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Life-moving innovation

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Silver Series

ELECTRIC STRETCHER SILVER

Model TG-1100

INSTRUCTIONS MANUAL



Read these maintenance instructions
before using the product and keep them
for future reference



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OPERATING AND HANDLING SILVER STRETCHER

1. INTRODUCTION

1.1. Foreword

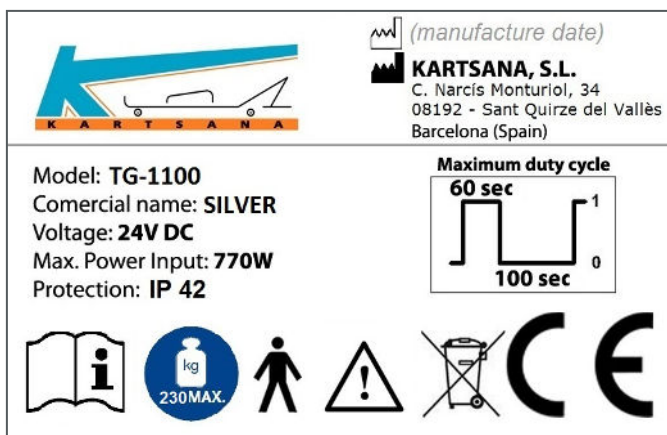
The SILVER stretcher has been solely designed to rescue and transport patients. The product complies with the directive MDR (EU) 2017/745. It is an electric-hydraulic model that allows the height to be adjusted according to different needs, with just two buttons. Manual operation is possible when potential faults in the automated system occur.

The SILVER stretcher model must be joined to the ambulance using the KARTSANA R-1100 rail.

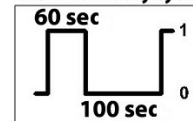
This stretcher has been tested according to the regulation UNE-EN 1789.

All information regarding treatment, disinfection and maintenance is indicated, taking into consideration our current experience and know-how.

We reserve the right to change the specifications of the stretcher to improve the products.



Maximum duty cycle



Maximum duty cycle.

60 sec - operating maximum time.

100 sec. - Idle time.



*Read the instructions manual
before using.*



Maximum load 230 Kg.



Medical Product class I.



Warnings and safety instructions



- Do not throw away. Send to recycling center.
- Packing should be manage as a reusable refuse.
- Metals should be treated as old metal.
- Plastic product should be treated as recycling material.
- Waste management must be as regulation of the country.
- Ask municipal administration about recycling and refuse.

1.2. Intended use of product

The Silver TG-1100 is a powered stretcher, which is intended to support and transport the entire body of human patient. The battery-powered electro-hydraulic lift system is intended to help reduce the effort required by the operator to raise and lower the stretcher. The device is designed to support patients in horizontal position or sitting position and facilitate the transportation of medical equipment in emergency transport vehicles.

This ambulance stretcher is rated to a maximum capacity of 230Kg, and the intended operators of the device are trained professionals including emergency medical service and medical care center personnel, as well as medical first responders.

Ambulance stretchers are intended for transportation purposes. They are not intended for extended stay or to be used as hospital beds. They are also not intended to be used in devices which modify air pressure, such as hyperbaric chambers.

1.3. Responsibility and warranty

The stretcher must be checked at the time of its delivery to the rescue organisation. All its functions must be explained in detail. The assistance organisation must take charge of teaching all its employees how to use it correctly.

The product has a 24-months warranty from the delivery date to the end user.

The warranty does not cover defects resulting from incorrect installation, misuse or improper use of the stretcher. All repairs must be made by a technical service authorised by Kartsana or its respective representative.

The manufacturer will not be liable for any anomaly caused to the stretcher as a result of using products other than those provided by Kartsana.

Changes or modifications to the unit not expressly approved by Kartsana could void the user's authority to operate the system.

1.4. Specifications

Maximum unassisted load	230 Kg
Standards	UNE-EN-1865-2 EN-1789+A1 UNE-EN 60601-1 / UNE-EN 61000-6 UL-1642
Backrest Articulation/Shock Position	De 0° a 80°
Footrest Articulation/Shock Position	Simple articulation
Wheels diameter	160mm
Total Length	1950mm
Total Width	568mm



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Maximum and minimum height ¹	430mm-1137mm
Loading Height ²	Max. 786 mm
Recommended operatives required to load / unload an occupied stretcher	1 operative, or 2 if the stretcher were occupied by a larger sized patient
Recommended/Compatible fixation system	Rail R-1100

¹Height measured from ground level to main structure of the patient area.

²For weights higher than 230kg it is recommended to use the stretcher by a low position in patient transport, rising the stretcher until the necessary position just in the moment of introducing it into the ambulance

Kartsana reserves the right to change specifications without notice.

1.5. Attention

Through this sign, information is furnished on important safety measures for the correct use of the stretcher, to prevent accidents. The **warnings** alert the reader about a situation which, if not avoided, could result in death or serious injury. The **cautions** alert the reader of a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or damage to the equipment or other property. This includes special care necessary for the safe and effective use of the device and the care necessary to avoid damage to a device that may occur because of use or misuse.

1.6.- Summary of safety precautions

Carefully read and strictly follow the warnings and cautions listed on these pages. Service only by qualified personnel.



WARNINGS:

- Improper usage of the stretcher can cause injury to the patient or operator. Operate the stretcher only as described in this manual.
- Do not modify the stretcher or any components of the stretcher. Modifying the product can cause unpredictable operation resulting in injury to the patient or operator. Modifying the product also voids its warranty.
- Any emergency vehicle to be used with this stretcher must have the compatible fixation system installed.
- Do not attempt to operate the stretcher when it is loaded into a stretcher fastener.
- Have the vehicle safety rail compatible installed by a certified mechanic. Improper rail installation can cause injury to the patient or operator and/or damage to the stretcher. Verify that the stretcher legs lock into the load position before without contact with the fender of the vehicle. Failure to properly lock the stretcher height into position can cause injury to the patient or operator and/or damage to the stretcher
- To avoid risk of electric shock, never attempt to open the battery pack for any reason. If the battery pack case is cracked or damaged, do not insert it into the charger. Return damaged battery packs to a service center.
- Do not remove the battery when the stretcher is activated.
- Avoid direct contact with a wet battery or battery enclosure. Contact may cause injury to the patient or operator
- Inspect batteries for damage before every use.
- Practice changing height positions and loading the stretcher until operation of the product is fully understood. Improper use can cause injury.



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- Do not allow untrained assistants to assist in the operation of the stretcher. Untrained technicians/assistants can cause injury to the patient or themselves.
- Do not ride on the base of the stretcher. Damage to the product could occur, resulting in injury to the patient or operator.
- Transporting the stretcher sideways can cause the stretcher to tip, resulting in possible damage to the product and/or injury to the patient or operator. Transporting the stretcher in a lowered position, head, or foot end first, minimizes the potential of a stretcher tip.
- Grasping the stretcher improperly can cause injury. Keep hands, fingers and feet away from moving parts. To avoid injury, use extreme caution when placing your hands and feet near the base tubes while raising and lowering the stretcher.
- Always use all restraint straps to secure the patient on the stretcher. An unrestrained patient may fall from the stretcher and be injured.
- Never leave a patient unattended on the stretcher or injury could result. Hold the stretcher securely while a patient is on the product.
- Never apply the optional wheel lock(s) while a patient is on the stretcher. Tipping could occur if the stretcher is moved while the wheel lock is applied, resulting in injury to the patient or operator and/or damage to the stretcher.
- Siderails are not intended to serve as a patient restraint device.
- Hydraulically raising or lowering the stretcher may temporarily affect electronic patient monitoring equipment. For best results, patient monitoring should be conducted when the stretcher is idle.
- High obstacles such as curbing, steps or rough terrain can cause the stretcher to tip, possibly causing injury to the patient or operator.
- The SILVER TG-1100 stretcher is designed to be compatible with R-1100 rail and is operator responsibility that these products work together.
- Transporting the stretcher in lower positions reduces the potential of a stretcher tip. If possible, obtain additional assistance or take an alternate route.
- Two operators must be present when the stretcher is occupied.
- Operators must be able to lift the total weight of the patient, stretcher, and any items on the stretcher.
- Never install or use a wheel lock on a stretcher with excessively worn wheels. Installing or using a wheel lock on a wheel with less than a 160mm diameter could compromise the holding ability of the wheel lock, possibly resulting in injury to the patient or operator and/or damage to the stretcher or other equipment.
- When cleaning, use any appropriate personal safety equipment (goggles, respirator, etc.) to avoid the risk of inhaling contagion.
- Some cleaning products are corrosive in nature and may cause damage to the product if used improperly. If the products described above are used to clean Kartsana equipment, measures must be taken to ensure the stretchers are wiped with clean water and thoroughly dried following cleaning. Failure to properly rinse and dry the stretchers will leave a corrosive residue on the surface of the stretchers, possibly causing premature corrosion of critical components.
- Failure to properly clean or dispose of contaminated mattress or other stretcher components will increase the risk of bloodborne pathogens and may cause injury to the patient or operator.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.
- To avoid the risk of injury, do not use bare hands to check for hydraulic leaks.
- Take special precautions regarding electromagnetic compatibility (EMC) when using medical electrical equipment like Silver TG-1100 stretcher. Portable and mobile RF communications equipment can affect the function of the stretcher.
- The use of accessories, transducers and cables other than those specified, with the exception of transducers and cables sold by Kartsana as replacement parts for internal components may result in increased emissions or decreased immunity of the TG-1100 SILVER stretcher.

CAUTIONS:

- Changes or modifications to the unit not expressly approved by Kartsana could void the user's authority to operate the system.
- The stretcher can be set at any stretcher load height position. Establish the required stretcher load height before placing the stretcher into service
- Set the stretcher load height to the proper stop height prior to operation.



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- Installation of the safety hook should be done by a certified mechanic familiar with ambulance vehicle construction. Consult the vehicle manufacturer before installing the safety hook and be sure that the installation of the safety hook does not damage or interfere with the brake lines, oxygen lines, fuel lines, fuel tank or electrical wiring of the vehicle.
- Only use the battery and charger as specified in this Instruction Manual.
- The stretcher is not for use with an AC adapter.
- When charging a battery in an ambulance, locate the charger in an enclosed cabinet and out of patient reach during transport.
- Ensure that the battery is fully charged prior to placing into service. An uncharged or depleted battery may cause poor stretcher performance.
- Before operating the stretcher, clear any obstacles that may interfere and cause injury to the operator or patient.
- When unloading the stretcher from the patient compartment, ensure that the caster wheels are safely set on the ground or damage to the product may occur.
- Remove the battery if the stretcher is not going to be used for an extended period (more than 24 hours).
- Wheel lock(s) are only intended to help prevent the stretcher from rolling while unattended and to aid in patient transfer. A wheel lock may not provide sufficient resistance on all surfaces or under loads.
- Ensure that the restraints are not entangled in the base frame when raising and lowering the stretcher.
- Do not store items under the stretcher mattress. Storing items under the mattress can interfere with the operation of the stretcher.
- Do not steam clean or ultrasonically clean the unit.
- Maximum water temperature should not exceed 80°C.
- Allow stretcher to air dry.
- Towel dry all casters and interface points.
- Failure to comply with these instructions may invalidate any/all warranties.
- Always remove the battery before washing the stretcher.
- For additional maintenance information, see the preventative maintenance information.
- Improper maintenance can cause injury or damage to the product. Maintain the stretcher as described in this manual. Use only Kartsana approved parts and maintenance procedures. Using unapproved parts and procedures could cause unpredictable operation and/or injury and will void the product warranty
- Failure to use authorized parts, lubricants, etc. could cause damage to the stretcher and will void the warranty of the product.
- Hydraulic lines, hoses, and connections can fail or loosen due to physical damage, kinks, age, and environment exposure. Check hoses and lines regularly to avoid damage to the stretcher. Check and tighten loose connections.

NOTES:

- Loose items or debris on the patient compartment floor can interfere with the operation of the safety hook and stretcher fastener. Keep the patient compartment floor clear
- This manual should be considered a permanent part of the stretcher and should remain with the product even if the stretcher is subsequently sold.
- Kartsana continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your stretcher and this manual
- Kartsana recommends that, prior to installation, the certified mechanic plan the placement of the safety hook in the rear of the vehicle.
- Automatic charging will only occur with the batteries. Pak batteries supplied by Kartsana.
- Only use Kartsana-approved batteries with R-1100 rail.
- Batteries slowly lose power when not on the charger.



