

AIWA® SERVICE MANUAL

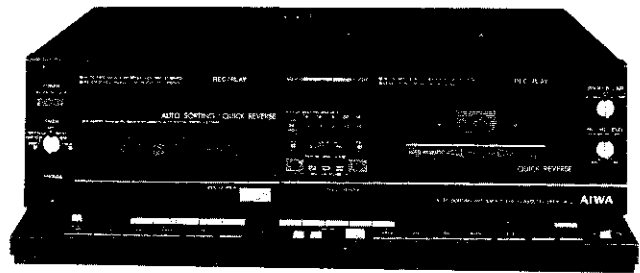
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STEREO CASSETTE DECK

MODEL NO.

AD-A70

This service manual contains service information for only altered and added sections of Model AD-A70. If requiring other service information, see the service manual of Model FX-A770.



TYPE. H, U, E

SPECIFICATIONS

Type	Stereo cassette tape deck	Tape speed	4.8 cm/sec. (1-7/8 ips) 9.5 cm/sec. (high speed dubbing only)
Track format	4 tracks 2 channels	Recording system	AC bias (frequency 100 kHz)
Power supply		Erase system	AC erase
AD-A70U	AC120V, 60 Hz	Motors	Capstan: DC servo motor × 2 Auto sorting: DC motor × 2
AD-A70E	AC 220 V, 50/60 Hz	Head	Recording/playback head × 2 Erase head × 2
AD-A70H	AC 120 V/220 V/240 V switchable, 50/60 Hz	Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 kΩ)
Power consumption	30 W	Outputs	LINE OUT standard output level: 380 mV (0 VU); suitable load impedance: over 50 kΩ
Frequency response	METAL tape: 20–16,000 Hz CrO ₂ position tape: 20–15,000 Hz NORMAL tape: 20–14,000 Hz	Dimensions	330(W) × 106.5(H) × 346(D) mm
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)	Weight	6 kg
Wow and flutter	According to DIN 45 500 0.16% 0.06% (WRMS)	Accessories	Sorting cartridge (2) Stereo pin cord (2)

- Design and specifications are subject to change without notice.
- The Dolby noise reduction system is provided under licence from Dolby Laboratories.
- Dolby and "Double D" are trademarks of Dolby Laboratories.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

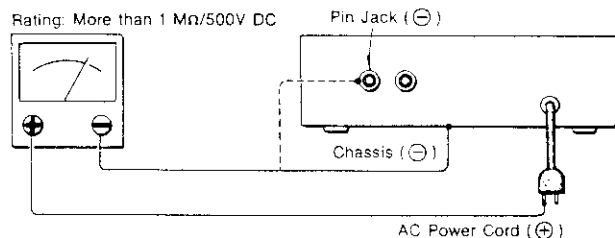
1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5V$ D.C and shall be not less than $1M\Omega$.

6. General instructions for mechanism repair

- 1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
- 2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
- 3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch-roller, especially.
- 4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
- 5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, malfunction and damage.

Measuring Point

Connect to Chassis or Outside $\ominus$ of Pin Jack



Caution for Repairing

Be sure to set the unit into the following states when the repairing has been completed.

- 1) Loading of the cassette will be started when the power supply is turned on and the PLAY button of deck I is pressed.

Therefore, the power supply should be cut off when the cassette box assembly has been mounted onto the mechanism.

- 2) Install the fixing screws for transportation.

ELECTRICAL MAIN PARTS LIST

- * -mark means less required items and availabilities may be limited.
- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.

