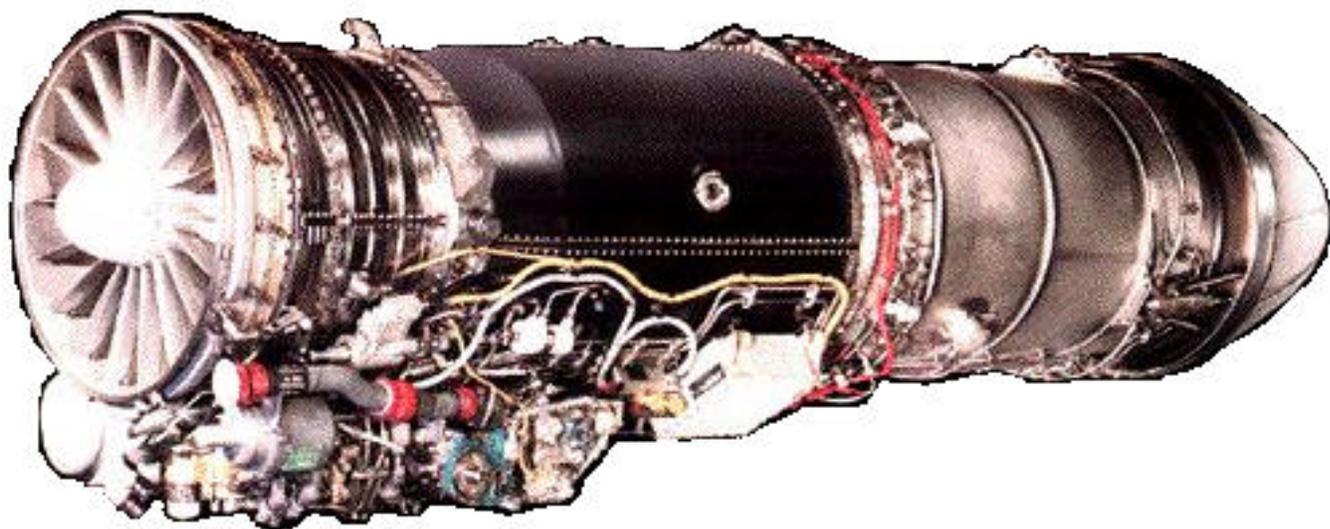




# F/A-18 A/B/C/D MAINTENANCE TRAINING

## F404-GE-400/402



MOS 6227 LESSON GUIDES

# F/A-18 A/B/C/D MAINTENANCE TRAINING

## F404-GE-400/402

|                 |   |
|-----------------|---|
| A.01 (A thru M) | SUPPORT / SPECIAL EQUIPMENT                   |
| A.02 (A thru B) | SAFETY PRECAUTIONS AND PROCEDURES             |
| A.03 (A thru S) | PUBLICATIONS, DIAGRAMS, SKETCHES, AND DRAWING |
| A.04 (A thru L) | PRECISION MEASURING EQUIPMENT                 |
| B.01 (A thru F) | SCHEDULED / UNSCHEDULED INSPECTIONS           |
| B.02 (A thru B) | TECHNICAL DIRECTIVES CHANGES / BULLETINS      |
| B.03 (A thru D) | CORROSION CONTROL                             |
| B.04 (A thru C) | FAN MODULE                                    |
| B.05 (A thru C) | HIGH PRESSURE COMPRESSOR MODULE               |
| B.06 (A thru C) | COMBUSTOR MODULE                              |
| B.07 (A thru B) | HIGH PRESSURE TURBINE MODULE                  |
| B.08 (A thru C) | LOW PRESSURE TURBINE MODULE                   |
| B.09 (A thru C) | AFTERBURNER MODULE                            |
| B.10 (A thru C) | ENGINE LEVEL COMPONENTS                       |
| B.11 (A thru C) | GTC36-20X AUXILIARY POWER UNITS               |



- A. LECTURE NUMBER:** F/A-18 MOS 6227 A.01 (A thru M)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Support/Special Equipment
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of the operation, care, and maintenance requirements of applicable work center support/special equipment.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**
1. A1-F404A-MMI-200, Intermediate Maintenance with IPB Turbofan Engine F404-GE-400/402
  2. A1-F404A-MMI-210, Intermediate Maintenance with IPB Turbofan Engine F404-GE-400/402
  3. A1-580AA-MIB-200, Intermediate Maintenance with IPB Gas Turbine Engine Auxiliary Power Unit GTC36-200, GTCP36-201, & GTCP36-2
- I. PRESENTATION:** This period of instruction will inform students about the operation, care, and maintenance requirements of applicable work center support / special equipment.

