

## TABLE OF CONTENTS

<b>Wearing</b> .....	2
<b>Turning on</b> .....	3
<b>Operating</b>	
Transmit mode .....	4
Search/Receive mode .....	5
<b>Searching for Victims</b>	
The Primary Search.....	6
Direction Inductional Searching .....	8
Secondary Search - Tracing a Signal .....	9
Pinpoint Search - Where to Dig .....	10
Multiple Victims in a Small Area .....	11
Multi-Simple Search Technique.....	12
<b>Battery Check</b> .....	13
Daily Operation Test .....	14
Field Test .....	15
<b>SOS F1ND Technical Specifications</b> .....	16
<b>SOS-SB Technical Specifications</b> .....	18
<b>Features of the SB Beacon</b> .....	20
<b>More Avalanche Info</b> .....	21
<b>If You are Caught in an Avalanche</b> .....	22
<b>If a Companion is Caught</b> .....	23
<b>More Essential Equipment</b> .....	24
<b>Survivor's Club</b> .....	27
<b>Glossary of Terms</b> .....	28

## WEARING

Place the strap with the Bayonet Plug around your neck, or if preferred, around your neck and shoulder. Then insert the bayonet into the case. To lock in place, push inward and turn 90 degrees; the bayonet will lock. You have now turned the beacon on. Adjust the strap to a comfortable position. Firmly place the second strap around your body and connect with the other half of the buckle; adjust.

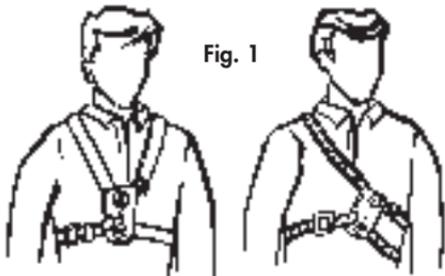


Fig. 1

## CAUTION

Always wear the beacon as shown in Fig. 1, **under your outer clothing**.

**At no time** should your beacon be carried in a pack or pocket.

**Always** check battery condition and the transmit and receive functions before each use.

Always make sure that you are in **transmit mode** before each use.

## TURNING ON

To turn the beacon on, insert the bayonet plug into the corner of the case and lock in place by firmly pushing the bayonet plug inward while turning 90 degrees either way. The battery transmit LED will now begin flashing to indicate the unit is operating.



Fig. 2

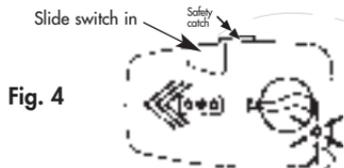


Fig. 3

## OPERATING

There are two operating positions

### TRANSMIT MODE

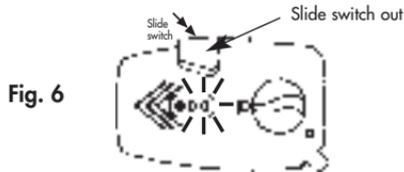


**NORMAL TRANSMIT MODE** (Transmit/Receive switch on the "IN" position.) This is the position of normal operation. The transmit LED indicator (Fig. 4) must flash. The unit is transmitting a signal on 457kHz. The switch must be in this position for you to be found.



Fig. 5

## SEARCH/RECEIVE MODE



**RECEIVE MODE** (Transmit/Receive switch on the "OUT" position.) is used to locate another transmitting beacon. (avalanche victim) Beacon must be turned on, (bayonet inserted). Slide the safety catch back and pull the Slide switch out apx. 3mm.

The pattern emitted by the transmitting beacon dictates the direction searcher must go to locate victims.

