

VFR Communications

A Pilot-Friendly[®] Manual



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This manual is organized around communications tasks. Each task is an *action* you take: monitor a frequency, request a departure, and so on during a flight. The actions tell you quite a bit about the situation. For example, you “announce” your intentions at a non-towered airport, but you “request” the equivalent operations at a towered airport.

The tasks are divided up by phase of flight, from the ramp area, through taxi, departure, enroute, and arrival. Closed pattern ops merit its own section, as do the items that don’t happen on every flight. You can think of this list as the 55 most likely VFR communications you’ll take part in while flying, including a few times when you’re just listening.

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The basic radio call contains “the Four Ws”:

[Who you’re talking to], [Who you are], [Where you are], [What you want].

So a hungry teenager might say:

“Mom, your son Jack, in the living room, request a sandwich.”

Yes, it actually is that simple. Not only that, the required vocabulary for the average pilot really isn’t any larger than the vocabulary of the average teenager.

Many pilots find radio communication one of the most intimidating parts of aviation. This is true of rated pilots, as well as student pilots. Some pilots go through great pains and extra fuel just to avoid talking on the radio. That's too bad, because there's a secret to radio communications:

They all follow a simple script.

Once you know the script, it's easy to sound like a pro, and that's how this book works. Most texts on radio communications for pilots feature lots of explanatory text about phases of flight, or airspace classes, and then give snippets of transcribed radio calls as examples. We flip that model on its head.

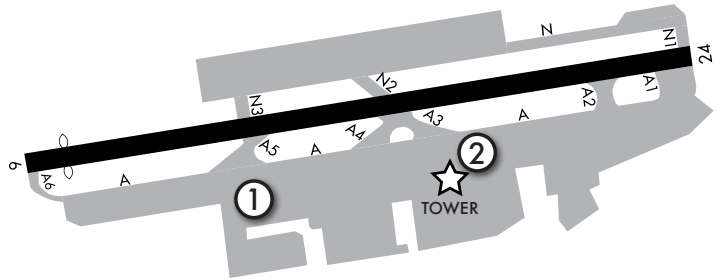
We asked: "What are the most common radio calls a VFR pilot would hear or make?" We wrote scripts for each of those scenarios, and created graphics to help you visualize who says what, and where they are when they say it. Finally, we dissected each script to explain the why and how behind the what. Consider the result a field guide to all the things VFR pilots and controllers say in the wild.

Read the audio script for each scenario first, using the numbered ball flags to connect the words with the graphic. (Helpful tip: If the line is by "Pilot," that's you.) Visualize what's going on when each call is made. Next, read the discussion. Tips and sidebars expand on individual scenarios. Finally, watch the associated video on the PilotWorkshops website. You'll see and hear the scenario come to life.

You can read the book from start to finish. Each section covers an aspect of flight: Ramp Ops, Ground Ops, Departures, Enroute Ops, Arrivals, Closed Traffic, and Special Cases. Or you can use it as a reference guide. Think about the kinds of communications scenarios you're likely to encounter on a given flight. Re-read those topics before you get in the airplane. Instead of fumbling for the right procedures and phraseology when you key the mic, they'll be fresh in your mind.

Because this book addresses both the official radio phraseology, and the real world of aviation communication, we've made some choices. For example, you'll see our scripts use the official "niner" for speaking the number nine. Out there in the U.S. airspace, perhaps 75 percent of pilots do that. Maybe that's because it's the "right" way. Maybe that's because it's

① PILOT
Hello world, this is what I'm saying on the radio. How do you hear?



① Ball flags show who is speaking and (if possible) where the speaker is. This includes Pilot (you), Ground, Tower, and other pilots. Your flags have a heavier border as well.

③ This style ball flag appears when the speaker is at a remote location you can't see, such as Approach, Center, Flight Service, or ATIS.

TIP

Tip boxes like this have useful tidbits, like the fact that if a controller doesn't answer right away, he or she may be talking on a radio frequency you can't hear.

SIDEBARS: A BIT MORE INFO

Sidebar boxes delve into topics further than a simple tip. You can read them, or not, as you see fit. Although we think they add useful information relevant to the scenario on that page.



The Phonetic Alphabet

THE AVIATION PHONETIC ALPHABET

If you're new to aviation, we feel your pain in learning to memorize the word for each letter. Here's a tip: While you're driving or walking around town, read license plates to yourself using phonetic letters. You'll have it in no time.

A	Alpha (AL-FAH)
B	Bravo (BRAH-VOH)
C	Charlie (CHAR-LEE) or (SHAR-LEE)
D	Delta (DELL-TAH)
E	Echo (ECK-OH)
F	Foxtrot (FOKS-TROT)
G	Golf (GOLF)
H	Hotel (HOH-TEL)
I	India (IN-DEE-AH)
J	Juliett (JEW-LEE-ETT)
K	Kilo (KEY-LOH)
L	Lima (LEE-MAH)
M	Mike (MIKE)
N	November (NO-VEM-BER)
O	Oscar (OSS-CAH)
P	Papa (PAH-PAH)
Q	Quebec (KEH-BECK)
R	Romeo (ROW-ME-OH)
S	Sierra (SEE-AIR-RAH)
T	Tango (TANG-GO)
U	Uniform (YOU-NEE-FORM or OO-NEE-FORM)
V	Victor (VIK-TAH)
W	Whiskey (WISS-KEY)
X	Xray (ECKS-RAY)
Y	Yankee (YANG-KEY)
Z	Zulu (ZOO-LOO)
1	One (WUN)
2	Two (TOO)
3	Three (TREE)
4	Four (FOW-ER)
5	Five (FIFE)
6	Six (SIX)
7	Seven (SEV-EN)
8	Eight (AIT)
9	Nine (NIN-ER)
0	Zero (ZEE-RO)

more fun to say. (It sounds so “Top Gun.”) However, far fewer controllers, and only a handful of pilots, say “tree” for the number three, or “fife” for the number five. We’re not aware of a single incident where that caused a problem. So we don’t do it here.

It’s a script, so we spell out numbers and phonetic letters, as well as capitalize words like “Tower” when it’s a name (“Contact Boston Tower”), but not when it’s just a reference (“Contact the tower”). The same is true of runway names: “Runway Two Two.”

We include discussions of some non-standard practices as well, so you’re fully informed. You can decide how to conduct business for yourself.

We model less verbiage. Look at this request:

“Hello Portland Tower, this is Cessna Two Three Six Papa Whiskey. We’re about ten miles to the south at two thousand feet, and we have ATIS Information Uniform. We request permission to transition your airspace at two thousand feet, heading to Lewiston.”

If you take out all the unnecessary words, the same information can be transmitted this way:

“Portland Tower, Cessna Two Three Six Papa Whiskey, ten south at two thousand. Information Uniform. Request transition at two thousand toward Lewiston.”

The second one contains the critical information, and leverages all the things that can be assumed. If we call a Tower and say “ten south” without a landmark, we must be talking about the airport; “at 2000” must be our altitude. It’s not a heading, and certainly isn’t an airspeed. Including more words here and there is fine. For example, saying your “... ten south of [landmark] ...” is important if calling someone other than a tower. You don’t have to be perfect. You can even crack a joke when radio traffic is light. But brevity leaves more time for the important stuff.

We assume that you have at least a bit of experience with aviation radio; understand how to tune a frequency, transmit and receive, or monitor two radios at once; know what the term “squawk code”

COMMON AVIATION ACRONYMS USED IN THIS BOOK

AGL – Above Ground Level. The distance between you and grass, rocks, airports, or other forced landing sites below you.

AIM – Aeronautical Information Manual. The book of all things aviation. For communication, focus on Chapter 2, sections 1 and 2; and the P/CG.

AIRMET – Airmen’s Meteorological Information. Warnings about obscuration (clouds and rain), turbulence, and icing.

ARTCCs – Air Route Traffic Control Centers. The radar rooms at 20 major ATC regions of the continental U.S. Called “Center” on the radio.

ASOS/AWOS – Automated Surface/Weather Observing System. See page 4.

ATC – Air Traffic Control. Usually in reference to the people, as in, “ATC told me to climb.”

ATIS – Automatic Terminal Information Service. See page 5.

CT – Control Tower. Abbreviation found on Sectional Charts for the tall building with the antennas on top and the controllers inside.

CTAF – Common Traffic Advisory Frequency. The frequency used by all aircraft announcing their intentions at a non-towered airport. That’s “non-towered” not “uncontrolled.” CTAF is how pilots collectively keep the situation under control.

D-ATIS – Digital Automatic Terminal Information Service. See page 5.

FAA – Federal Aviation Administration. The people who are always there to help.

FBO – Fixed Base Operator. The people who are sometimes there to help, but with things you really need like fuel, coffee, and a rental car.

FSS – Flight Service Station. The people who try

to help remotely, and usually do a pretty good job.

IFR – Instrument Flight Rules. Like VFR, but in the clouds. The focus of our next comms book.

MSL – Mean Sea Level. A nearly arbitrary distance from the center of the earth that defines the baseline altitude above which we measure our height.

NAS – Naval Air Station. Top Gun for real.

NOTAM – Notice to Airmen. A cryptic system for disseminating critical, flight-related info.

PIREP – Pilot (Weather) Report. An eye-in-the-sky snapshot of the actual weather, radioed in.

RCOs – Remote Communications Outlets. Radio transceivers scattered across the country used to contact Flight Service.

SIGMET – Significant Meteorological Information. Like AIRMETs, but bigger, badder, and covering more potential hazards.

TRACON – Terminal Radar Approach Control. An ATC radar room smaller than an ARTCC, controlling airspace near a Class B or Class C airport. Call them “Approach” on the radio.

TRSA – Terminal Radar Service Area. Like a TRACON, but usually even smaller and complaining they get less respect. Treat TRSA airspace like Class C airspace and you can’t go wrong.

UNICOM – Universal Communications (frequency). Used for non-flight-critical information. Often the same frequency as non-towered CTAF.

VFR – Visual Flight Rules. See sky, go fly.

VOR – Very High Frequency Omni-directional Range. An antiquated navigation system that might come in handy if the GPS constellation ever fails. They make great reference points for your position when talking to ATC, however.

means, and how to enter one into a transponder. We assume you can read Sectional Charts and the Chart Supplement, as well as online sources, such as Skyvector, or apps, like ForeFlight. Just in case, though, there’s a review in the back of the book.

All the examples in this book use real airports and facilities with their real frequencies. That said, this book is a snapshot in time, so please don’t use it

as your reference for the current airport information before a flight.

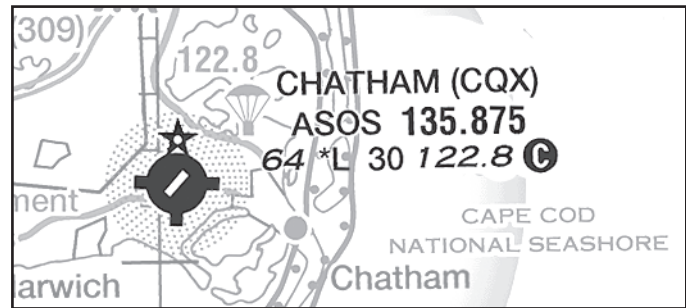
Other books go into much more detail about each topic covered here. This book focuses on “The Four Ws,” as explained on the very first page. If there’s something you don’t see here that you think should get included in a future version, please let us know.

Now that we’re ready, let’s check the weather ...

Monitor Automated Airport Weather

1D Chatham Municipal Airport, Chatham Massachusetts, automated weather observation two three two seven Zulu. Wind two five zero at seven. Visibility one zero. Sky condition clear. Temperature two one Celsius. Dewpoint one four Celsius. Altimeter two nine eight eight. Remarks, density altitude eight hundred.

Chatham Municipal Airport (KCQX)
Chatham, MA
ASOS 135.875 or (508) 945-5034



The majority of U.S. airports have an Automated Surface Observing System (ASOS) or an Automated Weather Observing System (AWOS) that measures, collects, and disseminates weather data.

Hourly METARs come from ASOS/AWOS, but when you tune a published ASOS/AWOS frequency, you'll hear the "one-minute weather," which is really the average over the past several minutes, but that's too long a name.

You should be able to receive the ASOS/AWOS broadcast within 25 NM of the airport and below 10,000 feet AGL. In most cases, it plays continuously on the published frequency. Occasionally, this is heard over the voice portion of a local NAVAID. At many airports, you can listen to the observations via telephone.

ASOS/AWOS frequencies usually appear in the airport data block on a Sectional Chart. Frequencies and phone numbers can also be found in an airport's Chart Supplement listing.

As far as practicable.

AIRPORT MANAGER: 508-945-9000

WEATHER DATA SOURCES: ASOS 135.875 (508) 945-5034.

COMMUNICATIONS: CTAF/UNICOM 122.8

Ⓡ CAPE APP/DEP CON 118.2 (1100-0400Z‡ May 15-Sept 30, 1100-0300Z‡ Oct 1-May 14) CLNC DEL 127.3

BOSTON CENTER APP/DEP CON 128.75 (0400-1100Z‡ May 11

True to their name, one-minute observations are updated every sixty seconds. They're made by a digitized voice, and are generally formatted like METARs. Different stations have different sensing and reporting capabilities, ranging from just the altimeter setting to more complex observations like precipitation type and lightning.

Most towered airports have an ASOS/AWOS, but you won't find the frequency on the Sectional Chart, because towered airports broadcast weather via the Automatic Terminal Information Service (ATIS, see next page).

If the phone number for ASOS/AWOS at a towered airport is listed in the airport's Chart Supplement listing, you can listen to the one-minute observation via telephone.

When part-time towers close for the evening, they usually connect the ASOS/AWOS to the ATIS frequency, so you'll hear the automated voice of weather intelligence there. Sometimes airport NOTAMs are included on the automated voice of ASOS/AWOS as well.

TIP

Menu	KCQX Chatham Municipal	Maps
● VFR		54m ago
KCQX 282056Z 01011G20KT 10SM CLR 21/14 A2969 RMK AO2 SLPNO 6//// T02110139		
Time	16:56 EDT	
Winds	010° at 11 - 20 kts	
Visibility	10 sm	
Clouds	Sky clear	

Winds reported on the AWOS/ASOS broadcast are in degrees magnetic, just like runway numbers. The same information in a METAR—even if you receive it via ADS-B—is in degrees true.

Image from ForeFlight

A towered airport's Automatic Terminal Information Service (ATIS) is a repeating broadcast of essential information about the weather, runways in use, and any Notices to Airmen (NOTAMs) for that airport. The ATIS is updated hourly, or after significant change in the weather or other information. The ATIS message is typically recorded by an air traffic controller. The format is:

[Airport/facility name], Information [Phonetic letter code], [UTC time] observation. [Wind direction/speed/gust], [visibility], [obstructions to vision], [sky condition], [temperature], [dewpoint], [altimeter setting], [density altitude advisory (if appropriate)], [weather remarks], [instrument approach in use], [landing runway], [NOTAMs]. Advise on initial contact you have Information [letter code].

You'll hear variations on the script with an ATIS. Technically, if landing and departing runways are the same, this could just be, "Visual approach Runway Two One in use." However, variations are minor.

Telling a controller you have "Information Foxtrot" means you heard all the information in that ATIS recording. The phonetic code advances one letter with each recording, so if Foxtrot is out of date when you contact a controller, you may hear, "Information Golf is now current."

Listen to the ATIS prior to contacting a controller on departure or arrival.

An ATIS frequency appears on a Sectional Chart with the airport data. Sometimes, there's more than one frequency, and at really big airports (such as at KLAX), there's a separate ATIS for departures and arrivals. All the frequencies and phone numbers can be found in an airport's Chart Supplement listing.

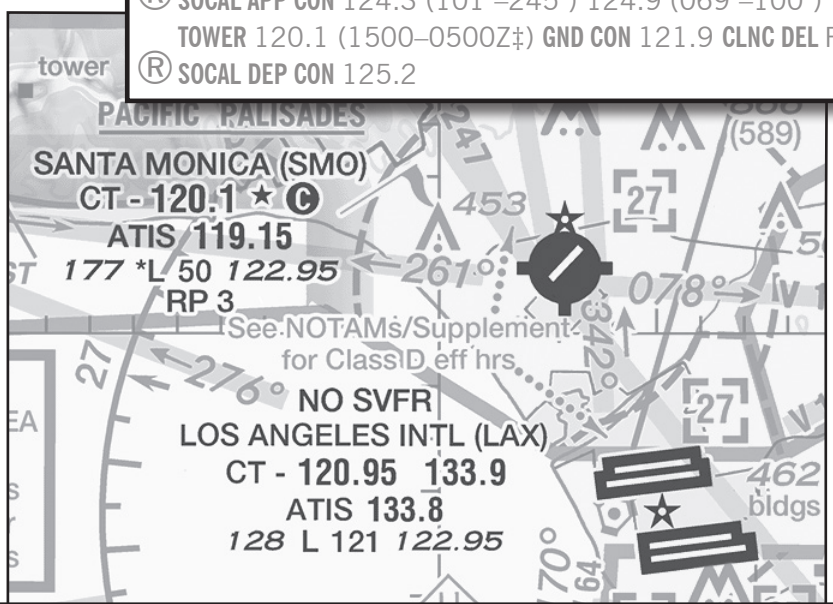
Some airports have a digital ATIS (D-ATIS) that aircraft with datalink can receive as text. In this case, there's a synthesized voice for pilots using conventional radios.



Santa Monica Airport Information
 Foxtrot, two zero five three Zulu observation. Wind three three zero at one zero. Visibility one zero. Sky clear below one two thousand. Altimeter two niner eight eight. Visual approach in use. Landing and departing Runway Two One. Notice to Airmen: Eighty-four foot lighted crane two miles southeast. Turboprop and jet aircraft, contact ground control for engine start. Aircraft in the southeast run-up contact ground control to leave the run-up. Advise on initial contact you have Information Foxtrot.

Santa Monica Municipal Airport (KSMO)
 Santa Monica, CA
 ATIS 119.15 or 310-450-4620

WEATHER DATA SOURCES: ASOS (310) 392-6453 LAWRS.
COMMUNICATIONS: CTAF 120.1 **ATIS 119.15** 310-450-4620 U
 (R) **SOCAL APP CON** 124.3 (101°-245°) 124.9 (069°-100°) 1
 TOWER 120.1 (1500-0500Z†) **GND CON** 121.9 **CLNC DEL F**
 (R) **SOCAL DEP CON** 125.2



AIRPORT MANAGER: 424-646-5060
WEATHER DATA SOURCES: ASOS (310) 568-1486 WSP.
COMMUNICATIONS: **D-ATIS ARR** 133.8 **D-ATIS DEP** 135.65 310-646-2297 UNICO
 (R) **SOCAL APP CON** 128.5 (045°-089°), 124.9 (090°-224°), 124.5 (225°-04
 TOWER 133.9 (N. complex), 120.95 (S. complex) 119.8
GND CON 121.75 (S. complex) 121.65 (N. complex) 121.4 (west) **CLNC DE**

Call Airport Personnel Via UNICOM

- ① PILOT
Concord UNICOM, Cessna Six Papa Whiskey

After they find the radio ...

- ② UNICOM OPERATOR
Cessna calling Concord UNICOM, go ahead.

- ③ PILOT
I just realized we forgot to fuel up last night.
We're in the southeast corner of the ramp.

- ④ UNICOM OPERATOR
Cessna Six Papa Whiskey, I'll send the truck.

- ⑤ PILOT
Thanks. Hey, is the restaurant still open for
breakfast? We could use some coffee.

- ⑥ UNICOM OPERATOR
Not since 1994. Sorry.

Back in the old days (like the early 1990s) many small airports still had a UNICOM operator. This person monitored the airport's Universal Communications (UNICOM) frequency, and could tell you the local weather conditions, or the runway airplanes were using, as well as answer questions, call for a rental car, catch the mechanic before he left for the day, and much more. Those days are largely gone.

Concord Municipal Airport (KCON)
Concord, NH
UNICOM 122.7



There still may be someone at a Fixed Base Operator (FBO) who will answer a call to UNICOM. You can call from the ground or from the air. Because there's no guarantee anyone will answer, it's best to make contact before reciting your life story. Conversely, sometimes an FBO at a non-towered airport will contact *you* on the UNICOM frequency when they see you taxiing in. This works because the UNICOM frequency is usually the Common Traffic Advisory frequency (CTAF) as well.

UNICOM exists at towered airports, too. You wouldn't use them to get advisories, since the Tower controllers provide that information.

However, you can use UNICOM for a service request. If there's an FBO at the airport, there's usually someone listening to UNICOM. Just remember to simultaneously monitor ATIS on a second radio.

Some non-towered airports use MULTICOM, which is always on 122.9 and means there's no person on the ground to talk to. Both MULTICOM and UNICOM usually serve as the frequency for aircraft to announce movements on and over the airport.

PILOT-CONTROLLED LIGHTING

Though not really VFR communications, the runway lighting at non-towered airports is usually controlled by the pilot via the CTAF/UNICOM frequency. You'll find confirmation of this in the Chart Supplement. In general, seven mic clicks turn all the lights on as bright as possible. Five mic clicks may dim them, and turn off accessory lights. Three mic clicks may

dim them further. If the lights are pilot-controlled, there's a star by the "L" on the Sectional Chart, as seen at KSKX (opposite page). An "L" with no star, such as KVKX (see page 8), means they turn on at sunset. No "L" means no lights.

RWY 33: Thld dsplcd 557'. Trees.
SERVICE: FUEL 100LL LGT ACTIVATE MIRL Rwy 09-27 and PAPI
Rwy 09 and Rwy 27—CTAF.
AIRPORT REMARKS: Attended irregularly. Fuel 24 hr self serve. Airframe

Request a Radio Check at a Non-Towered Airport

How do you actually know your radio is working? The easiest way to find out is to request a radio check.

At a non-towered airport, you can ask the UNICOM operator (see opposite) or another airplane you hear on the CTAF. Often UNICOM and CTAF are the same frequency. These appear on the Sectional Chart or Chart Supplement.

State who you're calling, your call sign, and the words "radio check," or "How do you hear me?" Because this is a non-towered airport, you may use your full call sign, as shown on this page, or an abbreviated one, as shown on the previous page. However, if you hear another aircraft on the frequency with a similar call sign, you should use your full call sign to avoid confusion.

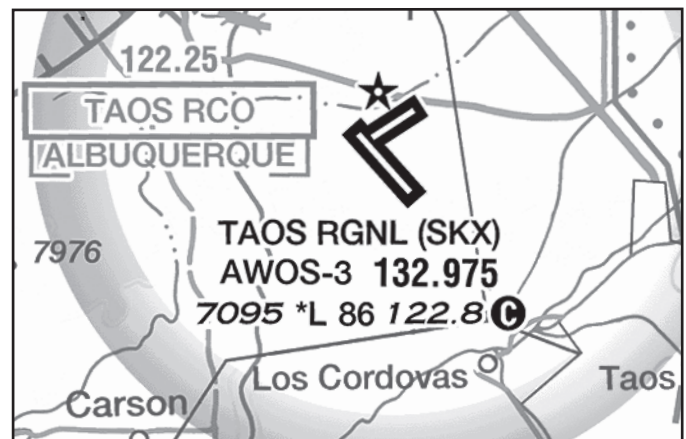
Depending on who you call and who responds, the response you get will vary from an informal "loud and clear" or "pretty weak," to a more formal report like "three by five." The numeric one answers the question, "What's the strength of my signal?" and "How do you receive me?" using numbers from 1 to 5. There's a lot of confusion about which number is which, and this sort of reporting doesn't seem to be officially mandated by the FAA anyway. Just know that for both strength and readability, the higher the number the better.

No matter what response to your radio check, common sense dictates that if someone replies, your radio is working well enough for them to have heard you. Most of the time, that's all you need to know.

If no one is around to hear, you can also use a handheld radio to check. Transmit on your aircraft radio and listen for your voice (or even just mic clicks) on the handheld. Having a handheld is a good idea, just for the day your aircraft radio *doesn't* work.

- ① **PILOT**
Taos UNICOM, Cessna Two Three Six Papa Whiskey, radio check please. How do you hear me?
- ② **UNICOM OPERATOR**
Cessna Two Three Six Papa Whiskey, Taos UNICOM, you're five by five. Sounds good.

Taos Regional Airport (KSKX)
Taos, NM
UNICOM / CTAF 122.8



TIP

At busy airports, some FBOs have their own dedicated frequencies. These "ASRI" frequencies are listed on the FBO websites, and in their listings on many aviation tablet apps.

The ASRI is useful to contact a specific FBO. These FBOs usually monitor the UNICOM frequency as well, so you can often contact them on either frequency.

Image from ForeFlight

FEATURED

Signature
FLIGHT SUPPORT
A BBA Aviation company

100LL \$4.40
Jet A \$5.41

(505) 471-2525

129.07 ASRI, 122.95 UNICOM



FBO

Jet Center at Santa Fe

(505) 780-4455

129.45 ASRI, 122.95 UNIC... 100LL \$5.12
Jet A \$5.46

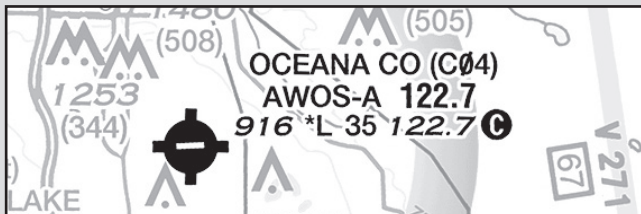


ADDITIONAL AUTOMATED AIRPORT ADVISORIES

Before the days of automated weather, it was a human being on the airport who told you the current field conditions. That person might also provide advisories in their role as a UNICOM operator.

These days, the weather is usually broadcast continuously on the ASOS/AWOS frequency (see page 4), and the UNICOM conveniences are from a person who you hope is listening when you broadcast.

Oceana County
Shelby, MI
CTAF/AWOS-A 122.7



AIRPORT REMARKS: Attended irregularly. Fuel 24 hr self serv repairs on call 231-861-2210 or 231-730-6644. R rough and soft when wet. Radio controlled model acft o end. For DIGIWX AWOS click mic 2 times 122.7. For 231-861-4272 (arpt manager residence) or 231-742 Administration bldg access: V, then III-II simultaneous 15-33 dsplcd thlds marked with 3' yellow cones.

AIRPORT MANAGER: 231-861-9910

WEATHER DATA SOURCES: AWOS-A 122.7 (231) 861-7415.

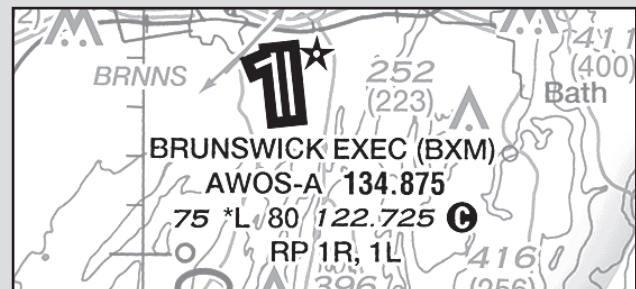
COMMUNICATIONS: CTAF/UNICOM 122.7

Except sometimes it's not a person.

Some airports have pilot-controlled automated AWOS broadcasts. These are denoted with "AWOS-A" or "AWOS-AV" in the airport information on the Sectional Chart and the Chart Supplement. The AWOS-A can be on the CTAF frequency, or on a discrete frequency. In either case, the pilot clicks the mic twice without speaking to play the report. It will play once, and then stop. Click the mic twice again if you missed some detail the first time through. Occasionally, the system misinterprets aircraft calls to each other for a request and broadcasts a weather report right over pilots talking to each other.

The Chart Supplement for Oceana County (above) shows instructions in the Airport Remarks. Brunswick Executive (below) has a similar system, but on a discrete frequency, and has no instructions in the airport remarks. It's up to you to know the AWOS-AV (similar to an AWOS-A) won't broadcast until you request it with a mic click.

Brunswick Executive Airport
Brunswick, ME
AWOS-AV 134.875



19L, HIRL Rwy 01R-19L—CTAF.

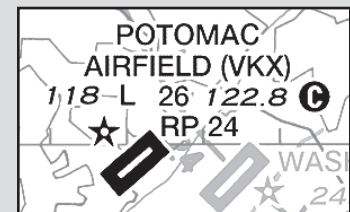
AIRPORT REMARKS: Attended 1200-0000Z±.

WEATHER DATA SOURCES: AWOS-AV 134.875 (2)

COMMUNICATIONS: CTAF/UNICOM 122.725

Some airports take this a step further with an "automated UNICOM," transmitting weather, plus airport advisories and radio checks on demand. The digitized voice explains: "Click your mic three times for an advisory, four times for radio checks." Automated UNICOMS appear as "AUNICOM" in the Chart Supplement (below).

Potomac Airfield (KVX)
Friendly, MD
CTAF/AUNICOM 122.8



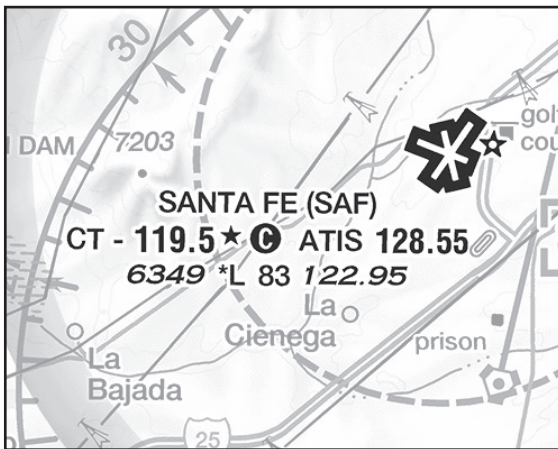
AIRPORT MANAGER: 301-248-5720

COMMUNICATIONS: CTAF/AUNICOM 122.8

COMMUNICATIONS: POTOMAC APP/DEP CON 124.7 125.65 (DC-FRZ)

Request a Radio Check at a Towered Airport

Santa Fe Municipal (KSAF)
Santa Fe, NM
Ground 121.7



At a towered airport, the best choice for a radio check is, usually, the Ground Control frequency. Ground frequencies don't appear on the Sectional Chart, but you can find them in the Chart Supplement.

Just as with a non-towered airport, you can ask for a radio check or use, "How do you hear me?" However, whenever making initial contact with a controller at a towered field, use your full call sign. If you're a U.S. registered aircraft talking to a controller in the U.S., you can leave off the "N" so long as you include the aircraft make, such as "Cessna." Be-

- ① **PILOT**
Santa Fe Ground, Cessna Two Three Six Papa Whiskey, radio check.
- ② **GROUND CONTROLLER**
Cessna Two Three Six Papa Whiskey, Santa Fe Ground, loud and clear.
How me?
- ③ **PILOT**
Santa Fe Ground, you're loud and clear.

COMMUNICATIONS: CTAF 119.5 ATIS 128.55 UNICOM 122.95
RCO 122.2 (ALBUQUERQUE RADIO)
Ⓡ ALBUQUERQUE CENTER APP/DEP CON 132.8
TOWER 119.5 (1400-0400Z) **GND CON** 121.7
AIRSPACE: CLASS D svc 1400-0400Z; other times CLASS G.

fore you request a radio check, however, check your radio—the frequency, the volume, and the squelch—and ensure your headset is plugged in.

TIP

If you're ever outside the U.S. with a U.S.-registered aircraft, you should include the "N" in all transmissions, as in "Cessna November Two Three Six Papa Whiskey."

DON'T BE THAT PILOT: BLOCKING IMPORTANT RADIO COMMUNICATIONS

Believe it or not, the most common (and annoying) mistake on the radio is failure to listen.

Specifically, it's failure to listen before keying the mic to transmit. Aviation radios are such that when two pilots transmit at the same time, it usually renders both transmissions unintelligible.

Whenever you tune a new frequency, pause for a count of two seconds before you speak. Once you know the airwaves are open, then transmit. When you speak, remember someone else may be waiting for you to finish so they can speak. Be succinct.

The cousin to speaking too soon, is impatience for a reply. Just because you don't hear back yet

doesn't mean you weren't heard. Remember, the person you're trying to reach could be doing anything. Allow a moment before you try again.

Sometimes, you do hear a reply and are told to standby ... and enough time passes that you think you were forgotten. Or you're cruising cross country in communication with ATC, but the radio has been silent for 20 minutes. In cases like this, it's fine to call the controller you were expecting to hear and see if they're still listening. Often, the best way is to simply ask for a radio check. That reassures you that you're still being heard, and reminds them about that dangling request.

Announce Taxi to the Runway

Oceano County Airport (L52)
Oceano, CA
CTAF 122.7

- ① PILOT
Oceano Traffic, Cessna Six Papa Whiskey, on the ramp. Taxi to Runway Two Nine. Oceano.
- ② PILOT
Oceano Traffic, Cessna Six Papa Whiskey, crossing Runway Two Nine at mid field. Oceano.
- ③ PILOT
Oceano Traffic, Cessna Six Papa Whiskey, departing Runway Two Nine, northbound. Oceano.

TIP

If you choose to taxi to a different runway than the one currently in use by most aircraft, explain your reason. Other pilots may follow your lead.

As you taxi around a non-towered airport, the best way to avoid a collision is to paint a mental picture of what's happening around you—and to help other pilots do the same. Start by just listening to the CTAF to visualize what's going on. Then, transmit your position and intentions at key points as you make your way to the runway.

Calling your taxi from the ramp ① is optional, but it's a good heads up for other pilots that you're moving on the airport property.

You must make a separate call for each runway you are about to cross. Refer to the runway by the end in use (Runway 29 in this case) and make the transmission before you cross, then wait a moment in case someone replies—perhaps urgently if they're about to occupy the same piece of pavement.

The call for takeoff ③ is discussed in departures on page 28, but it's here for context. But again, you would wait before moving in case someone replied.

To make it clear you're communicating to other aircraft about aircraft movement, be sure to use the word "traffic" after the airport name (as opposed to

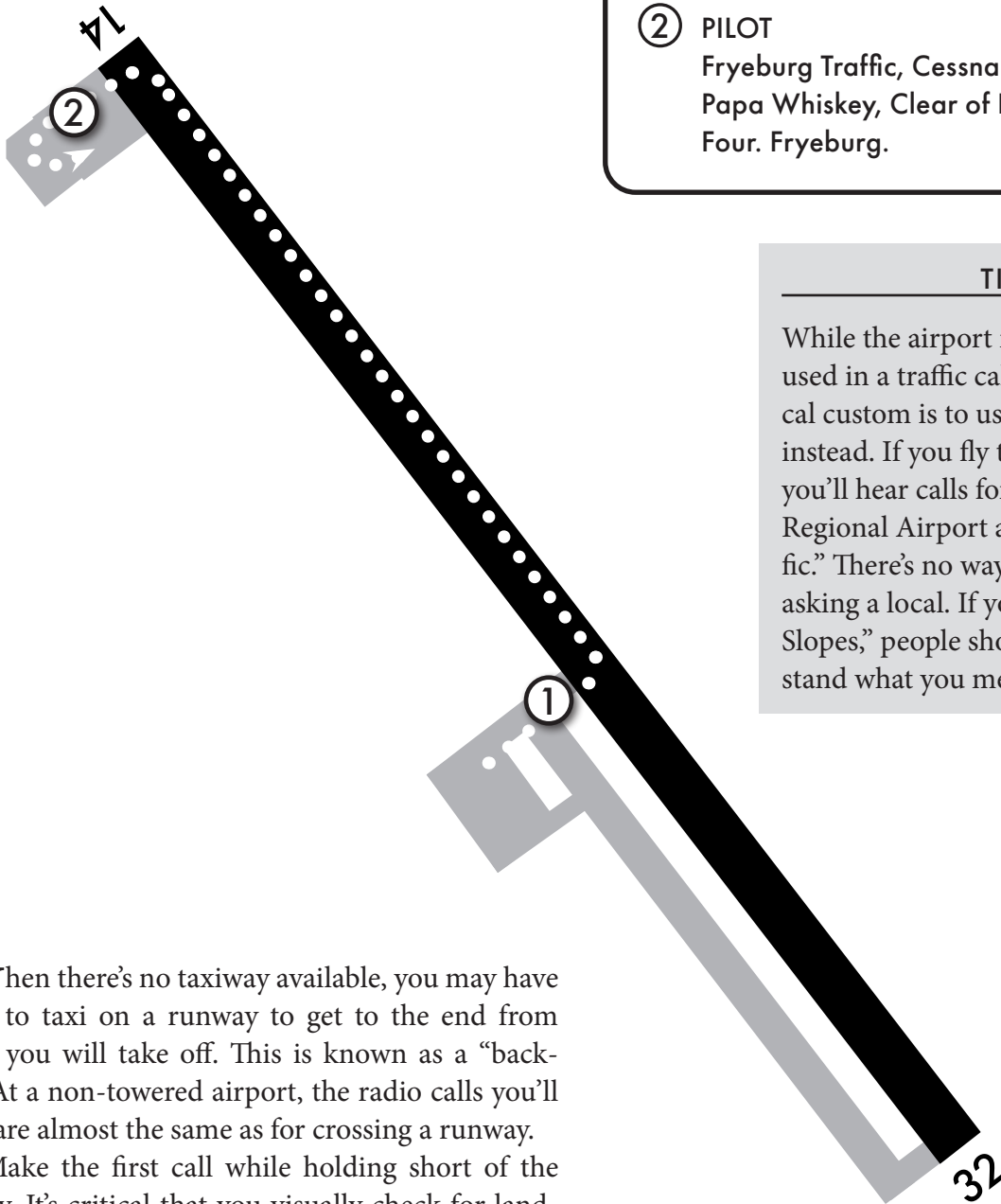
"UNICOM"). To reduce confusion in case nearby airports share the same frequency, repeat the airport name at the end of the call. The format is:

[Airport Name] Traffic, [Aircraft type and/or call sign], [Position and/or Intentions]. [Airport Name].

