

COWG DISABLED AIRCRAFT SOP – FRO

AIRCRAFT AT A REMOTE AIRFIELD WITH INOPERATIVE EQUIPMENT

The goal is to provide the pilot the support needed to start the aircraft repair process and assist the crew in getting home. The crew should give you the necessary information to help the crew chief or LGM make the appropriate decision in regards to aircraft repairs. Contact the crew chief, LGM, or DO for assistance. The information below is provided so you the pilot and crew chief have the same reference documents. **Changes highlighted.**

1. Did the PIC review the Disabled Aircraft SOP-Pilot and FAR 91.205/213 summary AIF Tab 12 (page 2 of this SOP)?

> **NO:** Do so with pilot.

> **YES:** And the aircraft needs repair, tell the pilot:

A. AIRCRAFT CREDIT CARDS **CANNOT** BE USED FOR AIRCRAFT REPAIRS. If the aircraft must be moved to ensure the safety of people and/or the aircraft, and there is a charge, the pilot will have to pay with a personal credit card. The pilot will be reimbursed.

B. THE **ONLY** INDIVIDUALS AUTHORIZED TO COMMIT COWG MAINTENANCE FUNDS FOR AIRCRAFT REPAIR ARE THE WING COMMANDER, THE DIRECTOR OF MAINTENANCE, AND THE DIRECTOR OF OPERATIONS

2. Assume this is a safety mishap, take notes! If you know this is a safety mishap, did the PIC notify the Wing Commander? If not, Wing Mishap Reporting OI is in AIF Tab 11.

NOTE

Anytime there are inoperative instruments or equipment, a certificated pilot or mechanic must make a determination the inoperative item does not constitute a hazard to flight safety or the airworthiness of the aircraft. If it does, then it must be corrected prior to flight. If the aircraft's structure is damaged, however slight, it is not airworthy until professionally inspected. A more detailed explanation of "Airworthiness" is on the Wing Stan Eval web page. The airworthiness FAR is 91.7.

3. Gather information. **Is there a mechanic/maintenance shop at the airfield?**

> **YES:** is the airfield/facility on the CAP approved list? (The list is available on the Wing Aircraft Maintenance web site: <https://cowg.cap.gov> > STAFF> MEMBERS ONLY> AIRCRAFT MAINTENANCE> AIF DOCS> **TAB12 ACFT MX LIST.**

> **YES:** Use listed shop. Contact Crew Chief/LGM.

> **NO:** Is a maintenance Facility/mechanic available?

>**YES:** Wing or Region LGM approval is required if repairs must be made by a mechanic/maintenance facility **not** on the CAP approved list. Get facility/mechanic contact info and proof of insurance information. See CAPR66-1, Para 12. Gather following info:

1. What repair is required to make the airplane airworthy/safe to fly?
2. Are parts available?
3. When can shop/mechanic start repairs?

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> **NO:** Wing or Region LGM will assign a facility/mechanic to inspect the aircraft and make repairs. Contact Wing LGM (Cell: 303.912.9717, wk 720.744.8985) or the crew chief for help/guidance. Pilot has crew chief contact info in AIF Tab 12. If you cannot reach the LGM/crew chief, call the Wing DO. LGM needs the contact information for the airport FBO, the pilot, and you.

- LGM needs an estimate of the total cost of repairs (parts and labor). Have it sent to the LGM or crew chief. Depending on the estimate, the LGM may require approval from CAPNHQ. (**NOTE:** If the cost is \$200 or less, authorization should be fairly quick.) In addition, any work above and beyond the initial estimate will require an additional estimate to the LGM, and approval, before the work can be accomplished.

- LGM will notify you or the crew chief when the work is approved and send the approval to the maintenance shop.

4. If the aircraft cannot be repaired quickly and will remain at the remote airport, have pilot make sure the aircraft is secure. Forward the contact information of the person with the keys to the crew chief. Contact the COWG DO to arrange flight crew return to home base. If the crew must remain overnight, the crew is responsible for their accommodations and pays the expense.

FAR 91.205/213 SUMMARY

Can I fly with inoperative equipment?

For aircraft operating without a Minimum or Kinds of Equipment list, **FAR 91.213** describes the process of determining the airworthiness of an aircraft with inoperative equipment. **NOTE:** Anytime there is inoperative equipment, a certificated pilot or mechanic must make a determination that the inoperative item does not constitute a hazard to safety of the flight or the airworthiness of the aircraft. Use these four questions to verify whether or not your aircraft is legal to fly under 91.213.

1. Is the affected equipment listed as **required** on the aircraft's **Kinds of Equipment** list, or similar, POH Section 2?

NO: go to the next question. **YES:** maintenance required.

2. Is the affected equipment part of the VFR-day type certificate or FAR 91.213?

NO: go to the next question. **YES:** maintenance required. (See AC91-67 appendix 1 on the web)

3. Is the affected equipment required by any other regulation (i.e. FAR 91.205/207/CAP)?

NO: go to the next question. **YES:** maintenance required.

4. Is the affected equipment required to be operative by an airworthiness directive?

NO: go to final step. **YES:** maintenance required.

