

\$ 130.00

FCC

Short Manual of the m1

Introduction: The transceiver is mainly self explanatory.

1. How to carry your transceiver:

The transceiver can be carried in 3 different ways:

- a) as belt
- b) as belt with additional shoulder strap
- c) without straps in a secured pocket of your clothing

2. Switch on / off:

Is the strap fixed to the body with the on/off fastener (1), the transceiver is on send and locked
By lifting the on/off switch (2) the fastener will be released and the device automatically turned off.

3. Changing onto receive mode:

By opening the quick lock (3) the device is automatically changed onto receive mode. In case the shoulder strap is used, the transceiver stays secured on the body.

In case no straps are used, the transceiver can be changed to receive with both arresting slide switches (4). The red emergency changing switch will pop up. In an emergency situation this switch can be quickly pressed down and the transceiver is back on transmitting mode.

4. Earphone:

The m1 is equipped with a socket for earplug (7).

5. Function tests:

After turning onto transmit the display (8) will show all symbols of the menu (1) which disappear again after 3 minutes. If all symbols are shown, the transceiver is functioning. Especially the battery capacity can be checked analog. Both control lights (9) show the functioning of the transmitting mode.

6. Receiving mode:

If you turn the transceiver onto receive with the quick lock (4) and do not turn the volume control (10) into start position, the symbol 'turn back' (fig. 2) will appear in the display (fig.1). Is the volume control in the start position, the symbol for coarse search will appear (fig.3). The coarse search is the search for the first signal.

As soon as an optically strong enough signal is received, an empty arrow (barograph) will appear in the display with a digital reading of 50m (fig.4). In the same time the green light indicator (10) flashes (= go). When approaching further the empty arrow will fill up with signal bars and the digital reading goes towards 0.

As soon as you deviate from the correct search path, for example if you leave an induction line or if a wrong direction is chosen, the display will ask you to re-orientate (fig.5). The symbol for re-orientation consists of a question mark and two arrows changing from left to right. The digital meter reading disappears because it is no longer relevant. The green light indicator also disappears.

Test Report No. R-3293N
FCC ID: KF5ORTOVOXMI

How to re-orientate:

If the display asks you to re-orientate, the ml has to be swung around about 30 degrees to the left and to the right in order to find the correct induction line. As soon as the barograph is filled up with signal bars, the right direction is found. Then the light will go green again.

When the arrow is full you will be asked to reduce the volume. The symbol for volume control for switching it clockwise (fig. 7)

When you have approached a distance of about 3m the symbol for pinpoint search will appear (fig.7). During the pinpoint search within 3m the digital reading remains and the search can be continued until the lowest digital meter reading or the maximum reading in the arrow is reached.

7. Indicator light (9):

The green indicator light is an additional signal aid. Every time when it is flashing it confirms you that you are on the right search path.

For example:

- turn volume control in start position
- start coarse search
- reduce volume
- re-orientate
- start pinpoint search

Practical hints

The display is an aid for fine search and pinpoint search.

The fine search is made easier for the searching person as you just move straight forward as long as the light shows green. If it turns red, turn the transceiver either left or right until the light turns green again. The searching person then just follows the newly indicated direction. If, whilst walking in the new direction the reading inside the arrow reduces or the digital reading increases, the opposite direction has to be taken. As soon as the red light shows again, correct the direction.

At the start of the pinpoint search look for the point with the lowest reading on the snow surface. (bend down!)

In the ideal case the searching person stays exactly on the induction line, the pinpoint search in the grid-pattern method is reduced to a short control to left and right of the minimal reading (fig.9) in the pinpoint search range.

- Transmitter frequency: 457 kHz
- Modulation: side band modulation A1
- Dimensions: approx. 150 x 64 x 20 mm
- Weight: 250 g without straps, ca. 280 g with straps
- Batteries: 2 LR 6 1,5 V alkaline batteries (2 "AA" batteries)
- Transmitting: approx. 250 - 300 hours
- Receiving: approx. 10 hours
- Acoustic range: approx. 80 m when the longitudinal axii of both transceivers are aligned (= best position)
- approx. 32 m when the transceivers are aligned crosswise (= worst position)
- Visual range: 50 m when the longitudinal axii of both transceivers are aligned (= best position)
- Socket for earplug

1. The display permanently provides the user with information on what he has to do:

- begin the coarse search
- search direction
- digital meter reading
- switch back or forward (= turn volume control)
- search direction
- arrow filled up with signal bars (tendency indicator)
- re-orientate
- start pinpoint search

Furthermore the m1 will be not only automatically switched on by fixing the strap to the body but also changed automatically onto receiving mode (= open the quick lock).

The decisive advantage of the m1 is the easy handling for absolute beginners and that you have also a digital indication of the distance beside the analog search arrow.

Practical tests had proved that even unexperienced beginners succeeded in searching with the m1 within 2 to 3 minutes while it is known that beginners aren't able to reach such search times with traditional avalanche transceivers even when they had a good introduction and long clinics. Sometimes it takes 5 to 10 minutes until a group of 10 persons will have switched to receiving mode.

In fact our practical experiences that we got during hundreds of clinics in the last 20 years had gone into the m1 menu-controlled program!

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Hans Kammerlander

Your sincerely
sportartikel GmbH

ORTOVOX

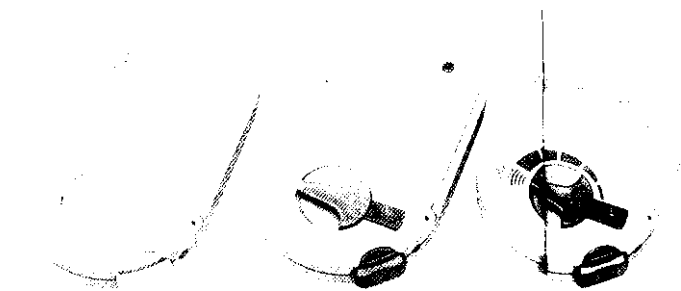
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EXPERT MOUNTAINERS DON'T TAKE A RISK ...

... they observe avalanche warnings, they select safe routes and they are prepared for the worst, the avalanche accident: ORTOVOX products have proven what they have promised. ORTOVOX is the synonym for alpine safety, through a range of finely-tuned products. ORTOVOX uses only the best materials and technology. You should too - for your own safety! Immediate search and rescue by computer guarantees almost the only changes of survival in an avalanche. If rescue services have to be summoned first, help is too late in most cases! It's the minutes that count and ... ORTOVOX avalanche rescue devices. Read your handbook fully. Practice with your transceiver, train all grips and searching techniques. In the annex you will find

ZOOM IN ON THE CRUCIAL POINT



avalanche
transceiver
F1 focus

avalanche
transceiver
F1 plus

avalanche
transceiver
F1 classic

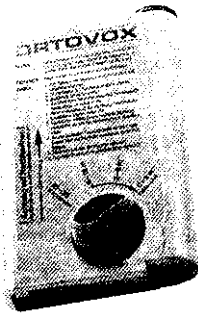
F1 focus **AVALANCHE TRANSCIEVER**

- international frequency
457 kHz for searching the
victims
- precise, fast pinpoint
search by visual search in-
dicator shaped in an arrow
and distinct loudspeaker
signal
- large range
elastic adjustable body
straps
three-point cross strap
system

F1 plus **AVALANCHE TRANSCIEVER AND SKI LOCA- TOR** (457 + 398 kHz)

same technical data and
details as for the F1 focus
but only one visual search
indicator.

