

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 11-2TG-7  
VOLUME 3**

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***Flying Operations***

**TG-7 OPERATIONS PROCEDURES**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFD 11-2, *Aircraft Rules and Procedures*, and references AFI 11-202, Volume 3, *General Flight Rules*. Along with its complementary **Chapter 5** (Local Operating Procedures), this instruction prescribes standard operational procedures to be used by all pilots operating Air Force TG-7 aircraft. This instruction is not applicable to the Air National Guard or the Air Force Reserve Command. File a copy of all approved waivers with this instruction. **Attachment 1** contains a glossary of references, abbreviations and acronyms. See **paragraph 1.8.** of this volume for guidance on submitting comments and suggesting improvements to this publication.

The Paperwork Reduction Act of 1974 as amended in 1996 and AFI 33-360, Volume 2, *Forms Management Program*, affect this publication. Maintain and dispose of records created as a result of processes prescribed in this instruction in accordance with AFMAN 37-139, *Records Disposition Schedule* (will convert to AFMAN 33-322, V4).

**SUMMARY OF REVISIONS**

This change incorporates changes to paragraph **1.5.**, clothing requirements, paragraph **3.3.3.2.**, Ground and Taxi Operations and paragraph **3.7.4.**, Weather Minimums. A bar “|” indicates revisions from the previous edition.

## Chapter 1

### GENERAL INFORMATION AND REQUIREMENTS

**1.1. Scope.** This instruction outlines the procedures applicable to the safe operation of the TG-7. With the complementary references cited, this instruction prescribes standard operational procedures to be used by all pilots operating TG-7 aircraft. Aircraft Commanders will ensure all occupants of the aircraft comply with this directive.

**1.2. Pilot's Responsibility .** This instruction, in conjunction with other governing directives, prescribes TG-7 procedures under most circumstances, but is not to be used as a substitute for sound judgment or common sense. The pilot in command (PIC) is ultimately responsible for the safe and effective operation of the aircraft.

**1.3. Crew Requirements .** The normal crew for the aircraft is an Instructor Pilot (IP) in the right seat and a student pilot (SP) in the left seat; however, the PIC may fly from either seat.

#### **1.4. Flight Time, Flight Duty Period and Medical Restrictions:**

1.4.1. Flight duty period will not exceed 12 hours regardless of aircrew composition.

1.4.2. Aircrew members will not be scheduled to fly or perform aircrew duties when taking oral or injected medication, unless an individual medical waiver has been granted by the Command Surgeon. Aircrew members may not self-medicate except according to AFI 48-123, *Medical Examinations and Standards*. The following is a partial list of medications permitted without medical consultation:

1.4.2.1. Skin antiseptics, topical antifungals, 1 percent hydrocortisone cream, or benzoyl peroxide for minor wounds and skin diseases that do not interfere with the performance of flying duties or wear of personal equipment.

1.4.2.2. Single doses of over-the-counter aspirin, acetaminophen or ibuprofen to provide pain relief for minor self-limiting conditions.

1.4.2.3. Antacids for mild, isolated episodes of indigestion.

1.4.2.4. Hemorrhoidal suppositories.

1.4.2.5. Bismuth subsalicylate for mild cases of diarrhea.

1.4.2.6. Oxymetazoline or phenylephrine nasal sprays when used by aircrew members as "get me downs" in the event of unexpected ear or sinus block during flight. They shall not be used to treat symptoms of head congestion existing prior to flight. (Use renders aircrew members DNIF until cleared for further flight by a flight surgeon.)

**1.5. Clothing Requirements .** All aircrew members will wear flight suits and boots or locally approved flight uniforms. Aircrew members will remove rings and scarves before performing aircrew duties. Flight gloves will be worn during ground operations, takeoffs, landings, touch and goes or Simulated Forced Landings (SFLs.)

**1.6. Deviations .** Do not deviate from the procedures and guidance in this publication except when necessary to preserve safety or protect lives.

1.6.1. The PIC has ultimate authority and responsibility for the course of action to be taken.

1.6.2. Report all deviations or exceptions without waiver through channels to the major command (MAJCOM) office of primary responsibility (OPR).

**1.7. References** . The primary references for TG-7 operations are the *TG-7A Flight Manual* (Technical Order (T.O.) 1G-7(T)A-1) and this instruction. Training units may develop maneuver manuals and instructional technique guides from the procedures contained in these documents. Maneuver manuals and instructional technique guides may be used to augment initial qualification training and may expand these basic procedures, but in no case will they be less restrictive.