**NOTE:** Stress all WARNINGS, CAUTIONS and NOTES throughout the presentation.

1. Discuss operation of the engine rotating inspection motor.
2. Discuss care and maintenance of the engine rotating inspection motor.
3. Discuss operation of the horizontal maintenance stand.
4. Discuss care and maintenance the horizontal maintenance stand.
5. Discuss operation of the AB module horizontal sling.
6. Discuss care and maintenance AB module horizontal sling.
7. Discuss operation of the fan assembly build-up stand.
8. Discuss care and maintenance fan assembly build-up stand.
9. Discuss operation of the AB module maintenance stand.
10. Discuss care and maintenance AB module maintenance stand.
11. Discuss operation of the ABG module stand.
12. Discuss care and maintenance ABG module stand.
13. Discuss operation of the HPC module build-up stand.
14. Discuss care and maintenance HPC module build-up stand.
15. Discuss operation of the engine Borescope set.
16. Discuss care and maintenance engine Borescope set.
17. Discuss operation of the APU handling and test cart.

18. Discuss care and maintenance APU handling and test cart.
19. Discuss operation of the APU turbine and compressor assembly shaft loading unit.
20. Discuss care and maintenance APU turbine and compressor assembly shaft loading unit.
21. Discuss operation of the shim checking gauge.
22. Discuss care and maintenance shim checking gauge.
23. Discuss operation of the APU turbine plenum mechanical puller.
24. Discuss care and maintenance APU turbine plenum mechanical puller.
25. Discuss operation of the APU installation/removal hoisting adaptor.
26. Discuss care and maintenance APU installation/removal hoisting adaptor.

**J. SUMMARY:** During this period of instruction we covered the operation, care, and maintenance requirements of applicable work center support/special equipment.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 A.02 (A thru B)
- B. TIME:** 0.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Safety Precautions and Procedures
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of the safety precautions and procedures as they apply to the work center.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**
1. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  2. A1-NAOSH-SAF-000/P5100-1, NAVAIROSH Requirements for the Shore Establishment
  3. OSHA 29 CFR 1910, OSHA Standards and Regulations for General Industry
- I. PRESENTATION:** This period of instruction will inform students about the requirements of safety precautions and procedures in the work center.
- NOTE:** Stress all WARNINGS, CAUTIONS and NOTES throughout the presentation.
1. Discuss first aid procedures.
  2. Discuss hazardous materials/waste.
  3. Discuss safety precautions near electricity.
  4. Discuss personal protective equipment.
  5. Discuss safety markings.
  6. Discuss hydraulic contamination.
- J. SUMMARY:** During this period of instruction we covered the safety precautions and procedures as they apply to the work center.
- K. QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 A.03 (A thru S)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Publications, Diagrams, Sketches, and Drawings
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of the publications, diagrams, sketches, and drawings applicable the work center.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**

1. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
2. NA 00-25-100, Naval Air Systems Command Technical Manual Program
3. OSHA 29 CFR 1910, Occupational Safety and Health Administration Manual
4. NA A1-NAOSH-SAF-000/P5100-1, NAVAIROSH Requirements for the Shore Establishment
5. NA 01-1A-509, Weapon Systems Cleaning and Corrosion Control Manual
6. NA 01-1-125, Support Equipment Corrosion Control Manual
7. NA 01-1A-17, Aviation Hydraulics Manual
8. NA 01-1A-20, Aviation Hose and Tube Manual
9. NAVSUP P485, Master Components Repair List
10. NAVAIRINST 4790.18, Individual Component Repair List
11. A1-F18AX-WUC-800, Work Unit Code Manual
12. A1-F404A-MMI-200, Intermediate Maintenance Turbofan Engine Manual
13. A1-F404A-MMI-201, Intermediate Maintenance Turbofan Engine Manual
14. A1-F404A-MMI-210, Intermediate Maintenance Turbofan Engine Manual
15. A1-F404A-MMI-211, Intermediate Maintenance Turbofan Engine Manual
16. A1-F404A-MMI-220, Intermediate Maintenance External Piping, Cabling, and Clamping Turbofan Engine Manual
17. A1-F404A-MMI-400, Intermediate Maintenance IPB F404-GE-400
18. A1-F404A-MMI-410, Intermediate Maintenance IPB F404-GE-402
19. A1-F404A-MMI-420, Intermediate Maintenance IPB Support Equipment
20. A1-580AA-MIB-200, Auxiliary Power Unit Gas Turbine Engine

