

## Section 2

**INSTALLATION**

## 2.1 UNPACKING

2.1.1 General

Examine equipment for any sign of damage and check the packing list to determine that all items have been received. Immediately report any damage or shortage to the Ampex distributor and the transportation company.

## NOTE

Plug-in electronic modules, and associated equalizer circuits, are shipped mounted behind a cover on the front panel of the electronic assemblies. The power supply-and-bias oscillator board is mounted in the power supply box in back of the tape transport.

Remove all materials (adhesive tape, rubber bands, etc.) used to secure tape-handling and other moving components during shipment.

2.1.2 Console-Mounted Equipment

Equipment ordered with the console is shipped mounted in the console with interconnections completed. The console is shipped lying on its back, with the tape transport rotated 90° to the horizontal position. Open the shipping container completely. Assure that the casters are fully inserted (to avoid bending their shafts when the recorder is tilted upright). Place a board in position to block the casters, then grasp the console vertical-support channels, between the electronic housing and the tape transport.

port, and tilt the console up and forward until it rests on the four casters. Manually stabilize the transport, then loosen the knurled knob on the left inner side of the console base, and rotate the transport to the horizontal position. Retighten the knob to secure the transport in position.

### 2.1.3 Unmounted and Portable Equipment

Equipment which is unmounted, or is mounted in portable cases, is shipped packaged separately. Use special care in unpacking unmounted equipment to prevent damage, especially to critical components, such as the capstan, head assembly and takeup tension arm.

## 2.2 MOUNTING UNITS (See Figure 2-1)

Equipment ordered with the console, or with portable cases, is mounted in position at the factory. Unmounted equipment can be mounted in a standard 19-inch rack, or in a custom cabinet. Mounting dimensions are given in Fig. 2-1. Insure that adequate ventilation space is provided between units.

## 2.3 CONSOLE FRONT PANEL REMOVAL (See Figure 2-2)

The console has a front panel (extending down and around the bottom of the control panel) which must be removed to perform some installation procedures. The panel has a duct portion around the drive motor fan. To remove the panel, release the two captive thumbscrews at the far corners (under the transport). Press up on the angled portion of the panel, to remove the cover lip from the transport frame slot. Move the panel clear of the transport frame, then lower it until the duct clears the fan.

To replace the panel, position the duct around the drive motor fan, insert the panel lip in the transport slot, press the lip firmly into position, then engage and tighten the two captive thumbscrews.

## 2.4 INTERCONNECTING UNITS (See Figure 2-3 and 2-4)

Equipment in a console is interconnected at the factory, however always insure that cable connectors are firmly seated and cables are undamaged. Portable equipment connections must

be made each time the recorder is set up in the field. Always route power and control cables as far as possible from the input-output cables and the head cables to avoid electrical interference.

Open the rear covers for access, and then make the following connections:

a. The power-and-control cable(s) from any tape transport POWER TO ELECTRONICS receptacle J701 through J704 to record/reproduce unit receptacle J11 (the four transport receptacles are connected in parallel, so any one may be used). On reproduce/modules, mate the power cable (captive) to any transport J701 through J704 receptacle.

b. Head cables (captive) to the corresponding receptacles (record, erase, reproduce) on electronic units. On multi-channel equipment, the head cables are marked with the track number, with the outermost track designated as track 1. Head cables for reproduce units have a three-pin connector; record head cables, a two-pin connector; and erase, a one-pin connector.

## 2.5 CONNECTING SIGNAL LINES (See Figure 2-4)

### 2.5.1 Connectors

The signal connectors, on the rear panel of the electronic units, are standard XL receptacles. Mate the supplied connectors with them.

### 2.5.2 Signal Input Connections

Connect two-conductor shielded cables to the line input, by wiring the signal leads to pin 3 and pin 2 (ground), and the shield to pin 1. With this connection, 1) the supplied dummy plug provides an unbalanced-line input, 2) either of the accessory plug-in transformers provides a balanced-line input, and 3) the accessory microphone preamplifier provides a microphone input. These units are connected at the input accessory receptacle on the back panel on the electronic units.

