

COMNAVAIRFORINST 4790.2A
15 Feb 2008

Block 12 - MAINTENANCE CONTROL REPRESENTATIVE. Signature and rate or rank indicating maintenance control has reviewed the inspection record, MRCs have been checked for currency, and ICNs have been issued as required.

5.1.1.5.6 Types of Aircraft Inspections

5.1.1.5.6.1 Daily Inspection. This inspection is conducted to inspect for defects to a greater depth than the turnaround inspection. The daily inspection is valid for a period of 72 hours commencing from the date and time the inspection is completed, provided no flight occurs during this period and no maintenance other than servicing has been performed. Aircraft may be flown for 24 hours without another daily. This 24 hour period begins with the first launch following accomplishment of the daily inspection. The 24 hours cannot exceed the 72 hour expiration of the daily unless the expiration occurs during a mission. In this case the aircraft will require a daily before the next flight. Turnaround requirements are not included in the daily inspection and must be accomplished separately. Accomplishment of a turnaround does not affect the 72 hour validity of the daily inspections (Figure 5-3).

NOTES: 1. In the event maintenance, other than servicing, must be performed after the daily inspection or turnaround inspection, Maintenance Control shall determine if a complete daily or turnaround inspection or portion thereof is required.

2. COs may authorize pilots-in-command to conduct applicable T/M/S NATOPS pilot inspection, ensuring servicing requirements are accomplished, and sign the Aircraft Inspection and Acceptance Record (OPNAV 4790/141) in the certification block while operating away from home without qualified maintenance personnel for periods not exceeding 72 hours. Accomplishing these requirements, rather than completing all daily, turnaround, and fuel sampling requirements, is sufficient for safe for flight certification.

5.1.1.5.6.2 Turnaround Inspection. This inspection is conducted between flights to ensure the integrity of the aircraft for flight, verify proper servicing, and to detect degradation that may have occurred during the previous flight. The turnaround inspection may be considered valid for a period of 24 hours commencing from the date and time the inspection is completed, provided that no flight and no maintenance other than servicing occurs during this period. The accomplishment of the daily inspection does not satisfy the turnaround inspection requirements.

NOTE: Accomplishment of a complete turnaround inspection is not required between repetitive flight evolutions interspersed with ground periods, such as passenger or cargo stops, hot seating, hot refueling, or short interruptions for adjustments during helicopter FCFs. Accomplishment of a turnaround inspection is not required if cold refueling T-34C/T-44A/T-6A/T-38A/T-38C Training Command and United States Naval Test Pilot School aircraft between flight evolutions when the pilot in command remains the same. All applicable NATOPS checklists shall be complied with during ground periods. When servicing or other minor maintenance is performed during such ground periods, only those portions of turnaround inspections applicable to that servicing or maintenance need to be performed, as directed by Maintenance Control. This is not intended to limit commands from exercising their prerogative of performing inspections they deem necessary. Inspection or servicing intervals shall not be exceeded during successive evolutions.

5.1.1.5.6.3 Servicing. These requirements provide for replenishment of fuel, oil, and other consumables expended during flight.

5.1.1.5.6.4 Special Inspection. This inspection is a scheduled inspection with a prescribed interval other than daily or phase. The intervals are specified in the applicable PMS publication and are based on elapsed calendar time, flight hours, operating hours, or number of cycles or events, for example, 7, 28 days; 50, 100, 200 hours; 10, 100 arrestments; or 5,000 rounds fired. In some cases, aircraft special inspections contain within them engine inspection requirements. They are referred to as combined airframe and engine special

(7) Crew Rest. The period from the end of one crew day until the start of the next shall be no less than 12 hours for students. After six consecutive scheduled days, students shall receive one day off. Students shall not be scheduled for a graded event within 12 hours after debrief.

b. Solo Restrictions

(1) Documentation. The ATF for the event preceding the solo event must indicate "Safe for Solo" or "Unsafe for Solo."

(2) Solo Not Permitted. The student may not fly solo unless that ATF indicates "Safe for Solo."

(3) Brief. The Flight/Operations Duty Officer shall brief the solo student. The flight briefing must cover mission profile, objectives, and contingencies.

(4) Prohibited Maneuvers. Any maneuver not associated with the current block of training. For Contact solos, the following maneuvers are prohibited: sliding landings, simulated engine failures, boost-off flight, simulated tail-rotor malfunctions, practice autorotations, steep approaches, no-hover landings, simulated emergency procedures, and max load takeoffs.

c. Aircraft/Simulator Interchangeability. Simulator events may be substituted in the aircraft when the simulator is unavailable for extended periods of time.

11. Special Instructions and Restrictions

a. Flight Hour/Event Requirements and Restrictions

(1) Programmed Hours and Events. Syllabus-programmed flight hours are listed on page ix. Event lengths, SXX86, 87, 88, and 89 events will cause variation. Accomplish all syllabus events.

(2) Minimum Night Hours. 12.0 hours.

(3) Minimum Solo Hours. At least 75 percent of the H/X for each solo event must be logged to count the event complete.

(4) Maximum Daily Student Activities (Aircraft, Simulator, or Academic). Students shall not exceed two graded activities during one duty day. An exception is made for students completing cross-country navigation flights. For instrument navigation and day/night navigation events, students may complete three graded activities and not exceed 6.5 flight hours. These events may be completed in a round robin cross-country event that originates and terminates after three legs at the same field. For student solo navigation events, each student is limited to two graded events and two observer events allowing a total of four legs not to exceed 6.5 hours of total flight time.

(5) Minimum Student Turn-Times. The student must have at least 30 minutes between debriefing one event and briefing a follow-on solo event. One hour is required between debriefing of a dual event and the brief for a follow-on dual event or simulator event. This does not apply to out-and-in or cross-country profiles. However, the instructor shall ensure adequate debrief and brief time is allocated. Minimum turn-time does not apply to flights that are allowed to be double-scheduled or where SNAs are scheduled as pilot and copilot.

(6) Crew Day. The period from the beginning of the student's first event or official duty of the day until the completion of the last event of the day, including associated debrief and paperwork. Crew day shall not exceed 12 hours.

1. 3 hour daily flight hour limit for 15's.

with ref (a)), visit a school, or talk to potential recruits, all while in flight suits.

11.1.2 Conduct Criteria

1. At no point shall a TW-5 cross-country aircraft travel below the minimum altitude of 500 feet AGL, unless:
 - a. In the terminal phase of flight.
 - b. When directed to by ATC or other controlling agency.
 - c. On FAA published helicopter routes with altitudes below 500 feet.
 - d. Deviating for weather.
2. Flights shall not deviate from the planned itinerary without approval of the Commanding Officer or his designated representative, unless flight conditions along planned route jeopardize safety.
3. Pilots shall ensure that cross-country flight packets include sufficient current FLIP and aeronautical charts to cover the entire route, including alternates. Duplicating charts is encouraged.
4. Except in emergency situations, flights shall not be planned to require the purchase of fuel/oil from other than contract or military sources. Deviation requires a written statement to be submitted to the Commanding Officer via the Operations Officer explaining the circumstances.
5. When commercial jet fuel is used, it is preferred that it contain anti-ice/fungicide (commercial name PRIST). This must be "premixed" with the fuel. Adding PRIST by individual aerosol cans is prohibited.
6. Under no circumstances shall JP-8 +100 be used in USN/USMC aircraft. If JP-8 +100 is inadvertently introduced into an aircraft, maintenance must be notified immediately.
7. All aircrew on cross country flights shall have floatation vests.

11.1.3 Aircraft Requirements

1. All installed aircraft communication, navigation, and IFF equipment required for flight shall be functioning prior to departure from home field.

11.1.4 Daily/Turnaround Requirements

1. Maintenance provides authorization for PIC to sign safe for flight certification for a maximum of 72 hours when away from home base without conducting a DAILY or TURNAROUND inspection(s). Should the

CHAPTER 11 - SPECIAL PROCEDURES

11.1 CROSS COUNTRY FLIGHTS

11.1.1 General

1. Squadron Commanding Officers are responsible for ensuring the flight will accomplish all training goals and will be conducted safely.
2. A cross-country flight is a flight operating outside the local flying area or one involving remaining overnight (RON) at an en-route or destination airfield outside the Whiting complex. Pre-positioned aircraft at KNPA are excluded from this definition.
3. Cross-country flying is considered an integral and essential part of training and it is considered reasonable that aircraft RON. However, the primary mission performed by Naval Air Training Command - training SNAs - shall not suffer through the use of aircraft and personnel for non-mission essential cross-country flights. Ensure cross-country flights fulfill a syllabus or OPNAV series minimum requirement or have specific CTW-5 approval. Refer to CNATRAINST 3710.2 series for further guidance.
4. Squadron Commanding Officers may schedule aircraft to remain away from NASWF for one night on weekdays and three nights on weekends. This limitation applies to SNA curriculum flights, flights in support of static display commitments, and flights to meet individual OPNAV minimums. Flights exceeding these guidelines require CTW-5 approval.
5. Safe conduct of a flight shall be placed above all other considerations. No operational commitment necessitates that pilots exceed their or the aircraft's capabilities. Judicious selection of routes and destinations with special consideration given to weather are paramount.
6. CNATRA approval is required for all flights outside the continental United States. Squadrons shall forward all requests to TW-5 Operations at least 35 days prior to the proposed departure date.
7. International SNAs are required to comply with specific planning and current approval procedures and ensure compliance with all local directives. Two International SNAs cannot be flown together on the same cross-country.
8. Flights into the Washington, DC ADIZ shall be IFR or be familiar with the current FAA requirements identified on www.FAASAFETY.GOV, have obtained a discreet squawk and require squadron Commanding Officer approval.
9. CNATRA requires that all pilots on cross country flights contact the local recruiters at the final destination and donate 1 hour of their time to the recruiting cause. Show the aircraft (in accordance

(757) 444-2594, Jacksonville (904) 542-2535, or Oceanography Command Detachment (NTMOD) by utilizing the Naval Flight Weather Briefer at <https://nfwb-jax.navy.navy.mil/nfwb50/default.aspx>. If NOC services are not available, any OPNAV 3710.7 series approved weather briefing may be substituted. Updates should be obtained en-route.

