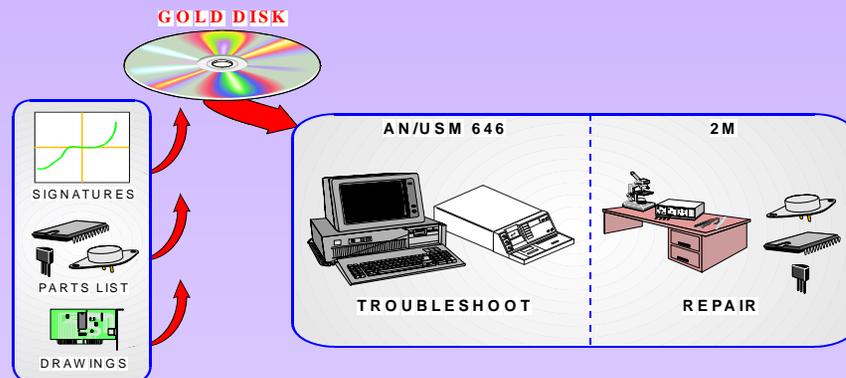




Miniature/Microminiature (2M) Module Test & Repair (MTR) Program



2M MTR PROGRAM HOME PAGES

[HTTP://WWW.CRANE.NAVY.MIL/2M](http://www.crane.navy.mil/2m)

[HTTPS://WWW.NOR.NUWC.NAVY.MIL](https://www.nor.nuwc.navy.mil)

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Meeting Agenda

2M MTR Program Brief

Questions/ ROI Discussion

AN/USM-674/Gold Disk Demos

OPNAV/NAVSEA 2M MTR Program Policy

OPNAVINST 4700.7L (Encl 5)

OPNAVINST 4790.13A

NAVSEA 4790.17B (draft)



What is the NAVSEA 2M MTR Program ?

- NAVSEA 04RM3 provides 295 ships and shore activities with capabilities to repair circuit card assemblies (CCA) and electronic modules (EM) which results in reduced OPTAR expenses and averts/corrects CASREPs.
- Technicians provided with special purpose test equipment, 2M repair equipment, **Gold Disk** diagnostics and repair procedures and piece parts to support CCA and EM repairs.
- 3 training courses taught at six Navy training sites, 5 NEC Codes and Certification/Inspection processes for technicians, 2M MTR work centers/shops and training sites.
- A 2M MTR reporting system (Module Test & Repair Tracking System) resident on the AN/USM-674 test system results in quarterly program metrics IAW JFMM policy.

