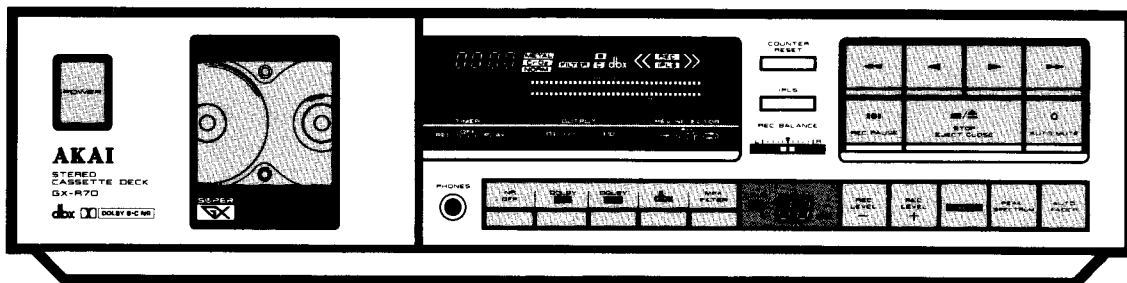


# AKAI SERVICE MANUAL



STEREO CASSETTE DECK

MODEL **GX-R70**

# AKAI

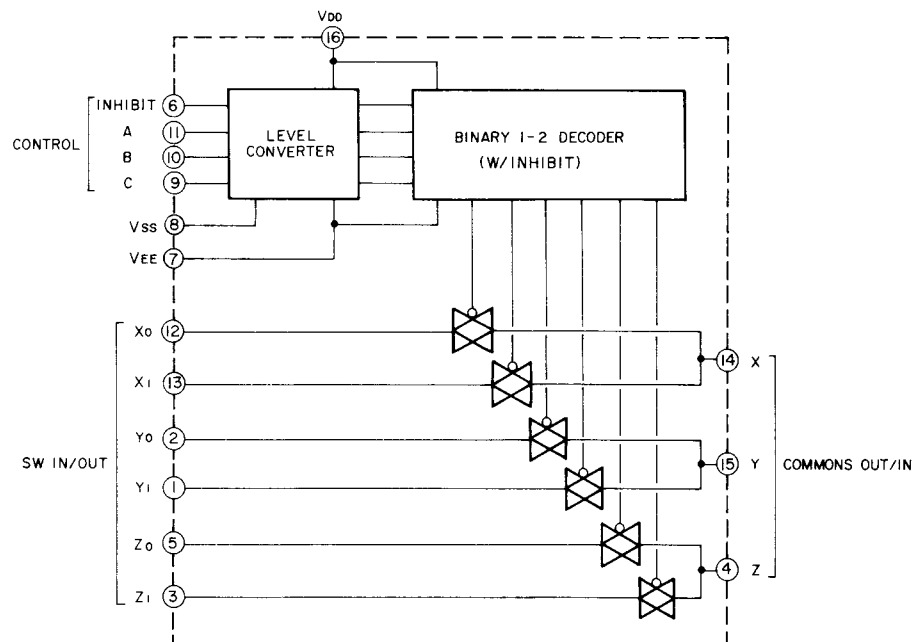
## MODEL GX-R70

### SCHEMATIC DIAGRAM AND PC BOARDS

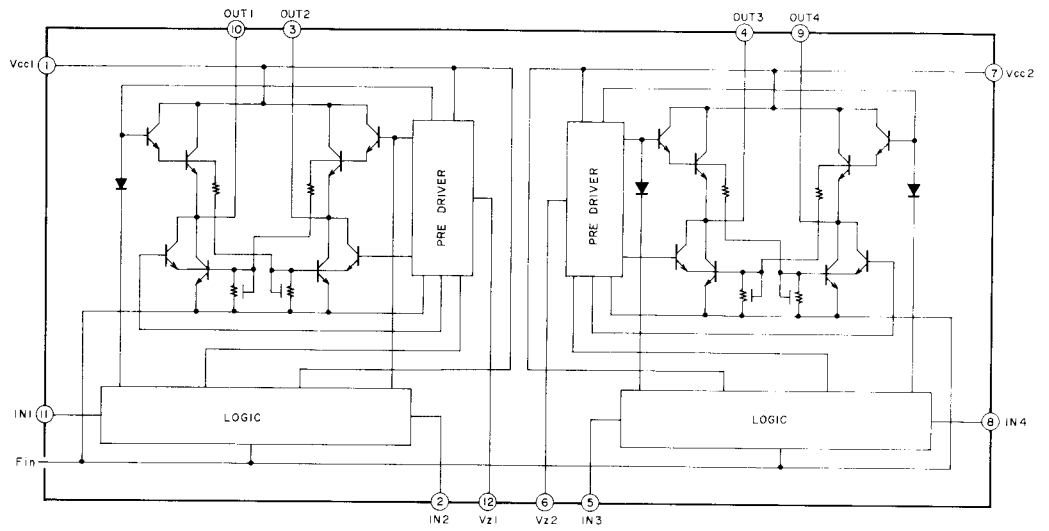
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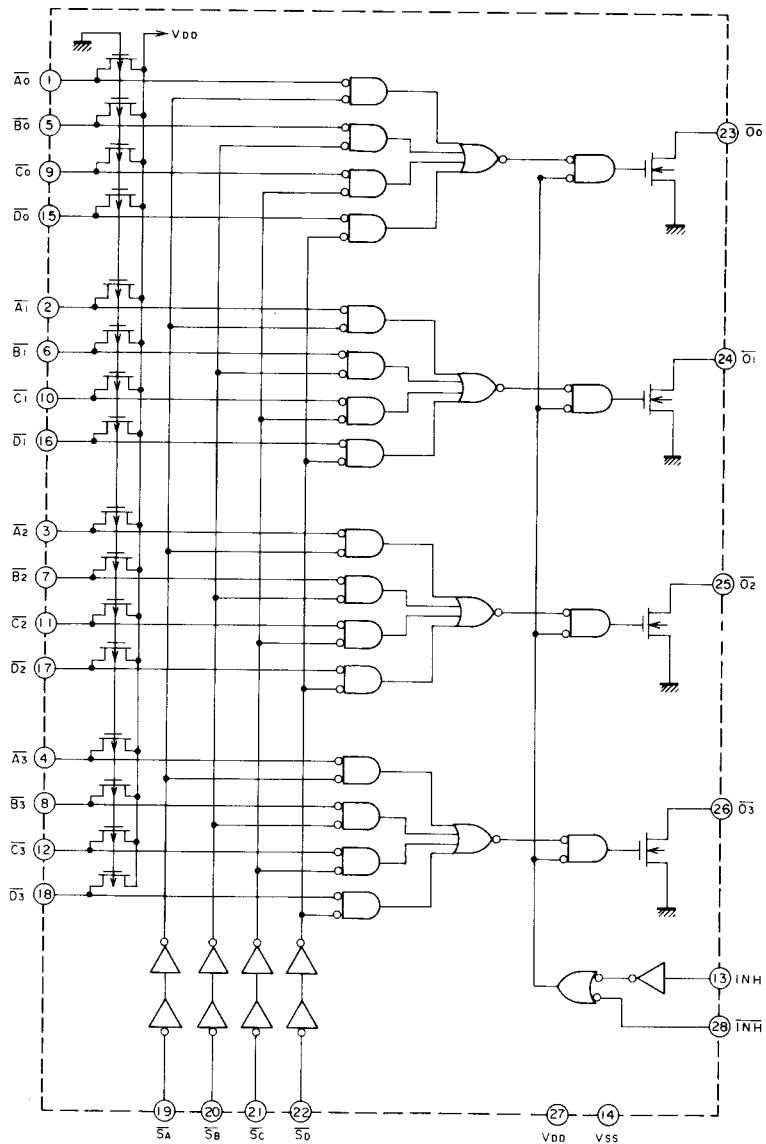
#### HD14053BP



LB1649



LC7800

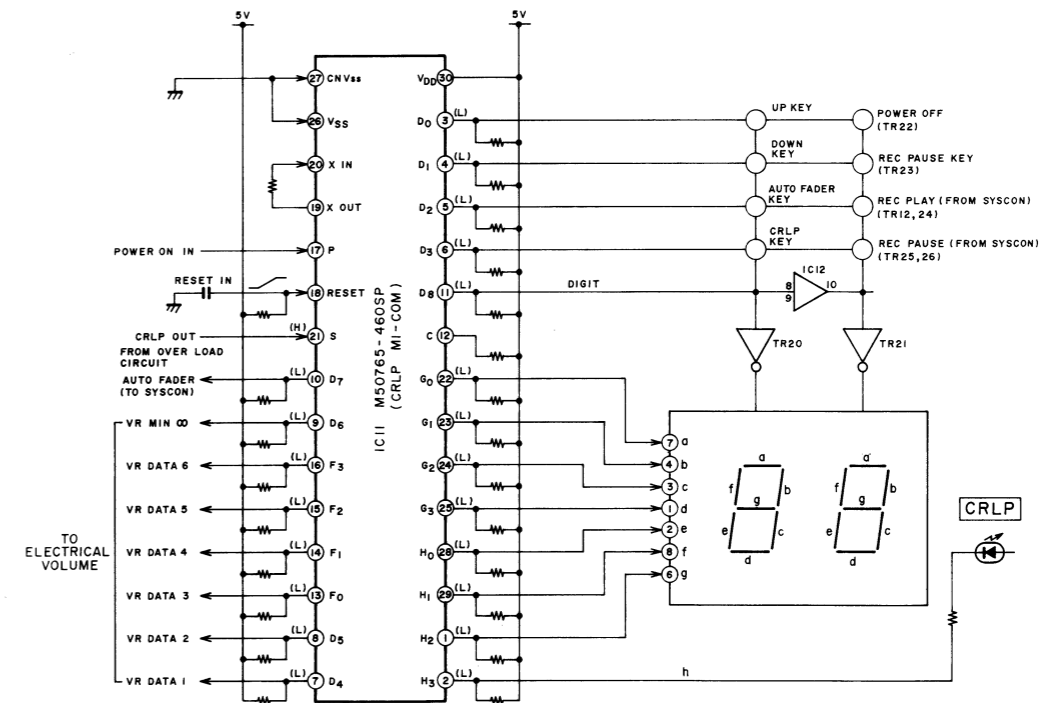


M50740A-430SP

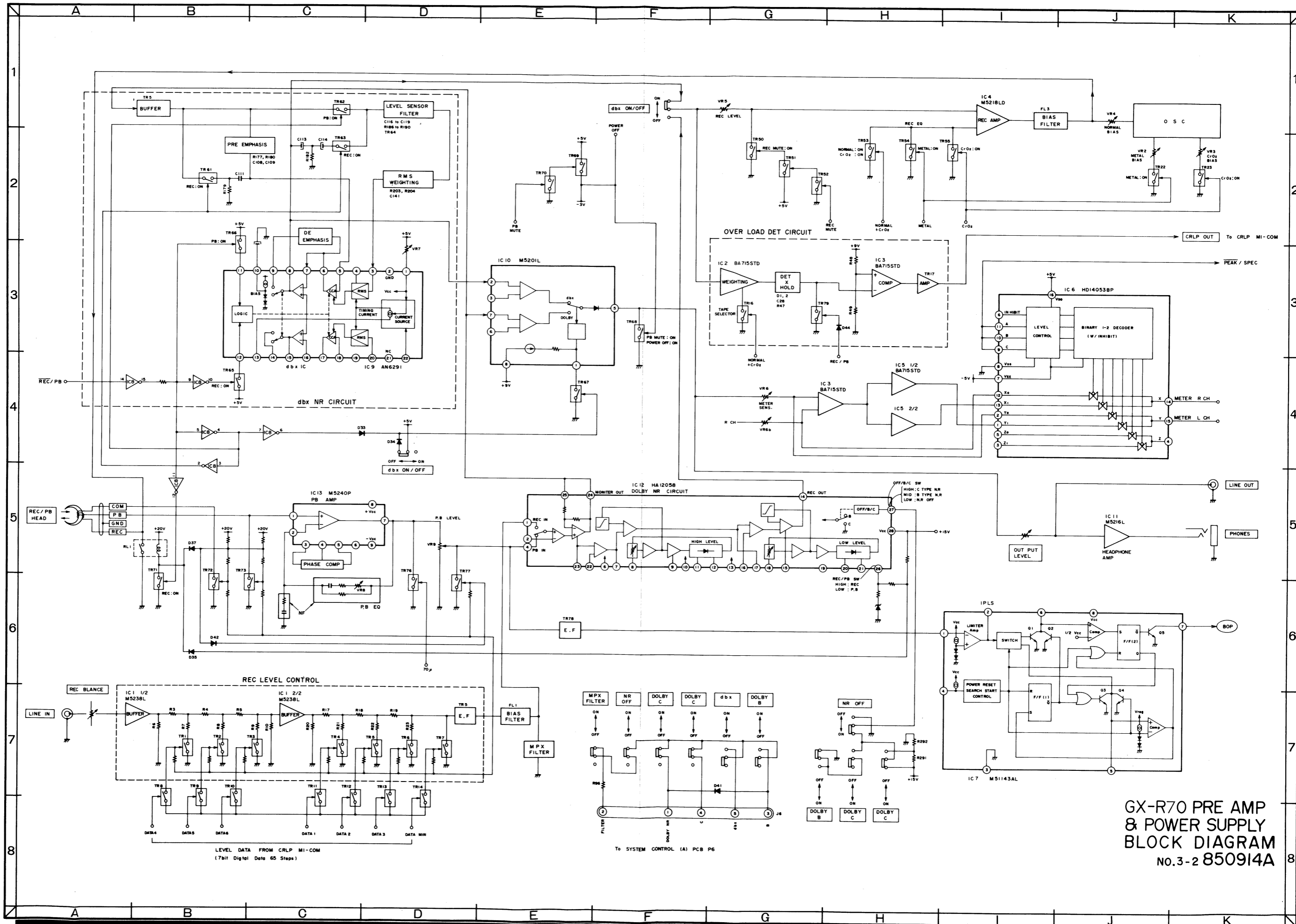
PIN	SYMBOL	DESCRIPTION
1	P2 <sub>7</sub>	REEL ROTATION SIGNAL from PHOTO SENSOR (L)
2	P2 <sub>6</sub>	REEL ROTATION SIGNAL from PHOTO SENSOR (R)
3	P2 <sub>5</sub>	GX-R70 → Connected to +5V GX-R60 → Connected to GND
4	P2 <sub>4</sub>	} Digit Signal Output
5	P2 <sub>3</sub>	
6	P2 <sub>2</sub>	
7	P2 <sub>1</sub>	
8	P2 <sub>0</sub>	
9	NC	NO Connection
10	P0 <sub>7</sub>	} KEY input
11	P0 <sub>6</sub>	
12	P0 <sub>5</sub>	
13	P0 <sub>4</sub>	
14	P0 <sub>3</sub>	
15	P0 <sub>2</sub>	REC/P.B SELECT SIGNAL OUTPUT REC → "L" P.B → "H"
16	P0 <sub>1</sub>	P.B MUTE Control SIGNAL OUTPUT P.B MUTE → "L"
17	P0 <sub>0</sub>	REC MUTE Control SIGNAL OUTPUT REC MUTE → "L"
18	CNTR	BIAS OSC Control SIGNAL OUTPUT ON → "L" OFF → "H"
19	INT	Connect to Ground
20	NC	Connect to +5V
21	CNVSS	No Connection
22	RESET	Connect to Ground
23	X IN	RESET SIGNAL INPUT Terminal
24	X OUTF	Terminal for X'tal signal
25	X OUTS	No Connection
26	VSS	Terminal for X'tal signal
27	R3	Connect to ground
28	R2	} DATA input from ROTARY ENCODER
29	R1	
30	R0	
31	0	
32	R/W	
33	CE	} Connect to Ground
34	RESET OUT	
35	P1 <sub>7</sub>	Output REC PLAY MODE SIGNAL to CRLP Micom (GX-R70 only)
36	P1 <sub>6</sub>	Output REC PAUSE MODE SIGNAL to CRLP Micom (GX-R70 only)
37	P1 <sub>5</sub>	CAM MOTOR Forward drive output
38	P1 <sub>4</sub>	CAM MOTOR Reverse drive output
39	P1 <sub>3</sub>	REEL MOTOR Forward drive output
40	P1 <sub>2</sub>	REEL MOTOR Reverse drive output
41	P1 <sub>1</sub>	} REEL MOTOR Drive Control output
42	P1 <sub>0</sub>	
43	P3 <sub>7</sub>	Music interval signal input (At IPLS MODE)
44	P3 <sub>6</sub>	} 7 Segment drive output
45	P3 <sub>5</sub>	
46	P3 <sub>4</sub>	
47	P3 <sub>3</sub>	
48	P3 <sub>2</sub>	
49	P3 <sub>1</sub>	
50	P3 <sub>0</sub>	
51	NC	
52	Vcc	+5V

M50765-460SP

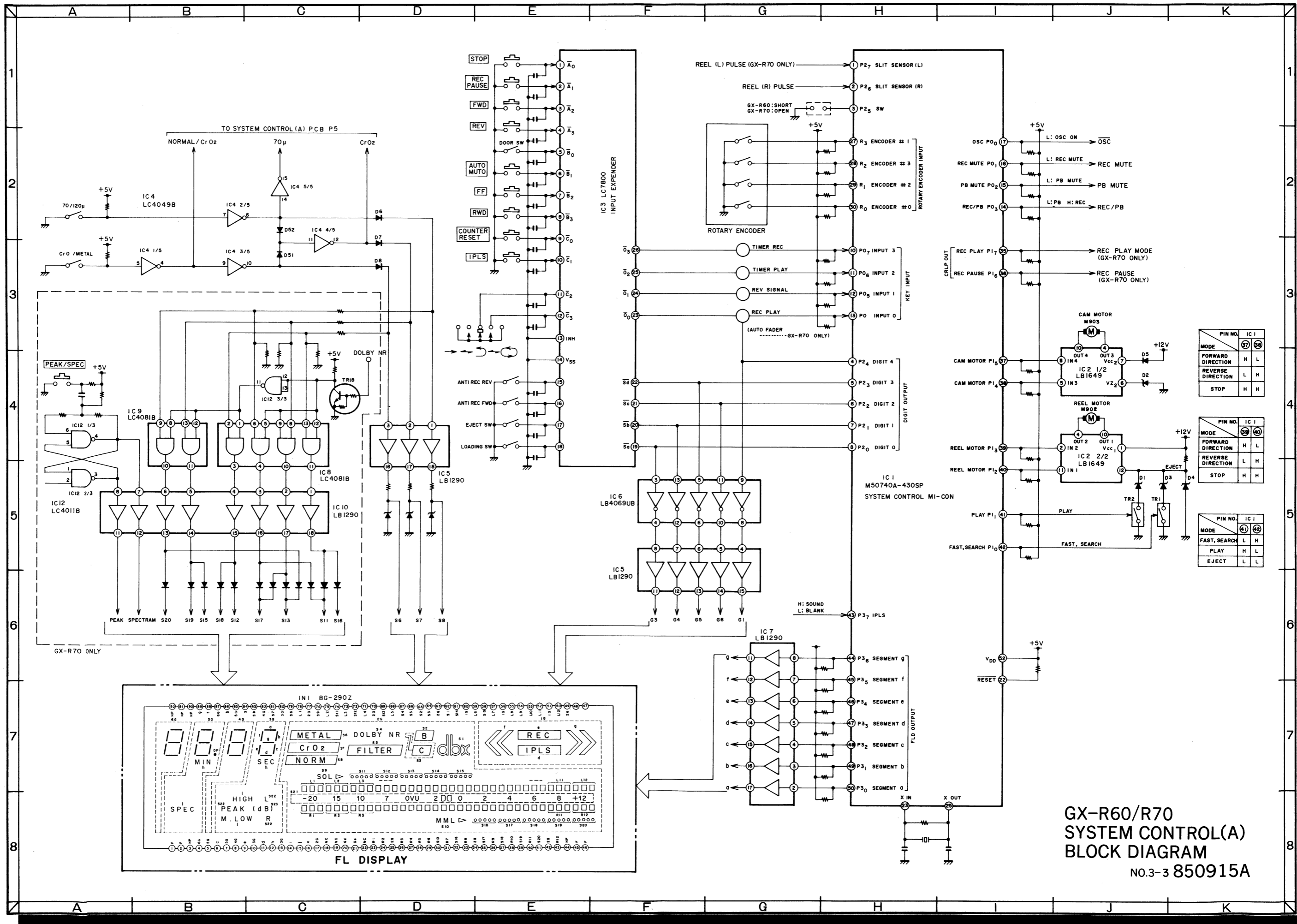
PIN	SYMBOL	DESCRIPTION
1	H2	7 Segment drive output
2	H3	CRLP indicator drive output
3	D0	Signal input for Electronic VR "UP"
4	D1	Signal input for Electronic VR "DOWN"
5	D2	Signal input for AUTO FADER
6	D3	Signal input for AUTO/MANUAL select
7	D4	} Electronic VR control DATA output
8	D5	
9	D6	
		MUTE control output
		When REC LEVEL is minimum (display shows -- ) → "L" otherwise → "H"
10	D7	Signal output for AUTO FADER
11	D8	Digit signal output
12	D9	NO USED
13	F0	} Electronic VR control DATA output
14	F1	
15	F2	
16	F3	
17	P	POWER ON appointed signal input
18	RESET	RESET signal input terminal
19	X OUT	Connect a Resistor
20	X IN	
21	S	M.O.L Detector input Input level > MOL → "H" Input level < MOL → "L"
22	G0	} 7 Segment drive output
23	G1	
24	G2	
25	G3	} Connect to Ground
26	VSS	
27	CN VSS	
28	H0	} 7 Segment drive output
29	H1	
30	VDD	



GX-R70 CRLP  
BLOCK DIAGRAM  
NO.3-1 850916A(A4)



GX-R70 PRE AMP  
 & POWER SUPPLY  
 BLOCK DIAGRAM  
 No.3-2 850914A



PIN NO.		IC 1	
MODE	37	38	
FORWARD DIRECTION	H	L	
REVERSE DIRECTION	L	H	
STOP	H	H	

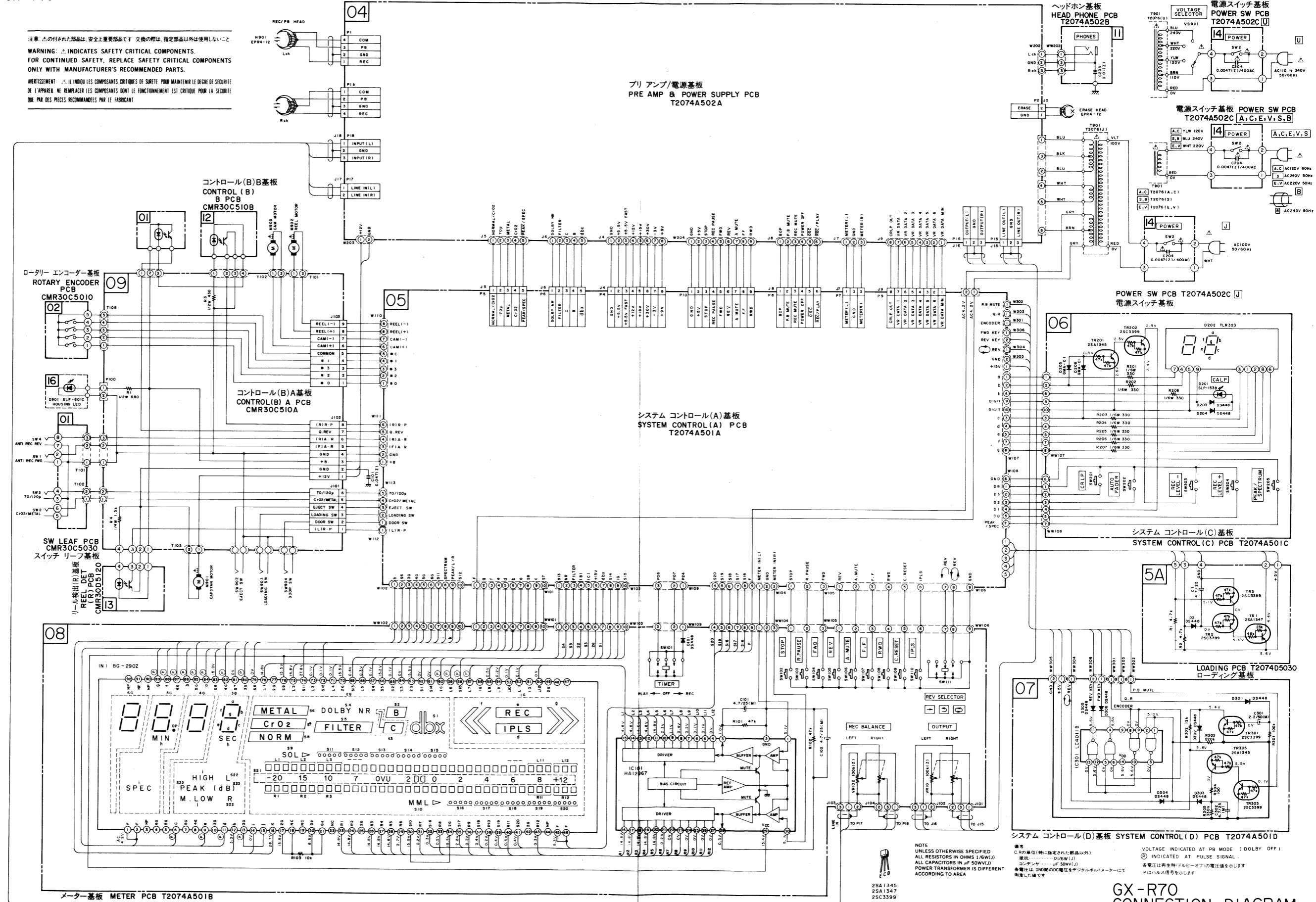
PIN NO.		IC 1	
MODE	39	40	
FORWARD DIRECTION	H	L	
REVERSE DIRECTION	L	H	
STOP	H	H	