2. Filing Minima

a. In addition to the requirements set forth in reference (a), flights shall not be filed into areas covered by Aviation Severe Weather Watch Bulletins (WW), or CNATRA Aviation Weather Warnings (CAWW). Filing requirements for Convective Sigmetts shall be in accordance with section 2.8.

b. Flights shall not be filed into areas of forecast atmospheric icing. Icing may occur at temperatures of less than 4 degrees (OAT) with visible moisture.

c. Flights shall not be filed into airfields with existing or forecast snow- or ice-covered runways.

NOTE: Non-CNATRA based military weather forecasters may not be familiar with CAWW and SIGMET limitations on CNATRA aircraft. Pilots should ask specifically about these weather warnings along their route of flight. For CAWW updates, call NAS Whiting or NAS Pensacola Weather (5.2 Weather Services)

11.1.7 Final Destination Procedures

1. The pilot is responsible to ensure each leg of the flight plan has been activated and closed out.

a. Pilots must activate and close each leg of a flight at non-military installations through FSS by any means of communication available. This may include collect calls or, when no phone lines exist at the point of intended landing, the pilot may cancel in the air with a predicted landing time within 5 minutes of that landing.

NOTE: Cancellation of an instrument flight plan does not meet the requirements for closing out a flight plan with FSS.

2. Any RON airfield must be military, have a military tenant, or a manned FBO with adequate ramp security. The pilot is responsible to ensure adequate security for the aircraft and all flight gear and that contract or military fuel is available, if fuel purchase is required.

3. Thorough preflight, post-flight, and/or DAILY inspection shall be performed to ensure maintenance status of cross-country aircraft. IPs and RON SOLO SNAs must be certified to perform TURNAROUND inspection. If maintenance is required, notify home field immediately with the nature of the problem and available facilities for correction of the discrepancy.

flight be delayed and/or exceed the 72 hour restriction, contact the squadron to coordinate follow on maintenance assistance. Refer to COMTRAWINGFIVEINST 4790.3 for specific maintenance procedures while on a cross country.

11.1.5 AEROSHELL Turbine Oil 555 Procedures

1. Both the main transmission and the tail rotor gearbox will operate with Aeroshell Turbine Oil 555 in Blue Can/Stickers. The engine will operate with Aeroshell Turbine Oil 560 in Red Can/Stickers. Both of these oils are DOD-85734 Series oils. Until further notice, all suspected oil transfers and/or pilot servicing while on cross countries will require the IP to place a call back to the squadron prior to continuing flight or servicing the aircraft. Cross-country procedures for suspected transfers and gearbox servicing are as follows:

a. On preflight, check the transmission oil sight gauge for normal indications. If low, check engine oil reservoir and make sure it is not overflowing, which would suggest a transfer.

b. Check the sight gauge to make sure it is not foggy or cloudy.

(1) If the gauge is foggy or cloudy, then there is definite contamination in the transmission and/or engine oil and the aircraft transmission and/or engine must be drained and flushed by Maintenance personnel.

2. If on post-flight/pre-flight the engine oil reservoir overflows upon removing the reservoir cap, do not start the aircraft. Call back to the squadron and inform them of the situation.

3. Do not perform, or have performed, any maintenance on the aircraft without specific authorization from the Wing Maintenance Officer. If they cannot be reached directly, the Maintenance, Assistant Maintenance, and Operations Officers will coordinate through the squadron.

4. These procedures are for cross-country flights only. For NOLF operations or local area ops, a troubleshooter will be flown out to inspect your aircraft.

5. The IP shall initiate an appropriate MAF for all occurrences of suspected transfer immediately upon return to South Whiting Field.

11.1.6 Weather Requirements

1. Briefing Requirements. The PIC is responsible for receiving a weather brief from a weather forecaster for the entire route of flight prior to departure from point of origin. Naval Oceanography Command (NOC) services shall be utilized from a local source on the route of flight. NOC services are also available from Norfolk, Commercial

4. The aircraft should be refueled upon arrival at final destination to minimize fuel contamination.

11.2 OFFICIAL BUSINESS AND LOGISTIC FLIGHTS

1. Flights considered in the direct interest of the U.S. Government may be authorized to RON by the Commanding Officer.
2. Authorization shall be granted only when a more economical mode of transportation is impractical or when a specific TW-5 requirement is satisfied.
3. Flights shall be assigned to accomplish curriculum or individual training, whenever practical.
4. Requests for administrative transportation flights or special logistic flights (2M2) shall be submitted to CTW-5 for approval if their purpose is other than:
 - a. Ferry flight.
 - b. Transporting parts or maintenance personnel to down aircraft away from home base.
 - c. Official business commitments.
 - d. FAA examination flights (ATP).
5. Requests for administrative transportation flights will generally not be approved if the passenger is not assigned to TW-5 or if the purpose of the flight is not in the best interest of TW-5. Non-essential flights include:
 - a. Routine business nature for which commercial or other military transportation could more economically be substituted.
 - b. Transportation of any officer or group of officers, the sole purpose of which is for the convenience and/or prestige of the officers and not pursuant to the performance of official duties or the accomplishment of bona fide training.
 - c. Repeated flights to the hometown area of flight personnel concerned.
 - d. Flights coinciding with major sports or civic events.
6. All passengers shall be thoroughly briefed prior to the flight on appropriate procedures for emergency egress and the use of available survival equipment.

and specifically cleared by the Commanding Officer on the advice of the Flight Surgeon. At no time shall individual flight time exceed:

Period (Calendar Days)	7	30	90	365
Maximum Flight Time (Waiver Req.)	50	100	265	960

Figure 1-4
Maximum Waiver Flight Time

- c. Flight time shall not exceed the limits in Figure 1-4, unless specifically approved by CTW-5.
 - d. Squadrons are directed to establish written procedures for a program to identify and monitor pilots approaching flight time limits. The system must be independent of an individual's personal monitoring and should enable the squadron to identify the individual cumulative flight hours for all IPs for any 7, 30, 90, or 365 day period.
2. Instructor daily flight time shall not exceed:
- a. For local flights originating and terminating in the local area: Eight (8) hours per day, of which no more than 6.5 hours may be syllabus or syllabus-related flight time.
 - b. For approved cross-country evolutions, including same-day round robin cross-country events that originate and terminate in the local area: Eight (8) hours per day, provided 12-hour crew day is not exceeded.
 - c. SNAs shall follow the guidelines outlined in the Multi-service Pilot Training System (MPTS) curriculum.
- #### 1.8 CREW DAY AND CREW REST
1. In accordance with CNATRAINST 1500.4 series and applicable CNATRAINST 1542 series training and curriculum guides, crew day and crew rest limits shall be:
 - a. Maximum crew day for all flight personnel is 12 hours, except for SNA solos which have a maximum crew day of 10 hours.
 - b. Students should not arrive more than two (2) hours prior to their first scheduled event.
- #### 1.9 FLIGHT AFTER SIMULATOR
1. All aircrew are prohibited from flying an aircraft within 12 hours after flying in, or observing a (motion) simulator. Individuals who have experienced simulator sickness in the past should not be scheduled to fly for 24 hours following (motion) simulator exposure.



DEPARTMENT OF THE NAVY
COMMANDER
TRAINING AIR WING FIVE
7460 USS ENTERPRISE STREET SUITE 205
MILTON, FLORIDA 32576-8017

OPNAVINST 3710.7U
NOVEMBER 23, 2009

IN REPLY REFER TO

COMTRAWINGFIVEINST 4790.3A
N3

COMTRAWING FIVE INSTRUCTION 4790.3A

From: Commander, Training Air Wing FIVE

Subj: CROSS COUNTRY, MAINTENANCE, GROUND OPERATIONS AND CONTRACT
POLICY INSTRUCTION FOR T-34/T-6/TH-57 PILOTS AND FLIGHT CREW

Ref: (a) NAVSUPINST 4200.97
(b) COMTRAWINGFIVEINST 3710.2S
(c) COMTRAWINGFIVEINST 3710.8Q
(d) COMNAVAIRFORINST 4790.2A
(e) COMTRAWINGFIVEINST 4200.2
(f) COMTRAWINGFIVEINST 3710.2U

Encl: (1) Items Not Covered in Standard T-34C NATOPS Pre-Flight
Inspection
(2) Items Not Covered in Standard T-6B NATOPS Pre-Flight
Inspection
(3) Items Not Covered in Standard TH-57B/C NATOPS Pre-Flight
Inspection
(4) Cross Country Designation

1. Purpose. To enhance safety during T-34/T-6/TH-57 flight evolutions that include intermediate stops away from home station. To provide enhanced training on procedures necessary for qualifying pilots/aircrew to conduct T/M/S NATOPS pre-flight inspections on T-34/T-6/TH-57 aircraft. Provide detailed guidance on additional cross country guidance and contract fuel requirements per references (a), (b) and (c). Provide guidance on the administration of required training to support the aforementioned requirements.

2. Cancellation. COMTRAWINGFIVEINST 4790.3.

2. Scope. This instruction applies to all personnel in an active flight status, operating aircraft assigned to Training Air Wing (TRAWING) FIVE on all flights away from home field.

3. Discussion. A significant portion of the training conducted in TRAWING FIVE occurs away from home field during weekday "out and ins" or weekend cross-country flights. A prudent Operational Risk Management (ORM) effort to ensure our aircraft are safe for flight is to incorporate some or all of the Daily/Turnaround Inspection items into the pilot's pre-flight inspections. Therefore, Daily/Turnaround Inspection training will be provided to all instructor pilots.

• Extra inspection is recommended not required

8.3.2.4 Exercise

Planned physical fitness programs promote health. All levels of command are encouraged to establish approved physical fitness programs for all personnel in accordance with reference (bk). Due consideration must be given to avoiding contact sports, skiing, etc. Adequate rest periods must be provided for aviators before flying following participation in competitive or particularly tiring sports activity. Twelve hours should normally be adequate.

8.3.2.5 Drugs

Drugs are defined as any chemical that when taken into the body causes a physiological response. All flight and support personnel shall be provided appropriate information by a command drug abuse education program.

a. Legal drugs are those medically prescribed or legally purchased for treatment of illness. Guidance and flight restrictions are provided in the Naval Aerospace Medical Institute's (NAMI) on-line Aeromedical Reference and Waiver Guide at <http://www.med.navy.mil/sites/navmedmpe/nami/nami/arwg>.

