

THE KAJAVIDA BABY LEUKO CART™ (BLC) USER INSTRUCTIONS





IMPORTANT SAFETY AND OPERATIONAL INFORMATION



Please read and understand this manual before using the BLC.



Save this manual as it contains important safety information and operating instructions.



Do not use the BLC for any use other than for its intended purpose.



Do not ride, stand or sit on the BLC.



For optimum stability, do not move the BLC while the top shelf is elevated – lower it first.



Only connect the charger's power cable to a normal mains electricity supply outlet (a wall electricity outlet) and ensure the cable is removed from the mains outlet and the charger and power cord are safely secured in the fuse compartment before moving the BLC.

As the BLC uses a digital battery charger the USA Federal Communications Commission (FCC) mandates that this manual include the following generic note and caution specifically for USA users¹:



Note: *“This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.”*



Caution: *“Changes or modifications made by the user and not expressly approved by Kajavida Ltd will void the user's authority to operate the equipment.”*

¹ The FCC's note and caution should be taken into consideration by users in all other countries.

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1. General Description

The Kajavida Baby Leuko Cart™ (BLC) is a workstation designed to assist staff at blood centres in the process of leukoreduction. It works with all major blood bag and filter manufacturers' products and is considered integral to a blood centre's infrastructure requirements.

The BLC:

- is ergonomically designed as a simple, easy to use, battery-powered device that helps its users safely and speedily load and unload blood bags.
- is engineered to standards higher than required for normal operation.
- is designed to operate in a footprint of less than 5.1 ft² (0.46m²)².
- users may stand in one position and load or unload bags by simply rotating the carousel as needed. The carousel also enables BLCs to be parked and used in corners and reduces the number of aisles needed for multiple cart layouts as they may be parked and operated in rows, two-abreast.
- uses two battery-powered movable shelves. By simply depressing one switch, both shelves may be positioned closely together at the best bag handling height for any individual operator. The same switch allows the operator to then drive the shelves vertically away from each other until they reach the correct separation height in order to filter the blood bags at the manufacturers' required overall filtration height.
- can simultaneously process 24 blood bags weighing a combined maximum of 18kg (40lb).
- significantly reduces the physical strain and effort of lifting and bending compared with outdated manual systems thereby reducing the risk of injury to staff.
- works efficiently at normal room temperature and in cool rooms. The shelves may move slightly slower after extended exposure in cool rooms, returning to normal operating speed after a few minutes at normal room temperature.
- is constructed mainly from stainless steel and aluminium and uses high-quality lifting, rotating, and motor mechanisms. The battery, charger and wheels have all been carefully selected to give reliable performance.





Other design features for helping the operator include:

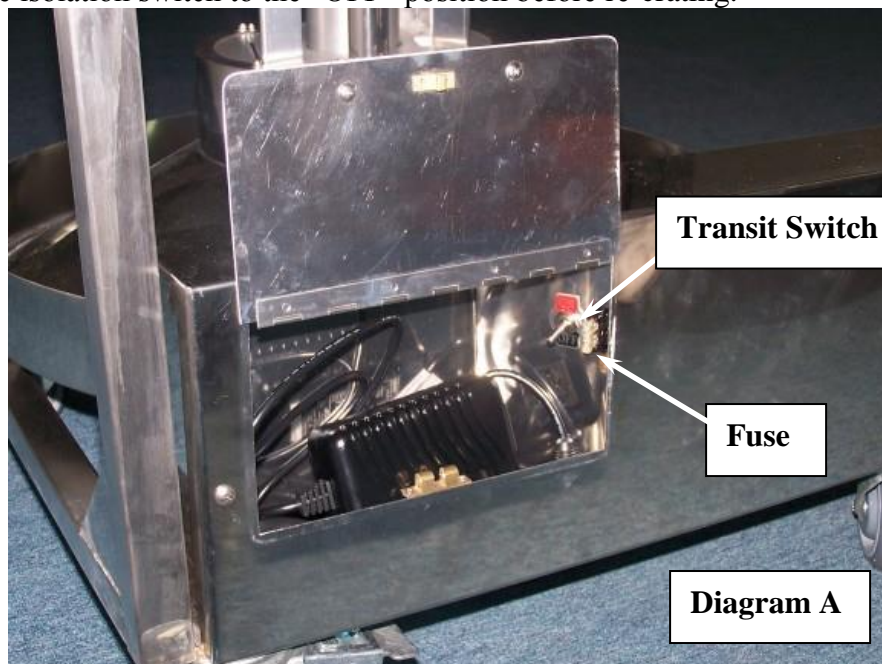
- the lower shelf has a drain and outlet for attaching tubing for easy cleaning
- graduations engraved on the BLC indicate the distance between the lower and upper shelves for optimum filtration according to the manufacturers' recommendations
- filtration can take place with the BLC in the cool room
- swivel wheels enable the BLC to be easily maneuvered.
- two wheels that lock to ensure the BLC may be safely left unattended while parked.
- the BLC may still be operated while the battery is being charged.
- the battery will typically need to only be charged bi-monthly, under normal usage.
- the design of the charging circuit, with the charger itself being separate from the BLC minimizes any downtime in the unlikely event of a charger failing in service³.