**I. PRESENTATION:** This period of instruction will inform students about the following technical publications, diagrams, sketches, and drawings applicable the work center requirements of applicable work center support / special equipment:

1. OPNAVINST 4790.2\_
2. NA 00-25-100
3. OSHA 29 CFR 1910
4. NA A1-NAOSH-SAF-000/P5100-1
5. NA 01-1A-509
6. NA 01-1-125
7. NA 01-1A-17
8. NA 01-1A-20
9. NAVSUP P485
10. NAVAIRINST 4790.18
11. A1-F18AX-WUC-800
12. A1-F404A-MMI-200
13. A1-F404A-MMI-201
14. A1-F404A-MMI-210
15. A1-F404A-MMI-211
16. A1-F404A-MMI-220
17. A1-F404A-MMI-400
18. A1-F404A-MMI-410
19. A1-F404A-MMI-420
20. A1-580AA-MIB-200

**J. SUMMARY:** During this period of instruction we covered the technical publications, diagrams, sketches, and drawings applicable the work center requirements of applicable work center support / special equipment.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 A.04 (A thru L)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Precision Measuring Equipment
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of the precision measuring equipment applicable to the work center.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**
1. A1-F404A-MMI-200, Intermediate Maintenance Turbofan Engine Manual Volume I
  2. A1-F404A-MMI-210, Intermediate Maintenance Turbofan Engine Manual Volume II
- I. PRESENTATION:**
1. Discuss operation and care of the hydraulic pressure gauge. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  2. Discuss operation and care of the DC power supply. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  3. Discuss operation and care of the pan weight balance. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  4. Discuss operation and care of the power dyne. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  5. Discuss operation and care of the carbon seal tester. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  6. Discuss operation and care of the HPT nozzle area gauge. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  7. Discuss operation and care of the preservation cart. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  8. Discuss operation and care of the depth micrometer. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  9. Discuss operation and care of the pin point micrometer. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  10. Discuss operation and care of the 0-1 inch micrometer. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  11. Discuss operation and care of the groove micrometer. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210
  12. Discuss operation and care of the NLT-1 nozzle actuator test assembly. REFS: A1-F404A-MMI-200 and A1-F404A-MMI-210

- J. **SUMMARY:** During this period of instruction we covered the applicable work center precision measuring equipment.
- K. **QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.01 (A thru F)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Scheduled/Unscheduled Inspections
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of the scheduled and unscheduled inspections applicable to the work center.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**
1. Local Command Procedures/Instructions
  2. A1-F404A-MRC-200, Engine Maintenance Requirement Cards F404-GE-40X
  3. A1-580AA-MIB-200, Intermediate Maintenance with IPB Gas Turbine Engine Auxiliary Power Unit GTC36-20X
- I. PRESENTATION:**
1. Discuss F404-GE-40X engine acceptance/transfer inspection requirements. REF: Local Instructions
  2. Discuss GTC-36-20X APU acceptance/transfer inspection requirements. REF: Local Instructions
  3. Discuss F404-GE-40X major inspection requirements. REF: A1-F404A-MRC-200
  4. Discuss GTC36-20X major inspection requirements. REF: A1-580AA-MIB-200
- J. SUMMARY:** During this period of instruction we covered the scheduled and unscheduled inspections applicable to the work center.
- K. QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.02 (A thru B)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Technical Directives Changes/Bulletins
- F. OBJECTIVE:** Student will be able to demonstrate/apply knowledge of technical directive changes and bulletins as they apply to the work center.
- G. INSTRUCTIONAL AIDES:**
- H. REFERENCES:**
1. NAVAIRINST 5215.10, Processing of RAMEC
  2. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
- I. PRESENTATION:**
1. Discuss Rapid Action Minor Engineering Change (RAMEC) proposals. REF: NAVAIRINST 5215.10
  2. Discuss technical directive incorporation procedures. REF: OPNAVINST 4790.2\_
- J. SUMMARY:** During this period of instruction we covered technical directive changes and bulletins as they apply to the work center.
- K. QUESTION AND ANSWERS:**



