092 IFR COMMUNICATIONS

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Help

TO NAVIGATE THROUGH THIS MANUAL

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Definitions

1. The student should be familiar with the following definitions and abbreviations:

Advisory Area. A designated area where air traffic advisory service is available.

Advisory Route. A designated route along which air traffic advisory service is available.

Aerodrome. Any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft.

Aerodrome Control Service. Air traffic control service for aerodrome traffic.

Aerodrome control radio station. A station providing radio communication between an aerodrome control tower and aircraft or mobile aeronautical stations.

Aerodrome Traffic. All traffic on the manoeuvring area of an aerodrome and all aircraft operating in the vicinity of an aerodrome.

Aerodrome Traffic Circuit. The specified flight path to be flown by aircraft operating in the vicinity of an aerodrome.

Aerodrome Traffic Zone. Airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.

Aeronautical broadcasting service. A broadcasting service intended for the transmission of information relating to air navigation.

Aeronautical fixed circuit. A circuit forming part of the Aeronautical Fixed Service (AFS).

Aeronautical Fixed Service (AFS). A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

Aeronautical fixed station. A station in the aeronautical fixed service.

Aeronautical fixed telecommunication network circuit. A circuit forming part of the Aeronautical Fixed Telecommunication Network (AFTN).

Aeronautical Fixed Telecommunication Network (AFTN). A world-wide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having he same or compatible communications characteristics.

Aeronautical mobile service. A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical radio navigation service. A radio navigation service intended for the benefit and for the safe operation of aircraft.

Aeronautical telecommunication log. A record of the activities of an aeronautical telecommunication station.

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

Aeronautical Station. A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be placed board a ship or an earth satellite.

AFTN communication centre. An AFTN station whose primary function is the relay or retransmission of AFTN traffic from (or to) a number of other AFTN stations connected to it.

AFTN destination station. An AFTN station to which messages and/or digital data are addressed for processing for delivery to the addressee.

AFTN origin station. An AFTN station where messages and/or digital data are accepted for transmission over the AFTN.

AFTN station. A station forming part of the Aeronautical Fixed Telecommunication Network (AFTN) and operating as such under the authority or control of a State.

Airborne Collision Avoidance System. An aircraft system based on SSR transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

Air-ground control radio station.
An aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

Air-report. A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

Air-to-ground communication. One-way communication from aircraft to stations or locations on the surface of the earth.

Aircraft Station. A mobile station in the aeronautical mobile service on board an aircraft.

Air-ground Communications. Two-way communication between aircraft and stations or locations on the surface of the earth.

AIRPROX. The code word used in an air traffic incident report to designate aircraft proximity.

Air Traffic. All aircraft in flight or operating on the manoeuvring area of an aerodrome.

Air Traffic Control Clearance. Authorisation for an aircraft to proceed under conditions specified by an air traffic control unit.

Air Traffic Service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service, approach control service or aerodrome control service.

Airway. A control area or part of a control area established in the form of a corridor equipped with radio navigation aids.

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

Approach Control Service. Air traffic control service for arriving or departing controller flights.

Area Control Centre. A term used in the United Kingdom to describe a unit providing en-route air traffic control services.

ATS direct speed circuit. An Aeronautical Fixed Service (AFS) telephone circuit, for direct exchange of information between Air Traffic Services (ATS) units.

Automatic Terminal Information Service (ATIS) (UK). The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

Base Turn. A turn executed by the aircraft during the initial approach between the end of the outboard track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Blind Transmission. A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

Broadcast. A transmission of information relating to air navigation that is not addressed to a specific station or stations.

Clearance Limit. The point to which an aircraft is granted an air traffic control clearance.

Communication centre. An aeronautical fixed station which relays or retransmits telecommunication traffic from (or to) a number of other aeronautical fixed stations directly connected to it.

Control Area. A controlled airspace extending upwards from a specified limit above the surface of the earth.

Controlled Airspace. An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Control Zone. A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

Cruising Level. A level maintained during a significant portion of a flight.

Decision Altitude/Height. A specified altitude/height in a precision approach at which a missed approach must be initiated if the required visual reference to continue the approach to land has not been established.

Duplex. A method in which telecommunication between two stations can take place in both directions simultaneously.

Elevation. The vertical distance of a point or level on, or affixed to, the surface of the earth measured from mean sea level.

Estimated Time of Arrival. The time at which the pilot estimates that the aircraft will be over a specific location.

Expected Approach Time. The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete its approach for landing.

Flight Information Centre. A unit established to promote flight information service and alerting service.

Flight Level. A surface of constant atmospheric pressure, which is related to a specific pressure datum, 1013.2 mb, and is separated from other such surfaces by specific pressure intervals.

Flight Plan. Specified information provided to air traffic services units, relative to an intended flight of an aircraft. Flight Plans fall into two categories: Full Flight Plans and Abbreviated Flight Plans.

General Air Traffic. Flights operating in accordance with civil air traffic procedures.

Ground-to-air communication. One-way communication from stations or locations on the surface of the earth to aircraft.

Headings. The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

Height. The vertical distance of a level, a point, or an object considered as a point measured from a specified datum.

Holding Point. A specified location, identified by unusual or other means in the vicinity of which the position of an aircraft in flight is maintained in accordance with ATC clearances.

IFR Flight. A flight conducted in accordance with the instrument flight rules.

Instrument Meteorological Conditions (IMC). Meteorological conditions expressed in terms of visibility, horizontal and vertical distance from cloud, less than the minima specified for visual meteorological conditions.

Interpilot air-to-air communication. Two-way communication on a designated air-to-air channel to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operation problems.

Known Traffic. Traffic, the current flight details and intentions of which are known to the controller concerned through direct communication or co-ordination.

Level. A generic term relating to the various position of an aircraft in flight and meaning variously, height, altitude or flight level.

Minimum Descent Altitude/Height. An altitude/height in a non-precision or circling approach below which descent may not be made without visual reference.

Missed Approach Point. The point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

Missed Approach Procedure (MAP). The procedure to be followed if the approach cannot be continued.

Mobile surface station. A station in the aeronautical telecommunication service, other than an aircraft station, intended to be used while in motion or during halts at unspecified points.

Movement Area. The Manoeuvering area and the aprons.

Network station. An aeronautical station forming part of a radiotelephony network.

Non-network Communications. Radiotelephony communications conducted by a station of the aeronautical mobile service, other than those conducted as part of a radiotelephony.

Procedure Turn. A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Radar Approach. An approach, executed by an aircraft, under the direction of a radar controller.

Radar Contact. The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

Radar Identification. The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

Radar Vectoring. Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

Radio direction-finding station. A radio station intended to determine only the direction of other stations by means of transmissions from the latter.

Radiotelephony network. A group of radiotelephony aeronautical stations which operate on and guard frequencies from the same family and which support each other in a defined manner to ensure maximum dependability of air-ground communications and dissemination of air-ground traffic.

Readback. A procedure whereby the receiving station repeats a received message or an appropriate part thereof back to the transmitting station so as to obtain confirmation of correct reception.

Regular station. A station selected from those forming an en-route air-ground radiotelephony network to communicate with or to intercept communications from aircraft in normal conditions.

Reporting Point. A specified geographical location in relation to which the position of an aircraft can be reported.

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off aircraft.

Runway Visual Range. The range over which the pilot of an aircraft on the centre line of a runway can expect to see the runway surface markings, or the lights delineating the runway or identifying its centre line.

Signal Area. An area on an aerodrome used for the display of ground signals.

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

Simplex. A method in which telecommunication between two stations takes place in one direction at a time.

Telecommunication. Any transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.

Terminal Control Area. A control area normally established at the confluence of airways in the vicinity of one or more major aerodromes.

Threshold. The beginning of that portion of the runway useable for landing.

Traffic Alert and Collision Avoidance System. See ACAS.

Tributary station. An aeronautical fixed station that may receive or transmit messages and/or digital data but which does not relay except for the purpose of serving similar stations connected through it to a communication centre.

VFR Flight. A flight conducted in accordance with the visual flight rules.

Visual Meteorological Conditions (VMC). Meteorological conditions expressed in terms of visibility, horizontal and vertical distance from cloud, equal to or better than specified minima.

Commonly Used Abbreviations

2. The abbreviations annotated with an asterisk are normally spoken as complete words. The remainder are normally spoken using the constituent letters rather than the spelling alphabet.

Categories of Message

A	
aal	Above Aerodrome Level
ACAS*	(A-kas) Airborne Collision Avoidance System (see TCAS)
ACC	Area Control Centre
ADF	Automatic Direction-Finding Equipment
ADR	Advisory Route
ADT	Approved Departure Time
AFIS	Aerodrome Flight Information Service
AFTN	Aeronautical Fixed Telecommunication Network
agl	Above Ground Level
AAIB	Air Accident Investigation Branch
AIC	Aeronautical Information Circular
AIRPROX*	Aircraft Proximity (replaces Airmiss/APHAZ)
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Services
AIRAC	Aeronautical Information Regulation and Control
amsl	Above Mean Sea Level
ANO	Air Navigation Order

ATA	Actual Time of Arrival
ATC	Air Traffic Control (in general)
ATD	Actual Time of Departure
ATIS*	Automatic Terminal Information Service
ATS	Air Traffic Service
ATSU	Air Traffic Service Unit
ATZ	Aerodrome Traffic Zone
C	
CAA	Civil Aviation Authority
CAVOK*	Visibility, cloud and present weather better than prescribed values or conditions (CAVOK pronounced Cav-okay)
CTA	Control Area
CTR	Control Zone
D	
DAAIS*	Danger Area Activity Information Service (DAAIS pronounced DAY-ES)
DACS*	Danger Area Crossing Service
DF	Direction Finding
DME	Distance Measuring Equipment
DR	Dead Reckoning
E	

EAT	Expected Approach Time
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
F	
FAF	Final Approach Fix
FIR	Flight Information Region
FIS	Flight Information Service
FL	Flight Level
Ft	Foot (feet)
G	
GAT	General Air Traffic
GMC	Ground Movement Control
H	
H24	Continuous day and night service (H24 pronounced Aitch Twenty Fower)
HF	High Frequency (3 to 30 MHz)
HJ	Sunrise to Sunset
I	
IAF	Initial Approach Fix
ICAO*	International Civil Aviation Organisation

IF	Intermediate Approach Fix
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IRVR	Instrumented Runway Visual Range
K	
kg	Kilogramme (s)
km	Kilometre (s)
kt	Knot (s)
M	
MAPt	Missed Approach Point
MATZ*	Military Aerodrome Traffic Zone
MDA/H	Minimum Descent Altitude/Height
MEDA*	Military Emergency Diversion Aerodrome
MET*	Meteorological or Meteorology
METAR*	Routine aviation aerodrome weather report
MLS	Microwave Landing System
MNPS	Minimum Navigation Performance Specifications
mb	Millibars

N	
NATS	National Air Traffic Service
NDB	Non-Directional Radio Beacon
NOTAM	A notice containing information concerning the establishment condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.
O	
OAC	Oceanic Area Control Unit
OCA	Oceanic Control Area
OCA/H	Obstacle Clearance Altitude/Height
P	
PAPIS*	Precision Approach Path Indicating System (PAPIS pronounced Pa-pee)
PAR	Precision Approach Radar
Q	
QDM	Magnetic heading (zero wind) (Sometimes employed to indicate magnetic heading of a runway)
QDR	Magnetic Bearing
QFE	The observed pressure at a specified datum (usually aerodrome or runway threshold elevation) corrected for temperature

QFF	Meteorologists determine a mean sea level pressure which is more accurate than the QNH by reducing the QFE to mean sea level using ambient rather than standard atmosphere temperature lapse rates. The MSL pressure thus obtained is termed the QFF.
QGH	Ground interpreted letdown procedure using DF equipment.
QNE	When flying above the transition altitude it is normal to set 1013mb on the altimeter subscale and maintain a flight level. When 1013 is set on the subscale, the height shown on the altimeter when the aircraft is on the ground is known as the QNE value.
QNH	The QFE reduced to mean sea level (MSL) pressure using the standard atmosphere lapse rate. The pressure altimeter is calibrated to the standard atmosphere, and so when QNH is set on the altimeter subscale the instrument indicates the airfield elevation at the airfield datum point. We talk above of reducing QFE to QNH. It is however a reduction in height which results in an increase in pressure when changing QFE to QNH for an airfield which is above MSL.
QTE	True Bearing
R	
RA	Resolution Advisory (see TCAS)
RCC	Rescue Co-ordination Centre
RPS	Regional Pressure Setting
RTF	Radiotelephone/Radiotelephony
RVR	Runway Visual Range

S	
SAR	Search and Rescue
SID*	Standard Instrument Departure
SIGMET*	Significant information concerning en-route weather phenomena which may affect the safety of aircraft operations
SRA	Surveillance Radar Approach
SSR	Secondary Surveillance Radar
STAR*	Standard (instrument) Arrival Route
T	
TA	Traffic Advisory (see TCAS)
TAF*	Terminal Aerodrome Forecast
TCAS*	Traffic Alert and Collision Avoidance System (Tee-kas)
TMA	Terminal Control Area
U	
UAS	Upper Airspace
UHF	Ultra-High Frequency
UIR	Upper Flight Information Region
UTA	Upper Control Area
UTC	Co-ordinated Universal Time
V	

VASIS*	Visual Approach Slope Indicator System (VASIS pronounced Var-zi)
VDF	Very High Frequency Direction-Finding Station
VFR	Visual Flight Rules
VHF	Very High Frequency (30 to 300 MHz)
VMC	Visual Meteorological Conditions
VOLMET*	Meteorological information for aircraft in flight
VOR	VHF Omnidirectional Radio Range
VORTAC*	VOR and TACAN combination

Direction Finding

3. Direction-finding stations work either singly or in groups of two or more stations under the direction of a main direction-finding station.

