

VIRGINIA WING, CIVIL AIR PATROL August 1977
Ad Hoc Committee on Ground Search and Rescue
Standards of Competence for Ground Team Members:

INTRODUCTION

1. The Ad Hoc Committee on Ground Search and Rescue

The Committee was formed in late 1976 as a group of CAP members within Virginia Wing interested in Ground Search and Rescue (GSAR). The Committee has as its main purpose the enhancement of GSAR in Virginia Wing. In an attempt to bring the need for better GSAR capabilities to the attention of the members of CAP, the Committee sponsored GSAR seminars at the past Virginia Wing and Middle East Region Conferences. Through the comments voiced at these seminars and at other CAP functions, and with assistance from experts within and outside CAP, the Committee has made an evaluation of the Wing's GSAR needs. In order to help meet these needs, a program of standards for Ground Teams and Ground Team Members is being formulated.

2. The Program in Outline

As is presently conceived, the complete program will have four qualification levels for members and three levels for teams. Level I certification requires the minimum knowledge expected of a member who is qualified to serve as a member of a Class "C" (Interrogation) Team.

Level II certified members have the minimum required to be a member of a Class "B" (Search) Team. A Level II member is expected to be able to serve as a team member doing search tasks under all but severe conditions of weather or terrain (e.g. deep winter in the mountains in the western part of the state). This necessarily includes the ability to handle situations the member may encounter if separated from his team in a wild area. Also, the Level II member is qualified as a member of an evacuation (rescue) team handling evacuations of difficulty up to and including that termed "semi-technical".

The Level III member possesses the minimum qualifications necessary to be the leader of a Class "B" (Search) Team, or to be a member of a Class "A" (Rescue) Team. He must be able to lead a team in any of the tasks described above for Level II members. This requires a greater depth and breadth of GSAR skill and knowledge; for instance, the Level III member must be able to understand search strategy, evacuation route planning, and must be able to administer advanced first aid and emergency care confidently. The most important qualification of the Level III member is experience; both experience in different types of GSAR missions, and experience on foot in a wilderness environment. The Level III member must have this experience in order to be able to ensure the safety of any teams under his leadership, and so he may participate in very demanding tasks with a Class "A" Team without being a detriment.

The Level IV member must possess exceptional leadership ability and have had extensive training in outdoor leadership, ground search strategy and tactics, emergency care, and mountain rescue. A member with Level IV certification is qualified to be a Ground Operations Officer during a downed plane search, a Mission Staff officer during a lost person search, and as a leader of a Class "A" (Rescue) Team.

The classes of teams are as mentioned above:

<u>Team Class</u>	<u>Minimum Member Qualification</u>	<u>Minimum Leader Qualification</u>
"A"	Level III	Level IV
"B"	Level II	Level III
"C"	Level I	-----

A Class "A" Team is one capable of performing search tasks under any conditions normally found in this geographic region, and which is capable of competently handling straightforward wilderness rescue and evacuation tasks (i.e. those not requiring the services of a specialized unit such as a mountain rescue team, cave rescue team, etc.). A Class "B" Team is capable of carrying out search tasks under most conditions (i.e. except extremely rough terrain or severe weather) and can, if necessary, perform a simple evacuation by itself. A Class "C" Team consists of two or more Level I members in a vehicle, usually with a radio, and performs interrogation tasks only. A Class "C" Team is not qualified to operate in the field (away from their vehicle) under any circumstances, unless the members possess higher qualifications. For ease in reference, a Class "A" team may be referred to as a Rescue Team, a Class "B" Team as a Search Team, and a Class "C" Team as an Interrogation Team, based on their expected primary duties. To become certified as having a certain class of team, a unit must meet certain requirements as far as number of qualified personnel, equipment, and team competence.

3. Present Status of the Program

The Committee is presently conducting an annual GSAR College for Virginia Wing. This four-day training camp is designed to provide training which will cover all of the material included in the standards of competence for Level I and Level II. At the College, testing for certification for Level II will be conducted (certification at any level will include certification for all lower levels). Also, for those who are unable to meet the standards completely at the College, and for those who can demonstrate that they should be considered for such testing, certification examinations will be scheduled at various times throughout the year. All testing for Level II (and for Levels III&IV when available) will be conducted by a special testing staff in accordance with the established standards. Supervision will be provided by the Appalachian Search and Rescue Conference, Inc., an independent ground search and rescue organization. (The ASRC is regarded as an authority in the field of ground search and rescue.) Testing for Level I will be administered

at the unit level by the unit Testing Officer using materials provided by the Committee.