- A. **LECTURE NUMBER:** F/A-18 MOS 6227 B.03 (A thru D)
- B. **TIME:** 1.5 Hours
- C. **DATE PREPARED:** 31 Aug 03
- D. **DATE REVIEWED:** On separate sheet
- E. **TITLE:** Corrosion Control
- F. **OBJECTIVE:** Student will be able to demonstrate/apply knowledge of corrosion control as it applies to the work center.
- G. **INSTRUCTIONAL AIDES:**
- H. **REFERENCES:**
1. NA 01-1A-509, Corrosion Control Manual
  2. NA 01-1-125, Support Equipment Corrosion Control Manual
- I. **PRESENTATION:**
1. Review corrosion detection, prevention, corrective actions on engines and support equipment. REFs: NA 01-1A-509 and NA 01-1-125
  2. Discuss proper 3M documentation. REF: OPNAVINST 4790.2\_
- J. **SUMMARY:** During this period of instruction we covered corrosion control as it applies to the work center.
- K. **QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.04 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Fan Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: Fan Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine

**H. REFERENCES:**

1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
2. A1-F404-MMI-211, Intermediate Maintenance Turbofan Engine
3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
4. A1-F18AX-WUC-800, Work Unit Code Manual
5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual

**I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the fan module system. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
2. Review fault isolation procedures for the fan speed transmitter. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
3. Review fault isolation procedures for the FVG actuator. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
4. Review fault isolation procedures for the vapor puff relay. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
5. Review fault isolation procedures for the ignitor box. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
6. Review fault isolation procedures for the T-1 transmitter. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
7. Review fault isolation procedures for the oil pressure transmitter. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
8. Review fault isolation procedures for the PS3 transmitter. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
9. Review fault isolation procedures for the PT 5.6 transmitter. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211

10. Review R&R of the fan module. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
11. Review borescope procedures of the fan module. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
12. Review inspection procedures of the fan module. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
13. Review R&R and repair procedures of the fan module front frame. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
14. Review R&R procedures of the #1 bearing assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
15. Review R&R and repair procedures of the fan module stator case assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
16. Review R&R of the fan module rotor assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
17. Review R&R of the fan module external components. REFS: A1-F404A-MMI-200 and A1-F404-MMI-211
18. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
19. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
20. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
21. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the Fan Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.05 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** High Pressure Compressor Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: High Pressure Compressor theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine

**H. REFERENCES:**

1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
2. A1-F404-MMI-201, Intermediate Maintenance Turbofan Engine
3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
4. A1-F18AX-WUC-800, Work Unit Code Manual
5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual

**I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the high pressure compressor module system. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
2. Review fault isolation procedures for the compressor rotor assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
3. Review fault isolation procedures for the compressor stator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
4. Review fault isolation procedures for the compressor variable geometry actuator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
5. Review fault isolation procedures for the #2 bearing support assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
6. Review fault isolation procedures for the oil cooler assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
7. Review fault isolation procedures for the check and drain valve assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
8. Review fault isolation procedures for the turbine cooling air tube. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201

