

***DYNAMIC POSITIONING  
INCIDENTS RESULTING from  
INADEQUATE  
POWER SYSTEM ANALYSIS***

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**Don E. Wilkes, P. E.  
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**MTS DP Conference  
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# ***DYNAMIC POSITIONING INCIDENTS RESULTING from INADEQUATE POWER SYSTEM ANALYSIS***

## ❖ Positioning Methods

### – Passive

- Pilings or legs
- Anchors – Chains or Cables
- Embedded Foundation - Cables
- Loss of Power > no Effect on Position

### – Active

- Dynamically Positioned
- Loss of power > Loss of position

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❖ What is the worst kind of incident?

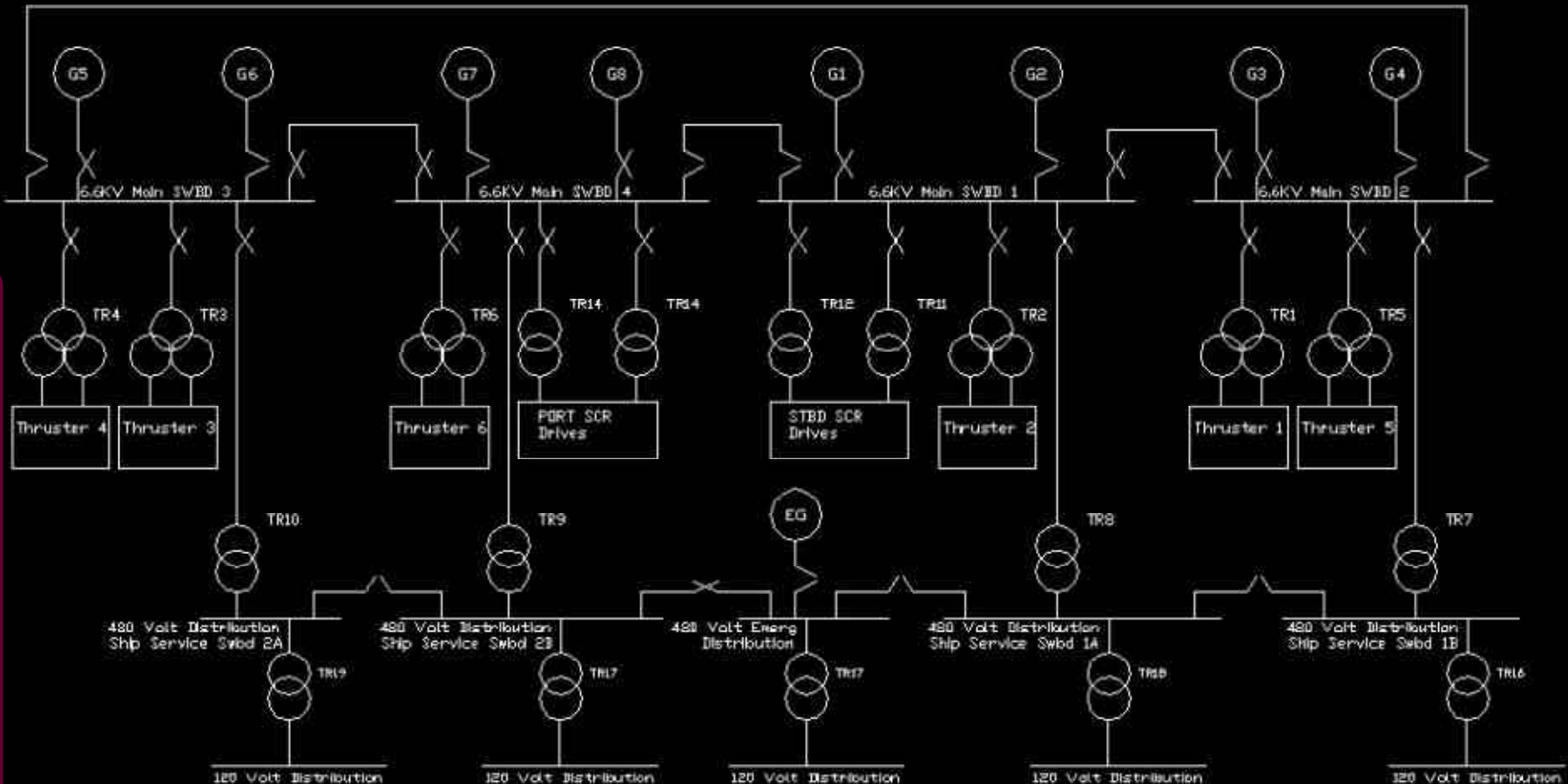


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## ❖ Integrity Improvements

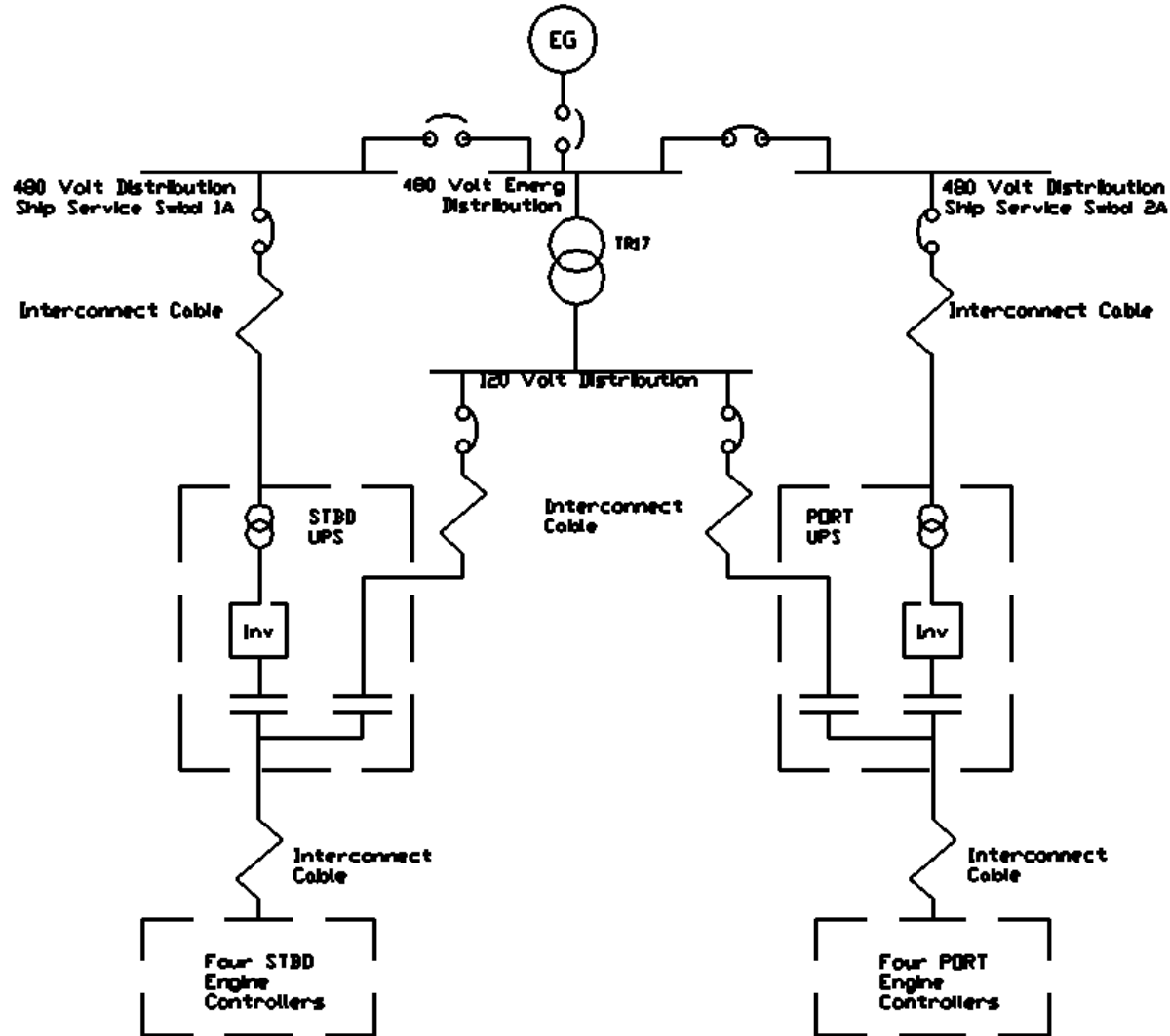
- In-House Evaluations
- FMEA
- Regulatory Agencies
- DPS Class Certification

