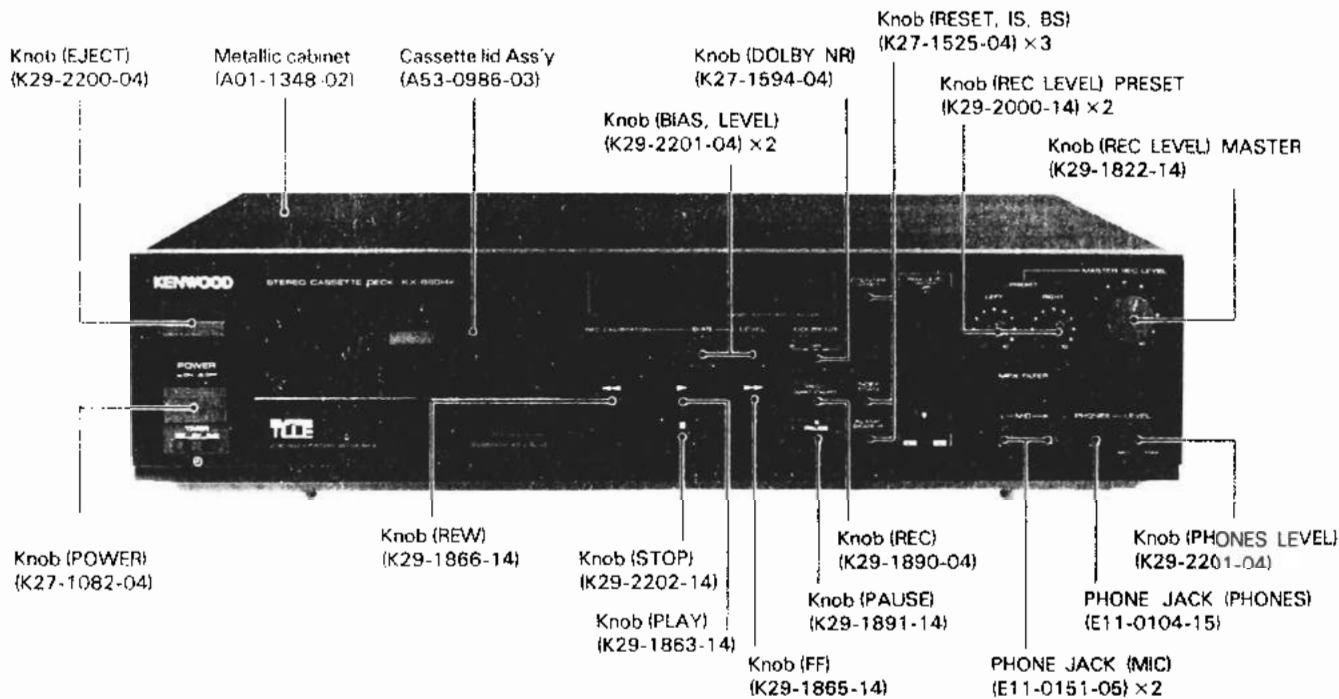


KX-880HX

SERVICE MANUAL



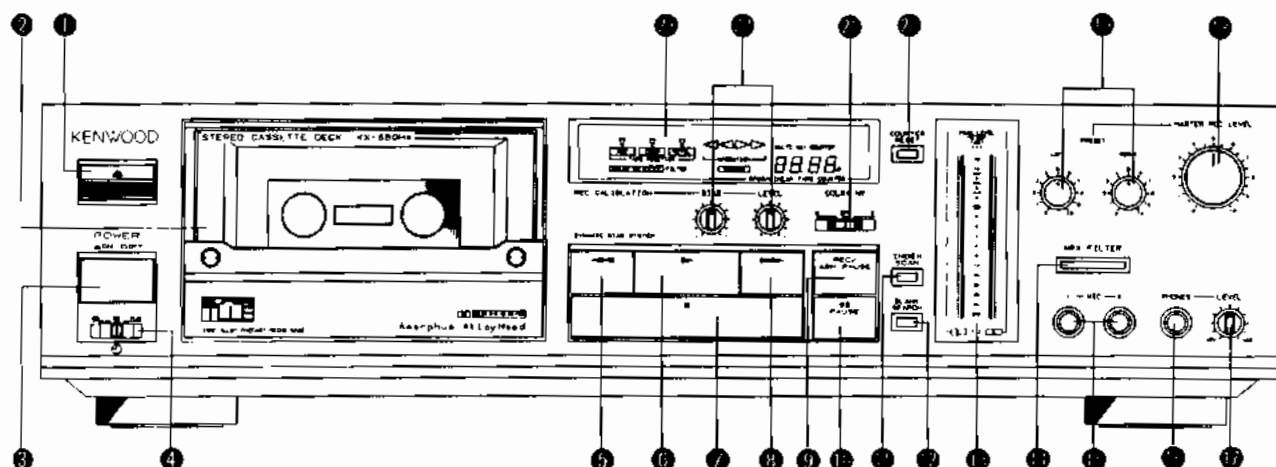
CONTENTS

CONTROLS, INDICATORS AND CONNECTORS	2
DISASSEMBLY FOR REPAIR	4
BLOCK LEVEL DIAGRAM	6
CIRCUIT DESCRIPTION	7
ADJUSTMENT	11
REGLAGE	12
ABGLEICH	13

PC BOARD (Component Side View)	15
PC BOARD (Foil Side View)	19
CIRCUIT DIAGRAM	23
EXPLODED VIEW (MECHANISM)	31
EXPLODED VIEW (UNIT)	32
PARTS LIST	33
SPECIFICATION	Back cover

CONTROLS, INDICATORS AND CONNECTORS

Numbers in front of names correspond that in the diagram.



1 Eject key (▲)

Pressing this key to open the cassette holder.

2 Cassette holder

Press the eject key is pressed, this holder opens. Press the left upper section of the holder until it locks to close it.

3 POWER switch

Press this switch to turn the power ON. Pressing again turns the power OFF.

4 TIMER stand-by switch

Use this switch along with an audio timer when an unattended recording or timer-playback is performed. Set this switch to the REC position for unattended recording, to the PLAY position for timer-playback, and **set to OFF when the timer is not used.**

5 Rewind key (◀◀)

Press this key to rewind the tape from right to left at high speed.

6 Play key (▶)

Press this key to forward the tape at fixed speed and start playback; the play indicator (▶) will light up.

7 Stop key (■)

Press this key to stop the tape travel.

8 Fast forward key (▶▶)

Press to advance the tape rapidly from left to right.

9 REC/ARM PAUSE key

Press this key to start recording. It is not necessary to press the play key simultaneously since this unit is provided with one-touch recording system. At this time, the record and play indicators light up.

When this key is pressed again during recording, about 4 seconds non-recorded section is made and the tape travel will stop temporarily.

10 PAUSE key (||)

To interrupt recording or playback momentarily, press this key. When this key is pressed during playback, the play indicator blinks and the playback is interrupted momentarily. When this key is pressed during recording, the record indicator lights up and the play indicator blinks so that the recording is interrupted. To release the play-pause mode, press the play key and to release the record-pause mode, press the REC/ARM PAUSE key.

11 INDEX SCAN key

Press this key to search the desired tune. When this key is pressed, the beginning of each tune is played back for about 10 seconds.

12 BLANK SEARCH key

This key is used to search for blank sections of more than 1 minute between tunes or the end of the previously recorded section, etc.

13 PEAK LEVEL METERS

This indicates the peak values of the input levels when recording or output levels when playback.

14 MPX FILTER switch

Use this switch when recording FM broadcast using Dolby NR with this switch set to ON, the 19 kHz pilot signal and 38 kHz sub-carrier signal contained in the FM stereo broadcast signals are eliminated to prevent malfunctioning of the Dolby NR circuit.

15 MIC jacks (L/R)

Plug the microphones into these jacks when recording with microphones; L for left channel and R for right channel. Use low impedance (600 Ohms) microphones.

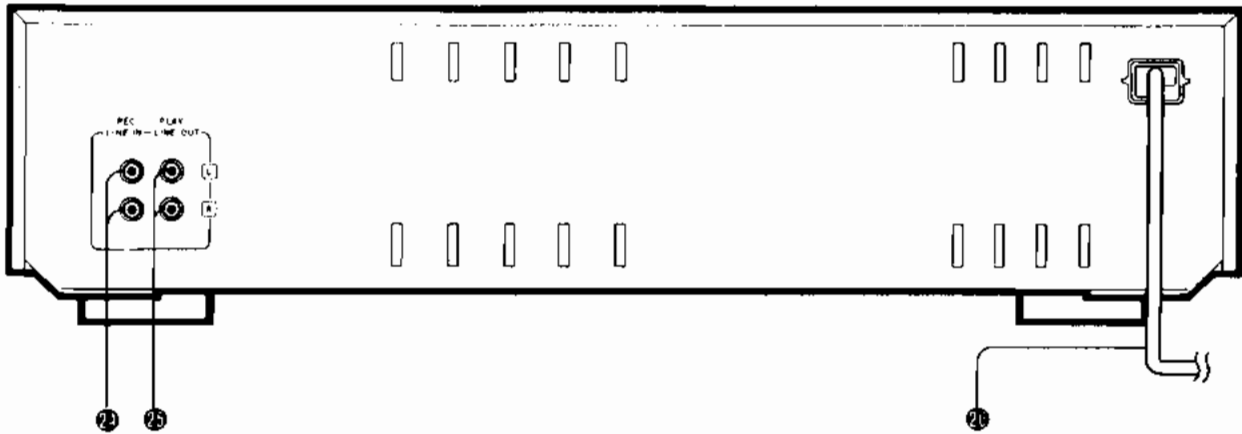
Note:

When the microphones are connected, the signal input from the LINE IN terminals are automatically cancelled. Disconnect the microphones before recording from LINE sources.

16 PHONES jack

Plug the stereo headphones into this jack to monitor recordings or tape playback.

CONTROLS, INDICATORS AND CONNECTORS



● **PHONES LEVEL knob**

Adjust the volume level for the headphones regardless of the recording input level.

● **MASTER REC LEVEL control knob**

Adjust the recording input level with this knob. Left and right channel levels are varied simultaneously.

● **PRESET record level knobs**

The signals for the left and right channels are adjusted independently with these knobs.

● **COUNTER RESET key**

Press this key to reset the linear tape counter to [:00].

● **DOLBY NR select switch**

Set this switch to B or C position when playing back the tape recorded with Dolby NR circuit or when recording with Dolby NR circuit.

● **REC CALIBRATION ADJ. knob**

Adjusting the recording level and bias knobs, enables recording and reproduction at a level matching the kind of the tape being used. This quality can also be demonstrated satisfactorily when using NR.

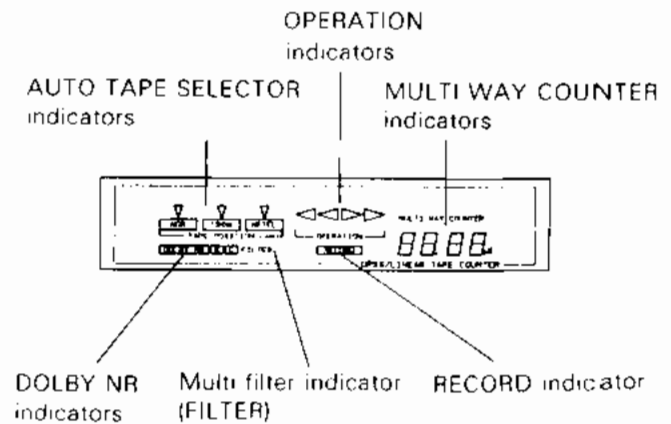
LEVEL adjustment:

This corrects the recording sensitivity response of the tape being used. First set so that the recording level is at OVU and make the recording. Then when making the reproduction, adjust the reproduction level so that it is the same as the recording level. If the reproduction level is lower than the recording level turn to (+), and if it is higher turn to (-).
BIAS adjustment:

This corrects the recording response of the high-pitch range. Compare with the source tone and make adjustments to align with it. During reproduction, if the high-pitch range seems apt to be insufficient turn to (-), and it seems to be too much turn to (+).
The bias knob can also be adjusted and the sound quality changed in line with your preference.

● **Display window**

According to the operation mode, each indicator lights up or flickers.



● **LINE IN REC terminals**

Connect the Tape Rec terminals of your amplifier, etc. to these terminals using the audio cables provided.

● **LINE OUT PLAY terminals**

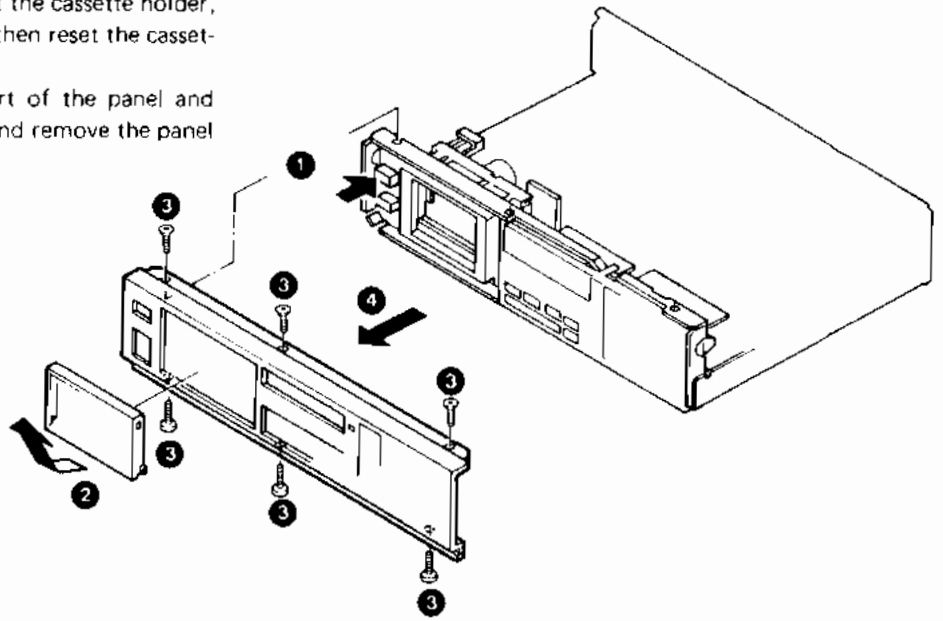
Connect the Tape Play or AUX terminals of your amplifier, etc. to these terminals using the audio cables provided.

● **Power cord**

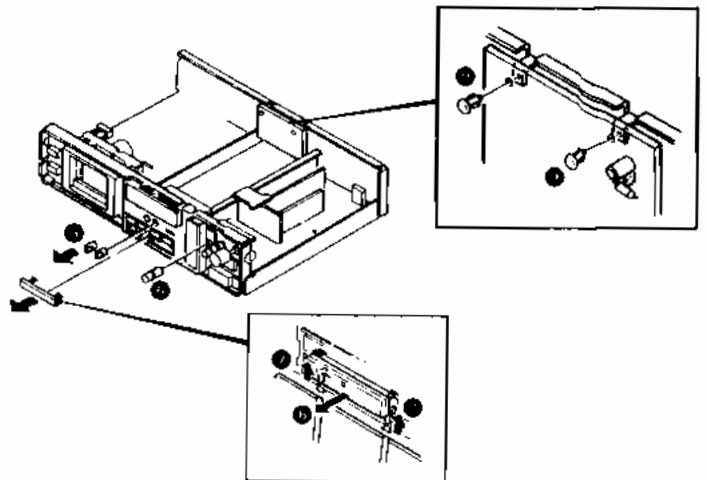
Plug this into the wall outlet or AC outlet of the amplifier, etc.