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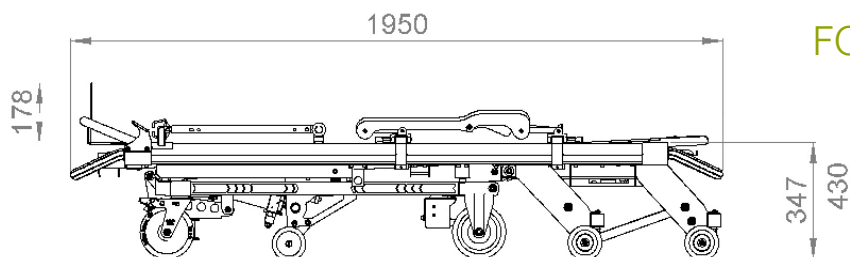
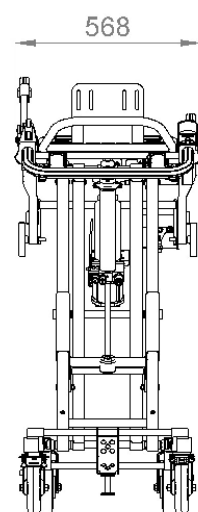
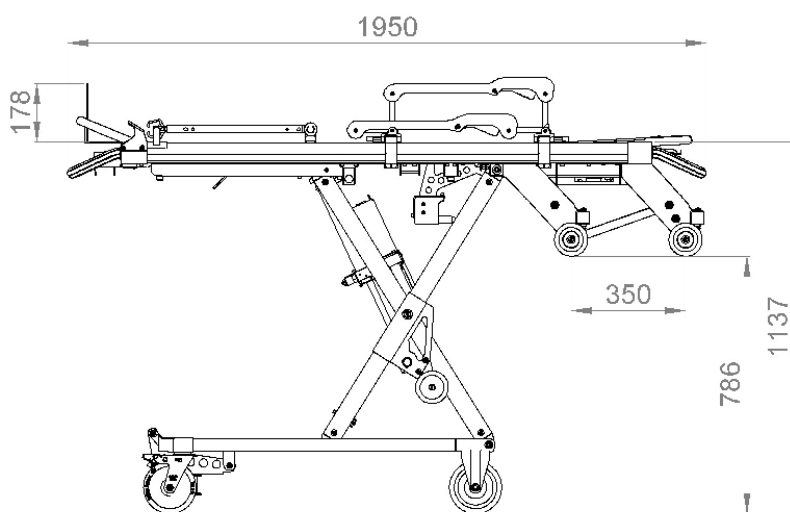
2. INSTRUCTIONS MANUAL

2.1. Technical specifications SILVER stretcher

Make sure that no damage is caused to the areas containing the stretcher mechanisms, to prevent them from malfunctioning.

Aprox. Weight: 69 kg

Trolley dimensions: Elevation in mm



FOLDED LEGS



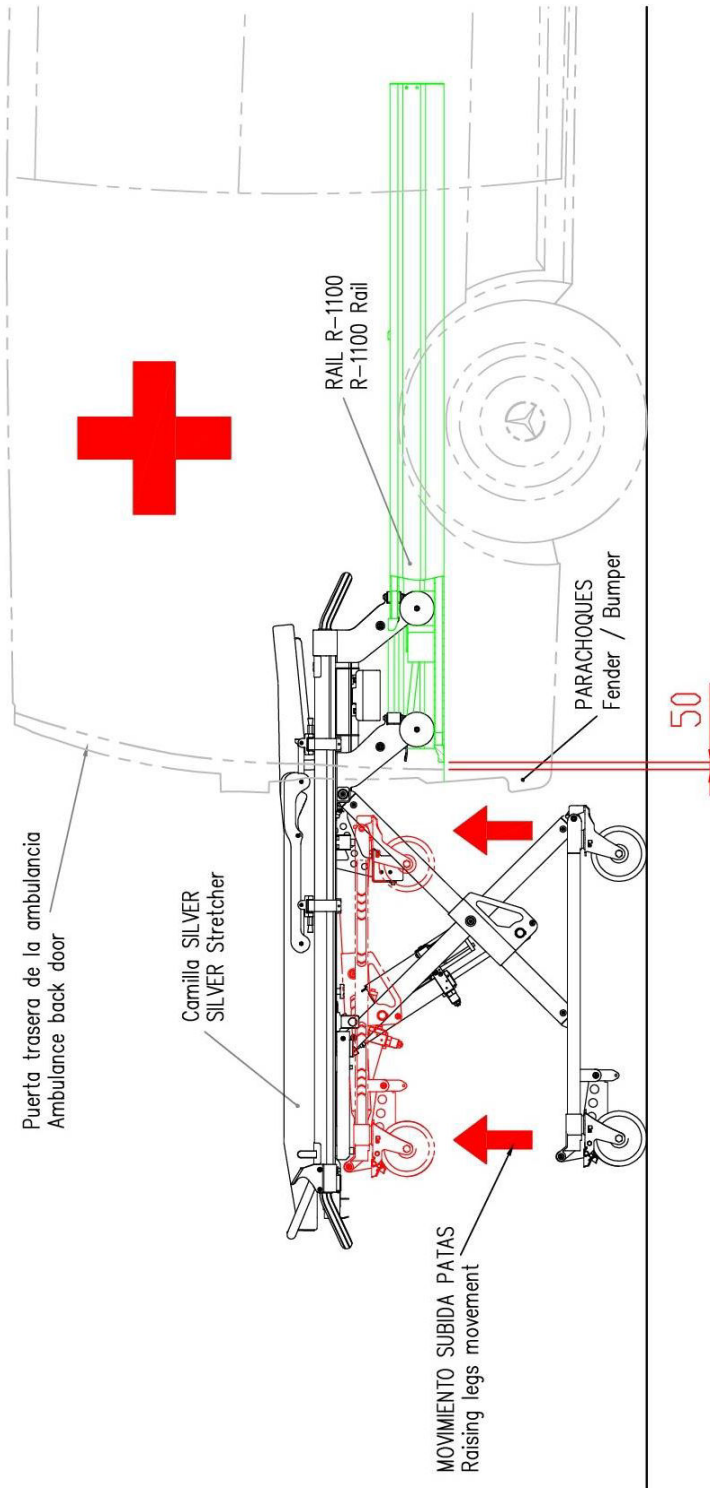
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2.2. Vehicle's configuration

This installing instructions are recommended for the fixation of the assembly SILVER-SILVER (stretcher + rail) of Kartsana. The correct installation of the fastening system (rail) is providential for the appropriate use of the joint.



You have to screw the fixed part of the rail in a way that there has to be a maximum distance of 50mm from the backdoor of the ambulance (from the base of the Silver).

We must take into account the distance / type of fender that the ambulance has, so if the fender protrudes more than 180mm we will have to adapt it to allow proper rise of the legs of the stretcher.

Depending on the model of ambulance and the type of rear bumper fixing measures may change and / or adapt.



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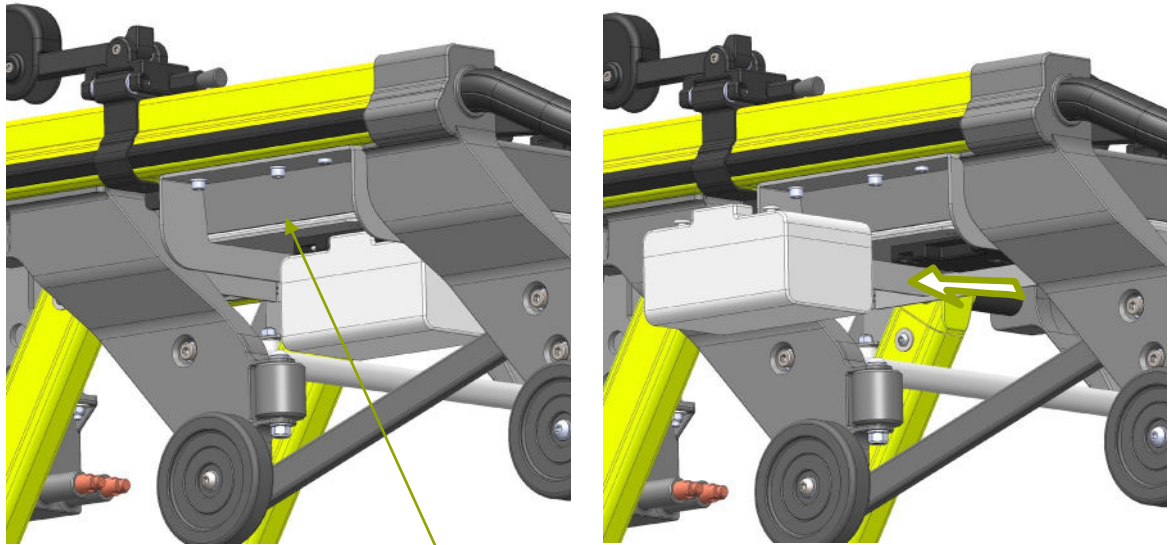
OPERATING AND HANDLING SILVER STRETCHER

2.3. Operating and handling the stretcher

2.3.1. Installing the battery



The first step when working with SILVER is to install the **24 V** battery which power the system. To do this, we place the battery opposite their housings at the front-right of the stretcher and push until it locks.



Trigger to
remove battery

To remove the battery, press the small trigger located on the lower left-hand side and pull carefully.

The battery life under normal circumstances (from 80 to 120 kg load) should be about 20 cycles.

Information note:

The front part of the stretcher corresponds to the head part.

Batteries are delivered with a minimum charge. Prior to operating the bed we charge the batteries with the charger supplied, until the LED turns green it. After that we can work normally.



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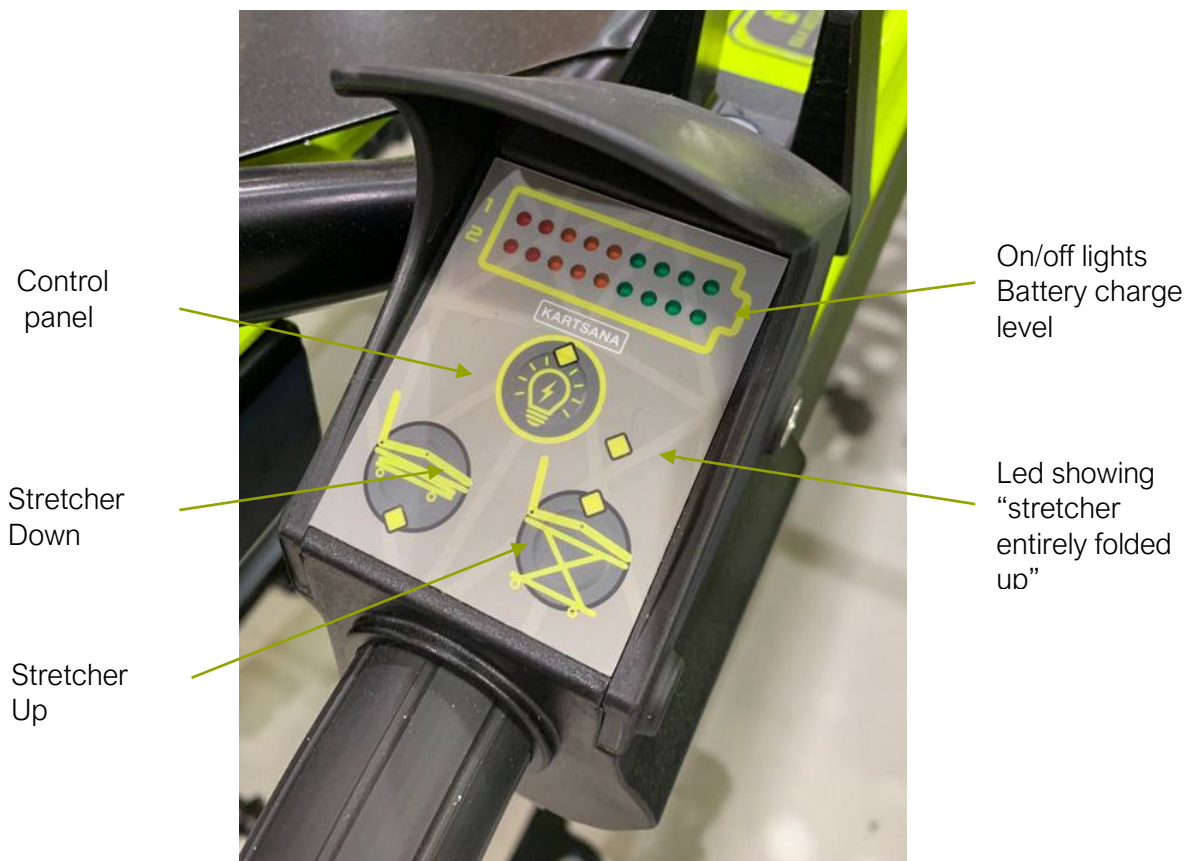
2.3.2. Starting and controlling the stretcher.



