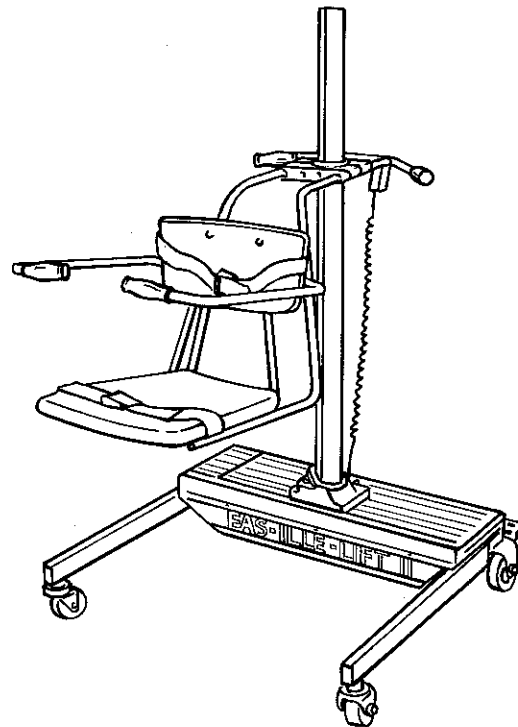
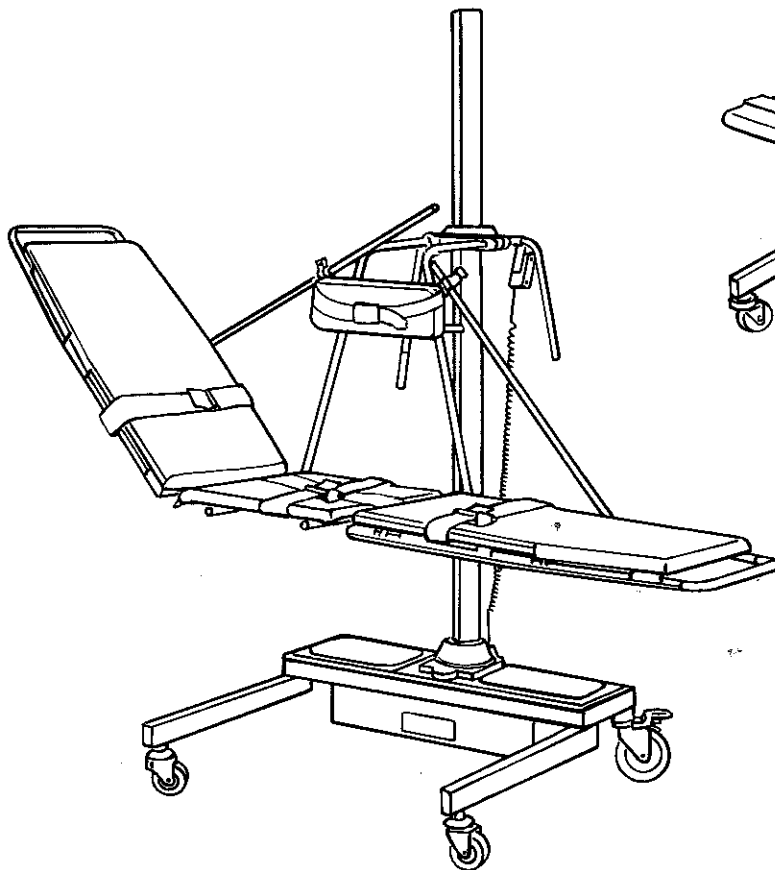


FERNO

IIIe

Mobile Patient-Lifts

For Models
193/300 and 194/400



Operation
Service and
Repair Parts
Manual

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NOTE: Due to our Constant Improvement Program, units are subject to Change Without Notice.

Section 1 Introduction

PREFACE

This manual contains maintenance and service information for the Ferno Ille and National Mobile Patient Lifts, Models 193/300 and 194/400.

The drawings of subassemblies are aids to the identification, disassembly and assembly of the Patient Lifts. Every parts list provides the necessary information to order replacement parts, parts assemblies or kits.

NOTE

It is the user's responsibility to coordinate the power and plumbing requirement with the contractor, maintenance or engineering department for product installation where applicable.

PROPRIETARY NOTICE

The information and design disclosed herein were originated by and are the property of Ferno Ille, a division of Ferno-Washington, Incorporated. Ferno Ille and Ferno-Washington, Inc. reserve all patents, proprietary design, manufacturing, reproduction use, and sales rights thereto, and to any articles disclosed therein, except to the extent that rights are expressly granted to others. The foregoing does not apply to vendor proprietary parts.

Not all information contained in this manual pertains directly to Model 193/300 and Model 194/400. This information is for general use only.

Specifications remain subject to change to allow the introduction of design improvements.

1.1 Patient Lifts 193/300 and 194/400

Note: Ferno Ille and National Patient Lift Units are Underwriters' Laboratories Listed. Accordingly, they will conform to the U.L. "Standards For Safety-Medical and Dental Equipment" (U.L. 544 - October 24, 1986), and are classified as "Patient Care Equipment".

A. U.L. Definition of "Patient Care Equipment" — Equipment that is intended to be used on or with, or likely to be contacted by, a patient in health care facility in the course of his treatment.

"Patient Care", grounded, equipment is permitted to have a maximum leakage of 100 microamperes to ground.

WARNING

Hydrotherapy Units are not intended for use with "electrically susceptible patients".

FAILURE TO HEED WARNING MAY RESULT IN INJURY.

B. U.L. Definition of "Electrically Susceptible Patients":

"A patient being treated with an externalized electrically conductive device (for example, a probe or catheter) indwelling or implanted and terminating on or in the heart".

C. This equipment is intended only for professional use where the patient will be under the supervision of trained personnel.

D. All electrical conduit, fittings and wire of unit, supplied and installed by your electrician in accordance with National Electrical Code as a minimum requirement. Ferno Ille recommends a ground fault interrupter receptacle as an added safeguard.

CAUTION

Polarity and grounding must be correct. Improper connection may result in injury.

WARNING

All restraint belts must be used to secure patients, before, during, and after treatment.

FAILURE TO HEED WARNING MAY RESULT IN INJURY.

1.2 Type Designation

The Ferno Ille Mobile Patient Lifts come in two different models: stretcher lift Model 194/400 with chair lift conversion option, and chair lift Model 193/300. Each has been designed for lifting and lowering patients from in and out of tubs or hydrotherapy units easily and simply.

WARNING

Never leave equipment unattended while in use when caring for a patient.

All Restraint Belts must be used to secure patients before, during, and after treatment.

FAILURE TO HEED WARNING MAY RESULT IN PATIENT OR PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT OR FACILITY.

1.2.1 Specifications

Model 193/300

Vertical travel: 36"

Lifting capacity: 400 lbs.

Lifting Time: raise; 33 seconds
lower; 24 seconds

Width: 30"

Length: 35"

Height: 55-1/2" retracted
98-1/2" extended

Weight: 150 lbs.

Wheels: Two 5" rear - Swivel Lock Casters
Two 3" front - Swivel Tandem Wheel Casters

Motor: 12V DC

Battery: 12V DC gel electrolyte

Battery Charger: Input, 115 V AC

Built-in recharging cord

LED display for battery charger

LED ON-OFF display

Model 194/400

Vertical travel: 36"

Lifting capacity: Stretcher, 400 lbs.
Chair, 400 lbs.

Lifting time: Raise, 33 seconds
Lower, 24 seconds

Width: 30"

Length: 35"

Stretcher Width: 18"

Chair Width: 18"

Stretcher length: 76"

Chair Length: 19"

Height: 55-1/2" retracted
87-1/2" extended

Weight: 200 lbs. Stretcher mode
150 lbs. Chair mode

Wheels: Two 5" rear
- One Wheel Lock Caster
- One Swivel Tracking Lock Caster
Two 3" front
- Swivel Tandem Wheel Casters

Motor: 12V DC

Battery: 12V DC gel electrolyte

Battery charger: Input, 115V AC

Built-in recharging cord

LED display for battery charger

LED ON-OFF Display

1.2.2 Unit Identification

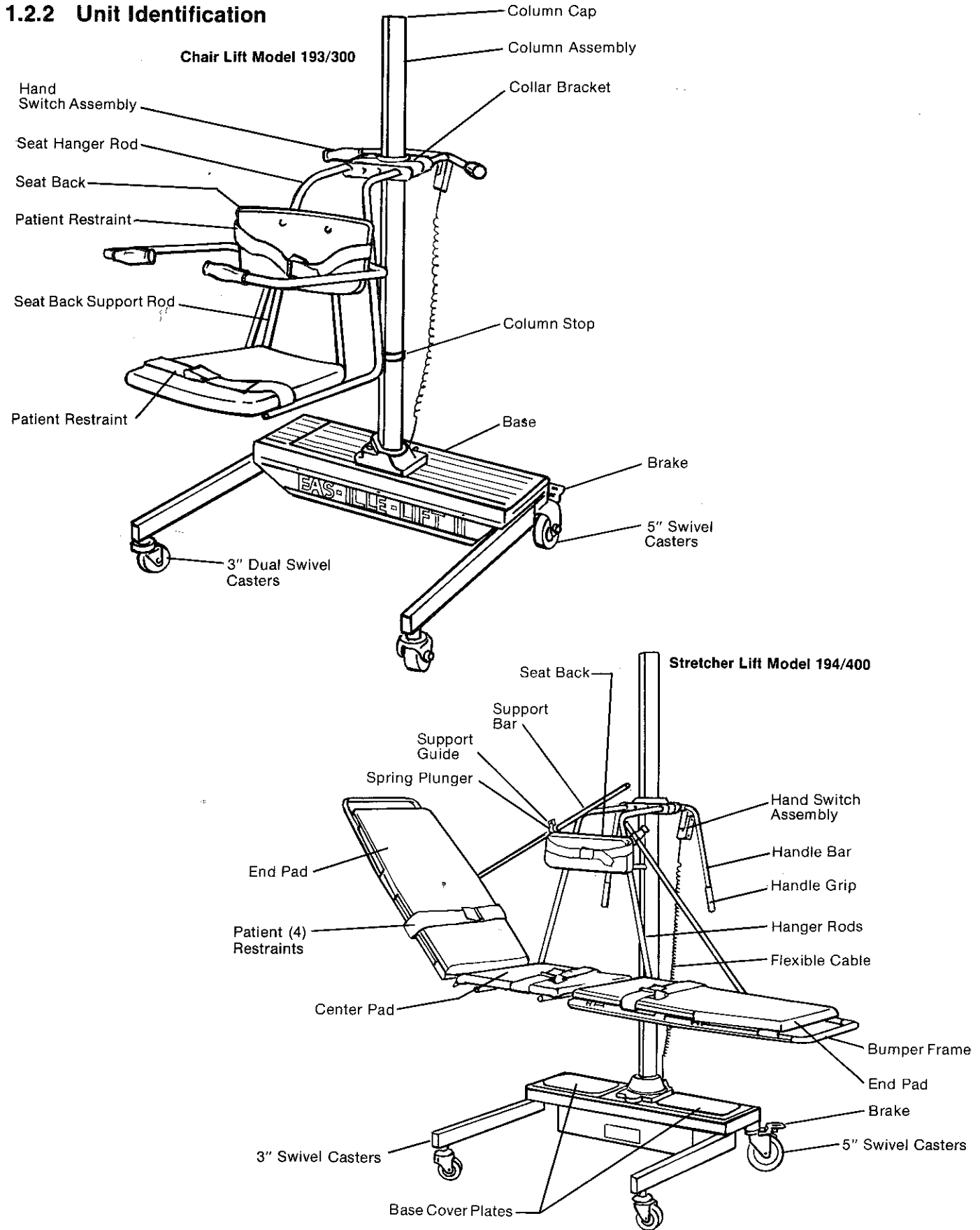


Figure 1-1

Section 2 Preparing Unit for Use

2.1 Installation

Both the Model 193/300 Chair Lift and Model 194/400 Stretcher Lift come in one carton completely assembled.