DISASSEMBLY FOR REPAIR

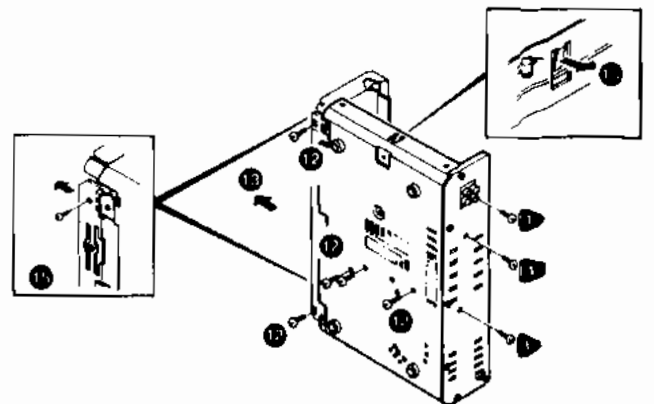
1. Press EJECT knob (1) to pull out the cassette holder, remove the cassette lid (2), and then reset the cassette holder.
2. Remove 3 screws on the upper part of the panel and 3 screws on the lower part (3), and remove the panel (4).



3. Remove 4 CALIBRATION (BIAS, LEVEL) knobs (5) and PRESET (L) knob (6).
4. Insert (—) screw driver to the escutcheon hole (7), and pull out STOP knob toward you (8).
5. Remove 2 push rivet (9) which fix the PC board to the rear panel.

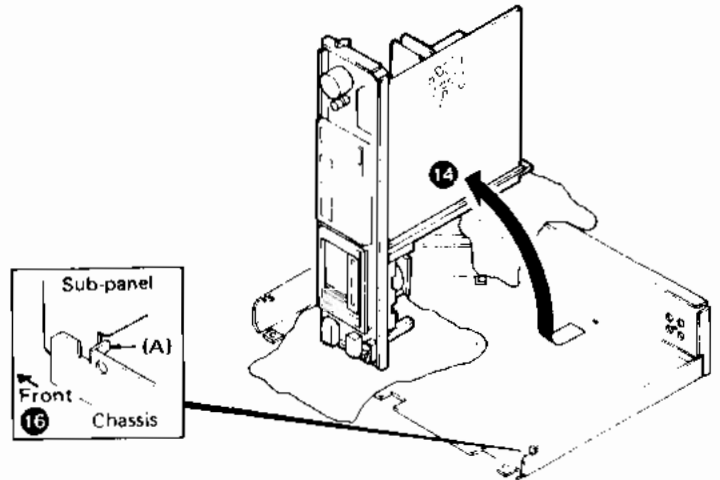


6. Bend the chassis claw outward (10).
7. Remove 3 screws (11) on the rear of the panel and 5 screws (12) on the chassis, and then pull out the sub-panel assembly slightly toward you and set it upright (13 , 14).

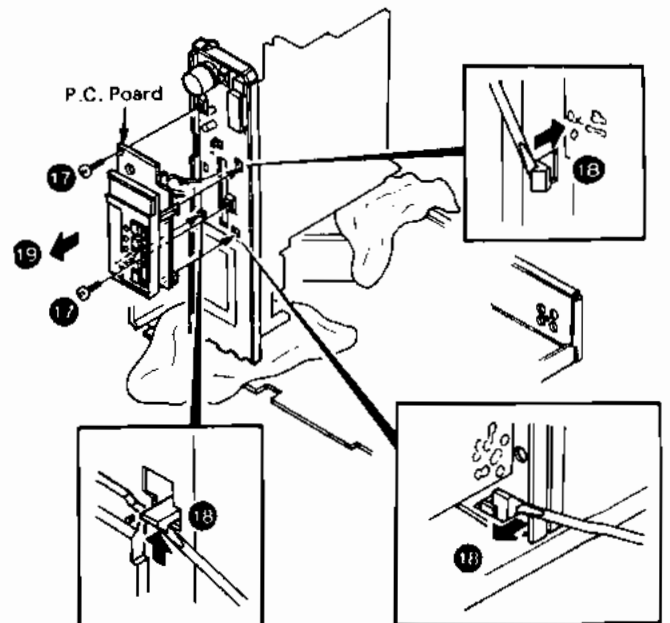


DISASSEMBLY FOR REPAIR

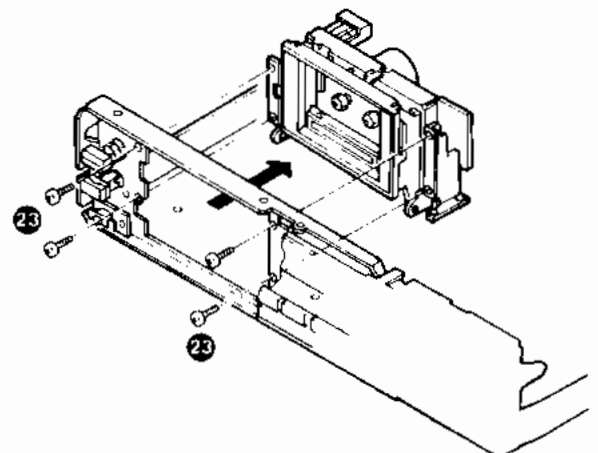
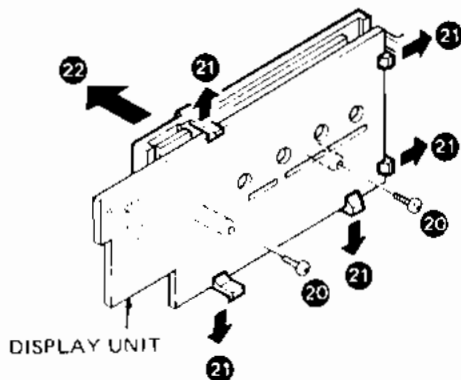
Note : When assembling the sub-panel assembly and chassis, insert the chassis's claw to the inside as shown in 15, and press the sub-panel into a projection of the chassis (A) as shown in 16.



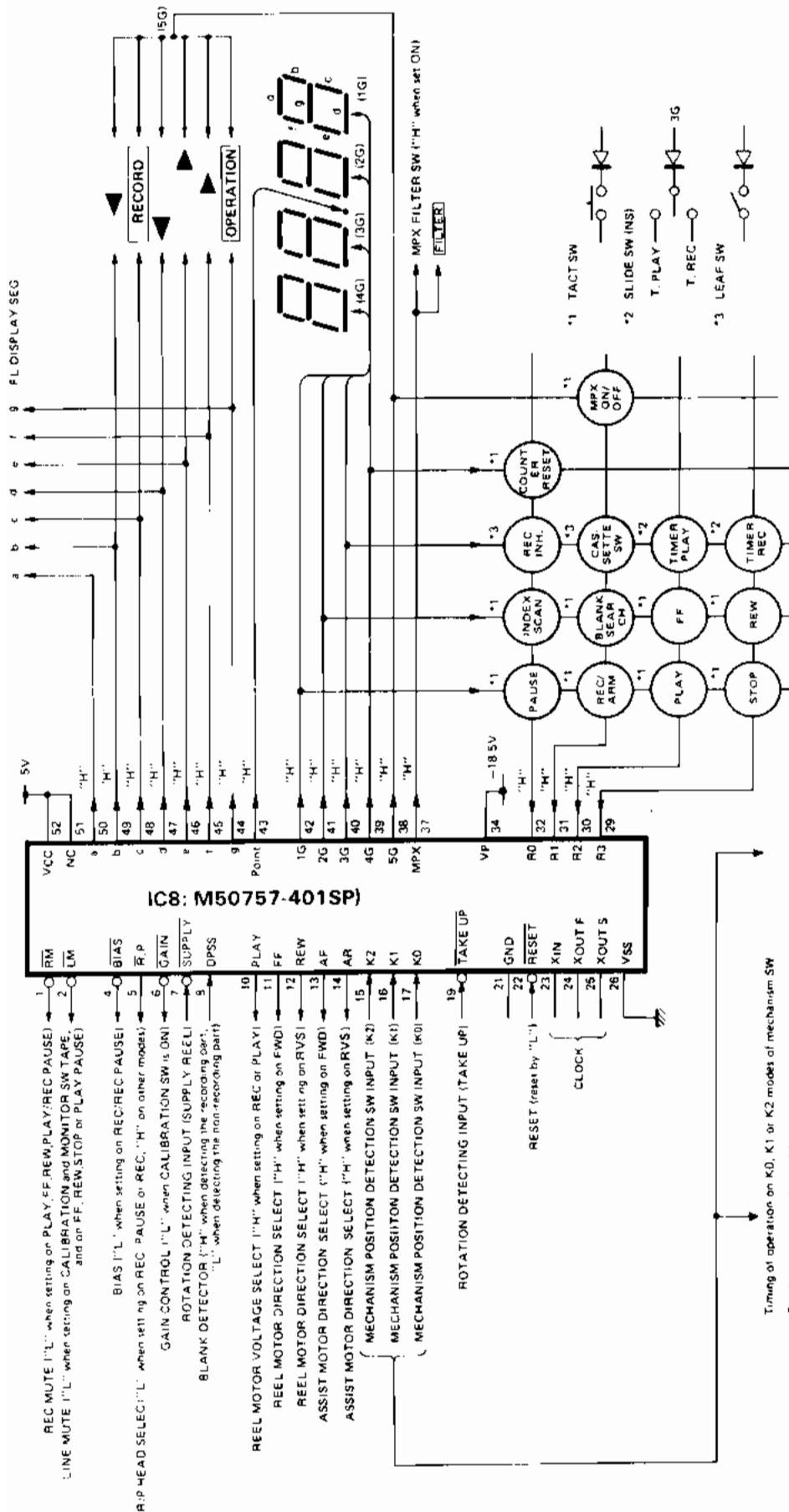
8. Remove 2 screws which fasten the display unit (17), remove 3 hooks fixed on the sub-panel (18), and then pull out the display unit toward you (19).



9. Remove 2 screws which fasten the display unit and escutcheon (20)
10. Remove 5 hooks (21), and disassemble the display unit and escutcheon (22)
11. Remove 4 screws on both ends of front side of the sub-panel (23), and remove the mechanism assembly to the rear side



CIRCUIT DESCRIPTION



Timing of operation on K0, K1 or K2 modes of mechanism SW

Reel motor operation table

SW Mode / Function	MODE SW		REEL MOTOR	
	K2	K1	K0	
STOP	OFF	ON	ON	OFF
PLAY	ON	OFF	ON	FWD
PAUSE	ON	ON	OFF	OFF
FF/REW	OFF	OFF	ON	FWD/RVS
CUE/REV	ON	ON	OFF	FWD/RVS

Assist motor operation table

K0 / K1 / K2	FF		REW		STOP		PAUSE		PLAY	
	OFF	ON	OFF	ON	ON	ON	OFF	ON	ON	OFF
K0	OFF	ON	OFF	ON	ON	ON	OFF	ON	ON	OFF
K1	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF
K2	OFF	OFF	OFF	ON	OFF	ON	ON	ON	ON	ON

When shifting the current operation to one on right hand of the table, the assist motor rotates in FWD direction. When shifting to the right, the motor rotates in RVS direction.

CIRCUIT DESCRIPTION

Description of Components

Display Unit (X25-2450-01)

Components	Use/Function	Operations/Condition/Interchangeability
Q1-2	Peak-hold reset	A flip-flop circuit is formed and, in 3 seconds, Q2 goes ON momentarily, resetting the peak holding.
Q3	Level meter drive	2- ϕ dynamic

Cassette Unit (X26-1182-71)

Components	Use/Function	Operations/Condition/Interchangeability
Q1-4	Head engage/disengage switch	OFF during REC and REC PAUSE ON during REC and REC PAUSE
Q5-6	Head engage/disengage switch	ON during REC and REC PAUSE During PLAY, REC and REC PAUSE, the LM terminal at microprocessor IC8 pin 3 goes "L" during "1" OFF and during "0" and Q1 OFF
Q7-15	LINE MUTE switch	Regulated power supply for PS amp
Q13-15	LINE MUTE switch	Regulated power supply for PB amp
Q13-16	LINE MUTE switch	The statuses depend on the tape detector switch in the mechanism. NORM, CrO ₂ , METAL Q17 OFF OFF ON Q18 OFF ON OFF
Q17-18	AUTO TAPE SEL control	During REC and REC PAUSE, the B/P terminal at microprocessor IC8 pin 5 goes "L", turning Q21 ON REC REC PAUSE OTHERS Q19 OFF ON Q20 OFF ON Q21 ON OFF
Q19-21	REC/PLAY control	The statuses depend on the tape detector switch in the mechanism. NORM, CrO ₂ , METAL Q22 ON ON OFF Q23 ON OFF OFF
Q22-23	3 as level control	During REC and REC PAUSE, the BIAS terminal at microprocessor IC8 pin 4 goes "L", turning the transistors as follows. REC REC PAUSE OTHERS Q24 ON OFF Q25 OFF ON Q26 ON OFF
Q24-26	Bias oscillation control	Immediately after power ON immediately after power OFF Q27 ON "L" for specified period, then OFF ON "L" for specified period, then OFF Q28 OFF for specified period, then ON After OFF for specified period, ON, then ON Q29 ON OFF
Q27-29	Microprocessor reset	When turning power ON/OFF, "L" is applied to RESE ^t at microprocessor IC8 pin 22 to reset the microprocessor.
Q30	Reel motor drive voltage control	During REC and PLAY, goes ON setting the voltage at reel motor drive, Q1 pin 4 to -4.0 V. The voltage is 5.7 to 6.2 V in other modes.
Q31-32	Rotation detector amp	5 rotation pulses per reel rotation are supplied from the mechanism. This amp shapes these pulses into a waveform suitable for the microprocessor.
Q33	LINE MUTE drive	Controlled by output LM from microprocessor IC8 pin 2. REC/PLAY REC PAUSE OTHERS Power ON/OFF Q33 OFF ON ON
Q34	REC MUTE drive	Controlled by output REC from microprocessor IC8 pin 1. Q34 is ON during "1" and "0" in other modes. Q34 is ON during "1" and "0" of the REC amp and "1" of the LINE MUTE amp.

CIRCUIT DESCRIPTION

Components	Use/Function	Operations/Condition/Interchangeability
Q35	DPSS amp sensitivity switch	During PLAY, goes ON to increase the DPSS amp sensitivity. During CUE and REVIEW, goes OFF to decrease the DPSS amp sensitivity.
Q36	+5 V supply	Regulated power supply of HI voltage for microprocessor and FL display.
Q37-39	+9 V supply	Regulated power supply for signal amps (Q37 for control, Q39 for constant current, Q38 for error detection).
Q40-42	+9 V supply	Regulated power supply for signal amps. Together with Q37 to Q39, form the tracking power supply.
Q43-44	+12 V supply	Regulated power supply for mechanism power and other +ve power systems.
Q45-46	+18 V supply	Regulated power supply of L1 voltage for FL display output.
Q1	Input buffer amp	
Q2	M1 amp	
Q3	REC/EB amp	
Q4	DC amplifier/amp	
Q5	DC amp	Has 2 outputs: "L" when the head found blank is detected, and "H" when the head signal is detected.
Q6	Assist motor drive	
Q7	Reel motor drive	
IC8	Microprocessor	

Dolby Unit (X30-1270-00)

Components	Use/Function	Operations/Condition/Interchangeability
Q1-4	Dolby filter ON/OFF switch	ON when filter is ON
IC1	Dolby B/C encoder/decoder amp	

Meter Amp Unit (X87-1020-00)

Components	Use/Function	Operations/Condition/Interchangeability
Q1	METER MUTE switch	OFF during PLAY, REC and REC PAUSE, and ON in other modes.
IC1	1/2-exponential compressing amp	Outputs the DC voltage proportional to the AC input signal by 1/2 exponent.
IC2	DC amp	Amplifies the IC1 output voltage to the required level.

