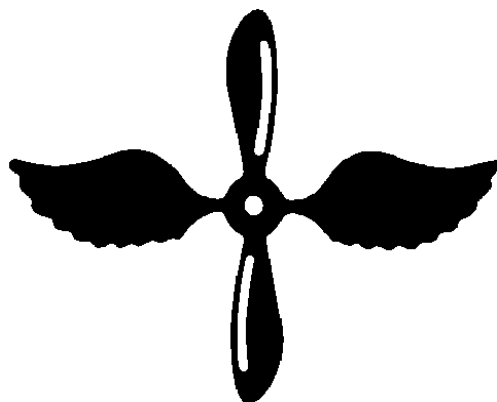


CHAPTER 3



AVIATION MACHINIST'S MATE (AD)

NAVPERS 18068F-3H
Change 90

Updated: April 2022

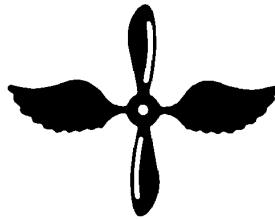
TABLE OF CONTENTS
AVIATION MACHINIST'S MATE (AD)

SCOPE OF RATING	AD-3
GENERAL INFORMATION	AD-4
AVIATION MACHINIST'S MATE ORGANIZATIONAL LEVEL	AD-5
AUXILIARY POWER SYSTEMS MAINTENANCE	AD-5
CORROSION CONTROL	AD-5
ENGINE SYSTEMS MAINTENANCE	AD-6
FUEL SYSTEMS MAINTENANCE	AD-7
HELICOPTER MAINTENANCE	AD-8
LINE MAINTENANCE	AD-8
MAINTENANCE ADMINISTRATION	AD-8
POWER PLANT MAINTENANCE	AD-9
PROPELLER SYSTEMS MAINTENANCE	AD-10
QUALITY ASSURANCE	AD-10
AVIATION MACHINIST'S MATE INTERMEDIATE LEVEL	AD-11
AUXILIARY POWER SYSTEMS MAINTENANCE	AD-11
CORROSION CONTROL	AD-11
ENGINE SYSTEMS MAINTENANCE	AD-12
FUEL SYSTEMS MAINTENANCE	AD-13
LINE MAINTENANCE	AD-13
MAINTENANCE ADMINISTRATION	AD-13
POWER PLANT MAINTENANCE	AD-14
PROPELLER SYSTEMS MAINTENANCE	AD-15
QUALITY ASSURANCE	AD-15

NAVY ENLISTED OCCUPATIONAL STANDARD

FOR

AVIATION MACHINIST'S MATE (AD)



