Capt. Midnight's Introduction to Talking on the Radio

(at Santa Monica Airport and in the ATC System)

By Richard Praser, CFI

INTRODUCTION:

One of the most difficult and challenging topics that will be thrown at you in your pilot training is talking on the radio. Communication is one of the major things that separates Southern California from the rest of the country when it comes to earning your pilot's license. It's one added thing that we throw at you that you have to deal with that divides your attention from concentrating on controlling the aircraft. On the flip side, when you master radio communication, you will be able to fly anywhere in the continental United States without having to worry. Whereas someone who learned to fly in Smallville, North Dakota would feel overwhelmed if tossed into the fishbowl that is Southern California.

The air traffic controllers here in Southern California are very unforgiving towards General Aviation aircraft due to the workload that they are subjected to dealing with the airliners and may at times seem to be short and unfriendly. This is not the case, they are just stressed out and their job is to support all of the aircraft within their zone of influence. If, for instance, you are asking for flight following and they are unable to help you due to the workload they are facing, they will tell you. Do not let the overwhelming idea of talking on the radio detract you from flying in Southern California. With proper study and command of the language of aviation you too will be able to communicate like a 30,000 hour jet pilot.

There are couple things to remember:

1.) The air traffic control system is there for you to use (you pay your taxes, hopefully) and using it is an added form of safety while traveling in the air.
2.) If you don't understand what the controller is saying ask him to clarify.
3.) If he is talking too fast ask him to please slow down. (i.e. "Please repeat instructions for *[insert your tail # here]*")
4.) The controller is "flying" a workstation that is stationary, his priority is communication. You are flying an aircraft going over 100 miles an hour which won't exactly stop on a dime. Your priority is to Aviate – Navigate – then Communicate. Fly the plane first, don't let the communication distract you from the operation of the aircraft.
5.) The two most important words in the English language are "Student Pilot" – say this at the end of a communication to alert the controller that you are new and might need additional help.

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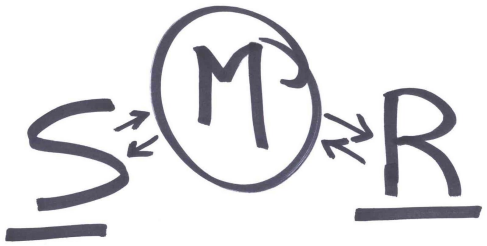
Here's a selections from the AIM that breaks down the idea of radio communication succinctly:

"Radio communications are a critical link in the ATC system. The link can be a strong bond between pilot and controller or it can be broken with surprising speed and disastrous results.

The single, most important thought in pilot-controller communications is understanding. It is essential, therefore, that pilots acknowledge each radio communication with ATC by using the appropriate aircraft call sign. Brevity is important, and contacts should be kept as brief as possible, but controllers must know what you want to do before they can properly carry out their control duties. And you, the pilot, must know exactly what the controller wants you to do. Since concise phraseology may not always be adequate, use whatever words are necessary to get your message across. Pilots are to maintain vigilance in monitoring air traffic control radio communications frequencies for potential traffic conflicts with their aircraft especially when operating on an active runway and/or when conducting a final approach to landing."

On a final note, remember – there is only communication when both the sender and the receiver understand the message. You need to be able to understand and comply with the ATC instructions. Don't feel bad if you have to ask for clarification or if you must identify yourself as a student pilot to get that little bit of extra help.



The Sender / Receiver Model - Communication takes place when the Sender and the Receiver both understand the message. The model flows in both directions.

BASIC RADIO TECHNIQUE

(or: How Everyone Within 200 Miles Heard Me Talk Dirty to My Significant Other)

Here I am going to describe the technique of initiating basic communications and the procedures to follow to comply, and respond. We are going to cover listening to the ATIS, your initial call to Ground Control, and communicating with the Tower for Takeoff and Landing.

Before you do anything let's talk about the basic principles of communication:

Listen First and Think About What You Are Going To Say

That's the big thing – Listen and Think. With listening comes understanding and thinking about your response is a given.

