Change
No. 1

Headquarters
Department of the Army
Washington, DC, 31 December 1982

STANDARDIZED MAINTENANCE
TEST FLIGHT PROCEDURES

FM 55-44, 30 December 1981, is changed as follows:

1. New or changed text is indicated by a star in the margin.
2. Remove old pages and insert new pages as indicated.

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3. File this change sheet in front of the publication for reference.

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STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES

PREFACE

This field manual is intended to be used by commanders as a guide for establishing a standardized maintenance test flight (MTF) program. It provides standardized aviation MTF procedures, and MTF personnel evaluation requirements and procedures as developed by the US Army Transportation School (USATSCH) in coordination with the Directorate, Evaluation and Standardization, United States Army Aviation Center (USAAVNC), Fort Rucker, Alabama. It augments the standard test flight procedures of the applicable aircraft MTF checklist, and establishes the criteria for implementing and maintaining a worldwide standardized MTF program. This manual was written by the USATSCH. Users of this manual are encouraged to recommend changes or submit comments for its improvement. Comments must be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms), and should reference the specific page, paragraph, and sentence of the text to be changed. Reasons for each recommended change must be stated to allow complete evaluation and to insure proper understanding of the suggestion. Forward your suggestions to Commandant, USATSCH, ATTN: ATSP-ES, Fort Eustis, Virginia 23604 (AUTOVON 927-4164).

NOTE: Use of the male gender in this publication is for ease of reading. Whenever the masculine gender is used, both masculine and feminine genders are intended.
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CHAPTER 1

POLICY

1-1. PURPOSE AND SCOPE.

This publication is a guide for administering the maintenance test flight evaluation (MTFE) and standardization program.

1-2. RESPONSIBILITIES.

a. The US Army Aviation Center (USAAVNC), Fort Rucker, Alabama, has the overall responsibility for aviation standardization and administration of evaluation rides as outlined in the appropriate aircrew training manual (ATM). The US Army Transportation School (USATSCH), Fort Eustis, Virginia, has the overall responsibility for evaluation and standardization of MTF procedures.

b. As outlined in a memorandum of understanding between the two agencies, the USATSCH will provide maintenance test flight standardization instructor pilots (MTF SIP) to act as an integral part of the USAAVNC DA standardization evaluation assistance team, to evaluate designated maintenance test pilots (MTP), maintenance test flight unit trainers (MTF UT), and maintenance test flight instructor pilots (MTF IP) in aviation units throughout the active and Reserve components of the US Army.

c. Commanders will—

• Implement standard maintenance test flight policies and procedures through existing flight standardization committees.

• Nominate MTF UTs and/or MTF IPs for validation by the Installation Aviation Flight Standardization Committee.

• Designate MTPs as outlined in TM 55-1500-328-25 and AR 95-1.

1-3. THE ARMY MTF STANDARDIZATION PROGRAM.

a. The MTF standardization program will help commanders at all levels in providing unit readiness, aviation safety, and professionalism by promoting the use of standard procedures and techniques. This field manual is designed to be the basic document for providing guidance and for insuring that standard procedures and techniques are used in conducting maintenance test flights. By using the MTF standardization program, the commander can insure that MTP proficiency is matched with the unit’s mission.

b. The Directorate of Evaluation and Standardization (DOES), is an integral part of the DA aviation standardization evaluation/assistance team which evaluates the effectiveness of the individual, unit, resident, and nonresident MTP training portions of the aviation standardization program.
Organization. The standardization team is an element of the DOES, USATSCH. The team personnel must be graduates of the aviation maintenance officer course (AMOC), phase II (test flight), and have the MOS or additional skill identifier (ASI) for the designated evaluator position on the team. In addition, the personnel must have had field maintenance experience and hold IP qualification.

Objective. The USATSCH MTF SIP team will evaluate MTPs in active Army and Reserve components in accordance with AR 95-1, the appropriate aircraft MTF checklist, and this manual. They will:

- Provide standardization evaluation/assistance to the USATSCH resident test flight training course, evaluating effectiveness and the standards of test flight training.
- Recommend specific policy guidance to the aviation standardization program at Fort Rucker.
- Provide MTF standardization input for changes to DA flight publications.
- Provide MTF standardization subject matter expertise to other activities at Fort Eustis and Fort Rucker in preparation and review of doctrinal, organizational, and materiel actions.
- Coordinate with USATSCH academic elements in the review of standardization procedures and techniques of test flight and academic instruction for technical content of the principles, theories and practices of test flight procedures, requirements, and equipment.
- Review and evaluate extension training material (ETM) pertaining to test flight.
- When requested, review and evaluate MTF-related articles submitted for publication in Aviation Digest and other aviation-related publications, for technical accuracy, content, and standardization.
- Review proposed changes of test flight procedures submitted by other agencies.
- Provide MTF standardization input to USATSCH.
- Collect statistical data concerning the MTF standardization program.
- Establish liaison with Troop Support and Aviation Materiel Readiness Command (TSARCOM) for coordination on all MTF-related DA Forms 2028.

1-4. MTF UT, MTF IP, and MTF SIP SELECTION CRITERIA.

a. An MTF UT will have been designated, on orders, by his unit commander as an MTP; will have successfully completed the flight and academic requirements of AMOC; and will have demonstrated to an MTF IP the ability to instruct the required technical tasks of an MTP.

b. An MTF IP must meet the MTF UT selection criteria and, additionally, must have demonstrated to an MTF SIP the ability to evaluate the MTP skills necessary to successfully complete an MTFE.

c. An MTF SIP must meet the MTF IP selection criteria; must have the ability to implement, monitor, and participate in the MTF standardization program; and must have demonstrated to an MTF SIP the ability to verify standardization of MTF evaluators in their performance of the MTFE process.
CHAPTER 2

TRAINING

2-1. QUALIFICATION TRAINING.

a. Qualification Training Program. This program is designed to qualify aviators to perform as maintenance test pilots. Formal MTP qualification is provided through the AMOC test flight (phase II) and constitutes award of an additional skill identifier (ASI). If a commander has no AMOC test flight phase II graduates in the unit, he may designate an MTP in accordance with (IAW) AR 95-1 and TM 55-1500-328-25. The designee should be examined on his ability to successfully complete an MTF by an MTF IP or an MTF SIP prior to assuming duties as an MTP.

b. Prerequisites. Ideally, prior to beginning qualification training as an MTP, the individual should meet all the prerequisites for attendance at AMOC as outlined in DA Pam 351-4; however, as a minimum, the provisions of AR 95-1 and TM 55-1500-328-25 must be met.

c. Qualification Requirements. An aviator is qualified as an MTP when he has:

• Successfully completed the flight and academic instruction of AMOC or satisfactorily met the provisions of TM 55-1500-328-25.
• Demonstrated flight proficiency to MTF IP or MTF SIP.
• Been designated on unit orders by the unit commander.

2-2. REFRESHER TRAINING.

MTPs who have been away from test flying for an extended period of time will have to undergo refresher training before performing test flights. An MTP will not participate in any MTF refresher training until he has successfully completed his ATM refresher training.

a. Prerequisites. Prior to refresher training, the MTP's proficiency must be evaluated. The evaluation will be conducted by an MTF IP or MTF SIP through a proficiency flight evaluation. Based on the results, a specific training program can be tailored to meet the individual's needs.

b. Training Requirements.

• The requirements for MTPs will be the same as the operational pilots specified in the ATM, i.e., refresher training is mandatory when the pilot has been away from test flying for more than 6 months. Absences of less than 6 months may require training, depending on the individual's proficiency.
• Any refresher training that is required will be oriented directly to the tasks in which the aviator is deficient.
Refresher training should include MTF academic and contact instruction.

An individual will progress to mission training when he has demonstrated his proficiency to an MTF IP or an MTF SIP.

2-3. MISSION TRAINING.

Mission training is geared to tasks that are peculiar to the unit's mission. An MTP's tasks will not change as long as he is test flying the same type aircraft, regardless of his unit assignment. Any requirement to be proficient in additional aircraft can be handled in refresher training.

NOTE: If a commander requires his MTPs to perform flight activity category (FAC) 1 tasks, he will not delete any MTF tasks outlined in this FM.

2-4. CONTINUATION TRAINING.

Continuation training is designed to sustain the MTP’s proficiency in the performance of his duties.

a. Continuation training for MTPs will consist of all tasks outlined within the applicable aircraft chapter of this FM.

b. In addition to the required ATM tasks, two iterations of the appropriate MTP tasks will be performed semiannually. These iterations can be accomplished during two general test flights or simulated general test flights. All maneuvers need not be performed during one flight period. The following guidelines will assist the commander in planning his annual flying hour program.

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2-5. MULTIPLE AIRCRAFT REQUIREMENTS.

A primary aircraft will be designated when:

- An MTP is required to perform test flight duties in more than one aircraft in the same category.
- An MTP is required to perform test flight duties in both aircraft categories.

2-6. MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD (DA FORM 5051-R).

a. A sample MTF personnel training record form is at figure 2-1. Local reproduction of this form is authorized. See appendix B for DA forms that can be locally reproduced. The training record is to be maintained in the individual flight training folder (IFTF).
**MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD**

For use of this form, see FM 55-44 The proponent agency is TRADOC

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*Sample*

**Figure 2-1.**
b. All entries must be legible. Administrative instructions for completing this form are as follows:

- **Block 1** - Enter name and rank (last name, first name, MI).
- **Block 2** - Enter date of birth (day, month, year).
- **Block 3** - Enter date of completion of last annual MTFE. Enter date of (revalidated) unit test flight orders.
- **Block 4** - Enter class number and graduation date of AMOC phase II (test flight), if applicable.
- **Block 5** - Enter date of initial or refresher MTFE and type of aircraft.
- **Block 6** - Enter date of additional MTFE and type of aircraft, (other than block 5), or enter refresher date if applicable.
- **Block 7** - Enter date of additional MTFE and type aircraft, (other than blocks 5 and 6), or enter refresher date if applicable.
- **Block 8** - Enter date of initial MTFE flight completed and type of aircraft.
- **Block 9** - Enter date of additional MTFE and type aircraft, (other than block 8).
- **Block 10** - Enter date of additional MTFE and type aircraft, (other than blocks 8 and 9).
- **Block 11** - Enter unit/organization- self-explanatory.
- **Block 12** - Enter TOE/TDA position (paragraph, line number and description).
- **Block 13** - Enter period covered (date MTP, MTF IP, MTF SIP or MTF UT is qualified to perform duties or the start of the new semiannual period to the end of his semiannual period as applicable).
- **Block 14** - Enter general test flight tasks that are performed.
- **Block 14a** - Required frequency (enter the number of iterations required for each task).
- **Block 14b** - In the remaining blocks, enter date and number of iterations accomplished semiannually. Recording the iterations in excess of requirement is not mandatory.

2-7. STANDARDIZATION MTF EVALUATION/TRAINING GRADESIP.

a. The gradeslip is designed to provide a record of evaluations/training conducted at the unit level. It addresses those tasks and procedures required in the performance of maintenance test flights. It consists of three pages.

- DA Form 4507-R (Standardization Flight Evaluation/Training Gradeslip).
- Appropriate maintenance test flights maneuver gradeslip (para 3 of applicable aircraft chapter).
- DA Form 4507-2-R (Comment Slip).
b. The gradeslip (DA Form 4507-R) represents an important tool in the attainment of standardization and quality control and it should be filled out correctly and legibly as follows:

- **Date/examinee/evaluator blocks.** These blocks must be completed each time the gradeslip is used. Required entries are self-explanatory.

- **Total instructor pilot hours.** Total IP hours, fixed wing (FW) and/or rotary wing (RW), must be entered only for IP/SIP evaluation/training flights.

- **Total flight time.** Strike out (evaluation) or (training), as applicable, and enter flight time today at the completion of the evaluation/training flight. The cumulative time block is to be used for transition training or when it is desirable to keep a ready reference of accrued training time.

- **Purpose of flight.** Strike out the statement which does not apply. Check the other block and write in MTF. Then state the type aircraft in which the evaluation/training was performed and indicate that the flight was conducted during daylight hours.

- **Evaluator recommendations.** Check the appropriate combination of blocks and indicate that a comment slip is attached, if applicable. Although all tasks/procedures may have been graded satisfactory (S), additional training may be indicated with specific reference to a task/procedure.

- **Gradeslip completion.** Upon completion of the evaluation/training flight, debrief the examinee and write in "MTF" in the appropriate status blocks. Both the examinee and the evaluator will sign the DA Form 4507-R in the space provided. To complete the evaluation/training gradeslip, enter the overall grade for the flight based upon the following criteria:

  - During training flights, individual tasks/procedures may be graded unsatisfactory (U) without resulting in an overall grade of unsatisfactory.
  
  - The proficiency flight evaluation, when used to develop an individual’s training program, may be ungraded (N).
  
  - During any evaluation flight, failure of any MTF task/procedure will result in an overall grade of unsatisfactory. **NOTE:** Upon reevaluation, as a minimum, the unsatisfactory tasks must be evaluated.

c. The maintenance test flight maneuver gradeslip should be carried in the cockpit during the evaluation/training flight. Upon completion of each task/procedure, the grade (GR) block should be marked either “S” or “U”.

d. A comment, referencing the appropriate task/procedure from the MTF maneuver gradeslip should be entered on the comment slip (DA Form 4507-2-R) for any task/procedure graded unsatisfactory during the flight. Failure of any task/procedure during the MTFE will result in an overall grade of unsatisfactory. The comment slip will be attached to DA Form 4507-R.
CHAPTER 3

EVALUATION CONCEPTS AND GUIDELINES

3-1. GENERAL.

a. Purpose. This chapter describes the concept of evaluation and outlines the need for individual MTF personnel evaluations. These evaluations are used to:

- Conduct the hands-on portion of the MTFE.
- Provide the evaluation requirements for qualification as MTP, MTF UT, MTF IP, or MTF SIP.
- Assess the MTF standardization of MTF personnel as a portion of the US Army Aviation Flight Standardization Program.

b. Evaluation Principles. The extent to which these evaluations are of value depends upon adherence to rather fundamental principles; anything less, and they become a meaningless exercise. These principles are:

- The evaluators must be selected not only for their technical qualifications but also for their performance, their clearly demonstrated objectivity, and their ability to observe and provide constructive comment.
- The method in which the evaluation is conducted must be based on uniform objectives and standards. Most importantly, it must be consistent with the mission of the unit and in accordance with appropriate regulations, manuals, and SOPs.
- The purpose of the evaluation must be completely understood by all concerned and conducted in a manner that is purpose-oriented.
- Cooperation by all participants must be insured to guarantee fulfillment of the evaluation objectives.
- Specific findings must be produced by the evaluation for validation of training. All affected by the evaluation want and need to know what is being done wrong, what might be done better, and how improvements can be made. General comments do not always provide the direction and guidance essential to improvement. To the extent the evaluation pinpoints both strength and weakness, it can serve the purpose of which it was intended.

c. The MTFE Sequence. It is suggested that the evaluation sequence shown be followed as closely as possible, for it is an acceptable and time-proven method of evaluation. The sequence recommended has four phases:

- Phase 1 - comprehensive briefing.
- Phase 2 - oral examination.
Phase 3 - flight performance test.
Phase 4 - evaluation debriefing.

Grading Considerations.

- Oral. Proficiency in the oral examination must be based upon the evaluator's assessment that the examinee possesses a working knowledge and understanding of the subject areas presented.

- Flight test. Each task presented in this field manual provides the grading consideration—standards of performance—to be met as a minimum. These standards are presented for the ideal situation and under prerequisites of the condition developed for each task. Deviations from the ideal during evaluation must be considered by the evaluator and appropriate adjustments made to the standards.

3-2. MTF PERSONNEL ANNUAL EVALUATION CONCEPT.

a. General. The MTFE will be performed to coincide with the individual's annual aviator proficiency and readiness test (AAPART) but only after successfully completing the hands-on performance test portion of the AAPART. The MTFE is designed to measure the MTP's conformance to maintenance test flight standardized procedures. This evaluation must be completed annually for the MTP to remain on test flight orders. The unit commander is responsible for administering the MTFE to those individuals he has appointed MTF IPs, MTF UTs and MTPs. Results of the evaluation will be recorded in the aviator's IFTF.

