

20  
24

\_IN ANY ENVIRONMENT >>

CR+MEDICAL™



ISSUE 004



PC 2024  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM

1-800-999-9999



PRODUCT CATALOG

ISSUE 004 | 2024

CROMEDICAL.COM



[\\_WHO WE ARE >>](#)



CRO™ is a team of medical providers, engineers, scientists, and researchers dedicated to enhancing prehospital, austere, and operational medicine.

We accelerate the transfer of medical technology from research and development to commercialization with our user-generated platform.

[\\_CROMEDICAL.COM\\_](#)

[\\_CONTENTS >>](#)

## [\\_LINEUP\\_GEAR >>](#)

For quotes please contact  
[sales@cromedical.com](mailto:sales@cromedical.com)

[\\_CROMEDICAL.COM\\_](http://_CROMEDICAL.COM_)  
MADE IN MONTANA\_USA

06

DCR PANEL

24

MARCH HOIST

34

OPERATOR HYBRID IFAK

14

DCR 9L MED BAG

26

MEDIC CASE (NARCS)

36

PELVIC BINDER

20

MARCH BELT

28

HARD MEDICATION CASE

42

BLOOD TRANSPORT CONTAINER

22

HOIST HARNESS

30

HYBRID IFAK

44

AIRO SUCTION UNIT - TACTICAL

### [\\_RESOURCES & INDUSTRY >>](#)

(08)\_Government price list

(13)\_TDCR ecosystem

(16)\_How to slim down your med bag

(32)\_Hybrid IFAK packout

(38)\_Modernizing pelvic binder devices

(46)\_Airo Suction Unit



**<BLOG>**  
 Find out more about load and pack management online on our Resources & Industry page.

# Large internal workstation\_ External blood admin pouch\_ Quick release system\_ Flat straps\_ Use with single unit container\_

The CRO Damage Control Resuscitation (DCR) Panel is designed for optimizing the delivery of the first unit of blood at the point of injury (POI) before entering into massive transfusion protocol. This slim bag is designed to carry diagnostics, access, and a single unit container, as well as POI drugs in a tiered load-out. The first line MARCH belt is recommended to use with this product.

The DCR panel has flat straps for when it's time to get on the move, and quick release buckles to easily drop the panel for urgent patients. It provides the wearer with a virtually unnoticed med bag that shifts weight directly through the back plates.



## DCR PANEL\_

A fixed direct assault panel with flat straps for rapid exfill.

MULTICAM\_SKU: DCR-01-MC | COYOTE\_SKU: DCR-01-COY  
 BLACK\_SKU: DCR-01-BLK | RANGER GREEN\_SKU: DCR-01-RG

12" x 4" x 13" | Tegriss® | \$450.00

ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)



CROMEDICAL.COM  
support@cromedical.com

**GOVERNMENT  
PRICE LIST**

ECAT: #SPE2DE-20-D-7032  
DAPA: #SP0200-10-H-0092

FEDMALL: SP47W1-21-D0038  
GSA: GS-07F-5965P (Schedule 84)

AID BAGS		
PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
DCR-01-MC	DCR PANEL MULTICAM	\$450.00
DCR-01-BLK	DCR PANEL BLACK	\$450.00
DCR-01-COY	DCR PANEL COYOTE	\$450.00
DCR-01-RG	DCR PANEL RANGER GREEN	\$450.00
DCR-9L-MC	DCR 9L MED BAG MULTICAM	\$380.00
DCR-9L-BLK	DCR 9L MED BAG BLACK	\$380.00
DCR-9L-COY	DCR 9L MED BAG COYOTE	\$380.00
DCR-9L-RG	DCR 9L MED BAG RANGER GREEN	\$380.00
MARCH-MC-M	MARCH BELT MULTICAM MEDIUM	\$650.00
MARCH-MC-L	MARCH BELT MULTICAM LARGE	\$650.00
MARCH-BLK-M	MARCH BELT BLACK MEDIUM	\$650.00
MARCH-BLK-L	MARCH BELT BLACK LARGE	\$650.00
MARCH-COY-M	MARCH BELT COYOTE MEDIUM	\$650.00
MARCH-COY-L	MARCH BELT COYOTE LARGE	\$650.00
MARCH-RG-M	MARCH BELT RANGER GREEN MEDIUM	\$650.00
MARCH-RG-L	MARCH BELT RANGER GREEN LARGE	\$650.00
MARCH-MC-M-HOIST	MARCH BELT HOIST MULTICAM MEDIUM	\$779.00
MARCH-MC-L-HOIST	MARCH BELT HOIST MULTICAM LARGE	\$779.00
MARCH-BLK-M-HOIST	MARCH BELT HOIST BLACK MEDIUM	\$779.00
MARCH-BLK-L-HOIST	MARCH BELT HOIST BLACK LARGE	\$779.00
MARCH-COY-M-HOIST	MARCH BELT HOIST COYOTE MEDIUM	\$779.00
MARCH-COY-L-HOIST	MARCH BELT HOIST COYOTE LARGE	\$779.00
MARCH-RG-M-HOIST	MARCH BELT HOIST RANGER GREEN MEDIUM	\$779.00
MARCH-RG-L-HOIST	MARCH BELT HOIST RANGER GREEN LARGE	\$779.00



CROMEDICAL.COM  
support@cromedical.com

**GOVERNMENT  
PRICE LIST**

ECAT: #SPE2DE-20-D-7032  
DAPA: #SP0200-10-H-0092

FEDMALL: SP47W1-21-D0038  
GSA: GS-07F-5965P (Schedule 84)

MEDICAL DEVICES		
PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
OS-BOA	PELVIC BINDER	\$135.00
AIRO-MIL	AIRO SUCTION UNIT - TACTICAL	\$1,259.00
AIRO-EMS	AIRO SUCTION UNIT - EMS	\$1,259.00
IFAKS		
PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
IFAK-MC	HYBRID IFAK MULTICAM	\$215.00
IFAK-BLK	HYBRID IFAK BLACK	\$215.00
IFAK-COY	HYBRID IFAK COYOTE	\$215.00
IFAK-RG	HYBRID IFAK RANGER GREEN	\$215.00
JFAK-MC	JOINT FIRST AID KIT MULTICAM (STOCKED)	\$325.00
JFAK-BLK	JOINT FIRST AID KIT BLACK (STOCKED)	\$325.00
JFAK-COY	JOINT FIRST AID KIT COYOTE (STOCKED)	\$325.00
JFAK-RG	JOINT FIRST AID KIT RANGER GREEN (STOCKED)	\$325.00
OP-IFAK-MC	OPERATOR HYBRID IFAK MULTICAM	\$200.00
OP-IFAK-BLK	OPERATOR HYBRID IFAK BLACK	\$200.00
OP-IFAK-COY	OPERATOR HYBRID IFAK COYOTE	\$200.00
OP-IFAK-RG	OPERATOR HYBRID IFAK RANGER GREEN	\$200.00
OP-IFAK-MC-S	OPERATOR HYBRID IFAK MULTICAM (STOCKED)	\$280.00
OP-IFAK-BLK-S	OPERATOR HYBRID IFAK BLACK (STOCKED)	\$280.00
OP-IFAK-COY-S	OPERATOR HYBRID IFAK COYOTE (STOCKED)	\$280.00
OP-IFAK-RG-S	OPERATOR HYBRID IFAK RANGER GREEN (STOCKED)	\$280.00
TA-IFAK-MC	TEAR-AWAY HYBRID IFAK MULTICAM	\$265.00
TA-IFAK-BLK	TEAR-AWAY HYBRID IFAK BLACK	\$265.00



CROMEDICAL.COM  
support@cromedical.com

**GOVERNMENT  
PRICE LIST**

ECAT: #SPE2DE-20-D-7032    FEDMALL: SP47W1-21-D0038  
DAPA: #SP0200-10-H-0092    GSA: GS-07F-5965P (Schedule 84)

**IFAKS**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
TA-IFAK-COY	TEAR-AWAY HYBRID IFAK COYOTE	\$265.00
TA-IFAK-RG	TEAR-AWAY HYBRID IFAK RANGER GREEN	\$265.00
IFAK-A-MC	ANKLE IFAK MULTICAM	\$75.00
IFAK-A-BLK	ANKLE IFAK BLACK	\$75.00

**NARC CARRY**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
MC-MC	MEDIC CASE (NARCS) MULTICAM	\$155.00
MC-BLK	MEDIC CASE (NARCS) BLACK	\$155.00
MC-COY	MEDIC CASE (NARCS) COYOTE	\$155.00
MC-RG	MEDIC CASE (NARCS) RANGER GREEN	\$155.00
HMC-03	HARD MEDICATION CASE	\$70.00

**ASSAULT CLIMBING**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
HOIST-MC-M	HOIST HARNESS MULTICAM MEDIUM	\$380.00
HOIST-MC-L	HOIST HARNESS MULTICAM LARGE	\$380.00
HOIST-BLK-M	HOIST HARNESS BLACK MEDIUM	\$380.00
HOIST-BLK-L	HOIST HARNESS BLACK LARGE	\$380.00
HOIST-COY-M	HOIST HARNESS COYOTE MEDIUM	\$380.00
HOIST-COY-L	HOIST HARNESS COYOTE LARGE	\$380.00
HOIST-RG-M	HOIST HARNESS RANGER GREEN MEDIUM	\$380.00
HOIST-RG-L	HOIST HARNESS RANGER GREEN LARGE	\$380.00



CROMEDICAL.COM  
support@cromedical.com

**GOVERNMENT  
PRICE LIST**

ECAT: #SPE2DE-20-D-7032    FEDMALL: SP47W1-21-D0038  
DAPA: #SP0200-10-H-0092    GSA: GS-07F-5965P (Schedule 84)

**BLOOD TRANSPORT**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
BTC-MC	BLOOD TRANSPORT CONTAINER MULTICAM	\$380.00
BTC-BLK	BLOOD TRANSPORT CONTAINER BLACK	\$380.00
BTC-COY	BLOOD TRANSPORT CONTAINER COYOTE	\$380.00
BTC-RG	BLOOD TRANSPORT CONTAINER RANGER GREEN	\$380.00

**MEDICAL POUCHES**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
MB-MC	MEDIUM BLEEDER POUCH MULTICAM	\$75.00
MB-BLK	MEDIUM BLEEDER POUCH BLACK	\$75.00
MB-COY	MEDIUM BLEEDER POUCH COYOTE	\$75.00
MB-RG	MEDIUM BLEEDER POUCH RANGER GREEN	\$75.00
LB-MC	LARGE BLEEDER POUCH MULTICAM	\$85.00
LB-BLK	LARGE BLEEDER POUCH BLACK	\$85.00
LB-COY	LARGE BLEEDER POUCH COYOTE	\$85.00
LB-RG	LARGE BLEEDER POUCH RANGER GREEN	\$85.00

