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CONNEVANS AUDITORY TRAINER ATU30
OPERATING INSTRUCTIONS V1.3

1. GENERAL DESCRIPTION & FACILITIES.

1.1 The CONNEVANS AUDITORY TRAINER ATU30 is a portable rechargeable training unit with a sound output level in excess of 135 dB SPL. The output level is separately adjustable in 5 dB steps for each ear. The red control is for the right ear and the blue for the left - matching the red & blue headset.

1.2 The ATU30 is housed in a veneered wooden case with a sloping front case with a sloping front panel and vertical rear panel. There are no user adjustable or replaceable parts inside and removal of the bottom panel will invalidate the warranty.

1.3 A colour illustration is enclosed in this folder, and a more detailed specification will be found on the reverse side of the illustration.
Please contact David Evans if you require further technical information.

1.4 Front Panel Facilities
Please refer to numbered front panel drawing - on page 9.

1. Battery low indicator. (See sections 10 & 11)
2. ON/OFF switch. (See section 10.1)
3. Output level meter. (See section 5)
4. Individual left & right output attenuator controls. (See section 4)
5. Separate controls for bass & treble cut and boost (See section 9)
6. Headset or headphones socket. (See section 1.5)
7. Student channel green 'LIVE' indicator. (See section 6)
8. Secondary student microphone input socket. (See section 1.6)
9. Student input channel control (the green knob!). (See section 5)

10. AGC switch. (See section 7)

11. Tutor microphone input socket. (See section 1.7)

12. Tutor input channel control (the yellow knob!). (See sections 6 & 13 & 14)

15. Tutor channel green 'LIVE' indicator. (See section 6)

1.5 Headsets or Headphones

i) A high quality noise-excluding headset is used which incorporates an electret boom microphone. A "junior" headband size is available in addition to the standardsize.

ii) For those not wishing to use a headset with boom microphone, headphones without a boom microphone used together with a hand or tie-clip microphone for the student are available.

iii) For those working with very young children or babies, Connevans are able to offer special 'half headsets' or headsets with no headband for use in cots As these units are made to individual customer's requirements we have no explanatory sheet - Please phone David Evans to discuss the possibilities.

1.6 Student microphone input options:-

i) Student headset boom microphone.

ii) Secondary student input using either a hand microphone part number 103050 or tie-clip microphone part number 103055.

Note: a) If a boom microphone and secondary student microphone are used simultaneously, the two signals will be added together.

b) When used as part of a group system, the student microphone level is controlled via the appropriate group mixer student microphone control please refer to the group mixer inter-connection & instruction sheet.

1.7 Tutor microphone input options:-

Either hand microphone part number 103050 or
tie clip microphone part number 103055.

Note: a) A Tutor microphone plugged into the front panel will disconnect any 'AUXILIARY INPUT' in the rear panel.

b) When used as part of a group mixer system the ATU30 tutor input is still operative; however, any tutor input to an individual ATU30 will not be heard by the rest of the group, which allows an individual student to listen to any external source such as a cassette player.

1.8 Rear panel facilities

i) 'AUXILIARY OUTPUT' - a 1/4" two pole jack socket which provides an output suitable for feeding into a small loop or cassette recorder - this is the same sound as that fed to the headphones but independent of the output attenuator controls. (See section 14)

ii) 'AUXILIARY INPUT' - a 1/4" two pole jack socket which will accept an input from a cassette, video player or Connevans radio microphone. This input is controlled by using the yellow tutor 'LEVEL' control. (See section 13). Alternatively, a microphone mixer may be connected to allow the use of more microphones. (Please phone David Evans if you require more information on this option).

iii) 'LINK' - a 1/4" three pole jack socket to allow two ATU30 units to work as a pair with full intercommunication - whatever is heard in one headset will also be heard in the other. Please note that a special lead with reversed connections is required - available from Connevans, please quote part number 10304B for a 1 metre lead.

iv) 'MIXER' - a 1/4" three pole jack socket which allows the formation of an auditory trainer group system with a Connevans group mixer unit. (See group mixer inter-connection & instruction sheet)

v) 'CHARGING' - when mains power is connected to the unit to charge the internal batteries this indicator will light. The charging of the batteries is independent of the position of the ON/OFF switch. (See section 11)

vi) IEC mains input socket. Please check the voltage of operation and ensure that only properly earthed three core cables are used. (110-120 V AC models are available to special order).

