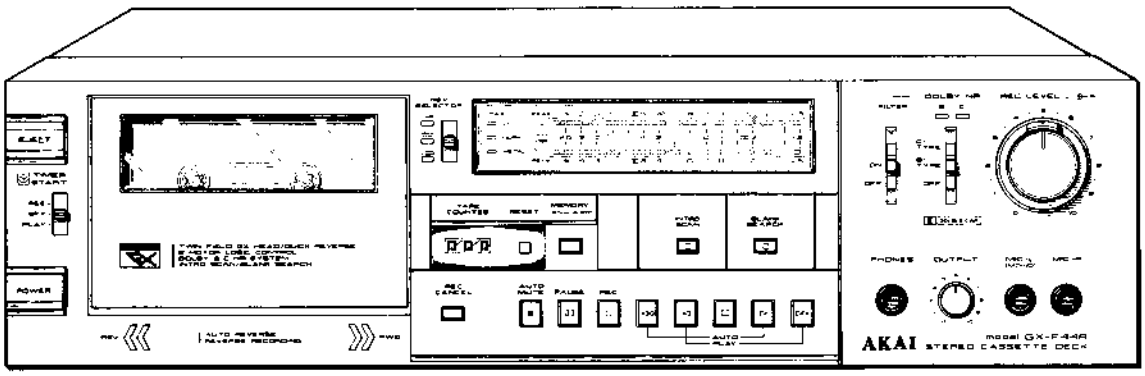
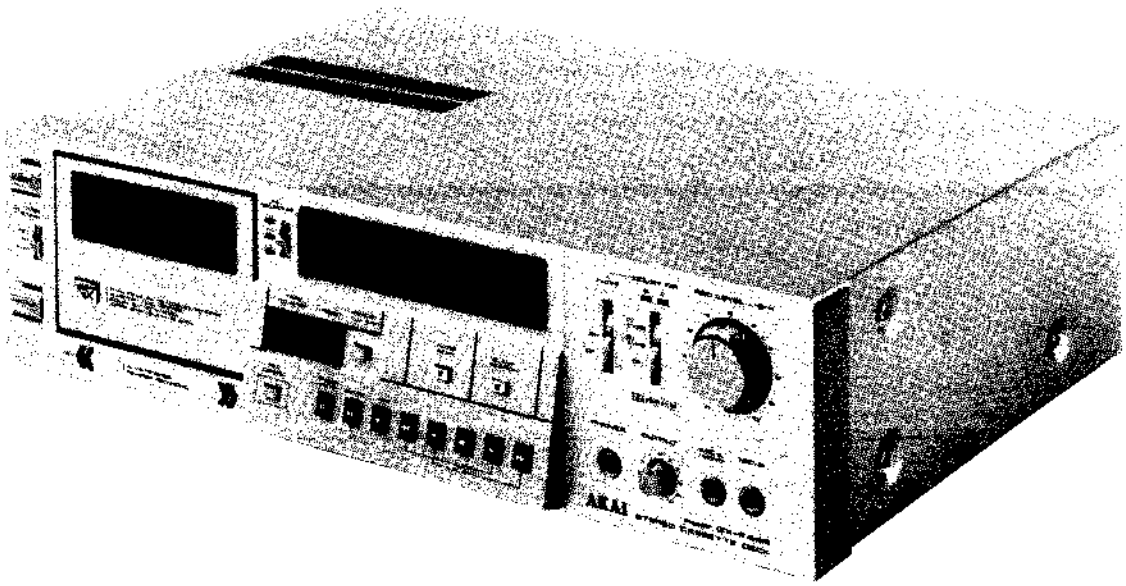
AKAI SERVICE MANUAL



STEREO CASSETTE DECK

MODEL GX-F44R



STEREO CASSETTE DECK

MODEL GX-F44R

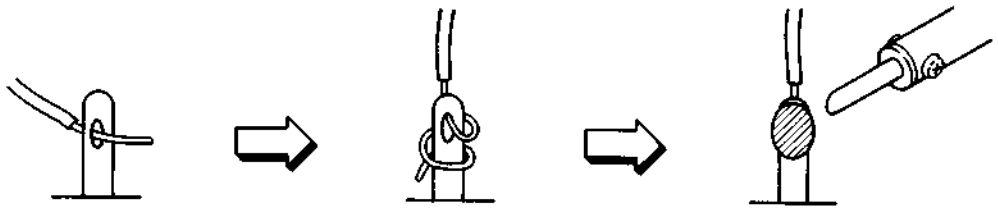
THIS MANUAL IS APPLICABLE TO BOTH SILVER
AND PEARL SHADOW PANEL MODELS

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. 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.

SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

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

I. SPECIFICATIONS

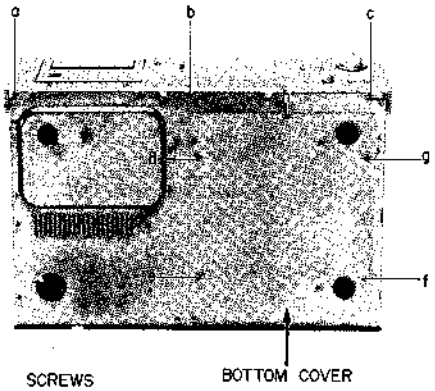
TRACK SYSTEM	4 Track 2 Channel Stereo System
TAPE	Philips Type Cassette
TAPE SPEED	4.76 cm/s ± 1.5% (1-7/8 ips. ± 1.5%)
HEADS	Twin Field Super GX head for recording/playback x 1 Erase head x 2
MOTORS	Electronically speed controlled D.C. motor for capstan drive x 1 D.C. motor for reel drive x 1
WOW & FLUTTER	Less than 0.035% WRMS, 0.11% (DIN 45 500)
TAPE WINDING TIME	80 sec. using a C-60 cassette tape
FREQUENCY RESPONSE	Normal: 25 to 16,000 Hz ± 3 dB (–20 VU) CrO_2: 25 to 17,000 Hz ± 3 dB (–20 VU) 25 to 9,000 Hz ± 3 dB (0 VU) Metal: 25 to 19,000 Hz ± 3 dB (–20 VU) 25 to 13,000 Hz ± 3 dB (0 VU)
SIGNAL TO NOISE RATIO	Normal: Better than 58 dB CrO_2: Better than 60 dB Metal: Better than 60 dB (measured via tape with peak recording level) Dolby B NR ON: Improves up to 5 dB at 1 kHz, 10 dB above 5 kHz Dolby C NR ON: Improves up to 15 dB at 500 Hz, 20 dB at 1 to 10 kHz
HARMONIC DISTORTION	Normal: Less than 0.8% CrO_2: Less than 0.7% Metal: Less than 0.7%
INPUT	MIC: 0.25 mV (input impedance 5.0 kohms) Required microphone impedance: 600 ohms Line: 70 mV (input impedance 47 kohms)
OUTPUT	Line: 410 mV at 0 VU Required load impedance: more than 20 kohms Phone: 1.3 mW/8 ohms at 0 VU
DIN	Input: 2.0 mV (input impedance 10 kohms) Output: 410 mV Required load impedance: more than 20 kohms
POWER CONSUMPTION	34W
POWER REQUIREMENTS	100V, 50/60 Hz for Japan 120V, 60 Hz for USA and Canada 220V, 50 Hz for Europe except UK 240V, 50 Hz for UK and Australia 110V/120V/220V/240V, 50/60 Hz switchable for other countries
DIMENSIONS	440(W) x 118(H) x 309(D) mm (17.3 x 4.7 x 12.2")
WEIGHT	8.6 kg (19.0 lbs)

* For improvement purposes, specifications and design are subject to change without notice.
* "Dolby" and the Double D symbol are trademarks of Dolby Laboratories. (Manufactured under license from Dolby Lavoratories.)

II. DISMANTLING OF UNIT

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

4



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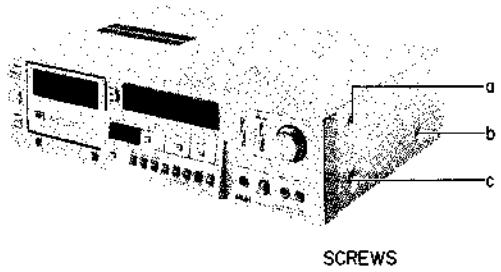

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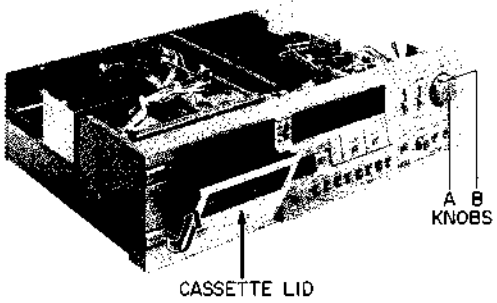

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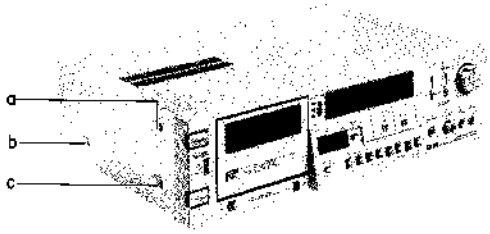

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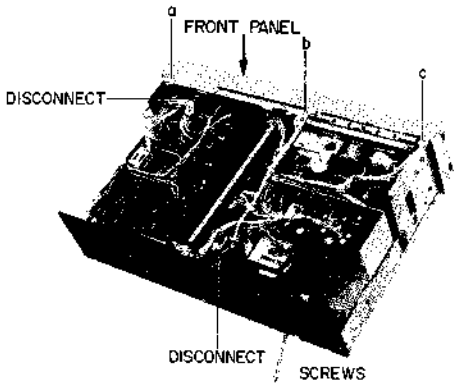

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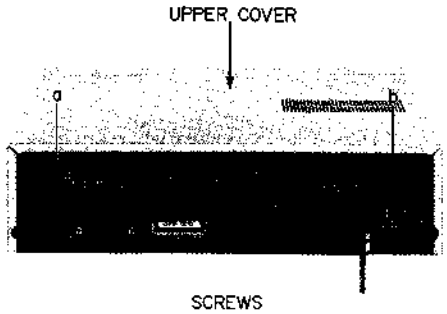

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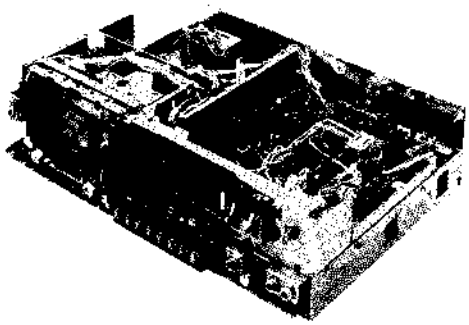
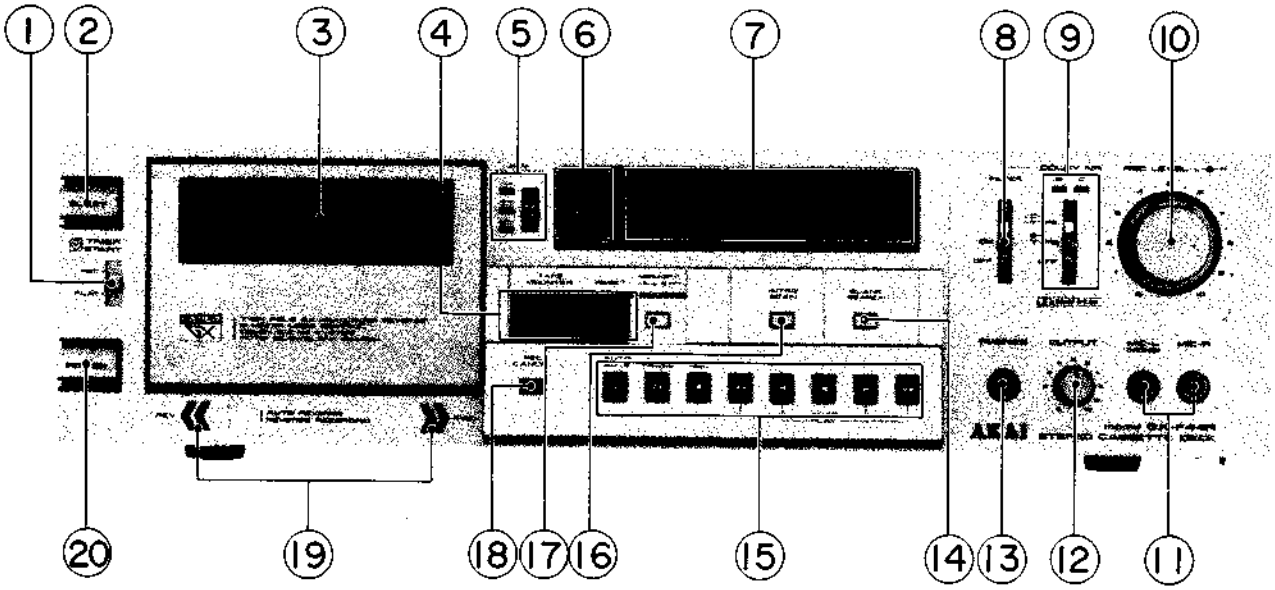


III. CONTROLS



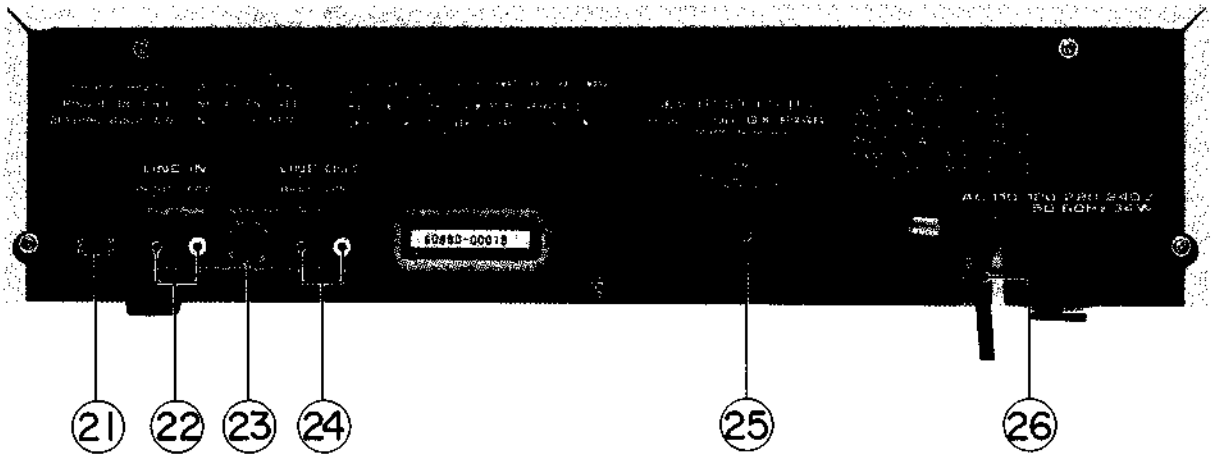


Fig. 1 Controls

1. TIMER START SELECTOR
2. EJECT BUTTON
3. CASSETTE RECEPTACLE
4. TAPE COUNTER and RESET BUTTON
5. REVERSE (REV) SELECTOR with INDICATORS
6. TAPE INDICATOR
7. LED BAR METER with MAXIMUM HOLD
8. FILTER SWITCH
9. DOLBY NR SELECTOR with INDICATORS
10. LEFT —○— RIGHT RECORDING LEVEL CONTROLS (REC LEVEL L —○— R)
11. MICROPHONE (MIC-L: Left, MIC-R: Right) JACKS
12. OUTPUT CONTROL
13. HEADPHONE (PHONES) JACK
14. BLANK SEARCH BUTTON with INDICATOR
15. OPERATING BUTTONS
16. INTRO SCAN BUTTON with INDICATOR
17. MEMORY SWITCH
18. RECORDING (REC) CANCEL BUTTON
19. DIRECTION INDICATORS
20. POWER SWITCH
21. LINE/DIN SELECTOR
    (Some models do not have this facility.)
22. LINE IN JACKS (RIGHT and LEFT)
23. DIN JACK (Some models do not have this facility.)
24. LINE OUT JACKS (RIGHT and LEFT)
25. REMOTE CONTROL JACK
26. POWER CORD (Some models are equipped with an AC inlet instead. Connect with the connection cord supplied.)

IV. PRINCIPAL PARTS LOCATION

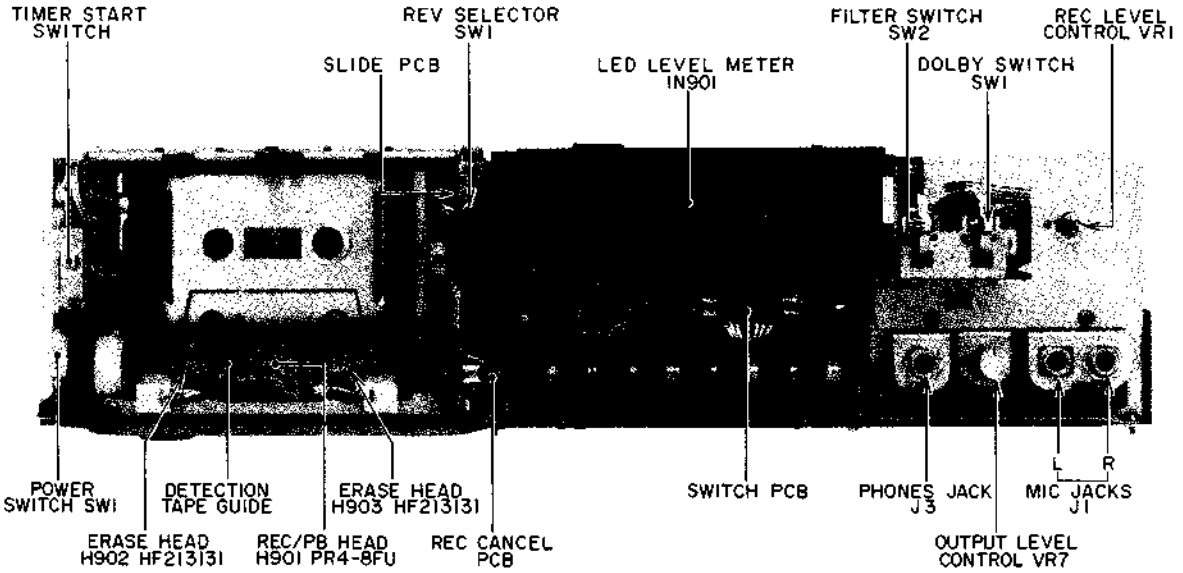


Fig. 2 Front View

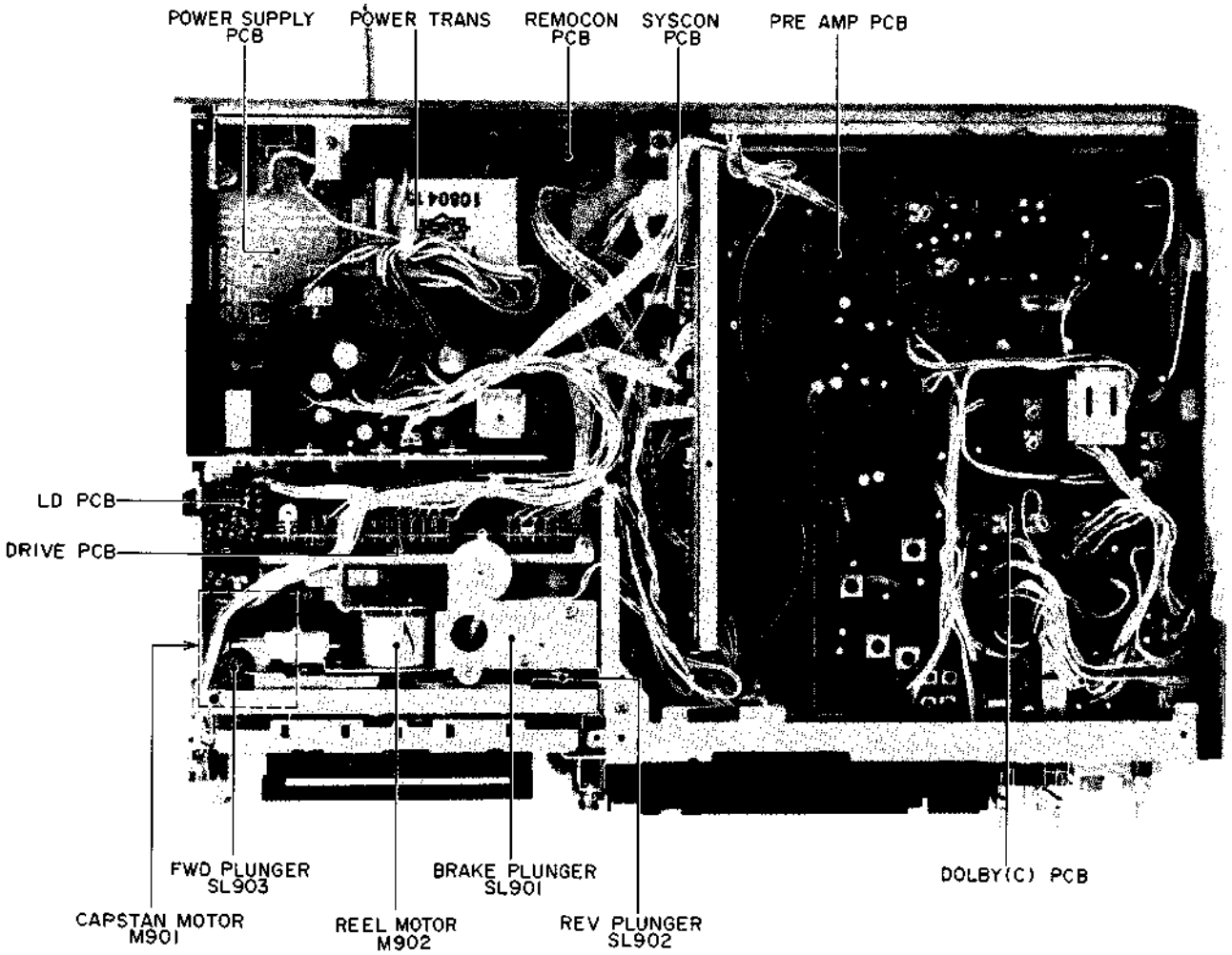


Fig. 3 Top View

V. VOLTAGE AND CYCLE CONVERSION

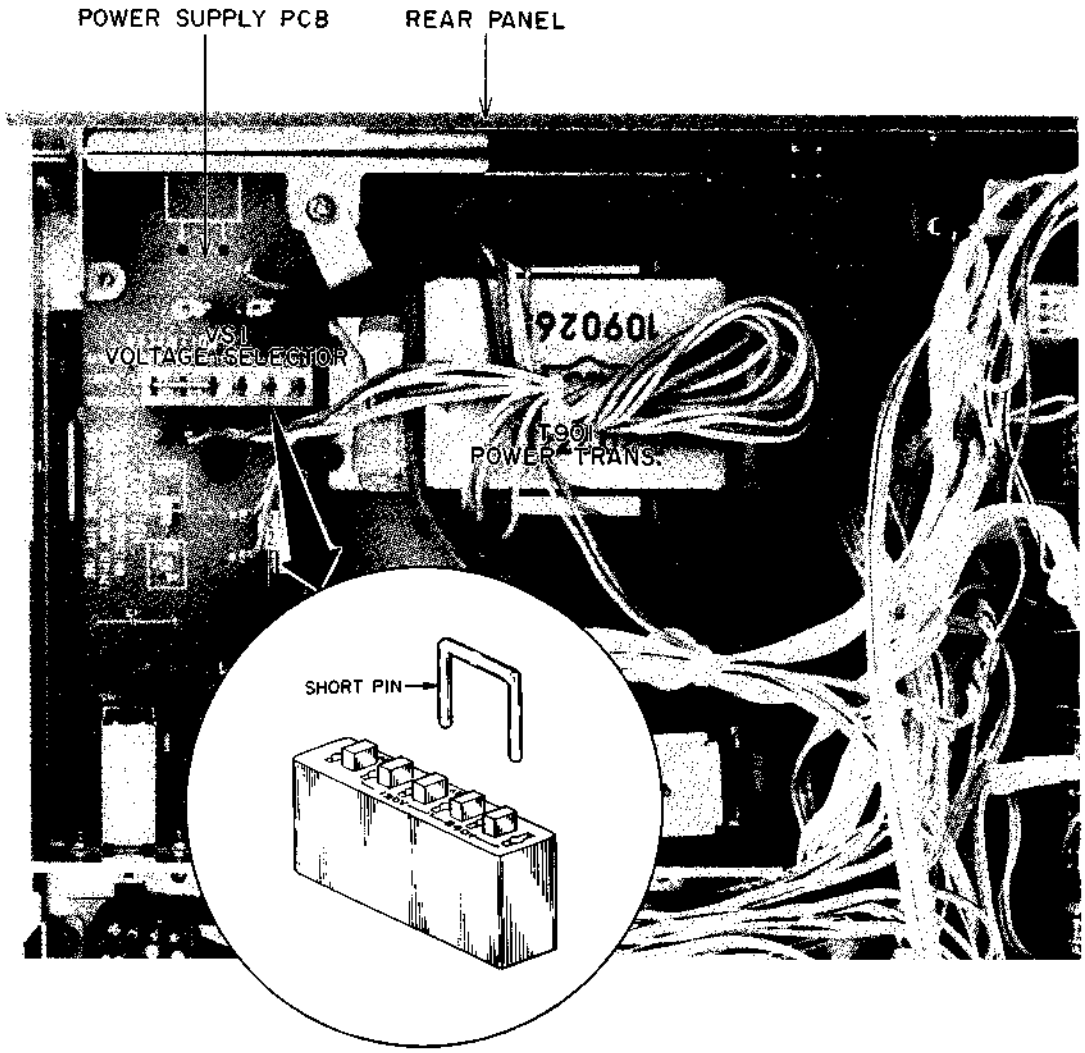


Fig. 4 Voltage Conversion (U/T Model only)

1. VOLTAGE CONVERSION

Models for Canada, Europe, USA, UK, Australia and Japan are not equipped with this facility.

Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.

If voltage change is necessary, this can be accomplished as follows:

1) Disconnect power cord.
2) Loosen holding screws and remove upper cover.
3) Remove short pin plug from present holes and replace in correct holes. Follow the markings explicitly.

2. CYCLE CONVERSION

With DC motor, cycle conversion is not necessary.

