

Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP-055-0**

REVERBERATION AMPLIFIER

SR-9

MODEL SR-9 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
S	110V, 120V, 220V and 240V (Switchable)	General export model
S/G	110V, 120V 220V and 240V (Switchable)	U.S. Military model

- This is the service manual for model SR-9/KU, KC For model SR-9/S, S/G types, please refer to page 15.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.
- For circuit descriptions, refer to the Service Manual for SR-303 (ART-365).

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ADDITIONAL SERVICE MANUAL

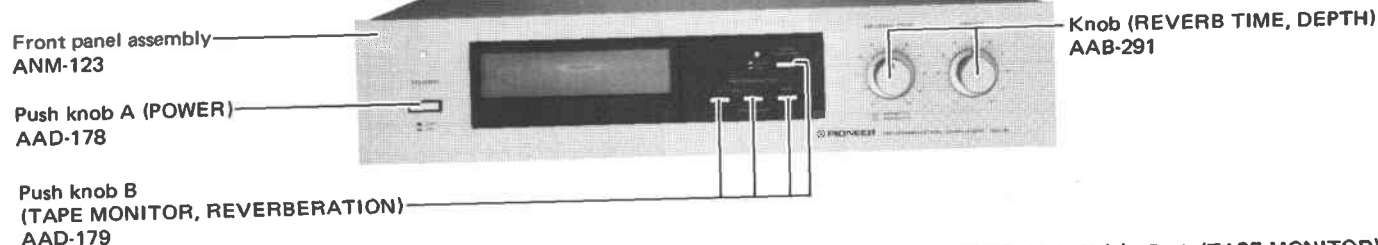
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4. PARTS LOCATION

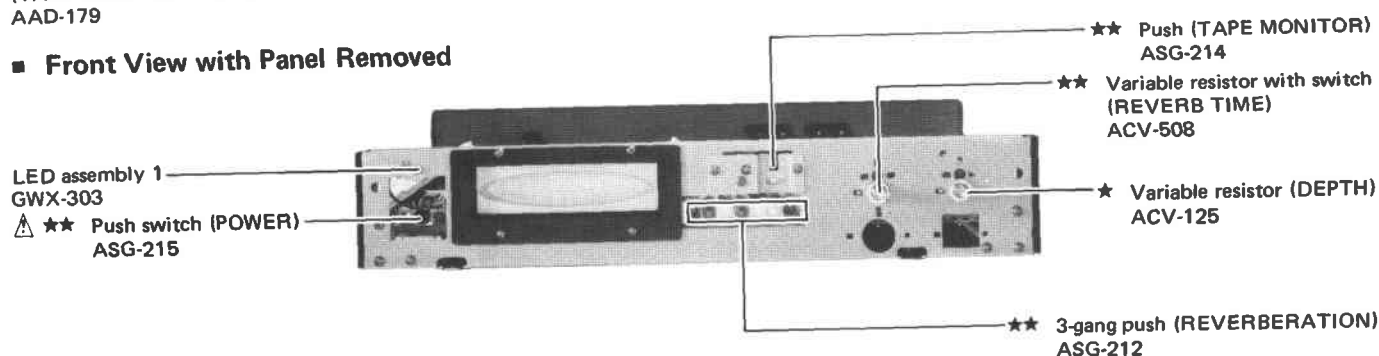
NOTES:

- 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.

