

COMPREHENSIVE ARES/RACES RECOMMENDED PERSONAL EQUIPMENT CHECKLIST

[Modified from a list devised by K7AAE, first published in Nov 1994; edited by WB9RQR]

This list represents just about every item an operator may need to have available when deployed for emergency and public service activities. This is only a comprehensive recommendation. The operator must judge their own needs and take whatever is appropriate for those needs.

1. ARES/RACES and any local or state government ID cards.
2. FCC Amateur Radio License.
3. Radio Gear
 - a. Radios: HF, VHF, UHF. mobile, handheld
 - b. Microphones
 - c. Headphones
 - d. Power Supplys
 - e. Batterys
 - f. Antennas w/mounts
 - g. Spare fuses
 - h. Coax patch cables
 - i. Adapters. N, BNC, PL-259, SO-239
 - j. SWR bridges, HF, VHF, UHF
 - k. Extra coax
4. Writing Gear
 - a. Pens, pencils and paper
 - b. Clipboard
 - c. Message forms
 - d. Log book
 - e. Note paper
5. Personal Gear (Short Duration)
 - a. Snacks
 - b. Water (liquid refreshments)
 - c. Throat lozenges
 - d. Personal prescriptions
 - e. Aspirin
 - f. Extra prescription glasses
 - g. Flashlight w/ batteries
 - h. First aid kit
6. Personal Gear (72 hour duration)
 - a. Everything in #5, for 72 hours
 - b. Sleeping bag, blanket
 - c. Cooler w/ 72 Hour supply of food
 - d. Mess kit, eating utensils
 - e. Toilet articles
 - f. Mechanical alarm clock
 - g. Lantern
 - h. Waterproof matches
 - i. Candles.
7. Tool Box (72 hour duration)
 - a. Screwdrivers, std and Phillips
 - b. Pliers, lineman and long nose
 - c. Wrenches, adjustable and socket
 - d. Insulating tape
 - e. Soldering iron, 12/120 volt
 - f. Solder
 - g. Volt-Ohm Meter

8. Other (72 Hour Duration)
 - a. Hatchet/axe
 - b. Saw
 - c. Pick
 - d. Shovel
 - e. Siphon
 - f. Jumper cables
 - g. Highway flares
 - h. Extra gas and oil

OTHER ITEMS THAT MAY BE REQUIRED

- A. Generator
- B. Antenna mast
- C. Antenna rotor
- D. Snow chains
- E. Rope
- F. Chain saw
- G. Four wheel drive
- H. Maps
- I. Equipment manuals

EQUIPMENT, CLOTHING, AND FOOD

Introduction: The equipment, clothing, and food that each person in Explorer Search And Rescue is required to have is based upon experience and common sense. Generally this equipment can be purchased in any number of places. The largest proportion of equipment and clothing that you will need can be purchased in surplus stores or second hand establishments. All equipment should be marked with your name.

EQUIPMENT:

Two packs are recommended for search and rescue operations. One is the 24 hr pack. It is carried during a single day search operation but has sufficient clothing, food, and equipment to bivouac if necessary. The required pack is the 48 hr pack. It contains the 24 hr pack plus the remainder of the gear necessary to camp out. The combination of the two packs should sustain you for a minimum of two days. They are divided as follows and represent minimum requirements.

24 Hour Pack: The pack itself should be a large rucksack that can fit into or on the 48 hour pack.

1. Compass: The Silva Ranger Model 15 is very good. Tie the compass lanyard to your shirt or put it around your neck.
2. Navigation kit: Pencils, notepaper, 360 degree protractor ruler, UMS ruler, map and a waterproof marking pen.
3. Head lamp or standard flashlight. Note: put cardboard between the batteries to keep the light from going on accidentally inside the pack.
4. Extra batteries and bulb.
5. Pocket knife. Carry it in your pocket with a lanyard tied to a belt loop.
6. Nylon line: 50 ft of 500 lb nylon line:
7. Grid ribbon. One roll of plastic grid ribbon (brightly colored).
8. Water containers: 2 quart minimum; in hotter areas considerably more may be necessary. Note: (See Desert Search section)
9. Food, enough for 4 meals, no cooking required.
10. Toilet paper, wrapped in plastic.
11. Fire kit. Candle stubs or fire starters, waterproof matches. Note: dip wood matches in fingernail polish or wax)
12. Emergency Kit (a list of the contents is found later in this document)
13. First aid kit. Contents based on level of first aid training. A list of personal kit contents is found later in this document.
14. Shelter: 9'x12', 6-mil polyethylene or 3-oz nylon tarp. Tarps are more popular than tents because of weight, cost, and versatility.