4. A direction-finding station working alone can only determine the direction of an aircraft in relation to itself.

5. A direction-finding station working alone should give the following, as requested:

   (a) True bearing of the aircraft, using the signal QTE or appropriate phrase.

   (b) True heading to be steered by the aircraft, with no wind, to head for the direction-finding station using the signal QUJ or appropriate phrase.

   (c) Magnetic bearing of the aircraft, using the signal QDR or appropriate phrase.

(d) Magnetic heading to be steered by the aircraft with no wind to make for the station, using the signal QDM or appropriate phrase.

6. When direction-finding stations work as a network to determine the position of an aircraft, the bearings taken by each station should be sent immediately to the station controlling the direction-finding network to enable the position of the aircraft to be determined.

7. The station controlling the network should, on request, give the aircraft its position in one of the following ways:

(a) Position in relation to a point of reference or in latitude and longitude, using the signal QTF or appropriate phrase.

(b) True bearing of the aircraft in relation to the direction-finding station or other specified point, using the signal QTE or appropriate phrase, and its distance form the direction-finding station or point, using the signal QGE or appropriate phrase.

(c) Magnetic heading to steer with no wind, to make for the direction-finding station or other specified point using the signal QDM or appropriate phrase, and its distance form the direction-finding station or point, using the signal QGE or appropriate phrase.

8. Aircraft stations shall normally make requests for bearings, courses or positions, to the aeronautical station responsible, or to the station controlling the direction-finding network.

9. To request a bearing, heading or position, the aircraft station shall call the aeronautical station or direction-finding control station on the listening frequency. The aircraft shall then specify the type of service that is desired by the use of the appropriate phrase or Q signal.

10. An aircraft station requiring a series of bearings or headings, shall call the direction-finding station concerned, on the appropriate frequency, and request the service by the signal QDL followed by other appropriate Q signals, except that when the series has commenced, the call signs of the stations may be omitted if no confusion is likely to arise.

11. As soon as the direction-finding station or group of stations is ready, the station originally called by the aircraft station shall where necessary request transmission for direction-finding service or send the appropriate Q signal, and, if necessary, indicate the frequency to be used by the aircraft station, the number of times the transmission should be repeated, the duration of the transmission required or any special transmission requirement.

12. In radiotelegraphy, the aircraft shall, after changing it necessary to the new transmitting frequency, reply by sending its call sign, two dashes of about ten seconds of duration each and then repeating its call sign, unless some other period has been specified by the direction-finding station.

13. In radiotelephony, an aircraft station which requests a bearing shall end the transmission by repeating its call sign. If the transmission has been too short for the direction-finding station to obtain a bearing, the aircraft shall give a longer transmission for two periods of approximately ten seconds, or alternatively provide such other signals as may be requested by the direction-finding station.

NOTE:

Certain types of VHF/DF stations require the provision of a modulated signal (voice transmission) in order to take a bearing.

14. When a direction-finding station is not satisfied with is observations, it shall request the aircraft station to repeat the transmission.

15. When a heading or bearing has been requested, the direction-finding station shall advise the aircraft station in the following form:

(a) The appropriate phrase or Q signal.

(b) Bearing or heading in degrees in relation to the direction-finding station, sent as three figures.

(c) Class of bearing except in QDL procedure

(d) Time of observation, if necessary.

16. When a position has been requested, the direction-finding control station, after plotting all simultaneously observations, shall determine the observed position of the aircraft and shall advise the aircraft station in the following form:

(a) The appropriate phrase or Q signal.

(b) The position.

(c) Class of position.

(d) Time of observation.

17. As soon as the aircraft station has received the bearing, heading or position, it shall repeat back the message for confirmation, or correction, except in QDL procedure.

18. When positions are given by bearing or heading and distance form a known point other than the station making the report, the reference point shall be an aerodrome, prominent town or geographic feature. An aerodrome shall be given in preference to other places. When a large city or town is used as a reference place, the bearing or heading, and the distance given shall be measured from its centre.

19. When the position is expressed in latitude and longitude, groups of figures for degrees and minutes shall be used followed by the letter N or S for latitude and the letter E or W for longitude, respectively. In radiotelephony the words NORTH, SOUTH, EAST or WEST shall be used.

20. According to the estimate by the direction-finding station of the accuracy of the observations, bearings and positions shall be classified as follows:

Bearings:

Class A - accurate within plus or minus 2 degrees;

Class B - accurate within plus or minus 5 degrees;

Class C - accurate within plus or minus 10 degrees;

Class D - accuracy less than Class C.

NOTE:

The observational characteristics for classification of bearings are given in the table of Appendix 41 to the current ITU Radio Regulations.

Positions:

Class A - accurate within 9.3km (5 NM);

Class B - accurate within 37km (20 NM);

Class C - accurate within 93km (50 NM);

Class D - accuracy less than Class C.

21. Direction-finding stations shall have authority to refuse to give bearings, heading or positions when conditions are unsatisfactory or when bearings do not fall within the calibrated limits of the station, stating the reason at the time of refusal.

NOTE:

Certain MF and HF direction-finding stations are maintained for emergency and distress use only. The use of these stations, the hours of service, the call sign, location and frequencies of communication stations, and certain exceptions to the above procedure are shown in the pertinent publications.

Categories Of Messages

22. The categories of messages handled by the aeronautical mobile service are in the following order of priority.

Distress messages Urgency messages
Communications relating to direction finding
Flight safety messages
Meteorological messages
Flight Regularity messages

} See Distress and Urgency Procedures

General Operating Procedures

General Operating Procedures

Standard Words and Phrases

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

Word/Phrase	Meaning
ACKNOWLEDGE	Let me know that you have received and understood this message.
AFFIRM	Yes
APPROVED	Permission for proposed action granted.
BREAK	Indicates the separation between messages.
CANCEL	Annul the previously transmitted message.
CHANGING TO	I intend to call . . . (unit) on . . .(frequency)
CHECK	Examine a system or procedure (no answer is normally expected)
CLEARED	Authorised to proceed under the conditions specified.
CLIMB	Climb and maintain
CONFIRM	Have I correctly received the following . . . ? or Did you correctly receive this message?
CONTACT	Establish radio contact with . . .(your details have been passed)

CORRECT	This is correct
CORRECTION	An error has been made in this transmission (or message indicated). The correct version is . . .
DESCEND	Descend and maintain
DISREGARD	Consider that transmission as not sent
FREECALL	Call . . .(unit) (your details have not been passed - mainly used by military ATC)
HOW DO YOU READ	What is the readability of my transmission
I SAY AGAIN	I repeat for clarity or emphasis
MONITOR	Listen out on (frequency)
NEGATIVE	No; or Permission not granted; or That is not correct
OVER*	My transmission is ended and I expect a response from you
OUT*	This exchange of transmissions is ended and no response is expected
PASS YOUR MESSAGE	Proceed with your message
READ BACK	Repeat all, or the specified part, of this message back to me exactly as received
REPORT	Pass requested information
REQUEST	I should like to know . . . or I wish to obtain . .

ROGER	I have received all your last transmission
	Under no circumstances to be used in reply to a question requiring 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
	No onward clearance to be assumed
VERIFY	Check and confirm
WILCO	I understand your message and will comply with it (abbreviation for will comply)
WORDS TWICE	As a *request* : Communication is difficult. Please send every word twice
	As *information*: Since communication is difficult, every word in this message will be sent twice

*Not normally used in U/VHF Communications

Note that in this and all subsequent examples, the pilot's transmission is shown in *italics* in the left column and the ATC response is in normal type in the right column.

Pushback

At many aerodromes at which large aircraft operate, the aircraft are parked nose-in to the terminal in order to save parking space. Aircraft have to be pushed backwards by tugs before they can taxi for departure. Request for pushback are made to ATC depending on the local procedures.

Centrair 4418 stand 5 request pushback	Centrair 4418 pushback approved or Centrair 4418 negative Expect two minute delay due A340 taxying behind

Full Pushback Procedure

* Denotes pilot transmission

… aircraft/ATC	*	a)	[aircraft location] REQUEST PUSHBACK;
		b)	PUSHBACK APPROVED;
		c)	STANDBY;
		d)	PUSHBACK AT OWN DISCRETION;
		e)	EXPECT (number) MINUTES DELAY DUE (reason);
… (ground crew/cockpit)		f)	ARE YOU READY FOR PUSHBACK;
	*	g)	READY FOR PUSHBACK;
		h)	CONFIRM BRAKES RELEASED;
	*	i)	BRAKES RELEASED;
		j)	COMMENCING PUSHBACK;
		k)	PUSHBACK COMPLETED;
		l)	STOP PUSHBACK;
		m)	CONFIRM BRAKES SET;

* n) BRAKES SET;

* o) DISCONNECT;

p) DISCONNECTING STANDBY FOR VISUAL AT YOUR LEFT (or RIGHT);

This exchange is followed by a visual signal to the pilot to indicate that disconnect is completed and all is clear for taxiing.

IFR Departures

At many airports both arrivals and departures are handled by a single approach control unit. At busier airports departures and arrivals may be handled separately.

In addition to the ATC route clearance, departing IFR flights may be given additional instructions to provide separation in the immediate vicinity.

Centrair 4418 Swanmore Approach continue heading 160 until passing FL80 then route direct Coddington

Heading 160 until passing FL80 then direct Coddington Centrair 4418

Centrair 4418 report passing FL80

Centrair 4418 passing FL80 Routing direct Coddington

Centrair 4418 contact Oakford Control 127.75

Oakford Control 127.75 Centrair 4418

Flights Joining Airways

Aircraft requiring to join an airway should make their request to the appropriate ATSU. Where no flight plan has been filed, the request should include the filing of an airborne flight plan. Where a flight plan has already been filed an abbreviated call may be made.

Oakford Control G-PPSC Request clearance to enter controlled airspace east of Finchurch at FL200 at time 08

G-PPSC cleared at time 08 from 10 miles east of Finchurch to Carston via R3, maintain FL200, squawk 5614

Cleared at time 08 from 10 miles east of Finchurch to Carston, via R3, maintain FL200, squawk 5614 G-PPSC

G-PPSC correct

Because of the prevailing traffic situation, a joining clearance may not be issued immediately.

G-PPSC remain outside controlled airspace expect joining clearance at time 12 time is 03

Remaining outside controlled airspace G-PPSC

In the event that the requested flight level is already occupied the controller will offer an alternative.

G-PPSC request FL140

G-PPSC unable approve FL160, FL180 available

G-PPSC accept FL 160

Flights Leaving Airways

Flights leaving controlled airspace will normally be given a specific point at which to leave, together with any other relevant instructions necessary to ensure separation.