5. The inoperative equipment must be removed from the aircraft **or** placarded inoperative. Pilot determines if the aircraft is safe to fly and the inoperative equipment does not constitute a hazard under anticipated operational conditions.

Source: AC 91-67/ CAP CC Ltr Oct 09

PART 91 - EQUIPMENT, INSTRUMENT, AND CERTIFICATE REQUIREMENTS. 91.205 Powered civil aircraft with standard category U.S. airworthiness certificates. See Airworthiness page 4.

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(a) General. Except as provided in paragraphs (c) (3) and (e) of this section, no person may operate a powered civil aircraft with a standard category U.S. airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or FAA-approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

(b) **VISUAL-FLIGHT RULES (DAY)**. The following instruments and equipment are required:

- (1) Airspeed indicator.
- (2) Altimeter.
- (3) Magnetic direction indicator.
- (4) Engine tachometer.
- (5) Oil pressure gauge for an engine using a pressure system.
- (6) Oil temperature gauge for an air-cooled engine.
- (7) Manifold pressure gauge for an altitude engine.
- (8) Fuel gauge indicating the quantity of fuel in each tank.
- (9) Landing gear position indicator, if the aircraft has a retractable landing gear.
- (10) For small civil airplanes certificated after March 11, 1996, in accordance with part 23 of this chapter, an approved aviation red or aviation white anti-collision light system. In the event of failure of any light of the anti-collision light system, operation of the aircraft may continue to a location where repairs or replacement can be made.
- (11) An approved safety belt with an approved metal-to-metal latching device for each occupant.
- (12) For small civil airplanes manufactured after July 18, 1978, an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in 23.561(b) (2) of this chapter. Each shoulder harness installed at a flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph (i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data; and (ii) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.
- (13) An emergency locator transmitter
- (14) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of 9 or less, manufactured after December 12, 1986, a shoulder harness for (i) Each front seat that meets the requirements of 23.785 (g) and (h) of this chapter in effect on December 12, 1985; (ii) Each additional seat that meets the requirements of 23.785(g) of this chapter in effect on December 12, 1985.

(c) **VISUAL FLIGHT RULES (NIGHT)**. The following instruments and equipment are required:

- (1) Instruments and equipment specified in paragraph (b).
- (2) Approved position lights.
- (3) An approved aviation red or white anti-collision light system on all U.S.-registered civil aircraft. In the event of failure of any light of the anti-collision light system, operations with the aircraft may be continued to a stop where repairs or replacement can be made.
- (4) If the aircraft is operated for hire, one electric landing light.
- (5) An adequate source of electrical energy for all installed electrical and radio equipment.

(d) **INSTRUMENT FLIGHT RULES**. For IFR flight, the following instruments and equipment are required:

- (1) Instruments and equipment specified in paragraph (b) of this section, and, for night flight, instruments and equipment specified in paragraph (c) of this section.
- (2) Two-way radio communications system and navigational equipment appropriate to the ground

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facilities to be used.

- (3) Gyroscopic rate-of-turn indicator.
- (4) Slip-skid indicator.
- (5) Sensitive altimeter adjustable for barometric pressure.
- (6) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.
- (7) Generator or alternator of adequate capacity.
- (8) Gyroscopic pitch and bank indicator (artificial horizon).
- (9) Gyroscopic direction indicator (directional gyro or equivalent)

Airworthiness:

FAR 91.7 Civil aircraft airworthiness

- a) No person may operate a civil aircraft unless it is in an airworthy condition.
- b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when un-airworthy mechanical, electrical, or structural conditions occur.

The purpose of a preflight inspection is to determine whether the aircraft is or is not airworthy. If the preflight inspection leaves you with any niggling doubts about the advisability of flying that aircraft in its current state, ***DON'T FLY IT!*** There are two aspects to consider: airframe and equipment.

If there is visible damage to the aircraft's structure, no matter how slight, the aircraft is not airworthy until it has been inspected and signed off by an appropriately certified mechanic. For example, an O-ring in the nose wheel strut of a Cessna 182 ruptured and the oil leaked out. This constituted visible damage to the aircraft's structure, and the aircraft was therefore not airworthy

If some of the equipment in the aircraft is inoperative, airworthiness depends on the kind of operation you are contemplating. The Pilot's Operating Handbook (POH) is the primary reference. The POH for the **Cessna 182T contains a "Kinds of Operations Equipment List" (KOEL) defining the equipment that must be operational for the aircraft to be airworthy in each kind of operation.** For example, the 182T is not airworthy for any kind of operation if the strobe light system is inoperative.

The **182R** POH does not contain a KOEL, so we must fall back to the equipment required by FAR 91.205. **If any of the equipment listed in FAR 91.205 is inoperative then the aircraft is not airworthy.** For example, the 182R is not airworthy for any kind of operation if the fuel gauge for (say) the left tank has a reading significantly different from the actual amount present. On the other hand, a 182R with inoperative strobes is airworthy if the beacon functions normally.

A more detailed discussion of determining airworthiness is found in FAA Advisory Circular 91-67.
(AOPA)