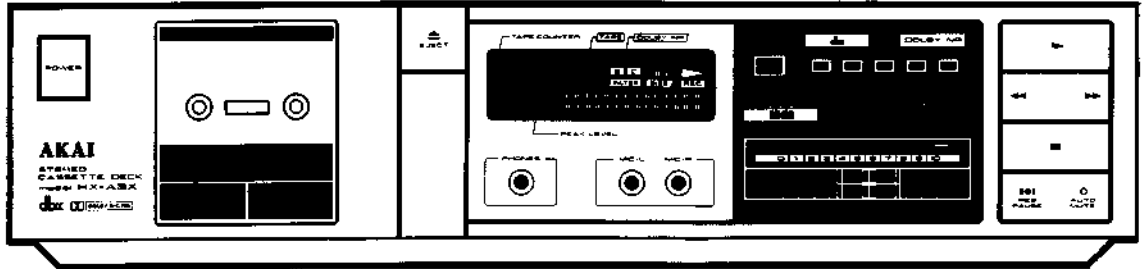


# AKAI SERVICE MANUAL



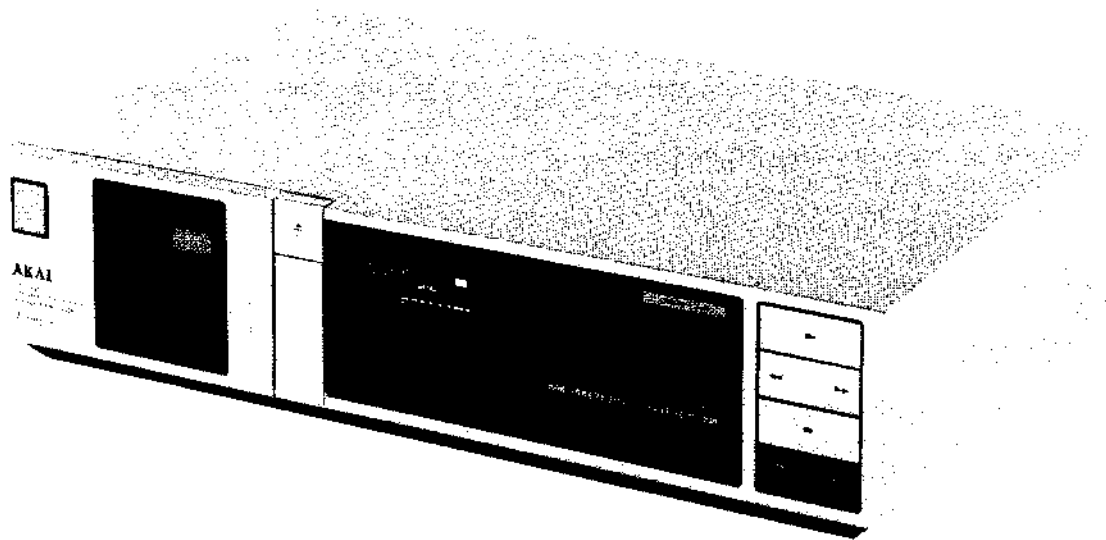
STEREO CASSETTE DECK

MODEL **HX-A3/X**

# ABBREVIATIONS FOR SERVICE MANUAL

## MODEL HX-A3/X

ABBREVIATION	EXPLANATION
AC	Alternating Current
ADJ	ADJustment (ADJust)
AR	Anti Record
AS	Anti Saturation
B (B-L/B-H)	Buffer Low level stage / Buffer High level stage
CCA	Current Control Amplifire
DC	Direct Current
DIN	Deutsche Industrie Normen
EQ	EQualizer
FF	Fast Forward
FL DISPLAY	FLuorescent DISPLAY
FREQ	FREQuency
GND	GrouND
H	High level
HD	High Density
INT	INTerrupt
L	Low level
L	Left
MID	MIDDLE
MPX	Multe PleX
NR	Noise Reduction
OSC	OSCillator
OSS (OSS-L/OSS-H)	Over Shoot Supresser Low level stage / Over Shoot Supresser High level stage
PB	Play Back
R	Right
R (R-L/R-H)	Rectifier Low level stage / Rectifier High level stage
REC	RECORD
REG	REGulator
RES	RESet
REW	REWind
RMS	Root Mean Square
SC (SC-L/SC-H)	Side Change Low level stage / Side Change High level stage
SS	Spectral Skewing network
SW	SWitch
VR	Variable Resister
VREF	Voltage REference



## STEREO CASSETTE DECK

### MODEL **HX-A3/X**

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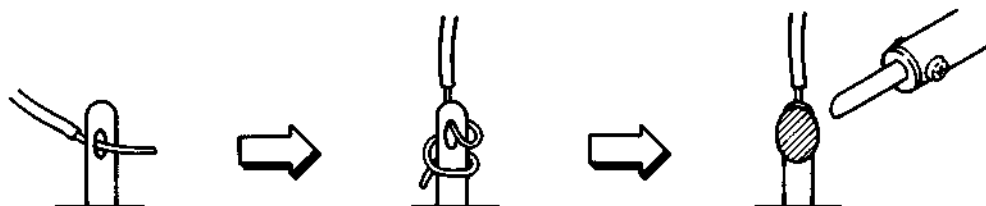
# SAFETY INSTRUCTIONS

## SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for **C** or **A**, specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

## PRECAUTIONS DURING SERVICING

1. Parts identified by the  $\Delta$  symbol parts are critical for safety.  
Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulation Tape
  - 2) PVC tubing
  - 3) Spacers (Insulating Barriers)
  - 4) Insulation sheets for transistors
  - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



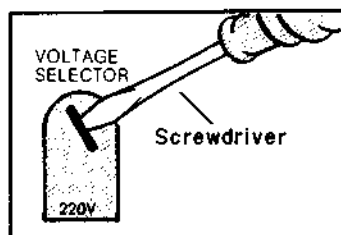
6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## VOLTAGE CONVERSION

Models for Canada, USA, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to its destination, but some machines can be set to 110V, 120V, 220V, or 240V as required.

If your machine's voltage can be converted:

Before connecting the power cord, turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.



## CYCLE CONVERSION

Cycle conversion are not necessary since HX-A3 and HX-A3X use a DC MOTOR.

---

SECTION 1

**SERVICE MANUAL**

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

# I. SPECIFICATIONS

MOTOR	Electronically speed controlled DC motor for capstan drive × 1
HEADS	HD head for recording and playback × 1 Erase head × 1
WINDING TIME	90sec. (C-60 tape)
WOW & FLUTTER	0.05 % (WRMS), 0.12% (DIN. WTD)
DISTORTION	0.7 % (Metal)
FREQUENCY RESPONSE	Metal        20Hz to 18,000Hz±3dB CrO <sub>2</sub> 20Hz to 17,000Hz±3dB Normal       20Hz to 16,000Hz±3dB
S/N	59dB (Metal) Dolby C type NR ON: Improves up to 15dB at 500Hz, 20dB at 1kHz to 5kHz Dolby B type NR ON: Improves up to 5dB at 1kHz, 10dB above 5kHz
DYNAMIC RANGE (dbx ON)	115dB (HX-A3X ONLY)
INPUT SENSITIVITY/IMPEDANCE	LINE        70mV/47kohms MIC         2.5mV/5kohms
OUTPUT SENSITIVITY/IMPEDANCE	LINE        380mV/1.2kohms PHONES     0.3mW (at 8ohms)/91ohms
POWER REQUIREMENTS	120V, 60Hz for USA and Canada 220V, 50Hz for Europe except UK 240V, 50Hz for UK and Australia 110V/120V/220V/240V, 50/60Hz switchable for other countries
DIMENSIONS	440 (W) × 104 (H) × 285 (D) mm (17.3 × 4.1 × 11.2 inches)
WEIGHT	4.1kg (9.0 lbs)

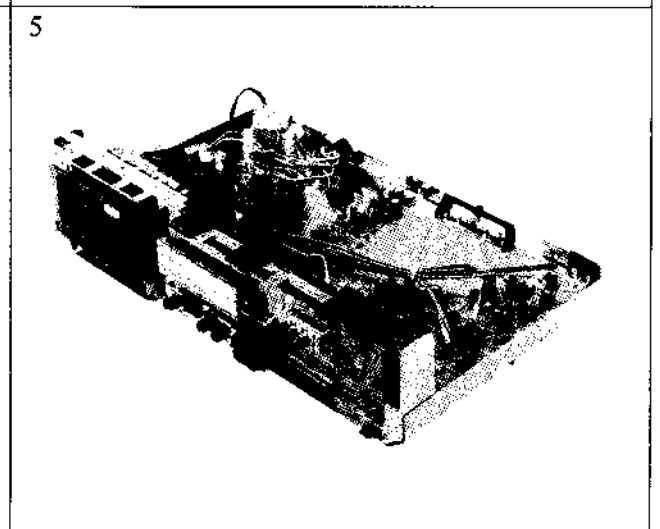
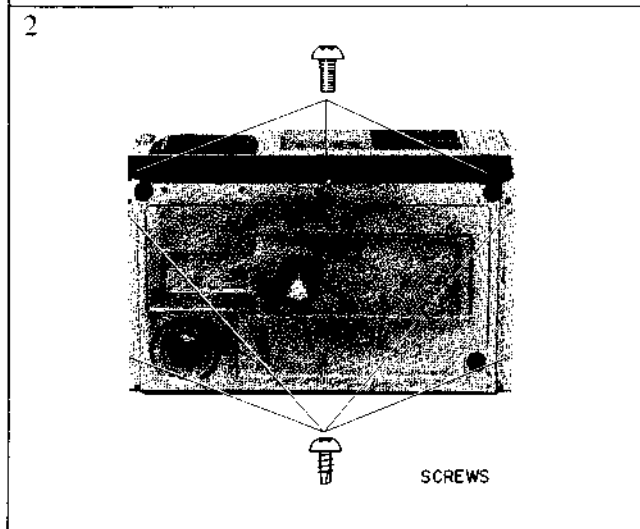
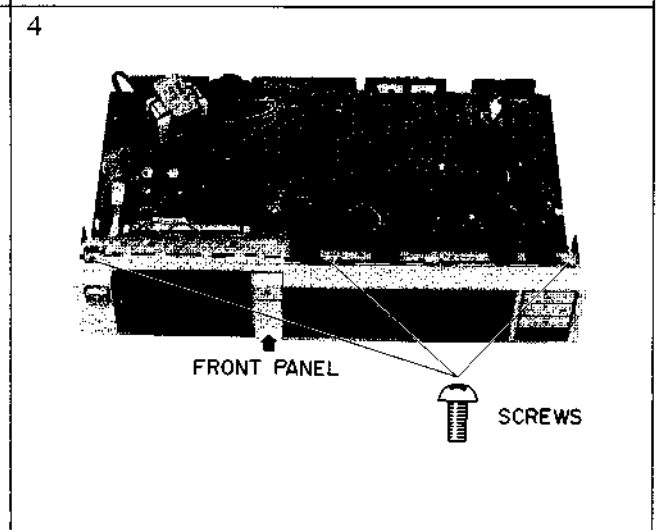
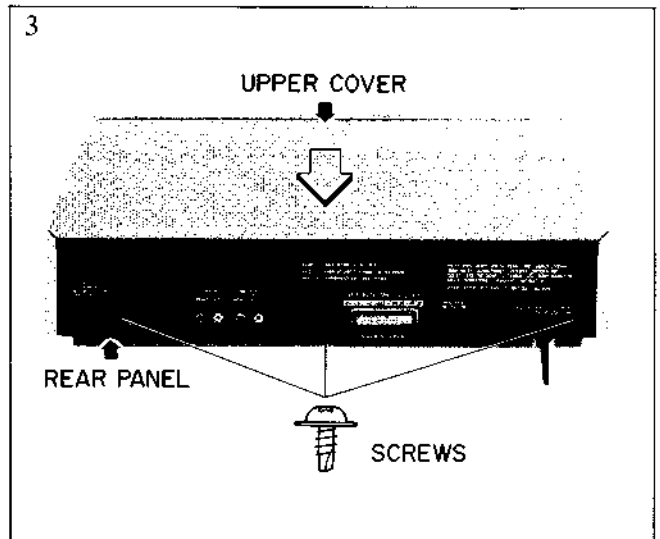
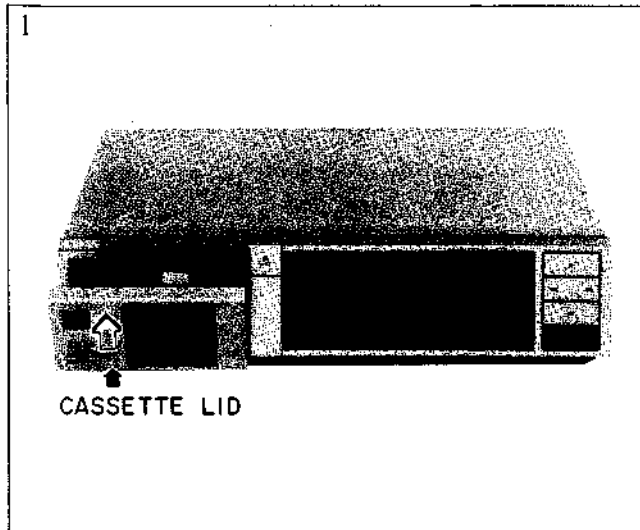
\* For improvement proposes, specifications and design are subject to change without notice.

\* Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

\* "dbx" is trademark of dbx Incorporated.

## II. DISMANTRING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.



### III. CONTROLS

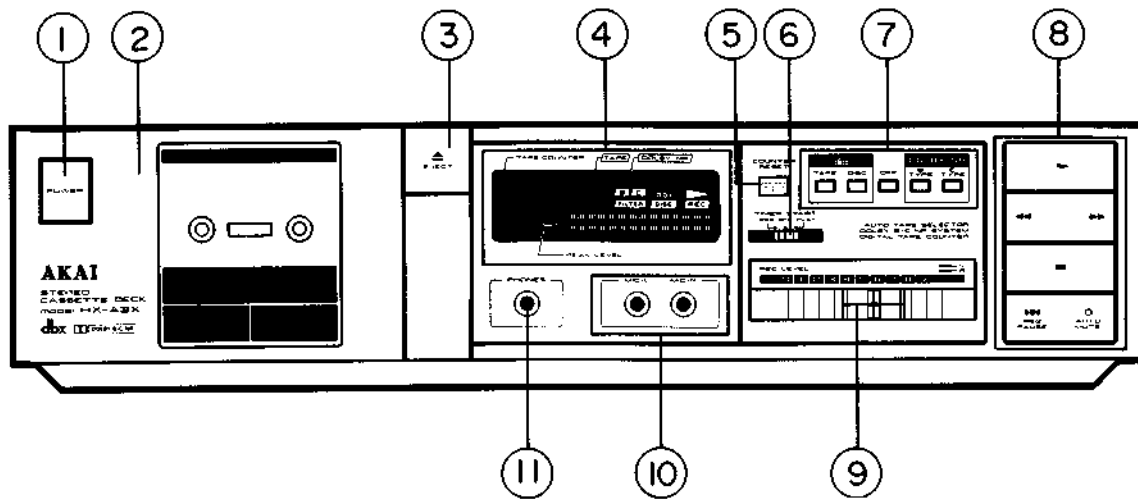


Fig. 3-1 FRONT VIEW (HX-A3X)

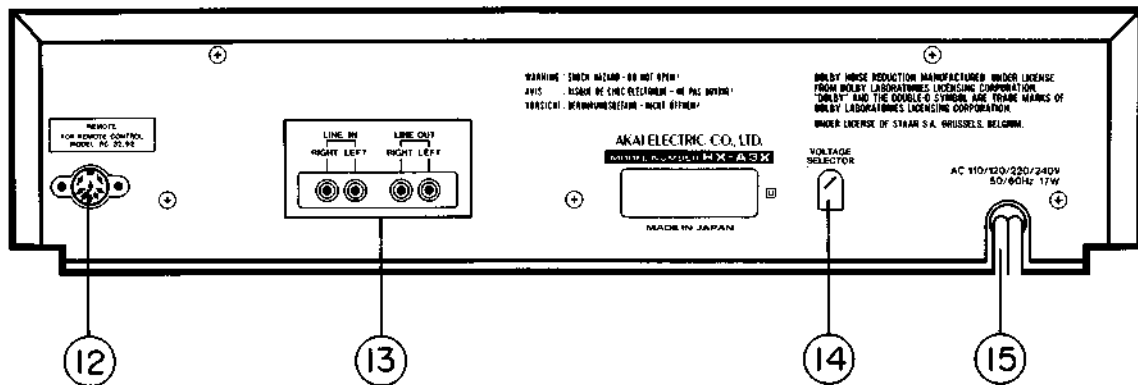


Fig. 3-2 REAR VIEW (U MODEL)

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. POWER SWITCH</li> <li>2. CASSETTE HOLDER</li> <li>3. EJECT BUTTON</li> <li>4. FL DISPLAY</li> <li>5. COUNTER RESET BUTTON</li> <li>6. TIMER START SWITCH</li> <li>7. dbx and DOLBY NR BUTTONS<br/>(MODEL HX-A3 EXCEPT dbx BUTTONS)</li> </ol> | <ol style="list-style-type: none"> <li>8. OPERATION BUTTONS</li> <li>9. REC LEVEL CONTROLS</li> <li>10. MICROPHONE (L/R) JACKS</li> <li>11. HEAD PHONE JACK</li> <li>12. REMOTE JACK</li> <li>13. LINE IN/OUT (L/R) JACKS</li> <li>14. VOLTAGE SELECTOR SWITCH (U MODEL ONLY)</li> <li>15. AC POWER CORD</li> </ol> |
|---|---|



