



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	
PHONO	
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)

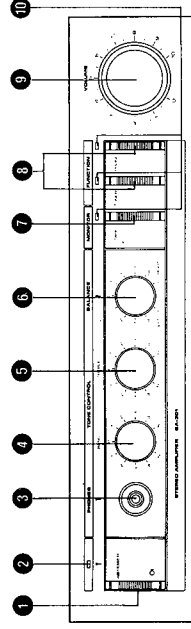
Furnished Part

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)

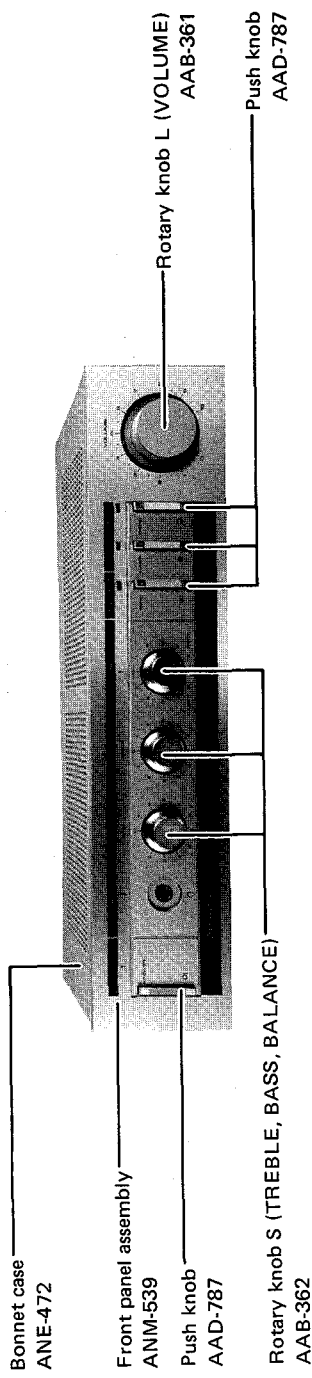
The indicator corresponding to the selected function switch or TAPE/MONITOR switch lights.

3. PARTS LOCATION

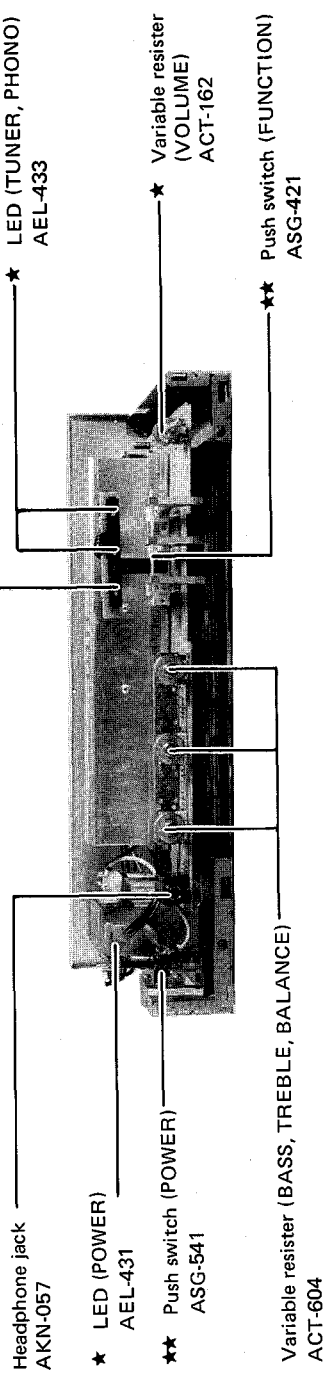
NOTES:

- 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.