Let's jump back to the AIM and its description of proper "Radio Technique" –

1.) Listen before you transmit. Many times you can get the information you want through ATIS or by monitoring the frequency. Except for a few situations where some frequency overlap occurs, if you hear someone else talking, the keying of your transmitter will be futile and you will probably jam their receivers causing them to

repeat their call. If you have just changed frequencies, pause, listen, and make sure the frequency is clear.

2.) Think before keying your transmitter. Know what you want to say and if it is lengthy; e.g., a flight plan or IFR position report, jot it down.
3.) The microphone should be very close to your lips and after pressing the mike button, a slight pause may be necessary to be sure the first word is transmitted. Speak in a normal, conversational tone.
4.) When you release the button, wait a few seconds before calling again. The controller or FSS specialist may be jotting down your number, looking for your flight plan, transmitting on a different frequency, or selecting the transmitter for your frequency.
5.) Be alert to the sounds *or the lack of sounds* in your receiver. Check your volume, recheck your frequency, and *make sure that your microphone is not stuck* in the transmit position. Frequency blockage can, and has, occurred for extended periods of time due to unintentional transmitter operation. This type of interference is commonly referred to as a "stuck mike," and controllers may refer to it in this manner when attempting to assign an alternate frequency. If the assigned frequency is completely blocked by this type of interference, use the procedures described for en route IFR radio frequency outage to establish or reestablish communications with ATC.
6.) Be sure that you are within the performance range of your radio equipment and the ground station equipment. Remote radio sites do not always transmit and receive on all of a facility's available frequencies, particularly with regard to VOR sites where you can hear but not reach a ground station's receiver. Remember that higher altitudes increase the range of VHF "line of sight" communications.

All in all this is good advice.

99% of the time if you think that your radio doesn't work it is because of a bad frequency, the volume is down, you talked over someone else and the controller didn't hear your transmission, the mic being too far away from your lips or that you didn't talk loud enough, or you are too far away for a good transmission.

Ok, now that you know the basics about how to talk, let's listen…

ATIS:

Your first introduction to radio communications will be listening to the ATIS. ATIS stands for Airport Terminal Information Service.

The ATIS broadcasts are used by airports to notify arriving and departing pilots of the current surface weather conditions, landing and departing runways, runway and taxiway conditions, communication frequencies and other information of importance to arriving and departing aircraft.

The broadcasts are updated as weather and runway conditions change. The broadcast will change at the top of each hour even if no changes have occurred. If there is a drastic change in conditions, the controllers at the airport will also change the ATIS.

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Each broadcast is identified by a sequential letter of the alphabet and referred to using the phonetic alphabet pronunciation of that letter. *(see: Phonetic Alphabet Section)*

ATIS broadcasts originate from most major airports. The frequency can be found on any aeronautical chart next to the symbol for the airport. If an ATIS exists, the frequency will be shown next to the letters "ATIS".

From the Aeronautical Information Manual (AIM), ATIS is defined as:

"The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information."

Basically, it frees up the Air Traffic Controllers time from repeating the same information over and over again both tying up the Controller and the frequency they are transmitting on. It allows for more operations at a given airport and ensures that you as the pilot have listened to and noted the most current information about the airport conditions.

Here is an example of what the ATIS is going to sound like: (on 119.15 @ KSMO)

"Santa Monica Airport Information India,
1755 (one-seven-five-five) Zulu
Wind 250 (two-five-zero) at 15 (one-five)kts. gusts 19 (one-nine)
Visibility 6 (six), haze
Sky Condition 2,600 (two-thousand six hundred) ft. broken, 3,500 (three thousand five hundred) overcast
Temperature 11 (one-one)
Dewpoint 10 (one-zero)
Altimeter 3010 (three-zero-one-zero)
Visual, VOR/GPS Alpha approach in use
Landing and Departing Runway 21 (two-one)
All aircraft utilizing the south east run up area notify ground control prior to leaving it.
All turbo-prop jet departing IFR notify ground control prior to your engine start for coordination.
An initial contact, advise information India."