**1.8. Recommended Changes and Waivers.**

1.8.1. Submit suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through standardization/evaluation (stan/eval) channels. Squadron Stan/Eval will forward approved recommendations to 34 OG/OGV in accordance with AFPD 11-2, *Aircraft Rules and Procedures*, paragraph 2.4.1. AF/XO is approval authority for changes/revisions to this instruction.

1.8.2. Unless otherwise directed, MAJCOM/DRU DOs have waiver authority for this publication according to AFPD 11-2. Submit waiver requests in message or memorandum format through Stan/Eval channels. Waiver authority for flights with inoperative equipment is delegated to unit DOs.

## Chapter 2

### MISSION PLANNING

**2.1. Maps and Charts** . Local Sectional and Visual Flight Rules (VFR) Terminal Area Charts (for Class B Airspace) must be on board the aircraft. When flying outside the local area, charts covering the route of flight must be on board the aircraft. These charts must be appropriate for the type of mission flown. Low-level charts and route books used during flight will be annotated with location and dimensions of class A/B/C/D airspace, civil/military airfields and other potential high-density traffic areas (e.g., parachute activity areas and ultra light/hang glider/gliders sites, etc.) within 5 nm of any planned VFR route or MTR lateral boundary. Applicable airfield approach control frequencies in the vicinity of class A/B/C/D airspace will be annotated and briefed on all such flights. In addition, annotate and brief the intersection of other VR/IR routes (if applicable) and any other possible areas of conflict.

**2.2. Required Documents** . The following documents must be on board for flight:

- 2.2.1. Aircraft weight and balance.
- 2.2.2. Airworthiness certificate.
- 2.2.3. Aircraft registration.
- 2.2.4. AFTO Form 781F, **Aerospace Vehicle Flight Report and Maintenance Document**.

**2.3. Briefing and Debriefing** . The pilot-in-command (PIC) is responsible for presenting a logical briefing that will promote safe, effective mission accomplishment. In addition, the following guidance applies:

- 2.3.1. MAJCOMS will provide briefing guides for use by the PIC. Guides will contain a reference list of items that may apply to particular missions. Items listed may be briefed in any sequence. PICs need only to brief items pertinent to the mission.
- 2.3.2. All missions will be debriefed.
- 2.3.3. On subsequent flights, the PIC may brief only those items that have changed from the previous flights.
- 2.3.4. Required topics for flight briefings are contained in local [Chapter 5](#).

**2.4. Checklists and Pilot Aids** . Unit-developed or personally produced checklists may be used provided they contain, as a minimum, all items (verbatim and in order) listed in the applicable flight manual checklists. Crewmembers will still carry a current flight manual checklist and have it available, if needed, on all flights.

**2.5. Flight Crew Information File (FCIF)**. The FCIF is used to ensure that aircrews receive time-critical information prior to signing out aircraft. Aircrews will ensure they have read the latest FCIF and signed it off prior to signing out aircraft.

## Chapter 3

### NORMAL OPERATING PROCEDURES

#### 3.1. Preflight:

- 3.1.1. All TG-7 ground handling must be supervised by a qualified pilot or maintenance personnel. Use extreme caution when ground handling aircraft. Improper procedures may result in structural damage.
- 3.1.2. Check fuel samples for impurities and proper type after every refueling and before the first flight of the day. Fuel should be allowed to settle for 30 minutes to an hour to obtain the most valid sampling. If the sample is good, pour back into tank or follow local procedures for sump fuel. If the sample is bad, immediately contact local refueling/maintenance personnel.
- 3.1.3. Do not walk through the arc of the propeller.
- 3.1.4. Do not hand prop the aircraft.
- 3.1.5. Only maintenance personnel may perform jump starts. If the aircraft requires a jump-start for the first sortie of the day, record it in the AFTO Form 781A, **Maintenance Discrepancy and Work Document**. If the aircraft will not start without a jump-start on any subsequent flight, abort the aircraft and enter this in the AFTO Form 781A.
- 3.1.6. Ensure a fire bottle is in the vicinity prior to engine start.
- 3.1.7. Ensure all aircraft surfaces are clear of frost, ice, and snow prior to flight.
- 3.1.8. If winds exceed 10 kts, aircraft should be turned into the wind for engine start if practical.
- 3.1.9. When starting behind another aircraft, ensure a minimum 10 ft nose-to-tail separation.
- 3.1.10. If the engine has been shut down for a quick turn, perform aircraft thru-flight inspection items prior to start, as a minimum.

#### 3.2. After Engine Start:

- 3.2.1. If the engine fails after warm-up for no apparent reason, abort the aircraft. Enter all engine failures on the AFTO Form 781A, to include the total time the engine ran. Debrief the failure to the Flying Safety Officer, maintenance, and Quality Assurance Evaluator (QAE).
- 3.2.2. Do not on-load or off-load personnel or equipment while the engine is running.