# IV. PRINCIPAL PARTS LOCATIONS

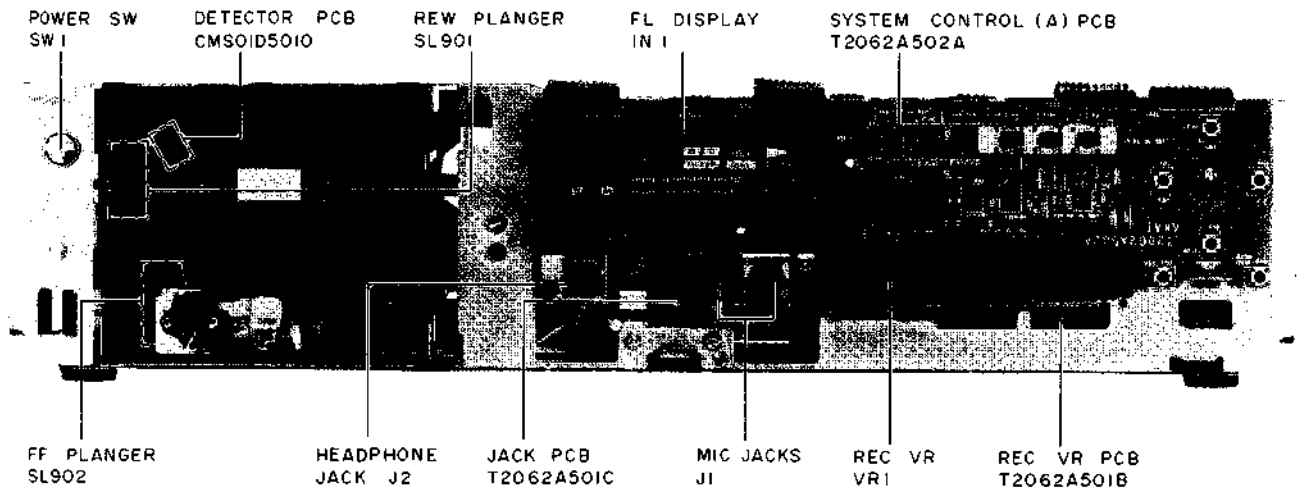


Fig. 4-1 FRONT VIEW

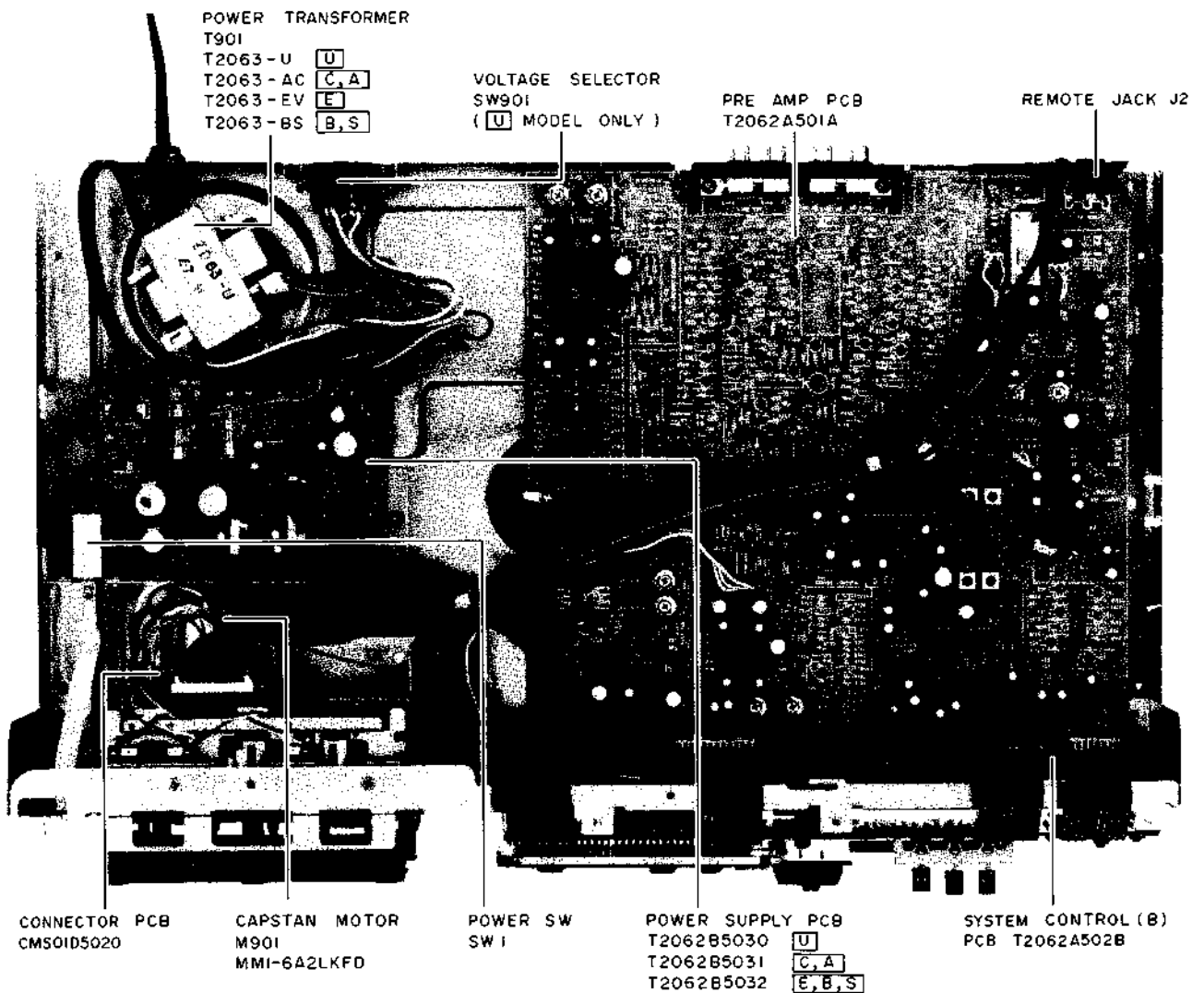
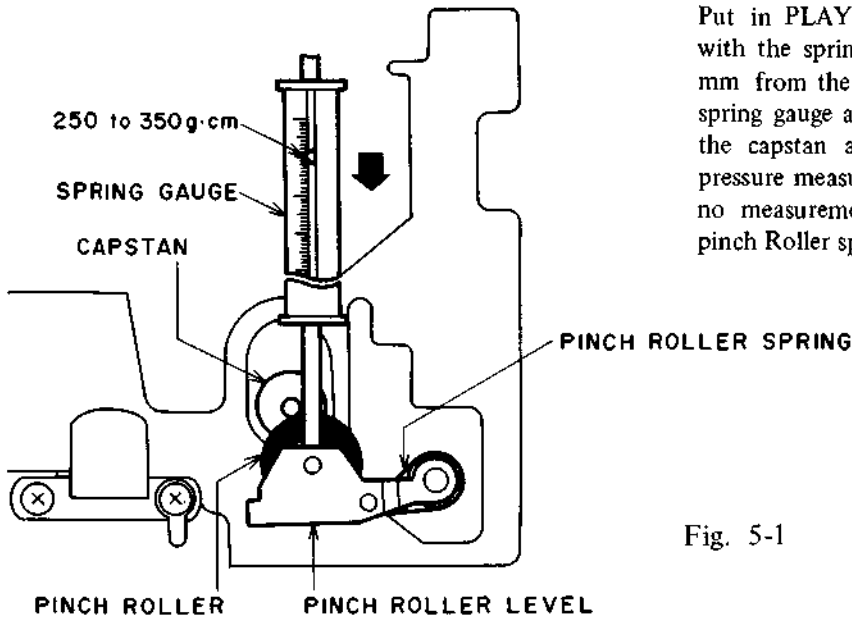


Fig. 4-2 TOP VIEW

## V. MECHANICAL AND HEAD ADJUSTMENT

### 5-1. PINCH ROLLER PRESSURE MEASUREMENT



Put in PLAY mode. Push pinch roller arm down with the spring gauge, push the pinch Roller 1 to 2 mm from the Capstan and release slowly. Read the spring gauge at the moment the pinch roller touches the capstan and begins to rotate. Specified contact pressure measurement of 250 to 350 gm. If there is no measurement obtained, Adjust or Replace the pinch Roller spring.

Fig. 5-1

### 5-2. WINDING TORQUE MEASUREMENT IN EACH MODE

Insert a cassette torque meter (AJ-751179) and measure in each mode. For Fast Forward and Re-wind, measure at the end of the tape when the tape has stopped running.

#### PLAY mode

Take up Torque: 25 to 60 gm-cm

Back tension Torque: 2 to 5 gm-cm

#### FAST FORWARD, REWIND mode

Take up Torque: 70 to 120 gm-cm

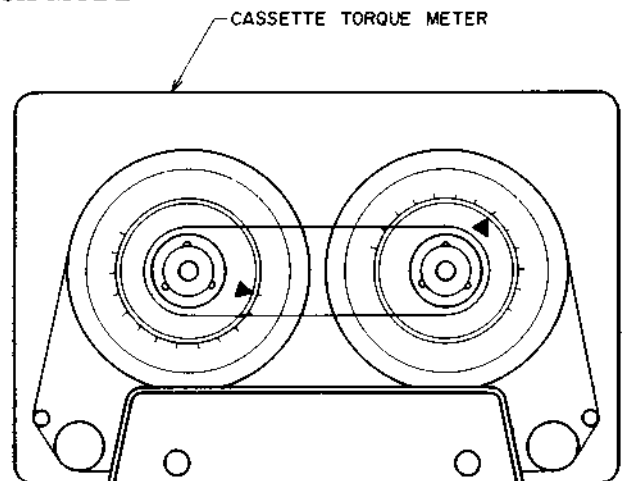


Fig. 5-2

### 5-3. TAPE SPEED ADJUSTMENT

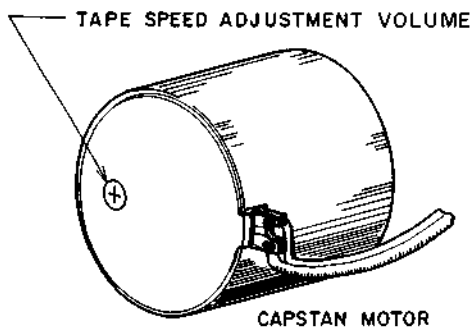


Fig. 5-3

Connect a frequency Counter to Line output terminals. Play Back a 3150Hz Tape Speed Test Tape (AT-751263) or 1000Hz Tape Speed Test Tape (AT-750774) and adjust a Tape Speed Adjustment Volume (see Fig. 5-3) to obtain a tape speed of 3118.5Hz to 3181.5Hz or 990Hz to 1010Hz.

### 5-4. REC/PB HEAD AZIMUTH ADJUSTMENT

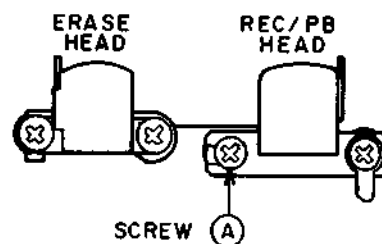
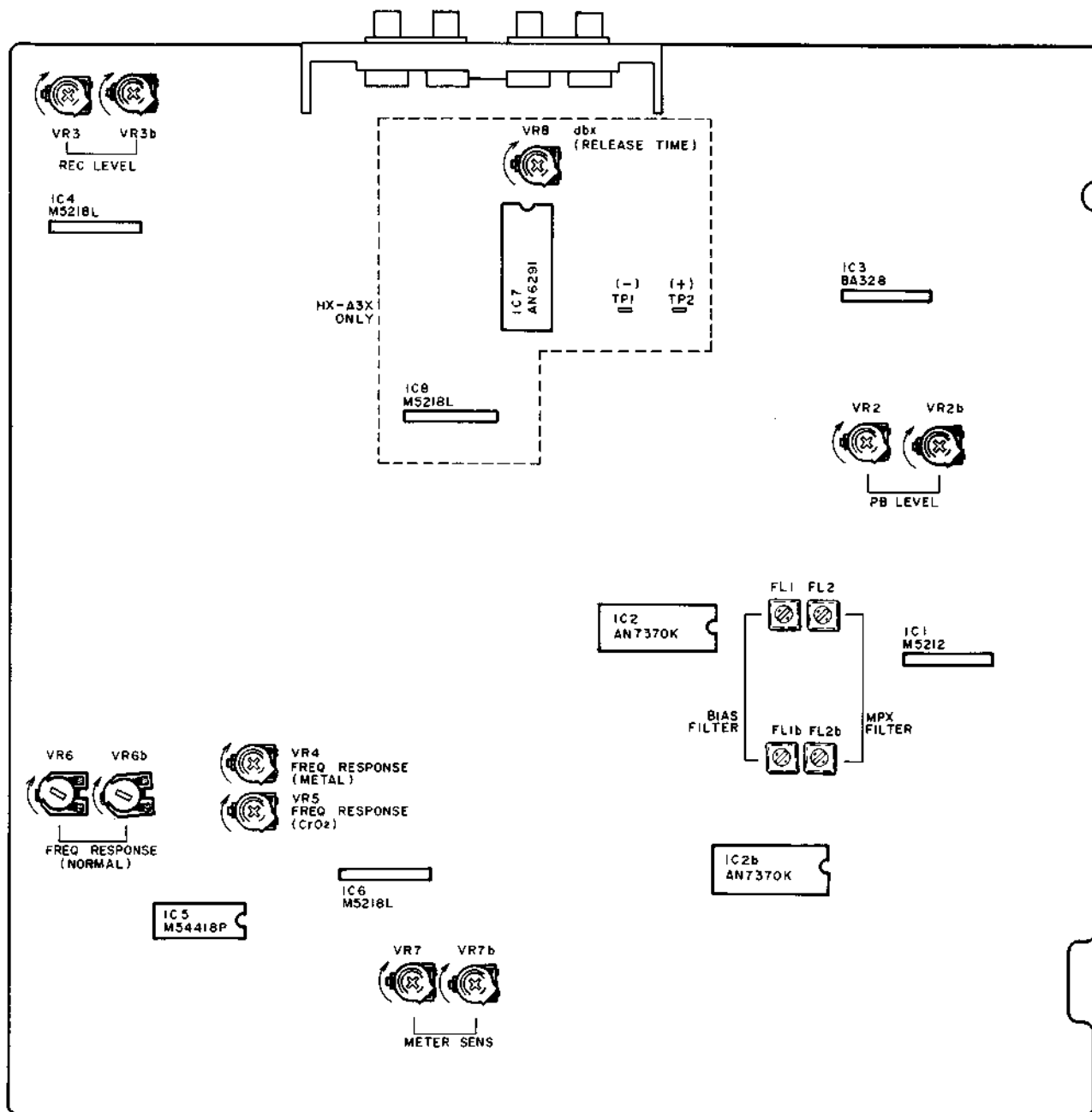


Fig. 5-4

Play Back a 10kHz Azimuth Alignment tape (AT-750778) and Adjust the screw (A) until the output levels of both channels are maximum. After Adjustment, paintlock the screw (A).

# VI. AMPLIFIER ADJUSTMENT

## PRE AMP ADJUSTMENT POINT



PRE AMP PCB T2062A501A



⤴ : INCREASE

Fig. 6-1 Pre-amp Adjustment

**CAUTION:** Connect a resistor (22 kohms) between LINE OUT and GND, while PB LEVEL, REC LEVEL and each FREQUENCY RESPONSE adjustments.

Step	Adjustment Item	Test Tape & Supply Signal	Mode	Adjustment Point	Result	Remarks
1	PB LEVEL	315Hz or 333Hz	PB	VR 2 (Lch) VR 2b (Rch)	-6.0±0.2dBm or -6.6±0.2dBm	
2	Normal Position Frequency Response	Normal Blank Tape 1kHz, 10kHz -26.0dBm	REC/PB	VR 6 (Lch) VR 6b (Rch)	1kHz, 10kHz Flat ±0.3dBm	
3	CrO <sub>2</sub> Position Frequency Response	CrO <sub>2</sub> Blank Tape 1kHz, 10kHz -26.0dBm	REC/PB	VR 5	1kHz, 10kHz Flat ±1.0dBm	
4	Metal Position Frequency Response	Metal Blank Tape 1kHz, 10kHz -26.0dBm	REC/PB	VR 4	1kHz, 10kHz Flat ±1.0dBm	
5	REC LEVEL	Normal Blank Tape 315Hz -6.0dBm	REC/PB	VR 3 (Lch) VR 3b (Rch)	-6.0±0.5dBm	
6	BIAS Filter	Metal Blank Tape No Signal Input	REC or REC PAUSE	FL 1 (Lch) FL 1b (Rch)	Less than -46dBm	
7	MPX Filter	Normal Blank Tape 19kHz, 0dBm	REC PAUSE	FL 2 (Lch) FL 2b (Rch)	Less than -35dBm	Set DOLBY NR SW to DOLBY-B or DOLBY-C.
8	Meter Sensitivity	Normal Blank Tape 1kHz, -6.0dBm	REC PAUSE	VR 7 (Lch) VR 7b (Rch)	OVU INDICATION	
9	dbx (Release Time)	NO SIGNAL Blank Tape	STOP	VR 8	15mV±0.15mV	HX-A3X ONLY. Set the dbx SW to dbx disc. Connect the digital voltmeter between TP1 (-) and TP2 (+).

**NOTE:** 1. Above adjustment except for step 7 and step 9, adjustment should be made with Dolby NR and dbx at OFF POSITION.

2. Use the following cassette measuring tapes:

NORMAL TAPE : Maxell UDI C-60

CrO<sub>2</sub> TAPE : TDK SA C-60

METAL TAPE : TDK MA C-60

3. Refer to Fig. 6-1, for above adjustments.

## VII. DC RESISTANCE OF VARIOUS COILS

PARTS	DESIGNATION	DC RESISTANCE
PB/REC Head	HN424977	210 ohms ±20%
Erase Head	HJ213270	3.5Ω
Solenoid	0730PLT	144 ohms ± 10%
Relax	LAB2NS	1000 ohms

## VIII. PC BOARD TITLES AND IDENTIFICATION NUMBERS

### MODEL HX-A3

PC BOARD TITLE	PC BOARD NUMBER	REMARKS
PRE AMP PC BOARD	T2062A501A	
REC VR PC BOARD	T2062A501B	
JACK PC BOARD	T2062A501C	
SYSTEM CONTROL (A) PC BOARD	T2062A502A	
SYSTEM CONTROL (B) PC BOARD	T2062A502B	
POWER SUPPLY PC BOARD	T2062B5030 5031 5032	U C, A E, B, S
CONNECTOR PC BOARD	CMS01D5020	
DETECTOR PC BOARD	CMS01D5010	

### MODEL HX-A3X

PC BOARD TITLE	PC BOARD NUMBER	REMARKS
PRE AMP PC BOARD	T2062A501A	
REC VR PC BOARD	T2062A501B	
JACK PC BOARD	T2062A501C	
SYSTEM CONTROL (A) PC BOARD	T2062A502A	
SYSTEM CONTROL (B) PC BOARD	T2062A502B	
POWER SUPPLY PC BOARD	T2062B5030 5031 5032	U C, A E, B, S
CONNECTOR PC BOARD	CMS01D5020	
DETECTOR PC BOARD	CMS01D5010	

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SECTION 2

**PARTS LIST**

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5. PRE AMP PC BOARD (HX-A3X) ..... 18

6. SYSCON (A) PC BOARD ..... 19

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9. JACK PC BOARD ..... 19

10. POWER PC BOARD ..... 19

11. CONNECTOR PC BOARD ..... 19

12. ASSEMBLY BLOCK ..... 20

13. FINAL ASSEMBLY BLOCK ..... 21

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Resistor and Capacitor which is not listed in this parts list, please refer to  
COMMON LIST FOR SERVICE PARTS.

