

OPERATOR MANUAL 30705 (8/12/81)

Rev. 1 (4/22/83) TEXT REVISED: Pages iv, 4, 6
Rev. B (7/ 1/85) GENERAL REVISION: All Pages; 2410 Floor Light Added
Rev. C (5/14/86) GENERAL REVISION: All Pages; 2411, 2412, Floor Light Added
2410, 2411, 2412, 2420, 2421, 2422 Track Light Added
Rev. D (12/ 3/86) Floor Glide Model Removed; Page 4
Rev. E (12/10/87) MDT Logo and Address added
Rev. F (4/17/89) Address Changed and Associated Manuals Added
Rev. G (11/ 1/89) MDT Address Changed
Rev. H (02/ 3/97) Logo

For Complete Manual Add:
Installation Instructions 30704
Service Manual 30706
Parts Catalog 30707

DESCRIPTION OF SYMBOLS & NOTES IN MANUAL

The following symbols with related notes appear in this manual.



"Warning" notes alert the user to the possibility of personal injury.



"Caution" notes alert the user to the possibility of damage to the equipment.



"Notes" alert the user to pertinent facts and conditions.



Users must read and understand the contents of this manual before using the equipment.

The 2400 Series Lights are medical devices intended only for use by qualified or trained persons. Misuse of this device may result in physical harm to the patient and/ or user. It is imperative that this manual be read and understood prior to use of this equipment.

Warranty

The company warrants the 2400 Series Lights to the original owner. Refer to the warranty statement supplied with the lights for warranty provisions.

Getinge/Castle Inc.

Castle is a registered trademark.

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The Light Model and Serial Number are listed on a plate located on the top of the support arm or the rear surface of the base.

This information should be copied below in the space provided and include date of installation and installing company. This will provide you with ready information should you require service, replacement parts or optional accessories.

Model # _____

Serial # _____

Date of Installation _____

Installing Company _____

Address _____

Phone No. _____

DESCRIPTION OF SYMBOLS ON THE EQUIPMENT

The following symbols appear on the export light head or the Intensity Control.



Power Control or ON/OFF Switch. OFF is (O), ON is (I).



Intensity Selector Switch. Intensity or lamp brightness increases from left to right.



Signifies warning, type and location of fuses.

—IMPORTANT—

**SPECIAL SAFETY INSTRUCTIONS ARE LISTED ON THIS PAGE.
READ THEM CAREFULLY BEFORE OPERATING THE LIGHT.
FOLLOW ALL RECOMMENDATIONS.**



"Warning" notes alert the user to a possibility of personal injury.

1. USERS MUST READ AND UNDERSTAND**(P- ii)**

Users must read and understand the contents of this manual before using the equipment.

The 2400 Series Lights are medical devices intended only for use by qualified or trained persons. Misuse of this device may result in physical harm to the patient and/or user. It is imperative that this manual be read and understood prior to use of the equipment.

2. STEPS FOR SAFETY**(p. 2)**

These steps should be observed for the safety of the patient and operating personnel when using the light. Failure to follow these safety steps could result in injury to the patient and user.

3. HIGH INTENSITY LIGHTING**(p. 5)**

As in all high intensity lighting systems, a portion of the system's radiant output can cause a temperature increase and subsequent drying. Even though the effect is minimal, the light should be turned off or directed onto another area when not required, especially during lengthy procedures.

4. LAMP OPERATION, 230V**(p. 6)**

Before operating the light, instruct all operating personnel where the Main Power ON/OFF (I/O) switch is located. Depress the ON/OFF (I/O) switch to OFF (O) if there is component failure or a condition occurs that could cause damage to the light, endangering the patient or operating personnel.

5. DISCONNECT OR TURN OFF**(p. 7)**

Disconnect or turn OFF power source to the light before any maintenance to avoid hazardous electrical contact. Allow 15 minutes cool off period to avoid touching hot lighthouse parts.

6. HEATER FILTER AND LENS IN PLACE**(p. 7, 8)**

The blue-green heat filter and lens cover must be in place to prevent ultraviolet and infrared rays from reaching the patient or operator.

7. PULL WALL PLUG**(p. 8)**

Pull wall plug to the light before replacing fuses to avoid electrical shock.

8. DISCONNECT OR TURN OFF**(p. 8)**

Disconnect or turn OFF power source to the intensity light control before replacing fuses to avoid hazardous electrical contact.

