

Airspace and ATC

- Identifying airspace on maps
- Rules for operating in different airspace types
- Communicating with Air Traffic Control (ATC)
- Monitoring aircraft communications

Controlled vs. Uncontrolled

- “Controlled” means ATC services available
- Alpha is above 18,000 feet.
- Bravo, Charlie, Delta associated with airports
- Echo away from airports
- Golf airspace has no ATC services
 - Foxtrot airspace not used in US

Charts

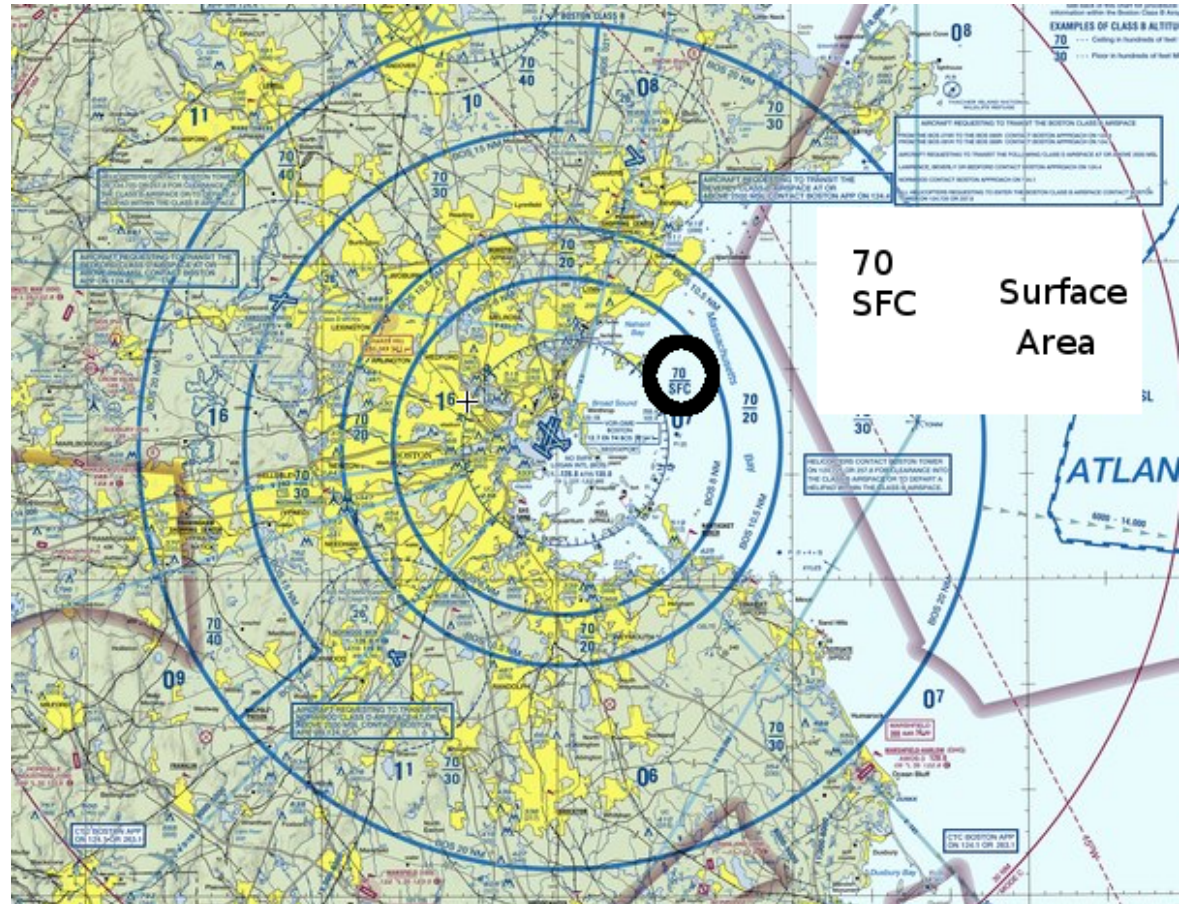
- “Sectional Aeronautical” and “Terminal Area”
- View for free on the web:
<https://skyvector.com/>
- Can also purchase from numerous retailers, both on-line and local flight schools
- Apps on smartphones and tablets with free charts:

FltPlan Go iFlightPlanner



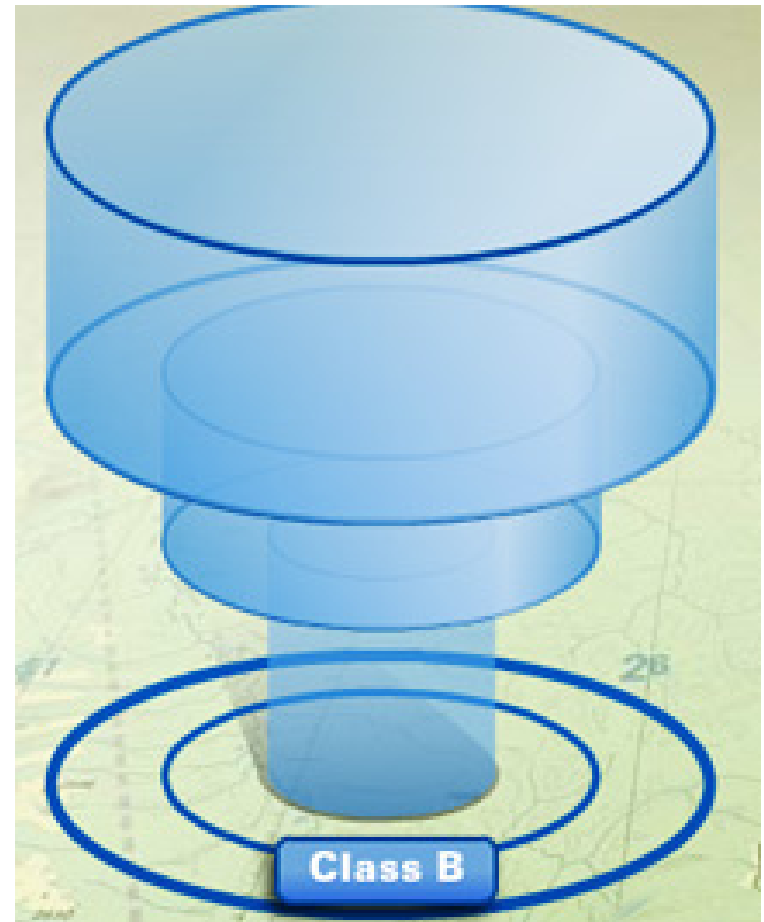
Bravo Airspace

- Wide blue line
- Up to 10,000'
- Boston (BOS) at right
- 8 nautical mile (nm) inner ring
- 30nm veil



