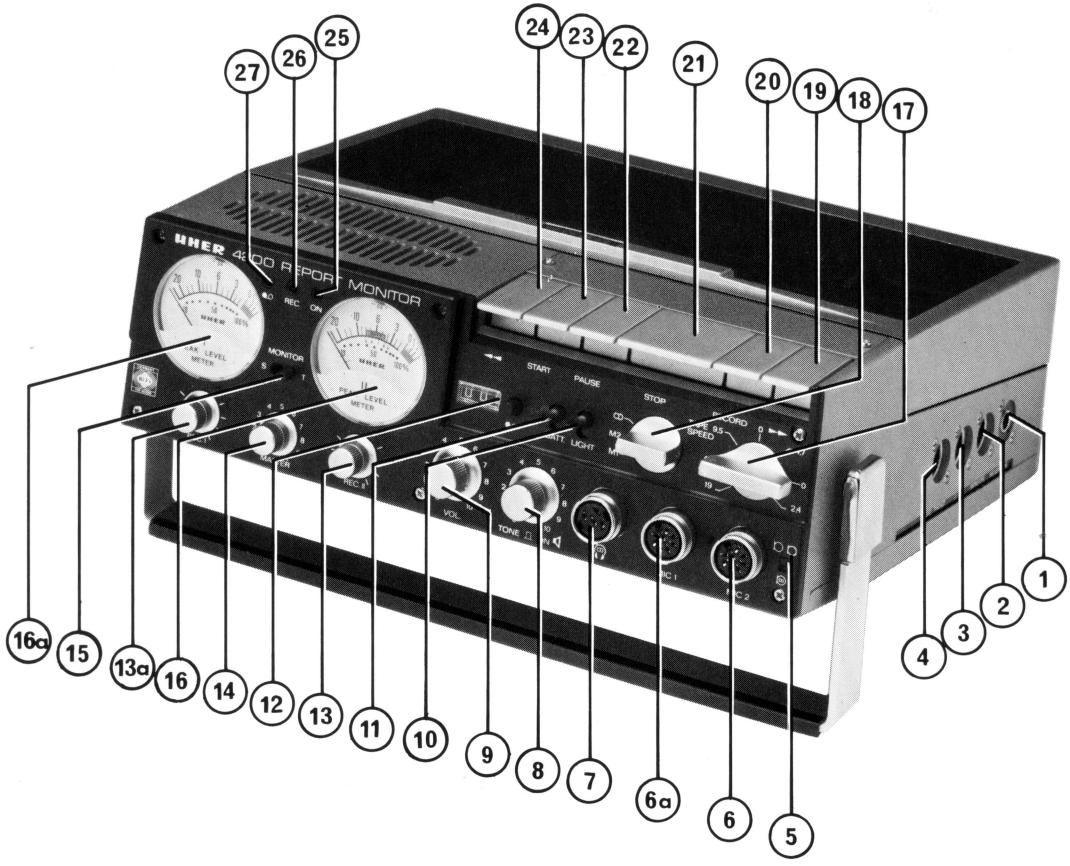
UHER
münchen

4200 REPORT MONITOR
4400 REPORT MONITOR

Bedienungsanleitung
Operating Instructions
Instructions d'emploi


UHER 4200 REPORT MONITOR
REC ON
MONITOR
START
PAUSE
STOP
RECORD
SPEED
ATT.
LIGHT
VOL
TONE
MIC 1
MIC 2
1
2
3
4
5
6
6a
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UHER REPORT MONITOR machines represent the utmost in tape recorder technology of today. As an aid to the user in familiarizing himself with the new techniques, highly detailed operating instructions are supplied; they should be read carefully. With good knowledge and experience in operating present-day open-reel recorders, however, it will be sufficient to read only certain pertinent sections that may be easily located by using the table of contents. Each section of the manual is complete in itself and makes reference to other sections only when absolutely necessary.

Contents

1. Setting Up UHER 4200/4400 REPORT MONITOR for Use

UHER 4200/4400 REPORT MONITOR is designed for universal powering. Single dry cells, a special rechargeable (nicad or lead) storage battery or a mains power supply unit may be inserted, as needed or desired, into the machine after removing the bottom plate of the recorder by turning the securing screw anti-clockwise.
In addition, with the appropriate connecting lead, the 4200/4400 REPORT MONITOR may also be powered by a 12-V or 24-V car battery (see sec. 1.4).

1.1 Operation on Dry Cells

Five 1.5-volt dry cells are required. All types currently available may be used, but leak-proof cells are strongly recommended. Be certain, however, that all cells inserted into the machine are of one and the same type. Used-up cells should be removed immediately so as to avoid damaging the power supply contacts in the battery compartment. No responsibility may be accepted by the manufacturer of the recorder for damages resulting from dead batteries. Insert the cells into the battery compartment as shown in Fig. 1.

1.1.1 Operating Life of Dry Cells

The operating life of (single) dry cells depends largely on their quality. High playback volume and fast-forward or rewind operation naturally consume more power than normal wind at a relatively low volume level. The figures quoted below must, therefore, be considered as averages.

When using powerful and highly efficient (alkali-manganese) cells, the operating life of the cells may be expected to be 5 hours (see also sec. 9.4). With the storage battery, on the other hand, the recorder may be operated for approximately 5 hours, whether in continuous operation or with interruptions.

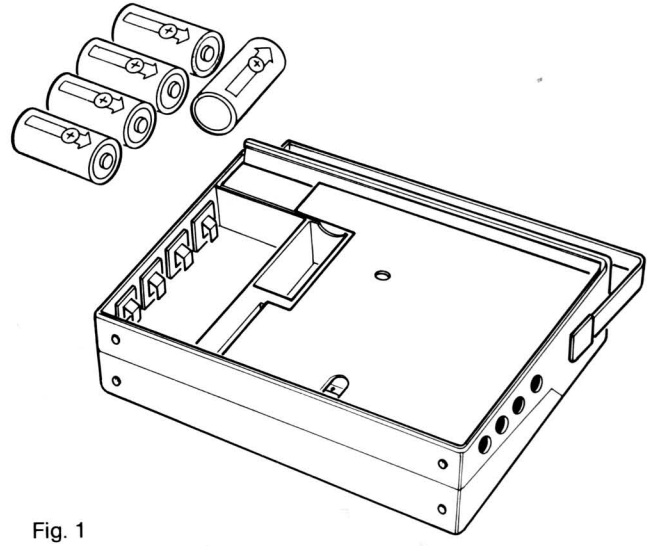

Fig. 1

1.1.2 Testing Battery Strength

On pressing key **(11)** while the recorder is switched on but not connected to an external power supply, level meter II **(16)** will indicate battery strength (see sec. 3.9). If the pointer remains within the green segment of the scale, the battery is still in good operating condition. If the pointer only just reaches the beginning of the green segment (at 5 V), the storage battery should be recharged immediately or the dry cells replaced.

1.2 Operation on UHER Special Storage Battery Z 212 or Z 214

UHER 4200/4400 REPORT MONITOR may be powered by UHER storage batteries Z 212 and Z 214, and storage battery operation is especially economical and practical for professional reporting. Insert the battery into the battery compartment as shown in Fig. 2, making certain that the side with the "+" and "−" markings faces upward.