At the present time, standards for Levels I & II have been completed and may be found in the following pages. The Committee is now actively engaged in formulating standards for Levels III & IV and for the different classes of teams. Any suggestions will be welcomed and should be sent to:

Ad Hoc Committee on Ground Search and Rescue
Virginia Wing, CAP
P. O. Box 237
Sandston, VA 23150

It should be noted that, at the present, compliance with the Committee standards is voluntary; however, it is the hope of the Committee that these standards will become Wing policy in the very near future.

4. Acknowledgement

The Ad Hoc Committee on Ground Search and Rescue acknowledge its indebtedness to the members and Groups of the Appalachian Search and Rescue Conference; without their assistance this work would not have been possible. Large portions of the standards are drawn from ASRC training materials.

Standards of Competence for Ground Team Members:

LEVEL I

I. GENERAL KNOWLEDGE

A. Operations

1. Outline the standard CAP Mission Staff organization.¹
2. Describe the duties and responsibilities of the Ground Operations Staff.²
3. Explain the restrictions placed on a Level I ground team member as regards ground search and rescue.^{3,4}

B. Legal Aspects

1. Describe the authority and responsibility of the CAP for SAR missions.⁵
2. List the actions expected of a ground team during a downed-plane search, and those which are forbidden.⁶
3. Recall the provisions of the Virginia Good Samaritan Law.⁷

C. Search Tactics⁵⁰

1. Describe the purpose of interrogation search.
2. Demonstrate proper questioning technique.
3. Describe how to select a pattern for an interrogation search of an assigned grid.
4. List 6 possible visual clues to a plane crash site.
5. Explain the purpose of containment during a lost person search.
6. Demonstrate proper information recording and reporting procedures.

II. REQUIREMENTS

- A. Complete Part I of the E.S. Questionnaire.
- B. Possess a valid driver's license if eligible to drive CAP vehicles.
- C. Possess a CAP Radio Operator's Permit.

VIRGINIA WING, CIVIL AIR PATROL
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Aug. 1977

LEVEL II

I. GENERAL KNOWLEDGE

A. Operations

1. Outline the standard CAP Mission Staff organization.¹
2. Describe the duties and responsibilities of the Ground Operations Staff.²
3. Describe the relationship of the CAP, USAF, Appalachian Search and Rescue Conference, ^{COUNTY SHERIFF,} and rescue squads during a Search and Rescue (SAR) mission.³
4. Describe the major types of CAP missions, and the ground team member's role in each.⁴

B. Legal Aspects

1. Describe the authority and responsibility of the CAP for SAR missions.⁵
2. List the actions expected of a ground team during a downed-plane search, and those which are forbidden.⁶
3. Recall the provisions of the Virginia Good Samaritan Law.⁷

C. Radiological Monitoring and Decontamination

1. Briefly describe the effects of nuclear weapons.⁸
2. Briefly describe proper methods of protection from nuclear weapon effects.⁹
3. Describe the principles of decontamination of personnel, vehicles, and aircraft.¹⁰

D. Extrication and Firefighting

1. Describe the different classes of fire and their characteristics.¹¹
2. Describe the different classes of fire extinguishers, their use, care and maintenance.¹²
3. Describe the common fire dangers in aircraft and vehicles.¹³
4. List and describe the phases of extrication.¹⁴
5. List and describe the basic forcible entry tools and procedures applicable to aircraft extrication in the field.¹⁵

E. Field Communications

1. Describe the characteristics and uses of the following signaling devices:¹⁶
 - a. flares
 - b. smoke
 - c. mirrors
 - d. panels and paulins
 - e. ground-to-air body signals
2. Describe standard field radio use procedures.¹⁷

F. Helicopter Operations

1. Describe the dangers to ground personnel associated with helicopters, and standard procedures for working with helicopters.¹⁸
2. Describe the dangers of hoist operations.¹⁹
3. Describe the proper procedures for selecting and preparing a helispot.²⁰

