Disclaimer

No avalanche transceiver can save lives without a fully trained user. Practice frequently with your Tracker before going into the backcountry. Learn and understand the inherent dangers of backcountry travel. Become educated in avalanche hazard evaluation, route selection, and self-rescue. In addition to your transceiver, always carry a probe and shovel—and always travel with a partner. We also recommend the use of avalanche airbags.

Make sure all rescue equipment is functioning properly before venturing into the backcountry. Perform a transceiver trailhead test every time you use your Tracker. Check that all transceivers transmit and receive properly—and that all receive a signal at a minimum distance of ten meters, the international standard for effective range.

Do not place cellular phones, communication radios, or any other electronic equipment within 20" (50 cm) of the Tracker DTS while performing a transceiver search. In receive mode, irregular readings and decreased range can be caused by these and other sources of electrical interference, such as power lines, electrical storms, and electrical generating equipment. In transmit mode, keep the Tracker DTS at least 8" (20 cm) from other electronic equipment or large metal objects. Use only alkaline batteries of identical age and brand. Do not use rechargeable, lithium, Oxyride, PowerPix, or any other non-alkaline battery.

This owner’s manual covers the basic techniques required to use the Tracker DTS effectively. To increase your efficiency, refer to the advanced techniques described on our website: www.backcountryaccess.com. Here you will also find important resources for obtaining avalanche education and updates on regional avalanche conditions.

To ensure warranty protection and to be notified of periodic software updates, please complete an online warranty registration at www.backcountryaccess.com/warranty.

Conforms to the R&TTE harmonized version of the EN 300 718 and meets or exceeds the requirements of Articles 3.1, 3.2, and 3.3.

Avalanche Forecast

This is a basic introduction to avalanche safety and awareness. We encourage you to read this manual thoroughly. On our website, you will also find a list of avalanche instructors and guides. We strongly suggest taking an avalanche course in your area before venturing into the backcountry. Always check your local avalanche bulletin to determine what terrain is appropriate for the current conditions.

Avalanche Forecasts

Bulletins from your local avalanche forecast center will enable you to identify the avalanche problems to avoid when planning your route.

At the trailhead, check that each person has a working transceiver, probe, and shovel—and knows how to use them. We also recommend the use of avalanche airbags.

Learn to recognize avalanche terrain:
- Does this slope have a history of sliding?
- What is the angle and aspect of the slope?
- Will recent weather impact snow stability?

Learn to avoid avalanche terrain:
- Is there any evidence of recent avalanche activity?
- Is the slope angle between 30 and 45 degrees?
- Does the slope you plan to use have dangerous terrain traps? (Rocks, trees, gullies, cliffs, etc.)

Travel with considerate partners:
- Cross potentially dangerous terrain one at a time.
- Identify and practice stopping in safe zones.
- Have an escape route in mind if the slope does avalanche.
- Communicate with your partners before moving on to the slope.
When traveling in a group, be aware of the errors groups typically make:
- Recreating at an area that’s been visited without incident before and feeling confident in its stability.
- Not speaking out or communicating concerns about a path or slope, fearing conflict.
- Being overconfident in the groups’ abilities.
- Determination to reach a destination without re-evaluating terrain and conditions.

If in doubt, it is always best to avoid questionable terrain and return when the snow is stable.

If you are caught in an avalanche:
- Yell “avalanche” and wave your arms to alert your group.
- Deploy your avalanche airbag if you have one.
- Try to escape the slide by grabbing trees or rocks or ‘swimming’ to the side.
- Try to keep your airway clear of snow.
- When you feel the slide slowing, thrust a hand upward in hopes of it being seen.
- Place your other hand in front of your face to increase the air space.
- Remain calm, breathe slowly and conserve your air.

Searching for victims:
- Do not go for help! You are the victim’s only chance of survival!
- Establish a last seen point.
- Confirm you are not in danger of a second avalanche occurring.
- Look for visual indicators as clues to the victim’s location.
- Begin your signal search for the victim using your avalanche transceiver.