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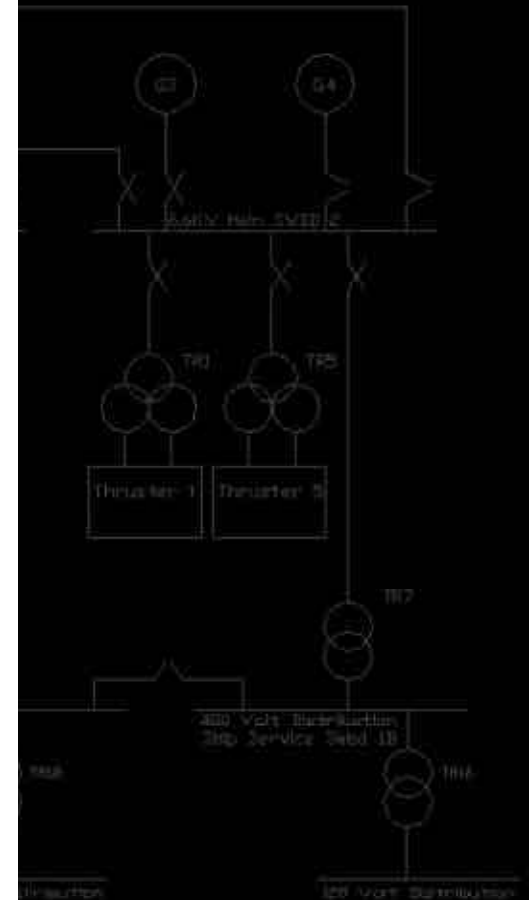
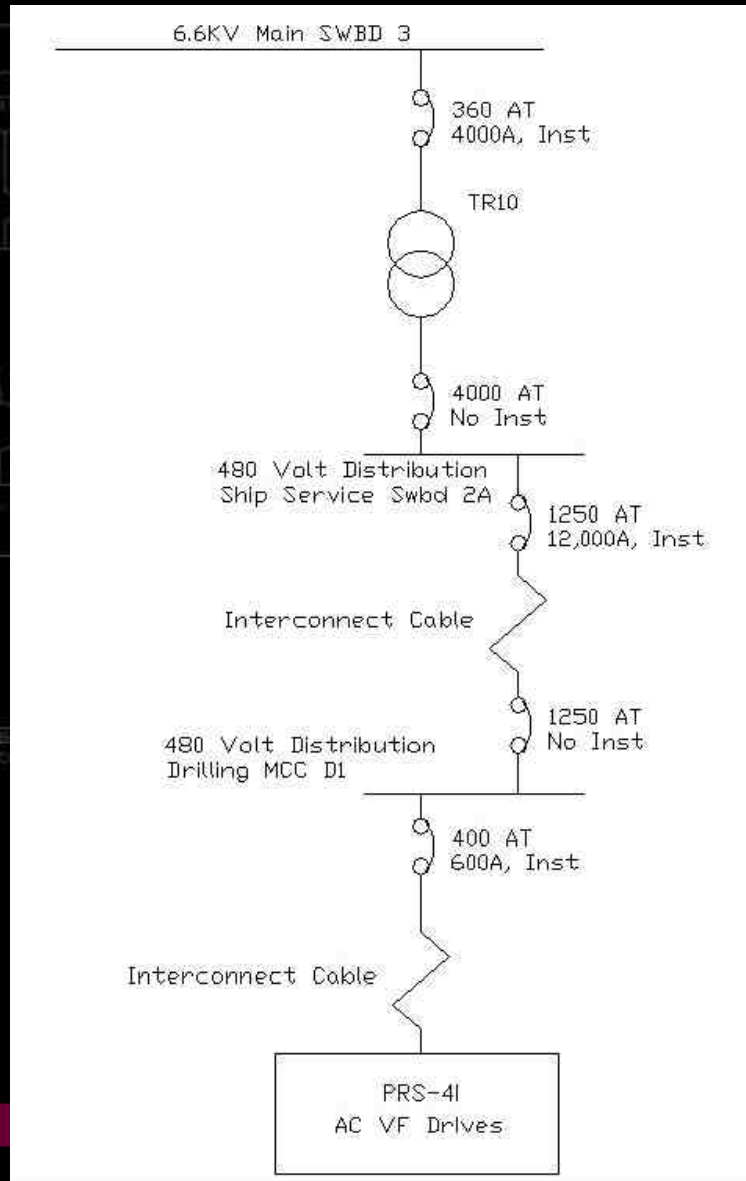
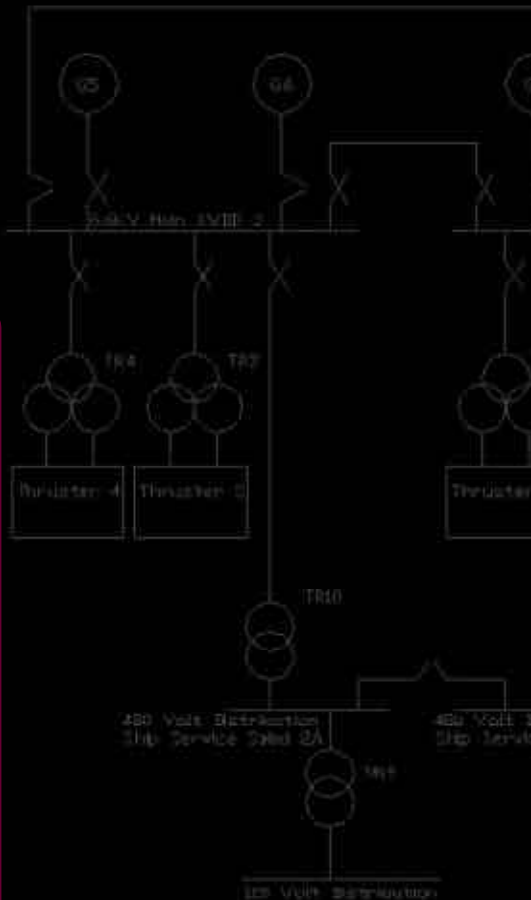