2.1.1 Unpacking the Model 193/300 Chair Lift (Refer to 193/300 assembly drawings.)

1. Remove lift from carton.
2. Remove lift from base pallet.
3. Charge battery. (See Principles of Operation, page 3-2, Section 3.3)
4. Adjust collar bracket height to provide desired seat location, if location other than as shipped is required. A 5/16" Allen® wrench will be required. Loosen hex head screw, Figure 2-1, and slide height adjustment collar on column until desired position is reached, tighten screws securely. Check height by running lift to its upper and lower-most position before proceeding. If the bottom of the chair hits the bottom of the tank or tub, adjust position so bottom of chair is at least 1" above bottom of tank at its lowest position.

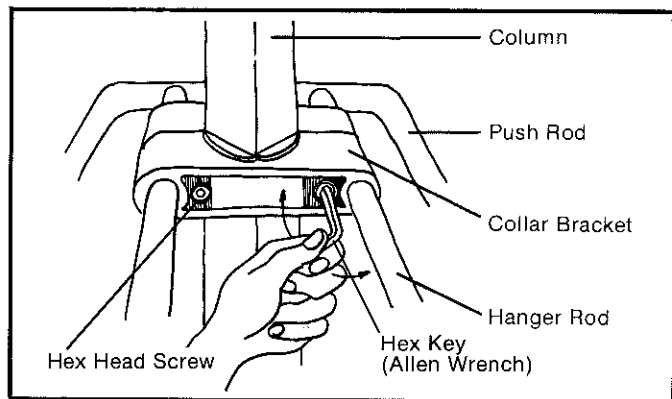


Figure 2-1

2.1.2 Unpacking the Model 194/400 Stretcher Lift (Refer to 194/400 assembly drawing)

1. Remove lift from carton. (See Figure 2-8)
2. Remove lift from base pallet.
3. Charge battery (See Principles of Operation, page 3-2, Section 3.3)
4. The two (2) end pads and bumper frames are shipped in a vertical position. While holding bumper frame, remove strapping. While still holding frame, lower bumper frame carefully to its natural hanging position. Repeat process for both end pads. Once both end frames are free, proceed with step 5.
5. Remove screw stops from ends of stronger rods and set them aside. Figure 2-2.

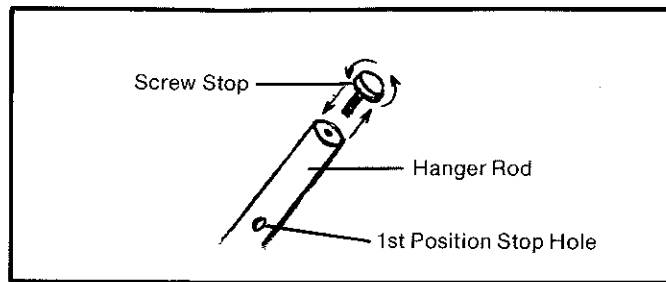


Figure 2-2

6. With hand supporting bumper frame end pad, Figure 2-3, pull plunger knob and push free end of hanger rod thru guide hole in bottom of guide. Release plunger knob when hanger rod has reached its first position stop hole. Support bar rod is secure in plunger rod, position #1. Repeat procedure for opposite installation of support bar rod into guide.

Note: Plunger knob is spring loaded for four (4) position adjustment; turning this knob will not make adjustments possible.

Replace screw stops into ends of hanger rods, Figure 2-2.

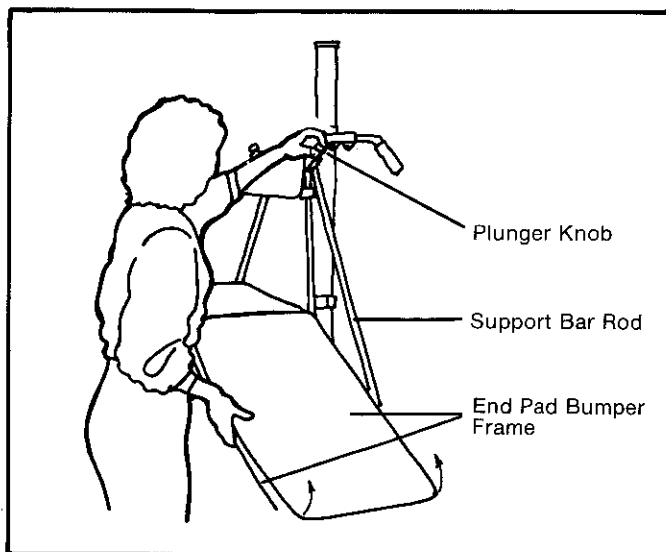


Figure 2-3

7. Adjust collar bracket height to provide desired stretcher location, if location other than as shipped is required. A 5/16" Allen® wrench will be required. Loosen hex head screws, Figure 2-4, and slide height adjustment collar on column until desired position is reached; tighten screws securely. Check height by running lift to its upper and lower-most positions before proceeding. If the bottom of the stretcher hits the bottom of the tank or tub, adjust position so bottom of stretcher is at least 1" above bottom of tank at its lowest position.

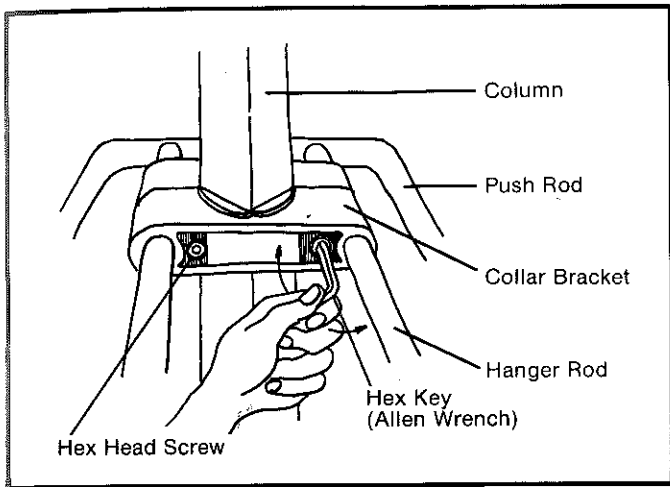


Figure 2-4

2.2 Converting 194/400 Stretcher into a Chair

To use the stretcher lift as a chair, with the seat facing forward, remove end sections of stretcher and add arm and leg rests as follows:

1. Unscrew screw stop from support bar rod, Figure 2-5, and set it aside.

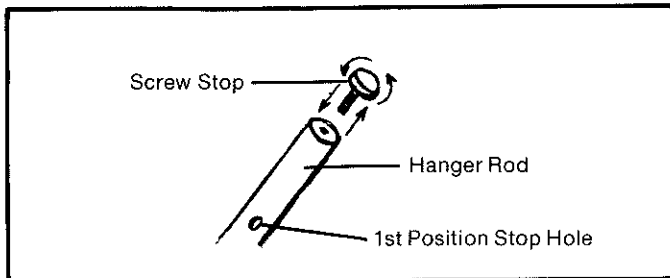


Figure 2-5

2. With hand supporting bumper frame end pad, Figure 2-6, pull plunger knob and let support bar

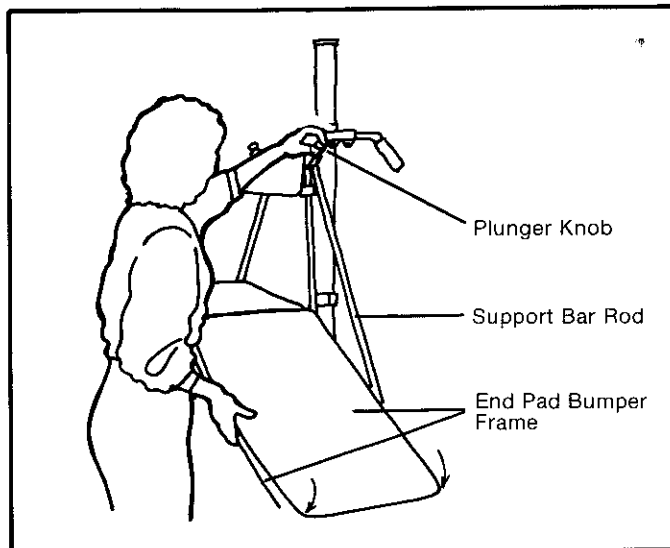


Figure 2-6

rod slide down until it is free from the guide support, Figure 2-7.

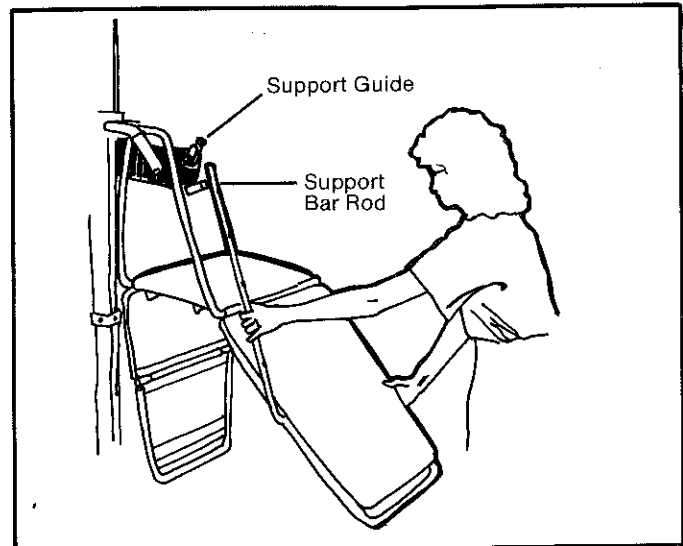


Figure 2-7

Let frame and end pads come to rest in natural hanging position. Repeat for opposite support bar rod. Both support bar rods are now free from rod guides, Figure 2-8.

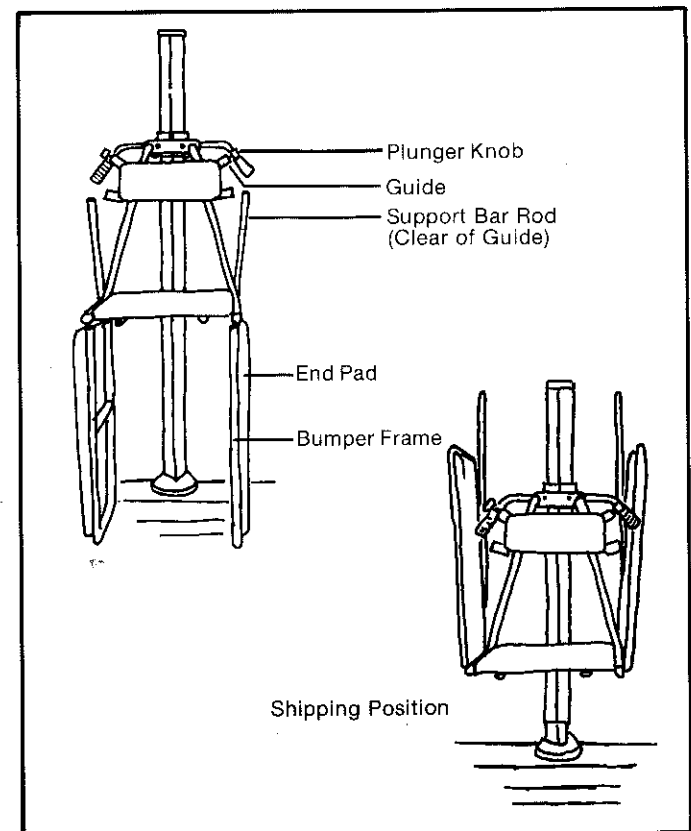


Figure 2-8

3. Take one end pad and bumper frame, with continued support, raise it to a vertical position, Figure 2-9.

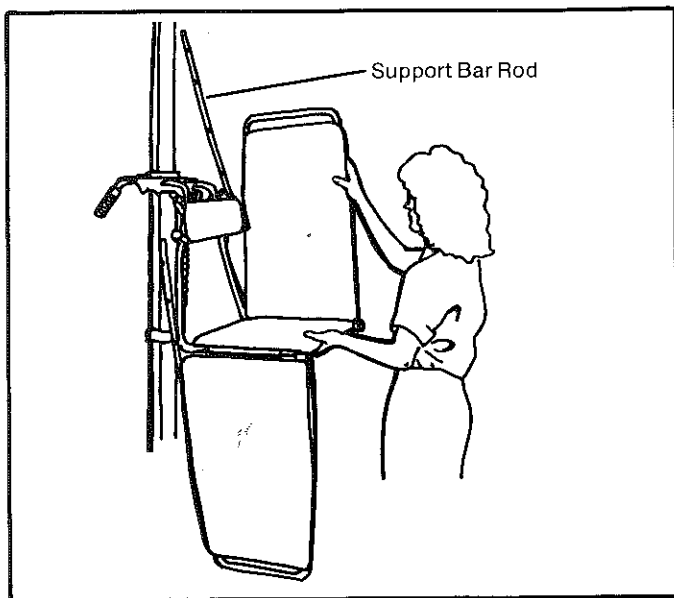


Figure 2-9

4. While supporting rest in its vertical position, using a 5/32" hex key, remove hinges from end pad bumper frame, Figure 2-10. Remove pad and bumper frame from support bar rod. Set hinges, screws and pad with frame attached aside. Repeat step 4 for opposite siderest removal and set these parts aside.