RETAIN THIS MANUAL FOR FUTURE REFERENCE

2400 SERIES SURGICAL LIGHTS

1. Safety Requirements

STEPS FOR SAFETY



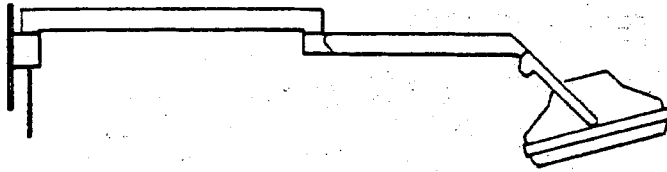
These steps should be observed for the safety of the patient and operating personnel when using the light. Failure to follow these safety steps could result in injury to the patient and user.

1. Although great emphasis, research, and consideration have gone into the design for safety of this product, abuse and misuse could cause potentially unsafe conditions.
2. The doctor or other personnel must move the light out of the way before a patient gets up from the table.
3. Do not let a patient use the light as a handle to get up from the table.
4. Do not use the light with the lens removed or hanging by the retaining strap.
5. Do not lean on light.
6. Do not move this equipment in a violent fashion.
7. Do not run variable height operating tables, track mounted scanning x-rays, or other equipment into the light head, arms or suspension system .

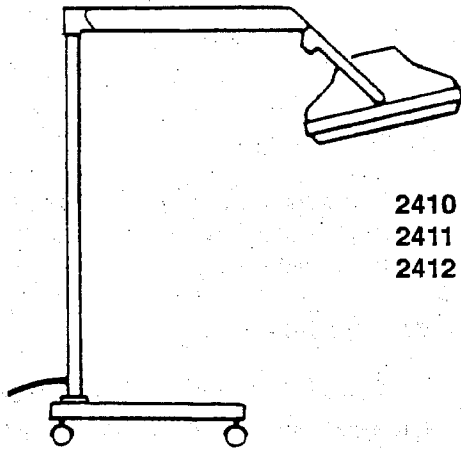
GENERAL SAFETY PRECAUTIONS

1. Read all instructions.
2. Do not touch hot surfaces. Use handles.
3. Use close supervision when equipment is used on or near children.
4. Do not operate if light malfunctions or has been damaged .
5. Use this light only for its intended use, as a surgical light, as described in this manual.
6. Unplug or turn off light when not in use.
7. Do not use light with damaged or broken electrical parts or connections.
8. The use of any accessory attachments not sold or recommended by the Company may cause hazards.
9. Do not expose electrical components to liquids.
10. Do not run variable height operating tables, track mounted scanning x-rays, or other equipment into the light head, arms or suspension system .

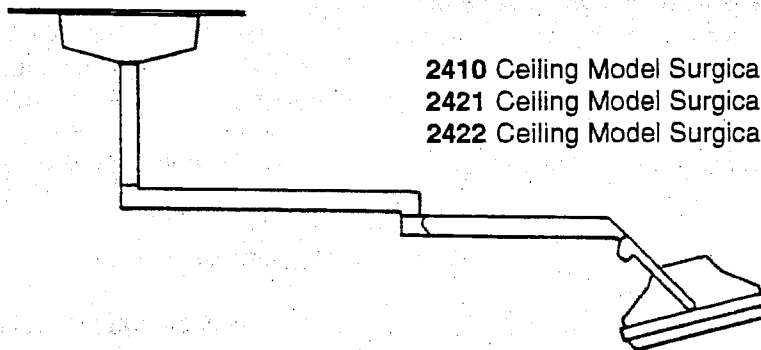
LIGHT MODELS



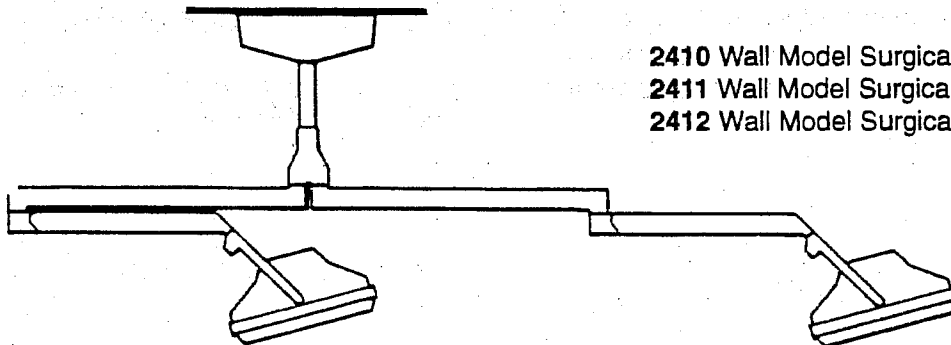
2410 Wall Model Surgical Light (120V)
2411 Wall Model Surgical Light (120V Export)
2412 Wall Model Surgical Light (230V Export)



