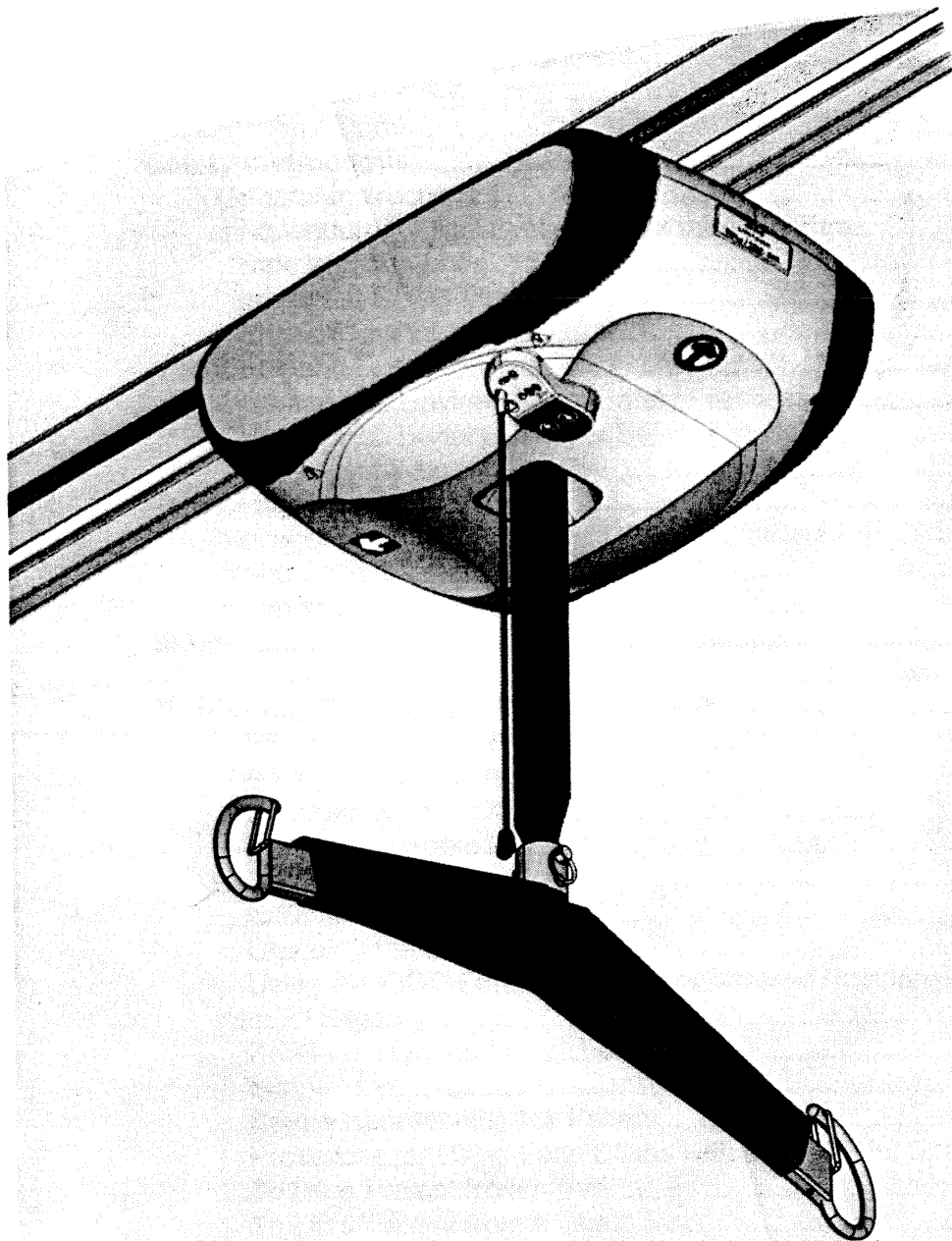


ARJOHUNTLEIGH
GETINGE GROUP

Voyager® Duo
Instructions for Use



CE

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Thank you for purchasing the Voyager Duo ceiling lift from ArjoHuntleigh.

Your Voyager Duo is part of a series of quality products designed specially for home care, nursing homes and other health care uses.

We are dedicated to serving your needs and providing the best products available along with training that will bring your staff maximum benefit from every ArjoHuntleigh product.

Please read this manual thoroughly, and contact us if you have any questions about the operation or maintenance of your ArjoHuntleigh equipment.

Foreword

Please read this manual in its entirety before using your Voyager Duo. The information in this manual is crucial to the proper operation and maintenance of the equipment, and will help protect your product as well as ensure that the equipment performs to your satisfaction. Lifting and transferring a person always presents a potential risk. Some of the information in this manual is important for your safety and must be read and understood to help prevent injuries. ArjoHuntleigh strongly advises and warns that to avoid injuries that can be attributed to the use of inadequate parts, only parts designated by ArjoHuntleigh should be used on equipment and other appliances supplied by ArjoHuntleigh.

Furthermore, unauthorized modifications on any ArjoHuntleigh equipment may affect its safety. ArjoHuntleigh will not be held responsible for any accidents, incidents or deficiencies of performance that occur as a result of any unauthorized modification to its products.

Tested according to standards by:

TÜV Product Service and .

Service and support

A service routine must be performed on your Voyager Duo by ArjoHuntleigh certified service personnel. This will ensure the safety and good functioning of your product. See section called "Care and Maintenance" in this manual.

If you require further information, please contact your local ArjoHuntleigh representative which can offer comprehensive support and service programs to maximize the long-term reliability, safety and value of the product. Contact your local ArjoHuntleigh representative for replacement parts.

Additional copies of this manual can be purchased from your local ArjoHuntleigh representative. When ordering, include the *Instructions for Use* product number (see front page) and equipment identification number.

General Information

Manufacturer Information

This product has been manufactured by:
ArjoHuntleigh AB
Verkstadvägen 5
241 38 Eslöv
SWEDEN

Definitions Used in this Manual:

WARNING:

Means: Failure to understand and follow these instructions may result in injury to yourself and others.

CAUTION:

Means: Failure to follow these instructions may cause damage to the product.

NOTE:

Means: This is important information regarding the correct use of the equipment.

Intended Use

The Voyager Duo is designed for lifting patients in a homecare setting, at nursing homes and other assisted living centers. Patient transferring is performed under the supervision of an appropriately trained caregiver staff in accordance with the instructions outlined in this manual. All other uses must be avoided.

The equipment must only be used for the purposes stated above, and must be installed by ArjoHuntleigh authorized personnel and in accordance with local codes.

Operational Life

The equipment is designed and tested for a useful life of seven (7) years or 10,000 transfers—whichever comes first—subject to preventative maintenance as specified in the "Care and Maintenance" section in this manual. Time equivalence between the number of transfers versus the number of years is made clear in the table in Fig. 1.

Transfers per Day	Years (10,000 transfers)
4	7
6	4.5
8	3.5

Fig. 1

WARNING: The manufacturer cannot ensure full safety for a ceiling lift or an accessory of which the life span has been exceeded.

The red indicator light on the ceiling lift will blink when it is about halfway to its useful life, and again to indicate the end of the useful life period.

The operating life of this equipment corresponds directly to the safe operating time period before a complete overhaul is required. Aging of the cassette, frequency of use (transfers per day), the weight of the patient and maintenance frequency are factors that have an impact on the Voyager Duo's life span. A transfer is defined as the displacement of a patient from one point to another. A transfer cycle includes a lifting and a descending action.

The expected operational life for fabric slings and fabric stretchers is approximately two years from date of purchase. This life expectancy only applies if the slings and stretchers have been cleaned, maintained and inspected in accordance with the ArjoHuntleigh Sling Application Guide, the *Instructions for Use* and the "Preventive Maintenance Schedule".

The expected life for other consumable products, such as batteries, fuses, lamps, slings, straps and cords is dependent upon the care and usage of the equipment concerned. Consumables must be maintained in accordance with published *Instructions for Use* and the "Preventive Maintenance Schedule".

Equipment Identification

The unit's identification number (specification, model, serial number) appears on a silver nameplate attached to the lift's plastic housing.

Verifying the Package Contents

Always ensure that the ceiling lift will be installed by a contractor or installer that has been authorized by ArjoHuntleigh.

Upon receipt of the equipment, verify it against the packing list to ensure it is complete and inspect the equipment for possible damage due to shipping. If there is any damage, notify the carrier immediately to file a claim. Provide complete information concerning damage claims or shipping errors to your local ArjoHuntleigh representative. Include all equipment identification numbers and group part numbers (if any) as described above along with a full description of damaged parts.

How to Use this Manual

WARNING: Do not attempt to use this equipment without fully understanding the information contained in this manual.

To ensure the safe operation of the Voyager Duo, read the entire manual carefully, especially the "Safety Instructions" section, before installing, operating, or servicing this equipment.

If anything is not completely understood, please contact your local ArjoHuntleigh representative for more details. Failure to comply with warnings in this manual may result in injuries.

Keep this manual with the lift and refer to it as required. Make sure that all operators are regularly trained in the use of the equipment according to the information found therein.

General Information

Symbols Used













Symbol	Key to symbols
	This symbol is accompanied by a date to indicate the date of manufacture and by the address of the manufacturer.
	This symbol indicates the products comply with the medical device directive 93/42/EEC.
	This symbol indicates the approval of the Canadian Standards Association.
	This symbol is accompanied by the manufacturer's catalogue number.
	This symbol is accompanied by the manufacturer's serial number.
	This symbol indicates "separate collection" for all batteries and accumulators as per the WEEE Directive.
	This symbol refers to the <i>Instructions for Use</i> .
	This symbol indicates a class II electrical equipment: term referring to electrical equipment in which protection against electric shock does not rely on basic insulation only.
	This symbol indicates a type BF applied part.
	This symbol indicates a risk of pinching.
	This symbol locates the emergency stop system on the lift.
	This symbol locates the emergency lowering system on the lift.

Fig. 2

Safety Instructions

The equipment must be used in accordance with these safety instructions.

Anyone using the equipment must also have read and understood the instructions in this manual.

If there is anything you are not sure about, contact your local ArjoHuntleigh representative.

General Instructions

Keep these Safety Instructions with the ceiling lift at all times.

Read the *Instructions for Use* in this manual before installing, operating, or servicing this equipment.

WARNING: The Voyager Duo is for transferring patients only. Do not use the lift for any other purpose.

WARNING: Always place the sling around the patient according to the instructions enclosed. Failure to do so may result in injuries to you or to others.

CAUTION: Do not drop either the ceiling lift cassette or the batteries, since they may cause internal damage that is not easily seen. If the ceiling lift is suspected to be damaged, contact your local ArjoHuntleigh representative for servicing.

NOTE: ArjoHuntleigh ceiling lifts are specifically designed for KWIKtrak rail systems, ArjoHuntleigh slings and accessories.

Addendum for Rail System Other than KWIKtrak

ArjoHuntleigh could have adapted this ceiling lift to be used with a rail system other than KWIKtrak.

If this is the case, an addendum (001-14250-**) must be supplied with this *Instructions for Use*, please refer to the addendum for informations relevant to that specific rail system.

The addendum provides important informations relative to:

- Safe Working Load
- Rail System Limitations
- description for specific parts.

Before using the Voyager Duo, make sure it is compatible with accessories installed on that rail system.

WARNING: Before using the Voyager Duo on a rail system other than KWIKtrak, make sure you have read and understood the addendum supplied with this *Instructions for Use*.

*. Last two characters varies according to the manual language.

Safety Instructions

Safe Working Load

The Voyager Duo for KWIKtrak rail system has been designed with two settings with regards to the safe working load:

- 100 kg (220 lb): Safe working load
- 200 kg (440 lb): Maximum capacity of the lift adjusted in factory

This setting has already been determined by the ArjoHuntleigh installation team in accordance with the load bearing capabilities of your installation.

WARNING: Refer to the addendum for rail system other than KWIKtrak.

WARNING: The Voyager Duo is intended to be used for patients whose weight is within a specified safe working load. Do not attempt to lift more than the lowest weight limit indicated on the following:

- the rail system;
- the "maximum load" label on the Voyager Duo;
- on the spreader bar;
- on the accessories;
- on the sling.

WARNING: The Voyager Duo has a safe working load, adjusted in factory, of 200 kg (440 lb) which is the maximum load of the lift.