(1) Prescription drugs - Taking drugs prescribed by competent medical authority shall be considered sufficient cause for recommendation of grounding unless their use is specifically approved by an FS, or a waiver for specific drug use has been granted by CHNAVPERS or the CMC. Consideration shall be given to the removal of ground support personnel from critical duties, for the duration of the drug effects, if appropriate. Medicines such as antihistamines, antibiotics, narcotic pain relievers, etc., obtained by prescription for short term use to treat a self-limited condition, shall be discarded if all are not used during the period of medication. Unused quantities of performance maintenance drugs (amphetamines or sleeping pills) shall be returned to the FS or medical clinic for purposes of strict accountability.

(2) Over-the-counter (OTC) drugs - Because of the possibility of adverse side effects and unpredictable reactions, the use of OTC drugs by flight personnel is prohibited unless specifically approved by an FS. Ground support personnel shall be briefed on the hazards of self-medication and should be discouraged from using such drugs.

(3) Alcohol - The well-recognized effects of excessive alcohol consumption are detrimental to safe operations (i.e., intoxication and hangover). Consumption of any type of alcohol is prohibited within 12 hours of any mission brief or flight planning. Adherence to the letter of this rule does not guarantee a crewmember will be free from the effects of alcohol after a period of 12 hours. Alcohol can adversely affect the vestibular system for as long as 48 hours even when blood alcohol content is zero. Special caution should be exercised when flying at night, over water, or in IMC. In addition to abstaining from alcohol for 12 hours prior to mission brief or flight planning, flightcrews shall ensure that they are free of hangover effects prior to flight. Detectable blood alcohol or symptomatic hangover shall be cause for grounding of flight personnel and the restriction of the activities of aviation ground personnel.

(4) Tobacco - Smoking has been shown to cause lung disease and impair night vision, dark adaptation, and increase susceptibility to hypoxia. Smoking is hazardous to nonsmokers, as the effects occur whether smoke is

d. Appropriate maintenance Daily inspection Cards shall be included in all TRAWING FIVE Cross Country fuel packets.


G. L. VANDIVER

Distribution:
COMTRAWINGFIVEINST 5216.1S
Lists I(b), II, III(a,b,1)

Reference (d) provides authorization for Pilots-in-Command to sign Safe-for-Flight certification for a maximum of 72 hours when away from home base. Should the flight be delayed and/or exceed the 72 hour restriction, maintenance personnel shall be contacted to perform a new Daily Inspection. Reference (a) provides detailed explanation of ground operation and fueling requirements during cross country operations requiring contract fuel and support. As noted in reference (e), https://aviation.militaryservice.com/cgi-bin/mcavi_location_lookup.cgi should be used to determine specific contract items for the destination FHO.

4. Responsibilities. Pilots shall adhere to policies on Daily and Turnaround Inspections as they apply to multi-sortie, multi-day flight missions as stipulated in reference (d).

a. TRAWING FIVE FITU and HITU shall provide initial training on policies provided in references (a) through (f) and utilize enclosures (1), (2) and (3) along with T-34/T-6/TH-57 Daily and Turnaround Inspection cards for further pre-flight training.

b. TRAWING FIVE Squadron Commanding Officers shall coordinate with the FITU or HITU respectively for training of squadron instructor pilots who have already completed the IUT syllabus.

c. TRAWING FIVE Aircrews shall perform additional inspection items denoted on enclosures (1), (2) or (3) based on type aircraft during turnaround inspections in conjunction with "out and in", intermediate stopovers or cross country flight evolutions. All instructor pilots shall receive a kneeboard scale copy of enclosure (1), (2) or (3) as provided by the FITU or HITU to reference during training and in the execution of the inspections.

5. Action. T-34C, T-6B and TH-57B/C Daily/Turnaround Inspections are very similar to the standard T/M/S NATOPS Inspections, with the exception of the items listed in enclosures (1), (2) and (3). Squadron Commanding Officers shall ensure all pilots-in-command conducting cross country flights are cross country designated. The Fixed-Wing Instructor Training Unit (FITU) and the Helicopter Instructor Training Unit (HITU) Officers-in-Charge shall coordinate monthly training for FITU and HITU Instructors Under Training (IUTs).

a. The Cross Country Designation, enclosure (4), shall be initiated for all instructor pilots assigned to FITU/HITU for instruction, as well as TRAWING FIVE, and NASWF staff in an active flight status. Approval for cross country evolutions will not be granted until the pilot in command has achieved Cross Country Designation on their respective aircraft.

b. The Cross Country Designation form shall be filed in the member's NATOPS Flight Jacket.

c. Enclosures (1), (2) and (3) shall be provided in kneeboard scale to each IUT and squadron instructor pilot prior to training.

HELTRARONEIGHTINST 3710.20L
50
1 Nov 10

HELTRARON EIGHT INSTRUCTION 3710.20L

Subj: SQUADRON STANDARD OPERATING PROCEDURES (SOP)

1. Purpose. To publish Helicopter Training Squadron EIGHT's (HT-8) Standard Operating Procedures.

2. Cancellation. HELTRARONEIGHTINST 3710.20K

3. Scope. The regulations and instructions set forth are applicable to all flight operations conducted in Training Air Wing FIVE aircraft, in execution of HT-8's events, these instructions are not to be construed as restricting pilot judgment or deviation in order to maintain safety of flight.

4. Action

a. All pilots operating Training Air Wing FIVE aircraft, in execution of HT-8's events, these instructions shall be thoroughly familiar with the contents of this instruction. A copy of this instruction shall be maintained in the front of each pilot's NATOPS manual.

b. The Standardization Officer is responsible for the maintenance, review and revision of this SOP.

c. The Operations Officer will ensure a current copy of the SOP is incorporated into the Operations, Command, and Squadron Duty Officer's folders.

H. E. SHOLLEY

Distribution:
HELTRARONEIGHTINST 5216.8J (List I)

ITEMS NOT COVERED IN STANDARD TH-57B/C
NATOPS PRE-FLIGHT INSPECTION

- Item 8.1.2 Fuel Sample - obtain and inspect.
- Item 8.3.3.b Perform fuel boost pump check:
- (1) Both boost pump circuit breakers IN.
 - (2) Fuel switch in ON position/switch guard pin security.
 - (3) Fuel pressure above 4 PSI.
 - (4) Pull AFT boost circuit breaker. Check for illumination of FUEL BOOST caution light segment.
 - (5) Pull FWD boost pump circuit breaker. Note continued caution light.
 - (6) Reset AFT boost pump circuit breaker, fuel pressure about 4 PSI. Note continued caution light.
 - (7) Reset FWD boost pump circuit breaker. Note caution light out.
 - (8) Press to test button on airframe fuel filter. **NOTE:** Fuel caution light illuminates.
- WARNING: AT LEAST ONE FUEL BOOST PUMP MUST BE ON WHILE DRAINING AIRFRAME FUEL FILTER.**
- (9) Drain airframe fuel filter.
- Item 8.4.3 Avionics shelf:
- (1) ICS amplifiers for security.
 - (2) Voltage regulator for security and attached wires for tightness.
 - (3) Shelf for FOD and curtain/panel for Velcro attachment.
- Item 8.12.1 Place tail rotor control in full right position and clean exposed portion of pitch change shaft with a clean cloth.

Enclosure (3)

1. General. Flight discipline requires every instructor to be thoroughly familiar with this SOP, the HT-8 Flight Instructor Standardization and Training (FIST) Program instruction, and all other directives of higher authority related to flight instruction.

2. Crew day/crew rest

a. Crew day begins with the first military obligation, (flight/brief/meeting/academic class/medical/dental appt), or upon entering the squadron spaces.

b. Minimum crew rest is 12 hours from the completion of the last military obligation or simulator/flight debrief to the next scheduled military obligation or simulator/flight brief. For flight events, an additional 30 minutes shall be provided to allow for the completion of the weight and balance and associated preflight planning. Crew rest restrictions only apply to scheduled graded events for SNAs. SNAs shall inform the PDO of any potential crew rest conflicts.

3. Weather cancellations. During periods of bad weather, Instructors should not cancel flights sooner than 2 hours after the scheduled takeoff time.

4. Solo observer and Student Naval Aviator (SNA) warm-up criteria. All solo observers must have flown as a pilot at the controls in the appropriate model within 14 days prior to the event to be observed. SNA warm-up criteria are described in the Advanced Helicopter Multi Service Pilot Training System (MPTS) curriculum.

5. Weight and balance. All SNAs shall have a weight and balance form introduced on C4001 and completed for every flight thereafter. The forecast maximum density altitude shall be used on all forms.

a. Aircraft not assigned. The left column of the weight and balance form shall be completed using the heaviest aircraft to determine the maximum allowable fuel load. The center and right columns of the weight and balance form shall then be completed using the most forward CG aircraft and the planned takeoff fuel load, not to exceed the maximum fuel load determined for the heaviest aircraft.

b. Aircraft assigned. The center and right columns of the weight and balance form shall be completed using the assigned aircraft.