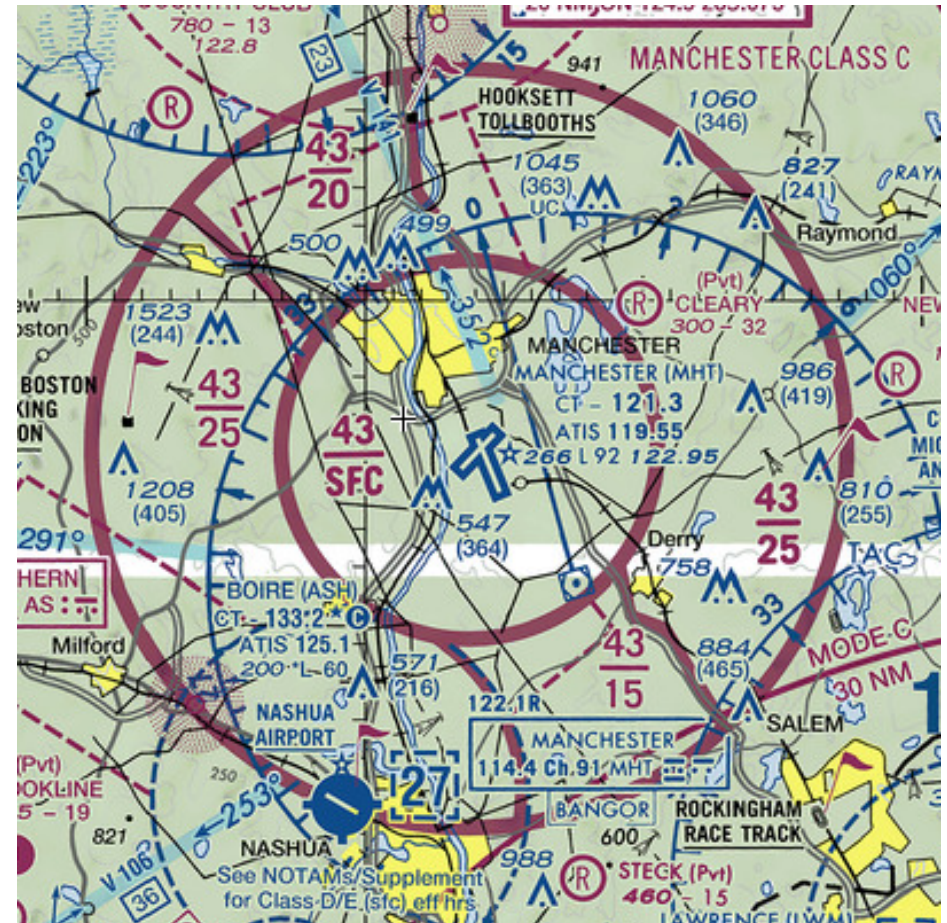
Bravo Airspace

- 3D view at right
- “Wedding cake”
- Major airports
- Each is different



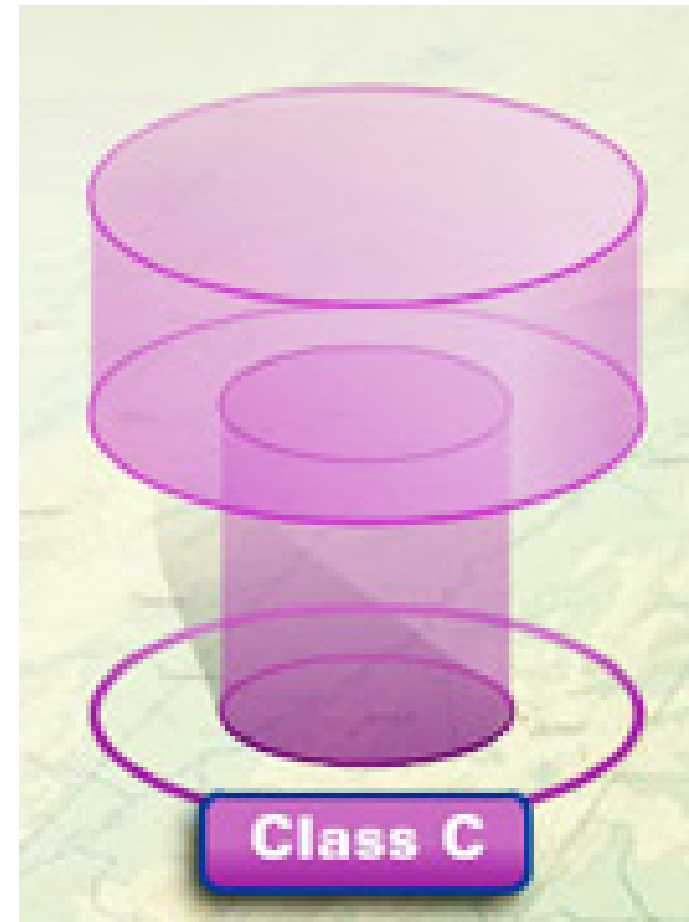
Charlie Airspace

- Wide solid magenta line
- Up to 4,000'
- Inner ring at Manchester (MHT) at right is 5nm radius
- 10nm shelf area
- 20nm outer area



