

## OPERATING INSTRUCTIONS

### 3.1 OPERATING CONTROLS AND INDICATORS

#### 3.1.1 Tape Transport (see Fig. 3-1)

POWER toggle switch	Used to control application of power to entire equipment.
Power indicator light (amber)	Illuminates when power is applied.
SPEED toggle switch	Used to select the slow (∨) or fast (∧) tape speed. Equilization is automatically switched in accordance with speed selection.
REEL toggle switches (2)	Used to select proper tension for large (O) or small (o) reel hubs. One switch is provided for each turntable.
RECORD pushbutton	Used to place the equipment in the record mode. Tape motion must first be started by pushing the PLAY pushbutton, and the RECORD SELECTOR switch on the electronic assembly must be in the READY position.
EDIT pushbutton	Used to place equipment in the stop/edit or play/edit mode when the equipment is stopped or is in the reproduce (play) mode. Also used to provide electronic override of automatic tape lifter mechanism in the fast-winding modes, thus providing the fast-winding/edit mode.
REWIND pushbutton	Used to move tape from the takeup reel to the supply reel at the fast-winding speed. The rewind mode cannot be entered from the record or play/edit modes, but can be initiated from any other mode.

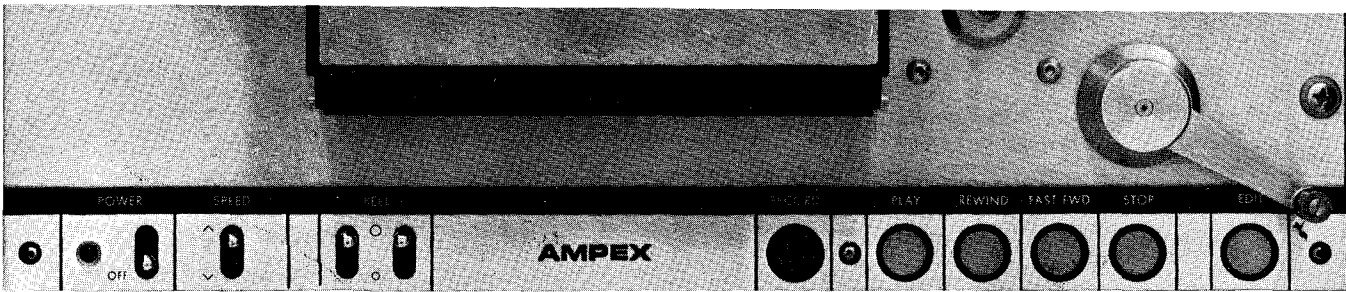


Fig. 3-1. Tape Transport, Controls and Indicators

- |                     |  |
|---------------------|--|
| FAST FWD pushbutton | Used to move tape from the supply reel to the takeup reel at the fast-winding speed. The fast forward mode cannot be entered from the record or play/edit modes, but can be initiated from any other mode. |
| STOP pushbutton     | Used to stop the equipment from any mode of operation, will drop out the record or edit modes when applicable.   |
| PLAY pushbutton     | Used to place equipment in the reproduce mode. Must be pressed before the record mode can be initiated.  |

3.1.2 Record/Reproduce Electronic Assembly (see Fig. 3-2)

- |                                |  |
|--------------------------------|--|
| REPRODUCE LEVEL rotary control | Used to adjust reproduce level.  |
| Meter                          | VU meter indicates reproduce, record, or bias level as selected at the OUTPUT SELECTOR switch. Meter lights illuminate when power is applied.  |
| RECORD SELECTOR rotary switch  | Is positioned to select one of three conditions:<br>SAFE (Channel cannot be placed in the record mode).<br>READY (Channel can be placed in the record mode).<br>SEL SYNC (Channel will operate in the Sel Sync condition -- refer to paragraph 3.3.2). |
| Ready indicator light (amber)  | Illuminates when the RECORD SELECTOR is placed in the READY position; remains illuminated while the channel is operating in the record mode.   |

