GLIDING NEW ZEALAND INCORPORATED

ADVISORY CIRCULAR AC 2-11

RADIO PROCEDURES

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1 Introduction

Operating around airfields and in Mandatory Broadcast Zones (MBZs) is facilitated by the use of radio. Clearance to fly in controlled airspace is normally obtained by radio and generally requires the use of a transponder. Flight safety is also greatly enhanced by maintaining awareness of other traffic in the vicinity and obtaining information on soaring conditions etc from other gliders. There are also DOs and DONTs about using Transponders, ELTs and PLBs.

To be eligible for a Cross-Country Pilot Certificate (XCP), pilots must have attained at least a 70% pass in a written, multi-choice examination on radio and transponder procedures, plus a practical test of equipment operation (ref MOAP paragraph 9.3(c) and Appendix 2-C).[§]

To facilitate the above, this Advisory Circular provides:

- Basic information about VHF radios, Transponders and ELTs/PLBs typical in gliders, and physically how to use them
- Reference material on radiotelephony procedures
- Guidance on the practical test
- A pool of written examination questions for instructors to test candidates.

2 VHF Radios

Actual use of the radio can at first seem difficult as you strain to understand and respond to instructions. To help get used to the phraseology it can be worthwhile to arrange to spend some time listening to other pilots at a ground station and practice calling on a gliding "chat frequency", such as 133.55 MHz. A few hours of this may do wonders for your understanding of what is expected of you in practice.

The basic principles of radio operation are:

- Aircraft radios operate on the VHF (Very High Frequency) band 118 MHz-137 MHz.
- As VHF radio signals travel in a line of sight they are obstructed by hills and mountains.
- The higher you are, the better the coverage.
- When you transmit on a particular frequency, all other radios in range on that frequency will hear your transmission.
- If you transmit while someone else is doing so on the same frequency, the stronger signal will override the weaker one at the listening station, or (more likely) both messages will be garbled and unreadable.

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§ For XCP Certificate purposes, certification in accordance with the procedures covered in this AC and the GNZ MOAP are equivalent to the relevant ASL examination. However, applicants to CAA for a PPL(G) or CPL(G) will require a CAR Part 61 flight radiotelephony credit from ASL or some other person delegated by CAA for that purpose.

Radio controls and indicators:

If an owner's manual is available, you should consult that. However, the basic controls and indicators are generally an on/off switch, volume control, frequency selector with display, a transmit indicator, a squelch control and a PTT (press to talk) button. Most radios also have a preset channel selector that is used for several commonly used frequencies.

Most modern aircraft VHF radios have 760 channels, allowing frequency selection in 0.025 MHz increments. Frequencies in use by ATC and airfields in New Zealand are generally set at a 0.100 MHz step, expressed (for example) as 119.1 or 126.3 MHz. However, frequencies allocated for special purposes, such as gliding, often use the 0.050 MHz step, eg 133.55 or 134.85 MHz. Many 760 channel radios display only two digits to the right of the "point", so switching through the frequencies in sequence appears (for example) … 133.50, 133.52, 133.55, 133.57, 133.60 …. In this example the 133.52 displayed actually sets 133.525, and the 133.57 displayed actually sets 133.575, because the channel spacing is always 0.025.

Selecting the working frequency is usually done by one or more rotary or push switches and an LCD display. Sometimes the display will show the working frequency and also a standby frequency, and there will be a button to swap between the two. In this case the frequency selection switches will change the settings on the standby frequency. A number of presets may be available, which are very handy for often-used frequencies.

The transmit indicator is usually a small symbol that blinks on the LCD display or a light that shows while your radio is transmitting. This is useful to verify that your microphone button is functioning correctly and especially that transmission stops when it is released. A stuck PTT button, which causes a continuous transmission, is a serious situation that should be monitored and prevented. This stops all incoming transmissions, as your radio can only receive or transmit, (not both at once) and it blocks or degrades the channel for all of the other users. It also broadcasts everything you are saying and what your audio variometer is sounding!

