



TANDBERG 7

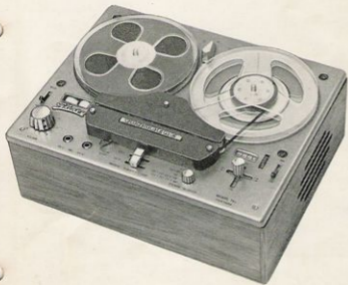
tape recorder model 7B

INSTRUCTION MANUAL



WE CONGRATULATE YOU ON YOUR NEW TAPE RECORDER

You are now the owner of one of the world's finest Tape Recorders. A new source of personal enjoyment and satisfaction for years to come. For more than 10 years Tandbergs Radiofabrikk has been among the world's leading producers and exporters of Tape Recorders. In U.S.A., Great Britain, Sweden, and Norway the name TANDBERG stands for the finest quality in Tape Recording. It is recommended that you study the instruction booklet and follow the instructions carefully to obtain optimum use from the versatile quality instrument that your Tandberg Tape Recorder is.



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Unpacking

After removing the recorder from packing, remove the transport securing screw (located underneath the recorder), loosen the four mounting screws on the top plate, and remove the cardboard strips placed between the plate and the cabinet. Then adjust the screws so that there is only a slight clearance between the cabinet and the top plate.

What Power Source to Use?

The tape recorder operates from the following power sources:

Standard model:

110, 125, 145, 200, 220 or 245 volts,
50 or 60 c/s.

The voltage selector is located at the bottom of the recorder.

Instructions for changing the setting of the selector:

STEP 1 - Stand recorder on end so that the bottom faces you.

STEP 2 - Loosen screw of inset COVER PLATE.

STEP 3 - Slide cover plate DOWNWARD so that the Voltage Knob is completely in view.

STEP 4 - Pull OUT the Voltage Knob and turn to required setting. Push IN, then replace plate and tighten screw.

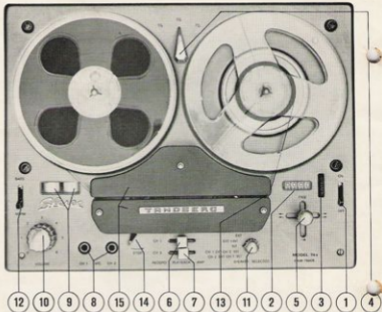
U.S. model:

115 volts 60 c/s.

The U.S. model is furnished with a sealed transformer and an interlock inserted in the mains cord.

To change the recorder from 60 to 50 (or 50 to 60) cycles operation, the Motor Pulley and Motor Capacitor must be changed.

We recommend that only a Tandberg Service Station, representative or competent qualified technician perform this service.



CONTROLS

1 ON-OFF Switch. Turns on the power. The Tape Counter window lights up with the switch in ON-position.

2 4-DIGIT TAPE COUNTER. Indicates position of the tape.

3 RESET WHEEL. — Sets the tape counter to Zero.

4 SPEED SELECTOR. Selects the required tape speed. Left $1\frac{7}{8}$ " per. sec., middle $3\frac{3}{4}$ " per. sec., right $7\frac{1}{2}$ " per. sec. The speed can be changed while the recorder is running.

5 TAPE MOTION LEVER.
Mid-position: Stop.
Position: \Leftarrow Fast rewind.
Position: \Rightarrow Fast wind.

Position: \rightarrow Record or playback.
FREE position: For easy threading of the tape.
Always leave the Tape Motion Lever in Mid-position when the tape recorder is not in use.

6 FUNCTION SELECTOR SWITCH CH 1 (Channel 1).
The switches 6 and 7 have the following 3 positions and can be operated together or separately.

RECORD position: The recording starts when the Tape Motion Lever is

set to position \rightarrow . (The Function Selector Switch is locked in this position by the Tape Motion Lever.)

PLAYBACK position: The playback starts when the Tape Motion Lever is set to position \rightarrow .

AMP position: Amplifier.

7 FUNCTION SELECTOR SWITCH CH 2 (Channel 2).
The function of this switch is similar to the function of the switch for channel 1 as outlined above.

8 MICROPHONE JACKS
for channel 1 and 2.

9 RECORDING LEVEL INDICATORS
For maximum level of recording the indicator eyes should be just closed.
Left indicator: channel 1.
Right indicator: channel 2.

10 VOLUME CONTROLS
for recording and playback. The controls can be operated together or separately.
The upper knob: channel 1.
The lower knob: channel 2.