G-PPSC cleared to leave controlled airspace west of Dunster at FL220 whilst in controlled airspace

Cleared to leave controlled airspace west of Dunster at FL220 in controlled airspace G-PPSC

An aircraft may request permission to leave controlled airspace by descent.

G-PPSC request permission to leave controlled airspace by descent

G-PPSC cleared to leave controlled airspace by descent. Report passing altitude 7500 feet (Regional) QNH 1018

Cleared to leave controlled airspace by descent will report passing altitude 7500 feet (Regional) QNH 1018 G-PPSC

In the above example the base of the airway is 5500 feet.

Flights Crossing Airways

An aircraft required to cross an airway should make its request to the appropriate ATSU.

Oakford control G-PPSC request crossing of R3 at Codlingford

G-PPSC Oakford control pass your message

G-PPSC Cherokee 20 miles southeast of Codlingford heading 330 FL80 IMC request crossing clearance of airway R3 at Codlingford FL80 at 1326

G-PPSC cleared to cross R3 at Codlingford, maintain FL80 whilst in controlled airspace. Report entering the airway

Cleared to cross R3 at Codlingford maintain FL80 in controlled airspace. Wilco G-PPSC

Flights Holding En-Route

When an aircraft is required to hold en-route, the controller will issue holding instructions and a time to which onward clearance can be expected. Where it is not self-evident, the reason for the delay should also be given.

Centrair 4418 hold at Codlingford FL220, expect onward clearance at 42, landing delays at Weston 25 minutes

Hold at Codlingford FL220 expect onward clearance at time 42 Centrair 4418

Position Reporting

Position reports shall contain the following elements of information:

(a) Aircraft identification.

(b) Position.

(c) Time.

(d) Level.

(e) Next position and ETA.

Centrair 4418 Exeter 23 FL200 Dorchester 33 Centrair 4418

Where adequate flight progress data is available from other sources, such as ground radar, aircraft may be exempted from the requirement to make compulsory position reports.

Centrair 4418 next report at Strensford

Wilco Centrair 4418

Centrair 4418 omit position reports this frequency

Wilco Centrair 4418

Centrair 4418 resume position reporting

Wilco Centrair 4418

Final Approach And Landing

A 'final' report is made when an aircraft turns onto final approach. If the turn on is made at a distance greater than 4nm from touchdown a 'long final' report is made. The landing/touch and go/ low approach clearance will include the runway designation.

G-SC final	G-SC cleared to land runway 28 surface wind 270 12
Cleared to land runway 28 G-SC	
Centrair 4418 long final	Centrair 4418 report final surface wind 170 22
Wilco Centrair 4418	
Centrair 4418 final	Centrair 4418 cleared to land runway 19 surface wind 175 20
Cleared to land runway 19 Centrair 4418	

NOTE:

Where established an 'outer marker' instead of a 'final' report may be made.

The runway may be obstructed when the aircraft makes its 'final' report at 4nm or less from touchdown but is expected to be clear in good time for the aircraft to make a safe landing. On these occasions the controller will delay landing clearance.

G-SC final G-SC continue approach surface wind 320 5

Continue approach G-SC

The controller may or may not explain why the landing clearance has been delayed but the instruction to 'continue' IS NOT an invitation to land and the pilot must wait for landing clearance or initiate a missed approach.

A landing aircraft may be permitted to touchdown before a preceding landing aircraft which has landed is clear of the runway provided that:

(a) The runway is long enough to allow safe separation between the two aircraft and there is no evidence to indicate that braking may be adversely affected.

(b) It is during daylight hours.

(c) The controller is satisfied that the landing aircraft will be able to see the preceding aircraft which has landed, clearly and continuously, until it is clear of the runway; and

(d) The pilot of the following aircraft is warned. (Responsibility for ensuring adequate separation rests with the pilot of the following aircraft).

Centrair 4418, land after the DC10, runway 19, surface wind 150 6

Land after the DC10 Centrair 4418

A pilot may request to fly past the control tower or other observation point for the purpose of visual inspection from the ground.

Centrair 4418 request low pass unsafe nose gear indication

Centrair 4418 cleared low pass runway 19 surface wind 150 6 not below 400 feet QFE 1021 report final

Cleared low pass runway 19 not below 400 feet QFE 1021 Wilco Centrair 4418

If the low pass is made for the purpose of observing the undercarriage, one of the following replies could be used to describe its condition but these examples are not exhaustive:

(a) Landing gear appears down.

(b) Right (or left, or nose) wheel appears up (or down).

(c) Wheels appear up.

(d) Right (or left, or nose) wheel does not appear up (or down).

For training purposes, a pilot may request permission to make an approach along, or parallel to the runway, without landing.

Centrair 4418 request low approach for training	Centrair 4418 cleared low approach runway 19 surface wind 150 6 not below 400 feet above threshold
Cleared low approach runway 19 not below 400 feet above threshold elevation Wilco Centrair 4418	

FISOs will use different phraseology to indicate that there is nothing to prevent an aircraft from landing.

Saltford Information G-PPSC final runway 19	G-PPSC Saltford Information land at your discretion surface wind 150 6

Alternatively, if the runway is obstructed, or there are other aircraft ahead on final, FISOs will use:

G-PPSC final runway 19	G-PPSC Saltford Information, the runway is obstructed with a taxiing aircraft
	or

G-PPSC Saltford Information, 2 aircraft ahead on final

G-PPSC

IFR Arrivals

Aircraft flying within controlled airspace will normally receive descent clearance to the clearance limit from the ACC prior to transfer to an approach control unit. On transfer to approach control further descent instructions may be given.

Wilmington Approach Centrair 4418 descending FL100 Information Echo	Centrair 4418 Wilmington Approach cleared direct to Axilby descend FL80
Direct to Axilby descend FL80 Centrair 4418	

Arriving IFR flights operating outside controlled airspace are not permitted to enter controller airspace until cleared to do so. In the examples below the initial approach fix is West Green NDB (or VOR), call sign WGN.

Wilmington Approach Centrair 4418	Centrair 4418 Wilmington Approach pass your message
Centrair 4418 14 miles west Wilmington IFR, FL140 estimating zone boundary 46 WGN 49 Infromation Echo	Centrair 4418 cleared from 12 miles west Wilmington to WGN at FL 85. Enter controlled airspace at FL 120 or below

Cleared from 12 miles west of Wilmington to WGN at FL 85. Enter controlled airspace west Wilmington at FL 120 or below Centrair 4418

Centrair 4418 expect ILS approach runway 06 QNH 1002

ILS runway 06 QNH 1002 request straight in approach Centrair 4418

Centrair 4418 cleared straight in ILS approach runway 06, descend to altitude 2000 feet QNH 1002, report established on the localiser

Cleared straight in ILS approach runway 06 descend to altitude 2000 feet QNH 1002, Wilco Centrair 4418

Centrair 4418 established on the localiser

Centrair 4418 QFE 1000

QFE 1000 Centrair 4418 runway in sight

Centrair 4418 Number 1 contact Tower 117.75

Number 1 Tower 117.75 Centrair 4418

Wilmington Tower Centrair 4418

Centrair 4418 Wilmington Tower report outer marker

Centrair 4418

Centrair 4418 outer marker

Centrair 4418 cleared to land runway 06 surface wind 040 8

Cleared to land runway 06 Centrair 4418

Wilmington approach G-ATPL

G-ATPL Wilmington Approach pass your message

G-ATPL C172 inbound from Washford IFR FL60 estimate WGN 05 Information Foxtrot

G-PL remain outside controlled airspace. Time is 59. Expect joining clearance at 07

Remain outside controlled airspace, G-PL

G-PL cleared from 12 miles west of Wilmington to WGN at FL60

Cleared from 12 miles west of Wilmington to WGN at FL60 G-PL

G-PL expect ILS approach runway 06

G-PL

G-PL descend to altitude 2000 feet QNH 1002

Descend to altitude 2000 feet QNH 1002 G-PL

G-PL cleared ILS approach runway 06 report WGN outbound

Cleared ILS runway 06, Wilco G-PL

G-PL WGN outbound

G-PL report procedure turn complete QFE 1000

Wilco, QFE 1000 G-PL
G-PL procedure turn complete localiser established

G-PL report at outer marker

Wilco G-PL

G-PL outer marker

G-PL contact Tower 117.75

Tower 117.75 G-PL

NOTE:

Pilots may be requested to change to tower frequency at any point on final approach.

On occasions IFR aircraft do not complete the instrument approach procedure but request permission to make a visual approach.

G-PL over WGN 2500 feet field in sight, request visual approach

G-PL cleared visual approach runway 06 QFE 1000 contact Tower 117.75

QFE 1000 Tower 117.75 G-PL

Normally a holding procedure is published. However, the pilot may require a detailed description of a specific holding procedure.

Centrair 4418 hold at Axilby FL 60 expect onward clearance at time 34

Hold at Axilby FL 60, request holding procedure Centrair 4418

Centrair 4418 hold at Axilby FL 60 inbound track 055 degrees turns right outbound time 1 minute

It should be noted that the above information is passed in the following order and is for holds other than VOR/DME:

(a) Fix.

(b) Level.

(c) Inbound track.

(d) Right or left turns.

(e) Time of leg.

Holding information for VOR/DME substitutes DISTANCE for TIME in (e) above.

Centrair 4418 request holding procedure	Centrair 4418 hold on the Penfold VOR/DME at 18 DME FL 110 inbound track 055 degrees turns right, limiting outbound distance 22 DME

Callsign for Aeronautical Stations

Aeronautical stations are identified by:

(a) The name of the location, and

(b) The unit or service available.

The unit or service may be identified in accordance with the table below except that the name of the location or the unit/service may be omitted provided satisfactory communication has been established..

Service	Suffix
Area Control Centre	CONTROL
Approach Control	APPROACH
Approach Control Radar Arrivals	ARRIVAL
Approach Control Radar Departures	DEPARTURE
Aerodrome Control	TOWER
Surface Movement Control	GROUND

Service	Suffix
Radar (in general)	RADAR
Precision Approach Radar	PRECISION
Direction-Finding Station	HOMER
Flight Information Service	INFORMATION
Clearance Delivery	DELIVERY
Apron Control	APRON
Company Dispatch	DISPATCH
Aeronautical Station	RADIO

There are three main categories of aeronautical communications service:

- Air traffic control service (ATC) which can only be provided by licensed Air Traffic Control Officers who are closely regulated by the CAA.
- Flight Information service at aerodromes can be provided only by licensed Flight Information Service Officers (FISOs) who are mainly self-regulating.
- Aerodrome air/ground communications service (A/G) which can be provided by Radio Operators who are not licensed but have obtained a certificate of competency to operate radio equipment on aviation frequencies from the CAA. These operations come under the jurisdiction of the radio license holder, but are not regulated in any other way.

It is an offence to use a callsign for a purpose other than that for which it has been notified.

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.

Aircraft Callsigns

An aircraft radiotelephony call-sign shall be one of the following types:

Type a) The characters corresponding to the registration marking of the aircraft, or

Type b The telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft.

Type c) The telephony designator of the aircraft operating agency, followed by the flight identification.

NOTE:

The name of aircraft manufacturer or name of aircraft model may be used as a radiotelephony prefix to the Type a) call-sign above.

NOTE:

The call-signs referred to in (a), (b) and (c) above comprise combinations in accordance with the ITU Radio Regulations (No.2129 and No.2130).

NOTE:

The telephony designators referred to in (b) and (c) above are contained in IAO Document 8585 - Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

NOTE:

Any of the foregoing call-signs may be inserted in Field 7 of the ICAO flight plan as the aircraft identification. Instructions on the completion of the flight plan from are contained in PANS-RAC, Document 4444.

When establishing communication an aircraft shall use the full callsigns of both stations:

Washford Tower G-PPSC	G-PPSC Washford Tower

After satisfactory communication has been established and provided that no confusion is likely to occur, the ground station may abbreviate callsigns (see table below). A pilot may *only* abbreviate the callsign of his aircraft if it has **first** been abbreviated by the aeronautical ground station

Abbreviated call-signs shall be in the following form:

Type a) The first character of the registration and at least the last two characters of the call-sign.

