Hausted®
by graham-field

APC250 Hydraulic

EPC Electric

ALL PURPOSE CHAIRS

HYDRAULIC APC250 AND

ELECTRIC EPC, EPD, ESC, AND ESD MODELS

OPERATING MANUAL

READ THIS MANUAL BEFORE OPERATING YOUR APC / SURGI-CHAIR.

SAVE THIS MANUAL FOR FUTURE USE.

THE MOST CURRENT VERSION OF THIS MANUAL CAN BE FOUND ONLINE AT WWW.HAUSTED.COM.

HP_APC-INS-LAB-REVA21

CONTENTS

INTRODUCTION — A WORD FROM GF HEALTH PRODUCTS, INC. 4
INDICATIONS FOR USE 4
SERVICE INFORMATION 4
ADVISORY 4

1 LIST OF WARNINGS AND CAUTIONS 5
SIGNIFICANCE OF SAFETY STATEMENTS 5
DANGER / WARNING / CAUTION / NOTICE SUMMARY 5
WARNING: TO REDUCE THE RISK OF BURNS, FIRE, ELECTRIC SHOCK, OR PERSONAL INJURY 5
WARNING — CAUTIONS AND PROPER OPERATION 6
ELECTROMAGNETIC COMPATIBILITY (EMC) INFORMATION 7

2 UNCRATING INSTRUCTIONS 8
IMPORTANT — REPORT ANY SHIPPING DAMAGE IMMEDIATELY: 8
NOTICE — POSSIBLE EQUIPMENT DAMAGE: 8
WARNING — PERSONAL INJURY HAZARD: 8
ENVIRONMENTAL CONDITIONS 8
OPERATING 8
STORAGE AND TRANSPORT 8
UNPACKING INSTRUCTIONS 8

3 OPERATING INSTRUCTIONS 9
3.1 APC / SURGI-CHAIR SPECIFICATIONS 9
ELECTRICAL SPECIFICATIONS (APPLIES ONLY TO EPC AND ESC MODELS) 9
ELECTRICAL SPECIFICATIONS (APPLIES ONLY TO EPD AND ESD MODELS) 9
3.2 FEATURES, WARNINGS AND PROPER OPERATION OPERATING INSTRUCTIONS 10
WARNINGS — CAUTIONS AND PROPER OPERATION (SEE DIAGRAM ON FOLLOWING PAGE) 10
FEATURES (SHOWN IN ILLUSTRATION) 11
WARNINGS — CAUTIONS AND PROPER OPERATION (SEE LIST ON PREVIOUS PAGE) 11
3.3 BRAKING AND STEERING OPERATION 12
3.3.1 APPLYING THE BRAKES 12
3.3.2 RELEASING THE BRAKES 12
3.3.3 APPLYING THE STEERING BRAKES 12
3.3.4 RELEASING THE STEERING BRAKES 12
3.4 ELECTRIC CONTROL LOCATIONS 13
3.4.1 PENDANT CONTROL LOCATION 13
3.4.2 PLUG LOCATION 13
3.4.3 LOW BATTERY ALARM 13
3.5 HEIGHT AND TOP ADJUSTMENT 14
3.5.1 ELECTRIC MODELS: HEIGHT ADJUSTMENT 14
RAISING THE HEIGHT 14
LOWERING THE HEIGHT 14
3.5.2 ELECTRIC MODELS:FOOT SECTION ADJUSTMENT 14
RAISING THE FOOT SECTION 14
LOWERING THE FOOT SECTION 14
3.5.3 ELECTRIC MODELS: BACK SECTION ADJUSTMENT 14
RAISING THE BACK SECTION 14
LOWERING THE BACK SECTION 14
3.5.4 ALL MODELS: QUICK DROP ACTIVATION 15
3.5.5 HYDRAULIC MODEL: RAISING THE HEIGHT 15
3.5.6 HYDRAULIC MODEL: LOWERING THE HEIGHT 15
3.5.7 HYDRAULIC MODEL: TOP ADJUSTMENT 15
3.5.8 HYDRAULIC MODEL: TRENDELENBURG ADJUSTMENT 15
3.6 HYDRAULIC MODEL: INDEPENDENT FOOT SECTION OPERATION 16
3.6.1 INDEPENDENT OPERATION 16
3.6.2 RETURN TO CHAIR MODE 16

3.7 ADJUSTABLE FOOTREST 16
3.7.1 REPOSITIONING THE FOOTREST 16
3.8 HINGING RAILS 17
3.8.1 REPOSITIONING THE RAIL 17
3.9 ESCEYE / ESDEYE HEADREST 18
3.9.1 PRE-OP / POST-OP HEAD EXTENSION 18
3.9.2 ADJUSTING THE HEADREST 18
3.10 COMMON OPTIONAL ACCESSORIES 19
3.10.1 MOUNTING THE WRIST REST 19
3.10.2 ADJUSTING THE WRIST REST 19
3.10.3 INSTALLING #18 IV ROD 19
3.10.4 INSTALLING THE SIDE TRAY 19
3.10.5 USING SAFETY STRAPS 20
3.10.6 INSTALLING THE PATIENT TRAY 20
4 TROUBLESHOOTING GUIDE 21
4.1 ELECTRIC POWERED CHAIRS TROUBLESHOOTING 21
4.2 ELECTRIC POWERED CHAIRS BATTERY REPLACEMENT 21
4.3 HYDRAULIC CHAIRS TROUBLESHOOTING 22
5 PREVENTIVE MAINTENANCE FOR THE USER 23
6 OPTIONAL ACCESSORIES 24
7 GF HEALTH PRODUCTS, INC. LIMITED WARRANTY FOR HAUSTED BRAND STRETCHERS AND CHAIRS 26
8 DISPOSAL AND KEY TO SYMBOLS 27
DISPOSAL 27
KEY TO SYMBOLS 27
9 APPENDIX 28
9.1 GUIDANCE AND MANUFACTURER'S DECLARATION — ELECTROMAGNETIC EMISSIONS 28
9.2 ENCLOSURE PORT [1] 28
9.3 ENCLOSURE PORT IMMUNITY TO RF WIRELESS COMMUNICATIONS EQUIPMENT [1] 29
9.4 INPUT AC POWER PORT [1] 30
9.5 PATIENT COUPLING PORT [1] 32
9.6 SIGNAL INPUT/OUTPUT PARTS PORT [1] 33
9.7 RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND HAUSTED APC SERIES MODELS AND SURGI-CHAIRS 34
9.8 NOTES TO SECTION 9 34
10 INDEX 35

INTRODUCTION — A WORD FROM GF HEALTH PRODUCTS, INC.

This manual contains important information on proper use and maintenance of the Hausted APC Series models and Surgi-Chairs. All personnel involved in the use and maintenance of this equipment must carefully review and comply with the warnings, cautions and instructions contained in this manual. These instructions are important to protect the health and safety of personnel operating models EPC, EPD, ESC, and ESC and should be retained in a conveniently accessible area for quick reference.

Complete instructions for uncrating and putting your new equipment in service, as well as equipment drawings, have been furnished. If missing, contact GF Health Products, Inc. for replacement copies, giving the serial number and model number of the unit.

GF Health Products, Inc. carries a complete line of accessories for use with these chairs; your representative will gladly review these with you.

Indications for Use

The Hausted APC Series models and Surgi-Chairs are intended for use in patient treatment, transport or recovery.

The chair's backrest can be positioned from sitting to supine. Height positioning, as well as backrest and leg section adjustment, is electric/battery powered and is activated with a handheld control. Four easy-rolling, steerable casters allow maximum mobility and maneuverability.

Service Information

A thorough preventive maintenance program is essential to safe and proper unit operation. This manual contains maintenance schedules and procedures which should be followed for satisfactory equipment performance.

We encourage you to contact GF Health Products, Inc. with maintenance concerns.

Advisory

A listing of the safety precautions to be observed when operating and servicing this equipment can be found in Section 1 of this manual. Do not operate or service the equipment until you have become familiar with this information. Any alteration of this equipment not authorized or performed by GF Health Products, Inc., could affect its operation, will void the warranty, could violate national, state, and local regulations, and could jeopardize your insurance coverage.

Info: Column 1 below applies only if product was purchased outside the U.S.

CE EC REP **EC Authorized Representative:** **CEpartner4U BV** **ESDOORNLAAN 13** **3951DB MAARN** **The Netherlands** **+31(0)6 516 536 26**	**Manufactured by:** **GF Health Products, Inc.** **One Graham-Field Way** **Atlanta GA 30340-3140** **1.770.368.4700 Main** **1.770.368.2386 Fax** **www.grahamfield.com** **www.hausted.com**	⚠ **Class 1 Equipment** **Type B Equipment** **Equipment not suitable for use in the presence of flammable anesthetic mixture with air or oxygen or nitrous oxide.** **IPX1 (Vertical drip-proof equipment))** **Not suitable for continuous operation (Duty Cycle: 5% 1 Min in 19 Min)**

Info: The base language of this document is ENGLISH. Any translations must be made from the base language document.

1 LIST OF WARNINGS AND CAUTIONS

⚠ **IMPORTANT: Before using the Hausted APC / Surgi-Chair, please read and adhere to the following safety precautions and warnings. Failure to do so could result in serious personal injury or damage to the APC / Surgi-Chair.**

Always consult your healthcare professional to determine safe methods most suitable for your individual abilities. Protect yourself, your attendant, and the Hausted APC / Surgi-Chair by having it serviced regularly. If you experience any malfunction, contact your Graham-Field authorized distributor immediately, as a hazardous condition could result, causing personal injury or damage to the Hausted APC / Surgi-Chair.

