

Good radio communication

Pilot tips and tricks

1. Radio communication is essential

Communication is the essential link between ATC and aircrafts (or among aircrafts) and assures a good traffic flow and separation of aircrafts. This communication in aviation is essentially done by voice through radio. In order to ensure proper transmissions and perfect comprehension, radio communication is precisely ruled and pilots and ATCOS are obliged to follow these rules strictly.

2. Phraseology

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PILOT: GOOD AFTERNOON, GENEVA TOWER, I AM THE BLUE/WHITE CESSNA  
BESIDE THE BIG BUILDING, MY TANK IS FULL AND I WANT TO START MY FLIGHT  
TO LAUSANNE. OVER
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I am sure, most of you are smiling over this example. That's obviously not how it works. Radio communication rules are called phraseology, a set of fixed expressions aiming to maximize comprehension and minimize misunderstandings, while limiting the occupation of the frequency in order to make best use of the capacity of a radio channel.

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PILOT: GENEVA TOWER, HOTEL-BRAVO-CHARLY-SIERRA-TANGO, CESSNA 172  
WITH INFORMATION KILO, GA NORTH APRON, VFR TO LAUSANNE, OUTBOUND  
ECHO, REQUEST TAXI.
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This second, correct transmission contains more information than the first one and at the same time does not use more time to transmit. So please make sure you are 100% familiar with the correct phraseology.

However, this bulletin will NOT be about phraseology. If you are interested in learning the correct radio-language have a look at [Standard Phraseology | SKYbrary Aviation Safety](#)

3. Text-Communication on VATSIM

In real life both radio and text communication exist, the latter in the form of CPDLC (Controller-Pilot-Data-Link-Communication) which is primarily used for clearances, in cruise and specifically in oceanic areas, where HF transmissions are mostly of poor audio quality. Moreover, the reaction times using CPDLC are never instantaneous, that's why when moving in an aerodrome environment (Apron, Ground, Tower, Approach, Departure) CPDLC is disadvantageous.

Communication on the VATSIM network is transmitted by voice or text, whereas text is the replacement for voice for pilots who do not have audio capability on their PC. CPDLC exists but is not used by all ATCOS. Important to know for all pilots: **text communication is a much bigger burden for ATCOS than radio**. Although we all understand that junior pilots are reluctant to speak on the frequency as they may consider themselves as not yet skilled enough, please bear in mind that voice communication is the "real" thing – and controllers

appreciate the reduction of workload. If you are inexperienced in voice communication, put your aircraft on a remote stand of an airport and listen to the diverse frequencies; for sure you will after little time start to understand, how voice communication works and what phrases are used.

Subsequently, this bulletin will only focus on voice radio communication.

4. Radio communication (on VATSIM)

A good pilot on VATSIM basically unites 4 major skills:

- Know how to fly your aircraft
- Know the procedures for ground and air operations
- Be familiar with the charts of the airports
- Know how to communicate over the radio

All four of these skills are equally essential to be regarded as a skilled pilot and for all of them you will need both knowledge and training.

Below we have listed some of the important things to know and to do for good radio communication.

4. A. Preparation

Radio communication in aviation does never hit you like a lightning strike. You can prepare for it. Important to know, it is always the pilot starting the first communication with ATC. If you don't speak up – nothing will happen and nobody will take contact with you (exceptions may prove the rule). But before you speak up – be prepared for what's up to come next.

A skilled pilot will always know what comes next in radio communication. Being aware of this you can figure out, what most likely the next instruction from ATC will be and you will not be taken by surprise.

One element of a good preparation is a blank sheet of paper and a pen. Why? Because it is often worthwhile to note down the instruction of the ATC. Sometimes they are quite complex or comprehensive. If you are a frequent listener to VATSIM frequencies you know how many times instructions are not understood by pilots either because of unfamiliarity with the phrases, of bad pronunciation or because of not paying attention to the transmission at the right time. Every time a transmission has to be repeated, valuable time on the frequency is lost and other pilots have to wait longer until it's their turn.

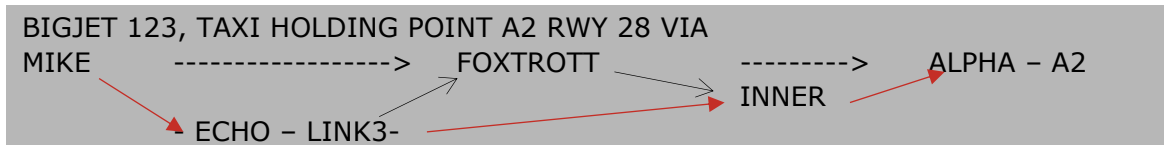
Example:

You are at LSZH stand C57, departing RWY is 28, write down the pushback and the taxi instructions you might get from ATC! Have a look at the ground chart – its mandatory!

Pushback clearance will most certainly be

BIGJET 123, CLEARED PUSH AND START, FACING NORTH

Likely taxi instructions (note down as shown below).



When you receive the taxi instruction, take your pen and mark the taxi sequence on your preparation sheet (red lines).

The same goes for most of the instructions. Let's take the example of an IFR clearance:

Example:

You will fly from LSZH to LOWW, first waypoint in your flightplan is DEGES, departure RWY is 32 (from the ATIS).

The clearance will most likely be:

BIGJET123: YOU ARE CLEARED VIENNA, RWY 32, $\frac{\text{DEGES 5L}}{\text{DEGES4N}}$, CLIMB 5000FT, SQUAWK XXXX

The only unknown element apart from the squawk code is, whether ATC clears you for a left (DEGES5L) or right turn (DEGES4N) departure. As you are prepared with your SID charts ready, you already know about this choice.

