

FLARM loggers fitted to HGC aircraft

This document describes the logging capabilities of the FLARMs fitted to HGC aircraft. I have written it for pilots wanting to get evidence for badge claims etc. and for their Official Observers (OOs). I start by describing the FLARM fitted to the Junior and go on to mention the differences in the FLARMs fitted to the other HGC aircraft.

Junior FFV, Astir GAT

Both the Junior and the Astir are fitted with International Gliding Commission (IGC) approved Flight Recorder (FR) generally known as a logger with manufacturer serial ID G6UB, and 5TF respectively. It is part of the FLARM collision warning unit.

Recording

The FLARM will provide a record of every flight as long as a charged 12 V battery is connected – the master switch does not cut power to the FLARM. The logger has plenty of storage room and the current flight will overwrite older flights so that it is not necessary to delete old flights. It is important that the battery remains connected after landing sufficiently long for the landing to be recorded and for the log file to be closed – this can take up to 5 minutes. Flights remain in the logger until overwritten or deleted.

But does your flight need to be declared?

Tasks above Silver need to be declared by pre-loading the Flarm SD Card with an igc declaration file. One useful web page to help you do this is <https://flarmcfg.de>

Watch this video to see how. https://youtu.be/lq8ZQRjq9_4

Downloading

If your flight qualifies for a badge you should ask an OO to download your IGC trace for you. For less formal purposes you should download your trace yourself. There is a full guide to downloading provided by the FLARM manufacturer here: https://flarm.com/wp-content/uploads/2015/03/SD_manual_en.pdf The full operating manual is here: https://flarm.com/wp-content/uploads/man/FLARM_OperatingManual_E.pdf For downloading you will need a **microSD** card (not miniSD). Here is a simplified guide to downloading.

Insertion There is a small slot in the bottom right hand side of the face of the FLARM. The microSD card must be carefully inserted "upside down" (horizontal with the metal contacts on top) and then pushed in until the card locks in place. No force should be required to insert or remove the card.

Starting the download Interrupt power for at least 5 seconds by disconnecting and reconnecting the battery. The data-rate is slow so expect the download of up to 20 files to take several minutes. When the download has eventually finished the FLARM will initialise the collision warning function and show green LEDs for Power, GPS and Send. Receive may or may not light up.

Removal To remove the card push it into the FLARM until it releases, then carefully pull it out. The card is tiny so be careful not to drop it or let it spring out through your fingers!

Log file

Names of log files take a standard form defined by the IGC: **ymdcxxxn.IGC** where:

- **y** = Year; value 0 to 9, cycling every 10 years

- **m** = Month; value 1 to 9 then A for 10, B=11, C=12
- **d** = Day; value 1 to 9 then A=10, B=11, C=12, D=13, E=14, F=15, G=16, H=17, I=18, J=19, K=20, L=21, M=22, N=23, O=24, P=25, Q=26, R=27, S=28, T=29, U=30, V=31
- **c** = manufacturer's single-letter IGC identifier **G** for FLARM
- **xxx** = unique flight recorder serial ID **6UB**
- **n** = Flight number of the day; 1 to 9 then, if needed, A=10, B=11, etc

For example the second log file on 31st December 2020 would be named 0CVG6UB2.IGC The date and time shown in the file properties and directory or folder should be a few minutes after the landing time.

Validation of the file IGC files are coded in such a way that if anyone tampers with the recording, for example changes the altitude recording, it can be detected. The Federation Aeronautique Internationale (FAI) provides a service to check that an IGC file has not been tampered with. You can check that a file is valid using this web site: <http://vali.fai-civl.org/validation.html> An invalid file will not usually be accepted as evidence by the BGA.

BGA

The only way to send a log file to the BGA is by email to Luke Walker luke@gliding.co.uk with the pilot's name and claim in the title. If there are any technical shortcomings in the evidence the OO should look for all the evidence they can find to show that the pilot did in fact achieve the required soaring performance and send the evidence to Luke along with a covering letter.

Other HGC aircraft

The FLARM in EWG is effectively identical except that it is not IGC approved. If you try to validate an IGC file from EWG it will fail. Consequently a badge claim based solely on evidence from the FLARM in EWG may be rejected. On the other hand such a file is OK for National Ladder claims and other less formal purposes. It is even worth submitting a badge claim to the BGA with a covering letter explaining that the EWG does not have an IGC approved logger fitted. Power to the FLARM is not interrupted by the master switch but is subject to the setting of the battery I / battery II switch.

The FLARM in G-CIFO is identical to the one in EWG. A logger file from FO could be used to provide secondary evidence of release height and position where the evidence from the glider logger is inadequate or incomplete in this respect. The FLARM is switched on by the avionics power switch.

The FLARM in DSJ is of a different make known as an LX flarm Red Box. The main difference is its SD card reader/writer is separate and installed into the lower left-hand side of the front instrument binnacle. It is not IGC approved.

Phil King 25 March 2020

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