NOTE: The AAPART standardization flight will not be combined with any MTFE or training flight. Each ride is separate and requires separate consideration.

b. MTFE Failures. Satisfactory/unsatisfactory gradeslips will be issued at the completion of each evaluation. The gradeslip will be posted in the aviator's IFTF. When an individual receives an unsatisfactory grade, the evaluator must recommend to the commander the appropriate action to correct the deficiency.

c. Unit Flight Test Order. Commanders will designate, on orders, MTPs who have successfully completed the MTFE based on the recommendation from the MTF IP. Duty appointment will be completed annually, and entered on block 3, DA Form 5051-R.

3-3. MTP EVALUATION.

a. General. This evaluation will be conducted to determine the examinee's ability to perform the duties of MTP. The recommended procedure for conducting the MTP flight evaluation is for the evaluator to assume the role of copilot, while allowing the examinee to function as the MTP. The evaluation should be administered for initial designation as an MTP and at periodic intervals in accordance with appropriate regulations. The evaluation sequence contains tasks/procedures used in the conduct of MTFs.
b. **Evaluation Sequence.** Times shown are general guides. The evaluator is the final authority as to the length of each phase of the evaluation.

(1) Phase 1 - Introduction (00:10 average time).
- Introduce yourself to the examinee.
- Verify that the examinee meets all prerequisites for an MTP.
- Insure that the examinee has all required equipment for the flight.
- Confirm the purpose of the flight evaluation with the examinee and explain the method of conducting the evaluation. The evaluator will discuss the standards and criteria to be used.

(2) Phase 2 - Oral examination (01:00 average time). The examinee must correctly respond to at least four topics from each of the following major subject areas.

- **Regulations and publications:**
  - Test flight weather requirements.
  - Local airspace usage (test flight).
  - Publications required in aircraft.
  - Maintenance test flight forms and records.

- **Operating limitations:**
  - Engine overspeeds.
  - Rotor overspeeds.
  - Power limitations.
  - Temperature limitations.
  - Pressure limitations.
  - Airspeed limitations.
  - Turbine engine analysis check (TEAC).
  - Weight and balance computations.
  - Notes, cautions, and warnings in MTF manual.
  - Aircraft system operations.

- **Troubleshooting.**
  - Preflight.
  - Cockpit checks.
  - Engine start.
  - Instrument indications.
  - Electrical system.
  - Caution panel indications.
  - Power plant.
  - Power train system.
— Hydraulic system.
— Flight controls.
— Vibrations.
— Communications/navigational equipment.

(3) Flight performance test (03:00 average time).

• The flight evaluation brief.
  — Explain the flight evaluation procedure.
  — Tell the examinee which tasks he will be required to perform.
  — Explain procedures for transfer of controls.
  — Explain procedures in the event of an actual emergency.
  — Answer any questions regarding conduct of the evaluation.

• Preflight, engine start, and run-up procedures.
  — The applicable MTF checklist will be used.
  — During the preflight inspection, the examinee will be required to properly identify a minimum of four components of the aircraft and discuss their functions and serviceability criteria.
  — The examinee will start and run up the aircraft as outlined in the applicable MTF checklist.

• Flight maneuvers. All tasks listed in the appropriate aircraft chapter of this FM must be performed.

• Engine shutdown. The examinee will perform the engine shutdown in accordance with applicable MTF checklist.

(4) Debriefing (00:30 average time).

• Through the use of a gradeslip, critique the examinee's performance. Tell the examinee of his strengths and weaknesses noted during the evaluation. Offer recommendations for improvement if required. Tell the examinee if he passed or failed the evaluation.

• Complete the gradeslip in accordance with paragraph 2-7 of this FM.

3-4. MTF UNIT TRAINER FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with special emphasis placed on ability to teach MTP duties. The evaluation will be administered when the examinee is seeking initial designation as an MTF UT and at periodic intervals according to the guidelines in this chapter. The flight portion should insure that the examinee can safely and effectively perform as an MTF UT. The evaluation flight should be conducted with the MTF UT in the crew position normally occupied when performing MTF UT duties.

3-5. MTF INSTRUCTOR PILOT FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with an additional requirement to determine the examinee's ability to instruct and evaluate MTP tasks. The
evaluation will be administered when the examinee is seeking initial designation as an MTP IP and at periodic intervals according to the guidelines in this chapter. The recommended procedure for conducting this evaluation is for the evaluator to assume the role of the MTP performing MTF tasks, while the examinee functions as an MTF IP conducting an MTP evaluation.

3-6. MTF STANDARDIZATION INSTRUCTOR PILOT FLIGHT EVALUATION.

This evaluation will consist of a complete MTP evaluation with an additional requirement to determine the examinee's flight proficiency, knowledge and application of effective teaching methods, and ability to instruct and perform and evaluate MTP tasks. It will be administered when the examinee is seeking initial designation as an MTP SIP and at periodic intervals according to the guidelines in this chapter. The recommended procedure for conducting this evaluation is for the evaluator to assume the role of the MTF IP performing MTFE tasks, while the examinee functions as an MTF SIP.

Note: Because of the highly technical nature of the MTF procedures and the contrast between MTF and contact flight instructional and evaluation criteria, dual utilization of individuals qualified as both contact IPs and MTF IPs is discouraged.
CHAPTER 4

OBSERVATION HELICOPTER MAINTENANCE
TEST PILOT TASKS

4-1. GENERAL.

This chapter contains the observation helicopter test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and the MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

4-2. OH-58 MAINTENANCE TEST PILOT TASK LIST.

<table>
<thead>
<tr>
<th>TASK</th>
<th>TASK TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF 4400</td>
<td>Perform Preflight Inspection</td>
</tr>
<tr>
<td>TF 4405</td>
<td>Perform Before-Starting Engine Checks</td>
</tr>
<tr>
<td>TF 4410</td>
<td>Perform Starting Engine Checks</td>
</tr>
<tr>
<td>TF 4415</td>
<td>Perform Engine Run-up Checks</td>
</tr>
<tr>
<td>TF 4420</td>
<td>Perform Before-Takeoff Check</td>
</tr>
<tr>
<td>TF 4425</td>
<td>Perform Baseline or Normal Engine Health Indicator Test (HIT)</td>
</tr>
<tr>
<td></td>
<td>as Required</td>
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<tr>
<td>TF 4430</td>
<td>Perform Takeoff to a Hover</td>
</tr>
<tr>
<td>★ TF 4431</td>
<td>Perform Hover Power Check</td>
</tr>
<tr>
<td>TF 4432</td>
<td>Perform Hovering Turns</td>
</tr>
<tr>
<td>★ TF 4433</td>
<td>Perform Primary Directional Control Check (C Only)</td>
</tr>
<tr>
<td>TF 4434</td>
<td>Perform Sideward Flight</td>
</tr>
<tr>
<td>TF 4436</td>
<td>Perform Forward and Rearward Hovering Flight</td>
</tr>
<tr>
<td>TF 4440</td>
<td>Perform Pylon Isolation Mount Check</td>
</tr>
<tr>
<td>TF 4445</td>
<td>Perform Power Cylinder Check</td>
</tr>
<tr>
<td>TF 4450</td>
<td>Perform Engine Response Check</td>
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<tr>
<td>TF 4465</td>
<td>Perform Control Rigging Check</td>
</tr>
<tr>
<td>TF 4470</td>
<td>Perform Autorotative RPM Check</td>
</tr>
<tr>
<td>★ TF 4472</td>
<td>Perform Engine Performance Check</td>
</tr>
<tr>
<td>TF 4475</td>
<td>Perform Hydraulics Off Check</td>
</tr>
<tr>
<td>TF 4480</td>
<td>Perform Out-Of-Ground Effect (OGE) Hover</td>
</tr>
<tr>
<td>TF 4485</td>
<td>Perform 70 KIAS-15 PSI (A) or 16% (C) Descent</td>
</tr>
<tr>
<td>TF 4487</td>
<td>Perform Vibration Analysis During Increasing Airspeeds</td>
</tr>
<tr>
<td>TF 4490</td>
<td>Perform 2:1 Vertical Vibration Check</td>
</tr>
<tr>
<td>TF 4492</td>
<td>Perform Flight Instrument Check</td>
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<tr>
<td>TF 4494</td>
<td>Perform Communication and Navigation Equipment Check</td>
</tr>
<tr>
<td>TF 4495</td>
<td>Perform After-Landing and Engine Shutdown Checks</td>
</tr>
</tbody>
</table>
## 4-3. OH-58 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP

See appendix B for DA forms that can be locally reproduced.

<table>
<thead>
<tr>
<th>a. NO.</th>
<th>b. MANEUVER/PROCEDURE</th>
<th>c. GR</th>
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<tbody>
<tr>
<td>1</td>
<td>PREFLIGHT INSPECTION</td>
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<tr>
<td>2</td>
<td>BEFORE STARTING ENGINE CHECKS</td>
<td>$5</td>
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<tr>
<td>3</td>
<td>STARTING ENGINE CHECKS</td>
<td>$5</td>
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<tr>
<td>4</td>
<td>ENGINE RUN-UP CHECK</td>
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<td>6</td>
<td>BEFORE-TAKEOFF CHECK</td>
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<tr>
<td>6</td>
<td>BASELINE OR NORMAL ENGINE HEALTH INDICATOR TEST (HIT)</td>
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<tr>
<td>7</td>
<td>TAKEOFF TO A HOVER</td>
<td>$5</td>
</tr>
<tr>
<td>8</td>
<td>HOVER POWER CHECK</td>
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</tr>
<tr>
<td>9</td>
<td>HOVERING TURNS</td>
<td>$5</td>
</tr>
<tr>
<td>10</td>
<td>PRIMARY DIRECTIONAL CONTROL CHECK (C ONLY)</td>
<td>$5</td>
</tr>
<tr>
<td>11</td>
<td>SIDeward FLIGHT</td>
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</tr>
<tr>
<td>12</td>
<td>FORWARD AND REARWARD HOVERING FLIGHT</td>
<td>$5</td>
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<tr>
<td>13</td>
<td>PYLON ISOLATION MOUNT CHECK</td>
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<tr>
<td>14</td>
<td>POWER CYLINDER CHECK</td>
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<tr>
<td>15</td>
<td>ENGINE RESPONSE CHECK</td>
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<tr>
<td>16</td>
<td>BEFORE-TAKEOFF CHECK</td>
<td>$5</td>
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<tr>
<td>17</td>
<td>CONTROL RIGGING CHECK</td>
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<td>18</td>
<td>AUTOROTATIVE RPM CHECK</td>
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<tr>
<td>19</td>
<td>ENGINE PERFORMANCE CHECK</td>
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<tr>
<td>20</td>
<td>HYDRAULICS OFF CHECK</td>
<td>$5</td>
</tr>
<tr>
<td>21</td>
<td>OUT-OF-GROUND EFFECT (OGE) HOVER</td>
<td>$5</td>
</tr>
<tr>
<td>22</td>
<td>70 KIAS-15 PSI (A) OR 16% (C) DESCENT</td>
<td>$5</td>
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<tr>
<td>23</td>
<td>VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS</td>
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<tr>
<td>24</td>
<td>2:1 VERTICAL VIBRATION CHECK</td>
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<td>26</td>
<td>FLIGHT INSTRUMENT CHECK</td>
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<td>26</td>
<td>COMMUNICATION AND NAVIGATION EQUIPMENT CHECK</td>
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<td>27</td>
<td>AFTER-LANDING AND ENGINE SHUTDOWN CHECK</td>
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</tbody>
</table>

**NOTE:** ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATTER USE.
4-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. Task Number and Title. Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraph 4-2.

b. Condition. The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. Standard. The standard describes the degree of proficiency or standard of performance to which the task must be performed.

d. Description. The description is a written explanation of how the task should be accomplished to meet the standards.

e. References. References are shown that further amplify each task.
4-5. OH-58 MAINTENANCE TEST PILOT TASKS.

TASK: TF 4400

CONDITION: In an OH-58A/C helicopter prior to flight.

STANDARDS:
1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-CL
TM 55-1520-235-MTF
TASK: Perform before-starting engine checks.

CONDITION: In an OH-58A/C helicopter.

★ STANDARDS:
1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the before-starting engine checks.

★ REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
TASK: TF 4410

TASK: Perform starting engine checks.

CONDITION: In an OH-58A/C helicopter.

★ STANDARDS:

1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the starting engine checks.

★ REFERENCES:

AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
TASK: Perform engine run-up checks.

CONDITION: In an OH-58A/C helicopter.

★ STANDARDS:
1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the engine run-up checks.

★ REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
TM 55-1520-231-23
TM 55-1520-241-23
TASK: TF 4420

TASK: Perform before-takeoff check.

CONDITION: In an OH-58A/C helicopter.

★ STANDARDS:
1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the before-takeoff check.

★ REFERENCES:
AR 95-1
TM 55-1520-228-MTF
TM 55-1520-228-23-series
TM 55-1520-235-MTF
TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an OH-58A/C helicopter.

★ STANDARDS:
1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
- TM 55-2840-231-23
- TM 55-2840-241-23
C1, FM 55-44

TASK: TF 4430

TASK: Perform takeoff to a hover.

CONDITION: In an OH-58A/C helicopter; before-takeoff check completed, day, visual meteorological conditions (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Insure that apparent center of gravity is normal.
5. Insure that droop compensation is normal.
6. See statement #1.

★ DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note apparent center of gravity is normal, and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed is normal. Hovering into the wind, note cyclic and pedal positions normal for conditions.

★ REFERENCES:

   TM 55-1520-228-23-series
   TM 55-1520-228-MTF
   TM 55-1520-235-MTF
TASK: Perform hover power check.

CONDITION: In an OH-58A/C helicopter, with takeoff to a hover check completed, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Insure aircraft is at a 3-foot stabilized hover.
3. Insure aircraft is headed into the wind.
4. Record required readings.
5. Insure torque is in agreement with performance planning card (PPC).
6. See statement #1.

DESCRIPTION: While at a stabilized 3-foot hover into the wind, record torque, time over target (TOT), and N1; determine readings are within normal limits. Torque must be compared with performance planning card. Check parking area for indication of leaks. Hover to test flight hover area.

REFERENCES:
- TM 55-1520-228-10
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-10
- TM 55-1520-235-MTF
- TM 55-2840-231-23
- TM 55-2840-241-23
C1. FM 55-44

TASK: TF 4432

TASK: Perform hovering turns.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain 3-foot hover.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform primary directional control check (C only).

CONDITION: In an OH-58C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Maintain 3-foot stabilized hover.
3. Maintain aircraft heading into the wind.
4. Insure primary direction control switch in proper position.
5. Note pedal control.
6. See statement #1.

DESCRIPTION: Increase collective with pitch with aircraft heading into the wind until a 3-foot hover is attained. Check controllability of tail rotor by making pedal turns 90° left and right. Land aircraft; engage primary directional control system. Note disengage light out. Reset and note jam light out.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-235-10
TM 55-1520-235-MTF
TASK: TF 4434

TASK: Perform sideward flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain 3-foot above ground level (AGL) altitude.
6. Limit ground speed to 5 knots.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform forward and rearward hovering flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform forward and rearward hovering flight at 5-foot AGL.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

★ REFERENCES:

TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
TASK: TF 4440

TASK: Perform pylon isolation mount check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Stabilize hover at 3 feet.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. See statement #1.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 3 to 4 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Note that vibrations should start to dampen out after three to five cycles. Note that no abnormal vibrations or engine surges occur.

★ REFERENCES:
   TM 55-1520-228-23-series
   TM 55-1520-228-MTF
   TM 55-1520-235-MTF
TASK: Perform power cylinder check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Complete copilot/observer briefing.
2. Head aircraft into the wind.
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly approximately 6 inches either side of center along a 45° line from left rear to right forward quadrant several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: TF 4450

TASK: Perform engine response check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Insure that altitude does not exceed 25 feet.
3. Note engine response.
4. See statement #1.

