COMMUNICATIONS, LIGHT SIGNALS, AND RUNWAY LIGHTING SYSTEMS

FULFILLS PA.III.A, CA.III.A, AI.VI.A

Objective	
The student shall understand how to enter and operate within an airport's traffic pattern. The student shall become familiar with the airplane's configuration and proper radio calls within the traffic pattern.	
Instructor Actions	**Student Actions**
- Discuss the components and configuration at different segments of the traffic pattern - Overview traffic pattern entry methods - Present methods for determining pattern direction and altitude - Highlight differences between traffic patterns at controlled and non-controlled airports	- Take notes and participate in instructor's discussion - Explain traffic pattern process to instructor - Perform the traffic pattern in-flight - Chair fly the traffic pattern at home
Case Studies	**Equipment**
- AOPA Accident Case Study – Traffic Pattern Tragedy - AOPA Accident Case Study – Communication Breakdown	- Computer - FAR/AIM - PHAK - White Board
Completion Standards	
The student shall repeatedly perform traffic patterns within ACS standards and understand the risks associated with operating in the pattern. The stall shall become familiar with visualizing a stable approach and adjusting the pattern to facilitate different airports and conditions.	

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ELEMENTS

RESOURCES

FAA-S-ACS-6C Private Pilot ACS - Area III Task A
FAA-S-ACS-7B Commercial Pilot ACS - Area III Task A
FAA-S-ACS-25 CFI ACS - Area VI Task A

FAA-H-8083-2 Risk Management Handbook
FAA-H-8083-3C Airplane Flying Handbook Chapter 8: Airport Traffic Pattern
FAA-H-8083-25C PHAK Chapter 14: Airport Operations

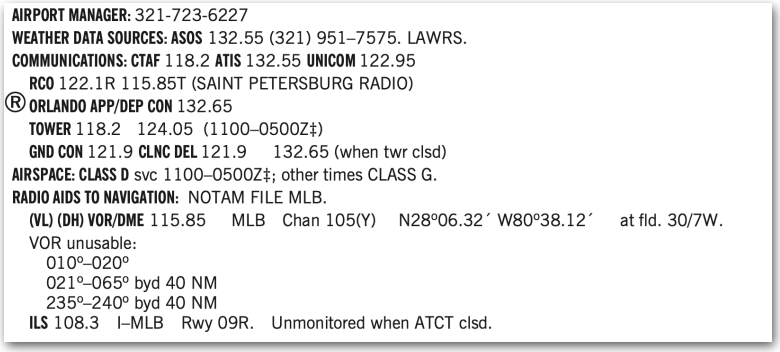
AC 90-66C Non-Towered Airport Flight Operations

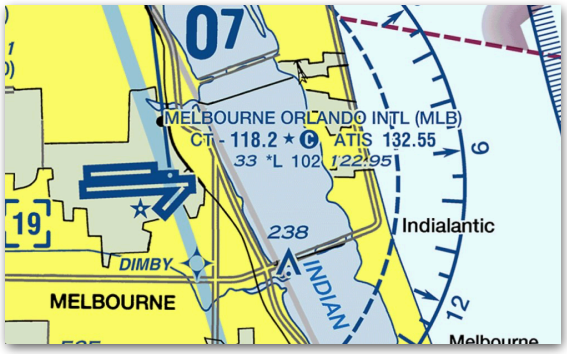
AIM Chapter 2

1. OBTAINING PROPER RADIO FREQUENCIES

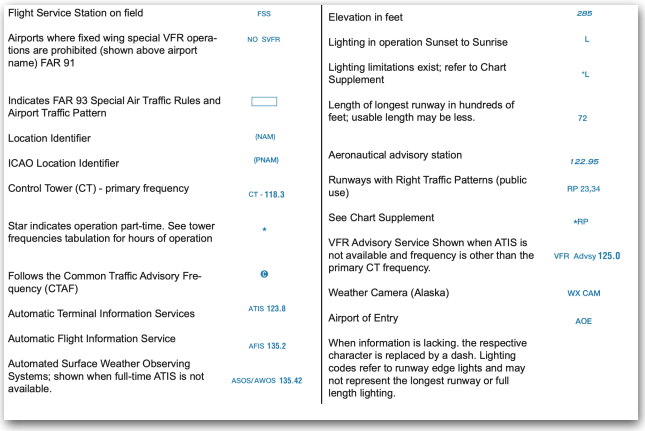
During preflight planning, the pilot should become familiar with the appropriate weather, ground, and tower frequencies at their departure and destination airports. If non-controlled, then CTAF should be used.

The left image shows an airports communication information as seen in the chart supplement. All relevant frequencies are listed, including an indicator that the approach and departure control includes radar coverage with the 'R'. The right image shows a snippet from the VFR sectional, which also includes the control tower frequency, an indication that this frequency also supports CTAF, the ATIS frequency, and an additional UNICOM frequency. Note that VOR information is included in a separate box.





A snippet of the aeronautical chart users guide is shown below as a reminder for common VFR chart symbols. An EFB can also provide relevant frequencies



PA.III.A, CA.III.A, AI.VI.A

2. PROPER RADIO CALLS AND PHRASEOLOGY

See AIM 4-4-7 or this thread for information on what radio calls need to be read back. However, the following list includes some items that do NOT need to be read back:

1. Wake turbulence advisories
2. Wind speed advisories before takeoff or landing
3. Standby

Examples of proper phraseology is included below

Traffic callouts: "Negative contact" or "Traffic in sight"

Numbers and Headings: Individually, such as "Runway two four"

Altitudes: Split into thousands and hundreds, such as "four thousand five hundred" or "one one thousand five hundred"

3. ATC LIGHT GUN SIGNALS

AIM 4-2-3 includes specific guidance on transmitter/receiver failures, and AIM 4-3-13 defines the light gun signals expected if the pilot enters a towered airport's traffic pattern without communicating.

Color and Type of Signal	Aircraft on the Ground	Aircraft in Flight
Steady green	Cleared for takeoff	Cleared to land
Flashing green	Cleared for taxi	Return for landing (to be followed by steady green at the proper time)
Steady red	STOP	Give way to other aircraft and continue circling
Flashing red	Taxi clear of the runway in use	Airport unsafe, do not land
Flashing white	Return to starting point on airport	Not applicable
Alternating red and green	Exercise extreme caution	Exercise extreme caution

4. APPROPRIATE USE OF TRANSPONDERS

According to 91.215, if your aircraft has a transponder AND you are operating in any controlled airspace (A, B, C, D, E), you must use your transponder. If it has an 'ALT' function, that must be on as well. Squawk whatever number ATC has directed.

The following codes are reserved for emergencies:

7700 – General Emergency

7600 – Radio Failure

7500 – Hijacking

5. LOST COMMUNICATION PROCEDURES

Radio failures do not automatically constitute an emergency. In fact, many cross flights are possible without talking to ATC or communication on CTAF (though not a good idea). Pilots should consider the following:

- Attempt to troubleshoot (turn off/on, try other side and push to talk (PTT), try overhead speaker)
- Try other radio (if equipped)
- Use handheld radio (if available)
- Call ATC on phone
  - MHV Tower: 661-824-4324
  - Joshua Approach:

5.1. Equipment Issues Inducing Loss of Comms

- Push to talk button connectors worn
- Radio on switch not fully seated
- Incorrect frequency set (not as dumb as it sounds)

6. WHEN TO DECLARE AN EMERGENCY