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INSTRUCTION MANUAL

FOR

Model 280 Series Recorders/Reproducers and Model 275 Series Reproducers



SCULLY RECORDING INSTRUMENTS CO.

DIVISION OF DICTAPHONE CORP.

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TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	GENERAL INFORMATION	1-1
1.1	Description	1-1
1.2	Technical Summary	1-2
2	INSTALLATION	2-1
2.1	Unpacking	2-1
2.2	Mounting	2-1
2.3	Cable Interconnection	2-2
2.4	Power Connection	2-3
2.5	Output	2-3
2.6	Inputs	2-3
2.7	Remote	2-3
2.8	Phones	2-3
2.9	Line Termination	2-3
2.10	Performance Checks	2-3
3	OPERATING INSTRUCTIONS	3-1
3.1	General	3-1
3.2	Controls and Indicators	3-1
3.3	Operating Procedure	3-3
4	TAPE TRANSPORT	4-1
4.1	Description	4-1
4.2	Operation	4-2
4.3	Head Assembly	4-6
4.4	Maintenance	4-6
4.5	Adjustments	4-7
5	ELECTRONICS ASSEMBLY	5-1
5.1	Description	5-1
5.2	Alignment and Performance Checks	5-4
6A	MODEL 280 WITH MOTION SENSING	6A-1
6A1.1	Description	6A-1
6A2.7	Remote Control	6A-1
6A3.3	Operating Procedure	6A-1
6A4.1	Tape Transport Description	6A-2
6A4.2	Operation	6A-4
6B	MODEL 280/SP-14	6B-1
6B1.1	Description	6B-1
6B3.2	Controls and Indicators	6B-1
6B3.3	Operating Procedure	6B-1
6B4.	Tape Transport	6B-2
6C	MODEL 275 SERIES REPRODUCER	6C-1
6C1.1	Description	6C-1
6C1.2	Technical Summary	6C-1
6C2.3	Cable Interconnection	6C-1
6C2.6	Inputs	6C-2

(Continued)

FRONT MATTER

TABLE OF CONTENTS (Cont)

<u>Section</u>		<u>Page</u>
6C3.	Operating Instructions	6C-2
6C4.	Tape Transport	6C-2
6C5.1	Electronics Assembly	6C-3
6C5.2	Playback Preamplifier	6C-3
6C5.3	Power Amplifier	6C-3
7	MASTER PARTS LISTS	7-1
8	REFERENCE DRAWINGS	8-1
9	WARRANTY AND SUPPLEMENTARY DATA	A-1

LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1-1	Models 280-2 and 280-4 Console Tape Recorders.	1-1
2-1	Deck Layout	2-1
2-2	Interconnecting Diagram	2-2
2-3	Rear of Amplifiers.	2-4
3-1	Tape Transport Control Panel.	3-1
3-2	Electronics Assembly Front Panel	3-2
3-3	Tape Threading Path.	3-3
4-1	Disc Brake Outline.	4-1
4-2	Model 280 AC Circuits - Simplified	4-3
4-3	Model 280 DC Circuits - Simplified	4-4
4-4	Rear of Tape Transport	4-8
4-5	Automatic Tape Lifter, Schematic Diagram.	4-10
5-1	Model 280 System Block Diagram	5-2
5-2	Connections in Multi-Channel Machines with Sync Feature.	5-5
5-3	Model 280 Electronics Test Setup	5-7
5-4	Multifilter, Schematic Diagram	5-7
6A-1	Photograph of Motion-Sensing Transport	6A-1
6A-2	Tape Threading Path (Model 280 with Motion Sensing)	6A-1
6A-3	Model 280 with Motion Sensing, AC Circuits - Simplified	6A-2
6A-4	Motion Sensing Adjustment.	6A-5
6A-5	Model 280 with Motion Sensing, DC Circuits - Simplified	6A-8

FRONT MATTER

LIST OF ILLUSTRATIONS (Cont)