★ DESCRIPTION: From a stabilized hover, make a positive application of collective pitch (increase in N1 should be noted in less than 1 second); then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

★ REFERENCES:
  TM 55-1520-228-23-series
  TM 55-1520-228-MTF
  TM 55-1520-235-MTF
  TM 55-2840-231-23
  TM 55-2840-241-23

NOTE: Perform before-takeoff check (Task 4420) before continuing.
TASK: Perform control rigging check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Turn force trim on.
3. Maintain 100 KIAS or as adjusted for atmospheric conditions.
4. Maintain torque at 60 psi for A model, 65 percent for C model.
5. Maintain aircraft in trim.
6. Note cyclic and pedal positions.
7. See statement #1.

★ DESCRIPTION: Maintaining appropriate airspeed, torque and trim, note cyclic nearly centered and right pedal is 1 to 2 inches forward. Relax pedal pressure and note pedal response.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform autorotative RPM check.

★ CONDITION: In an OH-58A/C helicopter, day, VMC.

★ STANDARDS:
1. Maintain altitude sufficient to allow power recovery prior to 500 feet AGL.
2. Maintain 55 KIAS.
3. Insure that suitable landing area is within gliding distance.
4. Correct autorotation entry procedure.
5. Note N1, trim, vibrations, and rotor RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 55 KIAS; smoothly lower collective to full down position noting that main rotor does not overspeed. Retard throttle to engine idle. Note N1 stabilized at engine idle, aircraft in trim, sufficient right pedal remains, no unusual vibrations, and rotor stabilized at appropriate RPM. Perform power recovery and establish a definite climb.

★ REFERENCES:
- AR 95-1
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform engine performance check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Determine that engine performance check is required.
2. Head aircraft into wind.
3. Maintain cruise flight at selected altitude of 1,500 feet AGL or above.
4. Establish and maintain approximately a 70 KIAS climb.
5. Insure engine limitations are not exceeded.
6. Record appropriate readings at 1,000 feet above selected altitude.
8. See statement #1.

DESCRIPTION: When an engine performance check is required; the test altitudes and required torque valve will be computed before performing the check. Establish normal cruise flight at selected altitude of 1,500 feet AGL or above. Set altimeter to 29.92. Insure all bleed air and nonessential electrical items are turned off. Initiate a climb at approximately 70 KIAS by smoothly increasing collective until the maximum limit of either TOT, N1 speed or torque is achieved. As aircraft passes through 1,00 feet above the selected cruise altitude with engine instruments stabilized, record readings. Determine if readings are within limits and that the required torque is available before continuing test flight.

REFERENCES:
TM 55-1520-228-MTF
TM 55-1520-228-10
TM 55-1520-235-MTF
TM 55-1520-235-10
TM 55-2840-231-23
TM 55-2840-248-23
TASK: TF 4475

TASK: Perform hydraulics off check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain 70 KIAS.
3. Complete copilot/observer briefing.
4. Perform hydraulics off check.
5. See statement #1.

DESCRIPTION: Maintain 70 KIAS; turn hydraulic boost switch off. Check cyclic control forces normal for conditions. Increase and decrease collective and check that at least 76 psi torque up and 16 psi torque down (83 percent torque up and 17 percent torque down for C model) can be reached without excessive pressures. Turn hydraulic boost switch on.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
**TASK:** Perform out-of-ground effect (OGE) hover.

**CONDITION:** In an OH-58A/C helicopter, day, VMC.

**STANDARDS:**
1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce KIAS to zero.
5. See statement #1.

**DESCRIPTION:** At 1,500 to 2,000 feet AGL, reduce airspeed rearward to zero while maintaining altitude. The aircraft should drift at current wind velocity when zero airspeed is attained. Check vibration levels within tolerances and increase KIAS to 70.

**REFERENCES:**
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF

**NOTE:** Task is required as part of evaluation.
TASK: TF 4485

★ TASK: Perform 70 KIAS - 15 PSI (A) or 12 percent (C) descent.

CONDITION: In an OH-58A/C helicopter, day, VMC.

★ STANDARDS:
1. Maintain 70 KIAS straight and level flight.
3. Perform 70 KIAS - 15 psi (A) or 12 percent (C) descent.
4. Note vibration level.
5. See statement #1.

★ DESCRIPTION: While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 15 psi (A) or 12 percent (C) torque. Note change in vibration level. Reestablish 70 KIAS straight and level flight.

★ REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain 70 KIAS.
3. Increase airspeed in 10 knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase from 70 KIAS to VNE in 10 knot increments unless vibrations become severe. Note any changes in vibration level. Reestablish normal flight.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: TF 4490

TASK: Perform 2:1 vertical vibration check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain 80 to 90 KIAS.
3. Perform 2:1 vertical vibration check.
4. Note change in vibration level.
5. See statement #1.

DESCRIPTION: Maintain 80 to 90 KIAS and perform 30° left and right level banks and small cyclic dives and climbs. Note 2:1 vibration level.

★ REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform flight instrument check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes checking performance of all installed flight instruments.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: TF 4494

TASK: Perform communication and navigation equipment check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain airspeed as required.
3. Check all installed avionics equipment.
4. See statement #1.

DESCRIPTION: Check operation of all installed avionics equipment as indicated in the appropriate publication.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-MTF
TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an OH-58A/C helicopter, day, VMC.

★ STANDARDS:
1. Use TM 55-1520-228-MTF or TM 55-1520-235-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF or TM 55-1520-235-MTF to perform the after-landing and engine shutdown checks.

★ REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-MTF
CHAPTER 5

UTILITY HELICOPTER MAINTENANCE TEST PILOT TASKS

5-1. GENERAL.

This chapter contains the utility helicopter maintenance test pilot tasks, and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be immediately submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

5-2. UH-1 MAINTENANCE TEST PILOT TASK LIST.

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5-3. UH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESIL.

See appendix B for DA forms that can be locally reproduced.

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NOTE: ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE
5-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. Task Number and Title. Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraphs 5-2a for the UH-1 and 5-2b for the UH-60.

b. Condition. The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance environment.

c. Standards. The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. Description. The description is a written explanation of how the task should be accomplished to meet the standards.

e. References. References are shown that further amplify each task.
5-5. **UH-1 MAINTENANCE TEST PILOT TASKS.**

**TASK:** TF 5003

**CONDITION:** In a UH-1 helicopter prior to flight.

**STANDARDS:**

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

**DESCRIPTION:** Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

**REFERENCES:**

AR 95-1
TM 55-1520-210-CL
TM 55-1520-220-CL
TM 55-1520-210-10
TM 55-1520-220-10
TASK: Perform starting engine checks.

CONDITION: In a UH-1 helicopter prior to starting engine.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219-MTF to perform the starting engine checks.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
C1, FM 55-44

TASK: TF 5009

TASK: Perform engine start and run-up checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the engine start and run-up checks.

★ REFERENCES:

AR 95-1

TM 55-1500-219-MTF

TM 55-1520-210-23-series

TM 55-1520-220-23 series
TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In a UH-1 helicopter; before-takeoff check complete.

STANDARDS:
1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ REFERENCES:
TM 55-1500-219-MTF
TM 55-2840-229-23-1/-2
TASK: TF 5015

TASK: Perform takeoff to a hover.

CONDITION: In a UH-1 helicopter; before-takeoff check complete, day, (VMC).

STANDARDS:
1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM. Hovering into the wind, note cyclic nearly centered, and pedal position normal. Move off hover pad and check ground for oil spots which could indicate leakage.

★ REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: Perform hovering turns.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain appropriate hover altitude.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
TASK: TF 5021
TASK: Perform sideward flight.
CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Note that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved.

★ REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
TASK: Perform forward and rearward hovering flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform forward and rearward hovering flight.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward hovering flight.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Stabilize at a minimum 5-foot hover. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
TASK: TF 5027

TASK: Perform pylon mounts check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Stabilize hover.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move the cyclic fore and aft 3 to 4 inches at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Bumping should dampen out after four to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCE:
TM 55-1500-219-MTF
TASK: Perform torquemeter check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ STANDARDS:
1. Stabilized hover at 5 feet.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as predetermined from performance charts.

★ REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: TF 5033

TASK: Perform engine response check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ STANDARDS:

1. Head aircraft into the wind.
2. Clear aircraft left, right and overhead.
3. Make sure altitude does not exceed 50 feet.
4. Note engine response.
5. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 50 feet. Engine should respond smoothly and rapidly.

★ REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TM 55-2840-229-23-1/-2
TASK: Perform power cylinder check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Complete copilot/observer briefing to include emergency procedure for induced control lockup.
2. Head aircraft into the wind.
3. Maintain appropriate altitude (10-foot minimum).
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly 6 to 8 inches along a 45° line from left rear to right forward quadrant several times, noting that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. (Check UH-1C, M model by turning off one hydraulic system at a time.)

★ REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
TASK: TF 5039

TASK: Perform low-RPM hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. Using governor increase/decrease switch, decrease N2 RPM to 6,000.
4. Perform hovering turns 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to 6,000 with governor increase/decrease switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase RPM to 6,600.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Use correct procedures to change governor to emergency mode.
2. Maintain RPM 6,400 ± 100.
3. Maintain positive aircraft control.
5. Use correct procedure to change governor to automatic mode.
6. See statement #1.

DESCRIPTION: While on the ground, move throttle to flight idle and governor switch to emergency position. Carefully open throttle to 6,400 RPM and increase collective; maintain 6,400 RPM with throttle; stabilize at hover. Land aircraft, throttle to flight idle, governor switch to auto. Note N1 stabilized at flight idle and caution light out; increase throttle to full open 6,600 RPM.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-1520-220-23-series
- TM 55-2840-229-23-1/-2
TASK: TF 5045

TASK: Perform before-takeoff check.

CONDITION: In a UH-1 helicopter.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

★ DESCRIPTION: Using the callout and confirmation method, use TM 55-1520-219-MTF to perform the before-takeoff check.

★ REFERENCES:
AR 95-1
TM 55-1500-219-MTF
TASK: Perform takeoff and climb checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain RPM 6,600.
2. Check systems.
3. Transponder (as required).

DESCRIPTION: Make normal takeoff climb at 60/70 knots. Note control positions normal, engine and transmission instruments for normal indications, and check for abnormal vibrations.

REFERENCES:
TM 55-1500-219-MTF
TASK: TF 5051

TASK: Perform level off checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain a predetermined altitude.
2. Check instruments.
3. Begin fuel consumption check.

☆ DESCRIPTION: Climb to predetermined altitude. Maintain constant altitude, air-speed, and heading. Note engine oil pressure, engine oil temperature, transmission oil temperature and transmission oil pressure. Begin fuel consumption check.

REFERENCE:
TM 55-1500-219-MTF
TASK: Perform control rigging check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ STANDARDS:
1. Maintain airspace IAW local directives.
2. Force trim on.
3. Maintain airspeed of 90/100 knots.
5. Insure needle and ball are centered.
6. Note cyclic and pedal positions.
7. See statement #1.

★ DESCRIPTION: Maintain appropriate airspeed, torque, centered needle and ball, and note that the cyclic is nearly centered, and right pedal is 0.5 to 1 inch forward (pedals should be aligned on UH-1B, C, and M with symmetrical tail boom).

★ REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
C1, FM 55-44

**TASK:** TF 5057

**TASK:** Perform autorotative RPM check.

**CONDITION:** In a UH-1 helicopter, day, VMC.

**STANDARDS:**

1. Make sure a suitable landing area is within gliding distance.
2. Maintain airspeed at 60 KIAS.
3. Perform correct autorotation entry procedure.
4. Initiate autorotative descent at an altitude sufficient to allow power recovery at or above 500 feet AGL.
5. Note N1, trim, vibrations, and RPM.
6. Perform correct power recovery procedure.
7. See statement #1.

**DESCRIPTION:** Maintain 60 knots and smoothly lower collective to full down position, noting that main rotor does not overspeed, and reduce throttle to flight-idle position. Note N1 has stabilized at flight-idle (68-72 percent), needle and ball are centered, sufficient right pedal remains, no unusual vibrations are present, and rotor has stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) and increase collective to a power setting that will establish a definite climb.

**REFERENCES:**

AR 95-1
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
★ TASK: Perform hydraulics off check. (UH-1B, D, and H only).

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain airspeed at 60-90 knots.
3. Complete copilot/observer briefing.
4. Perform aircraft controllability check.
5. See statement #1.

DESCRIPTION: Have copilot/observer identify and turn off hydraulic control switch. Note that master caution and hydraulics off caution panel segment lights are lit, then reset master caution. Make turns to left and right. Decrease collective to 13 psi then increase collective to achieve 33 psi torque. Use pedals to maintain an in-trim condition then have copilot/observer return hydraulic control switch to on. Note that master caution and caution panel segment lights are off. Throughout the maneuver, notice that feedback forces are not excessive and that all control movements produce the desired results. Pay particular attention to cyclic forces required in the forward right quadrant.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5063

TASK: Perform engine topping check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Insure bleed-air heater and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 60-90 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

★ DESCRIPTION: Set altimeter to 29.92 and establish 60-90 KIAS (not to exceed VNE). Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until 500 feet prior to topping altitude is reached. Monitor N1, torque, and EGT to insure engine limits are not exceeded. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight; reset altimeter.

REFERENCES:
TM 55-1500-219-MTF
TM 55-2840-229-23-1/-2
TASK: Perform stabilizer bar check.

CONDITION: In a UH-1 helicopter, day, VMC.

★ STANDARDS:
1. Force trim on.
4. Perform turns left and right.
5. See statement #1.

DESCRIPTION: Maintaining level flight, apply cyclic and depress the force trim centering button until a 10° to 20° angle of bank is established. Simultaneously release the centering button and stop cyclic movement, then note the number of seconds required for the angle of bank to begin increasing. Following time should be 5 seconds ± 1 second in each direction. Perform the check during left and right turns, force trim off.

★ REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: TF 5069

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed to zero while maintaining altitude. The aircraft should be facing into the wind and will be moving rearward at current wind velocity when zero airspeed is attained. After checking that vibration levels are within tolerance, and with sufficient left pedal, increase airspeed to 70 KIAS.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: Perform 70-knot 10 psi descent.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Fly aircraft at 70 knots, straight and level.
3. Maintain speed at 70 knots and reduce power to 10 psi.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 knots, note vibration level. Maintain 70 knots and reduce power to 10 psi torque. Note any change in vibration level. Reestablish 70 knots straight and level flight.

★ REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK:  TF 5075

TASK:  Perform vibration analysis during increasing airspeeds.

CONDITION:  In a UH-1 helicopter, day, VMC.

★ STANDARDS:

1.  Compute VNE.
2.  Establish airspeed at 70 knots.
4.  Increase airspeed in 10 knot increments.
5.  Note change in vibration level.
6.  See statement #1.

DESCRIPTION:  Maintaining straight and level flight, slowly increase airspeed from 70 knots up to VNE in 10-knot increments (unless vibrations get uncomfortably severe). Note any changes in vibration level. Note airspeed. At no time will VNE be exceeded for the existing conditions. Reestablish normal flight.

★ REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: Perform cyclic rigging check (UH-1B, D, and H).

CONDITION: In a UH-1 helicopter, day, VMC.

★ STANDARDS:
1. Compute VNE.
2. Turn force trim off.
3. Maintain altitude IAW local directive.
4. Increase airspeed to VNE.
5. Note cyclic position ONLY.
6. See statement #1.

★ DESCRIPTION: Maintain aircraft in trim, increase airspeed to VNE and note cyclic position. A minimum of 2 inches of forward cyclic should remain before contacting forward stop.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5081

TASK: Perform flight instruments check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of the following instruments: airspeed indicators, altitude indicators, altimeters, gyro compass, vertical speed, standby compass, turn and slip indicator, clock and instrument panel.

★ REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TASK: Perform communication and navigation equipment check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

Insure that all installed equipment is operationally checked.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals.

★ REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TM 55-1520-220-23-series
TM 55-1520-210-10
TM 55-1520-220-10
TASK: TF 5087

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the after-landing and engine shutdown checks.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
5-6. **UH-60 MAINTENANCE TEST PILOT TASK LIST.**

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5-7. UH-60 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

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NOTE ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-3-R
(Dec 81)
5-8. UH-60 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5600

TASK: Perform preflight inspection.

