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## INSTRUCTIONS MANUAL

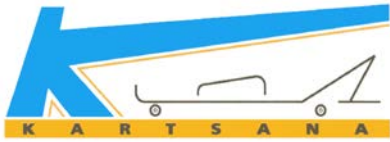
### BRAVA POWER STRETCHER



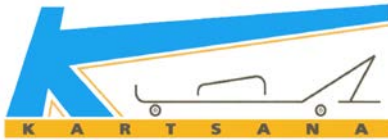
*Read these maintenance instructions  
Before using the product and keep them  
For future reference.*



V1.0



## OPERATING AND HANDLING THE BRAVA POWER STRETCHER



# OPERATING AND HANDLING THE BRAVA POWER STRETCHER

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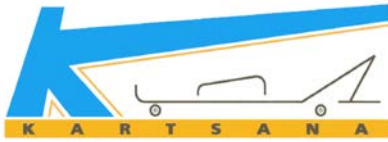
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# OPERATING AND HANDLING THE BRAVA POWER STRETCHER

## 1.- INTRODUCTION

### 1.1.- Foreword


The BRAVA stretcher has been solely designed to rescue and transport patients. **The product complies with the directive 93/43/EWG.** 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 BRAVA stretcher model must be joined to the ambulance using the KARTSANA BRAVO 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. The drawings are not on a 1:1 scale.

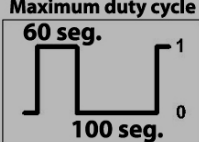
*We reserve the right to change the specifications of the stretcher to improve the products.*




**KARTSANA, S.L.**  
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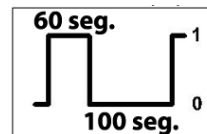
Model: **TG-1000**  
Comercial name: **POWER BRAVA**  
Voltage: **24V DC**  
Max. Power Input: **770W**  
Protection: **IP 40**

**Maximum duty cycle**





### BRAVA information sticker



Maximum duty cycle.

60 seg. - operating maximum time.

100 seg. - Idle time.



*Read the instructions manual  
before using.*



*Maximum load 300 Kg.*

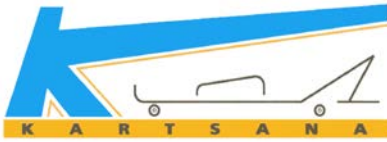


*Medical Product class I.*

*Electrical isolation class II.*



- 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.



## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### **1.2.- 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 great 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 (see the Warranty terms and conditions and the Warranty Certificate which is supplied with the product).

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.

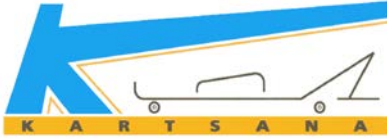
The manufacturer will not be liable for any anomaly caused to the stretcher as a result of using products other than those provided by Kartsana.

Other warranty clauses, see the Warranty Terms and Conditions that are supplied with the product.

### **1.3.- Attention**



Through this sign, information is furnished on important safety measures for the correct use of the stretcher, in order to prevent accidents.



## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### **2.- INSTRUCTIONS MANUAL**

#### **2.1.- Technical specifications BRAVA stretcher**



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



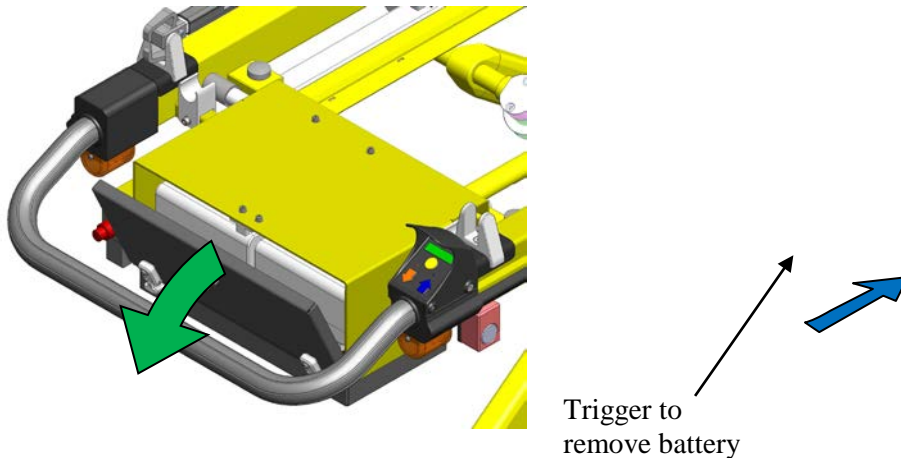
Stretcher weight 69 kg

Trolley dimensions: Elevation in mm

### **2.2.-Operating and handling the stretcher**

#### **2.2.1.-Installing the battery**

The first step when working with Brava is to install the two **24 V.** batteries which power the system. To do this, we open the rear black cover and place the batteries opposite their housings at the back of the stretcher and push until it locks.



To remove each of the batteries, press the small trigger located on the lower left hand side and pull carefully. Both batteries work independently of each other. The system will run down the first battery and then start to work with the second.

Each battery life under normal circumstances (from 80 to 120 kg load) should be about 20 cycles. When a battery approaches discharge the system will use the second battery.

**Note:** The front part of the stretcher corresponds to the head part.

**Note:** 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.

### 2.2.2.-Starting and controlling the stretcher.

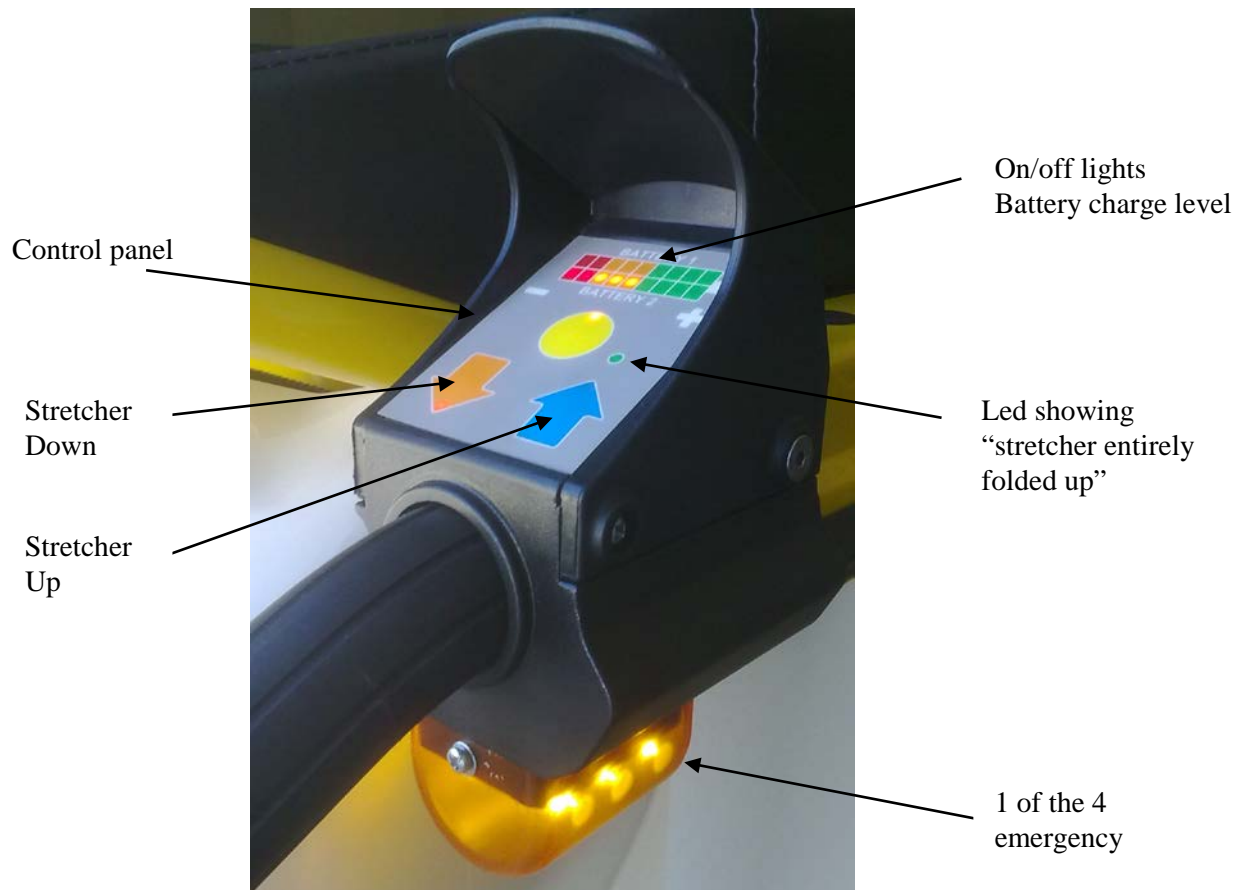


To avoid potential injury to the patient and companions, do not place objects in the way of the moveable parts of the stretcher. It is also recommended to avoid having objects that stick out the ambulance.



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

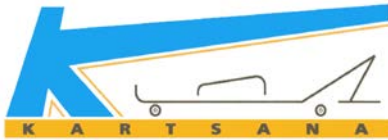
To start the system we must press the yellow button on the control panel for 2 seconds.



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





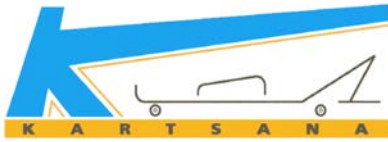
## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

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.

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.

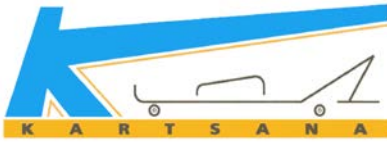
The level screen also shows us any possible system errors. In the following table we will show all the incidences that the display can show.

	CODE	LEDS							
		RED	RED	YELLO W	YELLO W	YELLO W	GREEN	GREEN	GREEN
No error	0								
Reserved	1								ON
Load tension error (ambulance entrance) VERY LOW	2							ON	
Load intensity error VERY HIGH	3							ON	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	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	ON
Engine failure due to low tension.	12						ON	ON	



## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

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



## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

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	Voltage greater than 48V	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 3 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.**

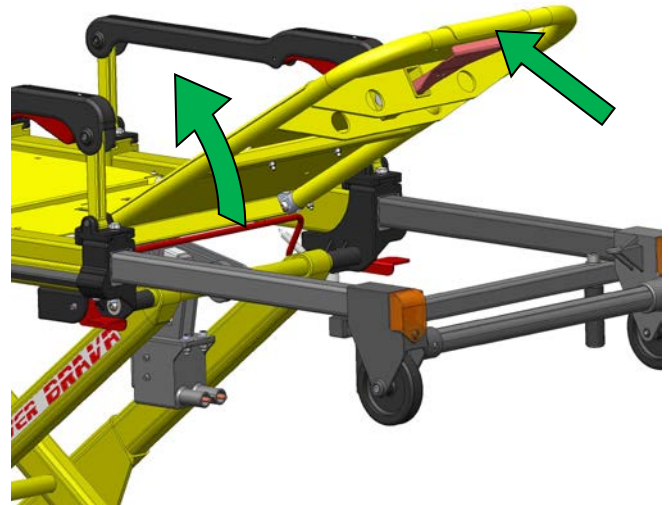
If we perform continuous stretcher raising and lowering movements for 2 min. we should then stop for 10 sec. for the system to recover and we can continue operating without problems.