A truncated N-number is acceptable, so long as it uniquely identifies you. "Skyhawk" might be better than "Cessna" because a Cessna could be a two-seat trainer or a 12-person jet. Even "Yellow Cub" or "Blue Low-wing" is OK if you're the only aircraft around fitting that description.

Announce Back-Taxi on Runway

Eastern Slopes Regional Airport (KIZG)
Fryeburg, ME
CTAF 122.8



① PILOT
Fryeburg Traffic, Cessna Two Three Six
Papa Whiskey, back-taxi Runway One
Four. Fryeburg.

② PILOT
Fryeburg Traffic, Cessna Two Three Six
Papa Whiskey, Clear of Runway One
Four. Fryeburg.

TIP

While the airport name is normally used in a traffic call, sometimes local custom is to use the town's name instead. If you fly to western Maine, you'll hear calls for Eastern Slopes Regional Airport as "Fryeburg Traffic." There's no way to know without asking a local. If you call it "Eastern Slopes," people should still understand what you mean.

When there's no taxiway available, you may have to taxi on a runway to get to the end from which you will take off. This is known as a "back-taxi." At a non-towered airport, the radio calls you'll make are almost the same as for crossing a runway.

Make the first call while holding short of the runway. It's critical that you visually check for landing or departing aircraft (at both ends, especially if the winds are calm), then wait and listen after you announce your intentions. If you don't see any other aircraft, and nobody responds with a conflict, go ahead and taxi onto the runway.

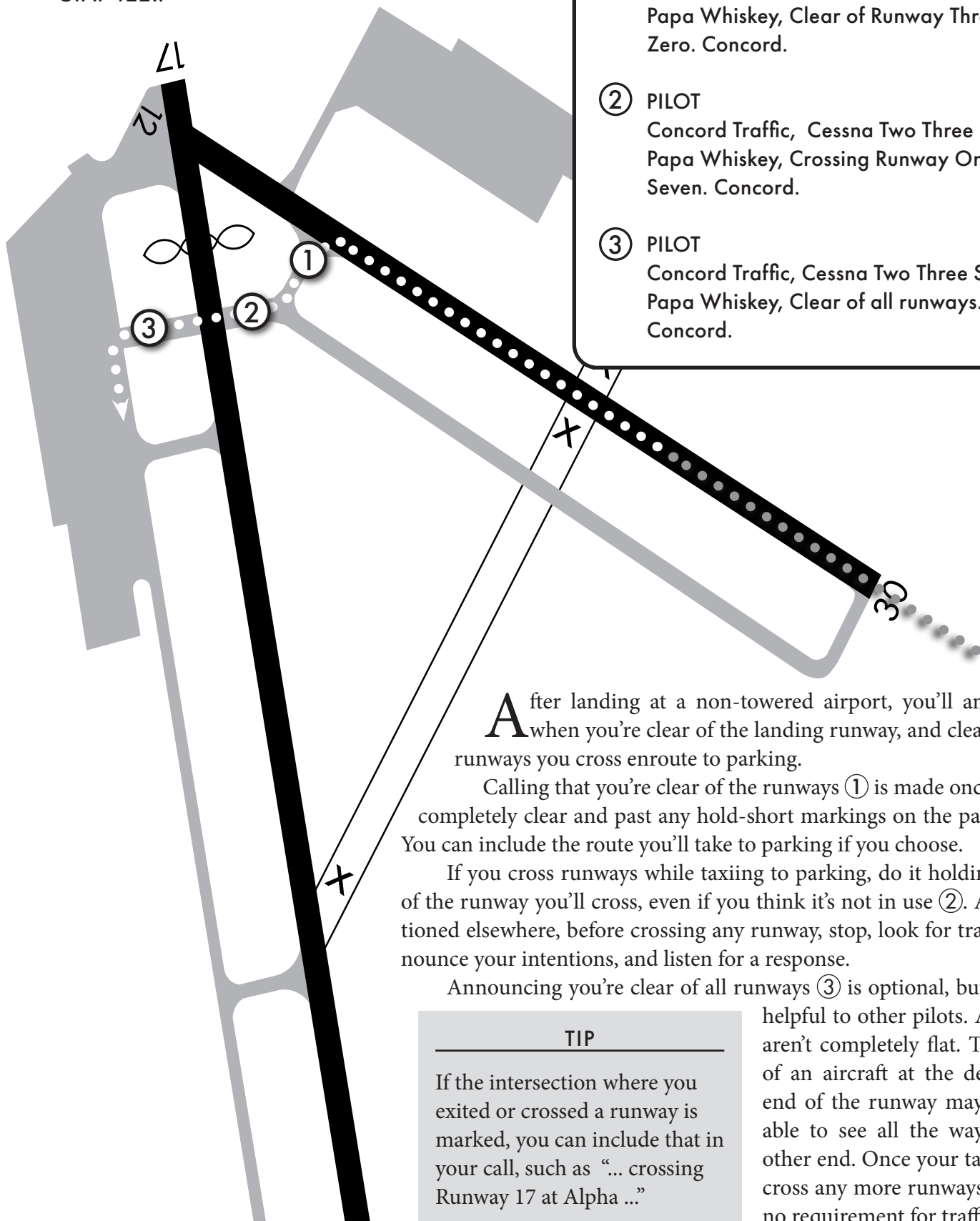
Call ② is optional, but helpful to other aircraft if you pull off the runway to do a run-up. Some runways don't have sufficient space to pull out of the way,

so make this call only if your aircraft is completely clear of the runway.

If you did your run-up before back-taxiing, you might not make call ② at all. You can simply turn around at the end of the runway, and make a call announcing your departure (see page 28).

Announce Taxi After Landing

Concord Municipal Airport (KCON)
Concord, NH
CTAF 122.7



- ① PILOT
Concord Traffic, Cessna Two Three Six Papa Whiskey, Clear of Runway Three Zero. Concord.
- ② PILOT
Concord Traffic, Cessna Two Three Six Papa Whiskey, Crossing Runway One Seven. Concord.
- ③ PILOT
Concord Traffic, Cessna Two Three Six Papa Whiskey, Clear of all runways. Concord.

After landing at a non-towered airport, you'll announce when you're clear of the landing runway, and clear of any runways you cross enroute to parking.

Calling that you're clear of the runways ① is made once you're completely clear and past any hold-short markings on the pavement. You can include the route you'll take to parking if you choose.

If you cross runways while taxiing to parking, do it holding short of the runway you'll cross, even if you think it's not in use ②. As mentioned elsewhere, before crossing any runway, stop, look for traffic, announce your intentions, and listen for a response.

Announcing you're clear of all runways ③ is optional, but can be

TIP

If the intersection where you exited or crossed a runway is marked, you can include that in your call, such as "... crossing Runway 17 at Alpha ..."

helpful to other pilots. Airports aren't completely flat. The pilot of an aircraft at the departure end of the runway may not be able to see all the way to the other end. Once your taxi won't cross any more runways, there's no requirement for traffic calls.

NON-MOVEMENT AREAS, MOVEMENT AREAS, AND RUNWAYS

You can think about airports as divided into three main areas: ramps, taxiways, and runways. There's an increased consequence for collisions as you move from the ramp to the runway.

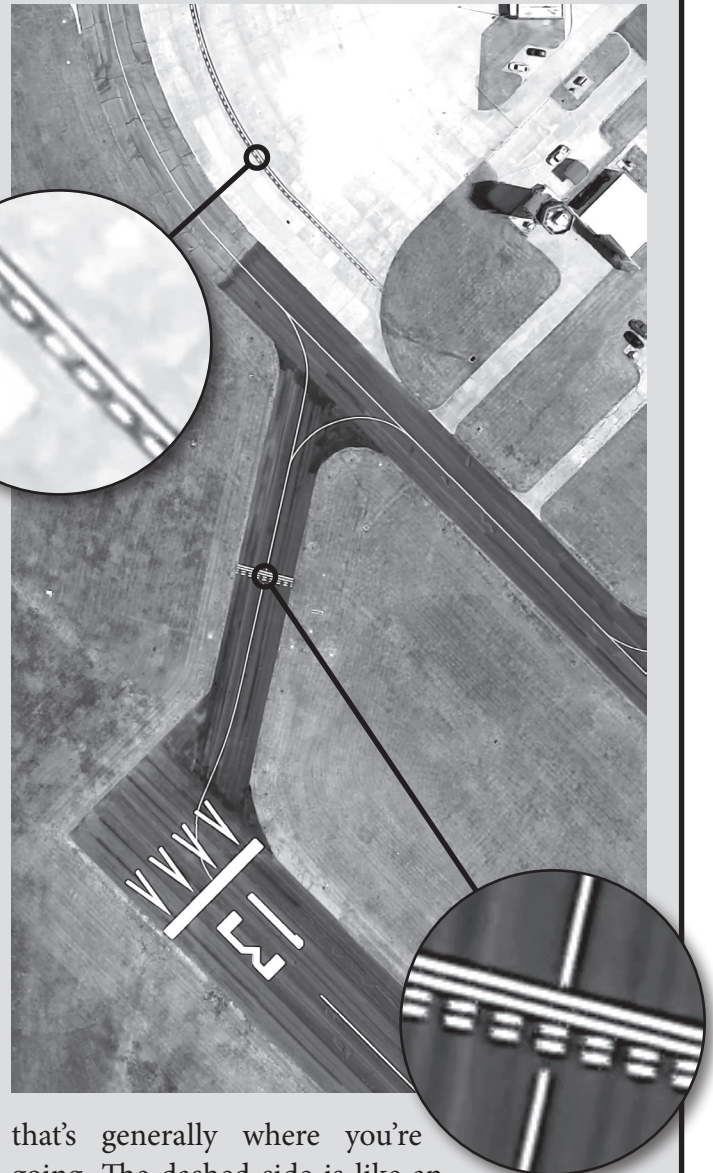
At non-towered airports, pilots can move freely, so there's no permission required and runway markings aren't always standard. There may be no distinction between what's ramp and what's taxiway. There might not even be markings to separate taxiways from runways. It's up to you to announce where you (think) you are, and where you're going.

The surface of towered airports is different, and the three areas have distinct markings and rules. There are "non-movement areas," which is a ridiculous name, because this is the area where you can move freely without permission. Non-movement areas include ramps and parking areas, and are not under ATC control. Inside these areas, you can pull, push, or taxi your aircraft without getting permission from anyone in the tower. You're responsible for avoiding collisions with other aircraft or vehicles. (At some really large airports, there's a non-FAA "Ramp Tower" that controls parts of the non-movement area to avoid traffic jams involving passenger jets.)

The movement area includes the taxiways and runways. To enter the movement area and to move within it, you need a clearance from the Ground or Tower controller. Other aircraft or vehicles you see on the movement area will (hopefully) be talking to ATC, too.

The boundary between non-movement and movement areas is marked by two yellow lines: one solid and one dashed. The solid line is on the non-movement area side, and the dashed line is on the movement area side.

You can think of the solid line side as a closed door that you can't go through without permission. If you're on the dashed side, you're already talking to ATC (or you're about to get in a heap of trouble). You don't need specific permission to cross from the dashed side to the solid side and leave the movement area, so long as ATC knows



that's generally where you're going. The dashed side is like an open door. You can simply pass through.

However, it closes behind you and you need a fresh clearance to re-enter the movement area.

There's a similar set of lines before each runway called the hold-short markings. In this case, it's a pair of solid lines and a pair of dashed ones (four parallel lines total). It works the same way: You must have permission from a controller to cross the hold-short markings from the solid side to the dashed side. Your permission to simply taxi in the movement area is not enough. When you leave a runway, you can pass from the dashed side to the solid side whenever you want, but you can't cross back without a new clearance to do so.

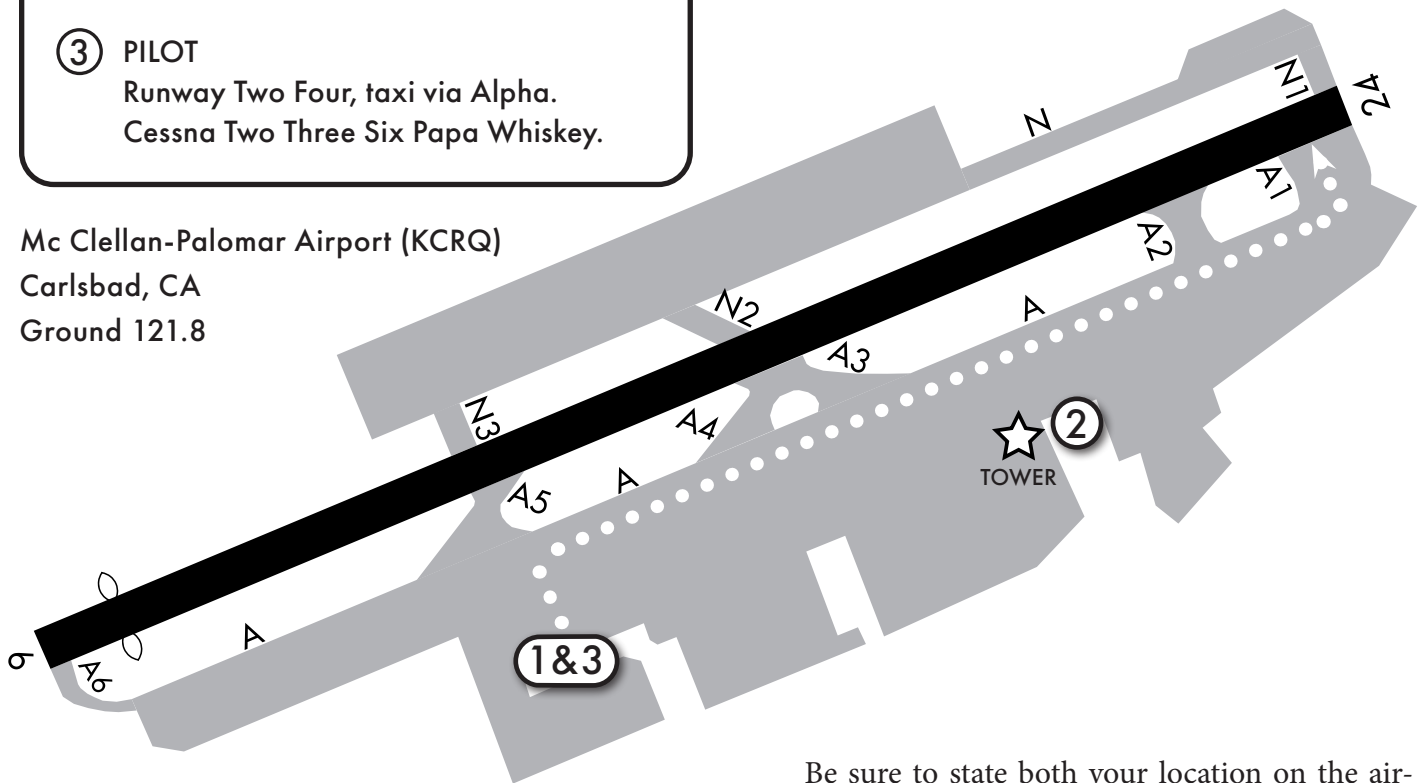
Request Taxi to Runway (Class D)

- ① PILOT
Palomar Ground, Cessna Two Three Six Papa Whiskey. At Magellan Aviation with Information November. VFR eastbound.
- ② GROUND CONTROLLER
Cessna Two Three Six Papa Whiskey, Palomar Ground. Runway Two Four, taxi via Alpha.
- ③ PILOT
Runway Two Four, taxi via Alpha. Cessna Two Three Six Papa Whiskey.

TIP

Taxiways are named by letter: A, B, C, etc. When taxiways are parallel to runways, the short connecting sections are called intersections and, usually, are numbered A1, A2, A3, and so on. So this taxi could also be assigned as, "... Runway Two Four at Alpha One, taxi via Alpha."

Mc Clellan-Palomar Airport (KCRQ)
Carlsbad, CA
Ground 121.8



To taxi from the ramp to the runway at a towered airport, (across the “movement area”—see “Non-Movement Areas, Movement Areas, and Runways” on page 13), you need to receive a taxi clearance from the Ground controller. First listen to the current ATIS broadcast (see page 5). Then call Ground with your request, mentioning the phonetic alphabet code of the ATIS you heard. The format is:

[Airport name] Ground, [Full call sign], [Location on the airport] with Information [Current ATIS letter] VFR [Destination or direction of flight]. [Special requests].

Be sure to state both your location on the airport and your destination or direction of flight. This makes it easy for the controller to quickly plan how to get you from your current location to the active runway that’s most aligned with where you’re going. If you don’t know what locals call the area where you’re parked, give the best (short) description you can.

Add any special requests to the end of your transmission. Examples include requesting a different runway than most aircraft are using, or requesting an intersection departure because you don’t need the whole runway (see page 22).

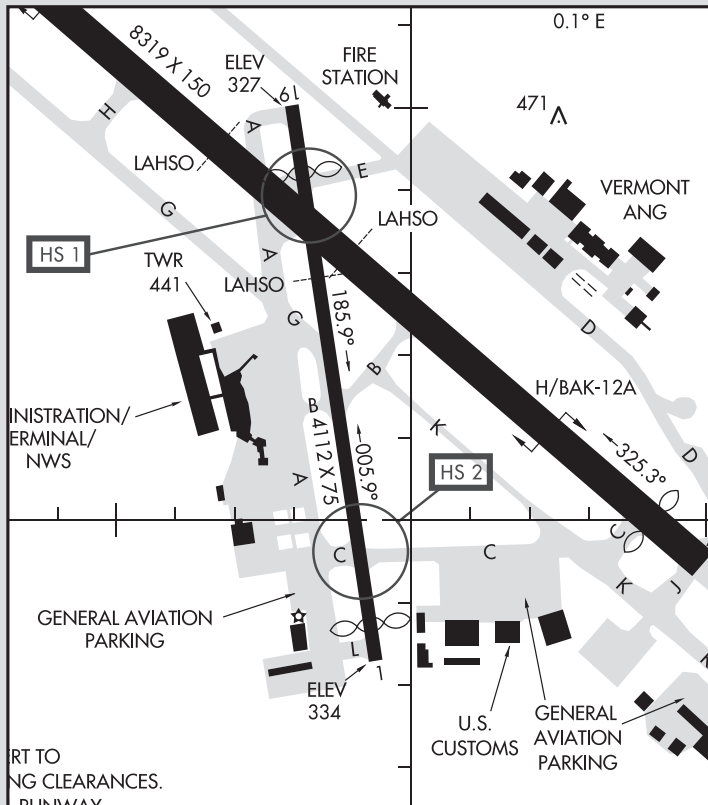
The simplest response from Ground will be instructions to taxi to your departure runway via taxiways, without crossing any runways, taxiing on any runways, or having to hold anywhere along the way.

WATCH OUT FOR RUNWAY HOTSPOTS

Certain airport designs just lead to trouble, and by “trouble” we mean runway incursions, which is FAA speak for taxiing onto a runway without permission. Taxiways that cross narrow runways or runways that meet at odd angles are common culprits. Runways with land-and-hold-short operations (LAHSO) can also cause problems.

In an effort to curb these runway incursions, the FAA collects reports of pilots crossing into places where they weren't cleared and look for fixes. That might be better signage, repainting of hold-short markings, or changes in airport procedures.

They also label problem areas as “hot spots” on airport diagrams. These are marked in brown on runway charts with “HS” with a number. Note where these hot spots are in relation to your taxi route. If other pilots missed the memo on where to stop, so might you.



HOW TO ADDRESS A CONTROLLER

Radio calls at non-towered airports fall into one of two categories: Either you're speaking on CTAF, “[Airport name] traffic ...” or you're speaking to UNICOM, “[Airport name] Unicom ...”

With controllers, there are more options. The key to addressing a controller is to use the name of the job he or she is performing at that moment.

Tower. The tower controller controls operations inside the airport's Class D airspace. That's ideally a cylinder around the airport with a 4 NM radius and extending to 2500 feet AGL, however, local variations are probably more the rule than the exception. Tower also controls all runway operations, and might control some taxiway sections. The person speaking is usually in a control tower with a view of the airport. That controller answers to “[Airport name] Tower.”

Ground. The ground controller owns most or all of the taxiways and other movement areas that aren't runways (see “Non-Movement Areas,

Movement Areas, and Runways” on page 13). Ground issues taxi instructions, including any airport personnel in trucks you see driving around the movement area. At most Class D airports, the ground controller also delivers IFR clearances to IFR departures. The actual person is usually in the control tower, sipping coffee next to the tower controller. The ground controller answers to “[Airport name] Ground.”

At quiet airports, Tower and Ground are often the same person. Don't let that bother you. When you're talking to someone in their role as Ground, address them as Ground. When you're talking to them in their role as Tower, call them Tower. Usually, these two roles are being conducted on separate frequencies, so it's pretty easy. Just don't be surprised if you hear the same voice in both roles.

Some other roles include **Clearance, Approach, Departure,** and **Center.** These roles are discussed elsewhere in this book.

PHRASES CONTROLLERS USE WHEN THINGS DON'T GO WELL

There are probably many phrases controllers utter when things don't go as expected that we pilots never hear (and we couldn't print in this book). However, there are certain stock phrases that have specific meanings you should know.

“Say again.” This is self-explanatory. Whatever was just said went in one headset earcup and out the other. This is usually combined with as much identifying information as the controller has, such as “Aircraft calling ready for taxi, say again?” This is an invitation for you to repeat your entire transmission.

“Say call sign only.” Because aviation communications follow a basic script, the controller can often figure out what you said even if he or she missed a few bits. Your call sign, however, is essentially a random string of characters. In this case, you may hear something like, “Aircraft at Magellan calling for taxi, say call sign only.” The correct reply would be, “Cessna Two Three Six Papa Whiskey,” and nothing else.

“Blocked.” This is similar to “say again,” except it includes the reason: Two people transmitted at once. Used in context it might be, “Cessna calling Ground, you were blocked.” That's an invitation for the Cessna to “say again”—and the other aircraft calling to stay silent for the moment.

“Standby.” This is controller-speak for “Don't call me; I'll call you.” It could sound like, “Aircraft

calling Ground, standby” or “Cessna Six Papa Whiskey, standby.” Either way, just wait patiently for the the controller to call you back. The magic words are, “Say again request” or “Go ahead,” as in, “Cessna Six Papa Whiskey, sorry for the delay. Say again your request.” Now, transmit your entire request again.

“On the land line.” Someday you'll transmit on a seemingly quiet frequency and a controller will ask you to repeat a request because he or she was “on the land line.” Controllers coordinate between themselves a lot via internal digital voice connections that have replaced real phones. We pilots can't hear these.. Make your request again.

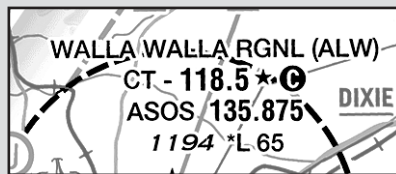
“Unable.” It's the phrase pilots would rather not hear, but whatever request you just made ... it ain't gonna happen. At least, not the way you specifically requested it. View “Unable” as an invitation to negotiate. Sometimes it works out.

Remember that you can use terms like “say again,” “standby,” “blocked,” and even “unable,” if the situation warrants it. (However, saying you missed a radio call because you were on the phone probably won't go over well.) Remember that controllers can speak plain English. If they say something you don't understand, ask for clarification.

You can also find a fairly complete listing of all the standard aviation radio phrases in the back of the AIM titled, “Pilot/Controller Glossary.”

TOWER AFTER HOURS, AND ON FREQUENCIES YOU CAN'T USE

A frequency gotcha with towered airports is it's hard to talk to Tower and Ground controllers after they go home for the night. (Their cellphone numbers are rarely published.)



A star beside the CT (control tower) frequency means a part-time frequency. After hours, the towered airport becomes a non-towered airport where all pilots announce their posi-

tions and intentions. That's why just after the star, there's the C inside a circle, signifying it's also the CTAF.

To see when the tower is open, check the Chart Supplement, or your favorite airport website or app. If the tower is closed when you arrive (or depart), you use the radio calls for a non-towered airport, because that's what the airport is now.

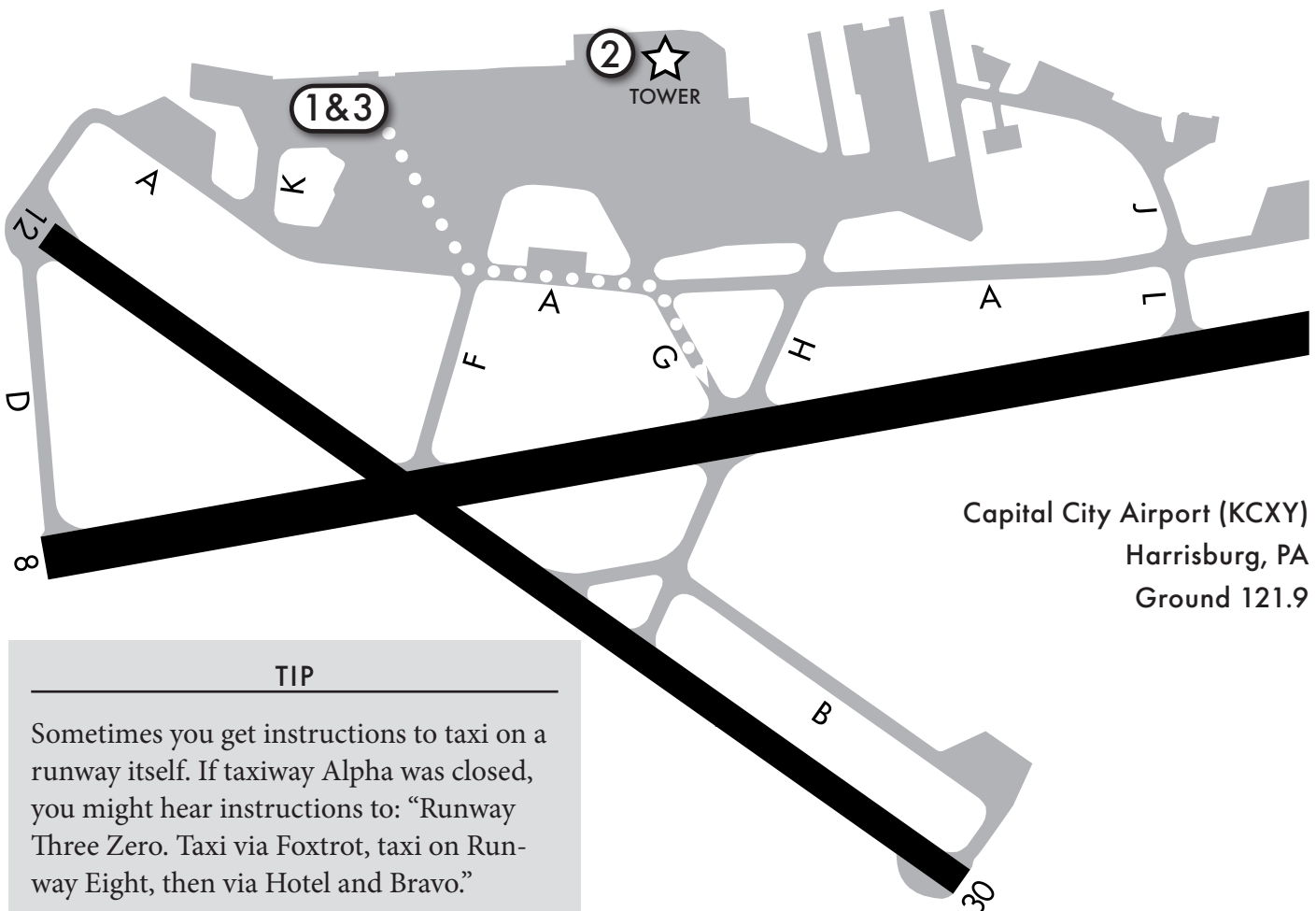
TOWER 118.5 (1400-0230Z†) GND CON 121.6
AIRSPACE: CLASS D svc 1400-0230Z† other times CLASS E.
RADIO AIDS TO NAVIGATION: NOTAM FILE ALW.

Request Taxi to a Runway (When Hold Short is Assigned)

- ① PILOT
Capital City Ground, Cessna Two Three Six Papa Whiskey. At Skyport Aviation, with Information Yankee, VFR to Morristown.
- ② GROUND CONTROLLER
Cessna Two Three Six Papa Whiskey, Capital City Ground. Runway Three Zero, taxi via Alpha, Golf, Hotel, Bravo. Hold Short of Runway Eight at Golf.
- ③ PILOT
Runway Three Zero via Alpha, Golf, Hotel, Bravo. Hold short of Runway Eight at Golf. Cessna Two Three Six Papa Whiskey.

Multiple runways add a potential twist to Ground's taxi instructions, because the best route might require crossing a runway. If that happens, Ground first assigns your departure runway, and gives you taxi instructions to it. Next, he or she will either clear you to cross the intervening runway (see page 17), or tell you to hold short of it.

If the controller had said to "cross Runway Eight" in call ②, then you could taxi right across Runway Eight without stopping (although you should still double-check for landing or departing aircraft). Never cross a runway unless ATC gives you explicit instructions to do so.



TIP

Sometimes you get instructions to taxi on a runway itself. If taxiway Alpha was closed, you might hear instructions to: "Runway Three Zero. Taxi via Foxtrot, taxi on Runway Eight, then via Hotel and Bravo."

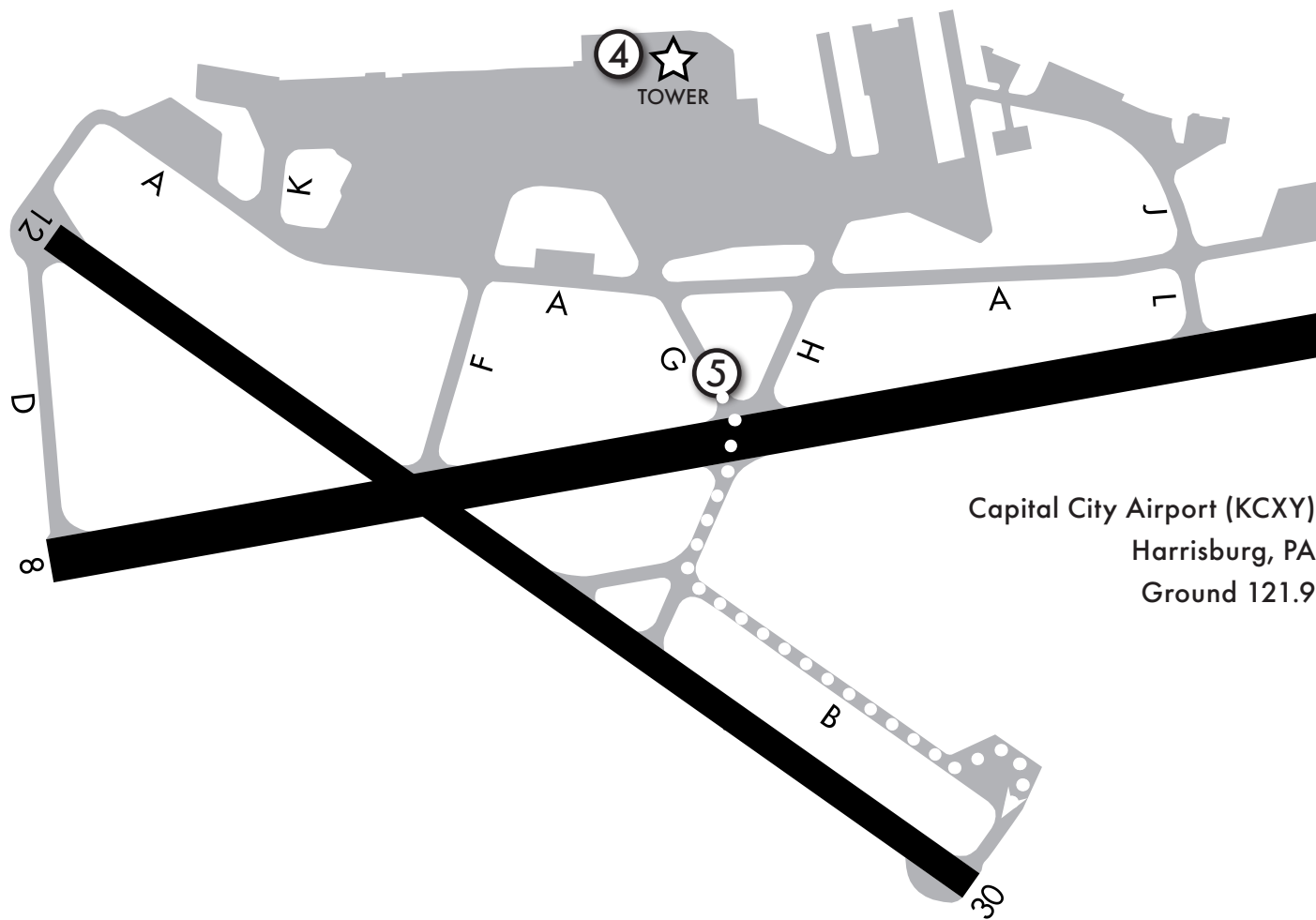
In this case, though, you were instructed to hold short, so you must read back the hold short instruction and stop before the runway hold short lines (see “Non-Movement Areas, Movement Areas, and Runways” on page 13).

There’s no need to say anything while holding short. The ground controller will clear you across, when ready ④. Often this happens before you even come to a stop.

- ④ GROUND CONTROLLER
Cessna Six Papa Whiskey, cross Runway Eight at Golf.
- ⑤ PILOT
Cross Runway Eight at Golf. Cessna Six Papa Whiskey.

TIP

When first contacting any new controller (Ground, Tower, etc.), use your complete call sign. If the controller abbreviates your call sign in his or her response, that’s your permission to use the shortened version.



Request Taxi to Runway (With Hold for Other Aircraft)

- ① GROUND CONTROLLER
King Air Four Three X-Ray Sierra, taxi to North Atlantic Air via Foxtrot, Alpha. The Cessna will hold for you.
- ② KING AIR PILOT
Taxi to parking via Foxtrot, Alpha. Cessna will hold for us. King Air Four Three X-Ray Sierra.
- ③ GROUND CONTROLLER
Cessna Six Papa Whiskey, hold short of Foxtrot for the King Air.
- ④ PILOT
Hold short of Foxtrot for the King Air. Cessna Six Papa Whiskey.

Once the King Air has turned onto Alpha:

- ⑤ GROUND CONTROLLER
Cessna Six Papa Whiskey, continue to Runway Niner via Foxtrot and Delta.
- ⑥ PILOT
Continue to Runway Niner via Foxtrot, Delta. Cessna Six Papa Whiskey.

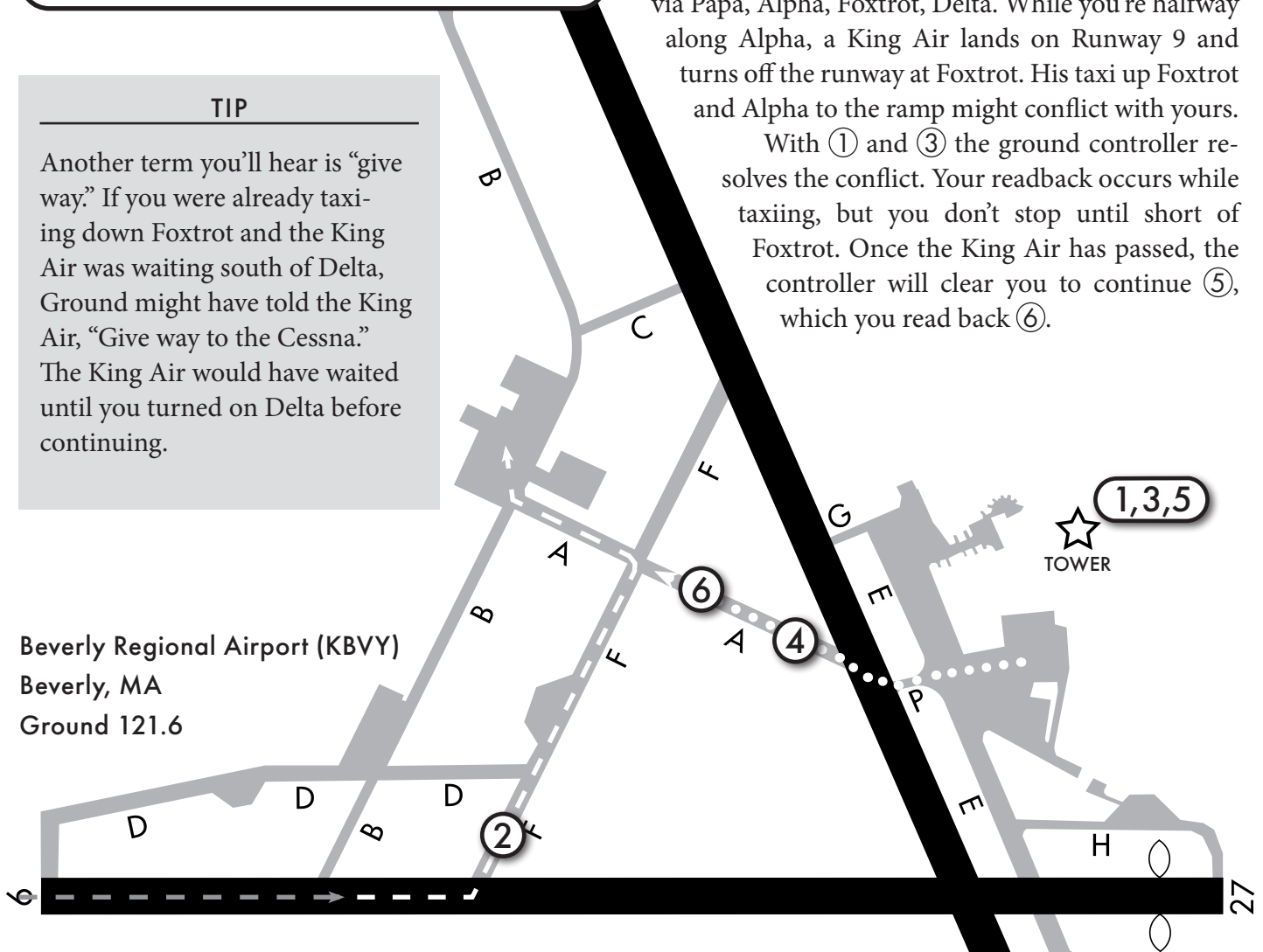
Taxiing at a non-towered airport sometimes means playing a game of chicken with other taxiing aircraft. At a towered airport, the Ground controller should see any upcoming conflicts ahead of time, and head them off for you.