² For exact footprint dimensions consult the technical specifications.

2. UNCRATING AND MAKING THE BLC READY FOR USE

The BLC is delivered, protected by bubble wrap within a crate measuring approximately 74cm 29" Wide, 155cm (61") high and 89cm (35") long. The width measurement includes any protruding nuts. To uncrate:

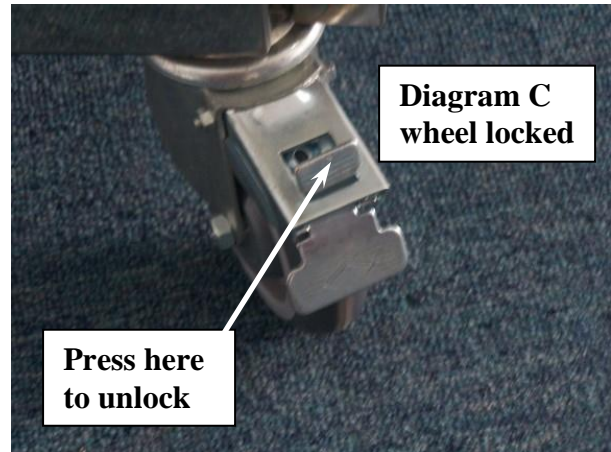
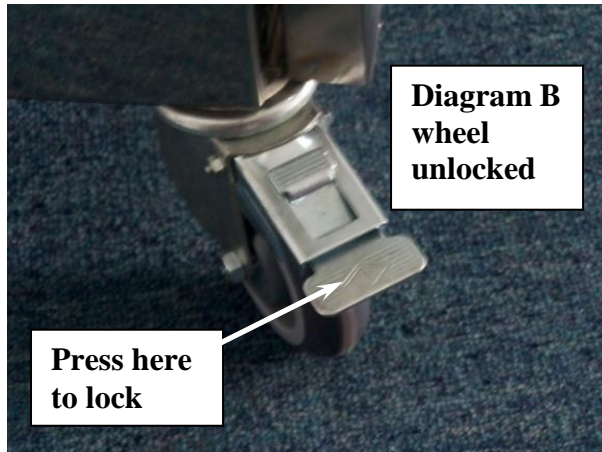
- unscrew the nuts and remove the side panel by lifting it out of the frame.
- remove any foam packing.
- using a suitable wrench, loosen and remove the hex head bolt that secures the timber base-restraining stop and set the stop and bolt aside for possible future re-use.
-  carefully pull the BLC **half-way out** of the crate towards you (the base frame rests on, and slides easily along, the two timber runners nailed to the bottom of the crate).
-  slowly let the BLC tilt towards the floor under its own weight until the two wheels touch the ground.
-  with the weight of the BLC now supported by these two wheels and while still supporting the BLC to prevent it from dropping continue removing it while maintaining the same tilt.
-  once clear of the crate carefully let the BLC tilt slowly under its own weight until the remaining two wheels touch the ground gently and the BLC is standing on all four wheels.
- remove any packing wads and the shrink wrap from the BLC and store these items in the crate and consider retaining the crate and packing materials in case the BLC needs to be shipped to another location at a later date.
- open the fuse compartment door (Diagram A) and set the transit switch to the "on" position. If the BLC is to be shipped to another location remember to first fully lower the top shelf and then set the isolation switch to the "OFF" position before re-crating.



³ should this occur then it is simply a matter of ordering a replacement stand-alone charger and using a charger from another BLC or a loan charger in the interim.

3. THE LOCKING WHEELS

Four sturdy swiveling caster wheels with synthetic rubber tread afford users smooth and quiet rolling and will not leave scuff marks on flooring. Both wheels below the handle bar also have brakes for locking the BLC in position (Diagrams B&C).