Ref.No.	Part.No.	Description
=== IC ===		
	87-020-454	IC,DM6851
	82-197-642	IC,HD38702A33
	82-104-601	IC,HD38702A37
	87-020-028	IC,IR2E27A
	87-020-261	IC,LA6358S
	82-110-640	IC,LC6523C-798,A
	82-110-641	IC,LC6523C-799,B
	82-110-643	IC,LM6402G-1959
	87-020-140	IC,L78M12
	87-020-553	IC,M5201
	87-020-157	IC,M5210L
	87-027-895	IC,M5218L
	87-027-909	IC,M54523P
	87-027-656	IC,TC4066BP
	87-027-827	IC,TC4069UBP
	87-020-079	IC,TD6255S
	87-027-538	IC,UPD4069
=== TRANSISTOR ===		
	89-110-155	TRANSISTOR,2SA1015,GR
	89-113-460	TRANSISTOR,2SA1346
	89-113-584	TRANSISTOR,2SA1358Y
	89-108-854	TRANSISTOR,2SA885 R
	89-109-521	TRANSISTOR,2SA952K
	89-318-155	TRANSISTOR,2SC1815,GR
	89-318-156	TRANSISTOR,2SC1815,BL
	89-320-011	TRANSISTOR,2SC2001K
	89-327-855	TRANSISTOR,2SC2785E
	89-411-110	TRANSISTOR,2SD1111
	89-411-530	TRANSISTOR,2SD1153
	89-412-753	TRANSISTOR,2SD1275
	89-412-763	TRANSISTOR,2SD1276QP
	89-413-023	TRANSISTOR,2SD1302ST
=== MAIN CIRCUIT BOARD SECTION ===		
PCB-A	*	MAIN CIRCUIT BOARD
BPF1	* 82-198-715	FILTER MPX (100K)
BPF2	* 82-193-715	FILTER MPX (100K)
C3	* 87-018-123	CAP,CERA-SOL SS 220P
C4	* 87-018-123	CAP,CERA-SOL SS 220P
C7	* 87-015-954	CAP,ELECT LL 10-16V
C8	* 87-015-954	CAP,ELECT LL 10-16V
C11	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C53	* 87-018-126	CAP,CERA-SOL SS 390P
C54	* 87-018-126	CAP,CERA-SOL SS 390P
C55	* 87-015-954	CAP,ELECT LL 10-16V
C56	* 87-015-954	CAP,ELECT LL 10-16V
C59	* 87-018-134	CAP,CERA-SOL SS 0.01
C143	* 87-010-260	CAP,ELECT 47-25V SME
C191	* 87-018-132	CAP,CERA-SOL SS 2200P
C192	* 87-018-132	CAP,CERA-SOL SS 2200P
C241	* 87-018-134	CAP,CERA-SOL SS 0.01
C242	* 87-018-102	CAP,CERA-SOL SS6.8P
C244	* 87-018-119	CAP,CERA-SOL SS 100P
C244	* 87-018-134	CAP,CERA-SOL SS 0.01
C247	* 87-018-134	CAP,CERA-SOL SS 0.01
C268	* 87-018-134	CAP,CERA-SOL SS 0.01
C283	* 87-018-102	CAP,CERA-SOL SS6.8P
C285	* 87-018-119	CAP,CERA-SOL SS 100P
C285	* 87-018-134	CAP,CERA-SOL SS 0.01
C287	* 87-018-105	CAP,CERA-SOL SS 12P

Ref.No.	Part.No.	Description
C325	* 87-018-203	CAP,CERA-SOL 8200P
C328	* 87-014-063	CAP,PP 1800P
C353	* 87-010-484	CAP,ELECT 2200/50 SRE (H,U ONLY)
C353	* 87-010-485	CAP,ELECT 2200/50 KRE (E ONLY)
C505	* 87-018-134	CAP,CERA-SOL SS 0.01
C550	* 87-018-134	CAP,CERA-SOL SS 0.01
C709	* 87-010-429	CAP,ELECT,SME 680-16V
C710	* 87-010-429	CAP,ELECT,SME 680-16V
C711	* 87-010-429	CAP,ELECT,SME 680-16V
C712	* 87-010-429	CAP,ELECT,SME 680-16V
C714	* 87-018-134	CAP,CERA-SOL SS 0.01
C715	* 87-018-134	CAP,CERA-SOL SS 0.01
C716	* 87-018-134	CAP,CERA-SOL SS 0.01
C717	* 87-018-134	CAP,CERA-SOL SS 0.01
C719	* 87-018-131	CAP,CERA-SOL SS 1000P
D141	87-020-110	DIODE 1SS177
D142	87-020-110	DIODE 1SS177
D143	87-020-110	DIODE 1SS177
D144	87-020-110	DIODE 1SS177
D145	87-020-110	DIODE 1SS177
D146	87-020-110	DIODE 1SS177
D147	87-020-110	DIODE 1SS177
D171	87-027-702	DIODE,ZENER HZ6C2L
D214	87-020-110	DIODE 1SS177
D281	87-020-110	DIODE 1SS177
D321	87-020-110	DIODE 1SS177
D351	87-020-110	DIODE 1SS177
D352	87-020-025	DIODE 2B4B41,LC-2
D353	87-020-123	DIODE DS446
D354	87-020-123	DIODE DS446
D356	87-027-365	DIODE S5277B
D357	87-020-123	DIODE DS446
D401	87-020-110	DIODE 1SS177
D402	87-020-110	DIODE 1SS177
D403	87-020-110	DIODE 1SS177
D404	87-020-110	DIODE 1SS177
D405	87-020-110	DIODE 1SS177
D406	87-020-110	DIODE 1SS177
D407	87-020-110	DIODE 1SS177
D408	87-020-110	DIODE 1SS177
D409	87-020-110	DIODE 1SS177
D410	87-020-110	DIODE 1SS177
D411	87-020-110	DIODE 1SS177
D412	87-020-110	DIODE 1SS177
D451	87-027-405	DIODE,ZENER RD2.2EB
D452	87-020-110	DIODE 1SS177
D453	87-020-110	DIODE 1SS177
D454	87-027-332	DIODE,ZENER HZ6B1L
D455	87-027-332	DIODE,ZENER HZ6B1L
D456	87-020-110	DIODE 1SS177
D457	87-020-110	DIODE 1SS177
D458	87-027-332	DIODE,ZENER HZ6B1L
D459	87-020-110	DIODE 1SS177
D460	87-020-110	DIODE 1SS177
D461	87-027-332	DIODE,ZENER HZ6B1L
D475	87-027-332	DIODE,ZENER HZ6B1L
D522	87-020-110	DIODE 1SS177
D551	87-020-110	DIODE 1SS177
D553	87-020-110	DIODE 1SS177
D701	87-020-110	DIODE 1SS177
D702	87-020-123	DIODE DS446
D703	87-020-123	DIODE DS446
D704	87-020-123	DIODE DS446
D705	87-020-123	DIODE DS446
D706	87-020-110	DIODE 1SS177