VI. SYSCON BLOCK DIAGRAM

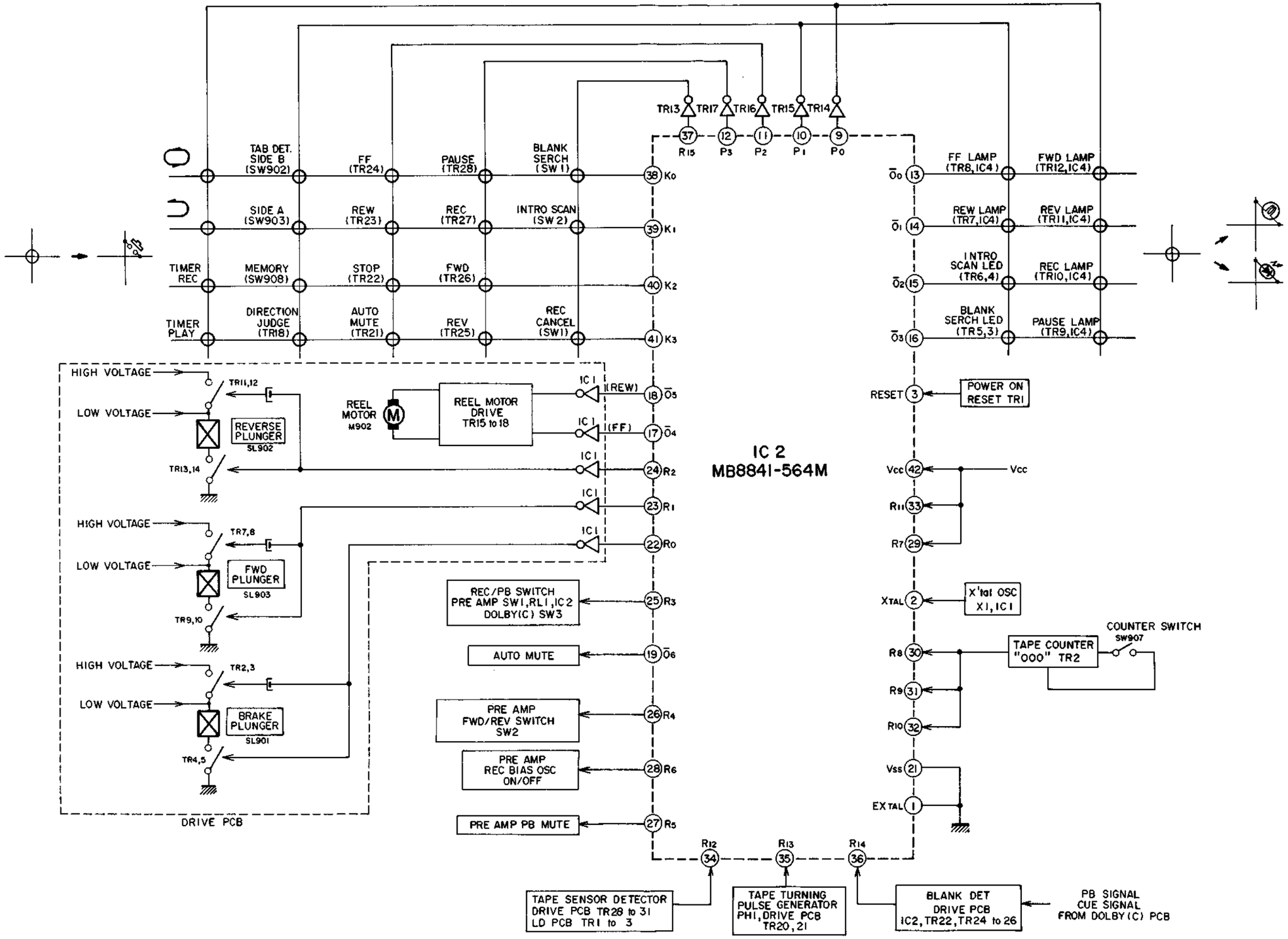
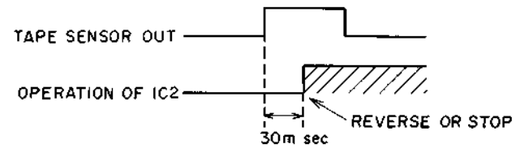
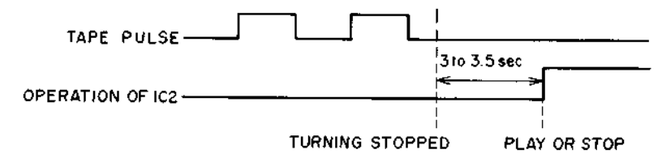


Fig. 5

FUNCTION OF MICROCOMPUTER (MB8841-564M)

Terminal No.	Function
⑨ ⑩	OPERATION KEY MATRIX STROBE, LAMP, LED DRIVE
⑪ ⑫ ㊲	OPERATION KEY MATRIX STROBE
㊳ ㊴ ㊵ ㊶	OPERATION KEY MATRIX IN
⑬ ⑭ ⑮ ⑯	LAMP, LED DRIVE
⑰	REEL MOTOR DRIVE FF, FWD CUE : "L" OTHER MODE : "H"
⑱	REEL MOTOR DRIVE REV, REV CUE : "L" OTHER MODE : "H"
㉒	BRAKE PLUNGER DRIVE "L" except in STOP, PAUSE and CUE modes
㉓	FWD PLUNGER DRIVE FWD, REC/FWD, FWD/PAUSE, REC/FWD/PAUSE, FWD CUE : "L" OTHER MODE : "H"
㉔	REV PLUNGER DRIVE REV, REC/REV, REV/PAUSE, REC/REV/PAUSE, REV CUE : "L" OTHER MODE : "H"
㉕	PRE AMP REC/PB CHANGE SWITCH DRIVE REC/FWD, REC/REV, REC/PAUSE : "L" OTHER MODE : "H"
㉖	PRE AMP FWD/REV CHANGE SWITCH DRIVE FWD, REC/FWD, FWD/PAUSE, REC/FWD/PAUSE : "H" REV, REC/REV, REV/PAUSE, REC/REV/PAUSE : "L" In other modes, the previous status is retained.
㉗	PRE AMP PB MUTE FWD, REV, REC/FWD, REC/REV, REC/PAUSE : "L" OTHER MODE : "H"
㉘	PRE AMP REC BIAS OSC ON/OFF REC/FWD, REC/REV, REC/PAUSE : "L" OTHER MODE : "H" But "H" at the time of STOP → REC/PAUSE mode and "L" when REC/PAUSE is changed to REC/FWD or REV.
㉙	Tape Counter UP/DOWN indication (NO USE)
㉝	PROGRAM MANUAL CHANGE SIGNAL (NO USE)
⑲	REC MUTE AUTO MUTE MODE : "L" OTHER MODE : "H"
㉚ ㉛ ㉜	Input terminal for the TAPE COUNTER "000".

Terminal No.	Function
㉞	TAPE SENSOR INPUT  Fig. 6
㉟	Tape turning pulse input (from tape turning pulse generator)  Fig. 7
㊱	Audio signal input terminal (from BLANK DET.) "H" input in music and "L" input in blank.

VII. DOLBY C-TYPE NOISE REDUCTION

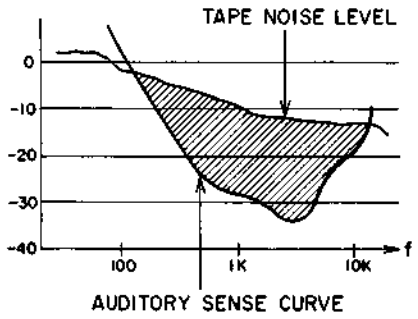


Fig. 8

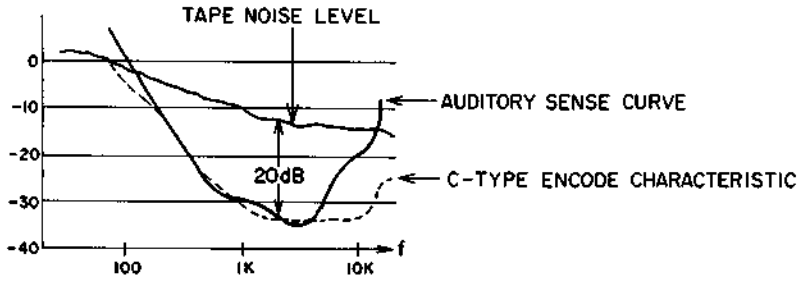


Fig. 9

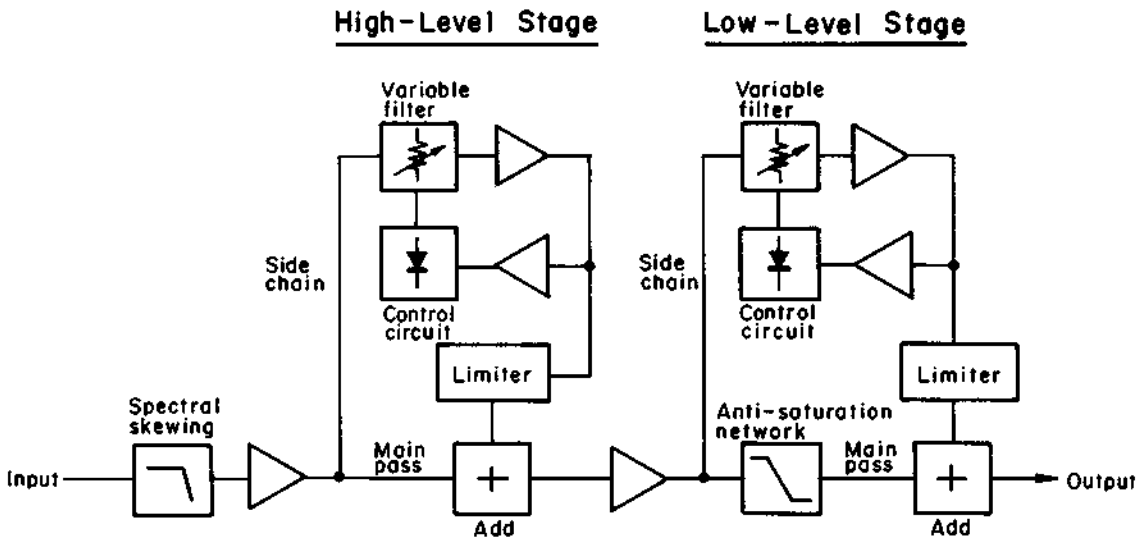


Fig. 10 Block Diagram of Encoder

1. OUTLINE

Dolby C-type is to improve the noise reducing effect of the usual Dolby B-type. The B-type has the NR effect of 10 dB at 5 kHz or more but C-type has the NR effect of 20 dB at 1 kHz or more. Fig. 8 shows the audible curve of man at low level and the noise level of the cassette tape.

In the bands of about 200 Hz or lower and of 10 kHz or higher the hiss noise of the tape is not heard. On the contrary, in the range of 200 Hz to 10 kHz the noise is apt to be heard. For this reason, the hiss noise of the tape is reduced by getting the encode characteristic closer to the audible curve as shown in Fig. 9. Since the difference at this time between the noise level and the audible curve is about 20 dB, C-type sets the noise reduction amount at 20 dB. For the high band (more than 10 kHz) the NR amount is reduced to improve the characteristic.

2. CIRCUIT COMPOSITION

Fig. 10 shows a simple block diagram at the time of encoding.

In Dolby system, the NR amount per one processor is specified at 10 dB maximum. This is because as the compression amount increases, the possibility of side effect (dynamic error, etc.) increases. Therefore, the C-type uses two processors with the NR amount of 10 dB each, one as high level stage and another as low level stage. By providing these two processors with different operational regions, the overlapping of dynamic operation is prevented, one operating the linear operation, and therefore, as a whole, it is the compression operation of one 10 dB processor, but 20 dB effect is obtained.

Each processor uses the sliding band system and dual pass system as in the case of B-type. The input signal is separated into the Main Pass and Side Chain, and

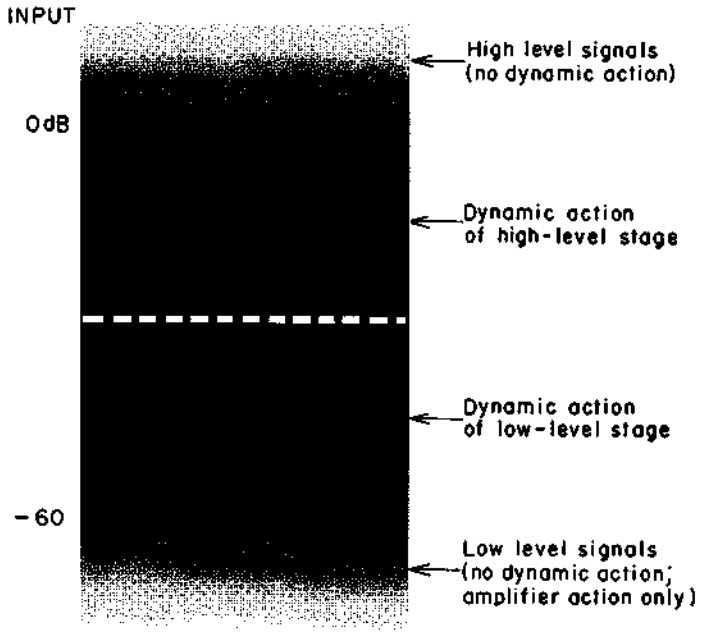


Fig. 11 Operational Region of each Processor

one signal is just outputted via the Main Pass and another signal going through the Side Chain is produced separately as the noise reduction signal and added to the output. For this reason, the NR signal component included in the output signal can be kept to minimum. Fig. 11 shows the operational region of each processor. As one major feature, the C-type can improve the high frequency characteristic. Man's audio sensitivity decreases a lot at 10 kHz or higher, and this means that NR amount in this band can be relatively small.

For this reason, the C-type has two additional circuits, spectral-skewing circuit and antisaturation network. In the spectral-skewing, the NR operation of more than 10 kHz is weighted by the LC circuit of 12 dB/oct. and reverse compensation is made at the time of decoding, and the high frequency linearity is improved to the extent that the compression amount is reduced. The anti-saturation network has a function to reduce the Rec level by about 3 dB for the high level high frequency signal only, and the distortion rate in high band is improved.

3. CIRCUIT OPERATION

Fig. 12 (a) shows the basic NR circuit structure of Dolby C-type.

The encoder and decoder of C-type respectively consist of two stages (two Dolby B-type processors with the external constant changed) called high level stage and low level stage. In recording, the input signal enters the high level stage via amplifier (A1), spectral skewing circuit, MPX filter and amplifier (B1). Then, like B-type, the signal is separated into the main pass route and side chain route. In the main pass route, the signal just goes to the adder (EK), and in the side chain route, only middle and high frequency signals of low level are passed by the variable filter. Then, the output from the side chain route is combined by the adder (EK) with the signal of the main pass route to obtain the 1st encode (compression) characteristic, and in the low level stage, too, the stressed signal from middle to high frequency (10 dB in the vicinity of 1.5 kHz) is sent to the next low level stage. The operation in the high level stage is similar to that of B-type except when the turnover frequency of the encode characteristic is on a lower side (below 2 octave).

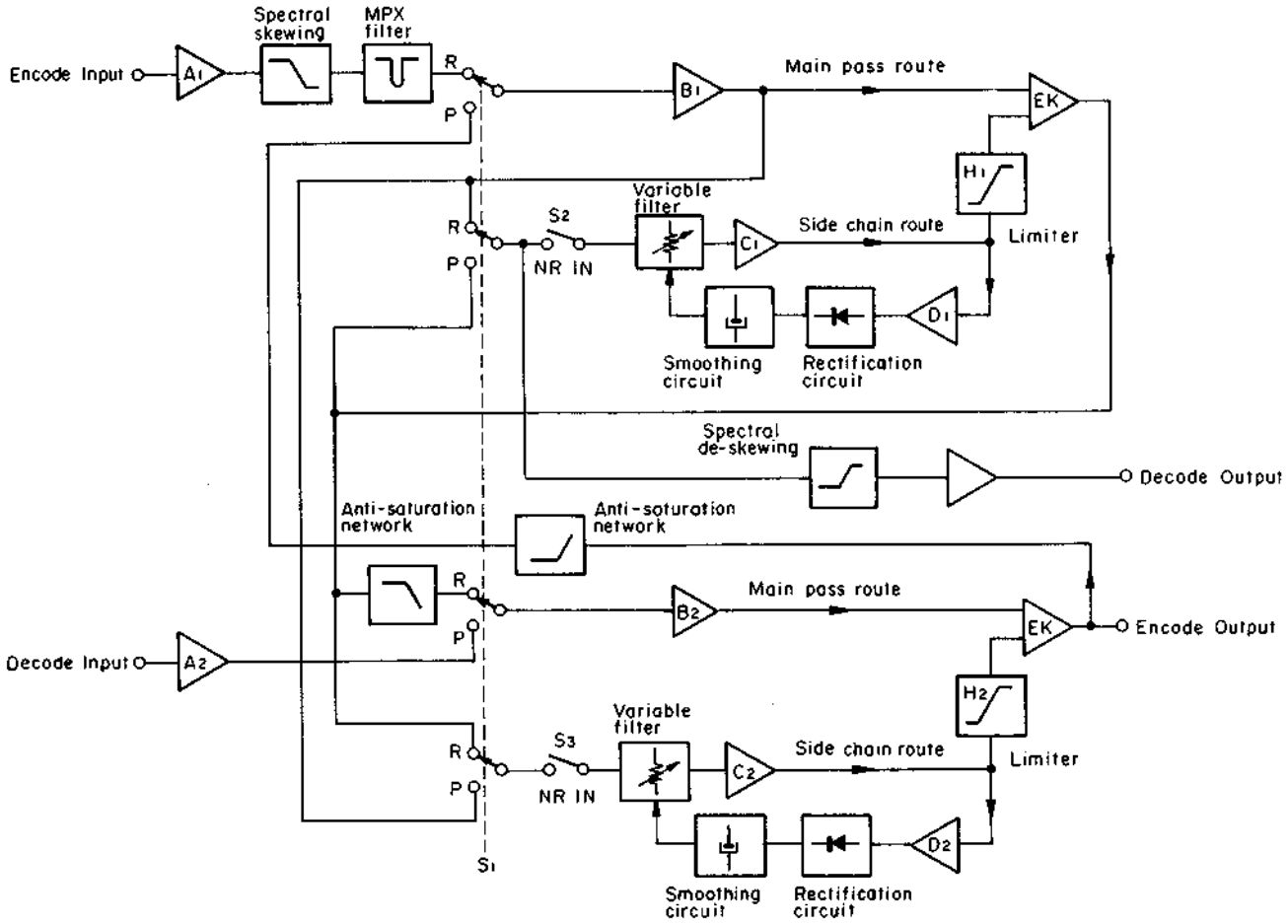


Fig. 12 (a) Basic NR circuit structure of Dolby C-type

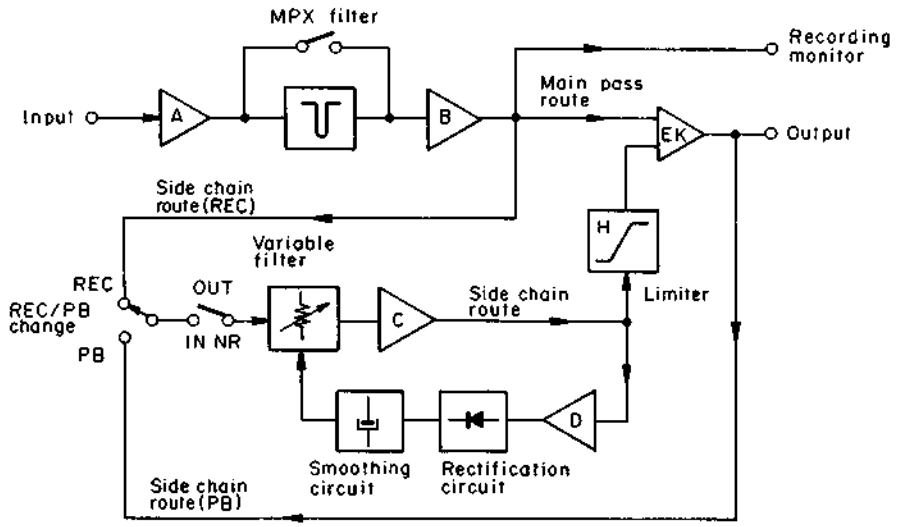


Fig. 12 (b) Basic NR circuit structure of Dolby B-type

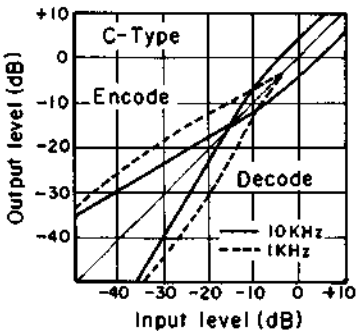


Fig. 13 Input Characteristic of Dolby C-type NR

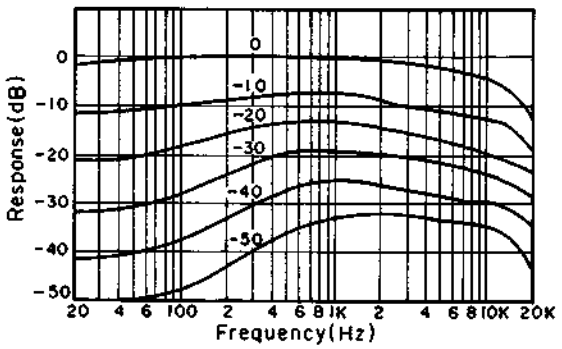


Fig. 14 Encode Characteristic of Dolby C-type NR

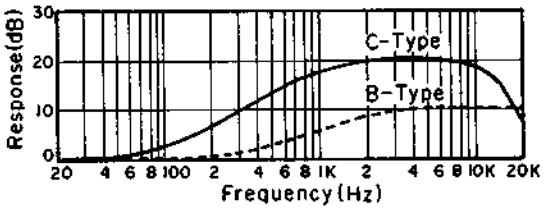


Fig. 15 Encode Characteristics of Dolby B-type and C-type in low level

The signal inputted into the next low level stage is again separated into the main pass route and the side chain route, and the 2nd encoding is carried out. The encode characteristic in the low level stage is same as the characteristic of the high level stage except that its compression starting level (threshold level) is lower, and as a result, the signal stressed by about 20 dB from middle to high frequency of the low level appears at the output terminal.

Figs. 13, 14 and 15 show the input/output characteristic, encode characteristic and encode characteristics of B-type and C-type in low level, respectively. As shown in Figs. 13 to 15, C-type is limiting the high frequency when recording. This is done by the spectral skewing circuit provided in the encoder input and by the antisaturation circuit. The skewing circuit prevents the processing error by deemphasizing the frequency of 10 kHz or more which is unstable for the cassette deck and by reducing the noise reducing operation. As a result, the signal modulation due to the high frequency component can be prevented.

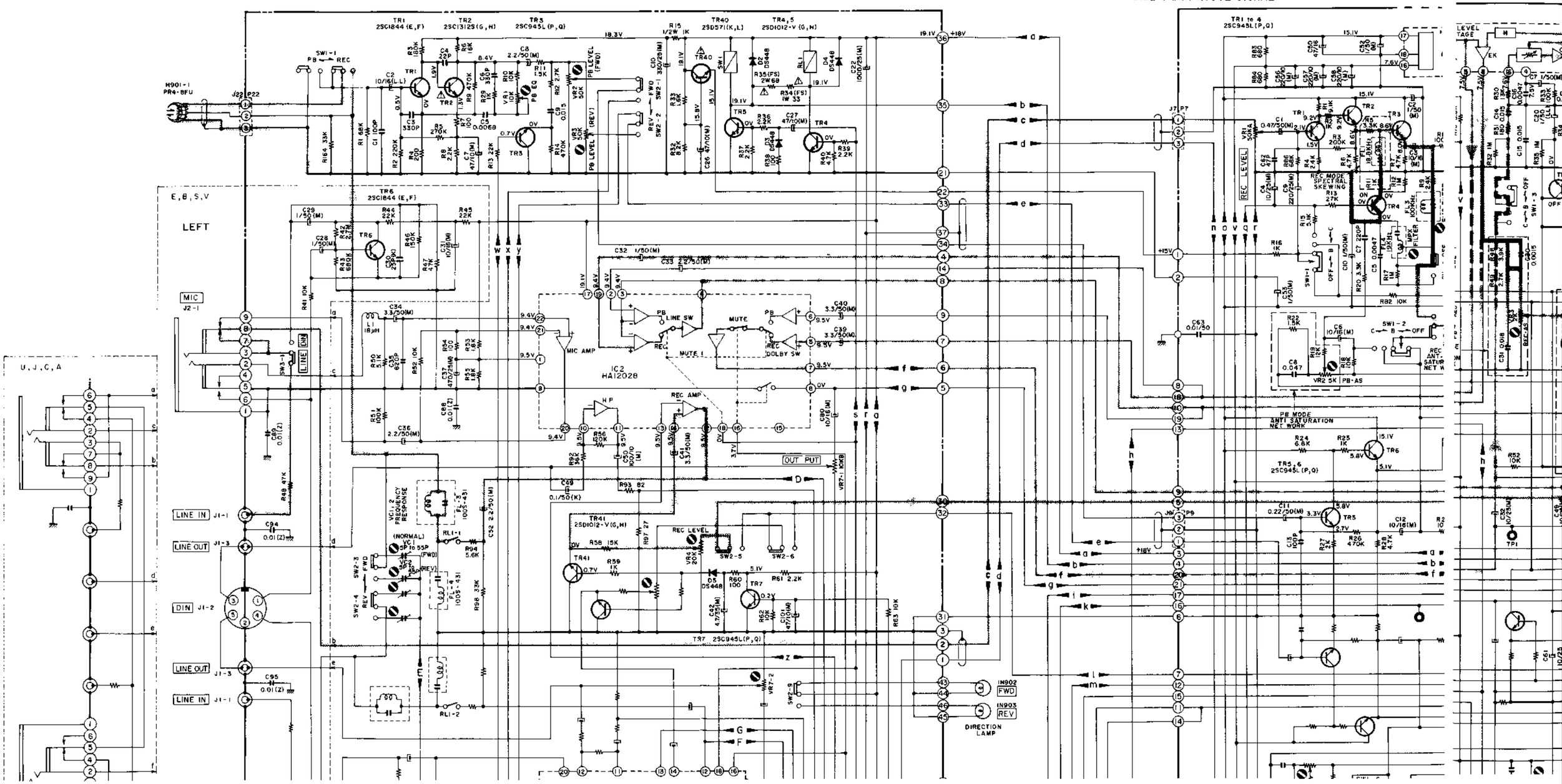
The antisaturation network operates only on the large amplitude signals of more than 2 kHz and reduces the high frequency saturation of the tape.

These are completely complementary in the encoder and decoder and make possible the MOL improvement of about 8 dB at 15 kHz. In decoding, the side chain route is combined in opposite phase with the main pass route and the characteristic opposite to that of the recording is obtained. The high frequency signal limitation by the skewing circuit and antisaturation circuit is released in decoding. C-type can be easily switched to B-type, and to use it as B-type, switch off the encode (or decode) of the low level stage and change the constant of the high level stage (to make encode or decode characteristic).

At that time, switch off the skewing circuit and antisaturation circuit.

4. ACTUAL CIRCUIT OPERATION

Schematic - 1 REC Mode Schematic Diagram (C-Type)



MAIN PASS ROUTE SIGNAL

SIDE CHAIN ROUTE SIGNAL

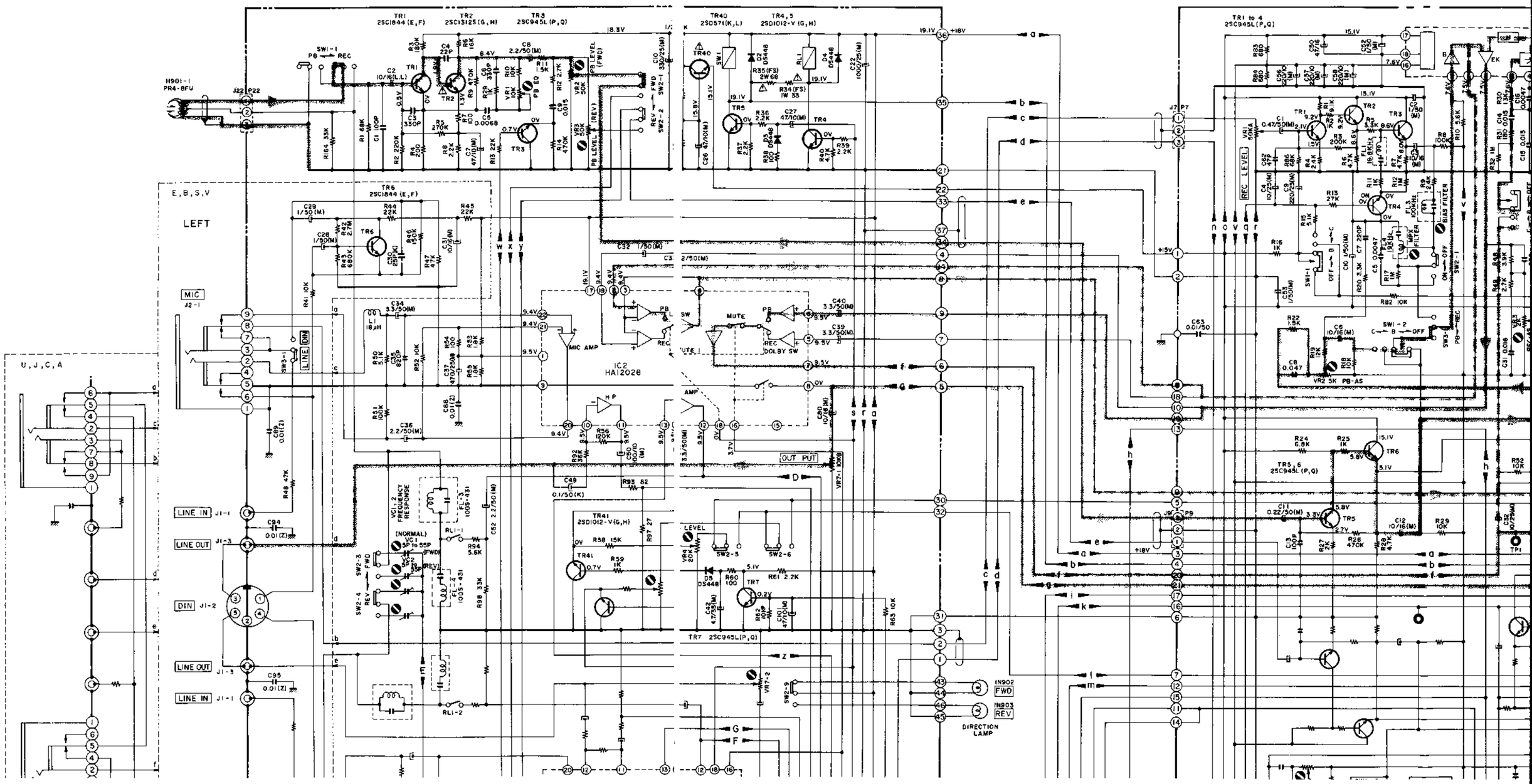
DOLBY LED PCB T2023B502E

LAMP METER PCB T2023B502C

Schematic - 2 PB Mode Schematic Diagram (C-Type)