Periodic inspection, adjustment and replacement of worn parts are necessary to provide years of excellent service. Maintenance MUST be performed by qualified personnel ONLY.

SAVE THESE INSTRUCTIONS.

SIGNIFICANCE OF SAFETY STATEMENTS

Please note the following special statements, used throughout this manual, and their significance:

⚠ **DANGER: Indicates a potential hazard situation or unsafe practice that, if not avoided, will result in death or serious personal injury.**

⚠ **WARNING: Indicates a potential hazard situation or unsafe practice that, if not avoided, could result in death or serious personal injury.**

⚠ **CAUTION: Indicates a potential hazard situation or unsafe practice that, if not avoided, could result in minor or moderate personal injury.**

▲ **NOTICE: Indicates a potential hazard situation or unsafe practice that, if not avoided, could result in product or property damage.**

Info: Provides application recommendations or other useful information to ensure that you get the most from your product.

DANGER / WARNING / CAUTION / NOTICE Summary

The following is a listing of the safety precautions which must be observed when operating and servicing this equipment. These precautions are repeated (in whole or in part), where applicable, throughout the manual.

WARNING: To Reduce the Risk of Burns, Fire, Electric Shock, or Personal Injury

⚠ **DANGER: SHOCK HAZARD — To reduce the risk of electric shock, do not remove the cover. Unit is to be serviced by qualified personnel only.**

⚠ **DANGER: SHOCK HAZARD — To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.**

⚠ **WARNING: LACERATION HAZARD — When cutting bands always us a tool specifically designed for that purpose. This will help to avoid personal injuries frequently incurred when bands are cut and tension released.**

⚠ **WARNING: PERSONAL INJURY HAZARD — The batteries are wired in series; failure to connect the same way can cause batteries to explode.**

WARNING — CAUTIONS AND PROPER OPERATION

⚠ **WARNING: The APC250 model chair has a maximum weight capacity of 325 lb (147 kg), EVENLY DISTRIBUTED. The EPC, EPD, ESC, and ESD model chairs have a maximum weight capacity of 500 lb (227 kg), EVENLY DISTRIBUTED.**

⚠ **WARNING: The chair is not intended to replace a stretcher or gurney.**

⚠ **WARNING: The chair has warning labels on both the head and foot end stating: Do not sit on end — as tipping may occur.**

⚠ **WARNING: Do not stand on footrest — tipping may occur.**

⚠ **WARNING: When not in use, do not leave the chair in a recline position.**

⚠ **WARNING: When patient is seated in the chair, ensure the side rails are up and the patient is secured with patient safety straps.**

⚠ **WARNING: Patient entry, egress and transfer from the chair should always be from the center side rail location with the side rail in the down position and the brakes locked.**

⚠ **WARNING: At no time should the patient be permitted to enter or exit from the ends of the chair when in partial or total recline position.**

⚠ **WARNING: Ensure the brakes are locked when the patient is not being transported.**

⚠ **WARNING: The patient pendant has a warning label on it stating: Place pendant in holder when not in use — keep cord clear of moving parts.**

⚠ **WARNING: All electric powered chairs are equipped with a built in battery back-up system: nevertheless, the unit should remain plugged into wall receptacle during normal use. The battery back-up is recommended for transport and emergency only.**

⚠ **WARNING: The backrest quick drop handle is intended to be used during emergency situations only**

⚠ **WARNING: To turn electric controls on, plug into wall receptacle. To turn off, remove plug from wall receptacle. The electric powered chairs do not have a separate on/off switch.**

⚠ **WARNING: The chair has a warning label located on the control box cover stating: To reduce the risk of electrical shock do not remove the cover. Service by qualified personnel only.**

⚠ **WARNING: Always disconnect the power source whenever troubleshooting or servicing any electric powered chair.**

⚠ **WARNING: Do not use a sharp instrument to remove fuse, as it may scratch the circuit board.**

⚠ **WARNING: The batteries are wired in series; failure to install or rewire the same way may cause the batteries to explode.**

⚠ **WARNING: Steam cleaning and pressure washing of chair is not recommended and can void warranty.**

⚠ **WARNING: Rail release handle will not release unless force is applied laterally to outside top of rail.**

⚠ **WARNING: The chair has a warning label located on both side rails indicating a pinch point between seat section and side rail.**

⚠ **WARNING: This product can expose you to chemicals including Di(2-ethylhexyl)phthalate (DEHP) which is known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov/furniture.**

ELECTROMAGNETIC COMPATIBILITY (EMC) INFORMATION

⚠ **WARNING: Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.**

⚠ **WARNING: Electronic equipment may be influenced by Radio Frequency (RFI). Caution should be exercised with regard to the use of portable communications in the area around such equipment. Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Hausted equipment including specified Hausted equipment cables. Degradation of the performance of the Hausted equipment could result.**

⚠ **WARNING: If RFI causes erratic behavior, unplug the electric Hausted equipment immediately. Leave unplugged while transmission is in progress.**

⚠ **WARNING: The use of accessories, transducers, and cables other than those specified by the manufacturer may result in increased emissions or decreased immunity of the Hausted equipment. GF cables and accessories include motor cables, mains cable, pendant cables, and back up battery and cable.**

⚠ **WARNING: This equipment should not be used adjacent to or stacked with other equipment. If adjacent or stacked use with other equipment is necessary, this Hausted equipment and the other equipment should be observed to verify that they are operating normally.**

⚠ **WARNING: The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is usually required) this equipment might not offer adequate protection to radio frequency communication services. The user might need to take mitigation measures, such as relocating or reorienting the equipment.**

2 UNCRATING INSTRUCTIONS

IMPORTANT — REPORT ANY SHIPPING DAMAGE IMMEDIATELY:

⚠ **WARNING: Inform shipper of any damages — leave carton intact. Leave equipment in the receiving area until inspection is complete.**

NOTICE — POSSIBLE EQUIPMENT DAMAGE:

▲ **NOTICE: The crate contains fragile, expensive medical equipment. Uncrate and handle carefully. If after uncrating the equipment you find any damage (no matter how slight), report the damage to GF Health Products, Inc.**

WARNING — PERSONAL INJURY HAZARD:

⚠ **WARNING: When cutting bands, always use tool specifically designed for that purpose. This will help avoid personal injuries possibly incurred when bands are cut and tension is released.**

ENVIRONMENTAL CONDITIONS

Operating	
Temperature	5°C to 40°C
Relative Humidity	20% to 90% @ 30°C
Atmospheric Pressure	700 to 1060 hPa

Storage and Transport	
Temperature	-10°C to 50°C
Relative Humidity	20% to 90% @ 30°C
Atmospheric Pressure	700 to 1060 hPa

IMPORTANT: Follow each step in the order shown in these instructions.

UNPACKING INSTRUCTIONS

Your Hausted equipment has been carefully packed at our manufacturing plant to ensure safe shipment to your medical facility. There are several procedures you must follow to put your new equipment in service. These procedures only take a few minutes to complete and all are required to ensure proper operation of the equipment.

1. Cut the two bands around the shipping carton.
2. Remove the top half of the carton and cut one side of the bottom half.
3. Remove the equipment from the carton.
4. Check to see if all features of the equipment work properly. If all the features work, advance to step 5. If any of the features do not work properly, call GF Health Products, Inc. at 1.770.368.4700.

Info: Although the equipment has been fully charged prior to shipment, plug the unit into a wall socket prior to checking any electric features.

5. Clean the equipment using mild detergent to remove any dirt accumulated during shipment, and place the equipment into service.

