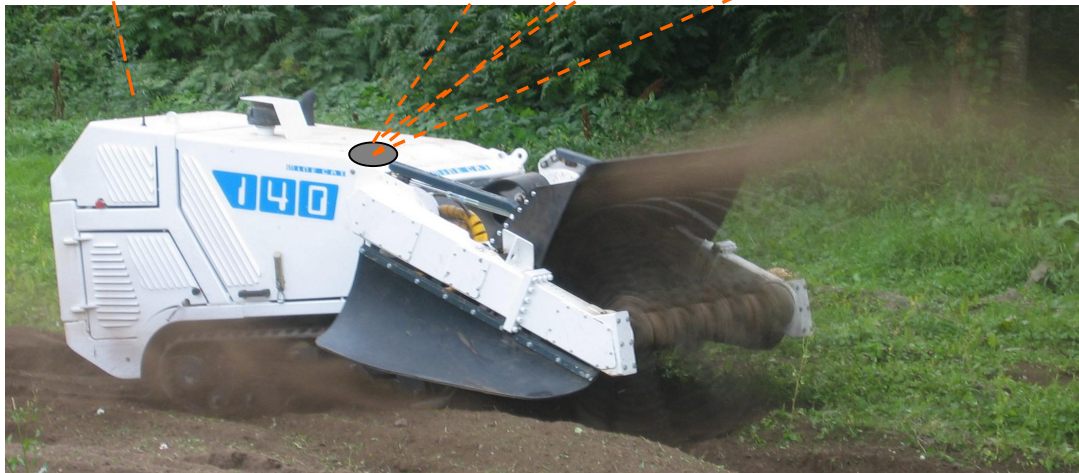
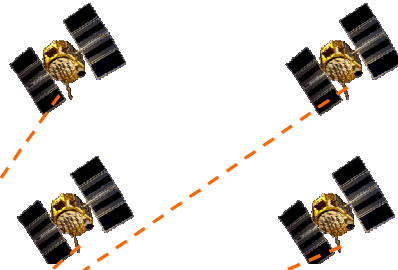


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Novatron Auto Steering - NAS

GPS/GLONASS* based automatics steering option for the MineCat 140 KE and MineCat 230 KE demining machines with NRC-1 Remote Control Systems

The Novatron Auto Steering, NAS-1, is an optional module that may be fitted to the NRC-1 Remote Control System to convert the **MineCat 140 KE** and **MineCat 230 KE** into nearly autonomous vehicles under operator supervision. This relieves the operator from the intense concentration needed for steering and instead enables him to concentrate on operation planning and supervision. The automatic steering capability also enables operation under otherwise impossible dust conditions and will thus greatly increase the effectiveness of the machine. In addition, the exact position information obtained from the system will allow a detailed mapping of the area and thereby simplifying the quality control process.

* GLONASS is the Russian equivalent of the USA based GPS system.

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FEATURES:

- Automatic steering option may be delivered in different versions:
NAS-1: Dual frequency, wide-area differential GPS, receiving correctional data from geostationary satellites. This option is the simplest solution, giving an accuracy of approx. 30 cm. Correctional data is available on subscription basis, but the whole world is currently not covered.
NAS-2/NAS-2GG: Dual frequency, RTK differential GPS or single frequency, RTK differential GPS/GLONASS. These solutions receive correctional data from a local, user operated, reference station. It may however provide a world wide accuracy of better than 15 cm for NAS-2 and 30 cm for NAS-2GG without any subscription fees.
- Enables operation of system independent of dust conditions as the machine will automatically follow a predefined track. After reaching the end of the programmed track, the machine will automatically lift the flail and stop rotation before driving backwards in its own tracks to the starting point. Then the machine will either signal the operator and wait or automatically commence with the next parallel track.
- Integrated roll and pitch sensors will issue warnings when the tilt increases beyond a predefined limit and automatically stop the vehicle and wait for operator interaction if the tilt reaches a critical angle.
- An alarm goes off if the machine is unable to keep the flail within a predefined distance from the track line. This is something that may happen if the machine operates in a muddy and slippery soil or if one of the belts hits a large stone. The operator may then take manual control and handle the problem.
- Position data is sent continuously on the radio link so that a PC with an additional receiver may receive the position data, plot a map and save it to harddisc for later analysis. The map generated may be printed and used as part of the quality control documentation. This map will also show points within the demining area that are not satisfactory cleared due to obstacles, or other problems that has influenced the steering. These areas may then be manually cleared afterwards.

