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Maintenance

**TRAINING, CERTIFICATION, AND
MAINTENANCE PROCEDURES FOR GROUND
OPERATION OF INSTALLED C-130 ENGINES**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes procedures and responsibilities to ensure standardization in qualification and certification of individuals for ground engine operation of C-130 aircraft.

SUMMARY OF REVISIONS

This revision includes the deletion of paragraph **2.2.1.4.4**. Changed NOTE **2.4.3**. Clarification on overdues and recertification, changed skill level of craftsman in **3.4.1.5.1**, rewrote **3.4.1.6**, deleted **3.4.4.2**, and changed approving commander in **4.4.1.1**.

1. Policies. Maintenance personnel are not authorized to motor or start installed engines at home station or deployed locations until all provisions, including documentation of certification and proficiency directed by AFI 11-218, AMC Supplement 1, *Aircraft Operation and Movement on the Ground*, AMCI 21-104, *Aircraft Maintenance Training* and this instruction, are complied with. The Logistics Training Flight (LTF) will be the overall OPR for this publication and for the Engine Run Training Program (ERTP) at Pope AFB. It applies to the 2d Airlift Squadron, 41st Airlift Squadron, 43d Maintenance Squadron, 743d Maintenance Squadron, Air Force Engineering Technical Services (AFETS), Quality Assurance (QA) and Maintenance Aircraft Coordination Center (MACC).

NOTE: The 743d Maintenance Squadron will develop local procedures for all transient aircraft.

2. Engine Operation.

2.1. Prerequisites.

2.1.1. Squadron Commanders may authorize personnel in any maintenance Air Force Specialty Code (AFSC) to perform engine operation, as long as the individual meets prerequisites in this instruction and AMCI 21-104, Chapter 7.

- 2.1.1.1. Be in the grade of E-4 (SrA) or above, with a 5-skill level or civilian equivalent.
- 2.1.1.2. Completed the Foreign Object Damage (FOD) prevention training IAW AFI 21-101, *Maintenance Management Policy* and POPEI 21-111, *Foreign Object Damage Prevention*.
- 2.1.1.3. Perform a pre-engine run inspection with a qualified run certifier.
- 2.1.1.4. Comply with the pre-engine run training requirements as listed in AMCI 21-104, paragraph 7.3.

2.2. Training and Certification.

2.2.1. Initial training consists of Phases 1, 2, and 3 of the Engine Run Training Program (ERTP). Upon completion, the engine run instructor will document completed training on AF Form 2426, **Training Request and Completion Notification**, and forward it to 43 LSS/LGLTA for GO81 updating.

2.2.1.1. ERTP must be completed within 10 duty days from start date. If not completed within this time period, ERTP must be totally re-accomplished. The three phases of the C-130 ERTP are as follows:

2.2.1.2. Phase 1 - Training Detachment (TD) Engine Run Course.

2.2.1.2.1. Academic Training-using Aircrew Training System (ATS) courseware.

2.2.1.3. Phase 2 - Simulator/Weapons System Trainer (WST).

2.2.1.3.1. Practice on normal and emergency procedures.

2.2.1.4. Phase 3 - Written and Practical Evaluations and Certification.

2.2.1.4.1. Two part written test.

2.2.1.4.1.1. Part 1, Emergency Procedures; minimum-passing score of 100 percent is required to pass this part.

2.2.1.4.1.2. Part 2, Normal Procedures; minimum passing score of 90 percent corrected to 100 percent is required to pass this part.

2.2.1.4.2. Instructor evaluation of an engine run.

2.2.1.4.3. Perform a minimum of two engine starts with instructor/certifier.

2.2.1.4.4. C-130 - Maximum power run.

2.2.2. Engine Run Certifiers must be engine run qualified per AMCI 21-104 and this instruction. They must also have one-year minimum on the assigned airframe type and model, and be recommended by their immediate supervisor IAW AMCI 21-101. Certifying officials will be selected maintenance officers, Air Force Engineering Technical Services (AFETS) personnel, functional check flight pilots, and MSgt 7-skill level or above technicians who are highly qualified and designated by letter from the group commander. If necessary, 43 LG/CC may waive rank requirement to only the most qualified TSgts. Approved waiver letters will be maintained in the individual's On-the-Job (OJT) training records AF Form 623, **Individual Training Record** and a copy on file at the 43 LSS/LTF.