## ATTENTION

1. When placing an order for parts, be sure to list the parts no., model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

## HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

b) P.C Board Block

### 2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

### 6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

## WARNING

**⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS**

## AVERTISSEMENT

**⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT**

## RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.	PARTS NO.	DESCRIPTION
1	BL-T2051A040A	PINCH ROLLER (A) BLK HX-M5
2	BM-B314815	△ MOTOR (PULLEY) PART HX-M5
3 N	BT-354790	△ TRANS POWER T2063-AC
4 N	BT-354792	△ TRANS POWER T2063-BS
5 N	BT-354791	△ TRANS POWER T2063-EV
6 N	BT-354789	△ TRANS POWER T2063-U
7	ED-309341	D GERMA H 1K34A
8	ED-330319	D SILICON DBA10B 100/1.0A
9	ED-336805	D SILICON DS135D-KB1 200/1.0A
10	ED-301911	D SILICON H DS448
11	ED-344280	D SILICON H GMA-01-FY2 F05
12	ED-306109	D SILICON W03B 100/1.0A
13	ED-332336	D ZENER H HZ20 3
14	ED-306316	D ZENER H HZ5 C2
15	ED-331667	D ZENER H HZ7 A1
16	EF-593706	△ FUSE SEMKO T 250V 0.50A [E,B,S]
17	EF-601942	△ FUSE SEMKO T 250V 0.63A [E,B,S]
18	EF-306124	△ FUSE TSC A 250V 0.63A [U]
19	EF-309388	△ FUSE TSC A 250V 0.80A [U]
20	EF-305703	△ FUSE TSC 125V 0.63A [C,A]
21	EF-309391	△ FUSE TSC 125V 0.80A [C,A]
22	EH-351182	FILTER DB 201AK-005 100kHz
23	EH-351183	FILTER DB 201AK-006 19kHz
24	EI-337845	IC BA6146 M
25	EI-345765	IC LB1292
26	EI-343417	IC LB1294
27 N	EI-337009	IC LC4049B
28	EI-344277	IC LM6405H-145
29	EI-337228	IC M521BL0
30	EI-300048	IC M54519P
30	EI-337017	OSC CE CSB800A 0.800000MHz
31 N	EI-354822	IC AN6291
32 N	EI-354821	IC AN7370
33	EI-349590	IC BA3280EC
34	EI-349388	IC M54418P
35	EJ-346076	DIN J TCS4690-01-1111 P 8P
36	EJ-346076	DIN J TCS4690-01-1111 P 8P
37	EJ-357732	PHONE J HLJ0527-3030
38	EJ-355012	PHONE J 3P HLJ0541-010 6.3
39	EJ-347664	PIN J YKC21-5053 P 4P
40	EJ-347664	PIN J YKC21-5053 P 4P
41 N	EM-354811	IND FL FIP48BW16Y
42 N	EO-354837	COIL OSC1 0328-023 100kHz
43 N	EO-323982	COIL TUN 1 100Z0431 100.00kHz
44	EO-337044	COIL TUN 1 102AZ-005
45	EP-344251	SOLENOID 0730PLT 12V
46	EQ-337067	RELAY LEAD LAB2NS 2N0 18V
47	ER-318248	△ R FUSE ERD2FC S10 1/4W 47ROG
48	ER-200746	△ R FUSE ERD2FC 1/4W 1000G
49	ES-305733	△ SW SELECTOR HXW0131-260 01-4 [U]
50	ES-344253	SW LEAF MSW-1418J 01-1 N0
51	ES-344257	SW LEAF MSW-1418L 01-1 N0
52	ES-344270	SW PUSH SDDL1P 01-1
53 N	ES-354809	SW PUSH SK1005-031Q 3 THROW
54 N	ES-354810	SW PUSH SK1005-051Q 5 THROW
55	ES-349597	SW SLIDE 00130329 BLACK 01-3 S
56 N	ES-355604	SW TACT B3F-1020
57	ET-308472	TR 2SA1115 E,F,G
58	ET-308977	TR 2SC2274K F
59	ET-308141	TR 2SC2603 G
60	ET-200986	TR 2SD863-V8 F
61	ET-311977	PHOTO SENSOR SPI-201
62 N	ET-354863	TR FET 2SJ40 C,D
63	ET-348931	TR 2SB774 R,S,T
64	ET-349705	TR 2SC2320 E,F,G
65	ET-349081	TR 2SC3383 S,T
66	ET-350795	TR 2SC3399

REF. NO.	PARTS NO.	DESCRIPTION
67	ET-338324	TR 2SD1012-V H
68	ET-310148	TR 2SD612K E,F
69	ET-349979	TR 2SD794 P,Q,R
70	EV-337995	R S-FIX H RVF8P01 3P 103
71	EV-345781	R S-FIX H RVF8P01 3P 202
72	EV-337993	R S-FIX H RVF8P01 3P 203
73	EV-337861	R S-FIX H RVF8P01 3P 302
74	EV-338588	R S-FIX H RVF8P01 3P 503
75	EV-330531	R S-FIX H TM8KV2-1S 3P 0.50W 503
76 N	EV-354807	VR SLIDE VJ6014DPVN A503x2
77	HE-337047	HEAD E HJ213270 C
78	HP344252	HEAD R/P HN424977 C
79	MB-344231	BELT 1.0xD33.3CR HS60
80	MB-344905	BELT 1.2xD38.2 CR HS60
81	MB-344230	BELT 4.0x0.5TxD61 CRHS60
82 N	MB-353756	PULLEY RUBBER (C)
83	MI-B344207	ARM IDLER FR PART
84	MI-B344215	ARM IDLER TU PART
85	MZ-353272	CAM (F)-(B)
86	MZ-344906	GEAR FF(B)
87	TC-344219	CAM SHIFTER

"NOTE" N: New Parts

### SYMBOL FOR DESTINATION

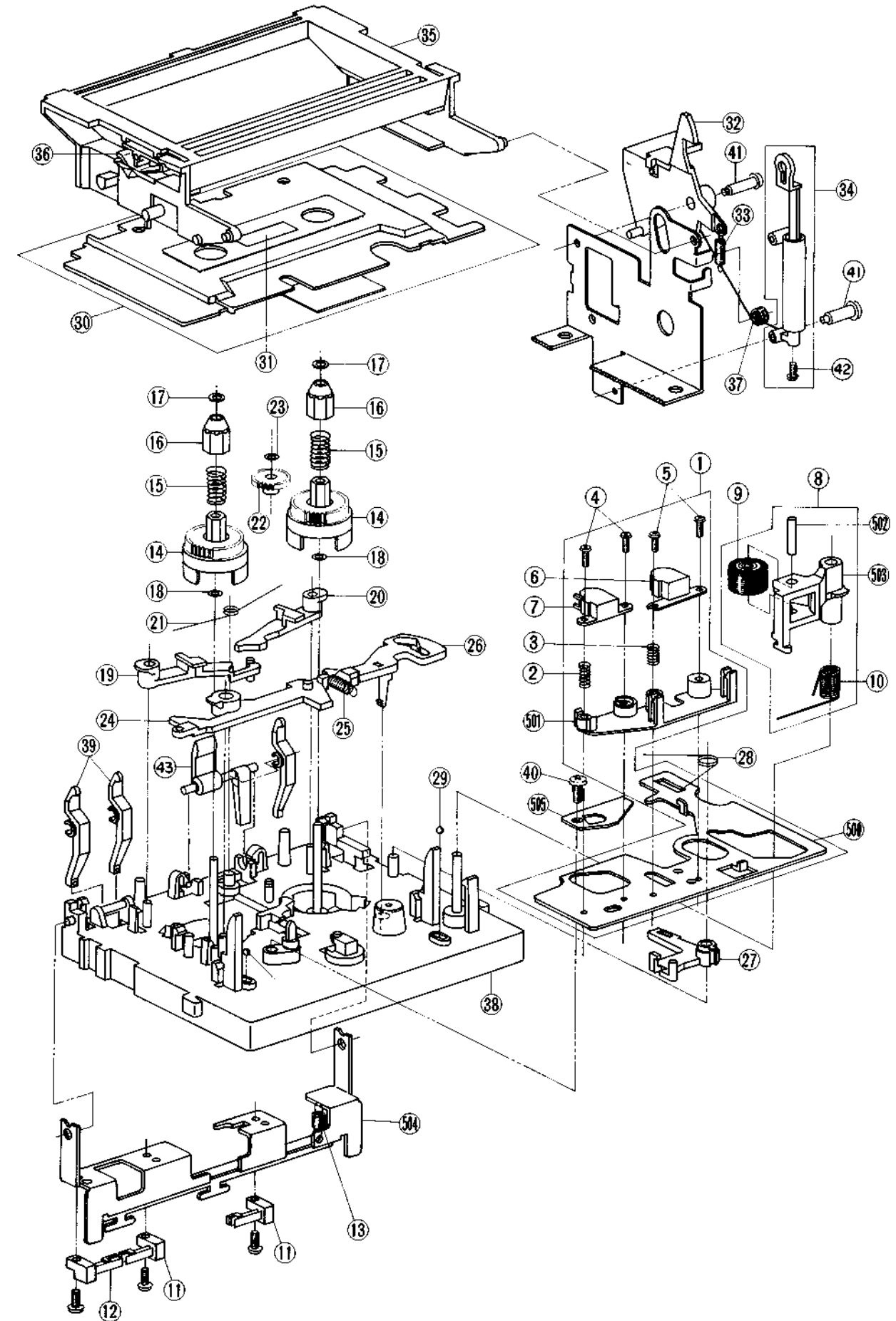
- A : AAL (U.S.A.)
- B : UK (England)
- C : CSA (Canada)
- E : CEE (Europe)
- S : SAA (Australia)
- U : U/T (Universal Area)



# 1. MECHA CMS01 BLK (1)

# MECHA CMS01 BLOCK(1)

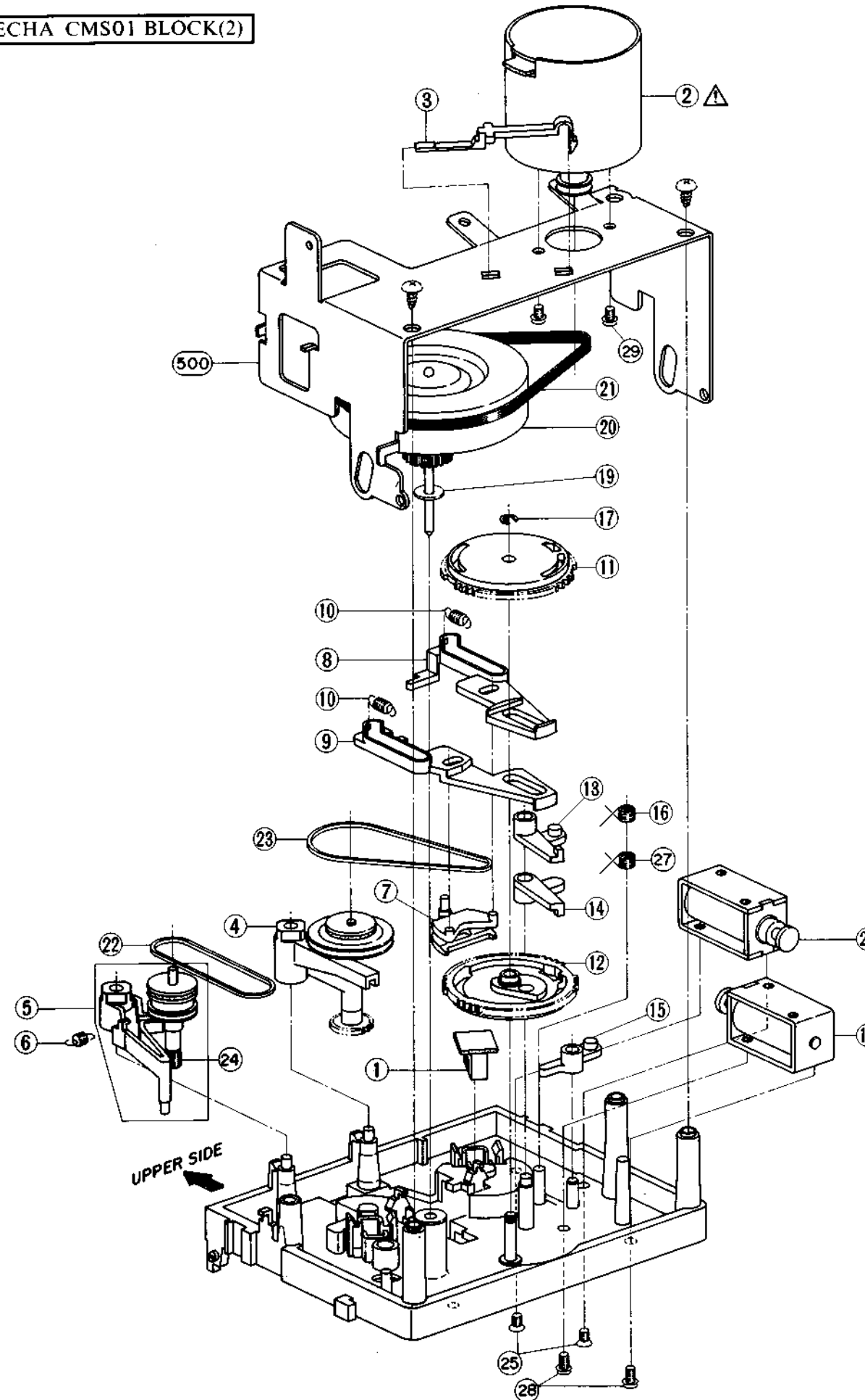
REF. NO.	PARTS NO.	DESCRIPTION
<b>MECHA CMS01 BLOCK</b>		
1-X	BB-T2051A020F	MECHA CMS01 BLK HX-A3
<b>HEAD BLOCK</b>		
1-1	BH-R2051A030B	HEAD BLK HX-2
1-2	ZG-343104	SP PUSH EH
1-3	ZG-344900	SP PUSH PB (B)
1-4	ZS-417328	BID23x10STL CMT
1-5	ZS-565211	BID20x10STL NI3
1-6	HP-344252	HEAD R/P HN424977 C
1-7	HE-337047	HEAD E HJ213270 C
<b>PINCH ROLLER (A) BLOCK</b>		
1-8	BL-T2051A040A	PINCH ROLLER (A) BLK HX-M5
1-9	MP-336153	PINCH ROLLER (A)
1-10	ZG-344205	SP TORSION PINCH ROLLER
1-11	ES-344253	SW LEAF MSW-1418J 01-1 N0
1-12	ES-344257	SW LEAF MSW-1418L 01-1 N0
1-13	ZG-312995	SP T1-04.0/0.40-11.2 T1-108
<b>MECHA CMS01 BLOCK</b>		
1-14	MT-344187	REEL TABLE
1-15	ZG-344188	SP PUSH REEL TABLE
1-16	MT-349681	REEL RETAINER (B)
1-17	ZW-364342	PW17x032x025PSL
1-18	ZW-305546	PW21x040x025PSL
1-19	ML-344191	LEVER BRAKE (L)
1-20	ML-344192	LEVER BRAKE (R)
1-21	ZG-344194	SP TORSION BRAKE
1-22	MZ-344906	GEAR FF (B)
1-23	ZW-343120	PW17x040x025PSL
1-24	ML-344196	LEVER (A)
1-25	ZG-344200	SP PULL HEAD CHASSIS
1-26	ML-344197	LEVER (B)
1-27	TC-344198	LEVER EJECT STOPPER
1-28	ZG-344199	SP TORSION EJECT LOCK
1-29	MV-357208	BALL200STL
1-30	BD-B344206X2	LID DECORATION PART
1-31	SZ-645186	REFLECTOR
1-32	TC-344236	LEVER EJECT
1-33	ZG-312925	SP T1-03.2/0.20-14.0 T1-042
1-34	MZ-344297	DUMPER ASSY
1-35	SE-344239	LID HOLDER
1-36	ZG-336615	SP PLATE CASSETTE HOLDER (B)
1-37	ZG-344240	SP TORSION LID HOLDER
1-38	MZ-B344179	MECHA CHASSIS PART
1-39	ML-344286	LEVER DETECTION (A)
1-40	ZS-332008	PT PAN30x06STL CMT
1-41	ZS-344238	SCREW EJECT
1-42	ZS-332008	PT PAN30x06STL CMT
1-43	MZ-344186	HOLDER CASSETTE



**NOTE:**

Parts listed in 1 to 43 on the exploded view and list are normally stocked for replacement purpose. The remaining parts shown in this manual are not normally stocked, because they are seldom required for routine service.

MECHA CMS01 BLOCK(2)



2. MECHA CMS01 BLOCK (2)

REF. NO.	PARTS NO.	DESCRIPTION
<b>MECHA CMS01 BLOCK</b>		
2-1	ET-311977	PHOTO SENSOR SPI-201
2-2	BM-B314815	△ MOTOR (PULLEY) PART HX-M5
2-3	TC-344901	HOLDER THRUST
2-4	MI-B344207	ARM IDLER FR PART
2-5	MI-B344215	ARM IDLER TU PART
2-6	ZG-343152	SP PULL TU IDLER
2-7	TC-344219	CAM SHIFTER
2-8	SK-344220	SLIDE (F)
2-9	TC-344221	SLIDE (R)
2-10	ZS-343153	SP PULL SLIDE
2-11	MZ-353272	CAM (F)-(B)
2-12	MZ-353271	CAM (R)-(B)
2-13	TC-344224	ARM LOCK (F)
2-14	TC-344225	ARM LOCK (R)
2-15	TC-344226	ARM JOINT
2-16	ZG-344227	SP TORTION PLUNGER
2-17	ZW-340648	RING CS190STL PKR
2-18	EP-344251	SOLENOID 0730PLT 12V
2-19	ZW-345389	PW26x080x020NYL
2-20	MI-B344228	FLYWHEEL PART
2-21	MB-344230	BELT 4.0x0.5TxD61CRHS60
2-22	MB-344231	BELT 1.0xD33.3CR HS60
2-23	MB-344905	BELT 1.2xD38.2 CR HS60
2-24	MB-353756	PULLEY RUBBER (C)
2-25	ZS-430413	CTS26x04STL CMT
2-26	EP-344251	SOLENOID 0730PLT 12V
2-27	ZG-356022	SP TORTION PLUNGER (B)
2-28	ZS-442585	BID26x04STL CMT
2-29	ZS-592378	PAN26x03STL CMT

NOTE:

Parts listed in 1 to 29 on the exploded view and list are normally stocked for replacement purpose. The remaining parts shown in this manual are not normally stocked, because they are seldom required for routine service.

### 3. PC BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1A	BA-T2062A030C	PC PRE AMP BLK HX-A3
3-1B	BA-T2062A030D	PC PRE AMP BLK HX-A3X
3-2A	BA-T2062A040E	PC SYSCON BLK HX-A3
3-2B	BA-T2062A040F	PC SYSCON BLK HX-A3-B
3-2C	BA-T2062A040G	PC SYSCON BLK HX-A3X
3-2D	BA-T2062A040H	PC SYSCON BLK HX-A3X-B

#### NOTES:

- (1) PC PRE AMP BLK consists of following PC BOARDS.  
 PRE AMP PC BOARD  
 REC VR PC BOARD  
 JACK PC BOARD
- (2) PC SYSCON BLK consists of following PC BOARDS  
 SYSCON (A) PC BOARD  
 SYSCON (B) PC BOARD

### 4. PRE AMP PC BOARD (HX-A3)

REF. NO.	PARTS NO.	DESCRIPTION
4-IC1	EI-337228	IC M5218L0
4-IC2	EI-354821	IC AN7370
4-IC3	EI-349590	IC BA3280EC
4-IC4	EI-337228	IC M5218L0
4-IC5	EI-349388	IC M54418P
4-IC6	EI-337228	IC M5218L0
4-TR1,2	ET-349705	TR 2SC2320 E,F,G
4-TR3	ET-350795	TR 2SC3399
4-TR4	ET-200986	Δ TR 2SD863-V8 F
4-TR5	ET-308141	TR 2SC2603 G
4-TR7	ET-338324	TR 2SD1012-V H
4-TR9	ET-349705	TR 2SC2320 E,F,G
4-TR10	ET-338324	TR 2SD1012-V H
4-TR11	ET-200986	Δ TR 2SD863-V8 F
4-TR12	ET-338324	Δ TR 2SD1012-V H
4-TR13,14	ET-308977	TR 2SC2274K F
4-TR15,16	ET-338324	TR 2SD1012-V H
4-D1	ED-301911	D SILICON H DS448
4-D2	ED-309341	D GERMA H 1K34A
4-D3,4	ED-344280	D SILICON H GMA-01-FY2 F05
4-RL1	EQ-337067	RELAY LEAD LAB2NS 2N0 18V
4-VR2	EV-338588	R S-FIX H RVF8P01 3P 503
4-VR3	EV-337993	R S-FIX H RVF8P01 3P 203
4-VR4	EV-337861	R S-FIX H RVF8P01 3P 302
4-VR5	EV-337995	R S-FIX H RVF8P01 3P 103
4-VR6	EV-330531	R S-FIX H TM8KV2-1S 3P 0.50W 503
4-VR7	EV-338588	R S-FIX H RVF8P01 3P 503
4-FL1	EH-351182	FILTER DB 201AK-005 100kHz
4-FL2	EH-351183	FILTER DB 201AK-006 19kHz
4-FL3	EO-337044	COIL TUN 1 102AZ-005
4-FL4	EO-323982	COIL TUN 1 100Z0431 100.00kHz
4-L2	EO-347162	COIL FIX 1 L-8 103J
4-T1	EO-354837	COIL OSC1 0328-023 100kHz
4-TR1	ER-318248	Δ R FUSE ERD2FC S10 1/4W 47R0G
4-C3	EC-347364	C MC V F05 FE92 8R0D 500DC
4-C12	EC-314990	C STY V S05 CQFS 101J 50DC
4-C32	EC-307494	C STY V F05 CQ09S 331J 50DC
4-C45	EC-314996	C STY V S05 CQFS 391J 50DC
4-C62	EC-345817	C PP V F10 APH 272J 630DC
4-J1	EJ-347664	PIN J YKC21-5053 P 4P [LINE IN/OUT]
4-J2	EJ-346076	DIN J TCS4690-01-1111 P 8P [REMOTE]