To avoid potential injury to the patient and companions, do not place objects in the way of the moveable parts of the stretcher. It is also recommended to avoid having objects that stick out the ambulance.

The stretcher has a security system to avoid collapse in the case of system failure.

To start the system, we must press the yellow button on the control panel for 2 seconds.



The control panel leds will turn on. Afterwards, we will be able to manoeuvre just with the orange button (to lower stretcher) and with the blue button (to raise stretcher). From then on, if we press the yellow button again the amber emergency lights at the four ends of the bed will turn on (see emergency lights photo). We should also see the two battery level leds lit up. The upper line of lights shows the voltage level of battery 1 whilst the lower line shows that of battery 2.

If the level lights are in the green area, the charge level is high, this is the optimum level to carry out the manoeuvres necessary. If they are at the orange level this shows that they are half charged and if they show red we are being warned that we must recharge the batteries as they may soon stop working due to the low voltage level.



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Once both batteries have been installed the system will be powered by battery 1, when this runs down, the system will automatically switch to battery 2. Both will recharge when the stretcher is on the rail and inside the ambulance.

The level screen also shows us any possible system errors. In the following table we will show all the incidences that the display can show.

FAILATURE MESSAGE	CODE	LEDS							
		R	R	Y	Y	Y	G	G	G
Load tension error (ambulance entrance) VERY LOW	2								ON
Load intensity error VERY HIGH	3								ON
Error in battery charge due to lack of ambulance tension or connection switch	4							ON	
End of battery charge (by Vmax or time)	5							ON	ON
Reserved	6							ON	ON
Charge error due to low battery.	7							ON	ON
Charge error due to exceeding the maximum PWM duty cycle	8						ON		
Upwards movement error due to excess time.	9						ON		ON
Downwards movement error due to excess time.	10						ON		ON
Engine failure due to exceeding maximum intensity.	11						ON		ON
Engine failure due to low tension.	12						ON	ON	



TROUBLESHOOTING			
COD	DESCRIPTION OF ERROR	POSSIBLE CAUSE OF ERROR	SOLUTION
2	The battery Voltage is below 3V. The battery(ies) are disconnected or damaged.	Battery(ies) disconnected	Connect the batteries correctly in the dock.
			Check that the battery cables are securely connected to the circuit board.
		Damaged battery(ies)	Replace with new battery(ies)
3	The battery Voltage is above 34V	An overload occurred while the battery was recharging. (ONLY use the charger supplied by KARTSANA or the stretcher for recharging the batteries.)	Leave the battery disconnected, preferably in a cool place for 3 or 4 hours (or until it does not show error 3 when connected to the stretcher) for it to discharge. Check that the batteries have not suffered internal damage while discharging caused by stretcher raising and lowering movements. It must perform at least 15 cycles before discharging.
		Damaged battery(ies)	Replace with new battery(ies)
4	The stretcher does not receive voltage from the ambulance.	The stretcher-rail plug does not connect properly	Check that the two prongs of the stretcher plug and the rail are touching, and that no foreign objects are between them.
		The ambulance battery is discharged or damaged.	Charge battery or replace with a new one respectively.
		Power cables incorrectly connected to either the ambulance, rail or stretcher.	Check cable connections. Recommended checking order: ambulance, rail and stretcher
		One of the copper prongs on the stretcher plug has not come completely out of its housing in the plastic part.	Check that the plug prongs gently go in and out of their housing.
5	The Voltage of the two batteries is below 18V.	Batteries discharged	Charge batteries
6	The stretcher is receiving voltage through the plug but the copper prongs have not been pressed in.	The stretcher is not fully inserted in the rail.	Position it correctly on the inside of the rail.
7	No batteries detected	Batteries disconnected	Fully insert them in the fastening plate until you hear a click.



		Battery(ies) damaged	Replace with new battery(ies)
		Batteries very low	Charge using the external charger
8	Failure in recharging process	Contact technical support	Contact technical support
9	More than 22 seconds have elapsed in the upward movement	Discharged battery(ies)	Charge battery(ies)
		Failure in hydraulic system	Contact technical support
		The mechanism does not move freely	Check mechanism in search of some excessive friction or interference between parts
10	More than 22 seconds have elapsed in the downward movement	Discharged battery(ies)	Charge battery(ies)
		Failure in hydraulic system	Check for possible oil leaks. Contact technical support
		The mechanism does not move freely	Check mechanism in search of some excessive friction or interference between parts
11	Intensity greater than 48A	Stretcher overloaded	Do not load the stretcher with more than 300 kg.
		Discharged battery(ies)	Charge battery(ies)
		The mechanism does not move freely	Check mechanisms in search of any excessive friction, blocking or interference between parts.
12	Voltage lower than 15V	Stretcher overloaded	Do not load the stretcher with more than 300 kg.
		Discharged battery(ies)	Charge battery(ies)
		The mechanism does not move freely	Check mechanisms in search of any excessive friction, blocking or interference between parts.

After any fault or incident, we must restart the system pressing the three keys at the same time for 1 seconds.



The system will automatically go on STANDBY if more than 15 minutes pass without any action being carried out. It will restart by pressing the yellow button for 2 seconds.

If we perform continuous stretcher raising and lowering movements for 2 min. we should then stop for 10 sec. for the system to recover and we can continue operating without problems.

Removing the battery is advised if the stretcher will remain unused for long periods of time.



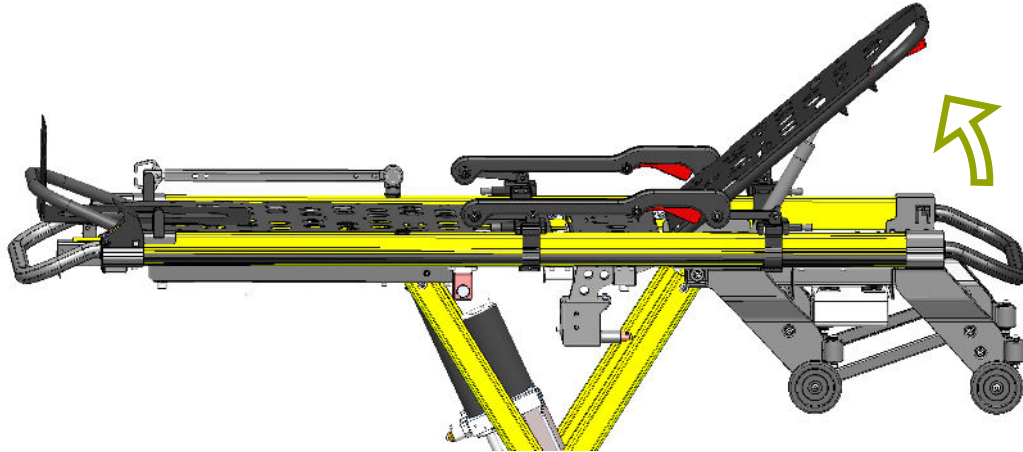
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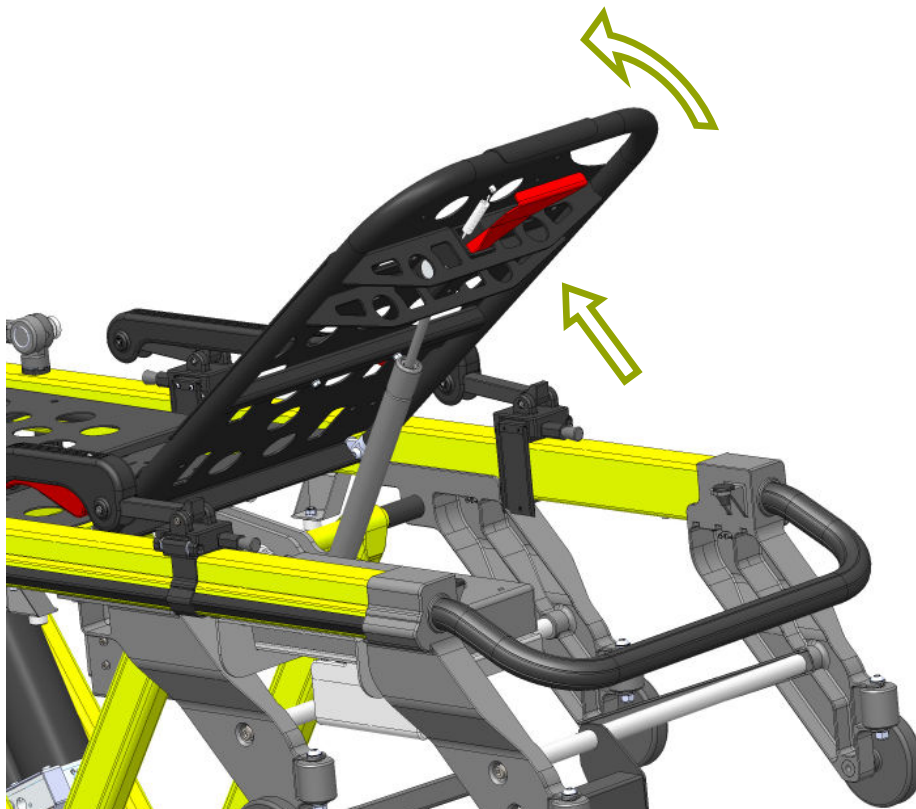
OPERATING AND HANDLING SILVER STRETCHER

2.3.3. Adjustable reclining head

Pull the red lever that is located below the head rest and move it to the required position.



Then release the lever so that the head is locked in the required position.





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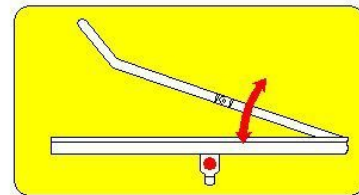
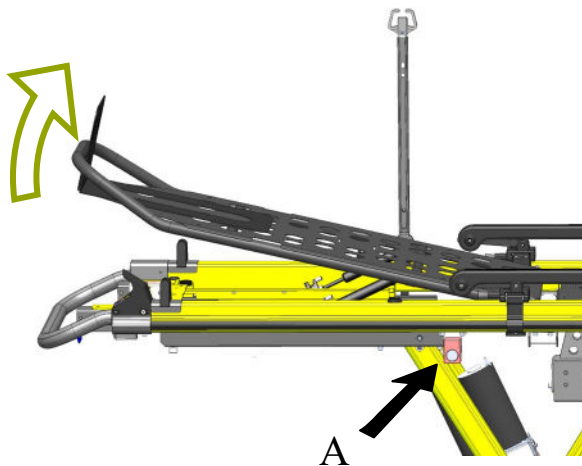
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2.3.4. Adjustable leg rest

- Button for adjusting the leg inclination

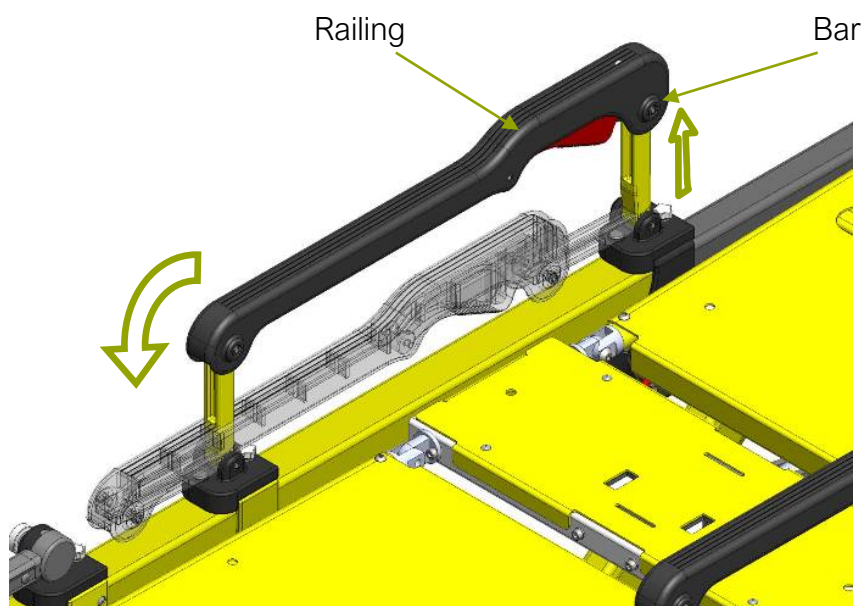
The required inclination of the leg rest can be obtained by pressing button A and moving the leg rest manually. Once the correct inclination has been reached, release button A to automatically lock the leg rest.



