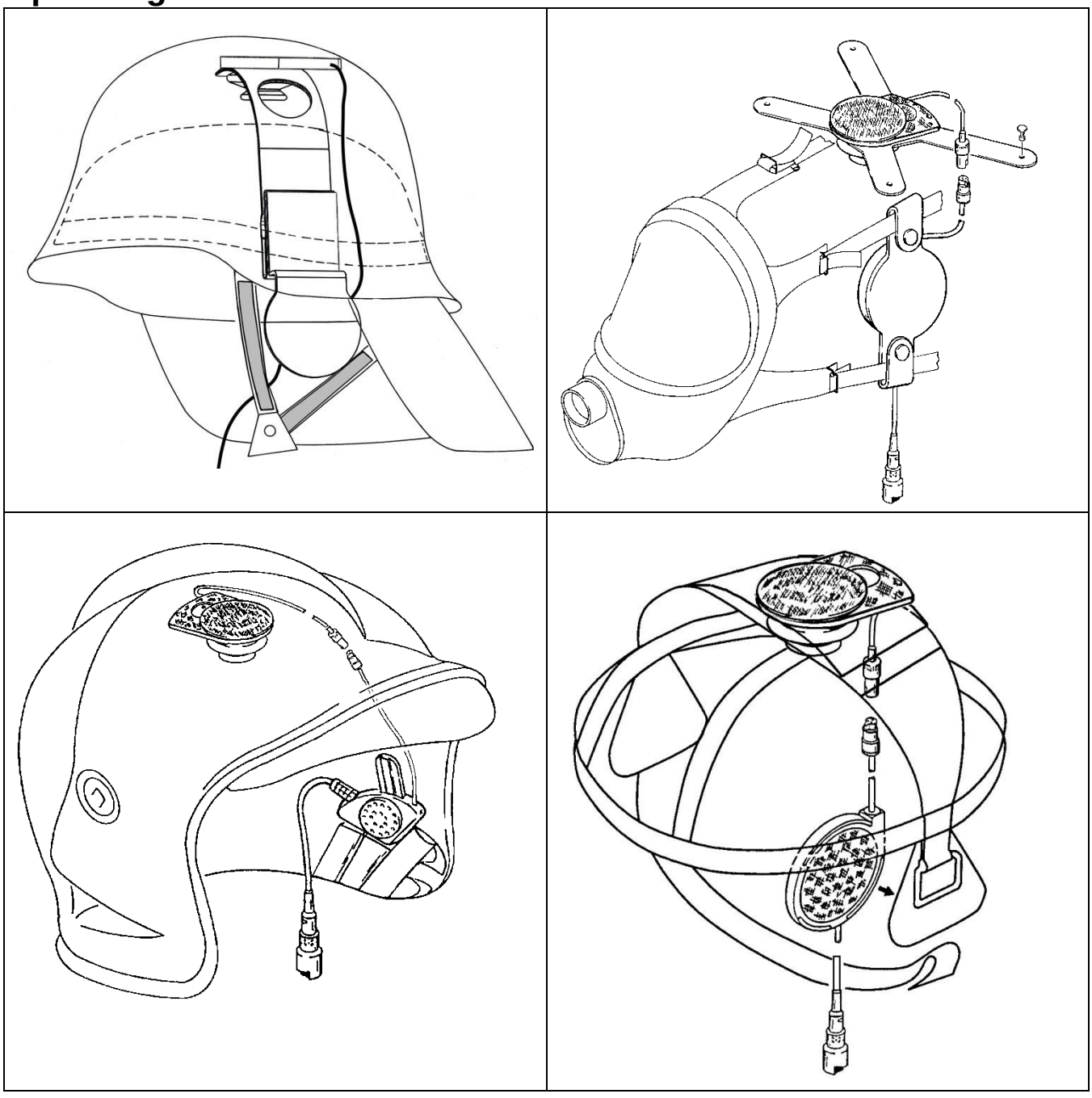
CeoTronics
Audio · Video · Data Communication

ContactCom / Ex

ContactCom / Ex*

Operating Instructions



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1. CeoTronics Operating, Warning, and Safety Instructions

For the use of the device and for prevention of personal injury or property damage, notice the national safety and accident prevention regulations and the following warning and safety instructions in this document.

- *Before using CeoTronics products, read completely the appropriate operating instructions. If in doubt, ask our technical staff.*
- *Keep this document for later use.*
- *Use CeoTronics products only without damage and abrasion.*
- *If repair work of any kind needs to be done to CeoTronics products, arrange for it to be performed only by the company CeoTronics or by a specialized workshop that is authorized by CeoTronics. In all other cases, our warranty and liability for the product shall lapse.*
- *Keep CeoTronics products out of the reach of children and any other persons who are not familiar with the handling and operation thereof.*
- *CeoTronics products may only be used for the specific application envisaged.*
- *Safe operation requires clean devices. Ensure that the devices (microphones, connectors etc.) are clean and in good condition at all times.*
- *Should equipment, supplied by CeoTronics, be definitely put out of service you may return it to CeoTronics. We ensure recycling and / or disposal of outdated equipment in compliance with the applicable environment protection law.*

Product damage!

- *Do not immerse a CeoTronics product into water, unless expressly specified for this purpose.*
- *Connect CeoTronics accessories to a device or disconnect them from a device only after switching the device off, unless otherwise described in the operating instructions.*
- *Let devices that are designed for outdoor use during use outdoors always closed (e.g. CT-DECT Case) and close unused ports with appropriate cover – if available.*
- *Do not store CeoTronics products outside or in damp ambient conditions but keep them always clean and dry at normal atmospheric humidity. CeoTronics products must not be stored in areas with temperatures above +80° C, e.g. in summertime on the rear window shelf of a car. If not otherwise indicated on the product, the following temperature ranges are allowed for intrinsically safe CeoTronics products: for operation -20 to +40° C, for storage -40 to +80° C.*
- *Pay attention that no humidity could penetrate into the device during cleaning. Do not use solvents (e.g. benzene, alcohol, etc.) for cleaning! Safe operation requires clean devices. Ensure that the devices (microphones, connectors etc.) are clean and in good condition at all times.*

Risk of injury by connection leads!

- *When using CeoTronics products that are equipped with connection leads ensure that the leads do not get caught up in operational machinery or wheels!*

Risk of injury by speaker volume!

- *Please, note that in some audio devices (e.g. radios) very loud signaling beeps could be present as the radio is switched on. There are various types of devices generating a series of tones in different loudness levels. It may be necessary to adjust the volumes of the tones separately. These tones could damage your hearing if they are set too high. Therefore, adjust signaling beeps to a convenient level as desired before starting to use CeoTronics accessories. Follow the instructions of the audio device manufacturer's operating manual to adjust the signaling beeps.*
- *For safety reasons reception volumes in excess of 85 dB (A) are possible with a whole series of CeoTronics products. However, these can be regulated by the user. After switching on the communication system, set the reception volume to approx. 1/2 the available loudness volume and then test the speaker volume, e.g. by opening the squelch on the radio set.*
- *Do not set the volume any higher than is necessary. A very high volume setting can lead to damaged hearing, particularly if it is continuous. For high volumes or noise levels, wear additional earplugs. If in doubt, ask your safety officer or company doctor.*

Road traffic hazard!

- *Do not leave CeoTronics products lying around loose in cars, e.g. on the parcel shelf. Stow these products in a suitable, safe place in the car so that they do not present a danger to you or to other occupants of the car, if emergency braking is effected.*
- *When driving a car, do not use the radio because it may distract you from the other traffic. Never use a CeoTronics product (headset, insert earphone, induction receiver etc.) that will impair your hearing.*

Impairment of flight operation!

- *When on board an airplane always keep a transmitter/receiver switched off. Operation of the transmitter / receiver could affect the safety of the aircraft, and it is therefore prohibited. Never operate electronic devices on board an airplane without the express approval of an authorized member of the cabin crew.*
- *The CT-DECT GateCom Compact must always be removed once the intercom communication is completed. Never remove the warning flag „Remove before flight" from the CT-DECT GateCom Compact.*

Impairment of radio transmission!

- *Transmit only when it is necessary. Unnecessarily occupying a channel can prevent the transmission of vitally important information.*

Risk of explosion!

- *Intrinsically safe (explosion-proof) CeoTronics products are used wherever potentially explosive atmospheres – e.g. explosive gases or vapours in conjunction with air – exist or can be present. For intrinsically safe CeoTronics products the special "Ex" advises in this manual have to be respected.*
- *CeoTronics products that are not intrinsically safe (explosion-proof) and there- fore have no special explosion-proof designation must never be operated in potentially explosive environments (e.g. when refueling cars, aircraft etc.). Devices that are not explosion-proof can unintentionally trigger off explosions in such areas!*

Risk of electric shock!

- *Before opening line voltage operated products (e.g. for service purposes), always disconnect first the mains plug from the mains socket!*
- *Use CeoTronics products only in undamaged condition. In case of any kind of damage, refrain from further using the CeoTronics product and have it repaired.*

Adverse effect on cardiac pacemakers!

- *If you are a cardiac pacemaker carrier, before operating a transmitter / receiver ask the manufacturer of your cardiac pacemaker for information about any impairment that could be caused due to high frequencies.*

Rechargeable batteries and batteries!

- *Observe the environmental regulations when handling storage batteries! Do not throw used (defective) storage batteries into the domestic refuse. Observe the battery ordinance (BattV).*

Risk of injury by Rechargeable batteries and batteries!

- *Insert the rechargeable batteries only after having read and understood all safety instructions. Rechargeable batteries imply potential risks, which could cause physical injury and material damage.*
- *Never intend to open a rechargeable battery and never throw it into open fire. Ensure that contacts and charging sockets of the rechargeable battery do not cause short circuit (risk of fire and injury) by bridging (bent-open paper clip, bunch of keys or similar). In such a case, the guarantee is void.*
- *Transport spare rechargeable batteries in electrically non-conductive packing material in order to avoid shorting the rechargeable batteries.*
- *Keep the rechargeable batteries away from persons who are not familiar with their handling and use (e.g. children).*

- *Charging rechargeable batteries in potentially explosive areas is strictly prohibited (risk of explosion!). Charge and change rechargeable batteries only in areas where no explosive gases, vapours, or dusts could be present in combination with air.*

Damage to charger or rechargeable batteries!
- *Charge rechargeable batteries only using the corresponding appropriate CeoTronics charger. Regard voltage and current data, also on the mains side (e.g. 230 V AC or 115 V AC).*
- *Never use the battery charger for charging non-rechargeable batteries.*
- *Chargers are neither waterproof nor dust-tight and need protection against water, rain, and contamination. Use them only in the appropriate environment, intended for the system. Don´t cover the ventilation openings.*
- *Don‘t charge rechargeable batteries outdoors.*

Radio Software – Risk of malfunction!
Please note that the function of radio accessories is depending on the software settings set up in your radio. Be careful with software updates and / or changes to the software settings. If you update the radio's software, or if you change the software settings, check first on a radio that the radio accessory is still functioning properly after these changes. It is possible that the receiving volume of some radios is not satisfactory. In these cases, we suggest you check if an increase of the receiving volume is possible via the parameters in the audio profile of your radio.
Follow the information of the radio manufacturer!
If you have any further questions in regards to this subject, do not hesitate to contact our sales back office.

Important safety information concerning the use of CT-DECT digital radio systems!
- *Legal note for operation in the European Union*

The transmitter of the CT-DECT device should be used in the European Union only when it is marked as following:

CE

- *Legal note for operation in the USA*

The transmitter of the CT-DECT device should be used in the USA only when it is marked as following:

FC

- *Legal note for operation in Canada*

The transmitter of the CT-DECT device should be used in Canada only when it is marked as following:

IC

Improper use!
The use of CeoTronics products for special applications, such as explosive and hazardous areas, aviation, bomb disposal (EOD / IEED) or other similar applications, is in the sole responsibility of the end user. The end user has to check and decide that the products can be used without risk.

CeoTronics does not take over responsibility for any damage or material losses nor injuries to persons, caused by the use described above or by any other abnormal use of the products.

1.1 Additionally Safety Instructions

- *Headset muffs with a high degree of passive noise attenuation are used for CeoTronics headsets with headset muffs. If not stated otherwise, it is our experience that the passive noise attenuation of the headset muffs is reduced by approx. 3 dB due to the electronics that are integrated into the headset muffs. As a rule no empirical values are available for non-standard products.*
  Information to noise attenuation values, which result from representative measurements of a named place, are to be regarded as orientation values, which cannot be guaranteed, if no "Type Examination Certificate" is present.
  Note that it acts with electronic communication systems of CeoTronics, not around "Personal Protective Equipment" in the sense of the "PPE Directive 89/686/EEC", if not differently indicated.
  At very high noise levels that exceed the passive protective effect of the headset muffs we recommend that ear plugs be worn as an additional measure. If in doubt, ask your safety officer or company doctor. The best noise attenuation exists only if the muff padding is in perfect condition. This should be replaced at the latest after every 6 months of use.

2. Information concerning explosion proofness

2.1 Equipment

Model designation: ContactCom/Ex-1 or ContactCom/Ex-2
Target group: Skilled electricians and trained personnel according to national Safety and Accident Prevention Rules

2.2 General

This CeoTronics product is also available as an intrinsically safe version for deployment in explosion hazard areas. It conforms to the European standards for intrinsically safe products (ignition protection type "i") and meets the requirements of protection class Ex ib IIB T4 respectively Ex ib IIC T4. For the explosion-proof class please refer to the explosion-proof marking on the product. Use the product only in explosion hazard areas that do not require a higher protection class than that specified. If in doubt ask your safety officer or superior.
Before using this product please read the explosion hazard instructions carefully and comply with the explosion hazard instructions in order to avoid any risk whatsoever of an unintended explosion.

2.3 Conformity with standards

This intrinsically safe product meets the requirements of the European standards EN 60079-0 and EN 60079-11. It has been developed, manufactured and tested in compliance with the state of the art and in conformity with DIN EN ISO 9001.

2.4 Product liability

We expressly draw attention to the fact that any repair, modification or replacement of components whatsoever – including plugs and cables – may be effected only by CeoTronics or by specialized operations that are authorized by CeoTronics. In all other cases our warranty and liability for the product shall lapse automatically and shall pass to the party who/that occasioned such action.

2.5 Use of intrinsically safe equipment

When connecting intrinsically safe CeoTronics products to another intrinsically safe device, do not fail to take heed of the explosion-proof class on the explosion-proof marking on the CeoTronics product and of the electrical limit values. The use of a CeoTronics product that has no explosion-proof marking or that has one which has become illegible, is strictly prohibited in explosion hazard areas!

Electrical limit values
Only if the electrical limit values of the CeoTronics product are complied with by the other intrinsically safe device, is deployment in an explosion hazard area allowed. If you do not know the electrical limit values at the connection socket of the other device, get in contact with the supplier or manufacturer of that device.

Different grades of explosion-proofing
When interconnecting explosion-proof devices and explosion-proof accessories that have different grades of proofing, e.g. to a communication system, the resulting grade of proofing is always the lowest grade of proofing that is specified for an explosion-proof device or an explosion-proof accessory for this system.

2.6 Markings

Microphone unit and speaker units

Manufacturer:	CeoTronics AG
Model designation:	ContactCom/Ex-1 or ContactCom/Ex-2
Explosion-proof class:	Ex ib IIB T4 or Ex ib IIC T4
Certification number:	TÜV 03 ATEX 2100

PTT button units

Manufacturer:	CeoTronics AG
Model designation:	ContactCom/Ex-1 or ContactCom/Ex-2
Explosion-proof class:	Ex ib IIB T4 or Ex ib IIC T4
Certification number:	TÜV 03 ATEX 2100
Marking in conformity with EC Directives 94/9EG:	CE 0035 Ex II 2 G

Example cable flag *front*

back

2.7 General technical specifications

Ambient temperature:	-20 to +40 °C
Degree of protection	≥ IP 20 (in some cases ≥ IP 40)

2.8 Electrical specifications

ContactCom/Ex-1

maximum input voltage:	Ui = 10 V
maximum input current:	Ii = 1.5 A
maximum input wattage:	Pi = 15 W
Effective internal capacity:	Ci Negligible
Effective internal inductivity:	Pi Negligible

ContactCom/Ex-2

maximum input voltage:	Ui = 3.9 V
maximum input current:	Ii = 400 mA
maximum input wattage:	Pi = 1.56 W
Effective internal capacity:	Ci Negligible
Effective internal inductivity:	Li 10 µH

2.9 Electrostatic charging

The device is partially made of non-conductive plastic material. It is especially designed to ensure that, if appropriately used, no inadmissible electrostatic charge could occur (gas group IIB respectively IIC).

1. ***The installation of ContactCom/Ex, e.g. into a helmet, into a breathing mask or into a head strap, must never be performed in explosion hazard areas. This also applies to its removal, e.g. separation from Velcro connections.***

2. ***The helmet, breathing mask or head strap with the installed ContactCom/Ex communication headset must be put on only outside of the explosion hazard area.***
3. ***The ContactCom/Ex communication headset must never be exposed to friction while being worn in explosion hazard areas.***
4. ***Fasten the PTT button by means of the clip on its rear side to a suitable place on your clothing so that no electrostatic charging can occur, e.g. by the PTT button rubbing on your clothing. Accommodate a PTT button without a clip inside your clothing (e.g. in a pocket in your clothing) so that no electrostatic charging can occur, e.g. by the PTT button rubbing on your clothing.***
5. ***ContactCom/Ex must be cleaned only outside of explosion hazard areas.***

2.10 Installation

For installation & operation apply authoritatively the national Safety and Accident Prevention Rules, the state-of-the-art technology, and the present operating instructions.

Take heed of the following instructions:

1. ***Only explosion-proof assemblies with the same type marking, (ContactCom/Ex-1 respectively ContactCom/Ex-2), may be interconnected.***
2. ***Other CeoTronics products or products of third-party manufacturers that are coincidentally equipped with the same plug connectors must never be combined with ContactCom/Ex-1 respectively ContactCom/Ex-2 products.***

2.11 Explosion hazard instructions

If the following instructions for explosion hazard instructions are not complied with, the consequence could be an unintentional explosion!

(1) This intrinsically safe CeoTronics equipment is not suitable for use in category 1 (zone 0).
(2) Operate this intrinsically safe CeoTronics equipment only in compliance with its intended use and in an undamaged and clean condition.
(3) The performance of any modifications to intrinsically safe CeoTronics equipment is prohibited.
(4) If this intrinsically safe CeoTronics equipment has faults of any type whatsoever, remove it immediately from the explosion hazard area.
(5) An intrinsically safe CeoTronics equipment may be connected to and disconnected from an intrinsically safe device (e.g. radio set) only outside of the explosion hazard area. This means, e.g. that an explosion-proof radio set, an explosion-proof rechargeable radio battery and an explosion-proof CeoTronics equipment must always be connected to a communication system outside of the explosion hazard area and must be introduced into the hazardous area in an interconnected state only!

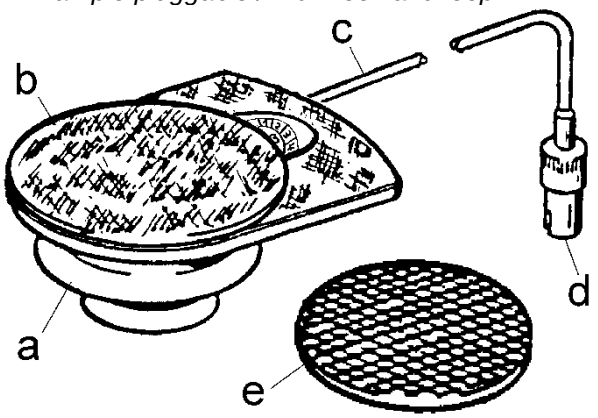
3. Description

CeoTronics ContactCom is a communication headset which is used in conjunction with radio sets or with other communication devices. As a rule the system ContactCom consists of the constituent parts contact microphone, speaker and PTT unit (Push to talk).
Different speakers and PTT units can be used. These components can be connected plug able or fixed with one another. Always all do not belong all these components to the scope of delivery.
The ContactCom is available for different installation situations e.g. in helmet, respirator or headbands.
In the ContactCom system can be used different connectors.
CeoTronics ContactCom is available as ATEX- and non-ATEX version.
Plugs are available for almost all the popular radio sets on the market. As a rule they come fitted ex-works to the connection cable to the ContactCom communication headset. ContactCom/Ex communication headsets are supplied only with radio set plugs ready fitted ex-works.
As a rule the power supply for ContactCom is provided by the radio set or communication device.

3.1 Contact microphone

The contact microphone, picks up speech from the cranium, converts it into electrical signals, amplifies them and then conducts them to the radio set or communication device for transmission.
Depending upon operations - and installation situation the contact microphone can be pluggable or hard wired connected to the speaker unit. As a rule the microphone is equipped ex-works with a hook and loop part (Fig. 1/b) for safety.

1 Example pluggable / with hook and loop



Key to microphone unit fig. 1

a Contact microphone
b hook and loop / Example
c Connection cable
d 3-pole plug for connect the speaker unit / Example
e self-adhesive hook and loop (example) for fixation the contact microphone / Example

3.2 PTT-buttons and PTT-connections

For transmitter keying by hand the PTT unit (PTT = push-to-talk) is used in the connection line between the ContactCom headset (microphone and speaker) and the radio set or communication device.
As a rule it consists of: a PTT button, a connection cable with a coupling for connection to the ContactCom headset, a connection cable and connection plug depending on the radio set or communication device. Es können verschiedene PTT-Tasten bzw. PTT-Anschlüsse zum Einsatz kommen. Different PTT keys and/or PTT connections can be used. The figures 2...8 show often used PTT keys and/or PTT connections.
Different PTT buttons respectively PTT connections can be used. The figures 2...8 show often used PTT buttons and PTT connections.

PTT buttons

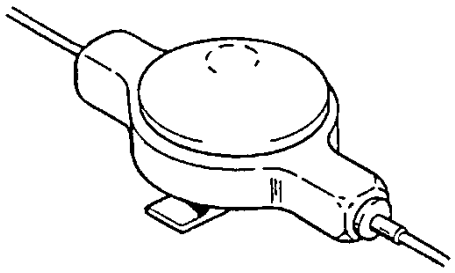
Fig. 2 Inline PTT button with fastening clamp
Fig. 3 Inline PTT button with selector switch for VOX or PTT in the case of two-way radios with VOX (voice activated transmitter keying).
Fig. 4 PTT button with fastening clamp and cable one-sided
Fig. 5 Large surface inline PTT button with fastening clamp and protective rubber ring. Optional available with volume control

PTT connections

Fig. 6 PTT connection, straight cable with safety coupling for connection of the communication headset, inline PTT button, straight cable with radio plug.
Fig. 7 PTT connection, coiled cable with plug for connection of the communication headset, inline PTT button, coiled cable with radio plug.
Fig. 8 PTT connection with PTT button, straight cable with safety coupling for connection of the communication headset, straight cable with radio plug.

