

UM21 UNIVERSAL MILITARY BACKPACK SUBSYSTEM



USE AND CARE MANUAL

INTRODUCTION

The Bianchi UM21 Backpack System features the latest advancements in state of the art technology. It combines materials, construction, and fit to provide a backpack for the 21st century. This Universal Military Backpack System gives the modern day battlefield warrior the ability to carry required loads over long distances with greater ease and comfort.

Termed the Special Operations Forces Personal Equipment Advanced Requirements (SPEAR), and Body Armor Load Carriage System (BALCS) by the US Army, consists of three subsystems: 1) Body Armor Subsystem, 2) Equipment Load Carrying Subsystem (ELCS), and 3) the Backpack Subsystem. Each Subsystem can be worn independently, as a total system, or in multiple configurations to meet mission requirements. This Use and Care Manual describes the Backpack Subsystem.



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SPEAR BACKPACK SYSTEM COMPONENTS



BACKPACK SUSPENSION SIDE



BACKPACK FRONT SIDE



BUTT PACK AND STUFF SACK



COMPRESSION STUFF SACK
FOR BACKPACK (2)



PATROL PACK
STUFF SACK (2)



PATROL PACK

BACKPACK FEATURES



ANTENNA PORT

Accommodates extended antennae

RAINCOVER FLAP

Protection from the elements, with double sided zipper for reach through access to the main pack

DETACHABLE SIDE POCKETS

For additional storage of gear

QUICK-RELEASE COMPRESSION STRAPS

Stabilizes the load

INTERNAL RADIO COMPARTMENT

Designed into pack for secure transport of radio

COMPRESSION FLAP

Foam padded panel for storing the Patrol Pack or additional gear; also stabilizes load and converts to a seat