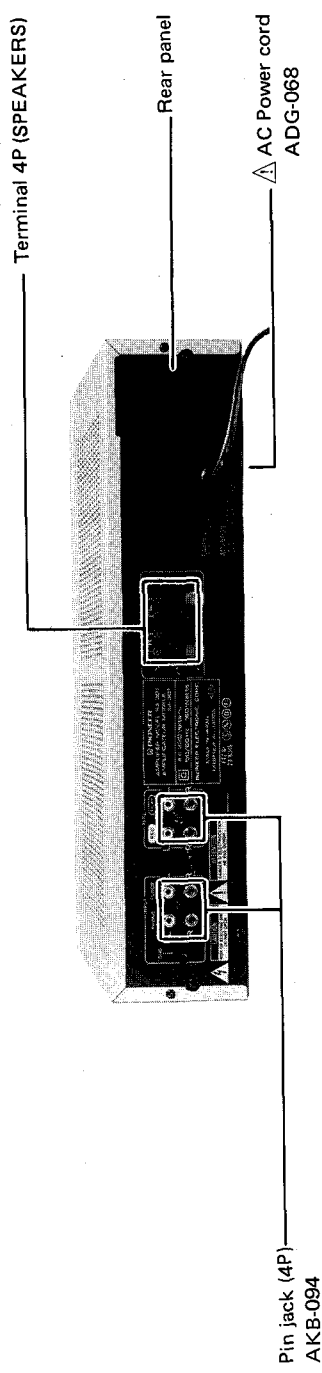
Front Panel View



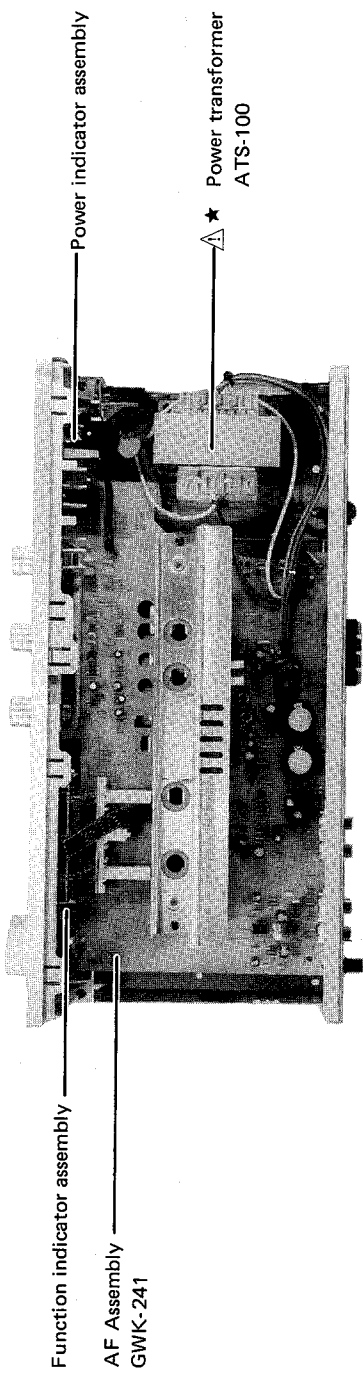
Front View with Panel View



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

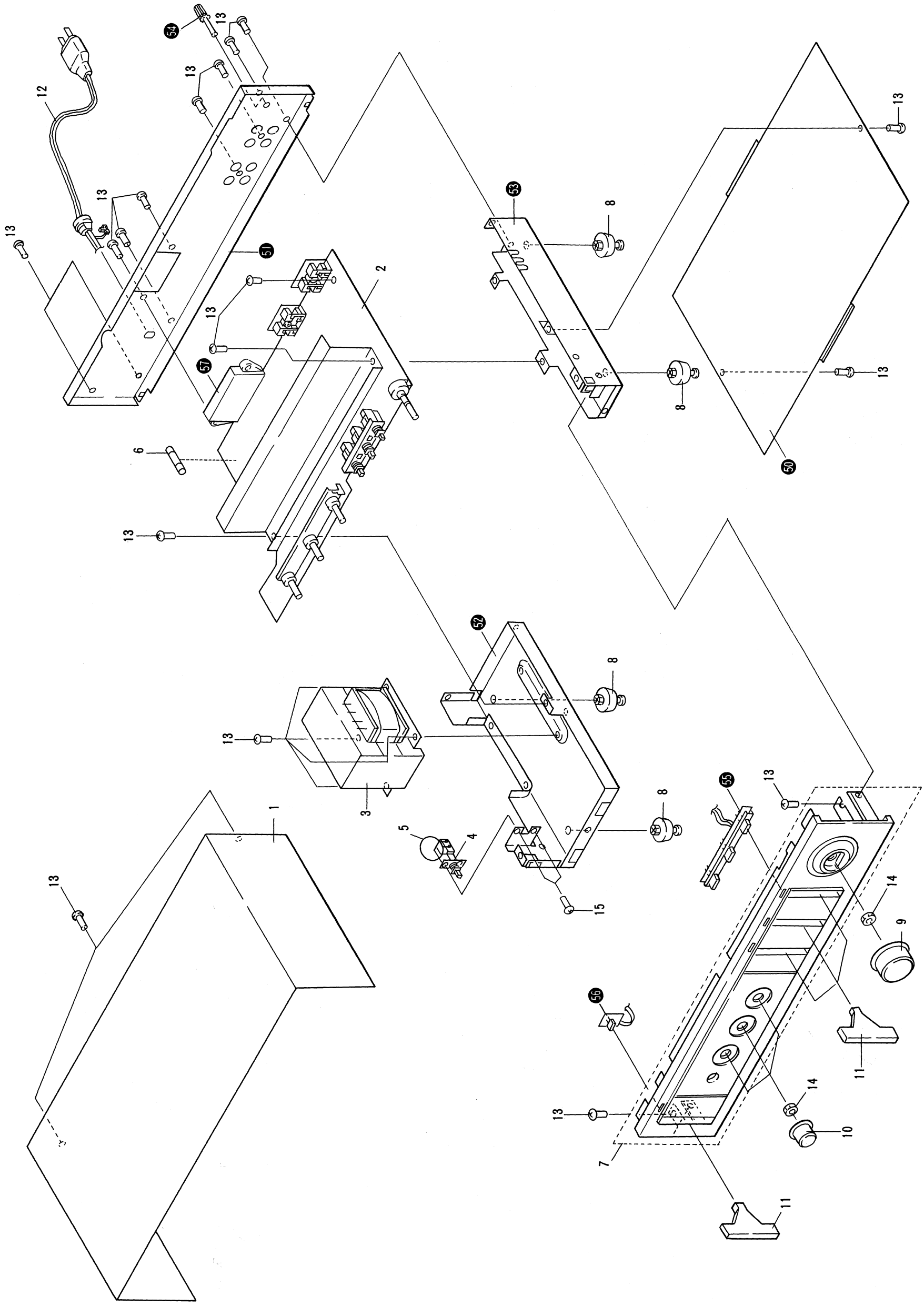
5

4

3

2

1



A

B

C

D

A

B

C

D

6

5

4

3

2

1

A

B

C

D

7. ELECTRICAL PARTS LIST

NOTES:

• When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 x 10¹ 561 RD¼PS 561J
 47kΩ 47 x 10³ 473 RD¼PS 473J
 0.5Ω 0R5 RN2H 0R5K
 1Ω 010 RS1P 010K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 x 10¹ 5621 RN¼SR 5621F

• 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.

Miscellaneous Parts

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	AF Assembly	GWK-241	★	D301, D403	RD13EB (HZ13EB)
	Power indicator assembly		★	D306	RD24EB (HZ24EB)
	Function indicator assembly		★	D303, D304	S5566
			★	D401, D402	US1035 (1S1555)
OTHERS					
Δ	C2	Ceramic capacitor (0.01/400V)			
Δ	T1	Power transformer (ATT-954)			