#### 3.3. Ground and Taxi Operations:

- 3.3.1. Students not upgrading in the TG-7 and individuals receiving orientation rides will not start the engine or taxi the aircraft.
- 3.3.2. Personnel not actively involved in refueling will remain at least 50 ft away from an aircraft refueling operation. In addition, do not operate the engine, taxi, or radiate electromagnetic energy (radio or transponder operation) within the 50 ft safety zone.
- 3.3.3. Pilots will ground handle the TG-7 whenever minimum wingtip clearances will be compromised during taxi. 25 ft is the minimum wingtip clearance. Exceptions. A 10 ft minimum applies if:

3.3.3.1. A wingwalker monitors taxi clearance, or

3.3.3.2. A locally based aircraft uses a taxi line to avoid either permanent structures, other locally based aircraft in designated parking spots or support equipment in designated areas.

3.3.4. Do not attempt to taxi over significant accumulations of ice or snow. Use caution for proper wingtip clearance after snow removal.

3.3.5. Maintain at least two ship-lengths behind motorgliders and single-engine light aircraft. Maintain at least five aircraft lengths (of the preceding aircraft) behind multi-engine aircraft, jet aircraft, or taxiing helicopters (500 ft minimum).

3.3.6. Use proper tailwind/headwind/crosswind control inputs while taxiing.

3.3.7. Wing Walking Procedures: Cease all taxi operations when the wind exceeds 35 knots. If the wind exceeds flight manual limits (25 knots) for unassisted taxi, stop and turn the aircraft into the wind. Resume taxiing when the wind subsides or when wing walkers are in place. Ensure wing walkers are properly briefed on wing walking procedures. Taxi directly into the wind if practical. One wing walker is required for power on taxi. The first available person holds downward pressure on the upwind wing. If a second person is available, they hold downward pressure on the downwind wing. Taxi at a slow walk and use proper flight control inputs for the wind direction. If the aircraft becomes uncontrollable during taxi, shut down the engine immediately.

**3.4. Engine Run-Up** . Accomplish engine run-ups before every flight. Do not perform an engine run-up while an aircraft is stopped or taxiing in front of your aircraft. Do not taxi in front of another aircraft performing an engine run-up.

### **3.5. Takeoff:**

3.5.1. Except in an emergency, TG-7s will operate only on prepared surface runways long enough to permit acceleration to takeoff speed followed by deceleration to a stop, or 2000 ft, whichever is greater. Since no TG-7 abort performance data currently exists, the information for complying with this restriction will be drawn from the flight manual tables showing takeoff and landing performance. Therefore, when the combined takeoff and landing distance computed for a given set of conditions exceeds the available runway length, either a longer runway will be used or takeoffs will not be attempted.

3.5.2. Minimum runway condition reading (RCR) for takeoff is 12.

3.5.3. Intersection takeoffs are approved provided sufficient runway length is available to permit acceleration to takeoff speed followed by deceleration to stop, or 2000 ft, whichever is greater.

3.5.4. The maximum density altitude for takeoffs is 10,000 ft.

**3.6. Minimum Altitudes** . Minimum en route altitude is 1000 ft AGL (1500 ft AGL in mountainous terrain). Simulated Forced Landing (SFL) and 270° cross-country patterns may be flown to 200 ft AGL except to prepared surface runways.

**3.7. Weather Minimums** . VFR flight in weather near minimums presents increased risks even for experienced pilots. Pilots will use judgment to land or reverse course rather than fly in marginal conditions.

Although alternates are not strictly required under VFR, when forecast winds reach or exceed limits, pilots will carefully consider routes and fuel requirements for possible diversions.

3.7.1. The minimum ceiling for VFR flight is 1500 ft above ground level (AGL.)

3.7.2. The minimum visibility for VFR flight is three miles.

3.7.3. The minimum wind chill temperature is  $-20^{\circ}$  F.

3.7.4. Flight in forecast with severe turbulence require 34 OG/CC approval. If severe turbulence is reported, cease operations in the affected area and ensure the appropriate weather organization is notified of the phenomenon..

**3.8. Clearing** . Pilots must understand that many VFR pilots use the uncontrolled training areas and surrounding airspace. Therefore, the concept of *see and avoid* is critical and cannot be over emphasized.

**3.9. Transfer of Aircraft Control** . Both pilots must know at all times who has control of the aircraft. In all cases, the pilot assuming control of the aircraft will state "I have the aircraft" and will shake the stick. The pilot relinquishing control will state: "You have the aircraft." Once assuming control of the aircraft, maintain control until relinquishing it as stated above.

