

# ***NAVSEA 05Z3***

## ***Electrical Systems Technical Update***

Presented at the National Shipbuilding Research Program  
Electrical Technologies Panel Meeting

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Christopher Nemarich  
Engineering Manager  
Electrical Systems Ships – SEA 05Z33  
NAVAL SEA SYSTEMS COMMAND

- NAVSEA 05 Updates
- Status of Standards, Specifications, NSTMs and Drawings
- Summary of Selected Projects
- NSRP Electrical Technologies Panel Projects

## NAVSEA 05 Updates

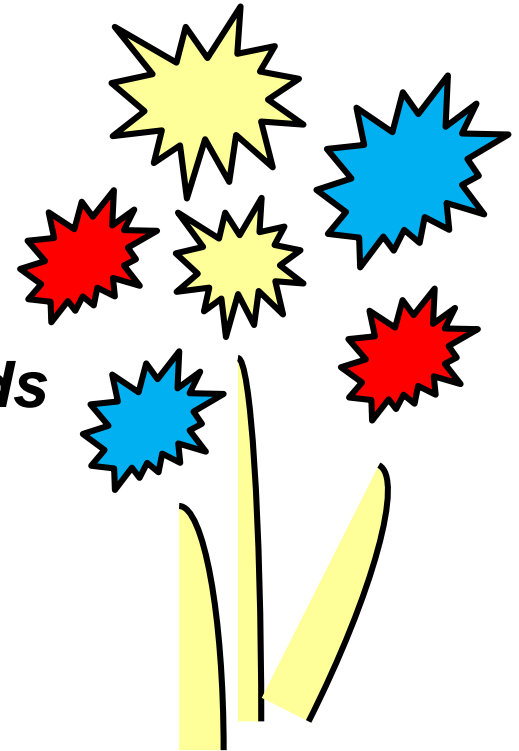
- Rear Adm. (Sel) Jason Lloyd, CO Supervisor of Shipbuilding Newport News is new Chief Engineer NAVSEA 05
- Adm. Lorin Selby will head Office of Naval Research (ONR)
- Christopher (Chris) Abadilla appointed Technical Warrant Holder (TWH) NAVSEA 05Z33 for Electrical System Distribution, Protection, Lighting, Safety and Instrumentation replacing Jeff Paige who retired in January 2020

## ***The Big News !***

### ***MIL-STD-2003 Revision B***

### ***Electric Plant Installation Standard Methods for Surface Ships and Submarines***

- Received NAVSEA 08 concurrence May 2020
  - Document in comment adjudication
  - Compliance review and final approval
  - **Publication expected AUG 2020**
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- **Revision C to start ????**



## Electrical Cable Specifications

### MIL-DTL-24643 Cables, Low Smoke (Base spec + all slant sheets)

- In comment adjudication expected to complete by 15 May 2020
- Internal document finalization, concurrences expected to complete in 3 weeks
- **Publication expected end of June 2020**

- MIL-DTL-24643 /77(1) Amendment 1 (incorporated)

Cable, Electrical, -4 F (-20 C) to +176 F (+80 C)

150 Volts, Type LSC6FS, LSC6OS Including Watertight Variation LSC6OSW

**Published 5 May 2020**

- MIL-DTL-24643 /86(1) Amendment 1 (incorporated)

Cable, Electrical, -4 F to +221 F (+105 C) 5,000 Volts, Type LS5KVTSSGUSHR

**Published 13 April 2020**

### MIL-DTL-24640 Cables, Lightweight, Low Smoke (Base spec + all slant sheets)

- PDS opened. February 2019
- Internal reviews and updates in process.
- Intermediate review expected late 2020 (following publication of MIL-DTL-24643)

## Switchboard Specifications

### **MIL-DTL-16036M Switchgear, Power, Low Voltage, Naval Shipboard**

- Interim Amendment 1 allowances for Jam Nuts rejected by SEA 08
- Allowances were added in MIL-DTL-32483A however, due to contentions during review, the wording of the allowance is being revisited delaying the release of these two specifications.