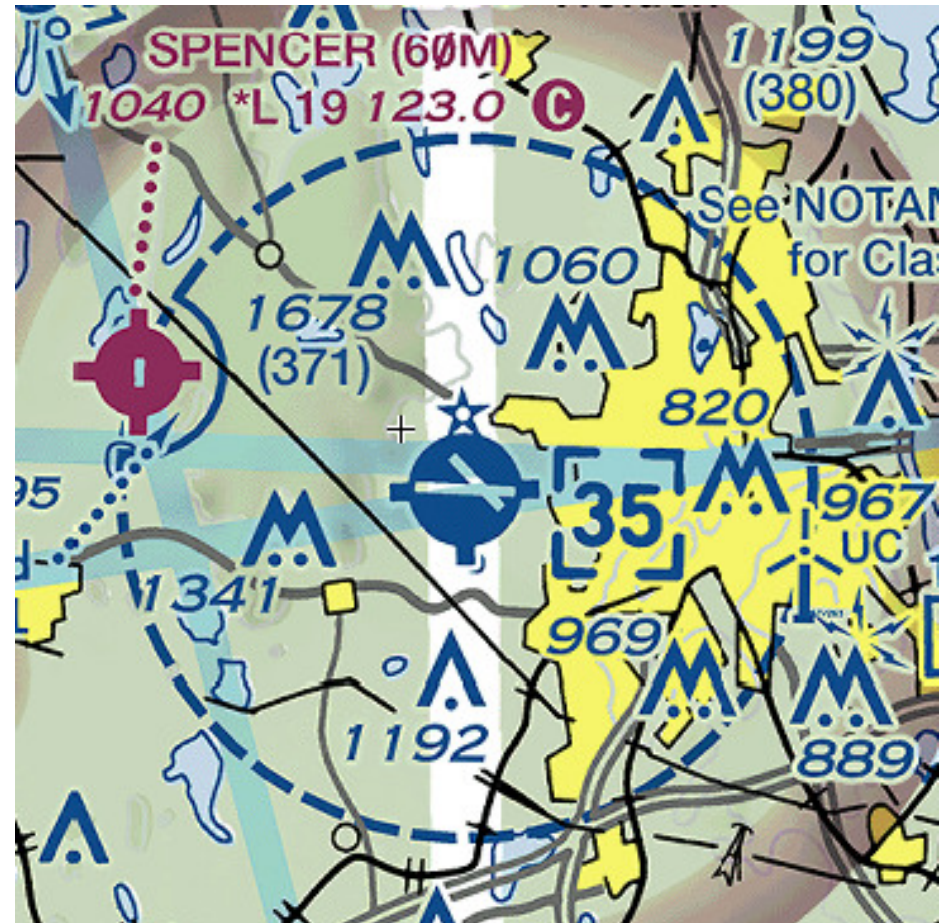
Charlie Airspace

- 3D view at right
- Layered design



Delta Airspace

- Thin, dashed blue line
- Surface up to 2,500' AGL normally
- 5nm radius
- Worcester (ORH) at right has area cut out for Spencer



