

PHASE 7: VHF RADIO.

➤ VHF Radio- What it is and how to use it:

The use of a radio, although not mandatory except at a CTAF-R (such as Point Cook), neither the less should be considered an essential safety feature. It allows you to communicate to other pilots your intentions and conversely facilitates your ability to hear their intentions. It can be difficult to see aircraft in the air at the best of times and the use of VHF radios enables pilots to locate other aircraft operating in the area and therefore to make safe and appropriate decisions and actions. It should also be noted that if you fly a microlight that does not carry a VHF radio your maximum ceiling height is 5000 feet, while those fitted with a radio can legally fly to 10,000 feet in unrestricted airspace under certain circumstances. The use of the VHF radio requires the pilot first of all to set the radio to the appropriate area or airfield frequency (this can be located either in the ERSA or on VNC and VTC maps). Once you have established your radio is fully operational, you can transmit and receive clear and audible messages (usually via a radio check request). To communicate with other pilots the pilot uses the 'push to talk' (PPT) button to speak into the microphone attached to your helmet. Once the PPT is released the radio reverts back listening or receiving mode automatically. However when the PPT is in use this will necessarily block all other pilots broadcasts on your frequency. Therefore broadcasts should be accurate but brief, as verbose messages can effect the smooth and effective communications on that frequency. It is definitely not a 'chat line'. As it is the pilot's responsibility to be aware of area frequency changes these should be programmed into the radio's memory before flight and changed when key features, that have been previously identified, are sited.

➤ Definitions – Broadcast:

When a pilot wishes to communicate their intentions or other relevant information they *broadcast* this via their VHF radio. The most common broadcast calls include taxing, take off, joining circuit and inbound calls.

➤ What to say and how to say it:

Although there are only four mandatory calls there are a number of calls made by experienced pilots that ensure that other pilots are clear where and what their aircraft is about do (there are however a number of calls that are considered 'good airmanship').

- 1) **Radio Check:** Although not mandatory you should ensure, and not assume, that you can be heard. This is usually done by –
Point Cook traffic (or the name of the relevant airfield) Microlight XXXX

(the last 4 digits of your registration number) is requesting a radio check'.

Other users on the frequency will usually reply promptly by acknowledging the call with a statement of how clearly they have received your message. If you are loud and clear the reply will be 'Fives' or 'Five by five'. This means that you are being heard loud and clear. A lower number indicates that you are being heard but not clearly, such as 'fours'.

- 2) **Taxi call** – the first mandatory call (at a CTAF-R). This ensures all ground and aircraft that they know a new player is about to enter the fray. *'Point Cook traffic Microlight XXXX is taxiing for runway YY'.* Once you reach your runway destination and the runway is free of all traffic you are required to make a call before taking off.
- 3) **Enter Runway call** – *'Point Cook traffic Microlight XXX is entering and lining up for immediate departure on YY (runway)' for ZZZZ, Point Cook* (your intention-such as 'for circuits', 'local flight' or where you are heading. If you are not doing circuits, or intend to leave the circuit, you should follow a safe procedure to avoid other aircraft in the circuit. At Point Cook, as with most other airfields, it is best to do this by 'going over the top'. This requires the pilot to make a call – *'Point Cook traffic Microlight XXXX is over the top at 1500 feet and will be heading to ZZ (or direction) at 1800 feet (or the intended height).* On return to the airfield there will be a number of Inbound Points at which you should make a radio call.
- 4) **Inbound call** - *'Point Cook traffic Microlight XXXX is inbound from (where you are, such as Werribee South or Altona) at one thousand five hundred feet'* (generally speaking you are expected to be at one thousand five hundred feet an inbound point). Other aircraft then will be aware that another aircraft is returning to the airfield and from which direction so they can keep an eye out. The next required call would be notifying others you are about to join the circuit. *'Point Cook traffic (or relevant airfield) Microlight XXXX is joining crosswind (or whichever part of the circuit you are joining) for runway YY'.* The next broadcast will be the 'base call'. When you have finished the down wind leg of the circuit you are required to make the base call. This simple message is designed to let others know that you are about to land. *'Point Cook traffic Microlight XXXX is turning base for runway YY'.* The last calls are to inform others that you have safely landed and are out of the way of other aircraft landing. *'Point Cook traffic Microlight XXXX is clear of runway YY/ or all runways' (which ever is the most accurate).* However it must be clearly understood that although we endorse short, precise

broadcasts, the pilot can use the radio at any time if they believe it is important to do so. Such as in cases of emergency, or you are unclear of a nearby aircraft's intentions or another broadcast was, for whatever reason was unclear.

