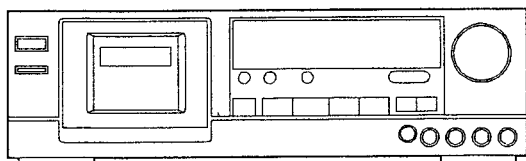


# aiwa



## AD-S950



STEREO CASSETTE DECK

• BASIC TAPE MECHANISM:  $\alpha$  12 R5N

• TYPE.HE,U,E,K

### 改定版

## REVISION PUBLISHING

### SPECIFICATIONS

<b>Type</b>	Stereo cassette deck
<b>Track format</b>	4 tracks, 2 channels
<b>Power supply</b>	AD-S950 U AC 120 V, 60 Hz AD-S950 E AC 230 V, 50 Hz AD-S950 K AC 230-240 V, 50 Hz AD-S950 HE AC 120/220/240 V switchable, 50/60 Hz
<b>Power consumption</b>	25 W
<b>Frequency response</b>	Metal tape: 15-21,000 Hz CrO <sub>2</sub> tape: 15-19,000 Hz Normal tape: 15-18,000 Hz
<b>Signal-to-noise-ratio</b>	84 dB (DOLBY S NR ON, METAL tape Peak Level)
<b>Wow and flutter</b>	0.035% (WRMS) 0.1% (DIN 45500)
<b>Tape speed</b>	4.75 cm/sec.(1 7/8 ips)
<b>Recording system</b>	AC bias (frequency 105 kHz)
<b>Erase system</b>	AC erase
<b>Motor</b>	DC servomotor $\times$ 1 DC motor $\times$ 1

<b>Heads</b>	Playback head $\times$ 1 (PC-OCC coil super DX head) Recording head $\times$ 1 (PC-OCC coil super DX head) Erase head $\times$ 1 (Double-gap sendust head)
<b>Inputs</b>	REC/LINE IN: 100 mV (MAX input sensitivity, 47 k $\Omega$ )
<b>Outputs</b>	PLAY/LINE OUT: 350 mV (0 dB) Suitable load impedance over 47 k $\Omega$ PHONES: 1.1 mW (0 dB) Suitable load impedance 32 $\Omega$
<b>Dimensions</b>	430 (W) $\times$ 140 (H) $\times$ 318 (D) mm. (17 $\times$ 5 5/8 $\times$ 12 5/8 inches)
<b>Weight</b>	5 kg (11 lbs)

- Design and specifications are subject to change without notice.
- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.  
"DOLBY", the double-D symbol  $\square\square$  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation. Laboratories Licensing Corporation.

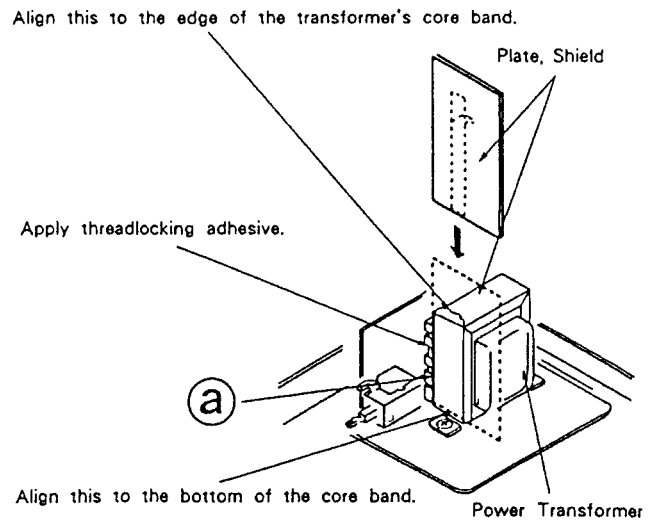
MANUAL  
SERVICE

# DISASSEMBLY INSTRUCTIONS

## 1. Notes on replacing the "Power Transformer".

When replacing the "Power Transformer", attach a "Plate, Shield" to the specified position to conform to the safety standard (spacing).

- 1) Attach the shield plate with adhesive tape while aligning it to portion ③. At this time, apply a threadlocking adhesive to it.



## ■ ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カソ NO.	DESCRIPTION
1	83-DS1-901-019		IB, EGFS1C(S) (EXCEPT U)
2	83-DS1-902-019		IB, ESF(S) (U)
3	83-DS2-631-019		RC, RC-S106
4	87-009-725-019		PLUG, ADPTR 1R40 (HE)
5	87-034-786-019		CORD PIN 189-0760

# ELECTRICAL MAIN PARTS LIST

DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO.	PART NO.	カリ NO.	DESCRIPTION	REF. NO.	PART NO.	カリ NO.	DESCRIPTION
IC				C152	87-018-100-089		CAP, TC-U 4.7P-50 SL
	87-002-393-010	IC, NJM78M08FA		C153	87-018-132-089		CAP, TC-U 2200P-16 X
	87-002-392-010	IC, NJM79M08FA		C154	87-018-119-089		CAP, TC-U 100P-50 B
	80-DS1-608-010	IC, CXA1417S		C155	87-010-401-089		CAP, E 1-50 SME
	87-001-422-010	IC, NJM2068DD		C156	87-010-382-089		CAP, E 22-25 SME
	87-017-465-019	IC, GD4066B		C201	87-010-263-089		CAP, E 100-10 SME 5X11
	87-027-827-019	IC, TC4069UBP		C202	87-010-263-089		CAP, E 100-10 SME 5X11
	83-DS1-627-010	IC, CXA1563S		C203	87-010-404-089		CAP, E 4.7-50 SME
	87-002-727-019	IC, NJM4558L		C204	87-010-404-089		CAP, E 4.7-50 SME
	87-020-758-019	IC, NJM2068SD		C209	87-018-197-089		CAP, TC-U 1800P-16 X
	81-DS2-613-010	IC, LC6554-4694		C210	87-018-197-089		CAP, TC-U 1800P-16 X
	87-017-373-019	IC, NJH32H380A		C221	87-010-248-089		CAP, E 220-10 SME
	87-002-394-019	IC, LB1641		C222	87-010-248-089		CAP, E 220-10 SME
				C327	87-018-132-089		CAP, TC-U 2200P-16 X
				C328	87-018-132-089		CAP, TC-U 2200P-16 X
TRANSISTOR				C329	87-010-405-089		CAP, E 10-50 SME
	89-213-702-019	TR, 2SB1370E		C330	87-010-405-089		CAP, E 10-50 SME
	89-318-156-089	TR, 2SC1815BL		C331	87-018-032-089		CAP, TC-S 100P-50 SL
	87-026-462-089	TR, 2SC1740S(RS)		C332	87-018-032-089		CAP, TC-S 100P-50 SL
	89-213-293-089	TR, 2SB1329R(T105)		C401	87-010-263-089		CAP, E 100-10 SME 5X11
	89-320-011-089	TR, 2SC2001K		C402	87-010-263-089		CAP, E 100-10 SME 5X11
	87-026-214-089	TR, DTA114YS		C403	87-018-209-089		CAP, TC-U 0.1-50 F
	89-109-521-089	TR, 2SA952K		C404	87-018-209-089		CAP, TC-U 0.1-50 F
	89-318-155-089	TR, 2SC1815GR		C405	87-018-121-089		CAP, TC-U 150P-50 B
	89-420-052-089	TR, 2SD2005Q		C406	87-018-121-089		CAP, TC-U 150P-50 B
	87-026-217-089	TR, DTC124ES		C407	87-015-951-089		CAP, E 1-50 LL
	87-026-292-089	TR, DTA144WS		C408	87-015-951-089		CAP, E 1-50 LL
	87-026-216-089	TR, DTA124ES		C409	87-010-404-089		CAP, E 4.7-50 SME
	87-026-219-089	TR, DTA144ES		C410	87-010-404-089		CAP, E 4.7-50 SME
	87-026-287-089	TR, DTC143ES		C415	87-010-404-089		CAP, E 4.7-50 SME
	89-112-965-089	TR, 2SA1296GR		C416	87-010-404-089		CAP, E 4.7-50 SME
				C417	87-010-401-089		CAP, E 1-50 SME
				C421	87-018-202-089		CAP, TC-U 6800P-16 X
				C422	87-018-202-089		CAP, TC-U 6800P-16 X
				C423	87-010-248-089		CAP, E 220-10 SME
DIODE				C424	87-010-248-089		CAP, E 220-10 SME
	87-001-783-089	DIODE, 1N4002-T		C432	87-010-402-089		CAP, E 2.2-50 SME
	87-001-914-089	ZENER, UTZJ 6.2B		C433	87-010-401-089		CAP, E 1-50 SME
	87-017-437-089	DIODE, 1N4148M		C501	87-010-260-089		CAP, E 47-25 SME
	87-001-918-089	ZENER, UTZJ22B		C502	87-010-405-089		CAP, E 10-50 SME
	87-027-286-089	ZENER, HZ5C1		C507	87-014-081-089		CAP, PP 0.01 J
	87-020-123-089	DIODE, DS446-AT(TA)		C508	87-010-248-089		CAP, E 220-10 SME
	87-001-912-089	ZENER, UTZJ 5.1B		C551	87-010-263-089		CAP, E 100-10 SME 5X11
	87-020-465-089	DIODE, 1SS131		C552	87-010-263-089		CAP, E 100-10 SME 5X11
				C559	87-018-131-089		CAP, TC-U 1000P-50 B
MAIN C. B				C560	87-018-131-089		CAP, TC-U 1000P-50 B
	C1	87-010-453-099	CAP, ELECT 4700-25V SME	C563	87-018-124-089		CAP, TC-U 270P-50 B
	C2	87-010-389-099	CAP, ELECT 2200-25V SME	C564	87-018-124-089		CAP, TC-U 270P-50 B
	C3	87-010-389-099	CAP, ELECT 2200-25V SME	C567	87-010-263-089		CAP, E 100-10 SME 5X11
	C4	87-010-247-089	CAP, E 100-50 SME	C569	87-014-057-889		CAP, PP 1000P-100 J
	C5	87-010-931-019	CAP, E 330-16 AWF	C570	87-014-057-889		CAP, PP 1000P-100 J
	C6	87-010-931-019	CAP, E 330-16 AWF	C571	87-018-123-089		CAP, TC-U 220P-50 B
	C7	87-010-237-089	CAP, E 1000-16	C572	87-018-123-089		CAP, TC-U 220P-50 B
	C8	87-010-370-089	CAP, E 330-6.3 SME	C601	87-010-405-089		CAP, E 10-50 SME
	C9	87-010-405-089	CAP, E 10-50 SME	C604	87-010-401-089		CAP, E 1-50 SME
	C10	87-010-405-089	CAP, E 10-50 SME	C610	87-010-401-089		CAP, E 1-50 SME
	C101	87-010-248-089	CAP, E 220-10 SME	C611	87-018-127-089		CAP, TC-U 470P-50 B
	C102	87-010-248-089	CAP, E 220-10 SME	C612	87-018-195-089		CAP, TC-U 1200P-16 X
	C113	87-018-032-089	CAP, TC-S 100P-50 SL	C614	87-010-405-089		CAP, E 10-50 SME
	C114	87-018-032-089	CAP, TC-S 100P-50 SL	C643	87-010-677-089		CAP, E 0.15-50 7L
	C123	87-018-125-089	CAP, TC-U 330P-50 B	C703	87-010-263-089		CAP, E 100-10 SME 5X11
	C124	87-018-125-089	CAP, TC-U 330P-50 B	C704	87-010-263-089		CAP, E 100-10 SME 5X11
	C127	87-010-404-089	CAP, E 4.7-50 SME	C705	87-010-405-089		CAP, E 10-50 SME
	C128	87-010-404-089	CAP, E 4.7-50 SME	C706	87-010-405-089		CAP, E 10-50 SME
	C129	87-010-404-089	CAP, E 4.7-50 SME	C707	87-010-263-089		CAP, E 100-10 SME 5X11
	C130	87-010-404-089	CAP, E 4.7-50 SME	C708	87-010-263-089		CAP, E 100-10 SME 5X11
	C151	87-018-134-089	CAP, TC-U 0.01-16 Y				



REF. NO.	PART NO.	カリ NO.	DESCRIPTION
C984	87-018-134-089		CAP, TC-U 0.01-16 Y<K>
C985	87-018-134-089		CAP, TC-U 0.01-16 Y<K>
J851	87-099-662-019		JACK, PIN 8P YKF51<K>

PT C. B

△	82-304-743-019	TERMINAL, 1P
C21	87-019-113-019	CAP, SG 0.0022E<EXCEPT U>
C21	87-019-112-019	CAP, SG 0.01 E<U>
△PT1	83-DS1-632-019	PT, 3DS-1 E<EE, E>
△PT1	83-DS1-631-019	PT, 3DS-1 H<HE>
△PT1	83-DS1-633-019	PT, 3DS-1 K<K>
△PT1	83-DS1-634-019	PT, 3DS-1 U<U>
SW1	87-036-015-019	SW, AC SDDLDI

