

**PROPULSION
(KC-135)**

- 1. Objective.** As prescribed in AFI 38-201, *Determining Manpower Requirements*, formerly designated as AFR 8-10, this Air National Guard Manpower Standard (ANGMS) quantifies the full-time manpower required to accomplish the tasks described in the work center description for varying levels of workload volume.
- 2. Authority.** Air National Guard (ANG) Regulation 66-14, *Maintenance Management*, 13 July 1988, contains policy and procedural guidance for the Propulsion work center. This ANGMS was developed in accordance with the functional review procedures depicted in AFPAM 38-208V1, *Air Force Management Engineering Program (MEP) Processes*, formerly AFR 25-5.
- 3. Applicability.** This standard applies to all E-Model Engine ANG KC-135 units with an established Propulsion function. This standard applies to peacetime operations only.
- 4. Standard Data:**
 - a. Classification. Type III.
 - b. Approval Date. 25 November 1992.
 - c. Man-Hour Data Source. Operational Audit (historical records and technical estimate techniques).
 - d. Standard Man-Hour Equation. $Y = 4.684 + 5.791X$.
 - e. Workload Factor:
 - (1) Title: A Programmed Flying Hour.
 - (2) Definition: The average monthly programmed flying hours.
 - (3) Source of Count. USAF Program Document, Volume II, maintained by NGB/FM.
- 5. Application Instructions:**
 - a. The valid man-hour range for this ANGMS is 1098.82 through 1831.37.
 - b. The application instructions are as follows:
 - (1) Obtain the most current workload factor value for the workload factor as outlined in paragraph 4e above.
 - (2) Substitute this value in the man-hour equation for X and divide the resulting man-hours by the current civilian Man-Hour Availability Factor to determine requirements.
 - (3) Use the man-hour break point table developed by HQ USAF/PRQE to determine the whole manpower requirements.
 - (4) On AF Form 1113, Manpower Requirement column, find the column which represents the number of whole manpower requirements. Read up and down the column and across to the Air Force Specialty Title column to determine requirements by Air Force Specialty Code.
- 6. Statement of Conditions:**
 - a. There were no general conditions (environment, equipment, or facility) which had an impact on the development or application of this manpower standard.
 - b. There were no approved enhancements that impacted the man-hour equation for this manpower standard.

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2 Attachments
1. Work Center Description
2. Standard Manpower Table

WORK CENTER DESCRIPTION

Propulsion (KC-135)

DIRECT:

1. ON-EQUIPMENT MAINTENANCE:

1.1. MAINTAINS ON-EQUIPMENT TURBOFAN POWER PLANT SYSTEM. Removes, replaces, inspects, adjusts, troubleshoots, modifies, or repairs propulsion system installed on aircraft or propulsion related portion of aircraft subsystem.

1.1.1. MAINTAINS AIR INLET FRONT ACCESSORY SECTION.

1.1.2. MAINTAINS COMPRESSOR SECTION.

1.1.3. MAINTAINS MAIN ACCESSORY DRIVE SECTION.

1.1.4. MAINTAINS DIFFUSER COMBUSTION SECTION.

1.1.5. MAINTAINS TURBINE SECTION.

1.1.6. MAINTAINS MAIN BEARING AND SEAL ASSEMBLY.

1.1.7. MAINTAINS FUEL SYSTEM.

1.1.8. MAINTAINS OIL SYSTEM.

1.1.9. MAINTAINS ENGINE IGNITION, START, AND ELECTRICAL SYSTEM.

1.1.10. MAINTAINS COMPRESSOR BLEED AND ANTI-ICE SYSTEM.

1.1.11. MAINTAINS ENGINE INSTRUMENTATION SYSTEM.

1.1.12. MAINTAINS ENGINE CONTROL SYSTEM.

1.1.13. MAINTAINS ENGINE NACELLE QUICK ENGINE CHANGE (QEC) KIT SYSTEM.

1.1.14. MAINTAINS THRUST REVERSER SYSTEM.

1.1.15. MAINTAINS AUXILIARY POWER UNIT (APU).

1.1.16. MAINTAINS SOLAR APU.

1.1.17. MAINTAINS ELECTRICAL SUPPLY SYSTEM.

1.1.18. MAINTAINS HYDRAULIC PNEUMATIC POWER SUPPLY SYSTEM.

1.2. CHANGES ENGINE:

1.2.1. REMOVES AND REPLACES OR REINSTALLS ENGINE.

1.2.2. REMOVES AND REPLACES OR REINSTALLS APU.

1.3. PERFORMS SUPPORT GENERAL ON-EQUIPMENT MAINTENANCE:

1.3.1. PERFORMS GROUND HANDLING, SERVICING, OR RELATED TASK:

1.3.1.1. PERFORMS ENGINE SERVICING.

1.3.1.2. PERFORMS ENGINE RUN-UP. Runs engine to test or check the condition or serviceability of the engine or related aircraft system.