CAUTION

During removal of hinges, be sure to support end pad and bumper as hinges separate from pad and release from hanger rod.

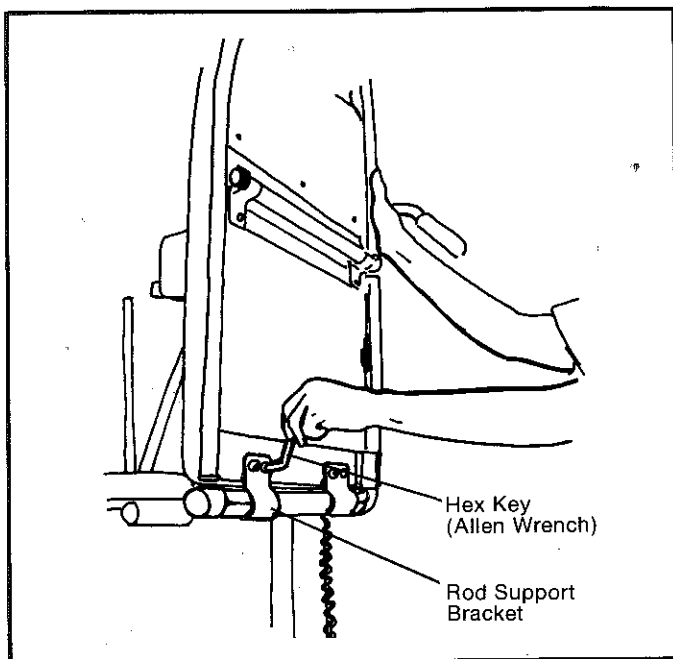


Figure 2-10

5. Obtain arm rests and leg support from accessory items contained in the lift conversion kit, Figure 2-11, items:

- A. Left Arm Support
- B. Right Arm Support
- C. Leg Support
- D. Rod Support Bracket (2 each side)

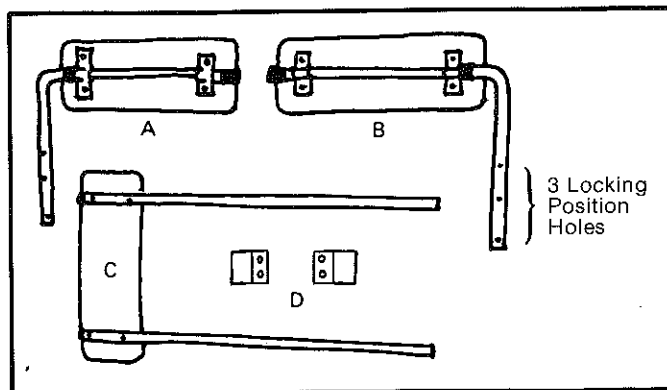


Figure 2-11

6. Place arm support on lift by pushing free end of arm support rod up thru lower guide first, then up thru upper guide while pulling out on upper guide spring loader plunger. Push rod thru guides until plunger sets itself into one of the three locking holes found in the arm support rod, Figure 2-12. Repeat step 6 for opposite arm support installation.

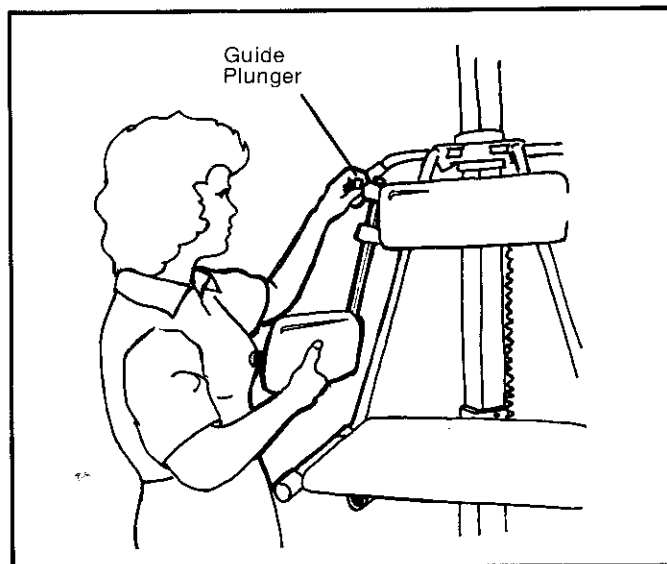


Figure 2-12

Note: Chair arms may be placed in a vertical or horizontal position depending upon size of patient and product function.

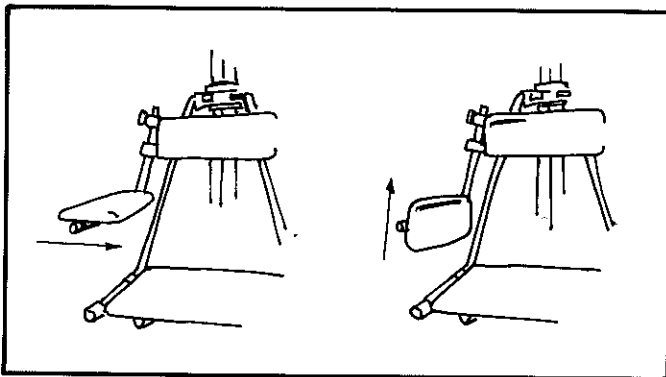


Figure 2-13

7. Replace screw top, removed from hanger rod earlier, into top of arm support rod. Figure 2-14. Repeat for opposite arm support rod.

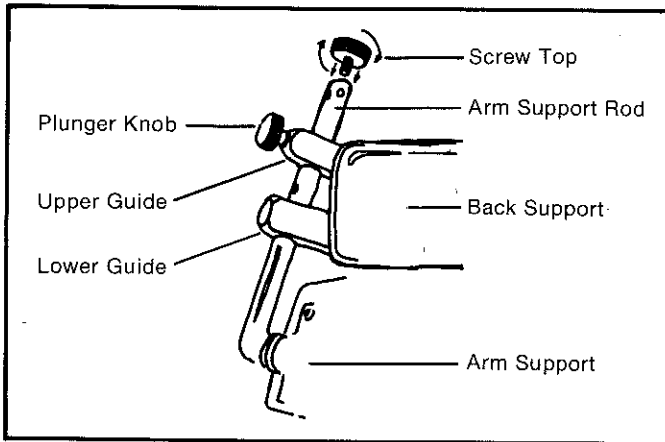


Figure 2-14

8. Install leg support by pushing free-end rods into leg support "U" brackets located on bottom of patient seat. Figure 2-15.

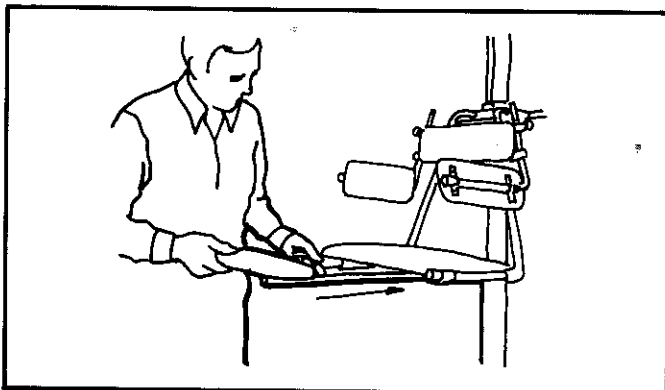


Figure 2-15

Note: Leg support rod stops will prevent leg support from penetrating beyond the seat back and interfering with tub or tank side walls.

CAUTION

After change-over from stretcher to chair or chair to stretcher, always check vertical travel of lift, as seat or stretcher may have to be adjusted on the column so as not to hit bottom of tub or tank. For adjustment, see collar bracket height location instructions, step 2.1.2.

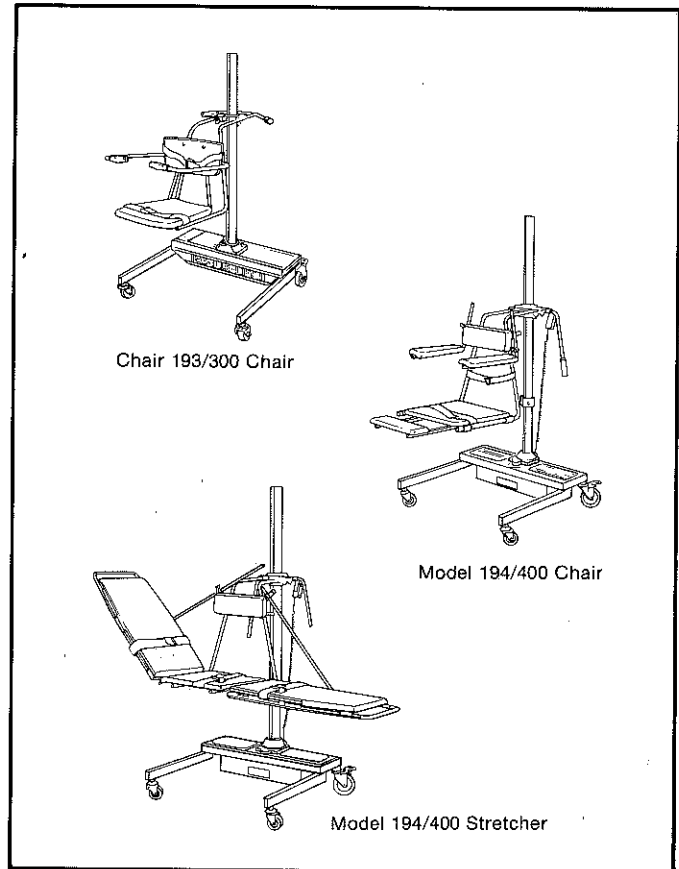


Figure 2-16

Completed Chair and Stretcher Lift Assemblies

NOTE

Add patient restraint belts to the chair or stretcher and product is complete and ready to be put into service.

WARNING

All restraint belts must be used to secure patients, before, during and after treatment.

FAILURE TO HEED WARNING MAY RESULT IN INJURY TO PATIENT OR PERSONNEL.

Section 3 Principles of Operation

3.1 Model 193/300 and 194/400 Operating Instructions to Raise and Lower the Stretcher or Seat Assembly

1. To raise and lower the stretcher or seat assembly, take the hand held control from its stored position on the top portion of the hanger rod and hold it in your hand. Figure 3-1.

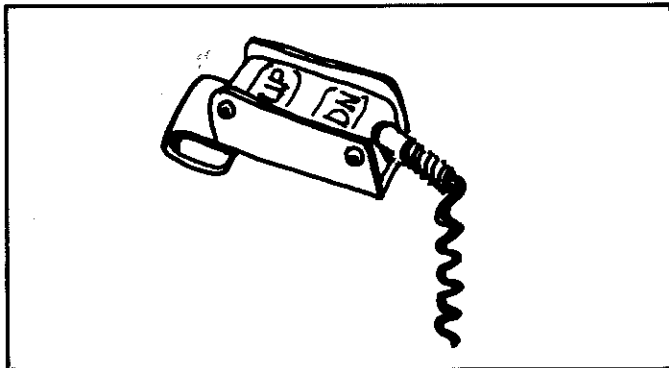


Figure 3-1

2. Depress the DN (down) portion of the control, and the electric drive motor will lower the lift. Depress the UP (up) portion of the control and the electric drive will raise the lift. When the lift has obtained its upper or lower-most position, it will not travel any further. The drive mechanism is designed to "slip", or "stop" to prevent damage to the gears. The upward and downward movement of the lift is approximately 40".

