



Service Manual



ORDER NO.
ARP-480-0

STEREO AMPLIFIER

SA-301

MODEL SA-301 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KC	AC120V only	Canada model
HE	AC220V, 240V (switchable)	European continent model
HB	AC220V, 240V (switchable)	United Kingdom model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
YP	AC240V only	Australia model
HEZ	AC220V, 240V (switchable)	West Germany model

■ This service manual is applicable to the HE type. For servicing of the other types, please refer to the additional service manual.

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1. SPECIFICATIONS

Amplifier Section

DIN Continuous Power Output at 1 kHz (both channels driven)	32 watts per channel
T.H.D., 1%, 8 ohms	0.05%
Frequency Response	30 Hz to 20,000 Hz ± 0.5 dB
PHONO (RIAA Equalization)	10 Hz to 60,000 Hz ± 3 dB
TUNER, TAPE	0.05%, 1 kHz
Input Level (T.H.D.)	140 mV
PHONO	8 \sim 16 Ω
Output impedance	72 dB
SPEAKER	97 dB
Hum and Noise (IHF, short circuited, A network)	66 dB/62 dB
PHONO	82 dB/64 dB
TUNER, TAPE PLAY	

Miscellaneous

Power Requirements	a.c. 220 Volts \sim 50/60 Hz
Power Consumption	160 Watts
Dimensions	420 (W) x 98 (H) x 234 (D) mm
	16-9/16 (W) x 3-7/8 (H) x 9-3/16 (D) in
Weight (without package)	3.9 kg (8 lb 10 oz)

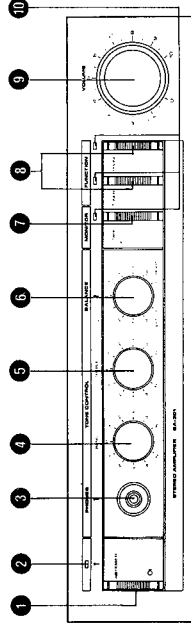
Furnished Part

Operating Instructions	1
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NOTE:

Specifications and design subject to possible modifications without notice due to improvements.

2. FRONT PANEL FACILITIES



1 POWER SWITCH (POWER \circ |)

2 POWER INDICATOR

3 PHONES JACK

Use this jack for listening to the program source through your headphones. Connect the plug on the headphones properly to this jack. Once connected, no sound will be heard through the speakers.

NOTE:

Get into the habit of turning down the volume before plugging in the headphones. Loud sounds can damage your ears.

4 BASS CONTROL

This is used to adjust the bass (low-frequency) sound.

5 TREBLE CONTROL

This is used to adjust the treble (high-frequency) sound.

6 BALANCE CONTROL

This control should normally be set to the center position, when the output from the left and right speakers or headphones is not the same, adjust by turning the control clockwise or counterclockwise.

7 TAPE/MONITOR SWITCH (MONITOR)

Set this switch to ON when using a tape deck or a graphic equalizer (or any equipment) connected to the TAPE/MONITOR terminals.

8 FUNCTION SWITCH

This is used to select the program source which is to be heard.

PHONO: For playing records on the turntable connected to the PHONO terminals.

TUNER: For listening to broadcasts on a tuner connected to the TUNER terminals.

9 VOLUME CONTROL

This is used to adjust the volume of the speakers and headphones.

10 INDICATORS (FUNCTION and MONITOR)

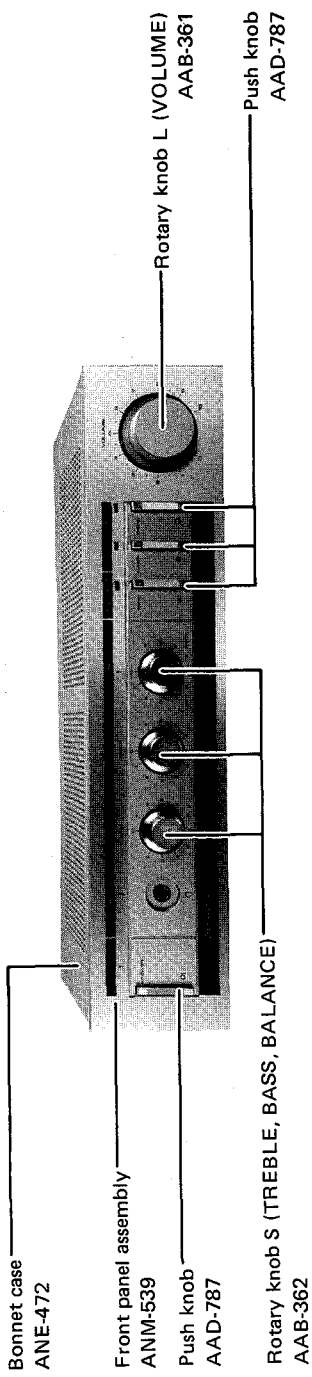
The indicator corresponding to the selected function switch or TAPE/MONITOR switch lights.