In the event that the Voyager Duo needs to be installed on a rail system that does not support more than 100 kg (220 lb), the safe working load can be adjusted to 100 kg (220 lb) by removing a special key from the lift. This key must be removed by a qualified technician.

Important Safety Directions

Always ensure that:

- The ceiling lift is installed by an authorized ArjoHuntleigh contractor or installer.
- The equipment is used by trained staff.
- The rail installation will accept a load equal or higher to that of the ceiling lift.
- Before an attempt is made to move the patient, an assessment is performed by a qualified professional.
- You are prepared before attempting to transfer a patient.
- Violent impact during transfers is avoided.

- The spreader bar being used is intended to be used with the Voyager Duo and is capable of bearing the patient's weight.
- The sling is intended to be used for this lift and can take the weight of the patient.
- The sling is not damaged, torn or frayed.
- The lifting procedures outlined in this manual are followed.
- All controls and safety features are used only according to the rules specified in this manual. Never attempt to force a control or button on the lift.
- The charger is not stored in a shower, bath or other areas with high humidity.
- The sling straps are in good condition and properly fastened.
- The daily maintenance is carried out before using the lift.
- Any precautionary or instruction labels that cannot be easily read are replaced.

WARNING: Before using the Voyager Duo, a clinical assessment of the patient's suitability for transfer must be carried out by a qualified health professional considering that, among other things, the transfer may induce substantial pressure on the patient's body.

CAUTION: Keep all components of the lift clean and dry, and have electrical and mechanical safety checks done as instructed in the "Care and Maintenance" section of this manual.

CAUTION: Excessive exposure of the hand control to water (or other liquid) could cause malfunction of the device.

Shock Prevention

- Do not touch or use a lift with bare conductors or a damaged power cord. Electrically live equipment can result in serious injuries. If the lift or charger has any exposed or damaged wires, contact your local ArjoHuntleigh representative immediately.
- Do not splash or expose electric parts of the device to water or moisture.
- Check nameplate for input voltage and frequency requirements. These requirements differ by country. Do not attempt to use the lift in an area that has a different voltage and frequency requirement.

Safety Instructions

- Do not attempt to expose, service or repair the lift, batteries or charger. If any unit is malfunctioning, contact your local ArjoHuntleigh representative.
- Read batteries and charger instructions thoroughly before using or storing them.

Fire and Explosion Prevention

WARNING: Do not place or store the batteries under direct sunlight or near a heat source. Do not expose the batteries or battery charger to flames. Do not use the charger in the presence of flammable anaesthetic gases.

- Do not short circuit the battery terminals.
- Do not incinerate the batteries.

Human and Environmental Safety Practices

- Should a battery casing crack and cause contents to come in contact with skin or clothing, rinse immediately with plenty of water.
- If contents come in contact with the eyes, rinse immediately with plenty of water and seek medical attention.
- Inhalation of the contents can cause respiratory irritation. Provide fresh air and medical attention.
- For recycling and disposal of the batteries, the rules according to the WEEE directive (Waste of Electronic and Electrical Equipment) as well as local laws and regulations must be followed. If not they may explode, leak and cause personal injury. When returning batteries, insulate their terminals with adhesive tape. Otherwise, the residual electricity in used batteries may cause fire or explosion. Fig. 3 below shows the symbols for disposal and recycling.

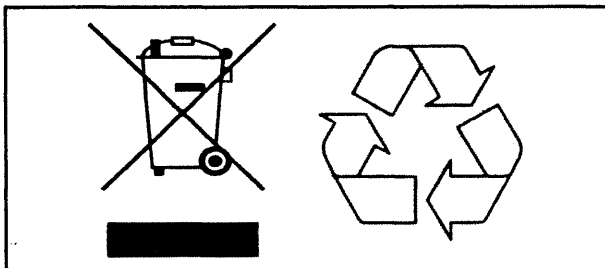


Fig. 3

Battery and Battery Charger Safety Practices

WARNING: Following the instructions is important for the safe use of the batteries and to keep the user (resident/caregiver) from harm.

The batteries for this device are rechargeable batteries.

Only use batteries designed for use with the device. If unsure, do not use the batteries. Make sure the batteries belongs to the device by comparing the batteries label with the technical specifications in the *Instructions for Use*. If battery type cannot be confirmed, call qualified personnel.

- Do not expose the battery charger to water.
- Don't expose the battery or chargers to flames.
- Don't expose the battery connector to water.

To avoid bodily injury, do NOT crush, puncture, open, dismantle or otherwise mechanically interfere with the batteries.

Stop using a battery if any damage or deformation is noted. Inform technical service before further use.

Please see the "Technical Specifications" section in this document for correct disposal and recycling of the batteries.

- Be careful not to drop the batteries.
- Only use the charger that has been supplied with the equipment.
- Do not charge the batteries in an unventilated area.
- The charger must not be covered or exposed to dust.
- The charger is designed for dry areas only and for normal air humidity conditions.
- Do not store batteries at a temperature higher than 50°C (122°F).

Equipment Warning Labels

- Carefully read the labels on the batteries and follow the instructions.
- Inspect all precautionary labels on the equipment. Order and replace all labels that cannot be easily read.

Part Designation

Voyager Duo Ceiling Lift and Charger Station for KWIKtrak Rail System

Refer to the addendum for rail system other than KWIKtrak.

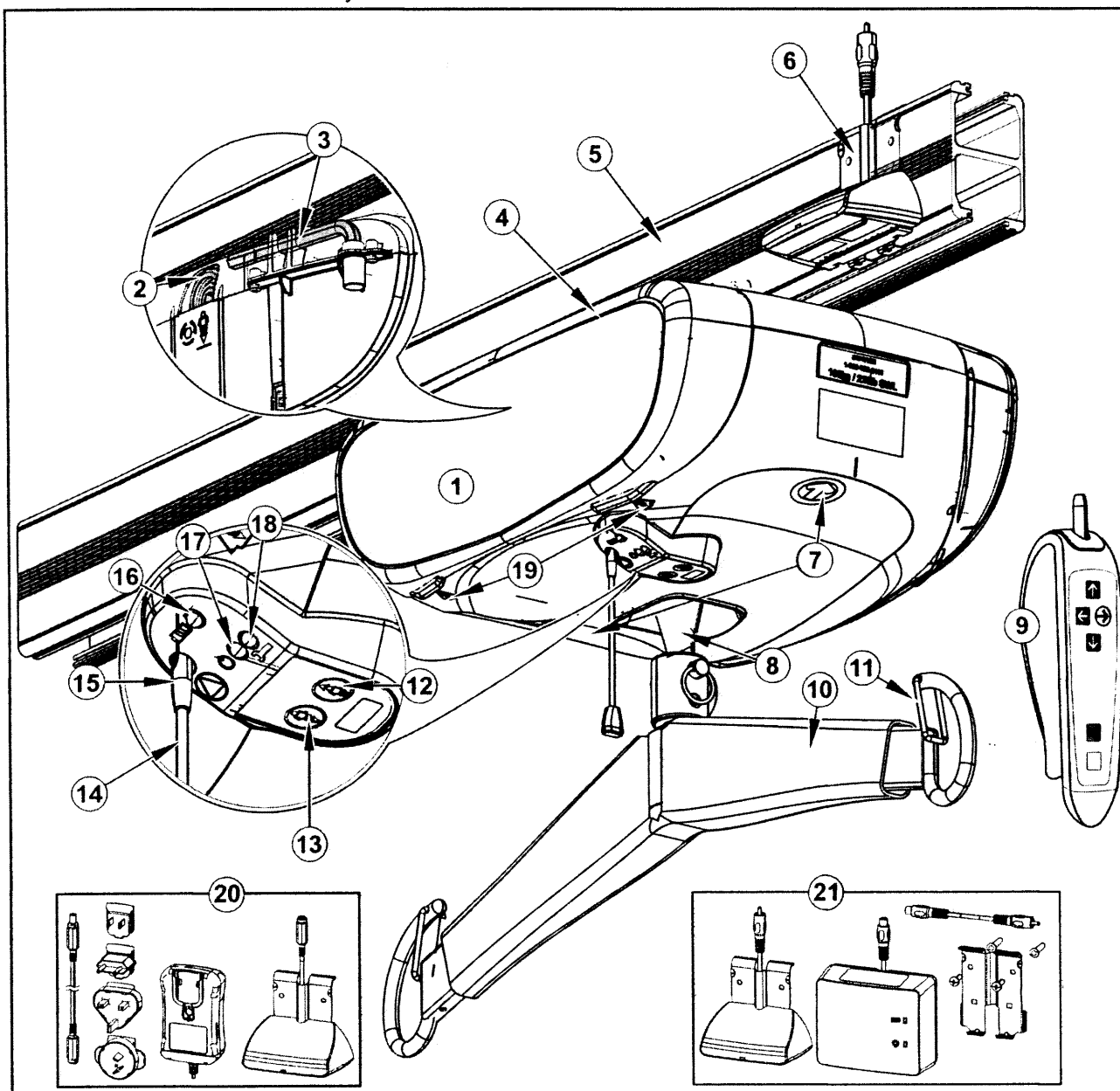


Fig. 4

Legend

- | | | | |
|-----|------------------------------|-----|---|
| 1) | Ceiling lift | 12) | Up button |
| 2) | Emergency lowering mechanism | 13) | Down button |
| 3) | Allen key | 14) | Red emergency pull cord |
| 4) | Side Panel | 15) | Reset switch plastic insert |
| 5) | KWIKtrak Rail | 16) | Yellow charging light |
| 6) | Charging station | 17) | Green power light |
| 7) | Travel direction arrows | 18) | Red maintenance/overload light |
| 8) | Strap | 19) | Indicators for emergency lowering side access |
| 9) | Hand Control | 20) | Wall-adapted charger (700-15501) |
| 10) | Spreader bar | 21) | Cord-connected charger (700.15500) |
| 11) | Safety latch | | |

The following refers to Fig. 4 on previous page:

- The yellow charging light flashes while charging and goes solid when charge is finished.
- The green power light illuminates once the lift is on and ready for use; the green light flashes when the batteries are low.
- The red light illuminates to confirm that the lift is in the programming mode.
- The red light also illuminates in the normal mode when the lift goes into overheat protection caused by overuse.
- The red light flashes when servicing is required (contact customer service).

Hand Control

The Voyager Duo's hand control unit is used to operate the ceiling lift. Each function is described in Fig. 5. The UP and DOWN buttons raise or lower the spreader bar. With the four-function model, the LEFT and RIGHT buttons activate a lateral motor to move the lift along the rail. If you have a two-function model, the lift must be moved manually.

The PROGRAMMING MODE button allows you to modify the functions of the lift. Refer to the "Voyager Duo Programming" section for more information.

Chargers

The Voyager Duo units are equipped with either a cord-connected universal charging system (700.15500) or a wall-adapted charger (700-15501) that can both be customized to fit the AC voltage outlets where they are sold (see Fig. 4).

Note: Refer to the addendum for rail system other than KWIKtrak.