Record/Play Amp Unit (X87-1030-04)

Components	Use/Function	Operations/Condition/Interchangeability
Q1-2	REC MUTE switch	During PLAY, FF, PLAY PAUSE and REC PAUSE, the RM control terminal at microprocessor IC7 (X26-1182-71) pin 1 outputs "L", turning Q34 (X26-1182-71) ON. This applies "H" to the bases of Q1 and Q2, turning Q1 and Q2 ON.
Q3-4	Equalizer switch for METAL	Controlled by AUTO TAPE SEL (X26-1182-71) of Q17 and Q18. OFF with METAL tape, and ON with NORMAL and CrO ₂ tapes.
Q5-6	Play equalizer switch	Controlled by AUTO TAPE SEL (X26-1182-71) of Q17 and Q18. OFF with NORMAL tape (120 μ s), and ON with CrO ₂ and METAL tapes (70 μ s).
IC1	Record equalizer amp	
IC2	Play equalizer amp	

BIAS OSC UNIT (X87-1190-00)

Component	Use/Function	Operations/Condition/Compatibility
IC1	HX-PRO IC	
Q1	Bias oscillator	Bias oscillator for erase head.
Q2	Bias oscillator control	Bias oscillator level control for recording.

CIRCUIT DESCRIPTION

DOLBY HX-PRO SYSTEM

Improvement of Bias with the Dolby HX-PRO System

The DOLBY HX-PRO system is designed to vary the AC bias so that the bias components which are affected by the audio signal can be compensated sequentially. This system is used to control the bias in the servo system so that the effective bias amount (response of the "AC bias") and the audio signal (which is actually applied to the head) is not lowered at a high level.

When this system is used, the low-level high-frequency adjustments, which are effectively reduced, are appropriately compensated so that the optimum recording frequency response of a tape frequency is obtained, and the high-frequency response of a tape frequency is obtained, and the high-frequency response is improved.

Also, the output level falls off at high frequencies is eliminated. This results in a flat response over a widened high-frequency range. Fig. 1 shows an example of the improvement in the frequency response.

Outline of μ PC1297CA (X87-1190-01:IC1)

Dolby HX-PRO System and Construction/Operation of the μ PC1297CA

The system construction diagram is shown in Fig. 2 and the outline of operation is shown in Fig. 3. The effective bias is detected at the edge of the tape head. The high-frequency components (more than 10kHz) are extracted from the detected signal by the filter, and converted into a DC voltage. The resultant voltage is compared with the reference voltage for setting the bias amount, and the AC bias is controlled by the VCA (Voltage Controlled Amplifier) circuit so that a constant bias is obtained. By switching the reference voltage, the bias level can be set for each type of tape used.

Dolby HX-PRO System Circuit

The μ PC1297CA is an IC which control the effective bias amount that is applied to the recording head in the tape deck. "HX" stands for Headroom Extension. With this system, the dynamic range is greatly extended to the high frequencies, while the high frequency response range is improved.

Features

- Wider power voltage range, VCC = 8~15~18V.
- Two-channel Dolby HX-PRO system provided.

Explanation of pin name

Pin No.	Symbol	Pin name	Pin No.	Symbol	Pin name
1	VST	Reference power supply pin	10	VIN01	5.5V oscillator input pin
2	VR1	Comparator reference pin 1	11	VOUT02	VCA output pin 21
3	VIN01	Signal input pin 1	12	VOUT01	VCA output pin 22
4	P11	Peak hold capacitor pin 1	13	COU2	Comparator output pin 2
5	CIN1	Comparator input pin 1	14	CIN2	Comparator input pin 2
6	COU1	Comparator output pin 1	15	P12	Peak hold capacitor pin 2
7	VOUT01	VCA output pin 1	16	VX0102	5.5V oscillator pin 2
8	VOUT02	VCA output pin 2	17	ZIN	Impedance reference pin 2
9	VCC	Power supply pin	18	ZIN	Impedance reference pin 1

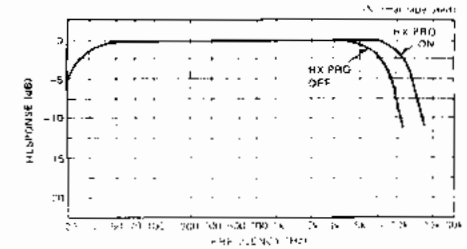


Fig. 1 Improvement example of the tape output frequency response with Dolby HX-PRO

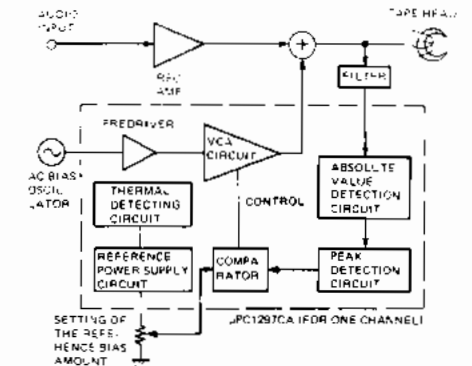


Fig. 2 System configuration of Dolby HX-PRO

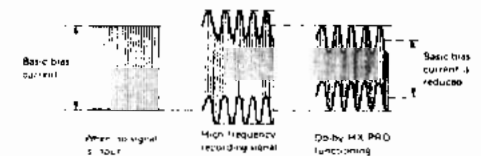


Fig. 3 Operation principle of Dolby HX-PRO

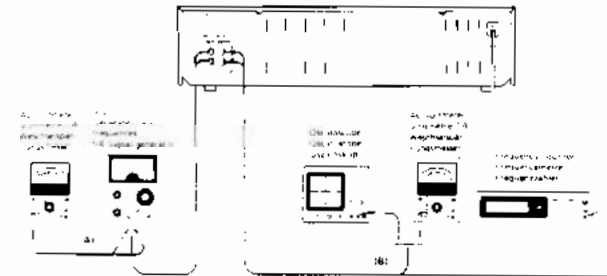
- Lower 2nd harmonics distortion, -70dB TYP.
- Bias level can be set for each type of head used.
- Thermal detecting protection circuit built-in.
- Packaged in an 18-pin shrink DIP (dual in-line package).

ABGLEICH

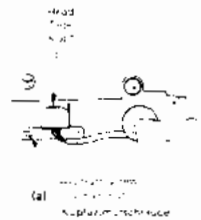
ADJUSTMENT/REGLAGE/ABGLEICH

Nr.	GRENZFALL	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	KASSETTENGERÄT-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
CASSETTEN-DECKEL ABTEILUNG TAPE: NORMAL, DOLBY: OFF, ZIANGANG LINE, KALIBRIERUNG: MITTE						0dB = 0,775V	
1 AUFNAHME/WIEDERGABE-KOPF							
1	ENTMAGNETISIERUNG			POWER: OFF	AUFNAHME-WIEDERGABE-Kopf	Entmagnetisierung von dem AUFNAHME-WIEDERGABE-Kopf	
2	ENTMAGNETISIERUNG				AUFNAHME-WIEDERGABE-Kopf	Entmagnetisierung von dem AUFNAHME-WIEDERGABE-Kopf	
3	ENTMAGNETISIERUNG	MTT 100, 400kHz	0dB	PLAY	VR3 (L), VR4 (R)	Ausgangspegel: 0,0dB	
4	ENTMAGNETISIERUNG	MTT 256, 1000kHz	0dB	PLAY	VR1 (L), VR2 (R)	Ausgangspegel: 4,0dB	
5	ENTMAGNETISIERUNG	MTT 256, 1000kHz	0dB	PLAY	VR1 (L), VR2 (R)	Ausgangspegel: 0,0dB	
2 REGELWERT-SCHALTER							
1	REC PESEL VR (MASTER, PRESET) so justieren, daß der REC Monitorausgang 20dB bei 1kHz wird, und dann abwechselnd Signal von 1kHz und 10kHz aufnehmen und wiedergeben.	1kHz, 30dB	0dB	REC PULSE REC and PESEL VR so einstellen, daß der Monitorausgang bei 1kHz, 40dB ist	VR1 (L), VR2 (R)	Die Regelwiderstände so justieren, daß ein Ausgangspegel von 20dB erreicht wird	
2	REC PESEL VR (MASTER, PRESET) so justieren, daß der REC Monitorausgang 20dB bei 1kHz wird, und dann abwechselnd Signal von 1kHz und 10kHz aufnehmen und wiedergeben.	1kHz, 30dB	0dB	REC PULSE REC and PESEL VR so einstellen, daß der Monitorausgang bei 1kHz, 40dB ist	VR1 (L), VR2 (R)	Die Regelwiderstände so justieren, daß ein Ausgangspegel von 20dB erreicht wird	
3	REC PESEL VR (MASTER, PRESET) so justieren, daß der REC Monitorausgang 20dB bei 1kHz wird, und dann abwechselnd Signal von 1kHz und 10kHz aufnehmen und wiedergeben.	1kHz, 30dB	0dB	REC PULSE REC and PESEL VR so einstellen, daß der Monitorausgang bei 1kHz, 40dB ist	VR1 (L), VR2 (R)	Die Regelwiderstände so justieren, daß ein Ausgangspegel von 20dB erreicht wird	
4	REC PESEL VR (MASTER, PRESET) so justieren, daß der REC Monitorausgang 20dB bei 1kHz wird, und dann abwechselnd Signal von 1kHz und 10kHz aufnehmen und wiedergeben.	1kHz, 30dB	0dB	REC PULSE REC and PESEL VR so einstellen, daß der Monitorausgang bei 1kHz, 40dB ist	VR1 (L), VR2 (R)	Die Regelwiderstände so justieren, daß ein Ausgangspegel von 20dB erreicht wird	
3 CAR ABGLEICH							
1	CAR ABGLEICH		0dB		VR7	0dB	