II. SURVIVAL AND WILDERNESS TRAVEL

- A. Describe the basic regulatory mechanisms, processes, and ranges of tolerance of the human body pertinent to short term survival and wilderness travel.
Important concepts include:
1. Homeostatic (self-equalizing) mechanisms²⁰
 2. Energy level and fatigue²¹
 3. Water supply and dehydration²²
 4. Nutritional needs and digestion, including seasonal variation²³
 5. The "energy budget" concept of the human body as related to temperature (including windchill and wetchill)²⁴
 6. The effects and dangers of alcohol, tobacco, aspirin, and carbon monoxide²⁵
 7. Proper goals and methods for conditioning²⁶
- B. Describe the causes, signs and symptoms, and treatment for the following environmental diseases:
1. Hypothermia²⁷
 2. Frostbite (including contact frostbite)²⁸
 3. Trench foot (immersion foot)²⁹
 4. Heatstroke³⁰
 5. Heat exhaustion³¹
 6. Heat cramps³²
 7. Dehydration³³
- C. List the four major environmental stresses (heat, cold, wind, and wetness), describe the dangers associated with them, and describe the uses of clothing in coping with them. Important concepts include:
1. Materials (wool, cotton, down, synthetics; waterproof versus non-waterproof)
 2. Loft
 3. Wind and water protection
 4. Ventilation
 5. Layering
 6. Fit
 7. Fastenings and connections
 8. Cleanliness
- D. Demonstrate knowledge of the selection, use, and care^{34,35} of the following:
1. Boots
 2. Packs
 3. Sleeping bags
 4. Flashlights, batteries, and bulbs
 5. Hardhats
- E. Demonstrate the ability to travel on foot in the³⁶ Middle Atlantic region. In particular, demonstrate the proper techniques for:
1. Crossing streams
 2. Bushwhacking
- and demonstrate an understanding of:
3. Pace, efficiency and the proper use of rest stops
 4. The recognition and treatment of muscle cramps

(II)

- F. Demonstrate the ability to improvise, especially in respect to constructing overnight shelters and building fires using local materials. ^{38,39}
- G. Describe the psychological ⁴⁰ and emotional factors that affect survival ability.

III. LAND NAVIGATION

- A. Demonstrate the ability to determine direction quickly, accurately, and reliably using a compass. ⁴¹
- B. Demonstrate the ability to interpret topographic maps, read information from them, and identify and explain the following: ^{42,43}
 - 1. Colors
 - 2. Symbols
 - 3. Contour lines
 - 4. All border information
 - 5. Grids and coordinate systems including:
 - a. Latitude and longitude
 - b. The USGS quadrangle system
 - c. The aeronautical SAR grid system ⁴⁴
- C. Describe the significance and use of: ⁴⁴
 - 1. Northing lines
 - 2. Declination adjustment
 - 3. Catching features
 - 4. Collecting features
 - 5. Attack points
 - 6. Aiming off
- D. Plot and follow the fastest, most direct, and least ⁴⁵ energy consuming routes between two points on a topographic map.
- E. Demonstrate the ability to estimate distance by pacing ^{46,47} and by the use of collecting features.
- F. Successfully run a basic level point-to-point Orienteering course. ⁴⁸

IV. SEARCH

- A. Describe, in outline, lost person search strategy ⁴⁹
- B. Demonstrate the ability to participate as a team member ⁵⁰ in the following types of search tasks:
 - 1. Scratch (including proper clue marking and reporting)
 - 2. Survey
 - 3. Sweep
 - 4. Line (including calls and boundary marking)
 - 5. Containment
 - 6. Interrogation
 - 7. Visual
 - 8. Electronic
- C. Describe the standard procedures for working in coordination with:
 - 1. Search dogs and tracking dogs ⁵¹
 - 2. Trackers ⁵²

V. WILDERNESS RESCUE⁵³

- A. Demonstrate the ability to reliably produce, correctly tied, contoured, and backed up, the following knots:
 - 1. Bowline
 - 2. Bowline-on-a-coil
 - 3. Figure-8 loop
 - 4. Water knot (overhand bend)
 - 5. Prusik knot
 - 6. Square knot
 - 7. ASRC seat harness
- B. Demonstrate the following rope handling techniques:
 - 1. Coiling and uncoiling
 - a. Mountaineer's coil
 - b. Lap coil
 - c. Speed coil
 - 2. Stacking
 - 3. Inspecting and testing
 - 4. Padding
 - 5. Throwing
 - 6. Rigging to an anchor with bowline and with runners
- C. Describe the proper care of ropes and hardware.
- D. Demonstrate proper belaying techniques. Important points are:
 - 1. Anchorage
 - 2. Tie-in
 - 3. Stance (both sitting and standing hip belay)
 - 4. Aim
 - 5. Procedures for up-rope, slack, and catching a fall
 - 6. Standard calls
- E. Demonstrate the ability to use the following braking methods:
 - 1. Tree-wrap
 - 2. Figure-8
- F. Demonstrate the proper procedure for a multiple-pitch, semi-technical evacuation, including the following points:
 - 1. Rigging the stokes litter and the D-ring stretcher
 - 2. Loading the litter
 - 3. Lifting, lowering, and carrying the litter
 - 4. Rotation of litter bearers
 - 5. Laddering, including toenailing
 - 6. Serving as a rope team member using tree-wrap belays, mechanical belays, and the brute-force hauling system
 - 7. Serving as litter captain
- G. Demonstrate the use of the following improvised evacuation methods:
 - 1. 2-man linked-arms chair carry
 - 2. 2-man packstrap-and-pole chair carry
 - 3. Piggyback carries:
 - a. Split coil
 - b. Sling
 - 4. Improvised stretchers:
 - a. Poles and blanket
 - b. Poles and blanket
 - c. Poles and rope