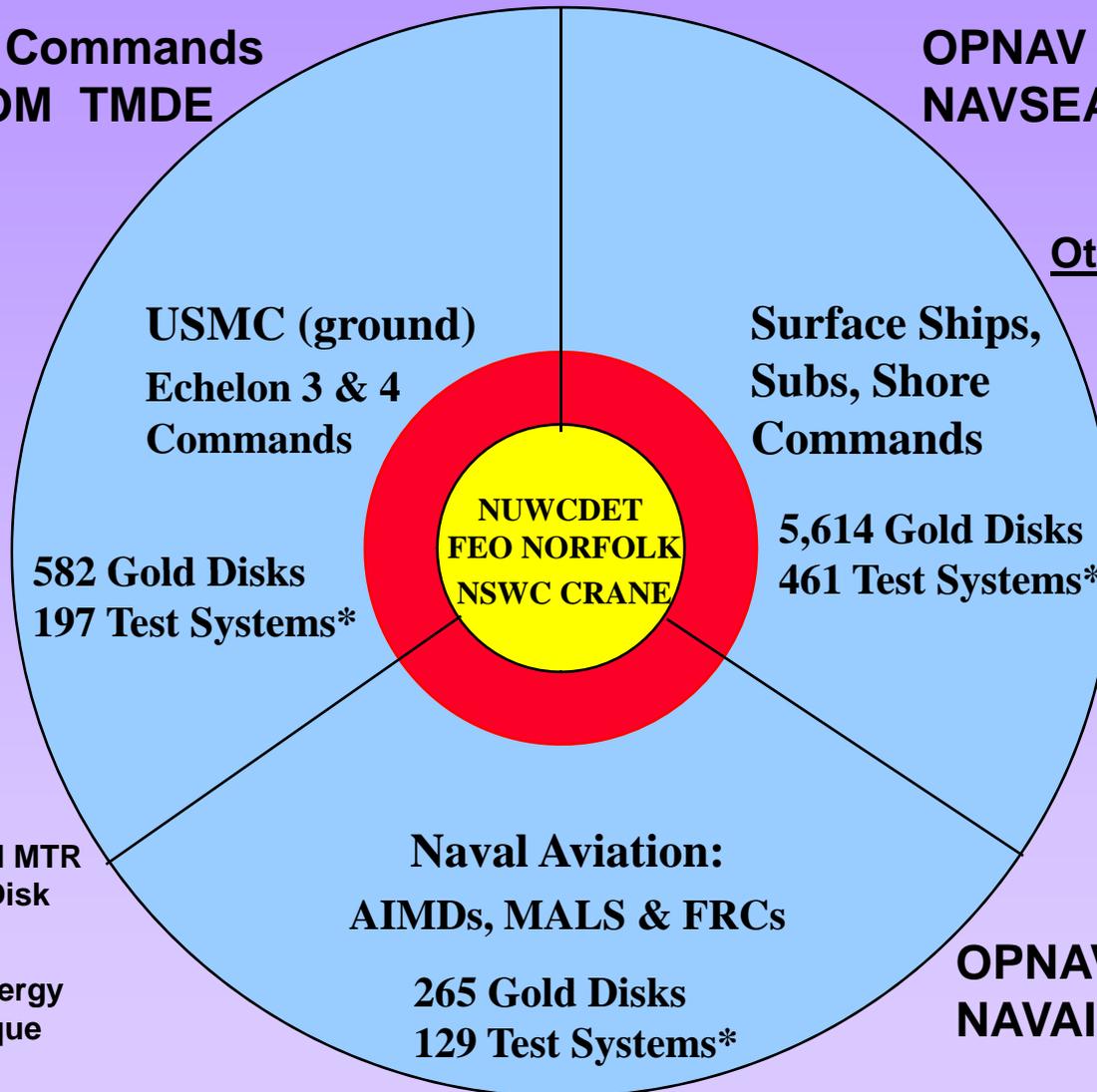


Engineering Agents, Customers and Sponsors

Total DOD Commands 514

HQMC (I&L) / 69 Commands
 MARCORSSCOM TMDE

OPNAV N431 / 295 Cmds
 NAVSEA 04RM31



Other Customers
 USAF / 40 Cmds
 USCG / 45 Cmds
 USA / 3 Cmds
 FMS / various
 National Guard
 / 3 Commands
 NASA/ISS

* AN/USM-674

GOALS

1. Maintain standard 2M MTR HW/SW/ILS & Gold Disk processes
2. Obtain maximum synergy from shared and unique infrastructure

OPNAV (N88) / 59 Cmds
 NAVAIR (PMA 260)



Benefits of the 2M MTR Program

- Improves Readiness & Sustainability of ships/systems
- **TOC-R:** From 1 Apr. 1996 to 31 Dec 2010 Navy commands outfitted by the NAVSEA 2M MTR Program reported 145,938 2M repairs completed, **resulting in 9,628 CASREPS averted/corrected and \$510.83M in OPTAR cost avoidance.**
- **Results in reduced requirements for spare CCA/EMs.**
- **Minimizes DMSMS problems.**
- **Minimizes No Failure Evident cards being sent to depots.**
- Technicians are eligible for Monthly CNO Gold Disk Award which includes \$500 and a LOC from OPNAV N4.



Various DOD/USCG Systems/Platforms with Gold & Silver Disks

<u>System</u>	<u>Gold/Silver Disks</u>
AEGIS Combat System (Navy)	512
F/A-18 (Navy / USMC)	112
SINGARS (DoD Comm)	61
Abrams M1A1 Tank (USMC/Army)	44
AN/SQQ-89 (CG/DDG ASW System)	265
AN/BSY-1/1A (SSN-688 Class)	287
SH-60/HH-60 Avionics (DoD)	52
RT-9000 (USCG/USAF)	9
TMDE	Approximately 50



AN/USM-674 Test Station (Surface)