The brakes are activated by exerting foot pressure on the lever located just above and at the front edge of each wheel. To unlock, foot pressure is applied to either lift the lever up or push down against the top tab until the brake clicks off. Always lock the wheels when the BLC is left unattended. If the BLC will not move, check that the brakes are off.


4. CHARGING THE BATTERY



The BLC is supplied with a sealed lead-acid, cyclic use, battery specifically selected for this type of application. Fully charge the battery before first use. The battery is housed in the battery compartment which will not need to be opened under normal operating conditions.

To charge the battery, remove the charger and your country's power cord⁴ from the fuse compartment (Diagram A) and connect the charger's power cord plug to the mains electricity supply (a wall electricity outlet) and the power cord socket to the charger then connect the charger's output plug to the mating socket behind the battery compartment (Diagram D).

⁴ Depending upon shipping destination there may be more than one country's power cord supplied with the BLC. In that case select the cord appropriate for the country of use and discard the others.

 ***Never use any charger other than the model supplied with the BLC as doing so may damage the BLC or void the warranty and may cause harmful interference to local radio communications (refer to the FCC note and caution on page 2). The charger supplied with the BLC also has full multi-nation safety approvals and certification and not all aftermarket chargers are so well engineered, certified and specifically meant to be used on the type of battery fitted to the BLC.***



To avoid hazard from electric shock never immerse the battery charger or any part of the power cord/plug/socket in any liquid. Clean them with a damp cloth only and allow them to fully dry before re-using them.

The light on the battery charger indicates the following charging states;

Flashing

Whenever the light is flashing this indicates that the battery's charge state was very low (as may well be the case upon first receiving a BLC and running the initial charging sequence) and the charger is beginning a gentle (low current) initial stage to the charging process designed to maximize the battery's working life.

Orange

Connected to mains electricity and charging at a more vigorous rate than for a discharged battery. (this is the typical state that will be observed during routine recharging where the aim is to recharge the battery well before its charge state became too low to be reasonably useful).

Green

Fully charged.

The battery will take four to six hours to fully charge from a very low state and much less if charged more frequently. To maximize its useful life and to ensure plenty of energy is stored within it for its intended use, avoid fully discharging the battery between charges. As a suggestion, the battery might best be kept charged with a "top up" charge overnight once every two weeks (although with typical use it will certainly still have plenty of remaining useful charge). It is perfectly acceptable to recharge on a daily basis or to even leave the charger on all the time (this will not degrade performance and will certainly guarantee peak charge).




Before moving the BLC after charging first disconnect the charger and mains power cord and store them safely in the fuse compartment ready for the next time they will be needed.


5. THE SHELF ROCKER SWITCH



Diagram E

The shelf rocker switch is located on the right hand side of the handle (Diagram E) and may be easily reached and operated from many positions and directions. Depressing this switch either way moves the shelves.

Depressing the rocker switch towards the  symbol causes both shelves to move towards each other. Continuing to depress the rocker switch will move the shelves fully to their central limit where they will automatically stop. Do not continue to depress the rocker switch after the shelves have reached their limit of travel.

Depressing the rocker switch towards the  symbol causes both shelves to move apart. Continuing to depress the rocker switch will move the shelves fully to their extreme limit where they will automatically stop. Do not continue to depress the rocker switch after the shelves have reached their limit of travel.

The shelves may be moved to any position at any time. Simply depress the rocker switch in the correct direction and release it when the desired position is reached. The operator should always be alert and aware of objects in the BLC's immediate vicinity when raising or lowering the shelves to ensure they don't interfere with or damage the shelves, their contents or their surroundings.

6. OPERATING THE SHELVES

The shelves move simultaneously, either moving towards or away from each other according to the direction selected by the rocker switch (see Section 5).

THE UPPER SHELF

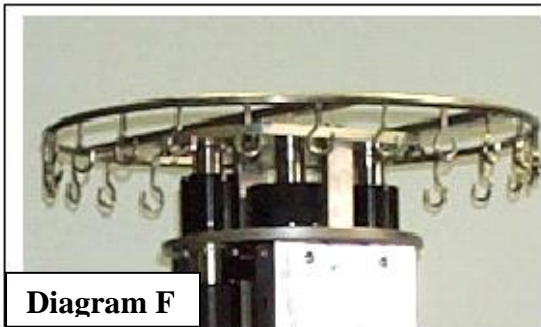


Diagram F

The upper shelf (Diagram F) has 24 hooks that hold the blood bags during processing. The shelf should be raised to the optimum height specified by the filter manufacturers or as specified by local procedures. Any number of bags can be hung to the maximum of 24 and within the maximum total loading of 18kg (40lb). They must be evenly distributed around all sides of the shelf. When fully loaded the shelf takes slightly longer to reach the

required processing height than when lifting fewer bags.