Δ	S3	Push switch (POWER) (ASG-541)			
Δ	FU3	Fuse (T800mA) (AEK-031)			
SWITCHES, RELAY					
			★★	S1	Push switch (FUNCTION) ASG-421
			★★	RY1	Relay ASR-107
COILS					
				L201, L202	ATH-053

AF Assembly (GWK-244)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
★★	IC101	OP-AMP IC			
★★	IC201	AUDIO IC			
★★	Q405, Q406				
★★	Q301				
★★	Q401, Q402				
★★	Q403				
★★	Q404				
★	D305				
★	D302				

Power IND Assembly

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	C403	CEA 2R2M 100L	★	D307	LED (POWER) AEL-431
	C402	CEA 221M 16L			
	C111, C112	CEA 3R3M 50L			
	C404	CEA 470M 25L			
	C305, C306	CEA 470M 50L			
	C401	CEA 471M 6L			
	C105, C106, C207, C208	CEXA 101M 25			
	C101, C102	CEXA 2R2M 50			
	C101, C202	CEXA 3R3M 50			
	C113, C114, C229 - C232	CKDYX 473M 25			
	C215, C216	CDMA 124K 50			
	C217, C218	CDMA 152K 50			
	C107, C108	CDMA 222K 50			
	C213, C214	CDMA 333K 50			
	C219, C220	CDMA 562K 50			
	C109, C110	CDMA 822K 50			

