



A Rockwell Automation Company

Boeing (Winnipeg) Canada Band Saw Momentum Programming

The Client:

Boeing is a large, North American manufacturer and supplier of airplanes to the commercial airlines industry. The Winnipeg, Manitoba, plant manufactures a variety of engine struts and body panels for various

Boeing models including the 777, 747, and 737. These struts and panels are used as replacement parts or manufacturing parts for Boeings assembly plant in Everett, Washington.

The Requirement:

The Winnipeg plant manufactures body panels for their line of Boeing aircraft which uses “core material” that is embedded right in the body panel. The core material comes in large sheets which must be cut into various shapes and different chamfer angles to be embedded in the many different body panels on the assembly line.

Boeing initially used an “off the shelf” band saw to make the rough cuts and decided that worker productivity and product throughput could be increased by automating one of their core material bandsaws.

The Design Solution:

A Modicon TSX Momentum PLC CPU with a two input High Speed Counter base and a discrete I/O base is used to automate the core material band saw. The Magelis XBT-P011010 HMI is connected to the Momentum PLC with Modbus and is used to display band saw measurements and alarms.

The band saw has two basic operating modes: auto and manual. In manual mode, the operator may select either table angle, blade guide or edge band control. This allows manual adjustment and display of position, on the HMI, for each adjustment made with the operator pendant. The auto mode selection allows the operator to select 8 individual pre-programmed destinations. The HMI function keys (F1-F8) are pre-programmed to adjust the table angle, edge band and blade guide, in a specific order for collision avoidance, to commonly used settings for cutting core material for specific aircraft body panels. This feature minimizes the amount of time required between cuts, by the operator, to set up the saw.

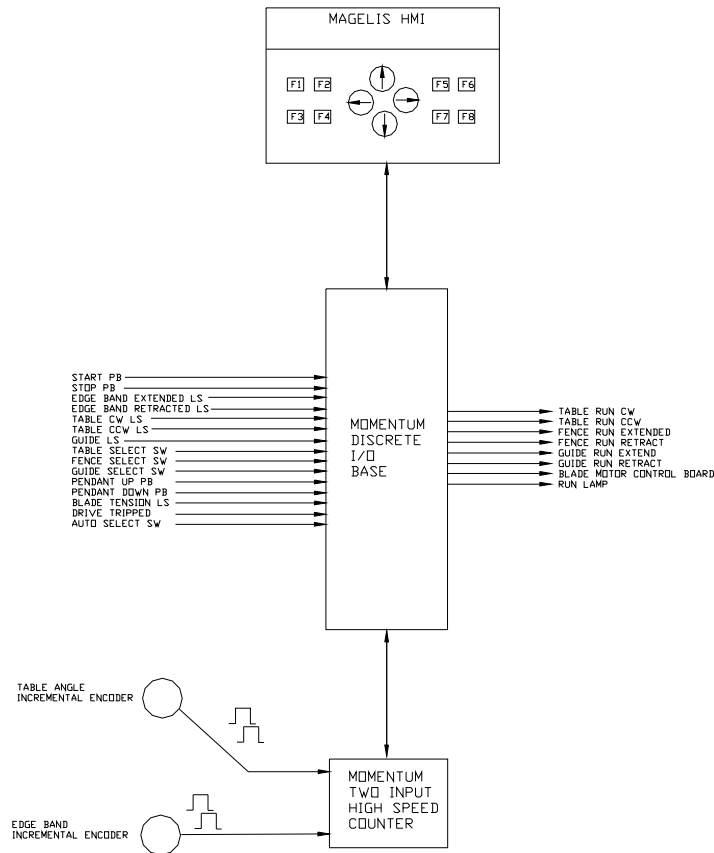
The HMI displays all alarms generated by the Momentum PLC and will inform the operator of the failure and give instructions on how to correct the problem. If the alarm condition is a component failure, the saw is disabled and the operator is informed to notify maintenance.

The band saw control system provides operator control interfacing in such a way as to allow for intuitive saw operation. All the software is documented to the point where the maintenance department can troubleshoot problems with their own laptop computer and make adjustments such as pre-programmed function key changes without further assistance by Hinz.



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System Specifications:

- Modicon TSX Momentum PLC
- I/O base with 2 high-speed counters
- I/O base with 16 digital inputs / 8 digital outputs
- Magelis XBT-P011010 two line display HMI

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com