POWERX MK2

Users' Manual

FERNO/MAN/0825/228-R1/UK
Stock Code 2003-0164

FERNO®

Read this Manual and Retain for Future Reference

Ferno UK Customer Services

Customer Service and product support are important aspects of each Ferno product. Please have the product serial number available when calling, and include it in all written communications.

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Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations and local protocol. Training on the proper use of this product must be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Relations.

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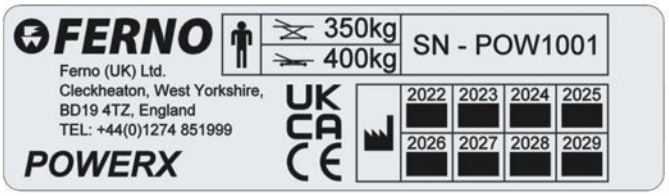
The products sold by Ferno are covered by a limited warranty, which is printed on all Ferno invoices. The complete terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are also available upon request by calling Ferno on +44 (0) 1274 851999 or +44 (0) 1274 854511



SERIAL Number _____

POWERX trolley serial number is marked on the manufacturer's plate, which also includes the SWL in raised and lowered position, date of manufacture and CE mark. The manufacturer's plate is located on the top frame of the trolley, below the backrest at the head-end

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USER MANUALS

To request additional user manuals, contact Ferno Service Department, your Ferno distributor, or visit www.ferno.com.

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1 - SAFETY INFORMATION

1.1 - Warnings

Warning notices indicate a potentially hazardous situation which, if not avoided, could result in injury or death.

WARNING

Improper use of the trolley can cause injury. Use the trolley only for the purpose described in this manual.

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the trolley.

Improper operation can cause injury. Operate the trolley only as described in this manual.

An unattended patient can be injured. Stay with the patient at all times.

An unrestrained patient can fall off the trolley and be injured. Use all harness straps to secure the patient on the trolley.

Helpers can cause injury or be injured. Maintain control of the trolley, operate the controls, and direct all helpers.

Improper maintenance can cause injury. Maintain the trolley only as described in this manual.

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the trolley.

Modifying the trolley can cause injury and damage. Use the trolley only as designed by Ferno.

Attaching improper items to the trolley can cause injury. Use only Ferno-approved items on the trolley.

1.2 - Dangers

Danger notices indicate an immediate hazardous situation which, if not avoided, will result in injury or death.

DANGER

Electric shock can cause death or serious injury. INSTALL/USE/OPERATE/MAINTAIN the trolley only as described in this manual.

1.3 - Important Notices

Important notices emphasise important usage or maintenance information. Failure to follow Important notices could result in damage to the product or property damage. Example:.

Blood-borne Disease Notice

To reduce the risk of exposure to blood borne diseases such as HIV-1 and hepatitis when using the trolley, follow the disinfecting and cleaning instructions in this manual.

1.4 - Cautions

Bleach, phenols and iodine can cause damage. Do not apply products containing these chemicals to the Trolley.

Improper lubricants can cause damage. Please refer to service manual for instructions.

Trapping hazards are unavoidable in any design of Trolley due to its folding action. Operate with care.

WARNING

Do NOT exceed the safe working loads of 350 kg in the raised position, 400 kg when in the lowered position.

1.5 - Trolley and Lock Compatibility

Combining different manufacturers' products into a "mixed-component" trolley/fastener system can increase the user's risk of injury and damage if not checked first for compatibility.

However, Ferno trolleys are designed to be compatible with either the Ferno range of Two-Part locking devices or competitors equivalent locking devices, giving full compatibility and interchangeability across your vehicle fleet.

WARNING

To comply with EN 1789, the patient harness and leg strap(s) MUST be used at all times to hold the patient on the trolley and the trolley MUST be secured in the vehicle with the 2 part locking device.

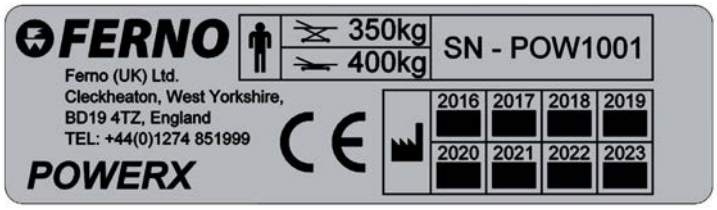
1 - SAFETY INFORMATION

1.6 - Safety and Instruction Labels

Safety and instruction labels place important information from the user manual on the trolley.

Read and follow label instructions. Replace worn or damaged labels immediately. New labels are available from your distributor.

Safety Instruction:
Safe Working Load
label on actuator cover



Manufacturer's plate

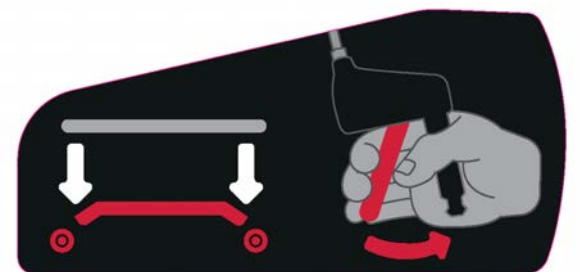
UK CA CE

Product meets UK and EU Standards

1.7 - Symbol Glossary

The symbols defined below are used on the trolley and/or in this user manual. Ferno uses symbols recognised by the International Standards Organisation (ISO).

Pinch Point:
Keep Hands Clear



Manual Over-ride
Raise/Lower

Safety warning
Monitor hook weight limit

2 - OPERATOR SKILLS AND TRAINING

2.1 - Skills

Operators using POWERX need:

- The strength, balance, coordination and common sense to safely operate the trolley
- The ability to select the proper equipment and procedures for the circumstances
- The ability to read, understand and follow the procedures as described in this manual
- To have full training on the proper operation of the trolley
- To have a working knowledge of manual handling procedures

2.2 - Training

Operator trainees need to:

- Have followed a training plan
- Read and understand the instructions in this manual
- Practice using the fully-equipped trolley with weight and under simulated conditions
- Trainees should be tested to verify their understanding of trolley operation
- Keep training records. Annual refresher training for all trolley operators is recommended

⚠ WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the trolley.

⚠ WARNING

Improper use of the trolley can cause injury. Use the trolley only for the purpose described in this manual.

3 - ABOUT POWERX

3.1 - POWERX Mk II Specifications and Features

POWERX is a powered X-frame ambulance trolley, for use in vehicles with a tail-lift or ramp. Designed to minimise weight, maximise manoeuvrability and incorporate all the functionality required from a new generation of ambulance trolley, POWERX includes the following features:

- Smooth powered raise/lower movement, utilising the latest electro-mechanical actuator
- Dual-Ram actuator for exceptional stability in raised position
- "Soft" start/stop movement in raised & lowered positions
- Simple push-button operation
- Safe working load of 350 kg with unassisted lift of 350 kgs to the maximum raised trolley height of 880 mm
- Safe working load of 400 kg in the lowest trolley height position (480 mm)
- Minimised-risk lateral transfer from chair to trolley as a result of the trolley height (480mm) in its lowest position, which is similar to chair height
- Trolley-lift counter, displayed on controller LCD
- Powered by Milwaukee Lithium-Ion 28V, 5 Ah battery, with minimal recharge time (< 1 hour) and extensive expected battery life-time (5 years), dependant on use-frequency
- Up to 110 lift cycles (one raise & one lower movement), from a single battery charge with a patient weight around 200kgs
- Up to 66 lift cycles with patient at max SWL weight of 350 kgs
- Goes into Auto-sleep mode after 1 minute of inactivity
- A fully charged battery lasts up to 66 hours in sleep mode
- 1 battery supplied as standard, spare batteries available
- 240v mains and 12v in-vehicle battery chargers available
- Optimum manoeuvrability as a result of the minimised weight of trolley, X-frame design, weight distribution, performance wheels and ergonomic push poles & push/pull handles available
- Light and simple in design, easy to maintain, easy to clean; minimised infection control risk
- Anti-bacterial moulded plastic parts & frame coating
- Anti-Bacterial Pressure-Reducing (AB-PR) trolley mattress, providing excellent patient comfort and top-rated IPC
- Flat mattress surface ensures unhindered lateral transfers
- Utilising a clinically-developed anti-bacterial VELCRO® to fix mattress to trolley, making removal for cleaning easy
- Anti-Bacterial, wipe-clean Biosafe patient harness straps, contributing to high-level infection control and easy to remove for cleaning
- Wheel brakes on all 4 wheels, anti-static wheel on one wheel
- Directional wheel locks on both head-end wheels to aid moving in a straight line or up inclines such as vehicle ramps
- Effective shortening of trolley for tight spaces with head-end telescoping, shortening from 1930 mm down to 1650mm
- Fixed, detachable push poles at foot-end and head-end, utilising a plunger release lock
- Lightweight but durable patient platform
- Easy-to-operate lift-assisted backrest and leg position platform (Trendelenburg, Shock & Knee Contour)
- MCF winch-link connection for assisted loading on ramps

Additional Options & Accessories available:

- Adjustable winged head-rest, PR foam AB material
- Surface eXtending (SX) ratcheting cotsides for extended patient surface
- SX cotside mattress pads for enhanced bariatric tissue viability
- Extender Wings to exend length of SX cotsides for increased patient surface area
- Split-Scoop Bariatric Extended Patient Surface kit
- Side-lighting
- 240V AC and/or 12V DC battery charger
- Detachable 3-stage telescoping IV pole
- Head-end document stowage net
- CD/ZA Oxygen cylinder holder
- Latching backrest monitor hook
- Side-fixing manoeuvring handles
- PacRac+ for holding medical equipment

SPECIFICATIONS

	Imperial	Metric
Load limit - raised position	55 stone	350 kg
Load limit - lowered position	63 stone	400 kg
Trolley Weight *(excluding mattress + harness)*		78 kg
Dimensions	**Imperial**	**Metric**
Length		
Fully extended	75.9 in	1930 mm
Fully shortened	65 in	1650 mm
Width		
Overall	22.4 in	570 mm
Surface Xtenders open	36.2 in	920 mm
Split-Scoop extender kit	37.2 in	945 mm
Height		
Maximum	34.7 in	880 mm
Minimum	18.8 in	480 mm
Wheels (Diameter)	6 in	150 mm

LOAD LIMIT IN RAISED POSITION

LOAD LIMIT IN LOWERED POSITION

4 - BATTERY INFORMATION

4.1 - General Battery Information

POWERX uses Milwaukee 28V 5Ah or 3Ah batteries to power the trolley. It is recommended to always have a spare battery available at all times.

A fully charged 5Ah battery provides power for up to 110 lift cycles with a 200kg load, 66 lift cycles with 350 kg max load, (65 and 40 lift cycles respectively for a 3Ah battery), before the battery requires recharging. Patient weight and extreme temperatures will affect the number of lift cycles achieved.

Typical charging time is under 1 hour. Actual charging time varies based on the frequency of recharge and the age of the battery. Deeply discharged batteries may require extended charging time.

- The batteries in the pack are Lithium Ion
- To check the charge level of the battery, press the red button on the battery. The red LED lights will illuminate according to the charge remaining, from 1 to 4 lights. One flashing LED indicates the battery is near the discharge level
- You do not need to fully discharge the battery before recharging
- The rate of speed for raising & lowering the trolley is slightly faster when the batteries have a full charge
- The battery pack must be charged with an approved Milwaukee battery charger. A Milwaukee 240V AC battery charger and/or DC 12V in-vehicle battery charger can be used
- Short circuiting a battery can cause injury and damage the battery. Do not allow any wire or tool to connect both positive & negative terminals on a battery. This can damage the battery
- Modifying the battery pack can cause injury or damage and will void the warranty. Use only as designed
- Battery capacity can be affected if the battery is stored for long periods below 0°F (-17°C) or over 150°F (66°C)

4.2 - Charging a Battery

The POWERX battery can be charged using a 230v mains or 12v DC charger. Whilst the battery is being charged, another fully charged battery may be used to operate the trolley.