Type b) The telephony designator of the aircraft operating agency, followed by at least the last two characters of the call-sign.

Type c) No abbreviated form.

NOTE:

Either the name of the aircraft manufacturer or the aircraft model may be used in place of the first character in Type (a) above..

Full callsign	Abbreviation
G-PPSC	G-SC
Speedbird G-BOAC	Speedbird AC
N31029	N029
N753DA	N3DA
Midland 120	No abbreviation
*Piper G-ATPL	Piper PL

*The name of either the aircraft manufacturers or name of aircraft model may be used as a prefix to the callsign.

An aircraft should request the service required on initial contact when freecalling a ground station.

Compton Approach, G-PPSC Request Lower Airspace Radar Service

Oakford Control, G-PPSC I wish to file an airborne flight plan

An aircraft shall not change its callsign type during a flight. **However,** where there is likelihood that confusion may occur because of similar callsigns, an aircraft may be instructed by an air traffic service unit (ATSU) to change the type of its callsign temporarily.

Aircraft is the heavy wake turbulence category shall include the word 'HEAVY' immediately after the aircraft callsign in the initial call to each ATSU.

Issue of Clearance and Read Back Requirements

Provisions governing clearances are contained in the PANS-RAC (ICAO Doc 4444). A clearance may vary in content from a detailed description of the route and levels to be flown to a brief standard instrument departure (SID) according to local procedures.

Controllers will pass a clearance slowly and clearly since the pilot needs to write it down; wasteful repetition will thus be avoided. Whenever possible a route clearance should be passed to an aircraft before start up and the aircraft's full callsign will always be used. *Generally controllers will avoid passing a clearance to a pilot engaged in complicated taxiing manoeuvres and on no occasion when the pilot is engaged in line up or take-off manoeuvres.*

An ATC route clearance is not an instruction to take-off or enter an active runway. The words **"take-off" are used only when an aircraft is cleared for take-off.** At all other times the word **"departure"** is used.

The stringency of the read back requirement is directly related to the possible seriousness of a misunderstanding in the transmission and receipt of ATC clearance and instructions. *ATC route clearances shall always be read back unless otherwise authorised by the appropriate ATS* authority in which case they shall be acknowledged in a positive manner. Read backs shall always include the aircraft callsign.

Pilots of departing aircraft flying in controlled airspace which suffer radio communication failure prior to reaching cruising level should be aware of the procedures to be adopted when the following types of clearance (detailed in UK AIP RAC 6) are issued:

(a) Request level change en-route.

(b) Climb under radar.

(c) Temporary restriction to climb.

The ATC messages listed below are to be read back in full by the pilot. If the controller does not receive a readback the pilot will be asked to do so. Similarly, the pilot is expected to request that instructions are repeated or clarified if any are not fully understood.

(a) Level Instructions

(b) Heading Instructions

(c) Speed Instructions

(d) Airways or Route Clearances

(e) Runway-in-Use

(f) Clearance to Enter, Land On, Take-Off On,

(g) Backtrack, Cross, or Hold Short of an Active Runway

(h) SSR Operating Instructions

(i) Altimeter Settings

(j) VDF Information

(k) Frequency Changes

(l) Type of Radar Service.

G-PPSC cleared to cross R2 at Cromford, maintain FL 80 whilst in controlled airspace. Report entering the airway

Cleared to across R2 at Cromford, maintain FL 80 in controlled airspace, Wilco. G-PPSC

G-SC hold position

Holding G-SC

G-SC contact Ground 117.9

Ground on 117.9 G-SC

Centrair 4418 Squawk 5607

5607 Centrair 4418

Items that do not appear in the above list may be acknowledged with an abbreviated read back.

Centrair 4418 after the MD11 passing left to right, taxi to the holding point runway 06

After the MD11, holding point 06, Centrair 4418

If an aircraft read back of a clearance or instructions is incorrect, the controller shall transmit the word 'NEGATIVE' followed by the correct version.

G-SC QNH 1000

QNH 1010 G-SC

G-SC Negative, QNH 1000

QNH 1000 G-SC

If at any time a pilot receives a clearance or instruction with which he cannot comply, he should advise the controller using the phrase 'UNABLE' (COMPLY) and give the reason (s).

Centrair 4418 Oakford climb FL 300,
cross Cromford FL 220 or above

Oakford Centrair 4418 unable climb FL 300 due pressurisation limitations

Level Instructions

Only basic level instructions are detailed in this chapter. More comprehensive phrases are contained in subsequent chapters in the context in which they are most commonly used.

The precise phraseology used in the transmission and acknowledgement of the climb and descent clearances will vary, depending upon the circumstances, traffic density and nature of the flight operations.

However, care must be taken to ensure that misunderstandings are not generated as a consequence of the phraseology employed during these phases of flight. For example, levels may be reported as altitude, height or phases of flight. For example, levels may be reported as altitude, height or flight levels according to the phase of flight and the altimeter setting. Therefore, when passing level messages, the following conventions apply.

(a) The word 'to' is to be omitted from messages relating to FLIGHT LEVELS.

(b) All messages relating to an aircraft's' climb or descent to a HEIGHT or ALTITUDE employ the word 'to' followed immediately by the word HEIGHT or ALTITUDE. Furthermore, the initial message in any such RTF exchange will also include the appropriate QFE or QNH.

(c) The phrase 're-cleared' should not be employed.

	G-SC report your level
G-SC maintaining FL 80	
	G-SC descend FL 60
Descend FL 60 G-SC	
	G-SC report your level
G-SC maintaining altitude 4000 feet regional QNH 1018	
	G-SC descend to altitude 2000 feet Washford QNH 1016
Descend to altitude 2000 feet Washford QNH 1016 G-SC	
	G-SC descend to altitude 1500 feet
Descend to altitude 1500 feet G-SC	
	G-SC descend to height 1500 feet QFE 1015.
Descend to height 1500 feet QFE 1015 G-SC	

In the following examples the operations of climbing and descending are interchangeable and examples of only one form are given:

G-SC report passing FL 50

Report passing FL 50 G-SC G-SC passsing FL 50

G-SC maintain 3500 feet

Maintaining 3500 feet G-SC

G-SC climb FL 85

Climb FL 85 G-SC

G-SC reaching FL 85

G-SC request descent

G-SC descend FL 55

Descend FL 55 G-SC

Centrair 4418 after passing Axilby descend FL 50

After passing Axilby descend FL 50 Centrair 4418

Centrair 4418 stop descent FL 150

Stop descent FL 150 Centrair 4418

Exceptionally, a **best rate** of climb or descent may be required.

Centrair 4418 expedite descent FL 170

Expedite descent FL 170 Centrair 4418

Centrair 4418 climb FL 3000 expedite until passing FL 240

Climb FL 300 expedite until passing FL 240
Centrair 4418

Or

Centrair 4418 unable expedite climb due to pressurisation limitations

Under exceptional circumstances, if instant descent/climb is required, the word 'immediately' shall be used.

Centrair 4418 descend immediately FL 210 due traffic

Descend immediately FL 210 Centrair 4418

Pilots are expected to comply with ATC instructions as soon as they are issued. However, when a climb/descent is left to the discretion of the pilot, the words 'when ready' shall be used; in these circumstances the pilot will report 'leaving' his present level. *Should pilots be instructed to report leaving a level, they should inform ATC that they have left an assigned level only when the aircraft's altimeter indicates that the aircraft has actually departed from that level and is maintaining a positive rate of climb or descent, in accordance with published procedures.*

Centrair 4418 when ready climb FL250

When ready climb FL 250 Centrair 4418

Centrair 4418 leaving FL 170 Climbing FL 250

Centrair 4418

Action Required to be Taken in case of Communication Failure

Air to Ground

Ground to Air

Action Required to be Taken in case of Communication Failure

Air to Ground

1. When an aircraft fails to establish contact with the aeronautical station on the designated frequency, it should attempt to establish contact on another frequency appropriate to the route. If this attempt fails, the aircraft station should attempt to establish communication with other aircraft or other aeronautical stations on frequencies appropriate to the route. In addition, an aircraft operating within a network should monitor the appropriate VHF frequency for calls from nearby aircraft.

(a) When communication failure occurs or is suspected, the following points should be checked:

(i) The correct frequency has been selected for the route being flown.

(ii) The Aeronautical Station being called is open for watch.

(iii) The aircraft is not out of radio range.

(iv) Receiver volume correctly set.

(b) If the previous points are in order it may be that the aircraft equipment is not functioning correctly. Complete the checks of headset and radio installation appropriate to the aircraft.

(c) If the pilot is still unable to establish communication on any designated aeronautical station frequency, or with any other aircraft, the pilot is to transmit his message twice on the designated frequency preceded by the phrase 'TRANSMITTING BLIND' in case the transmitter is still functioning.

(d) Where a transmitter failure is suspected, check or change the microphone. Listen out on the designated frequency for instructions. It should be possible to answer questions by use of the carrier wave if the microphone is not functioning (see speechless code).

(e) In the case of a receiver failure transmit reports twice at the scheduled times or positions on the designated frequency preceded by the phrase 'TRANSMITTING BLIND DUE TO RECEIVER FAILURE'.

(i) An aircraft which is being provided with air traffic control, advisory service or aerodrome flight information is to transmit information regarding the intention of the pilot in command with respect to the continuation of the flight. Specific procedures for the action to be taken by pilots of IFR and Special VFR flights are contained in the appropriate AIP sections.

(ii) When an aircraft is unable to establish communication due to airborne equipment failure it shall, when so equipped, select the appropriate SSR code to indicate radio failure (A7600).

(iii) When the aircraft forms part of the aerodrome traffic at a controlled aerodrome, the pilot should keep a watch for such instructions as may be issued by visual signals.

Ground to Air

2. After completing checks of ground equipment (most airports have standby and emergency communications equipment) the ground station will request other aeronautical stations and aircraft to attempt to communicate with the aircraft which has failed to maintain contact.

3. If still unable to establish communication and aeronautical station will transmit messages addressed to the aircraft by blind transmission on the frequency on which the aircraft is believed to be listening.

4. These will consist of:

(a) The level, route and EAT (or ETA) to which it is assumed the aircraft is adhering.

(b) The weather conditions at the destination aerodrome and suitable alternate and, if practicable, the weather conditions in an area or areas suitable for descent through cloud procedure to be effected. (See AIP Section).

5. If the aircraft is in visual meteorological conditions it should:

(a) Continue to fly in visual meteorological conditions.

(b) Land at the nearest suitable aerodrome; and

(c) Report its arrival by the most expeditious means to the appropriate air traffic control unit; or

6. In instrument meteorological conditions or when weather conditions are such that it does not appear feasible to complete the flight in accordance with paragraph 5. the aircraft shall:

(a) Unless otherwise prescribed on the basis of regional air navigation agreement, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft's failure to report its position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan.

(b) proceed according to the current flight plan to the appropriate designated navigation aid serving the destination aerodrome (see Note) and, when required to ensure compliance with b) below, hold over this aid until commencement of descent;

(c) commence descent from the navigation aid specified as in (a), at or close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

(d) complete a normal instrument approach procedure as specified for the designated navigation aid; and

(e) land, if possible, within thirty minutes after the estimated time of arrival specified in b) or the last acknowledged expected approach time, whichever is later.

NOTE:

If the clearance for the levels covers only part of the route, the aircraft is expected to maintain the last assigned and acknowledged cruising level (s) to the point (s) specified in the clearance and thereafter the cruising level (s) in the current flight plan.

Distress and Urgency Procedures

States of Emergency

UK VHF Emergency Service

Use of the Service – General Procedures

Emergency Message

Speechless Code

Radio Procedures – Practice Emergencies

Training Fix

Relayed Emergency Message

Imposition of Silence

Cancellation of Emergency Communication and RTF Silence

Distress and Urgency Procedures

1. The following paragraphs describe the characteristics of the VHF International Aeronautical Emergency Service and the RTF procedures which should be used under the Aeronautical Mobile Service during an emergency in the UK. Additional information is published in the UK AIP (SAR and COM0 sections and AICs.

States of Emergency

2. The states of emergency are classified as follows:

Distress A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

Urgency A condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but not require immediate assistance.