2410 Portable Surgical Light (Floor - 120V)
2411 Portable Surgical Light ((Floor - 120V Export)
2412 Portable Surgical Light ((Floor - 230V Export)



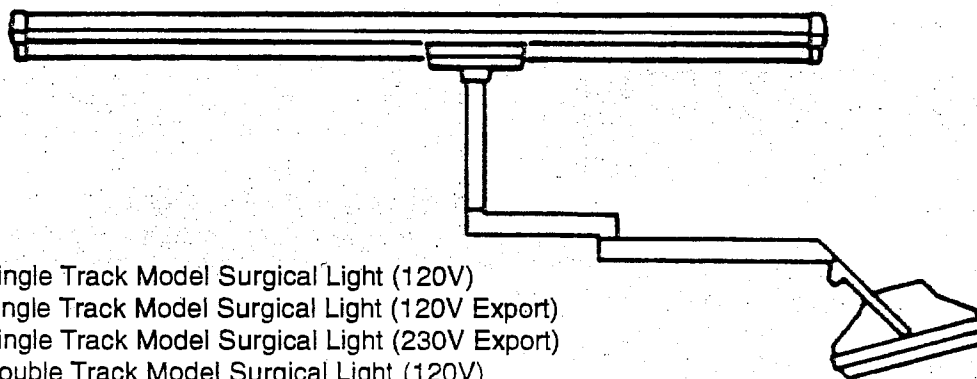
2410 Ceiling Model Surgical Light (120V)
2421 Ceiling Model Surgical Light (120V Export)
2422 Ceiling Model Surgical Light (230V Export)



2410 Wall Model Surgical Light (120V)
2411 Wall Model Surgical Light (120V Export)
2412 Wall Model Surgical Light (230V Export)

(Continued)

LIGHT MODELS (Cont'd)



- 2410** Single Track Model Surgical Light (120V)
- 2411** Single Track Model Surgical Light (120V Export)
- 2412** Single Track Model Surgical Light (230V Export)
- 2420** Double Track Model Surgical Light (120V)
- 2421** Double Track Model Surgical Light (120V Export)
- 2422** Double Track Model Surgical Light (230V Export)

GENERAL

The 2400 Series Surgical Lights consist of a lighthouse, support arms and mounting structure. Support arm pivots enable the lighthouse to be positioned for surgical procedure. Lighthouse pivots provide tilt and rotational adjustments.

The lighthouse assembly contains the optical system of the light. The reflector directs a high intensity light pattern on to the patient. A blue-green filter surrounding the light source color-corrects the light and filters heat. The 2400 Series is equipped with a dichroic coated reflector to further color correct and cool the light beam for surgical procedures. A frosted lens diffuses the light beam on all models.

An intensity control is optional with 120V ceiling and track mounted models. An intensity control is standard with all 230V models.

MODEL DESCRIPTION

All models use the same lighthouse and arm assembly, but they differ in their means of mechanical support. Each model is described in the following paragraphs.

Floor Models

The lighthouse and arm assembly is mounted on a vertical post supported by a base. The base is equipped with casters.

Wall Models

The lighthouse and arm assembly is attached to an extension arm which is pivot mounted from a wall bracket.

Ceiling Models

The lighthouse and arm assembly is attached to an extension arm which is suspended from the ceiling by means of a suspension tube and tripod assembly.

Double lighthouse models have both extension arms connected to a single suspension tube.

