DACUM Research Chart for Maritime Mechatronics Technician

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Duties	Tasks				
A Research Assigned Shipboard Systems	A-1 Review work instruction	A-2 Establish system stakeholders	A-3 Prioritize work instruction	A-4 Obtain assigned TWD	A-5 Review system history
B Evaluate Shipboard Systems	B-1 Obtain job-specific tools	B-2 Investigate system safety	B-3 Identify system boundaries	B-4 Simulate normal system operations	B-5 Perform system diagnostics
C Troubleshoot Shipboard System	C-1 Identify work interference	C-2 Address work interference	C-3 Develop system condition report	C-4 Determine system resource needs	C-5 Review assigned TWD
D Perform System Repair	D-1 Review troubleshooting results	D-2 Complete system disassembly	D-3 Complete system inspection	D-4 Identify required resources (e.g. personnel, parts and items)	D-5 Receive repair parts
E Conduct Operational Testing	E-1 Review system TWD	E-2 Conduct visual inspections	E-3 Establish safety boundaries	E-4 Coordinate system startup	E-5 Determine go/no-go system status
F Certify System Integrity	F-1 Perform certification test	F-2 Document test completion	F-3 Obtain customer acceptance	F-4 Manage surplus material	F-5 Complete pertinent documents
G Pursue Professional Development	G-1 Train on job-specific system	G-2 Obtain system specific certification(s)	G-3 Maintain security clearance	G-4 Participate in leadership development	G-5 Maintain job-specific qualifications

A-6 Develop work plan	A-7 Verify job-specific qualifications	A-8 Verify job-specific certification(s)				
B-6 Outline diagnostic results						
C-6 Disseminate troubleshooting results						
D-6 Install repair parts	D-7 Perform safety data sheet (SDS) requirements	D-8 Restore system to operational status				
E-6 Restore system operations	E-7 Monitor system operations	E-8 Confer current job status				
F-6 Compile lessons learned document	F-7 Distribute lessons learned document					
G-6 Participate in required evaluations	G-7 Implement technology changes	G-8 Develop job proficiency	G-9 Develop system knowledge			

General Knowledge and Skills

Ability to measure
Ability to read blueprints & schematics
Ability to read digital & analog monitors
Ability to read plans
Ability to read wiring diagrams
Ability to use electrical test equipment
AC/DC theory
Acute mechanical aptitude
Advanced math
Analytical skills
Barriers & signs
Basic construction math skills
Basic electrical theory (solid state, motors & controllers, digital, PLC, AC/DC)
Climbing
Communication
Computer skills
Conflict resolution skills
Critical thinking skills
Distinguish colors
Environmental regulations
Evacuation procedures
Fall prevention and protection
Fastener identifications
Fire prevention
Flange makeup
General ship construction
GHS (e.g. Labeling chemicals & chemical hazards)
High school diploma or GED
Hydraulic pneumatic skills
Hydrostatic testing
Hytorque
IEEE standards
Instrumentation
Interpretation
Language
Leadership
Lock out/tag out procedures
Metal types
Naval terminology
NAVSEA standards
New technology
NFPA 70E
Organizational skills
OSHA regulations
Physics
Ethical
Precision measuring
Problem solving
Proper body mechanics
Pump alignment
Radiological control basics
Reading skills
Reasoning
Refrigeration cycle
Renewable energy
Safety knowledge
Safety procedures
Security
Ship systems (e.g. communication, propulsion, & navigation)
Soldering skills
Strength of materials
Test equipment & procedures
Time management skills
Trade tool knowledge
Troubleshooting
Types of cables
Types of controllers
Valve identification
Writing skills

Worker Behaviors

Accurate
Adaptable
Analytical
Approachable
Compliant
Confident
Conscientious
Decisive
Detail oriented
Determined
Flexible
Goal oriented
Good communicator
Good listener
Good personal hygiene
Good values
Good work ethics
Handy
Hard worker
Has common sense
Has stamina
Honest
Humble
Interpersonal
Knowledgeable

Multi-tasker
Not fearful of heights
Objective
Observant
Open minded
Organized
Patient
Quality leadership
Reliable
Resourceful
Thinker
Thorough
Tolerant
Trainable
Uses self-control
Versatile
Vision

Worker Behaviors (*cont'd*)

Persistent
Personable
Physically able
Polite
Positive attitude
Presentable
Productive
Professional
Proud
Respect for electricity
Safety conscious
Security clearance
Self-disciplined
Self-motivated
Sense of humor
Tactful
Takes initiative
Team player
Technology literate
Thick-skinned

Tools, Equipment, Supplies and Materials

Basic electrical tools
Basic mechanical tools
C-clamps
Duct tape
Electrical tape
Electronic tablet
Face shield
Flashlight
Framing square
Fuse pullers
Gloves
Hammer
Hand tools
Hard hat
Insulated tools
Knee pads
Knockouts
Ladder
Laptop
Level
Measuring tape
Screw starter
Shop vacuum
Sound powered phone
Tap and dye
Teflon tape
Tubing cutter
Writing instrument
Bore scope
Calipers
Cat 5 tester
Clamp amp
Coaxial tester
Crimpers
Drills
Extension cord
Fiber optic
Gauges
Grinder
Harness
High voltage
Hydraulic ram
Laser alignment
Megger
Micrometer
Multi-pin connector
Oscilloscope
Pulley/chain
Shortening probe
Solder
Stroboscope
Tik tester

Certifications/Competencies

Torque wrench
Various power tools
Veneers
Close tolerance fasteners
Compartmentation
Confined space
CPR/First aid
ESD qualification
Fiber
Fire watch
Gas free
Green card/U.S. Citizen
High voltage
Lock wire
NAVSEA standards
Respirator training
Security clearance
Soldering 12M
SUBINDOC
SUBSAFE

Concerns

Barriers/signs
Certifications
Changing technology
Computer systems
Crane safety
EPA
Evacuation routes
Fire hazards
HAZMAT
Housekeeping
Medical condition
Nuclear
OSHA 74-15
Overhead safety
Pressurized tanks
Proper lighting
RADCON
Safety
Ship schedule
Surrounding jobs
Time management
Ventilation
Weather

AC/DC – Alternative current/direct current
CPR – Cardiopulmonary resuscitation
EPA – Environmental Protection Agency
ESD – Electro static discharge
GED – General education diploma
GHS– Globally harmonized system
HAZMAT – Hazardous materials
IEEE – Institute of Electrical and Electronics Engineering
NAVSEA – Naval Sea Systems
NFPA – National Fire Protection Agency
OSHA – Occupational Safety and Health Administration
PLC – Programmable logic mode
PPE – Personal protection equipment
RADCON – Radiation control
SDS – Safety data sheets
SUBINDOC – Submarine indoctrination
SUBSAFE – Submarine safety
TWD – Technical work document
U.S. – United States

Acronyms