THE LOWER SHELF

The lower shelf (Diagram G) contains the bags into which the leuko-reduced blood will pass. The Leuko filter will hang freely somewhere between the upper and lower shelves during filtration. The lower shelf is designed to be the working shelf for the operator after leuko-reduction has occurred. Bringing the shelf up to a comfortable table height for each operator provides an ergonomic working environment for the completion of the leukoreduction procedures and facilitates detaching the bags from the tubing and expressing (burping) any air.



Diagram G

The lower shelf is equipped with a drain hole to facilitate cleaning. Tubing may also be purchased and connected to the drain hole fitting for draining liquid to a sink or bucket if desired.

Both shelves will usually move at a reduced speed after being in the cold room for more than 10 minutes. The shelves will revert to moving at normal speed after a few minutes at room temperature.

7. THE CAROUSEL



Diagram J

The carousel (Diagram H) is an innovative feature of the BLC because it allows a parked BLC (even if in a small space or in a corner) to have bags loaded without needing to move around it.

It is easily hand turned by applying light force to the lower shelf, upper shelf, middle assembly or the guide rods. As the carousel is turned, the whole assembly turns, including both shelves. The hooks on the opposite side to the user become accessible as the carousel moves around.

The upper and lower shelves swivel together so all blood lines and bags remain together in relation to each other and lines don't twist or tangle.

8. LOADING THE BLOOD BAGS

With the upper shelf lowered & the lower shelf raised to a position chosen by the user for their most comfortable working position, the user:



- places the blood bag sets on the hooks (Diagram J) and **evenly** distribute them around the BLC according to local filtration procedures. There are 24 hooks and any number up to the maximum load of 24 filled bags or 18 kg (40lb) weight can be loaded (only lift a maximum of 18kg (40lb) weight on either shelf or in a combination across both shelves).
- places the remaining bags, including the bag to receive the Leuko-reduced

blood, on the lower shelf. The shelf is designed to have the bags laid across or along the shelf, without any part of the bag overlapping the shelf rim.

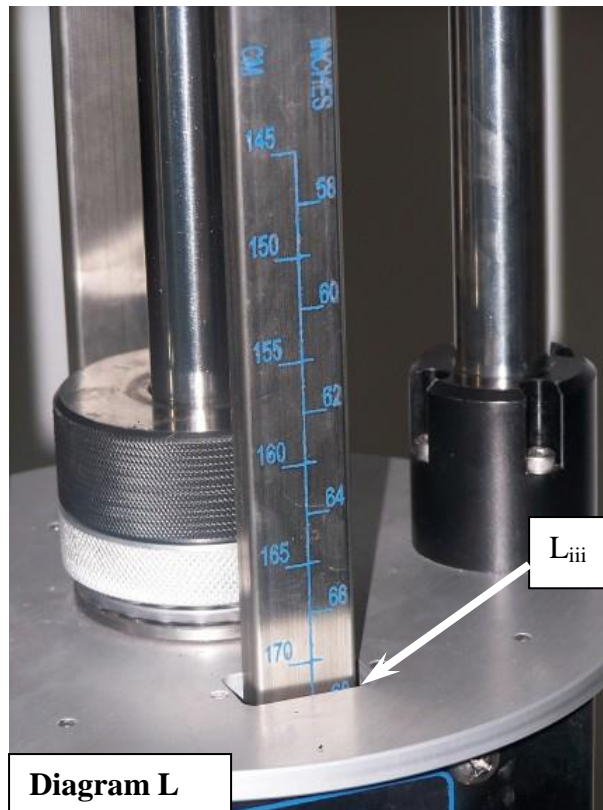
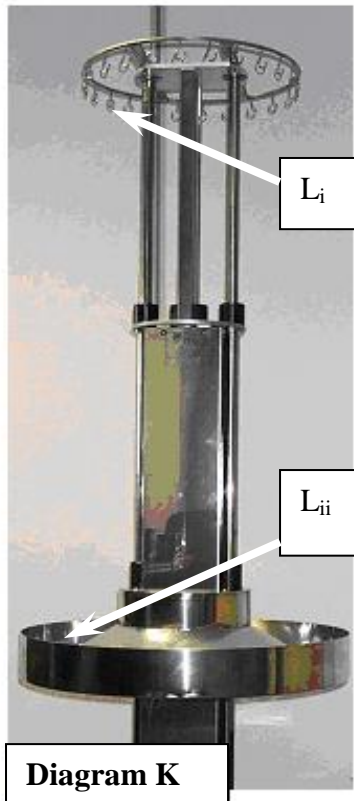
- verifies that all blood lines and bags are contained within the shelf rim.
- parks the BLC in a suitable location and locks the wheels (see “The Locking Wheels) prior to starting the filtration process.

