

**MAGNAVOX
DGPS 12 CHANNEL**

**INSTALLATION
AND
SERVICE MANUAL**

Prepared by

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**R-7218
MAY 1993
NAVINST.DOC**

TABLE OF CONTENTS

	<u>Page</u>
SYSTEM INSTALLATION	1
Unpacking Your DGPS Receiver	1
Installation Preparation	2
Installing the Antenna	4
Easy Access to Maintenance	4
Avoiding Vertical Obstructions	4
Cable Lengths	4
Avoiding EMI Effects	4
Mounting the Antenna	5
Procedure for Navigator Antenna Installation	5
Procedure for Reference Station Antenna Installation	8
Installing the DGPS Receiver	10
Choosing a Safe Physical Environment	10
Allowing for Proper Distances	10
Allowing Access to Rear Panel	10
Power and Memory Backup	11
Procedure	12
Connecting the Receiver to External Equipment	14
Standard Port Uses	14
Initial Power-on Conditions	17
Test Procedure	18
MAINTENANCE	19
The Receiver Assembly	20
Replacing the Circuit Cards	21
Disassembly	21
Removing the Circuit Cards	21
Replacing the Circuit Cards and Re-assembling the Unit	23
Resetting the Receiver Memory	25
Procedure	26
Resetting the Solid State Fuse	26
Troubleshooting	26
APPENDIX A	27
Receiver Specifications	27

ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	Navigator Antenna Mounting Location Recommendations	5
2	Navigator Vertical/Horizontal Antenna Mounting and Dimensions	6
3	Antenna Connector Assembly	7
4	Reference Stn Vertical/Horizontal Antenna Mouning & Dimensions	8
5	Reference Stn Antenna Connector Assembly (TNC)	9
6	Rear Panel of the DGPS 12 Channel Receiver	11
7	Installation Template	12
8	MULTI-PORT Interface Connector Pin Assignments	15
9	Magnavox Receiver to PC Interface Connector and Cables	16
10	Receiver Partially Disassembled	19
11	Exploded View of the Receiver	23

TABLES

<u>Table</u>		<u>Page</u>
1	System Parts	1
2	Tools and Materials Required for Installation and Maintenance	3
3	Compass Safe Distance	10
4	Electrical Interfaces and Data Formats	14
5	Receiver Parts List	22
6	Troubleshooting Table	26

UNPACKING YOUR DGPS NAVIGATOR

Perform the following three steps and verify the packaged items against those listed in Table 1.

1. Remove the contents from the packing container.
2. Save the packing container. You may need it for storage or return shipment.
3. Inspect each item for in-transit damage. If you see evidence of damage, notify both the carrier and Magnavox (see the back side of the manual cover).

Table 1. System Parts

DESCRIPTION	Part Number
Console Assembly, MX 9112	900555-808
Console Assembly, MX 9212	900555-807
Console Assembly, MX 9012R	900555-806
Volute Antenna Assembly w/15m Cable (MX 9212, MX 9012R)	819766-801
Low Profile Antenna Assembly w/gnd Plane (MX 9112)	723008-801
15 Meter RG-6 Cable (MX 9112)	567271-801
System Installation Kit, including the following: Power Cable Assembly Mounting Screws (4) Cable Ties (4) Type-F Coaxial Connector Mounting Template Mating DB-25P Connector	741699-803
Interface Cable Assembly	567284-2
CDU Program Diskette	471899-2
Magnavox DGPS 12 Channel Installation and Service Manual	R-7218
Magnavox DGPS 12 Channel Technical Reference Manual	R-7278
Magnavox DGPS 12 Channel Navigator Operator's Manual (MX 9112, MX 9212)	R-7220
Magnavox DGPS 12 Channel Reference Station Operator's Manual (MX 9012R, MX 9112)	R-7277

SYSTEM INSTALLATION

CONNECTING THE RECEIVER TO EXTERNAL EQUIPMENT

External equipment connects to the MULTI-PORT Interface connector on the rear panel of the receiver unit (see Figure 6). The interface consists of four Input/Output (I/O) serial ports; two RS-232 ports and two RS-422 ports. IBM compatible (DOS-based) software controls the communications. Figure 6 shows you the MULTI-PORT Interface connector pin assignments. If you are logging data with a personal computer (PC) on one of the two RS-422 ports (2 and 4), you will need the optional RS-422 to RS-232 data converter kit, P/N 741692-804. You determine the exact use of the individual I/O ports by your needs and choice of associated equipment. You may, for example, use the Magnavox Navigator to navigate as a stand-alone unit or as a component in an integrated system.