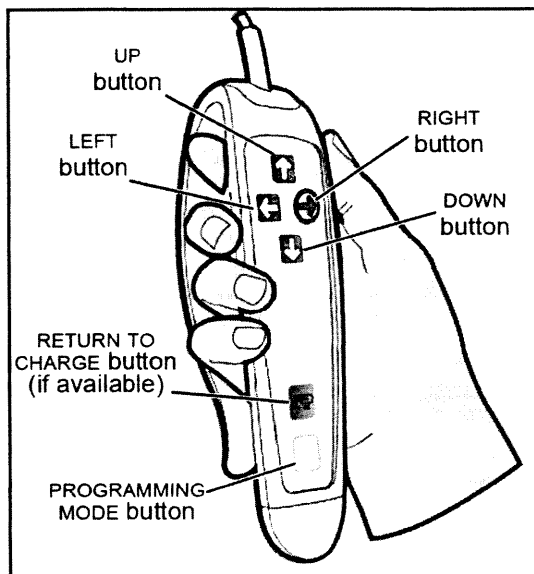


Fig. 5

Slings

Compatible Slings

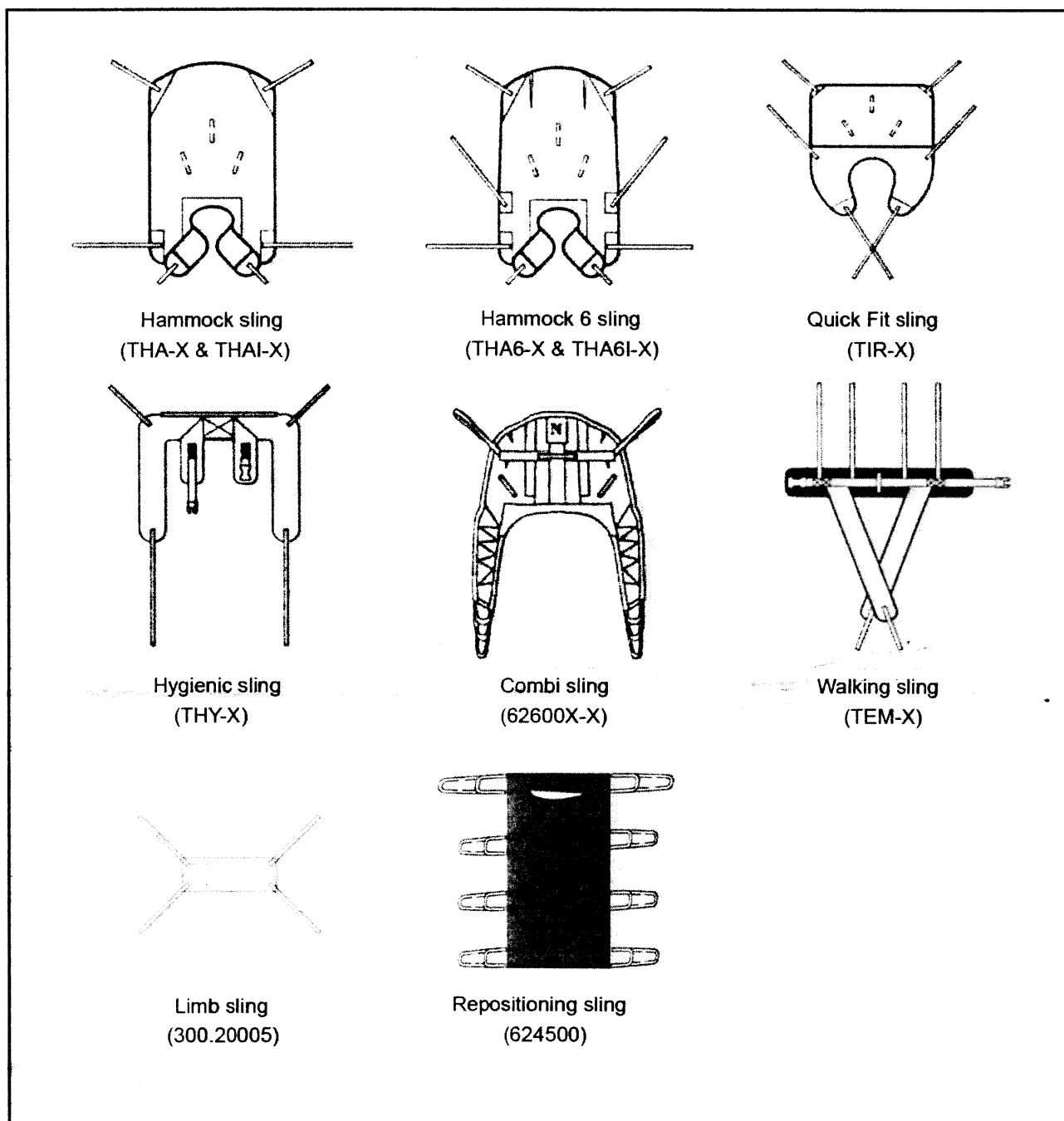


Fig. 6

How to use the Voyager Duo Ceiling Lift

WARNING: Regarding the use of the ceiling lift in accessories (Turntable, Exchanger, X-Y system...), refer to the addendum for rail system other than KWIKtrak.

WARNING: Always read the "Safety Instructions" before using the Voyager Duo.

- The rail must be installed and modified only by ArjoHuntleigh authorized personnel and in accordance with local codes.
- All rails must be closed with end stoppers or connected to other closed rail components.
- Before use, make sure all end stoppers are in place and secured.

NOTE: The unit will not lift or lower when it is in charging position.

To begin the transferring procedure:

- 1) Attach the patient sling. See "Use of Slings" section in the user manual for further information.
- 2) Move the ceiling lift directly over the patient. With the four-function model, use the left and right buttons on the hand control (see Fig. 5). With the two-function model, simply hold the ceiling lift's spreader bar and drag it along the rail.
- 3) Use the down button on the hand control to lower the spreader bar to a point below the chin of the patient (to avoid the risk of it striking the patient's face due to a sudden movement).

If the patient is lying down, lower the spreader bar down near the patient's thorax, then install the straps.

WARNING: Hold the ceiling lift spreader bar with one hand at all times when near a patient.

- 4) Attach the straps to the desired position. See "Use of Slings" section.

WARNING: Pay close attention to the safety of the patient as you press the control buttons. Before lifting the patient, make sure that all straps are attached to the spreader bar.

Make sure the sling is not caught on any obstructions (for instance, the wheelchair brakes or armrests).

Also make sure that the spreader bar is correctly attached to the ceiling lift. See Fig. 7.

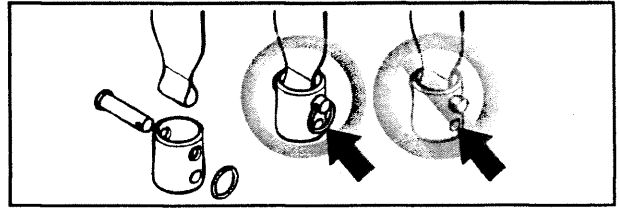


Fig. 7

- 5) To lift the patient, press the UP button.
- 6) Make sure the patient is clear of any obstacles before moving the patient. Guide the patient's legs if necessary.
- 7) When the patient is located above the desired point of transfer, press the DOWN button.
- 8) Use the handles on the back of the sling to position the patient when transferring into a chair. Hold the handle firmly as the sling will tilt back to position the patient.
- 9) Once the patient is properly seated and the straps have slackened, remove the sling from around the patient, and off the ceiling lift.
- 10) Move the ceiling lift away from the patient.
- 11) When the Voyager Duo is no longer required, return the ceiling lift back to the charging station. With the four-function model, use the right or left buttons or press the return to charge button. With the two-function model, simply drag the ceiling lift back by the spreader bar. The charging indicator light on the clip-on charging station must be on for the ceiling lift to detect it.

Verify the green light on the charger station and the yellow light (flashing or solid) on the ceiling lift to ensure that the charging function is working properly.

Return to Charge (RTC)

NOTE: The Voyager Duo is equipped with a safety system to prevent a misuse of the ceiling lift. If the lift is used above the amount specified by the duty cycle, a heat detection system will signal the processor to block the lifting of a load until the temperature of the transmission cools down. In the meantime, it will still be possible to activate the horizontal displacement and down functions. When the overheat protection is engaged, the red light will stay on during the cooling period. In addition, a buzzer will sound if the UP button is pressed. The cooling period is between 10 to 30 minutes depending on ambient conditions.

How to use the Voyager Duo Ceiling Lift

The RTC function is disabled by default. To activate this function, please refer to the "Voyager Duo Programming" section in this manual.

To engage the RTC function, press on the return to charge button on the hand control for 3 seconds. The spreader bar will raise all the way up to avoid any obstacles during the run. When the lift is at the charging station, the spreader bar lowers by itself to the preselected height so as to be easily accessible.

WARNING: DO NOT make use of the RTC function where there is a patient in the lift, as this could cause injuries to the patient.

NOTE: You can stop the return to charge at any time by pressing any button on the hand control or pulling on the red emergency cord.

WARNING: Extra care should be exercised when manipulating the hand control when transferring a patient that weighs 20 kg (45 lb) or less. The weight detector within the unit that prevents the RTC from functioning when a patient is in the lift can only detect a minimum load of 20 kg (45 lb).

Emergency Stop (red cord)

The emergency stop can be activated at any time to stop the functioning of the ceiling lift.

- 1) To stop the ceiling lift in any emergency, gently pull the red emergency cord once, until you hear a "click" (see Fig. 4 in the "Part Designation" section of this manual). You will notice that the reset switch plastic insert, at the very top of the red cord, has descended. The green power light has also turned off. You may also notice that the patient begins to descend slowly when the emergency stop is activated. This is normal.

CAUTION: Do not pull the red emergency cord with excessive force. If the cord is jerked too hard, the ceiling lift may become inoperable.

- 2) To reactivate the ceiling lift, push up on the reset switch plastic insert. A green light confirms that the Voyager Duo is on and ready for use.

Emergency Lowering

In the unlikely event of an electrical failure, the Voyager Duo has an emergency manual lowering feature.

CAUTION: The emergency lowering feature is to be used only in case of emergency.

If the ceiling lift malfunctions when a patient is being transferred, the emergency lowering device provides a safe way of getting the patient down onto a chair, bed or wheelchair (see Fig. 8). To use it:

- 1) Pull the red emergency cord.
- 2) Open side panel (designated by the two "emergency lowering access" indicators) to access the lowering mechanism.
- 3) Remove the 8 mm Allen key on the top of the ceiling lift. Insert the Allen key deep into the axle.
- 4) Turn the Allen key counter-clockwise to slowly lower the patient. To lower the patient more rapidly, use a ratchet or a drill equipped with an 8 mm hexagonal socket.

Once the patient is lowered and secure within a chair, bed or wheelchair, call a qualified technician to inspect the ceiling lift.

How to use the Voyager Duo Ceiling Lift

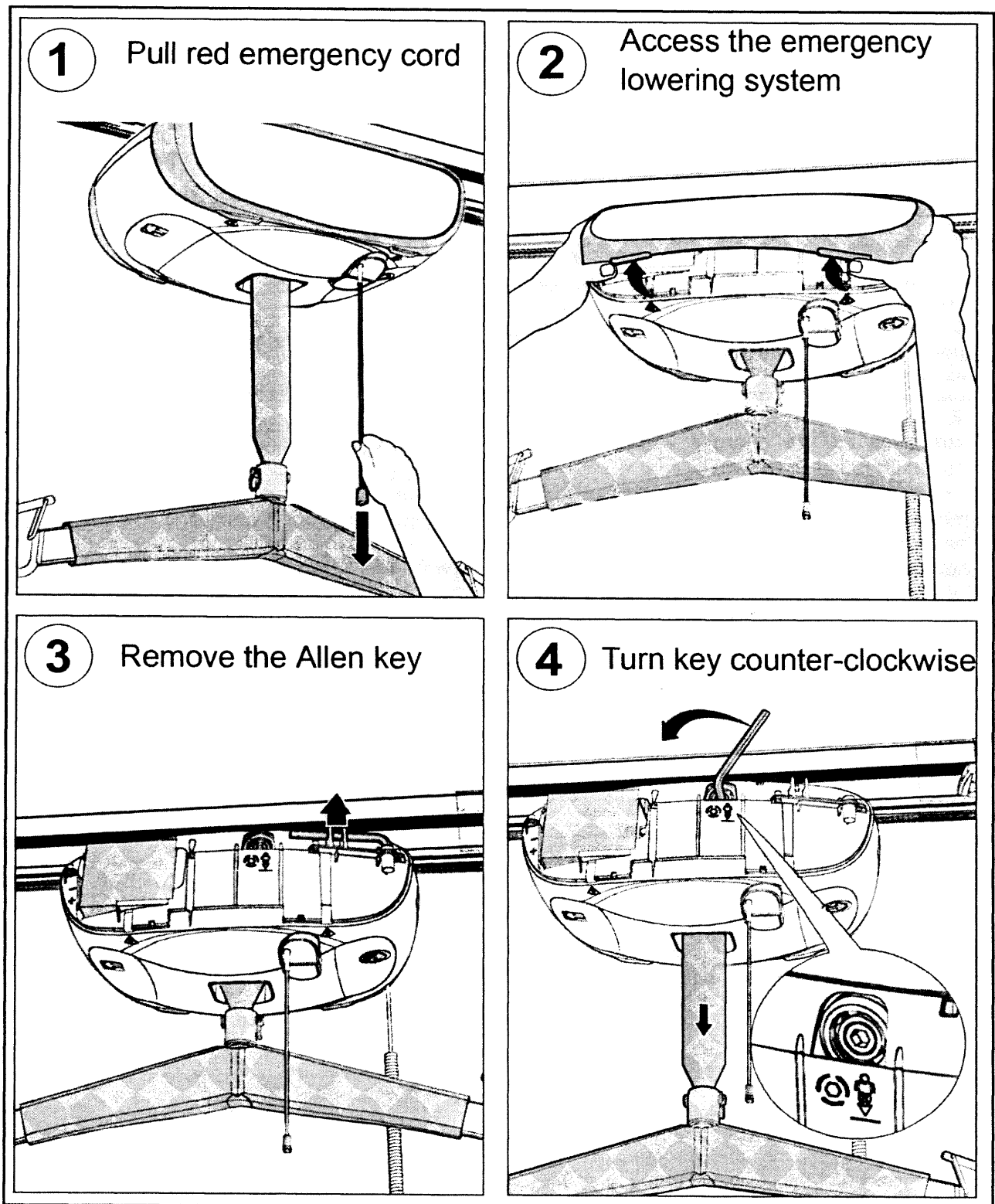


Fig. 8

How to use the Voyager Duo Ceiling Lift

Emergency Brake

The emergency brake is an additional safety feature that automatically prevents the patient from falling in the unlikely event that of a transmission or motor failure.