U.S.  www.avalanche.org  
Canada  www.avalanche.ca  
Europe  www.lawinen.org

Trailhead Test
To ensure proper transmit and search functions, always perform a trailhead test before starting your tour. One person should walk 20 meters away and make sure his or her signal is detected by the others. Then the rest of the group switches to transmit mode and walks toward the leader, who should confirm their signals can each be detected from 20 meters away. The leader should always switch back to transmit mode after the test is completed.

This quick reference page is an introduction to proper use of the Tracker DTS. For more detailed information, read the entire manual and consult our website: www.backcountryaccess.com.

Basic functions
On/off: Push and turn the on/off switch on the back of the Tracker to the "on" position. It turns on all LEDs, displays battery power in percent, and enters transmit mode. Change batteries before they reach 40 percent.

Search mode: Push the red search/transmit button, hold until "SE" is displayed, then quickly release.

Return to transmit: Press the search/transmit button until "tr" is displayed.

Searching with the Tracker DTS
The objective is to find the strongest signal (lowest distance reading) and immediately begin probing the area.

In the event of a burial, switch your Tracker (and all other transceivers) to search mode. "SE" will flash in the distance window until a signal is captured.

Signal search: If there is a "last seen point," start your signal search there, and search downhill. Otherwise, start your signal search at the top, bottom or side of the slide path. Allow a maximum of 40 meters between searchers or between switchbacks if only one searcher. Slowly rotate your Tracker back and forth until you engage the signal.

Coarse search: Once a signal is engaged, align the Tracker so that any of the center three lights are flashing and move quickly in the direction the Tracker is pointing. Your direction of travel might be straight or slightly curved. Make sure the number in the distance display is decreasing. If it is increasing, turn 180 degrees. Inside ten meters, move slowly and try to keep the center search light engaged.

Fine search: Within three meters, use your transceiver close to the snow surface and look for the smallest distance reading. Ignore sudden fluctuations in distance and direction; the strongest signal is often just past these fluctuation points. Begin probing at the smallest reading (strongest signal).
Thank you for choosing the Tracker DTS, the world's first digital avalanche transceiver, and the first transceiver with a high-precision multiple antenna system.

Remember, transceiver searches are only part of the avalanche rescue process. It is equally important to practice the probing and shoveling techniques found later in this section.

FAMILIARIZATION

Adjustment/Fitting
The Tracker DTS can be worn with or without its harness. The manufacturer recommends securing it with the harness. When used with a harness, the Tracker DTS should be worn underneath your outer garments, as shown in Figure A. Distance/directional display should be against your body, on/off switch should be exposed and visible.

To search, remove Tracker from pouch, but keep harness and lanyard attached to your body. If using without harness, keep Tracker in a secure pocket, preferably in your pants or other garment that won't be removed. Attach lanyard clip to zipper or other solid fixture. If lanyard is removed from harness or clothing for searching, keep attached to your wrist with loop provided.

Startup/Testing
Turn on the Tracker DTS by depressing and then turning the on/off switch clockwise (see inside front cover). When turned on, the Tracker cycles through all LED's, then indicates the remaining battery life in the battery power display/distance indicator. A reading of 95 to 99 percent indicates fully charged batteries.

Probing/Pinpointing
At your lowest distance reading, probe in concentric circles, with each probe hole about 10 inches (25 cm) apart. Your probe should enter the snow perpendicular to the slope. Once you have confirmed the victim's location, leave the probe in the snow.

Shoveling
Shoveling is difficult and exhausting and consumes the majority of time during an avalanche rescue. Do not take shoveling skills for granted. For best results, start shoveling just downhill of the probe. Make your hole at least one “wingspan” wide and excavate downhill about 1.5 times the burial depth (this can be determined by noting the depth marking on the probe).