2. WHEN YOU FIRST GET THE UNIT

2.1 You require the following four items to form a working system:

1. An ATU30.
2. Some form of Connevans ATU30 headset or headphones.
3. Some form of tutor input (e.g. a tutor microphone).
4. You will also require a mains lead for recharging the batteries.

If any of the above items are missing you have not got a working system !

2.2 When despatched from Connevans the ATU30 units are NOT fully charged, so it is important to charge your unit for the prescribed charge time of 16 hours. (See section 11)

3. SETTING UP

3.1 Before connecting up or turning on the equipment always do as follows:

1. Set both the blue & red attenuators to mute.

2. Set both the bass & treble controls to the mid 'FLAT' position.

3. Set both the green student and yellow tutor controls controls fully anti-clockwise to their minimum position.

4. Select either 'NORMAL' or 'AGC IN' as required - if you are uncertain you should select 'NORMAL'.

5. Plug the headset into the headset socket.

6. Plug the tutor's microphone into its input socket.

3.2 Now you can safely turn 'ON' the ATU30, the low battery indicator will give you a "confidence wink" thus indicating that there is adequate charge in the batteries.

a) Should the 'LOW BATTERY' indicator stay lit, it is an indication that the battery voltage is low and recharging is necessary. (See section 11)

b) If the 'LOW BATTERY' indicator does not give you a "confidence wink" the batteries are totally flat – recharge the unit. (See section 11)

3.3 Increase the green student and yellow tutor channel level controls until with normal speech the meter peaks up to +3 in the red section of the meter. If the meter does not enter the red section you will not obtain the required output level.

3.4 Select the correct tone adjustment for the user as previously determined by your standard audiological procedures. (See also section 9)

3.5 Increase the separate attenuators for the blue left phone and the red right phone to the required output level. Don't forget to confirm that the user is listening at a comfortable level - "The client is always right" !

4. OUTPUT ATTENUATOR CONTROLS

The output is individually adjustable to each ear from 100 dB SPL to 135 dB SPL in 5 dB steps, with a mute (off)position for each ear. Please note that the colour coding of the attenuator controls matches the headset earphone colours.

5. OUTPUT LEVEL METER

5.1 The technical definition.....Connevans has calibrated the U meter as follows. With a continuous sinusoidal input, peak clipping will occur (in the output stage) at a signal level of 12 dB above full scale deflection on the VU meter (+3 VU). This level is derived on the basis that the difference of the maximum short-term average legal between a speech signal (approximately 0.125 s) and the long-term average is approximately 12 dB.

5.2 The practical definition....In normal use, the meter should be talked up into the red, but clipping (distortion) will occur on speech peaks if the meter is driven over the end stop.

5.3 "But how do I actually set the volume control".....Using a hand microphone in its correct position 6-8 inches from the mouth, say "laaaaaaaaaaaaaa" etc. at your normal speaking level. Adjust the appropriate microphone level control so that the output meter reads 0 VU. The sound pressure level from the headphones will now be that set by the output level attenuator controls. For a boom microphone the same principle applies, however the position of the microphone will be much nearer to the mouth.

6. CHANNEL 'LIVE' INDICATORS

6.1 The purpose of the channel 'LIVE' indicators is to inform the tutor at a glance that his microphone is switched on and working , and that all is well with the student's microphone.

6.2 The green indicators show whether an audio signal is present in the student and tutor channels. Each indicator will illuminate with a sound input if the speech is consistently above -10 VU on the output level meter. They exhibit a fast attack time of a few milliseconds and a slow decay of 2 - 3 seconds. They will respond to peaks of speech and will only extinguish if there is a pause of several seconds in the speech.

6.3 When used with a mixer, the student microphone 'LIVE' indicator is still valid, but the level is adjustable from the mixer. The tutor microphone 'LIVE' indicator is located at the tutor microphone input on the Group Mixer.

7. AUTOMATIC GAIN CONTROL

With 'AGC IN' selected, the headset & auxiliary outputs exhibit a time-averaged dynamic range of half that of the input signal; i.e. an increase in the input signal of 6 dB will give a corresponding increase in output of only 3 dB. There is no 'knee point' (threshold level) to set as in a conventional agc, because the characteristic slope is continuous over an input range of approximately 100 dB.

8. FREQUENCY RESPONSE

8.1 Electrical output: 100 Hz - 10 kHz +/-3 dB with tone controls flat.

8.2 To consistently measure the acoustic response of a circumaural headset is not easy. If you have a B&K flat plate coupler and an B&K artificial ear or 6cc coupler please contact David Evans to discuss the Connevans recommended procedure. It is not normally possible to test circumaural headsets on a standard hearing aid test box.