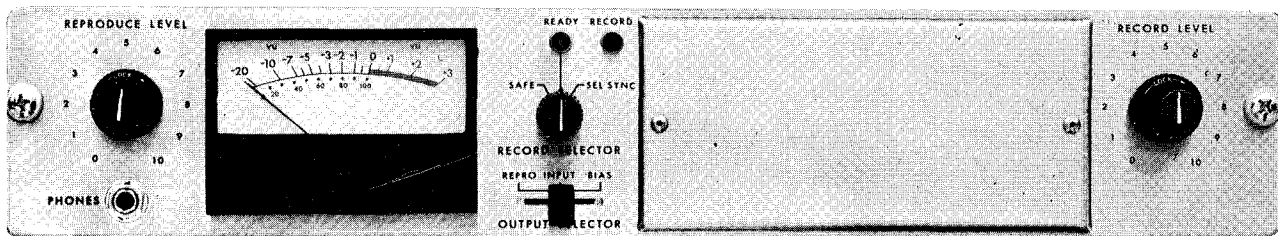


Fig. 3-2. Electronics Controls and Indicators

Record indicator light (red)	Illuminates when the channel is operating in the record mode.
OUTPUT SELECTOR slider switch	Positioned to select one of three signals to be connected as shown.  REPRO: Signal reproduced from the tape, connected to monitor and output lines and to vu meter. INPUT: Signal to be recorded, connected to monitor and output lines, and to the vu meter. BIAS: Bias signal (record mode), connected to vu meter.
RECORD LEVEL rotary control	Used to adjust record level.

3.1.3 Reproduce-only Electronic Assembly

LEVEL screwdriver control	Used to adjust reproduce level.
---------------------------	---------------------------------

---

## 3.2 PRE-OPERATING PROCEDURES

### 3.2.1 Applying Power

To apply power to the complete equipment, place the POWER toggle switch on the tape transport in the on (up) position. The power indicator on the transport and the vu meter lights on the record/reproduce electronic assembly will illuminate. (There is no power indication on reproduce-only modules, only the power indicator on the transport will light).

### 3.2.2 Selecting Tape Speed

Two tape speeds are available on each transport. Standard speeds are 3-3/4 and 7-1/2 ips, or 7-1/2 and 15 ips. The low speed and the high speed are selected by positioning the SPEED toggle switch on the tape transport in the ∨ (low speed) or ^ (high speed) position. Electronic equalization is automatically switched when the tape speed is selected.

### 3.2.3 Selecting Reel Hub Size

There are two REEL toggle switches, one each for supply and takeup. These switches are positioned in accordance with the size of the hubs on the reels being used. For NAB hubs (4-1/2 inch diameter) place the switch in O (large hub) position. For EIA hubs (2-1/4 inch diameter) place the switch in the o (small hub) position. A large hub can be used on one turntable and a small one on the other.

Note again that these switches are to be used in reference to the diameter of the hub, not the size of the reel.

### 3.2.4 Threading Tape

The tape threading path is shown in Fig. 3-3. Note that the threading procedure will be facilitated by applying power to the equipment, moving the takeup tension arm so it does not contact the safety switch, and pressing the EDIT push-button. This reduces the braking force at each turntable to the point where the reels can be easily turned. After threading the tape, be sure to press

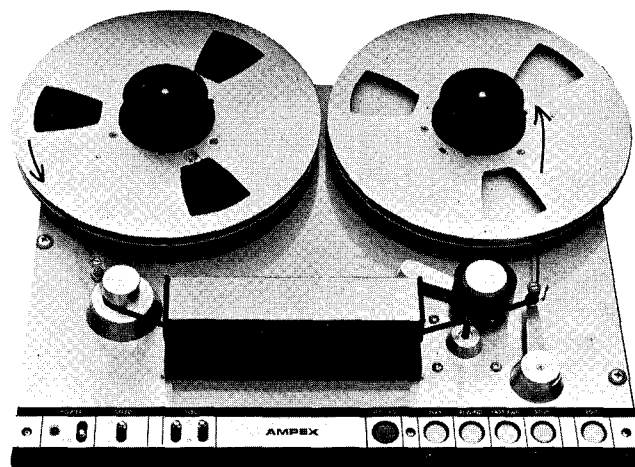


Fig. 3-3. Tape Threading Path

the STOP pushbutton to remove the equipment from the stop/edit mode.