As a rule the PTT buttons are equipped with a fastening clip on the rear side and can be fastened to a suitable place on your clothing.

2



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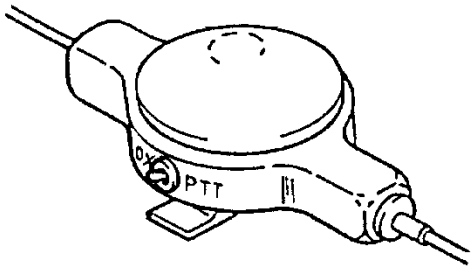

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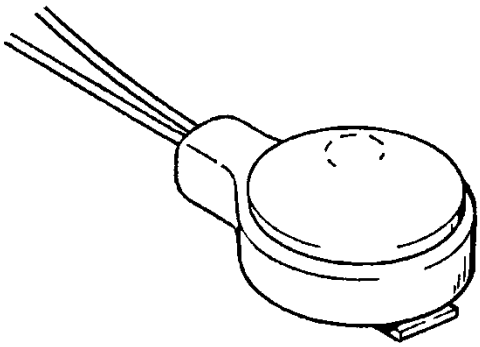

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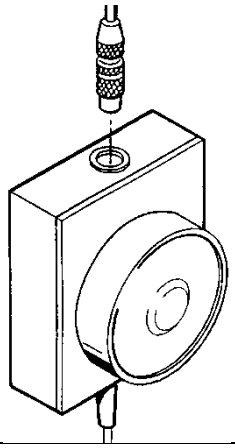

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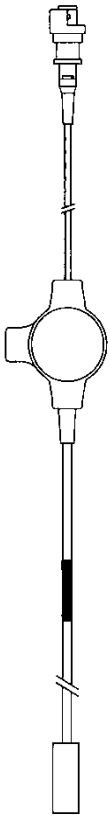

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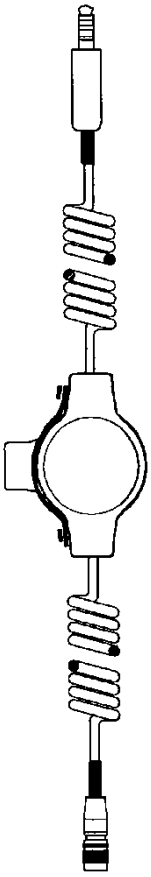

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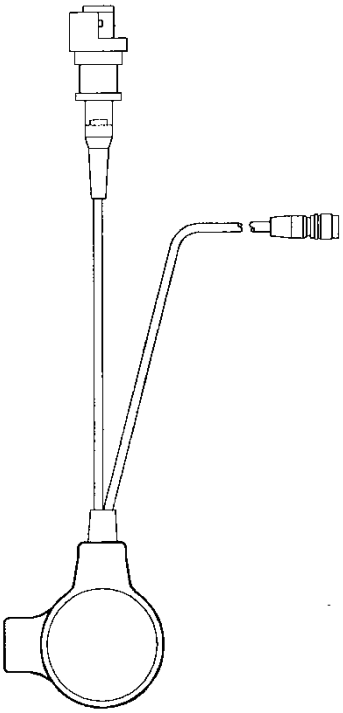

3.2.1 Switch-over electronics (optional)

On request for definite two-way radios some PTT buttons can be equipped with switch-over electronics. This electronics switches automatically to radio microphone and speaker if the plug connection between the communication headset and the PTT connection is opened. Then communication can be done via microphone and speaker of the two-way radio.

3.2.2 "Channel busy" signaling (optional)

In conjunction with compatible two-way radios with the feature for "channel busy" signaling the headset can be equipped with a tone generator. As a rule the tone generator resides in the inline PTT button or in the radio adaptor respectively the radio plug. If the channel is busy and you press the PTT button an acoustic signal is audible via the speaker of the headset.

3.3 Plug connections – safety plug connection (optional)

Contact microphone, speaker, and PTT button can be connected by cable plugs and sockets and they can be connected permanently one with each other. To disconnect a plug connection only pull at cable plug and socket, never pull at the cables.
In the connecting cable between PTT button and speaker is usually a weather resistant inline safety plug connection (Fig. 9). This opens at a specific tensile load, e.g., if the cable gets caught up. Other safety plug connections can also be used.

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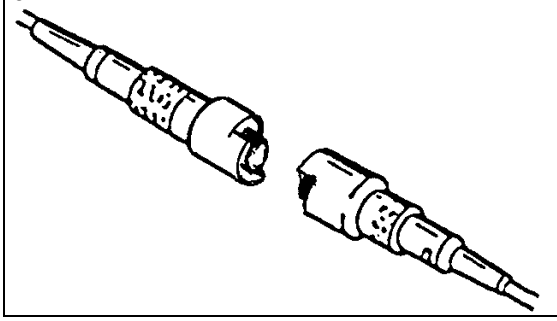

⚠ CAUTION

A defective safety plug connection may only be repaired at our works. Do not make any attempts to repair this yourself.

3.4 Ear cushion for speaker (option for products 4.1, 4.2 and 4.5)

For more personal comfort and better hearing protection the speaker can be provided with an ear cushion shown in Fig. 8. Pull off the protective foil from the associated self-adhesive loop ring (Fig. 11). Ad here the self-adhesive loop ring to the open inner side of the speaker which is placed towards the ear. Fix the ear cushion with the Velcro hook side to the Velcro loop side of the Velcro loop ring. The ear cushion can be replaced easily due to the Velcro fastening.

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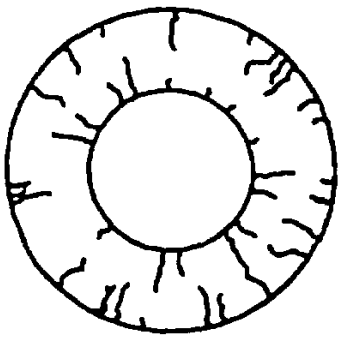

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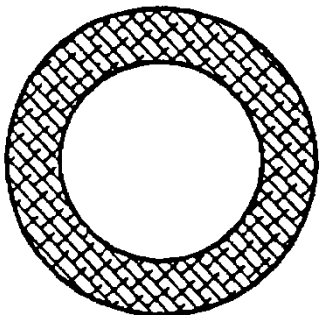
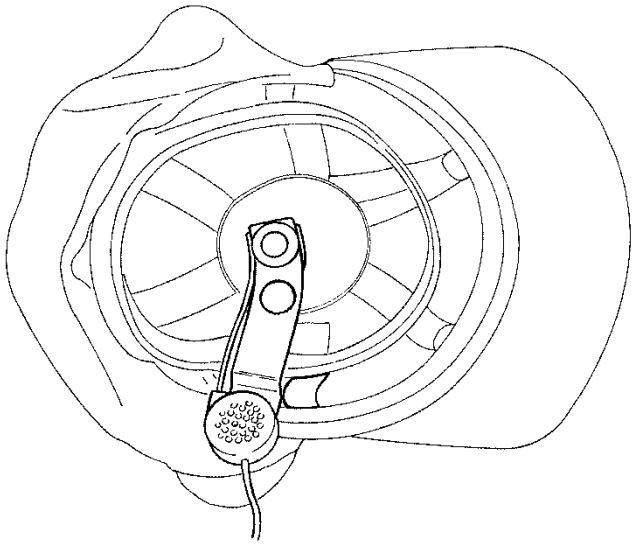


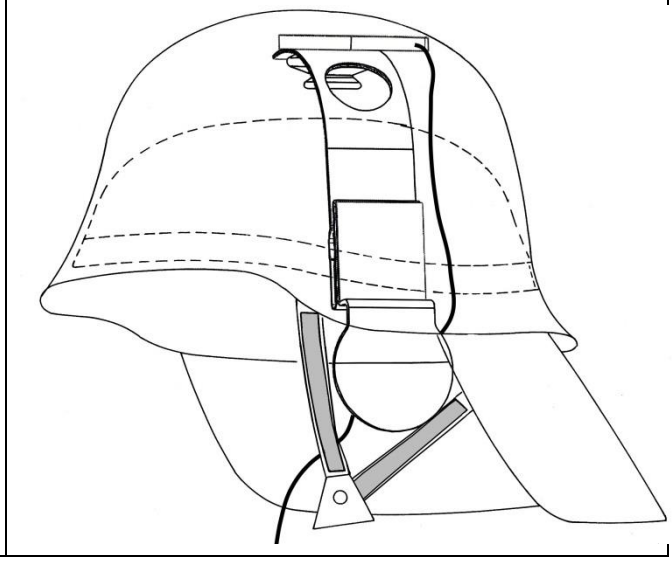
4. Versions of ContactCom / Ex; ContactCom / Ex*

4.1 Communication Headset with Universal Aluminium Fastening

12



13



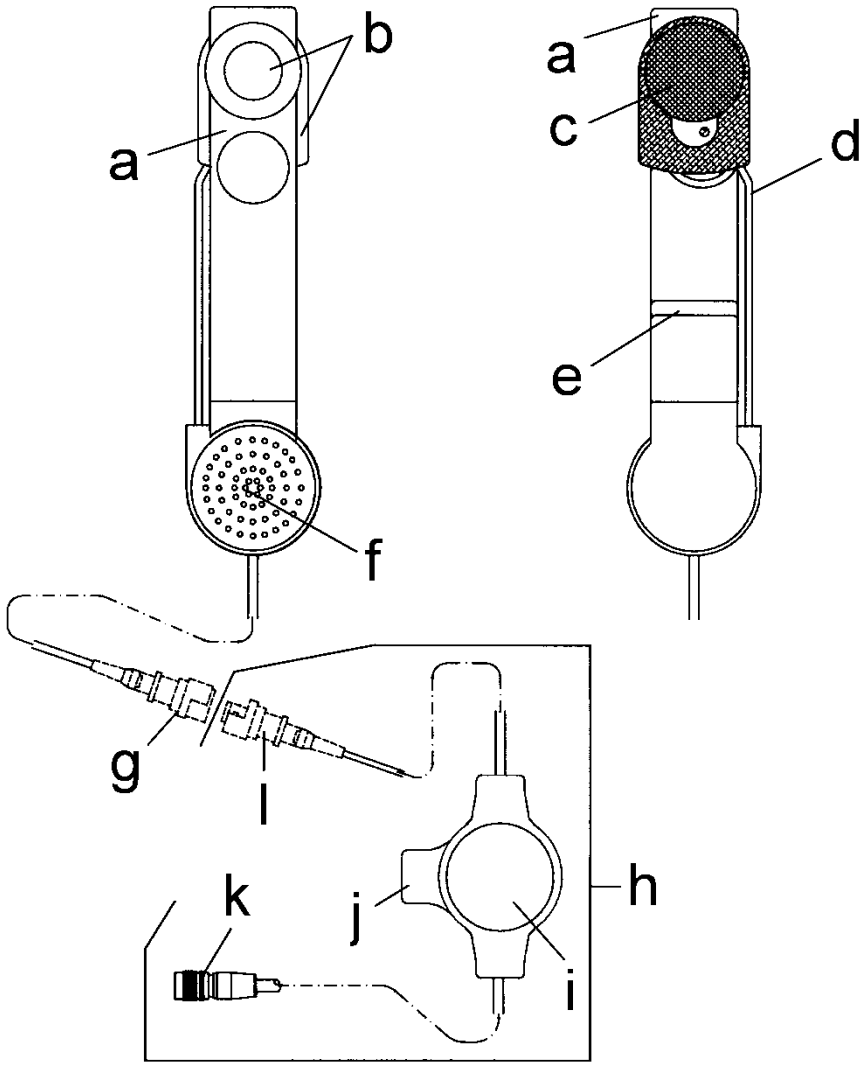
4.1.1 Description

This ContactCom communication headset with a universal aluminium fastening and metal clip is preferably installed into helmets, the helmet insert of which is fitted with an all round head band. Installation can be effected on the right or left inside the helmet.

As a rule the ContactCom headset (Fig. 14/a-g) consists of: a universal aluminium fastening with a spring steel strip (a) and metal clip (e), a contact microphone (b), a speaker (f), connection cable complete with plug (g) for connection to the PTT unit (h) which is available as an accessory. The contact microphone and speaker are normally attached ex-works to the universal fastening and connected to each other via a cable (d). The universal fastening is fastened to the head band inside the helmet by means of the metal clip (e).

As a rule the speaker (Fig. 14/b) resides in a flat housing and depending on the radio set or communication device is available with different impedances.

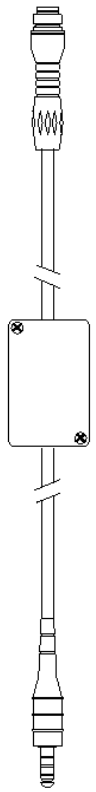
14



Key to Fig. 14: ContactCom with a universal aluminium fastening

a Strip of spring steel
b Contact microphone
c Fleeced part
d Microphone/speaker cable
e Metal clip
f Speaker
g Plug (e.g. safety plug)
h Example, transmit key unit (accessory)
i PTT button
j Fastening clip
k Connection plug (example)
l Coupling (e.g. safety coupling)

15



CT-MultiCom: For the use of communication set in conjunction with the CT-MultiCom/Ex the adapter cable Fig. 15 is required. It consists of an 8-pin connector, a connector housing and a 4-pin jack for connection to the CT-MultiCom/Ex.

4.1.2 Installation - Deinstallation of ContactCom

⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

4.1.2.1 Installation of ContactCom in a helmet (Example Fig. 16)

Using your thumb, pull the head band slightly off the helmet and push the universal fastening with metal clip completely onto the head band. Put on the helmet and, if necessary, push the universal fastening aside in order to adapt the speaker to the position of your ear. The speaker is fastened with Velcro, which makes it possible to further correct the position of the speaker.

4.1.2.2 ContactCom in conjunction with helmet and full-face respirator mask

The second round opening in the spring steel strip can be used for installation of the contact microphone if the helmet is used together with a full-face respirator mask. Using this opening, turn the contact microphone through 90 degrees, to avoid that the cable between contact microphone and speaker forms a disturbing loop (Fig. 17 shows an example).

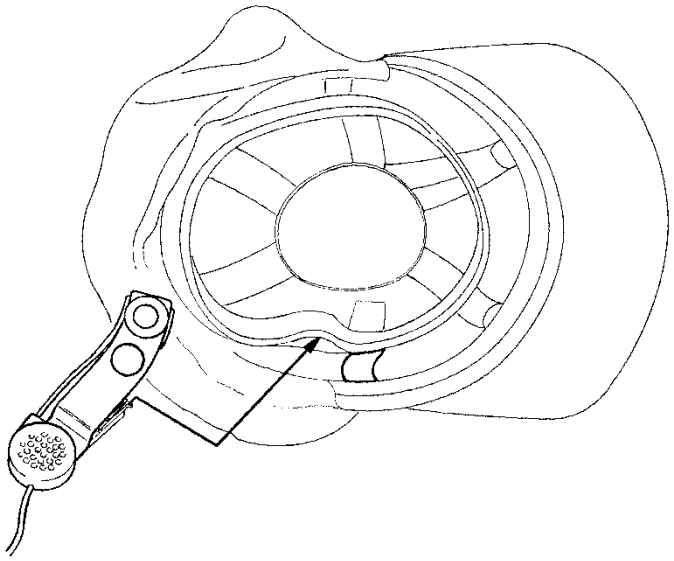
4.1.2.3 Changing the contact microphone and the speaker

⚠ CAUTION

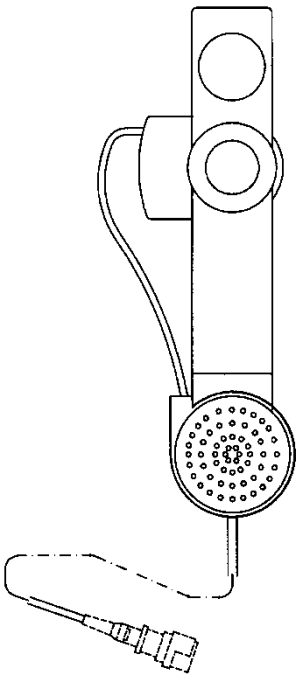
Proceed carefully when changing the contact microphone so that the wires in the bellows are not ripped off.

1. To demount the contact microphone (Fig. 14/b) – Pull and push the bellows of the contact microphone out off the round opening in the spring steel strip.
2. To demount the speaker (Fig. 1/f) – Pull the speaker off the universal fastening (hook and loop fastening).
3. To install the contact microphone – Pull and press the bellows fully through the round opening in the spring steel strip. Turn the contact microphone to its proper position (see examples Fig. 14 and Fig. 17).
4. To install the speaker – Fasten the speaker to the universal fastening as shown in Fig. 14 or Fig. 17 (hook and loop fastening). Thanks to the Velcro fastening the position of the speaker can still be changed later.

16



17



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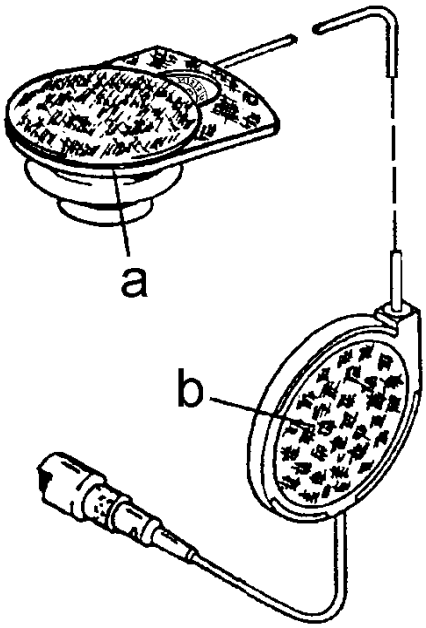
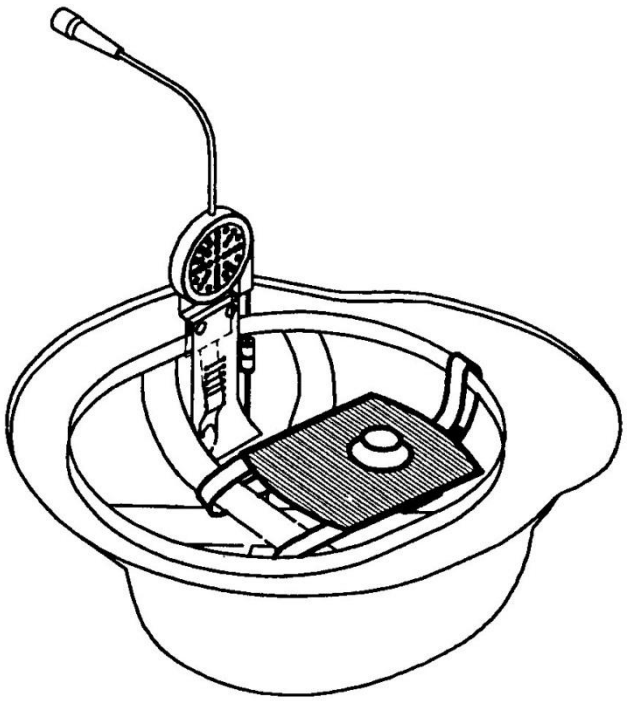
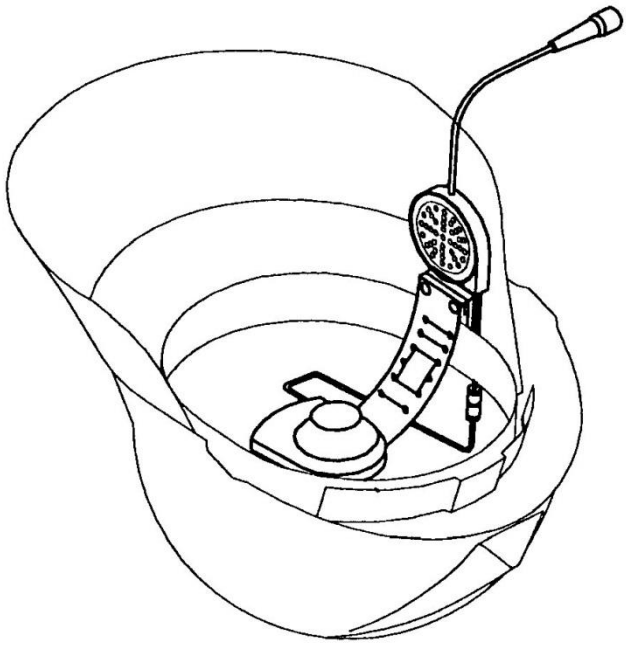


4.2 Communication Systems with Universal Fixation Devices

19



20



4.2.1 Description

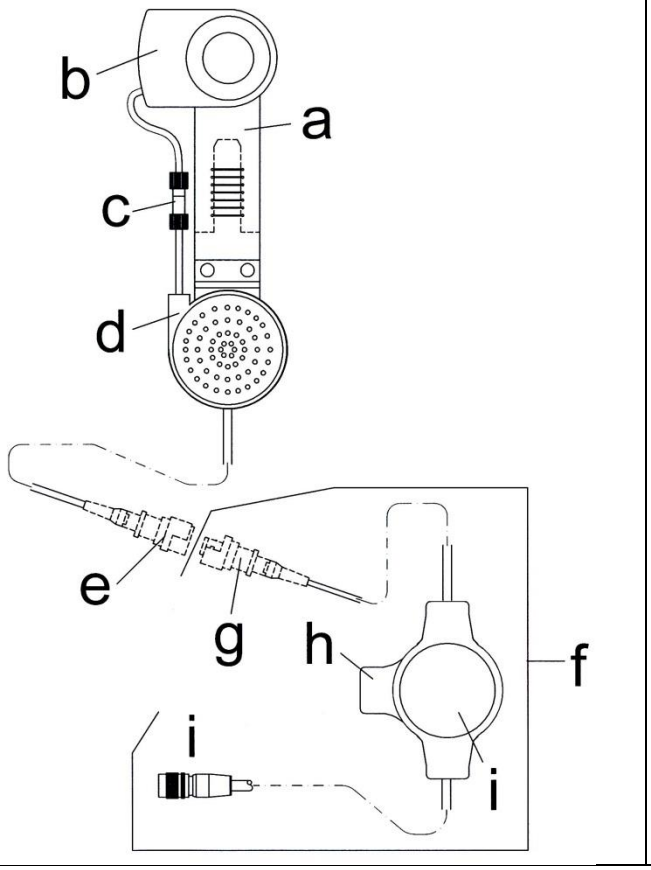
This ContactCom communication headset with universal fixation devices is preferably installed into helmets. Installation can be effected on the right or left inside the helmet.

