

## **Extract from the investigation report RJ 2010:01 on a fire in track alignment machine occurred on 20/07/2007**

### **Summary**

At 11.10 on 20 July 2007 a fire occurred in a track alignment machine on the line between Bäckefors and Ed.

A set comprising works machines was being transported as a work train for transport between Trollhättan and Kornsjö for further onward transportation to Norway.

The set consisted of a plough PLB 4080, a dynamic track stabiliser DSS 4604, and a track alignment machine SPR 3208B, which were coupled together and each had a driver.

Smoke from the track alignment machine was observed on an up gradient four kilometres from Bäckefors. At Tingvalla, about two kilometres north of Bäckefors station, the work train stopped and the crew ran to the track alignment machine to investigate the matter while at the same time flames shot out from the track alignment machine.

At the time the track alignment machine had a sound alarm indicator operating. The fault was notified but no action taken, and it was not reported in the engineering log book despite the fact that the fault had existed for several years. There was no fire detector alarm on the machine.

Some weeks before the incident a fuel line had been changed on the engine. The change was carried out on the track by a machine operator in accordance with Scania's instructions except that the nut was not tightening with the required moment.

There is nothing to prevent company staff on works machines carrying out maintenance and repairs themselves. In addition, there is no follow-up system whereby repairs and maintenance are examined or reviewed by those responsible for machinery within Banverket [the Swedish Rail Administration].

### **Causes**

The cause of the track alignment machine SPR 3208B igniting and being totally destroyed was that a fuel line to the engine was not properly fitted and was loose.

A contributory cause was the nearby turbo unit, which became heated because a cylinder was not functioning satisfactorily in the engine. The turbo unit acted as a source of ignition, and the items stored in the adjacent ventilation space functioned as additional fuel for the fire.

The underlying causes are an electrical fault in a constantly activated sound alarm signal, which made it impossible to warn of an elevated engine temperature, which in turn should have prevented the course of events. The electrical / alarm signal fault was not acted upon at the machine's annual inspections. The absence of a sprinkler installation on the machine contributed to the total destruction of the machine.

### **Recommendations**

It is recommended that Transportstyrelsen [the Swedish Transport Agency]:

- review the requirement for certification of staff for maintenance and repairs (*RJ 2010:01 R1*);
- monitor how Infranord ensures that the function and design follow-up of machines are documented during rebuilding or other modifications (*RJ 2010:01 R2*);
- ensure that Infranord monitor how the machine function is to be safeguarded during its own machine rebuilds and extensions and when connecting to machines (*RJ 2010:01 R3*);
- ensure that Infranord specify how repair history is to be kept for annual follow-up, machine approval and inspection (*RJ 2010:01 R4*);
- ensure that Infranord review the safety management system for staff training purposes and procedures for the transfer of machines between staff members (*RJ 2010:01 R5*).