

**BY ORDER OF THE COMMANDER
354TH FIGHTER WING**

354 FIGHTER WING INSTRUCTION 21-104

23 MAY 2012



Maintenance

**SELECTIVE MANAGEMENT OF
SELECTED GAS TURBINE ENGINES**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*, AFI 20-115, *Selective Management of Selected Gas Turbine Engines*, AFI 21-101, *Aerospace Equipment Maintenance Management* and is in addition to T.O. 00-25-254-1, *Comprehensive Engine Management System (CEMS) Engine Configuration, Status and TCTO Reporting Procedures* and T.O. 00-25-257, *Engine Trending and Analysis General Information User's Manual*. It provides policies and procedures for the uniform and efficient management of propulsion units through the designation of unit responsibilities. This designation includes the accurate and timely reporting to CEMS and the Integrated Maintenance Data System (IMDS) for all assigned aircraft engines. This publication does not apply to the Air National Guard or US Air Force Reserve. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication. Route AF Form 847s from the field through the appropriate functional's chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms.afirms/rims.cfm/>. Contact supporting records managers as required.

SUMMARY OF CHANGES

The changes to this instruction include detailed responsibilities for the ET&D/EHM Program Supervisor/Monitor as directed by AFI 20-115, *Selective Management of Selected Gas Turbine Engines*, ACCI 21-152 *Engine Trending and Diagnostic Program*, and ACCDIR90-2374 *Compliance and Standardization Requirements List (C&SRL) Logistics (A4/A4M), Engine Trending and Diagnostics*.

1. 354th Maintenance Squadron (MXS) Propulsion Flight The Jet Engine Intermediate Maintenance (JEIM) section will:

1.1. Physically maintain the engine work folder or work package records established for all engines possessed until the engine is transferred. Engine Management (EM) section will maintain the aircraft engine records.

1.2. JEIM and EM section will conduct a pre-maintenance meeting or engine pre-dock meeting for all engines inducted into JEIM during the base work load processing segment of the base repair cycle. The pre-maintenance meeting must occur before work starts on the engine. The engine pre-dock meeting will ensure identification and agreement of all maintenance requirements/actions to include inspections, Time Compliance Technical Orders (TCTOs), Time Change Items (TCIs), modifications and other opportunistic maintenance actions.

1.3. Provide the entire engine work package to EM for engine/module receiving inspections, prior to engine test cell operations and before/during final engine/module inspections. This procedure will ensure identification of all maintenance actions required during the shop visit, a thorough maintenance review before test cell operation, and final verification of all work accomplished before the quality assurance final evaluation.

1.3.1. Prior to test cell operation, verify that all installed TCIs are accurate and properly reflected in IMDS.

1.3.2. Prepare a complete comprehensive post-maintenance summary for EM input into the IMDS and CEMS database.

1.4. Request from EM section disposition instructions for all aircraft engine shipments transferring to another Stock Record Account Number (SRAN), returning to depot or any other location. EM will coordinate shipment actions with HQ PACAF Command Engine Manager (CEM) and receive authorization before issuing shipment documentation. EM will include in the automated history a historical entry outlining the total time (EOT, CCYs, etc.), the reason for shipment, the destination, and other pertinent information.

1.5. Coordinate/inform EM of all modules (uninstalled), and major assemblies (uninstalled) shipments returning to depot or any other location. EM will include in the automated history as a historical entry the total time (EOT, CCYs, etc.) and the reason for shipment, the destination, and other pertinent information.

1.6. Aircraft Engine Status & Inventory Reporting – Immediately report aircraft engine status changes for all accountable propulsion systems/assets under unit supervision/control. Use an automated product and submit via e-mail to Engine Management (EM) section's organizational e-mail and to the SRAN engine managers accounts by 0700.

1.7. Time Change Item (TCI) and TCTO Management. Provide EM adequate secured storage area for TCTO kits, supply point assets, and on-hand TCI components.

1.7.1. JEIM and MODS sections will provide/turn-in the TCI/DIFM asset to the EM TCI supervisor before EM issues the serviceable TCI for the scheduled replacement action. This process will ensure firm control and quick turn-in of DIFM assets to base supply for depot repair or disposal. On a case-by-case basis, the EM TCI supervisor will issue serviceable TCI items before receipt of DIFM asset(s) to support JEIM/module maintenance and repair efforts. When JEIM and module repair sections receive serviceable TCI assets early, personnel must ensure DIFM assets removed are ready for turn-in to base supply the next duty day.

1.7.2. Check the life remaining on a Line Replaceable Unit (LRU) in IMDS before issuing to FS for cannibalization actions.

1.7.3. JEIM will receive from EM all TCTO kits mandated and agreed upon for this maintenance induction/shop visit directly after the pre-maintenance meeting.

1.8. Engine Trending and Diagnostics (ET&D)/Engine Health Management (EHM) Program

1.8.1. The ET&D/EHM Program Senior Noncommissioned Officer (SNCO) will execute the ET&D program for the 354th Fighter Wing. The ET&D duties are considered the major responsibilities of the EHM technician and monitor. EM assigned personnel will not perform as EHM monitor/SNCO. These individuals must be knowledgeable in engine operation, troubleshooting, and repair procedures. The EHM SNCO uses knowledge of assigned engines to develop ET&D recommendations. The EHM SNCO analyzes the data available, particularly using the Comprehensive Engine Trending And Diagnostics System (CETADS) to analyze marginal or questionable engines and recommend maintenance actions. Additionally, the ET&D SNCO will:

1.8.1.1. Manage and coordinate the ET&D program for the maintenance and operations group commanders

1.8.1.2. Administer the ET&D program in accordance with this 354 FWI and applicable technical orders.

1.8.1.3. Act as the single POC for the 354 FW for all recommended changes to this instruction.

1.8.1.4. Be the primary technical advisor on the ET&D program for the MXG/CC and OG/CC.

1.8.1.5. Manage the ET&D workload, schedule, and ET&D data management and analysis to ensure continual evaluation and daily flow of ET&D data.

