

TRAUMA F/X®

Clinical Response Lower (CRL)

Quick Start Guide

The Clinical Response Lower (CRL) is a ruggedized lower body unit medical trainer that takes realism to the next level by helping trainees learn how to treat and perform interventions on patients suffering from traumatic lower body injuries. The CRL features a hemostatic wound, that when packed and when pressure is applied with sufficient force for the appropriate amount of time, the bleeding will stop. Tourniquets must be applied with realistic force to control hemorrhaging to the right leg amputation, and trainees can use field techniques such as hand, knee, and elbow pressure on arterial pressure points to occlude bleeding. Rounding out the CRL's already robust features is a Foley catheter simulation, tibial IO site, IM injection sites, and palpable pulses. The CRL's unparalleled ruggedness allows it to be carried and dragged through inhospitable field training environments without damage. The CRL can withstand nearly any weather condition, making it ideally suited for Tactical Combat Casualty Care (TCCC) and Combat Lifesaver training courses.

This quick start guide is intended for use as a simplified field guide for those already trained on operating the CRL. Please refer to the CRL User Guide for in depth guidance on operating the CRL lower unit medical trainer.

1) **Unpack the case**

LOWER UNIT CASE

(Optional accessories where noted - some items may not be included)



Custom Remote

- User Guide
- Quick Start Guide (this guide)
- Makita Operation Manual



2) **Charge the batteries**

CRL and Custom Remote

The CR; uses two rechargeable 18v Makita Li-Ion batteries to power the unit, and one 18v Makita Li-Ion battery to power the custom remote. Charge the Li-Ion batteries using the Makita charger provided. Refer to the CRL User Guide and manufacturer's user manual provided for additional information charging the batteries.

3) **Insert the batteries**



CRL

- The battery compartment of the CRL is located at the waist.
- To open the hinged battery compartment door, firmly twist the two wire closure pins counterclockwise. The cover plate will open from the top. If the door does not swing open, then apply gentle pressure to open it.
- Insert the two batteries into the battery compartment making sure they firmly lock into their slots with a solid 'click' sound.
- Close the battery compartment door and securely fasten the wire closures by turning clockwise.



Removing the batteries

Press the white button located on each battery to unlock and remove it from the unit.



Transmitter

Insert the battery into the back of the unit by sliding the battery into the battery slot until it clicks into place.

4) **Prime the hose**

The hose comes pre-primed with water. Results are best when potable water is left in the hose between uses. If air pockets are present causing sporadic discharges, the hose can be easily primed. To re-prime the hose, attach one end of the blood fill hose to the quick-connect valve on the blood fill system. Then using a sharp object, simply push in the valve at the other end of the hose. Let water flow through the hose until the air pocket is eliminated.

5) **Prime the blood system**

Prior to first time use or after a period of non-use, and to ensure optimal pump performance, it is recommended that you prime the blood system with potable water before filling it with artificial blood. This process removes any air that may be trapped during shipping and handling. The process can be repeated if there is a decrease in pumping pressure following continuous use.



- Fill the blood fill system bucket with clean, potable, cold or warm water. DO NOT use hot water.
- Attach the blood fill system hose to the CRL and elevate the bucket above the CRL to allow gravity to fill the blood reservoir in the upper body. The blood reservoir holds approximately one liter of liquid.

c. Disconnect the hose from the unit and keep hose clear of any grit and debris that could impede or compromise the pump system.



d. Turn on the remote by pressing the power switch located at the base of the remote control.



e. Turn on the CRL unit by pressing the power switch located at the waist plate.

f. From the main remote control screen, verify unit is paired with the remote.

g. Press the 'Flush' control button to select flushing options. Press the 'Flush Lower Arterial' button to prime the system and remove any air bubbles prior to first use.

h. Continue to purge the system until all water is pumped through the system.

i. Turn the CRL and Remote Control 'Off' by pressing the appropriate power switches.

6) **Mix blood & fill blood reservoir**



a. Fill the blood fill bucket with 1 gallon of clean, potable, cold or warm water. DO NOT use hot water.

b. Empty contents of 1 blood powder bag per 1 gallon of water into the blood fill container and stir until thoroughly mixed.

c. Connect clear blood fill hose first to the blood fill bucket (either end will work). The hose will not leak if connected at only one end. Then connect to fill hose connector on unit, which can be exposed by gently pulling the skin back.

d. Elevate the bucket to allow gravity to fill the blood reservoir in the upper body. The blood reservoir holds one liter of liquid.

e. Disconnect the hose from the unit and keep hose clear of any grit and debris that could impede or compromise the pump system.