The ORTOVOX F1 plus
also allows quick location of
lost skis, provided the skis
had been equipped with
the ORTOVOX F plus ski
mouse. The ski mouse is a
ski transmitter with a range
of approx. 25 m working on
a frequency of 398 kHz.



avalanche
transceiver
F2



ski transmitter
F plus
ski mouse

F1 classic
**AVALANCHE
TRANSCIEVER**
(457 kHz)

Same device as F1 focus, but without visual search indicator.

F2
**AVALANCHE
TRANSCIEVER**
(457 + 2,275 kHz)

- The ORTOVOX F2 is the first and most commonly used double frequency avalanche transceiver in the world
- double frequency = double safety
- the F2 transmits and receives on the two worldwide commonly used frequencies: 457 kHz and 2,275 kHz
- precise pinpoint search by distinct double signal
- earphone with earclip and strong, non-tension cable

**DEFINITE
ADVANTAGES**
for F1 focus
F1 plus
F1 classic
F2

- visual display of battery capacity
- forced ON/OFF switch
- fast switch between search zones
- patented, scaled display for search zones
- patented, ventilated casing prohibits condensation and avoids failures
- three-point cross strap system
- scaled switch for adjusting the volume when in receiving mode to ensure the most important increase in volume during a search

F plus
Ski Maus
SKI
TRANSMITTER
(398 kHz)

... modern electronics replace the old-fashioned "runaway straps" and allow quick location of lost skis!

- quick location of lost skis by using the F1 plus in "ski location mode"
- risk of injuries is highly reduced because you don't need "runaway straps"
- no "anchor effect", the symptom of being pulled down into an avalanche by a ski
- the lightweight "ski mouse" is easy to mount

F1 focus
F1 plus
F1 classic

Important notice!

The ORTOVOX F1 focus, F1 plus/F1 classic can only be used with standardized 457 kHz and double frequency devices (ORTOVOX F2). compatibility means mutual receiving possibilities. Therefore pay attention to the compatibility of the transceivers in your group!

The ORTOVOX avalanche transceivers allow very quick location of avalanche victims, provided:

1. all members of the group use compatible avalanche transceivers
2. the function of these devices has been tested
3. **the use and handling of the devices has been practiced**

NOTE! The rescue of avalanche victims can not be done without a shovel!

F1 FOCUS/F1 PLUS/F1 CLASSIC OPERATING ELEMENTS

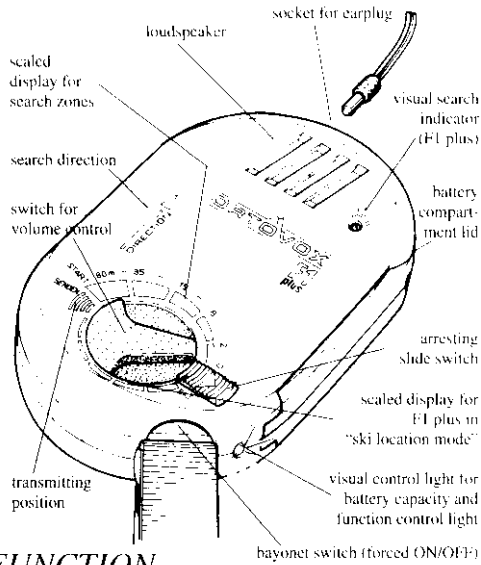


fig. 1

FUNCTION TEST

The ORTOVOX avalanche transceiver can be tested without requiring a second device.

The function test should be done at home in order to be

able to have repairs or service done in time (please see "service", p. 35).

ATTENTION!

The negligence of a skier,

not having previously tested his device at home, can endanger the life of others as well as his own!

Battery check

1. When switching on the bayonet lock switch, the control lamp will flash approx. 30 times at an interval of 2 times per second. Thereafter the flashing speed will slow down showing the perfect functioning of the device. When the batteries go flat, the number of quick flashes will decrease. If the device shows less than 5 quick flashes, please change the batteries (see page 10 paragraph ATTENTION). If you perceive only 5 flashes, a sufficient safety of 1-2 hours work in receiving mode, at a temperature of -10°C is still guaranteed. The battery capacity highly depends on the temperature. Therefore we recommend

carrying along spare batteries if there are only 15 flashes or less in order to be prepared in case of need.

2. The battery check can only be repeated after a 3 minutes' pause!
3. The visual control light only flashes if the device is in "transmitting mode".

Transmitting and receiving control

1. If the light doesn't begin to flash, although new batteries have been put in, the 457 kHz transmitter must be defective (please send your device directly to an ORTOVOX service centre - see back page).
2. After switching into receiving mode a short transmitting signal can be heard, thereafter the typical receiver rustle follows. The volume of this rustle can be influenced by turning the volume control switch.

It will decrease by turning the switch clockwise, i.e. from a higher to a lower search zone.

Thus the function of the amplifier and the loud-speaker can be tested.

Having put the switch in receiving mode when turning on the device, no signal will be heard.

The function of the earphone can be checked in the same way.

Note: Earphones are sensitive to high temperatures. At temperatures of more than + 45 °C, its crystal may be damaged (loss in function or total failure). Do not expose your earphone to the sun!

ATTENTION!

Battery contacts can oxidize and therefore have to be cleaned if the device was out of action for a long period, especially after the summer.

We recommend taking the batteries out of the device during the summer and replacing the batteries with new ones when the winter season starts.

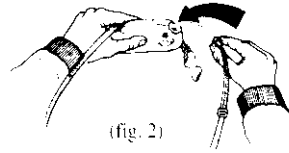
Do not use rechargeable batteries (i.e. NiCd accumulators). They will become defective if the discharge is too strong and will, after recharging, only regain their full power for a very short time. Moreover, due to their lower voltage, the range and working life of the device is much shorter!

DANGER OF LIFE!

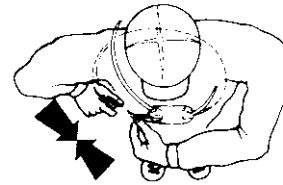
Due to extensive testing of various batteries we have found that there are great differences of capacity especially at low outside temperatures.

For that reason we explicitly recommend to use only high quality alkali-manganese batteries as they are also used for initial equipment (do not use photo-batteries).

HOW TO PUT IT ON



(fig. 2)




(fig. 3)

Put your ORTOVOX transceiver on correctly before starting a ski tour!

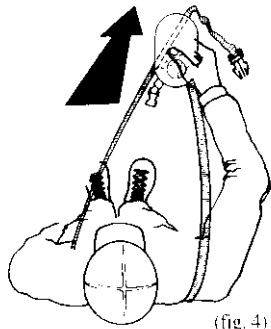
1. Hold the F1 focus/F1 plus F1 classic in front of your body so that the switch shows to your face and the control light for battery capacity is facing upward.
2. Plug the bayonet joint into the socket with gentle pressure and let it click in with a $\frac{1}{2}$ of a turn. (forced ON/OFF switch, fig. 2).
3. You will now have a full loop shoulder strap, which you put over your head and either over your left or right arm.
4. Adjust the body strap to the proper length, lead it around your body and snap it into the quick fastener (fig. 3).
5. ORTOVOX avalanche transceivers should never be carried in the backpack, they should always be worn on your body, preferably under your outer clothing!

