

Substitution/Reproduction/Reverse Engineering

A product discontinuation of a part or entire component is announced – what now?

The high service life of a train does not apply to all component parts therein. While a train may be in use on the rails for 30 years or more, the individual parts may already be discontinued after only a few years. The discontinuation rates have been increasing steadily due to the short lifespans of the mass products used.

The problem of non-availability of a part is usually only detected during repair or maintenance tasks when a spare part is required. It is rare for a supposedly insignificant part discontinuation in trains and other capital good to lead to the discontinuation of complete assemblies, complex modules or even complete systems. The effort to replace these invariably leads to high development and integration costs. As a rule, this will also require a new certification of the system in connection with the rail vehicle. This, in turn, involves technical risks, high process costs and long project durations.

Thanks to years of experience in the area of reproductions and substitution of discontinued electronic printed circuit boards, the Munich Central Electronics Workshop offers expert support for your specific case. Due to our modern and innovative approach, you can trust in a high level of quality along with short project durations.

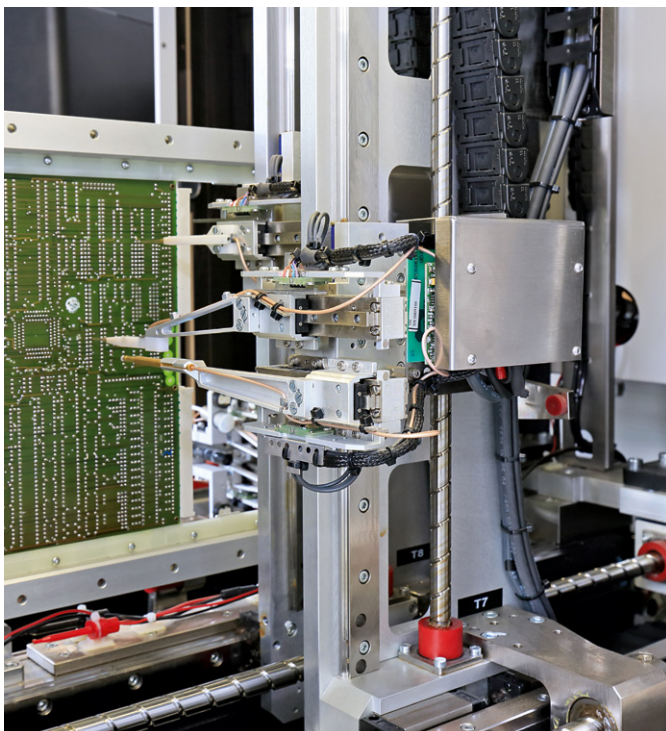
Our offer

Substitution/adaptation

Substitution encompasses the replacement of parts or assemblies with a suitable or equivalent solution from an assembly and signalling perspective. If a substitution appears to be beneficial, we will move forward with the corresponding suitable replacement. Extensive testing is used to ensure the comparability and high quality (with changes to the technical parameters) of the substitute or the adapted solution. We use adapter constructions to adjust substitutes with varying interfaces and installation options to your requirements.

The benefits for you

- Comparable and high-quality substitute
- Upgrade to modern technologies and available spare parts
- Risk assessment and measures recommendation regarding the qualification of the substitute
- Organisation of any necessary qualification measures
- Complete solution with adherence to Fit Form Function (FFF) rules from a single source



Our offer

Reconstruction/reverse engineering

If there is no suitable substitute, the material availability can be restored by means of reconstruction/reverse engineering. This may be either on the basis of existing original documentation or using a sample board (golden board). The first step is to redevelop the logic of the board (circuit diagram, printed circuit board layout) (reverse engineering) and to digitalise this as close to the original as possible. Next, the number of pieces required by you can be manufactured.

A 1:1 reproduction retains the electrical and mechanical properties of the original and costly qualification measures are avoided or reduced as far as possible.

In addition, the extensive automation of our reverse engineering process ensure the best possible quality in the shortest amount of time.

The benefits for you

- Reproduction is possible on the basis of a “golden board” even without documentation
- Retention of the electrical and mechanical properties of technology that has already proven its worth
- Risk assessment and measures recommendation regarding the qualification of the reproduction
- Reduction in the requalification requirements to the necessary minimum
- Complete solution with adherence to Fit Form Function (FFF) rules from a single source: the digitalisation of your golden board, the development of a test environment and the next series production
- Very high quality and short project durations

Contact

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