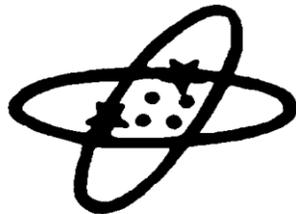


CHAPTER 32



ELECTRONICS TECHNICIAN (ET)

NAVPERS 18068-32G

CH-66

Updated: October 2016

TABLE OF CONTENTS
ELECTRONICS TECHNICIAN, SUBMARINE, NAVIGATION (ETV)

SCOPE OF RATING	ETV-3
GENERAL INFORMATION	ETV-4
SUBMARINE NAVIGATION OPERATOR	ETV-5
ADMINISTRATION	ETV-5
CHART PREPARATIONS	ETV-6
COMMUNICATIONS AND ALARM SYSTEMS	ETV-6
ELECTRONIC NAVIGATION SYSTEMS	ETV-7
GENERAL ELECTRICAL SYSTEMS	ETV-8
MISCELLANEOUS	ETV-9
NAVIGATION AND PILOTING	ETV-9
POWER GENERATION AND DISTRIBUTION SYSTEMS	ETV-10
SHIP CONTROL SYSTEMS	ETV-10
SUBMARINE NAVIGATION TECHNICIAN	ETV-11
ADMINISTRATION	ETV-11
CHART PREPARATIONS	ETV-12
COMMUNICATIONS AND ALARM SYSTEMS	ETV-12
ELECTRONIC NAVIGATION SYSTEMS	ETV-13
GENERAL ELECTRICAL SYSTEMS	ETV-14
MISCELLANEOUS	ETV-15
NAVIGATION AND PILOTING	ETV-16
POWER GENERATION AND DISTRIBUTION SYSTEMS	ETV-16
SHIP CONTROL SYSTEMS	ETV-17
SUBMARINE NAVIGATION MANAGER	ETV-18
ADMINISTRATION	ETV-18
CHART PREPARATIONS	ETV-19
ELECTRONIC NAVIGATION SYSTEMS	ETV-19
MISCELLANEOUS	ETV-20
NAVIGATION AND PILOTING	ETV-20

NAVY ENLISTED OCCUPATIONAL STANDARD
FOR
ELECTRONICS TECHNICIAN, SUBMARINE, NAVIGATION (ETV)



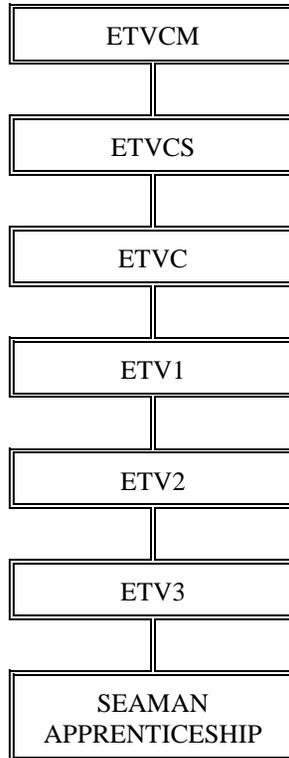
SCOPE OF RATING

Electronics Technicians, Submarine, Navigation (ETV) operate and perform maintenance on electronic equipment used for detection, tracking, recognition, and identification of maritime vessels and navigational aids; operate and perform maintenance on Interior Communications (IC), alarms, warnings and indicators, ship's control, entertainment, atmosphere control, instrumentation, and control systems; operate and maintain radar, gyrocompass, inertial navigation, and auxiliary equipment used to safely and accurately navigate all classes of submarines; maintain highly accurate navigation data for use by external systems and subsystems; develop and execute navigation plans; perform ship control, navigation, and lookout duties; procure, correct, use, and stow navigation publications and charts; and stand watch as assistants to officers of the deck and navigators.

This Occupational Standard is to be incorporated in Volume I, Part B, of the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F) as Chapter 32.

GENERAL INFORMATION

CAREER PATTERN



Normal path of advancement to Chief Warrant Officer and Limited Duty Officer categories can be found in OPNAVINST 1420.1.

For rating entry requirements, refer to MILPERSMAN 1306-618.

SAFETY

The observance of Operational Risk Management (ORM) and proper safety precautions in all areas is an integral part of each billet and the responsibility of every Sailor; therefore, it is a universal requirement for all ratings.