To charge the battery, remove the battery pack from the dock on the foot end of the trolley by depressing the red release levers at each side of the battery and slide the battery pack towards you to remove.

Removing battery pack

Removing battery pack

Once the battery pack is removed, fit it onto the charging unit and ensure it is locked into place with an audible click. The mains power may now be turned on to begin charging the battery.

Battery fitted into charging dock

The battery charger has one red and one green indicator light. The lights indicate the following information:

RED (Continuous): Battery is connected and being charged.

GREEN (Continuous): Charging is complete.

RED (Flashing): The battery temperature is outside the charging range. Charging will begin when the battery reaches the correct charging temperature of 32°F-150°F (0°C-65°C).

RED/GREEN (Flashing alternately): The battery is damaged or faulty.

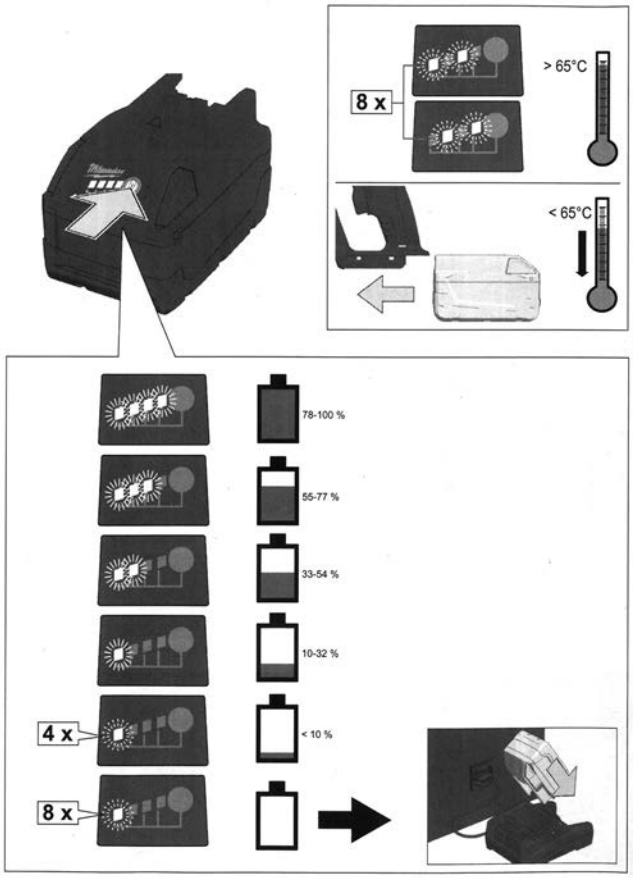
Remove the battery from the charger and re-install onto the trolley prior to use, ensuring it is securely locked in place on the trolley's battery dock.

Battery release mechanism

4 - BATTERY INFORMATION

4.3 - Battery Charge Indicator

The battery charge status can be determined by pressing the indicator button on the battery and LED's will light as per table below.



Battery LED charge status

Battery Management

It is suggested that a fully charged battery is always made available at the beginning of every shift, and the supplied spare battery put on charge ready for the next shift.

This will maximise the time the POWERX can be operated from a single battery charge in any one period

Charging of batteries can be carried out at station using the supplied 240v mains battery charger, or in-vehicle using the optional 12v battery charger.

Important

Due to current safety legislation for UK commercial transportation ALL batteries must be transported and supplied with minimal charge, hence the batteries supplied with POWERX may require fully charging before use

The battery used on the POWERX is a 28V DC Lithium Ion battery and should be disposed as part of the WEEE Directive by an authorised registered company. The battery may be returned for disposal by prior arrangement, to Ferno UK.

Battery LED charge status indicator

Once the battery is fully charged, the LED on the charger changes from red to green.

If both LEDs on the charger flash alternately then the rechargeable battery is either not fully pushed in or there is a fault with the battery or charger. Take the charger and battery out of use immediately for safety reasons and have them inspected by FERNO.

All LEDs will flash 4x if the machine is overloaded. To continue working, switch the machine off and then on again.

If the LED continuously flashes red, check the input voltage and amperage range, to ensure they meet the minimum requirement..

4.4 In-Vehicle Battery Charger (Option)

Also available is a 12v DC battery charger which can be installed in-vehicle to allow batteries to be charged when away from station. This can be ordered additional to or instead of the 230v AC mains battery charger. It is recommended that this is stored in a cupboard or mounted in a position where it will not be affected by deep-cleaning of the vehicle.

Note that the Milwaukee 240v and 12V chargers should not be mounted to the wall in-vehicle unless a crash-tested mount is used. Both wall-mount and iNTRAXX-mountable brackets are available from Ferno for both types of charger.

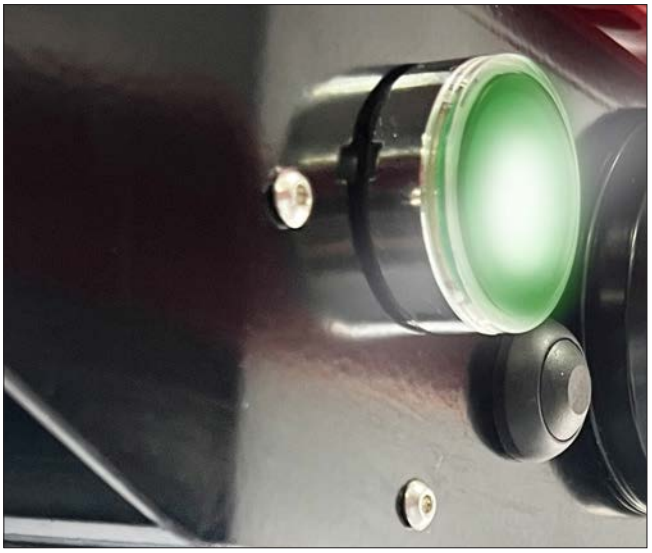
5 - POWERX OPERATION

5.1 - Turning Power On/Off

To turn the trolley power on, first ensure a battery is attached to the battery holder, which is located below the control box under the patient platform at the foot-end of the trolley. Ensure the battery is fully charged by pressing the charge-test button on the battery prior to attaching it to the trolley.

The main power On/Off button is located on the LHS of the control box. Depress the button once to turn on. It will turn green

POWERX control box at foot-end



Trolley main power on/off button

To switch off,. press the on/off button again. It is recommended to turn the stretcher off when not being used for a period of time to avoid unnecessary usage of the battery charge.

5.2 - Power-Saving Sleep Mode

When switched on, the trolley will go into sleep mode after 1 minute of 'non-activity' on the controls. In sleep mode the amount of power drawn from the battery is minimised, therefore saving battery charge. The trolley will awaken from sleep mode when either the up or down buttons are next pressed.

After awaking from sleep mode by pressing either the up or down buton, the relevant button should then be pressed again to raise or lower the stretcher.

Press up or down button will awake from Sleep Mode

A fully charged 5Ah battery will last up to around 70 hours if left in sleep mode (30 hours for 3Ah battery).

However it is recommended to always switch the trolley off whenever it is not being used for a period of time, to preserve power and prevent accidental activation of the lift process.

To ensure maximum operation of the trolley from a single battery charge, ensure that the battery is fully charged at the beginning of each shift.

5 - POWERX OPERATION

5.3 - Raising and Lowering the Trolley

Raising and lowering of the trolley is controlled using the up/down buttons located on the control box at the foot-end of the trolley.

Raising the Trolley

1. To raise POWERX press and hold the Up button until desired height is reached.
2. The actuator will slow-stop at that point when the button has been released.
3. Note that for safety purposes when POWERX is fixed into a Ferno 2-part lock, the integrated interlock function within the trolley prevents the trolley from being raised up.

Raising POWERX

Lowering the Trolley

1. To lower the trolley, press and hold the Down button until desired height is achieved.
2. Operators are reminded that they must remain in control of the trolley at all times when moving the trolley with a patient on.

Lowering POWERX

5.4 - Manual Override

⚠ WARNING

THERE ARE TRAPPING AND WEIGHT HAZARDS DURING THIS OPERATION, WHICH MUST BE PERFORMED WITH GREAT CARE.
THIS PROCESS MUST BE PERFORMED SAFELY. IT IS SUGGESTED A MINIMUM OF TWO OPERATORS BE PRESENT DURING THIS PROCEDURE.

1. In the unlikely event that one of the electrical components should fail or if the battery has been allowed to become totally discharged, then the POWERX manual override function allows the trolley to be lowered manually, ensuring that a patient can never be stranded on the trolley in the raised position. The trolley can also be raised manually, if required.
2. The Manual Override handle is located on the underside of the trolley, near the head-end.

Location of manual override handle at head-end

4. Remove the handle from its holder and bring it away from under the trolley, ensuring that the cable is not bent and will not get trapped during the lowering of the trolley.
5. Gently squeeze the manual release handle trigger and the trolley will start to move down slowly. Reduce or increase the grip on the handle to increase or decrease the speed, maintaining the same level of grip once the required speed is achieved. Reduce the grip a little when nearing the bottom to avoid slamming the trolley down uncontrolled.
6. Once the trolley is fully lowered, remove grip fully from the handle.
7. The handle can be placed back in its holder once it has finished being used, ensure that the cable is not twisted or trapped .

Gently squeezing the manual-override handle to manually lower the trolley

6 - OPERATING THE TROLLEY FEATURES

6.1 - Adjustment of backrest

The backrest can be locked in any inclined position, from horizontal to near vertical. Support the backrest frame with both hands at all times (to avoid risk of sudden movement).

Rear view of backrest

Squeeze the control lever towards the backrest. Raise/Lower the backrest to the desired angle and then release the lever to lock in the desired position. Support the backrest at all times whilst making any adjustments.

Red lever to raise/lower backrest

6.2 - Adjustment of leg position

The POWERX Trolley has the facility to raise the patient's legs to various positions, including Trendelenburg, shock and knee contour. The leg platform has 2 sets of levers at the foot-end, located underneath the leg platform. The outer levers are to adjust the leg platform elevation, the central lever to adjust the bend angle at the knee position.

Levers to adjust leg position

6.3 - Trendelenburg Position

To adjust the leg position to Trendelenburg, squeeze the outer lever whilst holding the leg platform and raise to the desired height. Once at the correct position release the lever to lock it in place. To return the leg platform to horizontal, hold the leg platform, squeeze the outer lever and push the platform back down, releasing the lever once the desired position is achieved.

Trendelenburg leg position

6.4 - Knee Contour & Shock Position

To adjust the leg position to the various knee contour positions, squeeze the outer lever whilst holding the leg platform. Raise the platform to the desired elevation and release the lever once at the required height. Now using the central lever, adjust the knee bed to the desired angle by squeezing the lever and pushing down on the leg platform. The end section of the leg platform can be positioned at any angle to achieve the required leg position, from horizontal to fully down, and in any position in-between.

Shock leg position

Knee contour position

6.5 - Recumbent Position

To return the leg platform back to horizontal, first set the knee bend back to straight by squeezing the central lever and bringing the end of the platform fully up to straighten, and then release the lever. Then squeezing the outer lever, push down on the leg platform to bring it fully down. Once in lowest position, using centre lever to bend platform fully down so it touches the frame.

Recumbent position

6 - OPERATING THE TROLLEY FEATURES

6.6 - Detachable Headrest (Option)

A detachable headrest is available for POWERX that provides additional support, particularly for taller patients in the seated position.

Removable Headrest

The red slide-button located at the base of the headrest on the rear of the backrest allows the removal of the headrest. Slide the button to the right and pull the headrest out.

