CESSNA 182 TRAINING COURSE OUTLINE

Introduction

This outline will serve as a training guide for pilots and flight instructors. Because of variables involving pilot experience and proficiency, the training should be flexible. For example; a thorough discussion of IFR procedures and regulations is recommended for pilots who are not current. For more proficient pilots this much instruction may not be necessary and training should be adjusted accordingly.

Portions of this program are derived from the General Aviation Manufacturers Association (GAMA) Transition Training Master Syllabus, and their support is gratefully acknowledged.

At the satisfactory conclusion of training the pilot should receive an Instrument Competency Check (ICC) if instrument rated and a Biennial Flight Review (BFR). In accordance with current regulations and advisory circular guidance, pilots who complete this training will also receive a high performance aircraft endorsement if required.

This Training Course Outline is divided into four blocks of instruction. The first block consisting of two hours ground orientation concentrates on the C-182, its systems and pilot procedures. The second block reviews normal and emergency VFR procedures and elementary IFR procedures. The third block reviews instrument flight operations while the fourth block concentrates on cross country flight. The time required to complete this training will vary with pilot proficiency. Average time to complete each block is presented in the table below and in some cases blocks may be combined for efficiency:

<table>
<thead>
<tr>
<th>Block</th>
<th>Ground</th>
<th>Flight</th>
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<tr>
<td>1. Ground Orientation</td>
<td>2.0 Hours</td>
<td>-0-</td>
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<tr>
<td>2. General Flight Operations</td>
<td>1.0 Hour</td>
<td>2.5 Hours</td>
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<tr>
<td>3. IFR Operations</td>
<td>1.5 Hours</td>
<td>1.5 Hours</td>
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<tr>
<td>4. Cross Country</td>
<td>1.0 Hours</td>
<td>1.5 Hours</td>
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<tr>
<td>Total</td>
<td>5.5 Hours</td>
<td>5.5 Hours</td>
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At the conclusion of blocks one through three a section based on specific accident experiences is included. This section, called “Areas of Special Emphasis,” should be discussed in detail.

A suggested lesson content for each block is presented in an orderly sequence. Individual instructors will determine what order of presentation works best for them but they should ensure that all items are covered. To aid in this, a checklist of lesson content items is provided. Using this checklist, instructors will evaluate pilot proficiency in each item. All lesson items should be completed by transitioning pilots. The instructor and pilot will determine which items to cover in recurrency training.

Note: While this training course outline is comprehensive, there are certain emergencies that should be discussed only. Simulator training is recommended for those who wish to practice these maneuvers safely.
Objective: In this lesson the pilot will thoroughly review the Pilot's Operating Handbook and all documents covering modifications to the aircraft and electronic equipment installed. In-cockpit familiarization will be accomplished and C-182 accident history will be discussed.

Completion Standards: This lesson will be complete when the pilot is able to accurately describe C-182 operating systems and their operation, emergency procedures, aircraft limitations (including airspeeds for various operations), performance determination, and proper aircraft servicing. The pilot will also be familiar with the accident history of the airplane.

Note: This critical phase of pilot standardization should be completed prior to flight and not reduced to a homework assignment. The pilot must have a solid understanding of the aircraft before attempting to operate it.

Study Assignment: In preparation for block two, the pilot will review normal and emergency operations sections of the POH and will calculate weight and balance, takeoff, and landing performance data for aircraft with loading as determined by instructor.

✓ Ground - 2.0 Hours

Airplane and Systems
Flight Controls
Installed Instruments & Avionics
Landing Gear & Hydraulic System
Brakes
Seats, Seat Belts, & Doors
Engine & Engine Instruments
Fuel System
Electrical System, Ground Service Plug
Lighting Systems
Environmental Control System,
Pilot-Static System & Instruments
Vacuum System & Instruments
Anti-ice & Deice Systems, if installed
Supplemental Oxygen System, if installed

Aircraft Servicing
Required Inspections
Ground Handling
Fueling
Oil, Hydraulic, Oxygen Replenishment
Performance
Use of Performance Charts
Takeoff Distance, Time, Fuel, and Distance to Climb Charts
Cruise Performance Charts
Range and Endurance Charts
Landing Distance Charts

Weight and Balance Determination
Review of Aircraft Equipment List
Determination of Weight & Balance from Sample Loading Situations

Limitations
Airspeed Limitations
Powerplant Limitations
Fuel System Limitations
Operating Instrument Indications

Normal Procedures
Speeds for Normal Operation
Preflight Inspection
Engine Start & Runup
Taxiing
Normal, Short-Field and Crosswind Takeoffs
Normal & Maximum-Performance Climbs
Cruising Flight
Descents
Normal, Short-Field and Crosswind Landings
Balked Landings & Go-Arounds Including Flap Retraction Procedures
After Landing, Securing the Aircraft

Emergency Procedures
Airspeeds for Emergency Operations
Engine Failure Procedures
Emergency & Precautionary Landings
Fires
Icing
Vacuum, Pitot & Static System Failures
Electrical System Malfunctions
Areas of Special Emphasis: The Cessna 182 is a relatively simple aircraft and, with proper training, has a reputation of being a safe and manageable aircraft. Pilots cause 79.7% of all C-182 accidents. A portion of the accidents are due to Fuel Exhaustion (8.1%) and Fuel Starvation (4.9%). Consequently, a discussion should be devoted to the airplane’s fuel system, pre-flight visual fuel checks, and the customary caution of placing too much reliance on fuel gauges.