Job Title**Submarine Navigation Operator****Job Code****001182****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

SUBMARINE NAVIGATION OPERATOR

Short Title (14 Characters)

SUB NAV OPER

Pay Plan

Enlisted

Career Field

ETV

Other Relationships and Rules

NECs may include 14NO, 14XO, 14GM, 14XM, 14NM, 14NP, and 14TK

Job Description

Submarine Navigation Operators operate electronic equipment used for detection, tracking, recognition and identification of maritime vessels and aids to navigation; operate and perform basic preventive maintenance on radar systems, Interior Communications (IC) circuits, fathometers, Voyage Management Systems (VMS), alarm systems, ship's control stations, entertainment systems, gyrocompasses, Central Atmosphere Monitoring Systems (CAMS), liquid level detection and tank level indication circuits, flowmeters, pressure and temperature sensing circuits, valve position indicators, hovering systems, depth control systems, and missile compensation systems; procure, inventory, update, and correct navigation charts and publications, prepare navigation voyage plans, paper and electronic charts, and maintain navigation logs and records; and stand navigation-related watches and advise and make reports to the Officer of the Deck (OOD) on Navigation Rules and Regulations, navigation plans, and other navigation matters. Submarine Navigation Operators usually work under the Supervision of a Submarine Navigation Technician or Submarine Navigation Manager.

DoD Relationship**Group Title**

Navigation, Communication, and Countermeasure, N.E.C

DoD Code

110200

O*NET Relationship**Occupation Title**

Electrical and Electronics Repairers, Commercial and Industrial Equipment

SOC Code

49-2094.00

Job Family

Installation, Maintenance, and Repair

Skills*Equipment Maintenance**Management of Material Resources**Critical Thinking**Mathematics**Quality Control Analysis**Operation and Control**Systems Analysis**Operation Monitoring**Complex Problem Solving**Systems Evaluation***Abilities***Deductive Reasoning**Problem Sensitivity**Written Comprehension**Extent Flexibility**Mathematical Reasoning**Information Ordering**Selective Attention**Inductive Reasoning**Number Facility**Finger Dexterity***ADMINISTRATION****Paygrade**

E4

Task Type

CORE

Task Statements

Compute celestial event times (e.g. sunrise/sunset, moonrise/moonset, high/low tides, etc.)

E4

CORE

Maintain navigation messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)

E4

CORE

Maintain navigation records (e.g. deck logs, bearing logs, position logs, etc.)

E5

CORE

Prepare navigational information data packages

E5

CORE

Update Strategic Weapons System (SWS) special publications

CHART PREPARATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Calculate turn information (e.g. slide bar, turn bearing, turn range, etc.)
E4	CORE	Correct nautical charts
E5	CORE	Create parameters for Commanding Officers Safe Operating Envelope (COSOE) (e.g. cross track error, red/yellow sounding, maximum operating depth, etc.)
E4	CORE	Establish voyage plans (e.g. Plan of Intended Movement (PIM), departure/arrival, Speed of Advance (SOA), etc.)
E5	CORE	Extract required information from navigation publications
E5	CORE	Maintain navigation chart and publication allowances (e.g. inventory, order, update, etc.)
E4	CORE	Plot anchorages
E4	CORE	Plot arc of visibility of lights
E4	CORE	Plot moving havens
E4	CORE	Plot navigational hazards (e.g. danger ranges, danger bearings, shoal water, etc.)
E5	CORE	Prepare charts for navigation (e.g. voyage plan checklists, piloting checklists)
E4	CORE	Report aids to navigation (e.g. buoy systems, natural or man-made navigation aids, navigation lights, etc.)
E5	CORE	Select required charts for proposed transits
E5	NON-CORE	Update intelligence plots

COMMUNICATIONS AND ALARM SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Adjust alarm switchboards
E4	CORE	Adjust amplified communication systems
E4	CORE	Align sound-powered telephone distribution matrices
E4	CORE	Clean alarm switchboards
E4	CORE	Clean amplified communication systems
E4	CORE	Clean liquid level alarm sensing devices
E4	CORE	Clean pressure alarm sensing devices
E4	CORE	Clean shore telephone systems
E4	CORE	Clean sound-powered telephone systems
E4	CORE	Derig shore telephone lines
E4	CORE	Inspect alarm switchboards
E4	CORE	Inspect amplified communication systems
E4	CORE	Inspect liquid level alarm sensing devices
E4	CORE	Inspect pressure alarm sensing devices
E4	CORE	Inspect shore telephone systems
E4	CORE	Inspect sound-powered telephone systems
E4	CORE	Install Portable Ship Control Units (PSCU)
E4	CORE	Remove Portable Ship Control Units (PSCU)

COMMUNICATIONS AND ALARM SYSTEMS (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Repair amplified communication system components (e.g. loud speakers, microphones, amplifiers, etc.)
E4	CORE	Repair shore telephone systems
E4	CORE	Repair sound-powered telephone systems
E4	CORE	Replace amplified communication system components
E4	CORE	Rig shore telephone lines
E4	CORE	Test alarm switchboards
E4	CORE	Test amplified communications system components (e.g. microphones, loudspeakers, intercommunicating stations, etc.)
E4	CORE	Test liquid level alarm sensing devices
E5	CORE	Test pressure alarm sensing devices
E5	CORE	Troubleshoot amplified communication systems components (e.g. microphones, loudspeakers, intercommunicating stations, etc.)
E4	CORE	Troubleshoot sound-powered telephone systems