MAIN PASS ROUTE SIGNAL

SIDE CHAIN ROUTE SIGNAL

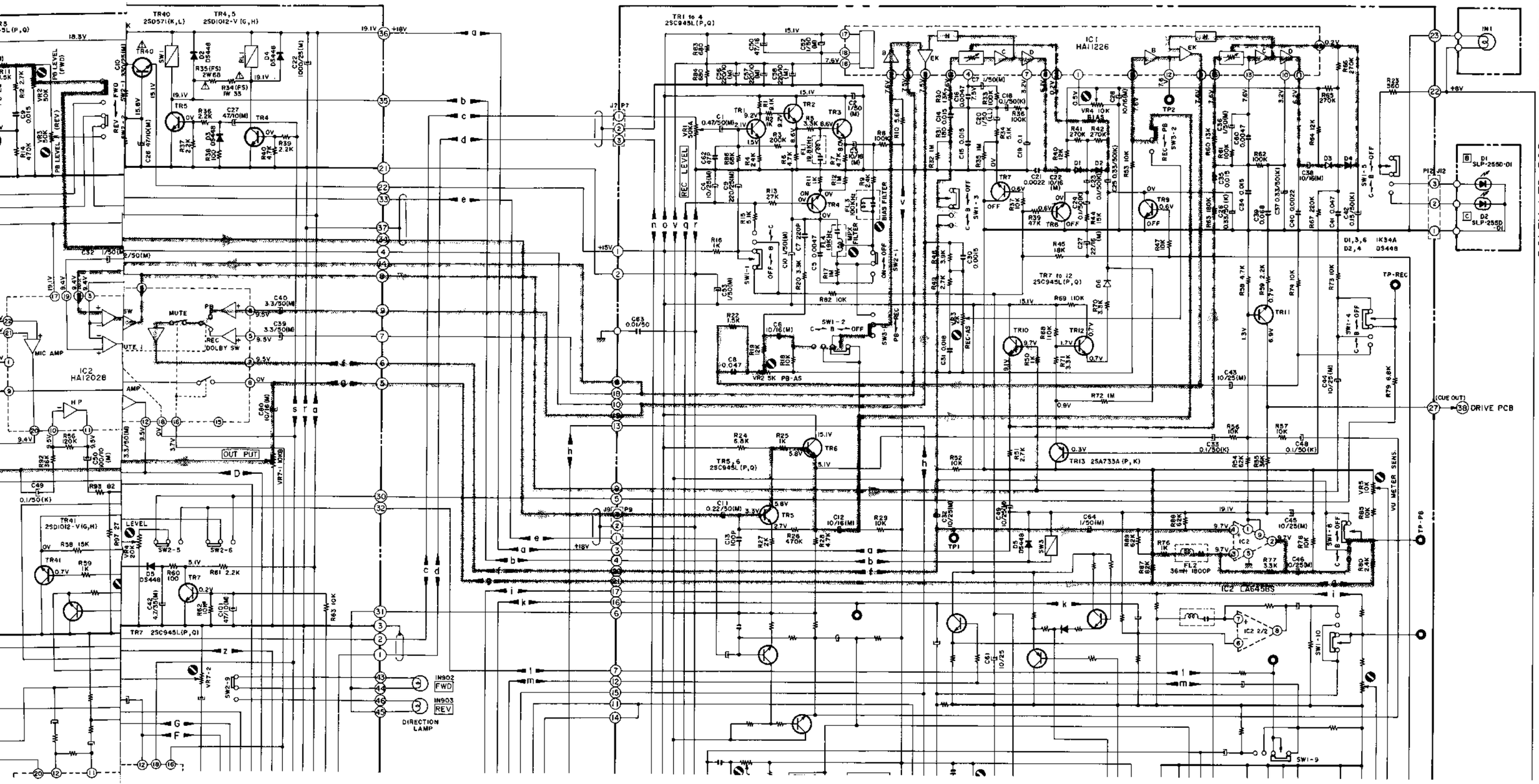


MAIN PASS ROUTE SIGNAL

SIDE CHAIN ROUTE SIGNAL

DOLBY LED PCB T2023B502E

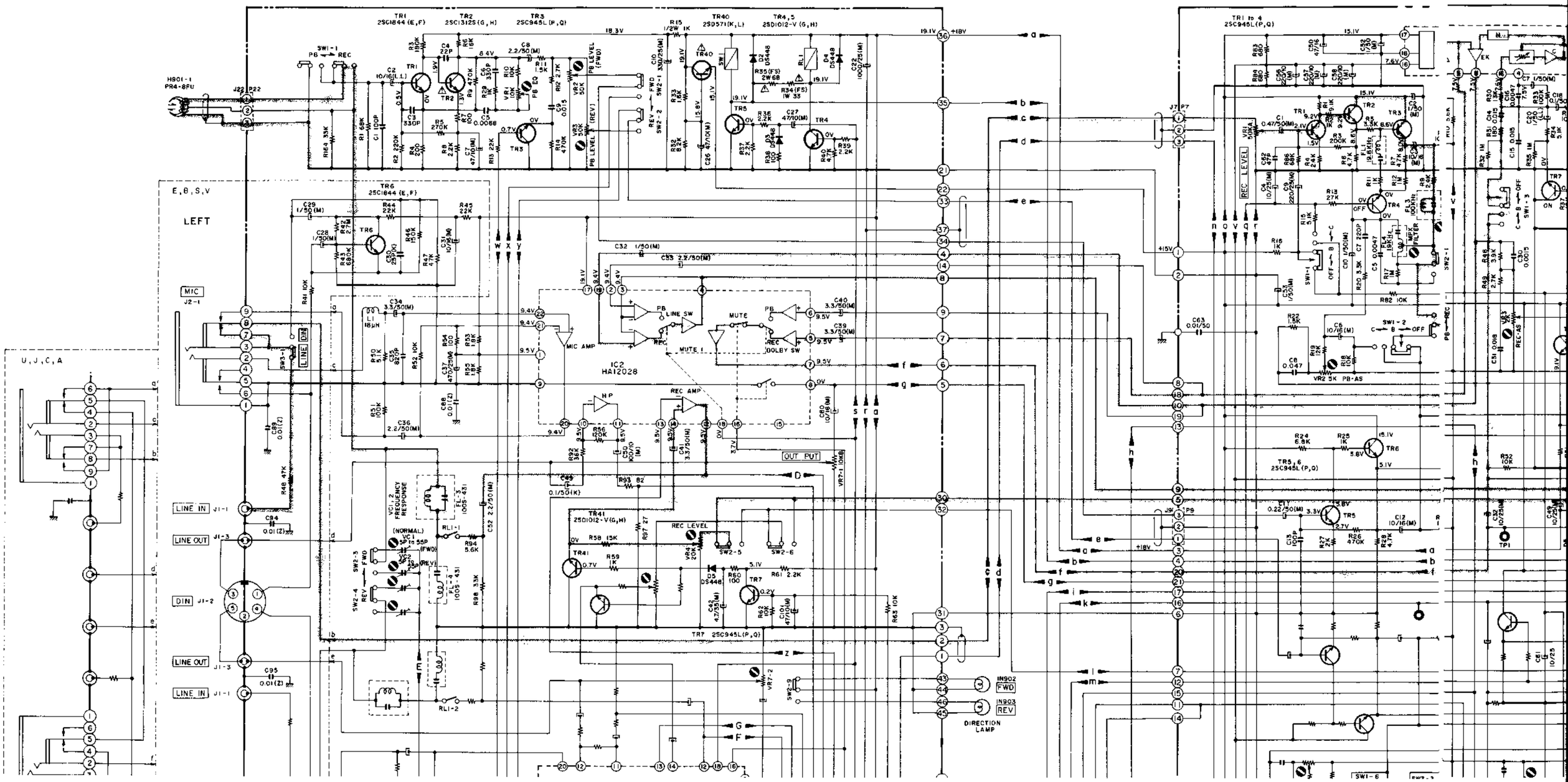
LAMP METER PCB T2023B502C



Schematic - 3 REC Mode Schematic Diagram (B-Type)

MAIN PASS ROUTE SIGNAL

SIDE CHAIN ROUTE SIGNAL

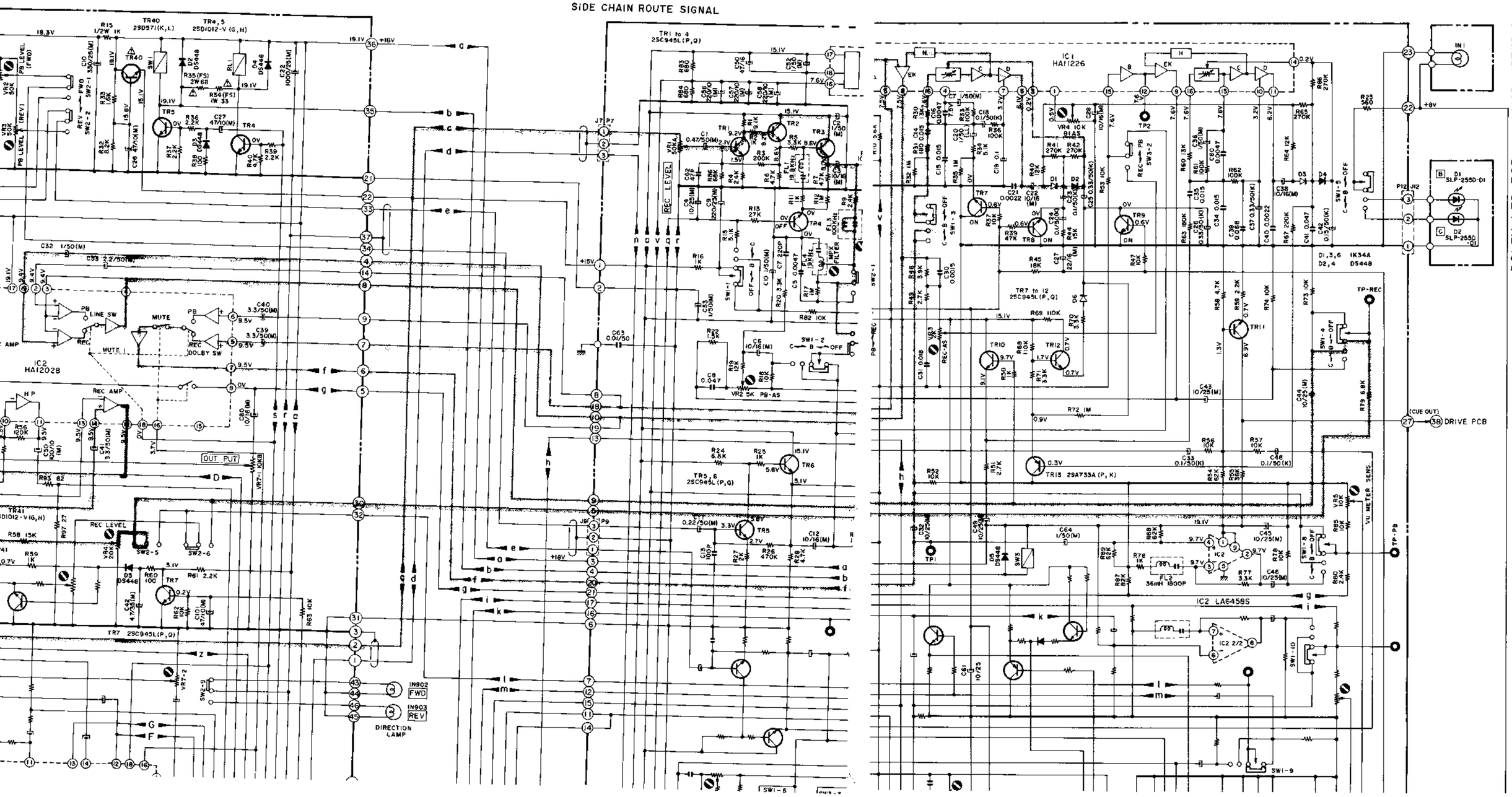


MAIN PASS ROUTE SIGNAL

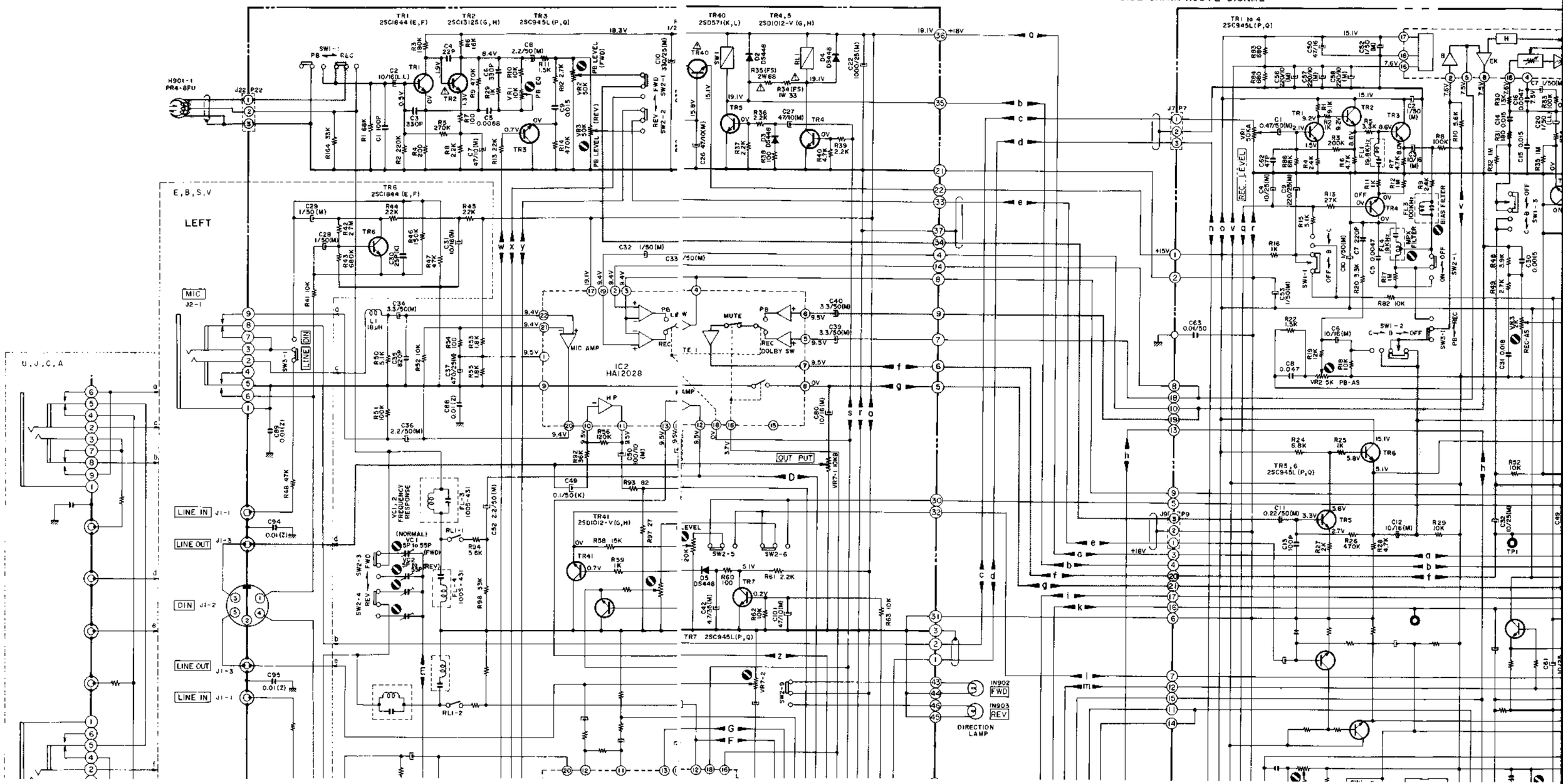
SIDE CHAIN ROUTE SIGNAL

DOLBY LED PCB T2023B502E

LAMP METER PCB T2023B502C



Schematic - 4 PB Mode Schematic Diagram (B-Type)

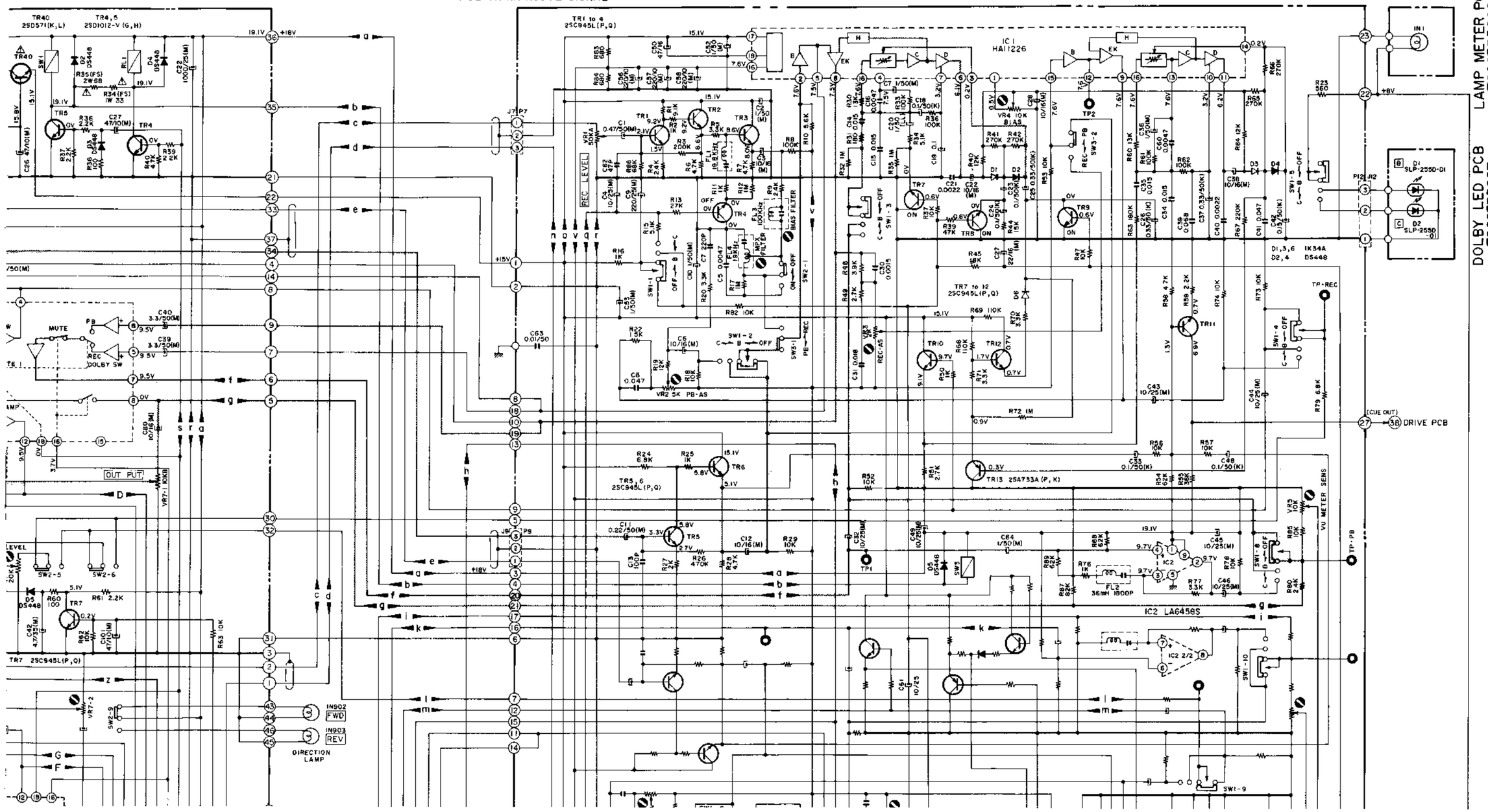


MAIN PASS ROUTE SIGNAL

SIDE CHAIN ROUTE SIGNAL

DOLBY LED PCB T2023B502E

LAMP METER PCB T2023B502C



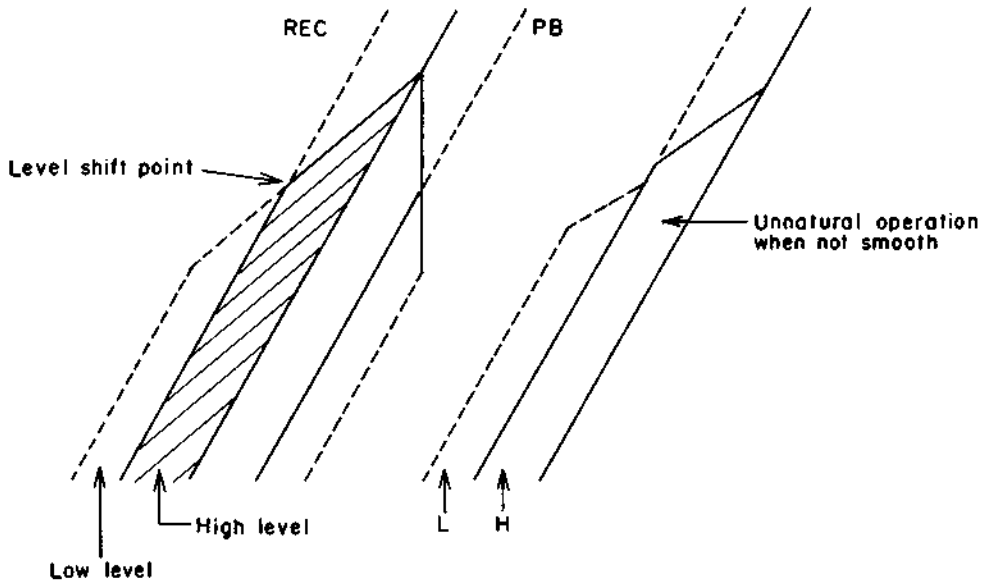


Fig. 16

Schematics 1 to 4 show the flow of signal of the main pass route and of the side chain route in each mode. Main transistors in the circuit shall be explained briefly.

1) TR4: ON only when Dolby C-type is used, and the spectral skewing circuit is connected.
2) TR7, 8 and 9: ON when Dolby B-type is used or Dolby NR is OFF, and the processor of the low level stage is disconnected and the circuit constant of B-type is set.
3) TR12 and 13: Because Dolby C-type consists of two stages, high level stage and low level stage as shown in Fig. 16, the operating point must be smoothly switched over, otherwise abnormal operation will occur. For this reason, a close coupling circuit consisting of TR12 and 13 is used to make the operation smooth.

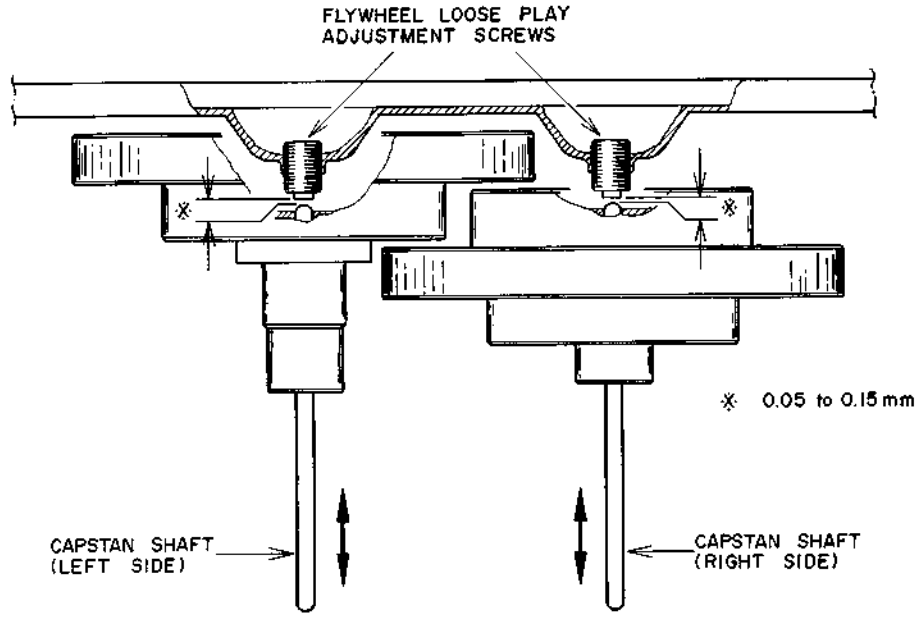


Fig. 17

1. FLYWHEEL LOOSE PLAY ADJUSTMENT
(Refer to Fig. 17)

Adjust by turning flywheel loose play adjustment screws to obtain 0.05 to 0.15 mm of loose play when the capstan shaft is moved as indicated by the arrow mark.

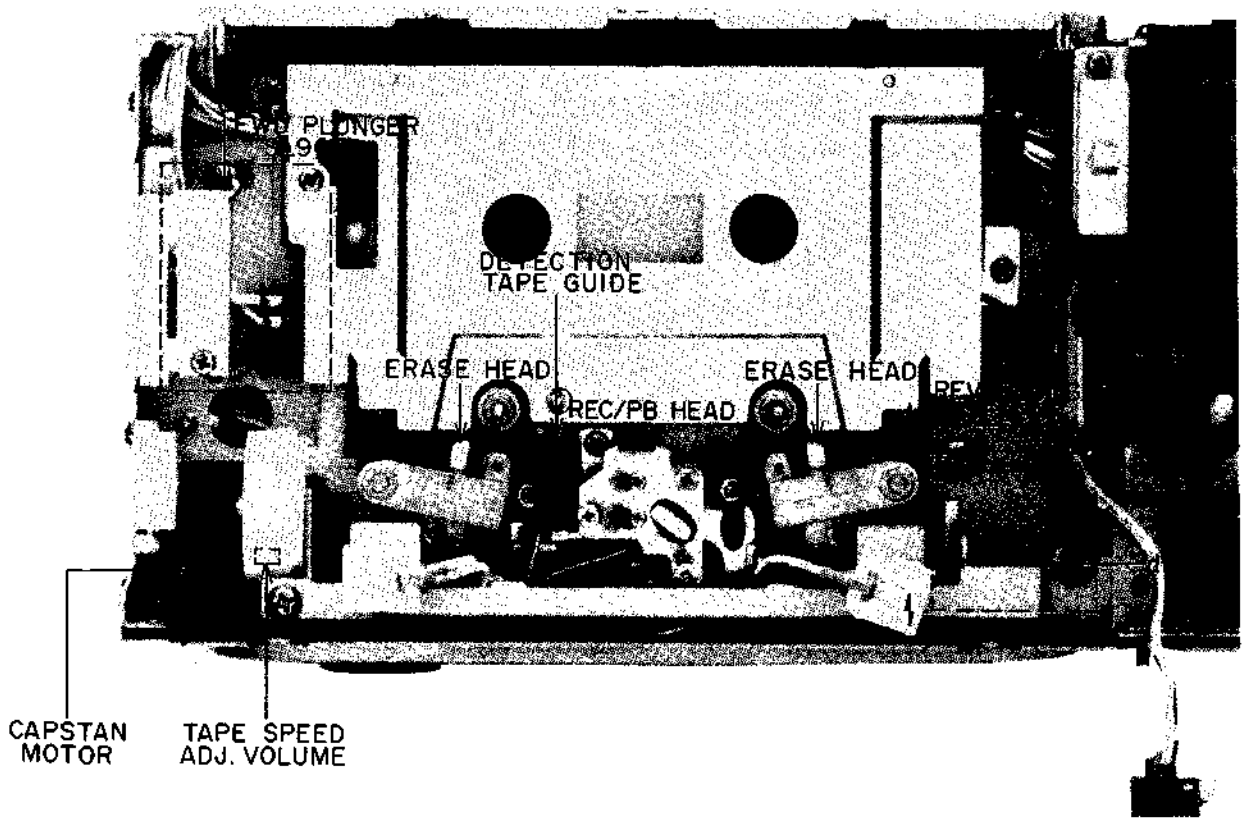


Fig. 18

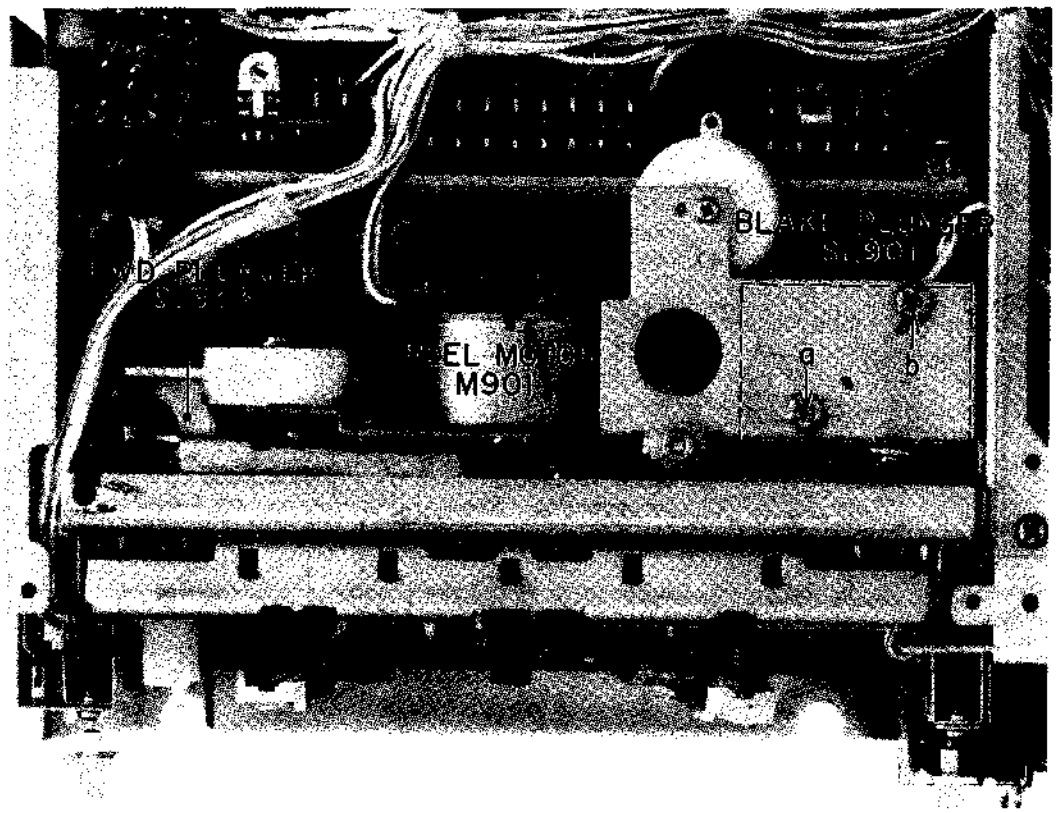


Fig. 19

2. PLUNGER POSITION ADJUSTMENT

1) Forward Plunger Adjustment (Refer to Figs. 18, 20)
   Set the AKAI Head Projection Gauge. (TF-111CJ)
   Adjust the screws (a) and (b) so that when FWD PAUSE mode is engaged, the Head Projection Gauge indicates to 2.7 mm ± 0.1 mm.
2) Brake Plunger Adjustment (Refer to Figs. 19, 20)
   Set the AKAI Head Projection Gauge.
   Adjust the screws (a) and (b) so that when FWD PLAY mode is engaged, the Head Projection Gauge indicates to 3.35 mm ± 0.1 mm.
3) Reverse Plunger Adjustment (Refer to Figs. 18, 20)
   Set the AKAI Head Projection Gauge.
   Adjust the screws (c) and (d) so that when REV PAUSE mode is engaged, the Head Projection Gauge indicates to 2.5 mm ± 0.1 mm.