3.2 Rolling the Lift

The lift must be pushed from one location to another by using the handles located on the back of the column collar bracket. The handles are provided for ease of maneuverability and operator control during transfer of unit, with or without a patient. Figure 3-2.

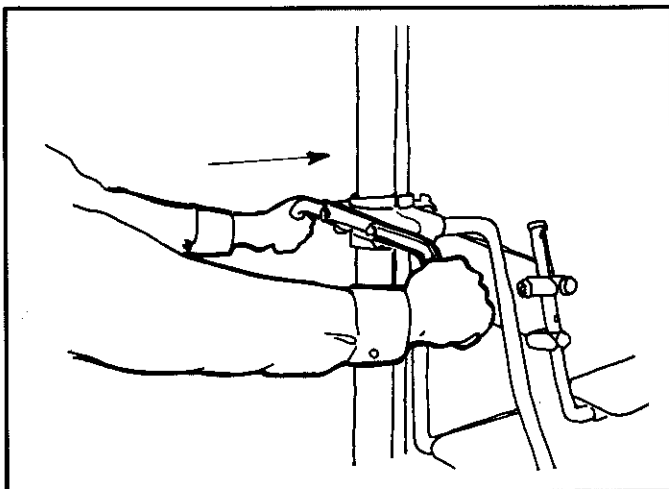


Figure 3-2

CAUTION

Stretcher or chair should be moved in lower-most position only.

CAUTION

Pulling the unit is not recommended and should only be done when maneuvering for position in a tight space.

The lift is set on four (4) caster swivel type wheels. Two (2) tandem 3" wheels in the front and two (2) 5" wheels with locks on the back. The lift has 360 degree swivel capability.

3.2.1 Locking the Wheels

The two (2) rear 5" wheels have locking devices. One caster has a green release and one caster has a gray release mechanism. When locking the caster, two things will take place:

1. The wheel will lock, preventing the wheel from rolling.
2. The swivel will lock, preventing the swivel from rotating.

The caster with the green release mechanism will only lock in one of two positions, either in or out, parallel to the wheel support rods. Figure 3-3.

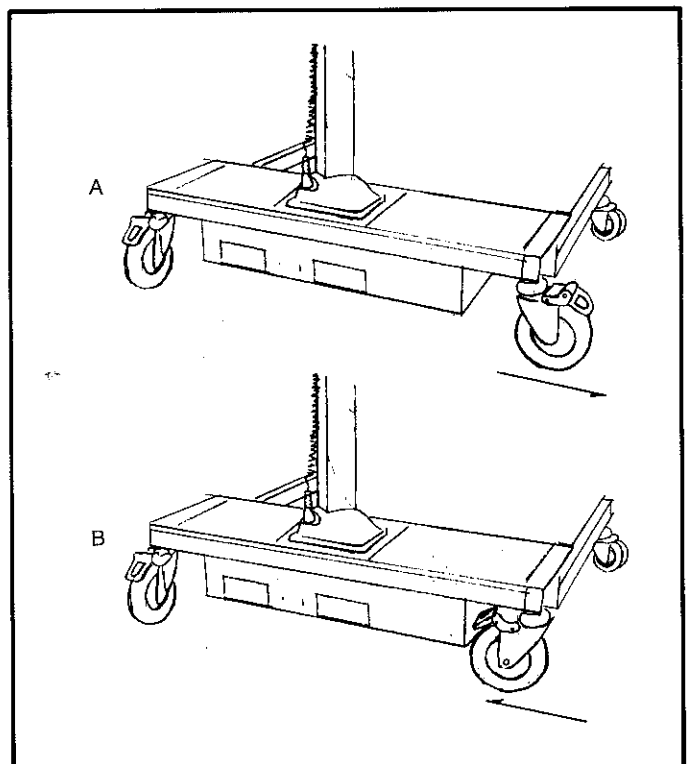


Figure 3-3

Note: It will continue to swivel until it gets to the in or out parallel point, where it will lock. See illustration A for outward parallel locking, and illustration B for inward parallel locking, Figure 3-3.

The caster with the gray release locking mechanism will lock in any position on its 360 degree swivel. When this caster is locked, it will not rotate or swivel.

Note: We recommend that when locking the lift the left caster (gray release) be parallel to the wheel support rods and the right wheel (green release) be at 90° to the caster wheel support rods. Figure 3-4. This will prevent the lift from moving in any direction.

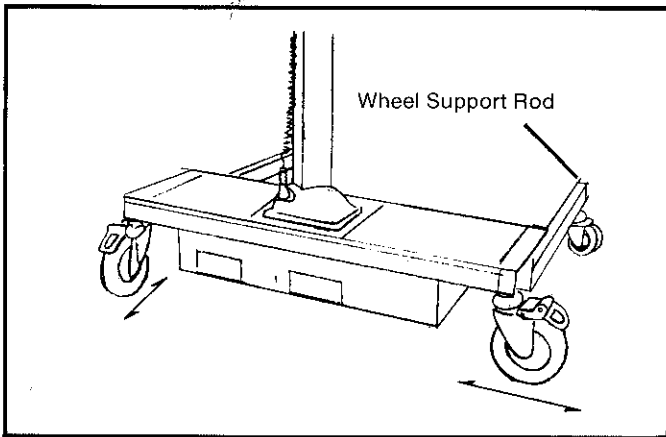


Figure 3-4

WARNING

Never leave the lift unattended and unlocked, either with or without a patient on it. Doing so may result in injury or product damage.

WARNING

Never try to lock the lift on a grade of more than 5 degrees. Lift is designed to operate and lock in level environments only.

To lock the casters, push down on the toe locking flange with the toe of your shoe. Figure 3-5.

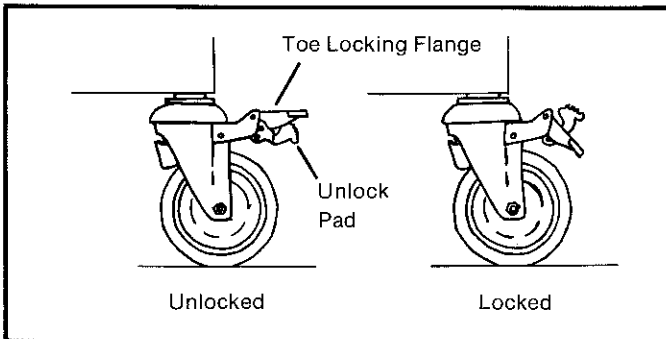


Figure 3-5

To unlock the caster, place the sole of your foot on the unlocking pad and slide pad down. Toe locking flange will "pop" up to its original unlocked position. Figure 3-6. Repeat to unlock opposite caster.

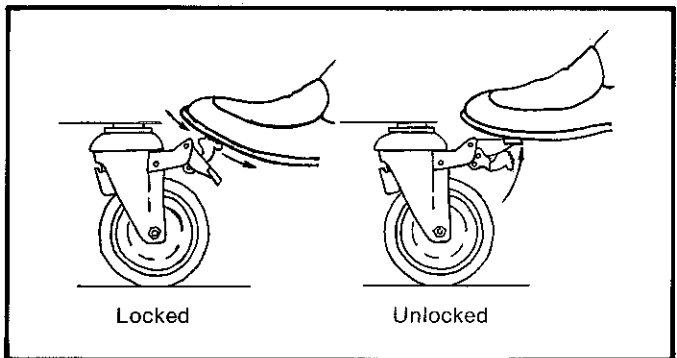


Figure 3-6

3.3 Charging the Lift Battery

The stretcher or chair lift is operated by a 12V DC motor, powered by a 12V DC battery. Depending upon the amount of use, the battery will have to be charged from time to time. The "Red" warning light will go out when the battery needs to be charged. However, we recommend when the product is not in use for prolonged periods of time, that the lift be on charge, such as overnight, during lunch breaks, etc. It is not necessary to wait for the red light to go out before charging. You cannot over-charge the unit.

The red charge battery light is located at the base of the column on the front of the unit. Figure 3-7.

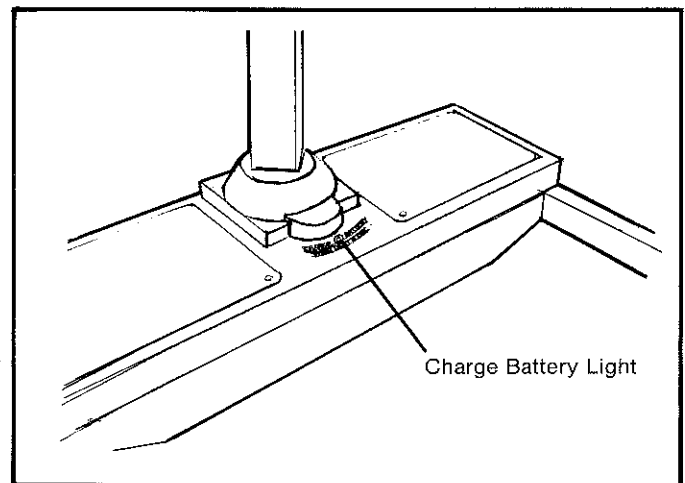


Figure 3-7

Battery charge cable is located in the storage compartment in the base of the unit. Simply lift up on the hinged cover and remove the cable, Figure 3-8.

Note: Extra fuse supplied.

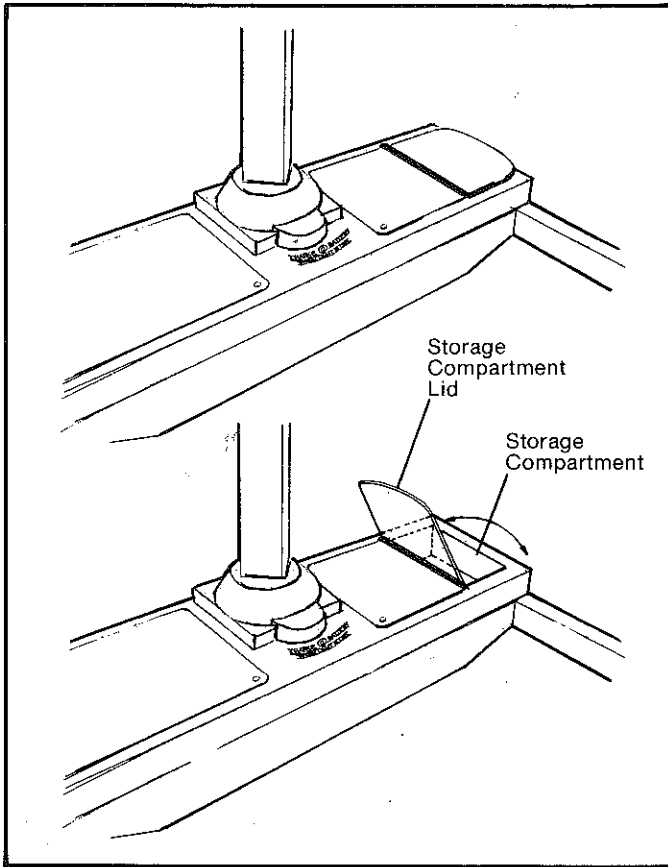
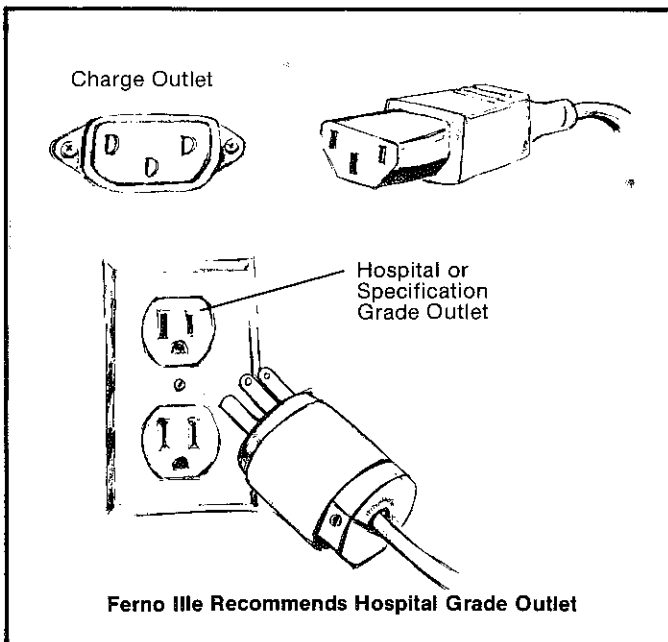


Figure 3-8

To connect the cable and charge the unit, place the 3-prong receptacle into the 3-pin prong outlet in the back of the unit first. Place the 2 prong with ground plug into any grounded specification or hospital grade outlet, using 110 AC current. Figure 3-9.



