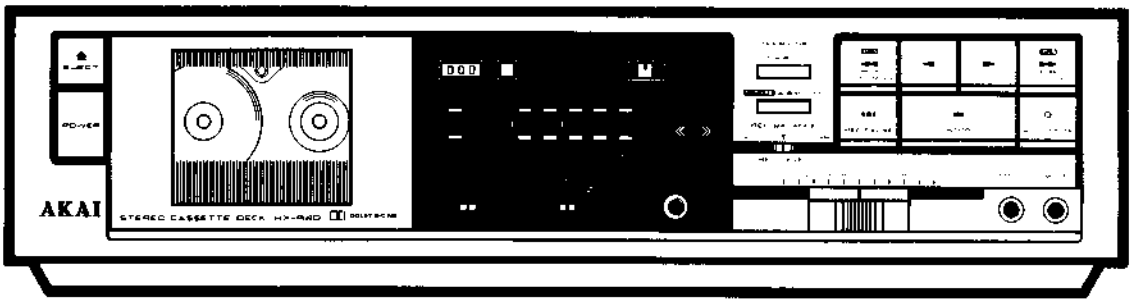
HX-R40

AKAI SERVICE MANUAL

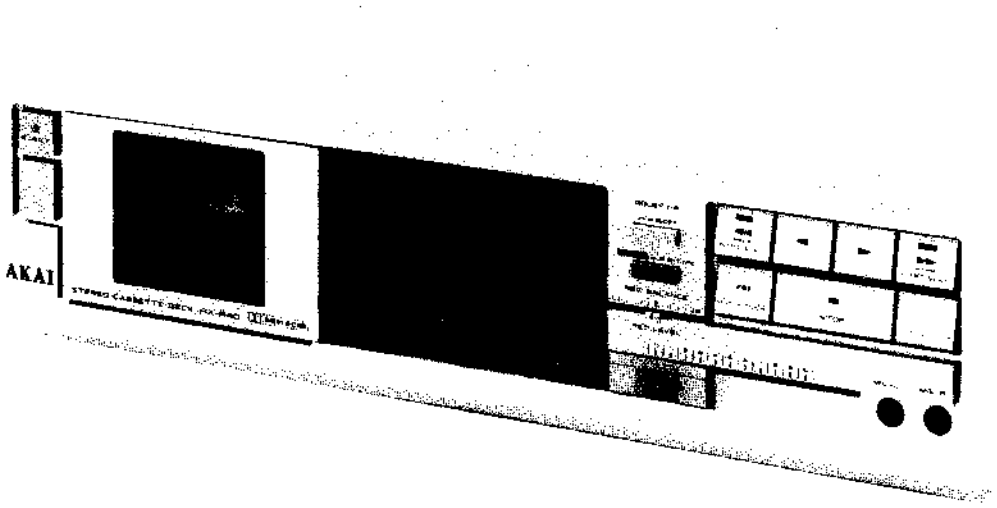


STEREO CASSETTE DECK

MODEL HX-R40

ABBREVIATIONS FOR SERVICE MANUAL
MODEL HX-R40

ABBREVIATION	EXPLANATION
ADJ	ADJustment
CAM M	CAM Motor
Dolby NR	Dolby Noise Reduction
EQ	EQualizer
FF	Fast Forward
FREQ	FREQuency
FWD	ForWarD
FWD AR	ForWarD Anti Record
H	High level
HD	High Density
IND	INDicator
IPLS	Instant Program Location System
L	Low level
OSC	OSCillator
PB	Play Back
Q REV	Quick REVerse
REC	RECord
REEL M	REEL Motor
REEL M P/F	REEL Motor Play/Forward
REG	REGulator
REV	REVerse
REV AR	REVerse Anti Record
SW	SWitch
VR	Variable Resistor
VREG	Voltage REGulator



STEREO CASSETTE DECK

MODEL HX-R40

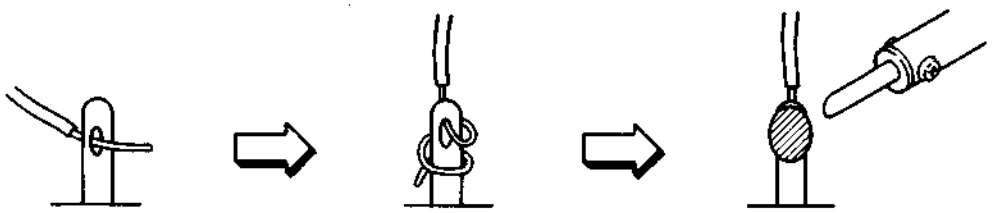
SAFETY INSTRUCTIONS

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

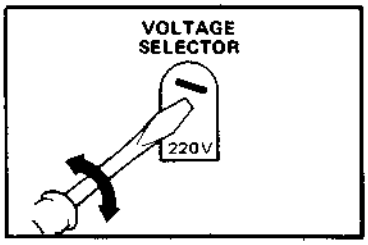
1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified 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 destination, but some machine 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-R40 use a DC MOTOR.

SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

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

I. SPECIFICATIONS

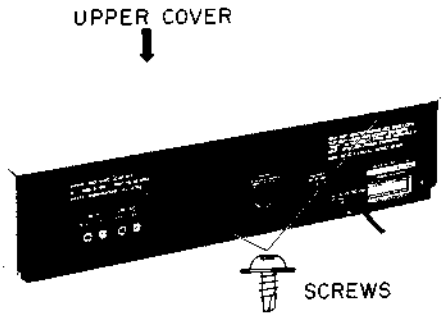
TRACK SYSTEM	4 track 2 channel stereo
TAPE	Phillips type cassette
HEADS	HD head for recording and playback x 1 Erase head x 1
MOTORS	Electronically speed controlled DC motor for capstan drive x 1 DC motor for reel drive x 1 DC motor for cam drive x 1
WOW & FLUTTER FOR J-MODEL	0.05% WRMS (JIS), 0.12% (DIN) ±0.07% W. Peak (EIAJ), 0.05% WRMS
FREQUENCY RESPONSE NORMAL CrO_2 METAL	 20 Hz to 17,000 Hz ± 3 dB 20 Hz to 18,000 Hz ± 3 dB 20 Hz to 19,000 Hz ± 3 dB
S/N (METAL) FOR J-MODEL DOLBY B TYPE NR SWITCH ON DOLBY C TYPE NR SWITCH ON	59 dB 58 dB (EIAJ) Improves up to 5 dB at 1 kHz, 10 dB above 5 kHz Improves up to 15 dB at 500 Hz, 20 dB at 1 kHz to 10 kHz
HARMONIC DISTORTION (METAL) FOR J-MODEL	Less than 0.8% 0.8% (EIAJ)
INPUT SENSITIVITY/IMPEDANCE MIC LINE	 0.25 mV/5 kohms (Required microphone impedance 600 ohms) 70 mV/47 kohms
OUTPUT SENSITIVITY/IMPEDANCE LINE HEADPHONES	 388 mV/2 kohms 0.3 mW (8 ohms)/82 ohms
POWER REQUIREMENTS	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 FOR J-MODEL	17W 14W
DIMENSIONS	440 (W) x 110 (H) x 250 (D) mm (17.3 x 4.3 x 9.8 inches)
WEIGHT	4.3 kg (9.5 lbs)

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

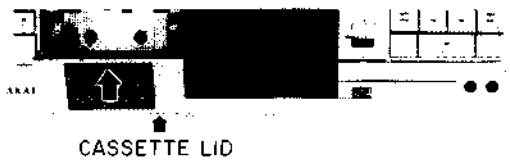
II. DISMANTLING OF UNIT

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

3



1



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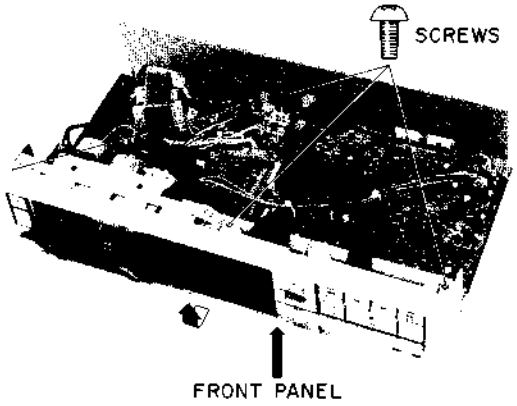

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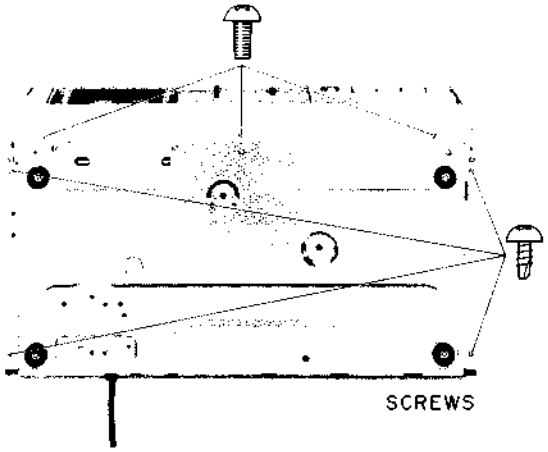

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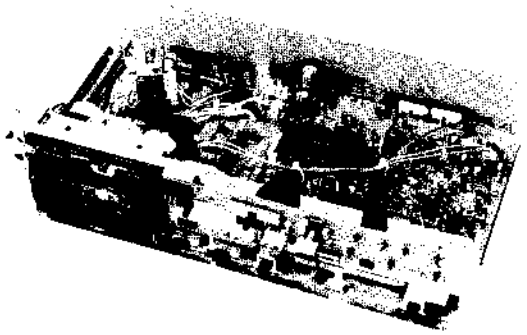


III. CONTROLS

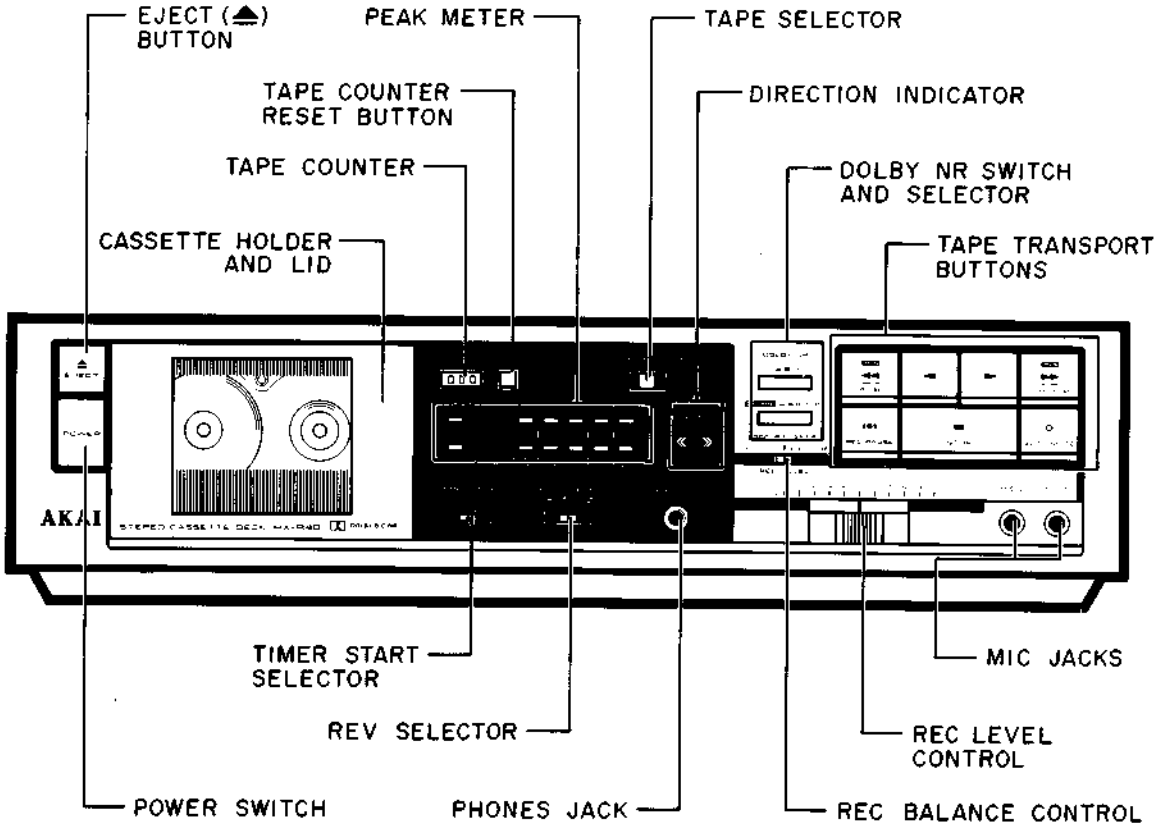


Fig. 3-1 Front View

IV. PRINCIPAL PARTS LOCATION

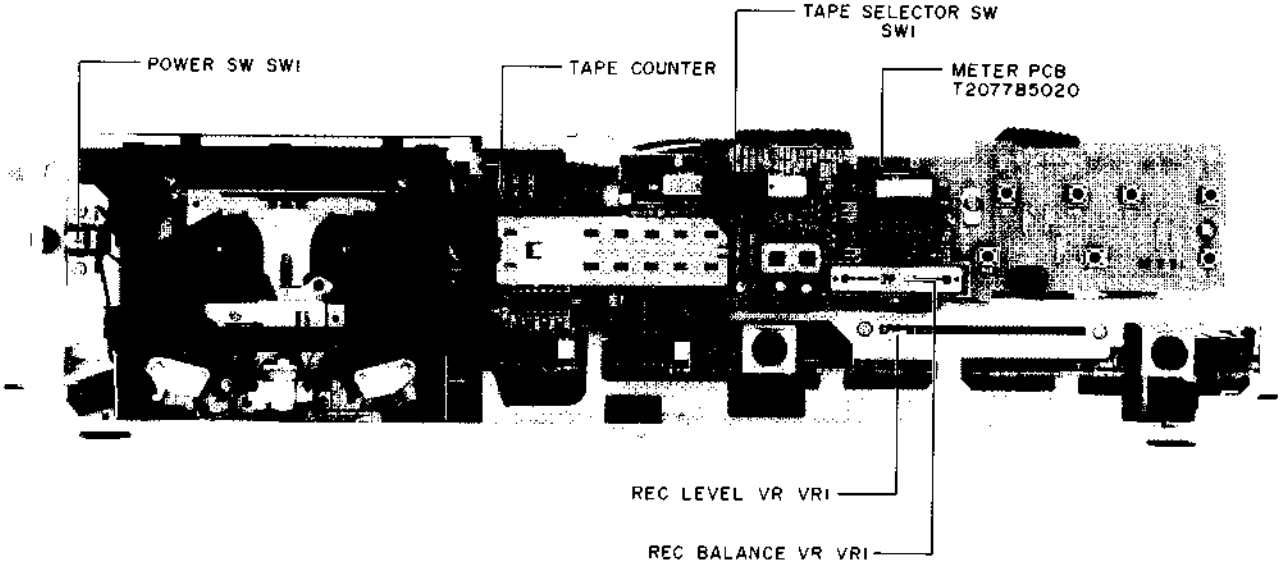


Fig. 4-1 Front View

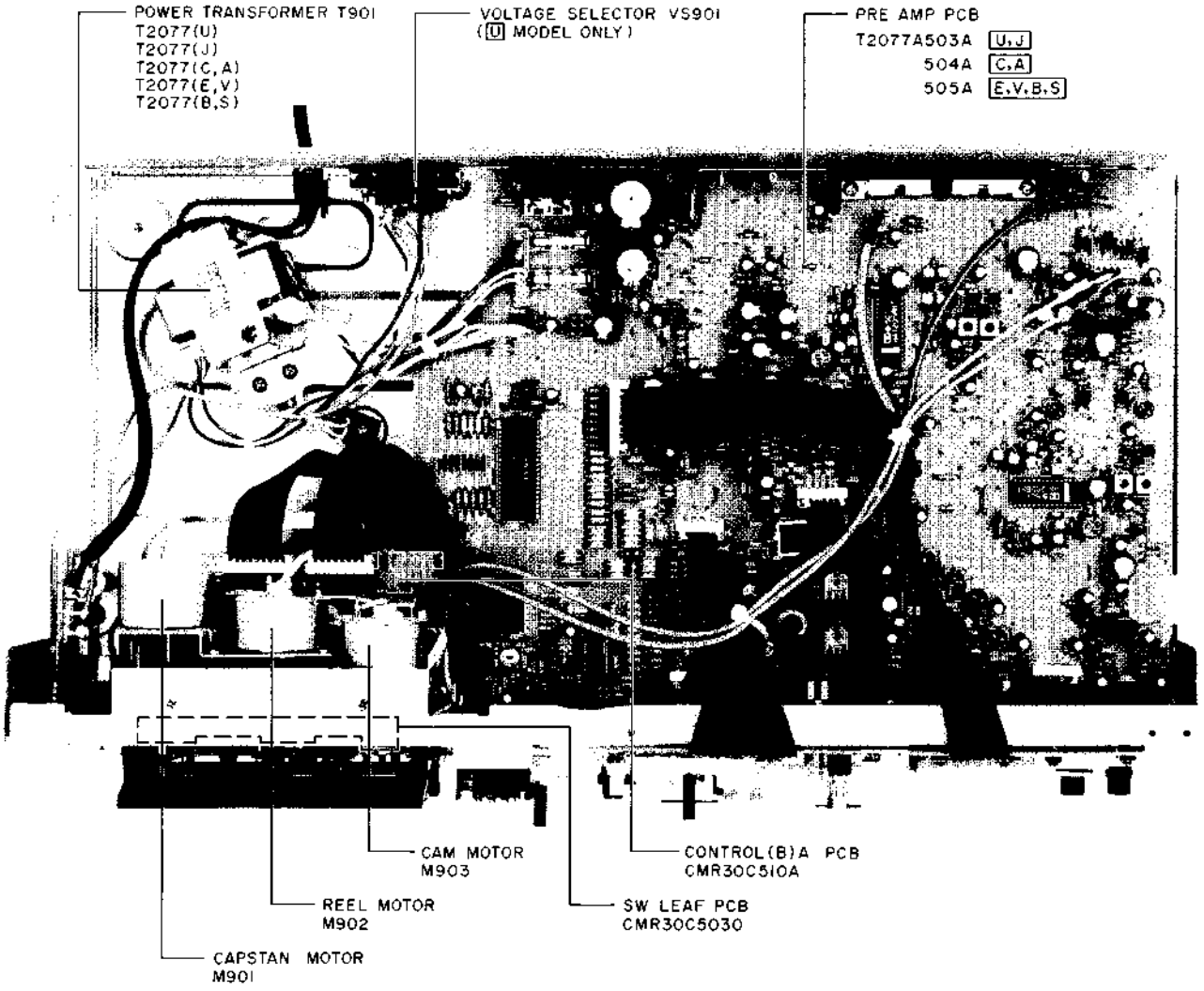


Fig. 4-2 Top View (U model)