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

## 2.2.3.-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.

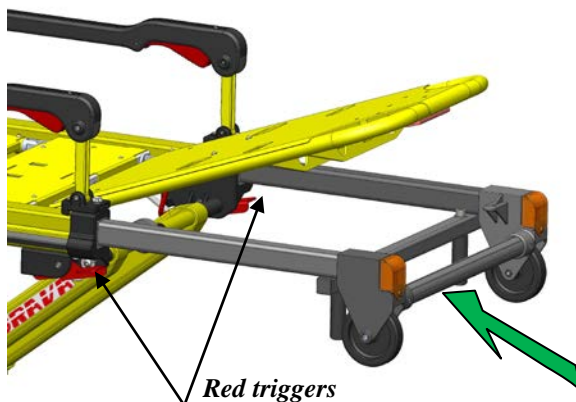


## 2.2.4.-Extendable back rest frame.

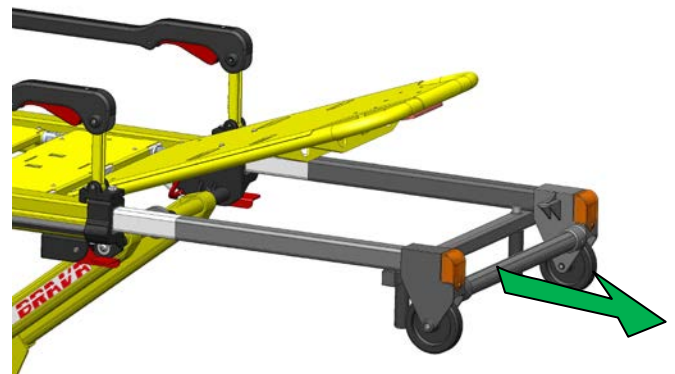


Before carrying out this action the back rest must be put at its most upright position.

To extract or fold up the telescopic back rest frame, you must pull one of the two red triggers located on each side of the stretcher. Stretching or pressing the back rest frame at the same time.

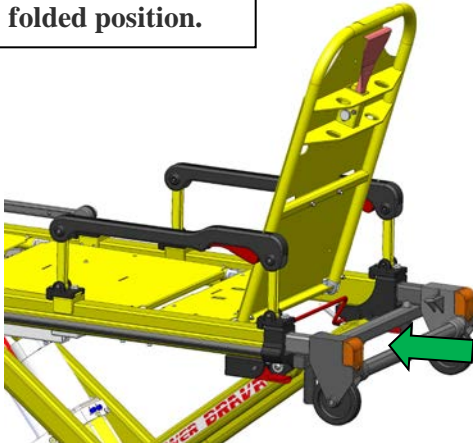


Front frame position  
NORMAL



Front frame position EXTRA  
LONG

Head frame in  
folded position.



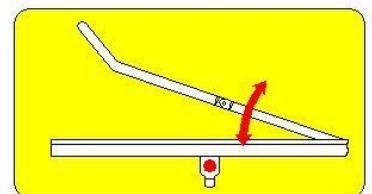
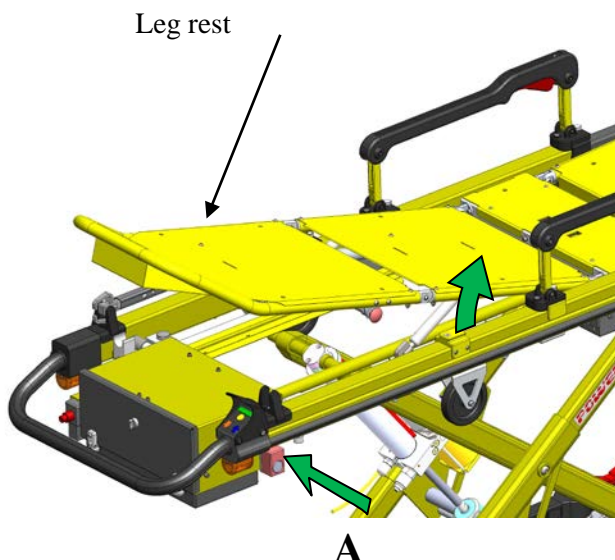
The head frame has a mechanical stop in the normal position (1970mm long), another in a folded position and another one in an extended position (intended for when the headrest has a headrest extension kit accessory). When the head frame movement reaches each of these three positions, we should notice the "click" of the red lever housed in its original position.



### **2.2.5.-Adjustable leg rest**

- **Button for adjusting the leg inclination**

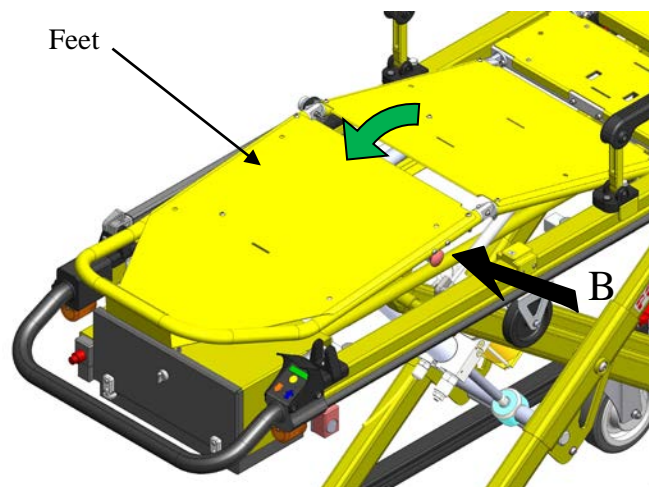
The required inclination of the leg rest can be obtained by pressing button A and moving the leg rest manually. Once the correct inclination has been reached, release button A to automatically lock the leg rest.



*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.*

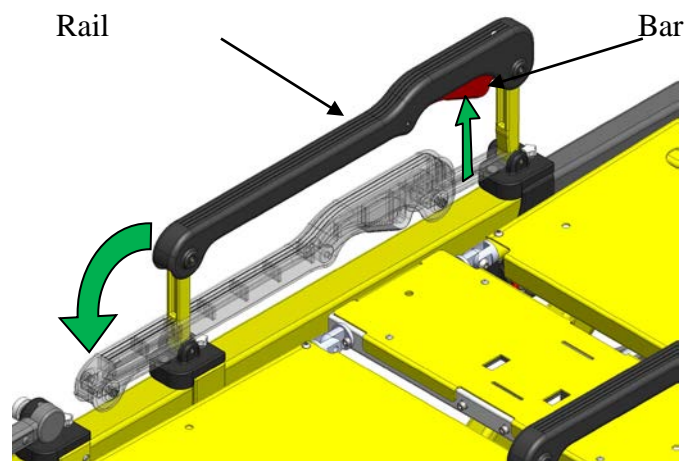
- **Button for adjusting the foot inclination**

Press button B to change the the feet inclination to the required position without changing the inclination of the legs, moving it only in the direction shown in the figure below until the required inclination is obtained.



## **2.2.6.-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.







## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### **2.2.6.1.- How to remove rails and IV support**

#### **HOW TO INSTALL THE BARIATRIC KIT**

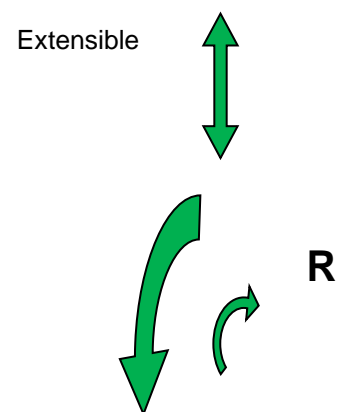
To install the bariatric kit on the Brava stretcher, we need to dismantle the two rails and the drip pole in accordance with the sequence shown below:

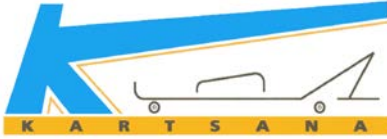


It is also necessary to remove the mattress from the stretcher, thereby leaving the top of the Brava entirely clear.

### **2.2.7.- 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.





## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

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 maximum load allowed  
for the drip pole is 6 Kg

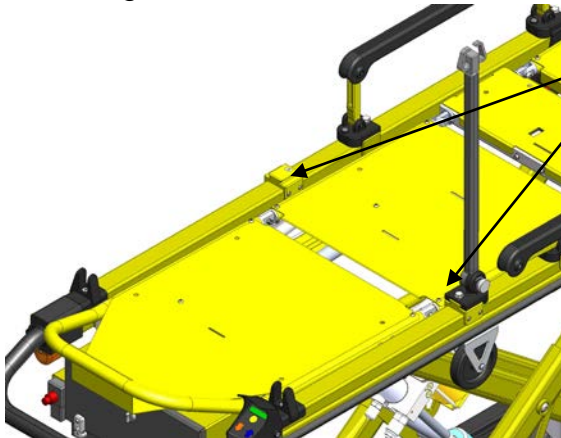
PESO MÁXIMO:  
MAXIMUM LOAD: **6 Kg**

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

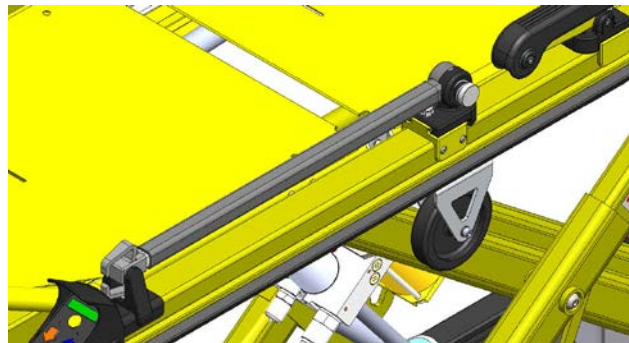
The "drip pole" assembly can be placed on **either** the left or right side of the  
stretcher.