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	R409, R410 (0.33/5W)	ACN-139
★	VR1 Variable resistor (MAIN)	ACT-162
★	VR2 Variable resistor (BALANCE, TREBLE, BASS)	ACT-604
Δ	R304, R305	RS1PMF332J
Δ	R406	RS1PMF681J
	R301, R233, R234, R302, R303	RD1/2PM 000J
Δ	R228 - R230, R412	RD1/4PMFL331J
	R223 - R226	RD1/4PM 000J
Δ	R231, R232	RD1/4PMF100J
	Other resistors	RD1/8PM 000J

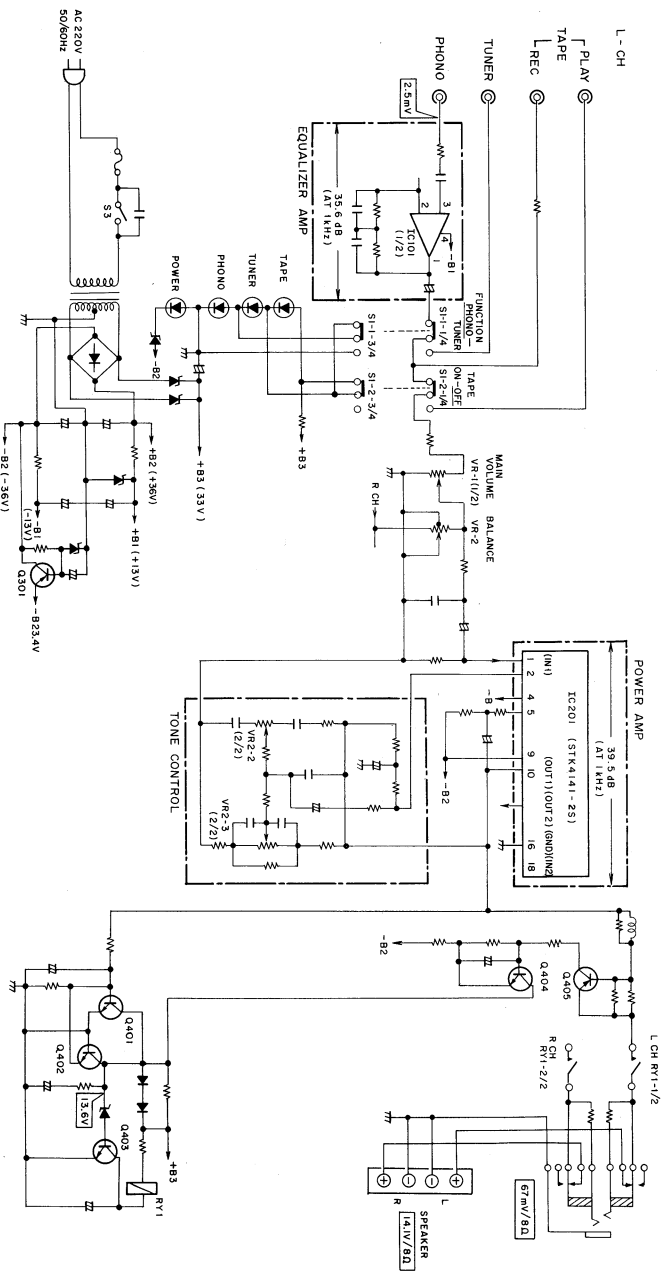
OTHERS

Mark	Symbol & Description	Part No.
	Pin jack (4P)	AKB-094
	Terminal 4P (SPEAKERS)	
	Headphone jack	AKN-057
	Rivet	AEC-940
	Screw (Power transistor)	ABA-271
	Fuse holder	
	Terminal (GND)	
	LED Holder	
	Heat sink	