The squelch control is normally one position on a multi-position power switch (OFF/ON/SQ), but sometimes it may be incorporated into the volume control as a pull/push, or as a second adjustable rotary control. Normally you will have your squelch selected so that your radio will be silent on standby, with no hissing or background noise. When another station transmits, sensing circuitry in your radio automatically activates the audio output and you can hear the audio of the transmission. In this way, the squelch excludes undesired lower-power input signals that may be present at or near the frequency of the desired signal, such as "static". If you turn the squelch off, you will hear static, which is annoying but useful momentarily for checking the volume setting of your radio. Also, if an incoming signal is weak, fading in and out or is broken, turning the squelch to off or adjusting its level (if available) may assist in reception of the weak signal.

The PPT button blocks your receiver and makes your microphone live for transmission.

Speaking on the radio:

Key points to remember when using the radio are:

- First work out what you are going to say.
- Listen out before transmitting so you don't talk over someone else.
- Press the PTT button fully, pause, and then speak. Do not release the button until your message is complete.
- Use a normal conversation tone, speaking slowly and clearly, concentrating on your enunciation.
- Do not turn your head away from the microphone while talking, or vary the distance between it and your mouth. Severe distortion of speech may arise from talking too close to the microphone or touching it with your lips.
- Use the standard call structures and phraseology that follow.

3 Standard Call Structures and Phraseology

CAA Advisory Circular AC 91-9 (or AC 172-1) ***Radiotelephony Manual*** provides examples of standard radio telephony phraseology for use by pilots and ATC controllers, based on international standards. You can download it free from http://www.caa.govt.nz/rules/ACs.htm

There is a lot of detail in this publication that is obviously not applicable to gliders, so you don't need to know it all. However, you do need to know most of:

- General Procedures and Phraseology
- Flights entering or leaving controlled airspace
- Mandatory Broadcast Zones
- Common Frequency Zones
- Unattended aerodromes
- Distress and emergency phraseology

4 Transponders

All controlled airspace in NZ is transponder mandatory. In areas with radar coverage, having your transponder on will allow ATC to see you on their radar screen. Generally speaking, you will not get a clearance to enter controlled airspace without a working transponder.

The ATC radar system sends a signal that prompts your transponder to transmit a 'squawk' code that establishes your position, altitude, heading, and speed. The code is four digits and is settable by the pilot. For normal VFR operation of gliders outside controlled airspace you set the code to 1300. When you ask ATC for a clearance to operate in controlled airspace, the controller will normally tell you to 'squawk' a specific code that you must leave set on your transponder while operating in that airspace.

The transponder has a multi-position switch or switches labelled OFF, SBY, ON, ALT, TST.

- **OFF**- transponder is off.

- **SBY**- STANDBY mode - the unit is on but will not transmit information if interrogated (this allows warm-up, but some transponders do not have this feature).
- **ON**- transponder will send the 4 digit squawk code only – this is Mode A.
- **ALT**- transponder will send the code plus pressure altitude – this is Mode C.
- **TST**- selects a self test mode.

There is also an **IDENT** button that will cause your image on the ATC radar screen to flash. Do not use this feature unless instructed to by ATC.

Even in areas outside radar coverage, it is safer to leave your transponder on, and set to "ALT". This will assist any ACAS equipped aircraft (generally airline) to pick you up visually.

Emergency situations can be indicated to ATC by dialling your transponder to certain codes.

- Code 7700 to indicate an in-flight emergency.
- Code 7600 to indicate communication failure.

Therefore, when dialling a code into your transponder you MUST avoid passing through the 7000 series. If your transponder has a SBY mode, you should switch to that first, but remember to switch back to ALT afterwards.