NOTE: This adjustment made is order of numbers.

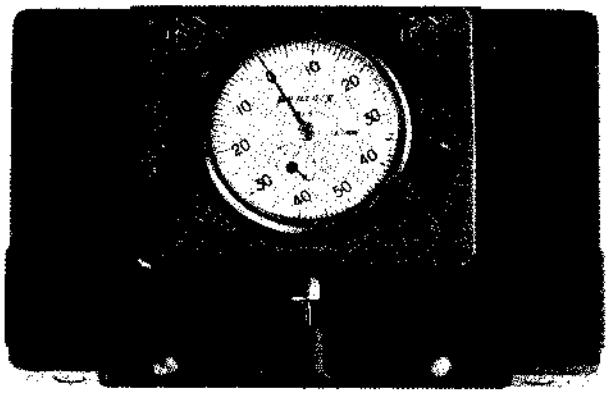


Fig. 20 AKAI Head Projection Gauge (TF-111CJ)

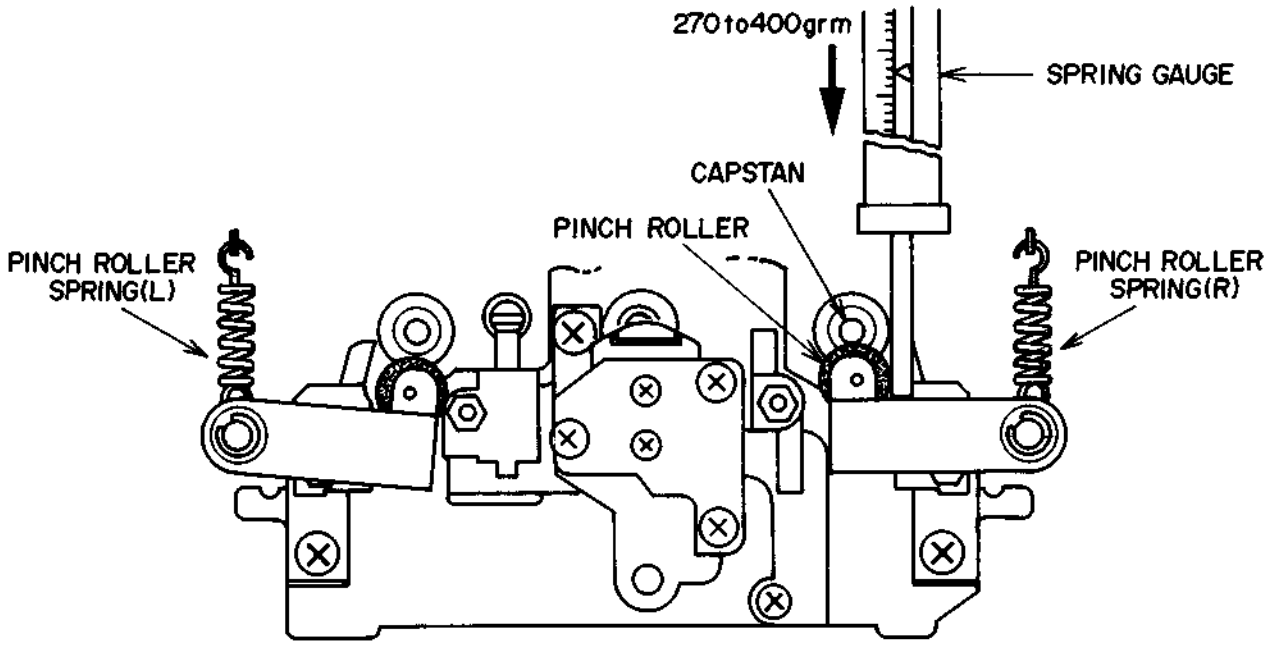


Fig. 21

3. PINCH ROLLER PRESSURE MEASUREMENT (Refer to Fig. 21)

Put in FWD PLAY mode. Push pinch roller arm down with the spring gauge push the pinch roller 1 ~ 2 mm from the capstan and release slowly.

Read the spring gauge at the moment the pinch roller touches the capstan and bigins to rotate.

Specified contact pressure measurement of 270 to 400 grm.

If there is no measurement obtained, replace the pinch roller spring. Do the same for the reverse side.

4. WINDING TORQUE MEASUREMENT IN EACH MODE

Insert cassette torque meter and measure in each mode. For fast forward and rewind measure at the end of the tape when the tape has stopped running.

Forward, Reverse: 30 to 55 g-cm

Fast Forward, Rewind: 75 to 130 g-cm

5. TAPE SPEED ADJUSTMENT (Refer to Fig. 18)

Connect a frequency counter to line output terminals.

Playback a 1,000 Hz pre-recorded test tape (TF-102CF) and adjust tape speed adjustment volume to obtain a tape speed of 995 Hz ± 5 Hz.

IX. HEAD ADJUSTMENT

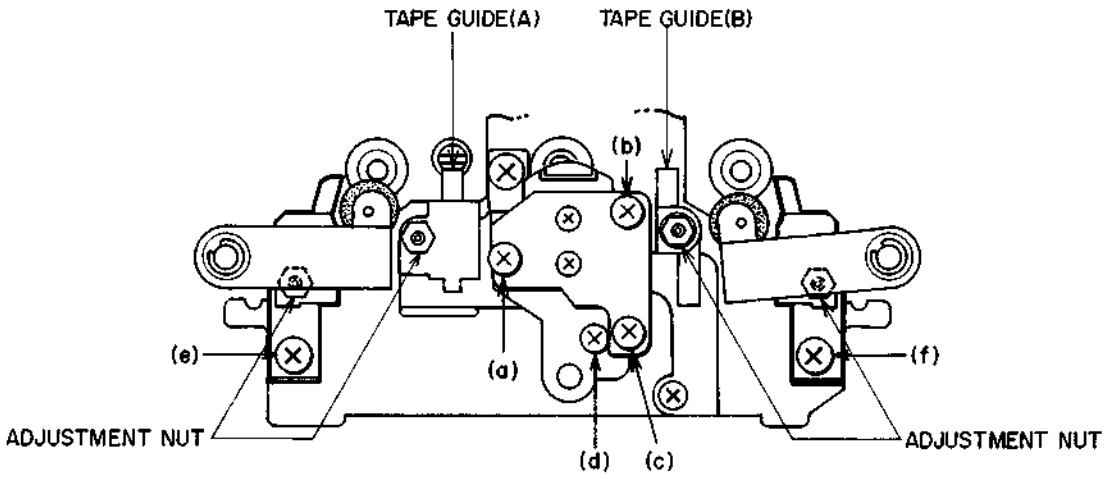


Fig. 22

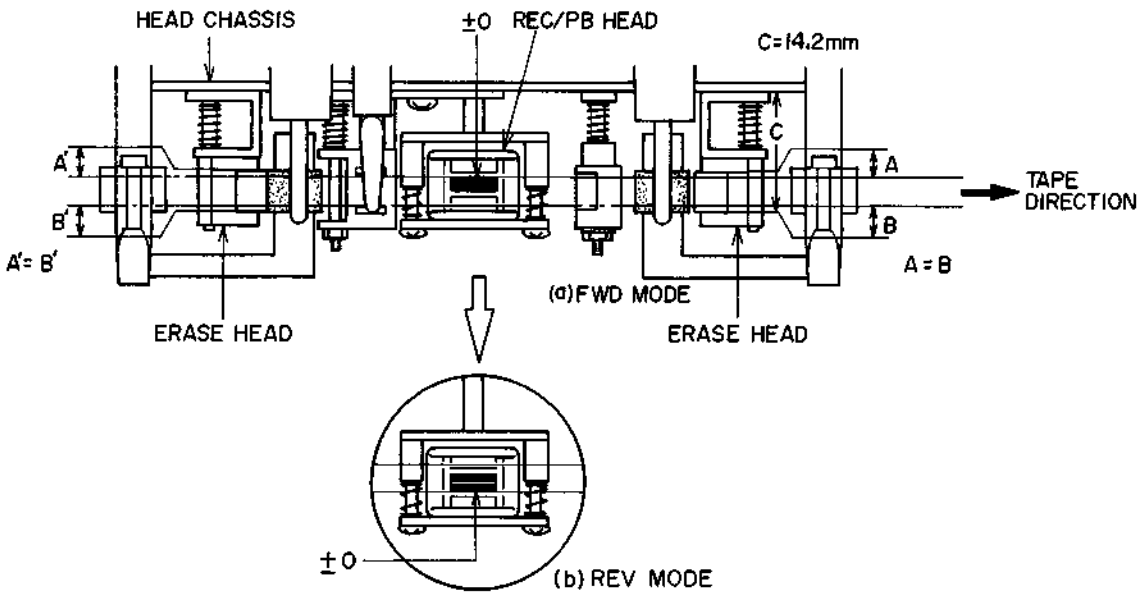


Fig. 23

1. ERASE HEAD HEIGHT ADJUSTMENT (Refer to Figs. 22 to 25)

Usually this adjustment is not carried out. If adjustment is necessitated by head change for example, proceed as follows:

Adjust by turning the adjustment nut until the height, taken from the surface of the Head Chassis to the lower tip of the Erase Head Core (Fig. 23 C) is 14.2 mm.

2. ERASE HEAD INSTALLATION ANGLE ADJUSTMENT (Refer to Figs. 22 and 24)

Please adjust by loosening screws (e) and (f) (Fig. 22) until the gap D between the Erase Head and the Pinch Roller is over 0.15 mm and the gap C between the Erase Head and the Cassette Pack is over 0.4 mm as in Fig. 24.

Adjust the right hand Erase Head in the FWD mode and the left hand Erase Head in the REV mode. During the adjustment, make gap C as large as possible.

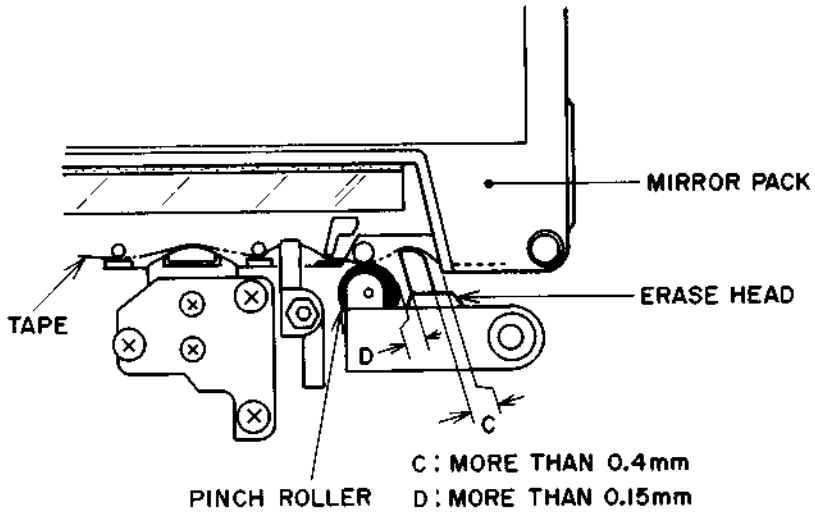


Fig. 24

3. TAPE GUIDE HEIGHT ADJUSTMENT (Refer to Figs. 22, 23, 25)

1) When using an ordinary cassette, the tape guides and heads, etc. are not visible. As shown in Fig. 25 use a cassette tape from which part of the cassette case has been cut out and a mirror installed easy visibility of the head area when making tape guide height adjustment.
2) The adjustment to Tape Guides (A) and (B) are carried out with the Erase Head at the standard height. Put into the FWD mode and adjust Tape Guide (A). Make the width of the sections (A' and B' in Fig. 23) protruding from both ends of the tape of the left side Erase Head the same.
   Next in the REV mode adjust Tape Guide (B) until A and B in Fig. 25 are the same. Finally, in either FWD or REV modes. Check that the tape is running smoothly without catching on the tape guides.

Fig. 25 Mirror Cassette Tape (TF-109CM)

4. REC/PB HEAD HEIGHT ADJUSTMENT (Refer to Figs. 22, 23)

Playback the Head Height Adjustment Tape (4 Track 1,000 Hz TF-103CF) in the Reverse Play Mode and adjust the screws (a) (b) and (c) until the output level of both channels reaches maximum.
Next put in the Foward Mode and adjust the screw (d) so that output level reaches maximum same as above.

5. REC/PB HEAD AZIMUTH ADJUSTMENT (Refer to Fig. 22)

1) Playback the azimuth adjustment tape (10 kHz TF-106CH) in the REV PLAY mode and adjust screw (a), until the output level of both channels reaches maximum (the AC voltmeter registers maximum).
2) Put in reverse mode and check that the output level is the same as in the forward mode. If different, adjust with screw (a), until the level is the same in both modes.
3) After adjustment, check both the head height and the azimuth.

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.

X. ELECTRICAL ADJUSTMENT

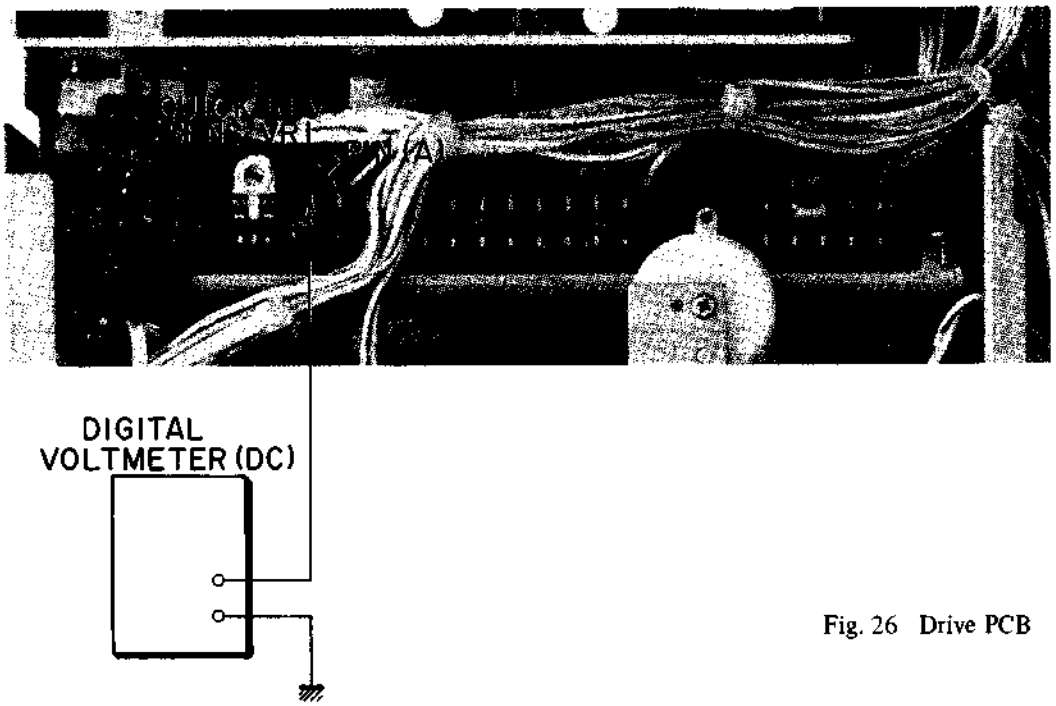


Fig. 26 Drive PCB

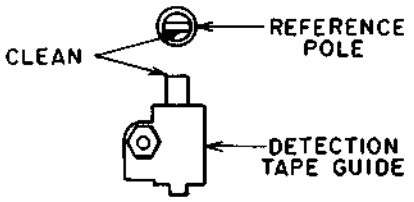


Fig. 27

1. QUICK REVERSE SENSITIVITY ADJUSTMENT

1) Make a tapeless cassette pack by removing the tape from the white colored test tape.
2) Connect the Digital Voltmeter between the PIN (A) and earth.
3) Using the tapeless cassette pack, adjust VR1 so that the Digital Voltmeter readings 6V ± 0.2 VDC at FWD play mode.

NOTE: Clean the Reference Pole and the Detection Tape Guide, before this adjustment. (Fig. 27)

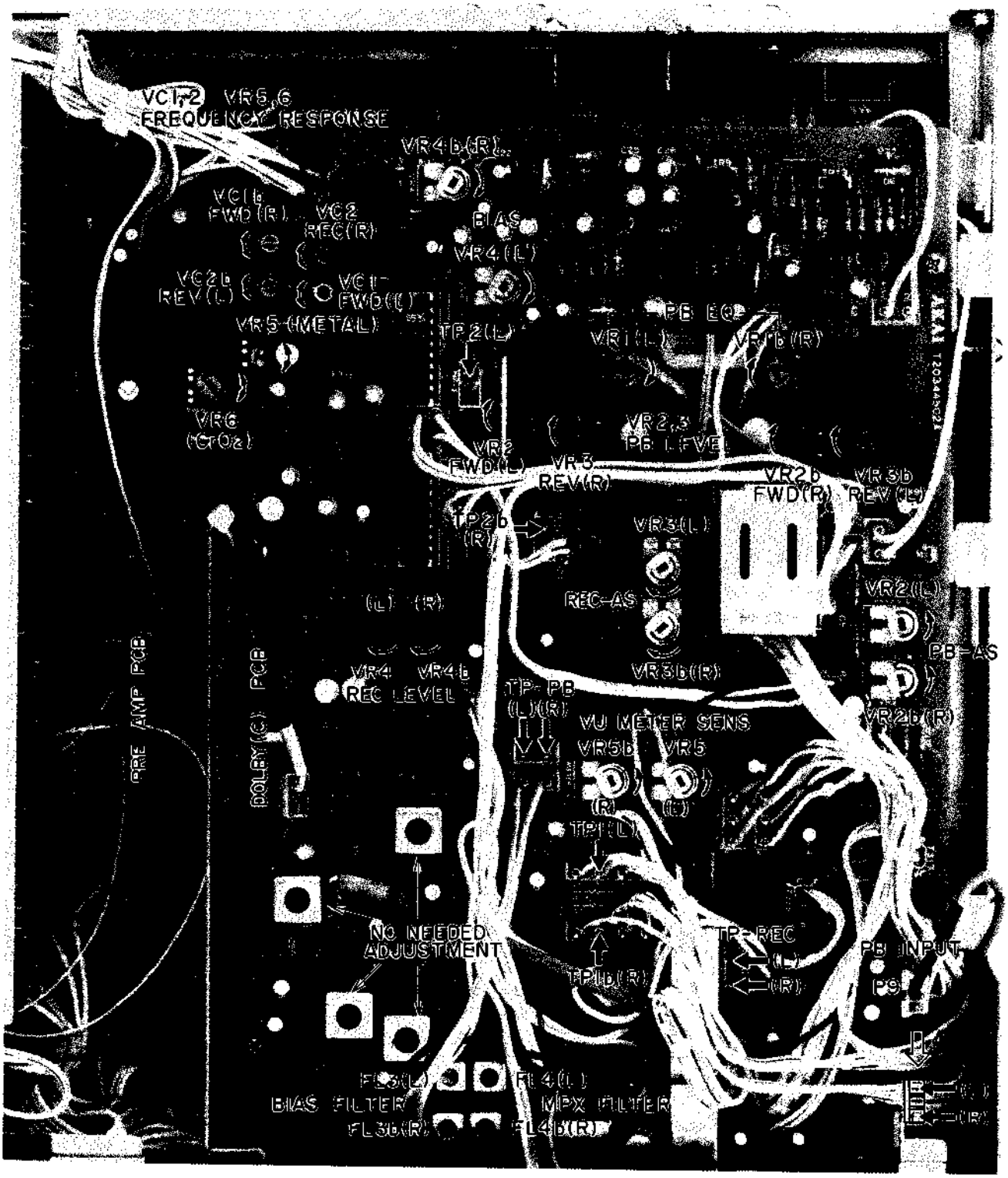


Fig. 28 Amplifier Adjustment

2. PRE AMPLIFIER ADJUSTMENT

Step	Adjustment Item	Test Tape Supply Signal	Mode	Adjustment Parts	Result	Remarks
1	FWD PB Level	333 Hz Test Tape (TF-101CL)	FWD PB	VR2 Pre Amp PCB	−5.5 ± 0.5 dBm (410 mV)	
2	REV PB Level	333 Hz Test Tape (TF-101CL)	REV PB	VR3 Pre Amp PCB	−5.5 ± 0.5 dBm (410 mV)	
3	PB EQ	10 kHz Test Tape (TF-106CH)	FWD PB REV PB	VR1 Pre Amp PCB	−19 ± 1.5 dBm	
4	Normal Position Frequency Response (FWD)	Normal Blank Tape 1 kHz, 10 kHz −25.5 dBm	FWD REC/PB	VC1 Pre Amp PCB	1 kHz to 10 kHz flat response	
5	Normal Position Frequency Response (REV)	Normal Blank Tape 1 kHz, 10 kHz −25.5 dBm	REV REC/PB	VC2 Pre Amp PCB	1 kHz to 10 kHz flat response	
6	CrO_2 Position Frequency Response	CrO_2 Blank Tape 1 kHz, 10 kHz −25.5 dBm	FWD/REV REC/PB	VR6 Pre Amp PCB	1 kHz to 10 kHz flat response	
7	Metal Position Frequency Response	Metal Blank Tape 1 kHz, 10 kHz −25.5 dBm	FWD/REV REC/PB	VR5 Pre Amp PCB	1 kHz to 10 kHz flat response	
8	REC Level	Normal Blank Tape 1 kHz, −5.5 dBm	FWD/REV REC/PB	VR4 Pre Amp PCB	−5.5 ± 0.5 dBm (410 mV)	
9	MPX Filter	19 kHz from oscillator	REC	FL4 Dolby (C) PCB	Minimum Output	MPX Filter ON
10	Bias Filter	No Signal Input	REC	FL3 Dolby (C) PCB	Minimum Output	Set REC Volume to maximum.
11	VU Meter Sensitivity	1 kHz, −5.5 dBm from oscillator	REC	VR5 Dolby (C) PCB	0 dB (VU) indication	

NOTES: 1. Output volume should be at maximum.
2. Dolby NR Switch to OFF Position.
3. Except for Step 9 set Dolby Filter Switch to OFF Position.
4. Use the following cassette measuring tapes:

Normal Tape	:	Maxell	UD	C-60
CrO_2 Tape	:	TDK	SA	C-60
Metal Tape	:	TDK	MA-C	C-60

3. DOLBY ADJUSTMENT

(Refer to Fig. 28 Dolby (C) PCB)

1) Set Dolby Switch to C-Type and the set to REC/PAUSE mode.
2) Input the signal of 700 Hz from LINE IN and adjust the input level so that TP1 will be 0 dBm (0.775V).
3) Adjust VR3 (REC-AS) so that TP-REC will be 0 ± 0.5 dBm.
4) Set Dolby Switch to OFF position.
5) Input the signal of 700 Hz from LINE IN and adjust the input level so that TP1 will be −30.5 dBm.
6) Set Dolby Switch to C-Type.

7) Adjust VR4 (BIAS) so that TP-REC will be −19.5 ± 0.3 dBm.
8) Set Dolby Switch C-Type and the set to FWD PLAY mode.
9) Remove P9 connector (PB INPUT) and input the signal of 700 Hz from there.
10) Adjust the input level so that TP2 will be 0 dBm.
11) Adjust VR2 (PB-AS) so that TP-PB will be 0 ± 0.5 dBm.

NOTES:

1. For the adjustment, use Audio OSC, AC Voltmeter (mV meter).
2. Adjust both channels at right and left.

XI. DC RESISTANCE OF VARIOUS COILS

Description	Name	DC Resistance
REC/PB Head	PR4-8FU	460 ohms ± 10%
Erase Head	HF213131	3.2 ohms
Plunger Solenoid	1240PLT	90 ohms ± 10%

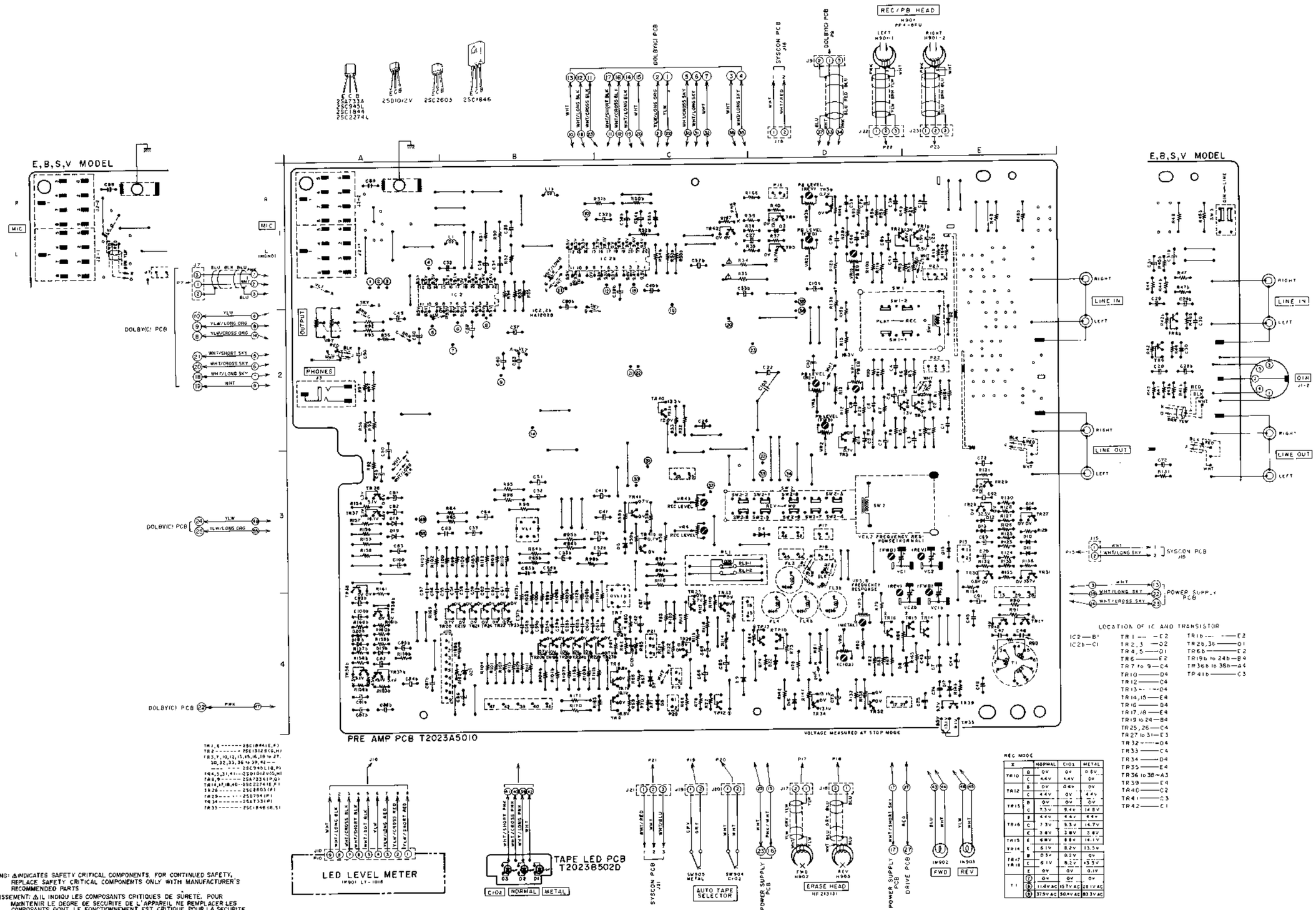
XII. CLASSIFICATION OF VARIOUS P.C BOARDS

I. P.C BOARD TITLES AND IDENTIFICATION NUMBER

P.C Board Title	P.C Board Number
Pre Amp P.C Board	T2023A5010
Dolby (C) P.C Board	T2034A502A
Syscon P.C Board	T2034B5010
Drive P.C Board	T2023C5040
Power Supply P.C Board	T2023B502A
Dolby LED P.C Board	T2023B502E
Tape LED P.C Board	T2023B502D
Remote Control P.C Board	T2023B502B
Slide P.C Board	T2023B502F
Reverse P.C Board	T2023D5070
Lamp P.C Board	T2022D5140
Filter P.C Board	CL-5026
LD P.C Board	T2023D5090
Switch P.C Board	T2034A502B
Rec Cancel P.C Board	T2034A502C
Lamp Meter P.C Board	T2023B502C
Detector P.C Board	T2022D5150
Detector P.C Board	CY-0023

