below.



"The sign of true professionals is those who make difficult jobs look easy, and the professional way you all went about your business is a credit to your company and yourselves."

"You can all be very proud of what you at Woodward have delivered as the next generation of gas turbine control systems."

--Tim Golden, Energy Production Manager, British Sugar



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