15. Clothing: The following items would either be worn or carried in the 24 hr pack. In colder or wet climates, all clothing must be wool or have similar properties.

- a. pants
- b. shirt
- c. jacket or sweater
- d. hat
- e. socks (two pairs)
- f. gloves or mittens
- g. rain gear (rubberized nylon)
- h. long underwear (not cotton)
- i. wool stocking cap or balaclava
- j. extra wool shirt or sweater.

Clothing items carried in the pack should be inside waterproof bags. Additional equipment may be required by your unit. Most knapsacks are too small to serve as a 24 hr pack. A large one may be adequate.

Optional (depending upon conditions): Leather gloves, gaiters, hand warmers, sunglasses, sunscreen, insect repellent, snake bite kit, hard hat, broad brimmed hat, additional water bottles.

The 24 hr pack represents the minimum equipment needs of any searcher. A common error is for beginners to carry less than the above: This is a mistake. A search operation is no time for a person to slow down his team because of an equipment deficiency. The 24 hour pack must contain enough gear to provide adequately for the searcher, to provide emergency bivouac capability, and still have enough left over to care for the lost subject or an injured team member. This is considerably more equipment than carried by the average recreational hiker on a day hike. The 24 hr pack is minimum gear for the field. You are not to leave base with anything less, and you are to never allow your pack to get separated from you while in the field. In a search and rescue context, the 24 hr pack does not contain a survival kit - it is a survival kit. The 48 hr pack should be a large internal or external frame with pack.

16 Emergency kit:

- Whistle
- 4 safety pins
- Single edge safety razor
- 3 packages, 10 matches each, waterproof (emergency supply)
- 2" candle stub (emergency fire starter)
- 2 large, heavy duty garbage bags (emergency shelter)
- Emergency sun glasses
- Signal mirror (could use compass mirror)
- Water treatment system

48 Hour pack: 24 hr pack items plus the following:

- 17. Sleeping bag: Pack it inside a tough outer bag (protection from brush) and a plastic inner bag (protection from water).
- 18. Shelter: 9' x 12', 6-mil polyethylene or 3-oz nylon tarp. Tarps are more popular than tents because of weight, cost, and versatility.

19. Personal First Aid Kit:

ITEM	QUANTITY	USE
Aspirin	12 tablets, 5 grains	Pain: 1 or 2 every 4 hours
Antacid (Rolaids®, Tums®)	1 roll	Indigestion or heartburn
Band-Aids	12 ea, one inch	Lacerations
Moleskin	1/2 package	Blisters
Needle	1 ea medium size	Removal of splinters, etc
Antibacterial soap or Tincture of Zepherin	1 oz bottle (plastic)	Mild antiseptic for abrasions, cuts, etc
Roller Gauze	2 rolls, 2" x 5 yards	Holding gauze in place
Safety Pins	3 ea (1 large)	Mending seat-less pants
Steri-pad gauze	4 ea, 4" x 4"	Larger wounds
Tape, non waterproof	1 ea, 2" roll	Sprains, securing dressings, etc
Triangular bandage	1 ea	Supporting arm, protecting dressings from contamination
Elastic bandage	1 ea, 3"	Securing dressings in place.
Tweezers	1 ea	Removal of splinters, etc.

The table above is a suggested list for the minimum that you should carry. You should add whatever you feel is necessary depending on your level of training.