9. Review fault isolation procedures for the fuel flow transmitter assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
10. Review fault isolation procedures for the fuel nozzle. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
11. Review R&R of the compressor mid frame assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
12. Review R&R and repair procedures of the compressor rotor assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
13. Review R&R and repair procedures of the compressor stator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
14. Review R&R procedures of the front compressor casing. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
15. Review R&R procedures of the rear compressor casing. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
16. Review R&R procedures of the rear engine mount ring assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
17. Review R&R and repair procedures of the compressor variable geometry actuator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
18. Review R&R procedures of the outer bypass duct. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
19. Review R&R procedures of the power takeoff drive assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
20. Review R&R and repair procedures of the #2 bearing support. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
21. Review R&R procedures of the #2 bearing carbon seal assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
22. Review R&R procedures of the oil cooler assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
23. Review R&R procedures of the oil cooler. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
24. Review R&R procedures of the check and drain valve assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
25. Review R&R and repair procedures of the turbine cooling air tube. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
26. Review R&R procedures of the fuel flow transmitter assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
27. Review R&R procedures of the #2 cylindrical roller bearing. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
28. Review R&R procedures of the fuel nozzle. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
29. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
30. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
31. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
32. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the High Pressure Compressor Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.06 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Combustor Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: Combustor Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine
- H. REFERENCES:**
1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
  2. A1-F404-MMI-201, Intermediate Maintenance Turbofan Engine
  3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  4. A1-F18AX-WUC-800, Work Unit Code Manual
  5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the combustor module system. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
2. Review fault isolation procedures for the combustion liner. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
3. Review fault isolation procedures for the nozzle support and seal. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
4. Review R&R procedures of the combustor module. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
5. Review R&R and repair procedures of the combustion liner. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
6. Review R&R and repair procedures of the nozzle support and seal. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
7. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
8. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
9. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
10. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the Combustor Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.07 (A thru B)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Combustor Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: High Pressure Turbine Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine
- H. REFERENCES:**
1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
  2. A1-F404-MMI-210, Intermediate Maintenance Turbofan Engine
  3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  4. A1-F18AX-WUC-800, Work Unit Code Manual
  5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the high pressure turbine module system. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
2. Review R&R procedures of the high pressure turbine module. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
3. Review R&R procedures of the fan drive shaft. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
4. Review R&R procedures of the high pressure turbine rotor air duct. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
5. Review R&R procedures of the #4 cylindrical roller bearing. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
6. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
7. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
8. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
9. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the High Pressure Turbine Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.08 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Low Pressure Turbine Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: Low Pressure Turbine Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine
- H. REFERENCES:**
1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
  2. A1-F404-MMI-210, Intermediate Maintenance Turbofan Engine
  3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  4. A1-F18AX-WUC-800, Work Unit Code Manual
  5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the low pressure turbine module system. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
2. Review fault isolation procedures for the exhaust frame and C-Sump assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
3. Review fault isolation procedures for the low pressure turbine nozzle segment. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
4. Review R&R procedures of the low pressure turbine module. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
5. Review R&R procedures of the low pressure turbine rotor assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
6. Review R&R procedures of the low pressure turbine case. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
7. Review R&R procedures of the low pressure turbine case. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
8. Review R&R and repair procedures of the exhaust frame and C-sump assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
9. Review R&R procedures of the #5 bearing carbon seal assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210

10. Review R&R procedures of the low pressure turbine nozzle front air seal. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
11. Review R&R procedures of the #5 cylindrical roller bearing. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
12. Review R&R and repair procedures of the low pressure turbine nozzle segment. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
13. Review R&R procedures of the exhaust frame support rod assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
14. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
15. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
16. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
17. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the Low Pressure Turbine Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.09 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Afterburner Module
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: Afterburner Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine
- H. REFERENCES:**
1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
  2. A1-F404-MMI-210, Intermediate Maintenance Turbofan Engine
  3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  4. A1-F18AX-WUC-800, Work Unit Code Manual
  5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the afterburner module system. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
2. Review fault isolation procedures for the afterburner case. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
3. Review fault isolation procedures for the afterburner liner. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
4. Review fault isolation procedures for the variable exhaust nozzle primary flap. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
5. Review fault isolation procedures for the variable exhaust nozzle secondary flap. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
6. Review fault isolation procedures for the variable exhaust nozzle primary seal. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210
7. Review fault isolation procedures for the variable exhaust nozzle secondary seal. REFs: A1-F404A-MMI-200 and A1-F404-MMI-210