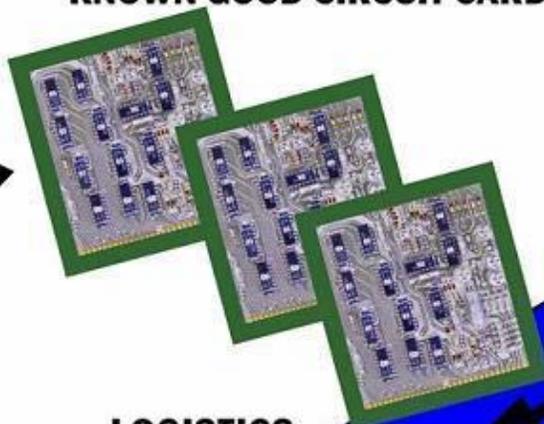


TEST ROUTINE DEVELOPMENT

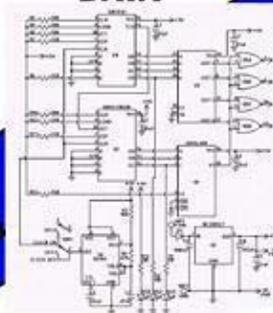
PARENT EQUIPMENT



COMBINE SIGNATURES OF THREE KNOWN GOOD CIRCUIT CARDS



SCHEMATIC DATA

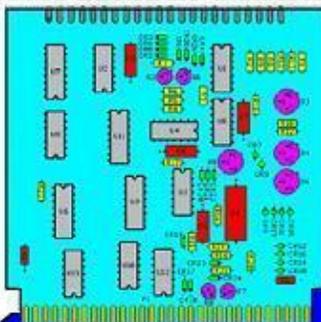


MERGE

LOGISTICS DATA (ILS)

C1	M39014/01-1513	5910-00-010-8717
C2	M39014/01-1513	5910-00-010-8717
R1	RLR05C1001GR	5905-00-012-2824
R2	RLR05C2201GR	5905-00-165-3181
U1	5757298-25	5962-01-283-9726
U2	5757298-26	5962-01-283-9727
U3	5757298-27	5962-01-283-9161

CCA ASSEMBLY DRAWING



QUALITY ASSURANCE FINAL VERIFICATION



DISTRIBUTION ON DVD



Gold Disk DVDs



MTR TEST ROUTINE DVD-ROM used with USM-674 Test System

Distributed quarterly to over 500 DoD and USCG Commands

Contains all Gold Disk diagnostics test routines for the 2M/MTR Technician

(11-1) distributed 7 February 2011 includes 7,256 Gold Disk Test Routines

➤ **The MTR GOLD DISK developed and maintained by NUWCDET Norfolk provides logistics information and computer aided diagnostics procedures in support of the 2M MTR process.**



Training for 2M MTR

Completion of first 3 individual courses results in NEC 1591 (Navy/Coast Guard), MOS 8641 (USMC), MOS94Y (Army)

Starts 1-Oct-2011

**AN/USM- 674
A-100-0076
5 days
NEC - N/A**

**Miniature
Electronic Repair
A-100-0072
26 days
NEC 9527**

**Microminiature
Electronic Repair
A-100-0073
12 days
NEC 9526**

**2M MTR Pipeline
A-100-0008
47 days
NEC 1591
(only at Navy
Training Sites)**

School Locations

Navy (6): CSCS LS Norfolk / CSCS LS San Diego / CSCS Det Mayport /CSCS Det Pearl Harbor
CNATTU Whidbey Island / CNATT Det Atsugi

USMC (1): MCCES 29 Palms, CA

USAF (2): 372nd Training Squadron, Detachment 11 (AETC) Davis Monthan AFB/372 TRS/ DET 17
Spangdahlem AB, Germany

USCG (1): TRACEN Yorktown



2M MTR Navy Technicians

**9 Rates Eligible.
Most are ETs and ATs.
Techs Recertified & Shop
Inspected (18 month cycle)**





Commands with 2M MTR repair capability use the MTR Tracking System (MTRTS) to document 2M repairs on electronic CCAs/EMs. Each quarter these commands submit MTRTS reports to NUWC Det FEO, in accordance with the JFMM (NAVY). These data metrics are combined to produce MTRTS totals reports for distribution to TYCOMs, ISICs and PMs.

