PPL Theory
Aeronautical Radio Operation

RARO 4 – Basic Communication

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2. Related Documents

Related Documents	Document Identification

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Amendments made to this document since the previous version are listed below. All amendments to this document have been made in accordance with CAE OAAM's document management procedure.

Slide	Changes

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RESPONSIBILITIES OF AN AERONAUTICAL RADIO OPERATOR

Responsibilities of an Operator

Responsibilities of an Operator

Secrecy of Communications

RARO 4 – Basic Communication

Responsibilities of an Operator
Secrecy of Communications

➢ Flight radio operators are not to divulge the text of any radio message sent or received by them without authority.

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Unauthorised Transmissions

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➢ Messages transmitted must not:

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Unauthorised Transmissions

➢ Messages transmitted must not:

- Contain obscene language

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➢ Flight radio operators are not to divulge the text of any radio message sent or received by them without authority.

Unauthorised Transmissions

➢ Messages transmitted must not:

- Contain obscene language

- Be of a false nature

Responsibilities of an Operator

Secrecy of Communications

➢ Flight radio operators are not to divulge the text of any radio message sent or received by them without authority.

Unauthorised Transmissions

➢ Messages transmitted must not:

- Contain obscene language

- Be of a false nature

- Be of a personal nature

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QUESTIONS/COMMENTS?

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LISTENING WATCH

Listening Watch
CAR 243   OR   VFRG page 3.20

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> Even when you are not using the radio, it still must be turned on

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➢ From taxi to shut down, a "listening watch" must be maintained

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➢ Just like you complete a "**LOOKOUT**" when flying, you should also maintain a "**LISTEN OUT**"

Listening Watch
CAR 243   OR   VFRG page 3.20

➢ Even when you are not using the radio, it still must be turned on

➢ From taxi to shut down, a "listening watch" must be maintained

➢ Just like you complete a "**LOOKOUT**" when flying, you should also maintain a "**LISTEN OUT**"

➢ This will help to increase your **situational awareness** and by doing so, increase **flight safety**

QUESTIONS/COMMENTS?

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ESTABLISHING & MAINTAINING COMMUNICATION

Initial Call

Pilot: *[Station Calling]*
          [Aircraft Callsign]
          [Message]

Initial Call

Pilot: *[Station Calling]*
[Aircraft Callsign]
[Message]

For example:

Pilot: *Moorabbin Ground*
Echo Oscar Quebec
Southern Grass for circuits
Request start approval

Reply to Initial Call

> *Pilot:* *[Callsign of station that made the initial call]*
> *[Callsign of station replying]*
> *[Message]*

For example:

> *Pilot:* *Moorabbin Ground*
> *Echo Oscar Quebec*
> *Southern Grass for circuits*
> *Request start approval*

Reply to Initial Call

> *Pilot:* *[Callsign of station that made the initial call]*
> *[Callsign of station replying]*
> *[Message]*

For example:

> *Pilot:* *Moorabbin Ground*
> *Echo Oscar Quebec*
> *Southern Grass for circuits*
> *Request start approval*
>
> *Ground:* *Echo Oscar Quebec*
> *Moorabbin Ground*
> *Start approved*

Subsequent Communications

For example:

Pilot: *Moorabbin Ground*
                   Echo Oscar Quebec
                   Southern Grass for circuits
                   Request start approval

Ground: *Echo Oscar Quebec*
                   Moorabbin Ground
                   Start approved

Subsequent Communications

➢ The pilot does not need to keep stating the name of that ground station in their radio calls

For example:

    Pilot: *Moorabbin Ground*
                      Echo Oscar Quebec
                      Southern Grass for circuits
                      Request start approval

    Ground: *Echo Oscar Quebec*
                      Moorabbin Ground
                      Start approved

Subsequent Communications

➢ The pilot does not need to keep stating the name of that ground station in their radio calls

➢ The conversation ends with the pilot's call sign
For example:

> *Pilot:*   *Moorabbin Ground*
> *Echo Oscar Quebec*
> *Southern Grass for circuits*
> *Request start approval*

> *Ground:*   *Echo Oscar Quebec*
> *Moorabbin Ground*
> *Start approved*

Subsequent Communications

➢ The pilot does not need to keep stating the name of that ground station in their radio calls

➢ The conversation ends with the pilot's call sign

For example:

> *Pilot:*   *Moorabbin Ground*
> *Echo Oscar Quebec*
> *Southern Grass for circuits*
> *Request start approval*

> *Ground:*   *Echo Oscar Quebec*
> *Moorabbin Ground*
> *Start approved*

> *Pilot:*   *Start approved, Echo Oscar Quebec*

QUESTIONS/COMMENTS?