5 ELTs

In all gliding operations more than 10nm from the aerodrome from which the glider took off, the glider must have an automatic 406 MHz ELT (Emergency Locator Transmitter) installed or the pilot must carry a 406 MHz PLB (Personal Locator Beacon).

406 MHz beacons transmit a digital message containing the country code and a unique identity code for the beacon. The country code indicates the country where details of the beacon registration are held. This unique code can also identify the aircraft that the ELT is installed in, or in the case of a PLB the name and contact details of the person carrying the PLB. It is therefore essential that the unique code entered in the ELT or PLB, together with the name and emergency contact details of the aircraft operator or owner is registered with the Rescue Coordination Centre of New Zealand (RCCNZ), and that any change in these details is also notified to RCCNZ.

A few other points to note:

- All ELTs/PLBs transmit the emergency code on 406 MHz, which is received in a matter of minutes by satellite and routed to the national rescue coordination centre (RCCNZ for ELTs coded for NZ). The RCCNZ knows immediately **who** is in trouble and has a fix on **where** the beacon is.
- Some ELTs/PLBs include a GPS receiver, and transmit the GPS coordinates in the 406 MHz signal to the satellite. With these beacons the position fix is much more accurate.

- All ELTs/PLBs also transmit a beacon signal on 121.5 MHz. This is useful to search aircraft for homing purposes, and also for checking for accidental beacon activation after each flight.

Whatever model of ELT or PLB you have, it is important you understand how to activate it. So read the manual and be sure you know how. You also need to know the testing and maintenance requirements.

- ELTs installed in the aircraft are normally automatically activated on impact. They can also be activated manually by either a remote switch on the panel, or an activation switch on the unit itself.
- PLBs carried by the pilot must be manually activated – usually by pulling a tab which unfurls the antenna and activates the beacon.

6 Written Examination

Appendix 1 contains a pool of multi-choice examination questions that should be used for assessing the candidate's knowledge for XCP purposes. It is a "closed-book" examination.

Appendix 2 is an Answer Sheet for candidates to mark their answers.

The examining instructor should select 30 questions of varied topics from the pool and write the relevant question numbers on the candidate's answer sheet.

The candidate should write their answer as A, B, C or D as appropriate against each question number on the answer sheet only (ie not on the question sheet.)

At mark of at least 70% must be achieved for a pass. If the candidate fails, a fresh set of 30 questions may be attempted on the day. However, if the candidate fails this second time, there should be a stand-down period of at least 30 days between successive attempts.

Completed answer sheets should be retained by the examining instructor or destroyed.

7 Practical Test of Radio and Transponder Use

XCP candidates need to be signed off on their syllabus sheets for the practical aspects of radio and transponder operation. This will be a practical demonstration of operating the equipment, changing frequency and squawk codes, and making and receiving calls. In most cases, much of the latter will have become routine during training in any case, but should include:

- Knowledge and use of the phonetic alphabet.
- Knowledge and use of phonetic numbers.
- Knowledge and use of standard phraseology.
- Knowledge and familiarity with the procedures and calls for the airspace in which the pilot will be flying.
- Knowledge and use of distress (MAYDAY) and urgency (PAN PAN) phraseology.