Connect single-conductor shielded lines with the conductor at pin 3 and the shield at pin 2 (applicable only to unbalanced-line inputs),

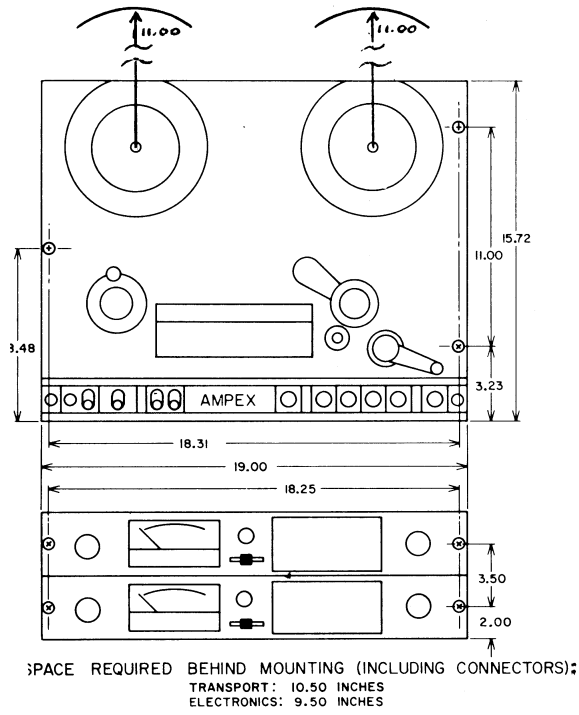


Fig. 2-1. Mounting Dimensions

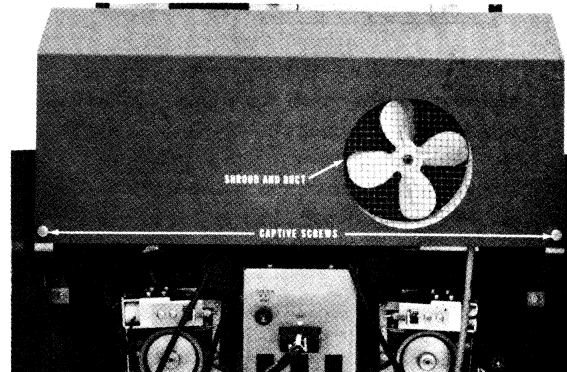


Fig. 2-2. Front Panel Mounting Details

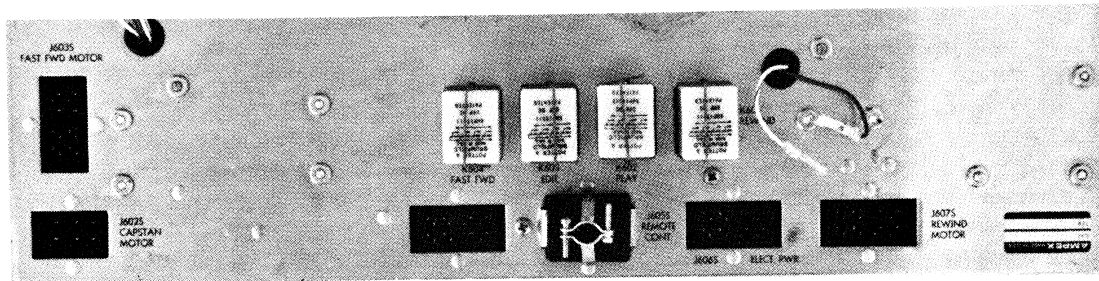


Fig. 2-3. Tape Transport Connector Panel

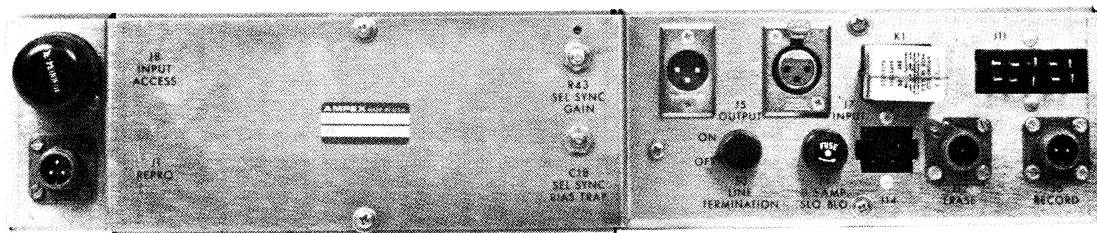


Fig. 2-4. Record/Reproduce Unit (Rear)

and insert the dummy plug in the INPUT ACCESS receptacle.