SYSTEM CONNECTION

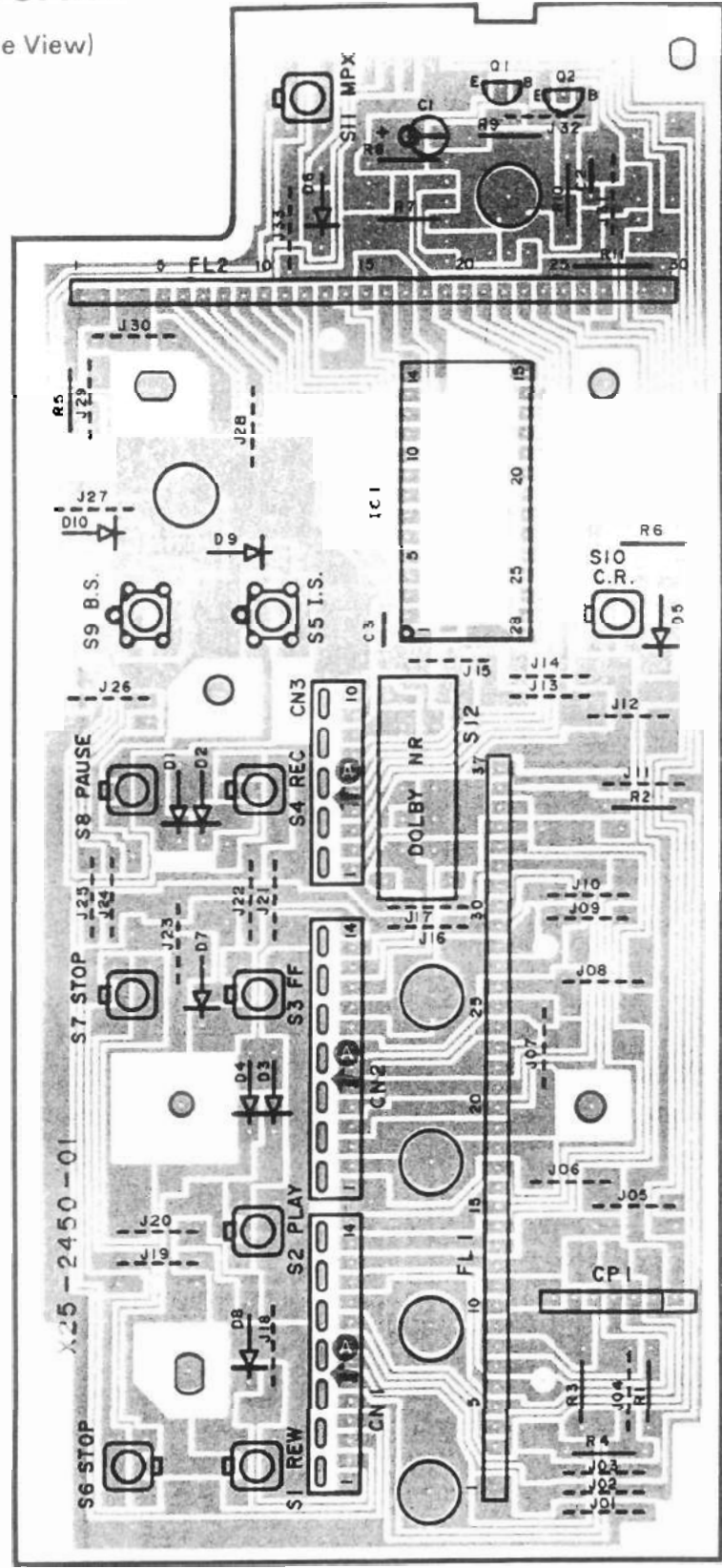


AZIMUTH

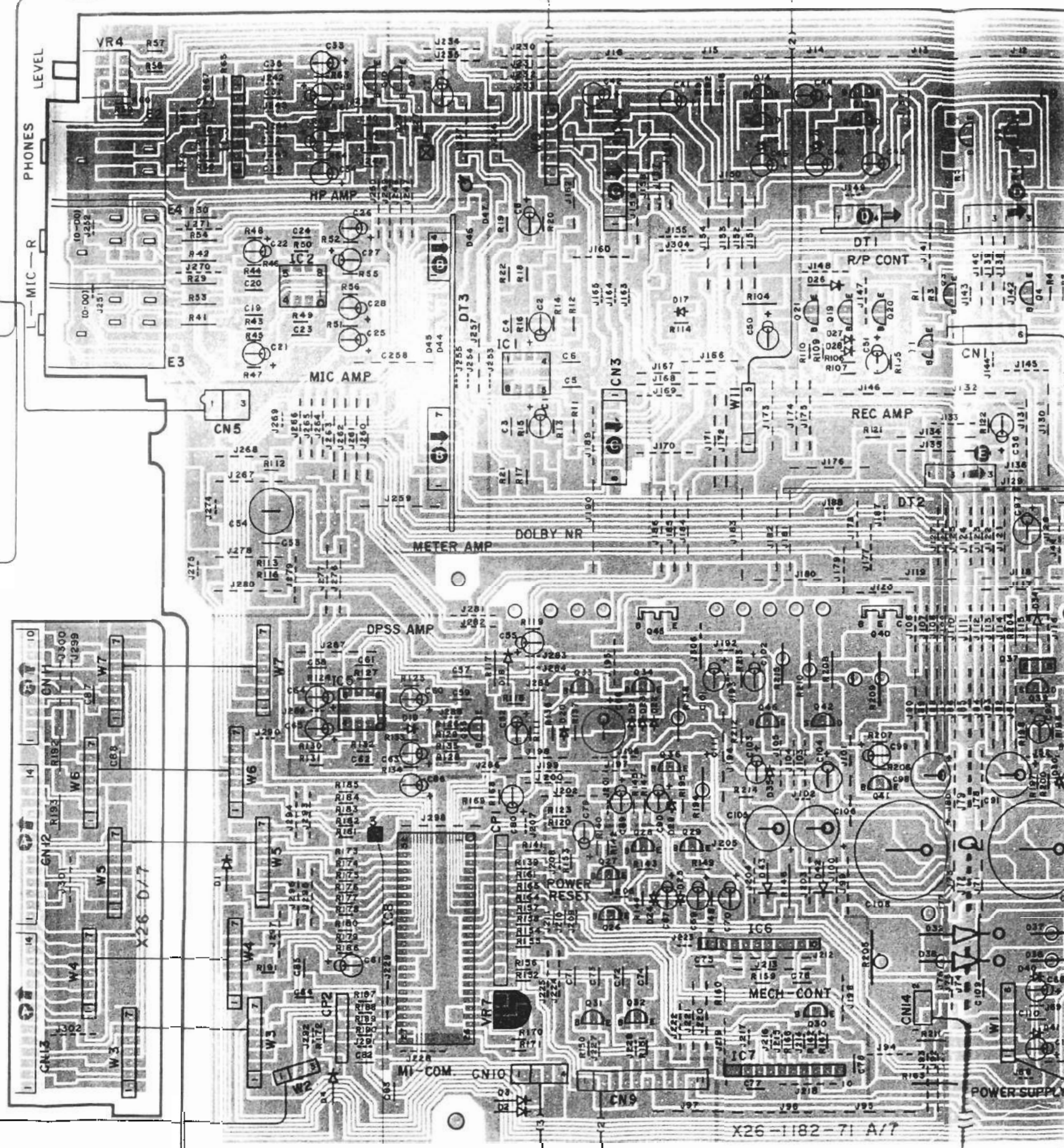
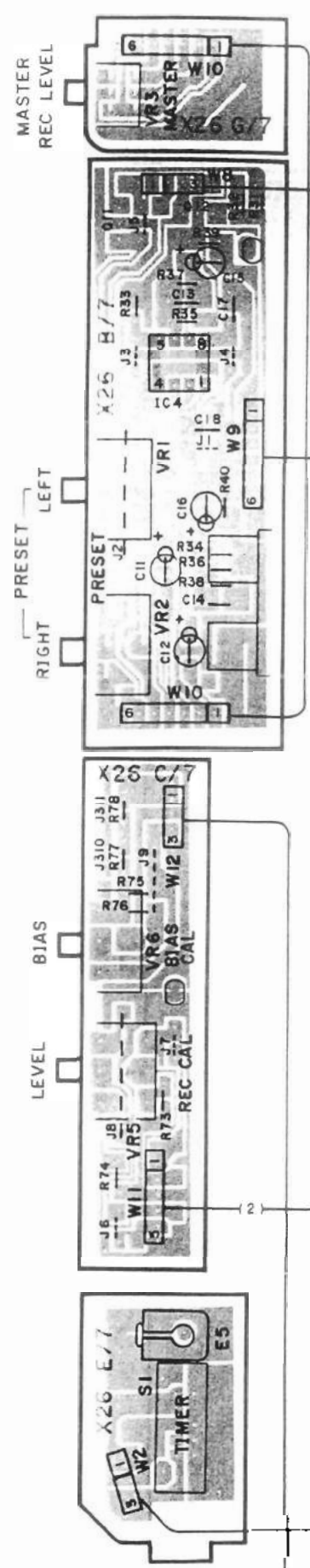
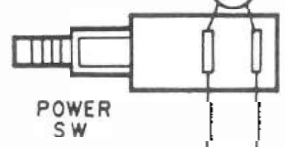


PC BOARD

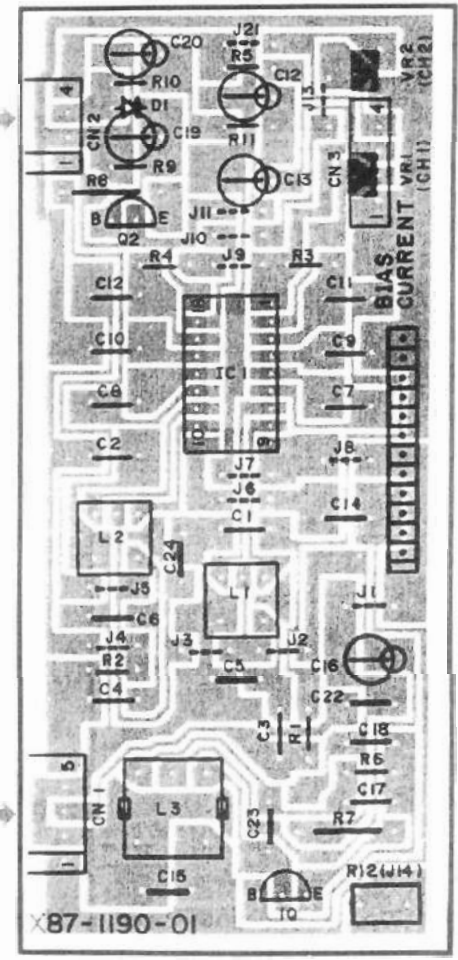
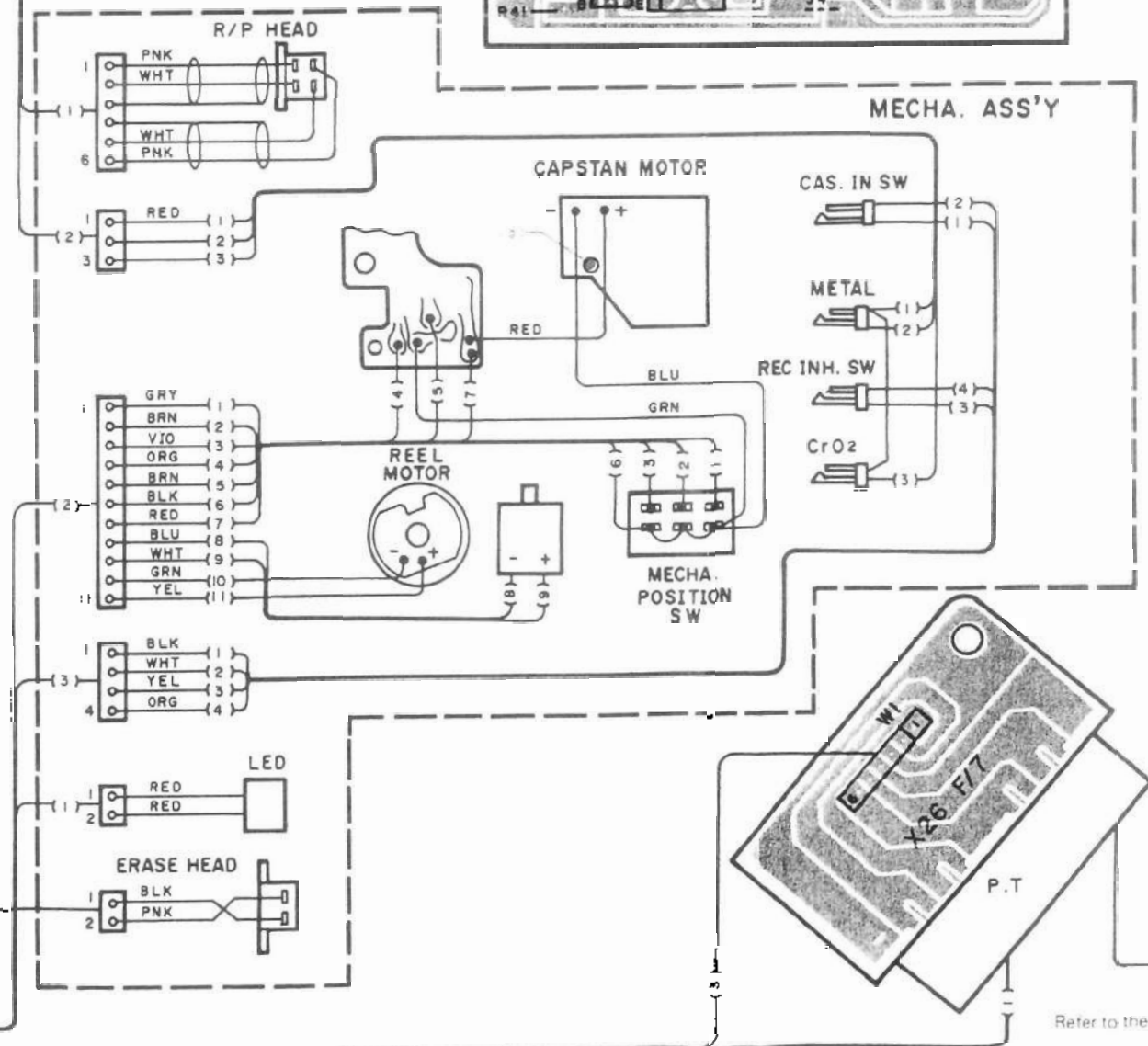
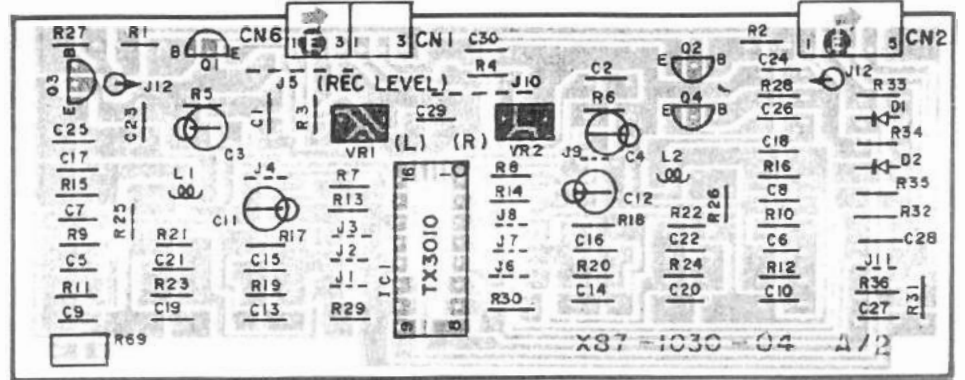
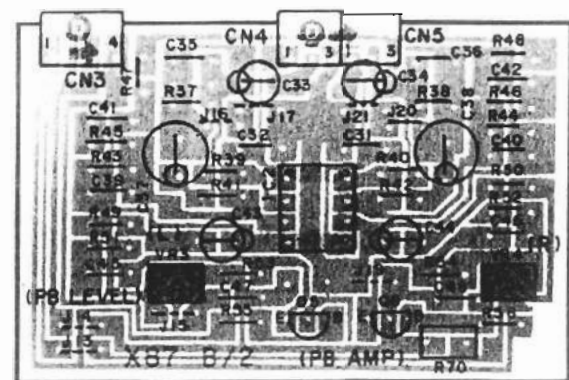
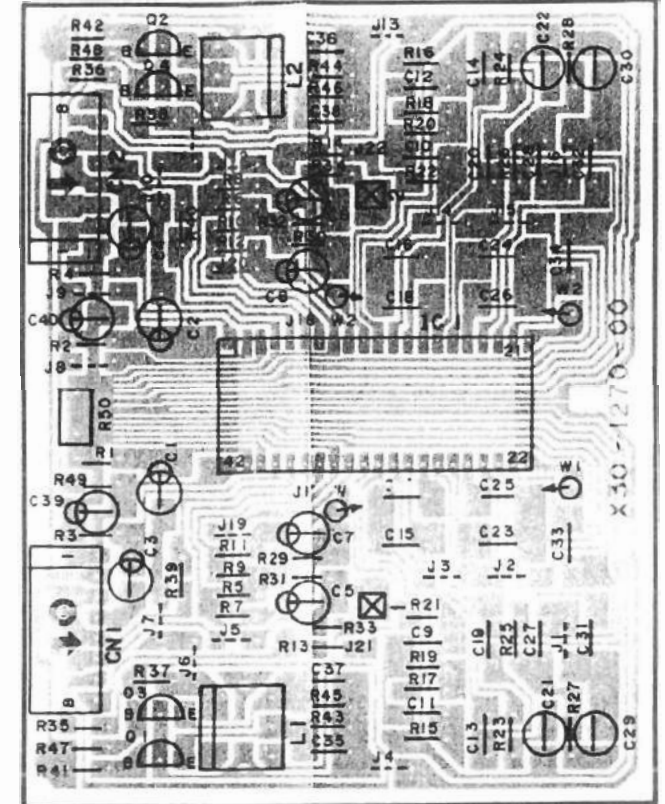
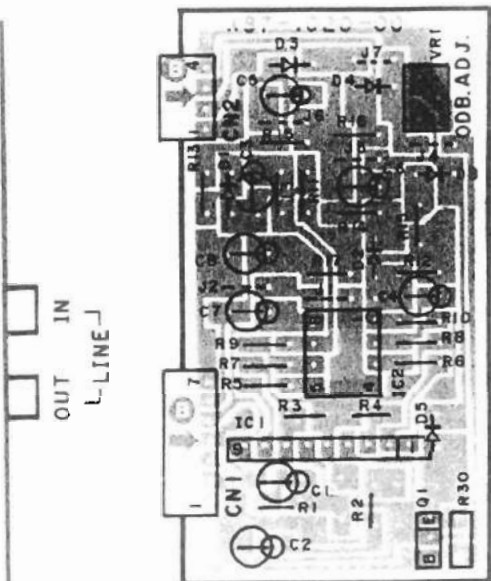
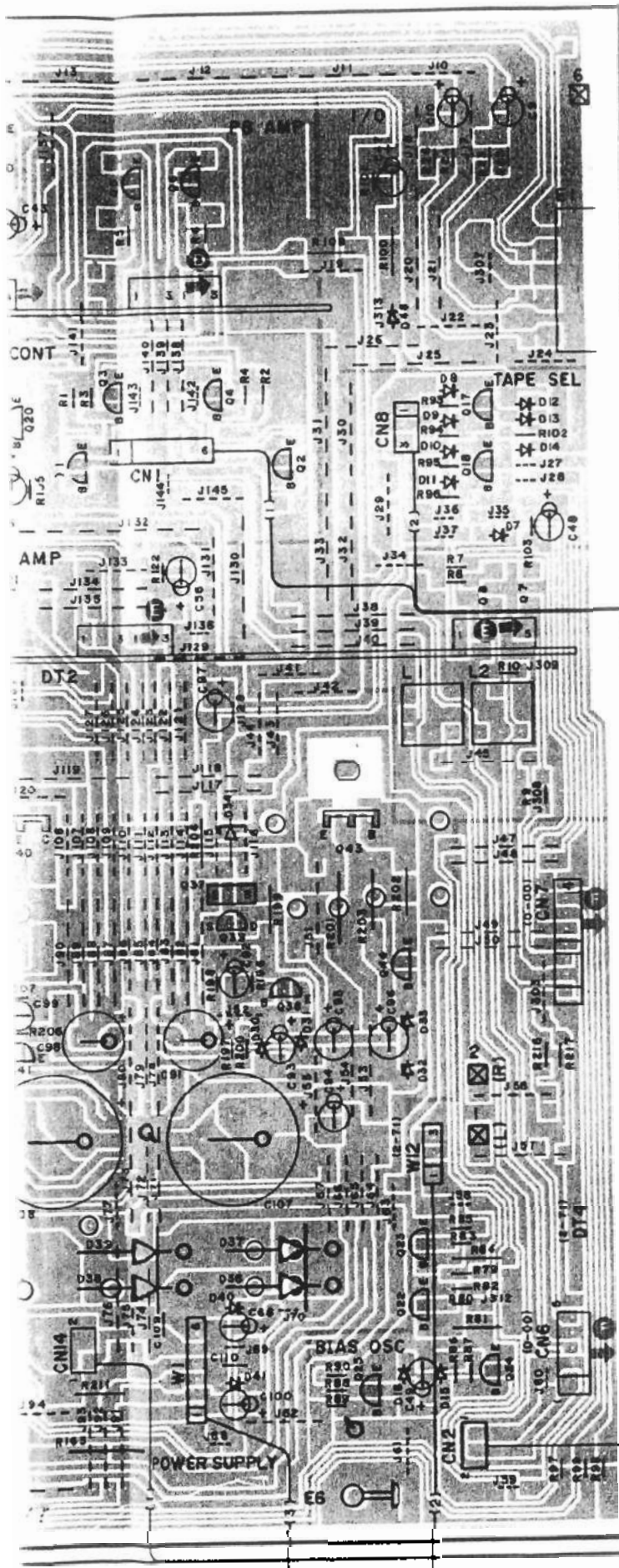
(Foil Side View)