To put the headrest back onto the trolley, simply locate the headrest bar into the slot and push down until it clicks in place. Lift the headrest back up slightly to ensure it is indeed locked in place.

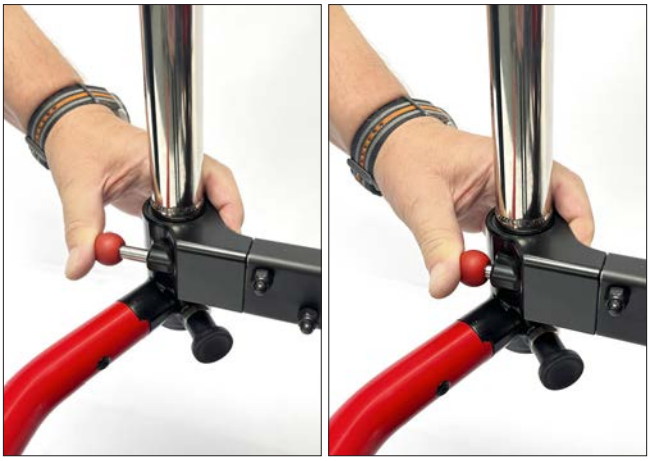
6.7 - Adjustable Winged Headrest

Since 2020 the original black PU moulded headrest has been replaced by an improved version with adjustable winged sides, allowing the headrest to be adjusted for comfort according to the patient's head size and clinical condition. It is made from the same foam and materials as the ABPR mattress.

Adjustable winged Headrest

6 - OPERATING THE TROLLEY FEATURES

6.8 - Shortening Trolley



Push release levers buttons for shortening trolley

To shorten the trolley at head-end, first ensure that the wheel brakes are engaged. Whilst pushing the two release lever buttons in with your thumbs on both sides of the trolley end-frame, keeping hold of the end frame start pushing until it starts shortening. Once moving, immediately release the 2 push-release lever buttons with your thumbs and continue to push the end-frame until it locks in place (just short of the O2 cylinder holder). Pull the end-frame back towards you to ensure it has locked in place. The trolley will shorten further at head end when there is no O2 cylinder present on the trolley, however it does not lock in place when shortened further.

Push frame in to shorten whilst pushing in both red knobs. Once frame has shortened lock the frame by pulling slightly towards you

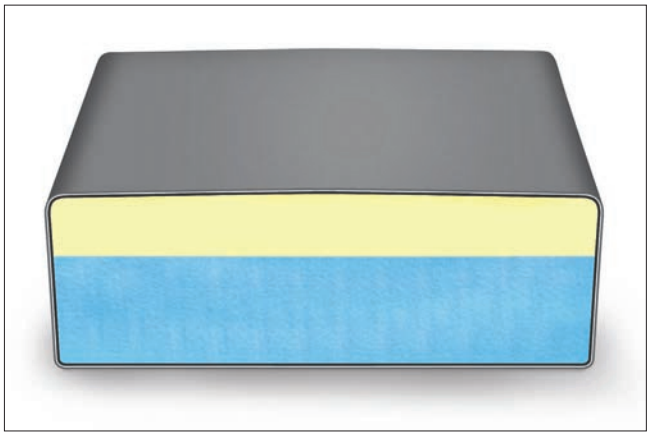
POWERX in shortened position

To return POWERX to its normal length, ensure the wheel brakes are engaged and again operate the shortening levers and pull the frame towards you as far as it will go until it locks into place at fullest extension.

6 - OPERATING THE TROLLEY FEATURES

6.9 - AB-PR Patient Mattress

POWERX's AB-PR mattress incorporates a pressure-reducing inner foam, ensuring patient comfort and minimising the risk of pressure sores. With a wipe-clean anti-bacterial cover, infection control is maintained at an advanced level.



AB-PR mattress

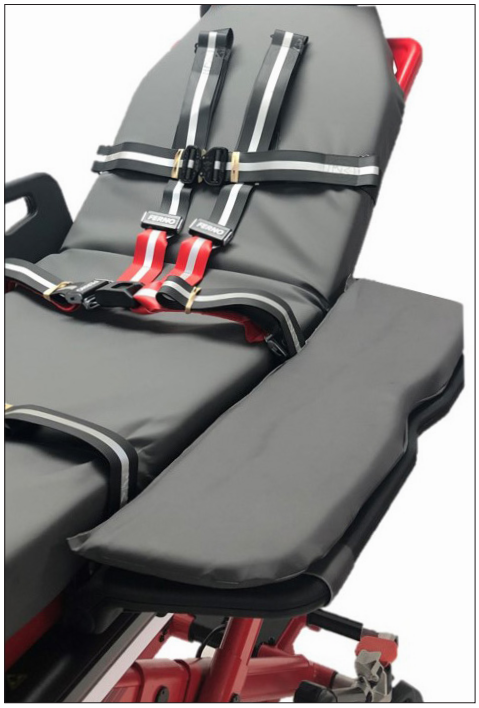
The mattress is attached to the trolley top utilising a clinically-developed anti-bacterial AB-VELCRO®, making removal of mattress for cleaning both quick and easy, whilst maintaining infection control standards.

AB-VELCRO® fixing pads on AB-PR mattress

6.10 - Sidepad for SX surface extender cotsides

As an extension to POWERX's AB-PR mattress when using the SX surface extender cotsides, padded sidepads are available to fit over the SX cotsides to give enhanced tissue viability when utilising the SX cotsides.

These are simply held onto the cotsides using the 2 straps that are attached to each sidepad.



Sidepad attached onto SX cotside

Fixing straps on back of SX sidepad

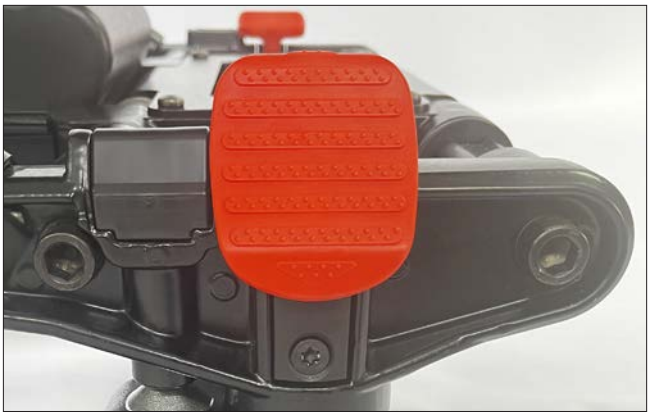
6 - OPERATING THE TROLLEY FEATURES

6.11 - Wheel Brake

The trolley is fitted with wheel brakes to prevent it from moving during patient transfer.

To lock the wheel brake in place, first ensure you are positioned alongside the trolley and facing the brake. Apply a downward force onto the nearest end of the brake pedal, such that the pedal pivots down towards you and an audible click is heard. This can be done using the front or the foot or the heel, whichever feels easiest.

Wheel brake disengaged, pedal raised



Wheel brake engaged, pedal points down

To unlock, push forward and down on the forward end of the lock pedal to disengage the brake. The pedal will move up on its pivot.

Disengaging wheel brake push forward and down

6.12 - Anti Static Wheels

To prevent static build-up within the trolley whilst moving, POWERX is fitted with anti-static wheels.

Anti Static wheel

6 - OPERATING THE TROLLEY FEATURES

6.13 - Foot-Operated Directional Wheel Lock

Foot pedal to engage/disengage lock

Enhanced design implemented Nov 2020, with revised design casting and directional wheel lock rotating lever replaced with a foot pedal for engaging/disengaging the directional wheel lock

To engage the directional wheel lock, press down on the blue pedal to lower the wheel-lock pin, which will then engage into the pin-slot located on the top of the wheel fork as soon as the trolley is moved in a forward direction, thereby locking the wheel parallel in line with the trolley.

To disengage the directional wheel lock, flip the blue pedal back up again with the toe of your shoe/boot. This will raise and disengage the pin, thereby allowing the wheel to swivel again.

Directional wheel lock pin drops when engaged and locks into to of wheel fork once trolley is moved forward

Disengaged

Engaged

6.14- Side lighting (Optional)

LED strip lighting along each side of the trolley aid in safety of use of the trolley by allowing others to see the trolley and operators in poorly lit locations, and also aid in lighting up the immediate area when medical intervention is being carried out at the scene.

Light on/off button next to main on/off button

Side lighting on trolley

The LED strip lighting has 5 modes; red lights flashing, red and white flashing, white constant, white flashing, red constant.

To turn on the LED lighting, press and release the light on/off button on control box. This will then illuminate and run the lights in the mode last set. To turn the lights off, press and release the button again.

To change the default mode of lighting to use, press the light button so that the lights are switched on, then press the button again for about 2 seconds until the lights flash rapidly, signifying it is in programming mode. Continue to press and release the light button until the required lighting mode is selected then stop pressing. After about 5 seconds the current light setting will then be stored. Turn the lights off and on and the lights should display with the new setting.

A fully charged battery will give approx 18 hours of continuous lighting use before the battery becomes depleted. As such, even if using the light on every single patient transfer, a fully charged battery will still easily last a typical shift.

6.15 - POWERX Siderail Interface

POWERX includes an integrated side-rail interface which allows a range of accessories and manoeuvring aids to be attached along the full length and on both sides of the trolley.

This gives POWERX the capability to be configured according to the needs of the use of the trolley at any one time, and according to the patient's physical size, condition and clinical needs, giving full flexibility, multiple role and future-proofing of the product from a single modular design.

How to attach and operate the various options for clinical capability and aid of manoeuvrability that are available for POWERX is outlined in the following pages.

The siderail interface on POWERX is the same as is used on Ferno's iNX patient transportation system, meaning that all clip-on accessories are interchangeable between units and systems.

6 - OPERATING THE TROLLEY FEATURES

6.16 - 3 stage IV Pole (Optional)

The 3-stage IV pole attaches to the side-rail of the POWERX and is telescopic in 3 stages, allowing it to be positioned and raised/ lowered according to the needs and situation of the patient being transported.

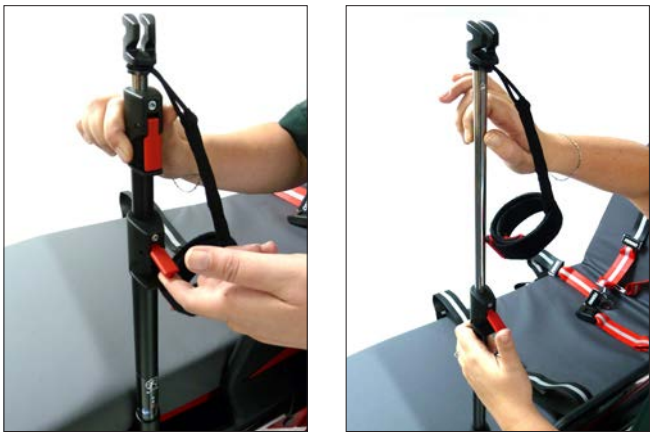
Clip the IV pole under the siderail interface from behind, angling the IV pole slightly away from you, then bringing it forward again, hold it in place and pushing down on the red handle. The IV pole will lock into place.

With the IV pole folded for storage, whilst travelling in a vehicle the Velcro strip should be used to attach the end of the IV pole to the trolley side to avoid it lifting up out of place.

Attaching the IV pole to POWERX side rail

6.17 - Adjusting the height of IV Pole

Using the red clamp levers located on each of the IV pole sections, starting from the bottom un-clamp and extend each of the telescoping poles until the correct height is achieved, ensuring that each clamp lever is firmly closed again once the IV pole has been adjusted to the required height.