Knowing ahead, what you might receive as an instruction, makes you more confident, helps the comprehension and speeds up your readback.

4. B. Transmitting

4.B.1. Prepare your message

Before you start pushing the Push-To-Talk (PTT) button, be sure what you want to say and what your requests are. We have already been talking about this above under 4.A.

4.B.2. Be patient – don't jump into ongoing conversations

Good radio communication depends much on discipline. Instructions from ATC have to be read back by the pilot and one communication string is only terminated, when the full readback is done and the message closed by the call sign of the aircraft. Before all this has happened no other pilot must interrupt by talking on the frequency, otherwise ATC has to repeat the message and the communication lasts longer. So please pilots – be patient and wait until the previous communication is properly completed and closed. Push the button and breathe

4.B.3. Pass your message

Once the frequency is clear, it is your turn. Call ATC indicating your callsign and pass your message **AS CONDENSED BUT CLEAR AS POSSIBLE**. If you have a request to ATC, state also the underlying reason, such that ATC can judge your request which may be conflicting with other aircrafts intentions.

REQUEST HEADING 050 TO AVOID THUNDERSTORM
REQUEST HIGHER DUE TO TURBULANCE

4.B.4. There is no competition in speaking speed

Sometimes pilots (and ATCOS as well) believe they could save transmission time by speaking extremely fast. In general, this doesn't help as the message gets more difficult to understand and often must therefore be repeated. The mandatory speed of speaking is

100 words per minute. Evaluate yourself with a text of 20 words – this must last no less than 12 seconds. Adopt your speaking speed accordingly.

4.B.5. Be prepared for any instruction or question

Although communication in aviation follows a quite structured pattern, there is sometimes a need to explain issues in plain English. Be prepared that ATC may require information from you, which is out of the ordinary. Don't be paralysed – if you did not understand the request just say "say again" and listen carefully the second time. It is quite cumbersome, if a pilot needs to let ATC repeat the message more than once.

Some examples:

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REPORT YOUR HEADING
CONTACT 125.6 WITH THE SPEED
REPORT YOUR MACH-NUMBER
REPORT YOUR NEXT WAYPOINT
ARE YOU ABLE FOR GIPOL28 TRANSITION
REPORT ETA AMIKI
...
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If you are unable to respond instantly don't go silent!! Say "stand-by", figure out the requested information and then call again to provide the information.

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ATC:          SWISS 123, REPORT ETA RILAX
AIRCRAFT:     STAND-BY, SWISS 123
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AIRCRAFT:     SWISS 123, ETA RILAX 45
ATC:          SWISS 123, ROGER
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(note that time are reported by minutes only, if the time is less than 60min away from the actual time – e.g. it is now 12.45 UTC, the time you'd like to report is 13.23 UTC, then the time will be reported as 23 only).

4.B.6. Close the message with your call sign

An essential part of clarity in aviation communication is to leave no doubt about who is the issuer of a message. That's why you always close every transmission with you call sign. This also indicates that you have completed your message.

Only exception: if it is you starting a conversation on a new topic, then your callsign goes very first.

Note: ATC will always start every transmission with the callsign of the addressed aircraft

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AIRCRAFT:     SWISS 123, REQUEST FLIGHT LEVEL 280 DUE TO TURBULENCE.
ATC:          SWISS 123, ARE YOU ABLE FLIGHT LEVEL 300
AIRCRAFT:     AFFIRM, SWISS 123
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ATC:	SWISS 123, DESCENT FLIGHT LEVEL 300
AIRCRAFT:	DESCENDING FLIGHT LEVEL 300, SWISS 123

4. C. Being clear and unambiguous

A clear understanding of the messages on both sides is vital for the safety of all the air traffic. There is absolutely no room for guessing and speculation. You as a pilot have to make sure you 100% understand, what ATC asks you to do.

4.C.1. "Say again"

Should you be uncertain about the content of a message received, don't hesitate and reply "SAY AGAIN". This means you have not got the message or part of it and the sender will repeat it.

4.C.2. Note down complex instructions

Some instructions are too long and/or too complex to remember all of it. Having pen and paper ready allows you to note down all of it. Make sure you note instantly, so you can use your notes for the readback.

4.C.3. Read back all instructions

In order to assure, you have understood everything correctly most of the information given to you have to be read back by you. This allows ATC to check, whether their instructions have been duly noted at the other end.

4. D. Well behaving

4.D.1. Don't step into ongoing conversations

An essential part of 100% understanding is the discipline on the frequency. Any conversation ongoing must not be interrupted by no other station. So please wait until a conversation is completely closed, which normally is done, when the pilot concerned has read back the instruction and closed the message with the callsign.

4.D.2. Always follow the conversations on the frequency

Following attentively any conversation on the frequency, which is not addressed to you, will allow to develop a good understanding of your surroundings. Use this as an additional source of information.

4.D.3. Sterile cockpit

You should always stay attentive and be able to respond instantly to messages addressed to you. Any distraction will consume some of your awareness and makes you eventually miss a radio message to you. Especially on the ground and during climb out and approach where the rhythm of messages is rather high, staying attentive is a must. In real life pilots follow the concept of "sterile cockpit", which means that no distraction of talks other than necessary for the flight are forbidden in altitudes lower than 10000ft. Why don't you adopt the same principle.

Enjoy online flying with VACC Switzerland!

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