Knob "R" must always be on the outer side of the stretcher.

see figure:



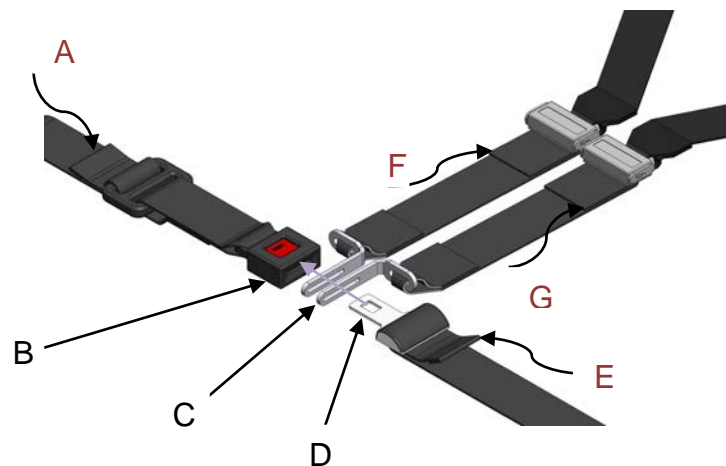
either right or left  
position.





## 2.2.8.-Way of fastening the safety belts to the patient.

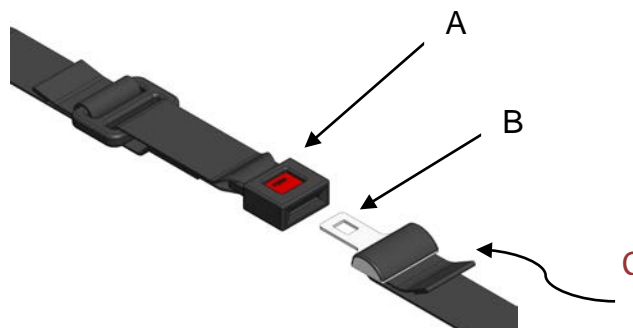
### 2.2.8.1.- Head belts.



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).

### 2.2.8.2.- 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.



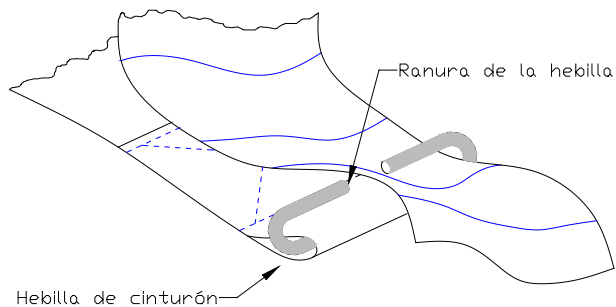
It is advisable to ensure that while the patient is on the stretcher, he/she is secured at all times by the safety belts.

## 2.2.9.-Dismantling-assembly of the stretcher belts.

There are two different types of anchoring for the stretcher belts:

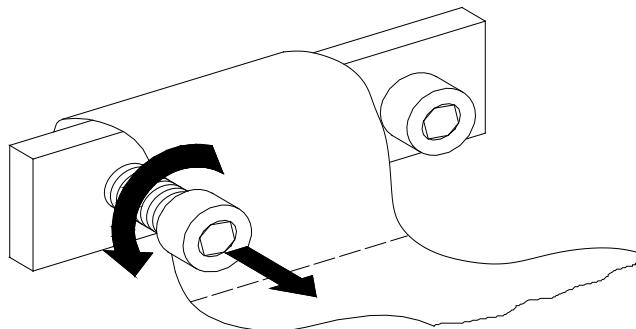
### - Anchoring with a ring.

To dismantle the belts, pass the belt through the buckle slot as shown in the following figure. To assembly it, just follow the same process but in reverse order.

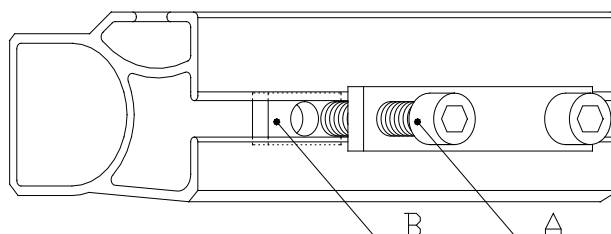


### - Anchoring with a plate.

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.





## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

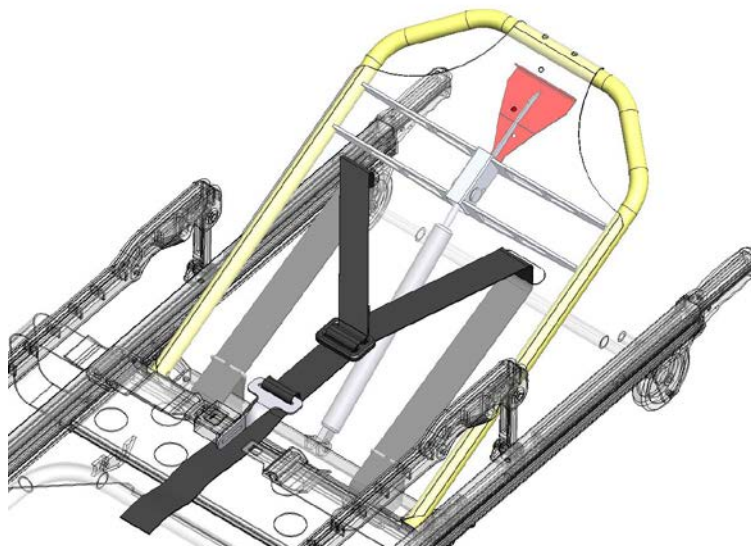
### **2.2.10.-Position of the belts.**

#### **2.2.10.1.- Lateral belts.**

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

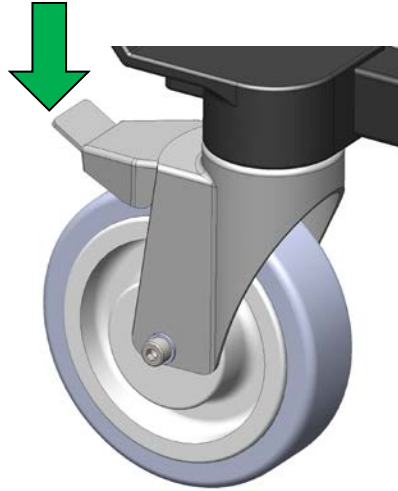
#### **2.2.10.2.- Head belts.**

The headrest belts must go through the holes in the headrest and must be secured in the panel crosspiece with rings (09-027) as shown in the following figure.



## **2.2.11.- REAR WHEEL BRAKE LEVER.**

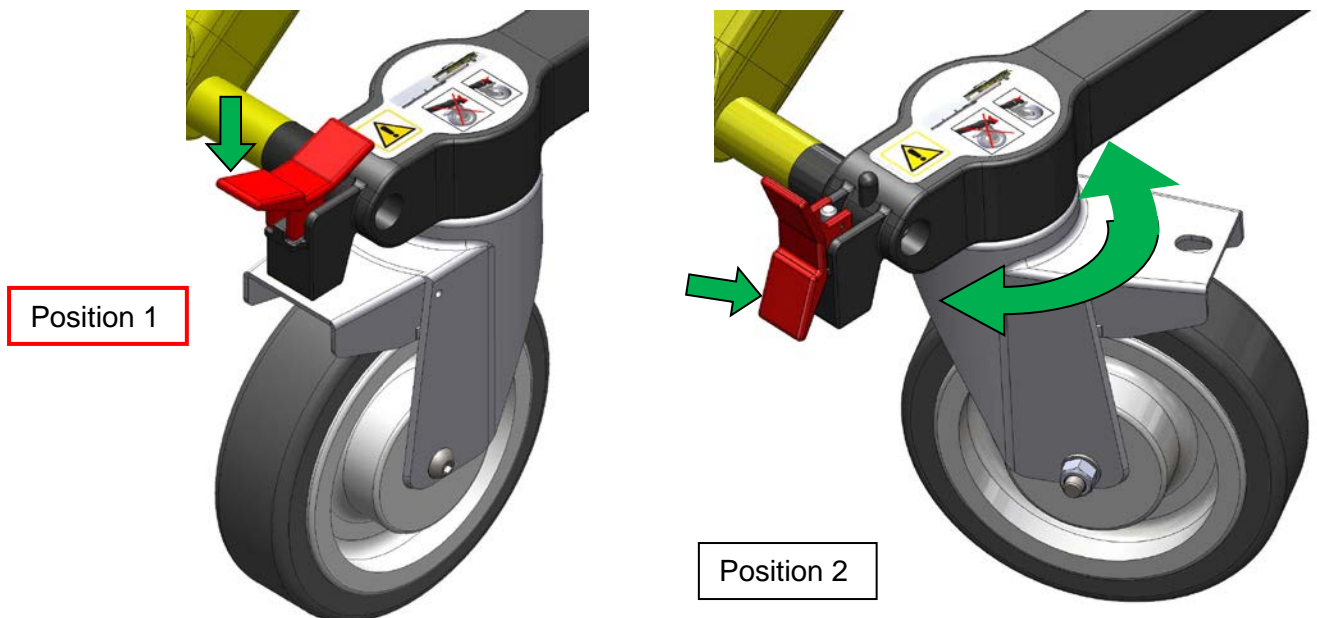
Activate the red lever with your foot to enable the brake to lock the rear wheels. This lever locks both the lengthways and revolving movement of the trolley.



## **2.2.12.-LEVER TO UNLOCK REVOLVING FRONT WHEELS.**

By pressing the front wheels trigger we unlock the front wheels to turn freely.