The adhesive on the part of the stretcher shown in the drawing on the left indicates the red button that must be pressed to adjust the position of the legs.

2.3.5. Safety rail

The safety rail has a red bar that locks the rail into place. To lower the rail, just press the bar as shown in the figure below. To lock it in the safety position again, move it to that position manually, and it will automatically lock into place.



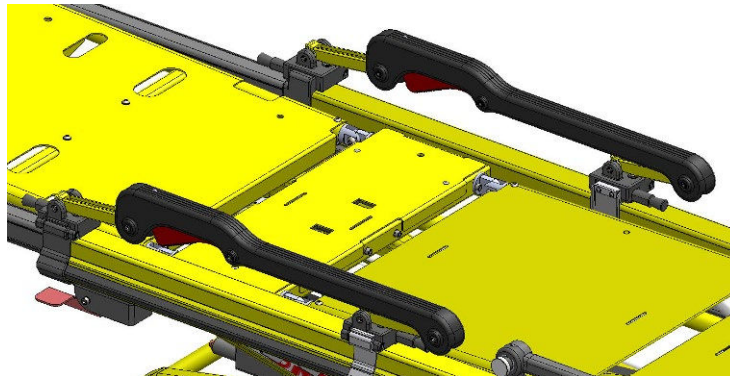


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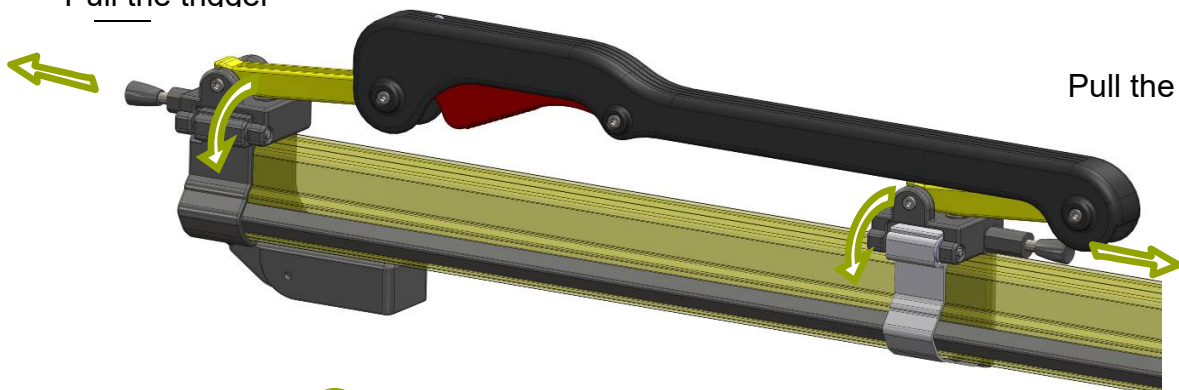
OPERATING AND HANDLING SILVER STRETCHER

This way the stretcher stays with the folded safety rail:

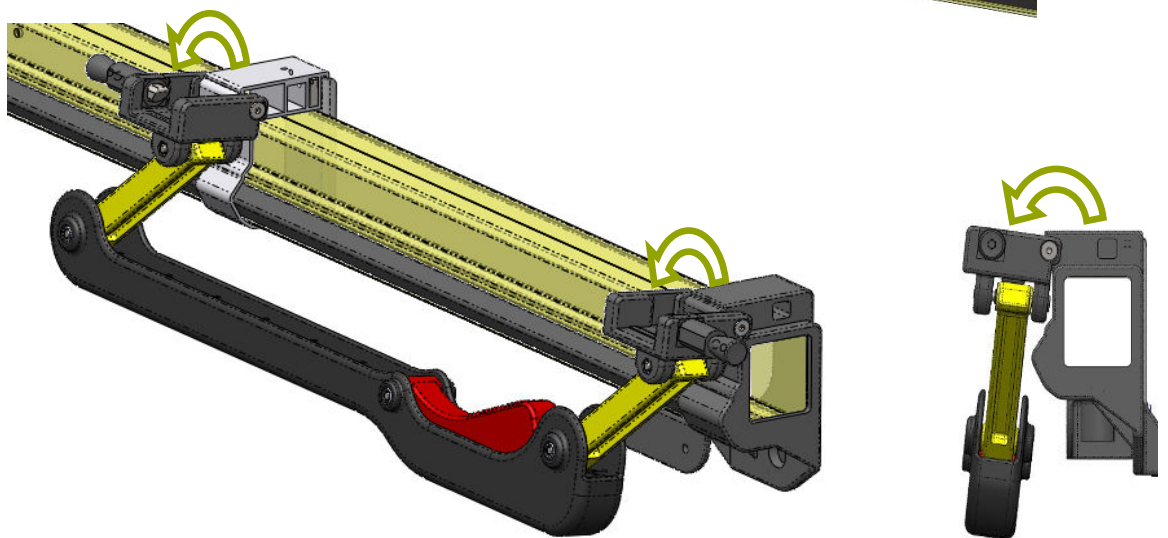


The safety rail can be folded in the width direction too. You must pull the two triggers at same time to open the safety rail in width direction. Perform the same operation on both sides.

Pull the trigger



Pull the trigger





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2.3.6. Intravenous drip stand.

The stretcher comes with a drip holder located on the left-hand side. Unscrewing the silver knob "R" we lift the salt solution section to the vertical position perpendicular to the stretcher, then we twist the knob again.



The length of said drip pole may be lengthened or shortened pressing a small positioner located on the inner side, raising the hook until the upper position is reached.

The "drip pole" assembly can be placed on either the left or right side of the stretcher.

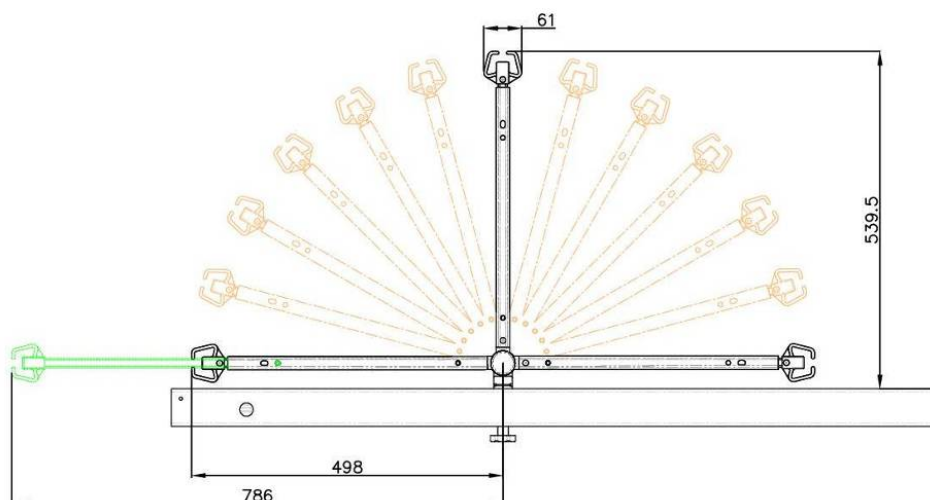
Dimensions: 539,5 (+288extended) mm x 61mm

Weight: 0,48 Kg

Maximum load allowed: 6 Kg

The maximum weight is indicated on the drip rod by an adhesive like the one shown above.

PESO MÁXIMO:
MAXIMUM LOAD: 6 Kg





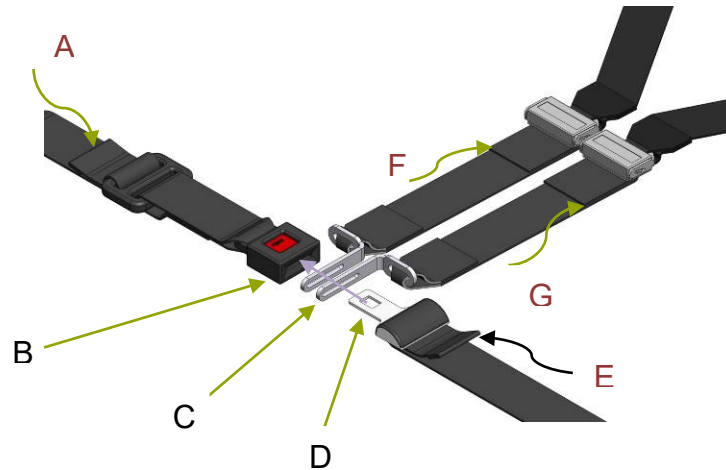
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OPERATING AND HANDLING SILVER STRETCHER

2.3.7. Way of fastening the safety belts to the patient.

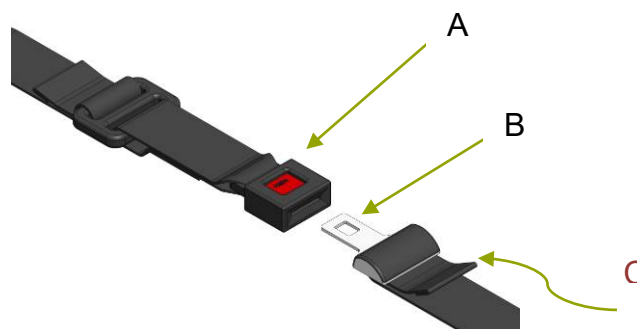
2.3.7.1. Head belts.



Place the clasps (C) in the position shown in the figure above. Pass the male part of the buckle (D) between the openings (C) until it is inserted into the female part B. Once all the parts are fastened, place them in the centre and tighten them adjusting the belt tension at ends A, E, F and/or G. (In the feet belt the C fasteners do not show).

2.3.7.2. Abdomen belts

Put the female part of the buckle A and male part B in the position shown in the figure below and insert the latter into the slot in the former. Once the assembly is firmly secured, centre and tauten it, adjusting the tension of the belt at end C.



It is advisable to ensure that while the patient is on the stretcher, he/she is secured at all times by the safety belts.



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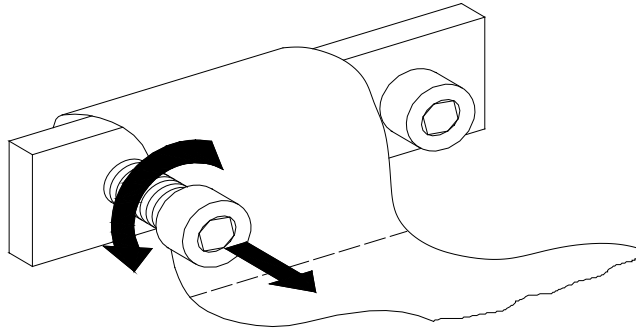
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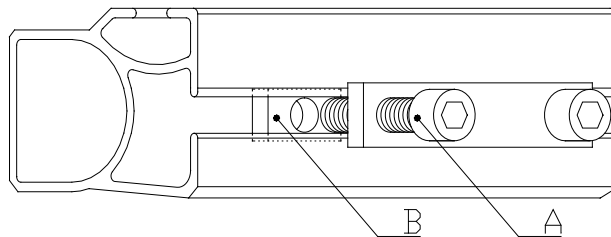
2.3.8. Dismantling-assembly of the stretcher belts.

Anchoring with a plate.

Loosen the screws as shown in the following figure. To assembly them just follow the same process but in reverse order.



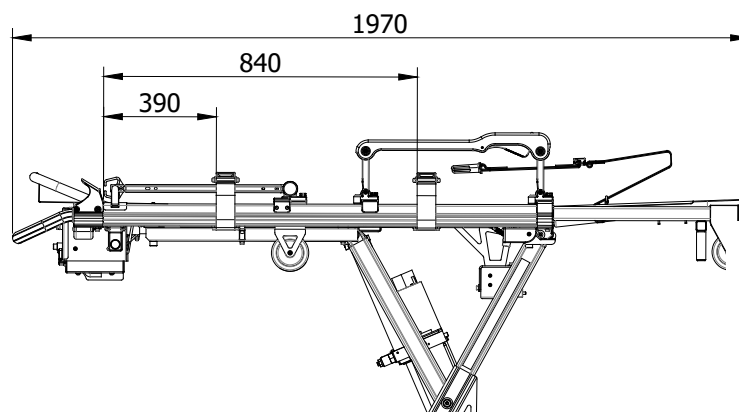
To assemble them just follow the process in reverse order, fastening the 'A' screws to the 'B' nuts inside the guides of the aluminium profile guide.



2.3.9. Position of the belts.

2.3.9.1. Lateral belts.

The belts are positioned at the approximate distances shown in the figure below.