CAPACITORS
No mark, U, UF: μ F
P, PF : pF

COILS
MMH: mH
UH : μ H

FUSE
MMA: mA

Ref No.	Part No.	Description
D707	87-020-123	DIODE DS446
D708	87-020-123	DIODE DS446
D709	87-020-110	DIODE 1SS177
D710	87-020-110	DIODE 1SS177
D711	87-020-110	DIODE 1SS177
D714	87-020-123	DIODE DS446
D715	87-020-110	DIODE 1SS177
D716	87-020-123	DIODE DS446
D718	87-020-110	DIODE 1SS177
D719	87-020-123	DIODE DS446
D720	87-020-110	DIODE 1SS177
D721	87-020-110	DIODE 1SS177
D722	87-020-110	DIODE 1SS177
D723	87-020-110	DIODE 1SS177
D724	87-020-110	DIODE 1SS177
D725	87-020-110	DIODE 1SS177
D726	87-020-110	DIODE 1SS177
D727	87-020-110	DIODE 1SS177
D728	87-020-110	DIODE 1SS177
D733	87-020-110	DIODE 1SS177
D734	87-020-110	DIODE 1SS177
D740	87-020-110	DIODE 1SS177
AF1	87-035-358	FUSE T400MMA (E ONLY)
J701	87-049-420	(LINE)
J702	+++	(LINE)
J703	+++	(LINE)
J704	+++	(LINE)
L171	* 82-196-603	COIL,TRAP,100K
L172	* 82-196-603	COIL,TRAP,100K
L173	* 82-196-603	COIL,TRAP,100K
L174	* 82-196-603	COIL,TRAP,100K
L175	* 87-003-129	COIL 6.8MMH J
L176	* 87-003-129	COIL 6.8MMH J
L177	* 87-003-124	COIL 2.7MMH J
L178	* 87-003-124	COIL 2.7MMH J
L321	* 82-141-620	COIL OSC 100K
L801	* 87-003-136	MICRO INDUCTOR 47UH
L802	* 82-196-649	COIL OSC LC6502C
R359	* 87-029-366	RES,FUSIBLE 1/2W-4.7
R763	* 87-025-406	RES,MF 68 1W
R764	* 87-025-406	RES,MF 68 1W
R781	* 87-025-406	RES,MF 68 1W
R782	* 87-025-406	RES,MF 68 1W
RA791	87-029-019	RES,FUSIBLE 2.2 1/2W (EXCEPT H)
RA792	87-029-019	RES,FUSIBLE 2.2 1/2W (EXCEPT H)
RA701	* 82-104-617	RES,ARRAY 47K-8P
RA702	* 82-146-612	RES,ARRAY 47K-10P
RA703	* 82-110-692	RES,ARRAY 47K
RA704	* 82-110-690	RES,ARRAY 5P-10K
RA705	* 82-110-694	RES,ARRAY 3.9K
RA706	* 82-110-693	RES,ARRAY 10K
RY551	* 87-045-237	RELAY,GSA-237P 12VDC
RY552	* 87-045-237	RELAY,GSA-237P 12VDC
RY553	* 87-045-256	RELAY,12V,62V-2
SFR1	* 87-021-861	SFR 2.2K
SFR2	* 87-021-861	SFR 2.2K
SFR3	* 87-021-865	SFR 22K
SFR4	* 87-021-865	SFR 22K
SFR5	* 87-021-865	SFR 22K
SFR6	* 87-021-865	SFR 22K
SFR51	* 87-021-861	SFR 2.2K
SFR52	* 87-021-861	SFR 2.2K

