Airspace

Vineet Awasthy- June 2026

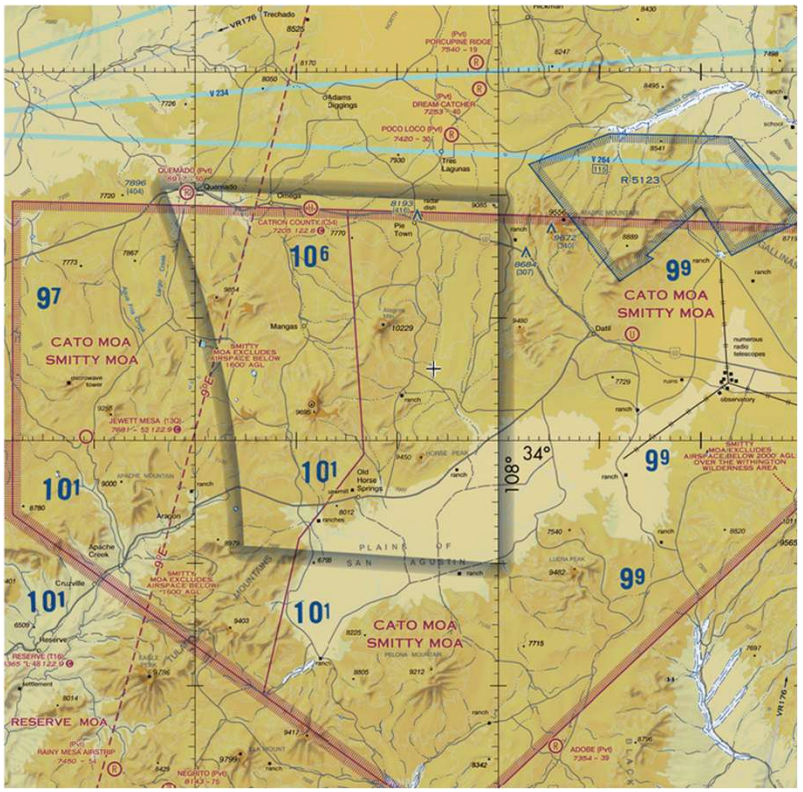
Categories & Classes of Airspace in the US

- Uncontrolled
  - Class G
  - No ATC services available for VFR or IFR traffic
- Controlled
  - ATC services available (but not always mandatory)
  - Class E – optional for VFR, mandatory for IFR
  - Class D – mandatory for VFR+IFR
  - Class C – mandatory for VFR+IFR
  - Class B – mandatory for VFR+IFR
  - Class A – mandatory for IFR

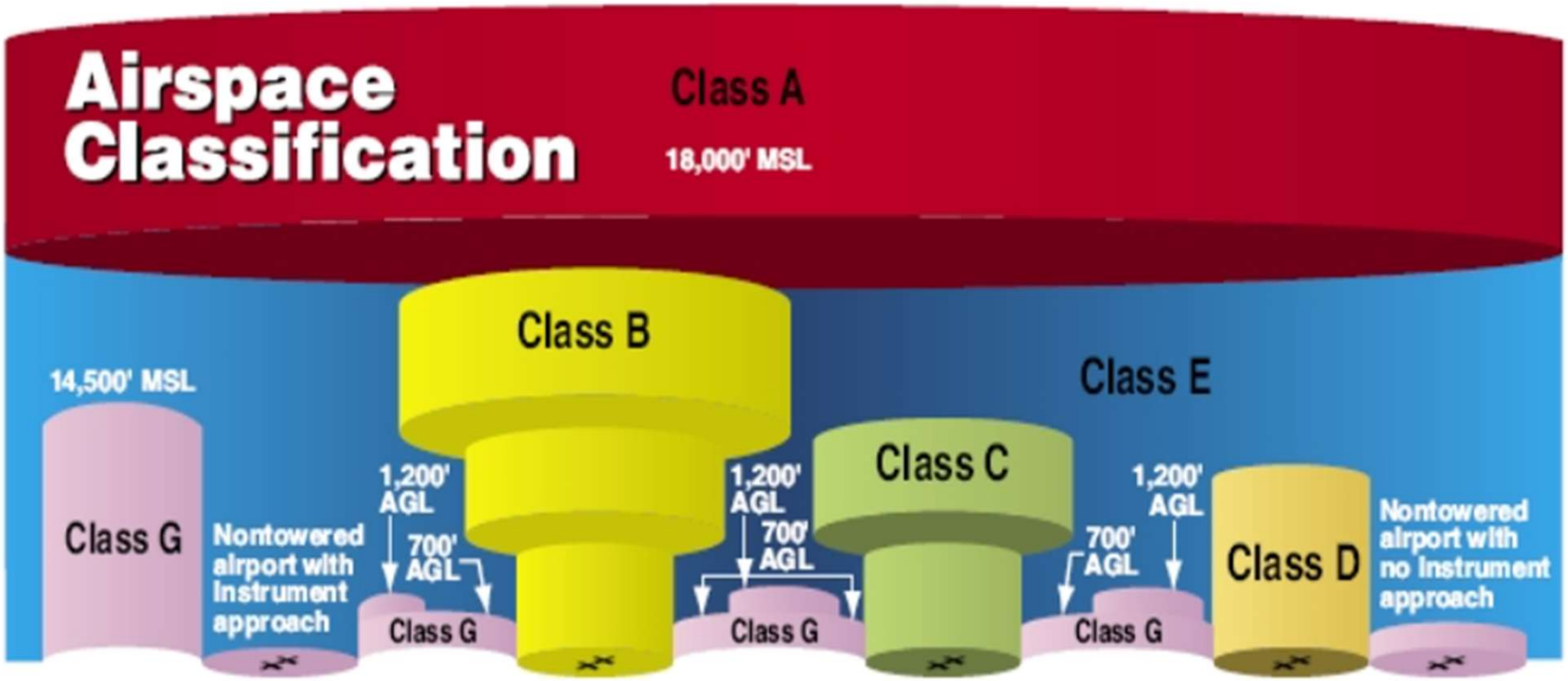
Airspace in the “good old days”

Class E 1,200’ AGL shelf

- Extend Class E from 1,200 AGL to 14,500:
- Federal Airways (Victor Airways)
- Climb to/descent from Federal Airways
- Off-airway navigation
- Result: Almost everywhere Class E starts at 1,200’ AGL