TRANSMITTING



1. Turn the switch into "transmitting mode" . The ON switch is forced on by plugging the bayonet joint into its socket.
2. Thus the ORTOVOX avalanche transceiver is now switched on and transmits on the international frequency 457 kHz.
3. The ORTOVOX transceivers should only be taken off after the ski tour. Open the 3-point-cross strap at the ON/=FF bayonet switch (thus the device will be disconnected = forced OFF switch.) and the quick lock clasp. Wrap the strap around the device and fasten it with the press button..

RECEIVING




(fig. 4)

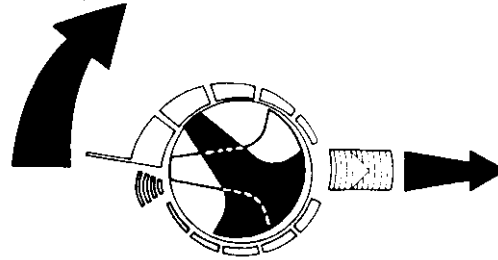
1. Open the quick lock clasp. Thus the ORTOVOX transceivers F1 focus/F1 plus F1 classic can be pulled away from your body for about 1 m (fig. 4). The shoulder strap still

secures the device to your body, thus no risk of losing it.

2. Switching to receiving mode

Turn the switch from "transmitting mode" (symbol ) into the first

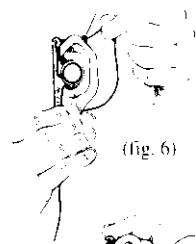
search zone "80 m". To do so, the locking mechanism has to be unlocked by pushing the slider to the right (fig. 5). The signals of other devices can now be heard via loudspeaker or via earphone.



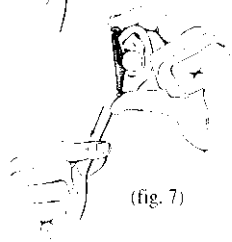
(fig. 5)

Ski location system (F1 plus only)

After another push of the locking mechanism, turn the switch beyond the lowest search zone (fine search) into the first "ski locating mode". The method for the ski search is the same as for the avalanche victim search.



(fig. 6)



(fig. 7)

Earphone connection

Instead of using the loudspeaker, you can connect an earphone by plugging it into the earphone socket (fig. 1). The integrated loudspeaker will be switched off automatically. Fix the harness of the earphone behind the ear as shown in fig. 6 and 7. The upper bow should be positioned behind the ear like those of glasses. By tightening the cable, the earphone will be fixed.

F1 plus VISUAL SEARCH INDICATOR

Use with grid-pattern method

The blinking of the ORTOVOX visual search indicator situated beside the loudspeaker indicates when you have to switch into a lower search zone while approaching the victim. After having switched back, the signal disappears. While coming closer to the victim, the visual search indicator flashes again to remind you of switching back into a lower search zone. Please repeat this method until the lowest search zone (for pinpoint search) has been reached.

Thus you can locate the victim very quickly and the visual search indicator allows a very precise pinpoint search.

Use of the induction lines method

When using the induction lines method, the visual search indicator will prove to be useful in determining the exact direction. According to the acoustic search method (see fig. 23), the visual search indicator flashes at the maximum volume confirming the search direction.

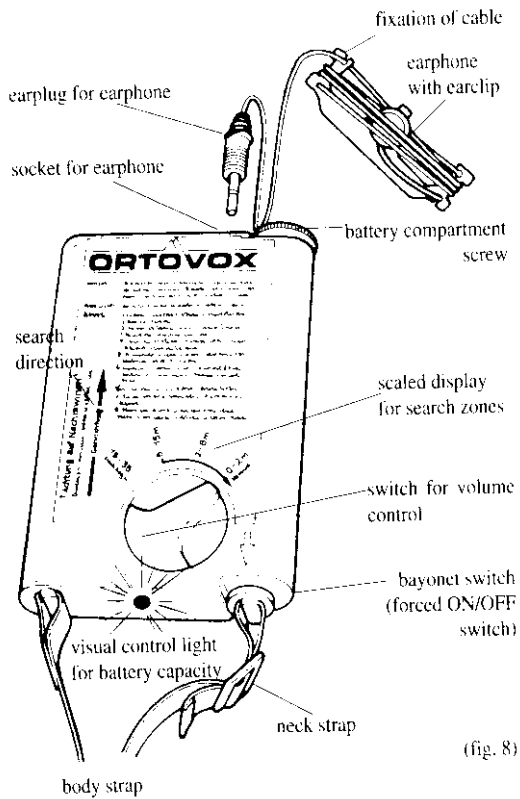
F1 focus VISUAL SEARCH INDICATOR

Instead of one light the visual search indicator of the F1 focus is composed of three lights shaped in an arrow ("focus arrow"). These three search indicators work like traffic lights:

Green (bottom light) = Please walk (pass the crossing). The green light flashes at a distance of about 35 m

away from the victim. When you approach the victim, the **yellow** light flashes (middle light) = Please continue walking (leave the crossing). Finally the transceiver will turn to **red** (top light) = Stop! Something must be done: Go in this direction (induction lines method) and:

- a) switch back into a lower search zone, or if this is no longer possible,
- b) begin the pinpoint search.



(fig. 8)

FUNCTION TEST

The ORTOVOX F2 avalanche transceiver can be tested without requiring a second device.

The function test should be done at home in time to have repairs or service done if required (please see "service", pg. 35).

ATTENTION!

The negligence of a skier, not having previously tested his device at home, can endanger the life of others as well as his own!

Battery check

1. When switching on the bayonet switch, the control lamp will flash approx. 30 times with new batteries. Thereafter the flashing light will disappear. When the batteries

go flat, the number of flashes will decrease. Less than 5 quick flashes require the replacement of the batteries.

2. The battery check can only be repeated after a 3 minutes' pause!
3. The light will only flash if the device has been put into "transmitting mode".

Transmitter and receiver function test

1. If the light doesn't flash, although new batteries have been installed, the 457 kHz transmitter must be defective (please send your device directly to an ORTOVOX service centre - see back page).
2. If the plug of the earphone is not entirely inserted into the socket, the tone that can be heard now signals that the 2.275 kHz transmitter is in operation. At the same time you can check the function of the

carphone. Furthermore the signal of the 2,275 kHz transmitter can be heard directly at the casing of the device. The volume of this signal is in no correlation to the range of the device! The transmitter signal of the 2,275 kHz-ORTOVOX F2 was muted purposely, to avoid a disturbing sound in the silence of the mountains.

3. After switching into the receiving mode, the typical receiver rustle can be heard. The volume of this rustle can be influenced by turning the volume control switch. It will decrease by turning the switch clockwise, i.e. from a higher to a lower range. Thus the function of the amplifier and the loudspeaker are tested.

Note: Earphones are sensitive to high temperatures. At temperatures of more than + 45 °C, its crystal may be damaged (loss in range or to-

tal failure). Do not expose your carphone to the bright sun!

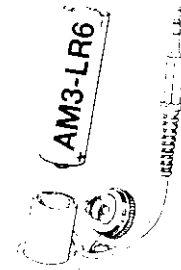
ATTENTION!

Battery contacts can oxidize and therefore have to be cleaned if the device was out of action for a longer period of time, especially after the summer pause.

