



Commercial Pilot Ground School

Day 5
Aeronautical Charts



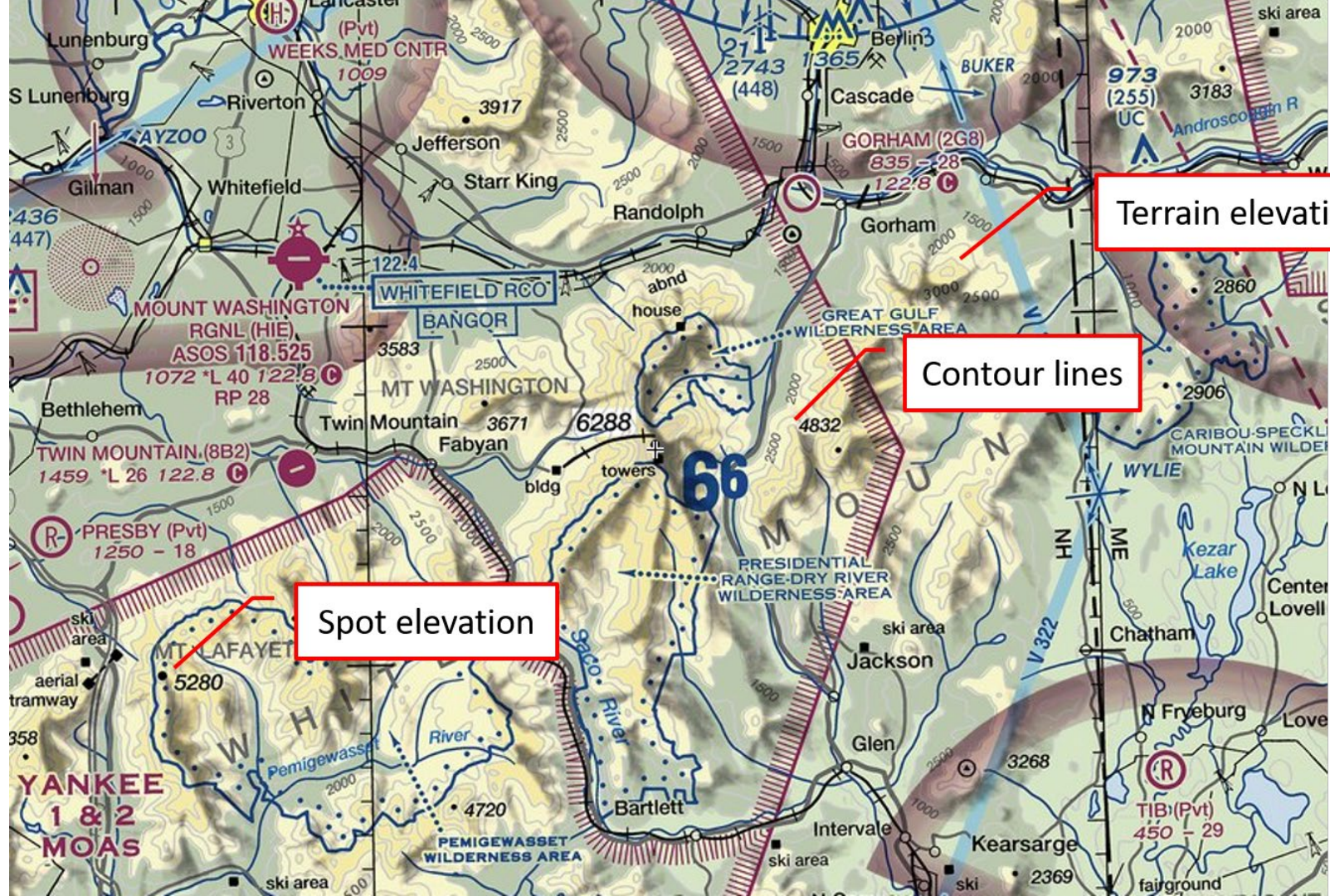
Agenda

- Sectional Charts
- Terminal Area Charts
- Airport Data
- Navigation Aids
- Airspace
- Obstructions
- Topographical Information