See figure



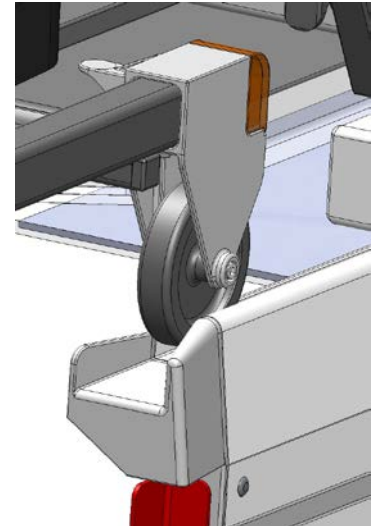
**Front wheels must be always blocked (POSITION 1) when you load the stretcher on the rail.**

### 2.2.13.-ASSEMBLING THE BRAVA STRETCHER ONTO THE BRAVO RAIL

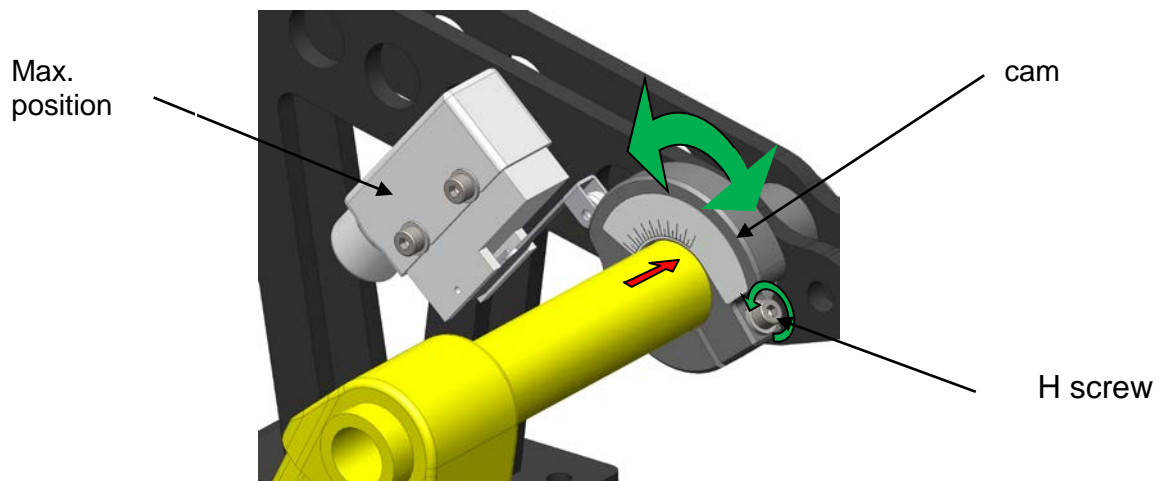


We must adjust the maximum elevation range of the stretcher only the first time we load it on the rail. If we change to another ambulance of a different height we will have to adjust it again

To adjust the maximum elevation of the upwards range of the stretcher, we must place it opposite the extended Safety handrail 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 cam until it presses against the limit switch. For this purpose there is a sticker with a graduated scale which can be used for reference. Once positioned so that we have heard the "click" at the limit switch we will tighten the screw again to set the cam in this final position.



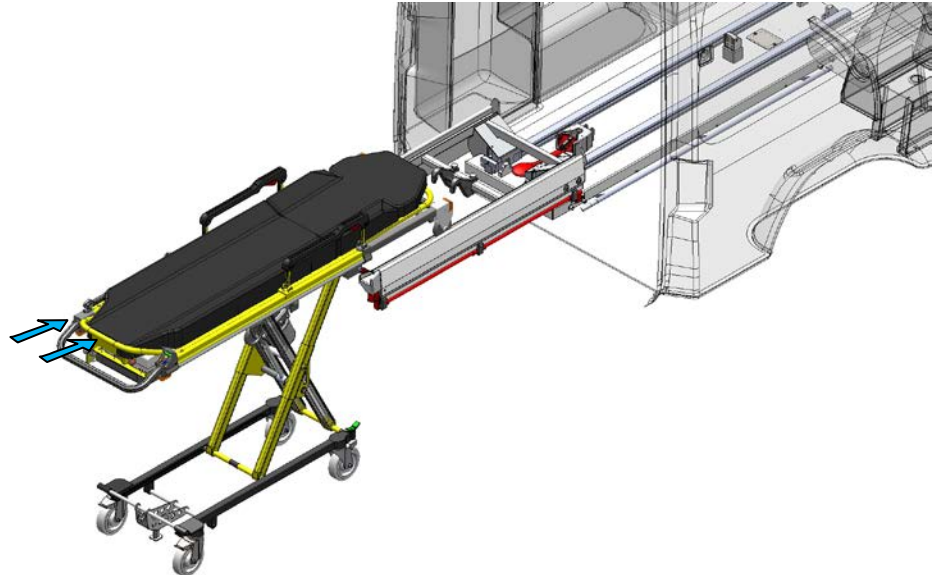
From then on the stretcher will only rise as far as the elevation set.

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

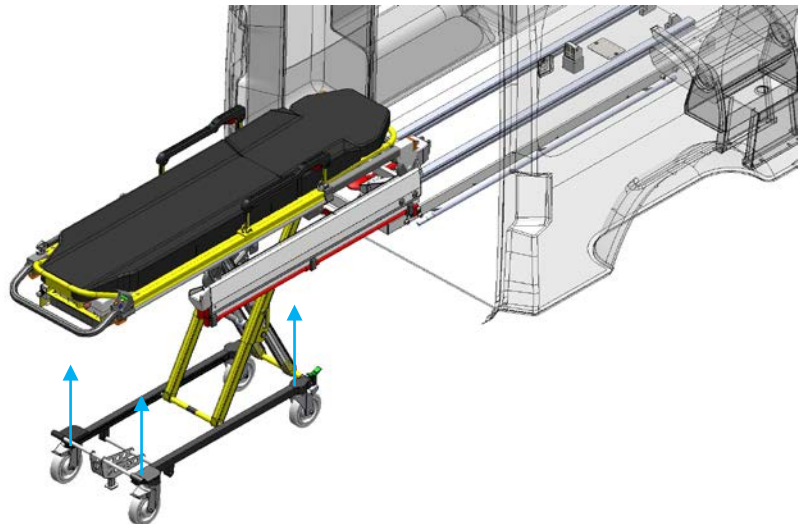
On uneven ground or elevation changes we can raise the stretcher to its full movement limit by pressing the buttons  +  (top + yellow) at the same time.


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 Bravo rail it must be outside the ambulance. We will guide the stretcher towards the parts of the ambulance that project out and make the small wheels of the stretcher join the rail.



Once the stretcher has been lined up with the cross section of the rails, push the stretcher until the small wheels limit has been reached.



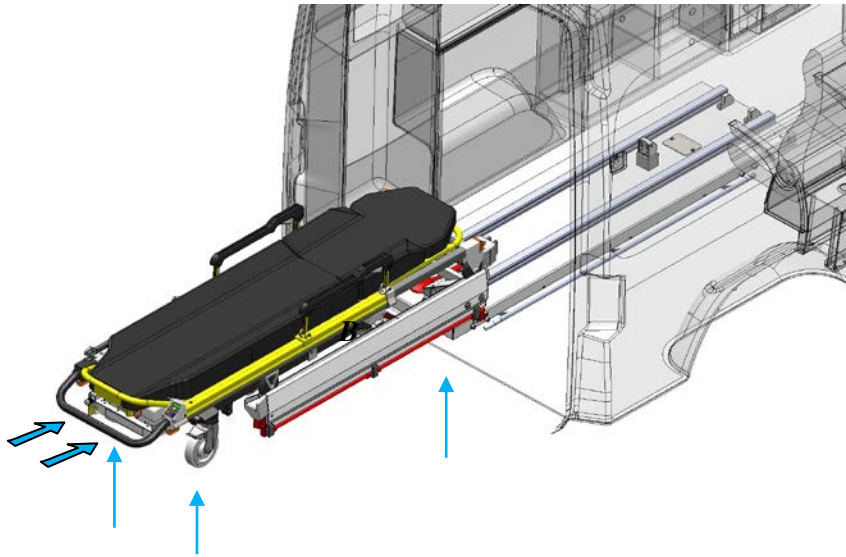
Press the control panel arrow  to lift the stretcher legs until its maximum position. (If this action has been carried out correctly the front axis should be within the inner part of the hooks.)



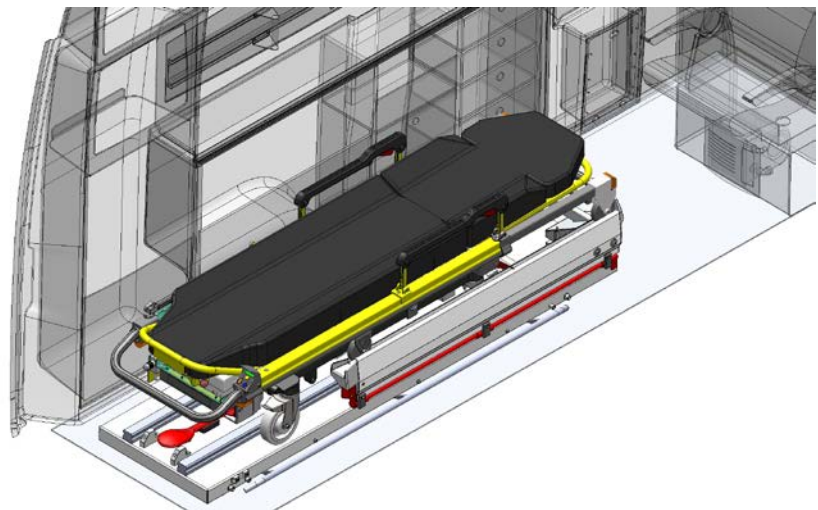
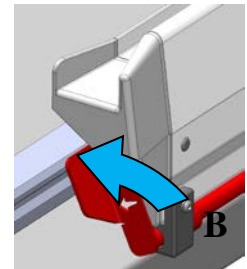
Front wheels must be **always blocked** (POSITION 1) when you load the stretcher on the rail.



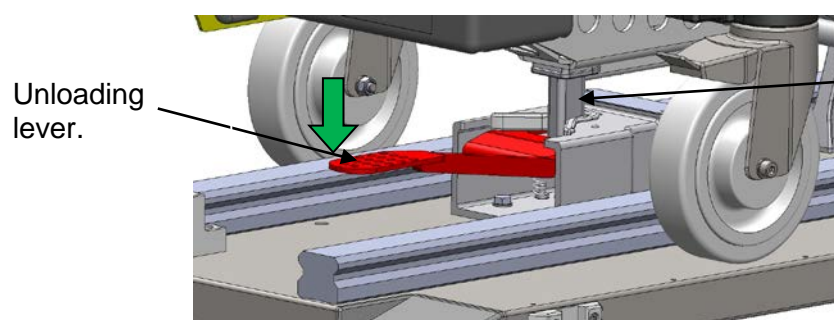
## OPERATING AND HANDLING THE BRAVA POWER STRETCHER



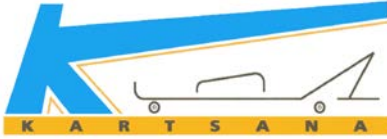
Press the rear right "B" rail red trigger to unlock the mechanism and push the stretcher towards the inside until the limit has been reached. Once this process has finished the stretcher should be perfectly secured on the rail.



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.