We recommend taking the batteries out of the device for the summer and replacing them with new ones when the winter season starts.

Do not use rechargeable batteries (i.e. NiCd accumulators). They will become defective if the discharge is too strong and will, after recharging, only regain their full power for a very short time (about 1 hour). Moreover, due to their lower voltage the range and working life of the device is much shorter!

DANGER OF LIFE!



ORTO

Change of batteries

HOW TO PUT IT ON

Put on your ORTOVOX correctly before starting a ski tour!

Batterie control

(see page 17)

1. Take the neck strap out of the case. Plug the bayonet joint into the socket with gentle pressure and a $\frac{1}{4}$ of a turn to the left or right until it clicks in (forced ON/OFF switch, fig. 9).
2. Adjust shoulder strap to

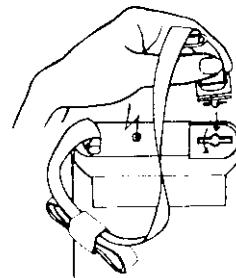


fig. 9

have the ORTOVOX situated comfortably at one side of the body between armpit and hip (fig. 10).

3. **ORTOVOX avalanche devices should never be carried in the backpack, they should always be worn on your body, preferably under your outer clothing!**

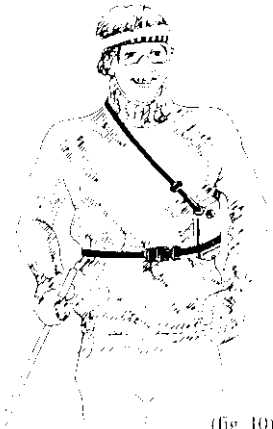
4. Check the battery capacity by observing the control light.

5. Close top flap of the bag again.

6. Put on the body strap and adjust it (fig. 10).

How to wear the device

The ORTOVOX transceiver can be worn comfortably at the side of your body.



(fig. 10)

TRANSMITTING

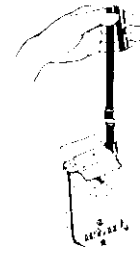
1. Forced ON switch by plugging the bayonet joint into its socket.

2. The ORTOVOX avalanche transceiver is now switched on and transmits on the two worldwide commonly used frequencies 457 kHz and 2,275 kHz.

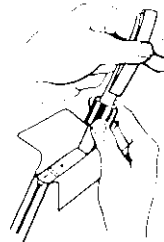
3. The F2 can be received by all available avalanche transceivers and also receives the signals of all of these devices.

4. The ORTOVOX transceiver should only be taken off after the ski tour. Open the 3-point cross strap at

the ON/OFF bayonet switch (thus the device will be disconnected = forced OFF switch) and the quick lock clasp. Wrap the strap around the device and fasten it with the press button (see fig. 11 - 14).



Wrap up neck strap (fig. 11)



(fig. 12)

Stow away strap under flap of bag



(fig. 13)

Placement of device in bag, access to earphone by opening bottom end only!

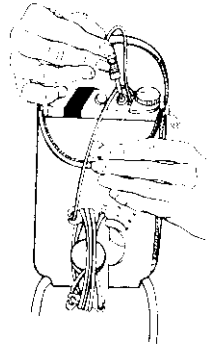


(fig. 14)

Wrap body strap around device

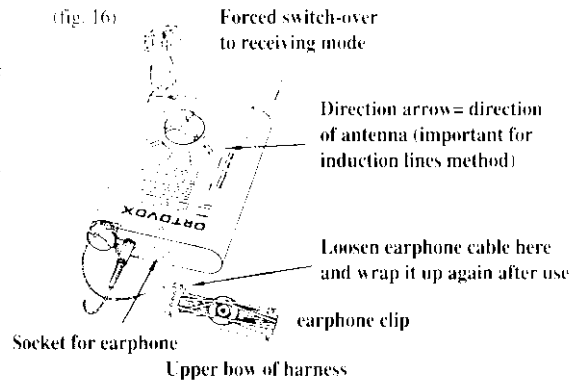
RECEIVING

1. Unsnap body strap from device. The shoulder strap must stay attached to the body.
2. Open bottom end of zipper. Fold flap back and fasten it with the press button (see fig. 15). Take earphone out and plug it into its socket. The ORTO-VOX transceiver is now in receiving mode (see fig. 15 and 16).
3. Take earphone cable out of the fixation (see fig. 16) and unroll it from the harness.
4. Adjust harness to your ear as shown in fig. 17 and 18. The upper bow should be positioned behind the ear like those of glasses. By tightening the cable, the earphone will be fixed. The cable is originally mounted for your left ear. When using the earphone on your right ear, the cable has to be readjusted.



(fig. 15)

Opening of the bag



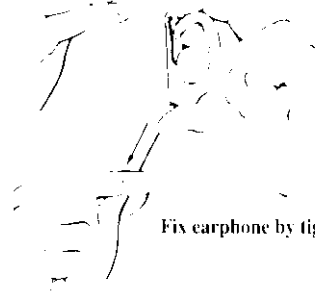
Socket for earphone

Upper bow of harness



(fig. 17)

Place upper bow behind your ear with the cable



(fig. 18)

Fix earphone by tightening the cable

TIPS FOR YOUR SKI TOUR



1. Always wear the avalanche transceiver on your body.

2. **Function test:** The function test within the group is the safest test and should be accomplished at the start of every tour or deep powder run!

3. **Receiver test:** One transceiver (the tour guide's) is in transmitting mode. All other devices are set into RECEIVING mode (at 60 m range). The guide moves away from the group until his signal can not be received anymore by the rest of the group. This is how the receiving range can be determined!

4. **Transmitter test:** One transceiver is set into RECEIVING mode (at 60 m range), all other participants walk by this transceiver one by one.

A minimum range of 20 m should be achieved with every device in transmitting and receiving mode.

ATTENTION

Make sure that all participants switch back into **transmitting mode** after the function test!

THE SEARCH FOR AVALANCHE VICTIMS COARSE SEARCH

SEARCH FOR THE FIRST SIGNAL

1. Marking the prime search area

If a skier is caught by an avalanche, observe his exact track, note the point where he was last seen, estimate the position where he is buried by considering the direction and speed of the avalanche (see fig. 19). If the accident had no eyewitness, estimate the primary search area by observing the victim's ski track, if possible the point of capture, size and direction of avalanche. It helps significantly if comrades not participating in the search mark as many of the above mentioned points as possible. Use skis and poles for marking.

ATTENTION:

Never take off your backpack with equipment that might be needed for the search and first aid actions (avalanche probe, shovel, ropes, clothing, first aid kit, etc.)!

2. Determine the search strategy

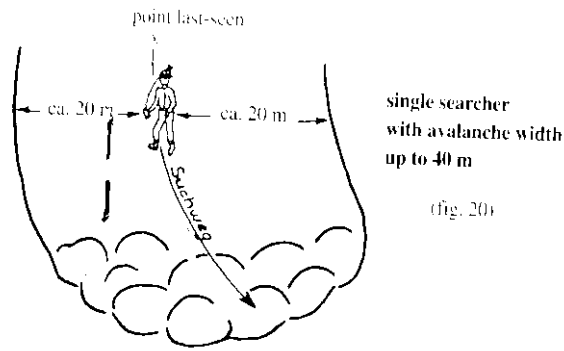
According to figs. 20 - 22.

