

UNIT 1 General Operating Procedures

Radiotelephony is the language that pilots and Air Traffic Control (ATC) use to communicate on the radio. Standard formats, terms, phrases, and pronunciation are used to reduce the possibility of miscommunication and misunderstanding between pilots and controllers.

In this unit, we will learn the basics of radiotelephony to correctly pronounce and practice.

- Transmission of letters
- Transmission of numbers
- Standard words and phrases
- Callsigns
- Communication procedures
- Radio check

Group discussion

Make a list of reasons why good communication on the radio is important. How do you think misunderstandings between ATC and flight crews affect safety? What are some of the causes of miscommunication between controllers and pilots? Compare the ideas given by your group with those of other groups.

Lesson 1 Transmission of Letters

1. Routine transmission for letters



The words in the table below shall be used when individual letters are required to be transmitted.

Note : Syllables to be emphasized are underlined.



LETTER	WORD	PRONUNCIATION
A	Alpha	<u>AL</u> FAH
B	Bravo	<u>BRAH</u> VOH
C	Charlie	<u>CHAR</u> LEE
D	Delta	<u>DELL</u> TAH
E	Echo	<u>ECK</u> OH
F	Foxtrot	<u>FOKS</u> TROT
G	Golf	GOLF
H	Hotel	<u>HOH</u> TELL
I	India	<u>IN</u> DEE AH
J	Juliett	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	<u>KEY</u> LOH
L	Lima	LEE MAH
M	Mike	MIKE
N	November	NO <u>VEM</u> BER
O	Oscar	<u>OSS</u> CAH
P	Papa	PAH <u>PAH</u>
Q	Quebec	KEH <u>BECK</u>
R	Romeo	<u>ROW</u> ME OH
S	Sierra	SEE AIR RAH
T	Tango	<u>TANG</u> GO
U	Uniform	<u>YOU</u> NEE FORM
V	Victor	<u>VIK</u> TAH
W	Whiskey	WISS KEY
X	X-ray	<u>ECKS</u> <u>RAY</u>
Y	Yankee	<u>YANG</u> KEY
Z	Zulu	<u>ZOO</u> LOO

2. Non-routine transmission for letters

(1) Navid/Flight rules/Met information

ILS	VOR	NDB	VFR	IFR
GPS	QNE	QNH	RVR	DME

(2) Airlines/Aircraft types/Level

Letter group	Pronunciation	Letter group	Pronunciation
CCA	Air China	CES	China Eastern
CSN	China Southern	BAW	Speedbird
AFR	Air France	JAL	Japan Air
B747	Boeing 747	A320	Airbus 320
C919	COMAC C919	FL	Flight Level



(3) Navigation station/Met information/Flight procedures (letter group more than 3 letters)

Letter group	Pronunciation	Letter group	Pronunciation
TAMOT	/ˈtæmɒt/	IKUBA	/iˈkuːbə/
CAVOK	/ˈkævɒk/	STAR	/stɑː(r)/

Exercises

1. Read aloud the following letters and letter groups.

(1) BUCIL	EOQAC	PMNYX	SWRTD	UPGAM	GOKNA
(2) JTRWV	ANSCK	WXIZXK	LHOET	NCIPE	ONEMI
(3) OBLIK	IKUBA	DAPRO	TAMOT	EPGAM	UGOTU
(4) QNH	RVR	ILS	VOR	NDB	IFR
(5) CCA	SIA	CES	CSN	DLH	DAL
(6) HDA	TWA	BAW	UAL	JAL	TWA
(7) A320	B777	A330	C919	DC-10	MD-11

2. Listen and write down the letters you hear.



- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____
- (6) _____

3. Practice in pairs.

Example:

CTL: OYTER H control good morning

PIL: H control OYTER good morning

CIL: OER Next report NJG

PIL: Next NJG, OER

(1) DLANV	U	ASC
(2) GFRIO	E	FSD
(3) VIEZX	L	LIN
(4) VBIOA	O	PCB

Lesson 2 Transmission of Numbers

In the radiotelephony communications, numbers ought to be transmitted in accordance with ICAO standard pronunciation.