3. PARTS LOCATION

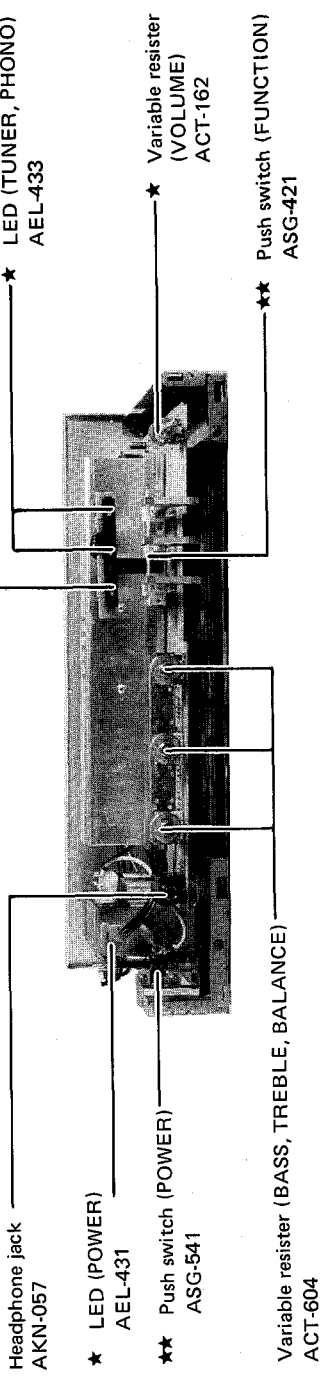
NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★** and **★★**.
- **★★★ GENERALLY MOVES FASTER THAN ★**.
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

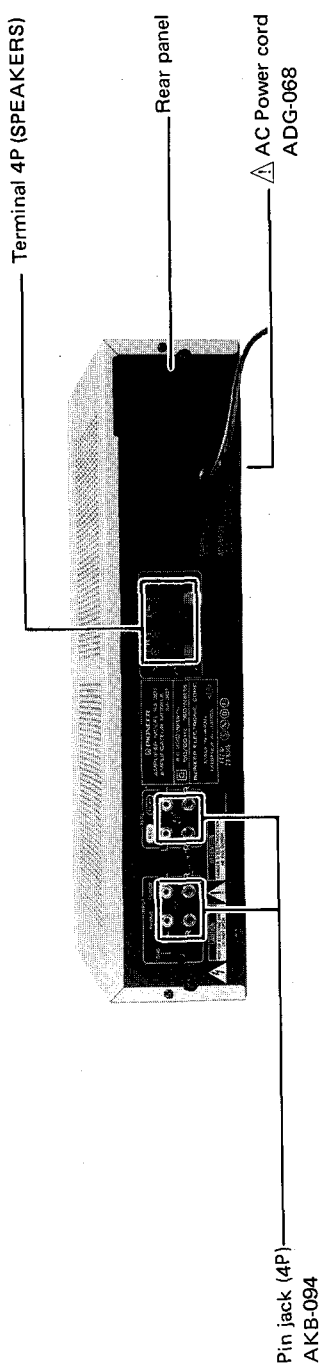
Front Panel View



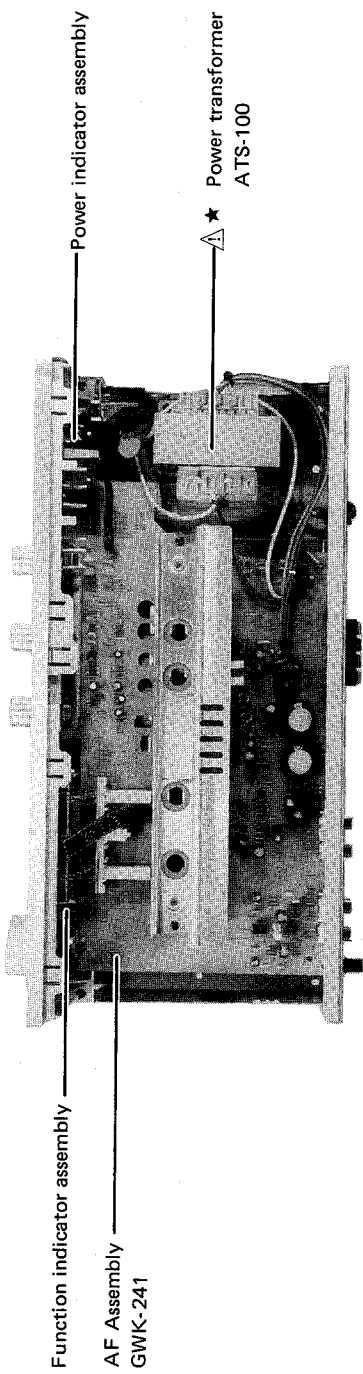
Front View with Panel View



Rear Panel View



Top View



4. EXPLODED VIEW

NOTES:

- Parts without part number cannot be supplied.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
 - **★★ GENERALLY MOVES FASTER THAN ★**.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	ANE-472	Bonnet case		11.	AAD-787	Push knob
	2.	GWK-241	AF Assembly		12.	ADG-068	AC Power cord
Δ ★	3.	ATS-100	Power transformer	Δ	13.	BBZ30P080FZK	Screw 3x8
Δ ★★	4.	ASG-541	Push switch (S3, POWER)		14.	NK90FUC	Nut
Δ	5.	ACG-502	Ceramic capacitor (0.01/AC400V)		15.	VMZ30P060FMC	Screw 3x6
					50.		Bottom plate
Δ ★★	6.	AEK-031	Fuse (FU3, T800mA)		51.		Rear panel
	7.	ANM-539	Front panel assembly		52.		Transformer frame
	8.	AEP-007	Leg assembly		53.		Right frame
	9.	AAB-361	Rotary knob L (VOLUME)		54.		Terminal (GND)
	10.	AAB-362	Rotary knob S (TABLE, BASS, BALANCE)		55.		Function IND assembly
					56.		Power IND assembly
					57.		Terminal 4P (SPEAKER)

6

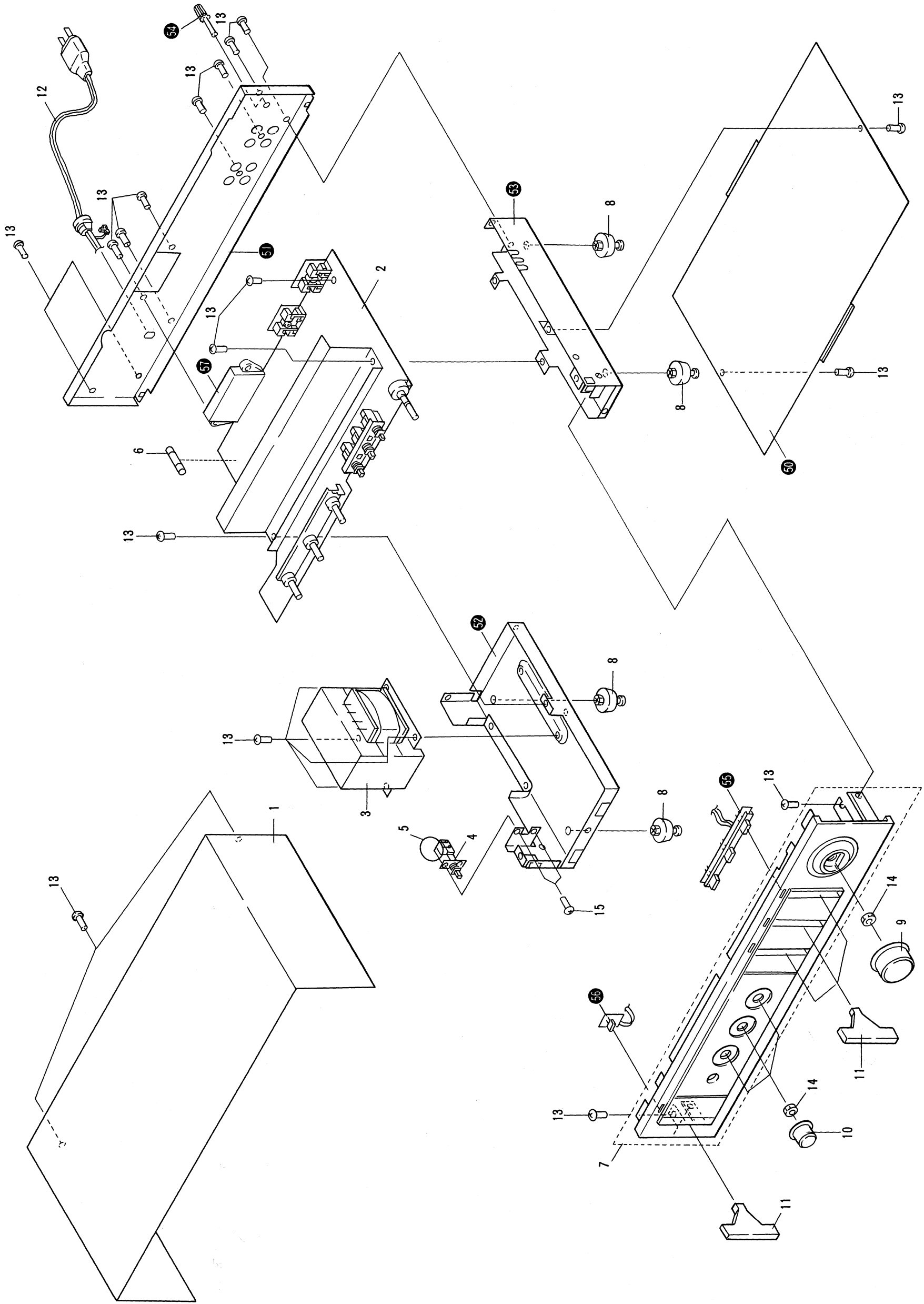
5

4

3

2

1



A

B

C

D

A

B

C

D

6

5

4

3

2

1

1

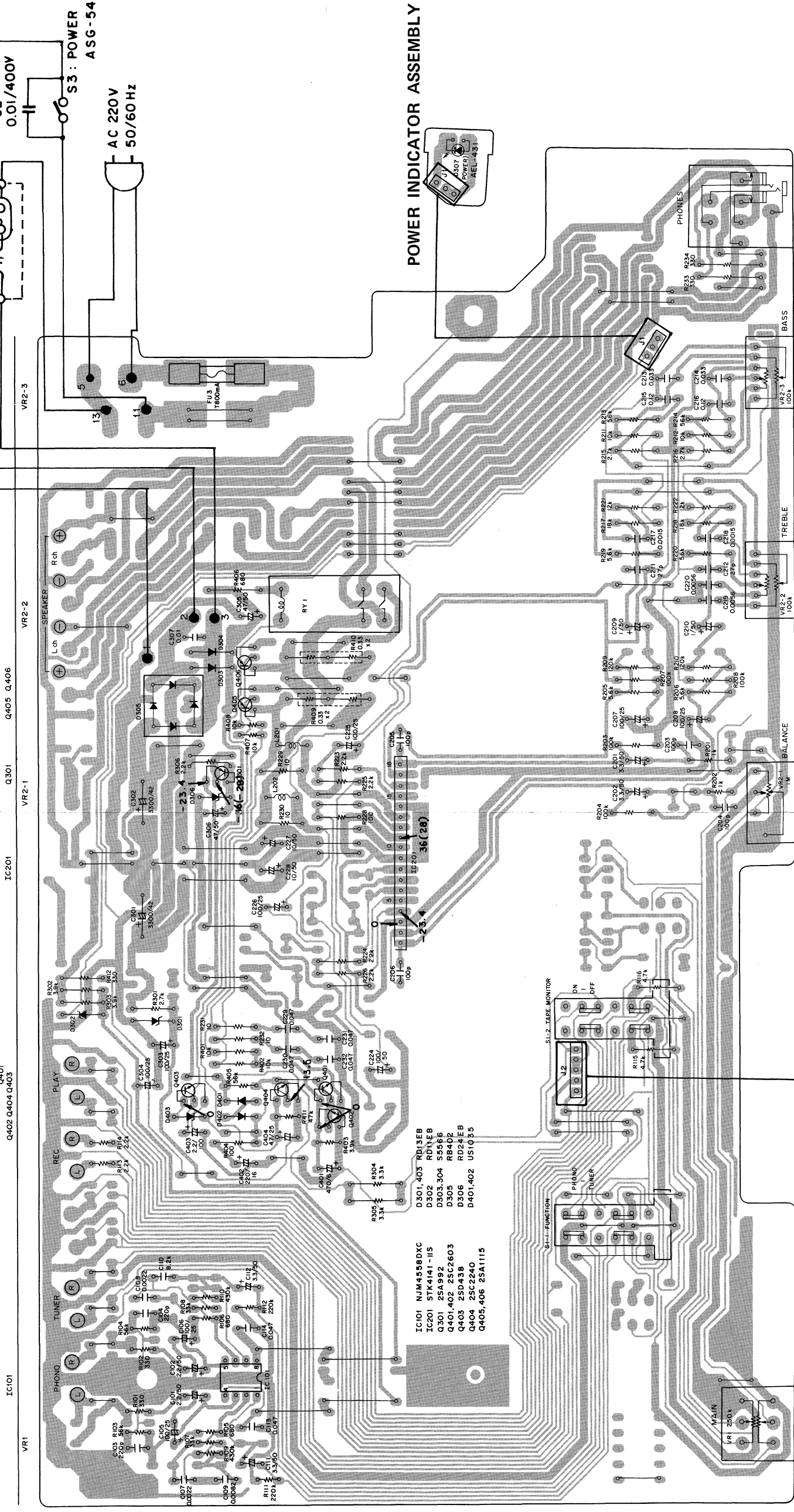
6

5. P.C. BOARDS CONNECTION DIAGRAM

A

AF ASSEMBLY GWK-241

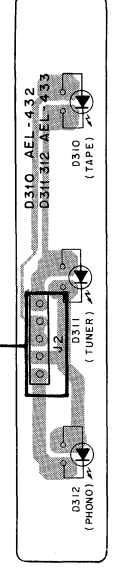
A



B

C

D

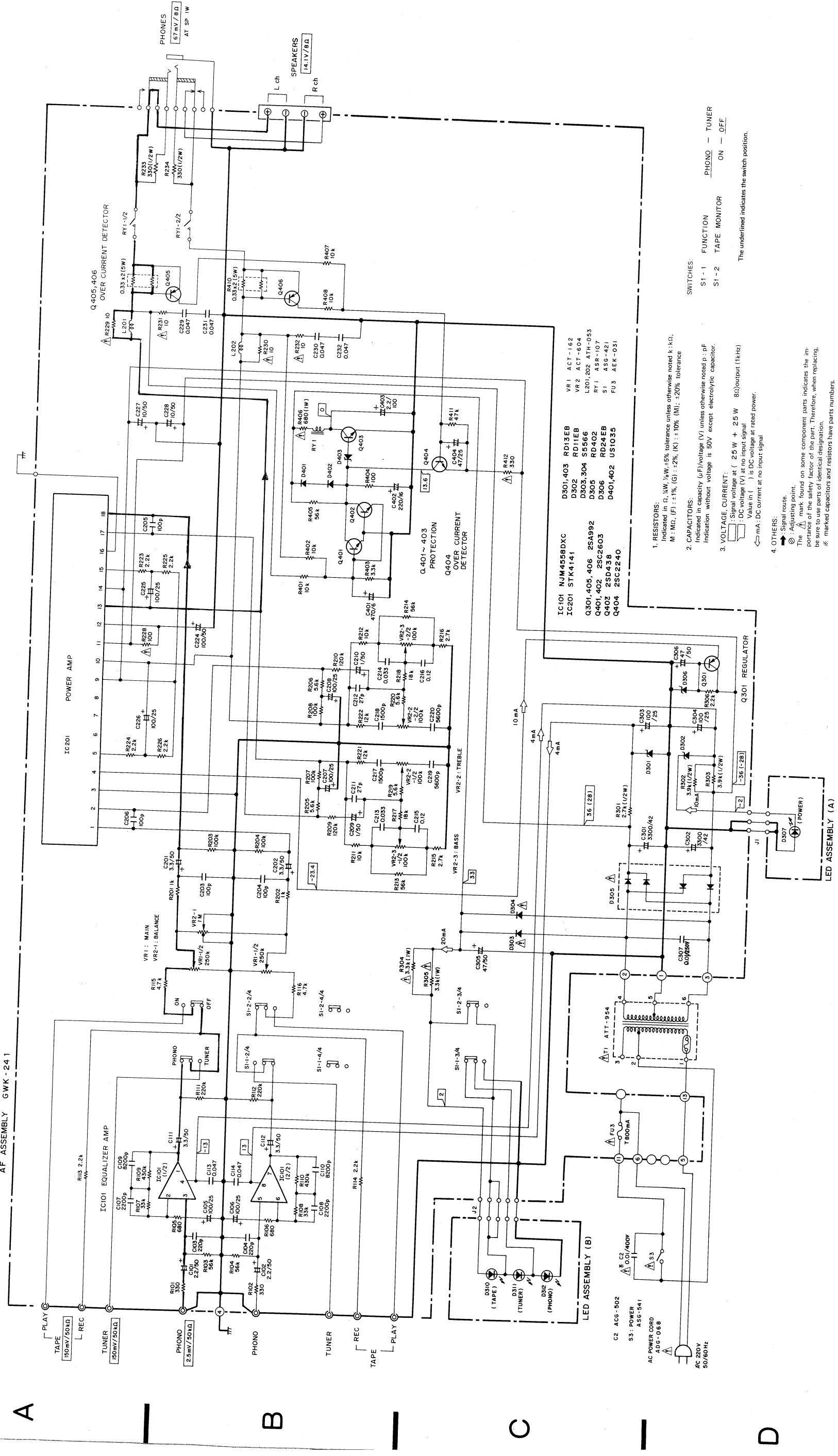


FUNCTION INDICATOR ASSEMBLY

6. SCHEMATIC DIAGRAM

SA-301

NOTE:
The indicated semiconductors are representative ones only.
Other alternative semiconductors may be used and are listed in the parts list.



AF ASSEMBLY GWK - 241

- 1. RESISTORS:**
Indicated in Ω, kW, ½W, ¼W, 5% tolerance unless otherwise noted K, KΩ, M, MΩ, MF, F, ±1%, (G), ±2%, (K), ±10% (M), ±20% tolerance
- 2. CAPACITORS:**
Indicated in capacity (μF)/voltage (V) unless otherwise noted p, pF
Indication without voltage is 50V except electrolytic capacitor.
- 3. VOLTAGE, CURRENT:**
⊖: Signal voltage at (25 W + 25 W 8Ω) output (1kHz)
⊖: DC voltage (V) at no input signal
⊖: Value in () is DC voltage at rated power.
⊖ mA: DC current at no input signal
- 4. OTHERS:**
→: Signal route
⊕: Adjusting point
⊕: Found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
*: marked capacitors and resistors have parts numbers.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

IC101	NJM4558D	VR1	ACT-162
IC201	STK4141	VR2	ACT-604
		D301,403	RD13EB
		D302	RD11EB
		D303,304	S5566
		Q301,405,406	2SA992
		Q401,402	2SC2603
		Q403	2SD438
		Q404	2SC2240
		D401,402	US1035
		FU3	AEK-031

SWITCHES:
S1-1 FUNCTION PHONO - TUNER ON - OFF
S1-2 TAPE MONITOR

The underlined indicates the switch position.