ELECTRONIC NAVIGATION SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Calibrate Electromagnetic (EM) log indicator transmitters
E4	CORE	Clean Electromagnetic (EM) log indicator transmitters
E4	CORE	Clean gyrocompass systems
E4	CORE	Clean Inertial Navigation Systems (INS) and subsystems (e.g. Navigation Workstations (NWS), Navigation Sonar Systems (NSS), Inertial Navigation System (INS) consoles, etc.)
E4	CORE	Clean radar systems
E4	NON-CORE	Clean rodmeters
E4	CORE	Clean synchro signal amplifiers
E4	CORE	Clean Voyage Management System (VMS) components
E5	CORE	Configure navigation subsystem equipment software
E4	CORE	Establish Inertial Navigation Systems (INS) and subsystems required operating condition (e.g. startup, shut down, navigate, etc.)
E4	CORE	Establish required radar operating condition (e.g. startup, shut down, etc.)
E4	CORE	Establish required Voyage Management Systems (VMS) operating condition (e.g. start up, shutdown, etc.)
E5	CORE	Input navigation and voyage plans into the Voyage Management System (VMS)
E5	CORE	Inspect Electromagnetic (EM) log indicator transmitters
E4	CORE	Inspect gyrocompass systems
E4	CORE	Inspect Inertial Navigation Systems (INS) and subsystems (e.g. Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) consoles, Navigation Workstations (NWS), etc.)
E4	NON-CORE	Inspect rodmeters

ELECTRONIC NAVIGATION SYSTEMS (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Inspect Voyage Management System (VMS) components
E4	CORE	Interpret fathometer displays
E5	CORE	Interpret Inertial Navigation System (INS) data
E4	CORE	Interpret radar displays
E4	CORE	Obtain sounding data using fathometers

GENERAL ELECTRICAL SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Adjust Central Atmosphere Monitoring System (CAMS) equipment
E5	CORE	Adjust mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E4	CORE	Calibrate Central Atmosphere Monitoring System (CAMS) equipment
E4	NON-CORE	Clean aldis lamps
E4	CORE	Clean Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Clean flow meter systems
E4	CORE	Clean mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E4	CORE	Clean pressure sensing devices
E4	CORE	Clean ship's entertainment systems
E4	CORE	Clean synchro repeaters
E4	CORE	Clean Tank Level Indicator (TLI) systems
E4	CORE	Clean valve control system components
E4	CORE	Clean valve position indicating system components
E4	NON-CORE	Inspect aldis lamps
E4	CORE	Inspect Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Inspect flowmeter systems
E4	CORE	Inspect mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E4	CORE	Inspect pressure sensing devices
E4	NON-CORE	Inspect ship's entertainment systems
E4	CORE	Inspect Tank Level Indicator (TLI) systems
E4	NON-CORE	Inspect temperature monitoring systems
E4	CORE	Inspect valve control system components
E4	CORE	Inspect valve position indicating system components
E4	CORE	Maintain ship's entertainment systems
E4	CORE	Replace navigation lights
E4	CORE	Shutdown Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Startup Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Test ship's entertainment systems

MISCELLANEOUS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E6	NON-CORE	Decode signals using Allied Tactical Publications (ATP)
E6	NON-CORE	Encode signals using Allied Tactical Publications (ATP)
E4	CORE	Maintain chronometers
E4	NON-CORE	Maintain entertainment media inventories
E4	CORE	Rig bridge (e.g. dive, surface, in port, etc.)
E4	NON-CORE	Supervise colors

NAVIGATION AND PILOTING

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Advise Officer of the Deck (OOD) of chain scope required for anchoring
E5	NON-CORE	Advise Officer of the Deck (OOD) of ocean depth and bottom (e.g. while at anchor, during piloting, submerged operations, etc.)
E4	CORE	Calculate environmental effects on ship's movements (e.g. wind, tide, set and drift, etc.)
E4	CORE	Calculate gyrocompass error
E4	CORE	Compare fathometer readings with charts
E4	CORE	Compute advance and transfer
E4	CORE	Compute azimuths
E4	CORE	Compute course and speed made good
E4	CORE	Compute position uncertainty
E5	CORE	Compute radar and visual offset
E5	NON-CORE	Conduct strike group operations
E4	CORE	Convert between Greenwich Mean Time (GMT) and Zone Time (ZT)
E4	CORE	Convert between relative bearings and true bearings
E4	CORE	Correlate speed, time, and distance
E6	CORE	Extract required information from Naval messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)
E4	CORE	Fix ship's position (e.g. bearing and range to single point, latitude/longitude, multiple soundings, etc.)
E4	NON-CORE	Identify reduced visibility situations
E4	NON-CORE	Identify signal flags and pennant displays
E4	CORE	Interpret navigation sound signals (e.g. bell, gong, whistle, etc.)
E4	NON-CORE	Monitor Very High Frequency (VHF) equipment while on surface
E4	CORE	Obtain visual bearings (e.g. alidade, periscope, seaman's eye, etc.)
E4	CORE	Plot ship's position
E4	CORE	Plot weather message information
E4	CORE	Provide courses for ship's positioning (e.g. precision anchoring, storm evasion, contact management, etc.)