SW C. B<HE>

△SW2	87-036-202-019	SW, RTRY 1-1-3 H<HE>
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REC VR C. B

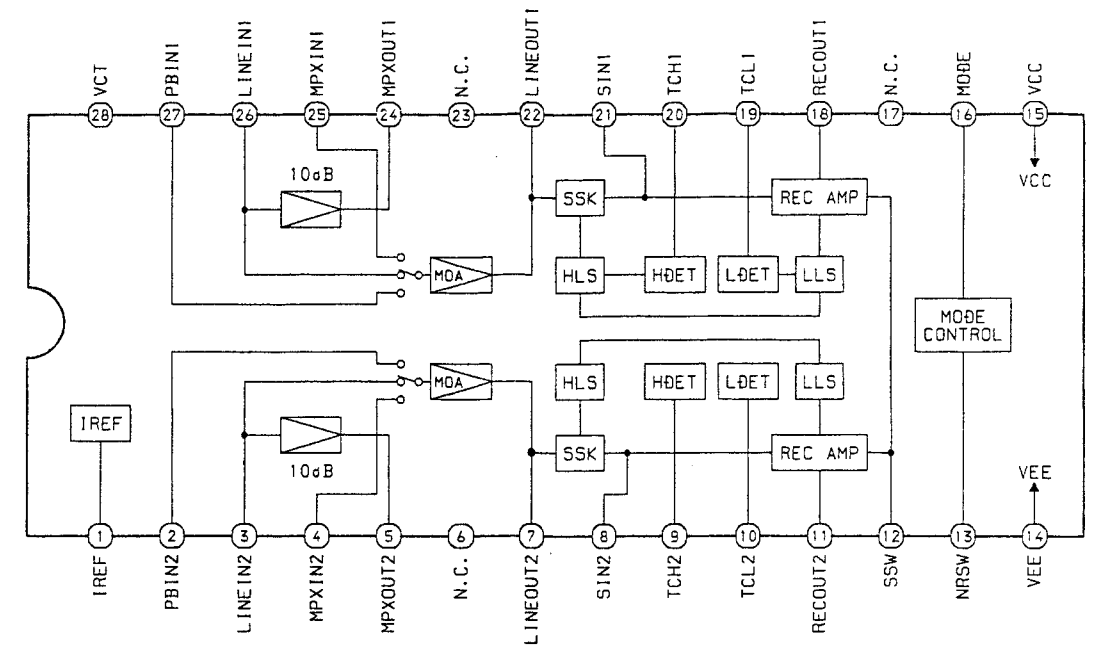
VR451	83-DS2-611-019	VR, 20KAX2 RK14K12D
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REF. NO.	PART NO.	カリ NO.	DESCRIPTION
PIN JACK C. B			
C251	87-018-134-089		CAP, TC-U 0.01-16 Y
J251	87-099-609-019		JACK, PIN 4P KM EARTH

MECHA C. B

M1	87-045-323-019	MOT, MMN-6FILB8K
M2	87-045-360-019	MOT, SHE 2L 00
PH1	87-001-365-019	P-SNSR, SP1315-05-C
PH2	87-001-365-019	P-SNSR, SP1315-05-C
S1	81-505-607-010	SW, LEAF BSW-187-2AU
S2	81-505-607-010	SW, LEAF BSW-187-2AU
S3	81-505-607-010	SW, LEAF BSW-187-2AU
S4	81-505-607-010	SW, LEAF BSW-187-2AU
S5	81-505-607-010	SW, LEAF BSW-187-2AU
S6	81-505-607-010	SW, LEAF BSW-187-2AU
SOL1	81-507-237-010	SOL, 9ME-C
SOL2	81-507-237-010	SOL, 9ME-C