1 2 3 4 5 6

1 2 3 4 5 6

A

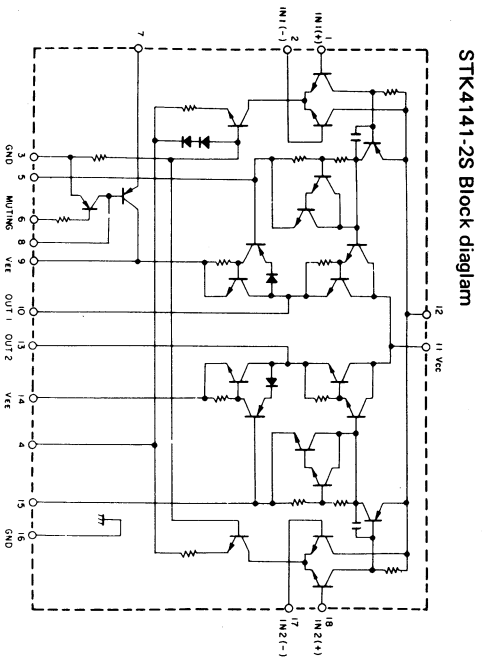
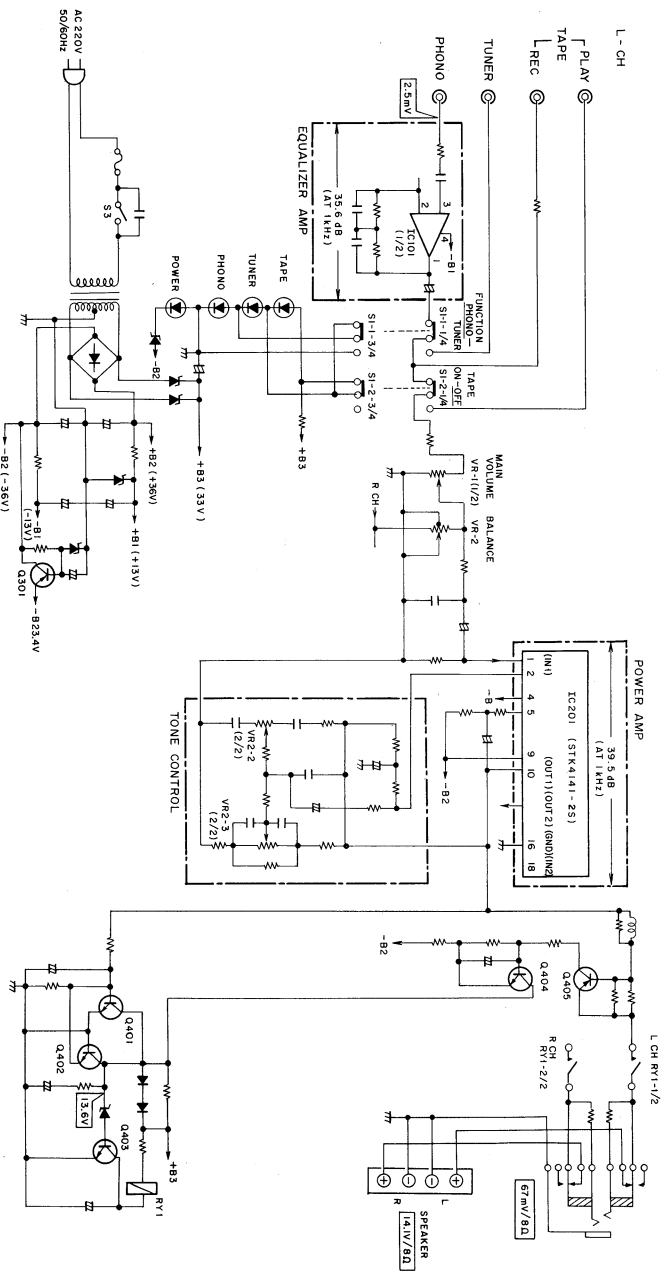
B

C

D

10

8. BLOCK DIAGRAM



STK4141-2S Block diagram

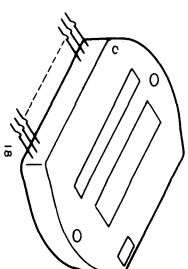
9. PACKING

Parts List

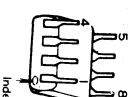
Mark	No.	Part No.	Description
	1.	ARE-097	Operating instructions (English/French/German/Italian)
	2.	AHA-375	Side pad
	3.	AHE-309	Packing case
	4.		Sheet

