CFI Bootcamp
Flight Instructor Training

POWER HOUR

OPERATING IN CLASS B AIRSPACE

Clearances, student pilot rules and restricted airports, and the San Francisco Class B on the radio

§ 91.131 | § 61.95 | Part 91 App. D | AIM 3-2-3

WHAT'S ON FOR TODAY'S SHOW?

POWER HOUR



Today's Bootcamp+ Network Programming

1. **Live Show**
   1st Hour
2. **Open Mic**
   2nd Hour onward
3. **Monitor the Chat**
   Links and info
4. **Wings Credit**
   For this presentation

WHAT'S ON FOR TODAY'S SHOW?

POWER HOUR



Today's Bootcamp+ Network Programming

1. **PH Rebroadcast**
   Weds 8 pm ET

2. **Power Hour Podcasts**
   Full shows

3. **Using AI as a Teacher & Learner**
   Class

4. **Step-by-Step Workshop**
   Dec 3rd (8-10 pm Eastern Time)

TONIGHT'S FLIGHT PLAN

OVERVIEW

1 Class B basics

Shape, entry requirements and the Mode C veil

2 The rules: § 91.131

Clearance, pilot certificate and equipment

3 Student pilots

§ 61.95 endorsements and the Appendix D airports

4 SFO Class B

Frequencies, routes and checkpoints

5 On the radio

Pilot and controller exchanges, start to finish

6 Resources

Regs, AIM, charts and takeaways

SECTION 01

CLASS B BASICS

What Class B is, who needs to be in it, and what you need to get in

WHAT IS CLASS B?

AIM 3-2-3

THE IDEA

Positive control around the busiest airports: every aircraft inside is cleared and separated.

1 Upside-down cake

A surface area around the primary airport, then wider shelves with higher floors. Each area is tailored.

2 Surface to 10,000

Most Class B areas, San Francisco included, top out at 10,000 feet MSL.

3 ATC separates VFR

Inside Class B, ATC separates VFR aircraft from other aircraft, not just IFR.

4 Charted on the Sectional and TAC

Floors and ceilings appear as stacked numbers, such as 100 over 30, in hundreds of feet MSL.

WHAT YOU NEED TO GET IN

§ 91.131

Requirement	Class B	Reference
Clearance	An explicit ATC clearance: "cleared into the Class Bravo airspace"	§ 91.131(a)(1)
Pilot	Private pilot or higher, or a student, sport or recreational pilot with the required training and endorsement	§ 91.131(b)
Radio	Operable two-way radio on the frequencies for that airspace	§ 91.131(c)
Transponder	Mode C (altitude reporting) and ADS-B Out	§§ 91.215, 91.225
VFR weather	3 statute miles visibility and clear of clouds	§ 91.155
Speed	250 knots below 10,000 MSL; 200 knots under a shelf or in a VFR corridor	§ 91.117

CLEARANCE VS. CONTACT

CLASS B VS. CLASS C

CLASS C AND D

Establishing Two-way comms

If you name the facility you are calling and your call sign and ATC answers with your call sign and facility name, you may enter. "Skyhawk 947RC, Atlanta approach standby" counts as establishing communications.

CLASS B

A clearance

You need the words "cleared into the Class Bravo airspace." Radar contact, a squawk code or a heading is not a clearance.

TIP

Not sure you heard it? Ask: "Confirm cleared into Class Bravo?"

THE MODE C VEIL

APP. D SECTION 1



1 Transponder

Mode C required within 30 NM of the primary airport, surface to 10,000 MSL, even outside Class B.

2 ADS-B Out

Required in the same 30 NM veil.

3 Which airports?

Listed in Part 91 Appendix D, Section 1. San Francisco is on it.

SECTION 02

THE RULES: § 91.131

Operating rules, pilot requirements and equipment, paragraph by paragraph

§ 91.131(a): OPERATING RULES

§ 91.131(a)

1 Get a clearance

No person may operate in Class B without a clearance from ATC for that area.

2 Large turbines

Large turbine-powered airplanes to or from the primary airport stay at or above the floors, unless ATC says otherwise.

3 Training flights

Pilot training operations at an airport in Class B follow the ATC procedures for that area.

WHAT THIS MEANS FOR US

Every VFR flight in Class B starts with a clearance.

Plan the request: where you are, your altitude, where you want to go, and what you will do if the answer is "remain outside."