Distress Signals

3. When a condition of grave and/or imminent danger threatens, requiring immediate assistance, distress signals are made using one or more of the following methods:

(a) the group SOS (...---...) in Morse Code is sent repeatedly by radiotelegraphy or by any other signalling method available (e.g. hand lamp or flashing the aircraft landing lights);

(b) a voice message is transmitted by radiotelephony, consisting of the word 'MAYDAY' repeated at least three times and followed, if practicable, with a brief description of the emergency and the aircraft location;

(c) rockets or shells throwing red lights, fired one at a time at short intervals;

(d) a parachute flare showing a red light.

NOTE:

Article 41 of the ITU Radio Regulations (Nos. 3268, 3270 and 3271 refer) provides information on the alarm signals for actuating radiotelegraph and radiotelephone auto-alarm systems:

4. 3268 The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended.

5. 3270 The radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone shall have a frequency of 2200 Hz and the other a frequency of 1 300 Hz, the duration of each tone being 259 milliseconds.

6. 3271 The radiotelephone alarm signal, when generated by automatic means, shall be sent continuously for a period of at least thirty seconds but not exceeding one minute; when generated by other means, the signal shall be sent as continuously as practicable over a period of approximately one minute.

Urgency Signals

7. The following signals, used either together or separately, mean that an aircraft wishes to give notice of difficulties which compel it to land without requiring immediate assistance:

(a) the repeated switching on and off of the landing lights;

or

(b) the repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.

8. The following signals, used either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:

(a) a signal made by radiotelegraphy or by any other signalling method consisting of the group XXX;

(b) a signal sent by radiotelephony consisting of the spoken words PAN, PAN, PAN. Urgency messages include messages preceded by the medical transports signal PAN, PAN, PAN MEDICAL

NOTE:

The term "medical transports" is defined in the 1949 Geneva Conventions and Additional Protocols and refers to 'any means of transportation by land, water, or air, whether military or civilian, permanent or temporary, assigned exclusively to medical transportation and under the control of a competent authority of a Party to the conflict.

PAN Medical Procedure

9. The use of the signal described above shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.

10. For the purpose of announcing and identifying aircraft used for medical transports, a transmission of the radiotelephony urgency signal PAN PAN, PAN preferably spoken three times, and each word of the group pronounced as the French work "panne", shall be followed by the radiotelephony signal for medical transports MAY-DEE-CAL, pronounced as in the French "medical". The use of the signals described above indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

(a) The call sign or other recognised means of identification of the medical transports.

(b) Position of the medical transports.

(c) Intended route.

(d) Estimated time en-route and of departure and arrival, as appropriate; and

(e) Any other information such as flight altitude, radio frequencies guarded, languages used, and secondary surveillance radar modes and codes.

UK VHF Emergency Service

Characteristics of the Service

11. Within the United Kingdom there are two Distress and Diversion (D&D) Sections located at Area Control Centres (ACC), one at West Drayton near London and the other at Kinloss in Scotland. They are manned by RAF control staff, who are assisted by suitably equipped civil and military units and certain HM Coastguard stations. They provide a VHF emergency service on the International Aeronautical Emergency frequency of 121.5 MHz.

12. The service provided is available continuously to all pilots flying within UK airspace. It provides assistance where pilots are in distress, in urgent need of assistance or experiencing difficulties that could develop into an emergency, such as uncertainty of location.

13. Provided that there is no actual emergency in progress on the UHF or VHF frequencies the service may also be available for practice emergencies. the UK AIP (COM Section) contains further information on the emergency service for civil pilots.

14. The principal function of the two D & D Sections is to provide an emergency aid and position fixing service for civil and military pilots. Over most of the London FIR and to the south and east of Manchester autotriangulation (Direction Finding) is available on 121.5 MHz. For other civil aircraft incidents where the VHF frequency is used the Sections rely on DF bearings passed by telephone from VDF equipped stations. it should be appreciated that this position-fixing procedure is relatively slow. This is because the bearing information received must be manually plotted onto 1:250,000 charts, which normally requires several minutes concentrated activity.

15. The accuracy of the position fix depends to a large extent upon the altitude of the aircraft requesting the service and its distance from the VDF stations used to obtain bearings. Below 3000 ft amsl the VHF fixing service coverage is limited and in areas where there is intervening high ground, such as Scotland, Wales and SW England, VDF location of low flying aircraft may be severely inhibited.

16. Where direction finding data on 121.5 MHz is unavailable the D & D controller is limited to that information available from secondary surveillance radar (SSR) and what the pilot in distress can provide concerning his route, last known position and observed topography.

17. An effective emergency communications aid service is also available at certain UK aerodromes, listed in the UK AIP. Some of these aerodromes maintain a continuous VHF listening watch on 121,5 MHz, although they may not necessarily be equipped with VDF or SSR.

18. Others which do have VDF, but do not maintain a listening watch on the VHF emergency frequency, may be asked by the D & D controller to provide bearing information and other assistance. In such a case, the controller may instruct the pilot the switch temporarily to the frequency of the station where VDF is available.

Use of the Service – General Procedures

19. The London D & D Section covers UK airspace south of latitude N55 and the Scottish Section covers the airspace north of N55. Emergency calls on 121.5 MHz should be addressed accordingly, unless the pilot is in doubt regarding his position in relation to latitude N55.

20. Once two-way communication with the D & D Controller has been established the pilot should not change frequency from 121.5 MHz without first telling the controller. It should be noted that the provision of emergency services by the D & D Sections of the ACC's is unique to the UK. Information on Search and Rescue (SAR) services is detailed in the UK AIP (SAR Section).

21. It is very much in pilots' own interest to contact the emergency services as soon as there is any doubt concerning the safe conduct of their flight. When so doing, it is vital to pass details of the difficulty being experienced and the nature of the service required as clearly and fully as possible. For example, a vague request for 'confirmation of position' is unlikely to be accorded the same priority as a clear statement that he is lost.

22. If a pilot is already in communication with a civil or military ATSU, before the emergency arises, assistance should be requested from the controller on the frequency is use. In this case, any SSR code setting previously assigned by ATC (other than the Conspicuity Code 7000) should be retained until instructions are received to change the code setting.

23. If however, the pilot is not in direct communication with an ATSU and the aircraft is equipped with an SSR transponder it should be switched, preferably before the emergency call is made, to Mode A Emergency Code 7700, with Mode C if available. If the transponding aircraft is high enough to be within secondary radar cover, the selection of the Emergency 7700 Code will alert the Emergency Controller to the presence of an incident by means of an audio and visual warning. The received SSR plot will show the precise location of the aircraft on the controller's radar display, and will then obviate the need for the emergency controller to carry out the more time-consuming manual aircraft position plotting procedure. Information on SSR operating procedures, including Special Purpose Codes 7700 (Emergency), 7600 (Radio Failure) and 7500 (Hijack or Other Act of Violence) are detailed in the RAC Section of the UK AIP.

Emergency Message

(a) MAYDAY/MAYDAY/MAYDAY' (or 'PAN PAN/PAN PAN/PAN PAN);

(b) Name of the station addressed (when appropriate and time and circumstances permitting);

(c) Callsign;

(d) Type of aircraft;

(e) Nature of the emergency

(f) Intention of the person-in-command;

(g) Present or last known position, flight level/altitude and heading;

(h) Pilot qualifications (See Note 1), viz:

Student pilots (see Note 2);

No Instrument Qualification; *urgency message* *urgency message*

IMC Rating

Full Instrument Rating.

(i) Any other useful information e.g. endurance remaining, number of people of board (POB) etc.

NOTE:

There are no ICAO requirements to include pilot qualifications in a distress message. However, this information should be included whenever possible in UK emergency messages as it may help the controller to plan a course of action best suited to a pilot's ability.

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24. Inexperienced civil pilots are invited to use the callsign prefix 'TYRO' when in communication with a military unit or the D&D Section to indicate their lack of experience. Upon hearing this code word, military controllers will ensure that they do not issue complex instructions that the pilot could have difficulty in following.

MAYDAY MAYDAY MAYDAY Woodcombe Tower G-PPSC Cherokee engine failure losing height intend an immediate forced landing 15 miles east of Woodcombe. Passing 4500 feet heading 260 PPL no instrument qualification 2 POB	G-PPSC Woodcombe Tower roger MAYDAY.....(any pertinent information)
MAYDAY MAYDAY MAYDAY Woodcombe Tower G-PPSC Cherokee engine failed. Will attempt to land Woodcombe, 10 miles east, 4500 ft heading 270 PPL no instrument qualification 2 POB	G-PPSC Woodcombe Tower roger MAYDAY cleared straight-in runway 24 wind 260 10 knots QFE 1018 you are number one

25. Action by the station addressed or first station acknowledging the distress message.

(a) The station addressed by aircraft in distress, or first station acknowledging the distress message, shall:Immediately acknowledge the distress message.

(b) Take control of the communications or specifically and clearly transfer that responsibility, advising the aircraft if a transfer is made.

(c) Take immediate action to ensure that all necessary information is made available, as soon as possible, to:

(i) The ATS unit concerned.

(ii) The aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements.

NOTE:

The requirement to inform the aircraft operating agency concerned does not have priority over any other action which involves the safety of the flight in distress, or of any other flight in the area, or which might affect the progress of expected flights in the area.

(d) Warn other stations, as appropriate, in order to prevent the transfer of traffic to the frequency of the distress communication.

Speechless Code

26. If an emergency message received by the Military Emergency Controller is weak or distorted to the point of being unintelligible, the pilot may be asked to adopt the Speechless Code. This entails the pilot pressing his transmit button a certain number of times and using carrier wave only transmissions which, by convention, have the following code meanings:

Number of Transmissions	Meaning
One Short	'Yes' or an acknowledgement
Two Short	'No'

Three Short	'Say again' (to be used by the pilot when he has not fully heard the controller's transmission , or he has not understood the transmission , or was an instruction and the pilot is unable to comply)
Four Short (letter H in morse)	'Request Homing' (to an airfield), or used for initial alerting. (A civil pilot should only use the four short transmissions if he is aware, or suspects before attempting to make initial contact with the Emergency Controller, that his own aircraft microphone is unserviceable. The Emergency Controller will then interrogate the pilot, using the callsign 'Speechless Aircraft' if the identity of the aircraft is unknown)
One long (2 secs)	'Manoeuvre Complete' (eg steady on heading)
One Long, Two Short and One Long (-..-) (letter X in morse	'My aircraft has developed another emergency'

27. An aircraft SSR transponder can also be used, during times of communication difficulties, by a pilot to acknowledge or respond to messages by the transmission of SSR Code changes or squawking 'Ident' as requested by the controller.

28. If neither the state if DISTRESS nor URGENCY applies, a service is available at lower priority to pilots who find themselves in DIFFICULTY. Such pilots should make their situation cleat and then provide as much information as possible to the emergency controller from the list previously described.

Radio Procedures – Practice Emergencies

29. Pilots may simulate emergency incidents (BUT NOT THE STATE OF DISTRESS) on 121.50 MHz to enable them to gain experience of the ATC service provided. Before calling, pilots should listen out on the emergency frequency to ensure that no actual or practice incident is already in progress. Practice calls need not disrupt a planned flight or involve additional expense in fuel or time since the pilot can request 'diversion' to his intended destination or cancel the exercise when necessary. Simulated emergency calls must be prefixed 'PRACTICE' and should be brief, e.g:

30. *'PRACTICE PAN, PRACTICE PAN, PRACTICE PAN*
London Centre G-PPSC'

31. The Emergency Controller will then indicate acceptance of the Practice Pan by transmitting:

32. 'G-PPSC, London Centre continue with PRACTICE PAN'

33. The Emergency Controller may instruct the pilot to call at another time, if the practice cannot be accommodated.

34. If a practice is accepted, the pilot should then pass his details. SSR Mode A Code 7700 should not be selected during a practice emergency exercise unless required by the Emergency Controller. Mode C should be switched on, if available.

Training Fix

35. Pilots who do not wish to carry out a practice emergency but only wish to confirm their position may request a 'Training Fix' on 121.5 MHz. This 'Training Fix' is secondary in importance to actual emergency calls, but takes precedence over practice emergency calls in the event of simultaneous incidents.