### 2.5.3 Signal Output Connections

An unbalanced-line output, requires a two-conductor shielded cable, with the signal leads wired to pin 3 and pin 2 (ground), the shield wired to pin 1, and a jumper from pin 1 to pin 2. A balanced-line output requires the same connections with the jumper omitted. For a single-conductor shielded cable (unbalanced line only) wire the conductor to pin 3, the shield to pin 2, and the jumper to pins 1 and 2.

The two-position LINE TERMINATION switch (see Figure 2-4), is usually at OFF, except during test or adjustment procedures. However, if the equipment is to be used to drive a high-impedance load (2,000 ohms or more), the switch must be in the ON position.

### 2.5.4 Restrapping Output (See Figure 6-28)

Record/reproduce units are delivered with the output strapped to provide a +8 dBm operating-level output into a 600-ohm line. If a +4 dBm operating-level output is required, the circuit can easily be restrapped as follows:

**Step 1:** Remove the top cover from electronic unit.

**Step 2:** On the right panel, terminal strip TB3 (toward the back of the assembly) has a jumper wire between terminals 2 and 3. Disconnect the jumper end from terminal 3, and reconnect it to terminal 1.

**Step 3:** If the operating level output is affected, recalibrate the record, reproduce, and bias levels according to paragraph 4C.3.7.

#### NOTE

The AG-445 reproducer has no optional strapping. The output is adjusted to the desired level by means of the LEVEL control.

## 2.6 CONNECTING POWER

Connect the power cable from AC POWER receptacle J601S, on the tape transport control box, to the power source.

## 2.7 INSTALLING ACCESSORIES OR DUMMY PLUGS (See Figure 2-4)

### 2.7.1 Input Transformer or Microphone Preamplifier

The equipment is shipped with a dummy plug (Catalog No. 4030034-30) in the INPUT ACCESS receptacle on the back panel of each record/reproduce unit. This plug provides correct input for an unbalanced line with input impedance 100,000 ohms. For a balanced-line input, remove the dummy plug and insert the bridging input transformer in the accessory socket; input impedance with the transformer is 20,000 ohms. For a balanced-line input with the matching input transformer (Catalog No. 4580200-02), gain is approximately 14 dB and input impedance is 600 ohms.

To record from a microphone, the optional microphone preamplifier (Catalog No. 4010066) must be installed in the accessory socket.

### 2.7.2 Remote Control Unit

Except for the edit function, all modes can be controlled from a remote location by the optional Ampex remote control unit (Catalog No. 4010080). This unit is plugged into REMOTE CONTROL receptacle J605S on the tape transport control box.

The remote control can disconnect the automatic tape-lifting mechanism, so that cueing can be quickly accomplished in the fast-winding modes.

If remote control is not used, the dummy plug (provided with the equipment) must be inserted in J605S or the recorder will not operate.

### 2.7.3 Console Rear Covers (See Table 1-1)

Rear covers for console-mounted equipment consist of a cover for the console base and

individual covers for each electronic assembly. The optional rear covers are secured to the console back uprights by captive spring-loaded thumbscrews, which mate with threaded holes in the uprights.

#### 2.7.4 Scrape-Flutter Idler

The optional second scrape-flutter idler (Catalog No. 4010069) is mounted between head positions 2 and 3. The optional idler is larger in diameter than the one normally supplied, so the idlers are not interchangeable. Install the optional idler per paragraph 4A.3.