3. Surface search

Before starting the coarse search, the surface of the primary search area should be visually searched for any equipment or parts of a body showing. If something is seen, walk directly towards the obstacle with receiver turned on and pay attention for the first signal. If a signal is received, continue as described in "FINE SEARCH" (pg. 28). If not, start coarse search as follows:

4. Coarse search:

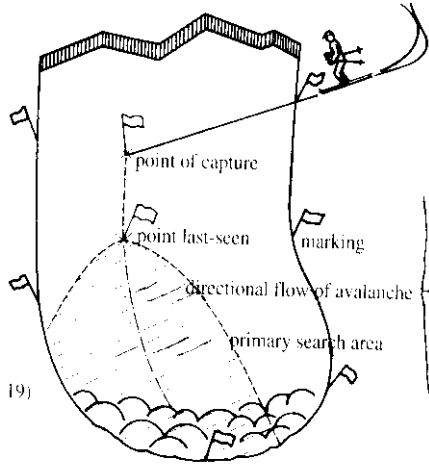
All participants **must** switch the devices into **RECEIVING MODE** to avoid confusing signals from non-victims. Set switch into the first search zone "START 80 m". Determine the search path according to your search strategy and pay attention for the **FIRST SIGNAL** received. From this point on the **FINE SEARCH** begins.



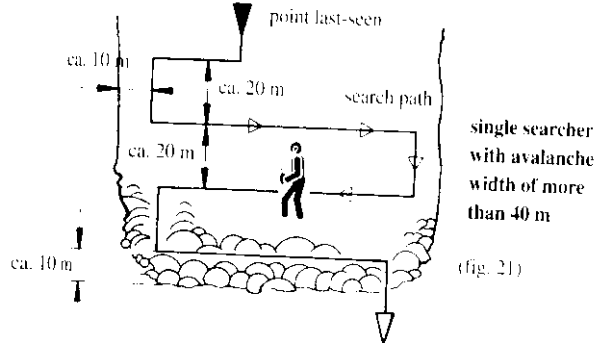
single searcher
with avalanche width
up to 40 m

(fig. 20)

Markings

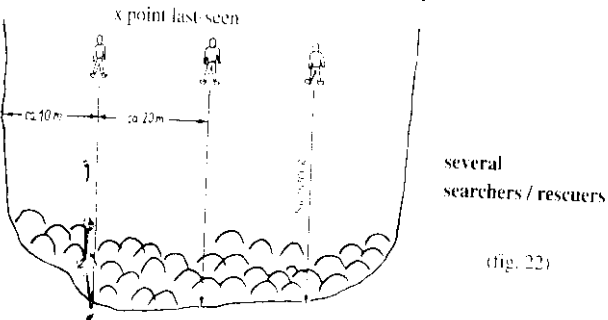


(fig. 19)



single searcher
with avalanche
width of more
than 40 m

(fig. 21)



several
searchers / rescuers

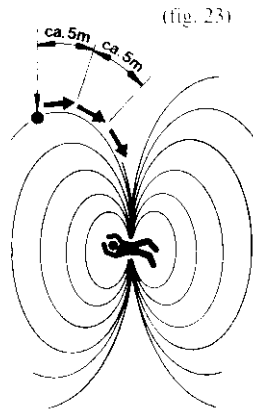
(fig. 22)

FINE SEARCH (INDUCTION LINES METHOD)

1. Having received the first signal, hold the device with the direction arrow pointing ahead of you. Then turn yourself and the horizontally held device around your own axle until you have found the direction of the loudest signal.

RECOMMENDATION:

It is easier to search for both points of minimum volume and determine the center. By doing so you determine indirectly and more exactly the direction of the loudest signal. The visual search indicator of the F1 focus facilitates this search method. You won't hear any change of volume in the rare case that the receiving and transmitting antennas are exactly vertical to each other. In this case the beacon receiving must be inclined a little.



ATTENTION!

The direction found in this way may not yet be the direction of the victim, it might also be the direction of the tangent to the induction line.

2. Follow this direction approx. 5 m. Stop and turn yourself, holding the transceiver horizontally until you have found the "loudest" direction. (Tip: Do not exceed a turn angle of 90°)
3. Go 5 m. Then stop and turn yourself, holding the

transceiver horizontally until you have found the "loudest" direction.

IMPORTANT!

Do not forget to switch back to the lowest possible volume range in time!

4. This procedure has to be repeated until the lowest searching zone (2 - 0 m) had been reached.

Thus you approach the victim in the form of a curve (according to the induction line, see fig. 23).

Only in the rare case when the antennas of both devices are directly aligned to each other the direction arrow will show the actual location of the victim. If this induction lines method is well learned, you can locate the victim very quickly.

5. Visual search indicator of the F1 plus.

Facilitates the search according to 1. - 3. The

search indicator flashes at a distance of about 35 m away from the victim. According to 2. - 4. you turn yourself until the indicator flashes and then you follow this direction.

6. Special instructions for the visual search indicator of the F1 focus

Instead of one light the visual search indicator of the F1 focus is composed of three lights shaped as an arrow (focus arrow). The green light starts to flash at a distance of about 35 m away from the victim.

- 1) Place the device in a horizontal position, and scan side to side until the signal is strongest (most lights flashing: green will appear first, then yellow, then red).
- 2) Walk in direction of the arrow for five steps.
- 3) If signal decreases, reverse your direction.
- 4) Scan with the device to find strongest signal.

- 5) When the red light begins to light up, turn the volume control down in one-step increments.
- 6) Repeat steps 2, 4 and 5 (do not repeat step 3) until the strongest signal is received at the lowest volume setting.
- 7) You are now at the closest position to the victim that is detectable with the beacon.
- 8) Start the pinpoint search

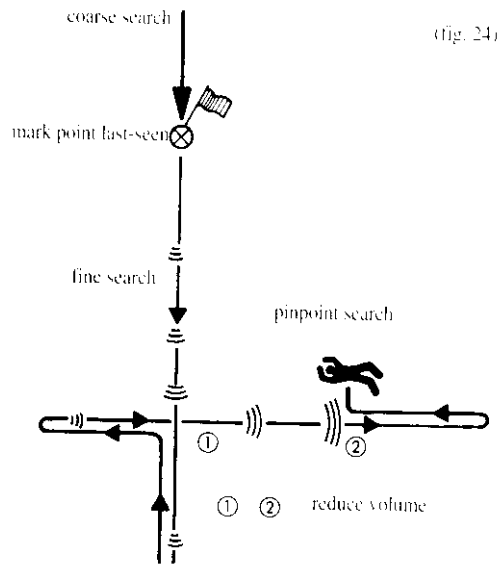
FINE SEARCH (GRID PATTERN METHOD)

1. After the first signal has been received, the fine search begins. Follow the direction of the increasingly louder signal in a straight line. As soon as the maximum volume is reached, reduce the volume by switching back the switch for volume control

so that the volume can increase again when approaching the victim! When the red visual search indicator light of the F1 plus/F1 focus flashes, you have to switch back into a lower search zone. Follow the way as shown in fig. 24!