When threading is completed, with the tape anchored to the hub of the takeup reel, manually turn the takeup reel until the supply reel starts to rotate. This removes all tape slack and ensures that the takeup tension arm is not contacting the safety switch.

### 3.2.5 Monitoring Facilities

Monitoring can be accomplished by plugging headsets or an amplifier/loudspeaker into the PHONES jack on the front panel of the electronics assemblies. Of course, an amplifier/loudspeaker can be connected to the output line if desired.

## 3.3 **RECORDING**

### 3.3.1 Without Using Sel-Sync

Step 1: Apply power to the equipment.

Step 2: Thread blank tape, or tape recorded with program material not necessary to save, on the tape transport. Close the head gate when threading is completed.

#### **NOTE**

Always bulk erase tape if it was previously recorded on equipment which employed a different head configuration than will now be used, because it is possible that the original recording will not be completely erased.

Step 3: At the tape transport, select the tape speed. Place the REEL toggle switches in the positions appropriate to the size of the reel hubs being used.

Step 4: On the electronic assembly for the channel(s) which will record, place the RECORD SELECTOR switch in the READY position (the READY indicator will illuminate). If certain channels are not to record, leave the RECORD SELECTOR on the corresponding electronic assemblies in the SAFE position.

Step 5: Place the OUTPUT SELECTOR switches, on the electronics assemblies for the channels which will record, in the INPUT position. Use a rehearsal run, or test signal, and adjust the RECORD LEVEL control so that the indicator on the vu meter swings to 0 on most program

peaks (maximum peaks can result in a swing to +2 or +3 on the vu meter).

Step 6: When the recording run is to start, press the PLAY pushbutton to start tape in motion, then press the RECORD pushbutton. All channels which were in the ready condition will be placed in the record mode (the RECORD indicator on the corresponding electronic assemblies will illuminate).

#### **NOTE**

In monitoring the record run, it is possible to compare the input signal with the signal actually being recorded and reproduced from the tape. This is accomplished by moving the OUTPUT SELECTOR switch(es) back and forth between the INPUT and REPRO position.

Step 7: At the completion of the record run, press the STOP pushbutton to stop tape motion and remove the equipment from the record mode.

### 3.3.2 Using Sel-Sync

Sel-Sync capability is provided as an integral part of this equipment. The Sel-Sync feature allows a certain channel (or channels) to be initially recorded, then another channel (or channels) to be subsequently recorded in perfect synchronization with the first.

Step 1: Make the first recording run, on the selected channel(s), exactly as described in paragraph 3.3.1.

Step 2: Rewind and cue the tape to the beginning of the recording made in Step 1.

Step 3: On the electronic assemblies corresponding to the channel(s) which recorded the first run, turn the RECORD SELECTOR switch(es) to the SEL-SYNC position.

Step 4: Select the channel(s) which will record the second run, by placing the RECORD SELECTOR switch(es) on the corresponding electronic assemblies in the READY position. Place the OUTPUT SELECTOR switch(es) on those electronic assemblies in the INPUT position, and adjust the record level.

Step 5: Place the OUTPUT SELECTOR switch on the channels operating in Sel-Sync in the REPRO position. Furnish a headset monitor to the performer, and place the equipment in the

record mode. The performer will hear the first recording, and can sing or play in perfect synchronization.

**Step 6:** When the second recording run is completed, press the STOP pushbutton to stop tape motion and remove the equipment from the record mode.

**Step 7:** If three (or more) recording runs are to be made, continue the described procedure. Before starting each run, be sure that the RECORD SELECTOR switches for all previously recorded channels are turned from the READY position. (If the performer desires to monitor every previously recorded channel, place all RECORD SELECTOR switches in the SEL-SYNC position. If he desires to monitor only selected channels, place the switches for those channels in the SEL-SYNC position, the rest in the SAFE position.