**TOURNIQUET COVERS**

PRODUCT NUMBER	PRODUCT NAME	PRODUCT MSRP*
RTC-MC	RAID TOURNIQUET COVER MULTICAM	\$35.00
RTC-BLK	RAID TOURNIQUET COVER BLACK	\$35.00
RTC-COY	RAID TOURNIQUET COVER COYOTE	\$35.00
RTC-RG	RAID TOURNIQUET COVER RANGER GREEN	\$35.00
FTC-MC	FULL TOURNIQUET COVER MULTICAM	\$55.00
FTC-BLK	FULL TOURNIQUET COVER BLACK	\$55.00
LVTQ-BLK	LOW-VIS TOURNIQUET COVER	\$52.00

SERVICE-DISABLED VETERAN OWNED >>

MADE IN MONTANA\_USA\_

[CROMEDICAL.COM/GOVERNMENT-BUYERS](https://cromedical.com/government-buyers)

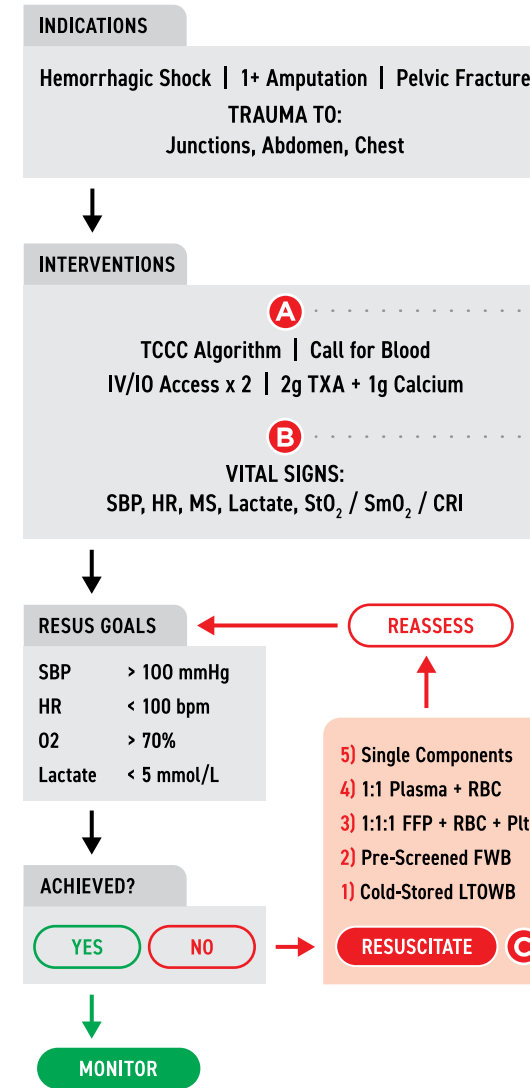
# See our Government Buyers page for a full list of part numbers and contracts.

If you have any questions about Government orders please reach out to our customer service team at [support@cromedical.com](mailto:support@cromedical.com)

[RESOURCES & INDUSTRY >>](#)

## Optimize resuscitation with whole blood

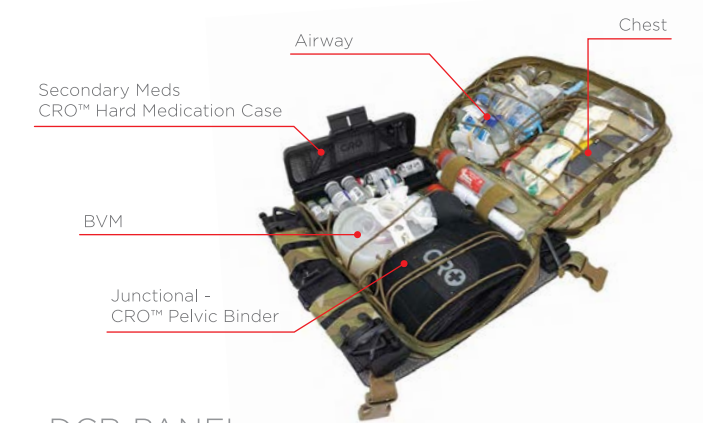
A tiered approach for treating shock, bridging POI care to damage control surgery.



**MARCH BELT**  
First 10 minutes of treatment from Gunbelt



**DCR PANEL**  
Resuscitate with blood from outside of the bag



**DCR PANEL**  
Only open your bag for advanced interventions

Fisher AD, Dodge M. Whole Blood Toolkit: Questions & Answers for Your Medical Director. Next Generation Combat Medic. <https://nextgencombatmedic.com/2017/09/03/whole-blood-toolkit/>. Published 2022. Accessed 02/05/2022.



<In use with  
CRO BTC>  
-pg. 42-

**DCR 9L\_MED BAG\_**

Primary POI aid bag for multi-mission use.

MULTICAM\_SKU: DCR-9L-MC | COYOTE\_SKU: DCR-9L-COY  
BLACK\_SKU: DCR-9L-BLK | RANGER GREEN\_SKU: DCR-9L-RG

12" x 4" x 15" | Tegriss® | \$380.00

ECAT\_ #SPE2DE-20-D-7032  
DAPA\_ #SP0200-10-H-0092  
FEDMALL\_ SP47W1-21-D0038  
GSA\_ GS-07F-5965P (SCHEDULE 84)

**Dedicated hydration compartment  
for 1.5L reservoir\_  
Large internal workstation\_  
TEGRIS reinforcement prevents crush\_  
Customizable bungee panel\_**

The DCR 9 Liter is an iterative approach to load carriage for the point of injury medic. Increased capacity over the 7L DCR Panel which is primarily fixed to the plate carrier and offsets primary load carriage to a MARCH belt setup. The DCR 9L gives more options for full medical load out of a primary aid bag without the need to supplement with a MARCH belt.

The design is based on a SAPI plate and eliminates the extra length seen with other aid bags, aiding in the ability to carry items on the back of a gun belt. The rounded top kills dead space when rounding corners and Velcro hook keeps the bag firm and fixed to the plate carrier for stability.

Flat straps optimize storage in vehicles or helicopters, reducing snag hazards from loose straps. The exterior is designed to accept two tear away CRO Blood Transport Containers, moving blood storage to the exterior of the bag, and allowing resuscitation equipment to be stored inside.

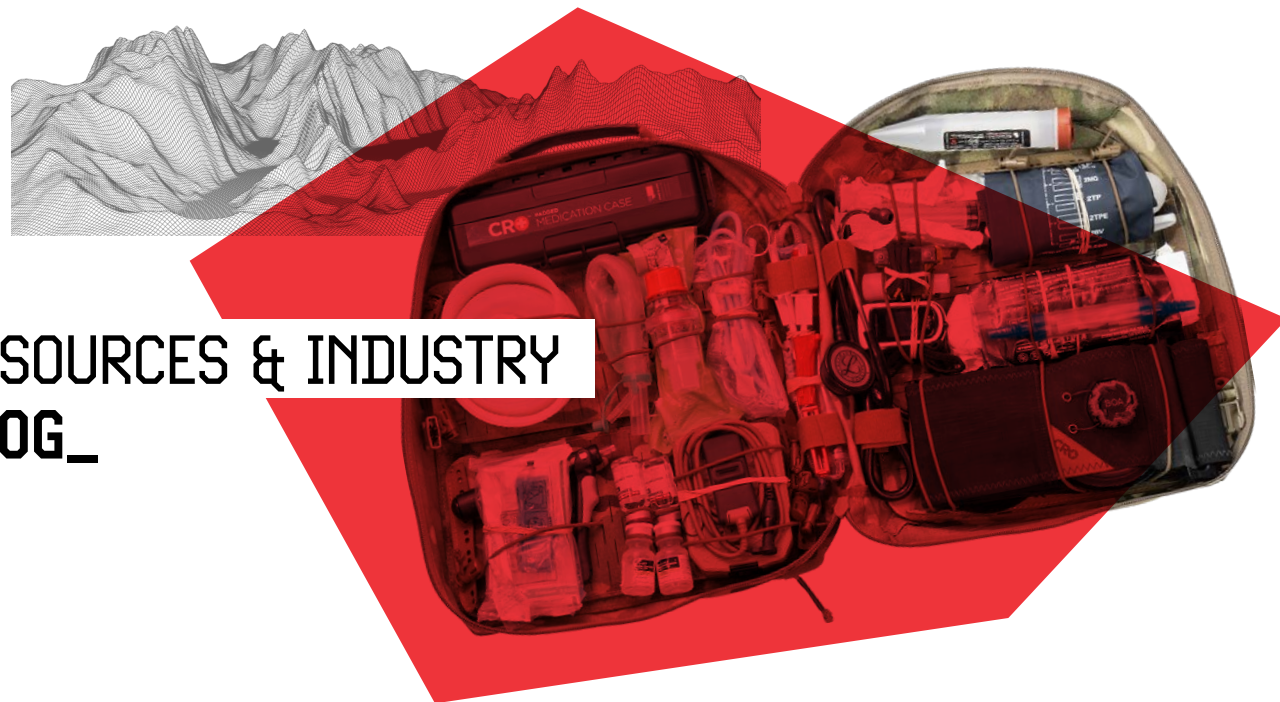
The custom bungee retention panels provide retention and customization of equipment. We removed the interior pouches to reduce weight, allowing full visualization of the workstation, and eliminating the need to go into smaller interior pockets.

Highlights include integrated water storage for a 1.5 L reservoir, a problem that has not been addressed in the market until now.





## RESOURCES & INDUSTRY BLOG\_



**\_FROM THE FIELD >>**

### How to Slim Down your Med Bag

Without fail, a medic will overfill every bag you give them. Before making a packing list for any bag you must first narrowly define what you are doing and with what support.

Start with these basic questions:

**What proven equipment will best support the intervention needed in the smallest amount of space?**

**What is the most likely time frame you expect to care for a casualty? What is the worst case scenario?**

**Will you have a truck bag nearby on which to fall-back?**

**Will another member of the team be carrying the litter and HPMK?**

**Will you have a junior, trained responder or assistant?**

**For this article and packing list, it is assumed that this is a well-supported DA mission with a trained and well-equipped assault force.**

Every member is carrying multiple tourniquets and a well-stocked and inspected IFAK. There is a trained assistant who will carry a similar bag and they won't be geographically separated. We will each carry a unit of blood in an attached CRO Blood Transport Container and additional personnel have been identified as Type-O, low-titer donors with donor bags. The Platoon Sergeant, Team Sergeant, or Troop Sergeant Major will have the litter and HPMK. MEDEVAC response time and QRF are on standby and the longest time anticipated to care for a patient is 30 mins. There is no anticipation of sustainment items such as food, bivvys, or anything for a rest overnight. If all goes to hell, there is a well-stocked PFC truck bag to fall back on. The medic and Junior/assistant have dangler pouches, fanny packs, or slim belt pouches that have IV/IO access kits, cric kits, some meds, and a couple of syringes and needles along with scissors, tape, gloves, markers, etc.