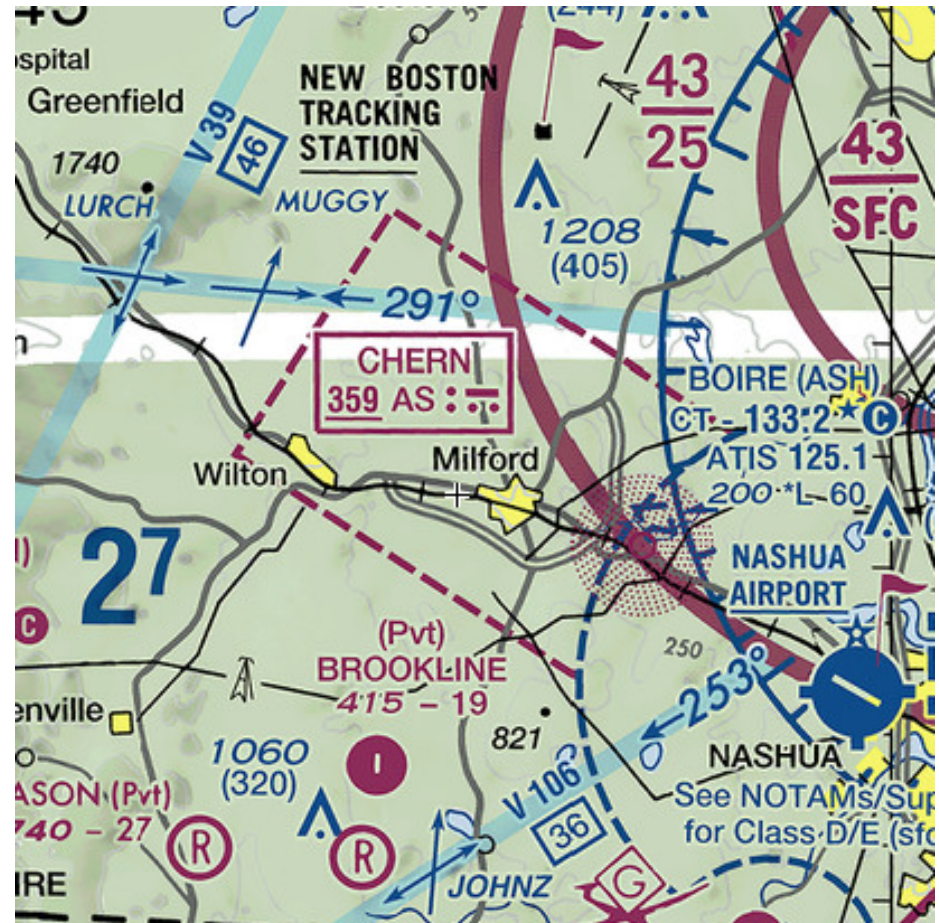
Delta Airspace

- 3D view at right
- Simple cylinder



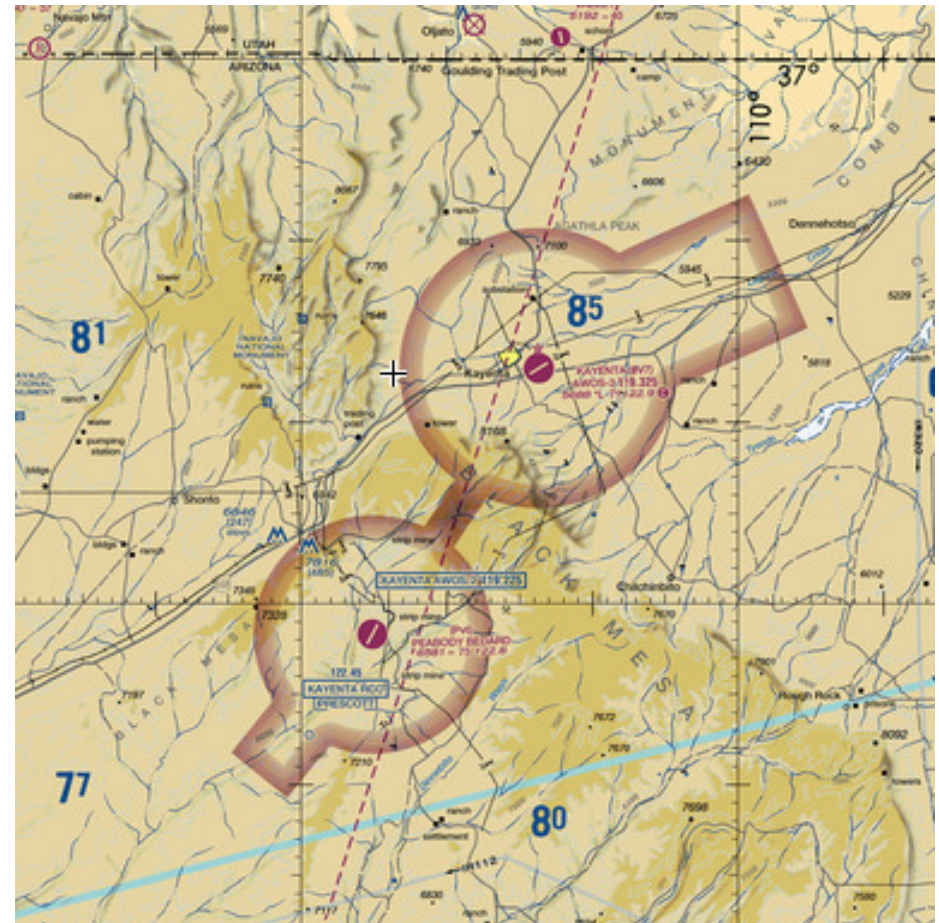
Echo Surface Area

- Dashed, thin magenta line
- Outlines a runway approach (14 at ASH at right)
- Requires ATC permission
- Extends up to 700 AGL



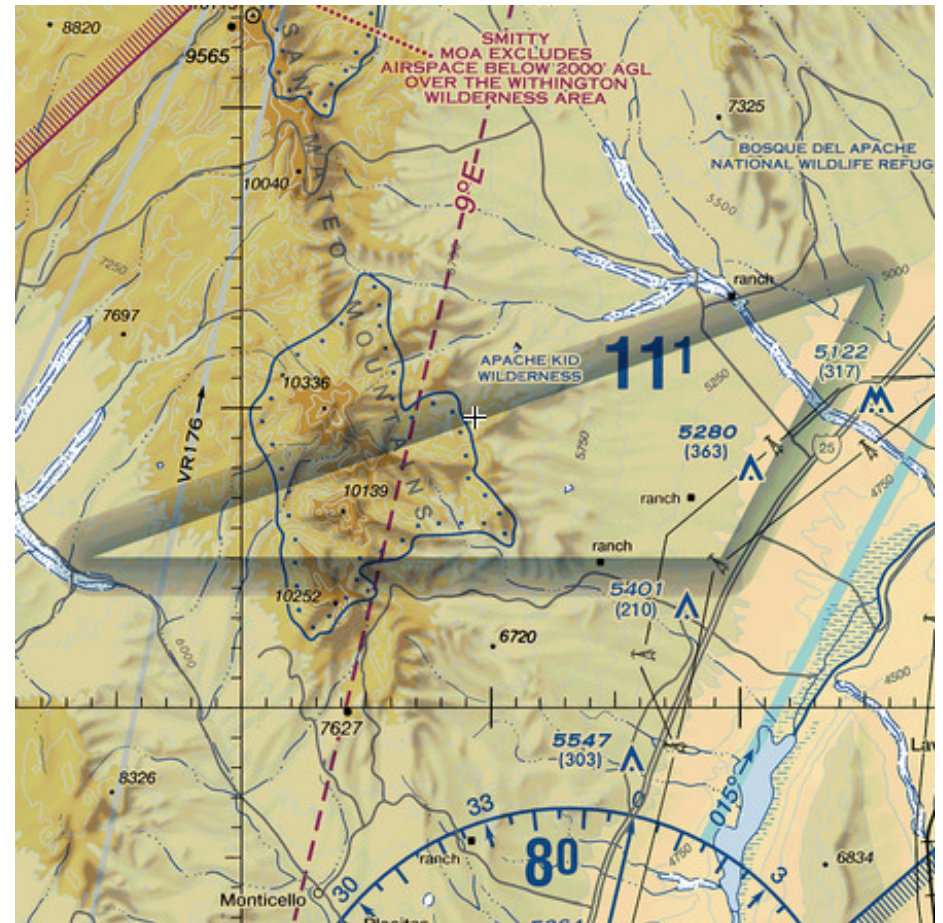
Echo at 700'