PIN NO.		IC 1	
MODE	41	42	
FAST SEARCH	L	H	
PLAY	H	L	
EJECT	L	L	

**GX-R60/R70  
SYSTEM CONTROL(A)  
BLOCK DIAGRAM**  
NO.3-3 850915A

GX-R70

注意: △の付された部品は、安全上重要部品です。交換の際は、指定部品以外は使用しないこと。  
 WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
 AVERTISSEMENT: △ IL INDIQUÉ LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SÛRETÉ DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SÛRETÉ QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



NOTE  
 UNLESS OTHERWISE SPECIFIED  
 ALL RESISTORS IN OHMS (1/GW/J)  
 ALL CAPACITORS IN μF (50WV/J)  
 POWER TRANSFORMER IS DIFFERENT  
 ACCORDING TO AREA

備考  
 Cの単位(特に指定された部品以外)  
 Rの単位(特に指定された部品以外)  
 コンデンサ: μF (50WV/J)  
 各電圧は再生時ドルビーオフの電圧値を示します  
 △はハイス信号を示します

GX-R70  
 CONNECTION DIAGRAM  
 NO.3-1 850917A

ガイド検出基板  
GUIDE DETECTOR PCB  
CMR01B0050

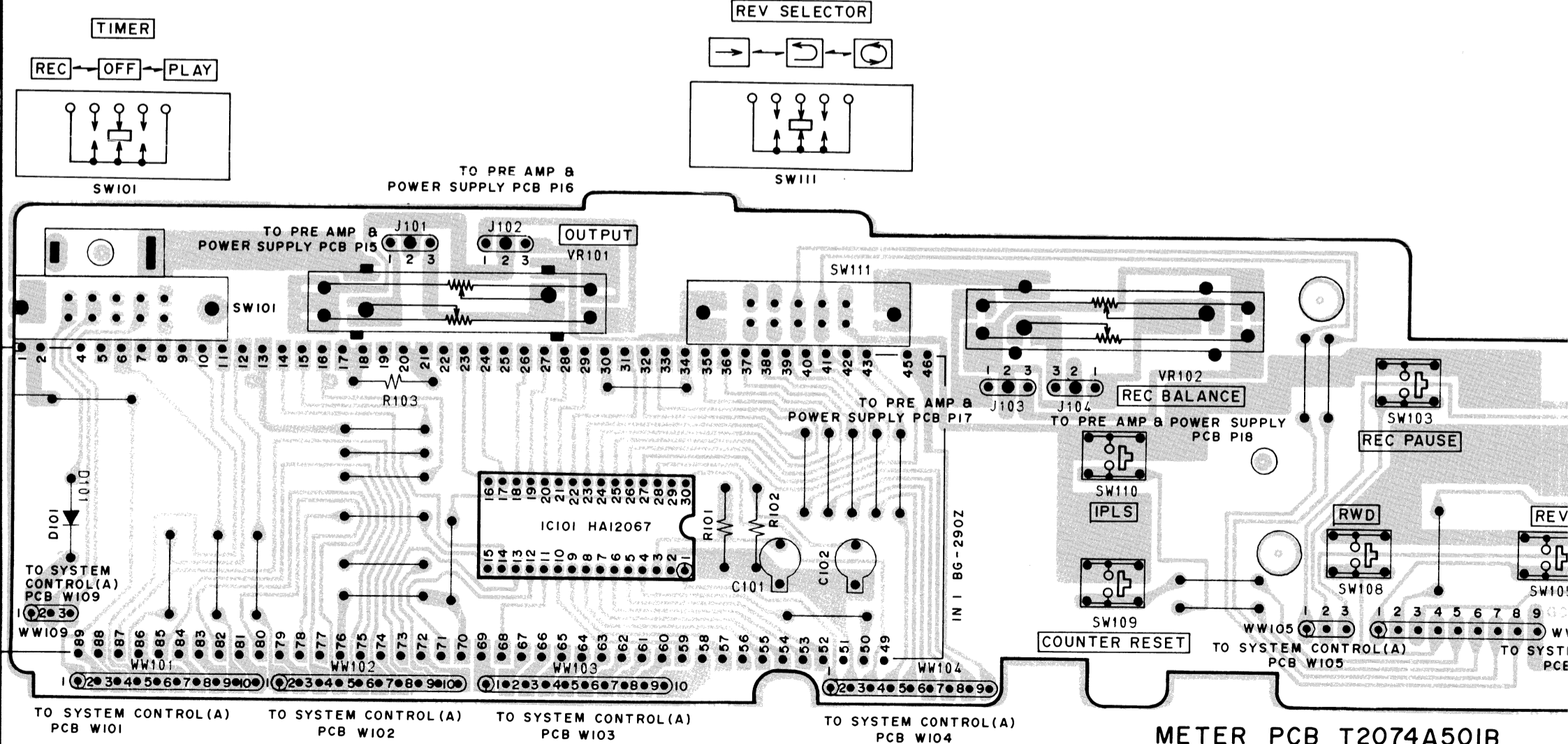
コントロール(B)B基板  
CNTROL (B) B PCB  
CMR30C510B

ロータリー エンコーダー基板  
ROTARY ENCODER PCB  
CMR30B5010

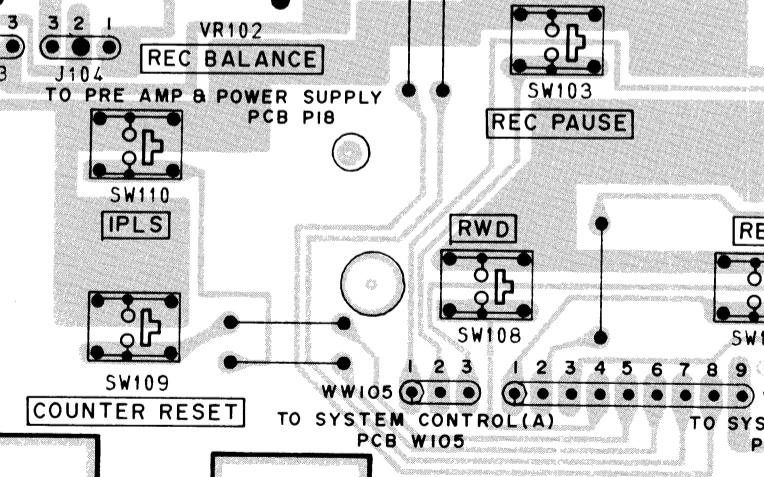
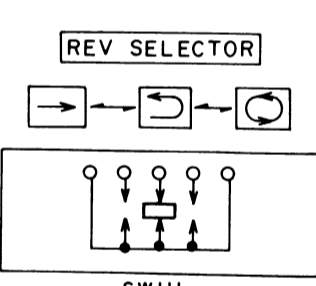
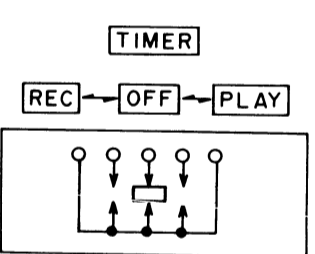
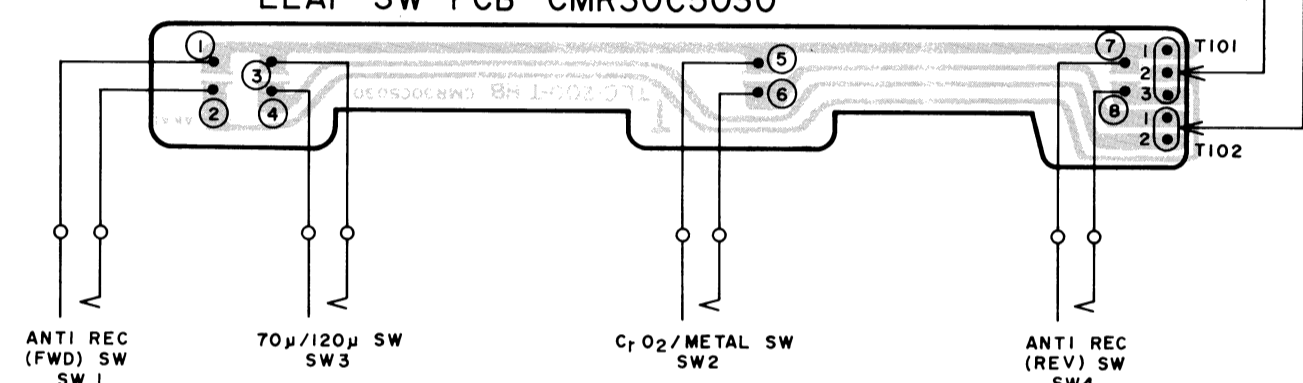
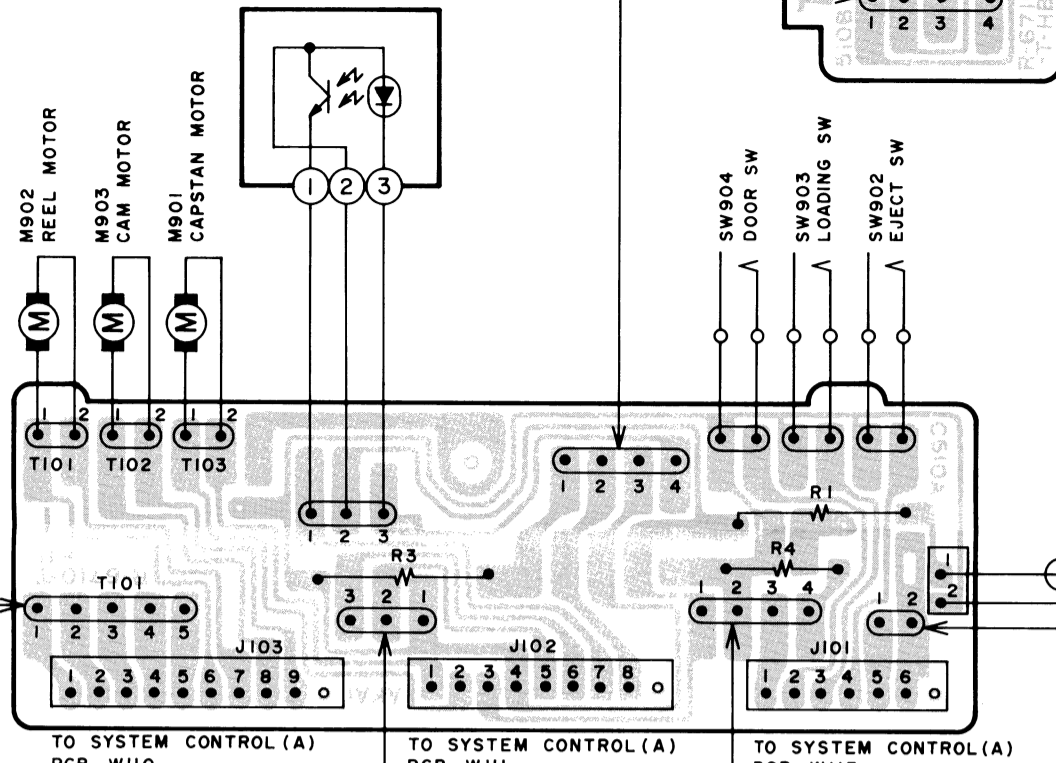
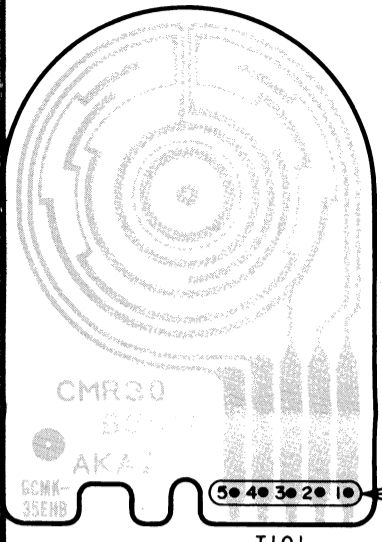
コントロール(B)A基板  
CNTROL (B) A PCB  
CMR30C510A

リーフ スイッチ基板  
LEAF SW PCB CMR30C5030

リール検出基板  
REEL DET (R) PCB  
CMR30D5120

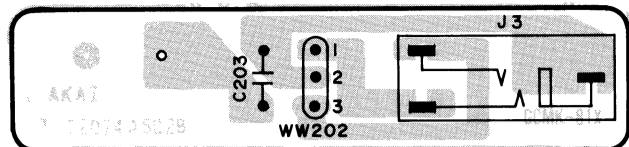


METER PCB T2074A501B  
メーター基板

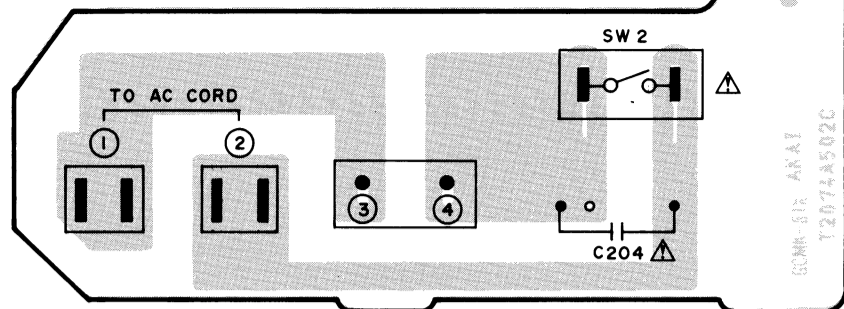




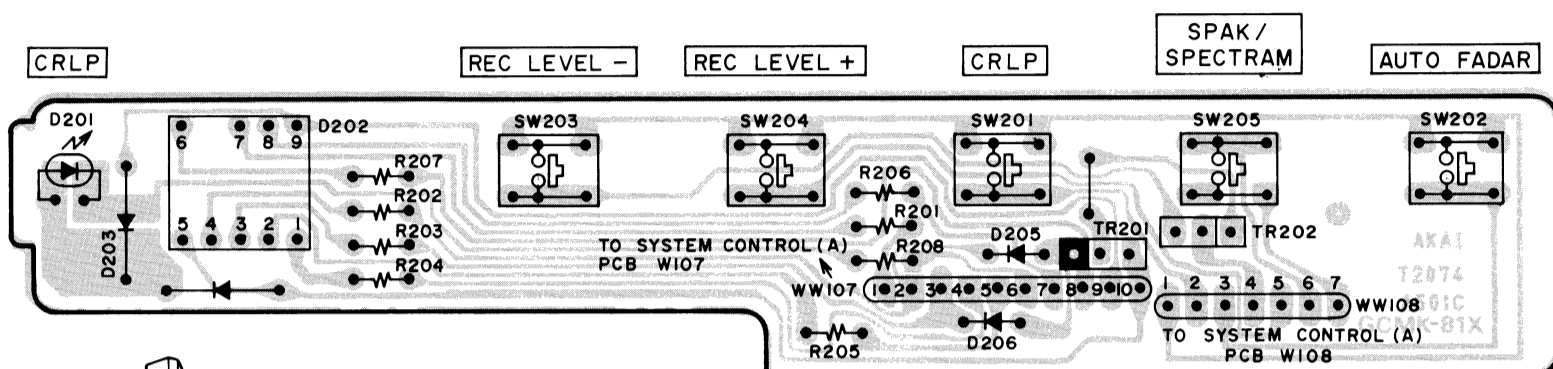
レ(B)B基板  
(B) B PCB  
510B



ヘッドホン基板  
HEAD PHONE PCB  
T2074A502B



電源スイッチ基板  
POWER SW PCB T2074A502C



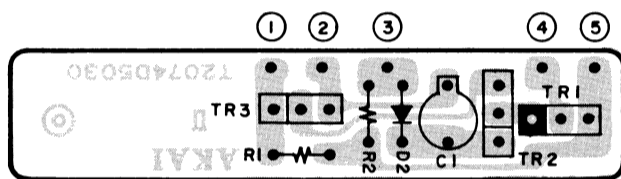
システムコントロール(C)基板  
SYSTEM CONTROL (C) PCB T2074A501C



TR201 ---- 2SA1345  
TR202 ---- 2SC3399

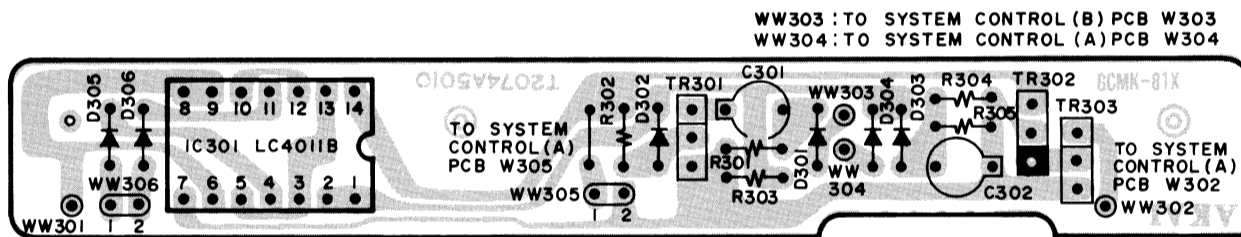
B  
●●● = NPN TRANSISTOR  
●●● = PNP TRANSISTOR

検出基板  
DET (R) PCB  
30D5120



ローディング基板  
LOADING PCB T2074D5030

TR1 ---- 2SA1347  
TR2,3 -- 2SC3399

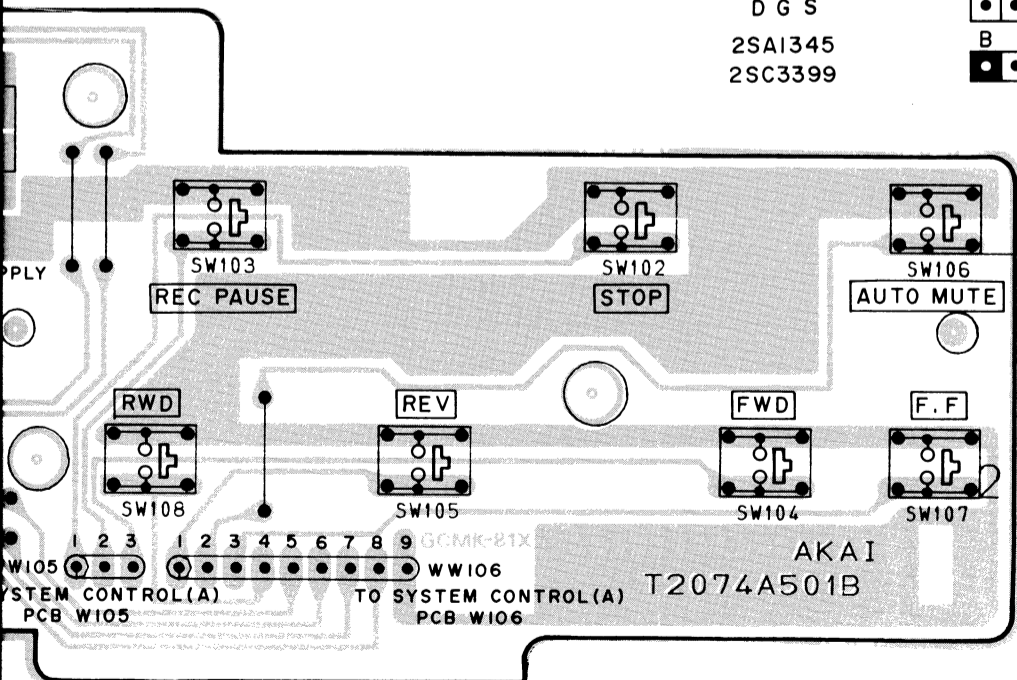


システムコントロール(D)基板  
SYSTEM CONTROL (D) PCB T2074A501D



TR301,303 --- 2SC3399  
TR302 ---- 2SA1345

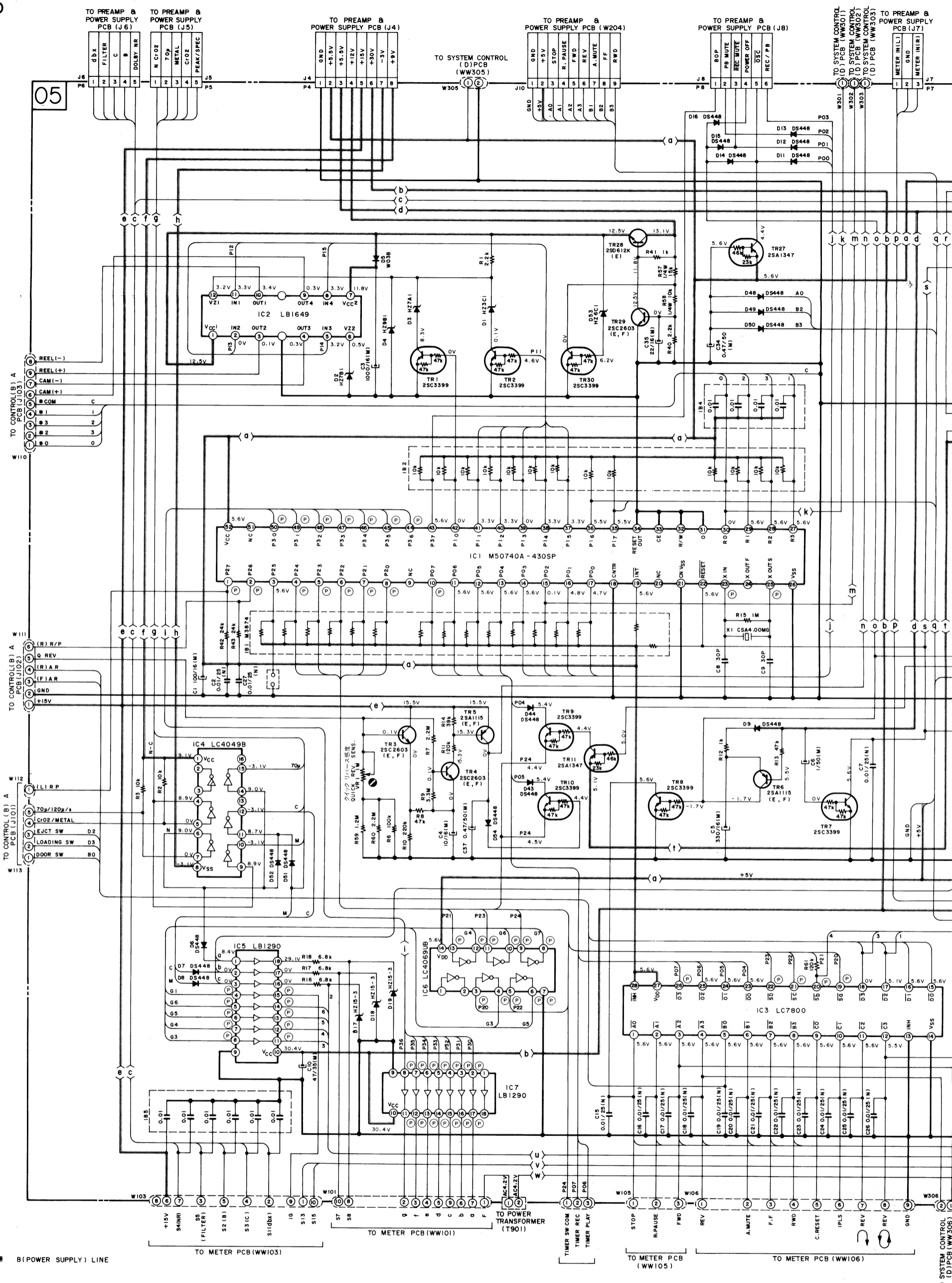
B  
●●● = NPN TRANSISTOR  
●●● = PNP TRANSISTOR



基板  
PCB T2074A501B

注意: △の付された部品は、安全上重要部品です。交換の際は、指定部品以外は使用しないこと。  
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 SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