Battery Information

The life cycle (number of charging cycles) of the batteries is largely dependent on the depth of discharge within each cycle. The more the batteries are drained, the shorter their overall life span. The life of the batteries is also related to such factors as varying temperatures and rest periods between when they are charged and discharged.

NOTE: To prolong batteries life, return the ceiling lift to the charger whenever the ceiling lift is not in use.

If the low battery indicator beeps, and a green light flashes, make sure to recharge the batteries as soon as possible. Charge the batteries until the charging indicator light is a solid yellow before using the lift again. This will extend the life of the batteries.

NOTE: ArjoHuntleigh uses sealed lead-acid batteries. These batteries do not have any memory effect. Therefore, batteries should not be completely drained before recharging.

CAUTION: Never leave a ceiling lift with the power on for an extended period of time without returning it to the charger. The batteries will be drained and damaged.

See Fig. 9 for a graph illustrating the relationship between the number of lifts versus the load being lifted.

Indicator Lights

The ceiling lift and the charging system have many indicator lights. It is important to understand their significance for the proper use and comprehension of the ceiling lift (see Fig. 10).

Charging the Batteries

WARNING: Do not operate the charger unit with a damaged cord or if the unit has been dropped or damaged.

Do not bend the power cord by force, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.

The steps for recharging the batteries are as follows:

- 1) The green indicator light will begin flashing if batteries are low and need to be recharged. If the light does not turn on, verify the "Troubleshooting" section of this manual.
- 2) With a four-way unit, use the right or left button or press the return to charge button on the hand control; if you chose to activate this feature. A protection device prevents the ceiling lift from returning to the charger if a patient is in the ceiling lift during this operation. With a two-way unit, slide the cassette back to the charger until the contact blades on the lift make contact with the charging station.
- 3) The yellow indicator light will flash when the ceiling lift cassette has returned to the charger and the batteries are being charged. Once the charge is complete the light will stop flashing and become a solid yellow light.

WARNING: Batteries need to be charged for a minimum of 8 hours prior to the initial use of the lift.

How to use the Voyager Duo Ceiling Lift

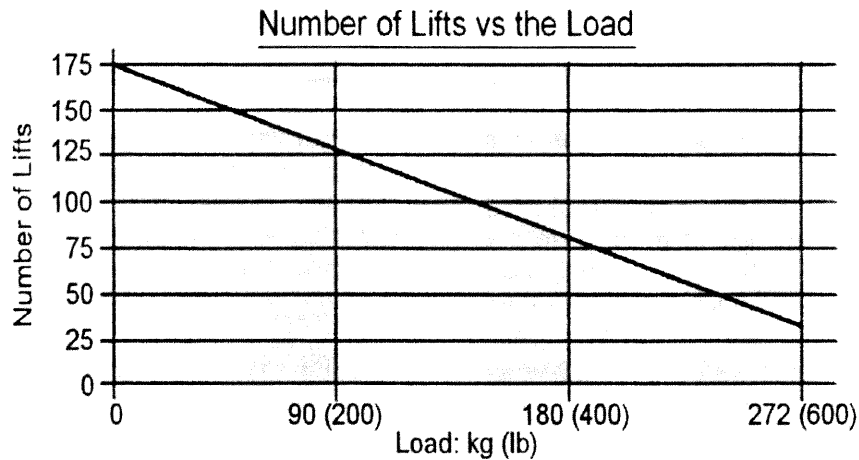


Fig. 9




Green power light 	OPERATING THE LIFT	
	Flashing	Low batteries
Yellow charging light 	STATE OF BATTERIES	
	Flashing	In process of charging batteries
Red maintenance/overheat light 	MAINTENANCE	
	Flashing	Maintenance required by your local representative
Clip-on charger station indicator	CHARGING	
	Solid green	Clip-on charging station power is on
	Solid red	Problem with charger; do not use the charger

Fig. 10

If the batteries have been completely drained it could take up to 6-8 hours to completely recharge them. In order to reduce the charging time, refrain from completely draining the batteries and leave the ceiling lift on the charging station between uses.

How to use the Voyager Duo Ceiling Lift

Using the FIDO Function (Pre-Programmed Positions)

WARNING: This function can only be activated by a qualified technician.

- 1) Using the pre-programmed positions allows the unit to detect stations (positions) located along the rail path. The unit will go to the indicated position by using the hand control.
- 2) To do so, indicate to the unit the desired position to go. For an example, to go to the third station push three times on the PROG button followed by the direction (LEFT or RIGHT buttons).

Then the unit goes by itself to the requested station and stay on hold.

If the position you asked for is not correct, you may stop the ceiling lift at any time by pressing any button on the hand control. From this position, reprogram the ceiling lift to the new desired position. Count the number of stations from where you are and indicate the direction to go.

Use of Slings

Spreader Bars and Stretcher Frame

WARNING: Spreader bars must only be installed by a qualified person.

WARNING: Before using the Voyager Duo, always ensure the strap attachment pin is installed correctly through the spreader bar socket and lift strap, and that the split ring is correctly inserted through the hole in the pin (see Fig. 7) on page 15.

Slings

The spreader bar that is attached to the Voyager Duo determines what slings can be used to transfer a patient. The two-point spreader bar with sling attachment hooks can accommodate any of the ArjoHuntleigh loop attachment slings.

All slings are color coded for size by having a different colored edge binding or attachment strap coloring:

- Grey - Extra Extra Small - XXS
- White - Extra Small - XS
- Red - Small - S
- Yellow - Medium - M
- Green - Large - L
- Blue - Extra Large - XL
- Terracotta - Extra Extra Large - XXL

ArjoHuntleigh offers the option of a head support for many of our slings if it is considered necessary for a particular patient. A range of special purpose slings are available as accessories. For these or for special size slings, contact your ArjoHuntleigh representative.

WARNING: Only use stretchers supplied by ArjoHuntleigh and that are designed to be used with the Voyager Duo. For sling use please refer to "Important Safety Directions" on page 10 as well as the "Compatible Sling" section on page 14.

WARNING: If ArjoHuntleigh *Flites* slings (disposable) are to be used with the Voyager Duo, then always refer to the separate operating instructions for ArjoHuntleigh *Flites*, (literature reference part No. MAX01720), as well as these instructions before using.

Before Approaching the Patient

The attendant should always tell the patient what they are about to do. Make sure to have on hand a sling that is of the correct model and of adequate size for transfer with the Voyager Duo unit.

Procedure for Using Loop Slings with a Two-Point Spreader Bar

The slings to be used with the two point spreader bar are ArjoHuntleigh's loop slings. They are available in many sizes-from small to large-and are all color coded. A range of more specialized slings are available; please contact ArjoHuntleigh or one of their authorized distributors for details. If in any doubt as to the weight of the patient, use a patient scale to check the weight prior to accurate sling selection.

The loop sling is available with or without head support. A bathing mesh sling is also available in all the three sizes with or without head support.

The correct size sling will be able to support the patient's shoulders during the transferring procedure.

The spreader bar has two hooks at either end of the bar; always use these for the shoulder strap loops (see Fig. 11).

How to use the Voyager Duo Ceiling Lift

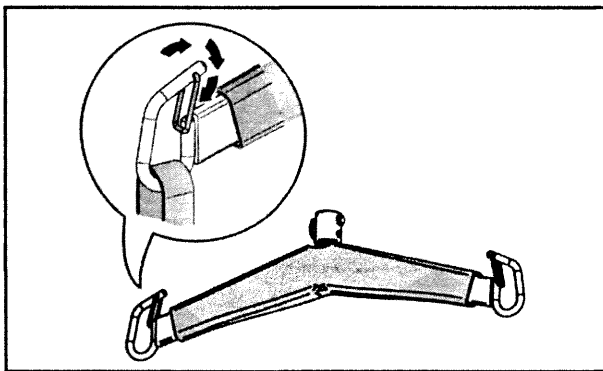


Fig. 11

WARNING: The two-point spreader bar has hooks for use only with slings equipped with loops.

When attaching a loop sling to the two-point spreader bar, always ensure the sling attachment loops are positioned correctly into the safety latches as shown in Fig. 11.

The specific sling loops chosen determine the position of the patient. Different loop combinations can be used to allow the patient to be lifted and transferred in positions ranging from semi-reclined to seated.

Once the loop sling has been fitted around the patient, it can be configured in three ways. With each of the three methods described below, it is necessary to first connect each shoulder loop (points A) of the sling to the same side hook on the spreader bar (see Fig. 12).

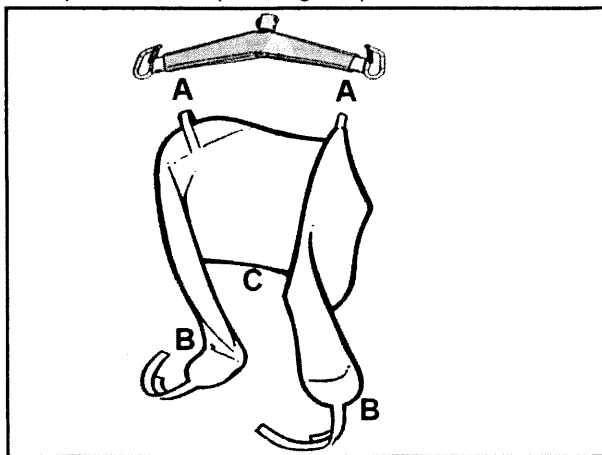


Fig. 12

Method 1: With the sling correctly positioned around the patient, slide the left-hand leg section of the sling under the patient's left thigh and the right-hand leg section under the patient's right thigh. Attach each leg loop (see points B in Fig. 12) of the sling to the outer hook on the opposite side of the spreader bar (see Fig. 13).

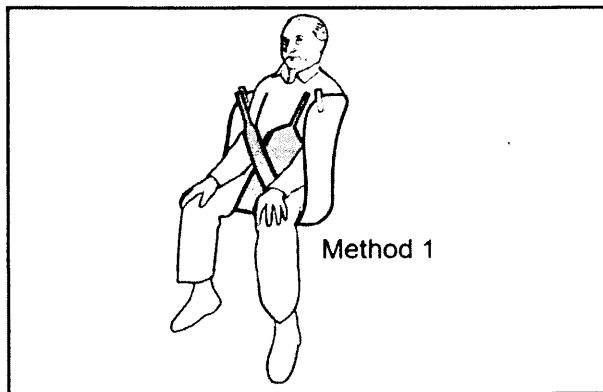


Fig. 13

Method 2: With the sling correctly positioned around the patient, pass each leg section of the sling under both of the patient's thighs, then attach each leg loop (see points B in Fig. 12) to the outer hook on the opposite side of the spreader bar (see Fig. 14).

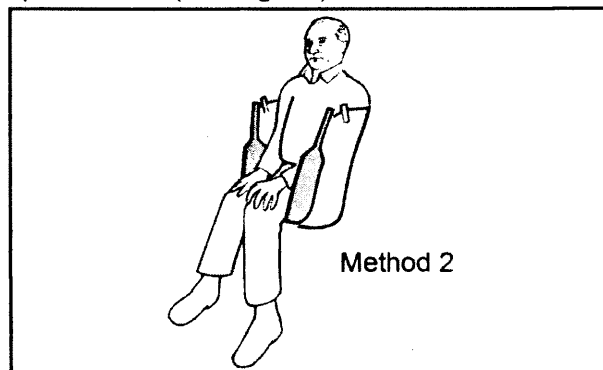


Fig. 14

CAUTION: This method might not be suitable for confused, combative or erratic patients as they can fall forward and get injured.

