



Module Overview

This module is aimed at electronic engineers who wish to carry out a full maintenance on the electrical components of the Geochain and Geochain Slim tools.

Difficulty: Specialized

Max No. Per Group: 4 (3-4 Days)

Prerequisite: This is an advanced course for a more in-depth maintenance and repair of the Geochain electronic modules. The trainee requires a good understanding of electronic theory. This type of maintenance should only be undertaken in a suitable ESD lab environment with the appropriate instrumentation and completed by a technician that has been certified as passing the ATC-5 course.

If these conditions cannot be met please simply send any suspect/broken modules to your nearest ASL support base. Opening electronic modules by untrained personnel in an unsuitable environment may lead to further damage of item and loss of warranty.



M5.1 Technical Maintenance

Learning Objective: Trainees will be able to carry out technical maintenance of the TAS/Digitiser.

Topics:

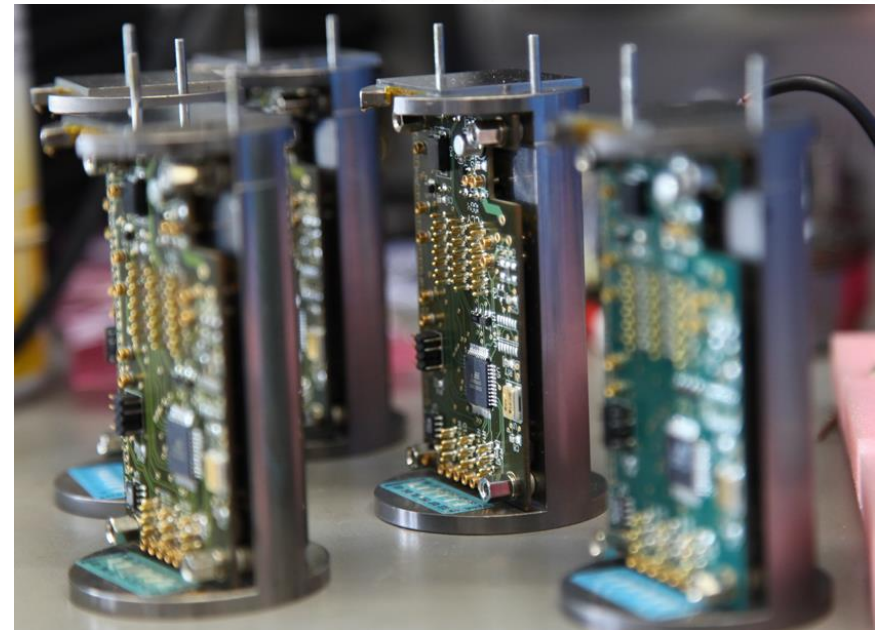
- Remove and Reflask Digitiser Electronics

M5.2 Advanced Electrical Maintenance

Learning Objective: Trainees will be able to carry out a full maintenance on the TAS/Digitiser/VRS.

Topics:

- Replacement of TAS/Digitiser Thermo Electric Cooler (TEC)
- Full Inspection. Replacement of VRS Diodes.



Advanced Electronic Equipment Maintenance Course

DAY 1 (Digitizer maintenance and repair)

- **Overview of Geochain Power Distribution**
 - Roles and functionality of TAS, Digitiser, VRS & Surface Panels.
- **String Testing & Initial Diagnosis**
 - Using ACQ Test Tool Box to QC electronics modules within a tool string.
- **Digitizer external inspection**
 - Heatsink head
 - Connectors
 - Wires
 - Flask
- **Basic functional testing**
 - TEC operation and testing
 - Forward bias testing on power and motor line transient suppression diodes
 - Isolation/insulation testing on transient suppression diodes and PSU
 - Motor circuit tests – No Load and load testing
 - Digitizer SINE/NOISE/PULSE
- **Digitizer disassembly**
 - Removal of the flask
 - Handling precautions



ATC Course

DAY 2 (Digitizer maintenance and repair)

- **Molecular Sieve Replacement**
- **Digitizer internal inspection**
 - Heatsink Head
 - Flask
 - Chassis
 - TEC
 - PCB's
- **Digitizer metal work component replacement**
 - Chassis
 - Flask
 - Heatsink head
- **Digitizer electronics component testing, fault finding and repair**
 - TEC testing
 - PSU output voltage tests during TEC operation
 - Digitizer quiescent current (TEC disconnected)
 - Motor circuit tests
 - TEC replacement
 - PSU replacement
 - Seismic board replacement
 - Main board replacement
 - Digitizer top PCB rewiring
- **Digitizer firmware re-programming**
- **Digitizer assembly**
 - Assembly and flasking procedure
- **Post maintenance testing**



Advanced Electronic Equipment Maintenance Course

DAY 3 (TAS Maintenance and repair)

•TAS external inspection

- Heatsink head
- Connectors
- Wires
- Flask

•Basic functional testing

- TEC operation and testing
- Forward bias testing on power transient suppression diodes
- Isolation/insulation testing on transient suppression diodes and PSU
- Gamma
- TCU compression and tension
- TAS SINE/ZERO

•TAS disassembly

- Removal of the flask
- Handling precautions

•TAS internal inspection

- Heatsink Head
- Flask
- Chassis
- TEC
- PCB's

ATC Course



DAY 4 (TAS Maintenance & Repair Continued)

•TAS metal work component replacement

- Chassis
- Flask
- To also cover arrangement of old/new style flasks and old/new style chassis compatibility
- Heatsink head
- TAS power core replacement

•TAS Transformer inspection

- Wires
- Cores

• TAS electronics component testing, fault finding and repair

- TEC testing
- PSU output voltage tests during TEC operation
- TAS CPLD 3.3V line test
- TAS quiescent current (TEC disconnected)
- TEC replacement
- PSU replacement
- Main board replacement
- TAS top PCB rewiring (cover topic if new heatsink head is required)
- TAS firmware re-programming

•TAS assembly

- Assembly and flasking procedure

•TAS transformer testing, fault finding and repairs

- Continuity/Insulation
- Cores inductance

•Post maintenance testing

Advanced Electronic Equipment Maintenance Course

DAY 4 Cont'd (VRS Testing & Post Maintenance)

•VRS diagnostics and repair

- Basic functional checks
- Fault diagnosis
- Identifying a faulty regulator module
- Identifying a wiring fault
- Repair procedures
- Replacement of a regulator module
- Rewiring a VRS

•Post maintenance test procedures

•Discussion of good electronic maintenance practice

ATC Course