SLEEPING BAG COMPARTMENT

Full zip-out panel for easy access

ACCESSORY LASH STRAPS

With quick release buckles for attaching extra gear

DUAL GEAR LOOPS

For additional gear storage

SKI KEEPERS

Covered for durability



TOP OF BACKPACK
BUTTPACK ATTACHES HERE



TOP OF BACKPACK WITHOUT TOP
POCKET, SHOWING ANTENNA PORTS



COMPRESSION PANEL FOLDS DOWN
FOR SEATING AND IS REMOVABLE

BACKPACK FEATURES

STABILIZER STRAPS

Adjustable shoulder, hip and sternum stabilizers fine tune the suspension

INTERNAL REINFORCED FRAME SHEET

Provides flexible support and protects your back

FLO•FORM® II BACK PANEL

Molded and contoured foam pads provide comfort and support

FLO•FORM II SHOULDER HARNESS

Made to wrap comfortably over the shoulders and around the chest

QUICK-RELEASE BUCKLES

Allow for emergency release of pack

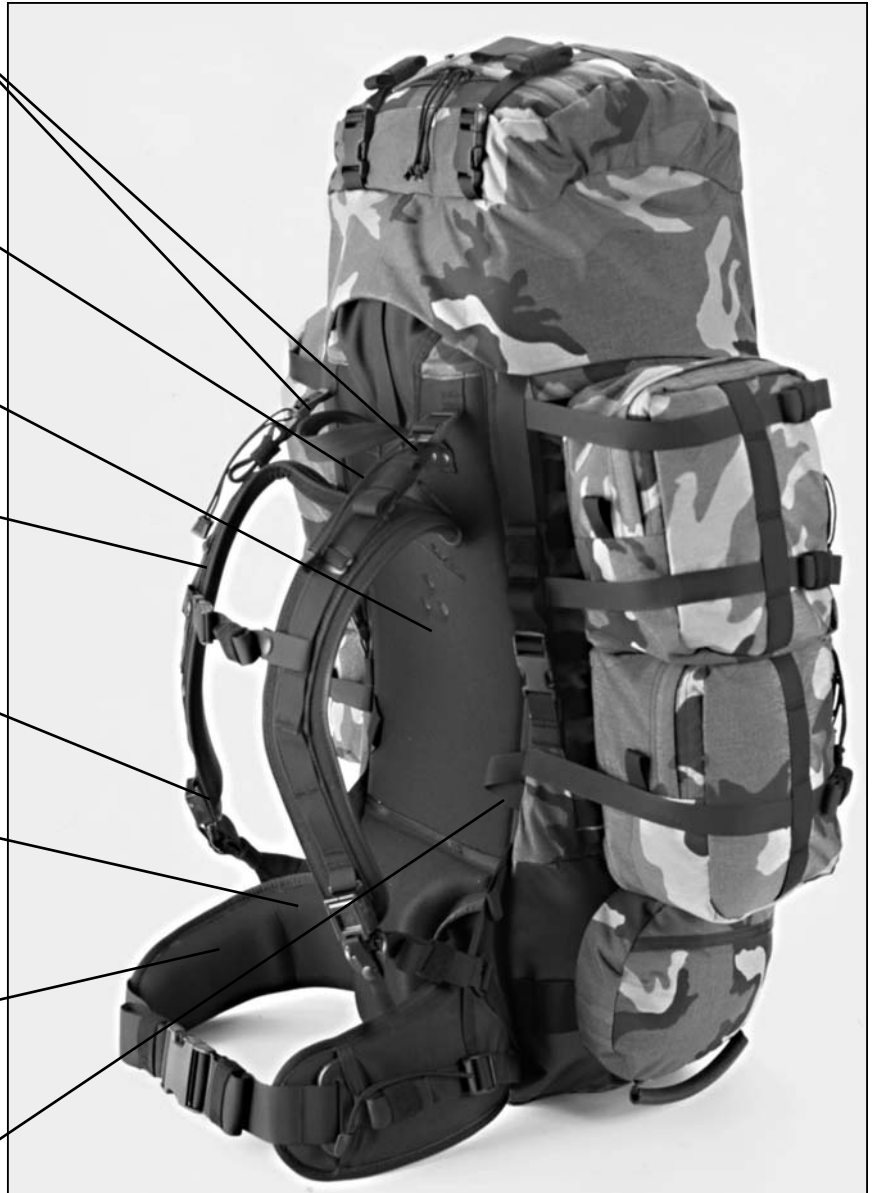
ADJUST•A•CANT™ HIP BELT

3 different angle settings for proper ride on hips (coin or screwdriver required)

FLO•FORM II WAISTBELT

Tri-density foam padding hugs your hips without pinching or binding

AIRBORNE RIGGING LOOPS



BACKPACK WITHOUT
SIDE POCKETS



BACKPACK SIDE POCKETS (3 SIZES - SMALL, MEDIUM AND LARGE)

PATROL PACK FEATURES

Stowable in main backpack in its own protective storage sack



PERSONAL IDENTIFICATION DEVICE

Under flap held in place by snap; snap flap in open position to reveal hook and loop patch

ANTENNA PORTS

TWO MAIN COMPARTMENTS

For efficient organization of gear

COMPRESSION FLAP

Foam padded panel for storing additional gear and stabilizing the load; it converts to a seat