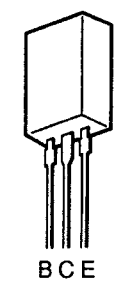
IC BLOCK DIAGRAM  
IC, CXA1563S



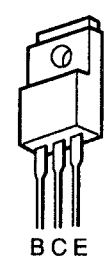
TRANSISTOR ILLUSTRATION



2SA952  
2SA1296  
2SC1815  
2SC2001



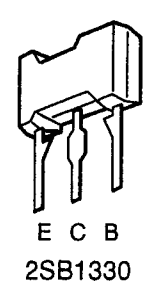
2SB1329R  
2SD2005Q



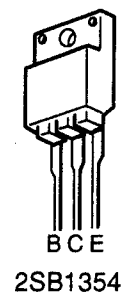
2SB1370



2SC1740S  
DTA114YS  
DTA124ES  
DTA144ES  
DTC124ES  
DTC143ES

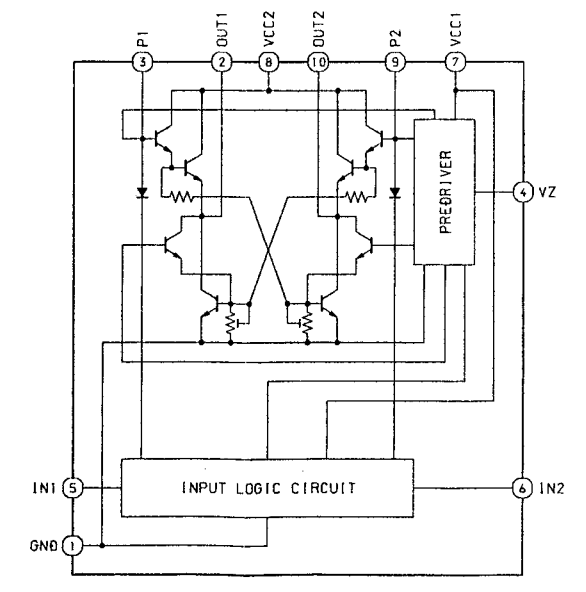


2SB1330

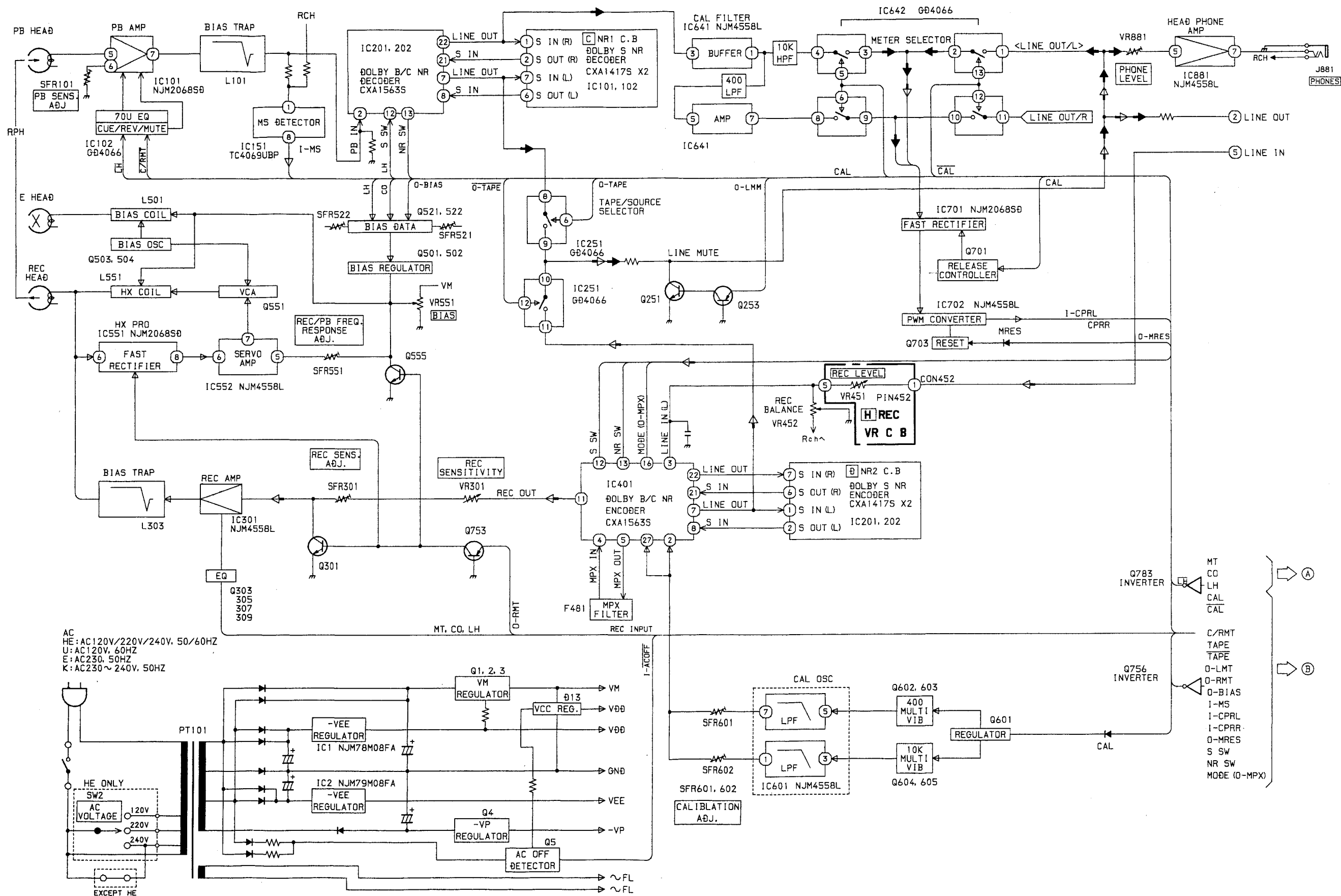


2SB1354

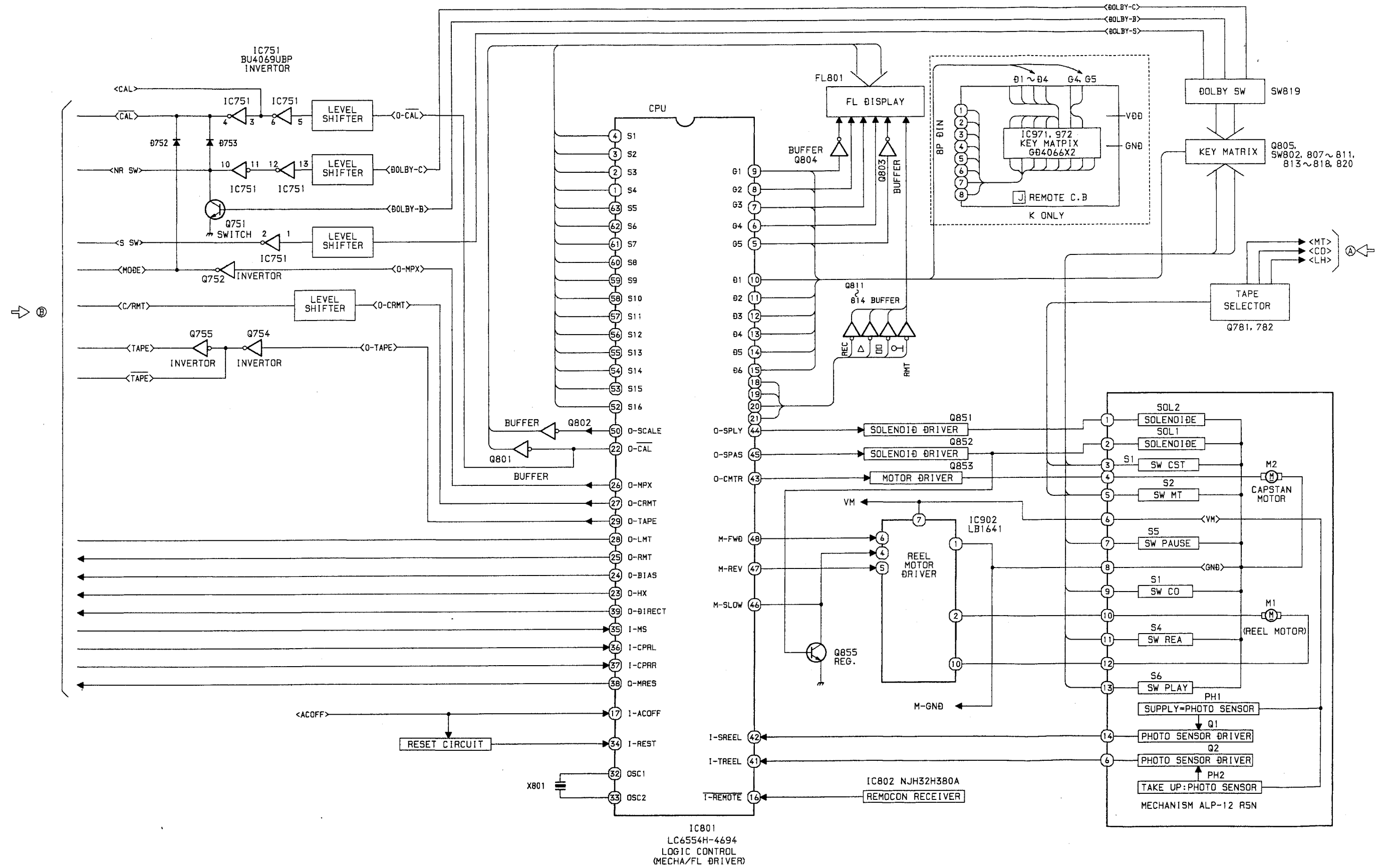
IC, LB1641



BLOCK DIAGRAM - 1

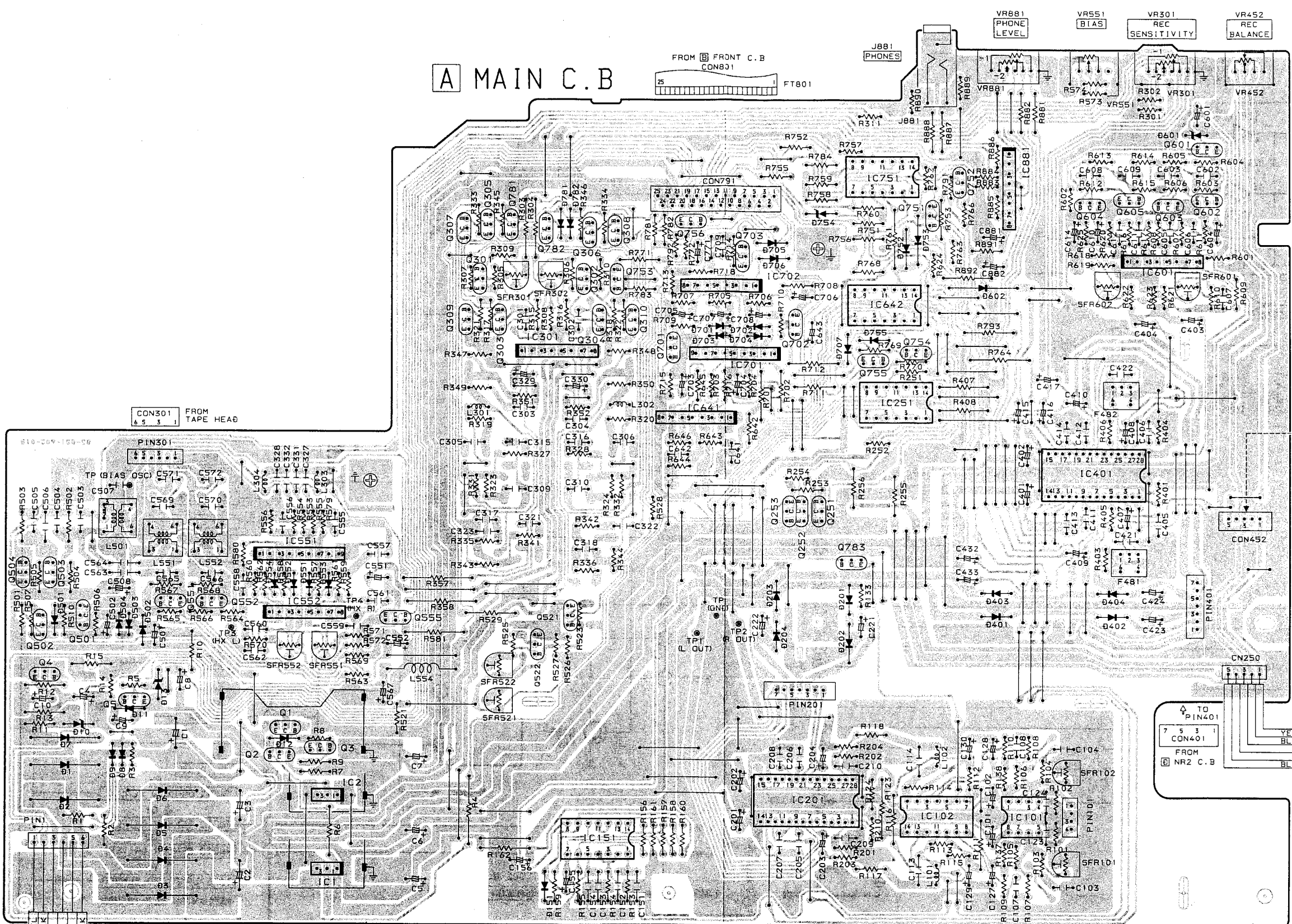


BLOCK DIAGRAM - 2

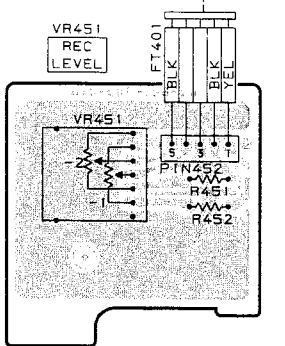


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K

