

Spare parts can be split into two categories:

- 1) Consumable parts
- 2) Parts to be replaced less often or following exceptional events.

For both Vaisala and Degréane wind profilers the direction switching electronic components are subjected to the highest stress due to the intensity of the signal between the power amplifier and the antenna(s) as well as the switching repetition over time. The measurement cycles (made up of several dwells) can be organized in such a way that minimizes the number of commutations. Nevertheless, the relays of the phase shifters of Vaisala wind profilers and the antenna switch of Degréane wind profilers are parts to have on a shelf ready to replace failing parts. The relays in the Bessel filters (now available from Degréane mounted on a daughter board) proved to be useful spare parts as well. These are the spare parts in the consumable category.

The second category of spare parts groups elements that can fail sometimes due to regular wearing or exceptional events such as a lightning stroke. Elements connected directly to cables coming from outside are good candidates for such failures. Power supplies, limiters, circulators are other components exposed to high power levels, but by design they should be strong enough to hold for a longer time.

The basic question to be asked when it comes to deciding which spare parts to buy in anticipation of potential failure is that of the overall (contractual) data availability to be achieved. The availability of specific spare parts at the met office or provider facilities can contribute to reduce the instruments downtime but this security comes at a large price. Another parameter is the number of systems to be maintained up and running: The larger the number of systems, the easier to secure a return on costly spare parts (amplifiers, acquisition PCs, etc). A tradeoff has to be found.

The parts delivery time has to be taken into account as well.

Find below a list of recommended spare parts for Vaisala and Degréane wind profilers:

### **1 Vaisala (e.g. LAP3000)**

- Radar Processor Unit w/ LAP-XM SW, PIRAQ Signal Processor, Radar controller board, and Oscillator board (60001007M)
- Power Supply Unit - 230VAC (LAP3000VAC230)
- MODULATOR/IF/INTERFACE UNIT (MII) (60001090F)
- Audio Amplifier - 600 WATT 230 VAC 60 HZ (for RASS only) (218100)
- RASS Diaphragm Kit (Set of Four) (81256XX)
- 26 Relay Block Kit 915MHz 9P, 1290MHz 4/9P (LAP3000915RELAY9P)

## **2 Degreane (e.g. PCL1300)**

- Antenna switch
- Circulator
- Limiter
- Low noise amplifier
- Bessel filter

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