

VEHICULAR RADIO SET
Based on the SPIDER Manpack

OPERATORS MANUAL
HGTS - 2541e

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HOLLANDSE SIGNAALAPPARATEN B.V. HENGLO (O) - THE NETHERLANDS

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DIAGRAMS

1.	Components parts
2.	Power supply unit
3.	Mounting the set

Associated Manual:
 SPIDER MANPACK TRANSCEIVER
 Operators manual

CHAPTER 1GENERAL1.1 Introduction.

This manual contains instructions for the operator of the low power vehicular set, based on the SPIDER manpack radio transceiver. Only the aspects typical for the vehicular installation are described in this manual, for operation of the radio transceiver consult the operators manual of the SPIDER manpack transceiver or the instruction card issued with the manpack transceiver.

For operation as a vehicular radio set the SPIDER manpack is removed from its carrying harness and fastened in a vehicular mounting. The whip antenna and antenna matching unit are replaced by a broadband vehicular antenna, connected via a coaxial cable. Power is obtained from the vehicular battery via a small power supply unit.

1.2 Technical data.

For the technical data of the radio transceiver consult the manual of the SPIDER manpack.

Power supply	: vehicular battery 24V DC nominal, limits 22 ... 33V DC
Current consumption	: 200 mA or less when receiving. Approx. 2A when transmitting at maximum power
Output voltage power supply unit	: 14V DC nominal. Limits 13,5 ... 14,5 DC
Max. output current	: 2A
Antenna frequency range	: 30 ... 108 MHz
Antenna impedance	: 50 ohms nominal. Standing wave ratio 4 : 1 max.
Ambient temperature range	
Operating	: -30 ... +65°C
Storage	: -40 ... +70°C
Dimensions	
Mounting	: 233 x 190 x 66 mm
Power supply unit	: 190 x 112 x 90 mm

1.3 Component parts
 (see diagram 1)

The following parts are used to convert the SPIDER manpack into a vehicular radio set.

1. Vehicular mounting.
2. Power supply unit.
3. Broadband antenna.
4. Power cable (24V).
5. Supply cable (PSU - SPIDER)
6. Antenna cable.

CHAPTER 2OPERATOR CONTROL FUNCTIONS2.1 General

This chapter describes the functions for control and connections of the power supply unit and the vehicular antenna. Instructions for operation are given in chapter 3.

2.2 Power supply unit
(see diagram 2)

Control or connector	Symbol	Explanation
On - off switch	○ •	Power supply switched off.
	⊙	Power supply switched on
3-pole connector		Connection for vehicular battery
10-pole connector		Connection to transceiver

2.3 Antenna

Control or connector	Symbol	Explanation
Coaxial connector		Connection to transceiver
Earthing bolt		Connection to nearest metal part of vehicle

CHAPTER 3OPERATION3.1 General

This chapter only describes the operation typical for the vehicular set. The operation of the radio transceiver itself is covered by the operators manual of the SPIDER manpack transceiver. Condensed operating instructions are available on the instruction card issued with the set.

3.2 Mounting and removing the set
(see diagram 3)

When mounting the manpack transceiver in the vehicle, act as follows:

1. Remove the antenna and the antenna matching unit from the set.
2. Loosen the strap and take the transceiver from the carrying harness.
3. Place the transceiver in the vehicular mounting and fasten it with the strap. Note that if the vehicular mounting is installed in a vertical position, the transceiver must be mounted reversed, to keep the display and the keyboard legible.
4. Connect the following cables:
 - * Coaxial antenna cable to the antenna connector of the transceiver.
 - * Power supply cable to the 10-pole connector at the side of the transceiver.
 - * Handset and/or headset to the audio connector(s) on the front of the transceiver.
5. Mount the antenna rods of the vehicular antenna on top of the antenna base, if this has not been done before.
6. The set is now ready for switching on.


For removing the set act as follows:

1. Switch off the transceiver and the power supply unit.
2. Disconnect the power supply cable and the antenna cable.
3. Loosen the strap and take the transceiver from the vehicular mounting.
4. Open the battery compartment to check if a battery is present. If not install the battery. For details see the operators manual of the SPIDER manpack.
5. Mount the antenna matching unit on the coaxial antenna connector.


6. Mount the antenna on top of the antenna matching unit.
7. Connect a handset and/or a headset to the audio connector(s) of the set, if this has not been done before.
8. Install the transceiver on the carrying harness and fasten it with the strap.

3.3 Switching -on and -off

For switching -on act as follows:

1. Set the switch on the power supply unit to 
2. Turn the volume control switch on the transceiver to one of the positions W or 1...6.

For switching -off act as follows:

1. Turn the volume control switch on the transceiver to OFF.
2. Set the switch on the power supply unit to  •

Notes:

1. With the power supply unit switched off and the transceiver switched on, the set will operate on the manpack batteries, provided that these have not been removed.
2. Charging of the manpack battery block by means of the power supply unit is not possible. For charging the battery block must be removed from the battery compartment and a separate battery charger must be used.

CHAPTER 4OPERATORS MAINTENANCE4.1 General

The operators maintenance is mainly preventive maintenance, aimed at keeping the set in good condition and so preventing defects. Preventive maintenance consists of two parts:

1. Cleaning the set, as described in para. 4.2.
2. A routine test procedure, as described in para. 4.3.

When starting the preventive maintenance, always check first that all parts of the set (see para. 1.3) are present and free from damage.

4.2 Cleaning the set

The cleaning procedure comprises the following items:

1. Remove dust and loose dirt with a clean soft cloth or with a soft brush. For dirt that is difficult to remove damp the cloth with water. Remove the transceiver from its mounting for cleaning.
2. To remove any moisture use a dry clean cloth.
3. To remove grease, oil or such-like from the equipment use a cloth moistened with cleaning spirits.
WARNING: Cleaning spirits are highly inflammable!
4. Remove dust and dirt from plugs and receptacles, taking care not to damage the pins.

4.3 Routine test procedure

A routine test must be performed in the following events:

- After the transceiver is installed and is ready for use.
- Periodically for preventive maintenance.
- When the operation of the transceiver or the connected equipment is not satisfactory.

For the routine test use the procedure described for the manpack, para. 5.5 of the operators manual of the SPIDER manpack transceiver. To make sure that the vehicular power supply unit is included in the test, remove the batteries from the battery compartment of the transceiver before starting the test.

4.4 Trouble shooting

The following trouble-shooting procedures are given for the operator in case a malfunction should occur at start-up or during operation of the radio set.

- a. Transceiver doesn't work at all
(i.e. no continuous tone and display contents after switching on):
- Disconnect the power supply unit and install the battery pack. Repeat the test, using the manpack configuration.
 - If the set is now ok, there is a defect in the power supply unit or the associated cables. If the set still doesn't work, the transceiver itself is probably defective.
 - Check the battery by means of the display illumination (use LAMP-function)..
 - Try switching the set off and then on again.

No result: higher level maintenance necessary.

- b. No audio signal, but display contents visible
- Replace the handset or headset by a spare one.

No result: higher level maintenance necessary.

- c. No radio traffic possible
- Check if the connectors are free from dirt, dust or moisture. Clean if necessary.
 - Check the antenna.
 - Check the correct functioning of the PTT button.
 - Check the radio frequency to be used for the relevant channel.
 - The station being called is not operational on the required channel or frequency used. If possible, try to obtain a connection via another channel or to another station.

No result: higher level maintenance necessary.