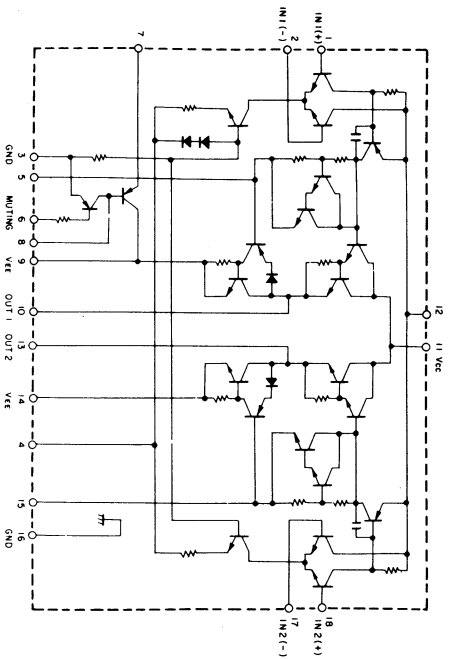
Function IND Assembly

Mark	Symbol & Description	Part No.
★	D310	LED (TAPE) AEL-432
★	D311, D312	LED (TUNER, PHONO) AEL-433

8. BLOCK DIAGRAM



STK4141-2S Block diagram



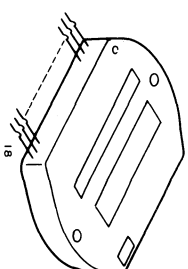
9. PACKING

Parts List

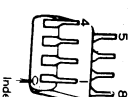
Mark	No.	Part No.	Description
	1.	ARE-097	Operating instructions (English/French/German/Italian)
	2.	AHA-375	Side pad
	3.	AHE-309	Packing case
	4.		Sheet

External Appearance of Transistors and ICs

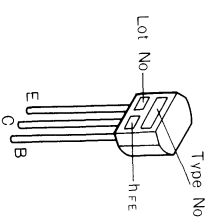
STK4141-2S



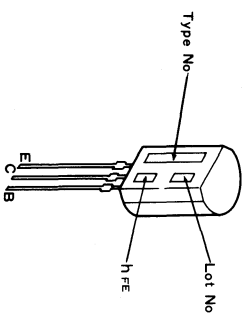
NUM4558DXC



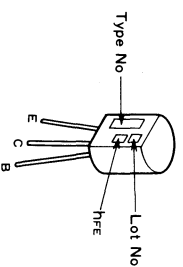
2SC2603



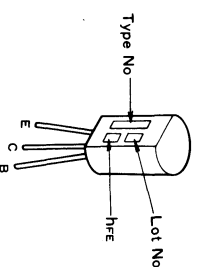
2SD438



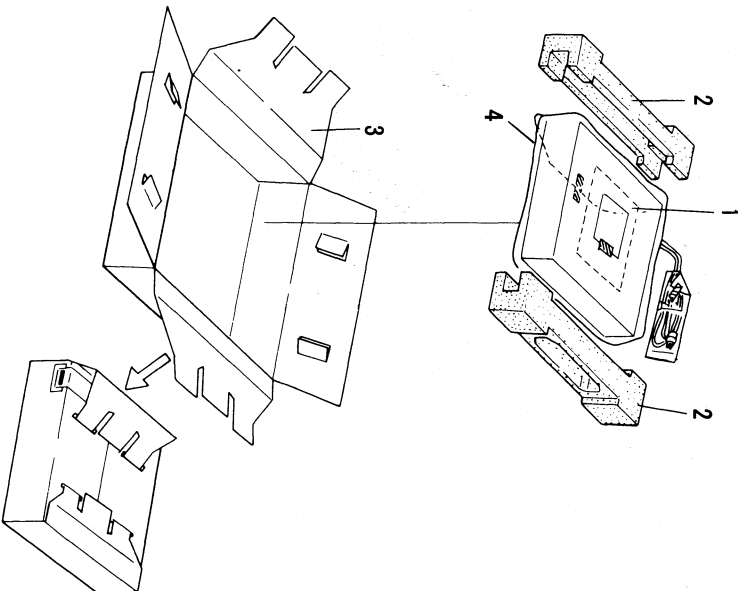
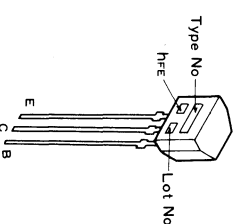
2SC2240
2SA970



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.

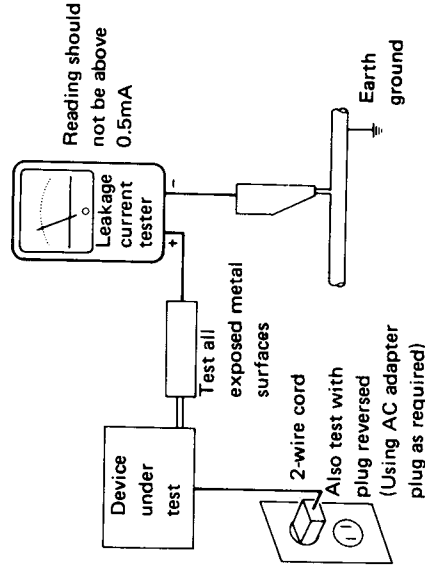
2. PRODUCT SAFETY NOTICE

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.