See Fig. 7, transmit pattern



Fig. 7

## SEARCHING

There are three search phases:

- Primary search – looking for a signal
- Secondary search – tracking the signal
- Pinpoint search – finalizing dig location

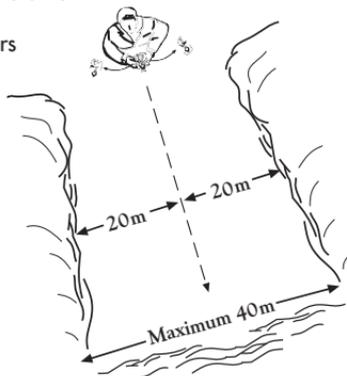
## PRIMARY SEARCH PATTERNS

Objective: cover the avalanche area in a controlled pattern **looking for the first signal**.

Make sure all searchers have switched their beacons to receive, range dial set to start position. Watch for surface clues, these items may still be attached to the victim.

Maximum receiving range is only obtained when the antennas are

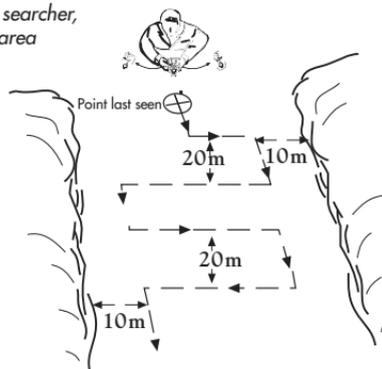
aligned, searchers should continually rotate the beacon around its three axis during the primary search. (from side to side and up and down) Use the pattern that best suits your situation.



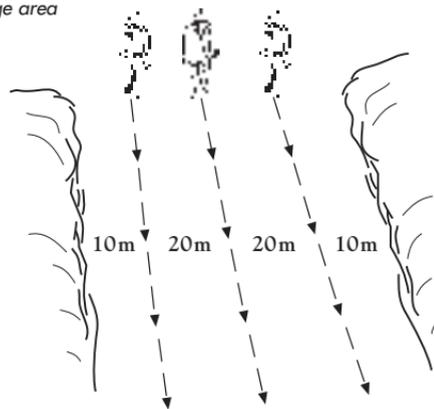
single searcher, small area

## PRIMARY SEARCH PATTERNS

single searcher,  
large area



multiple searchers,  
large area



## DIRECTIONAL INDUCTIONAL SEARCHING

### INITIAL SIGNAL LOCATED

Now that the first signal has been located, the object is to follow the signal to the victim. To do this we must align the beacon on the direction of the strongest signal at all times. Compare Fig. 8 & 9 FROM THIS POINT ON always hold the beacon horizontal with the arrow pointing away from you. Fig. 7.

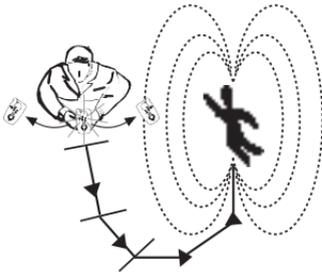


Fig. 8

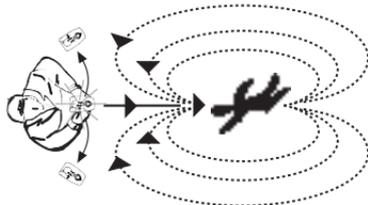


Fig. 9

## SECONDARY SEARCH - TRACKING A SIGNAL

Objective - follow the signal to the victim.

The DSL (Directional Sensing LED) bar graph FIG 12 is supersensitive to signal strength changes. By slowly panning the beacon from side to side, the DSL bar graph will light up showing the search path to the victim.



### SWITCHING TO RECEIVE

**Step 1:** Switch to receive – slide the safety catch back and pull the transmit/receive switch out. Set the range dial to the start position

**Step 2:** Pan the beacon from side to side. Isolate the direction of the most lights, (strongest signal).

**Step 3:** Run/walk the number of paces shown on the range dial.

**Step 4:** When the range LED is illuminated FIG 12, turn the range dial down to the next lower setting. Repeat step 2; remember to adjust travel increments to the corresponding number on the dial.

**Step 5** When a single strong point is isolated, probe and dig.

When beginning the secondary search if the signal becomes weaker rather than stronger, rotate 180 degrees and continue.



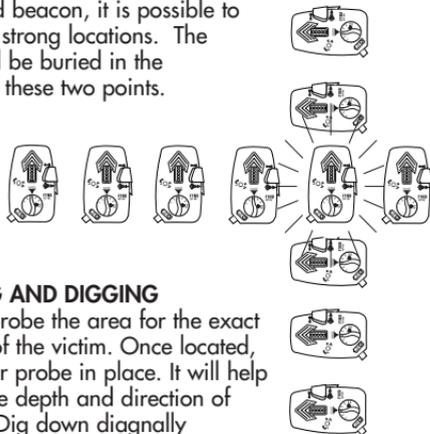
## PINPOINT SEARCH - WHERE TO DIG

Now that you have confined the search to a very small area, you can conduct the pinpoint search. With the transceiver in the lowest possible setting, move it across the snow surface in a straight line and mark the spot where the signal is strongest.

Repeat this procedure 90 degrees to the first line. X will mark the spot to dig.

It helps to draw lines in the snow at each strong point. NOTE: Due to depth of burial and unit performance, the pinpoint search procedure may have to be done in one of the higher ranges.

In some instances, due to orientation of the buried beacon, it is possible to have two strong locations. The victim will be buried in the middle of these two points.



## PROBING AND DIGGING

Quickly probe the area for the exact location of the victim. Once located, leave your probe in place. It will help control the depth and direction of digging. Dig down diagonally toward the victim.

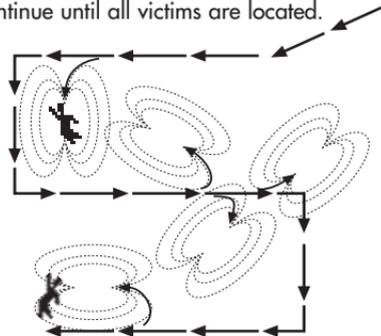
## MULTIPLE VICTIMS IN SMALL AREA

### Method 1:

In the event that there are multiple burials in close proximity, locating the general area can be accomplished quite quickly due to the blending of the multiple signals. Once the area is determined, find the smallest range on the range dial where only one or two signals can be heard.

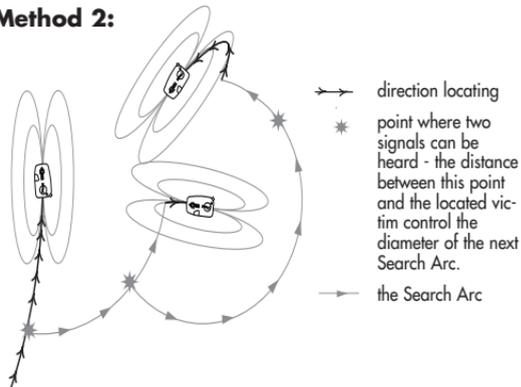
Pan the beacon from side to side while gridding as shown below. Reduce the range as required. When one strong signal is isolated, return to SECONDARY SEARCH, and locate.

With this victim located and position marked, return to the grid pattern as shown below. Pay attention to the signal from the first victim, increasing range as the signal becomes faint. Continue until a second signal is heard; signal from first victim will become fainter as second signal becomes stronger. Return to the secondary search procedure and locate this victim. Continue until all victims are located.



## MULTI-SIMPLE SEARCH TECHNIQUE

### Method 2:



1. Locate the first victim, using the direction of most lights.
2. Backtrack away from first victim until more than one signal can be clearly heard. Increase the range dial setting each time the range indicator LED goes out. The distance between this point and the victim will determine the size of the Arc Search. (It is important that when backtracking away from located victim you increase the range each time the range indicator LED goes out).
3. Once you clearly hear two signals, turn range dial down one position. Begin the Arc Search by walking a circle around located victim. Once another signal is clearly heard, directionally locate this victim. Note: maintain a consistent distance from victim when walking Search Arc.
4. This same process is used to locate the remaining victims.

## BATTERY CHECK



Fig. 10

The color of the flashing transmit LED (Fig. 10) indicates battery condition.

**GREEN:** Battery condition good; transmitter good.  
**RED:** Battery condition poor; replace batteries

**NO BLINKING:** The battery indicator will only flash when the unit is in the transmit mode and the unit has passed all internal function tests. The flashing LED, whether green or red, also indicates the transmit mode is functioning.

If the **Transmit / Battery** control LED does not flash. Fig 4.

- 1: Make sure bayonet plug is correctly inserted, Fig. 12.
- 2: Check to see if unit is in transmit mode. Fig. 4.
- 3: Change Batteries

## BATTERY CHECK

### CAUTION

Battery terminals can oxidize and may require cleaning. Remove batteries when unit will be stored for long periods of time.

Install new batteries at beginning of each season, and as required throughout season.

Check battery condition BEFORE and AFTER each use.

DO NOT use rechargeable batteries, use only good quality alkaline batteries.

If the beacon has been subjected to excessive moisture, remove batteries and leave battery compartment open to dry.

## DAILY OPERATION TEST

SOS beacons have built in self testing functions. When in the transmit mode, the battery LED lamp should flash Green or Red.



Fig. 11

If the Battery LED is not flashing, (Fig 11), either the batteries require replacing, or the transmitter is not functioning correctly.

The receive mode circuits can be tested by switching from the normal transmit to the search mode. When this is done, a sound should be heard from the speaker. By turning the range dial, the volume of the background noise should change from quiet in the small ranges to loud in the higher ranges. The receive function circuits have now been tested.

## FIELD TEST

The daily operational test does not accurately depict transmit or receive range.

Everyone but the leader should turn their beacon to receive. The leader, with their beacon in the transmit mode, should walk away from the group. All group members should note the point where they no longer are receiving a signal. Now the leader should switch their beacon to receive in the start position. Group members, one at a time, should switch their beacons back to transmit and walk past the leader. The leader should confirm reception of a signal from each group member's beacon. Now the transmit and receive function of each beacon has been checked. The approximate range of each beacon has been tested.

Variation in range has numerous contributing factors. Battery, manufacturer, and adverse atmosphere conditions like weather contribute to lost range. Orientation between sending and receiving beacons has the largest overall effect.

## SOS F1ND TECHNICAL SPECIFICATIONS

<b>FREQUENCY:</b>	457 kHz
<b>PULSE RATE:</b>	50 per minute
<b>PULSE WIDTH:</b>	300 milli seconds
<b>OPTIMAL RANGE:</b>	90 Meters *
<b>TEMPERATURE RANGE:</b>	-25 C to + 40 C
<b>BATTERIES:</b>	2 quality AA sized Alkaline
<b>BATTERY WORKING LIFE:</b>	Transmit mode - 300 hrs.
	(Green transmit light) Receive mode - 50 hrs.
<b>BATTERY RESERVE LIFE:</b>	Transmit mode - 100 hrs.
	(Red transmit light) Receive mode - 5 hrs.
<b>WEIGHT:</b>	230 grams (Including batteries)
<b>DIMENSIONS:</b>	75mm x 125mm x 25mm
<b>VISUAL INDICATOR:</b>	DSL (directional sensing LED) bar graph
<b>AUDIO:</b>	Water resistant speaker.

\* Optimal range is dependant on many factors including the orientation between beacons, batteries, manufacturers and weather conditions, plus temperature, and atmospheric conditions.

DIN Spec # 32924 and EN 300 718: **SOS** meets or exceeds both standards.

FCC ID: M43F1-ND

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Caution: - Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Warning:

1. **SOS** beacons are not compatible with 2.275 kHz older frequency beacons.
2. All beacons can be adversely affected by operating cell phones, hand held radios, or other sources or radio transmission, magnetic fields and electrical power.

## SOS F1ND

Fig. 12

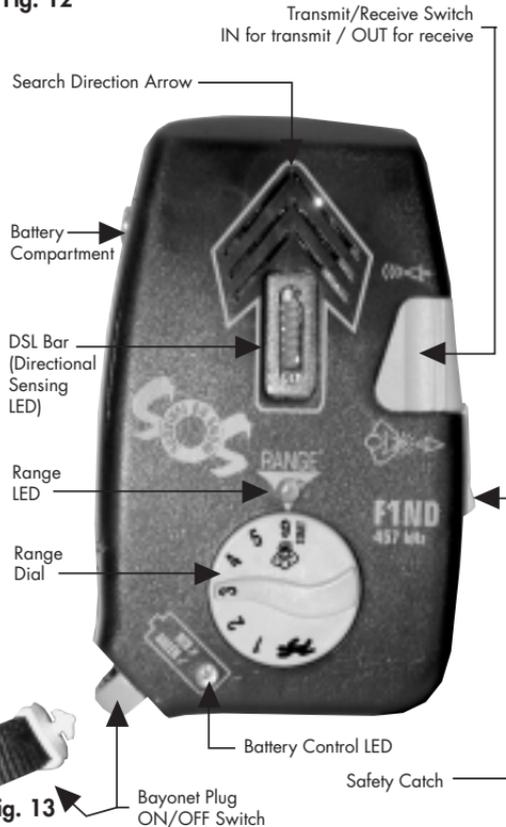


Fig. 13



## SOS-SB TECHNICAL SPECIFICATIONS

<b>FREQUENCY:</b>	457 kHz
<b>SB CHANNEL:</b>	alternate search channel
<b>PULSE RATE:</b>	50 per minute
<b>PULSE WIDTH:</b>	300 milli sec
<b>OPTIMAL RANGE:</b>	90 Meters *
<b>TEMPERATURE RANGE:</b>	-25 C to + 40 C
<b>BATTERY LIFE:</b>	Transmit mode - 300 hrs.
	(Green transmit light) Receive mode - 50 hrs.
<b>BATTERY RESERVE:</b>	Transmit mode, up to 100 hrs.
	(Red transmit light) Receive mode - up to 5 hrs.
<b>WEIGHT:</b>	230 grams (Including batteries)
<b>DIMENSIONS:</b>	75mm x 125mm x 25mm
<b>VISUAL INDICATOR:</b>	DSL (directional sensing LED) bar graph
<b>AUDIO:</b>	Water resistant speaker

\* Optimal range is dependant on many factors including the orientation between beacons, battery condition, temperature and atmospheric conditions.

DIN Spec # 32924 and EN 300 718: SOS meets or exceeds both standards.

FCC ID: M43F1-ND

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Caution: - Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Warning:

1. **SOS** beacons are not compatible with older 2.275 kHz frequency beacons
2. All beacons can be adversely affected by operating cell phones, hand held radios, or other sources or radio transmission, magnetic fields and electrical power.

## SOS-SB

Fig. 14

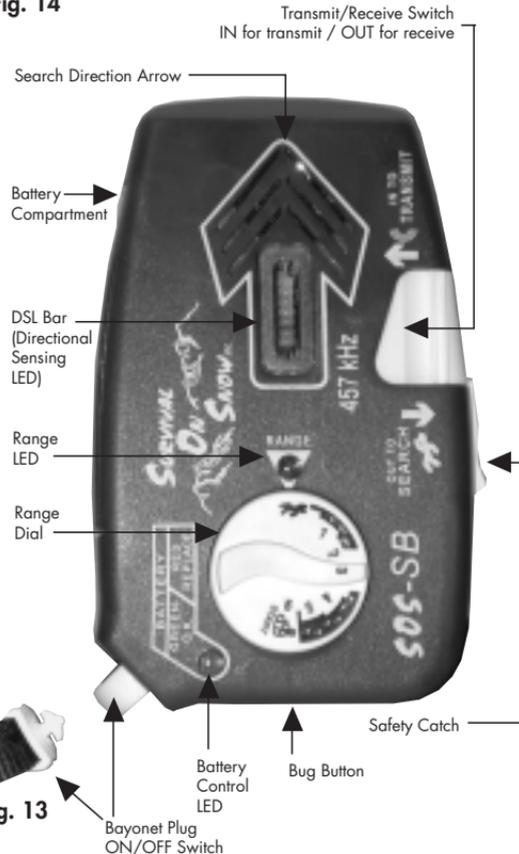


Fig. 13

## FEATURES OF THE SB BEACON

**How is it used?** The **SOS-SB** avalanche beacon is equipped with a second search channel, "the SB Channel". Personal belongings equipped with BUG devices can be located quickly by depressing the **BUG BUTTON** and switching to the alternate SB channel.

To enter the SB search channel depress and release the **BUG BUTTON**. FIG 14.

When searching in the BUG channel a distinct clicking sound will be heard thru the speaker. This is a safety feature to alert the user that they are searching the **BUG CHANNEL** and not for people.

Two minutes after being switched into the SB channel the unit will automatically return to 457kHz, the people channel. **The SOS SB will automatically begin searching at 457kHz each time it is turned on.**



Fig. 15

## MORE AVALANCHE INFO

### FOR INFORMATION ON AVALANCHE CONDITIONS CONTACT:

CANADIAN AVALANCHE CENTRE  
[www.avalanche.ca/](http://www.avalanche.ca/)  
1-800-667-1105

WESTWIDE AVALANCHE NETWORK  
[www.avalanche.org/](http://www.avalanche.org/)

NORTHWEST AVALANCHE CENTRE, WA  
(206) 526-6677 or (503) 808-2400

COLORADO AVALANCE  
INFORMATION CENTRE  
(303) 275-5360

Additional sources for current avalanche conditions: refer to our website at [www.survivalonsnow.com](http://www.survivalonsnow.com)

*Report avalanche involvements to  
[survivor@survivalonsnow.com](mailto:survivor@survivalonsnow.com).  
(see page 27)*

Most successful rescues have quick search and recovery times. Practise to become an efficient searcher. **Remember that your best chance of surviving an avalanche is not to be involved in one.**

## IF YOU ARE CAUGHT IN AN AVALANCHE

The earliest signs of an avalanche may be a signal from your group, sudden snow settlement, cracks appearing in the snow surface, a cracking noise or a whoomphing sound. Don't wait to see what happens.... get out to safety!

If you are caught, try to:

- **Shout** to attract attention
- **Get out** of the slide path if you can
- **Discard** heavy gear or large backpacks
- **Move to side**; grab bush or a tree and try to avoid collision with objects
- **Stay on top** of the slide by swimming kicking or pushing with legs
- **Protect** your airway as best you can
- **Leave a surface clue**, as the slide slows, attempt to thrust to the surface
- **Create an air pocket** around your face and resist the crushing
- **Remain calm** if you can, conserve energy, and clear your airway to create more air space
- **Shout or blow whistle** if you hear nearby sounds

## IF A COMPANION IS CAUGHT

- **Your safety comes first.** Buried heroes are not much help.
- **Get out** to Escape Route or Islands of Safety, make sure you are safe!
- **Watch the victim(s)** from a safe place. Note Last Seen Position (LSP)
- **Is it safe now?** Avalanche potential? Post a guard, and have a warning system. Establish safe entry and escape routes. Be ready in the event of an additional avalanche to quickly switch your beacon back to Transmit while proceeding to the escape route(s).
- **Organize**, determine number missing, establish priorities
- **Switch ALL beacons to receive** and re-check that each searcher is also on receive prior to searching.
- **Primary Search** - looking for signal (see page 6)
- **Secondary Search** - follow the signal
- **Pinpoint Search** - where to dig

## MORE ESSENTIAL EQUIPMENT AVAILABLE FROM SOS

### PROBES



*SOS products proudly made in Canada* 🍁

### SHOVELS

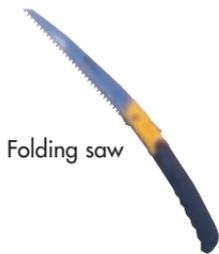


SOS's modular shovel system allows you to pick the color, weight, size and shape that's right for you.

Options include built-in saws and probes.



## ACCESSORIES



Folding saw



Probe-tape for measuring depth



All your rescue equipment can be efficiently tucked away in this SOS backpack.

To order any of these items, or see the whole line of SOS products, please visit our website at:

[www.survivalonsnow.com](http://www.survivalonsnow.com)

or call or write for a free brochure

**SURVIVAL ON SNOW**

#23 Rayborn Crescent, St. Albert, AB, Canada, T8N 5B9  
Ph (780) 418-4040 • Fax 1-800-418-4043

## SURVIVORS CLUB

### What is it?

The intent of the Survivors Club is to promote the reporting of avalanche incidents and accidents so that others may learn.

We all know even the experienced deep snow set gets caught in avalanches. Fortunately with the advent of avalanche beacons, the incidence of successful rescues is increasing. As the leading manufacturer of avalanche transceivers, SOS has developed the one and only Survivors Club as a means to gain data on the circumstances of the burial, and to provide recognition to both the survivors and their rescuers.

### Who may join?

There will be two groups who may qualify to become members of the club.

The first group will be made up exclusively of those individuals who were caught by a snow avalanche and successfully rescued.

The second group will be those individuals who assisted with the successful rescue of buried individuals.

### How do I apply?

Fill out the form at [www.survivalonsnow.com](http://www.survivalonsnow.com) under the "Survivors Club" tab.

### What does the form ask?

Details of the event are requested. Details about conditions prior to the avalanche. What happened during the avalanche and how the rescue team responded and recovered the avalanche victims.

## GLOSSARY OF TERMS

- **Battery Control LED:** Pg. 13. LED which constantly flashes green or red in transmit mode indicating battery condition. Will only flash if unit passes internal self tests.
- **Transmit Mode:** Pg. 4. Transmit/receive switch in Unit is emitting a trackable signal on 457 kHz. This is the Normal wearing mode.
- **Receive Mode:** Pg. 5. Transmit/receive switch out. Use the beacon in this mode to search for avalanche victims who are transmitting a 457 kHz signal.
- **Bayonet Plug:** Pg. 17. On/Off switch integrated into harness system
- **DSL Bar Graph:** Pg. 17. Directional Sensing LED bar graph. LED bar graph that is direction sensitive. Stronger the signal, more LEDs that light up.
- **Search Direction:** Pg. 8. The direction of the most LEDs.
- **Signal Strength:** Pg. 9. The strength of the signal from the transmitting beacon as measured by the receiving beacon. Used to isolate search direction.
- **Flux Line:** Pg. 4. A magnetic field pattern generated in the transmit position. Directional searching follows flux line to the transmitting source.
- **Range dial:** Pg. 17. Used to reduce the effective searching range of the unit. Essential in locating multiple victims. The numbers indicate travel increments in steps.
- **Range LED:** Pg. 17. Single red LED. Turns on indicating when to reduce the range dial to the next lower setting.
- **Panning:** Pg. 9. The process of moving the beacon from side to side to determine search direction.
- **Primary Search:** Pg. 6-7. The initial search, scouring, combing the avalanche debris in search of a signal.
- **Secondary Search:** Pg. 9. The process of tracking the signal to the exact burial position of the victim.
- **Multiple Burials:** Pg. 11. When there are two or more avalanche victims.