GE Medical Systems

Technical Publications

Direction 2229090-100
Revision 1

Magnet Monitor Operator's Manual

Service Documentation

NOTICE

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes. The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent write "Damage In Shipment" on ALL copies of the freight or express bill BEFORE delivery is accepted or "signed for" by a GE representative or hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

Call Traffic and Transportation, Milwaukee, WI (414) 785 5052 or 8*323 5052 immediately after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section S of the Policy & Procedures Bulletins.

14 July 1993

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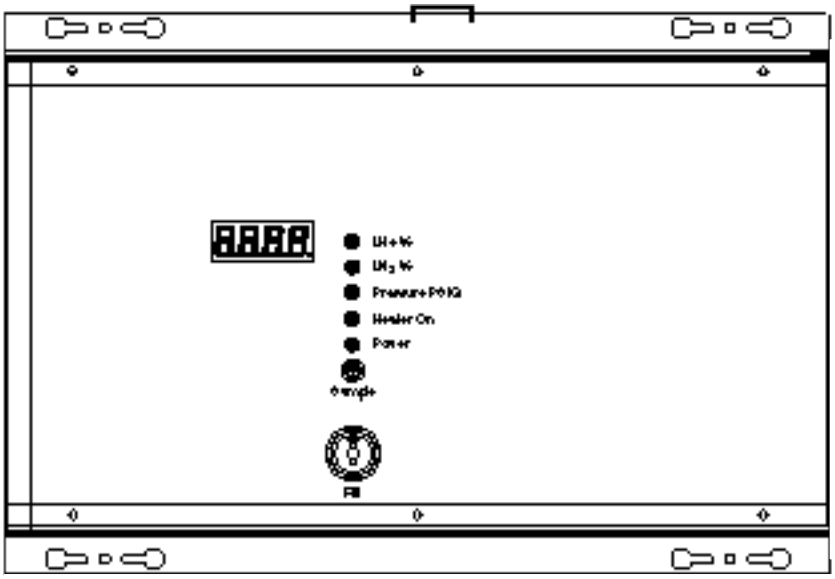
SECTION 1 – EQUIPMENT DESCRIPTION AND FUNCTIONALITY

1-1 Overview/Functional Description



MAGNET MONITOR
ILLUSTRATION 1-1

The Magnet Monitor is designed to provide the following control functionality to the Cryogen (Helium) meters used in conjunction with the Signa system:

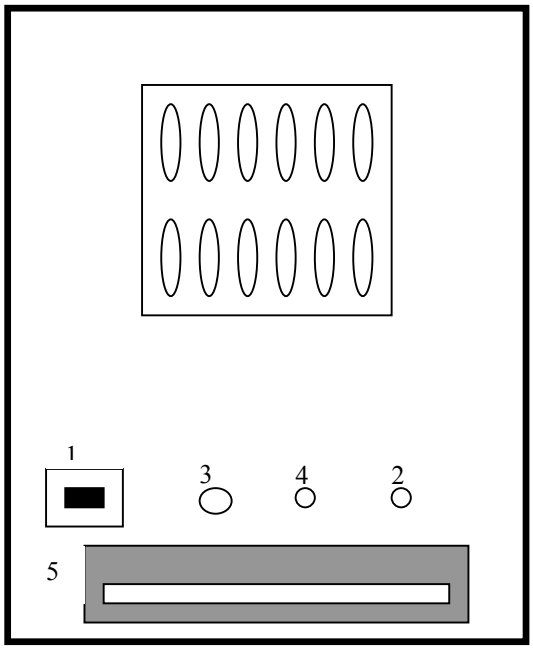
- Provide continual visual indication of cryogen levels and vessel pressure via a front panel 7-segment display. LED illumination will indicate what value is being measured.
- Provide notification of a cryogen fill to the magnet monitor unit to disable pressure control during the fill. A keyed switchlock will permit an individual to place the unit in fill mode.

Note

A GE maintenance service contract enables additional Magnet Monitor Functionality.

The Magnet Monitor is currently used with the LCC (cylindrical) and HFO (open) magnets.