Ferno IIIe Recommends Hospital Grade Outlet

Figure 3-9

After connecting charge cable, the "Battery Charging" light on the back of the unit will light up. Figure 3-10.

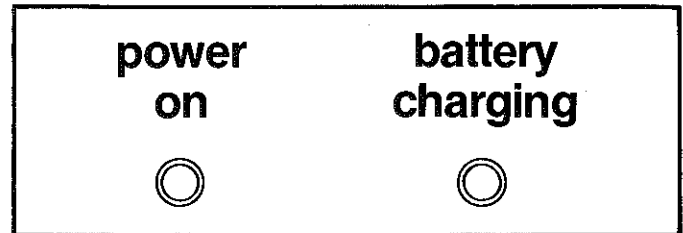


Figure 3-10

When the battery has reached full charge, the battery charging light will go out. It is not necessary to charge unit until battery charging light goes out. A quick charge of 30 minutes is all that is required to get the unit operating again. The "quick charge" may or may not be long enough to cause the battery charging light to go out.

CAUTION

The unit will not operate while the battery charging cable is connected to the unit and the electrical outlet.

After charging is complete, either full charge or quick charge, disconnect the cable from the wall receptacle first, then from the unit. Return cable to storage compartment in base of unit.

Note: The unit may have to be charged before using it for the first time.

Your new lift has been charged prior to leaving the factory, but may require recharging due to length of time enroute to its final destination. Ferno IIIe recommends a 30 minute quick charge for initial start-up. Battery must be charged on a regular basis after each 40 hours of operation. See charging instructions for procedure.

CAUTION

If battery will no longer hold a charge, the battery will have to be replaced. This must be done by a qualified service person or factory representative. Removing the cover could result in electric shock. Call your maintenance engineer or Ferno IIIe service manager for battery replacement.

NEVER REMOVE COVERS IN THE PRESENCE OF FLAMMABLE ANESTHETICS.

3.4 Patient Application

Operating the Model 193/300 Chair Lift.

- A. Lock the two rear caster wheels as pointed out in Section 3.2.1, Figure 3-4.

Note: To operate armrest stand behind seat and lift armrest straight up and swing to the sides.

- B. Lower the lift to chair height for easy patient access, approximately 18" from the ground, Figure 3-11.

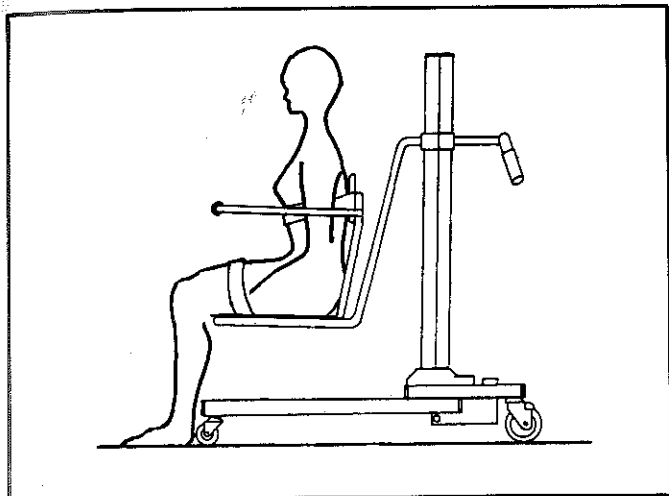


Figure 3-11

- C. After seating patient in chair, secure with restraint around the waist and around thighs.
- D. Raise the patient lift high enough so the patient's feet are clear of the floor, Figure 3-12.

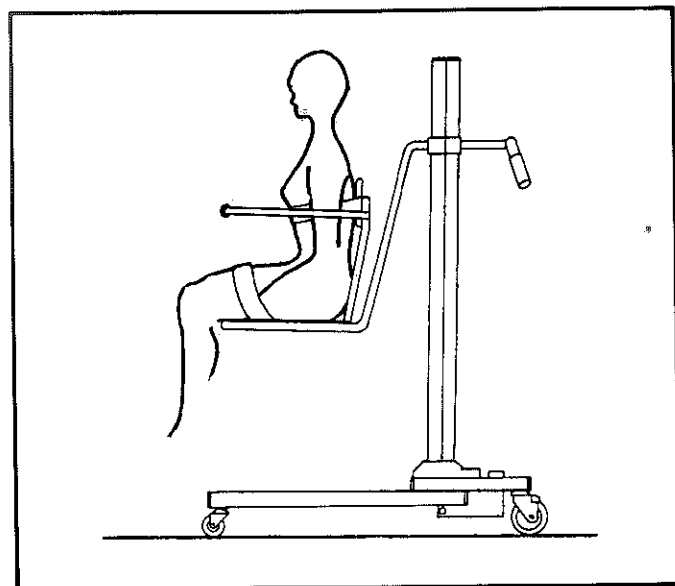


Figure 3-12

- E. Push the lift with patient to your destination.

Note: If you are merely using the lift as a transporter, reverse the process for removing the patient from the lift at point of destination.

If you are using the lift as a transporter to "physical therapy", follow the instruction below for hydrotherapy patient transfer.

Note: Transfer instructions are merely a guide and not meant to be considered hospital procedure. Each department, individual or hospital will adapt its own set of procedures that will work best for individual institution.

3.5 Hydrotherapy-Bathing Transfer Operating Instructions — Seat Model 193/300

1. Lock two rear casters, refer to Section 3.2.1, Figure 3.4.

WARNING

- A. This equipment is intended for professional use only where qualified personnel will be in attendance at all times.
- B. Upper and Lower Restraint Belts must be used to secure patient before, during and after treatment.

FAILURE TO HEED THESE WARNINGS MAY RESULT IN INJURY TO PATIENT OR PERSONNEL.

2. Lower seat to wheelchair seat height. (Depress DN (Down) button of hand switch to lower seat). (See Figure 3-11).
3. Prepare both restraint belts to secure patient or resident.
4. Carefully assist patient or resident into Lift Seat. (CAUTION: Floor may be wet and slippery.)
5. Secure Upper and Lower Restraint Belts.

Loop Belt Thru
Buckle as Shown

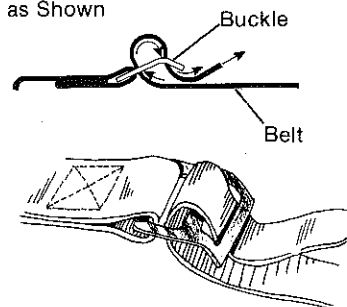


Figure 3-13

6. Raise the patient or resident Lift Seat high enough so that patient's feet are clear of the floor. (See Figure 3-12). Release caster locks on two rear casters.
7. Roll Lift with patient or resident to vicinity of Whirlpool or Tub.
8. Press switch "Up" button, raise patient high enough to clear tank, see Figure 3-14. (In some installations it may be necessary to raise the patient or resident's legs.)

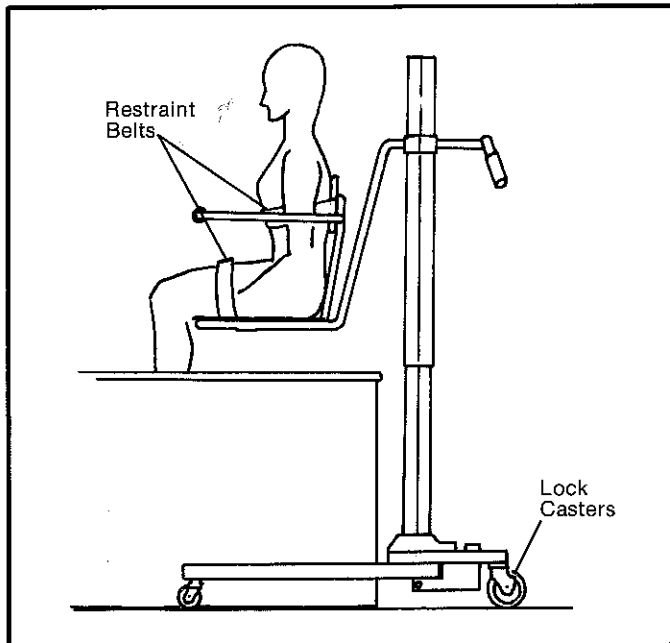


Figure 3-14

9. Roll Lift seat over Tank or Tub. Lock two rear casters to secure Lift against Tank or Tub.
10. Lower patient or resident into tank filled with tepid water [depress DN (down) button of handswitch]. (CAUTION: Always verify water temperature.)
11. Upon completion of Whirlpool or bath, raise patient or resident out of water. (Depress "Up" button of handswitch.) (Always verify security of Restraint Belts.) FAILURE TO DO SO COULD RESULT IN INJURY.
12. Release two rear casters and pull patient or resident away from tank.
13. Lock two rear casters and lower patient or resident to convenient height and proceed to dry. [Depress DN (Down) button of handswitch.]
14. Lower Lift seat to wheelchair height. [Depress DN (Down) button of handswitch.]
15. Open restraint buckles and carefully assist patient or resident to wheelchair.

Note: Transfer of patient or resident can also be made from a transfer litter or bed (depending upon width of door openings).

WARNING

When transferring from bed or transfer stretcher, always lock casters and use two Lift Restraint Security Belts. Use two attendants for this type of transfer.

FAILURE TO HEED WARNING MAY RESULT IN INJURY TO PATIENT OR RESIDENT.

3.6 Hydrotherapy-Bathing Transfer Operating Instructions — Stretcher Model 194/400

1. Roll Lift Stretcher, Model 194/400 bedside or transfer litter.

WARNING

- A. This equipment is intended for professional use only where qualified personnel will be in attendance at all times.
- B. Three Restraint Belts must be used to secure patient before, during and after treatment.
- C. Transfer of patient or resident should be made by a minimum of two attendants.

FAILURE TO HEED THESE WARNINGS COULD RESULT IN INJURY TO PATIENT OR PERSONNEL.

2. Adjust Lift Stretcher to same level as bed or transfer litter. [Depress handswitch DN (Down) or UP button as required.]
3. Prepare three Restraint Belts to secure patient or resident (see Figure 3-15).

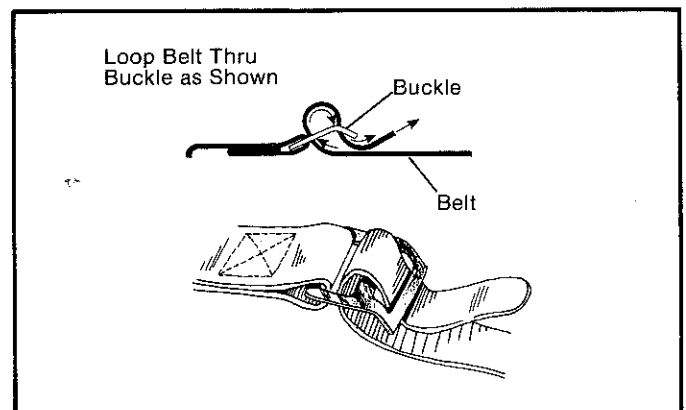


Figure 3-15

4. Place Lift next to bed or transfer litter. Lock two Lift casters, also lock casters on bed or transfer litter.

5. USE A MINIMUM OF TWO ATTENDANTS and carefully slide patient or resident onto Lift Stretcher. (More attendants may be required for obese patients or residents, see Figure 3-16.)