Multiple Burials
Complex multiple burials are quite rare in recreational settings and usually can be treated as a series of single burials. For more information on multiple burial search technique, see page 14.
Familiarization

The Tracker will enter transmit mode (tr). The flashing transmit light \( \text{①} \) confirms the unit is in transmit mode.

Power Supply
The Tracker DTS operates with three AAA alkaline batteries. Use only high-quality alkaline batteries of identical age and brand. Do not use rechargeable, lithium, Oxyride, PowerPix or any other non-alkaline battery.

Note that the battery level percentage is approximate, depending on battery manufacturer and operating temperature. The manufacturer suggests replacing your batteries well before reaching 40 percent.

If the Tracker is subjected to excessive moisture, open the battery door \( \text{④} \) to help allow the unit to dry. To prevent corrosion of contacts, remove batteries during extended periods of inactivity. The manufacturer does not warranty damage caused by battery corrosion.

Search/Transmit
To enter search mode, push the search/transmit button \( \text{③} \) for at least one second, but for no longer than two seconds. During this time, the distance indicator \( \text{②} \) will display two dashes (“− −”). Release your thumb when the display changes from “− −” to “SE” and the Tracker sounds a series of three beeps. If the button is released before or after this time, it will remain in transmit mode.

The Tracker can be switched instantly from search (SE) to transmit (tr) mode at any time by simply pushing the search/transmit button.

Options
Auto-Revert System: At startup, the user can engage the Tracker’s auto-revert safety feature by pressing the options button \( \text{⑥} \) while pressing and turning the on/off switch. With auto-revert engaged, the Tracker will revert to transmit mode after five minutes in search mode.

If auto-revert is engaged, “Ar” will be shown in the power display after the diagnostic testing. If auto-revert is not engaged, “nr” will be displayed.

If auto-revert has been engaged, then after five minutes in search mode, an alarm will sound for ten seconds and "Ar" will flash repeatedly in the distance indicator. To remain in search mode, press the search/transmit button or the options button at any time during the ten-second alarm period. If ten seconds elapses, “tr” will appear and the Tracker will revert to transmit mode.

Familiarization Operating Instructions

If auto-revert is not engaged, the Tracker will sound a short alarm every ten minutes to remind the user that he or she is in search mode.

Special Mode: Special (SP) mode is an advanced feature designed to assist expert searchers in specialized multiple burial situations. These situations are typically only found in guided groups where victims are in close proximity and one rescuer can start shoveling while a professional guide resumes the transceiver search. SP mode can provide that searcher with a distance and direction to the next victim.

In search (SE) mode, the Tracker only displays the strongest signal (once the searcher is within about ten meters). In special (SP) mode, however, it will display all signals, regardless of their strength—providing they are within special mode’s reduced search window. In special mode, the search area is reduced from 180 degrees—front and back—to about 75 degrees: signals will only be displayed if they are captured within the center three directional lights.

Special mode can only be entered while the user is in search mode. To enter SP mode, press the options button \( \text{⑥} \). When signals are detected in this mode, they are displayed for a shorter time than in SE mode.

Mute Mode: To mute the sound while in search mode, push the options button \( \text{⑥} \) for three seconds until “LO” is displayed, then release. To turn the speaker back on, perform the same operation. “L1” will be displayed, indicating the speaker is on.

OPERATING INSTRUCTIONS

Searching
The Tracker DTS operates using the 457 kHz international standard frequency. It is fully compatible with all avalanche transceivers adhering to this standard. Do not use with 457kHz transceivers designed for firefighter rescue.

When searching, keep the Tracker DTS at least 20 inches (50 cm) away from electrical equipment, including cell phones. Turn all electrical equipment off if possible.

The search process includes four phases: the signal search, the coarse search, the fine search, and the probing/pinpointing phase.

Signal Search: The signal search refers to the process of establishing a search pattern and looking for a signal. The search pattern will be defined by the victim’s last seen area, the size of the
Operating Instructions

slide, and the number of searchers. Refer to Figures B and C, below, to establish a signal search pattern. If the slide is less than 40 meters wide, the signal search path will be directly up or down the center. If the victim’s last seen area is well defined, the signal search will follow a direct path along the fall line to or from this point.