Appendix 1 Questions Pool

1	Why should standard phraseology be used?	A- It sounds professional B- So non-pilots won't understand what you are saying C- To minimise confusion and misunderstanding D- To keep your transmissions short
2	What should you check before using the radio?	A- That your radio is set to the correct frequency B- That your receiver volume is set at optimum level C- That your transmission will not interfere with another station D- All of the above
3	How can you check your radio is set to the correct frequency?	A- Check the frequency display on the radio B- Call 'Any stations- are you there?' on the radio C- Listen for traffic on the radio D- A and C, but not B
4	How can you check that your receiver is set at optimum level?	A- Set the volume control to a known good position B- Turn the squelch off, adjust the background noise so you can hear it, then turn the squelch back on C- Listen for other calls and adjust the volume as required D- Any of the above
5	How can you reduce the chance of your transmission interfering with another station?	A- Listen and wait until any existing calls are completed B- Say 'break, break, break' before your call C- Turn your squelch up to cancel their transmission
6	Which of the following microphone techniques are correct?	A- Do not turn your head away from the microphone while talking B- Do not touch the microphone with your lips C- Do not hold the microphone boom while talking D- All of the above
7	What is the correct method for transmitting?	A- Momentarily click the mic button and speak B- Press the mic button, short pause, speak while holding down the mic button, short pause, then release the mic button C- Press the mic button while speaking, but release it between sentences in case someone else is trying to transmit
8	What is the purpose of the short pause between pressing the mic button and speaking?	A- To give you time to think what to say B- To give the receiving station time to get ready to write down your transmission C- To give your radio time to stabilise in transmit mode, and or the receiving station radio time to unsquelch
9	What does a stuck microphone from another station generally sound like?	A- Continuous quiet B- Continuous whistle C- Continuous background noise and/or conversation
10	What might alert you to a stuck microphone on your radio?	A- No other radio traffic is heard B- Continuous whistle C- Continuous background noise and/or conversation

11	What are the checks to detect or prevent a stuck mic?	A- Check the transmit indicator is not continuously on B- Check the mic button is not pressed or jammed down C- Check you can hear other traffic on your radio D- All of the above
12	VHF is basically a 'line of sight' communications system.	A- True B- False
13	The lower your altitude the further and stronger your VHF transmissions will be.	A- True B- False C- Makes no difference
14	When you transmit you interfere with all others within range who may be transmitting on the same frequency.	A- True B- False
15	You are receiving a transmission in a broken patchy manner but it is otherwise readable. Which control is most likely to improve reception?	A- Tune the receiver plus or minus 0.025 MHz each side of the published frequency. B- Transmit on the same frequency for short bursts and then listen C- Adjust/use the squelch control so the radio produces continuous audio output. D- Turn off as much of the glider's electrical equipment as possible
16	You are concerned because you have not heard any radio transmissions for a long period of time. You suspect that you may have a stuck mike. Which of the following answers would **not** be useful steps to resolve this concern?	A- Check the transmit light/indicator on your radio B- Briefly change to a known continuous transmission (eg AWIB or ATIS) and check that you can receive it C- Use the squelch to verify that your radio will output audio D- Select the emergency frequency 121.5 MHz and listen
17	You are returning to an uncontrolled airfield with other traffic known to be in the area. While you are down wind a transmission starts but changes from readable speech to a combination of squeals and unreadable noise. You suspect that two stations are transmitting at the same time. What action should you take?	A- Turn the volume of your radio down B- Nothing, you are in the circuit and other radio traffic won't concern you C- Adjust you squelch so that only correct transmissions are received. D- Transmit a message as soon as possible stating 'Two stations at once'
18	You are in flight, your radio has been working fine, you change frequency to call ATC, and can't raise them. What checks should you first consider?	A- Check your squelch setting B- Check to see if the transmit indicator is active when you press PTT C- Check the frequency you selected D- All of the above

