

# First In First Out “FIFO” Diagnostics

## Background

First Out Fault diagnostic displays are used throughout industry to inform operators why equipment will not start and why it has shut down. When paper machines, refiners, boilers or any other production equipment trips, it may be impossible for operators to pin point why the equipment has shut down. Many times it's the same piece of equipment “tripping” time and time again without the operators knowing the cause. With First Out Fault diagnostics displays operators can readily monitor permissives for start-up and determine exactly what specific device has caused the equipment to shut down.

## Design Approach

In order to create First Out Fault diagnostics displays the entire interlocking strategy of the system in question must be known. Thus an audit of the existing system is conducted to establish the interlocking strategy required to satisfy all the operating permissives. The PLC or DCS logic is then programmed to either detect which interlock is not satisfied, in the case of start-up permissives, or to detect which interlock failed in the case of the process stopping. This information is then transferred to a HMI or DCS graphic for visual display to the operator. The permissive or interlock that fails thereby “tripping” this equipment is labeled with a “FIRST OUT” status tag on the HMI. A useful feature of First Out systems is access to historical trip data to allow the operator to view the cause of failures on previous occurrences.

## Scope of Supply

- Field audit of existing interlocks and recommendations for new/future permissives
- Programming for First Outs, First Out history, and permissive status
- Detailed logic drawings
- Completing graphic
- Operational description of graphics
- Commissioning and startup services

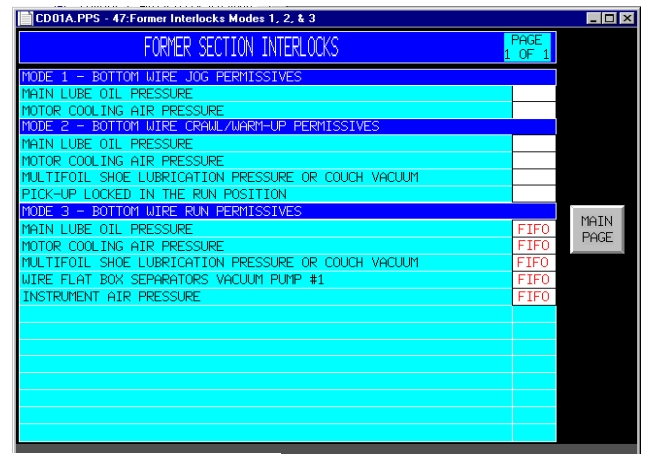
## Summary

KMH has configured and installed First Out Fault diagnostics displays for numerous systems throughout the pulp and paper industry. This diagnostic system has proven to be an invaluable tool in quickly identifying the cause of equipment failure and as a means of visually identifying to operators what permissives need to be met in order to start their processes.

## References

- Scott Beckett, Paper Machines Production Manager, Weyerhaeuser, Dryden
- Dave Pentney, Senior Electrical Project Engineer, Weyerhaeuser, Dryden
- Dave Young, Electrical and Control Systems Specialist, Paper Machines, 807-475-2356

## Cutler Hammer Panelmate HMI



## Foxboro DCS HMI