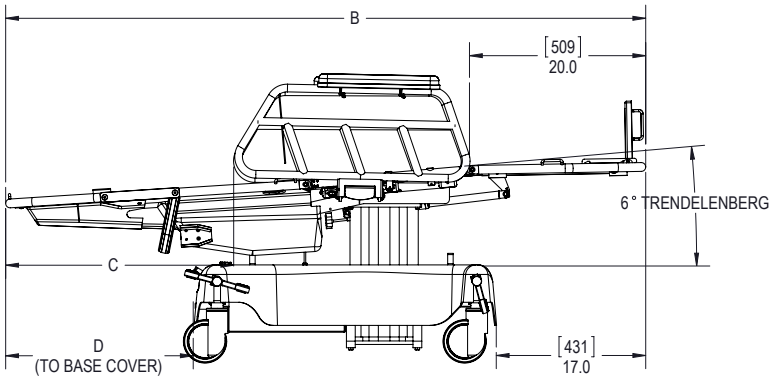
3 OPERATING INSTRUCTIONS

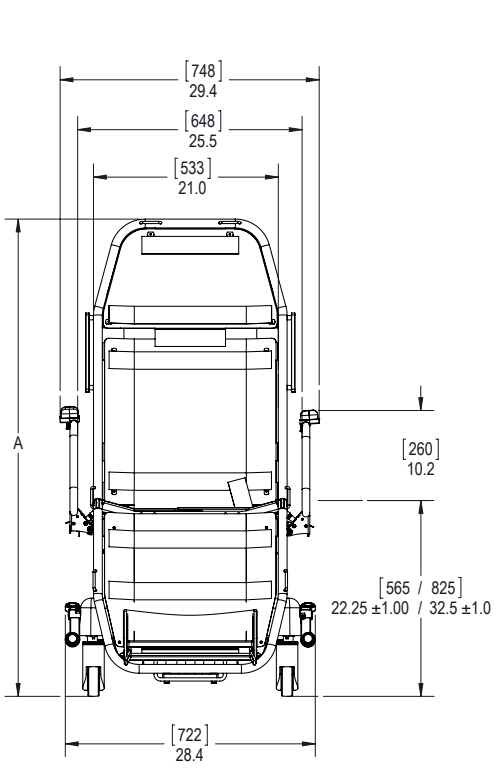
3.1 APC / SURGI-CHAIR SPECIFICATIONS

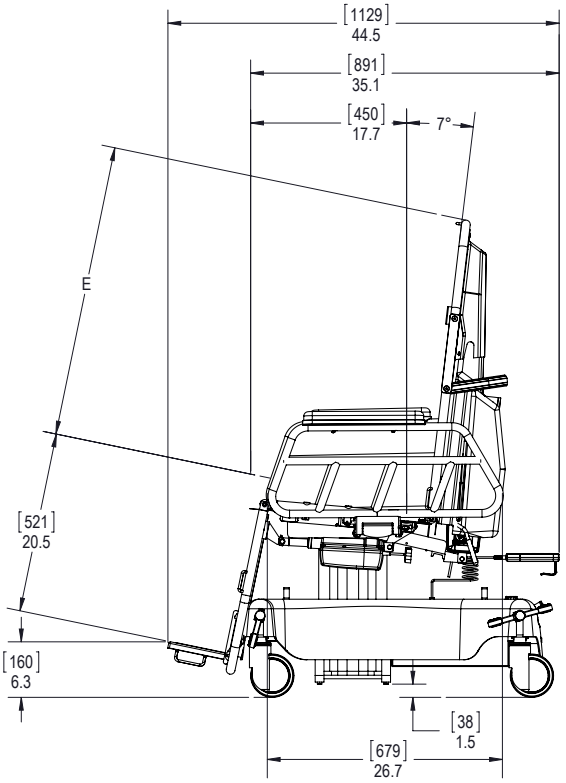
Info: All dimensions are specified in inches. Unless otherwise noted, all dimensions are ±.375. Stacked dimensions are minimum (left) and maximum (right). GF Health Products, Inc. reserves the right to change specifications without notice.

	DIMENSION				
MODEL	A	B	C	D	E
APC250	56.5/ 64.0	75.0	25.9	21.6	N/A
EPC250/* EPD250	54.2/ 62.45	72.7	25.9	21.3	33.2
ESC250/ ESD250	56.7/ 64.95	75.0	28.2	23.6	35.0

* pictured







Electrical Specifications (Applies only to EPC and ESC Models)

Product Classification:	**1**
Input Voltage:	**120V~, ±5%, 60Hz**
Amperage:	**Max. 2.7A**
Duty Cycle:	**5% 1 Min in 19 Min**
IP Rating:	**IPX 4**
Grounding Protection:	**Type B**

Electrical Specifications (Applies only to EPD and ESD Models)

Product Classification:	**1**
Input Voltage:	**230V~, ±10%, 50Hz**
Amperage:	**Max. 1.4A**
Duty Cycle:	**5% 1 Min in 19 Min**
IP Rating:	**IPX 1**
Grounding Protection:	**Type B**

3.2 FEATURES, WARNINGS AND PROPER OPERATION OPERATING INSTRUCTIONS

WARNINGS — CAUTIONS AND PROPER OPERATION (See Diagram on following page)

⚠ **A. WARNING: The APC250 model chair has a warning label located on the back section stating: Maximum patient weight 147 kilograms (325 lbs.). The EPC, EPD, ESC, and ESD model chairs have a warning label located on the back section stating: Maximum patient weight 227 kilograms (500 lbs.).**

⚠ **B. WARNING: The chair is not intended to replace a stretcher or gurney.**

⚠ **C. WARNING: The chair has warning labels on both the head and foot end stating: Do not sit on end - as tipping may occur.**

⚠ **D. WARNING: Do not stand on footrest — tipping may occur.**

⚠ **E. WARNING: When not in use, do not leave the chair in a recline position.**

⚠ **F. WARNING: When patient is seated in the chair, ensure the side rails are up and the patient is secured with patient safety straps.**

⚠ **G. WARNING: Patient entry, egress and transfer from the chair should always be from the center side rail location with the side rail in the down position and the brakes locked.**

⚠ **H. WARNING: At no time should the patient be permitted to enter or exit from the ends of the chair when in partial or total recline position.**

⚠ **I. WARNING: Ensure the brakes are locked when the patient is not being transported.**

⚠ **J. WARNING: The patient pendant has a warning label on it stating: Place pendant in holder when not in use — keep cord clear of moving parts.**

⚠ **K. WARNING: All electric-powered chairs are equipped with a built in battery back-up system, but it is recommended that the unit remain plugged in wall receptacle during normal use. The battery back-up is recommended for transport and emergency only.**

⚠ **L. WARNING: The backrest quick drop handle is intended to be used during emergency situations only.**

⚠ **M. WARNING: To turn electric controls on, plug into wall receptacle. To turn off, remove plug from wall receptacle. The electric powered chairs do not have a separate on/off switch.**

⚠ **N. WARNING: The chair has a warning label located on the control box cover stating: To reduce the risk of electrical shock do not remove the cover. Service by qualified personnel only.**

⚠ **O. WARNING: Always disconnect the power source whenever servicing any electric powered chair.**

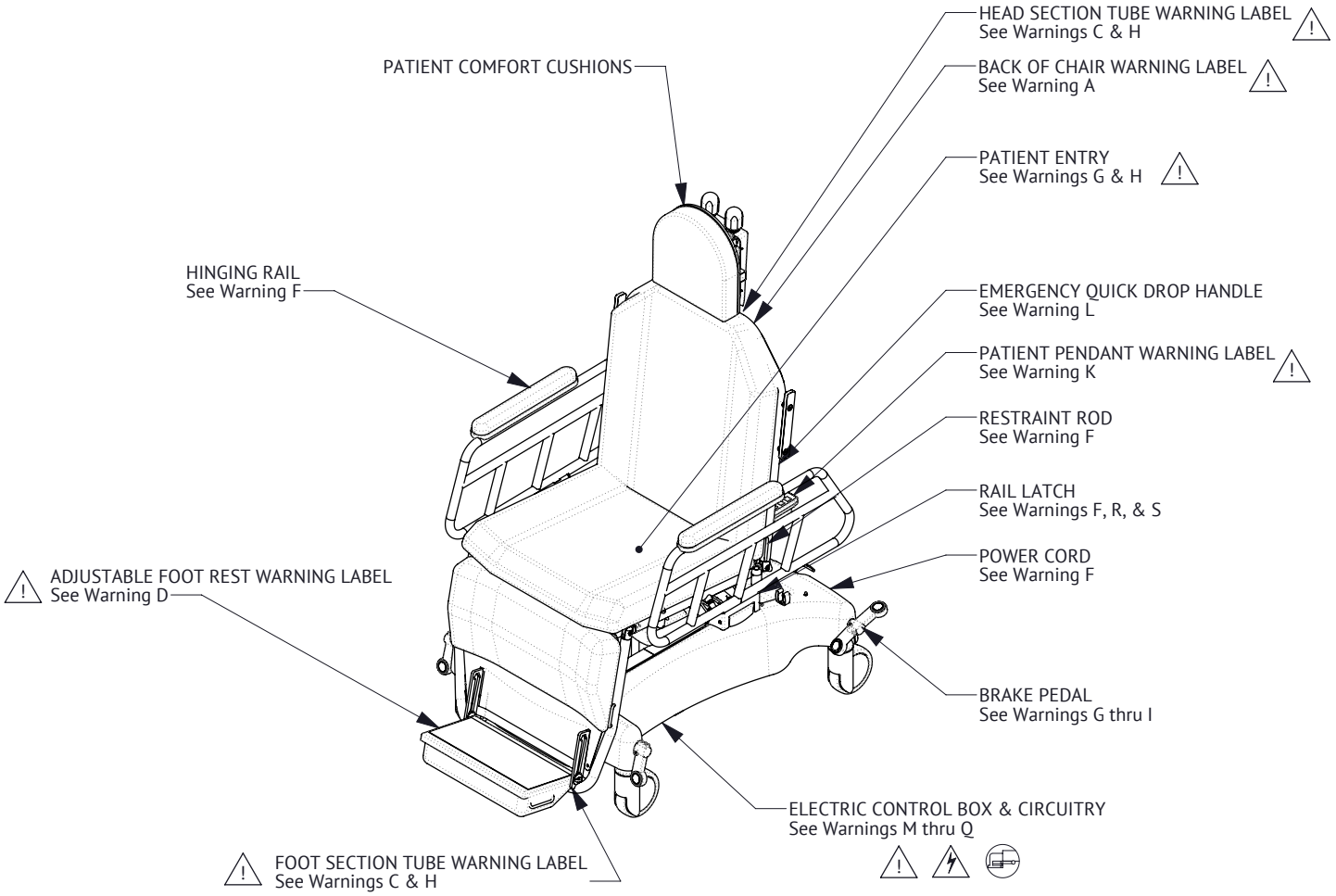
⚠ **P. WARNING: Do not use a sharp instrument to remove fuse, as it may scratch the circuit board.**

⚠ **Q. WARNING: The batteries are wired in series; failure to install or rewire the same way may cause the batteries to explode.**

⚠ **R. WARNING: Rail release handle will not release unless force is applied laterally to outside top of rail.**

⚠ **S. WARNING: The chair has a warning label located on both side rails indicating a pinch point between seat section and side rail.**

Features (Shown in Illustration)



WARNINGS — CAUTIONS AND PROPER OPERATION (See List on Previous Page)

3.3 BRAKING AND STEERING OPERATION

3.3.1 Applying the Brakes

Activate the four wheel central braking system by depressing the red pedal at any of the four corners of the unit (Figure 3-1).