### 2.8 CHECKING CABLES AND COMPONENTS

Check and secure the following connections, components, and plug-in assemblies that could vibrate loose during shipment:

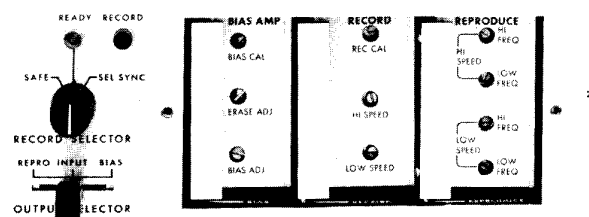
- a. Captive cable from takeup motor to receptacle J603S on the tape transport control box.
- b. Captive cable from rewind motor to receptacle J607S on the tape transport control box.
- c. Captive cable from capstan drive motor to J602S on the tape transport control box.
- d. Captive cable from electronic power supply box on the tape transport to J606S on the tape transport control box.
- e. The record/reproduce unit plug-in printed circuit boards. Especially check that the bias amplifier board, the record board, and the reproduce board are firmly in position.
- f. Reproduce modules (mounted in tray behind a solid-front cover secured by captive thumbscrews). Especially check printed-circuit board in each module.
- g. Equalizer circuit boards at the forward end of the record and reproduce modules (see Figure 2-5).
- h. Fuses: two on the tape transport control box, one on the tape transport power supply box, and one on the rear panel of each record/reproduce unit or reproduce module; also check that fuses are intact.

i. Plug-in relays, four on the tape transport control box, and one on each record/reproduce unit back panel.

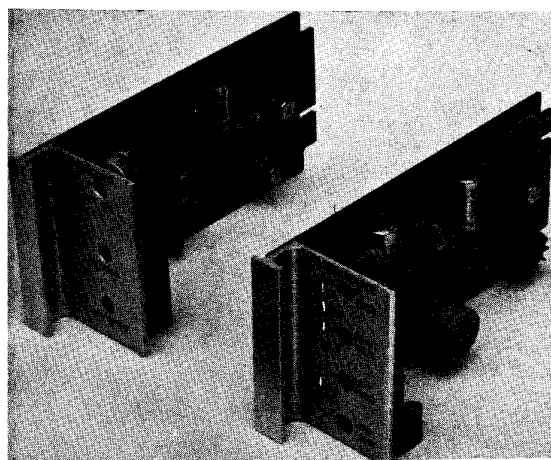
j. Circuit board for power supply and-bias oscillator (power supply only, on the AG-445 reproducer) in the power supply box on the back of the tape transport.

### 2.9 INITIAL LUBRICATION

Before operating the equipment, lubricate the drive motor according to paragraph 4B.3.2.



In Place



Removed

Fig. 2-5. Record and Reproduce Modules

INSTALLATION INSTRUCTIONS  
FOR  
REEL IDLER FLYWHEEL

SECTION 2 ADDENDUM

1.0 INTRODUCTION

The flywheel has been removed to prevent possible damage to bearings in shipment.

2.0 TOOLS

1. A 3/32 inch Allen wrench (with handle and long shaft).
2. Feeler gauge.

3.0 INSTALLATION PROCEDURE

1. If console unit, refer to Section 2, Page 2-2, Para. 2.3 (Console Front Panel Removal).
2. Proceed as follows:
  - a. Remove grommet from shaft of idler pulley.
  - b. Rotate pulley until pulley shaft flat is toward the outer edge of the rewind motor.
  - c. Hold flywheel to the shaft (setscrew side in).
  - d. Align setscrew to the flat and place flywheel on shaft. (End play must be 0.003-0.005 inch to avoid damaging the ball bearings.)
  - e. Check the end play by firmly holding the pulley down in the housing and checking with a feeler gauge between the pulley and the housing (at the side opposite the arm).
  - f. To this measurement add 0.004 inch and select feeler gauge leaves equal to the total.
  - g. Insert the gauge between the pulley and the housing, at the side opposite the idler arm.
  - h. Hold the pulley firmly down on the gauge and push the flywheel so that it firmly contacts the bottom of the housing.
  - i. Tighten the flywheel setscrew and remove the feeler gauge.

- 4.0 If console unit, refer back to Section 2, Page 2-2, Para. 2.3 to replace the front panel.

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**AMPEX**