9. USING THE RULER

One of the two (2) vertical metal guide bars that are connected to the upper shelf is graduated in shelf separation distances.

The difference in shelf separation is measured from the lower curve of the upper shelf hook (L_i) to the bottom edge of the lower shelf inside lip (L_{ii}) (Diagram K). This indicates the difference in height between the neck of the filled bag and the neck of the receiving bag, as per the manufacturers' recommended filtration heights.

The correct height is achieved by concurrently raising the top shelf and lowering the bottom shelf until the desired separation height is read from the graduations at the point L_{iii} (Diagram K). This should always be done before commencing leukoreduction.



10. OPERATING THE BLC IN COLD ROOMS

The BLC is designed to operate efficiently in cold rooms. The movement of the shelves in the cold room may be at a slightly reduced speed than when operating at normal room temperature.

When the BLC is loaded with bags and is ready to be placed in a cold room, ensure the upper shelf is in the fully lowered position to ensure an unobstructed passage through doorways and to stop the bags and filters swaying unnecessarily.

Wheel the BLC into the cold room, lock the wheels, follow normal filtration procedures then raise the upper shelf to the desired height. The lower shelf will move correspondingly.

After filtration and when the BLC is ready to be moved out of the cold room, remember to lower the upper shelf and unlock the wheels beforehand.

11. CLEANING AND MAINTENANCE

Clean the BLC using appropriate cleaning or decontamination solutions. For example, use medical-grade bleach. Clean and buff up all stainless steel parts using any proprietary stainless steel cleaner.

The lower shelf is equipped with a drain hole through which cleaning liquids can drain. Push-connect suitable sized flexible to the drain hole fitting underneath the lower shelf. Place the free end of the tube in a receptacle ready for draining cleaning and rinse liquids. When cleaning and rinsing is complete, remove the tubing.



To avoid hazard from electric shock never immerse the battery charger or any part of the power cord/plug/socket in any liquid. Clean them with a damp cloth only and allow them to fully dry before re-using them.

12. GENERAL TECHNICAL SPECIFICATIONS

BLC dimensions

Width	77cm (30")
Length, including the handle	62cm(24 ½")
Maximum height (with upper shelf extended)	200cm (78 ½ ")
Weight (excluding blood bags)	59kg (115lb)

Crate dimensions:

Width	74cm (29")
Length	92cm (36")
Height (upper shelf is lowered for transit)	150cm (59")
Weight with BLC	93kg (198lb)

Battery specifications

Type: lead acid deep cycle valve regulated	
Ah	17Ah to 18Ah
Voltage	12 volts
Manufacturer	FIAMM, Yuasa or Vision

Charger Specifications

Charging Rate	2.5 Amp @13.8V
Make	Soneil 100-240V AC input @50/60Hz

<u>Average Operating Current</u>	7 amps
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<u>Working lift capacity:</u>	maximum18kg 40lb.
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<u>BLC Materials:</u>	Stainless Steel, Aluminum, Polyurethane & Polyethylene.
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Shelf Speeds

<i>Speed of the shelves when fully loaded & with full battery charge – indicative only</i>		
<u>Total weight loaded on hooks</u>	<u>Approx Time of movement of either shelf to maximum position</u>	
	<u>Up</u>	<u>Down</u>
18 kg (40lb)	35 seconds	35 seconds

This assembled device and its components have successfully undergone laboratory testing and have passed the European EMC Directive 89/336/EEC. It carries the **CE** mark.

The Soneil digital battery charger is certified to have passed UL (C and US) and has been tested and certified by TUV Rheinland to comply with the European Low Voltage Directive 73/23/EEC. The charger carries the **CE** and FCC marks and has been tested and certified to have passed the following European emissions and immunity standards: EN 50081-1(1992); EN 55022/EN61000-3-2; EN 50082-1(1992); IEC 801-2/IEC 801-3/IEC801-4 and complies with the USA FCC requirements.

13. Contact Details

For enquiries or more information please contact Kajavida Ltd., 328 Hill Lane, Southampton, SO15 7NW, United Kingdom, (+44(0)7711819903), visit the Kajavida web site at <http://www.kajavida.com> or email davidwlaffar@kajavida.com