Performance charts should be covered thoroughly, with conservative takeoff distance estimates (double the published data) and landing distance estimates (1.6 times the published data) used as standards. Similarly conservative practices should be applied to data obtained from the endurance and range charts.

For the pilot transitioning from smaller aircraft, the larger cabin and heavier feel of the C-182 may lead some to a false sense of security with respect to loading and weight distribution. Weight and balance calculations should be made to familiarize the pilot with both the added capacity of the C-182 and CG limitations which may be quite different than previously experienced. Special attention should be paid to operations at high density altitudes since takeoff and climb performance will be significantly less than at lower elevations.

Additional system-related areas of emphasis should include:

- Autopilot and electric trim malfunctions
- The relationship of vacuum failures to autopilot operation
- The electrical system and what to do if the charging system fails
- Load shedding and the estimated time of usable battery life
- Hung starter indications and remedial procedures
- The emergency checklist
- The relationship between EGT and fuel flow on climb and in cruise.
**CESSNA 182 TRAINING OUTLINE**  
**Block 2 - General Flight Operations**

**Objective:** This lesson will acquaint the pilot with the Cessna 182 aircraft. Preflight, In-flight, and Postflight operations will be discussed and practiced.

**Completion Standards:** This lesson will be complete when, through questioning and evaluation, the instructor determines that the pilot is proficient in general VFR flight operations in the C-182 aircraft and performs to the requirements of the Practical Test Standards.

**Study Assignment:** The pilot will review instrument regulations, requirements, and local approach procedures in preparation for block three.

✔️ **Ground - 1.0 Hour**

- Review of Study Assignment
  - Weight & Balance Calculation For This Flight
  - Takeoff, Climb, Cruise, Landing Performance Data

- Review of Normal & Emergency Procedures

- Flight Portion of Training Outline
  - Discuss Flight Lesson Items
  - Resolve Pilot Questions

- Determination of PIC & Transfer of Control

**Flight - 2.5 Hours**

- Preflight Operations
  - Takeoff, Climb, Landing Performance Calculation
  - Preflight Line Check
  - Starting
    - Normal
    - Hot
    - External Power
  - Pre-takeoff Runup and Checks

- Takeoff Operations
  - Normal
  - Rejected
  - Crosswind
  - Instrument
  - Short Field
  - Soft Field
Airwork
- Climbs
- Turns
- Slow Flight
- Approaches to Stalls
- Steep Turns
- Cruise Configuration
- Approach/Landing Configuration

Instrument
- Turns, Climbs, Descents
- Slow Flight
- Unusual Attitude Recovery

Emergency Procedures
- Engine Failure
- Fire in Flight
- Induction Ice
- Alternator Failure
- Fuel Pump Failure

Landings
- Normal
- Crosswind
- No Flap
- Short Field
- Soft Field
- Balked (Go Around)
- Failed Engine

Areas of Special Emphasis: A recurring Airworthiness Directive calling for the inspection of seat tracks periodically should not be overlooked. It may be that an inspection is due outside of the normal annual inspection. The maintenance records and a qualified mechanic will provide guidance in this area.

Proper use of carburetor heat should be emphasized especially during periods of high humidity.

It is vitally important that extensive training is given in landings. Landing mishaps are unusually high: 211, or 38.2% of 553 pilot-related accidents are attributed to landing problems. Of these, the most prevalent is hard landing and loss of control due to crosswind.

It should be remembered that the C-182 is a heavier, less responsive aircraft than smaller training aircraft. The instructor should not conclude that the pilot's acceptable landing performance two or three times in a lightly loaded C-182 in calm wind conditions is indicative of proficiency in all circumstances. The pilot should be exposed to vigorous crosswinds and a variety of landing configurations and weights. It is recommended that at least an hour be invested in take-offs and landings.
Objective: This lesson will review the requirements, regulations and procedures for IFR flight operations.

Completion Standards: This lesson will be complete when, through questioning and performance evaluation, the instructor determines that the pilot understands and is proficient in low altitude IFR procedures. The pilot's abilities should meet or exceed the FAA's Instrument Rating Practical Test Standards.