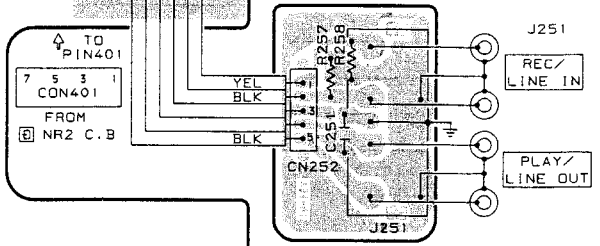
A MAIN C.B



H REC VR C.B



I JACK C.B



TO PT C.B CON1

TO PIN201 FROM CON201 NR1 C.B

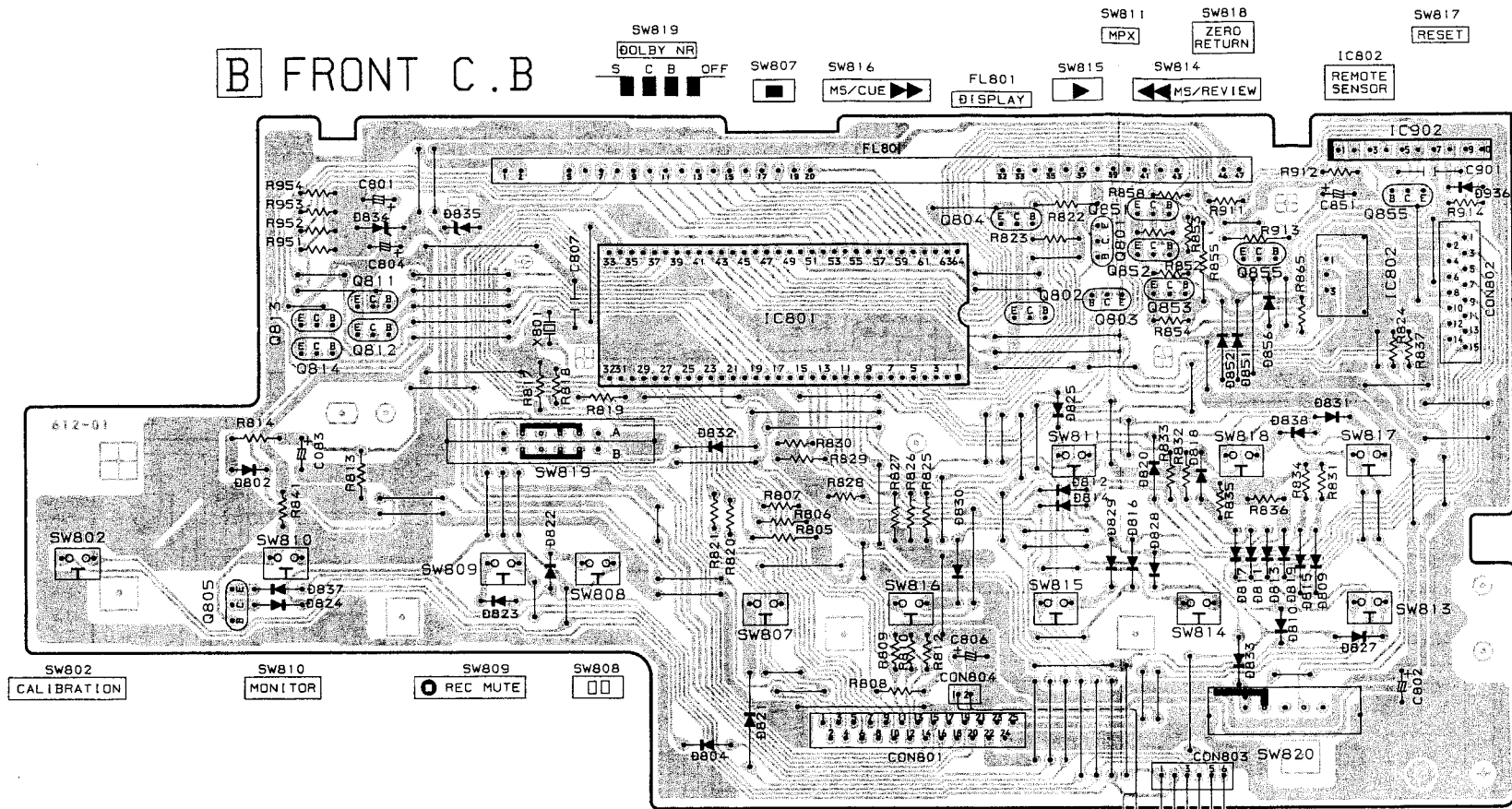
TO PIN101 FROM CON101 TAPE HEAD



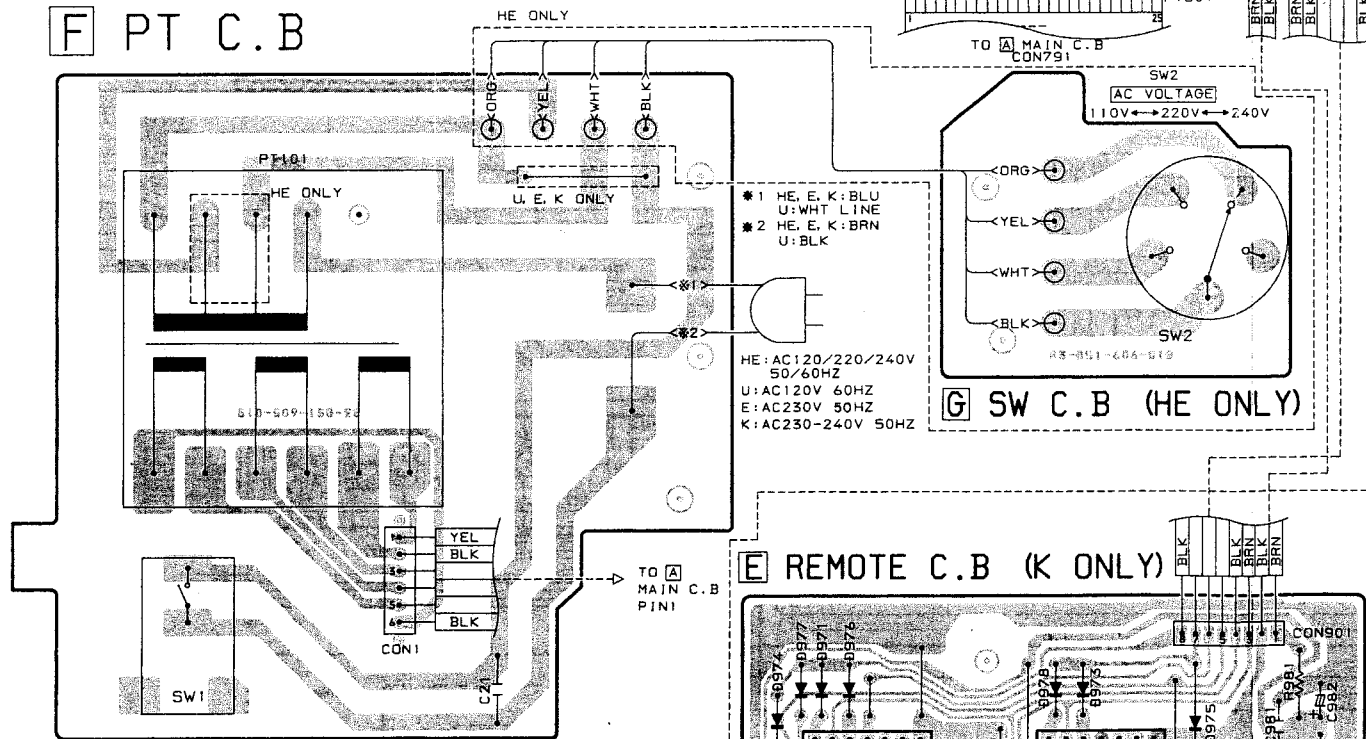


A  
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K

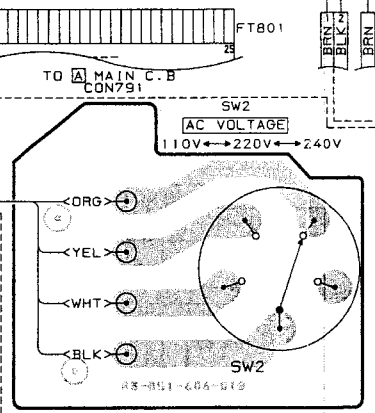
**B FRONT C.B**



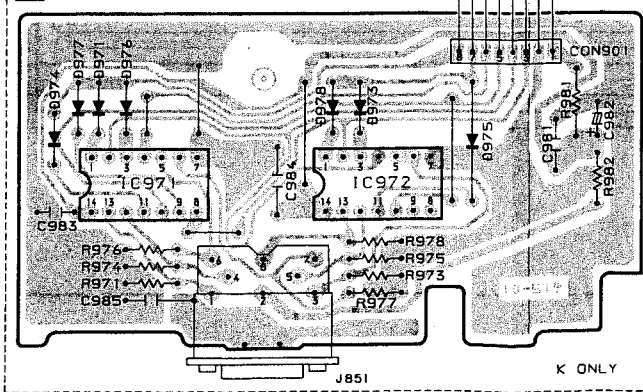
**F PT C.B**



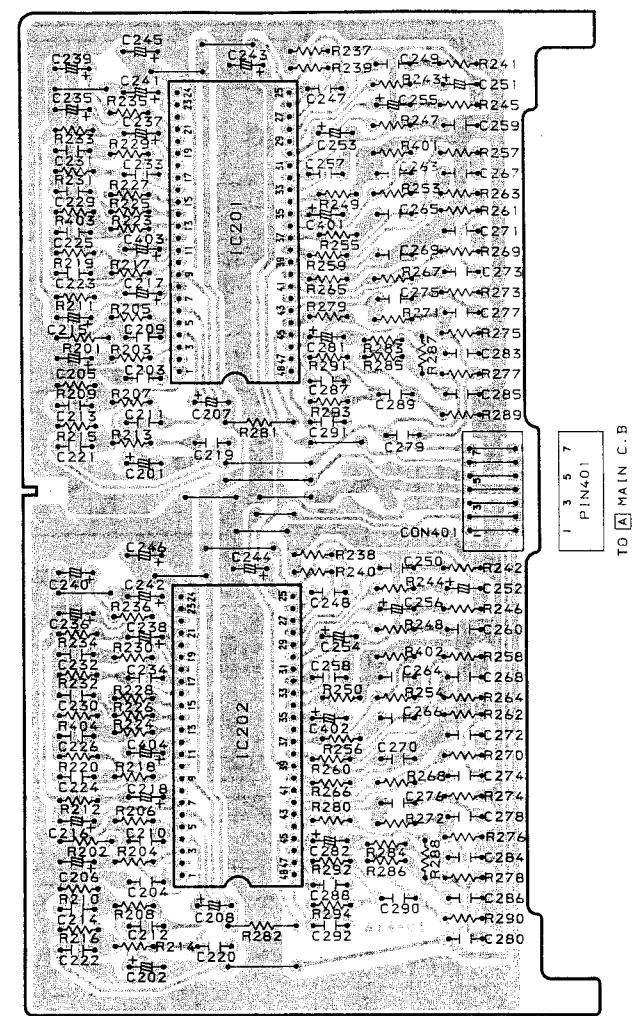
**G SW C.B (HE ONLY)**



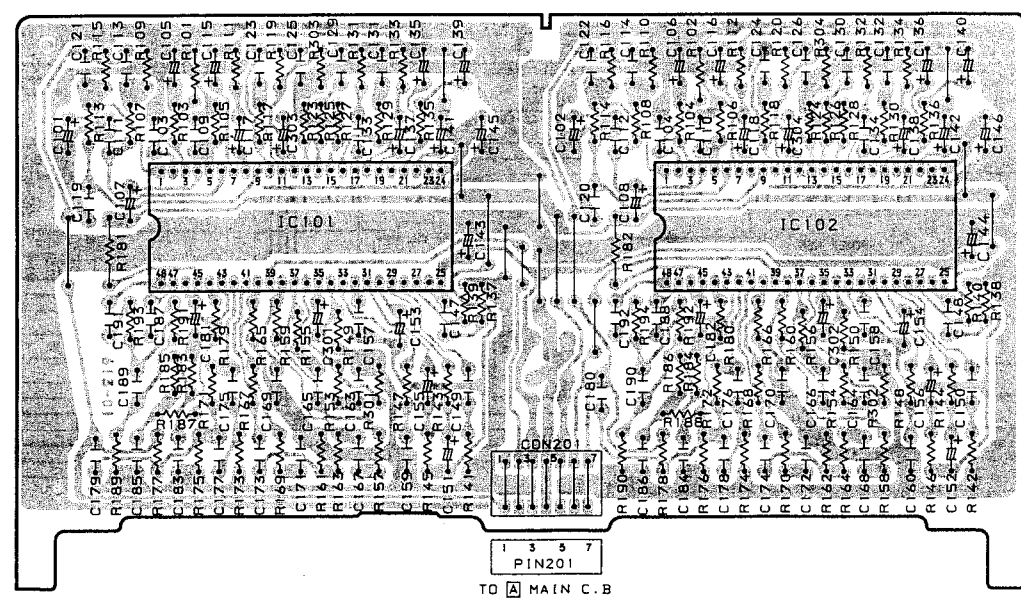
**E REMOTE C.B (K ONLY)**



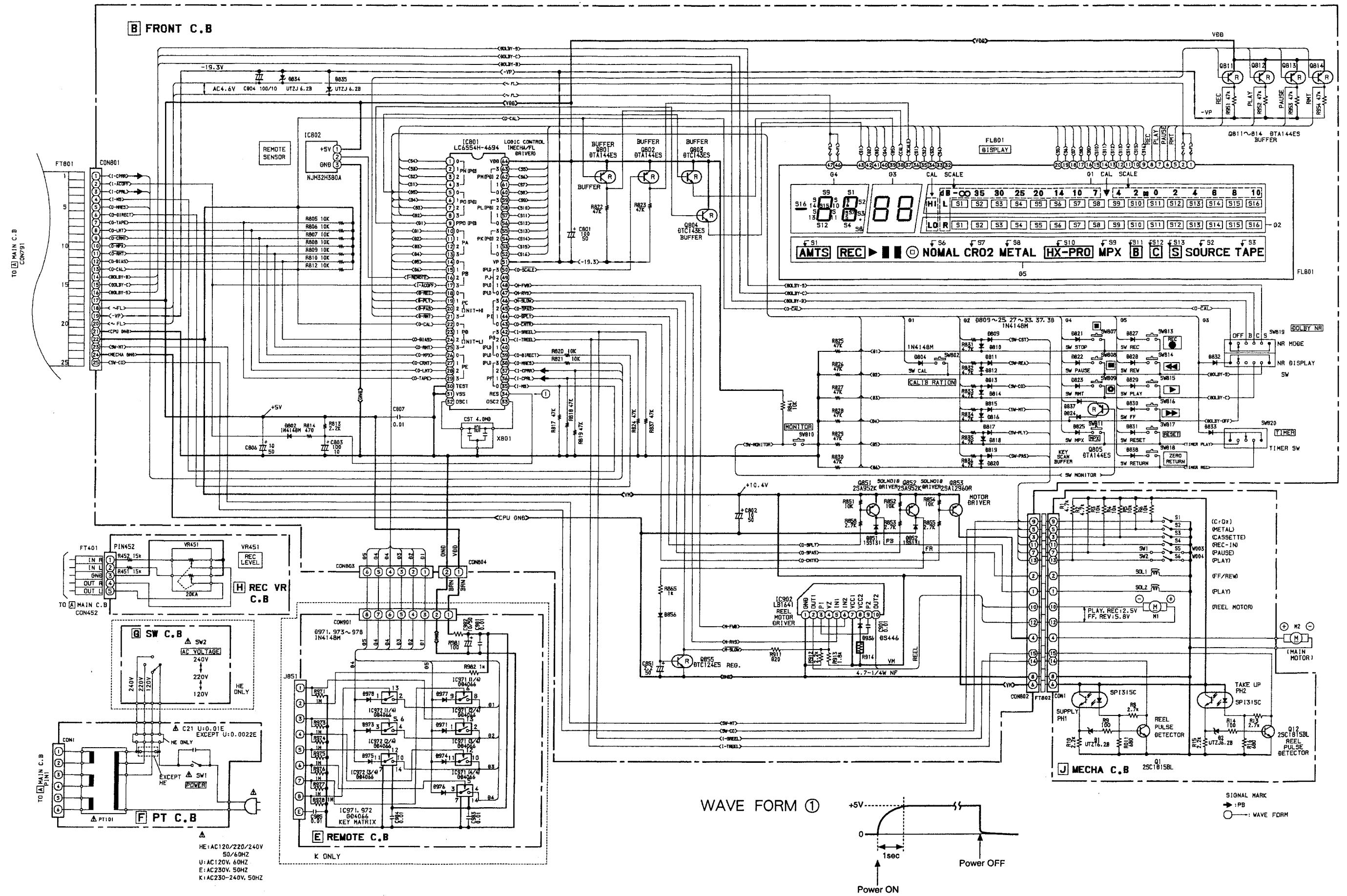
**D NR2 C.B (DECODER)**

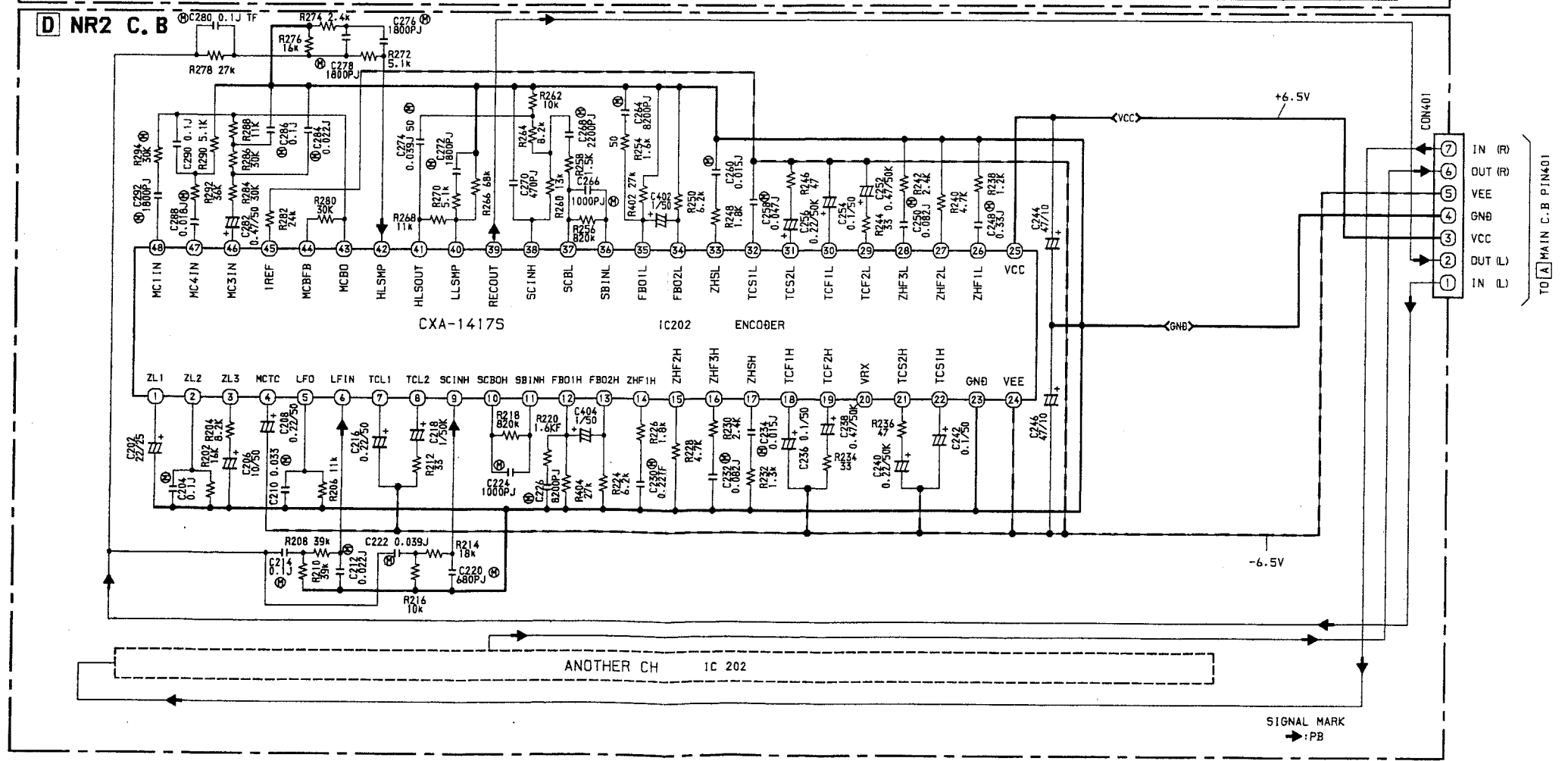
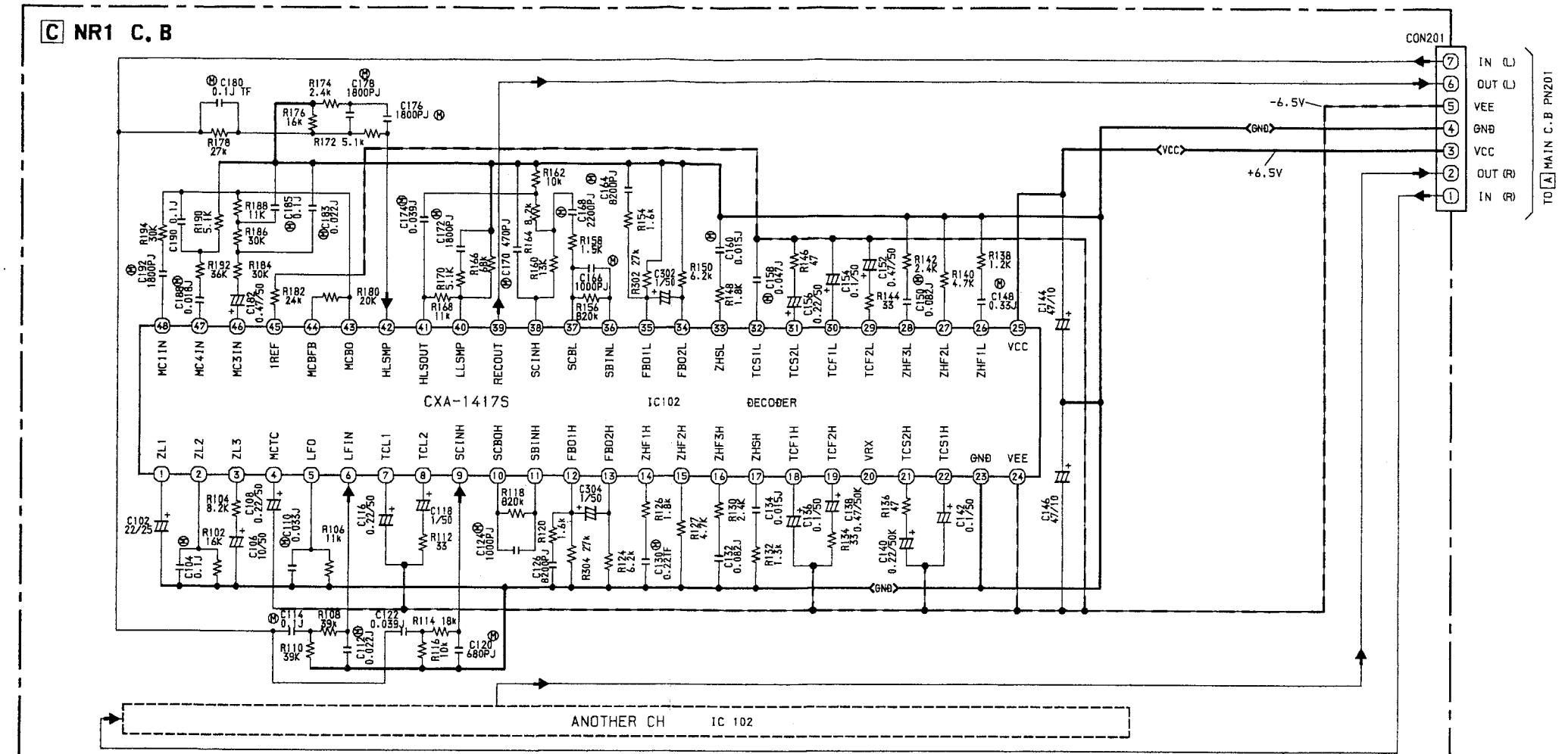