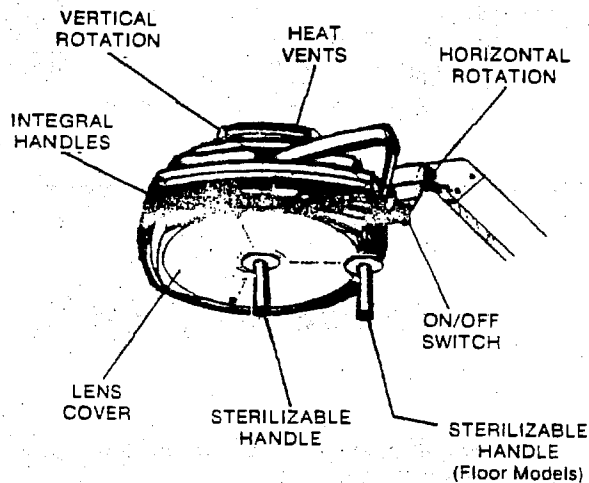
Track Models

The lighthouse and arm assembly is attached to an extension arm which is suspended from a trolley. The trolley moves along an enclosed track.

Double track models have one lighthouse suspended from each track.

LIGHT OPERATION

1. Plug Floor or Wall Models into a grounded receptacle.
2. Press the ON/OFF switch on the underside of the light arm to ON.

**ON/OFF SWITCH HANDLES**

3. Adjust angle and position of illumination using integral handles for horizontal and vertical rotation. The ball grip can be used to facilitate positioning.
4. Critical adjustments can be made with the sterilizable handle by scrubbed personnel.

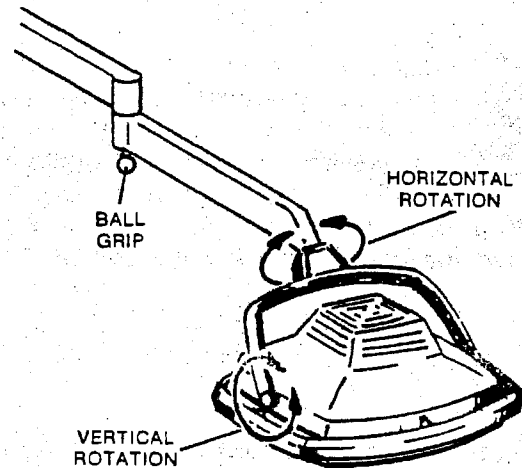


The sterilizable handle is attached by threading it into the lighthead. Seat the handle firmly in place.

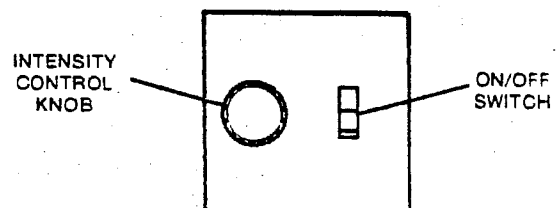
5. Move lighthead away from area before patient sits upright on the table.



As in all high intensity lighting systems, a portion of the system's radiant output can cause a temperature increase and subsequent drying. Even though the effect is minimal, the light should be turned off or directed onto another area when not required, especially during lengthy procedures.

**LIGHT HEAD ADJUSTMENT****OPERATION WITH 120V INTENSITY CONTROL**

1. Rotate Intensity Control Knob to a middle position.
2. Turn Intensity Control ON/OFF Switch to ON.
3. Turn lighthead ON/OFF Switch to ON.
4. Rotate Intensity Control Knob clockwise to increase light intensity or counterclockwise to decrease.
5. To turn OFF lighthead, turn the lighthead and the Intensity Control ON/OFF Switches to OFF.

**OPTIONAL INTENSITY CONTROL**

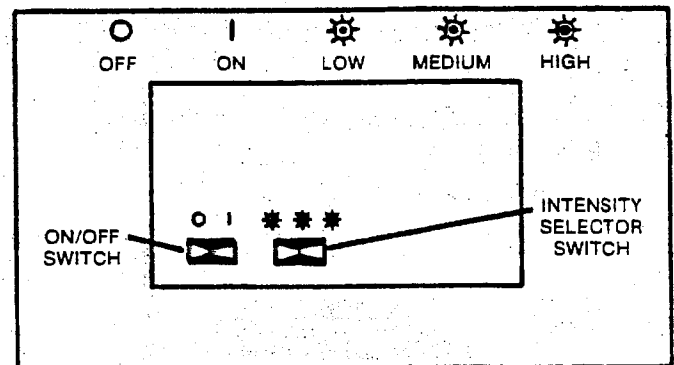
2400 SURGICAL LIGHTS

3. Operation

OPERATION WITH 230V INTENSITY LIGHT CONTROL



Before operating the light, instruct all operating personnel where the Main Power I/O (ON/OFF) switch is located. Depress the I/O (ON/OFF) switch to O (OFF) if there is component failure or a condition occurs that could cause damage to the light, endanger the patient or operating personnel.