NAVIGATION AND PILOTING (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Provide recommended actions based on Navigation Rules and Regulations
E4	NON-CORE	Report distress signals (e.g. flares, whistles, flags/pennants, etc.)

POWER GENERATION AND DISTRIBUTION SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Align Action Cut-Out (ACO) switchboards
E4	CORE	Align Interior Communications (IC) switchboards
E4	CORE	Clean Action Cut-Out (ACO) switchboards
E4	CORE	Clean Interior Communications (IC) switchboards
E4	CORE	Inspect Action Cut-Out (ACO) switchboard components
E4	CORE	Inspect Interior Communications (IC) switchboards
E4	CORE	Shift power sources using bus transfer devices (e.g. Automatic, Manual, etc.)

SHIP CONTROL SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Clean Ballast Control Panels (BCP)
E4	CORE	Clean depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E4	CORE	Clean depth sensing systems
E4	CORE	Clean Ship's Control Panels (SCP)
E4	CORE	Clean ship's control system components (e.g. Position Control Units (PCU), feedback transmitters, display screens, etc.)
E4	CORE	Inspect depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)

Job Title**Submarine Navigation Technician****Job Code****001187****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

SUBMARINE NAVIGATION TEC

Short Title (14 Characters)

SUB NAV TECH

Pay Plan

Enlisted

Career Field

ETV

Other Relationships and Rules

NECs may include 14NO, 14XO, 14GM, 14XM, 14NM, 14NP, and 14TK

Job Description

Submarine Navigation Technicians maintain, troubleshoot, and repair electronic equipment used for detection, tracking, recognition, and identification of maritime vessels; operate and maintain radar systems, Interior Communications (IC) circuits, Voyage Management Systems (VMS), alarm systems, ship's control stations, entertainment systems, gyrocompasses, Central Atmosphere Monitoring Systems (CAMS), liquid level detection and tank level indication circuits, flowmeters, pressure and temperature sensing circuits, valve position indicators, hovering systems, depth control systems, and missile compensation systems; read and interpret schematics and block diagrams; apply general working knowledge of electricity and electronics to repair equipment and interfacing devices; localize malfunctions and repair or replace faulty parts or subassemblies; align, adjust, calibrate, and perform corrective maintenance on navigation equipment; and supervise maintenance, draft naval messages, develop navigation divisional watch bills, maintain navigation division records. Submarine Navigation Technicians work independent and train Submarine Navigation Operators.

DoD Relationship**Group Title**

Navigation, Communication, and Countermeasure, N.E.C

DoD Code

110200

O*NET Relationship**Occupation Title**

Electrical and Electronics Repairers, Commercial and Industrial Equipment

SOC Code

49-2094.00

Job Family

Installation, Maintenance, and Repair

Skills

Troubleshooting
Equipment Maintenance
Complex Problem Solving
Systems Analysis
Operation and Control
Critical Thinking
Repairing
Quality Control Analysis
Operation Monitoring
Systems Evaluation

Abilities

Deductive Reasoning
Problem Sensitivity
Inductive Reasoning
Selective Attention
Multi-limb Coordination
Finger Dexterity
Written Comprehension
Mathematical Reasoning
Information Ordering
Manual Dexterity

ADMINISTRATION**Paygrade****Task Type****Task Statements**

E5	NON-CORE	Create Quality Assurance (QA) packages
E4	NON-CORE	Interpret schematic diagrams
E4	CORE	Maintain navigation messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)
E5	CORE	Prepare navigational information data packages
E5	CORE	Prepare piloting and operations briefs
E6	CORE	Verify schematics

CHART PREPARATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Correct nautical charts
E5	CORE	Create parameters for Commanding Officers Safe Operating Envelope (COSOE) (e.g. cross track error, red/yellow sounding, maximum operating depth, etc.)
E5	CORE	Extract required information from navigation publications
E5	CORE	Maintain navigation chart and publication allowances (e.g. inventory, order, update, etc.)
E4	CORE	Plot moving havens