With all of that behind us, we can now define what would go into a slim DA aid bag. The capability of even the most well-trained medic is necessarily constrained by what can be done well under duress in a short amount of time which would improve the patient's chances at survival before quickly handing over the patient to the next higher level of care. For that reason, the medic must be a master at resuscitation under the most austere of circumstances. Resuscitation of a combat casualty would almost certainly involve the administration of warmed whole blood within the first 30 mins of injury to limit the dose of shock and subsequent oxygen debt before becoming irreversible. This must be accomplished immediately after, or simultaneously with the cessation of hemorrhage and while also securing the airway and adequately decompressing the chest. Whole teams have been known to fail at this at the best trauma centers in the world.

The aidbag must be packed in a manner that will eliminate friction points in delivering care and control for as many human factors that could contribute to omission or error. All of this must be

done beforehand while planning in accordance with the priorities of care for an unknown patient. Advanced hemorrhage control options such as junctional or abdominal tourniquets with additional wound packing methods should therefore be included. Everything needed to quickly administer fresh whole blood such as the blood itself in a temperature-controlled container, a fluid warmer and required batteries and cartridges, and some kind of pressure or power infuser. TXA and calcium should also be included along with antibiotics. As stated in the second paragraph multiple IV or IO access is paramount so that both the blood medications can be administered quickly or simultaneously even.

If cric kits are carried on person, a backup and method of suction must be included on the list. A tension pneumothorax can develop and mimic the signs of hemorrhagic shock if caused by penetrating trauma. A method to more definitively decompress both sides of the chest must also be included. This would require minimal surgical tools, some kind of drain, and one-way valves such as the Heimlich or Cook. Backups for items that routinely fail or get lost such as the Emma adapter or scissors should also have redundancy. If you plan on using an item for multiple purposes such as an ET tube for a cric or chest tube, ensure you have enough for all intended purposes for at least a single patient.

Every medic must decide for themselves how they plan on taking patient vital signs. Would the environment even permit the use of a stethoscope? Is trending mental status with an Emma and pulse ox enough or should the systolic also be measured? If the patient is in respiratory failure, do you have a BVM to support respirations? Does a portable ultrasound have a place in the first or second line? There are enough uses for an ultrasound that it should be considered if available.

Drugs, fluids, and medications must be recorded on a TCCC card prior to handover to dustoff or other next-higher capability. If expecting to travel where the wind is a factor such as in a helo with doors open or in an open-back, high-speed vehicle, everything, including the bag itself, must be well secured with a lanyard, velcro, or elastic. The last test is to get the bag closed, open it for use, and be able to close it quickly when called to move out.

Applying these fundamental considerations, I pack out my DCR with GAF/HAF DA mission sets in mind. With these mission sets, I don't need to have a very robust medical kit on my back due to additional medical gear hanging out in the cordon, or having our aircraft loitering in the overhead nearby. I need to be light and fast. This pack allows me to do that.



### For DCR

In the outside pouch, I have a Quantum Fluid Warmer, 2xIO handheld drill, IV starter, and a 100ml NS bag. The IV and IO I have broken down from the normal kits they come in and vacuum sealed. I carry one citrate bag (CPD), one fluid warming line (Quantum fluid line) and one single line blood tubing (this can also be used as a normal IV line for drug admin which is why I carry the 100ml bag). As you clamshell the bag open, top left I have the CRO hard narc case, BVM, sz 4 Igel, and peep valve. Below that I have a SAM Junctional or CRO BOA and 2xTCD's with pump. In the center velcro tabs I

keep the NAR small sharps shuttle. Top right, I keep my BP cuff, stethoscope, and large stapler. Bottom right, (close to shell-->to outside) IOBAN, Chest tube kit (2xTubes with Cook valves), and a Cric kit. On the outside of the bag on the panel I carry 2xSOF-T and 2xCAT 7's. Above the outside Fluids pouch, I have the small CRO molle panel attached so I can molle on a single unit blood container.

I don't include pressure bandages. I chose not to do this due to my teammates all having pressure bandages in their IFAKs. When I am wearing Cryes, I do however carry 1x4in ACE (S-folded) with combat gauze and kerlix vacuum sealed in one cargo pocket and 1x6in ACE (same set up) in the other cargo pocket. If I'm wearing regular pants I'll just rock 1x4in, in my back left pocket. I used to carry one abdominal bandage in my Graverobber, but recently removed it. What I have now for an evisceration, are clamps (carried in my Hybrid IFAK) large stapler and IOBAN. My mindset with this is, clamp the mesenteric bleed, reduce the bowel, staple closed the abdomen, and IOBAN over the wound. If this fails me, I can revert back to the bandages I have in my pockets or on my teammates to keep the wound closed.

I like to pair the DCR or GRAM with my CRO gunbelt or CRO Hybrid IFAK. The contents of which are mirrored. What dictates which one I'll wear depends on what my team is planning on doing. The left SM/MD bleeder has my Masimo SPo2, Emma, and a 2in z folded ace wrap with 2x fox eye shields. The right SM/MD bleeder has 2xTape rolled IV starter kits, spare tegaderm, and PRN adapters (needle and needless ports). The Hybrid itself, I have 2xNPA's, 2xVacuum sealed, or plastic bagged Cric kits, Talon handheld multisite IO (vacuum sealed) 60cc syringe with 10g 3.25in cath rubberbanded to it for suction and an IV line to suction tubes when I need it, 6xHy-fin chest seals, FingerThor kit, 4x10g 3.25in Needle D's, and 6xChloraprep swabs. CAT7 tqt and small NAR trauma shears rubberbanded between bleeder pouches and Hybrid. Outside zipper portion has another IOBAN dressing and inside zipper portion has DD 1380's. I'll carry a sharpie in both left and right hand pockets. I carry a small space blanket in my left quad pocket and my dip can goes over that.

### For NARC's

I like to carry the CRO soft NARC case and keep that in my left cargo pocket when I'm wearing Cryes. If I'm not wearing Cryes, I'll put my NARC's in a NAR Armadillo case and put that in an abdominal pouch (I wear the Spiritus SACK pouch if

I'm running a chest rig. It's a tight fit, but works pretty well.). I have 2g of TXA in my left shoulder pocket and 1g CaCl in my right shoulder pocket.

I use MARCH for treatment methodology. The same dudes I idolize and look up to utilize this as well. Brilliance in the basics. Doesn't matter what kind of setup you have, or how high speed your kit looks. You could have the enormous STOMP 2 aid bag and if you've gotten the reps in of using that bag being smooth and efficient, you're rock solid in my opinion—"It's not about the bike". With that being said, you get really good at riding a big clunky bike, then you switch to a super nice high dollar bike, you could really look like a rockstar.

I try not to drop my aid bag at first, unless I need my junctional. But, the time will come when I need to grab the blood I've brought, utilize WBB, place chest tubes, and get vitals.

I like the DCR Panel. It's small and it can carry a surprisingly large amount of kit. I love how it stays flush to my back and doesn't bounce around. I tend to carry more med kit than a lot of guys and I can still move quickly and athletically with it. The bag itself is incredible with a well thought-out design, with a DA mission set in mind. Having the ability to carry a single unit blood container is pretty nice.

This is my set-up for HAF/GAF DA. My loadout will vary depending on how many people are on the ground and what my team's role is. If my team is main effort, I'll go for DCR panel with either MARCH belt or butt pack set up. If my team is supporting effort, there are a lot of guys on objective, and I'll be receiving casualties from the main effort, I'll be a little bit more robust by carrying a MR Rats pack with a butt pack or MARCH belt (those items are always with me). I also can afford going in relatively light due to having bags in the vehicles we brought in. Or if we flew in, I'll add a few items to my teammates to spread load and give me a bit more capability medically. One might notice a bit of redundancy of some items, specifically with Crics and IV/IO's. I have multiples of these items cause shit happens. It's dark, people are moving around, and items can be kicked or picked up by someone thinking it's trash. If I have multiple casualties in need of critical interventions I have the materials to spare. In a very small package I have everything to cover MARCH and do it effectively.

FIND ONLINE AT  
[www.cromedical.com/blog](http://www.cromedical.com/blog)  
 <TO SHARE OR COMMENT>

# MARCH BELT



**\_MARCH BELT components >>**

- (1)\_Gun Belt
- (1)\_Tear-Away Hybrid™ IFAK
- (2)\_Medium Bleeder pouches

**\_New for 2024 >>**

Can be purchased as  
MARCH HOIST system.  
[pg. 24 >>](#)

## MARCH BELT

Work off your body with a stable shooting platform.

MULTICAM\_SKU: MARCH-MC-M, MARCH-MC-L  
 COYOTE\_SKU: MARCH-COY-M, MARCH-COY-L  
 BLACK\_SKU: MARCH-BLK-M, MARCH-BLK-L  
 RANGER GREEN\_SKU: MARCH-RG-M, MARCH-RG-L

Large <34-38" waist> | Medium <30-34" waist> | \$650.00

ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)

Inner/outer belt design for ease of donning and doffing\_  
 Height extension with 4 rows of PALS\_  
 Tear-Away Hybrid IFAK for advanced interventions\_

The MARCH belt concept isn't new, but remains an important piece of kit for the assault medic. It allows for efficient carry of essential items and provides quick access to treatments.

The Tear-Away Hybrid™ IFAK is perfect for carrying NARCs or integrating into other setups. The bleeder pouches fit MARCH supplies, advanced intervention tools, and diagnostic equipment.