Standard Port Uses

Ports 1 and 3 are RS-232 ports; ports 2 and 4 are RS-422 ports. Port 1 is fixed as the Control Port. All ports are defaulted to 9600 baud. Here are their standard functions:

- Port 1 - RS-232, Operational control and data messages (9600 baud default) [input/output]
- Port 2 - RS-422, Measurement (Raw data) [output]
- Port 3 - RS-232, DGPS Corrections I/O (MX-50R) [input for navigators, output for reference stations]
- Port 4 - RS-422, Equipment/NMEA [input/output]

All ports have selectable baud rates of 300 to 19,200 baud. Table 4 details port functions of both data and electrical interfaces.

Table 4. Electrical Interfaces and Data Formats

ELECTRICAL INTERFACES				
	PORT 1	PORT 2	PORT 3	PORT 4
IN	RS-232	RS-422	RS-232	RS-422
OUT	RS-232	RS-422	RS-232	RS-422
DATA FORMATS				
	PORT 1	PORT 2	PORT 3	PORT 4
IN	CONTROL MESSAGES	NOT ACTIVE	DGPS I/O	NMEA-0183 EQUIPMENT
OUT	CONTROL MESSAGES	MEASUREMENT RAW DATA	DGPS I/O	NMEA-0183 EQUIPMENT

