

SPECIALISTS IN ELECTRONIC & ELECTROMECHANICAL ROOT CAUSE FAULT FINDING AND RESOLUTION

Problem - Traction inverters

In 2010 equipment was showing intermittent 'turn-on/off' faults repeatedly resulting in isolation. This had become a long-standing problem.

Equipment was being returned to the OEM, only to be returned 'NFF', despite the fault continuing to be present when returned to service.

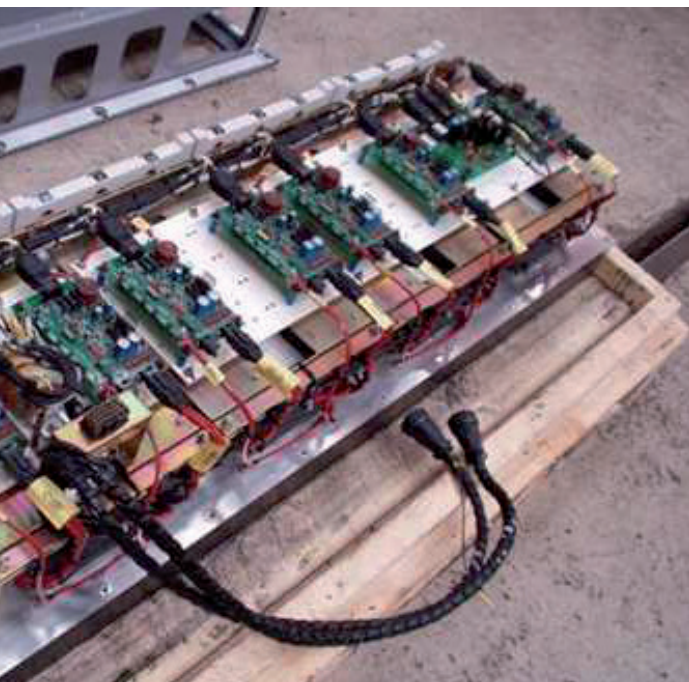
Issue was compounded by 12 weeks lead time for repair, resulting in sets running without a full complement of working inverters.

Objective - Discover the root cause

SET carried out two weeks of intensive reverse engineering and tests, which led to discovery of the root cause: a degrading internal connection within the main power switching devices (IGBTs), leading to false error detection.

**Solution**

- Custom test devised to detect the issue at an early stage.
- Failing IGBTs replaced with alternative batch.
- SET took over repair service from OEM

**Result**

- NFF rate dropped to near zero. The problem identified and corrected.
- Lead times reduced by an average of 80% to 2 weeks.
- Sets were running with full complement of working inverters.

Conclusion

By handing this particular issue over to SET the customer was able to take advantage of our experience in finding the root cause of intermittent failures. A nagging issue was resolved which improved operating efficiency.