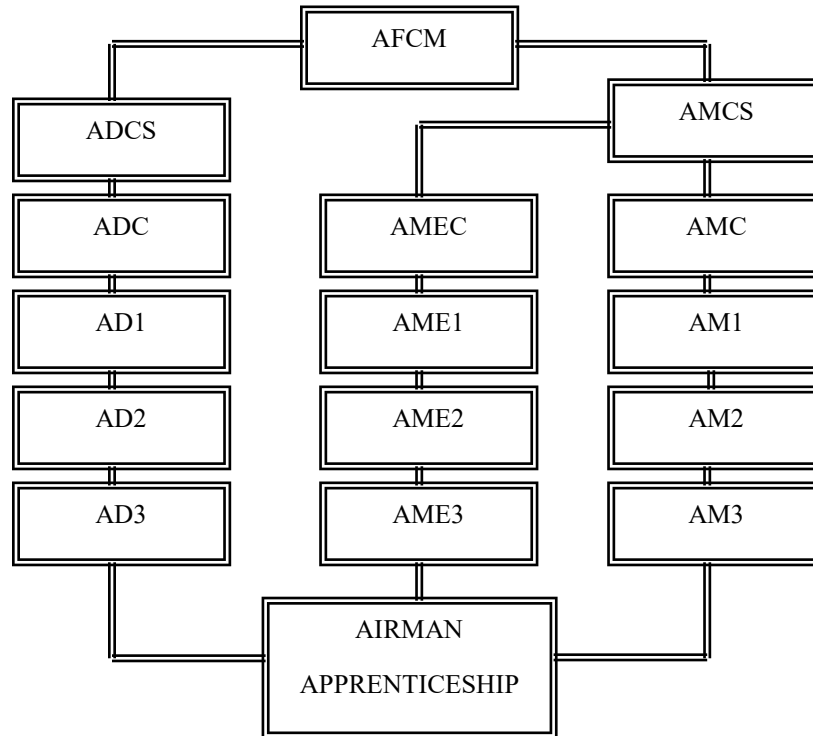
SCOPE OF RATING

Aviation Machinist's Mates (AD) maintain, inspect, troubleshoot, preserve, and de-preserve aircraft transmission systems, rotor systems, propeller systems, and engines, including fuel, lubrication, intake, compressor, combustion, turbine, exhaust, accessory gearbox, anti-ice, bleed air systems, etc.; conduct special and conditional inspections and oil analysis; perform functional checks and required adjustments on engines and related systems; and supervise and provide training to power plant work centers.

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 3.

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**Aviation Machinist Mate Organizational Level****Job Code****001362****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

AVIA MACHINIST MATE O-LEVEL

Short Title (14 Characters)

AVENG SYS O-LV

Pay Plan

Enlisted

Career Field

AD

Other Relationships and Rules

NEC EXXX series or other NECs as assigned

Job Description

Aviation Machinist's Mate Organization Level conduct scheduled and unscheduled maintenance including inspections, removal, installation, configuring, and troubleshooting aircraft engines, transmission, rotor, propeller, fuel, and lubrication systems to facilitate daily

DoD Relationship**O*NET Relationship****Group Title**

Aircraft Engines

DoD Code

160100

Occupation Title

Aircraft Mechanics and Service Technicians

SOC Code

49-3011.00

Job Family

Installation, Maintenance, and Repair

Skills*Quality Control Analysis**Equipment Selection**Repairing**Operation Monitoring**Systems Evaluation**Systems Analysis**Troubleshooting**Equipment Maintenance**Operation and Monitoring**Judgment and Decision Making***Abilities***Selective Attention**Manual Dexterity**Near Vision**Flexibility of Closure**Inductive Reasoning**Problem Sensitivity**Perceptual Speed**Rate Control**Visualization**Written Comprehension***AUXILIARY POWER SYSTEMS MAINTENANCE****Paygrade****Task Type****Task Statements**

E4

CORE

Inspect Auxiliary Power Plant (APP)

E5

CORE

Inspect Auxiliary Power Units (APU)

E4

CORE

Maintain Auxiliary Power Plant (APP)

E4

CORE

Maintain Auxiliary Power Unit (APU) systems

E4

CORE

Test Auxiliary Power Units (APU)

E4

CORE

Troubleshoot Auxiliary Power Plant (APP)

E4

CORE

Troubleshoot Auxiliary Power Units (APU)

CORROSION CONTROL**Paygrade****Task Type****Task Statements**

E4

CORE

Clean aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Conduct corrosion inspections

E4

CORE

De-preserve aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Inspect aircraft and aircraft components for corrosion

E4

CORE

Perform corrosion prevention procedures

E4

CORE

Perform emergency reclamations

E4

CORE

Preserve aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Treat power plant and related systems for corrosion

ENGINE SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Inspect combustion systems
E4	CORE	Inspect compressor systems
E5	CORE	Inspect engine anti-ice systems
E5	CORE	Inspect engine bleed air systems
E5	CORE	Inspect engine drive shafts
E5	CORE	Inspect engine exhaust systems
E5	CORE	Inspect engine ignition systems
E4	CORE	Inspect internal cold sections
E4	CORE	Inspect internal hot sections
E4	CORE	Inspect power plant air inlet system
E4	CORE	Inspect turbine modules
E4	CORE	Maintain combustion systems
E4	CORE	Maintain compressor systems
E4	CORE	Maintain engine anti-ice systems
E4	CORE	Maintain engine bleed air systems
E4	CORE	Maintain engine drive shafts
E4	CORE	Maintain engine exhaust systems
E4	CORE	Maintain engine ignition systems
E4	CORE	Maintain power plant air inlet system
E4	CORE	Maintain turbine modules
E4	CORE	Preserve combustion systems
E4	CORE	Preserve compressor systems
E4	CORE	Preserve engine drive shafts
E4	CORE	Preserve engine exhaust systems
E4	CORE	Preserve power plant air inlet system
E4	CORE	Preserve turbine modules
E4	CORE	Repair engine anti-ice systems
E4	CORE	Repair engine bleed air systems
E4	CORE	Repair engine exhaust systems
E4	CORE	Repair engine ignition systems
E4	CORE	Test combustion systems
E4	CORE	Test compressor systems
E4	CORE	Test engine anti-ice systems
E4	CORE	Test engine bleed air systems
E4	CORE	Test engine exhaust systems

