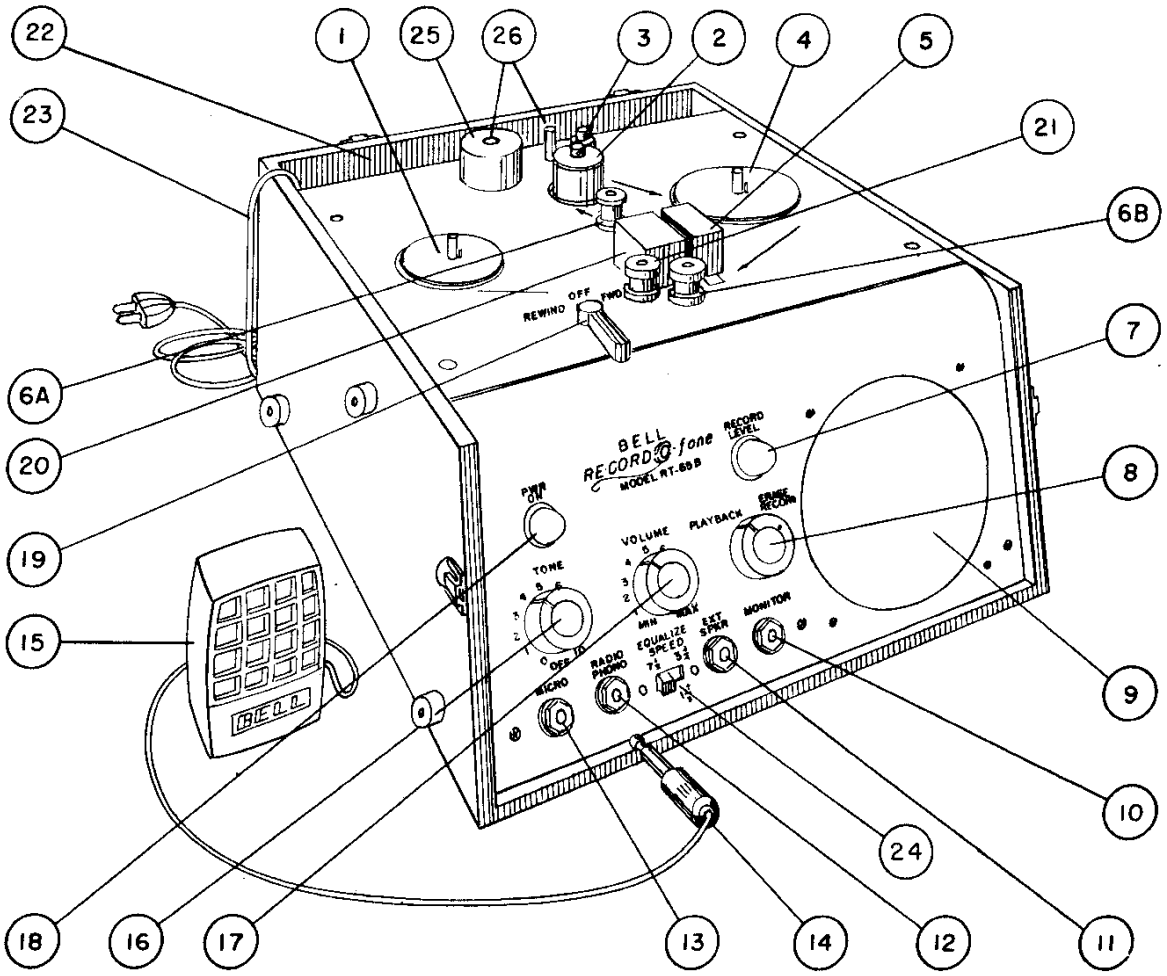
Bell

Model: RT-65-B	Chassis:	Year: Pre 1952
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 22 - BELL 22-TAPE REC. 13
Riders Volume 22 - BELL 22-TAPE REC. 14
Riders Volume 22 - BELL 22-TAPE REC. 15
Riders Volume 22 - BELL 22-TAPE REC. 16
Riders Volume 22 - BELL 22-TAPE REC. 17