CONDITION: In a UH-60 helicopter prior to flight.

★ STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

★ REFERENCES:

AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TM 55-1520-237-23-CL
TASK: TF 5605

TASK: Perform before-starting engine checks.

CONDITION: In a UH-60 helicopter prior to starting engines.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform before-starting engine checks.

REFERENCES:
AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform engine start and run-up checks.

CONDITION: In a UH-60 helicopter.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the engine start and run-up checks.

REFERENCES:
AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
FM 55-44

TASK: TF 5615

TASK: Perform before-takeoff check.

CONDITION: In a UH-60 helicopter.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the before-takeoff check.

REFERENCES:
AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform ground taxi.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Insure outside area is clear.
2. Remove chocks and tiedowns.
3. Secure doors.
4. Release parking brakes.
5. See statement #1.

DESCRIPTION: While performing ground taxi, the pilot and copilot should check their brakes independently. Check the tail wheel lock for operation. Taxi to test flight hover area.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5622

TASK: Perform engine health indicator test (HIT)/anti-ice.

CONDITION: In a UH-60 helicopter; before takeoff check is complete.

STANDARDS:
1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

★ REFERENCES:
   TM 55-1520-237-MTF
   TM 55-1520-237-23-series
   TM 55-2840-248-23
TASK: Perform takeoff to a hover.

CONDITION: In a UH-60 helicopter; before takeoff check completed, day, VMC.

★ STANDARDS:

1. Head aircraft into the wind.
2. Insure that cyclic, collective, and pedal control response is normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. Maintain hovering altitude of 10 feet.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. Hovering into the wind, note that cyclic is 1 inch forward of neutral, and left pedal is forward of neutral about 1 1/2 inches.

REFERENCES:

TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5626

TASK: Perform SAS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Maintain minimum hovering altitude of 20 feet.
3. Head aircraft into the wind.
4. Insure that boost, SAS #1, and trim are ON.
5. Insure that SAS #2 and FPS are OFF.
6. Check controllability.
7. See statement #1.

DESCRIPTION: Move cyclic forward and aft to get 3° pitch attitude change. Attitude should return to trim within ±1°. Then move cyclic left and right to get a 5° to 7° roll attitude change. Attitude should return to trim within ±1°. Make a 20 percent torque change and observe heading response. Heading should not change more than 15°. Repeat check with SAS-2 engaged and SAS-1 off.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform FPS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Head aircraft into the wind.
3. Maintain minimum hovering attitude of 20 feet.
4. Engage boost, SAS #1, SAS #2, trim FPS.
5. See statement #1.

DESCRIPTION: Hands off attitude retention in pitch and roll should be \( \pm 1^\circ \) (calm wind). Heading hold should be \( \pm 2^\circ \) introducing cyclic pulses \( 5^\circ \) in pitch and \( 10^\circ \) in roll. Helicopter should return to trim attitude with no more than one \( 3^\circ \) overshoot. Transient heading hold with a 20 percent torque increase and return to original power setting. Heading should be \( \pm 15^\circ \) or original setting.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5632

TASK: Perform tail rotor backup check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Complete copilot briefing.
2. Head aircraft into the wind.
3. Maintain minimum hovering altitude of 20 feet.
4. See statement #1.

DESCRIPTION: Move tail rotor switch to BACKUP position. Hydraulic pressure to tail rotor should be within 1 to 3 seconds. After check is completed, place tail rotor switch in NORMAL position.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform takeoff check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Insure that copilot monitors and calls out stabilator indicator position versus airspeed.
3. See statement #1.

DESCRIPTION: During a normal takeoff, the stabilator should begin moving up at 30 KIAS and be passing through 20° at 60 KIAS. Also, during the climb, check the pilot's and copilot's airspeed indicators, vertical speed indicators, altimeter's horizontal situation, and magnetic compass.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
FM 55-44

TASK: TF 5636

TASK: Perform cruise checks at 80 KIAS.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Stabilize at predetermined altitude.
2. Maintain speed of 80 knots.
3. See statement #1.

DESCRIPTION: After letting the instruments stabilize for 1 minute, record the readings which are listed in TM 55-1520-237-MTF.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform autorotation RPM check.

CONDITION: In a UH-60 helicopter at sufficient altitude for power recovering, 80 KIAS, day, VMC.

★ STANDARDS:

1. Determine check altitude. Altitude for power recovery 500 feet AGL or above.
2. Perform cruise flight at 80 KIAS.
3. Insure that flight path is clear.
4. Insure suitable force landing areas.
5. Set one altimeter to 29.92 in Hg.
6. Enter autorotation.
7. Record RPMR at check altitude.
8. Make power recovery (500 feet AGL or above).
9. See statement #1.

★ DESCRIPTION: Set one altimeter to 29.92, climb to check altitude and level off, maintain 80 KIAS after FAT has stabilized, record, then climb an additional 1,000 feet, level off, stabilize at 80 KIAS, retard number 1 ENG POWER CONT lever to IDLE and check engine stabilized at idle, and reduce collective slowly to fold down, maintaining 80 KIAS. Retard number 2 ENG POWER CONT lever to IDLE when passing through, check altitude, and record percent RPMR and fuel quantity. Advance number 1 and number 2 ENG POWER CONT levers to FLY detent, and make a power recovery.

REFERENCES:

TM 55-1520-237-MTF
TM 55-1520-237-23-series
C1. FM 55-44

TASK: TF 5645

TASK: Perform in-flight controllability check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:

1. Level flight at 100 KIAS.
2. See statement #1.

★ DESCRIPTION: In level flight, check the position of the cyclic and antitorque pedals per TM 55-1520-237-MTF; also, check that airspeed indicators are within 5 KIAS of each other. Note any abnormal vibrations. Establish a steady state autorotational descent and verify that the stabilator position is between -3° to -7°.

REFERENCES:

TM 55-1520-237-MTF
TM 55-1520-237-23-series
**TASK:** Perform maximum power check.

**CONDITION:** In a UH-60 helicopter at predetermined pressure altitude and 110 KIAS, day, VMC.

★ **STANDARDS:**

1. Climb to predetermined pressure altitude.
2. Maintain 110 KIAS.
3. Insure ANTI-ICE and HEATER switches are off.
5. Record data.
6. See statement #1.

**DESCRIPTION:** Maintain 110 KIAS, with one altimeter set at 29.92, and anti-ice and heater off. Perform maximum power check on one engine at a time, using procedures in TM 55-1520-237-MTF.

**REFERENCES:**

- TM 55-1520-237-MTF
- TM 55-1520-237-23-6
- TM 55-2840-248-23
TASK: Perform stabilator check at 120 KIAS.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: During level flight at 120 KIAS, the stabilator position indicator pointer is $-1^\circ$ to $+3^\circ$. Displace the trim ball one width to the right and insure stabilator position pointer is about $2^\circ$ down from previously noted position. After the check, release the pedals and the trim ball should come within one-half a ball from center. Now displace the trim ball one ball width to the left, and the stabilator position pointer is $2^\circ$ up from original trim position. After the check is completed, make 45° banked turns left and right with fixed collective and note that stabilator position pointer is about $1^\circ$ down from original trim position.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform FPS check during flight.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: Perform the FPS check as outlined in TM 55-1520-237-MTF.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5662

TASK: Perform low rotor RPM check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Maintain 140 KIAS.
2. Maintain level flight.
4. See statement #1.

★ DESCRIPTION: Maintaining 140 KIAS, decrease ENG RPM switch to 96 percent RPMR. If low rotor RPM caution light and audio warning does not activate, lower collective slightly to activate. Increase ENG RPM switch to 100 percent RPMR; also, while at 140 KIAS, check airspeed indicators, vibration level, and that stabilator setting is in the \(-1^\circ\) to \(+3^\circ\) range.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform Vh check.

CONDITION: In a UH-60 helicopter, day, VMC.

★ STANDARDS:
1. Determine Vh speed.
2. Maintain level flight.
3. Insure that needle and ball are centered.
4. Do not exceed 100 percent torque or TGT limiting.
5. Perform checks required by MTF manual.
6. See statement #1.

★ DESCRIPTION: Increase airspeed and power to maintain level flight until 100 percent torque is obtained or TGT limiting. At Vh, check to see that at least 2 inches of distance exist from instrument panel to cyclic stick. Right pedal should not be over 1 inch forward of neutral; collective pitch control should not be against upper stop. Check that STAB POS indicator pointer is in the -1° to +3° range. Check for any abnormal vibrations.

REFERENCES:

TM 55-1520-237-MTF
TM 55-1520-237-10
TM 55-1520-237-23-series
C1, FM 55-44

TASK: TF 5670

TASK: Perform navigation and communication equipment check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Check navigation equipment.
2. Check communication equipment.
3. See statement #1.

DESCRIPTION: Check operation of all navigation and communication equipment installed as indicated in the appropriate manuals.

★ REFERENCES:
  TM 55-1520-237-MTF
  TM 11-1520-237-23-series
TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform the after-landing and engine shutdown check.

REFERENCES:
AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
CHAPTER 6

ATTACK HELICOPTER MAINTENANCE
TEST PILOT TASKS

6-1. GENERAL.

This chapter contains the attack helicopter maintenance test pilot tasks, and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

NOTE: AH-1 Identification Index

- G - AH-1G
- M - AH-1 MOD
- E - AH-1 ECAS
- M/C - AH-1 modernized
- B-540 - Bell main rotor blade
- K-747 - Kaman main rotor blade

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

6-2. AH-1 MAINTENANCE TEST PILOT TASK LIST.

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TF 6040 . . . . . Perform Torquemeter Check
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TF 6044 . . . . . Perform Low-RPM Hover
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TF 6048 . . . . . Perform Power Cylinder Check, Dual System Check
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TF 6056 . . . . . Perform Control Rigging Check
TF 6060 . . . . . Perform Control Rigging Check - SCAS OFF
TF 6062 . . . . . Perform Autorotative RPM Check
TF 6064 . . . . . Perform Flight Instrument Check
TF 6066 . . . . . Perform Out-Of-Ground Effect (OGE) Hover
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TF 6080 . . . . . Perform “G” Loading Check
TF 6082 . . . . . Perform Communication and Navigation Equipment Check
TF 6084 . . . . . Perform Engine Topping Check
TF 6090 . . . . . Perform After-Landing and Engine Shutdown Checks
6-3. AH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESILIP.

See appendix B for DA forms that can be locally reproduced.

### MAINTENANCE TEST FLIGHT MANEUVERS GRADESILIP (AH-1)

For use of this form see FM 55-44. The proponent agency is TRADOC.

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**NOTE**: ITEMS 31 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE
6-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. Task Number and Title. Each task listed in this chapter has been identified by a number and a title which correspond to the task list in paragraph 6-2.

b. Condition. The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. Standards. The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. Description. The description is a written explanation of how the task should be accomplished to meet the standards.

e. References. References are shown that further amplify each task.
6-5. AH-1 MAINTENANCE TEST PILOT TASKS.

TASK: TF 6000

TASK: Perform preflight inspection.

CONDITION: In an AH-1 helicopter prior to flight.

STANDARDS:
1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:
AR 95-1
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: TF 6002

TASK: Perform starting engine check.

CONDITION: In an AH-1 helicopter prior to starting engine.

STANDARDS:
1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244 MTF or TM 55-1520-236 MTF as applicable to perform the starting engine check.

REFERENCES:
AR 95-1
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: TF 6004

TASK: Perform engine start and run-up checks.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244 MTF or TM 55-1520-236-MTF as applicable to perform the engine start and run-up checks.

REFERENCES:

AR 95-1
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
FM 55-44

TASK: TF 6006

TASK: Perform before-takeoff check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244-MTF or TM 55-1520-236-MTF as applicable to perform the before-takeoff check.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an AH-1 helicopter; before-takeoff check is completed.

STANDARDS:
1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
FM 55-44

TASK: TF 6015

TASK: Perform take off to a hover.

CONDITION: In an AH-1 helicopter, before-takeoff check complete, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Note that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note apparent center of gravity normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM (AH-1G, AH-1S (M)) or N2 stabilizes within 0.6 percent of previously set value (AH-1S (P), AH-1S (ECAS)). Hovering into the wind, note cyclic nearly centered, and pedal position normal.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform hovering turns.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Note flight instrument response normal.
5. Maintain appropriate hover altitude.
6. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction. Altitude indicator, turn and slip indicator, and compasses should respond normally.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
FM 55-44

TASK: TF 6022

TASK: Perform yaw channel response.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Use MTF manual checklist.
2. Clear aircraft.
3. Head aircraft into wind.
4. Perform slight collective movement.
5. Note that SCAS maintains original heading.
6. See statement #1.

DESCRIPTION: With the aircraft faced into the prevailing wind and without moving pedals, increase collective slightly, noting SCAS tends to maintain nearly original heading. A comparison of SCAS functioning may be made as necessary by disengaging the yaw channel switch and repeating check.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform sideward flight.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and face aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Insure that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved, then neutralize the cyclic. Aircraft should drift to a stop.

REFERENCES:

- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
TASK: TF 6026

TASK: Perform forward hovering flight.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform forward hovering flight.
3. Head aircraft into the wind.
4. Note cyclic response.
5. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
TASK: Perform pylon mounts check - SCAS On.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Stabilize hover.
2. Head aircraft into the wind.
3. Engage SCAS.
4. Maintain appropriate altitude.
5. Induce pylon rock.
6. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rocking and to stabilize cyclic, then note the number of oscillations required for rocking to subside. Note any abnormal engine responses.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: TF 6035

TASK: Perform pylon mounts check-SCAS off.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Stabilize hover.
2. Head aircraft into the wind.
3. Disengage SCAS.
4. Maintain appropriate altitude.
5. Induce pylon rock.
6. Correctly determine malfunctions or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Disengage all SCAS channel switches. Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rocking, stabilize cyclic, then note the number of oscillations required for rocking to subside. No significant variation between SCAS on and SCAS off; check should be evident. Note any abnormal engine responses. Land aircraft, REENGAGE SCAS.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform torquemeter check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Stabilize hover.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as performance charts.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
FM 55-44

TASK: TF 6042

TASK: Perform engine response check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Climb to an altitude not to exceed 25 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then terminate maneuver by a smooth reduction of collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform low-RPM hover.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. With governor increase/decrease switch, decrease N2 RPM to 6,000 or 91 percent.
4. Perform hovering turn 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Increase N2 RPM to 6,000 (AH-1S M AH-1G) or 91 percent (AH-1S P, E, M/C ECAS) with governor increase/decrease switch while maintaining a stabilized hover. Check controllability of low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase linear actuator to operational RPM.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
FM 55-44

TASK: TF 6046

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Use correct procedures to change governor to emergency mode.
3. Maintain RPM 97% ± 1% (AH-1S, P, E, M/C).
4. Maintain positive aircraft control.
5. Note engine performance throughout maneuver.
6. Use correct procedure to change over to automatic mode.
7. See statement #1.

DESCRIPTION: While on the ground, retard throttle to flight idle, and switch to emergency position. Smoothly advance throttle to 6,400 RPM (AH-1G, AH-1S, M) or 97 percent (AH-1S, P, E, M/C) then increase collective, maintaining RPM at stabilized hover. Land aircraft, retard throttle to flight idle position placing GOV SWITCH to AUTO. Note N1 stabilized at flight idle and caution light out. Advance throttle to operational RPM.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform power cylinder check, dual system check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION: Increase hovering altitude 10 to 15 feet; transfer control of the collective to copilot. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel, note normal unrestricted operation of controls, stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel. Note smooth operation, no control restrictions, stabilize aircraft.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
FM 55-44

TASK:  TF 6050

TASK:  Perform power cylinder check, hydraulic #1 system check.

CONDITION:  In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION:  Increase hovering altitude 10 to 15 feet, and transfer control of collective to copilot. Place HYD TEST SWITCH TO #1 SYS TEST POSITION, note illumination of MASTER CAUTION and HYD PRESSURE #2 caution segments, and stabilize aircraft. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel; note normal unrestricted operation of controls, then stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel. Note normal operation, no control restrictions, and stabilize aircraft.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF

CAUTION:  E, M/C power cylinder check to be accomplished only when suspected malfunctions exist (due to safety).
TASK: Perform power cylinder check, hydraulic #2 system check.