Ref No.	Part No.	Description
SFR53	* 87-021-864	SFR 10K
SFR54	* 87-021-864	SFR 10K
SFR321	* 87-021-868	SFR 100K
SFR322	* 87-021-868	SFR 100K
SFR323	* 87-021-868	SFR 100K
SFR324	* 87-021-868	SFR 100K
SFR171	* 87-021-742	SFR 10K
SFR172	* 87-021-742	SFR 10K
SFR173	* 87-021-742	SFR 10K
SFR174	* 87-021-742	SFR 10K
=== DOLBY CIRCUIT BOARD SECTION ===		
	87-020-132	DOLBY UNIT ASSY HA12058J (W/PCB-B)
=== TR CIRCUIT BOARD SECTION ===		
PCB-C	*	TR CIRCUIT BOARD
=== DOLBY SW 1 CIRCUIT BOARD SECTION ===		
PCB-E	*	DOLBY SW 1 CIRCUIT BOARD
S1	82-198-602	ROTARY- SW (DOLBY B-C NR)
=== VOLUME CIRCUIT BOARD SECTION ===		
PCB-F	*	VOLUME CIRCUIT BOARD
VR1	82-107-602	VOLUME 10K (RECORD LEVEL)
=== KEY CIRCUIT BOARD SECTION ===		
PCB-G	82-110-631	KEY CIRCUIT BOARD
D1	87-020-110	DIODE 1SS177
D2	87-020-110	DIODE 1SS177
D3	87-020-110	DIODE 1SS177
D4	87-020-110	DIODE 1SS177
D5	87-020-110	DIODE 1SS177
D6	87-020-110	DIODE 1SS177
D7	87-020-110	DIODE 1SS177
D8	87-020-110	DIODE 1SS177
D9	87-020-110	DIODE 1SS177
D10	87-020-110	DIODE 1SS177
D11	87-020-110	DIODE 1SS177
D12	87-020-110	DIODE 1SS177
D13	87-020-110	DIODE 1SS177
D14	87-020-110	DIODE 1SS177
D15	87-020-110	DIODE 1SS177
D16	87-020-110	DIODE 1SS177
D17	87-020-110	DIODE 1SS177
D18	87-020-110	DIODE 1SS177
D19	87-020-110	DIODE 1SS177
D20	87-020-110	DIODE 1SS177
D21	87-020-110	DIODE 1SS177
D22	87-020-110	DIODE 1SS177
D23	87-020-110	DIODE 1SS177
D24	87-020-110	DIODE 1SS177
D25	87-020-110	DIODE 1SS177
D26	87-020-110	DIODE 1SS177
D27	87-020-110	DIODE 1SS177
D28	87-020-110	DIODE 1SS177
D29	87-020-110	DIODE 1SS177
D33	87-020-110	DIODE 1SS177
D34	87-020-110	DIODE 1SS177
D35	87-020-110	DIODE 1SS177
D36	87-020-110	DIODE 1SS177