FRONT



X26-1182-71 A/7

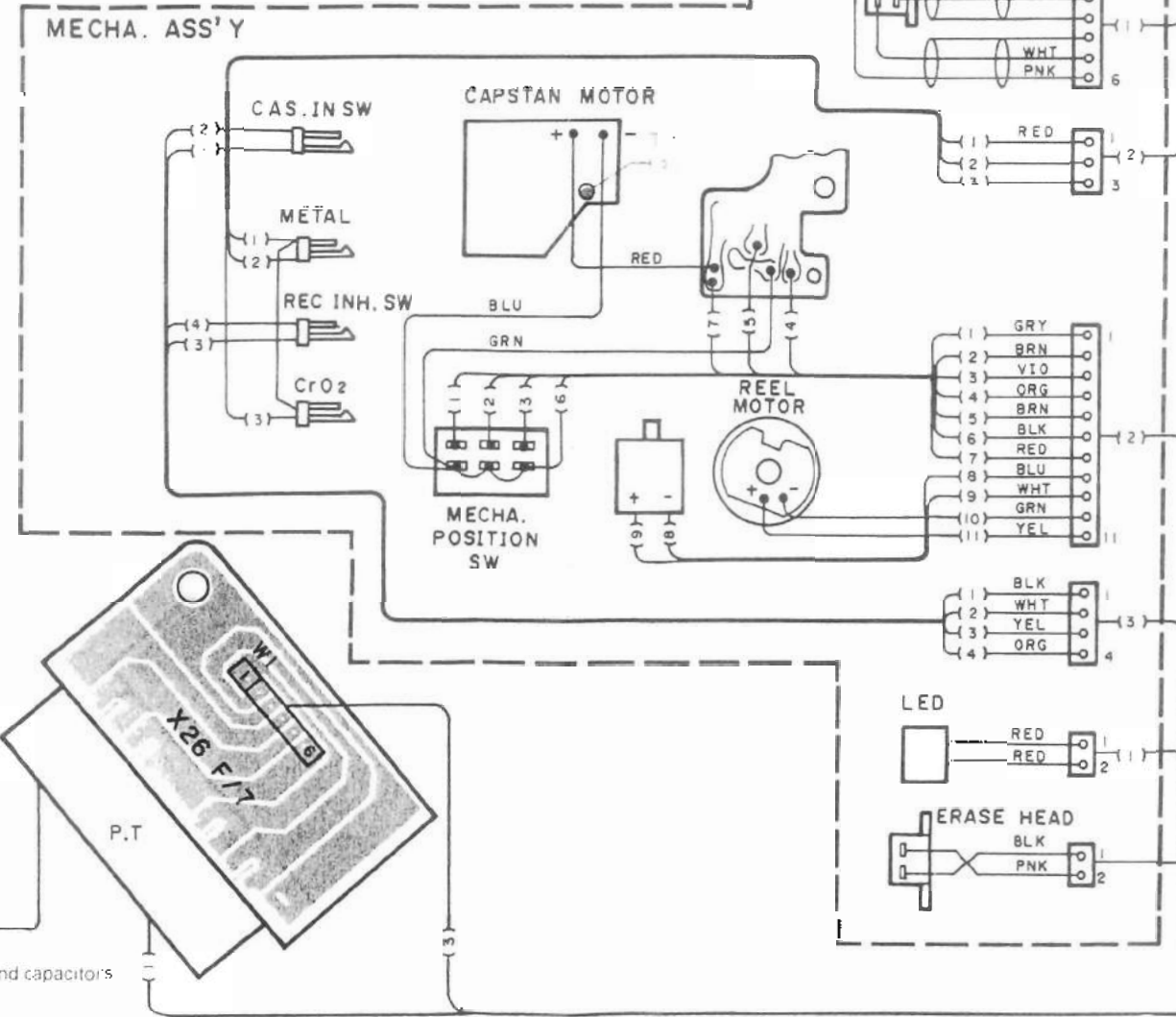
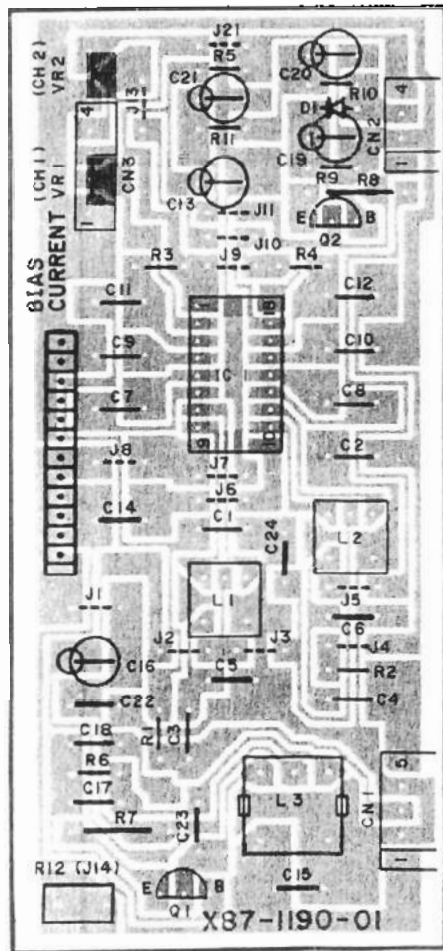
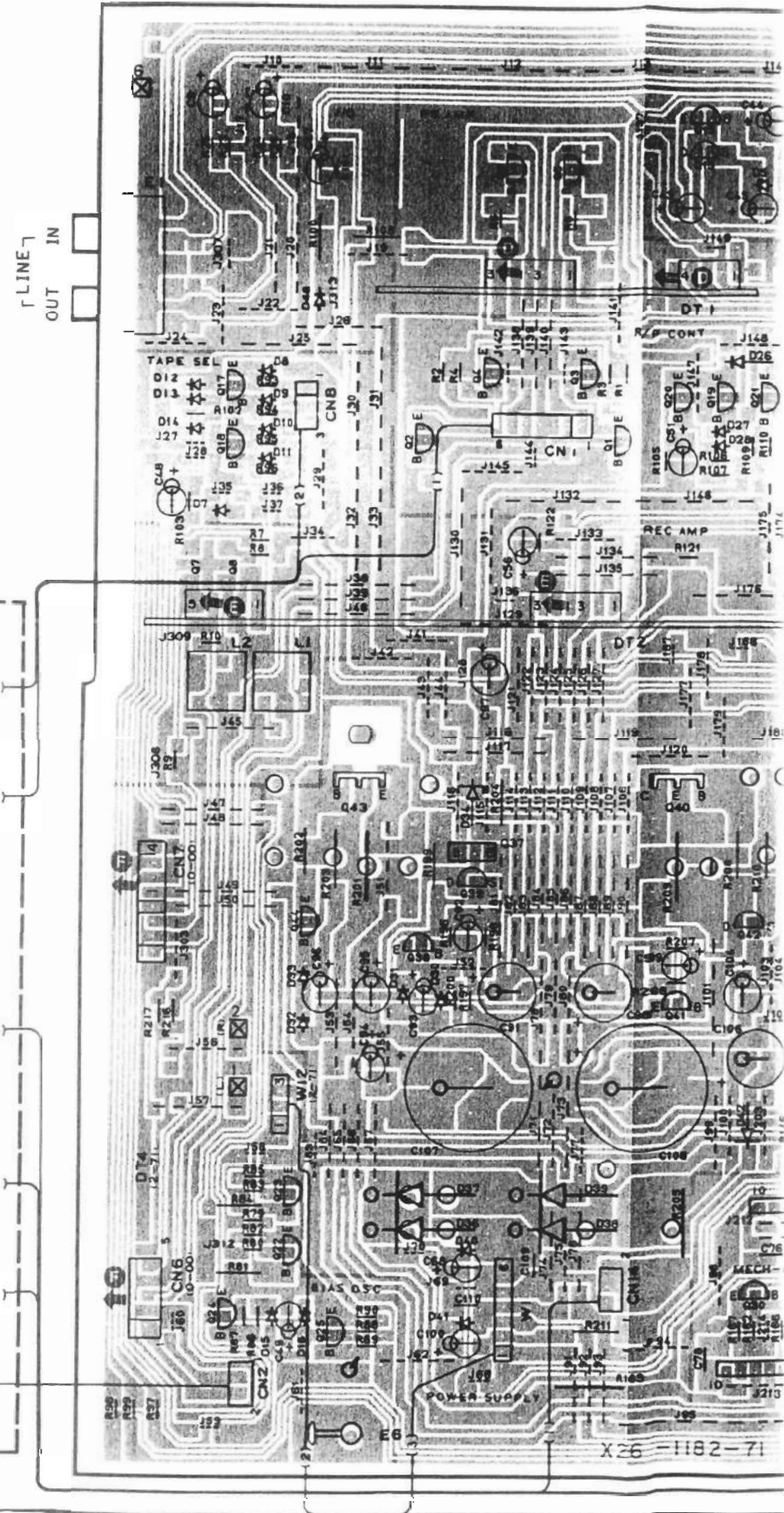
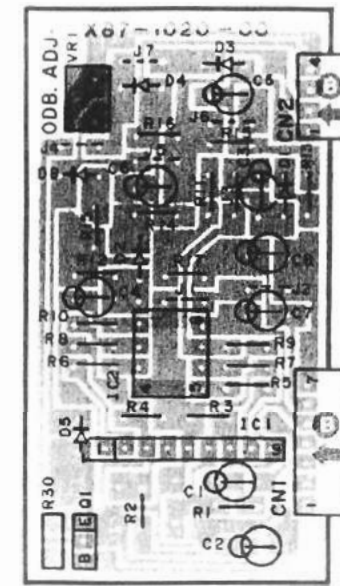
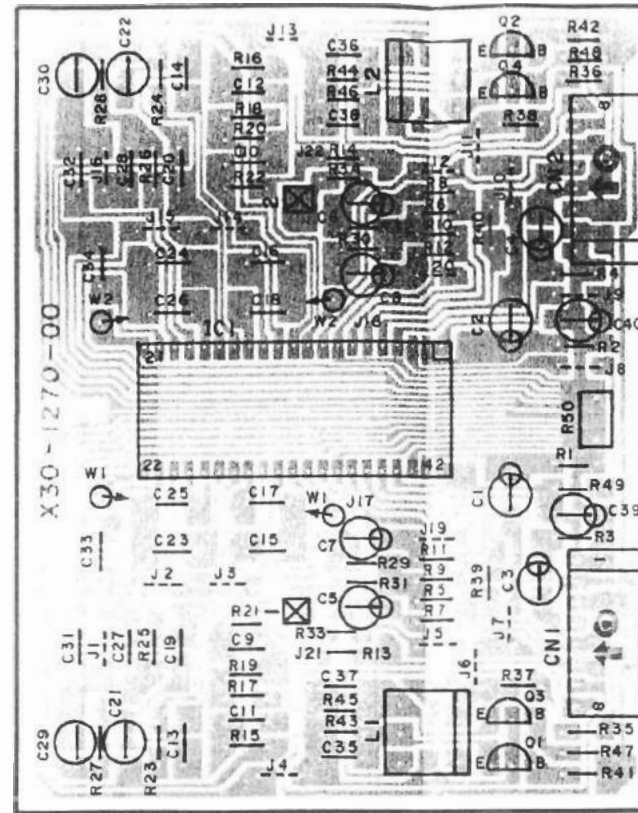
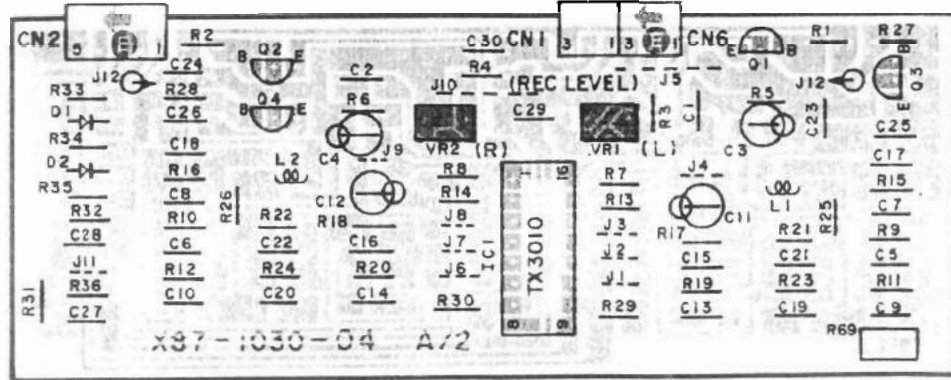
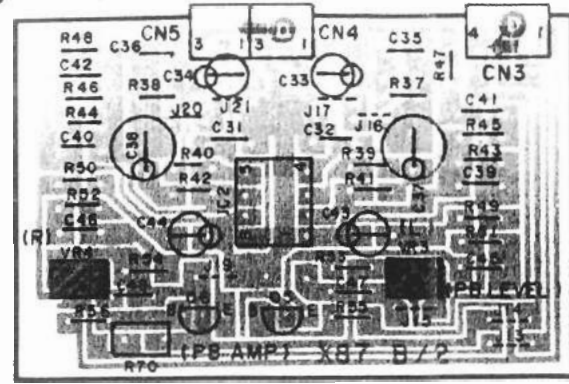