**3.10. Fuel Requirements** . Minimum and Emergency Fuel. When it becomes apparent an aircraft will land at the base of intended landing (or alternate if required) with low fuel, declare the following:

3.10.1. Minimum fuel—11.5 gallons used.

3.10.2. Emergency fuel—12.5 gallons used.

3.10.3. If there is reason to believe the fuel counter is unreliable, emergency fuel exists when the total flight time since last refueling exceeds 2.5 hours.

3.10.4. If sorties begin with less than full fuel, pilots will adjust the fuel criteria above by a corresponding amount.

**3.11. Landing Restrictions:**

3.11.1. Minimum RCR for landing is 12.

3.11.2. Do not land over any raised web barrier (for example, MA-1A, BAK-15). Avoid landing on or rollout over any cables or barriers.

**3.12. Functional Check Flights (FCF)**. FCFs are performed after accomplishing inspections or maintenance to assure the aircraft is airworthy and capable of mission accomplishment.

3.12.1. Conditions requiring an FCF include (but are not limited to) major retrofit modifications; removal or replacement of moveable flight control surfaces (except repaint); major repairs that would affect the flying characteristics of the aircraft; or the adjustment, removal, or replacement of major components of the flight control system.

3.12.2. The unit commander is responsible for the FCF program. The unit commander may waive a complete FCF and authorize an FCF to check only systems disturbed by maintenance, inspection, or modification.

3.12.3. The best-qualified instructors or stan/eval aircrews will accomplish FCFs. They will be designated FC qualified to their assigned aircrew position by the unit commander in a memorandum.

### **3.13. Post Flight:**

- 3.13.1. Chock the aircraft in an appropriate parking spot. Pilots will tie down or hangar the aircraft if it will be left unattended.
- 3.13.2. Complete the AFTO Form 781A and notify maintenance of discrepancies.
- 3.13.3. Crews remaining off-station overnight will carry chocks, tie-downs and extra engine oil.
- 3.13.4. Inform maintenance, QAE, and Squadron Flying Safety of any ground or air aborts.

**3.14. Flights With Inoperative Equipment.** All installed systems and equipment must be functional unless operations are authorized by **Table 3.1.** below or waived by the squadron DO. Cross-country flights are those which occur outside unit-defined local training areas. Even though operations with inoperative systems may be authorized by **Table 3.1.**, if the PIC considers an item essential for safe flight it must be repaired.

**Table 3.1. Operational Equipment and Systems.**

<b>Item</b>	<b>Equipment</b>	<b>Remarks</b>
<b>Fuel System:</b>		
1	Fuel Totalizer / Fuel Quantity Indicator	One may be inoperative for local area flights. Fuel quantity in tanks must be verified prior to each takeoff.
<b>Landing Gear:</b>		
1	Tires	Valve stem caps may be missing.
<b>Avionics:</b>		
1	Headset/Intercom	May be inoperative for unoccupied seats. Interphone crew communication (either VOX or PTT) is required if both seats are occupied. PIC must be able to transmit and receive on the VHF radio.
2	Push-To-Talk Switch	Required only for PIC.
3	Transponder	Required to depart home station. VFR flight permitted to reposition for repairs (comply with FAR 91.215.)
4	VOR/GPS	One navigation system must be functional for cross-country flights.
<b>Instrumentation:</b>		
1	VVI / Variometer	One may be inoperative (but not both.)
2	Clock	Not required.
3	Inclinometer	Not required.
<b>Airframe:</b>		
1	Seat Belts/Shoulder Harnesses	May be inoperative for empty seats.
<b>Electrical System:</b>		
1	Circuit Breakers	Must function for required systems.

## Chapter 4

### ABNORMAL OPERATING PROCEDURES

**4.1. General.** Follow the procedures in this chapter when other than normal circumstances occur. These procedures do not supersede procedures contained in the flight manual. The pilot in command is primarily responsible for handling inflight emergencies. Pilots should take whatever action is necessary to safely terminate the emergency. The additional pilot (if applicable) will confirm all critical action procedures have been accomplished and provide checklist assistance at the request of the pilot in command.

4.1.1. Refer to your checklist and IFG for additional guidance. If time and conditions permit, inform the appropriate controlling agency with the following information about your situation:

- 4.1.1.1. Aircraft call sign and type.
- 4.1.1.2. Position and altitude.
- 4.1.1.3. Nature of emergency.
- 4.1.1.4. Number of people on board.
- 4.1.1.5. Fuel on board.
- 4.1.1.6. Intentions (desired runway and ETA).
- 4.1.1.7. Assistance required.
- 4.1.1.8. Squawk emergency code 7700 (if warranted).