Sectional Charts

- Cover all fifty (50) US states, Puerto Rico, and US Virgin Islands
- Each chart is named after a primary city
- Areas covered range from 6° to 8° of longitude, and 8° of latitude
- Scale is always 1:500,000
 - Each inch on a Sectional chart represents 500,000 actual inches
 - 1" $\approx$ 7 NM $\approx$ 8 SM
 - 2.5 cm $\approx$ 7 NM $\approx$ 8 SM
- Designed for easy handling, storage, and identification during flight
- Revised every six (6) months
- Some sectional charts outside the 48 contiguous states are revised annually
- Published by the National Aeronautical Charting Office (NACO)

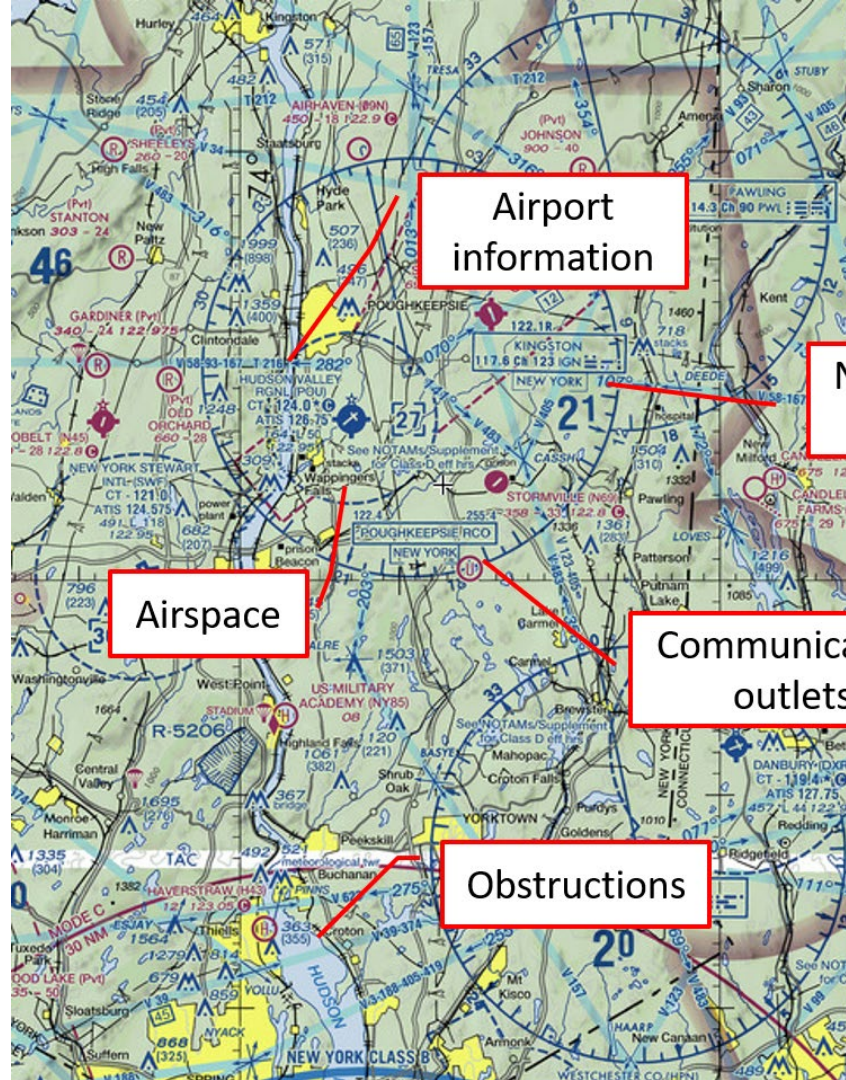


Terrain elevation

Contour lines

Spot elevation





Airport
information

Navigational aid
information

Airspace

Communication
outlets

Obstructions



Terminal Area Charts

- Provide a large-scale portrayal of selected metropolitan complexes to satisfy pilotage and local control requirements
- Each chart is named after Class B airspace
- Scale is always 1:250,000
 - Each inch on a TAC represents 250,000 actual inches
 - $1" \approx 3 \text{ NM} \approx 4 \text{ SM}$
 - $2.5 \text{ cm} \approx 3 \text{ NM} \approx 4 \text{ SM}$
- Portray more detail than a Sectional chart
- Designed for use by pilots operating from airfields within or near Class B airspace
- Revised every six (6) months
- Some sectional charts outside the 48 contiguous states are revised annually
- Published by the National Aeronautical Charting Office (NACO)

Pilots are encouraged to use the Orlando VFR Terminal Area Chart for flights at or below 10,000:

70 --- Ceiling in hundreds of feet MSL
30 --- Floor in hundreds of feet MSL

$$\frac{70}{30}$$

- Ceiling in hundreds of feet MSL
- Floor in hundreds of feet MSL

TAC

CTC DAYTONA BEACH APP
WITHIN 20 NM ON 125.35
AT & BELOW 3500'

CAUTION: High volume of flight training surface to 4000' MSL

EXAMPLES OF CLASS C ALTITUDES

--- Ceiling is to but not including floor of CLASS B

**SOUTH FLORIDA
LOW CONTROL AREA**