2. COMPOSITION OF VARIOUS P.C BOARDS

1) PRE AMP P.C BOARD T2023A5010 (2ED) and TAPE LED P.C BOARD T2023B502D



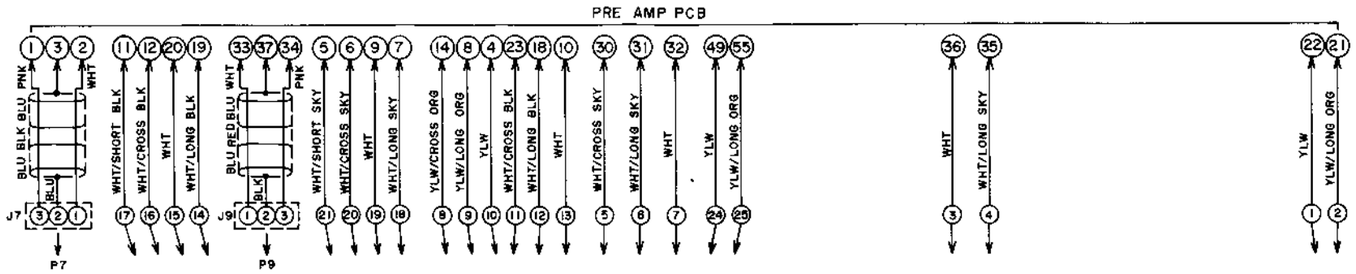
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

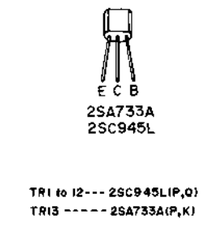
AVERTISSEMENT: ⚠IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

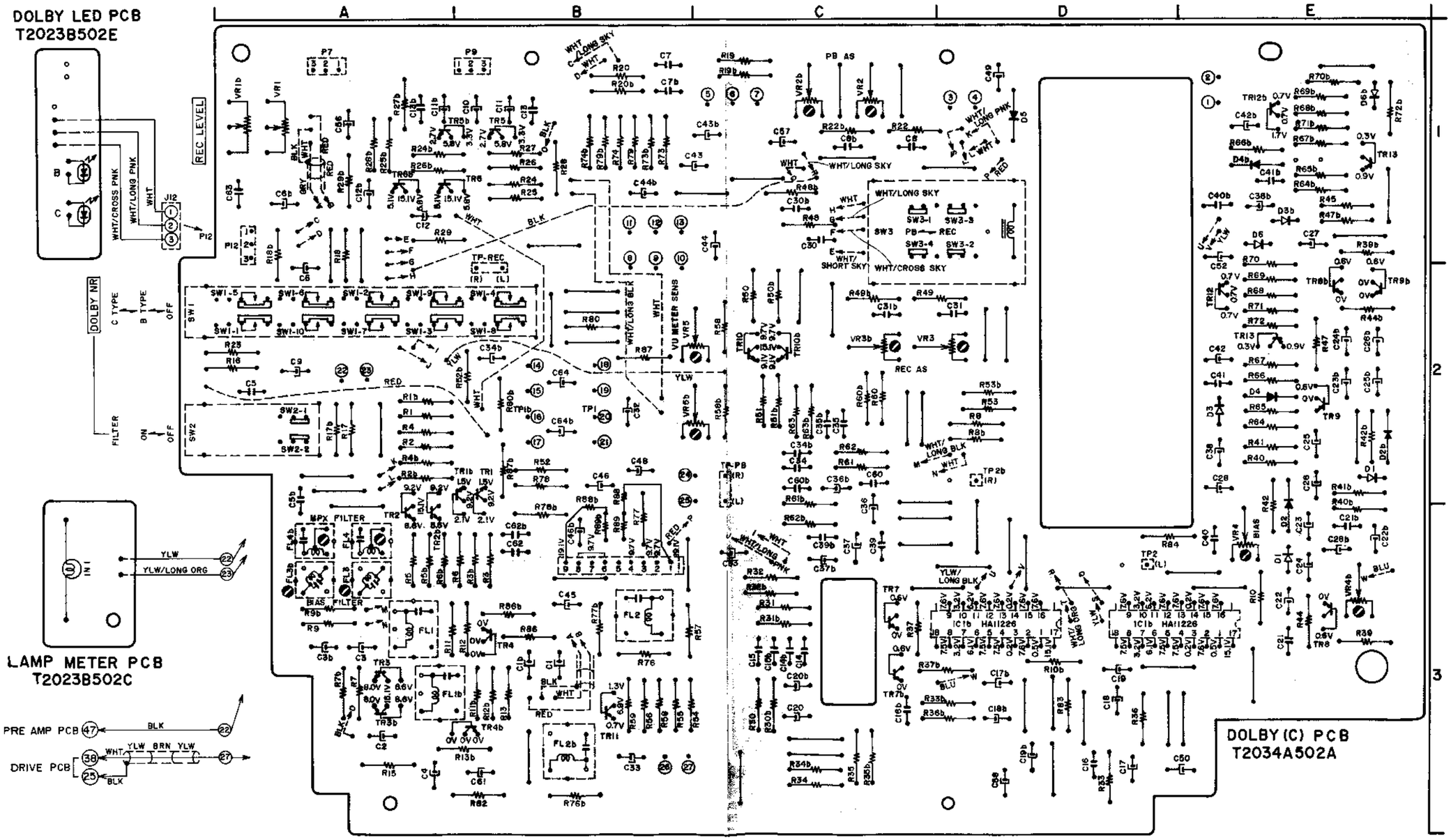
2) DOLBY (C) P.C BOARD T2034A502A, DOLBY LED P.C BOARD T2023B502E and LAMP METER P.C BOARD T2023B502C

LOCATION OF IC & TR

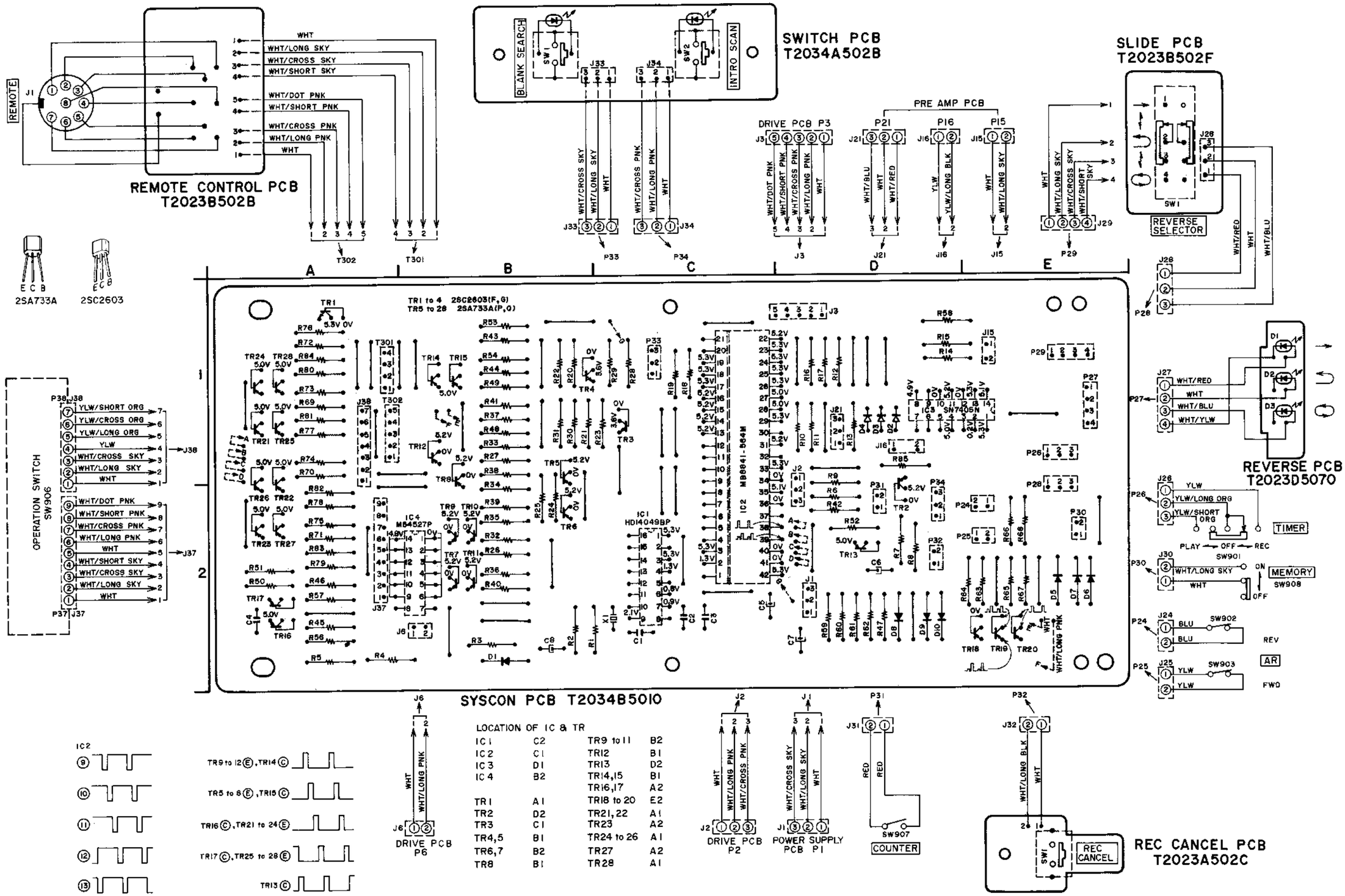
IC1,1b---D3	TR1,1b--------B2
IC2 ----B3	TR2,2b,3,3b----A3
	TR4,4b--------B3
	TR5----------B1
	TR5b,6,6b------A1
	TR7,7b--------C3
	TR8----------E3
	TR8b,9,9b-----E2
	TR10,10b-------C2
	TR11---------B3
	TR12,13--------E2
	TR12b,13b------E1







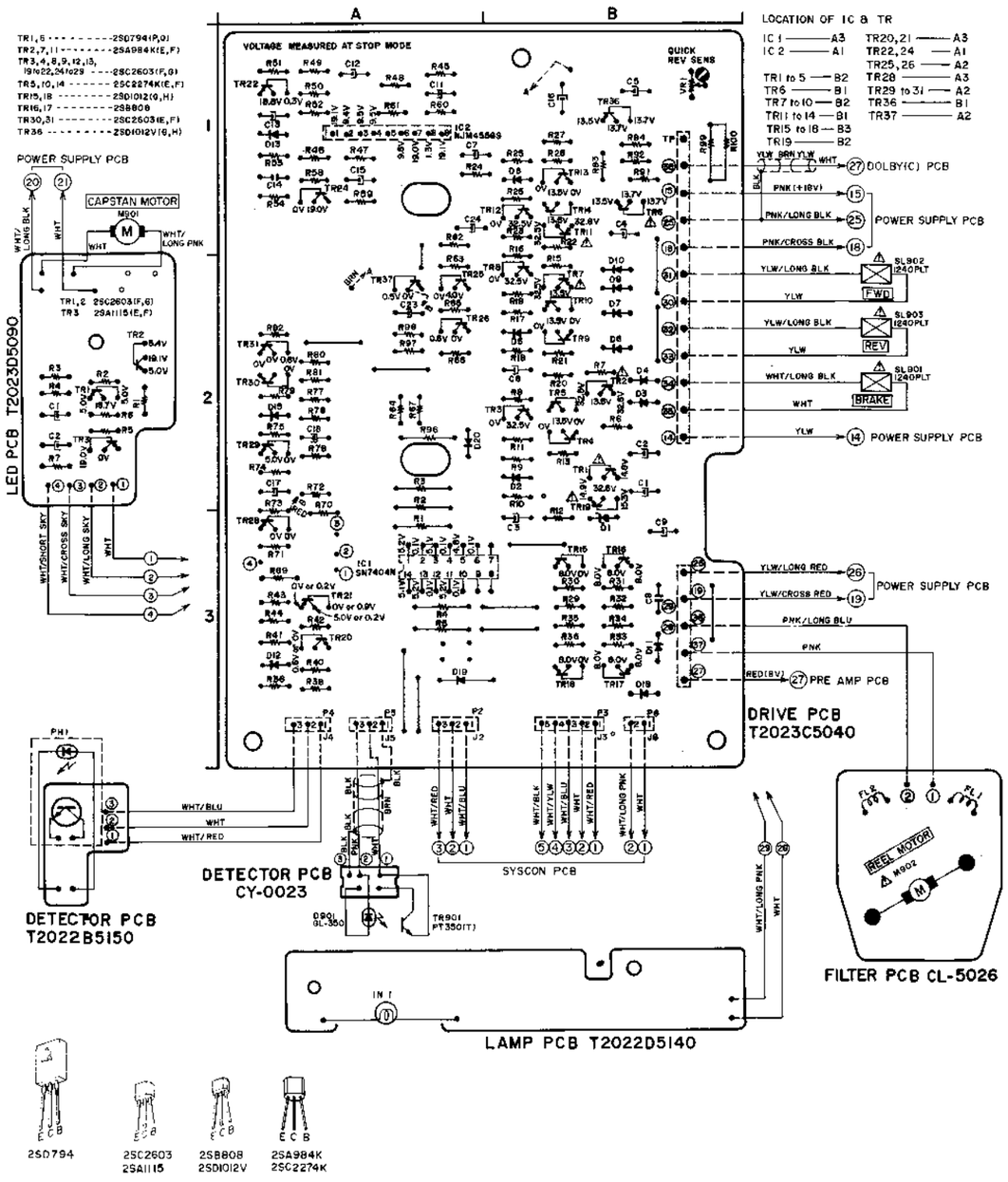
3) SYSCON P.C BOARD T2034B5010, SWITCH P.C BOARD T2034A502B, REVERSE P.C BOARD T2023D5070, SLIDE P.C BOARD T2023B502F, REMOTE CONTROL P.C BOARD T2023B502B and REC CANCEL P.C BOARD T2034A502C



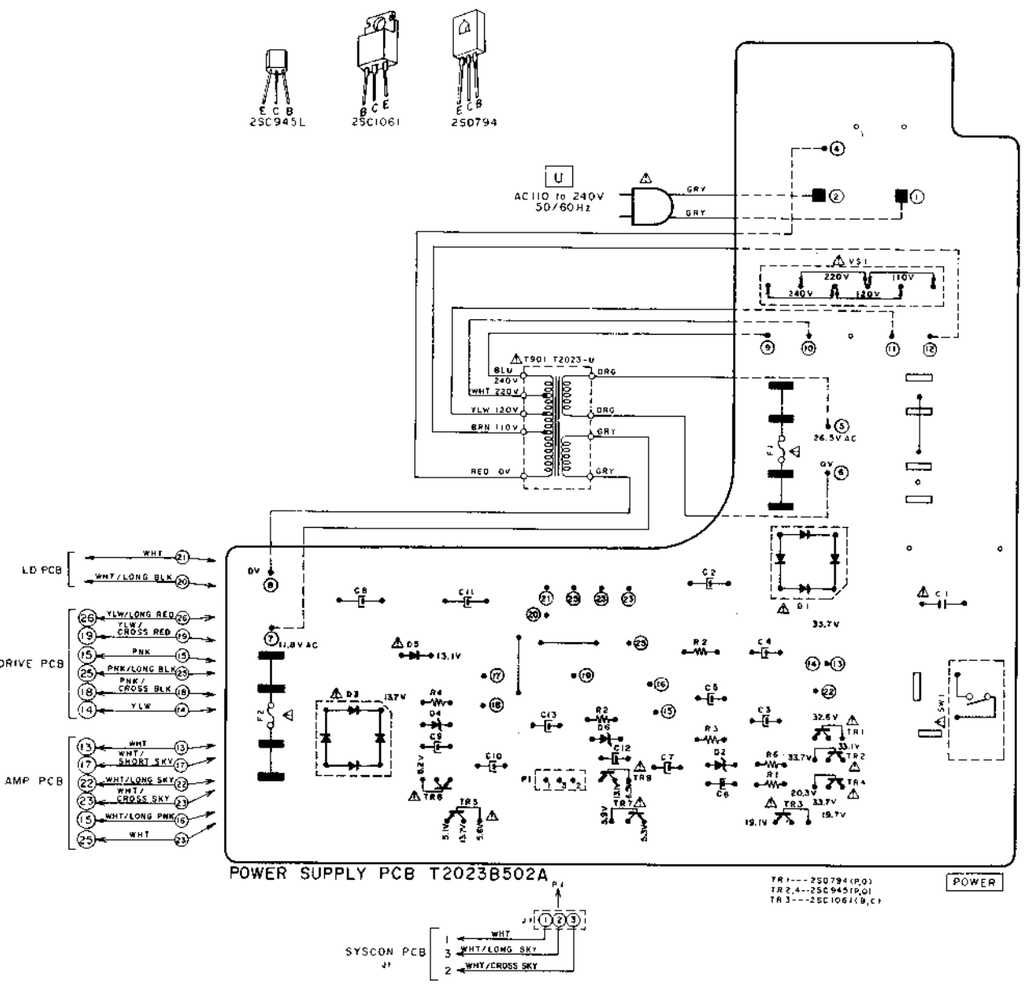
LOCATION OF IC & TR

IC1	C2	TR9 to 11	B2
IC2	C1	TR12	B1
IC3	D1	TR13	D2
IC4	B2	TR14,15	B1
		TR16,17	A2
TR1	A1	TR18 to 20	E2
TR2	D2	TR21,22	A1
TR3	C1	TR23	A2
TR4,5	B1	TR24 to 26	A1
TR6,7	B2	TR27	A2
TR8	B1	TR28	A1

4) DRIVE P.C BOARD T2023C5040 (4ED), LED P.C BOARD T2023D5090 (2ED), LAMP P.C BOARD T2022D5140, FILTER P.C BOARD CL-5026 (2ED), DETECTOR P.C BOARD T2022D5150 and DETECTOR P.C BOARD CY-0023



5) POWER SUPPLY P.C BOARD T2023B502A



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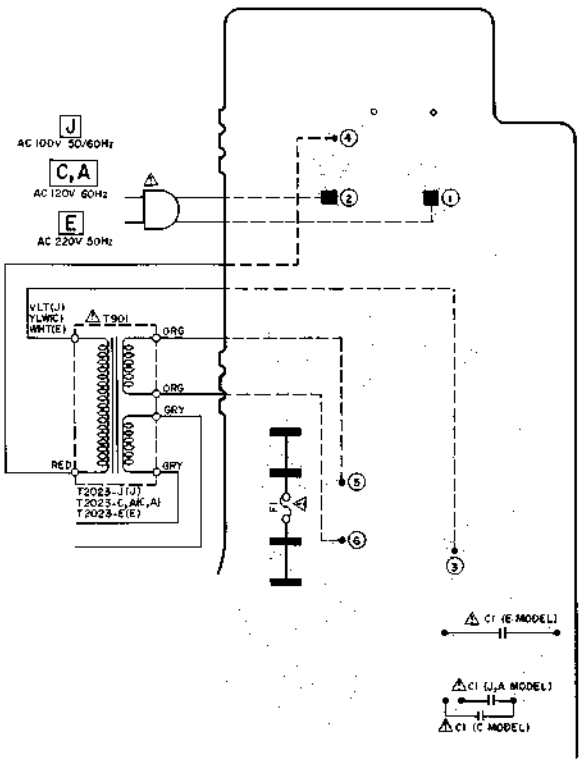

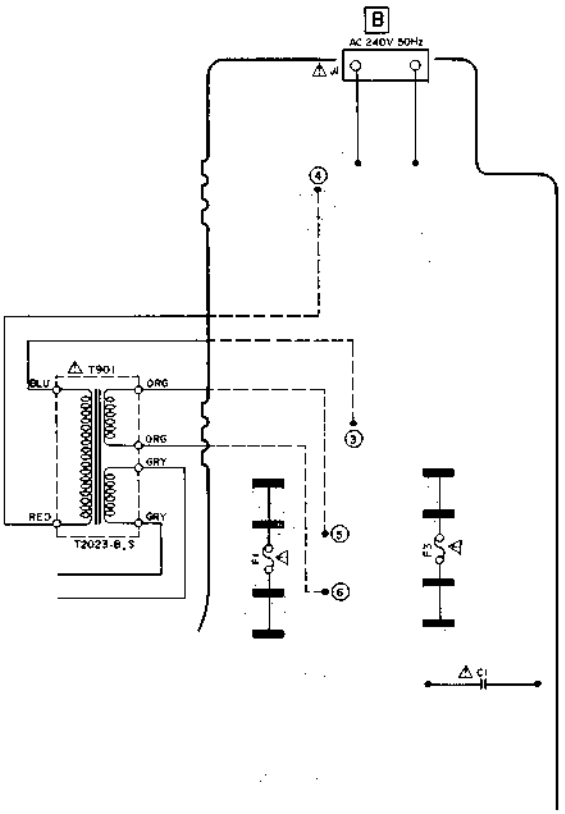

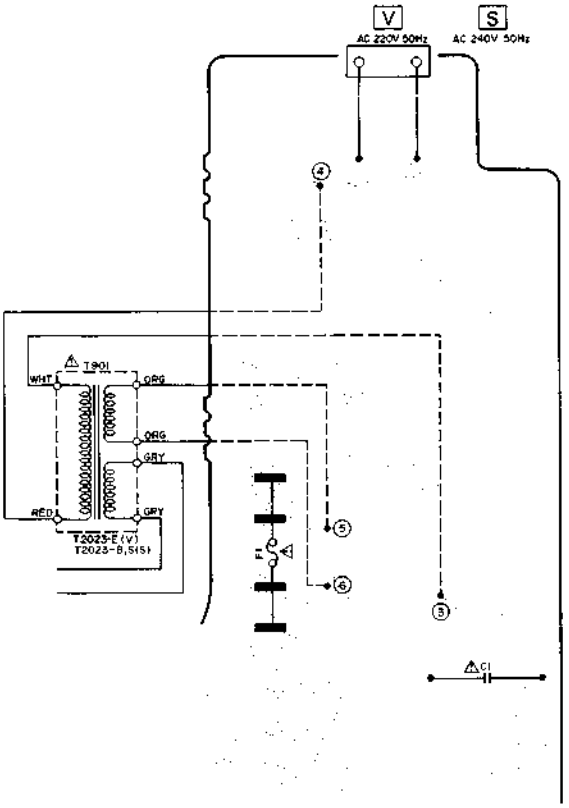

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SECTION 3

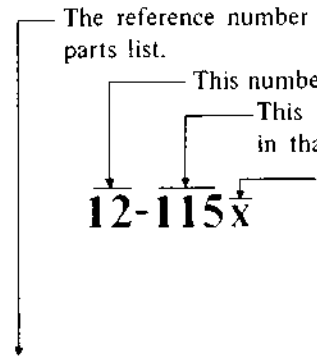
PARTS LIST

TABLE OF CONTENTS

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

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read List



The reference number corresponds with illustration or photo number of that particular parts list.

This number corresponds with the Figure Number.

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

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

Ref. No.	Parts No.	Description
		FLYWHEEL BLOCK #13
12-115x	800425	Flywheel Block Assy. Comp.
12-116	244506	Flywheel Only
12-117x	244754	Felt, Flywheel
12-118	251324	Main Metal Case
12-119	253080	Main Metal

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of Components of the Schematic Diagram or Service Manual.
5. Please utilize separate "Common List for Service Parts" for Resistor Parts orders.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

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

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

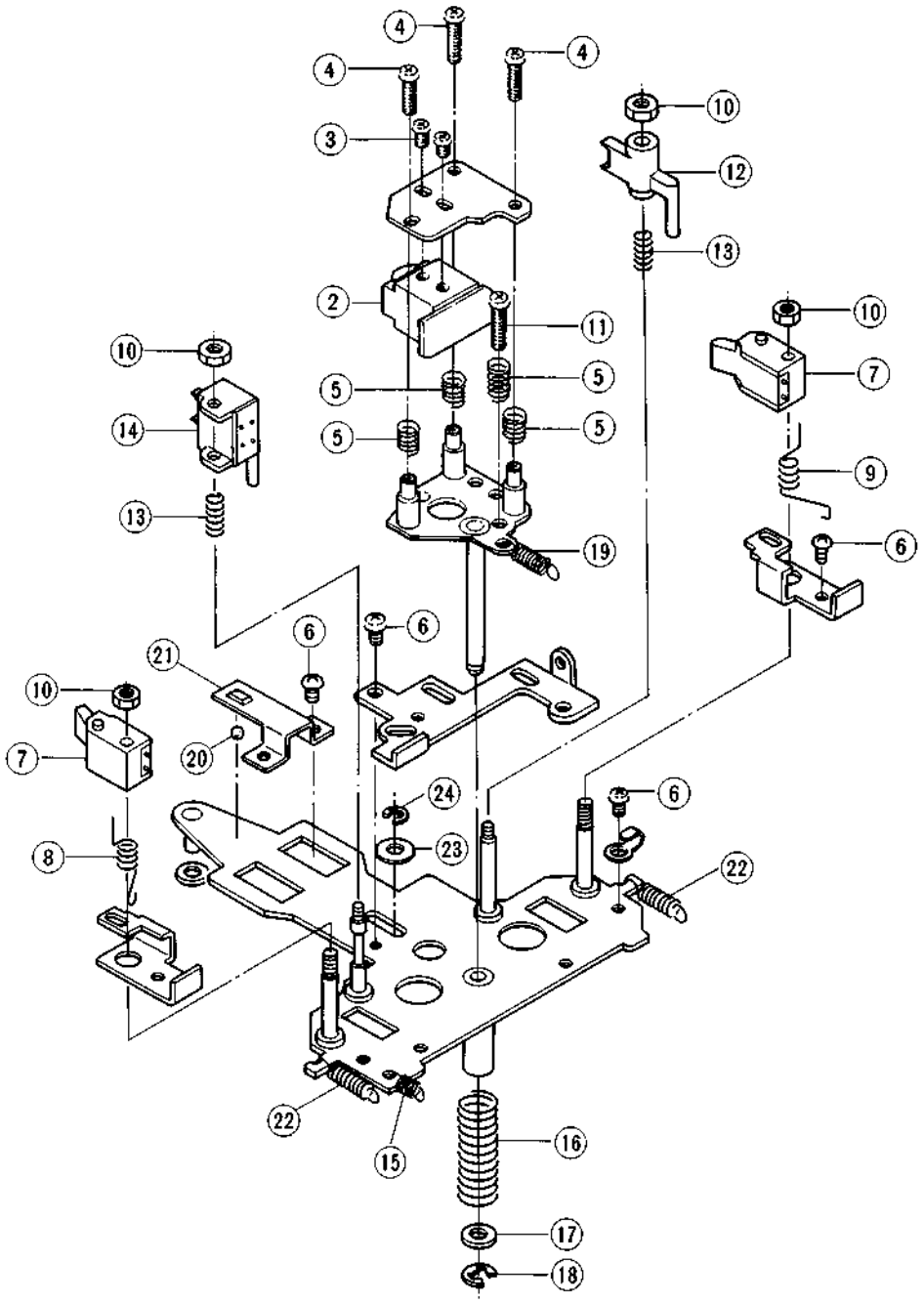
AVERTISSEMENT: ⚠ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