❖ Typical Power System

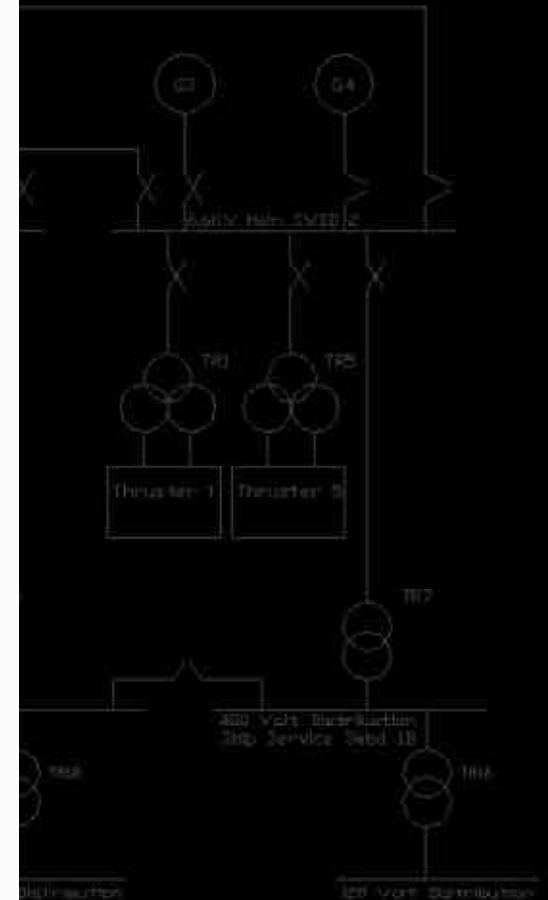
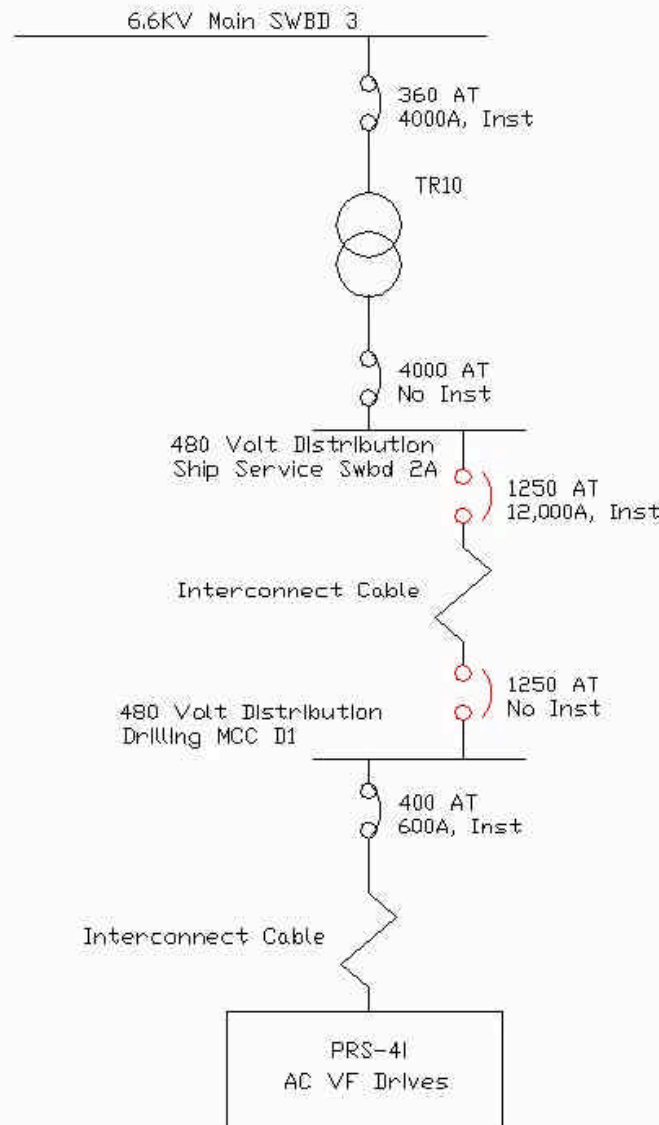
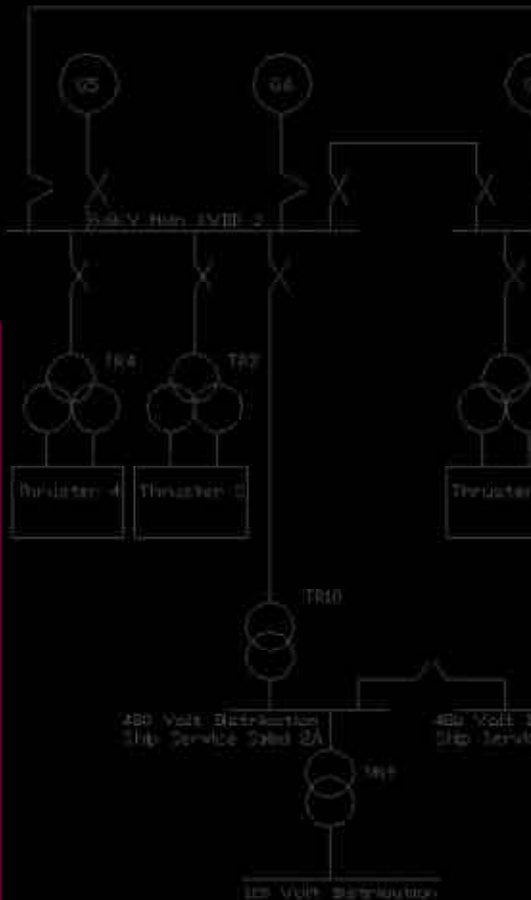
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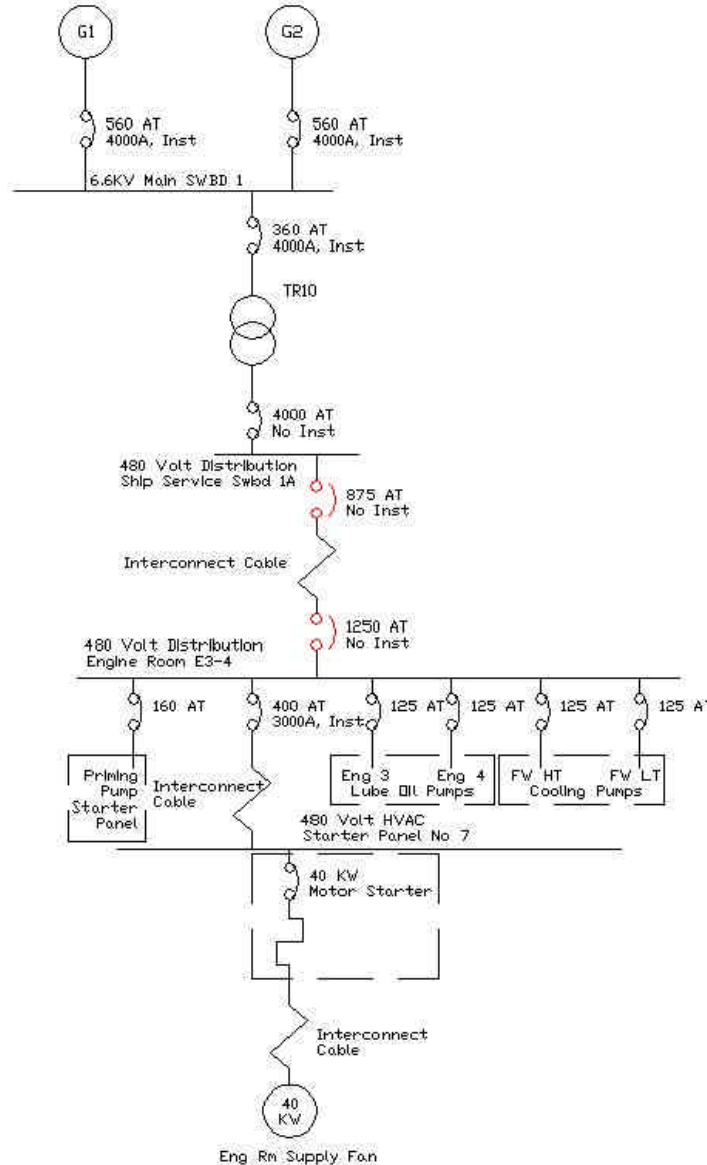