Navigational Aids

122.1R 122.6 123.6

PHOENIX EAST
★116.8 PEA

FSS frequencies

NAVAID NAME

★ information broadcast is not continuous

Identifier

Morse Code

FSS Callsign

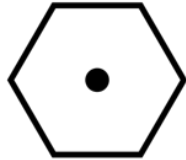
a Heavy line box drawn around a NAVAID indicates associated FSS frequencies

Note: 122.1R indicates that the frequency is Receive ONLY

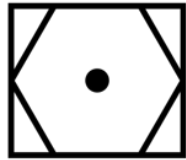
an underlined frequency indicates the NAVAID has no voice capability



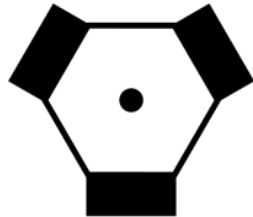
Navigational Aids



VOR



VOR / DME



VORTAC



Airspace

- Controlled Airspace
 - “Controlled airspace means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.”
- Federal Aviation Regulations
 - Part 71 – Designation of Airspaces
 - Part 73 – Special Use Airspaces
 - §91.123 – Compliance w/ an ATC clearance
 - §91.155 - VFR Weather Minimums
- Overlapping airspaces



Airspace

Class G

- VFR weather minimums
 - Daytime
 - Visibility: 1 SM
 - Clouds: Clear of clouds
 - Nighttime
 - Visibility: 3 SM
 - Clouds: 1,000 feet ABV / 500 feet BLO / 2,000 feet HORIZ
- Communication requirements
- Equipment requirements
- ATC responsibility

Scenario: You are on the ground at Spruce Creek (7FL6). You need to get three (3) landings done to maintain currency to carry passengers during daytime. Can you legally do this if you only have 1 SM of visibility?



Airspace

Class E

- VFR weather minimums
 - Less than 10,000 feet MSL
 - Visibility: 3 SM
 - Clouds: 1,000 feet ABV / 500 feet BLO / 2,000 feet HORIZ
 - At or above 10,000 feet MSL
 - Visibility: 5 SM
 - Clouds: 1,000 feet ABV / 1,000 feet BLO / 1 SM HORIZ
- Communication requirements
- Equipment requirements
- ATC responsibility



Airspace

Class D

- Typical vertical and lateral limits
 - Vertical: SFC to 2,500 feet AGL
 - Lateral: ~4 NM
- VFR weather minimums
 - Visibility: 3 SM
 - Clouds: 1,000 feet ABV / 500 feet BLO / 2,000 feet HORIZ
- Communication requirements
- Equipment requirements
- ATC responsibility