Study Assignment: The pilot will review meteorology, equipment requirements, charts, and aircraft-specific procedures in preparation for Block 4. A cross-country flight of not less than three hours duration will be planned with at least one leg to be flown at or near the service ceiling of the aircraft. The pilot will brief the flight instructor on this flight during the ground portion of Block 4.

✓ Ground - 1.5 Hours

Requirements for Instrument Flight

Pilot
Certificates & Ratings
High performance endorsement
Six month currency
90 day currency

Aircraft
Required Equipment
Equipment Certification
RNAV/LORAN/GPS
Autopilot/Flight Director

Other
Periodic Inspections
Transponder
Pitot/Static System
ELT
Annual/100 Hour
ADs/Service Bulletins
Recommended Service Intervals
Preflight Line Inspection

FARs for Instrument Flight
Flight Plan/Clearance Required
Compliance with ATC Instructions
Alternate Criteria
Lost Communication Procedures
Required Reporting Points
PIC Authority and Responsibility
Charts
SID/STARS
Low Altitude Enroute
Instrument Approach Procedure

Preflight Briefing
Lesson Content
Instructor/Pilot Roles and Responsibilities
Transfer of Control
Collision Avoidance Procedures

Flight - 1.5 Hours

Clearance Copy & Readback
Accurate Copy & Readback
Proper Nav & Comm Radio Configuration
SID (If Appropriate)
Note: If ATC clearance is not available, instructor will issue clearance containing all elements of a standard departure clearance.

Pre-takeoff Checks
Checklist Use
Instrument Function
Radio Frequencies Set
Appropriate Charts
Review Departure Procedure

Area Departure
Heading & Altitude
Route Interception
Amended Clearance
Climb & Cruise Checklists

Holding
Holding Clearance Copy & Readback
Aircraft Configuration Prior to Holding Fix
Appropriate Entry Procedure
ATC Report
NDB Approach
Approach Clearance
Checklist, Aircraft Configuration
Tracking, Altitudes
Timing
ATC Coordination

Missed Approach
Climb, Heading, Altitude
Course Interception
Climb Checklist
ATC & CTAF Coordination

DME Arc
Arc Interception
Orientation
Lead Radial Identification & Transition
To Approach (If Appropriate)
ATC & CTAF Coordination

VOR Approach
Approach Clearance
Checklist, Aircraft Configuration
Tracking, Orientation
Altitudes, MDA
Timing, MAP Identification
ATC & CTAF Coordination

Circling Approach
Altitude
Distance From Airport
Traffic Avoidance
ATC & CTAF Coordination

ILS Approach
Approach Clearance
Checklist, Aircraft Configuration
Tracking, Orientation
Altitudes, DH
ATC & CTAF Coordination
Areas of Special Emphasis: For the proficient instrument pilot, the C-182 offers a stable IFR platform. The 12 accidents that occurred in IMC conditions, 15 accidents had IFR rated pilots at the controls. Nevertheless, instruction should include a development of proficiency in all facets of instrument flight and, equally as important, the recognition of weather situations that are beyond the capability of a non-deiced, non-radar equipped aircraft. In addition, since a number of C-182 accidents occur at night, practice evening approaches to minimums and other night operations are recommended.
Objective: In this lesson the pilot will gain understanding of the elements of cross-country flight and demonstrate proficiency in cross-country operations, IFR or VFR as appropriate.

Completion Standard: This lesson will be complete when, through questioning and performance evaluation, the instructor determines that the pilot is able to plan and execute cross-country flights, with consideration given to all of the elements of such operations in accordance with the Practical Test Standards.

✓ Ground - 1.0 Hours

  The Flight Environment
  Airspace
  Part 91 Federal Aviation Regulations

  Weather
  The Atmosphere
  Winds & Clear Air Turbulence
  Clouds & Thunderstorms
  Icing

Note: Weather, of great concern to all pilots, is a subject unto itself. It is not within the scope of this training program to teach or review weather, but rather to highlight weather considerations for operations in the lower flight levels. Pilots who are not thoroughly familiar with the subject should pursue additional weather training, especially considering its prominent status of being a factor in a large percentage of serious accidents.
Flight Planning & Navigation
Flight Planning
  including fuel use in situations
  involving unanticipated winds
  as well as oxygen supply requirements
  for all passengers
Navigation
Charts
Navaids
Planned Descents

Physiological Training
Respiration
Hypoxia
Vision
Altitude Chamber (Optional)

Emergency Operations
In-flight Fire
Flight into Severe Turbulence or Thunderstorms

Flight Operations - 1.5 hours

Preflight Briefing
Preflight Line Check
Charts
Clearance Copy & Readback

Area Departure
Climb
Climb Checklist

Cruise
Checklist Use
Power Setting

Emergencies
Emergency Descent (Discuss Only)
Alternator Failure
Load Shedding
Flight Plan Change
ATC Coordination
In-flight Fire

Descent
Planning
Monitor Engine Temperatures
Speed
STAR (if appropriate)

Approach & Landing