6. Publications required for flight. The following publications shall be accessible to the front seat pilots during the indicated phase of flight.

a. For all flights

NATOPS Pocket Checklist	ORM Briefing Guide
Appropriate Approach Plates	Appropriate VFR Sectional
Appropriate IFR Low Chart	On-Scene Commander Checklist
Carbon Lock Checklist	Bird Strike Checklist
Hard Landing Checklist	
Overtorque Checklist	

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16. N4201/I4701
- Solos shall not execute any practice approaches en route nor multiple practice approaches at the destination
 - Deviations from planned routes shall be relayed to the FDO and FSS.
 - "Temporary", "Becoming", "From", "Probability", and "Scattered/Variable Broken" conditions at the destination constitute ceilings.
 - Solos shall contact the SDO/CDO directly upon reaching the destination and again prior to departure.
 - Solos shall be on deck at the destination at least 30 minutes prior to official sunset. Solos shall not depart from an airfield if the next destination cannot be reached at least 30 minutes prior to sunset. If unable to land at the planned destination prior to sunset solos shall land at a suitable alternate airfield.
17. I4300/I4400 block. Students shall call for a route of flight the night before each event and prepare a DD-175 and jet log for the brief. IPs shall ensure SNAs do not repeatedly fly to the same destination airports.
18. Contact solos. Contact solos are required to leave the NOLF no later than 20 minutes prior to official sunset and with not less than 25 gallons of fuel.
19. Helmets. Helmets, with chin straps fastened, shall be worn while preflighting on top of the aircraft. Helmets, with chin straps fastened and visors down, shall be worn at all times when within 100' of turning aircraft.
20. Jewelry and FOD. Squadron personnel will ensure all rings and earrings are removed, all necklaces are placed inside of shirts and all pockets are zipped up prior to commencing preflight on any aircraft, hot seating or walking onto the flight line for any reason.
21. Hot seating
- Hot seats to or from Contact solos shall be conducted on the flight line. Students shall turn on the searchlight to get preferred parking. Hotseat to or from NAV solos may occur in the crew change.
 - Solo aircraft are not permitted to taxi into the fuel pits. However, NAV solos may taxi through the fuel pit area (turn the searchlight on to alert the fuel pit crew) to hotseat in the crew change.
 - Personnel shall not enter or exit the rotor arc when either front seat pilot is entering the cockpit/strapping in or unstrapping/exiting the cockpit.
22. Minimum crew for Instrument Flight. The minimum crew requirements for the conduct of simulated instrument flight are, in addition to the pilot at the controls, a PQM occupying the other pilot seat and a qualified observer occupying the seat immediately behind the pilot using a vision-restricting device. The observer shall be in ICS contact with the pilots at all times.

- Additional publications for BI/RI flights
- | | |
|-------------------------|--------------------------------|
| Current Weather Brief | Copy of DD-175 (if applicable) |
| Student Approach Plates | |
- Briefing requirements. The following syllabus events may be briefed in aircraft: T4001, C4500 block, C4602 through C4702, C4802, I4002, I4003, I4103, I4290, N4002 through N4101, I4502 through I4504. Other events may be scheduled as "Brief in Aircraft (BIAC)" to maximize SNA crew rest but briefs shall be conducted out of the cockpit.
 - Boost-off approaches. SNA practice boost-off approaches shall be completed to a 5-ft, 5 knot air taxi (over a paved runway, if available). Practice boost-off approaches to the deck shall only be performed by IPs or IUTs and shall be performed to a paved runway.
 - PEL procedures. During a PEL, the Pilot in Command (PIC) shall follow the appropriate checklist and then contact the CDO. Following the PEL, the PIC shall remain with the aircraft until completion of recovery effort by competent crew, or until properly relieved. Additionally, following a pilot-induced PEL, the PIC shall provide a brief description of the event and any lessons learned to the Safety Department (hard copy) and all instructors (email). Continuation of flight following a PEL requires CO approval.
 - Radar altimeter. Low-level BI flights shall not be conducted over water with an intermittent or inoperative radar altimeter, but may be flown over land at or above 700' MSL using the barometric altimeter. Refer to the RWOP for additional night radar altimeter procedures.
 - Force trim. Operational force trim is required for all syllabus flights.
 - Normal/Recover switch. The normal/recover switch in the TH-57C shall be in the "recover" position between official sunset and sunrise.
 - Ground handling wheels. Personnel not assigned to HT-8 or the civilian contractor shall not assist in the installation or removal of ground handling wheels, except at military bases when transient line personnel have been properly briefed on ground handling wheel procedures. Use of ground handling wheels shall only be in cases of emergency or unforeseen circumstances (i.e., significant wind shift that results in winds out of limits for engine start), not as a matter of convenience for transient line personnel. While installing/removing ground handling wheels, HT-8 personnel shall wear a helmet with the chin strap fastened and the visor down.
 - Passenger manifesting requirements. Passengers shall be manifested by aircraft side number at the site if not on the acceptance sheet for that aircraft. Instructors shall give their on-wings a passenger brief on C4001. No more than two passengers are permitted per aircraft.
 - Aviation training forms. IPs shall ensure ATFs are completed the same day as the event is flown. Special attention must be given to the timely submission of end-of-stage ATFs. ATFs for incomplete and UNSAT events shall be completed immediately upon completion of instructor's scheduled events and an UNSAT email shall be sent to appropriate personnel.

29. Cross Country Flights

a. Based upon environmental conditions and aircraft weight, IP's shall consider conducting landing/taxi/take-off while on cross-country flights.

b. To the maximum extent practical, an instructor's first cross-country should be conducted as a multi-aircraft (non-formation/non-section) event to the same stop-over airfields and destination with an experienced instructor in (one of) the other aircraft.

30. IUT Only Maneuvers. All IUT only maneuvers shall be thoroughly briefed prior to any IP/IP flight and reviewed again prior to conducting the maneuver.

31. HT-8 anti-exposure requirements are as follows:

a. S4001, S4101 and S4201 flights expected over water with water temperatures below 50 degrees Fahrenheit and/or when outside air temperature (OAT) wind chill adjusted is less than 32 degrees Fahrenheit shall be cancelled.

b. When a flight is expected to be flown over water with water temperatures between 50 and 60 degrees Fahrenheit, anti-exposure suits are not required.

c. When OAT corrected for wind chill is at or below 50 degrees Fahrenheit and anti-exposure suits are not mandated, the wearing of fire-resistant (aramid) undergarments is recommended.

When water temperatures are expected between 50 and 60 degrees Fahrenheit, it is highly recommended that the aircraft commander use sound ORM to determine autorotational distance from land when transiting over water.

23. Operations with doors removed. During operations with doors removed, all parts of the body shall remain inside the aircraft. Specifically, arms and legs will not be placed on the skids or outer fuselage. Refer to the RWOP for further guidance.

24. Lightning storm procedures. During periods of convective activity where ground lightning is possible within the local area, the FDOs shall utilize JAAWIN lightning strike website: <https://weather.afwa.af.mil>. Aircrew/LSEs shall employ the SkyScan Lightning/Storm Detector to alert personnel conducting External Load operations or Field Deck Landing Practice (FDLP) of possible lightning activity.

Reference current HT8INST 3750.2 for specific guidance regarding use of the JAAWIN website and SkyScan lightning detector. Additionally, when the NDZ flight line is secured due to lightning in the vicinity of the airfield, aircrew should contact the FDO prior to shutdown to request transportation from the aircraft to the hangar. Walking to/from aircraft when flight line is secured due to lightning is prohibited.

25. GPU engine starts. Pilots should utilize an GPU for all starts at NDZ. When planning for flights outside the local area, including cross-country flights, aircrews should select destinations and intermediate stops to maximize use of compatible GPUs. When an GPU start is unavailable or impractical, the IP should perform the start to reduce the potential for exceeding TOT limits. In such instances, pulling the boost pump circuit breakers (at elevations below 6000 ft PA) is authorized to increase available battery power for engine start. Modulated starts shall not be performed.

26. Carbon lock. If the blades will not turn backwards on preflight or fail to turn by 25% Ng on start, carbon lock should be suspected. Carbon lock procedures shall be performed per COMTRAWING FIVE carbon lock checklist. During cold weather operations, locked blades may be an indication of a frozen turbine. The aircraft is down and start shall not be attempted.

27. NVD guidance. Routes shall consist of at least 40 NM and 8 checkpoints. This does not preclude the instructor from adding the hospital route at the beginning or end of the preplanned route. The green route should be flown on the T4403 event to the maximum extent possible. NVG instructors are required to have flown 1.0 hour of NVD time within the previous 45 days to be considered current.

28. Altitude restrictions

a. Pilots shall avoid overflying the houses near the southeastern corner of OLF Harold below 200 feet AGL.

b. Within the local flying area, pilots shall not fly lower than 500' AGL unless under positive ATC control, established on a published route, simulating emergency procedures enroute to an OLF, operating at an OLF/East Bay, or in the terminal phase of flight. Outside the local area, pilots shall not fly lower than 1000' AGL unless in the terminal phase of flight or established on a published helicopter route.

HELTRARONEIGHTINST 3710.1Q

(4) All cross-country requests shall utilize the HT-8 cross-country flight request form, enclosure (1), which shall be completed in its entirety. Requests shall be submitted to the Operations Officer, via the applicable flight leader, not later than 1200, seven days prior to the intended departure date. Requests requiring L-3 maintenance support, such as air shows or other events exceeding three days, shall be submitted 14 days prior to the intended departure date.

(5) To the maximum extent possible, military lodging shall be utilized. The IP will ensure BOO/CBQ reservations are completed prior to submitting cross-country request forms. Confirmation numbers shall be included on the request form.

(6) The IP shall report to the Commanding Officer or Executive Officer prior to departure for an Operational Risk Management briefing.

(7) The IP shall report safe-on-deck directly to the Command Duty Officer (CDO) or Squadron Duty Officer (SDO) at all intermediate stops.

(8) Upon arrival at the destination airport, the CDO shall be notified of problems encountered or anticipated and phone number where the PIC can be reached. The CDO or SDO shall be notified prior to departure for return to base. Any deviation from the planned route of flight shall be passed to the CO and XO via the CDO. Enclosure (2) serves as a guide for preflight and postflight procedures.

(9) All cross-country personnel shall complete a liquidation package, enclosure (3), no later than five (5) working days after completion of Temporary Additional Duty. The PIC is responsible for ensuring all claims are submitted to the travel clerk in the Admin Office.

(10) In the event that a weather or maintenance delay occurs during a cross-country flight, the travel clerk in the Admin Office shall be informed of the number of days involved. A description of the maintenance problem shall also be provided to TW-5 Maintenance via telephone numbers in enclosure (4).

M. D. FISHER

Distribution:
HELTRARONEIGHTINST 5216.8I (LIST I)

Stocked:
HELTRARON EIGHT Admin
7413 USS Enterprise Street
Suite 101
Milton, FL 32570-6010



DEPARTMENT OF THE NAVY

COMMANDING OFFICER
HELICOPTER TRAINING SQUADRON EIGHT
7413 USS ENTERPRISE STREET SUITE 101
MILTON FL 32570 6010

REPLY REFER TO:

HELTRARONEIGHTINST 3710.1Q
30
25 Mar 10

HELTRARON EIGHT INSTRUCTION 3710.1Q

Subj: CROSS-COUNTRY FLIGHTS

Ref: (a) OPNAVINST 3710.70
(b) CNATRAINST 3710.2T
(c) COMTRAWINGFIVEINST 3710.8Q

Encl: (1) HT-8 Cross-Country Flight Request
(2) Cross-Country Checklist
(3) Travel Liquidation Package
(4) CTW-5 Maintenance Recall

1. Purpose. This instruction promulgates policies and procedures relating to cross-country flights, including travel claims and weather/maintenance downs.