As a rule the ContactCom headset (Fig. 21/a-e) consists of: universal fixation (a), a contact microphone (b), a speaker (b), connection cable complete with plug (e) for connection to the PTT unit (f) which is available as an accessory.

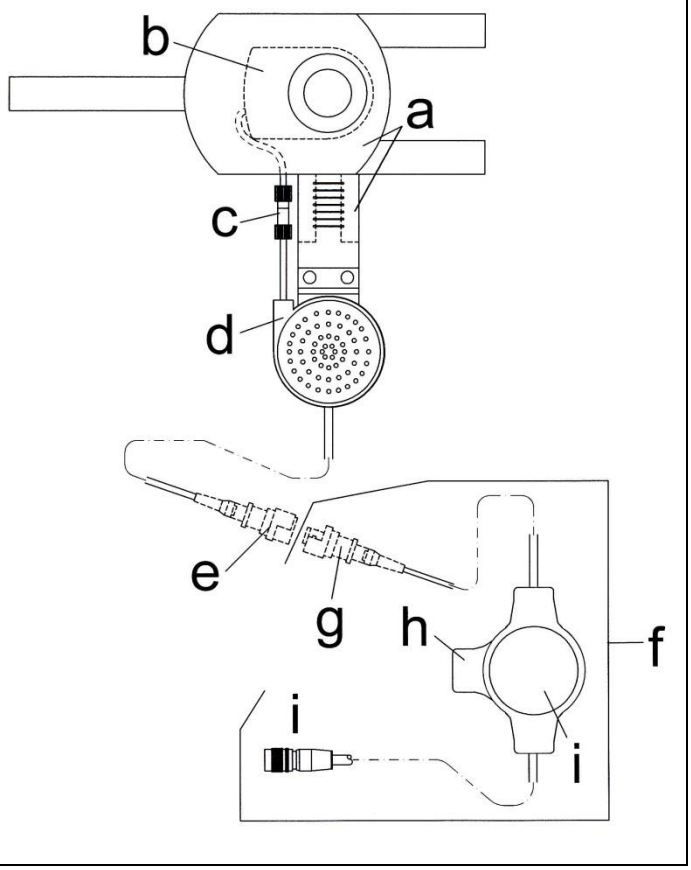
The contact microphone and speaker are normally attached ex-works to the universal fastening and connected to each other via a cable (c).

As a rule the speaker (Fig. 21/d) resides in a flat housing and depending on the radio set or communication device is available with different impedances.

21



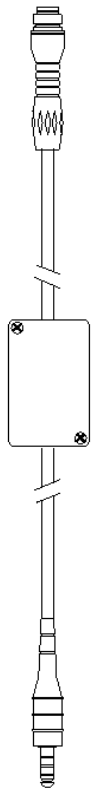
22



Key to Fig. 21/22: ContactCom with universal fixation devices

a universal fixation devices
b Contact microphone
c Microphone/speaker cable
d Speaker
e Plug (e.g. safety plug)
f Example, transmit key unit (accessory)
g coupling (e.g. safety coupling)
h Fastening clip
i PTT-button
j Connection plug (example)

23



CT-MultiCom: For the use of communication set in conjunction with the CT-MultiCom/Ex the adapter cable Fig. 23 is required. It consists of an 8-pin connector, a connector housing and a 4-pin jack for connection to the CT-MultiCom/Ex.

4.2.2 Installation - Deinstallation of ContactCom

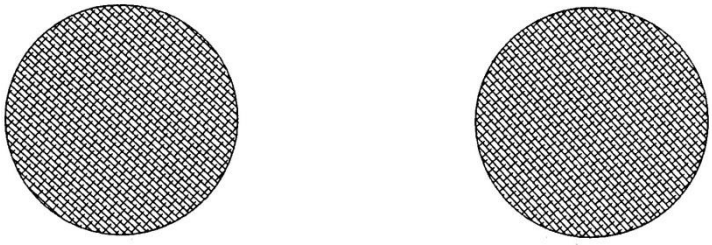
⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

4.2.2.1 Installation into helmet with hook and loop parts

For installation of contact microphone and speaker into a helmet two self-adhesive loop parts (Fig. 24) are used. The two loop parts are fixed onto contact microphone and speaker by the factory or they are delivered separately.

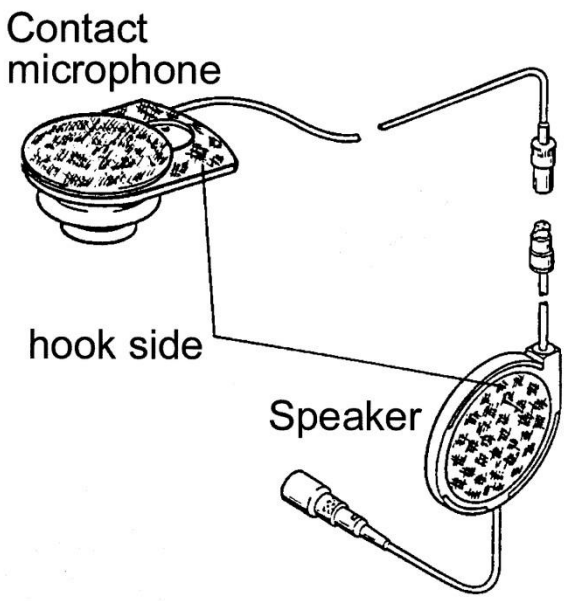
24



The best transmission quality is achieved when the contact microphone is placed on the front part of the head.

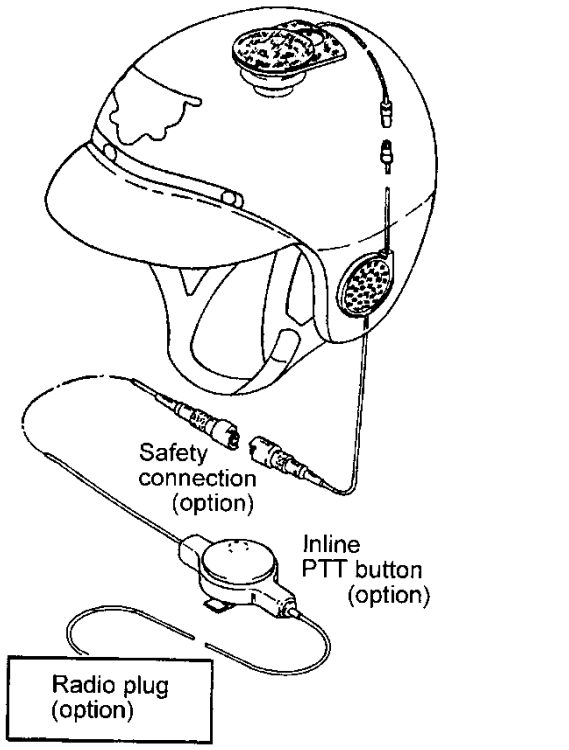
a. The rear sides of contact microphone and speaker are supplied with hook parts (Fig. 25). Fix the two self-adhesive loop parts with the loop side to the hook side of contact microphone and speaker.
b. Pull off the protective foil from the self-adhesive loop part placed on the contact microphone. Adhere the contact microphone into the helmet and ensure that the microphone cable points in the backward direction (Fig. 26).
c. Some helmets have marked or prespecified fixation places for speakers defined by the manufacturer. For helmets without these prespecifications proceed as follows: put on the helmet, determine the fixation place for the speaker and then mark this place.
d. Pull off the protective foil from the self-adhesive Velcro loop part placed on the speaker. Adhere the speaker onto the marked speaker position in the helmet. Ensure that the speaker cable with the safety plug (option) is led straight downwards out of the helmet.

25



e Inside the helmet connect the speaker cable to the microphone cable. Stow the cables and the plug connection behind the insert of the helmet that they don't disturb the ContactCom user while the helmet is worn.
f. Connect the ContactCom system to the radio. Fig. 26 shows the arrangement of contact microphone and speaker in a helmet in connection with the options safety connection, inline PTT button, radio plug.

26



4.2.2.2 Installation into helmet with universal microphone and speaker fixation devices

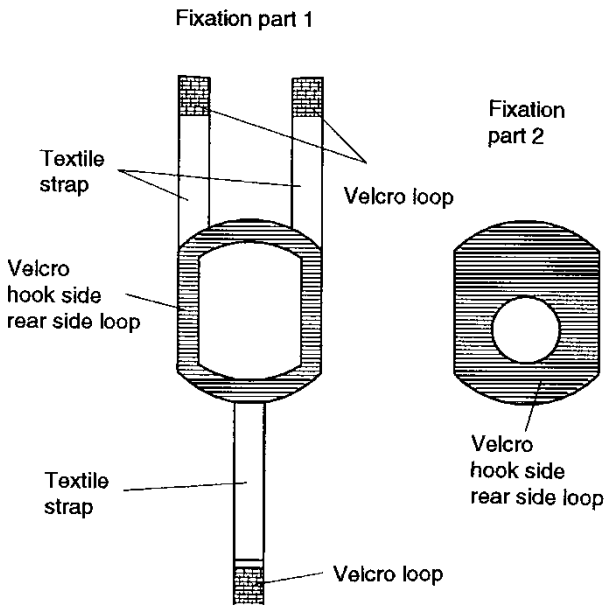
➔ NOTE

The universal microphone fixation device with straps (Fig. 27) is not destined for ContactCom/Ex. It is not part of the EC-type examination for ContactCom/Ex.

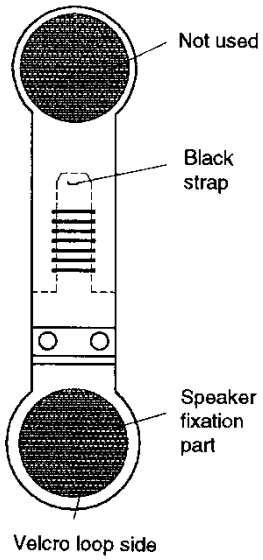
In the following general instruction (example) the installation of ContactCom microphone and speaker with the universal fixation devices (Fig. 27 and 28) is described. Depending on the type of helmet and the headband arrangement inside the helmet the instruction steps and the simplified drawings may differ.

For the fixation of the speaker the universal microphone and speaker fixation device (Fig. 28) is used. The fixation part for the contact microphone is not necessary. Stow it inside the helmet so that it doesn't disturb or cut it off.

27 Universal microphone fixation device with straps



28 Universal microphone and speaker fixation device for speaker



Fixation of bellows contact microphone

The best transmission quality is achieved when the contact microphone is placed on the front part of the head.

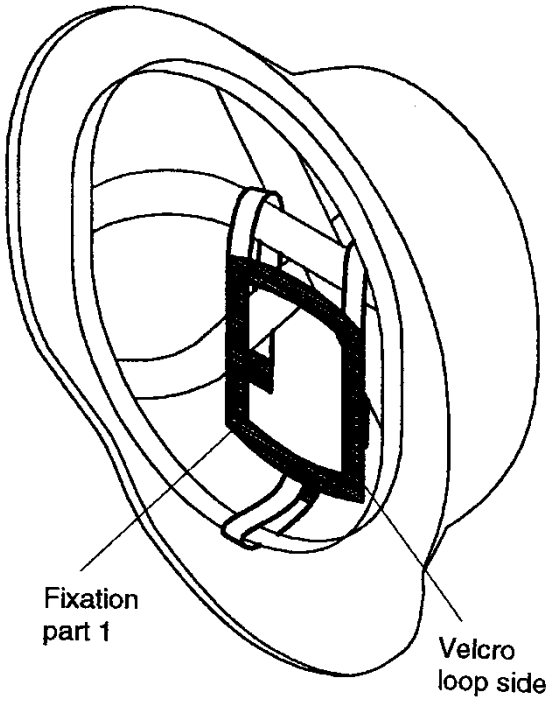
a. Fasten the microphone fixation part 1 of the universal microphone fixation device – the hook side must show to the inner side of the helmet – onto the headbands as shown in Fig. 29. For that pull the 3 textile straps of fixation part 1 around the headbands of the helmet harness and fix them with the loop parts onto the Velcro hook side on the rear of fixation part 1.

⚠ WARNING

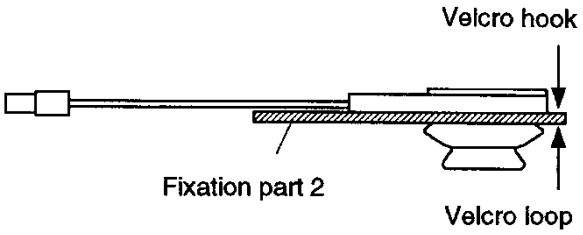
Be careful, do not tear off the wires in the bellows when inserting the bellows contact microphone.

b. Insert the bellows contact microphone in fixation part 2 of the universal microphone fixation device as shown in Fig. 30. Pull and push the bellows completely through the round opening of fixation part 2.
c. Fasten the fixation part 2 with the microphone inserted onto fixation part 1 inside the helmet according to Fig. 31. The microphone cable must show straight in the backward direction (Fig. 32).

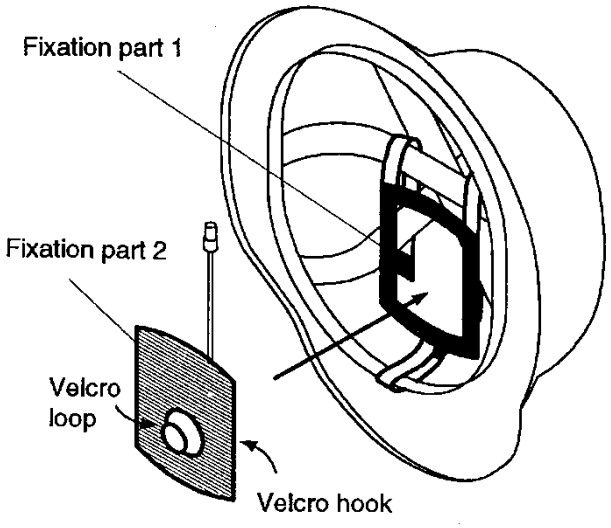
29 *Universal microphone fixation device with straps fixed inside a helmet (example)*



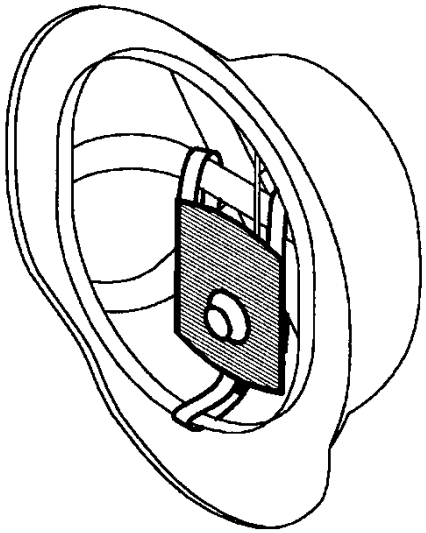
30 *Bellows contact microphone inserted in fixation part 2 (example)*



31 *Fixation of a bellows contact microphone into a helmet (example)*



32 *Bellows contact microphone inserted into a helmet (example*



Fixation of speaker

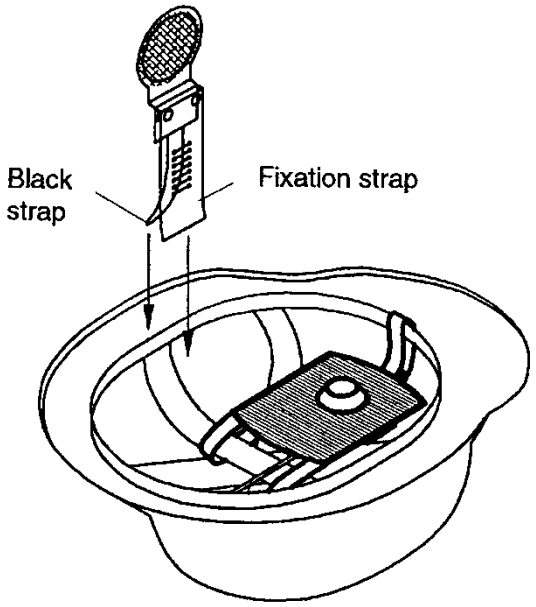
For fixation of the speaker the universal microphone and speaker fixation device (Fig. 28) is used. In the following example (Fig. 33 to 36) the not used fixation part for the contact microphone is cut off.

The universal speaker fixation device can be fixed on the right or on the left inner side of the helmet.

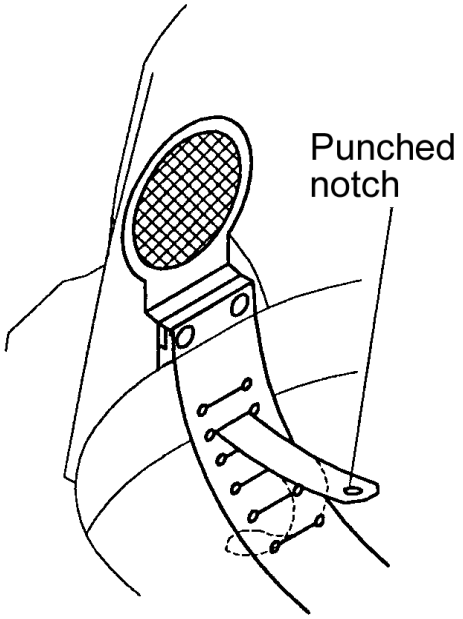
a. Slide the universal speaker fixation device onto the headband of the helmet as shown in Fig. 33.
b. Pull the black strap through the first slot of the fixation strap below the headband to fix the universal speaker fixation device on the headband.
c. To secure the fixation pull the black strap from the inner to the outer side back again through another slot of the fixation strap. Press the punched notch (Fig. 34) out of the black strap for additional securing.
d. Lead the microphone cable behind the headband (Fig. 35) and connect it to the speaker cable. Fix the speaker with the hook side to the loop side of the speaker fixation part (Fig. 35 and 36). Ensure that the speaker cable

with the safety plug (option) is led straight downwards out of the helmet. Stow the cables and the plug connection inside the helmet that they don't disturb the ContactCom user while the helmet is worn.

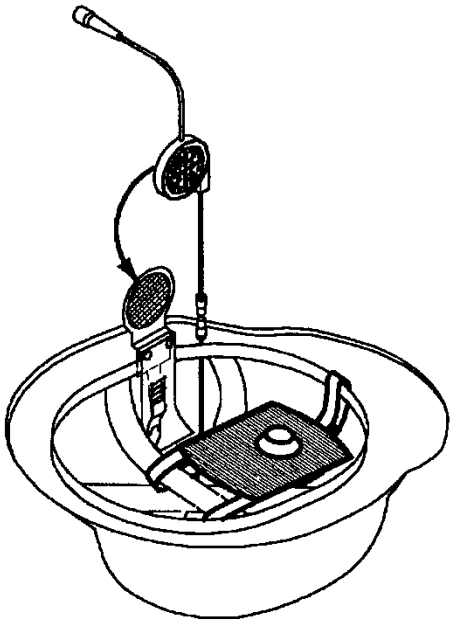
33 Installation of speaker fixation device (example)



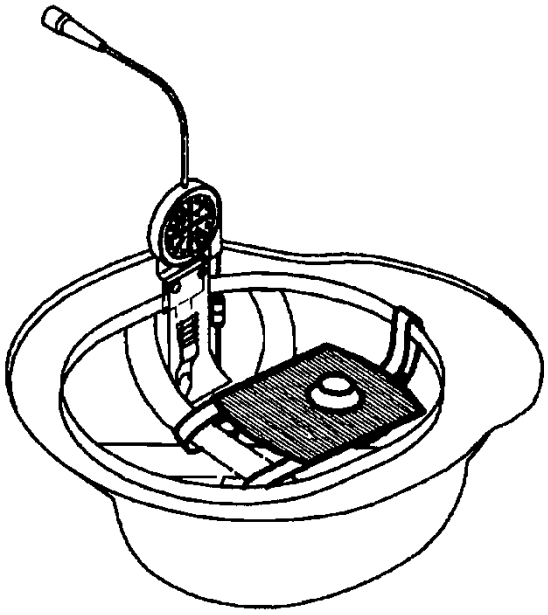
34 Securing of speaker fixation device (example)



35 Fixation of speaker (example)



36 Fixation of speaker (example)



4.2.2.3 Installation into helmet with universal microphone and speaker fixation device

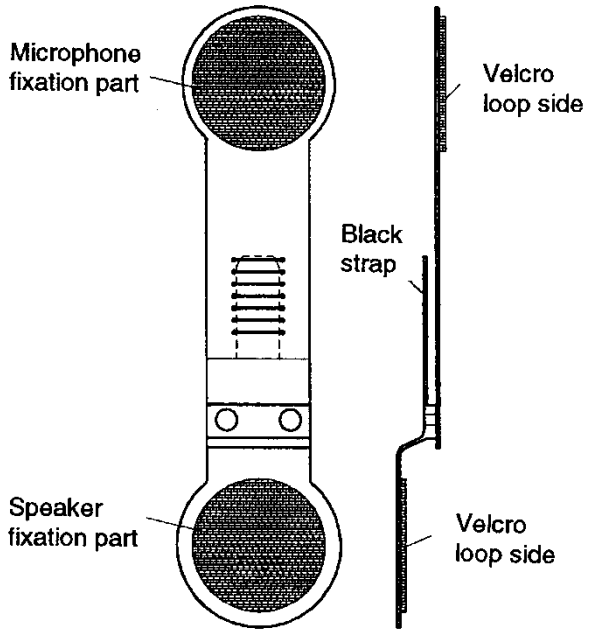
⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

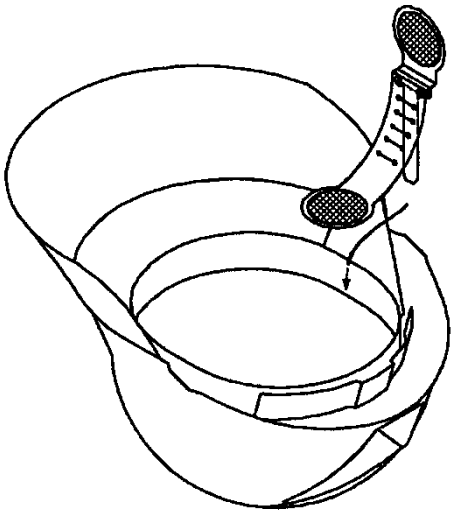
In the following general instruction (example) the installation of ContactCom microphone and speaker into a helmet with the universal microphone and speaker fixation device (Fig. 37) is described. Other types of helmets may be used. Then the fixation of the ContactCom devices is similar.
The universal microphone and speaker fixation device can be installed right or left at the headband of the helmet.

a. Slide the universal microphone and speaker fixation device onto the headband of the helmet as shown in Fig. 38.
b. Pull the black strap through the first slot of the fixation strap below the headband to fix the universal speaker fixation device on the headband. To secure the fixation pull the black strap from the inner to the outer side back again through another slot of the fixation strap. Press the punched notch (Fig. 39) out of the black strap for additional securing.