Prior to the signal search, be sure that all transceivers are turned to search mode. Rotate the Tracker slowly in all directions (Figure D) while moving in the direction as defined by your signal search pattern. While searching, be aware of other physical clues, such as equipment or extremities protruding from the snow surface. When no signal is detected, “SE” will flash in the distance indicator. Once a signal is detected consistently, mark this spot and begin the coarse search.

**Coarse Search:** The coarse search is the portion of the search from where you have detected a steady signal to where you are close to the victim.

Once the signal is consistently detected, rotate the Tracker slowly on a horizontal plane until the center direction light  is blinking. The Tracker is now pointed in the direction of the strongest signal, or your direction of travel (Figure E). The four lights  on either side of center tell you which way to rotate the Tracker to engage the center light. The distance indicator  tells you, in approximate meters, how far you must travel (1 meter = 1.1 yards or 3.3 feet). If the number on the distance indicator is increasing, you are on the same axis as the victim’s signal, but moving in the opposite direction. Turn 180 degrees, engage the center search light again, and continue your search in the direction the Tracker is pointing. If you are stationary, but the distance is significantly changing, you are probably detecting the signal of another rescuer. Make sure all rescuers are in search mode before continuing.

**Figure E**

**Windows**

The Tracker is very sensitive. Slight movement in any direction will actuate a different search light. Rotate it very slowly so as not to “skip” over the center search light window.

In special (SP) mode, signals are only displayed if they fall within the center three windows.

You may find that, while following the directional lights, your route follows an arc. This is because the Tracker follows the shape of the electromagnetic signal coming from the transmitting transceiver’s antenna. The distance displayed is the distance to be traveled along that flux line, not the straight-line distance from you to the victim.

**Fine Search:** The fine search is the final part of the transceiver search, which is performed on foot with the transceiver positioned at or near the snow surface. The objective of the fine search is to locate where the signal is strongest and to reduce the area to be probed.

**Figure F**

**Fine Search**

**Bracketing:** When your distance indicator reaches 3 meters, search along a straight line until you have passed the lowest distance reading. Return to the lowest reading and “bracket” in search of an even lower reading. Ignore the directional lights while in the fine search.
Move your transceiver very slowly in a straight line along the surface of the snow during the final three meters of the fine search. Ignore sudden fluctuations in distance and direction, often followed by no distance reading and/or "SE" in the distance indicator. These "spike readings" mean you are very close. The lowest reading will be near this point.

From the point where you have located the smallest reading, "bracket" at 90-degree angles to the left and then to the right in search of a lower reading (Figure F). Repeat if necessary along both axes. Begin probing at the lowest distance reading.

*Probing/Pinpointing:* At the point where the distance has reached a minimum, probe the area in concentric circles, with each probe hole about 10 inches (25cm) apart. Your probe should enter the snow perpendicular to the slope. Once you have confirmed the victim’s location, leave the probe in the snow.

*Shoveling:* While shoveling might seem elementary, it usually consumes the majority of time during an avalanche transceiver rescue. For best results, start shoveling just downhill of the probe. Make your hole one "wingspan" wide and excavate downhill about 1.5 times the burial depth.

For more advanced shoveling techniques, see our website: www.backcountryaccess.com.

*Multiple Burials*

If you begin to receive more than one set of signal data, you probably have several victims within your receive range. Stay in search (SE) mode, and focus on the closest distance reading, attempting to engage that signal in the center search light. If you are roughly the same distance from both transmitters, the Tracker will often flash “SE”.

Once you are significantly closer to one signal—and within about ten meters of it—the Tracker DTS (in SE mode) will “lock” onto that signal and mask out the others. Once you are locked in, the Tracker will behave very similar to how it does in a single transceiver search. Pay attention to the readings you last received from the other transceiver; they will give you an indication of where to go after finding the closest one.