COMMUNICATIONS AND ALARM SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Adjust alarm switchboards
E4	CORE	Adjust amplified communication systems
E4	CORE	Clean pressure alarm sensing devices
E4	CORE	Clean shore telephone systems
E4	CORE	Derig shore telephone lines
E4	CORE	Inspect alarm switchboards
E4	CORE	Inspect amplified communication systems
E4	CORE	Inspect liquid level alarm sensing devices
E4	CORE	Inspect pressure alarm sensing devices
E4	CORE	Inspect shore telephone systems
E4	CORE	Inspect sound-powered telephone systems
E4	CORE	Install Portable Ship Control Units (PSCU)
E5	NON-CORE	Program shore telephone systems
E4	CORE	Remove Portable Ship Control Units (PSCU)
E5	CORE	Repair alarm switchboards
E5	CORE	Repair amplified communication system components (e.g. loud speakers, microphones, amplifiers, etc.)
E4	CORE	Repair liquid level alarm sensing devices
E5	CORE	Repair pressure alarm sensing devices
E4	CORE	Repair shore telephone systems
E4	CORE	Repair sound-powered telephone systems
E4	CORE	Replace amplified communication system components
E4	CORE	Test alarm switchboards
E4	CORE	Test amplified communications system components (e.g. microphones, loudspeakers, intercommunicating stations, etc.)
E4	CORE	Test liquid level alarm sensing devices
E5	CORE	Test pressure alarm sensing devices
E5	CORE	Troubleshoot alarm switchboards

COMMUNICATIONS AND ALARM SYSTEMS (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Troubleshoot amplified communication systems components (e.g. microphones, loudspeakers, intercommunicating stations, etc.)
E5	CORE	Troubleshoot Portable Ship Control Units (PSCU)
E5	NON-CORE	Troubleshoot pressure alarm sensing devices
E4	CORE	Troubleshoot shore telephone systems
E4	CORE	Troubleshoot sound-powered telephone systems

ELECTRONIC NAVIGATION SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Adjust Inertial Navigation Systems (INS) and subsystems (e.g. Global Positioning Systems (GPS), Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) Consoles, etc.)
E5	CORE	Adjust synchro signal amplifiers
E5	CORE	Calibrate Electromagnetic (EM) log indicator transmitters
E4	CORE	Calibrate gyrocompass systems
E5	CORE	Calibrate Inertial Navigation Systems (INS) and subsystems (e.g. Internal Frequency Standards (IFS), Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) Consoles, etc.)
E4	CORE	Clean Electromagnetic (EM) log indicator transmitters
E4	CORE	Clean synchro signal amplifiers
E4	CORE	Clean Voyage Management System (VMS) components
E5	CORE	Configure navigation subsystem equipment software
E4	CORE	Establish Inertial Navigation Systems (INS) and subsystems required operating condition (e.g. startup, shut down, navigate, etc.)
E4	CORE	Establish required radar operating condition (e.g. startup, shut down, etc.)
E4	CORE	Establish required Voyage Management Systems (VMS) operating condition (e.g. start up, shutdown, etc.)
E5	CORE	Evaluate Inertial Navigation Systems (INS) and subsystems performance (e.g. Global Positioning Systems (GPS), Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) Consoles, etc.)
E5	CORE	Input navigation and voyage plans into the Voyage Management System (VMS)
E5	CORE	Inspect Electromagnetic (EM) log indicator transmitters
E4	CORE	Inspect gyrocompass systems
E4	CORE	Inspect Inertial Navigation Systems (INS) and subsystems (e.g. Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) consoles, Navigation Workstations (NWS), etc.)
E4	CORE	Inspect radar system components
E4	NON-CORE	Inspect rodmeters
E5	CORE	Inspect synchro signal amplifiers
E4	CORE	Inspect Voyage Management System (VMS) components
E4	CORE	Interpret fathometer displays

ELECTRONIC NAVIGATION SYSTEMS (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Interpret Inertial Navigation System (INS) data
E4	CORE	Interpret radar displays
E4	CORE	Obtain sounding data using fathometers
E5	CORE	Repair Inertial Navigation Systems (INS) and subsystems (e.g. Navigation Workstations (NWS), Navigation Sonar Systems (NSS), Inertial Navigation System (INS) consoles, etc.)
E5	CORE	Replace Electromagnetic (EM) log indicator transmitter components
E5	CORE	Replace radar system components
E5	CORE	Replace Voyage Management System (VMS) components (e.g. drives, screens, peripheral devices, etc.)
E5	CORE	Troubleshoot Electromagnetic (EM) log indicator transmitters and rod meters
E5	CORE	Troubleshoot gyrocompass systems
E5	CORE	Troubleshoot Inertial Navigation Systems (INS) and subsystems (e.g. Navigation Workstations (NWS), Navigation Sonar Systems (NSS), Inertial Navigation System (INS) consoles, etc.)
E5	CORE	Troubleshoot radar system components
E5	CORE	Troubleshoot synchro signal amplifiers
E5	CORE	Troubleshoot Voyage Management Systems (VMS)