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TRANSMITTING LETTERS & NUMERALS

Phonetic Alphabet
VFRG page 1.37

Phonetic Alphabet
VFRG page 1.37

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 ho*	**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 A*	**V**	VICTOR	*VIK tah*
J	JULIETT	*JEW lee ETT*	**W**	WHISKY	*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*

Numerals
VFRG page 1.38-1.39

0	ZE-RO	**5**	FIFE	**DECIMAL**	DAY SEE MAL
1	WUN	**6**	SIX	**HUNDRED**	HUN dred
2	TOO	**7**	SEV en	**THOUSAND**	TOU SAND
3	TREE	**8**	AIT		
4	FOW er	**9**	NIN er		

Numerals
VFRG page 1.38-1.39

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10

118.1

1023

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10 **"wun ze-ro"**

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10 **"wun ze-ro"**

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VFRG page 1.38-1.39

➢ All numbers are transmitted by pronouncing each digit separately

10   **"wun ze-ro"**

118.1 **" wun wun ait day see mal wun"**

1023 **" wun ze-ro too tree"**

Numerals
VFRG page 1.38-1.39

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500

3000

7500

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500 **"fife hundred"**

3000

7500

Numerals
VFRG page 1.38-1.39

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500   **"fife hundred"**

3000 **" tree thousand"**

7500

Numerals
VFRG page 1.38-1.39

➢ Whole hundreds and whole thousands are expressed using the words "hundreds & thousands"

500	**"fife hundred"**
3000	**" tree thousand"**
7500	**" sev-en thousand fife hundred"**

Numerals
VFRG page 1.38-1.39

TRANSMISSION OF NUMBERS

All numbers used in the transmission of altitude, cloud height, visibility and runway visual range (RVR) information, which contain whole hundreds and whole thousands, must be transmitted by pronouncing each digit in the numbers of hundreds or thousands followed by the word HUNDRED or THOUSAND as appropriate, e.g.:

ALTITUDES
- 800 'EIGHT HUNDRED'
- 1500 'ONE THOUSAND FIVE HUNDRED'
- 6715 'SIX SEVEN ONE FIVE'
- 10000 'ONE ZERO THOUSAND'

CLOUD HEIGHT
- 2200 'TWO THOUSAND TWO HUNDRED'
- 4300 'FOUR THOUSAND THREE HUNDRED'

VISIBILITY
- 200 'TWO HUNDRED'
- 1500 'ONE THOUSAND FIVE HUNDRED'
- 3000 'THREE THOUSAND'

RUNWAY VISUAL RANGE
- 700 'SEVEN HUNDRED'

All other numbers must be transmitted by pronouncing each digit separately, eg:

FLIGHT LEVELS
- FL 180 'FLIGHT LEVEL ONE EIGHT ZERO'
- FL 200 'FLIGHT LEVEL TWO ZERO ZERO'

Numerals
VFRG page 1.38-1.39

HEADINGS

- 150 'ONE FIVE ZERO'
- 080 'ZERO EIGHT ZERO'
- 300 'THREE ZERO ZERO'

WIND DIRECTION

- 020° 'ZERO TWO ZERO DEGREES'
- 100° 'ONE ZERO ZERO DEGREES'
- 210° 'TWO ONE ZERO DEGREES'

WIND SPEEDS

- 70kt 'SEVEN ZERO KNOTS'
- 18kt, gusting 30 'ONE EIGHT KNOTS GUSTING THREE ZERO'

MACH NUMBER

- 0.84 'DECIMAL EIGHT FOUR'

ALTIMETER SETTING

- 1000 'ONE ZERO ZERO ZERO'
- 1027 'ONE ZERO TWO SEVEN'

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QUESTIONS/COMMENTS?

AIRCRAFT CALLSIGNS

Aircraft Callsigns

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Aircraft	Registration Callsign
VH-ABC	AL-fah BRAH-voh CHAR-lee
VH-POQ	pah-PAH OSS-cah keh-BECK

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➢ Often the aircraft type is also included e.g. "Echo Oscar Kilo, Cessna 172"

➢ An easy way to learn the phonetic alphabet and practice stating callsigns is to practice using the registration numbers of passing cars

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QUESTIONS/COMMENTS?

TRANSMISSION OF TIME

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-1235

-1932

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-1235 would be "time 35"

-1932 would be "time 32"

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  - 0600 would be "zero six zero zero"

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-1235 would be "time 35"

-1932 would be "time 32"

➢ If confusion may arise, you should also include the hour e.g.