Here's how everything breaks down to the VFR Pilot: (what you need to know)

Topic	Example
ATIS information identifier letter	Information I (INDIA)
Time of Report	1755 ZULU (-8 HRS to LCL PST, -7 PDT)
Wind Direction/Speed	260 Degrees at 15 Knots gusting to 19 Knots
Visibility	6 Statute Miles, Haze

Ceiling	2,600 Feet A.G.L. Scattered, 3,500 Overcast
Temperature	11 Degrees Celsius
Dew Point	10 Degrees Celsius
Altimeter	30.10 Inches of Mercury
Instrument Approach and Runways in use	Landing and Departing Runway 21
Notices to Airmen Taxiway/runway closures, lights, etc.	All aircraft utilizing the south east run up area notify ground control prior to leaving it.

Here's the shorthand for writing it down:

"I"
1755Z
260/15 G19
6MI HZ
2600 SCT 3500 BKN
T11 / D10
A3010
L/D 21
CALL GND B4 LEAVING RUN UP AREA

You must always note: The Identification Letter, Time, Wind Direction and Speed, Visibility, Weather Info., Temperature, Dewpoint, Altimeter, Landing and Departing Runway, and finally any special information about the airport that you are going to need to know.

Prior to your 1st communication with the controller either to Taxi or on Approach you must listen to and write down the ATIS information.

Ground Control:

The first radio call that you are going to make prior to taxiing to the run up area will be a call to ground control asking for permission to taxi.

Ok, you know from reading the earlier section on the basic principles that you dial up the correct frequency, listen to it, verify the volume of the radio, press and hold the button, keep the microphone close to your lips, and talk.

Now, what are you going to say?

When you make each and every initial call to anyone in the air traffic control system you are always going to give the same information in the same order.

a.) Who you are calling. (The name of the facility)

b.) Your Aircraft Identification. (Cessna One-Niner-Eight-Niner-Six)
c.) Where you are. (A location or position)
d.) Your Request. (What you would like to do)
e.) And finally, any other info the facility needs to know, like the ATIS code you've listened to.

So, when making your initial call to ground control it will sound like this:

"Santa Monica Ground	- Who you are calling
Cessna One-Niner-Eight-Niner-Six,	- Your Aircraft Identification
in front of Santa Monica Aviation,	- Your Location
taxi to the run-up area	- Your Request
with information India."	- Other Information

The only thing that will change in this communication from time to time is the ATIS information letter.

A.) Your Clearance:

At this point the controller working the ground controller position will issue you your clearance. He will use the same phraseology and terminology as you except he will reverse the order. His communication will sound something like this:

"Cessna one-niner-eight-niner-six, Santa Monica Ground, Taxi to Runway 21 run-up area, follow the twin passing left to right."

The essential parts of this communication are: Taxi to Runway 21 run-up area.

Important information (and instructions that you must comply with) are: follow the twin passing from left to right.

B.) Acknowledgement of the communication:

You must acknowledge all the essential information of the clearances unless the controller specifically states otherwise.

The way that you do this is to repeat the essential information and if time permits a shortened version of the important information. When it comes to the important information, you need to make a judgment call based on your experience as to what needs to be repeated and what is just informative.

This is something that you will learn with practice.

A good rule of thumb is to think to yourself, "is this something that could compromise safety?" If the answer is yes, then shorten it and repeat it to let the controller know that you have received and understood the message.

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So, here's how you acknowledge the communication:

"Taxi to Runway 21 run-up area, follow the twin, Cessna one-niner-eight-niner-six."

You will always:

a.) Repeat the essential information
b.) Repeat the important information (if time/safety permits)
c.) Say your Aircraft Identification Number at the end

Finally, after acknowledging the communication, it's time to comply. While you are taxing to the run-up area make sure that you don't hit anyone.

The Tower:

You will talk to the Tower in two separate instances in the early part of your training. First, when you get your clearance to depart and second, when you get your clearance to enter the airspace and land.

Santa Monica Tower is located on frequency 120.9. When you switch over to the frequency make sure that it is dialed into the stand-by position on the radio. After switching frequencies, make sure that you listen for a few moments to ensure that you are not stepping on anyone else's transmission.