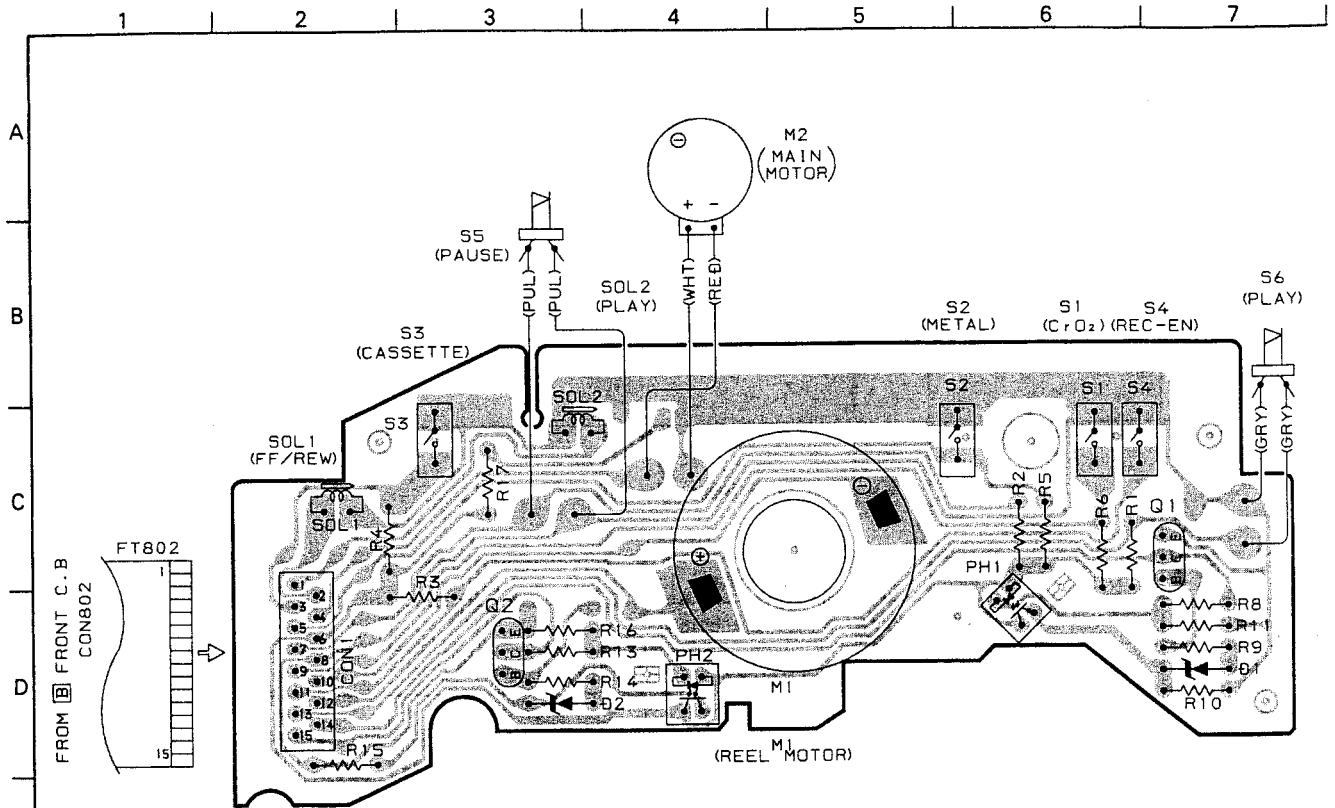
**C NR1 C.B (ENCODER)**



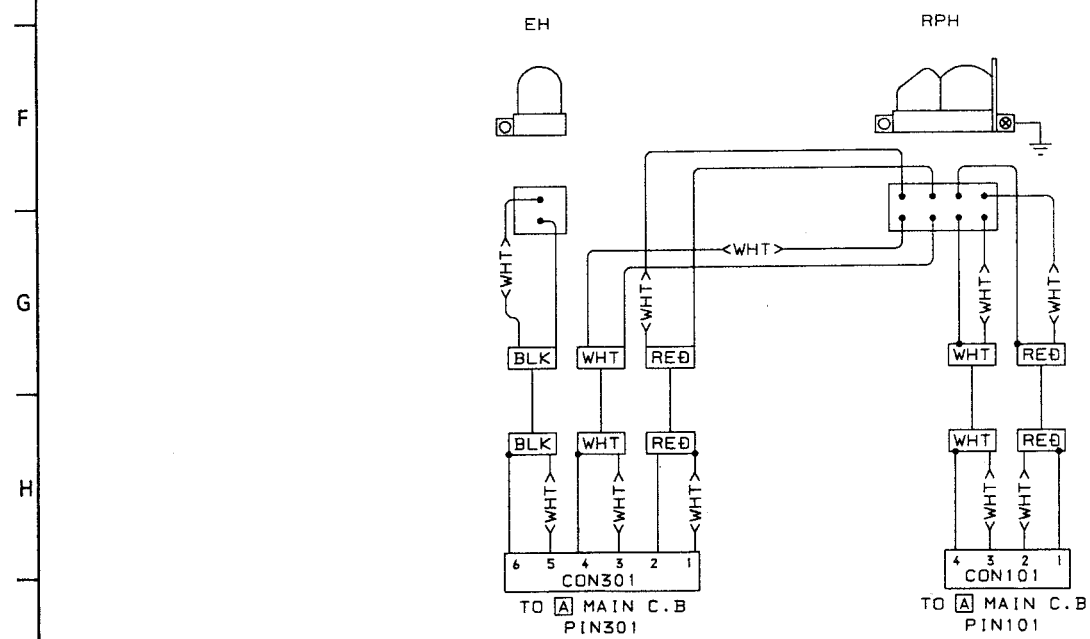
SCHEMATIC DIAGRAM - 2







J MECHA C.B



# IC DESCRIPTION

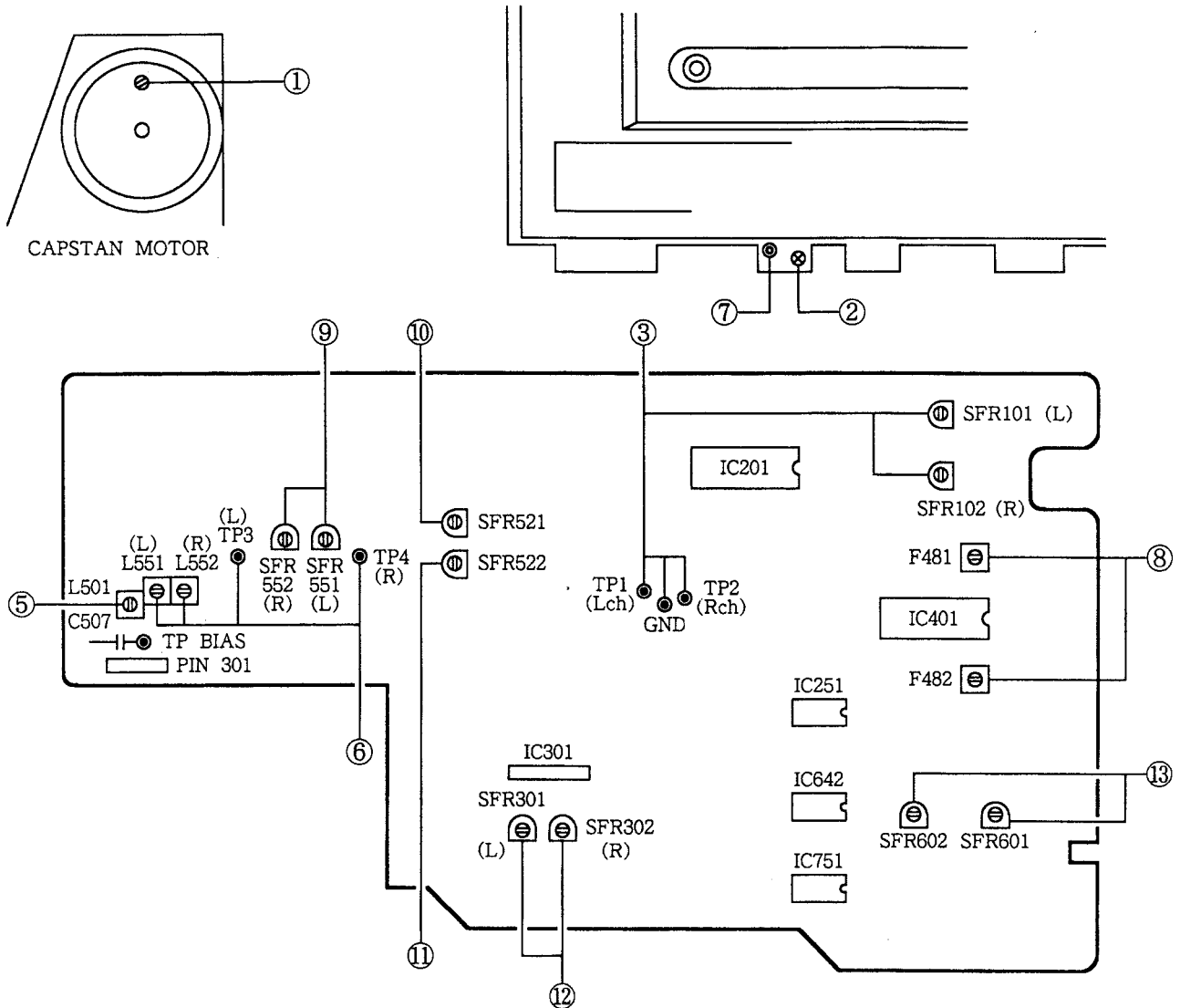
## IC, LC6554H - 4694

Pin No.	Pin Name	I/O	Description
1	S4	O	FL lighting segment output.
4	S1		
5	G5	O	FL lighting grid output and KEY SCAN output.
9	G1		
10	D1	I	KEY SCAN input.
15	D6		
16	$\overline{I-REMOTE}$	I	Remote control input.
17	$\overline{I-AC OFF}$	I	AC OFF detection.
18	$\overline{D-REC}$	O	REC LED output. "L" when REC mode.
19	$\overline{D-PLAY}$	O	PLAY-LED output. "L" when PLAY mode.
20	$\overline{D-PAUSE}$	O	PAUSE LED output. "L" when PAUSE.
21	$\overline{D-RMT}$	O	REC MUTE LED output. "L" when REC MUTE.
22	$O-CAL$	O	Connected to GND.
23	$O-HX$	O	Not used.
24	$O-BIAS$	O	BIAS OSC control output. "H" when REC mode.
25	$\overline{O-RMT}$	O	REC MUTE control output. "H" when REC-PLAY.
26	$\overline{O-MPX}$	O	DOLBY IC MPX control output. "L" when MPX ON.
27	$\overline{O-C/R MT}$	O	CUE/REVIEW MUTE control output. "H" when PLAY.
28	$O-LMT$	O	LINE MUTE control output. LINE MUTE when "H".
29	$O-TAPE$	O	TAPE/SOURCE control output of MONITOR. "H" when TAPE MONITOR.
30	TEST	—	Terminal for the system test. Connect to GND.
31	VSS	—	Connect to GND.
32	OSC1	O	Microcomputer clock output. (4 MHz)
33	OSC2	I	Microcomputer clock input. (4 MHz)
34	RES	I	System reset terminal.
35	$I-MS$	I	MS control input.
36	$I-CMPL$	I	METER Lch control input.
37	$I-CMPR$	I	METER Rch control input.
38	$O-MRES$	O	METER AD converter control output.
39	$O-DIRECT$	O	Not used.
40	$I-1DS2$	O	Control input for switching programs. Not used.
41	$I-TREEL$	I	TAKE UP REEL PULSE input and automatic stop detection input for the linear counter.
42	$I-SREEL$	I	SUPPLY REEL PULSE input for the linear counter.
43	$\overline{O-CMTR}$	O	Capstan motor control output.
44	$\overline{O-SPLY}$	O	PLAY plunger control output.
45	$\overline{O-SPAS}$	O	PAUSE plunger control output.

Pin No.	Pin Name	I/O	Description
46	$\overline{M-SLOW}$	O	Reel motor voltage control output.
47	M-RVS	O	Reel motor control output.
48	M-FWD	O	
49	M-REEL	O	Not used.
50	$\overline{O-SCALE}$	O	SCALE lighting control.
51	VP	—	Load power supply for the pull down resistor. Connect to -VP. (-20 V)
52	S16	O	FL lighting segment output.
63	S5		
64	VDD	—	System power supply terminal. Connect to +5 V.

PU indicates that the pull up resistor is built in, and PD indicates that the pull down resistor is built in.  
PIN No. 22-25 output "L" when the system is initialized.

# ADJUSTMENT



## Initial Settings

1. REC BALANCE : Mechanical center
2. BIAS VR : Center click position
3. REC SENS : Center click position
4. DOLBY NR SW : OFF
5. MPX FILTER SW : OFF

## 1. Tape Speed Adjustment

- Settings : • Test tape : TTA-100 (TTA-111S)  
 • Test point : LINE OUT jack  
 • Adjustment location : SFR in motor

Method : Play back the test tape and adjust SFR so that the frequency counter reads  $3000\text{Hz} \pm 7\text{Hz}$ .

## 2. Azimuth Adjustment

- Settings : • Test tape : TTA-301  
 • Test point : LINE OUT jack  
 • Adjustment location : Azimuth adjustment screw

Method : Play back the 14kHz signal of the test tape and adjust screw so that the output is maximum and the waveforms in the Lissajous figure are in phase.

## 3. Playback Sensitivity Adjustment

- Settings : • Test tape : TTA-200 (TTA-161, TCC-130)  
 • Test point : TP1 (L ch), TP2 (R ch)  
 • LEVEL meter : DOLBY NR mark  
 • Adjustment location : SFR101 (L ch)  
 SFR102 (R ch)

Method : Play back the test tape and adjust SFRs so that the output level is  $388\text{mV} \pm 0.2\text{dB}$

## 4. Playback Frequency Response Check

- Settings : • Test tape : TTA-301  
 • Test point : LINE OUT jack

Method : Play back the 14kHz and 1kHz signals of the test tape and check that the output of the 14kHz signal is  $0\text{dB} \pm 2\text{dB}$  with respect to that of the 1kHz signal.

## 5. Bias OSC. Frequency Adjustment

- Settings : • Test tape : TTA-720 (TTA-119MP)  
 • Test points : TP BIAS (C507)  