<u>Figure</u>		<u>Page</u>
6B-1	Model 280/SP-14 DC Control Circuits - Simplified.	6B-3
6B-2	Model 280/SP-14 Tension Control Circuit - Simplified.	6B-4
6C-1	Interconnecting Cabling, Model 275	6C-2
6C-2	Electronics Assembly Panel, Model 275	6C-3
8-1	Side View of Tape Transport	8-3/8-4
8-2	Magnetic Head Assembly, Exploded View	8-5/8-6
8-3	Tape Break Arm Assembly	8-7/8-8
8-4	Automatic Front Shield Assembly	8-9/8-10
8-5	Automatic Tape Lifter Assembly	8-11/8-12
8-6	DC Power Supply, Schematic Diagram	8-13/8-14
8-7	Model 280 and Early Model 280/SP-14, Power and Control Circuits, Schematic Diagram	8-15/8-16
8-8	Model 280 with Motion Sensing, Power and Control Circuits, Schematic Diagram	8-17/8-18
8-9	Model 280/SP-14, Power and Control Circuits, Schematic Diagram	8-19/8-20
8-10	Model 280/SP-14 with Motion Sensing, Power and Control Circuits, Schematic Diagram	8-21/8-22
8-11	Model 275 Reproducer, Power and Control Circuits, Schematic Diagram.	8-23/8-24
8-12	Electronics Schematic Diagram, All Versions of Model 280 (Sheet 1 of 2 Sheets)	8-25
8-12	Electronics Schematic Diagram, All Versions of Model 280 (Sheet 2 of 2 Sheets)	8-26
8-13	Electronics Circuit Cards, All Models 280, Parts Location Diagram	8-26
8-14	Model 275 Electronics Schematic Diagram	8-27
8-15	Model 275 Electronics Circuit Cards, Parts Location Diagrams.	8-28
8-16	Interconnecting Cable Schematic, All Models 280	8-29/8-30
8-17	Model 275, Interconnecting Cable Schematic	8-31/8-32
8-18	DeLuxe Remote Control Unit, Cat. No. 504210100-01, Schematic Diagram (for Motion Sensing Models 280 and 280/SP-14)	8-33/8-34

SECTION 1

GENERAL INFORMATION

1.1. DESCRIPTION

The Scully 280 Series Recorder/Reproducer is a professional magnetic tape recorder of the highest quality, designed primarily for use in recording studios, broadcast stations and other applications requiring exacting performance specifications. (See figure 1-1.)

The complete unit consists of a tape transport mechanism and amplifier assembly. The equipment may be mounted in a standard 19-inch equipment rack and is also supplied in a console or in a portable carrying case.

The head configurations available include monophonic full or half-track and two-track stereo for quarter-inch tape width. The 280 is also available for half-inch tape widths in two, three and four-channel configurations. Tape speeds available are 3 3/4 - 7 1/2 ips, 7 1/2 - 15 ips. Tape speeds of 15 - 30 ips can be supplied on special order.

The electronics assembly of the 280 is mounted on a 3 1/2 x 19 panel, and the system is fully transistorized. CCIR equalization may be obtained when ordering.

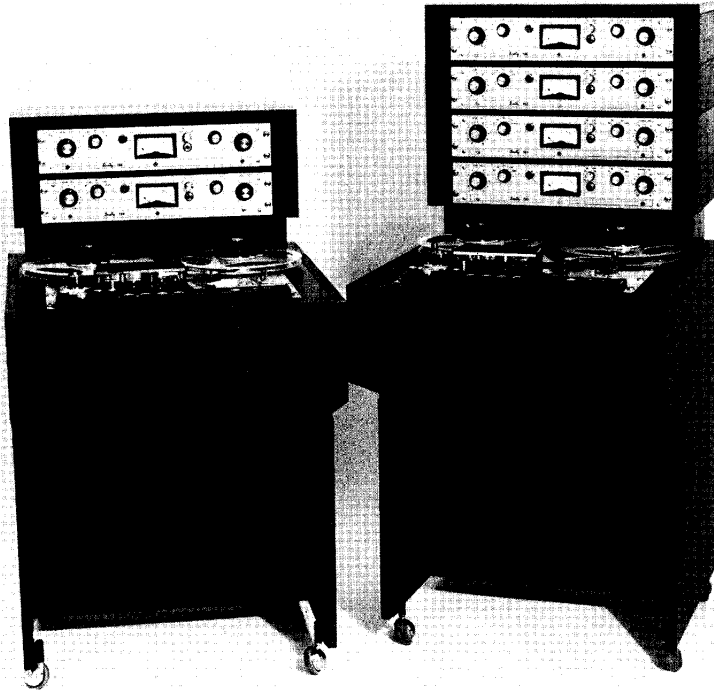


Figure 1-1. Models 280-2 and 280-4 Console Tape Recorders

GENERAL INFORMATION

1.2. TECHNICAL SUMMARY

TAPE SPEEDS: 3 3/4 - 7 1/2 ips, 7 1/2 - 15 ips;
other speeds on special request.