19	What is the correct phraseology to report a wind of 100 degrees at 5 knots?	A- wind wun zero zero degrees fife knots B- wind wun hundred degrees fife knots C- wind wun zero zero at fife knots
20	What is the correct phraseology to report an altimeter setting of 1020 hPa?	A- wun tousand twenty hectopascals B- QNH wun tousand twenty C- QNH wun zero two zero D- wun zero two zero hectopascals
21	What is the correct phraseology to report an altitude of 2500 feet?	A- two fife zero zero feet B- two tousand fife hundred feet C- twenty fife hundred feet D- altitude two tousand fife hundred
22	What is the correct phraseology to report a frequency of 119.1 MHz?	A- wun wun niner wun B- wun wun niner daycimal wun C- wun wun niner point wun
23	What are the rules for transmission of time?	A- Pronounce each digit separately B- Include the hour if any possibility of confusion C- Always include the minutes D- UTC must be used E- All of the above
24	The time is now 1530. How should you transmit a time of 1545?	A- four fife B- one fife four fife
25	The time is now 1530. How should you transmit a time of 1645?	A- four fife B- one six four fife
26	You have received an ATC clearance to operate in controlled airspace. What are your obligations about listening out on the ATC frequency?	A- You must remain on the frequency on which you obtained the clearance unless ATC tells you to change to another one B- You can change to any other frequency whenever you like C- You advise ATC that you wish to change frequency for a brief period and will advise when you are back on their frequency D- A or C, but not B
27	You call ATC for clearance during a very busy period and they reply with 'standby'. How should you respond?	A- Give up and go somewhere else B- Wait till the current transmission is finished and call again C- Wait until ATC calls you back D- Wait until ATC calls you back, but if there is a prolonged quiet period, call them again
28	'ACKNOWLEDGE' means...	A- The transmitter station is asking you to advise your location B- The transmitter is asking you to confirm that you have received and understood his message C- The transmitter is saying he has understood your message D- A third party asks you to repeat your message
29	'ROGER' means...	A- I have received your last message B- I understand and will carry out your instructions C- I will await your next call D- You are talking to Roger

30	'WILCO' means...	A- I have received your message B- Get back to me as soon as possible C- I have received your message and will comply D- I will come to your assistance
31	'OVER' means...	A- I have received a message and will comply B- I have finished my transmission and await your reply C- I have finished my transmission D- Is not used
32	'STANDBY' means...	A- Wait and I will call you B- Go to an alternative frequency and I will call you C- Switch to your alternative power supply system D- Hold your position
33	Your aircraft registration is ZK-GBC. How should you identify yourself to ATC?	A- 'glider zulu kilo golf bravo charlie' B- 'glider golf bravo charlie'' C- 'glider bravo charlie' D- 'glider golf bravo charlie', but if ATC then refers to you as 'bravo charlie' you may use the shorter designation
34	You miss the QNH that ATC gave you in your clearance. How should you respond?	A- Say nothing and keep your current QNH setting until you hear it given to another aircraft B- Respond with 'say again QNH' C- Read back the clearance you understood, and finish with 'say again QNH'
35	You make a mistake reporting your altitude. How should you correct it?	A- If you recognise the mistake immediately on saying it, say 'correction' and then the correct altitude B- If you recognise the mistake later in the transmission, say 'correction, altitude' and then the correct altitude C- If you recognise the mistake after completion of the transmission, call again and say 'correction, altitude' and then the correct altitude D- Any of the above
36	What is the correct form when making calls on a common frequency (eg 119.1)?	A- 'Omarama traffic' then your callsign, position and intent B- 'Omarama traffic', your callsign, position and intent, then 'Omarama traffic' C- Your callsign, position and intent, then 'Omarama traffic'
37	ATC instructs you to contact XYZ control on 123.4. How should you respond?	A- Change frequency and call XYZ control B- Respond with 'changing wun two tree daycimal four', then change frequency and contact XYZ control C- Respond with 'roger', change frequency and contact XYZ control
38	You are unable to follow the track or altitude clearance given due to a patch of cloud. How should you respond?	A- Call unable to maintain VMC on track/altitude and suggest a track or altitude that allows you to remain clear B- Continue as cleared C- Divert as required with no further reference to ATC