Engage the brakes fully by depressing the pedal to approximately 45°. All four caster wheels should then be locked from swiveling and rotating.

FIGURE 3-1

3.3.2 Releasing the Brakes

Release the brakes by depressing either green pedal at the head end of the unit until the pedal is in a horizontal position (Figure 3-2). All four wheels should then rotate and swivel freely.

FIGURE 3-2

⚠ **WARNING: Ensure the brakes are locked when the patient is not being transported.**

3.3.3 Applying the Steering Brakes

From the head end of the chair, depress the green pedal downward into locked position (Figure 3-3). Push the chair forward. Both casters at the foot end will lock into nonswivel mode; the steering lock will then guide the chair along a straight path with minimal steering effort by the attendant.

FIGURE 3-3

3.3.4 Releasing the Steering Brakes

Release the steering brakes by depressing either red pedal at the head end of the unit until the pedal is in a horizontal position (Figure 3-2). All four casters should then rotate and swivel freely.

3.4 ELECTRIC CONTROL LOCATIONS

3.4.1 Pendant Control Location

The pendant is located in the pendant holder on the back of the chair (Figure 3-4).
This chair is equipped with a battery back up for transport but the unit should be plugged into a wall receptacle when not in transport. The plug is located on the back of the base cover (Figure 3-5). Do not position the unit so that it is difficult to disconnect the plug.

▲ **NOTICE: Place pendant in holder when not in use. Keep cord clear of moving parts.**

FIGURE 3-4

3.4.2 Plug Location

This chair is equipped with a battery back up for transport but the unit should be plugged into a wall receptacle when not in transport. The plug is located on back of the base cover (Figure 3-5). Do not position the unit so that it is difficult to disconnect the plug.

Important: It is recommended that unit remain plugged in wall receptacle during normal use. Battery back-up is recommended for transport and emergency only.

FIGURE 3-5

3.4.3 Low Battery Alarm

This chair is equipped with an audible low battery alarm. When the system requires charging, a continuous beep will sound during motor operation; plug the unit into the wall receptacle.

3.5 HEIGHT AND TOP ADJUSTMENT

3.5.1 Electric Models: Height Adjustment

Remove the pendant from pendant holder, (see Section 3.4.1, Pendant Control).

Raising the Height

Press the first button on the third row of buttons on the pendant (Figure 3-7); hold until the desired height is achieved.

FIGURE 3-7

Lowering the Height

Press the second button on the third row of buttons on the pendant (Figure 3-8); hold until the desired height is achieved.

FIGURE 3-8

▲ **NOTICE: Place pendant in holder when not in use. Keep cord clear of moving parts.**

3.5.2 Electric Models:Foot Section Adjustment

Raising the Foot Section

Press the first button on the second row of buttons on the pendant (Figure 3-9); hold until the desired angle is achieved.

FIGURE 3-9

Lowering the Foot Section

Press the second button on the second row of buttons on the pendant (Figure 3-10); hold until the desired angle is achieved.

FIGURE 3-10

3.5.3 Electric Models: Back Section Adjustment

Raising the Back Section

Press the first button on the first row of buttons on the pendant (Figure 3-11); hold until the desired incline is achieved.

FIGURE 3-11

Lowering the Back Section

Press the second button on the first row of buttons on the pendant (Figure 3-12); hold until the desired recline is achieved.

FIGURE 3-12

3.5 HEIGHT AND TOP ADJUSTMENT

3.5.4 All Models: Quick Drop Activation

This chair is equipped with a manual override function for the back section of the chair. This option should only be used in an emergency situation. To activate the quick drop, support the back section and pull upward on the red activating handle located on the back of the chair (Figure 3-13).

FIGURE 3-13

3.5.5 Hydraulic Model: Raising the Height

To elevate the unit, pump the UP pedal, using smooth, complete strokes to ensure patient comfort (Figure 3-14). When the unit reaches the desired height, stop the pumping action.

Info: Pedals are located on both sides of the unit.

▲ **NOTICE: Do not stand on the pedal; it could damage the unit.**

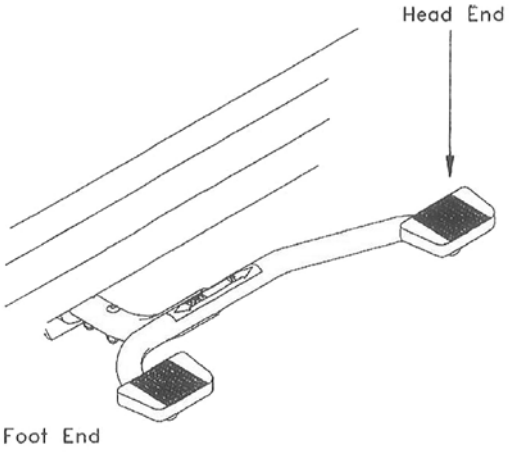


FIGURE 3-14

3.5.6 Hydraulic Model: Lowering the Height

To lower the unit, depress and hold the DOWN pedal (Figure 3-15).

Info: Pedals are located on both sides of the unit.

▲ **NOTICE: Do not stand on the pedal; it could damage the unit.**

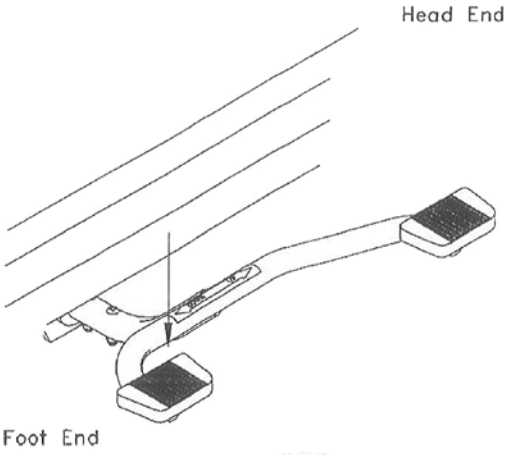


FIGURE 3-15

3.5.7 Hydraulic Model: Top Adjustment

To adjust the unit anywhere between chair position and stretcher position, grasp the recline handle (A in Figure 3-16), adjust the unit to the desired position, then release the handle.

3.5.8 Hydraulic Model: Trendelenburg Adjustment

Info: The unit must first be in the chair position before adjustment into the Trendelenburg position.

Grasp the Trendelenburg handle (B in Figure 3-16), adjust the unit to the Trendelenburg position, then release the handle.

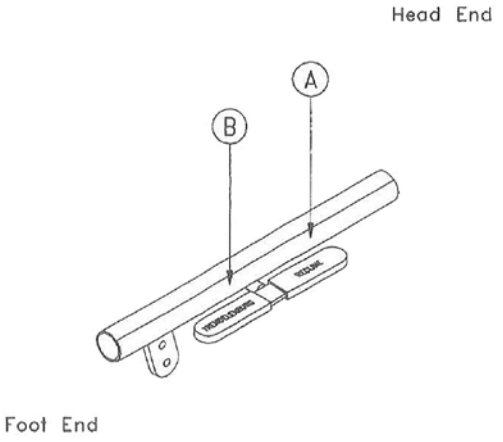


FIGURE 3-16

3.6 HYDRAULIC MODEL: INDEPENDENT FOOT SECTION OPERATION

3.6.1 Independent Operation

To adjust the foot section separately from the back section, support the foot section with one hand, pull out the release lever, then turn it clockwise (Figure 3-17). Adjust the foot section to the desired position and release the lever.

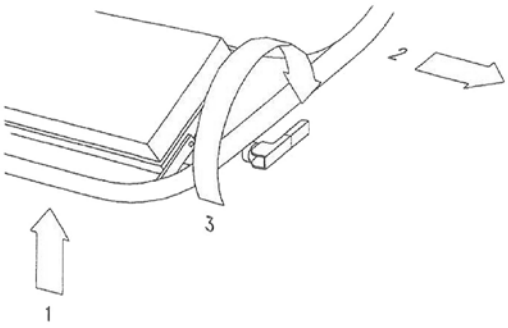


FIGURE 3-17

3.6.2 Return to Chair Mode

To return the foot section to chair mode, support the foot section with one hand, turn the release lever counterclockwise and push the release lever in (Figure 3-18). Adjust the foot section until it locks into position.

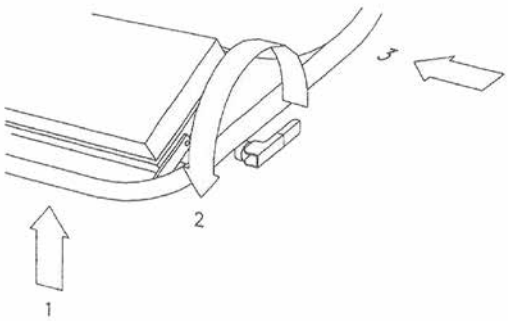


FIGURE 3-18

3.7 ADJUSTABLE FOOTREST

3.7.1 Repositioning the Footrest

The footrest has three positions: retracted, lower, and upper. With the pan in the retracted position, pull out on the handles on either side of the pan (Figure 3-19). The footrest will drop into the lower position.

FIGURE 3-19

To place the footrest into the upper position, grasp the handles on both sides of the pan. Tilt the pan up while lifting (Figure 3-19). Once the pan is in the fully up position, tilt the pan out until it locks into the upper position (Figure 3-20).

FIGURE 3-20

To return the footrest to the retracted position, tilt the pan up while letting it slide down (Figure 3-19) into the lower standard position. Continue tilting the footrest until it is in the retracted position.