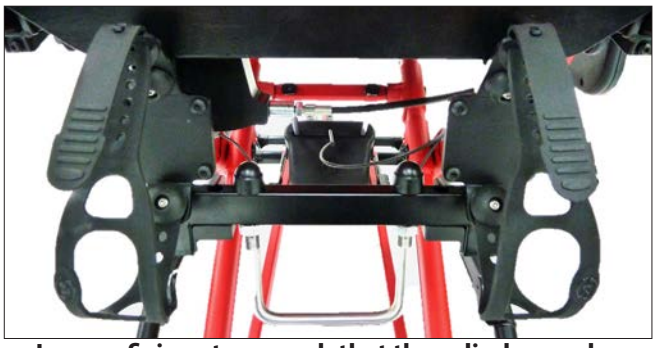


Adjusting the height of IV pole

For more information on the 3-stage IV Pole please also refer to the 3-stage IV pole User Manual, reference 00271-AU-V01, which is available from Ferno.

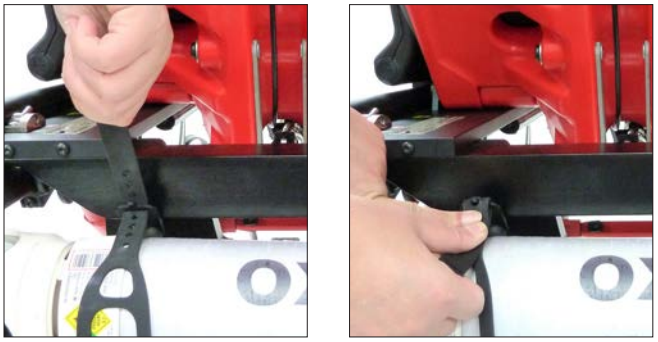
6.18 - O2 Cylinder Holder (Option)

A CD, ZA or MGS size cylinder can be held on the trolley whilst transporting POWERX outside of the vehicle. The cylinder holder located at the head-end of the trolley utilises two fixing straps to hold the cylinder in place, making it simple to attach and remove the cylinder. To operate, ensure the two straps are first loosened such that the cylinder can be placed in the strap loops. Then tighten the straps and fix them by pushing the fixing pin through the applicable hole in the strap (same principle as a belt buckle).



Loosen fixing straps such that the cylinder can be placed inside the holder

Place cylinder in holder



Securing straps on O2 holder

The cylinder holder has been crash tested to 10G and is CEN compliant. It is important that the straps are fully tightened at all times when a cylinder is located in the holder.

To remove the cylinder, loosen the holder straps and then remove the cylinder from the holder.

WARNING

Ensure that grease never comes in contact with O2 cylinder or cylinder holder due to the potential explosive risk that oil with oxygen under pressure can pose, in the (unlikely) event of an incident and the O2 cylinder getting ruptured.

6 - OPERATING THE TROLLEY FEATURES

6.19 - Head-end Storage Net (Option)

A storage net is available for POWERX, which attaches to the trolley frame at the head-end below the backrest, allowing lightweight items such as documents and patient's belongings to be stowed whilst moving a patient outside of the ambulance.

For safety reasons it should not be used for storage of items whilst travelling inside an ambulance. All equipment and articles inside the back of a vehicle must be safely secured on an appropriate crash-tested bracket or in a cupboard to avoid them becoming a projectile in the event of heavy braking or a vehicle crash.

Storage net on head-end trolley frame

For more information on the head-end storage net please also refer to the Storage Net User Manual, reference 234-3590-01, which is available from Ferno.

6.20 - Backrest Defib monitor hook (Option)

A defib monitor can be hooked to the rear of the backrest whilst moving POWERX outside of the ambulance. Simply place the monitor onto the hook and close by pulling the fixing bar down until it clicks in place, ensuring that the fixing pin is located in the fixing pin hole. To remove, pull pin out, lift the fixing bar and remove the monitor.

Zoll X-Series defib held on backrest hook

Hook and fixing bar on backrest
Pull side button to release fixing pin

Note that the backrest hook is not designed to hold equipment whilst moving in a vehicle. It is only intended as a place to temporarily hold the monitor when transferring a patient from the scene of an incident to the vehicle, and then once at destination, from out of the vehicle to hospital admissions. When inside the ambulance, any equipment must be moved off the backrest holder and placed in a CEN complaint crash-tested bracket, such as Ferno's IPTS iNTRAXX wall track and equipment bracket system.

Ferno's IPTS iNTRAXX wall track bracket system

6 - OPERATING THE TROLLEY FEATURES

6.21 - PacRac equipment table (Option)

The optional "PacRac+" allows various medical equipment such as defibrillators, monitors, syringe drivers and IV fluid bags to be safely attached to POWERX trolley, allowing the trolley to be transported in the ambulance with medical equipment remained attached. Dynamically tested to 10G, PacRac+ is certified and complaint to EN 1789.

The PacRac+ is attached to POWERX on special fixing brackets that are fixed to the sides of the stretcher. These should be ordered at the time of ordering the stretcher.

Attaching the fixing poles

Once the extension poles have been attached, the PacRac+ can be attached to the trolley by sliding it onto the fixing points on the top surface of the extension poles.

To attach the PacRac place the PacRac+ onto the attached extension poles in front of the fixing points, then slide the PacRac+ back towards you to clip it in place. An audible click is heard when the PacRac+ has been securely fixed into position. Push the PacRac then away from you to ensure that it has indeed fixed in place.

Sliding the PacRac+ onto the fixing points

6.22 - Attaching equipment to optional PacRac+

Medical equipment such as monitors and defibrillators can be permanently mounted to the top of the PacRac+, attached using Ferno's CEN compliant iNTRAXX bracket system, or temporarily strapped using the supplied straps and buckles.

Zoll X-series monitor with iNTRAXX mount to PacRac+

Zoll X-series monitor strapped to PacRac+

INTRAXX integrated Interface to PacRac+

For more information on the PacRac+, please also refer to the PacRac+ User Manual, reference 00148-AU-V02, which is available from Ferno.

6 - OPERATING THE TROLLEY FEATURES

6.23 - Lateral transfer with PacRac+

With PacRac+ attached to POWERX, the patient can be transferred off the trolley without the need to remove the PacRac+, by opening the left or right side of the PacRac.

Depress the yellow locking clip on the side

Twist the locking handle towards you

Open the side frame towards you

6.24 - Push Poles

Push poles are supplied for use on the foot-end and head-end of POWERX. These aid in the manoeuvrability of the trolley when in the lowered position. They are fixed to each corner of the trolley but are detachable by use of a hidden release plunger located at the rear of the push pole holder.

Push poles on all 4 corners of POWERX

6 - OPERATING THE TROLLEY FEATURES

6.25 - Push Poles Locking

Push poles lock into place on the corners of the trolley and are removed by pulling the push pole detachment plunger located at the back of the holder at the same time as removing the push pole from the holder.

Insert push pole fully until it locks in place

Release by pulling the plunger out and lift the pole

6.26 - Manoeuvring handles (Option)

Available as an option are side-fixing manoeuvring handles, which attach to the side of POWERX. These fold out when required and aid the manoeuvring of the trolley from the side, beneficial for example when navigating over rough terrain, lifting over curbs, etc.

Side manoeuvring handles attached to side

Pull towards end of trolley to unlock, then pull towards you to unfold

Unfold fully until clicks in place

Side handles ready for use

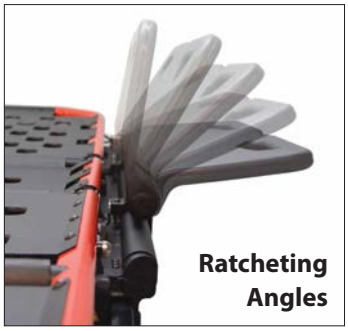
6 - OPERATING THE TROLLEY FEATURES

6.27 - Surface eXtending (SX) Cotsides (Option)

The SX Surface eXtending cotsides attach to the siderail interface of POWERX and serve as ratcheting cotsides for the trolley and can also be used as a patient Surface Xtender for patients with larger body mass, when moved to the horizontal position.

The SX cotsides have 3 ratchet positions plus near vertical, near horizontal and fully down, 6 positions in total.

The ratchet position angles from horizontal are 10°, 27.5°, 45°, 62.5° and 80°.



SX cotsides in near-vertical position - (10°)

SX cotsides ratchet position 3 - (62.5°)

SX cotsides ratchet position 1 - (27.5°)

SX cotsides in near-horizontal position - (80°)

SX cotsides ratchet position 2 - (45°)

SX cotsides folded fully down

6 - OPERATING THE TROLLEY FEATURES

6.28 - Adjusting Optional SX cotsides

The SX cotsides can be easily moved to the various ratchet angles by use of the red cotside release lever, which is located in the centre of the cotside, directly underneath the red "X" graphic.

SX cotside release lever

Whilst holding the top of cotside, grip and squeeze the red release lever upwards.

Squeeze the release lever

Keeping the release lever held, push the cotside slightly forward, then back towards you until you reach the position required, then move back up slightly to lock the cotside at that ratchet position. A click will be heard when the cotside locks into place.

Moving the SX cotside to the required position

Alternatively the SX cotside can be moved fully down, and then after releasing the red handle, move the cotside back up to the required position. As the cotside is moved up a click can be heard as it goes past each ratchet position. Once at the required position, and clicked in place, pull the cotside back down again to ensure it is indeed locked in place.

Moving SX cotside whilst depressing lever

Bring SX cotside past horizontal

Release lever and move SX cotside back up to required position

6 - OPERATING THE TROLLEY FEATURES

6.29 - SX cotside positioning for patient lateral transfer on/off trolley

The SX cotsides can be easily moved fully down for transfer of patient on and off the trolley simply by depressing the red release handle and moving the cotside fully down.

Squeeze the release lever

Move the cotside fully down

SX cotside fully down

6.30 - Using optional SX cotsides for Bariatric transfers

When in the horizontal position, the Surface Xtenders create an extended patient surface to accommodate larger mass patients and are designed to support the extremities of the patient's body.

Load-bearing SX cotsides extended patient surface

Note that when carrying out a lateral transfer to or from the trolley, the SX cotside on the side of the trolley the patient is to be moved must be moved fully down prior to transferring the patient. SX cotsides are load-bearing but are not designed to take the full weight of the patient whilst lateral transfer is being performed.

6.31 - SX Cotside extender wings

Also available is option of SX Extender Wings, extending the length of the SX cotsides, giving a larger patient surface area. Available in a set of 2, either 1 or 2 Extender wings can be fitted on each side of the trolley.

SX cotsides with 1 set of Extender Wings fitted

For more information on the SX ratcheting cotsides, please also refer to the SX Surface Xtenders User Manual, reference 00334-AU*UK, which is available from Ferno.

6 - OPERATING THE TROLLEY FEATURES

6.32 - Positioning of Optional SX cotsides

The Surface Xtender cotsides normal positioning on POWERX is such that the head-end side of the cotside is in line with the backrest pivot point.

The SX cotsides can be positioned according to individual patient's needs, for example in a planned bariatric transfer where more support is required near the legs, the SX cotside can be moved further down the trolley.

For further details on fitting, positioning and operation of the Surface Xtender cotsides, refer to the SX user manual, ref 00334-AU*UK.

SX cotsides standard position

SX cotside furthest towards head-end

SX cotside furthest towards foot-end

2 SX cotsides fitted for greater patient surface

6.33- Split-Scoop Large Patient Surface (Option)

Also available is the Split Scoop kit, which allows a standard Scoop EXL to be attached to the POWERX, the Scoop split in 2 halves with one half attached to each side, giving a full-length extended patient surface for the transportation of larger-size patients. For improved patient comfort and tissue viability the Split-Scoop module can also be used in combination with optional inflatable side pads or foam sidepads.

Split Scoop kit has been dynamically crash tested and certified to EN 1789 when used with Ferno trolleys with a side interface rail, i.e. POWERX, iNX and Mondial. Load tested with 200 kg on each side of trolley with Scoop attached, to ensure same SWL of trolley is maintained when used with or without Split Scoop kit.