### **MIL-DTL-32483A Switchgear, Power, Hard-Mounted, Medium Voltage, Naval Shipboard**

- Comment adjudication alongside MIL-DTL-xx653
- Issue of Jam Nuts Allowance
- **Publication targeted FY 2020**

### **MIL-DTL-xx653 Switchgear, Power, Shock-Mounted, Low Voltage, Naval Shipboard**

- Created to establish standard construction, testing, and safety requirements for shock-mounted low voltage switchgear that will result in consistent vendor pricing from program to program.
- Comment adjudication alongside MIL-DTL-32483
- **Publication targeted FY 2020**

### **MIL-DTL-XX663 Switchgear, Power, Shock-Mounted, MV, Naval Shipboard**

- **FY 2021**

## MIL-DTL-XX654 Arc Fault Detection System Performance Specification

- Now a Detailed Spec
- Received NAVSEA 08 concurrence April 2020
- At comment adjudication and compliance review

**Publication expected June 2020**

## MIL-V-23151 B Voltmeter, Expanded Scale Switchboard Type

- Last revised 3 Dec 1990
- PDS submitted to update – specification has 3 cancelled references

## Circuit Breaker Specifications

**MIL-DTL-17588F - Breakers (ALB-1) and Switch, Toggle (Circuit Breaker, NLB-1) Air, Insulated Housing, 125 Volts and Below AC and DC (Naval Shipboard Use)**

- SRB circulation complete 11 March 2020
- **Expected publication June 2020**

**MIL-DTL-17361H - Circuit Breaker Types AQB/NQB, Air, Electric, Low Voltage, Insulated Housing (Shipboard Use), General Specification for**

**MIL-DTL-17587D - Circuit Breakers, ACB, Low Voltage, Electric Power, Air, Removable Construction, General Specification for**

- SRB Review

**UL 489D US Naval Commercial-Off-the-Shelf (COTS) Designated Molded-Case Circuit Breakers and Accessories for Use on Non Nuclear Naval Combatant Ships**

**UL 1066A US Naval Commercial Off the Shelf (COTS) Designated Three-Pole Low-Voltage AC Power Circuit Breakers, Drawout-Mounted Type, and Accessories/Functional Components for Use on Non-Nuclear Naval Combatant Ships**

**MIL-PRF-32484A Protective Relays and Attachments, Medium Voltage Vacuum Circuit Breaker Applications **FY 2021****



## **MIL-DTL-24705B *Penetrators, Multiple Cable, Electric Cable (MCTs)***

- Update and add fire stop test requirements of MIL-STD-3020
- **Planned Start 2021**

## **MIL-E-24142 *Enclosure for Electrical Fittings, General Specification for***

- **New start**

## **MS18297 Cable, Navy, Insulation Resistance**

- **Cancelled**

## **MIL-C-24368/6 Connector Assemblies, Plugs and Receptacles, Electric Power Transfer, Shore to Ship and Ship**

- **Stabilized**

## **MIL-T-17221 Transformers, Power, Distribution, Single Phase 400Hz JUN73**

## **MIL-T-15108 Transformers, Power, Step Down Single-Phase 60Hz 1KVA JUL 85**

## Lighting Specifications

### **MIL-DTL-16377J Fixtures, Lighting, and Associated Parts; Shipboard Use**

- Amendment 1 issued July 2019
- PDS Project Start Dec 2020
- Intermediate Review – **May 2020**

### **Cancellations**

- **/15 /19 /22 /24 /29 /37 /46 /47 /64**

### **Inactivate for New Design**

- **/1 /2 /3 /5 /6 /13 /28 /34 /43 /44 /62 /65 /66**
- Add SSL fixture options in 13 slant sheets for incandescent or fluorescent fixtures.
- Reduce unnecessary lighting design and test requirements that add cost.
- Review all testing compliance issues raised by industry suppliers.
- Add input power type options for selected fixtures.
- Expand 16377/86 to include additional SSL lamp lengths and styles to support back-fits.
- Address 16377J /53D battle lanterns design, operational and maintenance issues.
- Shipbuilder and industry invited to recommend new lighting system technologies.