REFERENCES

- (GS) Ad Hoc Committee on Ground Search and Rescue, Virginia Wing, Civil Air Patrol. Ground Search and Rescue College Supplement. 1st ed. Charlottesville, Va.: Monticello Composite Squadron, CAP, 1977.
- (MR) Appalachian Search and Rescue Conference, Inc. ASRC Mountain Rescue Manual. 1st ed. Alexandria, Va.: ASRC, 1977.
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- (ES) Civil Air Patrol. CAP Manual 50-15: Emergency Services. Maxwell AFB, Alabama: National Headquarters, CAP, 1972.
- (OL) Tacoma Mountain Rescue Unit. Outdoor Living: Problems--Solutions--Guidelines. Tacoma, Wash.: TMRU, no date.
- (TM) U.S. Geological Survey. Topographic Maps. Washington, D.C.: USGS, 1969.

1	ES p. 2-2	28	OL G"
2	ES Attachment 2	29	GS 7.2
3	GS Section 2.1	30	OL H
4	GS 2.2	31	OL H
5	GS 2.3	32	OL H
6	ES p. 5-2, 5-3	33	OL H
7	GS 2.4	34	OL G
8	GS 3.1	35	GS 7.3
9	GS 3.2	36	GS 7.4
10	GS 3.3	37	GS 7.5
11	GS 4.1	38	OL G
12	GS 4.2	39	GS 7.6
13	GS 4.3	40	GS 7.7
14	GS 4.4	41	OL Appendix VI
15	GS 4.5	42	TM
16	GS 5.1	43	ES Attachment 10
17	GS 5.2	44	GS 8.1
18	GS 6.1	45	GS 8.2
19	GS 6.2	46	GS 8.1
20	GS 6.3	47	OL Appendix VI
21	OL Chapter F	48	GS 8.2
22	OL F	49	GS 9.1
23	OL F	50	ST
24	OL F	51	GS 9.2
25	GS 7.1	52	GS 9.3
26	OL F	53	MR
27	OL I	54	ES p. A3-4

Ad Hoc Committee on Ground Search and Rescue

Standards of Competence for Level III Ground Team Members--second draft

I. Base Management

A. Training

1. Outline a workable continuing education program for a squadron ground team.
2. List and briefly describe the basic principles of learning.
3. List at least three non-CAP resources for ground team training at the squadron level.

B. Equipment

1. Given a list of summer and winter personal gear for Level II ground team members, provide a rationale for each item.
2. Outline a program for personal and team equipment evaluation and maintenance for a class B team.
3. Outline team equipment needs, including packaging and disposition requirements, for class A, B, and C teams.

C. Recruiting

1. List the personal attributes and experience necessary for a good ground team member.
2. Explain the problems of personnel turnover, and suggest several ways to cope with these problems.

D. Organization

1. List the positions to be filled in any class A or B team, and provide a brief resumé of the duties and responsibilities of each position.
2. Outline two types of acceptable alerting plans.

II. Field Management

A. Search

1. Outline standard search strategy for:
 - a. Downed aircraft,
 - b. Lost person (wilderness), and
 - c. Lost person (urban) searches.
2. List and define the types of ground search tactics, and provide information as to their proper use, including personnel requirements for each.
3. List and describe the ways of using air cover (both fixed and rotor wing) in coordination with ground search, and provide information as to the dangers, restrictions, and special techniques applicable for each.

B. Rescue

1. List and explain the sequence of actions to be taken upon entering the scene of an aircraft crash.
2. Explain the applicability of these actions and priorities to the case of a body found during a lost person search.
3. List the various evacuation modes available to a ground team, and explain the advantages, disadvantages, and special requirements of each.
4. Outline the standard procedures for backcountry helicopter evacuations, including safety precautions.