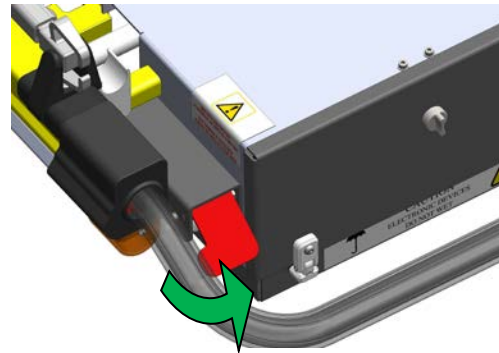
Third point



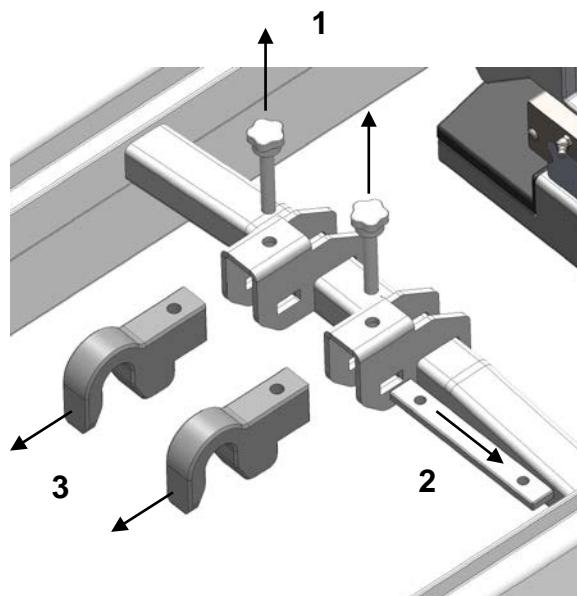
## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### **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.

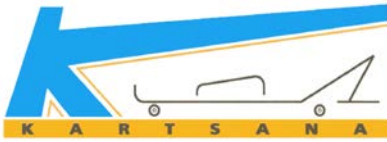


*Then, the rail hooks should be removed (see figure below) and load the broken down stretcher manually onto the Bravo rail, with two people. Once placed in the loaded position, that is, with the rail outside the ambulance, place the hooks back in their original position.*



*Afterwards, carry out the loading process in a normal fashion, as described above, push the stretcher towards the inside of the ambulance until the inner limit is reached.*





## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### **4.- DISINFECTION**

When disinfecting the stretcher, use products that will not damage the surface of the materials and wipe with a cloth or something similar. If the surface to be disinfected is greased, regreased it after disinfecting it.

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



**Do not wash the stretcher 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 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 materials surfaces.

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

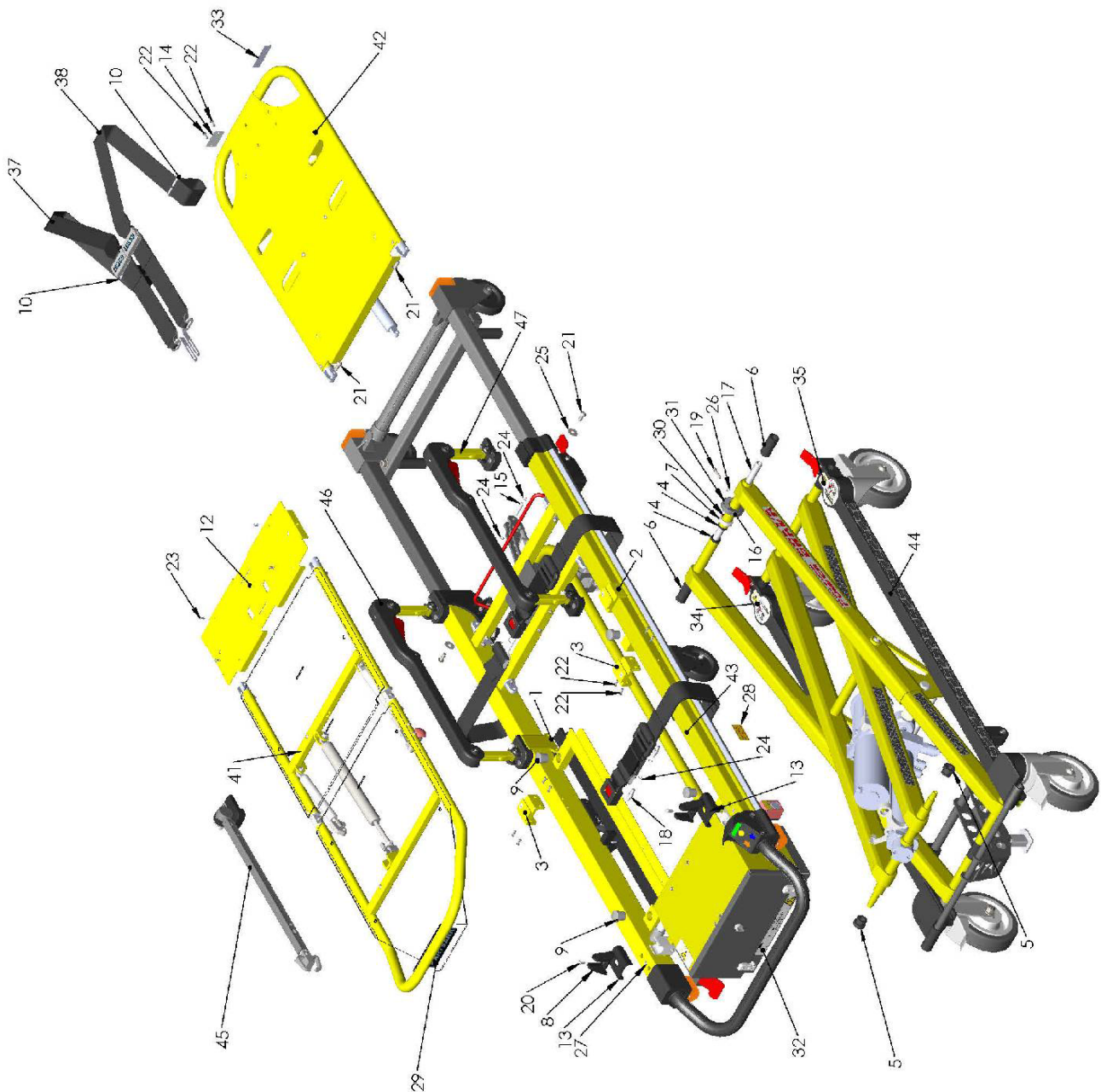
### **5. MAINTENANCE**

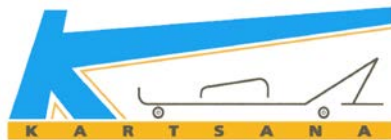
Every two months check and lubricate the inner bearing guides, both in the lower frame and in the upper ones.

Also check and lubricate the stretcher wheels and the hydraulic system. We recommend that maintenance be carried out by a specialist from our company every six months. Specifically, the hydraulic and general electric system should be serviced in case deteriorated or worn out parts need to be replaced and to ensure that no breakdowns can occur in the near future.