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)

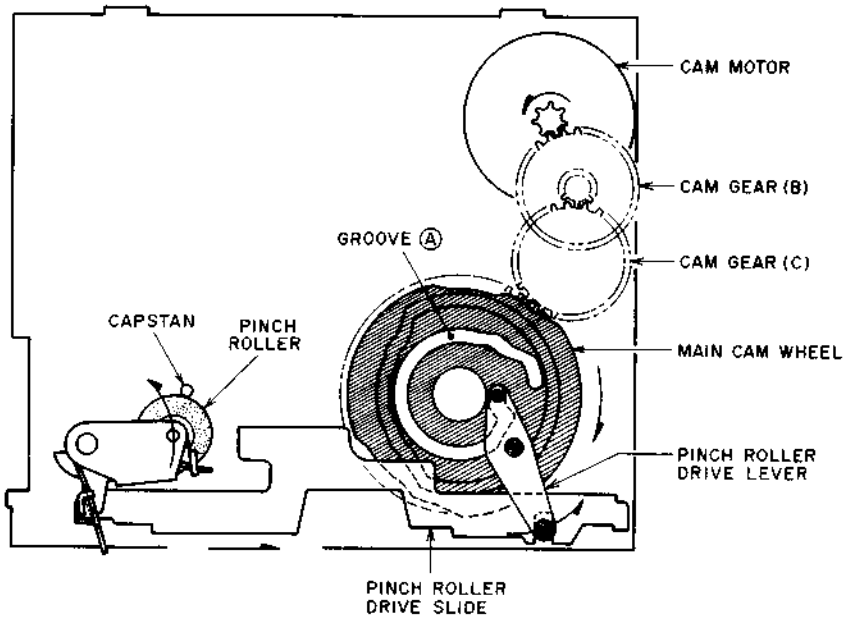


Fig. 5-1

The main cam wheel's groove Ⓐ 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)

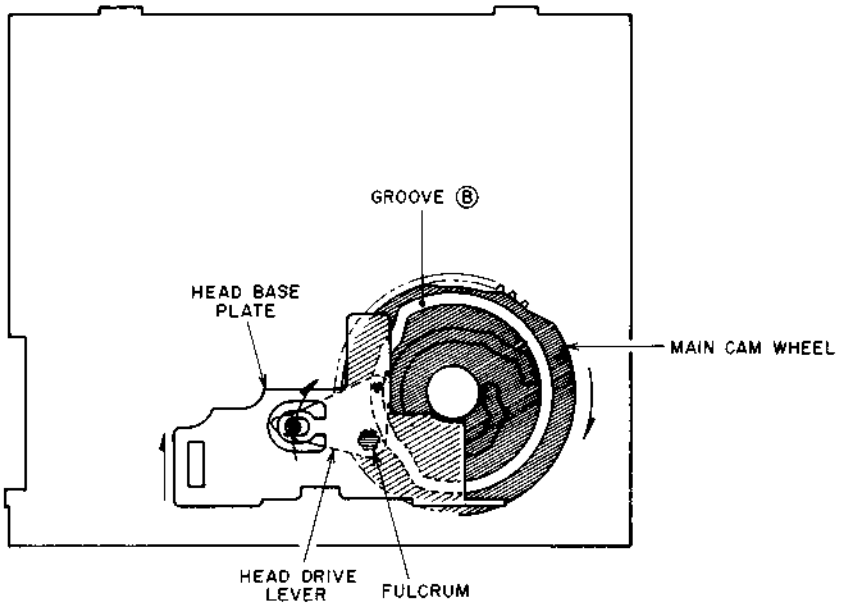


Fig. 5-2

The main cam wheel's groove Ⓑ 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)

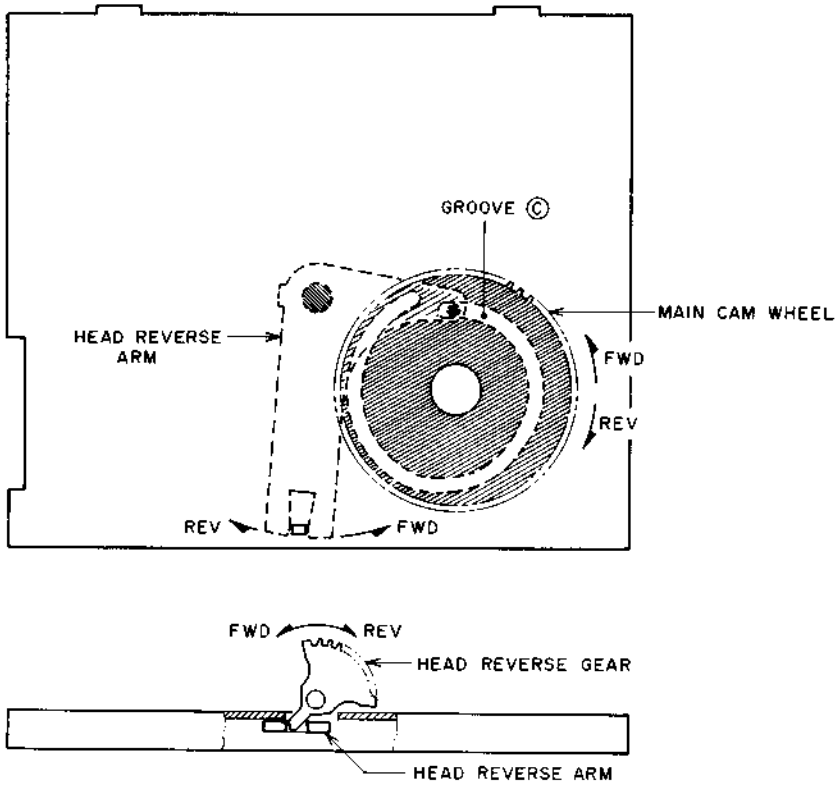


Fig. 5-3

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)

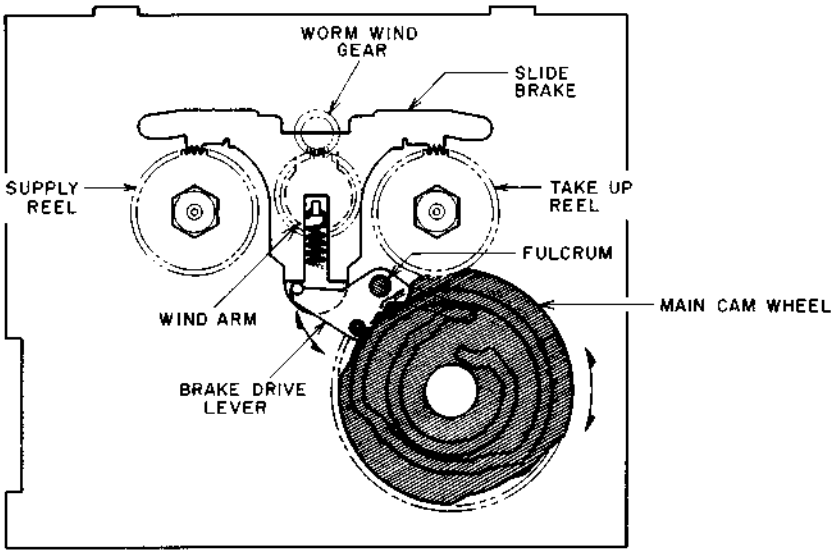


Fig. 5-4

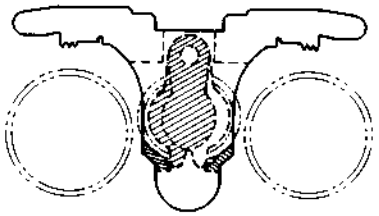


Fig. 5-5

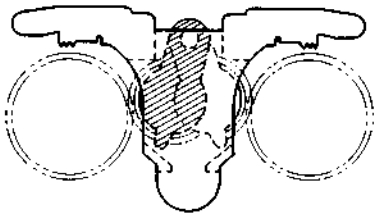


Fig. 5-6

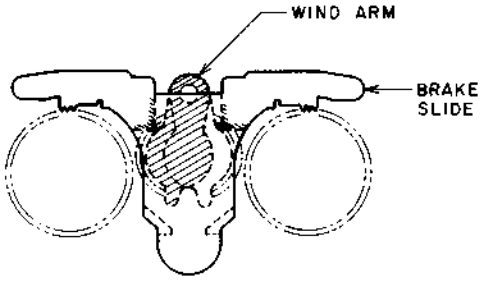


Fig. 5-7

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.

a. 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).

b. 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).

c. 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).

VI. FIXING PROCEDURES FOR CAM WHEEL AND ROTARY ENCODE PCB

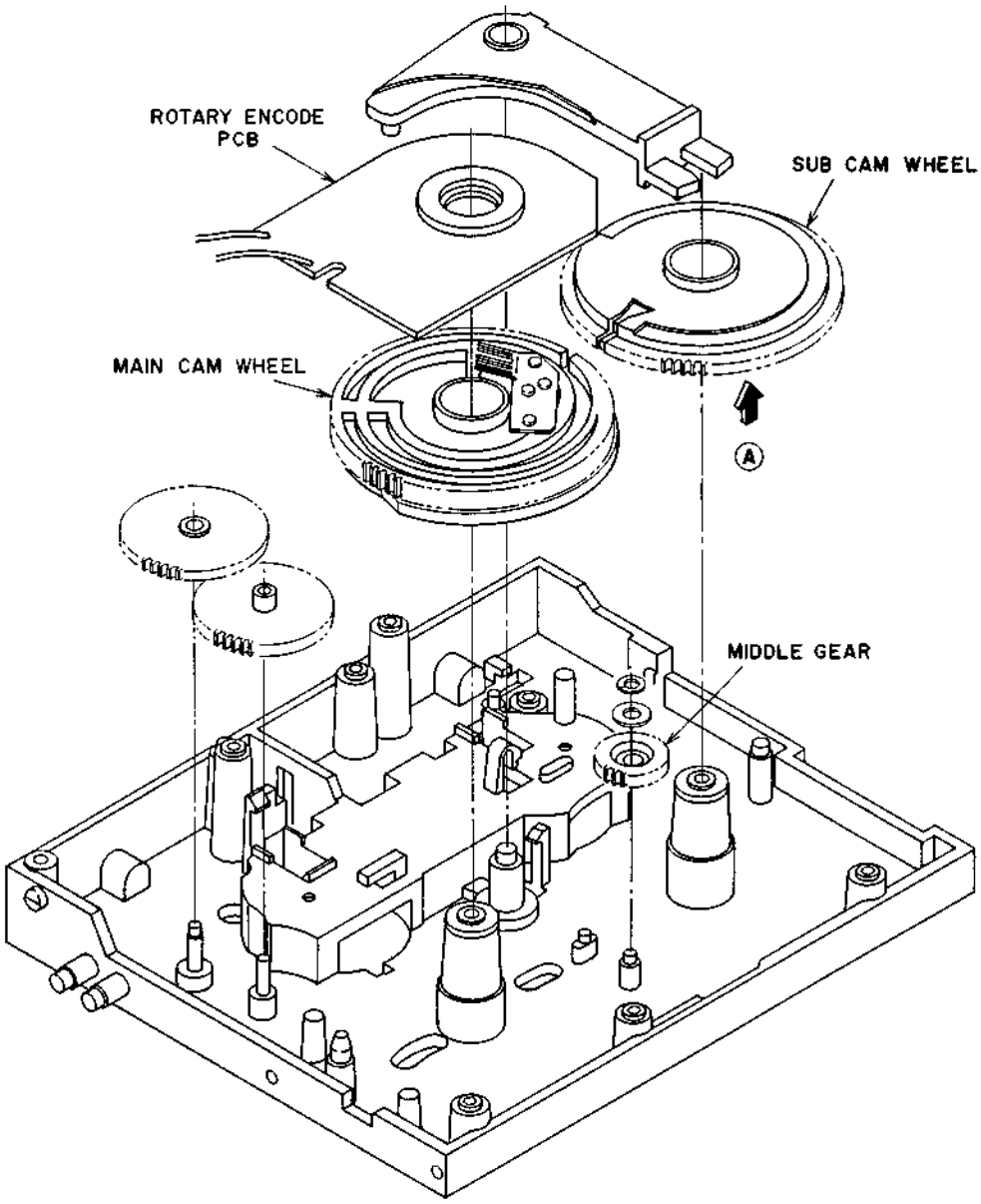


Fig. 6-1

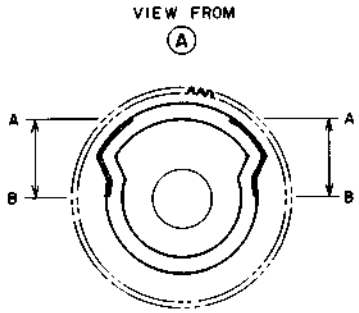


Fig. 6-2

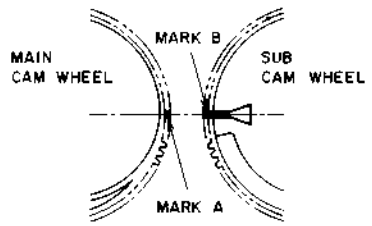


Fig. 6-3

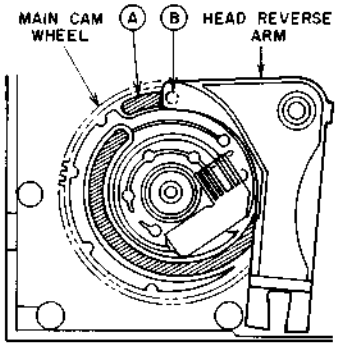


Fig. 6-4

1) Lock at SUB CAM WHEEL from direction Ⓐ (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 Ⓑ (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 (Refer to 7-1)

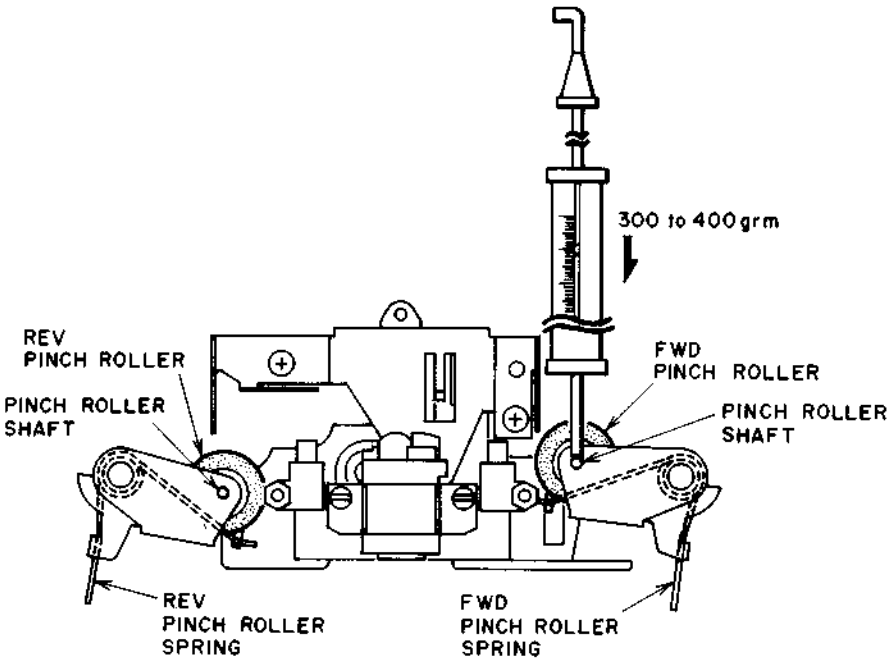


Fig. 7-1

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, relace the pinch roller spring. Do the same for the reverse side.

