

STEREO INTEGRATED AMPLIFIER

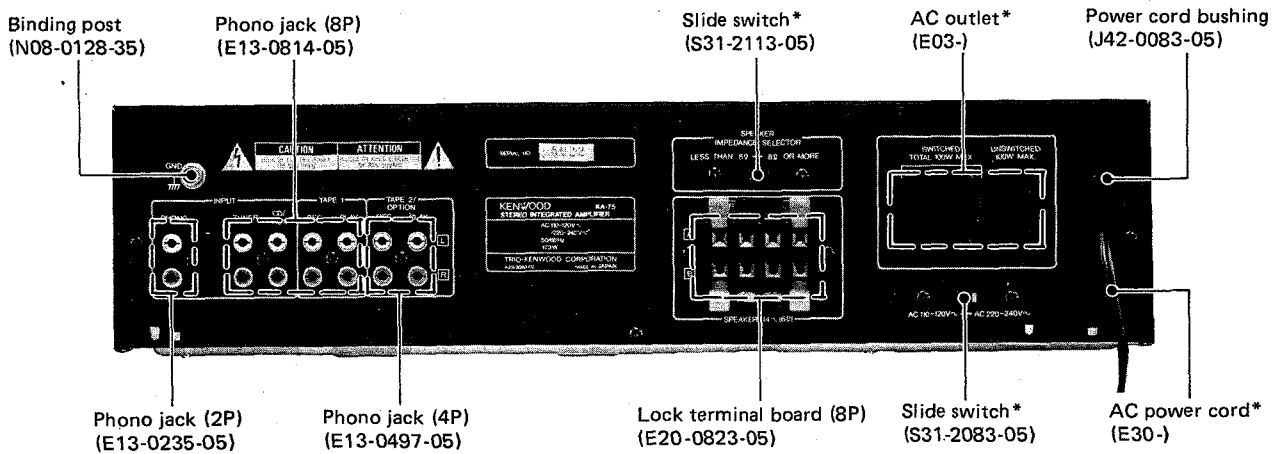
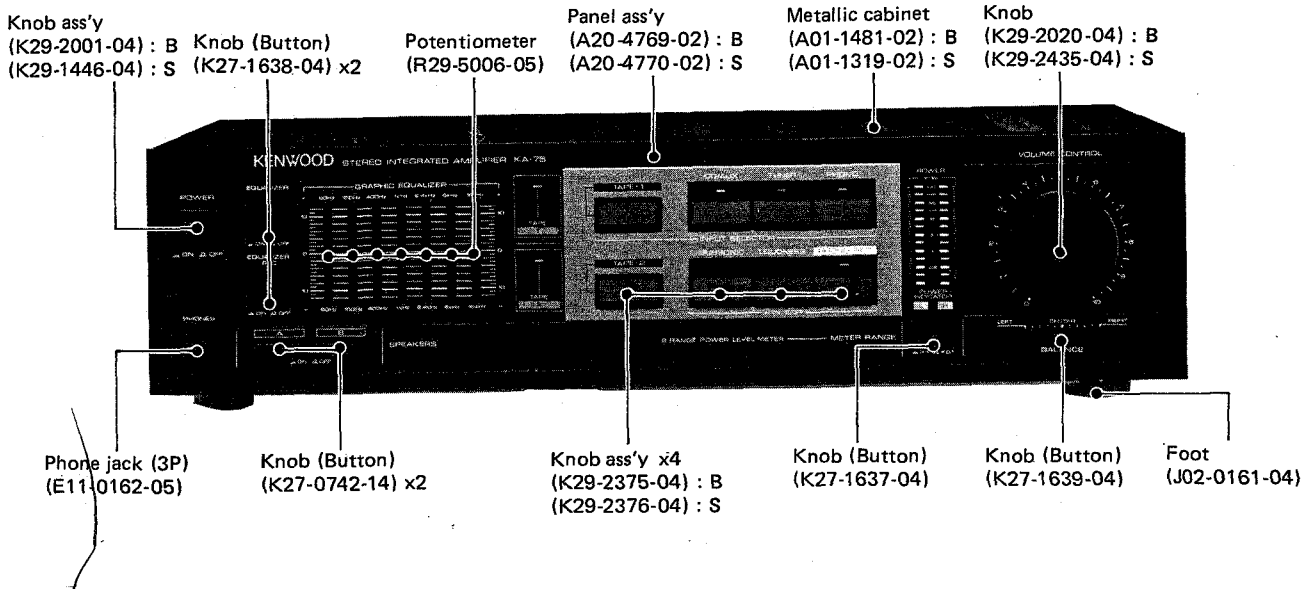
# KA-75

## SERVICE MANUAL

# KENWOOD

TRIO-KENWOOD CORPORATION

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B51-1929-00(O)1475

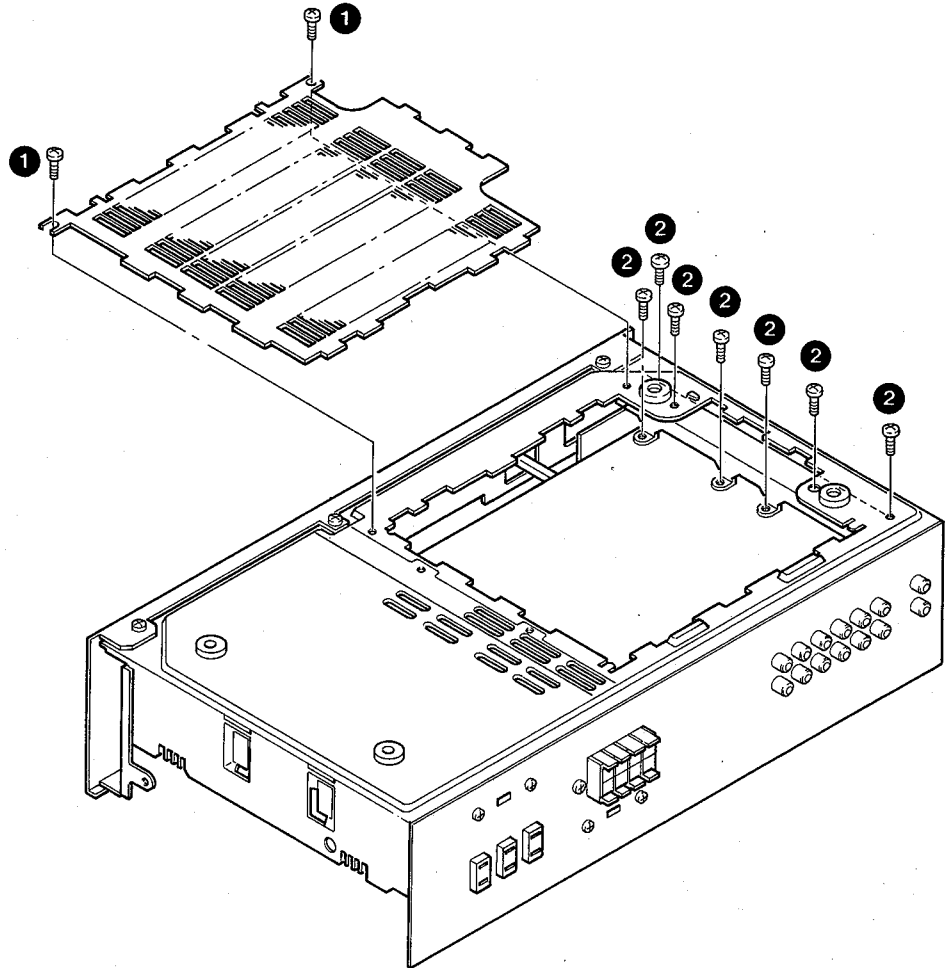


\*Refer to parts list on page 8.  
 Refer to specifications on page 5.  
 Photo is KA-75 (Black version).  
 S : Silver version.  
 B : Black version.

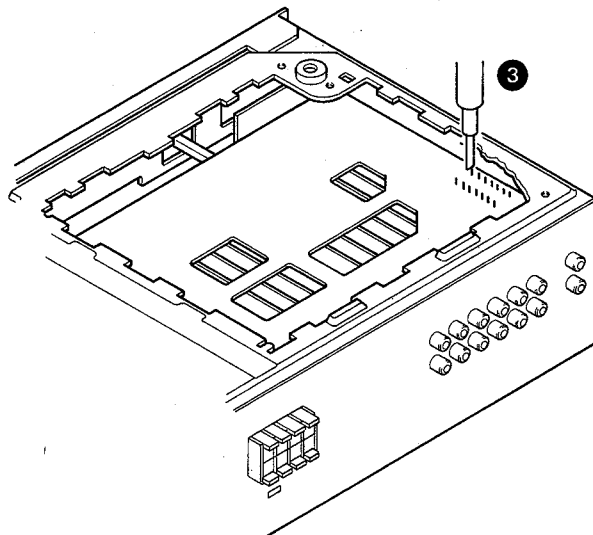
## DISASSEMBLY FOR REPAIR

The soldering iron does not reach IC1 (X09-) even if the bottom plate is removed, thus remove the left-hand frame.

1. Remove the 2 screws ( 1 ) to remove the bottom plate.
2. Remove the 7 screws ( 2 ) from the frame, and remove the frame taking care of the claws.