2. Cancellation. HELTRARONEIGHTINST 3710.1P

3. Background. Cross-country flights are authorized to fulfill Student Naval Aviator syllabus requirements and instructor refresher training. Cross-countries are intended to provide student aviators with maximum exposure to aviation-related operations outside of the Training Command environment. Flights will be conducted in accordance with all applicable sections of references (a) through (c).

4. Authorization. In the absence of the Commanding Officer, the Executive Officer shall be the approving authority on all cross-country flight requests.

5. General. Safe conduct of these flights shall have the highest priority. Operational necessity does not exist.

a. Pilot requirements

(1) To the maximum extent possible, cross-country flights shall be utilized to fulfill student and instructor syllabus requirements. Exceptions to this will be authorized by the Commanding Officer on a case-by-case basis.

(2) The Instructor Pilot (IP) shall be Naval Air Training Operating Procedures Standardization (NATOPS) qualified in the TH-57 model aircraft and shall have a current instrument rating. Student Naval Aviator solo flights are excluded from this requirement.

(3) To the maximum extent practical, an instructor's first cross-country should be conducted as a multi-aircraft (non-formation/non-section) event to the same stop-over airfields and destination with an experienced instructor in (one of) the other aircraft.

18. STATIC DISPLAY AIRCRAFT PREPARATIONS

- Public should be restricted from access to the interior of the aircraft.
- Placards with the appropriate performance and mission data will be provided for display by the Enlisted Aircrew Office.
- At least one crewmember shall be stationed at the aircraft at all times during display hours.
- The static display crewmembers shall present a sharp military appearance. Uniform requirement includes, but is not limited to: clean flight suits, polished flight boots, fresh haircut, and appropriate name tags and headgear.
- Battery disconnected.
- All red gear (plugs/covers) in place.
- Grounding wires shall be used when available.
- Aircraft preparation shall include the following prior to any unqualified personnel examining the aircraft:
 - STBY ATT IND circuit breaker pulled
 - The aircraft should be roped off whenever possible to limit access to such areas as the tail rotor, breakable antennas, etc.
- Pilot in command shall ensure crew members have adequate protective clothing, sunscreen and water available during air show static displays.

19. TRAVEL CLAIM

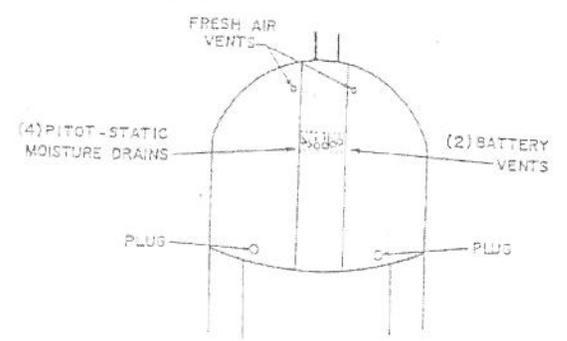
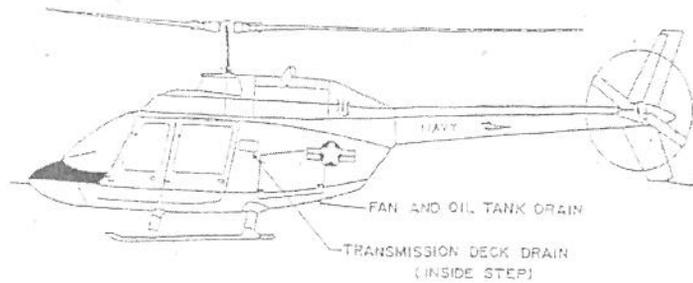
- After maintenance downs, weather downs, and cross-country travel is complete, return travel claims to the Admin Office no later than five (5) working days from the day travel was completed.

20. MAINTENANCE DOWN TRAVEL CLAIMS

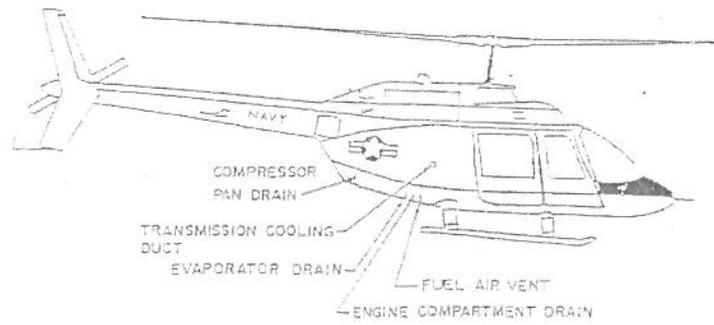
- The instructor shall ensure that each crew member submits a travel claim to HT-8 Admin no later than five (5) working days after the date of return. All crew members must submit their travel claims simultaneously.
- The instructor shall ensure that all information on each claim is the same. The land times should be the same for the entire crew, everyone should have stayed at the same place, etc.
- Original hotel and taxi receipts must be kept and submitted with your travel claim. Lodging should be moderately priced. Ask for a military discount and make sure that government quarters/messing are not available. Meal receipts need not be kept since the local per diem rate will apply. Rental car shall be authorized by CO/XO.
- The original copies of your cross-country TAD orders, hotel and taxi receipts must be turned in with your travel claim. Photocopies will not be substituted for originals.
- Block 30, You must have a specific reason why you were delayed. Do not just write "maintenance down," but be specific, i.e., engine chip light, or hydraulic filter contamination indicator popped.
- You will be reimbursed at the local rate for meals and lodging.
- Claims will not be paid for days that are covered in your cross-country TAD orders. In other words, a travel claim for Saturday and Sunday nights would only pay for Sunday night for a normal Friday to Sunday cross-country.
- Crewmembers shall make every effort to share a room (same gender only). If a flight crew makes a claim for three rooms, one person may not get reimbursed. However, three people are not expected to share a single or double room.
- Transportation: Make use of courtesy vehicles or hotel shuttles if able. Contact SATO travel for rental reservations after CO/XO approval.

CROSS-COUNTRY CHECKLIST

1. **TAD ORDERS**
Used for BOQ registration and tax records. Obtain entitlements brief from HT-8 Admin prior to execution of orders.
2. **CLOTHING**
Call ahead for weather conditions and pack accordingly.
3. **MISCELLANEOUS**
Cash, government travel card, credit cards, checkbook, wallet, etc.
4. **FOODSTUFFS**
Pack your in-flight snacks.
5. **FLIGHT GEAR**
NATOFS, flashlight, CR-2 Computer, dry and/or wet vest (SV-2 required for over water flight).
6. **NAV BAG**
Required charts and publications.
7. **FUEL PACKET**
Check out from Tool Issue in Hangar.
8. **WEATHER**
NASWF Base Wx: (800) 295-7824; FAX - (850) 623-7243
FSS - 1 (800) 992-7433
NAVWX Norfolk (757) 444-2594/(757)445-4040
Sherman Field Wx: (850) 452-3644/2388; FAX - (850) 452-2248
General weather outlook, en route, destination, alternate, winds, ETA's to stops and destination.
9. **TERMINAL CHECKS**
Official business only, PPR, contract fuel, military landing rights, servicing delays, ground transportation, billeting.
10. **FILING**
Wx brief, NOTAM check (including Class II), file with Base Ops, copy to FDO w/wt. & balance and Wx brief.
11. **AIRCRAFT ISSUE**
Take cross-country kit, wheels, intake/exhaust covers, blade tiedowns, extra yellow sheets, and MAF's.
Extra Engine and Transmission oil is recommended for extended trips.
12. **PREFLIGHT**
All aircraft communication, navigation, and interrogation (CNI) equipment required for flight under IFR shall be functioning prior to departure from NDZ.
13. **DEPARTURE**
Call outbound to base. Have a safe trip.
14. **EN ROUTE**
Activate and close flight plans w/FSS when operating from civilian fields. Call FDO/CDO or SDO at every enroute stop.
15. **LANDING**
Close out flight plan. Provide SDO with phone numbers of FBO, crew, and passengers in case they need to be reached, as well as rendezvous times for departure and a local recall. Provide SDO with hours, x's, a/c status. Call base (collect if required): (850) 623-7188/7461, DSN 868-XXXX, (877) 822-7640.
16. **SERVICE AND SECURE AIRCRAFT**
Post flight, tie downs, plugs/covers, oil/fuel, control frictions tightened, doors locked, battery disconnected.
17. **RETURN**
Notify SDO/FDO/CDO. Solos return during daylight; park aircraft in designated spot. Complete paperwork; return fuel packet with receipts and credit card.

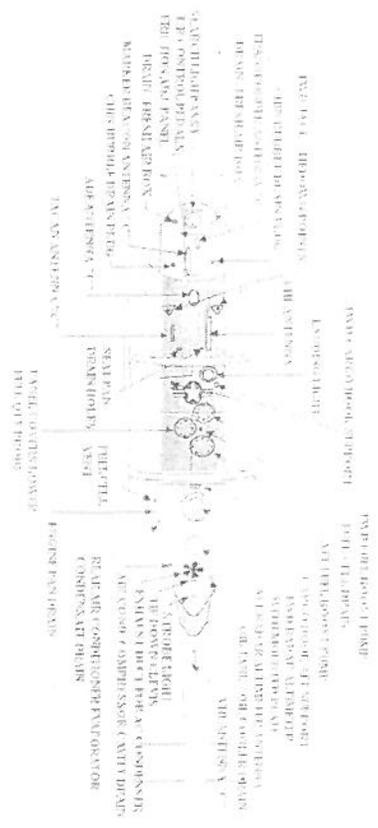


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DRAINS/VENTS TH-57C

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MAIN ROTOR DRIVE SYSTEM

63-1. MAIN ROTOR DRIVE SYSTEM

The main rotor drive system provides a means of transmitting power from the engine to the main rotors. The main rotor drive system consists of a transmission, main rotor mast, main driveshaft, freewheel assembly, and oil cooler (Figure 63-2). The freewheel assembly is mounted on the engine accessory gear case. It connects the engine to the transmission through the main driveshaft on the forward side, and the tail rotor gearbox through related shafting on the aft side. This provides simultaneous

rotation of main and tail rotors and permits free rotation of both rotors when the engine is not operating.