6 - OPERATING THE TROLLEY FEATURES

6.34 - Attaching Split-Scoop fixing kit

The Split Scoop fixing kit consists of 6 components; 2 fixing brackets for head-end, 2 fixing brackets for foot-end and 2 extension fixing poles, all supplied in a carry bag.

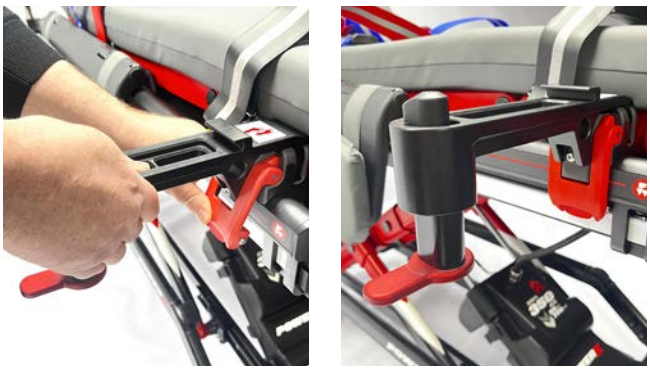
To attach the Scoop to POWERX, first ensure that SX cotsides or lateral-folding cotsides are placed in the fully-down position on both sides of the stretcher.

SX cotsides moved to fully-down position

At the foot-end of the trolley, place one of the brackets with the 'foot' label onto the upper profile of the siderail interface that runs along the length of the trolley (refer to section 6.14), slightly angled up at the end nearest to you. In the same way as attaching an IV pole or any other accessory, the metal coloured-grip profile of the bracket is behind and underneath the recess that is situated on the rear-side of the siderail interface. Position it as far towards the foot-end as possible on the siderail.

Attaching fixing bracket to siderail interface

Once the bracket is located in the siderail interface, make the bracket level and then push the red handle down fully to lock the bracket in place. Ensure that the handle is fully down and clicks in place, then confirming that the bracket is indeed firmly locked by trying to lift the bracket slightly.



Lock the bracket in place by pressing down on the red locking handle until it clicks

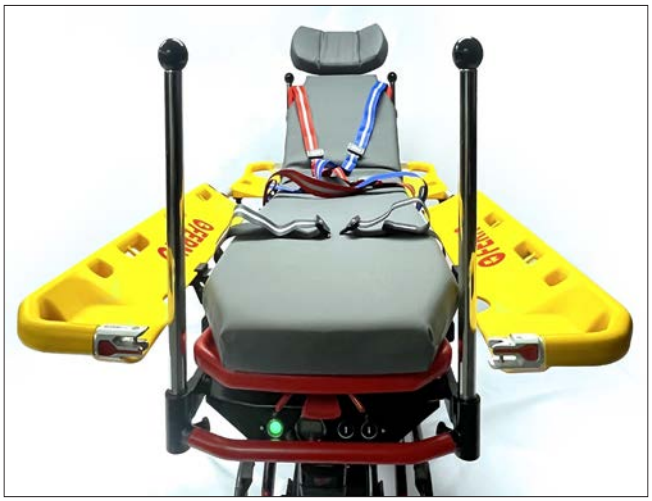
Repeat the process at the head-end of the trolley with one of the shorter fixing brackets with a 'head' label, then repeat the process both foot-end and head-end on the other side of the trolley such that all 4 brackets are firmly attached.

Next, make sure that the Scoop length has been extended and locked in to the first extension position.

Then split the Scoop EXL into 2 halves by opening the TSL locks at both the head-end and foot-end of the Scoop.

Lay each of the 2 halves of the Scoop over the fixing brackets attached to the trolley.

Note the orientation of the Scoop on POWERX should be such that foot-end of the Scoop is at the head-end of the trolley and the head-end of the Scoop at the foot-end of the trolley, as per the below picture. This ensures maximum usable extended patient surface.



Two halves of Scoop laid on top of fixing brackets

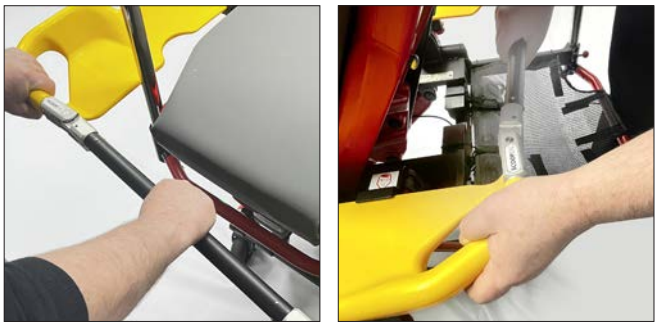
6 - OPERATING THE TROLLEY FEATURES

6.34 - Attaching Split-Scoop fixing kit

The Split-Scoop half-sections should be positioned along the length of the trolley such that the lift-up locking arms on the brackets correctly line up with the hand-hold holes in the sides of the Scoop as shown below.

Ensure Scoop hand-hold holes line up with locking arms on fixing brackets at foot-end as per photo above

Once the Scoop is positioned correctly, connect the two halves of the Scoop together at the foot-end using one of the TSL extension fixing poles, which have TSL locks at each end of the pole. Then attach the head-end of the 2 Scoop halves using the second TSL extension fixing pole.



Attaching 2 halves of Scoop together using extension fixing pole

Once the 2 half sections of the Scoop have been attached together, the Scoop then needs to be locked onto the POWERX frame. Under each fixing bracket locking arm there is a red lever.

Ensure that the fins of the Scoop are correctly held into the fin holders on each of the fixing brackets at the head-end and foot-end and that the locking arms are still sat correctly in the hand-hold holes of the Scoop.

To lock arm lift red lever and twist clockwise

Starting with the foot-end brackets, start to rotate and raise the lever such that the locking arm starts to protrudes through the hand-hold hole on the Scoop.

Keep twisting the lever until the top of the locking device is holding hard against the Scoop and the lever is fully up.

Repeat this for all 4 fixing brackets, ensuring that each is fully locked in place, visibly checking the position of the levers underneath, which should be fully up. At the head-end of the trolley the locking arms should be holding the outer edge of the Scoop. Double-check that all brackets are indeed locked by trying to lift or move the Scoop up by hand. The Scoop should remain in place.

Recheck to ensure Scoop still positioned such that hand-hold holes are in line with locking arms on foot-end bracket

Ensure Scoop fins are under the holding plates

IMPORTANT BEFORE USING: Re-check all 4 locking levers on the fixing brackets to make sure they are fully down and that the fixing arms are securely locked to the trolley siderail interface.

Recheck the Scoop to ensure it is firmly locked in place.

Raise and lower the trolley to ensure there is no contact with the Scoop or obstruction hindering movement.

Check backrest and leg platform movement to ensure there is no infringement by the Scoop. If there is, move and/or extend the Scoop so that it no longer interferes.

Note: When using the Split-Scoop kit the Scoop sides MUST be supported underneath when moving a patient on/off the trolley to ensure there is no imbalance of trolley and should always be carried out with the trolley in the lowest possible position.

7 - PREPARING TO TRANSPORT A PATIENT

7.1 - Transporting a Patient

Ensure that the following procedures are complied with when transporting a patient:

1. Always check condition and operation of trolley prior to using POWERX. A recommended checklist is supplied.
2. Advise the patient before making adjustments, lifting or loading the trolley.
3. Stay with the patient and control the trolley at all times.
4. Keep the patient restrained and the cotsides up when using the trolley.

For the safety of the patient and for the product to fully comply with BS EN 1789, the patient must be fully restrained at all times using the supplied 4-point chest harness and 2 leg straps or other Ferno- approved alternative patient harness system.

1. Before using the trolley the harness and both leg straps should be checked to ensure they are present, correctly attached and not damaged in any way.
2. Dispose of and replace any straps that are worn, damaged or have been involved in any accident – they may have hidden damage.
3. Unbuckle all straps and lay the straps out of the way before transferring the patient.
4. It is suggested that the straps are adjusted sufficiently long enough prior to buckling up the patient.

7.2 - Transferring a Patient onto Trolley

1. Ensure that the brakes are applied to the trolley.
2. Place the trolley beside the patient and undo the patient straps, moving them away from the area the patient will be lying.
3. Ensure that the backrest is in the required position and leg platform horizontal.
4. Transfer the patient onto the trolley using recognised locally observed manual handling procedures.
5. Ensure that the chest, and leg straps are all correctly fastened and adjusted.
6. Raise the cotside rails.
7. Adjust the backrest and leg platform positions if required.

7.3 - POWERX Patient Harness & Straps

The patient harness system on POWERX is available in two different configurations.

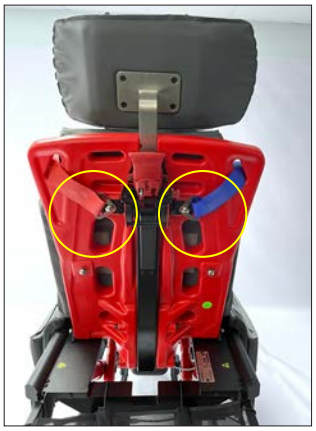
4-point harness around the shoulders, with cross-chest strap & 2 leg straps

Cross-Strap harness with single leg strap

Attachment points of 4-point and Cross-strap harnesses

The POWERX 4-point harness and Cross Strap harnesses attach to different points on the back of the trolley backrest. 4-point harness fixing straps attach to the lower fixing points, the Cross Strap harness upper part of the strap attaches to the upper fixing points on the back of the backrest, and are fed through the holes in the top of the backrest

4-point harness attachment at back of backrest



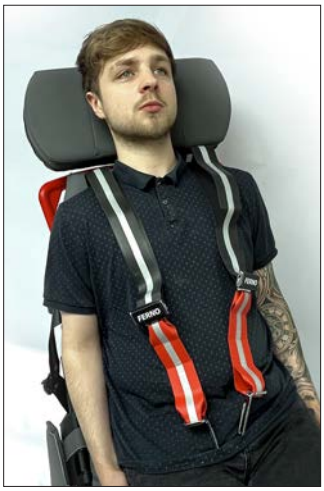
Cross-Strap harness attachment at back of backrest

7 - PREPARING TO TRANSPORT A PATIENT

7.4 - Deploying 4-point harness with Chest strap and leg straps

Unbuckle all the harness, chest and leg straps, placing the shoulder straps over the top of the backrest and all other straps out of the way.

Straps unbuckled ready to transfer patient



Once the patient is comfortably positioned on the trolley, bring the 2 shoulder straps over the patient's shoulders and lay them over the patient's chest.

Bring the two waist straps up from each sides and place these on the patient's lap.

Waist straps

Bring the two metal 'L' buckles on the end of each shoulder strap together to make a T shape and then place them through the tang of the patient's right-hand waist strap and then clip into the buckle on the left-side waist strap..

Shoulder and waist strap tightened

WARNING

For safety and CEN compliance, the chest strap must always be used and fastened.

Fastening harness buckle

Next adjust the shoulder straps such that they are firmly held against the patient's shoulders and then adjust the waist straps so they are safely holding the patient in position. The length of the shoulder straps should be adjusted in length such that the waist strap is correctly positioned at the waist point of the patient and not higher or lower.

To loosen a strap, angle the buckle up away from the strap with one hand, then pull the lower strap to feed the strap above through the buckle to the required length.

To tighten a strap, angle the buckle up away from the strap with one hand, then pull the top strap to feed the lower strap through the buckle until at the required length.

Once the shoulder and waist straps have been attached and tightened, the cross-chest strap then needs to be attached and tightened

Chest strap fastened

7.4 - Deploying 4-point Harness, Chest and leg straps (cont....)

