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OGDEN AIR LOGISTICS COMPLEX**

**OGDEN AIR LOGISTICS COMPLEX  
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***Materiel Management***

***ENGINE MANAGEMENT***

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This publication implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*. It assigns roles and responsibilities and establishes policies, procedures, and instructions used by the 309th Aerospace Maintenance and Regeneration Group (AMARG), Ogden Air Logistics Complex (OO-ALC) and Joint Base San Antonio (JBSA) in the maintenance and control of propulsion units. This instruction fulfills requirements set forth in Air Force Instruction (AFI) 20-115, *Propulsion Management For Aerial Vehicles*; Technical Order (TO) 00-25-254-1, *Comprehensive Engine Management System (CEMS) Engine Configuration*, Status and Time Compliance Technical Order (TCTO) Reporting Procedures; AFI 21-102, *Depot Maintenance Management*; AFI 21-102\_AFMCSUP, *Depot Maintenance Management*; Air Force Sustainment Center Manual (AFSCMAN) 21-102, *Depot Maintenance Management*, and Naval Air Systems Command Instruction (NAVAIRINST) 13700.15F, *Aircraft Engine Management System (DECKPLATE)*. This instruction applies to all 309 AMARG military, civil service, and contractor personnel assigned to geographically separated units (GSU), 309th Support Squadron (309 SPTS), 576th Aerospace Maintenance and Regeneration Squadron (576 AMRS), 577th Commodities Reclamation Squadron (577 CMRS), and 578th Storage and Disposal Squadron (578 SDS), Davis-Monthan Air Force Base (DMAFB), Arizona; GSU 575<sup>th</sup> Aircraft Maintenance Squadron (575 AMXS), Joint Base San Antonio (JBSA), Texas; Ogden Air Logistics Complex (OO-ALC) Business Operations Division (OB), and Quality Assurance and Process Improvement Division, Hill Air Force Base (HAFB), Utah. This publication may not be supplemented or further implemented/extended. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFMAN 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System Records Disposition

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### ***SUMMARY OF CHANGES***

This publication is substantially revised and must be reviewed in its entirety. Major changes include the addition of requirements for OO-ALC GSUs, 309 AMARG squadrons, and 575 AMXS, JBSA, and HAFB OO-ALC Engine Managers (EM).

1.	General Information.....	3
2.	Reports and Codes. ....	4
3.	Responsibilities for HAFB and JBSA SRAN EM/BEM. ....	5
4.	Responsibilities for 309 AMARG DMAFB SRAN Engine Manager/BEM. ....	9
5.	Other 309 AMARG Engine Management Reporting Related Requirements .....	14
<b>Attachment 1— GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION</b>		<b>23</b>
<b>Attachment 2— SAMPLE AF FORM 1534, CEMS CDB REPORT</b>		<b>28</b>
<b>Attachment 3— EHR DOWNLOAD SAMPLE DATA FROM CETADS (AIRCRAFT FLIGHT/ENGINE RUN).</b>		<b>29</b>
<b>Attachment 4— SAMPLE DD FORM 1348-1A, ISSUE RELEASE/RECEIPT DOCUMENT.</b>		<b>30</b>
<b>Attachment 5— SAMPLE DD FORM 1149, REQUISITION AND INVOICE/SHIPPING DOCUMENT.</b>		<b>31</b>
<b>Attachment 6— SAMPLE OF ENGINE DATA REVIEW SHEET</b>		<b>32</b>

**1. General Information.** Propulsion systems, to include aircraft jet engines, aerodynamic missile engines, aircraft reciprocation engines, and drone engines, require selective management. The high cost of these systems makes them ‘unique’ among the assets managed throughout the AF. There will be one primary OO-ALC Stock Record Account Number (SRAN) EM/Base Engine Manager (BEM) for owning SRAN managed by HAFB, 575 AMXS, operating location (OL) JBSA and 309 AMARG, DMAFB. There will also be one alternate identified for each SRAN. The SRAN designator for HAFB is FJ2029, the 575 AMXS OL designator is FJ2840 and the DMAFB designators are FJ2373 and FJ23PD. The concept of selective management of these high-cost, low-volume items has been refined into a stand-alone computer system, Comprehensive Engine Management System (CEMS) (D042). The command engine manager (CEM) is located at Air Force Materiel Command (AFMC) Headquarters (HQ) A4MM/A4MD, Wright-Patterson Air Force Base, and is the focal point for engine management matters for the command. The FJ2031 account, managed by 639th Aircraft Sustainment Group Propulsion CEMS/Program Management Office (PMO), within the aircraft sustainment wing located at Tinker Air Force Base (TAFB), is the United States Air Force (USAF) accountable record for engines. Sections 1 through 3 pertain to HAFB and JBSA SRAN EM/BEMs and sections 4 through 5 pertain to DMAFB SRAN EM/BEM. Propulsion systems, to include; aircraft engines, power units, missile engines, and drone engines, require selective management due to the high cost of these end items. There will be a minimum of one primary and one alternate EM for SRAN FJ2373, N65965 organization WE5 and, if established, any other customer accounts. Customer account requirements will be specified in the workload agreement in addition to the general requirements in this publication. Normally, the primary and alternate EMs will be the same personnel for all customer accounts. Engine management is responsible for engine, engine component, propeller and blade accountability, and inventory control. For USAF assets, the CEMS is the system of record. The system of record for United States Navy (USN) assets is DECKPLATE. One of the engine management section’s primary responsibilities is timely reporting in CEMS/DECKPLATE pertaining to asset status, condition, and location at all times. 309 AMARG units must report all changes in status and condition of engines, engine components, and propellers not later than (NLT) close of business the first duty day after the event to the 309 AMARG EM. This enables the 309 AMARG EM to update the system of record pursuant to customer’s technical orders, publications, and Statements of Work (SOW). For the purpose of generating production work orders, all assets located at 309 AMARG will also be managed in the 309 AMARG Business System (ABS), regardless of each customer’s requirements to manage assets in other inventory systems.

1.1. The primary purpose of the CEMS program is to provide current status of engines, tracked engine components, and TCTO compliance. CEMS identifies owning SRAN, status, condition, and configuration information for all CEMS accountable engines by serial number (S/N) and configuration item identifier (CII).

1.2. The primary objective of the engine management reporting in CEMS is to submit accurate information on the status, condition, and location of aircraft and missile engines at all times.

1.3. Policies and procedures that outline instructions for reporting actions and events to the CEM are outlined in TO 00-25-254-1.

1.4. No aircraft will be flown or delivered until the engine and/or components are reported in CEMS. Failure to comply with CEMS reporting will result in placement of equipment in questionable status that may cause unnecessary overage of critical life-limited parts.

1.5. All incoming/outgoing engines, modules, aircraft, or missiles arriving at HAFB and/or the OL at JBSA will be processed by the SRAN Engine Managers located at OO-ALC or 575 AMXS OL. This includes engines for programmed depot maintenance (PDM) aircraft, special projects, and missile maintenance.

1.5.1. Engines and engine components primarily managed at OO-ALC, to include the OL, consist of aircraft and missiles with various configurations.

1.5.1.1. Aircraft engines and serially controlled components:

1.5.1.1.1. Hercules (C-130), T56-Allison (A)-7 and T56-A-15

1.5.1.1.2. Fighting Falcon (F-16), F100-Pratt & Whitney (PW) 200/220B/220E/220F/229, F110-General Electric (GE)100 and F110-GE-129

1.5.1.1.3. Thunderbolt (A-10), TF34-GE-100

1.5.1.1.4. Raptor (F-22), F119-PW-100

1.5.1.1.5. Talon (T-38), J85-GE-5.

1.5.1.1.6. Lightning II (F-35), F135-PW-100

1.5.1.2. Missile engines:

1.5.1.2.1. Air Launch Cruise Missile (ALCM) AGM086B, F107-Williams International (WR)-101.

1.6. Engine status, actions, and events at OO-ALC/JBSA OL are reported to the SRAN Engine Manager/BEM by the propulsion personnel in the engine section, aircraft flight test organization, aircraft incoming, aircraft production, and ALCM scheduling. PDM responsibilities in reporting engine status are outlined in the applicable TO 00-20-5 series.