7-2. WINDING TORQUE MEASUREMENT IN EACH MODE (Refer to Fig. 7-2)

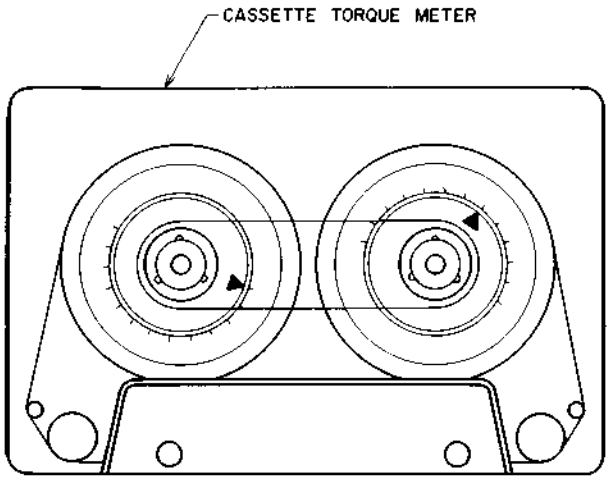


Fig. 7-2

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 ± 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 (Refer to Fig. 7-3)

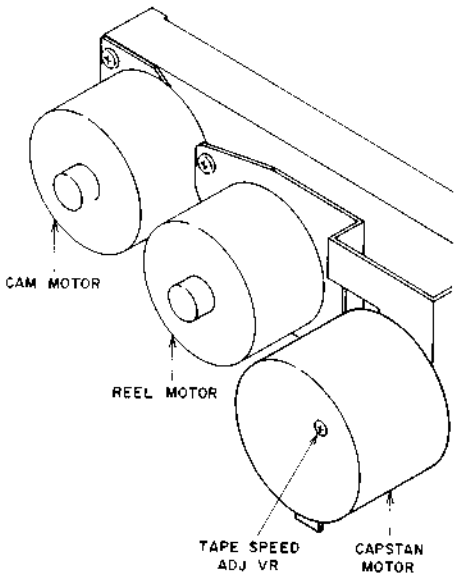


Fig. 7-3

1) Connect a frequency counter to Line output terminal.
2) Playback (Forward) a 3150 Hz pre-recorded Test Tape (AT-751263) and adjust the Tape Speed Adjustment Volume to obtain a tape speed of 3150 Hz ± 30 Hz.

VIII. HEAD ADJUSTMENT

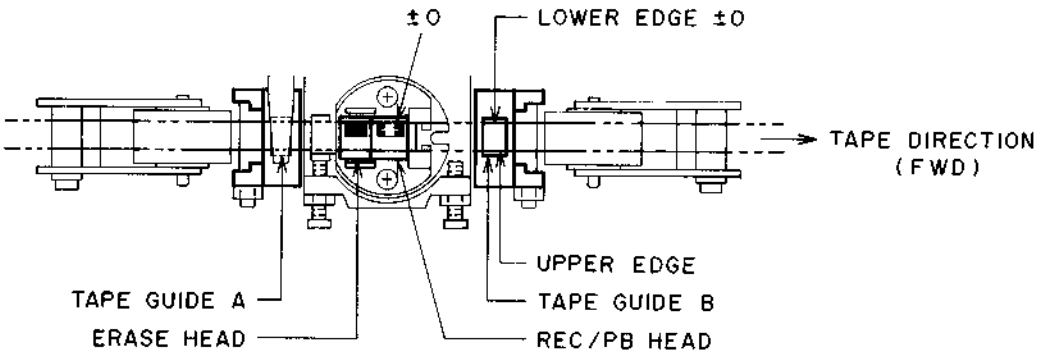


Fig. 8-1

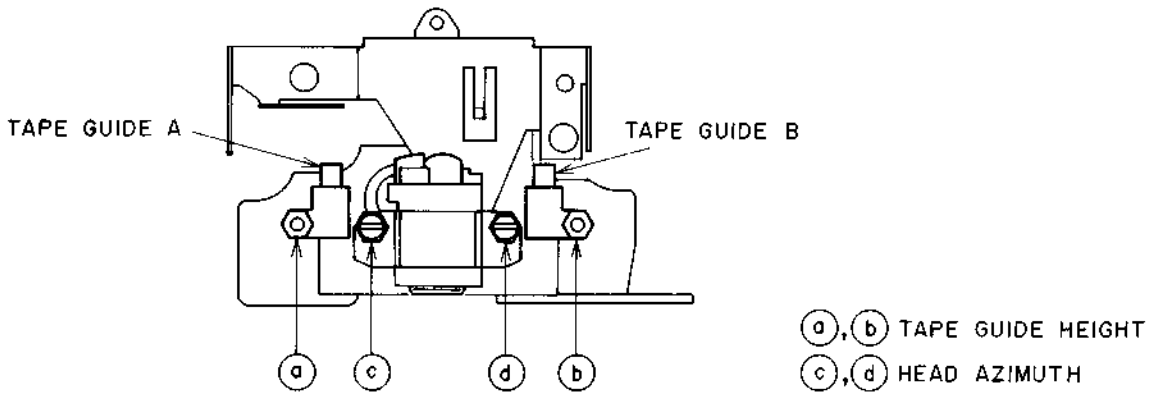


Fig. 8-2

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 ⓐ and ⓑ 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 0VU (AT-750773) tape and adjust the tape guide height adjustments ⓐ and ⓑ 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 ⓐ and ⓑ 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 ⓐ and ⓑ slowly until the tape runs smoothly.
6) After adjustment, check 2) and 3) again.
7) After adjustment, paint-lock the tape guide height adjustment nuts ⓐ and ⓑ.

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 ⓒ for the FWD direction and screw ⓓ 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.

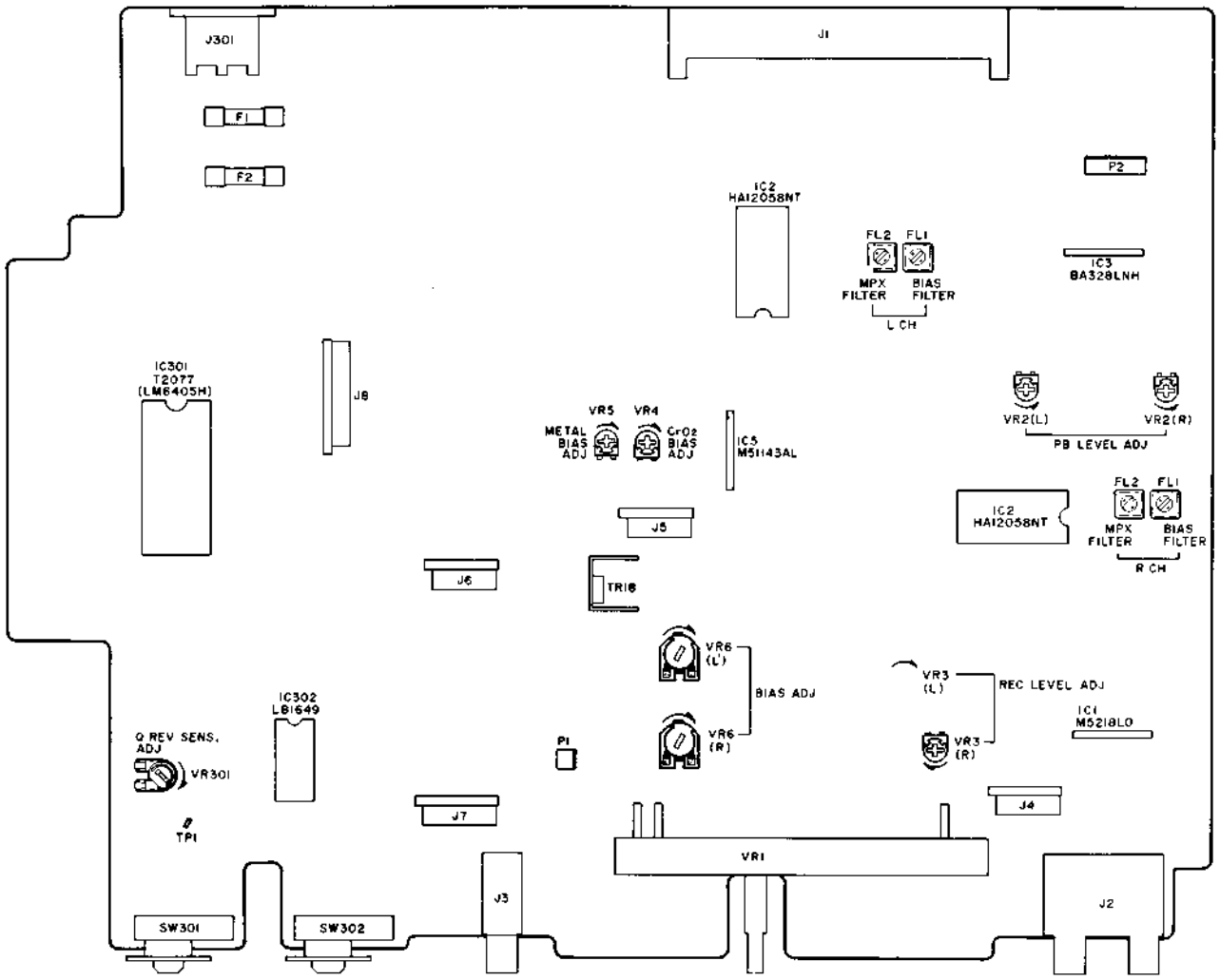


Fig. 9-1 PRE AMP PCB (Parts Side View)

9-1. QUICK REVERSE SENSITIVITY ADJUSTMENT (Refer to Fig. 9-1)

1) Make a tapeless cassette pack by removeing the tape from the white colored test tape.
2) Connect a Digital voltmeter between TP1 and Ground.
3) Using the tapeless cassette pack, adjust VR301 so that the digital voltmeter reads 10 ± 0.5V DC at RWD play mode.

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

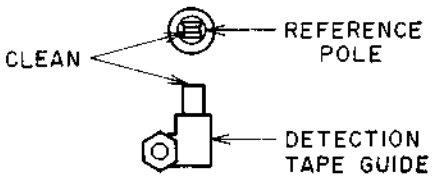


Fig. 9-2

9-2. PRE-AMP ADJUSTMENT (Refer to Fig. 9-1)

Step	Adjustment Item	Test Tape & Supply Signal	Mode	Adjustment Parts	Result	Remarks
1	FWD PB Level	315 Hz Test Tape (AT-750773)	FWD PB	VR2	−6.0 ± 0.2 dBm	
2	REV PB Level	315 Hz Test Tape (AT-750773)	REV PB		−6.0 ± 0.2 dBm	Confirmation
3	NORMAL BIAS	Normal Blank Tape 1 kHz, 10 kHz −26.0 dBm	REC/PB	VR6	1 kHz, 10 kHz flat ± 0.5 dBm	Lch, Rch 0 ± 0.5 dBm
4	CrO_2 BIAS	CrO_2 Black Tape 1 kHz, 10 kHz −26.0 dBm	REC/PB	VR5	1 kHz, 10 kHz flat ± 0.4 dBm	
5	Metal BIAS	Metal Blank Tape 1 kHz, 10 kHz −26.0 dBm	REC/PB	VR4	1 kHz, 10 kHz flat ± 0.4 dBm	
6	REC LEVEL	Normal Blank Tape 315 Hz, −6.0 dBm	REC/PB	VR3	−6.0 ± 0.3 dBm	
7	Bias LEAK	No Signal Input	REC	FL1	Less than −40 dBm	NOTE 2
8	MPX Filter	19 kHz from oscillator	REC	FL2	Less than −30 dBm	NOTE 2

NOTES: 1. All adjustments are without Dolby.
2. The adjustments in steps 7 and 8 are not needed in normal condition, nor when FL1, FL2 are replaced with a new one.
However, follow the instructions in step 7 and 8, incase they are misadjust.
3. Use the following cassette measuring tapes:
NORMAL TAPE : Maxell UDI C-60
CrO_2 TAPE : TDK SA C-60
METAL TAPE : TDK MA C-60

X. PC BOARD TITLES AND IDENTIFICATION NUMBERS

PC Board Title		PC Board Number	Remarks
PRE AMP	PC BOARD	T2077A503A	U, J
		T2077A504A	C, A
		T2077A505A	E, V, B, S
POWER SW	PC BOARD	T2077A503B	U, J
		T2077A504B	C, A
		T2077A505B	E, V, B, S
TR	PC BOARD	T2077A 503C	U, J
		T2077A504C	C, A
		T2077A505C	E, V, B, S
METER	PC BOARD	T2077B5020	
CONTROL (B) A	PC BOARD	CMR30C510A	
CONTROL (B) B	PC BOARD	CMR30C510B	
ROTARY ENCODER	PC BOARD	CMR30B5010	
LEAF SW	PC BOARD	CMR30C5030	

SECTION 2

PARTS LIST

TABLE OF CONTENTS

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

2. HEAD BASE BLOCK

REF. NO.	PART 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	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

b) P.C Board Block

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 RECOMMANDEES 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.

