

RTF DISCIPLINE - ADVICE TO PILOTS



HOW GOOD ARE YOU?

Introduction

Communication experts have found that there are three methods in which we communicate: “words, the way we say those words, and body language”. (Mehrabian. “Silent Messages”). Given the fact that body language accounts for 55% of this ratio it follows that words alone are not normally the principal means of communication. It is therefore vital, when using words alone, to ensure the correct message is understood. To achieve this aim the radio telephony (RTF) discipline, practised by both pilots and controllers alike, needs to be of the highest standard. Communication between pilots and controllers is a four-way process; information is transmitted, received, read back and received. There are, therefore, several chances of errors being made and consequently the need for clear and unambiguous communication between pilots and controllers is essential; it has been recognised as an important factor in assisting the safe and expeditious operation of aircraft, and by ensuring a high level of RTF discipline pilots can help minimise risk.

This safety leaflet provides information on areas that have been found to be the source of errors that have the potential to lead to a hazardous situation.

RTF Surveys

In a National Air Traffic Services (NATS) survey of RTF usage it was found that **80%** of RTF transmissions by pilots were incorrect in some form or other. Whilst not all of the errors were safety critical it does suggest that there is room for some improvement in the use of RTF.

A further survey by the Civil Aviation Authority (CAA), conducted at two major airports and the London Area and Terminal Control Centres, also found a high level of inaccurate RTF usage. Of particular note were two areas where safety could have been compromised. Over **a third** of initial calls on departure were incomplete, and **a quarter** of readbacks of clearances were in error.

What can you do?

When pilots provide incomplete information on their initial contact departure calls air traffic controllers are required to ask them for the information. This inevitably leads to additional calls on what might be an already busy frequency, leading to frequency congestion.

Following an incorrect clearance has significant safety risks. Level busts or even a collision could result if left unchecked. Fortunately air traffic controllers will normally detect such errors and correct them, but what if they do not?

By ensuring the readback of clearances are correct and the departure call adheres to the published format pilots can, firstly, reduce the risk of level busts with the attendant risk of a collision and, secondly, help in reducing frequency congestion.

The following provides advice on the correct RTF usage to be used:

Call on Departure.

When flying Instrument Departures (including those outside controlled airspace) you must include the following information on initial contact with the first en-route ATS Unit:

- Callsign;

- Standard Instrument Departure (SID) or Standard Departure Route Designator (where appropriate);
- Current or passing level;
- Initial climb level (i.e. the first level at which you will level off unless otherwise cleared. For example, on a SID that involves a stepped climb profile, the initial climb level will be the first level specified in the profile).

The inclusion of the current or passing level enables the air traffic controller to verify the accuracy of the Mode C readout. Equally important is the inclusion of the initial climb level. This confirms that your understanding of your cleared level is the same as the air traffic controller's. This confirmation reduces the chance of a level bust or, at worst, a mid-air collision.

Subsequent Frequency Changes.

When changing frequency, unless otherwise instructed, the initial call must include **aircraft identification and level information only**.

Level information must be included in the report as follows:

- If you are in level flight but cleared to another level, the call must include the **current level and the cleared level**;
- If you are climbing or descending, the call must include **the cleared level only**;
- If you have been assigned a **speed or a heading**, this information must also be included in the initial call on the new frequency.

Why is this?

By sticking to this format a mutual understanding is confirmed between you and the air traffic controller, and a minimum of time is used to pass on the information, thus reducing RTF congestion. Mode C confirmation is not required in this case because it has already been verified on departure.

Read back of Clearances.

An accurate read back of a clearance ensures mutual understanding between you and air traffic about what you are going to do. If a read back is inaccurate or incomplete it can lead to further RTF congestion, ----- or worse.

Other RTF Issues

Whilst the CAA RTF survey highlighted two specific issues where errors were being made there are other areas that are worth highlighting and where some additional clarification is required:

Amendment to Clearances

Adhering to the clearance given is clearly important at all times however there are some aspects of ATC clearances that raise questions in pilots' minds about what they are or are not cleared to do. Two examples of such questions are:

- An aircraft departs on a SID which involves a step climb but is then put on a radar heading. Do the step climbs still apply?
- An aircraft is given a clearance, 'descend FL150, cross XYZ FL180 or below' and then receives another clearance of 'descend FL130'. Does the 'cross XYZ FL180 or below' restriction still apply?