MTR Tracking System - Navy (Historical Records)

File Database Records Reports Utilities Help

MTR #: 2315500414 JCN: 23155CF010663 APL/AEL: ME403296CL Date Format: 13-May-2010
 Equipment: SPY 1D ANTENNA NO 3 EIC: 5611310
 Equipment Ser #: 0226 Date Submitted: 24-Feb-2010

Supply Inducted: Doc No: STA: 3 - REDUCED CAPABILITY
 WND Date: CAS: 7 - NORMAL WEAR AND TEAR
 WND: 2 - NORMAL OPERATION POC: FC2 MCMANUS

CCA Part #: 5617300 RSN: CCA Cost: 2943.00
 CCA Ser #: 267339 2M Level: SMT - SURFACE MOUNT
 COG: 7H MCC: H 2M Tech: ET2 SHARPE
 NSN: 5999-01-258-4223 Diagnostic Equipment: AN/USM-674 (PROTRK/SCANNER)
 Test Program Set: 687240074.ROI Test Routine No: 687240074.ROI

Final Action: 2 - MAINT ACT COMPLETE; RQD PARTS NOT DRAWN FROM SUPPLY
 CASREP: N - NONE Awaiting Parts Delay: 0 Days
 TroubleShoot Time: 1.0 2M Time: 2.0 Total ManHours: 3.0
 Assist JCN: Lead WC: No Fault Evident: F
 Start Date: 24-Feb-2010 Compl Date: 25-Feb-2010 3M Doc?: F

Find:

Piece Parts

Select Component:

- C15
- C16
- C17
- C18

Piece Parts

RSN: C15
 Part No: T49D156K035AS
 COG: NSN: 5910-01-513-9881
 Cost: 0.42 Doc No:
 Source: P - PRE-EXPENDED BINS
 Status: ON HAND

Component:



2M Piece Parts

Surface Ships have two Piece Part APLs (Parts located in 2M MTR Work center and Supply storerooms). SSBNs, SSGNs, MCMs and shore commands have one APL.

NUWCDET develops the APL Piece Parts bases on ship class Gold Disks, piece parts reported utilized in MTRTS, and FRAT requests. FRAT is fleet Piece Parts Help Desk which identifies and supplies piece parts not available in the supply system.

Piece part inventories are on the USM-674 controller via MTR software.





