

INSTALLATION

NOTE

Before operating the equipment read this SECTION AND SECTION 3, OPERATION.

GENERAL

The 354 Series equipment is shipped mounted in consoles or portable cases after a thorough inspection and performance check at the factory. In the event that the equipment is requested disassembled, for customer rack mounting, all assembly hardware is provided.

INTERCONNECTING

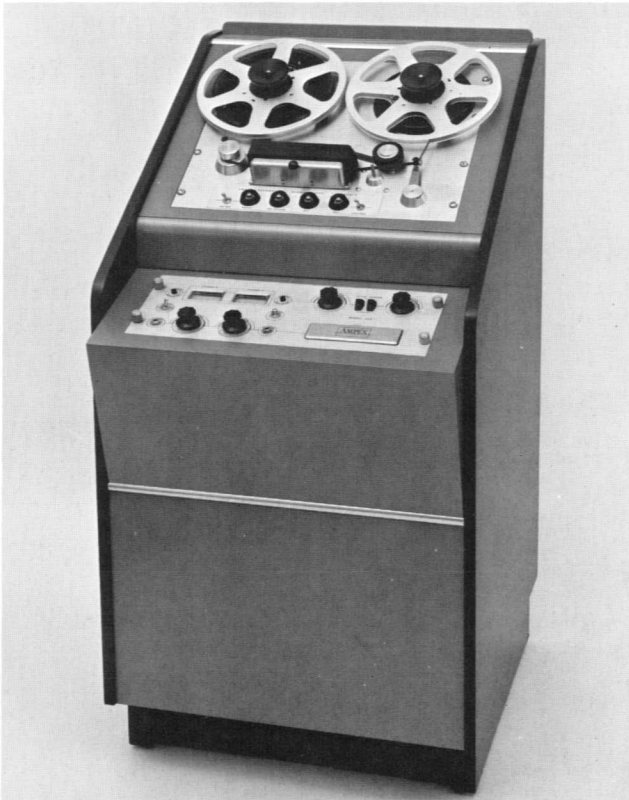
See the appropriate interconnecting diagrams at the back of this section.

MOUNTING

Console Models

To assemble the console model proceed as follows:

- Step 1:* Install the tape transport in the cabinet frame, securing the 8 oval-head screws and finishing washers.
- Step 2:* Place the two springs in the holes for the electronic assembly cabinet frame.
- Step 3:* Attach the two rails to the electronic assembly using the number 8 screws.
- Step 4:* Slide the cabinet back panel up and out to allow connecting of the a-c power cable and plug the input cable and the output cable into their receptacles on the back of the electronic



Series 354 Recorder/Reproducer— $\frac{3}{4}$ View

assembly.

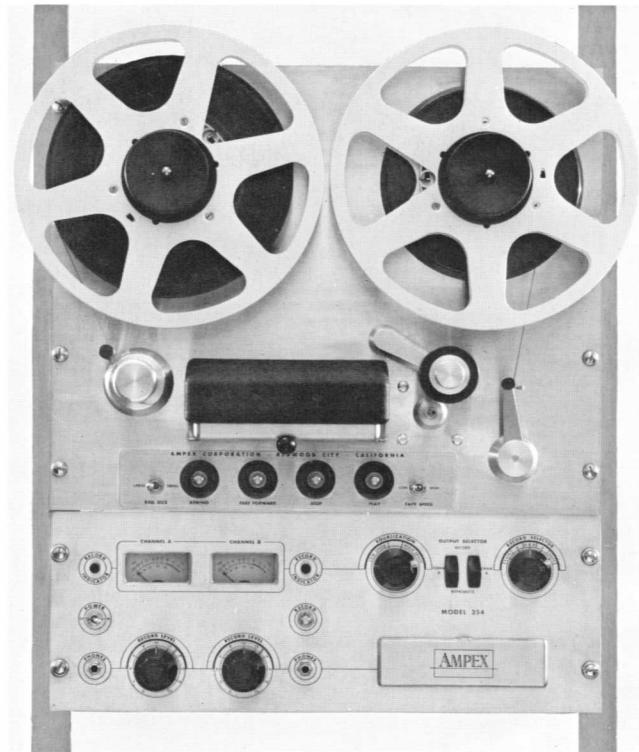
- Step 5: Install the electronic assembly, tightening the four knurled nuts to fasten it to the frame.
- Step 6: Connect the captive head cables at their locations on the electronic assembly.
- Step 7: Connect the captive CABLE TO ELECTRONICS to the electronic assembly.
- Step 8: Replace the back panel, making certain that all cables run freely through the semi-circular cut-outs at the bottom of the sliding panel.