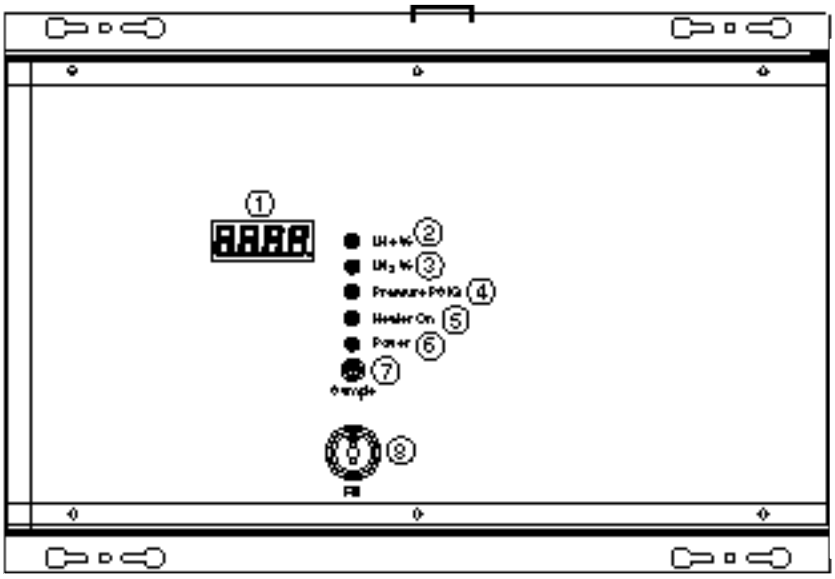
1-2 Controls



LEFT SIDE PANEL
ILLUSTRATION 1-2

TABLE 1-1
LEFT SIDE PANEL

Item #	Description	Function
1	Power Switch	Turns power on or off.
2	Green Power indicator light	Is lighted when power is on.
3	Reset button	Resets the unit, must use pointed object to reset the Magnet Monitor.
4	Green HDD light	Indicates when the internal hard-disk drive is being accessed.
5	Floppy disk drive	Not used for normal operation.



FRONT PANEL
ILLUSTRATION 1-3

TABLE 1-2
FRONT PANEL

Item #	Description	Function
①	Digital display	Shows monitored values.
②	Yellow % Helium 1 (lower vessel) indicator light	When lighted causes the display to show the percent fill level of liquid helium in the lower cryostat.
③	Yellow % Helium 2 (upper vessel indicator light	When lighted causes the display to show the percent fill level of liquid helium in the upper cryostat. This parameter is used for the HFO magnet only, it is not used for an LCC magnet.
④	Yellow Pressure PSIG indicator light	When lighted causes the display to show the helium vessel pressure.
⑤	Orange Heater On indicator light	Is lighted when the pressure controller heater is on.
⑥	Green Power indicator light	Is lighted when power is on.
⑦	Sample button	Causes all monitored values to be updated.
⑧	Fill keyswitch	Used during magnet filling, sets the Magnet Monitor to Fill mode.

SECTION 2 – OPERATOR INSTRUCTIONS

2-1 Power On

Set the power switch to ON. The green power light illuminates and all display segments light for a few seconds and then go dark for another few seconds during its self test. It takes about two minutes for the Magnet Monitor to completely boot up.
The Magnet Monitor then takes a measurement for each monitored value and enters normal operation.

2-2 Unattended Normal Operation

A value is shown on the display and an indicator light identifies the corresponding measurement. If more than one value is monitored, each measurement is displayed for five seconds before stepping to the next one. For example: If helium, and pressure are being monitored, the helium percentage value is displayed and the helium indicator light illuminates for five seconds and steps to the next monitored value. The next monitored value in this case is pressure so, the helium indicator light goes out, the value for vessel pressure is displayed and the vessel pressure indicator light illuminates for five seconds. After displaying the pressure reading, the monitor returns to displaying the helium value and the cycle is repeated.
For the LCC (cylindrical magnet) the monitored parameters are:

Magnet helium level (Lhe2)
Vessel pressure

For HFO (open magnet) the monitored parameters are:

Magnet helium level in the lower vessel (Lhe1)
Magnet helium level in the upper vessel (Lhe2)
Vessel pressure