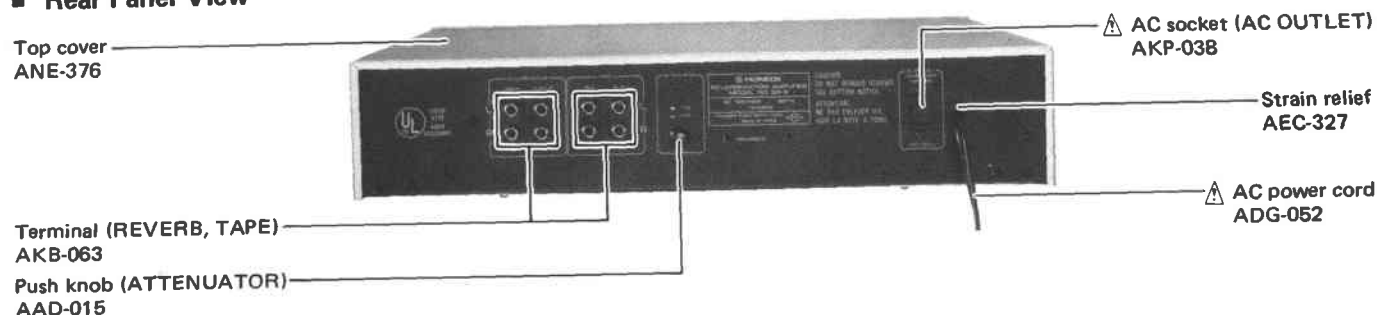
■ Front Panel View



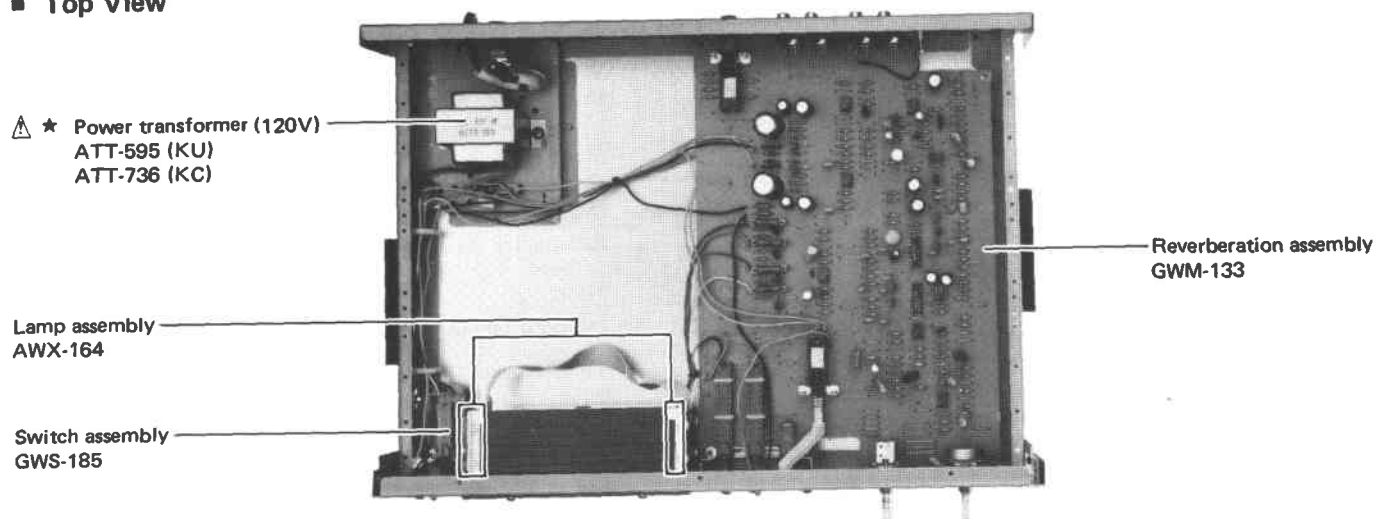
■ Front View with Panel Removed



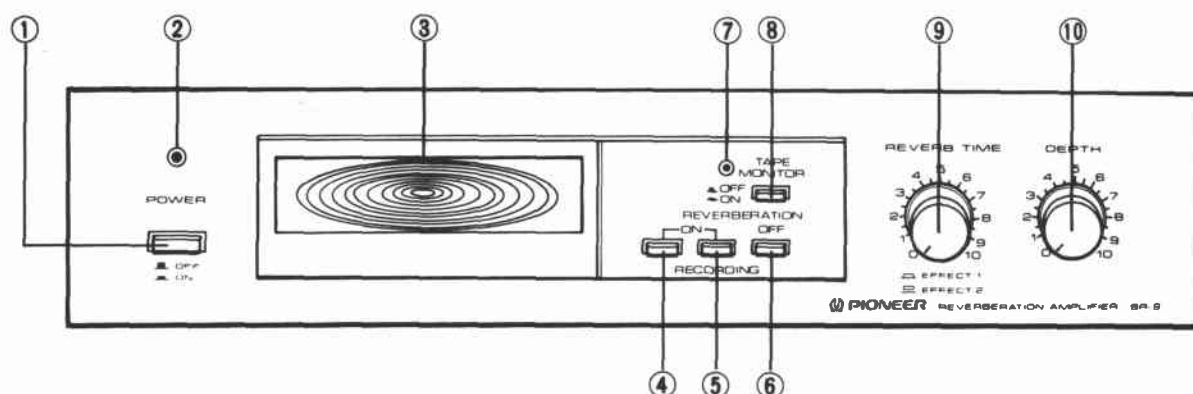
■ Rear Panel View



■ Top View



3. FRONT PANEL FACILITIES



① POWER SWITCH

Power is supplied to the model SR-9 when this switch is depressed. The power indicator comes on as soon as the power is supplied.

② POWER INDICATOR

This comes on as soon as the SR-9's power switch is set to ON to indicate that power is being supplied.

③ REVERBERATION EFFECT INDICATOR

This displays the reverberation effect graphically. When the reverberation time is increased (the reverb time control is rotated clockwise), the winking intervals of the light are lengthened. Conversely, when this time is reduced (the reverb time control is rotated counter-clockwise), these intervals are cut short. Also, the lighting area increases in proportion to the size of the reverberation components. This area is increased as the depth control is rotated clockwise. The reverb time and depth controls are set to the preferred position as you check out the reverberation, but if the reverberation indicator's circle of light remains on the display, it means that the reverberation components are excessive (too much of an echo) Use this as a base for adjustments.

④ REVERBERATION ON SWITCH

Depress this switch to produce a reverberation effect with the signals fed from the REVERBERATION INPUT jacks. The reverberation effect indicator will come on, and signals featuring a reverberation effect only will be fed out from the model SR-9's OUTPUT jacks.

⑤ REVERBERATION ON-RECORDING SWITCH

Depress this switch when recording a program source whose signals feature a reverberation effect onto a tape in a deck connected to the mode SR-9's TAPE jacks. This will allow signals with the reverberating sound to be made available from both the SR-9's OUTPUT jacks and the TAPE REC jacks.

⑥ REVERBERATION OFF SWITCH

Depress this switch to cut off the reverberation effect. This will allow signals without a reverberating sound to be made available from both the SR-9's OUTPUT jacks and the TAPE PLAY jacks.

NOTE:

The reverberation on switch, the reverberation on-recording switch and the reverberation off switch are all coupled. When you depress one switch, make sure that all the others are released. Do not depress more than one switch at a time.

⑦ TAPE MONITOR INDICATOR

This comes on when the tape monitor switch is depressed.

⑧ TAPE MONITOR SWITCH

Depress this switch to monitor the sound on the tape as it is being recorded or when playing back a tape using a tape deck connected to the SR-9's TAPE jacks. (The tape monitor indicator comes on.)

⑨ REVERB TIME CONTROL

This is used to adjust the delay time.

The reverberation effect becomes more pronounced when this control is rotated clockwise as you listen to the reproduced sound. Listen to the sound and then set this control for the optimum effect. Selection can be made between two types of reverberation with the model SR-9 by pushing the reverb time control or pulling it out. Pushing the control gives EFFECT 1 (longer reverberation time) and pulling it out gives EFFECT 2 (one reverberation component).

⑩ DEPTH CONTROL

This is used to adjust the depth of the reverberation. When it is set to the '0' position, only the original sound will be heard. The reverberation component increases as this control is rotated clockwise. Listen to the sound as it reverberates and adjust this control to the optimum position.

1. SPECIFICATIONS

Reverberation Amplifier Section

Input (Sensitivity/Impedance)	150mV/50k Ω (at 1kHz, DEPTH volume: 0)
Frequency Response	5Hz to 70kHz $\pm$ 1dB (at DEPTH volume: 0)
Total Harmonic Distortion	Less than 0.05% (at 1kHz, 1V, DEPTH volume: 0)
Maximum Input Level	2V (at 1kHz, 1V, DEPTH volume: 0)
Signal to Noise Ratio	90dB (at 1V, DEPTH volume: 0)
Reverberation Time	0 to 3 sec (at EFFECT 1, 400Hz) 25msec to 100msec (at EFFECT 2, 400Hz)
Output (Level/Impedance)	150mV/1k Ω (at 1kHz, DEPTH volume: 0)

Miscellaneous

Power Requirements	AC 120V, 60Hz
Power Consumption	13W
Dimensions	420(W) x 99(H) x 336(D) mm 16-9/16(W) x 3-7/8(H) x 13-1/4(D) in
Weight (without package)	4.3kg (9 lb 8oz)