When an amendment is made to a clearance, the new clearance must be given in full to the pilot by the air traffic controller, and this new clearance automatically cancels any previous clearance.

Thus, when an air traffic controller issues a clearance, which amends the route or vertical profile of an aircraft on a SID, e.g. 'climb FL 120', this automatically cancels the vertical profile of the SID. If the profile contains a restriction which provides vertical separation from conflicting traffic on another SID, air traffic controllers must reiterate the restriction, e.g. 'climb FL120, cross XYZ 5000 feet or above'. Similarly, when air traffic controllers issue instructions which amend the SID route, they are to confirm the level profile to be followed e.g. 'fly heading 095, climb FL 80' or 'route direct to ABC, stop climb at altitude 5000 feet'.

Similarly, if the original clearance included a restriction, e.g. 'cross XYZ FL180 or below' then the issue of a revised clearance automatically cancels the earlier restriction, unless it is reiterated with the revised clearance.

Words

“Complaints about referees growing ugly”

“Milk drinkers are turning to powder” “Drunk gets nine months in violin case”

“Miners refuse to work after death”

In an attempt at brevity, phrases can sometimes be ambiguous as these newspaper headlines show. Clearly, in the safety critical flying environment there can be no room for misinterpretation; therefore the standard phrases and words used in RTF communication have been carefully chosen to avoid ambiguity, and to ensure their meaning is self-explanatory. Some words, however, are worthy of additional clarification:

Take-Off - this term will only be used in the context of a clearance to take-off.

Departure - for information concerning actions after take-off the word will be departure, e.g. *“Callsign after departure climb straight ahead to altitude 2500 feet.”* Thus the use of the word departure **does not imply a clearance to take-off**.

Flight Level Wun Hundred etc - flight levels ending in hundreds should always be transmitted as hundred rather than zero zero. Studies have shown that the use of 'zero zero' can be confused with the adjacent number i.e. One zero zero confused with one one zero.

Such confusion has led to a number of level busts. The correct call should be “*Callsign* climb flight level wun hundred.”

Degrees - any heading ending with a zero should always be followed by the word degrees. This is to avoid possible confusion between headings and levels, e.g. “*Callsign*” turn right heading two seven zero degrees” should therefore not be confused as a clearance to Flight Level 270.

To - the word “to” should **not** be used when climbing or descending to flight levels. It is very easily confused with ‘two’. For example the call should be “*Callsign* climb flight level two three zero”.

Guidance

Guidance on RTF phraseology can be found in CAP 413 – Radio Telephony Manual. This CAP provides pilots and Air Traffic Services personnel with a compendium of clear, concise, standardised phraseology for RTF communication in United Kingdom airspace. The CAP is available at:

www.caa.co.uk/application.aspx?categoryid=33&pagetype=65&applicationid=11&mode=detail&id=247

Operational details can be found in the United Kingdom Aeronautical Information Publication (UK AIP), and phraseology for air traffic controllers (consistent with CAP 413) is also published in CAP 493 - Manual of Air Traffic Services Part 1.

UK RTF phraseology is based on ICAO Annex 10 Volume 2 (Communications Procedures) to the Convention on International Civil Aviation, and ICAO PANS-ATM (Procedures for Air Navigation Services - Air Traffic Management) Doc. 4444. Where the ICAO standard phraseology may be misunderstood, or has weaknesses in the UK environment, different phraseology has been specified (and notified to ICAO). Significant differences between the ICAO standard phraseology and that specified for use in CAP 413 are described in Appendix 1 to the CAP.

Summary

Good RTF discipline is a significant factor in minimising errors in communication. It is therefore important for pilots to use RTF communications in a standardised manner to reduce the risk of misunderstanding, and therefore to reduce the risks inherent in aviation. By applying their professional skills in their use of the radio pilots are able to make a significant contribution to flight safety.