3. Solder IC1 (X09-) ( 3 ).



## CIRCUIT DESCRIPTION

### Description of components

#### AUDIO (X09-2280-10)

Components	Application/Function	Operation/Condition/Compatibility
Q1, Q2	For muting	Driven by IC1 of X13-5350-10 and turned on when the input is changed or PHONO REC SW is operated. Interchangeable 2SD1302(S).
Q3~Q6	Final driver	
Q7~Q10	Final	Interchangeable models of these ones are 2SA1106 and 2SC2581. These have aluminum internal lead wires, while above interchangeable ones have gold wires. Tips of both groups are the same.
Q11, Q12	Portection (Detection of current)	Since detection level is affected by dispersion of hFE, a transistor at too high level cannot be used. At present, short-circuiting with output of about 2V can turn on protection. If sensitivity is too high, protection may works because of inductance of speaker when output is large.
Q13, Q14	For protection of BIAS	There are no interchangeable models.
Q15, Q16	For driving meter	Constant-current transistor operated by DC voltage obtained by detecting and rectifying output voltage. Interchangeable with common transistors.
Q17, Q18	Current mirror for driving meter LED of 4~6 points	Interchangeable with common transistors.
Q19	AVR (+ side)	Interchangeable with TO-220 in 40~50W class.
Q20	AVR (- side)	Interchangeable with TO-220 in 40~50W class.
Q21	Constant voltage for class A amplifier	Resistance to high voltage is necessary.
Q22, Q23	Protection	A thyristor is composed of Q22 and Q23. Thus, if protection works, they cannot be reset unless power switch is turned off temporarily. Interchangeable with common transistors.
Q24, Q25	For driving C-MOS for PHONO REC	See explanation of operation of circuit Interchangeable with common transistors.
Q26	For driving MUTE for PHONO REC	See explanation of operation of circuit. Interchangeable with common transistors.

#### TONE (X11-2250-10)

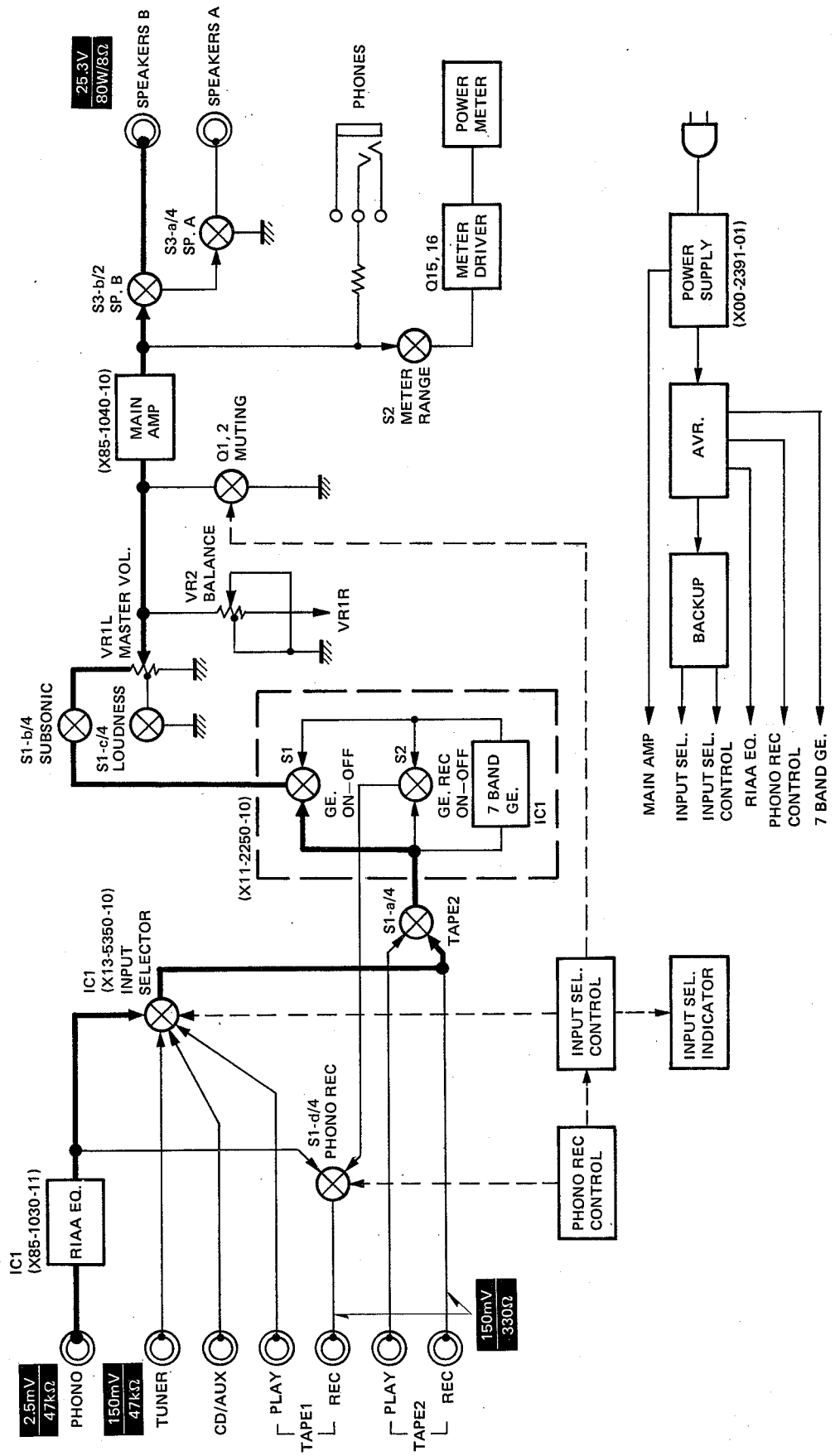
Components	Application/Function	Operation/Condition/Compatibility
IC1, IC2	IC for 7 band graphic equalizer	Circuit supplied by manufacture is input composition type, but output composition type is used considering noises.

#### SWITCH (X13-5350-10)

Components	Application/Function	Operation/Condition/Compatibility
D1~D10	Electrostatic protection	Used to protect IC1 from outside voltage higher than source voltage. MA177 etc. or combination of multipurpose diodes may be used.
D11	For protection of inverse current of backup capacitor	Any one may be used.
D12	For preventing voltage drop caused by D11	Any one may be used.
Q1	For initializing	See explanation of operation of circuit. Common transistor may be used, but it must have hFE of about 100. If it is too high, backup period will be long.
IC1	C-MOS for input selector	Pins of this model is compatible with LC7815H, but latter cannot be used, since its withstand voltage is low.

RXC  
256

# BLOCK LEVEL DIAGRAM



## CIRCUIT DESCRIPTION

### PHONO REC Circuit (X09-2280-10)

The PHONO REC circuit of KA-75 is switched remotely by the C-MOS IC (IC1 : LC4966) for the effective use of space and higher performance. Therefore, this circuit controls the IC1 and prevents shock noises, too. Q26 in the lower part of the circuit at right above generates the muting signals and drives the MUTE in of IC1 (LC7816) of X13-5350-10.

The operation of each section will be explained below referring to the flow chart given at left below. If the selector is at TAPE1, and REC SW is turned on, Q24 and Q25 are turned on, and IC1 (X13-) TAPE out is set to low (-VE level).

1. If the contact is removed to turn off the PHONO REC SW (S1 d/4), the current flows through R98 to the base of Q26. As the result, Q26 is turned on, and MUTE in terminal of IC1 (X13-) is set to low, and IC1 (X13-) outputs the MUTE out. The time to perform this operation is 300~1,000 msec.

2. The contact on off side of S1 comes in contact to turn off Q24 and Q25 are switch the IC1 to source side. However, the selector is at TAPE and IC1 (X13-) TAPE out is at low, the collector of Q25 is set to low, thus both IC1's are turned off.

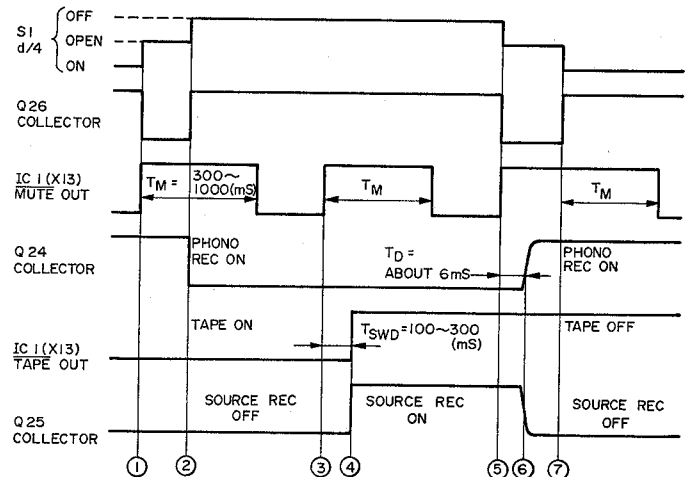
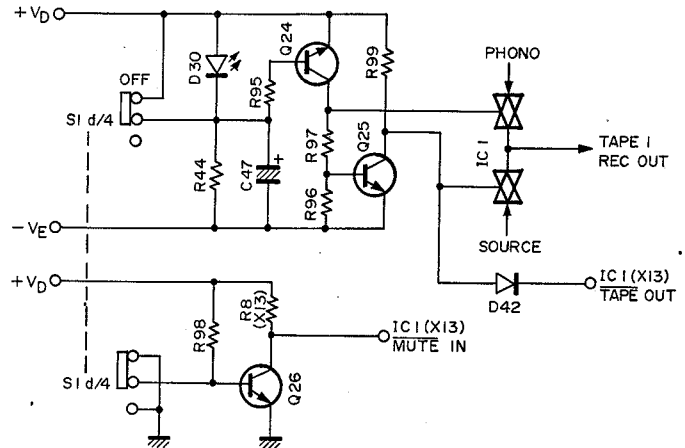
3. If the selector SW is set to a position other than TAPE, IC1 (X13-) outputs the MUTE out.

4. IC1 (X13-) switches the LED output TSWD (100~200 msec) after receiving the switching signal, thus the TAPE out is set to HI. Since Q25 has been turned off, IC1 turns on the source side.

5. If the contact is removed again to turn on PHONO REC SW (S1 d/4), Q26 is turned on at first similarly to step 1., and IC1 (X13-) MUTE out is output. At the same time, C47 is charged through the base of Q24 and R95.

6. After a certain time  $T_D$  (about 6 msec) which is a time constant determined by R94, R95 and C47, Q24 and Q25 are turned on, and IC1 is switched to the phone side. Time  $T_D$  is also the time from start of muting to switching, and it may be shortened because of the dispersion of the timing of S1 d/4, thus it should be longer. However, if the capacity of C47 is increased to lengthen this time, Q24 is turned on softly, thus shock noises is increased.