Service: 5  
Date: 05/11/2012

## 6- EXPLODED BRAVA STRETCHER





## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

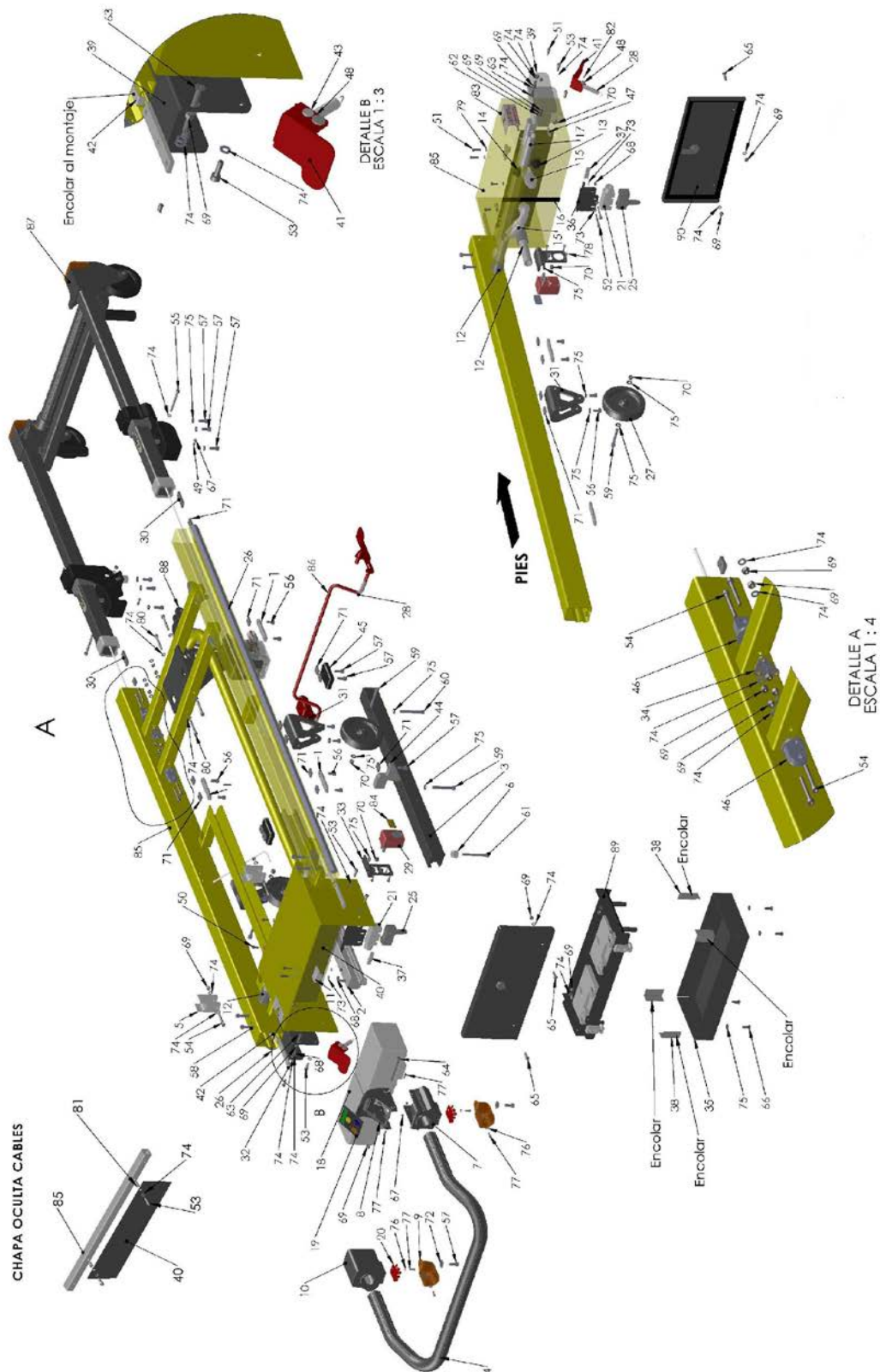
### **BRAVA LIST OF MATERIALS**

**90-0056-046 Assembly**

No. NO.	File Name	Description	QUANTITY
1	01-0200-002	BRAVA RAIL LEFT FASTENER CAST	1
2	01-0201-002	BRAVA RAIL RIGHT FASTENER CAST	1
3	01-0224-002	CAST BRAVA IV ROD FASTENING MECHANISM	2
4	05-0211-001	PLASTIC SLEEVE FOR BRAVA LEGS SHAFT	2
5	05-0213-002	PLASTIC BUSHING FOR ROD. BRAVA	2
6	05-0215-001	LONG PLASTIC SLEEVE FOR LEGS SHAFT BRAVA	2
7	05-0236-001	BRAVA CAM SEPARATOR	1
8	05-0246-003	BRAVA IV ROD STOP	2
9	06-0021-001	R-5 ø25 REPRIM PLUG	4
10	09-0027-001	BELT RING BUSHING	2
11	09-0129-001	SPRING CABLE SPRINGS LEG SUPPORT BRAVA	2
12	11-0541-003	BRAVA BOX PLATE	1
13	11-0650-003	BRAVA HIDDEN PLATE HOLES PROFILE CANVAS	2
14	11-0669-001	BRAVA NAME PLATE	1
15	12-0048-001	BACK REST SHOCK ABSORBER ELASTIC RING AXLE	1
16	12-0279-001	BRAVA CAM HEIGHT LOCK	1
17	12-0282-001	BRAVA LEG TOP FRONT SHAFT	1
18	12-0317-001	DAMPER BOLT. BRAVA LEGREST 1	2
19	13-0015-001	ALLEN DIN 912 M5X25 - 8.8 GALVANISED	1
20	13-0072-001	ZINC-COATED ALLEN COUNTERSUNK DIN 7991 – M6 X 16	2
21	13-0113-001	DIN 7380 ULS M8x20 -10.9 GALVANISED	4
22	13-0165-001	ALUMINIUM RIVET DIN 7337A ø4X16	10
23	13-0170-001	ALUMINIUM RIVET DIN 7337A ø4X12	4
24	13-0196-001	ELASTIC RING d 8	4
25	13-0203-001	WIDE WASHER d8 ZINC COATED	2
26	13-0206-001	D5 ZINC-COATED WASHER	1
27	13-0329-001	M5 RIVET NUT	2
28	14-0009-001	MAXIMUM LOAD 300 kg LABEL	1
29	14-0010-001	KARTSANA REAR-FRONT RESIN LABEL	1
30	14-0011-001	BRAVA ARROW LABEL	1
31	14-0012-001	BRAVA ADJUSTMENT LABEL	1
32	14-0013-001	ELECTRICAL CAUTION LABEL	1
33	14-0030-001	STANDARD LABEL	1
34	14-0125-001	WARNING LOCK WHEELS ENTERING AMBULANCE LEFT LABEL	1
35	14-0126-001	WARNING LOCK WHEELS ENTERING AMBULANCE RIGHT LABEL	1
36	14-0128-001	KARTSANA DATA LABEL	1
37	52-0047-001	LEFT BACK REST BELT ASSEMBLY 116	1
38	52-0048-001	RIGHT BACK REST BELT ASSEMBLY	1
39	52-0053-001	PRE-ASSEMBLED BLACK LONG BELT S.116-400	2
40	52-0054-001	PREASSEMBLY SHORT BELT	2
41	52-0475-005	BRAVA DUAL COMPLETE LEG REST	1
42	52-0476-004	COMPLETE PREASSEMBLED BACK REST	1
43	52-0477-034	BRAVA POWER COMPLETE PATIENT AREA	1
44	52-0479-014	BRAVA POWER CHASIS	1
45	52-0480-002	BRAVA DRIP POLE	1
46	52-0502-001	BRAVA LEFT RAIL	1
47	52-0503-001	BRAVA RIGHT RAIL	1

## PATIENT AREA EXPLODED VIEW

52-0477-034 Assembly



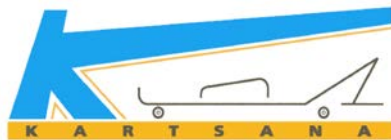


## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

### BRAVA QUARTERING OF PATIENT AREA

No. NO.	File Name	Description	QUANTITY
1	03-0025-001	STANDARD BELT PLATEN	4
2	03-0815-002	BRAVA UPPER LEFT BEARING GUIDE	1
3	03-0816-002	BRAVA UPPER RIGHT BEARING GUIDE	1
4	03-0827-001	BRAVA BENT REAR TUBULAR GRIPS	1
5	05-0210-001	BRAVA LEG CLAMP	2
6	05-0214-001	BRAVA LIMIT OF FOLDED UP POSITION	2
7	05-0223-001	BRAVA CONTROL BOARD SUPPORT	1
8	05-0224-001	BRAVA CONTROL BOARD VISOR	1
9	05-0227-001	BRAVA REAR PILOT	2
10	05-0233-001	BRAVA LIGHT LEFT HAND SIDE RUBBER PROTECTOR	1
11	05-0273-001	BRAVA BATTERY COVER LATCH STOP	1
12	06-0050-001	NYLON DUCT STRAIGHT EXTERNAL THREAD (Ref: 494612)	3
13	06-0051-001	CABLE FEEDTHROUGH IP67 M20 SR 1703 (Ref. 496379)	1
14	06-0052-001	CABLE FEEDTHROUGH IP67 M16 SR 1703 (Ref. 496378)	1
15	06-0053-001	EXTERNAL THREAD NYLON DUCT ELBOW (Ref: 494613)	2
16	06-0054-001	WEATHER STRIP	1
17	06-0055-001	NYLON DUCT SR1758 (Ref 494611)	3
18	07-0031-002	BRAVA BATTERY	2
19	07-0033-001	BRAVA KEYBOARD CARD	1
20	07-0035-001	BRAVA POWER LEDS BOARD	2
21	07-0037-001	LOWER COVER MICRO SWITCH IS2	1
22	07-0038-003	BRAVA keyboard Cable	1
23	07-0039-001	BRAVA rear LEDS Cable	2
24	07-0043-002	BRAVA FOLDED CABLE LIMIT SWITCH	1
25	07-0047-001	CRQR MICRO-SWITCH	1
26	08-0012-001	BRAVA PROFILE OF CANVAS TRIM	2
27	09-0003-001	WHEEL ø100 x 22 WITH CASE	2
28	09-0060-001	START SPRING FOR CENTRAL HOOK R-450	3
29	09-0130-001	Precision piece TB-50346464-2GA	1
30	11-0535-001	BRAVA FRONT COVER THREADED PLATE	2
31	11-0540-002	BRAVA ATTACK WHEEL PRONG	2
32	11-0548-001	REAR THREADED PLETIN GRIP CLAMP BRAVA	2
33	11-0560-001	BRAVA LEG SUPPORT BUTTON	1
34	11-0595-001	HEADREST METAL PLATE SPRING HOOK	2
35	11-0644-001	BRAVA BATTERY BOTTOM COVER PLATE	1
36	11-0647-002	BRAVA MICRO DOWN U FASTENER	1
37	11-0654-001	BRAVA MICRO-SWITCH THREADED PLATE	1
38	11-0657-001	BRAVA PLATE COVER LOCK BRACKET	4
39	11-0665-004	BRAVA EMERGENCY BUTTON PLATE	1
40	11-0666-001	BRAVA CABLE SEPARATOR PLATE	1
41	11-0671-002	BRAVA EMERGENCY HANDLE PLATE	1
42	11-0676-001	BRAVA LED CABLE PROTECTOR PLATE	2
43	12-0159-001	R-450 N CABLE CLAMP BUSHING	1
44	12-0246-002	CENTRAL GUIDE SUPPORT BRAVA	2