1. Supply Reel Platform
2. Capstan
3. Pressure Roller
4. Take-Up Reel Platform
5. Pressure Pads
6. A Rear Tape Guide Roller
   B Front Tape Guide Roller
7. Recording Level Indicator
8. Erase Record-Playback Control
9. Speaker
10. Headphone Monitoring Jack
11. External Speaker Jack
12. Radio or Phono Jakc
13. Microphone Jack
14. Microphone Plug
15. Microphone
16. Tone Control & Master Power Switch
17. Volume Control
18. Pilot Light
19. Direction Control - 3 Position Rewind - Off - Forward
20. Erase-Record-Playback Head
21. Tape Idler Roller
22. Storage Compartment for Power Cord, Reels and Microphone
23. Power Cord
24. Switch to Equalize Tape Speeds
25. Spare Pressure Roller for 1-7/8" Speed
26. Spare Pressure Roller Posts for Storing Rollers

MODEL RT-65-B

THREE SPEED DUAL TRACK TAPE RECORDER

7-1/2", 3-3/4" and 1-7/8" per second

INTRODUCTION

This recorder is precision built and with reasonable care it will provide many hours of dependable service and enjoyment. At 7-1/2" tape speed it will give good quality reproduction to 8000 cycles and higher. At 1-7/8" tape speed it will provide two hours recording on a single track, or a total of four hours on a 7" reel. The 1-7/8" speed is recommended for voice and music where the quality of music need not be as good as at 7-1/2". The intermediate speed of 3-3/4" provides twice the recording time of 7-1/2" with some reduction in high frequency response.

These three speeds enable the user to choose between the response he wants versus playing time, all in one recorder. The 7-1/2" speed should be used to obtain the best quality recordings.

When unpacking the recorder carefully examine it for visible damage. If unit is damaged, notify your dealer at once so that claim may be filed with the transportation agency.

NOTE - RECORDERS ARE SHIPPED WITH CAPSTAN AND PRESSURE ROLLERS IN 7-1/2" SPEED POSITION.

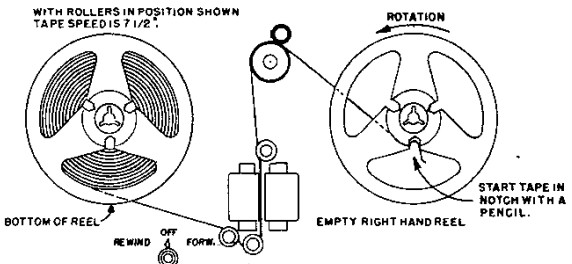


FIG. 1. TAPE THREADING DIAGRAM 7 1/2" TAPE SPEED.

OPERATING INSTRUCTIONS

Place the recorder on a flat surface close to a convenient 110 volt AC outlet. Next, remove the cover and take out power cord and after first checking to see that direction control (#19) is in "Off" position, plug into outlet. Now turn on unit by rotating tone control (#16) to the right until you hear a click and the pilot light is illuminated. Place a full reel of Type "A" tape on supply reel platform (#1). Rotate reel until small pin near center post engages one of the small notches in reel. Grasp end of tape and unwind about two feet, notice that the tape has a dull coating on side nearest center of reel. Recordings are made on this (coated) side. Place empty reel on tape take-up reel platform (#4). Thread tape around idler pulleys (#21) and (#6B), then in slot between Erase-Record-Playback head (#20) and the pressure pads (#5); next, past tape guide roller (#6A) around capstan (#2) and between pressure roller (#3) to empty take-up reel. Now thread free end of tape up into empty reel. Push the tape into one of the notches with a pencil. Holding the tape in the notch, rotate the reel for a few turns in a counter-clockwise direction. Be sure small drive pin is engaged and take up all excess slack in tape. See Figure #1.

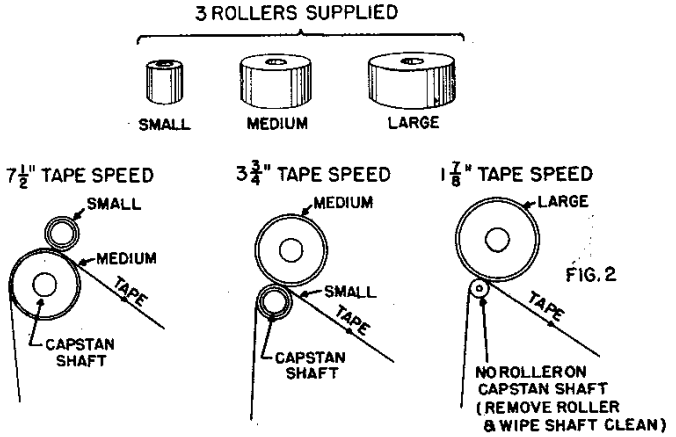


FIG. 2

Method of Changing Tape Speed - The speed at which the tape runs through the recorder depends on the size of the capstan, therefore, to change speed it is necessary to change the diameter of the capstan and the pressure roller. See Fig. 2.