11 SPEAKER SELECTOR
with 5 positions.

1. CH2 EXT CH1 INT:
The program from channel 2 is reproduced through both external speakers while the program from

channel 1 is reproduced through both internal speakers.

2. CH1 EXT CH2 INT:
The program from channel 1 is reproduced through both external speakers while the program from channel 2 is reproduced through both internal speakers.

3. INT: Internal speakers only.

4. EXT + INT: External and internal speakers.

5. EXT: External speakers only.

12 BASS SWITCH. The switch is used during PLAYBACK or in AMP position. An increase of the bass amplification (bass-boost) is obtained for the channel operating in playback or amplification mode, even if the other channel is set for recording mode.

13 AUTOMATIC END STOP. A spring actuated microswitch shuts off the motor when the end of the tape passes this point.

14 MOMENTARY START/STOP LEVER
The record or playback starts or stops instantly by operating the lever.

15 FRONT AND REAR COVER
Remove the covers when cleaning the heads. (See page 12, cleaning the

RECORDING — PLAYBACK

Recording Mono

Switch on the Tape Recorder



Pull out the mains cord from opening in back and plug it into the electric outlet, turn power switch to ON position and allow about 30 sec. for warming up.

Thread the tape



Move Tape Motion Lever to FREE position. Both turntables will then

run freely and independently, making the threading easy. Place a full tape reel on the left spindle gently rotating until it drops into place over the shaft key. Unwind a portion of the tape and cut off the sticky end (or one may risk getting glue on the tape heads). Insert length of tape in tape slot, making sure that the tape is not



twisted and the shiny side is towards you. Bring it into the graduated slot of the empty right reel, pull tape up and hold the end while turning the reel counter-clockwise in order to tighten the tape on the reels. During recording and playback the tape always moves from left to right.

Set the Counter to zero

When starting a new tape, reset the Counter to zero by means of the Reset Wheel. The Counter indicates tape length run when recording,



playing back, rewinding, or forward winding. At the beginning of a new program, note down the reading immediately. It is then possible at any time to pick up the exact place on the tape by means of fast forward or fast rewind to the designated numbers on the counter.

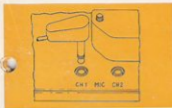
Select the speed

The $7\frac{1}{2}$ " per sec. speed gives the best sound quality, while $1\frac{7}{8}$ " per sec.



gives the longest playing time. (See specifications on page 15.) The speed can be changed while the recorder is running.

Plug in the microphone



Push the microphone plug all the way into the jack marked MIC CH 1. The two microphone inputs are connected in parallel during mono recording. Consequently the microphone can be left in the MIC 1 input during mono recording on CH 2.

Set the Function Selector Switches to mono recording

Recording on CH 1.



Push the Function Selector Switch CH 2 to AMP position, and the Function Selector Switch CH 1 to RECORD position and...

Recording on CH 2.



Push the Function Selector Switch 1 to AMP position and the Function Selector Switch CH 2 to RECORD position and...

Set the Speaker Selector to EXT



Move the Tape Motion Lever to → position.



Move the Tape Motion Lever to → position.



Adjust the Recording Level



Adjust the recording level with the Volume Control until the indicator eye just closes at signal peaks.

Upper knob: CH 1. Left indicator.
Lower knob: CH 2. Right indicator.

Pause

The tape can be stopped during adjustment of the recording level by moving the Momentary Start/Stop Lever to STOP position, it is started instantly by releasing the lever.



Recording—stereo

The procedure for stereo recording is the same as described on pages 6 and 7, with the following exceptions:

Plug in the microphones

One microphone is plugged into the jack marked MIC CH 1, and is placed to the left of the recording signal source. The other microphone is plugged into the MIC CH 2 jack and placed to the right of the recording signal source.



Set the Function Selector Switches to stereo recording


Set both Function Selector Switches to RECORD position.



Playback—mono

Rewind the tape



Move the Tape Motion Lever to  and rewind the tape.

Set the Speaker Selector to INT



Set the Function Selector Switches to mono playback

Playback from CH 1:

Leave the Function Selector Switch CH 1 in **PLAYBACK** position, and move the Switch CH 2 to **AMP** position.



Playback from CH 2:

Leave the Function Selector Switch CH 2 in **PLAYBACK** position and move the Switch CH 1 to **AMP** position.



Move the Tape Motion Lever to → position



Adjust the Volume



The playback Volume is adjusted by the Volume Controls

Upper knob: CH 1 (left speaker)

Lower knob: CH 2 (right speaker)

Increasing the Bass

An increase of the bass amplification (bass boost) during playback is obtained

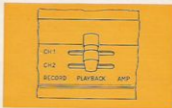
when the Bass switch is set to **BASS** position.