### 5. PRE AMP PC BOARD (HX-A3X)

REF. NO.	PARTS NO.	DESCRIPTION
5-IC1	EI-337228	IC M5218L0
5-IC2	EI-354821	IC AN7370
5-IC3	EI-349590	IC BA3280EC
5-IC4	EI-337228	IC M5218L0
5-IC5	EI-349388	IC M54418P
5-IC6	EI-337228	IC M5218L0
5-IC7	EI-354822	IC AN6291
5-IC8	EI-337228	IC M5218L0
5-TR1,2	ET-349705	TR 2SC2320 E,F,G
5-TR3	ET-350795	TR 2SC3399
5-TR4	ET-200986	Δ TR 2SD863-V8 F
5-TR5	ET-308141	TR 2SC2603 G
5-TR7	ET-338324	TR 2SD1012-V H
5-TR9	ET-349705	TR 2SC2320 E,F,G
5-TR10	ET-338324	TR 2SD1012-V H
5-TR11	ET-200986	Δ TR 2SC863-V8 F
5-TR12	ET-338324	Δ TR 2SD1012-V H
5-TR13,14	ET-308977	TR 2SC2274K F
5-TR15,16	ET-338324	TR 2SD1012-V H
5-TR20	ET-349705	TR 2SC2320 E,F,G
5-TR21 to 24	ET-354863	TR FET 2SJ40 C,D
5-TR25 to 29	ET-349705	TR 2SC2320 E,F,G
5-TR30,31	ET-308472	TR 2SA1115 E,F,G
5-TR32 to 36	ET-308141	TR 2SC2603 G
5-TR37	ET-308472	TR 2SA1115 E,F,G
5-TR38,39	ET-308141	TR 2SC2603 G
5-D1	ED-301911	D SILICON H DS448
5-D2	ED-309341	D GERMA H 1K34A
5-D3,4	ED-344280	D SILICON H GMA-01-FY2 F05
5-D7 to 11	ED-301911	D SILICON H DS448
5-D13	ED-306316	D ZENER H HZ5 C2
5-D14,15	ED-301911	D SILICON H DS448
5-D16 to 19	ED-344280	D SILICON H GMA-01-FY2 F05
5-RL1	EQ-337067	RELAY LEAD LAB2NS2N0 18V
5-VR2	EV-338588	R S-FIX H RVF8P01 3P 503
5-VR3	EV-337993	R S-FIX H RVF8P01 3P 203
5-VR4	EV-337861	R S-FIX H RVF8P01 3P 302
5-VR5	EV-337995	R S-FIX H RVF8P01 3P 103
5-VR6	EV-330531	R S-FIX H TM8KV2-1S 3P 0.50W 503
5-VR7	EV-338588	R S-FIX H RVF8P01 3P 503
5-VR8	EV-345781	R S-FIX H RVF8P01 3P 202
5-FL1	EH-351182	FILTER DB 201AK-005 100kHz
5-FL2	EH-351183	FILTER DB 201AK-006 19kHz
5-FL3	EO-337044	COIL TUN 1 102AZ-005
5-FL4	EO-323982	COIL TUN 1 100Z0431 100.00kHz
5-L2	EO-347162	COIL FIX 1 L-8 103J
5-T1	EO-354837	COIL OSC1 0328-023 100kHz
5-FR1	ER-318248	Δ R FUSE ERD2FC S10 1/4W 47R0G
5-FR2	ER-200746	Δ R FUSE ERD2FC 1/4W 1000G
5-C3	EC-347364	C MC V F05 FE92 8R0D 500DC
5-C12	EC-314990	C STY V S05 CQFS 101J 50DC
5-C32	EC-307494	C STY V F05 CQ09S 331J 50DC
5-C45	EC-314996	C STY V S05 CQFS 391J 50DC
5-C62	EC-345817	C PP V F10 APH 272J 630DC
5-C97	EC-307494	C STY V F05 CQ09S 331J 50DC
5-C103	EC-314996	C STY V S05 CQFS 391J 50DC
5-J1	EJ-347664	PIN J YKC21-5053 P 4P [LINE IN/OUT]
5-J2	EJ-346076	DIN J TCS4690-01-1111 P 8P [REMOTE]

## 6. SYSCON (A) PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
6-IC1	EI-345765	IC LB1292
6-IC2	EI-343417	IC LB1294
6-IC3	EI-337009	IC LC4049B
6-IC4	EI-337845	IC BA6146 M
6-D1 to 5	ED-301911	D SILICON H DS448
6-SW1 to 6	ES-355604	SW TACT B3F-1020
6-SW9	ES-355604	SW TACT B3F-1020
6-SW10	ES-349597	SW SLIDE 00130329 BLACK 01-3 S
6-SW12A	ES-354809	SW PUSH SK1005-031Q 3 THROW [A3]
6-SW12B	ES-354810	SW PUSH SK1005-051Q 5 THROW [A3X]
6-IB1	EH-354812	COMP R RGSD4x473K
6-IN1	EM-354811	IND FL FIP48BW16Y

## 7. SYSCON (B) PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
7-IC1	EI-300042	IC M54519P
7-IC2	EI-337009	IC LC4049B
7-IC3	EI-345765	IC LB1292
7-IC4	EI-344277	IC LM6405H-145
7-TR1	ET-348931	TR 2SB774 R,S,T
7-TR2	ET-308472	TR 2SA1115 E,F,G [A3X]
7-TR3	ET-350795	TR 2SC3399 [A3X]
7-TR4	ET-348931	TR 2SB774 R,S,T
7-TR5,6	ET-350795	TR 2SC3399
7-TR7	ET-308141	△ TR 2SC2603 G
7-D1 to 3	ED-301911	D SILICON H DS448
7-D4 to 9	ED-301911	D SILICON H DS448 [A3X]
7-D10 to 18	ED-301911	D SILICON H DS448
7-D19 to 21	ED-301911	D SILICON H DS448 [A3X]
7-X1	EI-337017	OSC CE CSB800A 0.800000MHz
7-IB1	EH-354813	COMP R RGSD08x223K

## 8. REC VR PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
8-VR1	EV-354807	VR SLIDE VJ6014DPVN A503x2

## 9. JACK PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
9-J1	EJ-357732	PHONE J HLJ0527-3030 [MIC]
9-J2	EJ-355012	PHONE J 3P HLJ0541-010 6.3 [HEAD PHONE]

## 10. POWER PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
10-TR1	ET-349081	△ TR 2SC3383 S,T
10-TR2	ET-308472	TR 2SA1115 E,F,G
10-TR3	ET-310148	△ TR 2SD612K E,F
10-TR4	ET-349081	△ TR 2SC3383 S,T
10-TR5	ET-310148	△ TR 2SD612K E,F
10-TR6	ET-349081	△ TR 2SC3383 S,T
10-TR7	ET-349979	△ TR 2SD794 P,Q,R
10-TR8	ET-349081	△ TR 2SC3383 S,T
10-TR9	ET-349081	TR 2SC3383 S,T
10-D1	ED-331667	D ZENER H HZ7 A1
10-D2	ED-301911	D SILICON H DS448
10-D3	ED-330319	△ D SILICON DBA10B 100/1.0A
10-D4	ED-336805	△ D SILICON DS135D-KB1 200/1.0A
10-D5	ED-331667	D ZENER H HZ7 A1
10-D6	ED-330319	△ D SILICON DBA10B 100/1.0A
10-D7	ED-332336	D ZENER H HZ20 3
10-D8	ED-336805	△ D SILICON DS135D-KB1 200/1.0A
10-D9	ED-346622	D ZENER H HZ30 1
10-D10	ED-301911	D SILICON H DS448
10-SW1	ES-344270	△ SW PUSH SDDL1P 01-1
10-R11	ER-354870	△ ROM FHS15 FS 1W 132J
10-C1	EC-201645	C EC V CUT SM 222M 6.3DC
10-C5	EC-316186	C EC V CUT SM 222M 16.0DC
10-C8	EC-323847	C EC V CUT SM 102M 35.0DC
10-C14A	EC-320548	△ C CE V F 103Z 250AC [U,C,A]
10-C14B	EC-338411	△ C CE V FZ 103P 400AC [E,B,S]
10-1	EZ-200473	SILICON RUBBER SHEET TC-30 [for TR5, TR7]

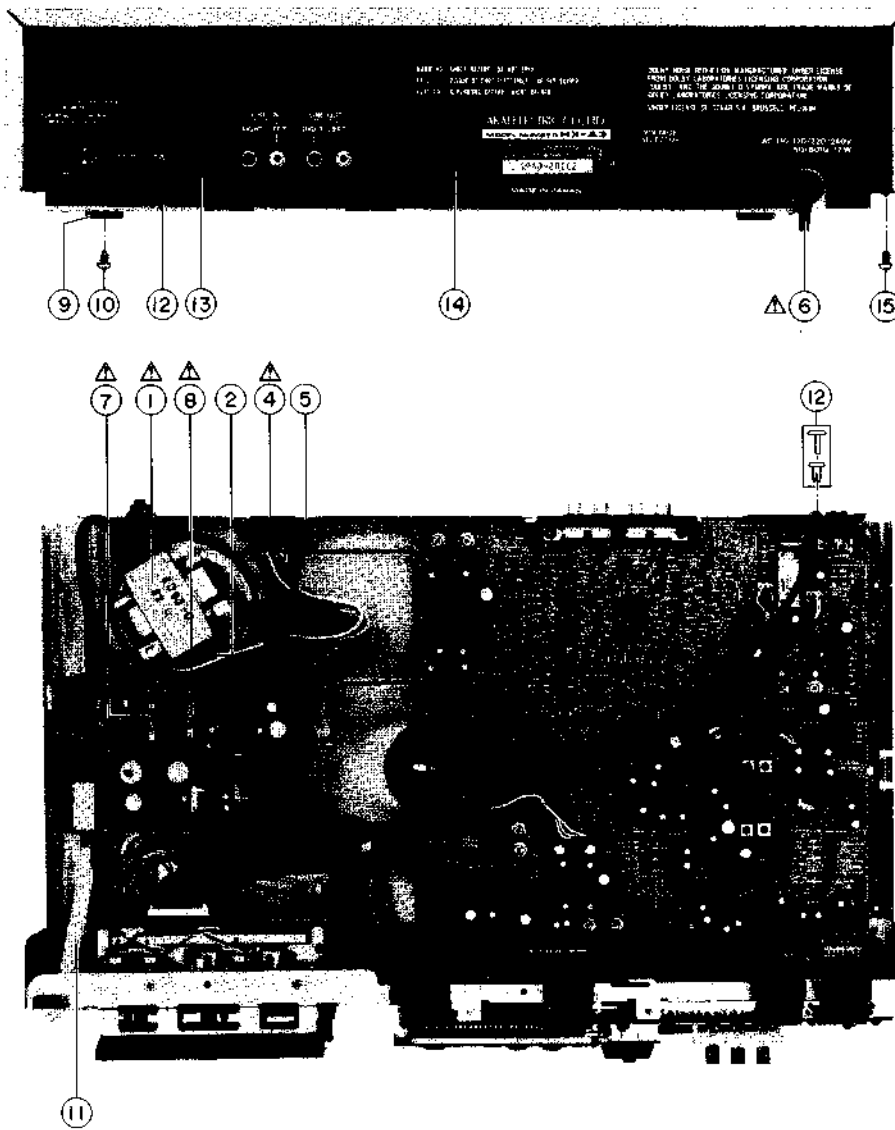
### FINAL ASSEMBLY BLOCK

10-F1A	EF-306124	△ FUSE TSC A 250V 0.63A [U]
10-F1B	EF-305703	△ FUSE TSC 125V 0.63A [C,A]
10-F1C	EF-593706	△ FUSE SEMKO T 250V 0.50A [E,B,S]
10-F2A	EF-309388	△ FUSE TSC A 250V 0.80A [U]
10-F2B	EF-309391	△ FUSE TSC 125V 0.80A [C,A]
10-F2C	EF-601942	△ FUSE SEMKO T 250V 0.63A [E,B,S]

## 11. CONNECTOR PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
11-D1,2	ED-306109	D SILICON W03B 100/1.0A
11-D3,4	ED-301911	D SILICON H DS448

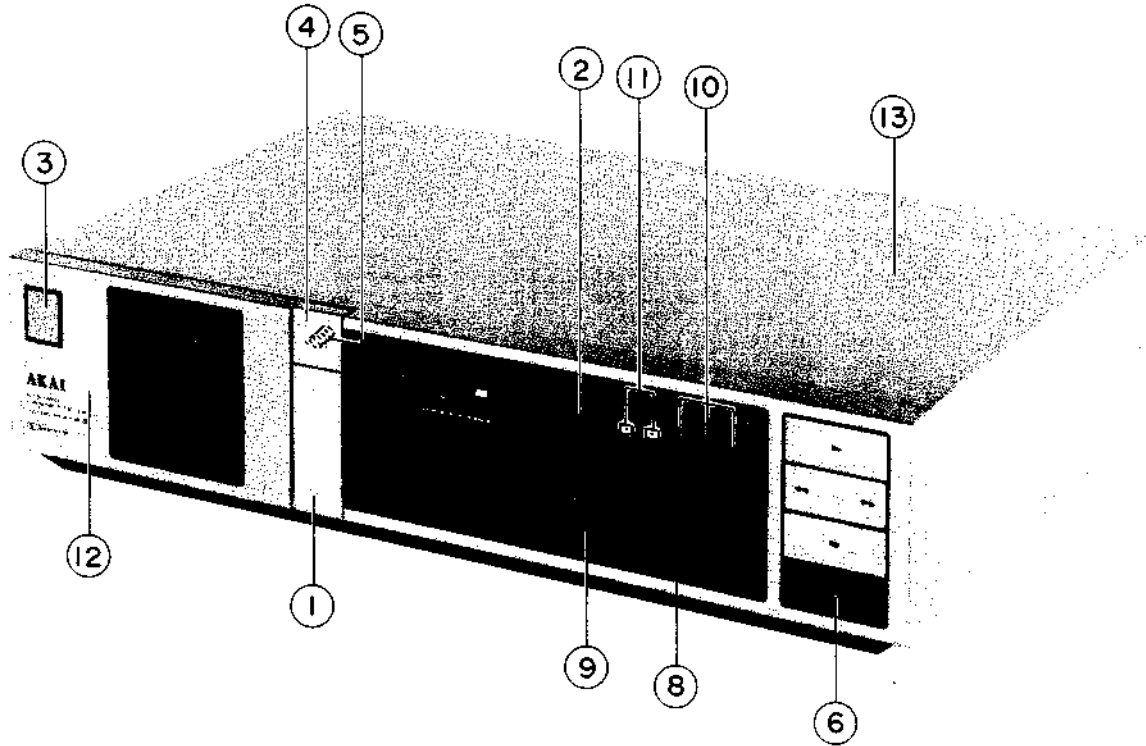
# ASSEMBLY BLOCK



## 12. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
12-1A	BT-354789	△ TRANS POWER T2063-U [T901][U]	12-7B	EF-305703	△ FUSE TSC 125V 0.63A [F1][C,A]
12-1B	BT-354790	△ TRANS POWER T2063-AC [T901][C,A]	12-7C	EF-593706	△ FUSE SEMKO T 250V 0.50A [F1][E,B,S]
12-1C	BT-354791	△ TRANS POWER T2063-EV [T901][E]	12-8B	EF-309388	△ FUSE TSC A 250V 0.80A [F2][U]
12-1D	BT-354792	△ TRANS POWER T2063-BS [T901][B,S]	12-8B	EF-309391	△ FUSE TSC 125V 0.80A [F2][C,A]
12-2	ZS-301398	ST BID40x08STL CMT	12-8C	EF-601942	△ FUSE SEMKO R 250V 0.63A [F2][E,B,S]
12-3	ZW-413188	N40STL CMT 1	12-9	SA-349332	FOOT
12-4	ES-305733	△ SW SELECTOR HXW0131-260 01-4 [SW901][U]	12-10	ZS-354869	ST BR30x06STL CMT C080
12-5	ZS-348375	ST BR30x08STL CMT [U]	12-11	MZ-349534	JOINT POWER
12-6A	EW-347683	△ AC CORD 2 CORES VM0129, VFF-CB U/T [U]	12-12	ZW-698308	RV NYL30x055 BL
12-6B	EW-347607	△ AC CORD 2 CORES VM0238, SPT-1CB UC [C,A]	12-13A	SP-354785L	PANEL REAR BOARD HX-A3 [U]
12-6C	EW-347682	△ AC CORD 2 CORES VM0364, FC3097-CB EV [E]	12-13B	SP-354785R	PANEL REAR BOARD HX-A3X (U)
12-6D	EW-347680	△ AC CORD 2 CORES LCFL2x0.75 -CB B [B]	12-13C	SP-354785M	PANEL REAR BOARD HX-A3 (A,C)
12-6E	EW-347681	△ AC CORD 2 CORES VM0436, FC-3093-CB S [S]	12-13D	SP-354785S	PANEL REAR BOARD HX-A3X (A,C)
12-7A	EF-306124	△ FUSE TSC A 250V 0.63A [F1][U]	12-13E	SP-354785N	PANEL REAR BOARD HX-A3 (E,V)
			12-13F	SP-354785T	PANEL REAR BOARD HX-A3X (E,V)
			12-13G	SP-354785P	PANEL REAR BOARD HX-A3 (B)
			12-13H	SP-354785U	PANEL REAR BOARD HX-A3X (B)
			12-13I	SP-354785Q	PANEL REAR BOARD HX-A3 (S)
			12-13J	SP-354785V	PANEL REAR BOARD HX-A3X (S)
			12-14	ZS-352120	T2BR30x08STL BCM C080
			12-15	ZS-343159	T2BR30x06STL NI3
			12-16X	ZW-305013	RV POP32 [A]

**FINAL ASSEMBLY BLOCK**



**13. FINAL ASSEMBLY BLOCK**

REF. NO.	PARTS NO.	DESCRIPTION
<b>PANEL FRONT BLOCK</b>		
13-1A	BD-T2063A050A	PANEL FRONT BLK HX-A3
13-1AP	BD-T2063A050B	PANEL FRONT BLK HX-A3-P
13-1AB	BD-T2063A050C	PANEL FRONT BLK HX-A3-B
13-1B	BD-T2063A050D	PANEL FRONT BLK HX-A3X
13-1BP	BD-T2063A050E	PANEL FRONT BLK HX-A3X-P
13-1BB	BD-T2063A050F	PANEL FRONT BLK HX-A3X-B
13-2	SK-354634B	KNOB TACT-B
13-3	SK-343017C	KNOB POWER (2)
13-3P	SK-343017B	KNOB POWER-P
13-3B	SK-343017F	KNOB POWR-B
13-4	SK-349513A	KNOB EJECT
13-4P	SK-349513B	KNOB EJECT-P
13-4B	SK-349513C	KNOB EJECT-B
13-5	ZG-313182	SP C-04.5/0.35-25.0 C-029
13-6	SK-349516G	KNOB OPERATE (D) [EXCEPT BL]
13-6B	SK-349516L	KNOB OPERATE (D)-B [BL]

REF. NO.	PARTS NO.	DESCRIPTION
<b>FINAL ASSEMBLY BLOCK</b>		
13-7	ZS-320906	ST BR30x06STL CMT [PANEL SET SCREW]
13-8	TC-354636	HOLDER SCALE
13-9	SK-B346104X3	KNOB REC-2 PART [EXCEPT BL]
13-9B	SK-B346104X4	KNOB REC-2-B PART [BL]
13-10	SK-354635C	KNOB PUSH-B
13-11	SK-354635B	KNOB PUSH (X) [A3X]
13-12A	BD-B349521R	LID PANEL (6) PART [A3]
13-12AP	BD-B349521S	LID PANEL (6)-P PART [A3]
13-12AB	BD-B349521T	LID PANEL (6)-B PART [A3]
13-12B	BD-B349521U	LID PANEL (7) PART [A3X]
13-12BP	BD-B349521V	LID PANEL (7)-P PART [A3X]
13-12BB	BD-B349521W	LID PANEL (7)-B PART [A3X]
13-13	SP-344591A	COVER UPPER
13-13P	SP-344591B	COVER UPPER P
13-13B	SP-344591D	COVER UPPER-B-(2)