20. Insulating sleeping pad, closed cell foam. Should be full length in winter.

21. Ground cloth:

22. Mess kit: A spoon, metal cup, and pan are sufficient.

23. Extra clothing: Wool socks, under clothing (wrapped in plastic).

24. Stove: Small butane or white gas models are usually best.

25. Extra fuel:

26. Food: Minimum for 3 hot meals

CLOTHING

You must use your judgment on the type and amount of clothing you will carry depending on condition of the search area. Some wilderness areas are likely to be very wet and cold. Others may be quite hot. If you are not properly clothed your service to the team will be limited. The following are the recommended types of clothing to be worn.

Wool clothing provides more insulation when wet than other fibers. For this reason, wool is the basic outer clothing requirement for Explorer Search And Rescue.

Underclothing: Wool, a blend of wool, or polypropylene are good.

Pants: Wool, military surplus is good.

Socks: At least one and usually two pairs of wool or polypropylene socks should be worn during summer and winter.

Shirts and Sweaters: Lightweight wool shirts or sweaters are recommended for both summer and winter. Several thin layers are preferable to one thick layer of clothing. Light shirts and sweaters can be put on or taken off to regulate temperature, while this cannot be done with a single heavy garment.

Jackets or Parkas:

Jackets should be lightweight and somewhat water resistant. A ski parka makes a good wind break and will keep you dry for a limited period of time. A hood and long body (extends well below the waist) are desirable.

Raingear: Rubberized nylon parka (with hood) and rain pants are extremely important. Though sometimes expensive, the heavier (very rip resistant) rubberized suits will return their value to the wearer. They make the difference between miserable suffering and relative comfort during long, wet searches. A bright color is recommended. Ponchos are not recommended in wooded and brushy areas. They don't keep the legs dry, tend to blow in the wind, often catch on brush, and are easy to step on when crouching down. Ponchos have caused mountaineering accidents.

Boots: A good lug-soled leather boot that covers the ankle is usually best. Boots should be treated with a good waterproofing that is compatible with its tanning oil base or silicone. Lug-soled boots provide better traction in virtually all kinds of terrain.

Hat: Almost any hat or combination that covers the ears and protects from wind and rain is desirable. A wool stocking cap under a rain parka hood is an example. A hard hat gives protection from falling objects and adds an aspect of uniform appearance if worn by all team members. Wool liners that provide warmth underneath a hard hat are available.

Gloves: Leather gloves supply useful protection when going through thick brush or carrying a litter.

Wool gloves: Wool gloves or mittens are a must in winter. They are especially good under a windproof and waterproof outer mitten.

Sleeping bag: Polyester type sleeping bags are the only kind recommended. Sleeping bags with various polyester fillings provide insulation similar to wool and down. These are known by various trade names. (Polarguard, Holofil, Quolofil, etc.). They provide excellent heat retention even when wet. Always carry your sleeping bag wrapped in plastic protected by a tough nylon or canvas bag. Down filled bags are not recommended because they are useless when wet. Note that your sleeping bag should be rated to a minimum low temperature suitable to your area.

HELPFUL HINTS:

During wet weather operations, an extra set of clothing left in a car in base camp will assure a warmer and more comfortable trip home. This also tends to reduce the chance of catching cold.

Wool clothing is best for search work under cool, wet, or hot desert conditions. During dry warm weather, other materials may be used. The fabric used should be tough enough to protect the wearer from brush, dust, sun, etc. Such clothing should not constrict at the ankles, waist, neck, or wrists, for this is important to help maintain good circulation. In sunny climates, care must be given to preventing sunburn. A bandana worn around the head or a large-brimmed hat will protect the neck from the sun.

Recently, polypropylene has been introduced in a variety of garments, particularly underwear. This material provides a greater sensation of warmth because it wicks moisture away from the skin to the surface of the fabric, where the moisture evaporates without cooling the skin. This material retains most of its insulating properties when wet. In recent years, this material has gained wide acceptance in search and rescue. Another new material is known by the trade name of "Gortex." This man-made fabric breathes, allowing moisture to pass one way while preventing it from returning. It is usually combined with other materials such as nylon or leather. It is also being used in boot construction. This not only makes the boots much lighter, but waterproof as well. Its main disadvantage is its poor abrasion resistance. "Gortex" is not recommended because it is expensive and leaks when it becomes dirty.

