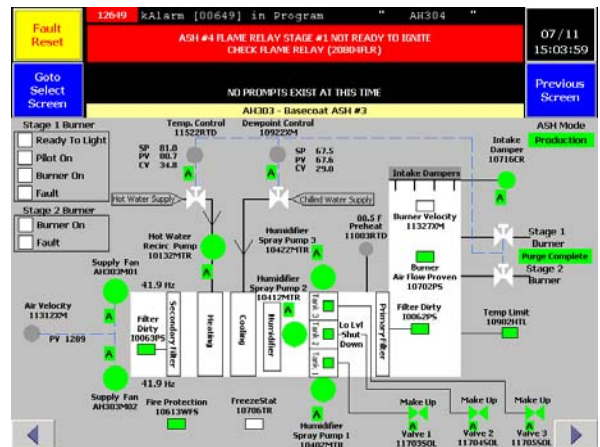


PROJECT SUMMARY

Project Name:	Existing Paint Shop Process Controls Upgrade
Total Value:	\$2,440,286
Hours:	Over 12,700
Engineers:	Four (4) – Electrical Design Four (4) – Software Design Six (6) - Commissioning
Market:	Automotive
Manufacturing/Process:	Paint Process
PLC:	Rockwell – ControlLogix
HMI:	Siemens – WinCC Flexible



Introduction: The purpose of this project was to provide the electrical process controls upgrade for an existing automotive paint facility.

OTI provided the following services:

- Electrical hardware design engineering
 - Modifications to existing paint shop electrical drawings
- Sequence of operations
- HMI software design engineering
- PLC software design engineering
- Network software design engineering (DeviceNet)
- Capital material
 - Procurement of new capital material
 - Re-use and re-work of existing paint shop capital material
- Documentation services
- Field supervisory services
- Commissioning services
- Training services
- Stand-by services

Outbound Technologies

	<p>These services were provided for the following control systems:</p> <ul style="list-style-type: none">• Prime Booth• Topcoat Booths• Miscellaneous Booths• Sludge• Central Humidification• VOC Abatement System• Air Dryer• Carrier Cleaner
Solution:	<p>New global controls architecture was used wherever possible. A combination of standard panels and custom designed panels were engineered while utilizing the new controls architecture. New MCPs and VFDs were purchased. Existing control panels were re-used. All I/O was removed and replaced by Allen Bradley Flex I/O with DeviceNet communication. New ControlLogix PLC programs and Siemens WinCC HMI programs were created for all systems.</p> <p>The Carrier Cleaner system upgrade included a control-reliable design and a new DeviceNet interface with two relocated and reused robots.</p>
Process Documentation:	<p>The following is a list of documentation provided by Outbound Technologies in order to exceed the required industry standards:</p> <ul style="list-style-type: none">• Electrical Drawings• Software (PLC, HMI, DeviceNet)• Sequence of Operations / Operations Manual / Training Manual• Vendor Documentation• Spare Parts List• Certifications• Check-Out Forms
Industry Standards:	<ul style="list-style-type: none">• NEC• NFPA
Project Outcome:	<p>All systems controls performed as designed. The customer and end user were satisfied and OTI was paid in full. Warranty in first year after installation was minimal with no trips to site for warranty work.</p> <p>As a result of the positive outcome of this project, OTI was contracted at the conclusion of the project to provide five (5) months of production support for the entire paint shop, including systems not present in the original scope of work (i.e. Phosphate, ELPO, Ovens, and RTO).</p>