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

REF. NO.	PARTS NO.	DESCRIPTION
1-1	BH-T2023A320A	HEAD BASE BLK GX-F66R
1-2	BI-312117	REW IDLER ASSY
1-3	BI-312118	TAKE UP IDLER ASSY
1-4	BM-T2022A080A	⚠ MOTOR (PULLEY) BLK CS-F33R
1-5	BM-314843	⚠ MOTOR EG-510ED-2F
1-6	BM-328441	⚠ MOTOR RF-510T (12620)
1-7	BM-T2016A320A	⚠ REEL MOTOR BLK (W/PULLEY) GX-F35
1-8	BR-328424	TAKE-UP REEL TABLE ASSY
1-9	BT-331666	⚠ TRANS POWER T2023-B,S
1-10	BT-331665	⚠ TRANS POWER T2023-C,A
1-11	BT-331664	⚠ TRANS POWER T2023-E (E,V)
1-12	BT-331663	⚠ TRANS POWER T2023-J
1-13	BT-331662	⚠ TRANS POWER T2023-U
1-14	BZ-T2010A070A	DETECTION TAPE GUIDE BLK CS-M40R
1-15	EC-315346	C S-FIX H ECV-1ZW50×32E 5.0-55
1-16	ED-562397	D GERMA H 1S188FM1
1-17	ED-308952	D GERMA V 1K34A-LR F07
1-18	ED-331227	D GERMA V 1K34A-UF SNP
1-19	ED-322773	D LED SLP-255D-01 GRN
1-20	ED-316143	D SILICON H 1S2473HS F10
1-21	ED-560913	D SILICON V 1S2473VE
1-22	ED-306109	D SILICON W03B 100/1.0A
1-23	ED-319463	D SILICON 4B4B41 100/4.0A
1-24	ED-328486	D ZENER H HZ15 3
1-25	ED-324013	D ZENER H HZ20 2
1-26	ED-331626	D ZENER H HZ3 B2
1-27	ED-305704	D ZENER H HZ4 B2
1-28	ED-331667	D ZENER H HZ7 A1
1-29	ED-306014	D ZENER H HZ9 C3
1-30	ED-331263	IND LE LT-1016 GRAPH
1-31	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (F3) (B,S)
1-32	EF-601301	⚠ FUSE SEMKO T 250V 2A (F1,2) (E,B,S,V)
1-33	EF-306950	⚠ FUSE TSC A 250V 2A(F1,2)(U,J)
1-34	EF-306954	⚠ FUSE TSC 125V 2A (F1,2) (C,A)
1-35	EI-336737	IC HA11226
1-36	EI-311959	IC HA12028
1-37	EI-324536	IC HD14049BP
1-38	EI-336761	IC LA6458S
1-39	EI-336801	IC MB8841-564M
1-40	EI-336725	IC M54527P
1-41	EI-201940	IC NJM4558S
1-42	EI-302681	IC SN7404N
1-42	EI-331661	IC SN7405N
1-43	EI-318384	OSC X'TAL NC-18C 3.579545MHZ
1-44	EJ-310567	⚠ SOCKET INLET 0378PC-GS E 2P (B,S,V)
1-45	EL-309960	PL CORD 24.0V 50MA 450/450
1-46	EL-304025	PL H LEAD 10V 110MA
1-47	EL-317599	PL H LEAD 6.3V 100MA
1-48	EL-300186	PL LEAD 8V 60MA
1-49	EP-318644	⚠ SOLENOID 1240PLT 27V
1-50	EP-318645	⚠ SOLENOID 1240PLT 27V
1-51	EP-328529	RELAY LEAD LAB2NS 2NO 12V
1-52	ER-328490	FILTER DB D07-001K 19KHZ
1-53	ER-328491	FILTER DB D07-003K 100KHZ
1-54	ES-312234	⚠ SW PUSH SDL-1P 01-1 E (U,E,B,S,V)
1-55	ES-312235	⚠ SW PUSH SDL-1P 01-1 J (J)
1-56	ES-312238	⚠ SW PUSH SDL-1P 01-1 UC (C,A)
1-57	ES-330521	SW LEAF BSW-47AB 01-1 NC
1-58	ES-330522	SW LEAF BSW-47AC 01-1 NC
1-59	ES-332448	SW LEVER 01030123 2-10-03N
1-60	ES-336779	SW LEVER 2-02-02S
1-61	ES-313496	SW PUSH SPJ222A 2-02-02S
1-62	ES-331260	SW SLIDE SSB423 2-02-03N
1-63	ES-283072	SW SLIDE SSC22LP 2-02-02N
1-64	ES-330463	SW SLIDE 00230593 2-02-03S
1-65	ES-311975	SW SOLENOID R8150050 27V 10-2W
1-66	ES-328415	SW SOLENOID SWE018401 18V 04-2S
1-67	ES-328530	SW SOLENOID SWE018404 18V 04-2N
1-68	ES-323367	SW TACK KEC10001
1-69	ES-324677	SW TACT KEC11904
1-70	ET-311977	PHOTO SENSOR SPI-201
1-71	ET-200558	TR 2SA1115 E,F
1-72	ET-539133	TR 2SA733A P
1-73	ET-554657	TR 2SA733A P,Q
1-74	ET-324134	TR 2SA984K E,F
1-75	ET-328438	TR 2SB808-V F,G
1-76	ET-375603	TR 2SC1061 B,C
1-77	ET-603257	TR 2SC1312S G,H
1-78	ET-308954	TR 2SC1844 E,F
1-79	ET-310920	TR 2SC1846 R,S
1-80	ET-309353	TR 2SC2274 E,F
1-81	ET-200506	TR 2SC2603 F
1-82	ET-200985	TR 2SC2603 F,G
1-83	ET-639437	TR 2SC945L Q,P
1-84	ET-328868	TR 2SD1012-V G,H
1-85	ET-666404	TR 2SD571 K,L
1-86	ET-332245	TR 2SD794 P
1-87	ET-307349	TR 2SD794 P,Q
1-88	EV-316442	R S-FIX H D8 3P 102
1-89	EV-315542	R S-FIX H D8 3P 103
1-90	EV-322411	R S-FIX H D8 3P 202
1-91	EV-315753	R S-FIX H D8 3P 203
1-92	EV-315540	R S-FIX H D8 3P 502
1-93	EV-315541	R S-FIX H D8 3P 503
1-94	EV-522652	R S-FIX V V8K1-1 3P 105
1-95	EV-202110	VR ROTARY 16P11×0S A503 A503
1-96	EV-313538	VR ROTARY 16P20×1B B103
1-97	HE-325859	HEAD E HF213131 C
1-98	HP-H2206A010A	HEAD R/P PR4-8FU C
1-99	MB-314317	BELT CAPSTAN
1-100	MB-336588	BELT COUNTER (B)
1-101	MC-336322	COUNTER SMP393-13
1-102	MI-B601782	FLYWHEEL (A) PART
1-103	MI-B601783	FLYWHEEL (B) PART
1-104	MV-328322	MAIN CASE
1-105	MZ-283140	⚠ SOCKET SELECTER X-17238 6P (U)
1-106	TC-T2010D090A	PINCH ROLLER (L) BLK CS-M40R
1-107	TC-T2010D100A	PINCH ROLLER (R) BLK CS-M40R

HEAD BASE BLOCK

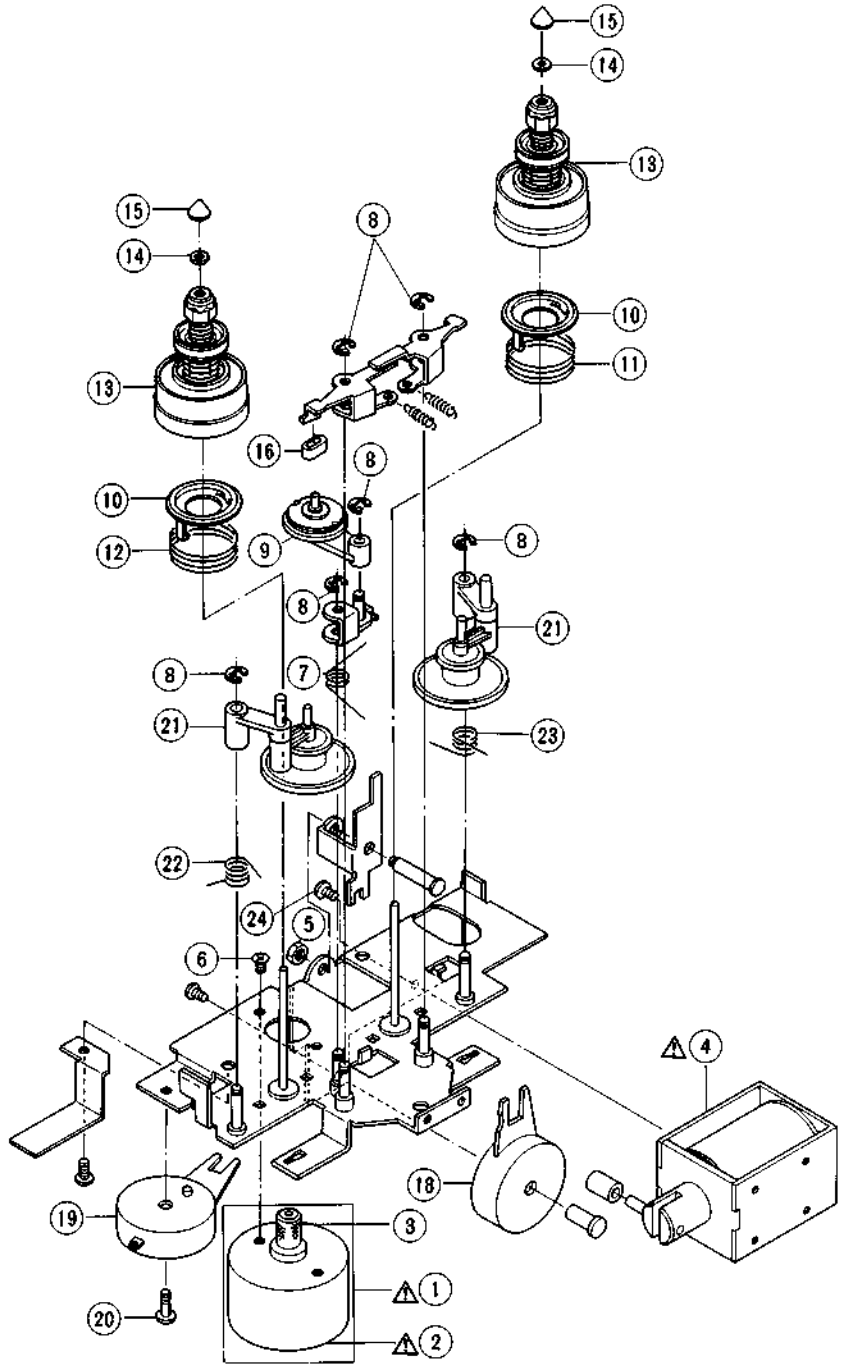


2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLK 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
2-6	ZS-592378	PAN26×03STL CMT
2-7	HE-325859	HEAD E HF213131 C
2-8	ZG-313316	ERASE HEAD SPRING (A)
2-9	ZG-313874	ERASE HEAD SPRING (B)
2-10	ZW-273734	N20BRS NI3 1
2-11	ZS-465298	PAN23×10STL CMT
2-12	HZ-313313	TAPE GUIDE
2-13	ZG-313314	ADJUST SPRING
2-14	BZ-T2010A070A	DETECTION TAPE GUIDE BLK CS-M40R
2-15	ZG-312921	SP T1-3.2/0.2-9.0 T1-038
2-16	ZG-313960	SP PUSH
2-17	ZW-556828	PW32×100×050STL CMT
2-18	ZW-270088	RING E 190SUP CMT
2-19	ZG-402895	CS ANGLE ADJUST SPRING
2-20	MV-357208	BALL200STL
2-21	MH-314340	HEAD HOLDER
2-22	ZG-312946	SP T1-3.2/0.29-16.0 T1-062
2-23	ZW-328682	PW31×070×050PBR
2-24	ZW-270088	RING E 190SUP CMT

When ordering parts, please quote Parts Number, Description and Model Number.

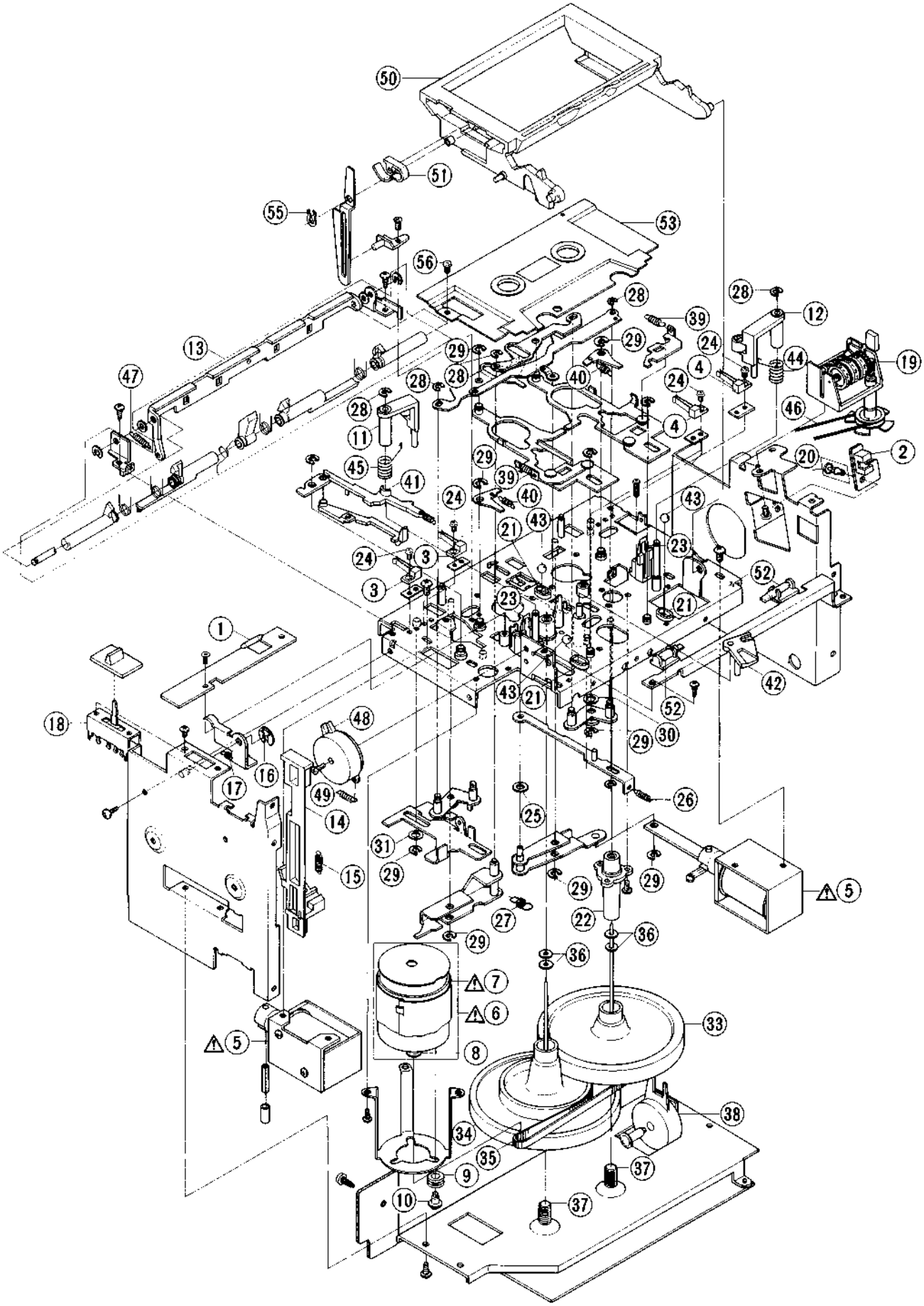
REEL TABLE BLOCK



3. REEL TABLE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1	BM-T2016A320A	⚠ REEL MOTOR BLK (W/PULLEY) GX-F35
3-2	BM-328441	⚠ MOTOR RF-510T (12620)
3-3	MR-328360	REEL MOTOR PULLEY
3-4	EP-318645	⚠ SOLENOID 1240PLT 27V
3-5	ZW-516993	N30STL CMT 1
3-6	ZS-430413	CTS26x04STL CMT
3-7	ZG-314747	SP TORSION IDLER
3-8	ZW-270088	RING E 190SUP CMT
3-9	BI-312117	REW IDLER ASSY
3-10	TC-328365	BT DRUM
3-11	ZG-328366	BT SPRING
3-12	ZG-330049	SP PUSH BACK TENSION
3-13	BR-328424	TAKE-UP REEL TABLE ASSY
3-14	ZW-330073	PW21x040x020
3-15	MT-305793	REEL CAP
3-16	MB-282104	BRAKE RUBBER
3-17	ZG-321534	SP T2-3.2/0.29-12.5 T2-060
3-18	BZ-T2022A260A	DAMPER (C) ASSY CS-F33R
3-19	BZ-T2016A330A	DAMPER (B) ASSY GX-F35
3-20	ZS-479474	PAN26x05STL CMT
3-21	BI-312118	TAKE UP IDLER ASSY
3-22	ZG-314876	SP TORSION IDLER CLAMP (A)
3-23	ZG-314749	SP TORTION IDLER CLAMP (B)
3-24	ZS-417137	BID30x04STL CMT

MECHA FRAME BLOCK



4. MECHA FRAME BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
	LAMP P.C BOARD BLOCK	
4-1	EL-317599	PL H LEAD 6.3V 100MA (IN1)
	DETECTION P.C BOARD BLOCK	
4-2	ET-311977	PHOTO SENSOR SPI-201 (PH1)
	SW LEAF (B), (C) BLOCK	
4-3	ES-330521	SW LEAF BSW-47AB 01-1 NC (SW902, 905)
	SW LEAF (A), (D) BLOCK	
4-4	ES-330522	SW LEAF BSW-47AC 01-1 NC (SW903, 905)
	PLUNGER ASSY	
4-5	EP-318644	⚠ SOLENOID 1240PLT 27V (SL902, 903)
	MOTOR BLOCK	
4-6	BM-T2022A080A	⚠ MOTOR (PULLEY) BLK CS-F33R
4-7	BM-314843	⚠ MOTOR EG-510ED-2F
4-8	MR-328479	MOTOR PULLEY
4-9	MB-282778	RUBBER BUSH
4-10	ZS-321338	MOTOR SCREW
	PINCH ROLLER (L) BLOCK	
4-11	TC-T2010D090A	PINCH ROLLER (L) BLK CS-M40R
	PINCH ROLLER (R) BLOCK	
4-12	TC-T2010D100A	PINCH ROLLER (R) BLK CS-M40R
	LEVER EJECT BLOCK	
4-13	BZ-T2023A310A	LEVER EJECT BLK GX-F66R
	CHASSIS (L) BLOCK	
4-14	ML-314151	LEVER JOINT
4-15	ZG-318204	SP T2-3.2/0.29-16 T2-062
4-16	ZW-270101	RING E300SUP CMT
4-17	ZG-312944	SP T1-3.2/0.29-12.5 T1-060
	SW SLIDE BLOCK	
4-18	ES-330463	SW SLIDE 00230593 2-02-03S (SW901)
	COUNTER BLOCK	
4-19	MC-336322	COUNTER SMP393-13
	MECHA FRAME BLOCK	
4-20	ZW-312121	RV NYL26x042 BL
4-21	MS-302191	BALL GUIDE
4-22	MV-328322	MAIN CASE
4-23	TC-314156	HOLDER CASSETTE
4-24	ZS-460438	BID20x03STL CMT
4-25	ZW-438928	PW31x048x020PBR
4-26	ZG-312942	SP T1-3.2/0.29-10.0 T1-058
4-27	ZG-336651	SP PULL PLAYLEVER (A)
4-28	ZW-270088	RING E 190SUP CMT
4-29	ZW-270101	RING E300SUP CMT
4-30	ZW-259773	PW41x070x050NYL
4-31	ZW-649991	PW41x070x030PBR
4-32x	HZ-314069	SP PLATE HEAD BASE
4-33	MI-B601782	FLYWHEEL (A) PART
4-34	MI-B601763	FLYWHEEL (B) PART
4-35	MB-314317	BELT CAPSTAN
4-36	ZW-694798	PW31x070x020TFL
4-37	ZS-302318	HOLD SCREW
4-38	BZ-T2016A330A	DAMPER (B) ASSY GX-F35
4-39	ZG-318083	SP PULL CLAMP
4-40	ZG-310531	SP T1-4.0/0.4-12.5 T1-109
4-41	ML-314337	LEVER EJECT CHECK
4-42	MR-314339	CAM HEAD CHANGE
4-43	MV-269965	BALL 400STL
4-44	ZG-310694	PINCH ROLLER RETURN SPRING (A)
4-45	ZG-310695	PINCH ROLLER RETURN SPRING (B)
4-46	MB-336588	BELT COUNTER (B)
4-47	ZG-336064	SP PULL EJECT
4-48	BZ-T2021A200A	DAMPER (A) BLK CS-F330
4-49	ZG-324329	SP T2-3.2/0.29-11.2 T2-059
4-50	TC-328351	CASSETTE HOLDER (BL)
4-51	ZG-321487	MOLD SPRING
4-52	EL-309960	PL CORD 24.0V 50MA 450/450
4-53	SZ-B314713A	LID DECORATION PART
4-54x	SZ-B314713B	LID DECORATION (BL) PART
4-55	ZW-332843	RING GRIP 380STL ACP
4-56	ZS-432843	PAN26x04STL CMT

5. PRE AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
5-1	BA-T2034A080A	PC PRE AMP BLK GX-F44R (U) (U,J,C,A)
5-2	BA-T2034A080B	PC PRE AMP BLK GX-F44R (E) (E,B,S,V)
5-3	BA-T2034A080C	PC PRE AMP BLK GX-F44R-P(U) (U,J,C,A)
5-4	BA-T2034A080D	PC PRE AMP BLK GX-F44R-P(E) (E,B,S,V)
5-IC2	EI-311959	IC HA12028
5-TR1	ET-308954	TR 2SC1844 E,F
5-TR2	ET-603257	⚠ TR 2SC1312S G,H
5-TR3	ET-639437	TR 2SC945L Q,P
5-TR4,5	ET-328868	TR 2SD1012-V G,H
5-TR6	ET-308954	TR 2SC1844 E,F (E,B,S,V)
5-TR7	ET-639437	TR 2SC945L Q,P
5-TR8,9	ET-554657	TR 2SA733A P,Q
5-TR10	ET-639437	TR 2SC945L Q,P
5-TR12,13	ET-639437	TR 2SC945L Q,P
5-TR14	ET-309353	⚠ TR 2SC2274 E,F
5-TR15,16	ET-639437	TR 2SC945L Q,P
5-TR17,18	ET-309353	⚠ TR 2SC2274 E,F
5-TR19to27	ET-639437	TR 2SC945L Q,P
5-TR28	ET-200506	TR 2SC2603 F
5-TR29	ET-332245	TR 2SD794 P
5-TR30	ET-639437	TR 2SC945L Q,P
5-TR31	ET-328868	TR 2SD1012-V G,H
5-TR32,33	ET-639437	TR 2SC945L Q,P
5-TR34	ET-539133	TR 2SA733A P
5-TR35	ET-310920	⚠ TR 2SC1846 R,S
5-TR36to39	ET-639437	TR 2SC945L Q,P
5-TR40	ET-666404	⚠ TR 2SD571 K,L
5-TR41	ET-328868	TR 2SD1012-V G,H
5-TR42	ET-639437	TR 2SC945L Q,P
5-D2	ED-316143	D SILICON H 1S2473HS F10
5-D3to7	ED-560913	D SILICON V 1S2473VE
5-D8	ED-305704	D ZENER H HZ4 B2
5-D9	ED-316143	D SILICON H 1S2473HS F10
5-D10to14	ED-560913	D SILICON V 1S2473VE
5-D15	ED-306109	D SILICON W03B 100/1.0A
5-D16	ED-560913	D SILICON V 1S2473VE
5-D17	ED-306014	D ZENER H HZ9 C3
5-D18,19	ED-562397	D GERMA H 1S188FM1
5-D20	ED-560913	D SILICON V 1S2473VE
5-D21	ED-331626	D ZENER H HZ3 B2
5-D22	ED-560913	D SILICON V 1S2473VE
5-VC1,2	EC-315346	C S-FIX H ECV-1ZW50×32E 5.0-55
5-J1	EJ-308986	PIN J 1784P1782 P 4P (U,J,C,A)
5-J1	EJ-308985	JACK PLATE DIN, PIN JACK 4P (E,B,S,V)
5-J2	EJ-331613	PHONE J HLJ0346-210 3P, 2×2P
5-J2	EJ-321328	PHONE J HLJ0345-010 2×3P (P)
5-J3	EJ-331614	PHONE J 3P HLJ0316-23 6.3
5-J3	EJ-330545	PHONE J 3P HLJ0315-020 6.3 (P)
5-SW1	ES-328415	SW SOLENOID SWE018401 18V 04-2S
5-SW2	ES-311975	SW SOLENOID R8150050 27V 10-2W
5-SW3	ES-283072	SW SLIDE SSC22LP 2-02-02N (E,B,S,V)
5-VR1	EV-315542	R S-FIX H D8 3P 103
5-VR2,3	EV-315541	R S-FIX H D8 3P 503
5-VR4	EV-315753	R S-FIX H D8 3P 203
5-VR5	EV-316442	R S-FIX H D8 3P 102
5-VR6	EV-315540	R S-FIX H D8 3P 502
5-VR7	EV-313538	VR ROTARY 16P20×1B B103
5-RL1	EP-328529	RELAY LEAD LAB2NS 2NO 12V
5-VL1	EO-321336	COIL VARI 1 FE002 10MH
5-L1	EO-669273	COIL FIX 2 FL5R200 18μH
5-T1	EO-331625	COIL OSC1 0365-034 100KHZ
5-FL3,4	EO-315758	COIL TUN 1 100S-431 100KHZ
5-R34	ER-488024	⚠ R OMF H FS 1W 330K
5-R35	ER-330977	⚠ R OMF H FS 2W 680J
5-C1	EC-314990	C STY V SNP CQFS 101J 50DC
5-C3	EC-314995	C STY V SNP CQFS 331J 50DC
5-C6	EC-314995	C STY V SNP CQFS 331J 50DC
5-C35	EC-331631	C STY V SNP CQFS 821J 50DC
5-C48	EC-313265	C STY V 152J 500DC
5-C60	EC-321340	C PP V APS 8201G 100DC
5-C63	EC-314990	C STY V SNP CQFS 101J 50DC
5-5	ZW263946	RV NYL40×050

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ
6-J1	EJ-324276	DIN J TCS4680-01-111 P 8P
6-C1	EC-363688	C MC V FM 101K 500DC
6-C2	EC-285513	C MC V FM 220K 500DC

7. POWER SUPPLY P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
7-1	BA-T2023A070A	PC POWER BLK GX-F66R (U)
7-2	BA-T2023A070B	PC POWER BLK GX-F66R (J)
7-3	BA-T2023A070C	PC POWER BLK GX-F66R (C)
7-4	BA-T2023A070D	PC POWER BLK GX-F66R (A)
7-5	BA-T2023A070E	PC POWER BLK GX-F66R (E)
7-6	BA-T2023A070F	PC POWER BLK GX-F66R (B) (B,S)
7-7	BA-T2023A070G	PC POWER BLK GX-F66R (V)
7-TR1	ET-307349	⚠ TR 2SD794 P,Q
7-TR2	ET-639437	⚠ TR 2SC945L Q,P
7-TR3	ET-375603	⚠ TR 2SC1061 B,C
7-TR4	ET-639437	⚠ TR 2SC945L Q,P
7-TR5	ET-375603	⚠ TR 2SC1061 B,C
7-TR6	ET-639437	⚠ TR 2SC945L Q,P
7-TR7	ET-707349	⚠ TR 2SD794 P,Q
7-TR8	ET-639437	⚠ TR 2SC945L Q,P
7-D1	ED-319463	⚠ D SILICON 4B4B41 100/4.0A
7-D2	ED-324013	D ZENER H HZ20 2
7-D3	ED-319463	⚠ D SILICON 4B4B41 100/4.0A
7-D4	ED-319167	D ZENER H HZ6 C3
7-D5	ED-306109	⚠ D SILICON W03B 100/1.0A
7-D6	ED-331667	D ZENER H HZ7 A1
7-J1	EJ-310567	⚠ SOCKET INLET 0378PC-GS E 2P (B,S,V)
7-SW1	ES-312234	⚠ SW PUSH SDL-1P 01-1 E (U,E,B,S,V)
7-SW1	ES-312235	⚠ SW PUSH SDL-1P 01-1 J (J)
7-SW1	ES-312238	⚠ SW PUSH SDL-1P 01-1 UC (C,A)
7-VS1	MZ-283140	⚠ SOCKET SELECTER X-17238 6P (U)
7-C1	EC-320548	⚠ C CE V F 103Z 250AC (U,J,A)
7-C1	EC-314688	⚠ C CE V FZ 103P 125AC (C)
7-C1	EC-330307	⚠ C MMY V ECQUF 472M 250AC (E,B,S,V)

8. DRIVE P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
8-1	BA-T2034A150A	PC DRIVE BLK GX-F44R
8-IC1	EI-302681	IC SN7404N
8-IC2	EI-201940	IC NJM4558S
8-TR1	ET-307349	⚠ TR 2SD794 P,Q
8-TR2	ET-324134	⚠ TR 2SA984K E,F
8-TR3,4	ET-200985	TR 2SC2603 F,G
8-TR5	ET-309353	TR 2SC2274 E,F
8-TR6	ET-307349	⚠ TR 2SD794 P,Q
8-TR7	ET-324134	TR 2SA984K E,F
8-TR8,9	ET-200985	TR 2SC2603 F,G
8-TR10	ET-309353	TR 2SC2274 E,F
8-TR11	ET-324134	⚠ TR 2SA984K E,F
8-TR12,13	ET-200985	TR 2SC2603 F,G
8-TR14	ET-309353	TR 2SC2274 E,F
8-TR15	ET-328868	TR 2SD1012-V G,H
8-TR16,17	ET-328438	TR 2SB808-V F,G
8-TR18	ET-328868	TR 2SD1012-V G,H
8-TR19to22	ET-200985	⚠ TR 2SC2603 F,G
8-TR24to26	ET-200985	TR 2SC2603 F,G
8-TR28	ET-200506	TR 2SC2603 F
8-TR29to31	ET-200985	TR 2SC2603 F,G
8-TR36	ET-328868	TR 2SD1012-V G,H
8-TR37	ET-200985	TR 2SC2603 F,G
8-D1	ED-328486	D ZENER H HZ15 3
8-D2	ED-560913	D SILICON V 1S2473VE
8-D3,4	ED-306109	D SILICON W03B 100/1.0A
8-D5	ED-560913	D SILICON V 1S2473VE
8-D6,7	ED-306109	D SILICON W03B 100/1.0A
8-D8	ED-560913	D SILICON V 1S2473VE
8-D9to11	ED-306109	D SILICON W03B 100/1.0A
8-D12,13	ED-560913	D SILICON V 1S2473VE
8-D15	ED-560913	D SILICON V 1S2473VE
8-D18	ED-306109	D SILICON W03B 100/1.0A
8-D19	ED-316143	D SILICON H 1S2473HS F10
8-D20	ED-560913	D SILICON V 1S2473VE
8-VR1	EV-522652	R S-FIX V V8K1-1 3P 105
8-C14	EC-314992	C STY V F05 CQF09 681J 50DC

