ROYAL CANADIAN ARMY CADETS

GREEN STAR

INSTRUCTIONAL GUIDE

SECTION 2

EO M121.02 – TRANSPORT PERSONAL EQUIPMENT

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-701/PG-001, *Green Star Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for TP 1 to introduce the cadets to packing personal equipment.

A demonstration was chosen for TP 2 as it allows the instructor to explain and demonstrate the wearing of a backpack.

INTRODUCTION

REVIEW

Review of EO M121.01 (Select Personal Equipment):

Q1. What are five accessories that should be brought on a hike or FTX?

Q2. What is the minimum number of matches that should be brought on an over night exercise?

Q3. What is the active ingredient in most bug spray?

ANTICIPATED ANSWERS:

A1. Flashlight, lip balm, map and compass, matches, notepad and pencil, flashlight, pocket knife, sunscreen, whistle, survival kit and bug repellent. Other answers may also be correct.

A2. 20 matches.

A3. DEET is the active ingredient in bug spray.

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OBJECTIVES

By the end of this lesson the cadets will be expected to select, properly pack, and wear a backpack.

IMPORTANCE

This lesson will allow cadets to train in the field, and carry their equipment safely and efficiently.

Teaching point 1 **Explain packing personal equipment.**

Time: 15 min Method: Interactive Lecture



The objective at the end of this TP is for the instructor to demonstrate to the cadets how to pack a backpack. The backpack should contain the following items:

- Clothing (enough for over night in the field)
- Tent
- Drinking cup
- Sleeping bag
- Rain gear
- Hygiene kit
- Food
- Two garbage bags
- Mountain style individual stove
- Simulated fuel container
- Water bottle
- Pot set
- Survival kit

TYPES OF BACKPACKS

Backpacks come in different sizes, styles and available features. Many backpacks have been developed with specific uses in mind. They can differ greatly in their anatomy and features. Backpacks can be divided into two major categories, external frame and internal frame.

External Frame – These backpacks are constructed with a bag attached to a visible metal or resin frame. Some external frame packs offer a frame that adjusts in length; however, most are not adjustable. It is important to choose a frame that is the correct size. Try the backpack on and ensure the hip pads and hip belt rest snugly on your hips – the shoulder straps should connect to the harness at the same level as your shoulders. External frame packs have both advantages and disadvantages.

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Advantages:

- High centre of gravity, aids with walking upright;
- Air flow between backpack and body makes for cool hiking;
- Easy to load;
- Cheaper than internal frame packs;
- Will not sag under heavy loads;
- Frame can be used to make a stretcher to evacuate an injured person; and
- Can carry large and awkwardly shaped objects.

Disadvantages:

- High centre of gravity makes it hard to balance on tricky terrain or when skiing;
- Does not move closely with the body, making it hard to scramble over obstacles; and
- Bulky for air travel.



Figure 1 External Frame Pack

Internal Frame – These packs are constructed with a resin or aluminium frame sewn into pockets in the harness of the bag. Often the frame consists of two “stays” running vertically along the backplane. Aluminium frames are to be moulded to the shape of your back. The bag is designed to carry all your gear internally with only pockets and accessories attached to the outside. Some smaller packs may offer the option of attaching a sleeping bag stuff sack to the top or bottom. Like the external frame packs, it is important to correctly size your internal frame pack. Some models offer a range of backpack sizes and some offer adjustable or replaceable stays.

Internal frame packs have both advantages and disadvantages:

Advantages:

- Backpack rides low and close to the body, allowing freedom of movement and good balance,
- Sleek profile makes it easy to bushwhack, crawl through tight boulder fields, etc,
- Comfortable harnesses, and
- Can be adjusted and moulded to the body.

Disadvantages:

- Difficult to load and pack,
- More expensive than external frame packs,
- Not useful for making stretchers.
- Hard to carry large or awkward objects, and
- Ventilation is restricted across the back.