- Thick magenta shaded lines
- Usually associated with airports
- Does not require ATC permission
- ... but should use caution



Echo at 1200'

- Thick blue shaded lines (rare)
- Most places have Echo at 1200' AGL
- Echo starts at 14,500 MSL otherwise
- Echo also above 60,000 feet



General Rules

- If multiple types, then most restrictive applies.
- If no upper limit given, then it extends to the next defined airspace above.
- Be careful about Above Ground Level (AGL) versus Mean Sea Level (MSL) distinction.
- Need to look at the map carefully; many places differ from norm due to local issues

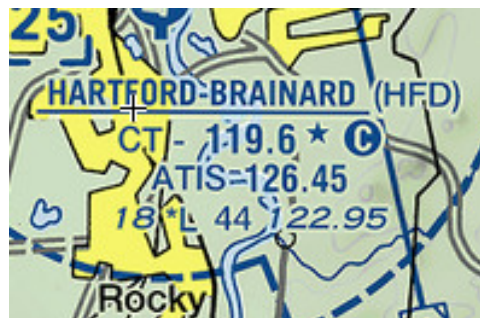
Controlled Surface Areas

- ATC permission required to operate in surface area of B, C, D, E airspace
- Cannot get permission from Flight Service, tower, or ATC
- Geo-fencing is not FAA-certified
- Waiver from 107.41 or authorization is currently required

<https://faadronezone.faa.gov/>

Part-Time Towers

- Many control towers are part time, indicated with asterisk by frequency on map.
- Schedule in Chart Supplements (former A/FD).
https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/
- Airspace reverts to Echo (to surface) when tower closed – still need ATC permission.

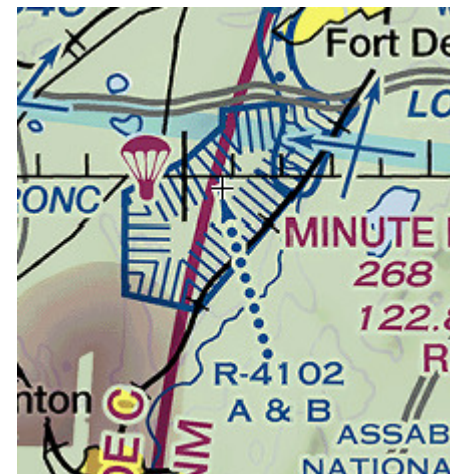


RCO 122.2 (BRIDGEPORT RADIO)
® BRADLEY APP/DEP CON 119.0 CLNC DEL 11
TOWER 120.5 (1130-0200Z) GND CO
AIRSPACE: CLASS D svc 1130-0200Z oth
VOR TEST FACILITY (VOT) 108.2

Special Use Airspace

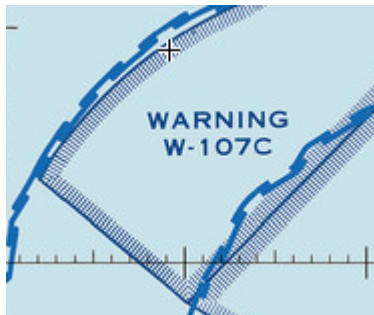
- No UAS in Prohibited or Restricted areas

<https://sua.faa.gov/>



Other Special Use

- Warning, Alert, and Military Operating Areas (MOAs)
- Military Training Routes (MTRs)
 - Four digits: no segment over 1500' AGL (VR1005)
 - Three or fewer digits: 1500' AGL and above (IR23)
- Controlled Firing areas are not on maps



Notices To Airmen (NOTAMs) and Temporary Flight Restrictions (TFRs)

- NOTAMs contain important information
- Must check before each flight:
<https://notams.aim.faa.gov/notamSearch/>
- Flight Service System (FSS) gives current, not published NOTAMs
- Key type: Temporary Flight Restriction (TFR)
- Can also check with FAA's B4UFLY app



Airports

- Over 19,700 airports, 800 commercial
- Detailed information in the Chart Supplements:
https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/
- Map symbols include a wealth of information
- Good unofficial source of information:
<http://www.airnav.com/>
- Must not interfere with manned operations at airports
- Large airports have SIDA (badge) requirements

Chart Supplements

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DIRECTORY LEGEND

SAMPLE

1 CITY NAME
2 AIRPORT NAME (ALTERNATE NAME)
3 (LTS) (KLTS)
4 CIV/MIL
5 3 N
6 UTC-6(-5DT)
7 N34°41.93' W99°20.20'
8 JACKSONVILLE
9 COPTER
10 H-46, L-19C
11 IAP, DIAP, AD
12 200
13 B
14 54
15 FUEL 100
16 OX 1
17 TPA-1000(800)
18 AOE
19 Class IV, ARFF Index A
20 NOTAM FILE ORL
21 Not Insp.