GX-R70



TO PREAMP & POWER SUPPLY PCB (J6) TO PREAMP & POWER SUPPLY PCB (J5) TO PREAMP & POWER SUPPLY PCB (J4) TO SYSTEM CONTROL (D) PCB (WW305) TO PREAMP & POWER SUPPLY PCB (W204) TO PREAMP & POWER SUPPLY PCB (J8) TO SYSTEM CONTROL (D) PCB (WW301) TO SYSTEM CONTROL (D) PCB (WW302) TO SYSTEM CONTROL (D) PCB (WW303) TO PREAMP & POWER SUPPLY PCB (J7)

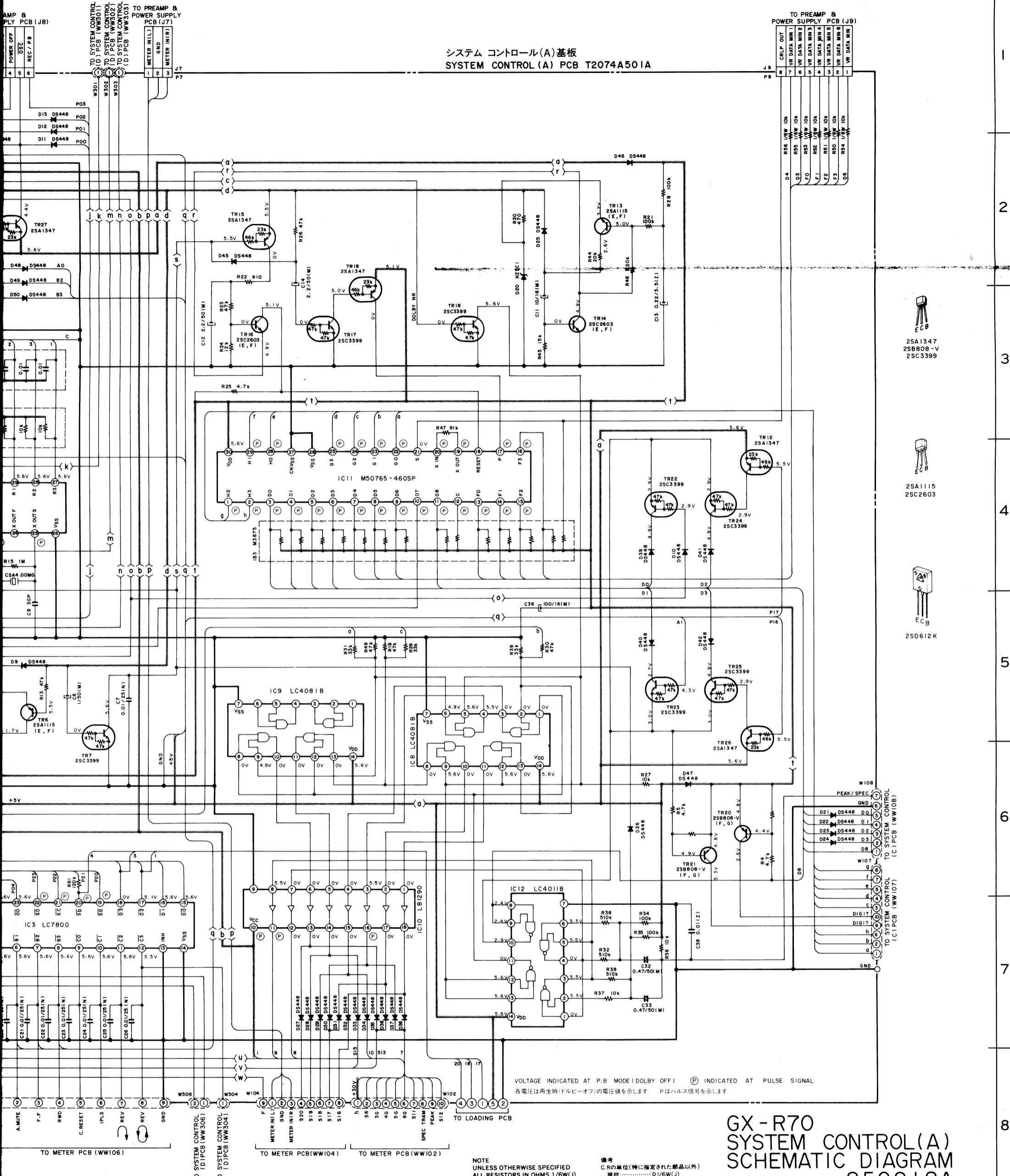
TO CONTROL (B) A PCB (J103) TO CONTROL (B) A PCB (J102) TO CONTROL (B) A PCB (J101) TO METER PCB (WW101) TO METER PCB (WW103) TO METER PCB (WW105) TO METER PCB (WW106) TO SYSTEM CONTROL (D) PCB (WW306) TO SYSTEM CONTROL (D) PCB (WW305)

REEL(-) REEL(+) CAM(-) CAM(+) COM #1 #2 #3 #4 #5 (R) R/P Q REV (R) A R (F) A R GND +15V (L) R/P 70p/120p/s CROZ/METAL EJECT SW D2 DOOR SW D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44 D45 D46 D47 D48 D49 D50 D51 D52 D53 D54 D55 D56 D57 D58 D59 D60 D61 D62 D63 D64 D65 D66 D67 D68 D69 D70 D71 D72 D73 D74 D75 D76 D77 D78 D79 D80 D81 D82 D83 D84 D85 D86 D87 D88 D89 D90 D91 D92 D93 D94 D95 D96 D97 D98 D99 D100 D101 D102

電源 B (POWER SUPPLY) LINE

001776

システムコントロール(A)基板  
SYSTEM CONTROL (A) PCB T2074A501A



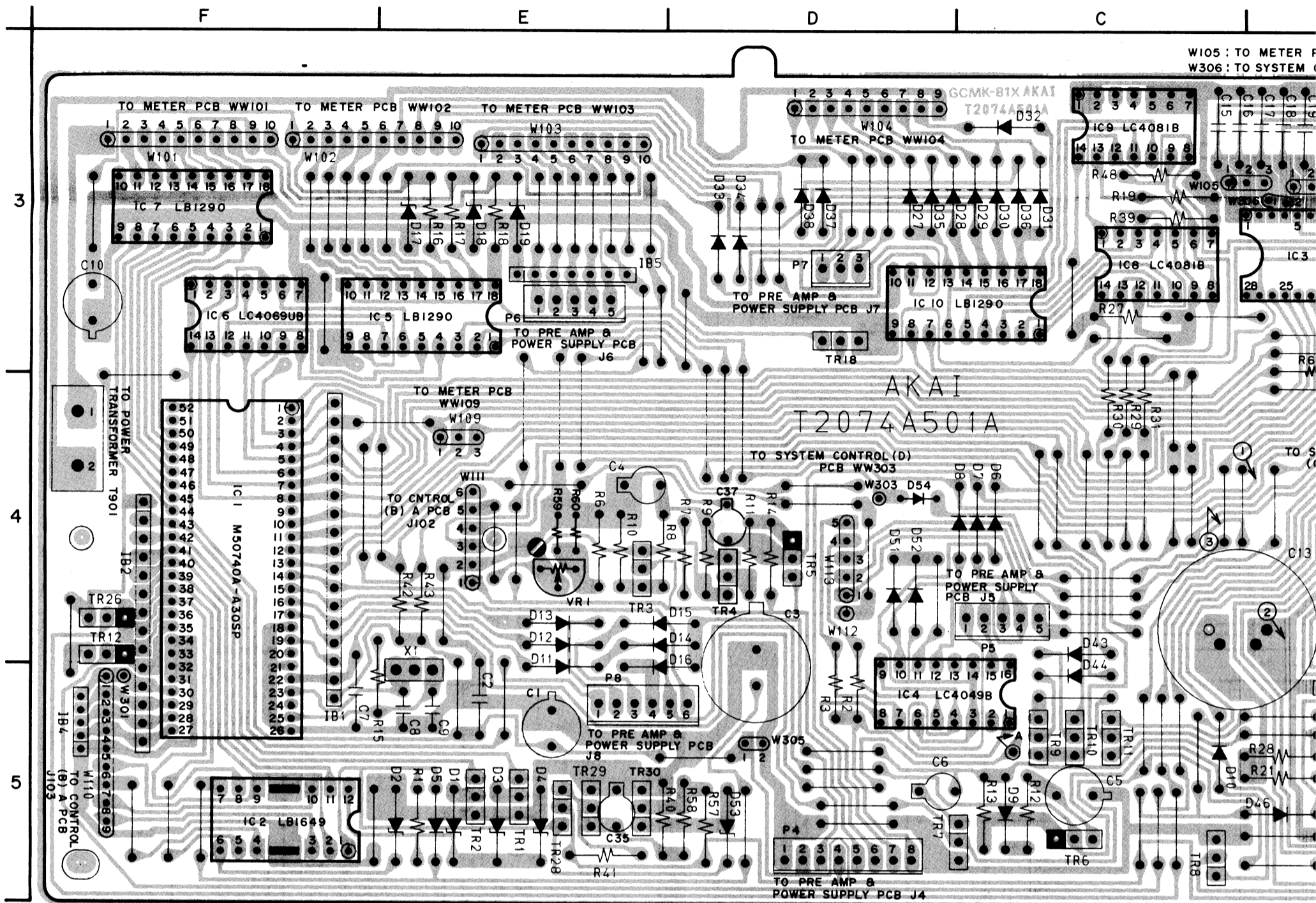
VOLTAGE INDICATED AT P.B MODE (DOLBY OFF) (P) INDICATED AT PULSE SIGNAL  
各電圧は再生時(ドルビーオフ)の電圧値を示します。 Pはハルス信号を示します

NOTE  
UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS IN OHMS 1/50W(J)  
ALL CAPACITORS IN μF 50WV(J)

備考  
C,Rの単位(特に指定された部品以外)  
抵抗……………Ω/1/50W(J)  
コンデンサ……………μF 50WV(J)

GX-R70  
SYSTEM CONTROL(A)  
SCHEMATIC DIAGRAM  
NO.3-2 850918A

- 25A1347
- 25B808-V
- 25C3399
- 25A1115
- 25C2603
- 25D612K

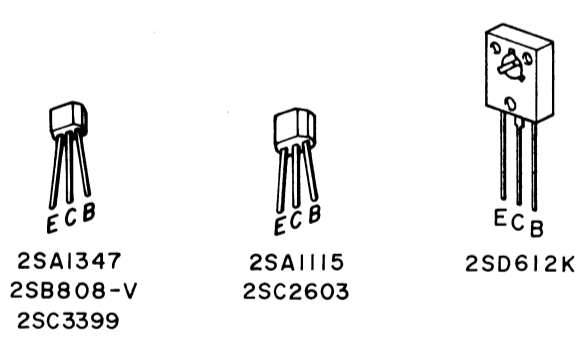


W301: TO SYSTEM CONTROL (D)  
PCB WW301

W305: TO SYSTEM CONTROL (D)  
PCB WW305

W112, 113: TO CONTROL (B) A PCB J101

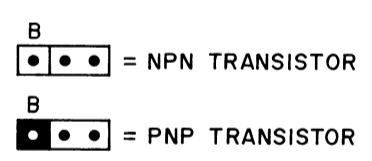
SYSTEM CONTROL (D)  
システムコントロール



2SA1347  
2SB808-V  
2SC3399

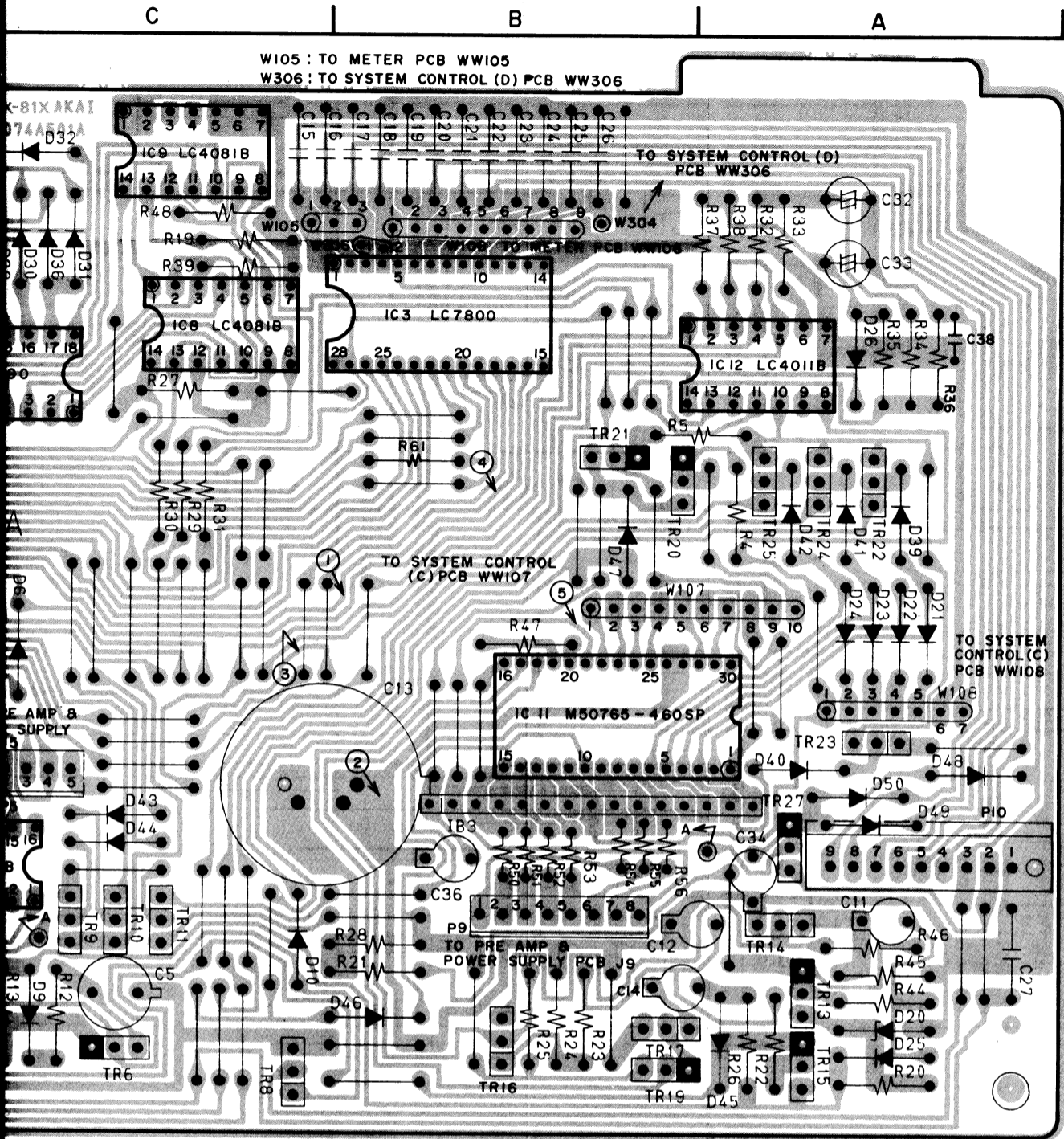
2SA1115  
2SC2603

2SD612K



- TR1, 2, 7 to 10  
17, 18, 22 to 25 --- 2SC3399
- TR3, 4, 14, 16 ----- 2SC2603 (E, F)
- TR5, 6, 13 ----- 2SA1115 (E, F)
- TR11, 12, 15, 19  
26, 27 ----- 2SA1347
- TR20, 21 ----- 2SB808-V (F, G)
- TR28 ----- 2SD612K (E)

VRI : QUICK REV SENS ADJ



LOCATION OF COMPONENTS

ICs

- IC1.....F4
- IC2.....F5
- IC3.....B3
- IC4.....C5, D5
- IC5.....E3
- IC6,7.....F3
- IC8,9.....C3
- IC10.....C3, D3
- IC11.....B4
- IC12.....A12

TRs

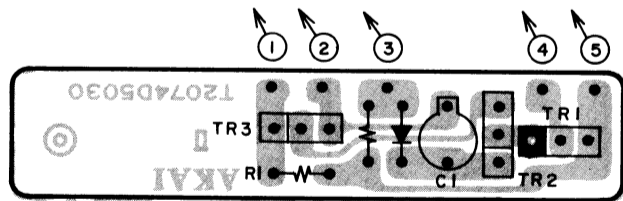
- TR1,2.....E5
- TR3.....E4
- TR4,5.....D4
- TR6 to 11...C5
- TR12.....F4
- TR13 to 15...A5
- TR16,17.....B5
- TR18.....D3
- TR19.....B5
- TR20.....B4
- TR21.....B3
- TR22 to 25...A4
- TR26.....F4
- TR27.....A5
- TR28 to 30...E5

CONNECTORS

- P4.....D5
- P5.....C4
- P6.....E3
- P7.....D3
- P8.....E5
- P9.....B5
- P10.....A5

SYSTEM CONTROL (A) PCB T2074A501A  
システムコントロール(A)基板

- TR1,2,7 to 10  
17,18,22 to 25 --- 2SC3399
- TR3,4,14,16 ----- 2SC2603 (E,F)
- TR5,6,13 ----- 2SA1115 (E,F)
- TR11,12,15,19  
26,27 ----- 2SA1347
- TR20,21 ----- 2SB808-V (F,G)
- TR28 ----- 2SD612K (E)

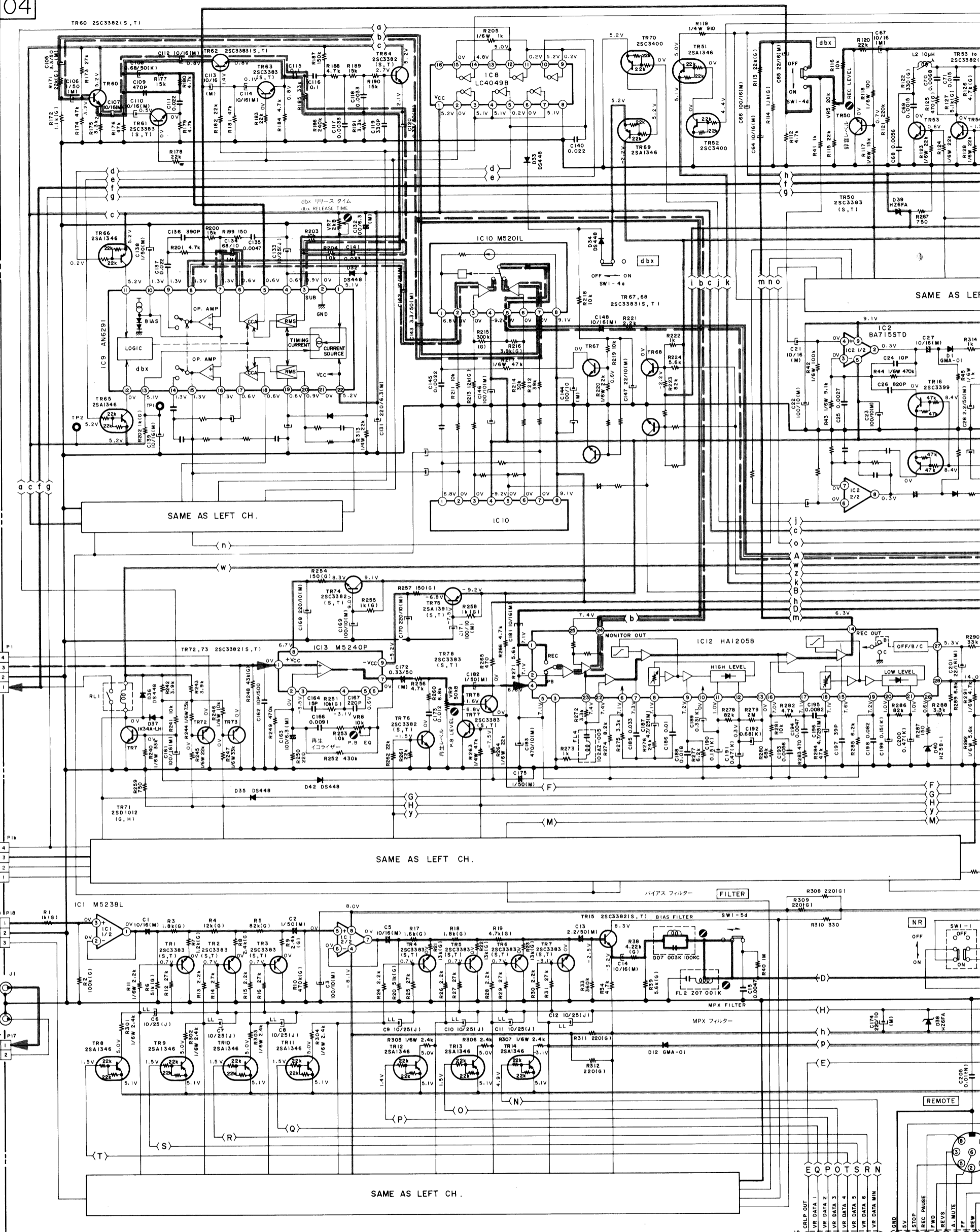


LOADING PCB T2074D5030  
ローディング基板

- TR1 --- 2SA1347
- TR2,3 --- 2SC3399

04

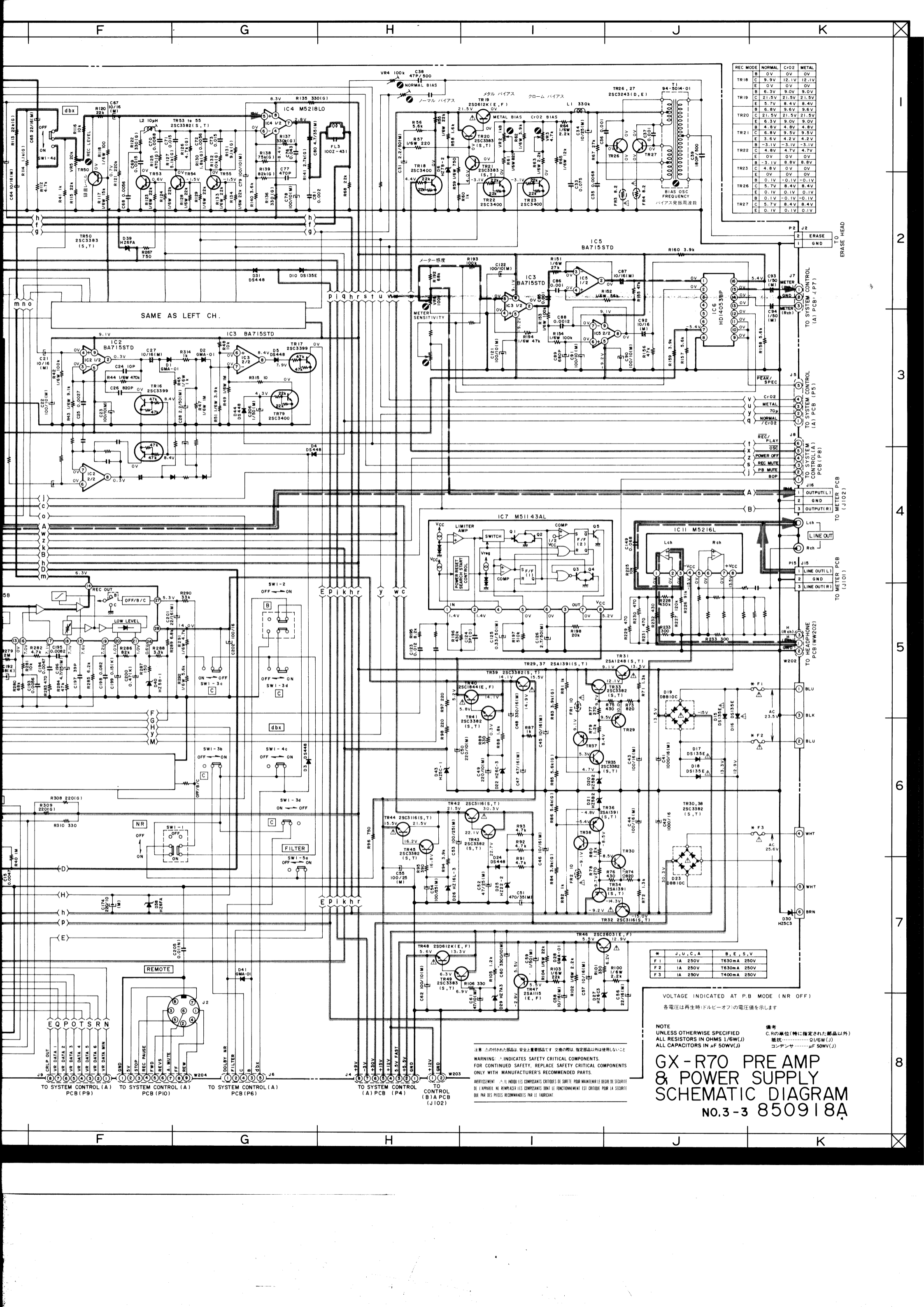
- B C E
- 25C1884
- 25C3382
- 25C3383
- F C B
- 25C3243
- E C B
- 25A1346
- 25C3399
- 25C3400
- 25D1012-V
- E C B
- 25A1115
- 25C2603
- E C B
- 25A1248
- 25C3116
- 25D612K