*Special Techniques*

In most cases, multiple burials are approached as a series of single burials. However, special techniques might be helpful if the victims’ transceivers cannot be turned off and there are several rescuers available (so some can start shoveling while the best transceiver user continues searching). These techniques are only necessary for close-proximity situations, where two or more victims are suspected to be very close to each other. If the victims are located less than about five meters from each other, then it is possible to move past a signal without it being detected. If the victims are suspected to be further apart than this, then it is quite simple to continue on your signal search until the second victim’s signal is captured and isolated by your Tracker. In the case of suspected close-proximity multiple burials (with more than one rescuer available), we suggest the following special techniques:

**Three-Circle Method:** This technique involves remaining in SE mode and making concentric circles around the location of the first victim until another signal is detected. It is most effective in large deposition areas and low-angle terrain.
Operating Instructions

**Micro-Search Strip Method:** This technique is more useful in smaller debris areas, like those often encountered in guiding exams. The user remains in SE mode and crisscrosses the debris pile in strips three to five meters apart until the next signal is detected.

For detailed instructions on using the special techniques above, see our Advanced Tracker Manuals at www.backcountryaccess.com.

**Special Mode:** For greater efficiency in close-proximity multiple burials, use special (SP) mode. This mode enables the Tracker to display the distance and direction of signals other than those of the closest transceiver. It also reduces the Tracker’s search “window” to the center three directional lights, enabling the searcher to mask out transceiver 1 and differentiate it from transceiver 2. SP mode is used to determine approximately what direction and distance to go to get closer to transceiver 2. Once you are closer, always switch back to SE mode.

To use SP mode, first re-engage transceiver 1 in your center search light at the lowest possible distance reading. With the center search light engaged, switch the Tracker to SP mode (Figure I). Then rotate—do not sweep—the Tracker slowly until another signal is detected (transceiver 2), most likely with a larger distance reading. If the Tracker is rotated more than about 40 degrees away from the flux line of transceiver 1, that signal will disappear, allowing you to focus on the signal from transceiver 2.

If no other signal is captured in SP mode and you suspect victims are nearby, stand up and try again at chest height. If still no other signal is detected, take three steps back and repeat (or revert to SE mode and use the three-circle method).

Once you have located another signal in SP mode, begin to move in that direction. If the distance consistently decreases, you are going in the right direction. Travel far enough in SP mode to confirm the distance is decreasing and which way the flux line is trending. If more than one signal is being displayed and it becomes unclear which one to pursue, continue in the direction you have been searching. Always switch back to SE mode when you think you are getting closer to transceiver 2 than transceiver 1.

If after finding a victim, no further signals are detected in SP mode, continue the search if there are still missing victims. Revert to search mode and perform a signal search of the remaining unchecked areas within the debris pile. Resume your signal search at the point where it was originally abandoned.

For more details on multiple burials, please refer to our website: www.backcountryaccess.com.

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**Figure I**

**Special (SP) mode**

In special mode (SP), all signals are shown, but Tracker acts as a “spotlight” with narrowed vision: approximately 75 degrees in front and in back of the searching transceiver. Only the signals within this angle (transceiver 2) are shown. This 75° angle corresponds to the Tracker’s center three lights.

Always switch back to search mode (SE) when you’re more than halfway from transceiver 1 to transceiver 2.
Technical Specifications

TECHNICAL SPECIFICATIONS

- Frequency: 457 kHz
- Batteries: Three AAA/LR03 alkaline batteries. Do not use rechargeable, lithium, Oxyride, PowerPix or any other non-alkaline battery.
- Battery life: minimum 1 hour in search mode after 200 hours in transmit mode (approximately 250 hours in transmit only or 50 hours in search only)
- Search strip width: 40 meters
- Weight: 12.8 ounces (363 grams), including strap and batteries; 8.6 ounces (245 grams) without strap and batteries
- Size: 5-3/4” x 3-1/4” x 1-1/4” (14cm x 8cm x 3cm)
- Minimum temperature range (at 66.7 percent battery power):
  - Transmit mode: -10°C to +40°C (14°F to 104°F)
  - Search mode: -20°C to +40°C (-4°F to 104°F)
- U.S. Patent number 6,167,249 & 6,484,021 B1