Two Case Portable Models

The two case portable models are shipped in a ready to operate condition, except for the connection of interconnecting cables. Convenient rubber feet are located at both ends of each case, and metal rests are provided on the

backs of each case. To set up the equipment follow these steps:

- Step 1: Arrange the cases so that the mechanical assembly case is to the right of the electronic assembly case.
- Step 2: Unlatch and remove the top cover and the side access door on the mechanical assembly case.
- Step 3: Unlatch and remove the front and rear covers on the electronic assembly case.
- Step 4: Uncoil the interconnecting cables from behind the cable access door on the tape transport case and plug them into mating receptacles at the rear of the electronic assembly.
- Step 5: Connect the a-c power, and the input and output to the rear of the electronic assembly.



Rack Layout (Model 354)

Rack Mounted Models

Mount these versions of the equipment on a standard 19-inch relay rack with the mechanical assembly above the main electronic panel.

POWER CONNECTION

Connect the power cable from the a-c POWER input connector, J20, on the electronic assembly to a convenient 117 volt a-c power source.

OUTPUT

A mating connector for LINE OUTPUT is supplied. The user must fabricate his own cables, using the connectors supplied with the recorder.

Studio Line

Plus 4 v-u, 600 ohm line output, balanced or unbalanced, is available across terminals 2 and 3 of the line output connectors J3 and J4. Pin 1 is the chassis ground. Connector J3 is the output connector for channel A, while connector J4 is the output connector for channel B.

If unbalanced output is desired, wire the mating connector so that the pin 2 side of the line is tied to ground.

High Impedance Amplifier Input

Wire the mating connector so that pin 3 of the line output connector, J3 or J4, is connected to the high side of the amplifier input. Strap pins 1 and 2 of the mating connector for connection to the ground side of the amplifier input.

INPUT

During this discussion refer to the foldout illustration — Schematic Diagram-Electronic Assemblies at the back of SECTION 7.

Microphone Input

Any low impedance microphone having a nominal impedance between 30 and 250 ohms can be plugged directly into the equipment.

Wire the mating connector so that the microphone is connected to pins 2 and 3 of the line connector, J1 (channel A) or J2 (channel B). The cable shield must be connected to pin 1 and the plug-in microphone preamplifier must be inserted into the transformer socket.

High impedance microphones are not recommended for use in this equipment because, in general, the quality is not satisfactory for professional work.

Bridging a Balanced Studio Line

Connect a balanced line to pins 2 and 3 of the input connector, J1 or J2. Pin 1 is ground. The plug-in line input transformer must be inserted into the transformer socket. Rms input levels of zero to plus five dbm can be accommodated. The load placed on the line is approximately 20K ohms.

Bridging an Unbalanced Source

Connect an unbalanced line, radio tuner, etc., to pins 1 and 3 of the input connector. Pin 1 is the ground side. The shorting bar must be inserted between pins 3 and 8 of the transformer socket. This connection provides a 100K ohm bridging input. An rms program voltage of one volt is adequate.