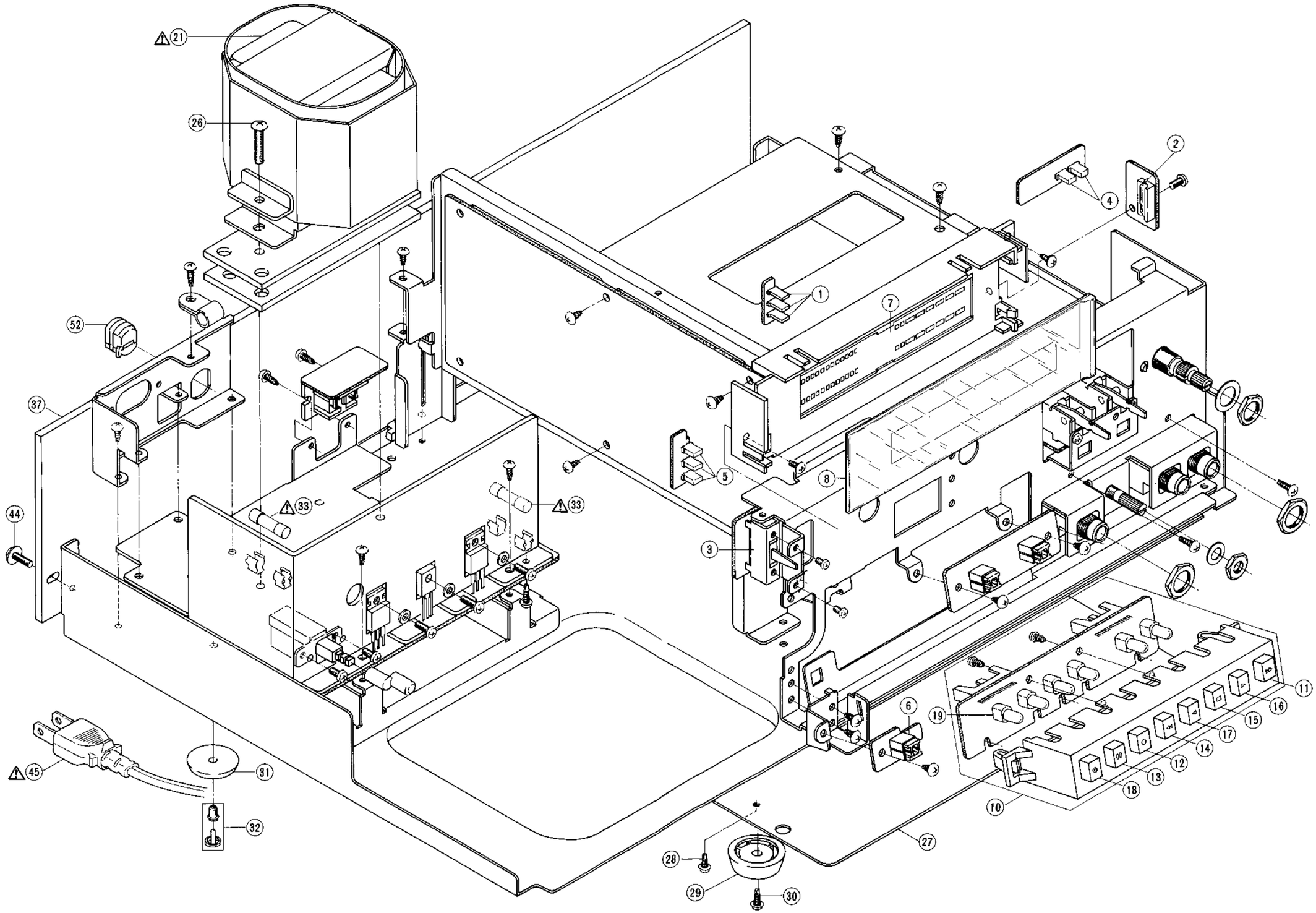
9. DOLBY (C) P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
9-1	BA-T2034A120A	PC DOLBY (C) BLK GX-F44R
	DOLBY (C) P.C BOARD BLOCK	
9-IC1	EI-336737	IC HA11226
9-IC2	EI-336761	IC LA6458S
9-TR1to12	ET-639437	TR 2SC945L Q,P
9-TR13	ET-336735	TR 2SA733 (A) P,K
9-D1	ED-331227	D GERMA V 1K34A-UF SNP
9-D2	ED-318292	D SILICON H 1S2473T-77 T26
9-D3	ED-331227	D GERMA V 1K34A-UF SNP
9-D4,5	ED-318292	D SILICON H 1S2473T-77 T26
9-D6	ED-331227	D GERMA V 1K34A-UF SNP
9-SW1	ES-332448	SW LEVER 01030123 2-10-03N
9-SW2	ES-336779	SW LEVER 2-02-02S
9-SW3	ES-328530	SW SOLENOID SWF018404 18V 04-2N
9-VR1	EV-202110	VR ROTARY 16P11x0S A503 A503
9-VR2	EV-315540	R S-FIX H D8 3P 502
9-VR3	EV-322411	R S-FIX H D8 3P 202
9-VR4,5	EV-315542	R S-FIX H D8 3P 103
9-FL1,2	EO-336738	COIL TUN 1 102AK-004 19.8KHZ
9-FL3	ER-328491	FILTER DB D07-003K 100KHZ
9-FL4	ER-328490	FILTER DB D07-001K 19KHZ
9-C7	EC-306980	C STY V F05 500 221J 50DC
9-C13	EC-314990	C STY V SNP CQFS 101J 50DC
	SWITCH P.C BOARD	
9-SW1,2	ES-324677	SW TACT KEC11904
	REC CANCEL P.C BOARD	
9-SW1	ES-323367	SW TACT KEC10001

10. LD P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
10-1	BA-T2023A450A	PC LD BLK GX-F66R
10-TR1,2	ET-200985	TR 2SC2603 F,G
10-TR3	ET-200558	TR 2SA1115 E,F

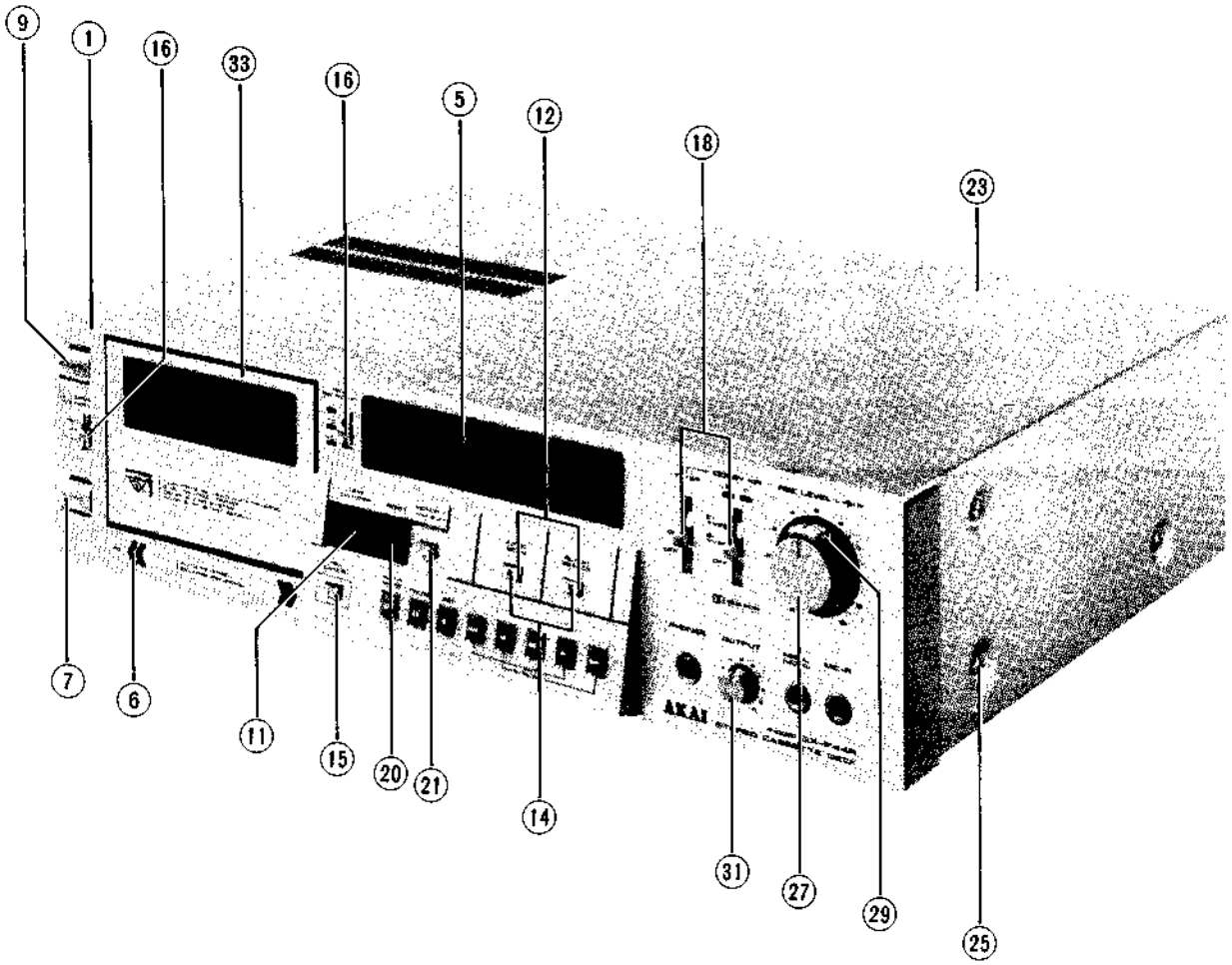
ASSEMBLY BLOCK



11. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
		TAPE LED P.C BOARD BLOCK
11-1	ED-322773	D LED SLP-255D-01 GRN (D1,2,3)
		LAMP METER P.C BOARD BLOCK
11-2	EL-304025	PL H LEAD 10V 110MA (IN1)
		SLIDE P.C BOARD BLOCK
11-3	ES-331260	SW SLIDE SSB423 2-02-03N (SW1)
		DOLBY LED P.C BOARD BLOCK
11-4	ED-322773	D LED SLP-255D-01 GRN (D1,2)
		REVERSE P.C BOARD BLOCK
11-5	ED-322773	D LED SLP-255D-01 GRN (D1,2,3)
		SW PUSH BLOCK
11-6	ES-313496	SW PUSH SPJ222A 2-02-02S(SW908)
		HOLDER METER BLOCK
11-7	ED-331263	IND LE LT-1016 GRAPH
		ASSEMBLY BLOCK
11-8	SZ-331956	MASK METER
11-9x	SZ-331957B	SCALE METER (B)
11-10	ES-331670	SW OPERATION F66R 8P L
11-11	SK-780000	KNOB OPERATION (FF)
11-12	SK-780001	KNOB OPERATION (REC)
11-13	SK-780002	KNOB OPERATION (PAUSE)
11-14	SK-780004	KNOB OPERATION (REW)
11-15	SK-780005	KNOB OPERATION (STOP)
11-16	SK-780006	KNOB OPERATION (PLAY)
11-17	SK-780007	KNOB OPERATION (REVERSE)
11-18	SK-780008	KNOB OPERATION (REC MUTE)
11-19	EL-300186	PL LEAD 8V 60MA
11-20x	TC-780009	RUBBER SHEET SW ASSIST J-PS348-03
11-21	BT-331662	⚠ TRANS POWER T2023-U
11-22x	BT-331663	⚠ TRANS POWER T2023-J
11-23x	BT-331665	⚠ TRANS POWER T2023-C,A
11-24x	BT-331664	⚠ TRANS POWER T2023-E (E,V)
11-25x	BT-331666	⚠ TRANS POWER T2023-B,S
11-26	ZS-312115	ST BID40×18STL CMT
11-27	SP-331961	COVER BOTTOM PLATE
11-28	ZS-325495	T2BR30×06STL CMT
11-29	SA-202118	FOOT
11-30	ZS-490228	T2BID30×08STL CMT
11-31	SA-313811	RUBBER FOOT
11-32	ZW-231030	RV NYL30×045 BL
11-33	EF-306950	⚠ FUSE TSC A 250V 2A (F1,2) (U,J)
11-34x	EF-306954	⚠ FUSE TSC 125V 2A (F1,2) (C,A)
11-35x	EF-601301	⚠ FUSE SEMKO T 250V 2A (F1,2) (E,B,S,V)
11-36x	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (F3) (B,S)
11-37	SP-332004J	PANEL REAR BOARD GX-F44R (U) AS
11-38x	SP-332004N	PANEL REAR BOARD GX-F44R (J) AS
11-39x	SP-332004L	PANEL REAR BOARD GX-F44R (C) AS
11-40x	SP-332004M	PANEL REAR BOARD GX-F44R (A) AS
11-41x	SP-332004K	PANEL REAR BOARD GX-F44R (E) AS
11-42x	SP-332004H	PANEL REAR BOARD GX-F44R (B,S) AS
11-43x	SP-332004P	PANEL REAR BOARD GX-F44R (V) AS
11-44	ZS-332007	T2PAN30×10STL CMT C080
11-45	EW-306428	⚠ AC CORD 2 CORES KP-205A, VFF J (U)
11-46x	EW-306427	⚠ AC CORD 2 CORES KP-211, VFF J (J)
11-47x	EW-305691	⚠ AC CORD 2 CORES KP-8, SPT-1 UC (C,A)
11-48x	EW-201796	⚠ AC CORD 2 CORES KP-419C, LTCE-2F E (E)
11-49x	EW-322400	⚠ AC CORD 2 CORES GTBS-2F/KS-15 B (B)
11-50x	EW-322401	⚠ AC CORD 2 CORES KP-560/S-15 S
11-51	EW-315767	⚠ AC CORD 2 CORES KP-419C/KS-15 E (V)
11-52	SZ-631945	STRAIN RELIEF SR-4N-4 (U,J,C,A,E)

FINAL ASSEMBLY BLOCK



12. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
	FRONT PANEL BLOCK	
12-1	BD-T2034A020A	PANEL FRONT BLK GX-F44R (U) (U,J,C,A)
12-2x	BD-T2034A020B	PANEL FRONT BLK GX-F44R (E) (E,B,S,V)
12-3x	BD-T2034A020C	PANEL FRONT BLK GX-F44R-P(U) (U,J,C,A)
12-4x	BD-T2034A020D	PANEL FRONT BLK GX-F44R-P(E) (E,B,S,V)
12-5	SZ-331997	WINDOW METER
12-6	SZ-325789	DIRECTION LENS
12-7	SK-317468A	KNOB PUSH (A)
12-8x	SK-317468E	KNOB PUSH (A)-P
12-9	SK-317468C	KNOB PUSH (B)
12-10x	SK-317468F	KNOB PUSH (B)-P
	SUB PANEL BLOCK	
12-11	SZ-332722	WIND COUNTER
12-12	SK-331981A	KNOB PUSH (A)
12-13x	SK-331981C	KNOB PUSH (A)-P
12-14	SK-331982	KNOB INDICATOR
12-15	SK-331983C	KNOB PUSH (B)-RED
	FINAL ASSEMBLY BLOCK	
12-16	SK-328391	SLIDE KNOB
12-17x	SK-336304	SLIDE KNOB-P
12-18	SK-329033	LEVER KNOB (A)
12-19x	SK-336307	LEVER KNOB-P
12-20	SK-332721	KNOB COUNTER
12-21	SK-332723A	KNOB MEMORY
12-22x	SK-332723B	KNOB MEMORY-P
12-23	SP-332003D	COVER UPPER (C)
12-24x	SP-332003E	COVER UPPER (C)-P
12-25	ZS-315878	XST BID40x08STL NI3
12-26x	ZS-310588	XST BID40x08STL BNI
12-27	SK-B318794	KNOB DOUBLE (UPPER) PART GX-F90
12-28x	SK-B604320	KNOB DOUBLE (UPPER) P PART
12-29	SK-331998A	KNOB DOUBLE (LOWER)
12-30x	SK-331998C	KNOB DOUBLE (LOWER)-P
12-31	SK-317537	KNOB (B)
12-32x	SK-336305	KNOB (B)-P
12-33	BD-B332000C	LID PANEL (B) PART
12-34x	BD-B332000D	LID PANEL (B)-P PART
12-35x	ZW-305013	RV POP32 (A)
12-36x	BC-330054	CASE WOOD (GX-F44-W)
12-37x	SA-202118	FOOT (GX-F44R-W)
12-38x	ZW-326042	PW35x070x050STL CMT (GX-F44R-W)
12-39x	ZS-414268	T1TRS35x10STL CMT(GX-F44R-W)
12-40x	ZW-381881	PW41x130x100STL CMT (GX-F44R-W)
12-41x	ZS-330057	ST BID40x22STL CMT(GX-F44R-W)

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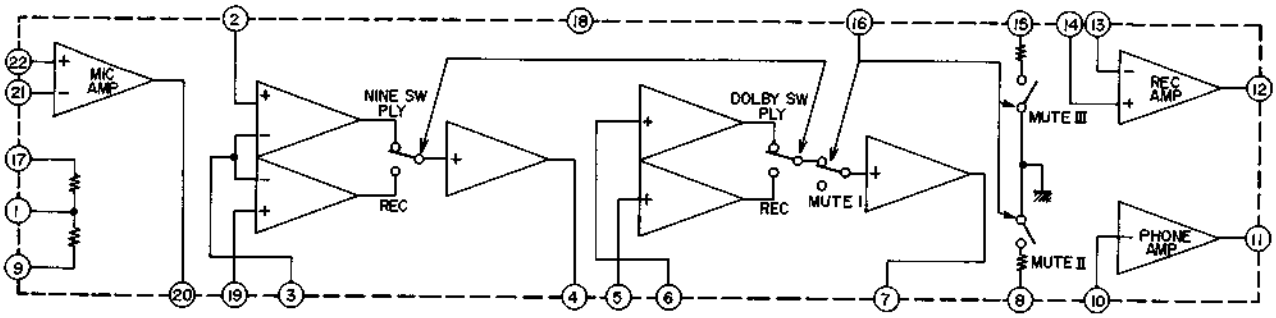
SECTION 3

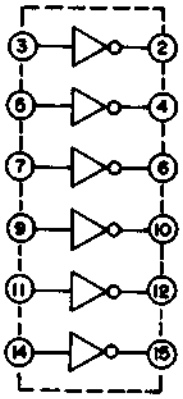
SCHEMATIC DIAGRAM

1. SCHEMATIC DIAGRAM OF ICs
2. GX-F44R POWER & SYSCON NO. 2-1 1622446A SCHEMATIC DIAGRAM
3. GX-F44R AMP NO. 2-2 1622447A SCHEMATIC DIAGRAM

HA12028

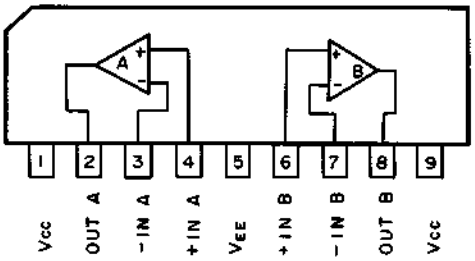


HD14049BP

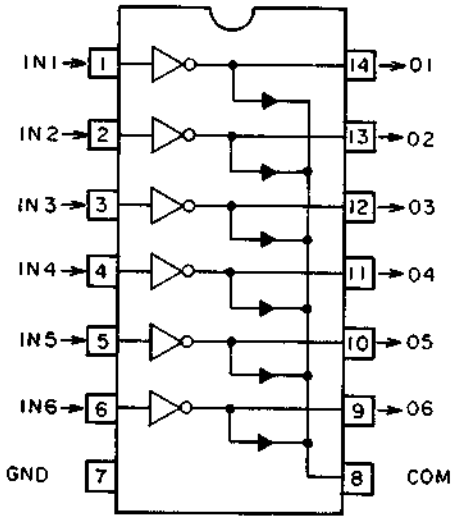


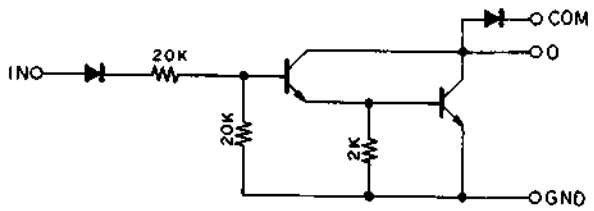
NC= Pin 13.16
VSS= Pin 8
VCC= Pin 1

LA6458S, NJM4558

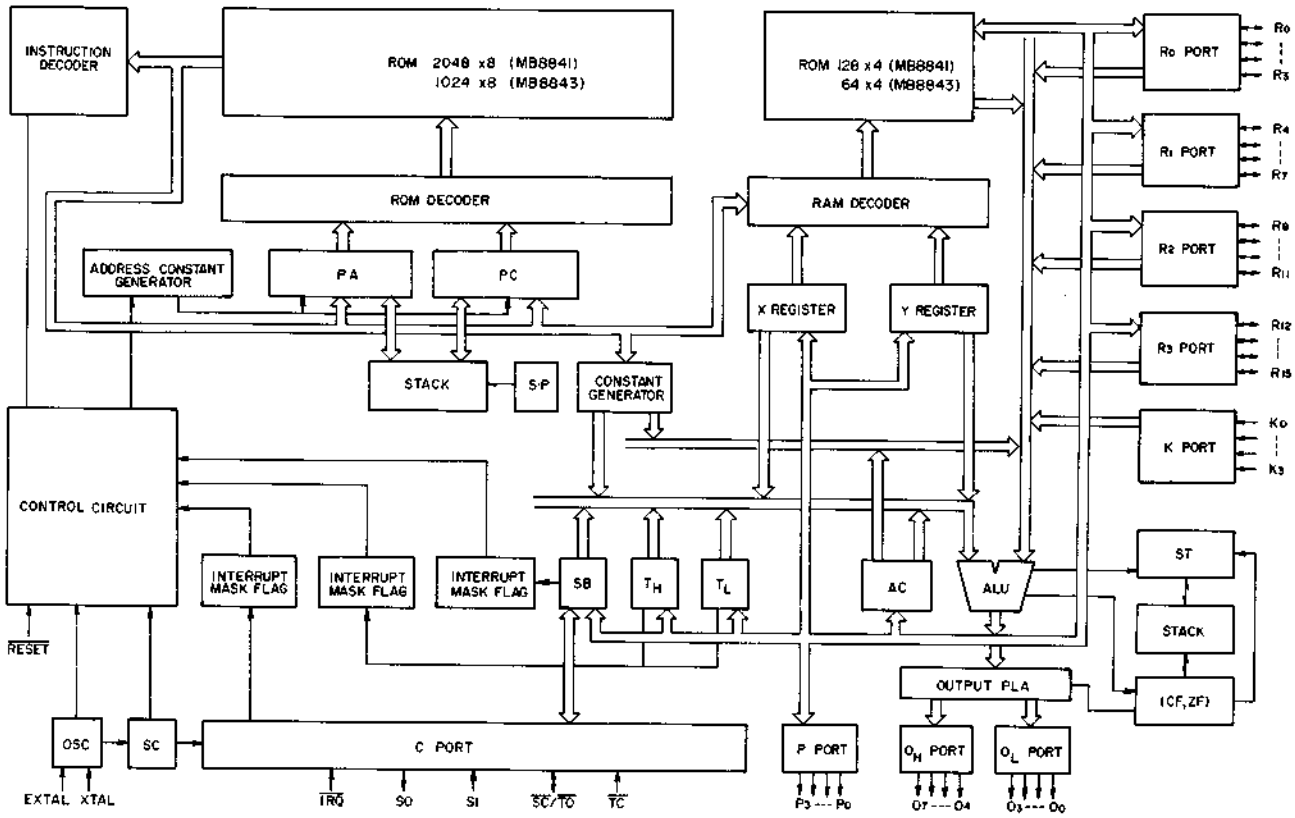


M54527P

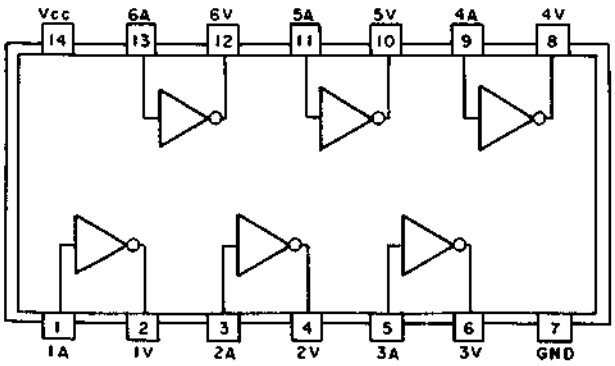




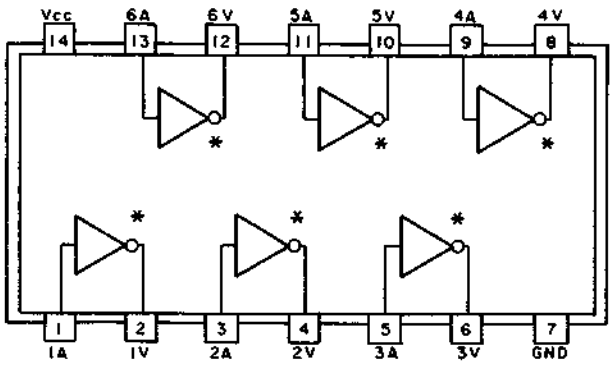
MB8841-564M



SN7404N



SN7405N



* OPEN COLLECTOR

GX-F44R

GX-F44R POWER & SYSCON SCHEMATIC DIAGRAM

NO2-1, I622446A

POWER SUPPLY PCB T2023B502A

FILTER PCB CL-5026

LAMP PCB T2022D5140

DETECTOR PCB T2022D5150

DETECTOR PCB CY-0023

DRIVE PCB T2023C5040

LD PCB T2023D5090

REMOCON PCB

REC CHACEL PCB T2034A502C

SLIDE PCB T2023B502F

SYSCON PCB T2034B5010

REVERSE PCB T2023D5070

SWITCH PCB T2034A502B

POWER SUPPLY PCB

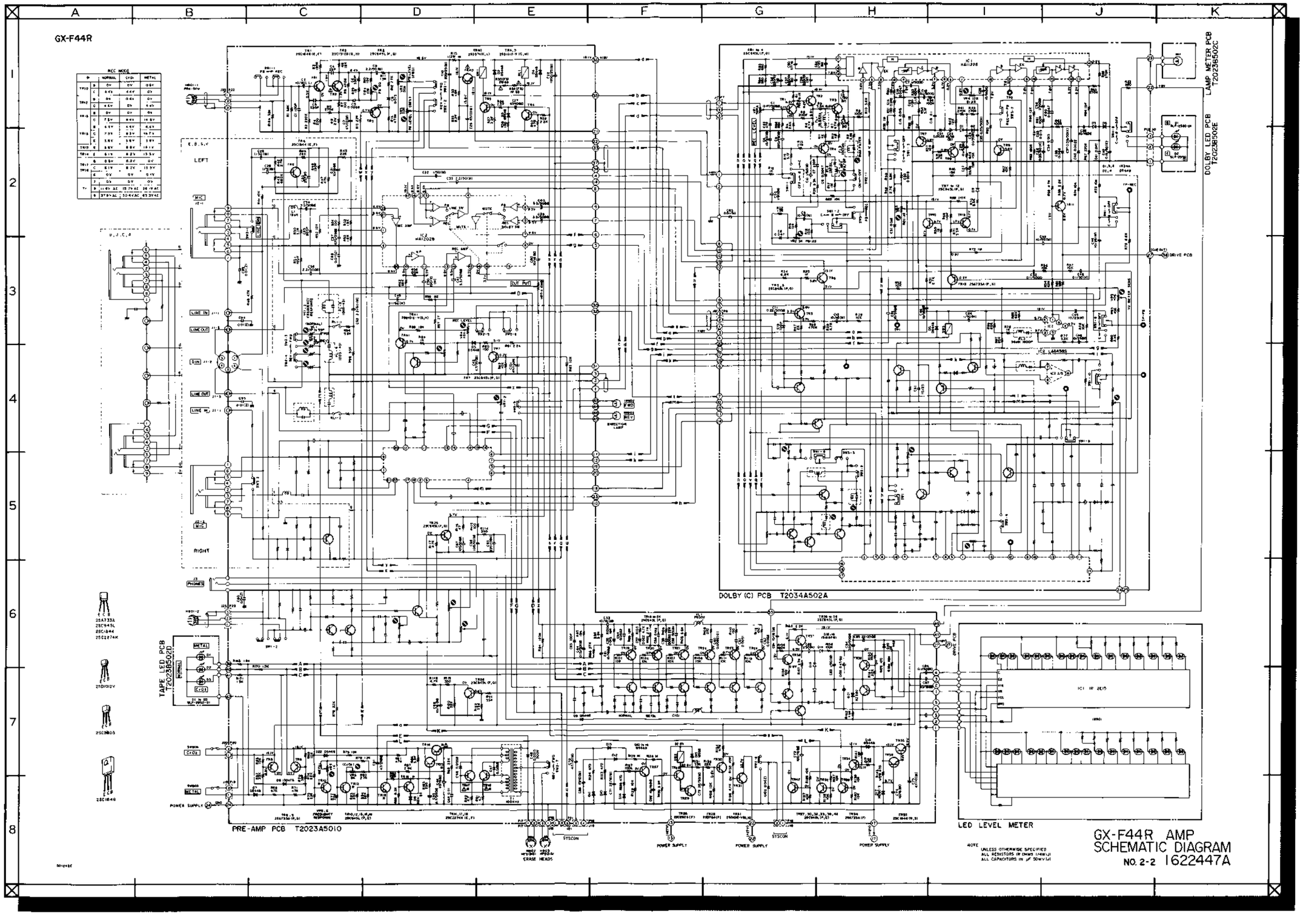
POWER SUPPLY PCB

POWER SUPPLY PCB

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(1J)
ALL CAPACITORS IN μF 50WV(1J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

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

AVERTISSEMENT: ⚠IL 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


GX-F44R
REC MODE
NORMAL
CrO2
METAL
LEFT
RIGHT
LINE IN
LINE OUT
DIN
MIC
PHONES
TAPE LED PCB T2023B502D
PRE-AMP PCB T2023A5010
DOLBY (C) PCB T2034A502A
DOLBY LED PCB T2023B502E
LAMP METER PCB T2023B502C
DRIVE PCB
LED LEVEL METER
POWER SUPPLY
ERASE HEADS
GX-F44R AMP SCHEMATIC DIAGRAM
NO. 2-2 1622447A

AKAI PRELIMINARY SERVICE MANUAL

No. 1

MODEL GX-F44R

DATE December 1981

I. SPECIFICATIONS

Track System	4 Track 2 Channel Stereo System
Tape	Philips Type Cassette
Tape Speed	4.76 cm/s ± 1.5% (1-7/8 ips. ± 1.5%)
Heads	Twin Field Super GX head for Recording/Playback x 1 Erase head x 2
Motors	Electronically speed controlled DC motor for capstan drive x 1 DC motor for reel drive x 1
Wow & Flutter	Less than 0.035% WRMS, 0.11% (DIN 45500)
Tape Winding Time	80 sec. using a C-60 cassette tape
Frequency Response	Normal: 25 to 16,000 Hz ± 3 dB (-20 VU) CrO_2: 25 to 17,000 Hz ± 3 dB (-20 VU) 25 to 9,000 Hz ± 3 dB (0 VU) Metal: 25 to 19,000 Hz ± 3 dB (-20 VU) 25 to 13,000 Hz ± 3 dB (0 VU)
Signal to Noise Ratio	Normal: Better than 58 dB CrO_2: Better than 60 dB Metal: Better than 60 dB (measured via tape with peak recording level) Dolby B NR ON: Improves up to 5 dB at 1 kHz, 10 dB above 5 kHz 500 Hz, 20 dB at 1 to 10 kHz
Harmonic Distortion	Normal: Less than 0.8% CrO_2: Less than 0.7% Metal: Less than 0.7%
Input	MIC: 0.25 mV (input impedance 5.0 kohms) Required microphone impedance: 600 ohms Line: 70 mV (input impedance 47 kohms)
Output	Line: 410 mV at 0 VU Required load impedance: more than 20 kohms Phone: 1.3 mW/8 ohms at 0 VU
DIN	Input: 2.0 mV (input impedance 10 kohms) Output: 410 mV Required load impedance: more than 20 kohms
Power Requirements	100V, 50/60 Hz for Japan 120V, 60 Hz for USA and Canada 220V, 50 Hz for Europe Except UK 240V, 50 Hz for UK and Australia 110V/120V/220V/240V, 50/60 Hz switchable for other countries
Dimensions	440 (W) x 118 (H) x 309 (D) mm (17.3 x 4.7 x 12.2")
Weight	8.6 kg (19.0 lbs)

* For improvement purposes, specifications and design are subject to change without notice.
* "Dolby" and the Double D symbol are trademarks of Dolby Laboratories. (Manufactured under license from Dolby Laboratories).