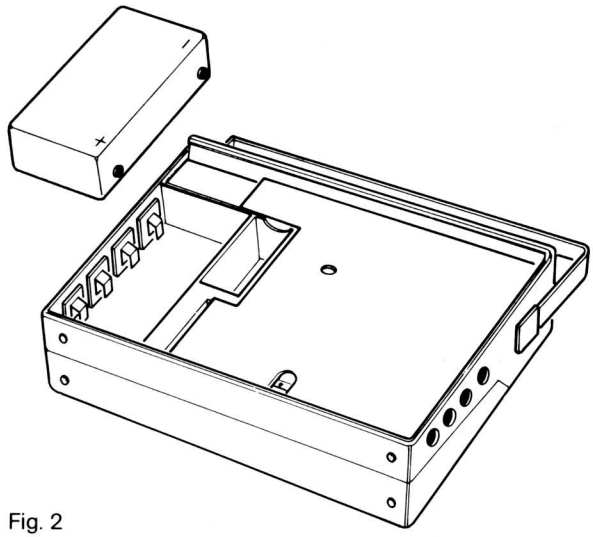

Fig. 2

1.3 Operation on UHER Power Supply and Battery-Recharging Unit Z 124 A1

UHER PSU Z 124 A1 is needed to operate the REPORT MONITOR on mains voltages (100 – 130 V or 200 – 240 V a.c.) and to recharge UHER storage batteries Z 212 and Z 214.
Before making mains connection, ascertain the voltage of the mains power. Then, if necessary, use a coin to turn the voltage selector on PSU Z 124 A1 (see Fig. 3) to the proper voltage reading.

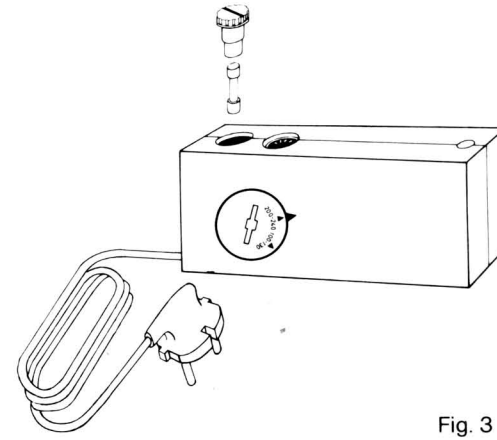

Fig. 3

Note also that the 50-mA fuse supplied in the Z 124 A1 is for use with voltages from 100 to 130; for currents with 200 to 240 volts, the 50-mA fuse must be replaced by a 100-mA fuse. A coin may also be used to screw out the fuse holder.

Use UHER lead K 713 or K 714 to connect PSU Z 124 A1 to the REPORT MONITOR, plugging the lead into the △ socket on the side panel of the tape recorder.

Dry cell or storage batteries may remain in the battery compartment during operation with the PSU. The PSU, however, may itself also be inserted into the battery compartment: Simply remove the bottom plate of the REPORT MONITOR and insert the PSU so that the lettered side faces upward and the PSU lead may just be run through the cut-out in the bottom plate (see Fig. 4).
The lead may then be plugged into a mains outlet.

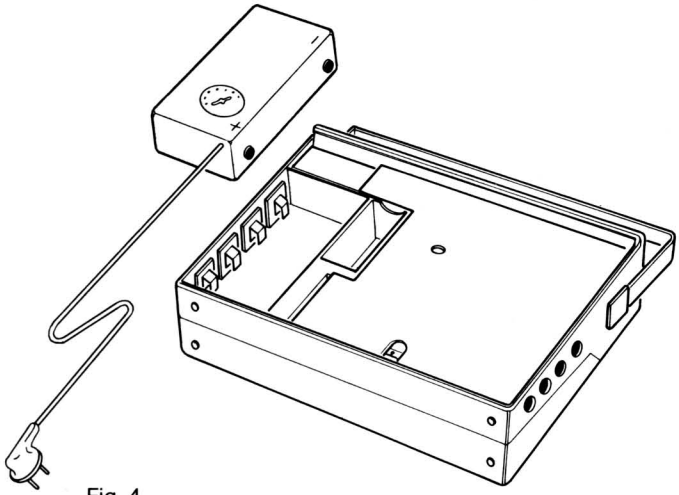

Fig. 4

1.3.1 Protection against Power Fall-Out

With dry cell or storage batteries in the battery compartment during operation via UHER PSU Z 124 A1 or UHER car connecting lead K 715 A1 or K 717, the REPORT MONITOR will continue operation even upon fall-out of the external power supply.

Upon automatic switching from external to internal power supply, there will be a brief interruption of the operating function to which the recorder is set.

1.3.2 Recharging UHER Lead Storage Battery Z 212

With the Z 212 inserted in the battery compartment, use UHER lead K 713 to connect the side socket of PSU Z 124 A1 to the △ socket on the REPORT MONITOR; then connect the PSU to the mains outlet (see sec. 5). But do not switch on the recorder itself. A discharged storage battery in new condition will be fully recharged in approximately 7 hours.

Recharging will be at only about half power whenever the REPORT MONITOR is switched on for mains operation via PSU Z 124 A1. To switch recharging from half power to full power, simply switch off REPORT MONITOR power. The PSU will remain connected both to the tape recorder and to the a.c. mains. When the battery is fully recharged, a battery-strength maintenance circuit will provide constant compensation for any self-discharging.

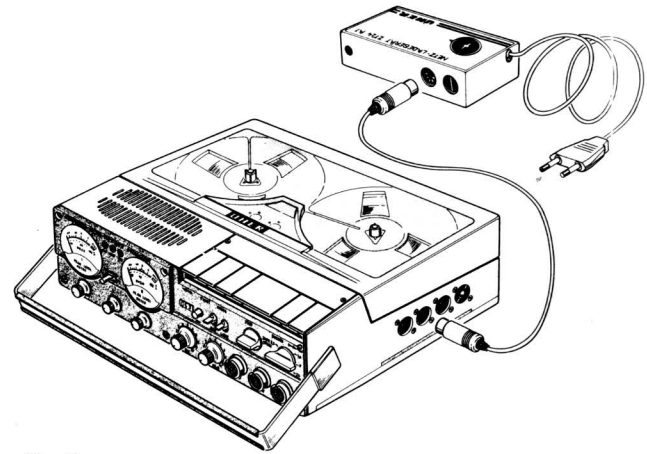

Fig. 5

When in new condition, charged storage batteries of this type may be stored, without servicing, up to 1 year. They should be stored in a cool place, for temperatures over 40°C are harmful. Batteries stored for a longer period of time must be recharged at regular intervals. Before storing such batteries, they should first be fully charged. With a storage temperature not exceeding +20°C, they will have to be recharged after approximately 12 months. If the storage temperature is +30°C, recharging will have to be after every 6 months.
In recharging the Z 212, use only UHER PSU/Recharger Z 124 A1 together with UHER recharging lead K 713 (gray) or UHER car recharging lead K 715.

CAUTION!

UHER lead storage battery Z 212 may be recharged only with the gray UHER lead K 713. Using the red recharging lead K 714 will result in destroying the battery and damage to the 4200/ 4400 REPORT MONITOR.

1.3.3 Recharging UHER Nicad Battery Z 214

In recharging the nickel-cadmium battery Z 214, use the red UHER K 714 lead. The gray lead (K 713) will not allow sufficient recharging. Nicads may be stored over prolonged periods of time, whether in charged or discharged condition. As recharging unit, use only UHER Z 124 A1 or UHER car recharging lead K 715 (for connecting the recharging unit see sec. 1.3.2 above). Other rechargers will either ruin the battery or jeopardize its life and/or performance.