PREAMP & POWER SUPPLY PCB T2074A502A  
 プリ アンプ/電源基板

- B (POWER SUPPLY) LINE 電源線
- REC SIGNAL LINE 録音信号線
- P.B SIGNAL LINE 再生信号線

TO SYSTEM CONTROL (A) PCB (P9)    TO SYSTEM CONTROL (A) PCB (P10)



REC MODE	NORMAL	Cr02	METAL
TR18	B 0V	0V	0V
	C 9.9V	12.1V	12.1V
	E 0V	0V	0V
TR19	B 6.3V	9.0V	9.0V
	C 21.5V	21.5V	21.5V
	E 5.7V	8.4V	8.4V
TR20	B 6.8V	9.6V	9.6V
	C 21.5V	21.5V	21.5V
	E 6.3V	9.0V	9.0V
TR21	B 4.9V	4.8V	4.8V
	C 6.8V	9.5V	9.5V
	E 3.6V	4.2V	4.2V
TR22	B -3.1V	-3.1V	-3.1V
	C 4.8V	4.7V	4.7V
	E 0V	0V	0V
TR23	B -3.1V	8.8V	8.8V
	C 4.8V	0V	0V
	E 0V	0V	0V
TR26	B 0.1V	-0.1V	-0.1V
	C 5.7V	8.4V	8.4V
	E 0.1V	0.1V	0.1V
TR27	B 0.1V	8.4V	8.4V
	C 5.7V	8.4V	8.4V
	E 0.1V	0.1V	0.1V

* J, U, C, A	B, E, S, V
F1	1A 250V T630mA 250V
F2	1A 250V T630mA 250V
F3	1A 250V T400mA 250V

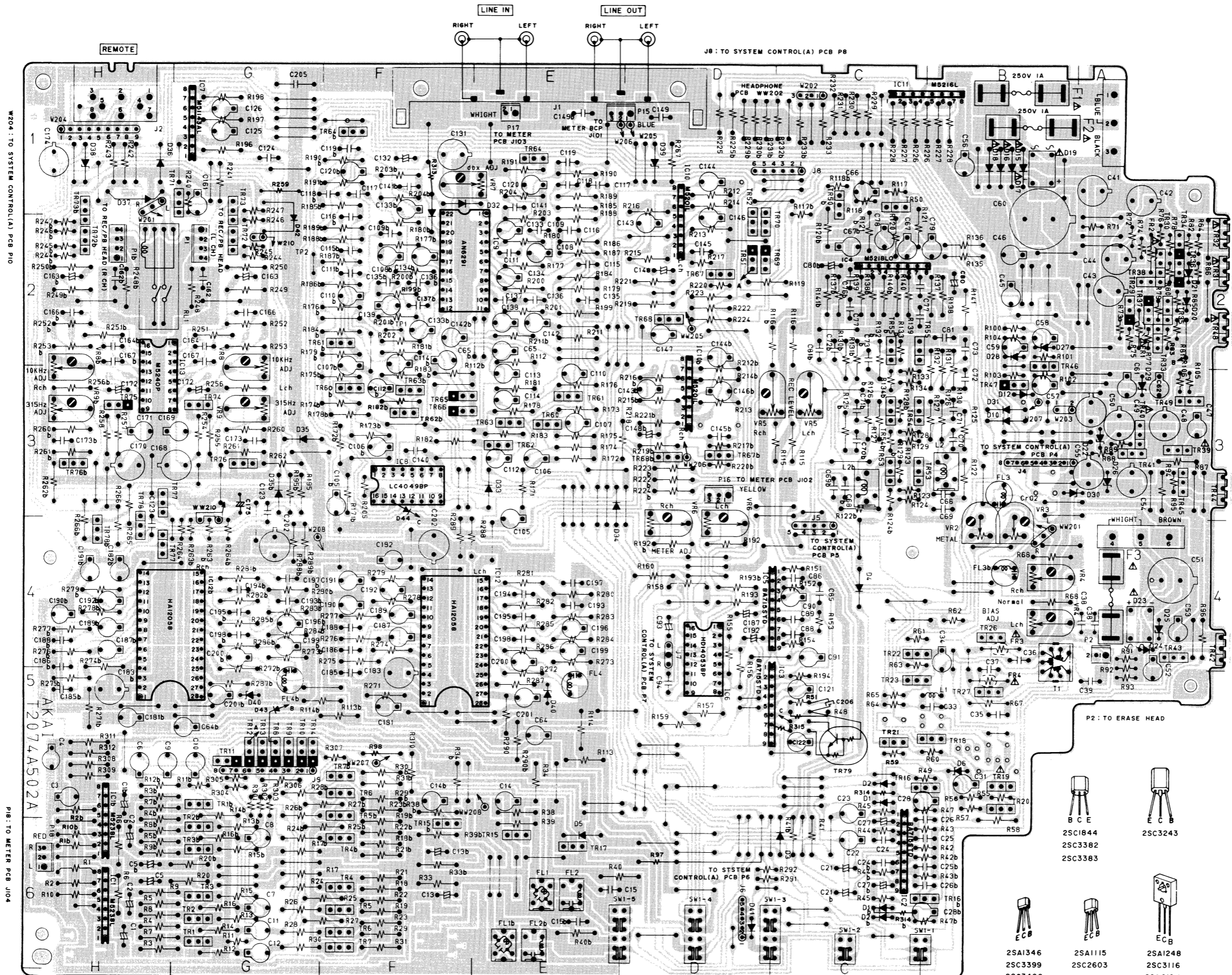
VOLTAGE INDICATED AT P.B MODE (NR OFF)  
各電圧は再生時(ドルビーオフ)の電圧値を示します

NOTE  
UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS IN OHMS 1/6W(J)  
ALL CAPACITORS IN  $\mu$ F 50WV(J)

# GX-R70 PRE AMP & POWER SUPPLY SCHEMATIC DIAGRAM

No.3-3 850918A

注意 点の付された部品は 安全上重要部品です 交換の際は 指定部品以外は使用しないこと  
WARNING: \* INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
\* IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE POUR MAINTENIR LE DEGRÉ DE SECURITE DE L'APPAREIL. NE REMPLACEZ LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



LOCATION OF COMPO

ICs	TR31.....A2
IC1.....H6	TR32.....A2
IC1b.....H5,6	TR33.....A2
IC2.....C6	TR34.....A2
IC3.....C5,D5	TR35.....A2
IC4.....C3	TR36.....A2
IC5.....C4,D4	TR37.....A2
IC6.....D4,D5	TR38.....A2
IC7.....G1	TR39.....A3
IC8.....F2	TR40.....A3
IC9.....F3	TR41.....A3
IC10.....D1,D2	TR42.....A2
IC10b.....D3	TR43.....A4
IC11.....B1,C1	TR44.....A3
IC12.....F4	TR45.....A3
IC12b.....G4,H4	TR46.....B2
IC13.....H2,H3	TR47.....B3
	TR48.....A2
	TR49.....A3
	TR50.....C1
TRs	TR50b.....C1
TR1.....G6	TR52.....D2
TR1b.....G5	TR53.....C3
TR2.....G6	TR53b.....C3
TR2b.....G6	TR54.....C3
TR3.....G6	TR55.....C2
TR3b.....G6	TR55b.....C2
TR4.....F6	TR60.....E3
TR4b.....F6	TR60b.....E3
TR5.....F6	TR61.....E3
TR5b.....F5,6	TR61b.....E3
TR6.....F6	TR62.....E3
TR6b.....F5	TR62b.....E3
TR7.....F6	TR63.....E3
TR7b.....F5	TR63b.....E3
TR8.....G5	TR64.....E1
TR9.....G5	TR64b.....F1
TR10.....G5	TR65.....F3
TR11.....G5	TR65b.....F3
TR12.....G2	TR66.....F3
TR13.....G5	TR67.....D2
TR14.....G5	TR67b.....D3
TR15.....E6	TR68.....D2
TR15b.....F6	TR68b.....D3
TR16.....B5,C5	TR69.....D2
TR16b.....B6,C6	TR70.....D2
TR17.....E6	TR71.....G1
TR18.....B5	TR72.....G2
TR19.....B5	TR72b.....H2
TR20.....B5	TR73.....G1
TR21.....C5	TR73b.....H1
TR22.....C4	TR74.....G3
TR23.....C5	TR75.....H3
TR26.....B4	TR76.....G3
TR27.....B5	TR76b.....H3
TR29.....A2	TR77.....H3
TR30.....A2	TR77b.....H4
	TR78.....H4
	TR78b.....H4
	TR79.....C5

CONNECTORS

P1.....G2
P1b.....H2
P2.....A4
P15.....D1,E1
P17.....E1
P18.....H6

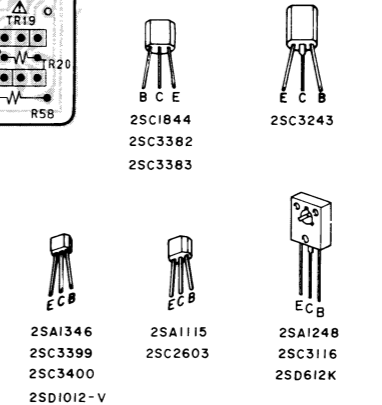
TR1 to 7, TR20,21,49,50 61 to 63,67,68 77,78.....	2SC3383 S,T
TR8 to 14 TR51,65,66,69.....	2SA1346
TR15,30,33,35,38,39 41,43,45,53 to 55 60,64,72 to 74 76.....	2SC3382 S,T
TR16,17.....	2SC3399
TR18,22,23,52,70,79.....	2SC3400
TR19,48.....	2SD612K E,F
TR26,27.....	2SC3243 D,E
TR29,34,36,37,75.....	2SA1391 S,T
TR31.....	2SA1248
TR32,42,43.....	2SC3116 S,T
TR40.....	2SC1844 F
TR46.....	2SC2603
TR47.....	2SA1115 E,F,G
TR71.....	2SD1012 V H

VR2...METAL BIAS ADJ  
 VR3...CFO2 BIAS ADJ  
 VR4...NORMAL BIAS ADJ  
 VR5...REC LEVEL ADJ  
 VR6...METER SENS.ADJ  
 VR7...dbx RELESE TIME ADJ  
 VR8...P.B EQ ADJ  
 VR9...P.B LEVEL ADJ

J9: TO SYSTEM CONTROL(A) PCB P9  
**PRE AMP & POWER SUPPLY PCB**  
**T2074A502A**  
 プリ アンプ/電源基板

注意: 点の付された部品は、安全上重要部品です。交換の際は、指定部品以外は使用しないでください。  
 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 besoin de sécurité de l'appareil. Ne remplacez les composants dont le fonctionnement est critique pour la sécurité que par des pièces recommandées par le fabricant.

ON OFF  
 MAX FILTER  
 DBX  
 DOLBY C  
 DOLBY B  
 NR OFF



• = NPN TRANSISTOR  
 • = PNP TRANSISTOR





## STEREO CASSETTE DECK

# MODEL GX-R70

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SECTION 2	PARTS LIST .....	19

# SAFETY INSTRUCTIONS

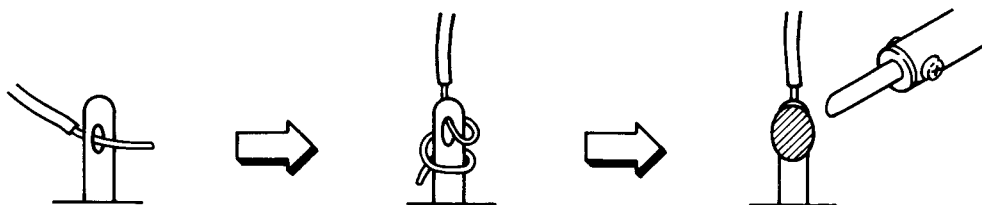
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## SAFETY CHECK AFTER SERVICING

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  $\triangle$  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.



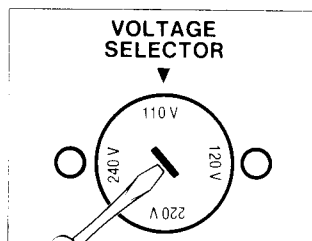
6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets,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

With DC Motors, Cycle Conversion is not necessary.

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SECTION 1

**SERVICE MANUAL**

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

# I. SPECIFICATIONS

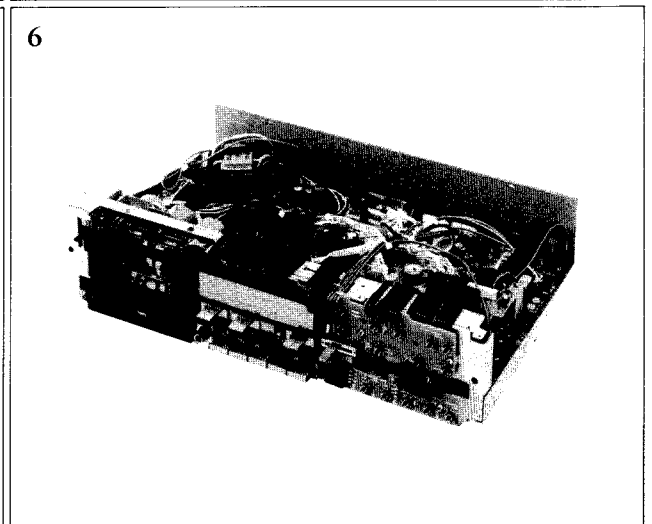
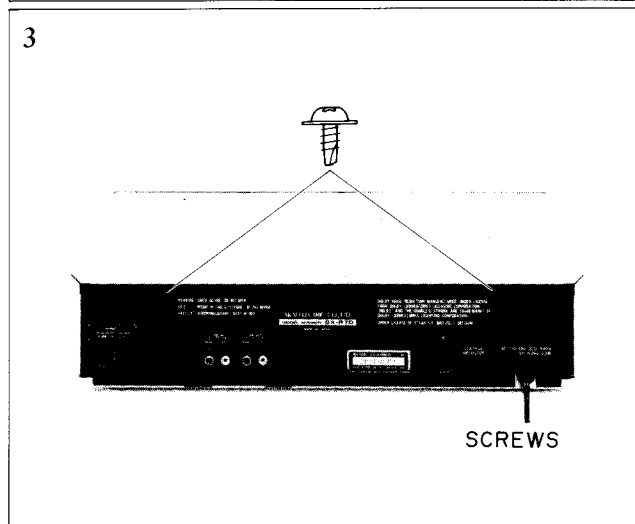
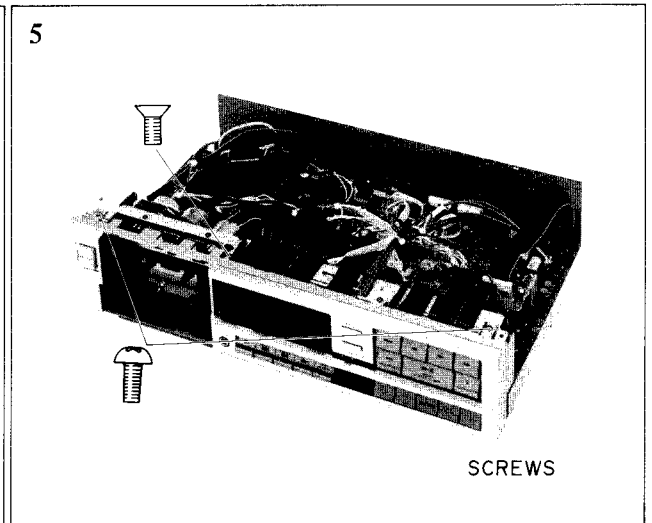
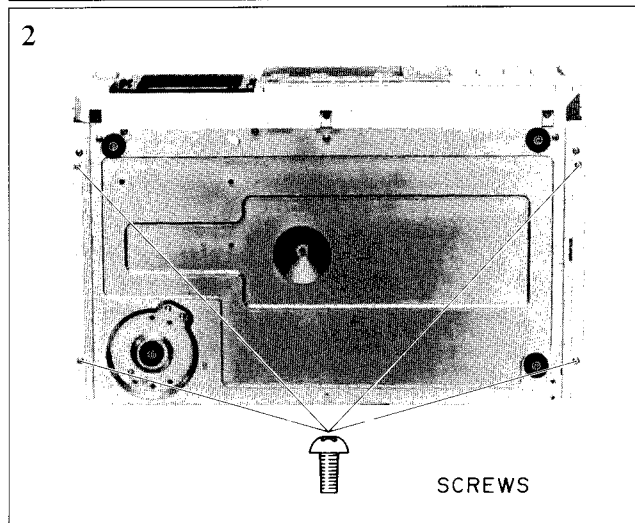
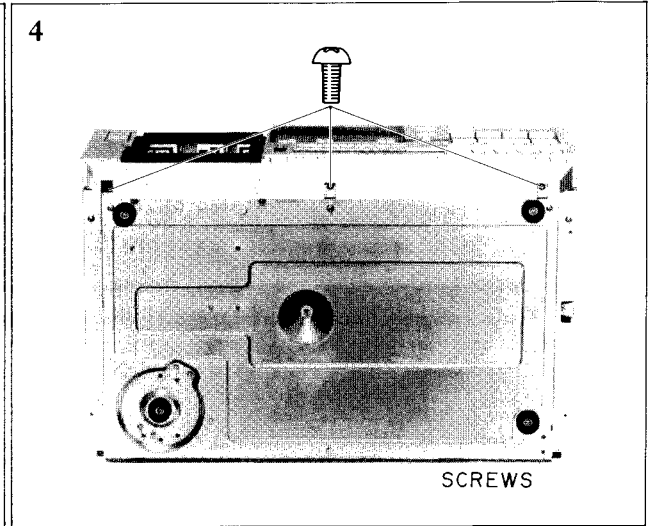
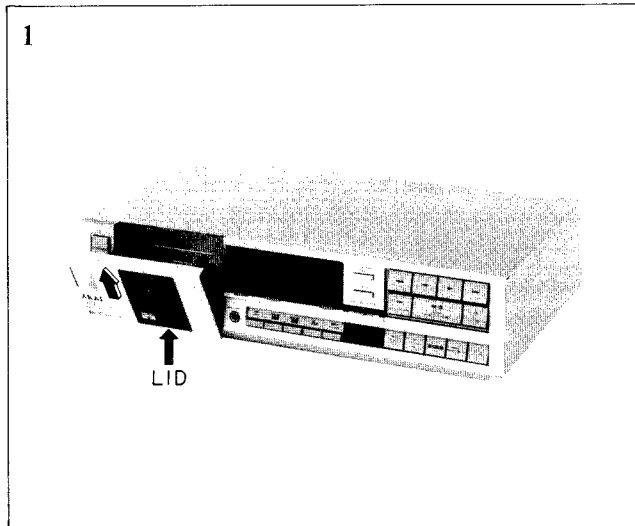
TRACK SYSTEM	4 track 2 channel stereo
TAPE	Phillips type cassette
HEADS	Twin field super GX head for recording and playback × 1 Erase head × 1
MOTORS	Electronically speed controlled DC motor for capstan drive × 1 DC motor for reel and lid drive × 1 DC motor for cam drive × 1
WOW & FLUTTER	0.05% WRMS (JIS), 0.12% (DIN) ±0.07% W. Peak (EIAJ) for J-model
FREQUENCY RESPONSE	NORMAL 20 Hz to 17,000 Hz ± 3 dB CrO <sub>2</sub> 20 Hz to 18,000 Hz ± 3 dB METAL 20 Hz to 19,000 Hz ± 3 dB
S/N (METAL)	60 dB 59 dB (EIAJ) For J-Model Dolby B type NR switch ON: Improves up to 5 dB at 1 kHz, 10 dB above 5 kHz Dolby C type NR switch ON: Improves up to 15 dB at 500 Hz, 20 dB at 1 kHz to 10 kHz
DYNAMIC RANGE (dbx ON, 1 kHz)	110 dB
HARMONIC DISTORTION (METAL)	Less than 0.8% 0.8% (EIAJ) For J-model
INPUT SENSITIVITY/IMPEDANCE	LINE 70 mV/47 kohms
OUTPUT SENSITIVITY/IMPEDANCE	LINE 388 mV/1 kohms HEADPHONES 1.3 mW (8 ohms)/83 ohms
POWER REQUIREMENTS	100V, 50/60 Hz for JPN 120V, 60 Hz for USA & Canada 220V, 50 Hz for Europe except UK 240V, 50 Hz for UK & Australia 110V/120V/220V/240V, 50 Hz/60 Hz convertible for other countries
POWER CONSUMPTION	17W for J-model
DIMENSIONS	440 (W) × 105 (H) × 280 (D) mm (17.3 × 4.1 × 11.0 inches)
WEIGHT	5.2 kg (11.4 lbs)

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

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

## II. DISMANTLING OF UNIT

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



### III. CONTROLS

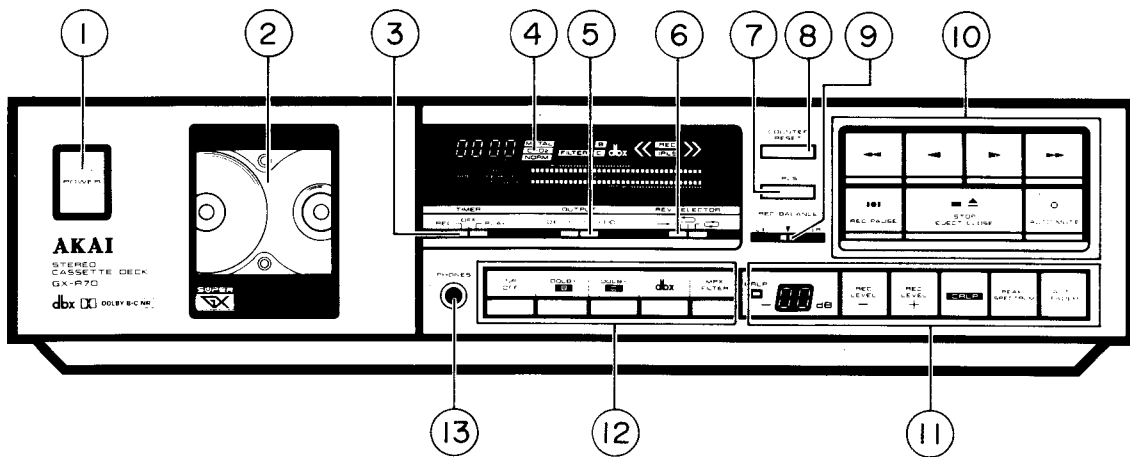


Fig. 3-1

1. POWER BUTTON
2. CASSETTE HOLDER AND CASSETTE LID
3. TIMER CONTROL
4. FL DISPLAY
5. OUT PUT CONTROL
6. REVERSE CONTROL
7. IPLS MODE SELECTOR
8. COUNTER RESET
9. REC BALANCE
10. TAPE TRANSPORT BUTTONS
11. RECORDING CONTROLS
12. NOISE REDUCTION CONTROL
13. PHONES JACK