CONDITIONS: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Two qualified pilots are required.
2. Complete copilot briefing.
3. Head aircraft into the wind.
5. Perform power cylinder check.
6. See statement #1.

DESCRIPTION: Increase hovering altitude 10 to 15 feet and transfer control of collective to copilot. Place HYD TEST SWITCH TO #2 SYS TEST POSITION, note illumination of MASTER CAUTION and HYD PRESSURE #1 caution segments, and stabilize aircraft. Pedals should be stiff but manageable. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel, note controls normal and unrestricted except stiff pedals, stabilize aircraft. Then smoothly move cyclic laterally through 6 to 8 inches of full travel, controls normal and unrestricted except for stiff pedals, and stabilize aircraft. Transfer control of collective to pilot.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF

CAUTION: E, M/C power cylinder check to be accomplished only when suspected malfunction exists (due to safety).
FM 55-44

TASK: TF 6056

TASK: Perform control rigging check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Insure force trim is on.
3. Maintain airspeed of 100 knots.
5. Maintain torque at 45 percent (AH-1, M, E, M/C).
6. Center needle and ball.
7. Note cyclic and pedal positions.
8. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, in trim, and note the cyclic is nearly centered, pedals neutral ± 1/2-inch. Note force trim tends to hold aircraft altitude.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
TASK: Perform control rigging check - SCAS off.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Insure force trim is off.
3. Disengage SCAS.
4. Maintain airspeed at 100 knots.
6. Maintain torque at 45 percent (AH-1, M, E, M/C).
7. Note cyclic and pedal positions.
8. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, in trim, and disengage all SCAS channel switches. Note the cyclic is nearly centered, pedals neutral ± 1/2 inch. Relax control pressures and note aircraft tends to fly straight and level. SCAS OFF stability should be normal, then reengage SCAS.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
FM 55-44

TASK: TF 6062

TASK: Perform autorotation RPM check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain airspeed at 80 knots.
3. Insure that suitable landing area is within gliding distance.
4. Use correct autorotation entry procedure.
5. Note N1, trim, vibrations, and RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 80 knots, then smoothly lower collective to full down position, noting that main rotor does not overspeed; retard the throttle to flight-idle position. Note that N1 has stabilized at flight-idle (68-72 percent), in trim, sufficient right pedal remains, there are no unusual vibrations, and rotor is stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) then increase collective to a power setting that will establish a definite climb.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform flight instruments check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of all installed flight instruments.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
FM 55-44

TASK: TF 6066

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Decrease airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, slow aircraft into wind to attain zero airspeed OGE hover while maintaining altitude. In OGE hover, aircraft will be moving rearward at current wind velocity when zero airspeed is attained. Note any one per revolution vibrations, then accelerate into forward flight.

REFERENCES:

TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform cruise descent check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain 80 knots straight and level flight.
3. Maintain 80 knots; reduce power to 10 psi descent (AH-1G, M).
4. Maintain 80 knots; reduce power to 18 percent descent (AH-1, P, E, M/C).
5. Note vibration level.
6. See statement #1.

DESCRIPTION: Establish an 80-knot straight and level cruise, noting vibration intensity. Maintain 80 knots, then reduce power to 10 psi torque (AH-1G M) or 18 percent torque (AH-1, P, E, MC). Note any change in vibration intensity. Reestablish 80 knots straight and level flight.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF

NOTE: Only performed on B-540.
**TASK:** TF 6075

**TASK:** Perform acceleration check.

**CONDITION:** In an AH-1 helicopter, day, VMC.

**STANDARDS:**
1. Maintain airspeed at 80 knots.
3. Increase airspeed in 10-knot increments.
4. Note change in vibration level.
5. Increase airspeed to 150 knots (130 knots AH-1S, P).
6. See statement #1.

**DESCRIPTION:** Smoothly increase airspeed to 150 knots (unless vibration intensity becomes excessive). Note any changes in vibration level and airspeed vibration intensity developed. Reestablish normal flight.

**REFERENCES:**
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
TASK: Perform "G" loading check.

CONDITIONS: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. "G" loading check not required when VIBREX is utilized.
3. Head aircraft into the wind.
4. Perform normal dive.
5. Perform moderate "G" pullout.
6. Insure entry airspeed is 80 knots.

DESCRIPTION: Fly straight and level. At 80 KIAS, execute a normal dive into the wind, maintaining aircraft in trim. Accelerate to 130 KIAS, then perform moderate "G" pullout, noting any excessive vibrations. Return to cruise flight.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: TF 6082

TASK: Perform communication and navigation equipment check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARD:
Insure that all installed equipment is operationally checked.

DESCRIPTION: Check operation of all installed avionics equipment as indicated in the appropriate manuals.

REFERENCES:
TM 55-1520-221-23-1/-2
TM 55-1520-234-23-1/-2
TM 55-1520-236-MTF
TM 55-1520-236-23-series
TM 55-1520-244-MTF
TASK: Perform engine topping check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:
1. Insure environmental control unit and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 70 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

DESCRIPTION: Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until topping altitude is reached. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight. Reset altimeter.

REFERENCES:
- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
TASK: TF 6090

TASK: Perform after-landing and engine shutdown check.

CONDITION: In an AH-1 helicopter, day, VMC.

STANDARDS:

1. Use MTF manual checklist.
2. Check items in sequence.
3. See statement #1.

DESCRIPTION: Use TM 55-1520-244-MTF or TM 55-1520-236-MTF to perform the after-landing and engine shutdown checks.

REFERENCES:

- TM 55-1520-221-23-1/-2
- TM 55-1520-234-23-1/-2
- TM 55-1520-236-MTF
- TM 55-1520-236-23-series
- TM 55-1520-244-MTF
CHAPTER 7

CARGO HELICOPTER MAINTENANCE TEST PILOT TASKS

7-1. GENERAL.

This chapter contains the cargo helicopter maintenance test pilot tasks, their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1

Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

7-2. CH-47 MAINTENANCE TEST PILOT TASK LIST.

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7-3. CH-47 MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP.

See appendix B for DA forms that can be locally reproduced.

MAINTENANCE TEST FLIGHT MANEUVERS GRADESLIP (CH-47)

For use of this form see FM 55-44. The proponent agency is TRADOC

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NOTE: ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-5-R
DEC81
7-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. **Task Number and Title.** Each task listed in this chapter has been identified by a number and a title which correspond to the task list in paragraph 7-2.

b. **Condition.** The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. **Standards.** The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. **Description.** The description is a written explanation of how the task should be accomplished to meet the standards.

e. **References.** References are shown that further amplify each task.
7-5. CH-47 MAINTENANCE TEST PILOT TASKS.

TASK: TF 7005

TASK: Perform preflight inspection.

CONDITION: In a CH-47 helicopter prior to flight.

STANDARDS:

1. Use MTF manual checklist.
2. Use callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Use the callout and confirmation method from the MTF manual to perform the pretest flight inspection. Applicable publications will be used as necessary for amplifications.

REFERENCES:

AR 95-1
TM 55-1500-210-MTF
TASK: Perform before-starting engine checks.

CONDITION: In a CH-47 helicopter prior to starting engine.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the MTF manual and the callout and confirmation method, perform the cockpit check in sequence.

REFERENCES:
AR 95-1
TM 55-1500-210-MTF
FM 55-44

TASK: TF 7015

TASK: Perform engine start/run-up procedure.

CONDITION: In a CH-47 helicopter after cockpit check.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using appropriate checklist, start and run up engines with callout and confirmation method.

REFERENCES:
AR 95-1
TM 55-1500-210-MTF
TASK: Perform before-takeoff check.

CONDITION: In a CH-47 helicopter after run-up checks are completed.

STANDARDS:
1. Use MTF manual checklist.
2. Use callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using oral callout and confirmation method, use TM 55-1500-210-MTF to perform before-takeoff checks.

REFERENCES:
- TM 55-1500-210-MTF
- TM 55-1520-209-23-series
- TM 55-1520-227-23-series
TASK: TF 7022

TASK: Perform lift-off check.

CONDITION: In a CH-47 helicopter after before-takeoff check.

STANDARDS:

1. Clear aircraft.
2. Complete before-takeoff checks (SAS off).
3. Check brakes.
4. Lift forward gear 1-2 feet off the ground.
5. Check control response in all axes.
6. Check SAS engagement errors.
7. See statement #1.

DESCRIPTION: Apply parking brakes and 2-inch aft cyclic with SAS OFF. Slowly increase thrust and lift forward landing gear off the ground, insuring controls and brakes function properly. Raise altitude to about 5° to 8° above horizon while constantly confirming proper operation of light controls and brakes.

NOTE
If at any time conditions do not appear to be normal, land aircraft and investigate.

With forward landing gear off the ground (1-2 feet), check flight control response in all axes by putting a slight input into pitch, up and down; roll, left and right; yaw left and right and thrust up and down to confirm proper control operation. If controls check out satisfactorily, place the aircraft back on the ground lightly and engage and disengage the SAS, checking for hardovers and balance errors in both systems. If no errors exist, leave engaged.

REFERENCES:

TM 55-1500-210-MTF
TM 55-1520-209-23-series
TM 55-1520-227-23-series
TASK: Perform engagement error check.

CONDITION: In a CH-47 helicopter after lift-off checks are completed.

STANDARDS:
1. Clear aircraft.
2. Stabilize at a hover into wind.
3. Check SAS engagement error.
4. Check SAS both on, #1 ON and #2 ON for proper functioning.
5. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, stabilize aircraft at hover into the wind. Check engagement error by moving the EMER SAS REL switch to RELEASE and back to ENGAGE. Next move SAS selector switch to NO 2 ON, then BOTH, then NO 1 ON, and then back to BOTH. During the engagement error, insure altitude of the aircraft is kept stable; otherwise, during the switching of the systems an engagement error will be present.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-209-23-series
TM 55-1520-227-23-series
FM 55-44

TASK: TF 7026

TASK: Perform SAS function check.

CONDITION: In a CH-47 helicopter at stabilized hover.

STANDARDS:
1. Stabilize aircraft hover.
2. Perform SAS function check.
3. See statement #1.

DESCRIPTION: SAS selector switch BOTH ON. Check SAS response in the pitch, roll, and yaw axes. If satisfactory, check for the same condition in all three axes with NO 1 SAS ON and NO 2 SAS ON.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-209-23-series
TM 55-1520-227-23-series

7-10
TASK: Perform PSAS check (C model only).

CONDITION: In a CH-47C helicopter at stabilized hover.

STANDARDS:
1. Stabilize aircraft hover.
2. Perform PSAS function check.
3. See statement #1.

DESCRIPTION: PSAS selector switch in NORMAL SYNC. Check pitch axes with a 5° displacement nose up and 5° nose down. Aircraft should return to entry altitude after each displacement.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-227-23-series
TASK: TF 7032

TASK: Perform control position check.

CONDITION: In a CH-47 helicopter at stabilized hover.

STANDARDS:
1. Hover crosswind.
2. Note longitudinal cyclic position.
3. Hover into wind.
4. Note lateral cyclic and pedal position.
5. Check trim wheel operation.
6. See statement #1.

DESCRIPTION: While hovering crosswind, determine longitudinal cyclic position from indicator. If stick position indicator is inaccurate, use ruler to determine cyclic position until indicator is recalibrated. Turn aircraft into the wind and measure lateral cyclic and pedals. Rotate trim wheel full forward while allowing the cyclic to drift forward without changing aircraft altitude and repeat for aft.

REFERENCES:
 TM 55-1500-210-MTF
 TM 55-1520-209-23-series
 TM 55-1520-227-23-series
TASK: Perform torque differential check.

CONDITION: In a CH-47 helicopter on the ground, thrust 3° detent.

STANDARDS:
1. Maintain operating RRPM.
2. Maintain constant thrust position.
3. Record N1, EGT, and torque for each engine.
4. Evaluate information.
5. See statement #1.

DESCRIPTION: With aircraft on the ground, move ECL for #2 engine from flight to ground and beep #1 engine to operating RRPM. Increase thrust to a point where aircraft is light on the gear while maintaining operating RRPM with normal engine trim. After N1 has stabilized, record EGT (PTIT), N1, and torque for #1 engine. Maintain constant thrust position and decrease normal engine trim to full decrease. Move #2 ECL from ground to flight and as #2 engine passes through 60-70 percent N1, move #1 engine ECL from flight to ground. Beep #2 engine to the same operating RPM as #1 engine and record EGT (PTIT), N1, and torque. Recover by keeping #2 engine to minimum beep then placing the thrust in 3° detent and #1 engine to flight. After #1 engine has stabilized, beep engines to normal RRPM and matched torque. Evaluation of information gathered should then be discussed.

REFERENCES:
TM 55-1500-210-MTF
TASK: TF 7036

TASK: Perform droop eliminator check.

CONDITION: In a CH-47 on the ground.

STANDARDS:
1. Maintain aircraft at normal operating RPM.
2. Thrust 3° detent.
3. SAS ON.
4. Lift off to stabilized hover.
5. See statement #1.

DESCRIPTION: Establish normal operating RRPM with matched torque, SAS ON, and thrust 3° detent. Smoothly increase thrust and bring aircraft to stabilized hover while noting changes in RRPM and torque. Check for transient and stabilized torque and RRPM splits.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-209-23-series
TM 55-1520-227-23-series
TASK: Perform speed trim lift-off check.

CONDITION: In a CH-47 helicopter in flight, day, VMC.

STANDARDS:
1. Complete takeoff checks.
2. Take off to required airspeed as listed in MTF.
5. See statement #1.

DESCRIPTION: Stabilize airspeed at 50 knots to check fully retracted rigging of speed trim indicators in lower green block. Accelerate to 60 knots, compare pilot's and copilot's airspeed indicators for errors, and measure and record longitudinal, lateral, and directional pedal positions. Increase airspeed to 70 knots while noting speed trim indicator for lift-off within limits (80 knots for A model).

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-209-23-series
TM 55-1520-227-23-series

NOTE: Regulations require all test flights to be within a designated test flight area. Selection of such an area should take forced landing availabilities, aircraft recovery capabilities, and traffic density into consideration. Due to the increased division of attention required during test flights, it is advisable to have extensive radar coverage if available.
FM 55-44

TASK: TF 7042

TASK: Perform speed trim manual operation.

CONDITION: In a CH-47 helicopter in flight below airspeed from -10 charts*, day, VMC, A model.

*Remaining within airspeed limitations for retracted speed trim operation in accordance with TM 55-1520-209-10/227-10-1/227-10-2.

STANDARDS:

1. Maintain appropriate airspeed.
2. Perform speed trim manual operation check.
3. See statement #1.

DESCRIPTION: At prescribed airspeed, note speed trim indicator position and place speed trim switch to manual. Check for proper equipment installation by slightly extending the forward actuator and noting a corresponding movement on the forward indicator. Repeat for aft. If installed properly, check actuators for proper operation in manual by fully extending and then fully retracting while observing indicator movement within range. Switch speed trim switch back to auto, and if entry airspeed is still present, the indicators should return to previously noted position.

REFERENCES:

TM 55-1500-210-MTF
TM 55-1520-209-10
TM 55-1520-227-10-1
TM 55-1520-227-10-2
TASK: Perform PSAS evaluation (C model only).

CONDITION: In a CH-47C helicopter at prescribed airspeed, day, VMC.

STANDARDS:
1. Maintain appropriate airspeed.
2. Check PSAS in AUTO SYNC.
3. Check PSAS in NORM SYNC.
4. See statement #1.

DESCRIPTION: At 100 knots airspeed, turn PSAS switch to AUTO SYNC and trim the helicopter. After aircraft and PSAS trimmed for 100 knots, slowly increase airspeed to 110 without releasing PSAS. At 110 knots, depress the centering release switch; no transient change in the helicopter altitude should occur. Continue acceleration to 120 knots and then switch PSAS to NORM SYNC. Displace helicopter 5° nose up, without releasing PSAS with control centering release switch, until airspeed has decreased 5 knots. Allow the control centering to replace the cyclic to entry position; helicopter should return to within 1° of entry altitude and 120 knots airspeed. Repeat procedure for nose down evaluation. After evaluation is completed, return PSAS to OFF.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-227-23-series
TASK: TF 7046

TASK: Perform SAS evaluation below 120 knots (100 knots A model).