Ref.No.	Part.No.	Description
D37	87-020-110	DIODE 1SS177
D38	87-020-110	DIODE 1SS177
D39	87-020-110	DIODE 1SS177
LED40	* 87-020-170	LED SLP477B (PAUSE)
LED41	* 87-020-168	LED SLP177B (NORMAL,N)
LED42	* 87-020-168	LED SLP177B (HIGH,H)
LED43	* 87-020-169	LED,SLP-277B (REV PLAY)
LED44	* 87-020-169	LED,SLP-277B (PLAY)
LED45	* 87-020-170	LED SLP477B (PAUSE)
LED46	* 87-020-168	LED SLP177B (REC MUTE)
LED47	* 87-020-168	LED SLP177B (RECORD)
S1	87-031-771	TACT SW (PROGRAM)
S2	87-031-771	TACT SW (DOWN)
S3	87-031-771	TACT SW (UP)
S4	87-031-771	TACT SW (NEXT)
S5	87-031-771	TACT SW (MEMORY)
S6	87-031-771	TACT SW (NORMAL)
S7	87-031-771	TACT SW (HIGH)
S8	87-031-771	TACT SW (TAPE NO 1)
S9	87-031-771	TACT SW (TAPE NO 2)
S10	87-031-771	TACT SW (TAPE NO 3)
S11	87-031-771	TACT SW (TAPE NO 4)
S12	87-031-771	TACT SW (TAPE NO 5)
S13	87-031-771	TACT SW (BACK SKIP)
S14	87-031-771	TACT SW (REV PLAY)
S15	87-031-771	TACT SW (PLAY)
S16	87-031-771	TACT SW (FWD SKIP)
S17	87-031-771	TACT SW (STOP)
S18	87-031-771	TACT SW (PAUSE)
S19	87-031-771	TACT SW (RECORD)
S23	87-031-771	TACT SW (MS)
S24	87-031-771	TACT SW (REV PLAY)
S25	87-031-771	TACT SW (PLAY)
S26	87-031-771	TACT SW (MS)
S27	87-031-771	TACT SW (STOP)
S28	87-031-771	TACT SW (APUSE)
S29	87-031-771	TACT SW (REC MUTE)
S30	87-031-929	SLIDE SW (BLANK SKIP)
S31	87-031-724	SLIDE SW (DECK2, REVERSE MODE)

=== FL CIRCUIT BOARD SECTION ===

PCB-H	*	FL CIRCUIT BOARD
C801	* 87-014-033	CAP,PP 100P
D801	87-020-110	DIODE 1SS177
D802	87-020-110	DIODE 1SS177
D803	87-027-332	DIODE,ZENER HZ6B1L
FL2	* 82-110-615	FL 5-BT 41ZK (DISPLAY)
S801	87-031-894	TACT SW (OPEN/CLOSE)

=== POWER SW CIRCUIT BOARD SECTION ===

PCB-I	*	POWER SW CIRCUIT BOARD
S1	87-031-897	PUSH SW (POWER)

=== DOLBY SW 2 CIRCUIT BOARD SECTION ===

PCB-J	*	DOLBY SW 2 CIRCUIT BOARD
S1	87-031-895	TACT SW (DOLBY-B)
S2	87-031-895	TACT SW (DOLBY-C)

=== SW2 CIRCUIT BOARD SECTION ===

PCB-K	*	SW2 CIRCUIT BOARD
D4	87-020-110	DIODE 1SS177
S4	86-523-276	LEAF SW (CO SW)

Ref.No.	Part.No.	Description
=== COUNTER CIRCUIT BOARD SECTION ===		
PCB-L	*	COUNTER CIRCUIT BOARD
C651	* 87-014-033	CAP,PP 100P
D651	87-027-405	DIODE,ZENER RD2.2EB
D652	87-027-405	DIODE,ZENER RD2.2EB
D653	87-027-405	DIODE,ZENER RD2.2EB
D654	87-027-332	DIODE,ZENER HZ6B1L
FL1	* 82-198-601	FL,4ST-01ZSI 4DIGIT
=== LED CIRCUIT BOARD SECTION ===		
PCB-M	*	LED CIRCUIT BOARD
C601	* 87-015-968	CAP,ELECT SRE 4.7-16V
C602	* 87-015-968	CAP,ELECT SRE 4.7-16V
C603	* 87-015-965	CAP,ELECT 1-50 SRE
D624	87-020-110	DIODE 1SS177
LED601	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED602	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED603	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED604	* 87-027-542	LED,LN217RP (PEAK PROG. METER)
LED605	* 87-027-542	LED,LN217RP (PEAK PROG. METER)
LED606	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED607	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED608	* 87-027-543	LED,LN317GP (PEAK PROG. METER)
LED609	* 87-027-542	LED,LN217RP (PEAK PROG. METER)
LED610	* 87-027-542	LED,LN217RP (PEAK PROG. METER)
LED621	* 87-027-542	LED,LN217RP (REC 1)
LED622	* 87-027-542	LED,LN217RP (REC 11)
LED623	* 87-020-399	LED,LN350GPH (▶)
LED625	* 87-020-399	LED,LN350GPH (◀)
LED626	* 87-027-542	LED,LN217RP (C)
LED627	* 87-027-542	LED,LN217RP (C)
LED628	* 87-027-542	LED,LN217RP (C)
LED629	* 87-027-543	LED,LN317GP (B-TYPE)
LED630	* 87-027-542	LED,LN217RP (C-TYPE)
RES630	87-029-089	RES,FUSIBLE 4.7 1/4W (U ONLY)
S601	86-992-604	PUSH SW (COUNTER RESET)

