

Protect, Observe, Stay Effective – Sub Zero and Arctic Warfare

Soldier Modernisation looks at new innovations in shelter and carriage systems for cold climate warfare with Glenn Nelson, COO of Crossfire Australia

Surviving in the snow is an extraordinary team effort. Improvisation and creativity are required in winter warfare. Mountain infantry and the long-range reconnaissance forces have to be prepared to fight in extreme climate and terrain conditions.

Every day, mountain infantry and long-range reconnaissance forces demonstrate their effectiveness in operations around the world. They learn how to fight in the cold, they develop their own survival strategies in extreme weather, perform strenuous marches in low-visibility conditions, observe enemy forces while remaining undetected themselves, or direct precision fires against an adversary. Whoever wants to fight must first survive.

Long-range scouts must move through the winter landscape, ideally in single file. They are the eyes of the army deep in enemy territory. They too must be able to operate their equipment in such temperatures and make sure that it is always ready. For instance, in these weather conditions, the batteries of electronic equipment used for observation, information collection and data transmission lose their charges much faster than usual.



Crossfire 110 litre MKVII Long Range Patrol Pack

Arctic and cold weather shelters must provide protection and be robust enough to withstand unexpected snow drops whilst maintaining the ability to be set easily in adverse conditions. Wind must always be taken into account when setting up a place to sleep or establishing an observation post or hide. Wind chill can cause the body temperature to drop precipitously. The shelter should be set up in the centre of a pit. If there is enough time to improve the shelters, a tarp can be stretched over the top to protect personnel and mission critical equipment against snow or wind.

Two areas of concern for Arctic troops are hypothermia and frostbite. Hypothermia occurs when the body's core temperature drops below 35°C (95°F). Symptoms depend on the temperature and range from shivering and mental confusion to increased risk of the heart stopping. Frostbite is localized damage to skin and other tissues due to freezing. At or below 0°C (32°F), blood vessels close to the skin start to constrict and blood is shunted away from the extremities. The same response may also be a result of exposure to high winds.

So where are we in providing the correct carriage system and correctly designed shelter for subzero conditions? We talked to Crossfire Australia about carriage systems and new shelters and tarps designed in conjunction with Cold Skills Sweden.

Q: When we consider Arctic warfare, or any operation that may encounter sub-zero temperatures, we are looking for light and properly fitting carriage systems, what are the main designs you have incorporated?

A: The design of the DG-AW harness allows airflow between the back and frame and also allows the wearer flexibility whilst wearing a patrol vest, patrol order or plate carrier. The AW Frame also has built-in tow loops to allow a pulk, or alike, to be easily attached whilst wearing double gloves. Issues such as preventing hypothermia and frost bite were key considerations in design. Simple things such as stow pockets (forward facing openings to allow easy access to

layered clothing whilst on a short stop and buckle and zip configuration allows access whilst wearing double gloves. Sweating is a major cause of mobility impairment – a factor raised was the material used for the harnesses needed the ability to dry rapidly and not retain the sweat build up (the main reason provided was in extreme conditions the harness turns into a block of ice and the individual loses load carriage). The DG Frame functional design, apart from supporting the wearer, allows airflow and helps mitigate against airflow restriction.

Q: Could you give me a short explanation of why you changed the buckle material?

A: The principal reason was user request. Our current buckle functioned as advertised, however the end users requested a metal buckle. We found a buckle that allows engagement and disengagement easily under adversity and adheres to our design principle of KISS.

Q: The new carriage systems, shelters and tarps have been designed in conjunction with Cold Skills Sweden, what were the main ideas and reasons for these products?

A: We have just released our new CF-AW range. The systems are based on our tried and proven DG range with the inclusion of the DG 'Skadi' 130 litre and our new range of AW tarp and two man special recon tent.

The AW tarp is truly flexible in design with the ability to expand or reduce the tarp with dual side mounted annexes. The design of the tarp facilitates flexibility with erection from a teepee style through to lean-to. The AW tarp is designed for military application and is ruggedized as such for ease of deployment; folded it has a small footprint and is light.

Both the CF-AW tarp and special recon tents are built around the lessons gained from the civilian mountaineering community. The tarp can be erected simply using ski poles



130 litre DG 'Skadi' AW Pack



2 man Special Recon Tent (AW)

and is flexible in design with the ability to easily add or detach as the situation requires.

The special recon tent fills the role as a surveillance/op shelter or sniper shelter. The design is a true two man all-season tent with a low profile, double poles (to help mitigate against shelter collapse under heavy snow) and stand-off layers.

Our DG-AW load carriage systems share the key features of the DG range with a few tweaks such as:

- integrated pulk towing loops on the frames;
- detachable oversize lids for DG3, 16, and DG Skadi;
- available in our normal range of colours and our new tarmac grey;
- side stow pouches on the DG3 and 16 with the DG16 side pouches having side access ports for easy access
- metal waist band buckles to mitigate against fracture in the extreme cold.

Our new AW range of tents and tarps are purpose designed in partnership with Cold Skills Sweden. The systems are purpose designed to support the war fighter in the AW environment. Unique features on our AW tent:

- low profile;
- dual stand-off layers help dissipate heat signature;
- true freestanding dual poled (mitigate against tent collapse due to heavy snow) four seasonal two-man tent;
- OP ports on either end and sides; and
- aperture ports either ends enable a rifle to be fired from inside the tent. ■

For more information, please visit:

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