§ 91.131(b): WHO MAY FLY THERE

§ 91.131(b)

Pilot in command	May operate in Class B if	Rule
Private pilot or higher	Always (with a clearance)	§ 91.131(b)(1)(i)
Recreational pilot	Trained and endorsed for Class B, C and D	§ 61.101(d)
Sport pilot	Trained and endorsed for Class B, C and D	§ 61.325
Student seeking sport or recreational	Trained in that airspace and endorsed, training within 90 days	§ 61.94
Student seeking private	Trained in that Class B area and endorsed within 90 days	§ 61.95

THE EXCEPTION · § 91.131(b)(2)

At the 12 Appendix D, Section 4 airports, the PIC must hold at least a private certificate to take off or land.

§ 91.131(c) AND (d): EQUIPMENT

§ 91.131(c)(d)

1 Two-way radio

Operable, and able to talk to ATC on the frequencies for that Class B area. All operations.

2 IFR navigation

An operable VOR or TACAN receiver, or an operable and suitable RNAV system.

3 Mode C transponder

Operable transponder with altitude reporting, per § 91.215(a).

4 ADS-B Out

Required since January 1, 2020, per § 91.225.

PREFLIGHT

No radio or no transponder? Plan the route under or around Class B.

SECTION 03

STUDENT PILOTS IN CLASS B

§ 61.95 training and endorsements, and the 12 airports that are off limits

§ 61.95(a): SOLO IN CLASS B

§ 61.95(a)

1 Ground training

From an authorized instructor, on that specific Class B area.

2 Flight training

In that specific Class B area, with an instructor on board.

3 Endorsement

In the logbook, dated within the 90 days before the solo flight.

THE ENDORSEMENT SAYS

The student received the training and is proficient to conduct solo flight in that specific Class B airspace.

It is specific: an endorsement for the San Francisco Class B does not cover Los Angeles. Add any conditions or limitations, such as a route or an altitude.

§ 61.95(b): SOLO AT THE AIRPORT

§ 61.95(b)

1 At that airport

Ground and flight training at the specific airport inside Class B.

2 Endorsement

Proficient for solo flight operations at that airport, dated within 90 days.

3 Not for sport or rec

§ 61.95 does not apply to students seeking sport or recreational. They use § 61.94.

BUT NOT EVERYWHERE

Even with a § 61.95(b) endorsement, no student may take off or land solo at an Appendix D, Section 4 airport.

§ 91.131(b)(2) overrides the endorsement. A student can transit that Class B with a § 61.95(a) endorsement, just not land there.

APPENDIX D, SECTION 4

PART 91 APP. D

Solo student, sport and recreational pilot activity is not permitted at:

City	Airport
Atlanta	Hartsfield-Jackson Atlanta Intl (ATL)
Boston	General Edward Lawrence Logan Intl (BOS)
Camp Springs, MD	Joint Base Andrews (ADW)
Chicago	Chicago-O'Hare Intl (ORD)
Dallas	Dallas/Fort Worth Intl (DFW)
Los Angeles	Los Angeles Intl (LAX)

City	Airport
Miami	Miami Intl (MIA)
Newark	Newark Liberty Intl (EWR)
New York	John F. Kennedy Intl (JFK)
New York	LaGuardia (LGA)
San Francisco	San Francisco Intl (SFO)
Washington, DC	Ronald Reagan Washington National (DCA)

Verified against the current Part 91 Appendix D text, November 2026. Read it on eCFR

WHAT THIS MEANS AT SFO

SFO IS ON THE LIST

ALLOWED

Transit the SFO Class B solo

With a § 61.95(a) endorsement for the San Francisco Class B, dated within 90 days, and a clearance.

ALLOWED

Solo at nearby airports

Palo Alto, San Carlos, Hayward and Half Moon Bay are not inside the SFO Class B surface area. Normal solo rules apply.

NOT ALLOWED

Solo takeoff or landing at SFO

For any student, sport or recreational pilot as PIC, with or without an endorsement. § 91.131(b)(2).

BUILDING THE CLASS B SOLO

CFI CHECKLIST

1 Ground: the chart

Sectional/TAC floors, ceilings, VFR flyways and checkpoints along the planned route.

2 Ground: the radio

Readbacks, "remain outside," and how to say "unable."

3 Ground: plan B

Lost comms, a denied clearance, and the route under the shelf instead.

4 Flight: same route

Fly the exact route dual, with the student working the radios.

5 Endorse with limits

Route, direction, altitude, and day VFR only if that is what you trained.

6 Keep it current

90 days. Re-fly it dual and re-endorse before it lapses.