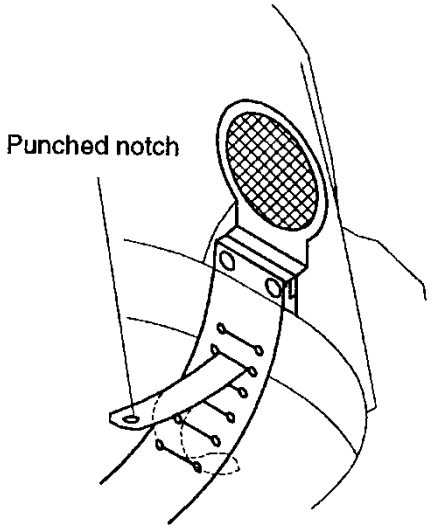
37 Universal microphone and speaker fixation device



38 Installation of the fixation device (example)

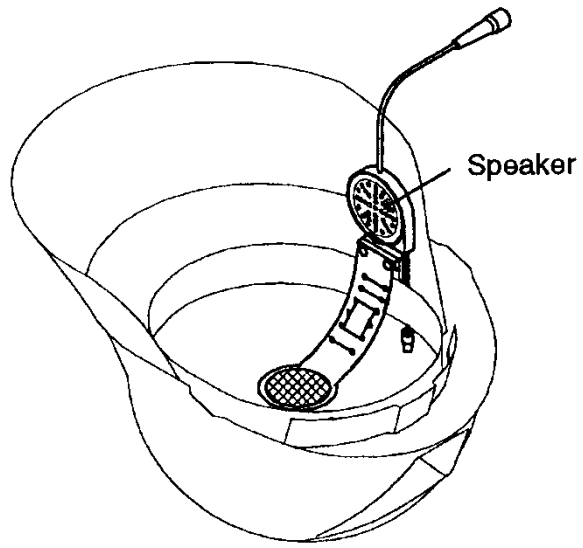


39 Securing the fixation device (example)

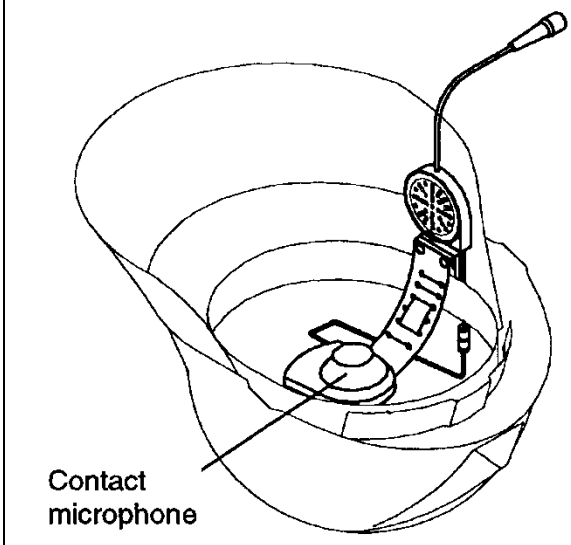


c. Fix the speaker with the hook side onto the loop side of the speaker fixation part (Fig. 40). Ensure that the speaker cable with the safety plug (option) is led straight downwards out of the helmet. Fix the contact microphone with the hook side onto the loop side of the microphone fixation part (Fig. 41). Connect the microphone cable to the speaker cable. Stow the cables and the plug connection inside the helmet that they don't disturb the ContactCom wearer while the helmet is worn.

40 Fixation of speaker (example)



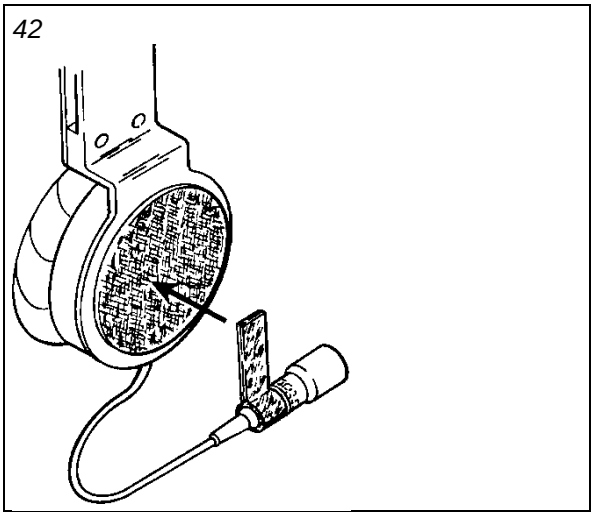
41 Fixation of contact microphone (example)



4.2.2.4 Fixation of safety plug if ContactCom is not connected to the radio

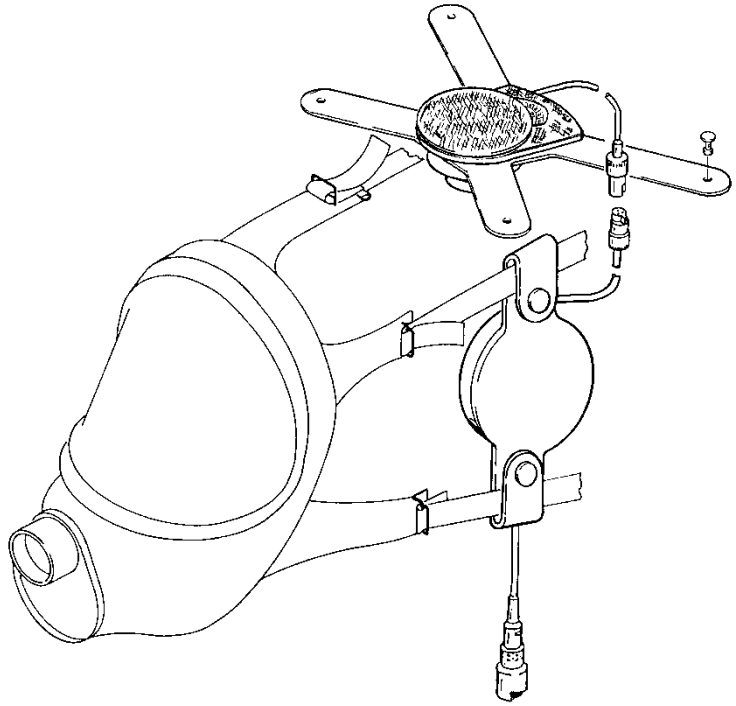
When the helmet is worn with the installed ContactCom system, but the ContactCom system is not connected to the radio, the safety plug of the speaker cable can be fixed to the round hook part on the rear side of the speaker fixation part (Fig. 42). This avoids that the firefighter will be hindered by the safety plug while the helmet is worn. For that a self-adhesive loop strip of approx. 100 x 15 mm is available optionally. Pull the protective foil from the loop strip. Adhere the loop strip around the safety plug as shown in Fig. 42. Fix the loop strip together with the safety plug to the hook part of the speaker fixation part.

42



4.3 Communication Systems for Full-face Respirator Masks

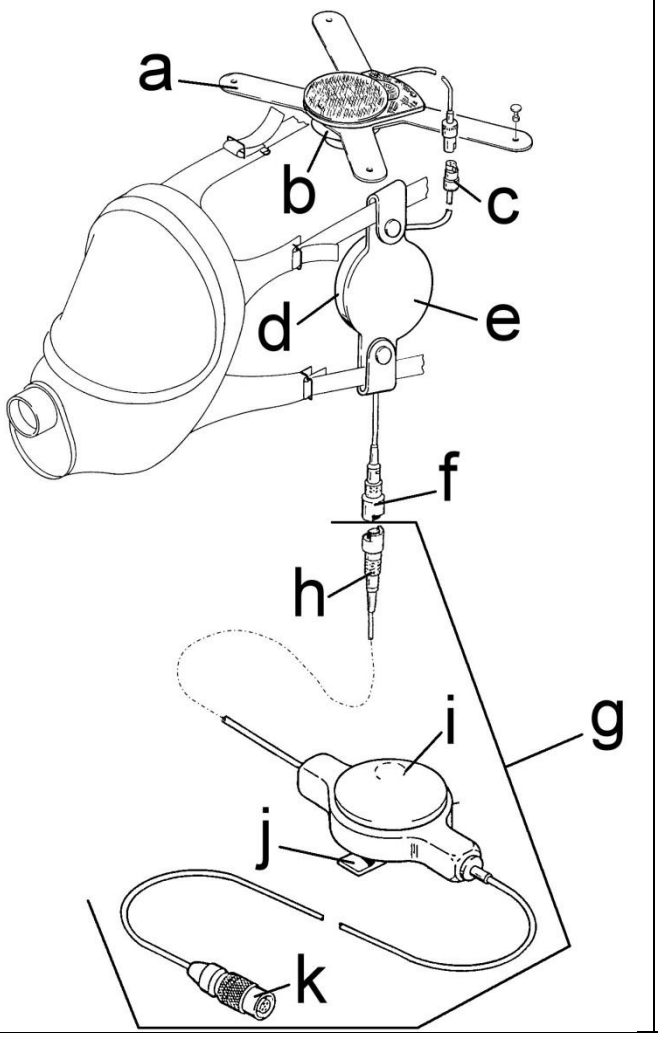
43



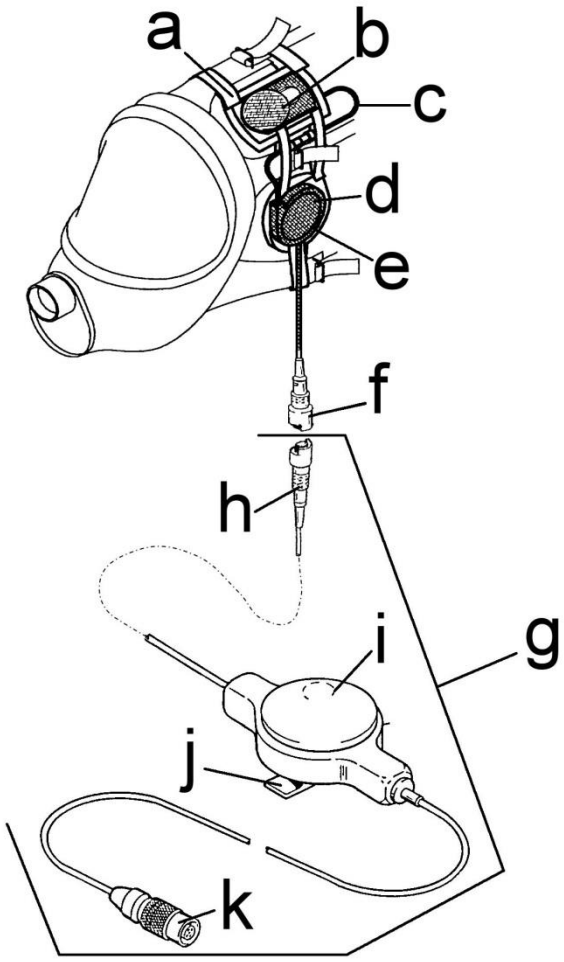
4.3.1 Description

This ContactCom communication set is fastened with different attachment sets to respirators.
As a rule the ContactCom headset (Fig. 44; 45/a-f) consists of: universal fixation (a,e), a contact microphone (b), a speaker (d), connection cable complete with plug (f) for connection to the PTT unit (g) which is available as an accessory.
As a rule the speaker (Fig. 44/d) resides in a flat housing and depending on the radio set or communication device is available with different impedances.

44



45



Key to Fig. 44/45: ContactCom for respirator mask

a fixation devices
b Contact microphone
c Microphone/speaker cable
d Speaker
e fixation devices
f Plug (e.g. safety plug)
g Example, transmit key unit (accessory)
h coupling (e.g. safety coupling)
i PTT-button
j Fastening clip
k Connection plug (example)

4.3.2 Montage - Demontage ContactCom

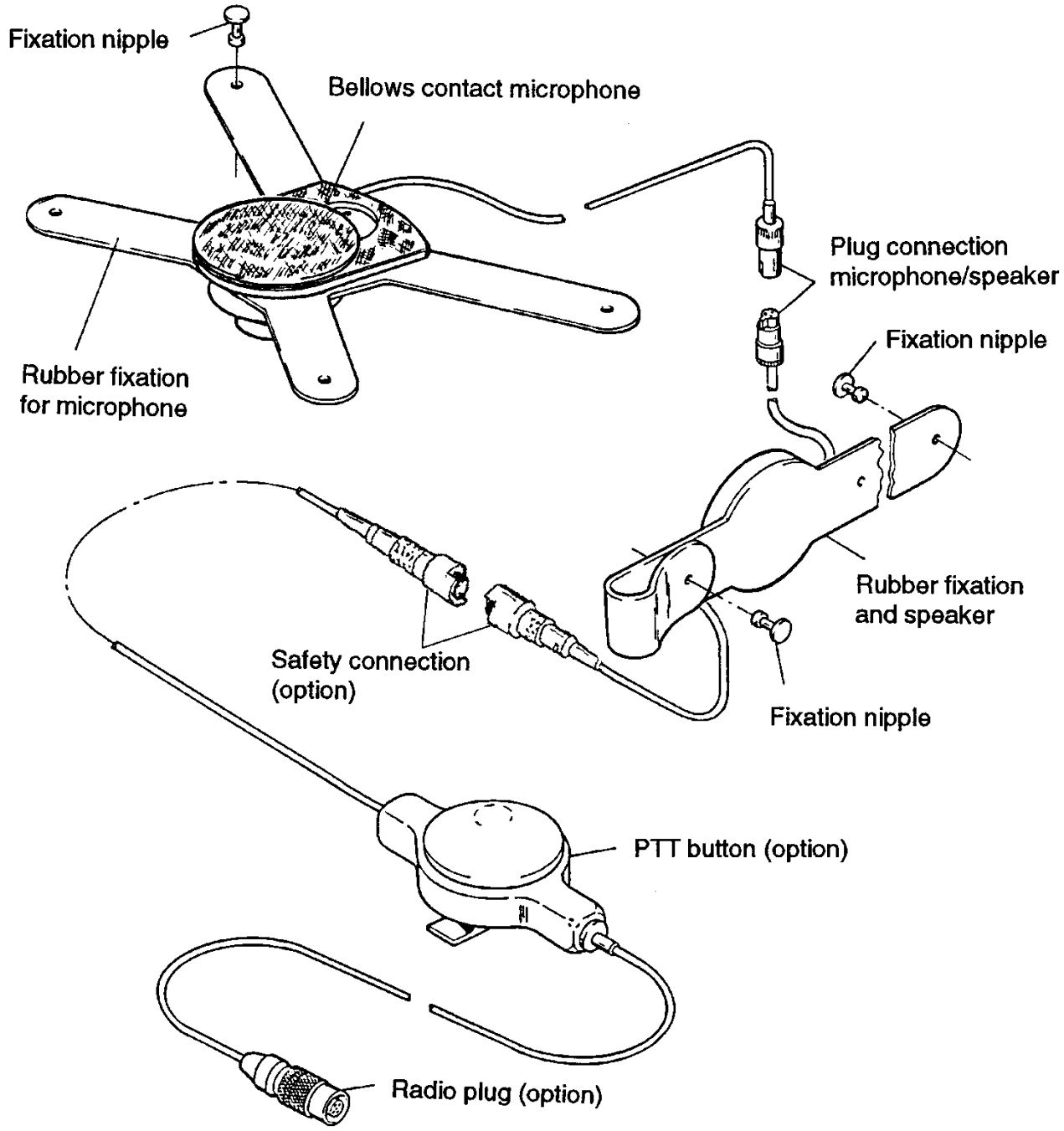
⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

4.3.2.1 Fixation rubber fixation devices

In the following instruction by the way of an example the fixation of ContactCom microphone and speaker with universal rubber fixation parts for full-face respirator masks is described. Depending on the type of respirator mask the instruction steps and the simplified drawings (Fig. 46 to 50) can differ. The ContactCom components and the fixation kit are shown in Fig. 46.

46 ContactCom components and fixation kit with rubber devices (example)



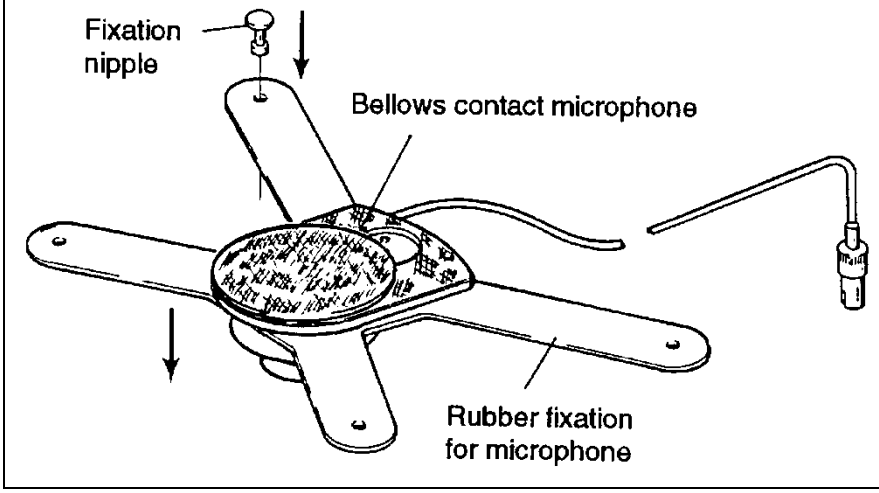
a. Insert the fixation nipple in the rubber strap of the microphone fixation (Fig. 47).

⚠ CAUTION

Be careful, do not tear off the wires in the bellows when inserting the bellows contact microphone (step »b«).

b. Insert the bellows contact microphone in the microphone fixation (Fig. 47). Pull and push the bellows completely through the round opening of the microphone fixation.

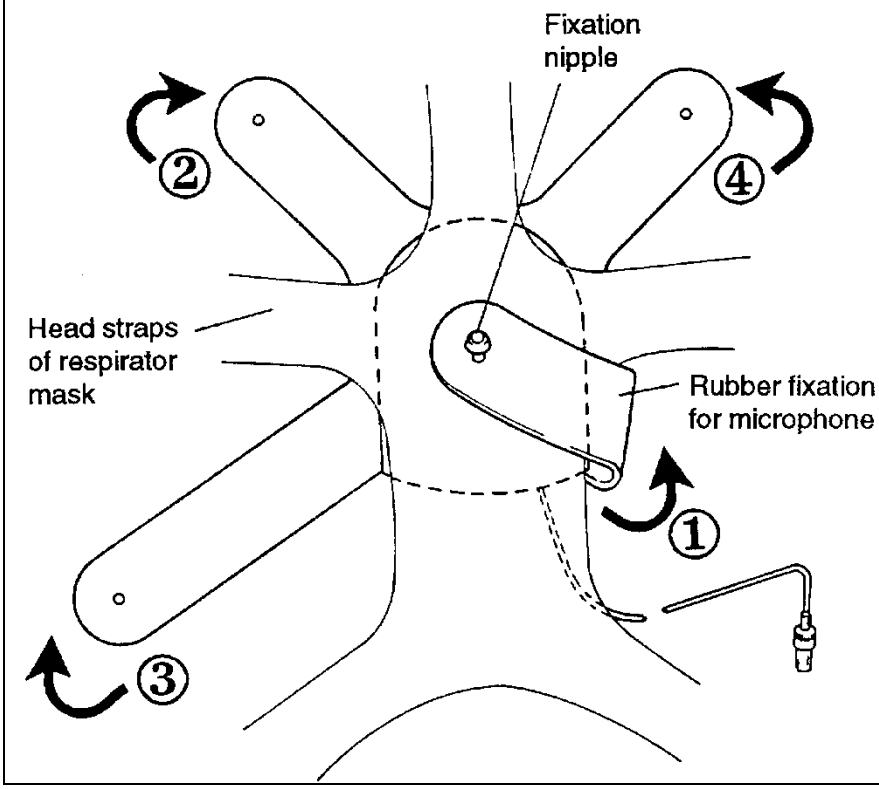
47 Bellows contact microphone inserted in the rubber fixation for the microphone (example)



c. Fix the contact microphone from the inner side of the respirator mask as shown in Fig. 48. The bellows of the contact microphone must be located towards the head.

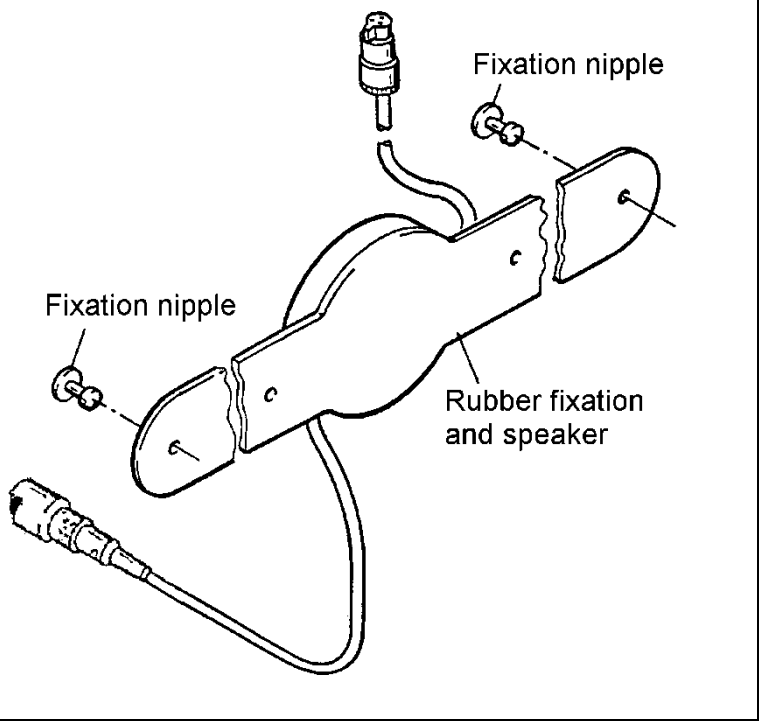
d. Fix the rubber straps of the microphone fixation in the given sequence (2)...(4) at the fixation nipple of the first rubber strap (1) according to Fig. 48.