GENERAL ELECTRICAL SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Adjust Central Atmosphere Monitoring System (CAMS) equipment
E5	NON-CORE	Adjust data transmission systems
E5	CORE	Adjust mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E5	CORE	Adjust synchro repeater system components
E4	CORE	Adjust valve control system components
E5	CORE	Adjust valve position indicating system components
E4	CORE	Calibrate Central Atmosphere Monitoring System (CAMS) equipment
E5	NON-CORE	Calibrate pressure sensing devices
E5	NON-CORE	Calibrate temperature monitoring systems
E4	CORE	Clean Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Clean pressure sensing devices
E4	CORE	Inspect Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Inspect flowmeter systems
E4	CORE	Inspect mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E4	CORE	Inspect pressure sensing devices
E5	CORE	Inspect synchro repeaters
E4	CORE	Inspect Tank Level Indicator (TLI) systems

GENERAL ELECTRICAL SYSTEMS (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	NON-CORE	Inspect temperature monitoring systems
E4	CORE	Inspect valve control system components
E4	CORE	Inspect valve position indicating system components
E4	CORE	Maintain ship's entertainment systems
E5	CORE	Repair flowmeter systems
E5	CORE	Repair pressure sensing devices
E5	NON-CORE	Repair ship's entertainment systems
E5	CORE	Replace Central Atmosphere Monitoring System (CAMS) equipment components
E5	CORE	Replace mast position indicating system components
E4	CORE	Replace navigation lights
E4	CORE	Replace synchro repeater system components
E4	CORE	Replace valve control system components
E4	CORE	Replace valve position indicating system components
E4	CORE	Shutdown Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Startup Central Atmosphere Monitoring System (CAMS) equipment
E4	CORE	Test ship's entertainment systems
E5	CORE	Troubleshoot mast position indication system components (e.g. limit switches, position switches, proximity magnet switches, etc.)
E5	CORE	Troubleshoot Central Atmosphere Monitoring System (CAMS) equipment
E5	CORE	Troubleshoot flowmeter system components
E5	NON-CORE	Troubleshoot pressure sensing devices
E4	NON-CORE	Troubleshoot ship's entertainment systems
E5	CORE	Troubleshoot synchro repeaters
E5	CORE	Troubleshoot Tank Level Indicator (TLI) system components
E4	CORE	Troubleshoot valve control system components
E4	CORE	Troubleshoot valve position indication system components

MISCELLANEOUS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E6	NON-CORE	Decode signals using Allied Tactical Publications (ATP)
E6	NON-CORE	Encode signals using Allied Tactical Publications (ATP)
E4	CORE	Rig bridge (e.g. dive, surface, in port, etc.)
E4	NON-CORE	Supervise colors

NAVIGATION AND PILOTING

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Calculate environmental effects on ship's movements (e.g. wind, tide, set and drift, etc.)
E4	CORE	Compare fathometer readings with charts
E4	CORE	Compare gyrocompass and inertial headings
E4	CORE	Compute advance and transfer
E4	CORE	Compute azimuths
E4	CORE	Compute position uncertainty
E5	CORE	Compute radar and visual offset
E5	NON-CORE	Conduct strike group operations
E4	CORE	Convert between relative bearings and true bearings
E4	CORE	Correlate speed, time, and distance
E5	CORE	Evaluate radar information
E6	CORE	Extract required information from Naval messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)
E4	CORE	Fix ship's position (e.g. bearing and range to single point, latitude/longitude, multiple soundings, etc.)
E4	NON-CORE	Identify reduced visibility situations
E4	NON-CORE	Identify signal flags and pennant displays
E4	CORE	Interpret navigation sound signals (e.g. bell, gong, whistle, etc.)
E4	NON-CORE	Monitor Very High Frequency (VHF) equipment while on surface
E4	CORE	Plot weather message information
E4	CORE	Provide courses for ship's positioning (e.g. precision anchoring, storm evasion, contact management, etc.)