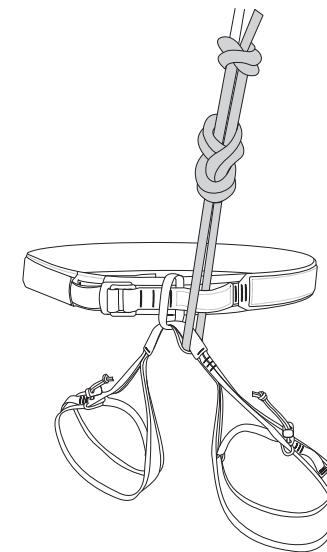


Continuous loop webbing construction\_  
Stowable leg loops with bungee retention prevents slippage\_  
Exposed 15kN rated working loop fixed to inner belt\_

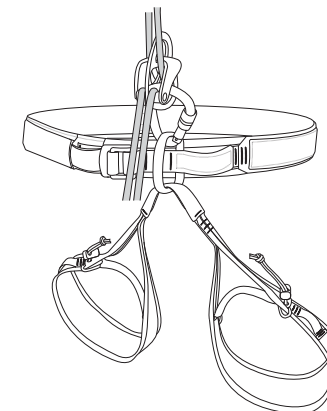
- 1 Excess belt webbing keeper
- 2 Self-locking friction buckle
- 3 15kN rated vertical belay loop

- 4 Horizontal tie-in
- 5 Bungee retention cord locks
- 6 Continuous webbing construction

TYING INTO THE HARNESS >>



BELAYING AND RAPPELLING >>



Gun Belt



Inner Belt



Leg Loops

**HOIST HARNESS\_**

EN 12277 Type-C Sit Harness

MULTICAM\_SKU: HOIST-MC-M, HOIST-MC-L  
COYOTE\_SKU: HOIST-COY-M, HOIST-COY-L  
BLACK\_SKU: HOIST-BLK-M, HOIST-BLK-L  
RANGER GREEN\_SKU: HOIST-RG-M, HOIST-RG-L

Large <34-38" waist> | Medium <30-34" waist> | \$380.00

ECAT\_ #SPE2DE-20-D-7032  
DAPA\_ #SP0200-10-H-0092  
FEDMALL\_ SP47W1-21-D0038  
GSA\_ GS-07F-5965P (SCHEDULE 84)

Always refer to and read user manual before use.



**\_MARCH-HOIST components >>**

- (1)\_Hoist Harness
- (1)\_Tear-Away Hybrid™ IFAK
- (2)\_Medium Bleeder pouches
- (1)\_Leg loops

**MARCH-HOIST\_**

The gunbelt for anyone needing a vertical capability.

MULTICAM\_SKU: MARCH-MC-M-HOIST, MARCH-MC-L-HOIST  
 COYOTE\_SKU: MARCH-COY-M-HOIST, MARCH-COY-L-HOIST  
 BLACK\_SKU: MARCH-BLK-M-HOIST, MARCH-BLK-L-HOIST  
 RANGER GREEN\_SKU: MARCH-RG-M-HOIST, MARCH-RG-L-HOIST  
 Large <34-38" waist> | Medium <30-34" waist> | \$779.00

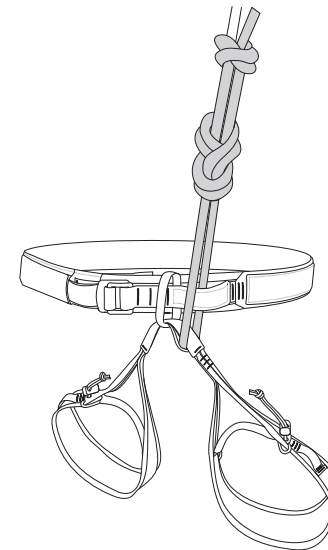
ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)

**Inner/Outer belt design for ease of donning and doffing\_**  
**EN12277 certified climbing harness\_**  
**Tear-away hybrid for first 10 mins\_**  
**Medium Bleeder pouches\_**

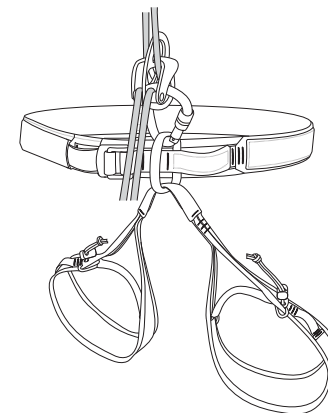
There has never been an all-in-one solution for an assault medic until now. A riggers belt, gun belt, climbing harness, MARCH belt.

It allows for efficient carrying of tools and provides quick access to treatments while adding a vertical mission capability.

**TYING INTO THE HARNESS >>**



**BELAYING AND RAPPELLING >>**



# TEGRIS™ reinforcement prevents crush\_

## Customizable bungee panel\_

### Internal organization pockets\_

The CRO Medic Case is the ideal customizable procedure kit. With efficient vial retention and organization for POI drug delivery, this narcotics case stores vials and ampoules safely.



#### MEDIC CASE\_NARCS\_

Custom procedure setups with endless options.

- MULTICAM\_SKU: MC-MC
- COYOTE\_SKU: MC-COY
- BLACK\_SKU: MC-BLK
- RANGER GREEN\_SKU: MC-RG

8.5" x 1.25" x 5.5" | Tegriss® | \$155.00

- ECAT\_ #SPE2DE-20-D-7032
- DAPA\_ #SP0200-10-H-0092
- FEDMALL\_ SP47W1-21-D0038
- GSA\_ GS-07F-5965P (SCHEDULE 84)



- Lid retention for syringes\_
- Hard case design with tether attachment point\_
- Velcro dots for vial retention\_
- Loop field for vial placement\_
- External hook tape for kit integration\_

The CRO Hard Medication Case is for primary and/or secondary carry of narcotics, reversals, and other POI resuscitation drugs. It is designed to easily pack out nasal atomizers,

syringes, site prep products, as well as other medication administration tools. This product is a necessity when paired with soft cases for medics that like redundancy in their kit.



**HARD MEDICATION CASE\_**

A hard medication case for primary or secondary POI drugs.

\_SKU: HMC-03

ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)

8.5" x 1.25" x 3" | Tegriss® | \$70.00

# HYBRID IFAK



## HYBRID\_IFAK\_

Cross load between setups for all medic needs.

- MULTICAM\_SKU: IFAK-MC
- COYOTE\_SKU: IFAK-COY
- BLACK\_SKU: IFAK-BLK
- RANGER GREEN\_SKU: IFAK-RG

8.5" x 2" x 6.5" | Squadron™ | \$215.00

- ECAT\_ #SPE2DE-20-D-7032
- DAPA\_ #SP0200-10-H-0092
- FEDMALL\_ SP47W1-21-D0038
- GSA\_ GS-07F-5965P (SCHEDULE 84)

## Versatile POI aid bag for the first 10 minutes of treatment\_ Internal pockets for organization\_ Bungee panel for custom procedure setups\_

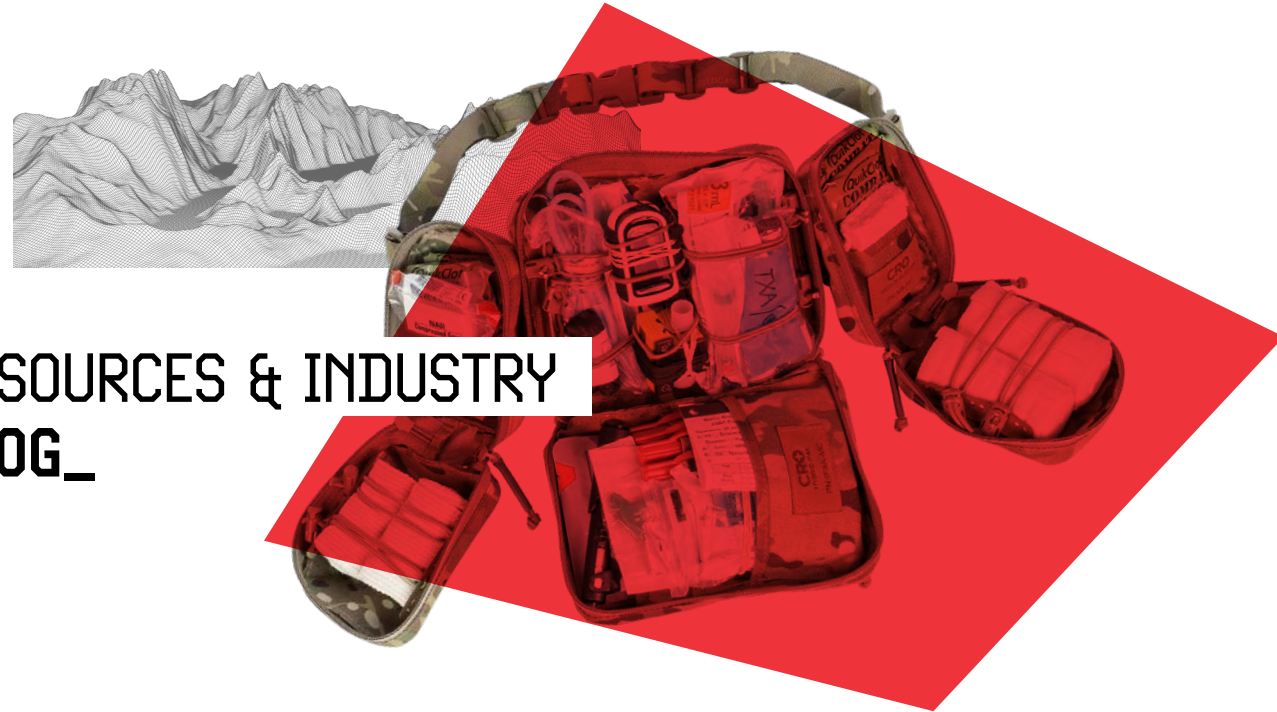
The CRO Hybrid™ IFAK is created by medics, for medics. Whether you call it a tactical fanny pack or a nut ruck, this IFAK can be easily configured into any POI medic kit for the first 10 minutes of treatment, or for shooters who like to roll heavy on medical.

Designed to ride high to prevent bounce, this has great balance and integrates seamlessly into your kit. The main compartment has a laser-cut bungee panel and three internal sleeves for TCCC cards, chest seals, needle d's, and all the rest.

*\_Pictured with >>*  
(2)\_Medium Bleeder pouches







## RESOURCES & INDUSTRY BLOG

**FROM THE FIELD >>**

# Hybrid IFAK Packout

The CRO Medical Hybrid IFAK has been in circulation for over five years, with over 10,000 units sold. We designed this product as an improved medical fanny pack for POI care during the first ten minutes of treatment. The bag dimensions accept a six-inch ACE wrap packed vertically in the pouch. The molle wings allow two CRO Medium Bleeders to attach for expanding the kit. There are endless ways to utilize this product. Here is one medic's approach to packing, treatment, and planning using the Hybrid IFAK.

### Why is this fanny pack more valuable to a medic?

It's compact and allows me to carry all of my lifesaving interventions that are more advanced than a teammate's standard IFAK. These advanced interventions include diagnostics, drugs, advanced airway, and IV/IO admin. I can provide point-of-injury care for the first ten minutes of treatment and upgrade my patient's condition as I prepare for Damage Control Resuscitation. I accomplish all of this using only my Hybrid IFAK. This product allows me to rapidly deploy treatments, only needing to drop my med bag if the patient needs blood. The integrated waist belt will let me quickly switch the Hybrid IFAK from back to front and stow it again when not used. The versatility of this product is unmatched for POI care.