7. If the contact on ON side of S1 d/4 comes in contact, Q26 is turned off and the MUTE in is set to HI, and IC1 (X13-) keeps the MUTE out at HI position from the point of this time for  $T_M$ .



## CIRCUIT DESCRIPTION/ADJUSTMENT

### Initializing Circuit (X13-5350-10)

The input selector IC (IC1) is backed up by D11 and C1 but IC1 (LC7816) cannot keep the current position when VDD is below 3V. Therefore, the TUNER must be selected forcedly before this occurs.

Fig.1 shows the initializing circuit for the above operation, and Fig. 2 and Fig. 3 show the voltage at various points in that circuit. If the backup voltage is V, the terminal voltage VC of capacitor C2 is also V. If the power is turned on at this time, transistor Q1 is turned on for the time determined by R5, R6 and C2, and its output VO becomes a pulse of time width of T. Fig. 2 shows the operation with V low, and Fig. 3 shows the operation with V high. If T is 100~300 msec or wider, IC1 assumes it to be an input and turns the position to TUNER.

As explained above, the backup period is determined by the operating point of this circuit, and the lower the R5/R6 is, the longer the backup period is. However, if R5/R6 is too low, the output of VO becomes 0 even if V is 3V, and the position cannot be fixed. At present, the initializing is performed when V is 4~6V. This dispersion is caused by the ambient temperature and hFE of Q1. That is, when the ambient temperature is high or hFE is high, the voltage at which the initializing starts is high and the backup period is short.

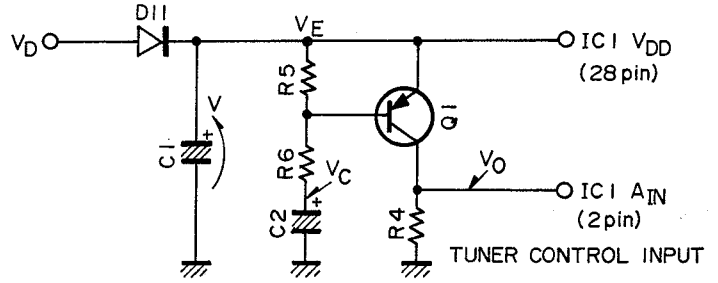


Fig. 1

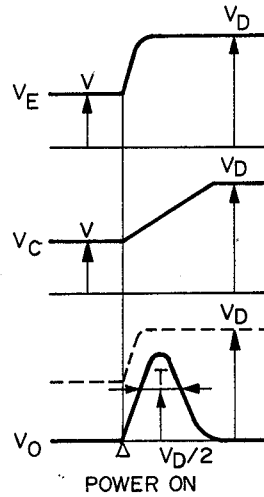


Fig. 2

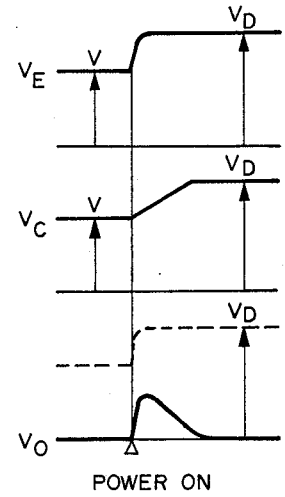


Fig. 3

### ADJUSTMENT

#### Other models

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT (1)	—	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0 S8:4Ω	VR3 (L) VR4 (R)	3mV	(a)
2	IDLE CURRENT (2)	—	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0 S8:8Ω	VR3 (L) VR4 (R)	Less than 30mV	(a)

#### U.S.A. and CANADA models

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	—	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0	VR3 (L) VR4 (R)	10mV	(a)

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## REGLAGE/ABGLEICH

## SPECIFICATIONS

### REGLAGE

#### Autres modèles

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINS L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION (1)	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D)	VOLUME: 0 S8:4Ω	VR3 (G) VR4 (D)	3mV	(a)
2	COURANT DE POLARISATION (2)	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D)	VOLUME: 0 S8:8Ω	VR3 (G) VR4 (D)	moins de 30mV	(a)

#### ETATS-UNIS d'AMERIQUE et CANADA modèles

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINS L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D)	VOLUME: 0	VR3 (G) VR4 (D)	10mV	(a)

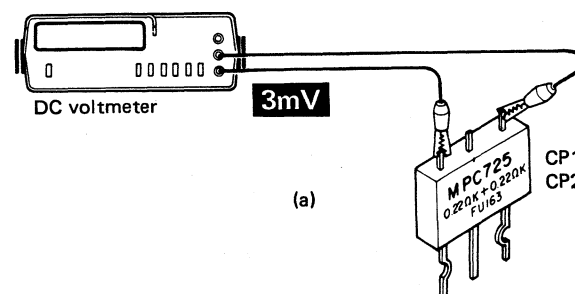
### ABGLEICH

#### Andere model

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM (1)	-	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0 S8:4Ω	VR3 (L) VR4 (R)	3mV	(a)
2	LEERLAUFSTROM (2)	-	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0 S8:8Ω	VR3 (L) VR4 (R)	Weniger als 30mV	(a)

#### Amerika und KANADA

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	-	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0	VR3 (L) VR4 (R)	10mV	(a)



### Power Amplifier Section

#### Power Output

80 watts\* per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion

#### Both Channels Driven into

8 ohms at 1,000 Hz . . . . . 85 W + 85 W (Except U.S.A., Europe and U.K.)

4 ohms at 1,000 Hz . . . . . 78 W + 78 W (Except U.S.A., Europe and U.K.)

Music Power Output (8 ohms) . . . . . 145 W + 145 W (Except U.S.A., Europe and U.K.)

#### Total Harmonic Distortion

AUX → SPKR (8 Ω) / Power in → SPKR (8 Ω)

(20 Hz to 20,000 Hz)

At Rated Output . . . . . 0.09%

At 1/2 Rated Output . . . . . 0.05%

(1,000 Hz)

At 1/2 Rated Output . . . . . 0.005%

Phono → SPKR (8 Ω) / At -20 dB Volume Level

(1,000 Hz)

At Rated Output . . . . . 0.04%

Intermodulation Distortion (60 Hz : 7,000 Hz = 4 : 1)

At Rated Output . . . . . 0.02% into 8 ohms

Damping Factor . . . . . 30 (50 Hz)

#### Frequency Response

Overall (AUX → SPKR) . . . . . 10 Hz to 70,000 Hz, +0 dB, -3 dB

#### Phono "RIAA" Response

(Phono → REC out) . . . . . 30 Hz to 20 Hz, ±0.5 dB

Power Bandwidth . . . . . 10 Hz to 50,000 Hz

0.2% T.H.D. 8 ohms

#### Input Sensitivity/Impedance

Phono MM . . . . . 2.5 mV / 47 k ohms

Tuner, AUX., Tape Play . . . . . 150 mV / 33 k ohms

#### Signal-to-Noise Ratio (IHF-A)

Phono MM . . . . . 75 dB at 2.5 mV

Phono MM . . . . . 81 dB at 5.0 mV

Tuner, AUX., Tape Play . . . . . 100 dB

#### Phono Maximum Input Level

MM . . . . . 150 mV (Phono to Tape REC), 0.05% T.H.D. at 1,000 Hz

#### Output Level/Impedance

Tape REC (Pin) . . . . . 150 mV / 330 ohms

#### Tone Control

60 Hz, 150 Hz, 400 Hz, 1,000 Hz, 2,400 Hz,

6,000 Hz, 15,000 Hz . . . . . ±10 dB

#### Filter

Subsonic . . . . . 60 Hz, 6 dB/oct

#### Loudness Control

At -30 dB Volume Level . . . . . +8 dB at 100 Hz

#### General

Power Supply Voltage, Frequency . . . . . 120 V, 60 Hz (U.S.A. and Canada models), 220 V, 50 Hz (Europe model), 240 V, 50 Hz (U.K. model), 110 ~ 120 V / 220 ~ 240 V, 50 / 60 Hz (Other countries)

Power Consumption . . . . . 2.5 A (U.S.A. and Canada models), 170 W (Other countries)

#### AC Outlet

Switched . . . . . 100 W

Unswitched . . . . . 100 W

Dimensions . . . . . W 420 mm

H 109 mm

D 282 mm

#### Weight

Net . . . . . 6.6 kg

Gross . . . . . 7.4 kg

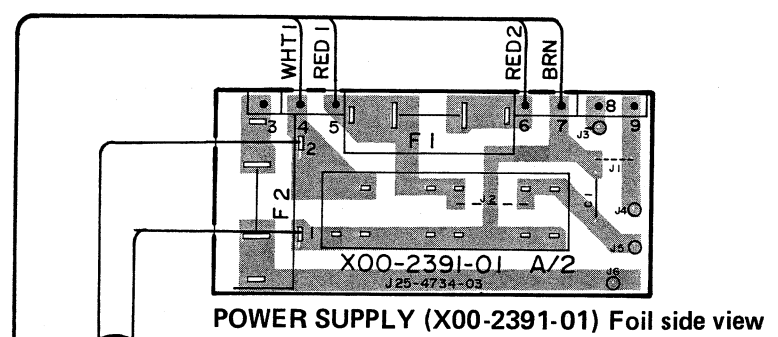
\*Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier in U.S.A..

#### Note:

We follow a policy of continuous advancements in developments. For this reason specifications may be changed without notice.