MULTI-CHANNEL CONFIGURATIONS: 1/4
inch, 1 or 2 channels; 1/2 inch, 3 or 4
channels; other tape widths and chan-
nels on special request.

FREQUENCY RESPONSE: ±2db 35 Hz to 18 KHz
15 ips, ±2 db 50 Hz to 15 KHz at 7 1/2
ips, ±2 db 50 Hz to 7.5 KHz at 3 3/4 ips.

SIGNAL TO NOISE RATIO: Peak record to noise
(30 Hz to 15 KHz band) using 3M type 201
tape or equivalent.

	Weighted	Unwtd.
7 1/2 and 15 ips full track .	70 db	65 db
Stereo or half track	65 db	60 db

FLUTTER AND WOW

15 ips: 0.08% RMS or better
7 1/2 ips: 0.1% RMS or better
3 3/4 ips: 0.2% RMS or better
All components between 0.5 and 250
Hz included.

STARTING TIME: Tape reaches full play speed
in 0.1 second.

STOPPING TIME: Tape moves less than 1 1/2"
after depressing stop (15 ips).

TIMING ACCURACY: 99.9%

REWIND TIME: Approximately 75 seconds for
2400 foot NAB reel.

REEL SIZES: Up to 11-1/8"; 14" on special order.

TAPE TRANSPORT CONTROLS: Power on and
off, record, individual reel size
switches, rewind, fast forward, stop,
start, speed change switch, edit.

AMPLIFIER CONTROLS

Visible Controls: Record level, func-
tion switch, monitoring and meter switch, play-
back level, load termination switch.

Maintenance Controls: (located under
dress strip): Noise balance, playback equaliza-
tion, record equalization low speed, record
equalization high speed, linearity test push but-
ton, linearity control, record-calibrate, refer-
ence set, bias adjust, bias calibrate, bias tuning.

PLAYBACK AMPLIFIER DISTORTION: Less
than 0.5% total harmonic distortion at
+18 dbm.

EQUALIZATION: Follows NAB curves. Capstan
speed switch selects appropriate equal-
ization. CCIR equalization available on
special order.

ERASE FREQUENCY: 60 KHz

BIAS FREQUENCY: 180 KHz

OUTPUTS: +4 or +8 dbm from 600-ohm bal-
anced line.

INPUTS: Bridging (600-ohm balanced or un-
balanced line) microphone, low impe-
dance (150-250 ohms).

INPUT IMPEDANCE: 10K ohms.

REMOTE CONTROLS: Record, rewind, fast
forward, stop, play.

POWER REQUIREMENT: 117 volts ac, 50/60
cycles, 275 watts.