1. Depress the Intensity Light Control I/O (ON/OFF) switch to I (ON).
2. Turn lighthead I/O (ON/OFF) switch to I (ON).
3. Depress Intensity Selector switch to required intensity.
4. Turn light and intensity control I/O (ON/OFF) switch to O (OFF).
5. Move lighthead away from area before patient sits upright on the table.

230V SURGICAL LIGHT CONTROL

CLEANING EXTERIOR SURFACES



Disconnect or turn OFF power source to the light before any maintenance to avoid hazardous electrical contact. Allow a 15 minute cool-off period to avoid touching hot lighthouse or parts.

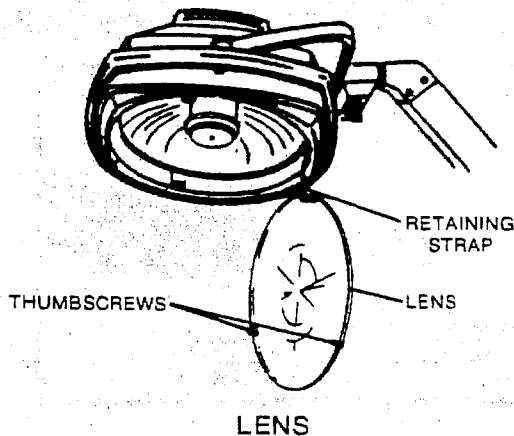
Use mild cleaning agents that will not damage painted, plated or plastic surfaces.

CLEANING OPTICAL SURFACES



Optical surfaces; lens, heat filter and reflector, should be handled with extreme care. Clean only when required due to dust or smudges.

1. Loosen thumbscrews and lower the lens. The lens will be suspended by a retaining strap.



2. Gently clean inside of reflector with damp cotton. The cotton will conform to the contour of the reflector. Clean in direction of flutes. Wipe dry with a fresh piece of cotton.
3. Clean the outside of the blue-green heat filter in the same manner.



Do not use acid solutions, including chlorinated cleaners. Do not use any scrubbing or abrasive action to avoid damage to the reflector or lens coating.

The water should be deionized or distilled.

4. Clean the inside and outside of the lens using a lint free cloth.

5. Secure the lens.



The blue-green heat filter and lens must be in place to prevent ultraviolet and infrared rays from reaching the patient or operator.

REPLACEMENT LAMPS

2400 Series Surgical Light:

150 Watt, Quartz Halogen,
Double Contact Bayonet Base,
Part No. 49455

REPLACING LAMPS



Disconnect or turn OFF power source to the light or Intensity Control before any maintenance to avoid hazardous electrical contact. Allow a 15 minute cool-off period to avoid touching hot lighthouse parts.

1. Loosen lens thumbscrews. The lens will hang from a retaining strap.
2. Rotate the lighthouse to face the operator at a little above eye level.
3. Hold the baffle firmly and unhook the three spring wires from the baffle.
4. Remove the heat filter/baffle assembly as shown. Avoid touching the blue-green glass.
5. Press down and turn the lamp counterclockwise to remove.



Read handling note printed on wrapper of new lamp.

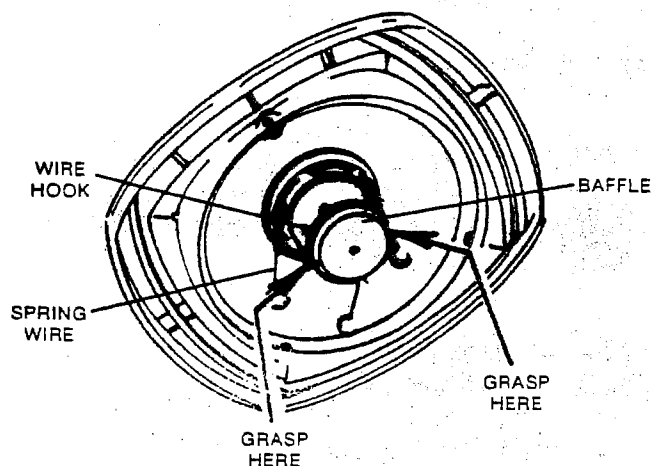
Skin oils will damage and shorten life of lamp. If accidentally touched, wipe lamp with alcohol or distilled water.

