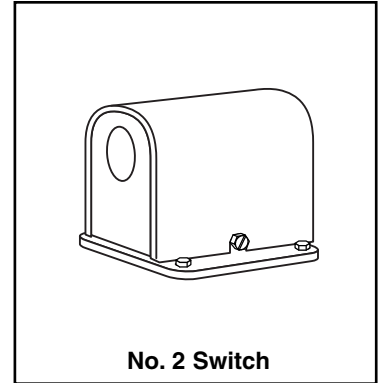




**McDonnell & Miller**  
 Installation & Maintenance  
 Instructions  
 MM-704(A)

**No. 2 Switch**  

**Applications:**  
 For series 47, 247, 63, 51, and 53 water  
 feeders to add the low water cut-off  
 function.

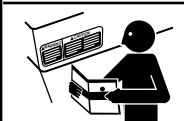


**OPERATION**

**Electrical Ratings**

Voltage	Motor Switch Rating (Amperes)		Pilot Duty
	Full Load	Locked Rotor	
120 VAC	10.2	61.2	125 VA at
240 VAC	5.1	30.6	120 or 240 VAC

 **WARNING**



- Before using this product read and understand instructions.
- Save these instructions for future reference.



- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of plumbing, steam, and electrical equipment and/or systems in accordance with all applicable codes and ordinances.



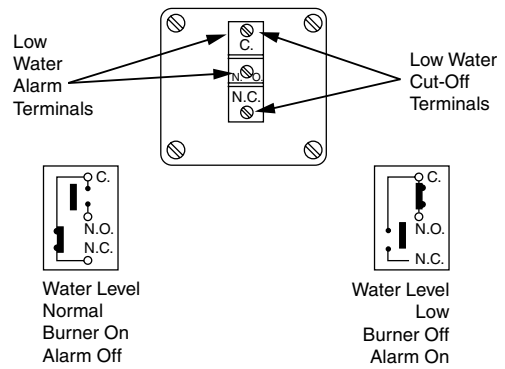
- To prevent a fire, do not use this low water cut-off to switch currents over 10.2A, 1/2 Hp at 120 VAC or 5.1A, 1/2 Hp at 240 VAC, unless a starter or relay is used in conjunction with it.

Failure to follow this warning could cause property damage, personal injury or death.

*Engineered for life*

The No. 2 Switch will help to maintain a minimum water level in the boiler during normal operation. The switch will shut off the burner in the event the boiler water level falls. Once the water level is restored to its normal level, the switch will allow the burner to operate.

### SCHEMATIC OF SWITCH OPERATION



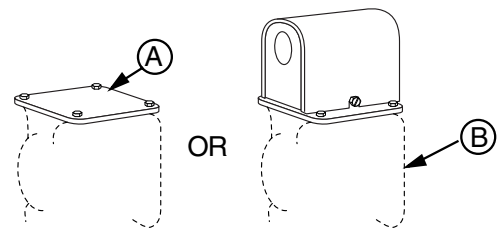
## INSTALLATION –

### TOOLS NEEDED:

One (1) flathead screwdriver and one (1) 5/16" socket wrench.

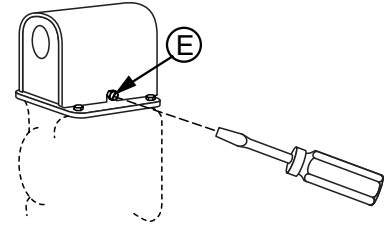
### STEP 1 - Switch Installation

- a. Remove the four (4) screws that secure the cover plate (A) or the existing switch.
- b. Mount the new switch on top of the control (B) using the (4) screws.  
The No. 2 switch can be positioned with the conduit opening facing toward or away from the float chamber. These are the only positions in which the switch will function properly. See drawing at right.

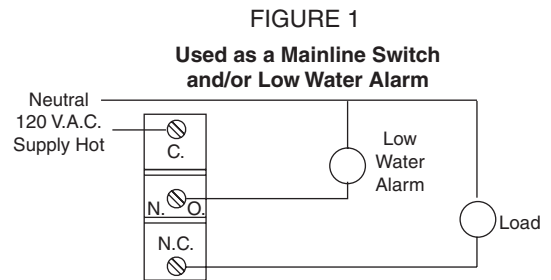


## STEP 2 - Electrical Wiring

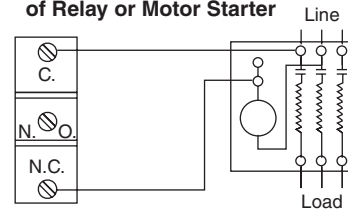
- a. Using the flathead screwdriver, remove the two (2) screws that secure the switch housing (E).



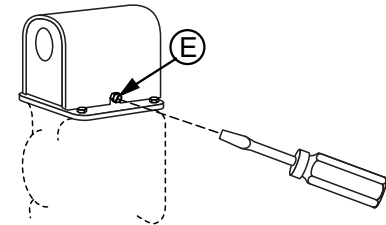
- b. Using copper wire only, follow the wiring diagrams in Figure 1 to wire the No. 2 Switch. Terminals C and NC are the low water cut-off switch. Terminals C and NO are the alarm switch. If the electrical load exceeds the rating of the switch, use an auxiliary relay or motor starter.



Used as a Pilot Switch to Coil  
of Relay or Motor Starter



- c. Slide the switch housing (E) onto the switch and, using a flathead screwdriver, tighten the two (2) screws that secure the switch housing.



**INSTALLATION COMPLETE**

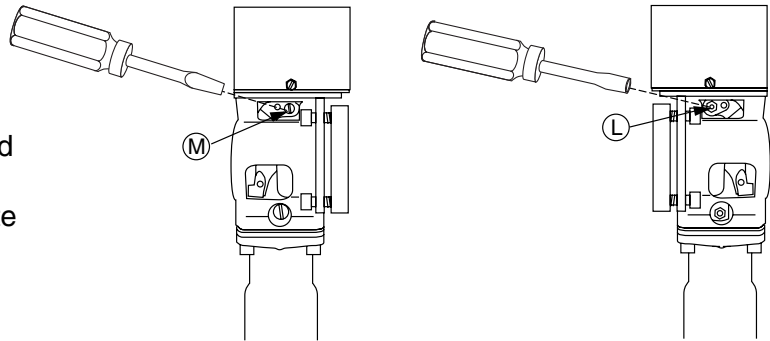
## STEP 3 - Testing

- a. Check to see that the burner turns on and off, by raising and lowering the water level in the boiler.
- b. Make sure there is travel in the float arm after the burner goes on and off.
- c. Repeat test several times.

## STEP 4 - Switch Adjustment

The control and switch have been factory adjusted and should not need any further adjustment in the field. Observe the devices being activated by the control and switch and, should adjustment be needed, follow the following steps.

- a. Using a flat head screwdriver and 5/16" nut driver, loosen adjusting screw (M) until cam is set in lowest position.
- b. Slowly, turn adjusting screw (M) raising the cam until the switch clicks, opening the common and normally closed contacts. Hold adjusting screw (M) in position and tighten nut (L) using 5/16" nut driver on the opposite end.



- c. Observe the devices being activated by the switch and control to determine if the switch is activating when desired. If further adjustment is required, repeat Step c.

## MAINTENANCE:

- **Replace the switch every 10 years or when the components do not operate properly.** More frequent replacement may be required when severe conditions exist.