SECTION 2
INSTALLATION

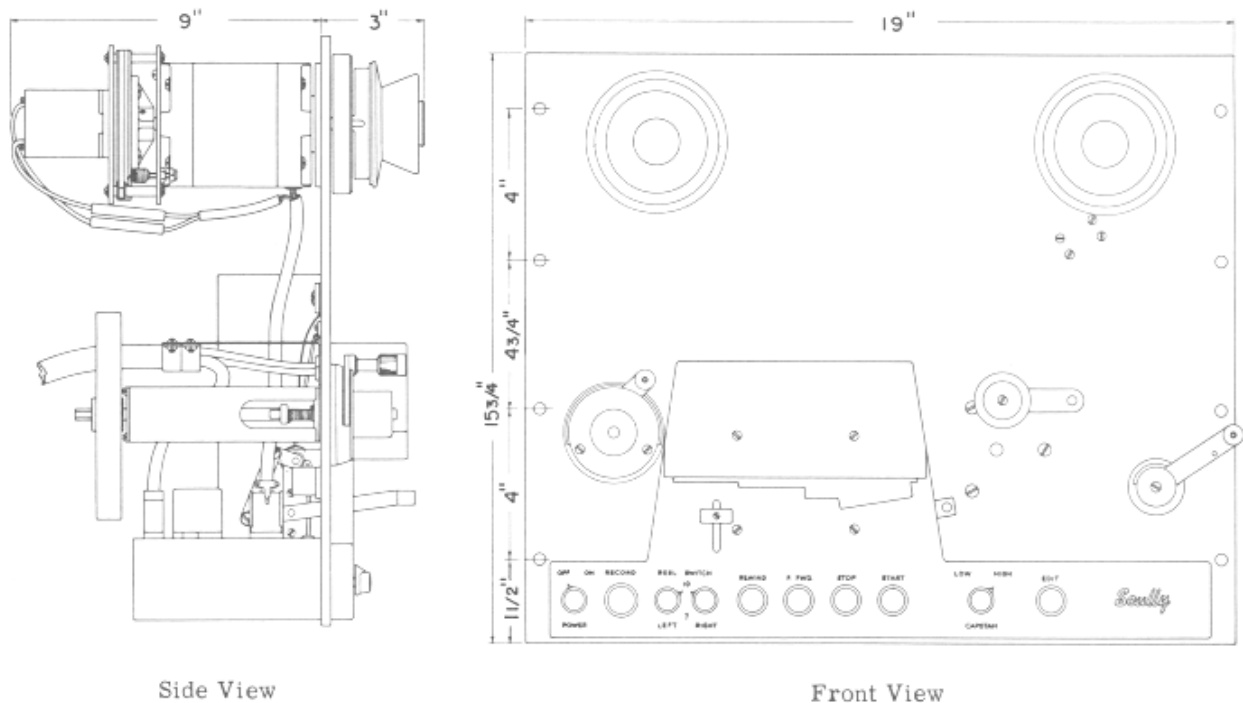


Figure 2-1. Deck Layout

2.1. UNPACKING

The tape transport and amplifier are regularly shipped in two cartons. The two flywheels, power cord (plug in), EIA centers (Scully, if ordered), mounting hardware, Allen wrenches, and alignment tool are located in a hardware bag, which will be found in the carton containing the transport mechanism. An instruction manual is also contained in the shipping carton.

2.2. MOUNTING

The 280 is designed to fit in a standard 19-inch equipment rack, cabinet or console. The space requirement is 15-3/4" for the tape transport and 3-1/2" for the amplifier, each unit extending 9" behind the panel. The recommended rack placement is for the amplifier to be mounted directly below the tape transport, or within the limit of the four-foot connecting cables.

2.2.1. Rack Mounting

a. Lift the transport mechanism out of the carton using the two shipping straps looped around it for this purpose. Remove straps.

b. Mount the transport in the equipment rack, using the panel mounting hardware supplied. Tighten securely.

c. Remove flywheels from hardware bag and mount on the respective capstan motor and stabilizer shafts. In some cases the flywheels are specifically marked for capstan or stabilizer mounting. Flywheels which carry no markings are interchangeable and may be mounted on either shaft.

d. Remove amplifier(s) from carton and mount in rack below the tape transport, using the mounting hardware supplied. In multi-channel units, mount channel 1 amplifier on top. Then mount remaining amplifiers below in numerical order. Amplifier channel markings may be found on the rear of each amplifier.

2.2.2. Mounting Consoles

a. Console cabinets are shipped in three containers — the console cabinet, the tape transport and the amplifier(s). Set the large carton on the floor, with the arrow pointing up. Open the large carton by slitting the tape, opening the flaps and removing the console cabinet. Set the cabinet upright on the floor. Remove riser from lower front of cabinet. Position electronics cabinet above riser and secure with bolts supplied.

b. Remove the tape transport mechanism from the carton, using the two shipping straps looped around it for this purpose. Remove straps and mount transport into the cut-out on the top surface. Tighten mounting screws.

c. Mount amplifiers in the space provided on the console. For multi-channel units, mount channel 4 at bottom and follow with remaining units above it in numerical order.

d. Remove flywheels from hardware bag

and mount on the respective capstan motor and stabilizer shafts. In some cases the flywheels are specifically marked for capstan or stabilizer mounting. Flywheels which carry no markings are interchangeable and may be mounted on either shaft.

2.2.3. Carrying Case

Carrying case models are furnished in two cartons. One carton contains the tape transport, completely mounted except for the flywheels. The second carton contains the amplifier(s) mounted in carrying case.