6. Hold new lamp by wrapper and insert in socket.

2400 SERIES SURGICAL LIGHTS

4. Operator's Maintenance

7. Press down and turn clockwise to insert.



REMOVING HEAT FILTER

8. Clean inside and outside of blue-green filter with cotton dampened with deionized or distilled water.
9. Replace heat filter/baffle assembly in upper recessed area, spring wires and lens.



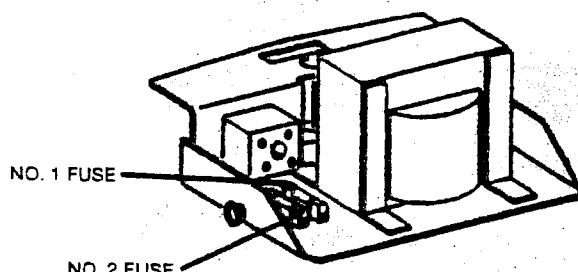
The blue-green heat filter and lens must be in place to prevent ultraviolet and infrared rays from reaching the patient or operator.

REPLACING FUSES (230V Floor Model Only)



Pull wall plug to the light before replacing fuses to avoid electrical shock.

A transformer box, containing the fuses, is located on the base of the light.



REPLACING FUSES (230V Floor Model)

1. Remove two screws and lift the cover from the transformer box.

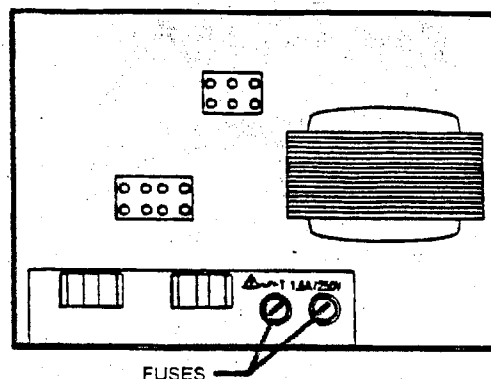
2. Use 630 mA, 250 volt fuses, Part No. 65717.

REPLACING INTENSITY CONTROL FUSES (230V Wall, Ceiling & Track Models)



Disconnect or turn OFF power source to the intensity control before replacing fuses to avoid hazardous electrical contact.

1. Remove the two screws from the top and bottom of the control box that secure the trim strip and cover.
2. Take off the trim strip and then carefully remove the cover. This permits access to the fuses.
3. Use T 1.6A, time delay fuses, Part No. 67202. Hold new lamp by wrapper and insert in socket.



REPLACE FUSES (230V, Wall, Ceiling and Track Models)

RECOMMENDED SPARE PARTS

ORDERING INFORMATION

The items listed below may be ordered from your Getinge/Castle, Inc. Service Representative or your nearest Getinge/Castle, Inc. Regional Office. Or, you may contact:

Getinge/Castle, Inc.
7371 East Spartan Boulevard
North Charleston, SC 29418
Phone: (800) 638-2427 USA

It is recommended that the parts listed below be maintained in stock to ensure availability when needed.

QUANTITY	PART NO.	DESCRIPTION
2	49455	Lamp, 120V, 150W
1	61853	Cylinder, Glass Heat Filter
2	67202	Fuse, 1.6 Amp, 250V (230V Light Control)
2	55918	Fuse, 800mA, 250V (230V Floor Light)
1	65024	Spring, Gas
1	67969	Switch, Dimmer (Optional 120V Control)
2	65196	Handle, Sterilizable (Optional)
2	E6885	Screw, Rotation Stop, 3/8-16 x 3/8 Half Dog Point Socket Set
2	25191	Screw, Friction Adj., #10-32 x 3/8 Hex Socket Button Hd.

QUALITY SERVICE - RELIABLE PERFORMANCE

Preventive maintenance performed by factory trained service representatives, using authorized parts and service techniques is recommended. Recognizing symptoms of potential trouble and making corrections immediately is less costly and time consuming than repairing damaged equipment. Our Performance Assurance Plan offers scientific maintenance, not merely repair service.

It is advised that a stock of the Recommended Spare Parts be maintained to ensure parts are immediately available when needed.



A Service Manual, consisting of operational information, service information, and a complete Parts List, can be purchased from Getinge/Castle Inc.