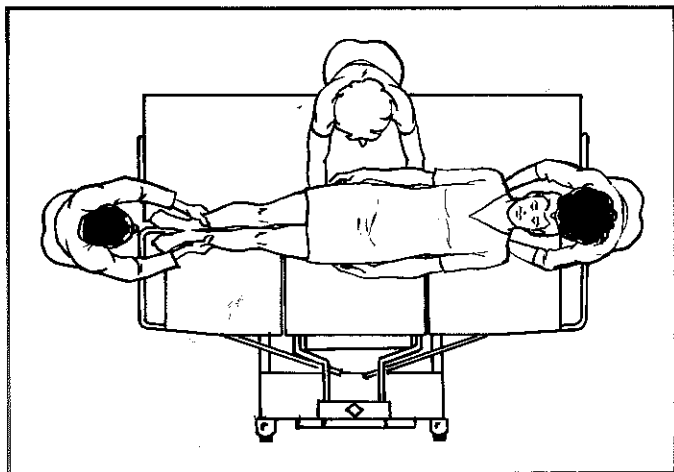


Figure 3-16

6. Secure patient or resident with three Restraint Belts.
7. Adjust one end of Stretcher for use as a headrest — HEAD OF PATIENT OR RESIDENT MUST BE ABOVE WATER LEVEL (see Figure 3-17).
8. Release two Lift casters and roll Lift Stretcher with patient or resident next to tank or tub.
9. Raise Lift Stretcher with patient or resident to clear rim of tank or tub by two inches. (Depress "Up" button of hand switch.)
10. Roll Lift Stretcher over tank and lower Lift Stretcher with patient or resident into tank filled with tepid water. [Depress DN (Down) button of hand switch to lower Stretcher.]

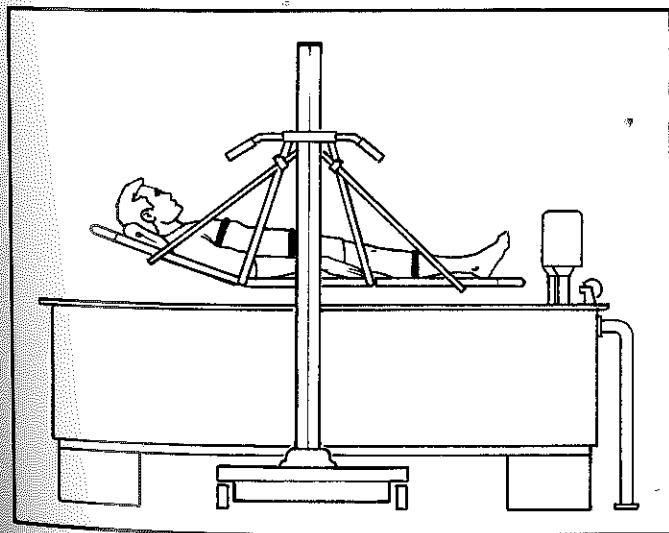


Figure 3-17

WARNING

- A. Always keep patient's or resident's head above water level.
- B. Always verify water temperature.
- C. Always verify security of three Restraint Belts.

FAILURE TO DO SO MAY RESULT IN INJURY TO PATIENT OR RESIDENT.

11. Lock two rear casters and proceed to bathe or hydromassage patient or resident.

WARNING

Always have qualified personnel in attendance during hydromassage or bathing. Never leave patient or resident unattended.

12. Upon completion of whirlpool or bath, raise Lift Stretcher with patient or resident out of water. Permit water to drain for a few seconds. (Depress "Up" button of handswitch, see Figure 3-17.)
13. Release two rear casters and roll Lift Stretcher with patient or resident away from tank or tub. Dry patient or resident.

WARNING

Always verify security of the three Restraint Belts.

FAILURE TO DO SO MAY RESULT IN INJURY TO PATIENT OR RESIDENT.

14. Lock two rear casters and lower Lift Stretcher to transfer litter or bed height. [Depress DN (Down) button of handswitch.]
15. Release two rear casters and roll Lift Stretcher to bed or transfer litter. (Always convey Lift Stretcher at bed height or lower.)
16. Adjust height of Lift Stretcher to same level as bed or transfer litter. [Depress DN (Down) button of handswitch as required.] Lock two Stretcher Lift rear casters and casters on bed or transfer litter.
17. USE A MINIMUM OF TWO ATTENDANTS. Lower headrest and release three Restraint Belts. Carefully slide patient or resident into bed or transfer litter. (More attendants may be required for obese patients or residents, see Figure 3-16.)

Note: When converting the Stretcher Model 194/400 to a Seat, as illustrated in Figure 2-16, refer to Section 3.5 (Seat Model 193/300 for operating instruction sequence. An accessory leg support depicted in Figure 2-15 is available for the Model 194/400 Seat Model.

Section 4 Maintenance & Troubleshooting

4.1 General

The Eas-IIIe-Lift is ready for use as soon as it is uncrated. The only requirement may be "charging" the battery, see Section 3.4 Charging the Lift Battery. Check the charge battery light located at the base of the column on the front of the unit. Figure 4-1. If the light is on, unit is ready to operate.

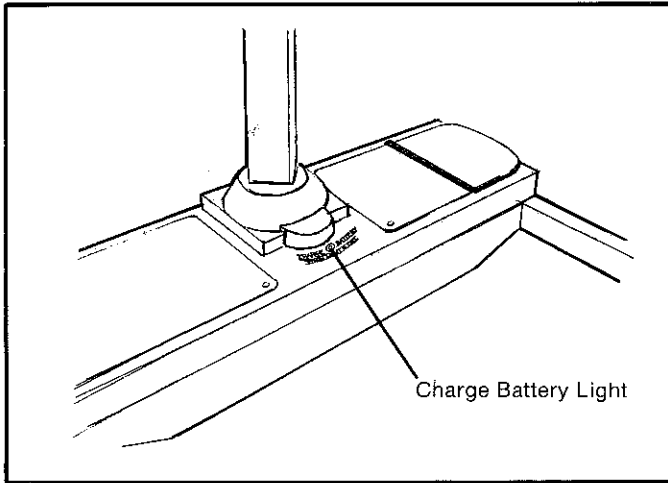


Figure 4-1

The Eas-IIIe Lifts will provide many years of trouble-free service for you and your patients. All that is required is a little care and integrity.

4.2 Keep the Unit Clean

Routine maintenance is minimal. Exposed metal surfaces are normally polished, plated or otherwise treated for easy care and appearance. To protect these surfaces, clean as often as needed, using a mild soap and water. Cleaning should be followed by a coat of good wax, such as used on automobiles.

Periodically remove lint and dust from the casters by using a vacuum or air hose.

4.3 Lubrication

All moving parts have been lubricated during assembly. Only lubricate those items listed below, per the suggested schedule.

Oil wheels 1 time every 6 months
Oil locks..... 1 time every 6 months
Silicone column..... 2 times every month

4.4 Battery

To check the battery, this must be accomplished by an experienced maintenance engineer or Ferno IIIe factory representative. Do not attempt to check the battery yourself.

4.4.1 Specifications

Operating Temperature Ranges

Charge: -20°C to 50°C (5°F to 122°F)

Discharge: -40°C to 50°C (-40°F to 122°F)

Storage: -40°C to 60°C (-40°F to 140°F)

Life Expectancy

Standby use: 4 to 5 years

Cyclic use: 250 to 1200 cycles

Sealed Construction

Can be operated, charged or stored in any position.

4.4.2 Troubleshooting

Most problems will result from improper charge or battery failure. Other than that your lift has been built to give you years of trouble free operation.

4.4.3 Seat or Stretcher Jams in Lower Position With Patient or Resident on it.

Fill tank with warm water to overflow level. (Keep patient's or resident's head above water.) Remove restraint belts — carefully permit patient or resident to float. Slip two large towels or a sling under patient or resident. Proceed to lift patient or resident out. (Use several attendants. Use backboard if required.)

Section 5 Parts List Information

5.1 General

This section contains a complete listing of all replaceable parts of the Ferno Ille/National Lifts. For the purpose of part identification, the unit is broken down into functional assemblies and each assembly is shown in an exploded view, which is keyed to the accompanying parts list. Each parts list contains the figure index number, Ferno Ille or National part number, and an abbreviated description.

5.2 Ordering Information

Service Engineering Company is the only authorized Ferno Ille service dealer. They have a network of service agencies across the United States to provide prompt service. To contact them, call or write:

Service Engineering Company
P.O. Box 25021
Raleigh, NC 27611
1-800-334-5528

For questions about items under warranty, you may also contact Ferno Ille Customer Service at:

Ferno-Washington, Inc.
70 Weil Way
Wilmington, OH 45177-9371
(513) 382-1451
Fax: (513) 382-1191

5.3 Warranty Statement

This equipment has been carefully inspected and tested and is fully covered by the Ferno Ille guarantee provided the Warranty Card is mailed within ten days from receipt of product.

Ferno Ille will guarantee all Ferno Ille equipment to be perfect in material and workmanship. We agree to replace free of charge any part that may be found defective if this part is returned to us, transportation charges prepaid, within one year from date of purchase. This service guarantee is not to be construed to cover willful neglect or misuse and does not apply to standard electrical equipment, lamps, bulbs, switches, receptacles, etc.

Ferno Ille cannot assume responsibility for repairs made by others.