2. If the signal gets weaker, return to the point where you received the strongest signal and mark it. If this position is difficult to determine, mark two points where the signal begins to weaken and then mark the middle between these two points.
3. Now advance, changing your direction to 90° (see fig. 24).
If the signal gets weaker again, go in the opposite direction following the increasing signal and mark the point of the strongest signal as described under 1. + 2.

4. Repeat this method until you have reached the search zone "0 - 2 m".

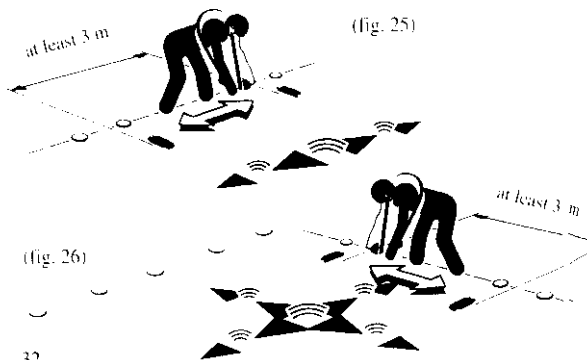


PINPOINT SEARCH

To begin the pinpoint search, scan the snow surface as described under 1., 2. and 3. from page 30 "grid-pattern method" (without leaving that point and without turning yourself or the device!). It is absolutely necessary to scan for at least 3 m. (using side steps). The exact position of the victim is determined, if the volume decreases in every direction the transceiver is moved.

Advice:

For physical reasons the volume can decrease within a very short distance (about 10 - 20 cm) and increase again while approaching. This fact is insignificant for the pinpoint search because the signal increases more clearly while approaching the victim or it decreases as you get further away. As this effect occurs symmetrically, it is possible to search for the two points where the signal gets radically weaker and to determine the exact position of the victim by establishing the center of these two points.



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It helps to draw "searching lines" crosswise into the snow with the ORTOVOX device (fig. 25 and 26).

Visual search indicator of the F1 focus/F1 plus

The pinpoint search can be accomplished a lot faster and easier with the visual search indicator.

NOTE:

1. If the range of the victim's transceiver has diminished (i.e. due to weak batteries), the search zone changes accordingly, depending on the effective maximum range of the transmitter. This only affects the search in such a way that the pinpoint search has to be done in a higher range (i.e. 2 - 8 m). This does not affect the exactness of the location in any way!

2. If the victim is buried under larger masses of snow, the pinpoint search must


also be done in a higher range of the device. The position of the loudest signal is usually harder to define now. Therefore mark the two points where the signal definitely gets weaker and the center between these two (as described on pg. 30 and 31)!

3. During the line (induction lines method) and grid pattern method) and the pinpoint searches you will get the best receiving quality if both avalanche transceivers (transmitter and receiver) are positioned in a parallel manner. If you have found this position, keep it during the whole search procedure.

4. If the transmitting device lies in the snow in a horizontal position, it is possible, due to laws of physics to hear two maximum signal positions. The device should then be positioned in the middle of these two maximums.

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PLEASE NOTE:

- After the first signal has been received, do not disturb the searcher!
- To avoid confusing signals, only one searcher should do the fine search!
 - The use of an earphone eliminates disruptive environmental factors (i.e. wind, helicopter) or signals from other searchers, as the loudspeaker is automatically switched off.
 - In case of another avalanche while searching, the device can be quickly switched into TRANSMITTING MODE. The switch of the F1 focus/F1 plus/F1 classic can be turned to its end (see fig. 27).
 - After the search is completed, make sure that your ORTOVOX device is switched back again to TRANSMITTING MODE.
 - a) the switch of the F1 focus, F1 plus/F1 classic has to be turned to the symbol 
 - b) the earphone plug of the

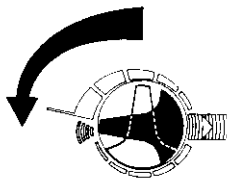
F2 has to be pulled out of its socket.

IMPORTANT!

The change of strength of the signal is better defined at a lower volume, therefore always switch back into a lower search zone as soon as possible. By doing so, the search area can be defined a lot faster.

ORTOVOX strongly recommends that users seek professional avalanche safety instruction, practice this procedure before using it in the field and always carry an avalanche shovel in their packs!

to the left



(fig.27)

RANGE

Due to laws of physics the range of the transceivers depends on their relative position to each other. If the transceivers are positioned unfavourably, the range can be reduced. This can be partially amended when pivoting the receiving beacon. A maximum range can only

be achieved when the longitudinal axis of both transceivers are aligned (= direction arrow).

For this reason it is recommended to pivot the ORTOVOX device slowly in all directions in order to get the best receiving position. However do not change your searching path (acc. to fig. 20/21/22) while doing so.

TECHNICAL DATA F1 focus

Transmitter and receiver frequency: 457 kHz
Range: about 80 m
Temperature range: -30 °C to +50 °C
Dimensions: 120 x 80 x 20 mm
Weight: 230 g incl. batteries and straps
Working life: transmitting: about 300 h
receiving: about 40 h
Casing: waterproof according to DIN 32924
Batteries: 2 x 1.5 V alkaline (no rechargeables)
LR6 (2 "AA" batteries)

TECHNICAL DATA F1 plus

All data is the same as for F1 focus but with added ski search frequency (398 kHz).

TECHNICAL DATA F1 classic

Same as for F1 plus, but without ski search frequency.

TECHNICAL DATA F2

Transmitter and receiver frequency: 457 kHz + 2,275 kHz
Range: up to 50 m
Temperature range: - 20 °C to + 50 °C
Dimensions: 20 x 80 x 120 mm
Weight: 300 g incl. batteries and straps
Working life: transmitting and receiving: about 300 h
Casing: waterproof according to DIN 32924
Batteries: 2 x 1.5 V alkaline (no rechargeables)
LR6 (2 "AA" batteries)

ORTOVOX avalanche transceivers meet the following standards:

the European standard prEN 282
the German standard DIN 32924
the Austrian standard ÖNORM S4/20

TECHNICAL DATA F plus SKI TRANSMITTER

Transmitter: 398 kHz
Range: about 25 m
Temperature range: - 20 °C to + 50 °C
Dimensions: 100 x 50 x 25 mm
Weight: 80 g each
Working life: about 100 h
Casing: strong and shock resistant
Battery: 1 1,5 V alkaline battery (no rechargeable)
LR6 (1 "AA" battery)

Can only be received with F1 plus.

FEDERAL COMMUNICATIONS CERTIFIED NUMBERS (FCC)

Austria:

GZ 9 577-5/90 for F1 plus and ski transmitter F plus

Germany:

ZG490370A for F1 plus and ski transmitter F plus

Switzerland:

PTT-11887 for F1 plus

PTT-11894 for ski transmit

USA:

KF5ORTOVOXF1 for all F1 transceivers

KF5ORTOVOXF2 for F2

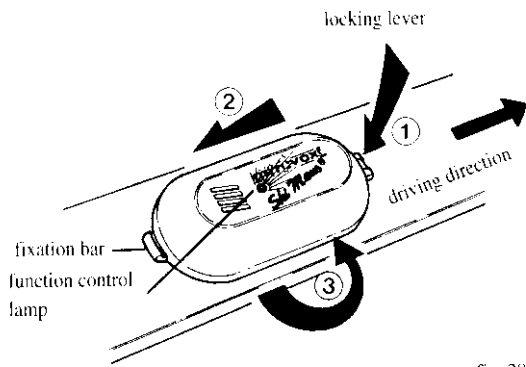
SKI TRANS- MITTER F plus

Ski Maus

The ORTOVOX *Ski Maus* F plus is a small transmitter that can be mounted on all skis with a set of mounting bars. The ORTOVOX *Ski Maus* should be mounted either 10 cm in front of, or behind the safety bindings. If the ski transmitter is attached to the bar with the control

light situated towards the front of the skis, the transmitter is automatically switched **on** and the control light blinks. If the *Ski Maus* is clicked on the other way around, the transmitter is **off**.