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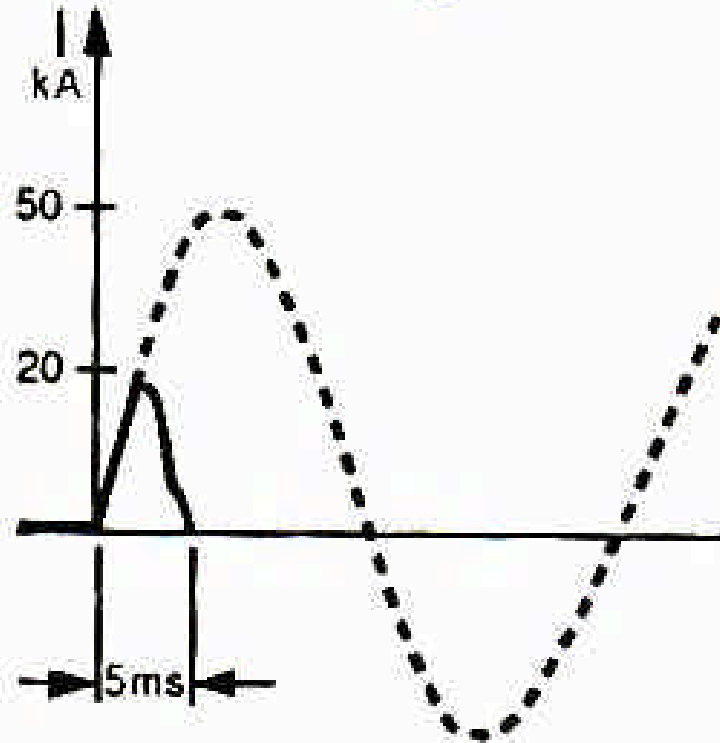
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## ❖ Why do we have these problems?