Numeral or numeral element	Alphabet representation
0	ZE-RO
1	WUN
2	TOO
3	TREE
4	POWER
5	FIFE
6	SIX
7	SEVEN
8	AIT
9	NINER
Decimal	DAY-SEE-MAL
Hundred	HUNDRED
Thousand	TOUSAND

Notes :

Combinations of thousands and whole hundreds are transmitted by pronouncing each digit in the number of thousands followed by the word TOUSAND and the number of hundreds followed by the word HUNDRED.

- e. g. 76—SEVEN SIX
 2500—TOO TOUSAND FIFE HUNDRED
 35000—TREE FIFE TOUSAND
 45863—POWER FIFE AIT SIX TREE

1. Altitudes

Below Transition Altitude (TA), state each digit of thousands and then the hundreds.

- e. g. 7000=SEVEN TOUSAND
 8400=AIT TOUSAND POWER HUNDRED

Above Transition Level (TL), state Flight Level (FL)

- 18000=FL180
 33000=FL330

2. Altimeter settings

State each individual number.

- e. g. QNH1010—WUN ZERO WUN ZERO
 QNE1013—WUN ZERO WUN TREE

3. Direction

In direction transmission, the three digits of direction should be pronounced individually

- e. g. 035—ZERO TREE FIFE
 100—WUN ZERO ZERO

Note : Unit “degree” can be omitted in transmission.

4. Speed

State each digit.



- e. g. 250knots—TOO FIVE ZERO KNOTS
 M0.82—MACH NUMBER DAY SEE MAL AIT TOO
 450km/h—FOUR FIVE ZERO KILOMETERS PER HOUR
 7m/s—SEVEN METERS PER SECOND

5. Air route

The air route code is the combination of a LETTER and a NUMBER or NUMBERS from 1 to 999. The number(s) should be transmitted by pronouncing each digit separately.

- e. g. A1—Amber WUN
 R378—Red TREE SEVEN FIVE
 G595—GREEN FIVE NINER FIVE

Note: The letter in the code is transmitted as its assigned word with specific meaning.

6. Frequency

State each individual number, including the decimal point. Exceptionally, when the final two digits of the frequency are both zero, only the first four digits need be given.

- e. g. 118.125—WUN WUN AIT DAY SEE MAL WUN TOO FIVE
 119.050—WUN WUN NINER DAY SEE MAL ZERO FIVE ZERO
 122.500—WUN TOO TOO DAY SEE MAL FIVE
 118.000—WUN WUN AIT DAY SEE MAL ZERO

7. Transponder codes

State each digit.

- e. g. 3526—TREE FIVE TOO SIX
 6565—SIX FIVE SIX FIVE

8. Time

When transmitting time, only the *minutes* of the hour are normally required. However, the hour should be included if there is any possibility of confusion.

- e. g. 0803—ZERO THREE or ZERO AIT ZERO TREE
 2057—FIVE SEVEN or TOO ZERO FIVE SEVEN

Pilot may check the time with the appropriate ATS unit. Time checks shall be given to the nearest half minute.

- e. g. 1155'18"—WUN WUN FIVE FIVE AND A HALF
 1155'38"—WUN WUN FIVE SIX
 1300'00"—WUN TREE ZERO ZERO

Exercises

1. Listen and fill in the underlined parts with letters and numbers.



- (1) _____, cross runway _____.
 (2) Jetstar _____, turn right heading _____.
 (3) Pacific _____, confirm received information _____.

(4) CCA _____, contact Departures _____.

(5) All stations the new information is _____, the changes showers in area QNH _____.

(6) CES _____, are you squawking _____?

(7) Departures, Qantas _____, climbing _____, passing _____.

2. Practice in pairs.

A. Example:

PIL: Hong Kong departure, G-ABCD, reaching 7000 feet.