⚠ **WARNING: TIPPING HAZARD — Do not stand on footrest — tipping may occur.**

3.8 HINGING RAILS

3.8.1 Repositioning the Rail

The chair rail has two positions, up and down. Both positions lock the rail into place. To lower the rail, apply a lateral force to the top of the rail (Figure 3-21) and pull on the red rail handle (Figure 3-22). Allow the rail to hinge all the way down until it locks into place in the rail catch (Figure 3-23). To raise the rail, take hold of the rail and lift it until the latching mechanism locks into place. (Figure 3-21).

⚠ **WARNING: When patient is seated in the chair, ensure the side rails are up and the patient is secured with safety straps.**

⚠ **WARNING: Rail release handle will not release unless force is applied laterally to outside top of rail.**

⚠ **WARNING: The chair has a warning label located on both side rails indicating a pinch point between seat section and side rail.**

FIGURE 3-21

FIGURE 3-22

FIGURE 3-23

3.9 ESCEYE / ESDEYE HEADREST

3.9.1 Pre-op / Post-op Head Extension

To remove the head extension, rotate the knobs on the two ends of the extension counterclockwise (Figure 3-24). With knobs loose, pull out on the extension. To install the extension, slide the extension over the surgical mounting bars using the guides on the extension. Slide the extension fully down the surgical side bars, then tighten the knobs on the end of the extension.

▲ **NOTICE: Ensure the head extension is secure before applying any pressure.**

3.9.2 Adjusting the Headrest

Remove head extension (see Pre-op / Postop Head extension, Section 3.8.1). Grasp the right ball style knob (Figure 3-25), and rotate the knob counterclockwise to articulate the head section upward (Figure 3-26). Rotate the knob clockwise to articulate the head section downward (Figure 3-27). Once the upward articulation has been set, grasp the left ball style knob (Figure 3-28), and rotate the knob counterclockwise to adjust the height of the headrest (Figure 3-29).

Info: After understanding which knob creates which action, quick and smooth adjustment can be achieved by rotating the knobs simultaneously (Figure 3-30).

FIGURE 3-24

FIGURE 3-25

FIGURE 3-26

FIGURE 3-27

FIGURE 3-28

FIGURE 3-29

FIGURE 3-30

3.10 COMMON OPTIONAL ACCESSORIES

3.10.1 Mounting the Wrist Rest

Insert the wrist rest into one of the three square sockets under the headrest (Figure 3-31). Rotate the T knob on the back of the wrist rest (Figure 3-32) clockwise to lock it into place.

▲ **NOTICE: Ensure the wrist rest is secure before applying any pressure.**

FIGURE 3-31

FIGURE 3-32

3.10.2 Adjusting the Wrist Rest

Once the wrist has been properly installed per 3.10.1, the height can be adjusted as needed. Support the wrist rest and loosen the black knob on the side of the support post (Figure 3-33).

Position the wrist rest to desired height and rotation. Tighten the star knob located on the side of the support post (Figure 3-33).

▲ **NOTICE: Ensure the wrist rest is secure before applying any pressure.**

FIGURE 3-33

3.10.3 Installing #18 IV Rod

Remove the IV Rod from the clips located on the base (Figure 3-34). Insert IV Rod into preferred socket (Figure 3-35). Place IV Rod back into storage clips when not in use (Figure 3-34).

FIGURE 3-34

3.10.4 Installing the Side Tray

Insert pin end of Side Tray assembly into preferred socket on the seat section. Align hole in pin with hole in seat section socket and insert locking pin to prevent movement of tray (Figure 3-36).

FIGURE 3-35

FIGURE 3-36

3.10.5 Using Safety Straps

Locate both ends of the safety strap, on either side of the chair. One will have a square loop on the end, and the other will have hook and loop fasteners (Figure 3-37). Slide the end of the strap with the hook and loop fasteners through the loop on the other strap (Figure 3-38). Pull out on the strap until the patient is secure. Fold the hook and loop fastener end of the strap back until it makes contact with the mating hook and loop fastener on the strap (Figure 3-39).

FIGURE 3-37

FIGURE 3-38

FIGURE 3-39

3.10.6 Installing the Patient Tray

Using the push buttons underneath the tray, lock the legs 90° to the tray prior to installing (Figure 3-40). Check to make sure that the legs are located in the same hole (Figure 3-41). Insert the first leg into preferred socket on one side of the patient, and insert second leg into corresponding socket on other side (Figure 3-42). Adjust as necessary to best fit patient.

FIGURE 3-40

FIGURE 3-41

FIGURE 3-42

4 TROUBLESHOOTING GUIDE

4.1 ELECTRIC POWERED CHAIRS TROUBLESHOOTING

⚠ **DANGER: SHOCK HAZARD — To reduce the risk of electric shock, do not remove the cover. Unit is to be serviced by qualified service personnel (minimum 1 year medical equipment service and repair experience) only.**

⚠ **DANGER: SHOCK HAZARD — Always disconnect the power source whenever troubleshooting or servicing any electric powered chair.**

If	Then
One motor or one column does not move but all others are operating correctly.	Step 1: Check all motor and column plug connections at the controller box.
	Step 2: If a column does not move: Check the connection at the column.
	Step 3: Plug a connector from the faulty component into a different socket: If the component does not run, replace that component. If the component runs, test the pendant by plugging a functioning component into the non-functioning controller socket. If this component does not run, replace the pendant. If replacing the pendant does not fix the problem, then replace the controller.
Nothing moves.	Step 1: Plug unit into a mains supply wall receptacle and observe the pilot light on the controller: If the pilot light is off: Replace the controller. If the pilot light is on: Check the pendant control plug connection at the controller.
The unit runs when plugged into wall receptacle, but does not run on battery backup.	Step 1: Plug unit into a wall receptacle overnight. If the batteries do not hold a charge, replace the batteries (section 4.2).

GF Health Products, Inc. may be contacted at 1.770.368.4700 for additional information required to service or repair the equipment.

4.2 ELECTRIC POWERED CHAIRS BATTERY REPLACEMENT

⚠ **DANGER: SHOCK HAZARD — To reduce the risk of electric shock, do not remove the cover. Unit is to be serviced by qualified service personnel (minimum 1 year medical equipment service and repair experience) only.**

⚠ **DANGER: SHOCK HAZARD — Always disconnect the power source whenever troubleshooting or servicing any electric powered chair.**

⚠ **WARNING: PERSONAL INJURY HAZARD — The batteries are wired in series; failure to connect the same way can cause batteries to explode.**

The batteries are the only field serviceable components — do not attempt to repair the circuit boards.	
Battery replacement	Step 1: Remove the controller. Step 2: Remove the 4 screws from the right half, located on top of controller. Step 3: (After 4/11/00) replace (2) batteries with VISION CP1213, 12V 1.3 Ah (Hausted P/N 075759 – 2 required, for CB-12 controllers). Step 4: Ensure battery connector in place on left side of batteries. Step 5: Replace cover.

4.3 HYDRAULIC CHAIRS TROUBLESHOOTING

The following list of problems and their solutions will assist you in determining what may be causing your chair not to function as designed.

If	Then
Unit doesn't lower when pedal is depressed	**Column is adjusted too tight — adjust column.**
Unit is unstable at maximum height	**Column is adjusted too loose — adjust column.**
Backrest rises by itself when chair is in stretcher position	**Pneumatic spring is overadjusted and / or leaking — adjust or replace pneumatic spring.**
Foot section doesn't move or re-engage	**Cables and / or stop nuts are not properly adjusted — adjust cables and / or stop nuts.**

GF Health Products, Inc. may be contacted at 1.770.368.4700 for additional information required to service or repair the equipment.

5 PREVENTIVE MAINTENANCE FOR THE USER

Component	Cleaning Procedure	Schedule	Cleaning Agent *	Special Notes
Pads / Mattresses	Wipe with damp cloth to remove any foreign material	After each use	Routine hospital grade disinfectants, soap and water	Use only medium strength cleaners Do not steam clean or pressure wash
Chair	Wipe with damp cloth to remove any foreign material		Routine hospital grade disinfectants, soap and water	Lubricate pivot points after cleaning
Electrical components	Wipe external surfaces ONLY with damp cloth to remove any foreign material		Routine hospital grade disinfectants, soap and water	Use only medium strength cleaners
Mechanical chair components	Wipe with damp cloth to remove any foreign material		Routine hospital grade disinfectants, soap and water	Lubricate pivot points after cleaning
Mechanical accessories	Wipe with damp cloth to remove any foreign material		Routine hospital grade disinfectants, soap and water	Lubricate pivot points after cleaning

Procedure	Schedule	Material
Lubricate all actuator mounting pins	Every 6 months	Lithium-based grease
⚠ NEVER LUBRICATE GAS SPRING, MOTOR OR MECH-LOCK SHAFTS ⚠		
Inspect all fasteners to ensure proper fit, position and tightness, including nuts, bolts, etc.	Every 3 months	Proper size wrench and screwdriver
Inspect all surfaces and remove any sharp or burred areas; apply touch-up paint where required		Metal file, proper color paint (specify color when ordering)

* Disinfecting and Cleaning Upholstery - ALWAYS follow manufacturer's recommended dilution	
Disinfectants for vinyl products	Phenolic disinfectants are the best choice for vinyl
	Properly diluted quaternaries are also acceptable for vinyl
	Quaternary / Isopropyl disinfectants ARE NOT recommended for vinyl
Disinfectants for urethane products	Quaternary disinfectants are recommended for urethane
	Quaternary / Isopropyl disinfectants are recommended for urethane
	Phenolics SHOULD BE AVOIDED on urethane
Disinfectants for all products	All fabrics may be cleaned with a 1:10 dilution of household bleaches containing 5.25% sodium hypochlorite as recommended by the Centers for Disease Control in Atlanta, Georgia; there is no harmful effect on the fabric
	Disinfectants applied at full concentration or in highly concentrated solutions will decrease the useful life of fabric
	Iodophor-type disinfectants used on fabric may result in staining
Soils or Stains	Use neutral soapsuds and lukewarm water; DO NOT use harsh cleansers, solvents or detergents
Hard-To-Clean Spots	Use standard household / vinyl cleansers and a soft bristle brush on troublesome spots or stains; presoak heavy, dried-on soil
Laundering	Laundering vinyl-laminated, polyurethane-coated, or rubber-coated fabric IS NOT recommended; laundering may substantially decrease the useful life of the fabric

▲ NOTICE — POSSIBLE EQUIPMENT DAMAGE HAZARD: Steam cleaning and pressure washing of chair is not recommended and can void warranty.