DUAL COMPRESSION STRAPS

For cinching the load

ONE-INCH ATTACHMENT POINTS

To attach pouches using the Universal Attachment System

WAIST STABILIZER STRAP

To help stabilize the load

DUAL GEAR LOOPS

For additional gear



REINFORCED CARRY HANDLE

PADDED SHOULDER HARNESS

Made to wrap over the shoulders and around the chest

AIRBORNE RIGGING LOOPS

FILTER FOAM BACKPANEL

For breathability and comfort

STERNUM STRAP

For added stability

ADJUSTABLE WAISTBELT

Adjustable for best fit and comfort



COMPRESSOR FLAP FOLDS DOWN FOR SEATING AND IS REMOVABLE

BUTT PACK FEATURES

Attaches and detaches quickly and easily from Backpack

REINFORCED CARRY HANDLE

TWO COMPARTMENTS

Provides efficient organization of gear



UNIVERSAL ATTACHMENT STRAPS

Allows attachment to the Backpack or Patrol Pack

BUILT-IN TWO-INCH WEB WAISTBELT

With side wings for added stability; stow-away pocket holds waistbelt

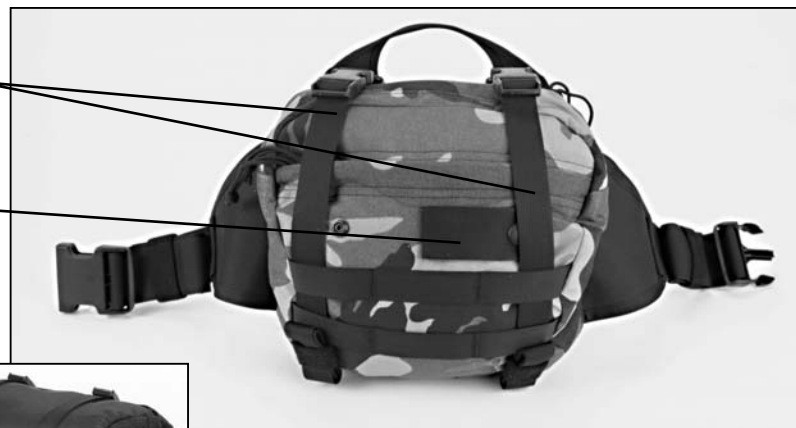


DUAL COMPRESSION STRAPS

For cinching the load

PERSONAL IDENTIFICATION DEVICE

Under flap, held in place by snap



BUTT PACK STUFF SACK

SPEAR SUBSYSTEM CONFIGURATION

The three main components:

Backpack, Patrol Pack, and Butt Pack, have been designed to work together as a system, or can be used independently.

BUTT PACK

The Butt Pack is issued with a compression stuff sack and offers 3 modes of carry:

1. Carry Handle
2. Universal Attachment System
3. Waistbelt

To remove for independent use, unsnap the two Universal Attachment System straps and use the waistbelt. To reattach the Butt Pack to the Backpack, stow the waistbelt in the pocket provided and reattach it to the Backpack with the Universal Attachment System.

PATROL PACK

The Patrol Pack is issued with its own storage sack and two compression stuff sacks. When utilizing the entire SPEAR System, the Patrol Pack can be stowed behind the compression flap on the Backpack or attached to compression flap on the Backpack using the buckle system common to each pack.

BACKPACK

The Backpack is issued with two compression stuff sacks located in the sleeping bag compartment. The Use and Care Manual can be found in the rain flap. Key features of this pack include:

1. Removable Side Pockets
2. Universal Attachment System
3. Quick Release Buckles

SIZING: MEASURING TO FIT THE BACKPACK

The measurement to fit the Backpack to the user is a two-person operation. The measurement is critical to ensure a proper fit. A SPEAR automatic sizing device (FIG. 1) will be provided to assist in measuring for a proper fit. The SPEAR automatic sizing devices were initially fielded to the unit with Backpacks. Once you have obtained a SPEAR automatic sizing device, proceed as follows: Place the waist belt on your hips at the top of the hipbone. Tilt your head slightly forward. This exposes the top of the seventh vertebra. This is the bone where the shoulders meet the neck. Have the person assisting you with the fitting of the pack unsnap the vertical adjustment piece and place the hole, located at the top of this device, over this bone. Follow the scale down to the point on the vertical adjustment piece to where it points to a number. This number corresponds to a slot location on the pack. That is the slot location where the figure eight slider should be placed.