39	What should all readbacks finish with?	A- Your aircraft callsign B- The QNH C- The ATS unit callsign
40	Which ATC clearances MUST be readback?	A- Only those requested by ATC B- Only those for IFR flights C- All bar some minor exceptions
41	How should you respond to a message that does not require a readback?	A- Nothing is required B- Respond with your callsign
42	What should be included in a radio check call?	A- Station being called, callsign B- Station being called, callsign, 'radio check' C- Station being called, callsign, 'radio check', frequency
43	With a radio check, what is best (1 or 5), and what is the minimum useful level?	A- 1 best, 3 and below useful B- 1 best, 5 and above useful C- 5 best, 3 and above useful D- 5 best, 5 only useful
44	You are cleared to enter controlled airspace on track XYZ at FL 175 or below. What should your response be?	A- 'roger' B- 'wilco' C- 'cleared to track XYZ, flight level wun sev-en fife or below' followed by callsign D- 'copy that'
45	What are the essential elements of a position report?	A- Position B- Altitude C- Callsign D- All of the above
46	Which are the acceptable methods of position reporting in controlled airspace?	A- Abeam a prominent geographic feature B- Overhead a Visual Reporting Point C- Distance and bearing from an Airways VOR beacon D- B or C, but not A
47	Position reports using distance must be expressed in …	A- Statute miles B- Kilometres C- Nautical miles D- Any of the above
48	You have made a position call to ATC and as part of that stated you are 10 miles south of a reporting point. As you are finishing your transmission you realise you are actually 30 miles south, you say...	A- 'sorry control, I am 30 miles out, not 10' B- correction tree zero miles south C- control, that should read tree zero miles
49	You are about to request clearance to enter transponder mandatory (TM) airspace, but are **not** transponder equipped. What should you include in your clearance request?	A- Nothing- they will know you have no transponder from their radar screen B- 'negative transponder' C- You are NOT permitted to enter TM airspace without a transponder

50	You have asked for clearance, but have not received it by the time you reach the edge of the controlled airspace. What should you do?	A- Continue into the controlled airspace as you have made initial contact, and they know you are coming B- Tell the controller you are entering the controlled airspace C- Hold clear of the controlled airspace until clearance is received
51	At what position should you call 'downwind'?	A- Abeam the upwind end of the runway B- Midway down the runway C- Abeam the downwind end of the runway
52	The RTF traffic is busy and you can't get your downwind call in till well downwind. What should you do?	A- Call downwind as normal B- Wait until turning base and call then C- Call 'late downwind' as soon as you can
53	ATC asks you to squawk 4341. How should you respond?	A- Set your transponder to 4341 and press the ident button B- From now on reply as 'fower tree fower wun C- Set your altimeter to 4341 D- Reply 'fower tree fower wun' and your callsign, then set your transponder to 4341
54	ATC asks you to 'squawk ident'. How should you respond?	A- Reply with your callsign B- Reply with your current squawk code and callsign C- Momentarily press the ident button on your transponder and reply with your callsign D- Set your transponder to 'ident'
55	You have a MAYDAY situation and have a transponder. You should set it to...	A- 7500 B- 0000 C- 7700 D- 7600
56	At what point should you call asking for clearance to enter controlled airspace?	A- As you enter controlled airspace B- 10 minutes in advance of entering controlled airspace C- In sufficient time to allow ATC to assess the traffic situation and issue a clearance prior to the reaching controlled airspace D- Before take off
57	What should you include in your request to enter controlled airspace?	A- Current position and altitude B- Clearance being requested C- ATIS information received D- All of the above
58	How is transponder mandatory airspace indicated on an aeronautical navigation chart?	A- All controlled airspace is transponder mandatory unless marked otherwise B- All airspace above 1500 AGL is transponder mandatory C- 'TM' in bold after the height indications
59	ATC have asked you to call clearing their airspace. You are about to clear, what should you do?	A- Advise callsign, position, altitude B- Advise 'clearing your airspace' C- Advise the frequency you are changing to D- All of the above