Suppose your taxi instructions to Runway 9 were via Papa, Alpha, Foxtrot, Delta. While you're halfway along Alpha, a King Air lands on Runway 9 and turns off the runway at Foxtrot. His taxi up Foxtrot and Alpha to the ramp might conflict with yours.

With ① and ③ the ground controller resolves the conflict. Your readback occurs while taxiing, but you don't stop until short of Foxtrot. Once the King Air has passed, the controller will clear you to continue ⑤, which you read back ⑥.

TIP

Another term you'll hear is "give way." If you were already taxiing down Foxtrot and the King Air was waiting south of Delta, Ground might have told the King Air, "Give way to the Cessna." The King Air would have waited until you turned on Delta before continuing.



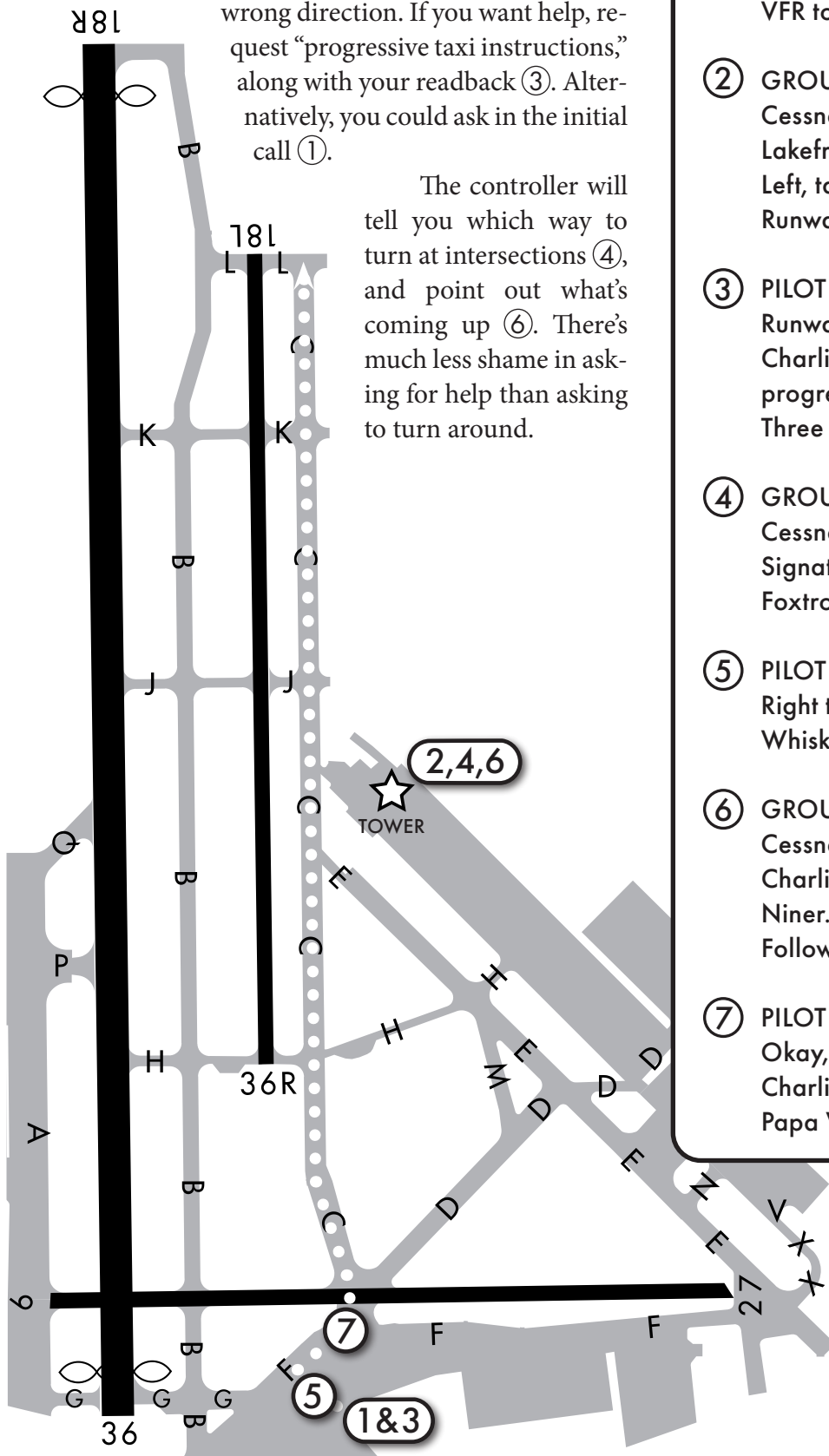
Beverly Regional Airport (KBVY)
Beverly, MA
Ground 121.6

Request Progressive Taxi Instructions

Ground controllers expect you're capable of using signs, pavement markings, and the airport diagram to keep from getting lost. But they'd rather give you a hand than watch you wander off in the wrong direction. If you want help, request "progressive taxi instructions," along with your readback ③. Alternatively, you could ask in the initial call ①.

The controller will tell you which way to turn at intersections ④, and point out what's coming up ⑥. There's much less shame in asking for help than asking to turn around.

- ① PILOT
Lakefront Ground, Cessna Two Three Six Papa Whiskey at Signature with Romeo. VFR to Pensacola.
- ② GROUND CONTROLLER
Cessna Two Three Six Papa Whiskey, Lakefront Ground. Runway One Eight Left, taxi via Foxtrot, Charlie. Cross Runway Niner.
- ③ PILOT
Runway One Eight Left via Foxtrot, Charlie. Cross Runway Niner. Request progressive taxi instructions. Cessna Two Three Six Papa Whiskey.
- ④ GROUND CONTROLLER
Cessna Six Papa Whiskey, from Signature it'll be a right turn onto Foxtrot.
- ⑤ PILOT
Right turn onto Foxtrot. Six Papa Whiskey.
- ⑥ GROUND CONTROLLER
Cessna Six Papa Whiskey, Delta and Charlie split on the other side of Runway Niner. Charlie's gonna be the left one. Follow it all the way north to the end.
- ⑦ PILOT
Okay, we'll stay to the left and take Charlie to the end. Thanks. Cessna Six Papa Whiskey.



Lakefront Airport (KNEW)
New Orleans, LA
Ground 121.7

Request Taxi for Intersection Takeoff

Note: Phoenix Sky Harbor is a Class B airport, so the following is after talking to Clearance Delivery (see page 24).

- ① **PILOT**
Phoenix Ground, Cessna Two Three Six Papa Whiskey, at Cutter Aviation with Information Golf. Request intersection departure at Hotel Seven.
- ② **GROUND CONTROLLER**
Cessna Two Three Six Papa Whiskey, Phoenix Ground. Runway Two Five Left at Hotel Seven. Taxi via Hotel.
- ③ **PILOT**
Runway Two Five Left at Hotel Seven, taxi via Hotel. Cessna Two Three Six Papa Whiskey. Thanks.

At a towered airport, ATC expects you want all the available runway for takeoff. If that would mean miles of taxiing and you don't need all the runway, you can ask for an "intersection departure."

At Phoenix Sky Harbor, GA aircraft parked on the southwest ramp will often be assigned Runway 25L. However, taxiway Hotel doesn't extend that far, so you have to cross Runway 25L at H7 and then taxi on Foxtrot to G8 to use all 7800 feet of the runway. It's more efficient to depart from the H7 intersection (assuming the remaining 6600 feet of runway is enough).

The controller may have reasons for denying your request, but there's no shame in asking.

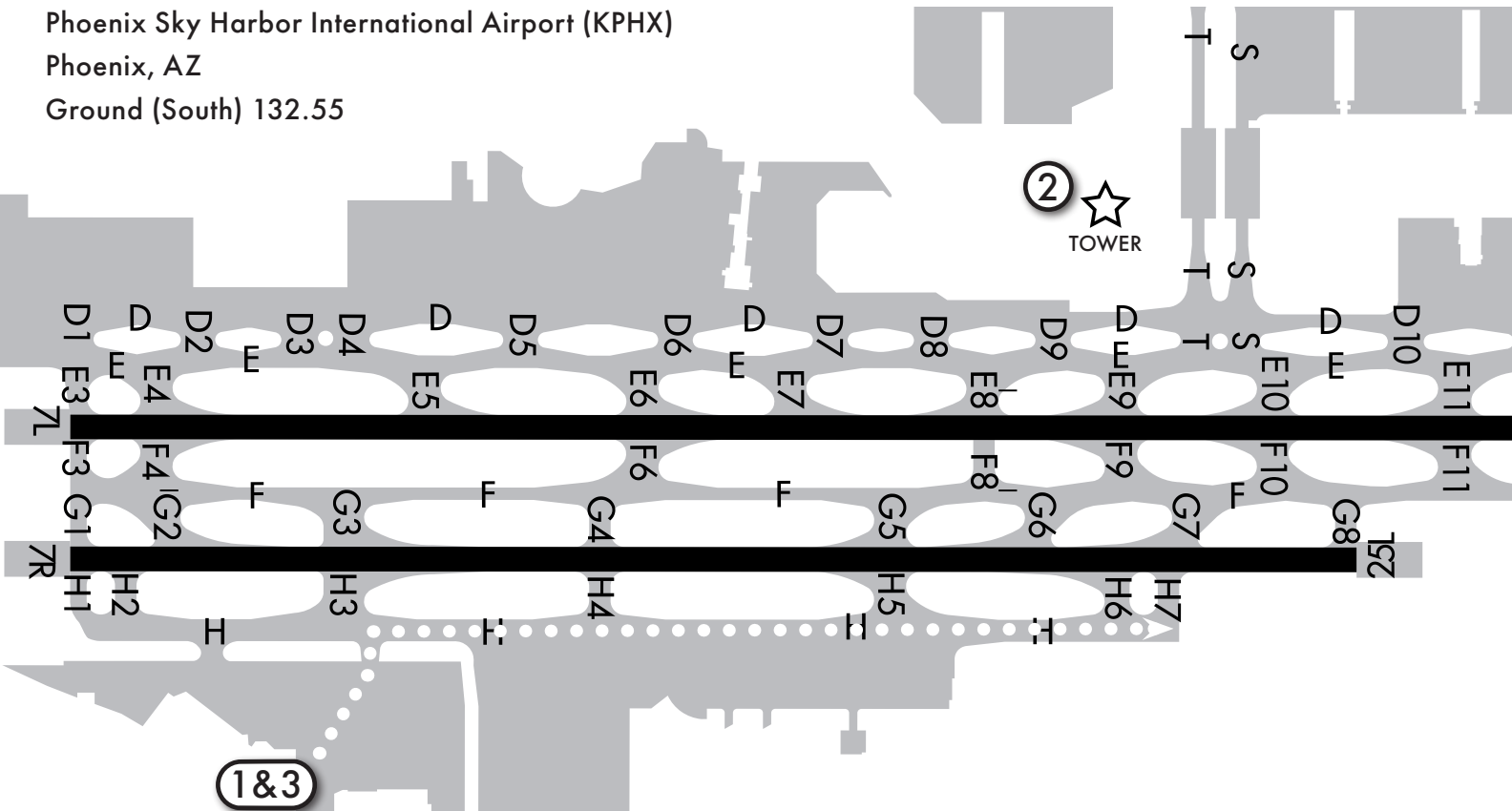
TIP

Ground may offer, or assign, an intersection takeoff without you asking. You can decline the offer by simply saying, "Request full length." You can do that on your initial call if you don't even want them to offer an intersection departure.

Phoenix Sky Harbor International Airport (KPHX)

Phoenix, AZ

Ground (South) 132.55



Request VFR Departure Clearance (Class C or TRSA)

To depart from a typical Class D towered airport, you just call Ground for a taxi clearance with the current airport information and your destination or direction of departure. However, at Class D airports with a Terminal Radar Service Area (TRSA), or at a Class C, you request VFR departure instructions from Clearance Delivery. This frequency is listed in the Chart Supplement. At smaller Class C or TRSA airports, Clearance Delivery and Ground are often the same person. In rare cases, they may even use the same frequency.

The VFR departure clearance provides VFR radar services, which means you'll have a discrete squawk code for your transponder and a controller advising you about other traffic as you depart the airspace. Sometimes, you can keep that service all the way to your destination (see VFR flight following on page 44).

The process and phraseology is similar at both types of airports. First, listen to the ATIS. There may be information relevant to VFR departures. Then, make your request. The format is:

[Airport Name] Clearance, [Call sign],
[location], Information [ATIS letter code].
VFR to [destination/direction], [desired
altitude].

Clearance Delivery will respond.

[Call sign], [Airport Name] Clearance. On
departure [instructions], maintain VFR at/
at or below [altitude]. Departure [frequen-
cy], squawk [squawk code].

The departure instructions might include a heading that you must turn to after takeoff, or state, "fly runway heading." They might not specify a heading at all, in which case you should fly runway heading until cleared "on course." Whatever the specifics, write them down so you can refresh your memory prior to takeoff. Then read the clearance back to the controller ③. The controller will tell you that your read-back is correct ④, or correct any errors.

- ① **PILOT**
Santa Barbara Clearance, Cessna Two Three Six Papa Whiskey, Cessna one seventy-two on the south ramp with Information Bravo. VFR to Santa Monica at three thousand five hundred.
- ② **CLEARANCE DELIVERY CONTROLLER**
Cessna Two Three Six Papa Whiskey, Santa Barbara Clearance. On departure, fly runway heading, maintain VFR at or below one thousand five hundred. Departure frequency one two zero point five five, squawk seven one one zero.
- ③ **PILOT**
Fly runway heading, maintain VFR at or below one thousand five hundred. Departure on one two zero point five five, squawk seven one one zero. Cessna Two Three Six Papa Whiskey.
- ④ **CLEARANCE DELIVERY CONTROLLER**
Cessna Two Three Six Papa Whiskey, readback correct. Contact Ground when ready to taxi.

TIP

Radar service is technically optional in a TRSA. To decline the service, contact Ground as you would at a Class D and add "Negative Radar Service" to your initial call. Note: ATC might sound disappointed you turned it down.

Santa Barbara Municipal Airport (KSBA)
Santa Barbara, CA
Clearance Delivery 132.9

COMMUNICATIONS: CTAF 119.7 ATIS 132.65 UNICOM 122.95
① APP/DEP CON 120.55 (151°–329°) 125.4 (330°–150°) 124.15
① L.A. CENTER APP/DEP CON 119.05 (0700–1400Z‡)
TOWER 119.7 (1400–0700Z‡) GND CON 121.7 CLNC DEL 132.9
AIRSPACE: CLASS C svc ctc APP CON svc 1400–0700Z‡ other times Cl

Request VFR Departure Clearance (Class B)

- ① **PILOT**
Boston Clearance, Cessna Two Three Six Papa Whiskey, at Signature with Information Hotel. VFR to Nashua, NH, at four thousand, five hundred.
- ② **CLEARANCE DELIVERY CONTROLLER**
Cessna Two Three Six Papa Whiskey, cleared VFR out of the Boston Class Bravo airspace via ATC assigned heading, maintain VFR at three thousand. Departure frequency one two zero point five five, squawk three five one five.
- ③ **PILOT**
Cleared out of the Boston Class Bravo airspace via ATC assigned heading, maintain VFR at three thousand. Departure frequency one two zero point five five, squawk three five one five. Cessna Two Three Six Papa Whiskey.
- ④ **CLEARANCE DELIVERY CONTROLLER**
Cessna Six Papa Whiskey, readback correct. Advise this frequency when you're ready to taxi.

The initiation of a VFR departure request from a Class B is the same as it is at a TRSA or a Class C airport ①. However, you will receive an actual clearance to fly in the Class B airspace rather than just departure instructions. This is why you'll hear "cleared into the Class Bravo airspace," "cleared out of the Class Bravo airspace," or something similar ②. The clearance will contain headings and altitudes to fly.

Listen to the departure ATIS, and then make your call to Clearance Delivery. Expect a wait between your call and the response, or a "Cessna Two Three Six Papa Whiskey, standby." Be patient. This is why it's often good to call for your clearance before starting your engine. You can call again after startup when you're ready to taxi.

TIP

Clearances have the format, "CRAFT":
 Clearance limit (destination)
 Route (direction)
 Altitude
 Frequency (for Departure)
 Transponder (squawk code)



General Edward Lawrence
 Logan International Airport (KBOS)
 Boston, MA
 Clearance Delivery 121.65

Monitor Ground on Taxi to Runway (Class B)

- ① PILOT (on 121.65)
Boston Clearance, Cessna Six Papa Whiskey at Signature, Information Hotel, Ready to taxi.
- ② CLEARANCE DELIVERY CONTROLLER
Cessna Six Papa Whiskey, monitor Ground one two one point niner.
- ③ PILOT
Monitor Ground one two one point niner. Cessna Six Papa Whiskey.

After a seeming eternity waiting just outside the movement area at ⑤, and listening intently to 121.9:

- ④ GROUND CONTROLLER
November Two Three Six Papa Whiskey, Boston Ground. Runway Two Two Right, taxi via Bravo, hold short of Zulu.
- ⑤ PILOT (on 121.9)
Two Two Right via Bravo, hold short of Zulu. Cessna Two Three Six Papa Whiskey.

After more expensive time idling at ⑦ ...

- ⑥ GROUND CONTROLLER
November Two Three Six Papa Whiskey, continue taxi via Bravo, November, cross Runway One Five Right.
- ⑦ PILOT
Continue Taxi via Bravo, November, Cross Runway One Five Right. Cessna Two Three Six Papa Whiskey.
- ⑧ GROUND CONTROLLER
November Two Three Six Papa Whiskey, monitor Tower one two eight point eight.

When you tell Clearance Delivery you're ready to taxi at some (but not all) big Class B airports, you'll be told to "monitor ground." Don't call them; they'll call you. Taxi up to the edge of the non-movement area, listening to the frequency. However, read back taxi instructions and runway crossings or hold-shorts. Eventually, Ground will tell you to monitor a Tower frequency for takeoff ⑧.



General Edward Lawrence
Logan International Airport (KBOS)
Boston, MA
Clearance Delivery: 121.65
Ground: 121.9
Tower for 22R: 128.8

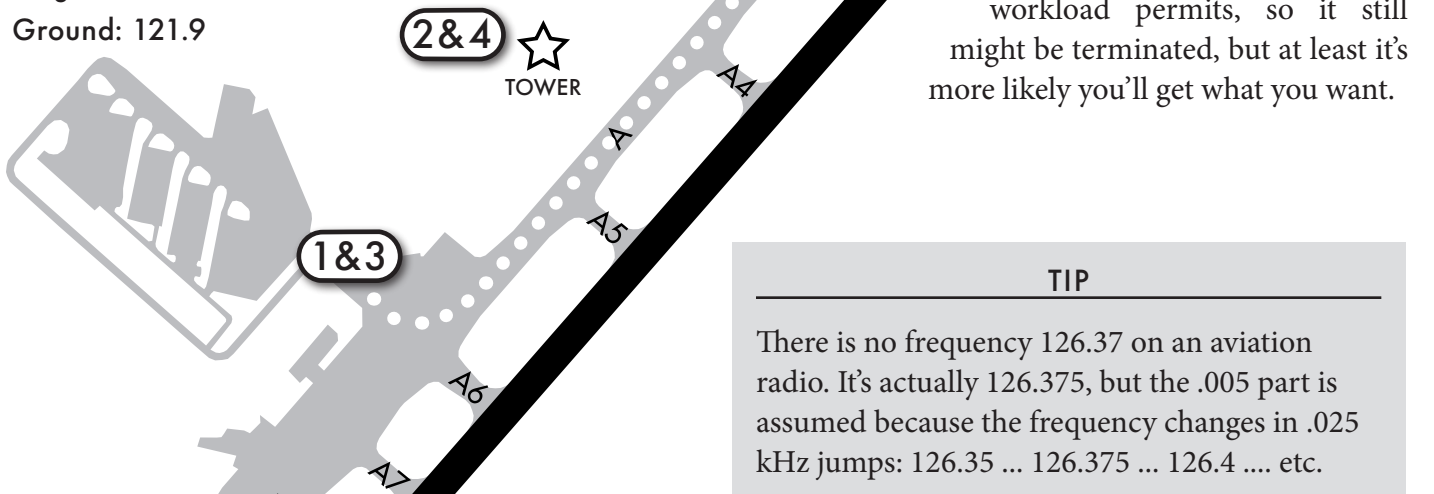
Request Flight Following (a.k.a. Radar Advisories) from a Tower

- ① PILOT
Flagstaff Ground, Skyhawk Two Three Six Papa Whiskey, at Wiseman with Information Charlie. VFR to Buckeye at eight thousand five hundred. Request flight following.
- ② GROUND CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Flagstaff Ground. Runway Two One, taxi via Alpha. I'll have a squawk code for you in a minute.
- ③ PILOT
Runway Two One, taxi via Alpha. Standing by for the squawk code. Skyhawk Two Three Six Papa Whiskey.

A minute later, while still taxiing ...

- ④ GROUND CONTROLLER
Skyhawk Six Papa Whiskey, Departure frequency will be one two six point three seven. Squawk five two zero seven.
- ⑤ PILOT
Departure one two six point three seven. Squawk five two zero seven. Skyhawk Six Papa Whiskey.

Flagstaff Pulliam Airport (KFLG)
Flagstaff, AZ
Ground: 121.9



The FAA's "Radar Traffic Information Service" is more commonly called "flight following," because air traffic controllers at facilities along your route "follow" your VFR flight on radar (see page 44). At a Class D airport, you ask the controller to coordinate this for you before takeoff. Simply add the request to your initial call.

It may take several minutes, but eventually you will get a frequency for contacting Departure and a discrete squawk code, as opposed to the generic 1200 for VFR flight. You'll use this frequency after you take off.

If you're departing from a Class B, C, or TRSA airport, you automatically get the Departure frequency and squawk code from Clearance Delivery. However, the controller may simply terminate the service when you leave the local airspace. To better ensure traffic advisories all the way to your destination, request flight following when

you ask for your VFR departure clearance.

Flight following is only performed when ATC workload permits, so it still might be terminated, but at least it's more likely you'll get what you want.

TIP

There is no frequency 126.37 on an aviation radio. It's actually 126.375, but the .005 part is assumed because the frequency changes in .025 kHz jumps: 126.35 ... 126.375 ... 126.4 ... etc.

Request Taxi to Parking After Landing

You'll be on Tower frequency as you land at a towered airport. Tower may have further instructions for you, or may control the taxiway you're on if it's between parallel runways. Don't change frequencies until explicitly told to do so.

When you're clear of the runway and told to contact Ground, the format is:

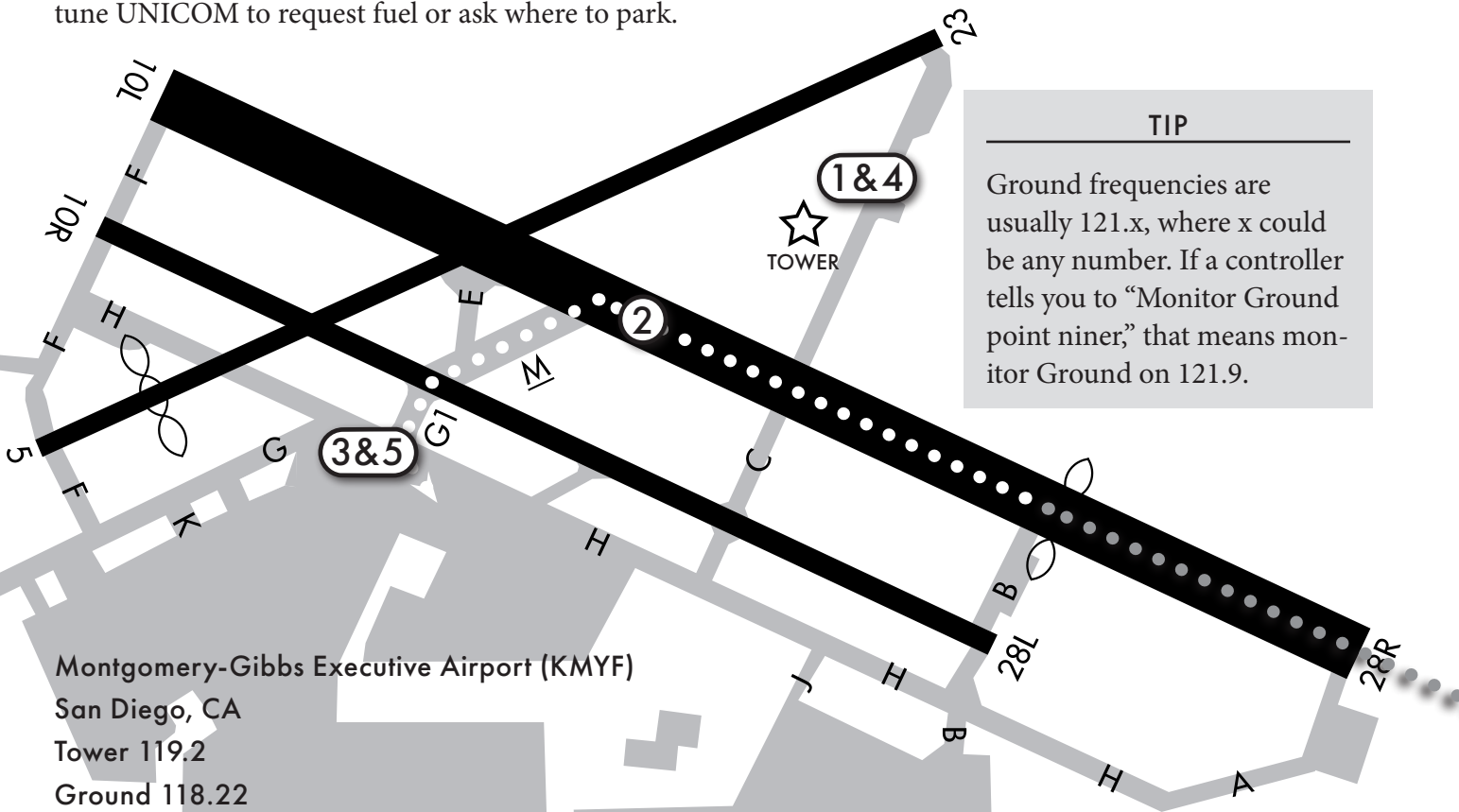
[Airport name] Ground, [Full call sign]
at [Location on airport], taxi to [Parking location].

Ground will reply with a taxi route, or simply "Taxi to parking," in which case the route is up to you. Just don't cross any runways without permission.

During quiet times, Tower and Ground may be the same person, so Tower may ask where you're parking and have you remain on Tower frequency as you taxi by saying, "Remain this frequency" or "Stay with me." Or, Tower may tell you to "Monitor Ground," in which case you change frequencies, but simply listen in case the controller needs to contact you.

Once you're out of the movement area, you no longer need to monitor any frequency, so feel free to tune UNICOM to request fuel or ask where to park.

- ① TOWER CONTROLLER
Cessna Six Papa Whiskey, turn left at Mike, cross Runway Two Eight Left at Mike, and then contact Ground.
- ② PILOT
Left at Mike, cross Two Eight Left, and contact Ground on the other side. Cessna Six Papa Whiskey.
- ③ PILOT
Montgomery Ground, Cessna Two Three Six Papa Whiskey on Hotel at Golf One. Taxi to Transient Parking.
- ④ GROUND CONTROLLER
Cessna Six Papa Whiskey, taxi to parking via Hotel.
- ⑤ PILOT
Parking via Hotel. Six Papa Whiskey



Announce Takeoff and Leaving Area (Non-Towered)

- ① PILOT
Hawthorne Traffic, Cessna Six Papa Whiskey, departing Runway Two, left-downwind departure. Hawthorne.
- ② PILOT
Hawthorne Traffic, Cessna Six Papa Whiskey, turning left crosswind, Runway Two. Hawthorne.
- ③ PILOT
Hawthorne Traffic, Cessna Six Papa Whiskey, turning left downwind, Runway Two. Hawthorne.
- ④ PILOT
Hawthorne Traffic, Cessna Six Papa Whiskey, on left downwind, Runway Two, departing the pattern to the southwest. Hawthorne.

Once you've taxied to the departure runway as described in the non-towered ground ops section (see page 10-11), take one last look and listen for other traffic in the airport pattern. Presuming no one is landing or still on the runway, and no one is talking on the CTAF frequency, the format is:

[Airport Name] Traffic, [Call sign] Departing [Runway name], [Direction of departure] [Repeat Airport Name].

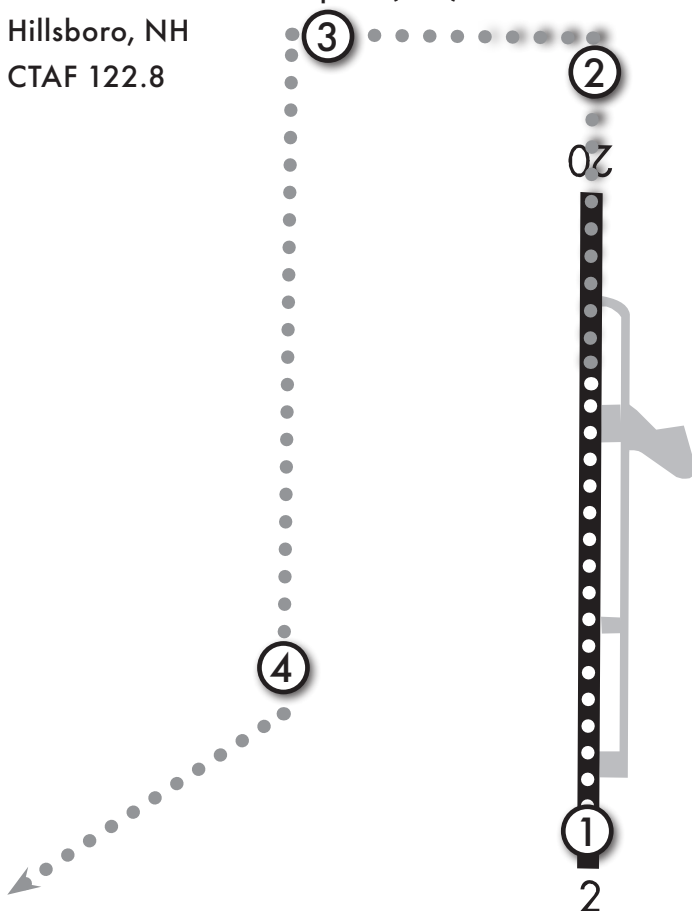
State the airport name at the head and tail of your transmission, because multiple airports might be on the same frequency. Also, state the actual runway number rather than "Taking the active." There's no room for confusion that way. All runways at a non-towered airport are potentially active.

Once you're in the air, state your position and your intentions ② such as, "Upwind, departing straight-out" or "Turning west for a crosswind departure." The idea is to let everyone know where you are and where you're headed. Also let people know when and where you're leaving the pattern ④.

Keep listening on the CTAF until you're about 10 miles out, especially if you hear incoming traffic. It's also polite to pass along any important information you have about the winds, obstacles, etc.

If the non-towered airport you're departing is a satellite of Class D, C, or B airspace (meaning it's in the airspace, but not the primary towered airport), be sure to contact ATC "as soon as practicable" after takeoff. The same goes for any controlled airspace you plan on entering or transitioning through.

Hawthorne-Feather Airpark (8B1)
Hillsboro, NH
CTAF 122.8



TIP

There are many opinions about which departure and arrival patterns are "legitimate" for non-towered airports. For example, some pilots would not turn southwest as shown here until past the airport. Whatever you personally choose, the most important thing in terms of communication is saying where you are and what you plan to do—even if someone else doesn't think you should be doing it that way.

DEPARTING AMIDST OTHER TRAFFIC AT NON-TOWERED AIRPORTS

When you're departing a non-towered airport, it's completely up to you to see and avoid other aircraft. The radio calls usually don't change, but timing your departure to fit in can be a challenge. While you need to use your eyes as well as the radio, the radio helps everyone in the vicinity "see" what may not yet be visible.

During your taxi, paint a mental picture of all the aircraft you hear on the airport's CTAF. Remember that multiple airports can use the same CTAF, so listen closely for "[Your Airport Name] Traffic" in the radio calls. Also listen for your runway numbers, as that's a clue this traffic call is for your airport.

When you reach the hold-short line for the departing runway, position your aircraft so you can see anyone coming in on final. Remember that radios are technically optional at a non-towered airport. There could be landing traffic that's not announcing on CTAF. If there's another aircraft there waiting to depart, etiquette dictates that they get



to depart first. However, if you're ready and they aren't, it's fine to transmit on CTAF, "Piper holding short at [Airport Name], are you about to depart? If not, may we depart ahead of you now?"

Next, think about who you're getting in front of and who you're behind. As a general rule, don't enter a runway to depart until a landing aircraft is at least turning off the runway onto a taxiway, and don't enter the runway to depart if any aircraft is on the final leg of the traffic pattern.

If the nearest landing aircraft is on a typical base, there might be enough time to depart safely. It depends whether that aircraft is a Piper Cub (plenty of time) or a Mitsubishi MU-2 (not so much time). If the nearest landing aircraft is still on downwind, you're probably good to go.

NEGOTIATING THE RUNWAY IN USE AT A NON-TOWERED AIRPORT

A non-towered airport is a dynamic environment that calls for a flexible mindset. Just because you thoughtfully made a plan for which runway to use based the ASOS/AWOS, doesn't mean that's what has to happen.

When you tune CTAF, you might hear an inbound aircraft planning to use a different runway, or even the opposite runway you want. A quick look at the windsock might prove the winds by the ASOS/AWOS were different than on the runway. Or, it might show that an aircraft heading for the airport is planning to land downwind—and probably without realizing it.

You have a responsibility to see and avoid other aircraft, so departing head-on towards a landing aircraft is generally bad form. Landing aircraft also have right-of-way over all other powered aircraft in the pattern and on the surface.

Best practice is to negotiate with stated facts.

For example, you might say on CTAF, "Aircraft inbound for [Airport Name], winds currently favor Runway Two." That might be enough to convince the other pilot to switch runways. If not, and there's enough time before that aircraft enters the pattern, you can announce and depart a different runway, as you see fit.

It's more complicated when several aircraft are using a runway other than the one you want. You could try transmitting on CTAF, "All aircraft in the pattern at [Airport Name], winds now favor Runway Two. Can we switch to Runway Two?" If you feel the point needs emphasis, you could make that, "... switch to Runway Two *so everyone isn't landing downwind?*"

It might not work, in which case you must weigh departing the less favorable runway, or waiting until there's a lull long enough that you can depart from your runway of choice.

Request Takeoff (When No Hold-Short is Issued)

- ① PILOT
Stillwater Tower, Cessna Two Three Six Papa Whiskey, holding short Runway Three Five at Alpha, ready for departure. VFR northbound.
- ② TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Stillwater Tower. Wind three two zero at one five, gusts two one. North departure approved. Runway Three Five, cleared for takeoff.
- ③ PILOT
Runway Three Five, cleared for takeoff. North departure approved. Cessna Two Three Six Papa Whiskey.

Before switching frequencies from Ground to Tower, make sure you're ready to go: Run-up complete, pre-takeoff briefing done, taxied up to—but not across—the hold-short line. You must be ready to go when you make your call for takeoff. The format is:

[Airport Name] Tower, [Full call sign], holding short [Runway], (at intersection, if applicable), ready for departure. VFR [Direction of Flight].

Tower will clear you for takeoff. The format is:

[Full call sign], [Airport Name] Tower. [Wind Direction and Speed (optional)]. Runway [Runway Number], cleared for takeoff. [Direction of Flight] departure approved.