1.4 Operation on Car Batteries

Using UHER lead K 717/12-V, UHER REPORT MONITOR may be powered by car batteries. The low power consumption of the recorder allows long operation without appreciable drain on the battery. For further details, see the instructions supplied with the connecting lead.

Using UHER lead K 715 A1 permits operating the recorder as well as recharging UHER storage batteries Z 212 or Z 214 from 12-volt car batteries.

1.5 Insertion into Carrying Case and Removal of Carrying Handle

UHER carrying cases Z 524 and Z 526 (all-cowhide) are designed for the stereo models of UHER REPORT MONITOR. Before inserting the recorder into the carrying case, however, first remove the carrying handle by pressing the ends of the handle in the direction of the arrow shown on them and then pushing the handle toward the back. The handle may then be removed by lightly pulling its ends outward.

After inserting the recorder into the carrying case, the two ends of the carrying strap may be attached to the press-studs on the right and left sides of the recorder. To remove the strap, simply pull off the stud-caps (on the strap).

To re-mount the carrying handle, bend handle ends slightly outward and let the securing lugs (on the right and left sides of the recorder) snap into the handle ends; then pull the handle forward.

2. Socketry

Numbers in parentheses refer to the fold-out illustration at the end of the Operating Manual.

2.1 HEADPHONES Output (1)

This jack is for connecting headphones with low or medium

impedance and a 6.3-mm phono plug (like that of UHER W 766 or W 776).

2.2 MONITOR Output (2)

This socket is for connecting the recorder (via UHER stereo lead K 541) to an amplifier or preamplifier/control centre that is equipped with a monitor input.

2.3 Accessory Input "ZUSATZGERÄTE" △ (3)

Connect UHER PSU/battery recharger Z 124 A1, UHER car connecting leads K 715 A1 and K 717, UHER remote-control start/stop switches F 111 and F 211 or UHER "Akustomat" F 413 to this socket.

2.4 RADIO PHONO Input / Output (4)

This socket is a combined input and output for connection to a stereo tuner, receiver or amplifier that is equipped with DIN socketry. Use UHER inter-unit lead K 541 to connect the recorder to the TAPE socket of the radio or amplifier.
To avoid loss of high frequencies in record and playback, connecting lead K 541 should be extended only by experienced service technicians, and then only if the output impedance of the input source permits. Record-players with crystal pick-ups may also be connected to the high-level input of this socket (pins 3/5 and 2; 2 = ground).

2.5 Microphone Inputs MIC 1 (6a), MIC 2 (6) and Microphone Input Selector Switch (5)

These sockets are for connecting low-impedance microphones like UHER M 518, having remote-control switching for briefly interrupting tape transport (remote stop: pins 6 and 7) by simply holding down the switch on the microphone.

Pin 8 is charged with " + " voltage for powering low-impedance electret condenser microphones (like UHER M 646) directly from the recorder.

Input socket MIC 1 **(6a)** is for the left stereo channel, socket MIC 2 **(6)** for the right channel when connecting two single (mono) microphones to the REPORT MONITOR – the microphone input selector switch **(5),** however, must be in ⊙⊙ position. With the switch in ⊙ position, a stereo microphone may be connected to the MIC 1 socket **(6a),** in which case no other microphone may be connected to the MIC 2 socket.

2.6 Headphones Output ⊙ (7)

This socket is for connecting headphones (like UHER W 765 and W 775) that are equipped with a 5-pin plug. Connecting headphones (like UHER W 764 or W 774) with LS-7 plugs requires using UHER adapter lead K 633.

With adapter K 633, two loudspeakers (min. impedance 4 ohms) may also be connected to this socket.

3. Controls and Their Functions

Numbers in parentheses refer to the fold-out illustration of the recorder at the end of the Operating Manual.

3.1 Power Switch / Speed Selector (17) and LED Power Indicator (25)

Turn this knob to select the desired speed and simultaneously switch the power on. Setting the knob in position 2.4/4.7/9.5 or 19 switches on the recorder and causes the green LED ON **(25)** to light up. With the knob in any position marked 0, the machine is switched off.

3.2 Fast Forward Wind ▶ ▶ (19)

Pressing this key switches the machine to fast forward wind. Press the STOP key **(21)** to switch off the fast wind mode.

3.3 RECORD Key (20) and LED Indicator (26)

Pressing the RECORD key switches the machine to record mode, whereupon the record level may be set (see also sec. 7) – the MONITOR switch **(15)** must, however, be in S (source) position. Tape transport may be started by pressing the RECORD **(20)** and START **(23)** keys simultaneously or by holding down the RECORD key and then pressing the START key until it catches.

The red LED REC **(26)** lights up to indicate that the machine is in record mode.

3.4 STOP Key (21)

Pressing this key releases all activated keys except the PAUSE key **(10)** and stops tape transport.

3.5 PAUSE Key (22)

Pressing down this key interrupts tape movement during both record and playback until the key is returned to its deactivated position (up).

3.6 START Key (23)

Pressing only this key switches the machine to playback mode and commences tape transport. To start tape movement for recording purposes, the RECORD key **(20)** must also be activated (see sec. 3.3).
Pressing the STOP key **(21)** stops tape transport and switches the machine out of playback (or record) mode.

NOTE:

To prevent deformation of the rubber pressure roller, always return the START key to its neutral position before switching the machine off.

3.7 Rewind Key ◀◀ (24)

Press this key to switch the machine to fast rewind mode. To stop fast rewind, press the STOP key **(21).**

3.8 Counter (12) with Zero-Reset Button

Pressing the reset button returns the index counter reading to 000. To facilitate location of the desired spot on the tape upon subsequent playback, it is advisable to press the reset button or to note the starting index number before commencing each recording.

3.9 Battery Check Switch BATT. (11)

On pressing down this switch while the machine is switched on, level meter II **(16)** will indicate battery strength at that moment. As long as the pointer remains in the green segment of the meter scale, the power supply is sufficient for flawless operation (see also sec. 1.1.2).

3.10 LIGHT Switch (10) with Automatic Time Switching for Meter Illumination

Pressing the LIGHT switch once switches on the meter illumination for approximately 15 seconds. Pressing the switch twice in succession will cause the light to remain on.

The continuous illumination may be switched off by pressing the LIGHT switch once.
The illumination may be turned off even before the 15 seconds have expired: simply press the LIGHT switch twice in succession.

To save power when the 4200/4400 REPORT MONITOR is powered by dry cells or storage battery, it is advisable to use the automatic time switching for meter illumination.

3.11 REC. I (13a) and REC. II (13) Record Level Controls, PEAK LEVEL METER I (16a) and PEAK LEVEL METER II (16)

Use controls REC. I and REC. II to set the machine to optimal record level (see section 7 "Record Operation"), checking the level on meters **(16a)** and **(17),** respectively.

Level control REC. I and level meter I are assigned to the left stereo channel: track 1 (tracks 1 and 4 on 4400 REPORT MONITOR). Control REC. II and meter II are assigned to the right stereo channel: track 2 (tracks 2 and 3 on 4400 REPORT MONITOR) – see also secs. 3.12 and 3.15). The meters indicate playback level when the machine is set to playback mode or, with the monitor switch **(15)** in T (from-tape) position, to record mode.

Setting the mode selector to M 1 (mono 1) or M 2 (mono 2) switches the machine to mono operation and permits mixing two mono input sources: signals from two microphones connected to sockets MIC 1 **(6a)** and MIC 2 **(6)** if the microphone switch **(5)** is in ⊙⊙ position; two mono input sources connected via adapters to the RADIO PHONO socket **(4),** using pin 1 or 3 for the one input source and pin 4 or 5 for the other (see also sec. 10 "Specifications"). Use level control REC. I to adjust the record level for input sources connected to the MIC 1 socket or to pin 1 (or 3) of the RADIO PHONO socket; use level control REC. 2 for input sources connected to the MIC 2 socket or to pin 4 (or 5) of the RADIO PHONO socket.