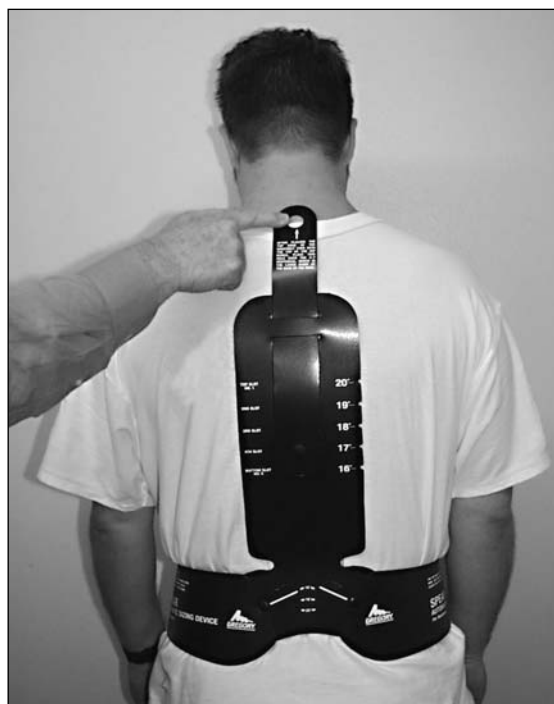


FIG. 1 Automatic Sizing Device (available for purchase separately - call for information).

ADJUSTING THE BACKPACK SHOULDER HARNESS

There are five separate harness adjustment slots. The pack is shipped from the factory with the shoulder harness attached to the middle slot, which has been found to be the correct setting for the greatest number of users. If your back measurement (see page 8) determines that the shoulder harness needs to be adjusted, follow the instructions below:

1. To gain access to the shoulder harness assembly, insert your hand into the pack behind the radio pouch (FIG. 2). You will be able to see your hand behind the five separate slots. To change the position place your hand inside the pack and locate the five slots and find the figure eight slider. Turn the slider perpendicular to the slot opening (FIG. 3) and push one side of the slider through the back. Then pull the slider completely through the slot. This releases the harness.

2. To re-position the harness to a different slot, turn the slider level to the slot, insert one side of the slider into the slot, (FIG. 4-5). Push the slider and then pull it completely through until it is set in position and lies flat against the frame sheet (plastic back).

3. Figures 6 and 7 illustrate the correct and incorrect shoulder harness adjustment



Fig. 2



Fig. 3



Fig. 4



Fig. 5



FIG. 6 - INCORRECTLY ADJUSTED HARNESS



FIG. 7 - CORRECTLY ADJUSTED HARNESS

INITIAL ADJUSTMENT AND FITTING OF THE BACKPACK

Note:

During the initial set-up and adjustment procedures the Backpack should be empty.

Putting the Pack On

1. Loosen all suspension straps: Shoulder Stabilizer Straps, Lower Shoulder Adjustment Straps, Waistbelt Stabilizer Straps, and Waistbelt. Unsnap the Sternum Strap
2. Using your legs to lift the weight of the pack onto your body, slip one arm and then the other through the shoulder harness. Tighten the Lower Shoulder Adjustment Straps first, until snug (FIG. 8).
3. Shrug your shoulders skyward (FIG. 9) (this will raise the pack) and fasten your waistbelt (FIG. 10)-- making sure that the **top edge of the waistbelt is 1" above the top of your hip-bones** (FIG. 11).



Fig. 8



Fig. 9



Fig. 10



Fig. 11



Fig. 12



Fig. 13

4. Tighten the waistbelt one side at a time. (FIG. 12-13), relax your shoulders and retighten the Lower Shoulder Adjustment Straps.

5. Re-tighten the Shoulder Stabilizer Straps by pulling down on the straps (FIG. 14-15).

6. Tighten the Waistbelt Stabilizer Straps by pulling them forward (FIG. 16).

7. Re-tighten the Lower Shoulder Adjustment Straps by pulling them down and back (FIG. 17).

8. Fasten and then tighten the Sternum Strap (FIG. 18-19).



Fig. 14



Fig. 15



Fig. 16



Fig. 17



Fig. 18



Fig. 19

FINE TUNING THE SHOULDER HARNESS

1. LOAD CONTROL PANEL

The Load Control Panel (Fig. 20) is located on top of the shoulder harness. Because it is attached to the harness pad with hook and loop it can be moved from one position to another (FIG. 20). Choose the best position for you.

