

TANDBERG

TCD 310 Mk II Cassette Deck Operating instructions

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Tandberg
RADIO

For your safety!

To prevent electrical shock or fire, do not expose electronic products to rain or moisture and do not remove covers (or back). If anything fails leave the repairs to a qualified technician.

Pull out the power plug and antenna plug during thunder-storms and when you are away for a long time (e.g. holidays, etc.).

Specially for the United Kingdom:

IMPORTANT! The wires in this mains lead are coloured in accordance with the following code:

Green and yellow: Earth (E)
Blue: Neutral (N)
Brown: Live (L)

This mains lead must be connected to a 3-pin mains plug in accordance with the above code. If the plug is not marked E, N, and L inside, or it has only two pins, consult your dealer.

Choosing cassettes

To achieve first class recordings you must use high quality cassettes in the C-60 and C-90 sizes. *The C-120 size is not recommended.*

Broadly speaking modern cassettes can be divided into two main groups: **NORMAL** which includes the ferric-oxide (Fe_2O_3) types, and **SPECIAL** high bias tape) which includes Maxell UD, XL II, and TDK SA (Super Avilyn). Chrome dioxide tapes will also give good results.

The TCD 310 Mk II is equipped with a tape selector marked TAPE NORMAL/SPECIAL. When this button is out the deck gives the best performance with TANDBERG XD, Maxell UD, UD XL II, TDK Audua, and Scotch 3M Master.

When the button is in, the deck gives the best performance with Maxell UD XL II and TDK SA (Super Avilyn). This position for the tape selector (in) will also give you good results with all types of chrome dioxide tape.

Preparing for use

Operating positions

The deck can be operated in a horizontal position or a vertical position or at any position in between.

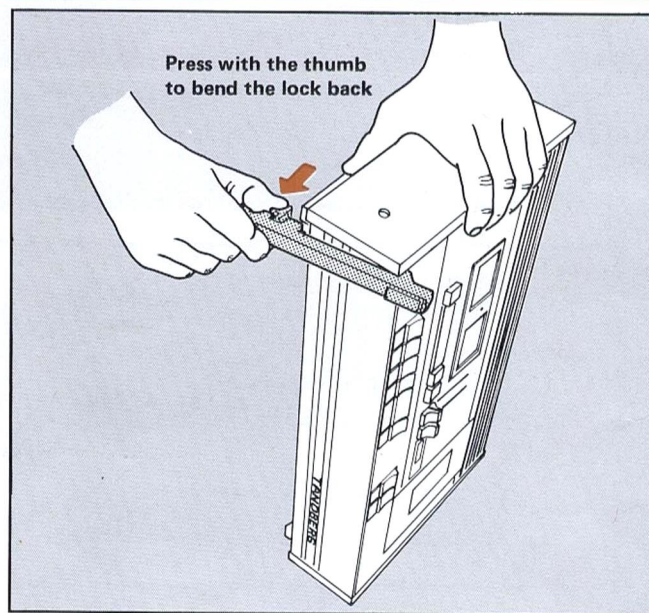
If you stand the deck vertically, take care that it does not topple forward — something that can easily happen if, for example, the deck is placed in a book case that is not level.

The deck should not be placed close beside or right on top of a radio receiver, or an amplifier, since the magnetic fields from these equipments could generate hum in the deck.

Feet for vertical position

Tip the deck onto one end and hook a foot on as shown in the diagram. Fix the other foot on in the same manner.

To remove the feet, stand the deck as shown on the front cover (vertical position), bend the locking clip back and at the same time jerk the deck forward.



Fitting the feet

Wall mounting

The deck can also be hung on a wall. Fix two round headed screws to the wall (use fibre or plastic wall plugs) separated by the distance between the two keyholes on the bottom of the deck. Hook the deck onto the screws.