WILDERNESS EATING

The amount and kind of food that a searcher carries is important. There must be enough good food to maintain energy. At the same time, the foods carried should present no unnecessary weight.

Suggested menus: The following are a few sample menus. There are many more which are quite usable.

(See "Desert Search" section for suggested menus under hot weather conditions.)

Breakfast Number 1	Oatmeal, raisins, brown sugar, cocoa.
Breakfast Number 2	Granola, sugar, dried fruit, hot Jell-O.
Lunch Number 1	Wheat crackers, cheese, processed meat, orange drink, hard candy.
Lunch Number 2	Kippered herring, rye-krisp, dried fruit, lemonade, gorp.
Dinner Number 1	Soup, French bread, Vienna sausage, candy bar, tea.
Dinner Number 2	Beef stew, (dehydrated pkg.) wheat crackers, pudding, tea.

Types of Food:

Cereal: Oatmeal, Cream of Wheat, Granola, etc.

Dried Fruit: Prunes, peaches, apricots, apples, dates, figs.

Soup: Dehydrated packages.

Cheese: Brick or sliced.

Candy: Hard candy, chocolate.

Pudding: Instant

French Bread: Soft bread with hard crust (doesn't crumble in pack).

Meat or fish: Beef jerky, tins of turkey, chicken, beef, sardines, or kippered herring.

Salt: Miniature size container.

Rice: Instant.

Dehydrated or freeze-dried meals: Though expensive, these meals are of good quality. Avoid those that require considerable cooking in preference to those that require only hot water. These meals are not desirable under desert conditions. Chex, pretzels, and gum drops. This should be carried in a plastic sack in an accessible portion of your 24-hour pack

Preparation and Eating hints:

Package foods that have a long shelf life without refrigeration. This way you can have your whole pack ready to go without the need for last minute preparation. Those food items not used on one search can be kept until the next operation.

Gorp: Always carry a supply of "gorp". This adds energy and keeps you from getting hungry between meals. Gorp is defined as anything you can nibble on. A gorp mixture of peanuts, raisins, M&M's and Wheat Honey is a quick energy food. It can conveniently be carried in plastic containers.

Wrap all food in plastic bags. This keeps the food dry and makes it easier to prepare. Most of the food items listed can be purchased at a local supermarket. While on search operations, eat small amounts at frequent intervals. This maintains your energy and prevents hunger while, at the same time, minimizing the demand on your digestive system. Always have something hot for dinner and breakfast. But the most important thing is to eat what is convenient to pack and prepare from your own list of foods you like and normally eat. Radical changes in diet may cause stress and illness. Always bring adequate equipment and food. Be prepared for the worst that nature can offer.

WHAT TO HAVE READY TO BRING EQUIPMENT

- Transceivers (Identified with your call)
- Scanner
- Headphones or earphone
- Extra battery packs (charged) or external battery.
- AC power supply and cord
- Battery charger - fast preferred
- Soft coax with connectors (including various adapters)
- Portable antenna (mag mount, Hot Rod, etc.)
- Flashlight, batteries and spare bulbs
- Special adapters for your rig (DOES it have a standard power plug ?)
- Soldering iron, solder, miscellaneous small tools, wire, plugs.
- Steno pad or note book
- ARES MANUAL and this manual.
- Message forms (ARRL Radiogram current version.)
- 50ft 1/8-inch nylon cord
- Spare fuses
- Repeater directory
- Duct and plastic friction tapes

"READY KIT"

The "Ready Kit" was devised so that emergency workers can be ready to report to their emergency assignment with a minimum of lost time. The items in the kit help assure a degree of personal comfort, should you be 'held over' for more than a few days. Just about everything on the list, except your sleeping bag and cot, and operating equipment, can be packed in a small suitcase, or a canvas athletic bag. The total weight will be about 20 pounds, less the gallon of water. Keeping the kit packed and up-to-date is important. First, it enables you to move quickly, and second, your own comfort will be substantially improved if you know the kit contains everything you might need for a couple of days. Non-food contents of the kit are 'minimums', but if you are a good 'Scout' they can sustain you for about 10 days without too much

discomfort. Don't pack much more than shown on the list. The clothing list assumes that you will wash underwear, socks and shirts every second day using "cold water" detergent in the kit. If a washing machine is not available, you can use a 5-gallon bucket, or similar can. If you are "on the move", put clothing in a covered bucket with water and soap. Vehicle movement will agitate. Rinse thoroughly several times to avoid skin irritation from detergent residue.