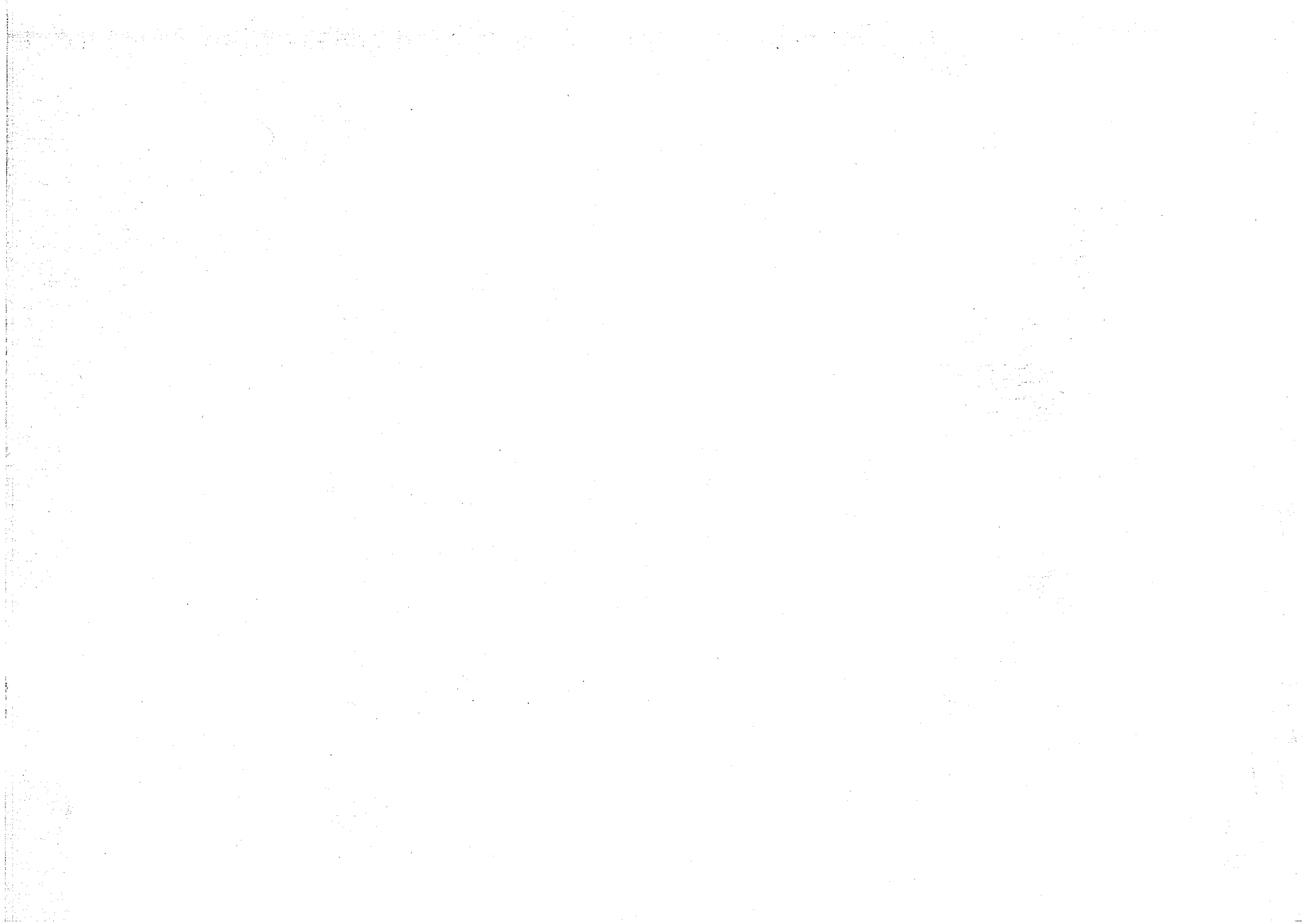
Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

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.