Back up slides

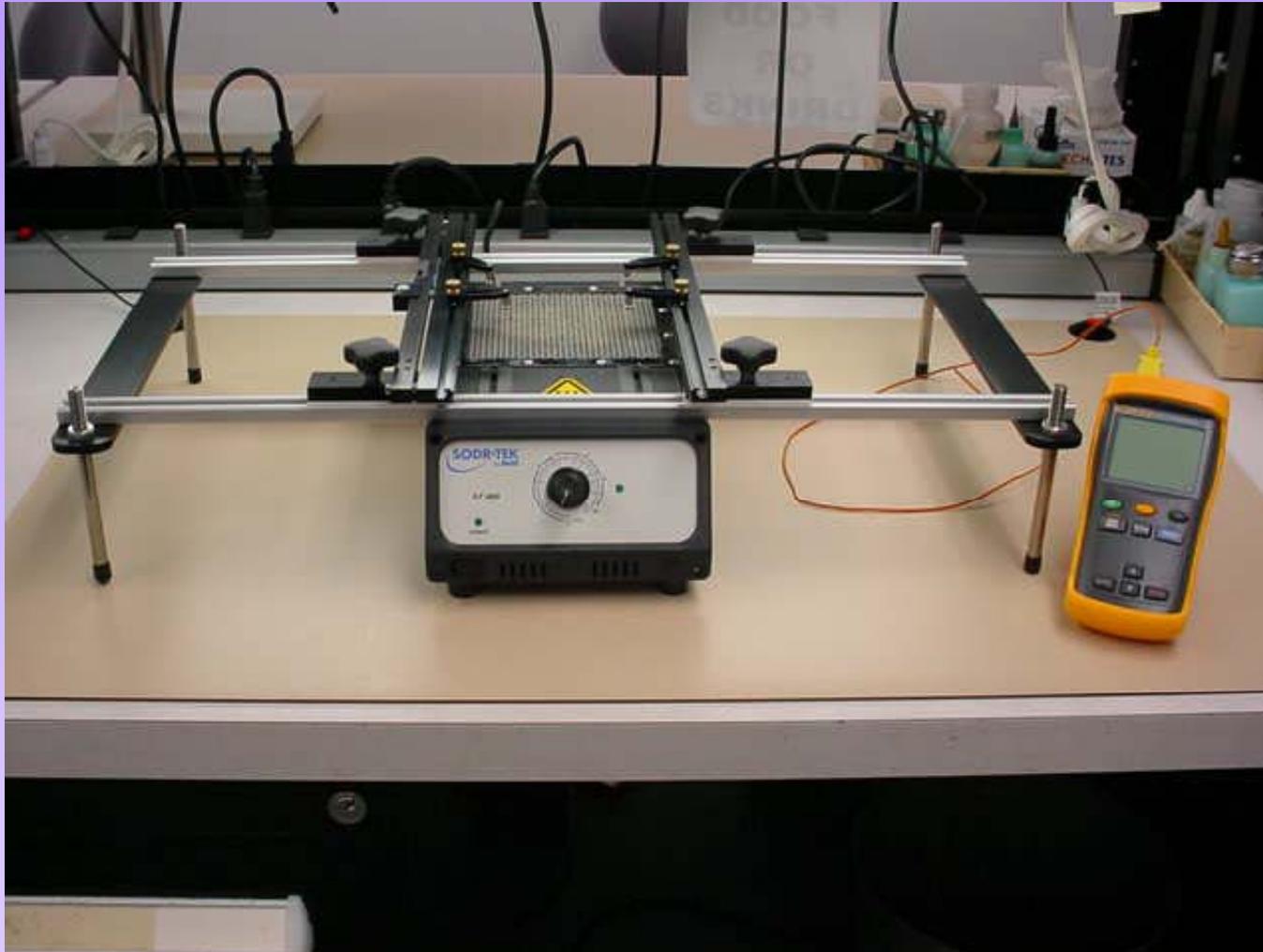


TF 500 (Shore IMA) Fine Pitch Rework Station





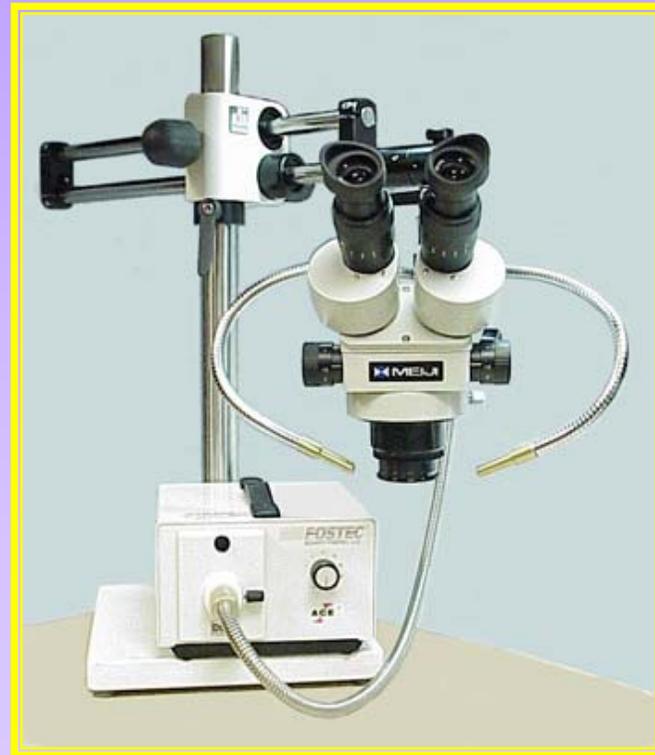
SODRTEK ST-400 RADIANT PREHEATING SYSTEM WITH ST-550 CIRCUIT BOARD HOLDER



2M Repair Station Equipment

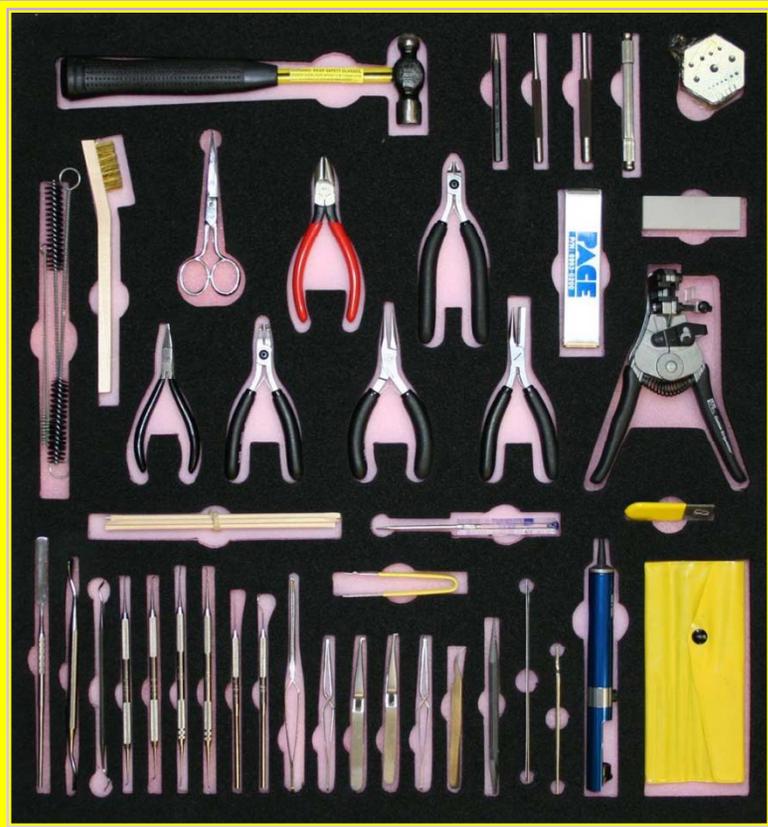


**Supplemental Lighting
Source**



Microscope Assembly

2M Repair Station Tools and Accessories



Tools & Consumables



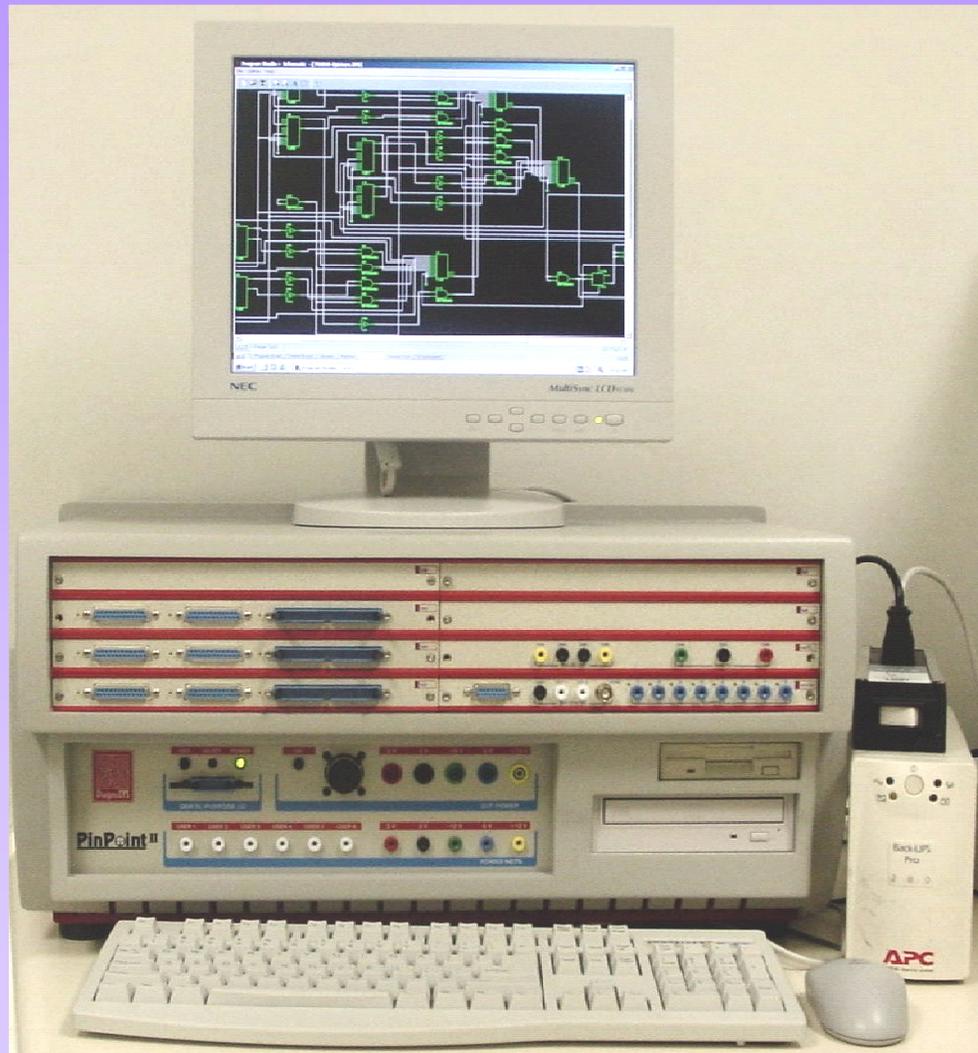
**Circuit Card & Workpiece
Holder**

ESD Prevention Material





AN/USM-676 PinPoint II Test Station





2010-2011 2M MTR Workstation Outfitting

- Two Patrol Craft Maintenance Support Activities at Little Creek and Bahrain
 - Manned by PC Maintenance Support Teams (MST)
- New ships to be outfitted with 2M MTR Equipment and MTR piece parts (DDG 110, DDG 111 , DDG 112, LPD 22 and LPD 23) concluded with 2M MTR Work center certification.
- SSBNs/SSGNs: 15 Outfitted 2008-2010
 - 3 Remaining SSBNs: SSBN 733, SSBN 734, SSBN 735 in FY12
- GEMD Lakehurst June 2011