## 2. Reports and Codes.

2.1. Aircraft engine run: Report/download is processed through the work center Comprehensive Engine Trending and Diagnostics System (CETADS) to the SRAN EM/BEM host CETADS computer or through the Integrated Maintenance Information System (IMIS) (F-22 only) after the following events: green run/engine run or engine times cycles/total accumulated cycles update NLT the end of shift following the date/time of the occurrence. Each time the engine is ran, the engine is downloaded and processed in the CETADS work center computer, then reconciled to the SRAN EM/BEM host computer and recorded in CEMS, IAW with TO 00-25-257-1, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F100-220*; TO 00-25-257-2, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F100-229*; TO 00-25-257-3, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: TF34-100A*; and TO 00-25-257-4, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F110-129*.

2.1.1. All incoming program, project, drop-in, modification, etc., aircraft will be downloaded once the aircraft is inducted into production. Exception, aircraft will be downloaded prior to any flights (e.g., pro-flight, operational flight).

2.2. Test cell engine run: OO-ALC Form 206, *F100-PW-220 Data Run Sheet*, OO-ALC Form 207, *F100-PW-229 Data Run Sheet*, or test cell printout is submitted to the SRAN EM/BEM for processing through CEMS after completion of the test cell run.

2.3. Aircraft flights: Report/download is processed through work center CETADS computer to the SRAN EM/BEM host CETADS computer or through the IMIS (F-22 only) each time the aircraft is flown for functional check flight, proficiency flight, or operational check flight NLT the end of shift following the date/time of the occurrence. **Note:** For C-130 and T-38 update flying hour (FHR) only.

2.4. AF Form 1534, *CEMS Central Database (CDB) Report* (Attachment 2), OO-ALC Form 205, *Modular Engine Time/Cycle Accumulation*, or equivalent email will be used to report engine removal/installation/cannibalization (CANN) of engines, modules, or components (reference applicable TO 00-20-5 series).

2.5. Event History Recorder (EHR), EHR Download Sample Data from CETADS (Aircraft Flight/Engine Run) ([Attachment 3](#)) or Engine Data Review (EDR) sheet ([Attachment 6](#)) provide window values of engine operating times (hot and cold sections).

2.6. How Mal Code (HMC): The reason why the engine is reported or why the engine malfunctioned. Codes are identified in TO 00-25-254-1

2.7. Transaction Condition Code (TCC): Logical sequence of events as referenced in TO 00-25-254-1

2.8. CII is the CEMS equivalent of a work unit code (see TO 00-25-254-1).

2.9. Error code responsibilities as referenced in TO 00-25-254-1.

### 3. Responsibilities for HAFB and JBSA SRAN EM/BEM.

3.1. The SRAN EM/BEM and alternates (when applicable) will:

3.1.1. Manage and account for engines and engine serially controlled component-related actions for SRANs FJ2029 and FJ2840, from the time of receipt, shipment, transfer, or termination.

3.1.2. Assume responsibility at HAFB and JBSA to maintain the FJ2029/FJ2840 SRAN accounts.

3.1.3. Administer the Base Engine Management Program and maintain currency of all engine status, condition, location, and action related to propulsion units for the FJ2029/FJ2840 accounts.

3.1.3.1. Execute duties per applicable TO's and operating instructions and utilize checklists and other guidance as required (e.g., checklists, shipping data, historical records check, 180-day preservation, contingency plan).

3.1.3.2. Perform periodic audit of engine management program to ensure compliance IAW TO 00-25-254-1 by utilizing CEMS local products (e.g., Engine Manager Data

- List (EMDL), Daily Transaction Summary (DTS), Daily Inspection Status Inventory and self-inspection checklist).
- 3.1.3.2.1. Assist Quality Assurance with group routine inventory listing and complex inspections.
  - 3.1.4. Coordinate with applicable weapon system aircraft logistics scheduler (ALS) on engine and engine component maintenance, time change items, special inspections, TCTO modifications and other documentation requirements (e.g., borescope inspections, blade blending, CANN actions) to ensure compliance.
    - 3.1.4.1. Ensure engine, module, and component data is reported to the SRAN EM/BEM no later than close of business the first duty day after the event (e.g., propeller and part removal, installation, time update, TCTO status change, and engine removal or installation in an aircraft or missile).
  - 3.1.5. Establish a CEMS contingency plan when the system is down for extended periods (more than 48 hours).
  - 3.1.6. Receive the following engine documentation:
    - 3.1.6.1. AF Form 1534, *CEMS CDB Report*, OO-ALC Form 205, or email equivalent from the propulsion personnel in aircraft; incoming for receipt and direct delivery of all engines and engine modules, and also within the shops (engine shop, flight test and ALCM missile) with update status and action for all engine and engine components received for depot, PDM, or missile maintenance.
    - 3.1.6.2. EHR, EDR, OO-ALC Form 206 or OO-ALC Form 207 are processed through CETADS after aircraft engine run and/or aircraft flight. OO-ALC Form 206 and OO-ALC Form 207 are submitted to the SRAN EM/ BEM after test cell completion. It's essential that this data be collected prior to the next flight or engine run. This includes quick turnaround provided that engines are shutdown. **NOTE:** For C-130 and T-38, update FHR only.
    - 3.1.6.3. Engine S/N or modular S/N and engine related HMC and TCC.
    - 3.1.6.4. Propulsion personnel will provide input into CEMS. Data will be input into the CEMS screen A295, automated history program by S/N for all accountable and non-accountable tracked items.
  - 3.1.7. Monitor CEMS reporting data for accuracy and timeliness prior to input. Review CEMS requested reports screen F050, Job Number Time Compliance Technical Order (TCTO) Configuration Reports to validate all TCTOs. E407 automated history parts 1 and 2 to validate engine and time compliance inspection data. Reconcile data between engine and aircraft historical data as required.
  - 3.1.8. Monitor, analyze, and reconcile CETADS daily, to ensure that the aircraft download data on the work center computers and host computer are current.
  - 3.1.9. Monitor and review EDR data downloads for F119-PW-100 engines using Integrated Maintenance Information System. Update CEMS screen A205, Engine Configuration and Status Reports.

- 3.1.10. Upon notification from the AGM-86 Missile scheduler, engine removal, installation, shipment or termination, update CEMS screen A205, *Engine Configuration and Status Reports*.
- 3.1.11. Process and download engine send file for F100-PW-200/220B/220E/220F/229, F110-GE-100, F110-GE-129 and TF34-GE-100 engines through CETADS for delivery aircraft only. Ensure send file is sent via email to applicable owning unit SRAN EM/BEM.
- 3.1.12. Review engine work packages that are maintained in the propulsion shop. Update engine status in CEMS screen A205, *Engine Configuration and Status Report*, IAW TO 00-25-254-1 and engine management share drive folders as required.
- 3.1.13. Review engine-related data in the Program Depot Maintenance Schedule System.
- 3.1.14. Input data to CEMS prior to next flight for engine operating time. **Note:** Accurate information is essential to provide current engine data used by engine management personnel.
- 3.1.15. Review the following CEMS local reports daily: EMDL (A590), Daily Transaction Summary (A600) and Daily Inventory Status List (C022A). SRAN EM/BEM will correct EMDL immediately upon receipt. ,
- 3.1.16. Ensure engine semiannual inventory report is completed and returned NLT the 15th of April and October.
- 3.1.17. Review and document engine automated history annually through CEMS screen A295, Automated History Program.
- 3.1.18. Review SRAN directory through CEMS browse reports. Submit request for change to the SRAN directory to CEMS PMO help desk and the CEM.
- 3.1.19. Ensure engine flying time, status, and TCTO reconciliation reports (if applicable) are completed.
- 3.1.20. Upon assignment of a new SRAN EM/BEM, the current BEM will request and accomplish a physical inventory. The outgoing and incoming SRAN EM/BEM must sign the inventory report, forward to CEMS/PMO help desk, and notify appropriate CEM upon completion.
- 3.1.21. Contact CEM first to resolve reporting problems not covered in TO 00-25-254-1.
- 3.1.22. Investigate and resolve delays involving maintenance or supply.
- 3.1.23. Investigate and resolve transportation problems/delays. Contact Defense Logistics Agency (DLA) Distribution (HAFB) and Traffic Management Office (TMO) (JBSA) customer service for assistance.
- 3.1.24. Initiate tracer action to locate assets shipped or transferred to another SRAN when not received within the required time frame of 20 calendar days for a shipment, or 10 calendar days for a transfer. Contact United Resource Service customer support for assistance.

3.1.25. Consider asset lost if not receipted within the above time frames and initiate a Report of Survey within 5 calendar days IAW AFMAN 23-220, *Report of Survey for Air Force Property*.