60	When should you make your calls in a mandatory broadcast zone (MBZ)?	A- On entry and departure only B- On entry, at specified intervals, and on departure C- On entry, and at intervals as indicated on the aeronautical charts D- At key points in circuit (takeoff, downwind, finals, landing) only
61	Where are the required intervals between MBZ broadcasts found?	A- Broadcast intervals are entirely at the pilots discretion B- On the aeronautical charts C- On the AWIB broadcast for the MBZ
62	In general, what frequency is used for unattended airfields?	A- 123.45 B- 133.375 C- 119.1 D- Christchurch Information
63	What general rule should you follow for your radio calls at unattended fields?	A- Use standard phraseology and be concise B- Talk quickly to reduce airtime and RTF clutter C- Call at every point in the circuit to ensure other aircraft know where you are
64	Should 119.1 be used as a general chat channel?	A- Yes- it is the accepted aircraft to aircraft frequency to use B- No- it is specifically for use at unattended fields, and needs to be kept for that purpose
65	When should calls be made on arrival at an unattended airfield?	A- About 3-5 miles out B- Overhead C- Joining downwind D- Finals E- All of the above
66	How can you tell there is **no** NORDO traffic operating at an unattended airfield?	A- There are no radio calls B- There is no background aircraft engine noise at the field C- There is no NORDO traffic in sight D- You can't be sure. Vigilance is always required E- Radio equipped aircraft in the circuit will tell you if there are any NORDO aircraft operating in the area
67	When is a MAYDAY distress call made?	A- When you are in serious and/or imminent danger and require immediate assistance (eg fire, frozen controls) B- When you are lost in IMC C- When a potentially urgent situation has developed that ATC and/or other traffic needs to be alerted to
68	What is the general structure of a MAYDAY call?	A- 'MAYDAY, MAYDAY, MAYDAY', callsign, position, nature of emergency, intentions B- 'MAYDAY, MAYDAY, MAYDAY' and wait for ATC to respond
69	When is a PAN PAN urgency message used?	A- When there is immediate danger to life B- When there concern about the safety of an aircraft, or someone on board or within sight, but which does not require immediate assistance C- When your are lost in VMC

70	What frequency should you transmit a MAYDAY call on?	A- 121.5 MHz B- The air-ground frequency in use at the time of distress C- If on an unattended frequency and you think you can get better help on another frequency, you should do so after broadcasting this intention on the original one D- B or C above, as applicable
71	What frequencies does a 406 MHz ELT/PLB transmit on?	A- 121.5 MHz B- 406 MHz C- Both 121.5 MHz and 406 MHz D- 7700 MHz
72	How can you check at shutdown for inadvertent activation of your 406MHz ELT/PLB?	A- Listen on 406 MHz on your VHF radio B- Listen on 121.5 MHz on your VHF radio C- Check your ELT/PLB activation indicator D- B or C above
73	Under what conditions must a PLB or ELT be carried in a glider?	A- All flights with a passenger B- All flights further than 10NM from take-off C- All flights over water D- all of the above
74	How is a PLB be activated?	A- By impact or shock to the beacon B- By extending the antenna C- By pressing the activation button. D- By extending the antenna and holding the activation button down until the activity indicator flashes
75	What conditions may cause an automatic ELT to be activated?	A- A hard landing B- Impact from heavy items in the cockpit C- A crash D- Any of the above
76	You have made a safe outlanding in a rough paddock. What checks should you make of your ELT?	A- Turn it on. B- Turn it off. C- Check if it is transmitting. If it is, turn it off and call ATC or the RCC to cancel the emergency.
77	You are injured in a bad outlanding and require assistance. What checks should you make of your ELT/PLB?	A- If it is a fitted ELT, check it is activated and if necessary manually activate it B- If it is a portable PLB, extend the antenna and manually activate it C- No action is necessary, as they are automatically activated. D- A or B as appropriate

Appendix 2 Candidate Answer Sheet

Candidate Name: _____ Date: _____

Testing Instructor Name: _____ Mark: _____ %

Instructions:

Write your answer on this sheet as A, B, C or D alongside the question number. (Do NOT write your answer on the Question Sheet.)

Question No	Answer	✓
	Total No Correct	

Question No	Answer	✓
	Total No Correct	