POWER GENERATION AND DISTRIBUTION SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Align Action Cut-Out (ACO) switchboards
E4	CORE	Inspect Action Cut-Out (ACO) switchboard components
E4	CORE	Inspect Interior Communications (IC) switchboards
E5	CORE	Repair Action Cut-Out (ACO) switchboards
E5	CORE	Repair Interior Communications (IC) switchboards
E5	CORE	Troubleshoot Action Cut-Out (ACO) switchboards
E5	CORE	Troubleshoot Interior Communications (IC) switchboards

SHIP CONTROL SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Adjust Ballast Control Panels (BCP)
E5	CORE	Adjust depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E5	CORE	Adjust depth sensing system components
E5	CORE	Adjust Ship's Control Panels (SCP)
E5	CORE	Adjust ship's control system components (e.g. planes angle transmitters, depth/course rate, Diagnostic and Maintenance Computer (DMAC), etc.)
E5	CORE	Calibrate depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E5	CORE	Calibrate depth sensing system components
E4	CORE	Inspect Ballast Control Panels (BCP)
E4	CORE	Inspect depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E4	CORE	Inspect depth sensing system components
E4	CORE	Inspect Ship's Control Panels (SCP)
E4	CORE	Inspect ship's control system components (e.g. planes angle transmitters, depth/course rate, Remote Interface Controllers (RIC), etc.)
E5	CORE	Remove depth sensing system components
E5	CORE	Repair Ballast Control Panels (BCP)
E5	CORE	Repair depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E5	CORE	Repair Ship's Control Panel (SCP) components (e.g. Engine Order Telegraph (EOT), Diving Officers Control Panel (DOCP), Diving Officers Indicator Panel (DOIP), etc.)
E5	CORE	Repair ships control system components (e.g. Position Control Units (PCU), feedback transmitters, auxiliary indications, etc.)
E5	CORE	Replace depth sensing system components
E4	CORE	Replace ship's angle indicator system components (e.g. planes indicators, depth/course rate, depth/course error, etc.)
E5	CORE	Troubleshoot Ballast Control Panels (BCP)
E5	CORE	Troubleshoot depth control systems (e.g. hovering, forward hovering, missile compensation, etc.)
E5	CORE	Troubleshoot depth sensing systems
E4	CORE	Troubleshoot ship's angle indicator systems
E5	CORE	Troubleshoot Ship's Control Panels (SCP)
E5	CORE	Troubleshoot ship's control system components (e.g. Position Control Units (PCU), feedback transmitters, auxiliary indications, etc.)

Job Title**Submarine Navigation Manager****Job Code****001192****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

SUBMARINE NAVIGATION MANAGER

Short Title (14 Characters)

SUB NAV MGR

Pay Plan

Enlisted

Career Field

ETV

Other Relationships and Rules

NECs may include 14GM, 14NM, 14NP, 14NV, 14TK, and 14XM

Job Description

Submarine Navigation Managers develop and assess navigation training, audit division records, coordinate division maintenance, and coordinate equipment modifications; review naval correspondence, develop watch bills, and develop shipboard navigation instructions; evaluate piloting team performance; monitor maintenance quality control; supervise the repair of electronic systems and subsystems; use accounting procedures to maintain control of inventories and work flow; estimate time and support required for repair of equipment; provide technical and supervisory liaison between work centers; oversee the inventory, updating, and correcting of navigation charts and publications; develop navigation plans and voyage plans based on assigned operational tasking; stand watch as assistants to officers of the deck and navigator; train and supervise the Submarine Navigation Operators and Submarine Navigation Technicians in the performance of their assigned tasks; and advise the Officer of the Deck (OOD), Navigator, and Commanding Officer regarding the Navigation Rules and Regulations, current operations, and navigation requirements. Submarine Navigation Managers are very senior Electronics Technicians with significant navigation experience.

DoD Relationship**Group Title**Navigation, Communication,
and Countermeasure, N.E.C**DoD Code**

110200

O*NET Relationship**Occupation Title**First-Line Supervisors/Managers of
Mechanics, Installers, and Repairers**SOC Code**

49-1011.00

Job FamilyInstallation, Maintenance,
and Repair**Skills***Critical Thinking**Mathematics**Complex Problem Solving**Judgment and Decision Making**Reading Comprehension**Coordination**Management of Personnel Resources**Monitoring**Speaking**Systems Evaluation***Abilities***Mathematical Reasoning**Deductive Reasoning**Inductive Reasoning**Problem Sensitivity**Written Comprehension**Information Ordering**Selective Attention**Number Facility**Written Expression**Oral Expression***ADMINISTRATION****Paygrade**

E7

Task Type

CORE

Task Statements

Analyze equipment service logs (e.g. Central Atmosphere Monitoring System (CAMS), Ring Laser Gyro Navigator (RLGN), Ship's Control Station (SCS), etc.)

E6

CORE

Audit navigation records (e.g. deck logs, Voyage Management System (VMS) logs, fathometer logs, etc.)