External Appearance of Transistors and ICs

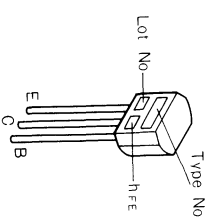
STK4141-2S



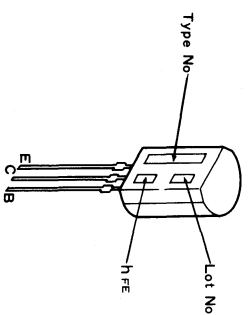
NUM4558DXC



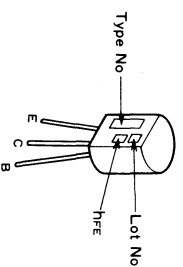
2SC2603



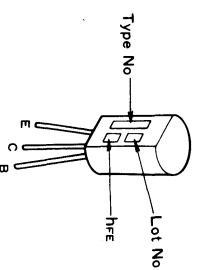
2SD438



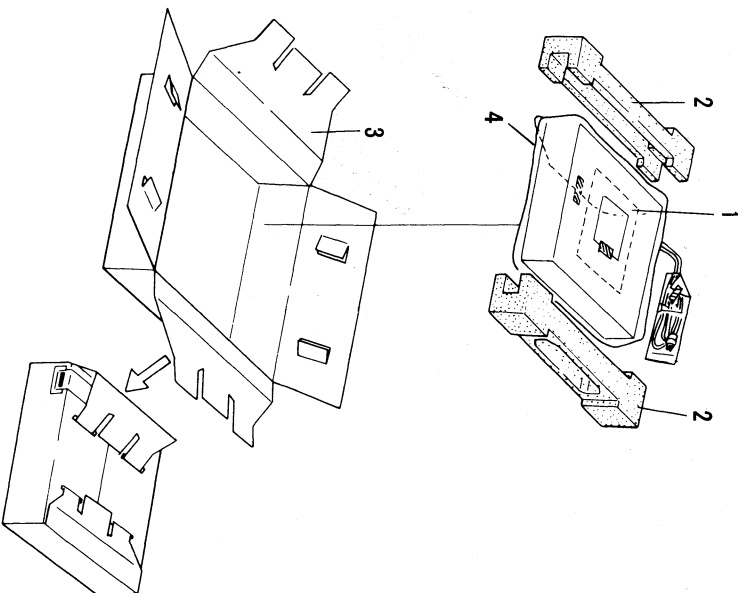
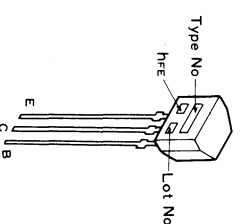
2SC2240
2SA970



2SA992



2SA1048
2SC2458



10. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

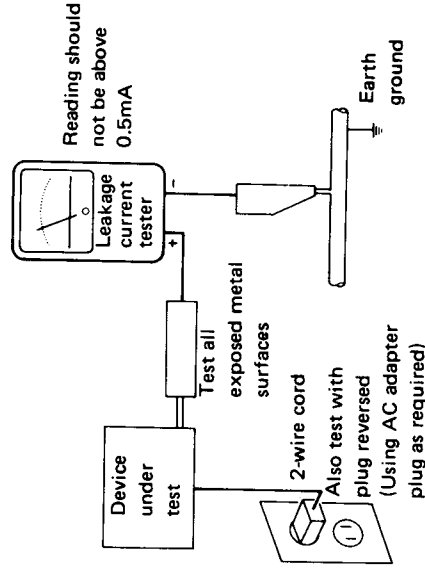
2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

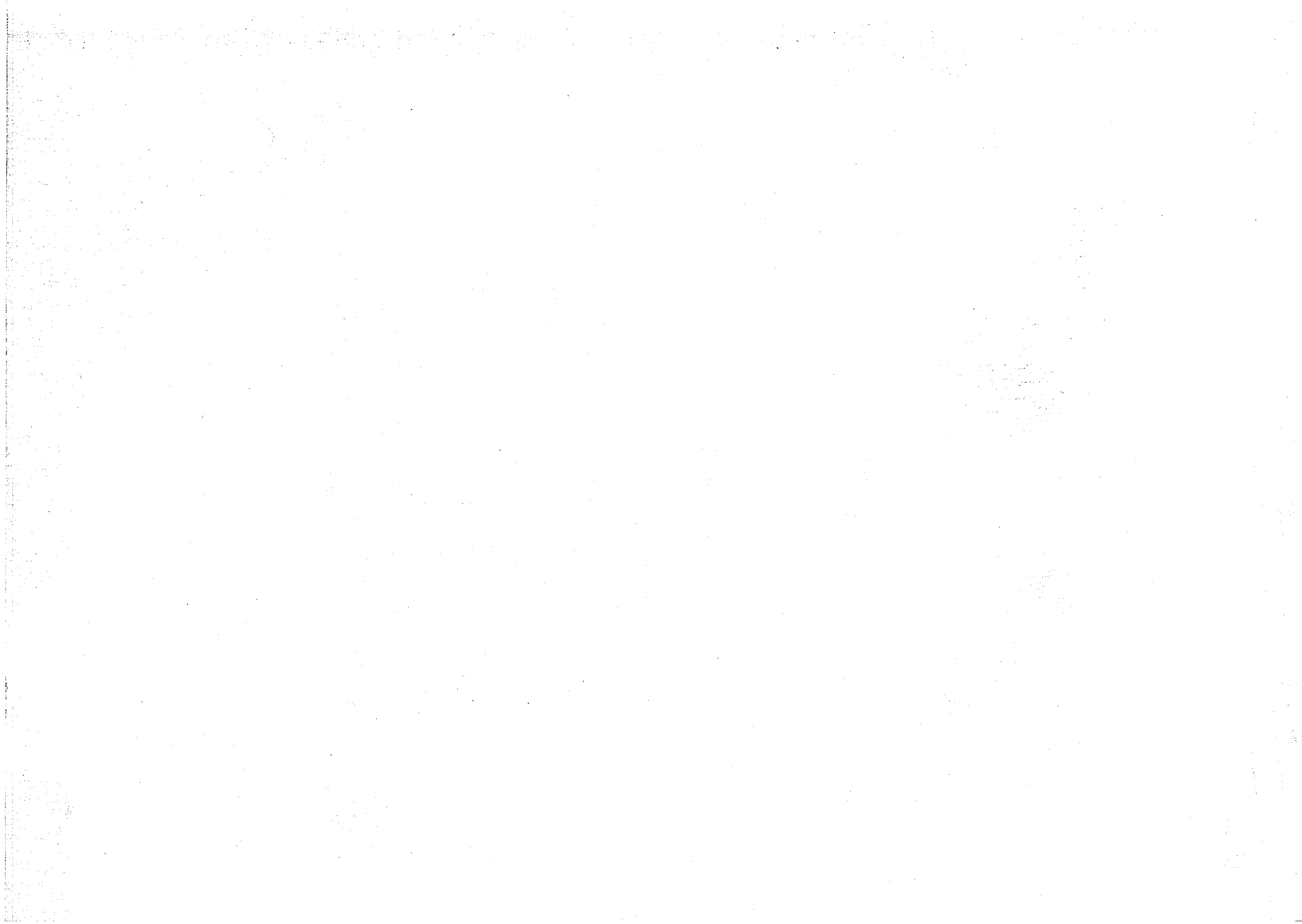
Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.



