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**Flying Operations**

**GROUND ENGINE OPERATION**



**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFRPD 11-2 and will be used in conjunction with AFI 11-218; AFOSH Standards 91-66 and 91-100; and, Technical Orders (TO) 1H-60(M)G-2-1CL-6, 1H-60(M)G-2-2, 1H-60(M)G-2-5, and 2J-T700-6. It prescribes specific procedures and responsibilities necessary for safe ground engine runs for maintenance on the HH-60G helicopter. It applies to maintenance and operations personnel assigned to the 305 RQS and explains the type of qualifications required to run engines and Auxiliary Power Units (APU).

**SUMMARY OF REVISIONS**

This revision has substantial changes and must be completely reviewed.

**1. General.** Ground engine runs for maintenance are an essential practice used for troubleshooting deficiencies, compressor cleaning, and operational or leak checks of installed aircraft engines.

1.1. Authorized Run Personnel. Qualified pilots, flight engineers, and maintenance personnel with a control 5-skill level or higher in Air Force Specialty Codes (AFSC) 2A6X1B or 2A5X2 are authorized to perform engine runs.

1.2. Engine Run Certifying Officials. Certifying officials are restricted to fully qualified 7-level maintenance personnel in the military grade of MSgt, and civilians in the grade WG-11 or above, in AFSCs 2A6X1B or 2A5X2; and, designated instructor pilots appointed by memorandum signed by the Squadron Commander.

**2. Training.** Engine run training is conducted in three phases. All phases are required for initial qualification (those who have never been run certified by type of aircraft). Phase III is required annually to maintain certification and must be conducted by a certifying official.

2.1. Phase I (Classroom Training). Must be conducted by a qualified trainer. It consists of familiarization of the aircraft, aircraft systems, communication, emergency procedures, and other requirements of the engine run task, including a written test to ensure complete understanding of emergency procedures. All BOLD FACE procedures will be taught out of 1H-60(M)G-2-1CL-6, Helicopter Engine Run Checklist.

2.2. Phase II (Simulator Training). Must be conducted by a qualified trainer. It consists of three simulated (dry) engine runs in the helicopter to ensure complete procedural knowledge. T.O. 1H-60(M)G-2-1CL-6 will be used at all times. Individual will be evaluated on response time and capability to handle emergency situations and aircraft systems malfunctions.

2.3. Phase III (Actual Aircraft Run Training). Consists of training and evaluation in the aircraft. Individuals will be given the engine run written test administered by the Education and Training Manager (LGLT).

2.3.1. For initial certification the trainee will report to LGLT with an AFRC Form 176, Request for Placement on Special Certification Roster (SRC), with Parts I, II, and III completed. Part I will be addressed to the individual's supervisor, the Propulsion Flight Chief (LGMP), Quality Assurance (LGQ), and LGLT. Upon successful completion of the test, LGLT initials the form and attaches the completed test then returns it the individual who will obtain the required signatures in Part IV and forward it to LGQ. LGQ signs off for SCR update and forwards it to LGLT for CAMS update and filing.

2.3.2. For annual recertification, the trainee will report to LGLT with an AF Form 2426, Training Request and Completion, local overprint. The form will be complete except for practical certifier signature. Upon successful completion of the test, LGLT will enter the passing score. The individual will arrange the practical exam with a qualified certifier.

2.3.3. The practical exam consists of a minimum of two actual engine runs, not above ground idle. The practical will be conducted over-the-shoulder. The certifier will question the trainee on limits, indications, and responses to emergency procedures. The trainee will not be allowed any safety, procedural, or technical data errors that could affect safe operation. Upon completion of the practical exam, the certifier signs the bottom of the AF Form 2426. The trainee returns the form to LGLT. The completed exam form is attached and package routed to LGQ, signed off for SCR update, and returned to LGLT for Core Automated Maintenance System (CAMS) input and filing.

2.4. Proficiency. To document the 90-day proficiency requirement, an AF Form 2426 (not the overprint) will be signed by the individual's supervisor and routed to LGQ to be signed and then to LGLT for CAMS update and filing.

2.5. APU Certification Requirements. Individuals familiarize themselves with procedures outlined in TOs 1H-60(M)G-2-1CL-4, 1H-60(M)G-2-1, and 1H-60(M)G-2-5, and with general safety measures contained in AFOSH Standard 91-66. They must pass the APU written test and obtain a practical exam within 30 days. The AFRC Form 176 or the AF Form 2426, as appropriate, will be used as outlined in the paragraphs 2.3.1., 2.3.2., and 2.3.3.

**3. Responsibilities.** The responsibility for the engine run rests with the person occupying the pilot's seat (right seat), except during practical exams, at which time the certifying official becomes responsible regardless of which position occupied. All safety devices, belts, and shoulder harness will be used during the run.

3.1. During emergencies, the person in the right seat is responsible for shutdown and monitoring of the engine instruments. The left-seater is responsible for notifying Ground Control, reporting the tail number of the aircraft, type of aircraft, location, and nature of emergency.

3.2. In the event of a GUST LOCK failure, the left-seater will center the cyclic stick and push down on the collective, while the right-seater shuts down the engine. Ground control does not have to be notified for this occurrence, if handled correctly and uneventfully.

**4. Procedures.** Engine runs will be accomplished with a minimum of three persons, two in the cockpit and one on long cord as fireguard. When possible, all engine ground runs will be accomplished with two qualified run personnel occupying the seats in the cockpit. If a run must be accomplished by one qualified engine-run person that person will occupy the right seat, with a qualified tow-brake operator in the left seat.

4.1. Engine runs shall not take place without an operating ultra high frequency/very high frequency (UHF/VHF) radio set to local presets, and an operable intercom between all persons involved in the run. Contact with Ground Control must be established prior to starting the engines, maintained throughout the run, and terminated upon completion.

4.2. Engine runs after engine installations, and for leak and operational checks, require two qualified persons. Engine runs after minor rework, module changes, module removal and reinstallation, 500-hour hot section inspection, or any internal engine work must be accomplished by two qualified persons, one of which is a Propulsion Specialist if possible.

4.3. An engine break-in run is required whenever the gas generator (hot section) assembly is replaced. The engine MUST NOT be advanced beyond ground idle prior to completing the break-in run procedure. A qualified Functional Check Flight pilot is required to perform this procedure in support of Propulsion Flight personnel.

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