ENGINE SYSTEMS MAINTENANCE (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Test engine ignition systems
E4	CORE	Test turbine modules
E4	CORE	Troubleshoot combustion systems
E4	CORE	Troubleshoot compressor systems
E4	CORE	Troubleshoot engine anti-ice systems
E4	CORE	Troubleshoot engine bleed air systems
E5	CORE	Troubleshoot engine drive shafts
E4	CORE	Troubleshoot engine exhaust systems
E4	CORE	Troubleshoot engine ignition systems
E4	CORE	Troubleshoot turbine modules

FUEL SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Inspect Aerial Refueling Stores (ARS)
E5	CORE	Inspect aircraft fuel systems
E5	CORE	Inspect engine fuel systems
E5	CORE	Inspect external fuel stores
E4	CORE	Maintain aircraft fuel systems
E4	CORE	Maintain engine fuel systems
E4	CORE	Maintain external fuel stores
E4	NON-CORE	Preserve Aerial Refueling Stores (ARS)
E4	CORE	Preserve aircraft fuel systems
E4	CORE	Preserve engine fuel systems
E4	CORE	Preserve external fuel stores
E4	NON-CORE	Repair Aerial Refueling Stores (ARS)
E4	CORE	Repair engine fuel systems
E4	CORE	Repair external fuel stores
E4	NON-CORE	Test Aerial Refueling Stores (ARS)
E4	CORE	Test aircraft fuel systems
E4	CORE	Test engine fuel systems
E4	CORE	Test external fuel stores
E4	NON-CORE	Troubleshoot Aerial Refueling Stores (ARS)
E4	CORE	Troubleshoot aircraft fuel systems
E4	CORE	Troubleshoot engine fuel systems
E4	CORE	Troubleshoot external fuel stores

HELICOPTER MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Calibrate aircraft rotor systems
E5	CORE	Inspect aircraft drive transmission systems
E4	CORE	Inspect aircraft rotor systems
E5	CORE	Inspect engine fire bottles
E4	CORE	Maintain aircraft drive transmission systems
E4	CORE	Maintain aircraft rotor systems
E4	CORE	Maintain engine fire bottles
E5	CORE	Perform helicopter vibration analysis
E4	CORE	Preserve aircraft drive transmission systems
E5	CORE	Repair aircraft rotor systems
E5	CORE	Test aircraft rotor systems
E4	CORE	Troubleshoot aircraft drive transmission systems
E4	CORE	Troubleshoot aircraft rotor systems

LINE MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Collect aircraft fuel samples
E4	CORE	Conduct daily inspections
E4	CORE	Conduct preoperational support equipment (SE) inspections
E4	CORE	Conduct turnaround inspections
E4	CORE	Perform oil servicing
E4	CORE	Review Automated Aircraft Discrepancy Books (AADB)

MAINTENANCE ADMINISTRATION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E7	CORE	Assign aircraft to missions
E7	CORE	Conduct flight crew briefs
E7	CORE	Conduct flight crew debriefs
E7	CORE	Conduct maintenance briefs
E4	CORE	Document maintenance actions
E7	CORE	Manage component cannibalization
E6	CORE	Manage scheduled maintenance
E6	CORE	Manage unscheduled maintenance
E7	CORE	Prepare aircraft status reports
E7	CORE	Prepare engine status reports
E7	CORE	Release aircraft safe for flight
E7	CORE	Schedule aircraft inspections
E7	CORE	Schedule aircraft maintenance