AC Leakage Test



QUESTIONNAIRE

MODEL

One Model per questionnaire

Dear Servicer,

Thank you for your cooperation in the post-sale service of Pioneer products.

This questionnaire is used as a tool to improve the serviceability of our products and service manuals. Please evaluate this model and service manual by answering the following questions. Your ideas may be realized in our future products. Your answers will be appreciated. Thank you.

PIONEER ELECTRONIC CORP.

T. Nakagawa, Manager, Service Section, International Division

1. SERVICING EVALUATION Circle applicable number:

Good	Fair	Poor
1 2	3 4	*5

a. Disassembly/Re-assembly:

b. Circuit Checks:

1 2	3 4	*5
--------	--------	----

c. Replacement of Parts:

1 2	3 4	*5
--------	--------	----

d. Adjustment (s):

1 2	3 4	*5
--------	--------	----

* If (4) or (5) was circled, please be specific.

e. Your advice, opinion or ideas related to servicing this product.

2. SERVICE MANUAL EVALUATION

a. Circuit & Mechanism Description

b. Circuit Diagram

3. OTHER

Please describe other areas of servicing which you may find difficult.

Completed by :

Date :

Company Name :

Address :

City/State/Zip :

Please send this form filled to the distributor in your country.

QUESTIONNAIRE

Modèle
Un modèle par questionnaire

Cher Monsieur,

Merci pour votre coopération à propos du service après-vente des produits PIONEER.

Ce questionnaire a pour but l'amélioration de notre service d'entretien et des manuels de nos produits. Nous vous prions d'évaluer dans ce questionnaire les éléments de nos manuels de service. Vos conseils seront précieux et pris en considération dans la réalisation de nos produits dans l'avenir.

En vous remerciant d'avance, agréez, cher monsieur, l'expression de nos sentiments distingués.

PIONEER ELECTRONIC CORPORATION

T. Nakagawa, Manager, Service Section, Administration Department, International Division

1. ÉVALUATION EN FACILITÉ DE SERVICE MODÈLE

Cerclez le numéro.
Bon, Passable, Mauvais,

a. Démontage/remontage

1 2 3 *4 *5

b. Examen de circuits

1 2 3 *4 *5

c. Remplacement de pièces

1 2 3 *4 *5

d. Facilité de réglage

1 2 3 *4 *5

* Si vous cerclez No. 4 ou 5, donnez l'explication concrète.

e. Votre conseil ou avis sur le service

2. VOTRE APPRÉCIATION DU MANUEL DE SERVICE

a. Circuit et description du mécanisme.

b. Diagramme du circuit.

3. AUTRES

Anotez les autres points difficiles à réparer.

Répondu par :

Nom :

Compagnie :

Adresse :

Date :

Âge :

Adressez-vous ce questionnaire au distributeur, S.V.P.

ENCUESTA

Modelo

Uno modelo por encuesta

Querido señor,

Muchas gracias por su cooperación en el servicio de post-venta de los productos de Pioneer. Esto es para mejorar el servicio de post-venta de nuestros productos. Les pedimos a ustedes responder a las preguntas siguientes. Su opinión e idea estarán tenidos en cuenta en los productos futuros.

Nos complacemos en saludarles muy atentamente,

PIONEER ELECTRONIC CORPORATION

T. Nakagawa, Manager, Service Section, Administration Department, International Division

**1. EVALUACION EN LA FACILIDAD DE SERVICIO
MODELO**

Marque uno entre los numeros siguientes.
Bueno Medio Malo

a. Desmonte:

1 2 3 *4 *5

b. Examen de circuito:

1 2 3 *4 *5

c. Reemplazo de piezas:

1 2 3 *4 *5

d. Ajuste:

1 2 3 *4 *5

* Si marca (4) o (5), ejemplifique concretamente.

e. Su consejo, opinión u idea en el servicio de este modelo.

2. EVALUACION DEL MANUAL DE SERVICIO

a. Circuito & Descripción de mecanismos.

b. Diagrama del circuito.

3. OTRAS

Describe otras partes difíciles de reparar.

Respondido por :

Nombre :

Compañía :

Dirección :

Fecha :

Edad :

Manda esta encuesta al domicilio del distribuidor, por favor.