Info: For more detailed information, contact GF Health Products, Inc. at 1.770.368.4700.

Info: In addition to the User Preventive Maintenance, a more detailed Preventive Maintenance Program is also required to keep the equipment in good working order. This Preventive Maintenance Program is found on our website, at www.Hausted.com.

6 OPTIONAL ACCESSORIES

⚠ **WARNING: Use only accessories approved by GF Health Products, Inc. with this device. The use of accessories, transducers, and cables other than those specified by the manufacturer may result in increased emissions or decreased immunity of Hausted equipment.**

Info: To order accessories, or for more detailed information on accessories, please contact GF Health Products, Inc. at 1.770.368.4700.

UNIVERSAL ACCESSORIES		APC	ESC / ESD	EPC / EPD
ACCESSORY RAIL				
HSA010000	SURGICAL ACCESSORY RAIL	X	X	X
ARMBOARDS				
H061239	ARMBOARD W/ MOUNT BRACKETS (NO PAD) - RECLINING	X	X - PRE 7/2012	X
H06123900	ARMBOARD W/ MOUNT BRACKETS AND PAD - RECLINING	X	X - PRE 7/2012	X
H065990	SEATED ARMBOARD ASSEMBLY (NO PAD	X	X	X
H06599000	SEATED ARMBOARD ASSEMBLY WITH PAD	X	X	X
HSA041300	ARMBOARD W/ 2" (5 CM) PAD AND BUILT IN CLAMP	—	X	X - POST 7/2012
FOOT EXTENSION				
H080015	CHAIR FOOT EXTENSION	X	X	X
FOOT CONTROL				
HSA075500	ELECTRIC FOOT CONTROL, HI/LOW	—	X - PRE 7/2012	X - PRE 7/2012
HSA07550A	ELECTRIC FOOT CONTROL, HI/LOW	—	X - PRE 7/2012	X - PRE 7/2012
HEEL STIRRUP				
HAPC02600	HEEL STIRRUPS W/ MOUNTING ADAPTORS	X	—	X
HAPC02700	HEEL STIRRUP ACCESSORY ADAPTOR SET	X	—	X
H061401	HEEL STIRRUP ACCESSORY ADAPTOR - PATIENT RIGHT	X	—	X
H061402	HEEL STIRRUP ACCESSORY ADAPTOR - PATIENT LEFT	X	—	X
IV POLE				
H000018	TELESCOPING IV POLE 27" - 54" (68 CM - 137 CM)	X	X	X
H000E1700	IV POLE 42" (107 CM) FIXED HEIGHT, REMOVABLE	X	X	X
OXYGEN TANK HOLDER				
HAPC14D00	O2 TANK HOLDER	X	X - PRE 7/2012	X - PRE 7/2012
HEC0001	O2 TANK HOLDER	—	X - POST 7/2012	X - POST 7/2012
HSA007900	OXYFLEX II W/ FLEXIBLE SUP'T STRUCTURE, ADAPTOR, TUCK PLT	X	X	X
HSA008000	DISPOSABLE OXYFLEX II DIFFUSION TRAYS (25 CASE)	X	X	X
PAPER ROLL HOLDER				
H13008000	PAPER ROLL HOLDER	X	X	X
RESTRAINTS				
H066951	SAFETY STRAP HOOK AND LOOP	X	X	X
HAPC01200	STANDARD SAFETY STRAP HOOK AND LOOP	X	X	X
HAPC012L	SAFETY STRAP EXTRA-LONG HOOK AND LOOP	X	X	X
HSA071600	SAFETY STRAP EXTRA-WIDE HOOK AND LOOP	X	X	X
HSA0716L	SAFETY STRAP EXTRA-WIDE AND EXTRA-LONG HOOK AND LOOP	X	X	X

UNIVERSAL ACCESSORIES CONTINUED		APC	ESC / ESD	EPC / EPD
TRAY / SIDE TABLE				
H06892700	FOLDING SIDE TABLE ASSEMBLY	X - PRE 3/2018	X - PRE 7/2012	X - PRE 7/2012
H080346	FOLDING SIDE TABLE ASSEMBLY	X - POST 3/2018	X - POST 7/2012	X - POST 7/2012
HAPC02100	PATIENT TRAY W/ STORAGE RACK	X	—	—
H06816700	PATIENT TRAY W/O STORAGE RACK (5 DEG SEAT)	X	X	X
H080290	PATIENT TRAY ADJUSTABLE W/O STORAGE RACK (5 DEG SEAT)	X	X	X
H080268	CHAIR SIDE TRAY	X	X	X
WRIST REST				
HSA078500	DUAL LATERAL WRIST REST ASSEMBLY	—	X	—
HSA078600	FULL “U” WRIST REST ASSEMBLY	—	X	—
HSP100400	FULL “U” WRIST REST (TALL)	—	X	—
PAD				
HP150830437	HEAD PAD 1/2” BOLTAFLEX BLACK - CONVOLUTED	—	X	—

7 GF HEALTH PRODUCTS, INC. LIMITED WARRANTY FOR HAUSTED BRAND STRETCHERS AND CHAIRS

SCOPE OF WARRANTY

GF Health Products, Inc. ("GF") warrants to the original purchaser only that it will replace or repair components, at GF's sole discretion, that are defective in material or workmanship under normal use and service. All warranties are conditioned upon the proper use and maintenance of the products strictly in accordance with good commercial practice and applicable GF instructions and manuals . To the extent that a component is warranted by a third party, GF conveys all of its rights under that warranty to the original purchaser, to the extent permitted.

This limited warranty shall only apply to defects that are reported in accordance with the provisions set forth in this warranty document within the applicable warranty period and which, upon examination by GF or its authorized representative, prove to be a warranty item. This limited warranty is not transferable.

The warranted components and time period are set forth below :

COMPONENT	PARTS WARRANTY	LABOR WARRANTY*
Frame	5 years	1 year
Casters	1 year	1 year
Electrical components	1 year	1 year
Hydraulics	1 year	1 year
Optional accessories	1 year	1 year
Patient weighing system	1 year	1 year
Pneumatic gas springs	1 year	1 year
Upholstered pads	1 year	1 year
Replacement parts**	90 days	

* The Labor Warranty applies only to products purchased within the U.S. Labor is not warranted for products purchased outside the U.S.

** The warranty period is as designated above. If a part is replaced under warranty, the original warranty period will not be affected. All other replacement parts will be subject to the warranty period specified.

The applicable warranty period shall commence from date of shipment to the original customer, unless there is an expiration date on the component in which case the warranty shall expire on the earlier of warranty period or the expiration date.

OBTAINING WARRANTY SERVICE

Obtaining Warranty Service Inside the U.S.: A GF Customer Service Representative must authorize warranty service. Please contact the GF Customer Service department by calling 1.770.368.4700 or by e-mailing a request to cs@grahamfield.com. Specific directions will be provided by the Customer Service Representative. Failure to abide by the specific directions will result in denial of the warranty claim.

Obtaining Warranty Service Outside the U.S.: The Purchaser must contact the Distributor from whom the product was purchased, commensurate with the guidelines set forth by that Distributor. Failure to abide by the specific directions will result in denial of the warranty claim.

EXCLUSIONS

The warranty does not cover and GF shall not be liable for the following:

1) Defects, damage, or other conditions caused, in whole or in part, by misuse, abuse, negligence, alteration, accident, freight damage, tampering or failure to seek and obtain repair or replacement in a timely manner;
2) Products which are not installed, used, or properly cleaned and maintained as required in the official manual for the applicable product;
3) Products considered to be of a consumable nature including, but not limited to: filters, fuses, gaskets and lubricants;
4) Accessories or parts not provided by GF;
5) Charges by anyone for adjustments, repairs, replacement parts, installation or other work performed upon or in connection with such products which are not expressly authorized in writing, in advance, by GF;
6) Any shipping charges incurred in the replacement part installation or repair;
7) Costs and expenses of regular maintenance and cleaning; and
8) Representations and warranties made by any person or entity other than GF .

ENTIRE WARRANTY, EXCLUSIVE REMEDY AND CONSEQUENTIAL DAMAGES DISCLAIMER

THIS WARRANTY IS GF'S ONLY WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. GF MAKES NO IMPLIED WARRANTIES OF ANY KIND INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IF ANY MODEL OR SAMPLE WAS SHOWN TO THE CUSTOMER, SUCH MODEL OR SAMPLE WAS USED MERELY TO ILLUSTRATE THE GENERAL TYPE AND QUALITY OF THE PRODUCT AND NOT TO REPRESENT THAT THE PRODUCT WOULD NECESSARILY CONFORM TO THE MODEL OR SAMPLE IN ALL RESPECTS.

THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PARTS. GF SHALL NOT BE LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO: DAMAGES FOR LOSS OF PROFITS OR INCOME, LOSS OF USE, DOWNTIME, COVER, OR EMPLOYEE OR INDEPENDENT CONTRACTOR WAGES, PAYMENTS AND BENEFITS.

CERTAIN STATES MAY CONFER ADDITIONAL RIGHTS REGARDING WARRANTIES AND IN THOSE STATES GF'S LIABILITY AND THE LIABILITY OF GF'S SUPPLIERS, SHALL BE LIMITED TO THE FULLEST EXTENT PERMITTED BY LAW.

The warranties contained herein, together with GF's Terms and Conditions, found on GF's website and which may be updated from time to time, contain all the representations and warranties with respect to the subject matter of this document, and supersede all prior negotiations, agreements and understandings with respect thereto. The recipient of this document hereby acknowledges and represents that it has not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this document.

For additional information on this Hausted product or this warranty, please contact a GF Customer Service Representative.

NOTES:

1) Additional terms and conditions may apply.
2) Outward freight damage must be notated on the appropriate shipping documents.
3) Claims for any short shipment or concealed damage must be made within three (3) days of the invoice date.
4) Additional international, federal and state regulations govern specific requirements for freight claims. Failure to abide by those regulations may result in a denial of the freight claim. GF will assist you in filing the freight claim.

8 DISPOSAL AND KEY TO SYMBOLS

DISPOSAL

Hausted equipment and accessories can be disposed of.

We recommend disassembling and dividing the equipment and components into different waste groups such as: metal, cable, electronic, recoverable resource and plastic for recycling or combustion.

Most plastic components are provided with a plastic types code and fiber content to aid sorting of plastic parts.

Product	Metal Scrap	Cable Scrap	Electronic Scrap	Plastic Recycling or Combustion
APC250	X	X	N/A	X
ESCEYE	X	X	X	X
ESDEYE	X	X	X	X
EPC250	X	X	X	X
EPD250	X	X	X	X

Info: Lead-acid batteries contained in the controller are recoverable resources and should be recycled.

KEY TO SYMBOLS

The following symbols are used on Hausted product labels.

	**Protective Earth**		**Manufacturer**
	**Earth Ground**		**Keep Dry**
	**General Warning Sign**		**Fragile, Handle with Care**
	**CE Mark**		**Electrical and Electronic Equipment**
	**ETL**		**Consult Instructions for Use**
EC REP	**European Authorized Representative**		**Caution**
	**Disconnect before Service**		**Pinch Point**
MD	**Medical Device**	UDI	**Unique Device Identifier**

www.hausted.com

www.grahamfield.com

9 APPENDIX

9.1 GUIDANCE AND MANUFACTURER'S DECLARATION — ELECTROMAGNETIC EMISSIONS

The Hausted APC Series Models and Surgi-Chairs are intended for use in the electromagnetic environment specified below. The customer or the user of the Hausted APC Series Models and Surgi-Chairs should assure that they are used in such an environment.		
Emissions Test	**Compliance**	**Electromagnetic Environment — Guidance**
RF emissions CISPR 11	**Group 1**	**The Hausted APC Series Models and Surgi-Chairs use RF energy only for their internal function. Therefore, their RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.** **The Hausted APC Series Models and Surgi-Chairs are suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.**
RF emissions CISPR 11	**Class A**	
Harmonic emissions IEC 61000-3-2	**Class A**	
Voltage fluctuations / flicker emissions IEC 61000-3-3	**Complies**	

9.2 ENCLOSURE PORT [1]

Phenomenon	**Basic EMC standard or test method**	**IMMUNITY TEST LEVELS**
		Professional healthcare facility environment
ELECTROSTATIC DISCHARGE	IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air
Radiated RF EM fields [a)]	IEC 61000-4-3	3 V/m [f)] 80 MHz – 2,7 GHz [b)] 80 % AM at 1 kHz [c)]
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	See Table 9.3.
RATED power frequency magnetic fields [d) e)]	IEC 61000-4-8	30 A/m [g)] 50 Hz or 60 Hz

a) The interface between the PATIENT physiological signal simulation, if used, and the ME EQUIPMENT or ME SYSTEM shall be located within 0,1 m of the vertical plane of the uniform field area in one orientation of the ME EQUIPMENT or ME SYSTEM.

b) ME EQUIPMENT and ME SYSTEMS that intentionally receive RF electromagnetic energy for the purpose of their operation shall be tested at the frequency of reception. Testing may be performed at other modulation frequencies identified by the RISK MANAGEMENT PROCESS. This test assesses the BASIC SAFETY and ESSENTIAL PERFORMANCE of an intentional receiver when an ambient signal is in the passband. It is understood that the receiver might not achieve normal reception during the test.

c) Testing may be performed at other modulation frequencies identified by the RISK MANAGEMENT PROCESS.

d) Applies only to ME EQUIPMENT and ME SYSTEMS with magnetically sensitive components or circuitry.

e) During the test, the ME EQUIPMENT or ME SYSTEM may be powered at any NOMINAL input voltage, but with the same frequency as the test signal (see Table 1).

f) Before modulation is applied.

g) This test level assumes a minimum distance between the ME EQUIPMENT or ME SYSTEM and sources of power frequency magnetic field of at least 15 cm. If the RISK ANALYSIS shows that the ME EQUIPMENT or ME SYSTEM will be used closer than 15 cm to sources of power frequency magnetic field, the IMMUNITY TEST LEVEL shall be adjusted as appropriate for the minimum expected distance.

9.3 ENCLOSURE PORT IMMUNITY TO RF WIRELESS COMMUNICATIONS EQUIPMENT [1]

Test frequency (MHz)	Band [a)] (MHz)	Service [a)]	Modulation [b)]	Maximum power (W)	Distance (m)	IMMUNITY TEST LEVEL (V/m)
385	380 –390	TETRA 400	Pulse modulation [b)] 18 Hz	1,8	0,3	27
450	430 – 470	GMRS 460, FRS 460	FM [c)] ± 5 kHz deviation 1 kHz sine	2	0,3	28
710	704 – 787	LTE Band 13, 17	Pulse modulation [b)] 217 Hz	0,2	0,3	9
745						
780						
810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation [b)] 18 Hz	2	0,3	28
870						
930						
1 720	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation [b)] 217 Hz	2	0,3	28
1 845						
1 970						
2 450	2 400 – 2 570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation [b)] 217 Hz	2	0,3	28
5 240	5 100 – 5 800	WLAN 802.11 a/n	Pulse modulation [b)] 217 Hz	0,2	0,3	9
5 500						
5 785						

9.4 INPUT AC POWER PORT [1]

Phenomenon	Basic EMC standard	IMMUNITY TEST LEVELS
		Professional healthcare facility environment
Electrical fast transients / bursts [a) l) o)]	IEC 61000-4-4	± 2 kV 100 kHz repetition frequency
Surges [a) b) j) o)] Line-to-line	IEC 61000-4-5	± 0,5 kV, ± 1 kV
Surges [a) b) j) k) o)] Line-to-ground	IEC 61000-4-5	± 0,5 kV, ± 1 kV, ± 2 kV
Conducted disturbances induced by RF fields [c) d) o)]	IEC 61000-4-6	3 V [m)] 0,15 MHz – 80 MHz 6 V [m)] in ISM bands between 0,15 MHz and 80 MHz [n)] 80 % AM at 1 kHz [e)]
Voltage dips [f) p) r)]	IEC 61000-4-11	0 % U_T; 0,5 cycle [g)] At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° [q)]
		0 % U_T; 1 cycle and 70 % U_T; 25/30 cycles [h)] Single phase: at 0°
Voltage interruptions [f) i) o) r)]	IEC 61000-4-11	0 % U_T; 250/300 cycle [h)]

a) The test may be performed at any one power input voltage within the ME EQUIPMENT or ME SYSTEM RATED voltage range. If the ME EQUIPMENT or ME SYSTEM is tested at one power input voltage, it is not necessary to re-test at additional voltages.

b) All ME EQUIPMENT and ME SYSTEM cables are attached during the test.

c) Calibration for current injection clamps shall be performed in a 150 Ω system.

d) If the frequency stepping skips over an ISM or amateur band, as applicable, an additional test frequency shall be used in the ISM or amateur radio band. This applies to each ISM and amateur radio band within the specified frequency range.

e) Testing may be performed at other modulation frequencies identified by the RISK MANAGEMENT PROCESS.

f) ME EQUIPMENT and ME SYSTEMS with a d.c. power input intended for use with a.c.-to-d.c. converters shall be tested using a converter that meets the specifications of the MANUFACTURER of the ME EQUIPMENT or ME SYSTEM. The IMMUNITY TEST LEVELS are applied to the a.c. power input of the converter.

g) Applicable only to ME EQUIPMENT and ME SYSTEMS connected to single-phase a.c. mains.

h) E.g. 10/12 means 10 periods at 50 Hz or 12 periods at 60 Hz.

i) ME EQUIPMENT and ME SYSTEMS with RATED input current greater than 16 A / phase shall be interrupted once for 250/300 cycles at any angle and at all phases at the same time (if applicable). ME EQUIPMENT and ME SYSTEMS with battery backup shall resume line power operation after the test. For ME EQUIPMENT and ME SYSTEMS with RATED input current not exceeding 16 A, all phases shall be interrupted simultaneously.