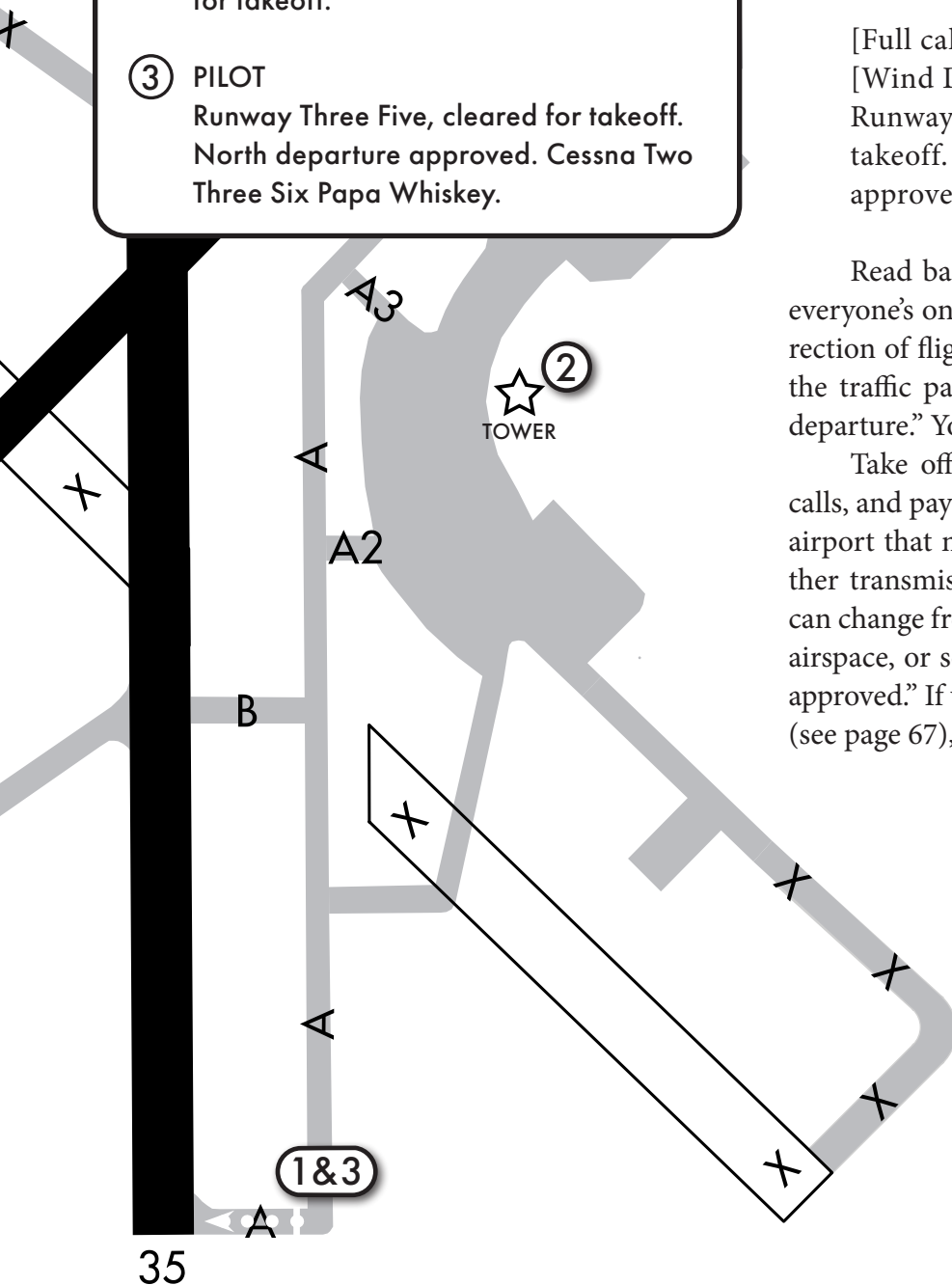
Read back your takeoff clearance to make sure everyone's on the same page. Depending on your direction of flight, you may be instructed to fly part of the traffic pattern, such as, "Make right downwind departure." You don't need to read back the winds.

Take off and monitor Tower. Listen for traffic calls, and pay attention to what's going on around the airport that may affect you. But don't make any further transmissions unless Tower calls you first. You can change frequency once you're clear of the Class D airspace, or sooner if Tower says, "frequency change approved." If you're staying in the pattern for practice (see page 67), then just stay with Tower.

Stillwater Regional Airport (KSWO)
Stillwater, OK
Tower 125.35

TIP

Don't turn off your departure heading unless Tower has explicitly approved it—even if your destination is in the opposite direction. If you're unsure if a turn is approved, don't guess. Ask.



Request Takeoff (with “Immediate” and/or Cautions)

Laughlin/Bullhead International Airport (KIFP)
Bullhead City, AZ
Tower 123.9

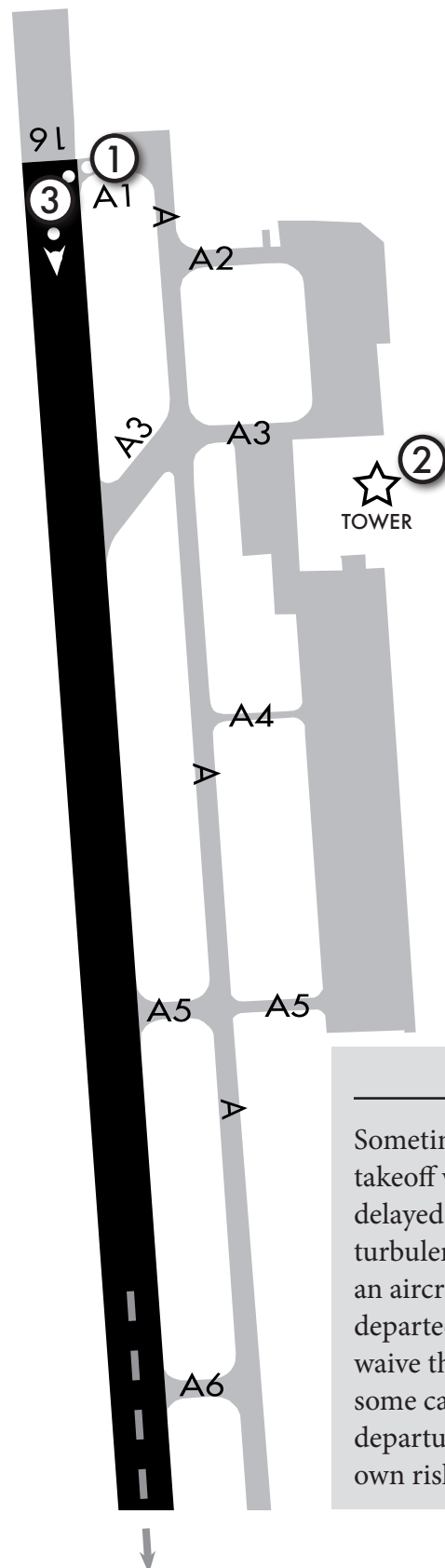
- ① PILOT
Bullhead Tower, Cessna Two Three Six Papa Whiskey, holding short Runway One Six at Alpha One. Ready for departure, southwestbound.
- ② TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Bullhead Tower. Cherokee on a two-mile final. Caution wake turbulence C-130 departed two minutes ago. Runway One Six, cleared for immediate takeoff.
- ③ PILOT
Cleared for immediate takeoff Runway One Six. Cessna Two Three Six Papa Whiskey.

The instruction for an immediate takeoff is the opposite of delaying your takeoff with a hold-short or line-up-and-wait. In this case, the controller needs you to start rolling ASAP. In fact, it's common to advance the throttle and start moving onto the runway as you key the mic and readback the instruction. Phrases like “expedite,” or “no delay,” effectively mean the same thing.

Just to keep things interesting, this example also includes a warning about the wake turbulence of an aircraft departing ahead of you. Tower is letting you depart as close to the C-130 ahead of you as allowed, and needs you to get out of the way for a Piper Cherokee to land. Welcome to life at a busy airport.

Don't feel compelled to accept an immediate takeoff you weren't prepared for, or a caution that you don't feel comfortable with. Stay put and tell the controller, “Unable. We'll continue holding short.” In this case, the controller will tell you. “Cancel takeoff clearance. Hold short Runway One Six,” which you then read back.

Don't feel like you'll be penalized for telling Tower you're unable to comply. They'd rather that than have you cause a conflict because you couldn't depart in time. You'll get a new takeoff clearance after the Cherokee lands.



TIP

Sometimes your takeoff will be delayed for wake turbulence behind an aircraft that just departed. You can waive that delay in some cases, but the departure is at your own risk.

Request Takeoff (with Handoff to Departure at Class C or TRSA)

- ① PILOT
Monterey Tower, Cessna Two Three Six Papa Whiskey, holding short Runway Two Eight Right, ready for departure, VFR eastbound.
- ② TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Monterey Tower. Wind three two zero at eight. Runway Two Eight Right, right turnout approved, cleared for takeoff.
- ③ PILOT
Two Eight Right, right turn approved, cleared for takeoff. Cessna Two Three Six Papa Whiskey.

Departing a Class C or TRSA airport starts like a Class D. Note that Tower gives you permission to turn east at your discretion in this example ②.

When departing into Class C or TRSA airspace, however, Tower hands you off to Departure ④. You should have received the frequency in your departure instructions, Tower may not volunteer it to you again. After changing frequencies, the minimum format is:

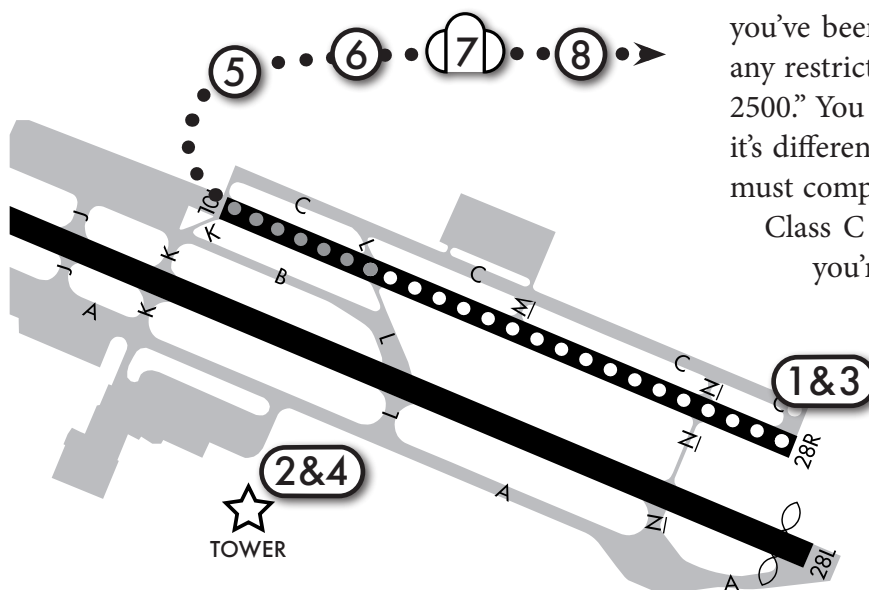
[Departure Facility], [Full call sign],
[Current Altitude].

After turning east ...

- ④ TOWER CONTROLLER
Cessna Six Papa Whiskey, contact NorCal Departure. Have a good day.
- ⑤ PILOT
Contact Departure. Six Papa Whiskey.
- ⑥ PILOT (on 127.15)
NorCal Departure, Cessna Two Three Six Papa Whiskey, one thousand one hundred climbing three thousand five hundred.
- ⑦ DEPARTURE CONTROLLER
Cessna Two Three Six Papa Whiskey, NorCal Departure. Radar contact. Maintain VFR.
- ⑧ PILOT
Cessna Two Three Six Papa Whiskey.

Optionally, you can add the altitude to which you're climbing to ⑥, or any limits placed on you by Tower, such as an assigned heading. If you don't check in with your current altitude, the departure controller will ask for it.

Presuming the altitude the controller sees matches what you report, the controller will say you've been identified on radar and remind you of any restrictions, such as "Maintain VFR at or below 2500." You could get a new altimeter setting in ⑦, if it's different than the airport you just departed. You must comply with any instructions while still in the Class C or TRSA airspace (or tell the controller you're unable to comply).



Monterey Regional Airport (KMRY)
Monterey, CA
Tower 118.4
Departure 127.15

Monitor Tower for Takeoff (with Handoff to Departure at Class B)

- ① TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, caution wake turbulence departing regional jet. Runway Two Two Right, line up and wait.
- ② PILOT
Runway Two Two Right, line up and wait. Cessna Two Three Six Papa Whiskey.
- ③ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Runway Two Two Right. Wind two one zero at seven. Fly runway heading until advised, cleared for takeoff.
- ④ PILOT
Fly runway heading. Cleared for takeoff. Cessna Two Three Six Papa Whiskey.

During the climb ...

- ⑤ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, turn right now heading three zero zero.
- ⑥ PILOT
Right turn three zero zero, Cessna Two Three Six Papa Whiskey.

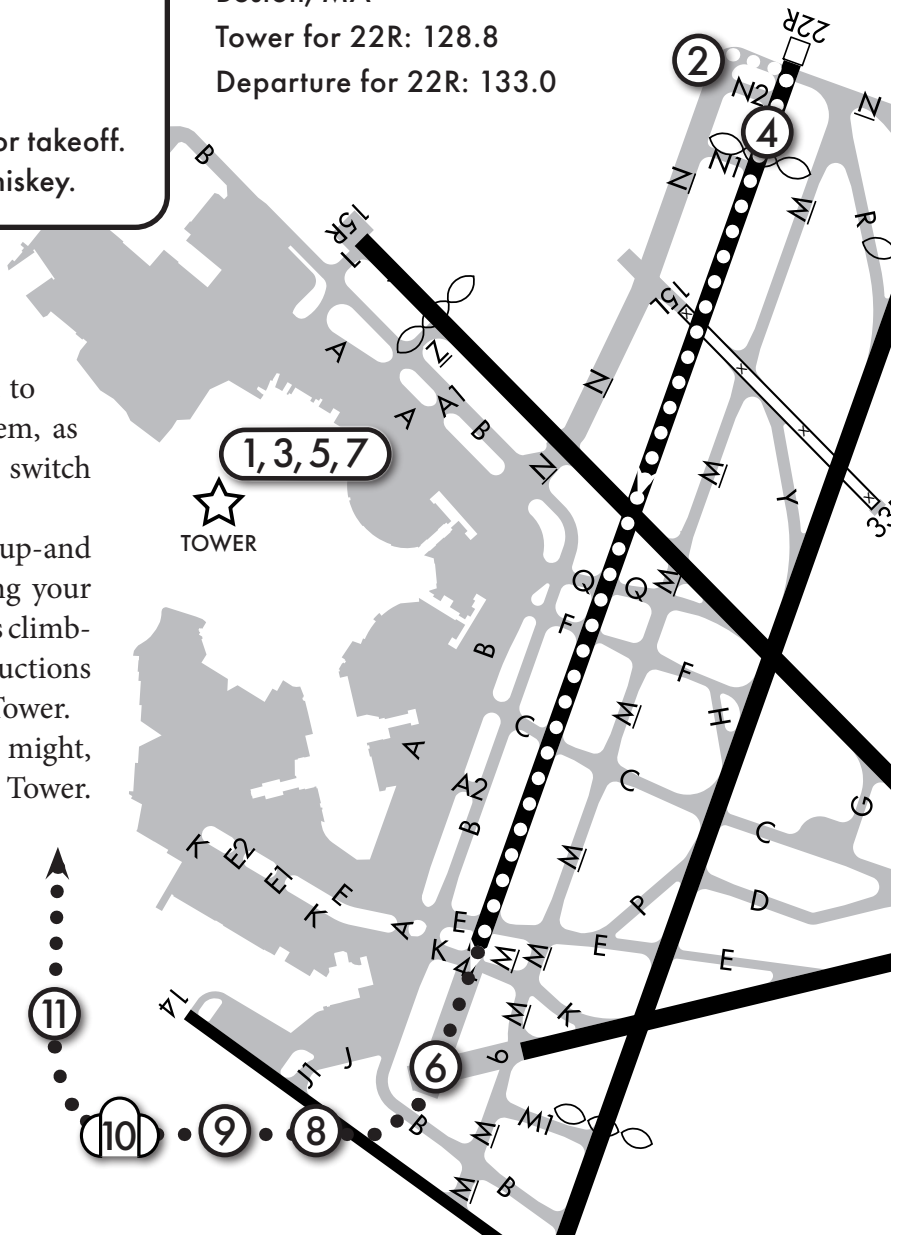
General Edward Lawrence
Logan International Airport (KBOS)
Boston, MA
Tower for 22R: 128.8
Departure for 22R: 133.0

Nearing the end of your taxi at a Class B airport, you'll almost certainly get instructions from Ground to monitor Tower rather than contact them, as explained on page 25. That's time to switch frequencies and listen up.

The first call will likely be "line-up-and-wait" to put you in position for starting your takeoff roll as soon as the aircraft ahead is climbing away. You must read back any instructions even though you were told to monitor Tower.

During takeoff and climbout, you might, or might not, receive instructions from Tower. If you do, read them back and comply.

You'll be handed off to Departure, and the call is the same format as with a Class C or TSRA airport (see page 33). However, be sure to include any instructions Tower assigned, such as an assigned heading or an altitude you're climbing to. Include this even if it's the same one you received with your original VFR departure clearance.



⑦ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey.
Contact Departure now, one three three
point zero.

⑧ PILOT
Departure on one three three point zero.
Cessna Two Three Six Papa Whiskey.

TIP

When departing a Class B in a piston aircraft, do the run-up and pre-takeoff checks before you leave the ramp. You may not get a chance later.

⑨ PILOT (on 133.0)
Boston Departure, Cessna Two Three Six
Papa Whiskey, one thousand climbing
three thousand, heading three zero zero.

⑩ DEPARTURE CONTROLLER
Cessna Six Papa Whiskey, radar contact.
Fly heading zero one zero. Climb and
maintain three thousand five hundred.

⑪ PILOT
Fly zero one zero. Climb and maintain
three thousand five hundred. Cessna Six
Papa Whiskey.

COMMUNICATION DURING DEPARTURE: CLASS B, CLASS C, OR TRSA

After takeoff within Class B, Class C, or TRSA airspace, you're handed off to Departure. The frequency is in your departure instructions, so ⑦, could be "... contact Departure." Don't be surprised if you hear other pilots addressing the same person as Approach. Whether that controller is Departure or Approach simply depends on whether you're heading away from the core airport or towards it. When in doubt, you can always call this controller "[Facility name] Approach."

As you travel toward the outer boundary of the airspace, you'll be provided with safety alerts (terrain/obstruction and aircraft conflicts) and traffic advisories. It's a lot like VFR flight following in this respect (see page 44).

Because you'll also be separated from all IFR aircraft in the airspace, you may receive altitude restrictions or radar vectoring. This is a virtual certainty in Class B airspace, less so in Class C or a TRSA. The controller should include the reason in the instruction, such as: "Cessna Six Papa Whiskey, fly heading two two zero. Vector for traffic."

Repeat the instruction with your reply, "Heading two two zero, Six Papa Whiskey." You don't need to repeat the reason. The controller only cares that you'll comply with the instruction correctly.

If you can't comply with the instruction, tell the controller "**Unable**," and provide the reason. For example: "Boston Departure, Cessna Six Papa Whiskey, unable heading two two zero, that would take us into a cloud." You must comply with ATC instructions, unless you receive an amended clearance. "Unable" is how you get that different clearance. With respect to clouds, keep in mind that within Class B airspace cloud clearance requirements are only "clear of clouds." Class C and TRSA have standard VFR cloud-clearance requirements for controlled airspace.

If you didn't request flight following with your VFR departure clearance, you'll probably be cut loose from Departure when you reach the outer boundary of the airspace. "Cessna Six Papa Whiskey, leaving Class Charlie airspace, radar service terminated. Squawk one two zero zero, frequency change approved."

If you want flight following, you can ask that controller. They might be able to help. Typically, an approach controller has jurisdiction well past the charted border of the airspace. That's why if you requested flight following, you'll stay with that controller for a while, until handed off to the controller responsible for the adjoining airspace.

Request a Special VFR Departure Clearance and Depart

- ① PILOT
Hyannis Ground, Skyhawk Two Three Six Papa Whiskey on the GA ramp with Information Echo. Request Special VFR northwest-bound.
- ② GROUND CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Hyannis Ground. Let me see if I can work that out for you. How long until you'll be ready to depart?
- ③ PILOT
We'll be ready after a run-up, so about five minutes.
- ④ GROUND CONTROLLER
Skyhawk Six Papa Whiskey, Runway Three Three, taxi via Bravo.
- ⑤ PILOT
Runway Three Three via Bravo, Skyhawk Six Papa Whiskey.

- ⑥ GROUND CONTROLLER
Skyhawk Six Papa Whiskey, when you're ready to depart, Tower will have the Special VFR clearance.
- ⑦ PILOT
Terrific. Thanks. Six Papa Whiskey.

When a towered airport is reporting less than 1000-foot ceilings and 3 miles visibility, VFR traffic can't arrive or depart—unless they receive a Special VFR (SVFR) clearance. SVFR during daylight hours permits flying in controlled airspace with a minimum of only one statute mile visibility and a requirement to simply stay clear of clouds.

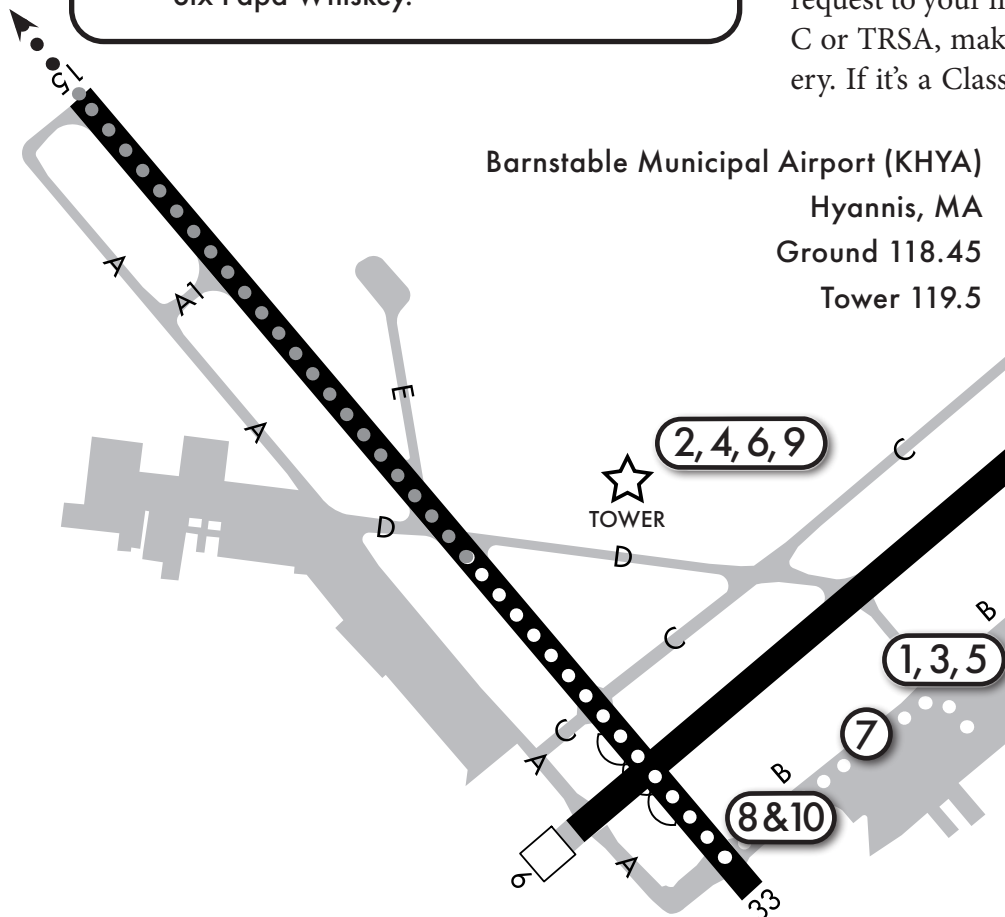
ATC is forbidden from suggesting SVFR—you must request it. There's no guarantee you'll get it, or it might be a long wait, but it can be worth asking if you can safely reach VFR conditions just a few miles from, or just above, the airport.

To depart SVFR from a Class D airport, add the request to your initial call to Ground ①. If it's a Class C or TRSA, make the request with Clearance Delivery. If it's a Class B ... don't even try, unless you're a professional flying a helicopter. It ain't gonna happen.

The clearance format is:

Cleared out of the [airspace], [direction]. Maintain Special VFR conditions. [Optional altitude restriction].

ATC will separate you from any IFR, or other SVFR traffic, but the clearance—and the relaxed VFR condition requirements—only apply within the lateral boundaries of the airport's surface area of five miles. Be sure you'll be in VFR conditions by the time you reach the boundary.



After pre-takeoff actions and checklists:

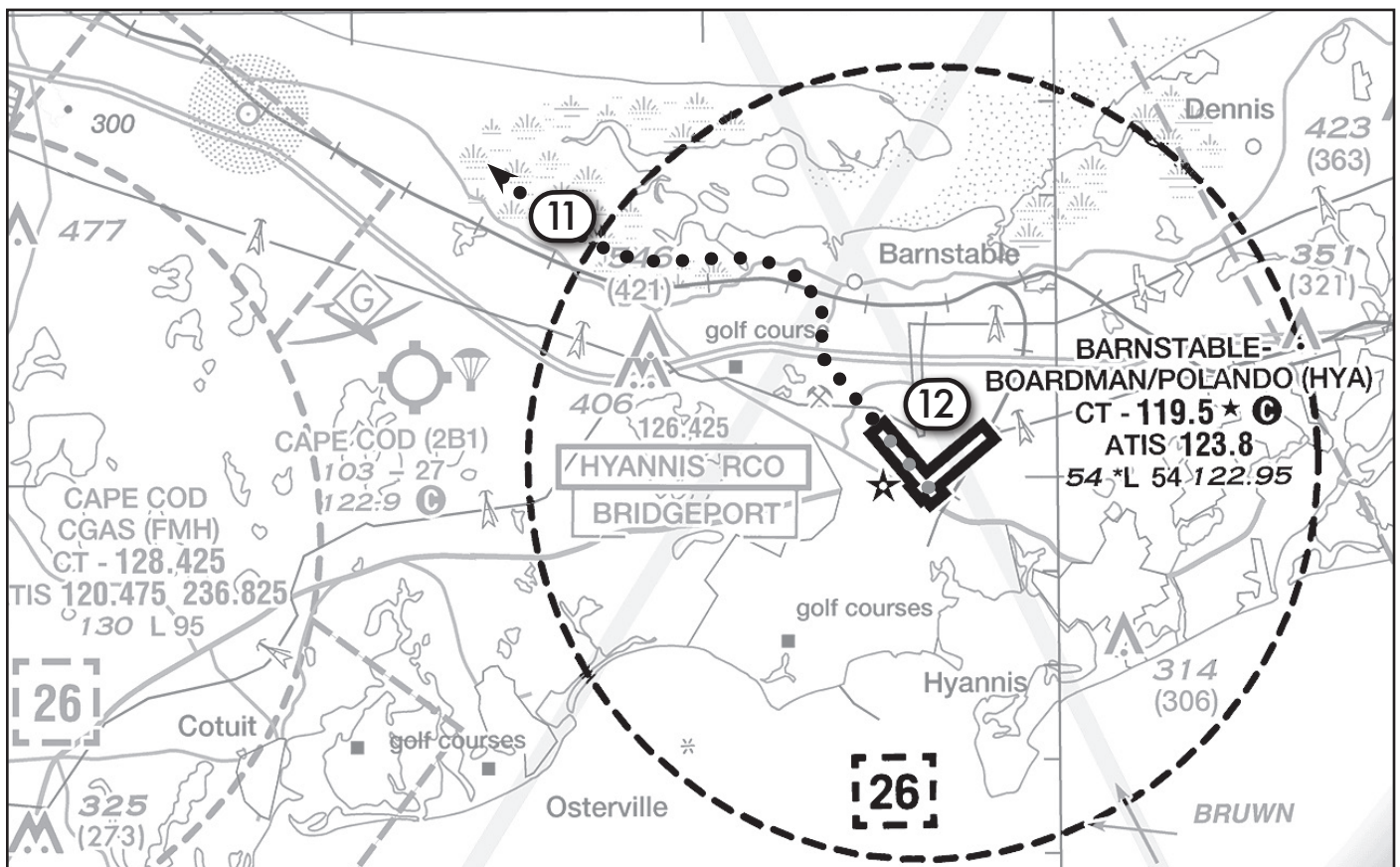
- ⑧ PILOT
Hyannis Tower, Skyhawk Two Three Six Papa Whiskey, ready to depart Runway 33, request Special VFR.
- ⑨ TOWER CONTROLLER
Skyhawk Two Three Six Papa Whiskey, cleared out of the Class Delta airspace to the northwest. Maintain Special VFR conditions at or below one thousand five hundred feet. Runway Three Three, cleared for takeoff.
- ⑩ PILOT
Cleared out of the Class Delta to the northwest. Maintain Special VFR at or below one thousand five hundred. Cleared for takeoff Runway Three Three. Skyhawk Two Three Six Papa Whiskey.

After weaving around to avoid clouds and leaving the Class D airspace:

- ⑪ PILOT
Hyannis Tower, Skyhawk Six Papa Whiskey, clear of the Class Delta to the northwest, in VFR conditions.
- ⑫ TOWER CONTROLLER
Skyhawk Two Three Six Papa Whiskey, roger. I have no known traffic to the northwest. Frequency change approved. Have a good flight.

TIP

SVFR is possible from non-towered airports if they have controlled airspace to the surface (magenta dotted circle around the airport on the Sectional Chart). Contact FSS or the ATC facility controlling that airspace to request the SVFR.



Make a VFR Position Report

- ① PILOT (on 122.6)
Reno Radio, Cessna Two Three Six Papa Whiskey, Tonopah VOR on one two two point six.

After multiple tries and no response ...

- ② PILOT (transmitting on 122.1)
Reno Radio, Cessna Two Three Six Papa Whiskey, Coaldale VOR on one two two point one. Receiving on one one seven point seven over the Coaldale VOR.

Position reports aren't required for VFR flight plans, but they're good practice. A single VFR position report to a Flight Service Station can reduce a search area considerably if you don't arrive at your destination as expected.

Out in the hinterlands, there won't be RCOs, and you may not be high enough to use 122.2, but you can often use a radio co-located with a VOR. The frequency appears above the VOR frequency box, and the FSS region appears below.

An "R" means FSS can only receive on that frequency, which means you *transmit* on it. To receive, you must tune the VOR and listen to it (usually by pressing a "nav" button on your audio panel).

- ③ FLIGHT SERVICE SPECIALIST
Cessna Two Three Six Papa Whiskey, Reno Radio. Go ahead.

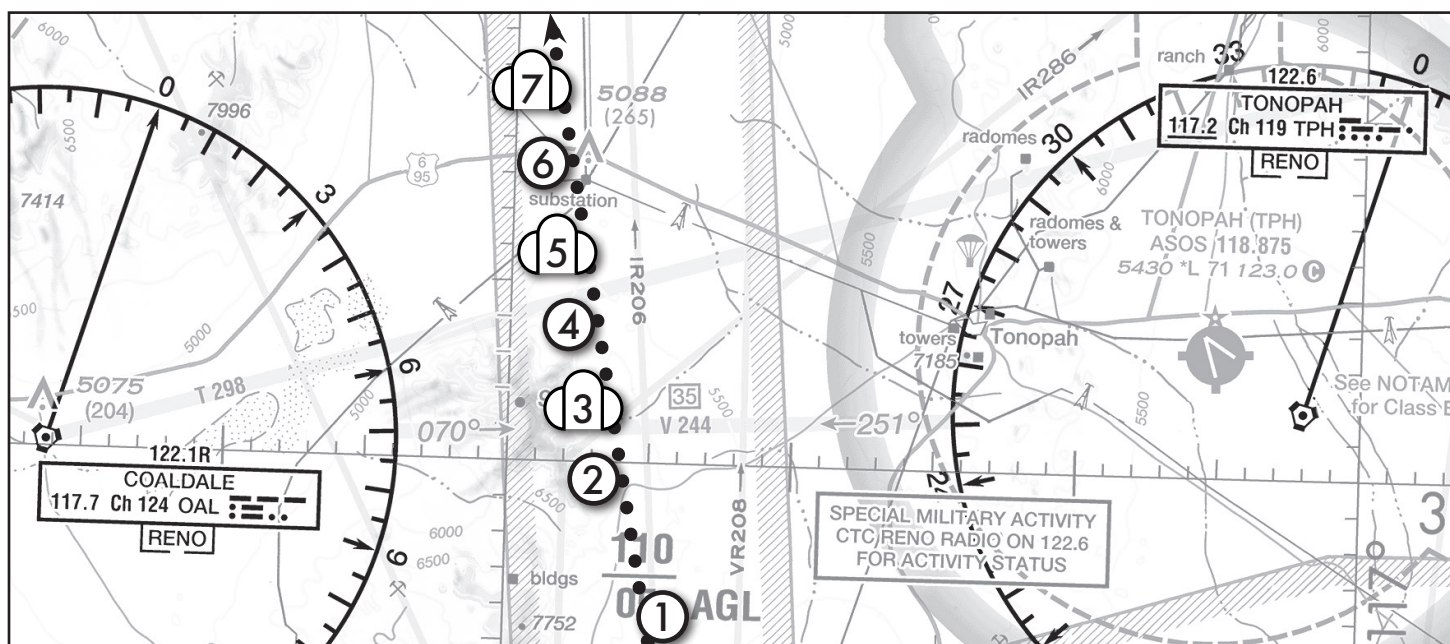
- ④ PILOT
Just like to update our position. We're currently twenty miles west of Tonopah VOR, VFR enroute to Battle Mountain.

- ⑤ FLIGHT SERVICE SPECIALIST
Roger, Cessna Two Three Six Papa Whiskey. Twenty west of Tonopah VOR at one eight zero zero local. Tonopah altimeter two niner niner six.

- ⑥ PILOT
Two niner niner six, thanks. Be advised, we tried you on Tonopah one two two point six. No response. Cessna Six Papa Whiskey.

- ⑦ FLIGHT SERVICE SPECIALIST
OK, Thanks. We'll look into it.

Between Coaldale (OAL) and Tonopah (TPH)
"Middle of nowhere," NV
Reno Radio 122.6, 122.1 & 117.7



Get a Weather Report from Flight Service

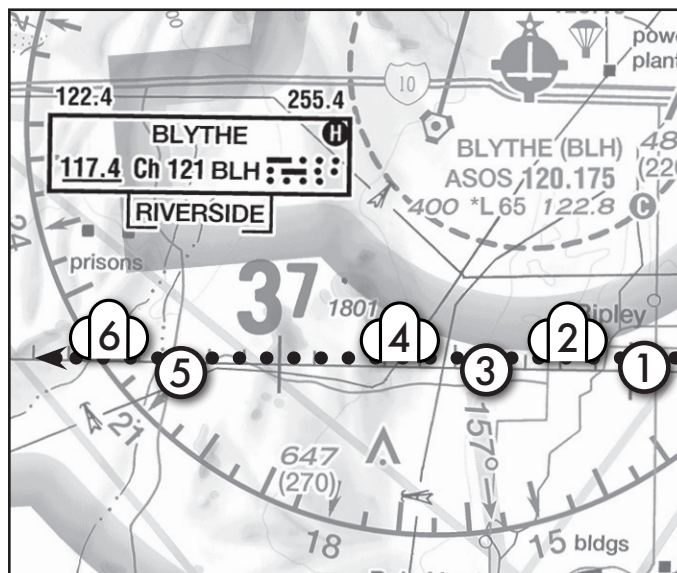
- ① **PILOT**
Riverside Radio, Cessna Two Three Six Papa Whiskey, seven south of Blythe VOR on one two two point four.
- ② **FLIGHT SERVICE**
Cessna Two Three Six Papa Whiskey, Riverside Radio. Go ahead with your request.
- ③ **PILOT**
Yes sir, we're five south of Blythe, VFR to Oceanside. Can you give me the current observation for Oceanside, and the terminal forecast please? Cessna Two Three Six Papa Whiskey.
- ④ **FLIGHT SERVICE**
Cessna Six Papa Whiskey, roger ... Oceanside automated weather reports winds two four zero at niner, visibility one zero, sky clear below one two thousand, temperature three seven, dewpoint seven, altimeter two niner niner four. No TAF for Oceanside, but the TAF for Palomar nearby says for the next three hours, winds two zero zero at one five gusts two four. Visibility greater than five. Sky clear. Looking around the region, it's pretty much the same until twenty-two zulu. Winds after that are three zero zero at five. Sky clear.
- ⑤ **PILOT**
Okay, thanks for your help. That's all we need. Cessna Six Papa Whiskey.
- ⑥ **FLIGHT SERVICE**
Cessna Six Papa Whiskey, you're welcome. The Blythe altimeter is three zero zero six. Pilot reports appreciated, additional enroute weather available on one two two point two. Have a good flight.

Even though most pilots use the Web and/or in-cockpit weather sources, it can still come in handy to get in-flight weather information from Flight Service using your radio. Maybe your datalink weather isn't working, or maybe you're just lonely on a long cross-country. Think of it like calling a friend who's sitting at his computer to look up a bunch of weather information and read it to you. Except this friend is a trained professional.

Contact Flight Service just as you would for updating a flight plan or other service, and then request the weather information you need. In fact, those two tasks often happen in the same conversation.

If you just don't want to talk to anyone, some self-serve sources of in-flight weather information are ASOS, AWOS, and ATIS broadcasts from airports along your route. There's also the Hazardous In-flight Weather Advisory Service (HIWAS). HIWAS continuously broadcasts somewhat cryptic information about hazardous weather over selected navaids. Information could include AIRMETs, SIGMETs, Convective SIGMETs, and urgent PIREPs. You can listen to a HIWAS broadcast over any VOR frequency that has the letter "H" in the upper-right corner of the identification box on a Sectional Chart.

Blythe VOR (BLH)
Blythe, CA
Riverside FSS 122.4
Blyth VOR 117.4 (for HIWAS)



File a Pilot Report (PIREP)

① PILOT
Columbia Radio, Cessna Two Three Six Papa Whiskey, two west of the Butler VOR, transmitting on one two two point one and receiving over the Butler VOR one one five point niner.

② FLIGHT SERVICE SPECIALIST
Cessna Two Three Six Papa Whiskey, Columbia Radio. Go ahead.

You can assist weather briefers, controllers, and pilots by making a Pilot Weather Report (PIREP). This is especially helpful if you encounter unforecast or hazardous conditions.

The format for the required parts is:

[Your location], [the time UTC (only necessary if you're reporting something that happened in the past)], [your altitude], [your aircraft type].

Then provide any of the following that you wish to report. The exact order isn't critical.

[cloud coverage/type/height], [visibility or restrictions to visibility], [precipitation type and intensity], [temperature], [wind direction and speed], [turbulence], [icing], [other remarks].

Reporting the absence of a flight condition that was forecast, such as "negative turbulence," can be just as helpful as reporting the presence of a flight condition.

