
Maintenance training

Availability and reliability backed by maintenance

Customers demand high levels of availability and reliable operation from their magnet systems. Breakdowns and maintenance stoppages need to be kept to an absolute minimum. All TRUNINGER systems are designed with low maintenance in mind. Nevertheless, some preventative maintenance is necessary for ensuring optimum availability and reliable operation as well as guaranteeing a long service life.

Maintenance levels

TRUNINGER splits maintenance into three levels:

Maintenance level 1: Performed by the customer

Level 1 preventative maintenance includes several tasks that help to ensure the system's required high level of availability. The maintenance training goals include:

- Familiarity with all maintenance level 1 safety guidelines
- Ability to carry out cleaning tasks and mandatory system checks
- Familiarity with all operating functions and the ability to detect, isolate, analyse and report malfunctions
- Ability to detect mechanical damage to load-bearing components, magnets, cables or cable reelers, and to produce fault reports
- Knowledge of how an event can be displayed on InfoPick and keeping records of relevant events
- Understanding that no maintenance work may be done on any electrical components (part of level 2 maintenance)

Level 1 maintenance specifically excludes:

- Opening the doors of the magnet controller
- Troubleshooting of any electrical components, taking meter readings, etc.
- Replacing any mechanical or electrical components

Maintenance level 2: Performed by trained maintenance staff

As a basic requirement for carrying out level 2 maintenance work an individual must be able to show operator and level 1 maintenance qualifications and also must have received level 2 maintenance training at the TRUNINGER premises. Technicians performing level 2 maintenance tasks will typically have the following know-how and skills:

- Knowledge of all maintenance level 2 safety guidelines
- Knowing how to download the event log via Bluetooth or serial interface, save on a PC and, if necessary send via email
- Ability to isolate faults based on the event log
- Ability to replace defined mechanical or electrical spare parts
- Ability to perform software updates on the magnet controller
- Ability to restart the magnet system

Level 2 maintenance specifically excludes:

- Controller hardware upgrades or configuration changes

Maintenance level 3: Performed by TRUNINGER or approved agent

Level 3 maintenance tasks must be performed by TRUNINGER technicians or by TRUNINGER-approved local agents. Level 3 maintenance tasks cover any changes affecting the way in which the system is used in terms of functionality and safety. For example:

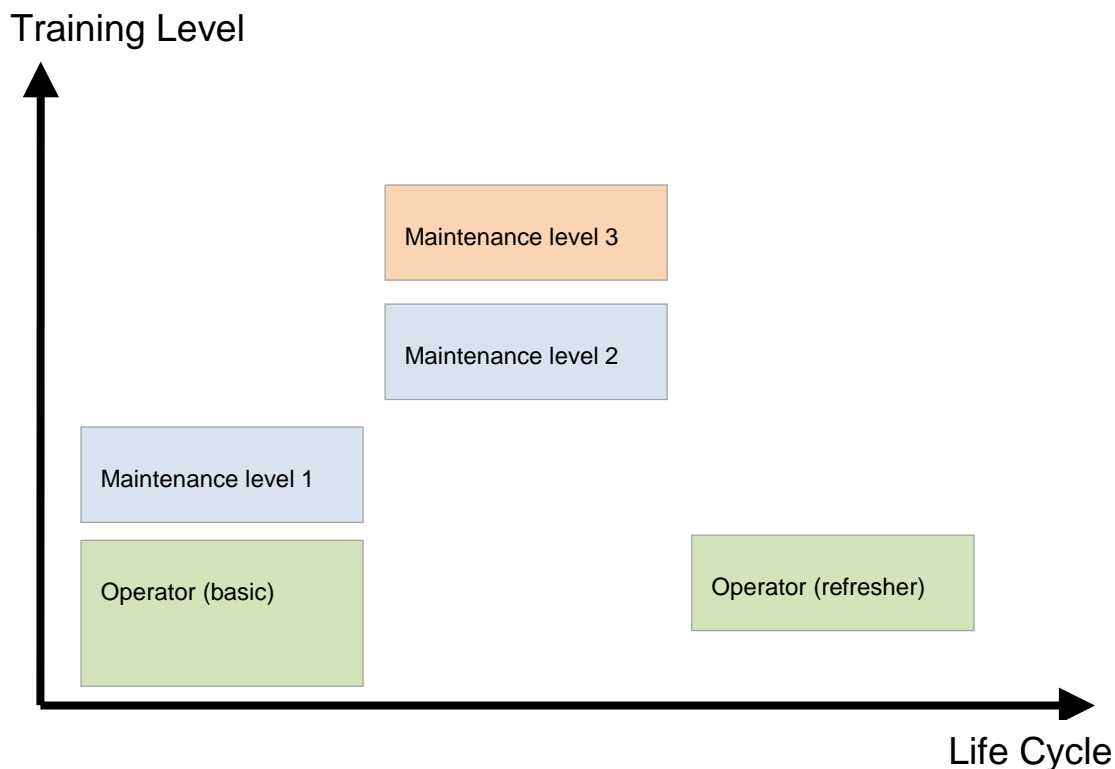
- Reworking/replacing magnets, mechanical parts or electronic components
- Repairing maintenance level 3 electrical components
- Changing the magnet system's configuration and system parameters
- Reprogramming or upgrading the main board
- Restarting the modified magnet system

Training concept

Drawing on the company's broad experience as a manufacturer, TRUNINGER provides the opportunity for customer's staff to be trained for carrying out level 1 and level 2 maintenance tasks.

Supplementing operator training, the level 1 maintenance training is organised as a practical hands-on session that takes place at the customer site.

Level 2 maintenance training is provided at the TRUNINGER premises.



The content of the maintenance training is based on the following documents:

- User Guide
- Troubleshooting Guide
- Maintenance Guide
- Technical drawings
- Electrical diagrams / parts lists
- Spare parts lists
- Questionnaire (final test) – used as the basis for issuing the certificate

On completion of the training the participants receive a TRUNINGER certificate. The names of participants are entered into a maintenance database in order to keep track of persons who are qualified to perform level 2 maintenance.