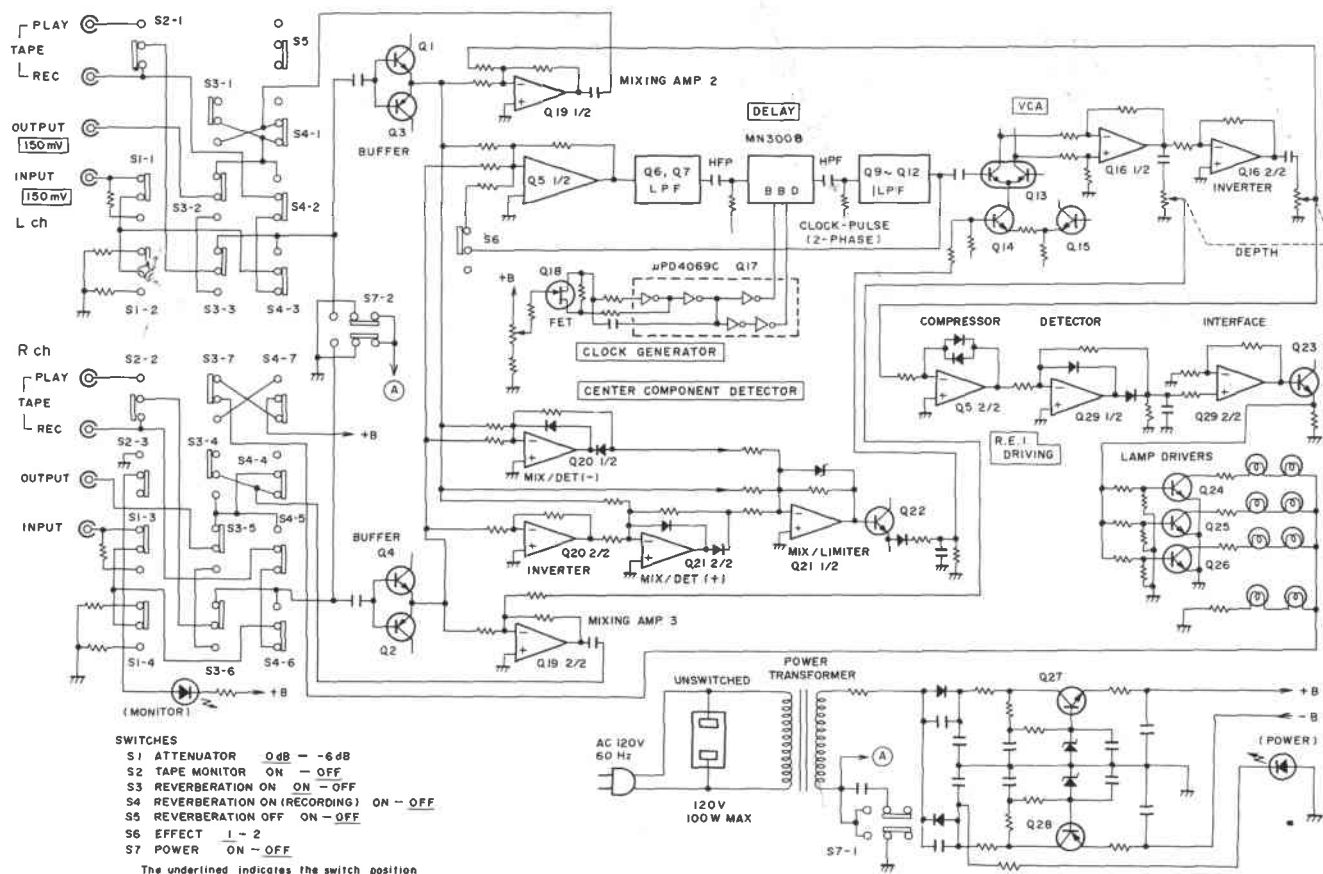
Furnished Parts

Connection cord with pin plugs	2
Operating instructions	1

NOTE:

Specifications and the design subject to possible modification without notice due to improvements.

2. BLOCK DIAGRAM

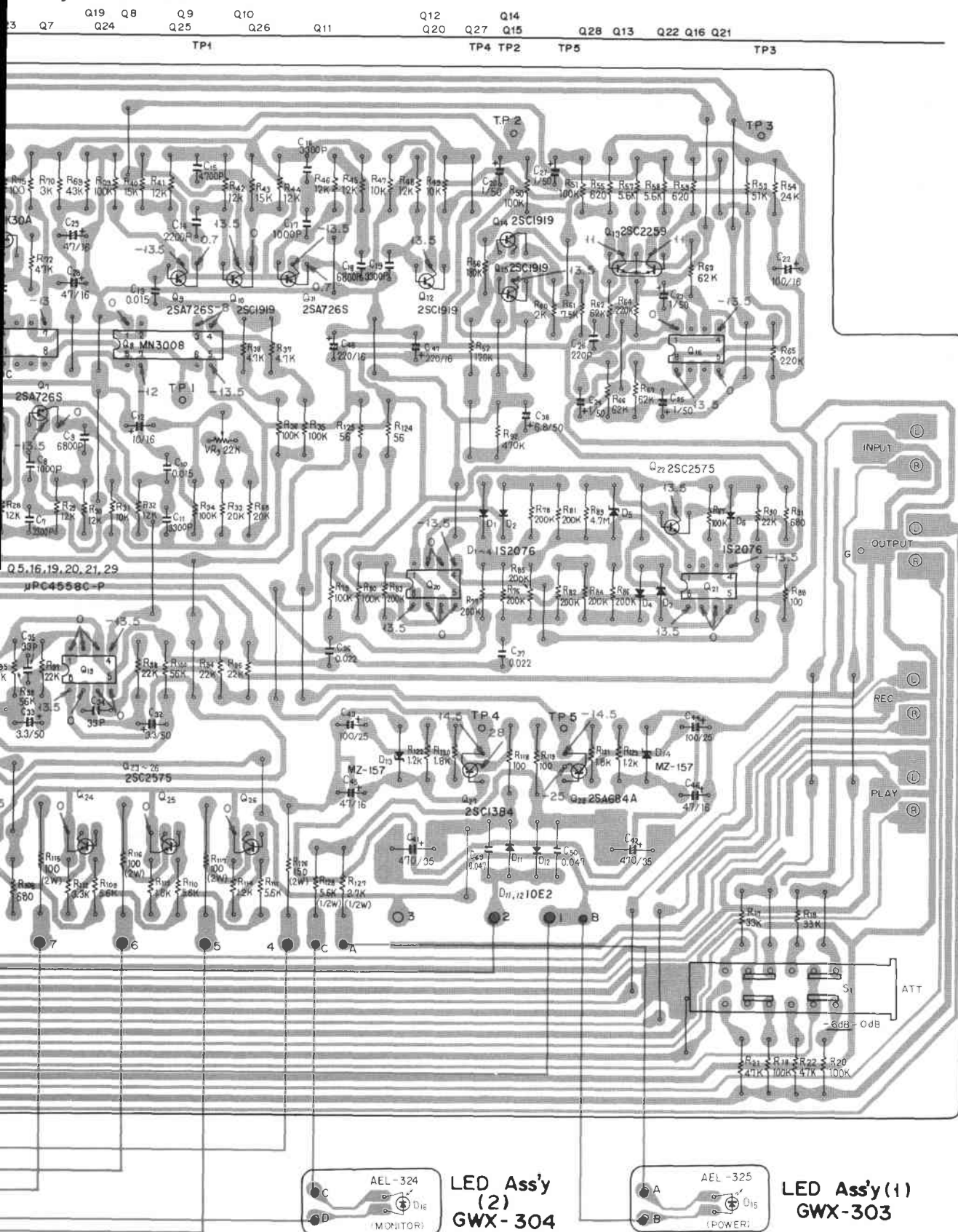


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5

6

Ass'y GWM-133



5. ELECTRICAL PARTS

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 × 10¹ 561 RD½PS 561J

47kΩ 47 × 10³ 473 RD½PS 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 × 100 5621 RN½SR 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 $\star\star$ and $\star$.
 $\star\star$ GENERALLY MOVES FASTER THAN $\star$.
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Miscellaneous Parts

Mark	Part No.	Symbol & Description
	GWM-133	Reverberation assembly
	GWS-185	Switch assembly
	AWX-164	Lamp assembly
	GWX-303	LED assembly 1
	GWX-304	LED assembly 2

Mark	Part No.	Symbol & Description
$\star$	1S2076 (1S1555)	D1—D4, D6—D10
$\star$	MZ-075 (WZ-075)	D5
Δ $\star$	10E2 (SIB01-02)	D11, D12
$\star$	MZ-157 (WZ-157)	D13, D14

OTHERS

Mark	Part No.	Symbol & Description
Δ $\star$	ATT-595	T1 Power transformer (120V)(KU)
Δ $\star$	ATT-736	Power transformer (120V)(KC)
Δ	RD½PSF 2R2J	R1 Carbon film resistor
Δ	AKP-038	AC socket (AC OUTLET)
Δ	ADG-052	AC power cord