3.1.26. Obtain disposition instructions from the CEM at AFMC HQ/A4MM/A4MD for excess engines if applicable.

3.1.27. Ensure the handling, transportation, storage, and receipt of shipping devices for engines (i.e., trailers, stands, dollies, cradles, containers, shipping systems and adapters) are properly documented, maintained, and reported for incoming and outgoing assets. Coordinate/contact DLA Distribution (HAFB) and TMO (JBSA) customer support as required.

3.1.28. Ensure parts requirement for engine not mission capable for supply are accurately reported and promptly requisitioned.

3.1.29. Ensure engine shipments are properly documented and authorized. Prepare Department of Defense Form (DD FM)1348-1A, *Issue Release/Receipt Document (Attachment 4)*, or DD FM 1149, *Requisition and Invoice/Shipping Document (Attachment 5)*, for each shipment and transfer.

3.1.29.1. Create DD FM 1348-1A or DD FM 1149, IAW TO 00-85-20, *Engine Shipping Instructions*. Maintain a jacket file of engine shipping documents IAW AFI 33-363, *Records Management Program*, and TO 00-85-20.

3.1.29.2. Notify engineering technician via email for all shipping or receiving of support equipment (e.g., trailers, stands, containers, dollies, adapters, shipping devices, etc.).

3.1.29.3. Coordinate with DLA (HAFB) and TMO (JBSA) for all engines ground transportation IAW AFI 24-203, *Preparation and Movement of Air Force Cargo*.

3.1.30. Assume accountability for a shipped engine until the receiver acknowledges receipt in CEMS.

3.1.31. Notify the CEM at AFMC HQ/A4MM/A4MD of all transactions or condition codes 'ML' or 'LL' that cannot be processed to the CEMS CDB. Reference TO 00-25-254-1 to obtain required reporting information from deployed activities when reporting responsibilities are retained at the home SRAN.

3.1.32. Assist program manager or master scheduler with the following:

3.1.32.1. F135-PW-100 engine shipment as required;

3.1.32.2. All foreign military sales engine shipment as required;

3.1.32.3. United States Navy, Marine Corps, or Coast Guard engine shipment as required.

3.2. The 309th Aircraft Maintenance Group, to include the JBSA OL, will be responsible for and provide information outlined in paragraph 3.1.6 as applicable, and the following for all aircraft detailed in paragraph 1.5.1.

3.2.1. The master schedulers for each assigned Mission Design Series (MDS) will provide a 72-hour notification for all deliveries.

3.2.2. The ALS and flight test aircraft forms and records technician will notify the SRAN EM/BEM no later than close of business of the next business day following the date/time of the occurrence. Ensure all transactions are reported in the order they occur.

3.2.2.1. Date of engine arrival, removal, installation, shipment, or termination;

3.2.2.2. Engine S/N verification;

3.2.2.3. Arrival and shipping data (i.e., document number, location).

3.2.3. The ALS/engine scheduler will notify the SRAN EM/BEM of any engine and engine component removal and installation (to include propellers) no later than close of business of the next business day following the date/time of the occurrence.

3.2.4. Propulsion personnel will notify the SRAN EM/BEM prior to transporting engines or engine components to flight test, aircraft production, or transportation shipment (central receiving).

3.3. The 309th Missile Maintenance Group (309 MMXG) will be responsible for and provide information outlined in paragraph 3.1.6 as applicable, and the following for all missiles detailed in paragraph 1.5.1.

3.3.1. The 309 MMXG scheduler will notify the SRAN EM/BEM no later than close of business of the next business day following the date/time of the occurrence. Ensure all transactions are reported in the order they occur.

3.3.1.1. Date of ALCM and engine arrival, shipment, or termination;

3.3.1.2. ALCM and engine S/N verification;

3.3.1.3. Arrival and shipping data (i.e., document number, location).

3.4. Coordination with DLA Distribution (HAFB) and TMO (JBSA) or transportation focal point will be required on all incoming engines, engine components, and support equipment (i.e., trailers, stands, dollies and adapters).

#### **4. Responsibilities for 309 AMARG DMAFB SRAN Engine Manager/BEM.**

4.1. The SRAN Engine Manager (EM)/BEM and alternate(s) will:

4.1.1. Serve as 309 AMARG single point of contact (POC) for all engine management matters, and serve as a subject matter expert relating to development of engine-related processes and policy.

4.1.2. Assume responsibility at DMAFB to maintain the FJ2373/FJ23PD SRAN accounts.

4.1.3. Manage and account for engines and engine serially controlled component-related actions for SRANs FJ2373 and FJ23PD from the time of receipt, shipment, transfer, or termination. Maintain currency of all engine status, condition, location, and significant history related to assigned propulsion units by processing updates and transactions for all reportable events in the appropriate system of record pursuant to each customer's workload agreement, SOW, and/or support agreement.

- 4.1.3.1. Execute duties per applicable TO's and operating instructions and utilize checklists and other guidance as required (e.g., checklists, shipping data, historical records check, 180-day preservation contingency plan).
- 4.1.3.2. Perform periodic audit of engine management program to ensure compliance IAW TO 00-25-254-1 by utilizing CEMS Local Products (e.g., EMDL, DTS, Daily Inspection Status Inventory, and self-inspection checklist).
  - 4.1.3.2.1. Assist Quality Assurance with group routine inventory listing and complex annual activity inspection.
- 4.1.4. Coordinate with applicable production support flight on engine and engine component maintenance, time change items, special inspections, TCTO modifications, and other documentation requirements (e.g., borescope inspections, blade blending, CANN actions) to ensure compliance.
  - 4.1.4.1. Ensure engine, module, and component data is reported to the SRAN EM/BEM no later than close of business the first duty day after the event (e.g., propeller and part removal, installation, reclaimed part activity, time update, TCTO status change, and engine removal, or installation in an aircraft or missile).
- 4.1.5. Establish a CEMS contingency plan when the system is down for extended periods (more than 48 hours).
- 4.1.6. Receive the following engine documentation:
  - 4.1.6.1. OO-ALC Form 200, *Engine Maintenance Data Sheet*, will have all blocks filled out or marked N/A if not required (i.e. if parts installed or not installed) by production with updated status and action for all engine and engine components. This will ensure complete information is received by EM.
  - 4.1.6.2. EHR or 309 AMARG Form 35 is processed through CETADS after aircraft engine run and/or aircraft flight. OO-ALC Form 200 is submitted to the SRAN EM/BEM after test cell completion. It's essential that this data be collected prior to the next flight or engine run for tracking component life limited parameters. This includes quick turnaround provided that engines are shutdown.
  - 4.1.6.3. Engine S/N or modular S/N and engine-related HMC.
  - 4.1.6.4. Propulsion personnel will notify the SRAN EM/BEM for input to CEMS. Data will be input into the CEMS screen A295, *Automated History Program* by S/N for all accountable and non-accountable tracked items.
- 4.1.7. Monitor CEMS reporting data for accuracy and timeliness prior to input. Review CEMS requested reports screen F050, Job Number Time Compliance Technical Order (TCTO) Configuration Report, to validate all TCTOs. Review E407 *On Line History* parts 1 and 2 to validate engine and time compliance inspection data. Reconcile data between engine and aircraft historical data as required.
- 4.1.8. Monitor, analyze, and reconcile CETADS to ensure that the aircraft download data on the work center computers and host computer are current.