F plus in transmitting mode



(fig. 28)

BATTERY RECOMMENDATIONS

2 x 1.5 V alkaline batteries (no rechargeables)
LR6 (2 "AA" batteries)

The average transmitting capacity is about 300 hours. As it is impossible to forget to switch off a device due to the ORTOVOX forced ON/OFF switch, this means a working life of about one season or thirty 10-hour tours.

GUARANTEE SERVICE

For your ORTOVOX devices we provide a guarantee exceeding the usual and customary limitations of guarantees, if you submit your completed guarantee card and a copy of your receipt. This guarantee is indicated on the test seal (in the lid of the battery compartment of the F1 focus, F1 plus, F1 classic). Within the period of guarantee faulty parts will be repaired or replaced free of charge. Defects caused by improper wear and tear are excluded from guarantee. Earphones and batteries are also excluded from guarantee.

Guarantee services neither prolong nor renew the period of guarantee.

The ORTOVOX avalanche transceiver is a rescue device. Its perfect function might be crucial for life. Therefore you should return your device for factory service according to the date mentioned on the test seal. We suggest that you send back the device during the summer months to ensure that you have a fully tested device at the beginning of the winter season.

For repairs or factory servicing, please return your ORTOVOX transceiver to:

Addresses see last page.

AVALANCHE WARNING SERVICES

For information on the local avalanche situation please contact the following telephone/fax numbers:

Bavaria:	Automatic information	089/12 10 12 10
	Retrievable fax information	089/12 10 12 30
	Personal advice	089/12 10 15 55
Tyrol:	Automatic information	00 43/5 12/15 88
	Retrievable fax information	00 43/5 12/58 09 15 81
	Personal advice	00 43/5 12/58 18 39
Vorarlberg:	Automatic information	00 43/55 22/15 88
	Personal advice	00 43/55 74/5 11 43 08
Salzburg:	Automatic information	00 43/6 62/15 88
	Personal advice	00 43/6 62/80 42 21 70
Kärnten:	Automatic information	00 43/4 63/15 88
	Personal advice	00 43/4 63/5 36 28 97
Oberösterreich:	Automatic information	00 43/7 32/15 88
	Personal advice	00 43/7 32/65 84 24 85
Steiermark:	Automatic information	00 43/3 16/15 88
	Personal advice	00 43/3 16/29 51 16
South Tyrol:	Automatic information	00 39/4 71/27 11 77
	Personal advice	00 39/4 71/99 41 06
Aosta Valley:	Automatic information	00 39/1 65/3 12 10
Switzerland:	Automatic information	00 41/1/1 87
	Personal advice	00 41/81/46 32 64
- Geneva:	Automatic information	00 41/22/7 88 03 04
France:	Automatic information	00 33/78 58 00 42
	Briançon:	Automatic information
- Chamonix:	Automatic information	00 33/50 53 17 11
- Grenoble:	Automatic information	00 33/76 51 19 29
Slowenia:	Automatic information	00 38/6 61/31 20 83

All telephone numbers are indicated together with their international code numbers to be dialed from Germany. Inside each country you have to omit the code number of 4 digits but then you must dial an "0" in front of the remaining number. All indications are subject to change.6/96

EUROPEAN AVALANCHE DANGER CATEGORIES

Danger category	Probability of avalanche	Advice for ski tours
1 very low	An avalanche can only be released on very few, extreme steep slopes under extreme additional load ¹ .	In general safe touring conditions.
2 low	It is probable that an avalanche can be released on indicated steep slopes under higher additional load ¹ .	If you take local dangerous areas ² into consideration, the conditions for ski touring are okay.
3 considerable	It is probable that an avalanche can be released especially on indicated steep slopes under less high additional load ¹ . From time to time a few spontaneous ³ medium-sized avalanches, sometimes even large avalanches are possible.	Ski touring asks for experienced evaluation of avalanche hazard; ski touring possibilities are limited ⁴ .
4 high	It is probable that an avalanche can be released on most of the steep slopes under less high additional load ¹ . From time to time a lot of spontaneous ³ medium-sized avalanches, quite often even large avalanches must be expected.	Ski touring asks for high experienced evaluation of avalanche hazard; ski touring possibilities are strongly limited ⁴ .
5 very high	Even in less steep areas numerous spontaneous ³ avalanches are expected!	In general ski touring is not possible!

¹ = additional load: high: p.e. group of skiers, snow cats, bombing of avalanches
less high: p.e. a single skier, a chamber

² = the area of avalanche hazard is described more detailed in the daily avalanche report (p.e. altitude, exposition, terrain type etc.)

steep slope = slope showing an inclining of more than 30°

³ = spontaneous = without any human help

By kind permission of the Tyrolian Government.

AIR RESCUE TELEPHONE NUMBERS

Austria:

Mountain rescue headquarters:
(without area code) 140

Germany:

In the Alps there are 4 regional headquarters for mountain rescue. Please dial the telephone number mentioned below (with area code when phoning from a small village, without respective area code in a town) in order to request a helicopter:

Regional rescue headquarters: 19222
Otherwise please dial the general rescue number
(without area code): 110

Italy:

Mountain rescue headquarters:
This number works in many towns and villages:
(without area code) 118
Rescue service Dolomites: CNSAS 04 71/79 71 71
Rescue service Aosta 01 65/23 82 22

Switzerland:

REGA (without Wallis) 01/383 11 11
Air Glaciers 027/22 64 64
Air Zermatt 028 67 20 00

USA:

The mountain rescue services all have individual numbers in every state, but the main address and number are:

Mountain Rescue Association
710th St. # 105
Golden, CO 80401 Phone/Fax: 970-328-5299

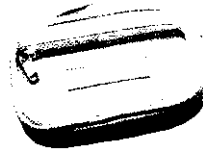
All indications are subject to change. 7/1996

EDUCATIONAL VIDEO FILM OF THE AVALANCHE VICTIM SEARCH

TRIP
M-100
9-20-96

This video (12 minutes) shows and explains the fast and safe search, location and rescue of avalanche victims using modern avalanche transceivers and avalanche rescue equipment for ski touring and alpine skiing (with Michael Dacher and Hans Kammerlander).

ACCESSORIES



Case for earphones



Earphones for all FI transceivers



Case for all FI transceivers

Practical belt case for your transceiver, earphone and user manual before and after a tour.

The earphone should be treated and transported carefully. This small case has been created to protect it and makes transport easy.

Useful accessory for FI focus, FI plus and FI classic. The loudspeaker will switch off automatically when connecting the earphone.

ORTOVOX SAFETY PRODUCTS

AVALANCHE SHOVEL

... the indispensable multi-functional rescue tool!

The rescue of avalanche victims, or digging for lost equipment can not be done without a shovel! That is why a shovel should be included in each backpack. That is why ORTOVOX backpacks have separate compartments for shovel blade and shaft.