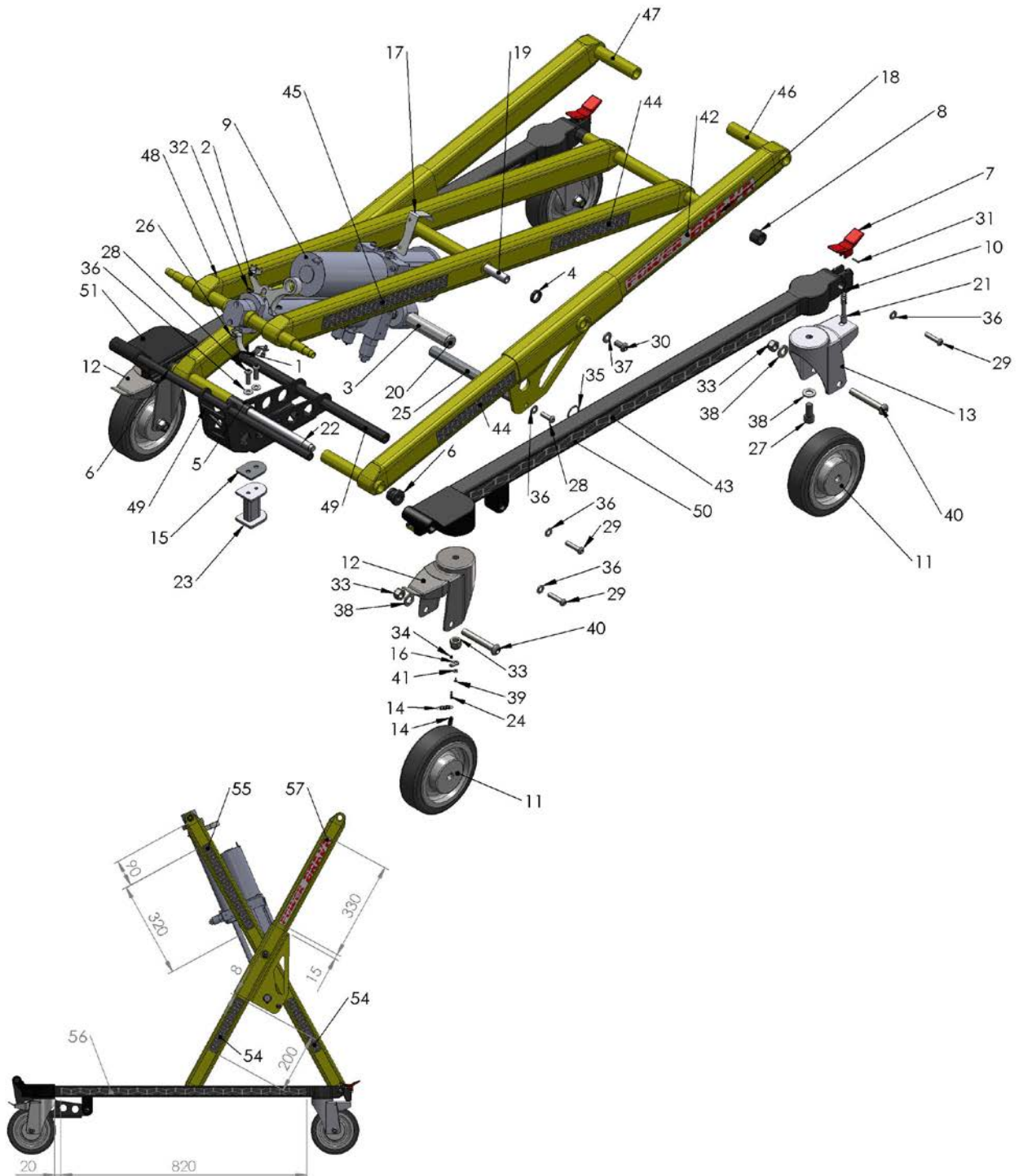


## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

45	12-0248-001	CLAMPING PLUG FOR RAIL CASTINGS BRAVA	2
46	12-0255-001	SOLID HINGE PIN FOR BRAVA BACK REST	4
47	12-0333-001	STOP 2 FOR CABLE JACKET	1
48	12-0344-001	CABLE CLAMP BUSHING WITH RETAINER	1
49	13-0002-001	ALLEN DIN 912 M3X16 - 8.8 GALVANISED	2
50	13-0006-001	ALLEN DIN 912 M4X12 - 8.8 GALVANISED	2
51	13-0007-001	ALLEN DIN 912 M4X16 - 8.8 GALVANISED	3
52	13-0011-001	ALLEN DIN 912 M4X35 - 8.8 GALVANISED	2
53	13-0013-001	ALLEN DIN 912 M5X16 - 8.8 GALVANISED	6
54	13-0017-001	ALLEN DIN 912 M5X40 - 8.8 GALVANISED	10
55	13-0019-001	ALLEN DIN 912 M5X60 - 8.8 GALVANISED	2
56	13-0020-001	ALLEN DIN 912 M6X12 - 8.8 GALVANISED	12
57	13-0023-001	ALLEN DIN 912 M6X16 - 8.8 GALVANISED	14
58	13-0029-001	ALLEN DIN 912 M6X40 - 8.8 GALVANISED	2
59	13-0031-001	ALLEN DIN 912 M6X50 - 8.8 GALVANISED	4
60	13-0032-001	ALLEN DIN 912 M6X55 - 8.8 GALVANISED	4
61	13-0033-001	ALLEN DIN 912 M6X60 - 8.8 GALVANISED	2
62	13-0068-001	ZINC-COATED ALLEN COUNTERSUNK DIN 7991 – M5 X 16	1
63	13-0069-001	ZINC-COATED ALLEN COUNTERSUNK DIN 7991 – M5 X 50	1
64	13-0070-001	ZINC-COATED ALLEN COUNTERSUNK DIN 7991 – M5 X 70	1
65	13-0098-001	DIN 7380 ULS M5x20 -10.9 GALVANISED	2
66	13-0102-001	DIN 7380 ULS M6x16 -10.9 GALVANISED	4
67	13-0174-001	M3 SELF LOCKING NUT	5
68	13-0175-001	M4 SELF LOCKING NUT	5
69	13-0176-001	M5 SELF LOCKING NUT	26
70	13-0177-001	M6 SELF-LOCKING NUT	9
71	13-0193-001	M6 RECTANGULAR NUT	20
72	13-0202-001	WIDE WASHER d6 ZINC COATED	2
73	13-0205-001	D4 ZINC-COATED WASHER	8
74	13-0206-001	D5 ZINC-COATED WASHER	39
75	13-0207-001	D6 ZINC-COATED WASHER	28
76	13-0266-001	D3 ZINC-COATED WASHER	6
77	13-0285-001	SELF-TAPPING SCREW ST2.9x13	6
78	13-0301-001	METAL PLATE SCREW 7981 3.5X16	4
79	13-0312-001	NYLON WASHER d.4	2
80	13-0316-001	ALLEN DIN 912 M5X45 - 8.8 GALVANISED	4
81	13-0329-001	M5 RIVET NUT	2
82	13-0336-001	STUD WITH TIP 3X8	1
83	14-0019-001	USE IN CASE OF FAILURE LABEL	1
84	14-0131-001	GREEN LEG REST LABEL	1
85	50-0364-017	BRAVA WELDED PANEL	1
86	50-0366-003	BRAVA WELDED HANDLES TELESCOPIC GRIPS	1
87	52-0486-005	BRAVA FOLDING HEAD ASSEMBLY	1
88	52-0487-007	BRAVA CHARGE PLUG	1
89	52-0518-001	PREASSEMBLY OF BRAVA BATTERY PLATE	1
90	52-0519-001	PREASSEMBLY OF BRAVA BATTERY COVER	1