- 4.1.9. When applicable, review engine work packages that are maintained in the propulsion shop. Update engine status in CEMS screen A205, Engine Configuration and Status Report, IAW TO 00-25-254-1 as required.
- 4.1.10. Review engine-related data in the appropriate Maintenance Information System for accuracy.
- 4.1.11. Input data to CEMS prior to next flight for engine operating time. **NOTE:** Accurate information is essential to provide current engine data used by engine management personnel.
- 4.1.12. Review the following CEMS local reports daily: EMDL (A590), Daily Transaction Summary (A600) and Asset Status Change Report). SRAN EM/BEM will correct EMDL immediately upon receipt.
- 4.1.13. Ensure engine flying time, status, and TCTO reconciliation reports (if applicable) are completed.
- 4.1.14. Upon assignment of a new SRAN EM/BEM, the current SRAN EM/BEM will request and accomplish a physical inventory. The outgoing and incoming SRAN EM/BEM must sign the inventory report, forward to CEMS/PMO help desk, and notify appropriate CEM upon completion.
- 4.1.15. Contact CEM first to resolve reporting problems not covered in TO 00-25-254-1.
- 4.1.16. Investigate and resolve transportation problems/delays.
- 4.1.16.1. Initiate tracer action to locate assets shipped or transferred to another SRAN when not received within the required time frame of 20 calendar days for a shipment, or 10 calendar days for a transfer. Contact TMO customer support for assistance.
- 4.1.16.2. Consider asset lost if not receipted within the above time frames, and initiate a Report of Survey within 5 calendar days, IAW AFMAN 23-220, *Report of Survey for Air Force Property*.
- 4.1.17. Obtain disposition instructions from the Engine Item Manager (EIM), Program Manager, or Command Engine Manager (CEM) at AFMC HQ/A4MM for excess engines if applicable.
- 4.1.18. Ensure the handling, transportation, storage, and receipt of shipping devices for engines (i.e., trailers, stands, dollies, cradles, containers, shipping systems, and adapters) are properly documented, maintained, and reported for incoming and outgoing assets.
- 4.1.19. Ensure parts requirement for engine not mission capable for supply are accurately reported and promptly requisitioned.
- 4.1.20. Ensure engine shipments are properly documented and authorized. Prepare DD FM 1348-1A, *Issue Release/Receipt Document (Attachment 4)*, or DD FM 1149, *Requisition and Invoice/Shipping Document (Attachment 5)*, for each shipment and transfer.

- 4.1.20.1. Create DD FM 1348-1A or DD FM 1149 IAW TO 00-85-20; maintain a jacket file of engine shipping documents, IAW AFMAN 33-363, *Management of Records*, and TO 00-85-20.
- 4.1.20.2. Coordinate with TMO for all engines ground transportation IAW AFI 24-203, *Preparation and Movement of Air Force Cargo*.
- 4.1.21. Assume accountability for a shipped engine until the receiver acknowledges receipt in CEMS.
- 4.1.22. Notify the CEM at AFMC HQ/A4MM of all transactions or condition codes 'ML' or 'LL' that cannot be processed to the CEMS CDB. Reference TO 00-25-254-1 for obtaining required reporting.
- 4.1.23. Provide annual training to all 309 AMARG production personnel of engine reporting responsibilities.
- 4.1.24. Verify all assigned assets are in the ABS on a routine basis and reconcile ABS to each customer's system of record. ABS data will not be used as the sole information source to update any customer's system of record. **NOTE:** ABS is for financial accounting and location, not the system of record.
- 4.1.25. Conduct surveillance in the Engine Management Section monthly to validate all reportable actions were correctly reported in each customer's system of record, ABS, and other local management products, and ensure information is accurately reflected in the system of record. Performance results will be reported in the group Performance Measures Review.
- 4.1.26. Develop, manage, and use local procedures, work instructions, and checklists to comply with policies and to accomplish the processes specified in this instruction. These tools will specify organizational roles and responsibilities and will provide detailed "How-To" information. Include procedures and sequencing of actions for completing CEMS, DECKPLATE, ABS, and other system updates as required .
- 4.1.27. Establish a closed file for each engine when any documents are received, except for AF Form 913, *Aerospace Vehicle Project Action*, for aircraft with engines installed.
- 4.1.27.1. Closed files, at a minimum, will contain: source documentation for transfer of possession to/from 309 AMARG, any pertinent correspondence from AFLCMC/LPSD EIM or Program Manager (PM), and disposal turn-in documents.
- 4.1.28. Obtain EIM disposition when engines are received and engine status cannot be determined due to the losing unit not providing historical data per TO 00-20-1 section 3.8.
- 4.1.29. The SRAN EM/BEM will process all engine departures, decommissions, and de-obligations. Changes will not be made in the ABS without prior EM approval. Generally, engines will not be lost from the customer's inventory account, when components of the engine are reclaimed and shipped, until disposition for the engine core is provided.
- 4.1.30. Coordinate required actions for arrival of uninstalled engines based on customer SOW with applicable 309 AMARG POCs.

- 4.1.31. De-obligate engine from aircraft in ABS when a separate disposition is provided for an aircraft's assigned engines.
- 4.1.32. For shippers, prepare a DD FM 1348-1A, *Issue/Turn-in Document* IAW TO 00-85-20; and provide it to the 309 SPTS transportation specialist. The form must contain the engine, shipping adapter, trailer S/Ns, and fund cite.
- 4.1.33. Maintain a master log for 309 AMARG engine Transportation Control Numbers (TCN), per TO 00-25-254-1; provide TCN to unit POCs.
- 4.1.34. When Transportation Account Code (TAC) F8KA is used, verify TAFB POC has approved.
- 4.1.35. For engine propellers, assign asset identification numbers to each propeller and obligate to the parent engine.
- 4.1.36. For all Priority Removal requests, accomplish CEMS updates and resolve S/N discrepancies reported by production.
- 4.1.37. For engine and propeller disposals, coordinate with Business Operations Workload section (MXDSPP) for funding and work order when disposal disposition is received.
- 4.1.37.1. Change ABS status codes as engines move through the disposal process.
  - 4.1.37.2. Provide disposal documents to the MXDSPP Aircraft Disposition Office (ADO).
  - 4.1.37.3. Process loss in the CEMS/DECKPLATE when a valid 1348-1A (uninstalled engines) and destruction certificate (ADO; engines installed) is received. For AF assets, update CEMS automated history.
- 4.1.38. For asset arrival, conduct an engine records review and S/N validation against asset documentation. Take appropriate actions to update the customer account and system of record information and, if necessary, make corrections. Ensure uncompleted Time Change Technical Orders (TCTO) are updated to 24 status for long term storage engines per TO 00-25-254-1.
- 4.1.39. Provide 309 AMARG/MXDSPS Records Section with guidance for engine record requirements and maintenance.
- 4.1.40. Obtain EIM and/or PM disposition for storage and other required guidance for each Type, Model, Series and Modification (TMSM) as required pursuant to AFMAN 20-116, *Propulsion Life Cycle Management for Aerial Vehicles*, AFI 20-115, *Propulsion Management for Aerial Vehicles*, AFI 63-101, *Acquisition and Sustainment Life Cycle Management*, and AFI 63-101 AFMC Supplement 1. Obtain disposition for propellers when parent asset is approved for disposal or other actions, when the SOW does not already specify disposition.
- 4.1.41. Monitor Engine Trending and Diagnostic (ET&D) and Engine Health Management (EHM) program compliance and verify engine download data is accurately and completely transferred to CEMS.

4.1.42. USAF accounts will be inventoried per TO 00-25-254-1. When the inventory is complete, the EM will resolve discrepancies. Discrepancies will be documented, corrected, and verified in the applicable system of record and 309 AMARG ABS.

4.1.42.1. Coordinate with 309 AMARG/MXDSPP Workload Office to cut a Request for Quote when discrepancies are found during inventory (example: improperly sealed engine or storage device; bad indication of desiccant, etc.).

4.1.43. Attend 309 AMARG planning meetings that involve engine workload. Coordinate with planner to review/sign AFMC Form 500, *Work Control Document Production Planning Team Checklist*, when unable to attend.

## **5. Other 309 AMARG Engine Management Reporting Related Requirements .**

5.1. Director, 309 AMARG/MXDS Production will:

5.1.1. Ensure engine management is properly staffed and resourced.

5.1.2. Ensure the ABS supports engine management requirements.

5.2. 309 AMARG/MXDSPP Workload Office will:

5.2.1. Obtain EIM and/or PM disposition for engine serviceability and condition code when the engine preservation period expires and the workload agreement does not already specify disposition. Plan and issue work orders to update asset warning tags when engineering disposition contains direction not to operate the engine without further engineering approval or when engine serviceability is unknown. Notify SRAN EM/BEM to establish standard ABS documentation requirements for engines that cannot be operated due to an expired preservation.

5.2.2. Ensure support agreements, workload agreements, and SOWs involving propulsion units are coordinated with SRAN EM/BEM prior to approval and comply with TO 00-20-1, TO 1-1-686, *Technical Manual, Desert Storage Preservation and Process Manual for Aircraft, aircraft Engines, and Aircraft Auxiliary Power Unit Engines*, paragraph 3.27, customer unique publications and TMSM specific technical orders.

5.2.3. Coordinate with the SRAN EM/BEM and establish and manage propulsion unit preventative maintenance requirements for both installed and uninstalled engines.