Method 3: With the sling correctly positioned around the patient, slide the left-hand leg section of the sling under the patient's left thigh and the right-hand leg section under the patient's right thigh, then attach each leg loop (see points B in Fig. 12) to the hook that is on the same side of the spreader bar (see Fig. 15).

This particular method holds the patients legs in abduction, and is useful for toileting.

How to use the Voyager Duo Ceiling Lift

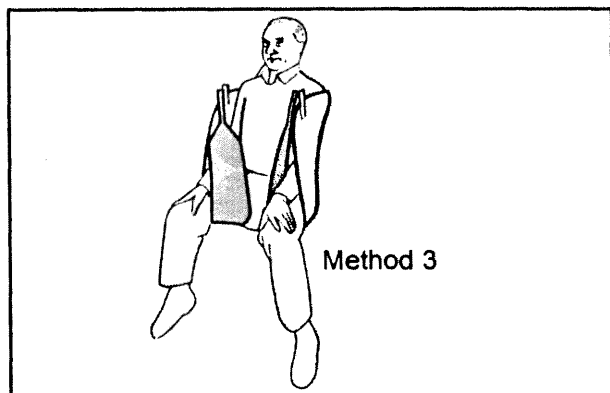


Fig. 15

CAUTION: This method might not be suitable for patients with no upper body control as they can slide down and almost out of the sling when it is applied in this manner.

Apart from the methods listed above, the two-point spreader bar with loop slings is also extremely useful for lifting patients who have contracted legs. Attach the sling in the regular manner as described in the following section "To lift a Patient from a Bed".

For more information on the use of loop slings, refer to the *Loop Slings Instructions for Use* that comes with the sling.

To Lift a Patient from a Bed

If the patient cannot attain a sitting position, then roll the patient toward you, fold the sling in half length-wise and place it along the patient's back. Position the sling so that when rolled back, the patient will lie in the center of the sling.

Align the bottom of the sling with the patient's coccyx (see Fig. 16). When the patient is lying in the correct position on the sling, carefully flex the patient's legs and bring the leg sections of the sling under the thighs, ready to attach the complete sling to the two-point spreader bar.

NOTE: The design of the spreader bar and sling allows for the transfer to be done with only one caregiver.

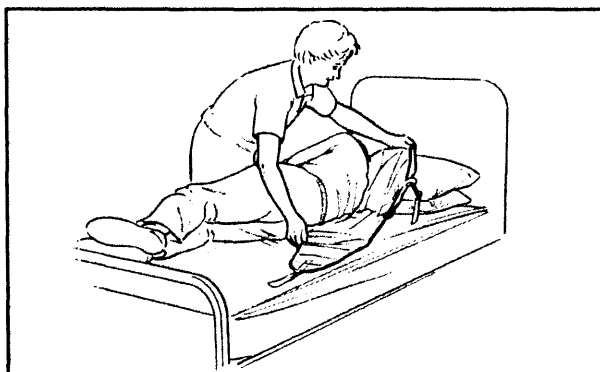


Fig. 16

If the patient can sit easily, the sling can be positioned the same way as if the patient was seated in a chair: i.e. by easing the patient forward, (if necessary) slide the sling down the patient's back until seam C (see Fig. 12) reaches the base of the spine. Take attachment points B and pass the leg sections of the sling underneath the patient's thighs, as appropriate to one of the three methods for lifting discussed above. Ensure that the sling's sections are not twisted underneath the patient.

To Lift a Patient from a Chair

Lower the spreader bar until you can easily attach the loops of the sling. Be careful not to allow the spreader bar to touch the patient, using your hand to stabilize it.

WARNING: Always hold the spreader bar until at least a couple of loops are attached to the spreader bar, to prevent it from striking the patient (see Fig. 17).

Once the sling has been positioned and attached securely to the spreader bar as described in any of the three methods, lift the patient using the hand control.

Avoid lifting the patient higher than the caregiver's eye-level to lessen any anxieties the patient may feel about heights.

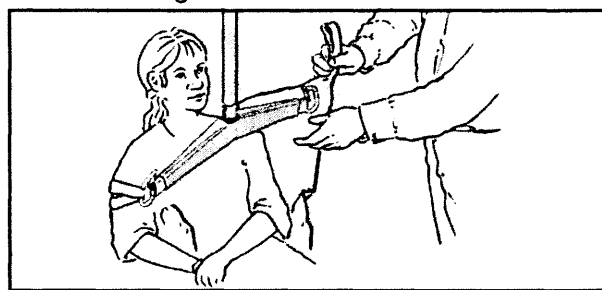


Fig. 17

How to use the Voyager Duo Ceiling Lift

To Lift a Patient from the Floor

Raise and support the patient into a sitting or half sitting position. Some attendants prefer to use a larger sling for this operation (see Fig. 18).

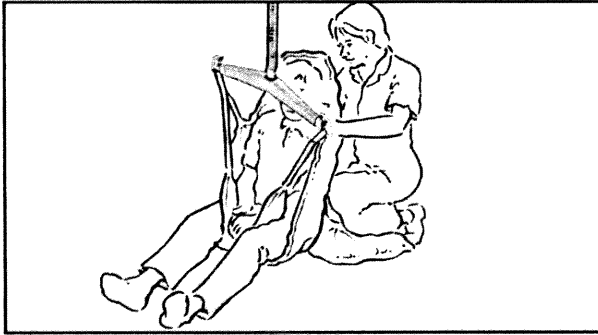


Fig. 18

Slide the sling down the patient's back as described previously, bringing the leg sections of the sling into position and under the patients thighs. Lower the spreader bar (taking care not to permit it to touch the patient) until the spreader bar is low enough to attach the sling shoulder loops. Flex up the patients knees to connect the leg sections of the sling.

WARNING: Before lifting the patient, check that the sling attachment loops are securely positioned within the spreader bar hooks (see Fig. 11) and that the loops stay in place as the patient is gradually lifted.

When the patient has been returned to the bed he/she may be reclined before the sling is unhooked from the spreader bar.

Before Transferring a Patient

Turn the patient to face the direction of travel, and keep him/her at chair height; this affords the patient a measure of confidence and dignity.

WARNING: Ensure any obstructions are removed from the intended route of travel.

To ensure maximum comfort for the patient, do not allow the patient to hold on to the spreader bar.

Using Stretcher Frames and Stretchers

If any of the ArjoHuntleigh patient stretcher frames and stretchers are to be used with the Voyager Duo, always refer to the separate relevant stretcher frame and stretcher operating instructions supplements before use.

Voyager Duo Programming

The Voyager Duo can be programmed so that the user can easily adjust the speed of the horizontal movement, the spreader bar height and the return to charge parameters of the ceiling lift.

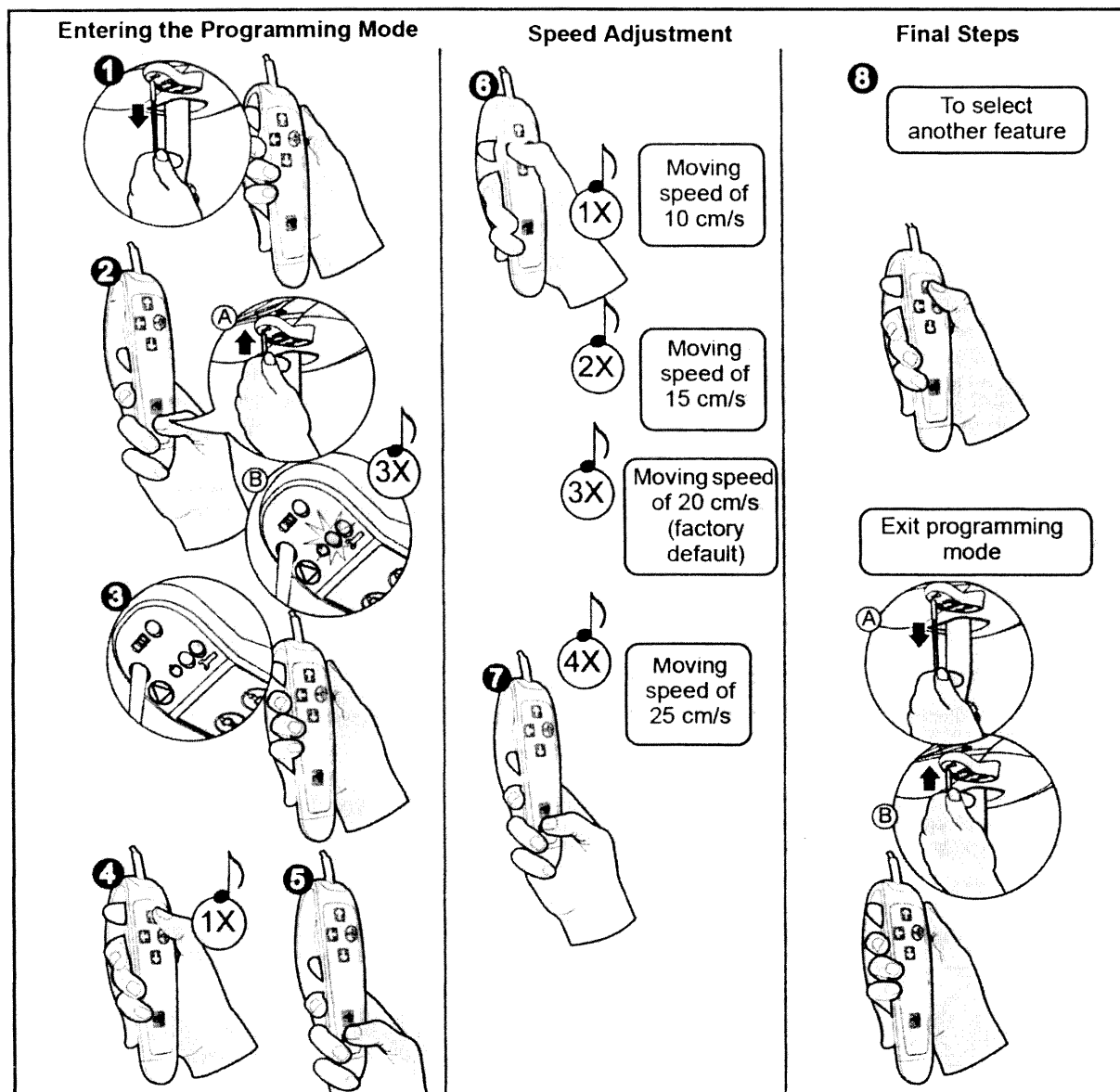


Fig. 19

Changing the Speed of Movement

- 1 Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.
- 2 Press the PROG button on the hand control. At the same time, push up on the reset switch plastic insert. The green light will flash, and you will hear three beeps.
- 3 The red LED will then illuminate. You can now release the PROG button.
- 4 Press the UP button once (you will hear one beep) for speed adjustment feature.
- 5 Now press the PROG button to confirm the selection.
- 6 Using the LEFT button, select one of four predetermined speeds.
- 7 Now press the PROG button to confirm the selected speed.
- 8 Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord, then push up on the reset switch plastic insert.