CAPACITORS

Mark	Part No.	Symbol & Description
	CEANL 2R2M 50	C1—C4
	CEA 100P 16	C12
	CEANL 010M 50	C20, C21, C23—C25, C30, C31, C40
	CEA 101P 16	C22
	CEA 470P 16	C28, C29, C45, C46
	CEANL 3R3M 50	C32, C33
	CEANL 6R8M 50	C38
	CEA 471P 35	C41, C42
	CEA 101P 25	C43, C44
	CEA 221P 16	C47, C48
	CQMA 222J 50	C5, C14
	CQMA 472J 50	C6, C15
	CQMA 332J 50	C7, C11, C16, C19
	CQMA 102J 50	C8, C17, C27
	CQMA 682J 50	C9, C18
	CQMA 153J 50	C10, C13
	CQMA 223J 50	C36, C37
	CCDSL 221K 50	C26
	CCDSL 330K 50	C34, C35
	CCDSL181K 50	C39
	ACG-009	C49, C50 Ceramic 0.047/150V

Reverberation Assembly (GWM-133)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
$\star\star$	2SC1919 (2SC1400)	Q1, Q2, Q6, Q10, Q12, Q14, Q15
$\star\star$	2SA726S (2SA750)	Q3, Q4, Q7, Q9, Q11
$\star\star$	μPC4558C (NJM4558DX)	Q5, Q16, Q19—Q21, Q29
$\star\star$	MN3008	Q8
$\star\star$	2SC2259	Q13
$\star\star$	μPD4069C	Q17
$\star\star$	2SK30A (2SK34)	Q18
$\star\star$	2SC2575 (2SC945A)	Q22—Q26
$\star\star$	2SC1384	Q27
$\star\star$	2SA684A	Q28

SWITCHES

Mark	Part No.	Symbol & Description	
★★	ASG-150	S1	Push (ATTENUATOR)
★★	ASG-214	S2	Push (TAPE MONITOR)
★★	ASG-212	S3	3-gang push (REVERBERATION)

RESISTORS

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

Mark	Part No.	Symbol & Description	
★★	ACV-508	VR1 (S6)	Variable resistor with switch (REVERB TIME)
★	ACV-125	VR2	Variable resistor (DEPTH)
★	ACP-056	VR3	Semifixed 22k-B
⚠	RD%PM □□□ J	R1-R114, R120-R125, R129-R133	
	RS2P □□□ J	R115-R117, R126	
	RD%PSF □□□ J	R118, R119	
	RD%PS □□□ J	R127, R128	

OTHERS

Mark	Part No.	Symbol & Description	
	AKB-063	Terminal	(REVERB, TAPE)

Lamp Assembly (AWX-164)

Mark	Part No.	Symbol & Description	
★★	AEL-103	PL1-PL8	Lamp 8V 70mA (bar-type)
	AEC-558		Nylon rivet

Switch Assembly (GWS-185)

Mark	Part No.	Symbol & Description	
⚠ ★★	ASG-215	S7	Push switch (POWER)
	ACG-009	C51	Ceramic capacitor 0.047/150V

LED Assembly 1 (GWX-303)

Mark	Part No.	Symbol & Description	
★	AEL-325	D15	LED (POWER)
	ABA-065		Screw 3x6

LED Assembly 2 (GWX-304)

Mark	Part No.	Symbol & Description	
★	AEL-324	D16	LED (MONITOR)
	ABA-065		Screw 3x6

NOTE:

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

% tolerance unless otherwise noted

V / voltage (V) unless otherwise noted
Output voltage is 50V except electrolytic

150mV output (1 kHz)
at no input signal
no input signal

The component parts indicates the factor of the part. Therefore, when parts of identical designation

0 dB — -6 dB

ON — OFF

ON ON — OFF

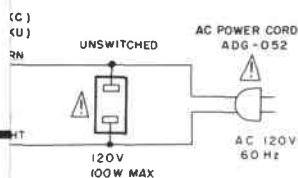
ON (RECORDING) ON — OFF

OFF ON — OFF

2

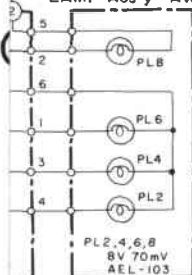
OFF

Indicates the switch position.

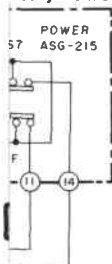


LED Ass'y (1)
GWX-303

LAMP Ass'y AWX-164



Ass'y GWS-185



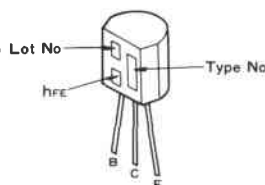
al circuit may vary

External Appearance of Transistors and ICs

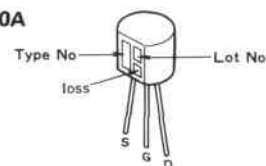
2SC1919

2SA726S

2SC2575

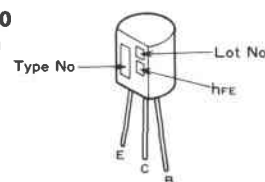


2SK30A

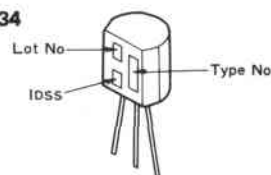


2SC1400

2SA750

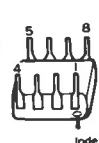


2SK34

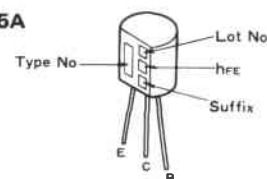


μPC4558C

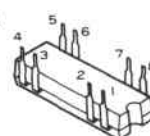
NJM4558DX



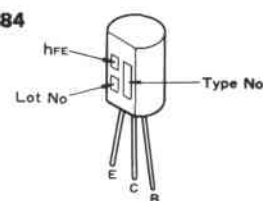
2SC945A



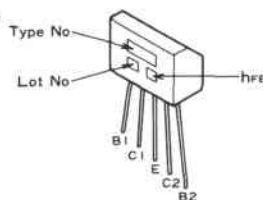
MN3008



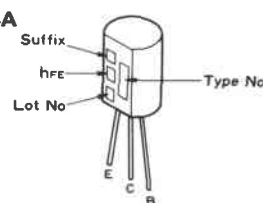
2SC1384



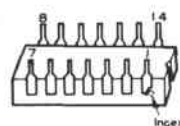
2SC2259



2SA684A



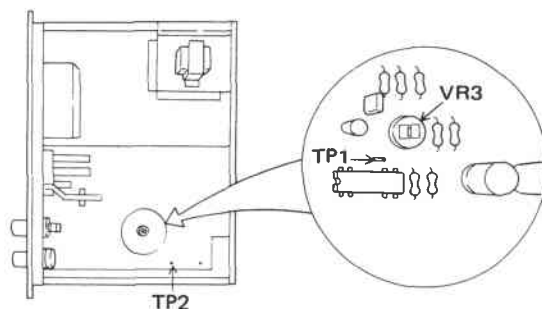
μPC4069C



10. ADJUSTMENT

1. Set the ATTENUATOR switch to 0dB.
2. Press the REVERBERATION ON switch (i.e. switch on).
3. Check that the TAPE MONITOR switch is OFF.
4. Pull the REVERB TIME control out into the EFFECT 2 position.
5. Turn the REVERB TIME control until the frequency measured at the TP1 terminal reads 20kHz.
6. Connect the oscilloscope to the TP2 terminal.
7. Apply a 400Hz, 150mV signal to the input terminals.