# KA-75 KA-75

## PC BOARD

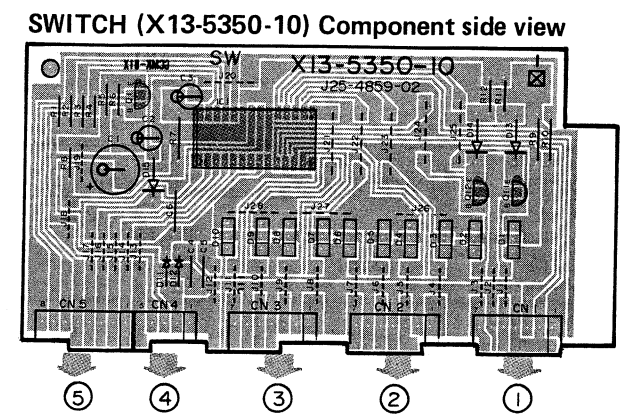


X13-5350-10

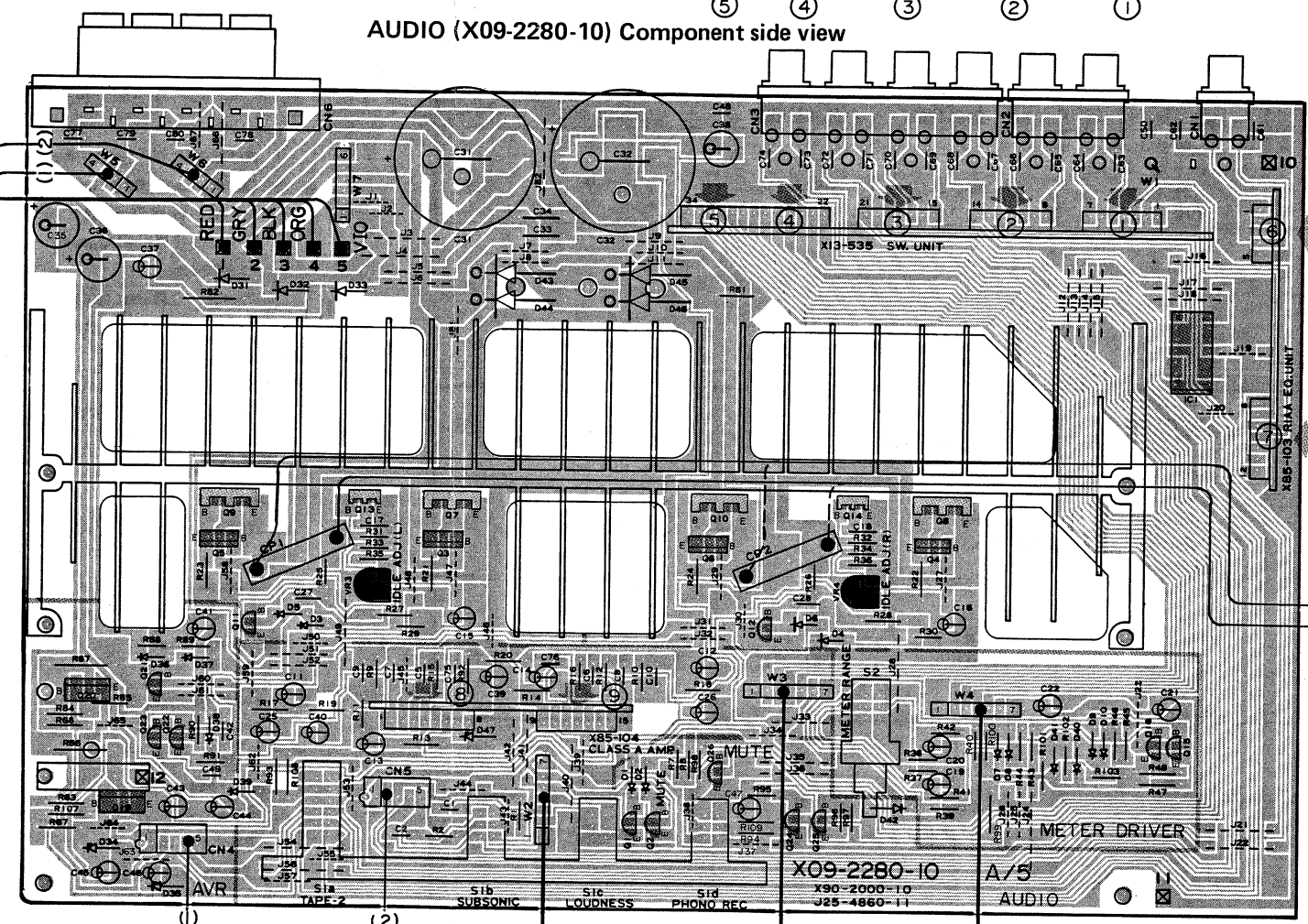
Q1	B	C	E
	15.4V [1]	0V [1]	15.5V

IC1

1	15.0V [2]	21	0V [2]
2-5	0V [2]	22	15.5V
6	0V	23	-16.0V
7	15.5V	24	15.5V [2]
8	15.5V [2]	25, 26	0V [2]
9-19	0V	27	-15.9V [2]
20	-16.0V	28	15.5V



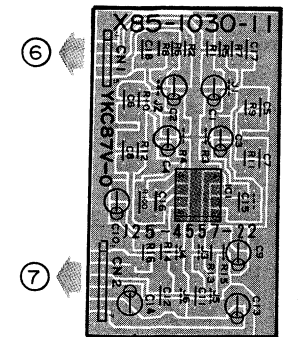
**AUDIO (X09-2280-10) Component side view**



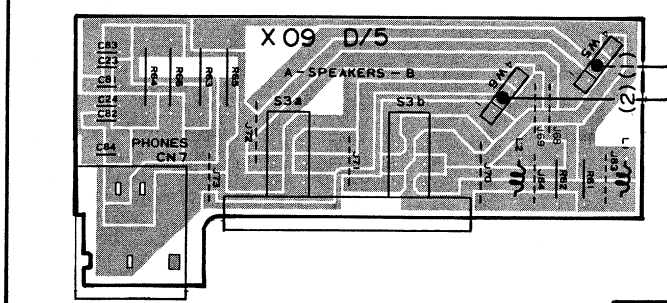
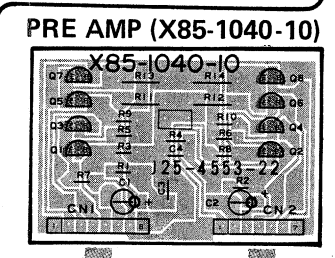
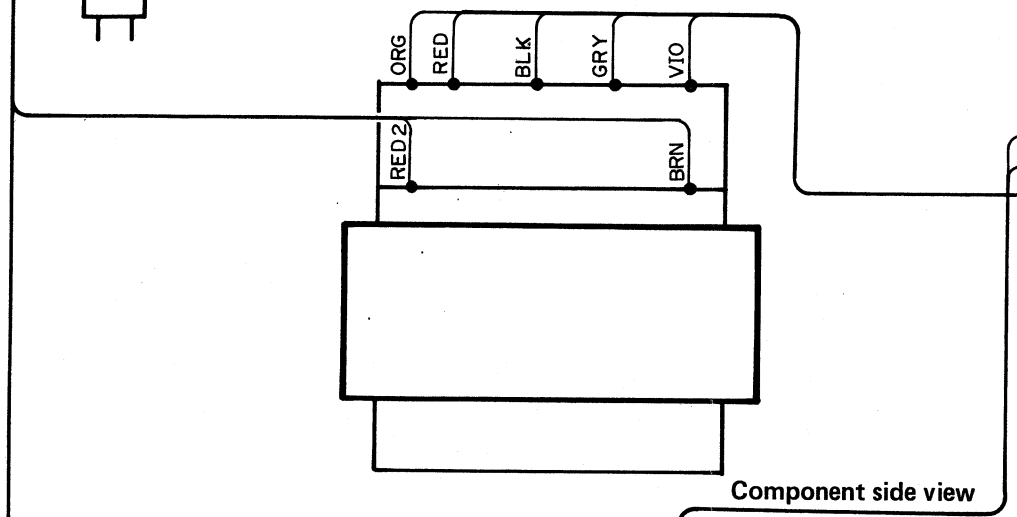
X09-2280-10

	B	C	E
Q1, Q2	0V (0.7V) *2	0V	0V
Q3, Q4	1.1V (0.7V)	56.2V (46.7V)	0.5V (0V)
Q5, Q6	-1.1V (0.7V)	-56.2V (-46.7V)	-0.5V (0V)
Q7, Q8	0.8V (0V)	56.2V (46.7V)	0V
Q9, Q10	-0.8V (0V)	-56.2V (-46.7V)	0V
Q11, Q12	0V	(39.2V) (0V)	0V
Q13, Q14	-0.5V (0.7V)	1.1V (0.7V)	-1.1V (0.7V)
Q15, Q16	0.4V (0V)	14.1V (0V)	0V
Q17, Q18	15.8V (1.0V)	0V	14.2V (0V)
Q19	16.4V (1.6V)	42.1V (44.3V)	16.2V (1.1V)
Q20	-16.2V	-36.5V (39.2V)	16.0V
Q21	47.6V (39.5V) (1.2V)	56.3V (46.8V)	47.0V (38.9V) (0.8V)
Q22	47.7V (39.5V) (0.8V)	0V (0.8V)	47.7V (38.9V) (0.8V)
Q23	0V (0.8V)	47.7V (39.5V) (0.8V)	0V
Q24	16.2V (15.6V) *3 (1.1V)	-15.8V (16.2V) *3 (-15.8V) (1.1V)	16.2V (1.1V)
Q25	-16.0V (-15.4V) *3	16.1V (15.3V) *4 (-16.0V) *3	0V
Q26	0V (0.7V) *1	15.8V (0V) *1	0V

\*1: PHONO REC ON  
 \*2: PHONO REC or SELECTOR ON  
 \*3: PHONO REC ON  
 \*4: PHONO REC OFF TAPE-1 ON  
 [ ] : PROTECTION WORKS  
 ( ) : S8 = 4Ω