POWER PLANT MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Collect oil samples for analysis
E5	CORE	Conduct aircraft maintenance turns
E5	CORE	Inspect accessory gearbox assemblies
E5	CORE	Inspect Aircraft Mounted Accessory Drive (AMAD) assemblies
E5	CORE	Inspect drive shafts
E5	CORE	Inspect engine control systems
E5	CORE	Inspect engine starting systems
E5	CORE	Inspect Gas Turbine Compressor (GTC) assemblies
E5	CORE	Inspect Generator Converter Units (GCU)
E5	CORE	Inspect oil systems
E5	CORE	Inspect Quick Engine Change (QEC) assemblies
E4	CORE	Maintain accessory gearbox assemblies
E4	CORE	Maintain Aircraft Mounted Accessory Drive (AMAD) assemblies
E4	CORE	Maintain drive shafts
E4	CORE	Maintain engine control systems
E4	CORE	Maintain engine starting systems
E4	CORE	Maintain Gas Turbine Compressor (GTC) assemblies
E4	NON-CORE	Maintain Generator Converter Units (GCU)
E4	CORE	Maintain oil analysis sampling equipment
E4	CORE	Maintain oil systems
E4	CORE	Maintain Quick Engine Change (QEC) assemblies
E4	CORE	Perform engine wash
E4	CORE	Preserve oil systems
E4	CORE	Preserve Quick Engine Change (QEC) assemblies
E4	CORE	Repair oil systems
E4	CORE	Replace Aircraft Mounted Accessory Drive (AMAD) assemblies
E4	CORE	Replace drive shafts
E4	CORE	Replace engine control system components
E4	CORE	Replace Generator Converter Units (GCU)
E4	CORE	Replace Quick Engine Change (QEC) assemblies
E4	CORE	Test engine control systems
E4	CORE	Test engine starting systems
E4	CORE	Troubleshoot drive shafts
E4	CORE	Troubleshoot engine control systems
E4	CORE	Troubleshoot engine starting systems

POWER PLANT MAINTENANCE (CONT'D)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Troubleshoot Generator Converter Units (GCU)
E4	CORE	Troubleshoot oil systems
E4	CORE	Troubleshoot Quick Engine Change (QEC) assemblies

PROPELLER SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Inspect aircraft propeller components
E5	CORE	Inspect aircraft propeller systems
E5	CORE	Inspect reduction gearbox systems
E5	CORE	Inspect torque meter assemblies
E4	CORE	Maintain aircraft propeller systems
E4	CORE	Maintain reduction gearbox systems
E4	CORE	Maintain torque meter assemblies
E5	CORE	Perform propeller vibration analysis
E4	CORE	Repair aircraft propeller systems
E4	CORE	Repair reduction gearbox systems
E4	CORE	Repair torque meter assemblies
E4	CORE	Troubleshoot propeller systems
E4	CORE	Troubleshoot reduction gearbox systems
E4	CORE	Troubleshoot torque meter assemblies

QUALITY ASSURANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Conduct aircraft acceptance inspections
E5	CORE	Conduct aircraft conditional inspections
E5	CORE	Conduct aircraft special inspections
E5	CORE	Conduct aircraft transfer inspections
E5	CORE	Conduct Collateral Duty Inspector (CDI) inspections
E5	CORE	Conduct Collateral Duty Quality Assurance Representative (CDQAR) inspections
E5	CORE	Conduct engine acceptance inspections
E5	CORE	Conduct engine conditional inspections
E6	CORE	Conduct gas free inspections
E6	CORE	Conduct phase inspections
E6	CORE	Conduct Quality Assurance (QA) inspections
E5	CORE	Conduct special engine inspections
E5	CORE	Conduct support equipment (SE) inspections
E5	CORE	Conduct transfer inspections
E5	CORE	Incorporate Technical Directives (TD)
E6	CORE	Manage Naval Aviation Maintenance Programs (NAMP)
E6	CORE	Monitor Naval Aviation Maintenance Programs (NAMP)
E5	CORE	Perform engine control rigging

Job Title**Aviation Machinist Mate Intermediate Level****Job Code****001417****Job Family**

Installation, Maintenance, and Repair

NOC

TBD

Short Title (30 Characters)

AVIA MACHINIST MATE I-LEVEL

Short Title (14 Characters)

AVENG SYS I-LV

Pay Plan

Enlisted

Career Field

AD

Other Relationships and Rules

NEC EXXX series or other NECs as assigned

Job Description

Aviation Machinist's Mate Intermediate Level performs complete in depth repair of engines and associated components on turboshaft, turbofan, and turboprop engines including complete engine teardown, propellers, rotors, gearboxes, and drive accessories; and evaluate turbine engines performance using engine test cells and advanced calibration equipment.