Refer to the schematic diagram for the values of resistors and

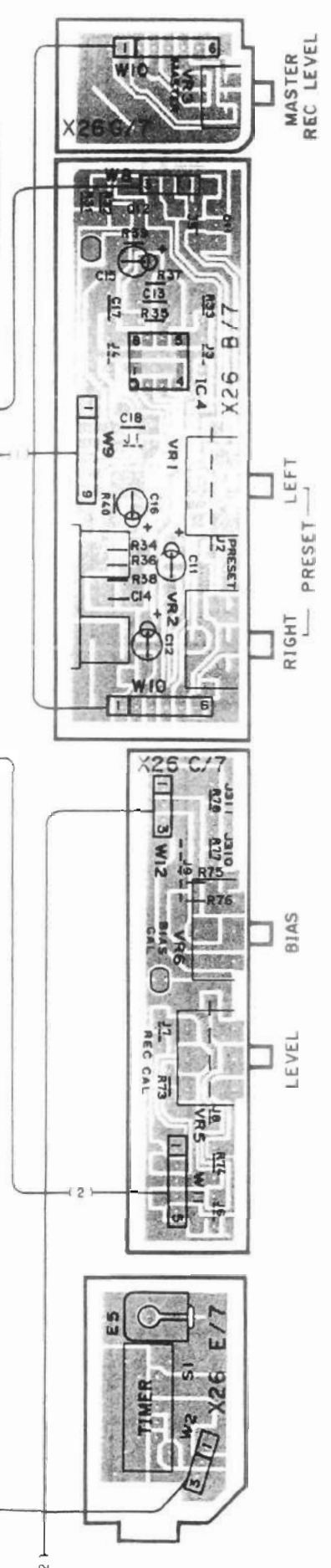
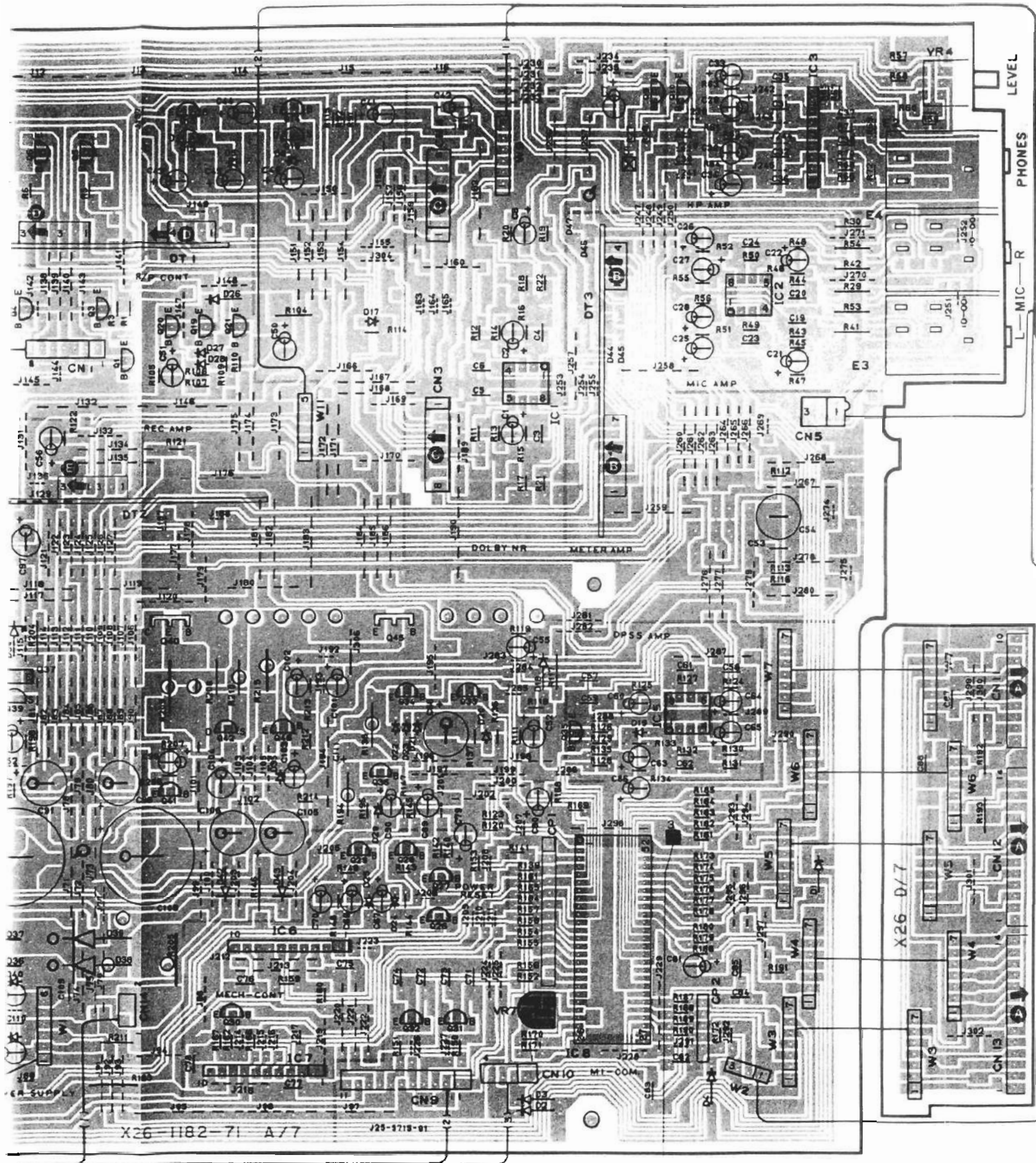
AC120V
60Hz

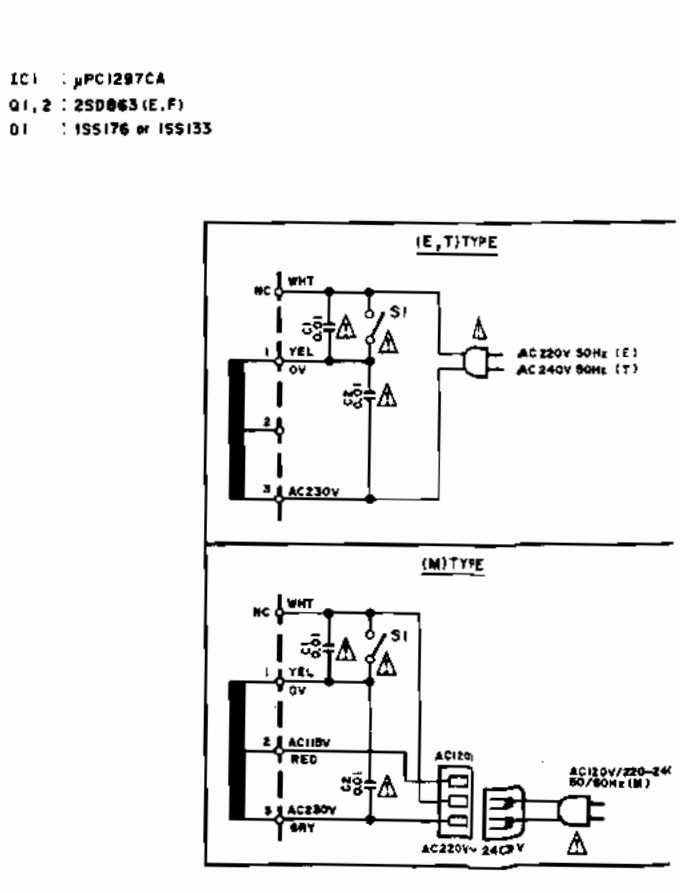
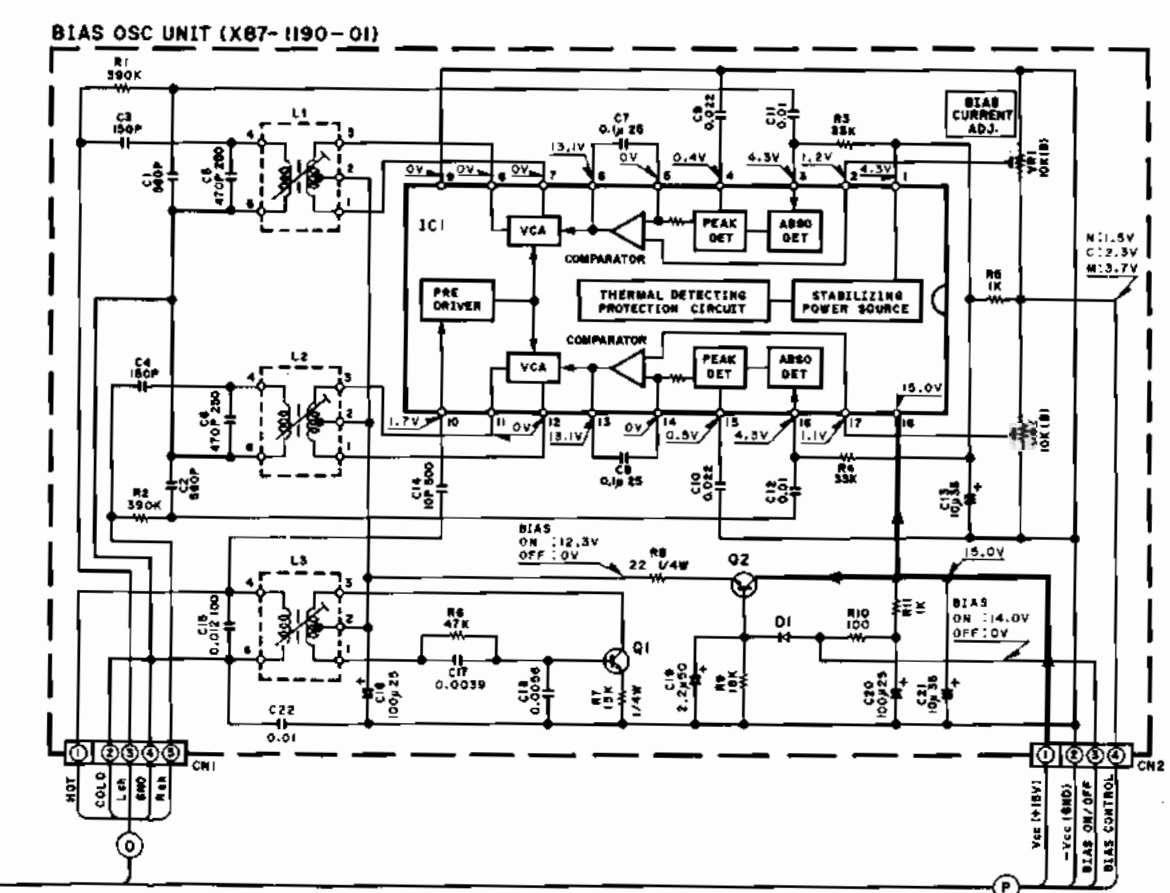
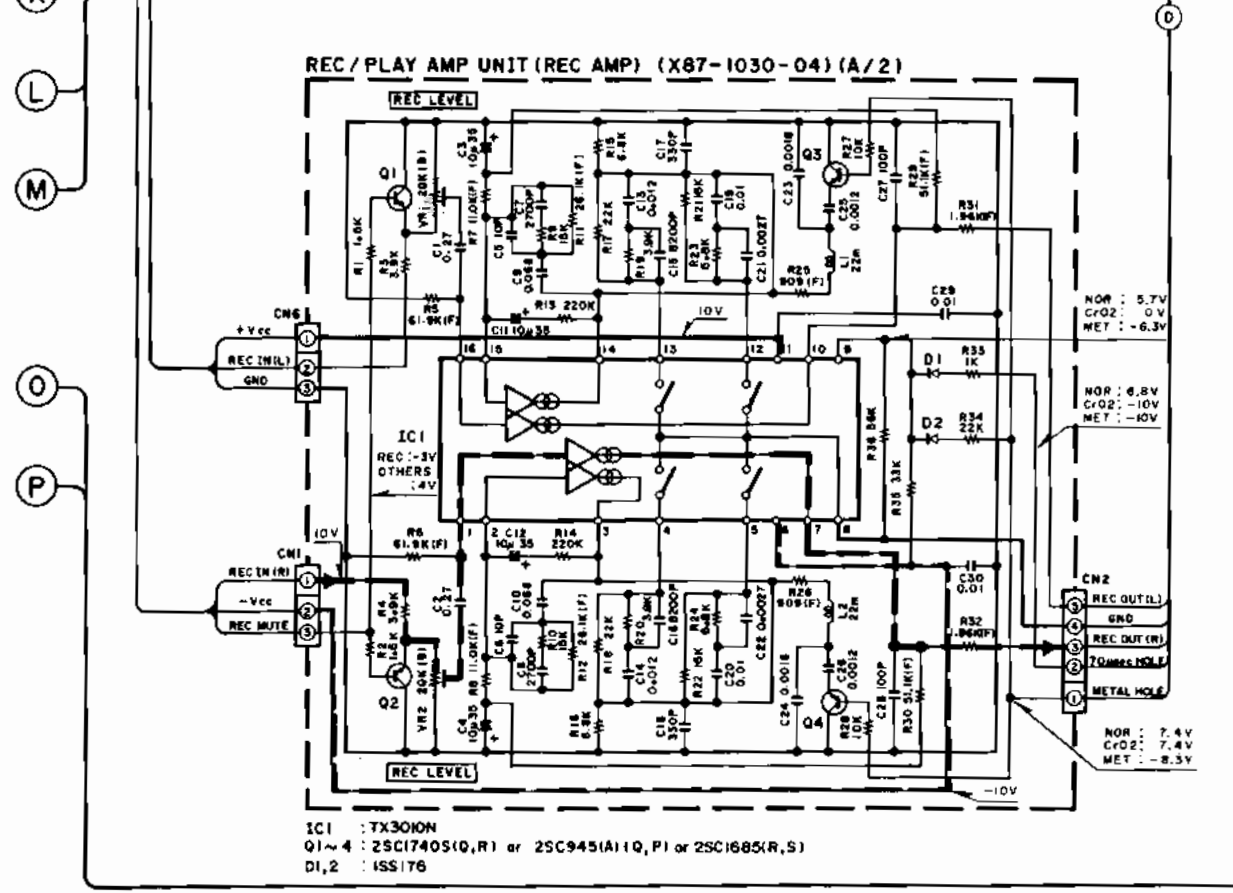
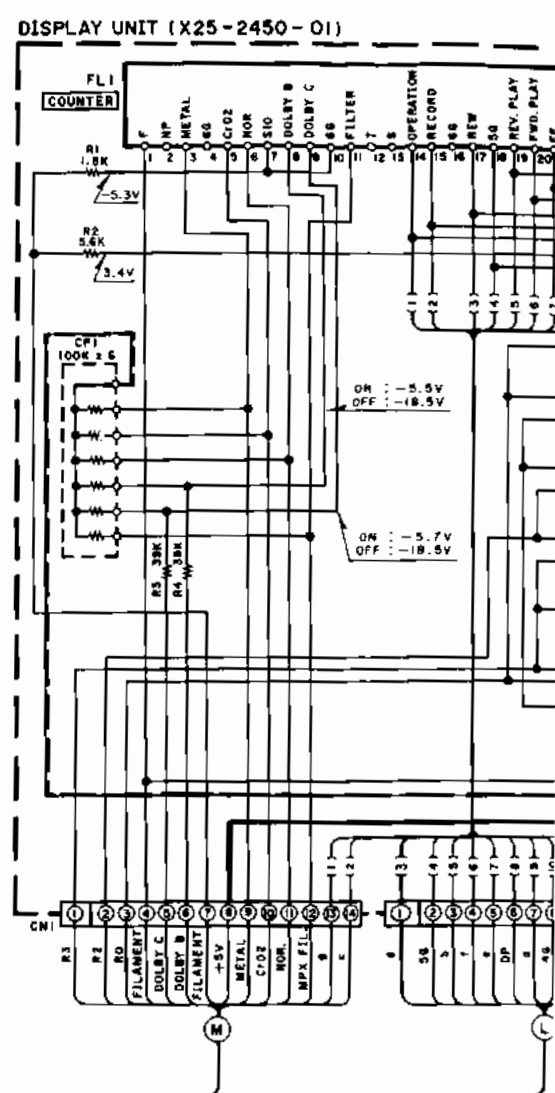
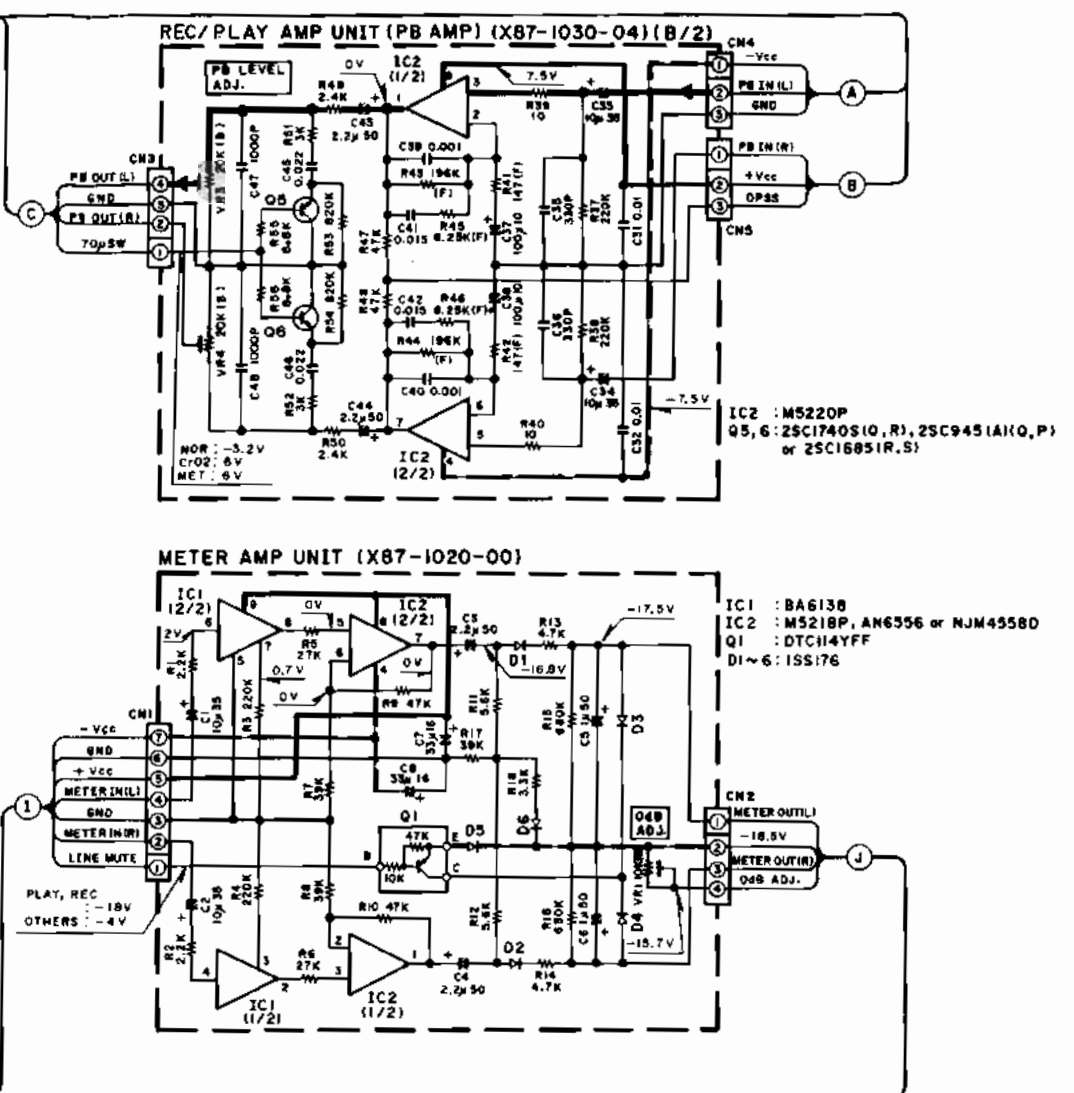
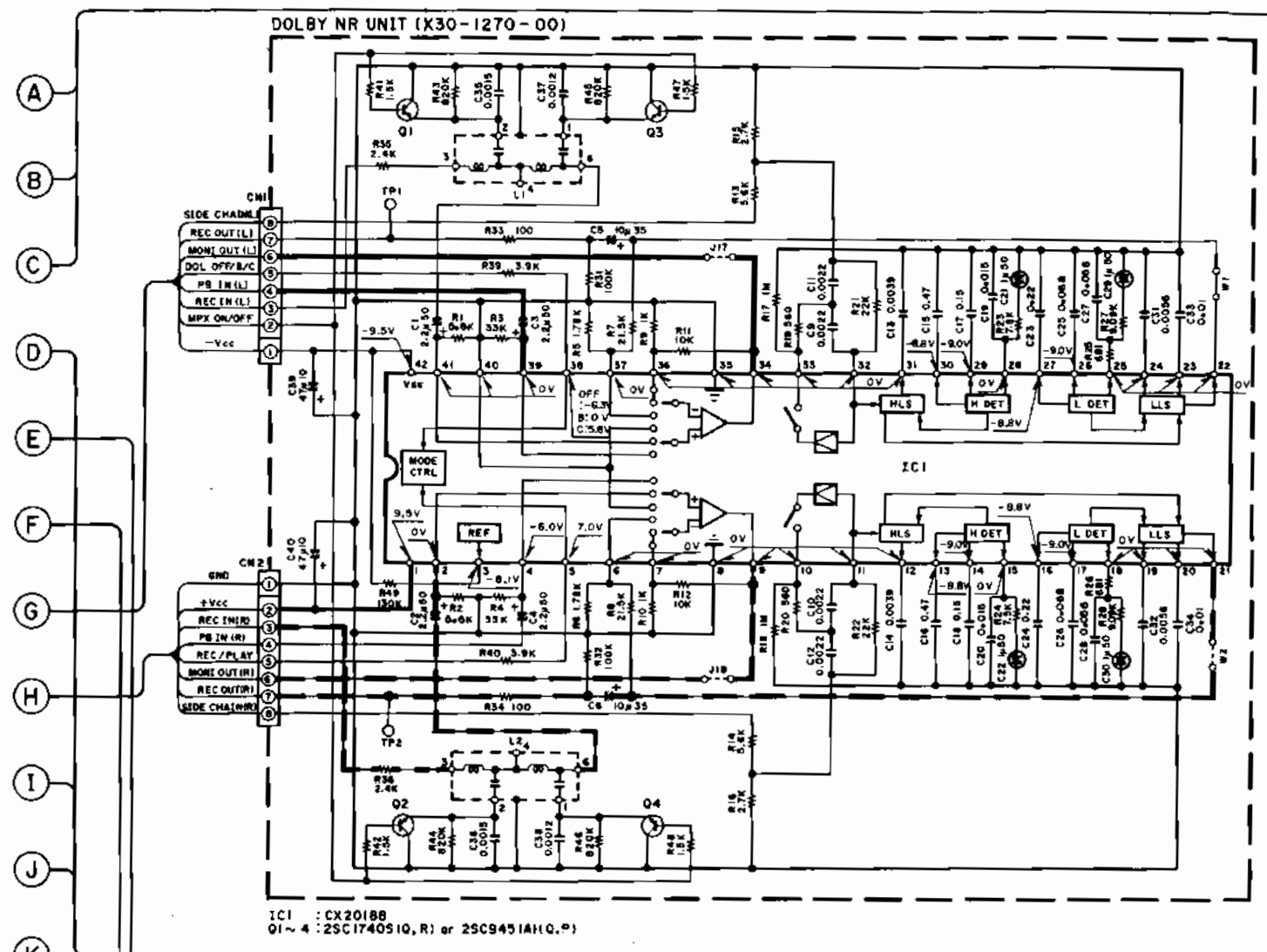
KX-880HX (K)