5.2.4. Review the Preventive Maintenance Discrepancy Report and take corrective action as required.

5.2.5. Advise EM when a workorder request is received that requires any type of work on an engine, propeller, blade or shipping/storage device.

5.2.6. For all museum asset arrivals, movements, transfers, or disposals notify SRAN EM/BEM within 24 hours of occurrence using the OO-ALC Form 200.

5.3. 309 AMARG Production Support office (MXDSPS) Advance Planning Cell and unit production planners will:

5.3.1. For all engine, engine component, propeller, and rotor blade workload, develop job plans in a manner that generates Production Work Orders (PWO) against the specific engine, propeller, or rotor blade asset number, not the aircraft asset number.

Requirements for more than one engine, propeller, or blade will not be combined into a single PWO. This policy applies to all production control numbers.

5.3.1.1. Job plan instructions will:

5.3.1.1.1. Inform production to provide information to the EM not later than close of business the duty day following completion of the task per paragraph 4.1.4.1 and 5.3.2 of this instruction. The reporting of this information cannot wait until the completed work order goes to the scheduler for final review.

5.3.1.1.2. All engine/component job plans will include instructions for production to physically verify the asset S/N data plate and document it in the PWO as early as possible in the process for that given workload for engines, blades, and propellers--both installed and uninstalled. This policy applies when any maintenance is performed on the engine, propeller, or blade.

5.3.1.1.3. Design job plans to instruct production to notify 309 SPTS Job Control and SRAN EM/BEM of the new location for all engine and propeller movements (same as obtaining clear to tow approval for aircraft).

5.3.1.1.4. Design job plans to comply with applicable technical orders for documenting engine times and cycles for engine changes, completing required engine downloads per the TMSM technical order, and providing data to the SRAN EM/BEM. For AF engines, job plan will instruct production to confirm with SRAN /BEM that all CEMS transactions have been processed prior to releasing aircraft for flight.

5.3.1.1.5. As of the date of this publication, the following engines require downloads: F100-PW-220 (F-15 & F16), F110-GE-100 (F-16), F101-GE-102 (B-1B), TF34-GE-100A (A-10), F108-GE-100 (KC-135R, RC-135), AE3007H (Global Hawk) engines. Downloads are required after each green run/engine run, functional check flight, operational check flight, or engine times cycles/total accumulated cycles update. Engines will be downloaded and processed in the CETADS work center computer, then reconciled to the SRAN EM/BEM host computer and recorded in CEMS pursuant to the applicable 00-25-257 series Technical Order, *Engine Health Management Plus (EHM+) User's Manual Instructions*.

5.3.1.2. Advise and coordinate with SRAN EM/BEM prior to Pre-Production Planning Team meetings that involve engine workload.

5.3.1.3. Contact the SRAN EM/BEM prior to creating a job plan for any engine TMSM new to 309 AMARG inventory.

5.3.1.4. For all engine workload, design job plans to include instructions for providing the engine preservation date to the SRAN EM/BEM when the engine is preserved (this is not the arrival date).

5.3.1.5. Advise the SRAN EM/BEM when a workorder is received that requires any type of work on an engine or propeller.

5.3.2. Design job plans to include requirements for production personnel to report/document maintenance actions at the time of maintenance for all engine-related

actions, to include work on components. Include requirements to provide Air Force Technical Order (AFTO) Form 95, *Significant Historical Data*, data elements (Part Number [P/N], S/N, How Mal, etc.) asset condition changes (example, serviceable/unserviceable) with reasons, and status changes (installed/uninstalled, engine runs) per TO 00-20-1 and AFI 21-102, AFMC Supplement 1, paragraph 13.19.1.4.1. This requirement applies to engines in all status codes except PG (disposal prep-ready to work or in work) and PZ (Defense Reutilization and Marketing Service (DRMS) aircraft still on 309 AMARG property). This does not apply to parts removed during disposal preparation when the parts will also be disposed. Additional requirements for Programmed Depot Maintenance (PDM) and Service Life Extension Program workloads and F100PW-100/200/220/229 engines are contained in TO 00-20-5-1-1, *Engine Historical Records, Instructions for F100PW-100/-200/-220/-229*. For all inductions and 309 AMARG generated sorties (Operational Check Flight, Functional Check Flight, etc.) production will provide a copy of 309 AMARG Form 35, *Taxi and FCF Briefing/Discrepancy Sheet*, (or equivalent for non-AF assets) immediately after post-flight updates are completed. For AF assets, EM must update all component removals in CEMS automated history, not just S/N tracked parts.

#### 5.4. ADO will:

5.4.1. Notify SRAN EM/BEM NLT 14 business days prior to authorizing DLA to begin work or transport engines from 309 AMARG. The SRAN EM/BEM will verify S/Ns at the time assets change ownership and/or are physically removed from 309 AMARG property.

#### 5.5. 309 AMARG production units 576 AMRS, 577 CMRS, 578 SDS, and 309 SPTS will:

5.5.1. For both installed and uninstalled assets, notify EM in writing no later than the first duty day following maintenance, any changes in status or condition, and any accomplished engine runs. For engine component removals, the ABS removed component inventory (C03) will be updated against the engine asset number--not the aircraft. Planners will comply with Section 5.3 of this instruction. Supervisors and schedulers will ensure PWOs include required instructions for production personnel to document OO-ALC Form 200 per para. 4.1.6.1 at the time of maintenance for all engine related tasks. Production personnel will record this information in the work order per TO 00-20-1, AFI 21-102, AFMC Supplement 1 and IAW this instruction. Units will provide a hard copy or scanned copy via email to the EM. The EM cannot accept information re-typed into an email or via phone.

5.5.2. For AF engines, units are responsible to confirm with SRAN EM/BEM that all CEMS transactions have been processed prior to releasing aircraft for flight.

5.5.3. Maintain physical control of uninstalled engines assigned to unit temporary storage locations. Immediately notify SRAN EM/BEM if any asset is moved without the unit's knowledge or is not found at its last known location. See section 5.12 of this instruction. The container yard will provide a daily engine status summary of engine movements in their area of responsibility by Close of Business (COB).

5.5.4. Respond to all SRAN EM/BEM requests for information within 24 hours.

5.5.5. Promptly update all ABS PWO operations related to engine work from Waiting Approval (WAPR) to In-Progress (INPRG) and from INPRG to Complete (COMP). Do not leave engine-related operations WAPR when being worked and do not change status from WAPR directly to COMP if the task has been worked.

5.5.6. When applicable, use the local procedure work instructions approved and provided by the EM to accomplish responsibilities set forth in this instruction.

5.5.7. Upon asset arrival, notify SRAN EM/BEM when an engine asset projected to arrive in serviceable condition is received in an unserviceable condition. Notify Job Control of any apparent damage.

5.5.8. Do not make changes to the propulsion unit ABS asset record notes without SRAN EM/BEM approval. Notes are used to provide higher headquarters reports; therefore, they must contain certain information.

5.5.9. Coordinate with 578 SDS Production Support Flight for uninstalled engine movement requirements.

5.5.10. Notify Job Control of uninstalled engine, and propeller movements at the time of movement.

5.5.11. 578 SDS is the single POC for uninstalled engine movement within 309 AMARG and is responsible for physical control of uninstalled engines assigned to 578 SDS storage locations. Exception, Engines that are the custody of 577CMRS Propulsion Section will be transported by Propulsion personnel to include engines removed and installed by the Propulsion Section.

5.6. 309 SPTS will:

5.6.1. Store and manage unobligated propeller and blade assets.

5.6.2. Update storage locations in the ABS when reported to Job Control by units, by the end of the shift in which the report was received.

5.6.3. Transportation will inform Job Control when engine, blade and propellers are received and shipped on the date those actions take place.

5.7. Quality Assurance/Process Improvement will:

5.7.1. Notify the SRAN EM/BEM of unsatisfactory conditions for propulsion units when found.

5.7.2. Perform Routine Inspection List checklist monthly and provide feedback to EM.

5.7.3. Provide EM a copy of all initial, interim, and final Foreign Object Damage reports concerning propulsion units and components.

5.8. 577 CMRS Engine Shop will:

5.8.1. Accomplish the group's ET&D and EHM program. Make recommendations to the commander and EM per AFI 21-102. Maintain a trained primary and alternate ET&D manager.