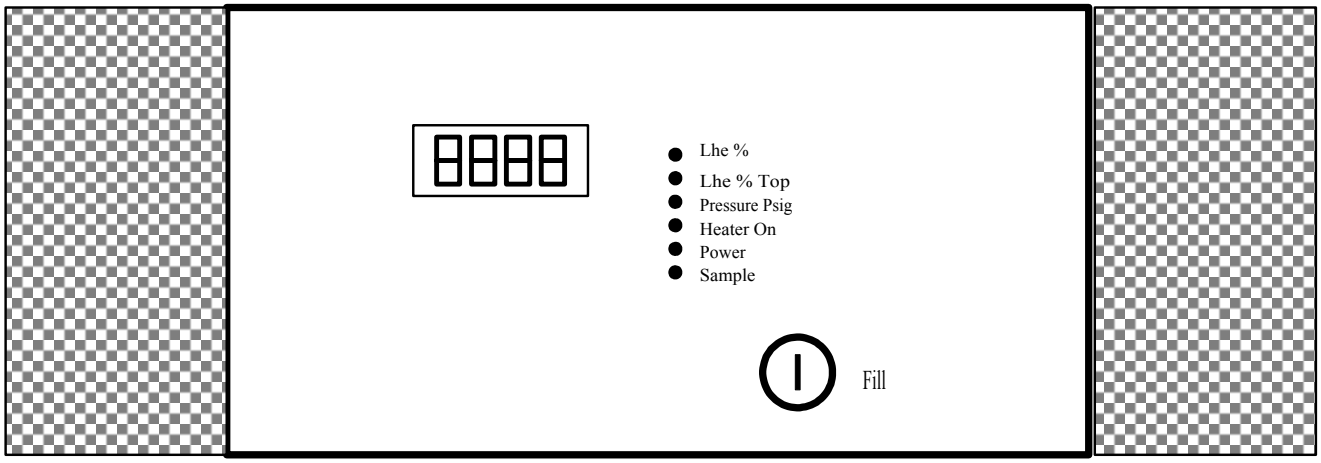
2-3 Updating the Monitored Values

Press and release the Sample button on the front panel of the Magnet Monitor to update all monitored values.

2-4 Magnet Filling

Insert the key into the keyswitch on the Magnet Monitor front panel and turn it to Fill mode before filling the magnet. After filling the magnet, turn the key switch back to normal mode and remove the key.

2-5 Ventilation and Service Clearances



VENTILATION AND SERVICE CLEARANCES
ILLUSTRATION 2-1

There needs to be at least 12 inches of clearance on either side of the Magnet Monitor for service.

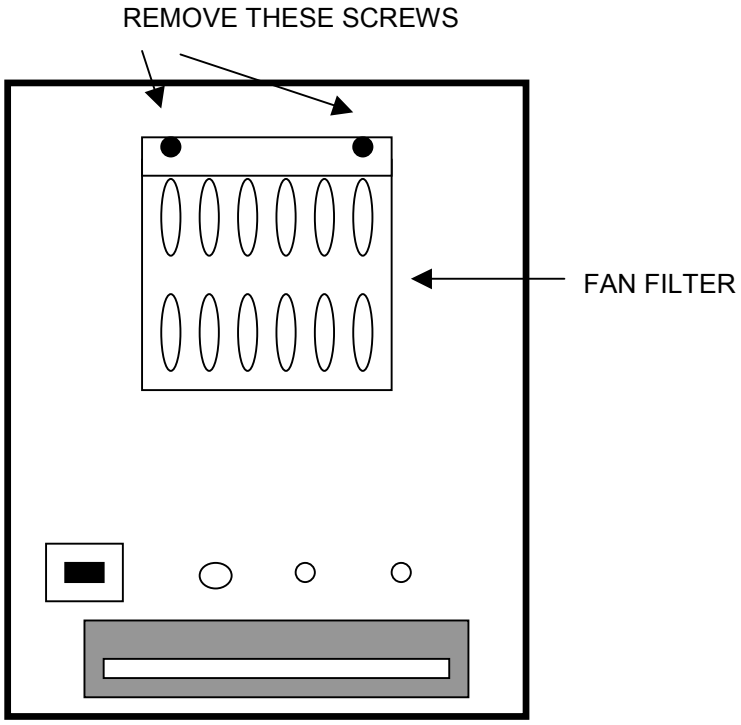
SECTION 3 – RECOMMENDED PERIODIC MAINTENANCE SCHEDULE

The only part of the unit that requires maintenance is the fan filter. This filter must be removed and cleaned with mild soap and water solution, rinsed in clean water and reinstalled once per month.

3-1 Removing the Fan Filter

1. Turn off the power switch.
2. Remove the screws securing the filter cover to the left side panel and remove the cover.
3. Pull out the filter. It can now be cleaned and reinstalled.

After reinstalling the filter, turn on the power switch.



FAN FILTER REMOVAL
ILLUSTRATION 3-1

REV HISTORY

Rev	Date	Author	Primary Reasons for Change
A	Mar. 24, 1998	Docu-Net	Initial Clinical Product Release
0	Feb 1, 1999	Kargard	Rev Zero Release
1		Kargard	Update for Granite magnet monitor and addition of OpenSpeed and Twin Systems

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