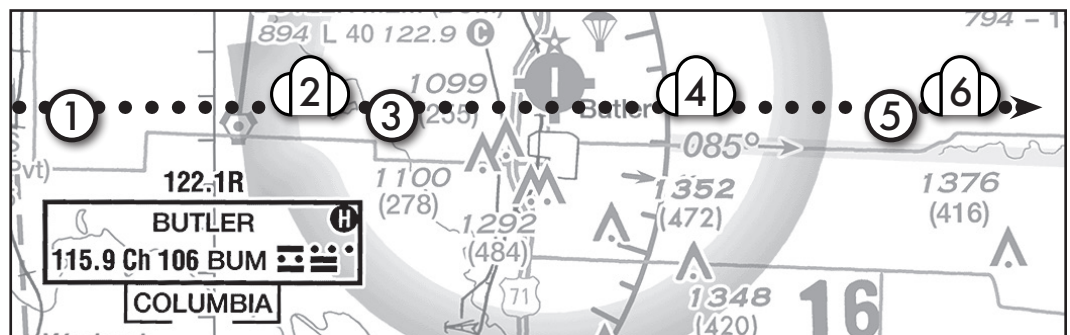
③ PILOT
I've got a pilot report for you ... [pause for just a moment so the specialist is ready to copy] ... We're five miles east of the Butler VOR, VFR to Jefferson City at six thousand five hundred feet. We're a Cessna one seventy-two. Scattered cumulus clouds below us, tops estimated at five thousand. Visibility roughly three zero miles. Temperature two Celsius. Wind three zero zero at two two. Continuous moderate turbulence. Cessna Two Three Six Papa Whiskey.

④ FLIGHT SERVICE SPECIALIST
Cessna Six Papa Whiskey, roger. I copy you're a Cessna one seventy-two over the Butler VOR at one niner three five Zulu. Scattered cumulus with tops at five thousand. Flight visibility three zero miles. Temperature two Celsius. Wind from three zero zero at two two. Continuous moderate turbulence. Is that accurate and complete?

⑤ PILOT
Affirmative. Cessna Six Papa Whiskey.

⑥ FLIGHT SERVICE SPECIALIST
Additional pilot reports are always appreciated. For additional enroute weather, contact radio on one two two point two. Have a good flight.

Butler VOR (BUM)
Butler, MO
Columbia FSS 122.1
Butler VOR 115.9



Request Flight Following in the Air

- ① **PILOT**
Tampa Approach, Skyhawk Two Three Six Papa Whiskey. Just off Venice Airpark. VFR. Request.
- ② **APPROACH CONTROLLER**
Cessna Two Three Six Papa Whiskey, Tampa Approach.
- ③ **PILOT**
Tampa Approach, Cessna Two Three Six Papa Whiskey is a Cessna one seventy-two, four northeast of Venice, one thousand five hundred climbing to seven thousand five hundred. Request flight following to Okeechobee.
- ④ **APPROACH CONTROLLER**
Cessna Two Three Six Papa Whiskey, squawk four seven one three.
- ⑤ **PILOT**
Squawk four seven one three, Cessna Two Three Six Papa Whiskey.
- ⑥ **APPROACH CONTROLLER**
Cessna Six Papa Whiskey, radar contact five northeast of Venice. Tampa altimeter two niner eight niner.
- ⑦ **PILOT**
Two niner eight niner. Cessna Six Papa Whiskey.

While it's easier for both you and ATC if you set flight following up on the ground (see page 26), you can request it in the air. This is usually your only choice when departing non-towered airports.

After you find the right frequency (see sidebar on page 46), contact the ATC facility with just your identification, location, that you're VFR, and you have a request. They're not expecting your call, so you want to give them a moment to find you on the scope.

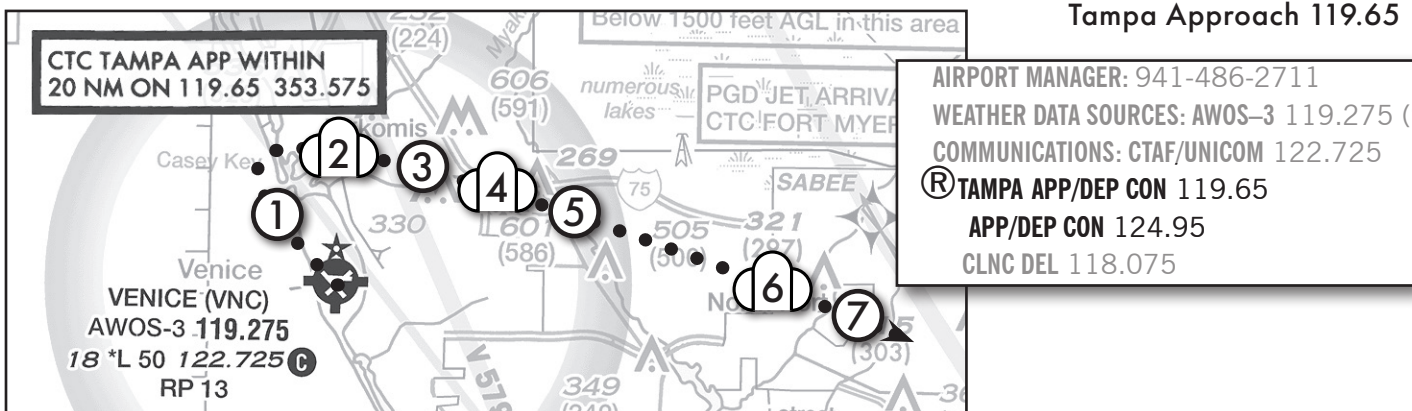
Once acknowledged, the format is:

[ATC facility], [Full call sign] is a [Aircraft Make and Model], [Current location], [Current altitude/Cruise altitude]. Request flight following to [Destination].

Flight following is provided only if ATC workload permits, so don't take it personally if you hear "unable at this time." However, if a squawk code is assigned ④, then you can expect service once the controller sees you on radar.

When you hear "radar contact" ⑤, you know your flight is being "followed." Change your altimeter setting to the one offered by the controller so both of you agree on what the aircraft's current altitude actually is. This is an added benefit of flight following on a long trip. You'll automatically get updated altimeter settings along the way. Another benefit of flight following is if you have an emergency, you're already talking to someone who can help (see page 70).

Venice Municipal Airport (KNVC)
Venice, FL
Tampa Approach 119.65



Change from One ATC Facility to Another (Handoff)

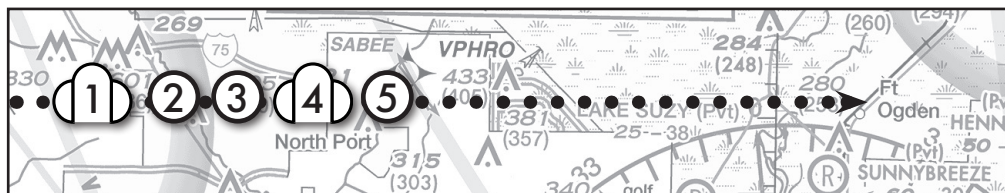
Each controller is responsible for a specific sector of airspace. When you're about to leave that airspace, the controller coordinates with the controller of the next sector. This is a "handoff." Once the new controller is ready to accept your aircraft, your current controller will tell you to contact the new one and give you a frequency. Read back the frequency, to ensure you heard it correctly, and then change frequencies to check in. The check-in format is:

[ATC facility], [Full call sign], [Altitude].

That's it. There's no reason to say "with you" before your altitude, or that you're on flight following. The new controller expects you and only needs to verify your altitude readout on the radar scope.

Sometimes a controller will "hand you off" to himself on a different frequency because you're flying out of range of one station and into range of another. In that case, you'll hear something like, "Change to my frequency 127.65." The check-in then sounds like, "Miami Center, Cessna Six Papa Whiskey on 127.65."

- ① APPROACH CONTROLLER
Cessna Six Papa Whiskey, contact Miami Center now one three four point five five.
- ② PILOT
Miami Center on one three four point five five. Cessna Six Papa Whiskey.
- ③ PILOT (on 134.55)
Miami Center, Cessna Two Three Six Papa Whiskey, level at five thousand five hundred. VFR.
- ④ CENTER CONTROLLER
Cessna Two Three Six Papa Whiskey, Miami Center. Arcadia altimeter two niner one six.
- ⑤ PILOT
Two niner one six. Cessna Two Three Six Papa Whiskey.



Somewhere east of Venice
"Getting more rural," FL
Tampa Approach 119.65
Miami Center 134.55

THE DIFFERENCE BETWEEN APPROACH AND CENTER

The continental U.S. is divided into 20 sections for en route air traffic control. These are the Air Route Traffic Control Centers (ARTCCs). All the controllers in an ARTCC answer to the name [Facility Name] Center, such as Seattle Center.

But don't be misled by the city name. They control vast areas. Seattle Center controls all of Washington, most of Oregon, the Idaho panhandle, and bits of California and Montana. It's also not located in Seattle. It's in Auburn, WA.

Terminal Radar Approach Control facilities (TRACONs) surround the busier airports. These

controllers answer to the name [Facility] Approach. Some of these handle multiple busy airports; some handle only one. Some are located at the airport and others are remote. TRACONs could control Class B, Class C, or both. TRSAs also fall into this category and go by the name Approach.

While there are differences in radar capabilities and procedures, the primary difference to you as a VFR pilot is the name. For more on which one to contact, and when, see "How to Find the Right Frequency for Contacting ATC" on page 46.

Use Flight Following for Information and Alerts

- ① CENTER CONTROLLER
Cessna Six Papa Whiskey, traffic one o'clock, three miles, southbound. Type and altitude unknown.
 - ② PILOT
Looking. Cessna Six Papa Whiskey.
- After minutes of fruitless sky scanning ...*
- ③ CENTER CONTROLLER
Cessna Six Papa Whiskey, traffic no longer a factor.
 - ④ PILOT
Roger, Cessna Six Papa Whiskey. Also, is the Lake Placid MOA currently active?
 - ⑤ CENTER CONTROLLER
Lake Placid East and West are both currently hot. However, they are only 7000 and above.
 - ⑥ PILOT
Miami Center, Cessna Six Papa Whiskey descending to five thousand five hundred.
 - ⑦ CENTER CONTROLLER
Cessna Six Papa Whiskey, VFR altitude your discretion.

The most commonly used benefit of flight following is traffic advisories. Your controller is talking to many nearby aircraft and can see many of the VFR aircraft flying in the area, even if they're not talking to ATC (or anyone, for that matter).

If the controller knows the exact position, altitude, and type of aircraft that might be a conflict with your path, you'll hear a call like, "Cessna Six Papa Whiskey, traffic one o'clock, five miles, a Bonanza at nine thousand."

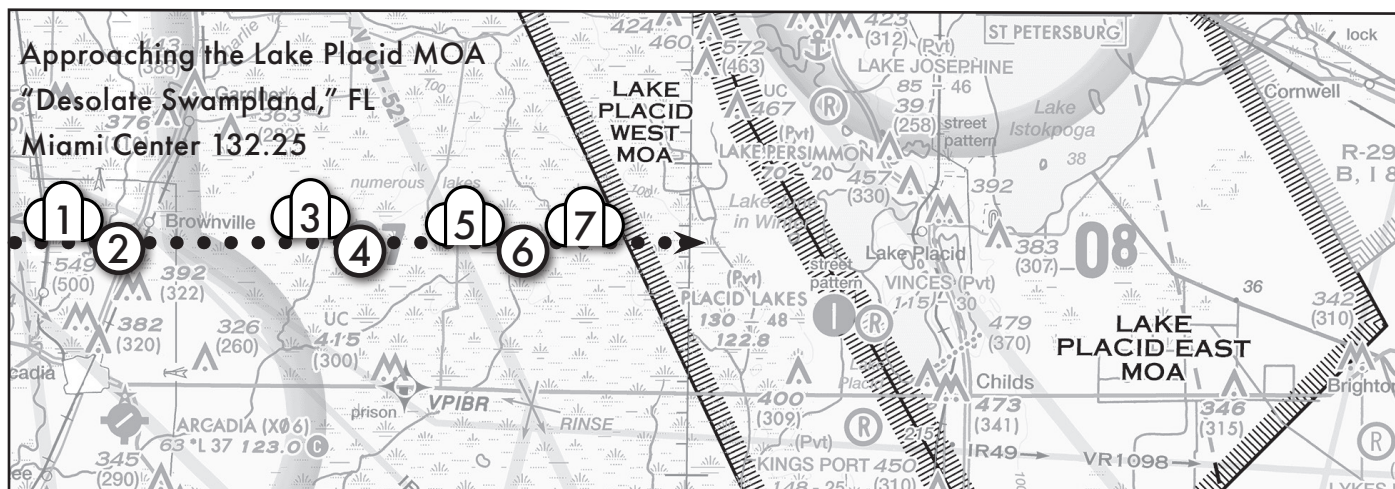
You'll probably hear the controller call your position as traffic for the Bonanza as well. Sometimes the controller knows the position of traffic and altitude, but not the type, and will say, "Altitude indicates [altitude]." Sometimes, he or she only knows the position and the traffic could be at any altitude ①.

If you need information you think the controller might have, feel free to ask. That controller might have information that helps solve a problem ⑤.

If you need to change altitude, let the controller know. Unless ATC assigned you an altitude, this is just a courtesy ⑦, but it's still a good policy to keep everyone on the same page.

TIP

You can also file a PIREP (see page 41) with ATC while on flight following. These PIREPs often don't go into the nationwide system, but if you encounter something important, like severe turbulence or wind shear, it's better to tell someone than not get around to telling anyone at all.



Terminate Flight Following

Often ATC will terminate flight following as you approach your destination, before you mention it. Don't take it personally. They know you'll want to change frequencies soon (and might even forget to say goodbye before squawking the VFR code of 1200).

You can terminate flight following yourself at any time by simply saying, "I'd like to terminate flight following." You can also let the controller know you have your destination in sight and that will often have the same effect.

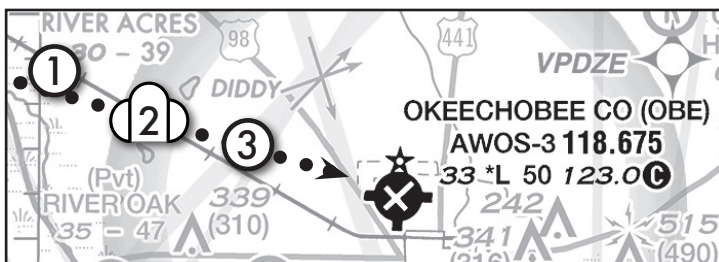
If the destination airport is non-towered, the controller will advise you of any traffic he or she sees between you and the destination, and usually have you squawk VFR. Sometimes they'll tell you to "keep the code" meaning you don't need to change it until after you land. When you have permission to fly in a special flight rules area, such as the Washington D.C. SRFA (see page 78) or in the vicinity of a temporary flight restriction (TFR), you must keep your code until you land. Unless you're told to squawk VFR, don't change your transponder code.

Okeechobee County Airport (KOBK)

Okeechobee, FL

Miami Center 132.25

CTAF 123.0



- ① PILOT
Miami Center, Cessna Six Papa Whiskey,
I have the Okeechobee airport in sight.
Request frequency change.
- ② APPROACH CONTROLLER
Cessna Six Papa Whiskey. It appears
there's one aircraft in the pattern at
Okeechobee. Radar service terminated,
squawk VFR, frequency change
approved. Good day.
- ③ PILOT
Thanks for your help. Have a great day.
Cessna Six Papa Whiskey.

If the destination is a towered airport, the enroute controller (Approach or Center) will tell you to contact Tower. Usually, you can keep your squawk code, and (hopefully) Tower is expecting you because the enroute controller has handed you off. Sometimes that doesn't happen, so the best policy is to contact Tower with a call just as if you were arriving at a Class D without flight following (see page 54).

TIP

If you want to hear ATIS or ASOS while on flight following and don't want to listen to two radios, just ask to change frequencies for a few minutes. ATC usually just asks you to report back on frequency when you're done.

FLIGHT FOLLOWING FAUX PAS

While you're on flight following, that controller has taken a limited amount of responsibility for your flight. One of *your* responsibilities is to stay in communication until that service is terminated. If you simply change frequencies, there won't be a search team looking for you, but you will frustrate a controller who tries to reach you in vain.

Remember that terminating flight following is not the same as closing a VFR flight plan. The two actions are completely independent, and the controller cannot close your VFR flight plan for you. That must be done with Flight Service by phone, radio, website, or tablet app. Failure to do so just might launch a search team if they can't reach you.

MORE FLIGHT FOLLOWING FAUX PAS

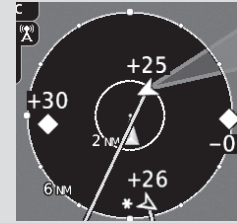
While on flight following, you'll hear many other pilots conversing with ATC. Sometimes, they're models of clear, concise communications. And then, there are the other pilots. Here are a few things to avoid with flight following.

Checking in with your life story. There are only a few words needed when you change from one controller to another (see page 43). Anything more wastes everyone's time, and might delay an important transmission to another pilot.

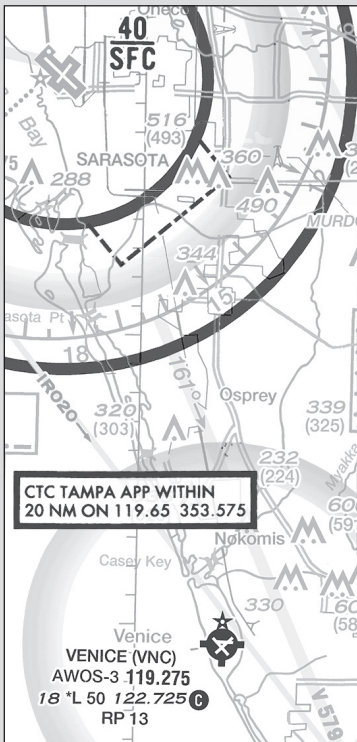
Missing a radio call. You're responsible for paying attention, and replying to transmissions containing your call sign. Failure to reply is rude, and you might fly out of range before ATC can give you the next frequency.

Changing to the wrong frequency. If you check in on a new frequency and hear nothing but dead air, go back to the previous frequency and verify you heard the frequency correctly. You might simply try again in a few miles. Or, you heard it wrong and you'll get the correct one. Just make sure you still have the *old* frequency in standby or written down.

Saying, "Got him on the fish finder." There are two correct responses to an ATC traffic alert: that you are looking for the traffic, or that you see it. The fact that you see traffic on a digital display doesn't count as "in sight."



HOW TO FIND THE RIGHT FREQUENCY FOR CONTACTING ATC



Contacting ATC in the air for an airspace transition usually requires only a glance at the Sectional Chart. The correct frequency for the area you're approaching from appears in a box. If you were departing an airport in this same area and wanted flight following, that would be the frequency to use.

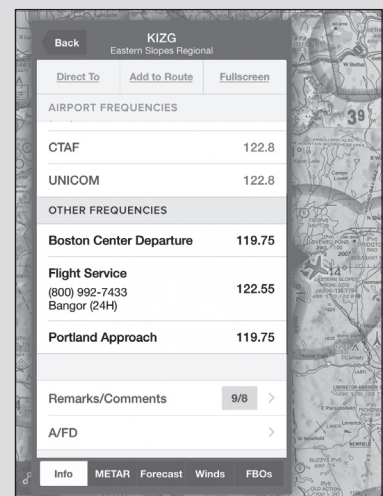
The vast majority of airports, however, aren't close to terminal airspace, so the Approach and Center frequencies aren't published. Departing these airports, you can look in the Chart Supplement. Sometimes, you'll only see frequencies for an approach facility. In more rural areas, you'll only see a frequency for Center. In some places, such as Fryeburg, ME (right), you'll see both, with the times each one controls that airspace.

COMMUNICATIONS: CTAF/UNICOM 122.8
 FRYEBURG RCO 122.55 (BANGOR RADIO)
 Ⓡ PORTLAND APP/DEP CON 119.75 (1045-0500Z±)
 BOSTON CENTER APP/DEP CON 128.2 (0500-1045Z±)
 CLNC DEL 122.55 (Bangor RADIO)

If you forgot to look up the frequency before departure, many tablet apps let you search airport data in the air. Pick the airport close to your departure and look in the list. Even if you don't find exactly the right frequency, the controller you reach should be capable of providing the right

one. You can also contact FSS the same way you would to open or close a flight plan (see page 38) and ask them for the best frequency.

Note that if you use a website, such as SkyVector, to look up Approach or Center frequencies, you may see some in the 200-300 Mhz range, such as 269.35. These are for military pilots and you can ignore them.



Request Transition Through Airspace (Class D, Class C, or TRSA)

- ① PILOT
Providence Approach, Cessna Two Three Six Papa Whiskey. Request.
- ② APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, Providence Approach.
- ③ PILOT
Providence Approach, Cessna Two Three Six Papa Whiskey is one five miles east of Providence, two thousand five hundred. Request transition northwest to Danielson.
- ④ APPROACH CONTROLLER
Cessna Six Papa Whiskey, squawk four two five three.
- ⑤ PILOT
Squawk four two five three. Cessna Six Papa Whiskey.

- ⑥ APPROACH CONTROLLER
Cessna Six Papa Whiskey, radar contact, seven miles northwest of New Bedford. Providence altimeter two niner five two. Remain north of Providence airport.
- ⑦ PILOT
Two niner five two. Remain north of Providence. Cessna Six Papa Whiskey.
- ⑧ APPROACH CONTROLLER
Cessna Six Papa Whiskey, leaving Class Charlie airspace. Radar service terminated, squawk one two zero zero. Frequency change approved.
- ⑨ PILOT
Squawk VFR, Frequency change approved, Cessna Six Papa Whiskey.

Flying through Class D or C airspace doesn't require a clearance. However, you must establish two-way communication with ATC prior to entering the airspace. For a TRSA, even communication is optional, but it's highly recommended.

If you have flight following, you're already communicating, so no further action is needed. If not, call the controlling ATC facility (Tower for Class D or Approach for Class C or TRSA)

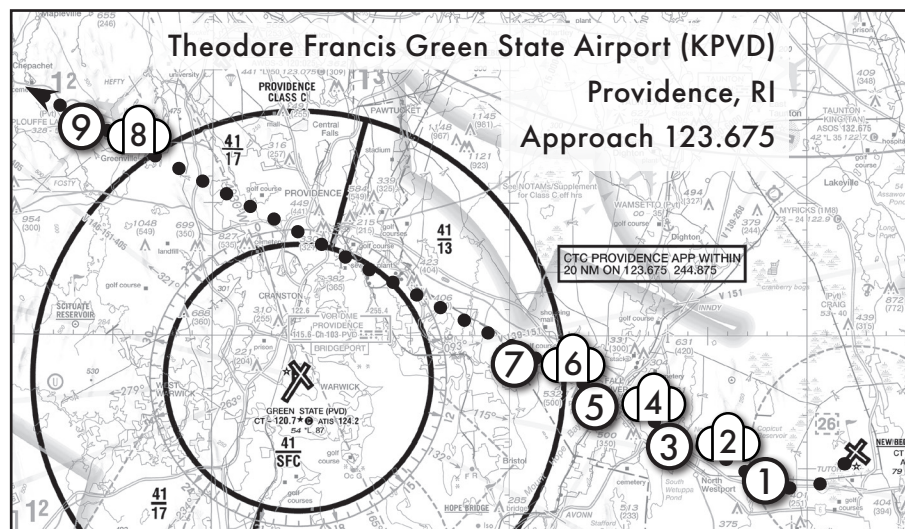
①. The format is:

[ATC Facility], [Full Call sign],
[Location], [Altitude]. Request transition to [Direction/Destination].

Once ATC says your call sign, you may enter the airspace. Even if you hear, "Cessna Two Three Six Papa Whiskey, standby," you may enter. The controller will get back to you. If you hear, "Cessna calling Approach standby," you must stay outside the airspace.

For a Class C or TRSA transition, you'll get a discrete squawk code. For a Class D transition, you won't. Tower will say, "Transition approved," along with any restrictions on where you can fly.

As you leave Class C or TRSA airspace, ATC may terminate radar services ⑧ or keep providing what is really flight following. In Class D airspace, there's no radar service to terminate, so Tower would just say, "Frequency change approved." Or Tower might not say anything. Once you leave their airspace, you can simply change frequencies on your own.



Request Clearance Through Class B Airspace

- ① PILOT
Kansas City Approach, Skyhawk Two Three Six Papa Whiskey, request.
- ② APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Kansas City Approach. Say request.
- ③ PILOT
Skyhawk Two Three Six Papa Whiskey is over Lees Summit at six thousand five hundred, request Bravo transition to Rosecrans.
- ④ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, squawk five three two seven. Maintain VFR.
- ⑤ PILOT
Squawk five three two seven, maintain VFR. Skyhawk Six Papa Whiskey.
- ⑥ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, radar contact, one mile east of Lees Summit. Cleared into the Kansas City Class Bravo. Maintain six thousand five hundred, direct Rosecrans.
- ⑦ PILOT
Cleared into the Class Bravo. Maintain six thousand five hundred. Direct Rosecrans. Skyhawk Six Papa Whiskey.

Many miles and traffic advisories later ...

- ⑧ APPROACH CONTROLLER
Cessna Six Papa Whiskey, leaving Bravo airspace. Radar service terminated, squawk VFR. Frequency change approved.
- ⑨ PILOT
Squawk VFR. Six Papa Whiskey.

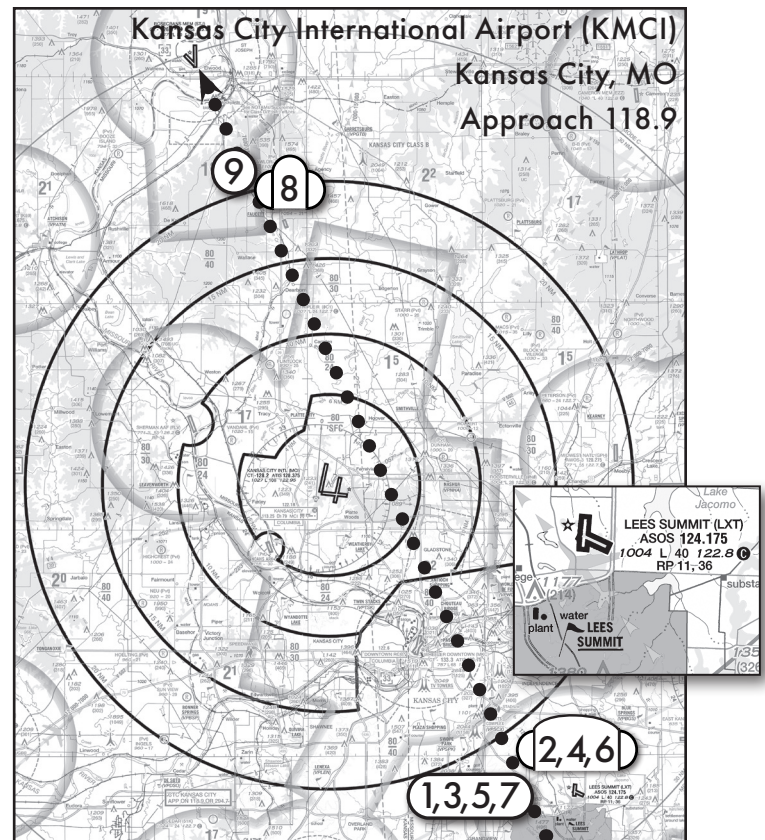
Flying through Class B airspace can be faster, simpler, and safer than going around, over, or under it. However, you need an actual clearance to enter the airspace, and you're under positive ATC control the entire time. You must fly the heading and altitude assigned, and can't deviate without permission.

The general format for the call ③ is

[Full call sign], [Location] at [Altitude], request Bravo transition to [Direction/Destination].

Hearing your call sign and getting a squawk code ④ is not a clearance to enter the Class B. Listen for some variation of "Cleared into the Class Bravo airspace." These are the magic words that allow you to legally enter and fly through the Class B. You'll receive traffic advisories, vectors, and altitude changes as necessary as you transition. Once you're clear of the airspace, the controller should tell you, and let you resume your own navigation ⑧.

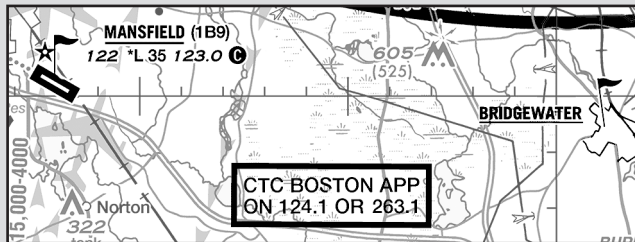
The utility of a Class B transition often depends on which way you want to go versus which way the airliners are landing that day.



UNLOCKING THE “SECRET” CHARTED VFR WAYPOINTS AND ROUTES

The data blocks beside airports on the Sectional Chart are your friends when it comes to VFR communications. But there’s more information on the chart than just frequencies, and there are more charts than just a Sectional.

VFR reporting points. These appear in several scripts in this book. They’re (hopefully) recognizable landmarks you can use in reporting your position, particularly before entering a Class C, or requesting clearance through a Class B.



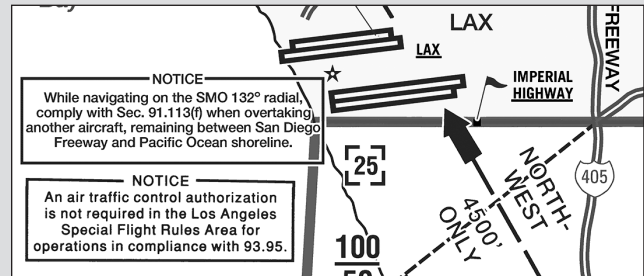
They have a magenta flag and an underlined name in black. These are handy when reporting your position for communication

Terminal Area Charts (TAC). If you’re using a tablet app, you might notice you’re looking at a more detailed chart when you zoom in close to a Class B airport. That’s because the app switched from a Sectional Chart to a TAC, and the TAC is drawn to a different scale with more information.

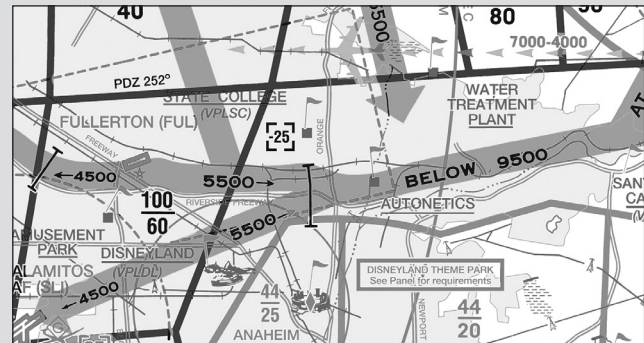
VFR transition routes. These are published courses for transitioning Class B airspace. They include specific ATC-assigned altitudes (and re-

quire a clearance). They’re like well-trodden paths through the Class B. (See page 72-73.)

VFR corridors. These corridors are “holes” through Class B airspace in which you can operate *without* a clearance or any communication with ATC. Believe it or not, there’s one directly over the runways at Los Angeles International.



VFR Flyways. You’ll find these on VFR Flyway planning charts, such as the Los Angeles FLY shown here. Flyways are suggested flight paths to avoid flying through the Class B airspace by flying over, under, or around it. No clearance necessary.



THE CORRECT RESPONSE WHEN ATC ASKS, “SAY ALTITUDE.”

When a controller says, “Cessna Six Papa Whiskey, say altitude,” it usually means the controller needs to verify the altitude you see on your altimeter is the same one he or she sees on the radar scope. This is common when you have recently checked in with a controller, if you forgot to include your altitude when you checked in.

However, “Say altitude” is occasionally used as a gentle alert that you’re straying from your assigned altitude. This can get you in big trouble, particularly in Class B airspace where you’re being

separated from high-density airline traffic. In this case, your response is ... up to you.

If you’ve only strayed a hundred feet or so, replying with your assigned altitude as you quickly get back is generally accepted as OK. If it’s a couple hundred feet, then you’d best reply with something like, “... correcting to 3500 ...”

If you’re way off an assigned altitude, answer honestly as you climb or descend back where you’re supposed to be—and hope ATC doesn’t give you a phone number to call after you land.

Announce Approaching a Non-Towered Airport (without Overflight)

- ① PILOT
Astoria Traffic, Skyhawk Six Papa Whiskey, ten south of the airport at two thousand. Astoria.
- ② PILOT
Astoria Traffic, Skyhawk Six Papa Whiskey, five south at two thousand. We'll enter a forty-five for left downwind Runway Two Four. Astoria.
- ③ PILOT
Astoria Traffic, Skyhawk Six Papa Whiskey at one thousand five hundred descending for a forty-five for left downwind for Runway Two Four. Astoria.

JUST SAY NO TO ATITAPA

When you fly around non-towered airports, you'll eventually hear it: "Any traffic in the area please advise."

Don't be that pilot.

AIM 4-1-9 (as of this writing) even states, "Pilots stating, 'Traffic in the area, please advise' is not a recognized Self-Announce Position and/or Intention phrase and should not be used under any condition."

These queries on the CTAF must be a longing for the old days when you could ask the UNICOM operator for an airport advisory. For

most airports, those days are gone, and the correct procedure is to get the current weather condition for the airport, listen for traffic announcing their intentions, and work your way into the flow, announcing your intentions.

Don't ask other pilots to do your work for you.



There are many ways to approach a non-towered airport, and plenty of debate about the best way to enter the traffic pattern. However, there's general agreement about what to *say* as you do it: Tell folks who you are, where you are, what you're doing, and what your next move is.

When you're about 10 miles out, announce to anyone in the area where you are ①. It's assumed that you're on your way to the airport. About 5 miles out, update your position, and tell everyone your plan ②.

If you're approaching from the same side as the traffic pattern, it's best to announce that you're on the AIM-approved 45-degree entry to the downwind ③. Once you're in the pattern, you'll make additional calls (see page 52).

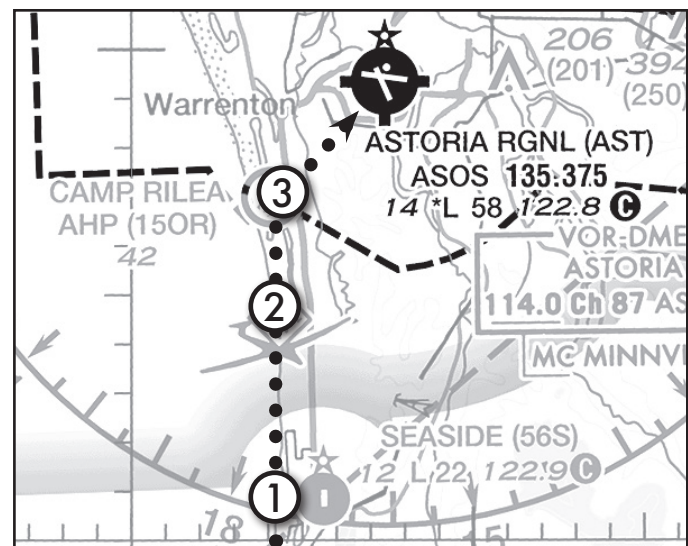
When other aircraft are in the pattern, make it clear where you're joining the flow. If you heard a Piper Cub announcing a turn to downwind when you were on the 45 entry, call ③ could end: "... a forty-five for left downwind, *number two behind the Piper Cub*, Astoria." Now the Cub pilot knows you'll follow. Similarly, you could add, "... looking for the Piper Cub," to let him know you don't have him in sight yet.

Even if you don't hear anyone else near the airport or in the pattern, make all the calls. Like using your turn signal in a car even when nobody else is present, it develops good habits.

Astoria Regional Airport (KAST)

Astoria, OR

CTAF 122.8



Announce Approaching a Non-Towered Airport (with Overflight)

If you're planning to overfly a non-towered airport, the first two calls are the same: About 10 miles out, announce that you're approaching the airport ①. When you're about 5 miles out, update your position and tell everyone your plan ②.

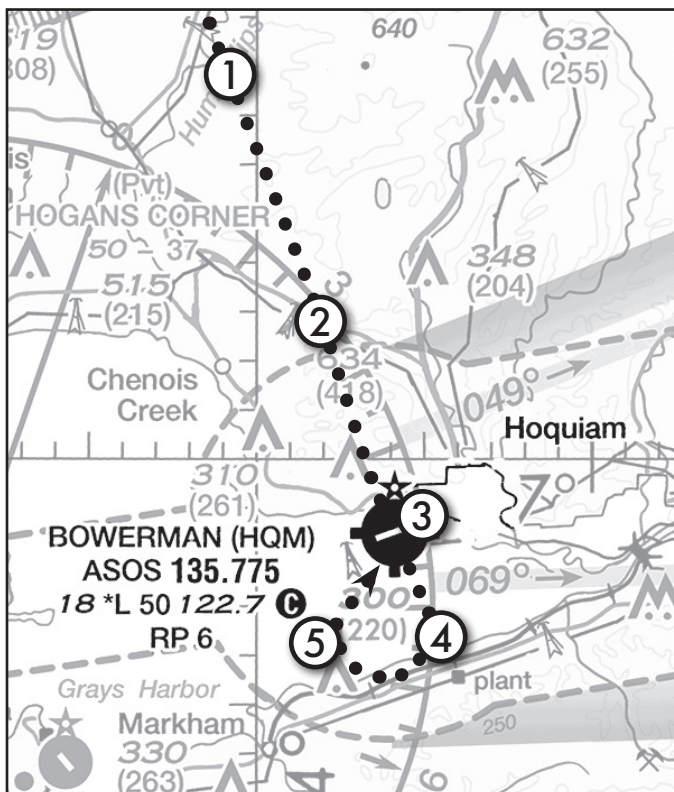
As you pass overhead, that's a great place to make call ③, because everyone knows exactly where "over the airport" is. If you're overflying the field and not landing, that might be the last radio call you make for this airport. If you're crossing overhead to enter the pattern, you can mention that when overhead, or you can make that clear in the next call as you return ④. Depending how tightly you maneuvered, you might make one more call as you're on the 45 entry to the downwind.