Became this


Airspace Classification
Class A
18,000' MSL
Class B
14,500' MSL
Class E
Class C
Class G
Nontowered airport with instrument approach
1,200' AGL
700' AGL
Class G
1,200' AGL
700' AGL
Class G
1,200' AGL
700' AGL
Class G
Class D
Nontowered airport with no instrument approach

Class G

- Uncontrolled
- No minimal equipment
- No minimal certificate
- No separation services of any kind
- Starts at the surface to the overlying controlled airspace (typically 700 or 1,200 AGL)
- 250 IAS below 10,000 MSL

- Day 1,200 AGL or less:
  - Day: 1 SM and clear of clouds
- Below 10,000 MSL day/night or night below 1,200 AGL:
  - 3 SM, 500’ below, 1,000’ above, 2,000’ horizontal from clouds (“basic VFR”).
  - Exception: at night, with visibility of at least 1 SM and below 1,200’ AGL, may operate in an airport traffic pattern within ½ SM from a runway

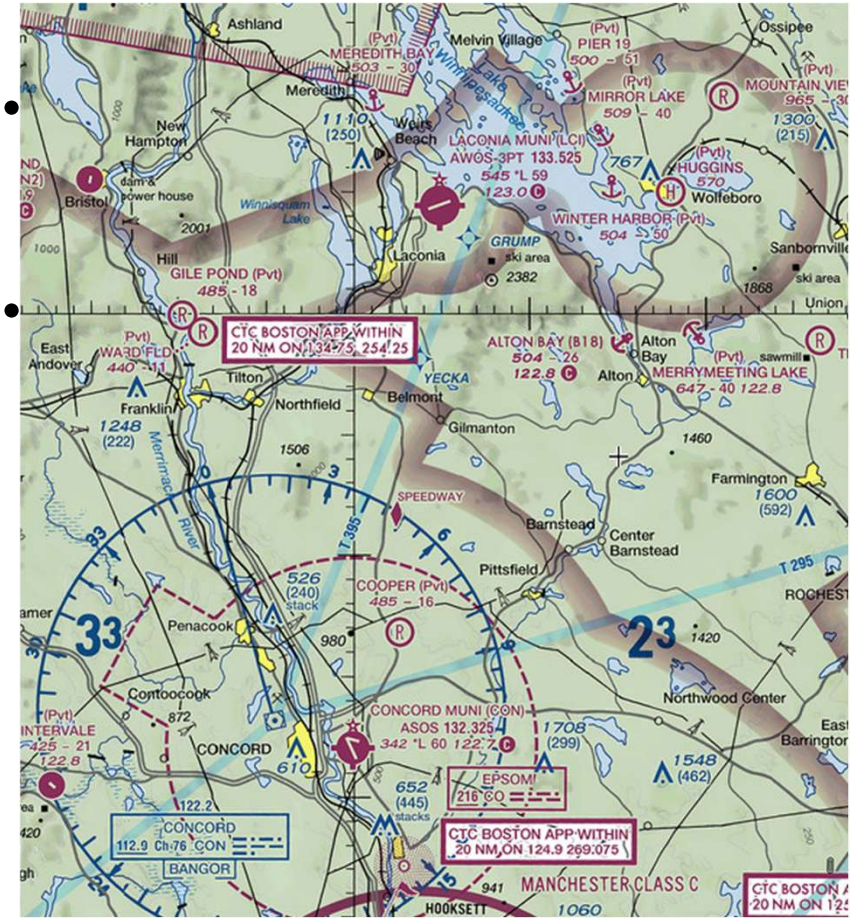
Class G

- Uncontrolled
- No minimal equipment
- No minimal certificate
- No separation services of any kind
- Starts at the surface to the overlying controlled airspace (typically 700 or 1,200 AGL)
- 250 IAS below 10,000 MSL

- Weather over 1,200 AGL and above 10,000 MSL:
  - 5 SM visibility, 1,000’ below, 1,000’ above and 1 SM horizontal from clouds.

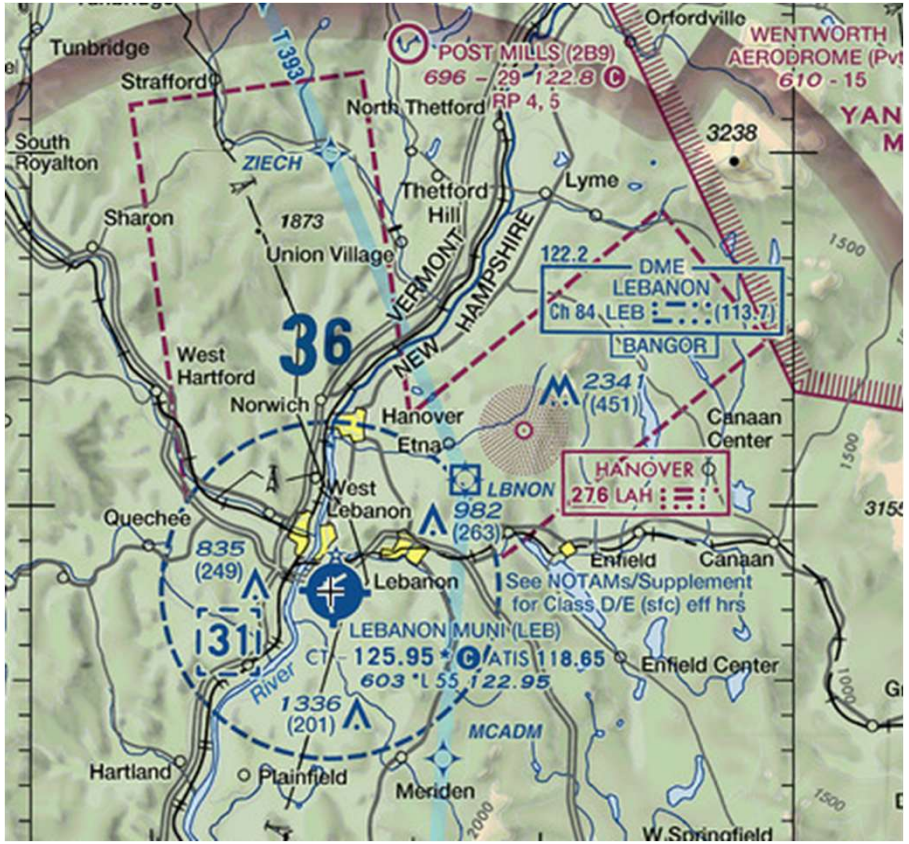
Class E

- Controlled
- Starts at surface, 700 AGL or 1,200 AGL
- Over 10,000 MSL but not below 2,500 AGL: ADS-B out and transponder with altitude reporting (Mode A+C)
- No minimal certificate
- Separation of IFR traffic from IFR traffic. All others – alerts on workload permitting basis.
- 250 KIAS below 10,000 MSL