Power requirements

Make sure that the deck is marked at the back with the correct voltage for your area as follows:

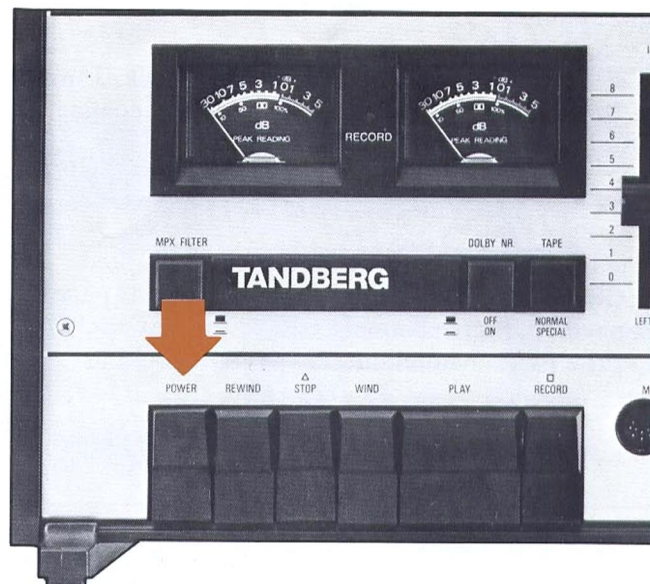
Standard model	: 230 V/50 Hz a.c.
British model	: 240 V/50 Hz a.c.
USA model	: 115 V/60 Hz a.c.

Changing the voltage and/or frequency should be carried out by a competent service engineer.

The power consumption is 40 watts maximum.

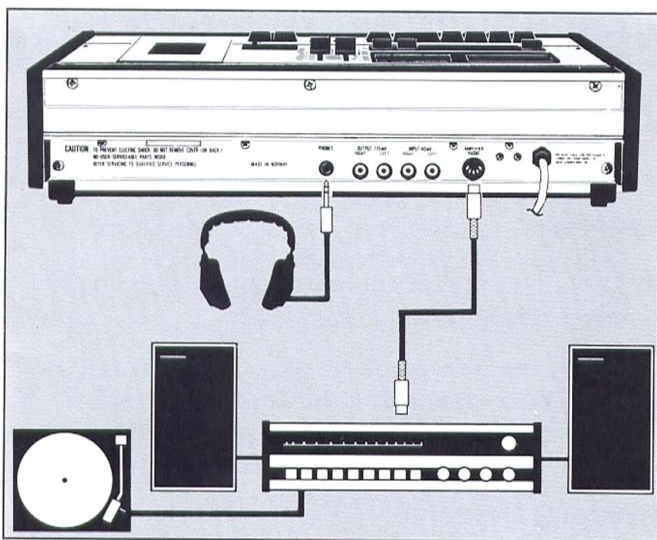
POWER ON/OFF button

Depress the POWER ON/OFF button on the left to switch on the deck. The level meters will light up.



POWER ON/OFF button

Connections



Connecting an amplifier or receiver

Connecting an amplifier or receiver.

The TCD 310 Mk II is not equipped with output amplifiers, therefore the deck must be connected to a separate stereo amplifier (or a receiver). Use the DIN cable supplied and connect as shown in the diagram.

This connection enables you to *record* programs from a radio, or a record player, or any other sound source connected to the amplifier/receiver (e.g. a microphone).

You can also *playback* cassettes over the speakers connected to the amplifier/receiver.

For connections to another cassette recorder or an open reel to reel recorder, see next page.

Instead of using the DIN cable for the connections you can use four separate phono cables.

To *playback* a program, connect two phono cables from the OUTPUT sockets on the TCD 310 Mk II to the TAPE IN sockets on the amplifier/receiver.

To *record* a program, connect two phono cables from the TAPE OUT sockets on the amplifier/receiver to the INPUT sockets on the TCD 310 Mk II.

The INPUT sockets on the TCD 310 MK II are less sensitive than the RADIO sockets. This means that the INPUT sockets are likely to be useful for connecting to amplifiers/receivers providing a high output voltage (40 mV or more). The INPUT sockets are more suitable for recording TV sound and copying tapes.

If you stand the TCD 310 Mk II vertically, the phono cables should be fitted with *short plugs* or *angle plugs* so that they do not protrude above the deck.

Headphones

Headphones for use with the TCD 310 Mk II must be fitted with a *1/4" jack plug* and have an impedance of *8 ohms or more*.

Plug the headphones into the jack socket PHONES on the back of the deck. The sound volume is fixed.

Microphones

Microphones for use with the TCD 310 Mk II must be fitted with *DIN plugs* and have an impedance between 100 and 800 ohms.