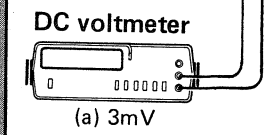
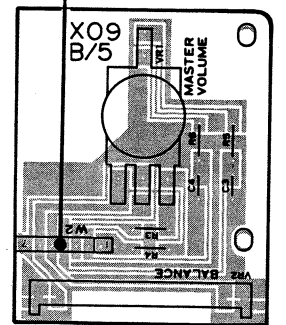
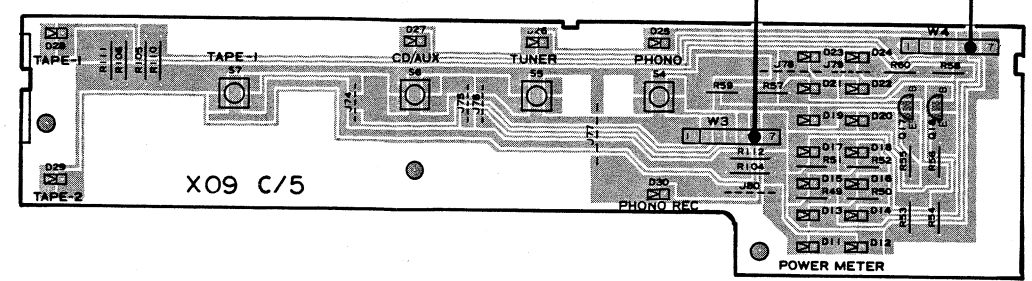
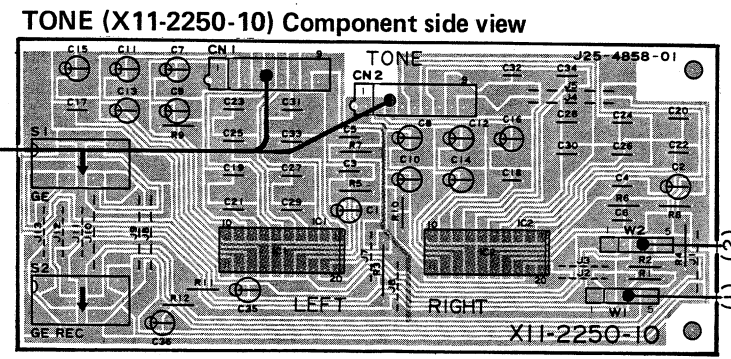
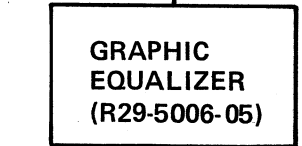
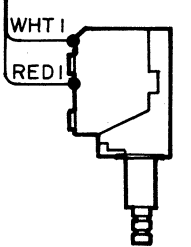