SPECIAL ITEMS

- * FCC License
- * Disaster Service Worker and/or RACES ID.
- * Credit cards, or cash.
- * Tape recorder (tape messages as they come in)
- * Spare tapes and batteries.
- * A minimum of \$2.00 in pay telephone change
- * Telephone company "calling card"
- * Deck of cards (for "off duty" recreation).
- * Pens and pencils.
- * Maps (Thomas Brothers) and state highway maps.
- * Two each, miniature packets of salt and pepper
- * Two each, fruit (small cans, 'luncheon' type).
- * Instant coffee, tea or cocoa.
- * Ten each, sugar substitute and powdered cream.
- * One gallon water (72 hours).
- * Five instant oatmeal packets.
- * Five granola bars.
- * Two boxes throat lozenges or breath mints, to ease hoarseness
- * Knife, fork and spoon
- * Sierra cup or equal.
- * Stove (Sterno can, Coleman, Roberts, etc)
- * Sleeping Bag.
- * Cot-lightweight
- * Pillow
- * Tent (visqueen tube tents are suitable for a short period of time.

NOTE: If your ARES/RACES assignment is a long way from home, it is likely that you may be "holding over" for more than 24 hours. Be prepared to:

1. Get a motel at YOUR expense.
2. Camp using YOUR gear.
3. Stay in a congregate care shelter (Red Cross or others). Shelters set up by the Red Cross or others are usually crowded and noisy and are NOT conducive to the rest you will need to be effective as a communicator. Shelters DO provide meals. However, you MAY NOT always be able to get to one. That's why the food list is provided.

SUGGESTED MENUS

Food in the kit is enough to sustain you for about a day-and a-half. When cooking, it's a good idea to cook with someone. Food for two can feed three. A single Sierra cup serves as the cooking pot and cup. Here are some meal examples:

Breakfast: Boil water in Sierra cup. Add oatmeal. Top with sugar substitute, powdered cream and a little water. Eat the oatmeal, then fix cocoa or coffee. Have fruit here or at lunch.

Lunch: Boil water in the cup. Add water to instant lunch. Boil second cup of water and make coffee. Granola bar for dessert.

Dinner: Prepare freeze-dried meal, or open a can of stew and heat. Have canned fruit for dessert with a cup of coffee, tea or cocoa. Soup?

CLOTHING

- Boots for work periods, tennis shoes for off-duty.
- Jacket (the weather changes quickly)
- Nylon (no nylon on fire assignments; use wool instead) windbreaker or light sweater.
- Underwear (2 changes)
- Socks (2 changes)
- Hat
- Long sleeve shirt plus one on your back
- Rainwear (a lightweight poncho works great!)
- Pants (shorts are usually not recommended)
- Handkerchiefs (2)

PERSONAL ITEMS

- Deodorant - high priority
- Toothbrush and toothpaste or denture cream
- Medicines (Vitamin pack) etc.
- Glasses (reading and dark)
- Aspirin and antacids
- Sunscreen
- Comb or brush
- Camera and film
- Razor and shave cream (or electric)
- Deodorant soap
- Small bag or box of 'cold water' laundry soap.
- Towel and washcloth.
- Travel alarm.
- Pocketknife.
- Flashlight and spare batteries and bulb.
- Roll of toilet paper in a ziplock bag.
- First Aid Kit (in vehicle?).
- Ear plugs, to allow you to sleep in a shelter.
- Eye-covering mask, to allow you to sleep in a shelter.

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