Again, when you make each call you are going to give the same information in the same order.

a.) Who you are calling. (The name of the facility)
b.) Your Aircraft Identification. (Cessna One-Niner-Eight-Niner-Six)
c.) Where you are. (A location or position)
d.) Your Request. (What you would like to do)
e.) And finally, any other info the facility needs to know, like the ATIS code you've listened to or your direction of flight.

A.) Initial Call to The Tower:

So, when making your initial call to the Tower on the ground it will sound like this:

"Santa Monica Tower	- Who you are calling
Cessna one-niner-eight-niner-six,	- Your Aircraft Identification
holding short of runway two-one,	- Your Location
ready for departure	- Your Request
right turn shoreline departure."	- Other Information

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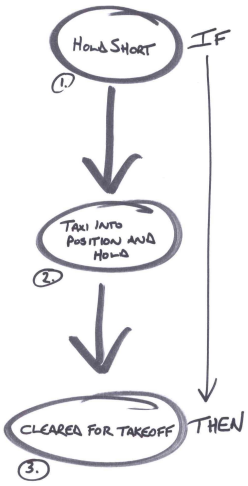
The only thing that will change in this communication is the type of departure. If you are staying in the pattern, you let the Tower know that you would like to stay in the traffic patter.

Again, you must acknowledge all the essential information of the clearances . (Are you starting to notice the pattern?)

The controller working the Tower will issue you your clearance. He will tell you one of three things.

1.) Hold short of the runway.
2.) Taxi into position and hold.
3.) Cleared for Takeoff. (or Departure)



A little bit on this: Each of these instructions are independent of each other but you must imagine them in a flow chart.

When you are cleared for takeoff, you are automatically cleared onto the runway environment. So, you can do #3 by bypassing #'s 1 and 2, but if you are told to taxi into position and hold, you will still need to talk to the tower and be cleared for takeoff. Get it?

Usually the Tower will tell you to taxi into position and hold while another plane is still on the runway, as soon as he is clear, the tower will clear you to takeoff.

If you are told to hold short, you must stay on the other side of the hold short lines and wait till the controller clears you on to the runway environment. This is very important to remember. Stay at least 5-15 feet short of these lines.

His communication will sound something like this:

- "Cessna one-niner-eight-niner-six, Santa Monica Tower, hold short of Runway two-one."
- "Cessna one-niner-eight-niner-six, Santa Monica Tower, taxi into position and hold."
- "Cessna one-niner-eight-niner-six, Santa Monica Tower, cleared for departure, right turn shoreline approved."

The essential parts of this communication is: either to Hold Short, Taxi into Position and Hold, or that you are Cleared for Takeoff.

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So, here's how you acknowledge the communication:

- "Holding short two-one, Cessna one-niner-eight-niner-six."
- "Taxi into position and hold, Cessna one-niner-eight-niner-six."
- "Cleared for Takeoff, right turn shoreline, Cessna one-niner-eight-niner-six."

Again, you will always: (When acknowledging a communication)

a.) Repeat the essential information
b.) Repeat the important information (if time/safety permits)
c.) Say your Aircraft Identification Number at the end

So, after acknowledging the communication, it's time to comply. It's very important that you understand what the Tower instructed you to do and to comply with those instructions. In other words, don't go enter the runway environment unless you have been instructed to. It's very dangerous to both you and your aircraft and to anyone who might be on final approach if you enter the runway environment without a clearance.

B.) Returning to the Airport

The 2nd time that you would talk to the Tower is your initial communication returning to the field. You will make this call when you are about 8-10 miles away from the field.

You follow the standard procedure for communicating:

a.) First, listen to the ATIS at least 15 miles away from the airport. Note all of the ATIS information on a scrap of paper, noting the identification letter.
b.) Tune the Tower frequency in and listen. Make sure no one else in on the frequency.
c.) When you can break in and you are about 8 miles away from the airfield, you make the call.

Your call will sound something like this:

"Santa Monica Tower	- Who you are calling
Cessna One-Niner-Eight-Niner-Six,	- Your Aircraft Identification
is over Pacific Palisades,	- Your Location
inbound for landing	- Your Request
with information India."	- Other Information

The Tower will acknowledge the communication.