Extend the length of the cross-straps until sufficient length to reach across the patient's upper body/chest, then buckle the 2 straps together and then adjust lengths again to ensure patient is securely but comfortably held in position.

Buckle for adjustment of strap on shoulders & waist

Next fasten the 2 legs straps, ensuring they are holding the patient's legs firmly, but not too tightly.

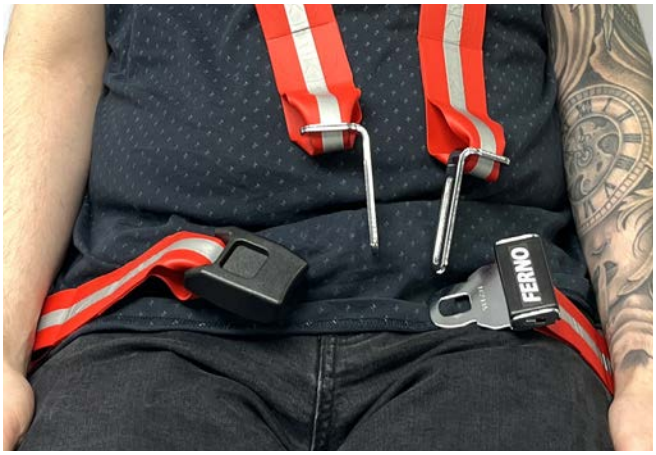
4-point harness, cross-chest strap and 2 leg straps deployed

7.5 - Unfastening 4-point Harness, chest and leg straps

To release the harness, first release the chest cross-strap by squeezing the two release clips on the buckle.

Unbuckling the cross-chest straps

To release the 4-point harness, press the release button on the central buckle and all 4 harness straps (2 shoulder and 2 waist) will be released.



Press release button on central buckle to unfasten 4-point harness

Next unfasten the two leg straps. Squeeze the two release clips each side of the buckle and the straps will be released.

Tip

Harness System

The harness system utilises a tri-glide system that ensures that the ends of harness do not hang below the trolley, an extra safety feature to reduce the straps from catching and getting dirty

7 - PREPARING TO TRANSPORT A PATIENT

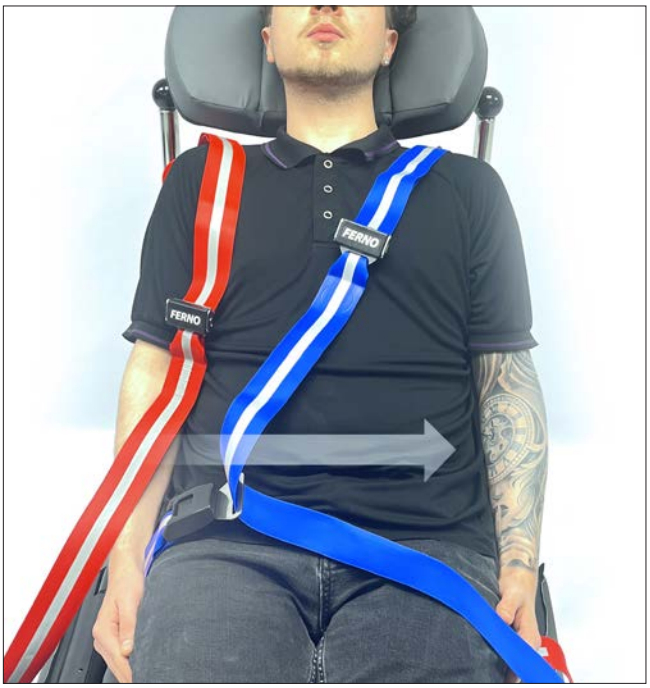
7.6 - Deploying Cross-Strap Patient Harness system

The Cross-Strap harness system, available for use on POWERX as an alternative to the 4-point harness, consists of 2 Cross-straps which cross the upper body, combined with a single leg strap. Crash tested and CEN complaint, as with all Ferno trolley patient harness systems, the Cross-Strap system for POWERX offers quicker deployment with less straps and improved operation when using patient blankets..

POWERX Cross-Strap harness system

Transfer the patient onto the trolley and position the patient with their head on the headrest.

Take one of the Crossover straps (red or blue) and cross it over the patient's body, clipping it into the buckle with corresponding same-coloured strap on the other side of the trolley.



Adjustable extension straps are also available for when transporting larger bariatric, which will adjust longer to accommodate even extreme bariatric patients.

7.6 - Deploying Cross-Strap Harness (cont...)

Repeat the same for the other Crossover strap and then adjust the length of straps using the adjust buckles so the Cross-Strap harness holds the patient in position with no slack in the straps. Feed the rear strap through the adjust buckle to shorten, feed front strap to lengthen. Ensure the metal tri-glide at end of strap is not stuck through slot in top of backrest when adjusting strap length, which may prevent the length from being adjusted

Adjust length of strap to ensure Crossover straps are securely holding the patient

Next attach the leg strap, ensuring that it is tightened sufficiently.

7.7 - Unfastening Cross-Strap Harness

To unfasten the Cross-Strap harness, unbuckle each strap from the side buckle by pressing the release button on the buckle.

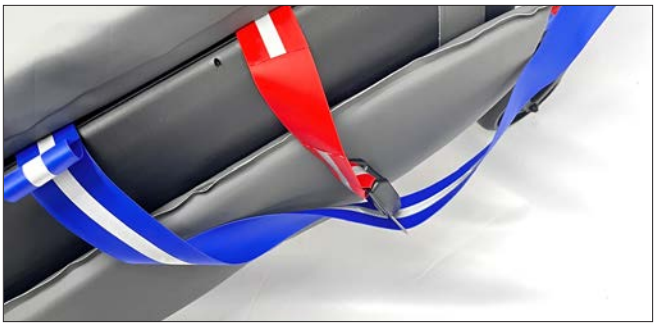
Press release button to release Crossover strap

Next release the leg strap by squeezing the two release levers on the buckle

Squeeze the two clips to open the leg strap buckle

The Cross-Strap harness has been designed such that when there is no patient on the trolley and the Cross-Strap harness is not being used, it does not hang down on the floor when the straps are adjusted to shortest length.

If the strap has been adjusted longer, it can be clipped into the buckle on that side to avoid it hanging down to the floor



7 - PREPARING TO TRANSPORT A PATIENT

7.8 - Lateral transfer - chair to trolley

POWERX has been designed to minimise injury risk to patient and operator by making the minimum trolley height as low as possible.

As such, transferring a patient from chair to trolley and visa versa, is made simpler, as the height differential between chair and trolley mattress is minimised.

Lateral transfer from EZ-Glide to POWERX

Minimised manual handling when transferring patient

To help further minimise manual handling injury risks, it is recommended to utilise any available manual handling aids wherever possible, such as transfer boards, Beasytrans, etc. for transfer of patient from chair to trolley.

With chair and trolley at similar height, this makes transfer from chair and trolley minimal risk, as there is minimal incline when moving the patient across the transfer board

7.9 - Detaching harness straps from trolley

The patient harness straps can be removed from the trolley for cleaning or replacement.

Each strap is attached to the trolley frame by the use of a triangular tang with a hole in it, which clips into a stud fixing, positioned in various locations on the trolley, 2 on the rear of the backrest for the shoulder straps, 2 on the side of the trolley near the backrest pivot point and 2 each side for the leg straps.

Strap tang with fixing hole

To remove a strap from its fixing, place the palm of your hand on the top of the tang and press down firmly. The tang will un-clip from the fixing and the strap can be removed.

Press down on tang to remove strap

To attach a strap to its fixing put the fixing stud through the hole in the tang and then lift firmly on the strap until the tang clips into place.

Lift firmly until tang clicks in the stud

7 - PREPARING TO TRANSPORT A PATIENT

7.10 - Attaching a Child Harness to POWERX trolley (PediMate / Neomate)

To attach a child harness such as PediMate, PediMate PLUS or Neomate to a trolley, the procedure laid out in the relevant user manual supplied with each product should be studied and followed. On POWERX there are dedicated fixing points for attachment of the certain child harnesses.

PediMate, PediMate PLUS and Neomate top straps are attached to POWERX in the same way as with any other trolley, where the top fixing straps are wrapped around the back of the trolley, fastening them together using the buckle and clasp at the end of each strap and then fully tightening the straps once the whole harness has been attached and correctly positioned on the trolley.

Attaching Pedimate top straps behind the backrest

The lower straps of the PediMate child harness are attached to the trolley utilising additional loop straps positioned half way down the trolley and supplied with POWERX.

The loop strap is attached to the trolley onto a side-fixing stud which is half way down the trolley, positioned on the hinge point between the top of the leg-raise platform section and the seat platform section, as per photo below, just below the adult patient harness waist strap fixing point.

If the loop attachment straps are not already installed on the trolley, take the loop strap with attached tang and place the tang over the fixing stud on the trolley until the stud protrudes through the tang and then pull firmly on the loop until the tang clicks in place. Ensure the tang is indeed attached. Do this also on the other side of the trolley.

Loop strap for attaching lower fixing straps of PediMate, attached to dedicated side-fixing stud using metal tang

Take one of the Pedimate lower attachment straps, detach the clasp from the buckle by depressing the button on the buckle, feed the clasp through the loop strap and then reconnect together into the buckle again, ensuring they are firmly attached. Do this on both sides of the trolley.

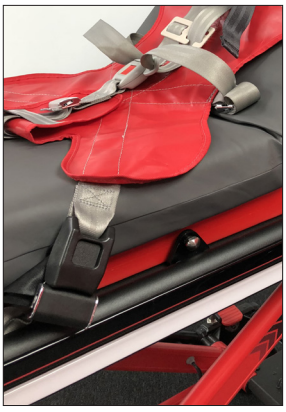
7 - PREPARING TO TRANSPORT A PATIENT

7.10 - Attachment of PediMate / Neomate cont.

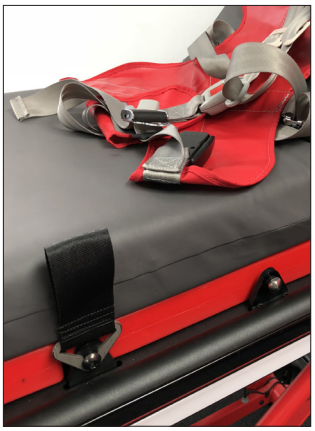
Once all straps have been attached and correctly positioned , re-tighten each strap making sure that the PediMate remains central to the trolley, in the correct position and firmly attached such that there is no movement.

PediMate PLUS securely attached to POWERX

If preferred, instead of leaving the PediMate loop fixing-straps permanently attached the trolley and attaching the PediMate lower attachment straps through the fixed loop straps each time the PediMate is used, the loop attachment straps themselves can be kept attached to the PediMate instead, and then attach the PediMate to the trolley each time it is used by fixing the tangs to the relevant side-fixing points on the trolley.



Loop strap and tang attached to PediMate fixing strap



Loop for attachment of Pedimate lower straps

4-point harness **Cross-strap harness**

7.11 - Attachment of other 3rd party child harness - Optional fixing kit

Please refer to ACR user manual for the procedure for attaching and using ACR harness system.

POWERX was not designed or tested for the attachment of third party harnesses. However there is available from Ferno a set of 4 fixing tangs to facilitate attachment of other child harnesses, such as the ACR harness, where the upper fixing straps do not wrap around and attach to each around the back of the backrest like with PediMate, but instead each fixing strap requiring individual fixing points, also the required attachment points of the lower fixing straps being in a different position on the trolley to PediMate.

ACR child harness can be attached to POWERX by first attaching one of these fixing tangs to each of the blue fixing straps supplied with the ACR harness, as per below photos. The ACR blue fixing strap is looped through and around the tang, then re-attached to the ACR harness. This should be done for all 4 attachment straps.