48



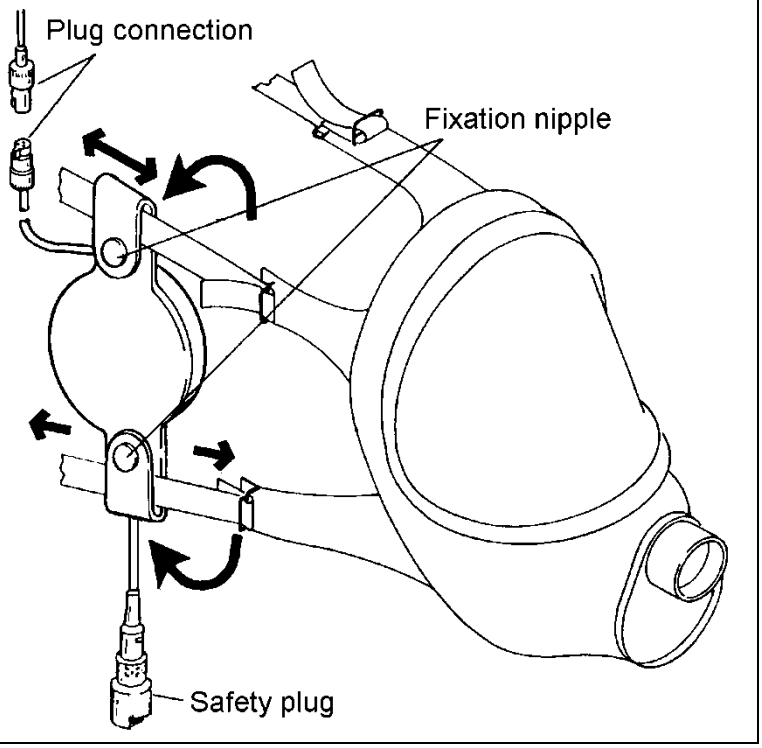
e. Insert the two fixation nipples in the rubber straps of the speaker fixation (Fig. 49). The speaker can be fixed on the right or on the left side of the respirator mask. In the following example the speaker is fixed on the right side.

49 Insertion of fixation nipples in speaker fixation straps (example)



f. Fix the speaker at the two lateral straps of the respirator mask as shown in Fig. 48. Fix both rubber straps of the speaker fixation at the fixation nipples. Ensure that the speaker cable with the safety plug shows straight downwards.
g. Connect the speaker cable to the microphone cable (Fig. 50).
h. The speaker can be moved in sideward direction to ensure proper location to the ear of the ContactCom user.

50 Fixation of the speaker at the straps of the respirator mask (example)



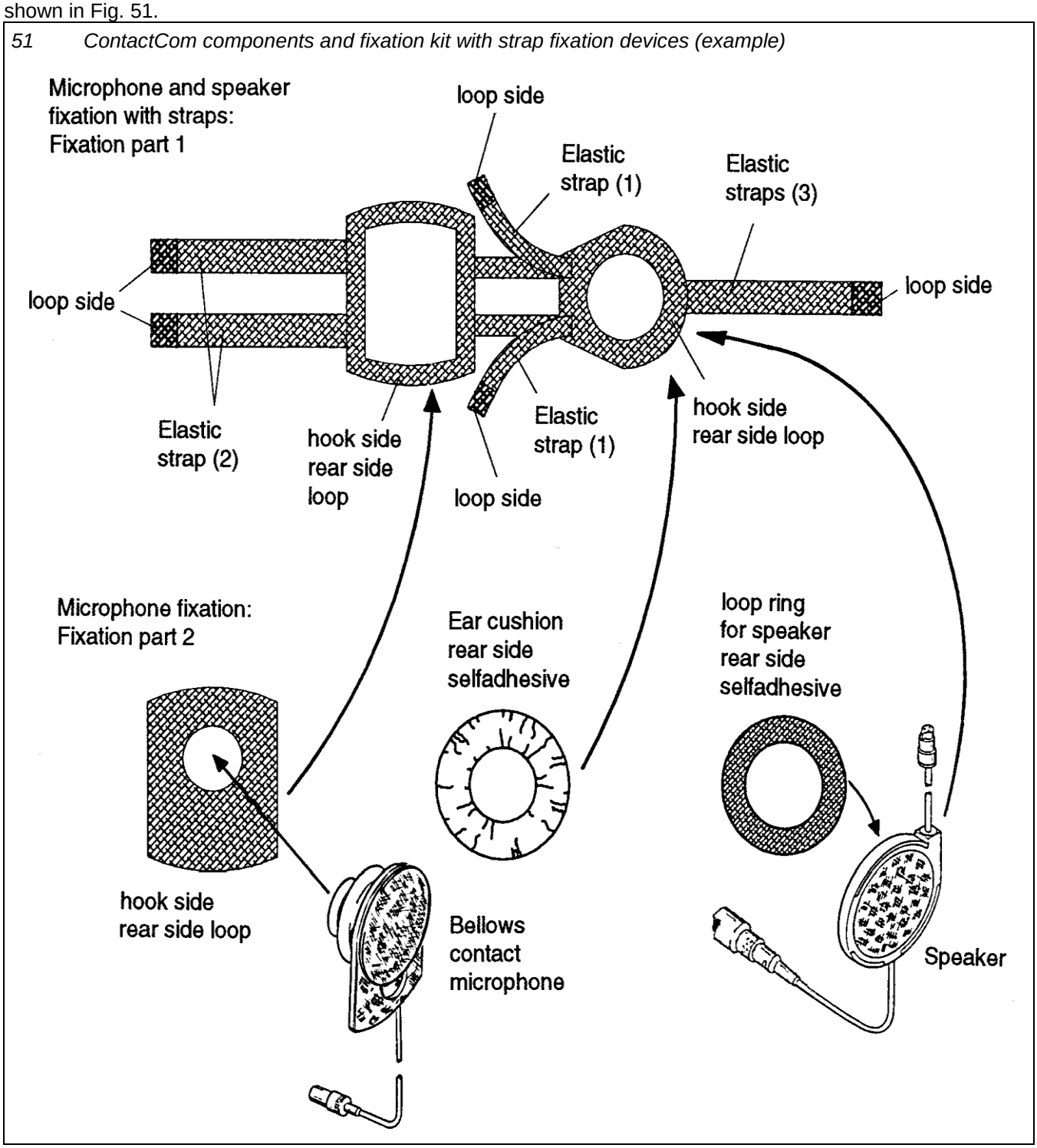
4.3.2.2 Fixation of microphone and speaker with strap fixation devices

➔ **NOTE**

The microphone/speaker fixation kit (Fig. 51) is not designed for ContactCom/Ex. It is not part of the EC-type examination for ContactCom/Ex.

In the following instruction by way of an example the fixation of microphone and speaker with universal strap fixation devices for full-face respirator masks is described. Depending on the type of respirator mask the instruction steps and the simplified drawings (Fig. 51 to 55) can differ. The components and the fixation kit are shown in Fig. 51.

51 ContactCom components and fixation kit with strap fixation devices (example)



The best transmission quality is achieved when the contact microphone is placed on the front part of the head.

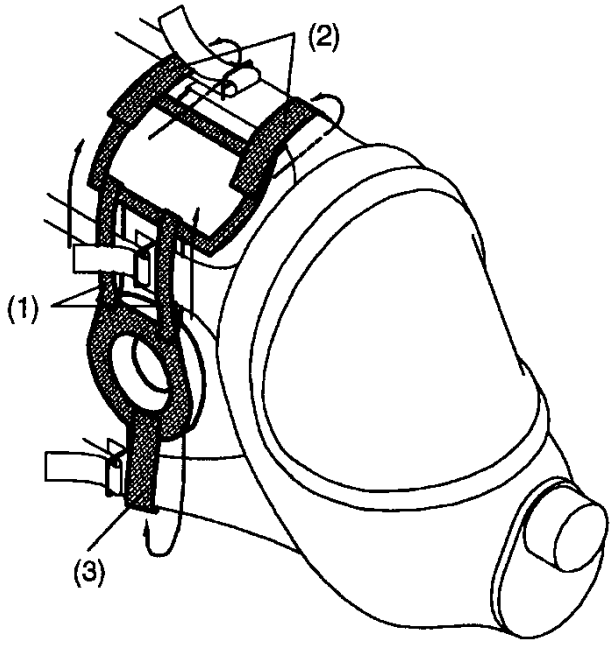
a. Fix the ear cushion with the hook side to the loop side of the round speaker fixing position of fixation part 1 (Fig. 51).
b. Fasten the fixation part 1 and the ear cushion – the loop side and the ear cushion must show to the inner side of the respirator mask – onto the rubber straps (1) to (3) of the respirator mask (Fig. 52).

⚠ CAUTION

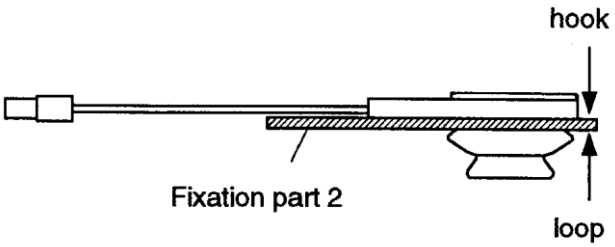
Be careful, do not tear off the wires in the bellows when inserting the bellows contact microphone (step »c«).

c. Insert the bellows contact microphone in fixation part 2 as shown in Fig. 53. Pull and push the bellows completely through the round opening of fixation part 2.

52 *Installation of fixation part 1 – ear cushion and loop are located on the inner side (example)*

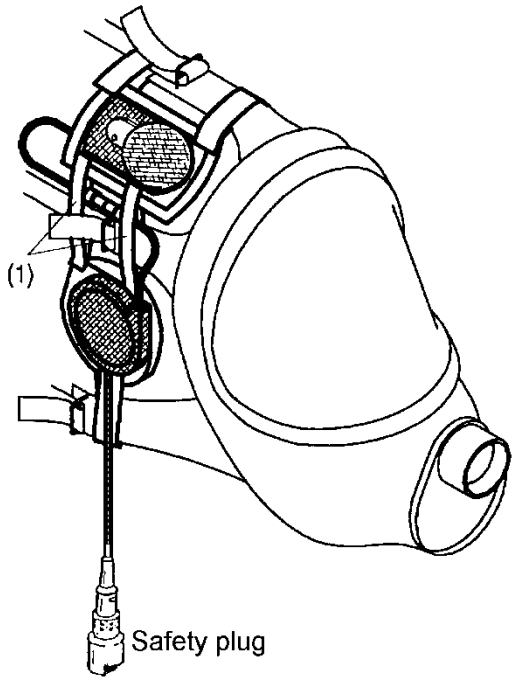


53 *Bellows contact microphone inserted in fixation part 2 (example)*

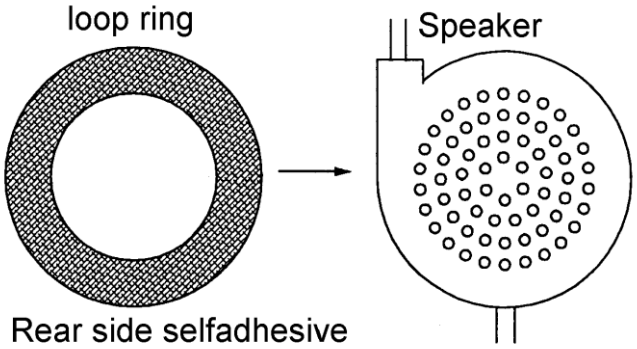


d. Fasten the fixation part 2 with the microphone inserted from the inner side of the respirator mask to the microphone fixing position of fixation part 1 according to Fig. 54. The bellows of the contact microphone must be located towards the head and the contact microphone cable must show in the backward direction.
e. Pull off the protective foil from the loop ring (Fig. 55). Adhere the loop ring to the open inner side of the speaker which is placed towards the ear. Fix the speaker from the outside with the loop ring to the speaker fixing position of fixation part 1 (Fig. 54).
   Ensure that the speaker cable with the safety plug shows directly downwards. Place the speaker cable and the microphone cable behind the elastic straps (1) and connect the speaker cable to the microphone cable (Fig. 54).

54 *Fixation of contact microphone and speaker (example)*



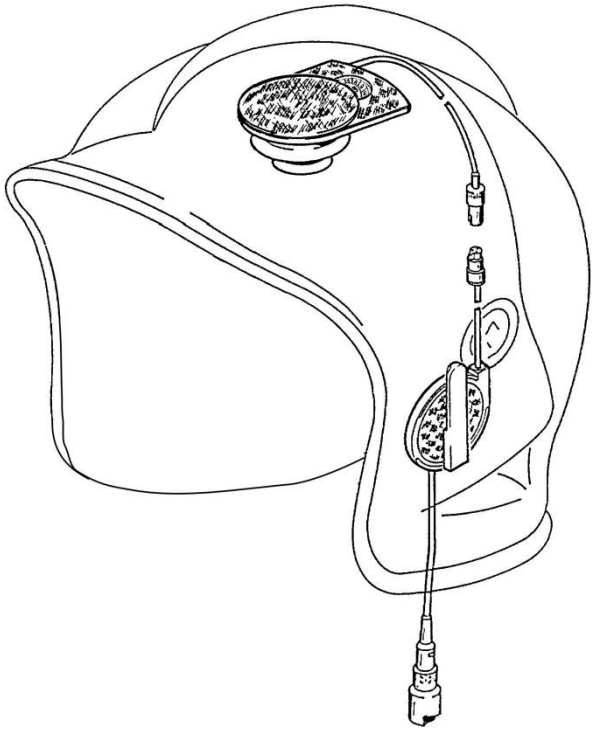
55 *loop ring for fixation of speaker*



4.4 Communication System for Fire Helmet Gallet/Dräger

56 *Example (Speaker with plastic fitting plate)*

57 *Example (Speaker with aluminium fitting plate)*

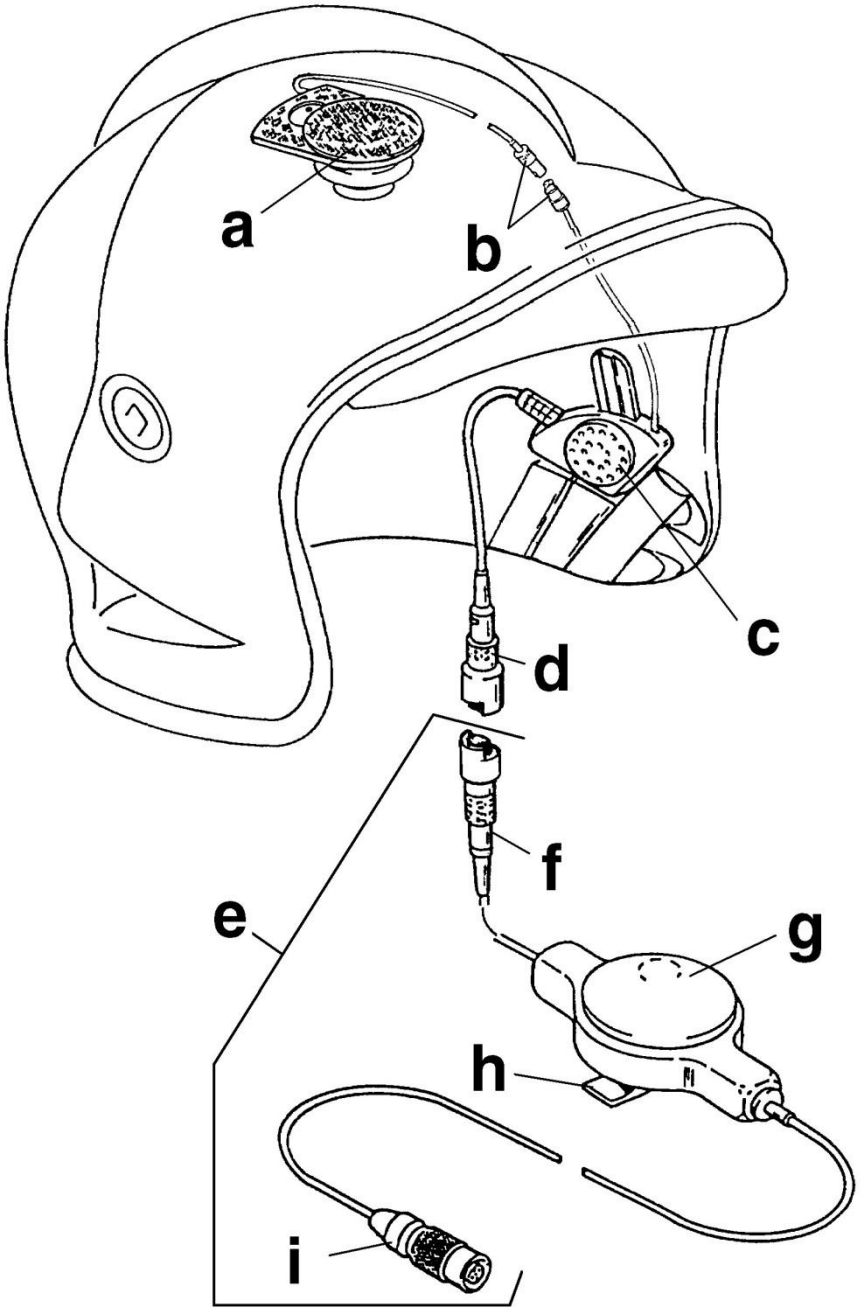


4.4.1 Description

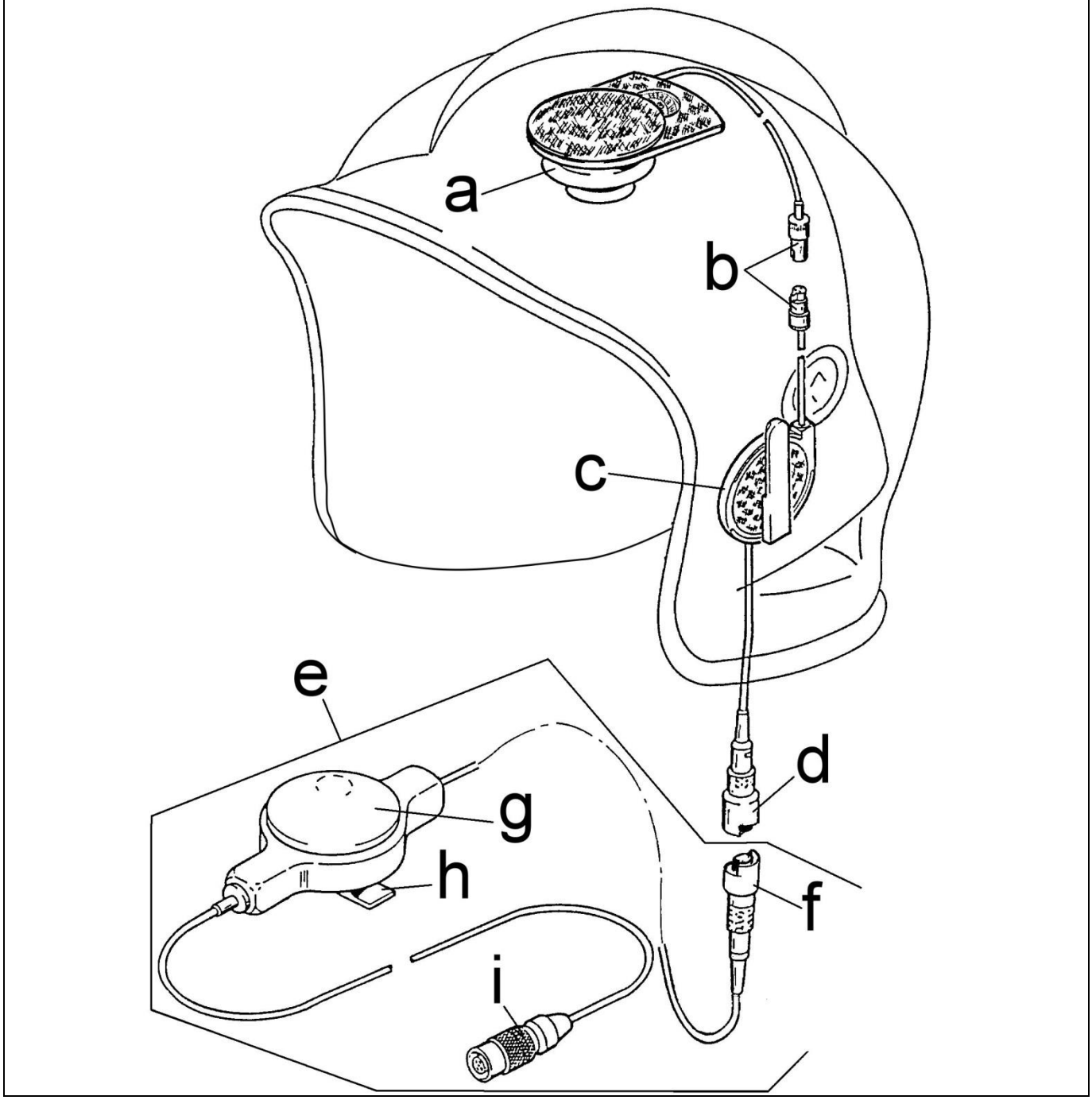
This ContactCom communication set is built into helmets Dräger / Gallet.
Communication set – speaker with plastic fitting plate - the installation can take place on the left or both-sided in the helmet
Communication set – speaker with aluminium fitting plate - the installation can take place on the left, right or both-sided in the helmet

As a rule the ContactCom headset (Fig. 58; 59/a-d) consists of: *a contact microphone (a), a speaker (c), connection cable complete with plug (d) for connection to the PTT unit (e) which is available as an accessory.*

58 Example (Speaker with plastic fitting plate)



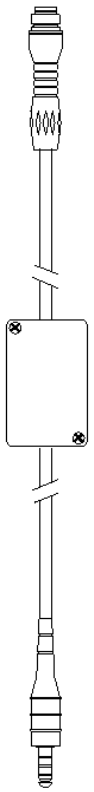
59 Example (Speaker with aluminium fitting plate)



Key to Fig. 58/59:

a Contact microphone
b Microphone/speaker cable
c Speaker
d Plug (e.g. safety plug)
e Example, transmit key unit (accessory)
f coupling (e.g. safety coupling)
g PTT-button
h Fastening clip
i Connection plug (example)

60



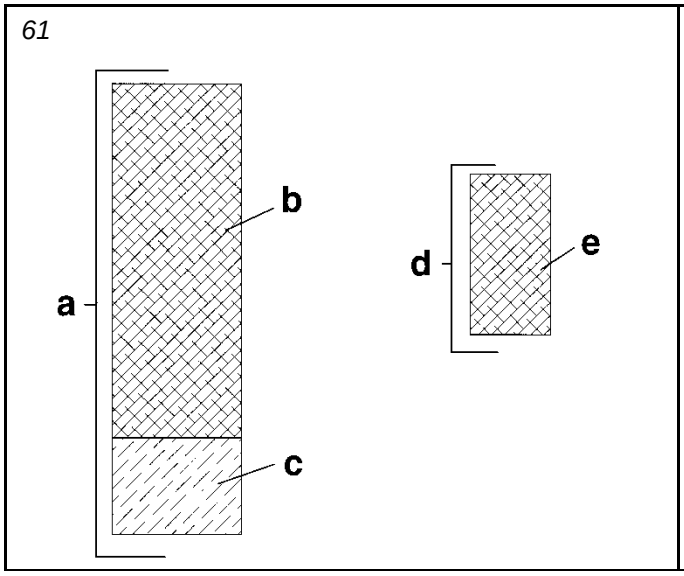
CT-MultiCom: For the use of communication set in conjunction with the CT-MultiCom/Ex the adapter cable Fig. 60 is required. It consists of an 8-pin connector, a connector housing and a 4-pin jack for connection to the CT-MultiCom/Ex.