Airspace

Class C

- Typical vertical and lateral limits
 - Inner core
 - Vertical: SFC to 4,000 feet AGL
 - Lateral: 5 NM
 - Outer shelf
 - Vertical: 1,200 feet AGL to 4,000 feet AGL
 - Lateral: 10 NM
- VFR weather minimums
 - Visibility: 3 SM
 - Clouds: 1,000 feet ABV / 500 feet BLO / 2,000 feet HORIZ
- Communication requirements
- Equipment requirements
- ATC responsibility



Airspace

Class B

- Typical vertical and lateral limits
 - Vertical limits
 - Generally extends from SFC to 10,000 feet MSL
 - Generally takes the shape of an upside down wedding cake
 - Outer rings generally start at higher altitudes and extend up to 10,000 feet AGL
 - Lateral limits
 - Outer limits of the Class B extend out to 30 NM
 - Generally divided into three sections: 1) 10 NM (inner) radius, 2) 20 NM (middle) radius, and 3) an outer 30 NM radius
- VFR weather minimums
 - Visibility: 3 SM
 - Clouds: Clear of clouds
- Communication requirements
- Equipment requirements
- ATC responsibility



Airspace

Class A

- Typical vertical and lateral limits
 - Vertical limits
 - Begins at (and includes) FL180
 - Ends at (and includes) FL600
 - Lateral limits
 - Begins within 12 NM of the coast in the 48 contiguous states and Alaska
- VFR weather minimums
 - None! VFR flying is NOT permitted in Class A
- Communication requirements
- Equipment requirements
- ATC responsibility

FL 600
18,000 MSL

CLASS A | ADS-B 1090 ES Required

CLASS E | 10,000 MSL and above ADS-B Required

2,500 AGL
ADS-B Not Required

CLASS E

ADS-B
Required

10,000 MSL
3,000 MSL

12NM From
Coastline

Gulf of Mexico

CLASS C

ADS-B
Required
10,000 MSL
Surface

CLASS B

ADS-B
Required
10,000 MSL
Surface

30NM

Mode C Veil

ADS-B
Required
10,000 MSL
Surface

Key

AGL: Above Ground Level; FL: Flight Level; MSL: Mean Sea Level; NM: Nautical Miles

Airspace

Special Use Airspace (SUA)

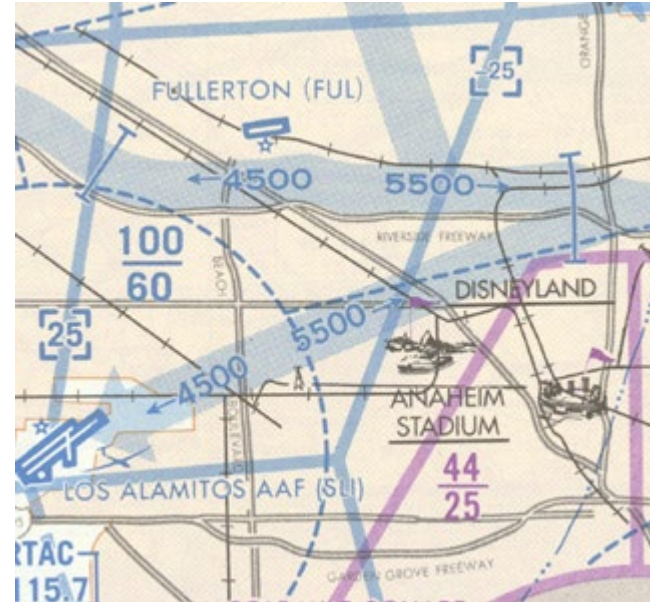
- Prohibited Airspace
- Restricted Airspace
- Warning Areas
- Military Operating Areas
- Alert Areas
- Controlled Firing Areas
- National Security Areas