- 0600 would be "zero six zero zero"

➢ If you are referring to an Estimated Time of Arrival (ETA) and the time ends in "00," you may simply say "on the hour" instead of transmitting the full time

QUESTIONS/COMMENTS?

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STANDARD WORDS & PHRASEOLOGY

Words & Phraseology
VFRG page 1.40-1.41

STANDARD WORDS AND PHRASES

The following words and phrases are to be used in radiotelephony communications, as appropriate, and have the meaning given:

ACKNOWLEDGE	'Let me know that you have received and understood the 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 separation between messages transmitted to different aircraft in a very busy environment.
CANCEL	Annul the previously transmitted clearance.

Words & Phraseology
VFRG page 1.40-1.41

CHECK	Examine a system or procedure (no answer is normally expected).
CLEARED	Authorised to proceed under the conditions specified.
CONFIRM	Have you 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.
GO AHEAD	Proceed with your message.
HOW DO YOU READ	What is the readability of my transmission? The readability scale is: 1. Unreadable 2. Readable now and then 3. Readable but with difficulty 4. Readable 5. Perfectly readable
I SAY AGAIN	I repeat for clarity or emphasis.
MONITOR	Listen out on (frequency).
NEGATIVE	'No' or 'Permission is not granted' or 'That is not correct'.
OVER	My transmission is ended and I expect a response from you (not normally used in VHF communication).
OUT	My transmission is ended and I expect no response from you (not normally used in VHF communication).

Words & Phraseology
VFRG page 1.40-1.41

READ BACK	Repeat 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 (under NO circumstances to be used in reply to a question requiring READ BACK or a direct answer in the affirmative or 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.
VERIFY	Check and confirm with originator.
WILCO	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.

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QUESTIONS/COMMENTS?

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REPORTING AIRCRAFT POSITIONS

When Overhead

Overhead an aerodrome	[Callsign] "Overhead the field" [Altitude]

Overhead a feature	[Callsign] [Name of feature] [Altitude]

When Overhead

Overhead an aerodrome	**[Callsign]** **"Overhead the field"** **[Altitude]**

Pilot: **Moorabbin Tower**
Echo Oscar Quebec
Overhead the field, 1500

Overhead a feature	**[Callsign]** **[Name of feature]** **[Altitude]**

When Overhead

Overhead an aerodrome	[Callsign] "Overhead the field" [Altitude]

Pilot: Moorabbin Tower
           Echo Oscar Quebec
           Overhead the field, 1500

Overhead a feature	[Callsign] [Name of feature] [Altitude]

Pilot: Moorabbin Tower
           Echo Oscar Quebec
           GMH, 1500

When Beside

Beside a feature	"Abeam" [Name of Feature]

Pilot: **Traffic sighted**
3 o'clock low
Abeam Carrum
No conflict

N/S/E/W Reference

Clock Code Reporting – e.g. 3 o'clock is right wingtip

Pilot: **Tooradin Traffic**
Echo Oscar Kilo, Cessna 172
10 miles to the north west
1500, inbound for circuits
Tooradin

When Beside & Clock Code

Beside a feature	"Abeam" [Name of Feature]

Pilot:　　　Traffic sighted
　　　　　　3 o'clock low
　　　　　　Abeam Carrum
　　　　　　No conflict

N/S/E/W Reference

Pilot:　　　Tooradin Traffic
　　　　　　Echo Oscar Kilo, Cessna 172
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QUESTIONS/COMMENTS?

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READBACK REQUIREMENTS

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Readback Requirements
AIP GEN 3.4 & ENR 1.1   OR   VFRG page 1.40-1.41

➢ Certain ATC clearances, instructions and information cannot be met with a simple "roger" or "wilco." These items require readbacks i.e. you must repeat back the instructions given.

Readback Requirements
AIP GEN 3.4 & ENR 1.1   OR   VFRG page 1.40-1.41

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  ➤ ATC route clearances

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>> En-route holding instructions

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  ➢ ATC route clearances

  ➢ En-route holding instructions

  ➢ Any route or holding point specified in a taxi clearance

Readback Requirements
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> > ATC route clearances

> > En-route holding instructions

> > Any route or holding point specified in a taxi clearance

> > Any clearances and instructions to hold short of, enter, land on, conditional line-up on, take-off from, cross, taxi or backtrack on, any runway

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> ➢ Any approach clearance

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  ➢ Any approach clearance

  ➢ Any transponder code

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Readback Requirements
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Note: "Standby" is not a read back item! Do not reply "standing by"! Simply say nothing!

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