4.1.2. The situation will dictate whether you should return to the home airfield or land at another suitable airfield. Deviate from normal return routes and altitudes if the situation warrants. When deviating, inform the controlling agency, if possible.

**4.2. Radio Failure .** For a no radio (NORDO) recovery, the procedures in AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*, and Flight Information Publications (FLIP) apply. Comply with the following general procedures:

- 4.2.1. IFF Procedures: Set transponder code to 7600 until safely landed.
- 4.2.2. At a controlled airfield, remain outside or above Class D airspace until the direction of landing has been determined. Acknowledge tower light signals by rocking your wings. If no light signal is received and no traffic conflict exists, land.
- 4.2.3. At uncontrolled airfields, remain 500 ft above the published pattern altitude while attempting to determine the landing runway. If unable to use traffic to determine the landing runway, use wind indicators. Once the landing runway has been determined, join the airfield traffic pattern and land.

## Chapter 5

### LOCAL OPERATING PROCEDURES

**5.1. Use of This Chapter** . This chapter is reserved for unit local operating procedures. Units may also publish chapter5A containing the same information in condensed format to be carried in-flight along with the aircraft checklist. If this chapter is incorporated in another base publication (instruction, supplement, etc.), a single page insert will be used referencing its location or the entire publication will be inserted, as appropriate.

**5.2. Guidance** . Procedures herein will not be less restrictive than those contained elsewhere in this instruction. Unnecessary repetition of guidance provided in other established directives should be avoided. However, reference to those directives is acceptable when it serves to facilitate location of information necessary for local operating procedures.

**5.3. Procedures for Publishing** . When publishing **Chapter 5**, units will forward copies to the MAJ-COM and appropriate subordinate agencies who will review it and return their comments or required changes back to the units, as appropriate. If a procedure is determined to be applicable to all TG-7 units, it will be incorporated into the basic instruction.

**5.4. Organization of Chapter 5** . The local **Chapter 5/5A** will be organized in the following and will include at a minimum, the following information:

- 5.4.1. Section A. Introduction.
- 5.4.2. Section B. General Policy.
- 5.4.3. Section C. Ground Operations.
- 5.4.4. Section D. Flying Operations.
- 5.4.5. Section E. Abnormal Procedures.
- 5.4.6. Attachments. Illustrations.

**5.5. Procedures for Inclusion** . This chapter will include procedures for the following, as applicable:

- 5.5.1. Command and control.
- 5.5.2. Aircrew Publication Requirements.
- 5.5.3. Diversion instructions and fuel requirements
- 5.5.4. Local weather procedures.
- 5.5.5. Cross-country procedures.
- 5.5.6. Unit standards (optional).

**5.6. Forms Adopted.**

5.6.1. AF Form 847, *Recommendation for Change of Publication*

5.6.2. AFTO Form 781A, *Maintenance Discrepancy and Work Document*

5.6.3. AFTO 781F, *Aerospace Vehicle Flight report and Maintenance Document*

CHARLES F. WALD, Lt General, USAF  
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**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-2, *Aircraft Rules and Procedures*

AFI 11-2TG-7, Volume 1, *TG-7 Aircrew Training*

AFI 11-202, Volume 3, *General Flight Rules*

AFI 11-205, *Aircraft Cockpit And Formation Flight Signals*

AFMAN 37-139, *Records Disposition Schedule*

Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms*

T.O. 1G-11(T)A-1, *USAF TG-7A Flight Manual*

***Abbreviations and Acronyms***

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AGL**—Above Ground Level

**ATC**—Air Traffic Control

**DO**—Director of Operations

**FCIF**—Flight Crew Information File

**FLIP**—Flight Information Publications

**FT**—Feet

**HQ**—Headquarters

**IP**—Instructor Pilot

**KT**—Knots (nautical miles per hour)

**MAJCOM**—Major Command

**MSL**—Mean Sea Level

**MPH**—Miles Per Hour

**NORDO**—No Radio

**NOTAM**—Notice to Airman

**OG**—Operations Group

**OGV**—Operations Group Standardization/Evaluation

**OPR**—Office of Primary Responsibility

**PDO**—Publishing Distribution Office

**PIC**—Pilot in Command

**RCR**—Runway Condition Reading

**SOF**—Supervisor of Flying

**STAN/EVAL**—Standardization/Evaluation

**T.O.**—Technical Order

**U**—Unqualified

**VOX**—Voice Activated

**VFR**—Visual Flight Rules