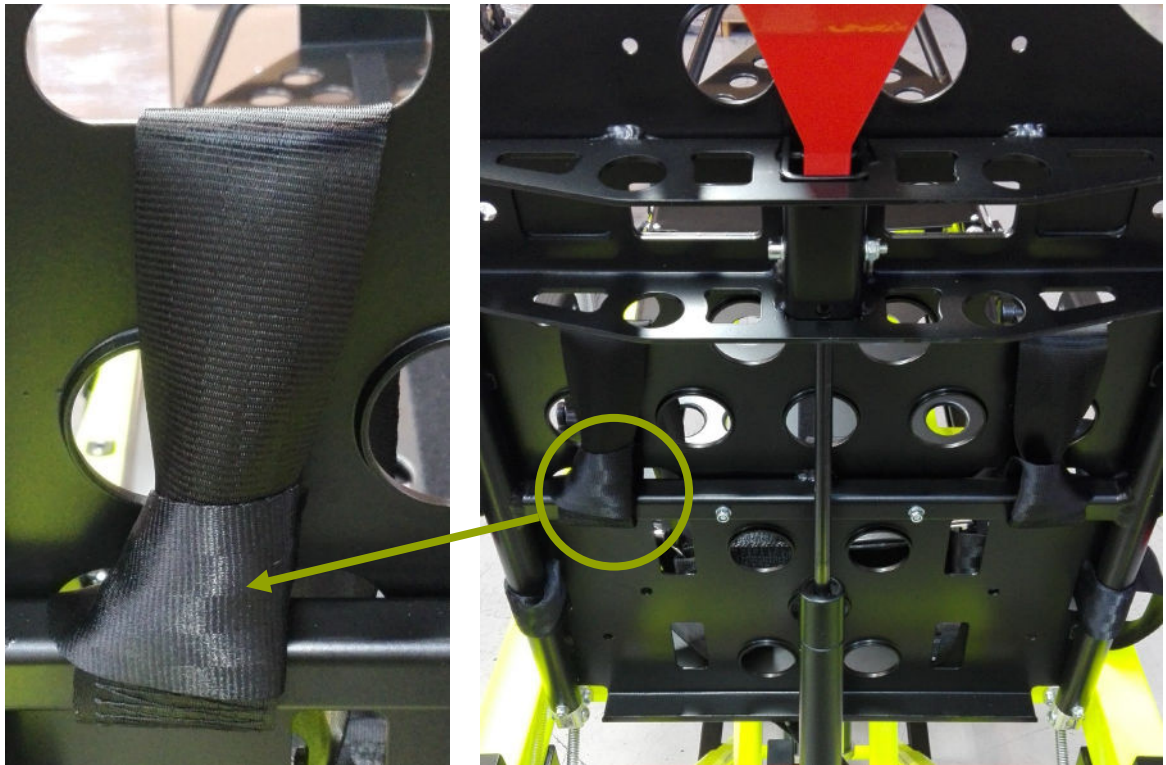
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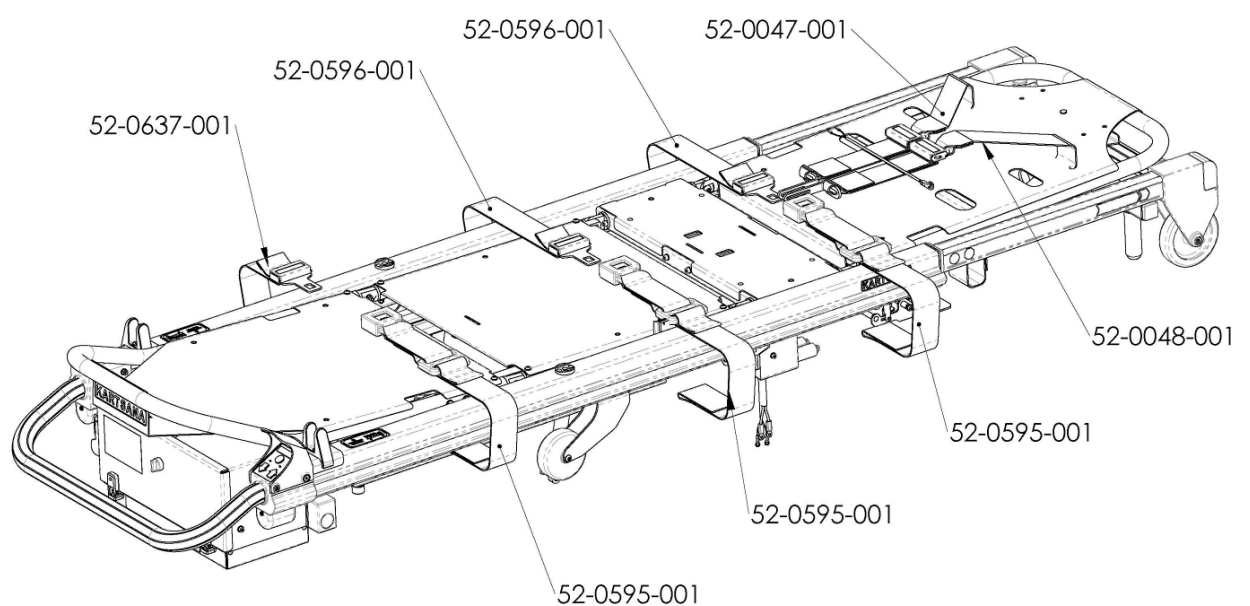
OPERATING AND HANDLING SILVER STRETCHER

2.3.9.2. Head belts.

The headrest belts must go through the holes in the headrest and must be secured in the panel crosspiece with a knot as shown in the following figure.



The code numbers for our belts are:





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2.3.10. Rear wheel brake lever.

Activate the lever with your foot to enable the brake to lock the rear wheels. This lever locks both the lengthways and revolving movement of the trolley.

Never leave a patient unattended on the stretcher or injury could result. Hold the stretcher securely while a patient is on the product.



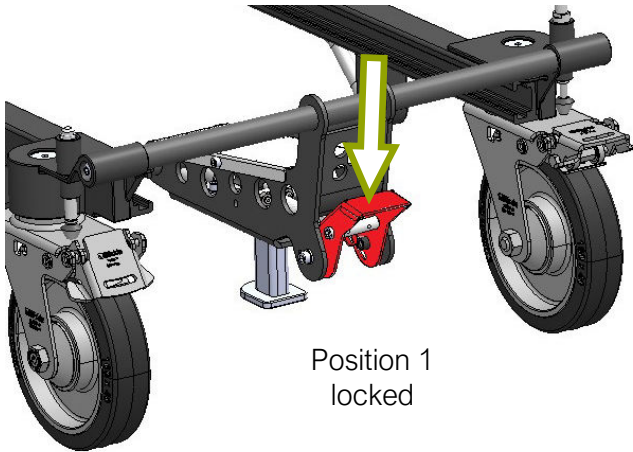
IMPORTANT: when breaking the stretcher, use both brakes of the rear wheels at the same time, especially for weight over 250kg.

For weights higher than 200kg it is recommended to use the stretcher by a low position in patient transport, rising the stretcher until the necessary position just in the moment of introduce it into the ambulance.



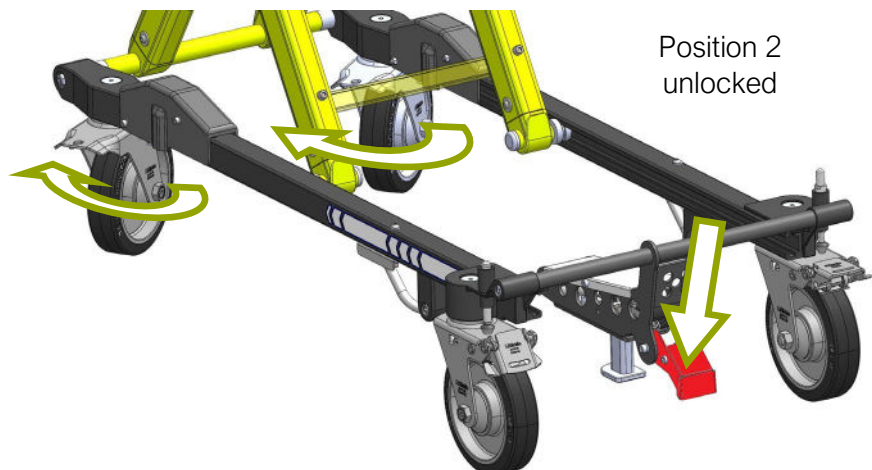
2.3.11. Lever to unlock revolving front wheels (only model TG-1100 4)

By pressing the central rear trigger, we unlock the front wheels to spin freely. See figures:



Position 1
locked

By pressing the front trigger, we unlock the front wheels to turn freely. See figure:



Position 2
unlocked



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Front wheels **must be always blocked** (position 1) when you load the stretcher on the rail. The omission of this, may cause injury to the patient or operator.

Never apply the optional wheel lock(s) while a patient is on the stretcher (if you must move it). Tipping could occur if the stretcher is moved while the wheel lock is applied, resulting in injury to the patient or operator and/or damage to the stretcher.

Transporting the stretcher sideways can cause the stretcher to tip, resulting in possible damage to the product and/or injury to the patient or operator. Transporting the stretcher in a lowered position, head or foot end first, minimizes the potential of a stretcher tip

Never leave a patient unattended on the stretcher or injury could result. Hold the stretcher securely while a patient is on the product.

Never install or use a wheel lock on a stretcher with excessively worn wheels. Installing or using a wheel lock on a wheel with less than a 160mm diameter could compromise the holding ability of the wheel lock, possibly resulting in injury to the patient or operator and/or damage to the stretcher or other equipment.

Wheel lock(s) are only intended to help prevent the stretcher from rolling while unattended and to aid in patient transfer. A wheel lock may not provide sufficient resistance on all surfaces or under high loads.



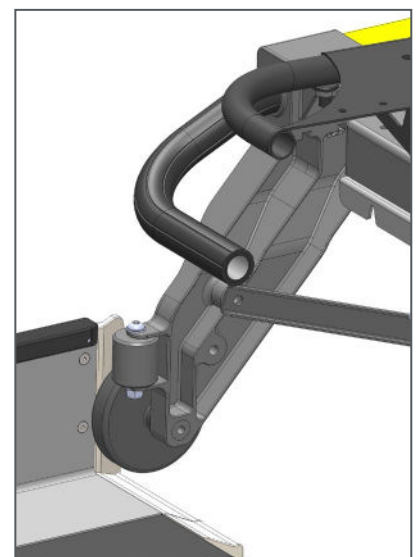
For weights higher than 200kg it is recommended to use the stretcher by a low position in patient transport, rising the stretcher until the necessary position just in the moment of introduce it into the ambulance.

2.3.12. Assembling the SILVER Stretcher onto the R-1100 rail

We must adjust the maximum elevation range of the stretcher only the first time we load it on the rail. If we change to another ambulance of a different height, we will have to adjust it again.

To adjust the maximum elevation of the upwards range of the stretcher, we must place it opposite the rail on the outside of the ambulance. Place the front wheels half a centimetre above where the small loading wheels slide. See picture

Keep the stretcher in this position and take it off the rail. Afterwards we must look for the adjusting cam in the upper part of the stretcher near where the shock absorbers are joined to the back rest. The cam is joined to the axle with a “H” screw which has to be loosened, then we will rotate the



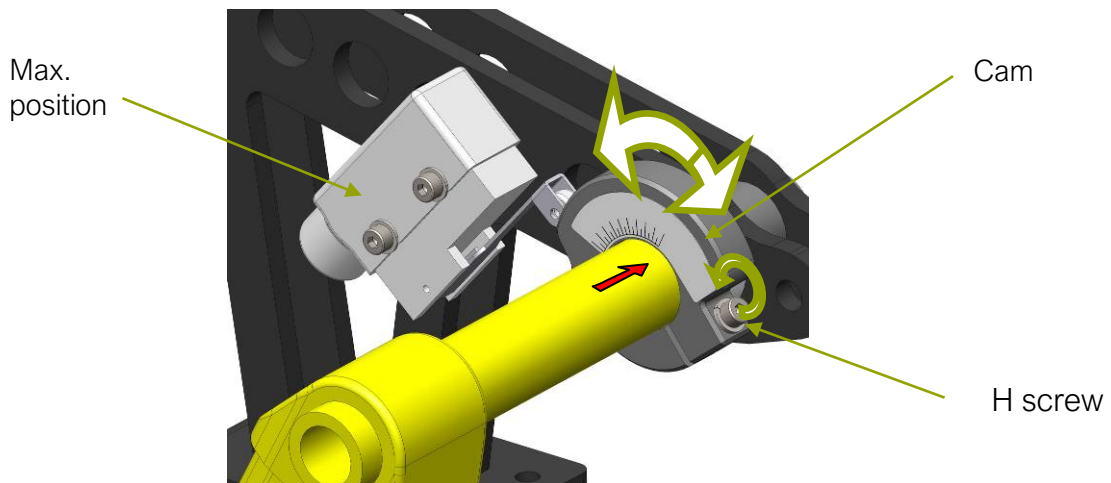


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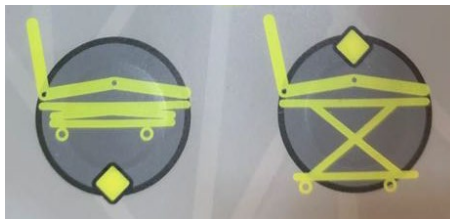
OPERATING AND HANDLING SILVER STRETCHER

cam until it is detected for the limit switch. Once positioned so that we see the switch light on we will tighten the screw again to set the cam in this final position.