# IV. PRINCIPAL PARTS LOCATION

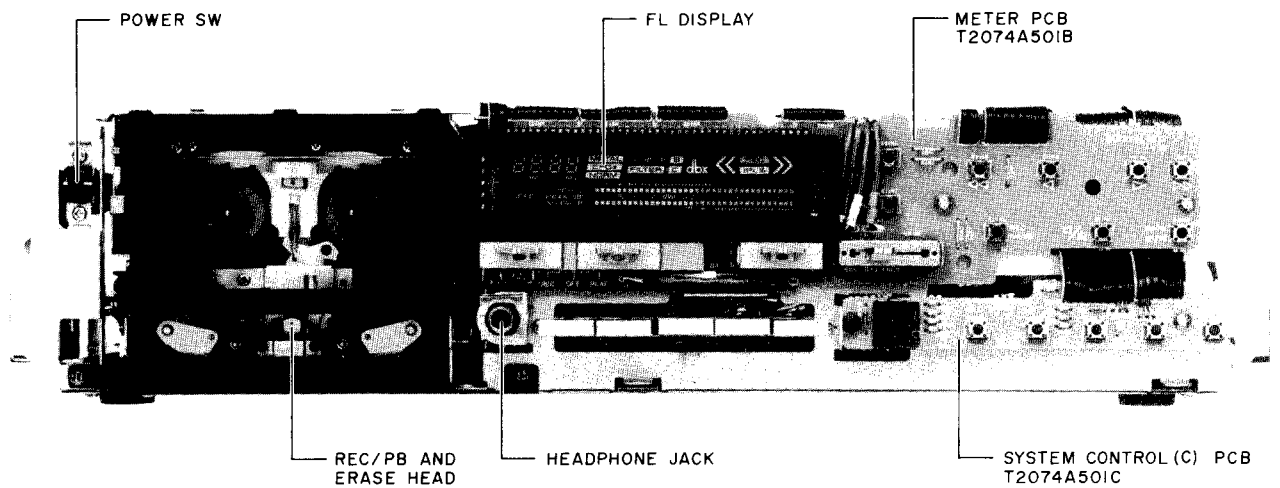


Fig. 4-1 Front View

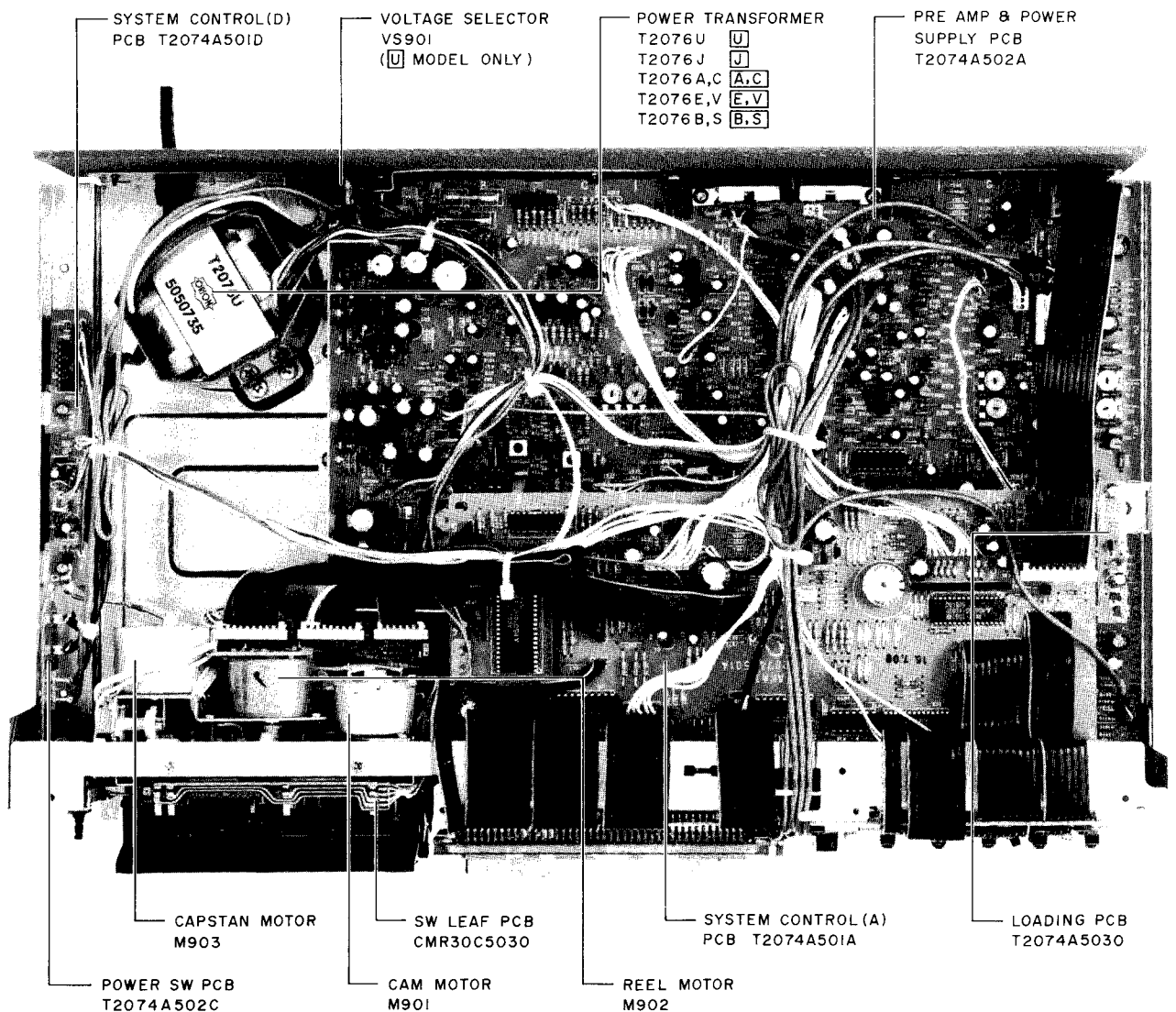


Fig. 4-2 Top View

## V. MECHANISM EXPLANATION OF EACH MODE

The operating functions are controlled by the rotary encoder. The main cam wheel is rotated to the set point. Here, we shall explain the mechanism functions:

The main cam wheel is driven by the cam motor through cam gears (B) and (C).

### 5-1. DIRECT OPERATIONS RESULTING BY MOVEMENTS OF THE MAIN GEAR WHEEL

#### 1) Pinch roller (Refer to Fig. 5-1)

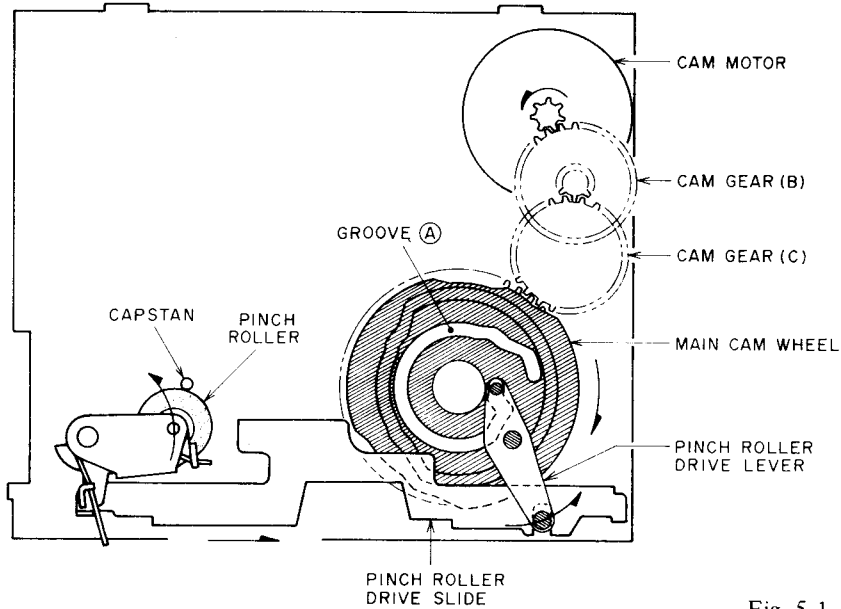


Fig. 5-1

The main cam wheel's groove (A) rived the pinch roller drive lever, pinch roller drive slide and the pinch roller.

When the pinch roller drive lever moves in the right direction, the reverse side's pinch roller moves to the left direction and the capstan contacts to the forward side's pinch roller.

#### 2) Head base plate (Refer to Fig. 5-2)

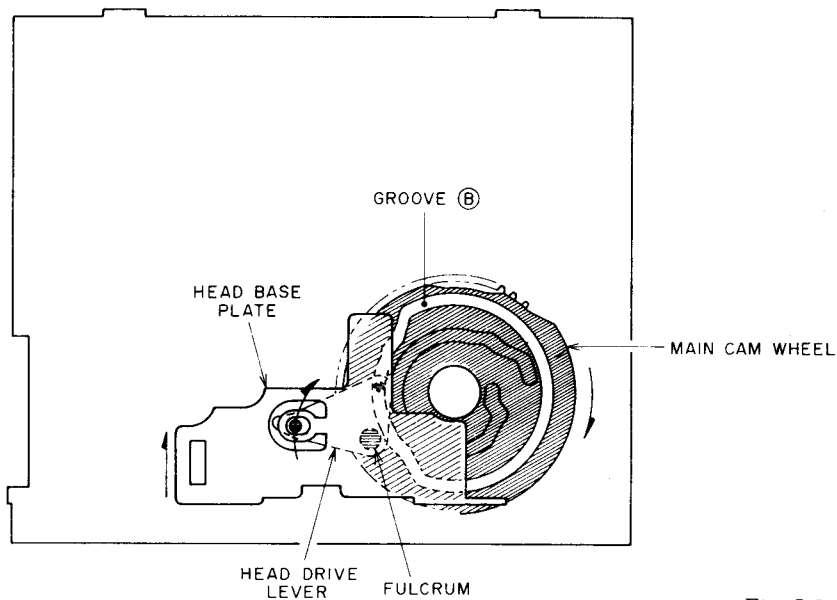


Fig. 5-2

The main cam wheel's groove (B) drives the head drive lever and the head base plate. When the head

base plate moves vertically, the REC/PB combination head moves vertically.



3) Head Rotation (Refer to Fig. 5-3)

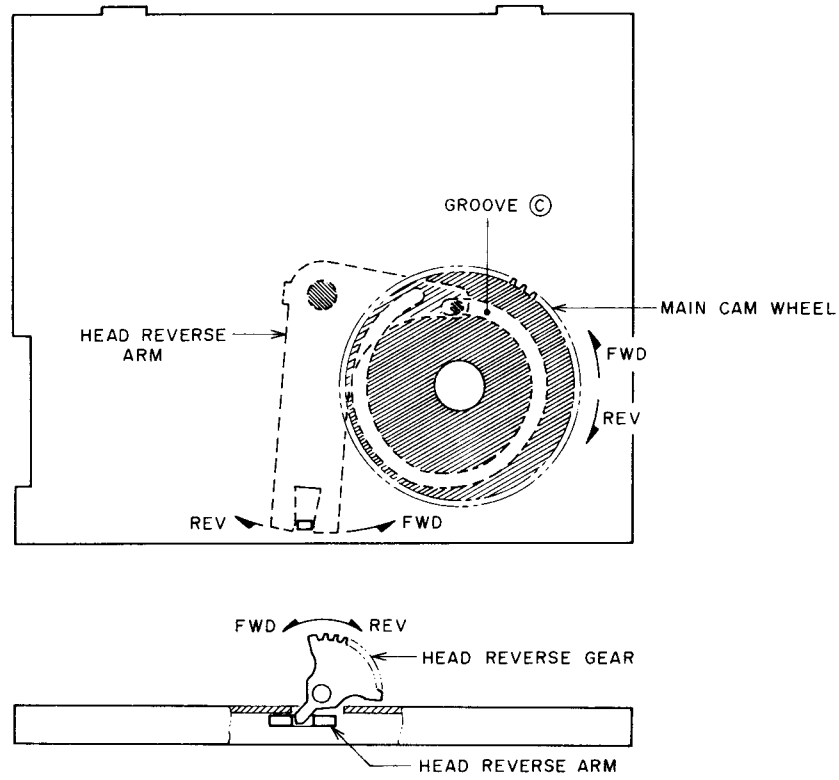


Fig. 5-3

The main cam wheel's groove © drives the head reverse arm and the head reverse gear.  
The head rotates when the head reverse gear move.

In the reverse mode, the head moves from left to right.  
In FWD mode, the head moves from right to left.

4) Brake and Reel Base (Refer to Figs. 5-4 to 5-7)

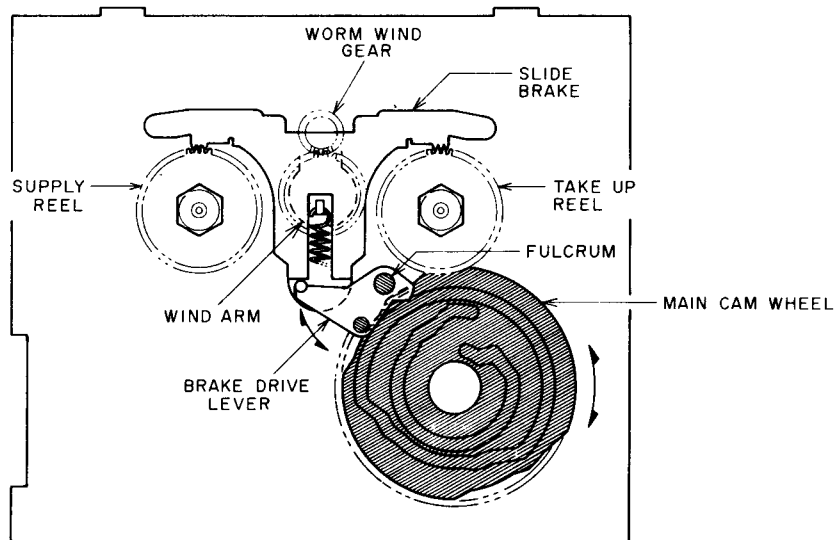


Fig. 5-4

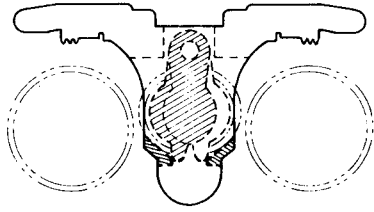


Fig. 5-5

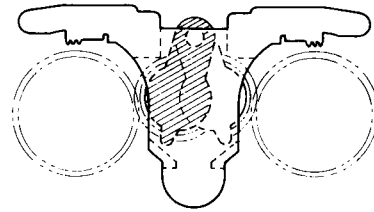


Fig. 5-6

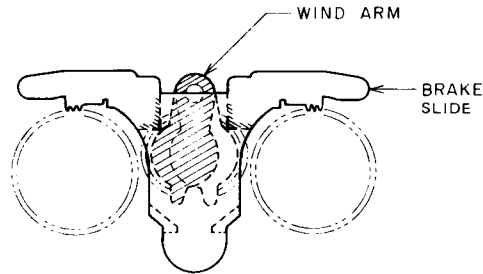


Fig. 5-7

- The main cam wheel's external surface drives the brake drive lever and the slide brake.  
The slide brake's position rotates the brake and the reel.
- The slide brake at bottom position (Refer to Fig. 5-5)  
Brake is applied on the reel (supply and take-up). Wind arm is released from the reel. (In stop condition).
  - The slide brake at top position (Refer to Fig. 5-6)  
The brake is free from the reel. Wind arm is released from the reel. (ejected condition).
  - The slide brake at the middle position (Refer to Fig. 5-7)  
The brake is not applied on the reel.  
The wind arm and the reel base come into contact.  
The reel motor rotates the worm wind gear. The wind arm swings direction of left and right and rotates the reel base. (In play, FF, rewind and IPLS condition).

## 5-2. EJECT/LOADING OPERATION (Refer to Figs. 5-8 and 5-9)

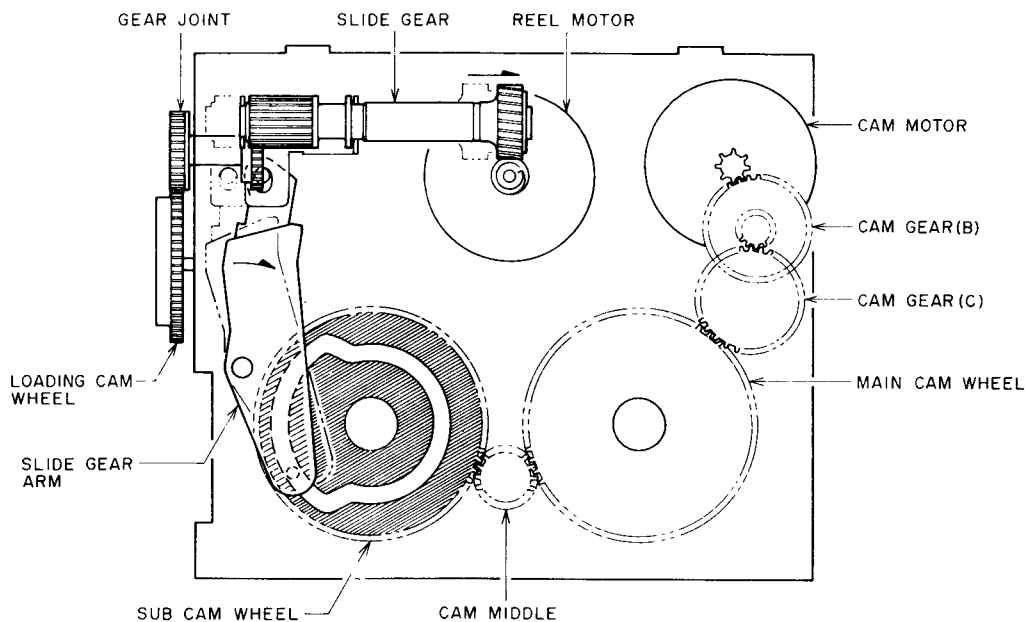


Fig. 5-8

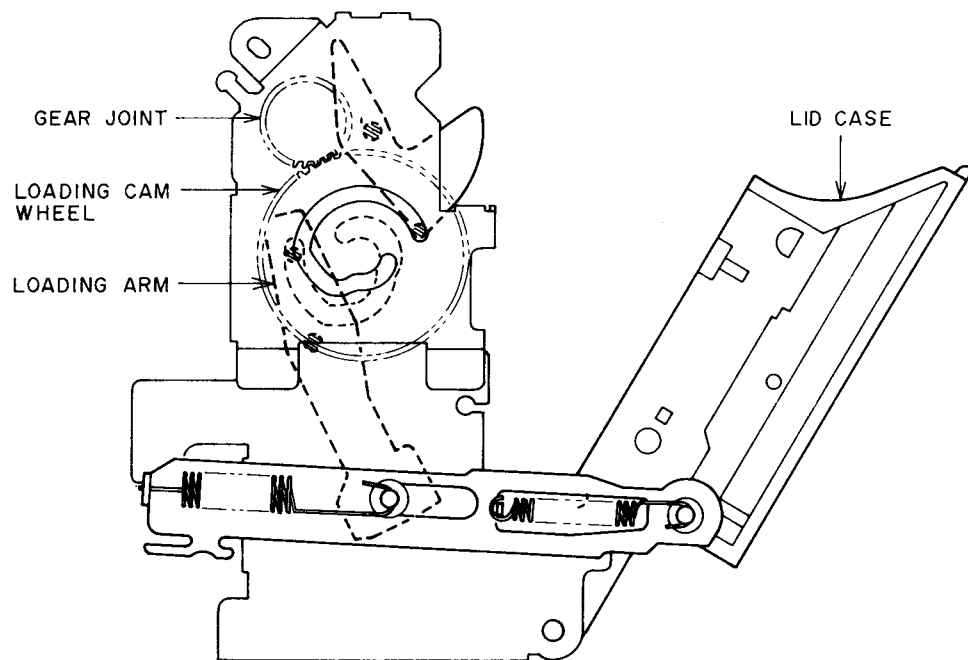


Fig. 5-9

The cam motor drives the cam gear B and C, the main gear, the cam middle and the sub-cam gear.

The slide gear arm and the slide gear move by rotating the sub-cam gear. The slide gear shifts from left to right during eject leading. (Front view).

It contacts with the worm wind gear and rotates the slide gear. The opening/closing of the lid case functions by the reel motor, worm wind gear, gear joint and the loading cam wheel. This in turn drives the loading arm and opens/closes the lid case. The slide gear contacts to the worm wind gear only at eject/loading.

## VI. FIXING PROCEDURES FOR CAM WHEEL AND ROTARY ENCODE PCB

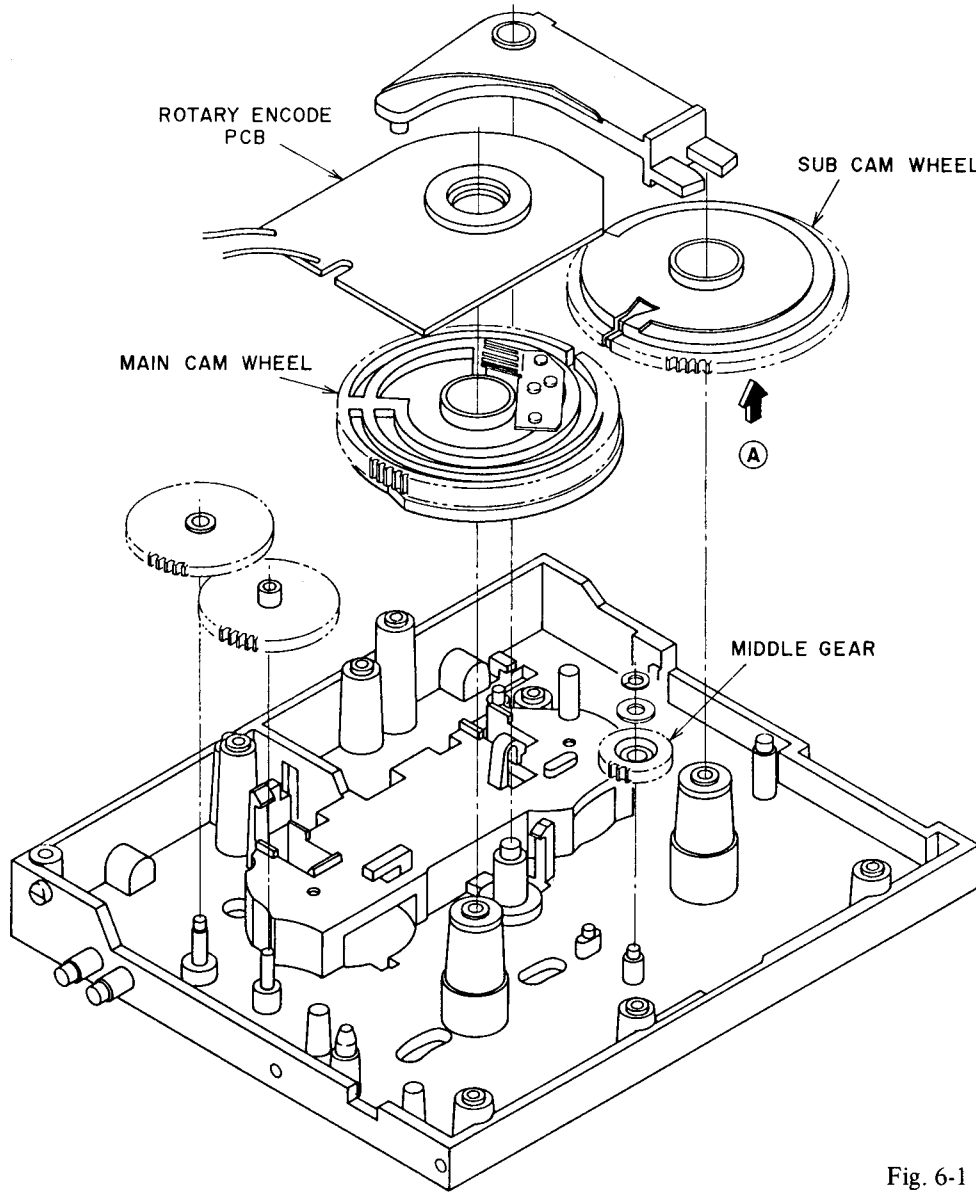


Fig. 6-1

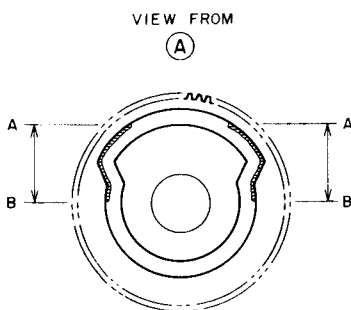


Fig. 6-2

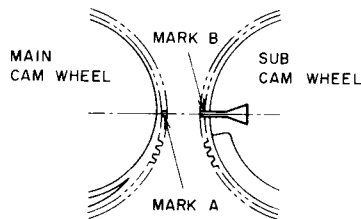


Fig. 6-3

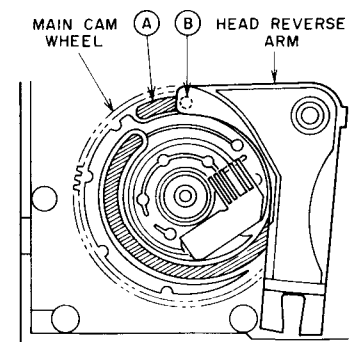


Fig. 6-4

- 1) Lock at SUB CAM WHEEL from direction **A** (Fig. 6-1) and apply grease to areas A to B (the side of the groove shaded with oblique lines) as in Fig. 6-2.
- 2) Align marks (A) and (B) on MAIN CAM WHEEL and SUB CAM WHEEL and fix them on capstan holder as shown in Fig. 6-3.
- 3) Make sure that the marked positions on MAIN CAM WHEEL and SUB CAM WHEEL do not move, then fix MIDDLE GEAR on chassis.
- 4) Insert the head Reverse arm pin **B** (see Fig. 6-1) into groove **A** in MAIN CAM WHEEL as in Fig. 6-4.
- 5) When fixing the rotary encode PCB, check the pattern side is facing MAIN CAM WHEEL.