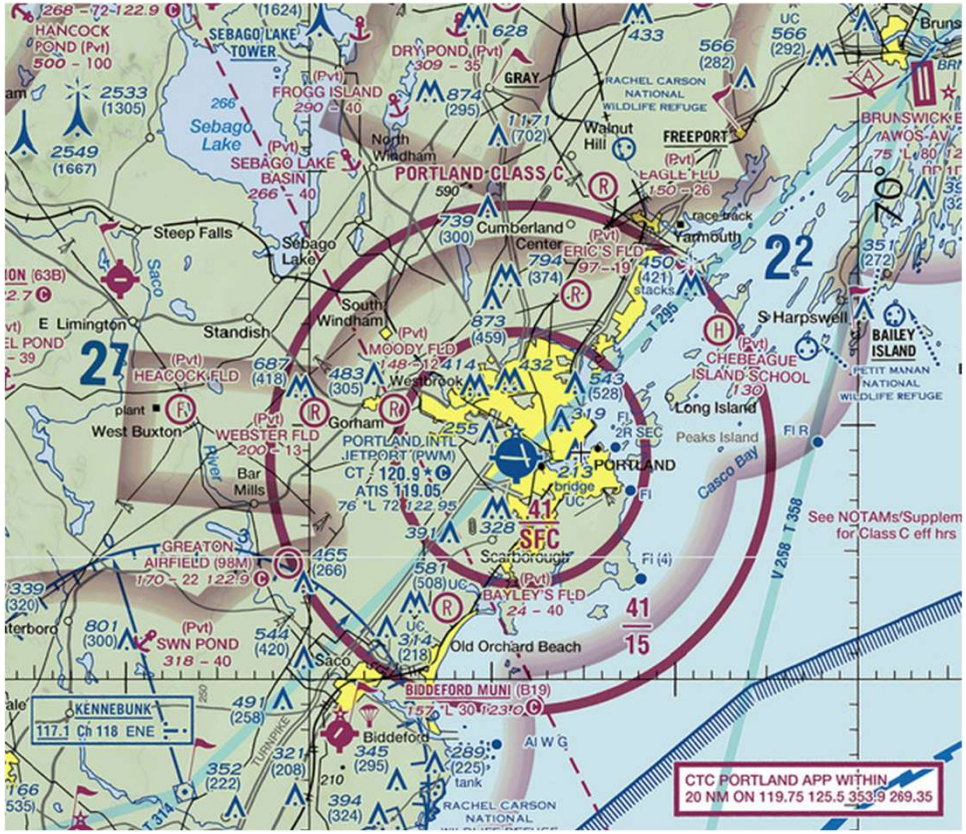
Class D

- Majority of towered airports
- Controlled: two-way radio communication required, clearance to operate on a runway or taxiway + take off/landing.
- Max speed 200 KIAS 4 NM/2,500
- Separation between IFR + Special VFR traffic
- TPA 1,000 AGL, 1,500 AGL for turbine/large aircrafts.
- May revert to Class E/G when tower closed.



Class C

- About 120 medium sized airports
- Controlled: two-way radio communication required, clearance to operate on a runway or taxiway + take off/landing.
- Max speed 200 KIAS 4 NM/2,500
- Separation between IFR, and between IFR and participating VFR
- ADS-B out and transponder with altitude reporting (Mode A+C) required **at or above** Class C (not below)



Class B

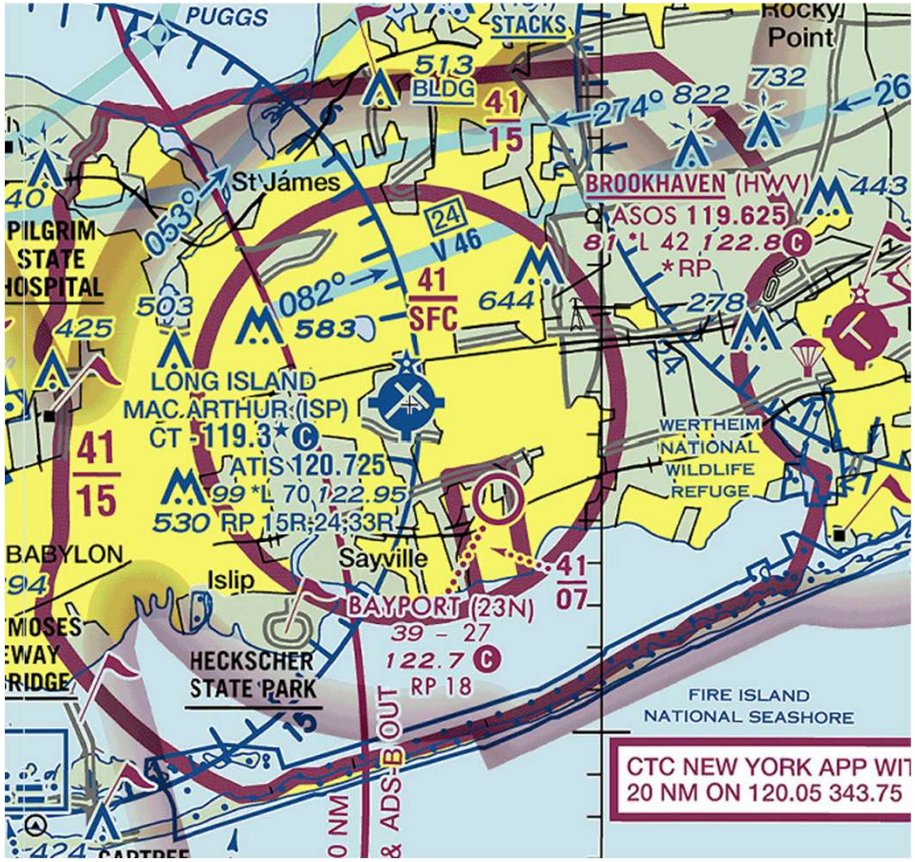
- 37 largest airport
- Controlled: Explicit clearance required “Cleared into the Bravo”.
- Minimum Private Pilot (or Student Pilot with appropriate endorsement).
- Max speed 200 KIAS below Class B.
- Full separation for VFR+IFR
- ADS-B out and transponder with altitude reporting (Mode A+C) required inside “mode C ring” (30 NM)

