

SECTION 3

OPERATING PROCEDURE

3.1 REEL SIZE AND REEL KNOBS:

The Model 350 is equipped to handle either the NARTB 10-1/2" reel of tape or the smaller RMA 5" and 7" sizes. The Reel Size Switch (S504) adjusts tape tension appropriately for the reel size used. On console or portable machines, position the small reels on the turntable engaging the turntable keys. For the large 10-1/2" reels, use the Editing Knobs (catalog #1917) that have been provided. Rack mount machines are supplied with Hold-Down Knobs (catalog #4402) for both small and large reels.

NOTE: Always use reels of the same size on both turntables. Operation with one large and one small reel may result in faulty braking action.

The #4402 reel hold-down knob (Figure 0) works in the following manner. A removable pin in the bottom surface of the knob engages a corresponding hole in the turntable. A collet grips the turntable shaft when the top of the knob is rotated. Two spring-loaded balls hold the reel to the turntable. A pin in the side of the knob drives the reel. The knob should be positioned on the NARTB reels so that the removable pin engages one of the turntable holes and approximately two thirds of the ball is exposed above the reel. The knob should not be pushed down all the way, but should ride above the turntable. Once the knob is positioned correctly, the NARTB reels may be removed without removing the knobs. When using the knob with the small RMA reels, unscrew the removable pin. The knob is used only to prevent the reel from falling off the turntable, since three keys in the turntable drive and center the reel. Lock the knob to the shaft, avoiding excess pressure on the reel which could distort the reel flanges.

3.2 TAPE THREADING:

Thread the tape as indicated in Figure 11. All new factory wound reels should be unwound and inspected by running through at Fast Forward before using them in the play mode of operation. New tapes are usually looped to the hub in such a manner that the tape will not come free of the reel at the end. This will prevent the Safety Switch (S501) from disengaging the Capstan Idler from the Capstan which results in a flat being worn on the Capstan Idler Wheel. (Any

adhesive material accumulation on the reel hub may also keep the tape from coming free at the end of the reel, and should therefore be removed with solvent.)

3.3 HALF TRACK OPERATION:

The handling of half track tapes on this machine is accomplished in the following manner. The tape is threaded and operated as described under TAPE THREADING and TAPE MOTION. However, only the upper half of the tape will be used on the half track machine. To utilize the lower half of the tape, the full reel on the Takeup Turntable should be removed, turned over and placed on the Tape Supply Turntable upside down. Place an empty reel on the Takeup Turntable. Repeat the operation as performed on the first track.

3.4 POWER:

Power is supplied through Power Switch (S406), which must be turned on to operate the Electronic and Mechanical Assemblies. The Mechanical Assembly and Electronic Assembly are individually fused by the 3 ampere Control Circuit Fuse (F402) and the 1 ampere Electronic Fuse (F401).

3.5 SPEED SWITCHES:

There are two switches associated with operating speed. The Tape Speed Switch (S503) determines the speed of the capstan drive motor, and the Equalization Switch (S402) changes the equalization in the amplifiers appropriately.

3.6 TAPE MOTION:

The tape motion is controlled by means of four pushbuttons labelled Rewind, Fast Forward, Stop and Play.

1. **Play or Record:** The tape is set into Play motion at the speed selected by the Tape Speed Switch when the Play Button (S505) is depressed. The tape must be completely stopped before starting in this mode. To change from Play mode to the Record mode with the tape in motion, press the Record Button (S403) on the Electronic Assembly.

2. **Stop:** To stop the tape while it is moving in any mode, press the Stop Button (S502). The machine will stop automatically if the tape should break or run off either reel.
3. **Fast Forward:** The Model 350 can be started in Fast Forward or switched to Fast Forward from any of the operating modes by simply depressing the Fast Forward button (S506).
4. **Rewind:** The Model 350 can be started in Rewind or switched to Rewind from any of the operating modes by simply depressing the Rewind button (S507).

NOTE: In using either the Fast Forward or Rewind mode, it is desirable to remove the tape from direct contact with the heads by opening the gate of the Head Assembly. This will reduce wear on the heads and prevent the oxide coating on the tape from depositing on the heads and impairing their performance.

3.6.1 EDITING AND CUEING TECHNIQUE:

Indexing the tape as in editing or cueing, or when approaching the end of the reel, is simplified by holding down a combination of buttons. Tape motion can be reduced to a slow creep by holding down the Fast Forward and Rewind buttons simultaneously, and then alternating between the two to control tape direction. When the desired point is reached, the Stop button should be held down until the other buttons are released.

CAUTION: Never press the Stop and Play buttons in rapid sequence when the tape is traveling at high speed in the Rewind or Fast Forward modes. This will almost invariably break the tape since it does not allow sufficient time for the tape to stop before the Capstan Idler locks it to the Capstan.

3.7 PLAYBACK:

To play back a previously recorded tape, turn the Meter and Output Switch (S405), to the extreme left position designated PLAY-BACK-LEVEL. Then start the tape in motion as indicated under PLAY. A Playback

Level Control (R438) has been provided on the front panel to adjust the tape level to plus 4 VU output. (Zero on the VU meter.)

3.8 RECORD:

To record a new program on previously recorded tape, or on blank tape, turn the Meter and Output Switch (S405) to the second position from the left which is designated RECORD-LEVEL. Turn the Record Level Control (R409) clockwise until the level reads 0 (zero) on the VU Meter on the most intense program peaks. The program can be audibly monitored through either the Phone Jack (J403S), or the Line Out Connector (J404P) before the tape is in motion. This direct monitor feature allows the program to be set up through the machine without actually recording during the set up period. **NOTE:** For Correct meter calibration it is important that the Line Out be properly terminated either external to the machine or by the use of the Line Out Termination Switch (S404).

When the program level is properly set, start the tape in motion as indicated under PLAY. Then push the Record Button (S403). It is desirable that a delay of at least 1/2 second occur before the Record Button is depressed, to allow switching transients to die out before recording is started and prevent permanent magnetization of the Record Head. The Record Indicator (I401) next to the Record Button will now glow and the machine is recording.

It is desirable to check the record bias and erase currents occasionally. In order to do this, turn the Meter and Output Switch (S405), to the positions designated BIAS and ERASE, respectively. The erase is not critical and should read approximately zero on the meter scale. The bias should read between -1/2 and +1/2 on the VU scale. The bias is somewhat critical and must be kept within the indicated range in order to record the higher frequencies at 3-3/4 and 7-1/2 inch tape speeds.

The bias is adjusted by means of the Bias Control (R460), located on the electronic chassis. The meter calibration for bias measurement can be checked as indicated in SECTION 5.6.4.