5.8.2. Use approved AFTO forms, OO-ALC test cell engine run sheets, automated run sheets, or local forms to document test cell engine runs.

5.8.3. Provide daily status summary of all engines in their area of responsibility by COB.

5.9. Tasked production unit will:

5.9.1. Perform engine asset preventative maintenance actions as directed by the workloading office.

5.9.2. Immediately process a workorder request upon discovery of discrepancies using 309 AMARG local procedures. Discrepancies that affect engine preservation and serviceability based on preservation will be corrected as soon as possible but within 30 days. Assets in Type 1000 and 1500 storage category will be prioritized ahead of type 2000, 4000, and 4500 storage assets.

5.10. Policy.

5.10.1. Engines, propellers, and blades that arrive with an aircraft are obligated to that aircraft/engine unless specified otherwise in the SOW or this instruction. This obligation applies whether assets are installed or uninstalled, serviceable, or unserviceable.

5.10.1.1. When obligated in ABS, engines and helicopter rotor blades are a child to the parent aircraft, while propellers are a child to the parent engine. Obligated engines, propellers, and blades also assume the same storage status as the parent asset, unless specified otherwise in the SOW, and will normally change status with the parent asset.

5.10.1.2. In general, during induction, helicopter blades are removed for storage and propellers remain installed. Normally uninstalled propellers will be de-obligated from the engine at the time of removal. Exceptions will be managed per special instruction from the customer/asset owner.

5.10.1.3. Engines will not be obligated to or installed in aircraft other than for which they were originally authorized without prior written direction from the system program office, EIM and with engineering approval. Prior coordination with CEMS PMO is required to assess possible impacts to status and inventory reporting.

5.10.1.4. Uninstalled engines will not be submitted with aircraft to DLA for disposal. Uninstalled engines will be submitted separately for disposal in order to maintain a clear audit trail and proof of destruction. Engines removed during aircraft disposal preparation will be transported to the container yard for processing by 578 SDS personnel.

5.10.2. Job plans will be structured in a manner that records the workload being accomplished against the engine asset number-- not the aircraft asset number. Requirements for more than one engine will not be combined into a single PWO.

5.10.3. For AF assets, aircraft will not be flown or delivered until the engine and engine components are correctly updated in CEMS. Units are responsible to confirm with SRAN EM/BEM that all transactions have been processed prior to releasing aircraft for flight.

5.10.4. The responsible production unit and the workloading section will coordinate with EM regarding Type 1000 assets that 309 AMARG does not have the capability to repair or when repair is not economically feasible. Engines in Type 1000 storage will not be

stored with deferred discrepancies (open, not repaired) without prior SRAN EM/BEM coordination.

5.10.5. Engines with an expired engine preservation as defined in TO 00-20-1, **Chapter 4** and the customer's SOW will not be operated without engineering approval.

5.10.6. Engine records remain with the aircraft jacket file until the engine is de-obligated. Once de-obligated, the records will be removed and filed in the uninstalled engine records area.

5.10.6.1. Engine records will not be physically stored with uninstalled engines in containers, Engine Transportation Units (ETU), trailers, or any other storage device.

5.10.6.2. Upon induction of installed and uninstalled AF engines, the hard copy AFTO Forms 95 will be annotated to indicate the initial records review was completed and history is now being maintained in CEMS. After this point, there is no requirement to print and place updated copies of AFTO Form 95 in engine records. Entries on the paper AFTO Form 95 will no longer be made. Printed CEMS records for engines and components will be provided with any associated AFTO Forms 95 when asset is removed from storage for reclamation, regeneration, or withdrawal.

5.10.7. Uninstalled engine storage locations in ABS will be the same format as a supply location, "nnAnnnAnnnA". Positions 1, 2, and 3 (nnA) are the area followed by an alpha that identifies the area. Positions 4, 5, 6, and 7 (nnnA) are the row followed by an alpha to describe the engine position when engines are stacked (A is bottom A, B is one up, and so on). Positions 8, 9, 10, and 11 (nnnA) are the spot followed by an alpha to describe engine position when engines are back to back (depth; A is the front, B is one back, and so on). This format applies to long-term storage locations in Lots 1, 2, 3, and 4. It does not apply to temporary storage locations. Format changes will be coordinated with 309 AMARG/MXDS.

## 5.11. Procedures.

### 5.11.1. Engine Inductions.

#### 5.11.1.1. Arrival of installed engines.

##### 5.11.1.1.1. 578 SDS will:

5.11.1.1.1.1. Provide the SRAN EM/BEM with flight hours/operating time for all inductions and verify records were received.

5.11.1.1.1.2. Notify the SRAN EM/BEM if records were not received with the asset or for any other unusual or abnormal circumstances.

#### 5.11.1.2. Arrival of uninstalled engines.

##### 5.11.1.2.1. 309 SPTS Supply and Special Assets Sections will:

5.11.1.2.1.1. Perform incoming inspection for obvious damage to engine and transportation devices and comply with TO 00-85-20-WA-1. Provide EM with copies of the Certified Bill of Lading, DD FM 1348-1A, and the engine records. Notify Job Control of asset arrival.

5.11.1.2.1.2. If damage is discovered, notify Job Control and SRAN

EM/BEM. Follow 309 AMARG and 355 FW local procedures.

5.11.1.2.1.3. Contact 578 SDS Scheduling when assets are off-loaded and ready for movement.

5.11.1.2.2. 578 SDS will:

5.11.1.2.2.1. Generate work orders to inspect engines and verify serviceability of container, ETU and/or trailers, and adaptors. Notify the SRAN EM/BEM if the asset and/or container/device are unserviceable

5.11.1.2.2.2. Comply with paragraph 5.5 of this instruction.

5.11.1.2.2.3. Ensure wrapped uninstalled engines and engines in shipping/storage devices are properly identified with engine TMSM and S/N IAW TO 2J-1-18. If the engine has an afterburner in the transportation device, also annotate this on the container.

5.11.1.2.2.4. Provide all records received with the asset to the SRAN EM/BEM.

5.11.2. Engine Regeneration and Withdrawal.

5.11.2.1. OO-ALC/OBW will:

5.11.2.1.1. Provide SRAN EM/BEM with asset S/Ns scheduled for work.

5.11.2.1.2. Notify SRAN EM/BEM when aircraft is planned for overland withdrawal where the engines will be removed, regardless if engines will be shipped with or without the aircraft.

5.11.2.1.3. For US Navy assets, OO-ALC/OBW workloader coordinates with SRAN EM/BEM to complete DECKPLATE Engine Transaction Report (ETR) pursuant to the SOW.

5.11.2.2. The unit assigned the workload management responsibility and/or producing the workload will:

5.11.2.2.1. Comply with paragraph 5.5 of this instruction.

5.11.2.2.2. Comply with TO 00-20-1 section 5.5 for installed engines if aircraft 781 forms are still active.

5.11.2.2.3. For shipper assets, provide the SRAN EM/BEM shipping information to include funds cite(s), TAC or MORD as early as possible, but no later than 5 duty days prior to shipping date.

5.11.2.3. The Propulsion Shop will:

5.11.2.3.1. Comply with paragraph 5.5 of this instruction.

5.11.2.3.2. Provide engine records to SRAN EM/BEM immediately upon receipt of shipped engines.

5.11.3. Engine Shipments.

5.11.3.1. The SRAN EM/BEM will:

5.11.3.1.1. De-obligate engine from aircraft when required.

5.11.3.2. Applicable squadron production support flight will:

5.11.3.2.1. Obtain engine records from SRAN EM/BEM and secure records with asset prior to turning it over to 309 SPTS Transportation.

5.11.3.3. Tasked production work centers responsible for preparing assets for shipment will comply with TO 00-85-20-WA-1, TO 2J-1-18 and TO 2-1-18. Prepare and provide AFTO Form 20, *Caution and Inspection Record*, when required, to 309 SPTS.

5.11.3.4. 309 SPTS Transportation Office will:

5.11.3.4.1. Provide SRAN EM/BEM the following documentation: DD FM 1348-1A/DD FM 1149 and Commercial Bill of Lading within 24 hours for all shipments.

5.11.3.4.2. Notify Job Control on the date the driver signs for the assets.

5.11.3.4.3. Notify SRAN EM/BEM prior to loading any engine and propeller on transport. All engine and propeller shipping documentation will be verified prior to all shipments.