Class A

- Starts at 18,000’
- Extends to FL600
- IFR only, full separation
- Private pilot + instrument rating required
- Mode A+C + ADS-B out required
- No VFR minimum prescribed

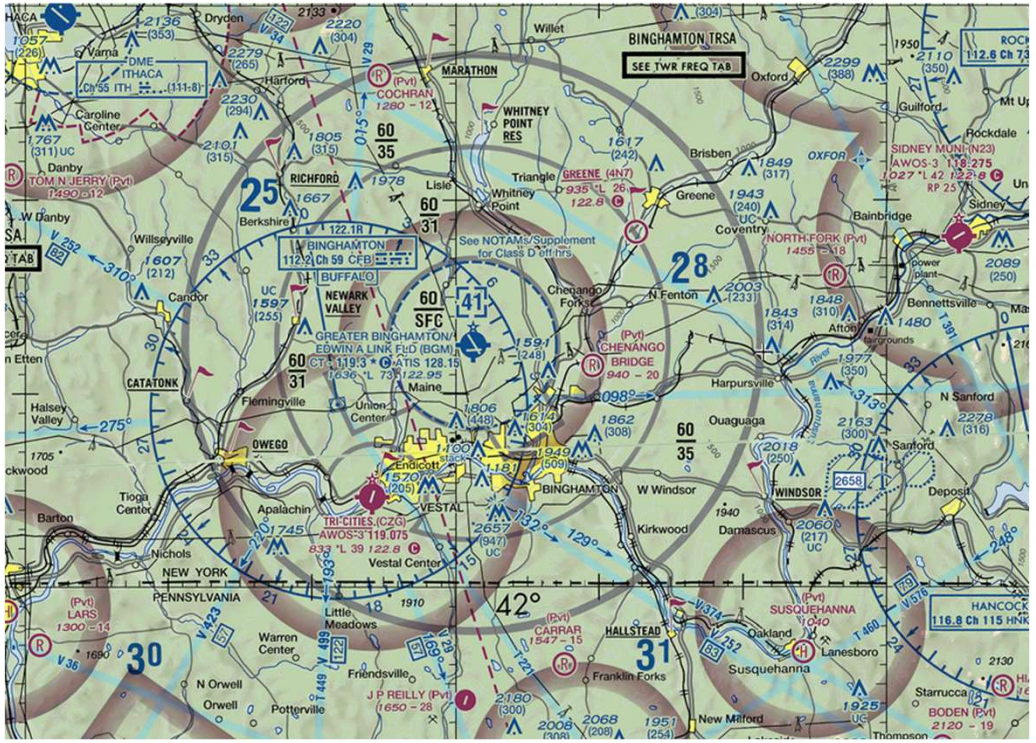
Operation out of satellite airport in close proximity to Class C

- When departing
  - Establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class D airspace area as soon as practicable after departing
- When arriving
  - Will be transferred by ATC with sufficient time to contact ATC or advisory frequency



TRSA

- “Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. Pilot participation is urged but is not mandatory.”
- Legally, airspace around the airport itself is a normal-sized Class D, while surrounding airspace is Class E or Class G.
- TRSA are essentially voluntary-participation Class C.
- Legally speaking, the airspace designation is not affected by TRSA.



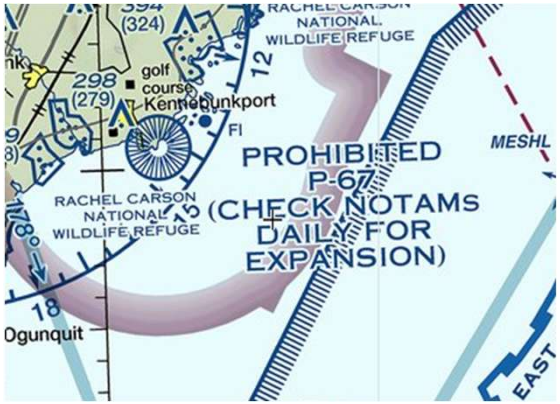
Special Use Airspace

- Prohibited area
- Restricted area
- Military operation area (MOA)
- Military training routes (MTR)
- Alert area
- Warning area
- National security area
- SFRA
- TFR
- See panel at sectional/terminal charts.

Prohibited and Restricted area – do not enter

- Restricted area – protecting you from an activity on the ground
- Time of use and controlling agency

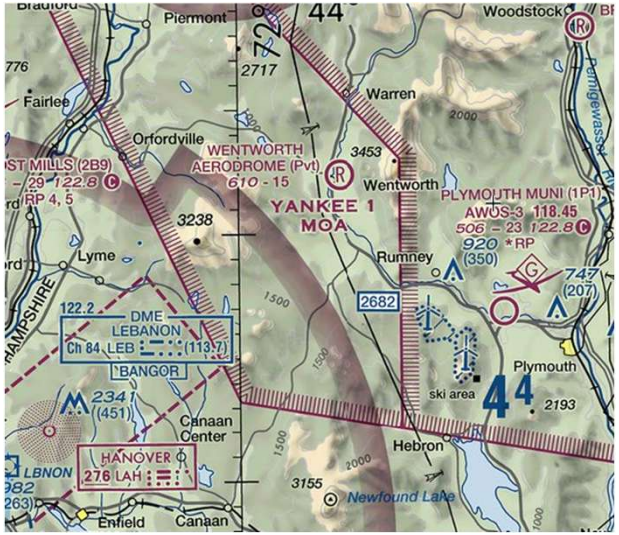
- Prohibited area – protecting an activity on the ground from you
- Time of use and controlling agency



Military Operation Area (MOA)