### 3.4 REPRODUCING

**Step 1:** Apply power to the equipment. On record/reproduce assemblies place all RECORD SELECTOR switches in the SAFE position.

**Step 2:** Thread the recorded tape on the transport. Close the head gate when threading is completed. Note that on two channel equipment which employs both the normal two track head and a 1/4 track head, the switching knob on the head assembly is pushed down to select the two track head, or pulled up to select the 1/4 track head.

**Step 3:** Select the tape speed which corresponds to the speed at which the tape was recorded. Place the REEL toggle switches for each turntable in the positions applicable to the size of the reel hubs being used.

**Step 4:** Place the OUTPUT SELECTOR switch in the REPRO position on record/reproduce electronics. (There will be no output if this switch is not so positioned.)

**Step 5:** Press the PLAY pushbutton. Tape will start in motion in the reproduce mode. Adjust the REPRODUCE LEVEL control, if necessary. (The screwdriver-operated level control on reproduce-only modules is behind the front cover on the tray).

**Step 6:** To stop tape motion, press the STOP pushbutton. If the tape is allowed to run completely off the supply reel, operation will automatically stop.

### 3.5 USING FAST-WINDING MODES

Tape can be shuttled quickly from one reel to the other by using the fast-winding modes, which are controlled by pressing the REWIND and FAST FWD pushbuttons. When tape is being cued or edited, these pushbuttons can be pressed alternately, with no need for stopping tape motion. When the desired portion of the tape is reached, stop tape motion by pressing the STOP pushbutton. If the tape is allowed to run completely off either reel, operation will automatically stop.

Either fast-winding mode can be entered from the other, and also from the stop or play modes. Fast-winding is locked out whenever the equipment is in the record mode, or in the play/edit mode (in play/edit the takeup tension arm will normally not be holding the safety switch closed, thus fast-winding is locked out).

To enter any but the other fast-winding mode when the equipment is operating in fast forward or rewind, it is necessary to press the STOP pushbutton, wait until tape motion stops, then select the desired mode.



Always allow fast-winding tape motion to stop completely before pressing the play pushbutton. If this precaution is not observed, tape will probably be broken or stretched.

An automatic tape lifting mechanism, which removes the tape from contact with the heads, is actuated in either fast-winding mode. If monitoring is required, press and hold the EDIT pushbutton after the fast-winding mode is started. This defeats the tape lifter action. (Manual override of the tape lifter action can be exercised by opening the head gate and pushing the head lifter post back.)

### 3.6 USING EDIT MODES

There are three edit modes available -- the stop/edit, play/edit, and fast-winding edit-- on the tape transport.

The stop/edit mode can be initiated, when power is applied and the tape is at a standstill, by pressing the EDIT pushbutton (if tape is not threaded, the takeup tension arm must be moved so that

it does not contact the safety switch). This reduces the braking force acting on each turntable, and the reels can be easily rotated by hand. The stop/edit function will facilitate operating procedures such as manual cueing and threading of the tape. To remove the equipment from the stop/edit mode, press the STOP pushbutton.

The play/edit mode can be initiated at any time that the equipment is operating in the reproduce mode, by pressing the EDIT pushbutton. Tape will continue in motion, with the speed controlled by the capstan, and monitoring is possible. The takeup turntable will not rotate, and the tape will spill off the right side of the transport. The mode is provided primarily to allow unwanted

lengths of tape to be cut from the reel. Note that if the tape leader is to be discarded it is not necessary to anchor it to the takeup reel hub. Thread the tape in the normal path past the capstan and idler, manually move the takeup tension arm from its rest position, press the PLAY pushbutton and the EDIT pushbutton (the takeup tension arm can then be released).

Fast-winding/edit is entered by pushing the EDIT pushbutton when the equipment is operating in either fast forward or rewind. This defeats the tape lifter mechanism and monitoring is possible. This mode would be used primarily for quickly reaching an approximate point on the tape (rough cueing).