### What are some of the desirable features of this bag?

The customizable bungee retention in this bag is excellent. It expands your carrying capabilities on

your waist instead of filling up space on your plate carrier. It doesn't limit you to certain-sized items fitting in pre-made loops but provides excellent retention and easy customization. This feature is unique to CRO and found in all of their equipment. The internal vertical sleeve pockets are convenient for flatter and smaller items, as they can hold many of them, including NCDs, casualty cards, chest seals, etc. However, one of the best features is the wings on the sides of the IFAK that can fit CRO Medium Bleeder pouches or tourniquet covers.

### How do you utilize this product while treating a patient?

After doing a rapid MARCH assessment or treating a casualty that is being treated by teammates already, I can quickly reach into the Hybrid IFAK and access a pre-made kit such as an IO, IV, or suction and pass it off to somebody to use. At the same time, I can focus on blood admin/preparation, drug admin, or preparing more advanced interventions as needed. The ability to carry medic-specific items in the "hybrid" IFAK style pouch is ideal and makes a ton of sense for medics integrated into a team.

### What other uses have you found?

I had extra space in one of my Medium Bleeder pouches after packing a pulse-ox and EMMA device. I decided to throw in some basics that aren't life-saving interventions but still are valuable for patient care. Tape is always needed, and by running the bungee through the roll of tape at the top of the pouch, I found that it sat perfectly above the pulse-ox and EMMA to give the bag a fuller feeling. Additionally, I found room for a headlamp. Headlamps are always needed in a pinch, and if I were to only have my Hybrid IFAK on in a dark environment, I could quickly reach in and throw that on and continue patient care.

### Please describe your methodology for packing this product and how it relates to the MARCH algorithm.

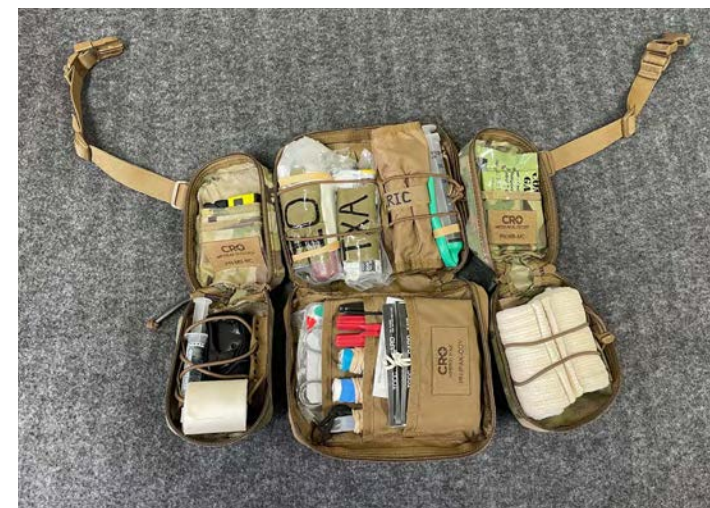
When building out my Hybrid IFAK, I wanted it to be more advanced than a teammate's IFAK and have enough interventions to treat a casualty or two almost entirely without digging into my med bag. It has primary interventions for "M" in the MARCH algorithm (extra wound packing supplies) and advanced interventions for ARC (cric kit and basic suction/finger-thoracostomy kit/IV/IO, along with a pre-made TXA kit). It is a perfect middle-ground between an IFAK and my med bag.

### What have you found while using this product while running trauma lanes?

While training, the Hybrid IFAK sits on my lower back. When I need to treat a patient, I rotate it around to grab supplies quickly, and if I'm in a secure position and can sit on the patient for a few minutes, I detach it from my waist and place it next to me or on the patient. Running slimmer mag pouches/placards makes visualizing its contents much easier when it's on your waist. Wearing a dangler pouch below my plate carrier tends to impede working out of the Hybrid IFAK, making things a little more awkward regarding accessibility. I suggest running either a dangler or the Hybrid IFAK, but not both.

### Please describe other benefits of integrating this product into your planning and treatment of casualties.

In short, the compact size and customizability of the Hybrid IFAK give me the confidence to treat one or two patients without digging into my med bag. By fully utilizing the Hybrid IFAK, I increase my maneuverability and save valuable size/space in my med-bag.



FIND ONLINE AT  
[www.cromedical.com/blog](http://www.cromedical.com/blog)  
 TO SHARE OR COMMENT

# OPERATOR HYBRID OPERATOR HYBRID IFAK



[\\_Pictured with >>  
\(2\)\\_Raid TQ Covers](#)

[\\_Stocked option >>  
Available upon request](#)

## OPERATOR HYBRID\_IFAK\_

Superior organization, for the individual shooter.

MULTICAM\_SKU: OP-IFAK-MC | Stocked: (OP-IFAK-MC-S)  
 COYOTE\_SKU: OP-IFAK-COY | Stocked: (OP-IFAK-COY-S)  
 BLACK\_SKU: OP-IFAK-BLK | Stocked: (OP-IFAK-BLK-S)  
 RANGER GREEN\_SKU: OP-IFAK-RG | Stocked: (OP-IFAK-RG-S)

8" x 3" x 5.5" | Squadron™ | \$200.00 (empty) – \$280.00 (stocked)

ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)

Operator Hybrid IFAK for every first responder\_ This versatile design utilizes the best CRO Medical utilities for transferring between multi-mission profiles\_

With the same great organizing features as our Hybrid™ IFAK, our OP Hybrid IFAK is designed for the individual shooter. Developed to hold SSAVIE IFAK contents, it can carry your MARCH supplies with tons of extra room for rolling as light or as heavy as you want.



# PELVIC BINDER



Precision dial system\_  
One-handed tightening\_  
Compact 4" wrap\_  
Easily achieves binding pressure\_  
Low-light, no-light features\_

Using our patented tightening system, the CRO Pelvic Binder will easily reduce and stabilize open-book pelvic fractures. It packs flat and reduces overall bulk for first line aid bag or MARCH belt carry.



## PELVIC BINDER\_

Optimal size for compact carry.

\_SKU: OS-BOA

ECAT\_ #SPE2DE-20-D-7032  
DAPA\_ #SP0200-10-H-0092  
FEDMALL\_ SP47W1-21-D0038  
GSA\_ GS-07F-5965P (SCHEDULE 84)

6.5" x 1.5" x 3" | \$135.00



## RESOURCES & INDUSTRY BLOG\_



**\_FROM THE FIELD >>**

## Modernizing Pelvic Binding Devices for Prehospital Medicine

For many years pelvic binding has been the standard of care in prehospital trauma. Even with the overwhelming supporting data for prehospital pelvic binders, EMS and Military prehospital systems have been slow to adopt routine use. Peer-reviewed literature highlights the benefit of improved patient outcomes using prehospital pelvic binding devices. In 2017 the military recommended routine prehospital pelvic binding due to common battlefield MOIs. Retrospective analysis of battlefield deaths and common battlefield injuries was the driver for the Joint Trauma System recommendation for routine prehospital pelvic binder application. A staggering 26% of service members who died in OEF/OIF died WITH a pelvic fracture. The numbers are too big to ignore.

In early 2017 our founder set up a moulage patient with a directional blast injury in the breach. The medic did an excellent job treating the patient until a Tactical Compression Wrap failed to appropriately bind the pelvis, ripping off the body and adding little to no support. The only true benefit of the Tactical Compression Wrap was the size. Items, especially items of routine use, needed to be small, low cube items without sacrificing the capability of carrying a purpose-built tool. At that moment, the idea and original tagline of the company were born:

“When space is an issue and advanced capabilities are a must, CRO Medical Gear has the kit you need!” A lot has changed since those early days, except for the mission of making smaller, purpose-built tools for critical care, like the CRO Pelvic Binder.

### **It all started with the TPOD.**

The TPOD has driven the standard of pelvic binding, primarily in the hospital environment. It was never designed or suitable for the prehospital environment. While ambulances and some airframes have the luxury of space, when moving into the field environment, weight and cubes become increasingly important to which items make it into the aid bag. There are other drawbacks too. This device uses an intricate lace system that can add complexity to the application, especially for medics that have not taken the time to master the proper procedure for placing the device. The TPOD must be physically cut with shears to size appropriately for the patient. This lace design is not preferred for binding in the prehospital environment, especially in military trauma scenarios.

### **Enter SAM:**

At CRO, we have a high degree of respect for SAM’s work and total contribution to our field. That is not to say old ideas cannot be improved. The development of TrueLock technology from SAM allowed for a pelvic sling using a unilateral strap tightening system, preferred over lacing systems seen in the TPOD and Pelvic Binder brand products, while also setting a precedent in the industry for unilateral tightening. Prehospital systems widely adopted the TrueLock technology, including SAR, flight, and military.

The fundamental technology is based on achieving appropriate binding pressure. Thanks to SAM’s innovation in this area, we know that 150 Newtons (33lbs) of circumferential force, when properly placed across the greater trochanters, is suitable to “close the book” on open-book pelvic fractures, which also carry a 50% mortality rate.

### **The “Pelvic Binder” is just a cheaper TPOD:**

Around 2015 the Pelvic Binder brand of binders started showing up in DoD medical assemblages. The primary driver of most logisticians is the reduced price, mainly coming from cheaper construction and materials. A cheaper cost of production is accept-

able in most cases, especially considering that a bed sheet is “suitable” for binding, but still, the lacing system and large size of the binder have the same complexities as the TPOD. Now, the question of cost over optimal function needs to be addressed, but try explaining that to the supply officer!

When digging into the literature on pelvic binding, we know of many documented cases of under reduction. However, we could not identify a single case of over-reduction of open-book pelvic fracture. This makes us ask whether “just enough” or “just the minimum” is the appropriate methodology?

These principles of pelvic binding led us on a four-year journey to discover the most compact, fastest, and most medically sound way to routinely bind the pelvis to ensure end-users will have a pelvic binder in their first line kit, where it belongs. Ultimately the best piece of medical equipment is the one you will have with you when you need it. Nearly all of our customers working in the field have to consider weight and cubes as a primary product adoption driver. Often, the ground medic is limited to what he can carry on the body. Our original design used a windlass to achieve circumferential tightening force. We quickly identified the BOA precision dial system as a superior mechanical advantage. This system, used on snowboard boots and in other extreme temperature situations, is designed not to fail. BOA is based in Denver, CO, and has a team of expert engineers and developers working in a world-class testing facility to maximize the effectiveness of their hardware in all extreme environments. BOA tests all applications and puts partner companies through a rigorous review and approval process to ensure quality control implementation of their hardware. A perfect teammate for creating a precision medical device.