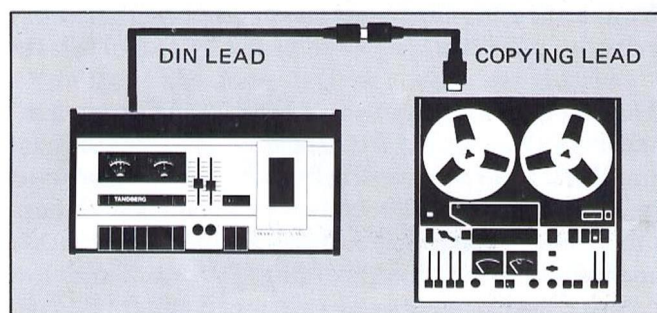
Plug the microphones into the sockets marked MICROPHONES in the middle of the front panel. Connect the left channel mic. to the left socket and the right channel mic to the right socket.

Copying tape

Connections

To copy programs from one tape to another tape you must connect the TCD 310 Mk II to another cassette recorder or an open reel to reel tape recorder. There are three ways of doing this:

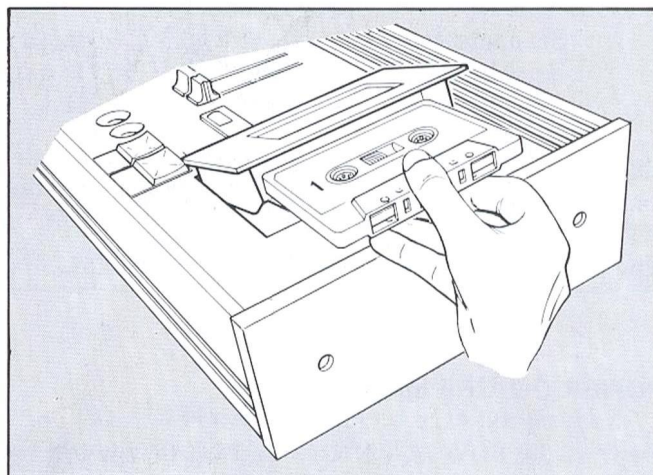
1. Connect both tape recorders to a amplifier/receiver. This assumes that the amplifier/receiver has facilities for connecting two tape recorders.
2. Connect the TCD 310 Mk II direct to the other tape recorder by means of the enclosed DIN lead and a special copying lead (sometimes called a reversal lead) that you can buy from your radio dealer. See the drawing.



Some tape recorders (e.g. the Tandberg 6X and 6000X) have a special output for copying tape. If you use this kind of output you will not need the special copying lead.

3. Connect the TCD 310 Mk II direct to the other tape recorder by means of two phono leads. The leads should be plugged into the sockets marked OUTPUT (or LINE OUT) on the machine used for playback, and plugged in to the sockets marked INPUT (or LINE IN) on the machine used for the new recording.

Inserting a cassette



Inserting a cassette

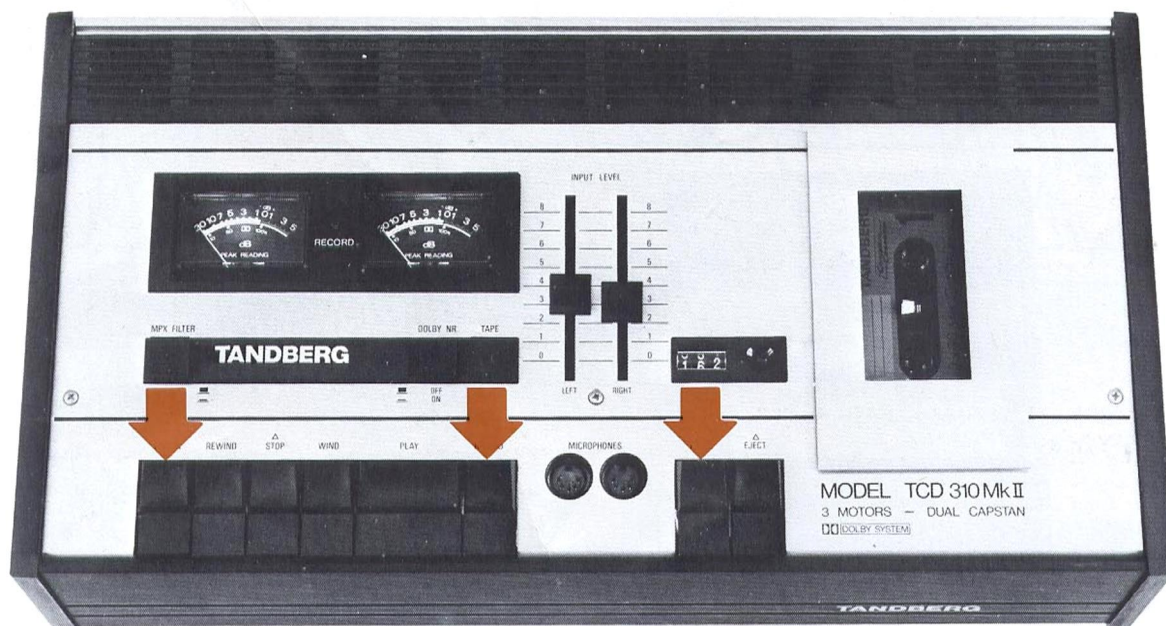
1. Press the POWER button in and then the STOP button.
2. Press the EJECT button and the cassette compartment will spring open.
3. Insert the cassette right into the compartment as shown. The full reel should be nearest to the words "MODEL TCD 310 Mk II", on the top panel.
4. Lock the cassette compartment by pressing the cover firmly down.