Regardless, paint a picture that anyone can understand, and be consistent. If you say you're going to do something, do it. If you change your mind, let everyone know. It's better to be known as "that pilot who talks a lot on the radio" than "that pilot who had a mid-air because nobody knew what he was doing."

Bowerman Airport (KHQM)

Hoquiam, WA

CTAF 122.7



- ① PILOT
Hoquiam Traffic, Skyhawk Six Papa Whiskey, ten north of the airport at two thousand. Hoquiam.
- ② PILOT
Hoquiam Traffic, Skyhawk Six Papa Whiskey, five north at two thousand. We'll be overflying the airport, north to south at two thousand. Hoquiam.
- ③ PILOT
Hoquiam Traffic, Skyhawk Six Papa Whiskey, over the airport, southbound at two thousand. Hoquiam.
- ④ PILOT
Hoquiam Traffic, Skyhawk Six Papa Whiskey, maneuvering south of the airport to enter on a forty five for left downwind for Runway Two Four. Hoquiam.
- ⑤ PILOT
Hoquiam Traffic, Skyhawk Six Papa Whiskey, at one thousand five hundred, descending for a forty-five for left downwind for Runway Two Four. Hoquiam.

TIP

If you cross over the airport, it's best to do it perpendicular to the runway in use and 1000 feet above traffic pattern altitude (TPA), or 2000 feet AGL. Flying perpendicular means you're less likely to conflict with someone climbing out of, or descending into, the pattern. Crossing 1000 feet above TPA keeps you clear of both traffic at the typical pattern altitude, and high-speed traffic (jets and stuff) that commonly use a TPA of 1500 feet AGL. Cross at TPA only if you plan an immediate turn downwind (see page 53).

Announce Pattern for Landing (AIM Standard for Non-Towered)

- ① PILOT
Wrangell Traffic, Cessna Six Papa Whiskey Midfield Left Downwind for Runway One Zero. Wrangell.
- ② SUPER CUB PILOT
Wrangell Traffic, Super Cub Seven Delta Foxtrot, back-taxi Runway One Zero. Wrangell.
- ③ PILOT
Wrangell Traffic, Cessna Six Papa Whiskey turning left base for Runway One Zero. Wrangell.
- ④ SUPERCUB PILOT
Wrangell Traffic, Super Cub Seven Delta Foxtrot, departing Runway One Zero, left crosswind departure. Wrangell.
- ⑤ PILOT
Wrangell Traffic, Cessna Two Three Six Papa Whiskey, turning Final for Runway One Zero, full stop. Wrangell.
- ⑥ SUPER CUB PILOT
Wrangell Traffic, Super Cub Seven Delta Foxtrot, departing the area to the east. Wrangell.

TIP

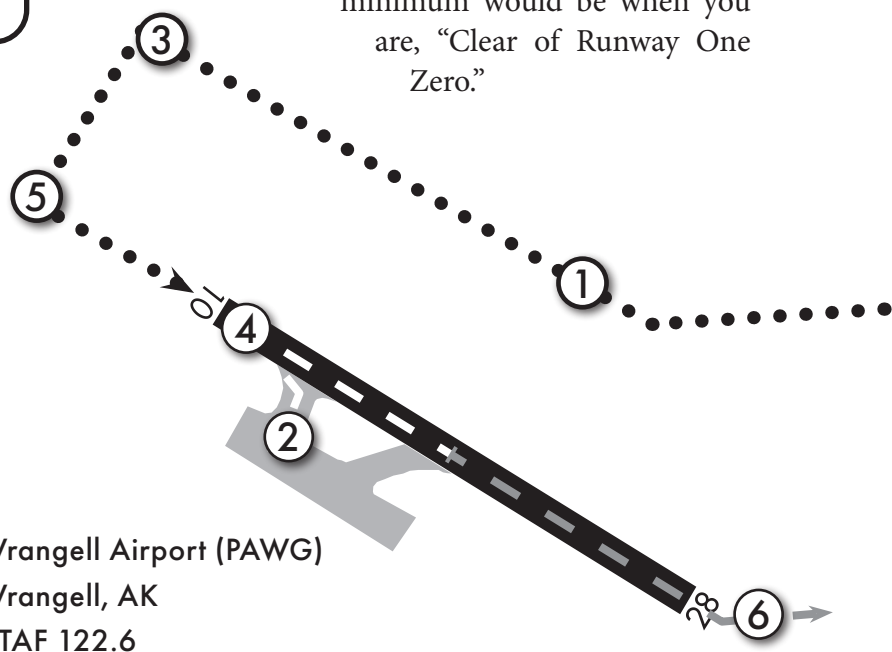
Seeing another aircraft in the air can be tough, so it's best to give as descriptive a position report as possible, without reciting your life story. That's why "mid-field left downwind" is better than just "left downwind." You might also hear, "left downwind abeam the numbers." Announcing "turning left base" or "turning final" has the double benefit of being more specific, and leveraging the fact that a banking airplane is easier to spot.

The linchpin of safety in a non-towered traffic pattern is clear communication. Each pilot must know the position and intention of all other aircraft. Flying a standard traffic pattern—and communicating with standard radio calls—makes that work.

As you enter the pattern, think about how the intentions of other aircraft you hear might affect your plan. If an airplane will be back-taxiing ②, you must leave enough room for that airplane to depart before you land. Your traffic calls ①, ③, & ⑤ keep that pilot aware of your position, and how much time he has to get out of your way. You also need a plan in case it doesn't work out. What if the Super Cub is late starting the takeoff roll? You'll have to go around, but will you side-step to keep his aircraft in sight? He's going left, so you might head right and say, "Cessna Six Papa Whiskey is going around for aircraft on the runway. Side-stepping to the right for the departing traffic."

Your last call before landing should include the kind of landing you will do ⑤. "Full stop" lets anyone who is behind you know that you'll need enough time to stop and clear the runway (especially if you must back-taxi to do it). If you say "touch and go," a pilot behind you might allow less space because you won't be on the runway for long. Saying "low approach only" means you won't even touch down.

Once you land on the runway, you'll make the necessary ground operations calls (see page 12). The minimum would be when you are, "Clear of Runway One Zero."



ANNOUNCING NON-STANDARD PATTERN ENTRIES AND POSITIONS

You'll hear all sorts of interesting position reports at non-towered airports. Sometimes these feel like local geography tests: "Wrangell Traffic, Supercub Seven Delta Fox is over the river." When you're new to the area and struggling to find the airport, knowing another aircraft is over some river somewhere with some kind of intention isn't helpful.

Other position reports deviate from the standard with varying degrees of acceptability. Without passing judgment on any of them, here are a few you might hear so you know what they mean.

Right traffic. Traffic patterns are made with left turns unless otherwise marked. Regulations require you fly the pattern as published. The Chart Supplement and the segmented circle around the windsock for Wrangell show right traffic for Runway 28, so the traffic calls will be "Right downwind Runway Two Eight," and "Right base Runway Two Eight." There is no right (or left) for final. It's always just "... final Runway Two Eight." This matters because if one pilot decided to fly Runway 10 and the other decided to fly Runway 28, they'd meet head-on on downwind. Note that while you're forbidden from flying counter to the published pattern at a non-towered airport, a Tower can assign you right or left traffic to any runway as they wish.

Midfield crossing to downwind. This goes by different terms in different places, but the mean-



ing is the same: The aircraft, at pattern altitude, is approaching the downwind leg from the opposite side of the airport, and will cross midfield perpendicular to the runway. Then the aircraft will turn directly onto the downwind leg. This is the preferred method in Canada, and has gained popularity in the U.S. However, some will argue it is counter to recommendations in the AIM.

Straight-in. Pilots approaching the airport already aligned with the landing runway may announce they are landing straight-in. This is exactly what it sounds like: They are on a final approach that's miles long. A polite pilot flying straight-in gives right-of-way to any aircraft already in the pattern. Straight-in is a common occurrence if the aircraft is landing from an instrument approach. (See page 64 for what the radio calls for this might look like. See "IFR Traffic at Non-Towered Airports: What You Need to Know" on page 62 for more.)

Extended downwind, extended base. Usually pilots saying this mean they are entering the pattern on a long version of one of these legs, similar to straight-in being an "extended final."

Short final. This pilot is within a quarter mile or so of touchdown on the runway. This is a helpful call when you think another aircraft is unsure of your exact position on final.

If you're unsure what another pilot is doing or where they are, simply ask them in plain English. "Super Cub at Wrangell, will you start your takeoff roll soon? We're turning final now ..."

ANNOUNCING A GO-AROUND

When you abort a landing and start climbing on the upwind leg, it changes the timing for all other aircraft operating in that pattern. As soon as safety permits, announce your go-around and your intentions: "Wrangle Traffic, Cessna Six Papa Whiskey, going around. Remaining in the pattern. Wrangle."

This is equally important at a towered airport. The call can simply be, "Portland Tower, Cessna Six Papa Whiskey, going around." As you climb, Tower will instruct you what to do to keep all the aircraft in the pattern separated.

Request Landing (Class D Airport)

- ① **ATIS RECORDING**
Tri-Cities Airport information Echo, One one five five zulu observation ...
- ② **PILOT**
Tri-Cities Tower, Cessna Two Three Six Papa Whiskey, ten southeast, information Echo, landing.
- ③ **TOWER CONTROLLER**
Cessna Two Three Six Papa Whiskey, Tri-Cities Tower, enter right downwind Runway One Two, report midfield right downwind.
- ④ **PILOT**
Report midfield right downwind Runway One Two, Cessna Two Three Six Papa Whiskey.
- ⑤ **PILOT**
Midfield right downwind, Cessna Two Three Six Papa Whiskey.
- ⑥ **TOWER CONTROLLER**
Cessna Two Three Six Papa Whiskey, Runway One Two, cleared to land.
- ⑦ **PILOT**
Cleared to land Runway One Two, Cessna Two Three Six Papa Whiskey.

Tri-Cities Airport (KPSC)
Pasco, WA
ATIS 125.65
Towe: 135.3

TIP

Tower might have you fly right traffic even for a runway that normally has left traffic. Just read back the instruction to ensure that's really what the controller wants.

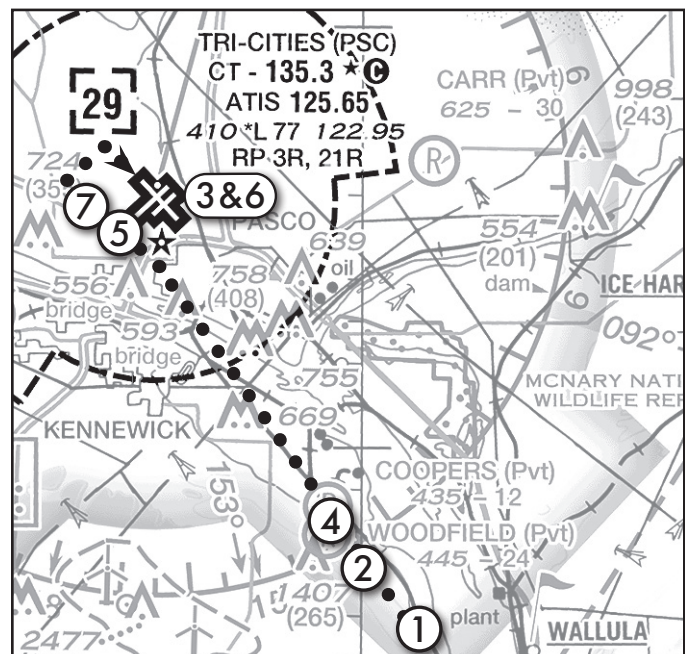
The radio work for landing at a Class D airport starts with listening to the ATIS or ASOS/AWOS 20-25 miles out. Next, establish contact with the Tower: Say hello about 10 miles out ②. The format is:

[Facility Name], [Full Call sign], [Your Position], Information [ATIS letter], [Your Intentions].

Tower will probably respond with pattern entry instructions ③. However, as long as you hear your call sign in the reply, two-way communication has been established and you may enter the Class D. For example, Tower might say in call ③, "Cessna Two Three Six Papa Whiskey, continue, expect Runway One Two." You would continue inbound and anticipate further instructions.

Instructions for getting to the runway might be simple if you're the only aircraft. Call ③ could have been: "Cessna Six Papa Whiskey, Straight-in Runway Three Zero. Cleared to land." Or it could get complex (see "Special Instructions Tower Might Throw Your Way" on page 55). Read back Tower's instructions, but don't trust them blindly. Think about why he's asking you to do something (wind, traffic, terrain, etc.). If any instruction doesn't make sense, ask for clarification in plain English.

Once you land, follow the procedures for towered taxi after landing (see page 27).



SPECIAL INSTRUCTIONS TOWER MIGHT THROW YOUR WAY

If everything works out correctly, the script for landing at a towered airport works as described on the opposite page. But when the timing of multiple aircraft using a limited supply of runways isn't working out, Tower has ways of making it right. Here are a few of the more common ones. (See page 68 for a few of them in context.)

“Fly downwind; I'll call your base.” You're on downwind and another aircraft is on an extended final. Tower sees the two of you will meet on short final, which will cause noise complaints from the airport neighbors. The easiest thing is for you to extend your downwind, so Tower assigns that and will tell you when you can turn base. Acknowledge the call and, maybe, delay descent for the runway because your final approach will start further out.

“Report traffic in sight.” This is common after the “I'll call your base,” and is combined with a traffic callout. “Cessna Six Papa Whiskey, you're following a Hawker Jet on four-mile-final. Report that traffic in sight.” If you don't see the traffic, your response is, “Looking for the traffic, Six Papa Whiskey.” Your response when you see it is, “Traffic in sight, Six Papa Whiskey.”

“Follow that traffic.” This is the third fellow in the trifecta of “Fly downwind” and “Report traffic.” It might all read, “Follow that traffic, base turn your discretion. Cleared to land Runway One Two.” Read back the instruction and keep a safe distance from the other traffic, planning to land second. A variant you sometimes hear is, “Maintain visual separation from that traffic,” specifically

when you're landing behind a departing aircraft.

“Make right 360 for spacing.” This fixes the same problem of “extend downwind,” but without you traveling so far from the airport. You'll make a shallow, right turn a full 360 degrees to kill time. A 360-degree turn that takes roughly a minute should do the trick. Acknowledge the call and re-enter the downwind a minute later. A right 360 would be when in left traffic. From right traffic, it would be a left 360.

“Make short approach.” This is the opposite solution: You get to land first, but only because you won't fly a full pattern. Tower expects you to fly a close-in base with a higher than normal descent rate to the runway. If you're uncomfortable with it, tell Tower you're “Unable short approach.”

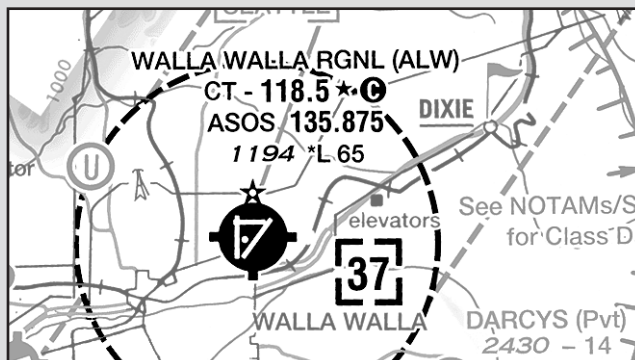
“Change to Runway [Number].” If multiple runways are available, Tower might switch you to another runway. Acknowledge and adjust your pattern accordingly.

“Cancel landing clearance.” Tower can clear you to land, and then revoke that clearance with new instructions. You can't legally land without a clearance, so acknowledge that and the new instructions, such as “fly downwind, you'll call base.”

“Make [right/left] traffic.” Even if the normal traffic pattern is left, Tower can have you fly right traffic (or vice-versa) if needed.

“Go around.” It's uncommon, but if Tower's efforts at fixing a problem don't work out, you can be told to go around. Don't argue or delay. Go around now.

CHECK OUT THAT DATA BLOCK CLOSELY



Some towered airports have an ASOS but no ATIS, such as Walla Walla Regional. In this case, you can tell the tower you have the “one-minute weather” or let them give you the current winds and altimeter setting.

Even though this is not an ATIS, there is usually a provision to add NOTAMs to the ASOS/AWOS at any airport. With a tower, those are more likely to be kept up-to-date.

Request Landing (with Pilot Requests)

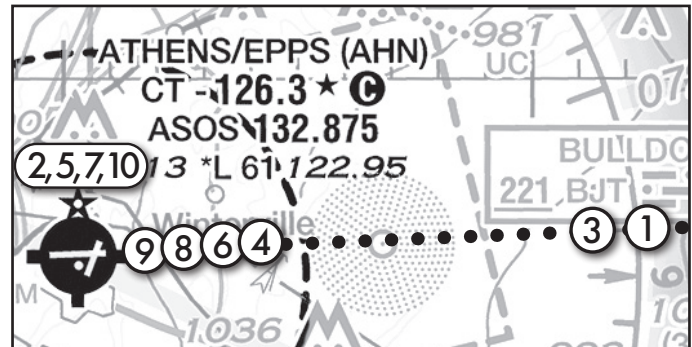
- ① **PILOT**
Athens Tower, Cessna Two Three Six Papa Whiskey, ten east with Charlie for closed traffic. We have the one-minute weather.
- ② **TOWER CONTROLLER**
Cessna Two Three Six Papa Whiskey, Athens Tower, wind is actually shifting around. Currently two six zero at one five gusting one eight. Altimeter two niner niner one. Make straight in Runway Two Seven, report three-mile final.
- ③ **PILOT**
Straight in Runway Two Seven, and report a three-mile final. Cessna Two Three Six Papa Whiskey.
- ④ **PILOT**
Three-mile final Runway Two Seven, Cessna Two Three Six Papa Whiskey.
- ⑤ **TOWER CONTROLLER**
Cessna Six Papa Whiskey, Runway Two Seven, cleared for touch-and-go.
- ⑥ **PILOT**
Tower, Cessna Six Papa Whiskey. We'd like the option whenever traffic permits.
- ⑦ **TOWER CONTROLLER**
Cessna Six Papa Whiskey, Runway Two Seven, cleared for the option.
- ⑧ **PILOT**
Runway Two Seven, cleared for the option. Thanks. Six Papa Whiskey.
- ⑨ **PILOT**
Wind check.
- ⑩ **TOWER CONTROLLER**
Wind two two zero at one three.

Athens/Ben Epps Airport (KAHN)

Athens, GA

ASOS 132.875

Tower 126.3



Just like Tower can give you special instructions (see page 55), you can make special requests from Tower. The most common might be practice in the pattern, or “closed traffic,” which you would do on your initial contact ①.

Other requests might be about your landing. Requesting and receiving clearance for “the option” ⑥ ⑦, means you can do any kind of landing you see fit (see “Distinguishing Different Kinds of Landings” on page 66).

If you want to land on the latter part of a runway to avoid having to taxi all that way to parking, you might request a “long landing.” You can also request specific runways, or specific pattern entries.

The request “Wind check” ⑨, is unique in that you don’t say your call sign or even the tower’s name. It doesn’t matter who needs to know the wind, but they probably need that information right away.

REQUESTING A SPECIAL VFR ARRIVAL

A more complex request is a Special VFR (SVFR) arrival. It’s similar to a SVFR departure (see page 36). It follows the same format, except you request it “for landing at [Airport Name].” The clearance lets you fly into the airport surface area airspace with only one-mile visibility and remaining clear of clouds. It’s granted traffic permitting, but could be just the ticket if the towered airport is almost, but not quite, VFR.

Request Landing (with LAHSO)

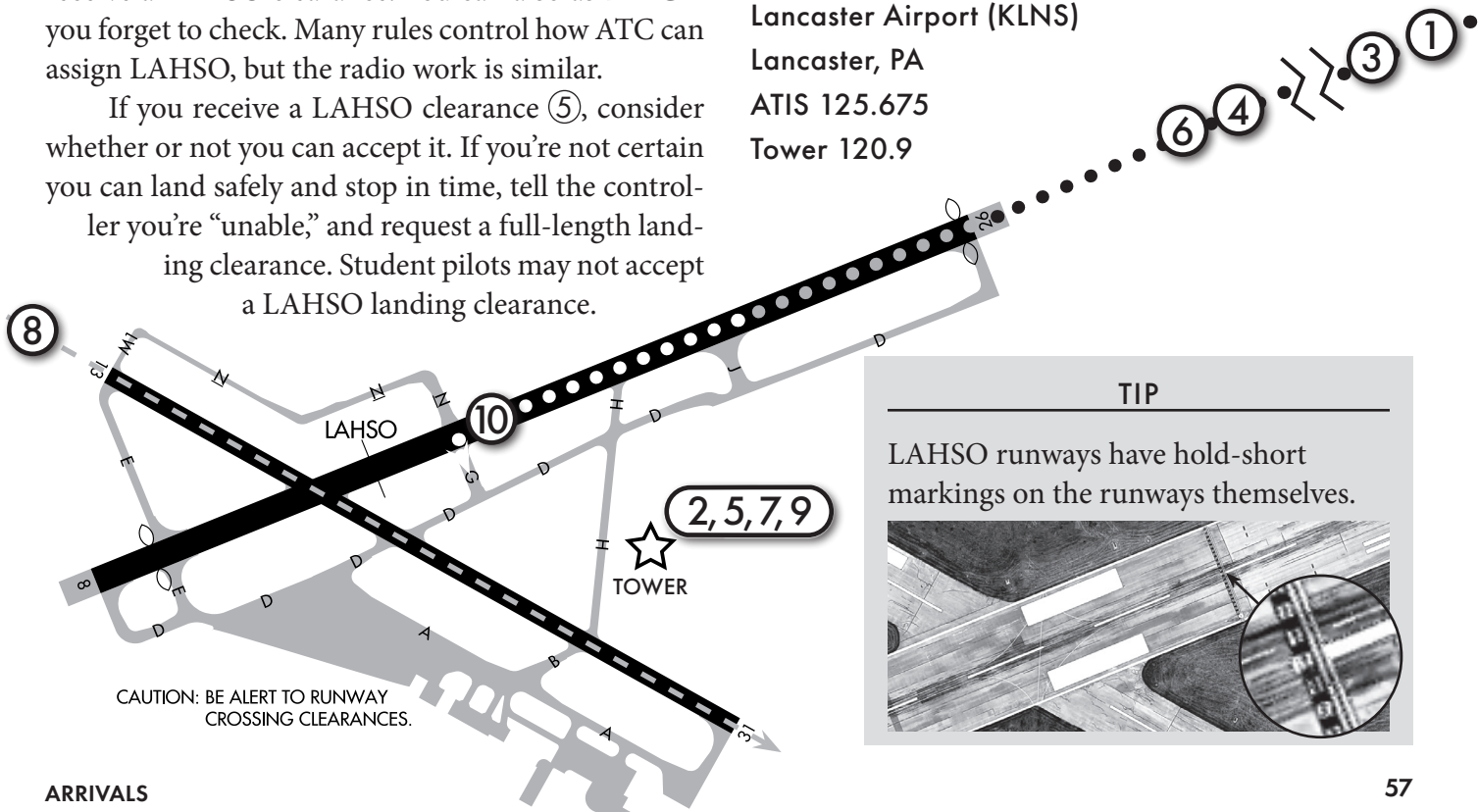
- ① PILOT
Lancaster Tower, Cessna Two Three Six Papa Whiskey, ten miles east, with Lima.
- ② TOWER CONTROLLER
Cessna Six Papa Whiskey, make straight-in for Runway Two Six, report two miles.
- ③ PILOT
Straight in Runway Two Six, report two miles. Cessna Six Papa Whiskey.
- ④ PILOT
Lancaster Tower, Cessna Six Papa Whiskey, two-miles for Runway Two Six.

- ⑤ TOWER CONTROLLER
Cessna Six Papa Whiskey, Runway Two Six, cleared to land. Hold short of Runway One Three for landing traffic.
- ⑥ PILOT
Cleared to land Two Six, hold short of Runway One Three for landing traffic. Cessna Six Papa Whiskey.
- ⑦ TOWER CONTROLLER
Cirrus Five Kilo X-Ray, Runway One Three, cleared touch-and-go.
- ⑧ CIRRUS PILOT
Runway One Three, cleared touch-and-go, Cirrus Five Kilo X-Ray.
- ⑨ TOWER CONTROLLER
Six Papa Whiskey, Ground point eight.
- ⑩ PILOT
Ground one two one point eight. Cessna Six Papa Whiskey.

Land and Hold Short Operations (LAHSO) mean only part of a runway is available for landing, usually because another aircraft is using a crossing runway. Often the ATIS will notify pilots that LAHSO is in effect. LAHSO points are depicted on charts, so that's a heads up to check the Chart Supplement and see how much runway is available in case you receive a LAHSO clearance. You can also ask ATC if you forget to check. Many rules control how ATC can assign LAHSO, but the radio work is similar.

If you receive a LAHSO clearance ⑤, consider whether or not you can accept it. If you're not certain you can land safely and stop in time, tell the controller you're "unable," and request a full-length landing clearance. Student pilots may not accept a LAHSO landing clearance.

Lancaster Airport (KLNS)
Lancaster, PA
ATIS 125.675
Tower 120.9



TIP

LAHSO runways have hold-short markings on the runways themselves.



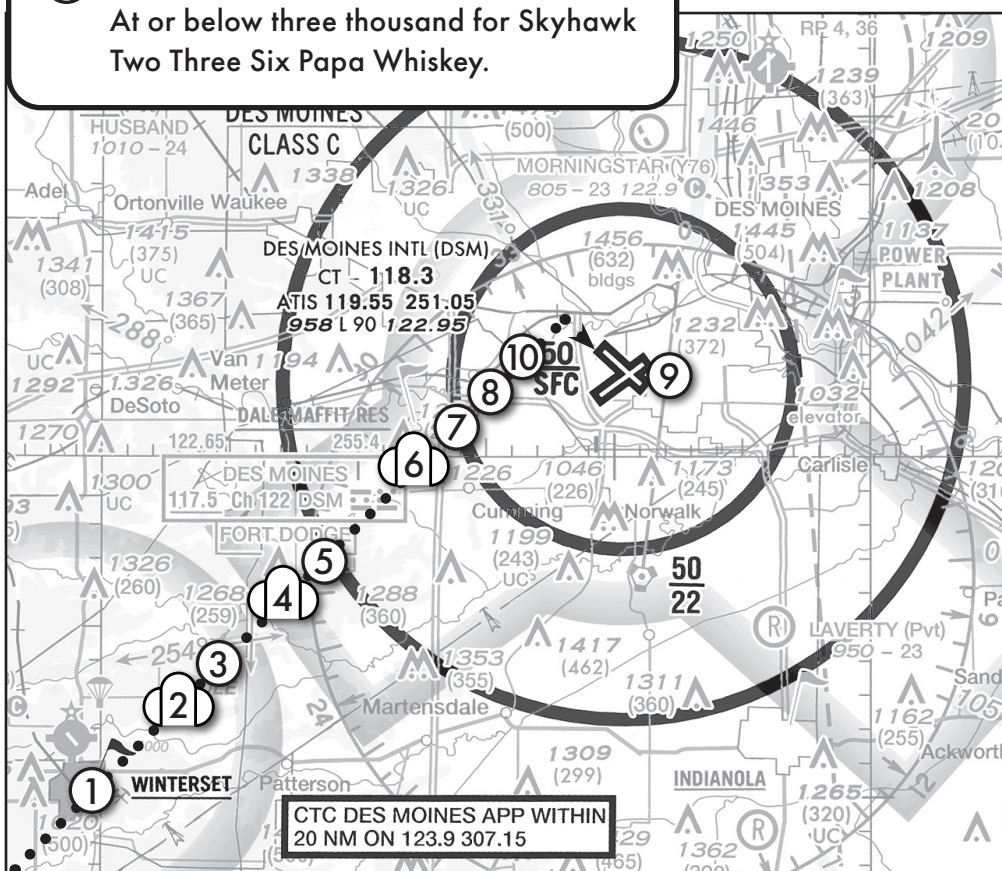
Request Landing (Class C or TRSA Airport)

- ① PILOT
Des Moines Approach, Skyhawk Two Three Six Papa Whiskey, over Winterset, Information Kilo. Inbound for landing Des Moines.
- ② APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Des Moines Approach. Altimeter two niner six zero. Squawk five six six seven. Expect Runway One Three.
- ③ PILOT
Squawk five six six seven. Skyhawk Two Three Six Papa Whiskey.
- ④ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, radar contact two two miles southwest of the Des Moines Airport. Maintain VFR at or below three thousand.
- ⑤ PILOT
At or below three thousand for Skyhawk Two Three Six Papa Whiskey.

- ⑥ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, contact Tower one one eight point three.
- ⑦ PILOT
Tower on one one eight point three. Skyhawk Two Three Six Papa Whiskey.
- ⑧ PILOT
Des Moines Tower, Skyhawk Two Three Six Papa Whiskey, five southwest.
- ⑨ TOWER CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Des Moines Tower. Enter right base for Runway One Three.
- ⑩ PILOT
Enter right base for Runway One Three. Skyhawk Two Three Six Papa Whiskey.

Des Moines International Airport (KDSM)

Des Moines, IA
 ATIS 119.55
 Approach 123.9
 Tower 118.3



TIP

Note the base altitude of the outer ring of a Class C as you approach (2200 feet MSL here). If you haven't heard your call sign from the controller, you can descend below that altitude and continue a bit closer, because you're below the Class C, not in it. The inner ring, however, reaches the surface.

- ⑪ TOWER CONTROLLER
Skyhawk Six Papa Whiskey, Runway One Three, cleared to land.
- ⑫ PILOT
Runway One Three, cleared to land. Skyhawk Six Papa Whiskey.
- ⑬ TOWER CONTROLLER
Six Papa Whiskey. Say Parking.
- ⑭ PILOT
Elliott Aviation on the north Ramp. Skyhawk Six Papa Whiskey.
- ⑮ TOWER CONTROLLER
Six Papa Whiskey, if able, left turn on Romeo. Taxi to parking via Romeo, Bravo, this frequency.
- ⑯ PILOT
Parking via Romeo, Bravo. Stay with you. Skyhawk Six Papa Whiskey.

The communications for landing at an airport in Class C airspace starts just like a Class D airport: Get the current ATIS while more than 20 miles out, and then contact Approach ①. The format is:

[Facility Name], [Full call sign], [Your location], Information [ATIS Letter]. [Your intentions].

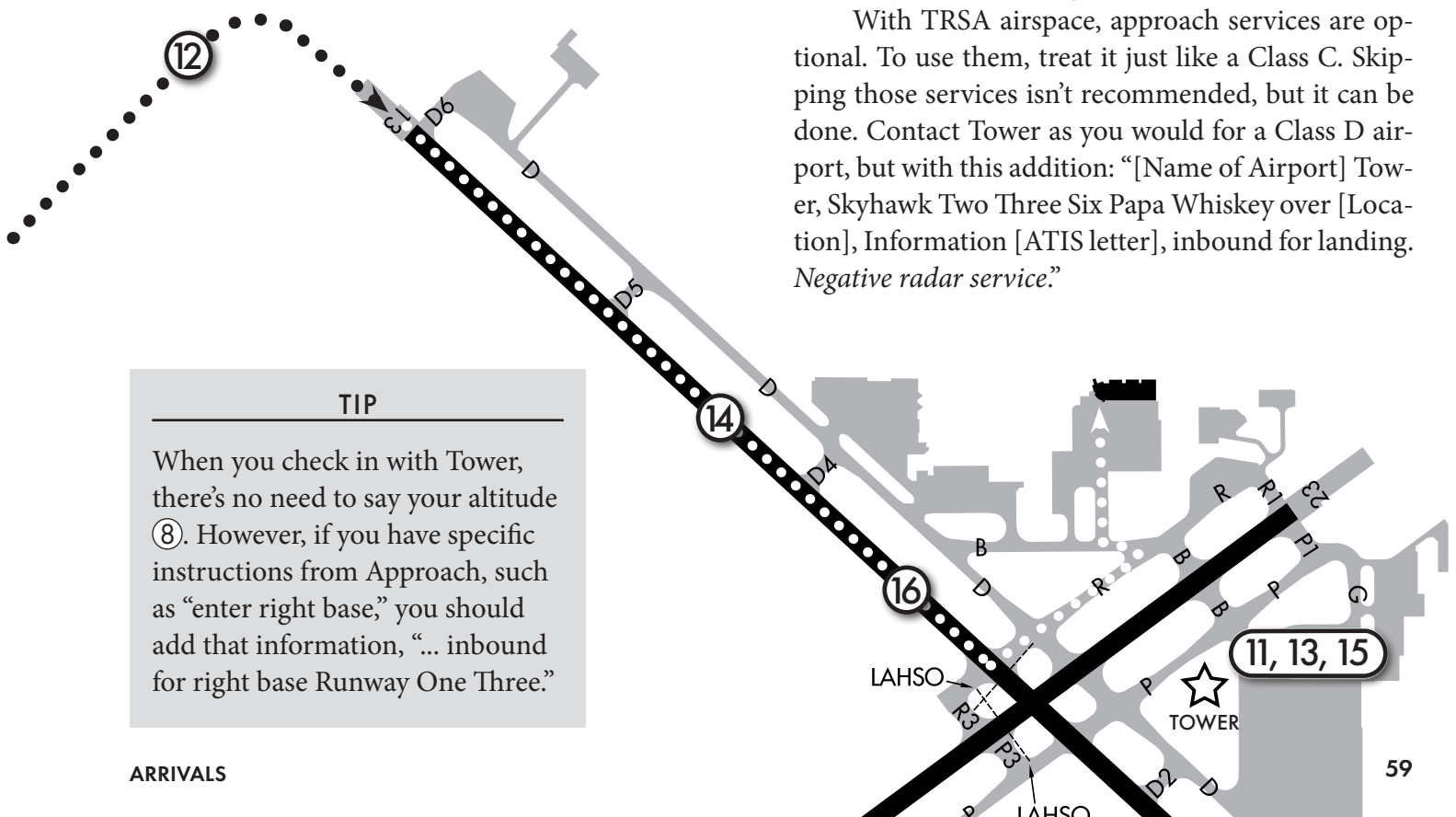
You can state your location relative to the airport, such as “22 miles northwest.” Or, sound like a local by using a VFR reporting point from the Sectional Chart, which is “Winterset” in this example. (See “Unlocking the ‘Secret’ Charted VFR Waypoints and Routes” on page 49.)

Give Approach at least a minute to respond. The controller may be talking to other aircraft on a different frequency you can’t hear, or busy with other tasks. Enter the Class C airspace after you hear your call sign, even if you don’t have landing instructions yet.

The Approach controller will radar identify you, and either tell you to continue inbound ④ or give you a vector to fly. The controller might also issue altitude changes to keep you separated from IFR traffic.

Approach will hand you off to Tower ⑥. From here, it’s just like landing at a Class D airport.

With TRSA airspace, approach services are optional. To use them, treat it just like a Class C. Skipping those services isn’t recommended, but it can be done. Contact Tower as you would for a Class D airport, but with this addition: “[Name of Airport] Tower, Skyhawk Two Three Six Papa Whiskey over [Location], Information [ATIS letter], inbound for landing. *Negative radar service.*”



TIP

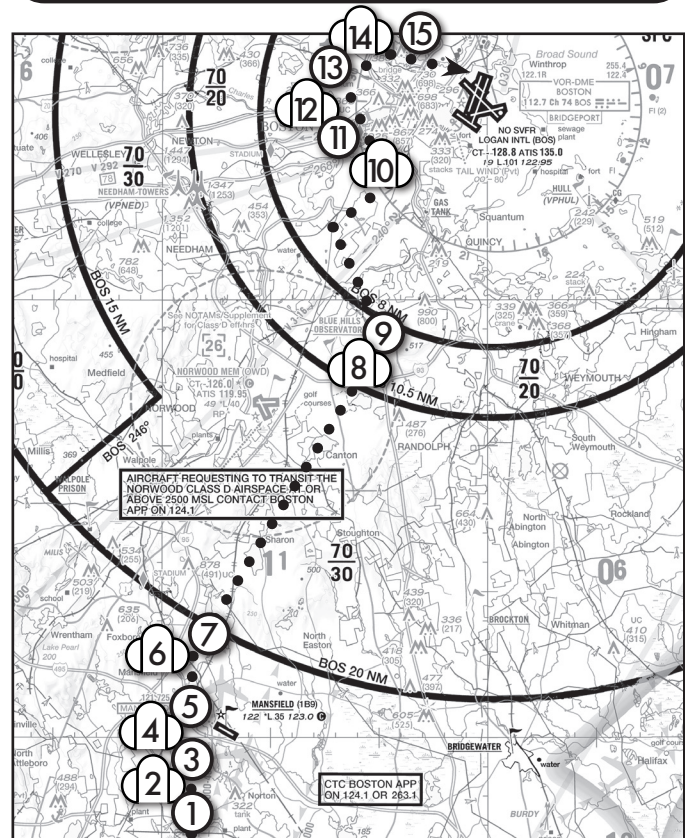
When you check in with Tower, there’s no need to say your altitude ⑧. However, if you have specific instructions from Approach, such as “enter right base,” you should add that information, “... inbound for right base Runway One Three.”

Request Landing (Class B)

- ① PILOT
Boston Approach, Skyhawk Two Three Six Papa Whiskey is VFR five miles southwest of Franklin, five thousand five hundred, landing Boston with Information Mike.
- ② APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Verify you're landing Boston?
- ③ PILOT
Affirmative. Landing Boston. Skyhawk Two Three Six Papa Whiskey.
- ④ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, squawk five six six seven.
- ⑤ PILOT
Squawk five six six seven. Skyhawk Two Three Six Papa Whiskey.
- ⑥ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, radar contact, one nine miles north of the North Central State Airport. Cleared into the Bravo airspace via direct Boston. Maintain VFR at five thousand five hundred. Expect Runway Two Two Right. Boston altimeter two niner niner three.
- ⑦ PILOT
Cleared into the Bravo at five thousand five hundred, Runway Two Two Right. Skyhawk Two Three Six Papa Whiskey.
- ⑧ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, fly heading three six zero, descend and maintain three thousand.
- ⑨ PILOT
Heading three six zero, leaving five thousand five hundred for three thousand. Skyhawk Six Papa Whiskey.