III. Personnel Management

- A. List the steps in problem solving, and demonstrate their application, given a specific problem.
- B. Give a possible good management approach to the following problems:
 1. You are the leader of a class B team. Your team consists of four Level II certified members, only two of whom are from the same team. You are faced with a difficult semi-technical evacuation.
 2. One member of your team, who happens not to be in a leadership position at the present time, has a history of being "bossy". This is often a cause for resentment among the other members. You must split the team in two for a search task.
 3. Your team has been out on a difficult lost person search task, and the team is quite tired. Two members have a history of personality clashes, and are now vigorously fighting about the burden of carrying the trauma kit.
 4. Two of your team members have a history of not attending training sessions, although they are both experienced. During a simulated rescue, one of them starts directing the litter team to use a different type of braking technique from that taught in the training sessions. The rope team is having difficulty with the new system, as none of them are familiar with it.
 5. You are in the mountains in winter with a team consisting of 5 cadets, none of whom are certified. You have taken your team into the woods to investigate a possible sighting. One cadet has fallen into a stream, suffering a closed tibia/fibula fracture in the process of falling in. It is 4 km to the vehicle via trail. The cadets have as personal gear cotton fatigues with cotton thermal underwear, field jackets, and canteens; you have your standard rucksack gear and a VHF-FM handheld radio and can talk to Mission base on it. The air temperature is 7°C, and it is beginning to rain.
 6. A member of a local rescue squad is going along with your team to the crash site to assist in first aid. The terrain is quite rough, and the crash site is 2 km to the crash site from the road. Your team has no Stokes litter, but you do have a D-ring stretcher. An ASRC rescue team will be at the roadhead in $\frac{1}{2}$ hour. You find one victim alive; his vital signs are stable, but he has a pelvis fracture and a femur shaft fracture. The rescue squadsmen tells you to begin evacuation immediately using the army stretcher. Both the rescue squad member and yourself have EMT certification.
 7. Your team has been out on lost person search tasks in bad weather for two days. No clues have been found, and your team members want to go home. The MC says that he still needs your team.
- C. List the major factors contributing to interorganizational cooperation.
- D. Give standard procedures for working with other ground SAR organizations.

IV. Skills

- A Level III certified member must:
- A. Meet all Level II standards.
 - B. Be a senior member 21 years of age or older with a valid driver's license.
 - C. Have a current American National Red Cross Advanced First Aid and Emergency Care certificate, or, preferably, current State or National Registry Emergency Medical Technician (EMT) certification.
 - D. Have current certification as a Radiological Monitor.

- D. Demonstrate the ability to travel cross-country on foot through a Va. or W.Va. wilderness area in deep winter conditions, navigating by map and compass; and to bivouac overnight with standard gear, all without impairing the ability to carry out SAR tasks the next day.
- E. Demonstrate the ability to lead a team in any of the following types of search tactics: Hasty, Scratch, Survey, Sweep, Line, ELT-df, Visual, Interrogation, and Locale.
- F. Demonstrate the ability to use standard class B team tools and standard protocol in the extrication of severely injured patients from light planes.
- G. Demonstrate the ability to properly supervise triage and treatment of the victims of a multiple-victim accident.
- H. Demonstrate the ability to:
 - 1. handle ropes and technical gear properly as per Level II standards.
 - 2. properly tie the following knots, and give information as to strength, security, jamming, uses, dangers, and special considerations: square knot, overhand knot and bend, figure 8 knot, bend, and loop, barrel knot and bend (double fishermans'), sheet bend and double sheet bend, anchor hitch, bowline, 'double strength' bowline, bowline-on-a-coil, bowline-on-a-bight, three-loop (French) bowline, butterfly knot, and ASRC seat harness.
 - 3. set up a proper belay stance, and belay a climber from above, using proper calls; and be able to tie off a hanging climber and leave the belay stance. The belayer should be able to use a hip belay, a Mnter hitch, and a belay plate.
 - 4. climb 4th class (Sierra Club system).
 - 5. assemble and properly use ascending systems including Texas, Texas 'Y', three-knot, and modified 'death-rig', using prusik knots, Heddon knots, Jumars, or Gibbs ascenders.
 - 6. assemble and rappel properly with: figure 8, double brake bar, six-carabiner brake, carabiner wrap, arm, and body rappels, and belay properly each type of rappel.
 - 7. properly load and tie in to a litter patients with injuries, including: spine injuries, pelvis fractures, leg fractures including ones needing traction, and head injuries.
 - 8. select anchors appropriate for rescue work, and utilize properly the following tie-in methods: tree wrap, girth hitch with sling, doubled sling, bowline with double wrap, and self-equalizing anchor using a bowline on a coil.
 - 9. set up and use properly the following braking methods: double wrap on a figure 8, rappel rack, biner wrap, six-biner brake, carabiner wrap brake, tree wrap brake.
 - 10. rig and tighten a suspension line for a Tyrolean Traverse, and use such a line for the transfer of personnel and the litter.
 - 11. set up and use the following hauling systems: brute force, "Z", and "Z" with a separate hauling line.
 - 12. direct and supervise a litter team in all aspects of a semi-technical evac as described in the ASRC Mountain Rescue Manual.
 - 13. serve as a litter bearer on a vertical evacuation.
- I. Demonstrate proper procedures for radiological decontamination of personnel, vehicles, and aircraft.