E7

NON-CORE

Audit Quality Assurance (QA) packages

E6

CORE

Brief navigation operations and piloting requirements

E7

CORE

Evaluate navigation exercises

E4

NON-CORE

Interpret schematic diagrams

E6

CORE

Manage navigation division maintenance programs

E6

CORE

Manage Preventive Maintenance Management Programs (PMMP)

E6

CORE

Manage team training programs (e.g. piloting, strategic navigation, Interior Communication (IC), etc.)

ADMINISTRATION (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E7	CORE	Plan operational missions (e.g. strategic patrols, coordinated operations, transits, etc.)
E6	CORE	Prepare local changes to navigation procedures (e.g. Standard Maintenance Procedures (SMP), Maintenance Requirements Cards (MRC), etc.)
E6	CORE	Prepare Naval messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)
E7	CORE	Prepare navigation exercises
E5	CORE	Prepare piloting and operations briefs
E6	NON-CORE	Review Quality Assurance (QA) packages
E5	NON-CORE	Supervise Quality Assurance (QA) testing procedures
E7	CORE	Verify local changes to navigation procedures (e.g. Standard Maintenance Procedures (SMP), Maintenance Requirements Cards (MRC), etc.)
E6	CORE	Verify schematics

CHART PREPARATIONS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Create parameters for Commanding Officers Safe Operating Envelope (COSOE) (e.g. cross track error, red/yellow sounding, maximum operating depth, etc.)
E4	CORE	Establish voyage plans (e.g. Plan of Intended Movement (PIM), departure/arrival, Speed of Advance (SOA), etc.)
E5	CORE	Extract required information from navigation publications
E5	CORE	Maintain navigation chart and publication allowances (e.g. inventory, order, update, etc.)
E4	CORE	Plot moving havens
E4	CORE	Plot navigational hazards (e.g. danger ranges, danger bearings, shoal water, etc.)
E6	CORE	Review navigation charts
E5	CORE	Select required charts for proposed transits

ELECTRONIC NAVIGATION SYSTEMS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Calibrate Inertial Navigation Systems (INS) and subsystems (e.g. Internal Frequency Standards (IFS), Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) Consoles, etc.)
E4	CORE	Establish required Voyage Management Systems (VMS) operating condition (e.g. start up, shutdown, etc.)
E5	CORE	Evaluate Inertial Navigation Systems (INS) and subsystems performance (e.g. Global Positioning Systems (GPS), Navigation Sonar Systems (NSS), Inertial Navigation Systems (INS) Consoles, etc.)
E4	CORE	Interpret fathometer displays
E5	CORE	Interpret Inertial Navigation System (INS) data
E5	CORE	Troubleshoot Voyage Management Systems (VMS)

MISCELLANEOUS

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E6	NON-CORE	Decode signals using Allied Tactical Publications (ATP)
E6	NON-CORE	Encode signals using Allied Tactical Publications (ATP)
E4	NON-CORE	Supervise colors

NAVIGATION AND PILOTING

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Advise Officer of the Deck (OOD) of chain scope required for anchoring
E5	NON-CORE	Advise Officer of the Deck (OOD) of ocean depth and bottom (e.g. while at anchor, during piloting, submerged operations, etc.)
E4	CORE	Calculate environmental effects on ship's movements (e.g. wind, tide, set and drift, etc.)
E4	CORE	Compare fathometer readings with charts
E4	CORE	Compare gyrocompass and inertial headings
E4	CORE	Compute advance and transfer
E4	CORE	Compute azimuths
E4	CORE	Compute position uncertainty
E5	CORE	Compute radar and visual offset
E5	NON-CORE	Conduct strike group operations
E4	CORE	Convert between relative bearings and true bearings
E4	CORE	Correlate speed, time, and distance
E6	CORE	Evaluate piloting team performance
E5	CORE	Evaluate radar information
E7	CORE	Evaluate ship's navigation and piloting information
E6	CORE	Extract required information from Naval messages (e.g. Operational Orders (OPORD), Operations Schedules (OPSKED), Submarine Notices (SUBNOTE), etc.)
E4	CORE	Fix ship's position (e.g. bearing and range to single point, latitude/longitude, multiple soundings, etc.)
E4	NON-CORE	Identify reduced visibility situations
E4	NON-CORE	Identify signal flags and pennant displays
E4	CORE	Interpret navigation sound signals (e.g. bell, gong, whistle, etc.)
E4	NON-CORE	Monitor Very High Frequency (VHF) equipment while on surface
E4	CORE	Obtain visual bearings (e.g. alidade, periscope, seaman's eye, etc.)
E4	CORE	Plot weather message information
E4	CORE	Provide courses for ship's positioning (e.g. precision anchoring, storm evasion, contact management, etc.)
E4	CORE	Provide recommended actions based on Navigation Rules and Regulations
E6	CORE	Supervise navigation teams