Voyager Duo Programming

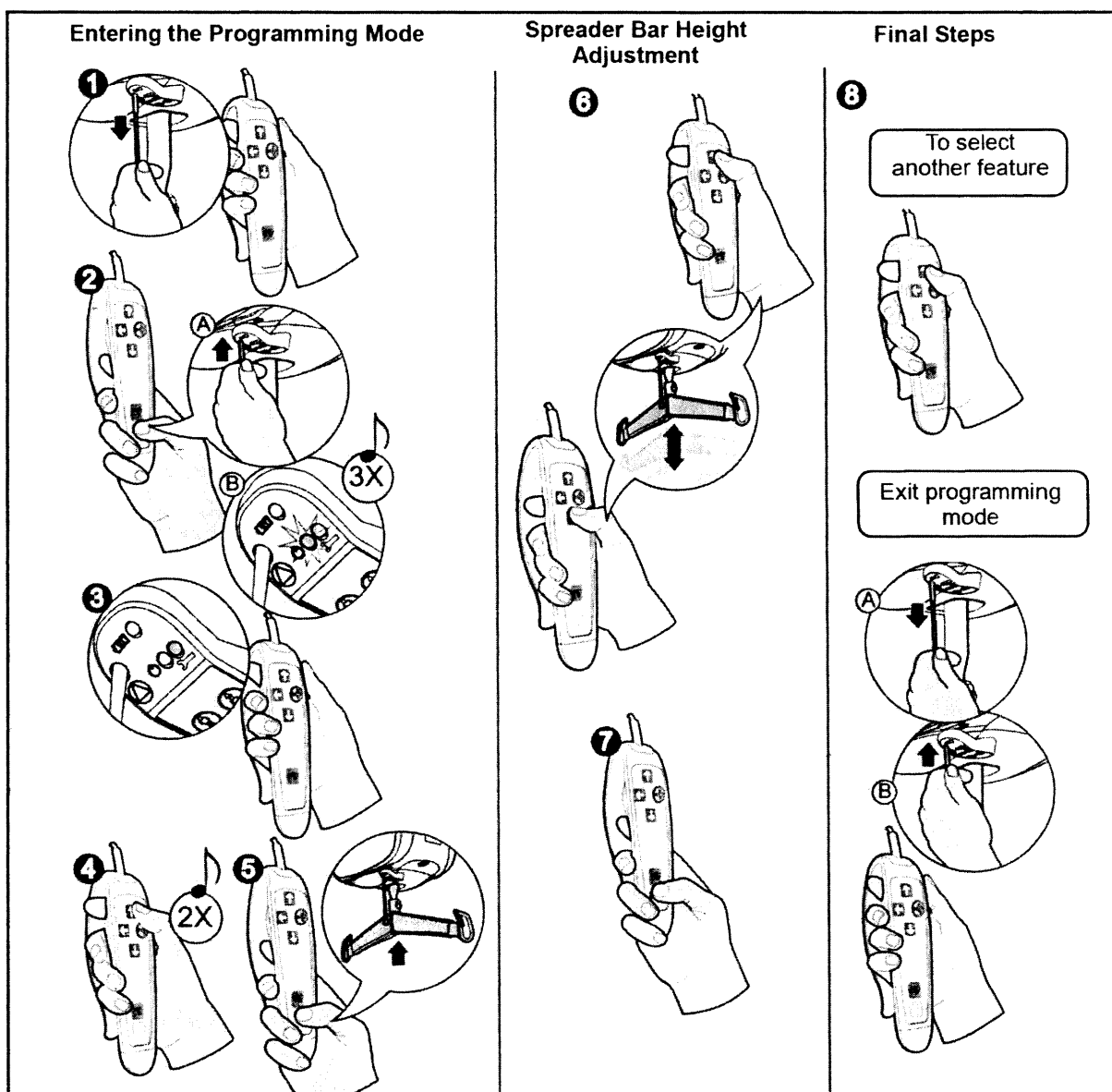


Fig. 20

Adjusting the Spreader Bar Height

- ❶ Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.
- ❷ Press the PROG button on the hand control. At the same time, push on the reset switch plastic insert at the top of the red cord. The green light will flash, and you will hear three beeps.
- ❸ The red LED will then illuminate. You can now release the PROG button.
- ❹ Press twice the UP button (you will hear two beeps) to change the spreader bar height.
- ❺ Now press the PROG button to confirm the selection.
- ❻ The strap will begin winding up. Once it is completely wound, press the UP and DOWN buttons to set the height the spreader bar's rises to once it is sent to the charging station.
- ❼ Now press the PROG button to confirm the selected height.
- ❽ Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord, then push up on the reset switch plastic insert.

Voyager Duo Programming

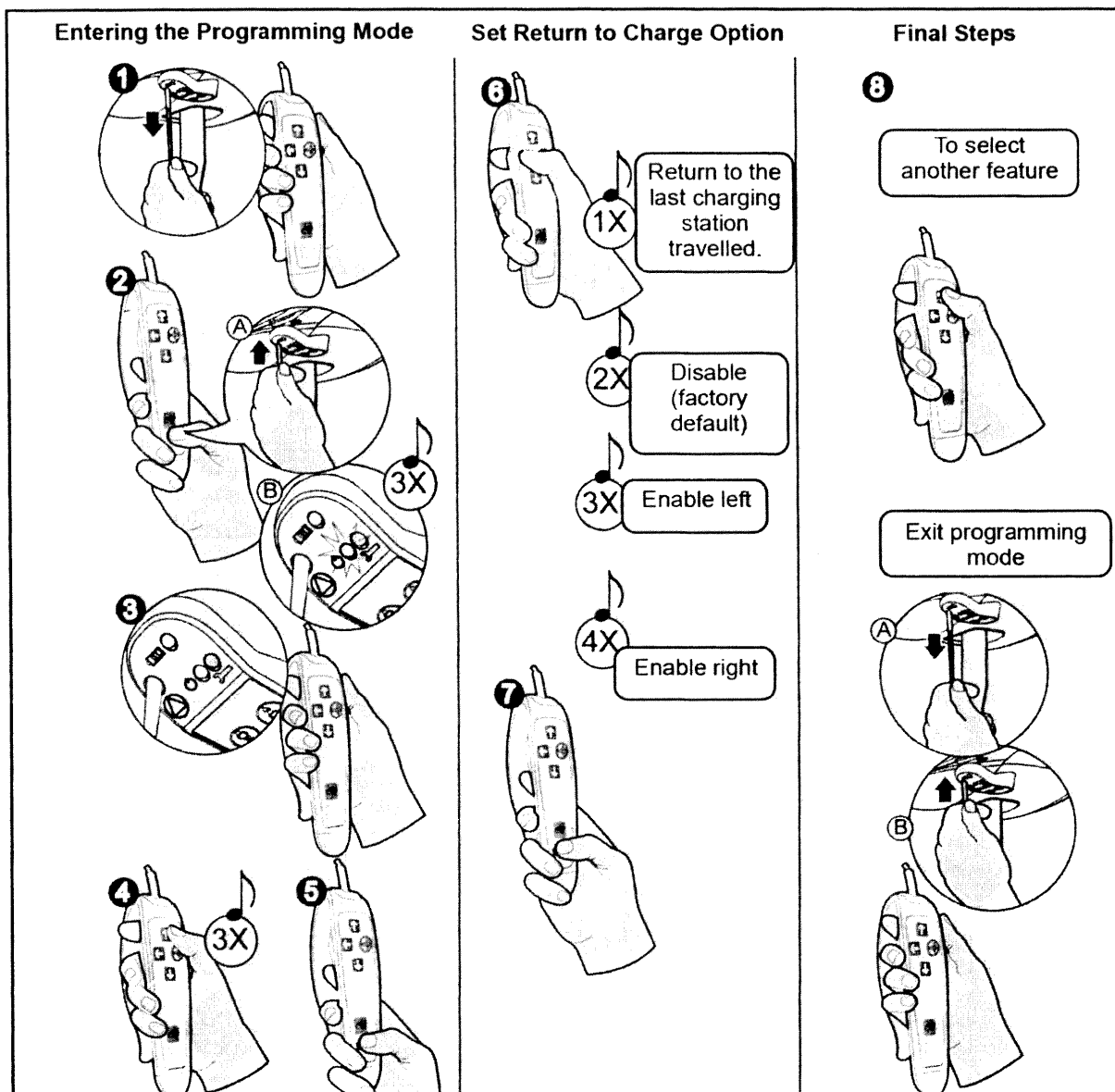


Fig. 21

Enable/Disable Return to Charge (RTC)

- ❶ Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.
- ❷ Press the PROG button on the hand control. At the same time, push up on the reset switch plastic insert. The green light will flash, and you will hear three beeps.
- ❸ The red LED will then illuminate. You can now release the PROG button.
- ❹ Press three times on the UP button (you will hear three beeps) to enable/disable the RTC.
- ❺ Now press the PROG button to confirm the selection.
- ❻ Using the LEFT button, select one of the four predetermined selection.
- ❼ Now press the PROG button to confirm the selected return to charge.
- ❽ Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord, then push up on the reset switch plastic insert.

Preventive Maintenance Schedule

The equipment is subjected to wear and tear, and the following maintenance instructions must be acted upon when specified to ensure that the equipment remains within its original manufacturing specifications. Care and maintenance must be carried out in accordance with the preventive maintenance schedule below.

Customer obligations must be carried out by qualified personnel in accordance with the instructions in this manual.

WARNING: The maintenance described in the following checklist is the minimum that the manufacturer recommends. In some cases more frequent inspections should be carried out. Continuing to use this equipment without conducting regular inspections or when a fault is found will seriously compromise the safety of the user and of the patient. Local regulations and standards may be higher than those of the manufacturer. A load test is recommended. Service and preventative maintenance can be arranged with the manufacturer. Preventive maintenance specified in this manual can prevent accidents and reduce repair costs.

WARNING: Safety related maintenance and authorized service must be carried out by qualified personnel, fully trained in servicing procedures by ArjoHuntleigh, and equipped with correct tools. Failure to meet these requirements could result in personal injuries and/or unsafe equipment.

User Inspections

Inspections for lift cassette and rail system	FREQUENCY					
	Initially	Before every use	Every two months or 500 cycles	Every four months or 1000 cycles	Every year or 2500 cycles	Every two years or 5000 cycles
Inspect for evidence of external damage, missing parts or broken panels.	X	X				
Make sure that end stoppers and rail caps are in place and tightened.	X	X				
Inspect strap for wear, discoloration or loose threads.		X				
Recharge batteries.	X	X				
Inspect wheels in rail for damage, rust or cracks. Replace if damaged.					X	
Clean the rail and the clip-on charging station contacts.				X		
Overall inspection by authorized personnel.					X	
Verify emergency stop cord.				X		
Verify emergency lowering device.				X		

Care and Maintenance

Inspections for spreader bar and slings	FREQUENCY					
	Initially	Before every use	Every two months or 500 cycles	Every four months or 1000 cycles	Every year or 2500 cycles	Every two years or 5000 cycles
Inspect all sling parts (attachments, fabric, stitch areas and strap) for signs of wear, discoloration, deterioration or loose threads.		X				
Clean sling as indicated on the tag.	When necessary					
Inspect the spreader bar on the strap of the lift for damage or cracks. Make sure all attachments are properly secured (e.g. split ring).		X			X	

Inspections by an Authorized Service Technician

Inspection for lift cassette	FREQUENCY					
	Initially	Before every use	Every two months or 500 cycles	Every four months or 1000 cycles	Every year or 2500 cycles	Every two years or 5000 cycles
Replace strap.						X
Inspect frame parts interlock and hardware for malfunction and make sure there are no parts missing.					X	
Inspect gears for wear and lubricate as necessary.					X	
Inspect connecting joints for proper attachment (trolley and spreader bar).					X	
Verify that the emergency brake on the drum is turning freely.					X	
Verify the emergency brake.					X	
Verify emergency lowering mechanism.					X	
Verify alternative up and down buttons on cassette.					X	
Load test with the SWL (safe working load) recommended.					X	
Verify the emergency stop for good functioning.					X	

Care and Maintenance

Inspections for KWIKtrak® rails	FREQUENCY					
	Initially	Before every use	Every two months or 500 cycles	Every four months or 1000 cycles	Every year or 2500 cycles	Every two years or 5000 cycles
Torque end stoppers to 20 N. m. (15 lbf.ft).	X				X	
Make sure that the bracket locking device is not visible.	X				X	
Make sure rail joints are closed and that the spring pins are centered.	X				X	
Make sure the rail is straight when it is not loaded.	X				X	
Make sure the adjusted load setting of the lift is equal or lower than the safe working load of the installation.	X				X	
Check that the accessories (turntable and exchanger) are complete and correctly maintained.	X				X	
Make sure that the attachments (ceiling brackets, wall post, wall brackets) have not been displaced.	X				X	
Inspect rail end stoppers. Inspect and tighten hardware (if necessary).					X	
Load test with the SWL (safe working load) recommended.					X	

*. For rail system other than KWIKtrak, refer to the manufacturer instructions of the rail system.

NOTE: If the product does not work as intended, immediately contact your local ArjoHuntleigh representative for support.