- For active ships and shore sites, missing and inoperative 2M MTR Equipment is supported by the 2M MTR Engineering agents and Inspectors.



Ongoing Initiatives

- **Develop Gold Disks for Fleet nominated and high cost/high failure, out of production and low in stock CCA/EMs.**
- **Improve Fleet (O/I level) 2M MTR Utilization**
 - Phase I of 2M Progressive Repair Enhancement Program (PREP) (FFC/CPF/SEA 04RM3 Initiative...R031513Z OCT 2007) ongoing.
 - Phase II will address repair of **consumable** CCA/EMs. Planned start in FY11 .



2M PREP Phase II

- Transfer 90 NIINs (Gold Disk Supported circuit cards) from 9B cog to 3B cog.
 - Transfer requested by COMPACFLT N41.
 - Potential OPTAR savings is greater than \$2M annually for the 90 NIINs.
 - Will need approval from program offices for cog change.
- Develop Gold Disk diagnostics procedures for high demand/high cost consumable circuit cards and electronic modules. DLA demand data and MTRTS data to be provided to COMPACFLT N41A.



Key 2M MTR Program POCs

- US Navy
 - Program Manager: Tom Ingram, NAVSEA 04RM3 (202-781-3380)
 - OPNAV N431K CNO Resource Sponsor: LCDR Matthew Cryer (703-601-1678)
- US Marine Corps
 - Program Manager: John Finke, MARCORPSYSCOM/PMM 161/TMDE (DSN 378-3248)
 - Program Sponsor: MAJ Paul Richard, HQMC I&L Maint. Officer (571-256-7104)
- 2M Project Manager: Gary Latta, NSWC Crane (812-854-1973)
- MTR Project Manager: Dave Ascher, NUWCDET Norfolk (757-396-0800 X5256)
- Deputy MTR Project Manager: John Kennedy, NUWCDET Norfolk (757-396-0800 X5258)
- Gold Disk Production Manager: Johnny Crabtree, NUWCDET Norfolk (757-396-0800 X5268)
- USFFC 436: Rich McConnell (757-836-3756)
- COMNAVSURFLANT: Johnnie Cleveland, CNSL N43C8 (757-836-3296)
- COMNAVSURFPAC: Fernando Guingab, CNSP N601 (DSN 577-2793)
- COMNAVAIRFOR: Brian Foster, CNAF N4353 (619-545-1497)
- COMSUBLANT: CDR Prescott, CSL N42/CSO (757-836-1224)
- COMSUBPAC: LCDR Paul Hasley, CSP N42/CSO (808-473-4815)
- LANTFLT 2M MTR Fleet Inspector: Tony Roye, NSSA Code 212.6 (757-443-3872 X1874)
- PACFLT 2M MTR Fleet Inspector: Rich Biernacki, SWRMC Code 2228.2 (619-556-1346)