AKAI ELECTRIC CO., LTD.
12-14, 2-chome, Higashi-Kojiya, Ohta-ku, Tokyo, Japan.
Printed in Japan.

II. VOLTAGE AND CYCLE CONVERSION

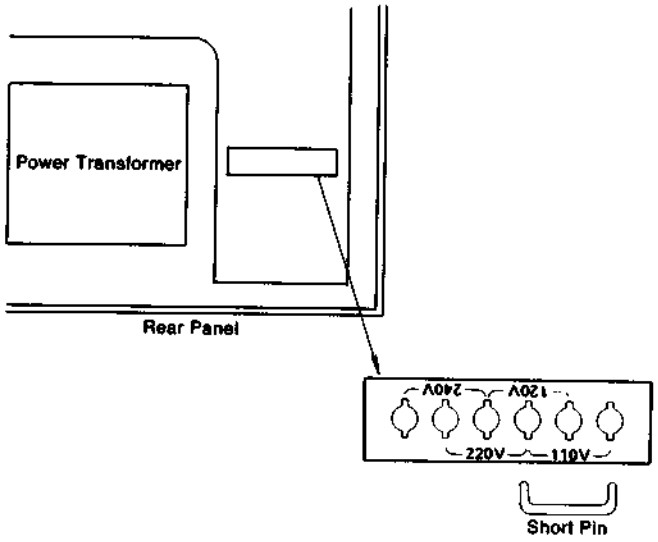


Fig. 1 Voltage Conversion (U Model Only)

1. VOLTAGE CONVERSION

Models for Canada, Europe, USA, UK, Australia and Japan are not equipped with this facility.

Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.

If voltage change is necessary, this can be accomplished as follows:

1) Disconnect power cord.
2) Loosen holding screws and remove upper cover.
3) Remove short pin plug from present holes and replace in correct holes. Follow the markings explicitly.

2. CYCLE CONVERSION

With DC motor, cycle conversion is not necessary.

III. MECHANICAL AND HEAD ADJUSTMENT

Refer to Service Manual CS-F33R.

IV. ELECTRICAL ADJUSTMENT

1. QUICK REVERSE SENSITIVITY ADJUSTMENT

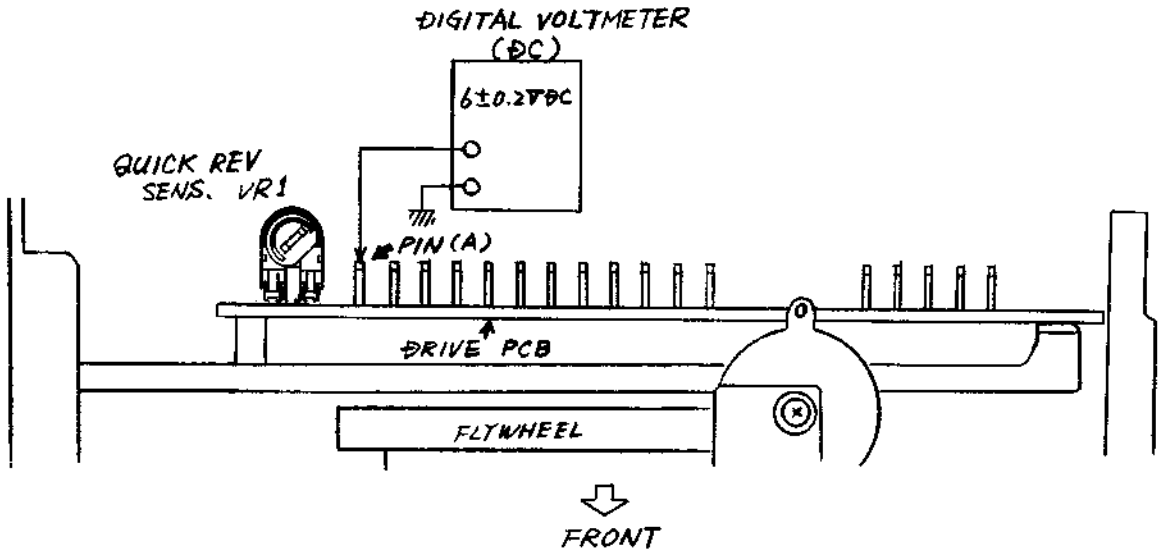


Fig. 2

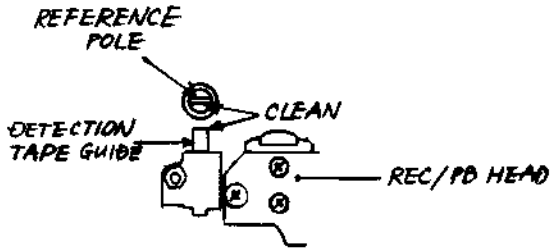


Fig. 3

1) Make a tapeless cassette pack by removing the tape from the white colored test tape.
2) Connect the Digital Voltmeter between the PIN (A) and earth.
3) Using the tapeless cassette pack, adjust VR1 so that the Digital Voltmeter readings 6V ± 0.2VDC at FWD play mode.

NOTE: Clean the Reference Pole and the Detection Tape Guide, before this adjustment. (Fig. 3)

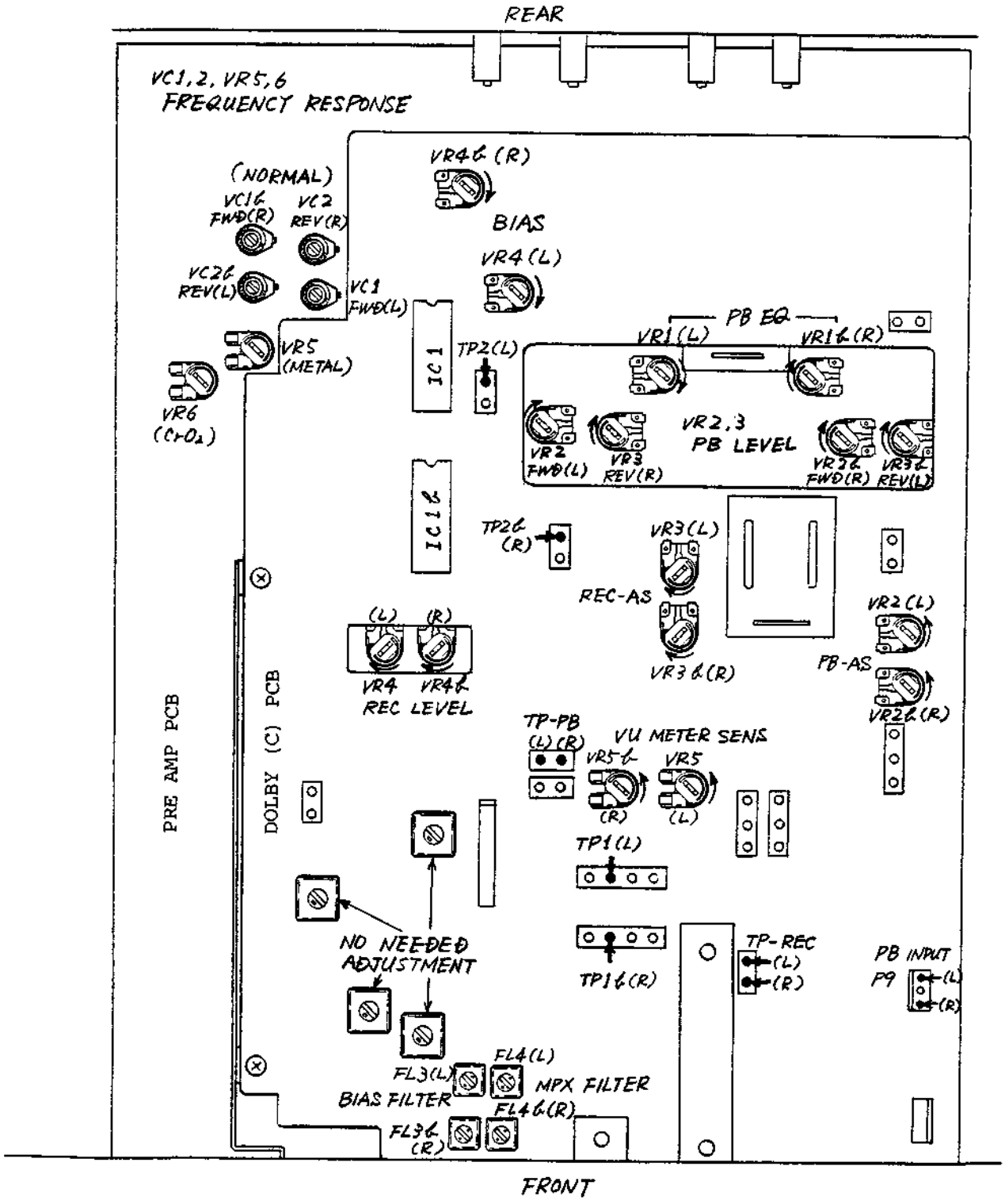


Fig. 4 Amplifier Adjustment

2. AMPLIFIER ADJUSTMENT

STEP	ADJUSTMENT ITEM	TEST TAPE SUPPLY SIGNAL	MODE	ADJUSTMENT PARTS	RESULT	REMARKS
1	FWD PB Level	Test Tape (333 Hz)	FWD PB	VR2 Pre Amp PCB	-5.5 ± 0.5 dBm (410 mV)	
2	REV PB Level	Test Tape (333 HZ)	REV PB	VR3 Pre Amp PCB	-5.5 ± 0.5 dBm (410 mV)	
3	PB EQ	Test Tape (10 kHz)	FWD PB REV PB	VR1 Pre Amp PCB	-19 ± 1.5 dBm	
4	Normal Position Frequency Response (FWD)	Normal Blank Tape 1 kHz, 10 kHz -25.5 dBm	FWD REC/PB	VC1 Pre Amp PCB	1 kHz to 10kHz flat response	
5	Normal Position Frequency Response (REV)	Normal Blank Tape 1 kHz, 10 kHz -25.5 dBm	REV REC/PB	VC2 Pre Amp PCB	1 kHz to 10 kHz flat response	
6	CrO_2 Position Frequency Response	CrO_2 Blank Tape 1 kHz, 10 kHz -25.5 dBm	FWD/REV REC/PB	VR6 Pre Amp PCB	1 kHz to 10 kHz flat response	
7	Metal Position Frequency Response	Metal Blank Tape 1 kHz, 10 kHz -25.5 dBm	FWD/REV REC/PB	VR5 Pre Amp PCB	1 kHz to 10 kHz flat response	
8	REC Level	Normal Blank Tape 1 kHz, -5.5 dBm	FWD/REV REC/PB	VR4 Pre Amp PCB	-5.5 ± 0.5 dBm (410 mV)	
9	MPX Filter	19 kHz from oscillator	REC	FL4 Dolby (C) PCB	Minimum Output	MPX Filter ON
10	Bias Filter	No Signal Input	REC	FL3 Dolby (C) PCB	Minimum Output	Set REC Volume to maximum
11	VU Meter Sensitivity	1 kHz, -5.5 dBm from oscillator	REC	VR5 Dolby (C) PCB	0 dB (VU) indication	

NOTES:
1. Output volume should be at maximum.
2. Dolby NR Switch to OFF Position.
3. Except for Step 9 set Dolby Filter Switch to OFF Position.
4. Use the following cassette measureing tapes:

   Normal Tape: Maxell UD C-60

   CrO_2 Tape : TDK SA C-60

   Metal Tape : TDK MA-C C-60

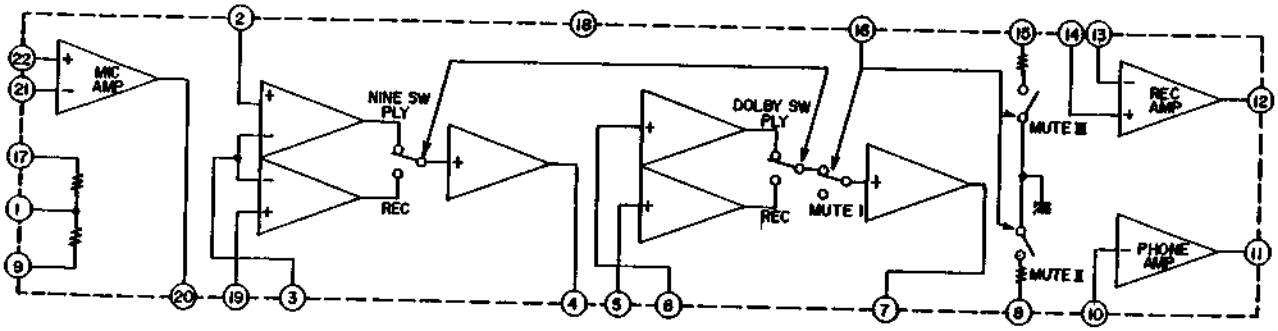
3. DOLBY ADJUSTMENT (Refer to Fig. 4 Dolby (C) PCB)

1) Set Dolby Switch to C-Type and the set to REC/PAUSE mode.
2) Input the signal of 700 Hz from LINE IN and adjust the input level so that TP1 will be 0 dBm (0.775V).
3) Adjust VR3 (REC-AS) so that TP-REC will be 0 ± 0.5 dBm.
4) Set Dolby Switch to OFF position.
5) Input the signal of 700 Hz from LINE IN and adjust the input level so that TP1 will be -30.5 dBm.
6) Set Dolby Switch to C-Type.
7) Adjust VR4 (BIAS) so that TP-REC will be -19.5 ± 0.3 dBm.
8) Set Dolby Switch C-Type and the set to FWD PLAY mode.
9) Remove P9 connector (PB INPUT) and input the signal of 700 Hz from there.
10) Adjust the input level so that TP2 will be 0 dBm.
11) Adjust VR2 (PB-AS) so that TP-PB will be 0 ± 0.5 dBm.

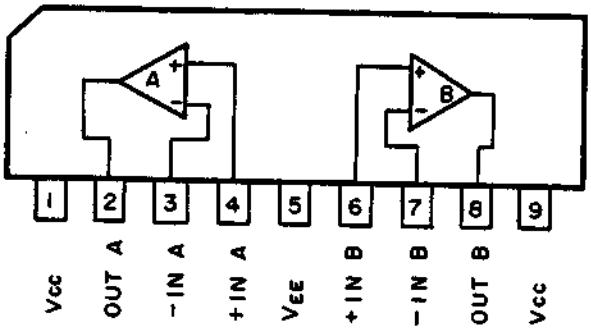
NOTES: 1) For the adjustment, use Audio OSC, AC Voltmeter (mV meter).
2) Adjust both channels at right and left.

V. SCHEMATIC DIAGRAM

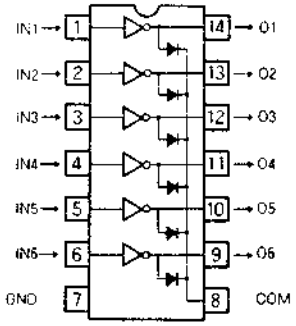
HA12028

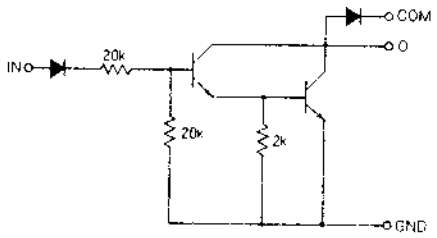


NJM4558S
LA6458S

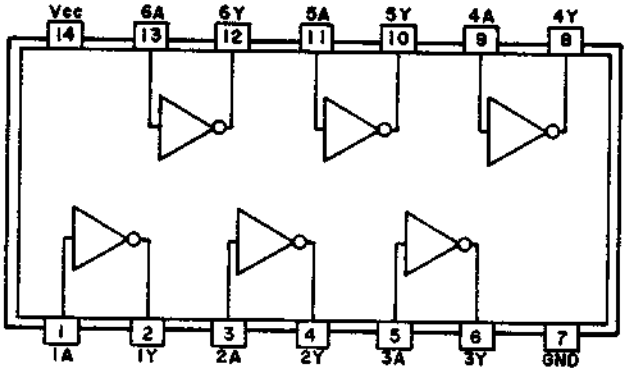


M54527P

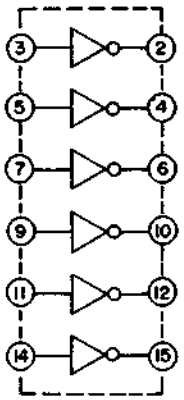




SN7404N

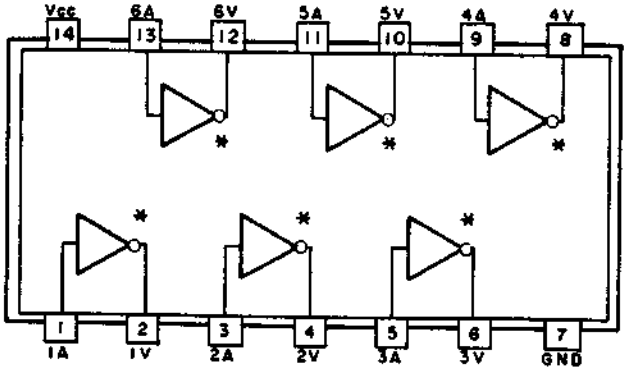


HD14049BP

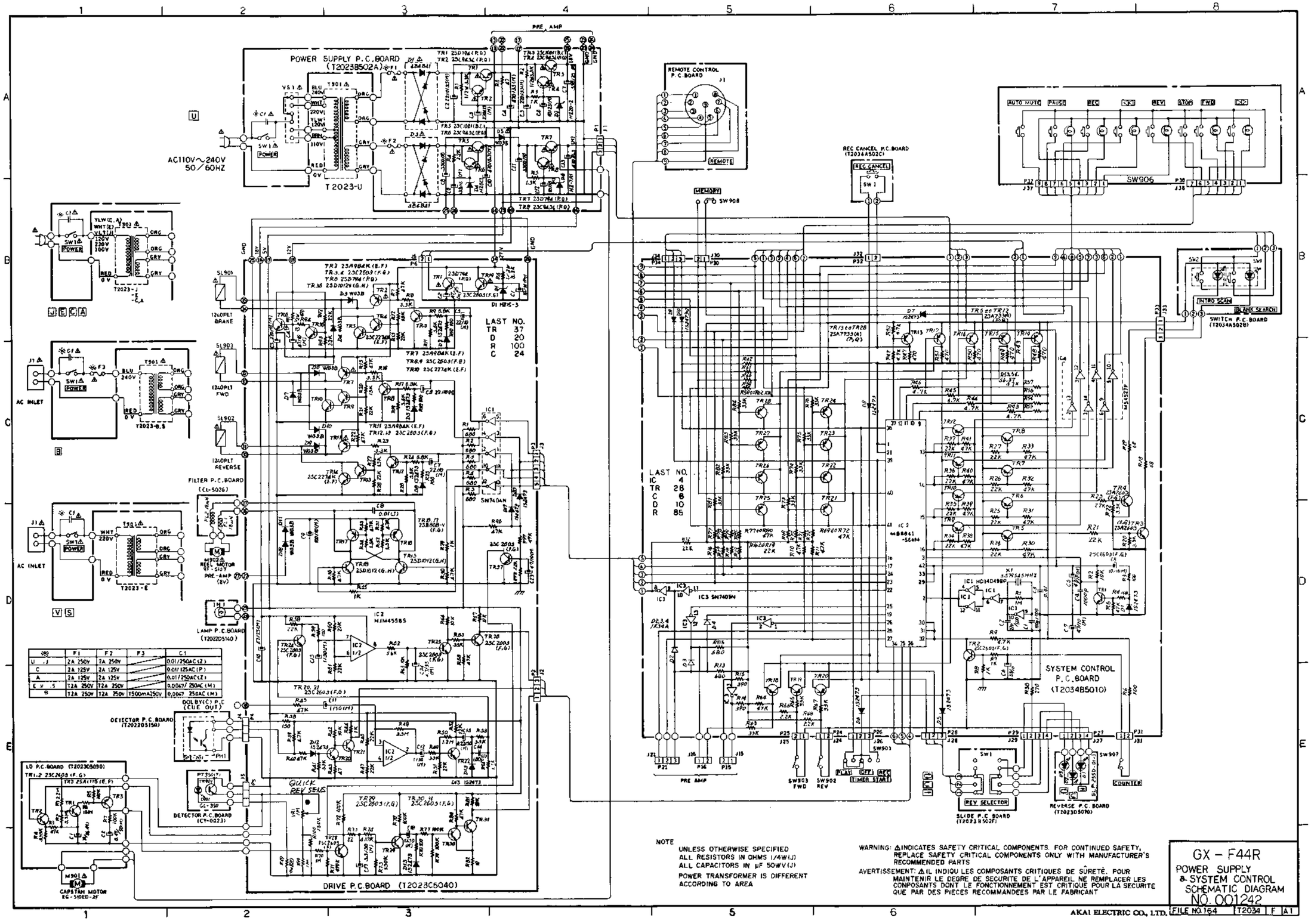


NC= Pin 13.16
VSS= Pin 8
VCC= Pin 1

SN7405N



* OPEN COLLECTOR



NOTE

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

POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

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

AVERTISSEMENT: △IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ 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 - F44R
POWER SUPPLY & SYSTEM CONTROL SCHEMATIC DIAGRAM
NO. 001242

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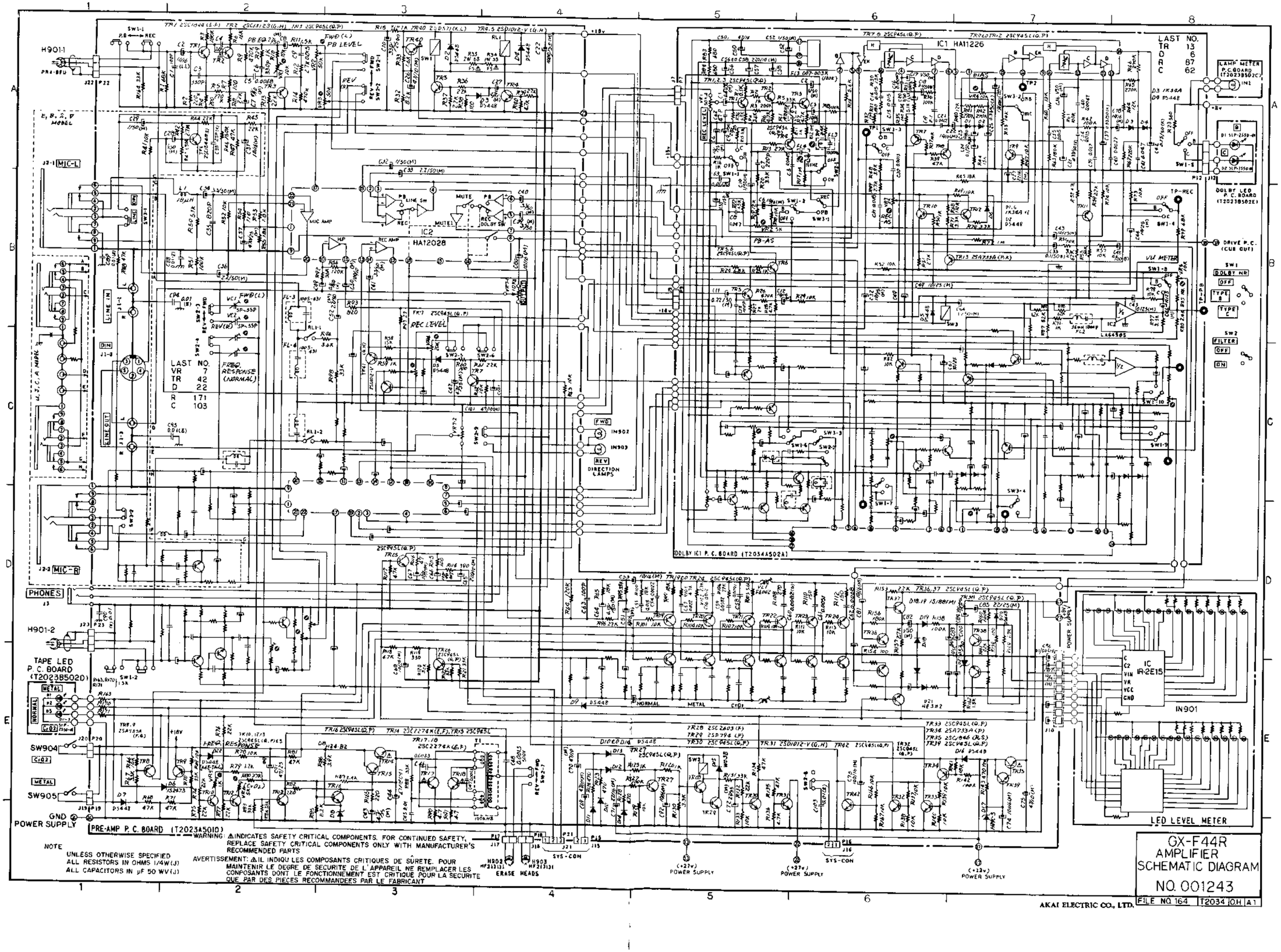

GX-F44R AMPLIFIER SCHEMATIC DIAGRAM

NO. 001243

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