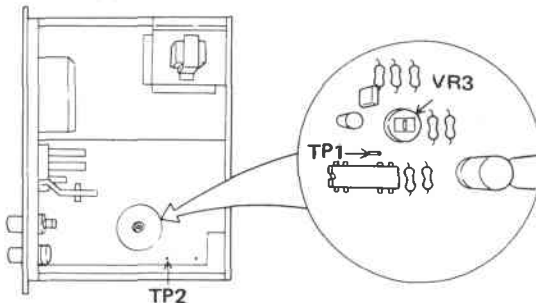
8. Then adjust VR3 so that the waveform shown in the oscilloscope is symmetrical the horizontal axis.



10. RÉGLAGE

1. Placer le commutateur de l'atténuateur (ATTENUATOR) sur la position 0dB.
2. Appuyer sur l'interrupteur d'enclenchement de la réverbération (REVERBERATION ON).
3. Vérifier que le commutateur de contrôle d'enregistrement (TAPE MONITOR) soit sur la position déclenchée (OFF).
4. Tirer la commande de durée de réverbération (REVERB TIME) sur la position "EFFECT 2".
5. Tourner la commande de durée de réverbération (REVERB TIME) jusqu'à ce que la fréquence mesurée à la borne de TP1 soit de 20kHz.
6. Raccorder l'oscilloscope à la borne TP2.

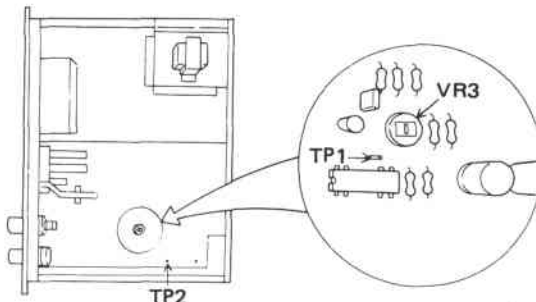
7. Appliquer un signal de 400Hz, 150mV aux bornes d'entrée.
8. Régler ensuite VR3 de façon à ce que l'onde apparaissant sur l'oscilloscope soit symétrique par rapport à l'axe horizontal.



10. AJUSTE

1. Poner el atenuador (ATTENUATOR) en la posición 0dB.
2. Presionar el interruptor de reverberación activada (REVERBERATION ON) (conectar el interruptor).
3. Comprobar que el monitor de cintas (TAPE MONITOR) esté en la posición OFF.
4. Tirar hacia afuera del control de tiempo de reverberación (REVERB. TIME) dejándolo en la posición EFFECT 2.
5. Girar el control de tiempo de reverberación (REVERB. TIME) hasta que la frecuencia medida en el terminal TP1 indique 20kHz.
6. Conectar el osciloscopio al terminal TP2.

7. Aplicar una señal de 400Hz, 150mV a los terminales de entrada.
8. Luego, ajustar el VR3 de modo que la forma de onda mostrada en el osciloscopio sea simétrica al eje horizontal.