CONDITION: In a CH-47 helicopter in flight below 120 knots (100 knots A model) day, VMC.

STANDARDS:
1. Maintain airspeed.
2. Clear aircraft.
3. Check SAS in BOTH NO 1 and NO 2.
4. Check side slip inputs.
5. Check roll return in each direction (C model only).
6. See statement #1.

DESCRIPTION: With airspeed below 120 knots, check SAS in BOTH NO. 1 and NO. 2 systems for stability and balance in pitch, roll, and yaw axes. During single SAS operation, a check of the side slip inputs into the yaw channel is made by a standard rate turn to the right then rolling into a standard rate turn to the left and confirming that the aircraft remains in trim. A check of the VGI inputs into the roll channel is made by rolling the helicopter 5° to 7° bank angle, without depressing control centering button, and allowing cyclic to return to centered position. The helicopter should return to centered position. The helicopter should return to level trim within 1° in 5 seconds with little or no overshoot. Repeat for opposite direct.

REFERENCES:
- TM 55-1500-210-MTF
- TM 55-1520-209-23-series
- TM 55-1520-227-23-series
TASK: Perform STVA evaluation (C model only).

CONDITION: In a CH-47C helicopter in flight, day, VMC.

STANDARDS:
1. Maintain required airspeeds.
2. Maintain required RRPM.
3. Check STVA return evaluation.
4. See statement #1.

DESCRIPTION: In flight with RRPM set at 235, beep to 245 if L-11 series engines installed (238 w/L7C) and increase airspeed to 140 knots. Absorbers should return within 60 seconds. Decrease RRPM to 235 and absorbers should return within 60 seconds.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-227-23-series
FM 55-44

TASK: TF 7055

TASK: Perform TEAC (L-7 series engines).

CONDITION: In a CH-47 helicopter at predetermined pressure altitude and 100 knots, day, VMC.

STANDARDS:
1. Determine TEAC targets.
2. Climb to predetermined pressure altitude.
3. Maintain 100 knots airspeed.
4. Insure anti-icing OFF.
6. Record data.
7. See statement #1.

DESCRIPTION: After determining N1, EGT, TORQUE, and PRESSURE ALTITUDE targets, take off and climb to predetermined pressure altitude and airspeed. Note that the conditions used to determine the target information are still applicable to prevent exceeding engine or airframe limitations when target pressure altitude is reached. If conditions have changed significantly, a new target will have to be established. Set N2 at 238 for CH-47C with L7C (228 for A and B models), note entry torque and set both normal engine trim switches to OFF. While operating on both engines, raise the thrust lever slowly and using EMER ENG TRIM switches, adjust the engine to be TEACed to increase and the engine not being TEACed to full decrease. Increase thrust and emergency trim slowly while maintaining N2 speed, monitor engine acceleration to prevent exceeding N1 speed, and monitor acceleration to prevent exceeding N1, EGT, or torque parameters. Once maximum power has been stabilized, increase thrust, lever until RRPM decreases to operating RRPM and stabilizes for at least 1 minute and record N1, torque, RRPM, EGT, FAT, PA, and airspeed. After completion of TEAC, reduce engine power initially by operating the emergency engine trim switch to decrease until rotor RPM begins to decrease and control of N2 actuator is gained.

NOTE: Care should be taken not to move the thrust without a corresponding adjustment to emergency engine trim since the droop eliminators are not functional with emergency engine trim in use.

Simultaneously increase the EMER ENG TRIM switch on the engine not being TEACed while decreasing the EMER ENG TRIM switch on the engine having been checked. Once the engine torque has matched, continue decreasing and increasing to check the second engine. Stabilize and record data as previously described. After completion of the second TEAC, reduce engine power initially by operating the EMER ENG TRIM switch to decrease until rotor RPM begins to decrease and control of N2 actuator is gained. Simultaneously increase the EMER ENG TRIM switch on engine not being TEACed while decreasing the EMER ENG TRIM switch on the engine being TEACed and reestablish
previously recorded matched torque. Monitor the AC trim and engage NORM ENG TRIM switches one at a time. After TEAC is completed, analyze compiled data to determine courses of action.

REFERENCES:

TM 55-1500-210-MTF
TM 55-1520-227-23-series
TM 55-2840-248-23
TASK: TF 7060

TASK: Perform TEAC (L-11 series engines).

CONDITION: In a CH-47C helicopter (L-11) at predetermined pressure altitude and 120 knots airspeed, day, VMC.

STANDARDS:
1. Determine requirement for baseline or normal TEAC.
2. Determine TEAC targets.
3. Maintain 120 knots airspeed (adjusted for atmospheric conditions).
4. Insure anti-icing OFF.
6. Record data.
7. See statement #1.

DESCRIPTION: After determining N, PTIT, torque, and pressure altitude targets, take off and climb to predetermined pressure altitude and airspeed. Note that the conditions used to determine the target information are still applicable to prevent exceeding engine or airframe limitations when target pressure altitude is reached. If conditions have changed significantly, a new target will have to be established. Set N2 speed at 248, note entry torque and move ECL for engine not being topped to ground. Increase thrust slowly; while maintaining N2 speed, monitor engine acceleration to prevent exceeding N1, PTIT, or torque parameters. Once maximum power has been stabilized, increase thrust lever until RRPM decreases to 245 and stabilize for at least 1 minute and record N1, speed, torque, RRPM, PTIT, FAT, PA, and airspeed.

CAUTION: WHEN N2 ACTUATORS ARE IN THE MAXIMUM RANGE, NO REDUCTION IN THRUST POSITION SHOULD BE MADE WITHOUT FIRST DECREASING ENGINE BEEP SLIGHTLY OR N2 AND/OR ROTOR OVERSPEED MAY OCCUR SINCE DROOP ELIMINATORS ARE NOT EFFECTIVE AT MAXIMUM RANGES.

To top the remaining engine, decrease normal engine trim beep until droop eliminators again take effect and reduce thrust back to single engine cruise. Slowly move condition lever in ground to flight while maintaining RRPM within limits. Move ECL for engine just topped to ground while maintaining RRPM with beep. Continue topping engine by slowly increasing thrust and follow same procedures as the first engine.
CAUTION: WHEN TOPPING NO 2 ENGINE WITH NORMAL ENGINE TRIM SWITCHES, THE N2 ACTUATOR FOR NO 1 ENGINE WILL ALSO BE RECEIVING A SIGNAL EVEN THOUGH NO 1 ENGINE IS IN GROUND. CARE SHOULD BE TAKEN TO INSURE RRPM AND ENGINE LIMITS ARE NOT EXCEEDED WHEN NO 1 ECL IS BROUGHT TO FLIGHT AFTER OPERATING THE NORMAL ENGINE TRIM SWITCHES NO 1 AND NO 2.

After TEAC is completed, analyze compiled data to determine courses of action.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-227-23-series
TM 55-2840-234-24-2
TASK: TF 7065

TASK: Perform autorotation RPM check.

CONDITIONS: In a CH-47 helicopter at sufficient altitude for power recovery, 70 knots, day, VMC.

STANDARDS:
1. Determine RRPM range IAW charts.
2. Cruise flight 70 knots.
3. Maintain adequate altitude to allow power recovery at 1,000 AGL.
4. Clear flight path.
5. Insure suitable forced landing areas are available.
7. Enter autorotation.
8. Stabilize RRPM at 3° detent, move to full down.
9. Record RRPM for full down when in stabilized autorotation.
10. Check that pedal split and vibrations are normal.
11. Recover power.
12. See statement #1.

DESCRIPTION: With 70 knots entry airspeed and sufficient altitude to establish a stabilized autorotation and make power recovery, clear flight path and entry autorotation by releasing NORM ENG TRIM and decrease EMER BEEP to full decrease while maintaining RRPM with thrust. Reduce thrust to full down position and note RRPM within 230 to 261 (C model) depending on density altitude and gross weight. Check pedal split and any abnormal vibrations. To make power recovery, load the rotor to bring RPM down within engine range and turn NORM ENG TRIM switches on one at a time maintaining RRPM with thrust and reestablish a safe airspeed and altitude.

REFERENCES:
TM 55-1500-210-MTF
TM 55-1520-227-23-series
MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD

For use of this form, see FM 55-44. The proponent agency is TRADOC

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14 TASKS — GENERAL TEST FLIGHT

14a. FREQUENCY REQUIRED

14b. DATE AND NUMBER OF SEMIANNUAL ITERATIONS

DA FORM 5051-R
DEC81
APPENDIX B

LOCAL REPRODUCTION AUTHORIZED
★ DA FORMS
# MAINTENANCE TEST FLIGHT MANEUVERS GRADESHEET (OH-58)

For use of this form see FM 55-44. The proponent agency is TRADOC.

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**NOTE:** ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

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Dec 82
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NOTE: ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.
MAINTENANCE TEST FLIGHT MANEUVERS GRADES LIP (UH-60)

For use of this form see FM 55-44. The proponent agency is TRADOC.

<table>
<thead>
<tr>
<th>NO.</th>
<th>MANEUVER/PROCEDURE</th>
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<tr>
<td>1</td>
<td>PREFLIGHT INSPECTION</td>
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<td>2</td>
<td>BEFORE-STARTING ENGINES CHECK</td>
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<td>3</td>
<td>ENGINE START AND RUN-UP CHECKS</td>
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<td>BEFORE-TAKEOFF CHECK</td>
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<td>GROUND TAXI</td>
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<td>ENGINE HEALTH INDICATOR TEST (HIT)/ANTI-ICE</td>
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<td>TAKEOFF TO A HOVER</td>
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<td>8</td>
<td>SAS CHECK</td>
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<td>9</td>
<td>FPS CHECK</td>
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<td>10</td>
<td>TAIL ROTOR BACKUP CHECK</td>
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<td>12</td>
<td>CRUISE CHECKS AT 80 KIAS</td>
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<td>AUTOROTATION RPM CHECK</td>
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<td>INFLIGHT CONTROLLABILITY CHECK</td>
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<td>STABILATOR CHECK AT 120 KIAS</td>
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<td>FPS CHECK DURING FLIGHT</td>
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<td>LOW ROTOR RPM CHECK</td>
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<td>Vh CHECK</td>
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<td>NAVIGATION AND COMMUNICATION EQUIPMENT CHECK</td>
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</table>

NOTE: ITEMS 22 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-3-R

DEC 81
GLOSSARY

A

AAPART ....... Annual Aviator Proficiency and Readiness Test
AGL ........... air ground level
AMOC .......... Aviation Maintenance Officer Course
ASI ........... additional skill identifier
ATM .......... aircrew training manual
AUTO .......... automatic

C

* CONT ........ control
Continuation
Training .... training designed to maintain an aviator's proficiency on a day to day basis

D

DES .......... Directorate, Evaluation and Standardization
DOES .......... Directorate of Evaluation and Standardization

E

* ECL .......... engine condition lever
EGT .......... exhaust gas temperature
ENG .......... engine
ETM .......... extension training material

F

FAC .......... flight activity category
FAT .......... free air temperature
FPS .......... flight path stabilization
FW .......... fixed wing

G

GOV .......... governor

H

HIT .......... health indicator test
HYD .......... hydraulic

I

IAW .......... in accordance with
IFTF .......... individual flight training folder
IN HG ........ inches of mercury
IP .......... instructor pilot
Cl, FM 55-44

K

KIAS ........ knots indicated air speed

M

Mission
Training ..... training designed to prepare the aviator to perform a unit’s mission task
MTF .......... maintenance test flight
MTFE .. maintenance test flight evaluation
MTP .......... maintenance test pilot

N

NORM ....... normal
N1 ......... gas turbine speed
N2 .......... power turbine speed

O

OGE .......... out-of-ground effect

P

PA .......... pressure altitude
PSAS .......... pitch stabilization augmentation system
PSI .......... pounds per square inch
PTIT .......... power turbine inlet temperature

R

Refresher
Training ..... training designed to retrain an aviator after a long period of absence from flying
REL .......... release
RPM .......... revolutions per minute
RPMR ......... revolutions per minute rotor
RRPM .......... rotor revolutions per minute
RW .......... rotary wing

S

SAS .......... stability augmentation system
SCAS .......... stability and control augmentation system
SIP .......... standardization instructor pilot
STVA .......... self-tuning vibration absorber
SYS .......... system

T

TEAC .......... turbine engine analysis check
TGT .......... turbine gas temperature
* TOT .......... time over target
TSARCOM ...... Troop Support and Aviation Materiel Readiness Command

Glossary 2
FM 55-44

30 DECEMBER 1981

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

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Additional copies may be requisitioned from the US Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.
4-1. GENERAL.

This chapter contains the observation helicopter test pilot tasks and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and the MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be submitted as directed in the preface of this manual.

STATEMENT #1
Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

4-2. OH-58 MAINTENANCE TEST PILOT TASK TASK LIST.

<table>
<thead>
<tr>
<th>TASK</th>
<th>TASK TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF 4400</td>
<td>Perform Preflight Inspection</td>
</tr>
<tr>
<td>TF 4405</td>
<td>Perform Before-Starting Engine Checks</td>
</tr>
<tr>
<td>TF 4410</td>
<td>Perform Starting Engine Checks</td>
</tr>
<tr>
<td>TF 4415</td>
<td>Perform Engine Run-up Checks</td>
</tr>
<tr>
<td>TF 4420</td>
<td>Perform Before-Takeoff Check</td>
</tr>
<tr>
<td>TF 4425</td>
<td>Perform Baseline or Normal Engine Health Indicator Test (HIT) as required</td>
</tr>
<tr>
<td>TF 4430</td>
<td>Perform Take off to a Hover</td>
</tr>
<tr>
<td>TF 4432</td>
<td>Perform Hovering Turns</td>
</tr>
<tr>
<td>TF 4434</td>
<td>Perform Sideward Flight</td>
</tr>
<tr>
<td>TF 4436</td>
<td>Perform Forward and Rearward Hovering Flight</td>
</tr>
<tr>
<td>TF 4440</td>
<td>Perform Pylon Isolation Mount Check</td>
</tr>
<tr>
<td>TF 4445</td>
<td>Perform Power Cylinder Check</td>
</tr>
<tr>
<td>TF 4450</td>
<td>Perform Engine Response Check</td>
</tr>
<tr>
<td>TF 4455</td>
<td>Perform Low-Revolutions Per Minute (RPM) Hover</td>
</tr>
<tr>
<td>TF 4465</td>
<td>Perform Control Rigging Check</td>
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<tr>
<td>TF 4470</td>
<td>Perform Autorotative RPM Check</td>
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<tr>
<td>TF 4475</td>
<td>Perform Hydraulics Off Check</td>
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<tr>
<td>TF 4480</td>
<td>Perform Out-Of-Ground Effect (OGE) Hover</td>
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<tr>
<td>TF 4485</td>
<td>Perform 70 KIAS-15 PSI (A) or 16% (C) Descent</td>
</tr>
<tr>
<td>TF 4487</td>
<td>Perform Vibration Analysis During Increasing Airspeeds</td>
</tr>
<tr>
<td>TF 4490</td>
<td>Perform 2:1 Vertical Vibration Check</td>
</tr>
<tr>
<td>TF 4492</td>
<td>Perform Flight Instrument Check</td>
</tr>
<tr>
<td>TF 4494</td>
<td>Perform Communication and Navigation Equipment Check</td>
</tr>
<tr>
<td>TF 4495</td>
<td>Perform After-Landing and Engine Shutdown Checks</td>
</tr>
</tbody>
</table>
4-3. **OH-58 MAINTENANCE TEST FLIGHT MANEUVERS GRADES LIP.**

See appendix B for DA forms that can be locally reproduced.

### MAINTENANCE TEST FLIGHT MANEUVERS GRADES LIP (OH-58)

For use of this form see FM 55-44. The proponent agency is TRADOC.