36. (Listen out before transmitting)

Training Fix, Training Fix, Training Fix, G-PPSC	G-PPSC, London Centre your position is 15 miles west of Dorchester

Relayed Emergency Message

37. Any aeronautical station or aircraft knowing of an emergency incident may transmit a distress message whenever such action is necessary to obtain assistance for the aircraft or vessel in distress. In such circumstances, it should be made clear that the aircraft transmitting is not itself in distress.

MAYDAY MAYDAY MAYDAY Woodcombe Tower G-PPSC has intercepted MAYDAY from G-OOPS I say again G-OOPS Piper Cub engine failure forced landing 5 miles south of Detling VOR, 2000 feet descending, heading 355, IMC rating, over	G-PPSC Woodcombe Tower Roger your relayed MAYDAY from G-OOPS

Imposition of Silence

38. Transmissions from aircraft in distress have priority over all other transmissions. On hearing a distress call, all stations must maintain radio silence on that frequency unless they themselves are required to render assistance and should continue to listen on the frequency concerned until it is evident that assistance is being provided. Stations should take care not to interfere with the transmission of urgency calls.

39. The aircraft in distress or the station in control of a distress incident may impose silence either on all stations in the area or on any particular station that interferes with distress transmissions. In either case, the message should take the following form:

(a) All stations Woodcombe Tower Stop transmitting MAYDAY

or

(b) G-PPSC stop transmitting MAYDAY

40. The aeronautical station acknowledging a distress message on a particular frequency may consider it prudent to transfer other aircraft from that frequency in order to avoid any disruption od transmission from or to the emergency aircraft.

MAYDAY G-OOPS. All other aircraft contact
Woodcombe Tower on 123.8, out

Cancellation of Emergency Communication and RTF Silence

41. When an aircraft is no longer in distress it shall transmit a message cancelling the emergency condition.

Woodcombe Tower G-OOPS cancel MAYDAY, engine restarted, runway in sight. request landing

Cleared to land runway 24 G-PS

G-PS cleared to land Runway 24. Surface wind 260 8

42. When a distress incident has been resolved, the station which has been controlling the emergency traffic will transmit a message indicating that normal working may be resumed.

All stations Woodcombe Tower MAYDAY traffic ended

Relevant Weather Information Terms

- Meteorological Information
- Runway Surface Conditions
- Automatic Terminal Information Service (ATIS) UK
- Voice Weather Broadcast (VOLMET) UK

Relevant Weather Information Terms

Meteorological Information

1. Meteorological information in the form of reports, forecasts or warnings is made available to pilots using the aeronautical mobile service either by broadcast (e.g. VOLMET) or by means of specific transmissions from ground personnel to pilots. Standard meteorological abbreviations and terms should be used and the information should be transmitted slowly and enunciated clearly in order that the recipient may record such data is necessary.

G-SC Highbridge Tower 1530
Weather surface wind
265 degrees 15 knots visibility
15 km, Nil weather, 4 oktas
20,000 feet temperature
plus 10, dew point plus 3,
QNH 10002 *QNH 1002 G-SC*

NOTE:

Cloud may also be reported as follows:

2. "Scattered at five hundred feet, scattered cumulonimbus at one thousand feet, broken at two thousand five hundred feet".

3. In the above example 'scattered' equates to 3 or 4 Octas and 'broken' equates to 5 – 7 Octas.

METAR

4. The METAR is a routine meteorological aerodrome report and contains information concerning actual conditions at the time of the observation. The basic format of the METAR message is as follows:

REPORT TYPE	METAR, a routine weather report, or SPECI, a special report which is issued between routine reports when conditions change significantly. Special reports are discussed shortly.
LOCATION DATE/TIME	Given as an ICAO four-letter station identifier. Where it is necessary to include this group after the station identifier (normally when the report is completed more than ten minutes removed from the normal observation time) a six-figure date/time group is given, followed by the letter Z to denote UTC. The first two figures give the day of the month and the last four figures the time.

SURFACE WIND

The wind direction is expressed as three digits and represents the **true** wind direction rounded to the nearest whole 10°.

The wind speed is expressed as two (exceptionally three) digits and is followed by an abbreviation which represents the units of measurement of wind speed (**KT** for knots, **KMH** for kilometres per hour and **MPS** for metres per second. For example 32025KT represents a wind of 320°(T) blowing at 25 knots.

The wind which is give is the mean wind over the ten minutes preceding the time of the observation.

5. An additional two (exceptionally three) figures are added when the maximum wind speed during the ten minutes preceding the time of the report exceeds the mean wind speed by 10kt or more. The mean wind speed digits and the maximum wind speed digits are separated by the letter **G**, for example 18025G40KT.

6. A calm condition is indicated by 00000 followed by the abbreviation for the wind speed units. With a wind of 3kt or less which is variable in direction the wind direction digits are replaced by the letters **VRB** followed by the wind speed and the abbreviation for the wind speed units. When the wind speed is 4kt or more, VRB will only be used when the variation in direction exceeds 1800.

7. If, during the ten minutes preceding the time of the observation, the total variation in wind direction is 600 or more, the two observed extreme directions between which the wind has varied are given in clockwise order, but only when the wind speed is greater than 3kt. The two extremes of wind direction are separated by the letter V. For example 32020G35KT 290V350 decodes as a wind which is varying in direction from 290°(T) to 350°(T) with a mean direction of 320°(T) and which has a mean speed of 20kt but a maximum speed (over a ten minute period) of 35kt.

VISIBILITY

8. When there is no marked variation in visibility by direction the surface horizontal visibility is given by four digits which represent the visibility expressed in metres. 9999 represents a visibility of 10km or more and 0000 a visibility of less than 50 metres.

9. When there is a marked directional variation in the visibility the reported minimum is followed by one of the eight points of the compass to indicate the direction, for example 3000SW decodes as a visibility of 3000 metres in a south-westerly direction (the visibility being better in other directions).

10. When the minimum visibility is less than 1500 metres and the visibility in another direction greater than 5000 metres, the value and direction of the maximum visibility will also be given, for example 1300SE 7000N.

RVR (if applicable)

11. An RVR group always includes the prefix **R** followed by the runway designator and the diagonal followed by the touchdown zone RVR in metres. If the RVR is assessed on two or more runways simultaneously the RVR group is repeated for each runway. Parallel runways are distinguished by appending the letters L, C or R (left, centre or right) to the runway designator. For example R23L/1100 R23R/1200.

12. When the RVR is greater than the maximum value which can be assessed the group will be preceded by the letter **P** followed by the highest value which can be assessed. When the RVR is assessed as more than 1500 metres it is reported as P1500. When the RVR is below the minimum value that can be assessed it is shown as a letter **M** followed by that minimum value, for example R04/M0050 means that the RVR in the touchdown zone of runway 04 is measured as less than the minimum assessable value of 50 metres.

13. It if possible to determine the mean values of RVR, the mean values over the ten minute period immediate preceding the observation are reported. Trends and significant variations are reported as follows:

14. **Trends**. If the RVR values during the ten minute period preceding the observation show a distinct increasing or decreasing tendency, such that the mean value during the first five minutes differs from the mean value during the second five minutes by 100 metres or more, this trend is reported. This is done by following the RVR value by the letter **U** (increasing) or **D** (decreasing). The letter **N** is used to indicate no significant change during the ten minute period. For example R30/1000D means that the mean touchdown zone value of RVR on runway 30 within the ten minutes preceding the time of observation is 1000 metres and that it has decreased by 100 metres or more during that ten minutes.

15. Significant Variations. When the RVR varies significantly such that, during the ten minute period preceding the observation, the one minute mean extreme values vary from the ten minute mean value by either more than fifty metres or more than 20% of the ten minute mean value (whichever is the greater), the one minute mean minimum and maximum values will be given in that order separated by the letter **V**. This group will replace the ten minute mean value, for example R09/0800V1100.

16. You might be relieved to learn that UK aerodromes will not be using RVR trend or significant variation reports for the time being, however you may encounter them on overseas METARs (or in the examination).

WEATHER

17. Each weather group may consist of the appropriate intensity indicators and letter abbreviations combined in groups of two to nine characters. If they appear (as two figures) the intensity indicators are taken from the full synoptic code. For examination purposes ignore these two figures. The abbreviations which are used in the weather groups are shown in the table at Figure 1.

18. When neither a -(light) or a +(heavy) appears where you might expect an intensity indicator, the phenomena should be assumed to be moderate.

19. Mixtures of precipitation types are reported in combinations as one group with the dominant type given first, possible prefixed by +(heavy), -(light), **SH** or **TS** as appropriate.

20. Up to three separate groups may be given to indicate the presence of more than one independent weather type.

21. Each weather group is encoded by working from top to bottom of the table at Figure 1, that is to say that the intensity or proximity comes first, followed by description and then the weather phenomena, for example MIFG (shallow fog), VCBLSN (blowing snow adjacent to but not at the aerodrome), +SHRA (heavy showers or rain) or RASN (predominately rain but also snow.

22. If necessary to clarify the difference between **BCFG** and **PRFG**. **BCFG** is taken to man fog patches randomly covering the aerodrome. **PRFG** indicates that a substantial part of the aerodrome is covered by fog while the remainder is clear, in other words fog banks.

23. Note that the abbreviations BR, HZ, FU, IC, DU and SA are not reported when the visibility is greater than 5000 metres.

CLOUD

Cloud (other than significant convective cloud) is reported in six character groups. In each group the first three characters are letters as follows:

FEW (few) to indicate one or two oktas.
SCT (scattered) to indicate three or four oktas.
BKN (broken) to indicate five to seven oktas.
OVC to indicate eight oktas.

The last three characters are figures which indicate the height of the cloud above aerodrome level in hundreds of feet.

Significant convective clouds are considered to be CB (cumulonimbus) and TCU (towering cumulus). When this type of cloud is observed the letters CB or TCU as appropriate are added to the six character group, for example SCTO18CB which indicates three or four oktas cumulonimbus with a base height of 1800ft above aerodrome level.

The reporting of layers or masses of cloud is made as follows:

The first group gives the lowest individual layer of any amount.

The second group gives the next individual layer of more than two oktas.

The third group gives the next higher layer of more than four oktas.

Any additional groups give details of any significant convective cloud (regardless of amount) if not already reported in the first three groups.

The cloud groups are given in ascending order of base height, for example SCT005 SCT010 SCT018CB.

When there is no cloud to report and CAVOK does not apply (discussed shortly), the cloud group is replaced by the letters SKC (sky clear).

Sky obscured is encoded as VV followed by the vertical visibility in hundreds of feet. When the vertical visibility cannot be assessed The group will read VV///. VV003 therefore decodes as sky obscured, vertical visibility 300ft. Vertical visibility is not presently reported in UK METARS.

CAVOK

The visibility, RVR, weather and cloud groups are replaced by CAVOK when the following conditions are observed:

The visibility is 10km or more.

There is no cloud below 5000ft or below the Minimum Sector Altitude, whichever is greater, and there is no cumulonimbus.

24. There is no precipitation; thunderstorms, shallow fog or low drifting snow.

AIR TEMPERATURE AND DEW-POINT

This group normally consists of two figures followed by an oblique followed by two figures, giving first the surface air temperature and then the dew-point, both in degrees celsius. When the temperature and the dew-point are below zero the figures are preceded by the letter **M**. Examples of the temperature/dew-point group follow:

03/01=temperature = 3°C, dew-point +1°C

M01/ M03=temperature = -1°C, dew-point -3°C

QNH

This is reported as a four figure group, preceded by the letter Q, giving the QNH rounded down to the nearest whole millibar. If the QNH is less than 1000mb the first figure in the group will be a 0, for example Q0994.

In the USA, QNH is given in inches of mercury. This will again be a four figure group, representing hundredths of inches, prefixed by the letter A. Therefore A2919 is a QNH of 29.19 inches.