SECTION 04

THE SAN FRANCISCO CLASS B

Neighbors, frequencies, routes and checkpoints around SFO

SFO CLASS B AT A GLANCE

SF TAC

1 Surface to 10,000

Primary airport SFO, with shelves stepping out over the Peninsula, the Bay and the coast.

2 Redesigned 2018

A more compact design took effect August 16, 2018, adding VFR flyways, transitions and waypoints.

3 Busy neighbors

Oakland Class C; San Carlos, Palo Alto and Hayward towers; Half Moon Bay nontowered.

4 Under the shelves

Many local flights stay below the floors without a clearance. Know each floor.

TIP

Brief students with the VFR Flyway Planning Chart on the back of the TAC.

FREQUENCIES YOU'LL USE

CHART SUPPLEMENT

Facility	Frequency	Notes
NorCal Class B (SFO)	120.9 · 125.35 · 127.0 · 133.95 · 134.5 · 135.1	NW · NE-E · North · South · East · West
San Francisco Tower	120.5	Class B transitions near SFO, such as the 101 transition
SFO ATIS	118.85	D-ATIS (also 113.7, 115.8)
San Carlos (SQL)	Tower 119.0 · Ground 118.025 · ATIS 125.9	NorCal 133.95 · 135.65
Palo Alto (PAO)	Tower 118.6 · Ground 125.0 · ATIS 135.275	NorCal 121.3 · 133.95 · 134.5
Half Moon Bay (HAF)	CTAF 122.8 · AWOS 127.275	NorCal 135.1

Chart Supplement data effective October 29, 2026. Verify the current edition before flight.

VFR ROUTES THROUGH AND AROUND

SF TAC FLYWAYS

1 The 101 transition

North-south along Highway 101 past SFO. Request from San Francisco Tower, 120.5. Clearance required; expect an altitude such as at or below 1,500 or 2,000.

2 The shoreline

Offshore along the Pacific coast, below the Class B floor. No clearance if you stay under it. Heavy two-way traffic; hang gliders near Lake Merced.

3 The Bay Tour

Over the city, Golden Gate, Alcatraz and Treasure Island. Request from NorCal. Clearance required; often around 2,000 over the city.

4 Under the shelves

Crystal Springs Reservoir and Interstate 280 keep you west of SQL and SFO. Stay below each shelf floor shown on the TAC.

BAY TOUR CHECKPOINTS

NORTHBOUND FROM PAO



1. Palo Alto
2. Woodside VOR (OSI)
3. Crystal Springs
4. Candlestick
5. Golden Gate Bridge
6. Alcatraz
7. Treasure Island

1 Before takeoff

Brief the route, write the frequencies, and set altitudes for each segment.

2 Inside the Bravo

Fly the cleared altitude exactly. A climb or descent needs ATC approval.

3 Coming home

Southbound via the 101 transition or San Mateo Bridge; Dumbarton Bridge back to PAO.

SECTION 05

ON THE RADIO

Pilot and controller exchanges: clearance, remain outside, transitions and a student solo

SCENARIO 1: BAY TOUR REQUEST

NORCAL APPROACH

PILOT	"Palo Alto Ground, Skyhawk 947RC, transient parking, with Kilo, VFR Bay Tour, request northbound departure with flight following."
PAO GROUND	"Skyhawk 947RC, squawk 4512, runway 31, taxi via the parallel taxiway."
NORCAL 133.95	"Skyhawk 947RC, NorCal Approach, radar contact 2 miles northwest of Palo Alto, 1,400. Remain outside Class Bravo airspace."
PILOT	"Remain outside Bravo, Skyhawk 947RC."
NORCAL	"Skyhawk 947RC, cleared into the San Francisco Class Bravo airspace, maintain VFR at 3,500, proceed direct Woodside VOR."
PILOT	"Cleared into the Bravo, maintain VFR 3,500, direct Woodside, Skyhawk 947RC."

LISTEN FOR

- "Radar contact" is not a clearance.
- Read back "cleared into the Bravo" and the altitude.
- 3,500 is an assigned altitude, not a block.
- Keep each call short: who, where, what.

Training example built on real SFO-area facilities and published frequencies. Actual clearances vary; verify the current TAC and Chart Supplement.

SCENARIO 1: OVER THE CITY

NORCAL 135.1

NORCAL	"Skyhawk 947RC, contact NorCal Approach 135.1."
PILOT	"NorCal Approach, Skyhawk 947RC, 3,500, Bay Tour."
NORCAL 135.1	"Skyhawk 947RC, NorCal, descend and maintain VFR at or below 2,000, proceed to the Golden Gate Bridge, then Alcatraz."
PILOT	"At or below 2,000, Golden Gate then Alcatraz, Skyhawk 947RC."
PILOT	"NorCal, Skyhawk 947RC, Bay Tour complete, request southbound 101 transition to Palo Alto."
NORCAL	"Skyhawk 947RC, contact San Francisco Tower 120.5 for the transition."