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Figure 2 Internal Frame

Backpack Features

Backpack features are additional attributes designed into the backpack that allow for efficient packing and carrying. Depending on the intended use of the backpack the following features may be looked for:

- **Bag opening –** The bag opening is an important feature. A small opening aids in weatherproofing but makes packing and unpacking more difficult. A wide opening is handy but the longer zippers or extra fasteners are often more prone to trouble. Ensure that the zipper or fastener for the opening(s) is not at a place that will receive a lot of stress when the bag is packed and carried. If the zipper breaks closing the bag may be difficult! The majority of larger bags will offer two or more compartments inside the pack. This will assist in placing heavier items in the proper place and in keeping kit organized.
- **Shoulder harness -** Simple straps will do for lighter loads, however for heavier loads go for curved, broader and more padded shoulder straps. This will prevent the straps from cutting into the shoulders.
- **Chest Strap / Sternum Strap –** These straps often connect across your chest using a clip-lock. By connecting and tightening them you prevent your backpack from pulling your shoulders back.
- **Hip Belt –** This belt allows the strain of the backpack to move from the shoulders down to the hips and closer to the centre of gravity, making the load more bearable. Look for a hip belt that goes full circle under the lumbar pad. Ensure the pad has soft and broad padding to avoid pressure points that could quickly become painful.

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Figure 3 Attributes Diagram A

- **Compression Straps –** These straps allow for the backpack and loads to be compressed, or squeezed into a smaller package. The tighter and more compact the load, the easier it will be to transport.
- **Quick Release Straps –** Many packs are equipped with a set of shoulder straps designed to release quickly in the event of an emergency, or when time / room demands a timely removal.
- **Inner and Outer Pocket Configurations –** Inner and outer pockets allow for a better separation of provisions, gear and other backpack contents. Outer pockets are mostly used for items that must be available while hiking. Outer pockets should not be over weighted to prevent a shift in centre of balance.
- **Hydration System –** Many packs have either built in water bladders (hydration packs) or have a special pocket for a water bladder and a hole for the drinking tube.
- **Splash Cover –** Backpacks are generally not 100% waterproof. Some backpacks have a built in splash cover which is basically a waterproof cover that encompasses the entire pack.
- **Spin Drift Cover –** On large backpacks the top compartment can be flipped backwards giving access to the backpacks inside compartments.
- **Bungee Cords and Equipment Straps –** Most backpacks have either bungee cords or equipment straps or a combination of both that provide the means to fix equipment to the outside of the backpack (e.g. hiking poles, ice axes, and crampons).

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Figure 4 Attributes Diagram B

PACKING

When preparing for a hiking exercise it is important to pack effectively. Every trip is unique and every backpack is different; however, when following certain principles in packing a backpack one can enjoy any trip with comfort and ease. To ensure a backpack is properly packed ABC's of packing should be employed. These are: **A**ccessibility, **B**alance, and **C**ompactness.

Accessibility - when backpacking, there will always be a requirement to keep certain things accessible. In some cases it is just a matter of convenience. Keeping items one might need during the day handy will save time. Some suggested items to keep accessible are:

• Lunch	• Extra layers for warmth	• Toilet paper
• Water	• Rainwear	• Toilet trowel
• Maps	• First aid kit	• Camera
• Sunscreen	• Snack Food	• Sun glasses

Balance – A heavier balanced backpack is easier to carry than a lighter unbalanced pack. If a backpack is top heavy, it will be hard to maintain balance especially when crossing obstacles and navigating sloping terrain. A backpack with too much weight at the bottom will hinder stride. The key is to pack the dense, heavy things in close to the body and at a level between the shoulder blades and the bottom of the rib cage. Items such as food, the tent, and the radio are good items to carry in mid regions of the pack.



CATO 14-37 states that cadets 12 –15 years of age can carry loads weighing less than 25% of their body weight. Cadets at the age of 16 cannot carry a load exceeding 30% of their body weight.