**PRE AMP (X85-1030-11) Component side view**

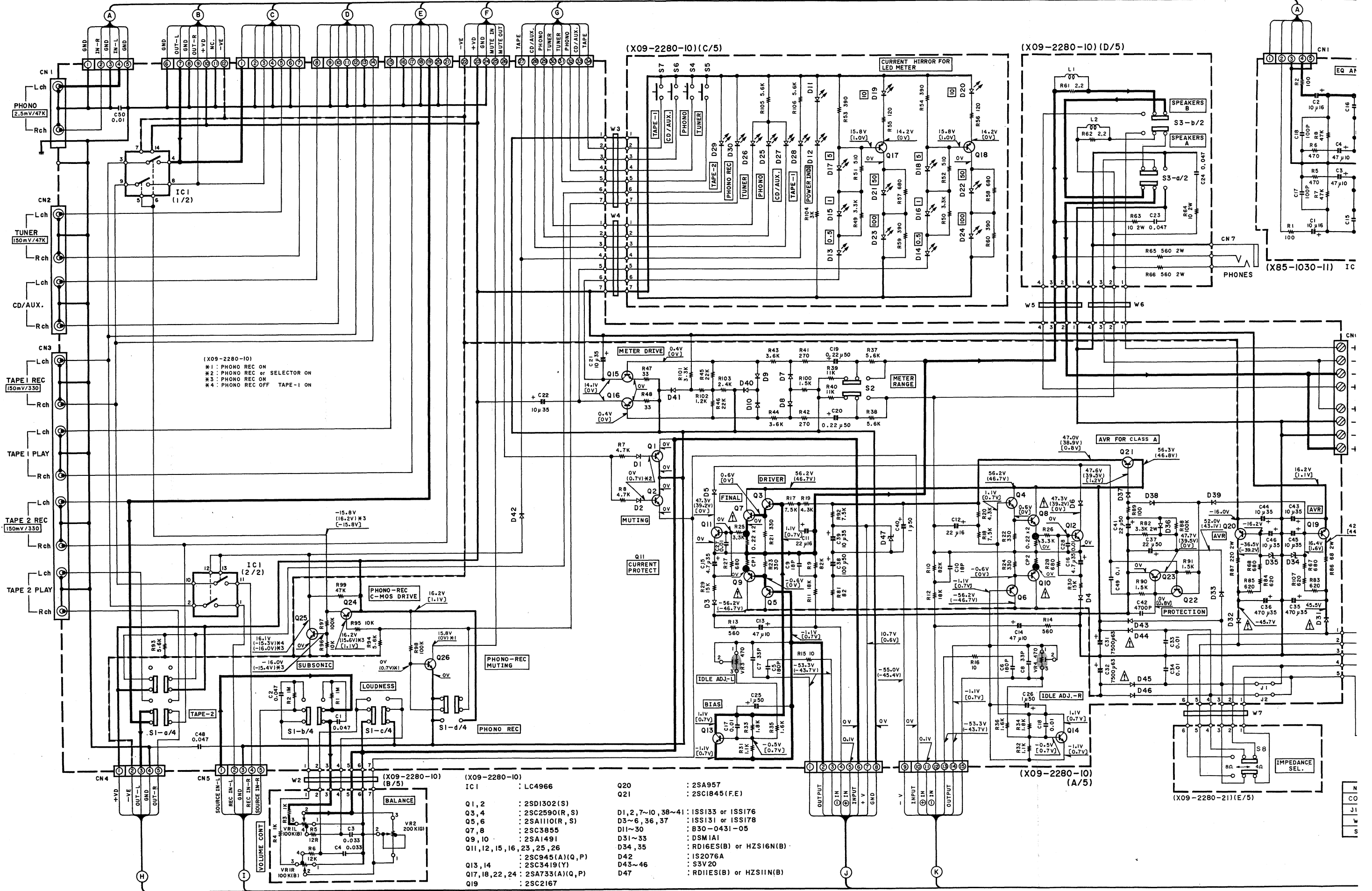


X11-2250-10  
IC1, 2

1-17	0V
18	15.8V
19	0V
20	-16V



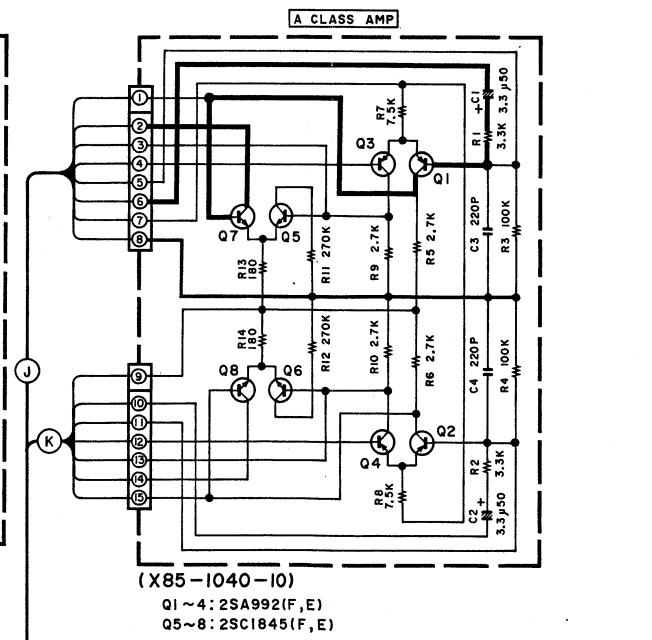
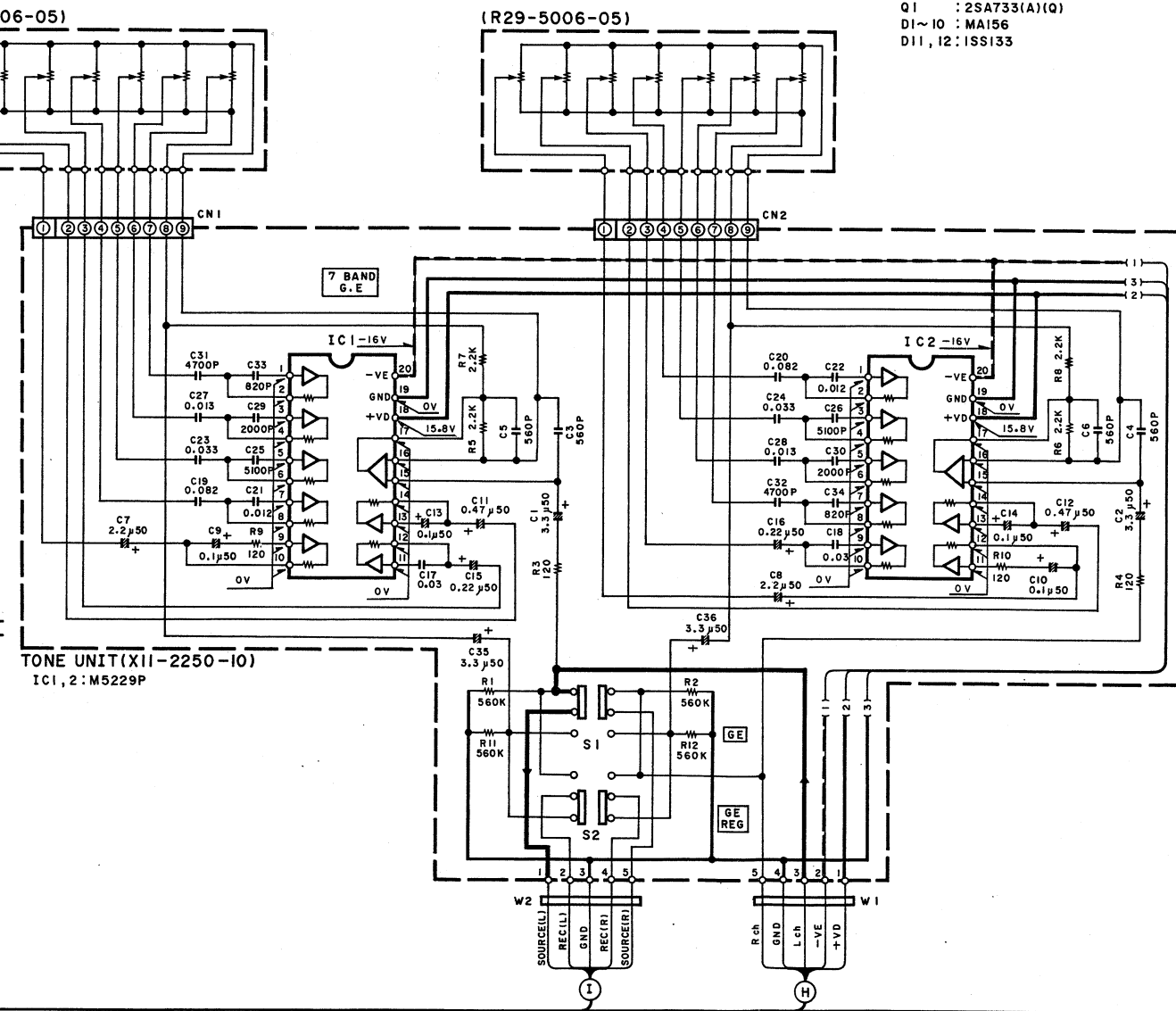
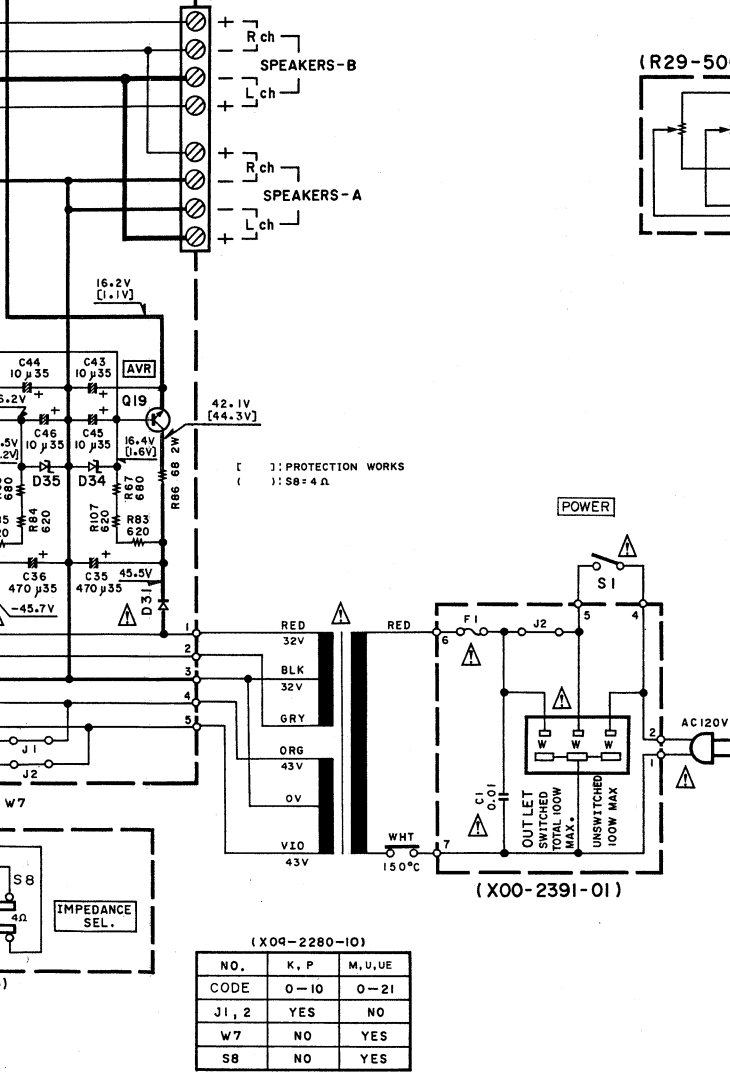
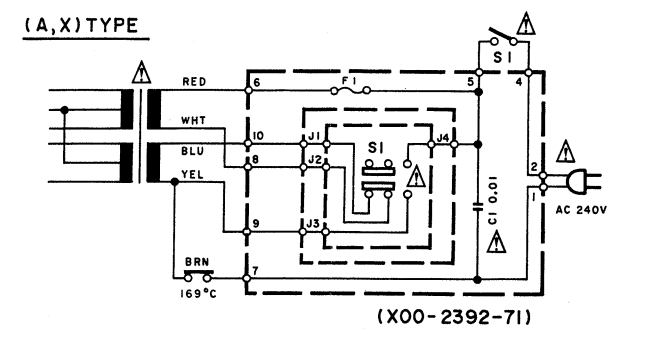
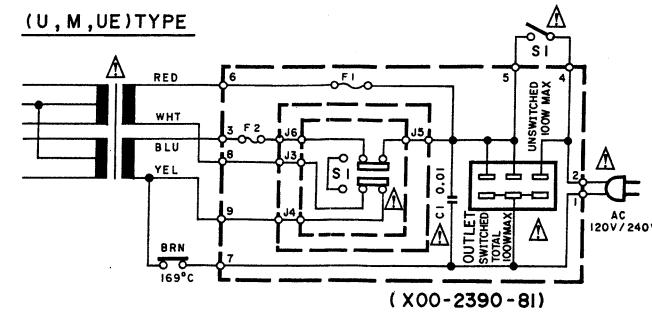
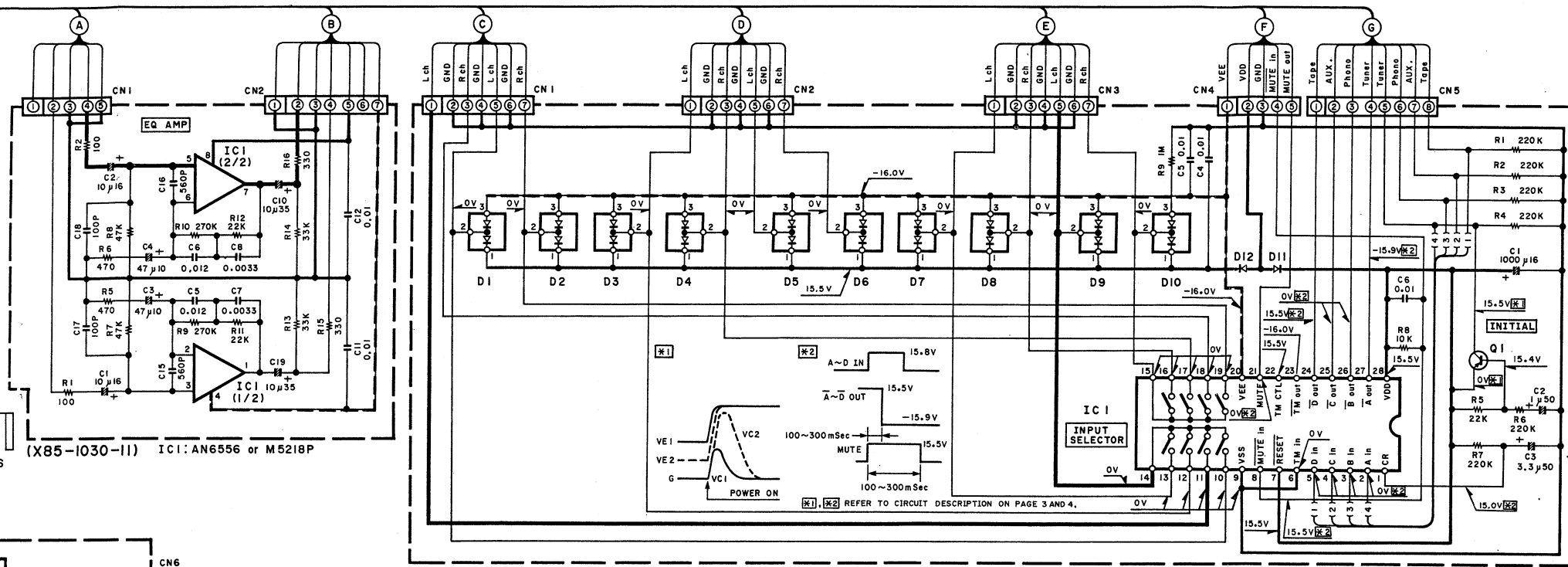




(X09-2280-10)  
 \*1: PHONO REC ON  
 \*2: PHONO REC or SELECTOR ON  
 \*3: PHONO REC ON  
 \*4: PHONO REC OFF TAPE-1 ON

- |                             |                   |                    |                          |
|-----------------------------|-------------------|--------------------|--------------------------|
| IC 1                        | : LC4966          | Q20                | : 2SA957                 |
| Q1, 2                       | : 2SD1302(S)      | Q21                | : 2SC1845(F.E)           |
| Q3, 4                       | : 2SC2590(R, S)   | D1, 2, 7-10, 38-41 | : ISS133 or ISS176       |
| Q5, 6                       | : 2SA1110(R, S)   | D3-6, 36, 37       | : ISS131 or ISS178       |
| Q7, 8                       | : 2SC3855         | D11-30             | : B30-0431-05            |
| Q9, 10                      | : 2SA1491         | D31-33             | : DSM1A1                 |
| Q11, 12, 15, 16, 23, 25, 26 | : 2SC945(A)(Q, P) | D34, 35            | : RD16ES(B) or HZS16N(B) |
| Q13, 14                     | : 2SC3419(Y)      | D42                | : IS2076A                |
| Q17, 18, 22, 24             | : 2SA733(A)(Q, P) | D43-46             | : S3V20                  |
| Q19                         | : 2SC2167         | D47                | : RDI1ES(B) or HZS11N(B) |