Many ATC descents, vectors, traffic calls, and a frequency change later ...

- ⑩ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, report the field in sight.
- ⑪ PILOT
Field in sight. Skyhawk Six Papa Whiskey.
- ⑫ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, proceed visually to Runway Two Two Right. Descend at your discretion.
- ⑬ PILOT
Two Two Right and descent my discretion. Skyhawk Six Papa Whiskey.
- ⑭ APPROACH CONTROLLER
Skyhawk Six Papa Whiskey, make a short approach if you can, contact Tower now, one two eight point eight.



15 PILOT
Short approach. Tower One two eight point eight. Skyhawk Six Papa Whiskey.

Amidst many, many other radio calls:

16 PILOT (on 128.8)
Boston Tower, Skyhawk Two Three Six Papa Whiskey for Two Two Right.

17 TOWER CONTROLLER
Skyhawk Six Papa Whiskey, Boston Tower. Enter Right Downwind for Runway Two Two Right.

18 PILOT
Enter Right Downwind for Runway Two Two Right. Skyhawk Six Papa Whiskey.

19 TOWER CONTROLLER
Skyhawk Six Papa Whiskey, you can proceed direct the numbers now. Runway Two Two Right, cleared to land.

20 PILOT
Runway Two Two Right, cleared to land. Skyhawk Six Papa Whiskey.

21 TOWER CONTROLLER
Six Papa Whiskey, keep it rolling. Right turn on Quebec. Ground point niner.

22 PILOT
Right on Quebec, Ground point niner. Six Papa Whiskey.

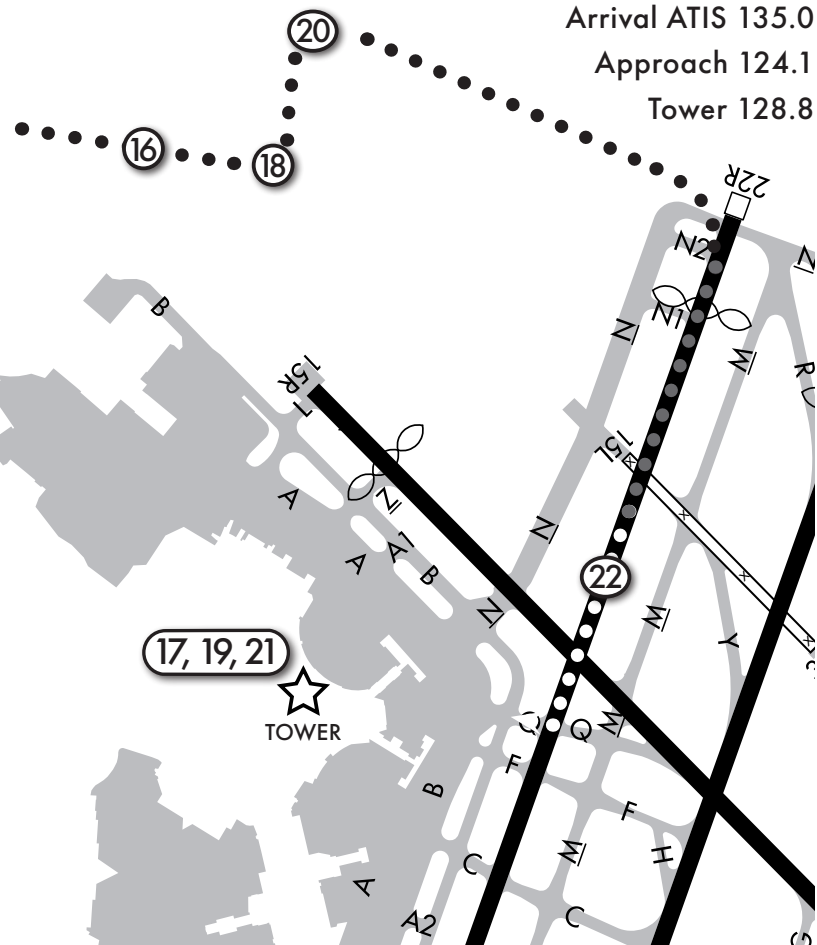
Logan International Airport (KBOS)

Boston, MA

Arrival ATIS 135.0

Approach 124.1

Tower 128.8



Landing VFR at a Class B airport is uncommon, but similar in structure to a Class C. Get the *approach* ATIS. It's marked "D-ATIS APP" in the Chart Supplement. About 30 miles out, contact Approach with your request to land ①. The general format is:

[Full Call sign] is VFR [Location], [Altitude], landing [Destination] Information [ATIS Letter].

After the initial disbelief ②, Approach will assign a squawk code ④, but you must remain outside the Class B until you hear, "Cleared into the Bravo airspace" ⑥. You'll receive altitude changes, vectors, and traffic advisories as necessary ⑧ - ⑬, and when you get close to the airport, Approach will hand you off to Tower ⑭, who will try and squeeze you in between all the jet and turboprop arrivals.

TIP

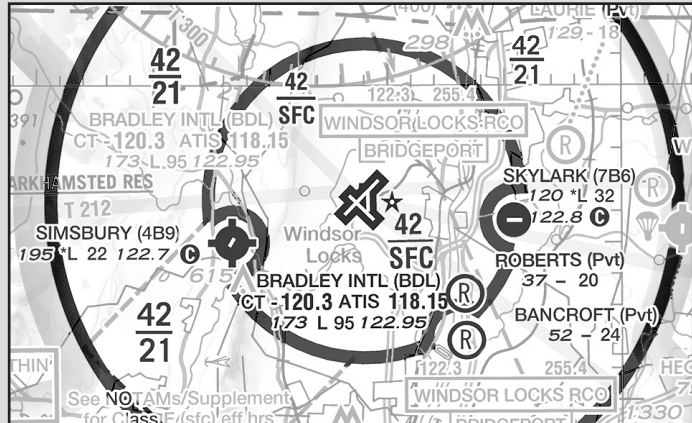
Expect a request for "maximum forward speed" from Tower. You may also hear "make short approach" or "right to the numbers," both of which essentially mean a base leg straight to the landing threshold. Do your best, leaving enough time to slow for landing. Long Class B runways usually allow for floating quite a bit on landing.

DEPARTING AND ARRIVING AT SATELLITE AIRPORTS

A satellite airport is an airport within the lateral boundaries of Class B or Class C airspace. Sometimes it's just underneath the shelf of airspace. Other times that satellite airport is close enough that there's an airspace cutout, such as Simsbury and Skylark near Bradley International in Hartford, CT. Rarely, there's an airport inside the surface area.

Landing at a satellite airport is trivial if it's towered. You'll be handed off from Approach to Tower. Landing at a non-towered airport is done by specifying your destination in your initial request. Once you report the destination in sight, expect a description of traffic observed between you and the airport, and "Radar service terminated. Frequency change approved." Usually, you will keep your transponder code.

Departing can be trickier. Departing a towered airport, it's best to request a squawk code and departure frequency from Ground as part of your initial call, just as if you were getting flight following (see page 26). Tower can then hand you off on departure. But before you enter the overlying airspace, you still must hear your call sign (Class



C) or get a clearance to enter (Class B).

Departing a non-towered airport, the most common tactic is simply staying clear of the overlying airspace until you can contact them. If the primary airport is close enough, you may be able to reach them on the ground by radio. You may even be able to reach them by cell phone.

Technically, when departing from an airport inside the surface area, you can take off and contact the approach facility "as soon as practical." This is a rare situation, and it's probably worth a phone call to the Tower or Approach of the primary airport before flight to learn the correct local procedure.

IFR TRAFFIC AT NON-TOWERED AIRPORTS: WHAT YOU NEED TO KNOW

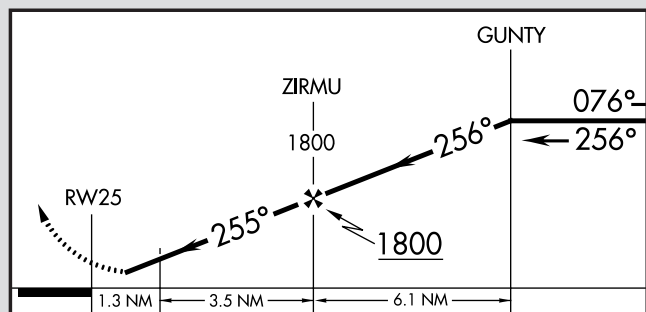
Instrument approaches are divided into segments: initial, intermediate, final, and missed approach. Instrument pilots talk to Center or Approach until roughly the time they transition from intermediate to final approach. They then change to CTAF. Even if their CTAF radio call isn't VFR-friendly, you may still be able to figure out their location.

The final approach segment shown here begins at ZIRMU and ends at the Runway 25 threshold (RW25). A pilot on this approach at ZIRMU *should* transmit on CTAF, "... five miles out, straight-in for Runway Two Five." ZIRMU is 4.8 NM from the runway (3.5 NM+1.3 NM).

A pilot might only say, "... final approach fix for Runway Two Five." Most final approach fixes are between four and six miles from the runway

threshold. Pilots often change frequencies a couple miles before that, so guessing a pilot at the "final approach fix" is five miles out won't be too far off.

The least helpful call would be "... at ZIRMU." Without the instrument approach chart, you don't know this fix's location. In that case, your best option is to ask, "Pilot at ZIRMU, how far out are you from Runway Two Five?"



Announce Closed Traffic (Non-Towered Airport)

Practicing touch-and-goes all alone at a non-towered airport can be one of flying's great joys. Even when you're the only airplane in the pattern, it's important to announce your position as you turn onto each leg. You never know when another airplane (or five) will join you.

Start by reporting that you're departing for "closed traffic" ①. Some pilots prefer to say "for touch-and-goes," or "remaining in the pattern." Any of these phrases inform other pilots you're not departing the pattern, which is the important point.

Make calls as you turn onto each successive pattern leg: crosswind, downwind, base, and final ②-⑤. The call on final should include your intentions for this landing, such as "touch-and-go."

When you've worked up an appetite and decide to head to the airport restaurant, say "full stop" instead of "closed traffic" as you turn onto final. If you decide to venture out of the pattern for a far more expensive burger, add that to your call on final instead: "... touch-and-go, then departing the pattern to the north, Redlands."

TIP

On crosswind, watch out and listen for traffic entering the downwind, either from your right, on a long downwind, or ahead and to your right on the 45 to downwind. (For right traffic, those would be to your left.) Once on base, look and listen for traffic on final, including pilots flying an extended straight-in.

- ① PILOT
Redlands Traffic, Skyhawk Six Papa Whiskey, departing Runway Eight, closed traffic. Redlands.
- ② PILOT
Redlands Traffic, Skyhawk Six Papa Whiskey, turning crosswind Runway Eight. Redlands.
- ③ PILOT
Redlands Traffic, Skyhawk Six Papa Whiskey, turning downwind Runway Eight. Redlands.
- ④ PILOT
Redlands Traffic, Skyhawk Six Papa Whiskey, turning base Runway Eight. Redlands.
- ⑤ PILOT
Redlands Traffic, Skyhawk Six Papa Whiskey, turning final Runway Eight, Touch-and-go. Closed traffic. Redlands.

Redlands Municipal Airport (KREI)
Redlands, CA
CTAF 123.05



Announce Closed Traffic (with Traffic)

- ① PILOT
Jackson County Traffic, Skyhawk Two Three Six Papa Whiskey, departing Runway Three Three, closed traffic. Jackson County.
- ② PILOT
Jackson County Traffic, Skyhawk Six Papa Whiskey, turning Crosswind Runway Three Three. Jackson County.
- ③ WARRIOR PILOT
Jackson County Traffic, Warrior Five Six Seven Niner Yankee, entering forty-five for left downwind Runway Three Three. Jackson County. Cessna on crosswind, just realized we're cutting you off. You want us to make a three-sixty and get behind you?
- ④ PILOT
Negative, we have you in sight. We'll follow you. Skyhawk Six Papa Whiskey.
- ⑤ WARRIOR PILOT
Okay, appreciate it.
- ⑥ PILOT
Jackson County Traffic, Skyhawk Two Three Six Papa Whiskey, turning left downwind Runway Three Three. Jackson County.
- ⑦ BONANZA PILOT
Jackson County Traffic, Bonanza Five Seven Papa, four miles south on the RNAV Bravo instrument approach. Straight in for Runway Three Three, traffic permitting. Jackson County.
- ⑧ WARRIOR PILOT
Jackson County traffic, Warrior Five Six Seven Niner Yankee, turning left base Runway Three Three. Jackson County.

- ⑨ PILOT
Jackson County Traffic, Skyhawk Six Papa Whiskey, midfield left downwind Runway Three Three. Jackson County.
- ⑩ WARRIOR PILOT
Jackson County Traffic, Warrior Five Six Seven Niner Yankee, final Runway Three Three, full stop. Jackson County.
- ⑪ PILOT
Jackson County Traffic, Skyhawk Six Papa Whiskey, turning base Runway Three Three, Jackson County.
- ⑫ PILOT
Jackson County Traffic, Skyhawk Six Papa Whiskey, turning final Runway Three Three, number two, touch-and-go. Jackson County.
- ⑬ BONANZA PILOT
Jackson County Traffic, Bonanza Five Seven Papa, two-mile final Runway Three Three. Number three behind the Cessna turning final now. We'll slow it down. Low approach only. Jackson County.
- ⑭ WARRIOR PILOT
Jackson County traffic, Warrior Five Six Seven Niner Yankee is clear of Runway Three Three. Jackson County.
- ⑮ PILOT
Jackson County traffic, Skyhawk Six Papa Whiskey, upwind, Runway Three Three. Jackson County.
- ⑯ BONANZA PILOT
Jackson County traffic, Bonanza Six Five Seven Papa, final Runway Three Three. Low approach only. We will offset to the east on the go for the Cessna on upwind. Jackson County.

DISTINGUISHING DIFFERENT KINDS OF LANDINGS

At both non-towered and towered airports, you'll hear different kinds of landings announced or requested. Here are the key ones.

Full stop. This is what we normally think of as a landing. You'll land, taxi off the runway, and either taxi back for another takeoff or head for the ramp and call it a day.

Stop-and-go. The aircraft will land and come to a complete stop on the runway. From the stopped position, the aircraft will accelerate again and take off. It's used for training, and is equivalent to full-stop for landing practice or currency.

Touch-and-go. The aircraft will land, reconfigure for takeoff while rolling, and then take off again. Used in training to extract maximum landings from each hour of flight time.

Low approach. Common in instrument training, the aircraft will fly down to within a couple

hundred feet of the runway, and then go around.

Low Pass. This is similar to a low approach, except the airplane will level off above the runway and then fly the length of the pavement, Top Gun style, before commencing the go around.

The option. This one only applies for towered airports and it gives you free choice to do any of the preceding landings. You can make a low approach, touch-and-go, stop-and-go, or full-stop as you see fit. The request would be, "Portsmouth Tower, Cessna Six Papa Whiskey, request the option," and the reply would be, "Cessna Six Papa Whiskey, cleared for the option." Note that the AIM says pilots should advise ATC as soon as possible of any delay on the runway due to conducting a stop-and-go or full-stop when cleared for the option.

At a towered airport, knowing what kind of landing you intend helps a tower controller adjust the timing with any aircraft behind you or in front of you. Tower assumes you want the same kind of landing each time around. If you want something different than the previous circuit of the pattern, request it no later than midfield downwind.

For any of the above at a non-towered airport, you'd include the information in at least your call on final each time you make a pattern. "Wallberg traffic, Cessna Six Papa Whiskey, final Runway Two Six, Stop-and-go. Wallberg."



IT'S NOT IDLE CHIT-CHAT WHEN IT HELPS OTHERS STAY SAFE

Imagine you heard the following conversation on a CTAF frequency as you approached Canyonlands airport from about 15 miles away, and hadn't yet made a radio call:

"Canyonlands Traffic, Maule Six Five Alpha Lima, ten north at six thousand five hundred. We'll enter a right Downwind for Two One. Canyonlands."

"Canyonlands Traffic, Piper Six Two Three Six Five departing the area. Five north climbing through six thousand, inbound Maule in sight. Watch out for

birds near the runway.

"Canyonlands Traffic, Maule Six Five Alpha Lima has the departing Piper in sight. We'll look for the birds, thanks."

This kind of exchange is entirely appropriate and helpful. There's no correct way to say it other than keeping the information clear and concise. Don't let the fact that it's aviation radio and you're not sure exactly how to phrase it deter you from passing on useful information, or asking another pilot an important question.

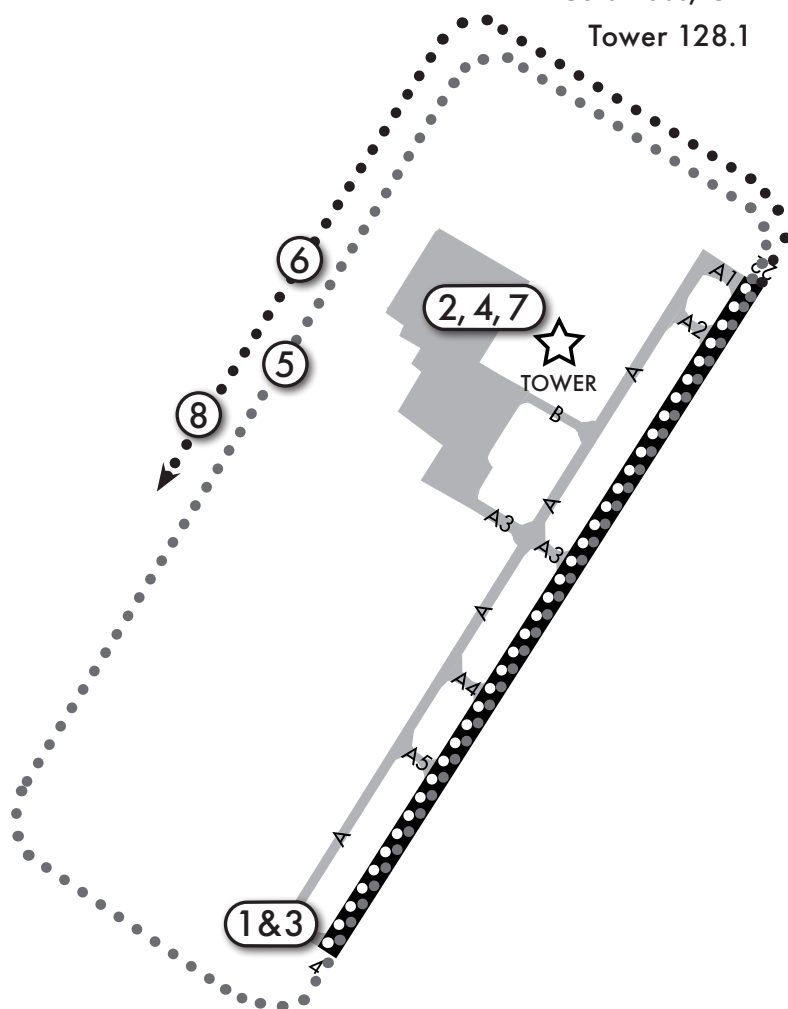
Request Closed Traffic (Towered Airport)

Practicing touch-and-goes at a towered airport is arguably easier than at a non-towered airport. To stay in the pattern to fly touch-and-goes, just request “closed traffic” from Tower ①.

Once airborne, you only respond to calls from Tower ④, unless you have a request other than standard traffic ⑥. Tower can approve whatever landing you request, so long as it works given other traffic at the airport and any local policies. (See opposite page for explanations of different landings.)

You need a new clearance on each lap around the pattern. The typical position to receive this from Tower is on the downwind, but be prepared for anything. If you don't get a clearance by the time you turn base, you can ask Tower, “... verify we're cleared touch-and-go?” or similar, depending on what you want. When you're ready for something else, such as a full stop or departing the pattern, simply ask ⑥.

Bolton Field Airport (KTZR)
Columbus, OH
Tower 128.1



CLOSED TRAFFIC

- ① PILOT
Bolton Tower, Cessna Two Three Six Papa Whiskey, holding short Runway Four, ready for departure. Request closed traffic.
- ② TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Bolton Tower. Left closed traffic approved, Runway Four, cleared for takeoff.
- ③ PILOT
Left closed traffic, Runway Four, cleared for takeoff. Cessna Two Three Six Papa Whiskey.
- ④ TOWER CONTROLLER
Cessna Six Papa Whiskey, Runway Four, cleared touch-and-go.
- ⑤ PILOT
Runway Four, cleared touch-and-go. Cessna Six Papa Whiskey.
- ⑥ PILOT
Bolton Tower, Cessna Six Papa Whiskey, request full stop.
- ⑦ TOWER CONTROLLER
Cessna Six Papa Whiskey, Runway Four, cleared to land.
- ⑧ PILOT
Runway Four, cleared to land. Cessna Six Papa Whiskey.

TIP

On airports with crossing runways, you can ask for closed traffic on a runway with more crosswind for practice, even if that's not a runway in use by most traffic. Tower might even enjoy the challenge of more complex traffic issues.

Request Closed Traffic (with Traffic and Instructions)

- ① PILOT
Charlottesville Tower, Cessna Two Three Six Papa Whiskey, holding short Runway Three, ready for departure. Request closed traffic.
- ② TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Charlottesville Tower. Be advised, similar call sign also on frequency in left closed traffic: Amphib One Two Eight Papa Whiskey. Left closed traffic approved, Runway Three, cleared for takeoff.
- ③ PILOT
Left closed traffic. Cleared for takeoff Runway Three. Cessna Two Three Six Papa Whiskey.
- ④ TOWER CONTROLLER
Amphib One Two Eight Papa Whiskey, similar call sign on frequency. Two Three Six Papa Whiskey.
- ⑤ AMPHIB PILOT
Roger. One Two Eight Papa Whiskey.
- ⑥ CARAVAN PILOT
Charlottesville Tower, Caravan Three Six Three Charlie Foxtrot, holding short runway Three at Bravo, ready for takeoff, east departure.
- ⑦ TOWER CONTROLLER
Caravan Three Six Three Charlie Foxtrot, hold short Runway Three at Bravo, landing traffic.
- ⑧ CARAVAN PILOT
Hold short Runway Three. Caravan Three Six Three Charlie Foxtrot.
- ⑨ TOWER CONTROLLER
Amphib One Two Eight Papa Whiskey,

Runway Three, cleared touch-and-go, no delay on the runway.

- ⑩ AMPHIB PILOT
Cleared touch-and-go Runway Three. No delay on the runway. Amphib One Two Eight Papa Whiskey.
- ⑪ REGIONAL JET PILOT
Charlottesville Tower, JetBlue Twenty-Six Seventeen, ILS Runway Three.
- ⑫ TOWER CONTROLLER
JetBlue Twenty-Six Seventeen, one departure prior to your arrival, a Caravan. Runway Three, cleared to land.
- ⑬ REGIONAL PILOT
Runway Three, Cleared to land. JetBlue Twenty-Six Seventeen.
- ⑭ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Extend downwind, I'll call your base.

Closed traffic at busy towered airports can get hectic. You're still responsible for avoiding other aircraft, so listen to the calls Tower makes to all aircraft and paint the big picture in your mind. You can also learn a lot from instructions for other aircraft.

A departing aircraft is told to hold for a landing one ⑦. A jet checks in on a long straight-in, and is cleared to land with a heads up about an aircraft on the runway ahead of them ⑫. You're told to extend your downwind ⑭, and then asked to find the aircraft you will follow ⑱, before you're cleared to land, number two ⑳. A similar call might be "maintain visual separation with that traffic." In either case, if you lose sight of the aircraft you're following, tell Tower you lost sight of it, and ask where it is now.

When there's a caution for similar call signs ②, ④, listen carefully and expect your full call sign on every transmission. Similar call signs are a huge opportunity for confusion.

⑮ PILOT
Extend downwind, you'll call the base.
Cessna Two Three Six Papa Whiskey.

⑯ TOWER CONTROLLER
Caravan Three Charlie Foxtrot, right
turnout approved, Runway Three at
Bravo, cleared for takeoff.

⑰ CARAVAN PILOT
Runway Three at Bravo, cleared for
takeoff. Caravan Three Charlie Fox.

⑱ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey,
you're following a regional jet on three-
mile final. Report that traffic in sight.

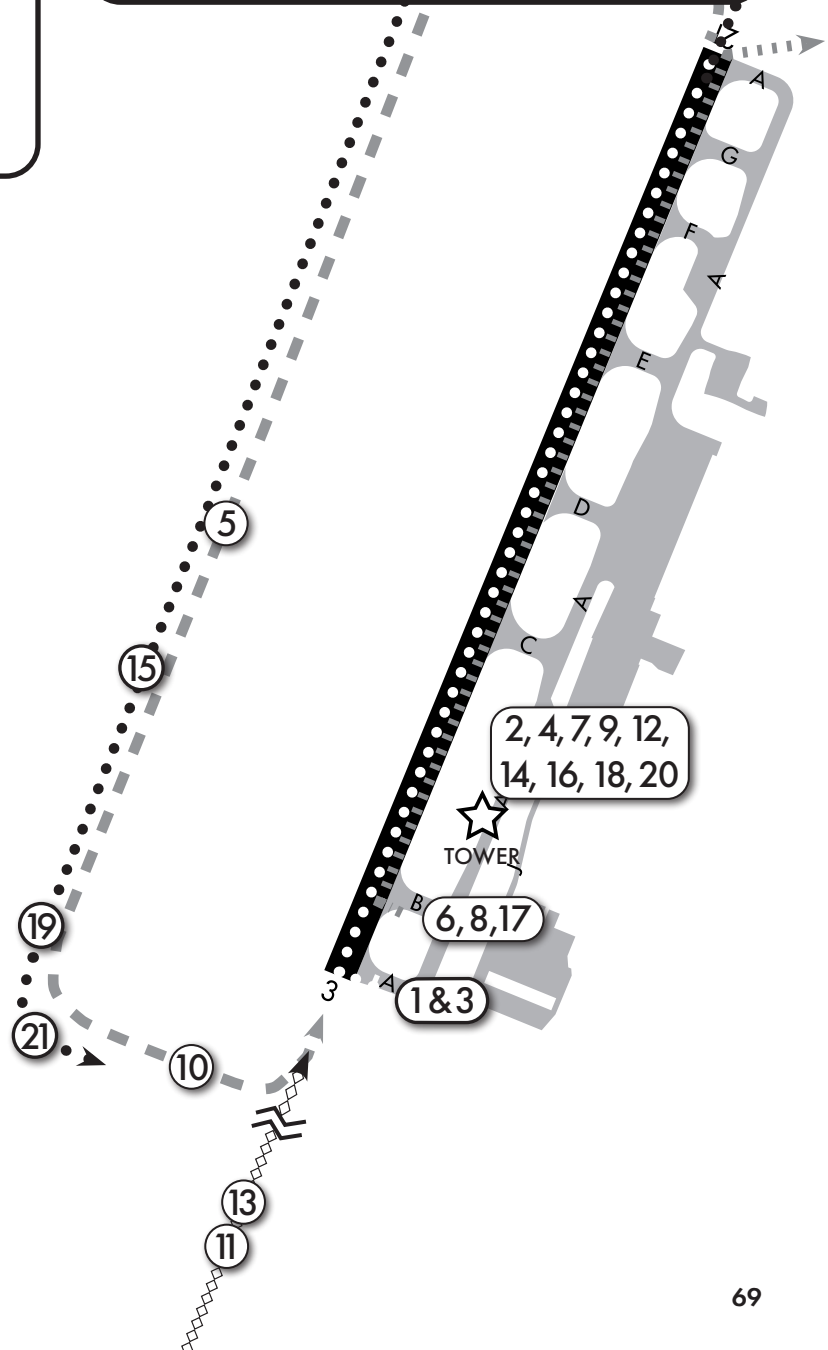
⑲ PILOT
Traffic in sight. Cessna Two Three Six
Papa Whiskey.

⑳ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey,
follow that traffic. Caution wake
turbulence. Runway Three, cleared
touch-and-go.

㉑ PILOT
Follow that traffic. Cleared touch-and-go.
Cessna Two Three Six Papa Whiskey.

TIP

In a busy transmission environment like this, it may seem like you're reducing frequency congestion by answering an instruction with, "Roger, Six Papa Whiskey." However, this is a dangerous practice. The readback is a check that you understood what the controller said. "Roger" simply means you heard the transmission, but a busy controller might assume you understood and will act correctly. "Wilco," which is short for "I will comply" isn't much better. Read back the instruction. If it's a question, a simple "affirmative" or "negative" may suffice. But it may be better to include the context in your reply, such as, "Affirmative, we can accept a short approach. Six Papa Whiskey."



Charlottesville-Albemarle Airport (KCHO)

Charlottesville, VA

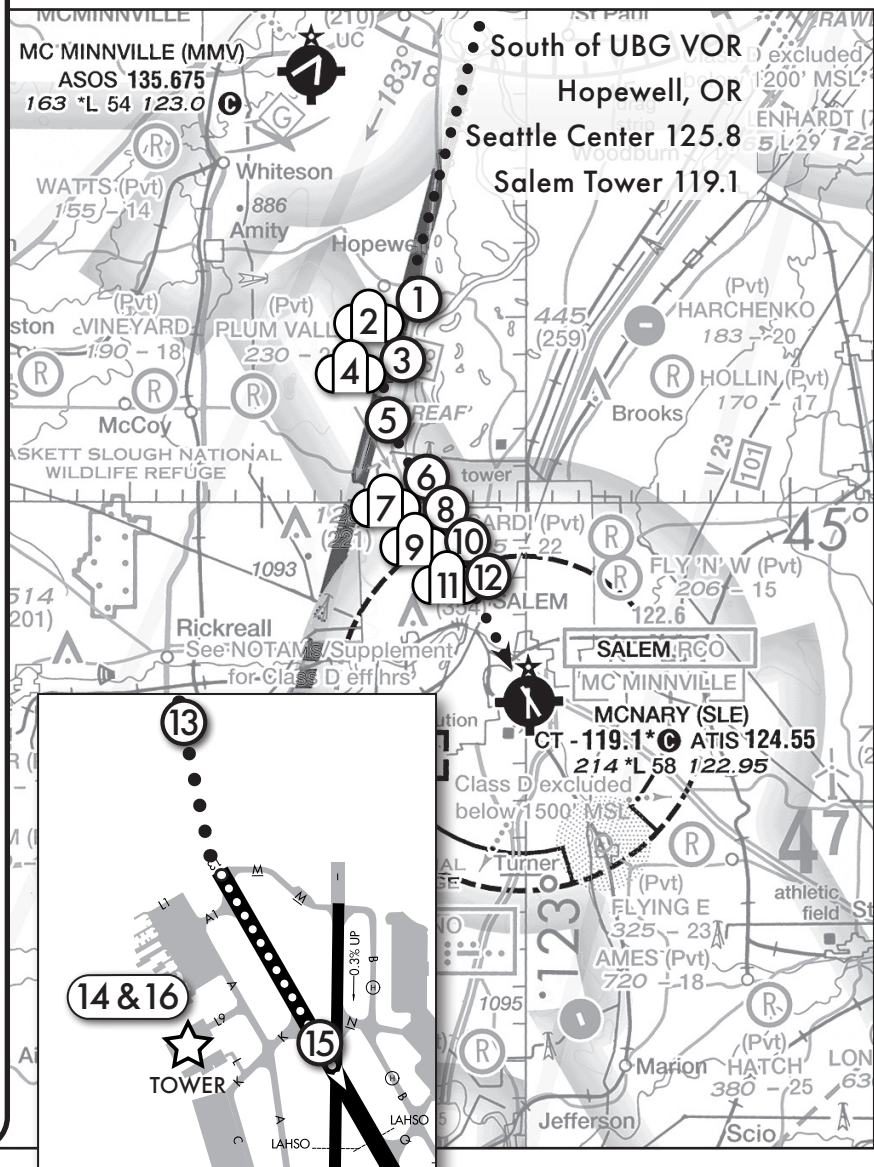
Tower 124.5

CLOSED TRAFFIC

Declare an Emergency

- ① PILOT
Seattle Center, Cessna Six Papa Whiskey, our engine is making an odd noise. It's dark out here. I have GPS but I'd rather not go heads down right now. Can you give me a vector to the nearest airport with pavement and lights?
- ② CENTER CONTROLLER
Cessna Six Papa Whiskey, roger. McMinnville is at your five o'clock, eight miles. Salem is at your eleven o'clock, ten miles. Salem Tower is still open.
- ③ PILOT
I'll take Salem. Six Papa Whiskey
- ④ CENTER CONTROLLER
Six Papa Whiskey, fly heading one four zero. Salem information Golf shows wind calm, altimeter two niner seven eight. Landing Runway One Three.
- ⑤ PILOT
One Four Zero. Six Papa Whiskey.
- ⑥ PILOT
Six Papa Whiskey. Declaring an emergency. Total engine failure.
- ⑦ CENTER CONTROLLER
Six Papa Whiskey, say intentions.
- ⑧ PILOT
I think we can glide to Salem.
- ⑨ CENTER CONTROLLER
Six Papa Whiskey. Salem last reported winds are calm. Airport twelve o'clock, six miles. If able, say people on board.
- ⑩ PILOT
One person on board. I have the airport in sight. Cessna Six Papa Whiskey.

- ⑪ CENTER CONTROLLER
Six Papa Whiskey, contact Salem Tower now, one one niner point one.
- ⑫ PILOT
One one niner point one. Thanks.
- ⑬ PILOT (on 119.1)
Salem Tower, Cessna Six Papa Whiskey. Inbound. Emergency. Engine out.
- ⑭ TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, cleared to land any runway. Emergency equipment is standing by.



After a deadstick landing on Runway 13 ...

- ⑮ PILOT
We're down and safe. Six Papa Whiskey.
- ⑯ TOWER CONTROLLER
Six Papa Whiskey, great job! You can stay right there on the runway. A tug is coming from the FBO for you.

If you ever need help in flight, don't wait for things to become an emergency. Ask now ①. You don't have to use the "e-word," either. When a controller hears from a pilot with a problem, that controller is ready for things to deteriorate. However, if you need ATC's full attention, don't be shy about saying, "emergency." (A controller can declare a situation an emergency even if the pilot doesn't. This frees up resources in the radar room or tower so the controller can focus on ensuring a good outcome.)

Declaring an emergency is easy when you're already talking to ATC, such as with flight following. If you're not talking to ATC, contact the facility that controls the airspace you're in, or just transmit on 121.5. You can say "Mayday, mayday, mayday" if you need everyone else on frequency to shut up so you can speak. If you squawk 7700 (see sidebar), ATC will tell everyone to shut up and try to contact you.

Once you make contact, state the nature of the emergency, your intentions, and any assistance you need. Don't worry about perfect phraseology. ATC will normally ask for "fuel remaining and people on board." It used to be "souls on board," but we suppose someone figured out that was kind of morbid. "Say intentions," is shorthand for "tell me what you need to do so we can make it happen." For less dramatic situations, ATC might ask if you want emergency equipment standing by.

To the FAA, there are distress situations (engine issue, fire, flight control problems), and urgent situations (low fuel, navigation problem, medical issue). "Pan-pan" replaces "Mayday" for urgent situations. In the real world, rather than worry which situation you're in, just declare the emergency and get help.

SQUAWK MAYDAY, GO ON GUARD

If you have an emergency, squawking 7700 on your transponder literally sets off alarms in every ATC control room around you. (So does 7600, see below.) By squawking 7700 you are declaring an emergency, but you can declare the emergency without squawking 7700.

All ATC facilities (including control towers) also monitor 121.5 MHz. This is the emergency frequency, also referred to as "Guard." If you just need to get in touch with someone—anyone—fast, and you're not already talking to a controller, that's a good frequency to try. Technically, all pilots should monitor Guard when practical. Few GA pilots do, but airliners always do. They may be able to relay an emergency call for you if no one else answers.

LOST COMMUNICATIONS

- ① PILOT
This space intentionally left blank.

Loss of radio communications while VFR isn't that big a deal in most situations. You simply continue to your destination without a radio and either, carefully enter the pattern and land at a non-towered airport, or look for the light gun signals at a towered airport. Common sense says you wouldn't continue to a busy towered airport without a radio if you could avoid it, and entering Class C or Class B airspace is a non-starter.

However, you can tell ATC you no longer have a functioning radio by using your transponder. The squawk code for lost communication is 7600. This is primarily for IFR use, but if your radio fails while on flight following, or if you're approaching a (sleepy) towered airport hoping for light-gun signals, squawking 7600 will get the message across.

Fly a VFR Transition Route

① PILOT
Socal Approach, Skyhawk Two Three Six Papa Whiskey, five south of Van Nuys request.

② APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Socal Approach. Go ahead with request.

③ PILOT
Approach, Skyhawk Two Three Six Papa Whiskey is five south of Van Nuys at five thousand five hundred. Request the Coastal Route southbound.

④ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, roger. Squawk six five seven three.

⑤ PILOT
Squawk six five seven three. Skyhawk Two Three Six Papa Whiskey.

⑥ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, Socal Approach. Radar contact, nine

miles south of Van Nuys. Maintain VFR at five thousand five hundred. Cleared through the Los Angeles Bravo airspace via the Coastal Route southbound. Burbank altimeter two niner seven seven.

⑦ PILOT
Maintain VFR at five thousand five hundred, cleared through the Class Bravo via the Coastal route. Skyhawk Two Three Six Papa Whiskey.

25 miles and a few handoffs to different Approach sectors later:

⑧ APPROACH CONTROLLER
Skyhawk Two Three Six Papa Whiskey, clear of the Los Angeles Bravo Airspace. Radar service terminated, squawk one two zero zero. Frequency change approved.

⑨ PILOT
Thanks for the help. Skyhawk Two Three Six Papa Whiskey.