2.3. CABLE INTERCONNECTION
(See figure 8-16.)

In mono units the interconnecting cable consists of the amplifier power section and the magnetic head section. In the two-channel equipment, the cable consists of the requisite power

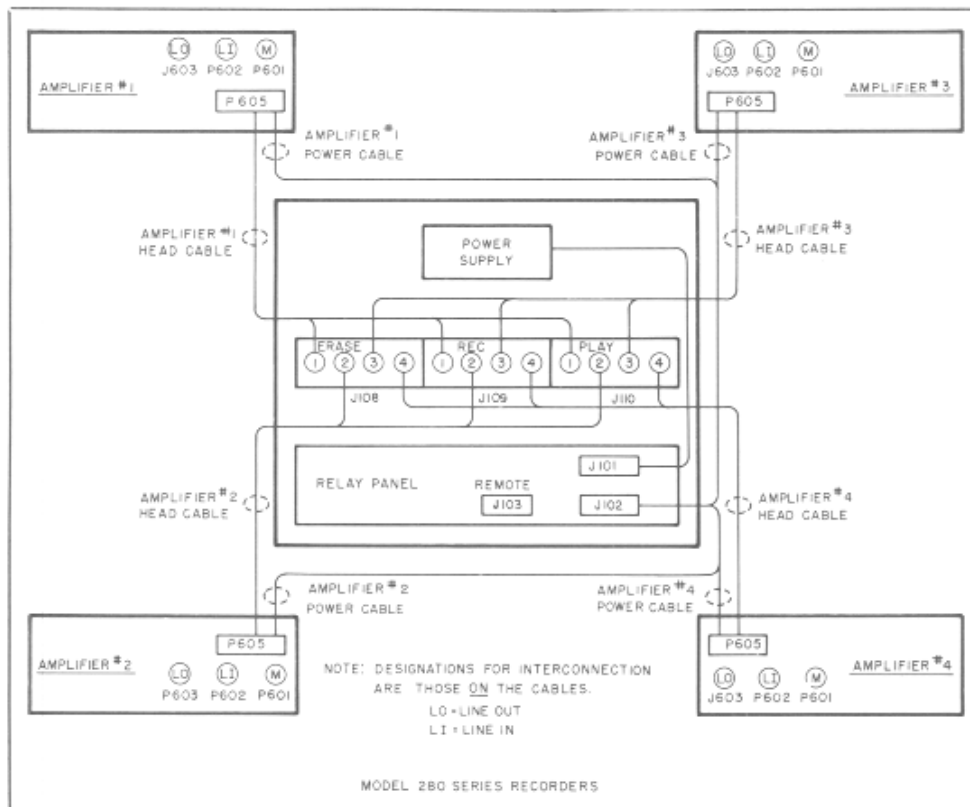


Figure 2-2. Interconnecting Diagram

and head sections. Before assembling the units, consult the interconnecting diagram (fig. 2-3) for the proper installation of cables.

Connect the small plug P102 to the relay panel under the tape transport and the large 32-pin connector P605 to the back of the amplifier. In multi-channel units the 32-pin connectors are marked channel 1, 2, etc. to mate with their respective amplifiers, which are similarly identified.

2.4. POWER CONNECTION

For normal operation, connect the power cable from the AC power input connector on the transport mounted supply to a 115-120 volt AC, 60-cycle power outlet to assure proper equipment grounding.

2.5. OUTPUT (See figure 2-3.)

A female type XLR connector is supplied. This connector is plugged into the Output Receptacle J603, normally +4dbm into a 600-ohm load. However, provision has been made for output level metering of -8 dbm.

2.6. INPUTS (See figure 2-3.)

2.6.1. Line

A three-pin male XLR connector for the line input is required. It mates with "Line" Receptacle J602 in the rear of the amplifier assembly. This balanced bridging line input has a nominal impedance of 10,000 ohms and is suitable for bridging 600 ohm lines with nominal levels from -10 dbm to +10 dbm.

2.6.2. Microphone

A similar three-pin male XLR connector for the microphone input J601 on the rear of the amplifier assembly is also required. Any low-impedance microphone from 150 to 250 ohms can be accommodated with nominal levels up to -30 dbm. The use of high-impedance microphones is not recommended.