<table>
<thead>
<tr>
<th>No.</th>
<th>Maneuver/Procedure</th>
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<tr>
<td>1</td>
<td>Preflight Inspection</td>
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<tr>
<td>2</td>
<td>Before Starting Engine Checks</td>
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<td>3</td>
<td>Starting Engine Checks</td>
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<tr>
<td>4</td>
<td>Engine Run-Up Checks</td>
<td>5</td>
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<tr>
<td>5</td>
<td>Before-Takeoff Check</td>
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<td>6</td>
<td>Baseline or Normal Engine Health Indicator Test (HIT)</td>
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<td>7</td>
<td>Takeoff to a Hover</td>
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<td>Control Rigging Check</td>
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<td>20</td>
<td>Vibration Analysis During Increasing Airspeeds</td>
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<td>21 Vertical Vibration Check</td>
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<td>Flight Instrument Check</td>
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<td>After-Landing and Engine Shutdown Checks</td>
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**Note:** Items 26 through 40 intentionally left blank for later use.

DA FORM 5051-1-R
DEC81
4-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. Task Number and Title. Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraph 4-2.

b. Condition. The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance requirement.

c. Standard. The standard describes the degree of proficiency or standard of performance to which the task must be performed.

d. Description. The description is a written explanation of how the task should be accomplished to meet the standards.

e. References. References are shown that further amplify each task.
4-5. **OH-58 MAINTENANCE TEST PILOT TASKS.**

**TASK:** TF 4400

**TASK:** Perform preflight inspection.

**CONDITION:** In an OH-58A/C helicopter prior to flight.

**STANDARDS:**

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

**DESCRIPTION:** Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

**REFERENCES:**

- AR 95-1
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK: Perform before-starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:
1. Use TM 55-1520-228-MTF (A) and TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the before-starting engine checks.

REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
FM 55-44

TASK: TF 4410

TASK: Perform starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the starting engine checks.

REFERENCES:

AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform engine run-up checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:
1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the engine run-up checks.

REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: TF 4420

TASK: Perform before-takeoff check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C) to perform the before-takeoff check.

REFERENCES:

AR 95-1
TM 55-1520-228-MTF
TM 55-1520-228-23-series
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:
1. Use TM 55-1520-228-MTF (A) or TM 55-1520-235-CL (C).
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
- TM 55-2840-231-23
- TM 55-2840-241-23
TASK: TF 4430

TASK: Perform take off to a hover.

CONDITION: In an OH-58A/C helicopter; before-takeoff check completed, day, visual meteorological conditions (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Insure that apparent center of gravity is normal.
5. Insure that droop compensation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinates cyclic to achieve a vertical ascent. Note apparent center of gravity is normal, and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed is normal. Hovering into the wind, note cyclic and pedal positions normal for conditions. Check hover pad for oil spots that could indicate leakage.

REFERENCES:

TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform hovering turns.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain 3-foot hover.
5. See statement #1.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
FM 55-44

TASK: TF 4434

TASK: Perform sideward flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain 3-foot above ground level (AGL) altitude.
6. Limit ground speed to 5 knots.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform forward and rearward hovering flight.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform forward and rearward hovering flight at 5-foot AGL.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
FM 55-44

TASK: TF 4440

TASK: Perform pylon isolation mount check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Stabilize hover at 3 feet.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. See statement #1.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 3 to 4 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Note that vibrations should start to dampen out after three to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform power cyclic check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Complete copilot/observer briefing.
2. Head aircraft into the wind.
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly approximately 6 inches either side of center along a 45° line from left rear to right forward quadrant several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
FM 55-44

TASK: TF 4450

TASK: Perform engine response check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Insure that altitude does not exceed 25 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-2840-231-23
TM 55-2840-241-23
TASK: Perform low-RPM hover.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Maintain a 3-foot altitude.
3. Using governor RPM switch, fully decrease N2 RPM.
4. Perform hovering turn 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to full decrease using governor RPM switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase N2 RPM to 103 percent.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL

NOTE: Perform before-takeoff check (task 4420) before continuing.
FM 55-44

TASK: TF 4465

TASK: Perform control rigging check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Turn force trim on.
3. Maintain 100 KIAS or as adjusted for atmospheric conditions.
4. Maintain torque at 60 psi for A model, 65 percent for C model.
5. Maintain aircraft in trim.
6. Note cyclic and pedal positions.
7. See statement #1.

DESCRIPTION: Maintaining appropriate airspeed, torque and trim, note cyclic nearly centered and right pedal is 1 to 2 inches forward. Remove pedal pressure and note pedal response.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK: TF 4470

TASK: Perform autorotative RPM check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:
1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain 55 KIAS.
3. Insure that suitable landing area is within gliding distance.
4. Correct autorotation entry procedure.
5. Note N1, trim, vibrations, and rotor RPM.
6. Correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 55 KIAS; smoothly lower collective to full down position noting that main rotor does not overspeed. Retard throttle to engine idle. Note N1 stabilized at engine idle, aircraft in trim, sufficient right pedal remains, no unusual vibrations, and rotor stabilized at appropriate RPM. Perform power recovery and establish a definite climb.

REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: TF 4475

TASK: Perform hydraulics off check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain 70 KIAS.
3. Complete copilot/observer briefing.
4. Perform hydraulics off check.
5. See statement #1.

DESCRIPTION: Maintain 70 KIAS; turn hydraulic boost switch off. Check cyclic control forces normal for conditions. Increase and decrease collective and check that at least 76 psi torque up and 16 psi torque down (83 percent torque up and 17 percent torque down for C model) can be reached without excessive pressures. Turn hydraulic boost switch on.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce KIAS to zero.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed rearward to zero while maintaining altitude. The aircraft should drift at current wind velocity when zero airspeed is attained. Check vibration levels within tolerances and increase KIAS to 70.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10

NOTE: Task is not required if a VIBREX has been accomplished.
TASK: TF 4485

TASK: Perform 70 KIAS- 15 PSI (A) or 16 percent (C) descent.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain 70 KIAS straight and level flight.
3. Perform 70 KIAS - 15 psi (A) or 16 percent (C) descent.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 15 psi (A) or 16 percent (C) torque. Note change in vibration level. Reestablish 70 KIAS straight and level flight.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain 70 KIAS.
3. Increase airspeed in 10 knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase from 70 KIAS to VNE in 10 knot increments unless vibrations become severe. Note any changes in vibration level. Reestablish normal flight.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK: TF 4490

TASK: Perform 2:1 vertical vibration check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain 80 to 90 KIAS.
3. Perform 2:1 vertical vibration check.
4. Note change in vibration level.
5. See statement #1.

DESCRIPTION: Maintain 80 to 90 KIAS and perform 30° left and right level banks and small cyclic dives and climbs. Note 2:1 vibration level.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform flight instrument check.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes checking performance of all installed flight instruments.

REFERENCES:
- TM 55-1520-228-23-series
- TM 55-1520-228-MTF
- TM 55-1520-235-CL
- TM 55-1520-235-10
TASK:  TF 4494

TASK:  Perform communication and navigation equipment check.

CONDITION:  In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain airspeed as required.
3. Check all installed avionics equipment.
4. See statement #1.

DESCRIPTION:  Check operation of all installed avionics equipment as indicated in the appropriate publication.

REFERENCES:
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an OH-58A/C helicopter, day, VMC.

STANDARDS:
1. Use TM 55-1520-228-MTF.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-228-MTF to perform the after-landing and engine shutdown checks.

REFERENCES:
AR 95-1
TM 55-1520-228-23-series
TM 55-1520-228-MTF
TM 55-1520-235-CL
TM 55-1520-235-10
CHAPTER 5

UTILITY HELICOPTER MAINTENANCE
TEST PILOT TASKS

5-1. GENERAL.

This chapter contains the utility helicopter maintenance test pilot tasks, and their conditions, standards, and description. Tasks will be performed for both training and evaluation. When discrepancies are found between this chapter and MTF checklist, the MTF checklist will take precedence and a DA Form 2028 should be immediately submitted as directed in the preface of this manual.

STATEMENT #1
Correctly determine the malfunction or discrepancies and apply corrective action and/or troubleshooting procedures.

5-2. UH-1 MAINTENANCE TEST PILOT TASK LIST.

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<td>TF 5075</td>
<td>Perform Vibration Analysis During Increasing Airspeeds</td>
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5-3. **UH-1 MAINTENANCE TEST FLIGHT MANEUVERS GRADESHEET.**

See appendix B for DA forms that can be locally reproduced.

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NOTE: ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE.

DA FORM 5051-2-R
DEC81

5-2
5-4. TASK CONTENT.

Each task contains a title, number, condition, standard, description, and references.

a. Task Number and Title. Each task listed in this chapter has been identified by a number and a title which corresponds to the task list in paragraphs 5-2a for the UH-1 and 5-2b for the UH-60.

b. Condition. The condition describes what is presented or given to the MTP to accomplish the specific action; that is, it describes the important aspects of the performance environment.

c. Standards. The standards describe the degree of proficiency or standard of performance to which the task must be performed.

d. Description. The description is a written explanation of how the task should be accomplished to meet the standards.

e. References. References are shown that further amplify each task.
5-5. UH-1 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5003

TASK: Perform preflight inspection.

CONDITION: In a UH-1 helicopter prior to flight.

STANDARDS:

1. Use checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1
TM 55-1500-219-MTF
TASK: Perform starting engine checks.

CONDITION: In a UH-1 helicopter prior to starting engine.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219-MTF to perform the starting engine checks.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
TASK: TF 5009

TASK: Perform engine start and run-up checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the engine start and run-up checks.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform baseline or normal engine health indicator test (HIT) as required.

CONDITION: In a UH-1 helicopter; before-takeoff check complete.

STANDARDS:
1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
- TM 55-2840-229-23-1/-2
FM 55-44

TASK: TF 5015

TASK: Perform takeoff to a hover.

CONDITION: In a UH-1 helicopter; before-takeoff check complete, day, (VMC).

STANDARDS:

1. Clear aircraft.
2. Insure that cyclic, collective, and pedal control responses are normal.
3. Perform gradual vertical ascent to a 3-foot hover.
4. Note that apparent center of gravity is normal.
5. Note that droop cam operation is normal.
6. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinates cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude, and check that N2 speed remains constant within ± 40 RPM. Hovering into the wind, note cyclic nearly centered, and pedal position normal. Move off hover pad and check ground for oil spots which could indicate leakage.

REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK:  Perform hovering turns.

CONDITION:  In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform 90° left and right turns either side of wind direction, not to exceed 90° rate of turn in 4 seconds.
3. Note tail rotor response and rigging.
4. Maintain appropriate hover altitude.
5. See statement #1.

DESCRIPTION:  Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn; note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° either side of wind direction.

REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5021

TASK: Perform sideward flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Clear aircraft.
2. Perform left and right sideward flight.
3. Maintain flight path approximately perpendicular to wind direction and head aircraft into the wind.
4. Note cyclic response.
5. Maintain appropriate altitude.
6. Note that hover speed is consistent with autorotational capabilities.
7. See statement #1.

DESCRIPTION: Apply cyclic in the desired direction of flight noting that no excessive inputs are required and that the desired aircraft response is achieved.

REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform forward and rearward hovering flight.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Perform forward and rearward hovering flight.
3. Head aircraft into the wind for forward hovering flight.
4. Turn aircraft tail into the wind for rearward hovering flight.
5. Note cyclic response.
6. See statement #1.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Stabilize at a minimum 5-foot hover. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
TM 55-44

TASK: TF 5027

TASK: Perform pylon mounts check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Stabilize hover.
2. Head aircraft into the wind.
3. Maintain appropriate altitude.
4. Induce pylon rock.
5. Correctly determine malfunction or discrepancies and apply corrective action and troubleshooting procedures.

DESCRIPTION: Move the cyclic fore and aft 3 to 4 inches at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Bumping should dampen out after four to five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCE:
TM 55-1500-219-MTF
TASK: Perform torquemeter check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Stabilized hover at 2 feet.
2. Head aircraft into wind.
3. Maintain appropriate altitude.
4. Note torque indication.
5. See statement #1.

DESCRIPTION: Note that torque indication is correct as predetermined from performance charts.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK:  TF 5033

TASK: Perform engine response check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:

1. Head aircraft into the wind.
2. Make sure altitude does not exceed 50 feet.
3. Note engine response.
4. See statement #1.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch, then reduce collective before excessive altitude is gained. Climb should not exceed 50 feet. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform power cylinder check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Complete copilot/observer briefing to include emergency procedure for induced control lockup.
2. Head aircraft into the wind.
3. Maintain appropriate altitude (10-foot minimum).
4. Perform power cylinder check.
5. See statement #1.

DESCRIPTION: Move the cyclic smoothly 6 to 8 inches along a 45° line from left rear to right forward quadrant several times, noting that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. (Check UH-1 C, M model by turning off one hydraulic system at a time.)

REFERENCES:
   TM 55-1500-219-MTF
   TM 55-1520-210-23-series
TASK: TF 5039

TASK: Perform low-RPM hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Maintain appropriate altitude.
3. Using governor increase/decrease switch, decrease N2 RPM to 6,000.
4. Perform hovering turns 45° left and right of initial heading.
5. Note controllability.
6. See statement #1.

DESCRIPTION: Decrease N2 RPM to 6,000 with governor increase/decrease switch while maintaining a stabilized hover. Check controllability at low RPM, control positions, and check antitorque controllability by performing 45° hovering turns. Increase RPM to 6,600.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Use correct procedures to change governor to emergency mode.
2. Maintain RPM 6,400 ± 100.
3. Maintain positive aircraft control.
5. Use correct procedure to change governor to automatic mode.
6. See statement #1.

DESCRIPTION: While on the ground, move throttle to flight idle, and governor switch to emergency position. Carefully open throttle to 6,400 RPM and increase collective; maintain 6,400 RPM with throttle; stabilize at hover. Land aircraft, throttle to flight idle, governor switch to auto. Note N1 stabilized at flight idle and caution light out; increase throttle to full open 6,600 RPM.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
TASK: TF 5045

TASK: Perform before-takeoff check.

CONDITION: In a UH-1 helicopter.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the callout and confirmation method, use TM 55-1520-209-MTF to perform the before-takeoff check.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform takeoff and climb checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain RPM 6,600.
2. Check systems.
3. Transponder (as required).

DESCRIPTION: Make normal takeoff climb at 60/70 knots. Note control positions normal, engine and transmission instruments for normal indications, and check for abnormal vibrations.

REFERENCES:
TM 55-1500-219-MTF
FM 55-44

TASK: TF 5051

TASK: Perform level off checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain a predetermined altitude.
2. Check instruments.
3. Begin fuel consumption check.

DESCRIPTION: Climb to predetermined altitude. Maintain constant altitude, airspeed, and heading. Note engine oil pressure, engine oil temperature, transmission oil temperature and transmission oil pressure. Begin final consumption check.

REFERENCE:
TM 55-1500-219-MTF
TASK: Perform control rigging check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Force trim on.
3. Maintain airspeed of 90/100 knots.
5. Insure needle and ball are centered.
6. Note cyclic and pedal positions.
7. See statement #1.

DESCRIPTION: Maintain appropriate airspeed, torque, centered needle and ball, and note that the cyclic nearly centered, and right pedal is 0.5 to 1 inch forward (pedals should be aligned on UH-1B with symmetrical tail boom).

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5057

TASK: Perform autorotative RPM check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude sufficient to allow power recovery at or above 500 feet AGL.
2. Maintain airspeed at 60 KIAS.
3. Make sure a suitable landing area is within gliding distance.
4. Perform correct autorotation entry procedure.
5. Note N1, trim, vibrations, and RPM.
6. Perform correct power recovery procedure.
7. See statement #1.

DESCRIPTION: Maintain 60 knots and smoothly lower collective to full down position, noting that main rotor does not overspeed, and reduce throttle to flight-idle position. Note N1 has stabilized at flight-idle (68-72 percent), needle and ball are centered, sufficient right pedal remains, no unusual vibrations are present, and rotor has stabilized at appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined) and increase collective to a power setting that will establish a definite climb.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform hydraulics off check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Maintain altitude IAW local directives.
2. Maintain airspeed at 60-90 knots.
3. Complete copilot/observer briefing.
4. Perform aircraft controllability check.
5. See statement #1.