4.4.2 Montage - Demontage ContactCom

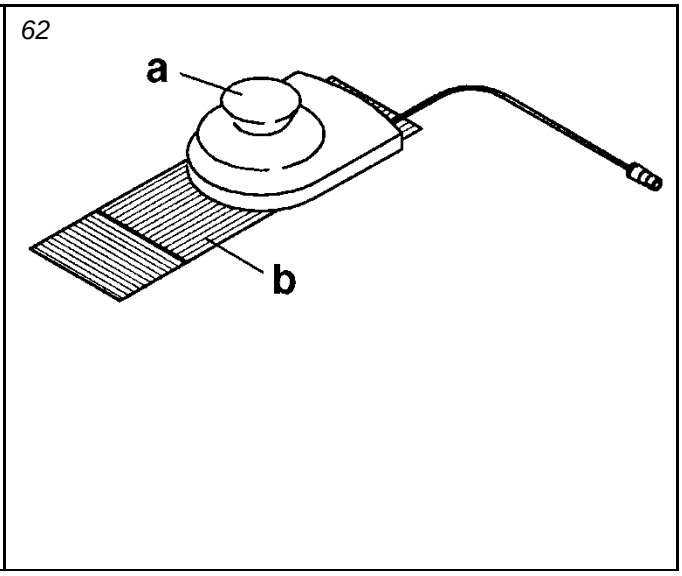
⚠ WARNING
For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

4.4.2.1 Installation into helmet

61



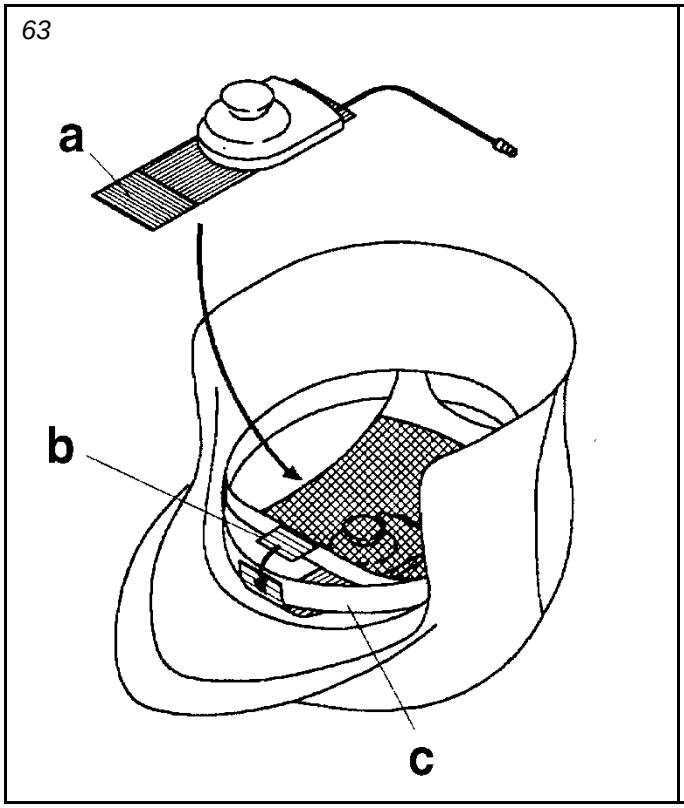
62



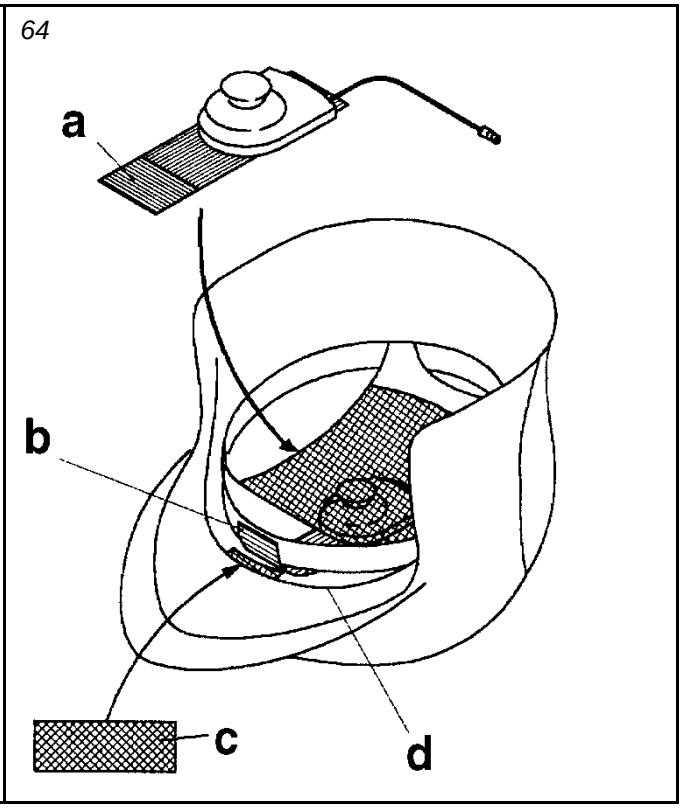
Key to Fig. 61 – fixation devices for ContactCom microphone:

a fixation device 1
b loop, rear side hook
c hook
d fixation device 2
e loop, rear side hook

63



64



The best transmission quality is achieved when the contact microphone is placed on the front part of the head.

(1) Preliminary works: Pull off the protective round hook and loop pad from the contact microphone. Fix the contact microphone (Fig. 62/a) with the hook side to the loop side (Fig. 62/b) of fixing part 1 as shown in Fig. 62.

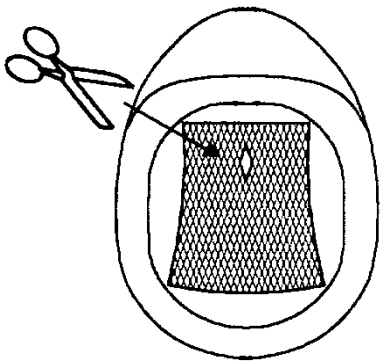
(2) Helmet with circular loop band

a. In the helmet loosen the hook strip (Fig. 63/b) used to fix the leather headband to the circular loop band (Fig. 63/c).
b. Slide fixing part 1 and contact microphone from the side (Fig. 63) or from the rear under the net inside the helmet.
c. Fix the front hook part (Fig. 63/a) of fixing part 1 to that place on the circular loop band (Fig. 63/c) where the hook strip (Fig. 63/b) of the leather headband was fixed (see step »a«). Subsequently fix the hook strip of the leather headband to the front loop part of fixing part 1 (see Fig. 63).

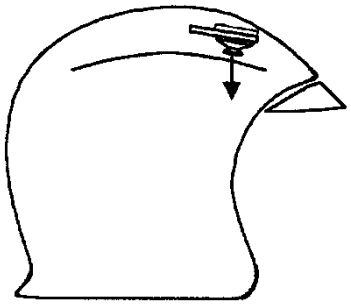
(3) Helmet without circular loop band

a. Pull off the protective foil from the self-adhesive fixing part 2 (Fig. 64/c). Adhere fixing part 2 to the insert of the helmet as shown in Fig. 64.
b. Slide fixing part 1 and the contact microphone from the side (Fig. 64) or from the rear under the net inside the helmet.
c. Fix the front hook part (Fig. 64/b) of fixing part 1 to the loop side of fixing part 2 (Fig. 64/c).

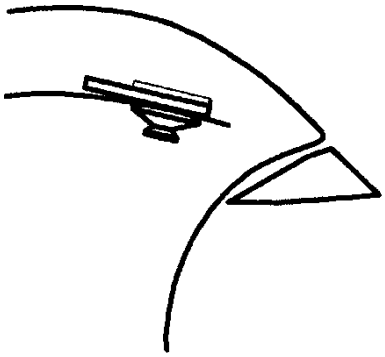
65



66



67

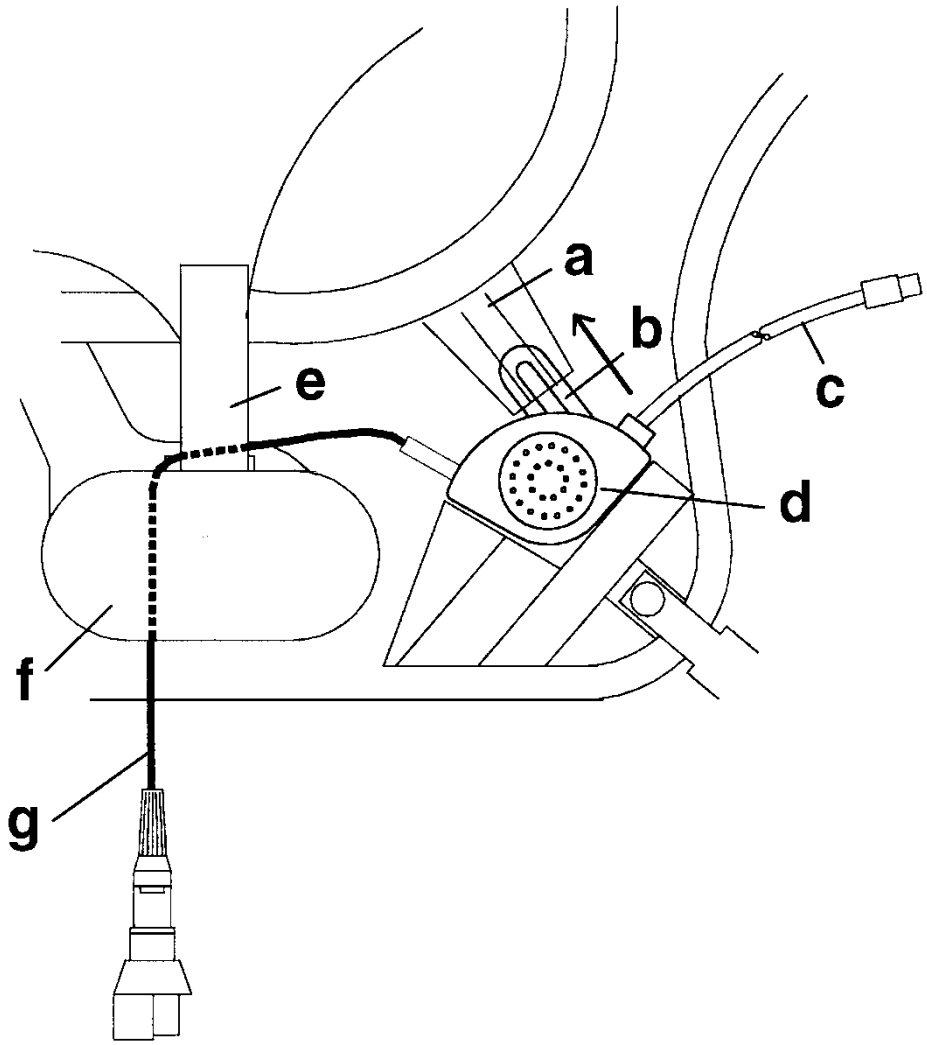


(4) Installation of contact microphone without fixing parts

a. Do not pull off the protective round hook and loop pad from the contact microphone. Cut a slot of a length of approx. 20 mm (0.8 inch) into the net inside the helmet (Fig. 65).
b. Slide the contact microphone under the net inside the helmet (Fig. 66). Pull and push the bellows of the contact microphone completely through the slot in the helmet net (Fig. 67).

4.4.2.2 Speaker with plastic fitting plate

68



Key to Fig. 68

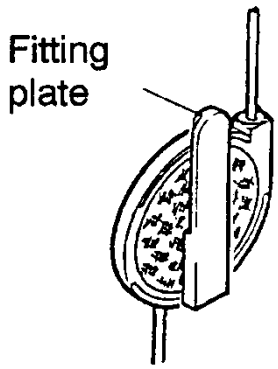
a adaptor for speaker
b slide-in device for speaker
c speaker cable to contact microphone
d Speaker
e fixing tape for neck pad
f neck pad
g connection cable with safety plug

a. Slide the ContactCom speaker (Fig. 68/d) with its slide-in device (b) into the adaptor (a) located on the left inner side of the helmet.
b. Pull and push the safety plug and the connection cable (g) through the loop of the fixing tape (e) for the neck pad (f). Lead the connection cable and the safety plug between neck pad and helmet straight downwards out off the helmet.
c. Stow the connection cables of contact microphone and speaker behind the leather headband and then connect the speaker cable to the microphone cable (Fig. 60/c). Ensure that the connectors and the cables don't hurt the helmet user while wearing the helmet.
d. Option with right speaker: Slide the right speaker with the fitting plate in the speaker adaptor of the right side of the helm. Lay the cable for the right speaker behind the leather headband to the contact microphone and to the left speaker. Connect the left speaker with the contact microphone.

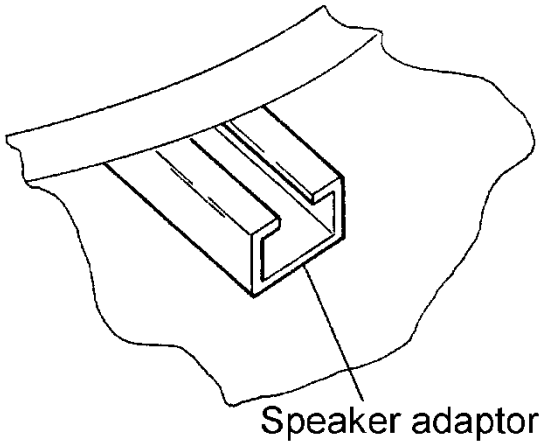
4.4.2.3 Speaker with aluminium fitting plate

a. Speakers provided with an aluminium fitting plate (Fig. 69) are slided into the lateral speaker adaptor (Fig. 70) inside the helmet. The speaker is held in place by friction. The speaker can be fixed either on the right or on the left inner side of the helmet. In Fig. 71 (example) the speaker is fixed on the left side.
b. Stow the microphone and the speaker connection cable behind the leather headband and then connect the speaker cable to the microphone cable. Ensure that the connectors and the cables don't hurt the helmet user while wearing the helmet.

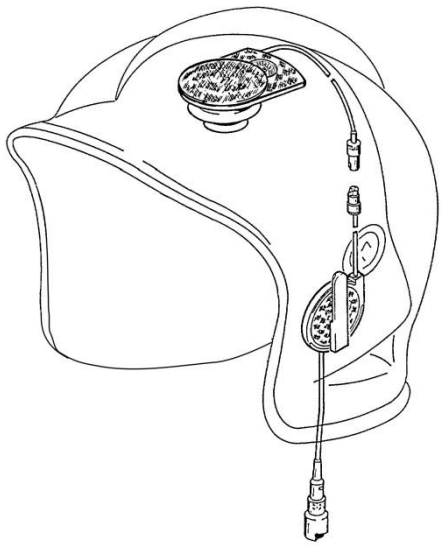
69



70



71

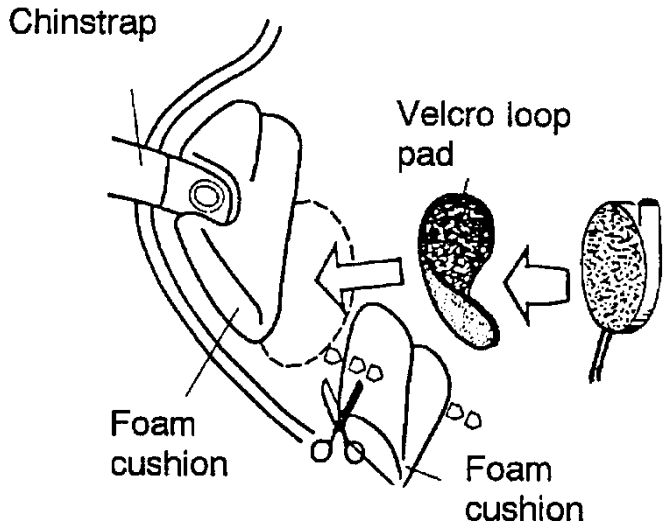


4.4.2.5 Speaker fixation with hook and loop devices

At helmets without lateral speaker adaptors the speaker can be fixed with hook and loop fixing devices. Therefore the speaker is delivered with a round self-adhesive hook device and a round self-adhesive loop device. Normally the loop device is fixed to the speaker when the speaker is delivered.

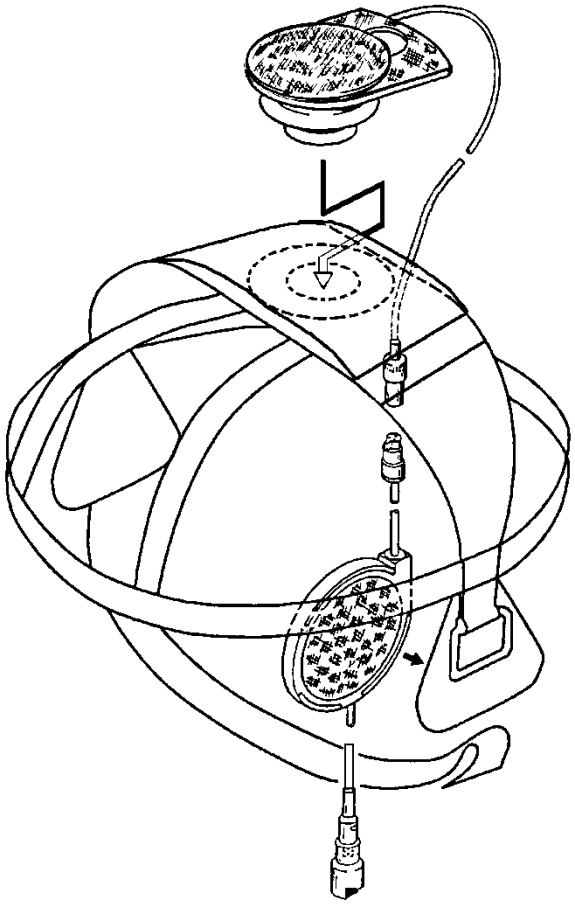
a. The speaker can be fixed either on the right or on the left inner side of the helmet. For that prepare the helmet as follows: On the right or left side in the helmet remove the two inner ribs of the foam cushion which are located to the inner side of the helmet (Fig. 72).
b. Put on the helmet and determine the fixation place for the speaker in the helmet depending on the ear position of the ContactCom user. Mark this place.
c. Pull off the protective foil from the round self-adhesive loop device and adhere the loop device to the marked speaker position in the helmet. Ensure that the speaker cable with the safety plug (option) is led straight downwards out of the helmet.
d. Stow the microphone and the speaker connection cable behind the leather headband and then connect the speaker cable to the microphone cable. Ensure that the connectors and the cables don't hurt the helmet user while wearing the helmet.

72



4.5 Communication Systems for Headbands

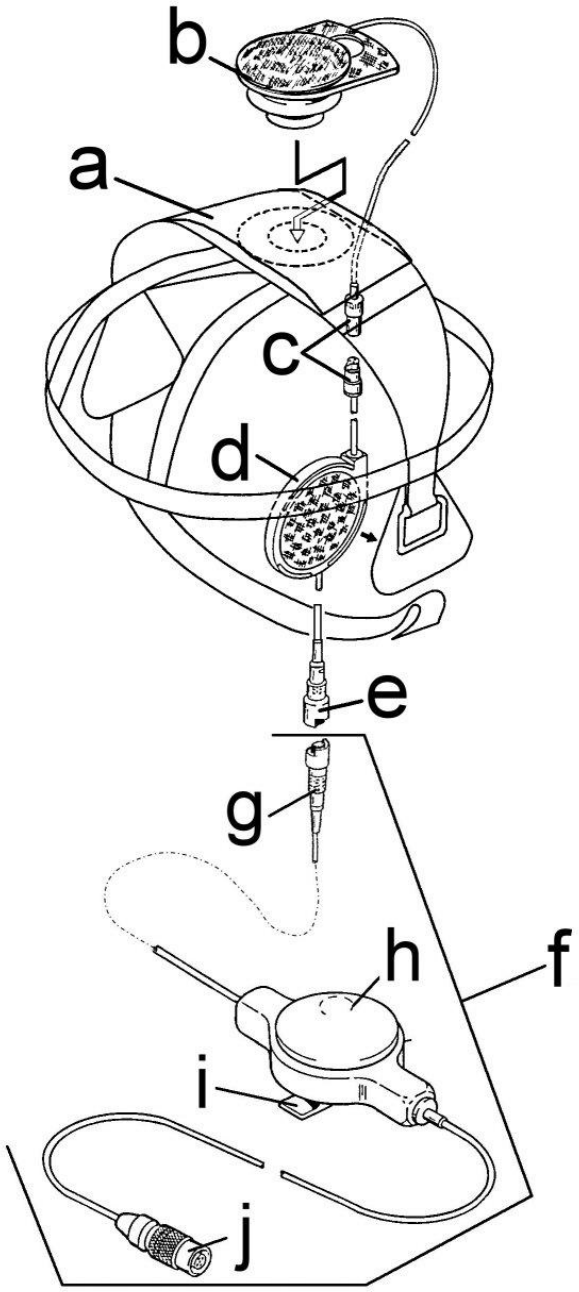
73



4.5.1 Description

The ContactCom with headbands is using for operation, independently of the helmet. According to the kind of operation different headbands are available.
As a rule the ContactCom headset (Fig. 74/a-e) consists of: a headband (a), a contact microphone (b), a speaker (d), connection cable complete with plug (e) for connection to the PTT unit (f) which is available as an accessory.