Playback—stereo

The procedure for stereo playback is the same as described on pages 8 and 9 with the following exception:

Set the Function Selector Switches to stereo Playback



Leave both Function Selector Switches in **PLAYBACK** position.

EXTERNAL EQUIPMENT



Recording from external equipment

Connect the external equipment output to the INPUT terminals of the tape recorder

The radio, tuner, gramophone pre-amplifier etc., is connected to the INPUT terminals at the rear of the tape recorder.

The procedure for mono or stereo recording is the same as described on pages 6, 7, 8 and 9.

The two INPUT terminals are con-

nected in parallel during mono recording. Consequently the input signal can be fed to the CH 1 INPUT terminal during mono recording on CH 2.

Note:

Remove the microphones from the jacks, otherwise the INPUT terminals will be disconnected.

Playback through external equipment

The Tandberg Tape Recorder model 7 B is furnished with playback pre-amplifiers (PRE-AMP Playback CH 1 and CH 2) for connection to external pre-power amplifiers. The playback pre-amplifiers are not affected by the Volume Controls or the Bass Switch. Regulations must be performed on the additional equipment.

Connect the external equipment INPUT to the OUTPUT terminals of the tape recorder

A stereo-amplifier should be connected to the PRE-AMP playback terminals.

A mono amplifier or radio used as mono amplifier should be connected to the centre channel output CTR CH.

External speakers (4 ohm) should be connected to the POWER AMP terminals

CH 1: left speaker

CH 2: right speaker

The tape recorder used as a stereo amplifier

Plug in two microphones (the amplifier can be fed from microphones or through the INPUT terminals) and move both Function Selector Switches to AMP position. Connect separate speakers to the POWER AMP OUTPUT terminals CH 1 (left) and CH 2 (right). Set the Speaker Selector to EXT position.

The Volume Controls, the Bass Switch and the Speaker Selector are active during stereo playback.

To prevent oscillations caused by acoustical feedback you must ascertain that there is sufficient distance between the microphones and speakers.

MONITORING

Monitoring through both speakers can be obtained during recording.

Mono recording CH 1.

Monitoring through the left speaker with reduced output set by the recording gain.

Monitoring through the right speaker with adjustable output set by the Volume Control CH 2.

The Speaker Selector Switch must be set to one of the following positions: EXT + INT, INT or CH 2 EXT CH 1 INT.

The EXT position will disconnect the monitoring when external speakers are not used.

Mono recording CH 2.

The procedure for monitoring from CH 2 during recording is the same as outlined above with the following exception:

The Speaker Selector Switch must be set to one of the following positions: EXT + INT, INT or CH 1 EXT CH 2 INT.

MIXING

Two programs can be mixed during mono recording when the different programs are fed to each INPUT terminal. This is possible through two microphones or through one microphone and one INPUT terminal.

Note:

Plugging in one microphone disconnects the INPUT terminal for that channel.

When the different programs are fed through one microphone and one INPUT terminal, the recording level for both programs will be controlled by the volume control for the channel set to RECORD mode.

The level of the added program through the INPUT terminal can be controlled by the INPUT LEVEL SET for same channel.

Adjustment of the input level set

The INPUT LEVEL SET CM 1 and CH 2 can be adjusted according to signal source and avoid overloading of the amplifiers.

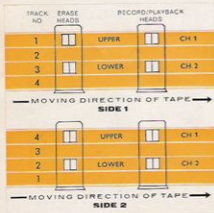
Make a stereo recording from the radio, tuner or gramophone as described on page 8. Set both Volume Controls to 3.5 and adjust the INPUT LEVEL SET CH 1 and CH 2 until the indicator eyes just close at signal peaks.

Erasing

Previous recordings will automatically be erased during the recording process. If you wish to erase a programme without recording a new one it may be done by running the tape through the tape recorder with the Function Selector Switches to RECORD and the Volume Controls set to zero.

4-TRACK MONO RECORDING AND PLAYBACK

During stereo recording or playback, the tape heads cover track 1 and 3 on side 1 of the tape. If the tape is turned round (see fig.), side



2 will be up, and the tape heads cover track 2 and 4. The upper channel will cover either track 1 or track 4 and the lower channel either track 3 or track 2.