SYMBOL FOR COLOR VARIATION  
 NON: STANDARD COLOR  
 P: PEARL SHADOW  
 B or BL: BLACK

# INDEX

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BA-T2062A030C	3-1A	ED-344280	5-D16	ES-355604	6-SW5	EV-345781	5-VR8	ZG-344199	1-28
BA-T2062A030D	3-1B	ED-344280	5-D18	ES-355604	6-SW6	EV-354807	8-VR1	ZG-344200	1-25
BA-T2062A040E	3-2A	ED-344280	5-D17	ES-355604	6-SW9	EW-347607	12-6B	ZG-344205	1-10
BA-T2062A040F	3-2B	ED-344280	5-D19	ET-200986	4-TR4	EW-347680	12-6D	ZG-344227	2-16
BA-T2062A040G	3-2C	ED-346622	10-D9	ET-200986	4-TR11	EW-347681	12-6E	ZG-344240	1-37
BA-T2062A040H	3-2D	EF-305703	10-F1B	ET-200986	5-TR4	EW-347682	12-6C	ZG-344900	1-3
BB-T2051A020F	1-X	EF-305703	12-7B	ET-200986	5-TR11	EW-347683	12-6A	ZG-356022	2-27
BD-B344206X2	1-30	EF-306124	10-F1A	ET-308141	4-TR5	EZ-200473	10-1	ZS-301398	12-2
BD-B349521R	13-12A	EF-306124	12-7A	ET-308141	5-TR5	HE-337047	1-7	ZS-320906	13-7
BD-B349521S	13-12AP	EF-309388	10F2A	ET-308141	5-TR32	HP-344252	1-6	ZS-332008	1-40
BD-B349521T	13-12AB	EF-309388	12-8A	ET-308141	5-TR33	MB-344230	2-21	ZS-332008	1-42
BD-B349521U	13-12B	EF-309391	10F2B	ET-308141	5-TR34	MB-344231	2-22	ZS-343153	2-10
BD-B349521V	13-12BP	EF-309391	12-B	ET-308141	5-TR35	MB-344905	2-23	ZS-343159	12-15
BD-B349521W	13-12BB	EF-593706	10-F1C	ET-308141	5-TR36	MB-353756	2-24	ZS-344238	1-41
BD-T2063A050A	13-1A	EF-593706	12-7C	ET-308141	5-TR38	MI-B344207	2-4	ZS-348375	12-5
BD-T2063A050B	13-1AP	EF-601942	10-F2C	ET-308141	5-TR39	MI-B344215	2-5	ZS-352120	12-14
BD-T2063A050C	13-1AB	EF-601942	12-8C	ET-308141	7-TR7	MI-B344228	2-20	ZS-354869	12-10
BD-T2063A050D	13-1B	EH-351182	4-FL1	ET-308472	5-TR30	ML-344191	1-19	ZS-417328	1-4
BD-T2063A050E	13-1BP	EH-351182	5-FL1	ET-308472	5-TR31	ML-344192	1-20	ZS-430413	2-25
BD-T2063A050F	13-1BB	EH-351183	4-FL2	ET-308472	5-TR37	ML-344196	1-24	ZS-442585	2-28
BH-T2051A030B	1-1	EH-351183	5-FL2	ET-308472	7-TR2	ML-344197	1-26	ZS-565211	1-5
BL-T2051A040A	1-8	EH-354812	6-IB1	ET-308472	10TR2	ML-344286	1-39	ZS-592378	2-29
BM-B314815	2-2	EH-354813	7-IB1	ET-308977	4-TR14	MP-336153	1-9	ZW-305013	12-16x
BT-354789	12-1A	EI-300042	7-IC1	ET-308977	4-TR13	MT-344187	1-14	ZW-305546	1-18
BT-354790	12-1B	EI-337009	6-IC3	ET-308977	5-TR13	MT-349681	1-16	ZW-340648	2-17
BT-354791	12-1C	EI-337009	7-IC2	ET-308977	5-TR14	MV-357208	1-29	ZW-343120	1-23
BT-354792	12-1D	EI-337017	7-X1	ET-310148	10-TR3	MZ-B344179	1-38	ZW-345389	2-19
EC-201645	10-C1	EI-337228	4-IC1	ET-310148	10-TR5	MZ-344186	1-43	ZW-364342	1-17
EC-307494	4-C32	EI-337228	4-IC4	ET-311977	2-1	MZ-344297	1-34	ZW-413188	12-3
EC-307494	5-C32	EI-337228	4-IC6	ET-338324	4-TR7	MZ-344906	1-22	ZW-698308	12-12
EC-307494	5-C97	EI-337228	5-IC4	ET-338324	4-TR10	MZ-349534	12-11		
EC-314990	4-C12	EI-337228	5-IC6	ET-338324	4-TR12	MZ-353271	2-12		
EC-314990	5-C12	EI-337228	5-IC8	ET-338324	4-TR15	MZ-353272	2-11		
EC-314996	4-C45	EI-337228	5-IC1	ET-338324	4-TR16	SA-349332	12-9		
EC-314996	5-C45	EI-337845	6-IC4	ET-338324	5-TR7	SE-344239	1-35		
EC-314996	5-C103	EI-343417	6-IC2	ET-338324	5-TR10	SK-B346104X3	13-9		
EC-316186	10-C5	EI-344277	7-IC4	ET-338324	5-TR12	SK-B346104X4	13-9B		
EC-320548	10-C14A	EI-345765	6-IC1	ET-338324	5-TR15	SK-343017B	13-3P		
EC-323847	10-C8	EI-345765	7-IC3	ET-338324	5-TR16	SK-343017C	13-3		
EC-338411	10-C14B	EI-349388	4-IC5	ET-348931	7-TR1	SK-343017F	13-3B		
EC-345817	4-C62	EI-349388	5-IC5	ET-348931	7-TR4	SK-344220	2-8		
EC-345817	5-C62	EI-349590	4-IC3	ET-349081	10-TR1	SK-349513A	13-4		
EC-347364	4-C3	EI-349590	5-IC3	ET-349081	10-TR4	SK-349513B	13-4P		
EC-347364	5-C3	EI-354821	4-IC2	ET-349081	10-TR6	SK-349513C	13-4B		
ED-301911	4-D1	EI-354821	5-IC2	ET-349081	10-TR8	SK-349516G	13-6		
ED-301911	5-D7	EI-354822	5-IC7	ET-349081	10-TR9	SK-349516L	13-6B		
ED-301911	5-D1	EJ-346076	4-J2	ET-349705	4-TR1	SK-354634B	13-2		
ED-301911	5-D8	EJ-346076	5-J2	ET-349705	4-TR2	SK-354635B	13-11		
ED-301911	5-D9	EJ-347664	4-J1	ET-349705	4-TR9	SK-354635C	13-10		
ED-301911	5-D10	EJ-347664	5-J1	ET-349705	5-TR1	SP-344591A	13-13		
ED-301911	5-D11	EJ-355012	9-J2	ET-349705	5-TR2	SP-344591B	13-13P		
ED-301911	5-D14	EJ-357732	9-J1	ET-349705	5-TR9	SP-344591D	13-13B		
ED-301911	5-D15	EM-354811	6-IN1	ET-349705	5-TR20	SP-354785L	12-13A		
ED-301911	6-D1to5	EO-323982	4-FL4	ET-349705	5-TR25	SP-354785M	12-13C		
ED-301911	7-D18	EO-323982	5-FL4	ET-349705	5-TR26	SP-354785N	12-13E		
ED-301911	7-D19	EO-337044	4-FL3	ET-349705	5-TR27	SP-354785P	12-13G		
ED-301911	7-D20	EO-337044	5-FL3	ET-349705	5-TR28	SP-354785Q	12-13I		
ED-301911	7-D21	EO-347162	4-L2	ET-349705	5-TR29	SP-354785R	12-13B		
ED-301911	7-D17	EO-347162	5-L2	ET-349979	10-TR7	SP-354785S	12-13D		
ED-301911	7-D1to16	EO-354837	4-T1	ET-350795	4-TR3	SP-354785T	12-13F		
ED-301911	10-D2	EO-354837	5-T1	ET-350795	5-TR3	SP-354785U	12-13H		
ED-301911	10-D10	EP-344251	2-26	ET-350795	7-TR3	SP-354785V	12-13J		
ED-301911	11-D3	EP-344251	2-18	ET-350795	7-TR5	SZ-645186	1-31		
ED-301911	11-D4	EQ-337067	4-RL1	ET-350795	7-TR6	TC-344198	1-27		
ED-306109	11-D2	EQ-337067	5-RL1	ET-354863	5-TR21	TC-344219	2-7		
ED-306109	11-D1	ER-200746	5-FR2	ET-354863	5-TR22	TC-344221	2-9		
ED-306316	5-D13	ER-318248	4-FR1	ET-354863	5-TR23	TC-344224	2-13		
ED-309341	4-D2	ER-318248	5-FR1	ET-354863	5-TR24	TC-344225	2-14		
ED-309341	5-D2	ER-354870	10-R11	EV-330531	4-VR6	TC-344226	2-15		
ED-330319	10-D3	ES-305733	12-4	EV-330531	5-VR6	TC-344236	1-32		
ED-330319	10-D6	ES-344253	1-11	EV-337861	4-VR4	TC-344901	2-3		
ED-331667	10-D1	ES-344257	1-12	EV-337861	5-VR4	TC-354636	13-8		
ED-331667	10-D5	ES-344270	10-SW1	EV-337993	4-VR3	ZG-312925	1-33		
ED-332336	10-D7	ES-349597	6-SW10	EV-337993	5-VR3	ZG-312995	1-13		
ED-336805	10-D4	ES-354809	6-SW12A	EV-337995	4-VR5	ZG-313182	13-5		
ED-336805	10-D8	ES-354810	6-SW12B	EV-337995	5-VR5	ZG-336615	1-36		
ED-344280	4-D3	ES-355604	6-SW1	EV-338588	4-VR2	ZG-343104	1-2		
ED-344280	4-D4	ES-355604	6-SW2	EV-338588	4-VR7	ZG-343152	2-6		
ED-344280	5-D3	ES-355604	6-SW3	EV-338588	5-VR2	ZG-344188	1-15		
ED-344280	5-D4	ES-355604	6-SW4	EV-338588	5-VR7	ZG-344194	1-21		

# AKAI

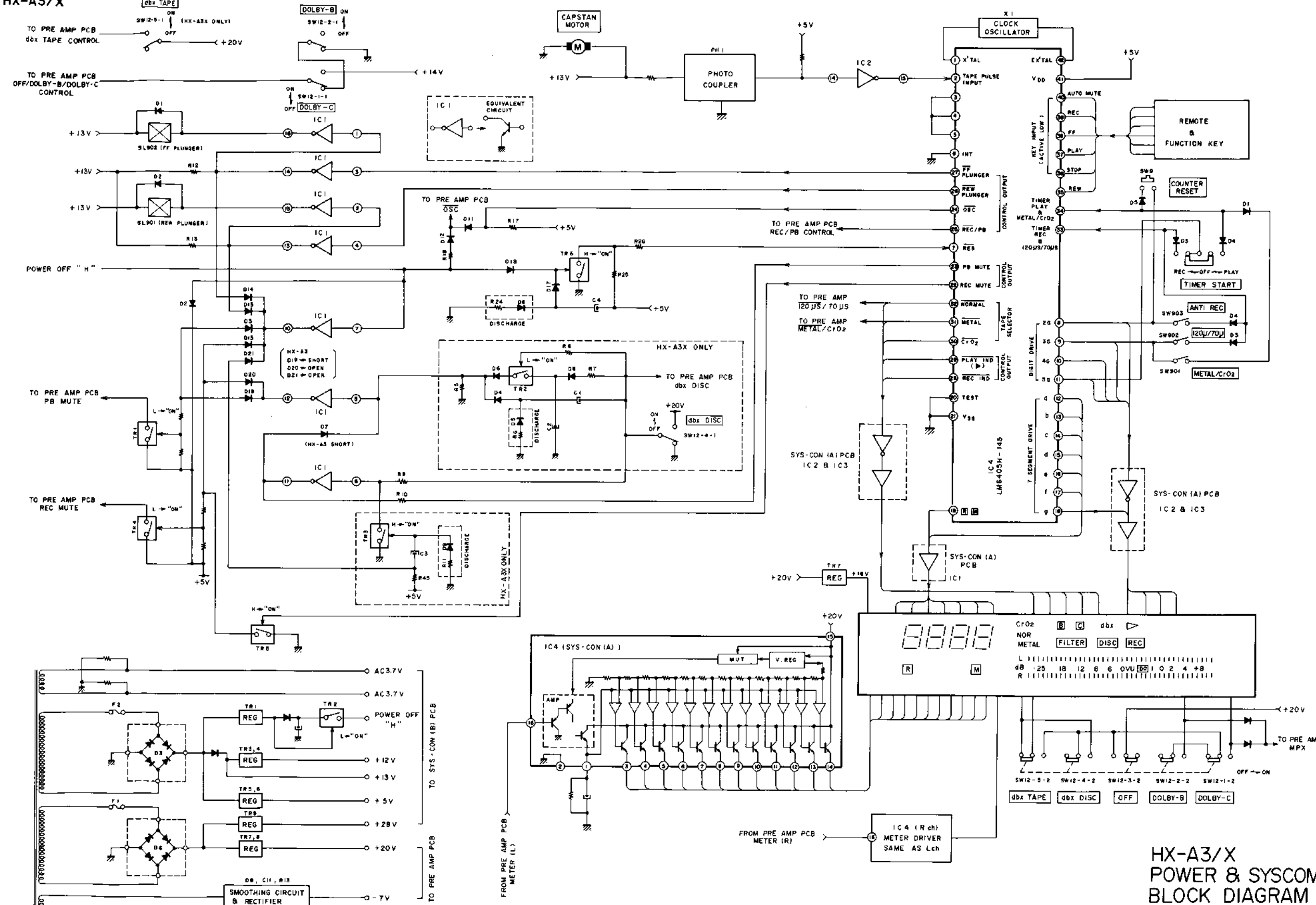
## MODEL HX-A3/X

### SCHEMATIC DIAGRAM AND PC BOARD

1. HX-A3/X POWER & SYSCOM BLOCK DIAGRAM . . . . .	2
2. HX-A3/X PRE BLOCK DIAGRAM . . . . .	3
3. HX-A3 POWER/SYSCOM SCHEMATIC DIAGRAM . . . . .	4
4. CONNECTOR PC BOARD, DETECTOR PC BOARD, HX-A3 SYSTEM CONTROL (A) (B) PC BOARD . . . . .	5
5. HX-A3 PRE AMP SCHEMATIC DIAGRAM . . . . .	6
6. HX-A3 PRE AMP PC BOARD, JACK PC BOARD, REC VR PC BOARD . . . . .	7
7. HX-A3X POWER/SYSCOM SCHEMATIC DIAGRAM . . . . .	8
8. CONNECTOR PC BOARD, DETECTOR PC BOARD, HX-A3/X SYSTEM CONTROL (A) (B) PC BOARD . . . . .	9
9. HX-A3X PRE AMP SCHEMATIC DIAGRAM . . . . .	10
10. HX-A3X PRE AMP PC BOARD, JACK PC BOARD, REC VR PC BOARD . . . . .	11
11. DOLBY-B PLAY MODE, DOLBY-B REC MODE, DOLBY-C PLAY MODE, DOLBY-C REC MODE . . . . .	12