Note: All of this information is available online at <http://sua.faa.gov/>



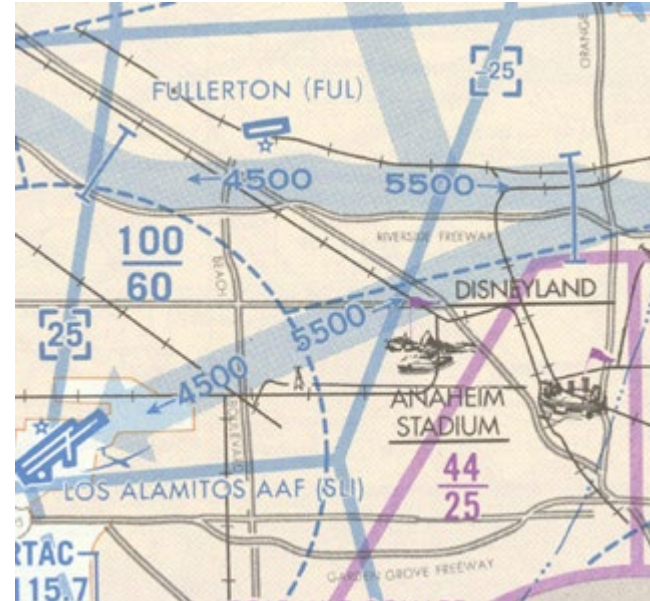
Class B Related Charts

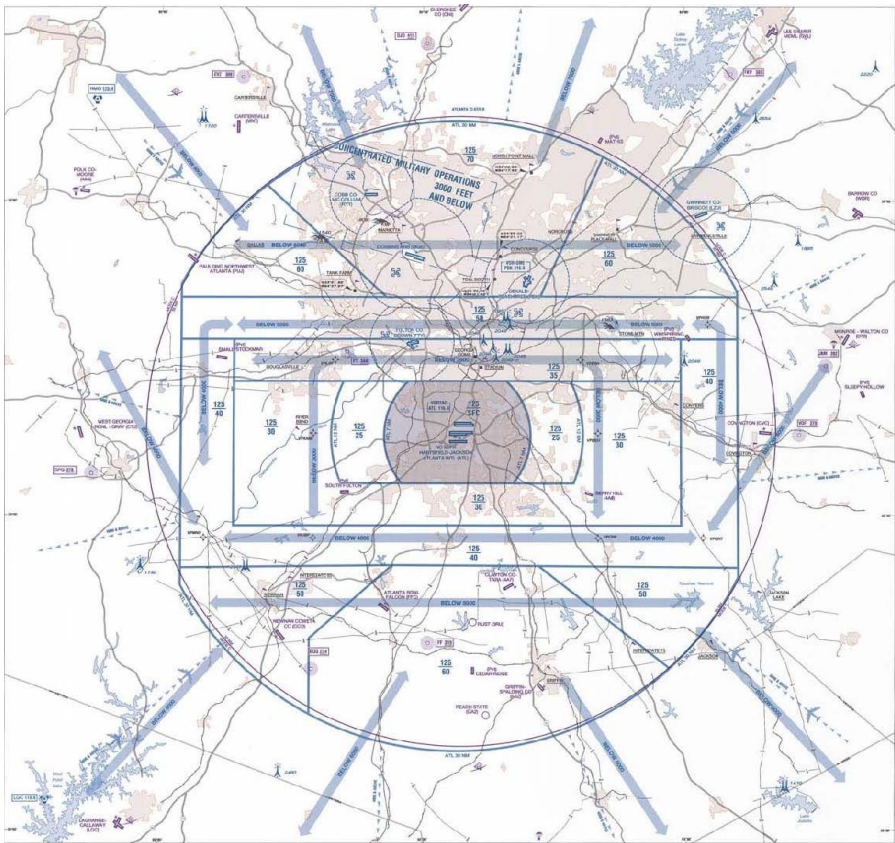
VFR Flyway Planning Charts are printed on the reverse sides of the Atlanta, Baltimore-Washington, Charlotte, Chicago, Cincinnati, Dallas-Ft. Worth, Denver/Colorado Springs, Detroit, Houston, Las Vegas, Los Angeles, Miami, Orlando, New Orleans, Phoenix, St. Louis, Salt Lake City, San Diego, San Francisco and Seattle Terminal Area Charts (TACs). The scale of these charts is 1:250,000, with area of coverage the same as the associated TACs. Flyway Planning Charts depict flight paths and altitudes recommended for use to by-pass areas heavily traversed by large turbine-powered aircraft. Ground references on these charts provide a guide for visual orientation. VFR Flyway Planning charts are designed for use in conjunction with TACs and are not to be used for navigation.