For monaural recording on all 4 tracks, the procedure is as follows: Push the Function Selector Switch for CH1 to RECORD position, and CH2 to AMP position. The recording will take place on track 1. When the tape has been run through, turn it around and continue the recording, now on track 4. (Adjust the upper Volume Control knob for track 1 and 4.) Turn the tape reel around again and move the Function Selector Switch for CH2 to RECORD position and CH1 to AMP position. You will now record on track 3. Finally turn the tape around once more to record on track 2. (Adjust the lower Volume Control knob for track 1 and 4.)

Cleaning the Heads

All parts contacted by the tape should be cleaned occasionally. Any foreign matter, such as dust, lint, or magnetic oxide particles from the tape can seriously affect the quality of recording, resulting in drop out and lack of treble response. To clean, remove front and rear headcovers. Use a piece of cotton or soft cloth and clean the parts touching the tape with alcohol or magnetic head cleaner. Do NOT use acetone or trichlorethylene. Dry off rubber roller and capstan. Replace head covers.

ADD A TRACK – SOUND ON SOUND

Add a Track

This is a technique whereby one may playback a program on one channel and at the same time record another on the other channel. When playing back in Stereo both programs will be heard simultaneously. If this is done on a machine with a combined recording and playback head (Model 7B) a synchronised playback of both channels in Stereo is possible.

Add a Track is used when synchronization of two programs is desired, or when recording a second program and using the first as a basis for the second.

Language Education

The teacher's voice (master program) is recorded on channel 1. The student records his lesson on channel 2 while listening to the playback of the teachers voice. He will monitor his own voice at a level set by the recording volume.

During playback in stereo the student will hear the teachers voice in the left speaker and his own voice in the right speaker.

The model 7B has built in a center

channel output terminal marked CTR CH to facilitate the use of model 7B for language education. Monaural earphones are connected to the center channel output (CTR CH). During recording (Function Selector Switch CH2 in record and Function Selector Switch CH1 in playback position), the student will hear both the master program and his own voice in the earphones. During playback (both Function Selector Switches to PLAYBACK position) the student will first hear the master program then his own exercise in the earphones – for compare. The student is able to record and erase his own exercise at will, with no interference to the master track.

Add a Track may also be used when commentary, background music or other sound effects are needed in conjunction with film or colour slide projection.

The Tandberg Tape Recorder Model 7B is very well suited for Add a Track. With the combined record and playback head in line, one is always assured full synchronization.

Sound on Sound

This is a technique where a program is played back from one track and simultaneously a second program is added, the two programs being recorded combined on another track. (One superimposed on the other.) Consequently the playback of the combined program must be in Mono. In Add a Track where the two programs are on two separate tracks the playback must be in Stereo. In Sound on Sound one has the possibility of building up a complete program from separate sources, however the sound quality may be slightly reduced by many re-recordings.

Model 7B has limited possibilities for Sound on Sound. When working with combined record and playback heads as in Model 7B there will always be some magnetic coupling between the head which is recording and the head playing back. When recording Sound on Sound on Model 7B the output of the playback channel is connected to the input of the recording channel. If the loop amplification from the playback head to the recording head is too great the feedback between the two heads will cause instability and oscillation. Sound on Sound can only be completely satisfactory on a machine with three heads, i.e. Tandberg Tape Recorder Model 64. If in spite of this, you wish to record one track from another or Sound on Sound on Model 7B, you must first find out where the oscillation limit is and keep your volume controls under this limit.

ACCESSORIES

With each Tape Recorder is packed: One empty 7" reel. The following accessories are available packed in a separate container: 2 microphones TM2H, 2 1200 ft. reels of tape and 1 splicing tape.

Crystal Microphone model TM2H



Manufactured by Tandberg, the TM2H Microphone is matched to the Tandberg Recorder to make live microphone recordings with optimum quality.

It has an omnidirectional pickup characteristic. The frequency response is from 20 to 15 000 cycles \pm 3 dB.

It is furnished with a 12-foot microphone cable and plug and microphone stand as shown in the sketch.

Telephone Pick-up



Manufactured by Tandberg, it attaches to a telephone easily with a suction cup. No wire connections are necessary. With it you can record a telephone conversation. It is furnished with 12-foot cord and plug to connect to the microphone input.

Magnetic Tape

Tandberg Tape Recorders are adjusted to the magnetic qualities of the finest recording tape available.

Therefore, to obtain the best results only high quality tape must be used. It is available in the following lengths: 1800 ft., 1200 ft., 600 ft., 300 ft., and 150 ft.