PHONES

High impedance head phones must be used. To monitor the incoming line or reproduce output, plug the high impedance phones into phone jack J17 (channel A) or J18 (channel B) on the amplifier face panel. To preserve low frequency response, feed into an input impedance of 50K ohms or higher. To reserve high frequency response the cable should have not over 500 pf of capacitance.

REMOTE CONTROL

Operation of the tape transport mechanism can be remotely controlled by a Remote Control Unit. The catalog No. 5763-02 unit is supplied in a plastic case, completely wired and ready to plug into the remote control connector, J502S, on the tape transport circuits assembly.

The catalog No. 5763-03 unit is mounted on a flat plate for installation in studio consoles, and is not wired. To install, wire as shown in the figure (Schematic Diagram, Remote Control Unit) located in SECTION 5, and plug into J502S.

NOTE

Whenever the remote control unit is not connected, the dummy plug P502P, supplied with the equipment, must be plugged into J502S.

60 CYCLE AMPLIFIER

The Ampex Model 375 Precision 60 Cycle Amplifier can be plugged directly into the equipment at J503S. No other connections are necessary. The Model 375 is used where power sources are erratic and there is need for a precision 60 cycle time base for driving the capstan.

CAUTION

If this unit is used with the Recorder/Reproducer, the control circuit fuse F402 must be increased to 5 amperes.

NOTE

Do not remove the dummy plug P503P unless the 60 cycles amplifier is connected.

OVERALL PERFORMANCE CHECK

(Read SECTION 3, OPERATION before making these checks.)

Make the following equipment performance checks at the time of installation and when necessary thereafter:

REPRODUCE (Playback) LEVEL
REPRODUCE (Playback) RESPONSE
REPRODUCE (Playback) NOISE
MEASUREMENT
RECORD CALIBRATION
FREQUENCY RESPONSE
RECORD NOISE MEASUREMENT

NOTE

It should be noted that this machine has been adjusted at the factory to produce frequency response within specifications when recording on an average tape. In the last few years the high frequency output from tape has improved tremendously. In order to keep pace with these improvements, in the summer of 1959 Ampex selected a new "average" tape to adjust bias and record equalization.

Complete instructions for making the above checks are given in SECTION 7 ALIGNMENT AND PERFORMANCE CHECKS.