5.12. Asset Storage Accountability and Physical Location Control.

5.12.1. The SRAN EM/BEM maintain overall responsibility for accountability, control and accurate engine location information. Each work center listed below is responsible for the engines in their location, which are authorized for temporary storage. Each work center is responsible for reporting location and status changes to SRAN EM/BEM as they occur.

5.12.1.1. 578 SDS Container Yard (in ABS use “can yard”)

5.12.1.2. 577 CMRS Propulsion (in ABS use “engine shop”)

5.12.1.3. KSPAN/KSPAN07, controlled by the engine shop (in ABS use “engine shop”)

5.12.1.4. 309 SPTS Receiving (in ABS use “receiving”)

5.12.1.5. 577 CMRS Reclamation (in ABS use “reclamation”)

5.12.1.6. 309 SPTS Woodmill (in ABS use “woodmill”)

5.12.1.7. 576 AMRS Flight Line and Shelter (in ABS use “FL(x)” where x is spot number)

5.12.2. 578 SDS Container Yard is also authorized for long-term storage. Container Yard has the authority to temporarily establish additional storage locations and notify the SRAN EM/BEM when new locations are opened and closed.

- 5.12.2.1. The Wing Shop, building 7401, may be used for temporary engine storage.
- 5.12.3. Uninstalled engines will not remain outside these areas uncontrolled without prior coordination with SRAN EM/BEM.

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

- AFI 20-115, *Propulsion Management for Aerial Vehicles*, 12 Feb 14
- AFI 21-102, *Depot Maintenance Management*, 18 Jul 12
- AFI 21-102\_AFMCSUP, *Depot Maintenance Management*, 7 Jan 16
- AFI 24-203, *Preparation and Movement of Air Force Cargo*, 2 Nov 10
- AFI 63-101\_AFMCSUP, *Acquisition and Sustainment Life Cycle Management*, 17 Jan 12
- AFMCI 23-111, *Reclamation of Air Force Property*, 9 Feb 12
- AFMAN 20-116, *Propulsion Life Cycle Management for Aerial Vehicles*, 7 Feb 14
- AFMAN 20-116\_AFMCSUP, *Propulsion Life Cycle Management for Aerial Vehicles*, 7 Aug 14
- AFMAN 23-220, *Reports of Survey for Air Force Property*, 1 Jul 96
- AFMAN 33-363, *Management of Records*, 1 Mar 08
- AFPD 21-1, *Maintenance of Military Materiel*, 29 Oct 15
- AFSCMAN 21-102, *Depot Maintenance Management*, 16 Mar 15
- AFSCMAN21-102\_AFSCGM2016-01, *AFSC Guidance Memorandum to AFSCMAN 21-102, Depot Maintenance Management*, 12 May 16
- TO 1-1-686, *Technical Manual, Desert Storage Preservation and Process Manual for Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines*, 5 Dec 14
- TO 00-25-254-1, *Comprehensive Engine Management System Engine Configuration, Status and TCTO Reporting Procedures*, 1 May 16
- TO 00-25-257-1, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F100-220*, 1 Aug 08
- TO 00-25-257-2, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F100-229*, 1 Aug 08
- TO 00-25-257-3, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: TF34-100A*, 1 Dec 11
- TO 00-25-257-4, *Engine Health Management Plus (EHM+) User's Manual Instructions for Turbofan Engine Model: F110-129*, 1 Aug 08
- TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies and Procedures*, 15 Jun 13
- TO 00-20-5 Series, *Engine Historical Records (Series of volumes with multiple dates)*
- TO 00-85-20, *Engine Shipping Instructions*, 15 Mar 12
- 309 AMARGI 23-202, *Tagging and Labeling Materiel*, 9 Feb 15

NAVAIRINST 13700.15F, *Naval Air Systems Command Instruction, Aircraft Engine Management System (DECKPLATE)*, 9 Jun 14

***Prescribed Forms***

OO-ALC Form 200, *Engine Maintenance Data Sheet*

OO-ALC Form 205, *Modular Engine Time/Cycle Accumulation*

OO-ALC Form 206, *F100-PW-220 Data Run Sheet*

OO-ALC Form 207, *F100-PW-229 Data Run sheet*

***Adopted Forms***

309 AMARG Form 2, *Radioactive Material Transfer Record*

309 AMARG Form 22, *Components Items Missing and or Removed from Aircraft*

309 AMARG Form 35, 309 AMARG Form 35, *Taxi and FCF Briefing/Discrepancy Sheet*

309 AMARG Form 43, *Aircraft Examination and Evaluation Data*

AF Form 913, *Aerospace Vehicle Project Action*

AFMC Form 500, *Work Control Document Production Planning Team Checklist*

AFTO Form 20, *Caution and Inspection Record*

AFTO Form 95, *Significant Historical Data*

AF Form 847, *Recommendation for Change of Publication*

AF Form 1534, *CEMS CDB Report*

DD Form 1149, *Requisition and Invoice/Shipping Document*

DD Form 1348-1A, *Issue Release/Receipt Document*

***Abbreviations and Acronyms***

**ABS**—Aerospace Maintenance and Regeneration Group Business System

**ADO**—Aircraft Disposition Office

**AF**—Air Force

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFMC**—Air Force Materiel Command

**AFPD**—Air Force Policy Directive

**AFTO**—Air Force Technical Order

**AMRS**—Aerospace Maintenance and Regeneration Squadron

**AFRIMS**—Air Force Records Information Management System

**AFSCMAN**—Air Force Sustainment Center Manual

**AMARG**—Aerospace Maintenance and Regeneration Group  
**AMXS**—Aircraft Maintenance Squadron  
**ALCM**—Air Launch Cruise Missile  
**ALS**—Aircraft Logistics Scheduler  
**BEM**—Base Engine Manager  
**CANN**—Cannibalization  
**CDB**—Central Data Base  
**CEM**—Command Engine Manager  
**CEMS**—Comprehensive Engine Management System  
**CETADS**—Comprehensive Engine Trending and Diagnostics System  
**CII**—Configuration Item Identifier  
**COB**—Close of Business  
**CMRS**—Commodities Reclamation Squadron  
**COMP**—Complete  
**DD FM**—Department of Defense Form  
**DECKPLATE**—US Navy Engine Management Business System  
**DLA**—Defense Logistics Agency  
**DMAFB**—Davis-Monthan Air Force Base  
**DRMS**—Defense Reutilization and Marketing Service  
**DSD**—Data System Designator  
**DTS**—Daily Transaction Summary  
**EDR**—Engine Data Review  
**EHM**—Engine Health Management  
**EHM+**—Engine Health Management Plus  
**EHR**—Event History Recorder  
**EIM**—Engine Item Manager  
**EM**—Engine Manager  
**EMDL**—Engine Manager (Daily) List  
**ET&D**—Engine Trending and Diagnostic  
**ETR**—Engine Transaction Report  
**ETU**—Engine Transportation Units  
**FHR**—Flying Hour

**GE**—General Electric  
**GSU**—Geographically Separated Unit  
**HAFB**—Hill Air Force Base  
**HQ**—Headquarters  
**HMC**—How-Mal Code  
**IAW**—In Accordance With  
**IMIS**—Integrated Maintenance Informational System  
**INPRG**—In Progress  
**JBSA**—Joint Base San Antonio  
**MDS**—Mission Design Series  
**MXDS**—Production  
**MXDSPP**—Workload  
**MXDSPS**—Production Support and Asset Management  
**NAVAIRINST**—Naval Air Systems Instruction  
**NLT**—Not Later Than  
**NSN**—National Stock Number  
**OB**—Business Operations  
**OBW**—Business Operations Workload Section  
**OL**—Operating Location  
**OO-ALC**—Ogden Air Logistics Complex  
**OPR**—Office of Primary Responsibility  
**PDM**—Programmed Depot Maintenance  
**PH**—Prep for Disposal In Work [**Scheduling**]  
**PM**—Program Manager  
**PMO**—Program Management Office  
**P/N**—Part Number  
**POC**—Point of Contact  
**PW**—Pratt & Whitney  
**PWO**—Production Work Order  
**PZ**—DRMS Aircraft – Still on AMARG Property [**ADO**]  
**SDS**—Storage Disposal Squadron  
**S/N**—Serial Number

**SOW**—Statement of Work

**SPTS**—Support Squadron

**SRAN**—Stock Record Account Number

**TCC**—Transaction Condition Code

**TAC**—Transportation Account Code

**TAFB**—Tinker Air Force Base

**TCN**—Transportation Control Number

**TCTO**—Time Compliance Technical Order

**TMO**—Traffic Management Office

**TMSM**—Type, Model, Series and Modification

**TO**—Technical Order

**USAF**—United States Air Force

**USN**—United States Navy

**WAPR**—Waiting Approval

**WR**—Williams International

**309 MMXG**—Missile Maintenance Group

**575 AMXS**—575th Aircraft Maintenance Squadron

**576 AMRS**—576th Aerospace Maintenance and Regeneration Squadron

**577 CMRS**—577th Commodities Reclamation Squadron

**578 SDS**—578th Storage and Disposal Squadron

Attachment 2

SAMPLE AF FORM 1534, CEMS CDB REPORT

Figure A2.1. AF Form 1534 CEMS CDB Report.