Care and Maintenance

Daily Checklist

The following procedures must be followed before each use:

- Charge the batteries. Park the lift on the charger station whenever the lift is not in use.
- Inspect the lift for any damage. If the lift casing does not look properly aligned, or there are any cracks or other damage on the lift, or there are parts missing, do not use it. Contact your ArjoHuntleigh representative to have the lift serviced.
- Inspect the strap for any visible signs of wear, frays, loose threads or other damage. If there is any evidence of damage, do not use it. Contact your local ArjoHuntleigh representative to have the lift serviced.
- Inspect the sling for tears, frayed straps or loose stitching. If the sling has any of the above damage, do not use it. Contact your local ArjoHuntleigh representative to have the sling replaced.
- Inspect the spreader bar for any signs of cracking or damage.
- Ensure the split ring and cotter pins that attach the spreader bar to the strap are secured.

WARNING: Before each use, make sure all end stoppers are in place and secured.

Inspection and Cleaning

To clean the Voyager Duo, wipe it down with a damp cloth using warm water and a disinfectant cleaner. Disinfectant wipes, supplied already impregnated with a 70% v/v solution of isopropyl alcohol, can also be used.

Rub the lift vigorously when using the wipes, to promote an effective disinfection of its entire surface. Do not use phenol, chlorine or any other type of solvent that may damage the finish.

To ensure a better rolling surface for the trolley wheels, clean the inside of the rail every 4 months. To do so, insert a damp cloth in the opening and slide it from one end of the rail to the other.

WARNING: Always reinstall the rail end stoppers (if removed) after servicing.

Strap Inspection

If the strap is damaged or shows signs of wear or discoloration, the acceptable load on the strap before rupture can drop rapidly and present a danger for the patient or caregiver. ArjoHuntleigh recommends a thorough inspection of the straps every 2 months as follows:

- 1) Completely unwind the strap.
- 2) Look for any signs of wear or discoloration (see Fig. 22).

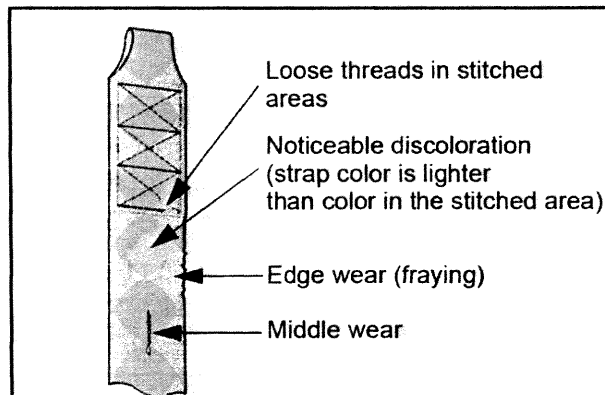


Fig. 22

WARNING: If there is any sign of wear as indicated above or any other visual defects, the strap must be inspected by qualified personnel and changed if required. By continuing to use the lift without changing a damaged strap, the safety of the caregiver or patient is greatly compromised.

NOTE: The manufacturer recommends changing the strap at least every two years (see "Care and Maintenance" section). By continuing to use the lift without changing the strap, the safety of the caregiver or patient is greatly compromised.

Handling and Storage

Avoid violent impacts while transporting the lift.

The lift should not remain stored for long periods of time without recharging the batteries.

NOTE: Even if the lift is not used, ArjoHuntleigh recommends charging the batteries at least every two weeks. This will prevent premature aging of batteries.

If you store or ship the Voyager Duo, ensure that the power is turned off (green light) beforehand.

Care and Maintenance

Batteries Replacement

ArjoHuntleigh uses sealed lead-acid batteries in the Voyager Duo ceiling lifts. ArjoHuntleigh batteries do not have any memory effect. Therefore, batteries should not be completely discharged before recharging.

Replace the batteries when there is a noticeable reduction in the number of transfers that can be performed between charges. If you hear the Voyager Duo lift beeping and notice a red light flashing, see the instructions in the "Troubleshooting" section of this manual to determine if it is a problem with the batteries.

To replace batteries, to contact your local ArjoHuntleigh representative.

CAUTION: Do not attempt to use a battery that was not supplied by ArjoHuntleigh. ArjoHuntleigh batteries are specially designed for ArjoHuntleigh charging systems. Attempting to use an unauthorized battery may seriously damage the lift and/or the charger.

Verification of the Charger's Power Source

If the light does not illuminate when there are batteries correctly installed in the Voyager Duo, try the following:

- 1) Make sure that the charger is correctly plugged into the AC outlet, and that the green light on the clip-on charging station is on.
- 2) Make sure that there is contact between the contact blades of the lift and the contact plates of the charging station.
- 3) Check the power of the AC outlet on the wall.
- 4) If the charge station's green light does not light up, contact your local ArjoHuntleigh representative for assistance.

Sling Inspection and Care

For maximum patient safety and hygiene, read the following instructions:

Regular Inspections

It is essential that the slings, their straps, loops and attachment clips are carefully inspected before each and every use. If the slings, loops or straps are frayed, or the clips damaged, the sling should be withdrawn from use immediately and replaced.

For additional information, please refer to the Loop Sling Instructions for Use that comes with your sling.

Sling Laundering

WARNING: The slings should be checked before and after use and, if necessary, washed according to instructions on the sling. This is especially important when using the same equipment for another patient. This minimizes the risk of cross infection.

Before washing the slings equipped with head support pockets, always remove the plastic reinforcement inserts. Always refit the inserts before reusing the sling.

Mechanical pressure should be avoided during the washing and drying procedure (e.g. rolling or pressing), as these can damage parts vital to the safe and comfortable operation of the sling.

The stretcher cross straps and suspension straps should be checked and washed if necessary. Washing and drying temperatures must not exceed 80°C (176°F). Wash using normal detergents and do not iron.

NOTE: With regard to laundering, slings should not be classified as linen, but as an accessory to a patient transfer lifting and therefore classified as a medical device. Slings should be cleaned and disinfected only in strict accordance with the manufacturer's instructions.

Annual Inspection

The Voyager Duo and its accessories must be inspected annually by a qualified technician.

WARNING: The Voyager Duo and accessories must be serviced every 12 months as a minimum requirement (see "Care and Maintenance" section). Do not attempt to do the inspection unless you are qualified to do so.

Maintenance Requirements

The Voyager Duo is equipped with an electronic monitor that causes a red light to flash when a maintenance inspection is necessary. Arranging for scheduled inspections ensures the durability of the unit and the security of the patient and user.

Once this red light begins to flash, please contact your local ArjoHuntleigh representative in order to perform the necessary maintenance inspection.

Troubleshooting

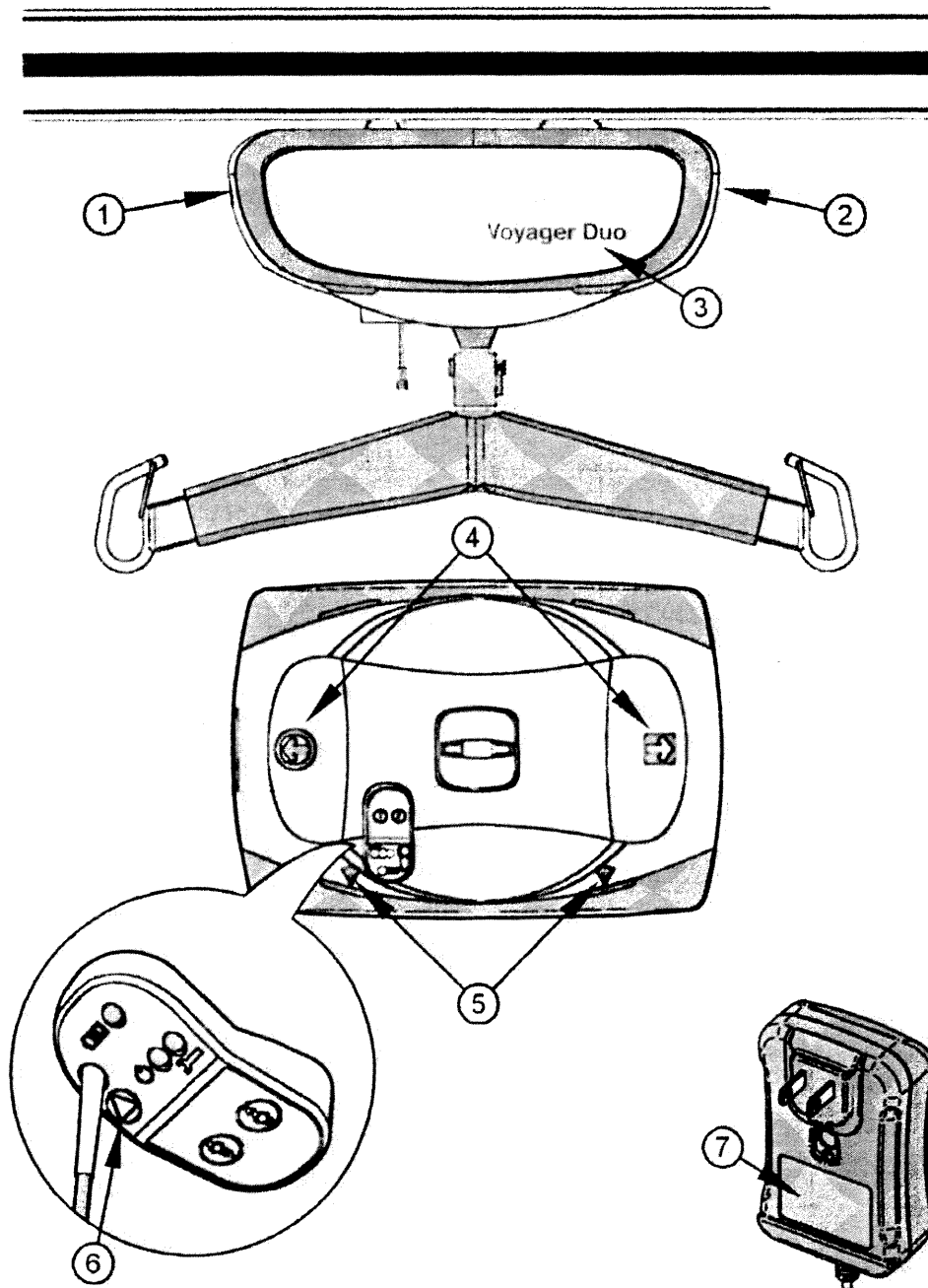
WARNING: Do not attempt to open the Voyager Duo ceiling lift cassette. Only a qualified technician is authorized to open it. Alterations made to the Voyager Duo ceiling lift cassette by someone other than a qualified technician may cause serious injury.

PROBLEM	TO CHECK
The red "service" light is on and flashing.	<ul style="list-style-type: none"> Contact your local ArjoHuntleigh representative to do maintenance.
The red light is solid.	<ul style="list-style-type: none"> The ceiling lift cassette is under its overheat protection. Wait between 10 to 30 minutes until the red light turns off and press on the "UP" button to use the ceiling lift cassette again.
The unit starts and stops repetitively.	<ul style="list-style-type: none"> If the load is over a safe working load, the unit will not work due to the overload protection on the motor.
The ceiling lift cassette emits a beep during utilization. The unit may stop lifting but the lowering function can still be used.	<ul style="list-style-type: none"> Batteries are low. Return the ceiling lift cassette to the charging station.
The charger indicator (yellow) on the ceiling lift cassette does not light up when the lift is on the charger.	<ul style="list-style-type: none"> Check that the charger is plugged into a standard outlet, and that the outlet has power. The green light on the clip-on charging station indicates that it is functioning.
When returning to charge, the ceiling lift cassette passes the clip on the charging station, or goes in the wrong direction.	<ul style="list-style-type: none"> Clean the contact blades of the charging station with mild detergent. Pass the ceiling lift cassette through the charging station manually once, then retry the return to charger function.
Batteries are always dead after only a few transfers (3 to 5).	<ul style="list-style-type: none"> Verify the function of the ceiling lift charger and the contact plates on the clip-on charging station. Replace batteries with new ones. The life of the current batteries could be almost finished. It is important to always change both batteries at the same time. Contact your local ArjoHuntleigh representative to have the batteries replaced.
The yellow light on the unit is solid, yet the ceiling lift cassette will only perform one or two transfers.	<ul style="list-style-type: none"> Contact your local ArjoHuntleigh representative to have batteries replaced.
The yellow light on the unit is solid, yet the ceiling lift will only work when there is no one on the lift. When you try to transfer someone, the ceiling lift stops.	<ul style="list-style-type: none"> Contact your local ArjoHuntleigh representative to have the batteries replaced.
The ceiling lift does not work when you press the buttons on the hand control.	<ul style="list-style-type: none"> If the charging station light is on, move the ceiling lift away from the charging station in order to operate the lift. If the emergency stop is activated, gently push up on the reset switch plastic insert to turn the unit back on. Check if the buttons on the ceiling lift cassette are working. If so, the problem may be coming from the hand control. If not, check the charge on the ceiling lift. Slide the ceiling lift over the clip-on charging station. Verify if the yellow light turns on. If, after testing all of the above, the ceiling lift will not operate, contact your local ArjoHuntleigh representative.