DISTORTION

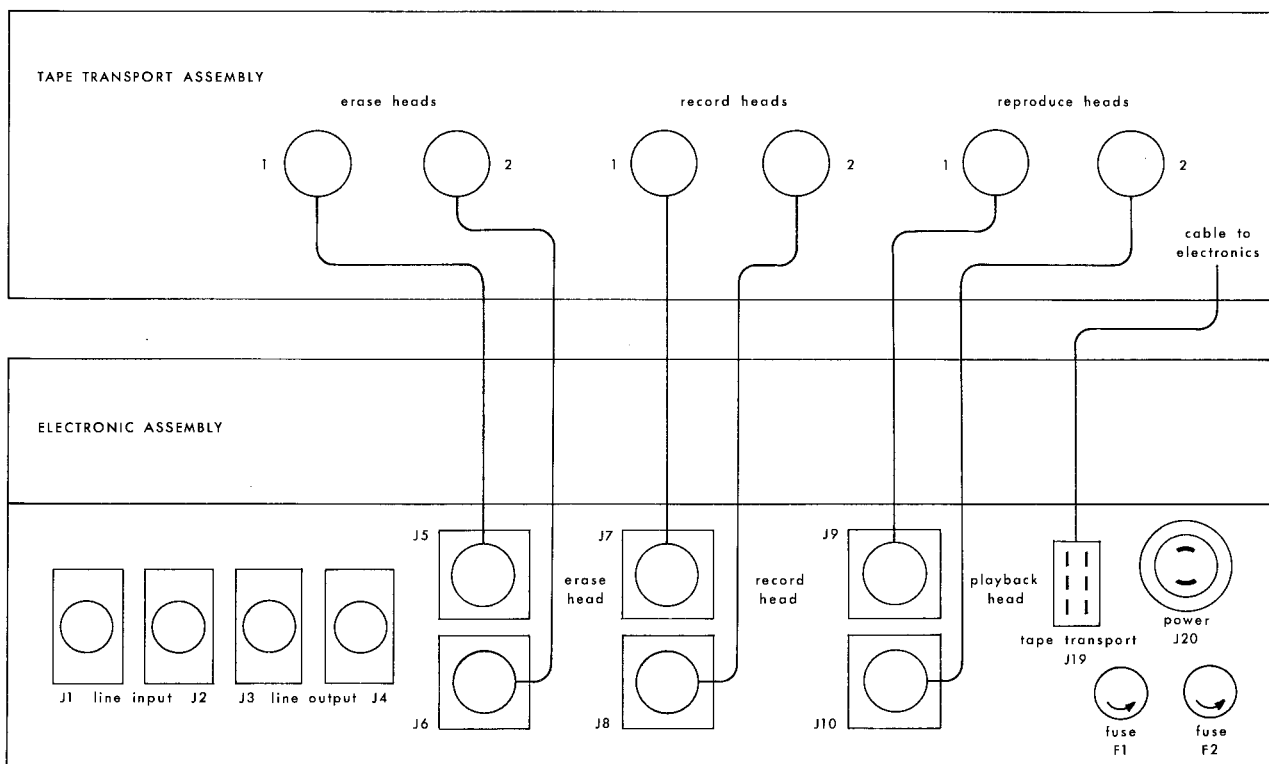
Overall distortion can be measured by connecting any standard distortion measurement apparatus across the output. The readings from a wave analyzer or selective frequency distortion meter will be more accurate than those from a null type instrument at lower distortion levels. Distortion readings are somewhat dependent on tape. A reading of 1% is normal at operating level while a reading of 3% is normal at 6 db above operating level. Second harmonic distortion is negligible; measured distortion is predominately third order.

FLUTTER AND WOW

Flutter and wow are produced by periodic irregularities in tape speed and appear as cyclic frequency deviations in recording or reproduction. They can be measured by means of any standard flutter bridge. Variations in amplitude as indicated on level measurements do not constitute flutter and are entirely due to tape coating variations. Readings will be near or below .15% rms at 15 inch, .2% rms at 7½ inch, and .25% rms at 3¾ inch speed. The Ampex Professional Products Division primary standard of measurements is based on the use of a flutter meter calibrated to indicate the deviation from mean carrier frequency of any rate between .5 and 300 cps expressed in percent rms. Flutter and wow checks should be made at the peak record level or higher.

INTERCONNECTING

<i>Cable</i>	<i>Catalog Number</i>	<i>Qty.</i>	<i>From Receptacle</i>	<i>Chassis</i>	<i>To Receptacle</i>	<i>Chassis</i>
A-c	2413-00	(1)	J20 POWER	Electronic Assembly	A-c Source	
Power Inter-connecting		(1)	J19 TAPE TRANSPORT	Electronic Assembly	CABLE TO ELECTRONICS	Captive at Tape Transport
Reproduce Head (Ch. A)		(1)	J9 PLAYBACK HEAD	Electronic Assembly		Captive at Tape Transport
Reproduce Head (Ch. B)		(1)	J10 PLAYBACK HEAD	Electronic Assembly		Captive at Tape Transport
Record Head (Ch. A)		(1)	J7 RECORD HEAD	Electronic Assembly		Captive at Tape Transport
Record Head (Ch. B)		(1)	J8 RECORD HEAD	Electronic Assembly		Captive at Tape Transport
Erase Head (Ch. A)		(1)	J5 ERASE HEAD	Electronic Assembly		Captive at Tape Transport
Erase Head (Ch. B)		(1)	J6 ERASE HEAD	Electronic Assembly		Captive at Tape Transport



Interconnecting