Attaching fixing tang to ACR blue fixing strap

7 - PREPARING TO TRANSPORT A PATIENT

71 - Attachment of other 3rd party Child harness (cont...)

Once a tang has been attached to all 4 straps, attach each of the fixing straps onto the trolley.

The 2 upper ACR fixing straps should be attached to either set of fixing studs located on the rear of the backrest. Either position can be used, dependant on the size of patient and size of ACR harness being used

The 2 lower ACR fixing straps should be attached to 2 dedicated side-fixing points positioned at the base of the backrest

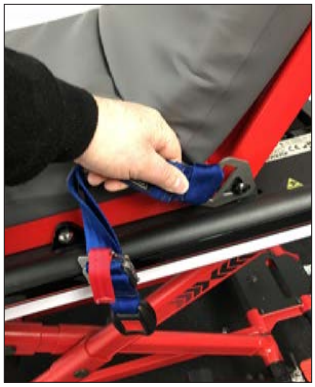
Attachment of upper ACR fixing straps to either set of fixing studs

Attached to upper studs on backrest

Attached to lower studs on backrest

To attach the ACR lower fixing straps, use the dedicated fixing stud positioned at each side of the trolley at the base of the backrest. Place the tang over the fixing stud such that the stud is protruding through the tang and then pull the strap until the tang clicks in place.

Attachment of lower ACR fixing straps to fixing stud at base of backrest either side of the trolley



Once all the attachment straps are firmly and correctly attached to the trolley, tighten each strap, ensuring that the ACR is in the correct position, central to the trolley, and tightly attached such that it does not move.

After the ACR has been used, disconnect the tangs from each attachment point on the trolley. Note that the tangs can be kept connected to the ACR fixing straps whilst the harness is not in use and being stored.

7.12 - Strap Attachment points (4-point harness)

A summary of the various attachment points on PowerX with 4-point harness is as per below list:

1. Attachment point for ACR paediatric harness lower fixing strap adapter (where applicable)

2. Attachment point for 4-point harness Waist cross-straps

3. Attachment point for Pedimate loop fixing strap for attaching Pedimate/NeoMate lower fixing straps to.

4. Attachment point for upper leg/thigh strap

5. Attachment point for lower leg/ankle strap

7.13 - Strap attachment points (Cross-Strap Harness)

A summary of the various attachment points on PowerX with Cross-strap harness is as per below list:

1. Attachment point for ACR paediatric harness lower fixing straps (where applicable)

2. Attachment point for buckle strap for cross-over strap

3. Attachment point for bottom end of cross-over strap. End of Crossover strap also incorporates loop for attaching PediMate.

4. Not used

5. Attachment point for lower-leg strap (only 1 leg strap used with Cross-Strap harness)

7.14 - Using BabyPod on POWERX

Please refer to the BabyPod user manual for the procedure for attaching and using BabyPod on a trolley.

Attachment of BabyPod to POWERX is the same procedure as any other trolley, where the 2 fixing straps are fed around and under the belly of the trolley and then re-attached to the buckles on the opposite side of the BabyPod. The BabyPod foot-end fixing strap should be attached to the trolley foot-end red cross-handle.

BabyPod strapped to POWERX

8 - PREPARING TO MOVE THE TROLLEY

8.1 - Manoeuvring the Trolley

It is recommended to move a patient with the trolley in the lowest position wherever possible, as this minimises risk of tipping.

POWERX can be moved in the raised position providing operators risk assess the suitability, condition and gradient of surface they are moving over, especially when moving over rough ground, cambers or low inclines.

It is also important to ensure there are sufficient operators holding the trolley when manoeuvring to maintain a stable movement throughout the transfer, wherever possible with heavier patient weights using more than the minimum recommended 2 operators.

It is recommended to always move the trolley in the lowest position when transferring on and off a vehicle via a tail-lift or ramp.

1. Transporting a patient on the trolley should always be carried out with the side rails raised and the upper-body harness and leg straps fastened and suitably tightened.
2. The trolley is recommended to be operated by at least two people at all times.
3. If low obstacles (such as door sills) are encountered, move the trolley as close as possible and lift the leading wheels over the obstacle. Repeat for the trailing wheels. Note that utilising the side-manoeuvring handles available on POWERX make this operation easier and with reduced injury risk.
4. High obstacles such as curbs or steps, rough terrain, etc. should be recognised as potentially hazardous to smooth rolling and trolley balance and may require physical assistance or an alternative route.
5. Ensure that the harness and straps are fastened around the patient. Place the trolley in the lowest position possible. However the trolley may be wheeled in a semi-elevated position along hospital corridors or similar smooth level surfaces, provided that the patient is securely strapped to the trolley and that the two attendants are in control of the patient and trolley at all times.
6. Where available, attach winch to the trolley winch-link to aid transfer into vehicle

8.2 - MCF Winch Link Attachment

The winch link connector aids the loading of a trolley into an ambulance with a ramp. The ambulance must be fitted with a winch mechanism with a MCF specification buckle.

To operate, attach to the winch from the ambulance to the winch buckle situated on the trolley base at the head-end of POWERX.

Follow the winch manufacturer's instructions and recognised local manual handling protocols to winch the trolley into the vehicle.

Winch link attachment

8.3 - Loading the Trolley into a Vehicle Fitted with Ramps

1. Make sure that the patient is secure at all times whilst on the trolley.
2. The trolley is loaded with the patients head first towards the front of the ambulance.
3. Ensure that the trolley is in its lowest position.
4. Ensure that the push/pull handle is locked in the extended position.
5. Position the trolley at the base of the ramps, head end first.
6. The cotsides are intended to provide patient safety and must not be used for lifting or manoeuvring the trolley.
7. With one operator at the head end pulling and one operator at the foot end pushing simultaneously, the trolley can now be advanced into the vehicle. If a winch is fitted then this can be attached to the head-end of the trolley to aid loading.
8. Secure the trolley into the Ferno 2 part-lock for transportation.

8.4 - Unloading the Trolley From a Vehicle Fitted with Ramps

1. Make sure that the patient is disconnected from any vehicle mounted apparatus or instrumentation.
2. Operation by a minimum of two operators at all times.
3. Disengage the trolley from the two part locking device by depressing the foot pedal (manual lock) and roll the trolley to the rear of the ambulance compartment.
4. Unfold the push/pull handle and ensure it is locked in the extended position.
5. Using two operators guide the trolley down the ramp and out of the vehicle.
6. If your Trusts protocol is to use a winch, follow the manufactures guidelines in line with local manual handling protocols.

8.5 - Loading the Trolley into a Vehicle Fitted with a Tail Lift

1. Make sure that the patient is secure at all times whilst on the trolley.
2. The trolley is loaded with the patient's head towards the front of the ambulance.
3. Ensure that the trolley is in its lowest position and there are no trailing straps, blankets etc.
4 Guide the trolley on to the tail lift, head end first.
5. Operate the tail lift as per manufacturers' instructions.
6. Once the tail-lift is in the raised position, push the trolley forward and secure in the Ferno 2 part lock

⚠ WARNING

Do not lower or raise the trolley with the foot-end frame fully shortened

8 - PREPARING TO MOVE THE TROLLEY

8.6 - Unloading the Trolley From a Vehicle Fitted with a Tail Lift

1. Make sure that the patient is disconnected from any vehicle mounted apparatus or instrumentation.
2. Operation by a minimum of two operators at all times.
3. Disengage the trolley from the two part locking device by depressing the foot pedal, and roll the trolley to the rear of the ambulance compartment.
4. Guide the trolley onto the tail lift and out of the vehicle.
5. Operate the tail-lift as per the manufactures instructions.
6. Lower the tail-lift to the ground and move trolley forward clear from the tail-lift

8.7 - Fastening POWERX in a vehicle

POWERX is compatible and has been tested with the Ferno range of 2-part locks, including NMI and Unwin track locks and SlideLock, and has been dynamically crash-tested to EN 1789 and CEN certified.

Head-end lock spike fixing U bracket

Foot-end lock fixing bracket

9.1 -LOCKING DEVICES 2-Part Lock

Locking devices available for use with POWERX include:

1. Standard floor-mounted Ferno 2-part lock

2. NMI floor-track mounted 2-part lock

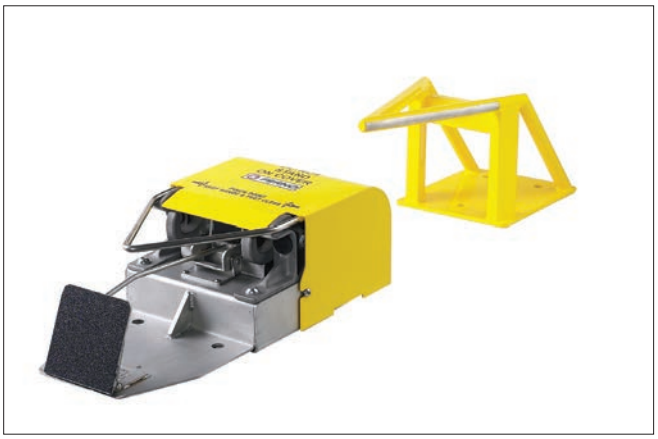
3.Unwin floor-track mounted 2-part lock

4. Ferno SlideLock 2-part lock with adjustable floor positioning

All have been dynamically crash-tested to BS EN 1789 and CEN certified when used in conjunction with Ferno UK's range of ambulance trolleys, Falcon, Pegasus, Megasus, Harrier and POWERX.

Combining different manufacturers' products into a "mixed-component" trolley/fastener system can increase the user's risk of injury and damage if not checked first for compatibility.

However, Ferno trolleys are designed to be compatible with the Ferno range of Two-Part locking devices or competitors equivalent locking devices, giving full compatibility and interchangeability across your vehicle fleet.



Ferno Standard 2-part Lock

Ferno 2-part NMI Track lock

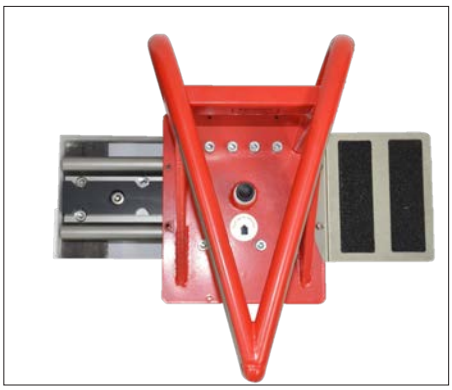
9 - LOCKING DEVICES

9.2 - SlideLock Overview

Ferno SlideLock (150)

Ferno SlideLock is a 2-position ambulance trolley lock system, allowing the position of the trolley lock to be moved from side to centre (C to B) quickly and easily, without the need to remove the lock and with no tools required, making it simple to reconfigure the vehicle to accommodate a bariatric trolley such as Harrier/ Megasus with extended sides or POWERX with ratcheted SX cotsides or with Split Scoop attached.

The lock is mounted on a linear bearing mounted into the floor, allowing the lock to be moved from side to side.



SlideLock Spike - Linear bearing mounted in floor

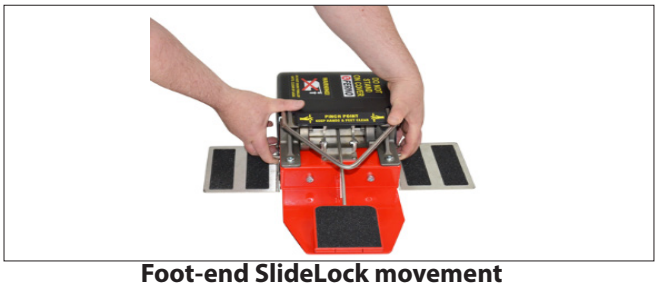
SlideLock 255 (single linear bearing cover on RHS)

9.3 - SlideLock Operation

To move the Spike section of the lock, lift the black release plunger on the top of the base of the Spike to unlock it from the linear bearing below and then start moving the lock to the other side. Once the lock has started to move over, release the plunger knob whilst continuing to move the lock all the way over to the other side. It will lock in position with a positive 'click' sound and the plunger will have moved back own indicating the locking pin has located itself into the locking hole. Rattle the lock from side to side to ensure it has indeed locked in place. If the Spike has not locked into place, slightly move the lock to the left and then to the right until you find the locking pin hole, such that it then locks in place.