## Lighting Specifications

### Miniature Lamps

#### MIL-DTL-6363 H Lamps, Incandescent, Aircraft Service, General Specification

- Retain MIL-DTL-6363 as an active specification
- Cancel /4, /5, /10, and /11 based on no NSNs or procurements.
- Validate and maintain /8
- Inactive for new design /1, /2 /3, /6, /7, /9, /12, /13 and /14

### Navigation Lights

#### MIL-P-24175 PANEL, POWER SUPPLY AND CONTROL FOR NAVIGATION LIGHTS

27-Aug-1971

- /1B DP NON MAGNETIC 10A 120VAC 60 Hz 3 PH 6 CIRCUITS SYM 944.2 **CANCEL**
- /2A NWT 10A 120VAC 60 Hz 3 PH 8 CIRCUITS SYM 940.1 **COMMONLY USED**
- /3A NWT 10A 120VDC DP 8 CIRCUITS SYM 945.1 **CANCEL**
- /4A NWT 10A 120VDC DP 10 CIRCUIT SYM 942.1 **CANCEL**
- /5B 10A 120 VAC 60 Hz TE SYM 2550.1 **SUBMARINES**

## **NSTMs**

### **S9086-KC-STM-010/300, Rev 10**

#### **NSTM Chapter 300, Electric Plant-General**

- Awaiting submittal for another SRB Circulation

### **S9086-KY-STM-010/320, Rev 7**

#### **NSTM Chapter 320, Electric Power Distribution Systems**

- Awaiting intermediate review

## Instrumentation Specifications

**NAVSEA 803-2145532C**

**Indicator/Indicating System Liquid Level Application/Selection Guide Drawing**

- SRB completed / Comments adjudicated March 2020
- Incorporating final revisions to drawing

**Publication expected June 2020**

**MIL-I-20037B Indicators, Sight, Liquid Level, Direct/Indirect Reading, Tubular Glass/ Plastic**

**MIL-T-15377F - Temperature Monitor Equipment Naval Shipboard (Cancel)**

**MIL-T-24387A (Cancel)**

**MIL-T-24388C (Cancel)**

- Replace with ASTM F2362

**MIL-T-19646A Thermometer, Gas Actuated, Remote Reading**

**MIL-I-17244E Indicators, Temperature, Direct-Reading, Bimetallic (3 and 5 Inch)**

**MIL-DTL-15103 Salinity Indicating Equipment**

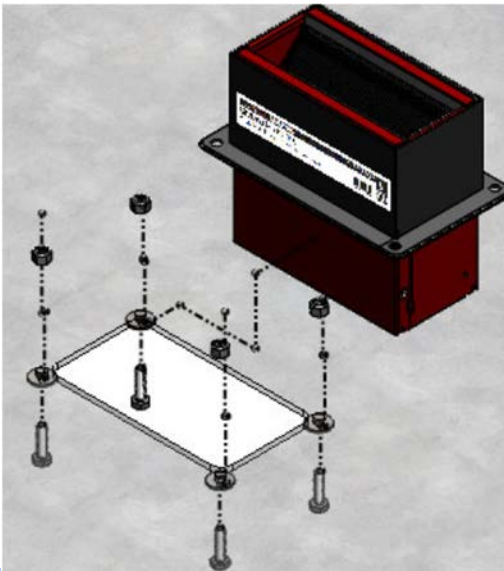
**MIL-G-18997E Gauge, Pressure, Dial Indicating**

**MIL-HDBK-801 List of Pressure Gauges**

- **FY 2021**

## 05Z Endorsed NSRP Projects

- Evaluation of Efficacy of Self-Sealing Cable Transit Devices for Aluminum Bulkheads and Decks in Non-Watertight Boundaries
  - Root cause analysis report issued for failure of full scale fire qual test
  - Funding for test data review obtained
  - Small scale retest completed by STI
  - Retesting and qualification test requirements review (ongoing)
  - Exploring funding options for re-test



## **05Z Endorsed NSRP Projects**

- Shore Power Cable Connector Test Set development
- Advanced Top Side Lighting
- Organic LED Low Voltage Lighting
- Electrical Connector Standardization
- Shipboard Cable Trays
- Supporting qualification specification review Insulated Bus Pipe

## Questions?