From then on, the stretcher will only rise as far as the elevation set.

Check by carrying out a loading manoeuvre and readjust if necessary.



Leg folding and unfolding buttons

For the next manoeuvre, the stretcher will be raised using the blue button to the level that was previously set.

To load the stretcher onto the R-1100 rail we will guide the stretcher towards the part of the ambulance that project out and make the small wheels of the stretcher join the rail.



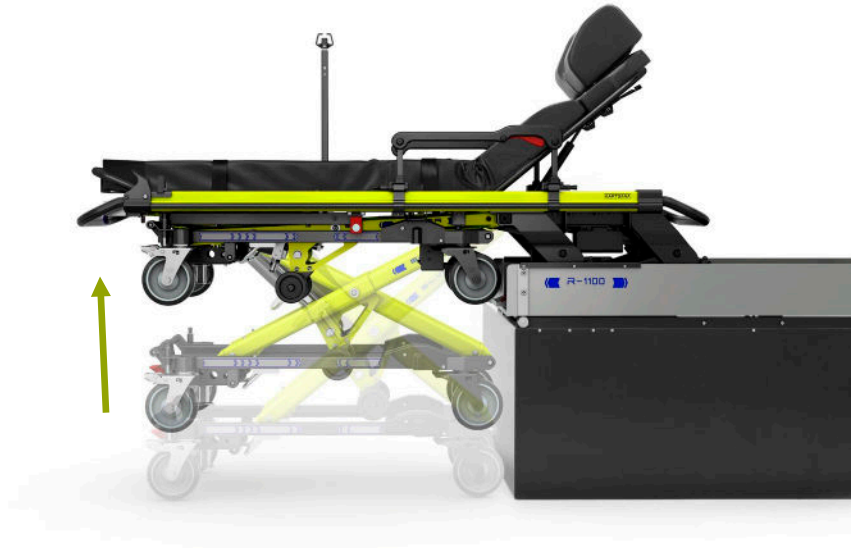


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Once the stretcher has been lined up with the cross section of the rails, push the stretcher until its first position.



Press the control folding button (the left one) to lift the stretcher legs until its maximum position.





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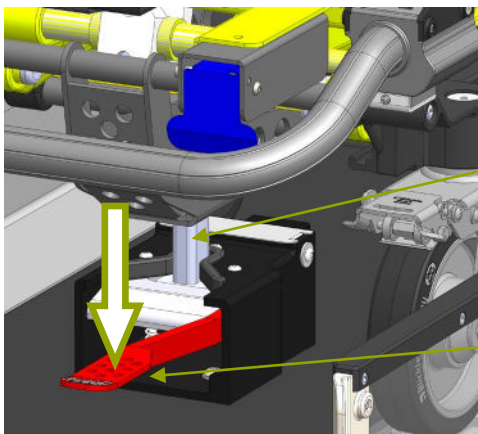
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Push the stretcher towards the inside until the limit has been reached. Once this process has finished the stretcher should be perfectly secured on the rail.



To be sure that the whole stretcher rail is correctly placed make sure that the unload lever is in the horizontal position. This is the 3rd point in the inside of its compartment and the front locking system is in the correct position.



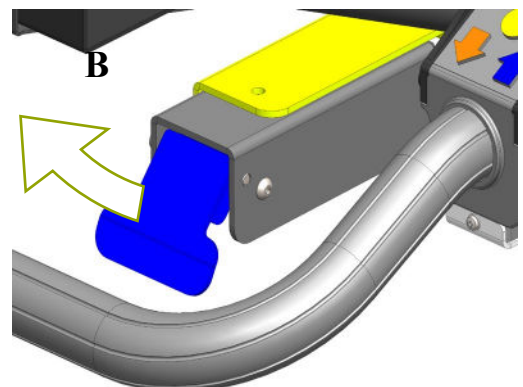
Third point

Unloading lever.

To unload the stretcher, pull the rear right “B” rail blue trigger to unlock the mechanism and the unloading red lever of the rail and pull the stretcher. Then, the stretcher legs can be unfolded.



IMPORTANT: do not disconnect the supporting battery from the ambulance when it isn't doing any service, to allow the correct charge of the stretcher battery between services.





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2.3.13. Transferring the patient to the stretcher.

➤ To transfer the patient to the stretcher:

1. Bring closer the stretcher to the patient.
2. Place the stretcher beside the patient and raise or lower the stretcher to the level of the patient.
3. Lower the siderails and open the restraint belts.
4. Transfer the patient to the stretcher using accepted emergency medical procedures.
5. Use all the restraint belts to secure the patient to the stretcher.
6. Adjust the backrest and foot rest as necessary.

➤ When rolling the stretcher:

1. Make sure that all the restraint belts are securely buckled around the patient.
2. Position an operator at the foot end and one at the head end of the cot **always** when rolling the cot with a patient on it.
3. Approach door sills and/or other low obstacles squarely and lift each set of wheels over the obstacle separately.

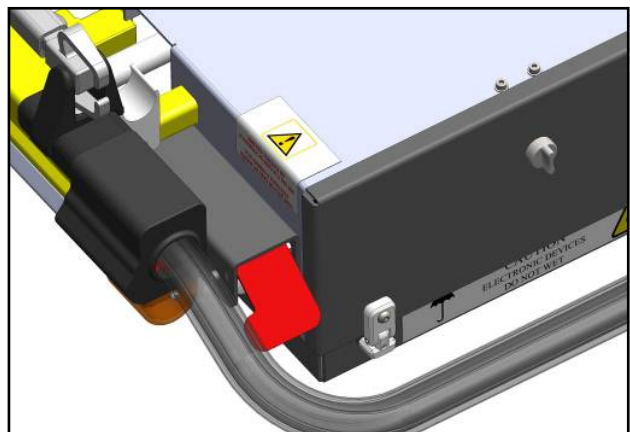
➤ Proper lifting techniques

When lifting the cot and patient, there are basic guidelines to help you avoid injuries:

- Keep your hands close to your body.
- Keep your back straight.
- Coordinate your movements with your partner and lift with your legs.
- Avoid twisting.
- Always use the stretcher as we describe in this manual.

3. FAULTS

If the hydraulic system breaks down, pull red trigger located next to the batteries at the rear. The stretcher will go down until the lower limit is reached and will remain in this position.





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4. PRODUCT CARE & DISPOSAL

4.1. Servicing requests

For any service requests or consultations regarding the use, maintenance, or installation of any KARTSANA product, please contact KARTSANA Customer Care Service.

- Telephone #: +34 93 715 86 72
- E-mail: info@kartsana.com
- Narcís Monturiol, 34
08192 Sant Quirze del Vallès
Barcelona (Spain)

4.2. Environmental conditions

For both use and storage:

Temperature: from -10 °C to +60 °C

Relative Humidity: 5 - 95%

4.3 Cleaning

When disinfecting the device, use non-corrosive products that will not damage the surface of the materials and wipe with a cloth or similar non-abrasive cleaning utensil. If the surface to be disinfected is greased, re-grease it after disinfection.

All disinfectants must be used in accordance with the manufacturer's instructions.



Do not wash the product with high pressure water, take special care with electrical components, the circuit board housing, keypads, LEDs and motor.

Remove the batteries before washing and then thoroughly dry the terminal contacts.

The manufacturer will not be held responsible for any anomaly or damage caused by using a cleaning product that could damage the stretcher's surface materials.

To ensure the hygiene and proper conservation of the product components, the manufacturer recommends that they be disinfected after each use.



4.4. Maintenance

4.4.1. Precautionary Maintenance

A periodic and correct maintenance guarantees the durability of the device.

Creating a maintenance plan including periodic check-ups and establishing a responsible employee to carry it out is recommended.

The person who carries out the precautionary maintenance of the appliance (user, manufacturer/supplier or third party) must meet or adhere to the following basic requirements:

- ✓ Possession of technical knowledge pertaining to the device and of the periodic maintenance procedures as described in these instructions.
- ✓ Use or support of qualified technical personnel trained specifically in the maintenance operations required for the device in question.
- ✓ Use of components, replacement parts, or accessories that are either original to or approved by the supplier to avoid the need to carry out alterations or modifications to the device that would void warranty.
- ✓ Record keeping of all maintenance operations carried out on the device, in adherence to the instructions of European Council directive 93/42/CEE which states the obligation of the purchaser to provide when requested the afore mentioned after-sales care record for the purpose of product traceability.

Check the device before every use.

Before each service, the following points must be ensured:

- ✓ Functionality of the product.
- ✓ Fixation of nuts and bolts.
- ✓ Good condition of moving parts, wheels, belts, mattress.
- ✓ Spring sensibility.
- ✓ Full working order of all electrical functions must be checked: full range of movement, lighting, etc.

If the device does not appear suitable for correct and safe use, it must be taken out of service until the device is repaired or restored to full working order.

Do not modify the device structurally for any reason, as this may cause serious damage to patients and / or operators.

Recommended lubrication interval for moving parts:

- 1 - 30 services per month: every 3 months
- 30 - 50 services per month: every 2 months
- over 150 services per month: every month



All maintenance other than lubrication, tightening of nuts and bolts and ordinary cleaning must be performed by KARTSANA or an authorized service centre.

4.4.2. Servicing Maintenance

The person to whom the servicing of the product is entrusted must guarantee the following basic requirements:

- ✓ Adequate knowledge of the product, of its technical / construction features, of checkpoints and final tests, packaging, conservation, and handling.
- ✓ Adequate knowledge of the technology used in production of the product.
- ✓ Knowledge of all correct product functions and of any potential risks or possible malfunctions or breakdowns of the product
- ✓ Possession of all instruments necessary for carrying out any technical servicing or minor repairs.
- ✓ Possession (or ability to procure) replacement parts from the original manufacturer or authorised by the manufacturer.
- ✓ Use or support of specialized technical personnel trained by the manufacturer for the servicing of the product in question.
- ✓ Record keeping of all maintenance operations carried out on the device, in adherence to the instructions of European Council directive 93/42/CEE which states the obligation of the purchaser to provide when requested the afore mentioned after-sales care record for the purpose of product traceability.

4.5. Transport and storage

Before transporting the device, make sure it has been packed adequately and secured to avoid damage during transport.

Keep the original packaging for other eventual transports. Any damage caused to the device during transport is not covered by warranty. Repairs and substitutions of damaged parts are at the customer's charge.

The device must be stored in a dry place.

During storage, do not put any heavy object on top of the product. It should not be used as support for any type of object.

4.6. Disposal

When the product is no longer in working condition, if it has not been contaminated by any corrosive or contagious agent, it can be disposed of as any metal-based waste, following the local current regulations regarding metal-based waste disposal.