8. Review fault isolation procedures for the variable exhaust nozzle outer seal. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
9. Review fault isolation procedures for the afterburner flame holder. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
10. Review fault isolation procedures for the afterburner mixer. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
11. Review fault isolation procedures for the actuating ring. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
12. Review fault isolation procedures for the variable exhaust nozzle guide link assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
13. Review R&R procedures of the afterburner case. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
14. Review R&R and repair procedures of the afterburner liner. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
15. Review R&R and repair procedures of the variable exhaust nozzle primary flap. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
16. Review R&R and repair procedures of the variable exhaust nozzle secondary flap. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
17. Review R&R and repair procedures of the variable exhaust nozzle primary seal. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
18. Review R&R and repair procedures of the variable exhaust nozzle secondary seal. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
19. Review R&R and repair procedures of the variable exhaust nozzle outer seal. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
20. Review R&R procedures of the variable exhaust nozzle position transmitter assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
21. Review R&R procedures of the variable exhaust nozzle actuators. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
22. Review R&R and repair procedures of the afterburner flame holders. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
23. Review R&R procedures of the flame sensor. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
24. Review R&R procedures of the afterburner mixer. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
25. Review R&R procedures of the thermocouple harness. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
26. Review R&R procedures of the afterburner fuel distributor valve. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
27. Review R&R procedures of the actuating ring. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
28. Review R&R and repair procedures of the variable exhaust nozzle guide link assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-210
29. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800

30. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
31. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
32. Discuss corrosion detection and prevention procedures. REF: NA  
01-1A-509

**J. SUMMARY:** During this period of instruction we covered the Afterburner Module theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS:**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.10 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** Engine Level Components
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: Engine level components theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** F404-GE-400/402 Engine
- H. REFERENCES:**
1. A1-F404-MMI-200, Intermediate Maintenance Turbofan Engine
  2. A1-F404-MMI-201, Intermediate Maintenance Turbofan Engine
  3. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  4. A1-F18AX-WUC-800, Work Unit Code Manual
  5. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the engine level components.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
2. Review fault isolation procedures for the exhaust center body.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
3. Review fault isolation procedures for the main fuel control assembly. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
4. Review fault isolation procedures for the main fuel control.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
5. Review fault isolation procedures for the afterburner fuel pump. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
6. Review fault isolation procedures for the afterburner fuel control assembly. REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
7. Review fault isolation procedures for the anti-icing valve.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
8. Review fault isolation procedures for the anti-icing tube.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201
9. Review fault isolation procedures for the oil tank assembly.  
REFs: A1-F404A-MMI-200 and A1-F404-MMI-201

10. Review fault isolation procedures for the electrical control assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
11. Review R&R procedures of the accessory gearbox assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
12. Review R&R procedures of the main fuel pump assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
13. Review R&R procedures of the exhaust center body. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
14. Review R&R and repair procedures of the main fuel control assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
15. Review R&R procedures of the afterburner fuel pump assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
16. Review R&R and repair procedures of the afterburner fuel control assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
17. Review R&R procedures of the power lever control assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
18. Review R&R and repair procedures of the variable exhaust nozzle power unit assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
19. Review R&R procedures of the filter bowl/indicator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
20. Review R&R procedures of the lube and scavenge oil pump assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
21. Review R&R procedures of the alternator stator. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
22. Review R&R procedures of the fan geometry actuator assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
23. Review R&R and repair procedures of the anti-icing valve. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
24. Review R&R procedures of the anti-icing tube. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
25. Review R&R and repair procedures of the oil tank assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
26. Review R&R and repair procedures of the fuel inlet tube assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
27. Review R&R procedures of the electrical control assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
28. Review R&R procedures of the power takeoff axis output shaft assembly. REFS: A1-F404A-MMI-200 and A1-F404-MMI-201
29. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
30. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
31. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
32. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the Engine level components theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool

Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS :**



- A. LECTURE NUMBER:** F/A-18 MOS 6227 B.11 (A thru C)
- B. TIME:** 1.5 Hours
- C. DATE PREPARED:** 31 Aug 03
- D. DATE REVIEWED:** On separate sheet
- E. TITLE:** GTC36-20X Auxiliary Power Units
- F. OBJECTIVE:** Student will be able to demonstrate knowledge of the following: GTC36-20X APU theory of operation, fault isolation, and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.
- G. INSTRUCTIONAL AIDES:** GTC36-20X Auxiliary Power Unit
- H. REFERENCES:**
1. A1-580AA-MIB-200, Intermediate Maintenance Auxiliary Power Unit Gas Turbine Engine
  2. OPNAVINST 4790.2\_, Naval Aviation Maintenance Program
  3. A1-F18AX-WUC-800, Work Unit Code Manual
  4. NA 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control Manual
- I. PRESENTATION:**

**NOTE:** Stress all WARNINGS, CAUTIONS, and NOTES throughout the presentation.

1. Review theory of operation for the fuel system. REF: A1-580AA-MIB-200
2. Review theory of operation for the surge control system. REF: A1-580AA-MIB-200
3. Review theory of operation for the lubrication system. REF: A1-580AA-MIB-200
4. Review fault isolation procedures for the fuel control. REF: A1-580AA-MIB-200
5. Review fault isolation procedures for the surge control valve. REF: A1-580AA-MIB-200
6. Review fault isolation procedures for the oil pump. REF: A1-580AA-MIB-200
7. Review fault isolation procedures for the hydraulic starter motor. REF: A1-580AA-MIB-200
8. Review fault isolation procedures for the ignition system. REF: A1-580AA-MIB-200
9. Review fault isolation procedures for the inlet guide vane actuator. REF: A1-580AA-MIB-200

10. Review fault isolation procedures for the gearbox assembly. REF: A1-580AA-MIB-200
11. Review fault isolation procedures for the monopole. REF: A1-580AA-MIB-200
12. Review fault isolation procedures for the electrical system. REF: A1-580AA-MIB-200
13. Review fault isolation procedures for the fuel nozzles. REF: A1-580AA-MIB-200
14. Review fault isolation procedures for the compressor turbine assembly. REF: A1-580AA-MIB-200
15. Review fault isolation procedures for the fuel drain collector tank. REF: A1-580AA-MIB-200
16. Review fault isolation procedures for the compressor rotor. REF: A1-580AA-MIB-200
17. Review fault isolation procedures for the total pressure probe. REF: A1-580AA-MIB-200
18. Review borescope procedures of the compressor turbine assembly. REF: A1-580AA-MIB-200
19. Review R&R procedures of the fuel control. REF: A1-580AA-MIB-200
20. Review R&R procedures of the surge control valve. REF: A1-580AA-MIB-200
21. Review R&R procedures of the oil pump. REF: A1-580AA-MIB-200
22. Review R&R procedures of the hydraulic starter motor. REF: A1-580AA-MIB-200
23. Review R&R procedures of the ignition unit. REF: A1-580AA-MIB-200
24. Review R&R procedures of the inlet guide vane actuator. REF: A1-580AA-MIB-200
25. Review R&R and repair procedures of the gearbox. REF: A1-580AA-MIB-200
26. Review R&R procedures of the monopole. REF: A1-580AA-MIB-200
27. Review R&R and repair procedures of the electrical harness. REF: A1-580AA-MIB-200
28. Review R&R procedures of the drain collector. REF: A1-580AA-MIB-200
29. Review R&R procedures of the fuel nozzle assemblies. REF: A1-580AA-MIB-200
30. Review R&R procedures of the ignitor plug. REF: A1-580AA-MIB-200
31. Review R&R procedures of the external plumbing. REF: A1-580AA-MIB-200
32. Discuss appropriate 3M documentation procedures. REF: NA OPNAVINST 4790.2\_ and A1-F18AX-WUC-800
33. Discuss Tool Control procedures. REF: OPNAVINST 4790.2\_
34. Discuss FOD prevention guidelines. REF: OPNAVINST 4790.2\_
35. Discuss corrosion detection and prevention procedures. REF: NA 01-1A-509

**J. SUMMARY:** During this period of instruction we covered the GTC36-20X APU theory of operation, fault isolation,

and intermediate maintenance procedures. Students will also be able to comply with all 3M, Tool Control, FOD, and Corrosion Control procedures as they pertain to each task.

**K. QUESTION AND ANSWERS :**