

## Data and Navigation Analysis System for Winter Maintenance

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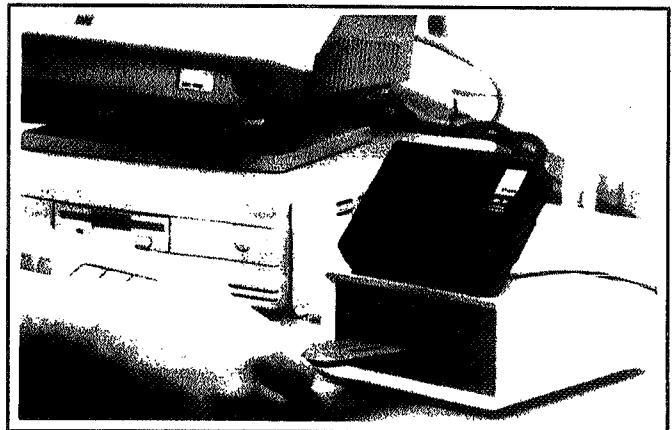
### 1. Introduction

The latest development in the area of winter maintenance management is the ability to record not only the spreading parameters (width, dosage, etc) but also the position on the route at any moment. This Data and Navigation Analysis System (DNAS) provides a 100 % proof that a particular road has been gritted and it also offers extensive analysis possibilities. The combination of satellite navigation (GPS) and recording of gritting parameters, as available from the control box, offers both clients and contractors a new winter maintenance management tool.

### 2. How it works....

#### 2.1. Making a spreading order

Before the gritting starts, a spreading order is made with a PC. The preparation of this spreading order includes selection of route, driver, vehicle and gritter. All information is stored on a memory card, using the Nido-interface. This memory card is then taken to the vehicle.



#### 2.2. The gritting operation itself

Entering the vehicle, the driver puts the memory card into a Central Unit. After this, no special action is needed from the driver. He will follow the route as normal and operate the gritter, using his in-cab control box. All spreading data, such as gritter on/off, width of spread,



dosage, pre-wet on/off, etc. are automatically recorded.

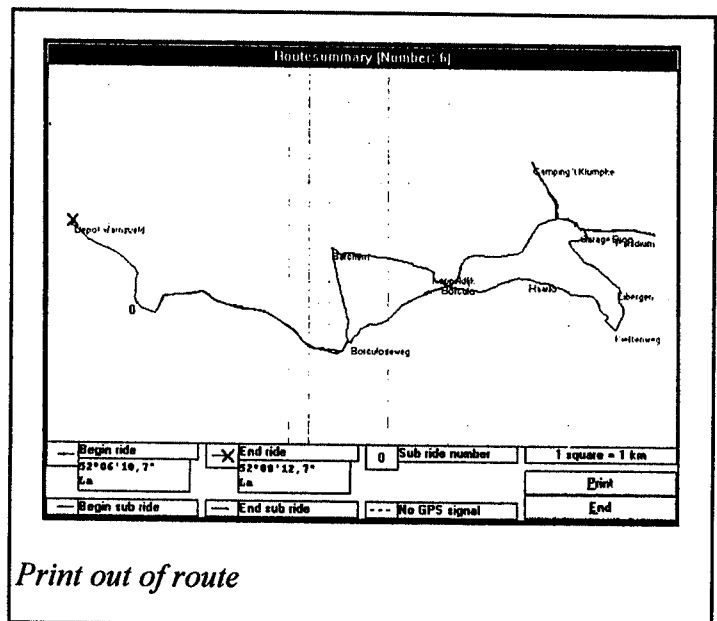
Whenever one of these parameters is changed, the time and the overall distance travelled will also be recorded. The driver will also have the possibility of using a microphone to make additional remarks. This can be used for example to record abnormal weather or road conditions, traffic accidents etc.

Finally, the Central Unit includes a GPS receiver, in order to record the actual position on the memory card.

### 2.3. Analysis of the data

Back at the depot, the memory card will be taken out of the Central Unit. All data will be downloaded into a PC. Thus records of actual work done are stored for later analysis at the convenience of the user.

The route can be shown on the monitor and printed. Additionally, a large variety of summaries and overviews are available. The route can be shown on



the monitor and printed. Additionally, a large variety of summaries and overviews are available.

### 3. What are the benefits.....

Recording of spreading data, together with details of where and when gritting took place, offers hitherto unknown possibilities.

Of course, the first thought is probably to use this as a tool to check whether a job has been carried out properly.

And secondly it can be used to prove that a road was properly treated and thereby refute claims of damage in case of traffic accidents.

However, there is another big advantage in using the system. The analysis of the winter maintenance operation itself will enable the responsible bodies to define targets. The data recorded can either be translated into objectives to reduce salt usage in the next season or be used to prove that targets have been achieved.

**Note:** An old saying "Rubbish in, Rubbish out" is certainly applicable to DNAS. An accurate gritter (thus with a digital control box and closed-loops on all moving parts) is therefor of the utmost importance.

**Nido Universal Machines B.V. - Holten/Netherlands**

is member of the Schmidt Group. The core business of Nido is the development, production and sales of winter maintenance products. Within this range of products Nido has specialised in high standard, high quality and accurate gritters and is therefore one of Europe's leading gritter manufacturers.

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