## VII. MECHANICAL ADJUSTMENT

### 7-1. PINCH ROLLER PRESSURE MEASUREMENT

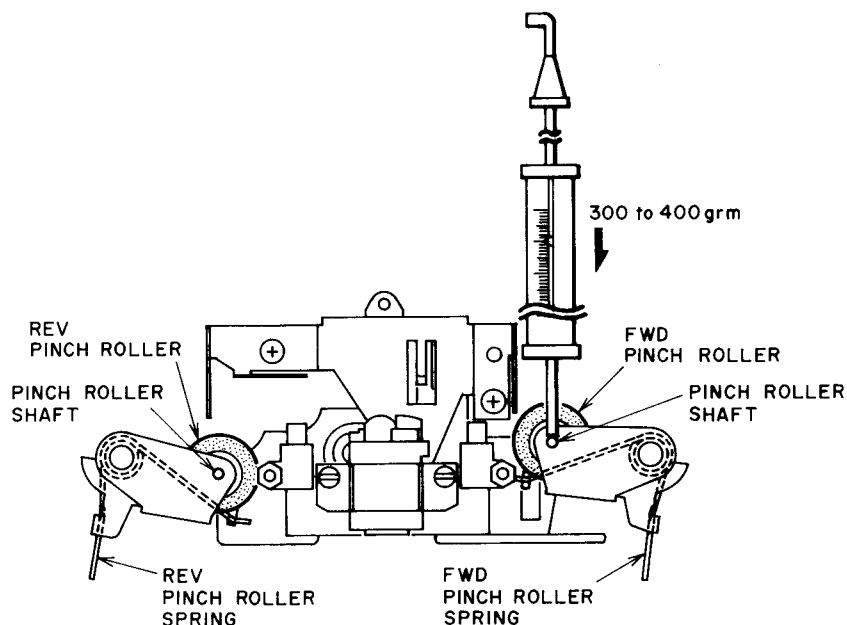


Fig. 7-1

Put in FWD PLAY Mode, Push Pinch roller shaft down with the spring gauge, and push the pinch roller 1 to 2 mm away 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 is 300 to 400 grams. If the correct measurement is not obtained, replace the pinch roller spring. Do the same for the reverse side.

### 7-2. WINDING TORQUE MEASUREMENT IN EACH MODE

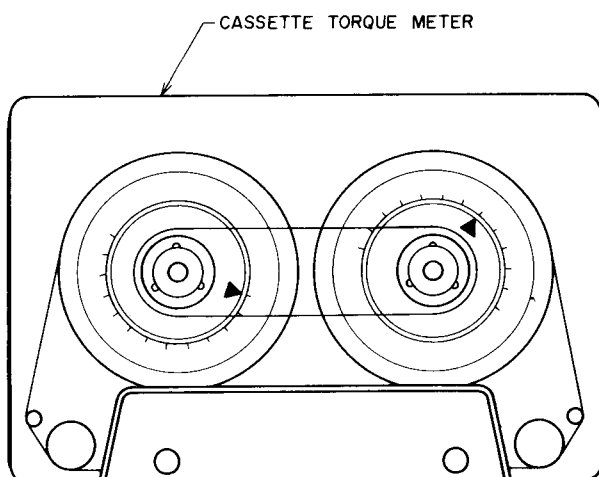


Fig. 7-2

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

Forward or Reverse mode

Take up Torque:  $40 \pm 15$  g-cm (25 to 55 g-cm)

Back Tension Torque:  $3^{+2}_{-1}$  g-cm (2 to 5 g-cm)

Fast Forward or Rewind mode

Take up Torque:  $120^{+130}_{-50}$  g-cm (70 to 250 g-cm)

### 7-3. TAPE SPEED ADJUSTMENT

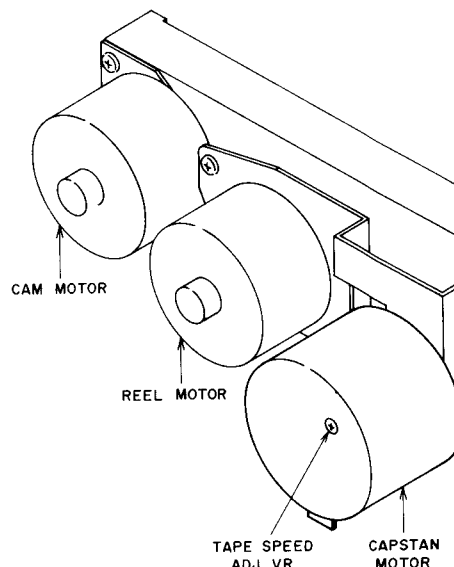


Fig. 7-3

- 1) Connect a frequency counter to Line output terminal.
- 2) Play back a 3150 Hz pre-recorded Test Tape (AT-751263) and adjust the Tape Speed Adjustment Variable Resistor to obtain a tape speed of 3150 Hz  $\pm$  30 Hz.

## VIII. HEAD ADJUSTMENT

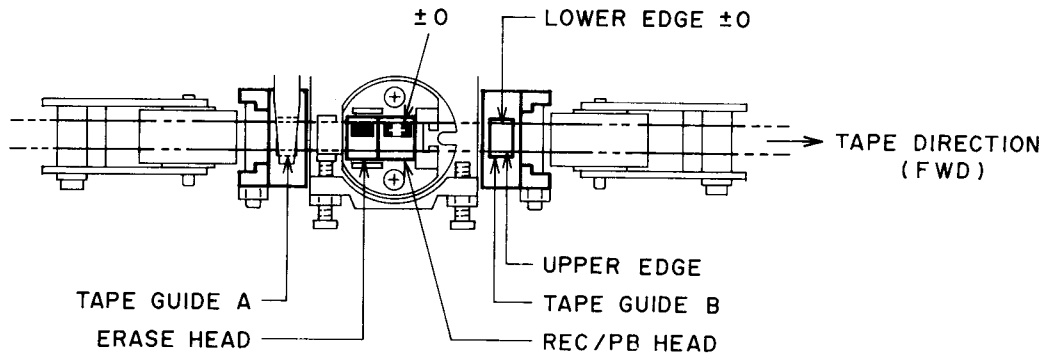


Fig. 8-1

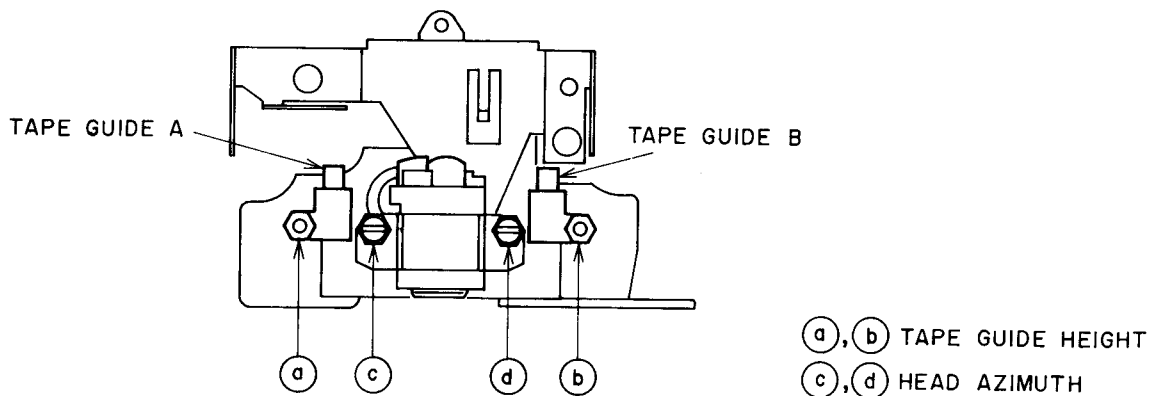


Fig. 8-2

### 8-1. TAPE GUIDE HEIGHT ADJUSTMENT

- 1) Use the mirror tape (AJ-751178) and adjust the tape guide height with turning the tape guide height adjustment nuts (a) and (b) so that when in FWD Play mode, the tape edge and the head edge match as in Fig. 8-1.
- 2) Play back the 315 Hz OVU (AT-750773) tape and adjust the tape guide height adjustment nuts (a) and (b) so that the difference in level between Lch on FWD and Lch on REV is within 0.5 dBm.
- 3) Play back the 1 kHz 4 Track (AT-750775) tape and adjust the tape guide height adjustment nuts (a) and (b) so that the difference in level between this and the 315 Hz tape in 2) is within 2.0 dBm.
- 4) Repeat 2) and 3) until the optimum condition is achieved.
- 5) Use the mirror tape and check that the tape runs smoothly (The tape edge should not catch on the tape guide and should not curl.) If the tape edge catches on the tape guide, move the tape guide height adjustment nuts (a) and (b) slowly until the tape runs smoothly.
- 6) After adjustment, check 2) and 3) again.

- 7) After adjustment, paintlock the tape guide height adjustment nuts (a) and (b).

### 8-2. HEAD HEIGHT ADJUSTMENT

No adjustment is required for the height of the head itself. Follow the tape guide height adjustment procedures when the head is replaced and head height adjustment is required.

### 8-3. REC/PB HEAD AZIMUTH ALIGNMENT ADJUSTMENT

Play back the 10 kHz pre-recorded test tape (AT-750778) for head azimuth adjustment and adjust screw (c) for the FWD direction and screw (d) for the REV direction, so that the level on both channels is at maximum.

#### NOTES:

1. Be sure to clean the heads prior to head adjustment.
2. Be careful not to use a magnetized driver or other magnetized tools in the vicinity of the heads.
3. Be sure to demagnetize the heads with a head demagnetizer before and after head adjustment.

# IX. ELECTRICAL ADJUSTMENT

## 9-1. QUICK REVERSE SENSITIVITY ADJUSTMENT

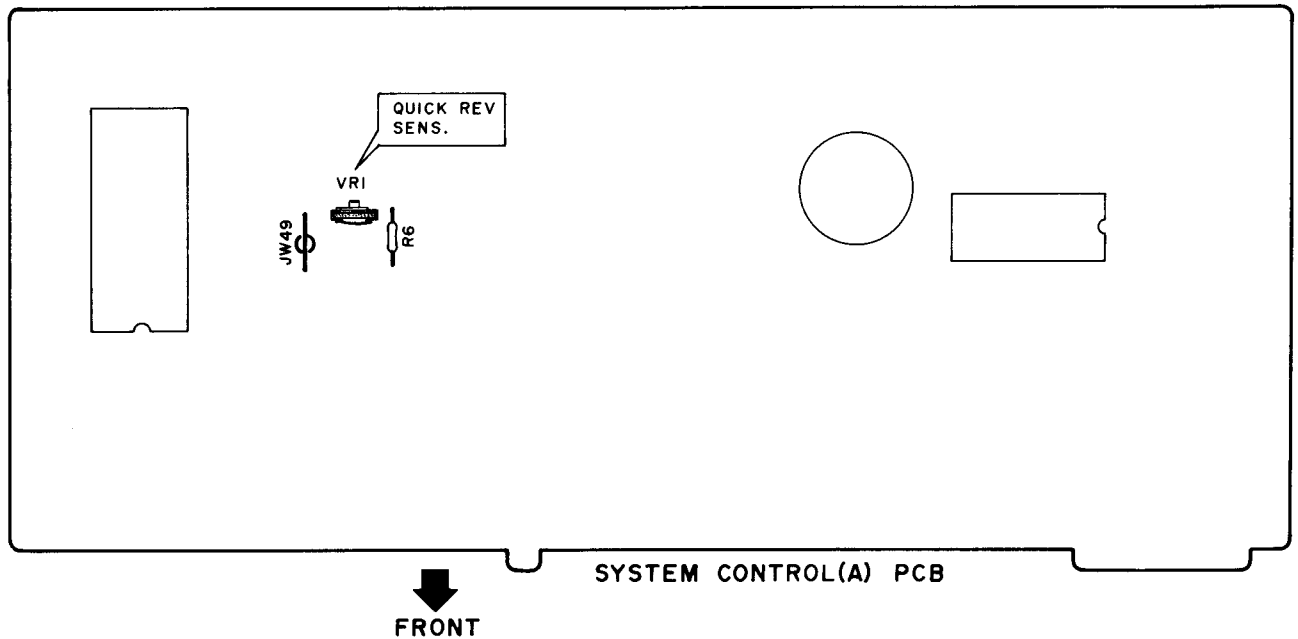


Fig. 9-1

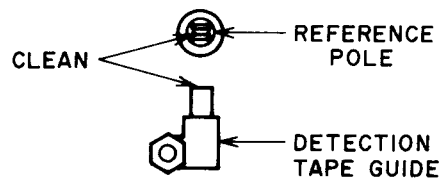


Fig. 9-2

- 1) Make a tapeless cassette pack by removing the tape from the white colored test tape.
- 2) Connect a Digital Voltmeter between JW49 and GND.
- 3) Using the tapeless cassette pack, adjust VR1 so that the digital voltmeter reads  $12 \pm 0.3V$  DC at FWD play mode.
- 4) If the digital voltmeter reading is not increase to 12V DC at VR1 maximum.  
Remove the Resistor R6 (100K ohms) from SYSCON PC Board, and adjust VR1 as the same manner in item 3).

**NOTE:** Clean the reference pole and the Detection tape guide before adjustment. (Refer to Fig. 9-2).

## 9-2. PRE AMP ADJUSTMENT

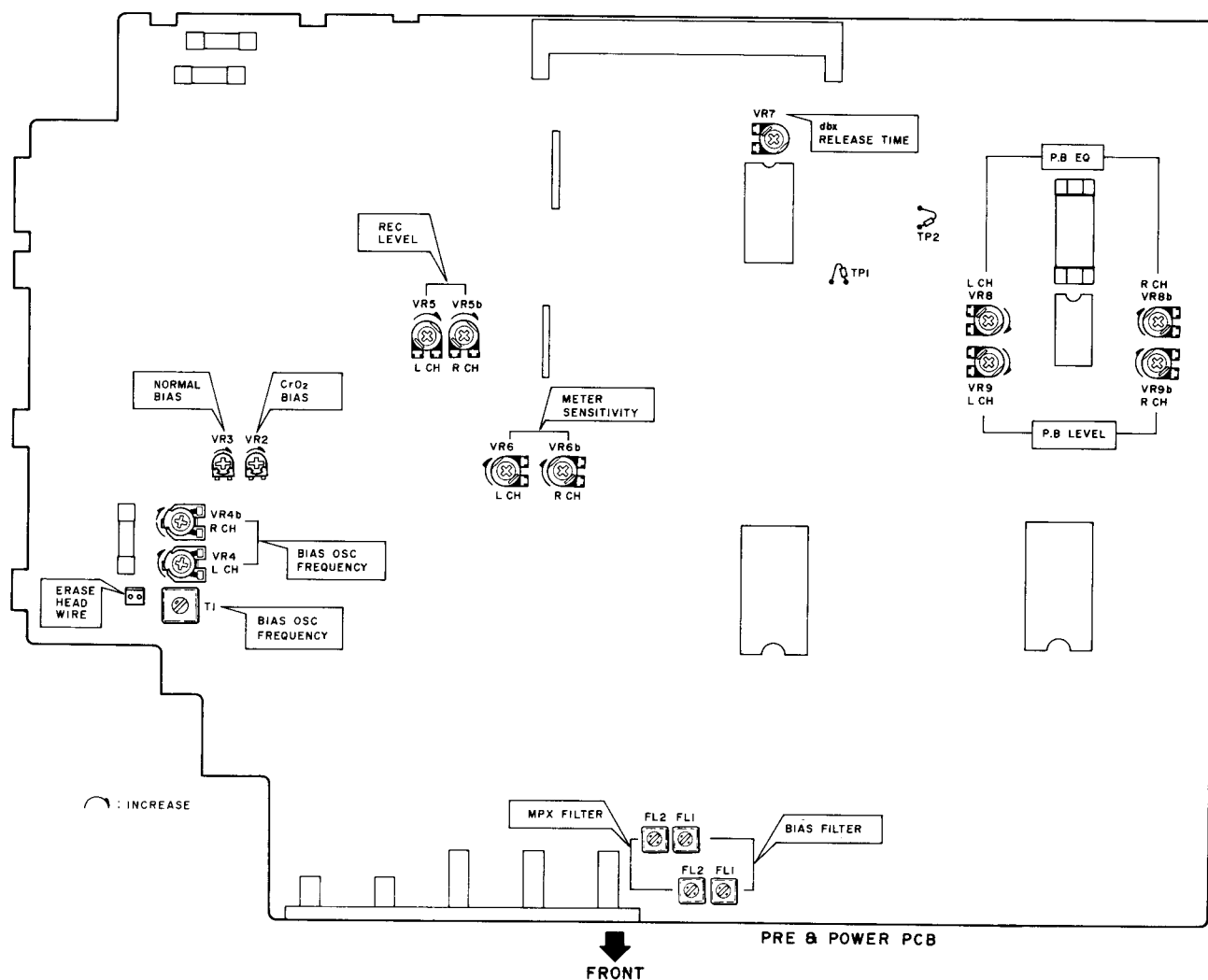


Fig. 9-3

Step	Adjustment Item	Test Tape & Supply Signal	Mode	Adjustment Part	Result	Remarks
1	P.B LEVEL	315 Hz	FWD P.B	VR9	$-6.0 \pm 0.2$ dBm	
			REV P.B	NONE	$-6.0 \pm 0.2$ dBm	Confirmation
2	P.B EQ	10 kHz -15 dBm	FWD P.B	VR8	$-21.0 \pm 0.3$ dBm	
			REV P.B	NONE	$-21.0 \pm 0.3$ dBm	Confirmation
3	BIAS OSC FREQUENCY	METAL BLANK TAPE	REC/P.B	T1	$100\text{kHz} \pm 1.5\text{kHz}$	Connect a Frequency Counter to ERASE HEAD WIRE.
4	NORMAL BIAS	NORMAL BLANK TAPE 1 kHz, 10 kHz $-26.0$ dBm	REC/P.B	VR4	1 kHz, 10 kHz Flat $\pm 0.5$ dBm	



Step	Adjustment Item	Test Tape & Supply Signal	Mode	Adjustment Part	Result	Remarks
5	CrO <sub>2</sub> BIAS	CrO <sub>2</sub> BLANK TAPE 1 kHz, 10 kHz -26.0 dBm	REC/P.B	VR3	1 kHz, 10 kHz Flat ±0.5 dBm	
6	METAL BIAS	METAL BLANK TAPE 1 kHz, 10 kHz -26.0 dBm	REC/P.B	VR2	1 kHz, 10 kHz Flat ±0.5 dBm	
7	REC LEVEL	NORMAL BLANK TAPE 315 Hz -6.0 dBm	REC/P.B	VR5	-6.0 ± 0.5 dBm	
8	METER SENSITIVITY	BLANK TAPE 1 kHz -6.0 dBm	REC/PAUSE	VR6	0VU indication	
9	dbx Release time	BLANK TAPE 1 kHz -6.0 dBm	REC/PAUSE	VR7	15.0 ± 0.2 mV	Connect a Digital Voltmeter between TP1 and TP2.
10	BIAS LEAK (SEE NOTE 2)	NORMAL BLANK TAPE NO SIGNAL	REC/P.B	FL1	Less than -40 dBm	
11	MPX FILTER (SEE NOTE 2)	19 kHz -6.0 dBm	REC/PAUSE	FL2	Less than -30 dBm	MPX FILTER SWITCH ON

- NOTES:**
1. Set to the DOLBY-NR switch to OFF position for all the adjustments.
  2. The adjustments in step 10 and 11 are not needed in normal condition, nor when FL1, FL2 are replaced with a new one.  
However, follow the instructions in steps 10 and 11, in case they (ON PRE & POWER PCB) are misadjust.
  3. 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

## X. PC BOARD TITLES AND IDENTIFICATION NUMBERS

PC Board Title		P.C Board Number
SYSTEM CONTROL (A)	PC BOARD	T2074A501A
METER	PC BOARD	T2074A501B
SYSTEM CONTROL (C)	PC BOARD	T2074A501C
SYSTEM CONTROL (D)	PC BOARD	T2074A501D
PRE AMP & POWER SUPPLY	PC BOARD	T2074A502A
HEADPHONE	PC BOARD	T2074A502B
POWER SW	PC BOARD	T2074A502C
LOADING	PC BOARD	T2074D5030
ROTARY ENCODER	PC BOARD	CMR30B5010
CONTROL (B) A	PC BOARD	CMR30C510A
CONTROL (B) B	PC BOARD	CMR30C510B
LEAF SW	PC BOARD	CMR30C5030
REEL DET (R)	PC BOARD	CMR30D5120

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SECTION 2

**PARTS LIST**

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Resistors and Capacitors which are 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 of each part. If any of this information is omitted, there are instances in which 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 part numbers and part definitions and supply in the Preliminary Parts List may have been the subject of changes, please use this parts list for all future reference.

## HOW TO USE THIS PARTS LIST

1. This Parts List shows those parts which are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts" from which these parts should be selected and parts.
2. The Recommended Spare Parts List 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 in principle be supplied.
4. How to read the parts list

a) Mechanism Block

b) P.C Board Block

### 2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1 <sup>x</sup>	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL 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.	PART 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

These reference symbols correspond with component symbols in the Schematic Diagrams.

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

NO.	PART NO.	DESCRIPTION
1	N BH-T2068A430C	PLATE ROTARY BLK CMR33
2	BL-T2068A390A	ARM PINCH ROLLER R BLK CMR31
3	BM-B354697	MOTOR CAM PART CMR30
4	BM-B354716	MOTOR CAPSTAN PART CMR30
5	BM-B354714	MOTOR REEL PART CMR30
6	N BT-355306	△ TRANS POWER T2076 (U)
7	N BT-355309	△ TRANS POWER T2076 (A,C)
8	N BT-355311	△ TRANS POWER T2076 (B,S)
9	N BT-355310	△ TRANS POWER T2076 (E,V)
10	N BT-355308	△ TRANS POWER T2076 (J)
11	BZ-T2045A040A	GUIDE DETECTION BLK HX-R5
12	ED-345555	△ D SILICON DBB10C 200/1.0A
13	ED-349662	△ D SILICON DS135E-FA6 F10 100/1.0A
14	ED-344244	D LED SLF601C AMBER
15	ED-355324	D LED SLP-153B RED
16	ED-355325	D LED TLR323 RED
17	ED-301911	D SILICON H DS448
18	ED-344280	D SILICON H GMA-01-FY2 F05
19	ED-306109	D SILICON W03B 100/1.0A
20	ED-328486	D ZENER H HZ15 3
21	ED-346455	D ZENER H HZ7FA F10 A1
22	N ED-346458	D ZENER H HZ7FA F10 B1
23	ED-337776	D ZENER H HZ3 C1
24	ED-329058	D ZENER H HZ5 C1
25	ED-331197	D ZENER H HZ6 C1
26	ED-319167	D ZENER H HZ6 C3
27	N ED-355379	D ZENER H HZ6FA F10 C1,2
28	ED-346604	D ZENER H HZ7 B2
29	ED-346607	D ZENER H HZ9 B1
30	N ED-355471	D ZENER V HZ16LS7 F05 3
31	ED-348023	D ZENER V HZ5B-1S7
32	N ED-348024	D ZENER V HZ5B-2S7
33	ED-345027	D ZENER V HZ5C-3S7
34	N ED-348032	D ZENER V HZ7A-3S7
35	EF-358974	△ FUSE BET T 630MA 250V [B]
36	EF-359342	△ FUSE BET T 400MA 250V [B]
37	EF-318608	△ FUSE GGS A 250V 1.00A [U,J,C,A]
38	EF-668474	△ FUSE SEMKO T 400MA 250V [E,V,S]
39	EF-601942	△ FUSE SEMKO T 630MA 250V [E,V,S]
40	EH-328491	FILTER DB D07-003K 100KHZ
41	EH-328490	FILTER DB Z07-001K 19KHZ
42	EI-354822	IC AN6291
43	EI-355113	IC BA715 STD
44	EI-349196	IC HA12058
45	EI-356327	IC HA12067
46	EI-328593	IC HD14053BP
47	EI-337013	IC LB1290
48	EI-355602	IC LB1649
49	EI-330689	IC LC4011B
50	EI-337009	IC LC4049B
51	EI-338171	IC LC4069UB
52	EI-356114	IC LC4081B
53	EI-337008	IC LC7800
54	N EI-355350	IC M50740A-430SP
55	EI-355351	IC M50765-460SP
56	EI-357498	IC M51143AL
57	N EI-355134	IC M5201L
58	EI-353227	IC M5216L
59	EI-337228	IC M5218L
60	EI-355598	IC M5221L
61	N EI-355115	IC M5240P
62	EI-304657	IC TC4011BP
63	EI-349372	OSC CE CSA4.00MG 4MHZ
64	N EM-355326	IND FL BG-290Z
65	EO-337055	COIL VARI 1 FE002S 10MH