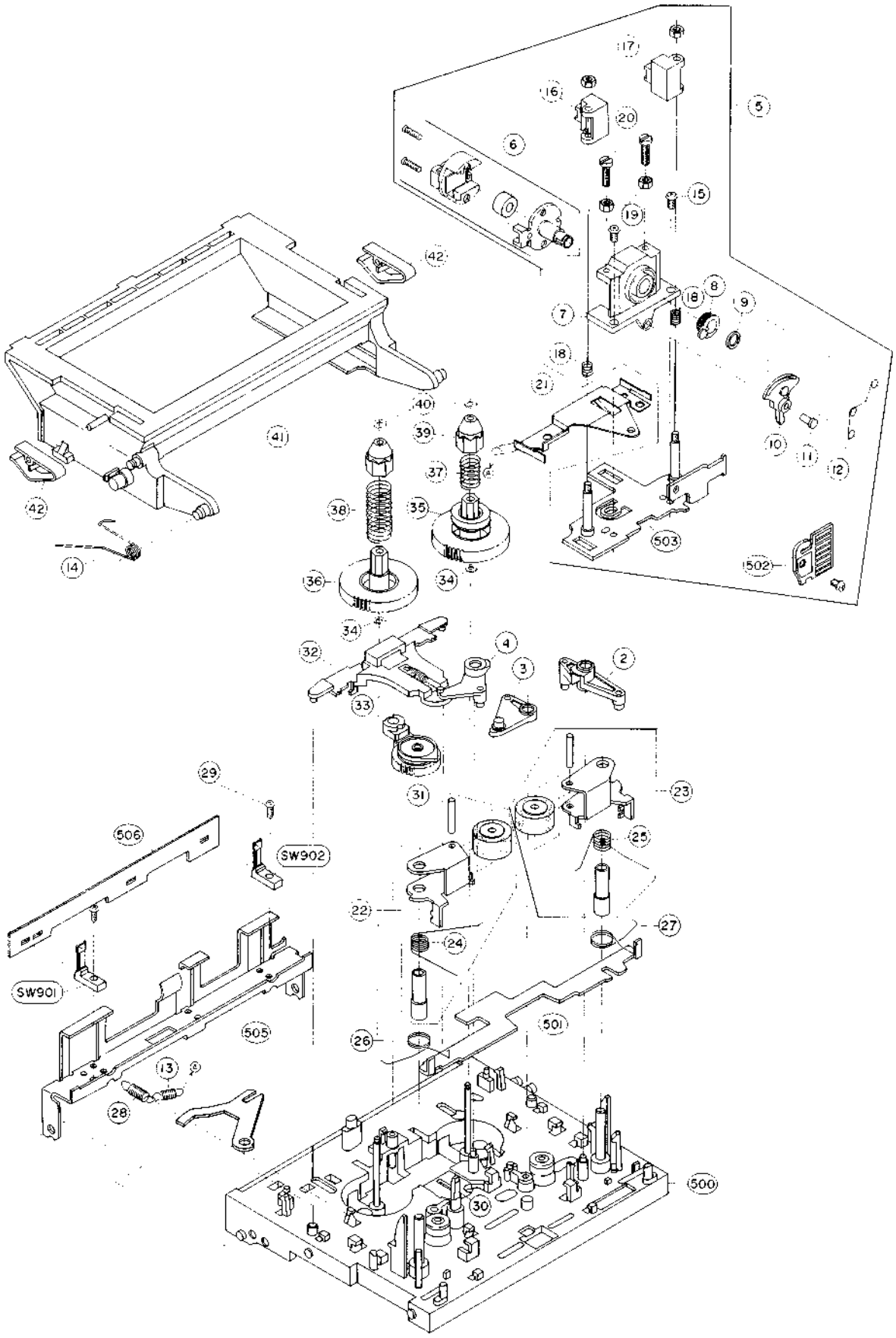
NO.		PART NO.	DESCRIPTION
1	N	BH-T2068A430B	PLATE ROTARY BLK CMR32
2		BL-T2068A380A	ARM PINCH ROLLER L BLK CMR31
3		BL-T2068A390A	ARM PINCH ROLLER R BLK CMR31
4		BM-B354697	⚠ CAM MOTOR PART CMR30
5		BM-B354716	⚠ CAPSTAN MOTOR PART CMR30
6		BM-B354714	⚠ REEL MOTOR PART CMR30
7	N	BT-355342	⚠ TRANS POWER T2077 (B,S)
8	N	BT-355340	⚠ TRANS POWER T2077 (C,A)
9	N	BT-355341	⚠ TRANS POWER T2077 (E,V)
10	N	BT-355339	⚠ TRANS POWER T2077 (J)
11	N	BT-355338	⚠ TRANS POWER T2077 (U)
12		ED-330319	⚠ D SILICON DBA10B 100/1.0A
13		ED-353290	D LED GL-9NG24
14		ED-353291	D LED GL-9PR24 RED
15		ED-337093	D LED GL9NG4 GREEN
16		ED-357754	D SILICON DS135D 200/1.0A
17		ED-344280	D SILICON H GMA-01-FY2 F05
18		ED-337776	D ZENER H HZ3 C1
19		ED-331667	D ZENER H HZ7 A1
20		ED-201581	D ZENER H HZ7 B1
21	N	ED-348062	D ZENER V HZ15-2S7
22		EF-355226	⚠ FUSE BET T 1.00A 250V [B]
23	N	EF-359342	⚠ FUSE BET T 400MA 250V [B]
24		EF-623103	⚠ FUSE SEMKO T 1.00A 250V [E,V,S]
25		EF-668474	⚠ FUSE SEMKO T 400MA 250V [E,V,S]
26		EF-327103	⚠ FUSE TSC A 250V 0.50A [U,J]
27		EF-311839	⚠ FUSE TSC A 250V 1.60A [U,J]
28		EF-309390	⚠ FUSE TSC 125V 0.50A [C,A]
29		EF-308847	⚠ FUSE TSC 125V 1.60A [C,A]
30		EH-351182	FILTER DB 201AK-005 100KHZ
31		EH-351183	FILTER DB 201AK-006 19KHZ
32		EI-349663	IC BA328LNH
33		EI-355595	IC HA12058NT
34		EI-353289	IC IR2E27A
35		EI-355602	IC LB1649
36	N	EI-355336	IC LM6405H-1808 (T2077)
37		EI-357498	IC M51143AL
38		EI-337228	IC M5218L
39		EI-337017	OSC CE CSB800A 0.800000MHZ
40		ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
41	N	ES-359606	⚠ SW SELECTOR 8T-41S454 01-4 [U]
42		ES-354767	SW LEAF BSW-243
43		ES-347966	SW PUSH ESB-649 01-2-2 N
44		ES-337902	SW PUSH SDLD1P002 01-1
45		ES-353708	SW SLIDE SSSY12083A 2-02-03N
46		ES-362584	SW SLIDE SSY06 06-3N
47		ES-355604	SW TACT B3F-1020
48		ET-344176	⚠ TR 2SD313HP F
49	N	ET-359485	PHOTO SENSOR SPI-313
50		ET-308472	TR 2SA1115 E,F,G
51		ET-355626	TR 2SA992 E,F
52		ET-353067	TR 2SB744 P,Q,R
53		ET-348931	TR 2SB774 R,S,T
54		ET-347143	TR 2SC1845 E,F
55		ET-308977	TR 2SC2274K F
56		ET-349705	TR 2SC2320 E,F,G
57		ET-308141	TR 2SC2603 G
58		ET-349080	TR 2SC3382 S,T
59		ET-349608	TR 2SC3383 T,U
60		ET-350795	TR 2SC3399
61		ET-349366	TR 2SC3402
62		ET-338324	TR 2SD1012-V H
63		ET-349979	TR 2SD794 P,Q,R
64		EV-356579	R S-FIX H H0615C 3P 102
65		EV-356577	R S-FIX H H0615C 3P 103
66		EV-356582	R S-FIX H H0615C 3P 473
67		EV-341226	R S-FIX H KVSF807V 3P 204
68		EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
69	N	EV-355346	VR SLIDE S6024 P102-T2077
70	N	EV-355349	VR SLIDE 45P2SVOD 1Z503
71		HZ-354673	GEAR ROTARY
72		HZ-354675	LEVER GEAR REVERSE
73		MB-354707	BELT CAPSTAN (A)
74	N	MB-355236	BELT COUNTER
75	N	MC-355352	COUNTER MK395-073
76		MI-354706	FLYWHEEL
77		MR-354730	PULLEY REEL
78		MR-B354730	PULLEY REEL PART CMR30
79		MZ-B354735	CAM WHEEL MAIN PART CMR30
80		MZ-354682	GEAR CAM (B)
81		MZ-354683	GEAR CAM (C)
82		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 BLOCK (1)

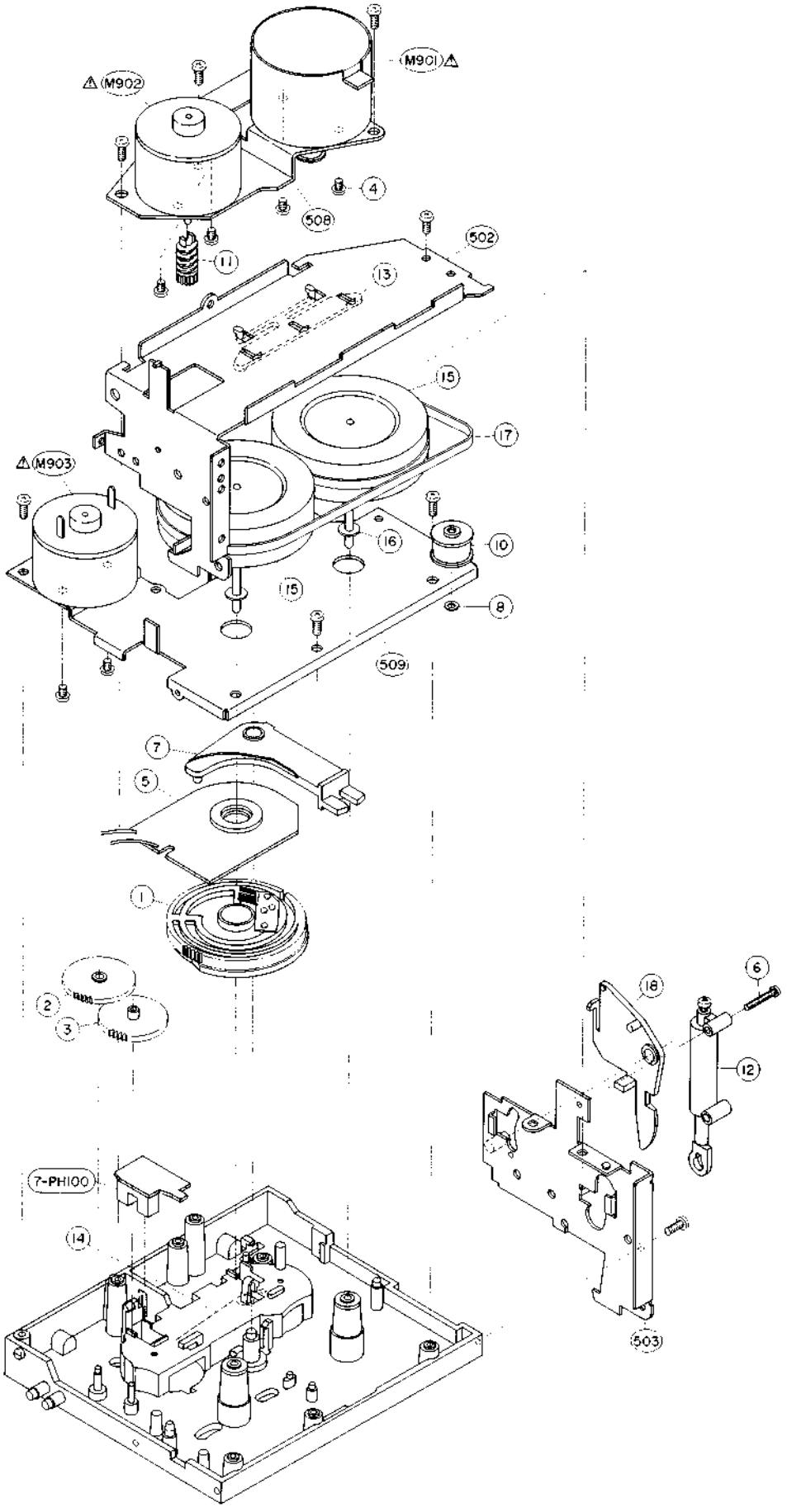


1. MECHA BLOCK (1)

REF. NO.	PART NO.	DESCRIPTION
1-1	BB-T2068A300C	MECHA CMR32 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-T2068A370C	HEAD BLOCK CMR32
1-6	BH-T2068A430B	PLATE ROTARY BLK CMR32
1-7	HZ-354764A	HOLDER HEAD
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	ZG-355133	SP PULL EARTH
1-14	ZG-359139	SP TORSION EJECT
1-15	ZS-417161	PAN23x04STL CMT
1-16	ET-359485	PHOTO SENSOR SPI-313
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-355265	SP PULL HOLDER LEAF (B)
1-29	ZS-460440	PAN20x04STL CMT
1-30	MH-354679	PROP REFRENCH
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	MR-B354730	PULLEY REEL PART CMR30
1-36	MR-354730	PULLEY REEL
1-37	ZG-354717	SP PUSH BT (A)
1-38	ZG-354718	SP PUSH BT (B)
1-39	MT-349681	REEL RETAINER (B)
1-40	ZW-343120	PW17x040x025PSL
1-41	BD-359140	LID CASE (B)
1-42	ZG-336615	SP PLATE CASSETTE HOLDER (B)
1-SW901	ES-354767	SW LEAF BSW-243[ANT REC FWD]
1-SW902	ES-354767	SW LEAF BSW-243[ANT REC REV]

NOTE: Parts listed in 1 to SW902 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are seldom required for routine service.

MECHA BLOCK (2)



2. MECHA BLOCK (2)

REF. NO.	PART NO.	DESCRIPTION
	MECHA BLOCK	
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	ZS-592378	PAN26×03STL CMT
2-5	EA-354860	PC ROTARY ENCODER
2-6	ZS-343113	ST PAN20×12STL CMT
2-7	ML-354685	ARM HEAD REVERSE
2-8	ZW-343120	PW17×040×025PSL
2-9x	ZW-357621	PW19.8×060×025PSL
2-10	MR-B354695	PULLEY MIDDLE PART CMR30
2-11	MZ-354715	GEAR WORM WIND
2-12	MZ-344099	DAMPER ASSY
2-13	MZ-354709	HOLDER THRUST
2-14	ZG-355016	SP TORSION EARTH
2-15	MI-354706	FLYWHEEL
2-16	ZW-536466	PW21×070×050NYL
2-17	MB-354707	BELT CAPSTAN (A)
2-18	ML-359134	LEVER EJECT (L)
2-M901	BM-B354716	⚠ CAPSTAN MOTOR PART CMR30
2-M902	BM-B354714	⚠ REEL MOTOR PART CMR30
2-M903	BM-B354697	⚠ CAM MOTOR PART CMR30
	CONTROL (B) B PC BOARD	
7-PH100	ET-311977	PHOTO SENSOR SPI-201

NOTE: Parts listed in 1 to PH100 on the exploded view and list are normaly stocked for replacement purpose. The remaining parts shown in this manual are not normaly stocked, because they are seldom required for routine service.

3. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
3-1A	BA-T2077A020A	PC PRE AMP BLK HX-R40 (U,J)
3-1B	BA-T2077A020B	PC PRE AMP BLK HX-R40 (C,A)
3-1C	BA-T2077A020C	PC PRE AMP BLK HX-R40 (E,V,B,S)
3-2	BA-T2077A030A	PC METER BLK HX-R40

NOTE: PC PRE AMP BLK consists of following PC BOARDS.
- PRE AMP PC BOARD
- TR PC BOARD
- POWER SW PC BOARD