See page 2 for choice of cassettes.

Removing a cassette

1. Press the STOP button.
2. Press the EJECT button. The cassette compartment will spring open.
3. Remove the cassette and lock the lid.

Recording



- ☐ Press in the POWER button. The level meters will light up.
- ☐ Set the buttons MPX FILTER, DOLBY N.R., and TAPE to the correct positions as follows:
 - MPX FILTER must be in when you are recording an FM stereo transmission. This filter reduces the risk of whistles on the recording. When recording from a record player and a microphone the button must be out.
 - DOLBY N.R. must be in to give minimum noise. The button must also be in when you play back a cassette that was recorded using the Dolby system.
 - TAPE must be in (SPECIAL) when you record on chrome dioxide and SA cassettes. When recording on other types of cassettes — XD, UD, SD, and ED — the button must be out. When you play back these last mentioned cassettes the button must also be out.
- ☐ Insert a cassette as explained on page 4.
- ☐ First press in the PAUSE button, then press in the RECORD button. The RECORD indicator will light up. NOTE! If the RECORD indicator does not light up it could be because the cassette is protected against accidental erasure (the tabs are broken off). See page 7.
- ☐ Apply a sample of the program to be recorded to the input of the deck, preferable a loud sample.
- ☐ Adjust the INPUT LEVEL sliders until the level meter needles hit the first part of the red zone. If the needles go too far into the red zone too often you will get distortion.

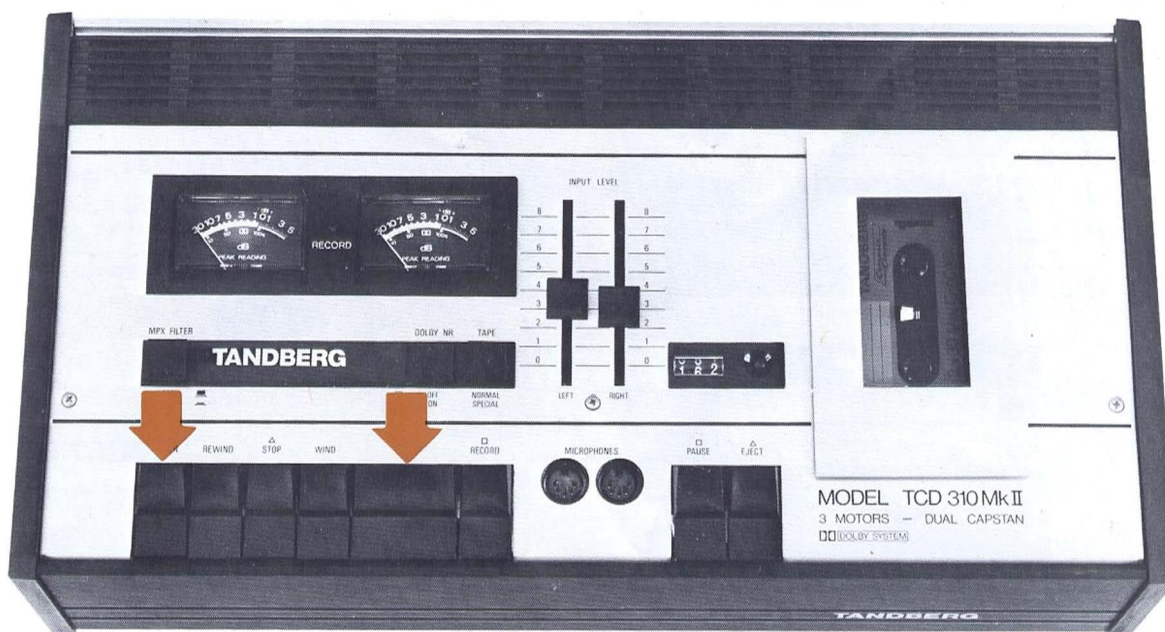
NOTE! It is normal for the two sliders to be in slightly different positions when the meters indicate the same deflections.