63-2. ALLOWABLE LEAKAGE RATES FOR MAIN ROTOR DRIVE SYSTEM COMPONENTS

Table 63-1 presents a measurement of allowable leakage rates that may be used in conjunction with main rotor drive system troubleshooting.

Table 63-1. Maximum Allowable Leakage Rates for Main Rotor Drive System Components

COMPONENT	TYPE	LEAKAGE RATE
Transmission and freewheel assembly	Static	Input quill leakage shall not exceed 10 drops per minute. Total transmission leakage at all sources including freewheel assembly must not exceed 15 drops per minute.
	Dynamic	1 quart per 2 hours of operating time.

63-3. MAIN ROTOR DRIVE SYSTEM MAJOR CHANGES

Table 63-2 outlines the major changes and improvements that have occurred on the designated helicopters main rotor drive system components. Due to the interchangeability of components, maintenance instructions in this section shall include the component part number in the paragraph titles and illustrations, as applicable.

detailed procedures in this manual, and in conjunction with Table 63-2.

1. For troubleshooting of transmission system, refer to Figure 63-2.
2. For troubleshooting of main driveshaft, refer to Figure 63-3.
3. For troubleshooting of freewheel assembly, refer to Figure 63-4.

63-4. TROUBLESHOOTING MAIN ROTOR DRIVE SYSTEM COMPONENTS

Figure 63-2 through Figure 63-5 provide troubleshooting procedures for the main rotor drive system components. These troubleshooting procedures are a brief summary of troubles that may be encountered. They include indication of troubles, probable causes, and corrective actions to be taken. The troubleshooting data should be used along with other sources of information such as transmission oil system schematics, electrical wiring diagrams, operational checks, serviceability checks, and other

NOTE

Perform pylon whirl inspection following pilot report or evidence of abnormal landing, excessive slope landing operation in severe turbulence, low rotor RPM during flight (power ON or OFF), rapid and extreme cyclic input, spike knock or main driveshaft contact with isolation mount.

4. For pylon whirl inspection, refer to Figure 63-5.

Table 101
Troubleshooting (cont.)

Item	Trouble	Probable Cause	Remedy
18 (cont.)	Low oil pressure (cont.)	Oil pressure not adjusted	Adjust oil pressure regulating valve. (Refer to Pressure Regulating Valve, para 3.A., 72-60-00.)
		NOTE Before attempting oil pressure regulator adjustment, make sure that minimum N ₁ rpm of 94% is attained during periods of reported low oil pressure readings.	
		Increase in oil pump internal clearances or sheared drive	Replace pump or send power and accessories gearbox to an overhaul facility. (Refer to applicable part of Gearbox Disassembly and Assembly, para 2., 72-60-00.)
		Wear of filter housing due to vibration of filter inlet and filter bypass tubes.	Replace packings on the inlet and bypass tubes and/or replace the filter housing (as required).
		Oil filter inlet tube assembly too short	Dimensionally inspect tube length per para 4.G., 72-60-00.)
20	High oil pressure	Oil pressure gage and transmitter records inaccurately	Check gage and transmitter.
		CAUTION EXCEPT FOR INITIAL ADJUSTMENT ON NEWLY INSTALLED ENGINES, DO NOT ADJUST THE PRESSURE REGULATING VALVE TO CORRECT FOR HIGH OIL PRESSURE. DO NOT MAKE A PRESSURE REGULATING VALVE ADJUSTMENT TO CORRECT FOR A SUDDEN INCREASE OR RAPID CHANGE IN OIL PRESSURE. THESE CONDITIONS ARE CAUSE TO SUSPECT OTHER OIL SYSTEM PROBLEMS HAVE DEVELOPED.	
21	Oil consumption exceeds 0.05 gal (0.19 liter) per hour (1 quart (0.9 liter) per 5 hours)	Pressure regulating valve improperly adjusted	Readjust oil pressure regulating valve. (Refer Pressure Regulating Valve, para 3.A., 72-60-00.)
		Loose fittings, connections, or softlines	Check all fittings, connections, and softlines for sealant and proper torque. Wash entire engine and coat with whitener in suspected area. Operate engine to locate source of leakage. (Refer to Gearbox Cover-to-Housing Assembly, para 2., 72-60-00 for assembly technique to prevent gearbox split-line leakage.)
		Oil leakage from power turbine carbon face seal	Replace seal. (Refer to Oil Bellows Seal, para 6., 72-60-00.)



Table 25-1. Maximum Allowable Leakage for In-service Components

COMPONENT	FUNCTION	TYPE	LEAKAGE RATE
Servo Actuators (Flight Controls)	Rod Seal	D	1 drop/20 full cycles
	Rod Seal	S-D	1 drop/15 minutes
	End Cap	S	2 drops/day
	Valve Input	D	1 drop/5 cycles
	Valve Input	S-D	1 drop/5 minutes
Pump	Output Shaft	D	1 drop/minute
	Output Shaft	S-D	1 drop/minute
	Housing (Mating Surfaces)	S	2 drops/day
Fittings	Flared or Flareless Fittings	S	None
	Compression Seals	S	1 drop/30 minutes
Type Symbols: D - Dynamic S - Static S-D - Static leakage through dynamic seal			

25-4. HYDRAULIC SYSTEM — FLUSHING

WARNING

DRY-CLEANING SOLVENT (C-304) IS FLAMMABLE AND FUMES ARE TOXIC. PROVIDE ADEQUATE VENTILATION. DO NOT USE NEAR A FLAME.

CAUTION

USE OF ISOPROPYL ALCOHOL (C-385) IS PROHIBITED ON EITHER INTERNAL OR EXTERNAL SURFACES OF HYDRAULIC COMPONENTS.

NOTE

Cap or plug all openings upon completion of cleaning operation.

1. Remove and clean in drycleaning solvent (C-304) the following components of the hydraulic system:

- a. Hydraulic pump and reservoir (6, Figure 25-1). Refer to paragraph 25-1.

- b. Pressure hose (4) and return hose (5).

- c. Filter bowl (7, Figure 25-1) and filter element (8). Reinstall bowl (paragraph 25-15 and paragraph 25-11).

2. Connect ground hydraulic test stand pressure line to pressure quick-disconnect socket (2) (paragraph 25-5).

3. Connect overboard drain hose to the return quick-disconnect socket (3), or sufficient length to reach a container for contaminated fluid.

4. Start test stand and adjust pressure to 600 PSI (4137 kPa).

5. Cycle collective full up to full down until fluid from overboard drain hose to container is clear.

6. Place collective in full down position and accomplish the following steps:
 - a. Move cyclic from left aft corner to right forward corner until fluid from overboard drain hose is clear.

25-00-00

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TAIL ROTOR DRIVE SYSTEM

65-1. TAIL ROTOR DRIVE SYSTEM.

The tail rotor drive system provides a means of transmitting power from the transmission to the tail rotor. The tail rotor drive system includes the following components: tail rotor driveshaft, oil cooler blower, and tail rotor gearbox.

65-2. ALLOWABLE LEAKAGE RATES FOR COMPONENTS.

Table 65-1 presents a measurement of allowable leakage rates which may be used in conjunction with tail rotor drive system troubleshooting.

Table 65-1. Maximum allowable leakage for tail rotor drive system components

COMPONENT	TYPE	LEAKAGE RATE
Tail Rotor Gearbox	Static	Input quill leakage shall not exceed 2 drops per minute. Total leakage at all sources must not exceed 6 drops per minute.
	Dynamic	50 percent of normal sight gage oil level indication per 3 hours of operating time.

65-3. TROUBLESHOOTING.

Figures 65-1 and 65-2 provide troubleshooting procedures for the tail rotor drive system. Included are indication of troubles, probable causes, and corrective actions to be taken. The troubleshooting tables should be used along with the general information and other sources of information such as: Transmission oil system schematic, electrical wiring diagrams, operational checks, serviceability checks, and other detailed procedures in this and other chapters of the manual.

an indication that the component is no longer serviceable (figure 65-3). The quantity, source, form, type of material found, and service history of component must be taken into consideration. The service time accumulated since new or since overhaul, previous failures, and type of operation are important factors in determining further serviceability of component. The parts may be steel, silver, aluminum, magnesium, bronze, or phenolic. Procedure for identification of foreign material is described in the steps following.

WARNING

WHEN FOREIGN PARTICLES ARE LARGE ENOUGH TO BE IDENTIFIED AS PART OF A COMPONENT OF THE TAIL ROTOR GEARBOX, REPLACE THE GEARBOX.

WHEN SMALL AMOUNTS OF METAL PARTICLES ARE FOUND IN TAIL ROTOR GEARBOX COMPONENTS, OR THERE IS SOME DOUBT ABOUT THE SUITABILITY OF THE COMPONENT FOR CONTINUED SERVICE, PERFORM A SERVICEABILITY CHECK (PARAGRAPH 65-8). SERVICEABILITY CHECKS ARE A SPECIFIC REQUIREMENT WHEN DIRECTED IN THE TROUBLESHOOTING PROCEDURES.

65-4. TAIL ROTOR DRIVESHAFT.

Refer to figure 65-1 for troubleshooting the tail rotor driveshaft and oil cooler blower.

65-5. TAIL ROTOR GEARBOX.

Refer to figure 65-2 for troubleshooting tail rotor gearbox. For corrective action to be taken for oil contamination, metal particles, and serviceability checks refer to paragraphs 65-6 and 65-8.

NOTE

Gearbox normal operating temperature may be as high as 170 to 180°F (77 to 82°C). Maximum allowable operating temperature is 212°F (100°C).

65-6. OIL CONTAMINATION.

Particles of foreign material found in tail rotor gearbox electric chip detectors or in oil drained from system may indicate that parts have failed. They are not necessarily

1. Identify foreign particles found in tail rotor gearbox oil by inspecting particles visually (figure 65-3). If particles cannot be recognized by certain characteristics, such as color, hardness, etc., perform tests outlined in steps 2 through 6.