DoD Relationship**Group Title**

Aircraft Engines

DoD Code

160100

O*NET Relationship**Occupation Title**

Aircraft Mechanics and Service Technicians

SOC Code

49-3011.00

Job Family

Installation, Maintenance, and Repair

Skills*Quality Control Analysis**Operation Monitoring**Equipment Selection**Repairing**Systems Evaluation**Systems Analysis**Troubleshooting**Equipment Maintenance**Operation and Monitoring**Judgment and Decision Making***Abilities***Selective Attention**Manual Dexterity**Near Vision**Flexibility of Closure**Inductive Reasoning**Perceptual Speed**Rate Control**Visualization**Problem Sensitivity**Written Comprehension***AUXILIARY POWER SYSTEMS MAINTENANCE****Paygrade****Task Type****Task Statements**

E5

CORE

Inspect Auxiliary Power Units (APU)

E4

CORE

Repair Auxiliary Power Units (APU)

E4

CORE

Test Auxiliary Power Units (APU)

E4

CORE

Troubleshoot Auxiliary Power Plant (APP)

E4

CORE

Troubleshoot Auxiliary Power Units (APU)

CORROSION CONTROL**Paygrade****Task Type****Task Statements**

E4

CORE

Clean aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Conduct corrosion inspections

E4

CORE

De-preserve aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Inspect aircraft and aircraft components for corrosion

E4

CORE

Perform corrosion prevention procedures

E4

CORE

Perform emergency reclamations

E4

CORE

Preserve aircraft, support equipment (SE), and aircraft related equipment

E4

CORE

Preserve engine test cell equipment

E4

CORE

Treat power plant and related systems for corrosion

ENGINE SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Calibrate engine drive shafts
E5	CORE	Inspect combustion systems
E4	CORE	Inspect compressor systems
E5	CORE	Inspect engine anti-ice systems
E5	CORE	Inspect engine bleed air systems
E5	CORE	Inspect engine drive shafts
E5	CORE	Inspect engine exhaust systems
E5	CORE	Inspect engine ignition systems
E4	CORE	Inspect internal cold sections
E4	CORE	Inspect internal hot sections
E4	CORE	Inspect power plant air inlet system
E4	CORE	Inspect turbine modules
E4	CORE	Maintain engine exhaust systems
E4	CORE	Maintain power plant air inlet system
E4	CORE	Preserve combustion systems
E4	CORE	Preserve compressor systems
E4	CORE	Preserve engine drive shafts
E4	CORE	Preserve engine exhaust systems
E4	CORE	Preserve power plant air inlet system
E4	CORE	Preserve turbine modules
E4	CORE	Repair combustion systems
E4	CORE	Repair compressor systems
E4	CORE	Repair engine anti-ice systems
E4	CORE	Repair engine bleed air systems
E4	CORE	Repair engine drive shafts
E4	CORE	Repair engine exhaust systems
E4	CORE	Repair engine ignition systems
E4	CORE	Repair power plant air inlet system
E4	CORE	Repair turbine modules
E4	CORE	Test combustion systems
E4	CORE	Test compressor systems
E4	CORE	Test engine anti-ice systems
E4	CORE	Test engine bleed air systems
E4	CORE	Test engine drive shafts
E4	CORE	Test engine exhaust systems

ENGINE SYSTEMS MAINTENANCE (Cont.)

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Test engine ignition systems
E4	CORE	Troubleshoot combustion systems
E4	CORE	Troubleshoot compressor systems
E4	CORE	Troubleshoot engine anti-ice systems
E4	CORE	Troubleshoot engine bleed air systems
E5	CORE	Troubleshoot engine drive shafts
E4	CORE	Troubleshoot engine exhaust systems
E4	CORE	Troubleshoot engine ignition systems
E4	CORE	Troubleshoot turbine modules

