



# CASE STUDY—POWER CIRCUIT

## Fault Isolated to Control Circuit

<b>Industry:</b>	<b>Refinery</b>	<b>Fault Zone:</b>	<b>Power Circuit</b>
<b>Motor Type:</b>	<b>Induction</b>	<b>Voltage:</b>	<b>4160</b>
<b>HP:</b>	<b>3500</b>	<b>Speed:</b>	<b>1765 rpm</b>

### **Summary**

Misdiagnosis caught with MCE testing.  
Unnecessary motor replacement avoided.

### ***Problem***

While on third shift, a jet water motor was shut down for standard maintenance operations. After completion and on a restart, the primary bus circuit breaker tripped. Repeated start attempts produced similar results..

### ***Looking for the Root Cause***

Initial troubleshooting efforts concluded that the fault was in the motor and provisions were made for pulling upon arrival of the first shift. Once notified of the situation, a first shift technician employed an MCE to verify the condition of the motor. The test indicated that both the motor and power circuit were in good condition with no apparent faults. These findings confirmed the technician's belief that the problem was in the MCC. Further investigation revealed a fault in the control circuit.

### ***Savings***

With the MCE, the refinery used off-line testing to verify the sound condition of the motor and power circuit. The savings from this action were substantial considering removal, installation and replacement expenses were prevented. Additionally, costly down time resulting from a misdiagnosis was avoided and production was maximized.

### ***Estimated Failure Costs***

-Downtime \$200,000  
-Removal Unknown  
-Motor Repair/Replacement \$90,000  
**TOTAL LOSSES PREVENTED \$290,000**