With the mode selector in M 1 position, only PEAK LEVEL METER I **(16a)** will indicate the record level; with the mode selector set to M 2, only PEAK LEVEL METER II **(16)** will indicate the level.

It is, of course, also possible to mix the signal of a microphone connected to the MIC 2 input socket with the signal fed in through pin 1 (or 3) of the RADIO PHONO socket just as a mono recording may be made of a stereo input source connected to the RADIO PHONO socket (whereby the left and right stereo channels will be mixed).

When making mono recordings, the level control not in use (whether REC. I or REC. II) should be turned all the way to the left (out).

3.12 MASTER Fader (14)

This knob affects both stereo channels and is for synchronized fading in or out either of a stereo signal or of the combined signal when two input signals are being mixed into a mono recording.

NOTE:

Be certain to turn the MASTER control **(14)** to at least position 8 (on the scale around the knob) before using controls REC. I **(13a)** and REC. II **(13)** to set the record level. In this way minor level adjustments ($\pm$3 dB) may then still be made if needed.

3.13 Monitor Volume Control VOL. (9)

This knob is for regulating volume during record or playback when monitoring through the built-in loudspeaker, an external speaker or headphones. Position detents prevent accidental alteration of the volume level setting. With the mode selector **(18)** in ⚮ (stereo) position, the combined stereo signal (that is, the sum of the right and left stereo signals) will be heard through the built-in loudspeaker during record and playback. If the built-in speaker is switched off by pulling out the TONE control knob **(8),** the record or playback signal may be heard in stereo through headphones or an external loudspeaker.

3.14 TONE Control (8) with On/Off Switch for Built-In Speaker

This knob regulates the playback of high frequencies. With the knob in position 10, the high frequencies will not be affected. Treble de-emphasis will be maximal when the knob is in 0 position.

Pull out the knob **(8)** to switch off the built-in loudspeaker.

Controls **(8)** and **(9)** do not affect the recorded signal.

3.15 Mode Selector Switch ⚮, M 1, M 2 (18)

Turn this knob to the operating mode desired for record or playback. With the knob in ⚮ position the machine is set to **stereo** operation, in positions M 1 or M 2 to **mono** operation.

Track systems for UHER 4200 REPORT MONITOR and
UHER 4400 REPORT MONITOR (see Fig. 6)

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In ⚮ mode, recording will be on two tracks which, together, cover the entire width of the tape. Tape may, consequently, be used in only one run.

In operating mode M 1 (mono 1), only the upper track will be used in either record or playback. To record or play the second track, load the full reel of tape (after first run) onto the left (supply) spindle so that the end of the first tape run is at the beginning for the second run (the green lead indicates the beginning of the first tape run, the red lead the beginning of the second tape run).

In operating mode M 2 (mono 2), the lower track will be recorded or played. Tape movement however, will not be in standardized direction, hence this operating mode should not be used as a rule.

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In operating mode ⚮, tracks 1 and 3 will be recorded or played during tape run 1 (green lead). With the tape reel turned over and loaded for tape run 2, tracks 4 and 2 will be recorded or played.

In operating mode M 1 and tape run 1 (green lead), record or playback will be on track 1.

In operating mode M 1 but tape run 2 (red lead), record or playback will be on track 4.

In operating mode M 2 and tape run 1 (green lead), record or playback will be on track 3.

In operating mode M 2 but tape run 2 (red lead), record or playback will be on track 4 (see also sec. 4.3).

Operating Mode	Tape Run	Tape Lead	Record/Playback Track
4200 REPORT MONITOR			
⚮	1	green	1 and 2
M 1	1	green	1
M 1	2	red	2
M 2	1	green	2 (non-standard direction)
M 2	2	red	1 (non-standard direction)
4400 REPORT MONITOR			
⚮	1	green	1 and 3
⚮	2	red	4 and 2
M 1	1	green	1
M 1	2	red	4
M 2	1	green	3
M 2	2	red	2

(See also sec. 4.3)

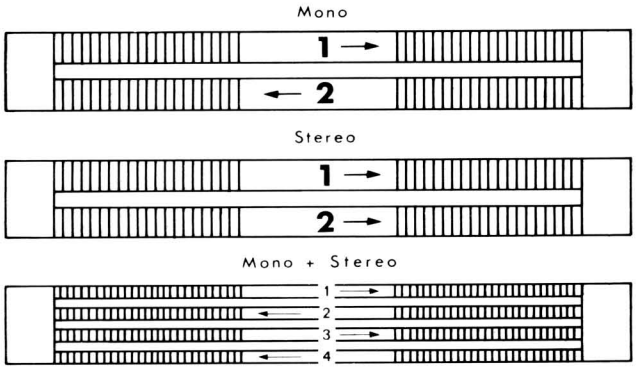


Fig. 6

Track systems in half-track and quarter-track operation

3.16 MONITOR Switch (15)

Use this switch to select the monitoring mode: T (from-tape) or S (from-source), thus also to permit immediate aural control of the quality of the sound being recorded. When the switch is set to from-tape monitoring, the signal just recorded on the tape is heard, whereas in the from-source setting the original signal of the input source is heard while it is being recorded. By direct comparison of the two signals, recording errors may be clearly recognized and corrected. Switching from source to tape monitoring automatically switches over the monitor output and the level meters.

4. Preparing for Record or Playback Operation

4.1 Loading the tape

With portable recorders it is essential to prevent the tape reels from slipping off their spindles. Before placing the tape reels in position, pull up the two three-pronged mandrels of the reel holders and turn them until the prongs of the movable sections rest on those of the stationary sections as shown in Fig. 7. Next, load the full reel onto the left spindle and an empty reel onto the right spindle. Afterwards, run out a tape lead of some 10 inches from the full (supply) reel, inserting it (without slack and as shown in the illustration) past the roller of the tape tension regulator vertically into the threading slot; then run about 1/4" of the free end of the tape lead up into the slot of the empty (take-up) reel. Turn the take-up reel to the left until one complete winding of tape is on the reel. Make certain that the bright side of the tape lead and the

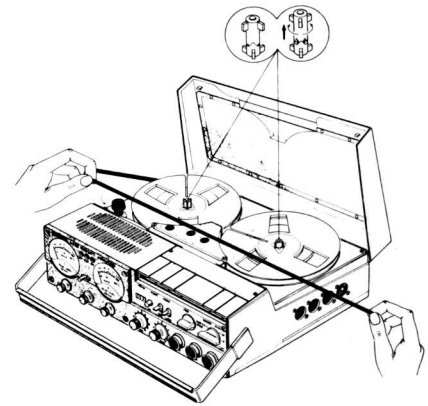


Fig. 7

dull side (the coated side) of the tape itself face inward toward the core of the reel.

Lastly, secure the two reels by turning the two three-pronged mandrels to the right or to the left until the movable sections snap down into the stationary sections. The reels can then neither fall off not be taken off.

4.2 Selecting the tape speed and switching the recorder on

Turn the tape speed selector **(17)** to the appropriate speed setting. The recorder will then be switched on, and the LED power indicator **(25)** will light up.

The table below indicates which speed is most recommended in four different cases.