=== MOTOR CIRCUIT BOARD SECTION ===

PCB-N	*	MOTOR CIRCUIT BOARD
M4	81-505-604	REEL MOTOR (BANKING MOTOR)

=== SW3 CIRCUIT BOARD SECTION ===

PCB-O	*	SW3 CIRCUIT BOARD
D1	87-020-110	DIODE 1SS177
S1	87-031-964	LEAF SW (BO SW)

=== SENSOR 1 CIRCUIT BOARD SECTION ===

PCB-P	*	SENSOR 1 CIRCUIT BOARD
CP1	* 82-141-622	PHOTO REFLECTOR SPI216

=== POWER CIRCUIT BOARD SECTION ===

PCB-Q	82-110-634	POWER CIRCUIT BOARD
AC365	* 87-019-112	SPARK KILLER 0.01E
ANF1	* 82-799-640	FILTER AC-Z (H ONLY)
ANF1	* 87-030-090	FILTER FKOB 160MH (U,E ONLY)

=== SW1 CIRCUIT BOARD SECTION ===

PCB-S	*	SW1 CIRCUIT BOARD
D2	87-020-110	DIODE 1SS177

Ref.No.	Part No.	Description
D3	87-020-110	DIODE 1SS177
S2	86-523-275	LEAF SW (BI SW)
S3	87-031-964	LEAF SW (GEAR SW)
=== DECK 1 CIRCUIT BOARD SECTION ===		
PCB-T	*	DECK 1 CIRCUIT BOARD
M1	87-045-235	MOTOR MMA6B2LW (DECK1)
S1	86-517-621	LEAF SW (ENA B)
S2	86-517-621	LEAF SW (ENA A)
S3	86-517-621	LEAF SW (CO)
S4	86-517-621	LEAF SW (MT)
S5	86-517-621	LEAF SW (CAST)
S6	87-031-874	LEAF SW (DECK1,DIRECT)
SFR1	* 87-021-824	SFR 10K(C) (DECK1)
SFR2	* 87-021-825	SFR 22K (DECK1)
SOL1	* 86-517-611	SOLENOID 2ME-1A (FR,DECK1)
SOL2	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK1)
=== DECK 2 CIRCUIT BOARD SECTION ===		
PCB-U	*	DECK 2 CIRCUIT BOARD
M2	87-045-235	MOTOR MMA6B2LW (DECK2)
S1	86-517-621	LEAF SW (ENA B)
S2	86-517-621	LEAF SW (ENA A)
S3	86-517-621	LEAF SW (CO)
S4	86-517-621	LEAF SW (MT)
S5	86-517-621	LEAF SW (CAST)
S6	87-031-874	LEAF SW (DECK2,DIRECT)
SFR1	* 87-021-824	SFR 10K(C) (DECK2)
SFR2	* 87-021-825	SFR 22K (DECK2)
SOL1	* 86-517-611	SOLENOID 2ME-1A (FR,DECK2)
SOL2	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK2)
=== TIMER CIRCUIT BOARD SECTION ===		
PCB-V	*	TIMER CIRCUIT BOARD
C703	* 87-010-101	CAP,ELECT 220-10V
C704	* 87-010-101	CAP,ELECT 220-10V
C711	* 87-010-101	CAP,ELECT 220-10V
D1	87-020-110	DIODE 1SS177
J1	82-191-649	JACK (PHONES)
R715	* 87-025-072	RES,MF 100-1W
S1	82-110-646	ROTARY SW (TIMER)

=== CP 1 CIRCUIT BOARD SECTION ===

PCB-W	*	CP CIRCUIT BOARD
CP1	* 87-020-457	PHOTO SENSOR NJL-5144L

=== CP 2 CIRCUIT BOARD SECTION ===

PCB-X	*	CP CIRCUIT BOARD
CP1	* 87-020-457	PHOTO SENSOR NJL-5144L

=== MISCELLANEOUS ===

△	* 87-034-732	AC CORD,H50 (H ONLY)
△	* 87-034-731	AC CORD (U ONLY)
△	* 82-788-736	AC CORD (E ONLY)
△	* 87-085-189	AC CORD BUSHING U (U ONLY)
△	* 87-085-184	AC CORD BUSHING D (H ONLY)
△	* 87-085-185	AC CORD BUSHING (E ONLY)
M3	81-505-604	REEL MOTOR (LOADING MOTOR)
△PT1	* 82-110-602	TRANSFORMER PT,H (H ONLY)
△PT1	* 82-110-606	TRANSFORMER PT (U ONLY)
△PT1	* 82-110-603	TRANSFORMER PT (E ONLY)

Ref No.	Part No.	Description
RPH H-1	87-046-259	RPH HD425821RVJ (DECK1)
RPH H-2	87-046-259	RPH HD425821RVJ (DECK2)
△S3	87-031-586	ROTRY SW (VOLTAGE SELECTOR) (H ONLY)

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

IC handling precaution

The IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.