RWY 18-36: H12004X200 (ASPH-CONC-GRVD)
S-90, D-160, 2D-300 PCN 80 R/B/W/T HIRL CL
RWY 18: LDIN. MALSF. TDZL. REIL, PAPI(P2R)-GA 3.0° TCH 36'.
Thld dspcd 300'. Trees, Rgt tfc. 0.3% up.

RWY 36: ALSF1. 0.4% down.

RWY 09-27: H6000X150 (ASPH) MIRL

RWY 173-353: H3515X150 (ASPH-PFC) AUV PCN 59 F/A/W/T

LAND AND HOLD SHORT OPERATIONS

LANDING	HOLD SHORT POINT	DIST AVBL
RWY 18	09-27	6500
RWY 36	09-27	5400

RUNWAY DECLARED DISTANCE INFORMATION

RWY 18: TORA-12004	TODA-12704	ASDA-11704	LDA-11504
RWY 36: TORA-12004	TODA-12004	ASDA-12004	LDA-11704

ARRESTING GEAR/SYSTEM

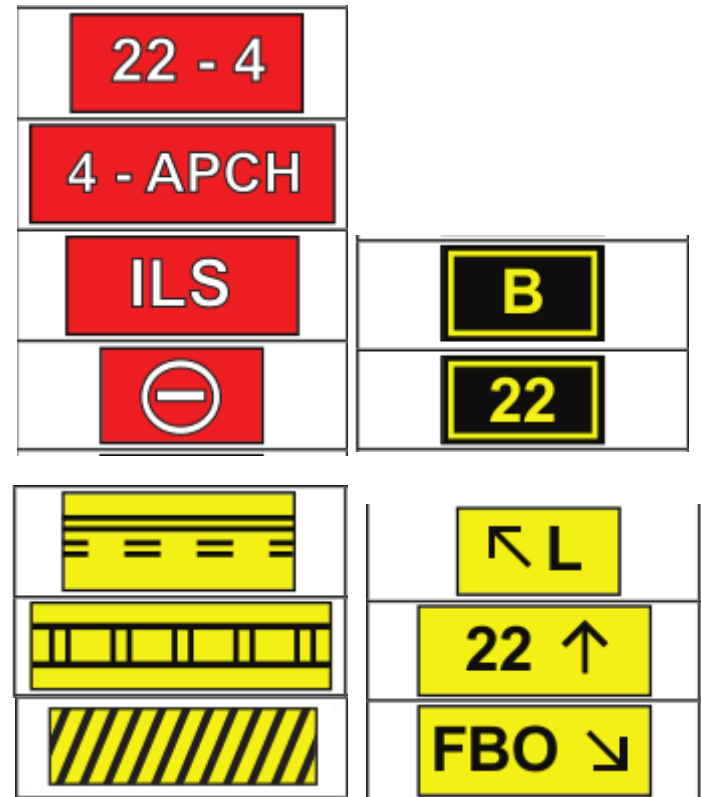
RWY 18 → HOOK E5 (65' OVRN) BAK-14 BAK-12B (1650')
BAK-14 BAK-12 (B) (1087') HOOK E5 (74' OVRN) ← RWY 36

MILITARY SERVICE: A-GEAR E-5 connected on dep end, disconnected on
hook end. IAP 3/AM22A 50' 2/A/M22A 95'



Airport Signs

- White-on-red: mandatory
- Yellow-on-black: location
“black square, you are there”
- Black-on-yellow: information
 - Boundaries
 - Directional / destination



Runways

- Named by magnetic direction, 01 through 36
- Selected usually by direction of wind
- Each has two names – 14/32, 09/27
- If multiple, then “Left,” “Right,” or “Center”
- May use off-by-one numbers

LEGEND

Standard Left-Hand
Traffic Pattern (depicted)



Right-Hand Traffic
Pattern (depicted)