CTL: GCD, climb 13000 feet and contact 125.3.

PIL: Climbing 13000 feet, 125.3, GCD.

(1) F-TMBO 6000 10000 231.9

(2) B-ECNV 8000 FL180 123.25

B. Example:

PIL: London Control, GUIOT, FL350, next report BHJ at 10.

CTL: GOT, maintain FL350, contact D Control 123.1.

PIL: Maintain FL350, 123.1, GOT.

(1) Frankfurt COACT FL170 TIR 45 132.21

(2) Seattle LATIC 13000ft ERW 24 124.25

(3) Montreal TNODP FL320 FOP 46 119.1

(4) Vancouver DIKTU 10000ft NMK 34 134.2

Lesson 3 Standard Words & Phrases and Callsigns

1. Standard words and phrases

The following words and phrases shall be used in radiotelephony communications as appropriate and shall have the meaning given below:

ACKNOWLEDGE

Let me know that you have received and understood this message.

AFFIRM

Yes.

APPROVED

Permission for proposed action granted.

BREAK

I hereby indicate the separation between portions of the message, to be used where there is no clear distinction between the text and other portions of the message.

BREAK BREAK

I hereby indicate the separation between messages transmitted to different aircraft in a very busy environment.

**CANCEL**

Annul the previously transmitted clearance.

CHECK

Examine a system or procedure, and no answer is normally expected.

CHANGING TO

I intend to call... (unit) on... (frequency).

CLEARED

Authorized to proceed under the conditions specified.

CONFIRM

Have I correctly received the following...? Or did you correctly receive this message.

CONTACT

Establish radio contact with.

CORRECT

That is correct.

CORRECTION

An error has been made in this transmission or message indicated. The correct version is...

DISREGARD

Consider that transmission as not sent; ignore.

GO AHEAD

Proceed with your message. The phrase “GO AHEAD” is not normally used in surface movement communications.

HOLD SHORT

Stop before reaching the specified location.

Note : Only used in limited circumstances where no defined point exists (e. g. where there is no suitably located holding point), or to reinforce a clearance limit.

HOW DO YOU READ?

What is the readability of my transmission?

I SAY AGAIN

I repeat for clarity or emphasis.

MAINTAIN

Continue in accordance with the condition(s) specified in its literal sense.

MONITOR

Listen or on (frequency).

NEGATIVE

No or Permission not granted or that is not correct.

OUT

This exchange of transmissions is ended and no response is expected.

Note : The word “OUT” is not normally used in VHF communications.

OVER

My transmission is ended and I expect a response from you.

Note : The word “OVER” is not normally used in VHF communications.

READ BACK

Report all, or the specified part, of this message back to me exactly as received.

RECLEARED

A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof.

REPORT

Pass me the following information.

REQUEST

I should like to know... or I wish to obtain...

ROGER

I have received all of your last transmission.

Note : Under no circumstances to be used in reply to a question requiring “READ BACK” or a direct answer in the affirmative (AFFIRM) or negative (NEGATIVE).

SAY AGAIN

Repeat all, or the following part, of your last transmission.

SPEAK SLOWER

Reduce your rate of speech.

STANDBY

Wait and I will call you.

UNABLE

I cannot comply with your request, instruction or clearance. Unable is normally followed by a reason.

VERIFY

Check and confirm with originator.

WILCO

Abbreviation for “will comply”, I understand your message and will comply with it.

WORDS TWICE

As a request: Communication is difficult. Please send every word or group of words twice.

As information: Since communication is difficult, every word or group of words in this message will be sent twice.

2. Callsigns for aeronautical stations

Aeronautical stations are identified by the name of the location followed by a suffix. The suffix indicates the type of unit or service provided.