➤ **Radio Procedures:**

All broadcast radio calls are required to state 5 things:

- 1) Who you are calling (e.g. Point Cook)
- 2) Who you are (your call sign)
- 3) Your position
- 4) Your altitude
- 5) Your intentions.

Be aware that different airfields have different procedures and ERSA rules prevail, as below:

Recommended calls-

All Operations: Before taxiing
Before entering the runway for departure and intentions
Clear of the runway.

Inbound/ Over flying and Joining Circuit:
By 10 NM from the aerodrome
When entering the cct downwind/crosswind or upwind.

Circuit Calls: Downwind
Base
Final with intentions
(At Pt Cook only the base call is required)

Outbound: Departing and also contrary to cct direction.

The New Format is:
(Location) Traffic
(Aircraft type)
(Call Sign)
(Position/Altitude/Intentions)
(Location)

➤ **Emergency Radio Procedures:**

There are two levels of emergency calls 'Pan, Pan, Pan' and 'Mayday, Mayday, Mayday'. General aviation make a 'Mayday' call when they experience an engine problem, which may result in a forced landing.

However it must be said that in some parts of the weightshift community such circumstances a 'Pan' call would be satisfactory. Pan is used for a problem that the pilot does not believe is life threatening, and in this respect differs from the Mayday broadcast. These calls are made on the active radio frequency. Eg Mayday, Mayday, Mayday, Microlight 2222, 2 miles north Point Cook, engine fire, 1 P.O.B.

➤ **Radio Usage Responsibilities:**

To operate a VHF radio the pilot is required to sit and pass a 'VHF Radio' test, set by the HGFA, to obtain their VHF Radio Endorsement.

A person not having this cannot operate in a CTAF-R area.

As radios can be a problem for aircraft, it is the pilot in command's responsibility, to make sure their radio is broadcasting a clearly heard signal that can be heard by other aircraft.

As stated earlier, the pilot should always follow the correct procedures and give the 4 mandatory calls, clearly stating the 5 things that all good calls have.

➤ **Radio Wave Propagation and long range communications:**

This section refers to the distance and height that UHF radio signals carry, and therefore providing the pilot with an effective range for their radios.

1000 ft	approx 40 Nautical miles
5000 ft	approx 90 Nautical miles

➤ **Standard Phrases**

<i>Acknowledge</i>	Advise that my message has been received and understood
<i>Affirm</i>	That is correct (or) Yes
<i>All stations</i>	This transmission is addressed to all aircraft and ground receivers on this frequency
<i>Copied</i>	I have received and understood the transmission referred to
<i>Downwind for</i>	I am positioned on the downwind leg for the runway
<i>Do you read</i>	Are you receiving my transmission?
<i>Go ahead</i>	Proceed with your transmission
<i>How do you read?</i>	With what signal strength and clarity are you reading my transmission?

<i>Inbound</i>	I am intending to land at the place which I have just nominated
<i>Maintaining</i>	I am flying level at the altitude nominated
<i>Negative</i>	That is not correct (or) No
<i>Radio check</i>	Advise how readable is my transmission
<i>Reading you</i>	5, 4, 3, 2, 1 (Depending on strength of radio reception)
<i>Roger</i>	I have received and understood your transmission
<i>Say again</i>	Repeat your last transmission
<i>Say slowly</i>	Repeat slowly
<i>Stand by</i>	Please wait until I resume communication with you
<i>Wilco</i>	I will comply with your request

➤ **Radio Signal Strength:**

A radio check request uses the following scale of readability –

- 5 Loud and clear – totally readable
- 4 Not quite as loud or clear – still adequate
- 3 Problems with volume or clarity – still just readable
- 2 Transmission broken – only occasionally readable
- 1 Unreadable

➤ **Date and Time**

The Greenwich Meridian (in London Suburbs) is the prime meridian, also called Zulu time or UTC – Uniform Time Coordinated and Eastern Standard Time is 10 hours ahead of this. All time is related to UTC. At UTC 0000 it is 100 EST (10.00 am).

8 digit date/time:

eg 07161030 UTC means July 16th 10.30 am UTC
which is July 16th 8.30 pm EST.