Tape Speed	Recording Time per Tape Run *	Frequency Range	Application
15/16 ips	4 hrs.	25–6,000 Hz	For recordings in which a long recording time is more important than tonal quality.
1 7/8 ips	2 hrs.	25–13,000 Hz	For recording in which a long recording time is more important than highest tonal quality although tonal quality should still be very good.
3 3/4 ips	1 hr.	20–16,000 Hz	For hi-fi recordings in which excellent tonal quality is required.
7 1/2 ips	1/2 hr.	20–25,000 Hz	For hi-fi recordings of highest quality.

* Recording times refer to double-play tape.

4.3 Half-track and quarter-track record / playback

The 4200 and 4400 models of UHER REPORT MONITOR differ only in the number of tracks that may be recorded on the tape. 4200 has a half-track tape system, meaning that half the width of the tape is used for one track. Consequently, there is space for a total of two tracks on the tape. In mono operation, the upper half is used first (green tape lead). When the tape reels have been turned over and exchanged, the lower half (red lead) will be on top and thus be available for further record or playback. In stereo record or playback, however, the two tracks are used simultaneously. In other words, the tape is fully used after one complete tape run and should be re-wound.

UHER 4400 REPORT MONITOR is equipped with a quarter-track tape system, meaning that only a fourth of the tape width is used for one track; hence, the tape has space for a total of four tracks. Thus, in stereo operation, the tape reels may be exchanged after the first run and the tape used for record or playback once more for the same length of time. For details on four-track tape use in mono record/playback, see sec. 3.15.

5. Connecting UHER REPORT MONITOR to a Receiver or Amplifier System for Record/Playback

For equipment with DIN socketry, use UHER inter-unit lead K 541 to connect the RADIO PHONO socket **(4)** of the UHER REPORT MONITOR to the tape input socket of the amplifier, preamplifier/control centre, receiver or tuner.

UHER lead K 557 or a stereo adapter lead (available at audio outlets) is required to connect the REPORT MONITOR to equipment with phono jacks. Make certain, when connecting the equipment, that the phono-type plugs for record and playback – they will have identifying markings – are plugged into the proper jacks.

When connecting UHER REPORT MONITOR to an amplifier or receiver with monitor circuitry, connection will also have to be made between the MONITOR socket **(2)** of the recorder and the monitor input of the receiver or amplifier. With equipment having a DIN socket as monitor input, use a second UHER K 541 lead. For equipment having phono jacks, use UHER lead K 545 or a commercially available adapter lead that has a DIN plug on one end and phono plugs on the other end.

6. Playback Operation

Once the recorder is switched on and the mode selector **(18)** is set to the proper position (see sec. 3.15), simply press the START key **(23)** to commence playback. Playback may be through the built-in speaker, external loudspeakers, a radio, a hi-fi sound system or headphones. Any amplifier system, regardless of output power, may be used for playback.

6.1 Playback through built-in speaker

Switch on loudspeaker and adjust volume and tone controls VOL. **(9)** and TONE **(8).** If necessary, push in the TONE control **(8)** to switch on the speaker (see sec. 3.14).

6.2 Playback through a hi-fi system or radio set

Connect equipment as described in sec. 5. The recorder's built-in speaker may be left on, or it may be switched off by pulling out TONE control **(8).** Use controls of the hi-fi amplifier system or radio to adjust volume and tone.

6.3 Playback through headphones

Connect headphones (like UHER W 675 or W 775) with a 5-pin plug to the socket **(7)** on the front panel of the recorder, or headphones (like UHER W 676 or W 776) with phono plugs to the HEADPHONES jack **(1).** Adjust volume and tone with controls VOL. **(9)** and TONE **(8).**

7. Record Operation

A) Connecting input sources

Connect equipment as described in secs. 5 and/or 2.4 and 2.5. It is unimportant whether completely new tape or recorded tape is used because with every new recording the machine erases any previous one.

B) Setting the correct record level

Adjusting to the correct signal strength for recording is called "setting the record level" and is reflected by the level meters **(16a)** and **(16).** Turn level controls REC. I **(13a)** and REC. II **(13)** to the right until their respective level meter registers 0 dB at the loudest programme passages. First, however, turn the MASTER fader **(14)** to the right to at least position 8.

If the record level is too low, the quality of the subsequent playback will be unsatisfactory: there will be strong tape hiss because the optimal signal-to-noise ratio of the machine will not have been fully utilized. When the pointer moves into the red segment of the meter scale, the recording will be overloaded, and playback will be distorted. Consequently, particular attention should be given to setting the correct record level.

The level meters register peak signal readings on a scale calibrated in dB. As REPORT MONITOR machines are equipped with three tape heads, aural checks may be made during actual record (see sec. 3.16) through headphones, a hi-fi system or (in mono) the recorder's built-in monitor loudspeaker.

Important

To ensure that full advantage is taken of separate-channel level control, REPORT MONITOR stereo models are also equipped with separate level meters for each channel. It should be remembered, however, that in stereo recording the record level must not necessarily be the same for both channels. When recording from microphones, for example, it is quite possible that the right-channel microphone may at times "hear" less strongly than the left-channel microphone. Turning REC. II control **(13)** to maximum record level would make the record level of the right channel identical to that of the louder left channel. The channel difference found in the original programme source would then no longer exist, and a false impression of the original would result in playback. For this reason, in all of the types of recording described below, maximum record level should be set only for the louder channel; the level control for the softer channel should be set at a correspondingly lower position. Stereo balance in live recording can be properly judged only when monitoring is through headphones.

7.1 Recording from microphones

As appropriate, plug microphone(s) into socket(s) MIC. I **(6a),** MIC. II **(6)** on the front panel of the recorder. The microphone sockets are equipped with a locking device to safeguard the plug connection.

1. Press reset button to return index counter **(13)** to 000 reading.
2. Set tape speed selector **(17)** to appropriate position (see also sec. 4.2).

3. Set selector **(18)** to desired operating mode (see sec. 3.15).

4. Press PAUSE key **(22)** and set MONITOR switch **(15)** in S (source) position.

5. Simultaneously press START **(23)** and RECORD **(20)** keys.

6. Adjust record level controls (see sec. 7 B): First, turn MASTER fader **(14)** to position 8; then turn controls REC. I **(13a)** and REC. II **(13)** to the right until their respective level meter(s) register(s) 0 dB at the loudest passages subsequently to be recorded, making certain that the volume and the microphone position (relative to sound sources) are the same as will be in actual recording.

7. Adjust monitor volume with control VOL. **(9)** so as to avoid howling due to acoustical feedback. If necessary, switch off the recorder's built-in monitor speaker by pulling out the TONE control knob **(8).**

8. Flip up PAUSE key **(22),** and begin recording.

9. When recording with microphones not equipped with a start/stop switch, use the PAUSE key **(22)** to interrupt recording briefly. When recording with UHER remote-control microphone M 518, press and hold down the switch on the microphone as long as the recording is to be interrupted; during this time the yellow LED indicator will be lighted.

10. Check sound quality of recording by switching back and forth from source (S) to tape (T) monitoring with switch **(15).** UHER W 776 or W 676 are most recommended as monitoring headphones.

11. When record is over, press the STOP key **(21)** to return the RECORD and START keys to their neutral positions.

12. Switch off the machine by turning the tape speed selector **(17)** to a position marked 0.

7.2 Taping radio broadcasts

Connect recorder to hi-fi system or radio set as described in sec. 5. Switch on radio and tune to desired station. Volume and tone controls on the hi-fi amplifier or the radio will not affect the recording. In general, then follow the precedure described in sec. 7.1. With the monitor circuit of REPORT MONITOR models, aural checks on tonal quality may also be made through a hi-fi audio system if the system's amplifier is equipped with a monitor input.