9.4 CONTINUED

j) ME EQUIPMENT and ME SYSTEMS that do not have a surge protection device in the primary power circuit may be tested only at ± 2 kV line(s) to earth and ± 1 kV line(s) to line(s).

k) Not applicable to CLASS II ME EQUIPMENT and ME SYSTEMS.

l) Direct coupling shall be used.

m) r.m.s., before modulation is applied.

n) The ISM (industrial, scientific and medical) bands between 0,15 MHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz. The amateur radio bands between 0,15 MHz and 80 MHz are 1,8 MHz to 2,0 MHz, 3,5 MHz to 4,0 MHz, 5,3 MHz to 5,4 MHz, 7 MHz to 7,3 MHz, 10,1 MHz to 10,15 MHz, 14 MHz to 14,2 MHz, 18,07 MHz to 18,17 MHz, 21,0 MHz to 21,4 MHz, 24,89 MHz to 24,99 MHz, 28,0 MHz to 29,7 MHz and 50,0 MHz to 54,0 MHz.

o) Applicable to ME EQUIPMENT and ME SYSTEMS with RATED input current less than or equal to 16 A / phase and ME EQUIPMENT and ME SYSTEMS with RATED input current greater than 16 A / phase.

p) Applicable to ME EQUIPMENT and ME SYSTEMS with RATED input current less than or equal to 16 A / phase.

q) At some phase angles, applying this test to ME EQUIPMENT with transformer mains power input might cause an overcurrent protection device to open. This can occur due to magnetic flux saturation of the transformer core after the voltage dip. If this occurs, the ME EQUIPMENT or ME SYSTEM shall provide BASIC SAFETY during and after the test.

r) For ME EQUIPMENT and ME SYSTEMS that have multiple voltage settings or auto ranging voltage capability, the test shall be performed at the minimum and maximum RATED input voltage. ME EQUIPMENT and ME SYSTEMS with a RATED input voltage range of less than 25 % of the highest RATED input voltage shall be tested at one RATED input voltage within the range. See Table 1 Note c) for examples calculations.

9.5 PATIENT COUPLING PORT [1]

Phenomenon	Basic EMC standard	IMMUNITY TEST LEVELS
		Professional healthcare facility environment
ELECTROSTATIC DISCHARGE [c)]	IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air
Conducted disturbances induced by RF fields [a)]	IEC 61000-4-6	3 V [b)] 0,15 MHz – 80 MHz 6 V [b)] in ISM bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz

[a)] The following apply:

- All PATIENT-COUPLED cables shall be tested, either individually or bundled
- PATIENT-COUPLED cables shall be tested using a current clamp unless a current clamp is not suitable. In cases were a current clamp is not suitable, an EM clamp shall be used.
- No intentional decoupling device shall be used between the injection point and the PATIENT COUPLING POINT in any case.
- Testing may be performed at other modulation frequencies identified by the RISK MANAGEMENT PROCESS.
- Tubes that are intentionally filled with conductive liquids and intended to be connected to a PATIENT shall be considered to be PATIENT-COUPLED cables.
- If the frequency stepping skips over an ISM or amateur radio band, as applicable, an additional test frequency shall be used in the ISM or amateur radio band. This applies to each ISM and amateur radio band within the specified frequency range.
- The ISM (industrial, scientific and medical) bands between 0,15 MHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz. The amateur radio bands between 0,15 MHz and 80 MHz are 1,8 MHz to 2,0 MHz, 3,5 MHz to 4,0 MHz, 5,3 MHz to 5,4 MHz, 7 MHz to 7,3 MHz, 10,1 MHz to 10,15 MHz, 14 MHz to 14,2 MHz, 18,07 MHz to 18,17 MHz, 21,0 MHz to 21,4 MHz, 24,89 MHz to 24,99 MHz, 28,0 MHz to 29,7 MHz and 50,0 MHz to 54,0 MHz.

[b)] r.m.s., before modulation is applied

[c)] Discharges shall be applied with no connection to an artificial hand and no connection to PATIENT simulation. PATIENT simulation may be connected after the test as needed in order to verify BASIC SAFETY and ESSENTIAL PERFORMANCE.

9.6 SIGNAL INPUT/OUTPUT PARTS PORT [1]

Phenomenon	Basic EMC standard	IMMUNITY TEST LEVELS
		Professional healthcare facility environment
ELECTROSTATIC DISCHARGE [e)]	IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air
Electrical fast transients / bursts [b) f)]	IEC 61000-4-4	± 1 kV 100 kHz repetition frequency
Surges Line-to-ground [a)]	IEC 61000-4-5	± 2 kV
Conducted disturbances induced by RF fields [b) d) g)]	IEC 61000-4-6	3 V [h)] 0,15 MHz – 80 MHz 6 V [h)] in ISM bands between 0,15 MHz and 80 MHz [i)] 80 % AM at 1 kHz [c)]

a) This test applies only to output lines intended to connect directly to outdoor cables.

b) SIP/SOPS whose maximum cable length is less than 3 m in length are excluded.

c) Testing may be performed at other modulation frequencies identified by the RISK MANAGEMENT PROCESS.

d) Calibration for current injection clamps shall be performed in a 150 Ω system.

e) Connectors shall be tested per 8.3.2 and Table 4 of IEC 61000-4-2:2008. For insulated connector shells, perform air discharge testing to the connector shell and the pins using the rounded tip finger of the ESD generator, with the exception that the only connector pins that are tested are those that can be contacted or touched, under conditions of INTENDED USE, by the standard test finger shown in Figure 6 of the general standard, applied in a bent or straight position.

f) Capacitive coupling shall be used.

g) If the frequency stepping skips over an ISM or amateur radio band, as applicable, an additional test frequency shall be used in the ISM or amateur radio band. This applies to each ISM and amateur radio band within the specified frequency range.

h) r.m.s., before modulation is applied.

i) The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz. The amateur radio bands between 0,15 MHz and 80 MHz are 1,8 MHz to 2,0 MHz, 3,5 MHz to 4,0 MHz, 5,3 MHz to 5,4 MHz, 7 MHz to 7,3 MHz, 10,1 MHz to 10,15 MHz, 14 MHz to 14,2 MHz, 18,07 MHz to 18,17 MHz, 21,0 MHz to 21,4 MHz, 24,89 MHz to 24,99 MHz, 28,0 MHz to 29,7 MHz and 50,0 MHz to 54,0 MHz.

9.7 RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND HAUSTED APC SERIES MODELS AND SURGI-CHAIRS

The Hausted APC Series Models and Surgi-Chairs are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Hausted APC Series Models and Surgi-Chairs can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Hausted APC Series Models and Surgi-Chairs as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.7 GHz $d = 2.3\sqrt{P}$
0,01	0.12	0.12	0.23
0,1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

9.8 NOTES TO SECTION 9

1. 60601-1-2 © IEC:2014

10 INDEX

A
Accessories, optional 19
Accessories, optional, list 24
Adjustable footrest, independent operation 16
Advisory 4
APC / Surgi-Chair specifications 9
A word from GF Health Products, Inc. 4

B
Battery replacement instructions 21
Brakes, releasing 12
Brakes, steering, applying 12
Brakes, steering, releasing 12
Braking and steering operation 12

C
CAUTION labels 11
CAUTION statement, significance 5
Cleaning 23

D
DANGER statement, significance 5
DANGER / WARNING / CAUTION / NOTICE Summary 5
Disposal 27

E
Electrical specifications (EPC / ESC) 9
Electrical specifications (EPD / ESD) 9
Electric control locations 13
Electric models: back section, lowering 14
Electric models: back section, raising 14
Electric models: foot section, lowering 14
Electric models: foot section, raising 14
Electric models: height, lowering 14
Electric models: height, raising 14
Electromagnetic compatibility (EMC) information 7
Electromagnetic emissions, guidance and manufacturer's declaration 28
Environmental conditions 8

F
Features 11
Footrest, repositioning 16

H
Headrest, adjusting 18
Headrest, ESCEYE/ESDEYE 18
Height and top adjustment 14, 15
Hinging rails 17
Hydraulic model: independent foot section operation 16
Hydraulic model: lowering the height 15
Hydraulic model: raising the height 15
Hydraulic model: return to chair mode 16
Hydraulic model: top adjustment 15
Hydraulic model: Trendelenburg adjustment 15

I
Indications for Use 4
Info statement, significance 5
IV rod, #18 (optional accessory), installing 19

L
Limited warranty 26
Low battery alarm 13
Lubrication 23

N
Notes to section 9 34
NOTICE statement, significance 5

O
Operating instructions 9

P
Patient tray (optional accessory), installing 20
Pendant control location 13
Plug location 13
Preventive maintenance for the user 23
PROPER OPERATION labels 11

Q
Quick drop activation, all models 15

R
Rail, repositioning 17
Rails, hinging 17

S
Safety statements, significance of 5
Safety straps (optional accessory), using 20
Service information 4
Side tray, optional accessory, installing 19
Symbol key, Hausted product labels 27

T
Troubleshooting: electric powered chairs 21
Troubleshooting guide 21
Troubleshooting: hydraulic chairs 22

U
Uncrating instructions 8
Unpacking instructions 8

W
WARNING labels 11
Warnings 5
WARNINGS and CAUTIONS, list 5
WARNING statements 5
WARNING statement, significance 5
Warranty, limited 26
Wrist rest (optional accessory), adjusting 19
Wrist rest (optional accessory), mounting 19

Hausted®
by graham-field

www.hausted.com
www.grahamfield.com

Proudly Made in the USA

Manufactured by:
GF Health Products, Inc.
One Graham-Field Way
Atlanta GA 30340-3140

1.770.368.4700

Information contained herein is subject to change.
The most current and complete product information can be found on our website.
www.hausted.com / www.grahamfield.com

Follow us on