- ☐ The deck is now ready for your recording. Zero the counter and start the recording by pressing the PAUSE button so that it releases (comes out) and starts the tape.
- ☐ Stop the recording by pressing the STOP button.
- ☐ When making a mono recording, both INPUT LEVEL sliders must be used as with a stereo recording.

Recording with microphones

- ☐ Connect the microphones to the socket marked MICROPHONES.
 - ☐ Set the deck into the record mode as described in the previous section. Speak, sing, or play into the mic. and adjust the INPUT LEVEL sliders until the level meter needles deflect into the edge of the red zone. Release the PAUSE button and start the recording.
 - ☐ If you want to check the quality of the mic. program, listen on headphones plugged into the jack socket PHONES on the back of the deck.
 - ☐ If your TCD 310 Mk II is connected to a receiver/amplifier which is supplying a program to the deck, this will cause unwanted mixing of the amplifier/receiver program with the mic. program. To prevent it, switch off the amplifier/receiver while you make your mic. recording.
- When the recording is completed remove the microphones.

Playback



- ☐ Press in the POWER button. The level meters will light up.
- ☐ Set the DOLBY N.R. and TAPE buttons to the correct positions as follows:
 - DOLBY N.R. must be in if the cassette was recorded with the Dolby system. Some pre-recorded cassettes are recorded with the Dolby system.
If the cassette was not recorded with the Dolby system, the button must be out.
 - TAPE must be in (SPECIAL) when you play back chrome dioxide or SA cassettes.
- ☐ Insert a cassette as explained on page 4.
- ☐ Start the playback by pressing the PLAY button. If the cassette does not start it can be because:
 - the PAUSE button is in.
 - the cassette has been inserted the wrong way round, see page 4.
- ☐ Press in the button marked TAPE on the connected amplifier/receiver. Adjust the sound level with the VOLUME control on the amplifier/receiver.
- ☐ Stop the playback by pressing the STOP button. The TCD 310 Mk II will automatically stop when it reaches the end of the tape. But remember to switch off the POWER if you have finished using it.
- ☐ NOTE! The winding speed is high, so some tape may make a noise when they are winding. Use the WIND button to wind forwards and the REWIND button to wind back.
- ☐ Headphones can be plugged straight into the socket PHONES on the back of the deck. The sound level is fixed.

Maintenance

Cleaning

When to clean? If you use the TCD 310 Mk II every day you should clean it *at least* once a month. It is safer to clean before making an important recording.

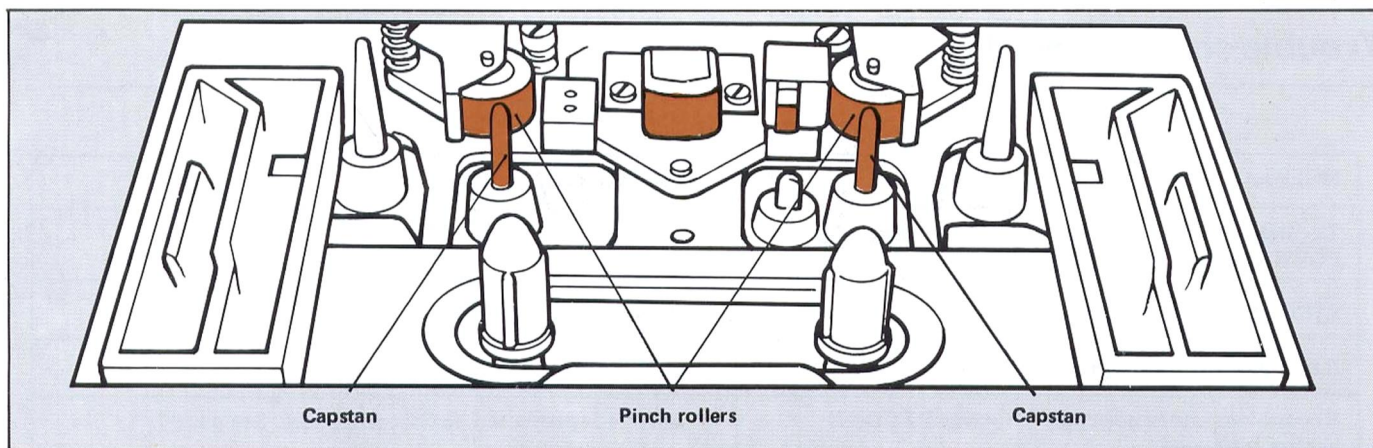
The parts of the cassette recorder that come into contact with the tape should be cleaned at regular intervals, otherwise the sound quality will suffer.