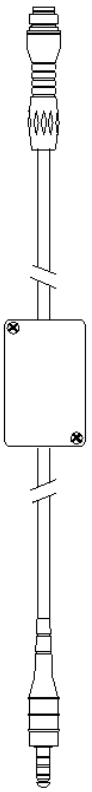
74



Key to Fig. 74

a headband
b ContactCom microphone
c speaker cable to contact microphone
d Speaker
e plug (e.g. safety plug)
f Example, transmit key unit (accessory)
g coupling (e.g. safety coupling)
h PTT-button
i Fastening clip
j Connection plug (example)

75



CT-MultiCom: For the use of communication set in conjunction with the CT-MultiCom/Ex the adapter cable Fig. 75 is required. It consists of an 8-pin connector, a connector housing and a 4-pin jack for connection to the CT-MultiCom/Ex.

4.5.2 Montage - Demontage ContactCom

⚠ WARNING

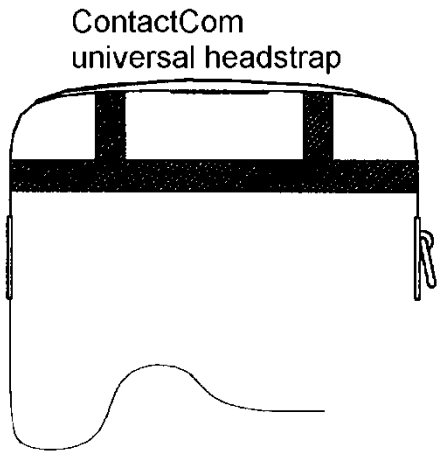
For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

4.5.2.1 Installation ContactCom

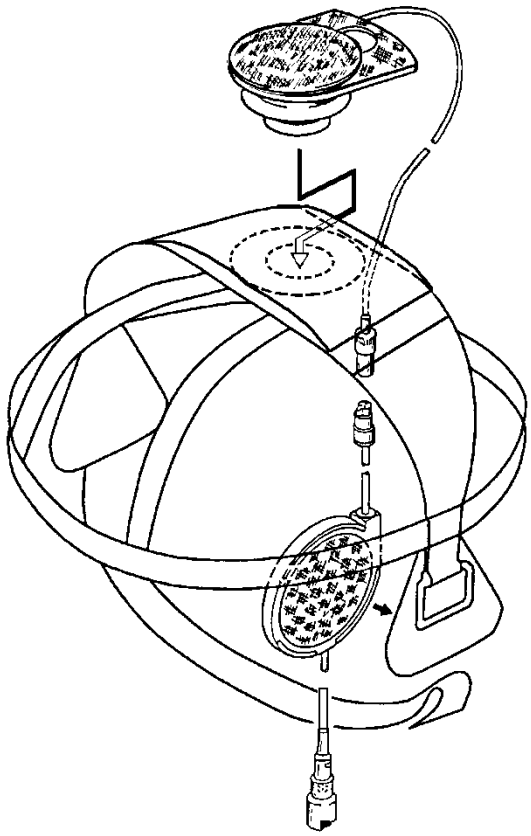
In the following instructions (examples) the installation of ContactCom in head straps and headbands is described. If other head straps or headbands are used the installation of ContactCom is similar.

Fixation of ContactCom to the universal ContactCom head strap

76



77 *Fixation of contact microphone and speaker (example)*



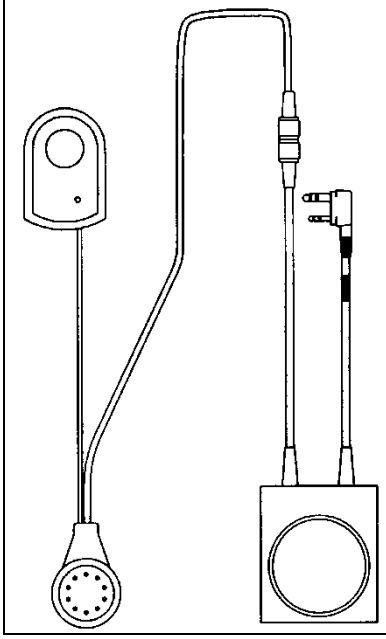
⚠ CAUTION

Be careful, do not tear off the wires in the bellows when inserting the bellows contact microphone (step »a«).

a. Insert the contact microphone in the universal head strap as shown in Fig. 76. Pull and push the bellows of the contact microphone completely through the round opening in the head strap.
b. The speaker can be fixed either on the right or on the left speaker fixation part of the head strap. Fix the speaker with the hook side to the inner loop side of the speaker fixation part (Fig. 76). Ensure that the speaker cable with the safety plug (option) shows straight downwards.
c. Connect the microphone cable to the speaker cable.
d. Put on the head strap with ContactCom contact microphone and speaker installed. Pull the chinstrap through the metal stirrup on the left side of the head strap and fasten the chinstrap. Take care for a perfect comfortable fit. Ensure that the contact microphone has a good contact to the head.

4.6 Communication Systems with speaker unit »MP«

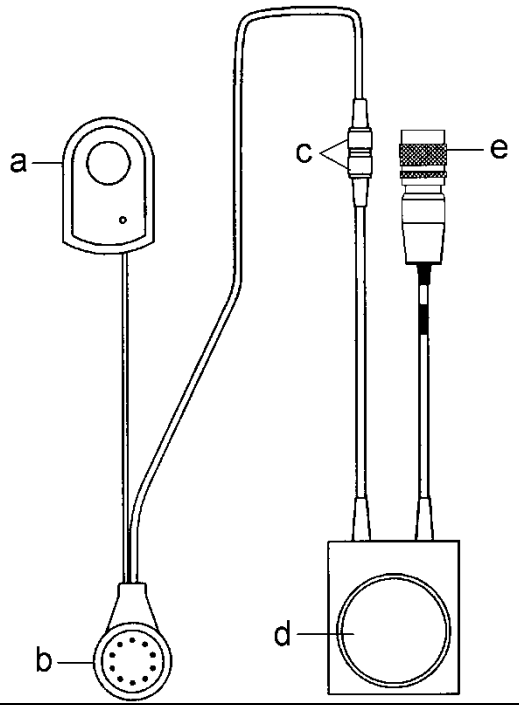
78



4.6.1 Description

This ContactCom communication system with speaker unit »MP« is installed into helmets.
Installation of the communication set into the helmet is carried out by trained qualified personnel on customer's site.
Figure 78 shows as example a ContactCom communication system with ContactCom microphone, speaker unit »MP« and rectangular transmit key unit.
Other communication systems, e.g. without transmit key unit or with two speaker units »MP« are available.

79

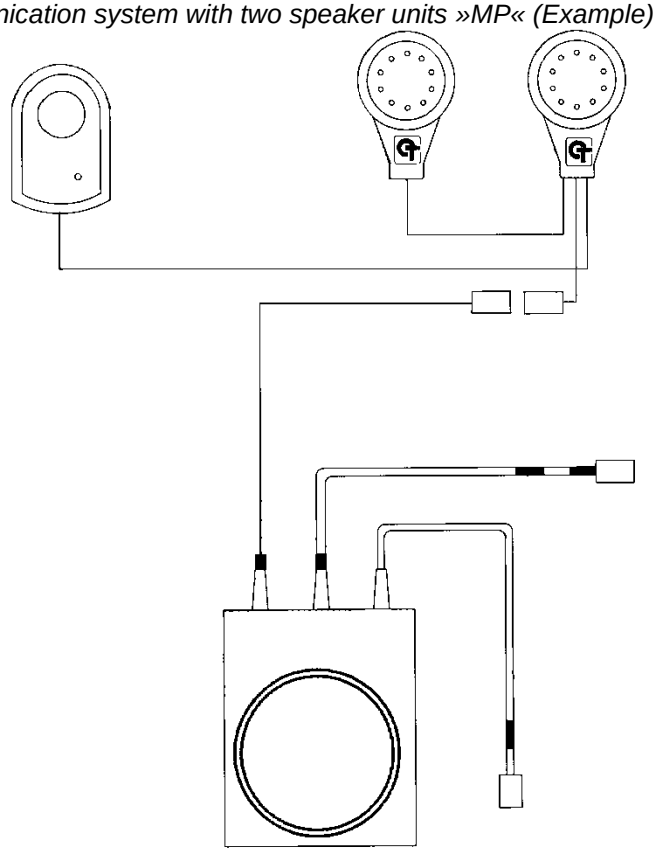


Key to Fig. 79

a ContactCom microphone
b Speaker unit »MP«
c Connector
d Rectangular transmit key unit (PTT-button) in a plastic housing (example)

e Connection plug (example)

80 ContactCom communication system with two speaker units »MP« (Example)



4.6.2 Montage – Demontage ContactCom

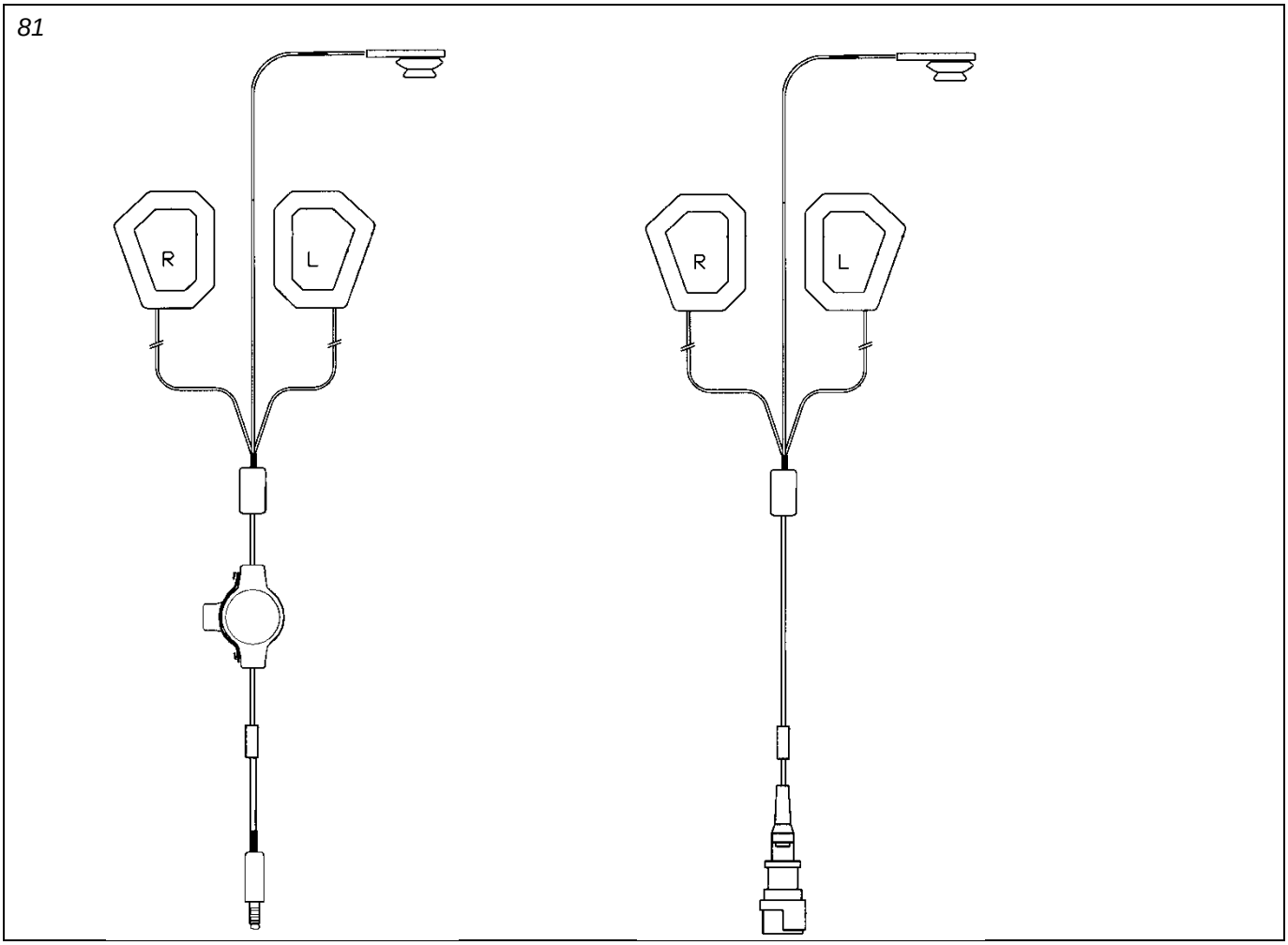
⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

Installation of the communication set into the helmet is carried out by trained qualified personnel on customer's site.

4.7 Communication system with speaker unit »JT« for Gallet-helmets

81



4.7.1 Description

This ContactCom communication system with speaker unit »JT« is installed into helmets.
Installation of the communication set into the helmet is carried out by trained qualified personnel on customer's site.
Figure 81 shows as example a ContactCom communication system with ContactCom microphone, speaker unit »JT« and with or without rectangular transmit key unit.

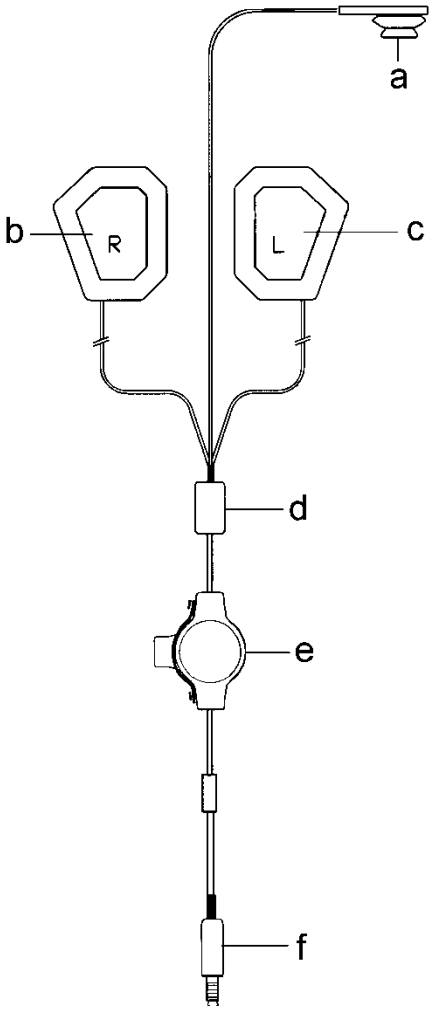
4.7.2 Montage – Demontage ContactCom

⚠ WARNING

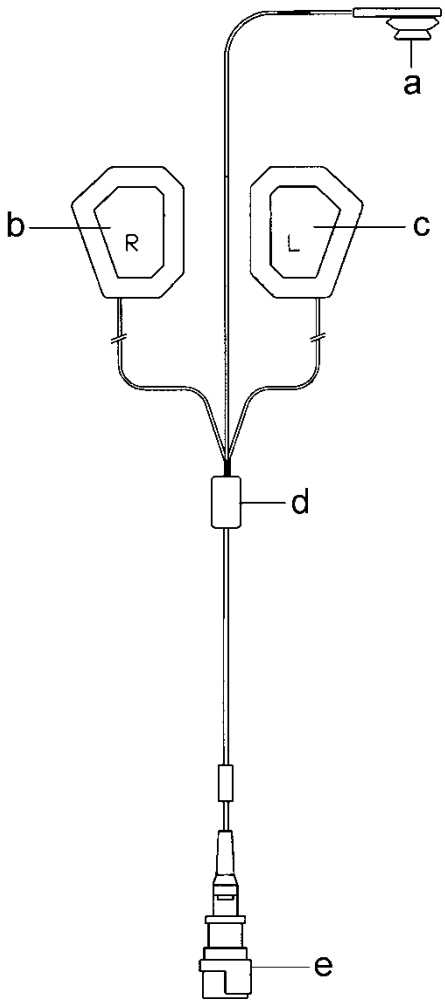
For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

Installation of the communication set into the helmet is carried out by trained qualified personnel on customer's site.

82



83



Key to Fig. 82

a Contact microphone
b Board with speaker unit »JT« and ear cushion, right-hand side
c Board with speaker unit »JT« and ear cushion, left-hand side
d Connection housing
e Inline PTT button with clip on the rear
f Connection plug (model example)

Key to Fig. 83

a contact microphone
b Board with speaker unit »JT« and ear cushion, right-hand side
c Board with speaker unit »JT« and ear cushion, left-hand side
d Connection housing
e Safety plug (model example)

Installation of the communication set into the helmet is carried out by trained qualified personnel on customer's site.

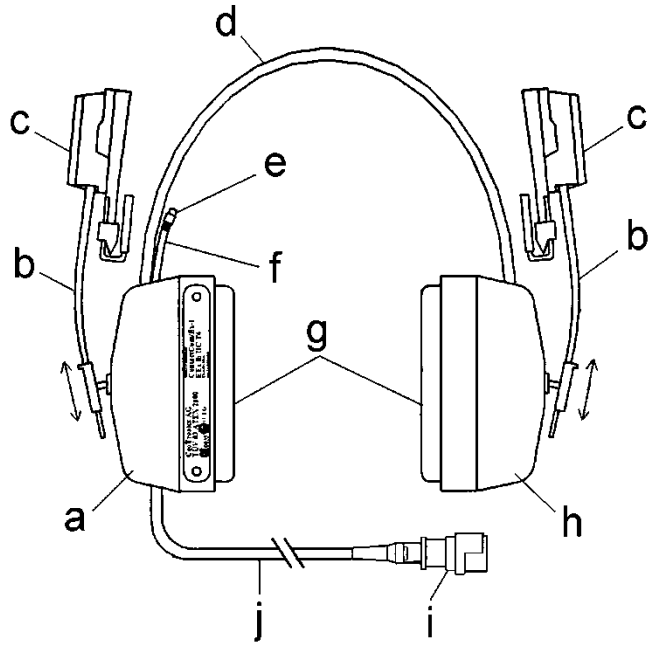
4.8 Communication headsets with speaker unit HeavyDuty Headset

84

4.8.1 Description

The CT-ContactCom communication headset with the speaker unit HeavyDuty Headset (see example Fig. 84) protects against harmful environmental noise and renders possible the operation of two-way radios or similar communication devices in noise-filled environments.
Depending on the usage requirements various versions are available.

85 Example



Key to Fig. 85 speaker unit HeavyDuty Headset

a Right-hand headset muff
b Adjustable helmet fastening arm (example)
c Helmet adapter (example)
d Cable
e 3-pin jack for connection of the microphone unit
f Connecting cable
g Ear cushion
h Left-hand headset muff
i Connector, e.g. safety plug, for the PTT unit
j Connecting cable

The speaker unit HeavyDuty Headset with headset muffs is used in connection with two-way radios or similar communication devices for the receiving (hearing) of messages. Usually one speaker resides in each headset muff. The speaker unit HeavyDuty Headset is available in various versions, e.g. with different headset muffs, with additional equipment for level-limited ambient sound reception or with adjustable head band instead helmet adapters.

4.8.2 Montage – Demontage ContactCom

⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

For fixation of the contact microphone in the helmet the self-adhesive loop part is used, which is included in the items supplied. Optional other fixation devices are available too.
The best transmission quality is achieved when the contact microphone is placed on the front part of the head.

a. Put on the helmet, determine the fixation place for the contact microphone in the helmet and mark this place.
b. The contact microphone has on the rear a round hook/loop part for fastening.
   Pull the protective foil off from the self-adhesive loop part. Adhere the loop part onto the marked place in the helmet.
d. Fasten the contact microphone in such a way to the loop part in the helmet, that the microphone cable shows to the rear.
e. In the helmet make the plug connection between the contact microphone and the speaker unit. Stow the cables and the plug connection behind the insert of the helmet that they don't disturb the ContactCom user while the helmet is worn.

4.8.2.1 Speaker unit with headset muffs for helmet fastening

Various fastening components are available to suit the specific type of helmet. Separate fitting instructions are available for fastening to the helmet. These are supplied complete with fastening components. Lay the connecting cable between the two headset muffs so that it does not cause any interference. If no noise protection is required for the activity, you can fold the two fastening arms with the headset muffs outwards and away from the helmet.

a. Put on the helmet with the contact microphone installed. Ensure that the contact microphone has a good contact to the head.

b. Adjust the headset muffs by sliding the helmet fastening arms so that the ear cushions enclose the ears well, thus achieving the best possible noise attenuation.

4.8.2.2 Speaker unit with headset muffs and head band

➔ Note

This speaker are not intended for ContactCom/Ex. They are not part of the EG-Examination for ContactCom/Ex-1 resp. ContactCom/Ex-2.

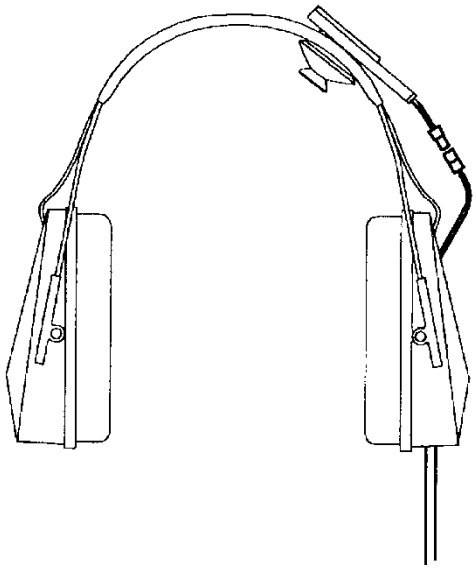
⚠ CAUTION

Be careful, do not tear off the wires in the bellows when inserting the contact microphone.

Headsets with ear muffs and special headbands can be equipped with a contact microphone. For that a round opening (diameter 28 mm) has to be punched into the headband. The speaker respectively the two speakers are installed into the headset muffs by CeoTronics. The speaker cable is led out off the headset muff (Fig. 86). Insert the contact microphone in the headband as shown in Fig. 86. Pull and push the bellows of the contact microphone completely through the round opening in the headband. Connect the microphone cable to the speaker cable.

a. Put on the headset, swing back the head band and wear the head band as a neck band.
Adjust the headset muffs by sliding the head band so that the ear cushions enclose the ears well, thus achieving the best possible noise attenuation.