Note:Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will no be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 82-110-617

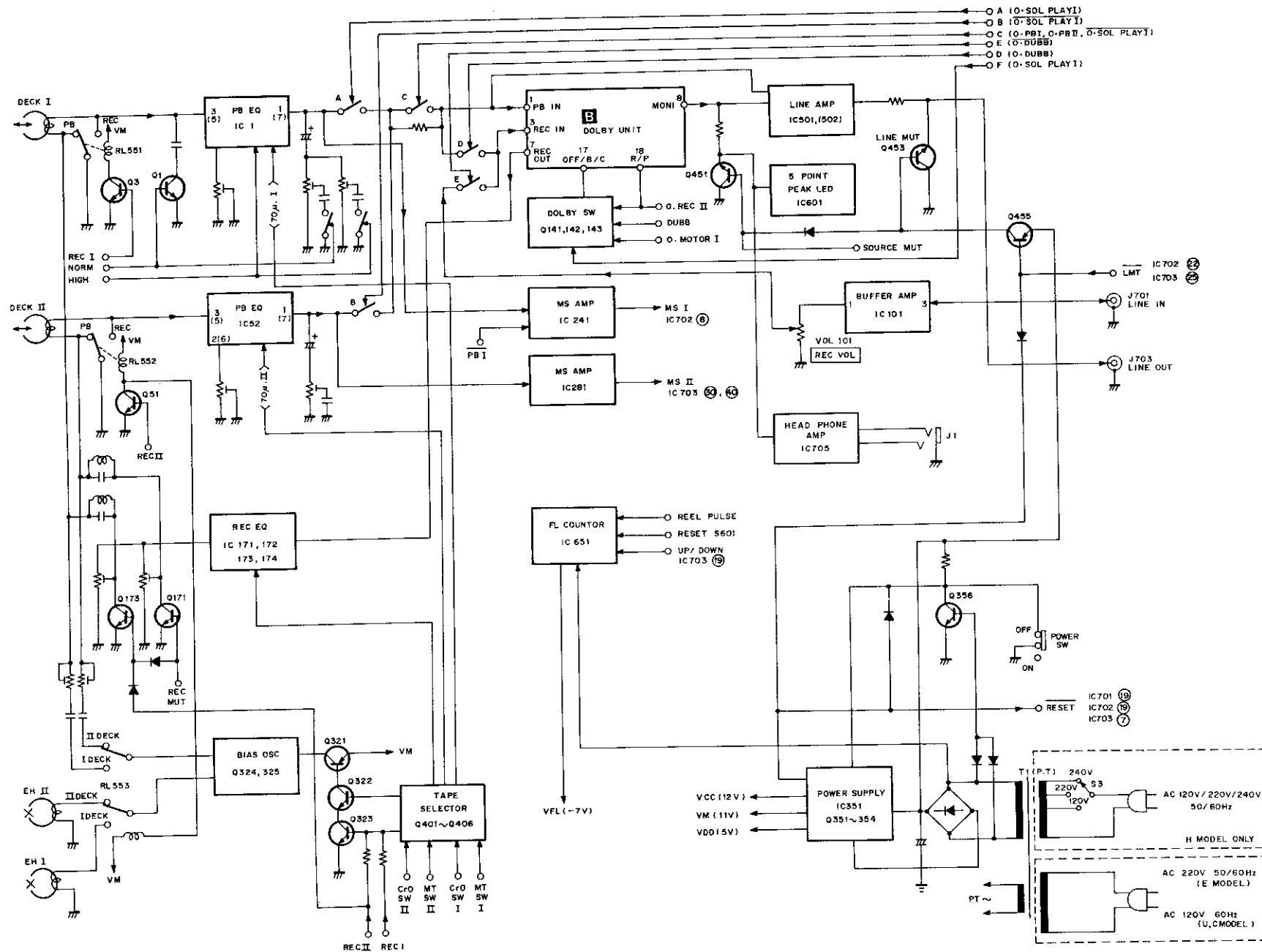
PCB-R	82-110-618	PCB-F	82-110-624
PCB-H	82-110-619	PCB-I	82-110-625
PCB-M	82-110-620	PCB-A	82-110-626
PCB-L	82-110-621	PCB-A	82-110-627
PCB-V	82-110-622	PCB-A	82-110-628
PCB-E	82-110-623	PCB-C	82-110-629