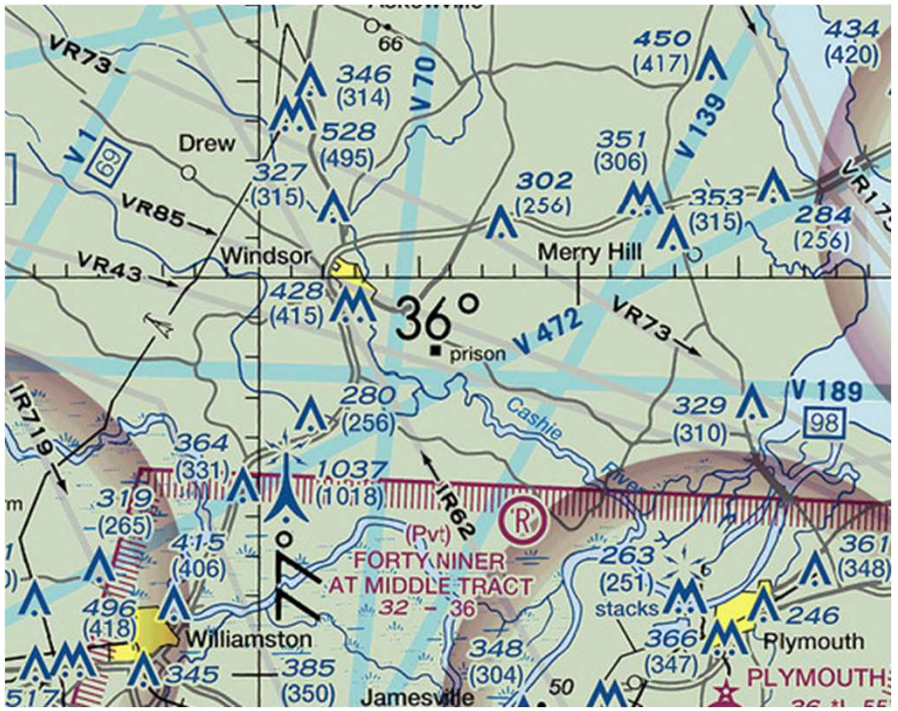
- Established to separate certain military activity from IFR traffic and to inform VFR traffic of its location.
- Activities such as:
  - Air combat tactics
  - Air intercepts
  - Aerobatics
  - Formation training
  - Low altitude tactics

- Allowed to fly through at any time, but coordinating with controlling agency is highly advised.



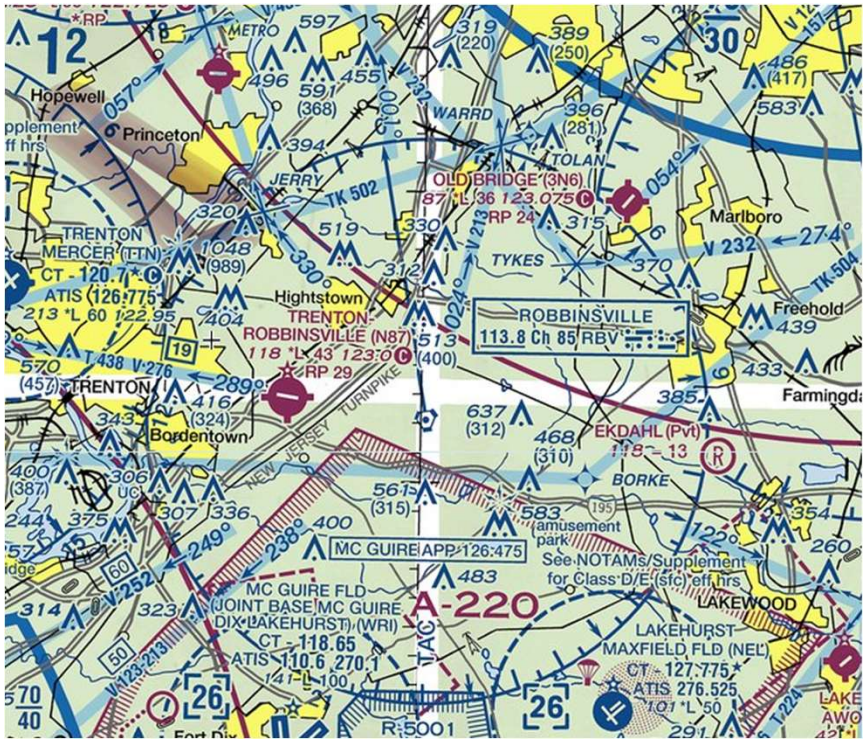
Military Training Route (MTR)

- Military operation below 10,000’ in excess of 250 KIAS.
- Low-level high-speed VFR (“VR”) and IFR (“IR) flights.
- If four-digit designation – below 1,500 AGL, otherwise above 1,500 AGL.



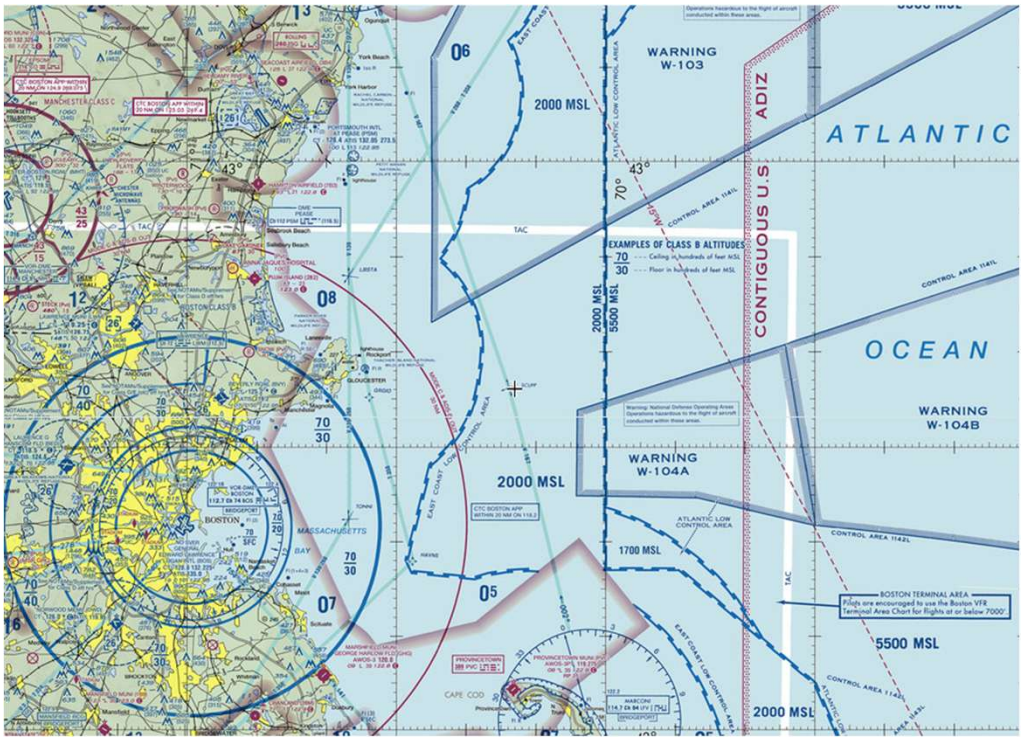
Alert Area

- High volume of pilot training or an unusual type of aeronautical activity



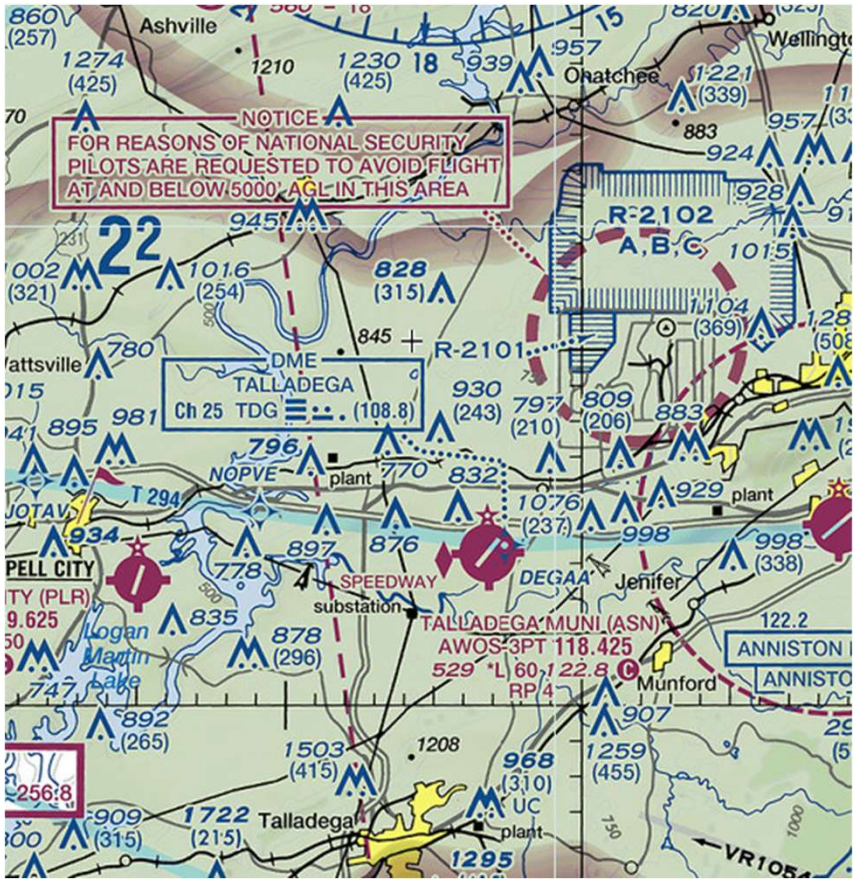
Warning Area

- Airspace of defined dimensions, extending from three nautical miles outward from the coast of the U.S.
- Activity that may be hazardous to nonparticipating aircraft.
- May be located over domestic or international waters or both.



National Security Area (NSA)

- Consists of airspace of defined vertical and lateral dimensions established at locations where there is a requirement for increased security and safety of ground facilities.
- Pilots are requested to voluntarily avoid flying through the depicted NSA.



Special Use Airspace – more info

SPECIAL USE AIRSPACE ON NEW YORK SECTIONAL CHART

Unless otherwise noted altitudes are MSL and in feet. Time is local.
"TO" an altitude means "To and including."
FL – Flight Level
NO A/G – No air to ground communications.
Contact Flight Service for information.

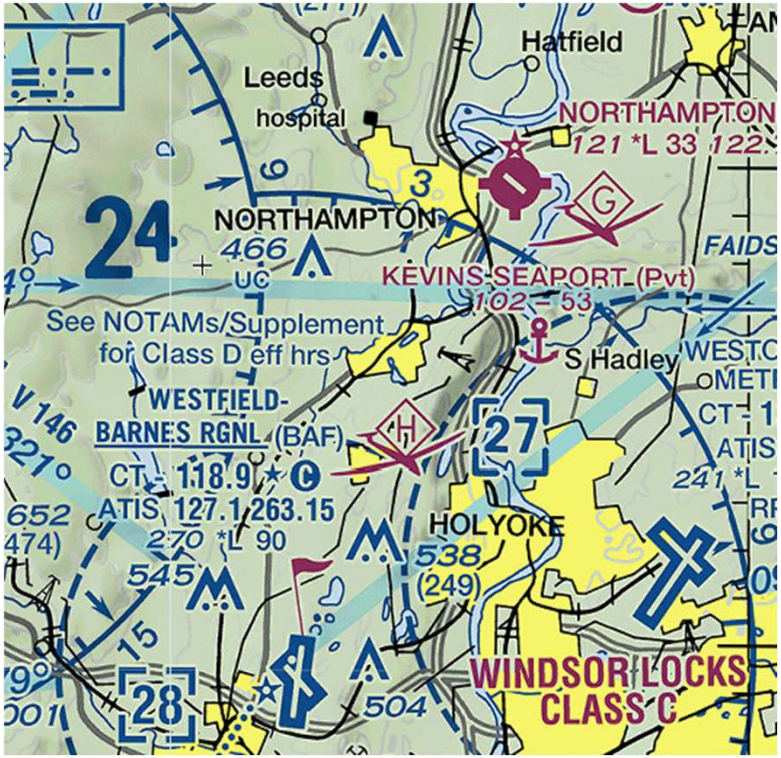
† Other times by NOTAM.
NOTAM – Use of this term in Restricted Areas indicates FAA and DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