7.3 Recording from record-player

A) Recording directly from record-player

Only record-players equipped with a crystal, ceramic, magnetic or dynamic pick-up system and with built-in equalizing preamplifier may be used for direct recording.

1. Connect record-player to RADIO PHONO socket **(3)** – by means of an adapter lead if the record-player has phono connectors.
2. Select tape speed, then press the PAUSE **(22),** START **(23)** and RECORD **(20)** keys.
3. Switch on record-player. Set tonearm on record and adjust record level (see sec. 7 B).
4. After making record level test, return tonearm to starting grooves of the record and commence tape transport by flipping the PAUSE key **(22)** back up.

Then follow the same general procedure that is described in sec. 7.1.

B) Recording from record-player connected to a hi-fi sound system or to a radio

1. Connect equipment to UHER REPORT MONITOR as described in sec. 5.

2. Switch sound system or radio to phono playback.

Then follow the general procedure stated in items 2 to 4 of sec. 7.3 A.

7.4 Recording from a second tape recorder (dubbing)

Many cases arise in which recordings need to be copied from one tape machine onto another. The procedure should be as follows:

All UHER tape recorders are now equipped with a standardized radio record/playback socket that is labelled either ♫ or RADIO PHONO. Plug one end of UHER inter-unit stereo lead K 541 into the PHONO input socket of the recording machine. The phono input socket on UHER recorders is labelled either Ω or RADIO PHONO. In accordance with their respective operating instructions, switch the playback machine to playback mode and the recording machine to record mode. No special switching to the phono input is needed when recording on UHER REPORT MONITOR, however. The correct record level, on the other hand, must be set just as in other types of recording. This procedure also applies to other makes of tape recorders if they are equipped with standardized socketry.

7.5 Recording from telephone

UHER REPORT MONITOR may also be used to record telephone conversations. UHER telephone adapter A 261 will be required, however. The operating instructions supplied with the adapter contain all additional details.
Tape recorder operation is the same as in other types of recording.

7.6 Recording with UHER "Akustomat" F 413

The "Akustomat"® is an electronic-acoustical switch that – once UHER REPORT MONITOR has been switched into record mode – automatically starts tape transport at the onset of sound and automatically stops tape movement when sound stops. Connect the "Akustomat" to the socket marked △. Additional details will be found in the operating instructions supplied with the "Akustomat".

8. Care and Maintenance

UHER REPORT MONITOR is constructed in keeping with the latest technology. It has been carefully inspected and will operate almost free of servicing for a long time. Under normal conditions and use, it is not necessary to oil or lubricate any moving parts for years. It is only necessary to check from time to time to see whether deposits of dust or bits of tape coating have formed on the magnetic heads; if yes, the record and playback tone will become muddy and the high frequencies noticeably missing.
For cleaning, remove the cover (A) located directly behind the control keys (see Fig. 8). The pressure roller (B), tape guides (C), (D), (E) and tape heads (F), (G), (H) will then be easily accessible for cleaning with UHER Special Cleaning Kit Z 172 (see Fig. 9).

The capstan (I), too, should be cleaned to remove any deposits of dust or tape coating that may have accumulated on it.

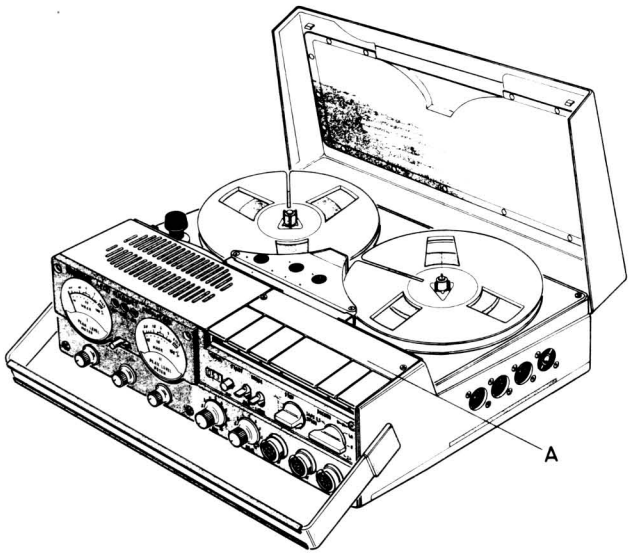


Fig. 8

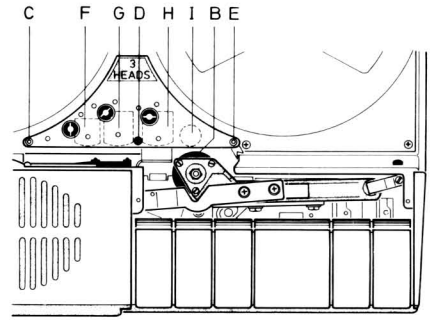


Fig. 9

Let us here emphasize once again that it is extremely important to remove dead batteries at once, even when leak-proof cells are used.

UHER REPORT MONITOR is a highly developed precision machine; its trouble-free operation depends upon the exact co-functioning of its mechanical and electrical components. Should malfunctions appear at any time, we recommend consulting an experienced technician or the nearest UHER servicing depot where experienced hands will be able to correct the difficulty (that will usually be of minor nature anyway) easily. We warn strongly against any tampering by non-technicians.

9. Further Hints and Tips

9.1 Microphone recordings

Not even the world's finest microphone will bring satisfactory results if it is placed too far away from the sound source that it is to pick up. Background noises that the human ear would not notice will be recorded and will disturb subsequent playback. Room characteristics, too, play an extremely important role in achieving good recordings. Rooms with bare walls are called "live" rooms and are not well-suited to recording with microphones.

Needless to say, respectable recordings (although never of high quality) can be made even if the microphone is relatively far away from its sound source, but in such cases the explanation lies not in the quality of the microphone used but totally in the accompaning circumstances, especially in terms of background noises present and room characteristics.

It is advisable to use a wind shield for the microphone when recording in open air. If necessary, a light cloth (like a handkerchief or a chiffon scarf) may be used to improvise a wind shield.

Under normal circumstances, one microphone is used in mono recording but two microphones in stereo recording. When working with several microphones to obtain special effects (in either mono or stereo recording), use UHER mixer Stereo Mix 500 or Stereo Mix 700 with which up to five mono channels or two stereo channels plus one mono channel may be mixed and faded-in.

Recommended distances between sound source and microphones (when special microphones are not used) for typical kinds of recording are:

Speech

approximately 30 to 50 cm (12" to 20") – with directional microphones shorter distances result in muffled recordings.

Vocal solos

approximately 1 m (3 1/3 ft.) – shorter distances overemphasize breathing sounds.

Pianos and other solo instruments

1 1/2 to 2 m (5 to 6 2/3 ft.) – especially when recording the piano, careful attention must be given to moving the microphone around until the best placement is found.

In stereo recording, place the second microphone near the accompaning instruments.

Small instrumental groups

Mono recording: approximately 5 ft. from all instruments (with players arranged in a semicircle around microphone).

Stereo recordings: Set up microphones as appropriate for desired tonal effect.

These brief tips on microphone recording apply, of course, only in general. If recordings with microphones are to be made frequently and good mono or stereo recording quality is important, it is advisable to study the books on the subject that are available at audio outlets. Simply having good equipment does not guarantee good recordings. It is just as important to be familiar with the recording techniques involved. And remember: as with most hobbies, the deeper one delves into recording, the greater the pleasure that is found in it.