4. PRE AMP PC BOARD

REF. NO.	PART NO.	DESCRIPTION
	PRE AMP PC BOARD	
4-IC1	EI-337228	IC M5218L
4-IC2	EI-355595	IC HA12058NT
4-IC3	EI-349663	IC BA328LNH
4-IC4	EI-337228	IC M5218L
4-IC5	EI-357498	IC M51143AL
4-IC301	EI-355336	IC LM6405H-1808 (T2077)
4-IC302	EI-355602	IC LB1649
4-TR1to3	ET-349608	TR 2SC3383 T,U
4-TR4	ET-349366	TR 2SC3402
4-TR5	ET-349608	TR 2SC3383 T,U
4-TR6,7	ET-347143	TR 2SC1845 E,F
4-TR8	ET-355626	TR 2SA992 E,F
4-TR9	ET-349366	TR 2SC3402
4-TR10	ET-349080	TR 2SC3382 S,T
4-TR11	ET-349366	TR 2SC3402
4-TR12to14	ET-349608	TR 2SC3383 T,U
4-TR15,16	ET-308977	TR 2SC2274K F
4-TR17	ET-338324	TR 2SD1012-V H
4-TR18	ET-349979	TR 2SD794 P,Q,R
4-TR19	ET-349705	TR 2SC2320 E,F,G
4-TR20	ET-308141	TR 2SC2603 G
4-TR201	ET-349608	TR 2SC3383 T,U
4-TR202	ET-308472	TR 2SA1115 E,F,G
4-TR203	ET-349608	TR 2SC3383 T,U
4-TR204	ET-344176	TR 2SD313HP F
4-TR205	ET-349979	TR 2SD794 P,Q,R
4-TR305	ET-350795	TR 2SC3399
4-TR306	ET-349366	TR 2SC3402
4-TR307,308	ET-308141	TR 2SC2603 G
4-TR309	ET-308472	TR 2SA1115 E,F,G
4-TR310	ET-308141	TR 2SC2603 G
4-TR311	ET-350795	TR 2SC3399
4-TR312	ET-348931	TR 2SB774 R,S,T
4-TR313	ET-350795	TR 2SC3399
4-TR314	ET-348931	TR 2SB774 R,S,T
4-TR315	ET-350795	TR 2SC3399
4-D1	ED-344280	D SILICON H GMA-01-FY2 F05
4-D2	ED-337776	D ZENER H HZ3 C1
4-D3	ED-344280	D SILICON H GMA-01-FY2 F05
4-D201,202	ED-330319	⚠ D SILICON DBA10B 100/1.0A
4-D203	ED-357754	D SILICON DS135D 200/1.0A
4-D204,205	ED-344280	D SILICON H GMA-01-FY2 F05
4-D206,207	ED-331667	D ZENER H HZ7 A1
4-D208	ED-348062	D ZENER V HZ15-2S7
4-D301	ED-344280	D SILICON H GMA-01-FY2 F05
4-D302	ED-201581	D ZENER H HZ7 B1
4-D303	ED-331667	D ZENER H HZ7 A1
4-D304	ED-337776	D ZENER H HZ3 C1
4-D305to312	ED-344280	D SILICON H GMA-01-FY2 F05
4-VR1	EV-355346	VR SLIDE S6024 P102-T2077
4-VR2	EV-356582	R S-FIX H H0615C 3P 473
4-VR3,4	EV-356577	R S-FIX H H0615C 3P 103
4-VR5	EV-356579	R S-FIX H H0615C 3P 102
4-VR6	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
4-VR301	EV-341226	R S-FIX H KVSF807V 3P 204
4-SW301,302	ES-353708	SW SLIDE SSSY12083A 2-02-03N
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-356809	COIL FIX 1 100Z-121 100.00KC
4-T1	EO-359575	COIL OSC1 32-5034-12
4-X301	EI-337017	OSC CE CSB800A 0.800000MHZ
4-FR1	ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
4-R88	ER-333598	⚠ R CB H S15 FS RDS 1/2W 102J
4-C20	EC-347389	C MC V F05 FE92 390J 500DC
4-C36	EC-312012	C STY V S05 CQFS 561J 50DC
4-C42	EC-347361	C MC V F05 FE92 5R0D 500DC
4-C46	EC-314992	C STY V S05 CQFS 681J 50DC
4-C60	EC-306022	C STY V F05 CQ09S 821J 50DC
4-C61	EC-347128	C MC V F05 FE92 470J 500DC
4-C62	EC-326138	C PP V F10 APH 182J 630DC
4-C72	EC-347375	C MC V F05 FE92 220J 500DC
4-C202	EC-315969	C EC V CUT SM 102M 6.3DC
4-C204	EC-357622	C EC V CUT 103M 16.0DC
4-C207	EC-316188	C EC V CUT SM 102M 25DC
4-J1	EJ-347664	PIN J YKC21-5053 P 4P
4-J2	EJ-357732	PHONE J HLJ0527-3030
4-J3	EJ-355012	PHONE J 3P HLJ0541-010 6.3
4-J301	EJ-346076	DIN J TCS4690-01-1111 P 8P
	ASSEMBLY BLOCK	
4-F1A	EF-311839	⚠ FUSE TSC A 250V 1.60A [U,J]
4-F1B	EF-308847	⚠ FUSE TSC 125V 1.60A [C,A]
4-F1C	EF-355226	⚠ FUSE BET T 1.00A 250V [B]
4-F1D	EF-623103	⚠ FUSE SEMKO T 1.00A 250V [E,V,S]
4-F2A	EF-327103	⚠ FUSE TSC A 250V 0.50A [U,J]
4-F2B	EF-309390	⚠ FUSE TSC 125V 0.50A [C,A]
4-F2C	EF-359342	⚠ FUSE BET T 400MA 250V[B]
4-F2D	EF-668474	⚠ FUSE SEMKO T 400MA 250V [E,V,S]

5. METER PC BOARD

REF. NO.	PART NO.	DESCRIPTION
5-IC1	EI-353289	IC IR2E27A
5-D1to3	ED-353290	D LED GL-9NG24 GREEN
5-D4,5	ED-353291	D LED GL-9PR24 RED
5-D6to8	ED-353290	D LED GL-9NG24 GREEN
5-D9to12	ED-353291	D LED GL-9PR24 RED
5-D13,14	ED-337093	D LED GL9NG4 GREEN
5-SW1	ES-362584	SW SLIDE SSY06 06-3N
5-SW2,3	ES-347966	SW PUSH ESB-649 01-2-2 N
5-SW4to10	ES-355604	SW TACT B3F-1020
5-VR1	EV-355349	VR SLIDE 45P2SVOD 1Z503
5-L1	EO-358799	COIL FIX 1 RC875 103J
5-R2,3	ER-333607	⚠ R CB H S15 FS RDS 1/2W 121J
5-R4	ER-325638	⚠ R OMF H S15 FS 1W 271J

6. CONTROL (B) A PC BOARD

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

7. CONTROL (B) B PC BOARD

REF. NO.	PART NO.	DESCRIPTION
7-PH100	ET-311977	PHOTO SENSOR SPI-201

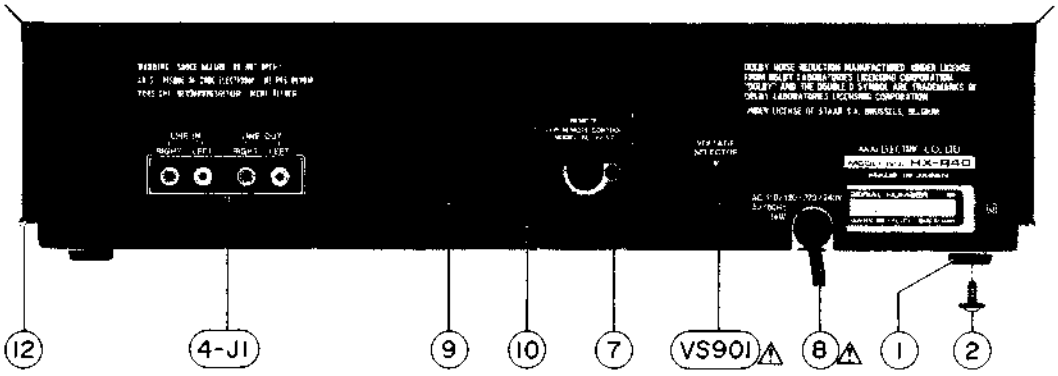
8. TR PC BOARD

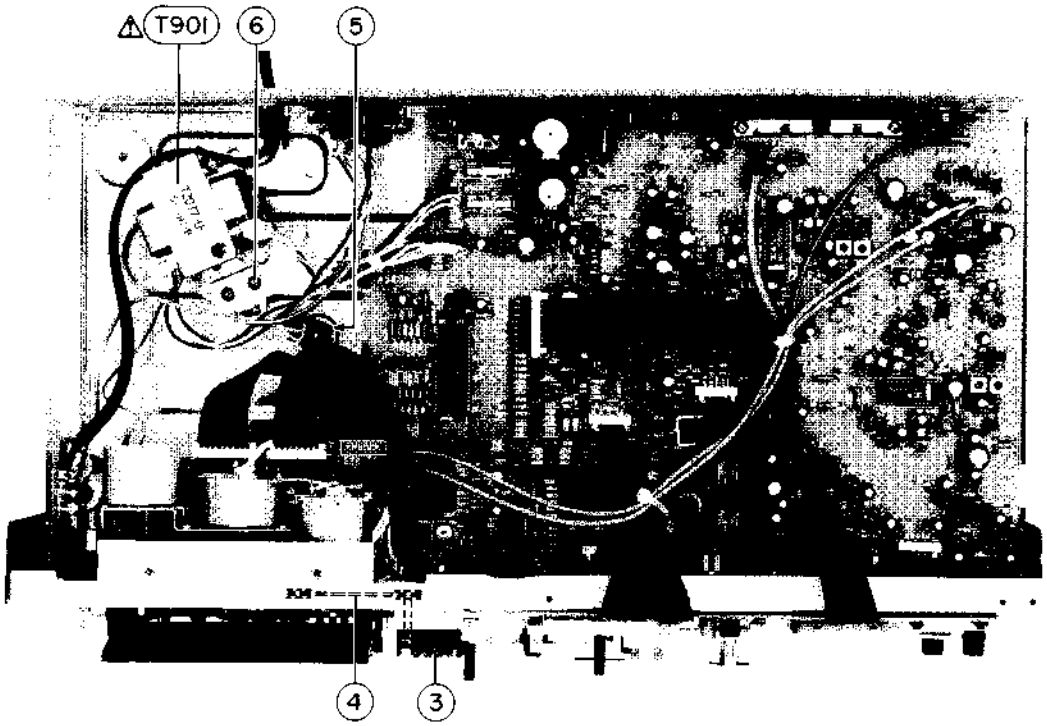
REF. NO.	PART NO.	DESCRIPTION
8-TR1	ET-353067	⚠ TR 2SB744 P,Q,R

9. POWER SW PC BOARD

REF. NO.	PART NO.	DESCRIPTION
9-SW1	ES-337902	⚠ SW PUSH SDLD1P002 01-1
9-C1A	EC-32048	⚠ C CE V F 103Z 250AC [EXCEPT C,A]
9-C1B	EC-338411	⚠ C CE V FZ 103P 400AC [C,A]

ASSEMBLY BLOCK

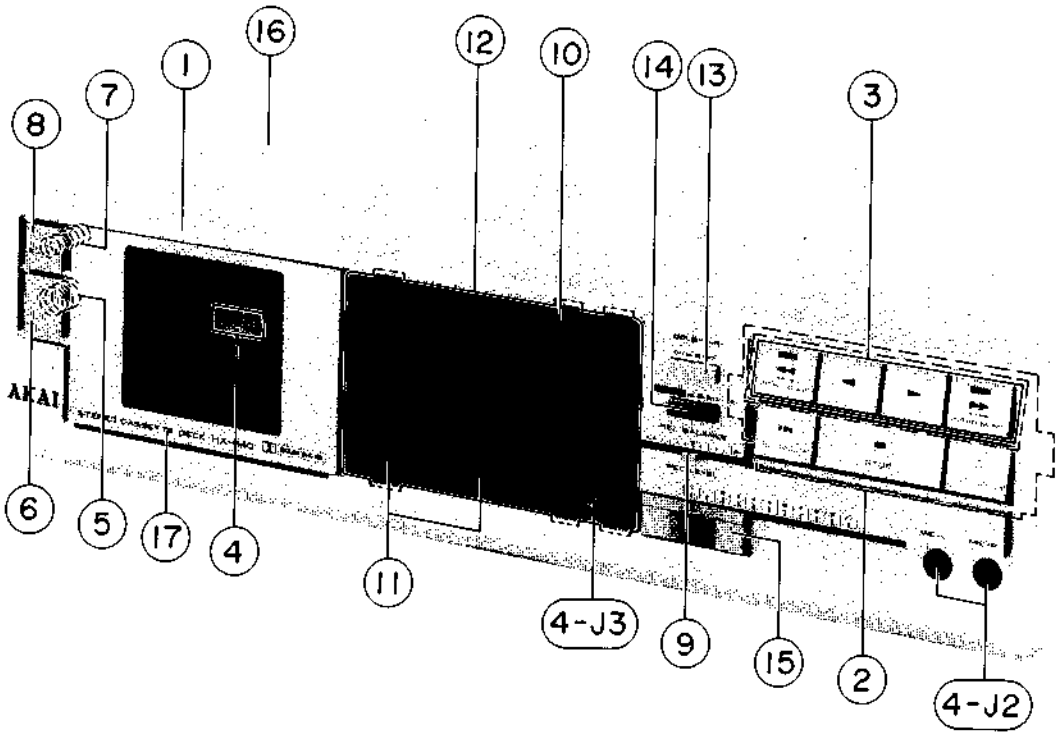




10. ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
	ASSEMBLY BLOCK	
10-1	SA-349332	FOOT
10-2	ZS-313486	ST PAN30×06STL CMT C
10-3	MC-355352	COUNTER MK395-073
10-4	MB-355236	BELT COUNTER
10-5	EZ-200473	SILICON RUBBER SHEET TC-30
10-6	ZS-320906	ST BR30×06STL CMT
10-7	ZW-698308	RV NYL30×055 BL
10-8A	EW-355312	⚠ AC CORD 2 CORES VM-0129A, VFF-CBU/T [U]
10-8B	EW-355313	⚠ AC CORD 2 CORES KP-209 VFF-CB J [J]
10-8C	EW-355314	⚠ AC CORD 2 CORES VM-0129A, VFF-CBU/T [C,A]
10-8D	EW-355315	⚠ AC CORD 2 CORES VM0364, 2×0.75-CB EV [E,V]
10-8E	EW-355316	⚠ AC CORD 2 CORES LC2×0.75-CB [B]
10-8F	EW-355317	⚠ AC CORD 2 CORES VM0436, 2×0.75-CB [S]
10-9A	SP-358073U	PANEL REAR HX-R40 (U)
10-9B	SP-358073V	PANEL REAR HX-R40 (J)
10-9C	SP-358073W	PANEL REAR HX-R40 (C,A)
10-9D	SP-358073X	PANEL REAR HX-R40 (E,V)
10-9E	SP-358073Y	PANEL REAR HX-R40 (B,S)
10-10	ZS-352120	T2BR30×08STL BCM C080
10-11x	ZS-310984	PT BR30×08STL CMT [KNOB DIRECTION (1) FIX]
10-12	ZS-320906	ST BR30×06STL CMT
10-T901A	BT-355338	⚠ TRANS POWER T2077 (U)
10-T901B	BT-355339	⚠ TRANS POWER T2077 (J)
10-T901C	BT-355340	⚠ TRANS POWER T2077 (C,A)
10-T901D	BT-355341	⚠ TRANS POWER T2077 (E,V)
10-T901E	BT-355342	⚠ TRANS POWER T2077 (B,S)
10-VS901	ES-359606	⚠ SW SELECTOR 8T-41S0454 01-4 [U]
	PREAMP PC BOARD	
4-J1	EJ-347664	PIN J YKC21-5053 P 4P

FINAL ASSEMBLY BLOCK



11. FINAL ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
		FINAL ASSEMBLY BLOCK
11-1	BD-358988A	PANEL FRONT HX-R40
11-1B	BD-358988B	PANEL FRONT-B HX-R40-B
11-2	SK-355254A	KNOB OPERATION (1)
11-2B	SK-355254B	KNOB OPERATION (1)-B
11-3	SK-355246A	KNOB DIRECTION (1)
11-3B	SK-355246B	KNOB DIRECTION (1)-B
11-4	SZ-357722	REFLECTOR
11-5	ZG-355238	SP PUSH POWER
11-6	SK-343017C	KNOB POWER (2)
11-6B	SK-343017F	KNOB POWER-B
11-7	ZG-355239	SP PUSH EJECT
11-8	SK-355242	KNOB EJECT
11-8B	SK-353242B	KNOB EJECT-B
11-9	SK-355249A	KNOB BALANCE
11-9B	SK-355249B	KNOB BALANCE-B
11-10	SK-343090B	KNOB SLIDE (2)
11-11	SK-356183B	KNOB TIMER-B
11-12	SP-355240	DECORATION METER
11-13	SK-358063A	KNOB PUSH
11-13B	SK-358063B	KNOB PUSH-B
11-14	SK-358063C	KNOB PUSH-C
11-15	SK-358474D	KNOB (D-4)
11-15B	SK-358474C	KNOB (D-3)
11-16	SP-358061A	COVER UPPER
11-16B	SP-358061B	COVER UPPER-B
11-17	BD-351612E	LID HX-R40
11-17B	BD-351612F	LID HX-R40-B
11-18x	EW-344151	CORD RR-61A PIN×2-PIN×2
		PRE AMP PC BOARD
4-J2	EJ-357732	PHONE J HLJ0527-3030
4-J3	EJ-355012	PHONE J 3P HLJ0541-010 6.3

SYMBOL FOR COLOR VARIATION

NON : STANDARD COLOR
B : BLACK

INDEX

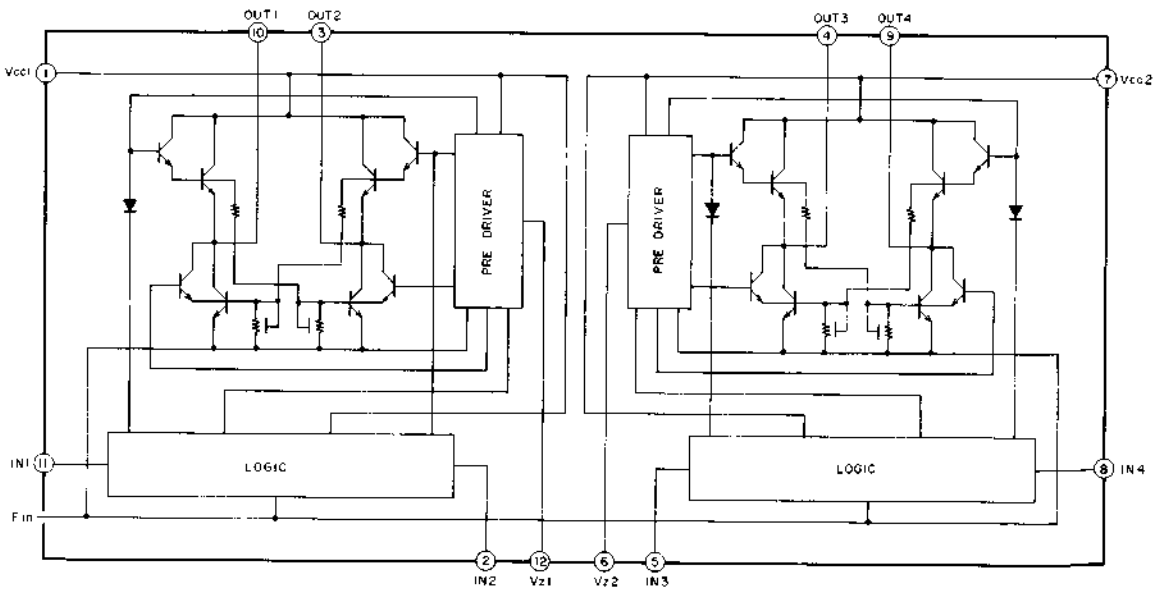
AKAI

MODEL HX-R40

SCHEMATIC DIAGRAM AND PC BOARDS

TABLE OF CONTENTS

LB1649



T2077 (LM6405H)