Supplementary Information

RECENT WEATHER	Operationally significant weather which has been observed at the station since the last routine report or in the last hour (whichever period is shorter) but not at the time of the report (or if the phenomena is present at the time of the report, but has decreased in intensity), is included in the METAR and is preceded by the letters RE, for example RETS. Operationally significant weather is considered to be moderate or heavy rain (RERA), moderate or heavy drizzle (REDZ), moderate or heavy rain and drizzle (RERA), snow (RESN), blowing snow (REBLSN), ice pellets (REPE), hail (REGR), small hail and/or snow pellets (REGS), thunderstorms (RETS), dust or sand storms (RESS or REDS), volcanic ash (REVA) and funnel cloud (REFC).
WIND SHEAR	Windshear may be inserted if it is reported along the approach or take-off paths in the lowest 1600ft with reference to the runway. Windshear reports are preceded by the letters WS, for example WS TKOF RWY09, WS LDG RWY09. Windshear is not presently reported in UK METARs.
RUNWAY STATE	An additional eight-figure runway state group may be added to the end of a METAR when the runway is contaminated (by snow, standing water and so). The format of the eight-figure runway state group is as follows: First two digits Runway designator.

	Third digit	The type of contamination (wet snow, water patches and so).
	Fourth digit	Extent of runway contamination.
	Fifth and sixth digits	Depth of deposit.
	Seventh and eight digits	Friction co-efficient or braking action.

It is not intended to include the decode of the eight-figure group in this manual, it would be unwise to try and remember the full decode, mistakes could be painful. As an operating pilot however, you would be well advised to keep a copy of the decode in your flight folder. The full decode is to be found in the UK AIP, MET Section, Pages 3-5 to 3-7.

AUTO and RMK

Where a report contains fully automated observations with no human intervention, it will be indicated by the word **AUTO** inserted immediately before the wind group.

The indicator RMK (remarks) denotes an optional section containing additional meteorological elements.

RMK is not used with UK METARs.

MISSING INFORMATION

Information that is missing in a METAR or SPECI may be replaced by diagonals.

TRENDS

For selected aerodromes, a forecast of significant changes in conditions during the two hours following the time observation may be given. The letters **BECMG** (becoming) or **TEMPO** (temporarily) may appear and may then be followed by **FM** (from) followed by a four-figure time group and possibly **TL** (until) followed by a further four-figure time group. Alternatively the letters **AT** (at) followed by a four-figure time group may be used. Standard weather codes are then used to describe the expected changes. The letters **NOSIG** (no significant change) may be used to replace the trend groups. Examples of rends are given below:

BECMG FM1100 25034G59kt
TEMPO FM0630 TL0830 3000 SHRA

A trend will be appended to a METAR, providing that a forecaster is on duty (rather than an observer), whenever one or more of the following significant changes are expected to occur:

Wind velocity:

Changes in direction of 30 degrees or more, if the mean speed exceeds 20kt.

Changes in the mean speed of 10kt or more.

Changes in the gust speed of 10kt or more if the mean speed is 15kt or more.

Visibility:

Changes through 150m, 350m, 600m, 1500m, 3000m and 5000m.

Weather:

Onset, cessation, or change in intensity of thunderstorms, freezing precipitation, moderate or heavy drizzle or rain.

Onset or cessation of low drifting or blowing sand, dust or snow, squall, funnel cloud, sand or dust storm.

Cloud:

Change in cloud ceiling through or to 100, 200, 300, 500, 1000 or 1500ft (cloud ceiling is defined as the lowest level of cloud which obscures more than 4 oktas of the sky).

Change through or to 4 oktas for clouds having a base at or below 1500ft.

Special Reports

Additional METARs will be issued if the conditions change significantly since the last observation. The conditions which would give rise to a SPECI (special) METAR are given below. Note that within the UK a SPECI METAR is not normally transmitted beyond the station of origin.

Wind Velocity:

Change in direction of 30 degrees or more, if speed exceeds 20kt, or a change of 60 degrees or more if the mean speed is 10kt or more.

Changes in the mean speed of 10kt or more.

The difference between mean and maximum speed increases by 10kt or more, with a mean speed of 15kt or above.

Visibility:

Changes through 800, 1500, 5000 or 10,000 metres, also, when RVR values are not available, changes through 150, 350 and 600 metres.

RVR:

Changes through 150m, 350m, 600m and 800m.

Weather:

The onset or cessation of moderate or heavy rain, rain and snow, snow, ice pellets, snow pellets or hail.

The onset or cessation of freezing fog or freezing precipitation.

The onset or cessation of thunderstorms, squalls, funnel cloud, sand or dust storms and low drifting or blowing snow, sand or dust.

A change in intensity of any of the precipitation forms listed above from slight to moderate or heavy or from moderate or heavy to slight.

Cloudbase:

Changes of cloud ceiling through 100, 200, 300, 500, 700, 1000, 1500 or 2000ft.

Changes through or to 4 oktas for clouds having a base at or below 1500ft.

QNH:

Changes of pressure of 1mb or moe.

CAVOK:

A METAR which contained a CAVOK report will be replaced by a Special (SPECI) report if the visibility falls to below 10km or the cloud base falls to below 2000ft, or if CB is present.

25. The notes above on the METAR code may have served only to thoroughly confuse the reader. If so, an attempt at decoding the METARs given below will hopefully serve to prove how easy it really is. Remember that the information is always given in the order in which it was discussed above.

METAR 1

26. METAR EGLL 091220Z 14005KT 0450E R12/1000N DZ BCFG W//// 09/07 Q1004 NOSIG =

27. Decode

EGLL	London Heathrow
091220Z	At 1220 UTC on he 9th day of the month
14005KT	Mean surface wind (over a ten minute period) 140(T)/05kt
0450E	Visibility 450 metres to the east of the aerodrome

R12/1000	RVR at the touchdown zone of the runway 12 is 1000 metres with no significant change over a ten minute period
DZ	Moderate drizzle
BCFG	Patches of fog randomly covering the aerodrome
W////	Sky obscured, vertical visibility cannot be assessed
09/07	Air temperature +90C, dew-point +70C
Q1004	QNH 1004mb
NOSIG	No significant changes are forecast for the next two hours

METAR 2

METAR LFPB 091220Z 24015KT 200V280 8000 -RA SCT010
BKN025 OVC080 18/15 Q0983 TEMPO 3000 RA BKN008
OVC020 =

Decode

LFPB	Paris Le Bourget
091220Z	At 1220 UTC on the 9th day of the month

24015KT	Mean surface wind 240°(T)/15kt
200V280	Extremes of wind direction over a ten minute period from 200°(T) to 280°(T)
8000	Visibility 8000 metres
-RA	Light rain
SCT010	Lowest cloud base height 1000ft above aerodrome level (three or four oktas)
BKN025	Five to seven oktas of cloud base height 2500ft above aerodrome level
OVC080	Eight oktas of cloud base height 8000ft above aerodrome level
18/15	Air temperature +18°C, dew-point +15°C
Q0983	QNH 983mb
TEMPO	Temporarily within the next two hours
3000	Visibility 3000 metres
RA	Moderate rain
BKN008	Five to seven oktas of cloud base height 800ft above aerodrome level
OVC020	Eight oktas of cloud base height 2000ft above aerodrome level

METAR 3

28. METAR EGAA 091220Z 30025G37KT 270V360 1200NE 6000S

29. +SHSNRAGS SCT005 BKN010CB 03/M01 Q0999 RETS WS LDG

30. RWY27 BECMGAT1300 9999 SCT015 BKN100 =

31. Decode

EGAA	Belfast Aldergrove
091220Z	At 1220 UTC on the 9th day of the month
30025G37	KTMean surface wind direction 300(T), mean surface Wind speed (over ten minutes) 25kt, maximum Wind speed (over ten minutes) 37kt
270V360	Extremes of wind direction over a ten minute period from 2700(T) to 3600(T)
1200NE	Minimum visibility 1200 metres to the northeast
6000S	Maximum visibility 6000 metres to the south
+SHSNRAGS	Heavy showers of snow, rain and small hail
SCT005	Lowest cloud base height 500ft above aerodrome level (three or four oktas)
BKN010CB	Five to seven oktas cumulonimbus, base height 1000ft above aerodrome level

03/M01	Air temperature +30C, dew-point -10C
Q0999	QNH 999mb
RETS	Thunderstorms since the last report or in the last hour (whichever period is the shorter) but not at this time
WS LDG RWY27	Windshear has been reported below 1600ft on the approach to Runway 27
BECMGAT1300	Becoming at 1300 UTC
9999	Visibility 10km or more
SCT015	Three or four oktas, base 1500ft aal
BKN100	Five to seven oktas, base 10,000ft aal

32. **Volmet** broadcasts are essentially METARs transmitted in plain language. Similarly **ATIS** broadcasts (Automatic Terminal Information Service) contain plain language METARs (but now with the wind direction in degrees magnetic), together with details of runway in use, initial contact frequency, work in progress, and so on.

Runway Surface Conditions

33. When conditions of standing water, with or without reports of braking action, are brought to the attention of a controller, the available information will be passed to the aircraft likely to be affected.

34. Information on standing water will be passed in general descriptive terms, for example 'damp', 'wet', 'water patches' or 'flooded' according to the amount of water present.

35. When suitable equipment is available reports of braking action on wet runways will be passed to pilots.

36. Other runway surface conditions, which may be of concern to a pilot, will be passed by ATC.

Centrair 4418 braking action medium, heavy rain time of measurement 1215	*Centrair 4418*
Centrair 4418 displaced threshold runway 33 250 feet due broken surface	*Centrair 4418*

Automatic Terminal Information Service (ATIS) UK

37. At busy aerodromes the amount of voice radio transmissions necessary for control of aircraft in the air and on the ground is high. In order to avoid overloading controllers an Automatic Terminal Information Service (ATIS) continuously broadcasts routine arrival and departure information on a discrete RTF frequency or in conjunction with an appropriate VOR.

38. Pilots of inbound aircraft are normally required, when first contacting the aerodrome Air Traffic Service Unit (ATSU), to acknowledge receipt of current information by quoting the appropriate code letter of the ATIS broadcast.

39. ATIS broadcasts which should be no more than thirty seconds duration, will include the following:

40. Pilots of outbound aircraft are normally only required to acknowledge receipt of departure information unless the ATIS broadcast requests them to do so. In such cases the QNH given in the broadcast should be repeated, so that ATC can check that the ATIS quoted QNH is current.

41. The duration of the ATIS broadcast should not exceed thirty seconds and will include the following:

(a) Message identification i.e.: 'This is Stourton Information Alpha'. Each message is consecutively coded using the phonetic alphabet.

(b) Time of origin of weather report.

(c) Weather report.

(d) Runway (s) in use.

(e) Short term AIS information such as unserviceability of NAV AIDS, runway surfaces etc.

(f) Any other routine information useful to pilots operating at the aerodrome.

NOTE:

RVR/RVRs are not included, however, IRVRs may be available where approved.

NOTE:

Rapidly changing meteorological situations sometimes make it impractical to include weather reports in the broadcast. In these circumstances, ATIS messages will indicate that weather information will be passed on RTF.

NOTE:

Any significant change to the content of a current ATIS message will be passed to pilots by RTF until such time as a new message is broadcast.

NOTE:

The highest cloud base that will be reported is 10000 feet

42. Example of ATIS broadcast:

This is Bratton Approach Information Alpha. 1230 hours weather. 180° 8 kts. 15 km. Intermittent drizzle. 4 octas 1000 ft, 8 octas 1800 ft. Temperature +5. Dew point +7 QNH 997 mbs. Landing runway 19. Report information Alpha received on first contact with Bratton'.

NOTE:

A Trend may be included in an ATIS broadcast.

Aircraft Meteorological Observations

43. The following aircraft observations shall be made:

(a) Routine aircraft observations during en-route and climb-out phases of the flight; and

(b) Special and other non-routine aircraft observations during any phase of the flight.

Reporting Of Aircraft Observations During Flight

44. Aircraft observations shall be reported by air-ground data link. Where air-ground data link is not available or appropriate, aircraft observations shall be reported by voice communications.

45. Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.

Routine Aircraft Observations

46. When voice communications are used, routine observations shall be made during the en-route phase in relation to those air traffic services reporting points or intervals:

(a) At which the applicable air traffic services procedures require routine position reports; and

(b) Which are those separated by distances corresponding most closely to intervals of one hour of flying time.

47. In the case of air routes with high-density air traffic (e.g. organised tracks), an aircraft from among the aircraft operating at each flight level shall be designated, at approximately hourly intervals, to make routine observations. The designation procedures shall be subject to regional air navigation agreement.