## EXPLODED LOWER CHASIS

52-0479-014 Assembly



## LIST OF MATERIAL LOWER CHASIS



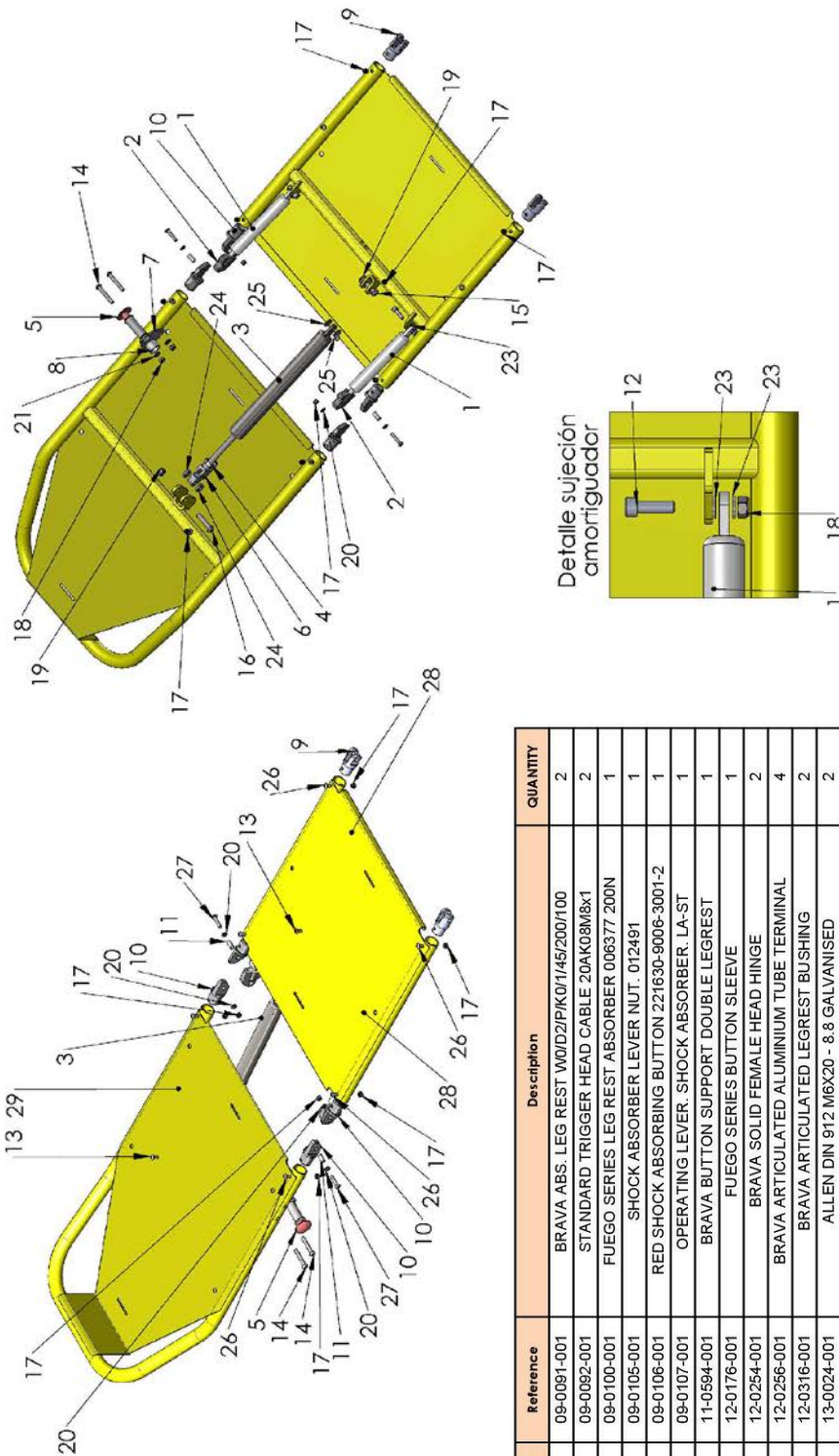
## OPERATING AND HANDLING THE BRAVA POWER STRETCHER

N. ITEM	File name	Description	QUANTITY
1	01-0234-001	BRAVA MOTOR LOWER CABLE TIE	1
2	01-0235-001	BRAVA MOTOR TOP CABLE TIE	1
3	03-0817-001	BRAVA CYLINDER SPACER BUSHING	2
4	05-0211-001	PLASTIC SLEEVE FOR BRAVA LEGS SHAFT	2
5	05-0212-001	BRAVA BOTTOM LONG BUSH SHAFT LEGS	1
6	05-0213-002	PLASTIC BUSHING FOR ROD. BRAVA	2
7	05-0231-001	BRAVA ROTATING WHEEL LOCK LEVER	2
8	05-0247-001	BRAVA BOTTOM SHAFT PLASTIC BUSHING	2
9	07-0048-001	BRAVA VERSION 02 MINI HYDRAULIC UNIT	1
10	09-0067-001	LUG SPRING S-400; 860	2
11	09-0120-001	BRAVA $\phi$ 160 WHEEL	4
12	09-0125-001	BRAVA SWIVEL FORK	2
13	09-0126-001	BRAVA LOCKING SWIVEL FORK	2
14	09-0127-002	BRAVA SPRING FORK	4
15	11-0565-001	BRAVA THIRD POINT SUPPLEMENT	1
16	11-0627-003	BRAVA BACK WHEEL STRAIGHT POSITION METAL PLATE	2
17	11-0675-001	BRAVA MOTOR CABLE PLATE	1
18	12-0240-001	BRAVA LOWER FRONT AXLE	1
19	12-0251-002	BRAVA PIVOT AXLE	1
20	12-0252-001	BRAVA HYDRAULIC CYLINDER LEG AXLE	1
21	12-0253-001	BRAVA WHEEL TURNING LOCK NIPPLES	2
22	12-0260-001	BRAVA LOWER LEGS REAR AXLE	1
23	12-0272-001	BRAVA THIRD POINT NIPPLE	1
24	12-0334-003	BRAVA WHEEL SPRING FASTENING NIPPLE	2
25	12-0336-002	BRAVA SHAFT HOOKS	1
26	13-0013-001	ALLEN DIN 912 M5X16 - 8.8 GALVANISED	2
27	13-0056-001	ALLEN 5 DIN 912 M12X25- 8.8 GALVANISED	2
28	13-0114-001	DIN 7380 ULS M8x25 -10.9 GALVANISED	4
29	13-0116-001	DIN 7380 ULS M8x35 -10.9 GALVANISED	6
30	13-0125-001	DIN 7380 -10.9 ULS M10x20 GALVANISED	2
31	13-0145-001	STUD WITH TIP 3X16	2
32	13-0176-001	M5 SELF LOCKING NUT	2
33	13-0180-001	SELF-LOCKING NUT M12	6
34	13-0184-001	M3 GALVANIZED HEX NUT	2
35	13-0199-001	EXT. ELASTIC RING d 25	2
36	13-0208-001	WASHER d8 ZINC COATED	10
37	13-0210-001	GALVANIZED WASHER d10	2
38	13-0211-001	D12 ZINC-COATED WASHER	6
39	13-0242-001	ULS 3X6 GALVANISED	2
40	13-0248-001	DIN 7380 ULS M12x25 -10.9 GALVANISED	4
41	13-0265-001	WIDE WASHER d 3	2
42	14-0005-001	RED BRAVA POWER LABEL	2
43	14-0017-001	BRAVA GUIDE REFLECTANT LABEL	2
44	14-0018-001	BRAVA LEG SHORT REFLECTANT LABEL	4
45	14-0129-001	BRAVA LEG LONG REFLECTANT LABEL	2
46	50-0361-003	BRAVA RIGHT EXT. LEG	1
47	50-0362-003	BRAVA LEFT EXT. LEG	1
48	50-0363-001	BRAVA INNER LEGS	1
49	50-0367-001	BRAVA THIRD POINT WELDED ASSEMBLY	1
50	50-0369-001	BRAVA RIGHT SIDE FRAME	1
51	50-0370-001	BRAVA LEFT SIDE FRAME	1



## EXPLODED LEG REST

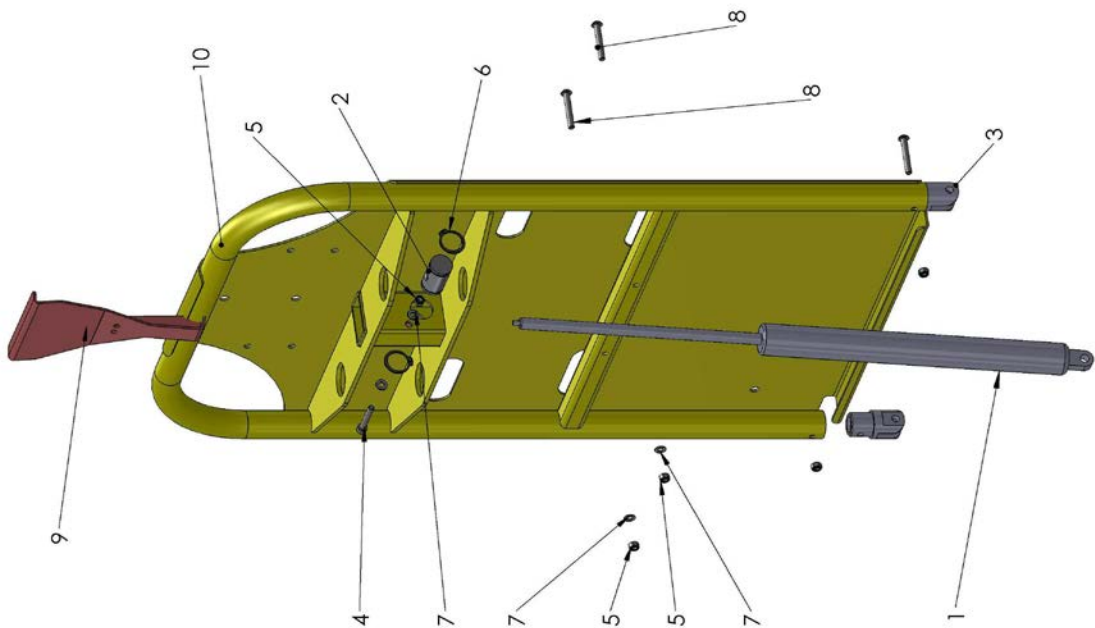
52-0475-005 Assembly



ITEM NO	Reference	Description	QUANTITY
1	09-0091-001	BRAVA ABS. LEG REST W0/D2/P/K0/1/45/200/100	2
2	09-0092-001	STANDARD TRIGGER HEAD CABLE 20AK08M8x1	2
3	09-0100-001	FUEGO SERIES LEG REST ABSORBER 006377 200N	1
4	09-0105-001	SHOCK ABSORBER LEVER NUT .012491	1
5	09-0106-001	RED SHOCK ABSORBER BUTTON 221630-9006-3001-2	1
6	09-0107-001	OPERATING LEVER. SHOCK ABSORBER. LA-ST	1
7	11-0594-001	BRAVA BUTTON SUPPORT DOUBLE LEGREST	1
8	12-0176-001	FUEGO SERIES BUTTON SLEEVE	1
9	12-0254-001	BRAVA SOLID FEMALE HEAD HINGE	2
10	12-0256-001	BRAVA ARTICULATED ALUMINIUM TUBE TERMINAL	4
11	12-0316-001	BRAVA ARTICULATED LEGREST BUSHING	2
12	13-0024-001	ALLEN DIN 912 M6x20 - 8.8 GALVANISED	2
13	13-0099-001	DIN 7380 ULS M5x30 - 10.9 GALVANISED	2
14	13-0107-001	DIN 7380 ULS M6x40 - 10.9 GALVANISED	2
15	13-0115-001	DIN 7380 ULS M8x30 - 10.9 GALVANISED	1
16	13-0116-001	DIN 7380 ULS M8x35 - 10.9 GALVANISED	1
17	13-0176-001	M5 SELF LOCKING NUT	10
18	13-0177-001	M6 SELF-LOCKING NUT	4
19	13-0178-001	SELF LOCKING NUT M8	2
20	13-0206-001	D5 ZINC-COATED WASHER	12
21	13-0207-001	D6 ZINC-COATED WASHER	2
22	13-0208-001	WASHER d8 ZINC COATED	2
23	13-0220-001	NYLON WASHER d.6	4
24	13-0221-001	THICK NYLON WASHER d.8	2
25	13-0223-001	NYLON WASHER d.8	2
26	13-0240-001	DIN 7380 ULS M5x35 - 10.9 GALVANISED	6
27	13-0302-001	DIN 7380 ULS M5x25 - 10.9 GALVANISED	2
28	50-0374-005	BRAVA SHORT LEG SUPPORT	1
29	50-0375-005	BRAVA LONG LEGREST	1

## 52-0476-004 Assembly

### EXPLODED BACK REST



No. NO.	Reference	Description	QUANTITY
1	09-0098-001	BRAVA STABILUS HEADREST ABSORBER 729779 400N	1
2	12-0091-001	ABSOR. TERMINAL MECHANICAL PIECE	1
3	12-0254-001	BRAVA HEADREST SOLID FEMALE HINGE	2
4	13-0016-001	ALLEN DIN 912 M5X35 - 8.8 GALVANISED	1
5	13-0176-001	M5 SELF LOCKING NUT	5
6	13-0198-001	ELASTIC RING d 20	2
7	13-0206-001	D5 ZINC-COATED WASHER	6
8	13-0240-001	DIN 7380 ULS M5x35 -10.9 GALVANISED	4
9	50-0249-001	LEVER OF THE HANDLE OF THE WELDED HEADREST SERIES 116-300-400	1
10	50-0376-003	BRAVA WELDED HEADREST	1

## 7- ACCESSORIES

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

BRAVA HEADREST EXTENSION KIT  
90-0137-002



M-139 INSTRUMENTS TABLE  
90-0131-001

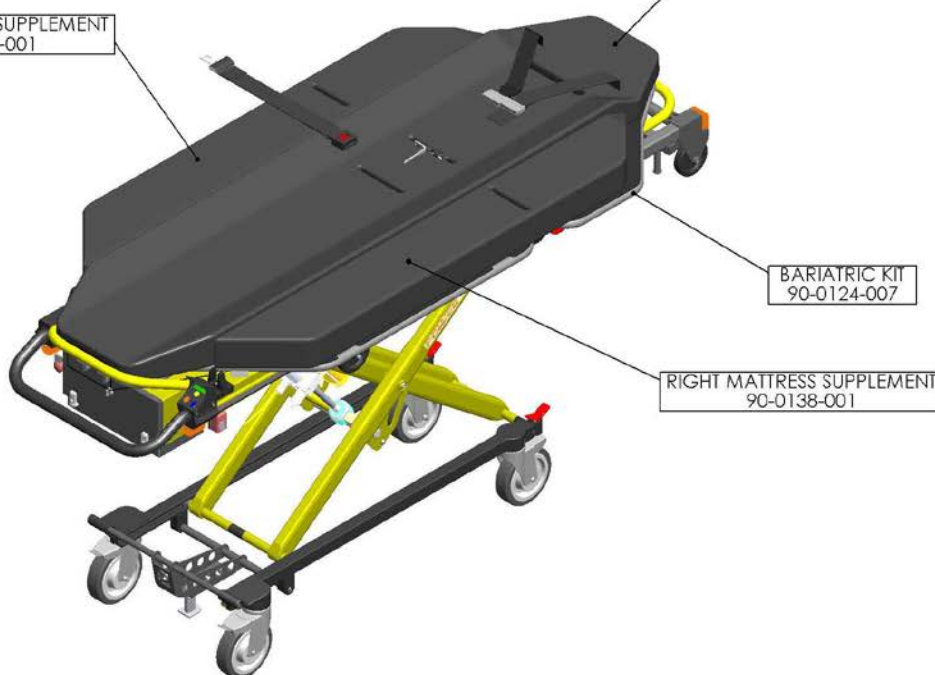


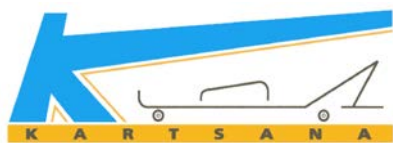
LEFT MATTRESS SUPPLEMENT  
90-0139-001

P-370 MATTRESS  
90-0108-001

BARIATRIC KIT  
90-0124-007

RIGHT MATTRESS SUPPLEMENT  
90-0138-001





## OPERATING AND HANDLING THE BRAVA POWER STRETCHER