Parts List 193/300 Column & Base Frame

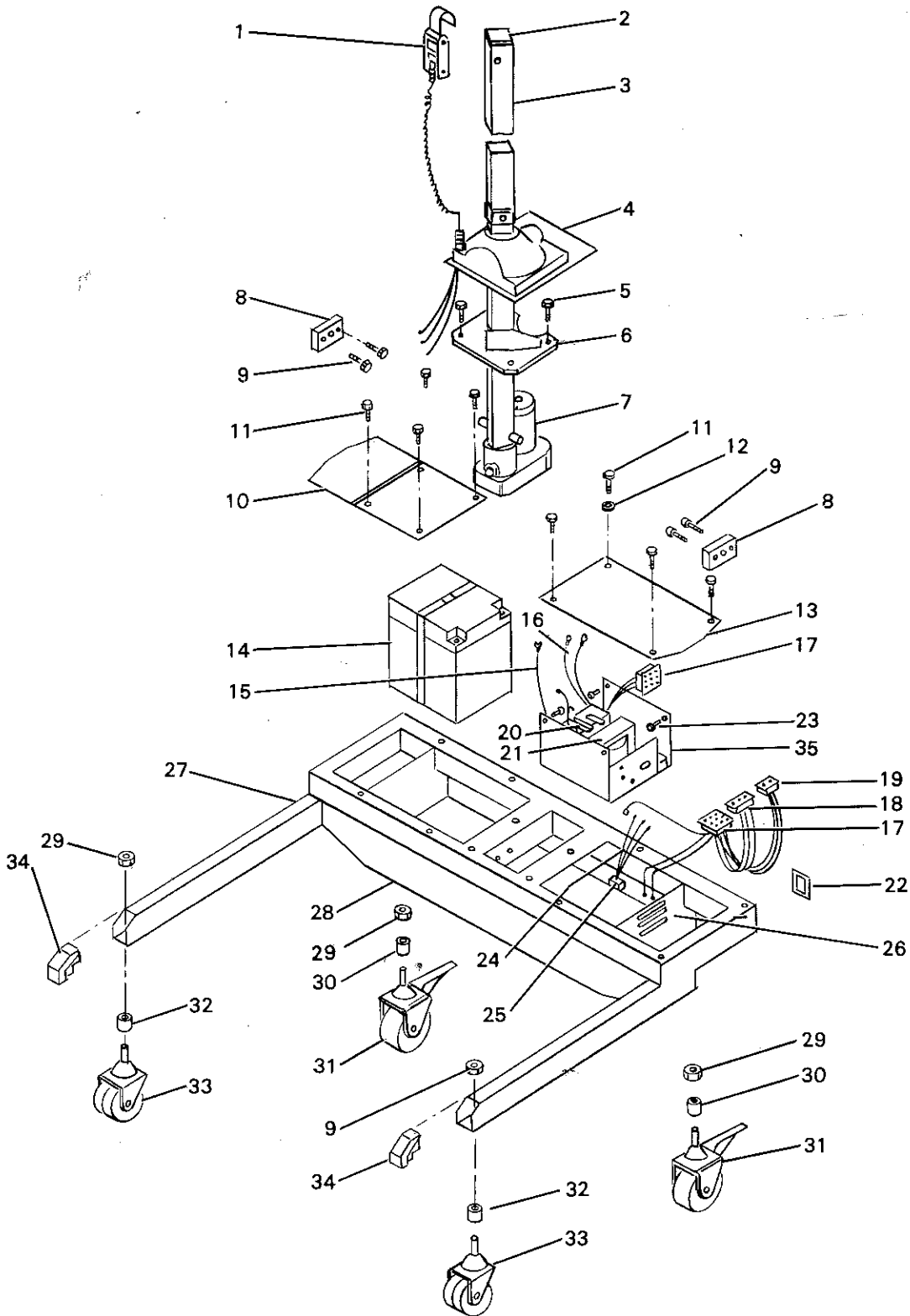


Figure 5-1

| Index No. | Part No. | Description | No. Req'd. |
|-----------|------------------------|---|------------|
| 1 | 093-9812-00 | Hand Switch Assembly | 1 |
| 2 | 095-0004-00 | Cap | 1 |
| 3 | 095-0006-00 | Outer Sleeve | 1 |
| 4 | 095-0009-00 | Support Tube Cover, Model 193 | 1 |
| NI | 095-0008-00 | Support Tube Cover, Model 300 | 1 |
| 5 | 095-0014-00 | Screw, Hex Head Cap, 3/8-16 x 3/4" lg. | 4 |
| 6 | 095-0012-00 | Support Tube | 1 |
| 7 | 095-0013-00 | Actuator | 1 |
| 8 | 095-0015-00 | Trunnion Plate | 2 |
| 9 | 095-0016-00 | Screw, Hex Head Cap, 3/8-24 x 3/4" lg. | 4 |
| 10 | 095-0017-00 | Hinged Cover | 1 |
| 11 | 095-0018-00 | Screw, Button Head Socket Cap, 10-32 x 1/2" lg. | 8 |
| 12 | 095-0019-00 | Lockwasher, #1110 External Star | 1 |
| 13 | 095-0020-00 | Cover Plate | 1 |
| 14 | 093-9816-00 | Battery <i>6/99 #112,20</i> | 1 |
| 15 | 095-0021-00 | Wires to Battery (Unique) | 2 |
| 16 | 095-0022-00 | Wires to Actuator (Unique) | 2 |
| 17 | 095-0023-00 | Connector Housing & Cap, 9 Position (Lights) Unique | 1 |
| 18 | 095-0024-00 | Connector Housing & Cap, 3 Position (Hand Switch) Unique | 1 |
| 19 | 095-0025-00 | Connector Housing & Cap, 2 Position (Limit Switch) Unique | 1 |
| 20 | 095-0026-00 | Control Relay (Unique) | 2 |
| 21 | 095-0027-00 | Power Relay (Unique) | 1 |
| 22 | 095-0028-00 | End Caps | 6 |
| 23 | 095-0018-00 | Screw, Button Head Socket Cap, 10-32 x 1/2" lg. | 4 |
| 24 | 095-0029-00 | LED Lights & Wires | 3 |
| 25 | 095-0030-00 | Power Cord Receptical | 1 |
| 26 | 095-0031-00 | Electric Box | 1 |
| 27 | 095-0032-00 | Base Frame, Model 193 | 1 |
| NI | 095-0033-00 | Base Frame, Model 300 | 1 |
| 28 | 095-0034-00 | Baffle | 1 |
| 29 | 095-0035-00 | Nylon Stop Nut, 1/2-13 | 4 |
| 30 | 095-0036-00 | Washer, 1/2" Flat SAE, Zinc | 2 |
| 31 | 095-0037-00 | Caster, 5" | 2 |
| 32 | 095-0038-00 | Spacer | 2 |
| 33 | 095-0039-00 | Caster, 3" Dual | 2 |
| 34 | 095-0040-00 | Bumper | 2 |
| 35 | 093-9815-00 | Charger Controller Unit | 1 |

NI — Not Illustrated.

St. St. — Stainless Steel

Service Engineering
1-800-334-5528

Bob

Parts List 194/400 Column & Base Frame

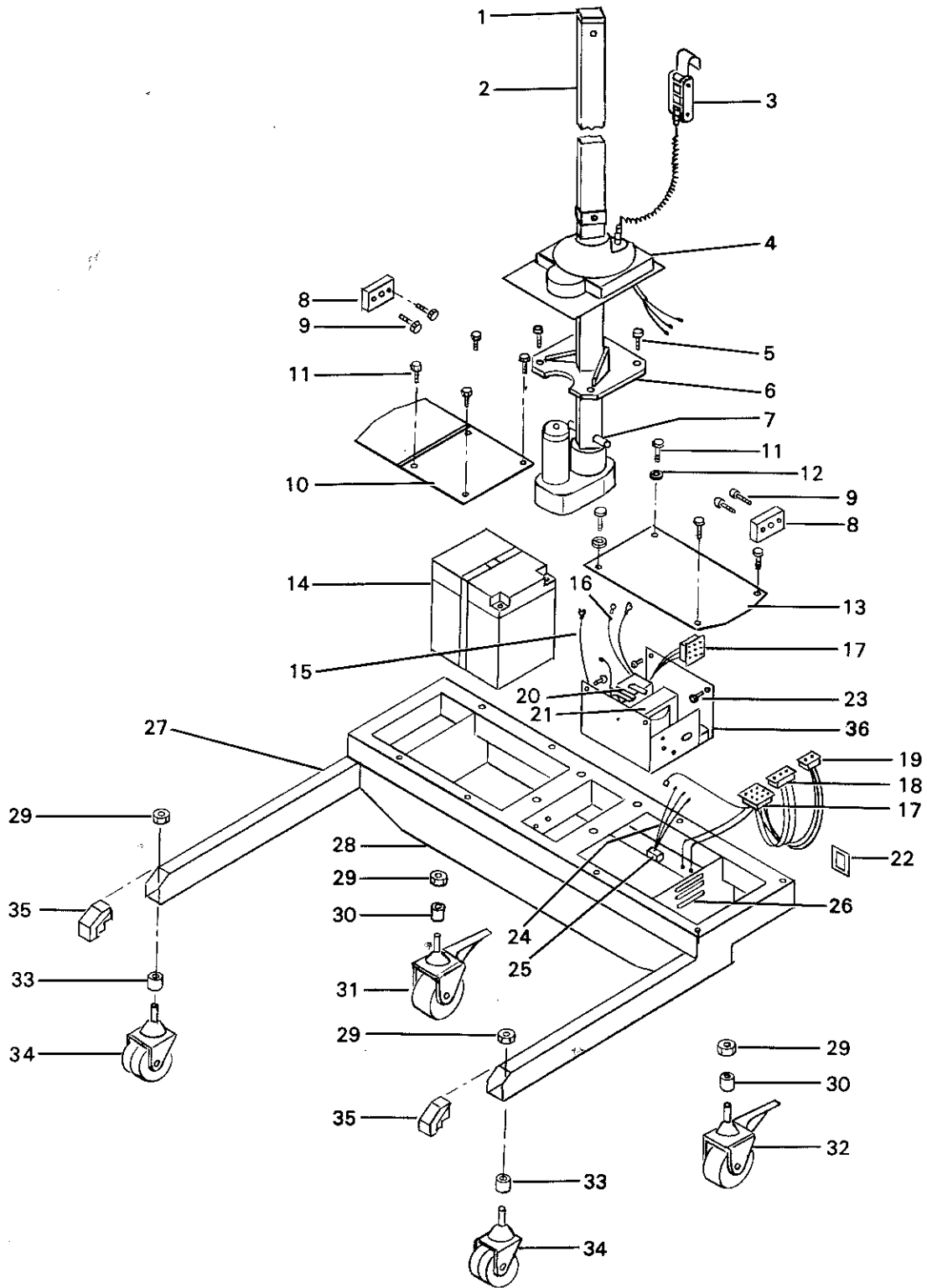


Figure 5-2

| Indes No. | Part No. | Description | No. Req'd. |
|-----------|-------------|---|------------|
| 1 | 095-0004-00 | Cap | 1 |
| 2 | 095-0006-00 | Outer Sleeve | 1 |
| 3 | 093-9812-00 | Hand Switch Assembly | 1 |
| 4 | 095-0009-00 | Support Tube Cover, Model 194 | 1 |
| NI | 095-0008-00 | Support Tube Cover, Model 400 | 1 |
| 5 | 095-0014-00 | Screw, Hex Head Cap, 3/8-16 x 3/4" lg..... | 4 |
| 6 | 095-0012-00 | Support Tube | 1 |
| 7 | 095-0013-00 | Actuator | 1 |
| 8 | 095-0015-00 | Trunnion Plate | 2 |
| 9 | 095-0016-00 | Screw, Hex Head Cap, 3/8-24 x 3/4" lg..... | 4 |
| 10 | 095-0017-00 | Hinged Cover | 1 |
| 11 | 095-0018-00 | Screw, Button Head Socket Cap, 10-32 x 1/2" lg. | 8 |
| 12 | 095-0019-00 | Lockwasher, #1110 External Star | 2 |
| 13 | 095-0020-00 | Cover Plate | 1 |
| 14 | 093-9816-00 | Battery | 1 |
| 15 | 095-0021-00 | Wires to Battery (Unique) | 2 |
| 16 | 095-0022-00 | Wires to Actuator (Unique) | 2 |
| 17 | 095-0023-00 | Connector Housing & Cap, 9 Position (Lights) Unique | 1 |
| 18 | 095-0024-00 | Connector Housing & Cap, 3 Position (Hand Switch) Unique | 1 |
| 19 | 095-0025-00 | Connector Housing & Cap, 2 Position (Limit Switch) Unique | 1 |
| 20 | 095-0026-00 | Control Relay (Unique) | 2 |
| 21 | 095-0027-00 | Power Relay (Unique) | 1 |
| 22 | 095-0028-00 | End Caps | 6 |
| 23 | 095-0018-00 | Screw, Button Head Socket Cap, 10-32 x 1/2" lg. | 4 |
| 24 | 095-0029-00 | LED Lights & Wires..... | 3 |
| 25 | 095-0030-00 | Power Cord Receptical | 1 |
| 26 | 095-0031-00 | Electric Box | 1 |
| 27 | 095-0041-00 | Base Frame, Model 194 | 1 |
| NI | 095-0042-00 | Base Frame, Model 400 | 1 |
| 28 | 095-0034-00 | Baffle | 1 |
| 29 | 095-0035-00 | Nylon Stop Nut, 1/2-13 | 4 |
| 30 | 095-0036-00 | Washer, 1/2" Flat SAE, Zinc..... | 2 |
| 31 | 095-0043-00 | Caster, 5" Tracking..... | 1 |
| 32 | 095-0037-00 | Caster, 5" | 1 |
| 33 | 095-0038-00 | Spacer..... | 2 |
| 34 | 095-0039-00 | Caster, 3" Dual..... | 2 |
| 35 | 095-0040-00 | Bumper | 2 |
| 36 | 093-9815-00 | Charger Controller Unit..... | 1 |

NI — Not Illustrated.