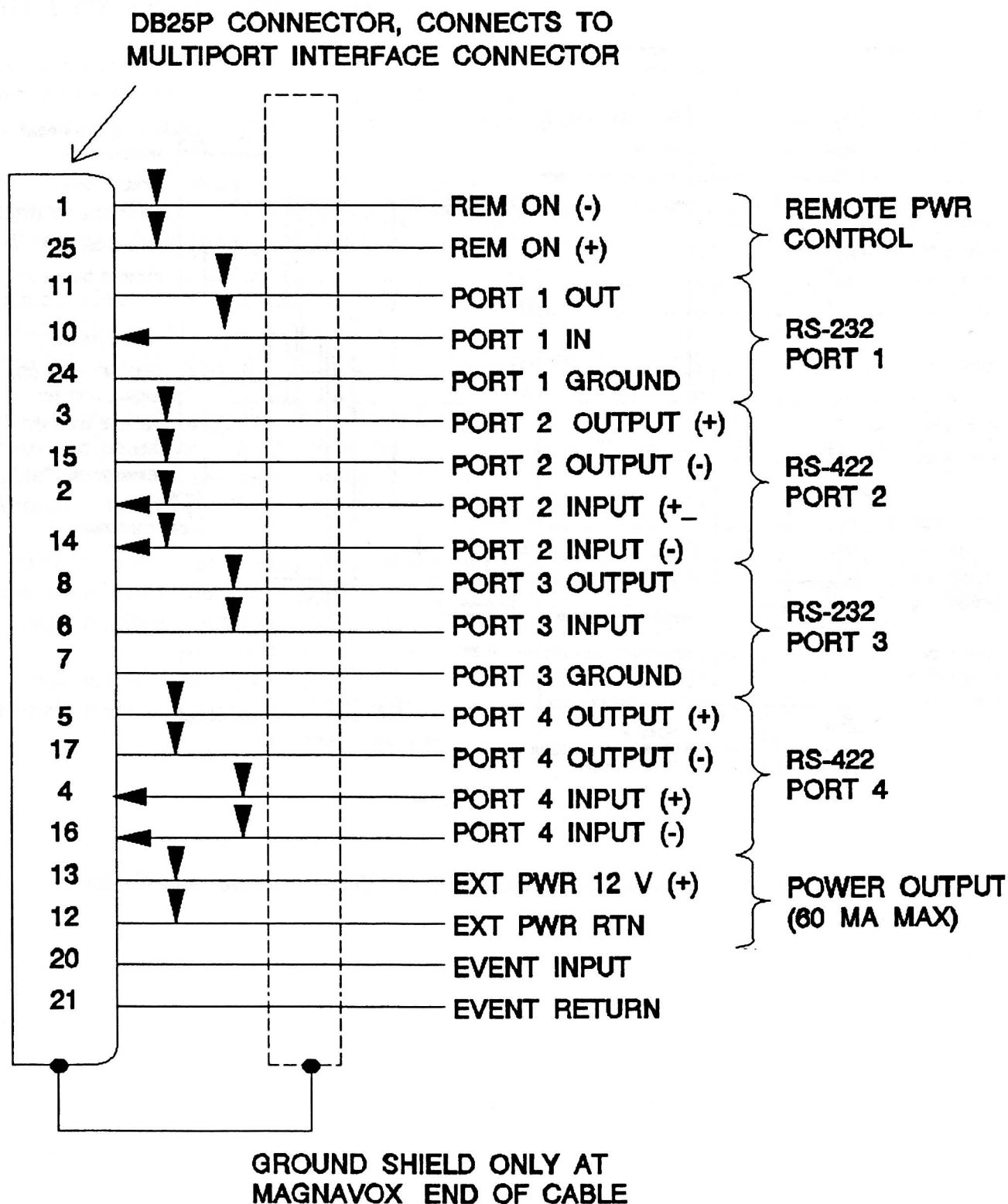


Figure 8. MULTI-PORT Interface Connector Pin Assignments

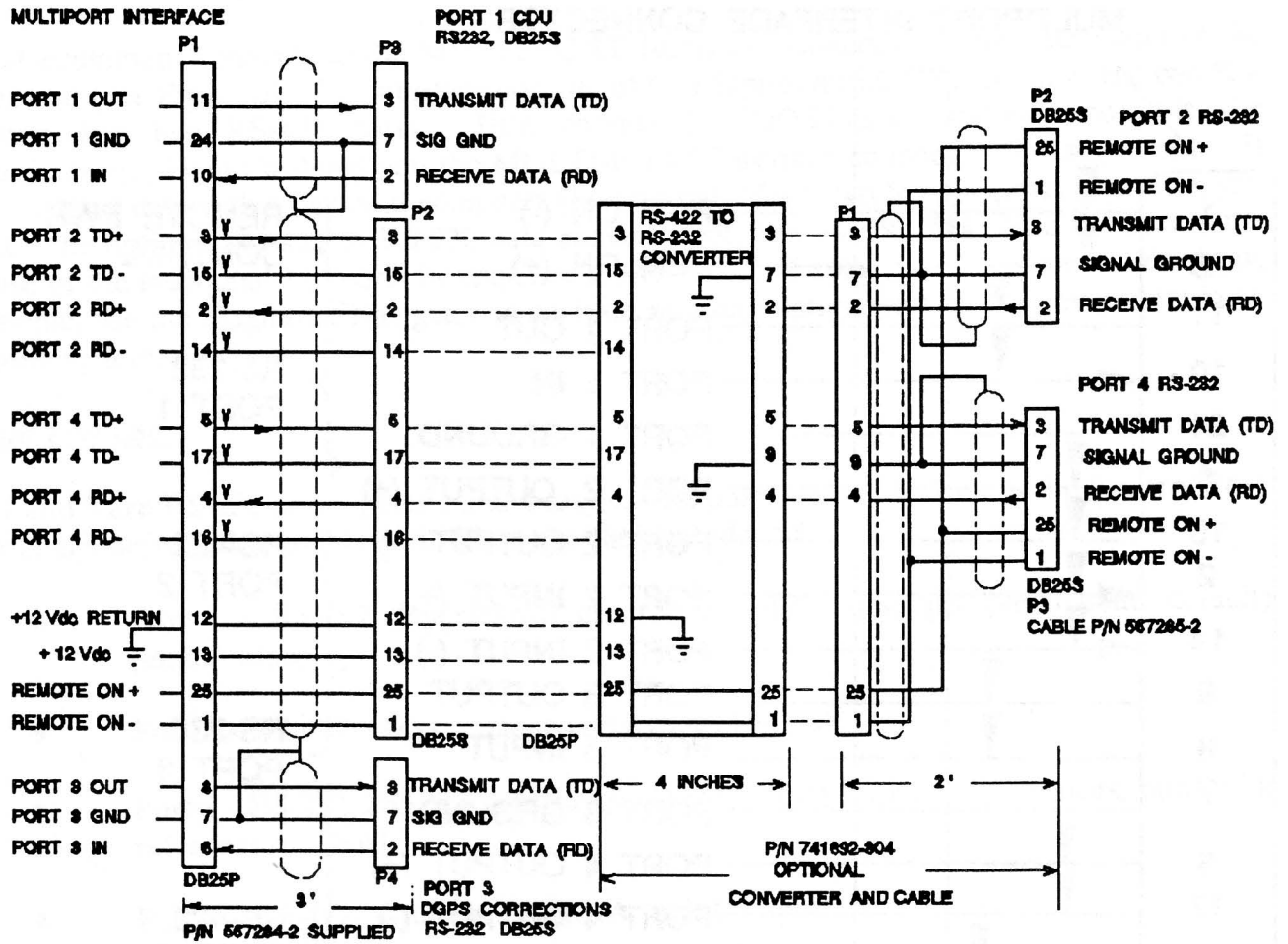


Figure 9. Magnavox Receiver to PC Interface Connector and Cables

INITIAL POWER-ON CONDITIONS

When you turn on the receiver the PC display unit may indicate "Sats Visible 0, used 0" (where the number of satellites is a number from 1 to 12). Elevation and azimuth values will also be zero. These are the correct displays until the receiver has acquired an almanac.

After the initial power-up, the receiver begins to collect a new almanac. This process takes 12 uninterrupted minutes of tracking time. This means that the receiver typically requires a total of 15 to 20 minutes, from the time it's turned on, to complete its collection of an almanac.

When the almanac has been acquired, the receiver stops tracking satellites briefly, while it conducts a search of collected data and compiles a table of satellite rise time predictions. The receiver is able to navigate (or calculate corrections) while making these calculations.

Your receiver will probably have already acquired an almanac. You can verify this by glancing at the lower right corner of the menu that first appears on the screen. If the number beside "Sats Visible" is not zero then you already have an almanac. The internal battery has preserved this information in memory from the time the unit was shipped from the factory.

If you have an almanac in your receiver, the unit will navigate (or calculate corrections) within 1 or 2 minutes of power up. Because the position shown on the screen maybe in Torrance, California, the initial displayed positions may be wrong when using a Navigator.