DEFINITE ADVANTAGES

- large volume of shovel blade
- variable, ergonomic grip for both left and right handed people
- very lightweight and compact
- unbreakable, torsion-free blade with high impact resistance, even at low temperatures
- can be used for
 - digging a snow profile
 - making a "deadman" anchor
 - mounting an emergency sled
 - digging clear huts, paths, cars etc.

TECHNICAL DATA AND DETAILS

Shovel blade: 230 - 300 mm
Shaft: 400 to 800 mm
Weight: 600 g
Material: highly durable polycarbon

EMERGENCY SLED



AVALANCHE PROBE



DEFINITE ADVANTAGES

- permits mounting with in a couple of seconds assembly system
- high flex and impact resistance
- extremely lightweight

Within a couple of minutes you can assemble a rescue sled using your ORTOVOX shovel. The avalanche shovel, a pair of alpine touring skis and two slings are the components of this emergency sled. No extra weight or extra room is necessary.

The probe can also be used for precise pinpoint search, for the rescue without avalanche transceivers, for inspecting the snow pack, looking for crevasses and defining the snow depth.

TECHNICAL DATA AND DETAILS

Folded length: 40 cm
Unfolded length: 240 cm or 320 cm
Diameter: 11 mm
Versions: standard or reinforced
Weight: 250 g = 240/standard
320 g = 320/reinforced

FIRST AID KIT FOR TOUR AND SPORT



The first aid kit has been designed by mountain rescue doctors and takes into consideration the aspects of sports medicine. It should be an essential item in every backpack and sportsbag.

TECHNICAL DATA AND DETAILS

Weight: approx. 400 g full
approx. 110 g empty
Dimensions: 24 x 18 x 5 cm

BIVOUCAC SACKS



Indispensable protection against storm, rain and snow in case you need to bivouac.

DEFINITE ADVANTAGES

- very lightweight
- additional loops for fixing
- opening for ventilation

TECHNICAL DATA AND DETAILS

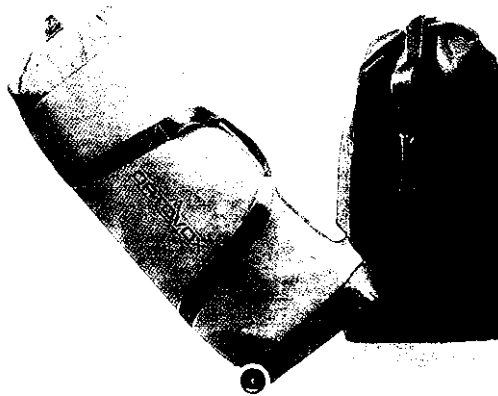
	bivouac poncho	Gemini light	Belay light
Length (cm)	190	190	220/200
Width (cm)	100	135	145
Weight (g)	300	350	450
Persons:	1	2	2
Material:	powernet thermolight		
Outer colour:	orange/violet		
Inner colour:	silver		

RANGE OF ORTOVOX INOS PACKS

... traveling worldwide comfortably!

ORTOVOX offers three different sized sportbags and one duffel that solve every transport problem. You can carry heavy loads with the light, built in castors and rolling system. Due to this carrying system, they can be used for every purpose

INOS TRAMP	60 l	28 x 28 x 80 cm
INOS TOUR	90 l	32 x 32 x 100 cm
INOS TREKKING	100 l	32 x 32 x 100 cm
INOS TRAVEL	130 l	35 x 35 x 110 cm



RANGE OF ORTOVOX BACKPACKS

... an easy climb means a safe climb!

WINTER BACKPACKS

ORTOVOX backpacks are unique. The ergonomic fit hugs the anatomical contours of the back easing the physical demands. The sophisticated system of separate compartments for easy packing is known worldwide. You benefit from easy and quick access to each item in the pack at any time.



CIRRUS
25 l 800 g



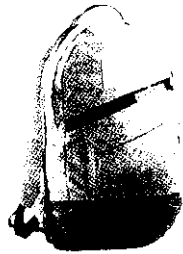
STRATUS
32 l 900 g



CUMULUS
40 l + 20 % 1100 g

SUMMER BACKPACKS

Priority was given to producing lightweight backpacks. However, great importance was also attached to functionality and fitting. These perfectly fitting backpacks were primarily designed for sports such as climbing and biking.



PICCOLO
20 l 420 g



ROCK light II
33 l 500 g

ICE light
40 l 950 g



Please ask for our
catalogue!

ORTOVOX natoure

... it works and feels good!

Wool has natural advantages. Therefore, all NATOURE SPORTSWEAR is made of 100 % pure new wool and not plastic or synthetics. We have taken great lengths to develop NATOURE LIGHT-WALK and NATOURE WALK - materials made of 100 % pure new wool that create new standards for

sportswear: Wool provides the ideal climate control, is waterrepellent, windproof and offers better thermal regulation than synthetics. Wool is equally sound for man and nature. Underwear - shirts - pullovers - cardigans are the cornerstones of our physiological system: ideal sportswear without synthetic fibres.



Touring cardigans and pullovers



Hats, caps and headbands



boiled wool, gloves, stockings, socks and hut slippers



100% pure new wool

FUNCTIONALITY OF NATOURE FIBRES

NATOURE SPORTSWEAR protects you against overheating due to its better thermal regulation when compared to synthetic fibres.

Result: Higher athletic endurance and safety.

NATOURE SPORTSWEAR largely compensates for evaporative cooling by the condensation of heat which is unique in pure new wool. Moreover, "boiled" wool is highly wind-resistant. NATOURE SPORTSWEAR is extremely permeable to humidity and thus climate balancing.

Result: The body remains dry and warm. Prevents overheating and less change of clothes.



Our sportswear is extremely water-repellent due to the natural structure of the wool fibre and the wool fat LANOLIN.



Result: Better moisture regulation and protection against wetness.

NATOURE SPORTSWEAR is sweat-absorbing and odor-resistant.

Result: Greater comfort range for all activities.



Due to the remaining humidity and its sealed structure, NATOURE fibre is only slightly electrostatic and therefore dust-repellent.

Result: An easily cared for, practical and clean material.



The curled wool fibres, this insulates more effectively.

Result: High level of insulation.



NATOURE SPORTSWEAR is environmentally friendly. Pure new wool is a renewable raw material, biologically recyclable.

Result: Better for the environment and ecology.

FUNCTIONALITY OF NATOURE FIBRES

NATOURE SPORTSWEAR protects you against overheating due to its better thermal regulation when compared to synthetic fibres.

Result: **Higher athletic endurance and safety.**

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The body remains dry and warm. Prevents overheating and less change of clothes.



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Result:

Better moisture regulation and protection against wetness.



51

NATOURE SPORTSWEAR is sweat-absorbing and odor-resistant.

Result:

Greater comfort range for all activities.



Due to the remaining humidity and its scaled structure, NATOURE fibre is only slightly electrostatic and therefore dust-repellent.

Result:

An easily cared for, practical and clean material.



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The curled wool fibre traps air. Compared to synthetic fibres, this insulation is far more effective.

Result:

High level of insulation.



NATOURE SPORTSWEAR is environmentally friendly. Pure new wool is a renewable raw material that is biologically degradable and recyclable.

Result: **Beneficial to man and ecology.**