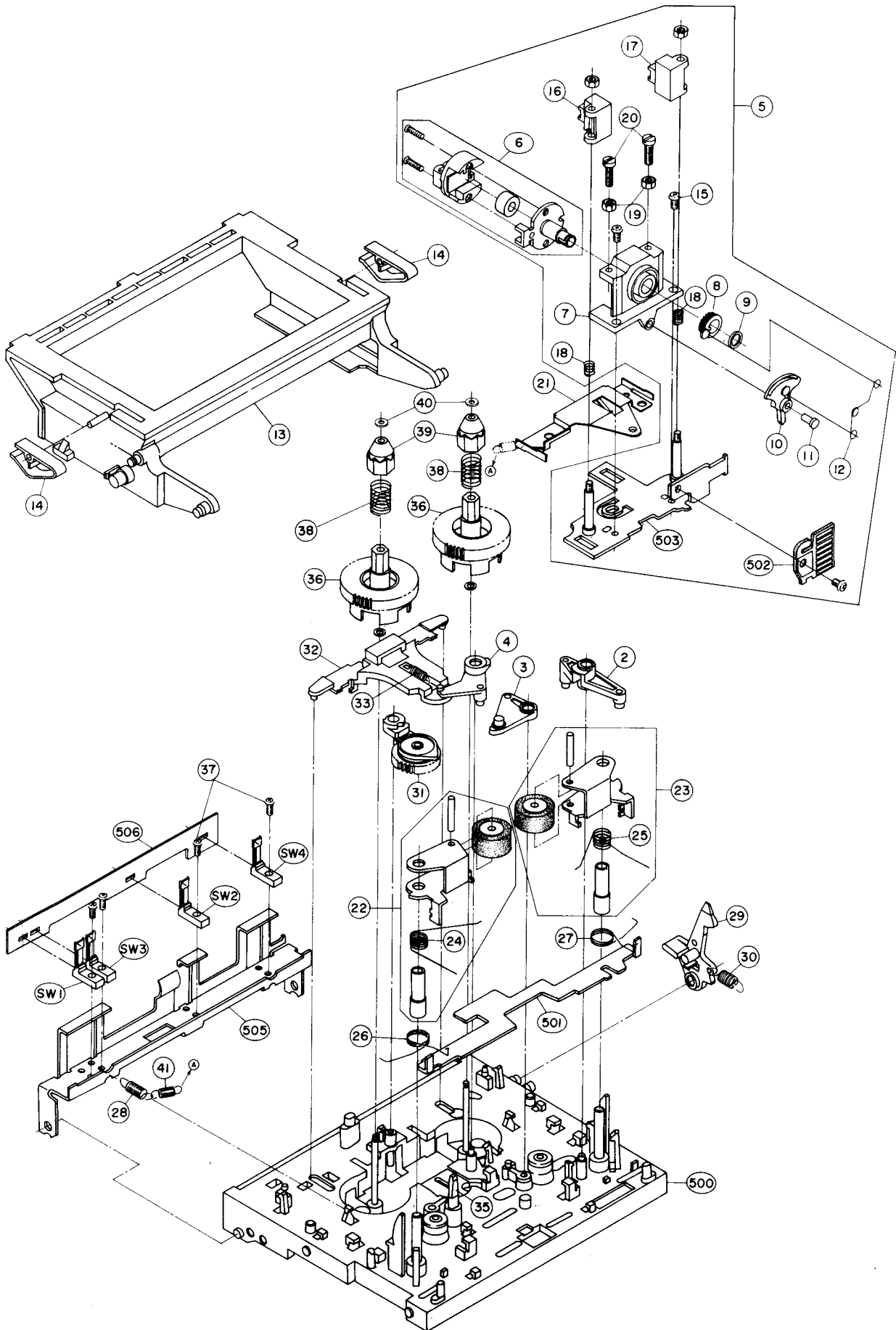
NO.	PART NO.	DESCRIPTION
66	EQ-337067	RELAY LEAD LAB2NS 2NO 18V
67	ER-331188	△ R FUSE ERD2FC S10 1/4W 8R2J
68	ER-328278	△ R FUSE ERD2FC 1/4W 10R0G
69	ES-358581	△ SW PUSH J-U3065 01-1
70	N ES-359606	△ SW SELECTOR 8T-41S0454 01-4 [U]
71	ES-354767	SW LEAF BSW-243
72	ES-354849	SW LEAF BSW-47BRC-1
73	ES-354850	SW LEAF MSW-1273NBK
74	N ES-355227	SW PUSH SPUY54 5THROW
75	N ES-355332	SW SLIDE SSY02 2-02-02N
76	ES-355604	SW TACT B3F-1020
77	ET-354626	△ TR 2SA1248 S,T
78	ET-316523	△ TR 1SC1844 F
79	ET-345625	△ TR 2SC3116 S,T
80	ET-345091	PHOTO SENSOR SPI-201-40 B,C
81	ET-308472	TR 2SA1115 E,F,G
82	ET-348950	TR 2SA1345
83	ET-349605	TR 2SA1346
84	ET-349626	TR 2SA1347
85	ET-349725	TR 2SA1391 S,T
86	ET-336997	TR 2SB808-V G,H
87	ET-308141	TR 2SC2603 G
88	ET-349883	TR 2SC3243 D,E
89	ET-349080	TR 2SC3382 S,T
90	ET-349081	TR 2SC3383 S,T
91	ET-350795	TR 2SC3399
92	ET-349592	TR 2SC3400
93	ET-338324	TR 2SD1012-V H
94	ET-310148	TR 2SD612K E,F
95	EV-356579	R S-FIX H H0615C 3P 102
96	EV-356576	R S-FIX H H0615C 3P 472
97	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
98	EV-338464	R S-FIX H V8K4-11(1S) 3P 103
99	EV-357837	R S-FIX H V8K4-11(1S) 3P 104
100	N EV-355380	R S-FIX H V8K4-11(1S) 3P 202
101	EV-338463	R S-FIX H V8K4-11(1S) 3P 203
102	EV-338462	R S-FIX H V8K4-11(1S) 3P 503
103	EV-522652	R S-FIX V V8K1-1 3P 105
104	N EV-355389	VR SLIDE VJ2013-2GPVN 10C B103
105	N EV-355231	VR SLIDE 35P2SVOJ 1Z104
106	HZ-354673	GEAR ROTARY
107	HZ-354675	LEVER GEAR REVERSE
108	MB-354707	BELT CAPSTAN (A)
109	MI-354706	FLYWHEEL
110	ML-B354723	ARM WIND PART CMR30
111	MZ-354737	CAM WHEEL LOADING
112	MZ-B354735	CAM WHEEL MAIN PART CMR30
113	MZ-354733	CAM WHEEL SUB
114	MZ-354682	GEAR CAM (B)
115	MZ-354683	GEAR CAM (C)
116	MZ-354762	GEAR JOINT
117	MZ-354684	GEAR MIDDLE
118	MZ-B354689	GEAR SLIDE PART CMR30
119	MZ-354715	GEAR WORM WIND

“NOTE” N: New Parts

### SYMBOL FOR DESTINATION

- [A] : AAL (U.S.A)
- [B] : UK (England)
- [C] : CSA (Canada)
- [E] : CEE (Europe)
- [J] : JPN (Japan)
- [S] : SAA (Australia)
- [U] : U/T (Universal Area)
- [V] : VDE (West Germany)

**MECHA CMR34 BLOCK (1)**



**PARTS LIST**

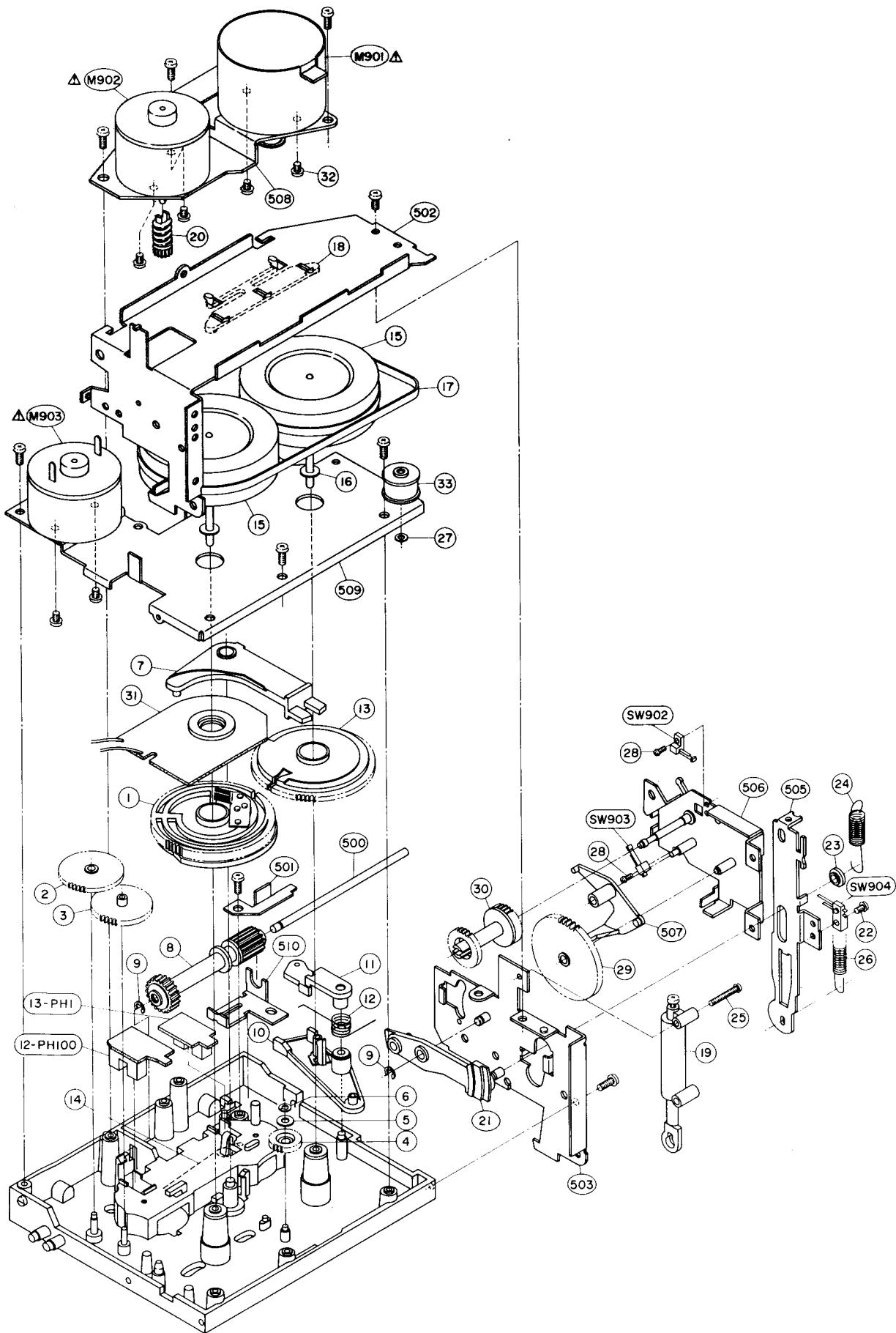
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## 1. MECHA CMR34 BLOCK (1)

REF. NO.	PART NO.	DESCRIPTION
1-1	BB-T2068A300E	MECHA CMR34 BLK
1-2	ML-354699	LEVER PINCH ROLLER DRIVE
1-3	ML-354700	LEVER HEAD DRIVE
1-4	ML-354701	LEVER BRAKE DRIVE
1-5	BH-T2068A3700	HEAD BLK CMR 33
1-6	BH-T2068A430C	PLATE ROTARY BLK CMR33
1-7	HZ-354764B	HOLDER HEAD (B)
1-8	HZ-354673	GEAR ROTARY
1-9	ZW-354674	PW38x055x050PSL
1-10	HZ-354675	LEVER GEAR REVERSE
1-11	HZ-354676	PROP GEAR REVERSE
1-12	ZG-354745	SP TORSION ROTARY
1-13	BD-B359140	LID CASE (B) PART
1-14	ZG-336615	SP PLATE CASSETTE HOLDER (B)
1-15	ZS-417161	PAN23x04STL CMT
1-16	BZ-T2045A040A	GUIDE DETECTION BLK HX-R5
1-17	HZ-344093	GUIDE TAPE
1-18	ZG-344012	SP PUSH GUIDE TAPE
1-19	ZW-618884	N20STL CMT 1
1-20	ZS-344001	SCREW AZIMUTH
1-21	ZG-354749	SP PLATE HEAD PUSH
1-22	BL-T2068A380A	ARM PINCH ROLLER L BLK CMR31
1-23	BL-T2068A390A	ARM PINCH ROLLER R BLK CMR31
1-24	ZG-354750	SP TORSION PINCH ROLLER (L)
1-25	ZG-354751	SP TORSION PINCH ROLLER (R)
1-26	ZG-354752	SP TORSION RETURN (L)
1-27	ZG-354753	SP TORSION RETURN (R)
1-28	ZG-359409	SP PULL HOLDER LEAF
1-29	ML-354754	ARM LOCK LOADING
1-30	ZG-357749	SP T6-04.0/0.40-16.0 T6-111
1-31	ML-B354723	ARM WIND PART CMR30
1-32	MZ-354734	SLIDE BRAKE
1-33	ZG-357808	SP T6-03.2/0.29-11.2 T6-059
1-34	ZW-305546	PW21x040x025PSL
1-35	MH-354679	PROP REFERENCE
1-36	MR-359138	PULLEY REEL (B)
1-37	ZS-460440	PAN20x04STL CMT
1-38	ZG-354718	SP PUSH BT (B)
1-39	MT-349681	REEL RETAINER (B)
1-40	ZW-343120	PW17x040x025PSL
1-41	ZG-355133	SP PULL EARTH
1-SW1to4	ES-354767	SW LEAF BSW-243

NOTE: Parts listed in 1 to SW4 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 CMR34 BLOCK (2)**



**PARTS LIST**



## 2. MECHA CMR34 BLOCK (2)

REF. NO.	PART NO.	DESCRIPTION
<b>MECHA CMR34 BLOCK</b>		
2-1	MZ-B354735	CAM WHEEL MAIN PART CMR30
2-2	MZ-354682	GEAR CAM (B)
2-3	MZ-354683	GEAR CAM (C)
2-4	MZ-354684	GEAR MIDDLE
2-5	ZW-300885	PW23x060x020PBR
2-6	ZW-340648	RING CS 190STL PKR
2-7	ML-354685	ARM HEAD REVERSE
2-8	MZ-B354689	GEAR SLIDE PART CMR30
2-9	ZW-270088	RING E190SUP CMT
2-10	ML-354691	ARM GEAR SLIDE (A)
2-11	ML-354692	ARM GEAR SLIDE (B)
2-12	ZG-354747	GEAR TORSION ARM SLIDE
2-13	MZ-354733	CAM WHEEL SUB
2-14	ZG-355016	SP TORSION EARTH
2-15	MI-354706	FLYWHEEL
2-16	ZW-536466	PW21x070x050NYL
2-17	MB-354707	BELT CAPSTAN (A)
2-18	MZ-354709	HOLDER THRUST
2-19	MZ-344099	DAMPER ASSY
2-20	MZ-354715	GEAR WORM WIND
2-21	ML-B354710	ARM LOADING PART CMR30
2-22	ZS-328606	PAN20x30STL CMT
2-23	SZ-354719	COLLAR LOADING
2-24	ZG-354757	SP PULL LOADING
2-25	ZS-343113	ST PAN20x12STL CMT
2-26	ZG-354759	SP PULL LID LOCK
2-27	ZW-343120	PW17x040x025PSL
2-28	ZS-477876	PAN20x03STL CMT
2-29	MZ-354737	CAM WHEEL LOADING
2-30	MZ-354762	GEAR JOINT
2-31	EA-354860	PC ROTARY ENCODER
2-32	ZS-592378	PAN26x03STL CMT
2-33	MR-B354695	PULLEY MIDDLE PART CMR30
2-M901	BM-B354716	△ MOTOR CAPSTAN PART CMR30
2-M902	BM-B354714	△ MOTOR REEL PART CMR30
2-M903	BM-B354697	△ MOTOR CAM PART CMR30
2-SW902,903	ES-354850	SW LEAF MSW-1273NBK
2-SW904	ES-354849	SW LEAF BSW-47BRC-1

### REEL DET(R) PC BOARD

12-PH100 ET-345091 PHOTO SENSOR SPI-201-40 B,C

### CONTROL(B)B PC BOARD

13-PH1 ET-345091 PHOTO SENSOR SPI-201-40 B,C

NOTE: Parts listed in 1 to PH1 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.	PART NO.	DESCRIPTION
3-1A	BA-T2074A020A	PC PRE & POWER BLK GX-R70 (EXCEPT J)
3-1B	BA-T2074A020C	PC PRE & POWER BLK GX-R70(J)
3-2	BA-T2074A030A	PC SYSCON/METER BLK GX-R70

NOTES: (1) PC PRE & POWER BLK consists of following PC BOARDS.

- PRE AMP & POWER SUPPLY PC BOARD
- HEAD PHONE PC BOARD
- POWER SW PC BOARD

(2) PC SYSCON/METER BLK consists of following PC BOARDS.

- SYSTEM CONTROL (A) PC BOARD
- SYSTEM CONTROL (C) PC BOARD
- SYSTEM CONTROL (D) PC BOARD
- METER PC BOARD

## 4. PRE AMP & POWER SUPPLY PC BOARD

REF. NO.	PART NO.	DESCRIPTION
<b>PRE AMP &amp; POWER SUPPLY PC BOARD</b>		
4-IC1	EI-355598	IC M5221L
4-IC2,3	EI-355113	IC BA715 STD
4-IC4	EI-337228	IC M5218L
4-IC5	EI-355113	IC BA715 STD
4-IC6	EI-328593	IC HD14053BP
4-IC7	EI-357498	IC M51143AL
4-IC8	EI-337009	IC LC4-49B
4-IC9	EI-354822	IC AN6291
4-IC10	EI-355134	IC M5201L
4-IC11	EI-353227	IC M5216L
4-IC12	EI-349196	IC HA12058
4-IC13	EI-355115	IC M5240P
4-TR1to7	ET-349081	TR 2SC3383 S,T
4-TR8to14	ET-349605	TR 2SA1346
4-TR15	ET-349080	TR 2SC3382 S,T
4-TR16,17	ET-350795	TR 2SC3399
4-TR18	ET-349592	TR 2SC3400
4-TR19	ET-310148	△ TR 2SD612K E,F
4-TR20,21	ET-349081	TR 2SC3383 S,T
4-TR22,23	ET-349592	TR 2SC3400
4-TR26,27	ET-349883	TR 2SC243 D,E
4-TR29	ET-349725	TR 2SA1391 S,T
4-TR30	ET-349080	TR 2SC3382 S,T
4-TR31	ET-345626	△ TR 2SA1248 S,T
4-TR32	ET-345625	△ TR 2SC3116 S,T
4-TR33	ET-349080	TR 2SC3382 S,T
4-TR34	ET-349725	TR 2SA1391 S,T
4-TR35	ET-349080	TR 2SC3382 S,T
4-TR36,37	ET-349725	TR 2SA1391 S,T
4-TR38	ET-349080	TR 2SC3382 S,T
4-TR39	ET-349080	△ TR 2SC3382 S,T
4-TR40	ET-316523	△ TR 2SC1844 F
4-TR41	ET-349080	TR 2SC3382 S,T
4-TR42	ET-345625	△ TR 2SC3116 S,T
4-TR43	ET-349080	TR 2SC3382 S,T
4-TR44	ET-345625	△ TR 2SC3116 S,T
4-TR45	ET-349080	TR 2SC3382 S,T
4-TR46	ET-308141	△ TR 2SC2603 G
4-TR47	ET-308472	TR 2SA1115 E,F,G
4-TR48	ET-310148	△ TR 2SD612K E,F
4-TR49,50	ET-349081	TR 2SC3383 S,T
4-TR51	ET-349605	TR 2SA1346

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
4-TR52	ET-349592	TR 2SC3400	4-R18	ER-314626	R MF H 1/4W 1801F
4-TR53to55	ET-349080	TR 2SC3382 S,T	4-R19	ER-356252	R MF H F10 1/4W 4701G
4-TR60	ET-349080	TR 2SC3382 S,T	4-R20	ER-318320	R MF H F10 1/4W 5102F
4-TR61to63	ET-349081	TR 2SC3383 S,T	4-R21to23	ER-314597	R MF H 1/4W 1302F
4-TR64	ET-349080	TR 2SC3382 S,T	4-R38	ER-355370	R MF H F10 1/4W 4221G
4-TR65,66	ET-349605	TR 2SA1346	4-R39	ER-356257	R MF H F10 1/4W 5601G
4-TR67,68	ET-349081	TR 2SC3383 S,T	4-R83,94	ER-359160	R MF V CUT 1/4W 3901G
4-TR69	ET-349605	TR 2SA1346	4-R85,86	ER-361094	R MF V CUT 1/4W 5601G
4-TR70	ET-349592	TR 2SC3400	4-R113	ER-356698	R MF H F10 1/4W 2202G
4-TR71	ET-338324	TR 2SD1012-V H	4-R114	ER-355400	R MF H F10 1/4W 1101G
4-TR72to74	ET-349080	TR 2SC3382 S,T	4-R122	ER-338225	R MF H F10 1/4W 331J
4-TR75	ET-349725	TR 2SA1391 S,T	4-R125	ER-356250	R MF H F10 1/4W 4700G
4-TR76	ET-349080	TR 2SC3382 S,T	4-R126	ER-356252	R MF H F10 1/4W 4701G
4-TR77,78	ET-349081	TR 2SC3383 S,T	4-R127	ER-314586	R MF H 1/4W 5101F
4-TR79	ET-349592	△ TR 2SC3400	4-R130	ER-314626	R MF H 1/4W 1801F
4-D1,2	ED-344280	D SILICON H GMA-01-FY2 F05	4-R131	ER-311762	R MF H 1/4W 9101F
4-D3to5	ED-301911	D SILICON H DS448	4-R132	ER-356251	R MF H F10 1/4W 1002G
4-D6	ED-346604	D ZENER H HZ7 B2	4-R135,136	ER-338225	R MF H F10 1/4W 331J
4-D10	ED-301911	D SILICON H DS448	4-R137	ER-360311	R MF H F10 1/4W 3303G
4-D12	ED-344280	D SILICON H GMA-01-FY2 F05	4-R138	ER-307730	R MF H F10 1/4W 7502F
4-D15to17	ED-349662	△ D SILICON DS135E-FA6 F10 100/1.0A	4-R139	ER-318335	R MF H F10 1/4W 8202F
4-D18	ED-349662	△ D SILICON DS135E-FA6 F10 100/1.0A	4-R140	ER-314606	R MF H 1/4W 3601F
4-D19	ED-345555	△ D SILICON DBB10C 200/1.0A	4-R141	ER-356247	R MF H F10 1/4W 2701G
4-D20,21	ED-348024	D ZENER V HZ5B-2S7	4-R171	ER-356698	R MF H F10 1/4W 2202G
4-D22	ED-319167	D ZENER H HZ6 C3	4-R172	ER-355400	R MF H F10 1/4W 1101G
4-D23	ED-345555	△ D SILICON DBB10C 200/1.0A	4-R202	ER-338498	R MF H F10 1/4W 102J
4-D24	ED-301911	D SILICON H DS448	4-R213	ER-355703	R MF H F10 1/4W 1202G
4-D25	ED-329056	D ZENER H HZ22 2	4-R214	ER-361096	R MF H F10 1/4W 3002G
4-D26	ED-355471	D ZENER V HZ16LS7 F05 3	4-R215	ER-321084	R MF H F10 1/4W 3003F
4-D27	ED-319167	D ZENER H HZ6 C3	4-R216	ER-338224	R MF H F10 1/4W 392J
4-D28	ED-344280	D SILICON H GMA-01-FY2 F05	4-R248	ER-356258	R MF H F10 1/4W 4302G
4-D29	ED-348032	D ZENER V HZ7A-3S7	4-R251	ER-356251	R MF H F10 1/4W 1002G
4-D30	ED-345027	D ZENER V HZ5C-3S7	4-R254	ER-311771	R MF H 1/4W 1500F
4-D31to36	ED-301911	D SILICON H DS448	4-R255	ER-338498	R MF H F10 1/4W 102J
4-D37	ED-309341	D GERMA H 1K34A	4-R257	ER-355705	R MF H F10 1/4W 1500G
4-D38,39	ED-355379	D ZENER H HZ6FA F10 C1,2	4-R258	ER-338498	R MF H F10 1/4W 102J
4-D40	ED-348023	D ZENER V HZ5B-1S7	4-R308,309	ER-317894	R MF H F10 1/4W 2200F
4-D41	ED-344280	D SILICON H GMA-01-FY2 F05	4-R311,312	ER-317894	R MF H F10 1/4W 2200F
4-D42	ED-301911	D SILICON H DS448	4-C1	EC-300193	C EC V F05 NP SM 100M 16DC
4-D43	ED-329058	D ZENER H HZ5 C1	4-C2	EC-200948	C EC V F05 NP SM 1R0M 50DC
4-D44	ED-301911	D SILICON H DS448	4-C5	EC-300193	C EC V F05 NP SM 100M 16DC
4-SW1	ES-355227	SW PUSH SPUY54 5THROW	4-C13	EC-325320	C EC V F05 NP AWA 2R2M 50DC
4-VR2	EV-356579	R S-FIX H H0615C 3P 102	4-C21	EC-300193	C EC V F05 NP SM 100M 16DC
4-VR3	EV-356576	R S-FIX H H0615C 3P 472	4-C26	EC-306022	C STY V F05 CQ09S 821J 50DC
4-VR4	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104	4-C27	EC-300193	C EC V F05 NP SM 100M 16DC
4-VR5	EV-338463	R S-FIX H V8K4-11(1S) 3P 203	4-C38	EC-347228	C MC V F05 FM 470J 500DC
4-VR6	EV-357837	R S-FIX H V8K4-11(1S) 3P 104	4-C39	EC-316149	C STY V F05 CQ09S 182J 500DC
4-VR7	EV-355380	R S-FIX H V8K4-11(1S) 3P 202	4-C41,42	EC-316187	C EC V CUT SM 402M 16DC
4-VR8	EV-338464	R S-FIX H V8K4-11(1S) 3P 103	4-C60	EC-315967	C EC V CUT SM 332M 16.0DC
4-VR9	EV-338462	R S-FIX H V8K4-11(1S) 3P 503	4-C68	EC-351993	C COMP V AWS 562J 50DC
4-FL1	EH-328491	FILTER DB D07-003K 100KHZ	4-C69	EC-351994	C COMP V AWS 152J 50DC
4-FL2	EH-328490	FILTER DB Z07-001K 19KHZ	4-C76	EC-357784	C COMP V AWS 433J 50DC
4-FL3	EO-315758	COIL TUN 1 100Z-431 100.00KHZ	4-C77	EC-347471	C PP V F05 PP 471J 50DC
4-FL4	EO-337044	COIL TUN 1 102AZ-005	4-C80	EC-332052	C EC V F05 NP SM 4R7M 35DC
4-L1	EO-355696	COIL FIX 1 LAL04SK 330K	4-C81	EC-356994	C COMP V AWS 202J 50DC
4-L2	EO-337055	COIL VARI 1 FE002S 10MH	4-C87	EC-300193	C EC V F05 NP SM 100M 16DC
4-RL1	EQ-337067	RELAY LEAD LAB2NS 2NO 18V	4-C89	EC-314992	C STY V S05 CQFS 681J 50DC
4-T1	EO-355136	COIL OSC2 94-5014-01 100KHZ	4-C92	EC-300193	C EC V F05 NP SM 100M 16DC
4-FR1,2	ER-328278	△ R FUSE ERD2FC 1/4W 10R0G	4-C93,94	EC-200948	C EC V F05 NP SM 1R0M 50DC
4-FR3,4	ER-331188	△ R FUSE ERD2FC S10 1/4W 8R2J	4-C109	EC-310440	C STY V S05 CQFS 471J 50DC
4-R1	ER-356249	R MF H F10 1/4W 1001G	4-C119	EC-307494	C STY V F05 CQ09S 331J 50DC
4-R2	ER-338228	R MF H F10 1/4W 104J	4-C132	EC-334011	C EC V F05 NP SM 101M 6.3DC
4-R3	ER-314626	R MF H 1/4W 1801F	4-C136	EC-314996	C STY V S05 CQFS 391J 50DC
4-R4	ER-355703	R MF H F10 1/4W 1202G	4-C148	EC-300193	C EC V F05 NP SM 100M 16DC
4-R5	ER-318335	R MF H F10 1/4W 8202F	4-C162	EC-360693	C MC V F05 FE92 100J 500DC
4-R6	ER-318320	R MF H F10 1/4W 5102F	4-C163	EC-334011	C EC V F05 NP SM 101M 6.3DC
4-R7	ER-346162	R MF H F10 1/4W 1201F	4-C164	EC-347367	C MC V F05 FE92 150J 500DC
4-R8,9	ER-311763	R MF H 1/4W 2401F	4-C166	EC-352008	C COMP V AWS 912J 50DC
4-R10	ER-338109	R MF H 1/4W 4703F	4-C172	EC-346879	C PP V F05 PP 221J 50DC
4-R17	ER-356696	R MF H F10 1/4W 1601G	4-C173	EC-351980	C EC V F05 NP SM R33M 50.0DC
			4-C175	EC-200948	C COMP V AWS 123J 50DC
			4-J1A	EJ-347664	C EC V F05 NP SM 1R0M 50EC PIN J YKC21-5053 P 4P
			4-J1B	EJ-361072	[EXCEPT J] PIN J YKC21 P 4P [J]
			4-J2	EJ-346076	DIN J TCS4690-01-1111 P 8P