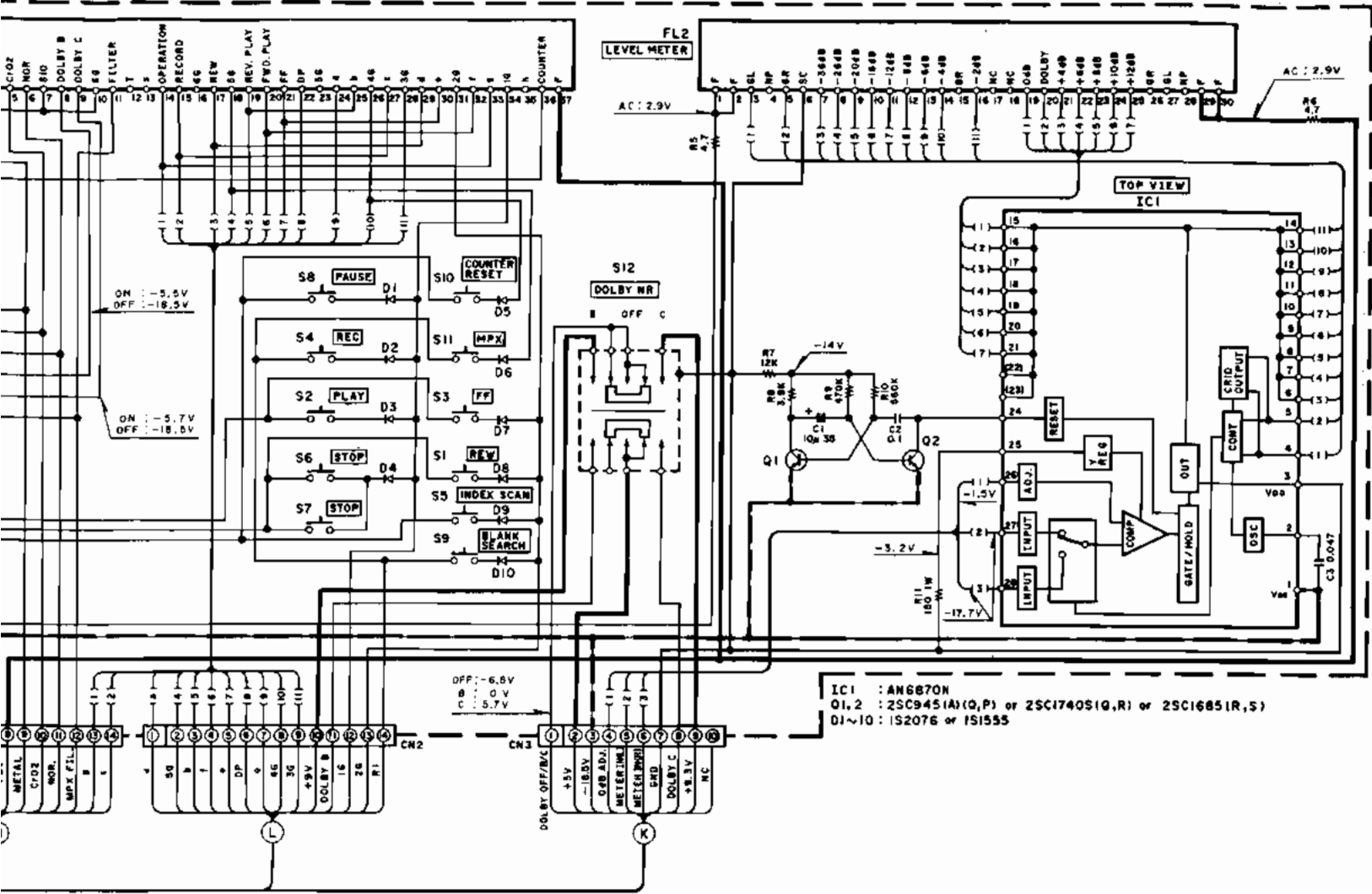
PC BOARD (Component Side View)



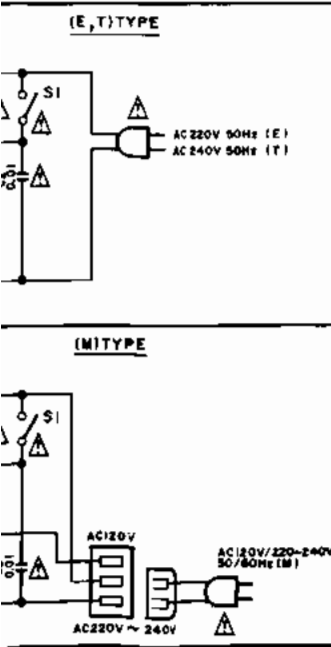
Refer to the schematic diagram for the values of resistors and capacitors







——— SIGNAL LINE
 ——— RECORDING LINE
 ——— GND LINE
 ——— +B LINE
 - - - -B LINE



IC1 : AN6870N
 Q1,2 : 2SC945 (A)(Q,P) or 2SC1740S (Q,R) or 2SC1685 (R,S)
 D1~10 : IS2076 or IS1555

2SA733 (A)		
2SA954		
2SA992		
2SC1685		BA6138
2SC1845		
2SC2003		
2SC2878		
2SC945 (A)		AN6556
2SD1302		M5218P
2SD863		M5218P-A
		M5220P
2SB772-1		
2SD1266		M5218L
DTC114YFF		CX20188
2SA933S		2SK163
2SC1740S		2SK364
		BA6209
		BA6229
NJM4558D		
NJM4558D (A)		
		UPC1297CA
AN6870N		
TX3010N		M50757-401SP

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

DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance, une cassette étant insérée en mode de lecture. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

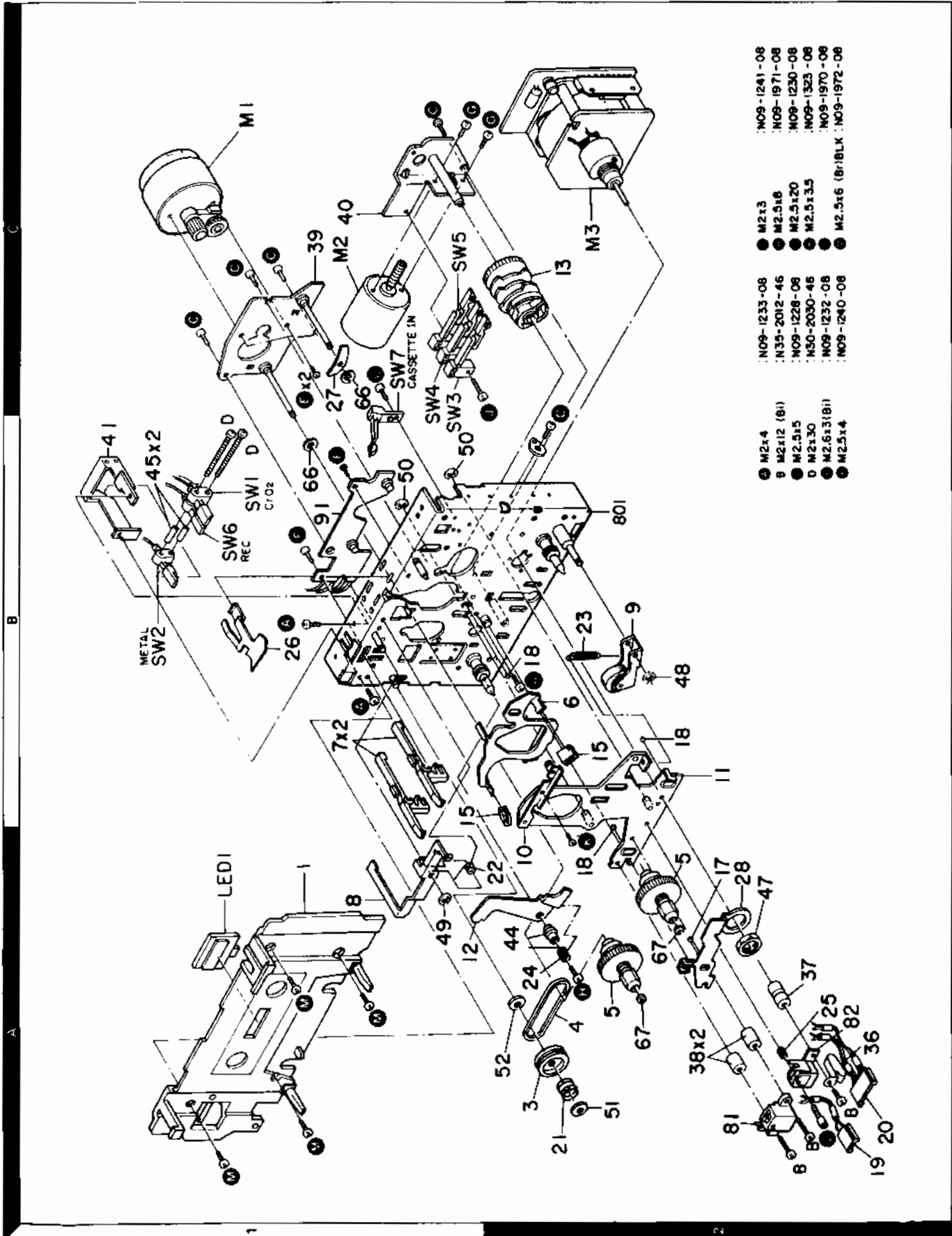
Les tensions c.c. du circuit de polarité doivent être mesurées, l'appareil étant en mode d'enregistrement.