If the tape runs unevenly, the capstan and pinch roller must be cleaned at once.

What to use? For cleaning you will need cotton-wool buds (Q-tips) that should be moistened with *pure alcohol* or *methylated spirit*. (Fire risk!). A special cleaning set can also be supplied "Tandberg Professional Tape Head Cleaner".

Aerosol spray for video tape recorders can also be used, but it is not sufficient simply to spray. You must also use the cottonwool buds.

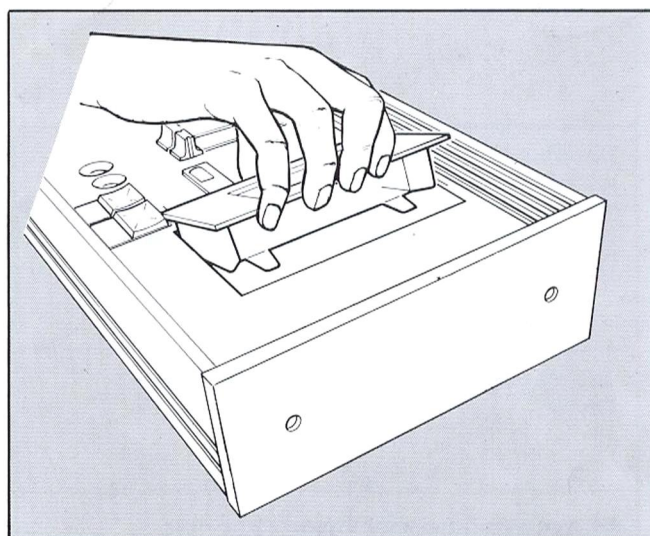
WARNING! Do not use solvents such as acetone, or trichorethylene. They may damage the heads. Do not use sharp instruments.



Clean the places marked in colour

How to clean?

1. Press the STOP button.
2. Press the EJECT button. The cassette compartment will spring open.
3. Remove the cover of the cassette compartment by pulling it straight up as shown in the adjacent figure.
4. Push the cassette compartment down to the locked position.
5. Clean the places marked with colour in the figure above. *The pinch rollers must be well dried after cleaning.*
6. Finally remove dust and loose magnetic particles from the area around the parts you have cleaned. **DO NOT TOUCH THE ADJUSTMENT SCREWS!**



How to remove the cassette compartment cover

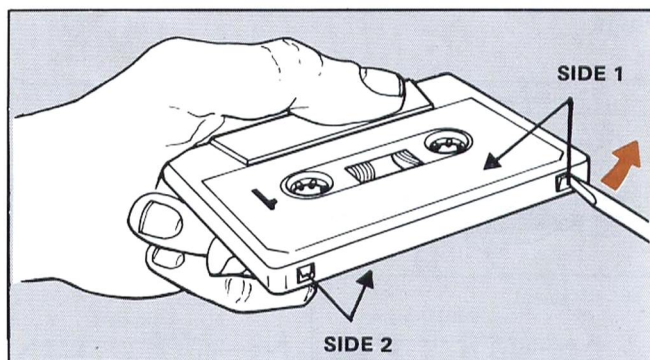
Protecting a recording

If you have made a valuable recording, you should guard against accidental erasure of the recording in the following manner:

On the back edge of every cassette there are two square holes. Using a screwdriver, tweezers, or similar instrument, break off the plastic tab covering the hole that corresponds to the side you have used for the valuable recording (see adjacent figure). It will now be possible to record again on this side.

If you wish to protect both sides from accidental erasure, break off both tabs.