N  
CO  
J1  
W  
S



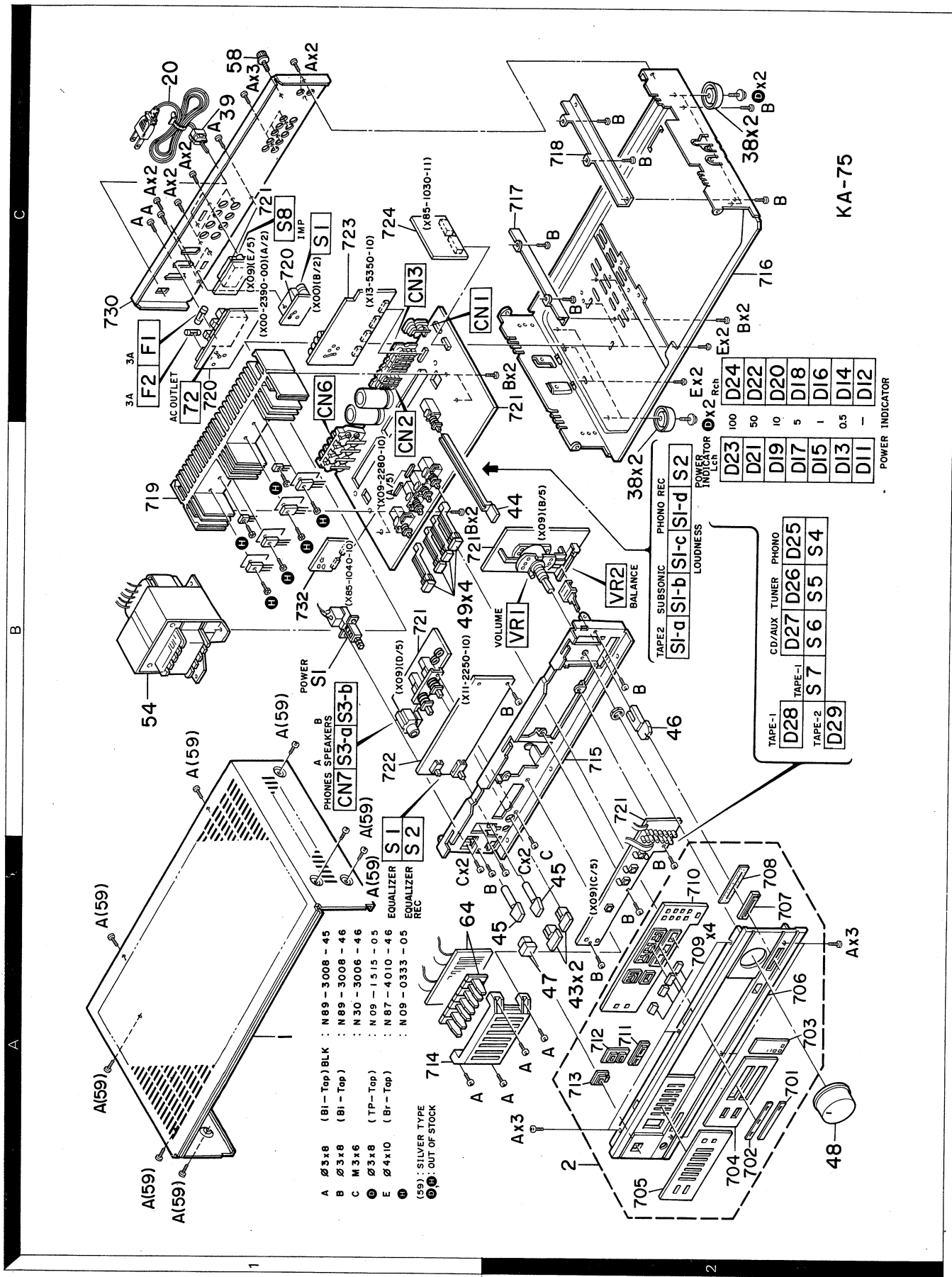
- 2SA733(A) 2SC945(A)
- 2SA992 2SD1302
- 2SC1845
- 2SA1110 2SC2590
- 2SA957 2SC2167
- 2SA1491 2SC3855
- 2SC3419
- M5229P
- AN6556 M5218P
- LC7816
- LC4966

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

• DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

# KA-75 KA-75

## EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名/規格	仕向	備考
<b>KA-75</b>						
1	1A		A01-1319-02	METALLIC CABINET	M2A2	
1	1A		A01-1481-02	METALLIC CABINET	KPUM1	
1	1A		A01-1481-02	METALLIC CABINET	XA1UE	
2	2A	*	A20-4769-02	PANEL ASSY	KPUM1	
2	2A	*	A20-4769-02	PANEL ASSY	XA1UE	
2	2A	*	A20-4770-02	PANEL ASSY	M2A2	
-	-	-	B46-0092-03	WARRANTY CARD	K	
-	-	-	B46-0094-03	WARRANTY CARD	UUE	
-	-	-	B46-0095-03	WARRANTY CARD	UUE	
-	-	-	B46-0096-13	WARRANTY CARD	X	
-	-	-	B46-0121-03	WARRANTY CARD	P	
-	-	*	B50-6104-00	INSTRUCTION MANUAL (ENGLISH)		
-	-	*	B50-6105-00	INSTRUCTION MANUAL (FRENCH)	PM1M2X	
-	-	*	B50-6105-00	INSTRUCTION MANUAL (FRENCH)	A1A2	
-	-	*	B50-6106-00	INSTRUCTION MANUAL (SPANISH)	M1M2	
-	-	*	B50-6106-00	INSTRUCTION MANUAL (SPANISH)	A1A2	
-	-	*	B50-6107-00	INSTRUCTION MANUAL (ARABIC)	A1A2	
-	-	*	B50-6107-00	INSTRUCTION MANUAL (ARABIC)	M1M2	
-	-		B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-	-		B58-0269-04	CAUTION CARD	KA1A2	
-	-		B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-	-		B59-0092-00	SERVICE DIRECTORY	UUE	
Δ	20	1C	E30-0459-05	AC POWER CORD	A1A2	
Δ	20	1C	E30-0812-05	AC POWER CORD	UM1UE	
Δ	20	1C	E30-0812-05	AC POWER CORD	M2	
Δ	20	1C	E30-0974-05	AC POWER CORD	KP	
Δ	20	1C	E30-1341-05	AC POWER CORD	X	
Δ	F1	1C	F05-2525-05	FUSE (SEMK0) (250V T2.5A)	X	
Δ	F1	1C	F06-5022-05	FUSE (UL) (250V 5A)	KP	
Δ	F1	1C	F05-2521-05	FUSE (250V 2.5A)	UM1UE	
Δ	F1	1C	F05-2521-05	FUSE (250V 2.5A)	M2	
Δ	F1	1C	F05-2525-05	FUSE (SEMK0) (250V T2.5A)	A1A2	
-	-		G11-0163-04	SOFT TAPE (40X20X20)		
-	-	*	H01-7109-04	ITEM CARTON CASE	KPUM1	
-	-	*	H01-7109-04	ITEM CARTON CASE	UE	
-	-	*	H01-7109-04	ITEM CARTON CASE	XA1	
-	-	*	H01-7174-04	ITEM CARTON CASE	M2A2	
-	-		H10-3317-02	POLYSTYRENE FOAMED FIXTURE		
-	-	*	H11-0002-04	POLYSTYRENE FOAMED BOARD		
-	-		H25-0223-04	PROTECTION BAG (750X350)		
-	-		H25-0232-04	PROTECTION BAG (235X350)		
38	2B,2C		J02-0161-04	FOOT		
39	1C		J42-0083-05	POWER CORD BUSHING		
-	-		J61-0307-05	WIRE BAND		
43	2A		K27-0742-14	KN0B (BUTTON) SPEAKERS		
44	1B	*	K27-1637-04	KN0B (BUTTON) METER		
45	2A	*	K27-1638-04	KN0B (BUTTON) GE		
46	2B	*	K27-1639-04	KN0B (BUTTON) BALANCE		
47	2A		K29-1446-04	KN0B ASSY POWER	M2A2	
47	2A		K29-2001-04	KN0B ASSY POWER	KPUM1	

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Δ indicates safety critical components.

## PARTS LIST

× New Parts

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Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名/規格	Destination 仕向	Re- marks 備考
47	2A		K29-2001-04	KNØB ASSY POWER	UE	
47	2A		K29-2001-04	KNØB ASSY POWER	XA1	
48	2A		K29-2020-04	KNØB VØLUME	KPUM1	
48	2A		K29-2020-04	KNØB VØLUME	UE	
48	2A		K29-2020-04	KNØB VØLUME	XA1	
48	2A	*	K29-2435-04	KNØB VØLUME	M2A2	
49	1B	*	K29-2375-04	KNØB ASSY TAPE	KPUM1	
49	1B	*	K29-2375-04	KNØB ASSY TAPE	UE	
49	1B	*	K29-2375-04	KNØB ASSY TAPE	XA1	
49	1B	*	K29-2376-04	KNØB ASSY TAPE	M2A2	
△ 54	1B	*	L01-7041-05	POWER TRANSFORMER	KP	
△ 54	1B	*	L01-7045-05	POWER TRANSFORMER	UM1UE	
△ 54	1B	*	L01-7045-05	POWER TRANSFORMER	XM2	
△ 54	1B	*	L01-7045-05	POWER TRANSFORMER	A1A2	
58	1C		N08-0128-35	BINDING POST (GND)		
59	1A		N09-1473-05	TAPPING SCREW (M3X8) CASE	M2A2	
D	2C		N09-1515-05	TAPPING SCREW (3X8)		
64	1A		R29-5006-05	PØTENTIØMETER (GE)		
△ S1	1B		S40-1073-05	PUSH SWITCH		
<b>POWER SUPPLY (X00-2391-01)</b>						
△ C1			C91-0023-05	CERAMIC 0.01UF AC250V	UM1UE	
△ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M2	
△ C1			C91-0647-05	CERAMIC 0.01UF P	KPX	
△ C1			C91-0647-05	CERAMIC 0.01UF P	A1A2	
△ 72	1C	*	E03-0077-05	AC ØUTLET	UM1UE	
△ 72	1C	*	E03-0077-05	AC ØUTLET	M2	
△ 72	1C	*	E03-0078-05	AC ØUTLET	KP	
-			J13-0041-05	FUSE CLIP	KPUM1	
-			J13-0041-05	FUSE CLIP	UEM2	
-			J13-0054-05	FUSE CLIP	XA1A2	
-			J61-0307-05	WIRE BAND	XA1A2	
△ S1	1C		S31-2083-05	SLIDE SWITCH (POWER TYPE)	UM1UE	
△ S1	1C		S31-2083-05	SLIDE SWITCH (POWER TYPE)	A1A2M2	
<b>AUDIO (X09-2280-10)</b>						
D11 -30	2B,2C		B30-0431-05	LED(LN21CPH)		
C1 ,2			CF92FV1H473J	MF 0.047UF J		
C3 ,4			CF92FV1H333J	MF 0.033UF J		
C5 ,6			CC45FSL1H181J	CERAMIC 180PF J		
C7 ,8			CC45FSL1H330J	CERAMIC 33PF J		
C9 ,10			CC45FSL1H180J	CERAMIC 18PF J		
C11 ,12			CE04KW1C220M	ELECTRØ 22UF 16WV		
C13 ,14			CE04KW1A470M	ELECTRØ 47UF 10WV		
C15 ,16			CE04KW1V4R7M	ELECTRØ 4.7UF 35WV		
C17 ,18			C91-0769-05	CERAMIC 0.01UF M		
C19 ,20			CE04KW1HR22M	ELECTRØ 0.22UF 50WV		
C21 ,22			CE04KW1V100M	ELECTRØ 10UF 35WV		
C23 ,24			CK45FF1H473Z	CERAMIC 0.047UF Z		
C25 ,26			CE04KW1H010M	ELECTRØ 1.0UF 50WV		
C27 ,28			C91-0769-05	CERAMIC 0.01UF M		
C31 ,32			C90-1317-05	ELECTRØ 7500UF 63WV		
C33 ,34			CK45FE2H103P	CERAMIC 0.010UF P		