St. St. — Stainless Steel

Parts List 194/400 Transporter Assembly

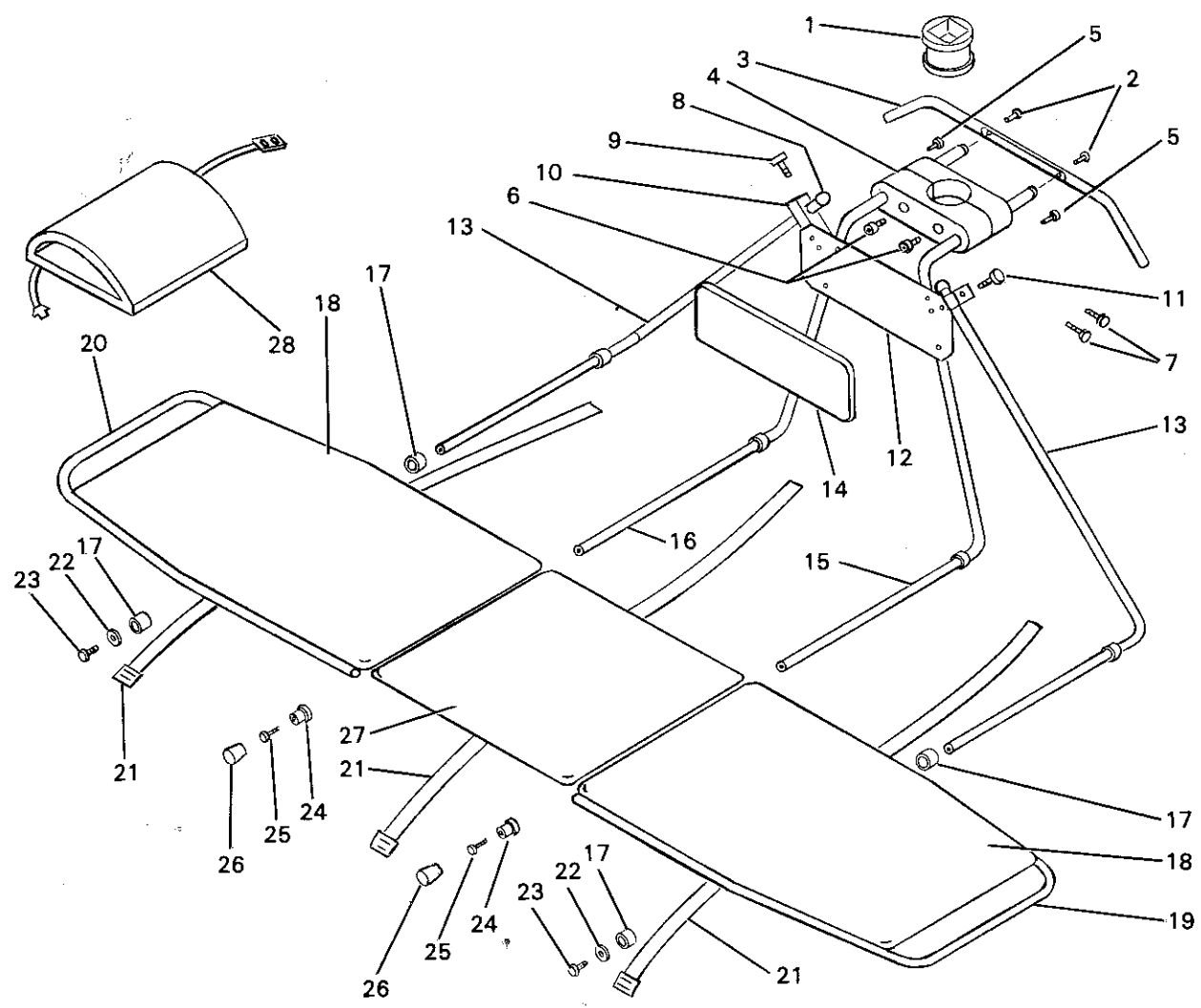


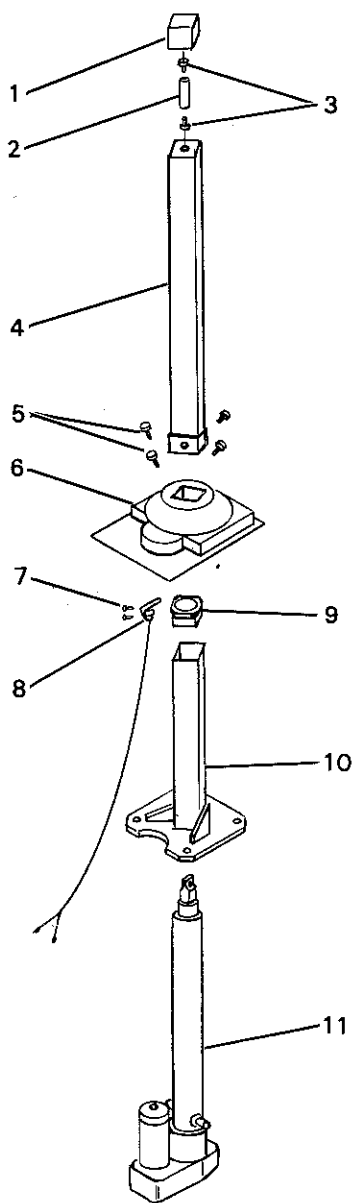
Figure 5-4

| Index No. | Part No. | Description | No. Req'd. |
|-----------|-------------|--|------------|
| 1 | 095-0044-00 | Inserts | 4 |
| 2 | 095-0045-00 | Screw, Button Head, St. St., 3/8-16 x 1" lg. | 2 |
| 3 | 095-0046-00 | Push Rod | 1 |
| 4 | 095-0047-00 | Collar Bracket | 1 |
| 5 | 912-0862-00 | Screw, Button Head Socket Cap, St. St., 1/4-20 x 5/8" lg. | 4 |
| 6 | 093-1662-00 | Screw, Socket Head Cap, 3/8-16 x 3/4" lg. | 2 |
| 7 | 093-9814-00 | Screw, Socket Head Cap, 5/16-18 x 1" lg. | 4 |
| 8 | 912-0654-00 | Screw Stop | 2 |
| 9 | 093-9813-00 | Spring Plunger | 2 |
| 10 | 912-0646-00 | Guide | 2 |
| 12 | 152-0057-00 | Brace | 1 |
| 13 | 248-6424-00 | Support Bar Rod | 2 |
| 14 | 093-9832-00 | Seat Back Pad, Model 193 | 1 |
| NI | 912-1151-00 | Seat Back Pad, Model 300 | 1 |
| 15 | 934-0027-00 | Hanger Rod (Right) | 1 |
| 16 | 934-0026-00 | Hanger Rod (Left) | 1 |
| 17 | 912-0656-00 | Nylon Spacer | 4 |
| 18 | 912-0641-00 | End Pads, Model 193 | 2 |
| NI | 912-1165-00 | End Pads, Model 300 | 2 |
| 19 | 151-1022-00 | Bumper Frame (Left) | 1 |
| 20 | 151-1023-00 | Bumper Frame (Right) | 1 |
| 21 | 912-1202-00 | Patient Restraint | 3 |
| 22 | 911-6808-00 | Washer, St. St., 3/8" | 2 |
| 23 | 095-0045-00 | Screw, Button Head, St. St., 3/8-16 x 1" lg. | 2 |
| 24 | 912-0648-00 | Extender | 2 |
| 25 | | Screw, Button Head Socket Cap, 3/8-16 x 1-1/4" lg. | 2 |
| 26 | 095-0050-00 | Highline Cap, 1" | 2 |
| 27 | 093-8181-00 | Center Pad, Model 193 | 1 |
| NI | 912-1154-00 | Center Pad, Model 300 | 1 |
| 28 | 228-8300-00 | Pillow W/Belt | 1 |

NI — Not Illustrated.

St. St. — Stainless Steel

Parts List Column Assembly

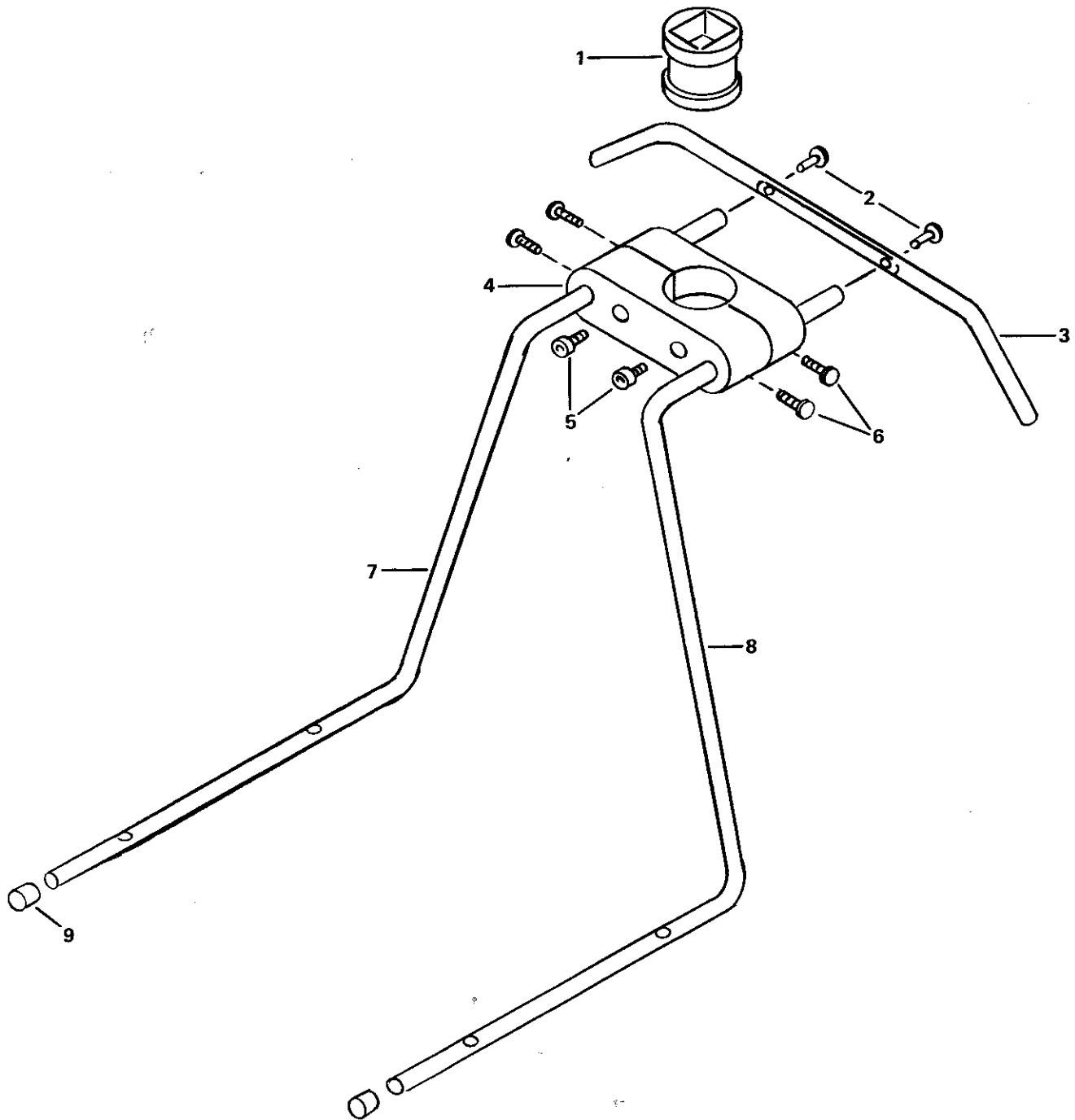


| Index No. | Part No. | Description | No. Req'd. |
|-----------|-------------|--|------------|
| 1 | 095-0004-00 | Cap | 1 |
| 2 | 093-9942-00 | Dowel Pin, 1/2" x 2-1/2" lg. | 1 |
| 3 | 095-0005-00 | Screw, Button Head Socket Cap, St. St., 1/4-20 x 1/2" lg | 2 |
| 4 | 095-0006-00 | Outer Sleeve | 1 |
| 5 | 095-0007-00 | Bearing Block Screw | 4 |
| 6 | 095-0009-00 | Support Tube Cover, Model 194 | 1 |
| NI | 095-0008-00 | Support Tube Cover, Model 400 | 1 |
| 7 | 095-0010-00 | Screw, Round Head Wood, #2-1/2" lg. | 2 |
| 8 | 095-0011-00 | Cut Off Switch (Unique) | 1 |
| 9 | 093-9830-00 | Support Tube Bearing | 1 |
| 10 | 095-0012-00 | Support Tube | 1 |
| 11 | 095-0013-00 | Actuator | 1 |

NI — Not Illustrated.

Figure 5-5

Parts List 193/300 Hanger Assembly



| Index No. | Part No. | Description | No. Req'd. |
|-----------|-------------|---|------------|
| 1 | 095-0044-00 | Inserts | 4 |
| 2 | 095-0045-00 | Screw, Button Head, St. St., 3/8-16 x 1" lg. | 2 |
| 3 | 095-0046-00 | Push Rod | 1 |
| 4 | 095-0047-00 | Collar Bracket..... | 1 |
| 5 | 093-1662-00 | Screw, Socket Head Cap, 3/8-16 x 3/4" lg..... | 2 |
| 6 | 093-9819-00 | Screw, Socket Head Cap, 5/16-18 x 1" lg..... | 4 |
| 7 | 095-0048-00 | Hanger Rod (Right) | 1 |
| 8 | 095-0049-00 | Hanger Rod (Left) | 1 |
| 9 | 095-0050-00 | Highline Cap, 1" | 2 |

Figure 5-6



FERNO

IIIe

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