



# CAMO<sup>®</sup>

CONTROL ASSEMBLY MAINTENANCE OPTION

PROCESS > POWER > LIGHT

**COX**<sup>™</sup>  
RESEARCH



## **FAST AND EASY MAINTENANCE OF CONTROL PANELS**

### **CAMO® – CONTROL ASSEMBLY MAINTENANCE OPTION**

In the past, troubleshooting of electrical control panels was a real problem. It could only be done in the field and had to be done in all types of weather.

### **NOW, THERE IS A SOLUTION, THE PATENTED CAMO® SYSTEM:**

The CAMO® system is control panel hardware with a means and method of quick and easy removal of the entire interior or portions of a control panel complete with all mounted components. The control enclosure is left in place with conduits and external wiring attached. The user may have spare assemblies placed in storage and when maintenance is required, the entire interior assembly can be rapidly switched out. The malfunctioning unit can be brought back to the repair location for repairs or complete refurbishing using the original equipment manufacturer (OEM) parts. The systems are available for use in selected stainless steel, non-metallic, painted steel and explosion proof enclosures.

- The control enclosure is left intact, with all conduits and external wiring attached.
- All external wiring is easily disconnected using separable terminal strips.
- The inner door with components mounted can be separately removed.
- Special handles, placed at optimum locations on the back plate, allow quick removal of the entire assembly.
- The entire disassembly and re-assembly process can be done in less than 5 minutes.

### **DAMAGE MITIGATION**

The CAMO® system was originally designed for mitigation of sewage pump station control panel damages caused by floodwaters or other natural disasters and is being used for such purposes in many locations. In the case of flood mitigation, the enclosure interiors can be removed before the disaster occurs. The swing panel with the most expensive electronic components such as PLC's, radios, etc. can be quickly removed and the panel placed in the emergency operating mode until the emergency is over. In cases where mandatory evacuation is required, the entire enclosure interior with all components can be removed. Special fill, drain and vent devices are used to allow fast rising and falling water to enter and exit the enclosure, thus preventing enclosure damage due to large differential pressures. After the disaster event, the removed assemblies can be quickly re-installed and the station put back into normal service. Special permanent aluminum containers can be supplied for the panels to be transported and stored in a safe area. These special containers can also be furnished for storage of spare interior assemblies.

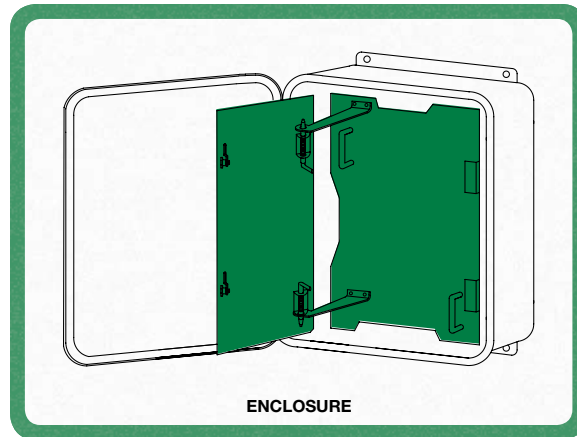
### **USE IN CLASSIFIED AREAS**

An example of use in a classified area is where the entire interior of the enclosure with components mounted can be quickly removed and brought to a test bench outside of the classified area for adjustment or repair then rapidly reinstalled. This prevents many special precautions and extra personnel required for making repairs and adjustments in classified areas in the field. Also, complete spare interior assemblies can be on hand without the need of expensive spare explosion proof enclosures which, many times, cost more than the interior components.



## ASSEMBLY REMOVAL/INSTALLATION

1. Turn off power to control panel.
2. Open door and verify power is off.
3. Unplug all external wiring.
4. Unplug inner swing door wiring.
5. Pull down swing door spring latches and remove swing door.
6. Remove four (4) back-plate nuts and grab back-plate handles.
7. Pull entire back-plate assembly with all components attached out of the enclosure.
8. Reverse procedure for re-installation.



## RECOMMENDED SPECIFICATIONS

All control panels shall be designed such that the entire interiors complete with all components can be quickly and easily removed and re-installed without disconnection of the external conduits and wiring from the enclosure. The inner swing door shall have spring latches and shall be independently removable. Special handles placed at optimum locations on the back plate shall be utilized for removal of the interior. Inner swing door shall be 1/8" thick aluminum with 1/4" thick stainless steel support brackets. Back plate shall be 3/16" thick aluminum with cutouts positioned at normal locations for exterior penetrations. All control and small power wiring to be disconnected shall be by separable terminal strips. Interiors shall be designed to fit specific enclosure manufacturers sizes and types. The Contractor shall utilize the CAMO® system by Cox Research and Technology, Inc., Baton Rouge, La.

## AVAILABLE SIZES

Enclosure Size	Non Metallic NEMA 4X	Stainless Steel NEMA 4X*	Painted Steel NEMA 4
16x14x08	CAMO 161408NM		
18x16x10	CAMO 181610NM		
24x20x10	CAMO 242010NM	CAMO 242010SS	CAMO 242010PS
30x24x10		CAMO 302410SS	CAMO 302410PS
30x24x12	CAMO 302412NM	CAMO 302412SS	CAMO 302412PS
36x30x12		CAMO 363012SS	CAMO 363012PS
40x32x12	CAMO 403212NM		
42x36x12		CAMO 423612SS	CAMO 423612PS

\*304 Stainless Steel. For 316 add suffix "6"



## **LEADING THE WAY IN ADVANCED WATER SOLUTIONS**

At Cox Research™ we offer complete and innovative solutions for emerging water technologies. Our team, with a broad platform of extraordinary talent across many disciplines, allows us to react quickly with new ideas in product development.

### **Cox Research and Technology, Inc.**

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