Plunger on SlideLock Spike

Do the same for the foot-end section of the lock. Either side of the lock there is a small metal lever. Lift the levers on both sides of the lock and then slide the lock across towards the other position, letting go of the levers once it has started moving. Continue to move all the way over to the other side and again it will lock in position with a positive 'click' sound. Rattle the lock from side to side to ensure it is indeed locked in place.



Foot-end SlideLock movement

9.3 - SlideLock Operation (cont..)

POWERX with Split Scoop attachment, SlideLock moved to B position

Due to the simplicity of SlideLock, it allows the vehicle to be reconfigured in real time by the crew in order to accommodate transporting bariatric patients.

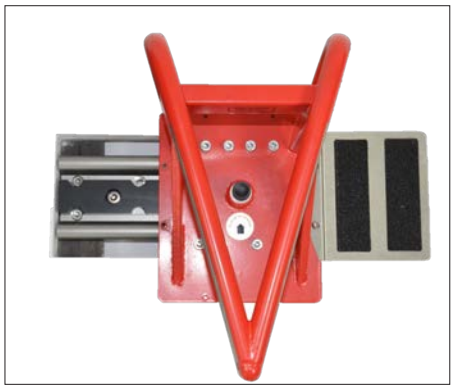
9.4 - Maintenance and cleaning of SlideLock

SlideLock is designed such that the lock does not need to be removed from the vehicle floor. The 2 sections of the lock are attached to linear bearings that are fixed to the chassis and embedded in a cut out in the vehicle floor, which is covered by cover plates attached to the Lock itself.

As part of the regular cleaning and maintenance schedule of the vehicle, the cover plates for the Lock (2 plates for Slidelock 150 and 1 plate for SlideLock 255) should be removed and the area below cleared out of any debris that may have collected and the whole area thoroughly cleaned and disinfected accordingly. Pressure washer may be used to clean out the whole area.

The linear bearing slide rail must NOT be greased as it uses a self-lubricating bearing. Greasing of the rail will only attract build-up of dirt and debris.

Further detains on cleaning and maintenance are included in the SlideLock Installation and Maintenance guide (0859-0006 & 0859-0003)



Removal of cover plates for cleaning linear slide rail and enclosure

10 - MAINTENANCE

10.1 - Maintenance Schedule

The trolley requires regular maintenance. Set up and follow a maintenance schedule. The table at right/below represents minimum intervals for maintenance. Keep maintenance records. A sample maintenance record sheet is provided at the end of this manual.

When using maintenance products, follow the manufacturers' directions and read the manufacturers' material safety data sheets. You can purchase a recommended disinfectant from your Ferno distributor or Ferno UK Service Department.

Minimum Maintenance Intervals	Each Use	As Needed	Each Month
Disinfecting	•		
Cleaning		•	
Inspecting		•	•
Lubricating		•	

10.2 - Cleaning the Trolley

Regular cleaning helps reduce the risk of transmitting disease and enables equipment to function at its optimum.

Ensure that all equipment is removed from the trolley.

Trolley should be hand-wiped using a suitable cleaning solution.

For particularly grimy cases, especially if the trolley has been in storage for a long period, it may be necessary to first clean the trolley with a water-soluble solvent-soaked cloth.

Once cleaned, dry the trolley with a soft towel, paying particular attention to swivel and sliding joints. If a compressed air hose is available, you may find that compressed air jets are more effective in drying the hard-to-reach places.

10.3 - Disinfecting the Trolley

Wipe all surfaces with disinfectant. Follow the disinfectant manufacturer's instructions for application method and contact time. Ferno recommends you inspect the trolley for damage as you clean and disinfect it. See note regarding disinfectants to use.

1. Remove the mattress, patient harness, straps and any accessories.

2. Hand clean all surfaces of the trolley with warm water and a mild detergent.

3.Rinse with warm, clear water. Dry the trolley with a towel and allow it to air-dry thoroughly, replacing the mattress and harness/straps prior to storage.

4.To disinfect: Apply disinfectant to the trolley, following the disinfectant manufacturer's instructions for application method and contact time. Ensure to wash down thoroughly after disinfecting to remove any chemical residue that might cause long-term damage

10.4 - Disinfecting & Cleaning Harness

It is recommended to remove the harness, straps and mattress from the trolley before cleaning and disinfecting to ensure they can be cleaned effectively on all surfaces.

Cleaning Webbing straps

1. Immerse webbing straps in a solution of mild soap and water to clean Do not immerse any metal buckles or metal fixation clips in the solution, these should be wiped clean only.

2. Repeatedly dip the webbing in clean water to rinse. Do not immerse any metal buckles or fixation clips. Hang the straps to air-dry. Attach only clean, dry straps back onto to the equipment.

Disinfecting webbing straps

1. Immerse or spray the webbing straps following the selected disinfectant manufacturer's instructions for application method and contact time. Do not immerse any metal buckles or metal fixation clips into disinfectant liquid

2. Spray the metal buckles and fixation clips with disinfectant cleaner spray, following the disinfectant manufacturer's instructions for application method and contact time

3. Hang the straps to air-dry if needed. Attach only dried straps to the equipment

Cleaning Biosafe straps

1. Wipe-clean the straps, buckles and fixing clips with mild soap and water

2. Hang the straps to air-dry. Attach only clean, dry straps back onto to the equipment

Disinfecting Biosafe straps

1. Spray the webbing straps, metal buckles and fixation clips with disinfectant cleaner spray, following the disinfectant manufacturer's instructions for application method and contact time

2. Hang the straps to air-dry if needed. Attach only dried straps to the equipment

IMPORTANT

Disinfectants and cleaners containing phenol or iodine can cause damage, it is recommended not to use products containing these chemicals.

If using disinfectant that is chlorine-based then ensure the concentration used is no higher than 10,000 ppm.

If higher than 10,000 ppm, it is recommended to use for the manufacturer's minimum recommended effective contact time after which any residue should be wiped/washed off.

Accessories such as push poles, IV poles etc. should be cleaned and disinfected whilst detached from the trolley and the fixing points on the trolley also cleaned and disinfected.

⚠ WARNING

Improper maintenance can cause injury. Maintain the trolley only as described in this manual.

10.5 - Lubrication of parts

Disinfect and clean the trolley before applying lubricant. Use the lubricants designated below to lubricate the trolley. Do not lubricate points marked with the "do not lubricate" symbol.

Your Ferno POWERX trolley will work efficiently and safely only when it is lubricated. You MUST lubricate all moving and sliding parts after every inspection or preventative maintenance programme, or if there is inadequate lubrication for the moving parts to operate easily and quietly.

In general terms, almost all sliding and moving parts may be lubricated with light duty grease. A penetrating fluid lubrication is used on some sliding parts of the trolley. However, when a penetrating fluid lubricant is used, all excess **MUST** be wiped away, to prevent any build-up of dust or grime which can clog up working parts and impede movement.

IMPORTANT

Lubricating parts that should not be lubricated allows dirt and foreign particles to collect on those parts, resulting in damage. Lubricate **only** the numbered reference points shown.

Do Not Lubricate

Lubricate

11 - PARTS AND SERVICE

11.1 UK Support

In the United Kingdom to order parts or for professional trolley repair, contact Ferno UK - the only agent authorised by Ferno UK to manage, service, and repair Ferno products.

Telephone Main Reception	+44 (0)1274 851999
Service Department	+44 (0)1274 854511
Service Email	services.uk@ferno.com
Web	www.ferno.com

⚠ WARNING

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the trolley.

11.2 Worldwide

To order Ferno parts, and for professional trolley repair, contact your Ferno distributor. Your distributor is the only agent authorised by Ferno UK to manage, service, and repair Ferno products.

⚠ WARNING

Modifying the Trolley can cause injury and damage. Use the Trolley only as designed by Ferno.

12.1 - Accessories for POWERX

Ferno offers a full line of accessories and products for use with POWERX, many of which are outlined in this user manual. Always follow the instructions packed with accessories. Keep the instructions with this manual. Be aware of any special considerations (loading heights, door widths, etc.) when using accessories.

Contact Ferno UK or your Ferno distributor for further product information.

⚠ WARNING

Attaching improper items to the trolley can cause injury. Use only Ferno-approved items on the trolley.

Accessories available for use with POWERX:

- SX cotside pads for enhanced bariatric tissue viability (038288525)
- Spare Milwaukee M28 5 Ah battery (75-0710-001)
- 240V AC battery charger UK plug (75-0711-002)
- 240V AC battery charger Euro plug (75-0711-001)
- 12V DC battery charger with 12v Din plug (60-0600-001)
- Detachable headrest (0559-3116)
- Detachable 3-stage telescoping IV pole folding (LAIV-3SCLUK)
- Detachable 3-stage telescoping IV pole non-folding (LAIV3SCL(FIXED))
- Head-end document stowage net (038288499)
- Side-fixing manoeuvring handles (FWESLH)
- PacRac+ medical equipment holder with straps (FWEPR)
- PacRac+ with iNTRAXX profiled top (FWEPR+IT)
- PacRac+ with mounted iNTRAXX track (0856-3018)
- PacRac fixing kit (required when using PacRac+ (0800-3182)
- Split-Scoop Extreme Bariatric extended patient surface kit (009008250
- Inflatable sidepads kit for use with Split-Scoop kit (23271000802)
- Trolley dust cover, elasticated, AB material (031346990)
- Patient protective shield (082-2097)

- Replacement Webbing Patient Harness (038387525)
- Replacement Webbing Leg Strap (each) (038387650)
- Replacement Biosafe Patient Harness (038387500)
- Replacement Biosafe Leg Strap (each) (038387600)

13 - Inspection Checklist

To ensure consistently safe operation of the trolley and to monitor wear and tear, prior to each use, ensure the trolley is thoroughly checked in compliance with the following checklist.

INSPECTION CHECKLIST	TICK
• Are all components present?	☐
• Is the trolley generally free of excessive wear?	☐
• Are all screws, nuts, bolts and rivets securely in place?	☐
• Do all moving parts operate smoothly and properly?	☐
• Does the trolley raise and lower properly into position?	☐
• Does the trolley move smoothly?	☐
• Do the wheel castors and brake operate properly, rotate fully and have adequate tread?	☐
• Are the patient harness and legs straps all present and properly installed?	☐
• Are the patient straps, mattress and harness in good condition with no cuts or frayed edges?	☐
• Are patient strap buckles free of visible damage and do they operate properly?	☐
• Check that the battery is fitted to the trolley and that it is fully charged at the beginning of each shift	☐
• Press the button located on the battery and check the red LED's light up test the battery and ensure it is ready to use.	☐
• Confirm the operation of the trolley by using the up/down control buttons on the foot end main frame.	☐
• Check that the trolley cotsides raise, lower and lock in position.	☐
• Check that the ambulance has a properly installed, approved locking device and that the trolley locks in securely.	☐
• Check the operation of the push/pull handles and push poles	☐

14 - SERVICING SCHEDULE

It is recommended in addition to the regular inspection and cleaning interventions that Ferno POWERX is serviced at least once every 12 months. Below is a service schedule sheet where servicing dates and activities can be recorded. Ferno UK offers a range of cost-effective servicing programmes, helping to keep your equipment in good condition and keeping whole life time costs to a minimum.

Trolley Model	
Serial Number	
Date placed in operation	

Date of service	Number of Lifts	Remedial work carried out / Comments	Name