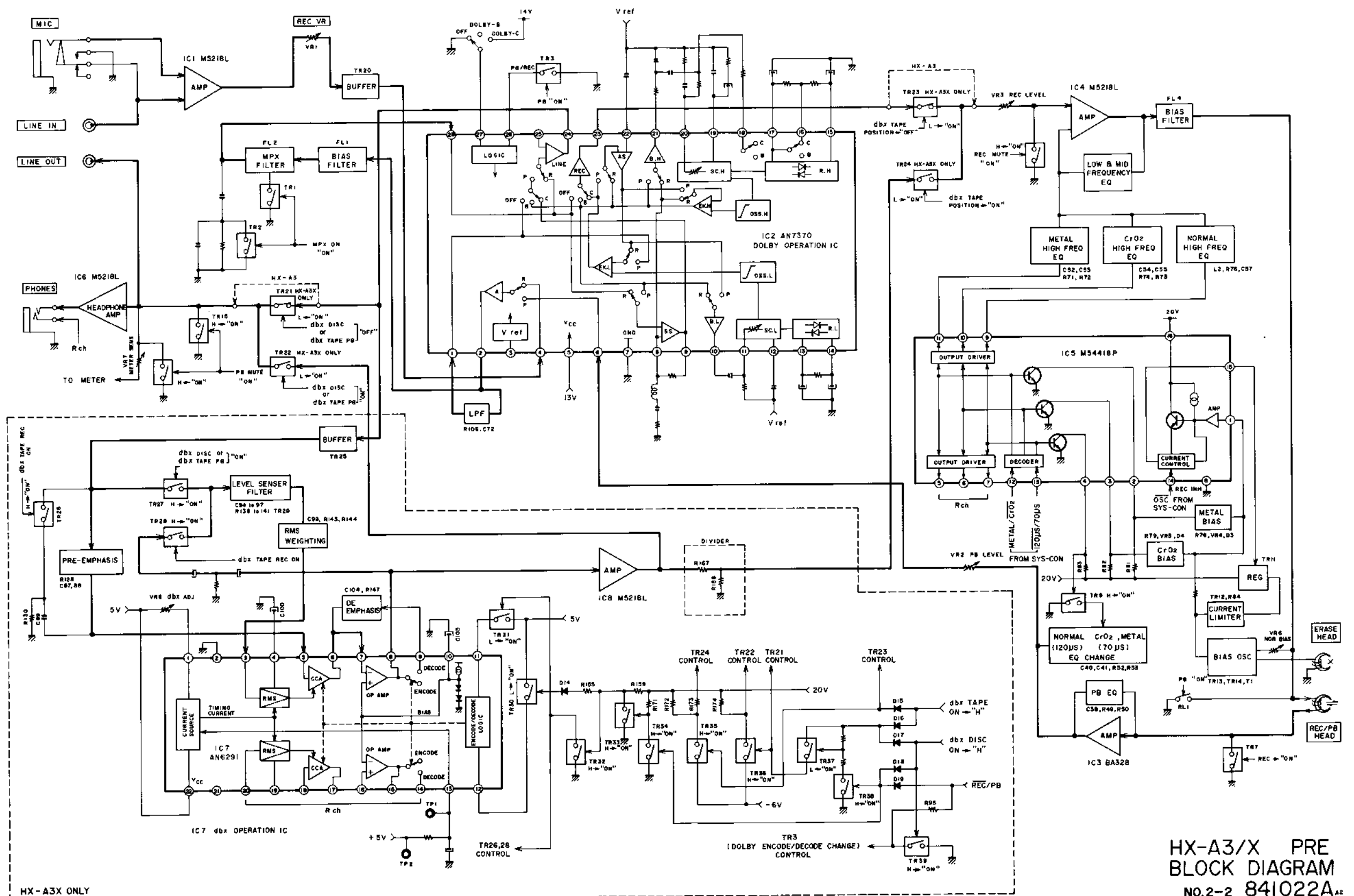


HX-A3/X

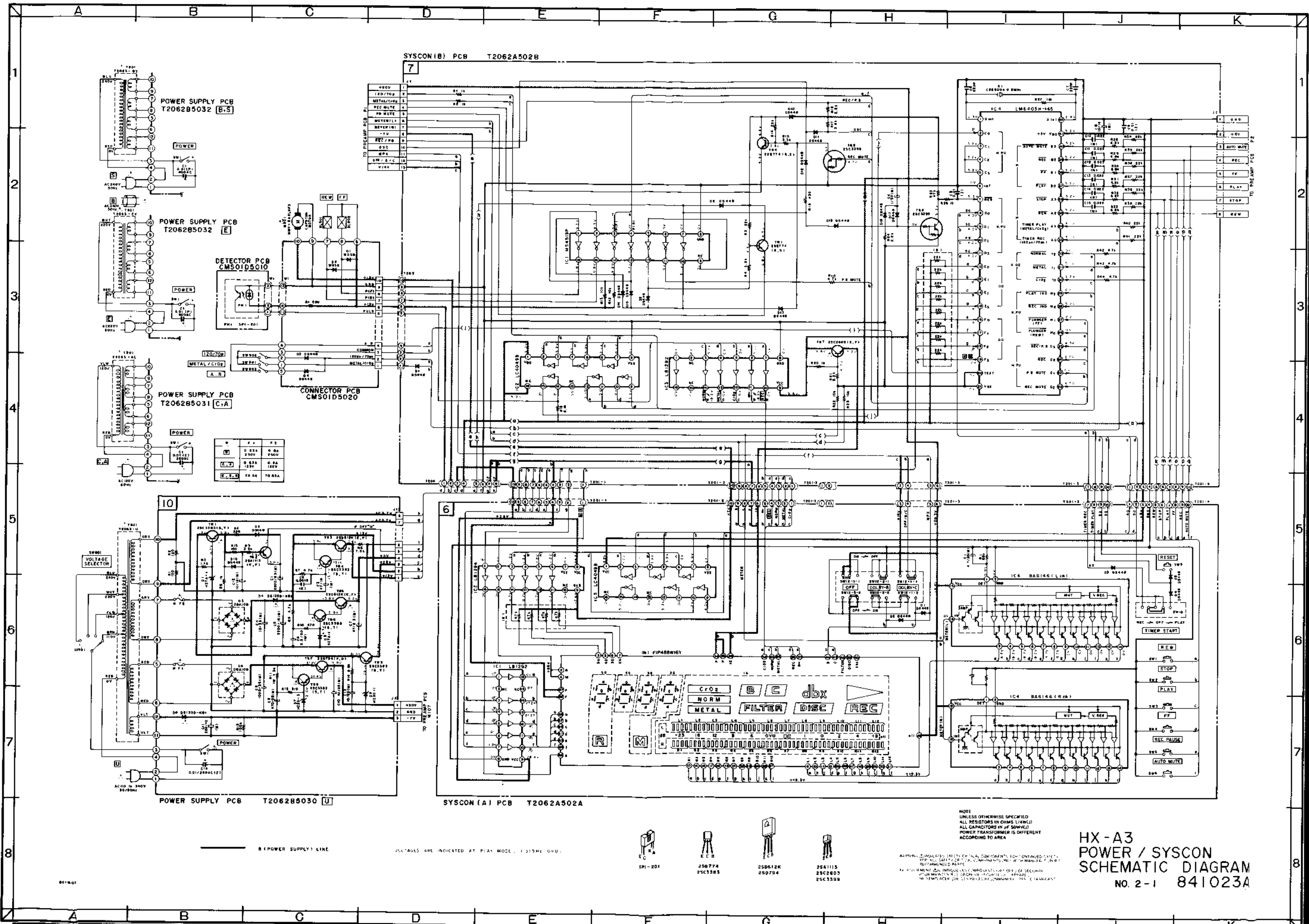


HX-A3/X  
POWER & SYSCOM  
BLOCK DIAGRAM  
NO.2-1 841021A.2

HX-A3/X



HX-A3/X PRE  
BLOCK DIAGRAM  
NO.2-2 841022A<sub>42</sub>



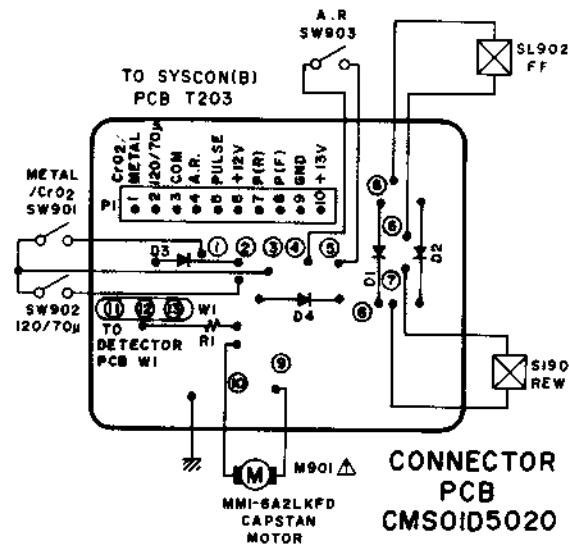
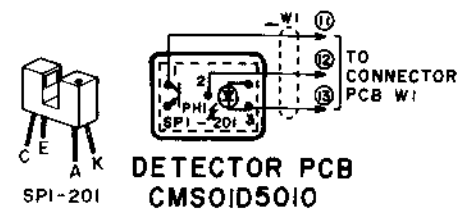
W	F 1	F 2
□	0.55A	0.8A
	250V	250V
□	0.55A	0.8A
	125V	125V
E.S.B.	EA-24	TA-24A

NOTE  
UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS IN OHMS (R/W/J)  
ALL CAPACITORS IN μF (50WV)  
POWER TRANSFORMER IS DIFFERENT  
ACCORDING TO AREA

HX-A3  
POWER / SYSCON  
SCHEMATIC DIAGRAM  
NO. 2-1 841023A

- SIP-201
- 250774  
25C3385
- 250512K  
250794
- 25A1115  
25C2603  
25C3388

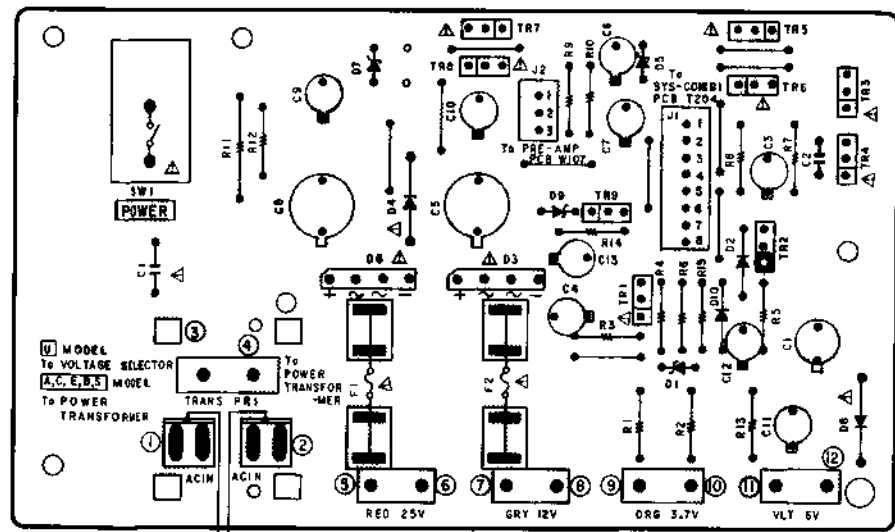
APPROX. DIMENSIONS: (WIDTH OF ALL COMPONENTS IS UNDIMENSIONED EXCEPT FOR ALL CAPACITORS IN OHMS (R/W/J) AND DIMENSIONS IN μF (50WV) POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA)



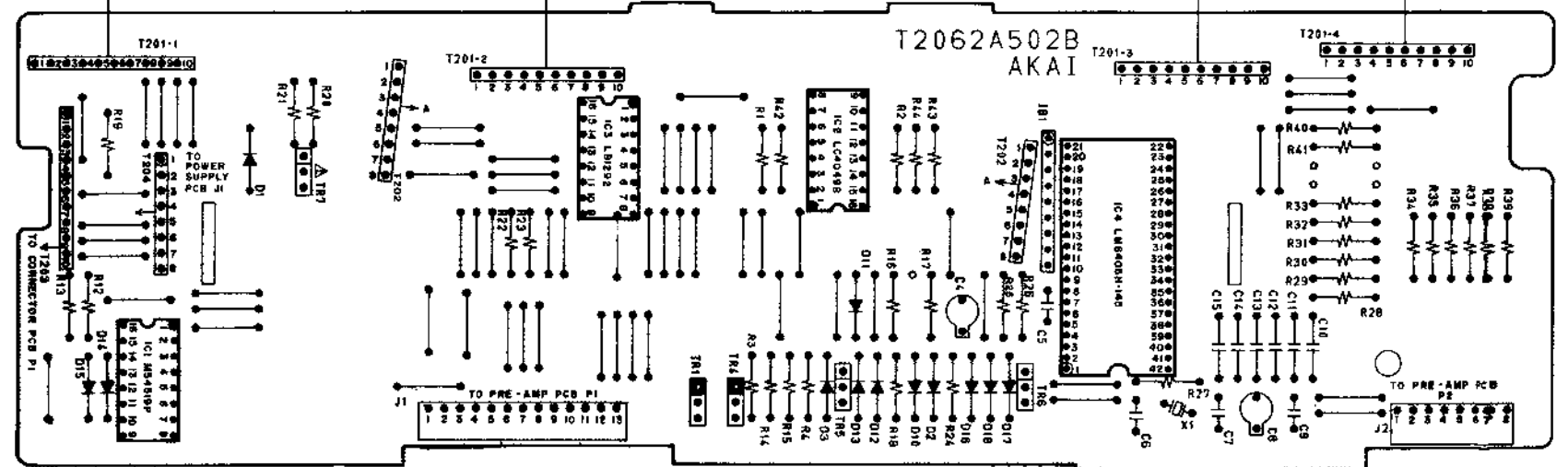
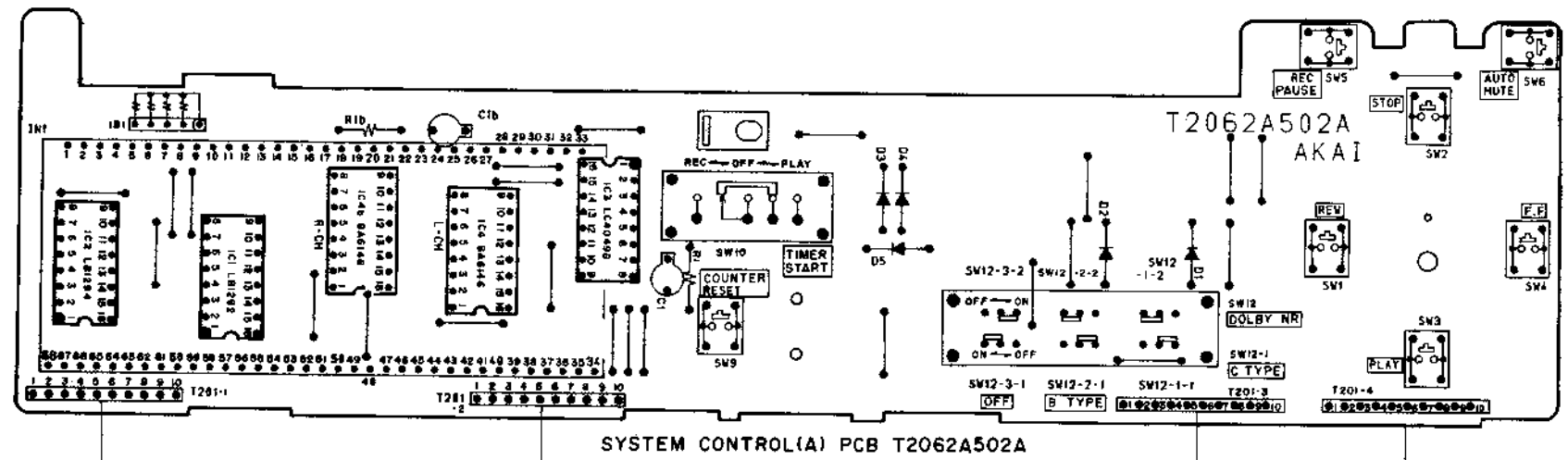
WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

Δ = PNP TRANSISTOR  
 Δ = NPN TRANSISTOR



- TR1-----25C3383(S,T) 5031 C, A
- TR2-----25A1115(E,F) 5032 E, B, S
- TR3,5----25D612K(E,F)
- TR4,6----25C3383(S,T)
- TR7-----25D794(P,Q)
- TR8,9----25C3383(S,T)

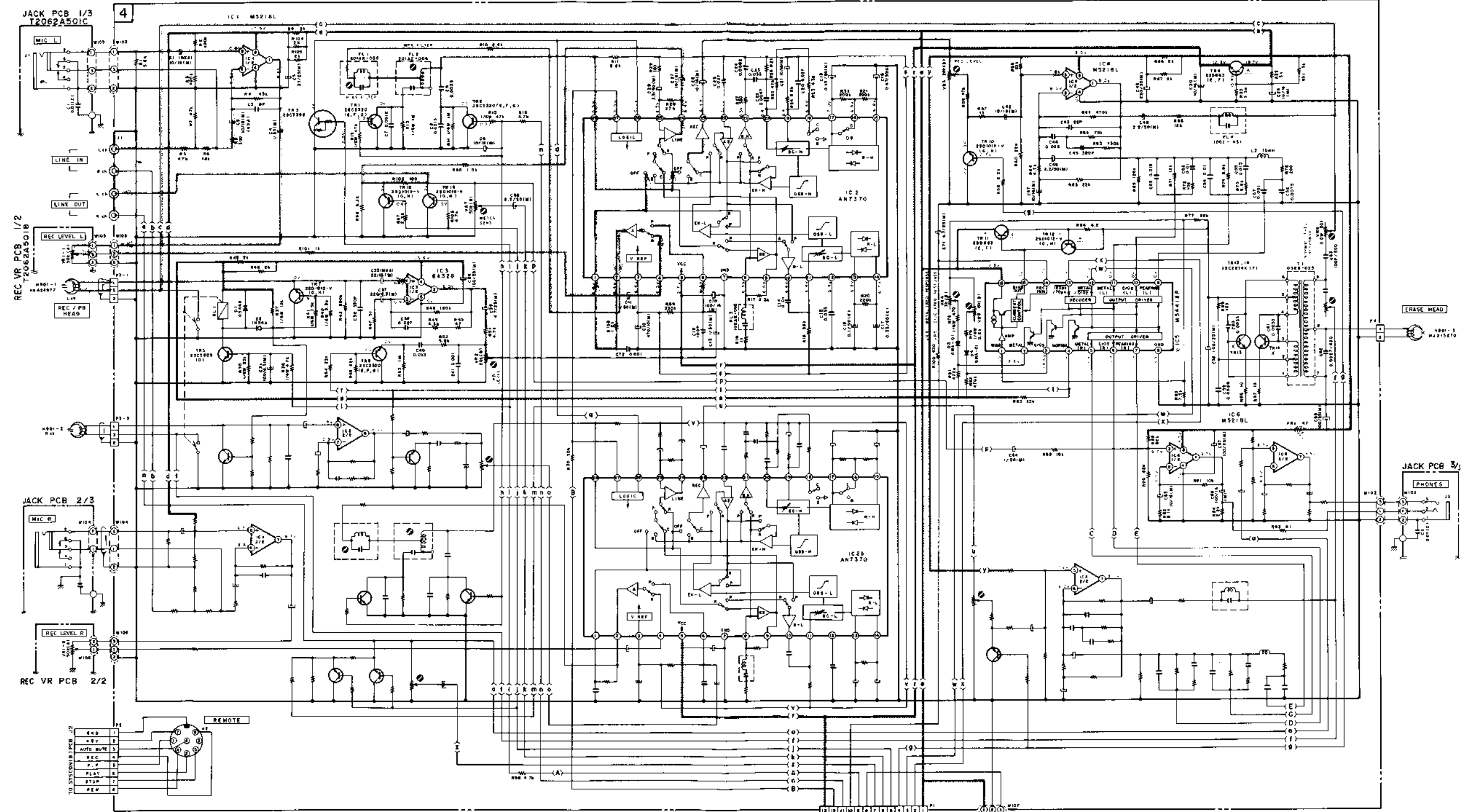


- TR1,4.....25B774(R,S)
- TR5,6.....25C3399
- TR7.....25C2603(E,F)

Δ = NPN  
 Δ = PNP

- 25B774
- 25C2603
- 25C3399

HX - A3



PRE AMP PCB T2062A501A

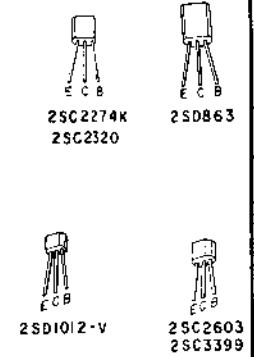
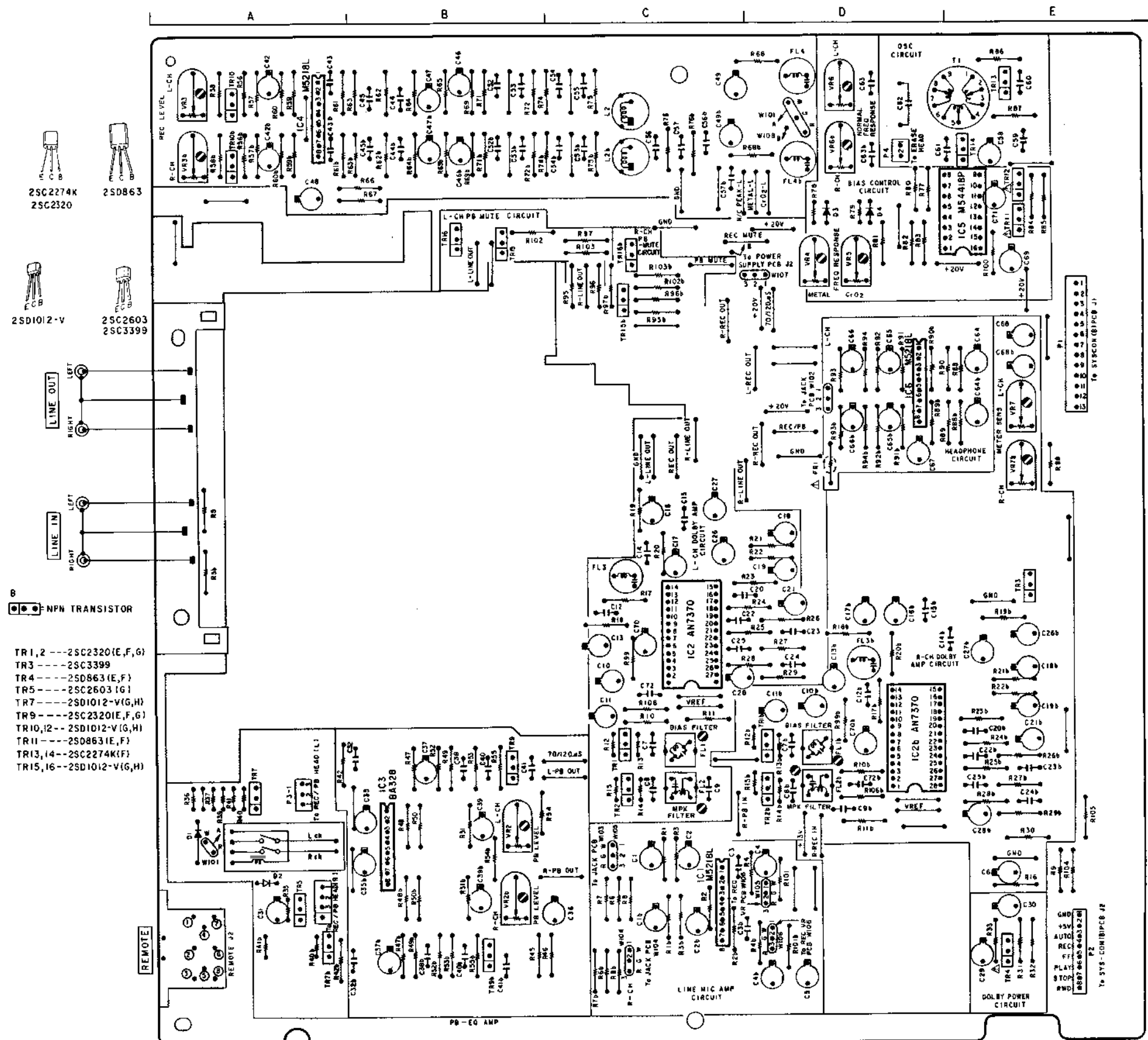
X REC MOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
NORMAL	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K				
REC	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K			
PLAY	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K		
STOP	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	
REW	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K