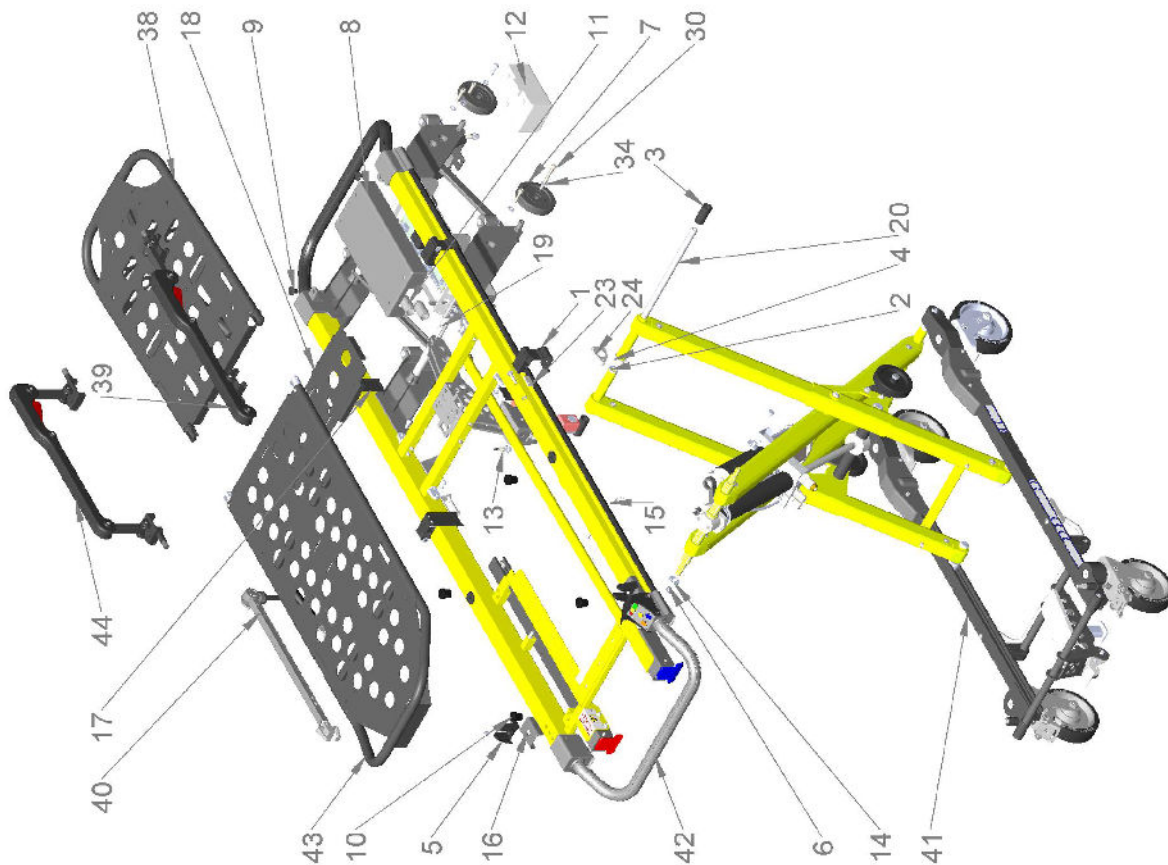
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OPERATING AND HANDLING SILVER STRETCHER

5. EXPLODED STRETCHER SILVER TG-1100

Nº DE ELEMENTO	Nº DE PIEZA	Descripción	CANTIDAD
1	03-0922-001	PERFIL BARANDILLA BRAVA BRUTO 4082 7/A REF. 14-0201-C1	4
2	05-0211-001	CASQUILLO PLÁSTICO EJE PATAS BRAVA	2
3	05-0215-001	CASQUILLO LARGO PLÁSTICO EJE PATAS BRAVA	2
4	05-0236-001	SEPARADOR LEVA BRAVA	1
5	05-0246-003	TOPE PALO SUERO BRAVA	2
6	05-0293-001	TAPON PROTECCION DESGASTE GUIA	2
7	05-0466-00C	REDUJA MACIZA DIAM. 100 BASIC	4
8	06-0479-00A	TAPA BATERIAS BASIC	1
9	06-0613-001	TAPONES TOPE CABEZAL R-56 D22	2
10	06-0621-001	TAPON REPRIV R-5 605	4
11	06-0650-001	ROSCA EXTERNA RECTA CONDUCTO NYLON (Ref. 49.612)	2
12	07-0031-00B	MANILLA BRAVA	1
13	07-0064-001	DETECTOR INDUCTIVO X311283NA.2 DIS. 4mm MI 2x36	3
14	09-0070-001	RODAVIENTO - 6001Z	2
15	09-0202-001	MUELE MOTOR TIRADOR EMERGENCIA BRAVA	1
16	11-0650-003	CHAPA OCULTA AGUJEROS PERFORACION BRAVA	2
17	11-0837-001	CHAPA TAPA LATERAL BARANDILLA BRAVA	4
18	11-1295-008	CHAPA CAJETIN BRAVA	1
19	12-0046-001	EJE ANILLO ELÁSTICO AMORTILCABEZAL	1
20	12-0282-001	EJE DEL SLP. PATAS BRAVA	1
21	12-0381-001	POSICIONADOR MUELLE VALVULA SEGURIDAD	1
22	12-0423-001	CASQUILLO 68 X 5 X 36 BARANDILLA BRAVA	3
23	12-0467-001	TUERCA RECTANGULAR BARANDILLA ABATIBLE BRAVA	2
24	12-0690-00C	LEVA DIRECTOR INDUCTIVO BAS C	1
25	13-0023-001	ALLEN DIN 912 M6X16 - 8.8 CINCADO	4
26	13-0072-001	AVELL DIN 7991 M6X16 - 9.8 CINCADO	2
27	13-0073-001	AVELANADO ALLEN DIN 7991 - M6 X 20 CINCADO	1
28	13-0113-001	ULS ISO-7381 M8X20 10.9 CINCADO	4
29	13-0115-001	ULS ISO-7381 M8X30 10.9 CINCADO	2
30	13-0123-001	ULS ISO-7381 M8X60 10.9 CINCADO	2
31	13-0177-001	TUERCA AUTOBLOQUEANTE M6	3
32	13-0194-001	ANILLO ELASTICO d8	2
33	13-0201-001	ARANDELA d5 CINCADO	8
34	13-0206-001	ARANDELA d8 CINCADO	4
35	13-0223-001	ARANDELA NYLON d8	8
36	13-0266-001	ARANDELA d3 CINCADO	4
37	13-0472-001	ULS 3X10 CINCADO	4
38	52-0476-00B	PERFONALIF COMPLETO FIG. CARPAT	1
39	52-0579-002	BARANDILLA ABATIBLE BRAVA DERECHA	1
40	52-0615-001	PALO DE SUERO BRAVA (INSERTO TORNILLO)	1
41	52-0775-00F	CHASIS INFERIOR COMPLETO SILVER	1
42	52-0776-00F	AREA PACIENTE COMPLETO BASIC	1
43	52-0780-00A	PIERNAL SIMPLE COMPLETO BASIC	1
44	52-0777-002	BARANDILLA ABATIBLE BRAVA IZQUIERDA	1