LISTEN FOR

- "At or below" gives you a block; plain "maintain" does not.
- A frequency change does not end your clearance.
- Ask for the way home before the tour ends.

Training example built on real SFO-area facilities and published frequencies. Actual clearances vary; verify the current TAC and Chart Supplement.

SCENARIO 2: "REMAIN OUTSIDE"

HALF MOON BAY

PILOT	"NorCal Approach, Skyhawk 947RC, 3 north of Half Moon Bay, 1,200, request Class Bravo clearance northbound over the city."
NORCAL 135.1	"Skyhawk 947RC, NorCal, radar contact 3 miles north of Half Moon Bay. Remain outside Class Bravo airspace, traffic is heavy."
PILOT	"Remain outside Bravo, Skyhawk 947RC. Request northbound along the shoreline, remaining below the Bravo."
NORCAL	"Skyhawk 947RC, approved as requested, remain outside Class Bravo airspace, maintain VFR."

WHAT IT MEANS

- No clearance. Stay out, period.
- You still have flight following.
- Options: hold outside, go around, or fly under the floor.
- Don't argue; ask for an alternate.

Training example built on real SFO-area facilities and published frequencies. Actual clearances vary; verify the current TAC and Chart Supplement.

SCENARIO 3: THE 101 TRANSITION

SFO TOWER 120.5

SQL TOWER 119.0	"Skyhawk 947RC, intercept 101 and keep it off your right. Maintain VFR at or below 1,500. Contact San Francisco Tower 120.5."
PILOT	"San Francisco Tower, Skyhawk 947RC, 1 mile north of San Carlos, 1,500, request northbound 101 transition."
SFO TOWER	"Skyhawk 947RC, San Francisco Tower, radar contact 1 mile north of San Carlos. Cleared into the Class Bravo airspace, maintain VFR at or below 2,000, west of 101."
PILOT	"Cleared into the Bravo, at or below 2,000, west of 101, Skyhawk 947RC."
SFO TOWER	"Skyhawk 947RC, leaving Class Bravo airspace in 4 miles, contact NorCal 135.1."

LISTEN FOR

- Tower, not approach, owns this transition.
- Keeping 101 on your right keeps you west of it.
- Departing jets are close. Hold altitude and the road.

Training example built on real SFO-area facilities and published frequencies. Actual clearances vary; verify the current TAC and Chart Supplement.

SCENARIO 4: A STUDENT SOLO

§ 61.95(a)

STUDENT	"San Francisco Tower, Skyhawk 947RC, student pilot, over Candlestick, 1,500, request southbound 101 transition to Palo Alto."
SFO TOWER	"Skyhawk 947RC, San Francisco Tower, radar contact. Cleared into the Class Bravo airspace, climb and maintain VFR 3,000."
STUDENT	"Unable 3,000, student pilot. Request at or below 1,500 along 101, or I'll remain outside the Bravo."
SFO TOWER	"Skyhawk 947RC, cleared into the Class Bravo airspace, maintain VFR at or below 1,500, remain west of 101. Report San Mateo Bridge."

WHY IT WORKS

- "Student pilot" gets patience. Say it.
- "Unable" is a complete answer when a clearance exceeds the endorsement.
- Endorsement in hand: SFO Class B, within 90 days.
- Transit only; no solo landing at SFO.

Training example built on real SFO-area facilities and published frequencies. Actual clearances vary; verify the current TAC and Chart Supplement.

CLEARED OR NOT?

QUIZ

A "Skyhawk 947RC, radar contact 3 miles south of Crystal Springs."

B "Skyhawk 947RC, squawk 4512, proceed direct Golden Gate Bridge."

C "Skyhawk 947RC, remain outside Class Bravo airspace."

D "Skyhawk 947RC, cleared into the San Francisco Class Bravo airspace, maintain VFR at or below 2,000."

Which of these lets you enter Class B?

CLEARED OR NOT: ANSWERS

AIM 3-2-3

A	**NOT CLEARED**	Radar contact is radar service, not a clearance.
B	**NOT CLEARED**	A squawk and a route are not the words "cleared into." Ask to confirm.
C	**NOT CLEARED**	An instruction to stay out. Comply and ask for an alternate.
D	**CLEARED**	The clearance, with an altitude block. Read it back.