 • Adjustment location : L501

Method : Set to the record mode and adjust L501 so that frequency counter reads  $105\text{kHz} \pm 1\text{kHz}$ .



#### 6. HX Coil Adjustment

- Settings : • Test tape : TTA-720 (TTA-119MP)  
• Test point : TP3 (L ch), TP4 (R ch)  
• Adjustment Location : L551 (L ch)  
L552 (R ch)

Method : Adjust L551, L552 so that the DC voltage at the test points is minimized in the REC STANDBY mode.

#### 7. Erase Head Position Adjustment

- Settings : • Test tape : TTA-720 (TTA-119MP)  
TTA-602  
• Test point : LINE OUT jack  
• Adjustment Location : Hexagonal nut of erase head

Method : Record a 125kHz + 10VU (775mV) signal on a test tape TTA-720 (TTA-119MP) for 25 seconds using this unit. Rewind the recorded section and erase. Turn the hexagonal nut clockwise gradually until the Rch erasing ratio grows worse approx. 10dB. Then stop erasing and turn the hexagonal nut three fourths turn (270-300 degrees) counterclockwise. Rewind the erased section and play back the erased section. Check that the Rch erasing ratio is more than 60dB.  
[Over-erase check]

Record a 10kHz -10VU signal on a test tape TTA-602 (TTA-119K) for 6 seconds using this unit and let the Rch output be the reference output. Turn over the tape without rewinding, and erase for 6 seconds (same time as recorded time). Turn over the tape without rewinding again, play back the recorded section. Check that the difference between the Rch play back output and reference output is within -0.8dB.

\* After the adjustment, fast forward the test tape portion used for checking. During adjustment, use the erased portion of the test tape.

#### 8. MPX Filter Check

- Settings : • Test point : LINE OUT jack  
• Input signal : 19kHz signal (0VU) at input  
• MPX SW : ON

Method : Set to the record mode and check so that the output DOLBY NR SW ON becomes up to -30dB for the output at DOLBY NR SW OFF.

#### 9. Recording/Play back Frequency Response Adjustment

- Settings : • Test tape : TTA-720 (METAL)  
• Test point : LINE OUT jack  
• Input signal : 1kHz/10kHz (LINE IN)  
• Adjustment locations : SFR551 (L ch)  
SFR552 (R ch)

Method : Apply a 1kHz signal and adjust the attenuator so that the output level at the LINE OUT jack is 24.5mV. Record and play back the 1kHz and 10kHz signals and adjust that the output of the 10kHz signal is  $0 \pm 0.2$ dB with respect to that of the 1kHz signal.

#### 10. LH Recording/Play back Frequency Response Adjustment

- Settings : • Test tape : TTA-602  
• Test point : LINE OUT jack  
• Input signal : 1kHz/10kHz (LINE IN)  
• Adjustment locations : SFR521

Method : Apply a 1kHz signal and adjust the attenuator so that the output level at the LINE OUT jack is 24.5mV. Record and play back the 1kHz and 10kHz signals and adjust that the output of the 10kHz signal is  $0 \pm 0.2$ dB with respect to that of the 1kHz signal.

#### 11. CrO<sub>2</sub> Recording/Play back Frequency Response Adjustment

- Settings : • Test tape : TTA-610  
• Test point : LINE OUT jack  
• Input signal : 1kHz/10kHz (LINE IN)  
• Adjustment locations : SFR522

Method : Apply a 1kHz signal and adjust the attenuator so that the output level at the LINE OUT jack is 24.5mV. Record and play back the 1kHz and 10kHz signals and adjust that the output of the 10kHz signal is  $0 \pm 0.2$ dB with respect to that of the 1kHz signal.

#### 12. Recording Sensitivity Adjustment

- Settings : • Test tape : LH • TTA-602 (TTA-119K)  
• Test point : LINE OUT jack  
• Input signal : 1kHz (LINE IN)  
• Adjustment locations : SFR301 (L ch)  
SFR302 (R ch)

Method : Apply a 1kHz signal and adjust the attenuator so that the output level at the LINE OUT jack is 245mV. Record and play back the 1kHz signal and adjust so that the output is  $245\text{mV} \pm 0.2$ dB.

#### 13. Calibration adjustment

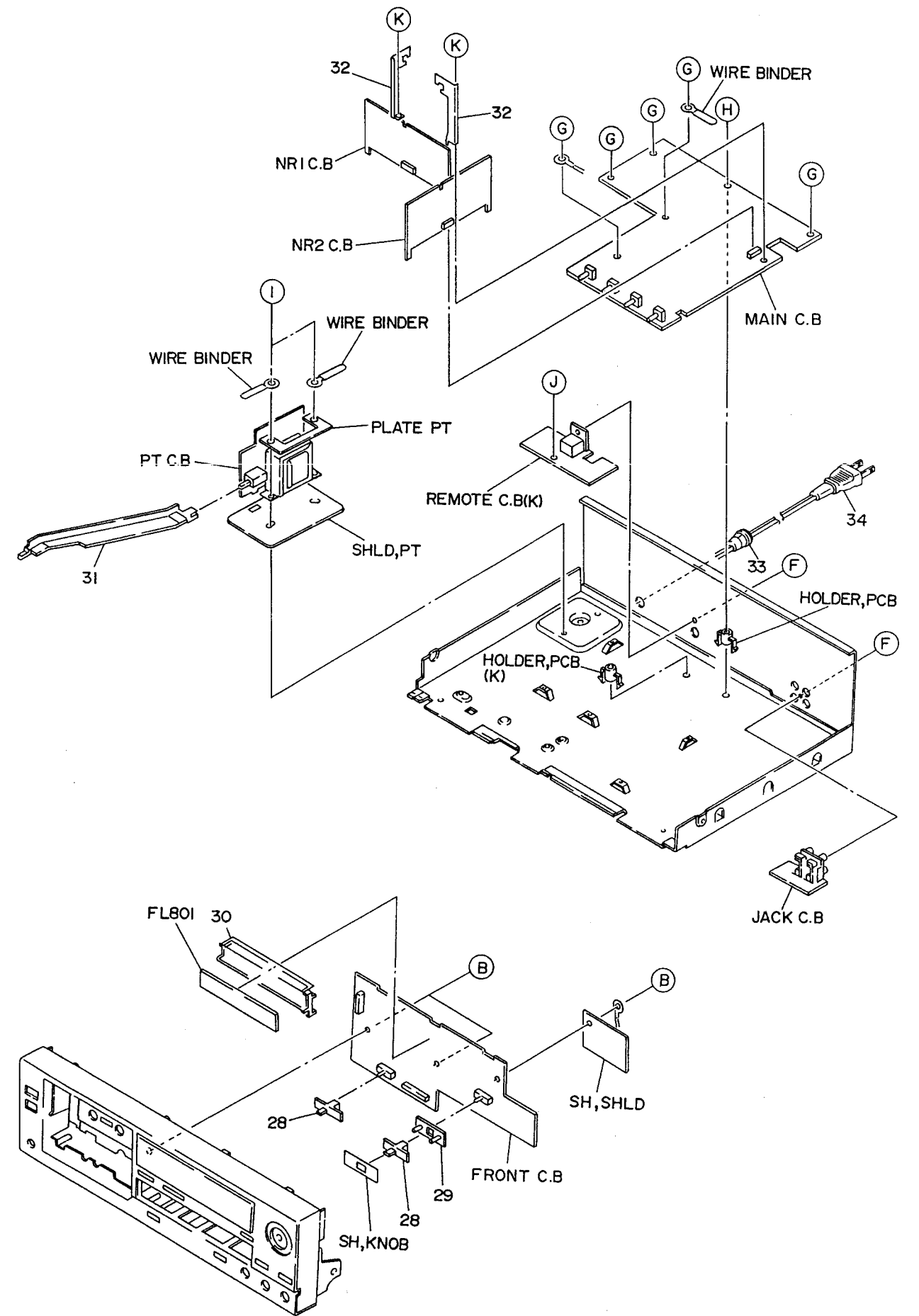
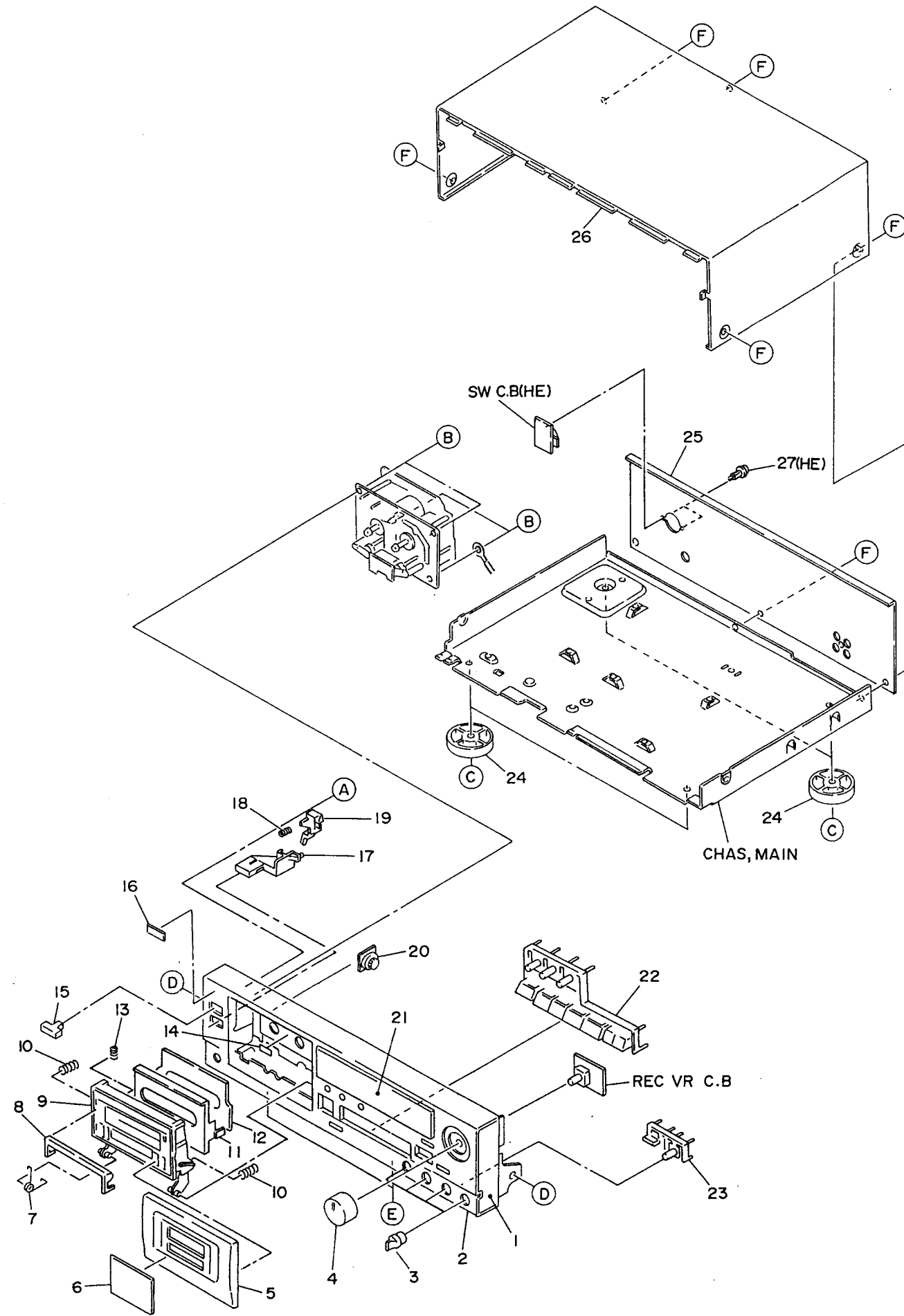
- Settings : • Test tape : TTA-602 (TTA-119K)  
• Test point : SFR601 (400Hz)  
SFR602 (10kHz)  
• Calibration SW : ON