1.3.2. PERFORMS AIRCRAFT PERIODIC INSPECTION:

1.3.2.1. PERFORMS FIRST PERIODIC INSPECTION.

1.3.2.2. PERFORMS SECOND PERIODIC INSPECTION.

1.3.2.3. PERFORMS THIRD PERIODIC INSPECTION.

1.3.3. PERFORMS SPECIAL INSPECTION.

1.3.4. PERFORMS ENGINE CHANGE INSPECTION.

1.3.5. PERFORMS ENGINE TRIM.

1.3.6. PERFORMS ENGINE CONDITIONING.

1.3.7. PERFORMS ENGINE WASH OR CLEANING.

1.3.8. PERFORMS BUILD-UP OR TEAR DOWN OF ENGINE. Prepares basic engine for aircraft installation by installing QEC kit or prepares engine for depot shipment by removing QEC kit.

1.3.9. PERFORMS TEST CELL RUN. Performs engine test cell run and performs test or check required to determine condition or serviceability of engine.

2. OFF-EQUIPMENT MAINTENANCE:

2.1. MAINTAINS TURBOFAN POWER PLANT SYSTEM. Removes, replaces, inspects, adjusts, modifies, troubleshoots, or repairs uninstalled propulsion system or propulsion related portion of aircraft subsystem.

2.1.1. MAINTAINS AIR INLET FRONT ACCESSORY SECTION.

2.1.2. MAINTAINS COMPRESSOR SECTION.

2.1.3. MAINTAINS MAIN ACCESSORY DRIVE SECTION.

2.1.4. MAINTAINS DIFFUSER COMBUSTION SECTION.

2.1.5. MAINTAINS TURBINE SECTION.

2.1.6. MAINTAINS MAIN BEARING AND SEAL ASSEMBLY.

2.1.7. MAINTAINS FUEL SYSTEM.

2.1.8. MAINTAINS OIL SYSTEM.

2.1.9. MAINTAINS ENGINE IGNITION, START, AND ELECTRICAL SYSTEM.

2.1.10. MAINTAINS COMPRESSOR BLEED AND ANTI-ICE SYSTEM.

2.1.11. MAINTAINS ENGINE INSTRUMENTATION SYSTEM.

2.1.12. MAINTAINS ENGINE CONTROL SYSTEM.

2.1.13. MAINTAINS ENGINE NACELLE QEC SYSTEM.

2.1.14. MAINTAINS THRUST REVERSER SYSTEM.

2.1.15. MAINTAINS APU.

2.1.16. MAINTAINS ELECTRICAL POWER SUPPLY SYSTEM.

2.1.17. MAINTAINS HYDRAULIC PNEUMATIC POWER SYSTEM.

2.2. PERFORMS SUPPORT GENERAL MAINTENANCE:

2.2.1. PERFORMS 200-HOUR PERIODIC INSPECTION.

2.2.2. PERFORMS ENGINE PERIODIC INSPECTION AND RECONDITIONING.

2.2.3. PERFORMS CONDITION MONITORING INSPECTION. Performs internal engine inspection and repair following Engine Conditioning Monitoring Program (ECMP) trend warning.

2.2.4. PERFORMS PRESERVATION, DEPRESERVATION, AND STORAGE OF ENGINE:

2.2.4.1. PERFORMS PRESERVATION OF ENGINE FOR STORAGE OR SHIPMENT.

2.2.4.2. PERFORMS DEPRESERVATION OF ENGINE PRIOR TO USE.

2.2.5. PERFORMS CLEANING OF ENGINE OR COMPONENT.

3. TIME COMPLIANCE TECHNICAL ORDER (TCTO). Performs maintenance required on/off the aircraft in accordance with the applicable TCTO and completes all documentation.

4. SHOP EQUIPMENT AND OTHER NONPOWERED AEROSPACE GROUND EQUIPMENT (AGE):

4.1. MAINTAINS SHOP EQUIPMENT OR NONPOWERED AGE. Removes, replaces, adjusts, modifies, troubleshoots, or repairs shop equipment or non-powered AGE.

4.2. INSPECTS SHOP EQUIPMENT OR NONPOWERED AGE.

5. UNIT ENGINE MANAGEMENT:

5.1. MONITORS STATUS. Tracks and monitors status of assigned engine, APU, QEC kit, shipping device, and related engine part or equipment item. Coordinates shipment of propulsion system and responds to direction of Major Command Engine Manager.

5.2. MANAGES COMPUTERIZED STATUS PROCESSING. Monitors and controls the input or retrieval of data in the Comprehensive Engine Management System (CEMS), Maintenance Management Information and Control System (MMICS). Ensures the accurate content and quality of engine status report submitted for computer processing. Reviews CEMS produced report/inventory for accuracy and updates or reconciles data.