When in doubt: "Confirm cleared into Class Bravo?"

SECTION 06

RESOURCES

The regulations, AIM sections and charts behind tonight's material

REGULATIONS

ECFR

Regulation	Title	Why it matters
§ 91.131	Operations in Class B airspace	Clearance, pilot and equipment rules
§ 61.95	Class B solo for student pilots	Training and 90-day endorsement
§ 61.94	Students seeking sport or recreational	Class B, C, D and towered airports
Part 91 App. D	Airports and locations: special operating restrictions	Section 4: no solo student, sport or rec
§ 91.215 · § 91.225	Transponder and ADS-B Out	The 30 NM Mode C veil
§ 91.117	Aircraft speed	200 knots under a Class B shelf

AIM, CHARTS AND GUIDANCE

FAA.GOV

1 AIM 3-2-3

Class B airspace: entry, equipment and VFR procedures.

2 AIM 4-1

Radar services for VFR aircraft, including Class B service.

3 AIM 4-2

Radio phraseology and techniques.

4 VFR charts

San Francisco TAC and the VFR Flyway Planning Chart.

5 Chart Supplement

Current frequencies for SFO, SQL, PAO and HAF.

6 AC 61-65

Sample endorsements for § 61.95(a) and (b).

KEY TAKEAWAYS

SUMMARY

1 Hear "cleared"

Radar contact and a squawk are not a Class B clearance. Ask if unsure.

2 Students can fly it

§ 61.95(a) training in that Class B and an endorsement within 90 days.

3 Know the 12

No solo student, sport or rec takeoffs or landings at App. D airports, SFO included.

4 Always have plan B

"Remain outside" happens. Know the route under the shelf before you call.

SPECIAL ANNOUNCEMENT

ANNOUNCEMENT

Initial CFI Airplane 7-Day Courses

1 AI Class

Dec 7 and Jan 4, 11am to 5pm ET

2 7-Day Course

Dec 7 – 13, 11am – 6pm ET. In person in Opa-Locka, FL or on Zoom

REGISTER HERE

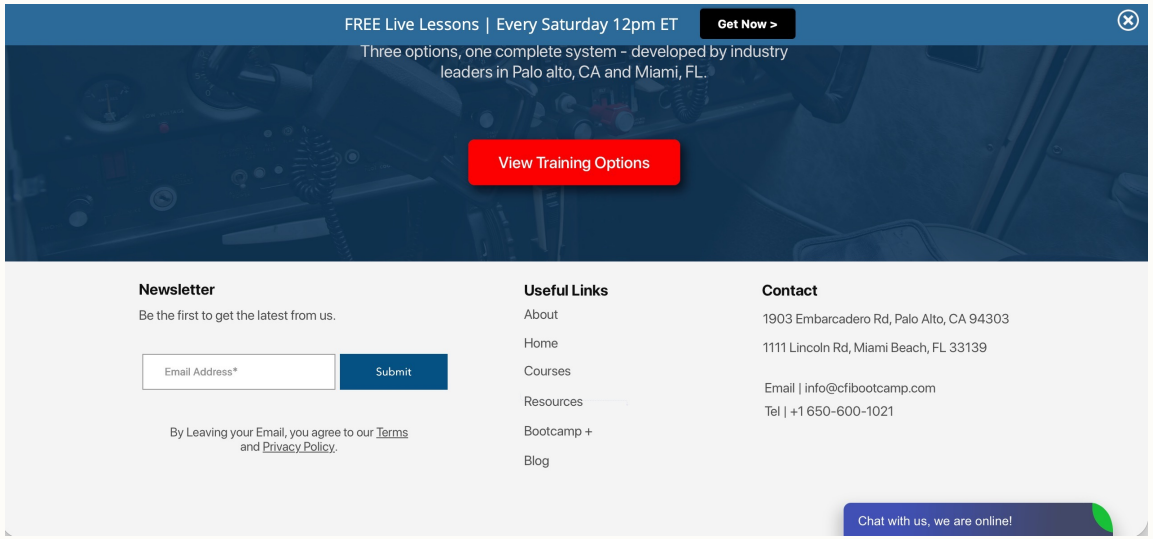
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SPECIAL ANNOUNCEMENT

ANNOUNCEMENT

CFII Accelerated 3-Day Course

1 Pop-Up Class Added

CFII Instrument Instructor course, Dec 15-17, 11am – 6pm ET

2 Win a Free Course

Two people will win our Online CFI Course and 7-day class. Winner announced Jan 4, 2027. Register to win via the link in the chat.

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ANNOUNCEMENT



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