Continue below with TEST PROCEDURE and then refer to one of the "Magnavox DGPS 12 Channel Operator's Manuals" for a detailed description of the PC CDU program.

SYSTEM INSTALLATION

TEST PROCEDURE

When the installation is complete, perform the following steps to ensure proper operation:

1. Turn on the controlling device (Personal computer or other device.)
2. Set the OFF/ON/REMOTE switch (receiver rear panel) to the ON position. If the remote control option has been implemented set the switch to the REMOTE position and activate the remote control device.
3. Monitor the traffic lights (three LED's on the front panel of the receiver). The normal startup sequence is as follows:
 - RED: Indicates power on.
 - YELLOW: Passed self-test, attempting to acquire satellites. (Red light turns off).
 - GREEN (flashing): Tracking one or more satellites, but not yet navigating (or computing corrections). (Yellow light turns off).
 - GREEN: Magnavox receiver is navigating (or computing corrections). (No other lights are on).

During normal operation the receiver cycles between yellow (no tracking), flashing green (some tracking), and green (navigating/computing corrections). Changes occur as the number and geometry of tracked satellites vary.

The sequence above is for a receiver that has been turned on for the first time, or after its memory has been erased. If your receiver has an almanac, the four items described above may happen so quickly that some of them may not be noticed.

This concludes the System Installation portion of this manual. If the receiver appears to be functioning correctly, and if you are using a PC as a Control Display Unit, you will want to refer to the additional manual that was shipped with the receiver. See "Magnavox DGPS 12 Channel Operator's Manual".