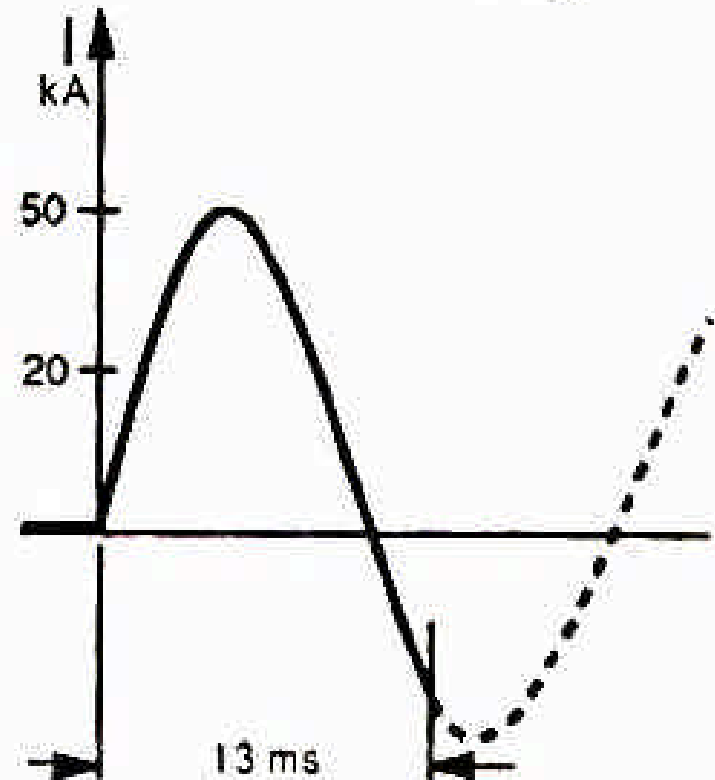
- Loads are getting larger
- Generators are getting larger
- Higher Fault Current requirements
- Timing doesn't allow design completion
- “Conservative”, “Safe” Specifications
- Limited Space Available