2.3. Maintaining C-130 Engine Run Proficiency. Once technicians are certified, they must accomplish the following to maintain certification:

- 2.3.1. Complete annual certification consisting of phases 2 and 3 of the ERTTP (two-day refresher course). Units with a flight simulator must evaluate one emergency procedure per year IAW AFI 11-218 (if the simulator is available).
- 2.3.2. Complete at least one engine start every 90days.
- 2.3.3. If the contract simulator is not available, use the 43 LSS/LTF exams (general and emergency procedures) and certify personnel using an aircraft and a certifying official.
- 2.4. Decertification. Technicians will be decertified for the following reasons:
 - 2.4.1. Not meeting the criteria in paragraph 2.3. and 2.2.
 - 2.4.2. Non-compliance with safety procedures.
 - 2.4.3. Failure to use technical publications.

NOTE: Decertification will be entered in the technician's OJT training records and GO81. Any technician failing phase 3, Emergency Procedures test may take an alternate test no earlier than 48 hours after failing the primary test. A second failure will require the technician to reaccomplish all three phases of the ERTTP. Any technician/certifier going overdue on either the annual certification or 90-day engine start requirement will be decertified until the individual completes all recertification requirements. Recertification requirements are as follows. Individuals overdue the 90-day engine start requirement will complete Phase 3 of the ERTTP. Those overdue annual certification will complete phases 2 and 3 of the ERTTP. Squadron commanders may dictate all three phases if the individual is overdue 30 days or more. Squadron maintenance officers/maintenance supervisors will determine recertification requirements for individuals decertified for cause (noncompliance with safety directives, etc.) on a case-by-case basis.

3. Responsibilities:

- 3.1. Squadron commanders through their respective maintenance supervisors, superintendents or element chiefs will:
 - 3.1.1. Ensure personnel meet all prerequisites identified in paragraph 2.1. before initial training commences.
 - 3.1.2. Decertify personnel who fail to meet minimum proficiency and recertification training standards identified in paragraphs 2.2. and 2.3.
 - 3.1.3. Identify personnel requiring engine operation certification or recertification training. This training is requested through the unit training manager.
 - 3.1.4. Request waivers from 43 LG/CC or 43 OG/CC for certifying officials (only highly qualified TSgts).
- 3.2. 43 LSS/LTF will:
 - 3.2.1. Manage the ERTTP and required exams IAW applicable instructions.
 - 3.2.2. Schedule Phases 1, 2, and 3, simulator training, and simulator instructors.
 - 3.2.3. Notify the applicable element chief of decertification for overdue or failed testing and overdue operation currency.
- 3.3. Squadrons will:

- 3.3.1. Verify engine run will be performed by qualified technicians.
 - 3.3.2. Document engine run persons employee number, rank, and full name before engine start.
 - 3.3.3. Provide 43 LSS/LTF with a roster of technicians who accomplished engine runs for 180-day currency every Monday.
- 3.4. Engine Run Crew will:
- 3.4.1. Left Seat, MECH A:
 - 3.4.1.1. Be engine run qualified.
 - 3.4.1.2. Ensure all run team members are qualified and certification requirements are current prior to requesting engine operation approval.
 - 3.4.1.3. Ensure engine run checklist is followed.
 - 3.4.1.4. Be in charge of, and be responsible for the aircraft and run team.
 - 3.4.1.5. Review AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**, series to determine work performed in or around engine air inlets and open discrepancies that may affect the engine run. Perform an exterior walk-around inspection. Include all four engine intakes and exhausts for loose air inlet guide vanes, nicks, dents, and cracks on stators and rotor; loose/missing rivets/fasteners in and around the air inlet scoop, and inlet for foreign material prior to engine run regardless of how many engines are to be run. Repeat the above inspection after shutdown only on the engines that actually ran and reinstall intake plugs. All intake and exhaust inspections will be documented AFTO Form 781A, **Maintenance Discrepancy and Work Document**, with a Red X symbol. Inlet and exhaust inspections must be accomplished with the aid of a suitable light source. The complete area around the aircraft will be checked for foreign objects.
 - 3.4.1.5.1. When engine damage is suspected, qualified maintenance technician will investigate/evaluate to determine extent and type of damage. Contact QA FOD Manager and Safety personnel.
 - 3.4.1.6. Perform the engine run crew briefing in accordance with technical data.
 - 3.4.1.7. When engines are operated above flight idle, the inboard taxi lights will be turned on (day or night).
 - 3.4.2. Right seat, MECH B will:
 - 3.4.2.1. Be qualified to operate brakes and radios.
 - 3.4.2.2. Monitor hydraulic pressure, operate and monitor radios, provide back-up support for engine run supervisor using checklists and other responsibilities as necessary.
 - 3.4.3. Ground Observer, MECH C will:
 - 3.4.3.1. Be fire extinguisher qualified.
 - 3.4.3.2. Ensure MECH A is informed of traffic in front of and behind aircraft. While engines are running, monitor engines for fluid leaks, monitor aircraft during engine run for movement using main wheel chocks as reference, maintain interphone contact at all times, and advise run supervisor of possible emergency situations or equipment malfunctions. All ground observers

will use an interphone cord with a length of 75-feet.