CEMS CDB REPORT				1. Report Control System RCS		Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data as needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Department of Defense, Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send your completed form to: Headquarters, Global Status for Force, Air AF/OPNY, Washington, DC, 20330-1100.</small>							
2. SLUR SYS ID	3. CI DESIGNATION	4. SERIAL NUMBER	5. OCCURRENCE		6. BRAN	7. COMD	8. ORG
	AF111C110900E5101650		5a. DATE	5b. HOUR	MAJ	SUB	9. ACCT
11. PART NUMBER	14. TORCON		15. SHIPPING DEVICE		16. SEQUENCE NO.		
214M10901							
12. TRANSACTION (Circle one)		13. CONDITION (Circle one)		17. ENG RELATED HOW SERIAL			
NEW PRODUCTION	A	WORK COMPLETED	F	EVULFUP	18. REASON FOR RETURN TO OHS		
RECURSABLE	B	TEST CELL REJECT	G	RAIS	19. REPAIRABLE ENG. SERIAL NO.		
NON-RECURSABLE	C	WORK STOPPED	H				
EXCHANGE	D	WORK STARTED	J	REPAIRABLE	20. PRIMARY/SECONDARY HOW SERIAL		21. S/NP NO.
		REMOVED TRANSIT	K	CONDENSED	C. INDICATOR (Circle one)		A Z
LOSS		REMOVED OTHER	L	WITH OEC	22. DOCUMENT NO./NSN		
ATTRITION	W	CHANGE IN MAINT	M	WITHOUT OEC			
FOR PARTS	X	AWAIT DISPATCH	N	MINOR OVAL	23. ENGINE FLYWG TIME		24. CYCLE/ORTIE
SALVAGE/ONNO	Y	ISSUE MAINTENANCE	P	MAJOR OVAL			
OTHER	Z				25. ERROR SEQUENCE NO.		26. TMSM
NON-GATE/CSS		CONFIGURATION	B		27. NHA DESIGNATOR		28. NHA SERIAL NO.
RECEIVED	R	INSTALLED					29. POSITION NO.
SHIPPED	S	INSTALLED TRANSIENT	U	ACTIVE	30. REMARKS		
TRANSFERRED	T	INSTALLED OTHER	V	INACTIVE			

AF FORM 1534, 19911001 (EF-V1) PREVIOUS EDITIONS ARE OBSOLETE.

Attachment 3

EHR DOWNLOAD SAMPLE DATA FROM CETADS (AIRCRAFT FLIGHT/ENGINE RUN).

Figure A3.1. EHR Download Sample 1.

<p><b>ERAUFE509623112361546XXXXX</b> <b>59000086660001003961001254262000474063000029609001972069000011968000029867000</b> <b>0558660000936650001321770001865</b></p>
--

Figure A3.2. EHR Download Sample 2.

<p><b>EHRAUFE545260112361349XXXXX</b> <b>59000049460000480161000561862000322563000017709000891869000001568000009367000</b> <b>0278660000606650000882770006029</b></p>
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Attachment 4

SAMPLE DD FORM 1348-1A, ISSUE RELEASE/RECEIPT DOCUMENT.

Figure A4.1. DD Form 1348-1A.

DD FORM 1348-1A, JUL 97 (EO) ISSUE RELEASE/RECEIPT DOCUMENT  
 (SEE ADDITIONAL INSTRUCTIONS ON REVERSE)  
 (USE PREVIOUS EDITIONS ONLY IF SPECIFIED)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
SHIP TO: FB5001 891 Arctic Warner Dr. JBER, AK 99506															SHIP FROM: FB5001 TMO Bldg 849 West 5851 F. Ave. Hbitar, UT 84056 C MARK FOR REPAIRABLE F119 ENGINE																																																																																				
FROM: F12029 5851 F. Ave., Bldg. 849 West 181 AFB, UT 84056-3713															SHIP TO: FB5001 891 Arctic Warner Dr. JBER, AK 99506																																																																																				
SHIP TO: FB5001 891 Arctic Warner Dr. JBER, AK 99506															SHIP FROM: FB5001 TMO Bldg 849 West 5851 F. Ave. Hbitar, UT 84056 C MARK FOR REPAIRABLE F119 ENGINE																																																																																				
284F119PW100 P/N 432120 S/N PW0230451 ENGINE SHIPPING SYSTEM (ESS) P/N 433M49 S/N Q559 3000E TRAILER P/N 28000-0000-00 NSN 1740-01-381-2919 S/N 119-0035-GT2M F119 SHIPPING BAG, P/N 433013, S/N 66-384-4															REPAIRABLE F119 ENGINE																																																																																				
TAC CODE: FREE															REPAIRABLE F119 ENGINE																																																																																				
AIR RIDE TRAILER REQUIRED FOR SURFACE MOVEMENT															REPAIRABLE F119 ENGINE																																																																																				
PACKED BY / DATE															INSPECTED BY / DATE																																																																																				
Shipped & Prepared IAW 21-4-18 / 00-05-20 / IMES TOC CMD ID P429435. Engine is Detined and Pargad in his Appropriate Hazard Declaration Forms Attached.															REPAIRABLE F119 ENGINE																																																																																				
This shipment does not contain any classified, sensitive, protective items, drugs, contraband or hazardous material. (If HAZ MAT "FULL" HAZ DEC REQ)															REPAIRABLE F119 ENGINE																																																																																				
POC AT HILL AFB, HILL, (M DSN 771-440)															REPAIRABLE F119 ENGINE																																																																																				
POC AT JBER, AK: 3 MOS ENGINE MANAGEMENT DSN: 531-413761386129															REPAIRABLE F119 ENGINE																																																																																				

Active Designer 7.0



Attachment 6

SAMPLE OF ENGINE DATA REVIEW SHEET

Figure A6.1. Engine Data Review Sheet.

The screenshot shows a software window titled 'UNCLASSIFIED' and 'Engine Data Review'. It contains a table with engine parameters. The table has columns for 'Parameter', 'Value', and 'Units'. The data is organized into two columns within the table.

Parameter	Value	Units	Parameter	Value	Units
RUN	916	runs	EOT	1588.0	hours
MAN	622	cycles	LC <sup>2</sup>	7683	cycles
HS1	17.31	hours	HS2	5.95	hours
CSC	908	shutdowns	FL <sup>1</sup>	724	flights
TCY	2700	cycles	FL1	14	LUC (Life Usage Cycle)
CLL	5	LUC (Life Usage Cycle)	DL1	6	LUC (Life Usage Cycle)
HLL	18	LUC (Life Usage Cycle)	LL1	22	LUC (Life Usage Cycle)
HAL	0	LUC (Life Usage Cycle)	LAL	57	LUC (Life Usage Cycle)
NLL	0	LUC (Life Usage Cycle)	BL1	16	LUC (Life Usage Cycle)
CPU	2162	power-ups	IBF	1.80	minutes
HSP	0	counts	ER1	No Data	hours
ABC	2062	lights	ABT	26.4	hours
CY4	6575	cycles	HSS	3.33	hours
HS4	1.26	hours	IFT	941.2	hours
ARECR1_RUN	1	counts	ARECR2_RUN	6	counts
ARECYCL	180	counts	ANCNT	429	cycles
AIOPN	0.17	hours	AUGLITR1	962	counts
AUGLITR1_RUN	1	counts	AUGLITR2	34	counts
AUGLITR2_RUN	2	counts	BOOTVN	1000403	version
CEDEVN	1001603	version	CLPVN	1001606	version
ENG SN	730138		HTMIL	44.36	hours
IBR1	0.00	seconds	IBR10	17.00	seconds
IBR11	10.00	seconds	IBR2	15.00	seconds