9.2 Tips on tapes and their characteristics

The monitor circuit of the REPORT MONITOR permits aural and optical control of the playback signal also during record if the monitor switch is set to T (off-tape). Although the 0 dB mark may be reached with the monitor switch set to S (from-source) during record, with the switch in off-tape position (or during playback) the pointer on the level meter may either not reach the 0-dB mark or move beyond that mark. This

effect will not influence the record quality (as may be confirmed by aural check); it is due to the tolerances of tape sensitivity. Wavy tapes cause brief sound drop-outs just as do tapes with accumulations of dust or bits of tape coating on them. When such difficulties arise – for example, at sound drop-outs during record or playback – first carefully check the tape used (see also sec. 8).

Although today's tapes are to a great extent unaffected by temperatures, they should nonetheless be stored at a normal room temperature and in a dust-free place, preferably in special storing containers. They should not be stored near magnets or magnetic fields under any condition.

Tapes that do not have standard width may not be used with UHER REPORT MONITOR. Tapes designed for professional use are not suited to use with home tape machines due to both their electro-acoustical properties (hiss, frequency range) and their mechanical properties (greater surface roughness, wear on tape head).

9.3 Tips on batteries

UHER REPORT MONITOR can be operated on all commercially available single-cell batteries. But leak-proof and highly efficient types suitable for operation of electrical appliances are more recommended because of their greater capacity and storability. Operating times quoted refer to such cells.

Dry cells have a way of "recovering" somewhat when not in use. Thus when, after a certain period of operation, battery strength has become relatively weak (see sec. 1.1.2 on checking battery strength), it may well be that the cells are not yet used up and, after taking a "rest", will permit further operation (even if often for only a short period of time). Consequently, do not let yourself be deceived: UHER special storage batteries Z 212 and Z 214 combine the good features of the dry cell battery with the added advantage of the rechargeable storage battery, and they may be used in any position. Unlike dry cells, discharged storage batteries do not "recover" and must be recharged immediately, especially UHER lead storage battery Z 212.

10. Specifications

All data quoted meet German DIN test requirements for magnetic tape recorders.

Format: portable tape recorder with 3 tape heads and off-tape monitoring facility

Tape: 1/4" magnetic reel tape (DIN 45512 part 1)

Max. Reel Size: 13 cm (5")

Track System: 4200: half-track, 4400: quarter-track } (DIN 45511 part 1)

Tape Speeds: 2.4, 4.75, 9.5, 19.05 (15/16, 1 7/8, 3 3/4, 7 1/2 ips)

Drive System: d.c. motor with electronic commutation and electronic control

Max. Speed Deviation: ±1.5%

Wow and Flutter: max. ±0.15% at 7 1/2 ips; max. ±0.2 % at 3 3/4 ips

Crosstalk (1 kHz): better than: 60 dB (mono), 45 dB (stereo)

Erasure* (1 kHz): better than 80 dB

Bias Frequency: 100 kHz

Record Level Meters: peak-reading meters with equalization indication
ascent time: approx. 30 ms
decay time: approx. 400 ms

Tape Speed		7 1/2 ips	3 3/4 ips	1 7/8 ips	15/16 ips
Frequency Response* (Hz):		20–25,000	20–16,000	25–13,000	25–6,000
MOL* (at 10 kHz):	4200 REP.MON.:	−4.5 dB	−8.5 dB	−12 dB	---
	4400 REP.MON.:	−5.5 dB	−9.5 dB	−11 dB	---
Signal-to-Noise Ratio*:	4200 REP.MON.:	better than 66 dB	better than 64 dB	better than 57 dB	---
	4400 REP.MON.:	better than 64 dB	better than 62 dB	better than 56 dB	---

* Ref DIN test tape

Inputs:	Wiring	Input Voltage Range	Input Impedance
Microphone:	3/5 and 2 (2 = ground)	0.1 mV – 40 mV (source impedance 200 ohms)	---
Radio:	1/4 and 2 (2 = ground)	1 mV – 400 mV	10 kohms
Phono (high level):	3/5 and 2 (2 = ground)	50 mV – 20 V	470 kohms
Outputs:	Wiring	Output Voltage	Output Impedance
Radio:	3/5 and 2 (2 = ground)	775 mV (0 dB)	5.6 kohms
Monitor:	3/5 and 2 (2 = ground)	775 mV (0 dB)	5.6 kohms
Headphones 1:	6.3-mm phono jack	max. 2 V (at 7.8 V and open output)	33 ohms
Headphones 2:	4/5 and 3/2 (3 = 2 = ground)	max. 2 V (at 7.8 V and load resistance greater than 500 ohms)	approx. 0.2 ohm

Power Output (at Operating Voltage of 1.8 Volts): max. 0.2 w/ch into 4 ohms

△ Socket: for connecting UHER PSU 124 A1 and special accessories

Power Supply: mains power via UHER Z 124 A1; 5 single-cell batteries; UHER 6-V storage battery Z 212 or UHER Z 214; or other d.c. sources via UHER K 715 or UHER K 717 (with 12-V source)

Power Consumption: approx. 3. w

Dimensions in cm: W × H × D: 28.5 × 9.5 × 22.7 (11 1/2" × 4" × 9")

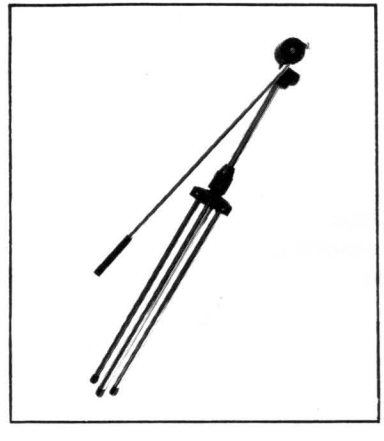
Weight: approx. 3.8 kg

Features:

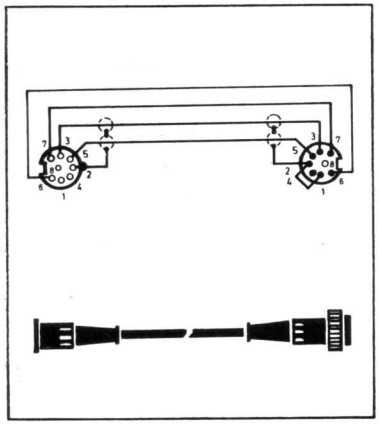
- Three-head tape recorder with off-tape monitoring
- Peak-reading level meters with automatic time switching for meter illumination
- Playback level indication
- LED function indicators
- Battery check
- Electronic amplifier switching
- Power supply from microphone sockets for condenser microphones
- Tape tension regulation
- Three-digit index counter
- Monitor loudspeaker, switchable
- Remote-control start/stop switching facility with yellow LED function indicator for pause
- Sturdy, low-wear all-metal casing of diecast aluminium
- Diecast aluminium head mount
- Large selection of accessories

M 518 – (K 134) – 4200/4400 REPORT MONITOR
M 140 – (K 134) – 4200/4400 REPORT MONITOR
M 534/5 – (K 134) – 4200/4400 REPORT MONITOR
M 646 – (K 134) – 4200/4400 REPORT MONITOR