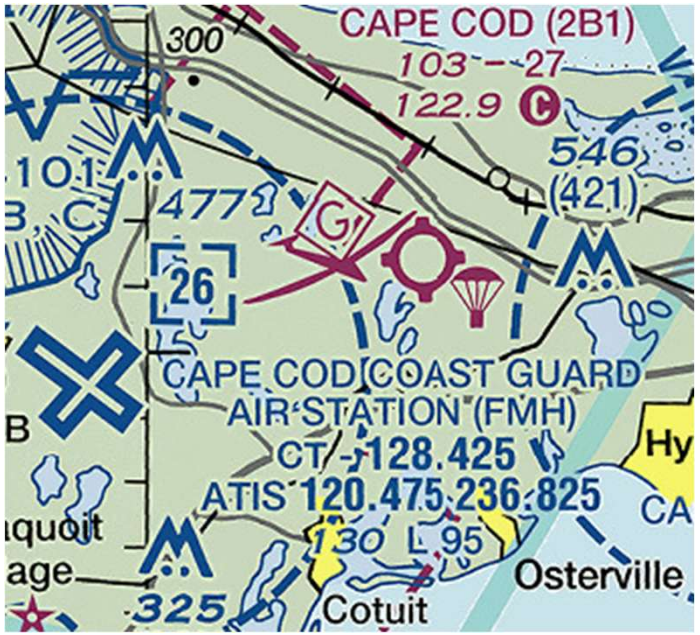
U.S. P–PROHIBITED, R–RESTRICTED, W–WARNING, A–ALERT, MOA–MILITARY OPERATIONS AREA

NUMBER	ALTITUDE	TIME OF USE	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
P-67	TO 1000	CONTINUOUS	NO A/G	
R-4101 A	TO BUT NOT INCL 2500	0600-1800 †48 HRS IN ADVANCE	BOSTON APP	
R-4101 B	2500 TO BUT NOT INCL 5000	0600-1800 †48 HRS IN ADVANCE	BOSTON APP	
R-4101 C	5000 TO 9000	BY NOTAM 48 HRS IN ADVANCE	BOSTON APP	
R-4102 A	TO BUT NOT INCL 2000	INTERMITTENT 0730-2200 †24 HRS IN ADVANCE	BOSTON TRACON	124.4
R-4102 B	2000 TO 3995	INTERMITTENT 0730-2200 †24 HRS IN ADVANCE	BOSTON TRACON	124.4
R-5001 A	TO 4000	0600-2330	MC GUIRE APP	126.475 363.8
R-5001 B	4000 TO 8000	SR FRI TO SS SUN †48 HRS IN ADVANCE	MC GUIRE APP	126.475 363.8
R-5201	TO 23,000	CONTINUOUS 1 APR–30 SEP; 0600-1800 1 OCT–31 MAR †48 HRS IN ADVANCE	BOSTON CNTR	
R-5202 B	6000 TO FL 290	0800-1700 MON-FRI 1 MAY–31 AUG† 0800-2200 MON-FRI 1 SEP–30 APR†	BOSTON CNTR	
R-5203	TO FL 500	BY NOTAM 24 HRS IN ADVANCE	CLEVELAND CNTR	127.47 346.35
R-5206	TO 5000	0600-2400 1 JUL–31 AUG †48 HRS IN ADVANCE	NEW YORK TRACON	126.4 363.1
R-5802 A	200 AGL TO 5000	0800-2300 SAT 0800-1200 SUN 15 FEB–10 MAY & 1 SEP–15 DEC; 0800-2400 SAT 0800-2000 SUN-FRI 11 MAY–31 AUG †48 HRS IN ADVANCE	NEW YORK CNTR HARRISBURG INTL ATCT	134.8 338.3 126.45
R-5802 B	TO 13,000	0800-2300 SAT 0800-1200 SUN 15 FEB–10 MAY & 1 SEP–15 DEC; 0800-2400 SAT 0800-2000 SUN-FRI 11 MAY–31 AUG †48 HRS IN ADVANCE	NEW YORK CNTR HARRISBURG INTL ATCT	134.8 338.3 126.45
R-5802 C	500 AGL TO BUT NOT INCL 17,000	0800-2300 SAT 0800-1200 SUN 15 FEB–10 MAY & 1 SEP–15 DEC; 0800-2400 SAT 0800-2000 SUN-FRI 11 MAY–31 AUG †48 HRS IN ADVANCE	NEW YORK CNTR	134.8 338.3
R-5802 D	17,000 TO BUT NOT INCL FL 220	0800-2300 SAT 0800-1200 SUN 15 FEB–10 MAY & 1 SEP–15 DEC; 0800-2400 SAT 0800-2000 SUN-FRI 11 MAY–31 AUG †48 HRS IN ADVANCE	NEW YORK CNTR	134.8 338.3
W-102 LOW	TO 17,000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-102 HIGH	ABOVE 17,000 TO FL 600	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-103	TO 2000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-104 A	TO 10,000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-104 B	TO BUT NOT INCL FL 180	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-105 A	TO FL 500	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-105 B	TO FL 180	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-106 A	TO 3000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-106 B	TO 8000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-106 C	TO 10,000	INTERMITTENT BY NOTAM	BOSTON CNTR	
W-106 D	TO BUT NOT INCL 6000	INTERMITTENT BY NOTAM	FACSFAC VACAPES	
W-506	TO FL 500	INTERMITTENT BY NOTAM	NEW YORK CNTR	
A-220	TO 4500	0800-2200	NO A/G	

Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

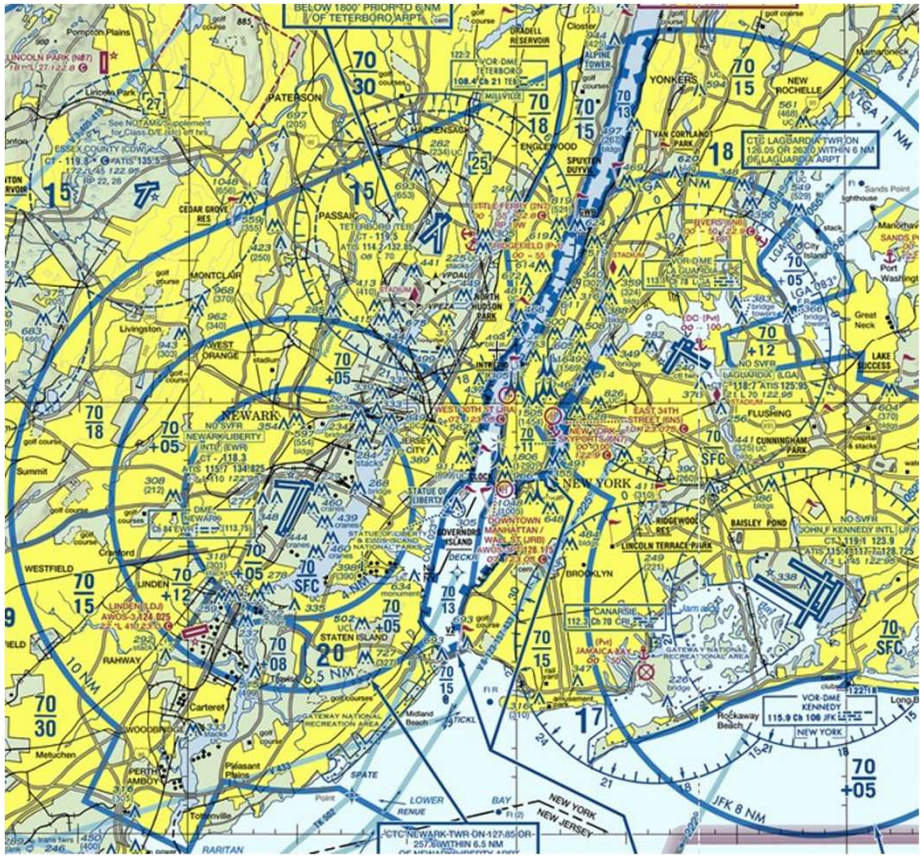
Glider + Parachuting areas





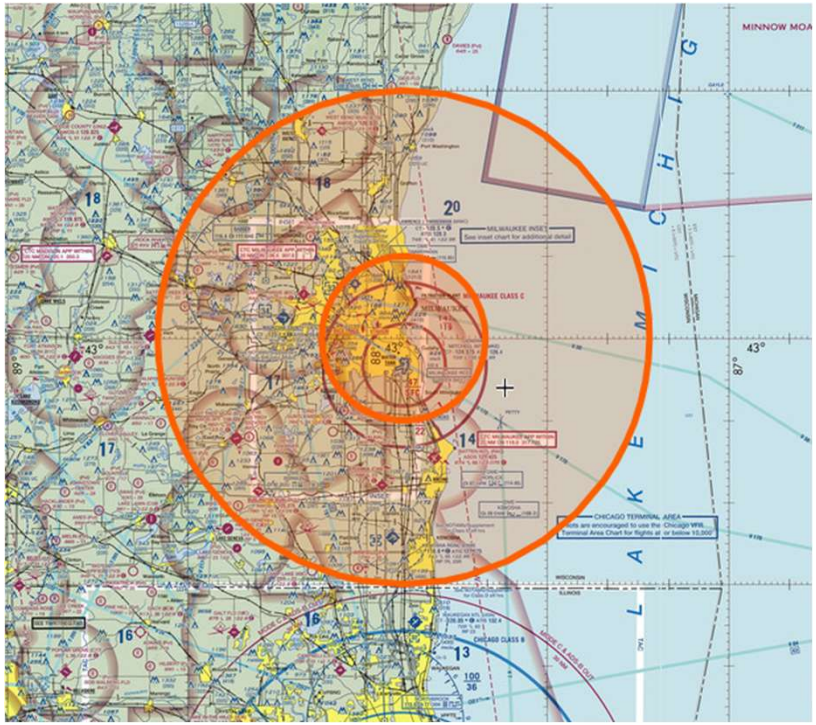
Special Flight Rules Area (SFRA)

- A region in which the normal regulations of flight do not apply in whole or in part, e.g. regulations concerning airspace classification, entry/exit altitude, course, and speed restrictions.
- Each of them enumerated in a subpart of 14 CFR 93, sometimes in Chart Supplement as well.
- Notable:
  - Subpart E: Niagara Falls
  - Subpart V: Washington DC
  - Subpart W: New York VFR Corridor



Temporary Flight Restrictions

- Temporary in nature, activated by NOTAM
- Information via briefing, EFB or tfr.faa.gov
- Examples: VIPs (President: 30 NM radius, VP: 3 NM radius), major sports events (e.g. MLB, NFL, Boston Marathon), air shows, space launch
- When able – listen on 121.5

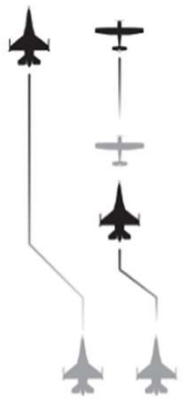


In-flight intercept procedures

Fighter Aircraft:	Meaning:	Intercepted Aircraft:
Approaches pilot-side of aircraft and matches speed and heading. (Nighttime) Will also flash navigation lights.	You have been intercepted.	(Daytime) Rock wings to acknowledge. (Nighttime) Rock wings and flash navigation lights to acknowledge.
Initiates a slow, level turn.	Follow me. Fly this way.	Match heading and follow. Continue on heading in direction of fighter.
Initiates abrupt turn across nose; may dispense flares.	Warning! Turn now in direction of fighter.	Immediately match heading and follow.
Circles airport, lowers landing gear, and overflies runway in direction of landing. (Nighttime) Will also turn on landing lights.	Land at this airport.	Lower landing gear (if equipped) and land on runway. If airport inadequate, raise landing gear (if equipped) while flying over runway and flash landing lights. Continue to circle airport between 1,000-2,000 feet until fighter signals to follow to alternate airport.
Performs the breakaway maneuver.	Fighter understands intercepted aircraft's intentions.	If cannot comply, switch on and off all available lights at *regular* intervals. If in distress, switch on and off all available lights at *irregular* intervals.

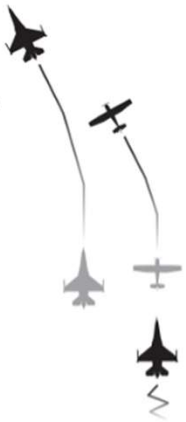
Approach & Identification

Typically two fighter jets approach from the rear. One fighter flies around to make visual contact with the pilot. This may also be conducted with a law enforcement helicopter.



Fly This Way

A slow turn by a fighter jet indicates that you should follow in the same direction. Be cautious of wake turbulence.



Breakaway Maneuver

Fighter jets will abruptly break away from pursuit when they understand your intensions.