

## AirwayPlus Lifecast - Pulses/Breathing (APL-PB)

### Quick Start Guide

The TraumaFX® AirwayPlus Lifecast - Pulses/Breathing (APL-PB) is a ruggedized upper 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 upper body injuries. The APL-PB trains responders to perform life-saving tasks such as maintaining a patient's airway, intubation, cricothyroidotomy, intraosseous infusion, needle decompression, IV insertion, and chest tube insertion. The APL-PB is designed for rugged use in realistic training environments.

The APL-PB also features articulating shoulders and reinforced silicone arms with realistic range of motion. It can be carried, dragged, and transported in a variety of vehicles and aircraft. The APL-PB 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 APL-PB. Please refer to the APL-PB User Guide for in depth guidance on operating the APL-PB Upper torso medical trainer.*

#### 1. **Unpack the case**

##### UPPER UNIT CASE

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

##### APL-PB UPPER BODY



##### Replaceable Skin Plugs And Components

Please see the User Guide for the full list of replaceable skin plugs and components that accompany the APL-PB unit.

One Gallon "Blood Paste" bucket with pre-mixed coagulated blood



One gallon blood mix packets (10)

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



#### 2. **Charge the batteries**

##### APL-PB and Custom Remote

The APL-PB 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 APL-PB User Guide and manufacturer's user manual provided for additional information on charging the batteries.

#### 3. **Insert the batteries**

##### APL-PB



- The battery compartment of the APL-PB is located at the waist.
- To open the hinged battery compartment door, disengage the 'H-Bracket', and 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

**a.** Insert the battery at 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 APL-PB and elevate the bucket above the APL-PB to allow gravity to fill the blood reservoir in the upper body. The blood reservoir holds approximately one-half liter of liquid.

- 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 APL-PB unit by pressing the power switch located at the waist plate.

- From the main remote control screen, verify unit is paired with the remote.
- Press the 'Flush' button.
- Press the 'Flush Upper IV' button to prime the system and remove any air bubbles prior to use.
- Reattach the hose to drain any remaining water back into the bucket.
- Turn the APL-PB and Remote Control 'Off' by pressing the appropriate power switches.

#### 6. **Mix blood & fill blood reservoir**



- Fill the blood fill bucket with 1 gallon of clean, potable, cold or warm water. DO NOT use hot water.
- Empty contents of 1 blood powder bag per 1 gallon of water into the blood fill container and stir until thoroughly mixed.
- Connect clear blood fill hose first to the blood fill bucket. 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.

- Elevate the bucket to allow gravity to fill the blood reservoir in the upper body. The blood reservoir holds one-half liter of liquid.
- Disconnect the hose from the unit and keep hose clear of any grit and debris that could impede or compromise the pump system.

**NOTE:** The mixed blood is not perishable. Store the mixed blood with the lid on. When used again, simply stir before refilling unit.



**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 lower unit

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

### Connecting to a Lower Unit



**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.

## 8 APL-PB Simulated Training Sites

### Simulated Cricothyrotomy Training Site

The *Simulated Cricothyrotomy Training Site* is a multi-use training site that allows for the palpation of landmarks to properly identify and locate the larynx. Additionally, this site allows trainees to create an incision through the skin and cricothyroid membrane for airway intubation. This site uses replaceable, single or multi-use skin plugs to accommodate repeated simulations.

### Simulated Nasal Airways

The *Simulated Nasal Airways* provide for nasopharyngeal intubation into the nostrils to facilitate opening and maintaining a clear airway. Using the remote, the nasal passageways can be closed to cue for another airway treatment, such as endotracheal intubation, oropharyngeal airway, or cricothyrotomy.

### Simulated Oral Airway with Sensors

The *Simulated Oral Airway* cavity with teeth and tongue provides for pharyngeal intubation into the mouth to facilitate opening or maintaining a clear airway for mechanical ventilation. This simulated airway can be used with King LT-D or other esophageal airways. This site also provides trainees with a flexible neck and jaw to perform endotracheal intubation. The throat can be obstructed via the remote to cue for cricothyrotomy. Teeth sensors also cue when the teeth have been contacted during endotracheal intubation. The APL-PB has sensors in the airway to detect the insertion of airway adjuncts and to respond appropriately. The system can detect if a tube is placed properly in the trachea, in the right mainstem bronchi, or in the esophagus.



**DO NOT OVER LUBRICATE!** The oral airway comes prelubricated. Over lubrication can make intubation more difficult.

### Simulated Bilateral Needle 'D' (3/4" 14 gauge) Training Sites

The *Simulated Bilateral Needle 'D' Training Sites* provides trainees with palpable landmarks at the ribs to locate the correct needle decompression site and fully insert the decompression needle to relieve pneumothorax caused by physical trauma to the chest such as a blast injury. This site uses reusable and replaceable needle 'd' skin plugs to accommodate repeated simulations.

### Simulated Sternal Intraosseous Training Site

The *Simulated Sternal Intraosseous Training Site* allows trainees to palpate the sternal notch for proper placement and insertion of any Intraosseous (I/O) infusion introducer. The I/O training site uses a multi-use and replaceable infusible synthetic manubrium and manubrium skin plug to accommodate repeated simulations.

### Simulated Humeral Intraosseous Training Site

The *Simulated Infusible Humeral Intraosseous Site* allows trainees to insert an Intraosseous Infusion Introducer at this location. This site uses a multi-use, infusible manubrium with replaceable membranes to accommodate repeated simulations.

### Simulated Dilated and Pinpoint Pupil

The *Simulated Dilated or Pinpoint Pupil* can be manually rotated to cue for symptoms of Traumatic Brain Injury (TBI), drug overdose, or exposure to nerve agents.

### Simulated Bilateral Chest Tube Training Site

The *Simulated Bilateral Chest Tube Training site* provides trainees with palpable landmarks at the ribs that allow the trainee to locate the correct chest tube insertion site and insert a chest tube to relieve pneumothorax or hemothorax. Once the chest tube is inserted, trainees can practice securing the chest tube with various suturing techniques used to keep the chest tube in place. This site uses a reusable and replaceable chest tube skin plug to accommodate repeated simulations.

### Simulated IV Insertion Site with Flash Cue

**DO NOT INFUSE!** This site is designed to provide trainees with a practice area for IV insertion and is accompanied with flash cue. The starches and carbohydrates contained in products such as Hextend and Ringers Lactate could severely damage the liquid blood system components and lead to complete failure. If unit is accidentally infused, the system must be flushed immediately with warm, potable water for at least 15 minutes.

## 9 After use care and maintenance

**To keep the APL-PB operating as designed, the following preventive maintenance actions must be completed after each training session.**

- Empty and rinse out the blood fill bucket with clean water.
- Prime the blood system to flush APL-PB's blood system with potable water after use and prior to storage.
- Ensure the APL-PB and Remote are turned OFF after cleaning the blood system.
- Remove and charge batteries
- 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.
- Inspect the APL-PB for small skin cuts and repair if found.
- Inspect APL-PB's O-ring on the fill valve. Replace if nicks or cuts are present.

## 10 Cleaning the Inlet Filters

- Locate filter wrench
- Unscrew filter assembly cap at waist plate: 1 is an inlet filter used for filling, and the other is a system filter
- Remove, clean and replace filter with solid surface facing out
- Hand tighten nut - DO NOT OVERTIGHTEN



## 11 Safety instructions

### 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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