86 Contact microphone inserted into the headband (example)



4.8.2.3 Wearing the headset with an additional head strap

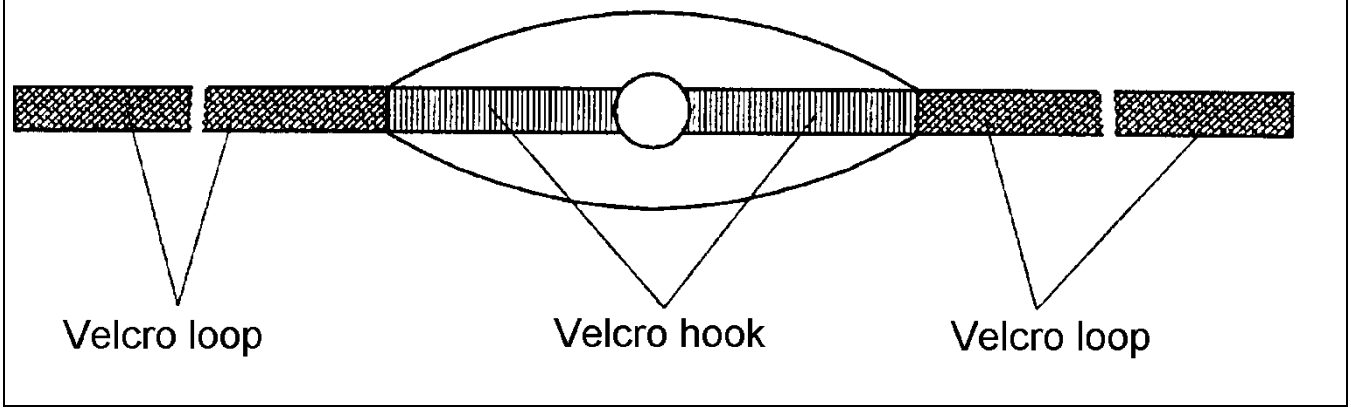
Fixation of a contact microphone to a ContactCom head strap for headset muffs

➔ Note

This kind of fixation are not intended for ContactCom/Ex. They are not part of the EG-Examination for ContactCom/Ex-1 resp. ContactCom/Ex-2.

The ContactCom head strap for headset muffs (Fig. 87) is used for fixation of the contact microphone. The speaker respectively the two speakers are installed into the headset muffs. The contact microphone is normally connected to the speaker in the headset muff by a plug connection (example Fig. 90).

87 ContactCom headband for headset muffs



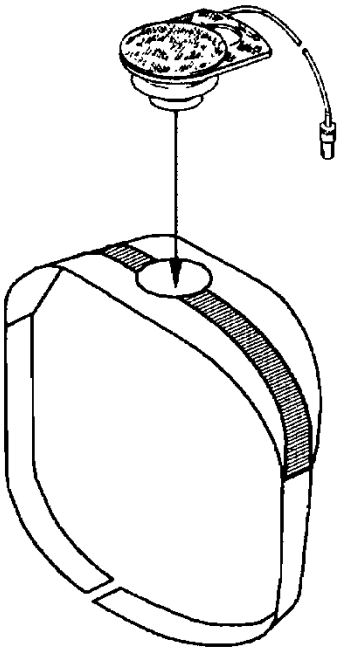
⚠ CAUTION

Be careful, do not tear off the wires in the bellows when inserting the contact microphone.

a. Insert the contact microphone in the head strap as shown in Fig. 88. Pull and push the bellows of the contact microphone completely through the round opening in the head strap. The inner side of the head strap is the loop side and must be located towards the head.

b. Pull both straps of the head strap through the stirrups on the headset muffs and fasten the straps on the head strap as shown in Fig. 90.
c. Connect the microphone cable to the speaker cable.
d. Put on the ContactCom headset. Rotate the headband of the headset backwards and use it as neckband. Take care for a perfect comfortable position of the ContactCom head strap and the headset neckband. The contact microphone must have a good contact to the head.

88 Fixation of contact microphone (example)

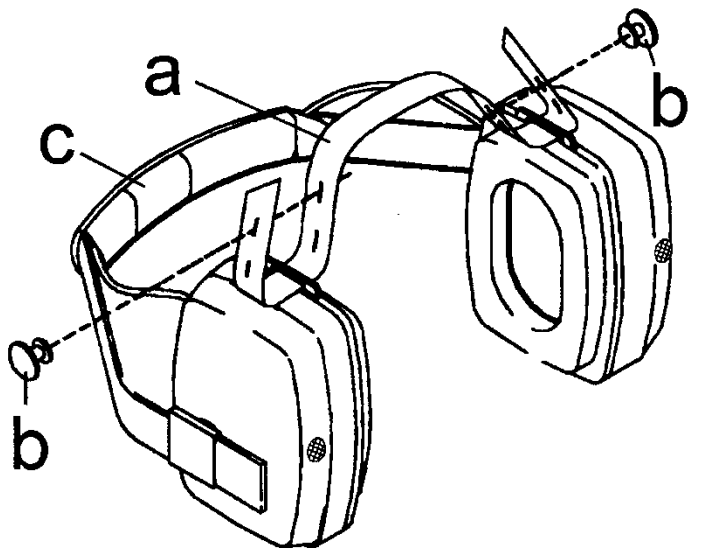


In the event of rapid body movements or extreme body postures or in conjunction with a protective helmet, speaker units with VK-headset muffs can be fixed to the head additionally by means of the head strap supplied (Fig. 89/a). Pull the head strap in accordance with Fig. 89 through the slits in the headset muffs and fasten it by means of the two holding studs (Fig. 89/b).

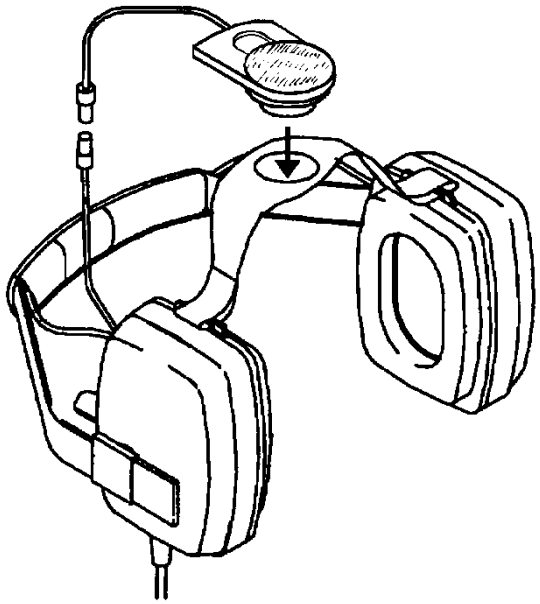
Putting together the holding stud elements – If this has not already been done ex-works, press the stud of the small holding element into the round opening of the large holding element until it engages.

Put on the headset, swing back the head band and wear the head band as a neck band (Fig. 89). Ensure taut seating of the head strap and neck band.

89



90 Contact microphone inserted into the headband (example)



4.8.3 Replacing the ear cushions and foam covers

4.8.3.1 Headset with VK shells (example Fig. 91)

Ear cushion (Fig. 91/c): Pull the ear cushion off the headset muff and replace it. Ensure that the new ear cushion fully engages into the headset muff.

Foam cover (Fig. 91/a):

⚠ CAUTION

We like to expressly point out that replacement of the foam cover of intrinsically safe communication sets PTT / Ex* must be made only by CeoTronics itself or specialist workshops duly authorized by CeoTronics. Otherwise our guaranty and product liability lapses automatically and passes on to the person responsible.

⚠ WARNING

In some headset models the retaining ring is screwed together with the headset shell. These screws can only be removed with a Torx TX 7 screwdriver.

Remove the bolts between shell and retaining ring, if applicable (figure 88/e). Pull the ear cushion (Fig. 91/c) off the headset muff.

⚠ WARNING

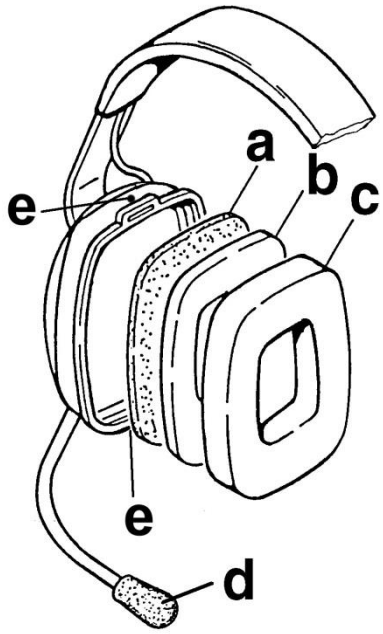
When removing the cover ring proceed with care so that you do not injure your fingers or break your finger nails.

Pull the ear cushion (Fig. 91/c) off the headset muff. Hold the headset muff with one hand. Push four fingers of the other hand inside between the foam cover (Fig. 91/a) and the cover ring (Fig. 91/b). With your fingers pull the cover ring hard, but carefully, away from the headset muff and at the same time use your thumb to press the headset muff hard in the opposite direction. Change the foam cover. When reassembling, ensure that the cover ring and the ear cushion engage fully into the headset muff.

⚠ CAUTION

If the retaining ring was fastened with screws before replacing the foam cover, then secure it again with the two screws (e) after replacement. Use for it only the Torx TX 7 screwdriver.

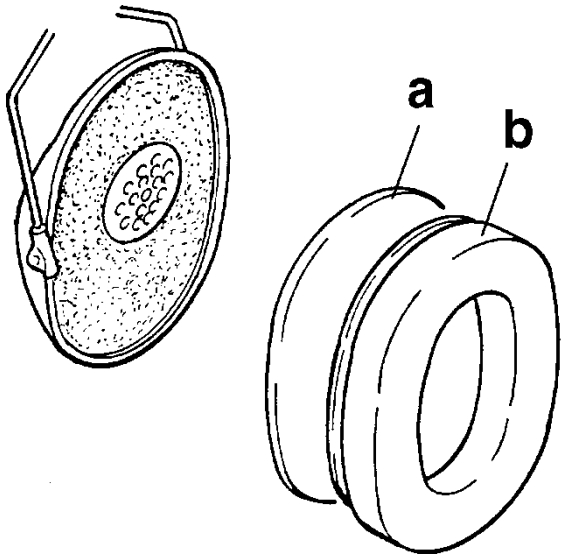
91



4.8.3.2 Headset with Optime shells (Example Fig. 92)

Pull off the ear cushion (Fig. 92/b) from the ear muff and replace it. Replace the cover foam (Fig. 92/a). Make sure that the new ear cushion locks in place completely.

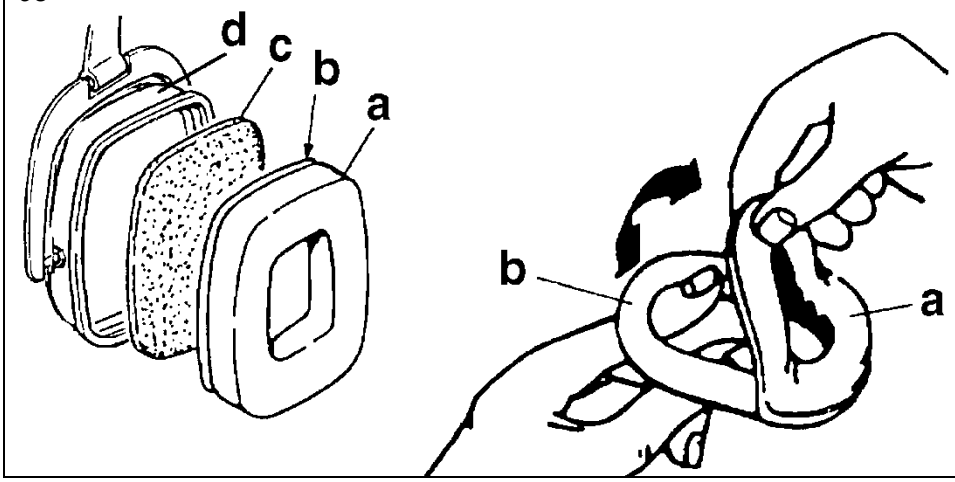
92



4.8.3.3 Headset with AS/AM shells (example Fig. 93)

a. Pull with force – but carefully – the shell ring (Fig. 93/b) together with the ear cushion (Fig. 93/a) off the headset muff (Fig. 93/d). Replace the cover foam (Fig. 93/c).
b. Pull the old self-adhesive ear cushion (Fig. 93/a) off the shell ring (Fig. 93/b). Clean the shell ring. Pull the protective foil off the new ear cushion and adhere the new ear cushion to the shell ring. Attach shell ring and new ear cushion to the headset muff. Ensure that the shell ring audibly engages.

93



4.8.4 Accessories and consumable parts

Designation and description	***Article no.***
Hygiene set for headsets with VK shells consisting of: 2 pieces ear cushion, 2 pieces foam cover, 2 pieces windshield for microphone	50 00 500
Ear cushion for headsets with VK shells, 2 pieces	50 00 501
Hygiene set for Headsets with Optime shells consisting of: 2 pieces ear cushion, 2 pieces cover foam	50 00 496
Ear cushion for headsets with AS/AM shells, 2 pieces	50 00 502
Cover foam 5 mm for headsets with AS/AM shells, 1 piece	50 00 305
Comfort set consisting of 25 pairs of cotton perspiration absorbers	40 10 025

5. Putting into operation and operation

5.1 Putting into operation

⚠ WARNING

For ContactCom/Ex take heed of sections 2.9, 2.10, 2.11.

The following instructions relate to ContactCom in conjunction with the PTT unit. For ContactCom without the PTT unit, steps »1« and »3« can be skipped.

1. Connect the ContactCom headset and the PTT unit.
2. Put on the helmet, the respirator or the headband with the integrated ContactCom headset. Ensure that the contact microphone is in good contact with your head. During using of ContactCom with HeavyDuty headsets consider sections 4.9.2.1 to 4.9.2.3.
3. Fasten the PTT unit by means of the clip on the rear side to a suitable place on your clothing.
4. Connect the ContactCom headset via the connection plug to the radio set or communication device.
5. Switch on the radio set or communication device and adjust on the radio set or communication device the desired reception volume for the speaker of the ContactCom headset, but no higher than is necessary. Very high volume settings can lead to damaged hearing, particularly in continuous operation. Please heed the operating instructions of the manufacturer for the radio set or communication device.

5.2 Transmitting and receiving

➔ NOTE

Valid only for ContactCom in conjunction with a PTT unit and radio set.

Manual transmitter keying – Press the PTT button and hold it down. The radio set is switched to transmission. You can speak as long as the PTT button is held down. As soon as the PTT button is released the radio set is back on standby/reception.

PTT button unit with selector switch for VOX or PTT – For VOX mode switch the selector switch VOX/PTT to VOX (transmitter keying via speech) and for PTT mode (transmitter keying by hand) to PTT (PTT = push-to-talk).

Transmit key with electronic switchover – The PTT unit can be equipped with an electronic switchover facility (optional). The electronics switch automatically over to loudspeaker and the microphone of the radio set, if the plug connection between the ContactCom headset and the PTT unit is separated. Communication can be effected via the radio set.

6. Safekeeping – storage

After use, keep the cleaned ContactCom devices in a clean and dry place at normal temperature and at normal relative air humidity.

7. Maintenance – repair

⚠ ATENTION!

In general the intrinsically safe ContactCom/Ex* is maintenance-free. However, the body of the ContactCom/Ex* should be inspected before every use whether it is faultless and intact (protection class = IP 20).

⚠ ATENTION!

To avoid static charging, intrinsically safe devices must never be cleaned in the explosion hazard area – an unintentional explosion could be the consequence (see section 2.9 "Electrostatic charging").

7.1 Visual inspections

Examine the devices and in particular the cables and plug connectors regularly for signs of fractures, cracks and wear. Send defective devices to CeoTronics for repair.

7.2 Cleaning

⚠ WARNING

When cleaning ensure that no moisture is allowed to get inside the device.
Do not use any solvents (benzene, alcohol etc.) for cleaning purposes!

Remove any loose dust with a soft brush. Clean the outside with a suitable clean cloth that has been slightly moistened with clear water, and rub the parts dry afterwards. If heavily soiled, some dishwashing liquid can be used in addition.
If necessary, clean the contacts of the connection plug with a commonly available contact cleaning agent.

EC-Type Examination Certificate TÜV 03 ATEX 2100

Translation

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment or protective system intended for use in potentially explosive atmospheres **- Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 03 ATEX 2100

(4) Equipment: Hear/speak system type ContactCom/Ex-*

(5) Manufacturer: CeoTronics AG

(6) Address: D-63322 Rödermark, Adam-Opel-Str.6

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 03 YEX 550523.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014: 1997 **EN 50 020: 2002**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

Ex II 2 G EEX ib IIC T4

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Hanover, 2003-04-14

Head of the Certification Body

TÜV NORD CERT

TÜV CERT A4 10.02 10.000 Lö

page 1/2

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 03 ATEX 2100**

(15) Description of equipment

The hear/speak system type ContactCom/Ex-* is used for the remote-control of radio devices or similar communication systems, which may also be cable-bound.
Different marked and external modules must not be combined.

Electrical data

Supply circuit (plug)	in type of protection Intrinsic Safety EEx ib IIC only for the connection to a certified intrinsically safe circuit

The maximum values in dependence on the type have to be taken from the table:

Type	U_i	I_i	P_i	L_i	C_i
ContactCom/Ex-1	10 V	800 mA	8 W	≈ 0	≈ 0
ContactCom/Ex-2	3.9 V	400 mA	1.56 W	10 µH	≈ 0

(16) Test documents are listed in the test report No.: 03 YEX 550523.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

BA 02 03.02

Translation

1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 03 ATEX 2100

of the company: CeoTronics AG
Adam-Opel-Str.6
D-63322 Rödermark

In the future, the hear/speak system type ContactCom/Ex-* may also be manufactured and operated according to the documents listed in the test report.

The amendments concern the internal design, the electrical data and the additional use of the hear unit "Heavy Duty Headset". Different models of the hear/speak system are available e.g. also integrated in various ear muffs.

The gas group in dependence on the type of the ear muff has to be taken from the table:

Type	Gas group
Viking	IIC
Mark 12	IIC
AS/AM	IIB
AS/AM equipped with helmet attachment type "Kombi S"	IIC
LAS/LAM	IIB
LAS/LAM equipped with helmet attachment type „Kombi S"	IIC
Optime I	IIB
Optime II	IIB
Optime III	IIB

Electrical data

Supply circuit (plug)	in type of protection Intrinsic Safety EEx ib IIC only for the connection of a certified intrinsically safe circuit

The maximum values in dependence on the type have to be taken from the table:

Type	U_i	I_i	P_i	L_i	C_i
ContactCom/Ex-1	10 V	1,4 A	14 W	≈ 0	≈ 0
ContactCom/Ex-2	3,9 V	400 mA	1,56 W	10 µH	≈ 0

BA 02 11.03

1. Supplement to EC Type-Examination Certificate No. TÜV 03 ATEX 2100

All further data apply unchanged for this amendment.

(16) Test documents are listed in the test report N° 04 YEX 551365.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
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Tel.: 0511 986-1470
Fax: 0511 986-2555

Hanover, 2004-04-02

Head of the
Certification Body

BA 02 11.03

Translation

2. S U P P L E M EN T
to
EC-TYPE EXAMINATION CERTIFICATE No. TÜV 03 ATEX 2100

Equipment:	Hear/speak system type ContactCom/Ex-*
Manufacturer:	CeoTronics AG
Address:	Adam-Opel-Str. 6 D-63322 Rödermark

Amendments:

In the future, the hear/speak system type ContactCom/Ex-1 may also be manufactured and operated according to the documents listed in the test report.

The amendments concern the internal design of this type. For the transmission key unit (PTT) a changed printed circuit board can be used.

The electrical data and all other data apply unchanged for this Supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 50 014:1997 +A1+A2 **EN 50 020:2002**

(16) The test documents are listed in the test report N° 06 YEX 552703.

(17) Special conditions for safe use

no additional ones

(18) Essential Health and Safety Requirements

no additional ones

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Fax: +49 (0) 511 986-1590

Hannover, 2006-02-23

Head of the
Certification Body

Translation

3. S U P P L E M E N T

to Certificate No.	**TÜV 03 ATEX 2100**
Equipment:	Hear/speak system type ContactCom/Ex-*
Manufacturer:	**CeoTronics AG**
Address:	Adam-Opel-Str. 6 63322 Rödermark Germany
Order number:	8000553694
Date of issue:	2007-05-09

Amendments:

In the future, the hear/speak system type ContactCom/Ex-* may also be manufactured and operated according to the test documents listed in the test report.

The amendments concern the use of an other enclosure material and a changed printed circuit board.

The electrical data and all other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 50014:1997 +A1 +A2 **EN 50020:2002**

(16) The test documents are listed in the test report No. 07203553694.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

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P17-F-016 06-06 **page 1/1**

Translation

4. S U P P L E M E N T

to Certificate No.	**TÜV 03 ATEX 2100**
Equipment:	Hear/speak system type ContactCom/Ex-*
Manufacturer:	**CeoTronics AG**
Address:	Adam-Opel-Str. 6 63322 Rödermark Germany
Order number:	8000555256
Date of issue:	2009-06-08

Amendments:

In the future, the hear/speak system type ContactCom/Ex-* may only be manufactured according to the documents listed in the test report.

The amendments concern the connection data of the variant ContactCom/Ex-1, the internal construction, the marking and the instruction manual.

The marking is in future:

II 2 G Ex ib IIB T4 resp. Ex ib IIC T4

Technical Data:

ContactCom/Ex-1

Supply circuit ..... (plug)	in type of protection „Intrinsic Safety" Ex ib IIB resp. Ex ib IIC only for the connection to a certified intrinsically safe circuit. Maximum values: U_i = 10 V I_i = 1.5 A P_i = 15 W The effective internal capacitance and inductance are negligibly small.

All other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2006 **EN 60079-11:2007**

(16) The test documents are listed in the test report No. 09 203 555256.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

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Translation

5. S U P P L E M E N T

to Certificate No.	**TÜV 03 ATEX 2100**
Equipment:	Hear/speak system type ContactCom/Ex-*
Manufacturer:	**CeoTronics AG**
Address:	Adam-Opel-Str. 6 63322 Rödermark Germany
Order number:	8000422562
Date of issue:	2013-07-03

Amendments:

In the future, the hear/speak system type ContactCom/Ex-* may be manufactured according to the documents listed in the test report.

Furthermore the Hear/speak systems "Standard" and "GD" for CT-MultiCom are manufactured with other components so that a higher sound level can be reached.

All other data apply unchanged for this supplement.

The marking of the equipment:

II 2 G Ex ib IIB T4 resp. Ex ib IIC T4 or
II 2 G Ex ib IIB T4 Gb resp. Ex ib IIC T4 Gb

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2012 **EN 60079-11:2012**

(16) The test documents are listed in the test report No. 13 203 124164.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Herbert Peters
Hanover office, Am TÜV 1, 30519 Hanover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590

P17-F-016 06-06

page 1/1

Certificate No. 01100004023 (ISO 9001)

Certificate No. 01220004023 (ATEX)

Germany and
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