PIN NO.	I/O	ACTIVE	INITIA-LIZE	PORT NAME	COMMENT
1				X TAL	Crystal oscillator terminal Clock frequency: 800 kHz
42				EX TAL	
2	INPUT	L	H	$\overline{\text{ANTI REC FWD}}$	Forward anti recording input Anti Recording: H
3	INPUT	L	H	$\overline{\text{ANTI REC REV}}$	Reverse anti recording input Anti Recording: H
4					
5					
6				$\overline{\text{INT}}$	Interrupting terminal: To GND
7				$\overline{\text{RESET}}$	Reset at L, when Power ON
8	INPUT	L	H	$\overline{\text{ENCODER}}$ #0	Cam position detection Input (From Encoder) * Refer to Rotary Encoder Output Table for Syscon Block Diagram
9	INPUT	L	H	$\overline{\text{ENCODER}}$ #2	
10	INPUT	L	H	$\overline{\text{ENCODER}}$ #3	
11	INPUT	L	H	$\overline{\text{ENCODER}}$ #1	
12	OUTPUT	L	H	FWD IND	FWD IND drive output L: FWD IND ON
13	OUTPUT	L	H	REV IND	REV IND drive output L: REV IND ON
14	OUTPUT	L	H	REC IND	REC IND drive output L: REC IND ON
15	OUTPUT		H	REEL MOTOR PLAY/FAST	Reel Motor drive voltage control output H: Voltage for PLAY mode L: Voltage for FAST mode
16	OUTPUT	L	H	$\overline{\text{REEL MOTOR}}$	Reel Motor control output
17	OUTPUT	L	H	$\overline{\text{REEL MOTOR}}$	

PIN NO. / MODE	IC301 ⑯	IC301 ⑰
FORWARD DIRECTION	H	L
REVERSE DIRECTION	L	H
STOP	H	H

PIN NO.	I/O	ACTIVE	INITIA-LIZE	PORT NAME	COMMENT
18	OUTPUT	L	H	$\overline{\text{CAM MOTOR}}$	Cam Motor control output PIN NO. / MODE: IC301 ⑱ ⑲ FORWARD DIRECTION: H L REVERSE DIRECTION: L H STOP: H H
19	OUTPUT	L	H	$\overline{\text{CAM MOTOR}}$	
20				TEST	To GND
21				V_{SS}	
22	INPUT	L	H	TIMER REC SW	Absentee recording input L (When stand-by IED light off): TIMER RECORDING
23	INPUT	L	H	TIMER PB SW	Timer Play input L (When Stand-by IED light off): TIMER PLAY
24	INPUT	L	H	NONE REVERSE SELECT	3 way reverse select input REV MODE / PIN NO.: IC301 ㉔ ㉕ →: L H ⊃: H H ⊂⊃: H L
25	INPUT	L	H	INFINITE REVERSE SELECT	
26	OUTPUT	L	H	$\overline{\text{OSC}}$	Oscillator drive control output L: Oscillator driven
27	OUTPUT		H	$\overline{\text{REC}}$ / PB	REC/PB control output H: PB L: REC
28	OUTPUT	H	H	REC MUTE	REC MUTE control output H: REC MUTE
29	OUTPUT	H	H	PB MUTE	PB MUTE control output H: PB MUTE
30	INPUT	L	H	$\overline{\text{AUTO MUTE}}$	AUTO MUTE Key input AUTO MUTE Key ON: L
31	INPUT	L	H	$\overline{\text{REC}}$	REC Key input REC Key ON: L
32	INPUT	L	H	$\overline{\text{STOP}}$	STOP Key input STOP Key ON: L

PIN NO.	I/O	ACTIVE	INITIA-LIZE	PORT NAME	COMMENT
33	INPUT	L	H	$\overline{\text{QUICK REVERSE}}$	Tape magnetic surface-leader tape transition detector input. Tape magnetic surface: H Leader tape: L
34	INPUT	L	H	$\overline{\text{REEL PULSE}}$	Reel Pulse detection input Reel rotation is detective on the basis of H → L → H transitions.
35	INPUT	L	H	$\overline{\text{IPLS}}$	Recorded sections (L) and blank sections (H) detecting inputs. IPLS Blanks are detective on the basis of L → H transitions. INTRO SCAN Recorded sections are detected on the basis of H → L transitions.
36	OUTPUT	H	L	SERCH	IPLS malfunction preventing output. H: SERCH
37	INPUT	L	H	$\overline{\text{REW}}$	REW Key input REW Key ON: L
38	INPUT	L	H	$\overline{\text{FF}}$	FF Key input FF Key ON: L
39	INPUT	L	H	$\overline{\text{FWD}}$	FWD Key input FWD Key ON: L
40	INPUT	L	H	$\overline{\text{REV}}$	REV Key input REV Key ON: L
41				V_{DD}	+5V

ROTARY ENCODER OUTPUT TABLE

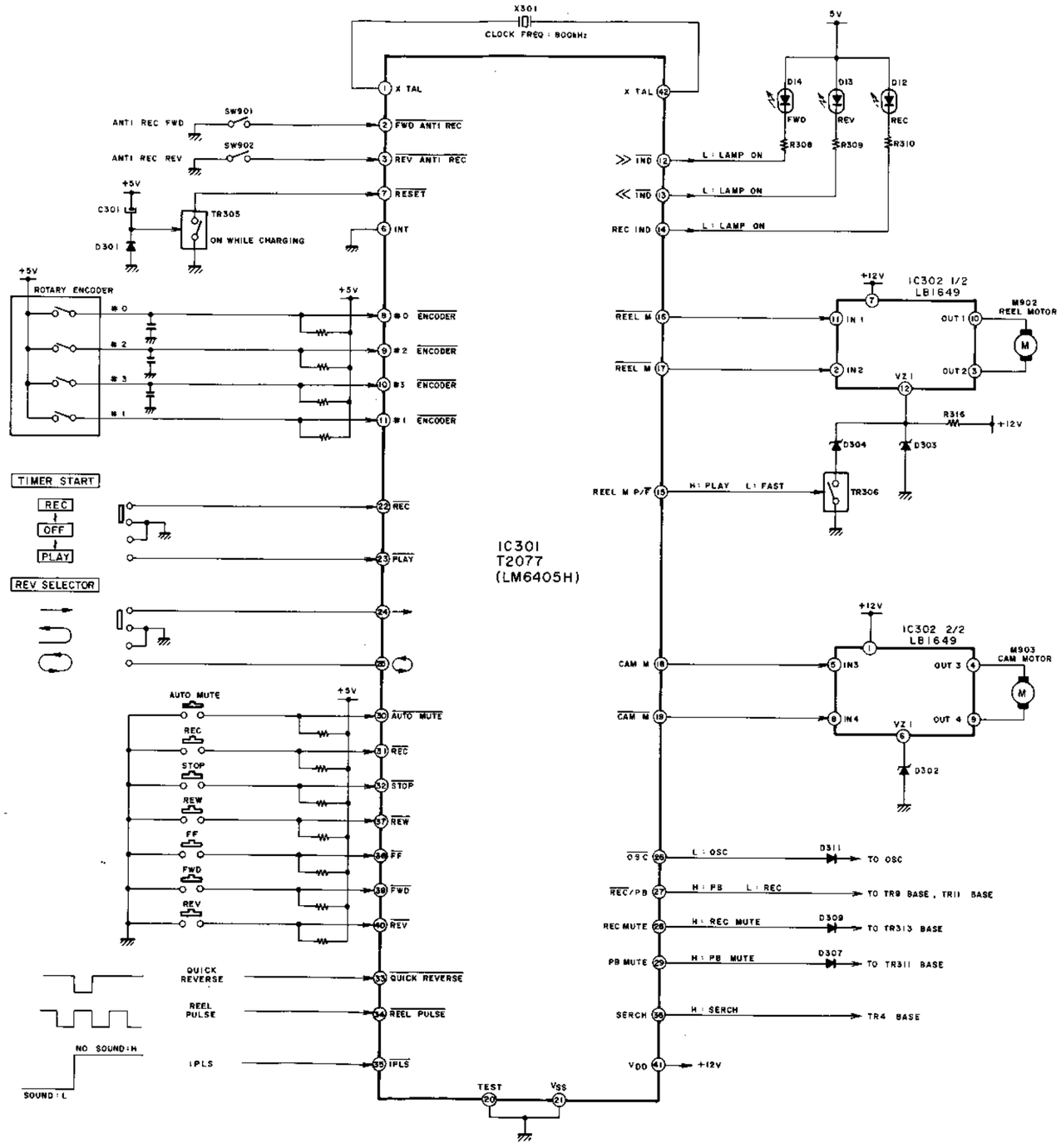
CONTROL (B) A PCB J103 PIN NO. ④	③	②	①	OPERATION MODE	STAND BY	CAM MOTOR'S DIRECTION	REEL MOTOR DRIVE VOLTAGE	DIRECTION
L	L	L	H	FWD.PLAY, FWD REC	FORWARD	FORWARD	LOW	*2
L	H	H	H	SEARCH, REC PAUSE			SEARCH MIDDLE REC PAUSE NONE	FF·S. *2 REW·S. *1 REC·P. STOP
H	L	H	H	STOP			NONE	STOP
H	H	L	H	FAST (FF. REW)			MIDDLE	FF. *1 REW. *2
H	H	L	L	FAST (FF. REW)	REVERSE		MIDDLE	FF. *2 REW. *1
H	L	H	L	STOP			NONE	STOP
L	H	H	L	SEARCH, REC PAUSE			SEARCH MIDDLE REC PAUSE NONE	FF·S. *2 REW·S. *1 REC·P. STOP
L	L	L	L	REV PLAY		REVERSE	LOW	*2

NOTE
1. *1 RIGHT REEL TABLE TO DRIVE
2. *2 LEFT REEL TABLE TO DRIVE

PIN NO. / REV MODE	IC301 ㉔	IC301 ㉓
→	L	H
↻	H	H
↺	H	L

PIN NO. / REEL MOTOR MODE	IC302 ⑪	IC302 ⑫
FORWARD DIRECTION	H	L
REVERSE DIRECTION	L	H
STOP	H	H

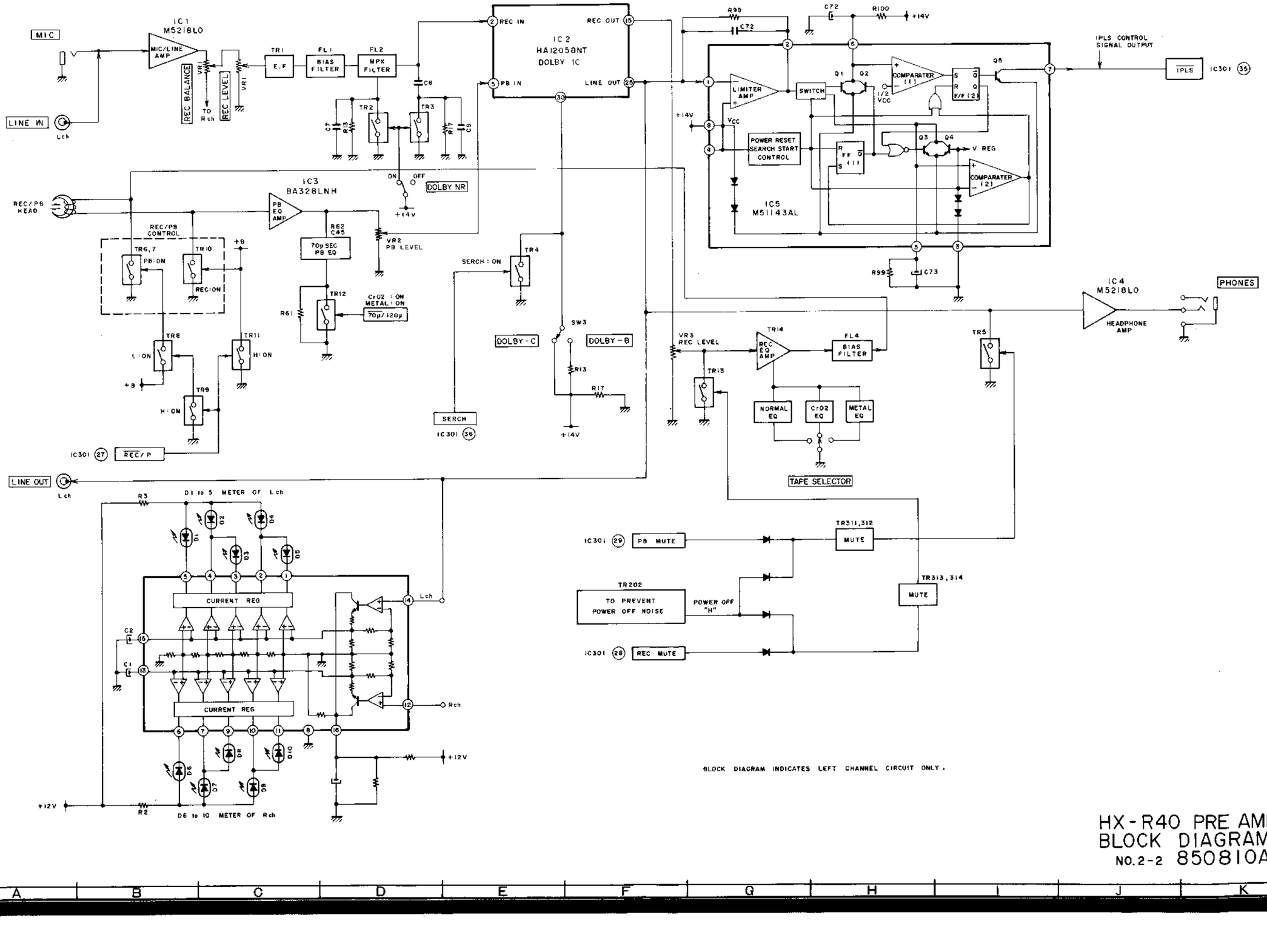
PIN NO. / CAM MOTOR MODE	IC302 ⑤	IC302 ⑥
FORWARD DIRECTION	H	L
REVERSE DIRECTION	L	H
STOP	H	H



