

SUPERSCOPE®

BY **marantz®**

STEREOPHONIC
AMPLIFIERS

Model BLA-545/A-545

Model BLA-530/A-530

SERVICE DATA

— Oct. 1978 —

SUPERSCOPE INC.

20525 NORDHOFF STREET

CHATSWORTH, CALIFORNIA • 91311 • U.S.A.



TABLE OF CONTENTS

1. INTRODUCTION	1
2. PRE-AMPLIFIER	1
3. MAIN AMPLIFIER	1
4. TROUBLESHOOTING ANALYSIS	1
5. POWER AMPLIFIER ADJUSTMENT	1
6. TEST EQUIPMENT REQUIRED FOR SERVICING	1
7. PERFORMANCE VERIFICATION	2
8. VOLTAGE CONVERSION FOR EUROPEAN MODEL	5
9. BLOCK DIAGRAM	6
10. SCHEMATIC DIAGRAMS	7.9
11. DIAGRAM AND COMPONENT LOCATIONS	11
11.1 Tuner Assembly (P100) Schematic Diagram and Component Locations	11
11.2 Led. Assembly (PY00) Schematic Diagram and Component Locations	11
11.3 MIC Assembly (PJ00) Schematic Diagram and Component Locations	11
11.4 Volume Assembly (PS50) Schematic Diagram and Component Locations	12
11.5 Tone Assembly (PF00) Schematic Diagram and Component Locations	14
11.6 Loudness Assembly (PS00) Schematic Diagram and Component Locations	14

SUPERSCOPE DESIGN AND SERVICE

Using superior design and selected high grade components, SUPERSCOPE has created the ultimate in stereo sound. Only original SUPERSCOPE parts can insure that your SUPERSCOPE product will continue to perform to the specifications for which it is famous.

Parts for your SUPERSCOPE stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use SUPERSCOPE parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate SUPERSCOPE).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O. Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EU

1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Super Scope Model BLA-545/A-545/BLA-530/A-530 Stereo Console Amplifier.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

2. PRE-AMPLIFIER

Signals from the TUNER and AUX terminals are taken to the SELECTOR SWITCH (SV01).

Signals from the PHONO terminals pass through the phono amplifier (Q401, Q403 and Q405) where they are amplified by 36dB and at the same time undergo RIAA equalization, before going to the SELECTOR SWITCH (SV01).

The signal selected by the selector switch passes through the buffer amplifier and then is led to the mixing variable resistor RJ10.

The signal from the mic jack is amplified 36dB by the mic amplifier composed of QJ01 and QJ02 and routed to the mixing variable resistor.

These two signals are mixed at the mixing variable resistor and then led to the TAPE MONITOR switch and TAPE OUT terminal.

Signals which enter from the TAPE IN terminals are taken to the TAPE MONITOR SWITCH.

Signals which are selected by the TAPE MONITOR SWITCH are taken to the MONO SWITCH BALANCE and VOLUME potentiometers, and then enter the preamplifier (QE01 and QE03). The preamplifier has a gain of 19dB and also serves as a tone control amplifier, with the frequency response being controlled by the BASS and TREBLE controls.

After passing through the preamplifier, the signals enter the main amplifier.

3. MAIN AMPLIFIER

The main amplifier contains an NF type high pass filter network which can be switched in and out of circuit by means of the LOW FILTER switch.

4. TROUBLESHOOTING ANALYSIS

1. Excessive line consumption
 - a. Check for shorted Q806 through Q809.
 - b. Check for shorted transistor Q715, through Q718.
 - c. Check for open Q709, Q710, R717, R718.
2. No line consumption or zero bias voltage
 - a. Check line cord, fuse, check for shorted Q709, Q710, Q717, Q718.
 - b. Check for open rectifiers Q806 through

7. PERFORMANCE VERIFICATION

TEST PROCEDURE

A. TEST EQUIPMENT

Refer to Table 1 for required test equipment.

B. PRELIMINARY PROCEDURES

- Make the test setup shown in Figure 1 with the instrument controls set in the following positions:

Line Switch	OFF
Variable-line switch	Variable
Wattmeter Switch	ON
Variable Autotransformer	0 V (fully CCW)
Load	8 ohms (0.5 mfd—OFF)
Audio Generator	1 kHz
Output	5 V range
Gain	Minimum
AC VTVM	30 V range
- Make sure that connections between the resistive load and the system terminals of the Model BLA-545/A-545/BLA-530/A-530 have negligible resistance

when compared with the resistance of the load itself. Appreciable resistance in wiring adds to the total load, resulting in inaccurate measurements of output power.

- Connect amplifier output to load and connect AC cord to line power. Connect shorting plugs to the Phono input jacks of the Model BLA-545/A-545/BLA-530/A-530.

C. TOTAL HUM AND NOISE TEST

- With shorting plugs connected to the Phono input jacks and an 8 ohm resistive load connected across the speaker system output terminals, connect a distortion analyzer across the load.

NOTE:

If the distortion analyzer does not contain a built-in voltmeter, an AC VTVM may be substituted.

Table 1 Test Equipment Required for Servicing

Item	Manufacturer and Model No.	Use
Distortion Analyzer		Distortion measurements
Audio Oscillator AC VTVM	Sound Technology Model 1700B	Sinewave and squarewave signal source voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester		Trouble shooting

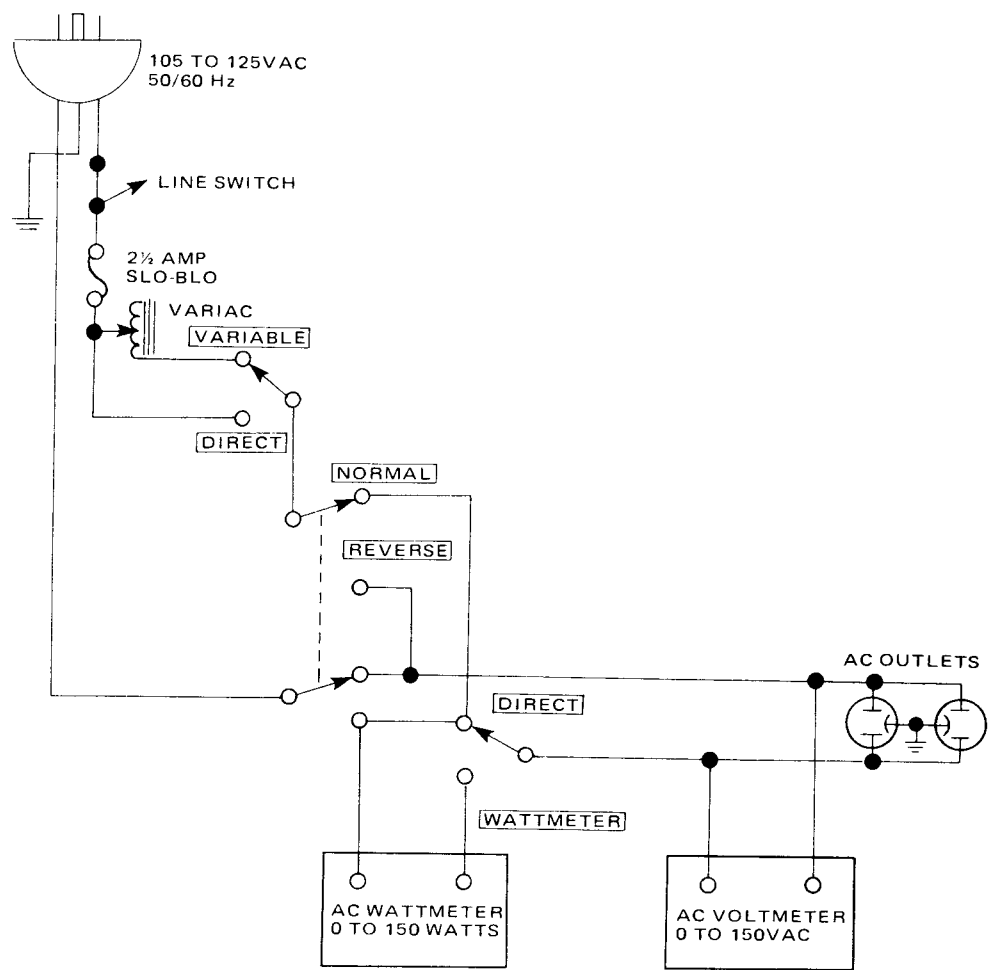


Figure 1. AC Power Control Box Simplified Schematic

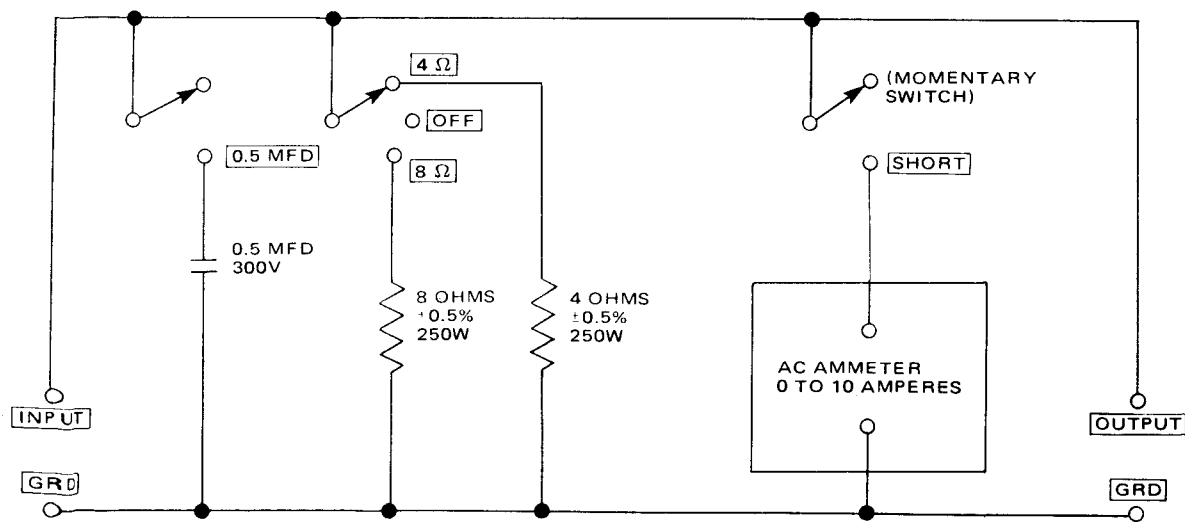


Figure 2. Amplifier Output Load Box Simplified Schematic

2. Set the distortion analyzer controls for voltage measurements and apply power to the amplifier. Set the volume control fully CCW. Set the SELECTOR switch to PHONO. MIXING volume control fully CCW (SOURCE).
3. If the distortion analyzer indicates more than 1.0 mV refer to the trouble analysis section of this manual.
4. Set the volume control fully CW. If the distortion analyzer indicates more than 20 mV, refer to the trouble analysis section of this manual.

D. MAXIMUM POWER OUTPUT

1. Connect the audio oscillator to the AUX input. Set audio oscillator frequency to 1 kHz. Set SELECTOR switch to AUX.
2. With the distortion analyzer connected across the output load (8-ohm), set the analyzer on the 30 VAC scale.
3. Turn the analyzer on and increase the audio oscillator output to 180 mV. The AC VTVM should read 14.1V AC or more (INCASE BLA-530/A530) (17 V AC or more INCASE BLA-545/A-545)

E. HARMONIC DISTORTION TEST

1. Set the frequency of the audio oscillator and the distortion analyzer to 20 kHz.

2. Set the controls of the analyzer for voltage measurement on the 30 volt scale.
3. Adjust the audio oscillator output level until the analyzer meter indicates 14.1V AC.
(INCASE BLA-530/A530)
(17 V AC or more INCASE BLA-545/A-545)
4. Switch the distortion analyzer to Set Level and adjust SENSITIVITY for full scale reading on 0~0.3% scale.
5. Measure the total harmonic distortion with the analyzer and verify it is less than 0.1%.

NOTE:

Any parasitic oscillation in the amplifier will be displayed on the oscilloscope when capacitance is switched into the load.

6. Switch the distortion analyzer back to SET LEVEL. (Do not readjust sensitivity of analyzer.)
7. Change the frequency of the audio oscillator and distortion analyzer to 1 kHz. Adjust audio oscillator output for a full scale reading on the 0~0.3% scale.
8. Measure the distortion, verifying it is no greater than 0.1%.
9. Repeat steps 7 and 8, changing frequency to 20 Hz. Distortion should be no more than 0.1%.
10. Check for parasitic oscillation; there should be none.

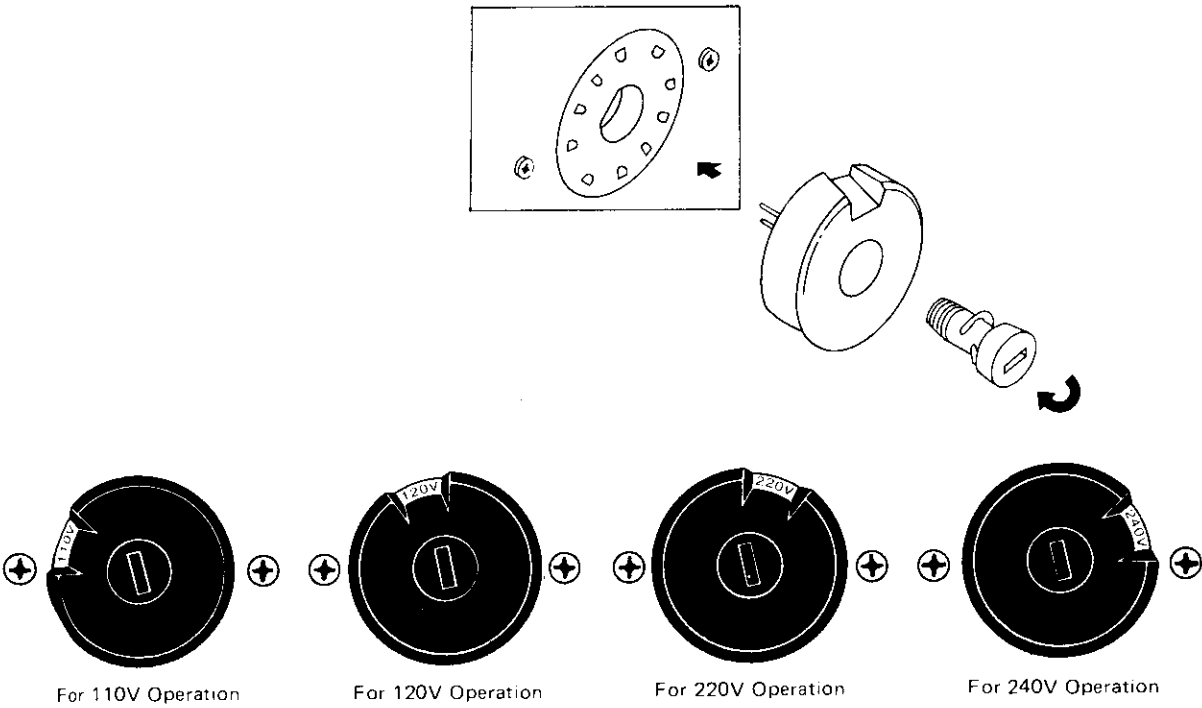
• EUROPEAN MODEL ONLY

8. VOLTAGE CONVERSION

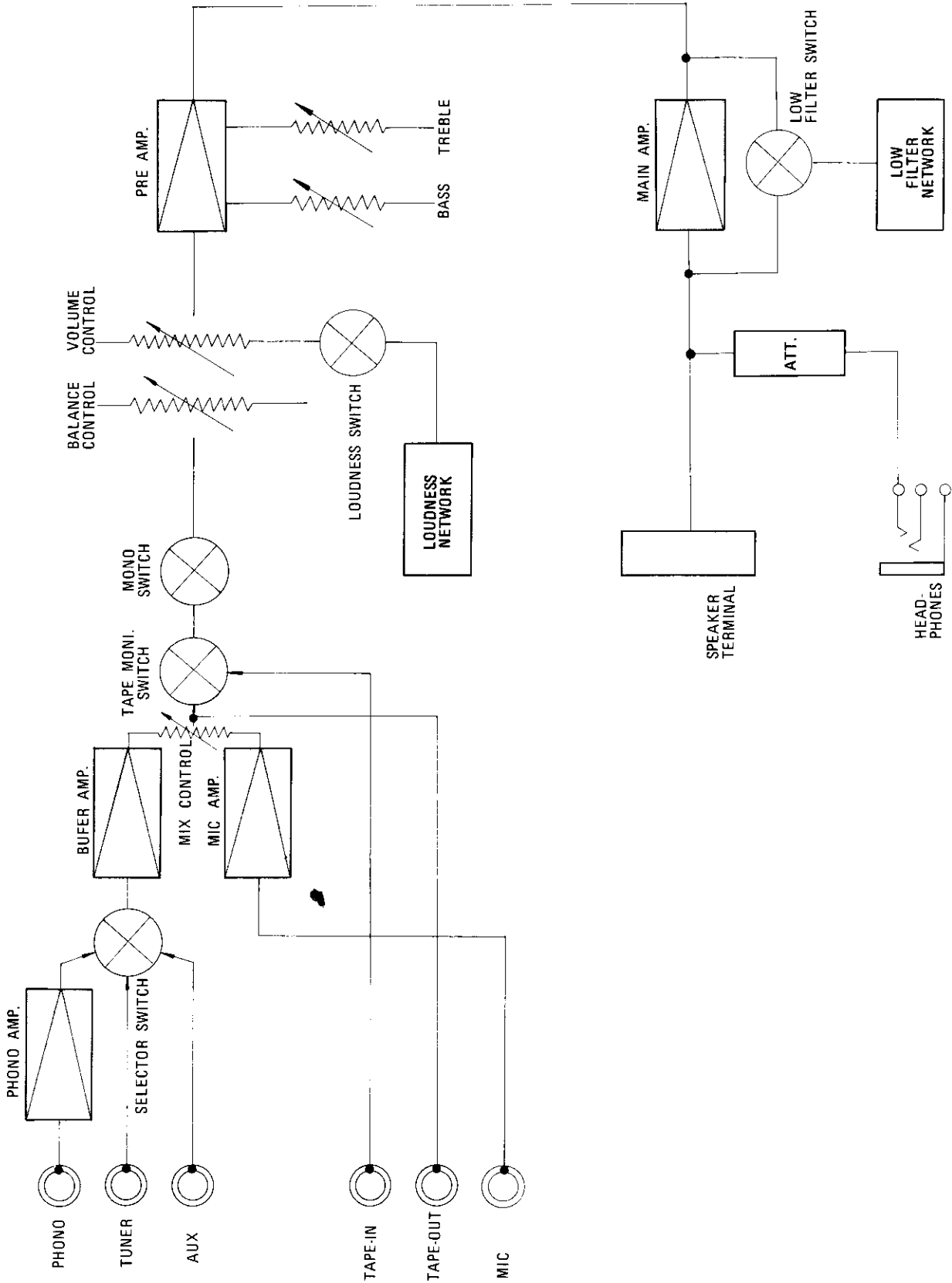
This Model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240 V AC 50/60 Hz.
To convert the unit to the required voltage, set the plug as illustrated so that you can adjust the voltage as required.

CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

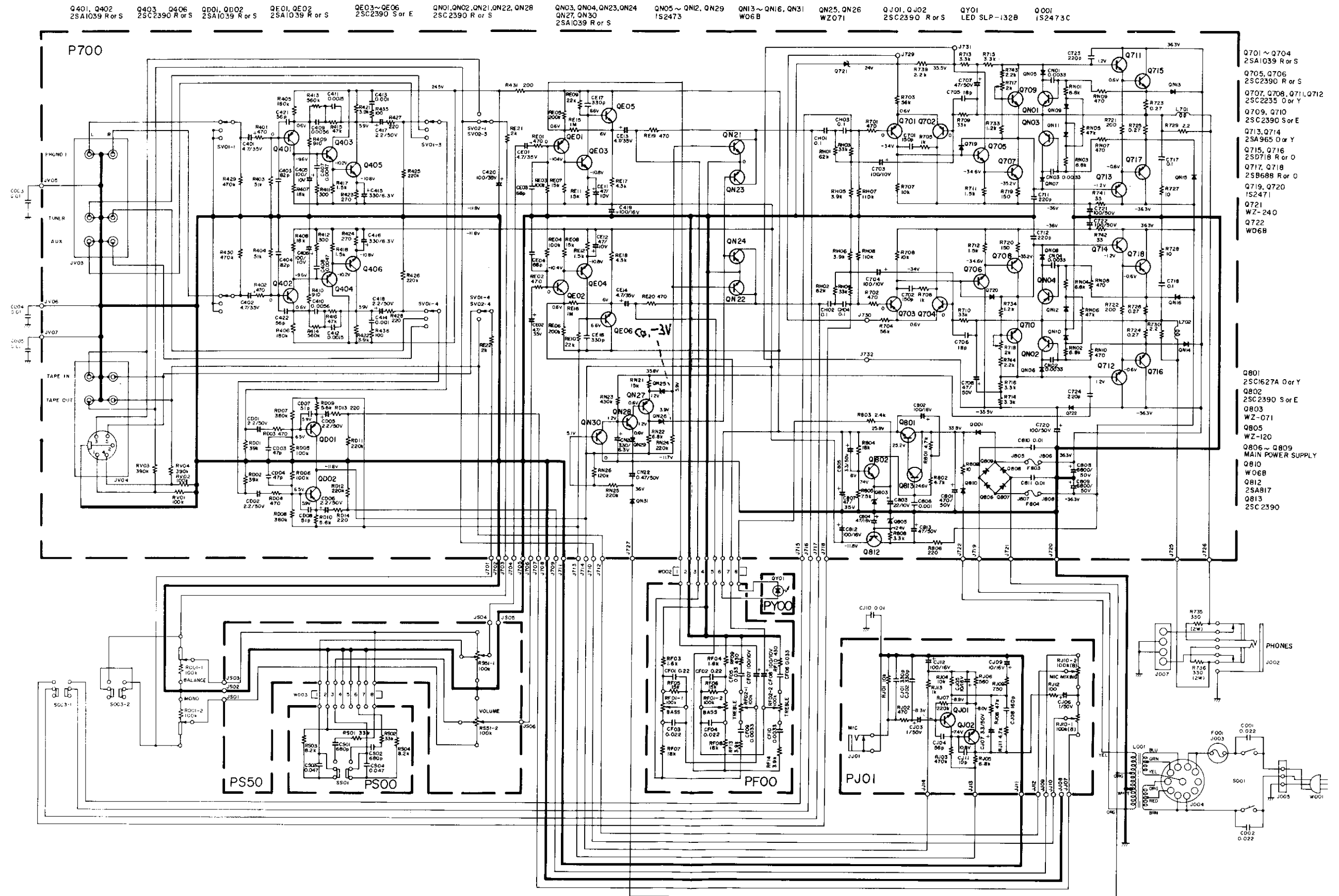
Figure 3. Voltage Conversion Chart



9. BLOCK DIAGRAM

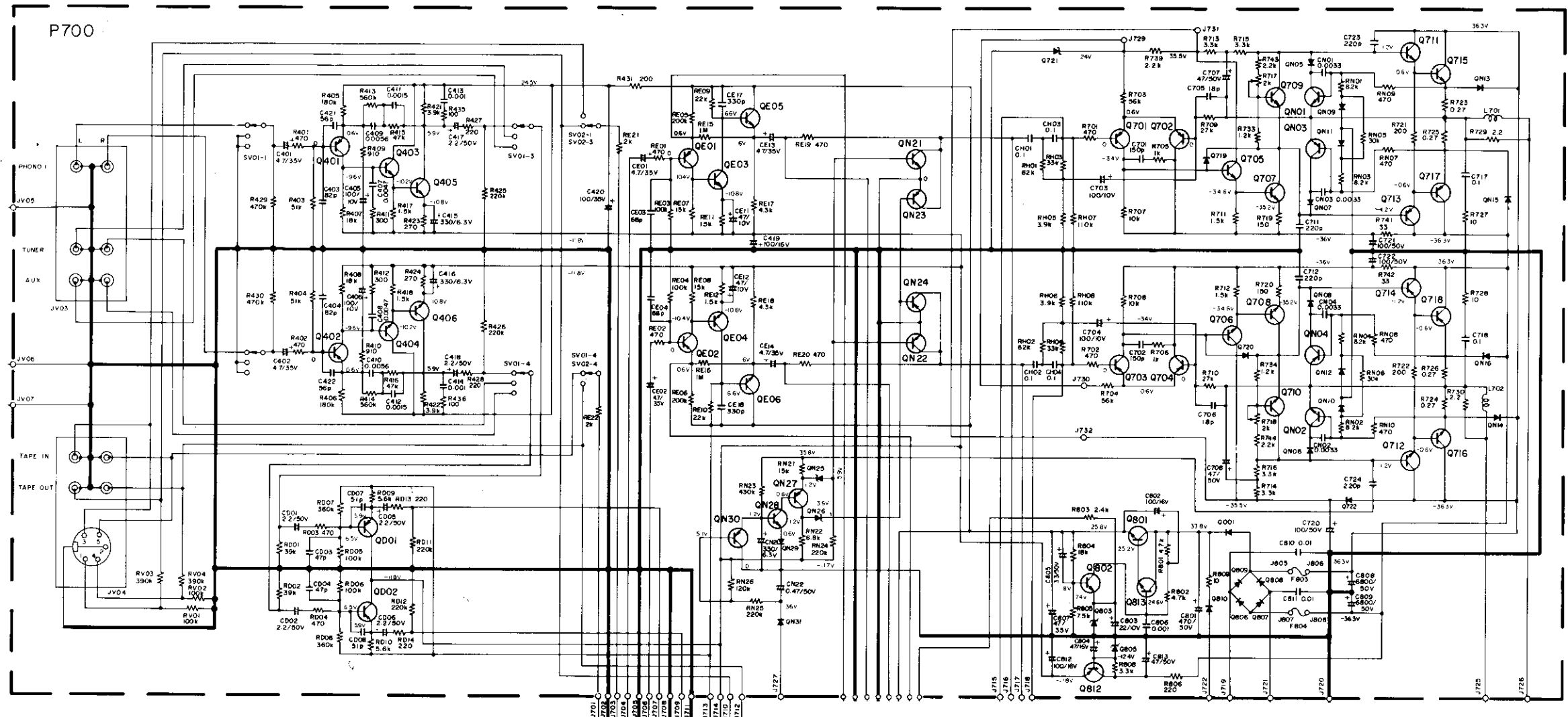


Model BLA-545/A-545

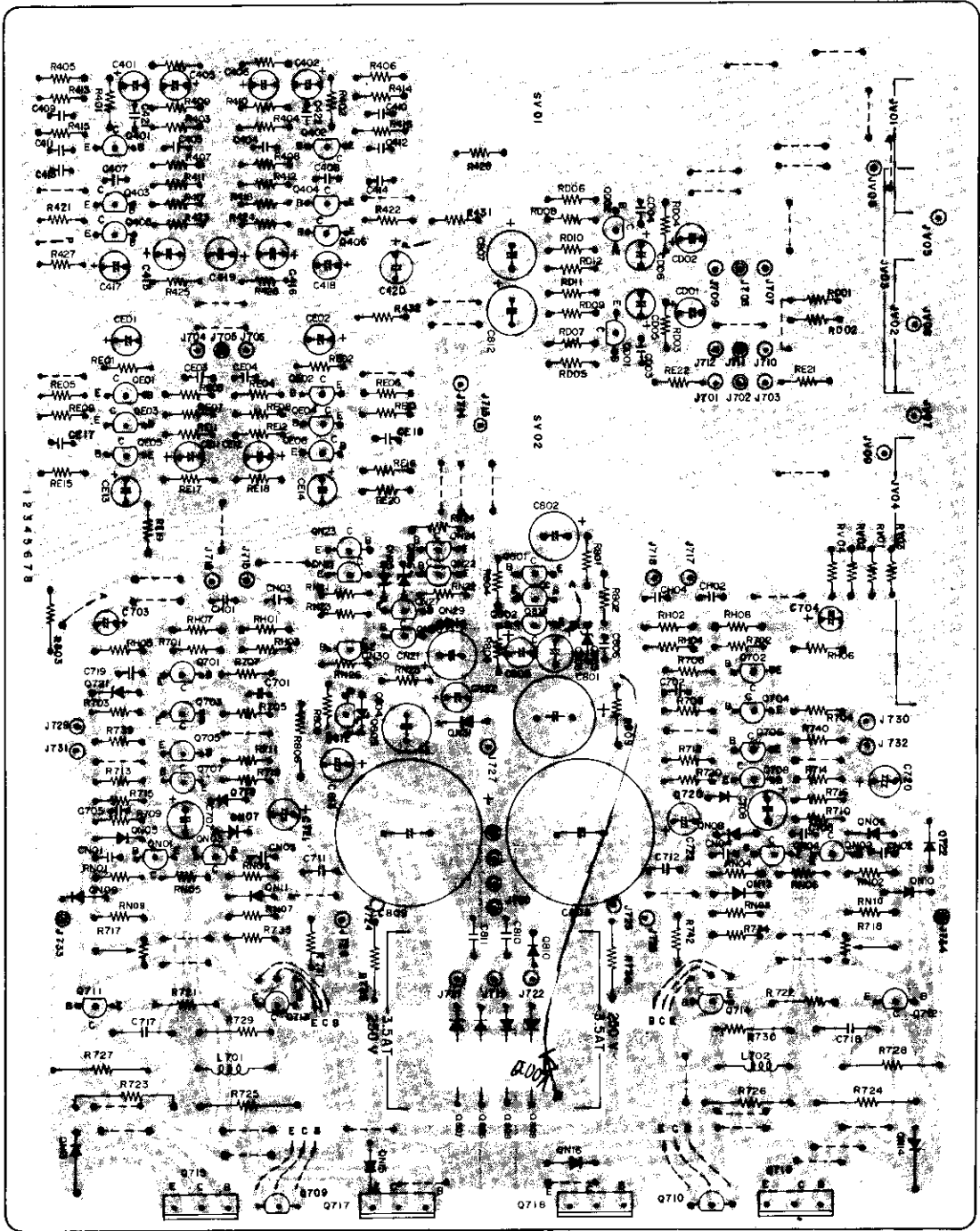


11. DIAGRAM AND COMPONENT LOCATIONS

11.1 MAIN Circuit Assembly Schematic
Diagram and Component Locations

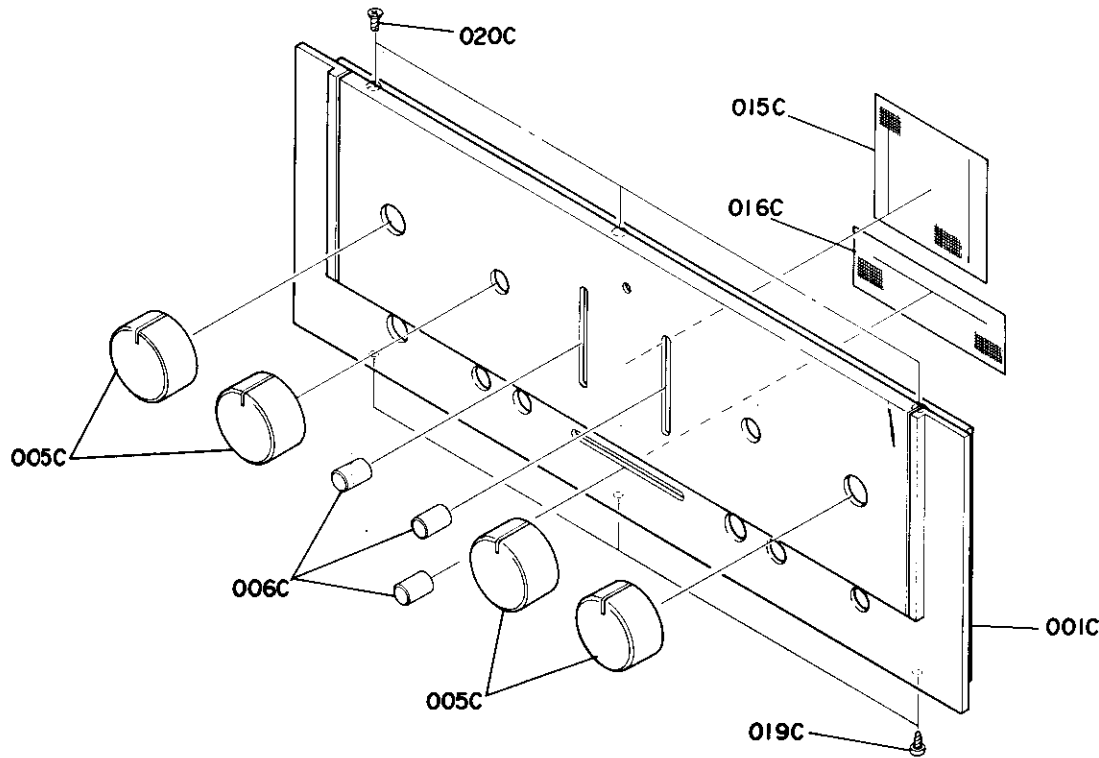


11.6 Tone Assembly (PF00) Schematic Diagram and Component Locations



12. EXPLODED VIEW AND PARTS LIST

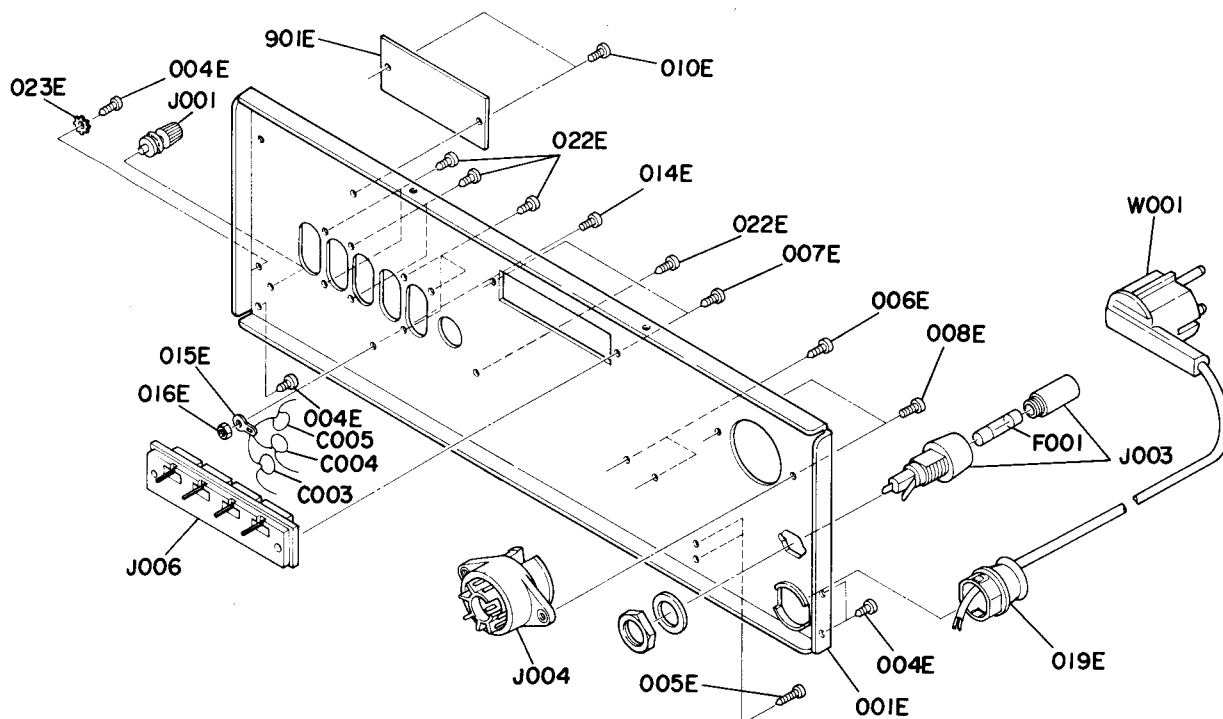
[C01-99] Front Panel



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
A	1	3960063400	BLA-530, ONLY Front Panel Assembly
001C	1	3960063013	Escutcheon (Black)
015C	1	2970303010	Mask
016C	1	2970303020	Mask
A	1	3961063400	A-530, ONLY Front Panel Assembly
001C	1	3961063014	Escutcheon (Gold)
015C	1	2970303010	Mask
016C	1	2970303020	Mask
A	1	3962063400	BLA-545, ONLY Front Panel Assembly
001C	1	3962063012	Escutcheon (Black)
015C	1	2970303010	Mask
016C	1	2970303010	Mask
A	1	3963063400	A-545, ONLY Front Panel Assembly
001C	1	3963063014	Escutcheon (Gold)
015C	1	2970303010	Mask
016C	1	2970303020	Mask

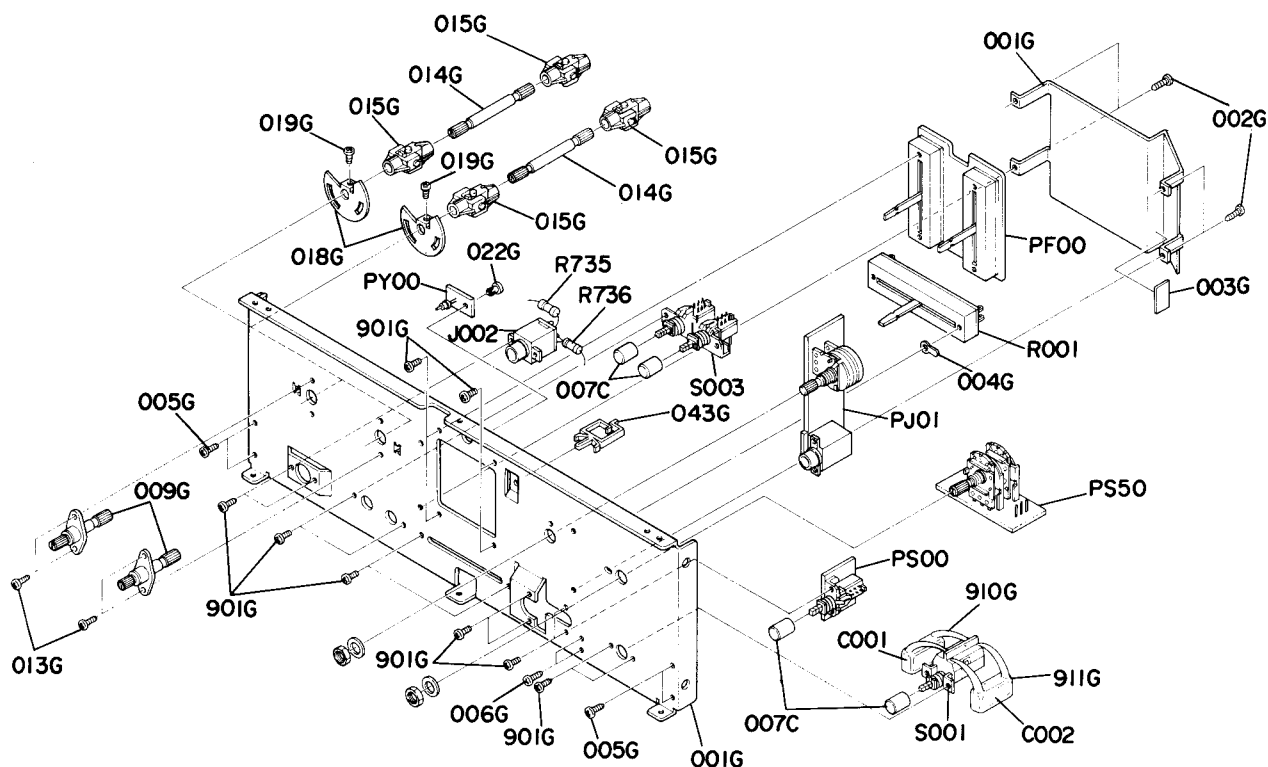
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
005C	4	3960154010	BLA-530, BLA-545, ONLY Knob (Black)
006C	3	2970154210	Knob (Black)
005C	4	3960154110	A-530, A-545, ONLY Knob (Gold)
006C	3	2970154012	

[C03-99] Rear Panel



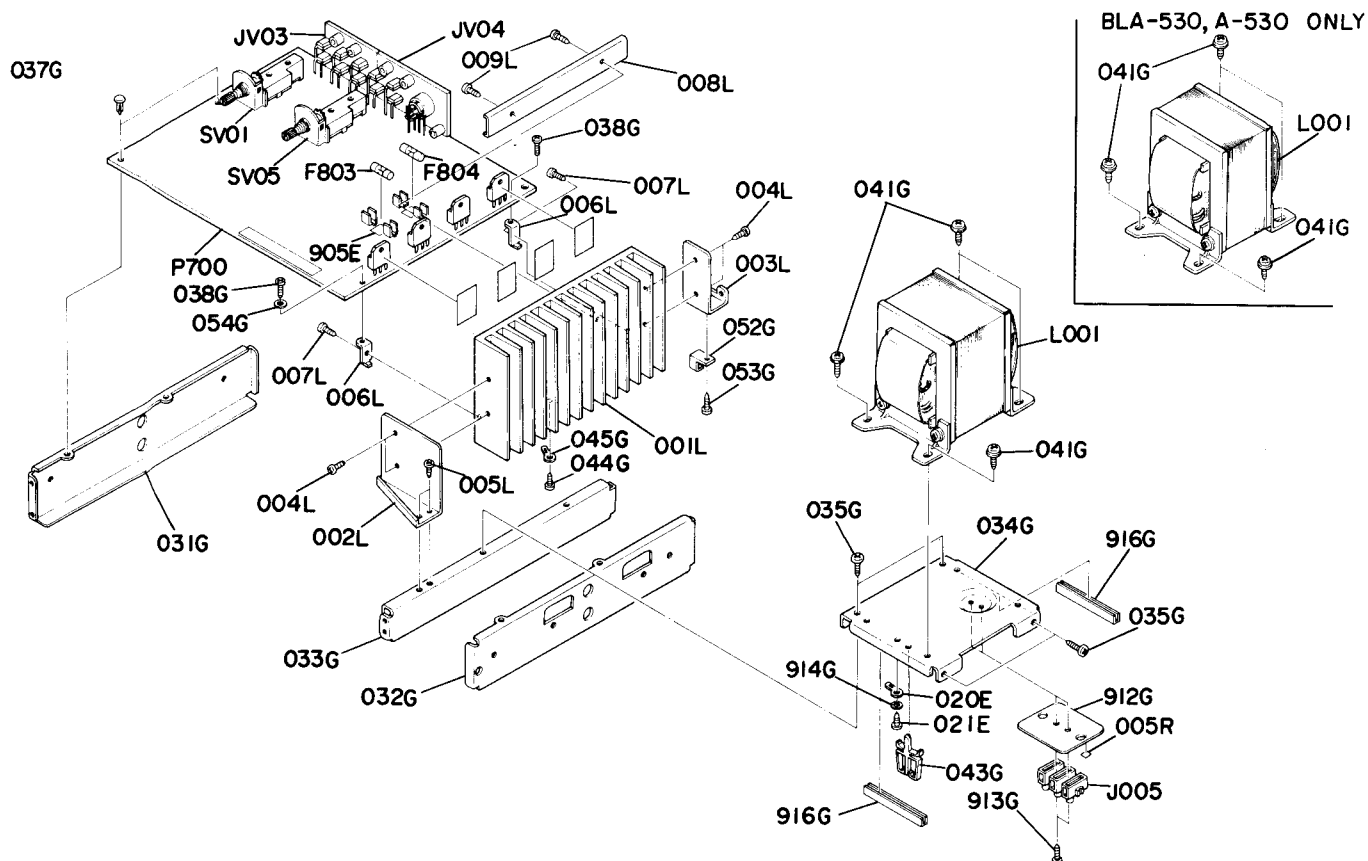
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
001E	1	3960160223	BLA-530, A-530, ONLY Bracket, Rear Panel
001E	1	3962160223	BLA-545, A-545, ONLY Bracket, Rear Panel
004E	4	51280308U0	B.H. Tapped Screw B3 x 8
005E	2	51280308U0	B.H. Tapped Screw B3 x 8
006E	2	51280308U0	B.H. Tapped Screw B3 x 8
007E	2	51280308U0	B.H. Tapped Screw B3 x 8
008E	2	51100308S9	B.H.M. Screw B3 x 8
010E	2	51760306B0	OS Tapped Screw B3 x 6
014E	1	51100306S9	B.H.M. Screw B3 x 6
015E	1	62030049W0	Lug
016E	1	53110303A9	Hexagon Nut
019E	1	2286259110	Bushing
022E	8	51280308U0	B.H. Tapped Screw B3 x 8
023E	1	54050300R0	T.L. Washer OR

[P01-99] Front chassis and General parts



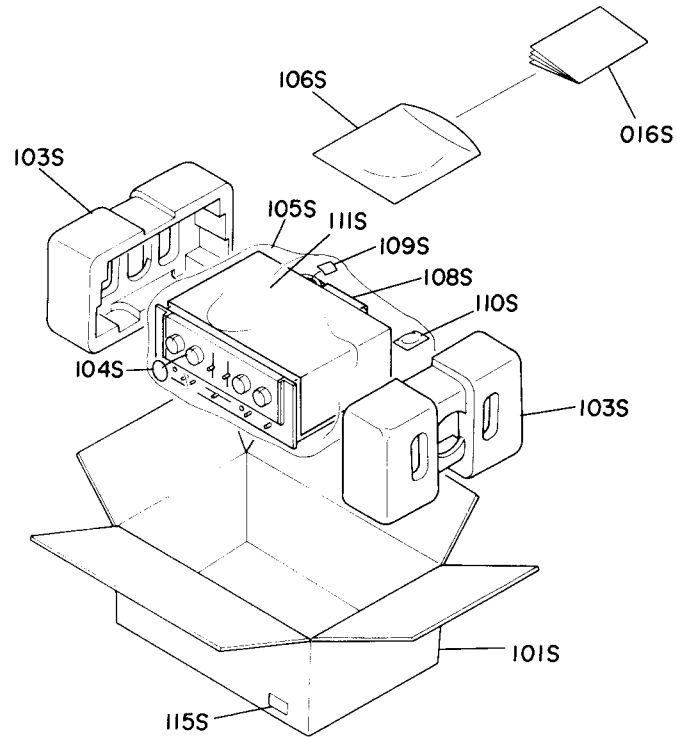
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
007C	4	2970154330	BLA-530, BLA-545, ONLY Knob
007C	4	2970154032	A-530, A-545, ONLY Knob
001G	1	2258160013	Bracket, Front Chassis
005G	4	51280308B0	B.H. Tapped Screw B3 x 8
006G	2	51280308B0	B.H. Tapped Screw B3 x 8
009G	2	2258112500	Shaft, K
013G	4	51280305B0	B.H. Tapped Screw B3 x 5
014G	2	2258112020	Shaft

[P02-99] P.W. Board (Main) and General parts



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
020E	1	62030049W0	Lug
021E	1	51280306B0	B.H. Tapped Screw B3 x 6
905E	1	2205861010	Label
031G	1	2258126010	Stay, Left
032G	1	2258126020	Stay, Right
033G	1	2258126030	Stay, Center
034G	1	2274160020	Bracket
035G	4	51280408B0	B.H. Tapped Screw B4 x 8
037G	2	2276005050	Clamper
038G	2	51280308B0	B.H. Tapped Screw B3 x 8
041G	4	51490512A9	L. Washer Screw L5 x 12
043G	1	2886005050	Clamper
044G	1	51280306B0	B.H. Tapped Screw B3 x 6
045G	1	52040029W0	Lug
052G	1	2887005012	Clamper
053G	1	51280308B0	B.H. Tapped Screw B3 x 8
054G	1	2258118010	Spacer
912G	1	2970120040	Insulator
913G	2	51280314B0	B.H. Tapped Screw B3 x 14
91			

[H01-99] Packing Materials



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
101S	1	3960801012	Packing Case (BLA-530, ONLY)
101S	1	3961801012	Packing Case (A-530, ONLY)
101S	1	3962801012	Packing Case (BLA-545, ONLY)
101S	1	3963801012	Packing Case (A-545, ONLY)
016S	1	3960851310	Instructions
103S	2	4214809013	Cushion
104S	1	9560000090	Hang Tag
105S	1	9014335330	Polyethy Bag
106S	1	9013025010	Polyethy Bag

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
108S	1	2864804010	Sleeve
109S	1	9560000043	Hang Tag
110S	1	2731821010	Silicagel
111S	1	2918107160	Sheet
115S	3	9526019060	Serial No. Card

13. ELECTRICAL PARTS LIST

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
P700	1	YG22740010	P700-MAIN CIRCUIT BOARD
	1	ZZ39603010	BLA-530, A-530, ONLY
			P.W. Board, Main
			P.W. Board Assembly
P700	1	YG22740010	BLA-545, A-545, ONLY
	1	ZZ39638010	P.W. Board, Main
			P.W. Board Assembly
			P700-CAPACITORS
C401	1	EA47503590	Elect 4.7 μ F 35V
C402	1	EA47503590	Elect 4.7 μ F 35V
C403	1	DD16820010	Ceramic 82pF $\pm 10\%$
C404	1	DD16820010	Ceramic 82pF $\pm 10\%$
C405	1	EA10701090	Elect 100 μ F 10V
C406	1	EA10701090	Elect 100 μ F 10V
C407	1	DF15472300	Film 0.0047 μ F $\pm 5\%$
C408	1	DF15472300	Film 0.0047 μ F $\pm 5\%$
C409	1	DF15562300	Film 0.0056 μ F $\pm 5\%$
C410	1	DF15562300	Film 0.0056 μ F $\pm 5\%$
C411	1	DF15152300	Film 0.0015 μ F $\pm 5\%$
C412	1	DF15152300	Film 0.0015 μ F $\pm 5\%$
C413	1	DF15102300	Film 0.001 μ F $\pm 5\%$
C414	1</		

REF. DESIG.	QTY N	PART NO.	DESCRIPTION
R428	1	GD05221140	220Ω
R429	1	GD05474140	470KΩ
R430	1	GD05474140	470KΩ
R431	1	GG05201140	200Ω
R435	1	GD05101140	100Ω
R436	1	GD05101140	100Ω
R701	1	GD05471140	470Ω
R702	1	GD05471140	470Ω
R703	1	GD05563140	56KΩ
R704	1	GD05563140	56KΩ
R705	1	GD05102140	1KΩ
R706	1	GD05102140	1KΩ
R707	1	GD05103140	10KΩ
R708	1	GD05103140	10KΩ
R711	1	GD05152140	1.5KΩ
R712	1	GD05152140	1.5KΩ
R713	1	GD05332140	3.3KΩ
R714	1	GD05332140	3.3KΩ
R715	1	GD05332140	3.3KΩ
R716	1	GD05332140	3.3KΩ
R717	1	RA02020180	Trimming, 2KΩ
R718	1	RA02020180	Trimming, 2KΩ
R719	1	GG05151140	150Ω
R720	1	GG05151140	150Ω
R721	1	GG05201120	200Ω ½W
R722	1	GG05201120	200Ω ½W
R723	1	GB05272020	0.27Ω 2W

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
RN07	1	GG05471140	470Ω
RN08	1	GG05471140	470Ω
RN09	1	GG05471140	470Ω
RN10	1	GG05471140	470Ω
RN22	1	GD05682140	6.8KΩ
RN23	1	GD05434140	430KΩ
RN25	1	GD05224140	220KΩ
RN26	1	GD05124140	120KΩ
BLA-530, A-530, ONLY			
RN21	1	GD05103140	10KΩ
RN24	1	GD05124140	120KΩ
BLA-545, A-545, ONLY			
RN21	1	GD05153140	15KΩ
RN24	1	GD05224140	220KΩ
RV01	1	GD05104140	100KΩ
RV02	1	GD05104140	100KΩ
RV03	1	GD05394140	390KΩ
RV04	1	GD05394140	390KΩ
P700-SEMICONDUCTORS			
Q401	1	HT110392A0	Transistor 2SA1039 (R or S)
Q402	1	HT110392A0	Transistor 2SA1039 (R or S)
Q403	1	HT323902A0	Transistor 2SC2390 (R or S)
Q404	1	HT323902A0	Transistor 2SC2390 (R or S)
Q405	1	HT323902A0	Transistor 2SC2390 (R or S)
Q406	1	HT323902A0	Transistor

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
PF00	1	YH22742210	PF00-TONE CIRCUIT BOARD
	1	ZZ39602210	P.W. Board, Tone P.W. Board Assembly
PF00-CAPACITORS			
CF01	1	DF15224300	Film 0.22 μ F $\pm$ 5%
CF02	1	DF15224300	Film 0.22 μ F $\pm$ 5%
CF03	1	DF15223300	Film 0.022 μ F $\pm$ 5%
CF04	1	DF15223300	Film 0.022 μ F $\pm$ 5%
CF05	1	DF15333300	Film 0.033 μ F $\pm$ 5%
CF06	1	DF15333300	Film 0.033 μ F $\pm$ 5%
CF07	1	EA10701090	Elect 100 μ F 10V
CF08	1	EA10701090	Elect 100 μ F 10V
CF09	1	DF15332300	Film 0.0033 μ F $\pm$ 5%
CF10	1	DF15332300	Film 0.0033 μ F $\pm$ 5%
PF00-RESISTORS (All Resistors are $\pm$ 5% and $\frac{1}{4}$ W)			
RF01	1	RS01040100	Variable Resistor (Bass) 100K Ω x 2
RF02	1	RS01040100	Variable Resistor (Del) 100K Ω x 2
RF03	1	GD05162140	1.6K Ω
RF04	1	GD05162140	1.6K Ω
RF05	1	GD05153140	15K Ω
RF06	1	GD05153140	15K Ω

14. TECHNICAL SPECIFICATIONA

Model BLA-530/A-530

AUDIO SECTION

POWER OUTPUT, DIN, 4 OHM, PER CHANNEL	51W
POWER OUTPUT, FTC AMERICAN STANDARDS, 4 OHM, PER CHANNEL	30W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT	0.1%
I.M. DISTORTION AT RATED POWER OUTPUT (250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	0.1%
POWER OUTPUT, DIN, 8 OHM, PER CHANNEL	40W
POWER OUTPUT, FTC AMERICAN STANDARDS, 8 OHM, PER CHANNEL	25W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT	0.1%
I.M. DISTORTION AT RATED POWER OUTPUT (250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	0.1%
POWER BANDWIDTH	20 Hz ~ 50 kHz
DAMPING FACTOR 8 OHM	45

Frequency Response

Phono (RIAA)	±0.5 dB
Aux (±1 dB)	20 Hz ~ 50 kHz

Input Terminals

Phono:	Input Impedance	47k ohms
	Input Capacitance	100 pF
	Input Sensitivity	2.1 mV
	Overload Margin	35 dB
Aux:	Input Impedance	25k ohms
	Input Sensitivity	180 mV

Phono Equivalent Input Noise	0.5 μ V
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Phono Dynamic Range (Ratio of input overload to equivalent input noise)	100 dB
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Channel Balance (0 to -40 dB/40 Hz ~ 16 kHz)

Phono	3.0 dB
Aux	3.0 dB

Interchannel Crosstalk

Model BLA-545/A-545

AUDIO SECTION

POWER OUTPUT, DIN, 4 OHM, PER CHANNEL	77W
POWER OUTPUT, FTC AMERICAN STANDARDS, 4 OHM, PER CHANNEL	46W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT	0.08%
I.M. DISTORTION AT RATED POWER OUTPUT	
(250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	0.08%
POWER OUTPUT, DIN, 8 OHM, PER CHANNEL	50W
POWER OUTPUT, FTC AMERICAN STANDARDS, 8 OHM, PER CHANNEL	36W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT	0.05%
I.M. DISTORTION AT RATED POWER OUTPUT	
(250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	0.05%
POWER BANDWIDTH	15 Hz ~ 60 kHz
DAMPING FACTOR 8 OHM	45

Frequency Response

Phono (RIAA)	±0.5 dB
Aux (±1 dB)	15 Hz ~ 60 kHz

Input Terminals

Phono:	Input Impedance	47k ohms
	Input Capacitance	100 pF
	Input Sensitivity	2.0 mV
	Overload Margin	35 dB
Aux:	Input Impedance	25k ohms
	Input Sensitivity	180 mV

Phono Equivalent Input Noise	0.5 µV
------------------------------------	--------

Phono Dynamic Range (Ratio of input overload to equivalent input noise)	100 dB
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Channel Balance (0 to -40 dB/40 Hz ~ 16 kHz)

Phono	3.0 dB

NOTICE : We hereunder show the substitute transistors stated in the parts list. In your ordering the parts from now on, please place your order of the parts in the column (B).

(A)	(B)
(1) HT323902A0 (2SC2390) REF. DESIG. NO, (QN01, QN02, QN21, QN22, QN28, Q403, Q405, Q406, Q705, Q706, Q709, Q710)	HT314001E0 (2SC1400)
(2) HT323902B0 (2SC2390) REF. DESIG. NO, (Q802, Q813, QE03, QE04, QE05, QE06)	HT314001E0 (2SC1400)
(3) HT110392A0 (2SA1039) REF. DESIG. NO, (QE01, QE02, QN03, QN04, QN23, QN24, QN27, QN30, Q401, Q402, Q701, Q702, Q703, Q704)	HT107502C0 (2SA750)
(4) HT323902A0 (2SC2390) REF. DESIG. NO, (QJ01, QJ02)	HT312221F0 (2SC1222)
(5) HT110392A0 (2SA1039) REF. DESIG. NO, (QD01, QD02)	HT107502C0 (2SA750)

SUPERSCOPE INC.

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