One of the most critical features of the binder is the elastic sheath that allows the binder to flex up to 8 inches without compromising the internal windless strap that provides circumferential pressure. This feature reduces the overall size of the binder while still allowing it to fit 95% of the population.

The binder packs flat in an aid bag and is easily employed in the field. Once hand tightening is achieved, you ratchet the dial as tightly as possible. The hardware eliminates human factors, and you know you have reached at least 33lbs of circumferential pressure because the audible “clicks” slow and become more infrequent. Working with BOA,



we selected the M4 dial, which the strongest human hand can tighten to 80 lbs. In comparison, the average human hand can tighten between 40-50 lbs., ensuring that the average user can quickly achieve binding pressure, especially when working in low-light or no-light environments. If over-reduction is not an issue, pressure over 150 Newtons is acceptable and even preferred in most cases.

Our goal is to eliminate all factors that can lead to omission or error by the medic operating in the field, and we are proud to bring you the latest in Pelvic Binding - a four-year journey that was well worth it.

If you want to learn more about our Pelvic Binder, check it out here or send an inquiry to [support@cromedical.com](mailto:support@cromedical.com).

FIND ONLINE AT  
[www.cromedical.com/blog](http://www.cromedical.com/blog)  
<TO SHARE OR COMMENT>

GEN 2



# STOP THE SLIP

Place with Confidence

CR+ PELVIC BINDER

# BLOOD TRANSPORT CONTAINER



450ml or 550ml single unit blood transport container\_  
 Tear-away panel included for versatile mounting options\_  
 Velcro mounting option for inside of med bag\_  
 Built-in pressure infuser\_  
 Reusable leak-proof refrigerant gel pack included\_

The CRO Blood Transport Container is a single-unit blood transport container featuring a built in pressure infuser.



## BLOOD TRANSPORT CONTAINER\_

Single-unit blood transport.

MULTICAM\_SKU: BTC-MC  
 COYOTE\_SKU: BTC-COY  
 BLACK\_SKU: BTC-BLK  
 RANGER GREEN\_SKU: BTC-RG

9" x 4" x 6.5" | \$380.00

ECAT\_ #SPE2DE-20-D-7032  
 DAPA\_ #SP0200-10-H-0092  
 FEDMALL\_ SP47W1-21-D0038  
 GSA\_ GS-07F-5965P (SCHEDULE 84)

[.In use with CRO DCR 9L Med Bag >>](#)  
 .pg. 14.

# AIRO SUCTION UNIT AIRO SUCTION



**87.9% lighter than the nearest powered competitor\_**  
**37% smaller than inferior single-use, non-powered bulb suction\_**  
**0-550mmHg adjustable suction pressure (High Vacuum)\_**

The AIRO Tactical Suction Unit is a ruggedized point-of-injury portable suction device. This fully-capable, critical-care suction unit is designed for First line use by medics in the field environment and is a remarkable 1.6lbs, offering an impressive run time of 30 minutes at maximum power.

Capable of delivering definitive care for three primary procedures:

- Airway suction for common airway procedures including cricothyroidotomy and intubation
- Chest suction for management of penetrating chest trauma (30cmH2O continuous or intermittent suction)
- Enroute Damage Control Surgery suction for open thoracotomy procedures by advanced resuscitative surgical teams

## AIRO\_SUCTION UNIT\_TACTICAL\_

The smallest, fully-capable, critical care suction device in existence.

MILITARY\_SKU: AIRO-MIL

Also available in EMS optimized specification.

[\\_EMS product details >>](#)

\_pg 53\_

1.6lbs (0.72kg) | 7.58" x 3.25" x 2.5" | \$1259.00

ECAT\_ #SPE2DE-20-D-7032

DAPA\_ #SP0200-10-H-0092

FEDMALL\_ SP47W1-21-D0038

GSA\_ GS-07F-5965P (SCHEDULE 84)



## INDUSTRY + RESOURCES BLOG\_



FROM THE FIELD >>

### Designing a Future POI Suction Capability: Airo Suction Unit

Second to making CS-LTOWB available at the point of injury, portable suction is arguably the most significant capability gap in point-of-injury care for the last 15 years. Until recently, we all seemed content to settle with sub-standard levels of care by utilizing Toomey syringes or manual bulb suction devices, which produce sub-optimal vacuum levels, can't be reused, and take up a bunch of space.

Insert the Airo Suction. After five years, this project is nearing completion, resulting in a fully-capable critical care suction device that meets all 23 performance criteria for "ideal features of a future suction capability" defined by DoD.

#### Current Problem and Capability Gap

Airway management is one of the highest priorities for the initial assessment and treatment of sick and injured patients in civilian (ABCDE) and military (MARCH) algorithms<sup>1-4</sup>. Airway obstruction is the second leading cause of preventable battlefield death<sup>5-12</sup> as well as a leading cause of mortality in civilian medicine, with pulmonary aspiration and foreign body airway obstruction (FBAO) responsible for over 109,000 deaths worldwide in 2019 alone<sup>13,14</sup>. Airway suction, defined as the removal of secretions/foreign material from the airway tract using a suction

catheter and applied negative pressure<sup>5,15,16</sup>, is the primary technique utilized to decontaminate and clear a compromised airway and is a critical skill taught to all levels of emergency medical providers in both prehospital and hospital settings<sup>2,17</sup>. Suction is an essential tool for most airway and breathing-related interventions, not only during initial resuscitation (airway patency must be achieved before ventilation can proceed)<sup>5,18</sup> but also for increasing the first pass success rate of advanced airway procedures such as endotracheal intubation<sup>19,20</sup> and ongoing management of patients once a definitive airway has been secured. Many of the medications utilized for procedural sedation/analgesia/anesthesia produce an increase in airway secretions and either reduce or completely eliminate the patient's ability to mobilize or otherwise clear those secretions without assistance<sup>21-23</sup>.

Despite the indisputable necessity of mechanical suction for the completion of all resuscitative airway procedures, there are no currently available suction devices that meet the standards of size, weight, and power required for prehospital environments<sup>1,5,16</sup>. Studies have shown that both civilian and military medical providers often electively leave suction devices out of their "first in" kits, significantly increasing the risk of patient morbidity and mortality. In one study conducted at an urban level 1 trauma center, less than 25% of paramedics reported carrying mechanical suction equipment to the scene of medical aid calls despite utilizing these devices during 50% of advanced airway procedures<sup>24</sup>. Half of the paramedics surveyed in the study reported equipment malfunctions with portable suction units affecting patient care at least once in their careers. These issues are even more pronounced amongst military medical providers, with one study reporting that only 15% of US combat medics carried any form of suction in their aid bags<sup>25</sup>. Of the 15% of medics carrying portable suction in their aid bags, all carried a non-powered model, which has been identified elsewhere as producing inadequate suction pressures of only 100 mmHg<sup>16</sup>. As one author concluded in a recent review article, the end result is that "patients suffer a tragedy of omission, as they are deprived of access to lifesaving technology due to the available devices not being compatible with end-user needs"<sup>1</sup>.

The issues resulting from the inadequacy of current devices to meet the demands of pre-hospital providers are even more pronounced in the special operations medicine community, where far-forward medical personnel may be tasked with prolonged casualty care for multiple patients using only the equipment they can carry on their backs<sup>21,22,25,26</sup>. None of the currently available suction devices on the market are able to meet the requirements of the SOF medicine end user for these scenarios<sup>4,27,28</sup>, representing a critical unmet capabilities gap for management of the second leading cause of preventable battlefield death. Many military medics electively omit suction from their aid bags due to the inapplicability of current devices for combat settings<sup>25</sup>. Those who do carry suction have only one existing option which can fit reasonably into an aid bag: a single-use, non-powered bulb suction device with a permanently fixed collection bag that cannot be emptied or replaced without destroying the device. This means that medics would need to carry multiple single-use bulb suction devices to manage even a single patient with a significant volume of secretions during a prolonged casualty care scenario. The lack of ability to change out suction cannulas and collection bags on the device means that each patient in a multiple casualty scenario would require a minimum of one dedicated bulb suction unit, which is impossible to achieve given the large footprint of the device (10-5/8" x 11-7/8"; can be reduced to 9" x 4" if folded)<sup>29</sup>. Additionally, the bulb suction device is only capable of achieving intermittent suction at inadequate pressures of 100 mmHg, far below the recommended 0 - 550 mmHg range utilized by industry-standard products in both prehospital and hospital environments<sup>16</sup>.

In 2017, the Department of Defense commissioned a series of reports (Solicitation Number: W81XWH-17-P-0022; Support the (TCCCR) Task Area for Research and Development of Medical Equipment to Clear and Maintain a Combat Airway) to survey the landscape of available portable suction devices for pre-hospital combat casualty care applications and make evidence-based recommendations for future devices to meet the needs of the warfighter<sup>28</sup>. The authors concluded that "no device on the market meets even the most basic requirements of being small, lightweight,



rugged, and demonstrating adequate suction performance” 4 and proposed a list of 23 device specifications that “should be adopted as a starting point for the development and engineering of a future prehospital combat Suction Device Concept Design for Prehospital Combat Casualty Care.” The AIRO Miniaturized Portable Suction System meets or exceeds 3/3 of proposed physical product specifications on weight, dimensions, and carrying capacity; meets or exceeds 7/8 proposed performance specifications, including important criteria for SOF operators such as maximum noise level and operational durability; meets or exceeds 8/9 engineering design specifications (with the exception of an AC/DC power input which is irrelevant due to the AIRO device’s ability to operate on commercially available CR123 batteries which can be swapped in the field in areas without electricity); and meets or exceeds 3/3 functional requirements including the optional inclusion of a pressure display. Additionally, the AIRO device is able to meet or exceed these requirements with a total device footprint that is 37.4% smaller than the single-use, non-powered bulb suction device, which is also insufficiently powered to be useful despite being in accordance with the ISO 10079-1 standards. AIRO’s device is the first truly far-forward portable suction device that is capable of meeting the strict requirements of the special operations medicine community and represents a significant paradigm shift in airway management capabilities for military medicine as a whole. To ease the adoption process, the AIRO device is also designed for compatibility with all third-party commercially available suction tubes and suction cannulas, allowing providers to utilize existing products and select an appropriate-sized tube and cannula based on the clinical situation. In order to address the shortcomings in existing products, the AIRO device does utilize a proprietary collection bag system which reduces the overall size/weight of the device and can be changed out in seconds to facilitate continuous care of one or more patients in an austere setting. The device can run on standard CR123 batteries or rechargeable CR123 variants.