The Load Control Panel is shipped with placement in the middle (FIG. 21). If you move the Load Control Panel to the inside of the pad it will cause the shoulder harness to be farther away from the neck FIG. 22). If you move the Load Control Panel to the outside of the pad it will cause the harness to be closer to the neck (FIG. 23).

2. LOAD STABILITY

The angle of the shoulder stabilizer strap is controlled by adjusting the metal slider located on top of the Load Control Panel. The metal slider should be adjusted so that it is even with your collarbone. (FIG. 24) This adjustment is important for load stability and weight transfer adjustments.

3. STERNUM STRAP

The elastic Sternum Strap is fully adjustable up and down the shoulder harness. It should be located approximately 2 inches below the top of the sternum. To re-position it, unsnap the strap and re-locate along the shoulder harness for best comfort. (FIG. 25).



Fig. 20



Fig. 21



Fig. 22

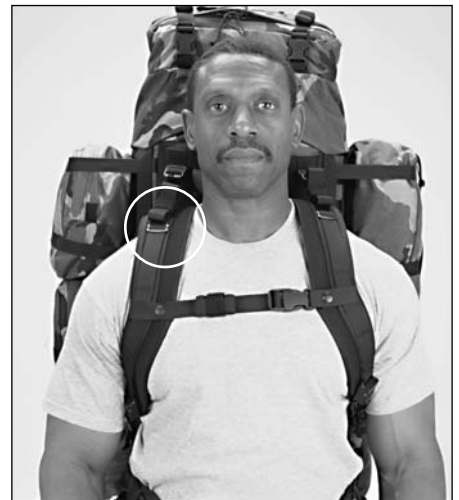


Fig. 23



Fig. 24



Fig. 25

WAISTBELT CANT ADJUSTMENT

(coin or screwdriver required)

With a full pack on, the top edge of the waistbelt should ride about 1" above the top of the hipbones (Refer to FIG. 11 on page 10). Note that the pads on the waistbelt are molded to fit the hips and the entire waistbelt is angled to match the natural angle of the hips. The angle of the waistbelt can be adjusted to better match the slope of each user's hips. This easy one-time adjustment makes a big difference in comfort when carrying heavy loads for long periods.

To adjust the waistbelt angle, start by unsnapping the waistbelt pad. Reach underneath the lower back pad; slide your fingers inside, find the snap and pull. Loosen the Waistbelt Stabilizer Strap and slide the pad away from the lower back pad (FIG. 26). Moving the waistbelt pad reveals two brass screws and three settings on each side of the waistbelt (FIG. 27).

To change the setting, unscrew the brass screws and move them to one of the three settings (FIG. 28).

You will note that the backpack is shipped with the waist belt set in the top hole. Moving to the middle or bottom hole will increase the amount of angle (FIG. 29). When the adjustment is complete, slide the waistbelt pad back over the lower back pad, fasten the snap, and re-thread the Waistbelt Stabilizer Strap.

For users with few body contours, use the top setting for minimum angle. For those with more body contours choose the middle or bottom setting for maximum angle. The setting is correct when the waistbelt lies evenly on the hips (FIG. 30).

If gaps exist between your body and the waistbelt -- either on the top or the bottom-- disassemble and try another setting until you find the fit that best matches your specific body contour.



FIG. 26



FIG. 27



FIG. 28



FIG. 29



FIG. 30

CHECKING FOR CORRECT FIT

To evaluate the fit and operate the load transfer controls, you should have the Backpack loaded with a minimum of 25 pounds.

1. Loosen all suspension straps. Use your legs to lift the pack onto your body. Tighten the Lower Shoulder Adjustment Straps first.
2. Shrug your shoulders skyward and attach your waistbelt -- making sure the top edge of the waistbelt is one inch above the top of your hips.
3. Now tighten your waistbelt, re-snug all straps and check the fit.

Check off these points to ensure your pack system fits properly.