Compactness – When packing gear it is important to pack well and effectively utilize space. A compact backpack will be less awkward to carry. To take advantage of space in the pack, break large units down into

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smaller units. Look for dead spaces to fill like pots, pans, cups and shoes. These areas can be filled with food or clothing. Other items can be compressed down to half size using compression sacks. If the backpack has compression straps, it too can be compressed tightly.

Packing Considerations

- Waterproof the sleeping bag and clothes by lining the backpack with a garbage bag. Waterproof small items with zip-lock bags.
- Organize kit into separate stuff sacks, for example:
  - warm underwear, socks, hat and gloves in one sack; and
  - eating utensils, extra flashlight, batteries and toiletries in another.
- Pack food above fuel.
- Pack heavy, dense items like food close into the body.
- Odd items such as shoes can be used to fill small spaces.
- Water should be kept in an easily accessible place.
- Items like maps, first aid kit, lunch and a warm layer of clothing should be kept towards the top or outside pockets.
- Fasten all pockets and avoid letting anything hang out.
- Always protect and pad sharp edges of equipment and tools.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. Backpacks can be divided into what two categories?

Q2. Name five backpack features.

Q3. Name and describe the ABC's to packing.

ANTICIPATED ANSWERS:

A1. External and internal frame.

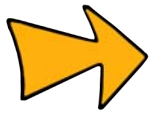
A2. Any five of the following: shoulder harness, chest strap, hip belt, inner and outer pockets, hydration system, splash cover, spindrift cover, bungee cords and equipment straps.

A3. **A**ccessibility, **B**alance, **C**ompactness (explanations provided above).

Teaching point 2 **Explain and demonstrate how to properly wear a backpack.**

Time: 10 min Method: Demonstration

DONNING A BACKPACK



The instructor should inform the cadets that left-handed people might wish to follow these directions using opposite hands, in order to accommodate the dominant hand.

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There are many different ways to pick up and don a backpack. If donning is done incorrectly, a back injury can occur. The following is a step by step method considered safe for donning a backpack:

1. Unlatch hip belt and loosen both shoulder straps.

2. Pick the backpack up with your right hand on the crossbar from which the shoulder straps are suspended and left hand on the right strap lift backpack high enough to rest it on your right knee.

3. Slide right arm through the shoulder strap and swing it onto your back.

4. Put left arm through the other strap.

5. Tighten the hip belt and shoulder straps.

6. Ensure all loose belts or strap ends are tucked in and off you go.



When properly adjusted the backpack should leave shoulders and hips free to move. This allows the individual wearing it to stand erect in a normal position and walk at a normal pace.



- Give cadets the opportunity to practice donning the backpack, as time allows.
- If CF rucksacks are to be used, they should be assessed for proper assembly.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What should be loosened prior to donning the backpack?

Q2. When the backpack is harnessed and on the back, what should one ensure is tucked in?

Q3. When properly adjusted the backpack should leave the (*blank*) and the (*blank)* free to move.

ANTICIPATED ANSWERS:

A1. Unlatch hip belt and loosen both shoulder straps.

A2. All loose belts or strap ends are tucked in.

A3. Shoulders and Hips.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. Backpacks can be divided into what two categories?

Q2. Name and describe the ABC’s to packing.

Q3. What should be loosened prior to donning the backpack?

Q4. When the backpack is harnessed and on the back, what should one ensure is tucked in?

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ANTICIPATED ANSWERS:

A1. External and Internal frame.

A2. **A**ccessibility, **B**alance, **C**ompactness.

A3. Unlatch hip belt and loosen both shoulder straps.

A4. All loose belts or strap ends are tucked in.

CONCLUSION

HOMEWORK/READING/PRACTICE

Task the cadets to prepare their own backpacks prior to a field training exercise. Have the cadets bring in their completely packed backpacks for inspection prior to the exercise.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

The cadets can now to go into the field and carry their equipment and gear safely and effectively.

INSTRUCTOR NOTES / REMARKS

This lesson should be delivered prior to the bivouaxc FTX.

Cadets' backpacks should be verified for proper packing during the FTX.

Cadets should transport their personal equipment during the FTX.

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