FUEL SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Inspect Aerial Refueling Stores (ARS)
E5	CORE	Inspect engine fuel systems
E5	CORE	Inspect external fuel stores
E4	CORE	Maintain engine fuel systems
E4	CORE	Maintain external fuel stores
E4	NON-CORE	Preserve Aerial Refueling Stores (ARS)
E4	CORE	Preserve engine fuel systems
E4	CORE	Preserve external fuel stores
E4	NON-CORE	Repair Aerial Refueling Stores (ARS)
E4	CORE	Repair engine fuel systems
E4	CORE	Repair external fuel stores
E4	NON-CORE	Test Aerial Refueling Stores (ARS)
E4	CORE	Test engine fuel systems
E4	NON-CORE	Troubleshoot Aerial Refueling Stores (ARS)
E4	CORE	Troubleshoot engine fuel systems

LINE MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E4	CORE	Conduct preoperational support equipment (SE) inspections
E4	CORE	Perform oil servicing

MAINTENANCE ADMINISTRATION

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E7	CORE	Conduct production briefs
E4	CORE	Document maintenance actions
E7	CORE	Manage component cannibalization
E6	CORE	Manage scheduled maintenance
E6	CORE	Manage unscheduled maintenance
E6	CORE	Prepare Broad Arrow (BA) reports
E7	CORE	Prepare engine status reports

POWER PLANT MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	NON-CORE	Calibrate oil analysis equipment
E4	CORE	Collect oil samples for analysis
E5	CORE	Inspect accessory gearbox assemblies
E5	CORE	Inspect engine control systems
E5	CORE	Inspect engine test cell equipment
E5	CORE	Inspect Gas Turbine Compressor (GTC) assemblies
E5	NON-CORE	Inspect oil analysis equipment
E5	CORE	Inspect oil systems
E5	CORE	Inspect Quick Engine Change (QEC) assemblies
E5	NON-CORE	Maintain oil analysis equipment
E5	NON-CORE	Perform engine test cell operations
E4	CORE	Perform engine wash
E4	CORE	Prepare engine test cell equipment for testing
E4	CORE	Preserve oil systems
E4	CORE	Preserve Quick Engine Change (QEC) assemblies
E4	CORE	Repair accessory gearbox assemblies
E4	CORE	Repair engine control systems
E4	CORE	Repair engine test cell equipment
E4	CORE	Repair Gas Turbine Compressor (GTC) assemblies
E5	NON-CORE	Repair oil analysis equipment
E4	CORE	Repair oil systems
E4	CORE	Replace accessory gearbox assemblies
E4	CORE	Replace engine control system components
E4	CORE	Test engine control systems
E4	CORE	Test engine starting systems
E5	CORE	Test engine test cell equipment
E5	NON-CORE	Test oil analysis equipment
E4	CORE	Troubleshoot engine control systems
E4	CORE	Troubleshoot engine starting systems
E5	CORE	Troubleshoot engine test cell equipment
E5	NON-CORE	Troubleshoot oil analysis equipment
E4	CORE	Troubleshoot oil systems

PROPELLER SYSTEMS MAINTENANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Inspect aircraft propeller components
E5	CORE	Inspect aircraft propeller systems
E5	CORE	Inspect reduction gearbox systems
E5	CORE	Inspect torque meter assemblies
E5	CORE	Perform propeller vibration analysis
E4	CORE	Repair aircraft propeller systems
E4	CORE	Repair reduction gearbox systems
E4	CORE	Repair torque meter assemblies
E4	CORE	Troubleshoot propeller systems

QUALITY ASSURANCE

<u>Paygrade</u>	<u>Task Type</u>	<u>Task Statements</u>
E5	CORE	Conduct Collateral Duty Inspector (CDI) inspections
E5	CORE	Conduct Collateral Duty Quality Assurance Representative (CDQAR) inspections
E5	CORE	Conduct engine acceptance inspections
E5	CORE	Conduct engine conditional inspections
E6	CORE	Conduct gas free inspections
E6	CORE	Conduct Quality Assurance (QA) inspections
E5	CORE	Conduct special engine inspections
E5	CORE	Conduct support equipment (SE) inspections
E5	CORE	Conduct transfer inspections
E5	CORE	Incorporate Technical Directives (TD)
E6	CORE	Manage Naval Aviation Maintenance Programs (NAMP)
E6	CORE	Monitor Naval Aviation Maintenance Programs (NAMP)
E5	CORE	Perform engine control rigging