ENGINE SECTION						
ENGINE SECTION	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP OAR	GROUND RUN UP	FCF	FCF PROFILE
COMPLETE ENGINE	(R&R/FOM) 71-10-01		X	X	X	1-6,9,13,18,28-29
COMPRESSOR ASSY	(R&R/FOM) 72-10-06		X	X	X	1-6,9,13,16, 20,22,28-29
TURBINE ASSY	(R&R/FOM) 72-10-01		X	X	X	1-6,9,13,15, 20,22,28-29
ASSY GEARBOX	(R&R/FOM) 72-10-03		X	X	X	1-6,9,13,16, 20,22,28-29
GEARBOX OIL PRESSURE REGULATOR	(R&R) N/R		X	X		
COMBUSTION SECTION	(R&R/FOM) N/R		X	X		
AIR TRANSFER TUBE	(R&R/FOM) N/R		X	X	X	1-6,9,13,15, 20,22,28-29
AIRFRAME FUEL FILTER ELEMENT	(R&R) N/R		X	X	X	1-6,9,13,16, 20,22,28-29
BLEED VALVE	(R&R/FOM) 75-10-01		X	X	X	1-6,9,18,20,28-29
FUELED VALVE NOZZLE	(R&R) N/R			X	X	1-4,9,18,20,28-29
FUEL NOZZLE	(R&R/FOM) N/R			X		
GOVERNOR (FOM) (RIGGING)	(R&R) 76-10-06		X	X	X	1-6,9,13,18,28-29
FUEL CONTROL	(R&R/FOM) 78-10-03/FOM		X	X	X	1-6,9,13,18,22,28-29
ENGINE PNEUMATIC LINE INSTALLATION	N/R		X	X		WITNESS TORQUE 10 GALLON TURN
FUEL BOOST PUMP	(R&R/FOM) N/R		X	X	X	
ENGINE DRIVEN FUEL PUMP	(R&R) 73-10-04		X	X		
FUEL RECEIVER	(R&R/FOM) N/R		X	X	X	
THROTTLE RIGGING ADJUSTMENT	(R&R/FOM) 76-10-01 or 76-10-02		X	X		
LINEAR ACTUATOR (RIGGING)	(R&R/FOM) 76-10-07		X	X		
LINEAR ACTUATOR SPREAD ADJUSTMENT	N/R		X	X		
DROGGOOP COMP CONTROL (RIGGING)	(R&R) 76-10-05		X	X	X	1-6,13,28-29
ENGINE OIL COOLER	(R&R) N/R			X		
ENGINE WASH	N/R			X		

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AIRFRAME & ROTOR SECTION						
AIRFRAME & ROTOR SECTION	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP OAR	GROUND RUN UP	FCF	FCF PROFILE
TAIL ROTOR HUB ASSY	(R&R) 64-10-01	X	X	X	X	1-5,14,19,28-29
TAIL ROTOR HUB ASSY	(FOM) 64-10-00		X	X	X	1-5,14,19,28-29
TAIL ROTOR BLADES	(R&R/FOM) 64-10-02	X	X	X	X	1-6,14,19,28-29
TAIL ROTOR PCL	(R&R/FOM) N/R		X			
TAIL ROTOR RUBBER BUMPER	(R&R/FOM) N/R		X			
TAIL ROTOR KNURL NUT/LINER	(R&R/FOM) N/R		X			
TAIL ROTOR CTRL LONG TUBE	(R&R/FOM) N/R		X			
MAST	(R&R/FOM) 63-10-05/06		X	X	X	1-6,9,14,15,22,28-29
MAIN ROTOR HUB ASSY	(R&R) 82-10-01	X	X	X	X	1-6,9,14,18,22,28-29
MAIN ROTOR HUB ASSY	(FOM) 82-10-00		X	X	X	1-6,9,14,18,22,28-29
MAIN ROTOR BLADE	(R&R/FOM) 82-10-02	X	X	X	X	1-6,9,14,18,22,28-29
MAIN MAST NUT RETORQUE	N/R		X			
MAIN ROTOR PCL	(FOM) N/R		X	X		
MAIN ROTOR PCL	(R&R) N/R	X	X	X	X	1-6,10,22,28-29
MAIN ROTOR PCL TRUNNION BEARING	(R&R) N/R		X	X		
MAIN ROTOR PCL ADJUSTMENT FOR AUTO'S	(R&R) N/R		X	X	X	1-6,18,22,28-29
MAIN ROTOR FLAP RESTRAINT ASSY	(R&R) N/R		X			
FREE WHEELING UNIT	(R&R/FOM) 63-10-01		X	X	X	1-6,9,18,28-29
FREE WHEELING UNIT AFT CAP	(R&R/FOM) N/R		X	X	X	
KAFLEX DRIVE SHAFT	(R&R) 63-10-07		X	X	X	1-6,19,28-29
KAFLEX DRIVE SHAFT	(FOM) 63-10-07		X	X		
ROTOR BRAKE DISK	(R&R/FOM) 63-10-07		X	X	X	

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AIRFRAME & ROTOR SECTION (CONTINUED)

AIRFRAME & ROTOR SECTION (CONTINUED)	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP QAR	GROUND RUN UP	FCF	FCF PROFILE
T/R DRIVE SHAFT (R&R)	65-10-03/04		X	X	X	1-6,19,28-29
T/R DRIVE SHAFT (FOM)	N/R		X	X		
T/R PEDAL SWITCH/ADJ. THRU BOLT (R&R/FOM)	N/R		X			
T/R DRIVE THOMAS COUPLING (R&R)	N/R		X	X	X	1-6,19,28-29
OIL COOLER FAN SHAFT (R&R)	65-10-01		X	X		
OIL COOLER FAN SHAFT (FOM)	65-10-01		X	X		1-6,8,9,18,28-29
MAIN TRANSMISSION (R&R)	53-10-08		X	X	X	1-6,8,9,18,28-29
MAIN TRANSMISSION (FOM)	53-10-03		X	X	X	1-6,8,9,18,28-29
DRAG LINK (R&R/FOM)	N/R		X			
PYLON SUPPORT LINKS (R&R/FOM)	N/R		X			
ISOLATION MOUNT (R&R)	63-10-04		X	X	X	1-6,8,28-29
ISOLATION MOUNT (FOM)	63-10-04		X	X		
TAIL ROTOR GEARBOX (R&R/FOM)	63-10-02		X	X	X	1-6,19,28-29
T/R PITCH CHANGE MECH (R&R/FOM)	N/R		X	X	X	1-6,19,28-29
CONTROL STICK (R&R/FOM)	N/R		X			
RUDDER PEDALS (R&R/FOM)	67-10-02		X			
SERVO ACTUATOR SUPPORT (R&R/FOM)	N/R		X	X	X	1-7,16,28-29
HYDRAULIC SERVO (R&R/FOM)	67-10-04		X	X	X	1-7,10,28-29
DYNAMIC FLIGHT CTRL (RIGGING/ADJUST)	67-10-01/03B/C		X	X	X	1-7,9,18,22,28-29
CYCLIC SUPPORT (R&R)	N/R		X	X	X	1-7,19,28-29
MINI-STAB ACTUATORS (R&R/FOM)	67-10-03A		X	NRS	X	1-7,9,11,15,17-19,26-29
YAW ACTUATOR (R&R/FOM)	22-00-00		X	NRS	X	1-6,12,17,28-29

10/10/04 10:01 AM

AIRFRAME & ROTOR SECTION (CONTINUED)

AIRFRAME & ROTOR SECTION (CONTINUED)	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP QAR	GROUND RUN UP	FCF	FCF PROFILE
MAG BRAKE/TEU (R&R/FOM)	N/R		X			
SWASHPLATE (R&R/FOM)	62-10-03F/OM		X	X	X	1-6,9,14,18,19,22,28-29
SWASHPLATE FRICTION ADJUSTMENT (R&R/FOM)	62-10-04		X	X	X	1-7,19,28-29
SWASHPLATE FRICTION - 10-25 HOUR CHECK (R&R)	N/R		X	X		
SWASPLATE BOOT (R&R)	62-10-00		X	X	X	1-6,9,14,18,28-29
DRIVE ASSY/H LINK (R&R)	N/R		X	X	X	1-6,19,28-29
DRIVE ASSY/H LINK (FOM)	N/R		X	X		
DUPLEX BEARING (R&R/FOM)	62-10-00/-03FOM		X	X	X	1-7,9,14,18,28-29
UNIBALL RACES (R&R/FOM)	62-10-00/-03FOM		X	X	X	1-7,9,14,18,22,28-29
BELL CRANKS & FLI CONT TUBES (R&R/FOM)	N/R		X	X		
FLIGHT CONTROL BEARINGS (R&R)	N/R		X	X		
HYDRAULIC PUMP & RESERVOIR (R&R/FOM)	29-00-00		X	X		
MAIN GENERATOR (R&R/FOM)	N/R		X	X		
STANDBY GENERATOR (R&R/FOM)	N/R		X	X		
VOLTAGE REGULATOR (MAINT/STANDBY) (R&R)	N/R		X	X		
PILOT AND CO-PILOT ATTITUDE INDICATORS (TH-57C ONLY) (R&R)	N/R		X	X	X	1-6,19,28-29
THERMOCOUPLE HARNESS (R&R)	N/R		X			
HORIZONTAL STABILIZER (R&R/FOM)	53-10-01		X	X	X	1-6,22,28-29
VERTICAL FIN (R&R/FOM)	53-10-02		X	X	X	1-6,22,28-29
TAILBOOM (R&R/FOM)	53-10-03		X	X	X	1-6,22,28-29
AIR CONDITIONER BELT (R&R)	N/R		X	X		
A/C COMPRESSOR R&R/SERVICING	N/R		X	X		