1.8.1.6. Validate the ET&D monitor's recommendations for engine maintenance as a result of program trending or analysis.

1.8.1.7. Maintain a register of where the ET&D equipment is located.

1.8.2. EHM Monitor Responsibilities: The EHM monitor will enter maintenance data into the EHM and make appropriate entries into the 781A, *Maintenance Discrepancy and Work Document*, for engines on "watch" status. The monitor submits Deficiency Reports

(DRs) when applicable to EHM discrepancies. EHM monitor will additionally comply with ACCI 21-152, section 9 "ET&D Program Monitor(s)."

1.8.3. The Propulsion Flight Chief will ensure that the test cell section has a work center computer dedicated exclusively for CETADS.

1.8.3.1. The CETADS work center computer is used only by Aerospace Propulsion Jet Engine (2A6X1A AFSC) personnel for ET&D purposes.

1.8.4. Download aircraft engine time, temperature and cycle data for reporting purposes at the completion of every test cell engine run operation. Process/upload the aircraft engine download/event history recording (EHR) data retrieved from the Modernized Engine Monitoring System Computer (MEMSC) into the CETADS work center computer located at the test cell facility. Using the CETADS work center computer, forward the EHR data to the CETADS host computer located in EM. Immediately submit the EHR data file by e-mail if the Eielson network is offline or the host computer is offline for maintenance.

1.9. The propulsion flight chief will ensure that EM is equitably manned with authorized Aerospace Propulsion Jet Engine personnel (2A6X1A AFSC).

2. 354th Aircraft Maintenance Squadron (AMXS), 18th Aircraft Maintenance Unit (AMU)

2.1. Engine Health Management/Engine Trending and Diagnostics (ET&D). The AMXS commander will ensure that the AMU specialist flight has a laptop computer(s) for deployment dedicated exclusively to the CETADS. CETADS is a software program designed to receive download data from the aircraft engine allowing operational users to view tables and graphs to determine go/no-go information. CETADS enables long-range forecasts of impending failures based on trends and operational limits established by depot engineers. CETADS use further strengthens management and health of the F-16 aircraft engine fleet.

2.1.1. Engine Management Section is responsible for supplying CETADS host and work center computers as well as program installation, setup and troubleshooting. EM will provide the AMU Aerospace Propulsion Jet Engine Specialists training on the CETADS. The CETADS work center computer is for use only by AMU Aerospace Propulsion Jet Engine (2A6X1A AFSC) personnel for ET&D purposes.

2.1.2. F-16 aircraft F110-GE-100 A/B/C Engine Engine History Recorder data download procedures:

2.1.2.1. Perform aircraft engine downloads and forward to EM section within two hours after the last aircraft flight of the day. This includes aircraft engine ground operational runs. EM section will process the Event History Recording (EHR) data file into IMDS and CEMS in order to quickly compute and accurately determine the time remaining/life limits used. EM Section will submit a daily report to enhance AMU leadership decisions for aircraft availability/augment flying schedule effectiveness.

2.1.2.2. Upload the Event History Recording (EHR) data downloaded from the Comprehensive Engine Diagnostics Unit (CEDS)/Common Engine Transfer System (CETS) into the CETADS workstation computer or laptop. Using the CETADS work

center computer, forward the EHR data to the CETADS host computer located in EM. Immediately submit the EHR data file by e-mail if the Eielson network is offline or the host computer is offline for maintenance.

2.1.2.3. Reconcile every duty day engine data between the CETADS work center computer and the CETADS host computer located in EM.

3. Records Management

3.1. Required form or document numbers/titles will be maintained according to T.O. 21-01 R 04.00, (Records Disposition Schedule, <https://webrims.amc.af.mil/> apply for this records.), used, and disposed.

JAMES N. POST III, Brigadier General, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 21-1, *Managing Aerospace Equipment Maintenance*, 25 Feb 2003

AFI 20-115, *Propulsion Management for Aerial Vehicles*, 12 Jan 2012

AFI 21-101, *Aerospace Equipment Maintenance Management*, 26 Jul 2010

00-25-254-1, *Comprehensive Engine Management System (CEMS) Engine Configuration, Status and TCTO Reporting Procedures*, 1 Feb 2012

00-25-257, *Engine Trending and Analysis General Information User's Manual*, 1 Aug 2008

ACCI 21-152, *Engine Trending and Diagnostic Program*, 20 Apr 2000

ACCDIR90-2374 *Compliance and Standardization Requirements List (C&SRL) Logistics (A4/A4M), Engine Trending and Diagnostics*, 03 Sep 2008

Abbreviations and Acronyms

AFPD—Air Force Policy Directive

AFMAN—Air Force Manual

AMU—Aircraft Maintenance Unit

AMXS—Aircraft Maintenance Squadron

CEDS—Comprehensive Engine Diagnostics Unit

CEMS—Comprehensive Engine Management System

CETADS—Comprehensive Engine Trending and Diagnostic System

CETS—Common Engine Transfer System

HER—Event History Recording

EM—Engine Management

ET&D—Engine Health Management/Engine Trending and Diagnostics

JEIM—Jet Engine Intermediate Maintenance

MXS—Maintenance Squadron

SRAN—Stock Record Account Number

TCI—Time Change Items

TCTO—Time Compliance Technical Orders IMDS