Method : Set to the record mode, adjust the 400Hz signal with SFR601, and set the level to the LCD ▼ mark. Adjust the 10kHz signal with SFR602 in the same manner.

## PRACTICAL SERVICE FIGURE

Playback output :	360 ± 0.5dB (LINE OUT)
REC/PB output :	260mV ± 1dB (LINE OUT)
REC/PB distortion :	Less than 1.2% (MT, CrO <sub>2</sub> )
(0VU 380mV)	Less than 1.0% (NORM)
Noise level (PB) :	Less than 1.2mV/0.8mV/0.1mV (MT, CrO <sub>2</sub> DOLBY OFF/B, C/S) Less than 1.8mV/1.0mV/0.1mV (NORM DOLBY OFF/B, C/S)
Noise level (REC/PB) :	Less than 1.5mV/1.1mV/0.1mV (MT, CrO <sub>2</sub> DOLBY OFF/B, C/S) Less than 2.0mV/1.1mV/0.14mV (NORM DOLBY OFF/B, C/S)
Crosstalk :	More than 60dB (1kHz, 0VU)
Erase ratio :	More than 60dB (125Hz)
Channel separation :	More than 35dB (1kHz, 0VU)
REC bias frequency :	105kHz
Tape speed	3,000Hz ± 1.5%
Wow & flutter :	Less than 0.053% (W.R.M.S)
Take-up torque :	27~58g-cm
Fast forward torque :	90~190g-cm
Rewind torque :	90~190g-cm
Back-tension :	4~10g-cm
Test tape :	NORMAL TTA-601/600 CrO <sub>2</sub> TTA-610 METAL TTA-630