- - - - - (B) POWER SUPPLY LINE  
 - - - - - (P) SIGNAL LINE  
 - - - - - (R) REC SIGNAL LINE



UNLESS OTHERWISE SPECIFIED  
 ALL RESISTORS IN OHMS (AWG) UNLESS OTHERWISE SPECIFIED  
 ALL CAPACITORS IN UF (MVA) UNLESS OTHERWISE SPECIFIED

HX - A3 PRE AMP  
 SCHEMATIC DIAGRAM  
 NO 2-2 841024A



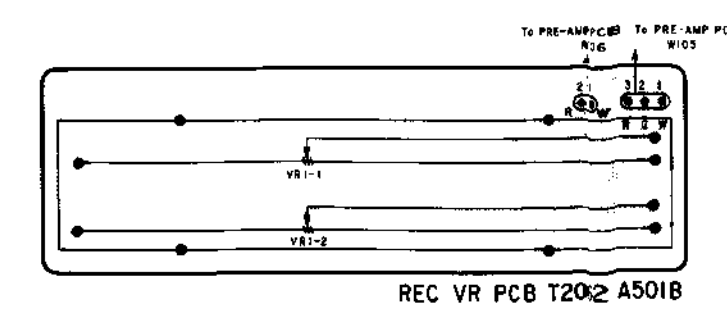
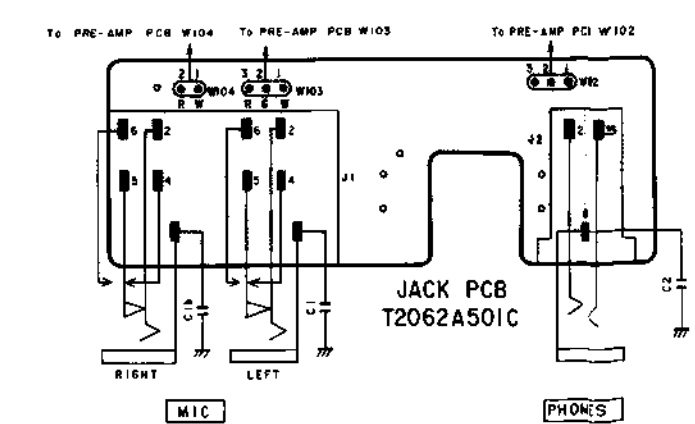
- TR 1,2** --- 2SC2320 (E,F,G)  
**TR 3** --- 2SC3399  
**TR 4** --- 2SD863 (E,F)  
**TR 5** --- 2SC2603 (G)  
**TR 7** --- 2SD1012-V (G,H)  
**TR 9** --- 2SC2320 (E,F,G)  
**TR 10,12** --- 2SD1012-V (G,H)  
**TR 11** --- 2SD863 (E,F)  
**TR 13,14** --- 2SC2274K (F)  
**TR 15,16** --- 2SD1012-V (G,H)

**IC 1** --- NPN TRANSISTOR

- LOCATION OF COMPONENTS**
- IC's**  
 IC1 --- C5  
 IC2 --- C3  
 IC2b --- D4  
 IC3 --- B4  
 IC4 --- A1  
 IC5 --- E1  
 IC6 --- D2
- TR's**  
 TR1,2 --- C4  
 TR1b,2b --- D4  
 TR3 --- E3  
 TR4 --- E5  
 TR5 --- A5  
 TR7 --- A4  
 TR7b --- A5  
 TR9 --- B4  
 TR9b --- B5  
 TR10,10b --- A1  
 TR11 to 14 --- E1  
 TR15,16 --- B2  
 TR15b,16b --- C2
- TERMINALS**  
 J1 (LINE IN, LINE OUT JACKS) --- A2, A3  
 J2 (REMOTE JACK) --- A5  
 P1 --- E2  
 P2 --- E5  
 P3-1 --- A4  
 P3-2 --- A5  
 P4 --- D1  
 W102 --- C5  
 W103, W104 --- D5  
 W107 --- D2

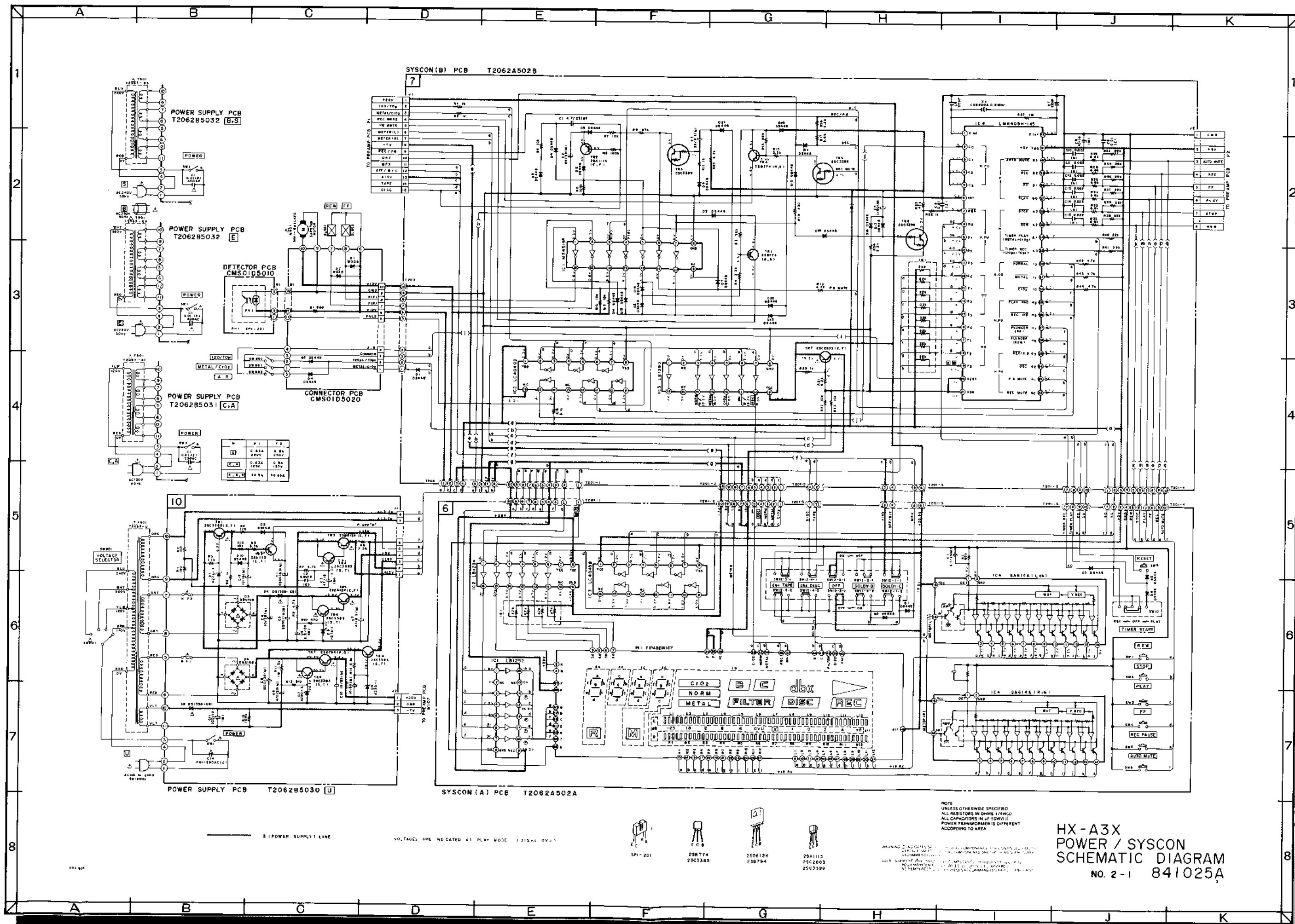
**WARNING** ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

**AVERTISSEMENT** ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



PRE AMP PCB T2062A501A

REC VR PCB T2062A501B



POWER SUPPLY PCB  
T2062B5032 [B,S]

POWER SUPPLY PCB  
T2062B5032 [E]

POWER SUPPLY PCB  
T2062B5031 [C,A]

POWER SUPPLY PCB  
T2062B5030 [U]

SYSCON (B) PCB T2062A502B

SYSCON (A) PCB T2062A502A

DETECTOR PCB  
CMS01D5010

CONNECTOR PCB  
CMS01D5020

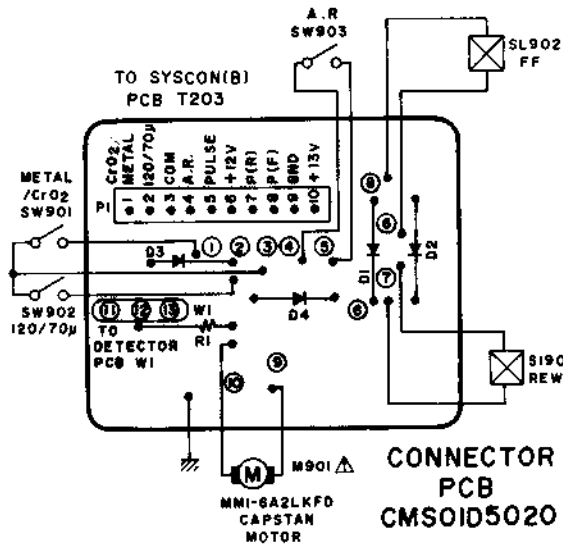
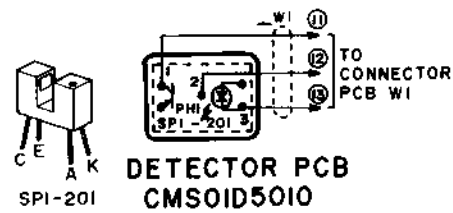
W	F1	F2
□	0.5A	0.5A
□	250V	250V
□	0.5A	1A
□	125V	125V
E, B, S	10 2A	10 2A

VOLTAGES ARE INDICATED AT PLAY MODE 1.515-0.0V-1

- SPT-201
- 258774 25C3365
- 2506124 250794
- 25A1115 25C2603 25C3399

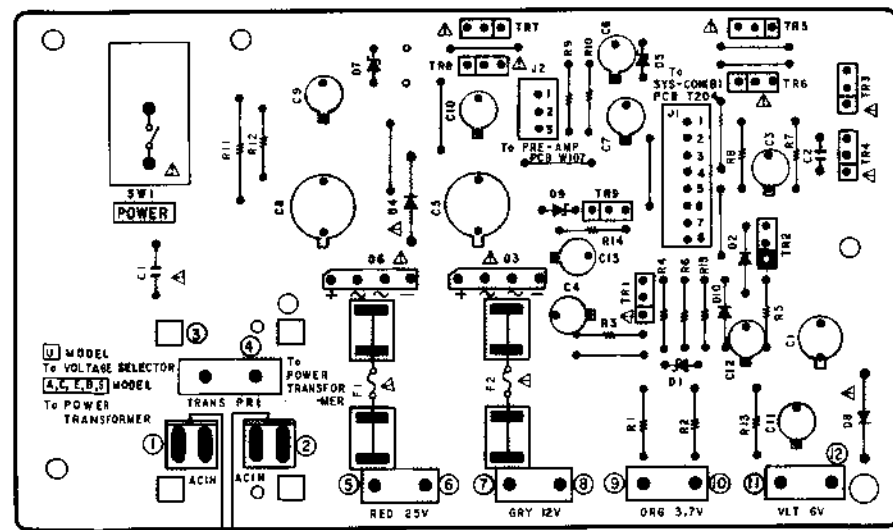
NOTE  
UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS IN OHMS (K=K, M=M)  
ALL CAPACITORS IN P.F. (P=100N, U=100M)  
POWER TRANSFORMER IS DIFFERENT  
ACCORDING TO AREA

HX-A3X  
POWER / SYSCON  
SCHEMATIC DIAGRAM  
NO. 2-1 841025A

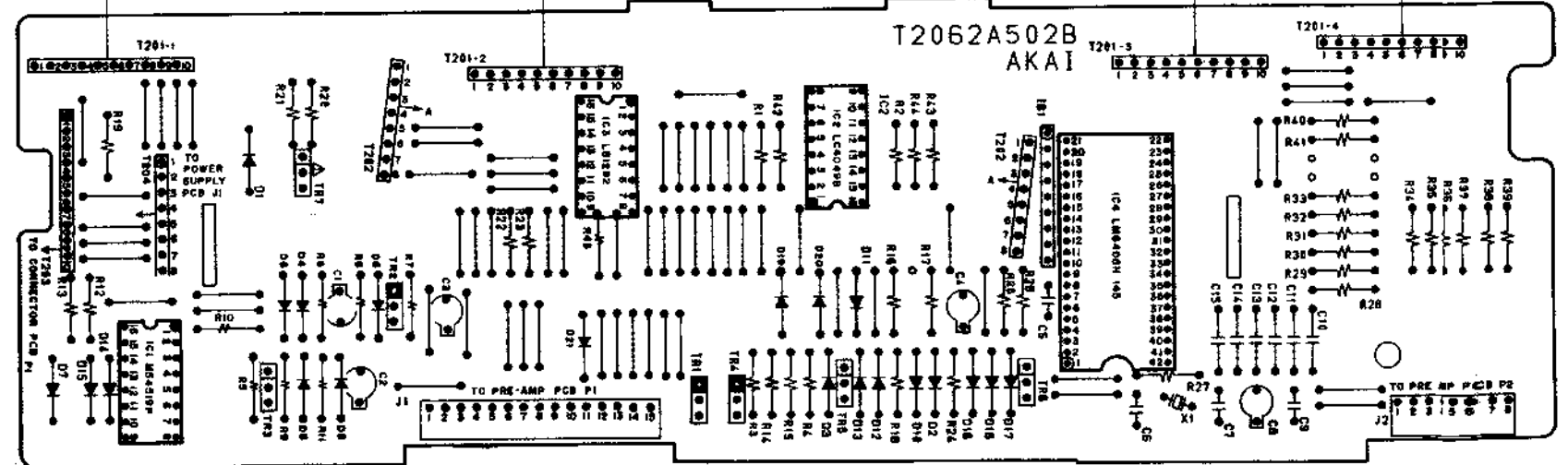
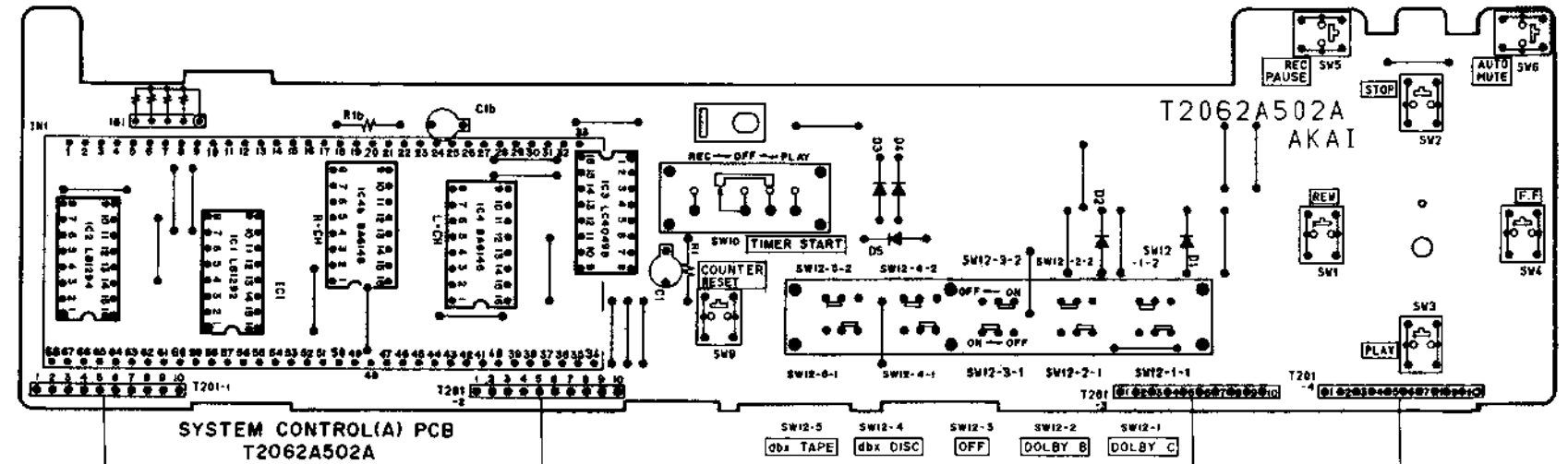


WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

Δ = PNP TRANSISTOR  
◻ = NPN TRANSISTOR



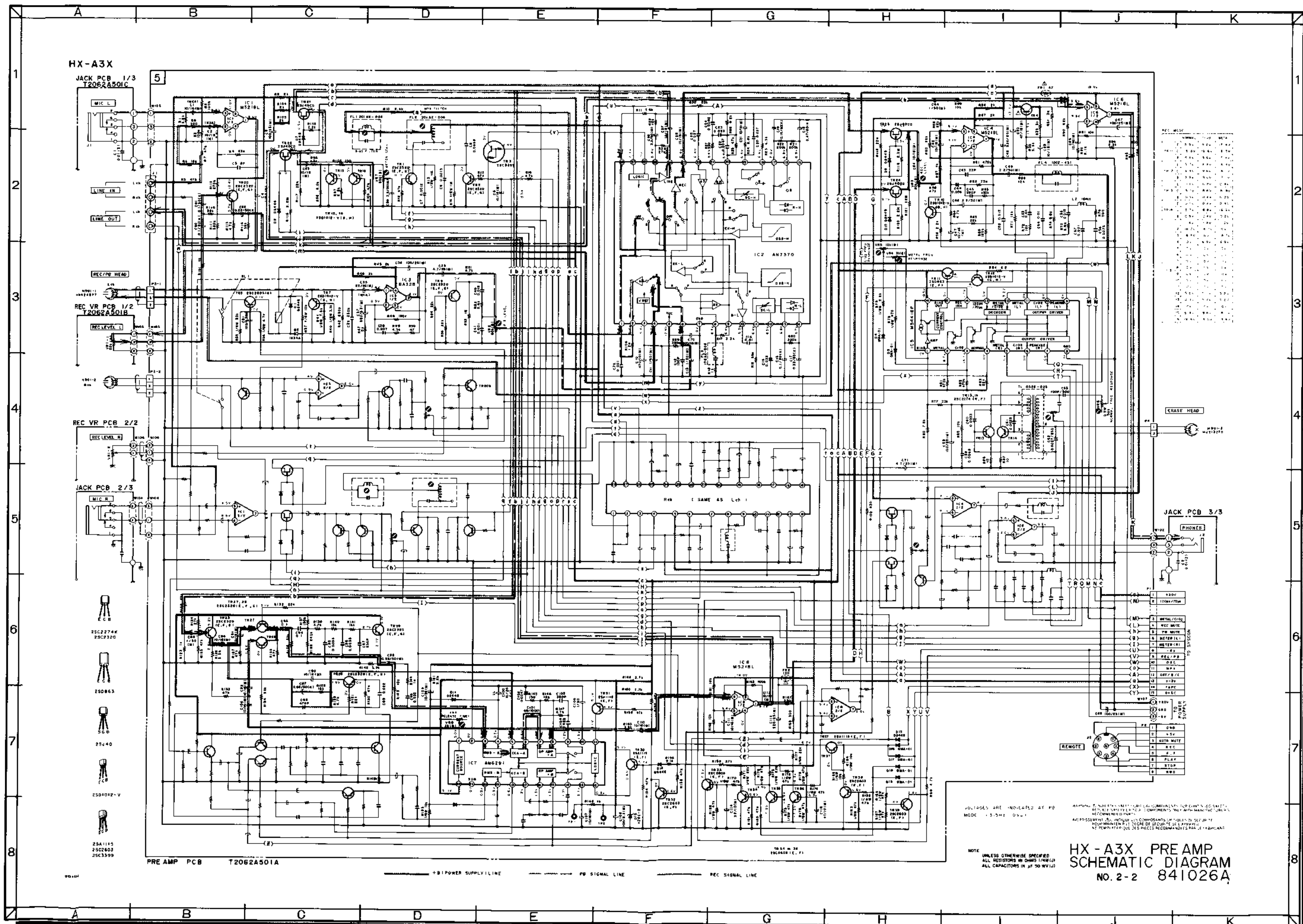
- TR1 ---- 2SC3383(S,T)
- TR2 ---- 2SA1115(E,F)
- TR3,5 ---- 2SD612K(E,F)
- TR4,6 ---- 2SC3383(S,T)
- TR7 ---- 2SD794(P,Q)
- TR8,9 ---- 2SC3383(S,T)