- ☒ **1. Correct Shoulder Harness Slot?**
With the top edge of the waistbelt 1" above the top of your hip bones, the shoulder harness should wrap over the shoulder in back. Is the harness in the right slot?
- ☒ **2. Position of the Metal Slider?**
Check that the metal slider is even with the collarbone.
- ☒ **3. Did You Fine Tune the Shoulder Harness?**
Does the shoulder harness wrap smoothly across the chest, centered over the shoulder? Check the position of the Load Control Panel to move the harness either closer to the neck or farther out.
- ☒ **4. Correct Adjust-A-Cant Waistbelt Setting?**
The waistbelt should lie evenly against your hip angle -- there will be no gaps on the top or bottom edge of the waistbelt.
- ☒ **5. Sternum Strap in Best Spot?**
The sternum strap should cross the upper chest in the most comfortable area.

LOAD TRANSFER CONTROLS

By utilizing your pack's suspension adjustments, you can shift the weight entirely onto your hips, or entirely onto your shoulders -- or distribute it between the two. Similar to electric seats in a car, the pack allows you to change the weight transfer surfaces as you proceed on the march. Experiment on the march to find the optimum adjustment for various terrains and conditions.

To Shift Weight From Hips to Shoulders:

1. Loosen the Shoulder Stabilizer Straps.
2. Tighten the Lower Shoulder Adjustment Straps.
3. Lightly re-tighten the Shoulder Stabilizer Straps to stabilize the top of the pack. You may want to loosen the waistbelt for a full weight transfer to the shoulders.

To Shift Weight From Shoulders to Hips:

1. Loosen the Shoulder Stabilizer Straps and Shoulder Adjustment Straps until you feel the weight of the load shift downward onto your hips.
2. Tighten the Shoulder Stabilizer Straps until there is about a finger's width of space (a gap) between the top of your shoulders and the shoulder harness.
3. You may want to tighten the waistbelt due to the weight transfer.

CARE AND MAINTENANCE

The SPEAR Backpack Subsystem has been built with the finest materials to withstand years of use given proper care and maintenance. Follow the guidelines below for proper care and maintenance.

A. Cleaning

1. Hand wash only with a mild detergent or soap solution.
2. Stubborn stains may require scrubbing with a soft-bristle nylon brush.
3. DO NOT USE CHLORINE BLEACH, YELLOW SOAP, CLEANING FLUIDS OR SOLVENTS. They may damage the plastic components and waterproof coating of the fabric.
4. Rinse thoroughly with clean water.
5. Air dry with all zippers open.
6. DO NOT DRY IN DIRECT SUNLIGHT, DIRECT HEAT OR OPEN FLAME.
7. DO NOT LAUNDRER OR DRY ITEM IN COMMERCIAL OR HOME LAUNDRY EQUIPMENT.
8. Use of solvents or machine drying equipment will void the warranty

B. Storage

Individual equipment should be properly stored when not in operational use.

1. Follow cleaning instructions shown above.
2. Inspect the pack to be certain it is completely dry prior to long term storage.
3. Store in a clean, dry location.

WARRANTY

We build our gear to last a lifetime and that's how long we stand behind it. We guarantee to you, the original purchaser, that this product will be free from defects in materials or workmanship, for as long as you own it.

If you think this product has any defects in materials or workmanship, then just send it to us post-paid and clean, with proof of purchase. If the product is defective, then we'll fix it or replace it with a new one and return it to you at our expense. This warranty does not cover damage due to unreasonable use or improper care.

LIMITED WARRANTY

The manufacturer shall not be held responsible for incidental or consequential damage nor the natural breakdown of materials which occurs with extended use. Some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

REPAIRS

If your pack or accessory needs service or repair due to normal wear and tear, animal attack, accident or some other reason that's not covered under the warranty we will provide the necessary service for a reasonable charge, plus shipping and handling. Please clean your pack, then send it, postage prepaid along with a description of what needs attention. We'll contact you with an estimate of the repair charges and do the work after your approval and payment of our quote. For service and repairs, please contact our Customer Service Department:

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