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△ indicates safety critical components.

## PARTS LIST

× New Parts

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Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名/規格	Destination 仕向	Re- marks 備考
C35 ,36			CE04KW1V471M	ELECTRØ 470UF 35WV		
C37			CE04KW1H220M	ELECTRØ 22UF 50WV		
C38			CE04KW1H101M	ELECTRØ 100UF 50WV		
C39			CE04KW1V100M	ELECTRØ 10UF 35WV		
C40			CE04KW1H010M	ELECTRØ 1.0UF 50WV		
C41			CE04KW1H220M	ELECTRØ 22UF 50WV		
C42			CF92FV1H472J	MF 4700PF J		
C43 -46			CE04KW1V100M	ELECTRØ 10UF 35WV		
C48			CK45FF1H473Z	CERAMIC 0.047UF Z		
C49			CF92FV1H104J	MF 0.10UF J		
C50			CK45FF1H103Z	CERAMIC 0.010UF Z		
CN1	1C		E13-0235-05	PHØNØ JACK (2P)PHØNØ		
CN2	1B		E13-0497-05	PHØNØ JACK (4P)TUNER/CD		
CN3	1C		E13-0814-05	PHØNØ JACK (8P)TAPE		
CN6	1C		E20-0823-05	LØCK TERMINAL BOARD(8P)SP		
CN7	1B		E11-0162-05	PHØNE JACK (3P)PHØNES		
L1 ,2			L39-0085-05	PHASE-CØMPENSATION COIL		
H	1B		N09-0333-05	TAPPING SCREW (3X12)		
CP1 ,2			R90-0187-05	MULTI-CØMP 0.22X2 K 5W		
R21 -24			RD14AB2E331J	FL-PRØØF RD 330 J 1/4W		
R61 ,62			RD14AB2E2R2J	FL-PRØØF RD 2.2 J 1/4W		
R63 ,64			RS14DB3D100J	FL-PRØØF RS 10 J 2W		
R65 ,66			RS14DB3D561J	FL-PRØØF RS 560 J 2W		
R81			RD14AB2E820J	FL-PRØØF RD 82 J 1/4W		
R82			RS14DB3D332J	FL-PRØØF RS 3.3K J 2W		
R86			RS14DB3D680J	FL-PRØØF RS 68 J 2W		
R87			RS14DB3D221J	FL-PRØØF RS 220 J 2W		
VR1	2B	*	RD6-5151-05	PØTENTIØMETER(100K B)VØLUME		
VR2	2B	*	R13-5080-05	PØTENTIØMETER(200K G)BALANCE		
VR3 ,4			R12-0094-05	TRIMMING PØT. (470) BIAS		
S1	1B	*	S42-4048-05	MULTIPLE PUSH SWITCH(SELECTØR)		
S2	1B	*	S40-2193-05	PUSH SWITCH (METER RANGE)		
S3	1B	*	S42-2138-05	MULTIPLE PUSH SWITCH(SPEAKERS)		
S4 -7	2B		S40-1064-05	PUSH SWITCH		
S8	1C		S31-2113-05	SLIDE SWITCH (IMPEDANCE)	UM1UEX	
S8	1C		S31-2113-05	SLIDE SWITCH (IMPEDANCE)	A1A2M2	
D1 ,2			1SS133	DIØDE		
D1 ,2			1SS176	DIØDE		
D3 -6			1SS131	DIØDE		
D3 -6			1SS178	DIØDE		
D7 -10			1SS133	DIØDE		
D7 -10			1SS176	DIØDE		
△ D31 -33			DSM1A1	DIØDE		
D34 ,35		*	HZS16N(B)	ZENER DIØDE		
D34 ,35		*	RD16ES(B)	ZENER DIØDE		
D36 ,37			1SS131	DIØDE		
D36 ,37			1SS178	DIØDE		
D38 -41			1SS133	DIØDE		
D38 -41			1SS176	DIØDE		
D42			1S2076A	DIØDE		
△ D43 -46			S3V20	DIØDE		

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## PARTS LIST

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Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
D47 D47 IC1 Q1 ,2 Q3 ,4		*	HZS11N(B) RD11ES(B) LC4966	ZENER DIODE ZENER DIODE IC(CMOS LOGIC BILATERAL SW)		
Q5 ,6 Q7 ,8 Q9 ,10 Q11 ,12 Q13 ,14		*	2SD1302(S) 2SC2590(R,S)	TRANSISTOR TRANSISTOR		
Q15 ,16 Q17 ,18 Q19 Q20 Q21		*	2SA1110(R,S) 2SC3855 2SA1491 2SC945(A)(Q,P) 2SC3419(Y)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q22 Q23 Q24 Q25 ,26		*	2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SC2167 2SA957 2SC1845(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
<b>TONE (X11-2250-10)</b>						
C1 ,2 C3 -6 C7 ,8 C9 ,10 C11 ,12			CE04KW1H3R3M CK45FB1H561K CE04KW1H2R2M CE04KW1HOR1M CE04KW1HR47M	ELECTRO 3.3UF 50WV CERAMIC 560PF K ELECTRO 2.2UF 50WV ELECTRO 0.1UF 50WV ELECTRO 0.47UF 50WV		
C13 ,14 C15 ,16 C17 ,18 C19 ,20 C21 ,22			CE04KW1HOR1M CE04KW1HR22M CF92FV1H303J CF92FV1H823J CF92FV1H123J	ELECTRO 0.1UF 50WV ELECTRO 0.22UF 50WV MF 0.030UF J MF 0.082UF J MF 0.012UF J		
C23 ,24 C25 ,26 C27 ,28 C29 ,30 C31 ,32			CF92FV1H333J CF92FV1H512J CF92FV1H133J CF92FV1H202J CF92FV1H472J	MF 0.033UF J MF 5100PF J MF 0.013UF J MF 2000PF J MF 4700PF J		
C33 ,34 C35 ,36			CK45FB1H821K CE04KW1H3R3M	CERAMIC 820PF K ELECTRO 3.3UF 50WV		
S1 ,2	1B	*	S40-2351-05	PUSH SWITCH (GE)		
IC1 ,2		*	M5229P	IC(7CH GRAPHIC EQUALIZER)		
<b>SWITCH (X13-5350-10)</b>						
C1 C2 C3 C4 -6			CE04KW1C102M CE04KW1H010M CE04KW1H3R3M C91-0769-05	ELECTRO 1000UF 16WV ELECTRO 1.0UF 50WV ELECTRO 3.3UF 50WV CERAMIC 0.01UF M		
D1 -10 D11 ,12 IC1 Q1		*	MA156 1SS133 LC7816 2SA733(A)(Q)	DIODE DIODE IC TRANSISTOR		
<b>PRE AMP (X85-1030-11)</b>						
C1 ,2 C3 ,4 C5 C6			CE04FW1C100M CE04FW1A470M CF92FV1H123J CF92FV1H123J	ELECTRO 10UF 16WV ELECTRO 47UF 10WV MF 0.012UF J MF 0.012UF J		

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## PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
C7 C8 C9 ,10 C11 ,12 C15 ,16  C17 ,18  IC1 IC1			CF92FV1H332J CF92FV1H332J CE04KW1V100M CK45FF1H103Z CK45FB1H561K  CC45FSL1H101J  AN6556 M5218P	MF 3300PF J MF 3300PF J ELECTRO 10UF 35WV CERAMIC 0.010UF Z CERAMIC 560PF K  CERAMIC 100PF J  IC(OP AMP X2) IC(OP AMP X2)		
<b>PRE AMP (X85-1040-10)</b>						
C1 ,2 C3 ,4  R11 ,12 R13 ,14  Q1 -4 Q5 -8			CE04FW1H3R3M CC45FSL1H221J  RD14AB2E271J RD14AB2E181J  2SA992(F,E) 2SC1845(F,E)	ELECTRO 3.3UF 50WV CERAMIC 220PF J  FL-PROOF RD 270 J 1/4W FL-PROOF RD 180 J 1/4W  TRANSISTOR TRANSISTOR		

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### SPECIFICATION :

Refer to specifications on page 5.

### Note :

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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