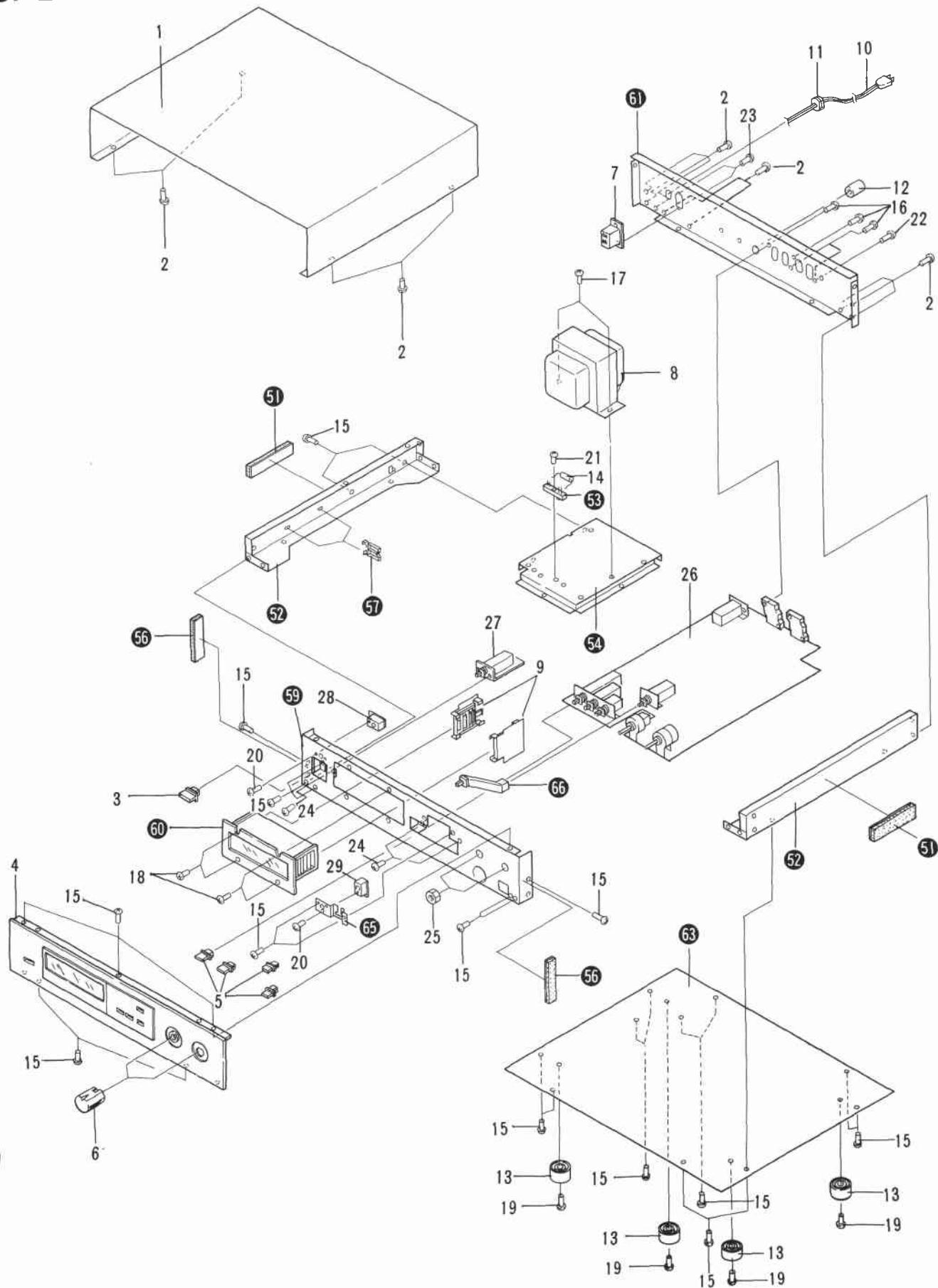
8. EXPLODED VIEW

A

B

C

D



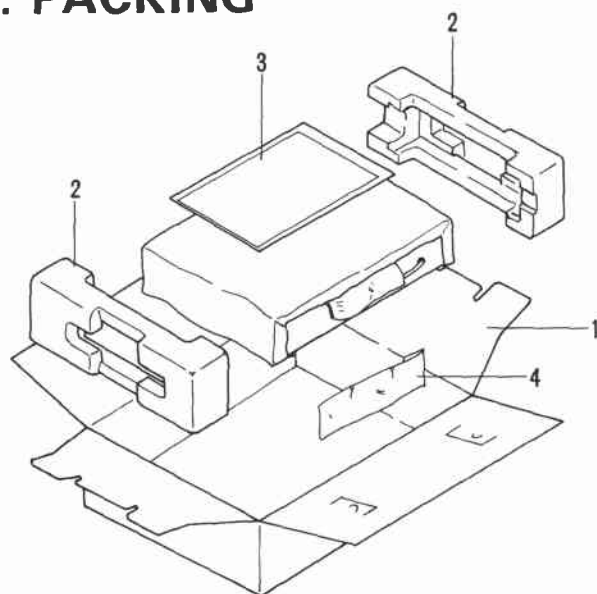
Parts List

NOTES:

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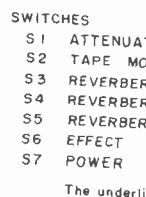
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	ANE-376	Top cover		26.	GWM-133	Reverberation assembly
	2.	VCT30P060FZK	Screw		27.	GWS-185	Switch assembly
	3.	AAD-178	Push knob A		28.	GWX-303	LED assembly 1
	4.	ANM-123	Front panel assembly		29.	GWX-304	LED assembly 2
	5.	AAD-179	Push knob B		51.		Rubber A
	6.	AAB-291	Knob		52.		Side frame
Δ	7.	AKP-038	AC socket (AC OUTLET)		53.		Terminal strip 2P
Δ $\star$	8.	ATT-595	Power transformer (120V)(KU)		54.		Transformer base
		ATT-736	Power transformer (120V)(KC)		55.	.....	.....
	9.	AWX-164	Lamp assembly		56.		Rubber B
Δ	10.	ADG-052	AC power cord		57.		Wire saddle
	11.	AEC-327	Strain relief		58.	.....	.....
	12.	AAD-015	Push knob		59.		Sub-panel
	13.	AEC-351	Foot assembly		60.		RE1 assembly
Δ	14.	RD $\frac{1}{2}$ PSF 2R2J	Carbon film resistor		61.		Rear panel
	15.	VCZ30P060FMC	Screw		62.	.....	.....
	16.	VBZ30P100FZK	Screw		63.		Bottom plate
	17.	VTZ40P080FMC	Screw		64.	.....	.....
	18.	VCZ30P080FMC	Screw		65.		Holder
	19.	VTZ40P160FMC	Screw				
	20.	VBZ30P060FMC	Screw		66.		Extension bar
	21.	VCZ30P100FMC	Screw				
	22.	ABA-115	Screw				
	23.	MTZ30P100FZK	Screw				
	24.	VMZ30P060FMC	Screw				
	25.	ABN-024	Nut				

9. PACKING



Parts List

Mark	No.	Part No.	Description
	1.	AHE-011	Packing case (KU)
		AHE-018	Packing case (KC)
	2.	AHA-310	Side pad
	3.	ARB-464	Operating instructions
	4.	ADE-005	Connection cord



This is the basic schematic diagram, but the due to improvements in design.

7

8

9

E:

indicated semiconductors are representative ones
Other alternative semiconductors may be used and
isted in the parts list.

External Appearance of Transistors and ICs

tolerance unless otherwise noted

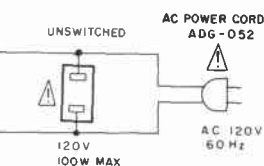
voltage (V) unless otherwise noted
voltage is 50V except electrolytic

50mV output (1 kHz)
to input signal
input signal

component parts indicates the
ctor of the part. Therefore, when
ts of identical designation

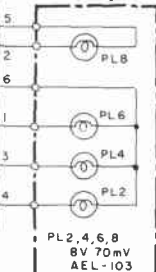
3 - -6dB
N - OFF
ON - OFF
(RECORDING) ON - OFF
F ON - OFF