For 7-1/2" per second tape speed, use the medium and the small rollers, as shown.

For 3-3/4" per second tape speed, interchange the small and medium size rollers. (Just reverse of 7-1/2").

For 1-7/8" per second tape speed, remove roller and screws from the capstan shaft, wipe off any oil on the shaft and use the large size roller only. Do not use washer or thumb nut on capstan shaft.

NOTE - When changing capstans and rollers, turn power switch (located on tone control) #16 to "Off" position. Turn direction control #19 to "Forward". This prevents the rollers from turning while loosening and tightening thumb screws. Store spare rollers, washer and thumb nut on posts #26.

Equalize Tape Speed Switch - When using 7-1/2" speed, the equalize switch #24 should be in 7-1/2 position for correct response. For 3-3/4" or 1-7/8" speed the switch should be in the 3-3/4-1-7/8 position. This position has extra high boost with some bass droop.

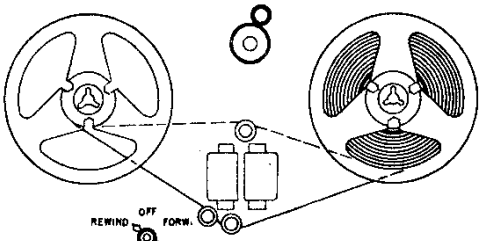


FIG.3. TAPE THREADING FOR REWIND. USE EITHER OF TWO ROUTES SHOWN.

Keep your tape recorder in good condition. The erase head and capstan of the recorder should be cleaned periodically with a soft cloth and carbon tetrachloride to insure maximum performance. Wipe dry before using again. For best results use plastic tape, Type "A" wind.

Recording

Microphone: Insert microphone plug (#14) into microphone jack (#13). Turn Erase-Record Playback control (#8) to Erase-Record position. Now turn volume control (#17) to position #5 and speak into the microphone, holding the microphone about ten inches from your lips. The Record-level indicator (#7) should flicker. If it does not, turn up the volume control until the lamp just flickers occasionally when you speak. Remember, this lamp indicates the instantaneous peaks of volume, it should, therefore, flash only when a loud sound is made. If it flashes too much or lights continuously, it means that the peaks are too loud and serious distortion will result. Excellent recordings can be made with volume reduced just below the flash point where lamp does not flash at all. Use the same method of adjustment when using microphone to record music or any type of pickup.

To set the tape in motion, turn Direction control (#19) to "Forward" position. The recorder is now recording all sounds entering the microphone. Watch the recording level indicator (#7) during recording to avoid overloads but do not continually adjust the volume as this destroys the naturalness of the recording. Keep a uniform distance from microphone for best results.

Stop the tape by turning direction control (#19) to "OFF".

Rewinding

To rewind a full reel or a major portion thereof, turn Record-Playback switch (#8) to playback position. Next, remove tape from around capstan (#2) and from the recording slot (this is the slot between #20 and #5) and run tape straight across from reel to reel. See Fig. 3 above. Now turn Direction Control (#19) to "Rewind" position. For rewinding a small portion of the tape, while desirable, it is not necessary to remove tape from capstan and recording slot. First, turn Record-Playback switch to Playback, then CARE MUST BE EXERCISED TO TURN CONTROL VERY SLOWLY TO REWIND TO PREVENT BREAKING TAPE.

If tape is rewound past head, the volume control (#17) should be turned down to avoid unpleasant high-pitched chatter, However, with a little practice this chatter may be recognized and various sections of recorded speech or music identified during rewind.

The numbered lines to be seen under the left hand or supply reel indicate approximate time elapsed during recording or playback. Each line is approximately three minutes playing time, at 7-1/2" speed, six minutes at 3-3/4" speed and 12 minutes at 1-7/8" speed.

Playback

Thread the recorded tape into the machine the same as for recording and simply turn Direction Control (#19) to forward position, making certain that the Record-Playback Control (#8) is in playback position. To playback a partially recorded tape it is first necessary to rewind your tape to where your recording began. After the tape has been rewound, proceed as described above. Adjust the volume and tone controls for best listening.