Class B Related Charts

VFR Flyways and their associated Flyway Planning Charts were developed from the recommendations of a National Airspace Review Task Group. A VFR Flyway is defined as a general flight path not defined as a specific course, for use by pilots in planning flights into, out of, through or near complex terminal airspace to avoid Class B airspace. An ATC clearance is NOT required to fly these routes.

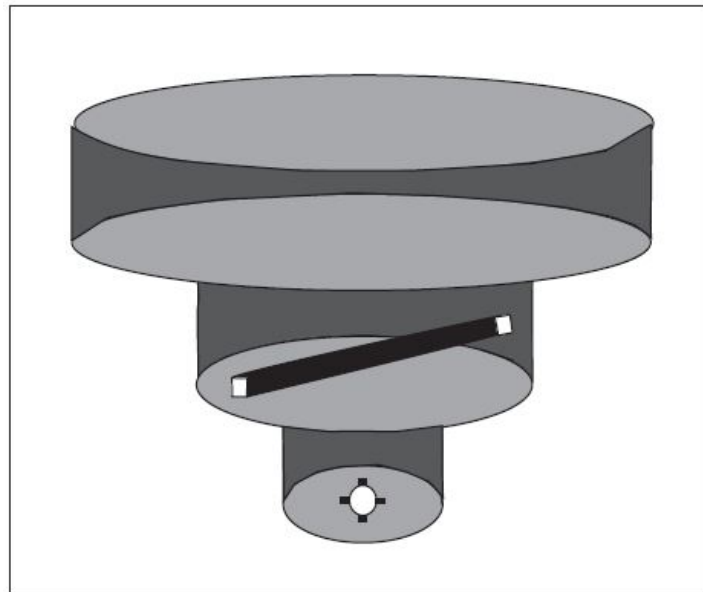




Class B Related Charts

VFR Corridors: The design of a few of the first Class B airspace areas provided a corridor for the passage of uncontrolled traffic. A VFR corridor is defined as airspace through Class B airspace, with defined vertical and lateral boundaries, in which aircraft may operate without an ATC clearance or communication with air traffic control.

These corridors are, in effect, a “hole” through Class B airspace. A classic example would be the corridor through the Los Angeles Class B airspace, which has been subsequently changed to Special Flight Rules airspace (SFR). A corridor is surrounded on all sides by Class B airspace and does not extend down to the surface like a VFR Flyway. Because of their finite lateral and vertical limits, and the volume of VFR traffic using a corridor, extreme caution and vigilance must be exercised.



Class B Related Charts

Terminal Area Charts (TACs) provide a large-scale portrayal of selected metropolitan complexes to satisfy pilotage and local control requirements. The 1:250,000 scale VFR Terminal Area Chart (TAC) Series depict the airspace designated as Class B Airspace. The information found on these charts portrays much more detail than is found on the Sectional Charts because of the larger scale. These charts are intended for use by pilots operating from airfields within or near Class B and Class C airspace. Coverage of Terminal Area Charts are indicated by shaded boxes on the Sectional Chart index. These charts are updated every 56 days.



Reading a Chart Supplement

Let's try to read the chart supplement for KTLH and answer the following questions:

1. What is the airport elevation?
2. What are the services available?
3. What kind of landing gear is allowed?
4. What is the limitation for taxiway B7?
5. Is the class C airspace part time? If yes, what airspace does it become after the tower closes operations?