REF. NO.	PART NO.	DESCRIPTION
4-1	MB-355095	RUBBER SHEET TO-126
<b>ASSEMBLY BLOCK</b>		
4-F1A	EF-318608	△ FUSE GGS A 250V 1.00A [U,J,C,A]
4-F1B	EF-358974	△ FUSE BET T 250V 0.63A [B]
4-F1C	EF-601942	△ FUSE SEMKO T 630MA 250V [E,V,S]
4-F2A	EF-318608	△ FUSE GGS A 250V 1.00A [U,J,C,A]
4-F2B	EF-358974	△ FUSE BET T 630MA 250V[B]
4-F2C	EF-601942	△ FUSE SEMKO T 630MA 250V [E,V,S]
4-F3A	EF-318608	△ FUSE GGS A 250V 1.00A [U,J,C,A]
4-F3B	EF-359342	△ FUSE BET T 400MA 250V[B]
4-F3C	EF-668474	△ FUSE SEMKO T 400MA 250V [E,V,S]

### 5. SYSTEM CONTROL (A) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
5-IC1	EI-355350	IC M50740A-430SP
5-IC2	EI-355602	IC LB1649
5-IC3	EI-337008	IC LC7800
5-IC4	EI-337009	IC LC4049B
5-IC5	EI-337013	ICLB1290
5-IC6	EI-338171	IC LC4069UB
5-IC7	EI-337013	IC LB1290
5-IC8,9	EI-356114	IC LC4081B
5-IC10	EI-337013	IC LB1290
5-IC11	EI-355351	IC M50765-460SP
5-IC12	EI-330689	IC LC4011B
5-TR1,2	ET-350795	TR 2SC3399
5-TR3,4	ET-308141	TR 2SC2603 G
5-TR5,6	ET-308472	TR 2SA1115 E,F,G
5-TR7to10	ET-350795	TR 2SC3399
5-TR11,12	ET-349626	TR 2SA1347
5-TR13	ET-308472	TR 2SA1115 E,F,G
5-TR14	ET-308141	TR 2SC2603 G
5-TR15	ET-349626	TR 2SA1347
5-TR16	ET-308141	TR 2SC2603 G
5-TR17,18	ET-350795	TR 2SC3399
5-TR19	ET-349626	TR 2SA1347
5-TR20,21	ET-336997	TR 2SB808-V G,H
5-TR22to25	ET-350795	TR 2SC3399
5-TR26,27	ET-349626	TR 2SA1347
5-TR28	ET-310148	TR 2SD612K E,F
5-TR29	ET-308141	TR 2SC2603 G
5-TR30	ET-350795	TR 2SC3399
5-D1	ED-337776	D ZENER H HZ3 C1
5-D2	ED-346458	D ZENER H HZ7FA F10 B1
5-D3	ED-346455	D ZENER H HZ7FA F10 A1
5-D4	ED-346607	D ZENER H HZ9 B1
5-D5	ED-306109	D SILICON W03B 100/1.0A
5-D6to16	ED-301911	D SILICON H DS448
5-D17to19	ED-328486	D ZENER H HZ15 3
5-D20	ED-337776	D ZENER H HZ3 C1
5-D21to52	ED-301911	D SILICON H DS448
5-D53	ED-331197	D ZENER H HZ6 C1
5-D54	ED-301911	D SILICON H DS448
5-VR1	EV-522652	R S-FIX V V8K1-1 3P 105
5-X1	EI-349372	OSC CE CSA4.00MG 4MHZ
5-IB1	EH-355320	COMP R M3874
5-IB2	EH-355321	COMP R RKC1/8B13 103J
5-IB3	EH-355322	COMP R M3875
5-IB4	EH-356520	COMP C EXF-P4 103ZF
5-IB5	EH-355323	COMP C EXF-P6 103ZF
5-C3	EC-316187	C EC V CUT SM 102M 16DC
5-C13	EC-360975	C DOUBLE LAYER FSOH2248 5.5DC
5-C32,33	EC-307684	C EC V F05 NP SM R47M 50DC

### 5A. LOADING PC BOARD

REF. NO.	PART NO.	DESCRIPTION
5A-TR1	ET-349626	TR 2SA1347
5A-TR2,3	ET-350795	TR 2SC3399
5A-D2	ED-301911	D SILICON H DS448

### 6. SYSTEM CONTROL (C) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-TR201	ET-348950	TR 2SA1345
6-TR202	ET-350795	TR 2SC3399
6-D201	ED-355324	D LED SLP-153B RED
6-D202	ED-355325	D LED TLR323 RED
6-D203,204	ED-301911	D SILICON H DS448
6-D205,206	ED-344280	D SILICON H GMA-01-FY2 F05
6-SW201to205	ES-355604	SW TACT B3F-1020

### 7. SYSTEM CONTROL (D) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
7-IC301	EI-304657	IC TC4011BP
7-TR301	ET-350795	TR 2SC3399
7-TR302	ET-348950	TR 2SA1345
7-TR303	ET-350795	TR 2SC3399
7-D301to306	ED-301911	D SILICON H DS448

### 8. METER PC BOARD

REF. NO.	PART NO.	DESCRIPTION
8-IC101	EI-356327	IC HA12067
8-SW101to111	ES-355332	SW SLIDE SSY02 2-02-02N
8-VR101	EV-355389	VR SLIDE VJ2013-2GPNV 10C B103
8-VR102	EV-355231	VR SLIDE 35P2SVOJ 1Z104
8-D101	ED-301911	D SILICON H DS448
8-IN1	EM-355326	IND FL BG-290Z

### 9. CONTROL (B) A PC BOARD

REF. NO.	PART NO.	DESCRIPTION
9-R100	ER-306127	R CB H S15 FS RDS 1/2W 681J
9-R101	ER-333668	R CB H S15 RDS 1/2W 431J

### 10. FILTER PC BOARD

REF. NO.	PART NO.	DESCRIPTION
10-L1,2	EO-669273	COIL FIX 2 FL5R200 180

### 11. HEAD PHONE PC BOARD

REF. NO.	PART NO.	DESCRIPTION
11-J3	EJ-348846	PHONE J 3P HLJ0540 6.3

### 12. CONTROL (B) B PC BOARD

REF. NO.	PART NO.	DESCRIPTION
12-PH100	ET-345091	PHOTO SENSOR SPI-201-40 B,C

### 13. REEL DET (R) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
13-PH1	ET-345091	PHOTO SENSOR SPI-201-40 B,C

### 14. POWER SW PC BOARD

REF. NO.	PART NO.	DESCRIPTION
14-SW2	ES-358581	△ SW PUSH J-U3065 01-1
14-C204	EC-355371	△ C CE V F 472Z 400AC

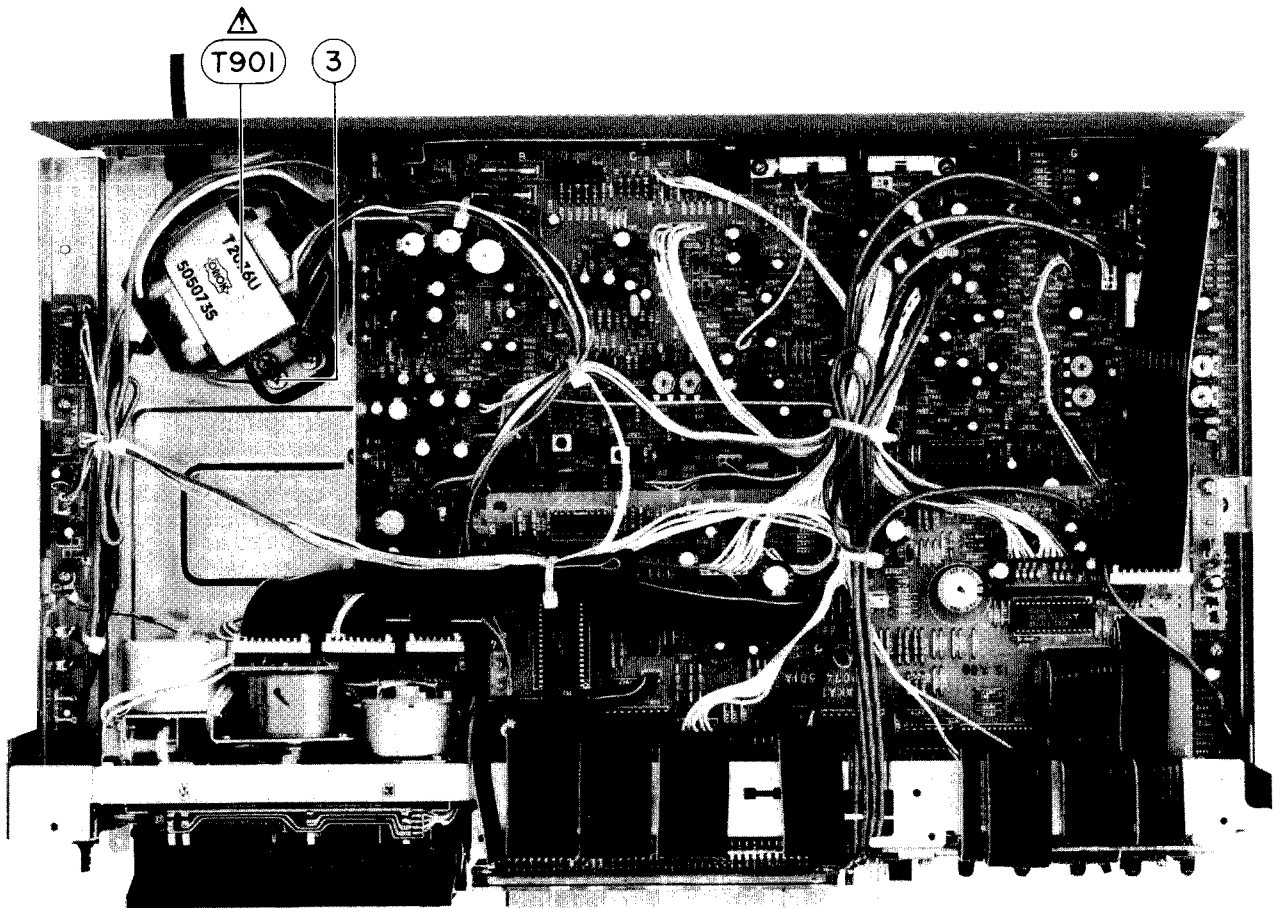
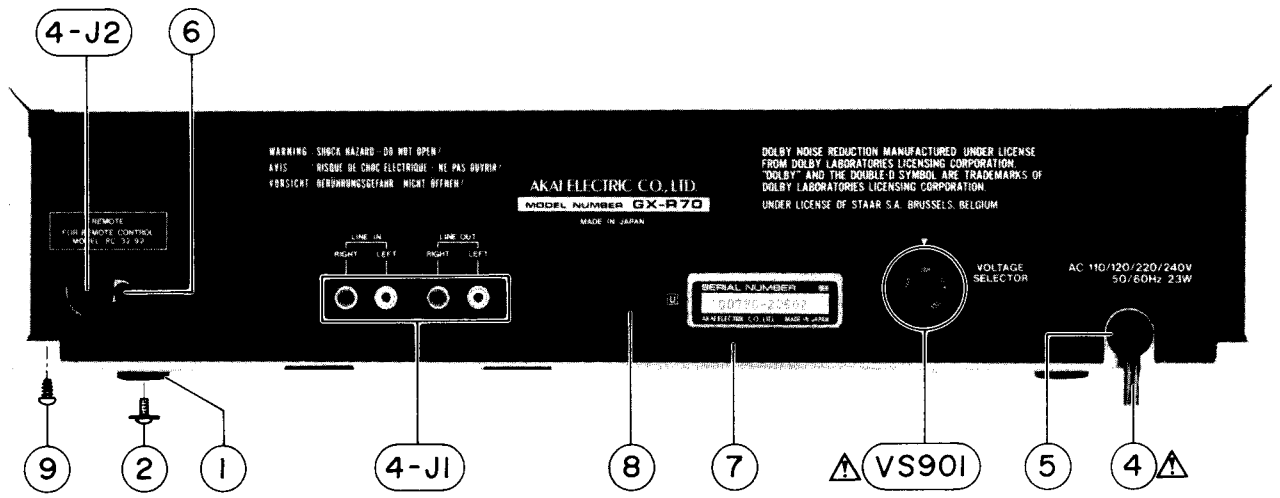
### 15. ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
<b>ASSEMBLY BLOCK</b>		
15-1	SA-349332	FOOT
15-2	ZS-344754	ST PAN30×06STL CMT C080 [FOOT FIX]
15-3	ZS-304022	ST PAN40×06STL CMT [POWER TRANS FIX]
15-4A	EW-355312	△ AC CORD 2 CORES VM-0129A, VFF-CBU/T [U]
15-4B	EW-355521	△ AC CORD 2 CORES KP-210 J [J]
15-4C	EW-355318	△ AC CORD 2 CORES KP10, SPT2-CB UC [C,A]
15-4D	EW-355315	△ AC CORD 2 CORES VM0364, 2×0.75 CB EV [E,V]
15-4E	EW-355316	△ AC CORD 2 CORES LC2×0.75-CB [B]
15-4F	EW-355317	△ AC CORD 2 CORES VM0436, 2×0.75-CB [S]
15-5	EZ-361283	STRAIN RELIEF SR-5N-5 [J]
15-6	ZW-698308	RV NYL30×055 BL
15-7A	SP-355354G	PANEL REAR BOARD GX-R70 [U]
15-7B	SP-355354H	PANEL REAR BOARD GX-R70 [J]
15-7C	SP-355354J	PANEL REAR BOARD GX-R70 [A,C]
15-7D	SP-355354K	PANEL REAR BOARD GX-R70 [E,V]
15-7E	SP-355354L	PANEL REAR BOARD GX-R70 [B,S]
15-8	ZS-352120	T2BR30×08STL BCM C080 [PANEL REAR FIX]
15-9	ZS-455207	T2BR30×05STL CMT [COVER UPPER FIX]
15-T901A	BT-355306	△ TRANS POWER T2076(U)
15-T901B	BT-355308	△ TRANS POWER T2076(j)
15-T901C	BT-355309	△ TRANS POWER T2076(A,C)
15-T901D	BT-355310	△ TRANS POWER T2076(E,V)
15-T901E	BT-355311	△ TRANS POWER T2076(B,S)
15-VS901	ES-359606	△ SW SELECTOR 8T-41S0454 01-4 [U]

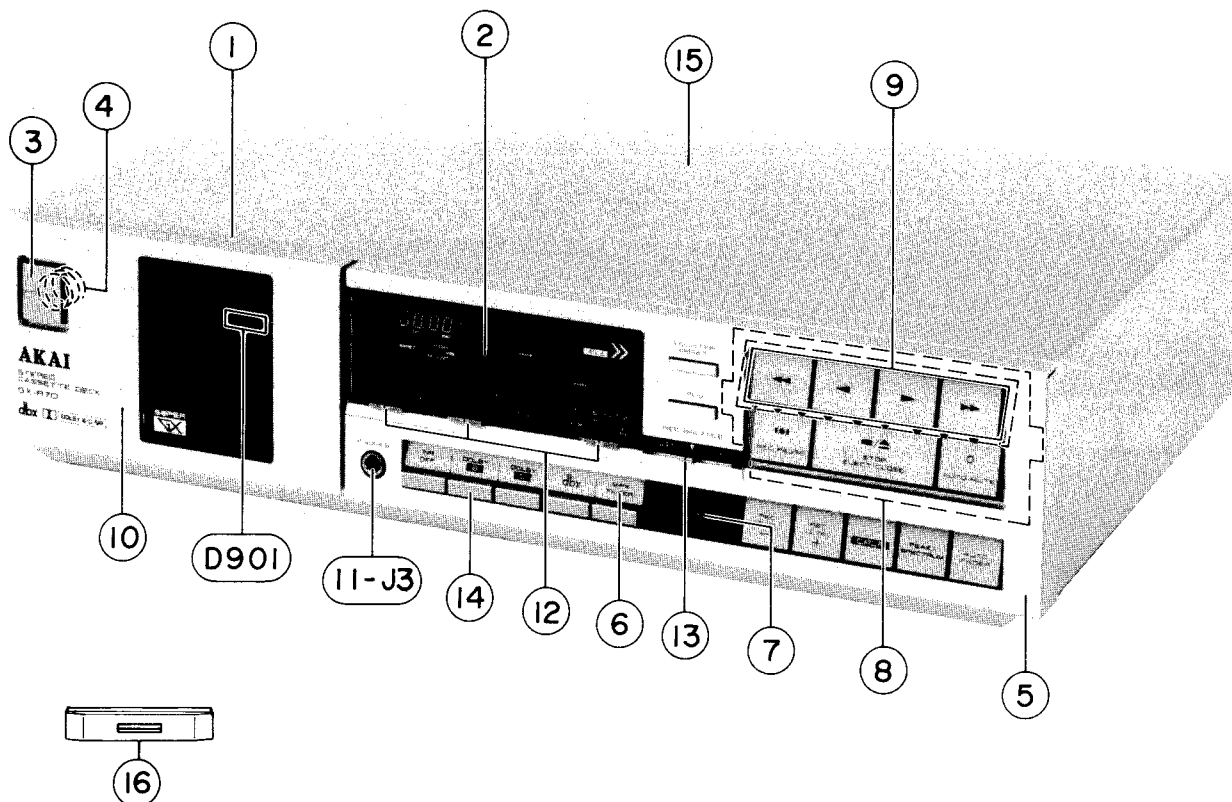
#### PRE AMP & POWER SUPPLY PC BOARD

4-J1A	EJ-347664	PIN J YKC21-5053 P 4P[EXCEPT J]
4-J1B	EJ-361072	PIN J YKC21 P 4P [J]
4-J2	EJ-346076	DIN J TCS4690-01-1111 P 8P

# ASSEMBLY BLOCK



## FINAL ASSEMBLY BLOCK



### 16. FINAL ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
<b>PANEL FRONT BLOCK</b>					
16-1	BD-T2074A040A	PANEL FRONT BLK GX-R70	16-12	SK-355248A	KNOB SLIDE
16-1B	BD-T2074A040B	PANEL FRONT BLK GX-R70-B	16-12B	SK-355248B	KNOB SLIDE-B
16-2	SZ-355243	WINDOW METER	16-13	SK-355249A	KNOB BALANCE
16-3	SK-343017G	KNOB POWER	16-13B	SK-355249B	KNOB BALANCE-B
16-3B	SK-343017F	KNOB POWER-B	16-14	SK-355247A	KNOB PUSH
16-4	ZG-355238	SP PUSH POWER	16-14B	SK-355247B	KNOB PUSH-B
16-5	SP-355259	PANEL SUB	16-15	SP-344591A	COVER UPPER
16-5B	SP-355259B	PANEL SUB-B	16-15B	SP-344591D	COVER UPPER-B(2)
16-6	SP-355257A	PANEL FUNCTION GX-R70	16-16	SE-359322A	PLATE MASK[FOR OUTPUT VR]
16-6B	SP-355257B	PANEL FUNCTION GX-R70-B	16-16B	SE-359322B	PLATE MASK-B
16-7	SZ-355256	WINDOW DB			[FOR OUTPUT VR]
16-8	SK-355254C	KNOB OPERATION (2)	<b>HEAD PHONE PC BOARD</b>		
16-8B	SK-355254D	KNOB OPERATION (2)-B	11-J3	EJ-348846	PHONE J 3P HLJ0540 6.3
16-9	SK-355246C	KNOB DIRECTION (2)	<b>NOTE:</b> PANEL FRONT BLK consists of 16-2 to 16-D901.		
16-9B	SK-355246D	KNOB DIRECTION (2)-B	<b>SYMBOL FOR COLOR VARIATION</b>		
16-D901	ED-344244	D LED SLF601C AMBER	NON : STANDARD COLOR		
<b>LID PANEL BLOCK</b>					
16-10	BD-T2074A050A	LID PANEL BLK GX-R70	B or BL : BLACK		
16-10B	BD-T2074A050C	LID PANEL BLK GX-R70-B			
<b>FINAL ASSEMBLY BLOCK</b>					
16-11x	ZS-320906	ST BR30x06STL CMT			
		[PANEL FRONT FIX]			

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