3.4.4. Flight Engineer position, MECH D will:

3.4.4.1. Be ground turbine compressor (GTC) qualified.

3.4.4.2. During engine runs above ground idle, the engine run supervisor at his discretion may require MECH D to be engine run qualified.

3.4.4.3. Be responsible for providing back-up to the engine run supervisor and other responsibilities as necessary.

4. General Procedures for all Maintenance Runs:

4.1. Prior to starting engines, the copilot seat occupant, MECH B, must establish ultra high frequency (UHF) radio contact with ground control on 275.8 Megahertz (MHz) and stay in contact with the control tower at all times during engine operation. If UHF radio is inoperative, very high frequency (VHF) radio may be used on 124.55 (MHz).

4.2. Aircraft engine motoring will be done by qualified engine run personnel only.

4.3. Prior to start or motoring of engines, MACC will be notified by radio or telephone of the following: the aircraft tail number, location the reason(s) for the engine run and aircraft power level.

4.4. C-130 Engine Run Procedures. The following conditions will be observed for C-130 maximum power run-up:

4.4.1. Restrictions:

4.4.1.1. All engine runs above idle will require one open spot directly behind the running aircraft. Maximum power engine runs will not be conducted on any of the six spots adjacent to the flight line access road without the approval of the 43d Operations Group Commander.

4.4.1.2. No engines will run above normal ground idle in the areas adjacent to the flightline access road or on Romeo row, Quebec row, or Papa row. Papa row spots 8-13 are restricted to flight idle and below.

4.4.1.3. If there is an aircraft parked two spots directly behind the aircraft running above idle; it must be secured as follows:

4.4.1.3.1. All maintenance is halted inside and outside the aircraft.

4.4.1.3.2. Aircraft is secured with chocks and nose landing gear mooring chains and aircraft will not be on jacks.

4.4.1.3.3. Intake and pitot static covers installed and flaps raised to the full up position.

4.4.1.3.4. All stands and aerospace ground equipment (AGE) are removed from the spot.

4.4.1.4. Ensure sufficient fuel is on the aircraft prior to requesting run clearance. A minimum of 24,000 pounds for runs above flight idle is required. All throttles must be at or below flight idle when fuel quantities reach 24,000 pounds. For idle runs, ensure aircraft basic weight, including fuel, is a minimum of 95,000 pounds.

4.4.1.5. All AGE is removed from the exhaust area and circle of safety.

4.4.1.6. Tail-to-tail power runs. Due to the possibility of structural damage to aircraft,

tail-to-tail power runs require a minimum distance of three parking spots between aircraft.

NOTE: MACC will verify with the flightline expediter “All secure for run” and broadcast on each radio net to proceed with caution in the run-up area.

RICHARD J. CASEY, Brigadier General, USAF
Commander

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

AFI 11-218 - *Aircraft Operations and Movement on the Ground*
AFI 11-218, AMC Supplement 1 - *Aircraft Operation and Movement on the Ground*
AFI 21-101 - *Maintenance Management of Aircraft*
AFOSH STD 91-100 - *Aircraft Flight Line - Ground Operations and Activities*
AMCI 21-101 - *Maintenance Management Policy*
AMCI 21-104 - *Aircraft Maintenance Training*
T.O. 1C-130H-2-00GE-00-1 - *Organizational Maintenance General Equipment Manual*
T.O. 1C-130H-2-71JG-00-1 - *Power Plant Operating Limits and Checklists*
T.O. 00-20-1 - *Aerospace Equipment Maintenance General Policies and Procedures*
T.O. 00-20-5 - *Aerospace Equipment Maintenance General Policies and Procedures*

Abbreviations and Acronyms

AFETS—Air Force Engineering Technical Services
AFI—Air Force Instruction
AFSC—Air Force Specialty Code
AFTO—Air Force Technical Order
AGE—Aerospace Ground Equipment
AMC—Air Mobility Command
AMCI—Air Mobility Command Instruction
ATS—Aircrew Training System
CC—Commander
ERTP—Engine Run Training Program
FOD—Foreign Object Damage
GTC—Ground Turbine Compressor
IAW—In Accordance With
LTF—Logistics Training Flight
LG—Logistics Group
LGLTA—Logistics Training Flight Schedulers
LSS—Logistics Support Squadron

LTF—Logistics Training Flight

MACC—Maintenance Aircraft Coordination Center

MECH—Mechanics

MHZ—Megahertz

QA—Quality Assurance

OG—Operations Group

OJT—On-the-Job

OPR—Office of Primary Responsibility

TD—Training Detachment (formerly Field Training Detachment [FTD])

UHF—Ultra High Frequency

VHF—Very High Frequency

WST—Weapons System Trainer