Base

Final

Departure

Crosswind

No Transgression Zone



Segmented Circle

No Transgression Zone

Final

Departure

Base

Downwind

Entry

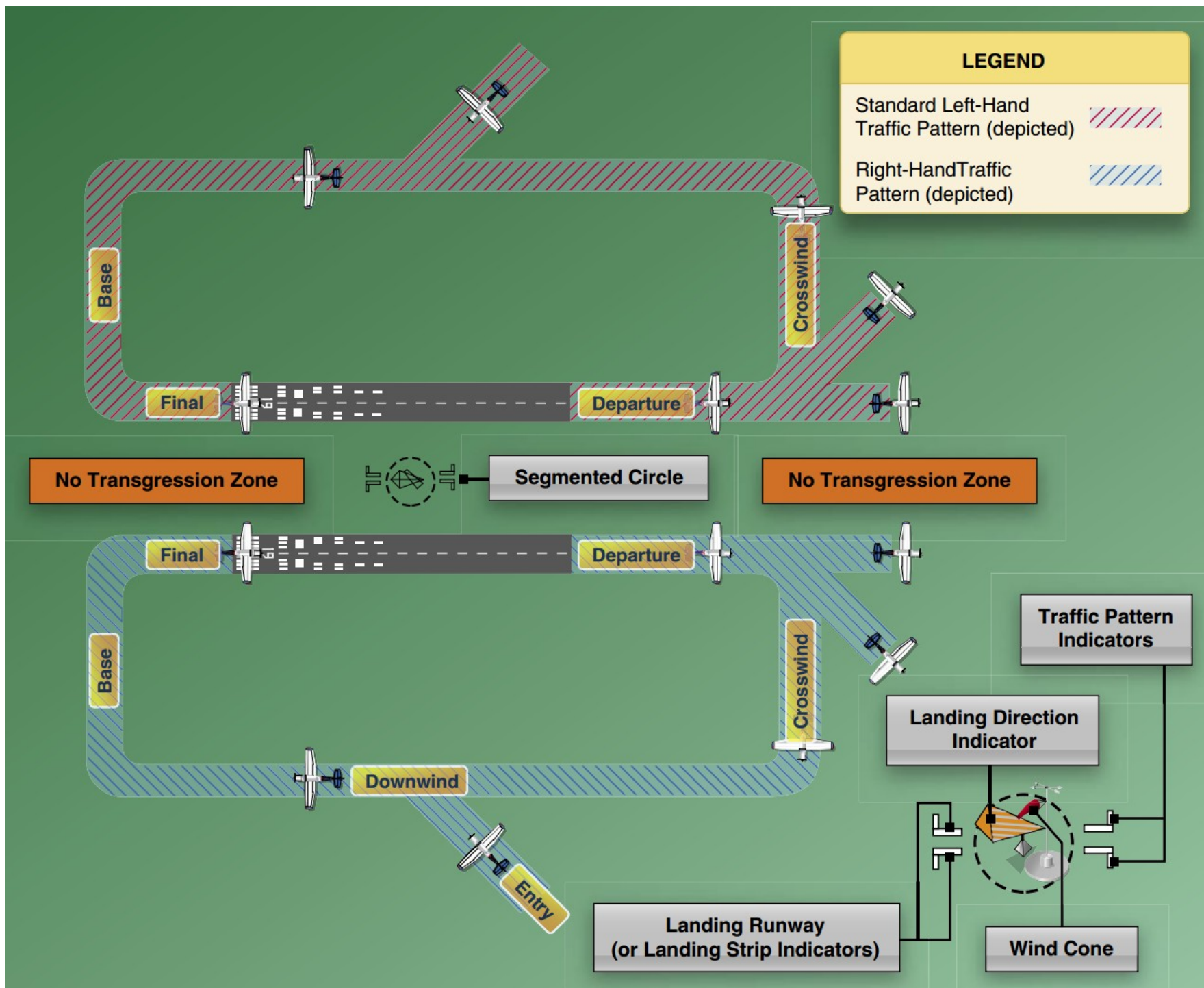
Crosswind

Traffic Pattern
Indicators

Landing Direction
Indicator

Landing Runway
(or Landing Strip Indicators)

Wind Cone



Radio Communications

- Common Traffic Advisory Frequency (CTAF) position report (untowered)

"Podunk Traffic, Red-and-White Skyhawk, midfield, left downwind, runway 2-7, Podunk."
- Pilot call to ATC (towered)

"Metro Tower, Piper 12345, 10 east at 2 thousand 500, inbound with Alpha"

Letters and Numbers

Alpha	Bravo	Charlie	Delta	Echo	Foxtrot	Golf	Hotel	India
Juliet	Kilo	Lima	Mike	November	Oscar	Papa	Quebec	Romeo
Sierra	Tango	Uniform	Victor	Whiskey	X-Ray	Yankee	Zulu	Zero
One	Two	Tree	Four	Fife	Six	Seven	Eight	Niner

Locations

- Important landmarks are on maps
- Best: use airport or navigation aid (navaid) plus distance and direction
 - two mile radius at 2-5 miles on the Manchester 2-0-5 radial
- Can use GPS coordinates with ATC
 - 4116N/07334W
- Use skyvector, Google maps, smartphone apps
- Will need to be able to read printed charts on test
 - Find latitude/longitude from tic marks