Troubleshooting

PROBLEM	TO CHECK
The charging light on the ceiling lift cassette continues flashing yellow and the light does not turn solid even after recharging the unit overnight.	<ul style="list-style-type: none">• If available, try another integrated clip-on charging station from another ceiling lift, or a spare one; clip it to the rail and charge the unit for 3 hours. If the yellow light is still flashing, contact your local ArjoHuntleigh representative.• If, after testing all of the above, the ceiling lift will not operate, contact your local ArjoHuntleigh representative.
When you press the button to return the ceiling lift to its charger (4-way motor only), the ceiling lift goes past the charger.	<ul style="list-style-type: none">• The charger either plugged in properly to an electrical outlet or is not working properly. Contact your local ArjoHuntleigh representative.

Labels on the Lift



- 1) Maximum capacity/Service telephone number
- 2) Date of manufacture, serial number, product code and Manufacturer identification
- 3) Product name
- 4) Travel direction indicators
- 5) Emergency lowering system access identification
- 6) Emergency stop identification
- 7) Charger information

Fig. 23

Technical Specifications

PRODUCT INFORMATION Voyager Duo	
Weight, complete (Four-function model)	12.7 kg (28 lb)
Weight, complete (Two-function model)	11.4 kg (25 lb)
Lifting capacity	100 kg (220 lb) or 200 kg (440 lb)
Strap length	2300 mm (90.6 in)
Lifting speed	6.0 cm/s (2.4 in/s) without load 3.5 cm/s (1.4 in/s) at 200 kg (440 lb)
Maximum stroke (from ceiling)	2300 mm (90.6 in)
Horizontal displacement speeds	10, 15, 20 and 25 cm/s. Speed is 20 cm/s (7.9 in/s) by default
Horizontal axis motor	24 VDC, 62 watts
Vertical axis motor	24 VDC, 110 watts
ELECTRICAL	
Duty cycle	Max 10%, 1 minute continuously
Rating	24 VDC, 15 A max.
Noise level for either raising or lowering, with or without load	61 dBA max.
Medical equipment	Type BF protection against electrical shock in accordance with IEC 60601-1
The Voyager Duo is compliant with CAN/CSA-C22.2, CSA-Z323.5.98, IEC 60601-1, UL 60601-1 AND ISO 10535.	
WARNING: Radio transmitting devices such as mobile telephones, two-way radios, etc., should never be used near the Voyager Duo, since they can interfere with the function of the lift. Cables from potentially strong sources of electromagnetic fields should not be placed near the unit. See "Electromagnetic Compatibility" section of this manual for full details.	
Battery type	Sealed rechargeable valve regulated lead acid batteries Constant voltage charge Cycle used 14.1 - 14.4 V Standby use: 13.5 - 13.8 V Initial current: Less than 2.00 A Rating: 12 V, 5 Ah
Battery capacity	Provides up to 120 transfers with a load of 100 kg (220 lb), up to 70 transfers with a load of 200 kg (440 lb)
Degree of protection - Hand Control	IPX7
Degree of protection - Voyager Duo	IP21
Lift - protection class - shock prevention	Internally powered equipment
Battery Charger input	100-240 VAC, 50-60 Hz
Battery Charger output	28.1 VDC, 1 A max
Battery Charger safety protection	Class 2, double insulated
OPERATION AND STORAGE CONDITIONS	
Ambient temperature range	Operation: 10 to 40 °C Storage: -40 to + 70°C
Relative humidity range	Operation: 30% to 75% Storage: 10 to 100%
Atmospheric pressure range	Operation: 700 hPa to 1060 hPa (2000 m Max) Storage: 500 hPa to 1060 hPa (2000 m Max)
WARNING: This equipment is not suitable in the presence of flammable anesthetic mixtures with air or oxygen, or with nitrous oxide.	
RECYCLING	
Battery	Sealed lead-acid, rechargeable, recyclable
Package	Cardboard recyclable
The lift	Separated and recycled, according to the European Directive 2002/96/EG (WEEE).

ArjoHuntleigh patient Handling products meet the requirements of Electromagnetic Compatibility (EMC) as stated in clause 12.5 of Annex 1 of the Medical Devices Directive 93/42/EEC.

Technical Specifications

Lift Dimensions

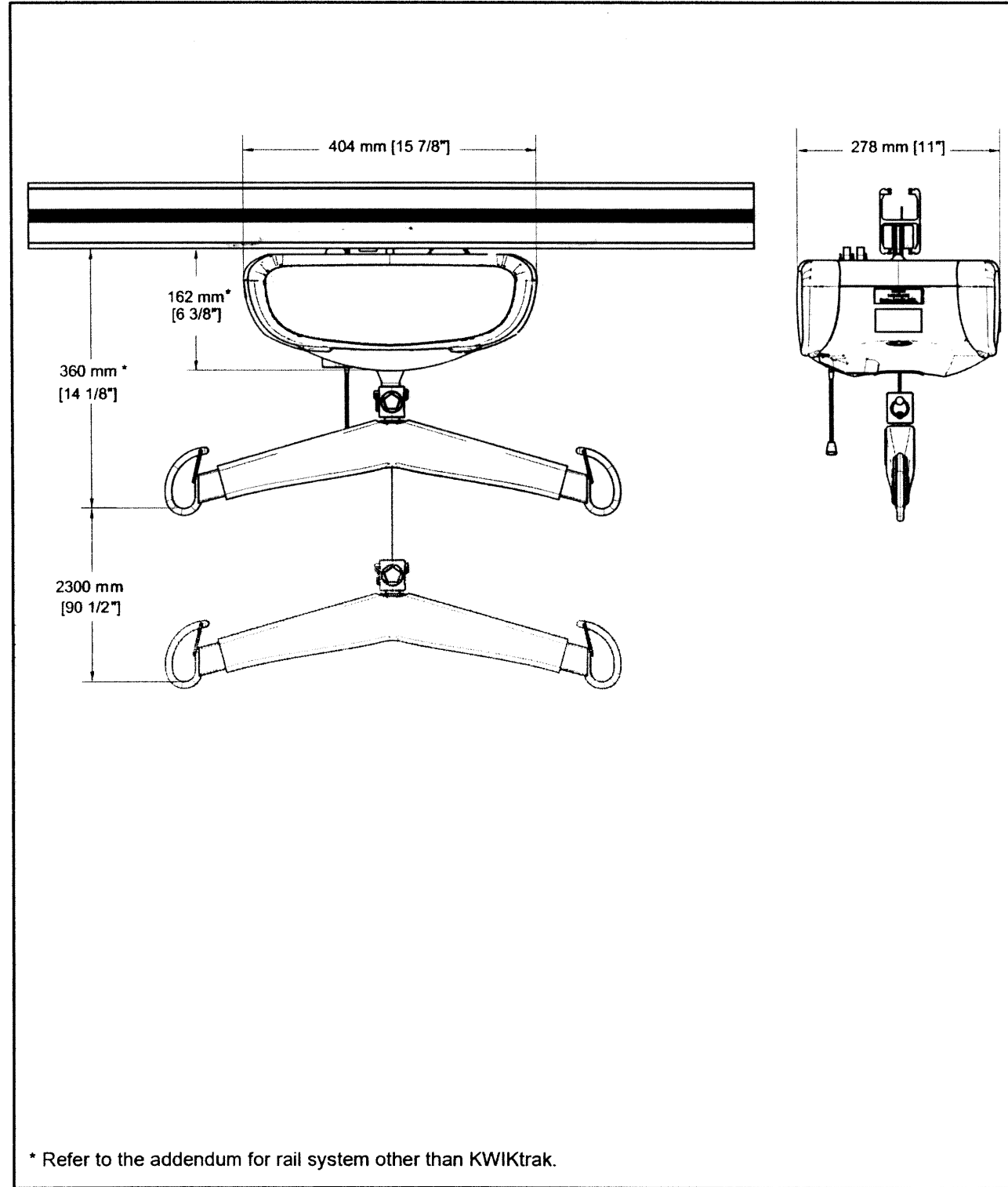


Fig. 24

Electromagnetic Compatibility

Electromagnetic Compliance

The Voyager Duo has been tested for compliance with current regulatory standards regarding its capacity to block EMI (electromagnetic interference) from external sources.

Nonetheless, some procedures can help reduce electromagnetic interferences:

- Use only ArjoHuntleigh cables and spare parts to avoid increased emissions or decreased immunity which can compromise the correct functioning of the equipment.
- Ensure that other devices in patient-monitoring and/or life-support areas comply to accepted emissions standards.
- Maximize the distance between electro-medical devices. High-powered devices may produce EMI that can affect the ceiling lift. Refer to separation distance table further on in this document.

For more information on how to manage the unit's RF electromagnetic environment, please consult the *AMI TIR 18-1997 - Guidance on Electromagnetic Compatibility of Medical Devices for Clinical/Biomedical Engineers*.

Electromagnetic Emissions

Guidance and Manufacturer's Declaration - Electromagnetic Emissions - For all Equipment and Systems		
The Voyager Duo is intended for use in the electromagnetic environment indicated below. The customer or the user of the Voyager Duo should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Voyager Duo uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. The Voyager Duo is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
RF emissions ISPR 11	Class B	
Harmonic emissions	Not applicable	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	

Electromagnetic Compatibility

Electromagnetic Immunity

Guidance and Manufacturer's Declaration - Electromagnetic Immunity - For all Equipment and Systems


The Voyager Duo is intended for use in electromagnetic environment specified below. The customer or the user of the Voyager Duo should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-5	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines Not applicable for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV for input/output	Not applicable	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% <i>UT</i> (>95% dip in <i>UT</i>) for 0.5 cycle 40% <i>UT</i> (60% dip in <i>UT</i>) for 5 cycles 70% <i>UT</i> (30% dip in <i>UT</i>) for 25 cycles <5% <i>UT</i> (>95% dip in <i>UT</i>) for 5 sec.	Not applicable	
Power frequency (50/60 Hz) magnetic field	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE: *UT* is the AC mains voltage prior to application of the test level.

Electromagnetic Compatibility

(continued)

Guidance and Manufacturer's Declaration - Electromagnetic Immunity - For Equipment and Systems that are Not Life-Supporting			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 Mhz	3 Vrms 150 kHz to 80 Mhz	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Voyager Duo, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = \left[\frac{3.5}{V1} \right] \sqrt{P}$ $d = \left[\frac{3.5}{E1} \right] \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = \left[\frac{7}{E1} \right] \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters.</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, ^(a) should be less than the compliance level in each frequency range. ^(b)</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m 80 MHz to 2.5 GHz	
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.			
(a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Voyager Duo is used exceeds the applicable RF compliance level above, the Voyager Duo should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Voyager Duo.			
(b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Electromagnetic Compatibility

(continued)

Recommended Separation Distance Between - Portable and Mobile RF Communications Equipment and the Voyager Duo for Equipment and Systems that are not Life-Supporting			
Recommended separation distances between portable and mobile RF communications equipment and the Voyager Duo.			
The Voyager Duo is intended for use in electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Voyager Duo can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communication equipment (transmitters) and the Voyager Duo as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distances according to frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	$d = \left[\frac{3.5}{V1} \right] \sqrt{P}$	$d = \left[\frac{3.5}{E1} \right] \sqrt{P}$	$d = \left[\frac{7}{E1} \right] \sqrt{P}$
0.01	0.12	0.12	0.24
0.1	0.38	0.38	0.74
1	1.2	1.2	2.4
10	3.8	3.8	7.4
100	12	12	24
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (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 separation distance for 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.			

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