5.3. MONITORS ENGINE NOT MISSION CAPABLE SUPPLY (ENMCS) STATUS. Ensures valid ENMCS status is submitted in the daily engine status report and adequate supply priority action is taken on any outstanding requirement.

5.4. MAINTAINS ENGINE RECORD. Performs research on engine history. Performs documentation on engine historical record.

6. ENGINE CONDITION MONITORING PROGRAM:

6.1. MANAGES ECMP. Performs as prime technical advisor on ECMP to the Deputy Chief of Maintenance (DCM) and project officer. Chairs formal ECMP panel. Briefs program status to panel and DCM staff. Analyzes ECMP trend and makes final decision on required maintenance.

6.2. CONDUCTS ECMP:

6.2.1. RECORDS ECMP DATA.

6.2.2. PERFORMS ECMP TREND ANALYSIS.

7. SCHEDULED ENGINE MAINTENANCE PROGRAM:

7.1. SCHEDULES MAINTENANCE. Schedules maintenance on in-shop engine, APU, or AGE for maintenance.

7.1.1. MAINTAINS ACCURATE IN-SHOP PRODUCTION RECORD.

7.1.2. PROCESSES ENGINE COMPONENT FOR REPAIR.

7.1.3. PROCESSES AND CONTROLS QEC KIT COMPONENT.

7.1.4. PROCESSES SUPPLY. Processes supply request, maintains record, submits supply difficulty letter, AF Form 601, Equipment Action Request, or related document.

7.1.5. VERIFIES SUPPLY PRIORITY. Verifies urgency of need description "A" or unit justification code "B" part request.

7.1.6. MANAGES REPARABLE PART PROCESSING.

7.1.7. SCHEDULES TCTO INSPECTION.

7.1.8. UPDATES ENGINE STATUS. Makes timely and accurate input to update status.

7.2. SCHEDULES MAINTENANCE ON INSTALLED ENGINE OR APU:

7.2.1. PREPARES FORECAST. Prepares six-month forecast of projected aircraft engine or APU. Forecasts removal for time, cycles, and unscheduled maintenance.

7.2.2. COORDINATES ENGINE REMOVAL. Coordinates with Maintenance Control section, and Plans, Scheduling, and Documentation section on engine removal.

7.2.3. SCHEDULES TCTO.

7.2.4. UPDATES STATUS. Makes timely and accurate input to update engine status.

7.3. PROVIDES PARTS TRACKING:

7.3.1. MAINTAINS TIME CHANGE RECORD. Ensures time change record is established on life limit item.

7.3.2. PROJECTS LIFE LIMIT CHANGE REQUIREMENT.

7.3.3. DETERMINES REQUIREMENT. Determines maintenance requirement resulting from analysis of life limit item.

7.3.4. PROVIDES UPDATE TO PROPULSION RECORD. Provides data to propulsion manager for verification and inclusion into engine historical record.

7.3.5. INPUTS SERIAL NUMBER. Ensures change in serial number controlled item is input in Central Engine Management System (CEMS) accurately.

8. ENGINE INCIDENT INVESTIGATION. Investigates in-flight shutdown, premature engine removal, or test cell reject to determine cause. Identifies problem and recommends corrective action.

9. MAINTENANCE AUTOMATED SYSTEM. Makes input to MMICS/Core Automated Maintenance System. Retrieves, analyzes, and reconciles data.

10. SPECIAL PLANNING OR SCHEDULING. Performs planning or scheduling associated with preparation for unit training assembly, annual tour, mobility participation, battle damage program, or other special program.

11. CONDUCTS SPECIAL INTEREST PROGRAM. Evaluates the effectiveness of special program such as management improvement, safety, foreign object damage, oil analysis program, or other special program for subordinate work center. Ensures compliance with governing directive.

12. CONTINGENCY/EXERCISE. Supports contingency/exercise.

13. MAINTENANCE INSPECTION. Performs in-process inspection on maintenance. Inspects maintenance performed for clearing Red "X" condition and documents.

14. ASSISTANCE. Assists other production work center in the performance of direct labor maintenance.

15. DEBRIEFING. Conducts aircrew debriefing. Completes appropriate document.

INDIRECT: Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of Standard Indirect work are Supervision, Administration, Meeting, Training, Supply, Equipment Maintenance, and Cleanup. See AFMS 00AA for the standard indirect description.

STANDARD MANPOWER TABLE										
WORK CENTER/FAC			APPLICABILITY MAN-HOUR RANGE							
Propulsion, FAC 23200C			1098.82 - 1831.37							
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT							
Aerospace Propulsion	454X0	CIV	1	1	1	2	2	2		
Aerospace Propulsion	454X0A	CIV	6	7	8	8	9	10		
TOTAL			7	8	9	10	11	12		
AIR FORCE SPECIALTY TITLE	AFSC	GRADE	MANPOWER REQUIREMENT							
TOTAL										