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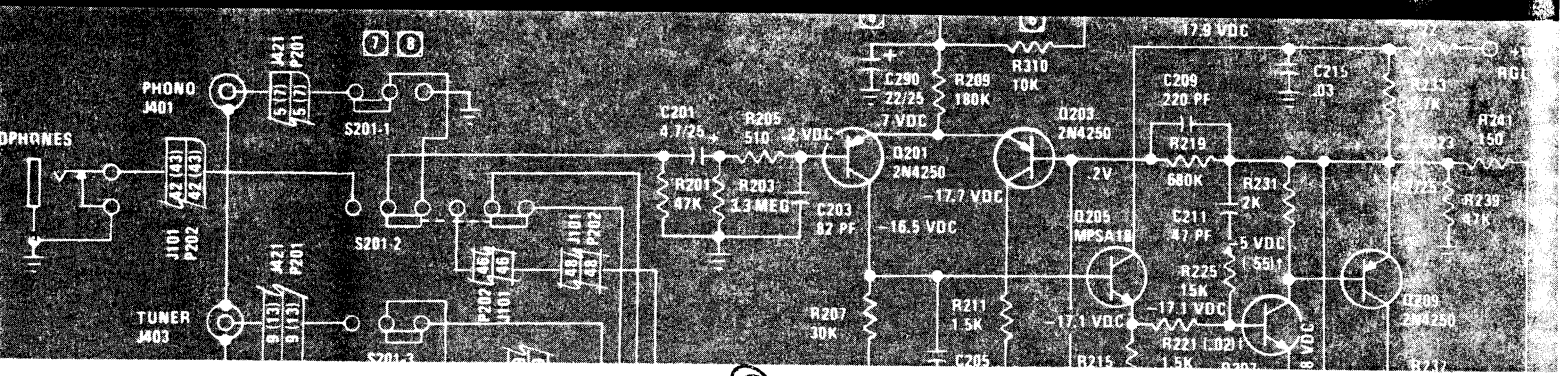
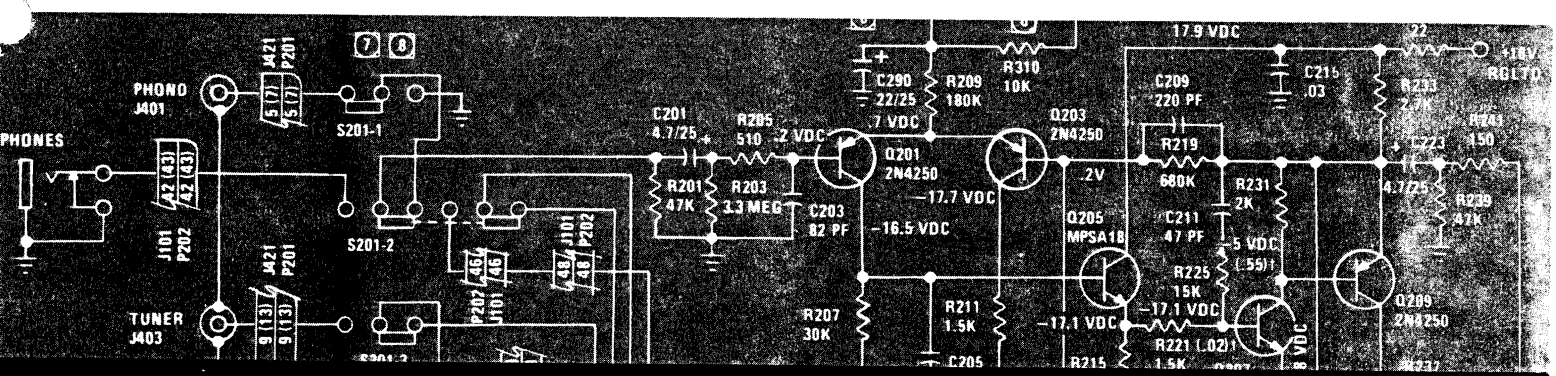
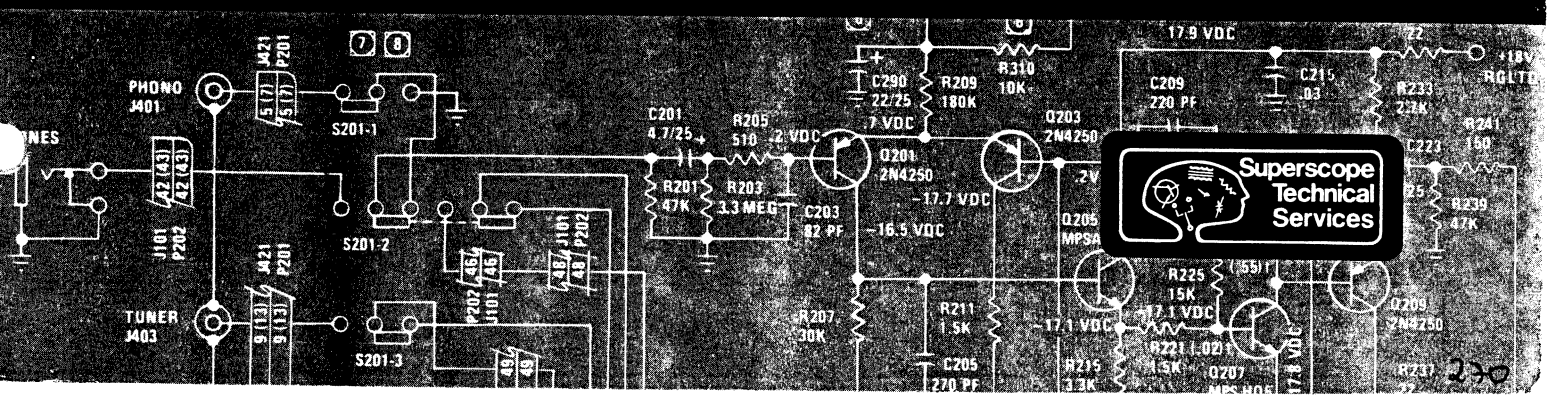


SERVICE MANUAL

MODEL 3800



Stereo Control Console



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MODEL 3800

SERVICE MANUAL

MARANTZ CO., INC. 20525 NORDHOFF STREET, CHATSWORTH, CALIFORNIA 91311
A WHOLLY OWNED SUBSIDIARY OF SUPERSCOPE INC., CHATSWORTH, CALIFORNIA 91311

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Section 1
GENERAL INFORMATION AND OPERATING PRINCIPLES

1. INTRODUCTION

This manual was prepared for service technicians in factory-authorized warranty repair stations and other equally-qualified and equipped service centers. The service information contained herein is applicable to the Model 3800 Stereo Control Console, a stereo preamplifier manufactured by the Marantz Company, Inc., a subsidiary of Superscope Incorporated, Chatsworth, California 91311.

2. GENERAL

Section 1 describes physically and functionally the Model 3800 Stereo Control Console, a professional, state-of-the-art stereo preamplifier with the Dolby noise reduction (NR) circuit. Use, application, performance and design features are also described. Mechanical parts are high-quality, selections for reliability and economy. Electronic components in the Model 3800 circuits are precision devices selected for their long operating life. The Model 3800 is thereby assured of providing continuous high-quality performance.

System, functional, and detail descriptions include the major mechanical functions and control electronics. Specifications and capabilities are both technical and performance related.

3. DESCRIPTION AND OPERATION

This section is included to assist the service technician in understanding the operation of the Model 3800. The technical data describe the basic system functions and circuit theory of operation.

A. FUNCTIONAL DESCRIPTION

Figure 1-1 is a Functional Block Diagram of the Model 3800 left audio channel, showing the principal circuit elements and signal flow paths. Additional functional and detailed reference support data are illustrated on Figures 1-2 through 1-4: Wiring, and Dolby NR Circuit Signal Processing Diagrams, respectively.

B. OPERATING PRECAUTIONS

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS INSTRUMENT TO RAIN OR MOISTURE.

CAUTION: ENSURE THAT THE TOTAL POWER OUTPUT CONNECTED TO THE SPEAKER SWITCHING INPUTS DOES NOT EXCEED 250 WATTS RMS PER CHANNEL, CONTINUOUS POWER.

CAUTION: DO NOT EXCEED THE MAXIMUM TOTAL POWER RATINGS OF THE AC OUTLETS. THE POWER SWITCH AND OTHER CIRCUITRY IN THE MODEL 3800 MAY BE DAMAGED IF SUBJECTED TO EXCESSIVE CURRENT.

CAUTION: TURN VOLUME CONTROL CCW TO MINIMUM BEFORE SWITCHING SPEAKER UNITS TO PREVENT POSSIBLE DAMAGE TO YOUR LOUDSPEAKERS.

C. SYSTEM OPERATION

High- and low-level inputs (program sources) are selected by the Program Selector Pushswitches and applied in accordance with signal level. When low-level sources are selected (PHONO or MIC), the Program Selector Pushswitch applies the input signal to the Phono/Mic Amplifier circuit and selects the proper equalization, RIAA or Mic. The output of the Phono/Mic Amplifier is then returned to the Program Selector Pushswitches where it is handled as another high-level input.

High-level input signals TUNER, AUX, TAPE 1, TAPE 2 or the output of the Phono/Mic Amplifier are applied to the Dolby encoder/decoder

through the buffer amplifier circuit, TAPE REC-EQ and DOLBY Switches. The input level to the encoder/decoder is regulated by the RECORD LEVEL Controls. The output of the encoder/decoder is applied to the TAPE OUTPUT and DUBBING OUT Jacks. With the DOLBY Switch set to OFF, the encoder/decoder is bypassed and the high-level input signals are applied directly to the TAPE OUTPUT and DUBBING OUT Jacks. The encoder/decoder functions as a flat amplifier, an encoder, or a decoder depending on the position of the DOLBY Switch (Figures 1-1 and 3-9).

The high-level input signals are concurrently applied to the SCOPE OUTPUT Jacks and to the Dolby decoder, through the TAPE MONITOR Switch and PLAY CAL Controls. The decoder functions as a flat amplifier, or a decoder, depending on the position of the DOLBY Switch, the TAPE MONITOR Switch, and the TAPE COPY Switches (Figure 1-1). The output signal of the decoder is monitored by the Dolby Level VU Meter and applied to the MODE Switch.

The MODE Switch determines the manner in which the left- and right-channel signals of the program source are applied in the Model 3800: LEFT channel only, RIGHT channel only, two-channel STEREO, STEREO REVERSE, or L + R (left and right channels combined). The signal selected by the MODE Switch is then applied to the BALANCE Control. The BALANCE Control adjusts the relative signal level of the left and right channels by attenuating the level of one channel while maintaining the level of the other. From the BALANCE Control, the signal is applied to the VOLUME Control, which varies the level of the output signal available at the PREAMPLIFIER OUTPUT Jacks.

The signal is also applied to the Loudness Contour Circuit which, when activated, boosts low and high frequencies at low listening levels so that all frequencies appear to have equal loudness. The Loudness Contour Circuit adjusts the frequency response of the Model 3800 to compare with the Fletcher-Munson loudness curves (Section 2). The signal from the VOLUME Control is then applied to the input of the Times-Ten (X10) Amplifier Circuit.

The X10 Amplifier increases the signal level to that required to drive power amplifiers. The output of the X10 Amplifier is applied to an Active Filter Network comprised of three filter circuits (30Hz, 5KHz and 9KHz) and a Filter Amplifier. The Active Filter Network sharply reduces low- and/or high-frequency noise that may originate at the program source. The output of the Filter Amplifier is then applied to the Tone Control/Turnover Network (BASS, MID and TREBLE Tone Controls), the 250Hz and the 4KHz TURNOVER circuitry, and a Tone Amplifier stage (through the TAPE REC-EQ Switch). The output of the Filter Amplifier after TAPE REC-EQ is also applied to the TONE DEFEAT Switch.

The Tone Control/Turnover Network performs a dual function: the tone control portion of the network boosts or attenuates low, middle and high frequencies; the turnover portion of the network, when activated, decreases the point at which low frequencies are affected by the BASS Control (250Hz) and increases the point at which high frequencies are affected by the TREBLE Control (4KHz). The TONE DEFEAT Switch selects either the flat output of the Filter Amplifier (bypassing the tone controls) or the tone-control-altered output of the Tone Amplifier. From the TONE DEFEAT Switch, the signal is applied to the Time Delay Relay.

The circuit associated with the Time Delay Relay holds the relay contacts open for approximately five seconds after power is applied to the Model 3800. After the power supply circuits have stabilized, the relay contacts close. Audible "pops" that may arise from power supply transients are thereby eliminated.

From the relay contacts the signal is applied to the PREAMPLIFIER OUTPUT Jacks and connected to drive an external power amplifier. The power amplifier outputs are connected to the SPEAKER SWITCHING INPUTS Terminals and the signal is applied to the stereo PHONES

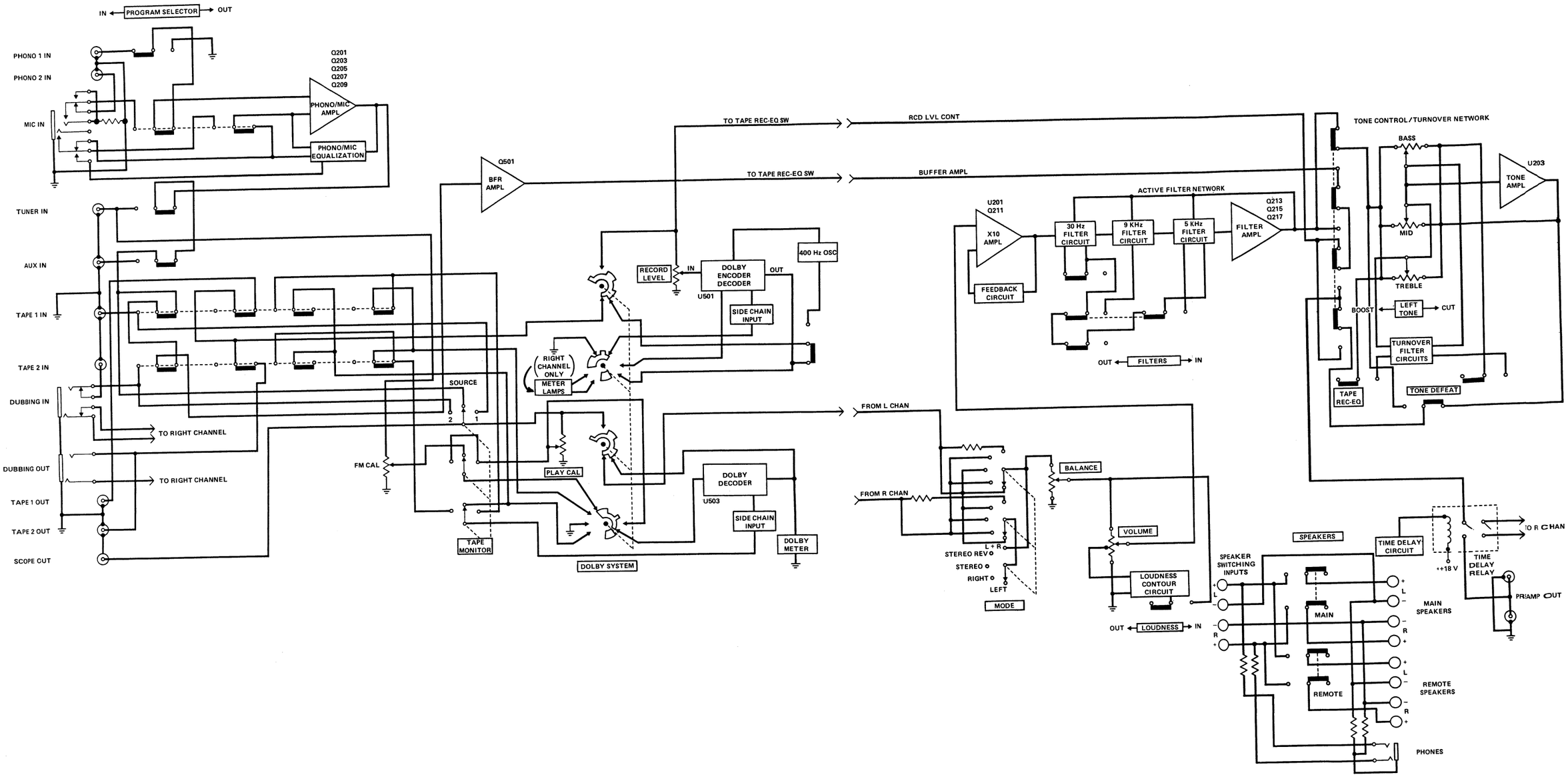
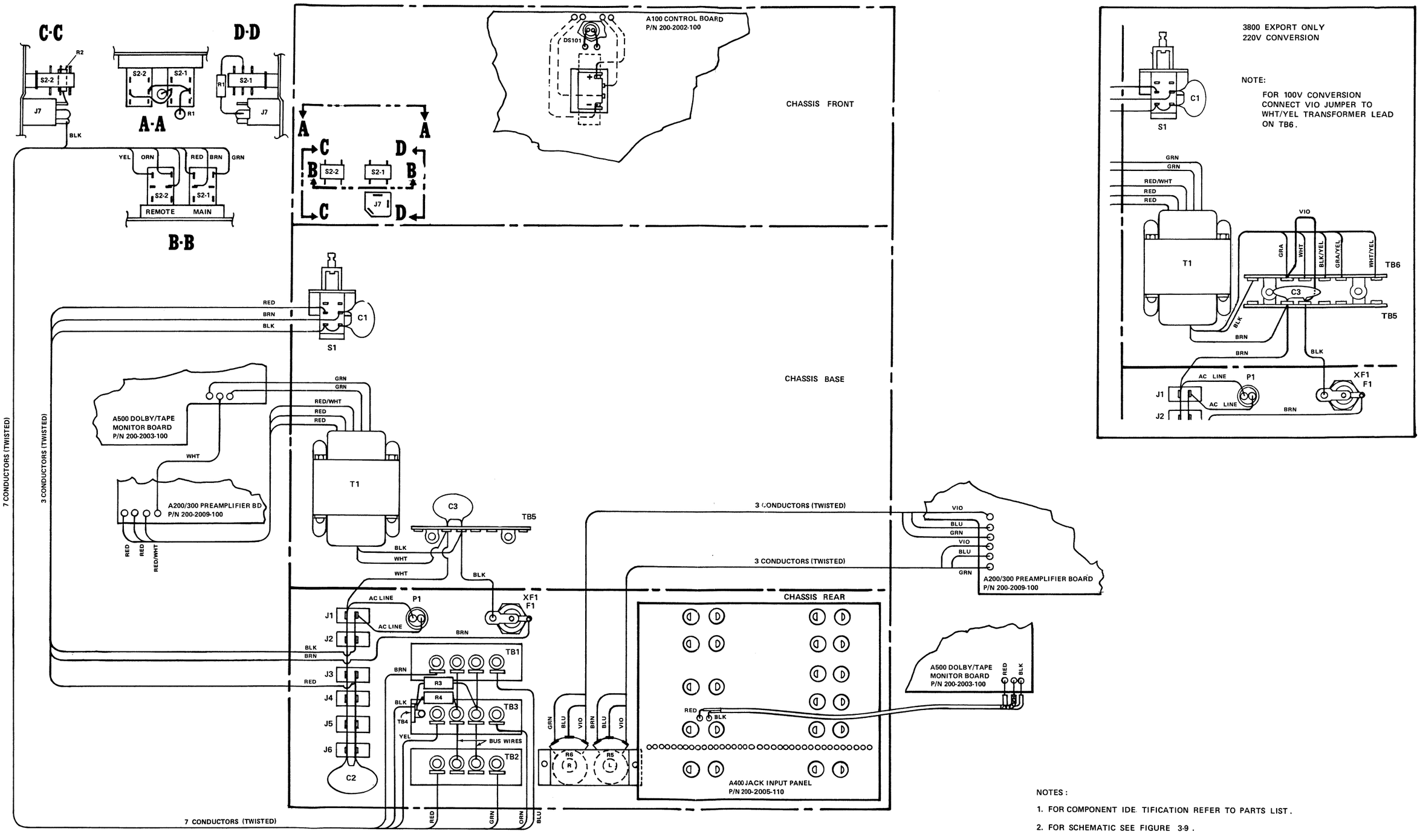


Figure 1-1 Functional Block Diagram



NOTES:

1. FOR COMPONENT IDE. TIFICATION REFER TO PARTS LIST.
2. FOR SCHEMATIC SEE FIGURE 3-9.

Figure 1-2 Wiring Diagram

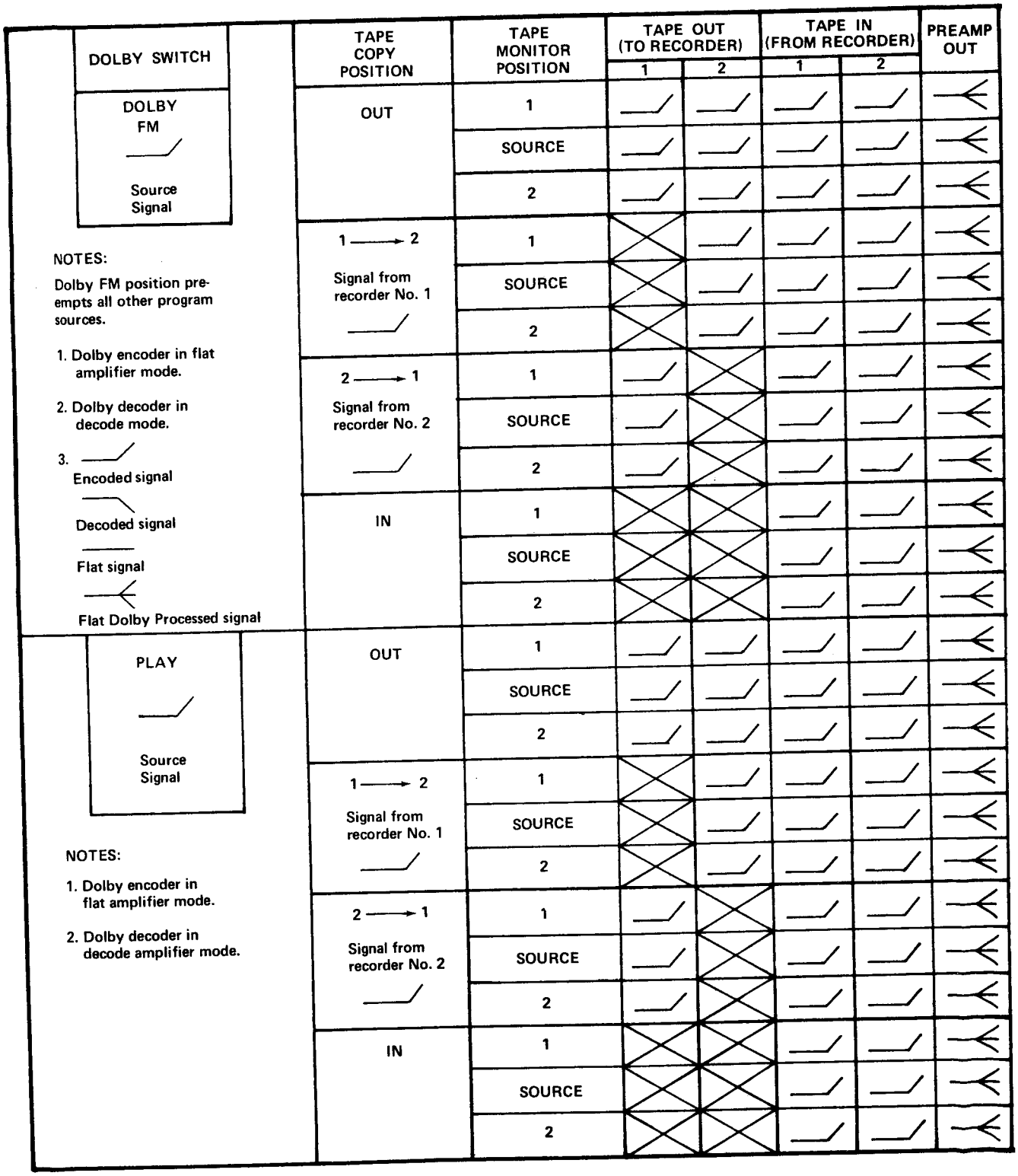


Figure 1-3 Dolby NR Circuit Signal Processing Diagram

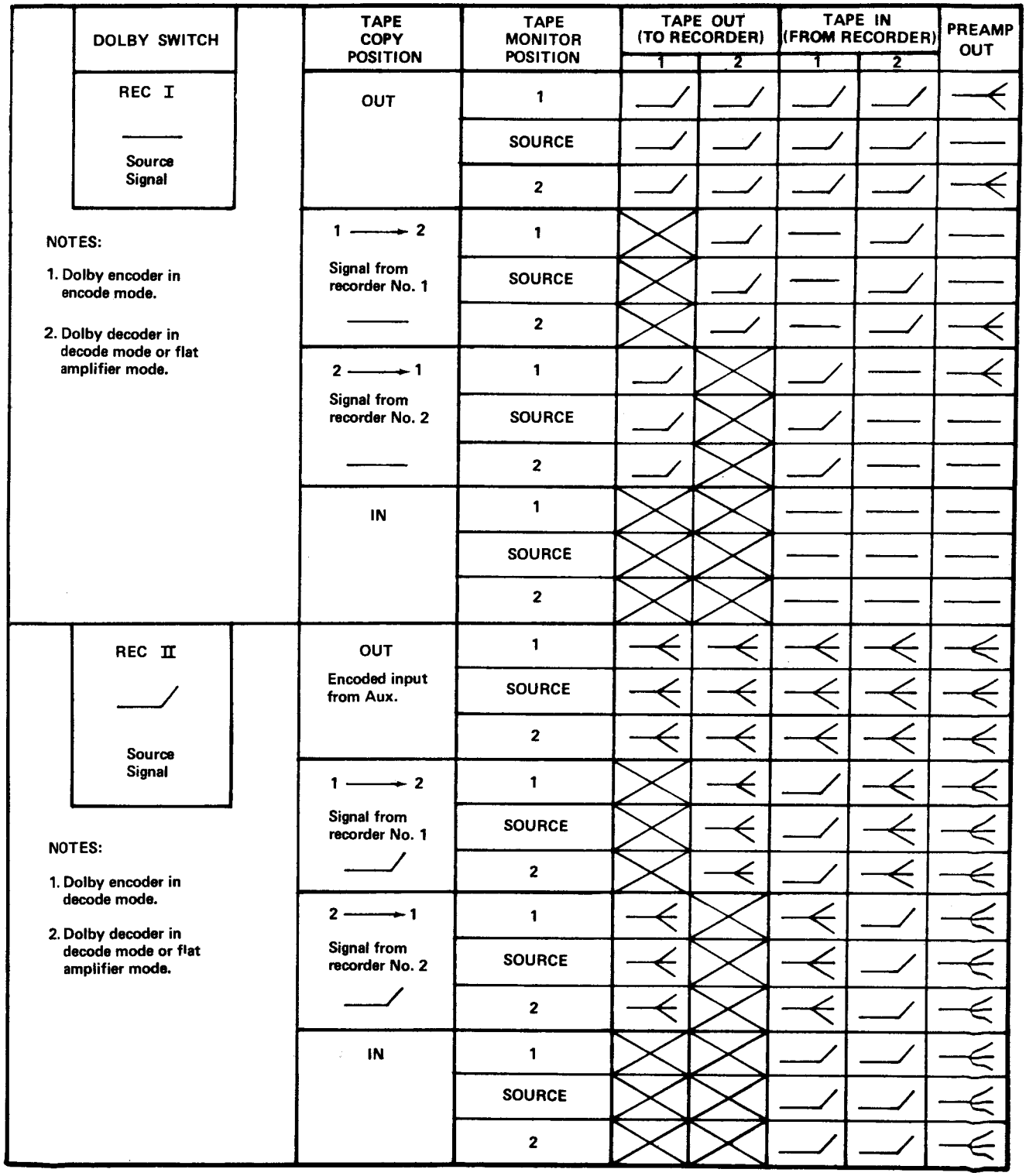


Figure 1-4 Dolby NR Circuit Signal Processing Diagram (continued)

jacks. The power amplifier signal is also applied to the MAIN and/or REMOTE SPEAKER Terminals by the corresponding SPEAKERS Switch.

D. PHONO/MIC AMPLIFIER

The low-level Phono/Mic Amplifier consists primarily of a differential-input transistor pair (Q201 and Q203), an emitter-follower buffer stage (Q205), a high-gain stage (Q207), and an emitter-follower output stage (Q209). A negative-feedback network sets the closed-loop gain of this operational amplifier at 40dB and establishes the proper high-frequency roll-off points. Other components in the feedback network provide precise Mic and Phono (RIAA) equalization. A one-millivolt input signal is nominally increased to 100 millivolts through the Phono/Mic Amplifier.

E. DOLBY ENCODE/DECODE PROCESSORS

With the DOLBY Switch set to REC I, the DOLBY Encoder/Decoder (U501) functions as an encoder and increases the amplitude of low-level, high-frequency signals 10 dB. Specifically, portions of the incoming signal are applied to a level- and frequency-sensitive "sidechain" circuit (C523, C529, C553, R523, and R527). The sidechain signal is then summed with the main signal in the encoder/decoder resulting in the 10 dB boost. With the DOLBY Switch set to REC II, the encoder/decoder functions as a decoder similar to that described in the following paragraph.

With the DOLBY Switch set to either DOLBY FM, PLAY, or REC I, the Dolby Decoder (U503) decreases the amplitude of low-level, high-frequency signals 10 dB complementary to encoder signal processing. Again, portions of the incoming signal are applied to a sidechain circuit (C555, C557, C561, R543, and R545). The sidechain signal is then subtracted from the main signal within the decoder and, since the decoder processing is complementary to the encoder processing, high-frequency noise amplitude is reduced 10 dB.

F. TIMES-TEN AMPLIFIER

The Times-Ten (X10) Amplifier is a non-inverting operational amplifier consisting of a dual linear integrated circuit (U201) and a constant-current source (Q211) in the output. Like the Phono/Mic Amplifier, negative feedback sets the gain of this amplifier and establishes the frequency roll-off points. A 100-millivolt input signal is nominally increased to one volt through the X10 Amplifier (20dB gain).

G. ACTIVE FILTER NETWORK

The Active Filter Network consists of cascaded filter components at the input of a non-inverting, unity gain Filter Amplifier (Q213 and Q215) with a constant-current source (Q217) in the output. Associated switches connect appropriate filter components in the amplifier feedback circuit for a 12-dB-per-octave roll off at either 30Hz, 5KHz, or 9KHz. Frequency response is flat through the network when the filters are not activated. Characteristic curves for the Active Filter Network are shown in Section 2.

H. TONE CONTROL/TURNOVER NETWORK

The Tone Control/Turnover Network consists of the BASS, MID and TREBLE Tone Controls and the 250Hz and 4KHz TURNOVER circuit connected across the input and feedback loop of the inverting, unity gain Tone Amplifier (U203). Feedback control is used to shape the frequency response at the Tone Amplifier output. With the TONE Controls raised toward "boost" position, the forward signal is strongest and the feedback weakest. When lowered toward "cut" position, the TONE Controls attenuate the forward signal and the feedback signal is dominant. The TONE Controls are variable over a range of approximately ± 10dB. Activating the 250Hz and/or 4KHz TURNOVER circuit shifts the frequency locus (turnover) points for the BASS and/or TREBLE TONE Controls respectively, as shown in Section 2.

4. DOLBY NOISE REDUCTION CIRCUIT

A. BASIC DOLBY PROCESS

The Model 3800 full-process Dolby Noise Reduction (NR) Circuit enables Dolby encoding and decoding to be performed simultaneously. An incoming flat signal can be Dolby encoded, recorded onto tape, monitored from the tape, and DOLBY decoded in one operation, allowing the end result to be immediately compared to the original source signal.

The Dolby circuit increases the amplitude of low-level, mid- and high-frequency signals during recording and reduces the amplitude of these signals by an identical amount during playback. As a result, the playback signal is identical to the original source signal, but the level of background noise generated by a tape or record is greatly reduced. A Dolby FM broadcast is subjected to the first phase of the noise reduction process before being transmitted. When these signals pass through the Dolby decoder circuit, the mid- and high-frequency noise is greatly reduced.

Section 2 contains the maintenance procedures for the Dolby (NR) circuit in the Model 3800.

B. USE OF THE DOLBY (NR) CIRCUIT AS A DYNAMIC NOISE FILTER

As previously described in the Basic Dolby Process, high-level, high-frequency signals pass through unchanged in both phases of the Dolby process (encode and decode). As the level decreases, however, filtering increases (during playback) until the signals are 35 dB or more below the level determined by the PLAY CAL Controls at which point the maximum filtering effect takes place. The Dolby playback (decode) circuitry is, in effect, a variable or dynamic noise filter.

In this regard, the Dolby playback circuitry can be used as a substitute for a high filter. But unlike a regular high filter whose effect on treble response is constant at all loudness levels, the Dolby-derived filter activates itself only when needed, that is, only during soft passages where background noise becomes noticeable.

To use the Dolby playback circuit as a dynamic noise filter, set the DOLBY switch to PLAY. The amount of filtering action is determined by the setting of the PLAY CAL Controls. For normal programs, adjust the PLAY CAL Controls on each channel so that the average program level, as indicated on the Dolby Level VU Meter, indicates approximately 0 VU.

5. TECHNICAL SPECIFICATIONS

Technical specifications highlighting performance features are listed in Table 1-1.

Note: DOLBY circuit OFF	
RATED OUTPUT LEVEL	
Preamp Output	3 V RMS
Phono Amplifier at Scope Output	3 V RMS
GAIN	
*Phono/Mic to Preamp Output	60 dB ± 2 dB
*Phono/Mic to Recording Output	40 dB ± 1.25 dB
*High Level Input to Preamp Output	20 dB ± 1.0 dB

Table 1-1 Performance Specifications

INPUT IMPEDANCE	
Phono	47 K ohms ± 5%
Mic	8 K ohms ± 5%
High Level	12.5 K ohms ± 20%
Tuner	10 K ohms ± 20%
INPUT SENSITIVITY	
*Phono/Mic	1 mV to equal 1 Volt at Preamp Output
High Level	100 mV to equal 1 Volt at Preamp Output
****FREQUENCY RESPONSE**	
*Phono	± 0.5 dB maximum variation from RIAA standard Typical variation ± 0.2 dB
High Level	± 0.25 dB, 10 Hz to 20 kHz and ±1 dB, 5 Hz to 60 kHz into 10 k ohm load or standard IHF load
TOTAL HARMONIC DISTORTION	
*Phono	0.025% maximum, 20 Hz to 20 kHz at nominal or rated at Scope Output into IHF load. Typical value: 0.01%
High Level	0.25% maximum, 20 Hz to 20 kHz from nominal output level up to 6 VRMS into IHF load. Typical value: 0.01%
INTERMODULATION DISTORTION	
Phono	0.012% maximum at 6 V RMS at Scope Output into IHF load Typical value: 0.005% at rated output
High Level	0.012% maximum at 6 V RMS into IHF load Typical value: 0.003% at rated output
HUM AND NOISE (Noise Bandwidth: 20 Hz to 20 kHz)	
Phono	Less than 0.78 uV equivalent input noise, input shorted S/N greater than 82 dB below 10 mV input
High Level	100 dB below rated output, input terminated into 600 ohms Total output noise, worst case: less than 30 μV
CHANNEL SEPARATION	Greater than 40 dB, 20 Hz to 20 kHz
***VOLUME TRACKING**	Within 2 dB from 0 dB to -40 dB attenuation and within 3 dB from -40 dB to -60 dB attenuation
PREAMPLIFIER OUTPUT DATA	
Maximum output before overload	9 V RMS
Output Stability	Preamp is stable driving long cables and capacitive loads with no evidence of ringing or overshoot
Overload Recovery	No DC instability
OPERATING POWER REQUIREMENTS	120 V AC, 60 Hz. 9.5 W (Voltage Operating Range: 105 volts to 130 volts)

* at 1 kHz
**Tone Defeat Switch Out

Table 1-1 Performance Specifications (continued)

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Section 2
MAINTENANCE

1. GENERAL

Section 2 contains maintenance procedures for service, troubleshooting, removal/installation, and repair of the Model 3800. Service procedures include required alignments, tests, and adjustments described for failures or malfunctions. Troubleshooting procedures include isolating and identifying both mechanical and electrical malfunctions. Removal/installation procedures include unit disassembly and reassembly for component repair or replacement.

Performance evaluation tests and service of the Model 3800 should be undertaken only by an experienced technician, one knowledgeable in solid state preamplifiers and the use of sensitive test equipment. All instructions should be read carefully and understood fully before proceeding with any service. To better understand the functions of the Stereo Control Console, consult the Schematic, Wiring, and Dolby Processing Diagrams.

Marantz will issue supplementary Technical Service Data to all authorized facilities for upgraded service and product support. Marantz requests field service problems and suggestions for improvement be sent to the Technical Services Manager at our corporate location.

CAUTION: WHEN ADJUSTING OR INSTALLING PARTS, DO NOT OVER TIGHTEN MACHINE SCREWS OR ADJUST NUTS. EXCESSIVE FORCE CAN EASILY DAMAGE THE ALUMINUM ALLOY PARTS.

NOTE: Isolate troubles with an oscilloscope commonly used with standard audio frequencies. Measure voltage and resistance with a volt-ohmmeter with sensitivity of 20 K ohms-per-volt or greater. Hand tools should be small instrument type to minimize scratching the finish.

2. PREAMPLIFIER CIRCUITS TESTS AND ADJUSTMENTS

A. TEST EQUIPMENT

Test and adjustments in the following paragraphs are based on the use of the Recommended Test Equipment listed in Table 2-1 or their equivalent. A.C. Power Control Box and Test Equipment Connection Diagrams are shown in Figures 2-1 and 2-2 respectively.

B. PRELIMINARY CONDITIONS

(1) Set controls on A.C. Power Control Box as follows:

Line Switch ..... Off
Phase Switch ..... Normal
Wattmeter Switch ..... In
Autotransformer ... Minimum (Full ccw)

(2) Set Model 3800 Panel switches and controls to their normal settings except as noted:

Program Selector ..... AUX
TAPE COPY ..... Out
MODE ..... STEREO
TAPE MONITOR ..... SOURCE
TONE, BALANCE ..... Center
TURNOVER,FILTERS,LOUDNESS .Out
DOLBY ..... OFF
VOLUME ..... Minimum (Full ccw)
TAPE REC-EQ ..... Out
TONE DEFEAT ..... In
RECORD LEVEL ..... Full cw
PLAY CAL ..... Full ccw
L R METER ..... L (Out)
400 Hz TONE ..... Out
SPEAKERS ..... Out
POWER ..... On(In)

(3) Install shorting plugs in AUX INPUT jacks.

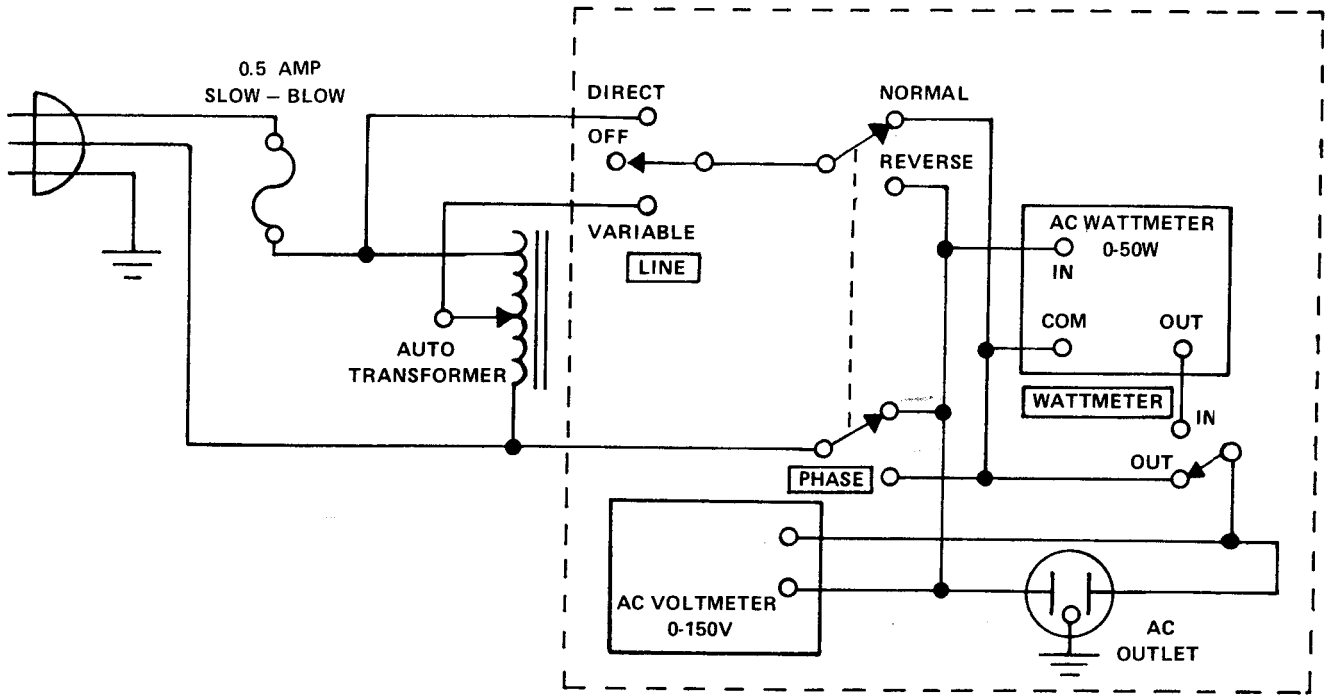


Figure 2-1 AC Power Control Box Connection Diagram

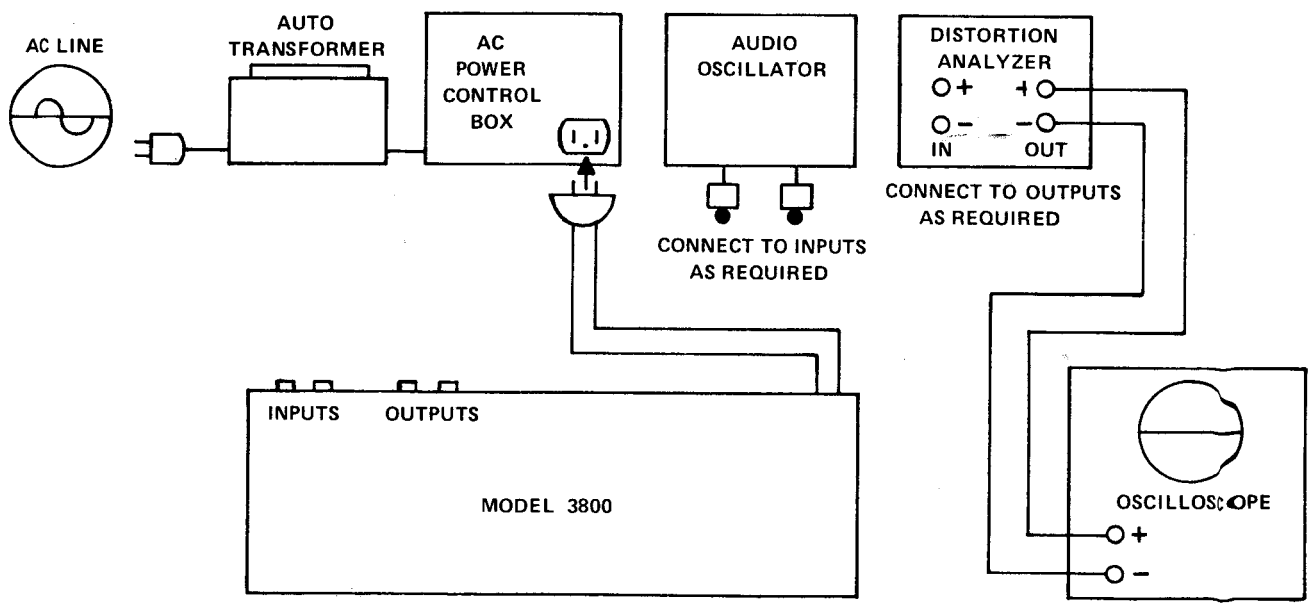


Figure 2-2 Test Equipment Connection Diagram, Preamplifier Circuits

EQUIPMENT ITEM	MANUFACTURER AND MODEL NO. OR EQUIVALENT	USE
Distortion Analyzer	Sound Technology Model 1700A or Hewlett Packard Model 331A or 333A	Measure total harmonic distortion of preamp
AC Voltmeter	Hewlett Packard Model 400F	Measure preamp output voltage
Audio Oscillator	Sound Technology Model 1400A	Audio signal source
Oscilloscope	Tektronix Model T-932 or T-935	Waveform analysis and trouble-shooting
VTVM	Simpson Model 312, 313, or 314 Fluke Model 8000 (Digital)	Voltage and resistance measurements
Variable Autotransformer (0-140 VAC)	Powerstat Model 116B, Superior Electric Company	Controls A.C. line voltage to preamp
AC Wattmeter 0-150 W	Simpson Model 1379 (Catalog No. 10970)	Monitor preamp power consumption
Line Voltmeter 0-150 V AC	Simpson Model 1359 (Catalog No. 10320)	Monitor A.C. line voltage to preamp
AC Power Control Box (optional)	Fabricated as shown in Figure 2-1	Monitor line voltage and power consumption
Shorting Plug (4)	Phono plug with 600 ohm resistor across center pin and shell	Short preamp input to eliminate noise pickup
Noise Filter (20 Hz to 20 KHz, 12 dB per-octave rolloff, less than 3 microvolts residual noise input)	Commerical grade	Measure noise.

Table 2-1 Recommended Test Equipment

C. POWER CONSUMPTION VERIFICATION

(1) Plug Model 3800 AC Plug into AC Control Box outlet.

(2) Set LINE Switch (AC Power Control Box) to VARIABLE.

(3) Observing Wattmeter, slowly rotate autotransformer control cw to 120 VAC. If Wattmeter indicates more than 5 W at any time, (or fails to indicate at all), shut off AC power and refer to the Trouble Analysis section.

D. FUNCTIONAL TESTS

Perform functional tests on unit to establish the operation of all inputs, outputs and controls as specified. Reset Model 3800 controls

to their normal settings upon completion of the functional tests both channels.

(1) For low level (Phono or Mic) input tests, apply a 1 kHz, 10 mV audio signal to PHONO INPUT 1. Depress PHONO 1 Switch.

(2) Set Distortion Analyzer controls for AC VTVM and monitor output at SCOPE or TAPE OUTPUT Jack. Output should be approximately 1 V rms.

(3) Repeat at PHONO INPUT 2, depress PHONO 2/MIC Switch.

(4) Without changing oscillator output level, disconnect from PHONO INPUT 2 and reconnect in front at MICROPHONE Jack. Output should remain at approximately 1 V rms.

(5) For high level (Tuner, Aux, or Tape) inputs, turn preamp power off, set oscillator to 1 kHz, 300 mV rms output. Connect to TUNER INPUT Jack. Reconnect Distortion Analyzer to PREAMPLIFIER (PREAMP) OUTPUT Jack.

(6) Turn preamp power on, turn VOLUME Control to maximum, depress TUNER Switch. Output should be approximately 3 V rms.

(7) Without changing any connections other than inputs, check AUX, TAPE 1, and TAPE 2 OUTPUTS as described in Step (6). Output level should remain at approximately 3 V rms.

E. MAXIMUM VOLTAGE OUTPUT

(1) Depress AUX Switch. Connect oscillator to AUX INPUT Jack. Monitor signal at PREAMP OUTPUT Jack with oscilloscope and distortion analyzer controls set for AC VTVM. Turn VOLUME to maximum.

(2) Set oscillator frequency to 1 kHz and increase oscillator output to the point of just below clipping. VTVM should indicate at least 9 V rms.

F. TOTAL HARMONIC DISTORTION (THD)

(1) With preamp VOLUME Control turned to maximum, check THD at AUX INPUT Jack at 20 Hz, 2 kHz, and 20 kHz (3 V rms output). THD should be less than 0.025 percent.

(2) Change input to PHONO Jack and depress PHONO Switch. Adjust oscillator for 3 V rms at TAPE OUTPUT Jack. Check THD at 20 Hz, 2 kHz, and 20 kHz. THD should be less than 0.025 percent.

G. HUM AND NOISE

(1) Insert phono shorting plug into each PHONO and AUX INPUT Jack. Switch in bandpass filter control.

(2) Turn VOLUME Control to maximum and depress PHONO Switch. Noise output should indicate less than 780 microvolts measured at PREAMP OUTPUT Jack.

(3) Depress AUX Switch. Noise output should indicate less than 30 microvolts measured at PREAMP OUTPUT Jack.

H. FREQUENCY RESPONSE (PHONO/MIC)

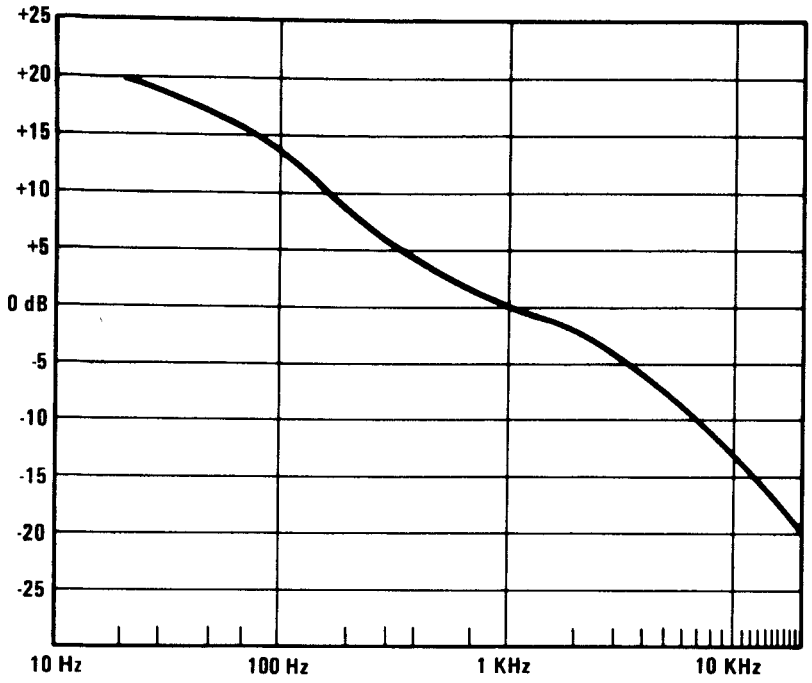
Refer to Figure 2-3 RIAA Equalization Curve and Standards to verify unit conformance.

(1) For Phono frequency response apply a 1 kHz signal to PHONO INPUT Jack. Connect AC VTVM to PREAMP OUTPUT Jack. Set oscillator output for 0 dB indication on VTVM.

(2) Check output level at the following frequencies ± 0.5 dB:

20 Hz	+19.30 dB
100 Hz	+13.11 dB
400 Hz	+3.81 dB
2 kHz	-2.61 dB
10 kHz	-13.75 dB
20 kHz	-19.60 dB

(3) For Mic frequency response apply a 1 kHz signal to MICROPHONE Jack (front panel). Depress 2/MIC Switch. Set oscillator output to 0 dB as measured at PREAMP OUTPUT Jack.



RIAA NAB DISK REPRODUCING STD.

20 KHz	−19.60 dB
15 KHz	−17.17 dB
14 KHz	−16.64 dB
13 KHz	−15.95 dB
12 KHz	−15.28 dB
11 KHz	−14.55 dB
10 KHz	−13.75 dB
9 KHz	−12.88 dB
8 KHz	−11.91 dB
7 KHz	−10.85 dB
6 KHz	− 9.62 dB
5 KHz	− 8.23 dB
4 KHz	− 6.64 dB
3 KHz	− 4.76 dB
2 KHz	− 2.61 dB
1000	0.00 dB
700	+ 1.23 dB
400	+ 3.81 dB
300	+ 5.53 dB
200	+ 8.22 dB
100	+13.11 dB
70	+15.31 dB
50	+16.96 dB
30	+18.61 dB
20 Hz	+19.30 dB

Figure 2-3 RIAA Equalization Curve and Standard

(4) Reduce oscillator frequency to 30 Hz. Output should be 0 dB (± 0.75 dB).

(5) Increase oscillator frequency to 11.5 kHz. Output should be 0 dB (+ 0 dB, -4 dB).

J. HIGH LEVEL SEPARATION

(1) Connect oscillator to left channel AUX INPUT Jack. Insert a shorting plug into right channel AUX INPUT Jack. Monitor signal at PREAMP OUTPUT Jack with AC VTVM.

(2) Set oscillator frequency to 20 Hz. Set oscillator level for 0 dB, 3 V rms output as indicated on the VTVM.

(3) Observe the output of the undriven channel on the VTVM. Output should be at least 40 dB below the 0 dB reference level indicating a 40 dB left - to - right channel separation.

(4) Repeat test on right channel.

K. FILTERS (Figure 2-4)

(1) Connect oscillator to AUX INPUT Jack. Depress AUX Selector Pushswitch. Connect AC VTVM to PREAMP OUTPUT Jack.

(2) To establish a reference level, set oscillator frequency to 1 kHz, 0 dB as measured on the VTVM.

(3) Depress 9 kHz FILTER Switch. With oscillator switched to 9 kHz input, output level should drop 3 dB (± 1.25 dB). Depress and release FILTER switch.

(4) Depress 5 kHz FILTER Switch. With oscillator switched to 5 kHz, output should drop 3 dB (± 1.25 dB). Depress and release FILTER Switch.

(5) Depress 30 Hz FILTER Switch. With oscillator switch set to 30 Hz, signal should drop 3 dB (± 0.75 dB). Depress and release FILTER Switch.

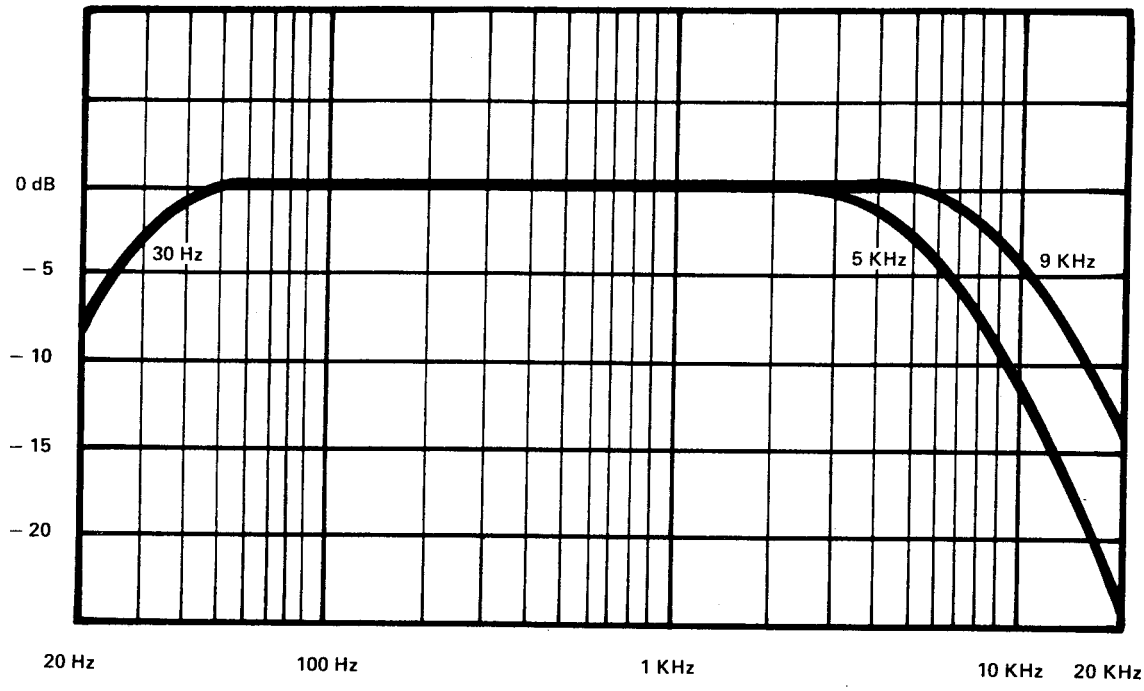


Figure 2-4 Active Filter Network Characteristics

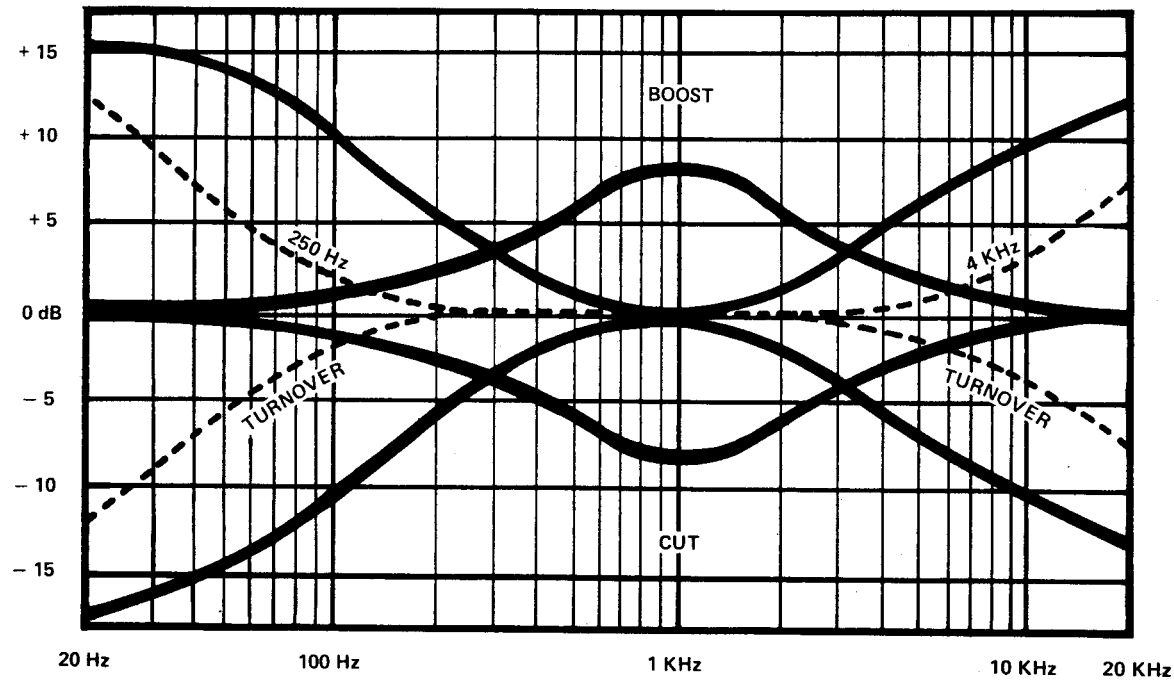


Figure 2-5 Tone Control / Turnover Network Characteristics

L. TONE CONTROL (Figure 2-5)

(1) Connect oscillator to AUX INPUT Jack. Depress AUX Switch. TONE DEFEAT Switch should be in. Connect AC VTVM to PREAMP OUTPUT Jack.

(2) With VOLUME Control set to maximum, set oscillator output level for 0 dB, 1 V rms indication on VTVM at 1 kHz.

(3) Press and release TONE DEFEAT and center TONE Controls. Output should remain 0 dB.

(4) Sweep from 20 Hz to 20 kHz. Frequency response should be flat (± 0.25 dB) at all audio frequencies.

(5) Set oscillator to 100 Hz. Slide BASS Control up to maximum boost position. Output level should increase 10 dB (± 2 dB) as measured on VTVM. Slide BASS Control down to maximum cut position. Output should decrease to 10 dB (± 2 dB) below 0 dB reference level. Center BASS Control.

(6) Set oscillator to 1 kHz. Slide MID Control up to maximum boost and observe for an increase of 8.5 dB (± 1 dB). Slide MID Control down to maximum cut and observe for a decrease of 8.5 dB (± 1 dB) below 0 dB reference level. Center MID Control.

(7) Set oscillator to 10 kHz. Slide TREBLE Control up to maximum boost. Output should increase 10 dB (± 2 dB). Slide control down to maximum cut and observe for a 10 dB (± 2 dB) decrease below 0 dB reference level. Center TREBLE Control.

M. TURNOVER FREQUENCIES (Figure 2-5)

(1) Set oscillator frequency to 50 Hz. Depress 250 Hz TURNOVER Switch.

(2) Slide BASS Control up to maximum boost. Output signal level should increase 6 dB (± 1 dB). Slide BASS Control down to maximum cut. Output signal level should decrease 6 dB (± 1 dB). Center BASS Control. Depress and release 250 Hz TURNOVER Switch.

(3) Set oscillator frequency to 17 kHz. Depress 4 kHz TURNOVER Switch.

(4) Slide TREBLE Control up to maximum boost. Output signal level should increase 6 dB (± 1 dB). Slide TREBLE Control down to maximum cut. Output signal boost. Output signal level should increase 6 dB (± 1 dB). Slide TREBLE Control down to maximum cut. Output signal level should decrease 6 dB (± 1 dB). Center TREBLE Control. Depress and release 4 kHz TURNOVER Switch.

(5) Press TONE DEFEAT Switch in.

N. VOLUME TRACKING

(1) Connect oscillator to AUX INPUT Jack. Depress AUX Switch. Rotate VOLUME Control to maximum. Monitor signal at PREAMP OUTPUT Jack with AC VTVM.

(2) Set oscillator frequency to 1 kHz. Set oscillator output for a 0 dB output level at VTVM.

(3) Reduce volume in 5 dB increments while monitoring both outputs of the preamp. Right and left channel output levels should be within ± 3 dB of each other down to -40 dB. Output levels should be within ± 4 dB of each other from -40 dB to 50 dB.

P. LOUDNESS CONTOUR (Figure 2-6)

(1) Connect oscillator to AUX INPUT Jack. Depress AUX Switch. Monitor output at PREAMP OUTPUT Jack with AC VTVM.

(2) Set oscillator frequency to 100 Hz, 10 dB at PREAMP OUTPUT Jack.

(3) Reduce oscillator output to -30 dB at the VTVM.

(4) Depress LOUDNESS Switch. Signal level should increase 6 dB (± 1 dB).

(5) Repeat test with oscillator frequency set to 10 kHz. Output signal level should increase 4.5 dB (± 1.5 dB).

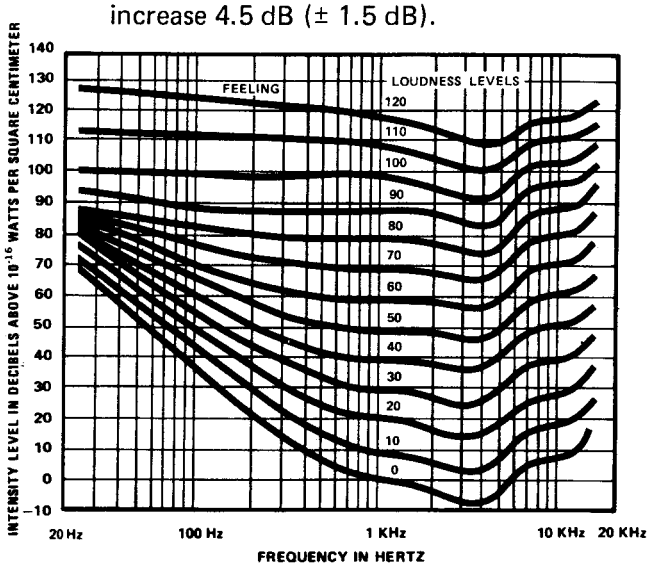


Figure 2-6 Fletcher - Munson Loudness Curves

3. DOLBY NR CIRCUIT TESTS AND ADJUSTMENTS

A. TEST EQUIPMENT

Tests and adjustments in the following paragraphs are based on the use of the Recommended Test Equipment listed in Table 2-1 or their equivalent. Figure 2-7 illustrates the Test Equipment Connection Diagram, Dolby NR Circuits.

B. PRELIMINARY CONDITIONS

(1) Set power control equipment as follows:

Line Switch ..... OFF
Phase Switch ..... NORMAL
Wattmeter Switch ..... IN
Autotransformer ..... Minimum (ccw)

(2) Set the Model 3800 controls to their OFF, minimum, or neutral settings except as noted for the particular test, alignment, or adjustment:

Program Selector ..... AUX
TAPE COPY ..... Out
MODE ..... STEREO
TAPE MONITOR ..... SOURCE
TONE, BALANCE ..... Center
TURNOVER,FILTERS,LOUDNESS . Out
DOLBY ..... PLAY
VOLUME ..... Minimum (ccw)
TAPE REC-EQ ..... Out
TONE DEFEAT ..... In
RECORD LEVEL ..... Fully cw
PLAY CAL ..... Fully ccw
L R METER ..... L (Out)
400 Hz TONE ..... Off (Out)
SPEAKERS ..... Out
POWER ..... On (In)

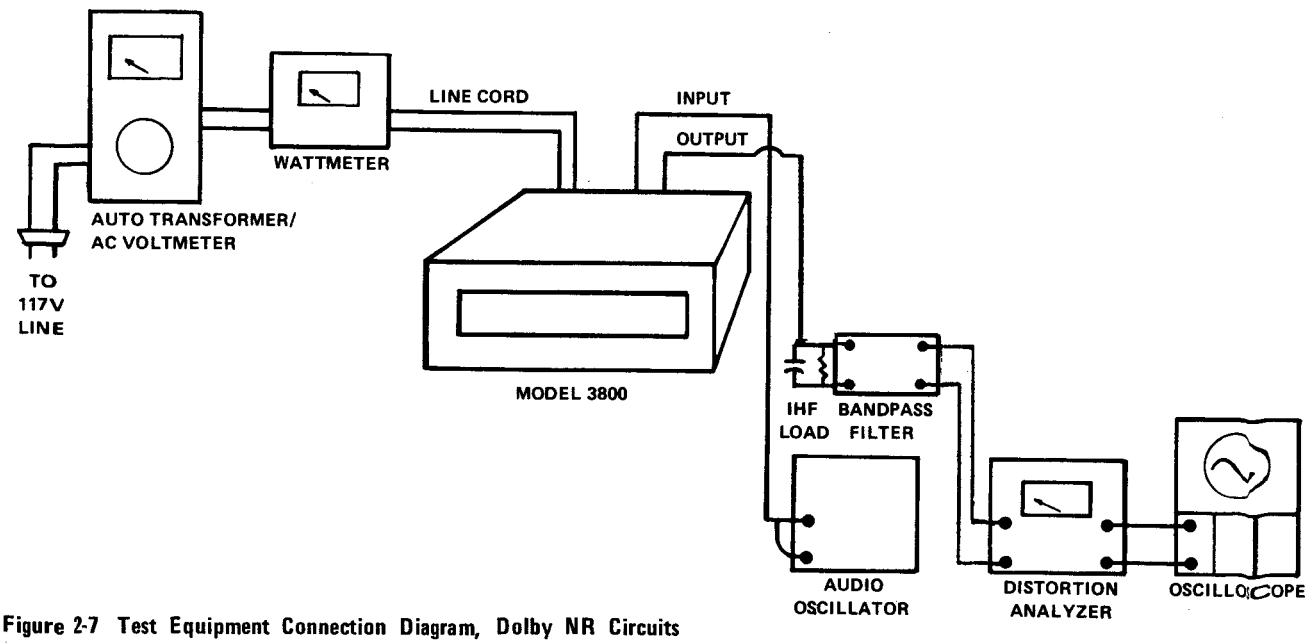


Figure 2-7 Test Equipment Connection Diagram, Dolby NR Circuits

C. ENCODE LOOP GAIN

(1) Ensure controls are set as listed in Paragraph 3B.

(2) Set oscillator frequency to 1 kHz and apply signal at the AUX INPUT Jack.

(3) Adjust amplitude for a 580 mV signal measured at the TAPE 1 or TAPE 2 OUTPUT Jack.

(4) Measure amplitude of the input signal (at the SCOPE OUTPUT Jack).

(5) Calculated gain should be between 85 mV and 245 mV.

D. DECODE LOOP GAIN

(1) Reset Model 3800 controls to include:

(a) DOLBY Switch set to REC 1,
(b) VOLUME Control rotated to maximum (cw),
(c) RECORD LEVEL Controls rotated fully ccw,
(d) PLAY CAL Controls rotated fully cw.

(2) Set oscillator frequency to 1 kHz and apply a signal to the AUX INPUT Jack.

(3) Adjust oscillator amplitude for a 0 VU indication on the Dolby VU Meter.

(4) If Dolby VU Meter is calibrated, signal amplitude measured at the PREAMPLIFIER (PREAMP) OUTPUT Jack should be approximately 6.3 V rms.

NOTE: A 580 mV value is equal to Dolby Level or 0 VU display on the Dolby VU Meter. When the signal is applied to the X10 amplifier, the output signal level measured at the PREAMP OUTPUT Jack will be approximately 6.3 V rms.

(5) Measure amplitude of output signal at PREAMP OUTPUT Jack.

(6) Measure amplitude of input signal at SCOPE OUTPUT Jack.

(7) Calculated gain should be between 32 mV and 100 mV.

E. DOLBY RECORD MODE FREQUENCY RESPONSE (Figures 2-8 through 2-10)

(1) When encoder functions as a flat amplifier:

(a) Ensure all controls are set as listed in Paragraph 3B.
(b) Apply a 1 kHz signal to the AUX INPUT Jack and adjust amplitude for 580 mV measured at TAPE 1 or TAPE 2 OUTPUT Jack.
(c) Check frequency response at this level and at 18 mV INPUT for oscillator frequencies 20 Hz, 100 Hz, 1 kHz, 10 kHz, and 15 kHz, (hereafter referred to as from 20 Hz to 15 kHz). Response should be flat (± 1 dB).

(2) When encoder functions as an encoder:

(a) Ensure all controls except DOLBY Switch are set as listed in Paragraph 3B. Reset DOLBY Switch to REC I.
(b) Apply a 100 Hz signal to the AUX INPUT Jack and adjust amplitude for a 580 mV signal measured at TAPE I or TAPE 2 OUTPUT Jack.
(c) Check frequency response for oscillator frequencies from 20 Hz to 15 kHz. Response should be flat (± 1.5 dB).
(d) Reset frequency to 100 Hz and lower amplitude 30 dB. The signal level measured at the TAPE OUTPUT Jacks should be approximately 18 mV rms.
(e) Reset frequency to 5 kHz and observe the amplitude of the output signal. Amplitude should increase by 9 dB (± 2 dB) or to a level between 41 mV and 65 mV.

(3) When encoder functions as a decoder:

(a) Ensure all controls except Dolby Switch are set as listed in Paragraph 3B. Reset Dolby Switch to REC II.
(b) Apply a 100 Hz signal at AUX INPUT Jack and adjust amplitude for a 580 mV signal at TAPE I or TAPE 2 OUTPUT Jack.

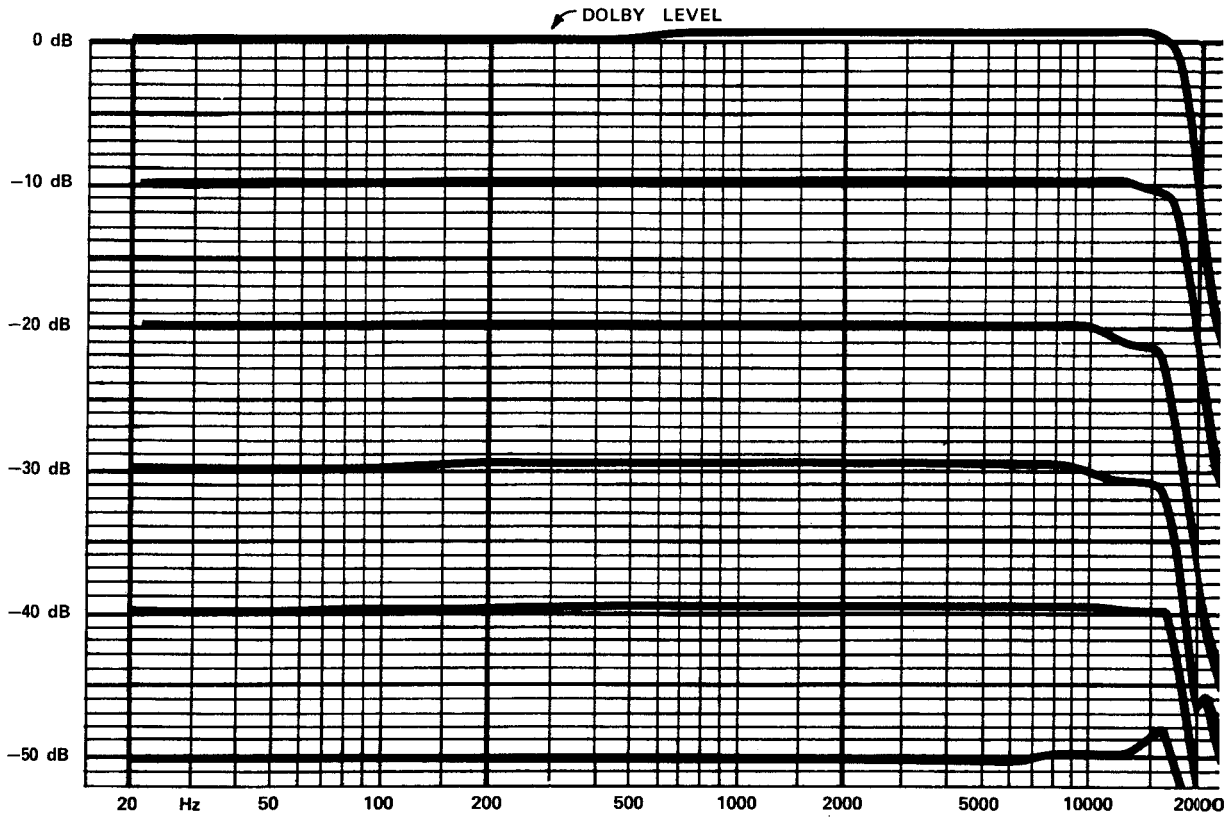


Figure 2-8 Dolby Frequency Response, Flat Mode

(c) Check frequency response for oscillator frequencies from 20 Hz to 15 kHz. Response should be flat (± 1.5 dB).

(d) Reset oscillator frequency to 100 Hz and lower the amplitude by 30 dB. The signal level at the TAPE OUTPUT Jacks should be approximately 18 mV rms.

(e) Reset oscillator frequency to 5 kHz and observe output level. Output level should drop 9 dB (± 2 dB) or to a level between 5.1 mV and 6.5 mV rms.

F. DOLBY PLAYBACK MODE FREQUENCY RESPONSE (Figures 2-8 through 2-10)

(1) When decoder functions as a flat amplifier:

(a) Ensure all controls are set as listed for Decode Loop Gain, Paragraph 3D.

(b) Apply a 1 kHz signal to the AUX INPUT Jack and adjust amplitude for 0 VU indication on the Dolby VU Meter.

NOTE: Meter indication of 0 VU corresponds to an output level of approximately 6.3 V rms as measured at the PREAMP OUTPUT Jack.

(c) Check frequency response for oscillator frequencies from 20 Hz to 15 kHz. The output signal as measured at the PREAMP OUTPUT Jack should be flat (± 1 dB).

(d) Lower input signal level 30 dB to an output level of 200 mV rms as measured at the PREAMP OUTPUT Jack.

(e) Check frequency response for oscillator frequencies from 20 Hz to 15 kHz. Response should be flat (± 1 dB).

(2) When decoder functions as a decoder:

(a) Ensure all controls except Dolby Switch are set as listed in Paragraph 3D. Reset Dolby Switch to PLAY.

(b) Apply a 100 Hz signal to the AUX INPUT Jack and adjust the amplitude

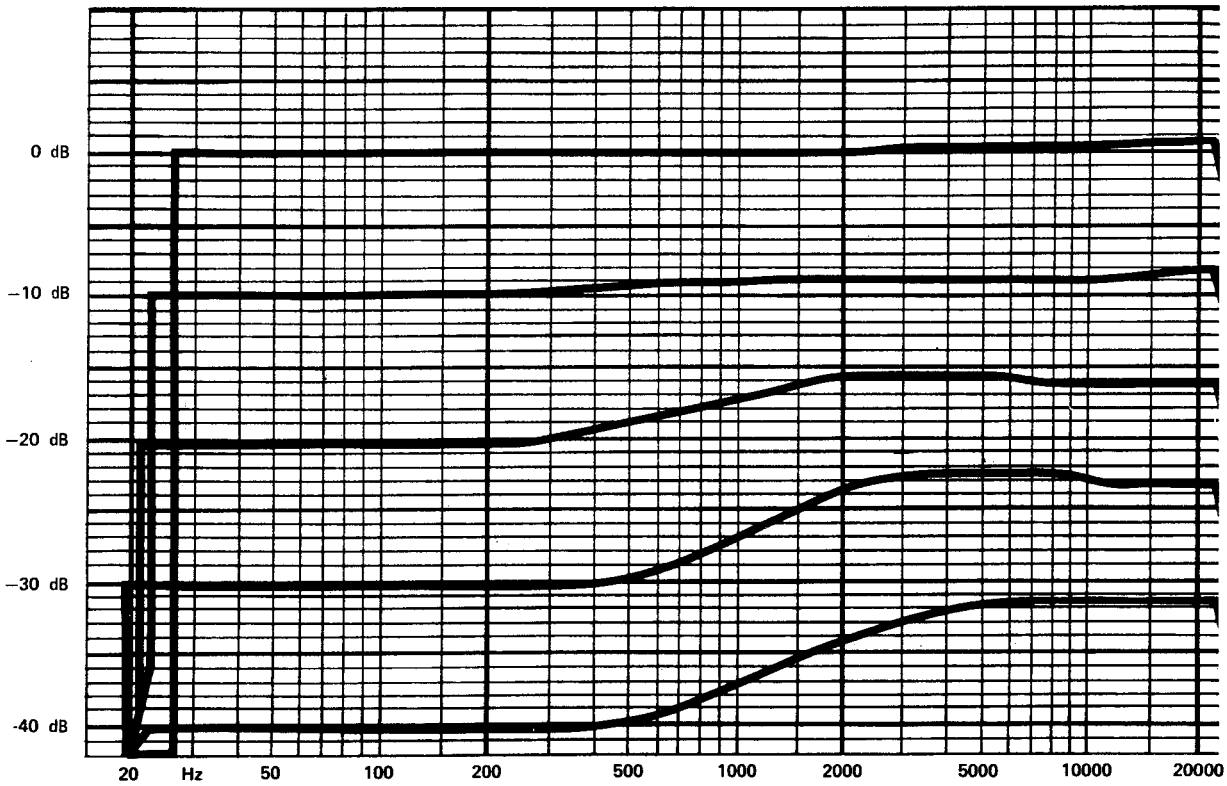


Figure 2-9 Dolby Frequency Response, Encode Mode

for 0 VU indication on the Dolby VU Meter (corresponds to 6.3 V rms at PREAMP OUTPUT Jack).

(c) Check frequency response at oscillator frequencies from 20 Hz to 15 kHz. Response should be flat (± 1.5 dB).

(d) Reset oscillator frequency to 5 kHz and observe the output level. Level should drop 9 dB (± 2 dB) or to an output level between 56 mV and 70 mV rms.

(e) Reset oscillator frequency to 100 Hz and lower the signal level by 30 dB and lower the signal level by 30 dB to an output of approximately 200 mV rms as measured at the PREAMP OUTPUT Jack.

(3) For encode/decode back-to-back frequency response:

(a) Ensure all controls except Dolby Switch and RECORD LEVEL Controls are set, as listed in Paragraph 3D. Reset DOLBY Switch to REC I, and turn RECORD LEVEL Controls fully clockwise.

(b) Apply a 100 Hz signal to AUX INPUT Jack and adjust the amplitude for 580 mV rms as measured at the TAPE I OUTPUT Jack.

(c) Connect a short patch cord (RCA phono plug on both ends) between the TAPE I INPUT and the TAPE 2 OUTPUT Jacks.

(d) Reset the TAPE MONITOR Switch to TAPE I and adjust the PLAY CAL Controls for 0 VU indication on the Dolby VU Meter.

(e) Observe output at PREAMP OUTPUT Jack for a measurement of approximately 6.3V.

(f) Check frequency response at oscillator frequencies from 20 Hz to 15 kHz. Response should be flat (± 2 dB).

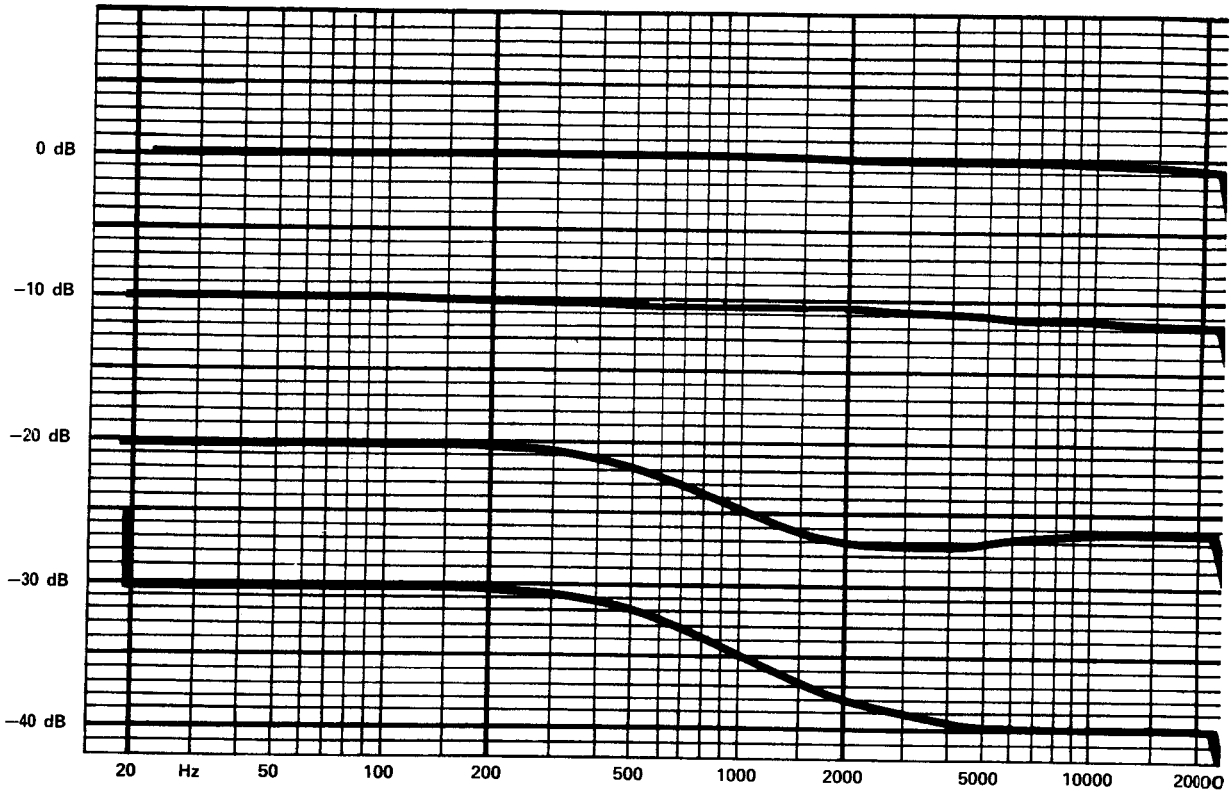


Figure 2-10 Dolby Frequency Response, Decode Mode

G. TOTAL HARMONIC DISTORTION (THD)

(1) To measure playback THD at the PRE-AMP OUTPUT Jack:

(a) Ensure the switches and controls except the DOLBY Switch are set as listed in Paragraph 3D. Reset DOLBY Switch to PLAY.

(b) Apply a 100 Hz signal to the AUX INPUT Jack and adjust the amplitude for a 0 VU indication on the Dolby VU Meter.

(c) Connect an IHF load at the PRE-AMP OUTPUT Jack and measure the THD. THD should be less than 0.5 percent from 20 Hz to 10 kHz and less than 1.0 percent at 15 kHz.

(2) To measure record THD at the PREAMP OUTPUT Jack:

(a) Ensure the switches and controls except the DOLBY Switch are set as listed in Paragraph 3D (Decode Loop Gain). Reset DOLBY Switch to REC I.

(b) Perform steps 3G. 1 (b), (c) above. Values should be the same.

(3) To measure record THD at the TAPE OUTPUT Jack:

(a) Ensure the switches and controls except the DOLBY Switch are set as listed in Paragraph 3B. Reset DOLBY Switch to REC I.

(b) Apply a 100 Hz signal to AUX INPUT Jack and adjust the amplitude for 580 mV rms as measured at the TAPE I OUTPUT Jack.

(c) Connect an IHF load across the TAPE I OUTPUT Jack and measure. THD should be less than 0.5 percent from 20 Hz to 10 kHz and less than 1.0 percent at 15 kHz.

(d) Repeat (b), and (c) above with DOLBY Switch set first to PLAY, and then to REC II. Values should remain the same.

H. DOLBY VU METER CALIBRATION

(1) Set Meter Switch to left channel.

(2) Ensure all switches and controls are set as listed in Paragraph 3D (Decode Loop Gain).

(3) Apply a 100 Hz signal to the AUX INPUT Jack, and adjust the amplitude for 580 mV as measured at the junction of Pin No. 82 and J104.

(4) Adjust Meter Calibration R706 for 0 VU indication on the Dolby VU Meter.

J. 400 Hz TONE OSCILLATOR ADJUSTMENT

(1) Set the DOLBY Switch to any DOLBY Mode position such as REC I.

(2) Depress the 400 Hz TONE Switch and adjust Tone Oscillator Control R702 for a 580 mV rms signal as measured at the TAPE I OUTPUT Jack.

K. MULTIPLEX FILTER ADJUSTMENT

(1) Set DOLBY Switch to PLAY.

(2) Apply a 1 kHz signal to the AUX INPUT Jack and adjust the amplitude to 580 mV rms as measured at the TAPE I OUTPUT Jack.

(3) Reset oscillator frequency to 19 kHz and adjust Filter Trap (choke) L503 for minimum output. When properly adjusted, the output level at the TAPE OUTPUT Jack will be a minimum of 18 mV below the level of the 1 kHz reference signal.

L. BIAS FILTER ADJUSTMENT

(1) Set the DOLBY Switch to REC I, PLAY CAL (cw) and Record Switch (ccw).

(2) Apply a 1 kHz signal to the AUX INPUT Jack and adjust the amplitude for 0 VU indication on the Dolby VU Meter.

(3) Reset oscillator frequency to 100 kHz and adjust Filter Trap (choke) L505 for minimum output measured at the PREAMP OUTPUT Jack. When properly adjusted, the output level of the 100 kHz signal will be at least 40 dB below the output level of the 1 kHz reference signal at the PREAMP OUTPUT Jack.

4. TROUBLE ANALYSIS

The partial list of possible malfunctions and causes listed in Table 2-2 enables locating troubles that may be difficult to isolate. Normal troubleshooting techniques (point-to-point signal tracing and oscilloscope analysis) are assumed in isolating problems.

NOTE: Performance verification tests are necessary following any repair.

Table 2-2 lists possible symptoms and causes if a Model 3800 malfunctions. We do not attempt to point up all potential problems and their remedies since the service technician is capable of recognizing most. We attempt to aid the service technician in isolating problems from the unit level down to a detail part.

All references in this section will be made to Figures 1-2 and 3-9.

SYMPTOMS	PROBABLE CAUSE
No primary power consumption	1. Open A.C. input circuit, line cord, fuse, power switch or transformer 2. Power supply circuit defective
Excessive primary power consumption	1. Short in A.C. input circuit 2. Short in A.C. secondary circuit, pilot lamp circuit, or power supply
No signal output both channels	No D.C. supply voltage to amplifiers, +Vcc, -Vcc or neither, caused by broken supply lines, defective power supply lines or defective power transformer

Table 2-2 Trouble Analysis

SYMPTOMS	PROBABLE CAUSE
No signal output in any condition	1. Short in input circuit 2. Open input circuit, Program Selector, Tape Monitor, Mode, Volume or Balance Switch 3. Defective X10 amplifier 4. Output circuit open or shorted
No signal output in low level inputs	1. Shorted input circuit to phono amplifier 2. Open input circuit 3. Defective phono amplifier 4. Phono amplifier output circuit open 5. Short in phono amplifier output circuit 6. Phono amplifier oscillating (VHF) because of open (or shorted) feedback circuit through Program Selector Switch
No signal output with TONE in or LOUDNESS in	1. Defective tone amplifier 2. Open tone amplifier output circuit 3. Defective Tone or Loudness switch
Low gain in low level inputs	Defective phono amplifier
Low gain with TONE in or LOUDNESS in	Defective tone amplifier
High distortion in any condition	1. X10 amplifier defective 2. Excessive output loading 3. Short in low filter switch circuit
High distortion in low level inputs	1. Defective phono amplifier 2. Hum pickup in the input circuit
High distortion with TONE in or LOUDNESS in	Defective tone amplifier
Excessive noise in low level inputs	1. Defective phono amplifier 2. Open feedback circuit, Program Selector switch 3. Input circuit open 4. Input cable shield not grounded
Excessive noise in high level inputs	1. Defective X10 amplifier 2. Input circuit cable shield not grounded 3. Excessive power supply ripple (hum)
Excessive noise with TONE in or LOUDNESS in	Defective tone amplifier
Oscillation in low level inputs	1. Open input circuit 2. Open feedback circuit, program selector switch 3. Grounds intermittent or broken 4. Defective phono amplifier
Oscillation in high level inputs	1. Defective X10 amplifier 2. Shorts in high or low filter circuits

Table 2-2 Trouble Analysis (continued)

SYMPTOMS	PROBABLE CAUSE
Dolby circuits do not encode or decode, but flat mode is operational	1. Electrolytic capacitor between pins 11 and 12 of affected circuit leaky or shorted 2. Defective integrated circuit
Distortion - any Dolby circuit distortion problem	Defective integrated circuit
Oscillating in one or several modes	Defective integrated circuit
Low gain	Defective integrated circuit
Insufficient frequency response	Defective integrated circuit
Setting of one RECORD LEVEL control affects output of other channel	Short between printed circuit foil, and conductive portion of resistor body
Insufficient Multiplex or bias trap rejection.	Defective integrated circuit.

Table 2-2 Trouble Analysis (continued)

5. REPACKING FOR SHIPMENT

Should the unit require repacking for shipment, observe the following precautions:

A. Pack the unit carefully, using the original material as shown in Figure 2-11.

NOTE: If the packing material has been lost, discarded, or damaged, new packing material may be obtained by ordering from the Marantz Parts Department. Refer to the Parts List Section for the required material.

B. Ship by a reputable carrier (may be oversized and/or overweight for Parcel Post) and obtain a shipping receipt from the carrier.

C. Insure the unit for its full value.

D. Be sure to include proper return address on the shipping label.

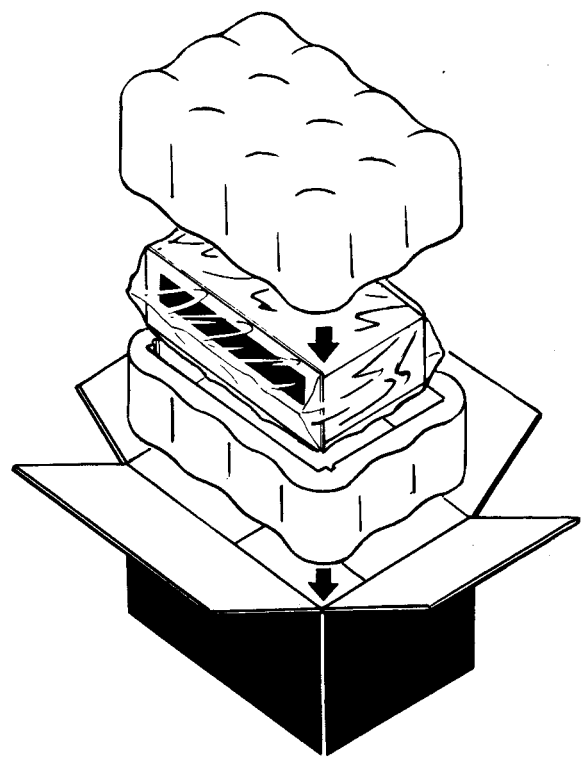


Figure 2-11 Repacking Illustration

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Section 3
ILLUSTRATED PARTS LIST

1. GENERAL

This section contains an illustrated Parts List for parts location and identification. Parts listed are referenced on Figures 1-1, 1-2 and 3-9, and shown on Figures 3-1 through 3-8. Electrical Assembly Parts on chassis and printed circuit boards are listed alphabetically by reference designations from major assemblies down to detail parts within those assemblies. Mechanical Assembly Parts are listed numerically according to each assembly.

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
		MODEL 3800 STEREO CONTROL CONSOLE UNIT (PREAMPLIFIER)
A1	210-2004-100	. CHASSIS ASSY
	202-2003-100	. . POTENTIOMETER MOUNTING PLATE ASSY
A50	206-2001-100	. FRONT DRESS PANEL ASSY, ACRYLIC WINDOW
	206-2011-100	. FRONT DRESS PANEL ASSY, ALUMINUM WINDOW EFFECTIVITY SERIAL NO. 1801 AND SUBSEQUENT
A100	200-2002-100	. . CONTROL BOARD COMPONENT ASSY
A200/300	200-2009-100	. . PREAMPLIFIER BOARD COMPONENT ASSY
A400	200-2010-110	. . JACK PANEL ASSY
	200-2008-110	. . JACK MOUNTING PANEL COMPONENT ASSY
	200-2005-110	. . . JACK INPUT PANEL COMPONENT ASSY
A500	200-2003-100	. . DOLBY/TAPE MONITOR BOARD COMPONENT ASSY
A600	200-2006-100	. . TAPE EQUALIZATION/TONE DEFEAT BOARD COMPONENT ASSY
A700	200-2004-100	. . 400HZ OSCILLATOR/METER BOARD COMPONENT ASSY
A800	200-2007-100	. . INTERFACE BOARD COMPONENT ASSY

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
0001	127-2002-000	INSULATOR, UNIT COVER
0002	136-2000-000	SHIELD, DRESS PANEL
0003	136-2001-000	COVER, UNIT
0004	174-2001-000	KNOB, FUNCTION (S101, S501, S502, R107) x4
0005	580-2002-000	KNOB, (S601, S701) x4
0006	580-2003-000	KNOB, (S1)
0007	580-2004-000	KNOB, RECTANGULAR, (S201, S202) x12
0008	580-2005-000	KNOB, (S2) x2
0009	580-2006-000	KNOB, (R109, R110, R131, R132) x4
0010	580-2009-000	KNOB, (R119 through R124, R105) x7
		ATTACHING PARTS
0011	769-2000-000	. DRESS BOLT, HEX HEAD x4
0012	784-4112-000	. SCREW, 6-32 x 1/4, TF,
Fig. 2-11		PACKING SET
	195-2000-130	. CARTON, INNER
	195-2000-530	. CARTON, OUTER
	196-2000-000	. INSERT, HALF, POLYSTYRENE x2
	197-1002-000	. BAG, PLASTIC, GUSSETTED
	199-2000-000	HANDBOOK OF INSTRUCTIONS
	199-2007-000	SCHEMATIC DIAGRAM
	199-2029-000	SERVICE MANUAL
	249-2001-000	ACCESSORY KIT
	199-2028-000	HANDBOOK OF INSTRUCTIONS, TRILINGUAL (C) (E)

(C) CANADA
(E) EUROPE
(J) JAPAN
(U) USA

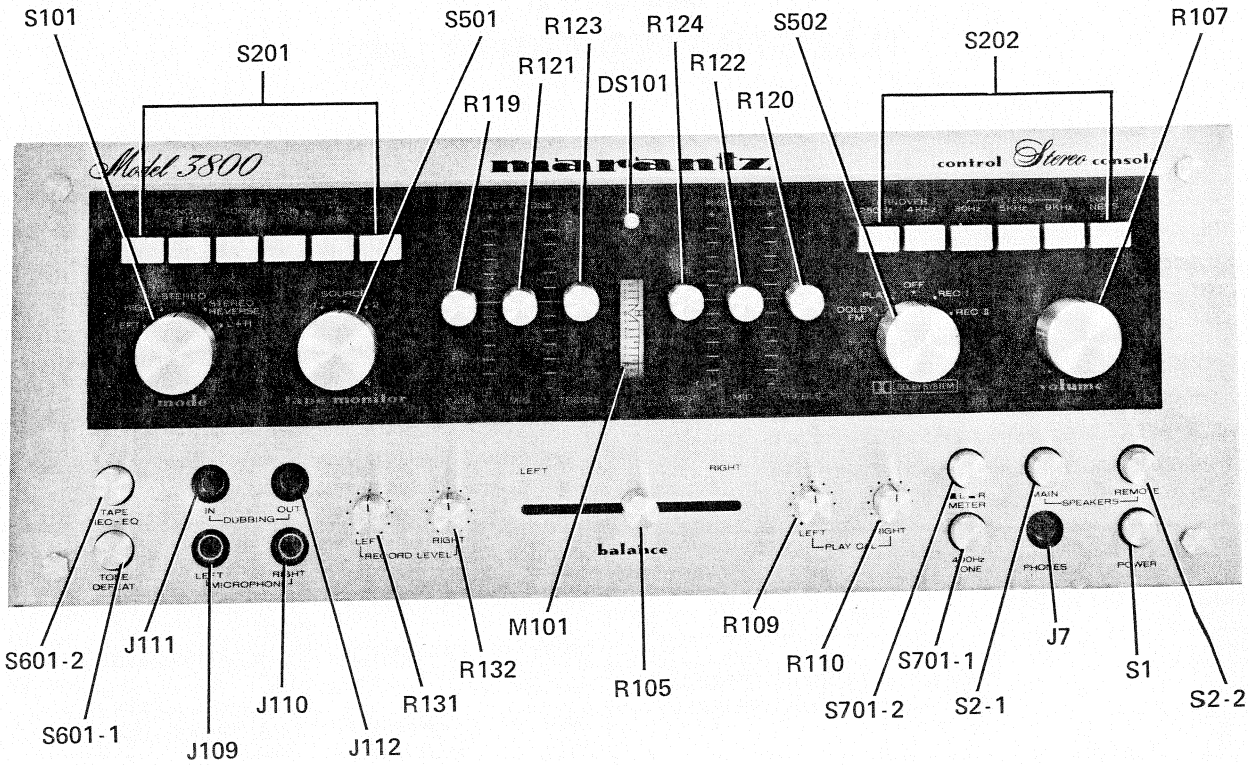


Figure 3-1 Front Panel Controls and Indicators

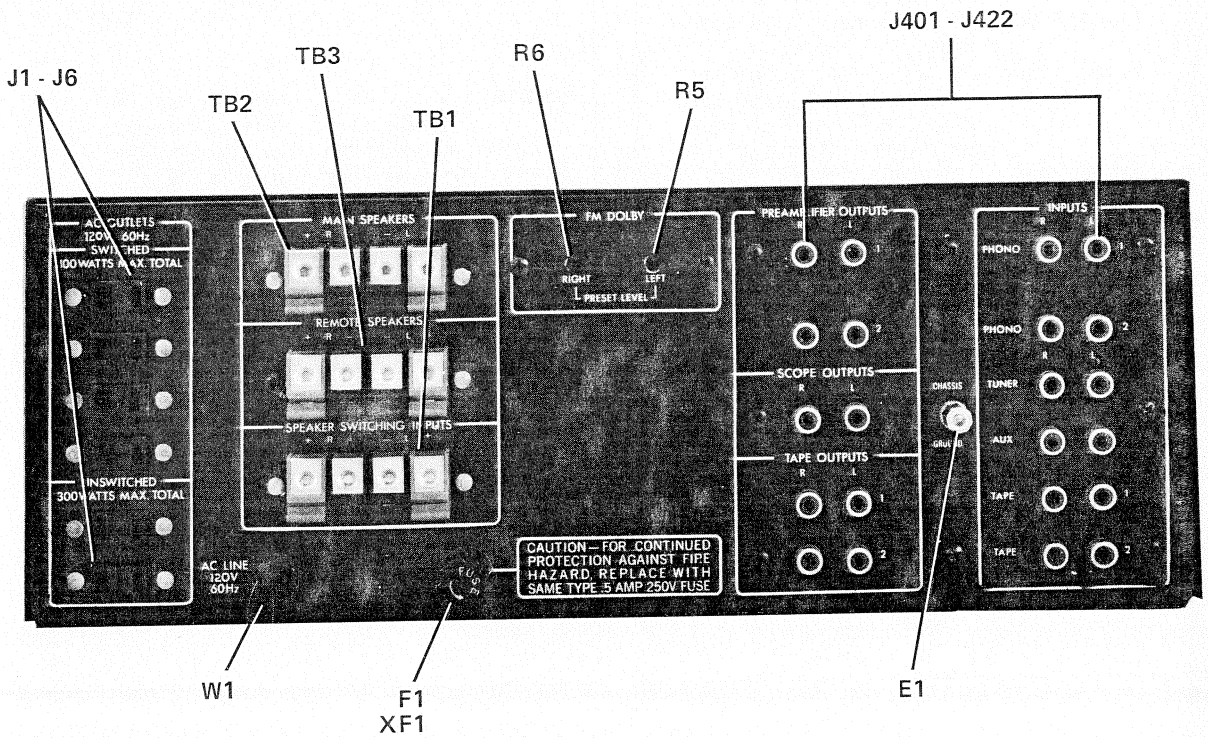


Figure 3-2 Rear Panel Jacks and Connectors

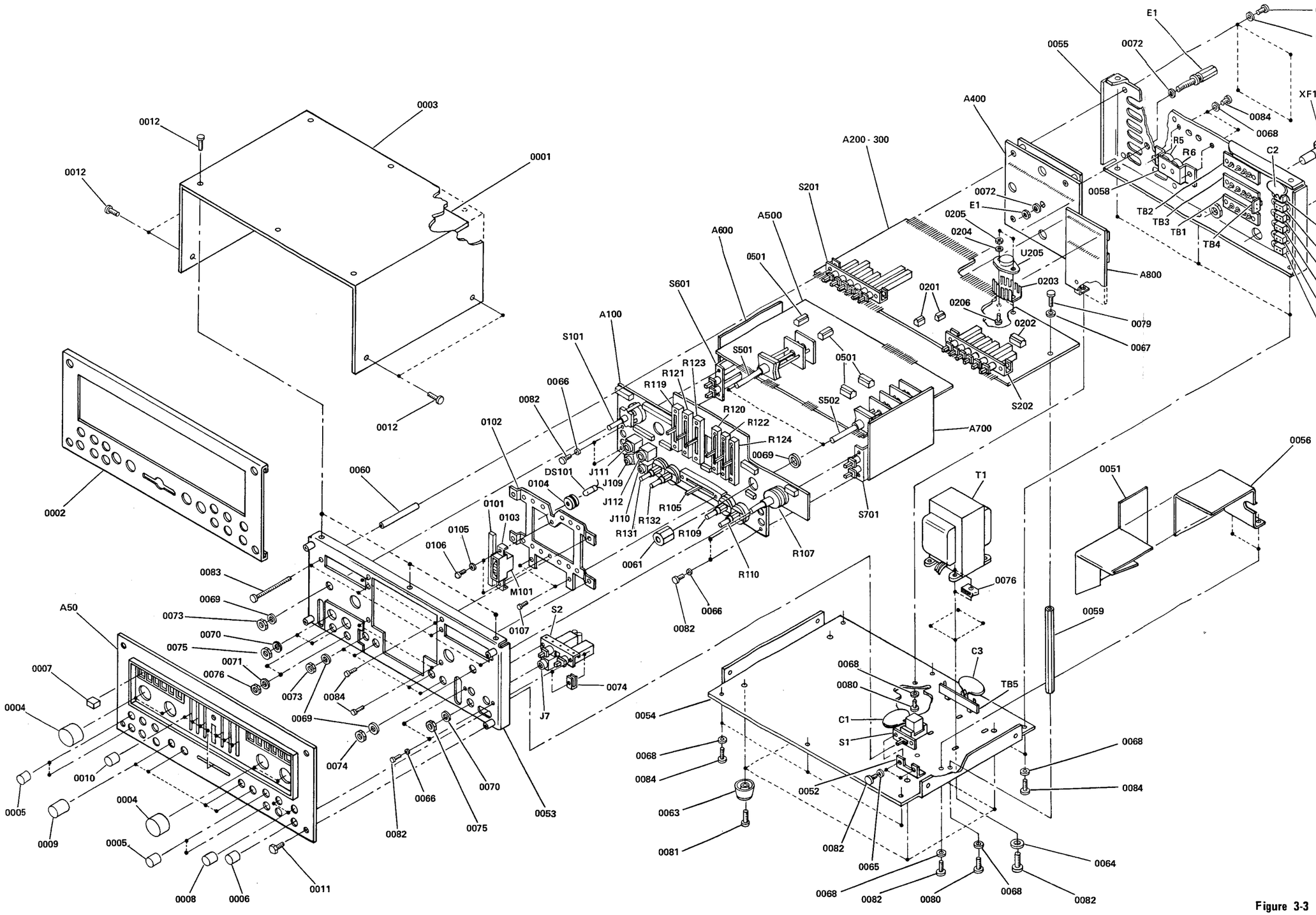


Figure 3-3 Disassembly / Reassembly Diagram

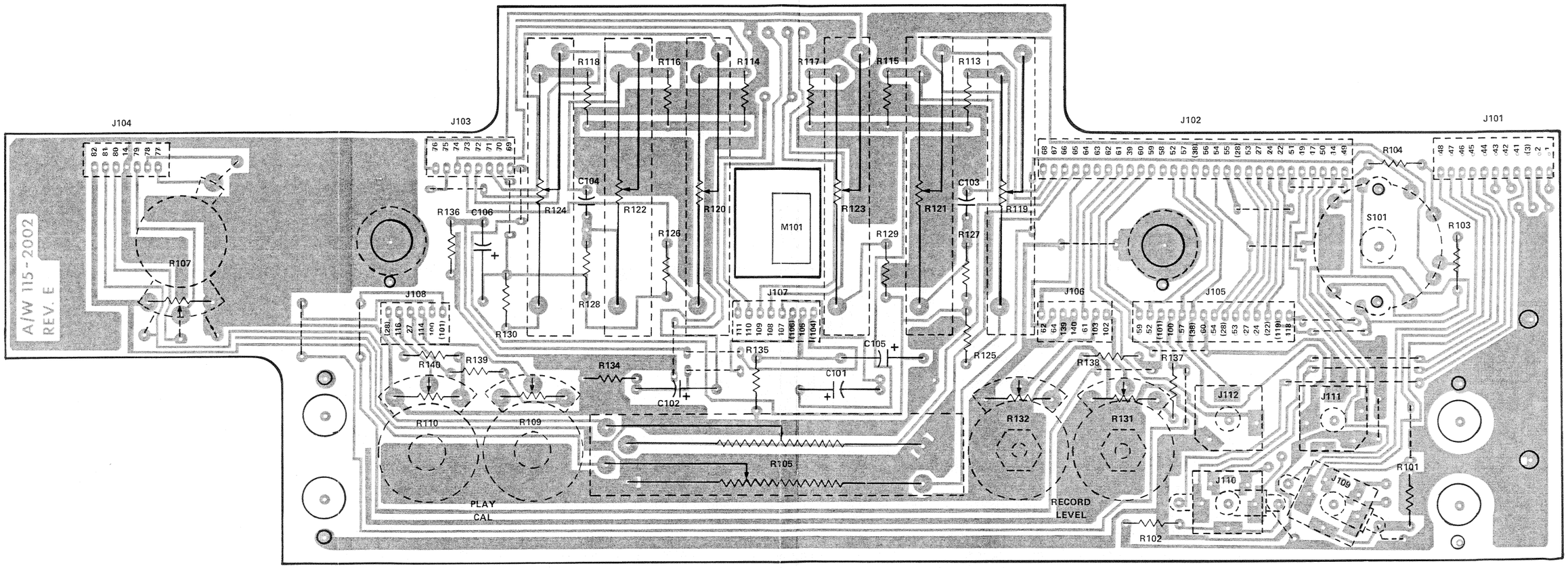


Figure 3-4 Control Board Diagram, Circuit Side

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A1		CHASSIS ASSEMBLY
C1 THRU C3	383-1006-000	CAPACITOR, .01 MFD, 1.4 KV
E1	359-2012-000	BINDING POST, W/HDW
F1	451-1016-000	FUSE, 0.5A, 250V
J1 THRU J6	360-1034-000	OUTLET, A.C.
J7	360-1005-000	PHONE JACK, DOUBLE OPEN CIRCUIT, PHONES
R1, R2	423-3332-000	RESISTOR, C-C, 330 OHMS ± 5%, 1W
R3, R4	436-1103-000	RESISTOR, WW, 1.0 OHM ± 10%, 2W
R5, R6	420-2004-000	RESISTOR, VARIABLE, 50 K OHMS, FM DOLBY CAL
S1	452-2015-000	SWITCH, POWER
S2	452-2001-000	SWITCH, TWO-STATION, SPEAKERS
T1	440-2005-000	TRANSFORMER, POWER
T1	440-2006-000	TRANSFORMER, POWER (E) (J)
TB1 THRU TB3	362-2000-000	TERMINAL BLOCK
TB3	363-2000-000	TERMINAL BLOCK (J)
TB4	362-2005-000	TERMINAL STRIP, .125 DIA MOUNTING HOLE
TB5	362-2006-000	TERMINAL STRIP
TB6	362-2006-000	TERMINAL STRIP (E) (J)
W1	361-1001-000	LINE CORD, A.C.
XF1	367-1000-000	FUSE HOLDER
0051	127-2007-000	INSULATOR, POWER SWITCH SHIELD
0052	132-2001-000	BRACKET, POWER SWITCH
0053	133-2003-000	CHASSIS FRONT
0054	133-2004-010	CHASSIS BASE
0055	133-2005-000	CHASSIS REAR, MARKED
0056	136-2002-000	SHIELD, POWER AND SPEAKER SWITCHES
0057	150-2000-000	PLATE, PHONE JACK
0058	150-2003-000	PLATE, POTENTIOMETER MOUNTING

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
0059	168-2000-000	STANDOFF, HEX
0060	168-2001-000	SPACER x4
0061	176-2001-000	NUT, BUSHING EXTENDER, SWITCH MOUNTING x2
0062	565-1001-000	BUSHING, STRAIN RELIEF
0063	567-2000-000	FOOT, PLASTIC, BLACK W/FELT PAD x4
		ATTACHING PARTS
0064	670-4552-000	. WASHER, FLAT, NO. 6 BLK WAX x4
0065	671-2230-000	. LOCKWASHER, NO. 4 SPLIT CAD x2
0066	671-2232-000	. LOCKWASHER, NO. 4 SPLIT BLK x6
0067	671-4330-000	. LOCKWASHER, NO. 6 SPLIT CAD
0068	671-4332-000	. LOCKWASHER, NO. 6 SPLIT BLK x14
0069	672-8816-000	. LOCKWASHER, INTL T x8
0070	675-1015-000	. FLATWASHER x3
0071	675-2000-000	. FLATWASHER x2
0072	675-2001-000	. LOCKWASHER, NO. 8 INTL T x2
0073	680-8726-000	. NUT, HEX, 3/8-32 x 1/2 x6
0074	682-2000-000	. SPEED NUT, 4-40, U TYPE x2
0075	689-1023-000	. NUT, HEX, 3/8-32 x3
0076	689-2000-000	. SPEED NUT, NO. 6, J TYPE x4
0077	689-2002-000	. NUT, KNURLED x2
0078	721-0412-000	. SCREW, 4-40 x 1/4, PNH CRSHD, BLK WAX x2
0079	741-0410-000	. SCREW, 6-32 x 1/4, PNH CRSHD, CAD
0080	741-0412-000	. SCREW, 6-32 x 1/4, PNH CRSHD, BLK WAX x2
0081	741-0612-000	. SCREW, 6-32 x 3/8, PNH CRSHD, BLK WAX x8
0082	769-2001-000	. SCREW, 3mm x 6mm lg., PNH CRSHD, ST CAD x6
0083	769-2002-000	. SCREW, 3mm x 35mm, PNH CRSHD, BLK WAX x4
0084	784-4112-000	. SCREW, 6-32 x 1/4, TF CRSHD, BLK WAX x14
0085	799-1011-000	. SCREW, 6-20 x 1/2, SH MET TYPE Z, BLK WAX x4

(C) CANADA
(E) EUROPE
(J) JAPAN
(U) USA

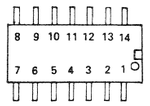
REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A100	200-2002-100	**CONTROL BOARD COMPONENT ASSEMBLY**
C101, C102	381-2002-000	CAPACITOR, ELECTROLYTIC, 10 MFD +100% -20%, 25V
C103, C104	386-2000-000	CAPACITOR, POLYESTER, 3600 PF ± 10%, 100V
C105, C106	381-2002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 25V
DS101	482-2000-000	LAMP, PILOT
J101	360-2000-000	CONNECTOR, 11-PIN
J102	360-1020-000	CONNECTOR, 13-PIN (PARTIAL)
J102	360-1019-000	CONNECTOR, 16-PIN (PARTIAL)
J103	360-2001-000	CONNECTOR, 8-PIN
J104	360-2003-000	CONNECTOR, 7-PIN
J105	360-2008-000	CONNECTOR, 15-PIN
J106	360-2003-000	CONNECTOR, 7-PIN
J107	360-2001-000	CONNECTOR, 8-PIN
J108	360-2010-000	CONNECTOR, 6-PIN
J109	360-2002-000	PHONE JACK, MIC LEFT
J110	360-2002-000	PHONE JACK, MIC RIGHT
J111	360-1004-000	PHONE JACK, DOUBLE CLOSED CIRCUIT, DUB IN
J112	360-1005-000	PHONE JACK, DOUBLE OPEN CIRCUIT, DUB OUT
M101	865-2000-000	METER, DOLBY
		RESISTOR VALUES ARE IN OHMS ± 5%, 1/4W, AND CARBON-FILM TYPE UNLESS OTHERWISE SPECIFIED.
R101, R102	434-5102-000	RESISTOR, 10K
R103, R104	434-4202-000	RESISTOR, 2K
R105	420-2007-000	RESISTOR, VARIABLE, 50K, BALANCE
R106		NOT USED
R107	420-2017-000	RESISTOR, VARIABLE, 50K, DUAL, VOLUME
R108		NOT USED

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE	
R109, R110	420-2001-000	RESISTOR, VARIABLE, 25K, PLAY CAL	
R111		NOT USED	
R112		NOT USED	
R113, R114	434-5152-000	RESISTOR, 15K	
R115, R116	434-4562-000	RESISTOR, 5.6K	
R117, R118	434-4912-000	RESISTOR, 9.1K	
R119 THRU R124	420-2002-000	RESISTOR, VARIABLE, 100K, TONE	
R125, R126	434-5152-000	RESISTOR, 15K	
R127, R128	434-4562-000	RESISTOR, 5.6K	
R129, R130	434-5102-000	RESISTOR, 10K	
R131, R132	420-2001-000	RESISTOR, VARIABLE, 50K, RECORD LEVEL	
R133 THRU R136	434-5472-000	RESISTOR, 47K	
R137, R138	434-6102-000	RESISTOR, 100K	
R139, R140	434-5242-000	RESISTOR. 24K	
S101	453-2008-000	SWITCH, ROTARY, 5-POSITION, MODE	
0101	127-2006-000	INSULATOR, METER	
0102	132-2000-010	BRACKET, VARIABLE RESISTOR	
0103	132-2003-000	CLIP, METER MOUNTING	x2
0104	566-1020-000	GROMMET	
		ATTACHING PARTS	
0105	671-2230-000	. LOCKWASHER, NO. 4 ST SPT SP CAD	x2
0106	721-0410-000	. SCREW, 4-40 x 1/4, PNH CRSHD, ST CAD	x2
0107	769-2001-000	. SCREW, 3mm x 6mm, PNH CRSHD, ZINC	x14

NOTES, ALL D.C. VOLTAGES ARE MEASURED UNLESS SPECIFIED:

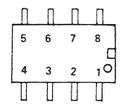
1. WITHIN ± 10% TOLERANCE.
2. WITH 120 VOLTS REGULATED INPUT.
3. WITH RESPECT TO CHASSIS GROUND.
4. WITH CONTROLS SET AT MIDRANGE, TONE SWITCH ON.
5. WITH NO SIGNAL APPLIED, INPUT JACK SHORTED.

U201
F749PC



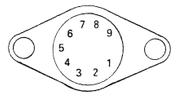
Pins 1, 13	-0.01V
Pins 2, 12	15.4V
Pins 3, 11	13.8V
Pins 4, 10	13.8V
Pins 5, 9	-0.01V
Pins 6, 8	-0.01V
Pin 7	-17.3V
Pin 14	17.3V

U203, U204
LM301AN

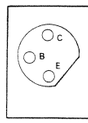


Pin 1	-15.8V
Pin 2	0V
Pin 3	0V
Pin 4	-17.3V
Pin 5	no connection
Pin 6	0V
Pin 7	17.3V
Pin 8	-0.56V

U205
RC4194TK



CASE	-29.0V
Pin 1	-17.3V
Pin 2	-4.4V
Pin 3	-21.5V
Pin 4	0V
Pin 5	29.0V
Pin 6	17.3V
Pin 7	0V
Pin 8	no connection
Pin 9	0V



	E	B	C
Q201, Q202	.78	.24	-15.8
Q203, Q204	.78	.25	-17.0
Q209, Q210	.2	. .42	-17.0
Q215, Q216	16 .6	15 .9	-2.9
Q219	-17.3	-17.9	-17.3
Q221	-23.5	-24.3	-29.0

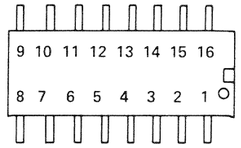
	E	B	C
Q205, Q206	-16.4	-15.8	17.1
Q207, Q208	-17.0	-16.4	-0.42
Q211, Q212	-16.4	-15.8	0.
Q213, Q214	-2.9	-2.2	15.9
Q217, Q218	-16.6	-15.9	2.9
Q220	-23.5	-22.8	-23.5

Figure 3-5 Preamplifier Board Diagram, Circuit Side

NOTES, ALL D.C. VOLTAGES ARE MEASURED UNLESS SPECIFIED:

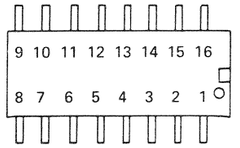
1. WITHIN ± 10% TOLERANCE.
2. WITH 120 VOLTS REGULATED INPUT.
3. WITH RESPECT TO CHASSIS GROUND.
4. WITH CONTROLS SET AT MIDRANGE, TONE SWITCH ON.
5. WITH NO SIGNAL APPLIED, INPUT JACK SHORTED.

U501, U502
NE545B



Pin 1	-7.1V	Pin 9	-17.3V
Pin 2	-7.1V	Pin 10	-6.0V
Pin 3	-6.9V	Pin 11	-5.0V
Pin 4	-7.1V	Pin 12	-16.6V
Pin 5	-6.6V	Pin 13	-16.6V
Pin 6	-7.1V	Pin 14	-16.6V
Pin 7	-8.0V	Pin 15	-16.6V
Pin 8	-6.0V	Pin 16	0V

U503, U504
NE545B



Pin 1	9.8V	Pin 9	0V
Pin 2	10.0V	Pin 10	10.9V
Pin 3	no connection	Pin 11	11.7V
Pin 4	10.0V	Pin 12	.63V
Pin 5	9.7V	Pin 13	.63V
Pin 6	10.0V	Pin 14	.53V
Pin 7	9.3V	Pin 15	.53V
Pin 8	10.9V	Pin 16	17.3V

DOLBY - TAPE MONITOR BOARD, FOIL PATTERN, COMPONENT SIDE

DOLBY - TAPE MONITOR BOARD, FOIL PATTERN, CIRCUIT SIDE

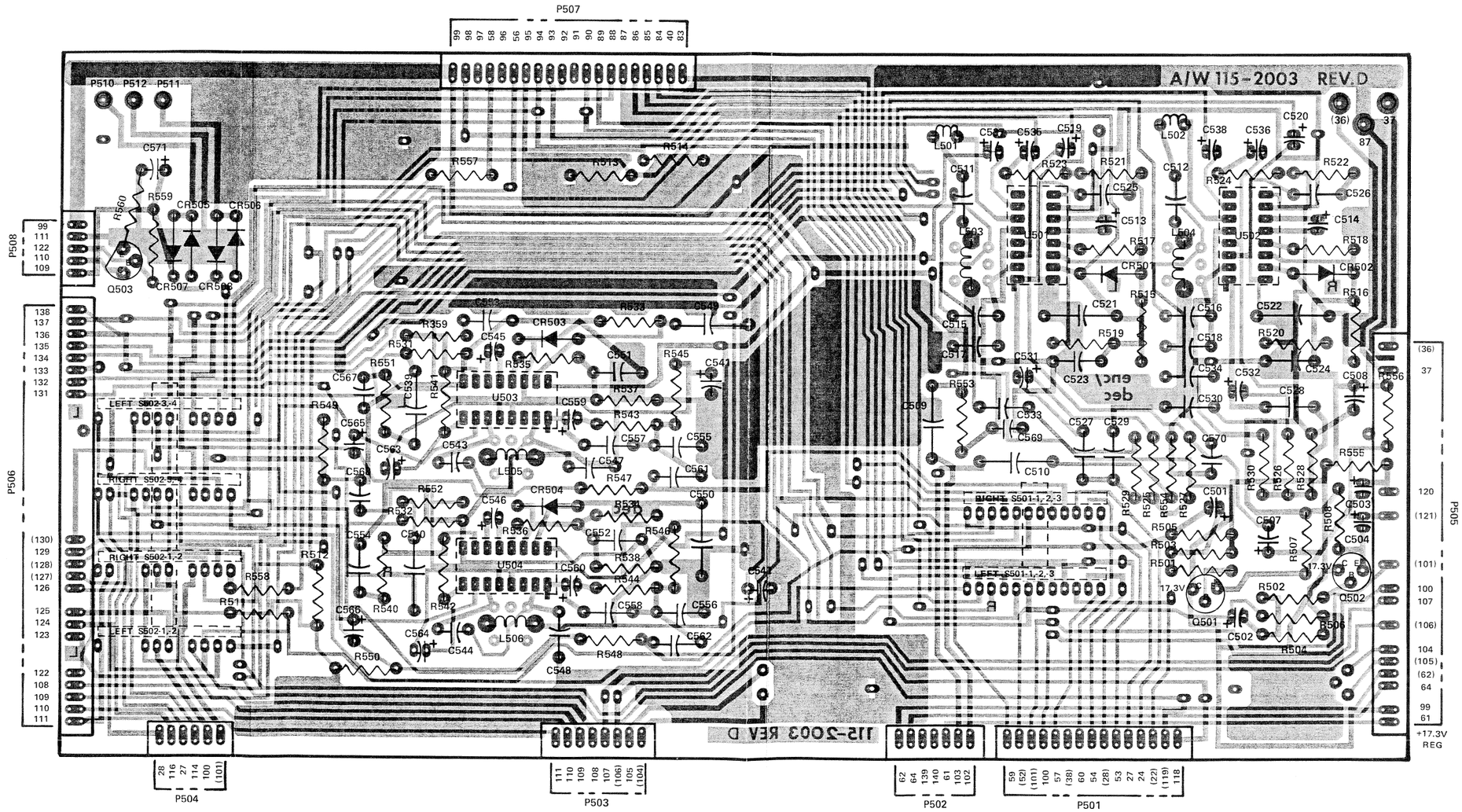


Figure 3-6 Dolby - Tape Monitor Board, Circuit Side

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A200-300	200-2009-100	PREAMPLIFIER BOARD COMPONENT ASSEMBLY CAPACITORS ARE ± 10%, 100V UNLESS OTHERWISE SPECIFIED.
C201, C202	381-3001-000	CAPACITOR, ELECTROLYTIC, 4.7 MFD + 100% -20%, 25V
C203, C204	385-1065-000	CAPACITOR, MICA, 82 PF
C205, C206	385-1037-000	CAPACITOR, MICA, 270 PF
C207, C208	381-3003-000	CAPACITOR, ELECTROLYTIC, 22 MFD + 100% -20%, 25V
C209, C210	385-2004-000	CAPACITOR, MICA, 220 PF
C211, C212	385-1040-000	CAPACITOR, MICA, 47 PF
C213, C214	385-1091-000	CAPACITOR, MICA, 1000 PF ± 5%, 100V
C215, C216	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V
C217, C218	385-1057-000	CAPACITOR, MICA, 3600 PF ± 5%, 100V
C219, C220	386-2003-000	CAPACITOR, POLYESTER, 1 MFD
C221, C222	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V
C223 THRU C226	381-3001-000	CAPACITOR, ELECTROLYTIC, 4.7 MFD + 100% -20%, 25V
C227, C228	385-2002-000	CAPACITOR, MICA, 510 PF ± 5%, 100V
C229, C230	385-1074-000	CAPACITOR, MICA, 68 PF
C231, C232	381-3006-000	CAPACITOR, ELECTROLYTIC 100 MFD + 100% -20%, 6.3V
C233, C234	385-1046-000	CAPACITOR, MICA, 2000 PF
C235, C236	385-1073-000	CAPACITOR, MICA, 130 PF
C237, C238	383-2000-000	CAPACITOR, CERAMIC, .001 MFD, GMV, 300V
C239	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V
C240		NOT USED
C241	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
C242		NOT USED
C243, C244	385-2003-000	CAPACITOR, MICA, 620 PF
C245, C246	381-2002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 25V
C247 THRU C250	386-2002-000	CAPACITOR, POLYESTER, .1 MFD
C251, C252	385-1091-000	CAPACITOR, MYLAR, 1000 PF ± 5%, 100V
C253, C254	385-2002-000	CAPACITOR, MICA, 510 PF ± 5%, 100V
C255, C256	386-2005-000	CAPACITOR, POLYESTER, .22 MFD
C257, C258	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V
C259, C260	385-1040-000	CAPACITOR, MICA, 47 PF
C261, C262	381-3003-000	CAPACITOR, ELECTROLYTIC, 22 MFD + 100% -20%, 25V
C263, C264	386-2002-000	CAPACITOR, POLYESTER, .1 MFD
C265, C266	386-2001-000	CAPACITOR, POLYESTER, .027 MFD
C267		NOT USED
C268		NOT USED
C269, C270	386-2001-000	CAPACITOR, POLYESTER, .027 MFD
C271, C272	386-2000-000	CAPACITOR, POLYESTER, 5600 PF
C273, C274	385-1087-000	CAPACITOR, MICA, 470 PF
C275, C276	385-1094-000	CAPACITOR, MYLAR, 1500 PF
C277, C278	386-2002-000	CAPACITOR, POLYESTER, .1 MFD
C279, C280	385-1035-000	CAPACITOR, MICA, 39 PF ± 10%, 500V
C281, C282	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V
C283, C284	385-2001-000	CAPACITOR, MICA, 56 PF
C285, C286	383-1002-000	CAPACITOR, CERAMIC, .03 MFD ± 20%, 100V

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
C287, C288	385-1049-000	CAPACITOR, MICA, 5 PF
C289		NOT USED
C290	381-3003-000	CAPACITOR, ELECTROLYTIC, 22 MFD + 100% -20%, 25V
C291, C292	381-2001-000	CAPACITOR, ELECTROLYTIC, 470 MFD + 100% -20%, 50V
C293, C294	383-2000-000	CAPACITOR, CERAMIC, .001 MFD, GMV, 300V
C295, C296	381-2000-000	CAPACITOR, ELECTROLYTIC, 100 MFD + 100% -20%, 25V
C297	381-3007-000	CAPACITOR, ELECTROLYTIC, 47 MFD + 100% -20%, 50V
C298		NOT USED
C299 THRU C301	386-2004-000	CAPACITOR, POLYESTER, .15 MFD
CR201 THRU CR204	460-2000-000	DIODE, RECTIFIER, 1N4003
CR205	460-1010-000	DIODE, RECTIFIER, 1N541
Q201 THRU Q204	461-2001-000	TRANSISTOR, PNP, 2N4250
Q205, Q206	462-2000-000	TRANSISTOR, NPN, MPSA18
Q207, Q208	462-2018-000	TRANSISTOR, NPN, MPSH04
Q209, Q210	461-2001-000	TRANSISTOR, PNP, 2N4250
Q211 THRU Q214	462-2002-000	TRANSISTOR, NPN, 2N5210
Q215, Q216	461-2001-000	TRANSISTOR, PNP, 2N4250
Q217, Q218	462-2002-000	TRANSISTOR, NPN, 2N5210
Q219	461-2001-000	TRANSISTOR, PNP, 2N4250
Q220	462-2004-000	TRANSISTOR, NPN, 2N5961
Q221	461-2001-000	TRANSISTOR, PNP, 2N4250
		RESISTOR VALUES ARE IN OHMS, ± 5%, 1/4W AND CARBON-FILM TYPE UNLESS OTHERWISE SPECIFIED.
R201, R202	434-5472-000	RESISTOR, 47K
R203, R204	434-7332-000	RESISTOR, 3.3K
R205, R206	434-3512-000	RESISTOR, 510
R207, R208	439-2007-010	RESISTOR, M-F, 30K

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
R209, R210	439-2007-020	RESISTOR, M-F, 180K
R211, R212	434-4152-000	RESISTOR, 1.5K
R213, R214	434-3682-000	RESISTOR, 680
R215, R216	434-4332-000	RESISTOR, 3.3K
R217, R218	434-7222-000	RESISTOR, 2.2MEG
R219, R220	434-6682-000	RESISTOR, 680K
R221, R222	434-4152-000	RESISTOR, 1.5K
R223, R224	434-7222-000	RESISTOR, 2.2MEG
R225, R226	434-5152-000	RESISTOR, 15K
R227, R228	434-5912-000	RESISTOR, 91K
R229, R230	434-5752-000	RESISTOR, 75K
R231 THRU R234	434-4202-000	RESISTOR, 2K
R235 THRU R238	434-2222-000	RESISTOR, 22
R239, R240	434-5472-000	RESISTOR, 47K
R241, R242	434-3152-000	RESISTOR, 150
R243, R244	434-5122-000	RESISTOR, 12K
R245, R246	434-4272-000	RESISTOR, 2.7K
R247, R248	434-6182-000	RESISTOR, 180K
R249, R250	434-3512-000	RESISTOR, 510
R251, R252	434-4102-000	RESISTOR, 1K
R253, R254	434-2752-000	RESISTOR, 75
R255, R256	434-5102-000	RESISTOR, 10K
R257, R258	434-7102-000	RESISTOR, 1 MEG
R259, R260	434-5562-000	RESISTOR, 56K
R261, R262	434-3152-000	RESISTOR, 150
R263, R264	434-3222-000	RESISTOR, 220
R265, R266	434-3152-000	RESISTOR, 150
R267, R268	434-2102-000	RESISTOR, 10
R269, R270	434-5472-000	RESISTOR, 47K

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
R271, R272	434-5362-000	RESISTOR, 36K
R273, R274	434-5752-000	RESISTOR, 75K
R275, R276	434-5432-000	RESISTOR, 43K
R277 THRU R280	434-5562-000	RESISTOR, 56K
R281, R282	434-5432-000	RESISTOR, 43K
R283, R284	434-4102-000	RESISTOR, 1K
R285, R286	434-7332-000	RESISTOR, 3.3 MEG
R287, R288	434-4752-000	RESISTOR, 7.5K
R289, R290	434-5222-000	RESISTOR, 22K
R291, R292	434-3912-000	RESISTOR, 910
R293 THRU R296	434-3102-000	RESISTOR, 100
R297, R298	434-5272-000	RESISTOR, 27K
R299, R300	434-5122-000	RESISTOR, 12K
R301 THRU R304	434-2102-000	RESISTOR, 10
R305 THRU R309		NOT USED
R310	434-5102-000	RESISTOR, 10K
R311, R312	434-2102-000	RESISTOR, 10
R313	439-2000-000	RESISTOR, 71.5K
R314	434-5431-000	RESISTOR, 43K
R315	434-6102-000	RESISTOR, 100K
R316	434-4202-000	RESISTOR, 2K
R317	433-4102-000	RESISTOR, 1K, 1/2W
R318	434-3102-000	RESISTOR, 100
R319, R320	434-5122-000	RESISTOR, 12K
R321	434-5392-000	RESISTOR, 39K
R322	434-4332-000	RESISTOR, 3.3K

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE	
S201	452-2002-000	SWITCH, PUSHBUTTON, 6-STATION, SELECTOR	
S202	452-2005-000	SWITCH, PUSHBUTTON, 6-STATION, FILTERS	
U201	466-2000-000	INTEGRATED CIRCUIT, DUAL LINEAR OPERATIONAL AMPLIFIER, 749PC	
U202		NOT USED	
U203, U204	466-2001-000	INTEGRATED CIRCUIT, LINEAR OPERATIONAL AMPLIFIER, LM301AN	
U205	470-2000-000	INTEGRATED CIRCUIT, POWER SUPPLY REGULATOR, RC4194TK	
0201	368-2002-000	SOCKET, I.C., 8-PIN	x2
0202	368-2003-000	SOCKET, I.C., 14-PIN	
0203	562-2000-000	HEAT DISSIPATOR	
		ATTACHING PARTS	
0204	671-4330-000	. LOCKWASHER, NO. 6, ST SPT SP CAD	x2
0205	680-4220-000	. NUT, HEX, 6-32 CAD,	x2
0206	741-0610-000	. SCREW, 6-32 x 3/8, PNH CRSHD ST CAD	x2
A400	**200-2010-110**	**JACK PANEL ASSEMBLY**	
	200-2008-110	JACK MOUNTING PANEL COMPONENT ASSY	
	200-2005-110	JACK INPUT COMPONENT ASSY	
J401 THRU J422	360-1029-000	PHONE JACK	
J423	360-2004-000	CONNECTOR, 10-PIN, .150 SPACING	x4
	359-2002-000	STANDOFF, 8-32 THD	
	359-2003-000	STANDOFF, 6-32 THD	x4

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A500	200-2003-100	DOLBY - TAPE MONITOR BOARD COMPONENT ASSEMBLY
		CAPACITORS ARE ± 10%, 100V UNLESS OTHERWISE SPECIFIED.
C501, C502	381-3001-000	CAPACITOR, ELECTROLYTIC, 4.7 MFD + 100% -20%, 25V
C503, C504	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C505		NOT USED
C506		NOT USED
C507, C508	381-3011-000	CAPACITOR, ELECTROLYTIC, 100 MFD + 100% -20%, 16V
C509, C510	386-2003-000	CAPACITOR, POLYESTER, 1 MFD
C511, C512	385-2005-000	CAPACITOR, MICA, 3900 PF ± 5%, 100V
C513, C514	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C515, C516	385-2006-000	CAPACITOR, MICA, 3000 PF ± 5%, 100V
C517, C518	385-2007-000	CAPACITOR, MICA, 2200 PF ± 5%, 100V
C519, C520	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C521 THRU C524	386-2002-000	CAPACITOR, POLYESTER, .1 MFD
C525, C526	386-2006-000	CAPACITOR, POLYESTER, .047 MFD

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
C527, C528	386-2008-000	CAPACITOR, POLYESTER, 4700 PF ± 5%, 50V
C529, C530	386-2009-000	CAPACITOR, POLYESTER, .027 MFD ± 5%, 50V
C531, C532	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C533, C534	386-2010-000	CAPACITOR, POLYESTER, 5600 PF ± 5%, 50V
C535 THRU C538	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C539, C540	386-2003-000	CAPACITOR, POLYESTER, 1 MFD
C541, C542	381-3011-000	CAPACITOR, ELECTROLYTIC, 100 MFD + 100% -20%, 16V
C543, C544	385-2004-000	CAPACITOR, MICA, 220 PF
C545, C546	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C547, C548	385-2006-000	CAPACITOR, MICA, 3000 PF ± 5%, 100V
C549, C550	389-2002-000	CAPACITOR, POLYESTER, .33MFD
C551, C552	386-2002-000	CAPACITOR, POLYESTER, .1 MFD
C553, C554	386-2006-000	CAPACITOR, POLYESTER, .047 MFD
C555, C556	386-2009-000	CAPACITOR, POLYESTER, .027 MFD ± 5%, 50V
C557, C558	386-2008-000	CAPACITOR, POLYESTER, 4700 PF ± 5%, 50V

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
C559, C560	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C561, C562	386-2010-000	CAPACITOR, POLYESTER, 5600 PF ± 5%, 50V
C563, C564	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C565, C566	381-3003-000	CAPACITOR, ELECTROLYTIC, 22 MFD + 100% -20%, 25V
	381-3009-000	47 MFD + 100% -20%, 25V EFFECTIVITY SERIAL NO. 3276 AND UP
C567 THRU C570	385-1065-000	CAPACITOR, MICA, 82 PF
C571	381-3008-000	CAPACITOR, ELECTROLYTIC, 470 MFD + 100% -20%, 16V
CR501 THRU CR504	460-1010-000	DIODE, RECTIFIER, 1N541
CR505 THRU CR508	460-2000-000	DIODE, RECTIFIER, 1N4003
L501, L502	390-2000-000	CHOKE, 36 mH
L503, L504	391-2001-000	CHOKE, VARIABLE, 23 mH, 19 KHZ TRAP
L505, L506	391-2000-000	CHOKE, VARIABLE, 11 mH, 100 KHZ TRAP
Q501, Q502	462-2000-000	TRANSISTOR, NPN, MPSA18
Q503	462-1019-000	TRANSISTOR, NPN, S33369

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
		RESISTOR VALUES ARE IN OHMS, ± 5%, 1/4W AND CARBON-FILM TYPE UNLESS OTHERWISE SPECIFIED.
R501, R502 R503 THRU R506	434-4472-000	RESISTOR, 4.7K
	434-6102-000	RESISTOR, 100K
R507, R508	434-4302-000	RESISTOR, 3K
R509, R510		NOT USED
R511, R512	434-5102-000	RESISTOR, 10K
R513, R514	434-5472-000	RESISTOR, 47K
R515, R516	434-6272-000	RESISTOR, 270K
R517, R518	434-6152-000	RESISTOR, 150K
R519, R520	434-6682-000	RESISTOR, 680K
R521, R522	434-3122-000	RESISTOR, 120
R523, R524	434-6102-000	RESISTOR, 100K
R525, R526	434-5472-000	RESISTOR, 47K
R527, R528	434-4332-000	RESISTOR, 3.3K
R529, R530	434-3182-000	RESISTOR, 180
R531, R532	434-6102-000	RESISTOR, 100K
R533, R534	434-6272-000	RESISTOR, 270K
R535, R536	434-6152-000	RESISTOR, 150K
R537, R538	434-6682-000	RESISTOR, 680K
R539, R540	434-3122-000	RESISTOR, 120

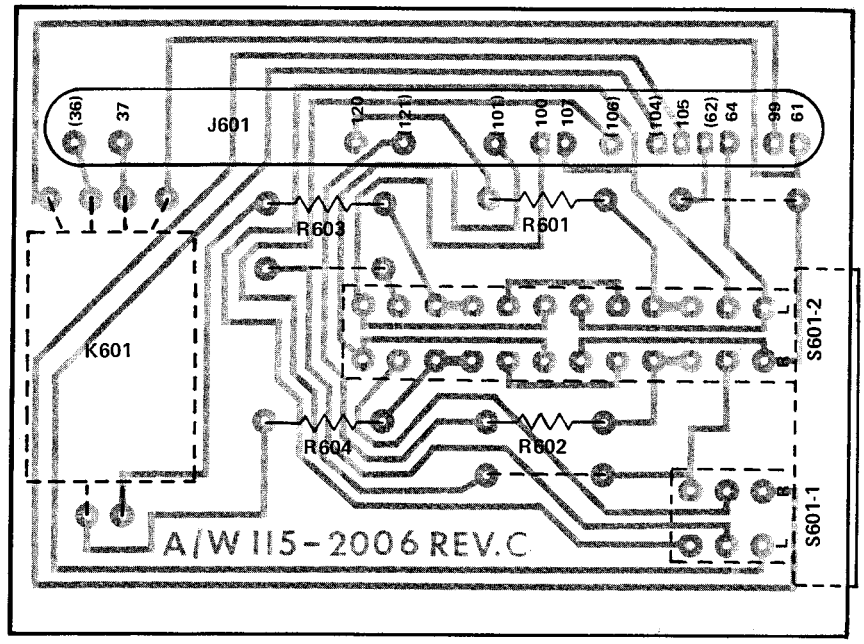


Figure 3-7 Tape Equalization - Tone Defeat Board, Circuit Side

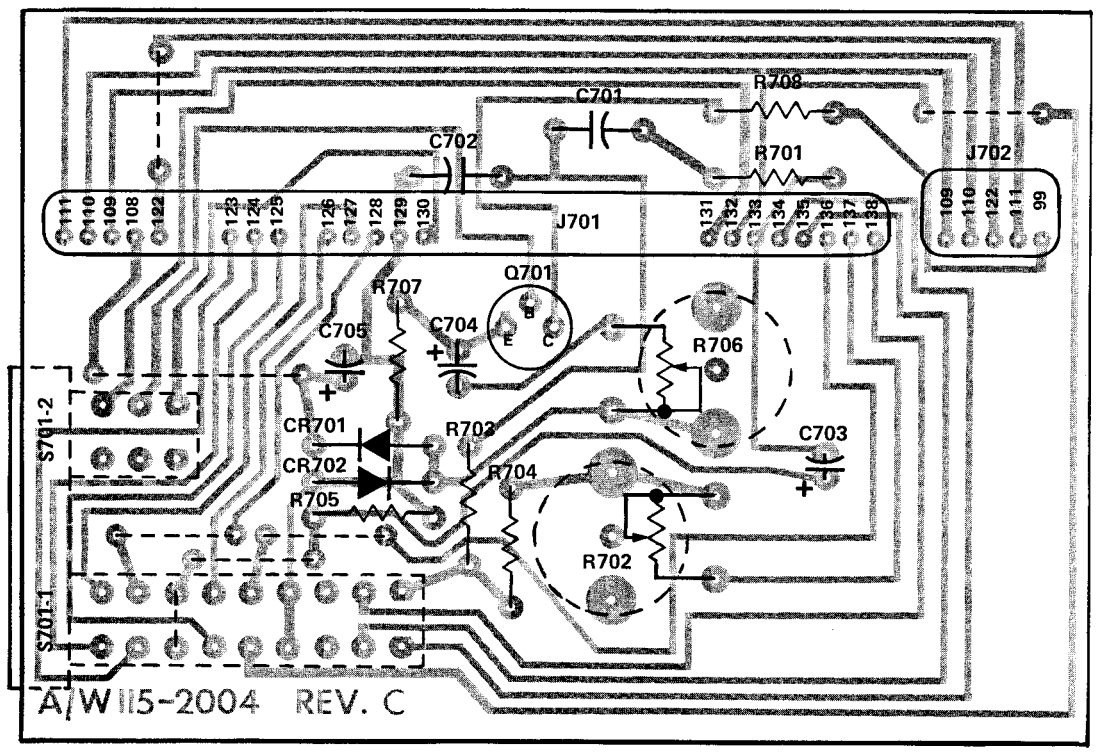


Figure 3-8 Tone Oscillator - Dolby Meter Board, Circuit Side

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
R541, R542	434-6102-000	RESISTOR, 100K
R543, R544	434-5472-000	RESISTOR, 47K
R545, R546	434-4332-000	RESISTOR, 3.3K
R547, R548	434-3822-000	RESISTOR, 820
R549, R550	434-5102-000	RESISTOR, 10K
R551 THRU R554	434-3512-000	RESISTOR, 510
R555, R556	434-5472-000	RESISTOR, 47K
R557, R558	434-3152-000	RESISTOR, 150
R559	433-4102-000	RESISTOR, 1K, 1/2W
R560	433-2222-000	RESISTOR, 22, 1/2W
S501	453-2003-000	SWITCH, ROTARY, 3-POSITION, TAPE MONITOR
S502	453-2004-000	SWITCH, ROTARY, 5-POSITION, DOLBY
U501 THRU U504	466-2002-000	INTEGRATED CIRCUIT, DOLBY PROCESSOR (U501, U502 - ENCODE/ DECODE; U503, U504 - DE-CODE)
0501	368-2000-000	SOCKET, I.C., 16-PIN x4

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A600	**200-2006-100**	**TAPE EQUALIZATION - TONE DEFEAT BOARD COMPONENT ASSEMBLY**
K601	410-2000-000	RELAY, REED, DPST (N.O.)
R601, R602	434-3512-000	RESISTOR, CARBON-FILM, 510 OHMS ± 5%, 1/4W
R603, R604	434-3152-000	RESISTOR, CARBON-FILM, 150 OHMS ± 5%, 1/4W
S601	452-2018-000	SWITCH, PUSHBUTTON, 2-STATION, TONE DEFEAT/ TAPE REC-EQ

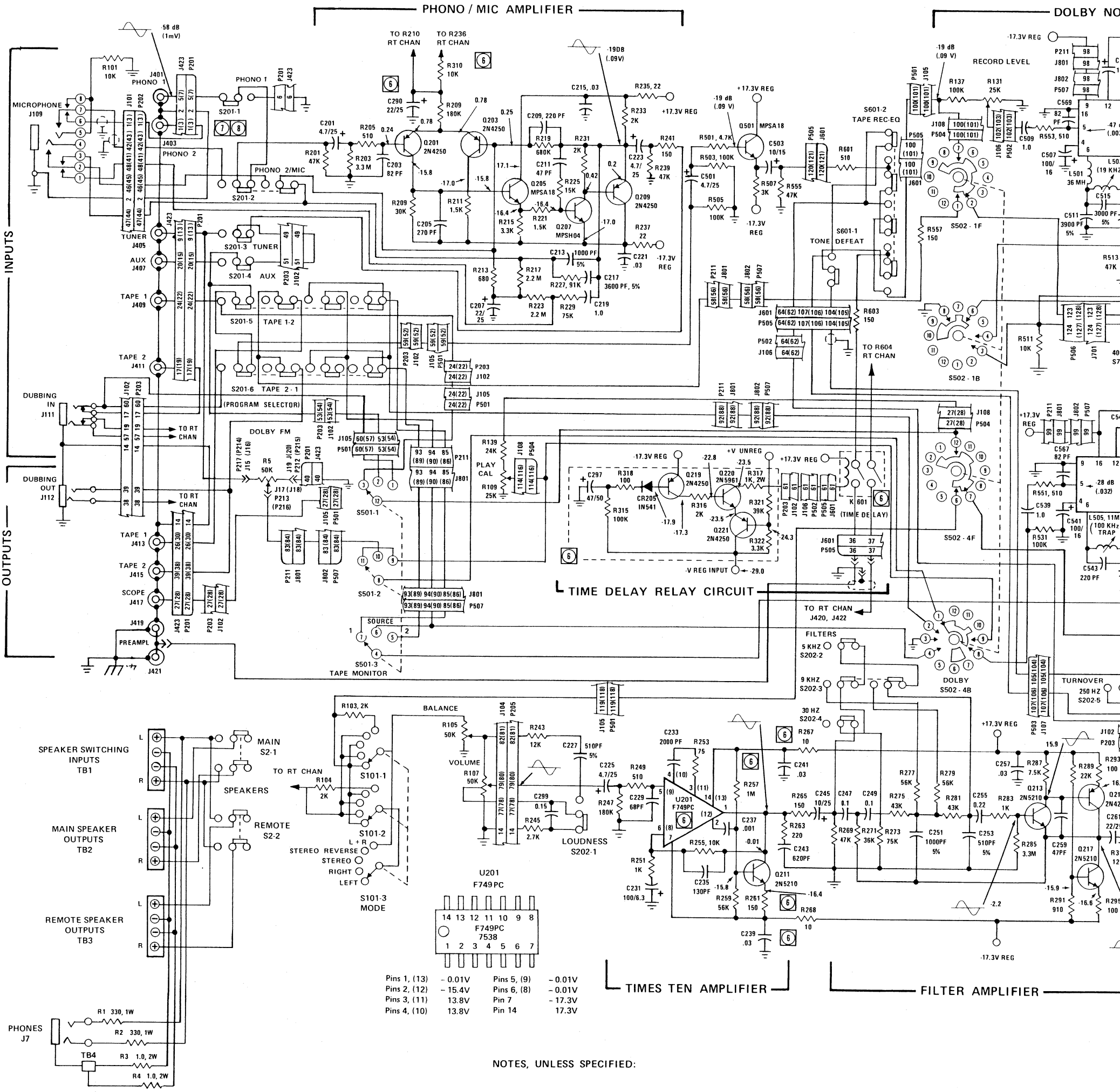
REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE
A700	**200-2004-100**	**400 Hz OSCILLATOR - DOLBY METER BOARD COMPONENT ASSEMBLY**
C701, C702	386-2011-000	CAPACITOR, POLYESTER, .022 MFD ± 10%, 100V
C703	381-3002-000	CAPACITOR, ELECTROLYTIC, 10 MFD + 100% -20%, 16V
C704	381-3003-000	CAPACITOR, ELECTROLYTIC, 22 MFD + 100% -20%, 25V
C705	381-3004-000	CAPACITOR, ELECTROLYTIC, 47 MFD + 100% -20%, 6.3V
CR701, CR702	460-1010-000	DIODE, RECTIFIER, 1N541
Q701	462-2002-000	TRANSISTOR, NPN, 2N5210
		RESISTOR VALUES ARE IN OHMS ± 5%, 1/4W AND CARBON-FILM TYPE UNLESS OTHERWISE SPECIFIED.
R701	434-5272-000	RESISTOR, 27K
R702	420-2005-000	RESISTOR, VARIABLE, 5K 400 HZ OSCILLATOR AMPLITUDE ADJUST
R703	434-5272-000	RESISTOR, 27K
R704	434-4222-000	RESISTOR, 2.2K
R705	434-5102-000	RESISTOR, 10K
R706	420-2005-000	RESISTOR, VARIABLE, 5K, METER CALIBRATION
R707	434-5102-000	RESISTOR, 10K
R708	434-3202-000	RESISTOR, 200
S701	452-2017-000	SWITCH, PUSHBUTTON, 2-STATION, 400 HZ TONE/ L R METER

REFERENCE DESIGNATION	MARANTZ PART NUMBER	NOMENCLATURE	
A800	**200-2007-100**	**INTERFACE BOARD COMPONENT ASSEMBLY**	
J801, J802	360-1024-000	*CONNECTOR, 10-PIN (PARTIAL)	x4
	132-2004-000	*BRACKET	
		*PART OF A800 ASSY	

marantz®

Model 3800 Preamplifier

Schematic Diagram



Pins 1, (13)	- 0.01V	Pins 5, (9)	- 0.01V
Pins 2, (12)	- 15.4V	Pins 6, (8)	- 0.01V
Pins 3, (11)	13.8V	Pin 7	- 17.3V
Pins 4, (10)	13.8V	Pin 14	17.3V

NOTES, UNLESS SPECIFIED:

VOLTAGE MEASUREMENTS

1. All voltages are representative of those measured on a typical unit while maintaining a line input voltage of 120 VAC and are referenced to chassis ground.

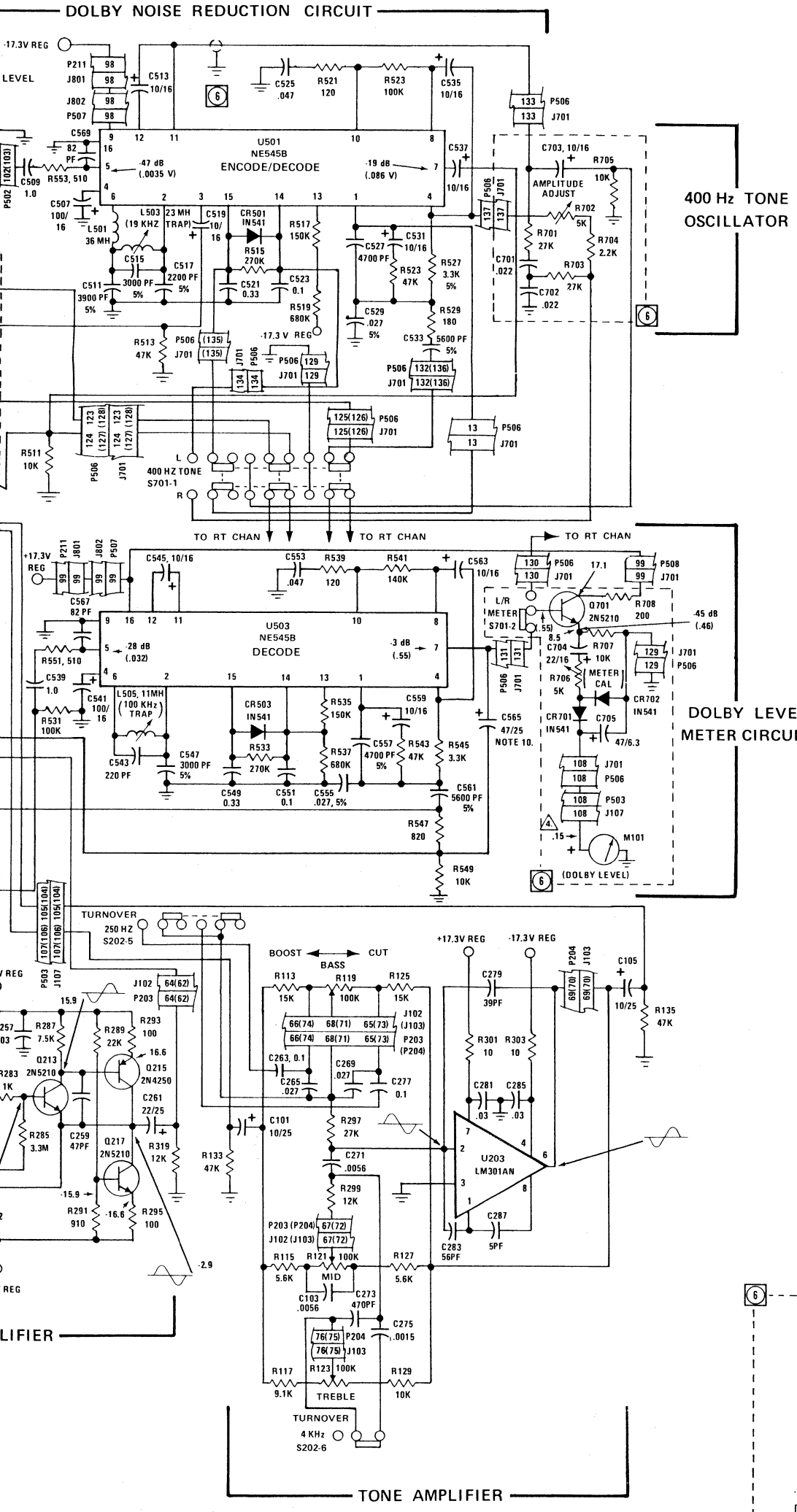
2. Unless otherwise noted, all DC voltage measurements obtained under the following conditions:
   - A. No signal applied, input jack shorted.
   - B. All controls in mid-position.
   - C. MODE switch in STEREO.
   - D. TAPE MONITOR switch in SOURCE.

3. All AC voltages are expressed in RMS and obtained under the following conditions:
   - A. 1mV input signal @ 1kHz applied to PHONO 1 input.
   - B. PLAY CAL controls adjusted for "0" Dolby level on the Dolby Level Meter.
   - C. VOLUME control adjusted to obtain 1V signal output.
   - D. DOLBY switch in REC-1.
   - E. All controls in mid-position.
   - F. MODE switch in STEREO.
   - G. TAPE MONITOR switch in SOURCE.

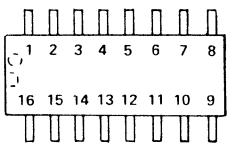
4. Denotes DC voltage obtained under conditions as described in NOTE 3 above.

GENERAL

1. RESISTORS IN OHMS, 1/4W, 5%.
2. CAPACITORS IN MFD, 10%. POLARIZED CAPACITORS ARE ELECTROLYTICS +|| −.
3. THIS SCHEMATIC SHOWS LEFT CHANNEL ONLY.
4. NUMBERS IN PARENTHESIS ARE FOR RIGHT CHANNEL.
5. LEFT CHANNEL REFERENCE DESIGNATIONS FOR CAPACITORS, RESISTORS AND SEMICON RIGHT CHANNEL REFERENCE DESIGNATIONS FOR THESE PARTS ARE NEXT HIGHER EVE
6. COMPONENT OR CIRCUIT COMMON TO BOTH CHANNELS.
7. ALL PUSHBUTTON SWITCHES EXCEPT PHONO 1 ARE SHOWN IN NORMALLY OUT POSITION
8. SWITCHES S201-1 THROUGH S201-4 ARE INTERLOCKING.
9. ALL ROTARY SWITCHES SHOWN IN FULL CCW POSITION (SEE DETAIL FOR DOLBY SWIT
10. CAPACITOR C565 WAS 22/25 IN UNITS 3725 AND LOWER.



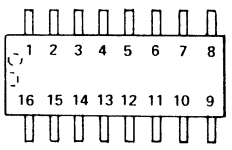
U501
NE545B



(BOTTOM VIEW)

Pin 1	– 7.1V
Pin 2	– 7.1V
Pin 3	– 6.9V
Pin 4	– 7.1V
Pin 5	– 6.6V
Pin 6	– 7.1V
Pin 7	– 8.0V
Pin 8	– 6.0V
Pin 9	– 17.3V
Pin 10	– 6.0V
Pin 11	– 5.0V
Pin 12	– 16.6V
Pin 13	– 16.6V
Pin 14	– 16.6V
Pin 15	– 16.6V
Pin 16	0V

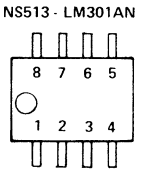
U503
NE543B



(BOTTOM VIEW)

Pin 1	– 9.8V
Pin 2	10.0V
Pin 3	no connection
Pin 4	– 17.5V
Pin 5	9.7V
Pin 6	10.0V
Pin 7	9.3V
Pin 8	10.9V
Pin 9	0V
Pin 10	10.9V
Pin 11	11.7V
Pin 12	.63V
Pin 13	.63V
Pin 14	.53V
Pin 15	.53V
Pin 16	17.3V

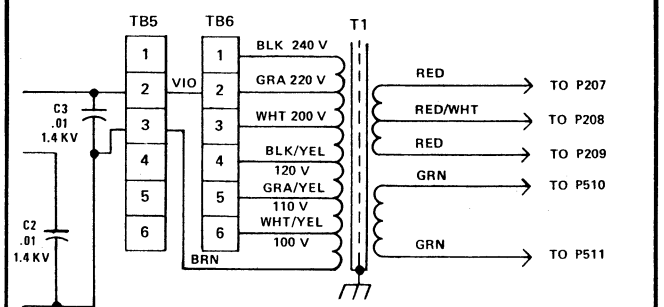
U203
NS513 - LM301AN



Pin 1	– 15.8V
Pin 2	0V
Pin 3	0V
Pin 4	– 17.3V
Pin 5	no connection
Pin 6	0V
Pin 7	17.3V
Pin 8	– 0.56V

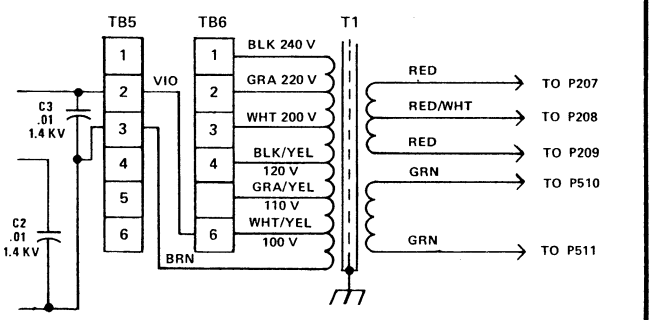
MODEL 3800 EXPORT ONLY

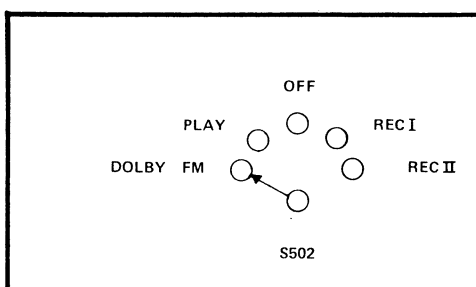
220V VERSION SHOWN



MODEL 3800 EXPORT ONLY

100V VERSION SHOWN





DETAIL FOR DOLBY SW (9)

Figure 3-9 Schematic Diagram