Carrying Case



Attractive luggage-type case of simulated leather is exceptionally durable and light. Fitted with chrome plated brass locks and key. Size — $16\frac{1}{2}$ " x 13" x 7". Weight — 5 lbs. Colour — Grey.

SPECIFICATIONS:

Power Supply: 110, 125, 145, 200, 220 or 245 volts 50 c/s or 60 c/s AC.

US model: 115 volts 60 c/s AC.

Power consumption: 85 watts.

Recording tape: Max. dia. 7". Best quality recording tape should be used.

Tape speeds: $7\frac{1}{2}$ ", $3\frac{3}{4}$ ", and $1\frac{1}{8}$ " per sec. The speed can be changed while the tape recorder is running.

Speed tolerance: $\pm 2\%$ absolute tolerance.

Playing time: 4 tracks and 1200 ft. tape give the following playing times:

	Stereo	Monaural
$7\frac{1}{2}$ " per sec.:	2 x 32 min.	4 x 32 min.
$3\frac{3}{4}$ " per sec.:	2 x 64 min.	4 x 64 min.
$1\frac{1}{8}$ " per sec.:	2 x 128 min.	4 x 128 min.

Fast forward - and rewinding: Takes approx 2 min. in either direction for 1200 ft. of tape without wear of tape heads.

Tubes: 1 ECC82 (12AU7), 4 ECC83 (12 AX7), 2 EL84 (6BQ5), 2 EAM86.

Transistors: 2 AC107.

Diode: 1 AA119.

Rectifier: 1 125 mA 250 V.

Heads: 1 quadruple erase head. 1 quadruple record/playback head.

Erase and bias frequency: 85.5 kc/s, distortion 5 %.

Recording Level Indicators: Electronic beam indicator for each channel (EAM86) with damped backward movement. Indicator range 25 dB plus overload. The indicator eyes should just close at 5 % distortion (from tape).

Inputs, Sensitivity, and Impedance: 2 microphone-inputs. Sensitivity 2-2.5 mV input impedance 3 Mohms. 2 line-inputs, adjustable between 2.5 mV and 7 V input voltage, 100-500 Kohms input impedance.

Noise Level: 55 dB below max. recording level. Max. recording level corresponds to 5 % distortion.

Crosstalk rejection: Better than 60 dB at 400 c/s.

Power amplifier output: At maximum recording level (5 % distortion) 3 watts at each channel.

Playback pre-amplifier output stage: Minimum load impedance 100 kohms.

Centre channel output: Load impedance min. 400 ohm.

Frequency Response:

$7\frac{1}{2}$ " per sec. 30-20 000 c/s (± 2 dB 40 - 16 000 c/s).

$3\frac{3}{4}$ " per sec. 30-14 000 c/s (± 2 dB 40 - 10 000 c/s).

$1\frac{1}{8}$ " per sec. 50-7 000 c/s (± 2 dB 40 - 5 000 c/s).

In amplifier position: 40-16 000 c/s ± 2 dB.

Wow:

$7\frac{1}{2}$ " per sec.: Better than 0,15 %.

$3\frac{3}{4}$ " per sec.: Better than 0,2 %.

$1\frac{1}{8}$ " per sec.: Better than 0,3 %.

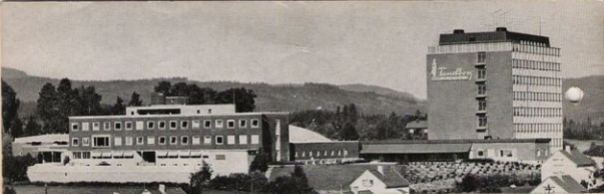
Bass Switch: The bass can be raised approx. 8-9 dB at 100 c/s during playback.

Momentary start-stop lever: The momentary start-stop lever starts or stops the recording or playback instantly.

Speakers: 2 pieces 4 x 7" speakers. Jacks for external speakers 4 ohm.

Dimensions: Length: $15\frac{3}{8}$ ", width $11\frac{13}{16}$ ", height: $6\frac{7}{8}$ ". Teak Cabinet.

Weight: Instrument alone 27,6 lbs. With carrying case 32,6 lbs.



Tandberg is uncompromisingly aiming for the highest standards of quality. The modern buildings with surrounding parks create an attractive frame for the advanced social policy and personnel conditions which in themselves justify Tandberg's reputation as a pioneer plant. Under these conditions increasing ability and efficiency have been attained and led to the development of outstanding and world famous products.

Tandberg
RADIO

**TANDBERGS
RADIOFABRIKK A/S**

OSLO · NORWAY

DEALER: