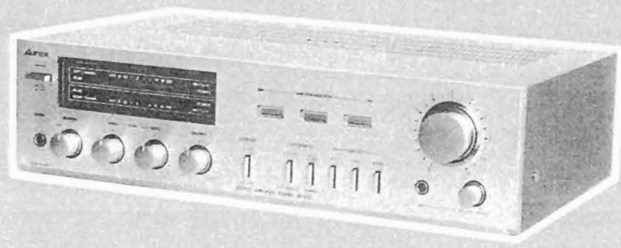
SERVICE DATA
FILE NO. 170-108

TOSHIBA

STEREO AMPLIFIER

SB-A50



SPECIFICATIONS

General

Power Supply:	220V – 50 Hz for Europe or 240V – 50 Hz for the United Kingdom and Australia
Power Consumption:	290W
Weight:	5.4 kg
Dimensions (mm):	420(W) x 116(H) x 286(D)

Amplifier

Continuous Power Output	
20 Hz ∿ 20 kHz both ch. driven:	35W x 2 (4 ohm)
	30W x 2 (8 ohm)
1 kHz both ch. driven:	38W x 2 (4 ohm)
	35W x 2 (8 ohm)
Total Harmonic Distortion:	0.1% (at rated power 8 ohm)
Frequency Response:	5 kHz∿100 kHz (+0, –3 dB)
Power Band Width (IHF):	10 Hz ∿ 35 kHz
Load Impedance:	4 ohm ∿ 16 ohm
Damping Factor:	25
S/N (IHF A Network):	90 dB (TUNER/AUX)
	70 dB (PHONO)
Input Sensitivity/ Impedance:	PHONO 2.5mV/47k ohm
	TUNER 150mV/47k ohm
	AUX/TAPE 150mV/47k ohm
	MIC 1.0mV/47k ohm
Output Level:	TAPE REC 150mV
Tone Control:	BASS (at 100 Hz) ±8 dB
	TREBLE (at 10 kHz) ±8 dB
Phono Overload Level:	150mV (RMS)

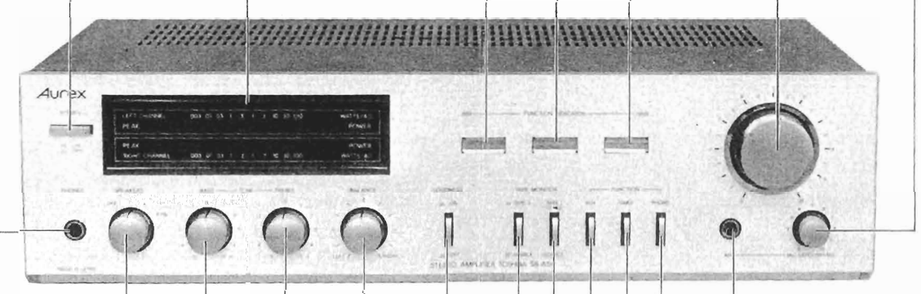
Specifications are subject to change without notice.

TE, TU, AY

CONTENTS

1. OPERATING CONTROLS

FRONT VIEW



Peak Power Meters
These meters indicate the peak (instantaneous) power output levels when using 4 ohm speakers. For 8 ohm speakers, divide the indicated readings by 2 to obtain approximate values. Note that theses meters are designed to indicate instantaneous output levels, not the average or continuous levels.

Power
When this button is depressed, power is supplied to the set. Push again to turn power off.

Phones
When listening through a pair of headphones, connect the headphones plug to this jack.

Speakers
OFF: Sound from headphones only.
A: Sound from speakers connected to rear panel terminals A.
B: Sound from speakers connected to rear panel terminals B.
A + B: Sound from both pairs of speakers (if only one pair is connected, no sound will be heard).

Bass and Treble Control
Turn the bass or treble tone control knobs clockwise from the centre zero (flat) position to emphasize bass or treble notes. Turn counterclockwise to attenuate (decrease) bass or treble tones.

Balance Control
This knob is used to adjust volume balance between left and right speakers.

Loudness
Push this switch ON when listening at very low volume levels (between 0 and 5 on the volume scale) to emphasize the low and high frequency regions.

Function Indicators
These light up to indicate which function button has been depressed.

Volume
Use this knob to adjust the volume level.

Mic Mixing Level
This knob adjusts the output level from the mic. When mixing sound from the mic with sound from the AUX, PHONO or TUNER input jacks, the mic volume can be adjusted independently of the main volume knob. When not in use, turn this OFF to prevent the pick-up of extraneous sounds and the loss of stereo separation.

MIC Jack
When using the microphone, insert the microphone plug into this jack.

Function
AUX: for use with any kind of audio equipment (excluding turntables and microphones)
TUNER: for listening to radio broadcasts
PHONO: for listening to records on the turntable

Tape Monitor
Set these switches in the relevant positions for playback, monitoring or duplicating operations.

Figure 1

2. SYSTEM CONNECTIONS

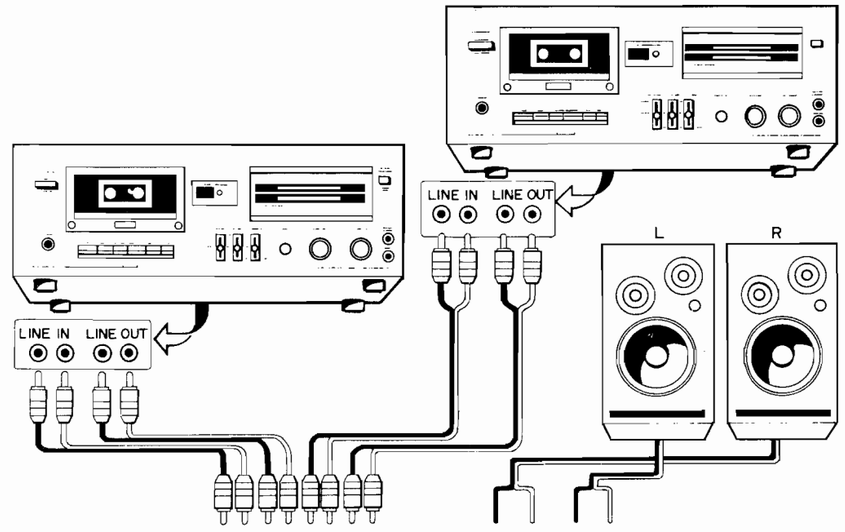


Figure 2

3. OPERATION

Note: Until all connections have been properly completed, leave the power supply cords unplugged and the power switches OFF.

■ Connections of Speakers to the Power Amplifier

Connect the right speaker cord to the "R" amplifier speaker output terminal and the left speaker cord to the "L" terminal. Be sure to connect the plug terminal of the speaker to the plus terminal of the amplifier speaker output terminal and minus to minus. Wrong connection of plus and minus causes the loss of stereophonic playback sound.

- Be sure to leave the power switch of the amplifier OFF while performing connections.
- Don't short-circuit the plus and minus terminals of the speakers.

Note: When using a pair of speakers, use only those with an impedance of at least 4 ohms to avoid overloading the amplifier.

- Confirm that the volume knob is in the 0 position before the power is turned on.

■ To Play Phonograph Records

Connect the output cables from the turntable to the PHONO terminals of the amplifier. If the turntable is equipped with an earth wire or terminal, be sure to connect is to the earth wire terminal (GND) of the amplifier. If this simple task is overlooked, it may result in the generation of a hum.

■ To Listen to FM (or AM) Broadcasts

Connect the tuner output cables to the TUNER input terminals on the rear panel of the amplifier.
There is no special need to link the tuner and amplifier with an earth wire.

■ To Use the AUX Terminals

When an audio component is connected to the AUX terminals, place the FUNCTION switch knob in the AUX position. Operate the connected component according to its instruction manual. Finally, adjust the volume and tone as desired.

■ Tape Deck Connections

Connect the tape deck input terminals (LINE IN) to the amplifier's record terminals (REC), and the deck output terminals (LINE OUT) to the amplifier's playback (PLAY) terminals.

(1) To Record

Prepare the program source (turntable, tuner or any other audio program source) to be recorded, and set the tape deck in the recording mode. Note that during the actual recording, the amplifier volume and tone controls will have no effect on the recording level or tone. Two separate tape decks may be used simultaneously.

(2) To Playback

Set the corresponding TAPE MONITOR switch to the TAPE position and turn the tape deck on for playback.

■ Mic Mixing and Mic Mixing Recording

The SB-A50 is also designed to permit both direct mic mixing with a tuner, turntable or other audio source and mic mixing recording.

Note: Always remember to turn the microphone volume level down to the minimum position before unplugging the microphone.

(1) Mic Mixing

Plug in the microphone to the microphone jack and prepare the phonograph record or FM broadcast as for ordinary listening. Turn the mic mixing knob around in the clockwise direction to adjust the relative volume levels. The SOURCE volume level is then adjusted by the main volume knob. To mix an already recorded signal with another, simply connect the tape deck outputs to the SB-A50 auxiliary terminals.

(2) Mic Mixing Recording

The mic mixing described above may also be recorded on a tape deck connected to the SB-A50. Note, however that the amplifier volume and tone control knobs can no longer be used in adjusting volume level and tone of the sound being recorded.

Note: About the speaker protective fuses:
The SB-A50 is equipped with a protective fuse to protect the output circuitry from a power overload. If the plus and minus sides of the speaker terminals are shorted, the fuse will blow and no sound will be heard. Please take this unit to a qualified service centre to have the fuse replaced.

■ Tape Monitoring

When recording with a tape deck equipped with proper tape monitoring facilities, monitoring of the recording is possible by moving the TAPE MONITOR switch from the SOURCE position to the corresponding TAPE position.

■ Tape Duplication

A recorded tape can be copied onto another tape in its entirely, or can be edited by duplicating only those portions which are desired.

■ Duplication from TAPE 1 to TAPE 2

1. Depress the TAPE MONITOR switch to TAPE 2 ◄ 1.
2. The TAPE 2 switch should be left in the SOURCE position (out); if depressed, duplication is still possible but no sound will be heard.
3. The tape deck connected to TAPE 1 should be played and the tape deck connected to TAPE 2 should be used to record.

Note: Duplication from TAPE 2 to TAPE 1 is not possible.

4. DISASSEMBLY INSTRUCTIONS

REMOVAL OF TOP COVER

1. Remove two screws ① (3ϕ x 6mm) from both sides of top cover as shown in Figure 3.
2. Remove two screws ② (3ϕ x 8mm) from back side of top cover, then top cover can be removed as shown in Figure 4.

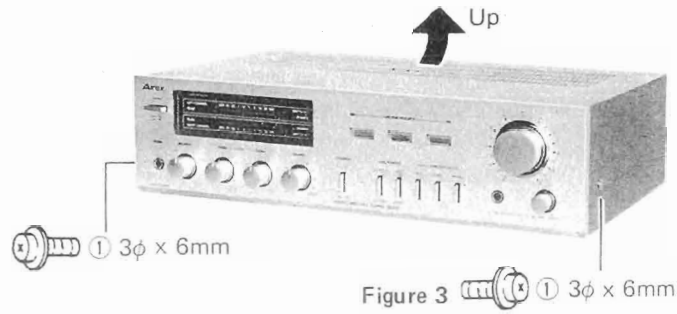


Figure 3

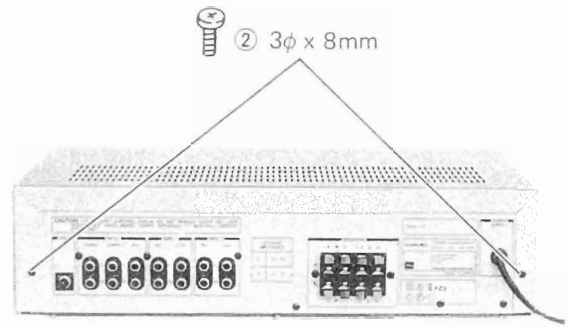


Figure 4

REMOVAL OF FRONT PANEL

1. Remove top cover as shown in Figures 3 and 4.
2. Remove three screws ③ (3ϕ x 8mm) holding front panel and back plate as shown in Figure 5.
3. Remove three screws ④ (3ϕ x 8mm) holding front panel and bottom plate, then front panel can be removed as shown in Figure 6.

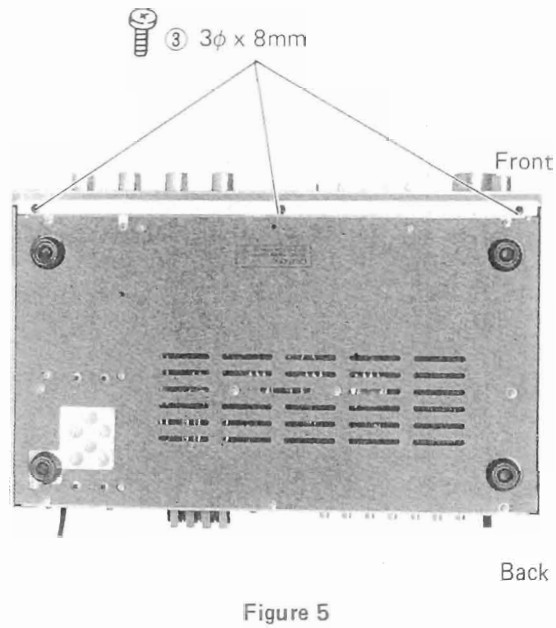


Figure 5

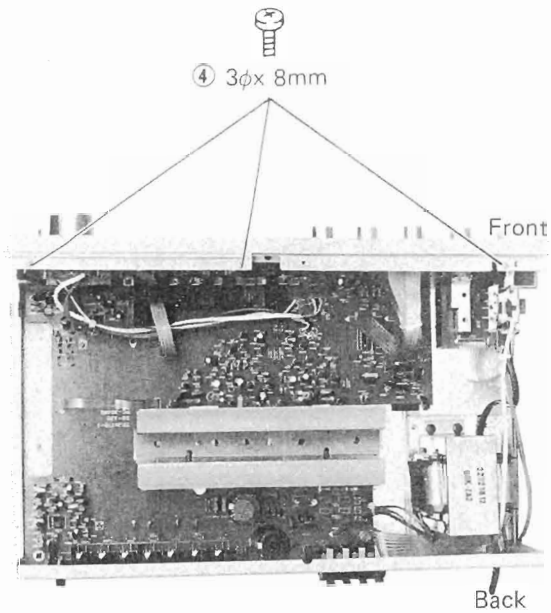


Figure 6

5. ADJUSTMENTS

IDLE CURRENT ADJUSTMENT

1. Idle current adjustment can easily be done by setting the semi-fixed VR R625, 626 (300 ohm) to mechanical mid point VR as shown in Figure 7.
2. The idle current between TP and TP must be less than 2mA when power has been on for 30 seconds.

LED LEVEL ADJUSTMENT

1. Right channel is fixed.
2. Only left channel can be varied. Adjust semi-fixed VR R703 (5K ohm) so that the LED lighting level of right channel is equal to that of left channel.

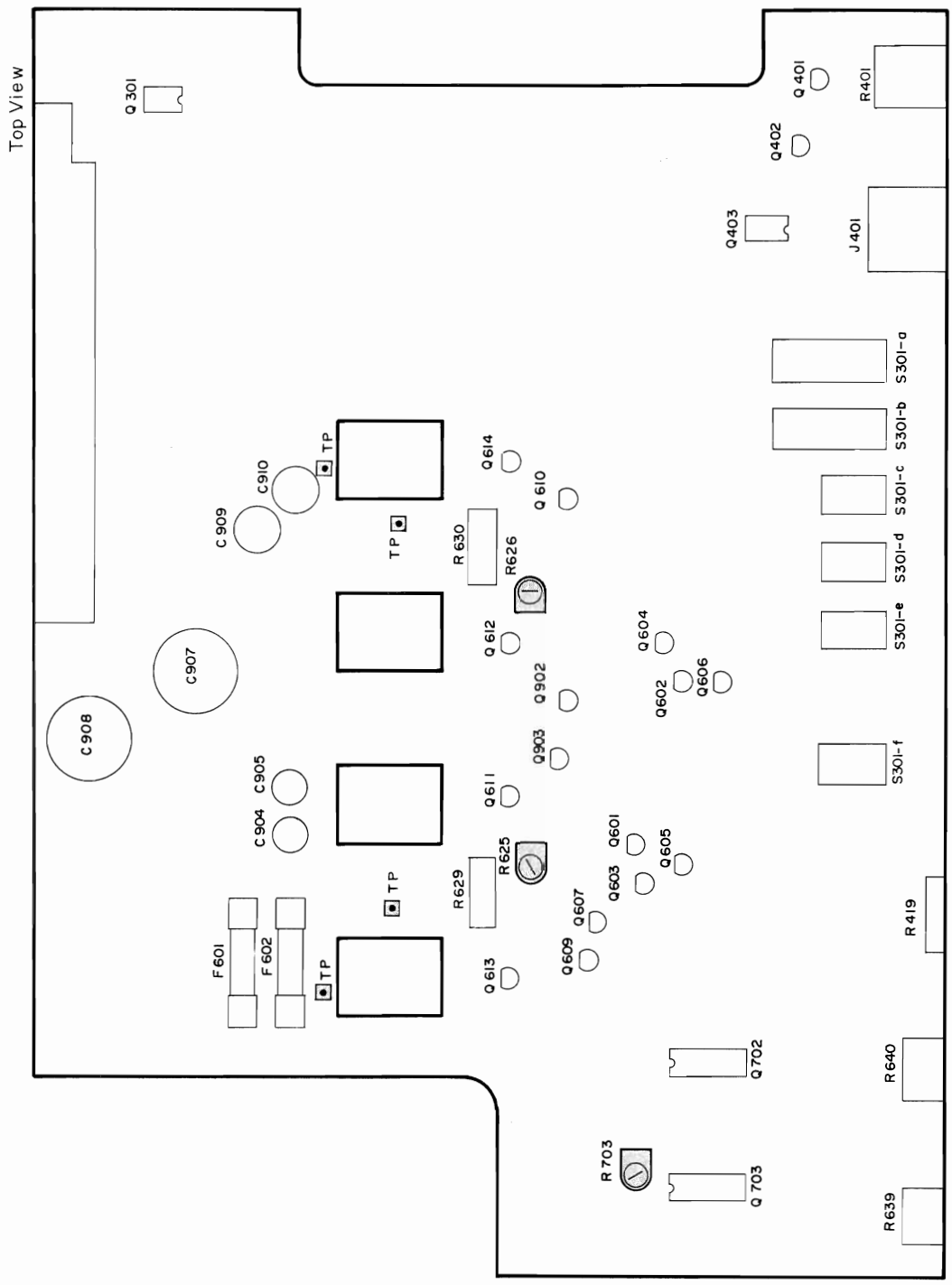


Figure 7

6. BLOCK DIAGRAM

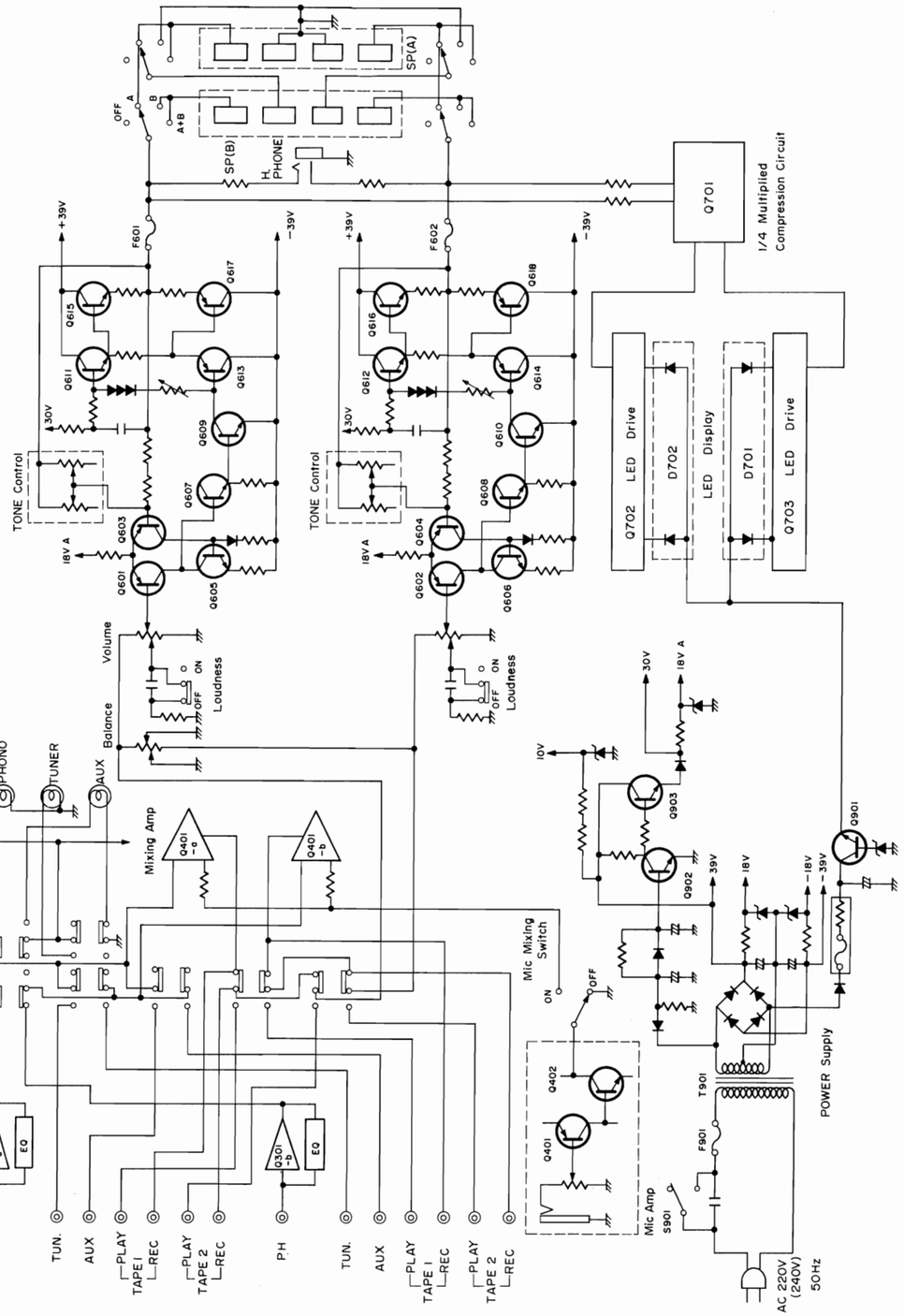
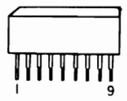
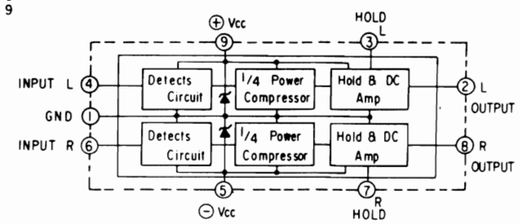


Figure 8

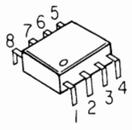
7. IC BLOCK DIAGRAM

TA7318P

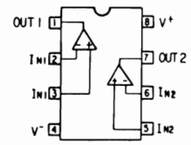




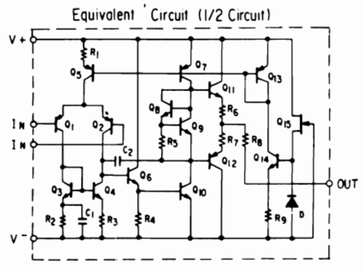
NJM4558D-K



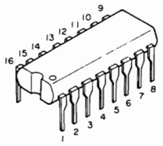
Connection Diagram (Top View)



Equivalent Circuit (1/2 Circuit)



TA7612AP



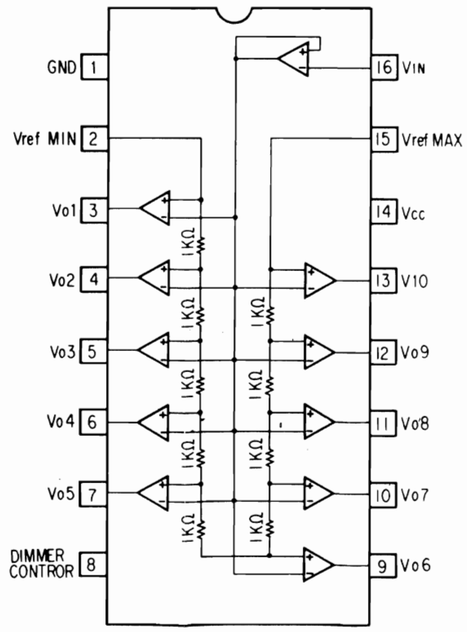


Figure 9

8. ELECTRICAL PARTS LOCATIONS

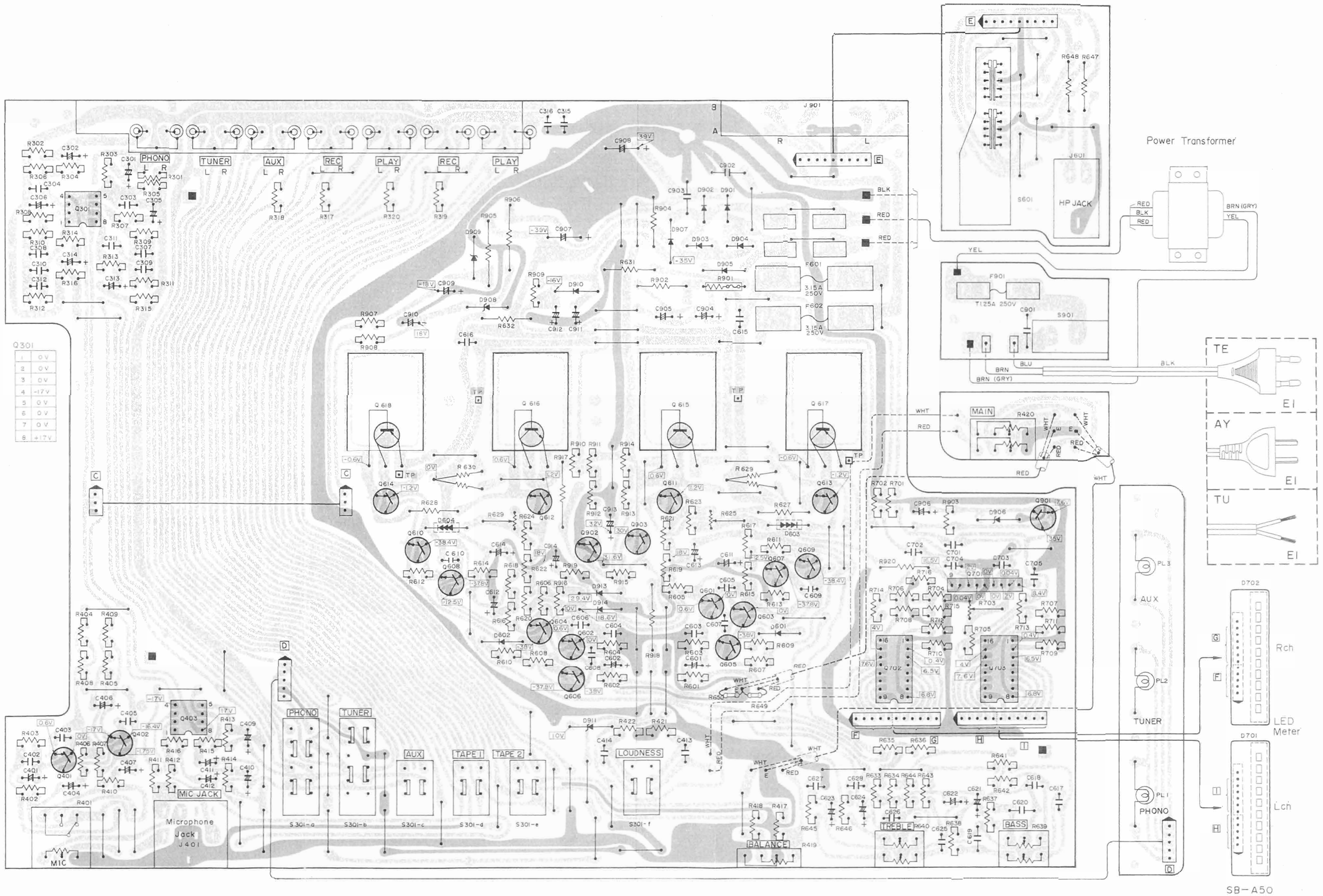


Figure 10

9. SCHEMATIC DIAGRAM

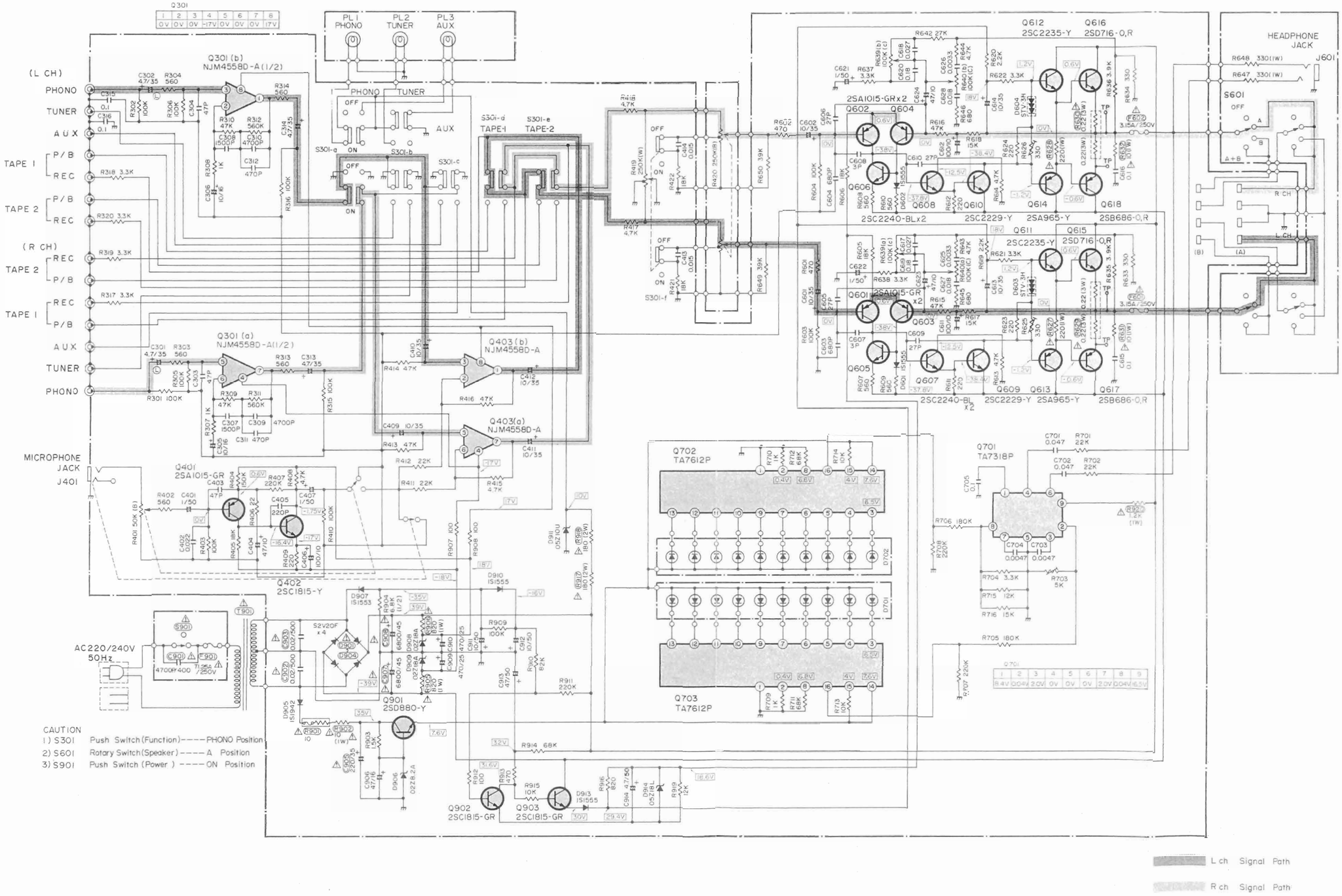
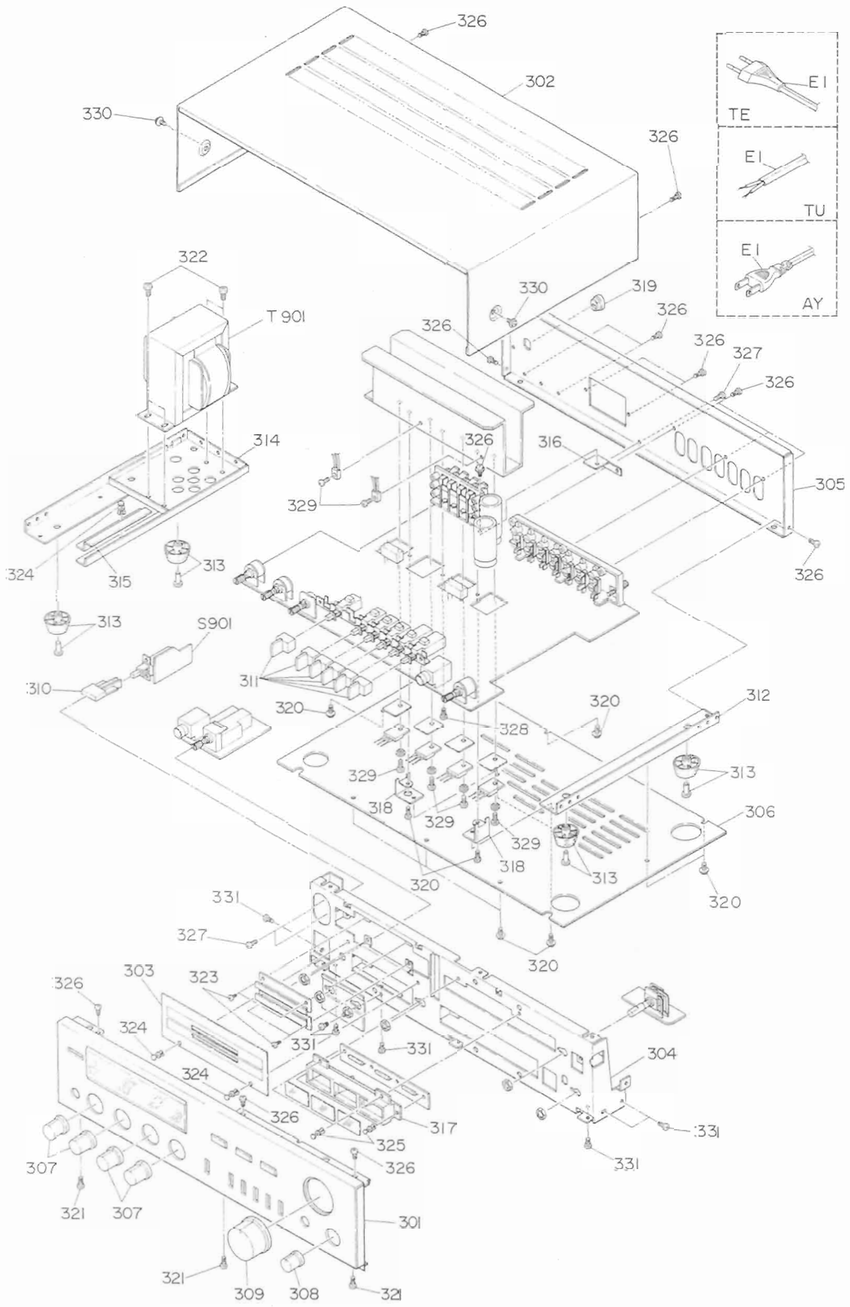


Figure 11

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

10. CABINET PARTS LOCATIONS



NOTE: Parts excluded in the Parts List are not available as replacement parts.

Figure 12

11. PARTS LIST

CAUTION
The ⚠ mark , the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
		CABINET PARTS
301	20017152	Front Panel Ass'y
302	20015194	Cover, Top
303	20033123	Plate, Decoration
305	20015192	Jack Plate (TE)
305	20015196	Jack Plate (TU, AY)
306	20822094	Plate, Bottom
307	22884011	Knob, TONE
308	22884012	Knob, MIX
309	22884028	Knob, Ass'y, VOLUME
310	25837457	Knob, POWER
311	22884013	Knob, Ass'y, Push
313	22828066	Leg
317	25841229	Cover, Lamp
⚠ 319	25845528	Bush, Nylon
320	22701436	Screw, T PAN, 3ϕ x 8mm
321	22707590	Screw, T PAN, 3ϕ x 8mm
322	22707040	Screw, FT BID, 4ϕ x 6mm
323	22707366	Screw, DT BID, 2.6ϕ x 6mm
324	22705021	Rivet, Plastic, 3ϕ x 3.5mm
325	22705034	Rivet, Plastic, 3.5ϕ x 5.5mm
326	22701326	Screw, BID, 3ϕ x 8mm, Tapping
327	22707066	Screw, BID, 3ϕ x 6mm
328	22707165	Screw, BID, 3ϕ x 10mm, Tapping
329	22707163	Screw, BID, 3ϕ x 10mm
330	22707522	Screw, FL DT, 3ϕ x 6mm
331	22701237	Screw, BID, 3ϕ x 6mm, Tapping
		TRANSISTORS, IC'S & DIODES
Q301	22114470	IC, NJM4558D-A
Q401		Transistor, 2SA1015-GR
Q402		Transistor, 2SC1815-Y
Q403	22114470	IC, NJM4558D-A
Q601, 602		Transistor, 2SA1015-GR
Q603, 604		Transistor, 2SA1015-GR
Q605, 606		Transistor, 2SC2240-BL
Q607, 608		Transistor, 2SC2240-BL
Q609, 610		Transistor, 2SC2229-Y
Q611, 612		Transistor, 2SC2235-Y
Q613, 614		Transistor, 2SA965-Y
Q615, 616		Transistor, 2SD716-O.R/O
Q617, 618		Transistor, 2B686-O.R/O
Q701		IC, TA7318P
Q702, 703		IC, TA7612P
Q901		Transistor, 2SD880-Y
Q902, 903		Transistor, 2SC1815-GR

Symbol No.	Part No.	Description
D601, 602		Diode, 1S1555V
D603, 604	22115481	Diode, STV-3H
D701, 702		Diode, TLR-8101
⚠ D901, 902	22115597	Diode, S2V20F
⚠ D903, 904		
D905		Diode, 1S1942
D906		Diode, 02Z8, 2A
D907		Diode, 1S1553V
D908, 909		Diode, 02Z18A
D910		Diode, 1S1555V
D911		Diode, 05Z10-U
D913		Diode, 1S1555V
C914		Diode, 05Z18-L
		ELECTRICAL PARTS
⚠ T901	22223812	Transformer, Power (TE)
⚠ T901	22223823	Transformer, Power (TU)
⚠ T901	22223830	Transformer, Power (AY)
S301	22195605	Switch, Push (FUNCTION)
S601	22195608	Switch, Rotary (SPEAKER)
⚠ S901	22195631	Switch, Push (POWER)
J301	22163810	Jack, Input, 14P
J401	22163699	Jack, Microphone
J601	22163676	Jack, Headphone
J901	22162457	Terminal, Speaker
⚠ F601, 602	22144355	Fuse, 3.15A/250V
⚠ F901	22144357	Fuse. 1.25A/250V
PL1, 2, 3	22113478	Lamp, Pilot 12V/55mA (CLR)
⚠ E1	22176286	Cord, Power (TE)
⚠ E1	22176536	Cord, Power (TU)
⚠ E1	22176588	Cord, Power (AY)
⚠ E2	22165036	Holder, Fuse (F601, 602)
⚠ E3	22165047	Holder, Fuse (F901)

CAPACITORS

D = ±0.5 pF , J = ±5%, K = ±10%, M = ±20%,
P = –0 +100%, Z = –20 +80%
ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic, MY = Mylar

C301, 302	22467479	EL, 4.7mfd, 35V, (LS)
C303, 304	22362470	CD, 47pF, 50V, K
C305, 306	22485100	EL, 10mfd, 16V
C307, 308	22371152	MY, 1500pF, 50V, J
C309, 310	22371472	MY, 4700pF, 50V, J
C311, 312	22349471	CD, 470pF, 50V, K

Symbol No.	Part No.	Description
C313, 314	22488479	EL, 4.7mfd, 50V
C315, 316	22360333	CD, 0.1mfd, 25V, M
C401	22488109	EL, 1mfd, 50V
C402	22342223	CD, 0.022mfd, 50V, Z
C403	22362470	CD, 47pF, 50V, K
C404	22483470	EL, 47mfd, 10V
C405	22349221	CD, 220pF, 50V, K
C406	22483101	EL, 100mfd, 10V
C407	22488109	EL, 1mfd, 50V
C409, 410	22487100	EL, 10mfd, 50V
C411, 412	22487100	EL, 10mfd, 50V
C413, 414	22360546	CD, 0.015mfd, 25V, K
C601, 602	22487100	EL, 10mfd, 50V
C603, 604	22349681	CD, 680pF, 50V, K
C605, 606	22361270	CD, 27pF, 50V, J
C607, 608	22361270	CD, 27pF, 50V, J
C609, 610	22361309	CD, 3pF, 50V, D
C611, 612	22483101	EL, 100mfd, 10V
C613, 614	22487100	EL, 10mfd, 50V
C615, 616	22360333	CD, 0.1mfd, 25V, M
C617, 618	22360549	CD, 0.027mfd, 25V, K
C619, 620	22372184	MY, 0.18mfd, 50V, K
C621, 622	22488109	EL, 1mfd, 50V
C623, 624	22483470	EL, 47mfd, 10V
C625, 626	22360538	CD, 0.0033mfd, 25V, K
C627, 628	22360547	CD, 0.018mfd, 25V, K
C701, 702	22360552	CD, 0.047mfd, 25V, K
C703, 704	22360540	CD, 0.047mfd, 25V, K
C705	22360333	CD, 0.1mfd, 25V, M
⚠ C901	22340147	CD, 0.01mfd, 400V, P
⚠ C902, 903	22340032	CD, 0.02mfd, 500V, Z
⚠ C905	22487221	EL, 220mfd, 35V
C906	22485470	EL, 47mfd, 16V
⚠ C907, 908	22440338	EL, 6800mfd, 50V
C909, 910	22486471	EL, 470mfd, 25V
C911, 912	22488100	EL, 10mfd, 50V
C913	22488470	EL, 47mfd, 50V
C914	22488479	EL, 4.7mfd, 50V

RESISTORS

All resistors are carbon film ¼W, ±5%, unless otherwise noted.

R301, 302	22555104	100k ohm
R303, 304	22555561	560 ohm
R305, 306	22555104	100k ohm
R307, 308	22555102	1k ohm
R309, 310	22555473	47k ohm
R311, 312	22555564	560k ohm
R313, 314	22555561	560 ohm
R315, 316	22555104	100k ohm
R317, 318	22555332	3.3k ohm
R319, 320	22555332	3.3k ohm
R401	22650447	50k ohm, B, Variable
R402	22555561	560 ohm
R403	22555104	100k ohm
R404	22555154	150k ohm
R405	22555183	18k ohm
R406	22555220	22 ohm
R407	22555224	220k ohm
R408	22555472	4.7k ohm
R409	22555221	220 ohm
R410	22555104	100k ohm
R411, 412	22555223	22k ohm
R413, 414	22555473	47k ohm
R415, 416	22555472	4.7k ohm
R417, 418	22555472	4.7k ohm
R419	22651619	250k ohm,W,Variable(BALANCE)
R420	22651615	250k ohm, B, Variable (MAIN)
R421, 422	22555183	18k ohm
R601, 602	22555471	470 ohm
R603, 604	22555104	100k ohm
R605, 606	22555183	18k ohm
R607, 608	22555561	560 ohm
R609, 610	22555561	560 ohm
R611, 612	22555221	220 ohm
R613, 614	22555472	4.7k ohm
R615, 616	22555473	47k ohm
R617, 618	22555153	15k ohm
R619, 620	22555222	2.2k ohm
R621, 622	22555332	3.3k ohm
R623, 624	22555221	220 ohm
R625, 626	22658500	300 ohm, Semi-fixed
⚠ R627, 628	22570266	220 ohm, 1W
⚠ R629, 630	22500260	0.22 ohm, 3W
⚠ R631, 632	22570250	10 ohm, 1W
R633, 634	22555392	3.9k ohm
R635, 636	22555331	330 ohm
R637, 638	22555332	3.3k ohm
R639, 640	22651618	100k ohm, C, Variable
R641, 642	22555273	27k ohm
R643, 644	22555472	4.7k ohm
R645, 646	22555681	680 ohm
R647, 648	22570268	330 ohm, 1W
R649, 650	22555393	39k ohm
R701, 702	22555223	22k ohm
R703	22658513	5k ohm, Semi-fixed
R704	22555332	3.3k ohm
R705, 706	22555184	180k ohm
R707, 708	22555224	220k ohm
R709, 710	22555102	1k ohm

	Symbol No.	Part No.	Description
	R711, 712	22555683	68k ohm
	R713, 714	22555103	10k ohm
	R715	22555123	12k ohm
	R716	22555153	15k ohm
⚠	R901	22500130	10 ohm, Fusible
⚠	R902	22570250	10 ohm, 1W
	R903	22555152	1.5k ohm
	R904	22547682	6.8k ohm, ½W
⚠	R905, 906	22570273	820 ohm, 1W
	R907, 908	22555101	100 ohm
	R909	22555104	100k ohm
	R910	22555823	82k ohm
	R911	22555224	220k ohm
	R912	22555101	100 ohm
	R913	22555471	470 ohm
	R914	22555683	68k ohm
	R915	22555103	10k ohm
	R916	22555821	820 ohm
⚠	R917	22570310	180 ohm, 2W
⚠	R918	22570310	180 ohm, 2W
	R919	22555123	12k ohm
⚠	R920	22570275	1.2k ohm, 1W
	ACCESSORY		
		22902702	Owner's Manual

TOSHIBA CORPORATION

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