Unit or service	Callsign suffix
Area control center	CONTROL
Radar (in general)	RADAR
Approach control	APPROACH
Approach control radar arrival	ARRIVAL
Approach control radar departures	DEPARTURE
Aerodrome control	TOWER
Surface movement control	GROUND
Clearance delivery	DELIVERY
Apron control management service	APRON
Company dispatch	DISPATCH
Aeronautical station	RADIO
En route area control, including SIS and FIS	CENTRE
Radar control providing vectors onto final approach	FINAL/DIRECTOR

Note : When satisfactory communication has been established, and provided that it will not be confusing, the name of the location or the callsign suffix may be omitted.

3. Aircraft callsigns

Type	Full Callsign	Abbreviated form
(a) The five-character callsign corresponding to the registration of the aircraft;	G-ABCD	G-CD
(b) The five-character callsign referred to in (a) above, preceded by the type of the aircraft;	Speedbird GBGDC	Speedbird DC
(c) The radiotelephony designator of the aircraft operating agency, followed by the flight identification;	Speedbird 753	No abbreviation
(d) The characters corresponding to the registration marking of the aircraft.	N783425 N753DA	N425 N3DA

Notes :

(1) An aircraft shall use its abbreviated callsign only after it has been addressed in this manner by the aeronautical station.

(2) Aircraft in the heavy wake turbulence category shall include the word “HEAVY” immediately after the aircraft callsign in the initial call to the aerodrome control tower and the approach control unit.

Exercises

1. Write down what you think the missing word is in the spaces provided.

(1) Controller: CCA 518, confirm you're for bay 35.

Pilot: _____, bay 35, CCA 518.

(2) Pilot: Beijing Ground, Southern 232, request push-back and start up.

Controller: CCA 518, Beijing Ground, push-back and start up _____, face west.

- (3) Controller: CCA 518, _____ previous clearance, cleared now amended FL370.
- (4) Controller: CCA 518 climb FL140, _____, Qantas 10 turn left heading 170.
- (5) Controller: CCA 518, _____ to Singapore via flight planned route.
- (6) Controller: CCA 518, _____ received information Sierra.
Pilot: Affirm, received Sierra, CCA 518.
- (7) Controller: CCA 518, _____ Departures 134. 0.
- (8) Controller: All stations general broadcast, QNH is now 1030, _____ 1003, wind 310 degrees, 15 knots.
- (9) Pilot: Singapore Clearance Delivery, CCA 518.
Controller: CCA 518, Singapore Clearance Delivery, _____.
- (10) Pilot: Ground, CCA 518, radio check on 124. 7, _____?
- (11) Controller: CCA 518, runway 16R, cleared for take-off, make left turn, _____, make left turn.
- (12) Controller: CCA 518, confirm your last position X-ray Charlie Mike.
Pilot: _____, last position Delta Tango Lima, CCA 518.
- (13) Controller: CCA 518, taxi via Alpha Bravo and Kilo to holding point runway 27, QNH 1016.
Pilot: Via Alpha, Bravo, Kilo, holding point runway 27, CCA 518.
Controller: CCA 518, _____ QNH.
Pilot: QNH 1016, CCA 518.
- (14) Controller: CCA 518, report approaching holding point Alpha.
Pilot: _____, CCA 518.
- (15) Pilot: Hong Kong Ground, CCA 518, _____ taxi, received information Mike.
Controller: CCA 518, Hong Kong Ground, taxi to holding point Juliet runway 07L.
- (16) Controller: CCA 518, for your information there are birds north of the intersection of taxiway Echo and Runway 14.
Pilot: _____, thanks, CCA 518.
- (17) Controller: CCA 518, cleared to ... # \$ % & . ^ * & . ^ % ^ \$ # % \$ % # ... (Last part of message not clear).
Pilot: CCA 518, _____ all after cleared to.
- (18) Pilot: Singapore Approach, CCA 518, passing 1500 climbing 7000 (spoken too fast).
Controller: CCA 518, Singapore Approach, _____.
- (19) Controller: CCA 518, advise your delay.
Pilot: CCA 518, _____ one, we're talking to our engineer.
- (20) Controller: CCA 518, are you ready for departure?
Pilot: _____, CCA 518.