FF
ates the switch position



LED Ass'y (1)
GWX-303

LAMP Ass'y AWX-164



ss'y GWS-185

POWER
ASG-215

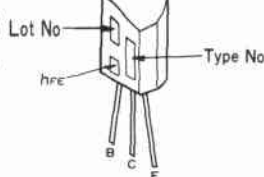


circuit may vary

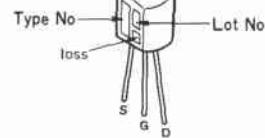
2SC1919

2SA726S

2SC2575



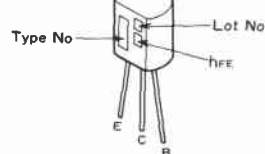
2SK30A



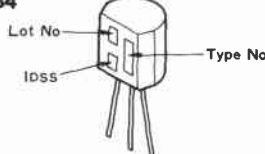
A

2SC1400

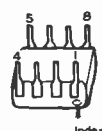
2SA750



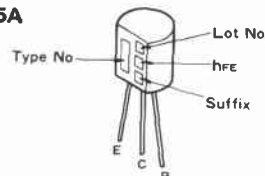
2SK34



μPC4558C
NJM4558DX

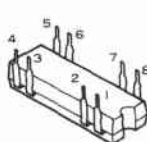


2SC945A

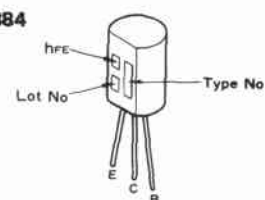


B

MN3008

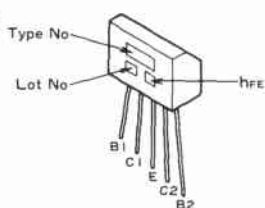


2SC1384

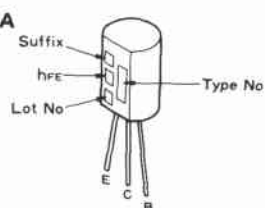


C

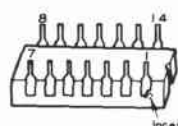
2SC2259



2SA684A



μPC4069C



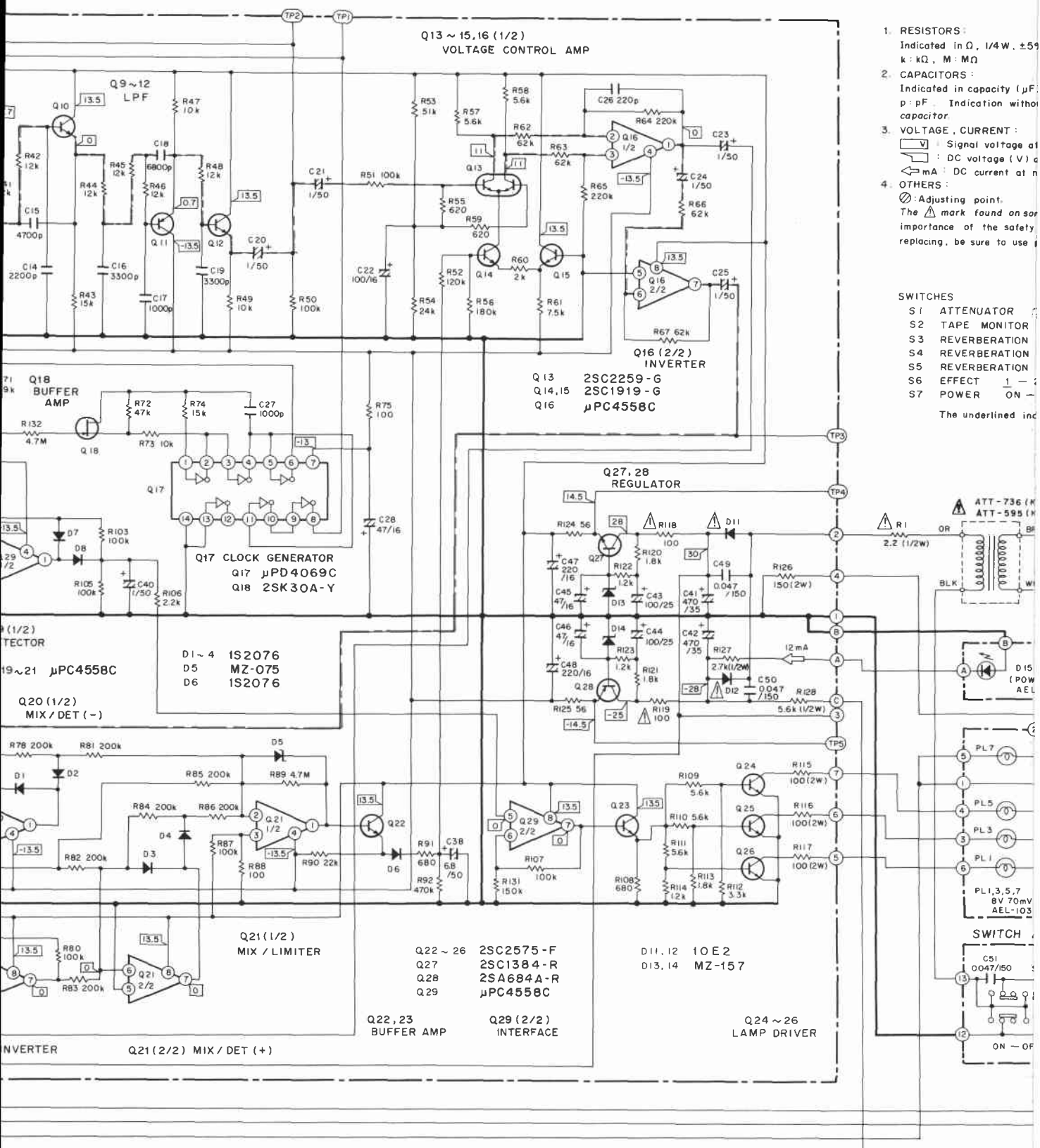
D

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This is the basic schematic diagram, but the actual
due to improvements in design.

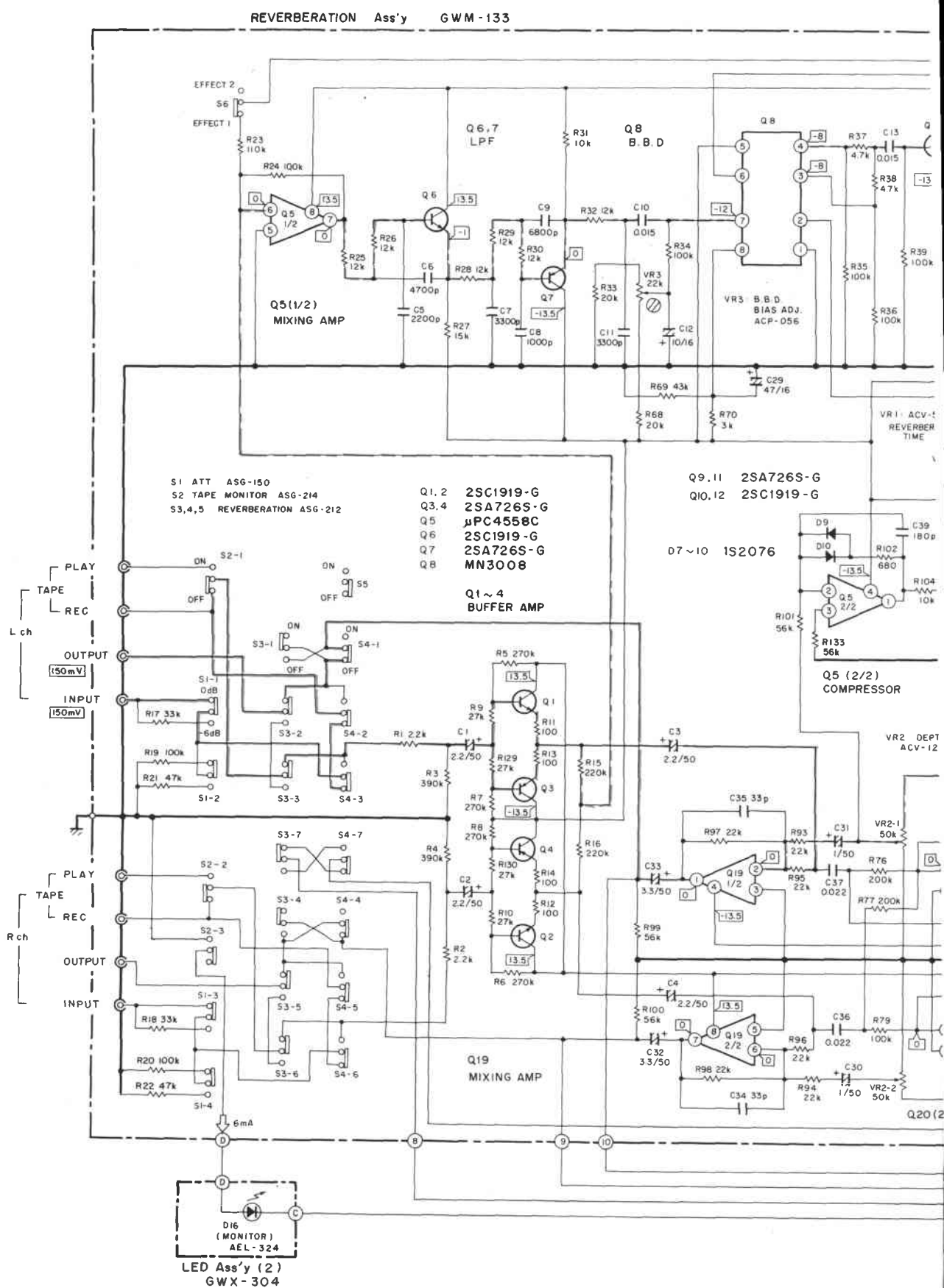
4

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6

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7. SCHEMATIC DIAGRAM



ADDITIONAL

 PIONEER®

Service Manual

REVERBERATION AMPLIFIER

SR-9

- The basic performance of the S and S/G types are same as the KU, KC types. This additional service manual is applicable to the S and S/G types, please refer to the KU, KC types service manual (see page 2 – 14) with exception of this supplements.