HX-R40 SYSCON BLOCK DIAGRAM

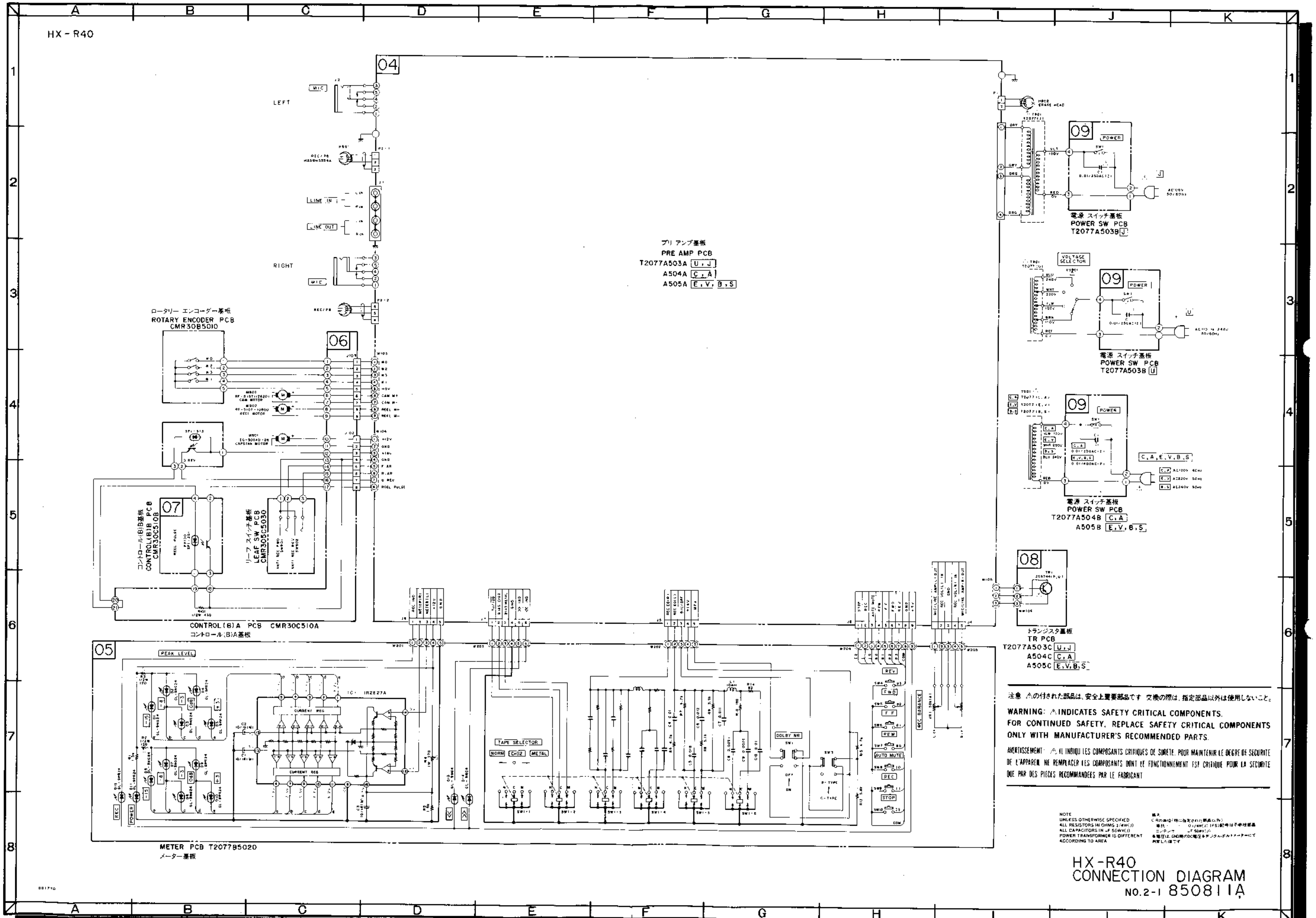
NO.2-1 850809A(A2)

HX-R40



BLOCK DIAGRAM INDICATES LEFT CHANNEL CIRCUIT ONLY.

HX-R40 PRE AMP
BLOCK DIAGRAM
NO.2-2 850810A(a2)


HX-R40
04
LEFT
RIGHT
MIC
LINE IN
LINE OUT
ERASE HEAD
プリ アンプ基板
PRE AMP PCB
T2077A503A U, J
A504A C, A
A505A E, V, B, S
09
POWER
電源 スイッチ基板
POWER SW PCB
T2077A503B J
VOLTAGE SELECTOR
電源 スイッチ基板
POWER SW PCB
T2077A503B U
電源 スイッチ基板
POWER SW PCB
T2077A504B C, A
A505B E, V, B, S
ロータリー エンコーダー基板
ROTARY ENCODER PCB
CMR30B5010
06
CAM MOTOR
REEL MOTOR
CAPSTAN MOTOR
07
コントロール(B)B基板
CONTROL(B)B PCB
CMR30C5108
リーフ スイッチ基板
LEAF SW PCB
CMR30C5030
CONTROL(B)A PCB CMR30C510A
コントロール(B)A基板
08
トランジスタ基板
TR PCB
T2077A503C U, J
A504C C, A
A505C E, V, B, S
05
PEAK LEVEL
CURRENT REG
TAPE SELECTOR
NORM
CrO2
METAL
DOLBY NR
REC BALANCE
REV
FWD
FF
REW
AUTO MUTE
REC
STOP
POWER
METER PCB T2077B5020
メーター基板
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
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W
ALL CAPACITORS IN μF 50WV
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA
HX-R40
CONNECTION DIAGRAM
NO.2-1 850811A

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

PH100

SP1-313

M903 CAM MOTOR
M902 REEL MOTOR
M903 CAPSTAN MOTOR

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

R101

J103

J102

To PRE AMP PCB W105

To PRE AMP PCB W104

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

リーフ スイッチ基板
LEAF SW PCB CMR30C5030

ANTI REC (FWD) SW SW901

ANTI REC (REV) SW SW902

注意 ⚠の付された部品は、安全上重要部品

WARNING: ⚠ INDICATES SAFETY
FOR CONTINUED SAFETY, REP
ONLY WITH MANUFACTURER'S

AVERTISSEMENT : ⚠ LORSQU'IL FAUT REMPLACER LES COMPOSANTS
DE L'APPAREIL NE REMPLACER LES COMPOSANTS
QUE PAR DES PIECES RECOMMANDEES PAR LE FAB

IC1 IR2E27A

REC BALANCE
VR1

REC

DOLBY

TO PRE AMP PCB J6

TO PRE AMP PCB J7

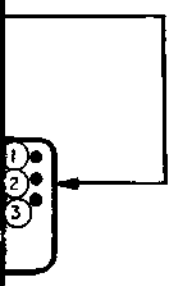
TO PRE AMP PCB J5

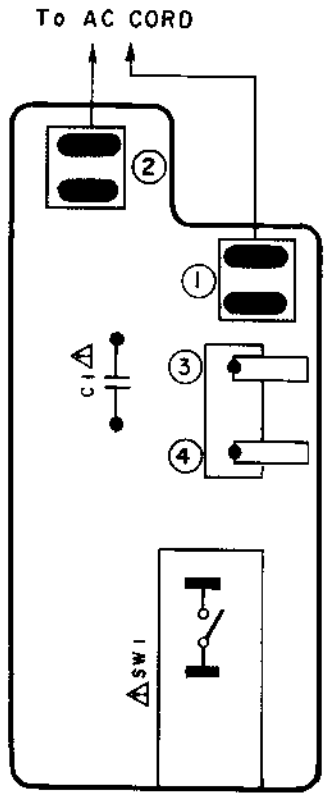
SW1

トロール(B)B基板
TROL(B) B PCB
MR30C510B

PH100

ROL(B) A PCB
ール(B)A基板
0C510A





POWER

電源 スイッチ基板
POWER SW PCB
T2077A503B U J
504B C A
505B E V B S

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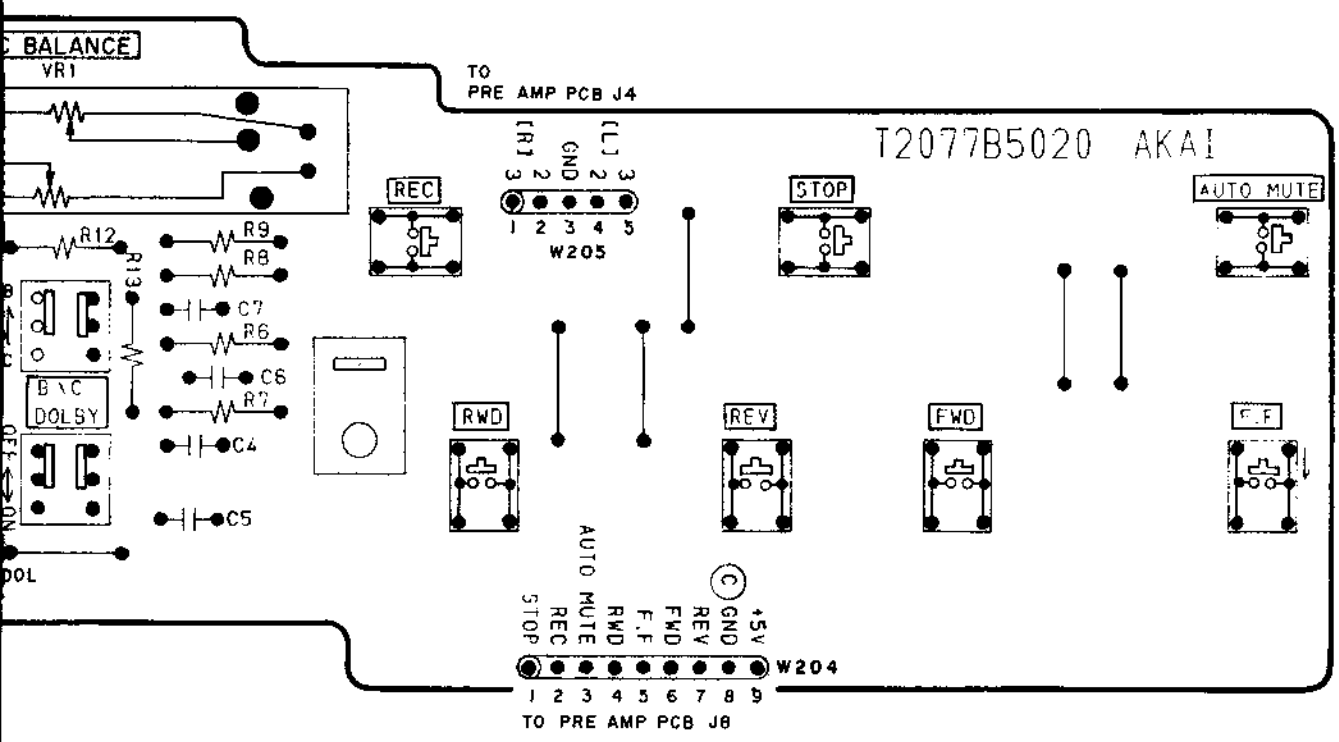
WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS.
FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

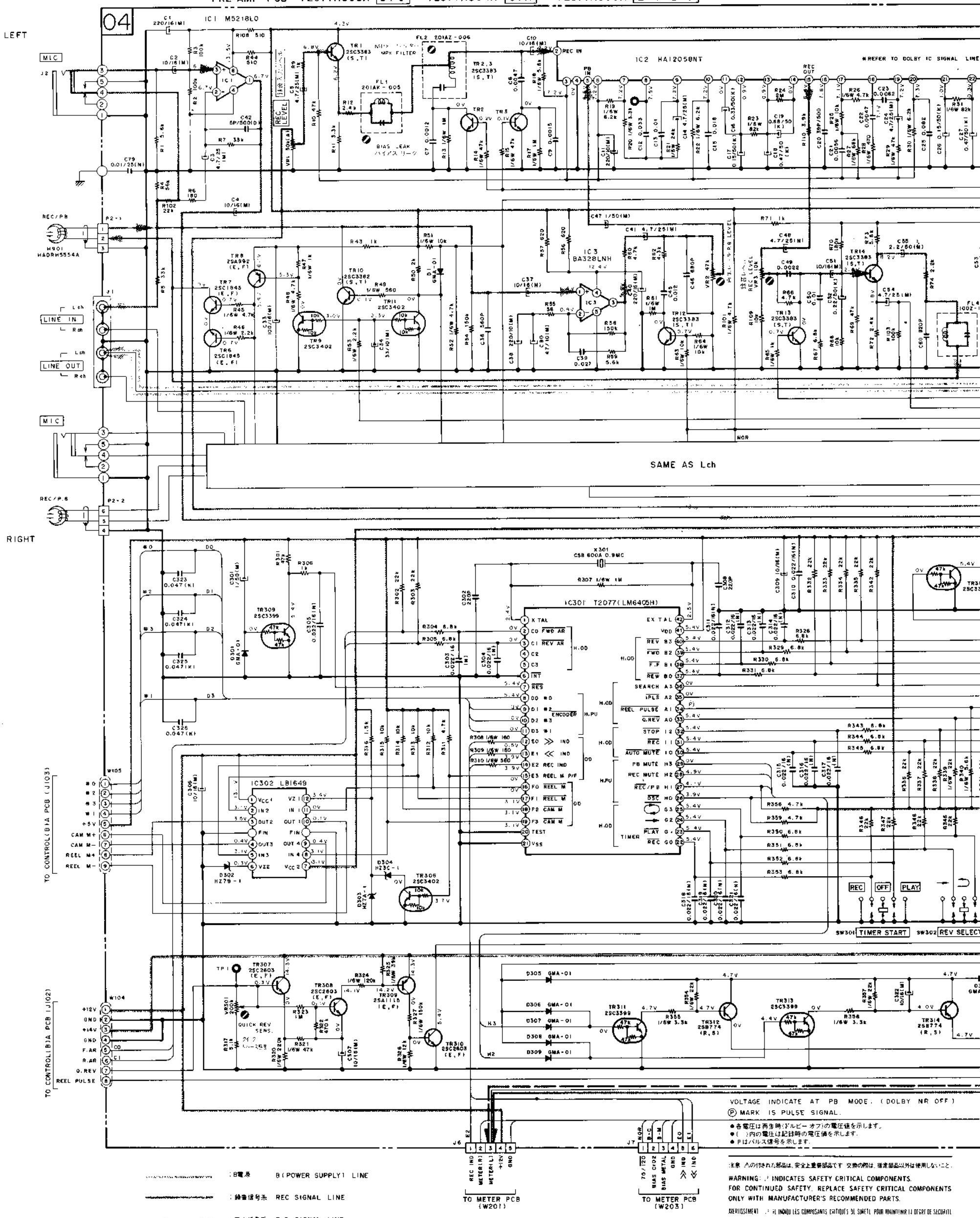
AVERTISSEMENT △ EL INDIQU LES COMPOSANTS CRITIQUES DE SURETE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

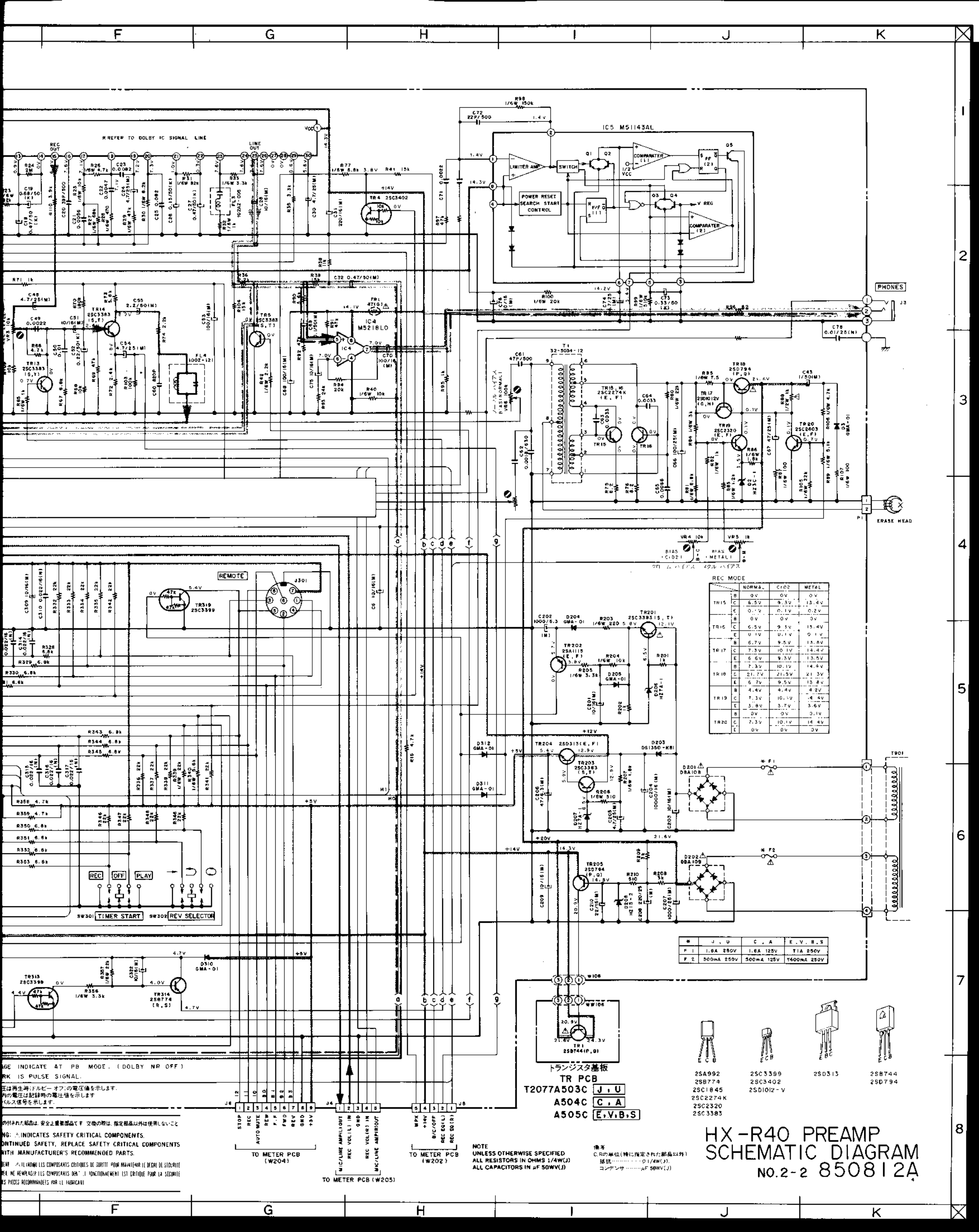


METER PCB T2077B5020
メーター基板

HX－R40

プリ アンプ基板
PRE AMP PCB　T2077A503A [U, J]　T2077A504A [C, A]　T2077A505A [E, V, B, S]