"Cessna one-niner-eight-niner-six, Santa Monica Tower, make right traffic and report a-beam the Tower."

You will read back:

"Right traffic, report a-beam, Cessna one-niner-eight-niner-six."

What the Tower is telling you is that you are cleared to approach the airport and enter the traffic pattern. (That's another lesson for later on) You are to fly a right traffic pattern. (basically you right turns in the traffic pattern) He wants you to give him a call on the radio when you are a-beam the Tower – which is in the middle of the field.

Once you comply and you are a-beam the Tower you call him and report.

"Santa Monica Tower, Cessna one-niner-eight-niner-six, downwind abeam."

At this point he can give you many different instructions. If he clears you to land, then repeat the call as you have been doing and land. Otherwise follow the instructions per the instructions from the tower.

We will cover all of the other calls that you make while in the traffic pattern in a later lesson along with non-towered airport communication. For now, you are qualified to talk on the radio to Ground Control and the Tower to depart and arrive.

THE PHONETIC ALPHABET:

The Phonetic Alphabet is used to spell letters in place of just saying the letter itself. By using a word for each letter there is less chance that the person listening will confuse letters. For instance, some letters that can easily be confused are "b" and "e". Say "b" out loud… ok. Now say "e" out loud. See how close they are? The phonetic alphabet is used commonly in aviation radio communications.

Here's the alphabet:

Letter	Pronunciation	Letter	Pronunciation
A	Alpha (AL fah)	N	November (no VEM ber)
B	Bravo (BRAH VOH)	O	Oscar (OSS cah)
C	Charlie (CHAR lee)	P	Papa (pah PAH)
D	Delta (DELL tah)	Q	Quebec (keh BECK)
E	Echo (ECK oh)	R	Romeo (ROW me oh)
F	Foxtrot (FOKS trot)	S	Sierra (see AIR rah)
G	Golf (GOLF)	T	Tango (TANG go)
H	Hotel (hoh TELL)	U	Uniform (YOU nee form)
I	India (IN dee ah)	V	Victor (VIK tah)

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J	Juliet (JEW lee ETT)	W	Whiskey (WISS key)
K	Kilo (KEY loh)	X	X Ray (ECKS RAY)
L	Lima (LEE mah)	Y	Yankee (YANG key)
M	Mike (MIKE)	Z	Zulu (ZOO loo)

Note: The syllables printed in capital letters are to be stressed.

This is also true for numbers as well – here is a listing of the phonetic numbers:

Numeral	Pronounced
0	Zeero
1	Wun
2	Too
3	Tree
4	Fower
5	Fife
6	Siks
7	Seven
8	Ate
9	Niner

If a decimal point is included in the number, say: DAY-SEE-MAL. (The word decimal rather than point.

As a pilot you will be required to memorize the phonetic alphabet. The good news is that if you say "apple" rather than "alpha" most likely the controller will know what you are talking about, but it's always good to know the proper way.

CONCLUSION:

By listening to aviation radio communications and practicing making and replying to the calls will improve your radio communication skills. After some time talking on the radio you too will be able to communicate like a Jet Airliner Captain.

The key to good radio communications is: Practice.

Remember:

- Listen, Think, then Talk.

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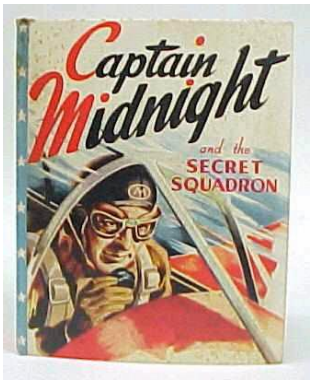
- Listen to the reply, think, repeat back the instructions.
- Then comply.

There is no magic pill that you can take to make you a whiz on the radio, but throughout the training process you will learn the language and terminology of aviation and be able to apply it to all of the situations that might come up where you have to talk on the radio.

In future lessons we will talk about the technique of talking to the different air traffic controllers in the Southern California area, with whom you should talk to in what situation, and I will go more in-depth about the techniques and phraseology of radio communication.



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