MECHANICAL EXPLODED VIEW 1/1

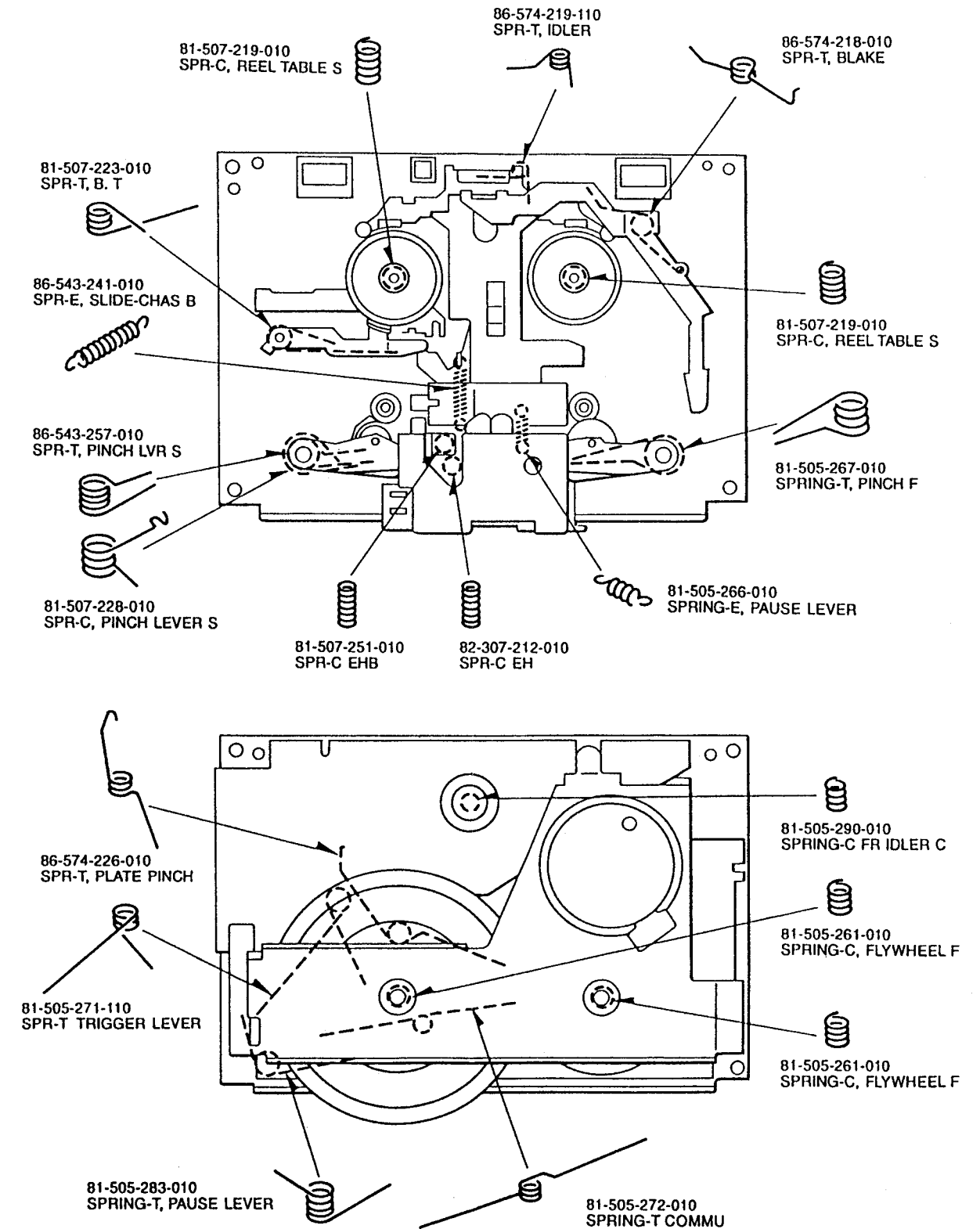


MECHANICAL PARTS LIST 1/1

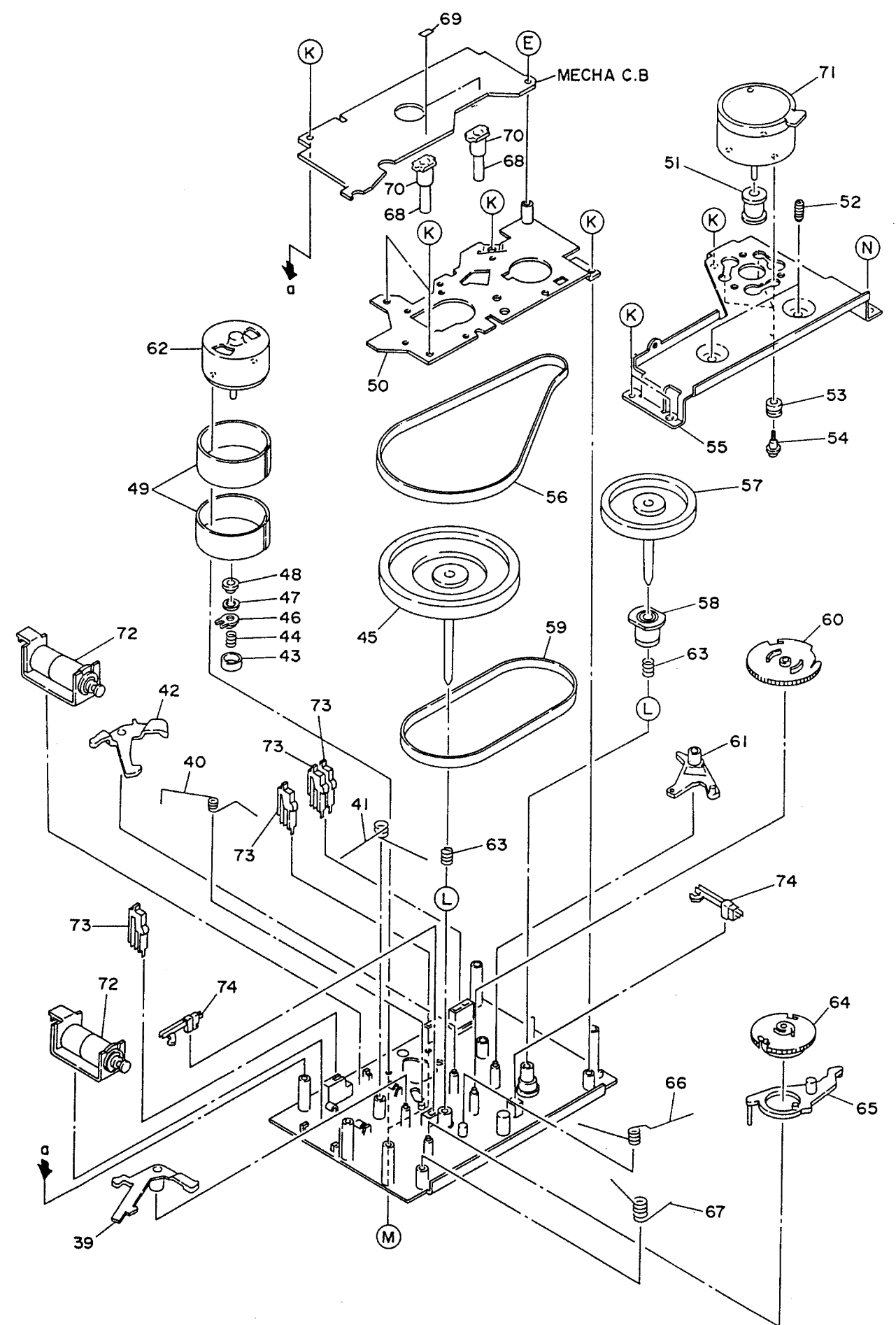
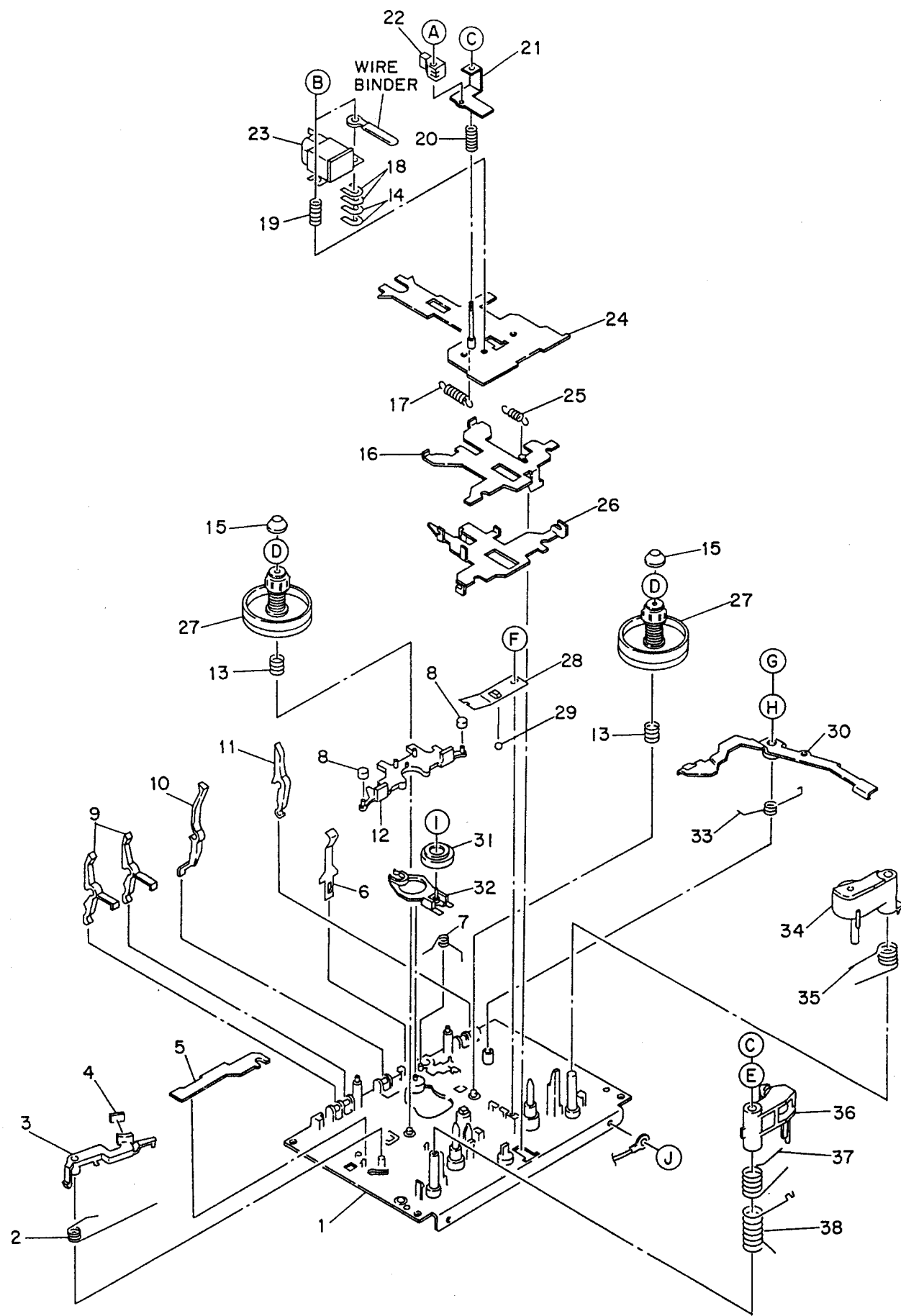
DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カナ NO.	DESCRIPTION	REF. NO	PART NO.	カナ NO.	DESCRIPTION
1	83-DS1-001-019		CAB, FR (EXCEPT U)	26	84-793-026-219		CAB, STEEL
1	83-DS1-004-019		CAB, FR U (U)	27	87-084-099-019		RIVET, NYLON 3-5.5 SP (HE)
2	83-DS1-005-010		PANEL, FR 2	28	80-DW1-012-019		KNOB, SLIDE
3	83-DS3-006-019		KNOB, BIAS	29	83-DS1-203-019		HLD, KNOB
4	83-DS3-004-019		KNOB, REC	30	81-DS2-204-019		FL GUIDE
5	83-DS2-003-019		PANEL, CASS	31	83-DS2-201-019		ROD, POWER
6	83-DS2-012-019		WINDOW, BOX	32	83-DS1-201-019		HLD, DB-S
7	83-DS2-202-119		SPR-T, EJECT	33	87-085-185-019		BUSHING, AC CORD E (EXCEPT U)
8	84-790-204-019		HOOK, EJECT	33	87-085-189-019		BUSHING, CORD U (U)
9	81-DS1-007-119		BOX, CASS	△	34	87-050-034-019	AC CORD ASSY, E (HE, E)
10	82-238-205-019		SPR-C, AMTS	△	34	87-050-032-019	AC CORD ASSY, K 3P S (K)
11	84-790-032-319		PANEL, AMTS	△	34	87-050-053-019	AC CORD ASSY, U-2 (U)
12	84-790-202-019		RUBBER, AMTS (EXCEPT U)	A	87-761-096-419		VFT2 +3-10
12	84-790-217-019		RUBBER, AMTS U (U)	B	87-067-703-019		BVT 2+3-10 W/O SLOT
13	84-790-205-019		SPR-C, HOOK	C	87-067-688-019		BVTT +3-6
14	81-532-080-019		LBL, CASS-COMPT	D	87-591-094-419		QIT +3-6 GOLD
15	82-AA1-016-019		BTN, POWER	E	87-067-777-019		BVTT +3-6W CONVEX BLK
16	81-DS1-011-019		BADGE, AIWA N	F	87-067-660-019		BVT 2+3-8 W/O SLOT BLK
17	83-DS2-004-019		BTN, EJECT	G	87-078-084-019		BVTT +3-6 W, CONVEX
18	80-DS3-209-019		SPR-C, EJECT	H	87-067-581-019		BVT 2+3-15 W/O SLOT
19	80-DS3-203-019		LVR, EJECT	I	87-067-586-019		BVTT +4-8
20	87-063-165-019		OIL-DMPR 150	J	87-067-698-019		BVT 2+3-18 W/O SLOT (K)
21	83-DS2-011-019		WINDOW, FL	K	87-067-689-019		BVTT +3-8
22	83-DS2-005-119		KEY, PLAY				
23	83-DS2-007-019		KEY, MONITOR				
24	82-AA1-029-119		FOOT (SG)				
25	83-DS1-007-119		PANEL, REAR EBN (E)				
25	83-DS1-006-019		PANEL, REAR HEJBN (HE)				
25	83-DS1-008-019		PANEL, REAR KBN (K)				
25	83-DS1-009-019		PANEL, REAR UBN (U)				

SPRING APPLICATION POSITION



TAPE MECHANISM EXPLODED VIEW 1/1



# TAPE MECHANISM PARTS LIST 1/1

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
 If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カテゴリ NO.	DESCRIPTION	REF. NO	PART NO.	カテゴリ NO.	DESCRIPTION
1	86-574-201-51K		OUT-SERT ASSY	46	86-574-207-01K		LVR, CLUTCH
2	81-507-223-010		SPR-T, B, T	47	86-574-211-019		FELT, 3. 8-7. 6-0. 8
3	81-507-222-11K		LEVER, BACK TENSION	48	86-574-206-01K		STOPPER, SP
4	86-574-225-019		FELT, 2. 5-6-1	49	82-110-647-01K		SHLD PLATE, M
5	81-505-238-01K		PLATE EJECT BUTTON	50	80-ZM5-222-01K		CHAS ASSY, B M5
6	86-574-216-010		SPR-P, CASSETTE	51	86-575-329-01K		PULLY MAIN K
7	86-574-219-110		SPR-T, IDLER	52	82-565-373-01K		SCREW, THRUST
8	81-507-229-010		BRAKE G	53	87-087-029-010		CUSHION, RBR
9	81-505-241-21K		LEVER, CRO2 REC BLOCKING	54	87-067-441-019		SCREW, MOTOR
10	81-505-242-21K		LVR, METAL	55	81-507-221-11K		HLDR, MOTOR
11	81-505-240-21K		LEVER CASS SENSOR	56	86-574-221-010		BELT A
12	81-505-236-31K		LVR, SLIDE BRAKE	57	86-574-214-01K		FLY-WHL ASSY, T
13	81-507-219-010		SPR-C, REEL TABLE S	58	81-505-225-11K		GEAR, FLY-WHL
14	86-543-258-010		SPACER, HEAD, 0. 2	59	81-507-247-110		BELT, B RBR
15	82-303-398-01K		CAP, REEL TABLE	60	81-505-234-21K		GEAR, PLAY CAM
16	81-505-207-11K		PLATE PAUSE	61	81-505-230-01K		LEVER, PLAY
17	86-543-241-010		SPR-E, SLIDE-CHAS B	62	87-045-323-019		MMN-6FILB8K
18	81-507-227-010		SPACER	63	81-505-261-010		SPRING-C, FLYWHEEL F
19	82-307-212-010		SPR-C EH	64	81-505-235-21K		GEAR, PAUSE
20	81-507-251-010		SPR-C EHB	65	81-505-308-01K		LVR, PUSE B
21	81-507-250-01K		HOLDER EH, C	66	81-505-272-010		SPRING-T COMMU
22	87-046-359-010		HEAD, EH H3311	67	81-505-283-010		SPRING-T, PAUSE LEVER
23	87-046-361-010		HEAD, RPH H2381	68	86-574-223-01K		LVR, SENSOR
24	86-574-243-11K		CHAS ASSY, SL2	69	86-574-229-010		CUSH-G, 2. 3-3-0. 45
25	81-505-266-010		SPRING-E, PAUSE LEVER	70	86-574-230-010		SH, SENSOR
26	81-507-220-01K		PLATE, PINCH LEVER	71	87-045-360-019		MOT, SHE 2L 00
27	80-ZM5-226-01K		REEL TABLE ASSY, S M5	72	81-507-237-010		SOL, 9ME-C
28	81-507-224-010		SPRING-P WORKING CHASSIS	73	81-505-607-010		BSW-187-2AU, LEAF SW
29	87-073-005-019		STEEL BALL DIA 2MM	74	81-505-601-010		LEAF SWITCH GEAR
30	81-505-307-41K		LVR, BRAKE	A	87-261-036-219		SCREW V + 2 - 8
31	81-505-251-210		FR IDLER, SUB ASSY	B	87-253-035-110		U+2-6
32	86-574-208-11K		LVR, FRP ASSY	C	87-391-105-019		NUT 2-4-1. 6
33	86-574-218-010		SPR-T, BLAKE	D	87-081-489-019		PW, 1. 7-3. 5-0. 25 SLT
34	81-505-210-210		PINCH LEVER ASSY F	E	87-067-006-019		WASHER, W2-5-0. 2
35	81-505-267-010		SPRING-T, PINCH F	F	87-341-035-219		SCREW UT1 + 2 - 6
36	81-507-207-310		PINCH LEVER ASSY, S	G	87-341-038-219		SCREW UT1 +2-12
37	86-543-257-010		SPR-T, PINCH LVR S	H	87-081-414-019		W2-6-0. 4
38	81-507-228-010		SPR-C, PINCH LEVER S	I	87-081-944-019		PW, 1. 5-3. 5-0. 5
39	81-505-233-01K		TRIGGER LEVER, PAUSE	J	87-081-481-219		SCREW, VTT+3-5
40	86-574-226-010		SPR-T, PLATE PINCH	K	87-342-074-019		UT2+2. 6-8 W/O SLT
41	81-505-271-110		SPR-T TRIGGER LEVER	L	87-067-718-019		PW 3-8-0. 5
42	81-505-231-01K		TRIGGER LEVER, PLAY	M	86-574-231-019		SCREW V+2. 6-5. 2
43	86-574-205-11K		POLLERY, REEL MOTOR	N	81-505-341-019		SCREW VFT + 2. 6 - 31. 5
44	81-505-290-010		SPRING-C FR IDLER C	O	87-255-071-210		U+2. 6-4
45	86-574-241-01K		FLY-WHL ASSY, S2				

# REFERENCE NAME LIST

## ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, SERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER
サージサプレッサ	SERGESUPPRESSOR
セラコン	CAP, CERA

## MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL
ジグアーム	ARM, SHAFT
ジグガイド	GUIDE, SHAFT
ストラップ	STRAP
トクナベ	S-SCREW
ヒンジ	HINGE
ヒンジビス	S-SCREW
ビスセレート	SCREW, SERRART

サービス技術ニュース	
番号	連絡内容
G - -	
G - -	
G - -	

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