DESCRIPTION: Have copilot/observer identify and turn off hydraulic control switch. Note that master caution and hydraulics off caution panel segment lights are lit, then reset master caution. Make turns to left and right. Decrease collective to 13 psi then increase collective to achieve 33 psi torque. Use pedals to maintain an in-trim condition then have copilot/observer return hydraulic control switch to on. Note that master caution and caution panel segment lights are off. Throughout the maneuver, notice that feedback forces are not excessive and that all control movements produce the desired results. Pay particular attention to cyclic forces required in the forward right quadrant.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5063

TASK: Perform engine topping check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Insure bleed-air heater and de-ice switches are off and one altimeter is set at 29.92.
2. Maintain airspeed of 60-90 knots.
3. Maintain altitude as required, not to exceed 10,000 feet.
4. Perform engine topping.
5. See statement #1.

DESCRIPTION: Adjust collective to achieve 40 psi climb. Note N1 and determine topping altitude. Continue climb at a normal rate until topping altitude is reached. Increase collective to droop N2 to 6,400 RPM. Maintain 6,400 RPM with collective and, while passing through the next 1,000-foot increment pressure altitude, record FAT, torque, N1, EGT, and PA. Increase collective to droop N2 to 6,200 RPM and note that N1 has not increased. Smoothly reduce collective and resume normal flight; reset altimeter.

REFERENCES:
TM 55-1500-219-MTF
TM 55-2840-229-23-1/-2
TASK: Perform stabilizer bar check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Force trim on.
3. Maintain airspeed at 80 to 90 knots.
4. Perform turns left and right.
5. See statement #1.

DESCRIPTION: Maintaining level flight, apply cyclic and depress the force trim centering button until a 10° to 20° angle of bank is established. Simultaneously release the centering button and stop cyclic movement, then note the number of seconds required for the angle of bank to begin increasing. Following time should be 5 seconds ± 1 second in each direction. Perform the check during left and right turns, force trim off.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5069

TASK: Perform out-of-ground effect (OGE) hover.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Head aircraft into wind.
2. Maintain altitude of 1,500 to 2,000 feet AGL.
3. Insure that suitable landing area is within gliding distance.
4. Reduce airspeed to "0" knots.
5. See statement #1.

DESCRIPTION: At 1,500 to 2,000 feet AGL, reduce airspeed to zero while maintaining altitude. The aircraft should be facing into the wind and will be moving rearward at current wind velocity when zero airspeed is attained. After checking that vibration levels are within tolerance, and with sufficient left pedal, increase airspeed to 70 KIAS.

REFERENCES:
- TM 55-1500-219-MTF
- TM 55-1520-210-23-series
TASK: Perform 70 knot 10 psi descent.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Fly aircraft at 70 knots, straight and level.
3. Maintain speed at 70 knots and reduce power to 10 psi.
4. Note vibration level.
5. See statement #1.

DESCRIPTION: While flying straight and level at 70 knots, note vibration level. Maintain 70 knots and reduce power to 10 psi torque. Note any change in vibration level. Reestablish 70 knots straight and level flight.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5075

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Establish airspeed at 70 knots.
3. Increase airspeed in 10-knot increments.
4. Note change in vibration level.
5. Compute VNE.
6. See statement #1.

DESCRIPTION: Maintaining straight and level flight, slowly increase airspeed from 70 knots up to VNE in 10-knot increments (unless vibrations get uncomfortably severe). Note any changes in vibration level. Note airspeed. At no time will VNE be exceeded for the existing conditions. Reestablish normal flight.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform cyclic rigging check (UH-1B, D, and H).

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Turn force trim off.
2. Compute VNE.
3. Maintain altitude IAW local directive.
4. Increase airspeed to VNE.
5. Note cyclic position and cushion.
6. See statement #1.

DESCRIPTION: Maintain aircraft in trim, increase airspeed to VNE and note cyclic position. Apply slight aft cyclic a couple of degrees to start a nose up movement of the aircraft, then SMOOTHLY APPLY forward cyclic to the stop and back to the VNE position. One to two inches of spring cushion should be felt prior to contacting the stop.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5081

TASK: Perform flight instruments check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Check flight instruments.
3. See statement #1.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of the following instruments: airspeed indicators, altitude indicators, altimeters, gyro compass, vertical speed, standby compass, turn and slip indicator, clock and instrument panel.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: Perform communication and navigation equipment check.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
Insure that all installed equipment is operationally checked.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals.

REFERENCES:
TM 55-1500-219-MTF
TM 55-1520-210-23-series
TASK: TF 5087

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-1 helicopter, day, VMC.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1500-219 MTF to perform the after-landing and engine shutdown checks.

REFERENCES:
AR 95-1
TM 55-1500-219-MTF
5-8. UH-60 MAINTENANCE TEST PILOT TASKS.

TASK: TF 5600

TASK: Perform preflight inspection.

CONDITION: In a UH-60 helicopter prior to flight.

STANDARDS:

1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use the checklist to perform a complete and comprehensive preflight inspection. Applicable publications will be used as necessary for amplification.

REFERENCES:

AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5605

TASK: Perform before-starting engine checks.

CONDITION: In a UH-60 helicopter prior to starting engines.

STANDARDS:
1. Use MTF manual checklist.
2. Use oral callout and confirmation method.
3. Check items in sequence.
4. See statement #1.

DESCRIPTION: Using the oral callout and confirmation method, use TM 55-1520-237-MTF to perform before-starting engine checks.

REFERENCES:
AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform ground taxi.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Insure outside area is clear.
2. Remove chocks and tiedowns.
3. Secure doors.
4. Release parking brakes.
5. See statement #1.

DESCRIPTION: While performing ground taxi, the pilot and copilot should check their brakes independently. Check the tail wheel lock for operation. Taxi to test flight hover area.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: TF 5622

TASK: Perform engine health indicator test (HIT)/anti-ice.

CONDITION: In a UH-60 helicopter; before takeoff check is complete.

STANDARDS:
1. Use MTF manual checklist.
2. Check items under correct conditions and in proper sequence.
3. Record required readings IAW HIT log.
4. See statement #1.

DESCRIPTION: Using HIT log checklist, perform HIT check.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform takeoff to a hover.

CONDITION: In a UH-60 helicopter; before takeoff check completed, day, VMC.

STANDARDS:
1. Head aircraft into the wind.
2. Insure that cyclic, collective, and pedal control response is normal.
3. Perform gradual vertical ascent.
4. Note that apparent center of gravity is normal.
5. See statement #1.

DESCRIPTION: Insuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. Hovering into the wind, note that cyclic is 1 inch forward of neutral, and left pedal is forward of neutral about 1-1/2 inches.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK:  TF 5626

TASK:  Perform SAS Check.

CONDITION:  In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Maintain minimum hovering altitude of 20 feet.
3. Head aircraft into the wind.
4. Insure that boost, SAS #1, and trim are ON.
5. Insure that SAS #2 and FPS are OFF.
6. Check controllability.
7. See statement #1.

DESCRIPTION:  Move cyclic forward and aft to get 3° pitch attitude change. Attitude should return to trim within ±1°. Then move cyclic left and right to get a 5° to 7° roll attitude change. Attitude should return to trim within ±1°. Make a 20 percent torque change and observe heading response. Heading should not change more than 15°. Repeat check with SAS-2 engaged and SAS-1 off.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform FPS check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Clear aircraft.
2. Head aircraft into the wind.
3. Maintain minimum hovering attitude of 20 feet.
4. Engage boost, SAS #1, SAS #2, trim FPS.
5. See statement #1.

DESCRIPTION: Hands off attitude retention in pitch and roll should be ±1° (calm wind). Heading hold should be ±2° introducing cyclic pulses 5° in pitch and 10° in roll. Helicopter should return to trim attitude with no more than one 3° overshoot. Transient heading hold with a 20 percent torque increase and return to original power setting. Heading should be ±15° or original setting.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: TF 5632

TASK: Perform tail rotor backup check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Complete copilot briefing.
2. Head aircraft into the wind.
3. Maintain minimum hovering altitude of 20 feet.
4. See statement #1.

DESCRIPTION: Move tail rotor switch to backup position. Hydraulic pressure to tail rotor should be within 1 to 3 seconds. After check is completed, place tail rotor switch in NORM position.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform autorotation RPM check.

CONDITION: In a UH-60 helicopter at sufficient altitude for power recovering, 80 KIAS, day, VMC.

STANDARDS:
1. Perform cruise flight at 80 KIAS.
2. Maintain adequate altitude to allow recovery at 500 feet AGL.
3. Insure that flight path is clear.
4. Insure suitable force landing areas.
5. Set one altimeter to 29.92 in Hg.
6. Enter autorotation.
7. Record RPMR at check altitude.
8. Make power recovery.
9. See statement #1.

DESCRIPTION: Set one altimeter to 29.92, climb to check altitude and level off, maintain 80 KIAS after FAT has stabilized, record, then climb an additional 1,000 feet, level off, stabilize at 80 KIAS, retard number 1 engine power, continue lever to idle and check engine stabilized at idle, reduce collective slowly to fold down, maintaining 80 KIAS. Retard number 2 engine power, continue lever to idle when passing through, check altitude, record percent RPMR and fuel quantity. Advance number 1 and number 2 engine power, continue levers to fly detent, and make a power recovery.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
FM 55-44

TASK: TF 5645

TASK: Perform in-flight controllability check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Level flight at 100 KIAS.
2. See statement #1.

DESCRIPTION: In level flight, check the position of the cyclic and antitorque pedals per TM 55-1520-237-MTF; also, check that airspeed indicators are within 5 KIAS of each other. Note any abnormal vibrations. Establish a steady state autorotation and verify that the stabilator position is between $-3^\circ$ to $-7^\circ$.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform maximum power check.

CONDITION: In a UH-60 helicopter at predetermined pressure altitude and 110 KIAS, day, VMC.

STANDARDS:
1. Determine TEAC targets.
2. Climb to predetermined pressure altitude.
3. Maintain 110 KIAS.
4. Insure anti-ice and heater switches are off.
6. Record data.
7. See statement #1.

DESCRIPTION: Maintain 110 KIAS, with one altimeter set at 29.92, and anti-ice and heater off. Perform maximum power check on one engine at a time, using procedures in TM 55-1520-237-MTF.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-6
TM 55-2840-248-23
TASK: TF 5655

TASK: Perform stabilator check at 120 KIAS.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: During level flight at 120 KIAS, the stabilator position indicator pointer is 1° to +3°. Displace the trim ball one width to the right and insure stabilator position pointer is about 2° down from previously noted position. After the check, release the pedals and the trim ball should come within one-half a ball from center. Now displace the trim ball one ball width to the left, and the stabilator position pointer is 2° up from original trim position. After the check is completed, make 45° banked turns left and right with fixed collective and note that stabilator position pointer is about 1° down from original trim position.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
TASK: Perform FPS check during flight.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Perform level flight at 120 KIAS.
2. Trim aircraft.
3. See statement #1.

DESCRIPTION: Perform the FPS check as outlined in TM 55-1520-237-MTF.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
FM 55-44

TASK: TF 5662

TASK: Perform low rotor RPM check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Maintain 140 KIAS.
2. Maintain level flight.
4. See statement #1.

DESCRIPTION: Maintaining 140 KIAS, decrease engine RPM switch to 96 percent RPMR. If low rotor RPM caution light and audio warning does not activate, lower collective slightly to activate. Increase engine RPM switch to 100 percent RPMR; also, while at 140 KIAS, check airspeed indicators, vibration level, and that stabilator setting is 1° to +3° range.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-23-series
TASK: Perform Vh check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Determine Vh speed.
2. Maintain level flight.
3. Insure that needle and ball are centered.
4. Do not exceed 100 percent torque or 85°C TGT.
5. Perform checks required by MTF manual.
6. See statement #1.

DESCRIPTION: Increase airspeed and power to maintain level flight until 100 percent torque is obtained or 85°C TGT. At Vh, check to see that at least 2 inches of distance exists from instrument panel to cyclic stick. Right pedal should not be over 1 inch forward of neutral; collective pitch control should not be against upper stop. Check that stabilator position indicator pointer is in the -1° to +3° range. Check any abnormal vibrations.

REFERENCES:
- TM 55-1520-237-MTF
- TM 55-1520-237-10
- TM 55-1520-237-23-series
TASK: TF 5670

TASK: Perform navigation and communication equipment check.

CONDITION: In a UH-60 helicopter, day, VMC.

STANDARDS:
1. Check navigation equipment.
2. Check communication equipment.
3. See statement #1.

DESCRIPTION: Check operation of all navigation and communication equipment installed as indicated in the appropriate manuals.

REFERENCES:
TM 55-1520-237-MTF
TM 55-1520-237-23-series
## GLOSSARY

### A

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAPART</td>
<td>Annual Aviator Proficiency and Readiness Test</td>
</tr>
<tr>
<td>AGL</td>
<td>air ground level</td>
</tr>
<tr>
<td>AMOC</td>
<td>Aviation Maintenance Officer Course</td>
</tr>
<tr>
<td>ASI</td>
<td>additional skill identifier</td>
</tr>
<tr>
<td>ATM</td>
<td>aircrew training manual</td>
</tr>
<tr>
<td>AUTO</td>
<td>automatic</td>
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</tbody>
</table>

### C

**Continuation Training** training designed to maintain an aviator’s proficiency on a day to day basis

### D

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>DES</td>
<td>Directorate, Evaluation and Standardization</td>
</tr>
<tr>
<td>DOES</td>
<td>Directorate of Evaluation and Standardization</td>
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### E

<table>
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<tr>
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<tbody>
<tr>
<td>ECL</td>
<td>engine condition level</td>
</tr>
<tr>
<td>EGT</td>
<td>exhaust gas temperature</td>
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<tr>
<td>ENG</td>
<td>engine</td>
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<tr>
<td>ETM</td>
<td>extension training material</td>
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### F

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<tr>
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<tbody>
<tr>
<td>FAC</td>
<td>flight activity category</td>
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<tr>
<td>FAT</td>
<td>free air temperature</td>
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<tr>
<td>FPS</td>
<td>flight path stabilization</td>
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<tr>
<td>FW</td>
<td>fixed wing</td>
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### G

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>GOV</td>
<td>governor</td>
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### H

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<tr>
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<tbody>
<tr>
<td>HIT</td>
<td>health indicator test</td>
</tr>
<tr>
<td>HYD</td>
<td>hydraulic</td>
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### I

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<thead>
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<tbody>
<tr>
<td>IAW</td>
<td>in accordance with</td>
</tr>
<tr>
<td>IFTF</td>
<td>individual flight training folder</td>
</tr>
<tr>
<td>IN HG</td>
<td>inches of mercury</td>
</tr>
<tr>
<td>IP</td>
<td>instructor pilot</td>
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</table>
K

KIAS ........ knots indicated air speed

M

Mission
Training .... training designed to prepare the aviator to perform a unit's mission task
MTF ......... maintenance test flight
MTFE ....... maintenance test flight evaluation
MTP ....... maintenance test pilot

N

NORM ....... normal
N1 .......... gas turbine speed
N2 .......... power turbine speed

O

OGE ........ out-of-ground effect

P

PA .......... pressure altitude
PSAS .......... pitch stabilization augmentation system
PSI .......... pounds per square inch
PTIT .......... power turbine inlet temperature

R

Refresher
Training .... training designed to retrain an aviator after a long period of absence from flying
REL ......... release
RPM .......... revolutions per minute
RPMR .......... revolutions per minute rotor
RRPM .......... rotor revolutions per minute
RW .......... rotary wing

S

SAS .......... stability augmentation system
SCAS .......... stability and control augmentation system
SIP .......... standardization instructor pilot
STVA .......... self-tuning vibration absorber
SYS .......... system

T

TEAC .......... turbine engine analysis check
TGT .......... turbine gas temperature
TSARCOM .... Troop Support and Aviation Materiel Readiness Command

Glossary 2
U

USAAVNC … United States Army Aviation Center
USATSCH … United States Army Transportation School

V

VGI ………… vertical gyro indicator
VMC ………… visual meteorological conditions
VNE ………… velocity not to exceed