TALLAHASSEE COMMERCIAL (See TALLAHASSEE (HAVANA) on page 161)

TALLAHASSEE INTL (TLH)(KTLH) 4 SW UTC-5(-4DT) N30°23.81' W84°21.05'

83 B Class I, ARFF Index C NOTAM FILE TLH MON Airport

RWY 09-27: H8000X150 (ASPH-GRVD) S-115, D-170, 2D-330

PCN 48 F/A/X/T HIRL CL

RWY 09: REIL. PAPI(P4L)—GA 3.0° TCH 58'. RVR-TR Trees.

RWY 27: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 58'. RVR-TR 0.3% up.

RWY 18-36: H7000X150 (ASPH-GRVD) S-115, D-170, 2D-330

PCN 47 F/A/X/T HIRL 0.4% up N

RWY 18: REIL. PAPI(P4L)—GA 3.0° TCH 55'. RVR-R Trees.

RWY 36: MALSR. PAPI(P4L)—GA 3.0° TCH 54'. RVR-T

SERVICE: S4 FUEL 100LL, JET A OX 1, 3 LGT When ATCT clsd ACTVT

MALSR 36; REIL Rwy 09 and 18; PAPI Rwy 09, 27, 18 and 36; HIRL

Rwy 09-27 and 18-36—CTAF. ALSF2 Rwy 27 preset on med instst.

AIRPORT REMARKS: Attended continuously. Birds on and invof arpt.

Movement area of Twy Z begins at the int of Twy B8 and proceeds east to the int of Twy B7 this twy is not for use by air carrier ops. Asph btn Twy B8 and Twy A12 is for helicopter ops, Twy Z from Twy A12 to the ramp is open to acft with wingspan of 50' or less. Longl and transverse cracks prnt on Rwy 18-36.

AIRPORT MANAGER: 850-891-7802

WEATHER DATA SOURCES: ASOS 119.45 (850) 576-3665. LLWAS.

COMMUNICATIONS: CTAF 118.7 ATIS 119.45 UNICOM 123.075

TALLAHASSEE RCO 122.2 (GAINESVILLE RADIO)

SEMINOLE RCO 122.1R 117.5T (GAINESVILLE RADIO)

⑨ **APP/DEP CON** 128.7 (181°-360°) 135.8 (001°-180°) (1100-0400Z‡)

JAX CENTER APP/DEP CON 128.625 (0400-1100Z‡)

TOWER 118.7 (1100-0400Z‡) **GND CON** 121.9 **CLNC DEL** 126.65

CLEARANCE DELIVERY PHONE: For CD if una to ctc on FSS freq, ctc Tallahassee Apxh at 850-942-8311, when Apxh clsd ctc Jacksonville ARTCC at 904-845-1592.

AIRSPACE: CLASS C svc ctc **APP CON** svc per TWR/NOTAM 1100-0400Z‡; other times CLASS E.

RADIO AIDS TO NAVIGATION: NOTAM FILE TLH.

SEMINOLE (H) VORTAC 117.5 SZW Chan 122 N30°33.37' W84°22.44' 171° 9.6 NM to fld. 178/2E.

VOR unusable:

278°-288° byd 7 NM blo 1,900'

ILS/DME 111.9 I-PLQ Chan 56 Rwy 27. Class IIE. Unmonitored when ATCT clsd.

ILS/DME 110.3 I-TLH Chan 40 Rwy 36. Class IE.

ASR (1100-0400Z‡)

JACKSONVILLE

H-8H, L-21D, 221

IAP, AD



Reading a Chart Supplement

When we are not able to understand certain information that is provided in the chart supplement, we must refer to the legend of the chart supplement

It is usually found in section 1 of the respective chart supplement.





NOTAMs

A NOTAM is a notice containing information essential to personnel concerned with flight operations but not known far enough in advance to be publicized by other means. It states the abnormal status of a component of the National Airspace System (NAS) – not the normal status.

- NOTAMs indicate the real-time and abnormal status of the NAS impacting every user.
- NOTAMs concern the establishment, condition, or change of any facility, service, procedure or hazard in the NAS.
- NOTAMs have a unique language using special contractions to make communication more efficient.

[FAA NOTAMS](#) WEBSITE