You can cancel the protection by sticking a piece of tape across the hole. Recording will then be possible again.



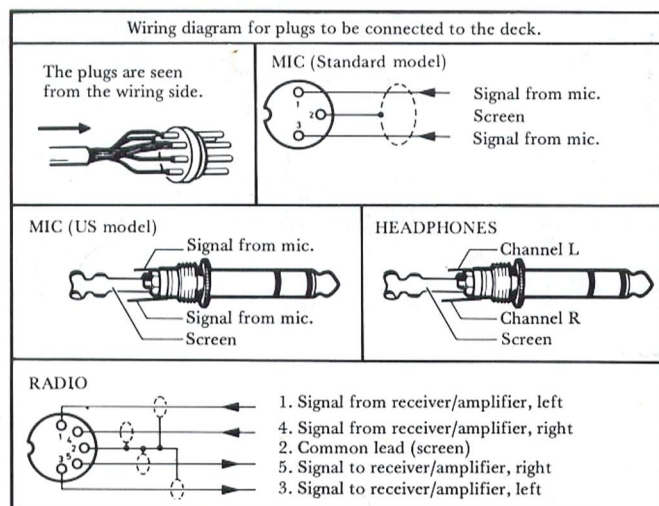
Break off the tab corresponding to the side you have recorded on

Trouble shooting guide

Problem:	Possible cause:
The lights on the deck do not come on when the POWER button is pressed.	Power plug not plugged in. Power is off at the mains.
EJECT button will not go in.	STOP button is not in.
RECORD button will not go in.	PAUSE button is not in.
Record lamp does not come on when RECORD button is pressed.	Cassette is protected against recording. See page 7.
Tape fails to start when you are recording.	PLAY button in. (Only the RECORD button must be in).
Tape fails to start (record or playback).	PAUSE button in. Cassette inserted with empty spool nearest to front of deck. Cassette not right in. Cassette compartment not pressed right down. Press the EJECT button and wind a little tape onto the spool with a pencil in the spool hub.
Disturbance on the sound during recording from a record player, amplifier/receiver, or tape.	Microphone must be pulled out.
Not enough treble in the reproduction, sounds "muffled".	PLAY button in during recording. (Only the RECORD button must be in during recording). DOLBY N.R. or TAPE in during playback when it should be out.
Too much treble in the reproduction, sounds "tinny".	TAPE button out during playback of CHROME DIOXIDE cassette. DOLBY N.R. button out during playback of Dolbyized cassette.
Uneven tape flow, wow, flutter, drop outs.	Cleaning required, see page 7.

Technical data

Plugs



Inputs

Input impedance/sensitivity with max. voltage, 400 Hz. The MIC. input is suitable for dynamic microphones. The input sensitivity automatically adjusts to suit the mic. impedance.

MIC: 0.15 mV to 20 mV
RADIO: 47 k ohms/8 mV to 1 V
LINE: 222 k ohms/40 mV-5.0 V

Outputs

Min. load impedance/voltage (unloaded) or output power for each channel.