REC MODE

		NORMAL	CrO2	METAL
TR15	B	0V	0V	0V
	C	6.5V	9.3V	13.4V
	E	0.1V	0.1V	0.2V
TR16	B	0V	0V	0V
	C	6.5V	9.5V	13.4V
	E	0.1V	0.1V	0.1V
TR17	B	6.7V	9.5V	13.8V
	C	7.3V	10.1V	14.4V
	E	6.6V	9.3V	13.5V
TR18	B	7.3V	10.1V	14.4V
	C	21.7V	21.5V	21.3V
	E	6.7V	9.5V	13.8V
TR19	B	4.4V	4.4V	4.2V
	C	7.3V	10.1V	14.4V
	E	3.8V	3.7V	3.6V
TR20	B	0V	0V	0.1V
	C	7.3V	10.1V	14.4V
	E	0V	0V	0V

*	J, U	C, A	E, V, B, S
F1	1.6A 250V	1.6A 125V	T1A 250V
F2	500mA 250V	500mA 125V	T400mA 250V

トランジスタ基板
TR PCB
T2077A503C J, U
A504C C, A
A505C E, V, B, S

2SA992 2SB774 2SC1845 2SC2274K 2SC2320 2SC3383
2SC3399 2SC3402 2SD1012-V
2SD313
2SB744 2SD794

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)

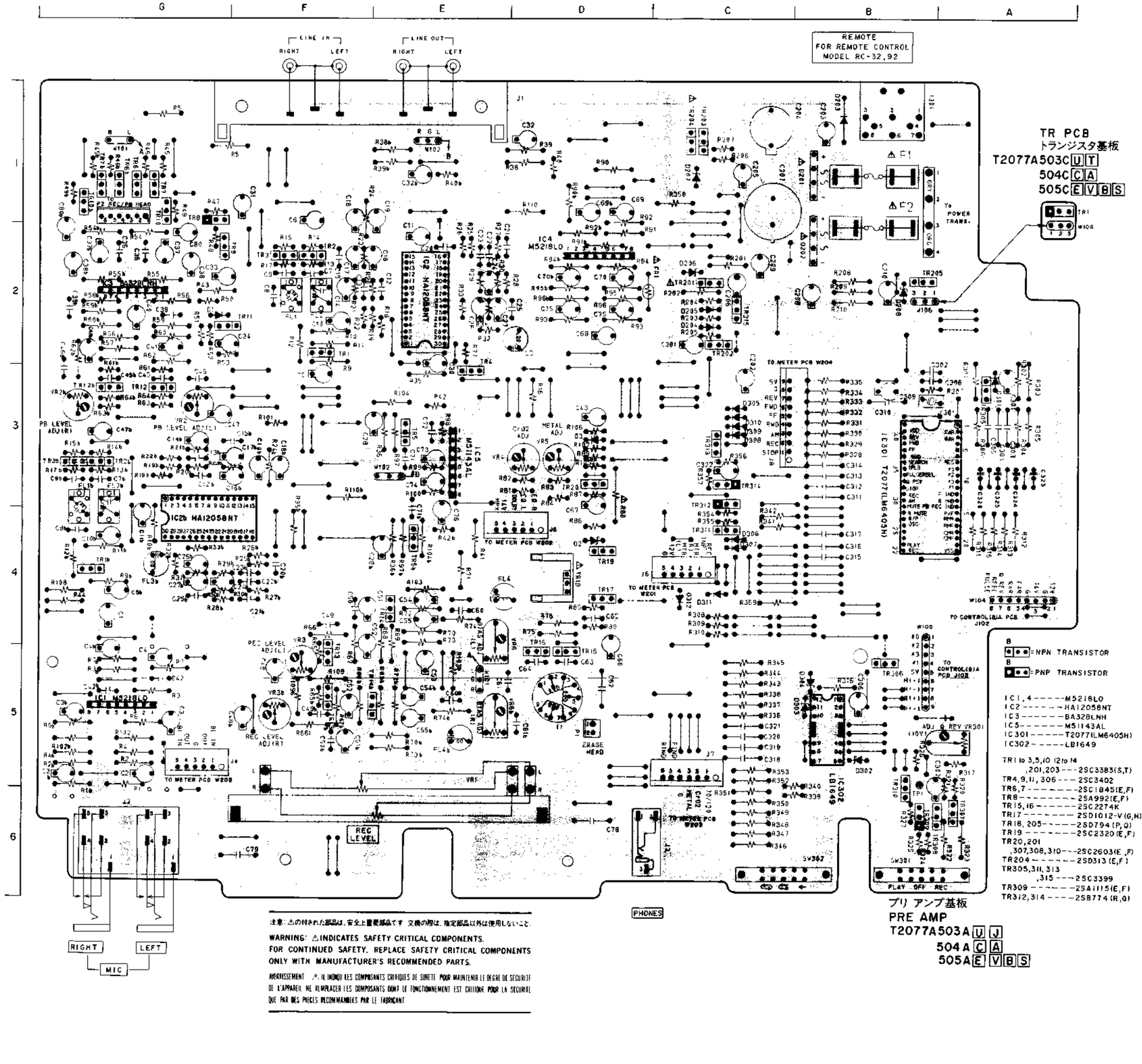
備考
C, Rの単位(特に指定された部品以外)
抵抗……Ω 1/4W(J).
コンデンサ……μF 50WV(J)

AGE INDICATE AT PB MODE. (DOLBY NR OFF)
RK IS PULSE SIGNAL.
圧は再生時(ドルビー オフ)の電圧値を示します.
内の電圧は記録時の電圧値を示します
パルス信号を示します.

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
NG: ⚠ INDICATES SAFETY CRITICAL COMPONENTS.
ONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS
ITH MANUFACTURER'S RECOMMENDED PARTS.
DENT ⚠ LES COMPOSANTS CRITIQUES DE SURETE POUR MAINTENIR LE DEGRE DE SECURITE
RE NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE
ES PIECES RECOMMANDEES PAR LE FABRICANT

HX-R40 PREAMP SCHEMATIC DIAGRAM

NO.2-2 850812A



TR PCB
トランジスタ基板
T2077A503C[U][T]
504C[C][A]
505C[E][V][B][S]

B =NPN TRANSISTOR
B =PNP TRANSISTOR

IC1,4 ------M5218LO
IC2 ------HA12058NT
IC3 ------BA328LNH
IC5 ------M51143AL
IC301 -----T2077ILM6405H
IC302 -----LB1649

TR1 to 3,5,10 12to 14
,201,203 ---2SC3383(S,T)
TR4,9,11,306 ---2SC3402
TR6,7 ------2SC1845(E,F)
TR8 ------2SA992(E,F)
TR15,16 -----2SC2274K
TR17 ------2SD1012-V(G,H)
TR18, 205 ----2SD794(P,Q)
TR19 ------2SC2320(E,F)
TR20,201
,307,308,310---2SC2603(E,F)
TR204 ------2SD313(E,F)
TR305,311,313
,315 ---2SC3399
TR309 ------2SA1115(E,F)
TR312,314 ---2SB774(R,Q)

LOCATION OF COMPONENTS

IC's

IC1-----G5
IC2-----E2
IC2b----G4
IC3-----G2
IC4-----D2
IC5-----E3
IC301---A3,4,B3,4
IC302--- B5

TR's

TR1----F2
TR1b---G4
TR2----F2
TR2b---G3
TR3----F2
TR3b---G3
TR4----E3
TR5----E3
TR5b---E4
TR6----G1
TR6b---G1
TR7----G1
TR7b---G1
TR8----G1
TR9----G2
TR10---G1
TR10b--G1
TR11---G2
TR12---G3
TR12b--G3
TR13---F5
TR13b--F5
TR14---E4
TR14b--E5
TR15---D5
TR16---D5
TR17---D4
TR18---D4
TR19---D4
TR20---D3

TR201--C2
TR202--C2
TR203--C1
TR204--C1
TR205--B1

TR305---A3
TR307---A6
TR309---B6
TR310---B6
TR311---C4
TR312---C4
TR313---C3
TR314---C3
TR315---C2

FL1……バイアス リーク
FL2……MPX フィルター

VR1……録音入力レベル
VR2……再生レベル
VR3……録音レベル
VR4……クローム バイアス
VR5……メタル バイアス
VR6……ノーマル バイアス
VR301 ・クイック リバース感度

プリ アンプ基板
PRE AMP
T2077A503A[U][J]
504A[C][A]
505A[E][V][B][S]

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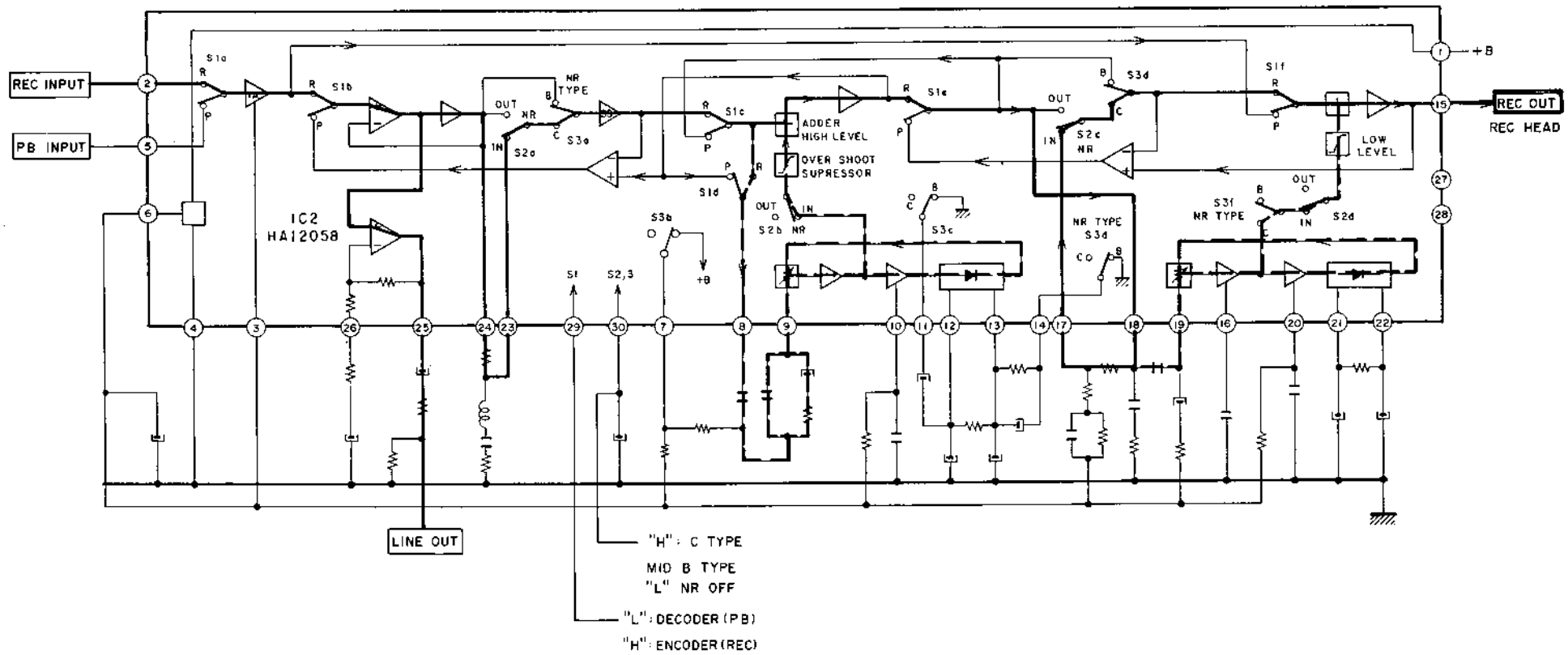
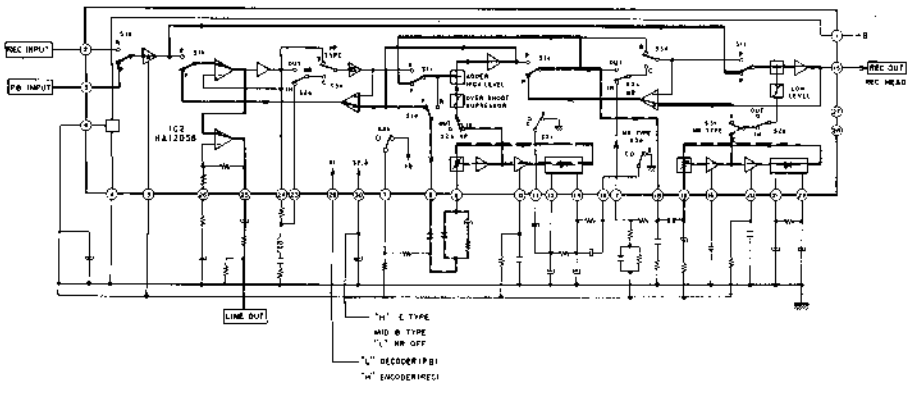
AVERTISSEMENT △ IL INDIQUE LES COMPOSANTS CRITIQUES DE SURETE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

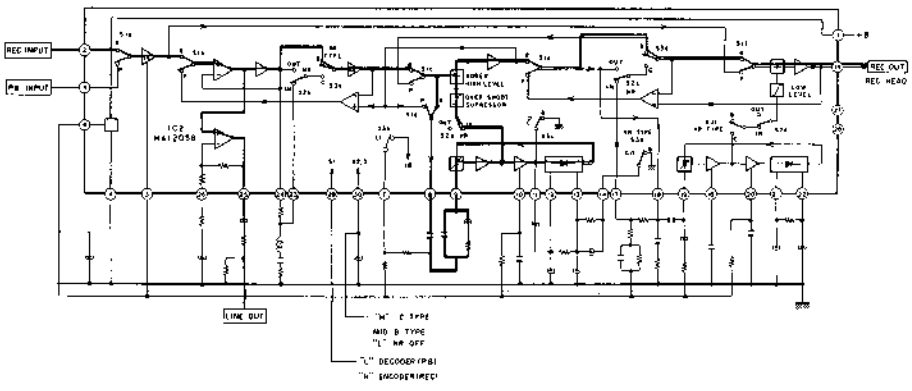
DOLBY C "ON" REC MODE （ドルビーC録音）



DOLBY C P.B MODE （ドルビーC再生）



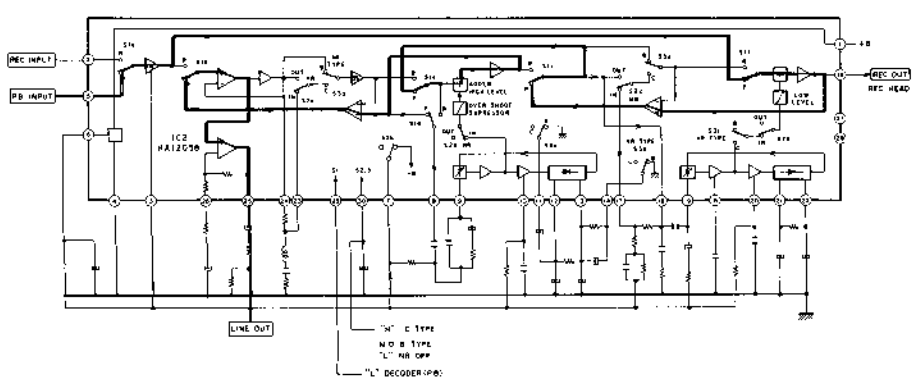
DOLBY B REC MODE （ドルビーB録音）



DOLBY B P.B MODE （ドルビーB再生）

DOLBY "OFF" REC MODE （ドルビーOFF録音）

DOLBY "OFF" P.B MODE （ドルビーOFF再生）



DOLBY IC (HA12038) (HA12058)

SIGNAL LINE