9. BASS AND TREBLE CONTROL

9.1 It is important that the microphone input levels have been set before setting any tone adjustment if the correct output levels are to be reached and unnecessary distortion is to be avoided.

9.2 Bass & Treble cut and boost approx 6 dB per octave centred at 1 kHz.

i) Bass cut or boost : approx. 10 dB at 150 Hz

ii)Treble cut or boost : approx. 10 dB at 5 kHz

10. LOW BATTERY INDICATOR

10.1 The 'LOW BATTERY' indicator illuminates for approximately 1 second when the ATU30 is switched 'ON' giving a "confidence wink" to signify that the batteries have a reasonable state of charge.

10.2 The 'LOW BATTERY' indicator will illuminate steadily when the batteries require charging.

10.3 If the 'LOW BATTERY' indicator does not light then the batteries are probably totally discharged and require charging.

11. BATTERY CHARGING

11.1 The ATU30 uses rechargeable batteries, charged from its internal charger unit. The ATU30 will recharge from flat in 16 hours. Top-up charging is permitted, and we suggest that you organise your routine to ensure that equipment is recharged before the batteries become 'flat'. It is difficult to be precise about the length of time the recharged batteries will last because it is dependent on usage, the level of settings and the 'amount of sound' picked up by the microphone! As a guide we would suggest starting with a charging routine of twice a month. ATU30 units do not normally leave the factory fully charged - although we do try to give you enough charge so that you can use the ATU30 when you receive it; commence your charging routine as soon as possible after receipt of your equipment.

11.2 Unless on a top-up basis - charge for 16 hours to obtain a "fully charged" status. Do NOT charge for longer than 24 hours; If necessary use a mains timer unit (Connevans part number 697D).

11.3 The red 'CHARGE' indicator on the rear panel will illuminate when the battery is charging.

11.4 If the batteries run low during use, it should be possible to continue to use the ATU30 with the mains charging lead plugged in depending on the output attenuator settings. If the batteries are totally flat a period of 15-30 minutes of charging before use will be required; depending on the attenuator settings. However it is possible that there might be a slightly increased level of hum.

11.5 To optimise the life expectancy of the batteries we would recommend that the ATU30 is charged before any period of disuse such as holidays.

12. **MIXER CONNECTION**

12.1 A standard feature of the ATU30 is the ability to use a Connevans mixer unit to provide full inter-connection and inter-communication within a group of auditory trainers.

Details of this feature are provided in the mixer inter-connection instruction sheet. Further details may be obtained from Connevans.

13. **AUXILIARY INPUT**

13.1 A cassette player or radio can be connected to the Auditory Trainer via the rear panel 'AUXILIARY INPUT' socket (a 2-pole 1/4" jack plug is required).

13.2 The required input level is 250 mV with an input impedance of 100 k Ohms; the level of the auxiliary input is adjusted using yellow tutor channel volume control.

13.3 The rear panel 'AUXILIARY INPUT' will automatically be disconnected when a tutor microphone is plugged into the front panel.

14. AUXILIARY OUTPUT

14.1 Connection to external recording or monitoring equipment can be made from the rear panel 'AUXILIARY OUTPUT' socket, e.g. cassette recorder or an observation room sound monitoring system.

14.2 A small loop can be driven from the unit by connecting to the 'AUXILIARY OUTPUT' socket (a 2-pole 1/4" jack plug is required).
Greater than 4W into 2 Ohms is available.

15. SPECIAL NOTE - ELECTRET HAND MICROPHONES

The teacher's electret hand microphones which are often used with the Auditory Trainers have a battery inside - please ensure that this battery is removed during holiday periods. We also suggest that in practice it is advisable to dispose of this battery and replace with a new one at the start of the next period of use. We would advise 'dating' the battery with a "felt tip marker". Electret tie clip microphones used with the ATU30 also use a battery; depending upon the exact type of microphone, the battery is usually inside the plug/adaptor.

16. SPECIAL NOTE - DESK MOUNTING OF ATU30's

Three mirror plates are fitted to the base of the ATU30 to allow mounting vertically on desks. Please ask Connevans to send you a mounting template if required. Please also ensure that the round head mounting screws protrude no further than 1/2" from the desk face to prevent internal damage.

Should you require technical help with your Connevans Auditory Trainer ATU30 or further iformation on any other products manufactured by Connevans, please contact David Evans at Connevans Limited:

Switchboard. 01737 247571 fax. 01737 223475