The AIRO Suction outperforms competitive products currently found in medical assemblages on all critical metrics, achieving a 37.4% size reduction and 5.5x more suction power than the smallest

product currently available on the commercial market (the non-powered, single-use bulb suction device) and an 87.9% reduction in weight versus the industry-leading powered suction device (0.58kg for the AIRO device vs 1.49kg for Laerdal’s smallest configuration LCSU4). The AIRO device’s combination of small footprint, lightweight yet rugged build, and powerful performance has never been achieved in a portable suction device and will bring significant capabilities to medics facing critical airway decisions at the point of injury.

### Product Specifications

The AIRO Suction is a fully capable critical care suction device with the following features:

- 0-550mmHg adjustable suction pressure (High Vacuum)
- Small enough to pack into a First line aid bag (37% smaller than the inferior single-use, non-powered bulb suction commonly carried in first-line aid bags and 87.9% lighter than its nearest powered competitor)
- Capable of delivering definitive care for three primary procedures:
  - **Airway suction** for common airway procedures, including cricothyroidotomy and intubation
  - **Chest suction** for management of penetrating chest trauma (30cmH<sub>2</sub>O continuous or intermittent suction)
  - **Enroute Damage Control Surgery** suction for open thoracotomy procedures by advanced resuscitative surgical teams

### Battery Life

- 30 minutes continuous suction at maximum load (10x greater than the recommended specifications outlined by DoD researchers 4)

### Battery Type

- This device uses a common battery source (i.e., Lithium CR123) that can be rapidly replaced upon battery depletion (not relying on wall power) for indefinite use with appropriate resupply. Rechargeable CR123s can also be used if preferred by the end user.

### Noise Level

- < 60 dB (exceeds the recommended 69 db noise emission for suction device outlined in the DTIC report 4)

### Flow Rate

- 3.33 LPM (vomitous simulated using Campbell’s Chunky Soup, exceeds the recommended 3 LPM flow rate for a combat suction device outlined in the DTIC report 4)
- Common CR123 batteries commonly sourced by SOF Teams (used in optics and other team equipment)

### Core Technology

#### Design Considerations:

The AIRO suction device was engineered to deliver superior performance to existing commercially available portable suction units. Deficiencies cited in the current peer-reviewed scientific literature were the basis of the design and engineering parameters for the device. They are as follows:

1. Weight of the suction devices shall be <2.25 kg rather than <6 kg to be considered portable, which leads to suction devices occupying 5% of the weight in the medical bag rather than 8% 1,4,5,28

AIRO suction unit is 1.3lbs (0.58kg)

2. Liters Per Minute (LPM) air flow rate is not an appropriate metric for standardization of suction devices as they are used to draw fluids (or mixed solutions containing solid fragments such as bone, teeth, rocks, and other foreign material) rather than air in prehospital situations 27,28. As noted in a DoD-commissioned report on proposed requirements for far forward portable suction units in combat environments, “Flow Rate standards based on free flow of air are unlikely to be relevant to the suctioning of secretions and blood” 28.

Transfer pump design is optimal for moving fluid, not air, at high vacuum pressure. Device easily processes clots, secretions, tissue, bone fragments, and teeth fragments.

3. ISO 10079-1 recommends a simulated vomitus solution to characterize the suction device but does not provide the required liquid flow rate to draw the simulated liquid or the required viscosity of the solution 1,4,5,28.

The AIRO suction unit was engineered to process 18.8 oz. of Campbell’s Chunky Soup (Beef with Country Vegetables) in less than 10 seconds. This metric vastly outperforms the capabilities of all other devices on the market by delivering 3.33 LPM Flow Rate (vomitous), a superior metric for assessing medical suction due to the requirement to suction fluid, tissue, bone fragments, and teeth fragments, not air.

4. Inclusion of battery life indicators and specified frequency of required inspection to minimize the failure of device during its use 1,4,5,28.

The low battery indicator light gives a 30 minute low power warning to the user and specified frequency of required inspection is published in the user manual.

5. Currently available devices are either too heavy and bulky to be carried 1,4,5,28.

AIRO device is the smallest suction unit in existence. The device is ultra-lightweight and designed to be carried by a medic in a First line aid bag. Dimensions: H7.58” x W3.25” x D2.5” (37% smaller than the current bulb syringe suction commonly carried in First line aid bags).

6. Currently available devices are insufficiently powered to be useful despite being in accordance with the ISO 10079-1 standards!

The AIRO suction device has a powerful 12V DC motor that drives a reciprocating barrel drive mechanism, which has been miniaturized and optimized for power recruitment using common CR123 batteries.

### ISO 10079-1

The Manufacturing Standards used for FDA Class II suction devices is ISO 10079-1. This document outlines the manufacturing and performance standards for suction devices used in prehospital and hospital environments. There are many flaws with the performance metrics cited in current scientific literature 1,4,5,27,28. CRO’s team has engineered a far-for-

ward suction device to address all of the known deficiencies with the performance of current devices while complying with the ISO 10079-1 standards. The AIRO suction device drastically outperforms all of the ISO standards while specifically focusing on design and engineering parameters to meet state-of-the-art technology and follow current scientific thinking for suction performance in both the civilian prehospital environment and in combat casualty care.

### Key Performance Indicators

In addition to increasing power in the unit, the suction chambers are isolated from the waste collection bag. The bulkiest component of currently available portable suction devices is the collection canister. The canister in traditional suction devices serves as both the source of creating a vacuum and for collecting waste. CRO engineers removed the hard collection canister from the system and drastically reduced the device's size.

As the reciprocating barrel drive mechanism operates, the suction pressure is created in miniaturized suction chambers inside the device. Using a series of highly responsive valves, the suction pressure is isolated and sampled continuously in real-time for precision suction settings. The valve type and materials were selected to achieve rapid actuation with a large lumen size to allow clots, vomitous, tissue, and bone fragments to travel through them easily.

Weight: 1.3lbs (0.58kg),  
Dimensions: H7.58" x W3.25" x D2.5"

The AIRO Suction is the smallest fully capable critical care suction device in existence.

### Primary Technical Features

- Powerful DC Gear Motor with Planetary Gearbox
- Powered by CR123 Batteries
- Reciprocating Barrel Drive Mechanism
- Magnet and Hall Effect Sensor Combo for Consistent, Repeatable Parking Feature
- Custom Electronics with On-Board Vacuum Sensor for Set Point Control
- Dual Drive Shaft
- Precision Machined Air Regulation Unit
- Latch Release Button
- Mechanical Linkage for Removing Disposable Collection Bag From Main Pump Unit

- Sealed Vacuum Ports for Vacuum Sensor and Regulation
- Proprietary Dual Cylinder Transfer Pump for Stable Pressure, Consistent Flow, and
- 0-550mmHg Vacuum Levels. The Transfer Pump can process debris suspended in liquid containing hazardous material, ensuring the main pump unit is not contaminated.

### Waste Collection

The device has a replaceable and disposable reservoir (500ml collection capacity) for bio-hazardous waste collection and can be easily removed and replaced with one hand. The design prevents contamination of the main housing unit, allowing the operator to change collection bags between patient encounters to prevent cross-contamination. The device accepts all universal airway accessories for different procedural applications. The collection bag is a poly bag that can be rolled and stowed using the waste bag securing strap, drastically reducing the overall size of the device.

### User Interface

The interface is simple, with a master power switch embedded in the firmware to prevent accidental engagement of the device while packed in an aid bag, and it can cycle power up and down easily to adjust suction pressure.

### User Interface Features

AIRO Suction user interface.

- Pediatric Suction ranges: 0-120mmHg
- Intermittent Chest Injury suction at 30cmH2O
- Adult airway suction ranges: 0-550mmHg
- Low battery indicator
- Accidental engagement protection (3-sec delay switch for power on/off preventing engagement when packed in an aid bag)
- Blackout mode for the tactical environment (Military Use)

### Intellectual Property

USPTO Patent Pending Status,  
Application Number: 63417406

[FIND ONLINE AT](#)


[www.cromedical.com/blog](http://www.cromedical.com/blog)

[<TO SHARE OR COMMENT>](#)

