The GARMIN GPS Module in the CAI 302
Date and Flight – time wrong in flight logs

During the production of the 302 over 13 years GARMIN has improved the GPS modules used in the 302. As soon as these were available, newer module types were used in later serial numbers. In the last 2 years of production the GARMIN 15xL-W module was used. The 15xL is faster and more precise, and fortunately does not need a backup Battery (BuB), so the date problem is gone.. In total 2550 of these 302's are in use.

More and more often it occurred, that the flight date and time does not match the downloaded flights – which means, that this made the flights in OLC unvalid.
A typical wrong date is for example is 01/01/05, to read in the 303 display or in the flight file. In the past we did not know what made this happen, so we had to change the module. The older GARMIN GPS 25-LVC module has a soldered encapsulation to avoid EMV rays colliding with the processor and flight storage. Modules used in the beginning came without these covers, and we urged GARMIN to improve this.

Finally we opened the metal cover, and we found this BuB as „GARMIN's secret". The battery slowly lost its full 3Volt loading capacity after years, fed by the 302 on power. So the BuB collapses, mostly after the winter break – as one experiences with a car battery. I was able to buy spare cells in the USA, and after the BuB change (soldering) and an additional wake up procedure with a special fixture connected to the PC I had to tell the module what time and date we have this moment. Then only the GPS works again as it should. Although date and time is sent by the satellite, a GARMIN with an empty BuB ignored these data.

This repair takes about 2,5h, and is not always successful, because there could also be a problem in the GPS itself, or the 302 does not show the 3D bars in the main screen any more. Due to these facts we cannot make an exact cost estimate; the cost are around 200€ net.
To end this situation, we decided to only do the repairs using the GPS 15xL-W.
Additional soldering work has to done on the Port Board, so the 302 accepts the 15x. A new metal bracket now helps to assemble the smaller x15 to the starboard.

The Alternative to the 302:
Das new „Super-302" CNv* :
CNv Variometer System - Technology:
Flight file Transfer and loading of SW is performed fast via USB stick. Therefore no laptop used on the glider.
Files are downloaded within seconds tot he USB, as we are used on the 5.7" CNs flight screen.
All CNv „Intelligence" is stored in the small box called Air Data Computer "ADC". Open serial connection allows for OEM Navigation programs,
Sensors:
Superfast, precise 50 channel GPS module.
3- Axis G-Messer und 2 –Axis Rotation Sensor; 3-Achis Magnetometer, 3 precise Pressure sensors for Altitude(S), Pitot(P) and TE. T-sensor and GPS Antenna. Optional 1.6" display.
*IGC approved SFR=Secure Flight Recorder