10 digit date/time adds the year

eg 0403091930 UTC is 2004, March 9th 6.30 pm UTC
which is 2004, March 10th 2.30 am EST

PHONETIC ALPHABET & NUMBERS

PHONETIC SPELLING ALPHABET

Letter	Word	Spoken As	Letter	Word	Spoken As
A	Alpha	AL fah	N	November	No VEM ber
B	Bravo	BRA VOH	O	Oscar	OSS cah
C	Charlie	CHAR lee	P	Papa	Pah PAP
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 AH
G	Golf	Golf	T	Tango	TANG go
H	Hotel	Ho TELL	U	Uniform	YOU nee form
I	India	IN dee ah	V	Victor	VIK tah
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

TRANSMISSION OF NUMERALS

All numbers except whole hundreds, whole thousands and combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of hundreds and thousands followed by the word HUNDRED or THOUSAND as appropriate. Combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of thousands followed by the word THOUSAND followed by the number of hundreds followed by the word HUNDRED.

Examples

Number	Transmitted as
10	ONE ZERO
75	SEVEN FIVE
583	FIVE EIGHT THREE
600	SIX HUNDRED
5000	FIVE THOUSAND
7600	SEVEN THOUSAND SIX HUNDRED
11000	ONE ONE THOUSAND
18900	ONE EIGHT THOUSAND NINE HUNDRED
38143	THREE EIGHT ONE FOUR THREE

Numbers shall be transmitted using the following pronunciation:

Number or Numeral Element	Pronunciation
0	ZE-RO
1	WUN
2	TOO
3	REE (OR THREE)
4	FOW - er
5	FIFE
6	SIX
7	SEV-en
8	AIT
9	NIN-er
Decimal	DAY-SEE-MAL
Hundred	HUN-dred
Thousand	TOU-SSAND (or THOUSAND)

Stress the syllables printed in capital letters. Thus, in KILO, pronounce KEY loh, emphasise the first syllable; and in PAPA, pronounce pah PAH, the last syllable. Similarly, in the numerals, stress the first syllable, eg SEV-en.

When referring to cloud amounts, 'eighths' shall be expressed as 'OKTAS', eg 7/8 ths is spoken as SEVEN OKTAS.

'CAVOK' shall be transmitted as KAV-OH-KAY.

Phase 7 VHF Radio***PRACTICE TEST QUESTIONS***

These questions are designed to test your understanding of some of the material you have just covered. It is given in the form the HGFA has adopted for its testing regime in respect to its 'Rules of the Air' and 'The Basic Aeronautical' tests.

Not only should you be able to correctly answer these questions you should also be able explain why it is correct and why the others are not accurate to your instructor.

Please circle the best correct response.

1. Which of the following radio calls are required when operating outside controlled airspace?
 - a) taxiing and inbound broadcasts at aerodromes in an CTAF-R area
 - b) taxiing, entering runway, inbound, turning and joining circuit broadcasts in a CTAF-R area
 - c) changing to an CTAF-R area frequency
 - d) after landing at an aerodrome in a CTAF-R area.

2. At what maximum altitude can a VHF fitted microlight, operating under CAO 95.32, in Class G airspace, fly at?
 - a) 2,500 feet
 - b) 5,000 feet under certain circumstances
 - c) 10,000 feet under certain circumstances
 - d) 15,000 feet

3. Under CAO 95.32 the maximum height a microlight, without a VHF radio, can operate over an area that is 4,000 feet AMSL (Above Mean Sea Level) is:
 - a) 500 feet AGL
 - b) 5,000 feet AMSL
 - c) 5,000 feet AGL
 - d) 1,500 feet AGL.

4. A CTAF (Common Traffic Advisory Frequency) is generally:
 - a) an area 10 nautical miles x 3,000 feet AGL
 - b) an area 3 nautical miles x 3,000 feet AGL
 - c) an area 5 nautical miles x 5,000 feet AGL
 - d) an area 5 nautical miles x 3,000 feet AGL.

5. An CTAF-R (Mandatory Broadcast Zone) is generally:
- a) an area 15 nautical miles x 5,000 feet AGL
 - b) an area 10 nautical miles x 3,000 feet AGL
 - c) an area 10 nautical miles x 5,000 feet AGL
 - d) an area 15 nautical miles x 3,000 feet AGL.

SCORE = /5 **TOTAL =** %

A score of 90 % is required to pass this test.

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Melbourne Microlights

Weightshift Microlight Pilot Ground Training Course

Student Pilot

Phase 7: VHF Radio Test:

Name of Applicant: _____

Signature of Applicant: _____

Date of test: _____

Name of CFI/Instructor: _____

Signature of CFI/Instructor: _____

Melbourne Microlights will require copies of your BAK, your completed HGFA Pilot's Workbook, VHF Radio Endorsement and any other relevant tests or materials in order to establish your appropriateness to become a Pilot.

Please note that this test will remain the property of Melbourne Microlights and will be filed with all other information relating to you by this company. This information is always available for your perusal on request - Melbourne Microlights.

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