M 518



M 912



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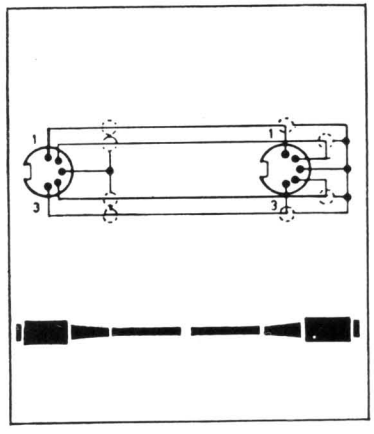

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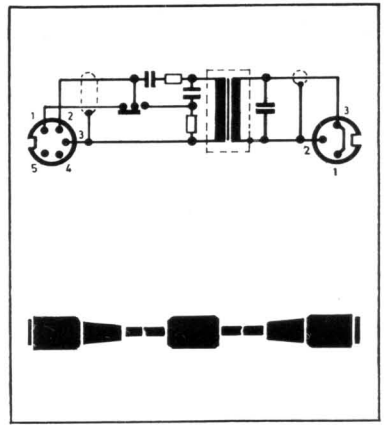
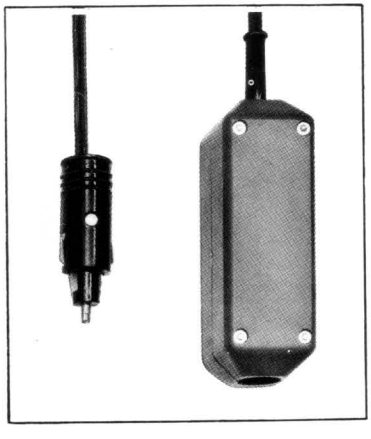
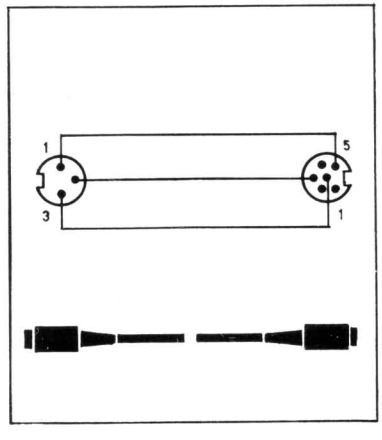


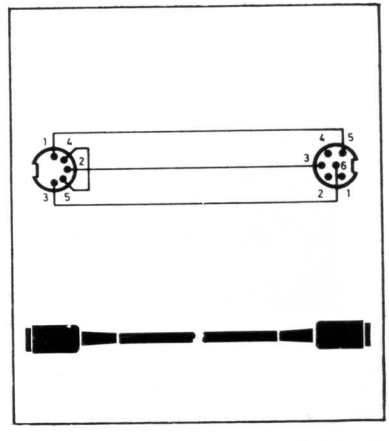
K 524



K 715 A 1



K 713



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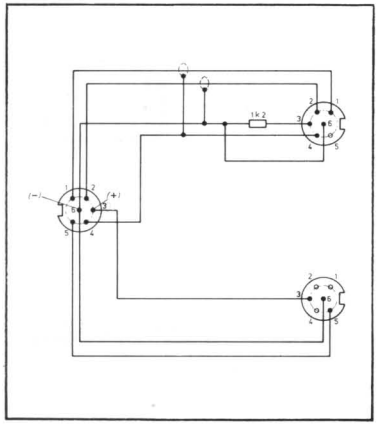

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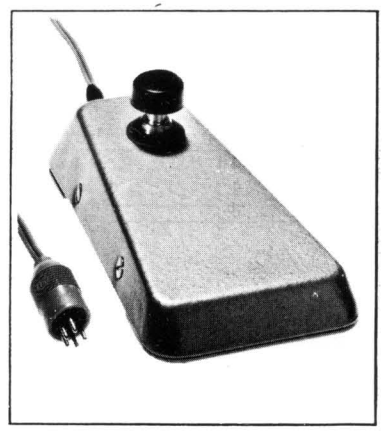
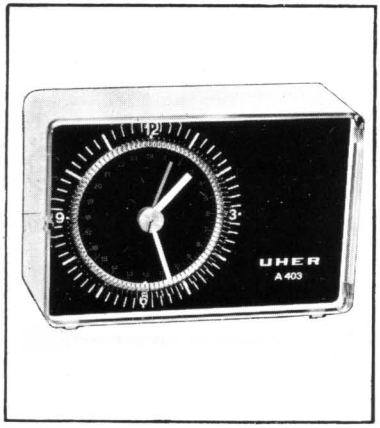
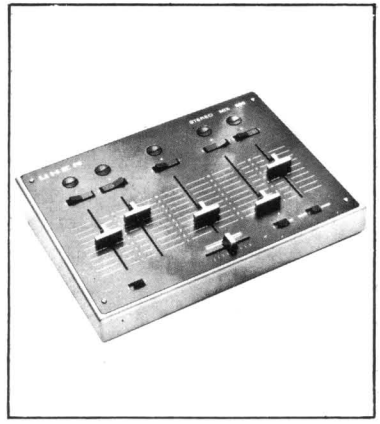


F 211

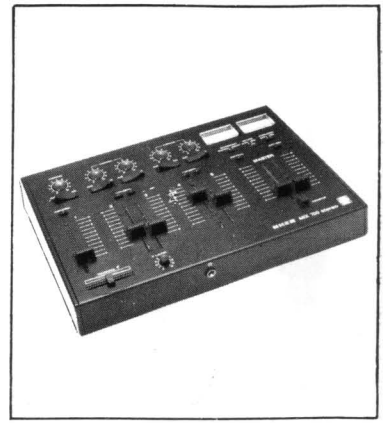
F 111



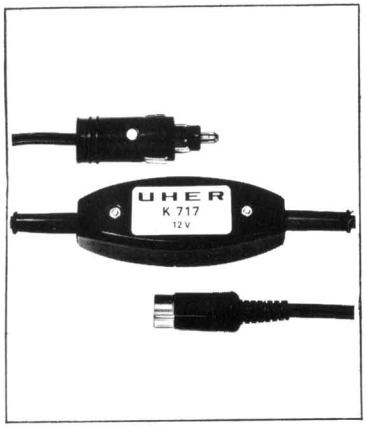
A 403



MIX 500 A 125



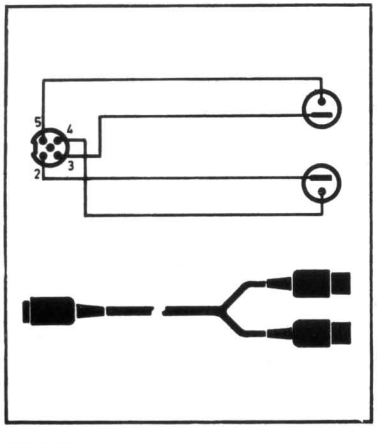
MIX 700 A 126



K 717 (2,7 m, 12 V)

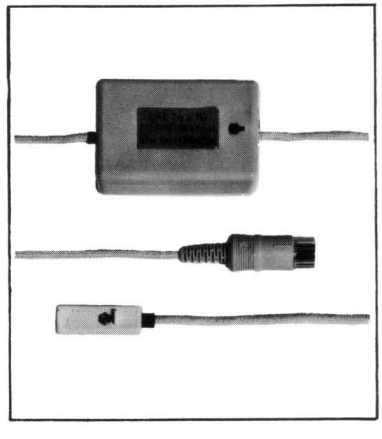
W 765 ⊛ **W 766** ◉

W 775 ⊛ **W 776** ◉



K 633

F 413



A 261

Z 212

Z 214

Z 124 A 1

Z 524

Z 526

Z 172

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