VIRGINIA WING, CIVIL AIR PATROL
Ad Hoc Committee on Ground Search and Rescue

Minimum Equipment for Class B Teams--first draft

I. Vehicle

- vehicle sufficient to carry team
- mobile radio for contact with base: HF preferred, VHF repeater/simplex acceptable, 26.620 marginal at best.
- proper equipment for vehicle proper, including: first aid kit, fire extinguisher, flares, jack, spare tire, tool kit, snow chains.

II. Search

- plastic surveyor's tape for marking trails and boundaries
- string for roping off crash sites
- instant-type camera for documentation
- warning signs for crash sites
- paulins for signals
- 2 hand-held radios of 1W output or more, compatible with one of the radios in the vehicle.
- 1 set of county road maps for Va.
- 1 state highway map, gridded
- 1 state aeronautical chart, gridded
- 1 index to topographic maps for Va.
- 1 notebook
- 1 folder with necessary forms
- 1 ELT locator
- (1 pair binoculars optional but highly recommended)

III. Extrication

- 1 24" pry bar
- 1 leaf spring cutting tool
- 1 fiberglass mallet or sledge
- 1 reversible screwdriver or screwdriver set
- 1 pair 12" shears for soft metal
- 1 pair of 6-8" vise-grip pliers
- 4 15 minute flares
- 1 smoke bomb
- (hacksaw, come-along with chain, and extra pry bars optional)

IV. Trauma

- 1-5/4" board splint set
- 20-cravats
- 2-4 1/2" Kerlix roll gauze
- 2-1" Kling roll gauze
- 4-3" Kling roll gauze
- 3-oropharyngeal airways (asstd. sizes)
- 1-ear syringe or other suction device
- 2-8x10" composite dressings
- 1-10x30" multi-trauma dressing
- 2-eye pads
- 2-rolls adhesive tape
- 12-4x4" gauze pads
- 1-sterile burn sheet
- 1-BP cuff
- 1-combination stethoscope

V. Evacuation

- 100' Goldline, Blue Water II or III, or similar rope
- 1 Stokes litter with rigging as per ASRC Mountain Rescue Manual
- 4 locking D carabiners
- 1 Ensolite pad
- 1 sleeping bag, warm, full zip
- 1 helmet
- backboard for Stokes litter
- (3 figure 8s and 3 3M 11mm perlon slings optional but highly desired)

Level II Minimum Personal Equipment--first draft

Summer

- Fatigues, 2 pr.
- wind shell jacket with hood
- raingear (leg protection highly recommended)
- heavy wool shirt or sweater
- wool underwear bottoms
- wool stocking cap, toque, or balaclava
- boots: lug soles highly recommended. to be worn with heavy wool Raggs socks and thin liner socks.
- socks; at least one complete change
- 2 pr. underwear
- 1locking D carabiner
- seat harness (6 meters of 1" tubular climbing webbing)
- tie-in (1.5 meters of 6mm perlon rope)
- hardhat*with non-stretch chin strap (military helmets or helmet liners are not acceptable)
- leather gloves
- rucksack
- canteen or water bottle
- pocket knife
- compass (orienteeing type)
- whistle
- metal cup
- flashlight w/ alkaline batteries and spare batteries and bulbs (headlamp optional but better)
- storm shelter
- sleeping bag

Winter (add)

- leg protection
- another heavy wool shirt or sweater which can be worn simultaneously
- an additional pair of wool bottoms or better, wool pants with wind shell pants
- scarf for neck if no balaclava
- add at least one more change of socks
- wool mittens
- warm sleeping bag