1. SPECIFICATIONS

Reverberation Amplifier Section

Input (Sensitivity/Impedance)	150mV/50k Ω (at 1kHz, DEPTH volume: 0)
Frequency Response	5Hz to 70kHz $\pm$ 1dB (at DEPTH volume: 0)
Total Harmonic Distortion	Less than 0.05% (at 1kHz, 1V, DEPTH volume: 0)
Maximum Input Level	2V (at 1kHz, 1V, DEPTH volume: 0)
Signal to Noise Ratio	90dB (at 1V, DEPTH volume: 0)
Reverberation Time	0 to 3 sec (at EFFECT 1,400Hz) 25msec to 100msec (at EFFECT 2,400Hz)
Output (level/Impedance)	150mV/1k Ω (at 1kHz, DEPTH volume: 0)

Miscellaneous

Power Requirements	110V/120V/220V/240V (switchable), 50/60Hz
Power Consumption	13W
Dimensions	420(W) x 99(H) x 336(D)mm 16-9/16(W) x 3-7/8(H) x 13-1/4(D) in
Weight (without package)	4.3kg (9 lb 8oz)

Furnished Parts

Connection cord with pin plugs	2
Operating instructions	1

NOTE:

Specifications and the design subject to possible modification without notice due to improvements.

2. CONTRAST OF MISCELLANEOUS PARTS

Mark	Symbol & Description	Part No.		
		KU type	S type	S/G type
⚠ ★	Power transformer (120V)(KC)	ATT-595	.....	.....
⚠ ★	Power transformer (110, 120, 220, 240V)	... ..	ATT-596	ATT-596
	Resistor	RD½PSF2R2J	.....	.....
⚠ ★★	S8 Line voltage selector	.....	AKX-063	AKX-063
⚠	AC power cord	ADG-052	ADG-046	ADG-046
	Screw (Line voltage selector)	.....	VMZ30P060FMC	VMZ30P60FMC
	Operating instructions	ARB-464	ARE-471	ARE-471
	Operation instructions	.....	ARH-032	.....
	Packing case	AHE-011	AHE-011	AHE-016
	Spacer	.....	.....	AHB-102

NOTE:

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

1. RESISTORS:

Indicated in Ω , $1/4$ W, $\pm 5\%$ tolerance unless otherwise noted
k: k Ω , M: M Ω

2. CAPACITORS:

Indicated in capacity (μ F) / voltage (V) unless otherwise noted
p: pF Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

∇ : Signal voltage at 150mV output (1 kHz)

$\square$: DC voltage (V) at no input signal

$\triangleleft$ mA: DC current at no input signal

4. OTHERS:

$\odot$: Adjusting point.

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.

SWITCHES

S1 ATTENUATOR 0 dB — -6 dB

S2 TAPE MONITOR ON — OFF

S3 REVERBERATION ON ON — OFF

S4 REVERBERATION ON (RECORDING) ON — OFF

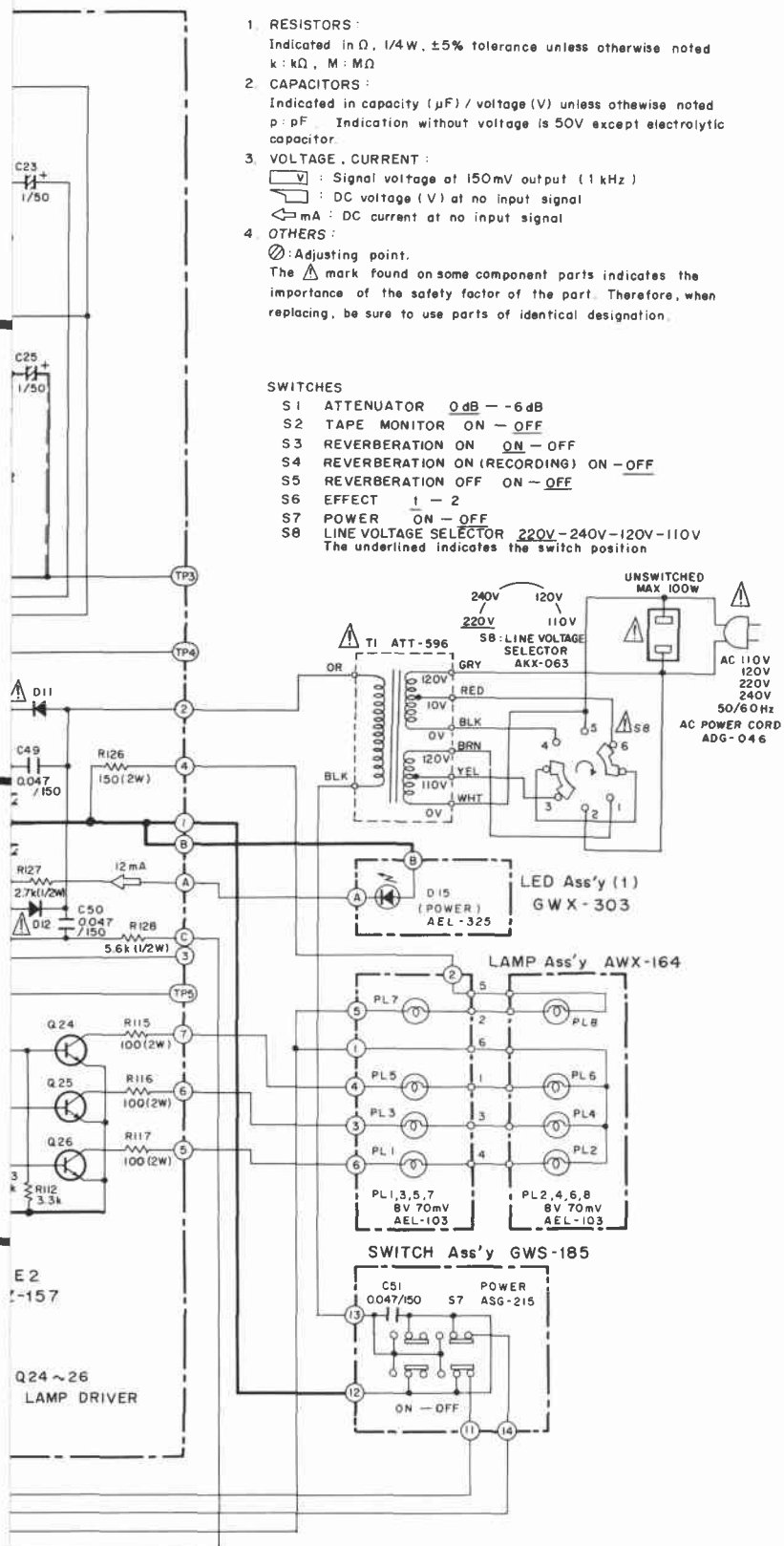
S5 REVERBERATION OFF ON — OFF

S6 EFFECT 1 — 2

S7 POWER ON — OFF

S8 LINE VOLTAGE SELECTOR 220V — 240V — 120V — 110V

The underlined indicates the switch position



This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

3. SCHEMATIC DIAGRAM

REVERBERATION Ass'y GWM-133