CAUTION: Blood mix in powder or liquid form may stain clothes. If clothing comes into contact with blood mix, treat affected area with stain remover and/or laundry detergent within 24 hours for best removal results.

7 Attach upper unit (optional)

The CRL lower unit can be attached to any TraumaFX upper unit (optional). Attach a TraumaFX upper unit in the following manner:



a. Fold back the chest fascia over the upper unit to expose the quick connect system.



b. Bring upper and lower units together and insert the quick release pins into the bracket holes.



c. Pull down the chest fascia to cover the space between the upper and lower units.



Disassembling from the upper unit

To separate the lower and upper units, fold back the chest fascia over the abdomen of the upper unit to expose the quick connect system.

Slightly lift up on the lower unit to relieve the tension. The pins can now easily be removed to separate the upper and lower units.

NOTE: CRU, APL-IP and APL-PB disconnect systems are equipped with a push button release at the cotter pin.

8 Prep for training

Below is a brief summary of available simulation options.

- a.** Blood paste can be applied to enhance the realism of the CRL wounds and various surfaces. CRL units come with one gallon of pre-mixed blood paste.
- b.** Flesh chunks and the severed leg with boot are available as optional accessories to enhance the realism of the crisis simulation.

NOTE: Blood paste is perishable, organic material with a shelf life dependant upon storage conditions. Store sealed and in a cool, dark place. Blood paste is cellulose based and could attract insects if left exposed.

NOT INTENDED FOR HUMAN CONSUMPTION

9 CRL simulated training sites

Simulated Packable Hemostatic Inguinal Wound

The wound at the left inguinal crease contains a packable wound with sensor that identifies if the right amount of pressure is being applied to the wound for an adequate amount of time. If the trainee meets both the pressure and time requirements, the bleeding will occlude, otherwise bleeding will continue until the CRL bleeds-out and "dies" as indicated on the CRL transmitter.

Simulated Amputation

The CRL features a realistic amputation wound on the lower body with a popliteal artery hemorrhage. The right leg has an anatomically correct femoral pressure point that will occlude bleeding via proper tourniquet application or through pressure applied by the user.

Tibial IO Site

The CRL features an infusible IO site at the tibia, with reusable and replaceable bone and skin plugs.

Simulated Foley Catheter Site

The CRL features a Foley catheter simulation site. A catheter can be placed within the urethra, triggering a flow of urine. The urine bladder can be filled through a quick release port on the CRL waist plate.

Simulated DCAP-BTLS

The CRL's lower body provides realistic examples of Deformities, Contusions, Abrasions, Punctures/ Penetrations, Burns, Tenderness, Lacerations, and Swelling (DCAP-BTLS).

Pulses

The CRL features palpable femoral and pedal pulses. A plug is provided for the inguinal wound to activate the pulses on the left side.

IM Injection Sites

The CRL features bilateral intramuscular injection sites at the thigh, with reusable skin plugs. Fluids injected to the sites drain out the heel (left) and stump (right).

10 After use care and maintenance

To keep the CRL operating as designed, the following preventive maintenance actions must be completed after each training session.

- a.** Empty and rinse out blood fill bucket with clean water
- b.** Prime the blood system to flush CRL'S blood system with potable water after use and prior to storage.
- c.** Ensure the CRL and Remote are turned OFF after cleaning the blood system.
- d.** Remove and charge batteries
- e.** Wash skin and wounds with water. If stain persists, use a mild detergent and gently rub with a soft, damp cloth. DO NOT vigorously scrub the skin or surface area as this can cause permanent damage to the skin.
- f.** Inspect CRL for small skin cuts; repair if found
- g.** Inspect CRL's O-ring on the fill valve. Replace if nicks or cuts are present.

11 Cleaning the Inlet Filter

- a.** Locate filter wrench
- b.** Unscrew filter assembly cap at waist plate
- c.** Remove, clean and replace filter with solid surface facing out
- d.** Hand tighten nut - DO NOT OVERTIGHTEN



12 Safety instructions

Latex Allergy Alert

The tubing used in CRL's bleeding system is surgical quality and contains latex. Individuals with latex allergies or sensitivities should use precautions before operating, training, or attempting to repair the unit.

Possible Reactions to Synthetic Blood Mix

DO NOT ingest blood paste, dry blood mix or mixed blood. The chemical components may cause skin and eye irritation for some users. Avoid ingestion or inhalation. If eye contact occurs, immediately flush eyes with cold water for 15 minutes. Seek medical attention if irritation occurs. If skin contact occurs and the skin becomes irritated, wash with soap and water.



CAUTION: Blood mix in powder or liquid form may stain clothes. If clothing comes into contact with blood mix, treat affected area with stain remover and/or laundry detergent within 24 hours for best removal results.

Contact Information

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