RADIO: 10 k ohms/775 mV
LINE: 10 k ohms/775 mV
PHONES: 8 ohms/2 mW

TANDBERGS RADIOFABRIKK A/S
P.O.Box 9, Korsvoll
N - OSLO 8 - Norway

TANDBERG

TCD 310MkII

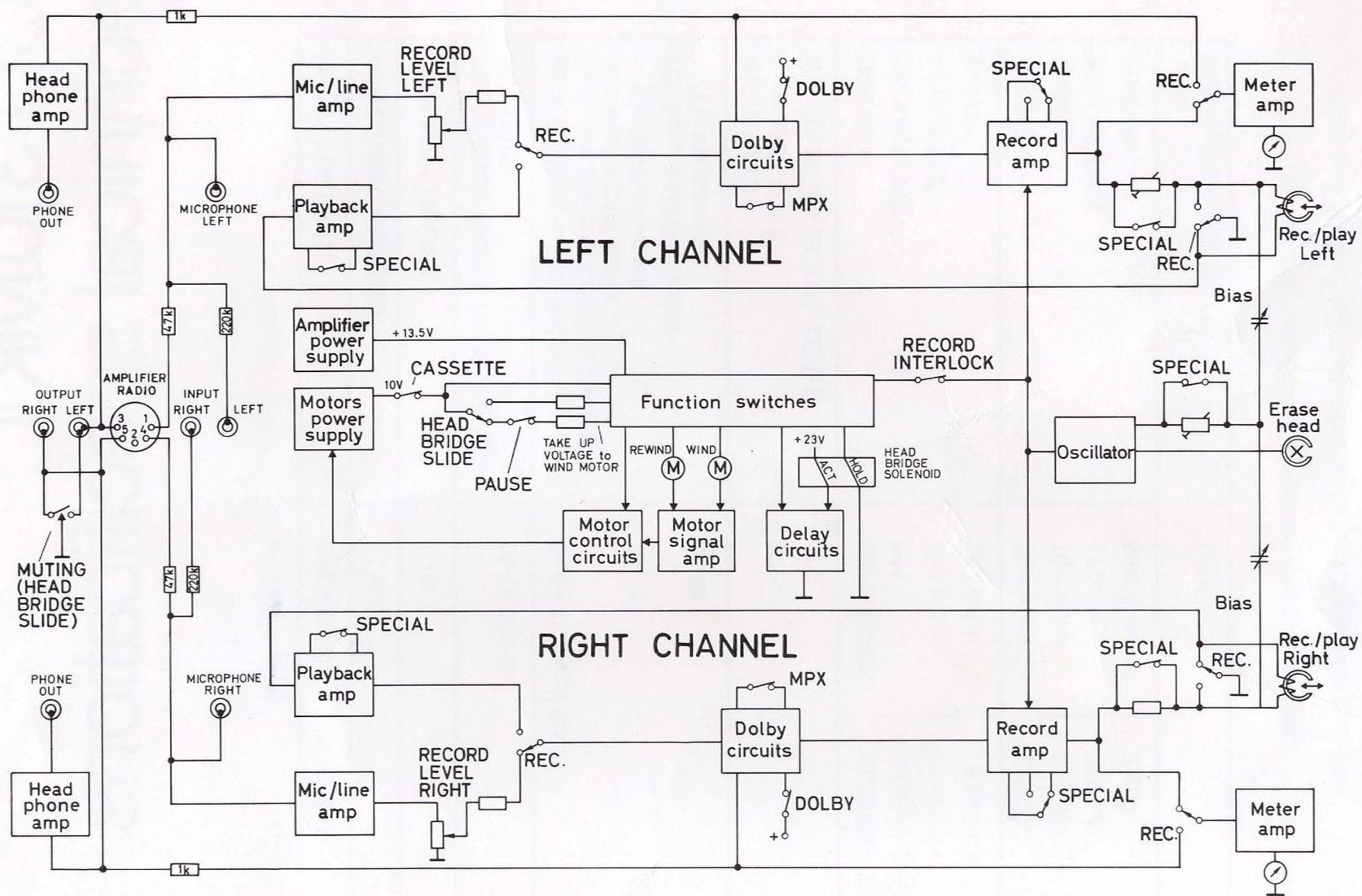
Technical specifications

MAINS VOLTAGE	230 V/50 Hz or 115 V/60 Hz	
POWER CONSUMPTION	34 W	
SPEED TOLERANCE*	± 1%	
FREQUENCY RANGE (MPX-filter out) DIN 45500	30-16,000 Hz	
SIGNAL/TAPE NOISE RATIO Reference, 3%, 3rd. harmonic distortion IEC A-curve DIN 45500 (Geräuschspannung)	Dolby** circuit ON 65 dB	
IEC linear RMS DIN 45500 (Fremdspannung)	55 dB	
DISTORTION from AMPLIFIER	0.3%	
from TAPE at 0 dB REC. LEVEL	3 %	
INPUTS	IMPEDANCE	SENSITIVITY
MICROPHONE	***	0.15 mV-20 mV
LINE INPUT	220 kohms	40 mV-5 V
RADIO	47 kohm	8 mV-1 V
OUTPUTS	IMPEDANCE	LEVEL
RADIO	10 kohms	775 mV
LINE OUTPUT	10 kohms	775 mV
PHONES	Min. 8 ohms	2 mW
WOW Peak weighted DIN 45511	0.2%	

*With nominal mains voltage and normal operating temperature.

**The word "Dolby" is a Trade Mark of Dolby Laboratories Inc., USA

***The impedance automatically adjust itself to the microphones with an impedance between 100 and 800 ohms.



BLOCK DIAGRAM.