48. In the case of the requirement to report during the climb-out phase, an aircraft shall be designated, at approximately hourly intervals, at each aerodrome to make routine observations.

49. When voice communications are used, an aircraft shall be exempted from making the routine observations when:

(a) The aircraft is not equipped with RNAV equipment; or

(b) The flight duration is 2 hours or less; or

(c) The aircraft is at a distance equivalent to less than one hour of flying time from the next intended point of landing; or

(d) The altitude of the flight path is below 1500m (5000ft).

Special And Other Non-Routine Aircraft Observations

50. Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

(a) Severe turbulence; or

(b) Severe icing; or

(c) Severe mountain wave; or

(d) Thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or

(e) Thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or

(f) Heavy dust storm or heavy sandstorm; or

(g) Volcanic ash cloud; or

(h) Pre-eruption volcanic activity or a volcanic eruption.

NOTE:

Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

51. In addition, in the case of transonic and supersonic flights:

(a) Moderate turbulence; or

(b) Hail; or

(c) Cumulonimbus clouds.

52. When other meteorological conditions not listed above e.g. windshear, are encountered and which, in the opinion of the pilot-in-command, may affect the safety or markedly affect the efficiency of other aircraft operations, the pilot-in-command shall advise the appropriate air traffic services unit as soon as practicable.

Voice Weather Broadcast (VOLMET) UK

53. VOLMET broadcasts are aerodrome meteorological reports for certain aerodromes. They take two forms, continuous and scheduled broadcasts. Details of the callsign, frequency, operating hours and aerodromes for which the service is provided are contained in the UK AIP.

54. Continuous VOLMET broadcasts are normally transmitted in the VHF band and they contain current meteorological reports for aerodromes, with trends where available.

55. Schedule VOLMET broadcasts are normally transmitted in the HF band and, in addition to aerodrome weather reports andtrends where available, may also contain forecasts.

56. The content of a VOLMET broadcast is as follows:

(a) Aerodrome identification (e.g. Bratton)

(b) Surface wind

(c) Visibility (Note 1)

(d) RVR (if applicable) (Note 1)

(e) Weather

(f) Cloud (Note 1)

(g) Temperature

(h) Dewpoint

(i) QNH

(j) Trend (if applicable)

(i) Non essential words such as ‘surface wind’, ‘visibility’ etc are not spoken.

(k) ‘SNOCLO’ is used to indicate that aerodrome is unusable for take-off/landings due to heavy snow on runways or snow clearance.

(l) All broadcasts are in English.

Morse Code and Phonetic Alphabet

Selective Calling (SELCAL)

Morse Code and Phonetic Alphabet

A	- —	Alfa
B	— - - -	Bravo
C	— - — -	Charlie
D	— - -	Delta
E	-	Echo
F	- - — -	Foxtrot
G	— — -	Golf
H	- - - -	Hotel
I	- -	India
J	- — — —	Juliett
K	— - —	Kilo
L	- — - -	Lima
M	— —	Mike
N	— -	November
O	— — —	Oscar
P	- — — -	Papa

Morse Code and Phonetic Alphabet

Q	— — - —	Quebec
R	- — -	Romeo
S	- - -	Sierra
T	—	Tango
U	- - —	Uniform
V	- - - —	Victor
W	- — —	Whiskey
X	— - - —	X-ray
Y	— - — —	Yankee
Z	— — - -	Zulu

1	- — — — —	6	— - - - -
2	- - — — —	7	— — - - -
3	- - - — —	8	— — — - -
4	- - - - —	9	— — — — -
5	- - - - -	10	— — — — —

Selective Calling (SELCAL)

1. SELCAL is a system by which voice calling is replaced by the transmission of coded tones on the frequency in use. Receipt of the assigned SELCAL code activates a calling system in the cockpit, and the need for a continuous listening watch by the pilot is obviated. Detailed SELCAL procedures may be found in Annex 10, Volume II.

2. For a flight during which it is anticipated that SELCAL will be used, the SELCAL code shall be included in the flight plan. However, if there is doubt that the ground station has the information, the pilot shall include the code of the aircraft SELCAL in the initial call using the phrase 'SELCAL (code number)'. If the SELCAL equipment is or becomes inoperative, the phrase 'INOPERATIVE SELCAL' should be used.

3. Any necessary SELCAL check shall be initiated by using the phrase 'REQUEST SELCAL CHECK'. Subsequent receipt of the SELCAL code tone should be acknowledged by the phrase 'SELCAL OK'.

4. In case the coded signal is weak or unable to activate the cockpit call system, the pilot should advise by using the phrase 'NEGATIVE SELCAL, TRY AGAIN'.

Niton Radio Centrair 4418 SELCAL AHCK	Centrair 4418 Niton Radio SELCAL AHCK
Niton Radio Centrair 4418 Request SELCAL check	Centrair 4418 Niton Radio Wilco (transmits SELCAL code applicable)

Centrair 4418 SELCAL OK

or

Centrair 4418

NEGATIVE SELCAL Try again

SELCAL Procedures

General

5. With the selective calling system known as SELCAL, the voice calling is replaced by the transmission of coded tones to the aircraft over the radiotelephony channels. A single selective call consists of a combination of four pre-selected audio tones whose transmission requires approximately 2 seconds. The tones are generated in the aeronautical station coder and are received by a decoder connected to the audio output of the airborne receiver. Receipt of the assigned tone code (SELCAL code) activates a cockpit call system in the form of light an/or chime signals.

6. SELCAL should be utilised by suitably equipped stations for ground-to-air selective calling on the en-route HF and VHF radio channels.

7. On aircraft equipped with SELCAL, the pilot is still able to keep a conventional listening watch if required.

Notification to Aeronautical Stations of Aircraft SELCAL Codes

8. It is the responsibility of the aircraft operating agency and the aircraft to ensure that all aeronautical stations, with which the aircraft would normally communicate during a particular flight, know the SELCAL code associated with its radiotelephony call sign.

9. When practicable, the aircraft operating agency should disseminate to all aeronautical stations concerned, at regular internals, a list of SELCAL codes assigned to its aircraft or flights. The aircraft should:

(a) Include the SELCAL code in the flight plan submitted to the appropriate air traffic services unit; and

(b) Ensure that the HF aeronautical station has the correct SELCAL code information by establishing communications temporarily with the HF aeronautical station while still within VHF coverage.

NOTE:

Provisions regarding completion of the flight plan are set forth in the Procedures for Air Navigation Services - Rules of the Air and Air Traffic Services (Document 4444).

Pre-Flight Check

10. The aircraft station should contact the appropriate aeronautical station and request a pre-flight SELCAL check and, if necessary, give its SELCAL code.

11. When primary and secondary frequencies are assigned, a SELCAL check should normally be made first on the secondary frequency and then on the primary frequency. The aircraft station would then be ready for continued communication on the primary frequency.

12. Should the pre-flight check reveal that either the ground or airborne SELCAL installation is inoperative, the aircraft should maintain a continuous listening watch on its subsequent flight until SELCAL again becomes available.

Establishment of Communications

13. When an aeronautical station initiates a call by SELCAL, the aircraft replies with its radio call sign, followed by the phrase "GO AHEAD".

En-Route Procedures

14. Aircraft stations should ensure that the appropriate aeronautical station(s) are aware that SELCAL watch is being established or maintained.

15. When so prescribed on the basis of regional air navigation agreements, calls for schedule reports from aircraft may be initiated by an aeronautical station by means of SELCAL.

16. Once SELCAL watch has been established by a particular aircraft station, aeronautical stations should employ SELCAL whenever they require to call aircraft.

17. In the event the SELCAL signal remains unanswered after two calls on the primary frequency and two calls on the secondary frequency, the aeronautical station should revert to voice calling.

18. Stations in a network should keep each other immediately advised when malfunctioning occurs in a SELCAL installation on the ground or in the air. Likewise, the aircraft should ensure that the aeronautical stations concerned with its flight are immediately made aware of any malfunctioning of its SELCAL installation, and that voice calling is necessary.

19. All stations should be advised when the SELCAL installation is again functioning normally.

SELCAL Code Assignment to Aircraft

20. In principle, the SELCAL code in the aircraft should be associated with the radiotelephony call sign, i.e. where the flight number (service number) is employed in the radio call sign, the SELCAL code in the aircraft should be listed against the flight number. In all other cases, the SELCAL code in the aircraft should be listed against the aircraft registration.

NOTE:

The use of aircraft radio call signs, consisting of the airline abbreviation followed by the flight service number, is increasing among aircraft operators throughout the world. The SELCAL equipment in aircraft should, therefore, be of a type which permits a particular code being associated with a particular flight number, i.e. equipment which is capable of adjustment in code combinations. At this stage, however, many aircraft SELCAL equipment's are of the single code type, and it will not be possible for aircraft with such

equipment to satisfy the principle set out above. This should not mitigate against use of the flight number type of radio call sign by an aircraft so equipped if it wishes to apply this type of call sign, but it is essential when a single code airborne equipment is used in conjunction with a flight number type radio call sign that the ground stations be advised in connection with each flight of the SELCAL code available in the aircraft.

ACAS/TCAS

21. ACAS/TCAS equipment reacts to transponders of other aircraft in the vicinity to determine whether or not there is a potential confliction. The warning (Traffic Advisory (TA)), based on the time to an assumed collision enables the pilot to identify the conflicting traffic, and if necessary, take avoiding action (Resolution Advisory (RA)). In the UK, this equipment is mainly referred to as 'TCAS', however, the use of 'ACAS' is an acceptable alternative in phraseology terms.

22. Pilots should report TCAS manoeuvres.

Centrair 4418 TCAS climb/descent	Centrair 4418 Roger
Centrair 4418 TCAS clear of conflict,returning to (assigned clearance)	Centrair 4418 Roger (Controllers may issue a revised clearance at this point)

23. The pilot should report a TCAS manoeuvre even if it was not possible to notify the Controller than an RA had occurred.

Centrair 4418 TCAS climb/descent, Clear of conflict, (assigned clearance) Resumed	Centrair 4418 Roger (Controllers may issue a revised clearance at this point)

24. Pilots should report that they are unable to comply with a clearance as a result of a TCAS alert.

Centrair 4418 unable comply, TCAS RA	Centrair 4418 Roger

25. In these circumstances the pilot should report when clear of the TCAS conflict.

Self Assessed Exercise No. 4

QUESTIONS:

QUESTION 1.

What are the two audio modulation tone frequencies in an R/T alarm signal?

QUESTION 2.

What is the duration of these tones?

QUESTION 3.

In weather reports what does BC mean?

QUESTION 4.

In a meteorological report, what does Q0987 mean?

QUESTION 5.

What are the two ways in which an aircraft may leave controlled airspace?

QUESTION 6.

List the contents of a PAN MEDICAL message

QUESTION 7.

Where in the UK is the northern Distress and Diversion cell situated?

QUESTION 8.

What latitude in the UK marks the diversion between the northern D & D call and the southern?

QUESTION 9.

In the event that an aircraft suffers an emergency, what is the first recommended frequency to be used?

QUESTION 10.

In the situation above, what SSR code should be used?

QUESTION 11.

When using the speechless procedure, how could you indicate a further emergency?

QUESTION 12.

What is the modulation format of a SELCAL coded tone?

QUESTION 13.

List the elements of a position report

QUESTION 14.

When may an aircraft be exempted from the requirement to make compulsory position reports?

ANSWERS:

ANSWER 1.

2200 Hz and 1300 Hz

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ANSWER 2.

250 milli-seconds

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ANSWER 3.

Patches

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ANSWER 4.

QNH 987 mb

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ANSWER 5.

At a specific point or by descent

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ANSWER 6.

Callsign, position, intended route, estimated time en-route and of departure and arrival, any other information.

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ANSWER 7.

RAF Kinloss (Morayshire)

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ANSWER 8.

55° north

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ANSWER 9.

The one in use.

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ANSWER 10.

The one presently allocated

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ANSWER 11.

“X” in Morse -..-

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ANSWER 12.

Four radio tones requiring about 2 seconds

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ANSWER 13.

aircraft identification

position

time

level

next position and ETA

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ANSWER 14.

Where adequate flight progress data, such as ATC radar, is available

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