Some Class B airspaces have published VFR transition routes. These predetermined routes are simpler compared to requesting your own transition (see page 48). They're also far more likely to be approved when you make the request.

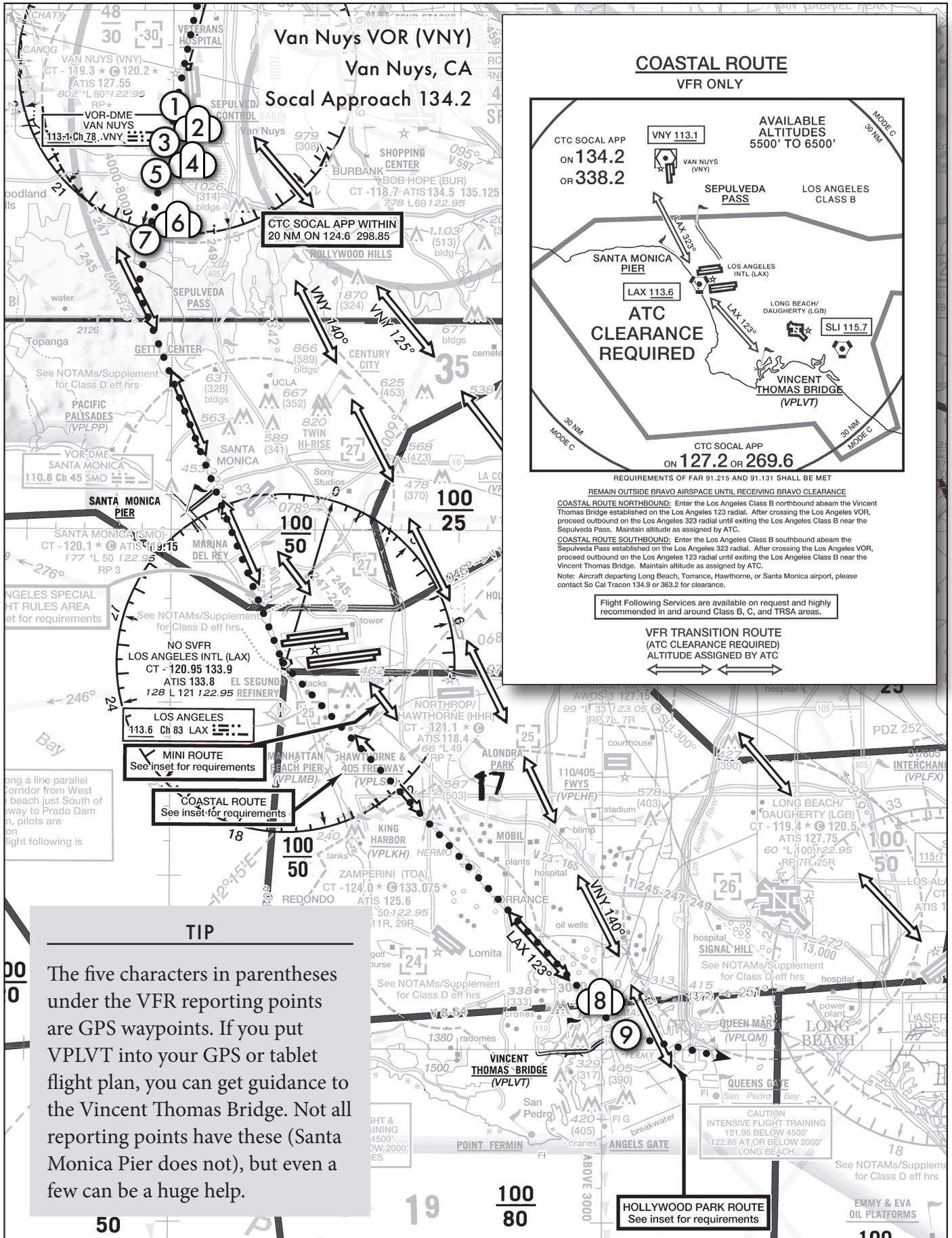
There are four such routes cutting north-south across the Los Angeles Class B airspace: The Coastal Route, the Mini Route, the Hollywood Park Route, and the Coliseum Route. Each has different entry and exit points, and different assigned altitudes. The price of admission is low: get a clearance, follow the published route, and maintain your assigned altitude. The routes are marked by magenta hollow arrows on a Terminal Area Chart (TAC). Look for the details on inset maps in the chart's margins.

The Coastal Route extends from just west of Sepulveda Pass in the north, to the Vincent Thomas

Bridge area in the south, at 5500 MSL to 6500 MSL. To fly it southbound, call Socal Approach to request the route by name. ①-③ Approach will radar identify you, then clear you into the Class B airspace ⑥. Don't enter until you're cleared to do so.

Fly the assigned (published) headings, and maintain your assigned altitude. A southbound Coastal route has you track the 323-degree radial inbound to the LAX VOR, then the 123-degree radial outbound. As you make your way down the coast, you'll get traffic advisories, and a great view of the arriving and departing jets below you.

Expect a few handoffs to successive Approach controllers in adjacent sectors, and the standard "Radar service terminated" call once you exit the Class B airspace to the south ⑧, unless you've requested flight following to your destination.



Conduct Sightseeing

- ① PILOT
Lindbergh Tower, Cessna Two Three Six Papa Whiskey, two miles north of Crystal Pier, request Coastal Transition at five hundred.
- ② LINDBERGH TOWER CONTROLLER
Cessna Two Three Six Papa Whiskey, Lindbergh Tower. Cleared through San Diego Class Bravo airspace, offshore at or below five hundred southbound. Lindbergh altimeter two niner niner seven. Report passing Ocean Beach Pier.
- ③ PILOT
Cleared through Class Bravo at or below five hundred. Report Ocean Beach Pier. Cessna Two Three Six Papa Whiskey.
- ④ PILOT
Lindbergh Tower, Cessna Two Three Six Papa Whiskey, Ocean Beach Pier.
- ⑤ LINDBERGH TOWER CONTROLLER
Cessna Six Papa Whiskey, remain at or below five hundred. Leaving San Diego Class Bravo airspace in two miles to the south. Frequency change approved. Contact North Island Tower on one three five point one.
- ⑥ PILOT
North Island Tower now on one three five point one. Cessna Six Papa Whiskey.
- ⑦ PILOT
North Island Tower, Cessna Two Three Six Papa Whiskey is one mile south of Ocean Beach Pier. Request a Bay Transition with a one-eighty at the bridge, then a Delta transition.
- ⑧ N. ISLAND TOWER CONTROLLER
Cessna Six Papa Whiskey, North Island

Tower. Bay Transition approved as requested. Report rounding Point Loma. Altimeter two niner niner seven.

- ⑨ PILOT
We'll report rounding Point Loma. Cessna Six Papa Whiskey.
- ⑩ PILOT
North Island Tower, Cessna Two Three Six Papa Whiskey is rounding Point Loma.
- ⑪ N. ISLAND TOWER CONTROLLER
Cessna Six Papa Whiskey, roger. Remain over the water and report your one-eighty at the bridge.
- ⑫ PILOT
We'll report our one-eighty at the bridge. Cessna Six Papa Whiskey.
- ⑬ PILOT
North Island Tower, Cessna Six Papa Whiskey, northbound at the bridge for a Delta Transition.
- ⑭ N. ISLAND TOWER CONTROLLER
Cessna Six Papa Whiskey, roger. Contact Lindbergh Tower. Good day.
- ⑮ PILOT
Thanks, Cessna Six Papa Whiskey.
- ⑯ PILOT
Lindbergh Tower, Cessna Two Three Six Papa Whiskey, north of Coronado Bridge, request Delta Transition, then northbound up the coast.
- ⑰ LINDBERGH TOWER CONTROLLER
Cessna Six Papa Whiskey, Lindbergh Tower. Welcome back. Cleared through San Diego Class Bravo airspace. Overfly

taxiway Delta at one thousand five hundred. Altimeter two niner niner seven.

⑱ PILOT
Cleared through the Bravo. Overfly taxiway Delta at one thousand five hundred. Cessna Six Papa Whiskey.

⑲ LINDBERGH TOWER CONTROLLER
Cessna Six Papa Whiskey, proceed direct Mission VOR.

⑳ PILOT
Direct Mission VOR. Six Papa Whiskey.

㉑ LINDBERGH TOWER CONTROLLER
Cessna Six Papa Whiskey, you're leaving San Diego Class Bravo airspace at the VOR. Frequency change approved. Have a great day.

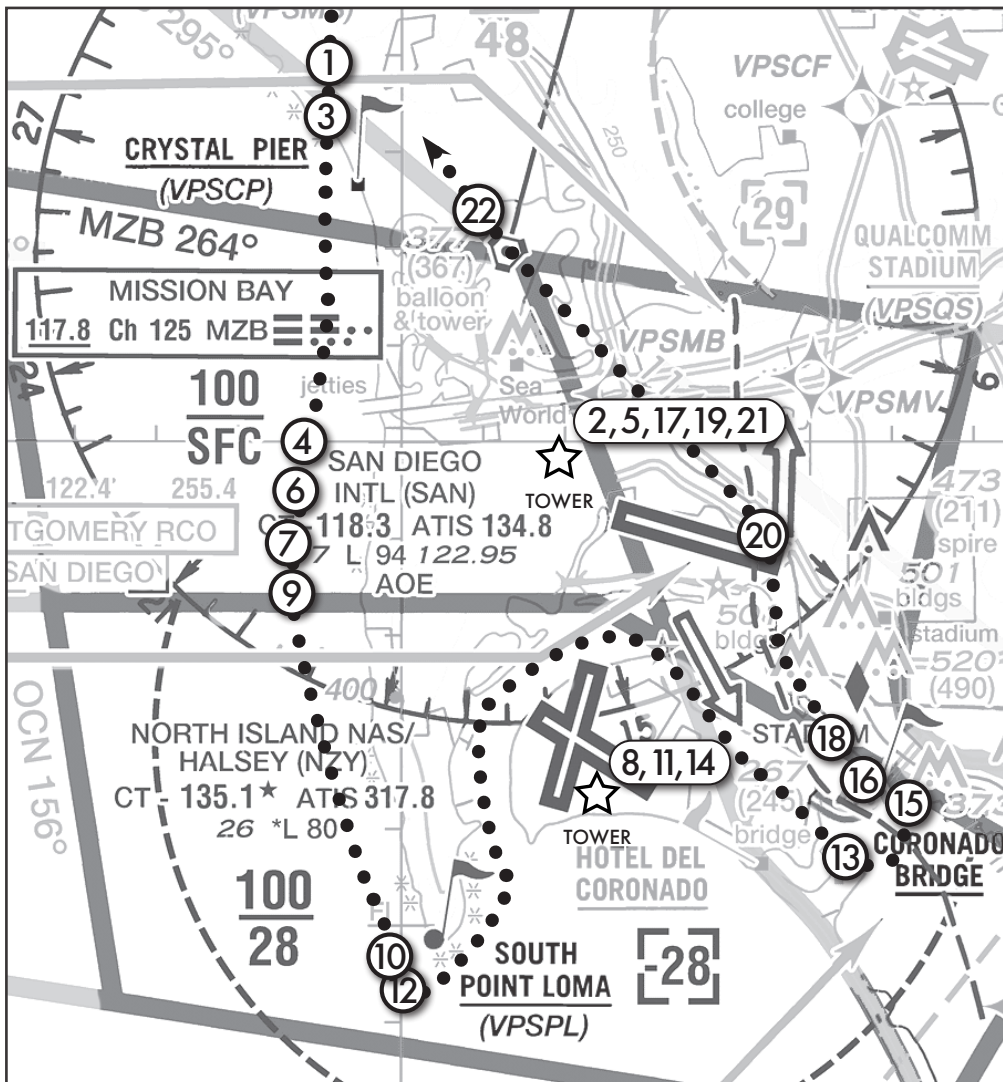
㉒ PILOT
Thanks, you too. Frequency change approved. Cessna Six Papa Whiskey.

Offshore of Mount Soledad
La Jolla, CA
Lindbergh Tower 118.3
North Island Tower 135.1

Sightseeing in an airplane is easy in uncontrolled airspace. However, some of the best sightseeing is found in busy airspace. This requires planning, especially when many of the most popular routes are unpublished.

Ask locals or search the web, and you can often find exactly what to request, and how to fly it. The "San Diego Bay Tour" is a great example. It's an offshore "Coastal Transition" of the San Diego Class B surface area, followed by a "Bay Transition" of the North Island Naval Air Station Class D airspace, followed by a "Delta Transition" over San Diego International. None of these are officially published routes, and the communications are with tower controllers, not approach controllers. But you still get a clearance through the Class B.

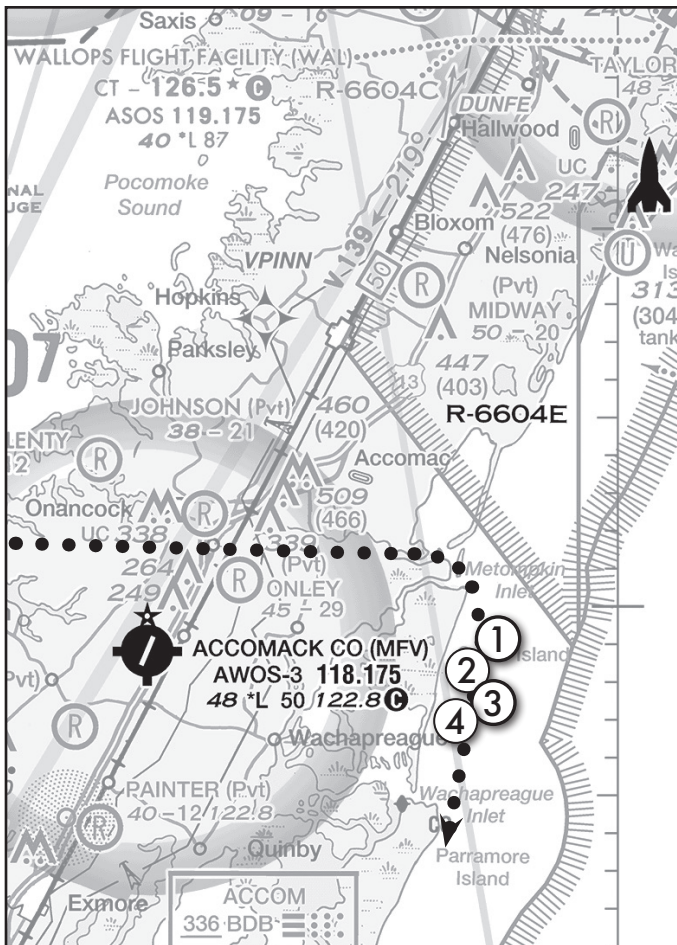
Ask locals or ATC to ensure you have the procedures and landmarks. Some, like "Ocean Beach Pier," might not be on the charts. Local intel can be handy for other things, too, such as Tower at San Diego answering to "Lindbergh Tower" rather than "San Diego Tower."



Communicate Directly with Other Aircraft

- ① PILOT
Hey Mark, how about the coastline in the background for the photos?
- ② PIPER PILOT
Oh, yeah. That's perfect.
- ③ PILOT
OK. You descend to one thousand and fly south just off the beach. We'll fly above at your seven o'clock at about twelve hundred. Jeff has a good lens.
- ④ PIPER PILOT
Wilco. Descending now.

East of Accomack County Airport (KMFV)
Wachapreague, MD
Air-to-Air 122.75



Chatting with another aircraft directly on a frequency assigned to critical communications is poor radio etiquette at best, and could lead to an aircraft incident at worst. If you hear a friend on the UNICOM or CTAF at a non-towered airport, it's acceptable to say, "Hi Bob," or something equally quick. For a longer chat, try "Bob, switch to 122.75 for a moment to talk."

The frequencies 122.75 and 122.85 are reserved for air-to-air communications (plus 123.05 just for helicopters). Whenever you want to coordinate or converse with another airplane, use one of these frequencies. Just remember that it's a party line, so everyone can hear what you're saying for possibly hundreds of miles, and it's possible you'll have to share air time with another conversation. (Some pilots also use 123.45, but that's technically for oceanic enroute communications.)

What if you hear a friend you need to contact on the ground frequency at a towered airport, or talking to the same approach controller you are? Relay the request through the controller. "Santa Fe Ground, Cessna Six Papa Whiskey, would you ask Cirrus One Three Bravo to contact me on 122.75?"

Don't get too distracted chatting with friends. Monitor the frequencies of nearby airports and know your position relative to no-fly airspaces. (That rocket icon is for NASA launches from Wallops Island.)

JUMPERS AWAY

The parachute icon (opposite) is a tipoff that skydiving happens around that airport. Parachute jumping can use a column of airspace up to 13,500 feet AGL, or higher, typically within a couple miles of the airport (more for wingsuits). At Port Allen, there's a published frequency you can monitor to hear when the jumpers are dropped. Usually, there's only an icon on the chart and your best bet is to contact the Approach or Center facility controlling that airspace. Jump planes talk to those controllers. A glider icon with a letter beside it is a heads-up for no-radio hang gliders (H), ultralights (U), unmanned aircraft (UA), or gliders (G).

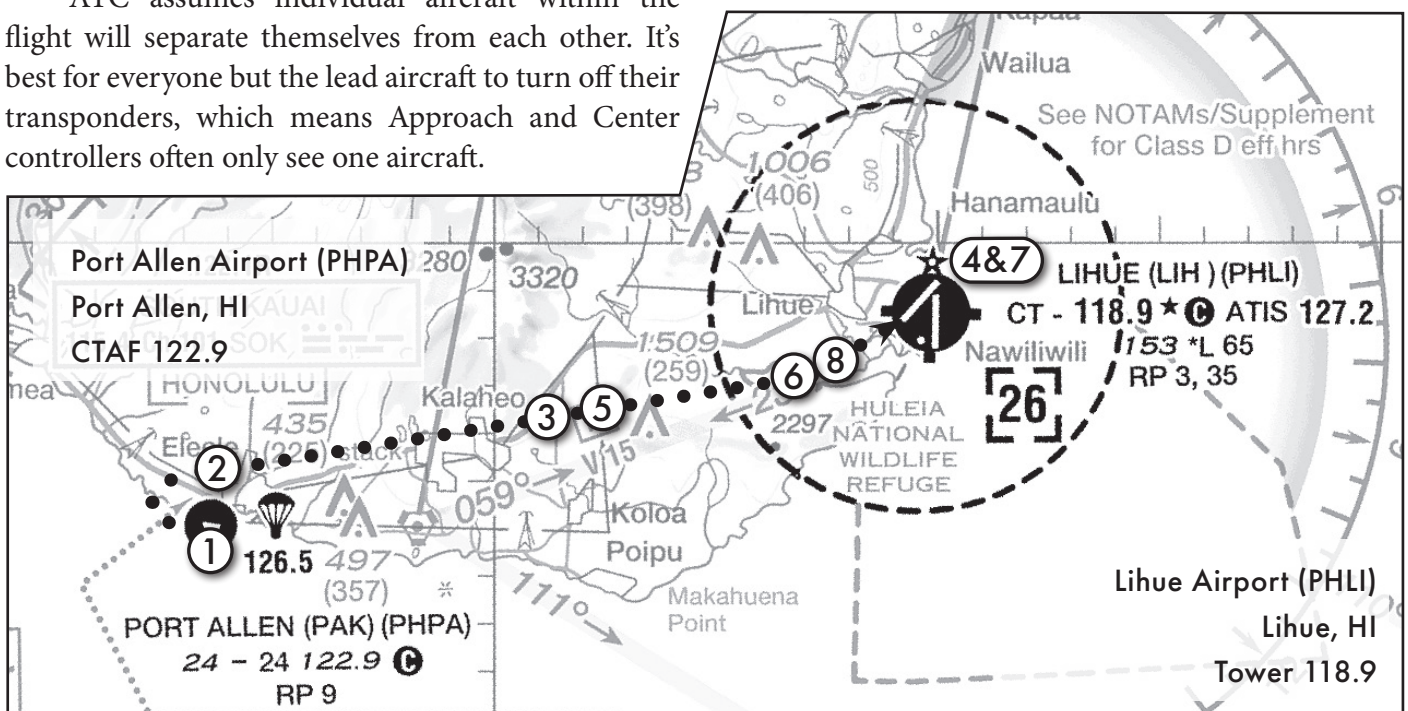
- ① LEAD SHIP PILOT
Port Allen Traffic, Cessna Six Papa Whiskey, flight of two, departing Runway Two Seven to the northeast. Port Allen.
- ② LEAD SHIP PILOT
Port Allen Traffic, Cessna Six Papa Whiskey, flight of two, leaving the pattern to the northeast. Port Allen.

Flying in formation with other aircraft poses a communication challenge: The aircraft must talk to each other, and the entire group of aircraft must talk to ATC and make traffic calls. Communication between aircraft in formation is done on the air-to-air frequencies or by hand signals.

To simplify communication between the group and ATC or non-participating aircraft, the entire formation operates as a single aircraft, with the flight leader doing all the talking. As a rule, the flight leader appends “flight of n” to the aircraft call sign (where “n” is the number of aircraft in the formation flight). Sometimes this gets shortened to simply “flight” when talking to ATC, but you should always check in as a “flight of n” with each new controller. This includes contacting Ground to taxi as a flight.

ATC assumes individual aircraft within the flight will separate themselves from each other. It’s best for everyone but the lead aircraft to turn off their transponders, which means Approach and Center controllers often only see one aircraft.

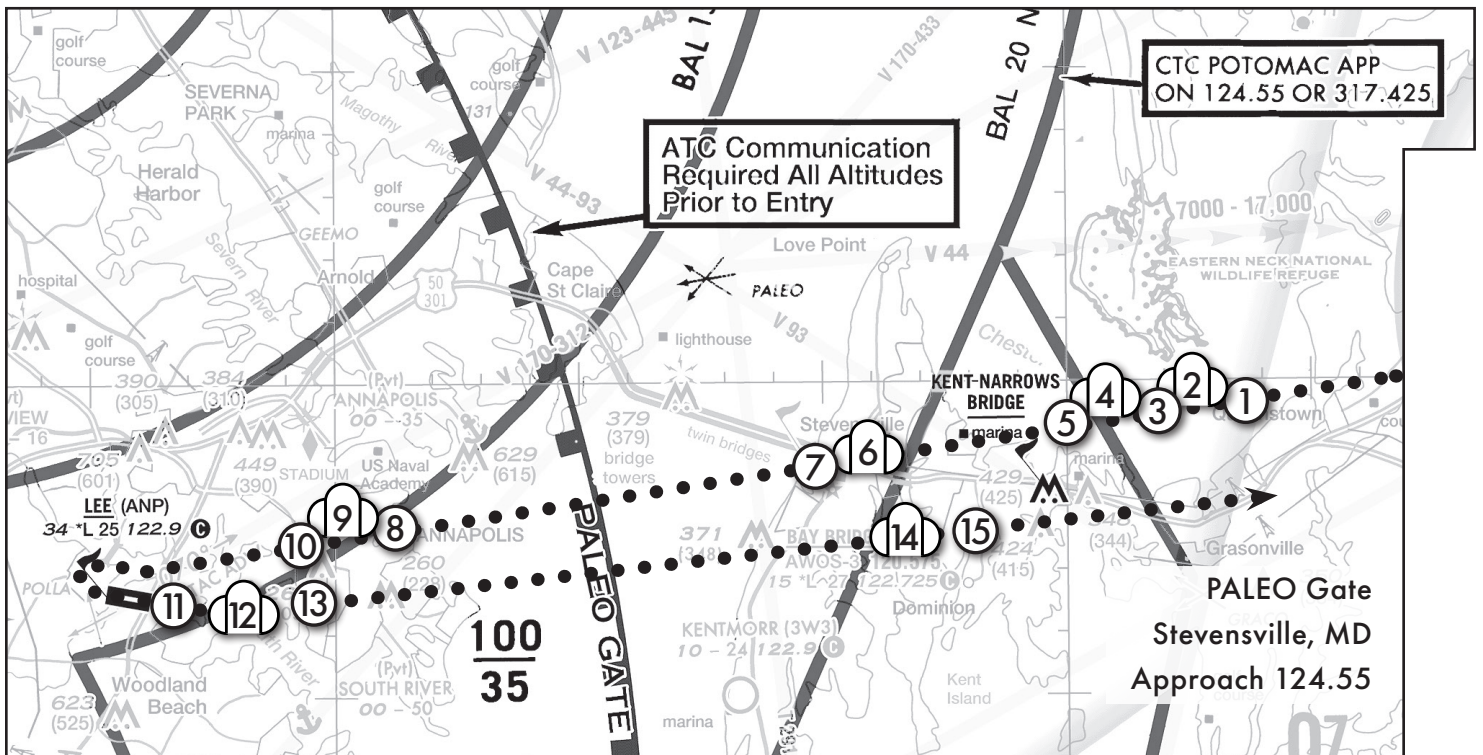
- ③ LEAD SHIP PILOT
Lihue Tower, Cessna Two Three Six Papa Whiskey, flight of two, ten southwest with Foxtrot for landing.
- ④ TOWER CONTROLLER
Flight Six Papa Whiskey, Lihue Tower. Make straight-in Runway Three, report three-mile final.
- ⑤ LEAD SHIP PILOT
Straight-in Runway Three. We’ll report a three-mile final. Flight Six Papa Whiskey.
- ⑥ LEAD SHIP PILOT
Lihue Tower, Flight Six Papa Whiskey, three mile final.
- ⑦ TOWER CONTROLLER
Flight Six Papa Whiskey, Lihue Tower. Runway Three, cleared to land.
- ⑧ LEAD SHIP PILOT
Runway Three, cleared to land. Flight Six Papa Whiskey.



Land within a Special Flight Rules Area ...

- ① PILOT
Potomac Approach, Cessna Two Three Six Papa Whiskey. Kent Narrows Bridge. Request.
- ② APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, Potomac Approach. Go ahead.
- ③ PILOT
Cessna Two Three Six Papa Whiskey, approaching Kent Narrows Bridge at three thousand for a Paleo entry to Lee Airport.
- ④ APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, squawk four six two one. Remain outside the SFRA.
- ⑤ PILOT
Squawk four six two one. Remain outside the SFRA. Cessna Two Three Six Papa Whiskey.

- ⑥ APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, your transponder is observed. Remain clear of the Bravo. Proceed on course. Baltimore altimeter three zero zero eight.
- ⑦ PILOT
Remain clear of the Bravo, proceed on course, altimeter three zero zero eight. Cessna Two Three Six Papa Whiskey.
- ⑧ PILOT
Potomac Approach, Cessna Two Three Six Papa Whiskey, Lee Airport in sight.
- ⑨ APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, Potomac Approach. Remain on your assigned squawk until after landing, change to advisory frequency approved.
- ⑩ PILOT
Frequency change approved. Thanks. Cessna Two Three Six Papa Whiskey.



... or Depart from within a Special Flight Rules Area

Special Flight Rules Areas (SFRAs, and pronounced “Sif-ruh”) are sections of airspace with bonus rules. Some SFRAs create exceptions or exclusions to existing airspace. The Los Angeles SFRA allows pilots to transit the KLAX Class B surface area without talking to ATC. The Hudson River SFRA enables special procedures for flight around Manhattan over the Hudson and East Rivers.

Other SFRAs are more ... restrictive. The Washington, D.C. SFRA establishes a no-fly zone over the seat of the U.S. government (called the Flight Restricted Zone), and a wider area where VFR operations must file a special Washington SFRA flight plan, follow the flight plan, fly the filed altitude, obtain a discrete transponder code, and maintain communications with ATC at all times while in the SFRA.

Step one for the D.C. SFRA is taking a required online course to learn the procedures. Once that’s done, you’ll know how to file the flight plan.

After that, the communications aren’t difficult, but they must be followed correctly. It’s similar to getting a clearance through a Class B—however, a SFRA clearance is not clearance into the Class B. Contact Approach near one of the entry/exit gates ①. They already have your SFRA flight plan on file, so they’re expecting you and know your route. They just need to give you a squawk code ④ and observe that your transponder is transmitting it ⑥.

Report the airport in sight ⑧ and change frequencies only once cleared to do so. Keep the assigned squawk code until after landing.

Departing from a non-towered airport inside the SFRA requires getting your squawk code by phone before departure. Depart the airport using normal self-announce CTAF procedures (see page 28), but, as the NOTAM says, “establish two-way communications as soon as feasible, normally within 2 NM of the departure point.” Approach will observe your squawk code, and monitor you as you clear the area. Again, this is not a clearance into the Class B, however, you could separately request clearance into the Class B, or flight following to your destination, as you would with any Approach controller.

Failure to follow the procedures can prompt a close encounter with military intercept aircraft and armed individuals asking uncomfortable questions

A few hours later, after landing, eating lunch, filing a new SFRA flight plan, making a phone call to get the squawk code, and making all the CTAF traffic calls for departing:

- ⑪ PILOT
Potomac Approach, Cessna Two Three Six Papa Whiskey is off Lee Annapolis at one thousand.
- ⑫ APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, your transponder is observed. Proceed on course below the Bravo. Baltimore altimeter three zero zero seven.
- ⑬ PILOT
Remain clear of the Bravo. Cessna Two Three Six Papa Whiskey.
- ⑭ APPROACH CONTROLLER
Cessna Two Three Six Papa Whiskey, you’re leaving the SFRA at this time to the east. Squawk VFR, frequency change approved.
- ⑮ PILOT
Squawk VFR, frequency change approved. Cessna Two Three Six Papa Whiskey.

after you land. There are different procedures for flying to/from a towered airport inside the SFRA, flying closed traffic, and flying to/from “fringe” airports. Take the online course and you’ll know it all. The course is available for free at www.faasafety.gov.

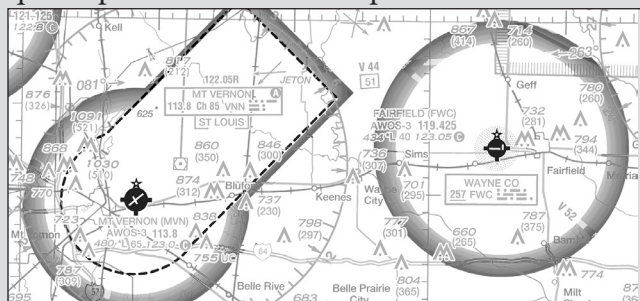
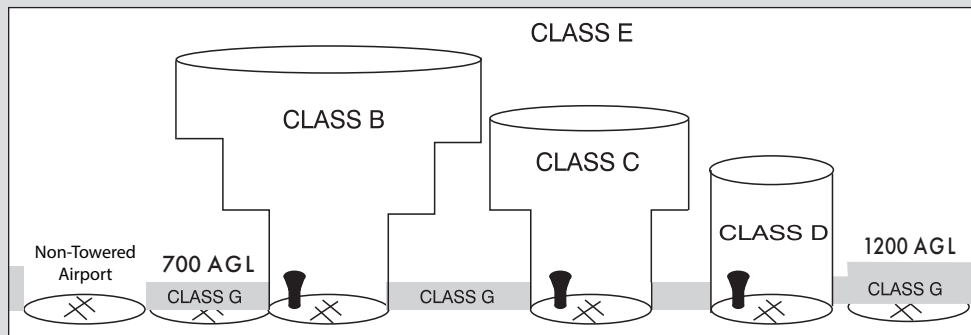
TIP

Before you even fly within 60 NM of the DCA VOR (basically equivalent to within 60 NM of Washington D.C.), you’re required to complete the online course.

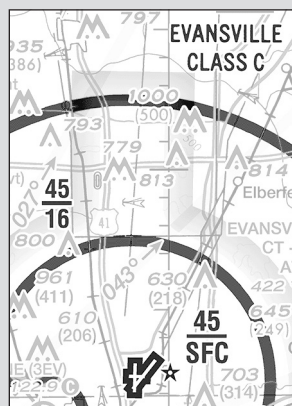
AIRSPACE REVIEW

Sectional excerpts show airspaces top-down, but it's worth a quick review looking from the side using your favorite diagram from the AIM. The key for communications is understanding who you talk to, when, and where. Here are a few essential items. See the FAA's Chart Users Guide to decode all a chart's secrets.

Most non-towered airports have Class G airspace from the surface to 700 feet AGL. That's "uncontrolled," meaning ATC exerts no influence in here. The airspace is marked by a magenta border, feathered on the side where controlled airspace begins at 700 AGL and sharp where controlled airspace begins at 1200 AGL. Occasionally, controlled airspace starts at the surface, and is marked by a magenta dashed line. This means you can request Special VFR to this airport.



For Class D, the blue dashed line shows the lateral limits, and the two-digit number in the square is the top of the cylinder in hundreds of feet MSL, so "29" is 2900 feet MSL. A minus sign means "not including" so "-29" means the airspace top is 2899 feet MSL.



Class B, Class C, and TRSA airspace, show lateral limits, plus top and bottom altitudes. The 45/16 means the top of the Class C is 4500 feet MSL and the floor is 1600 feet MSL. The 45/SFC means Class C from 4500 feet to the surface.

RADIO TIPS AND TRICKS

Yeah, yeah. You know how to use a radio, but there are a couple of useful tips and tricks that sometimes get skipped in flight training.

Tuning frequencies ending in .07. On some radios, you need to pull out a knob that's usually labeled "25kHz" or similar. With that knob out, the frequencies increase half as quickly, but you access twice as many: 122.075 ... 122.100 ... 122.1025, etc.

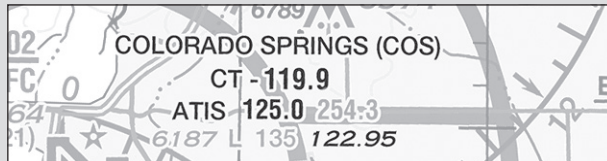
Monitoring the standby frequency. Some radios (GTN 650/750, IFD540/440, SL30, GX60, and

others) let you monitor both the active and the standby frequency at the same time. The standby automatically mutes when there's a transmission on the active. It's perfect for listening to an ATIS/ASOS/AWOS without the frustration of listening to two radios at once using the audio panel.

Quick tune of 121.5. On some radios, holding down a button will automatically make the emergency frequency of 121.5 active. Check your manual; it could be a life-saver.

SECTIONAL CHART DATA BLOCKS

Critical radio frequencies you might need in the air appear on the Sectional Chart in the airport data block. For towered airports, this includes the tower frequency, marked by a preceding “CT,” a labeled ATIS or AWOS/ASOS frequency, and the Unicom frequency in italics.

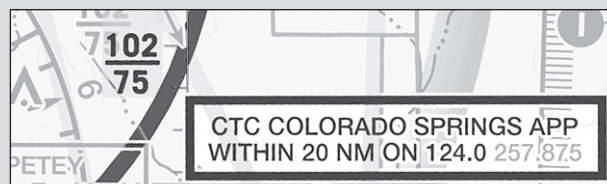


Non-towered airport data shows an ASOS/ AWOS frequency, if there’s a station on the field with transmitting capability, and the Unicom/ Multicom frequency in italics. An inverse “C” after a frequency means it’s the CTAF, which is often shared with Unicom.



At airports with part-time towers, the inverse C usually appears after the tower frequency, meaning the CTAF shares the tower frequency rather than Unicom.

A data block at the periphery of Class B, Class C, and TRSA airspace shows the frequency to call when approaching from that direction.



Remote radio stations co-located with VORs appear above the VOR name. RCOs are similar.

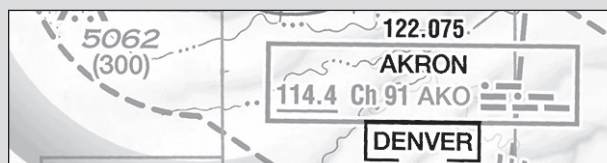
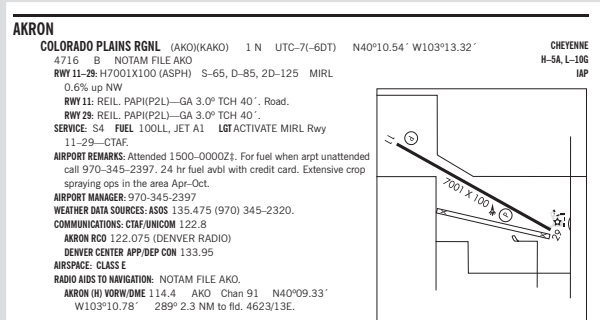


CHART SUPPLEMENT COMM DATA

The Chart Supplement (formerly the Airport/ Facility Directory, or A/FD) is one of the best places to find radio information for airports.



AIRPORT REMARKS: Attended 1500-0000Z. For fuel call 970-345-2397. 24 hr fuel avbl with credit card. Extensive crop spraying ops in the area Apr-Oct.
AIRPORT MANAGER: 970-345-2397
WEATHER DATA SOURCES: ASOS 135.475 (970) 345-2320
COMMUNICATIONS: CTAF/UNICOM 122.8
AKRON RCO 122.075 (DENVER RADIO)
DENVER CENTER APP/DEP CON 133.95
AIRSPACE: CLASS E

Weather Data Sources shows any ATIS/ AWOS/ASOS, including a phone number to call and listen, if available. Communications includes all the airport frequencies, plus the best contact frequencies for Approach or Center controllers, and Flight Service via an RCO, if available. It’s also worth reading the Airport Remarks, which will mention any frequencies for pilot-controlled lighting.

For more complex, towered airports, this list can get quite long. The Chart Supplement entry has the added benefit of telling you how to address ATC, such as “Springs Tower,” for “City of Colorado Springs Municipal Airport.”

AIRPORT MANAGER: (719) 550-1910
WEATHER DATA SOURCES: ASOS (719) 637-9696 LL
COMMUNICATIONS: ATIS 125.0 719-596-7040 UN
BLACK FOREST RCO 122.25 (DENVER RADIO)
SPRINGS APP CON 120.6 124.0
SPRINGS TOWER 119.9 133.15 **GND CON** 121.7
SPRINGS DEP CON 124.0

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