2.7. REMOTE

The Scully 280 Remote Control Unit, Catalog 502210100 can be supplied to provide remote

operation in the Play, Rewind, Fast Forward, Stop and Record modes. The Record function operates after manual pre-selection of the line or mic mode on the amplifier panel. When the remote control unit is not being used, the dummy plug P103 must be plugged into the remote control receptacle J103 on the tape transport control panel.

2.8. PHONES

A phone jack for high impedance headphones is provided on the front of the amplifier panel. The phones may be used to monitor the playback or reproduce output as well as the record amplifier inputs from the line or microphone input.

2.9. LINE TERMINATION

The Line Termination switch on the electronics panel above the phone jack provides a 600-ohm termination on the line output when the switch is in the ON position. The unit is unterminated in the OFF position.

2.10. PERFORMANCE CHECKS

After installation, a series of performance checks should be made. Before proceeding with these, turn the amplifier mode selector switch to the DE-MAG position and de-magnetize the heads! No checks should be made without first doing this.

The instructions for the performance checks listed below will be found in the Performance Checks and Alignment portion of the Electronic Section (Section V).

1. De-magnetization of heads
2. Playback level
3. Playback alignment and frequency response
4. Record alignment and calibration
5. Overall record frequency response
6. Record noise balance
7. Erase adjustment
8. Linearity adjustment
9. Flutter and wow measurement

INSTALLATION

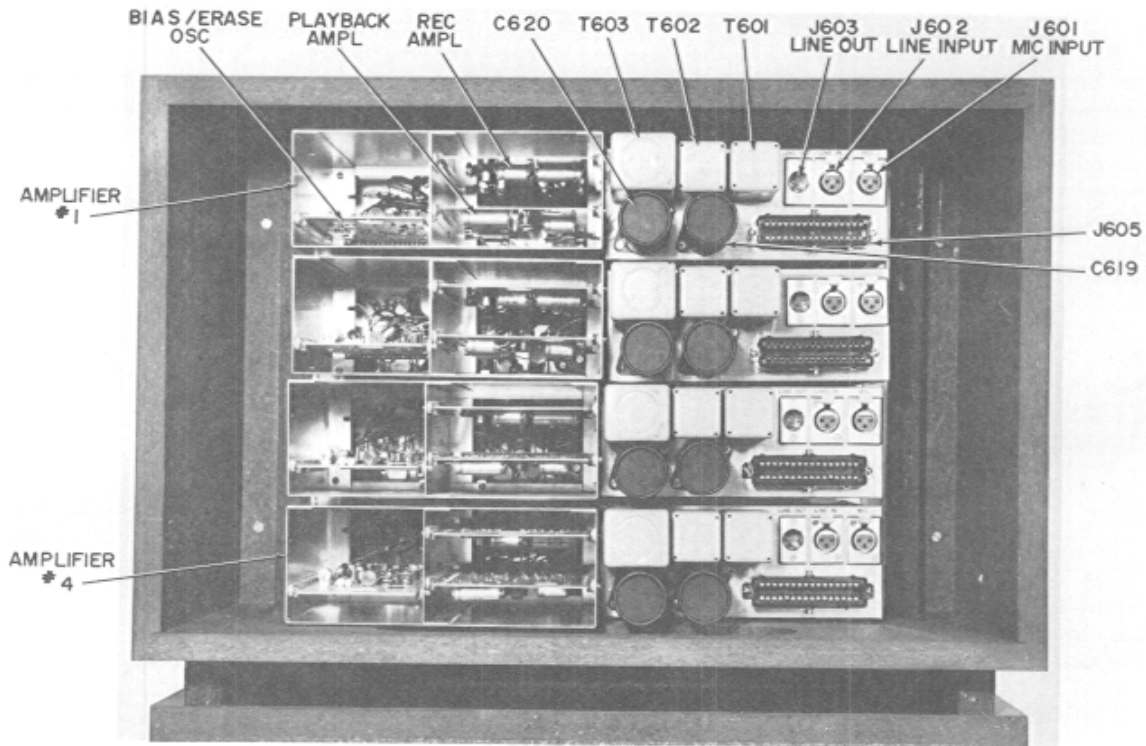


Figure 2-3. Rear of Amplifiers