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**Current-limiting**



**Non-current limiting**



❖ **Fault Currents**

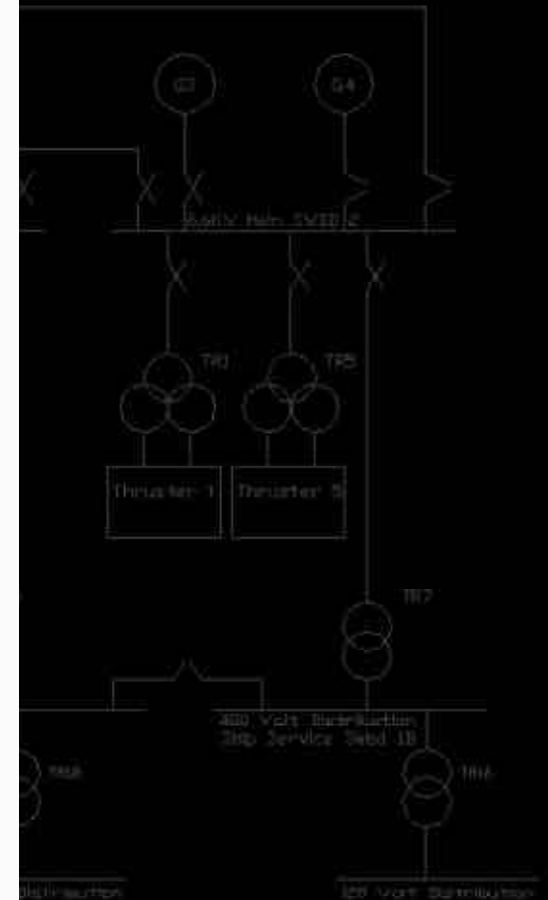
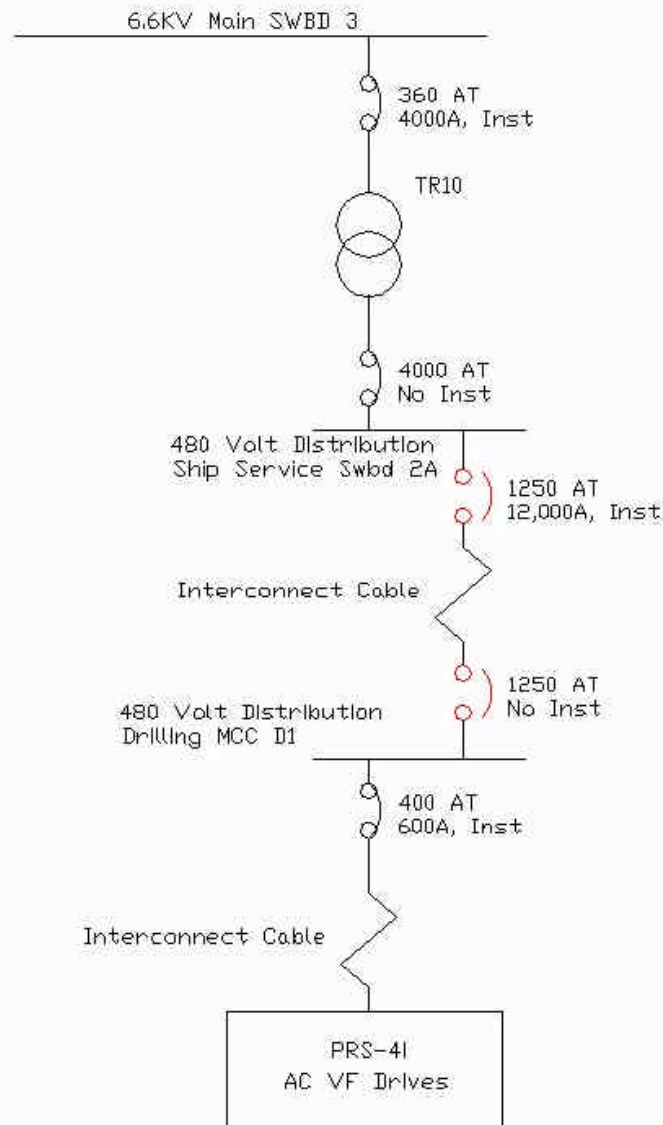
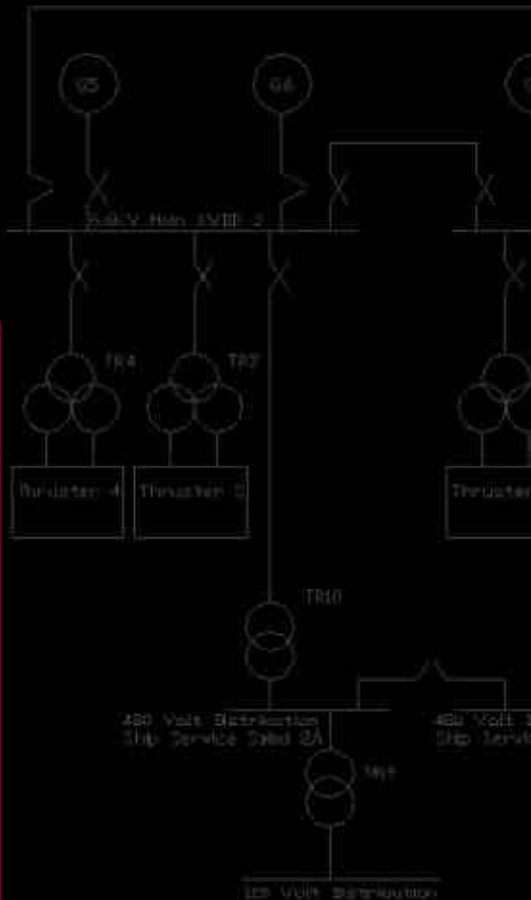
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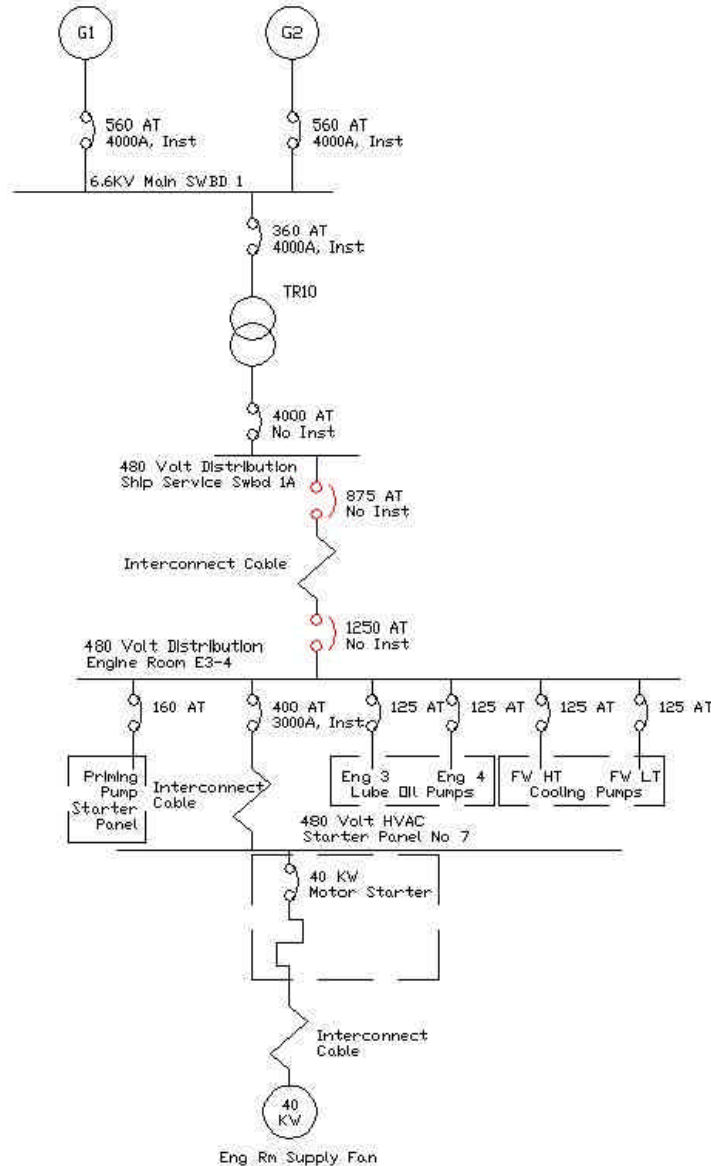
## ❖ Characteristics of Current Limiting CB's

- Acts on *predicted* current
- Trips almost instantly
- Other Trip settings have no influence
- Time-Current Coordination not possible
- Characteristics not included in curves
- Energy discrimination complex
- May not allow discrimination

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# ***DYNAMIC POSITIONING INCIDENTS RESULTING from INADEQUATE POWER SYSTEM ANALYSIS***

## ❖ Problem Causes

### – Contractual Arrangements

- Competitive
- Supplied by Builder
- Delivery schedule
- Inaccurate documentation

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## ❖ Problem Causes

- Contractual Arrangements
- Incomplete Documentation
- CB curves not accurate
- UPS's not covered in regulations
- Design not complete
- Production schedule
- We screw up

# ***DYNAMIC POSITIONING INCIDENTS RESULTING from INADEQUATE POWER SYSTEM ANALYSIS***

## ❖ Problem Improvements

- Learn from mistakes
- Learn from incidents
- Obtain valid explanations
- Improve specifications

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