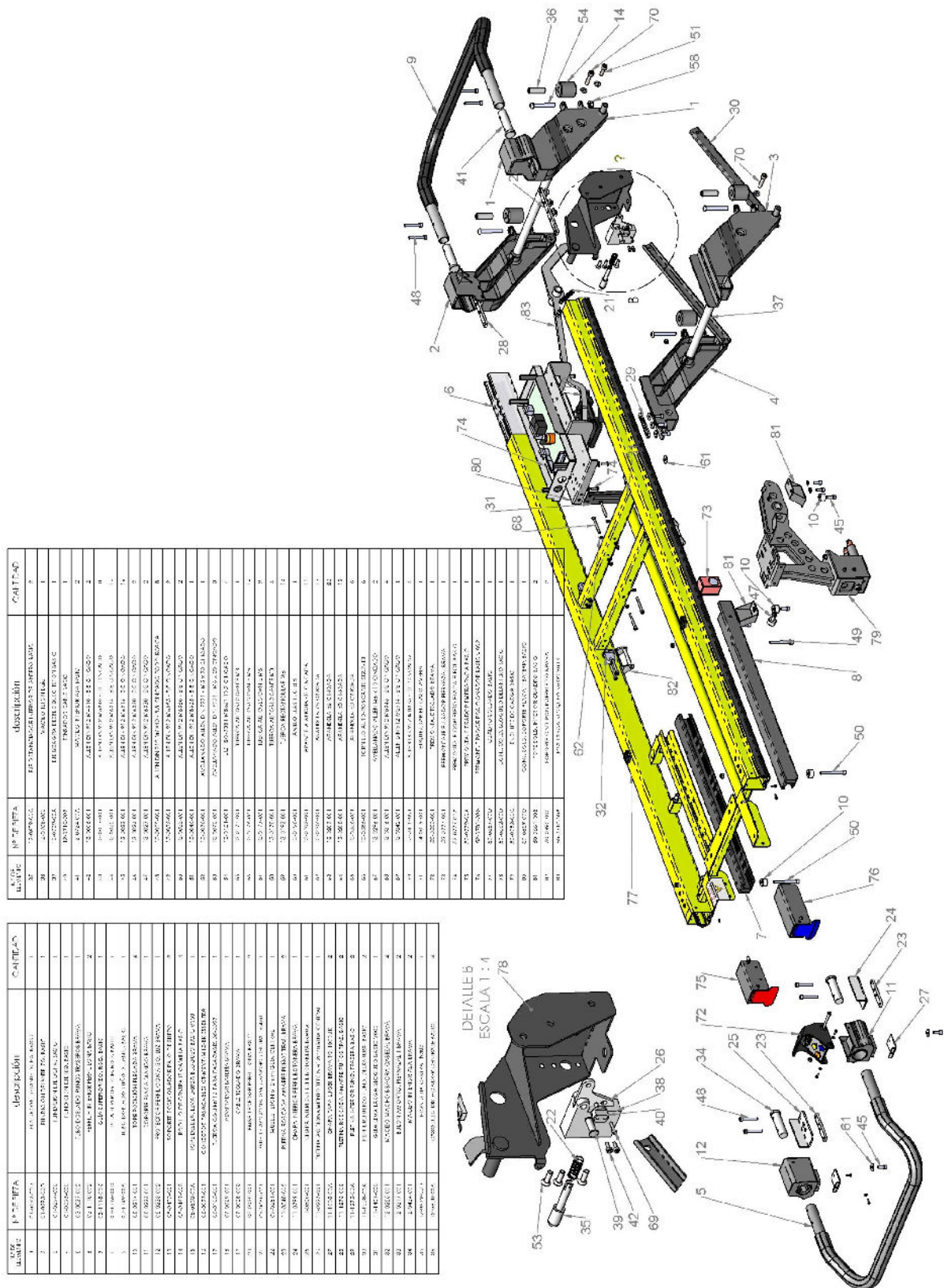


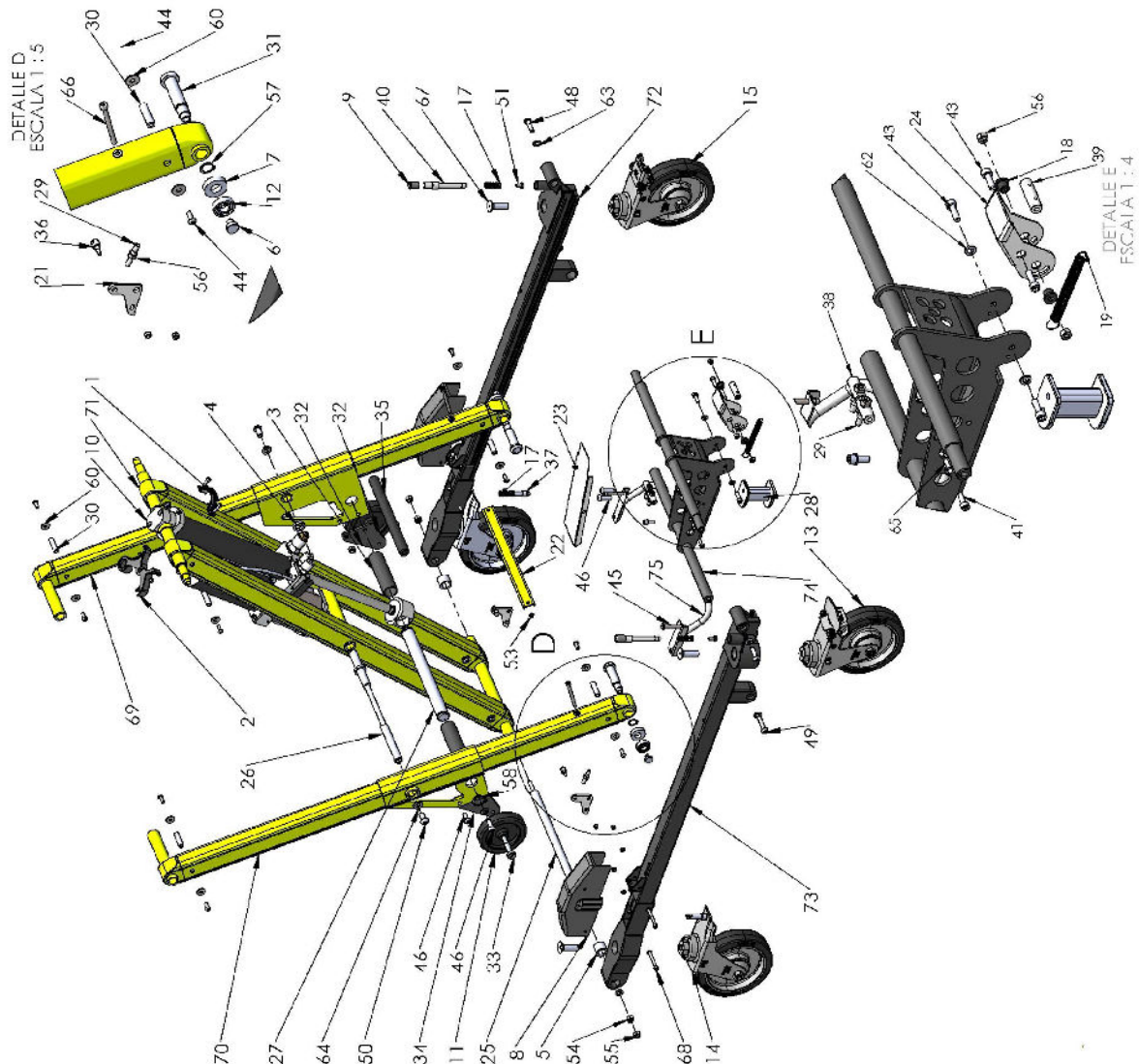


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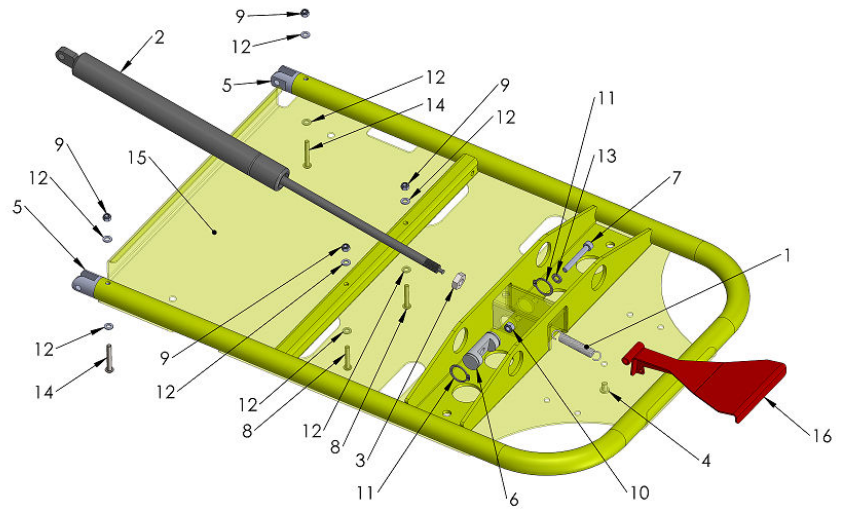
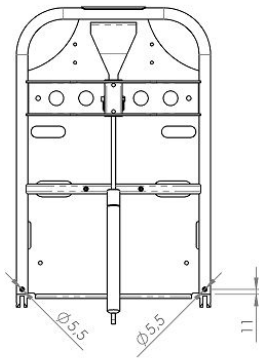
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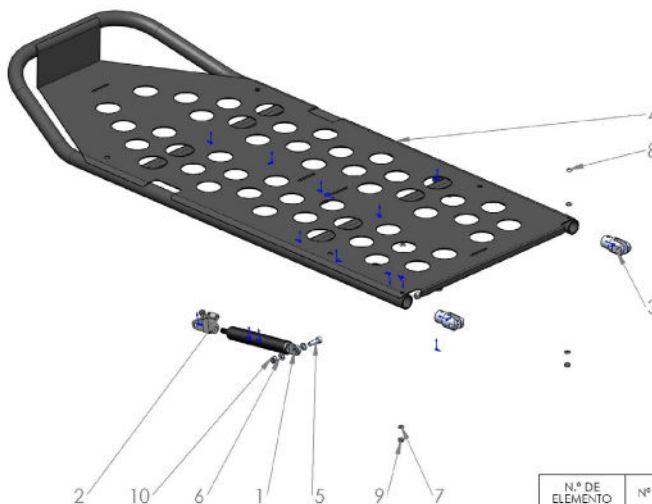
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N.º	Referencia	Descripción	CANT.
1	09-0060-001	MUELLE ACCIONADOR GANCHO CENTRAL R-450	1
2	09-0098-001	AMOR.CABEZAL BRAVA 729779 400N	1
3	09-0105-001	TUERCA PALANCA 1041BN AMORT. 012491	1
4	12-0159-001	CASQUILLO AGARRE CABLE R-450 N	1
5	12-0254-001	MACIZO HEMBRA BISAGRA CABEZAL BRAVA	2
6	12-0441-001	PIEZA MECANICA TERMINAL AMORT.	1
7	13-0030-001	ALLEN DIN 912 M6X45 - 8.8 CINCADO	1
8	13-0099-001	DIN 7380 ULS M5X30 -10.9 CINCADO	2
9	13-0176-001	TUERCA AUTOBLOCANTE M5	4
10	13-0177-001	TUERCA AUTOBLOCANTE M6	1
11	13-0198-001	EXT. ELASTIC RING ø 20	2
12	13-0206-001	ARANDELA d5 CINCADA	8
13	13-0207-001	ARANDELA d6 CINCADA	1
14	13-0240-001	DIN 7380 ULS M5X35 -10.9 CINCADO	2
15	50-0376-007	CABEZAL SOLDADO BRAVA	1
16	50-5490-001	PALANCA MANETA CABEZAL SOLDADA 120	1



Nº DE ELEMENTO	Nº DE PIEZA	Descripción	CANTIDAD
1	09-0091-001	AMOR.PIER.WO/D2/P/KO/11/45/160/150	2
2	09-0092-001	CABEZA DISPARO AMOR. LA-ST M8X1	2
3	12-0254-001	MACIZO HEMBRA BISAGRA CABEZAL BRAVA	2
4	50-0663-00A	CONJ. SOLD. PIERNAZAL BASIC	1
5	13-0024-001	ALLEN DIN 912 M6X20 - 8.8 CINCADO	2
6	13-0220-001	ARANDELA NYLON d.6	4
7	13-0206-001	ARANDELA d5 CINCADA	4
8	13-0240-001	DIN 7380 ULS M5X35 -10.9 CINCADO	2
9	13-0176-001	TUERCA AUTOBLOCANTE M5	2
10	13-0177-001	TUERCA AUTOBLOCANTE M6	2



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6. ACCESORIOS

C-007 BRAVA HEADREST EXTENSION CUSHION
90-0141-001

BRAVA HEADREST EXTENSION KIT
90-0137-002



M-139 INSTRUMENTS TABLE
90-0131-001



(*) *The accessories have not been tested in dynamic tests.*

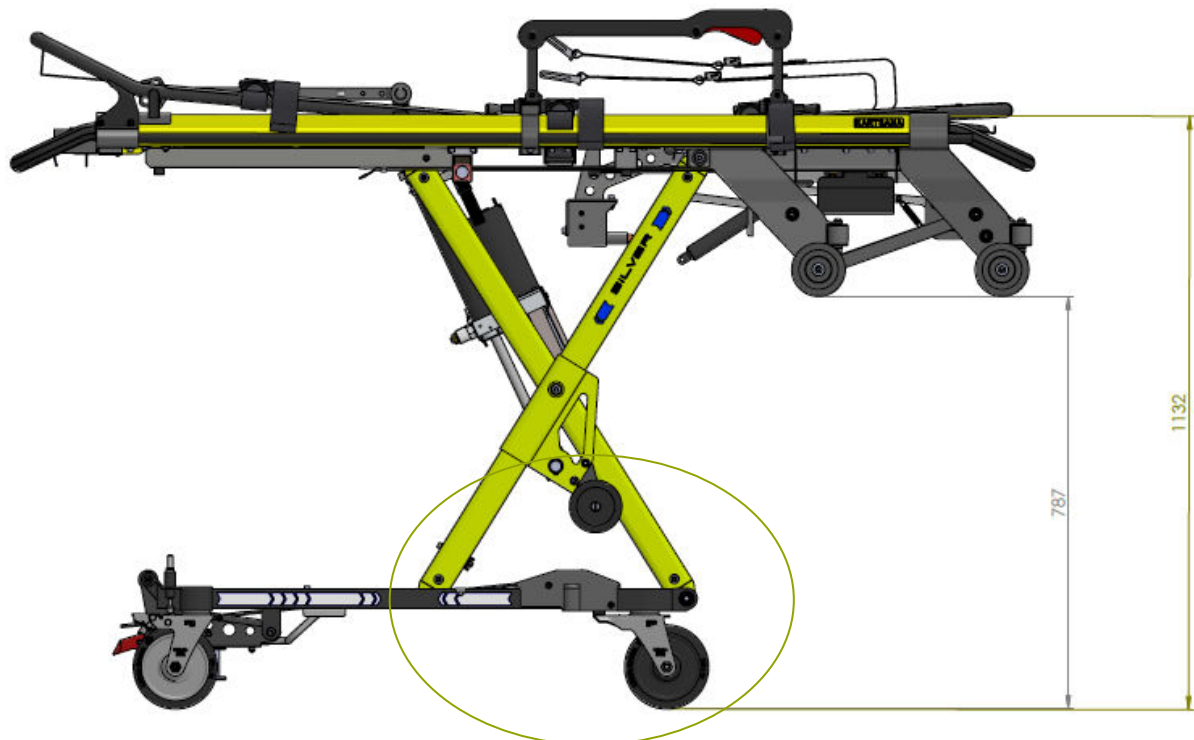
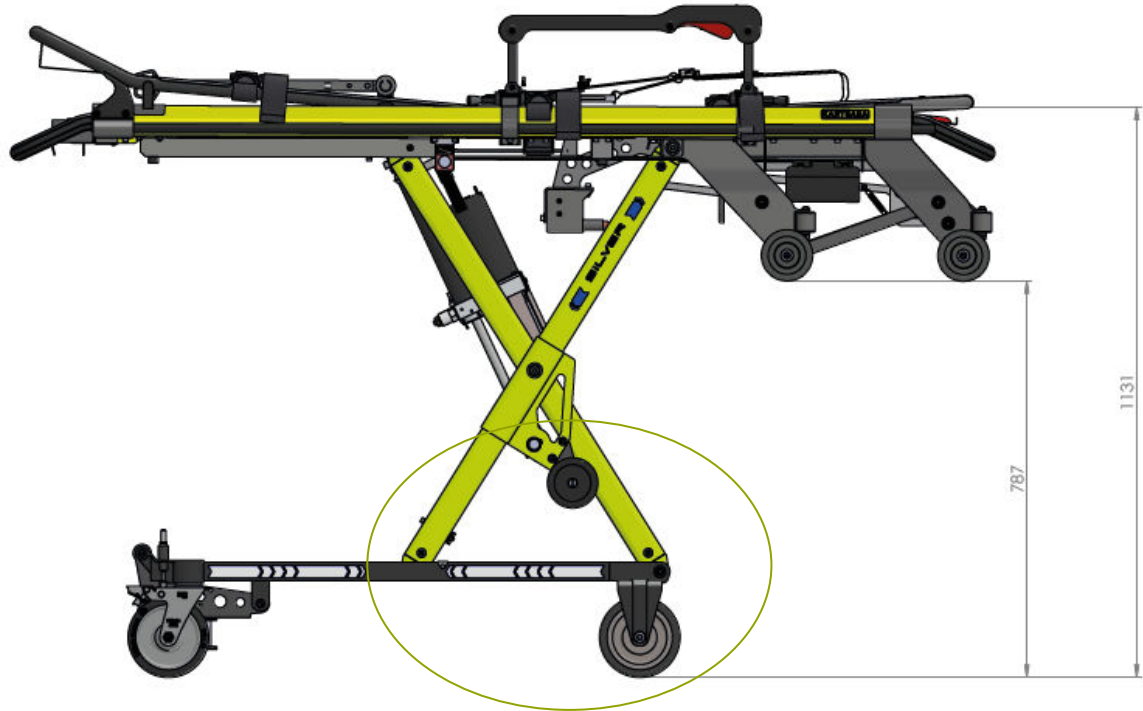


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A part from the accessories, there are two different configurations for the Silver stretcher. As we can see below: the first image, which only the front ones are swivel casters, and the second one, with 4 swivel casters.





KARTSANA

Technical Service

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