- TR1 ---- 2SB774(R,S)
- TR2 ---- 2SA1115(E,F)
- TR3 ---- 2SC3399
- TR4 ---- 2SB774(R,S)
- TR5,6 ---- 2SC3399
- TR7 ---- 2SC2603(E,F)

Δ = NPN  
◻ = PNP





HX-A3X

JACK PCB 1/3  
T2062A501C

REC VR PCB 1/2  
T2062A501B

REC VR PCB 2/2

JACK PCB 2/3

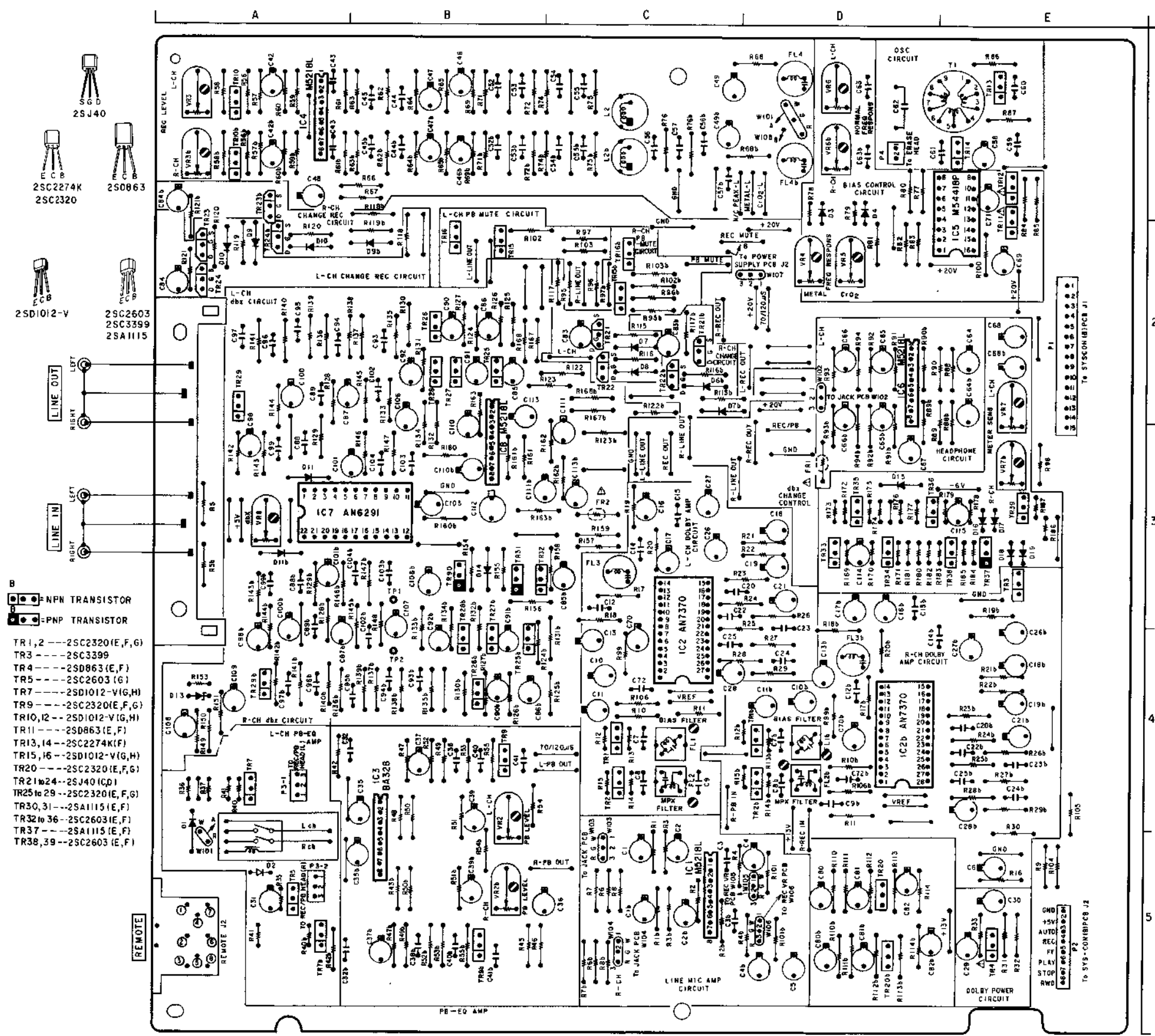
PRE AMP PCB  
T2062A501A

- 25C2274K
- 25C2320
- 25D865
- 25J40
- 25D1012-V
- 25A1115
- 25C2403
- 25C3309

UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS IN OHMS (1/4W/1P)  
ALL CAPACITORS IN PF (50 WV/10)

HX-A3X PRE AMP  
SCHEMATIC DIAGRAM  
NO. 2-2 841026A

- |    |          |
|----|----------|
| 1  | +5V      |
| 2  | GND      |
| 3  | REC MUTE |
| 4  | METER    |
| 5  | PLAY     |
| 6  | STOP     |
| 7  | REW      |
| 8  | F.F.     |
| 9  | PAUSE    |
| 10 | REC      |
| 11 | REC MUTE |
| 12 | REC MUTE |
| 13 | REC MUTE |
| 14 | REC MUTE |
| 15 | REC MUTE |
| 16 | REC MUTE |
| 17 | REC MUTE |
| 18 | REC MUTE |
| 19 | REC MUTE |
| 20 | REC MUTE |
| 21 | REC MUTE |
| 22 | REC MUTE |
| 23 | REC MUTE |
| 24 | REC MUTE |
| 25 | REC MUTE |
| 26 | REC MUTE |
| 27 | REC MUTE |
| 28 | REC MUTE |
| 29 | REC MUTE |
| 30 | REC MUTE |
| 31 | REC MUTE |
| 32 | REC MUTE |
| 33 | REC MUTE |
| 34 | REC MUTE |
| 35 | REC MUTE |
| 36 | REC MUTE |
| 37 | REC MUTE |
| 38 | REC MUTE |
| 39 | REC MUTE |
| 40 | REC MUTE |
| 41 | REC MUTE |
| 42 | REC MUTE |
| 43 | REC MUTE |
| 44 | REC MUTE |
| 45 | REC MUTE |
| 46 | REC MUTE |
| 47 | REC MUTE |
| 48 | REC MUTE |
| 49 | REC MUTE |
| 50 | REC MUTE |



- B**
- NPN TRANSISTOR  
 - PNP TRANSISTOR
- TR 1,2 --- 2SC2320(E,F,G)
  - TR 3 --- 2SC3399
  - TR 4 --- 2SD863(E,F)
  - TR 5 --- 2SC2603(G)
  - TR 7 --- 2SD1012-V(G,H)
  - TR 9 --- 2SC2320(E,F,G)
  - TR 10,12 --- 2SD1012-V(G,H)
  - TR 11 --- 2SD863(E,F)
  - TR 13,14 --- 2SC2274(K,F)
  - TR 15,16 --- 2SD1012-V(G,H)
  - TR 20 --- 2SC2320(E,F,G)
  - TR 21 to 24 --- 2SJ40(IC,D)
  - TR 25 to 29 --- 2SC2320(E,F,G)
  - TR 30,31 --- 2SA1115(E,F)
  - TR 32 to 36 --- 2SC2603(E,F)
  - TR 37 --- 2SA1115(E,F)
  - TR 38,39 --- 2SC2603(E,F)

**LOCATION OF COMPONENTS**

IC 1	----- C5	IC 7	----- A3
IC 2	----- C3	IC 8	----- B3
IC 2b	----- D4		
IC 3	----- B4		
IC 4	----- A1		
IC 5	----- E1		
IC 6	----- D2		

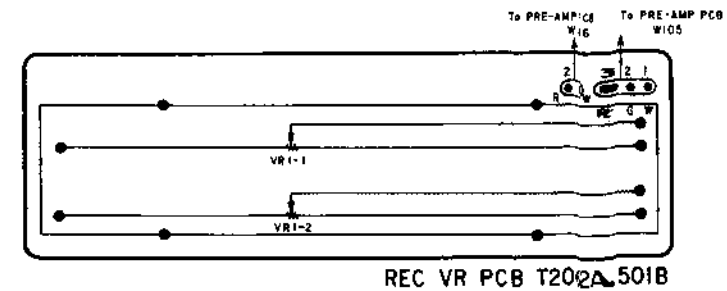
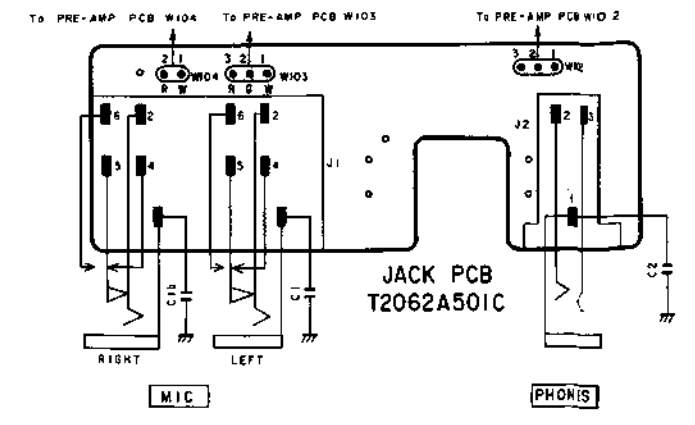
TR 1,2	----- C4	TR 20,20b	----- D5
TR 1b,2b	----- D4	TR 21,22,21b,22b	----- C2
TR 3	----- E3	TR 23,24	----- A2
TR 4	----- E5	TR 23b,24b	----- A1
TR 5	----- A5	TR 25 to 28	----- B2
TR 7	----- A4	TR 25b	----- B3
TR 7b	----- A5	TR 26b	----- B4
TR 9	----- B4	TR 27b,28b	----- B3
TR 9b	----- B5	TR 29	----- A2
TR 10,10b	----- A1	TR 29b	----- A4
TR 11 to 14	----- E1	TR 30 to 32	----- B3
TR 15,16	----- B2	TR 33 to 36	----- D5
TR 15b,16b	----- C2	TR 37 to 39	----- E3

- TERMINALS**
- J1(LINE IN, LINE OUT JACKS) --- A2, A3
  - J2(REMOTE JACK) --- A5
  - P1 --- E2
  - P2 --- E5
  - P3-1 --- A4
  - P3-2 --- A5
  - P4 --- D1
  - W102 --- D2
  - W103, W104 --- C5
  - W105, W106 --- D5
  - W107 --- D2

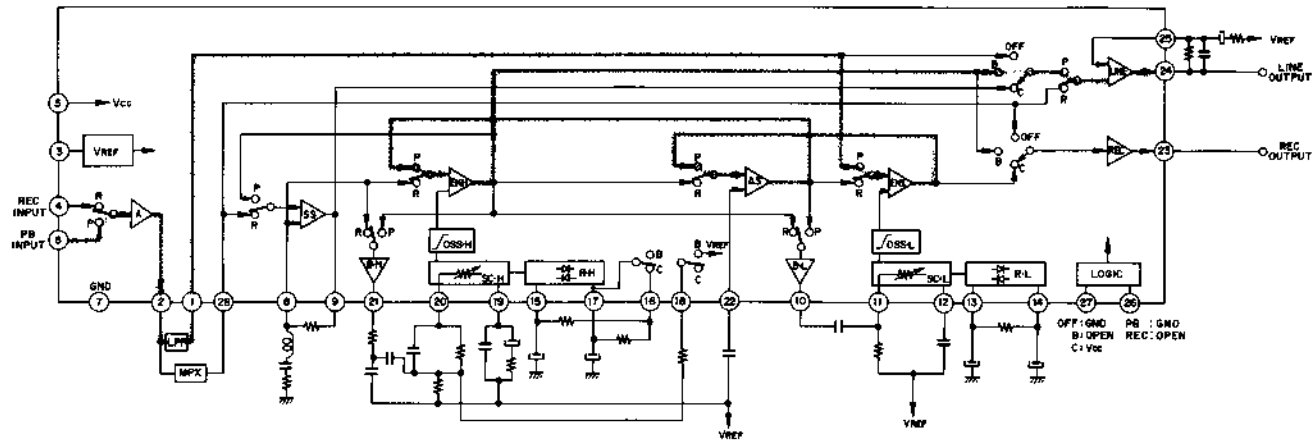
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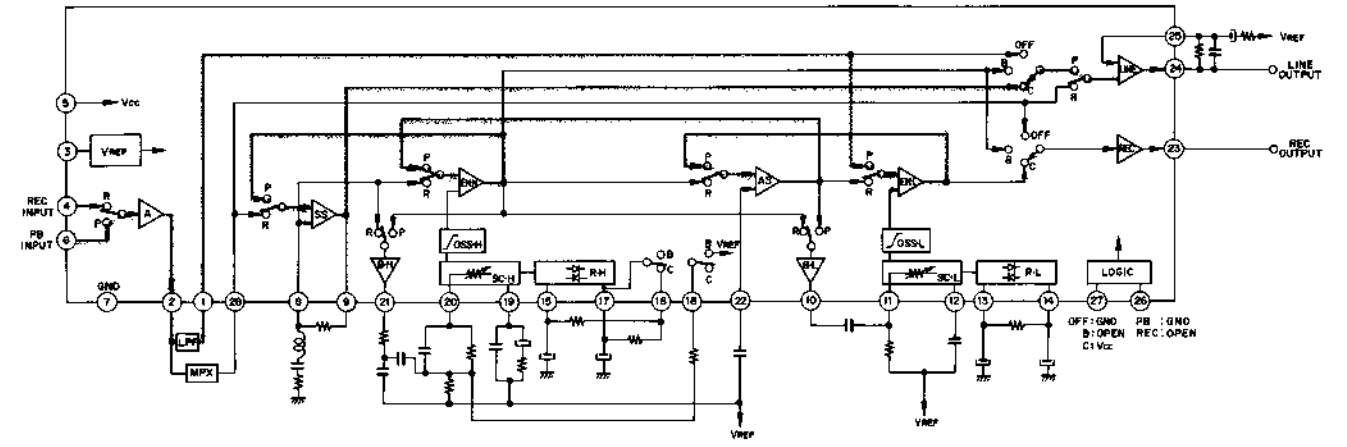
PRE AMP PCB T2062A501A



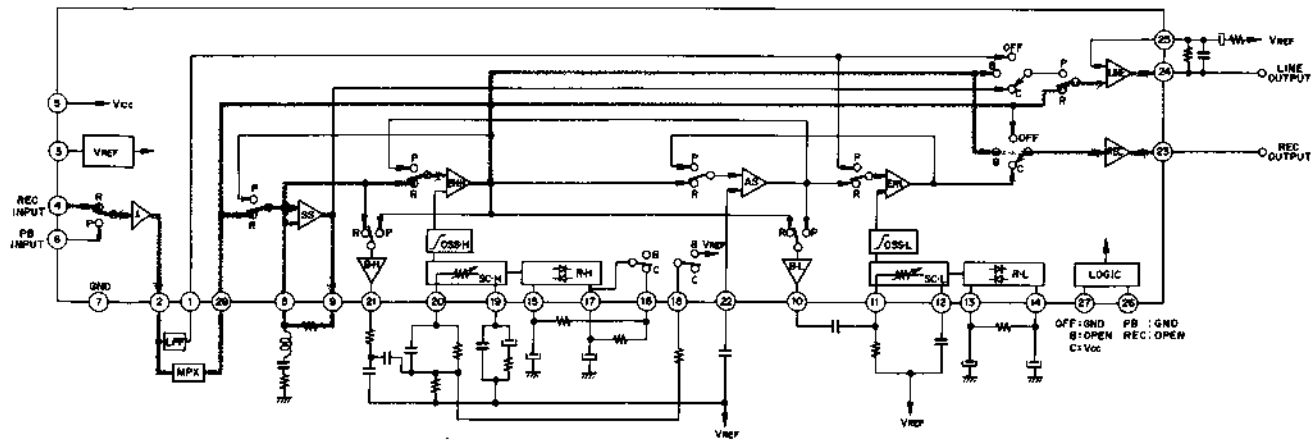
REC VR PCB T2062A501B



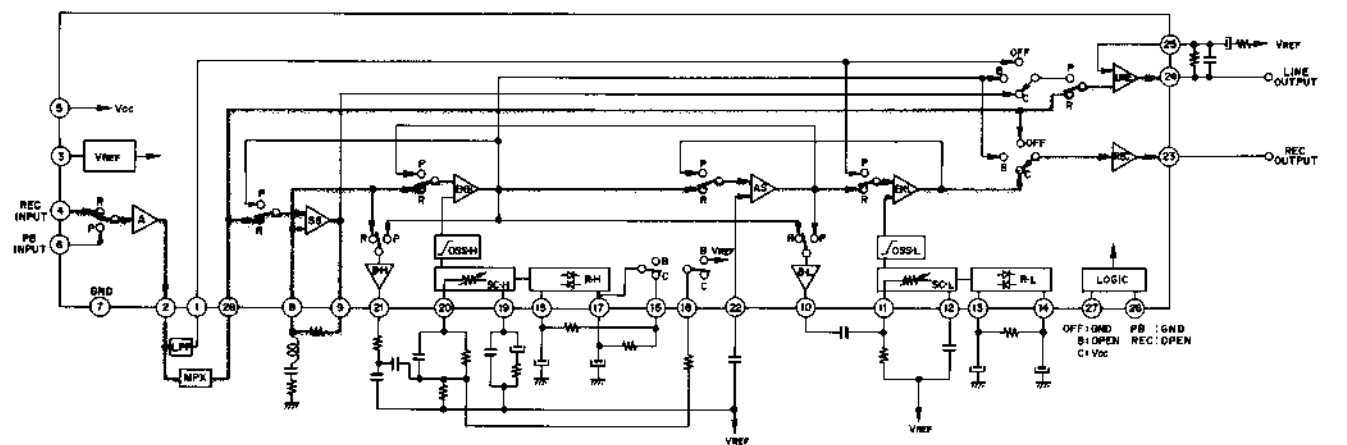
DOLBY-B PLAY MODE



DOLBY-C PLAY MODE



DOLBY-B REC MODE



DOLBY-C REC MODE

**AKAI ELECTRIC CO., LTD.**

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TEL: Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261  
Printed No. 841015-K1-3100 Printed Date: November 5, 1984

350 Printed in Japan