CAUTION: Be certain that the Record-Playback Control (#8) is in playback position before starting the tape in motion, at all times, except when recordings are actually being made. This will prevent accidently erasing a tape when PLAYBACK was intended.

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Erasing

Any previously recorded tape may be erased by running the tape through the machine in the manner as described for "recording" except that the volume control (#17) is turned to zero so that no signal will be recorded. The erase feature is automatic, since when a recording is being made, the tape is erased just ahead of the recording. In this way, any previously recorded material is always removed before the new material is recorded on the tape.

How To Obtain Dual Track

This recorder will record two "tracks" on a single tape, in other words, only one half of the width of the tape is recorded at a time. After recording through an entire reel in one direction, the full reel is inverted and placed on the Supply Reel Platform (#1), the empty reel on the Take-Up Reel Platform (#4), and the entire tape length may be recorded again on the other half of the tape. To facilitate reel change-over, stop tape motion just before the tape unthreads, leaving five or ten turns on the reel. This avoids need for re-threading. With a little practice, change-over can be done in less than fifteen seconds.

Recording Direct from External Radio, Phonograph or Record Player

To record direct from an external radio or phonograph, a single conductor microphone type cord should be equipped with a shielded plug similar to the one on the microphone cable, and plugged into the radio or phono jack (#12). Shield should be connected to sleeve of plug. The other end of this cable should be connected directly to the speaker voice coil terminals of the radio or phono making certain that the shielding connects to the grounded side of the circuit. (Determine by trial and error test.) A radio service man may be called in to make this simple connection and to supply the cable and plug. You may, of course record radio or phonograph programs by simply placing your microphone approximately one to two feet in front of the loudspeaker and following the procedure as outlined under microphone recording. You may also connect a crystal pickup direct to the recorder by connecting the pickup leads to the phono input. Observe polarity as described above.

Use With Radio Tuner

By connecting the output of one of the commercially available FM, or combination AM-FM tuners, direct into the recorder, a complete high quality radio is obtained with both listening and recording features. One word of caution, in recording direct from a radio or phonograph having "Bass boost" type of tone control, it is recommended that no bass boost be used during recording since bass distortion may result when played back.

CAUTION: Recorder will not playback with plug in radio-phono jack. Also microphone cannot be used to record with plug in radio-phono jack.

Use of Monitoring Headphones

For those who desire to make the best recordings of singers, speakers, musical groups, plays, weddings and similar types requiring varied microphone pick-up, investment in a pair of crystal headphones for monitoring purposes is recommended. The headphones should be equipped with a shielded plug and are inserted into the headphone monitoring jack (#10). You will then be able to hear the sounds just as they are being recorded and keep a constant check on the quality of the recorded material.

500 Ohm Output

The output transformer has a 500 Ohm winding and is connected to the monitor jack through a 10,000 Ohm resistor. To obtain 500 Ohm output, short circuit this series resistor. Connect to monitor jack. Observe ground polarity.

Use of an External Speaker for Better Playback Listening

Although the built-in speaker is especially designed to give the best possible sound quality for portable use, it is sometimes desirable to playback to a large audience through a larger, separate loudspeaker, or to use a separate high-fidelity speaker in the home. Leads from the external speaker should be connected to a shielded plug and inserted into the external speaker jack (#11). This output jack has an impedance of 4-6 ohms. Also, when a speaker is plugged into this jack, it automatically disconnects the internal speaker in the unit.

Use of Recorder with an External Amplifier for Recording or Playback

Playback - The output from this recorder may be fed directly into any high impedance phono input of a sound system or amplifier. This is accomplished by connecting the headphone monitoring jack (#10) to the phono input of the amplifier. Connect sleeve of plug to ground connection of amplifier. This permits use of the internal speaker of the recorder to monitor programs being fed to the external amplifier.

You may also feed an external amplifier by connecting the external speaker jack (#11) of the recorder to the phono input of an amplifier. If this is done, it is necessary to add a 3 ohm 5 watt load resistor across your cable between the recorder and amplifier. By this method, the internal speaker of the recorder is silenced and you may monitor your out-going program by use of headphones.

Recording - The output of any sound system or amplifier, if properly terminated by a loudspeaker or equivalent load resistor, may be connected into the Radio-Phono input of the recorder and recordings made. Insert a phone plug into the phono jack of the recorder. Connect the two leads to the speaker or proper resistor load of the amplifier. Observe ground polarity, ground side of amplifier to sleeve of plug.

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