FCC ID: OUNDTS1
Model No.: Tracker DTS
CANADA: 35811021823

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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this device.
Manufacturer: Backcountry Access, Inc.
2820 Wilderness Pl. Ste. H
Boulder, Colorado USA 80301
Telephone No.: 303-417-1345

declares that the:
Product name: Tracker DTS
457 kHz Avalanche Rescue Transceiver
conforms to the following specifications:
EN 61000-4-2 / 1995
EN 61000-4-3 / 1995
EN 55022 / 5.1995; Class B
ETS 300 683 / 06.1997; Class 1
EN 282-1991

Standards met: R&TTE harmonized version of the EN 300
718-1,-2,-3 (2001-05)
ASTM Designation F 1491-93

Complies with the following European Directives:
R&TTE directive 99/5/EEC
EMC directive 89/336/EEC
CE Registered Certificate No.: 9842308-01

Other certifications: GS; Certificate No. AL 99 03 34660 001
BZT; Registration No. G750849L

Tested, accredited, and verified by also:
TÜV Product Service
Mikes Product Service GmbH

European Interface/North American Distributor:
Backcountry Access, Inc.
Boulder, CO 80301 USA

Gecko Supply
Zurich, Switzerland
41 (0) 1273 1801

Supplementary Information: The product herewith complies with the above
requirements and directives and carries the CE marking accordingly.

For compliance information and test data, contact:

Bruce McGowan / President
January 1, 2009 Boulder, CO USA
**Limited Warranty**
The manufacturer, Backcountry Access, Inc., expressly warrants the workmanship and components of the Tracker DTS for five years after the date of retail purchase. All parts will be either repaired or replaced free of charge, including labor, by the manufacturer. This warranty does not cover damage to the product caused by improper use or excessive wear and tear. Direct all warranty claims to your retailer or distributor. All claims must include proof of purchase and a return authorization number. To ensure warranty protection, please return the enclosed warranty registration card.

**Garantiebeschränkung**

**Garantie**
Le fabricant, Backcountry Access, Inc., garantit le Tracker DTS trois ans pièces et main d’oeuvre à partir de la date d’achat. Toute pièce sera réparée ou remplacée gratuitement, main d’oeuvre comprise, par le fabricant. Cette garantie ne couvre pas les dégâts résultants d’une mauvaise utilisation. Toute réclamation devra être adressée à votre détaillant ou distributeur. Toute réclamation devra être accompagnée de la preuve d'achat et d'un numéro de SAV.

**Limitazioni della Garanzia**
Il costruttore, Backcountry Access, Inc., garantisce espressamente la corretta costruzione ed i componenti del Tracker DTS per tre anni dalla data di acquisto presso il dettagliante. Le parti saranno riparate o sostituite gratuitamente - ore di manodopera incluse - presso il costruttore. La presente garanzia non copre i danni al prodotto derivanti da uso improprio, usura eccessiva o squarcio. Inviate qualsiasi richiesta di intervento in garanzia al vostro dettagliante o distributore. Tutte le richieste devono comprendere una prova di acquisto e lo specifico numero di autorizzazione.

**Garantía Limitada**
El fabricante, Backcountry Access, Inc., garantia la fabricación y los componentes del Tracker DTS por un periodo de tres años a partir de la fecha de compra. El fabricante se compromete a reparar o cambiar todas las piezas sin costo, incluyendo la mano de obra. Esta garantía no cubre los daños causados por el uso inadecuido o desgaste excesivo. Todas las reclamaciones deberán incluir la prueba de compra así como el número de autorización de devolución.
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