### References

1. Peri SR, Akhter F, De Lorenzo RA, Hood RL. Portable Medical Suction and Aspirator Devices: Are the Design and Performance Standards Relevant? *Sensors*. 2022;22(7). doi:10.3390/s22072515
2. CoTCCC. Tactical Combat Casualty Care (TCCC) Guidelines for Medical Personnel 15 December 2021. *J Spec Oper Med*. 2022;22(1):11-17.
3. Keenan S, Maitha J, Papalski W, et al. JTS Prolonged Casualty Care Clinical Practice Guidelines. Joint Trauma System; 2021. [https://jts.health.mil/assets/docs/cpgs/Prolonged\\_Casualty\\_Care\\_Guidelines\\_21\\_Dec\\_2021\\_ID91.pdf](https://jts.health.mil/assets/docs/cpgs/Prolonged_Casualty_Care_Guidelines_21_Dec_2021_ID91.pdf)
4. De Lorenzo RA, Hood RL, Jain P, Pescador R, Lasch M, Feng Y. Summary of Findings and Recommendations for Suction Devices for Management of Prehospital Combat Casualty Care Injuries. UT Health San Antonio; 2017. <https://apps.dtic.mil/sti/citations/AD1049181>
5. Jain P, Akhter F, Schoppe A, Hood RL, De Lorenzo RA. Airway Clearance Using Suction Devices in Prehospital Combat Casualty Care: A Systematic Review. *Prehosp Disaster Med*. 2020;35(6):676-682.
6. Butler FK Jr, Hagmann J, Butler EG. Tactical combat casualty care in special operations. *Mil Med*. 1996;161 Suppl:3-16.
7. Bellamy RF. The Causes of Death in Conventional Land Warfare: Implications for Combat Casualty Care Research. *Military Medicine*. 1984;149(2):55-62. doi:10.1093/milmed/149.2.55
8. Butler FK. Two Decades of Saving Lives on the Battlefield: Tactical Combat Casualty Care Turns 20. *Mil Med*. 2017;182(3):e1563-e1568.
9. Kotwal RS, Montgomery HR, Kotwal BM, et al. Eliminating preventable death on the battlefield. *Arch Surg*. 2011;146(12):1350-1358.
10. Eastridge BJ, Mabry RL, Seguin P, et al. Death on the battlefield (2001-2011): Implications for the future of combat casualty care. *J Trauma Acute Care Surg*. 2012;73(6):S431.
11. Butler FK Jr. TCCC Updates: Two Decades of Saving Lives on the Battlefield: Tactical Combat Casualty Care Turns 20. *J Spec Oper Med*. 2017;17(2):166-172.
12. Mabry RL, Edens JW, Pearse L, Kelly JF, Harke H. Fatal airway injuries during Operation Enduring Freedom and Operation Iraqi Freedom. *Prehosp Emerg Care*. 2010;14(2):272-277.
13. Pulmonary aspiration and foreign body in airway — Level 4 cause. Institute for Health Metrics and Evaluation. Published October 15, 2020. Accessed December 28, 2022. [https://www.healthdata.org/results/gbd\\_summaries/2019/pulmonary-aspiration-and-foreign-body-in-airway-level-4-cause](https://www.healthdata.org/results/gbd_summaries/2019/pulmonary-aspiration-and-foreign-body-in-airway-level-4-cause)
14. Dodson H, Cook J. Foreign Body Airway Obstruction. In: StatPearls. StatPearls Publishing; 2022.
15. Pasrija D, Hall CA. Airway Suctioning. In: StatPearls. StatPearls Publishing; 2022.
16. Johnson SA, Lauby RS, Hood RL, De Lorenzo RA, Schauer SG. A Market Review of Available Airway Suction Technology. *Prehosp Disaster Med*. 2022;37(3):390-396.
17. National Association of State EMS Officials. National EMS Scope of Practice Model 2019. National Highway Traffic Safety Administration; 2019. [https://www.ems.gov/assets/National\\_EMS\\_Scope\\_of\\_Practice\\_Model\\_2019.pdf](https://www.ems.gov/assets/National_EMS_Scope_of_Practice_Model_2019.pdf)
18. Risavi BL, Sabotchick KJ, Heile CJ. Portable suction unit failure in a rural EMS system. *Prehosp Disaster Med*. 2013;28(4):388-390.
19. Gaither JB, Spaite DW, Stolz U, Ennis J, Mosier J, Sakles JJ. Prevalence of difficult airway predictors in cases of failed prehospital endotracheal intubation. *J Emerg Med*. 2014;47(3):294-300.
20. Reinert L, Herdtle S, Hohenstein C, Behringer W, Arrich J. Predictors for Prehospital First-Pass Intubation Success in Germany. *J Clin Med Res*. 2022;11(3). doi:10.3390/jcm11030887
21. Dye C, Keenan S, Carius BM, et al. Airway Management in Prolonged Field Care. *Journal of Special Operations Medicine*. 2020;20(3):141. doi:10.55460/baf7-3bm3
22. Pamplin JC, Fisher AD, Penny A, et al. Analgesia and Sedation Management During Prolonged Field Care. *Journal of Special Operations Medicine*. 2017;17(1):106. doi:10.55460/knc7-ff9m
23. Sinha V, Semien G, Fitzgerald BM. Surgical Airway Suctioning. In: StatPearls. StatPearls Publishing; 2022.
24. Kozak RJ, Ginther BE, Bean WS. Difficulties with portable suction equipment used for prehospital advanced airway procedures. *Prehosp Emerg Care*. 1997;1(2):91-95.
25. Schauer SG, Naylor JF, Uhaa N, April MD, De Lorenzo RA. An Inventory of the Combat Medics' Aid Bag. *J Spec Oper Med*. 2020;20(1):61-64.
26. Remley MA, Loos PE, Riesberg JC. Prolonged Casualty Care Guidelines. *J Spec Oper Med*. 2022;22(1):18-47.
27. De Lorenzo RA. A Report on Deliverable Four: Develop a specifications list for a portable, lightweight prehospital suction device. Published online 2017. <https://apps.dtic.mil/sti/citations/AD1049195>
28. De Lorenzo RA. A Report on Deliverable One: Determine Required Performance Characteristics of Suction for Management Of Prehospital Combat Casualty Care Injuries. UT Health San Antonio; 2017. Accessed December 29, 2022. <https://apps.dtic.mil/sti/pdfs/AD1049185.pdf>
29. Suction-Easy™ Technical Bulletin. <http://suctioneasy.com/wp-content/uploads/2017/08/Suction-Easy-Technical-Bulletin-8.17.pdf>



 The AIRO Suction is the smallest, fully-capable, critical care suction device in existence.



[airosuction.com](http://airosuction.com)

## SALAD capability. On scene 100% of the time.

Miniaturized portable suction unit



The AIRO Suction Unit is a fully-capable miniaturized point-of-injury device designed for EMS personnel in the field administering critical care. The product is a remarkable 1.6lbs, offering an impressive run time of 30 minutes at maximum power.

1.6lbs | 7.58" x 3.25" x 2.5"

**Features:**

1. Pediatric Suction ranges: 0-120mmHg
2. Adult airway suction ranges: 0-550mmHg
3. Low battery indicator
4. Accidental engagement protection (3 sec delay switch for power on/off preventing engagement when packed in an aid bag)



\_SKU: AIRO-EMS | \$1259.00

[airosuction.com](http://airosuction.com)

**Product Specifications**

- 0-550mmHg adjustable suction pressure (High Vacuum)
- Small enough to pack into a "first in" kit (87.9% lighter than its nearest powered competitor)
- Capable of delivering definitive care for common airway suction procedures including cricothyroidotomy and intubation

**Battery Life:** 30 minutes continuous suction at maximum load

**Battery Type**

This device uses a common rechargeable lithium CR123's batteries providing indefinite use with appropriate charging and resupply.

**Noise Level:** <60 dB

**Flow Rate:** 3.33 LPM

(vomitous simulated using Campbell's Chunky Soup)

**Performance:**

Vacuum - Max.: 550 mmHg (73.3 kPa)

Vacuum - Range: 0 - 550 mmHg (0 - 73.3 kPa)

**Dimensions:** H 7.58" x W 3.25" x D 2.5

**Intellectual Property**

U.S. Patent Appl. No.: 18/381,754 Filed: 19-Oct-2023

Claiming Priority to U.S. Patent Appl. No.: 63/417,406 Filed: 19-Oct-2022

International application No. PCT/US2023/035482

Studies have shown that both civilian and military medical providers often electively leave suction devices out of their "first in" kits, significantly increasing the risk of patient morbidity and mortality. In one study conducted at an urban level 1 trauma center, less than 25% of paramedics reported carrying mechanical suction equipment to the scene of medical aid calls despite utilizing these devices during 50% of advanced airway procedures. Half of the paramedics surveyed in the study reported equipment malfunctions with portable suction units affecting patient care at least once in their careers.

**"...less than 25% of paramedics reported carrying mechanical suction equipment to the scene of medical aid calls despite utilizing these devices during 50% of advanced airway procedures."**

Kozak RJ, Ginther BE, Bean WS. Difficulties with portable suction equipment used for prehospital advanced airway procedures. Prehosp Emerg Care. 1997;(2):91-95.

Distributed by:



Direct Sales Inquiries:

[support@cromedical.com](mailto:support@cromedical.com)  
(406) 540-4089

(MINIATURIZED PORTABLE SUCTION UNIT)



AIRO SUCTION UNIT  
\_TACTICAL



S U C T I O N

[airosuction.com](http://airosuction.com)

ISSUE 004 | 2024

**CR+MEDICAL™**

PRODUCT CATALOG

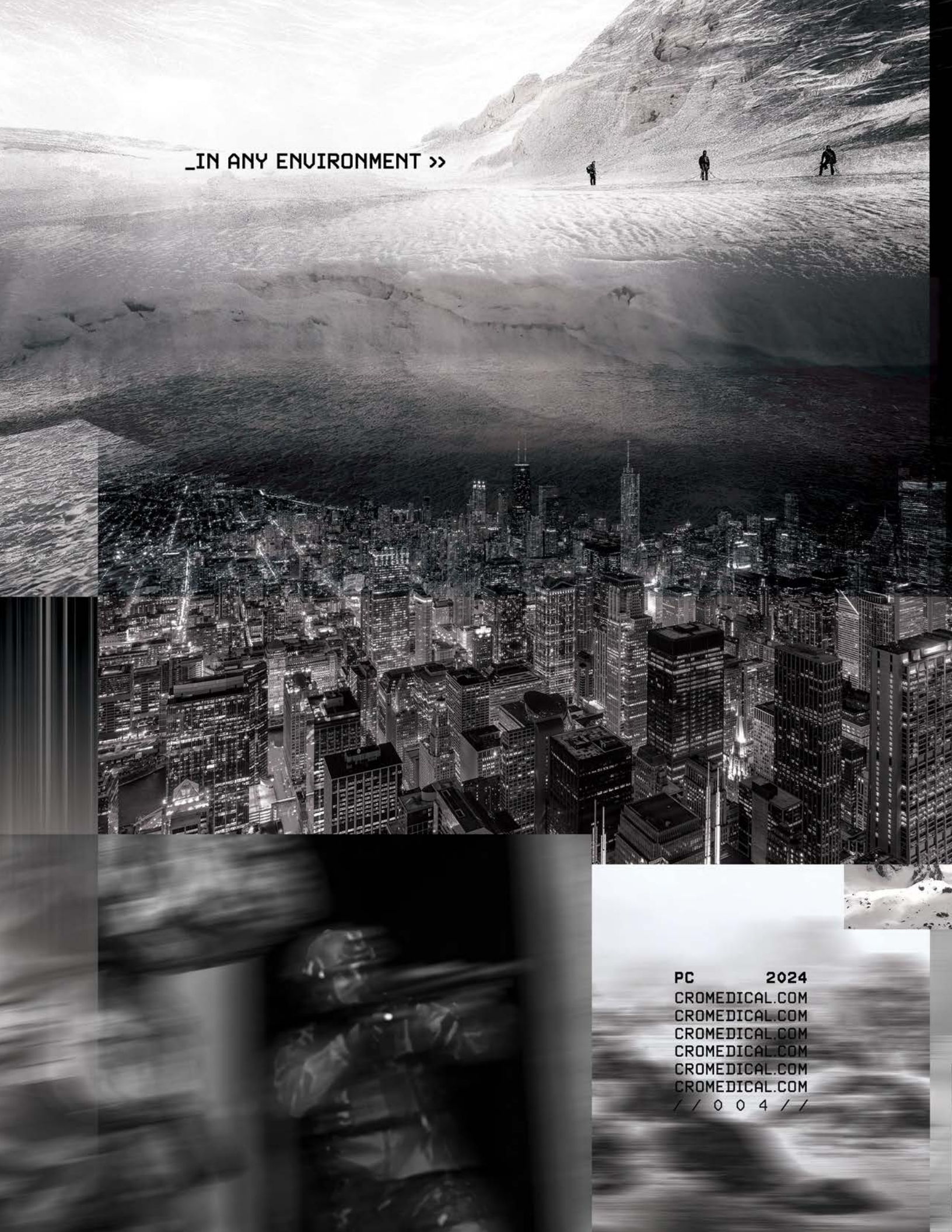
ISSUE 004 | 2024

[CROMEDICAL.COM](http://CROMEDICAL.COM)



**MADE IN USA**  
MISSOULA, MT

\_IN ANY ENVIRONMENT >>



PC 2024  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
CROMEDICAL.COM  
// 0 0 4 //