GENERAL						
GENERAL	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP QAR	GROUND RUN UP	FCF	FCF PROFILE
ACCEPTANCE/TRANSFER INSPECTION	05-30-07/08		X	X	X	1-29, except 20, 23 A/R
PRE-DLM AIRCRAFT INSPECTION	05-30-09		X			
POST DLM AIRCRAFT INSPECTION	05-30-10		X	X	X	1-29, except 20, 23 A/R
PHASE TH-57B INSPECTION	A/R		X	X	X	1-10, 13, 14, 16, 18, 19, 21, 22, 26, 28, 29 A/R
PHASE TH-57C INSPECTION	A/R		X	X	X	1-29, except 20, 23 A/R
PRESERVATION	05-10-03 Series		X			
INTERMEDIATE PRESERVATION	05-10-05 Series		X			
DEPRESERVATION	05-10-04 Series		X			
ANYTIME AN AIRCRAFT HAS NOT BEEN FLOWN FOR 30 DAYS	N/R		X	X	X	1-29, except 20, 23 A/R
BINDINGS/STUCK/JAMMED ENGINE OR FLIGHT CONTROLS	N/R		CONTACT QA Prior to Maint. X	X	X	1-29, except 20, 23 A/R
ENGINE POWER FAILURE/STOPPAGE	N/R		CONTACT QA Prior to Maint. X	X	X	1-6, 9, 13, 14, 18, 20, 28-29
HOT START INSPECTION	72-00-00		X	X	X	1-6, 9, 13, 18, 20, 28-29
OVER TORQUE (110-130) OVER TORQUE (GREATER THAN 130)	05-37-01		X	X	X	1-6, 9, 14, 18, 22, 28, 29
24 MONTH FLIGHT CONTROL BOLT INSP	A/R	X	X	X	X	1-6, 8, 9, 14, 18, 19, 22, 28, 29
MAJOR ALTERATIONS/REPAIRS WHICH CAN AFFECT FLIGHT CHARACTERISTICS	N/R		X	X		

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GENERAL (CONTINUED)						
GENERAL (CONTINUED)	WORK INSTRUCTION	VIBRATION ANALYSIS	FINAL INSP QAR	GROUND RUN UP	FCF	FCF PROFILE
ABNORMAL VIBRATION AND/OR ANY MAINTENANCE PERFORMED THAT MAY AFFECT BLADE TRACK	N/R	X	X	X	X	1-29, except 20, 23 A/R
CONDITIONS OR DISCREPANCIES IN WHICH A GROUND OPERATIONAL CHECK WILL NOT FULLY DETERMINE THE CAUSE AND AIRWORTHINESS OF A REPAIR	N/R		A/R	A/R	A/R	A/R
FAA AIRWORTHINESS DIRECTIVES AND/OR MANUFACTURER'S SERVICE INSTRUCTIONS, CONDITIONAL INSPECTIONS/GOVT TECHNICAL DIRECTIVES AFFECTING SAFETY OF FLIGHT	N/R		X	X	X	1-29, except 20, 23 A/R

NOTE: Final QA accomplished at end of Maintenance Flight.

LEGEND:

(R&R) - Remove and Replace

(FOM) - Remove to Facilitate Other Maintenance/Inspection

N/R - Not Required

A/R - As Required

NRS - No. Recommended per SFENA

WEIGHT AND BALANCE

TH-57C's

A/C	Basic	Moment	A/C	Basic	Moment
Side #	Weight	Arm	Side #	Weight	Arm
050	2040.0	2415.0	104	2085.0	2420.6
051	2083.1	2423.7	106	2103.1	2442.2
054	2093.1	2431.7	107	2125.1	2479.3
055	2088.1	2425.9	108	2085.0	2420.6
056	2079.1	2414.0	109	2117.0	2458.3
057	2089.0	2425.3	110	2089.0	2425.3
058	2089.1	2429.5	111	2041.9	2372.5
060	2101.1	2441.1	112	2089.0	2425.3
061	2079.1	2423.9	113	2103.1	2452.2
062	2087.1	2426.4	114	2121.1	2462.1
063	2101.1	2441.1	115	2081.0	2420.9
065	2105.0	2484.1	116	2115.1	2456.3
066	2091.0	2436.4	117	2079.0	2414.8
067	2085.0	2430.6	118	2081.0	2418.4
069	2099.1	2442.5	119	2107.1	2449.4
070	2083.1	2433.6	120	2093.0	2430.0
071	2091.1	2428.1	121	2085.0	2420.6
072	2083.0	2419.5	122	2093.0	2430.0
074	2077.1	2422.8	125	2089.0	2425.3
075	2121.1	2477.1	126	2073.0	2409.0
076	2117.1	2467.4	127	2089.0	2425.3
077	2109.1	2455.5	128	2105.1	2448.3
078	2089.1	2427.0	129	2075.0	2412.6
079	2105.1	2475.7	130	2103.1	2441.3
080	2101.1	2446.1	131	2097.0	2447.2
082	2075.0	2410.1	132	2097.0	2437.2
083	2117.1	2469.9	134	2079.1	2414.0
084	2087.0	2426.7	135	2089.0	2425.3
085	2107.1	2456.9	136	2102.1	2444.8
086	2109.1	2458.0	137	2097.0	2437.2
087	2107.1	2446.9	171	171	171
088	2087.1	2423.4	173	173	173
089	2093.0	2430.0	174	174	174
090	2087.1	2428.4	176	176	176
092	2125.1	2484.2	177	177	177
093	2103.0	2455.5	181	181	181
094	2095.0	2433.6	182	182	182
095	2080.0	2415.7	183	183	183
096	2099.1	2440.0	184	184	184
097	2093.1	2441.6	185	185	185
098	2101.1	2441.1	186	186	186
099	2097.1	2438.9	187	187	187
100	2103.1	2442.2	188	188	188
101	2107.1	2451.9	189	189	189
102	2111.1	2456.6	190	190	190
103	2101.1	2443.6			

NOTE: Cargo hooks are installed on A/C 150 through 169. Figures listed here reflect hook installed.
 * Indicates heaviest of type aircraft.
 ** Indicates most FWD C/G of type.
 *** Indicates most AFT C/G of type.

Note: A/C 081, 105, 123, 124, & 132 have been added to the inventory on page 22. W&B info for these aircraft is not available at this time. The aircraft are in rework. (NOTE: AIRCRAFT IN BOLD PRINT INDICATES CHANGES FROM PREVIOUS MMP.)

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TH-57B's

A/C	Basic	Moment	A/C	Basic	Moment
Side #	Weight	Arm	Side #	Weight	Arm
140	1947.1	2283.8	140	1947.1	2283.8
141	1931.1	2279.9	141	1931.1	2279.9
142	1925.1	2274.1	142	1925.1	2274.1
143	1925.0	2265.0	143	1925.0	2265.0
144	1933.1	2293.5	144	1933.1	2293.5
145	1951.1	2283.5	145	1951.1	2283.5
146	1939.1	2271.9	146	1939.1	2271.9
147	1929.1	2271.3	147	1929.1	2271.3
148	1923.1	2285.5	148	1923.1	2285.5
149	1911.0	2261.5	149	1911.0	2261.5
150	1933.1	2288.5	150	1933.1	2288.5
153	1941.1	2292.9	153	1941.1	2292.9
154	1951.1	2298.4	154	1951.1	2298.4
155	1945.1	2297.6	155	1945.1	2297.6
156	1905.0	2259.0	156	1905.0	2259.0
157	1929.1	2271.3	157	1929.1	2271.3
158	1945.1	2300.1	158	1945.1	2300.1
159	1965.1	2326.1	159	1965.1	2326.1
160	1931.1	2287.4	160	1931.1	2287.4
161	1935.1	2302.1	161	1935.1	2302.1
162	1947.1	2308.7	162	1947.1	2308.7
163	1979.1	2321.4	163	1979.1	2321.4
164	1949.0	2298.2	164	1949.0	2298.2
165	1961.1	2331.4	165	1961.1	2331.4
166	1943.1	2284.0	166	1943.1	2284.0
167	1937.0	2284.1	167	1937.0	2284.1
168	1961.0	2309.8	168	1961.0	2309.8
169	1934.0	2280.3	169	1934.0	2280.3
170	1925.1	2281.6	170	1925.1	2281.6
171	1925.0	2270.0	171	1925.0	2270.0
173	1926.5	2265.7	173	1926.5	2265.7
174	1911.0	2257.3	174	1911.0	2257.3
176	1920.0	2285.8	176	1920.0	2285.8
177	1925.1	2279.1	177	1925.1	2279.1
181	1923.0	2276.4	181	1923.0	2276.4
182	1973.0	2338.9	182	1973.0	2338.9
183	1923.0	2283.9	183	1923.0	2283.9
184	1929.1	2293.8	184	1929.1	2293.8
185	1919.1	2273.3	185	1919.1	2273.3
186	1931.0	2272.6	186	1931.0	2272.6
187	1919.0	2269.2	187	1919.0	2269.2
188	1921.0	2267.8	188	1921.0	2267.8
189	1943.1	2309.0	189	1943.1	2309.0
190	1909.1	2260.3	190	1909.1	2260.3

TH-57 WEIGHT & BALANCE

EVENT _____ DATE _____
 INSTRUCTOR _____ STUDENT _____
 ACFT _____ SPOT _____ MAX TEMP _____
 CURRENT WX _____ MAX PA _____
 FORECAST WX _____ MAX DA _____

	HEAVIEST A/C	FWD CG / ACTUAL A/C	MOMENT
Basic Weight:			
Crew Forward:			
Oil: +	12	+ 12	+ 22
Operating Wt:			

TAKEOFF

Operating Wt:			
Fuel (JP-8) 91g:	609.7	609.7	719.45
80g:	536.0	536	628.19
75g:	502.5	502.5	587.42
65g:	435.5	435.5	504.74
Crew/Pax Aft:			
Baggage: +		+ 150	+ 160.65
Gross Wt (1):			

EXTERNAL OPS

Operating Wt:			
Fuel:			
Crew Aft:			
External Load:		+ 150	+ 160.65
Gross Wt (2):			

LANDING

Operating Wt:			
Fuel (10g):		67	74.17
Crew/Pax Aft:			
Baggage: +		+ 150	+ 160.65
Gross Wt (3):			

Highest Gross Weight (1) or (2): _____
 Highest Gross Weight CG Range 106.0 (B) 106.75 (C) to: _____
 Highest Gross Weight CG: _____
 Landing Gross Weight (3): _____
 Landing Gross Weight CG Range 106.0 (B) 106.75 (C) to: _____
 Landing Gross Weight CG: _____

Highest Gross Weight (1) or (2) HIGE / HOGE: _____
 Fuel State @ 2900 lbs Gross Weight: _____