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

Die angegebenen Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergabe mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig. Die angegebenen Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.



EXPLODED VIEW (MECHANISM UNIT)



Parts with the exploded numbers larger than 700 are not supplied. 31

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied.

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

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
KX-880HX						
201	1D		A01-1348-02	METALLIC CABINET		
202	2D	*	A20-5375-03	PANEL ASSY		
203	2D	*	A53-0986-03	CASSETTE LID ASSY		
204	1E		A53-0629-33	CASSETTE HOLDER ASSY		
208	2D		B07-1411-02	ESCUTCHEON (L MTR, DISP, KNBB)		
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-8588-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B50-8589-00	INSTRUCTION MANUAL (FRENCH)	PME	
-		*	B50-8590-00	INSTRUCTION MANUAL (SPANISH)	M	
-		*	B50-8591-00	INSTRUCTION MANUAL (G. D. I)	E	
1. 01 2			C91-0023-05	CERAMIC 0.01UF AC250V	M	
1. 01 2			C91-0647-05	CERAMIC 0.01UF P	PTE	
213	1E		D10-1764-04	LEVER		
214	1E		D39-0172-05	DAMPER ASSY		
1. 217	1E		E03-0102-25	AC INLET	M	
1. 218	1E		E30-0505-05	AUDIO CARD		
1. 219	1E		E30-0459-05	AC POWER CARD	E	
1. 219	1E		E30-0780-05	AC POWER CARD	P	
1. 219	1E		E30-1305-15	AC POWER CARD (INLET)	M	
1. 219	1E		E30-1416-05	AC POWER CARD	P	
223	1E		G01-1741-04	TORSION COIL SPRING (LEVER)		
224	1E		G01-1742-04	TORSION COIL SPRING (CASSET HOLD)		
-		*	H01-7701-04	ITEM CARTON CASE		
-		*	H10-1827-12	POLYSTYRENE FRAMED FIXTURE		
-		*	H10-1828-12	POLYSTYRENE FRAMED FIXTURE		
-			H20-0417-14	PROTECTION COVER (460X370X360)	M	
-			H20-0824-04	PROTECTION BAG (800X400X0.03)	PTE	
-			H20-0824-04	PROTECTION BAG (800X400X0.03)		
-			H20-0824-04	PROTECTION BAG (800X400X0.03)		
-			H20-0824-04	PROTECTION BAG (800X400X0.03)		
229	2E, 2F		J02-0190-15	PORT		
1. 30	2E		J19-2536-05	INLET HOLDER (FCR)		
232	2E		J21-3326-05	JACK MOUNTING HARDWARE (PHONES)		
1. 235	1E		J42-0083-05	POWER CORD BUSHING	PTE	
-			J61-0307-05	WIRE BAND		
240	2D		K27-1082-14	KNBB (BUTTON) POWER		
241	2D		K27-1594-14	KNBB (BUTTON) DOLBY NR		
242	2E		K27-1525-14	KNBB (BUTTON) CENTER RESP		
243	2D		K29-1822-14	KNBB (BUTTON) MASTER REC. LEVEL		
244	2D		K29-1837-14	KNBB (BUTTON) REPLY		
245	2E		K29-1865-14	KNBB (BUTTON) FF		
1. 246	2D		K29-1866-14	KNBB (BUTTON) REV		
247	2E		K29-1890-14	KNBB (BUTTON) REF		
248	2E		K29-1891-14	KNBB (BUTTON) PAUSE		
249	2D		K29-2000-14	KNBB (BUTTON) PRESET		
250	2D		K29-2200-04	KNBB (BUTTON) EJECT		
251	2D		K29-2201-04	KNBB (BUTTON) STAG. EJECT		
252	2E		K29-2202-14	KNBB (BUTTON) STOP		
253	2D		K29-2203-04	KNBB (BUTTON) MAX. POWER		

E: Scandinavia & Europe K: USA P: Canada
 U: PX (Far East, Hawaii) T: England M: Other Areas
 UE: AAFES (Europe) X: Australia

 indicates safety critical component.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

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

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
R209		RS14K83D150J	FL-PROBE RS 15 J 2W		
R210		RD14AB2E331J	FL-PROBE RD 330 J 1/4W		
R211		R92-0228-05	EDGE RESIST 100 5 1/4W		
R215		RS14DB3A182J	FL-PROBE RS 1.8K J 1W		
VR1 -2	25	R01-4012-05	POTENTIOMETER 10K X20 (REV. 1)		
VR1	25	R01-5020-05	POTENTIOMETER 100K X20 (REV. 1)		
VR4	25	R10-3023-05	POTENTIOMETER 10K X20 (REV. 1)		
VR5	25	R06-2015-05	POTENTIOMETER 10K X20 (REV. 1)		
VR6	25	R01-3043-05	POTENTIOMETER 10K X20 (REV. 1)		
VR7	25	R12-3026-05	POTENTIOMETER 10K X20 (REV. 1)		
S1	10	001-2062-15	SLIDE SWITCH 1-10MM		
D1 -4		1S5133	DIODE		
D1 -4		1S5176	DIODE		
D5 -6		HZ55, 25(B2)	ZENER DIODE		
D5 -6		RD5, 2ES(B2)	ZENER DIODE		
D7 -11		1S5133	DIODE		
D7 -11		1S5176	DIODE		
D13 -22		1S5133	DIODE		
D13 -22		1S5176	DIODE		
D23		HZ55, 1N(B2)	ZENER DIODE		
D23		RD5, 1ES(B2)	ZENER DIODE		
D24 -28		1S5133	DIODE		
D24 -28		1S5176	DIODE		
D29		HZ55, 6N(B2)	ZENER DIODE		
D29		RD5, 6ES(B2)	ZENER DIODE		
D30		HZ55, 1N(B2)	ZENER DIODE		
D30		RD5, 1ES(B2)	ZENER DIODE		
D31		1S5133	DIODE		
D31		1S5176	DIODE		
D32		HZ55, 2N(B2)	ZENER DIODE		
D32		RD6, 2ES(B2)	ZENER DIODE		
D33		HZ55, 6N(B2)	ZENER DIODE		
D33		RD5, 6ES(B2)	ZENER DIODE		
D34		HZ53, 9N(B)	ZENER DIODE		
D34		RD3, 9ES(B)	ZENER DIODE		
D35		HZ55, 1N(B2)	ZENER DIODE		
D35		RD5, 1ES(B2)	ZENER DIODE		
D36 -39		GP20DLN	DIODE		
D40 -41		1S5131	DIODE		
D40 -41		1S5178	DIODE		
D42 -43		DSM1A1	DIODE		
I01		MS218P	IC(OP AMP X2)		
I02		MS218P-A	IC(OP AMP X2)		
I02		NJM4558D(A)	IC(OP AMP X2)		
I03		MS218L	IC(OP AMP X2)		
I04		MS218P-A	IC(OP AMP X2)		
I04		NJM4558D(A)	IC(OP AMP X2)		
I05		MS218P	IC(OP AMP X2)		
I05		NJM4558D	IC(OP AMP X2)		
I06		BA6209	IC(MOTOR DRIVER)		
I07		BA6229	IC(MOTOR DRIVER)		
ICB		M50757-4015P	IC(MICROPROCESSOR)		
Q1 -6		2SC1845(F-E)	TRANSISTOR		
Q9 -10		2SC2878(B)	TRANSISTOR		

E: Scandinavia & Europe K: USA P: Canada
 U: PK(Far East, Hawaii) T: England M: Other Areas
 UE: AAFSS(Europe) X: Australia

indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

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

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
Q9 -10		2SD1302(S-T)	TRANSISTOR		
Q13		2SC1740S(O-R)	TRANSISTOR		
Q13		2SC945(A)(O-P)	TRANSISTOR		
Q14		2SA733(A)(O-P)	TRANSISTOR		
Q14		2SA933S(O-R)	TRANSISTOR		
Q15 -16		2SK163(M-N)	FET		
Q15 -16		2SK364(BL-V)	FET		
Q17 -19		2SA733(A)(O-P)	TRANSISTOR		
Q17 -19		2SA933S(O-R)	TRANSISTOR		
Q20		2SA992(F-E)	TRANSISTOR		
Q21		2SA733(A)(O-P)	TRANSISTOR		
Q21		2SA933S(O-R)	TRANSISTOR		
Q22 -25		2SC1740S(O-R)	TRANSISTOR		
Q22 -25		2SC945(A)(O-P)	TRANSISTOR		
Q26		2SA733(A)(O-P)	TRANSISTOR		
Q26		2SA933S(O-R)	TRANSISTOR		
Q27 -32		2SC1740S(O-R)	TRANSISTOR		
Q27 -32		2SC945(A)(O-P)	TRANSISTOR		
Q33 -34		2SA733(A)(O-P)	TRANSISTOR		
Q33 -34		2SA933S(O-R)	TRANSISTOR		
Q35		2SC1740S(O-R)	TRANSISTOR		
Q35		2SC945(A)(O-P)	TRANSISTOR		
Q36		2SD863(E-F)	TRANSISTOR		
Q37		2SD1266(O-P)	TRANSISTOR		
Q38		2SL2003(L-K)	TRANSISTOR		
Q39		2SK163(M-N)	FET		
Q39		2SK364(BL-V)	FET		
Q40		2SB772(L)(O-P)	TRANSISTOR		
Q41		2SA954(L-N)	TRANSISTOR		
Q42		2SK163(M-N)	FET		
Q42		2SK364(BL-V)	FET		
Q43		2SD1266(O-P)	TRANSISTOR		
Q44		2SC1740S(O-R)	TRANSISTOR		
Q44		2SC945(A)(O-P)	TRANSISTOR		
Q45		2SB772(L)(O-P)	TRANSISTOR		
Q46		2SA954(L-N)	TRANSISTOR		
DOLBY NOISE REDUCTION UNIT (X30-1270-00)					
Q1 -4		CE04K19479M	ELECTR	20.0UF	50V
Q5 -6		CE04K19479M	ELECTR	10.0UF	50V
Q9 -12		CF92FV1H22J	MF	2200PF	50V
Q13 -14		CF92FV1H29J	MF	2700PF	50V
Q15 -16		CF92FV1H34J	MF	3300PF	50V
Q17 -18		CF92FV1H154J	MF	0.15UF	50V
Q19 -20		CF92FV1H153J	MF	0.015UF	50V
Q21 -23		CF90-1349-05	MF	1UF	50V
Q24 -25		CF92FV1H274J	MF	2700PF	50V
Q26 -27		CF92FV1H68J	MF	0.68UF	50V
Q28 -29		CF92FV1H563J	MF	0.056UF	50V
Q29 -32		CF92FV1349-05	MF	1UF	50V
Q31 -32		CF92FV1H562J	MF	5600PF	50V
Q33 -34		CF92FV1H105J	MF	0.1UF	50V
Q35 -36		CF92FV1H152J	MF	0.015UF	50V
Q37 -39		CF92FV1H132J	MF	0.033UF	50V
Q39 -40		CE04K19479M	ELECTR	10.0UF	50V

E: Scandinavia & Europe K: USA P: Canada
 U: PK(Far East, Hawaii) T: England M: Other Areas
 UE: AAFSS(Europe) X: Australia

indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

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

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新部品	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
9	2C		D10-1614-08	PINCH ARM		
10	2A		U10-0321-09	ARM ASSY		
11	2B	*	D10-2100-08	HEAD BASE (ALU) LB. ONLY		
12	1A		D10-0312-08	LOCK PLATE		
13	2C		D13-0080-08	GEAR (LAMP)		
15	1A, 2B		D30-0012-08	BRAYS (FRIBBER)		
17	2A		D90-0012-04	STEEL BALL (Ø1)		
18	2A, 2B		D95-0020-04	STEEL BALL (Ø2)		
19	1A	*	E31-4367-08	CONNECTING WIRE (2P) LB. HEAD		
20	2A	*	E31-3776-08	CONNECTING WIRE (6P) RB. HEAD		
21	1A	*	G01-2199-08	COMPRESSION SPRING (LAMP PLATE)		
22	2A	*	G01-1819-08	FRUSION COIL SPRING		
23	2B	*	G11-0483-08	FRUSION SPRING (R/P HEAD)		
24	2A	*	G01-2000-08	FRUSION SPRING		
25	2A	*	G01-2198-08	COMPRESSION SPRING (AZIMUTH)		
26	1B		G02-0075-08	FLAT SPRING (CASSETTE)		
27	1C		G02-0076-08	FLAT SPRING (BACK PERFORM)		
28	2A		G02-0386-08	FLAT SPRING (HEAD)		
36	2A		J11-0059-08	CLAMPER		
37	2A		J13-0213-08	SPACER (R/P HEAD)		
38	2A		J13-0214-08	SPACER (E HEAD)		
39	1C		J21-3176-0E	MOUNTING HARDWARE (FEL DISK)		
40	1C		J21-3177-08	MOUNTING HARDWARE (LAMP LVR)		
41	1B		J21-3785-08	MOUNTING HARDWARE (EAF SW)		
44	2A		J31-0269-08	COLLAR		
45	1B		J31-0268-08	COLLAR		
			J61-0307-05	WIRE BAND		
47	2A		N10-2090-46	HEXAGON NUT (M9)		
48	2B		N24-3020-45	E TYPE RETAINING RING (R ASSY)		
49	1A		N24-3025-45	E TYPE RETAINING RING		
50	1B		N24-3030-45	E TYPE RETAINING RING		
51	2A	*	N19-1123-08	FLAT WASHER		
52	2A	*	N19-1122-08	FLAT WASHER		
66	1B, 1C		N19-0335-08	FLAT WASHER (Ø3, 1)		
67	2A		N19-0334-08	FLAT WASHER (Ø1, Ø) REEL DISK		
A	1B, 2B		N09-1233-08	SCREW (M2X4)		
C	1C		N09-1228-08	SCREW (M2, 5X5)		
E	1C		N09-1232-08	SCREW (M2, 6X3)		
F	1B		N09-1240-08	SCREW (M2, 5X4)		
G	1C, 2C		N09-1241-08	SCREW (M2X3)		
H	2A	*	N09-1971-08	SCREW (M2, 5X8) LOCK PLATE		
J	2C		N09-1230-08	SCREW (M2, 5X20)		
K	2A		N09-1323-08	SCREW (M2, 5X3, 5)		
L	2A	*	N09-1970-08	SCREW (M2) AZIMUTH		
M	1A	*	N09-1972-08	SCREW (M2, 5X8) DRESSING METAL		
SW1 -2	1B		S46-1051-08	LEAF SWITCH (CR2, METAL)		
SW3 -5	1C		S46-1017-08	LEAF SWITCH (POSITION)		
SW6	1B		S46-1051-08	LEAF SWITCH (REC)		
SW7	1C		S46-1019-08	LEAF SWITCH (CASSTTE (N)		
B1	2A		T32-0304-05	ERASE HEAD		
B2	2A		T34-0318-05	REC/PLAY HEAD		
M1	1C	*	T42-0467-08	REEL MOTOR ASSY		
M2	1C		T42-0017-08	MOTOR ASSY		

E: Scandinavia & Europe K: USA P: Canada
 U: PX (Far East, Hawaii) T: England M: Other Areas
 UE: AAFES (Europe) X: Australia

⚠ Indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

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

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新部品	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
13	2C	*	T43-0054-08	DD MOTOR (PAG)		
14	1B	*	W02-0905-08	SENSOR ASSY		

E: Scandinavia & Europe K: USA P: Canada
 U: PX (Far East, Hawaii) T: England M: Other Areas
 UE: AAFES (Europe) X: Australia

⚠ Indicates safety critical components.