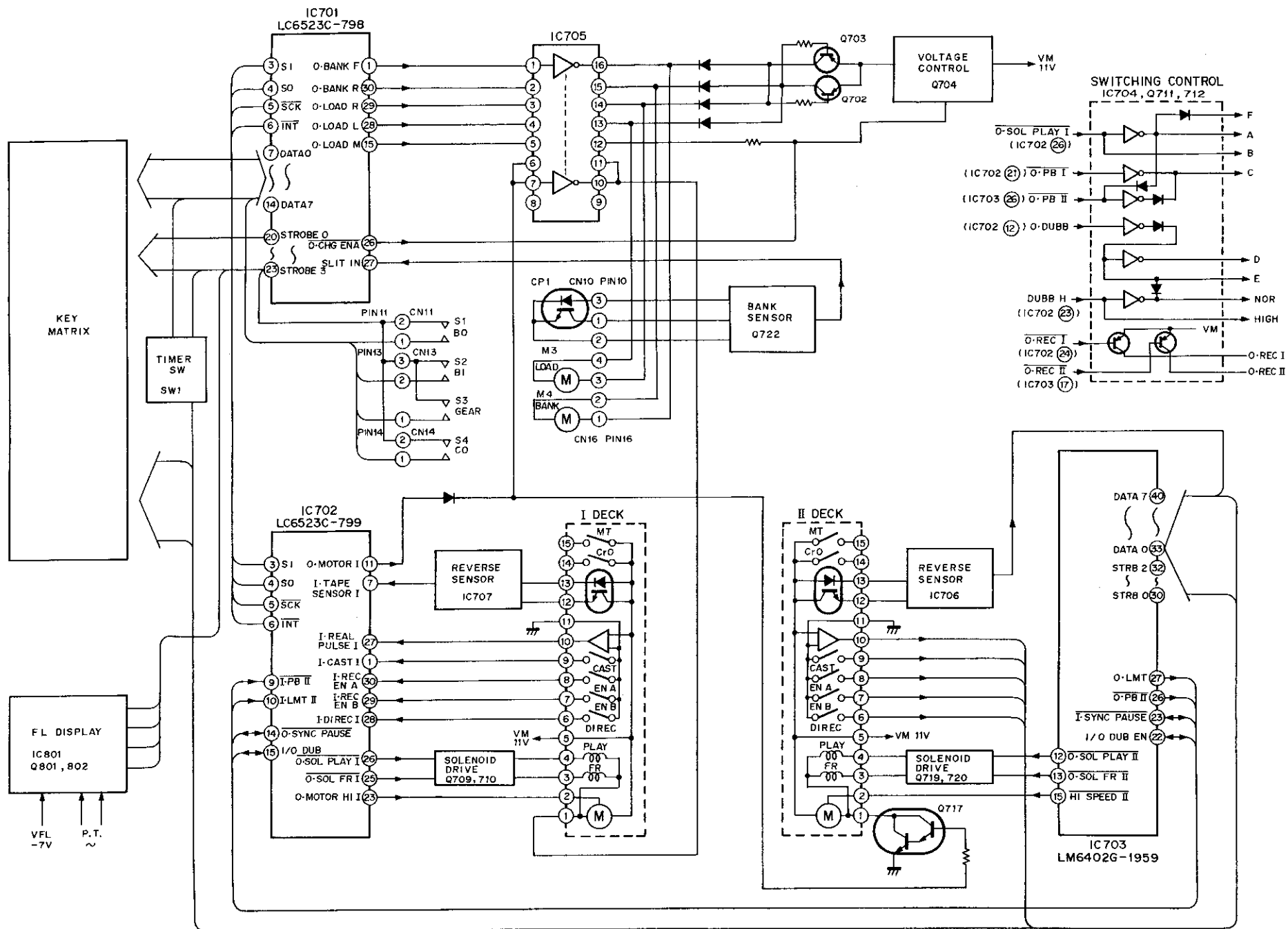
Combination circuit board B 82-110-608

PCB-S	82-110-609	PCB-K	82-110-612
PCB-N	82-110-610	PCB-O	82-110-613
PCB-J	82-110-611	PCB-P	82-110-614

Combination circuit board C 86-517-601

PCB T, U	86-517-602
PCB W, X	86-517-603





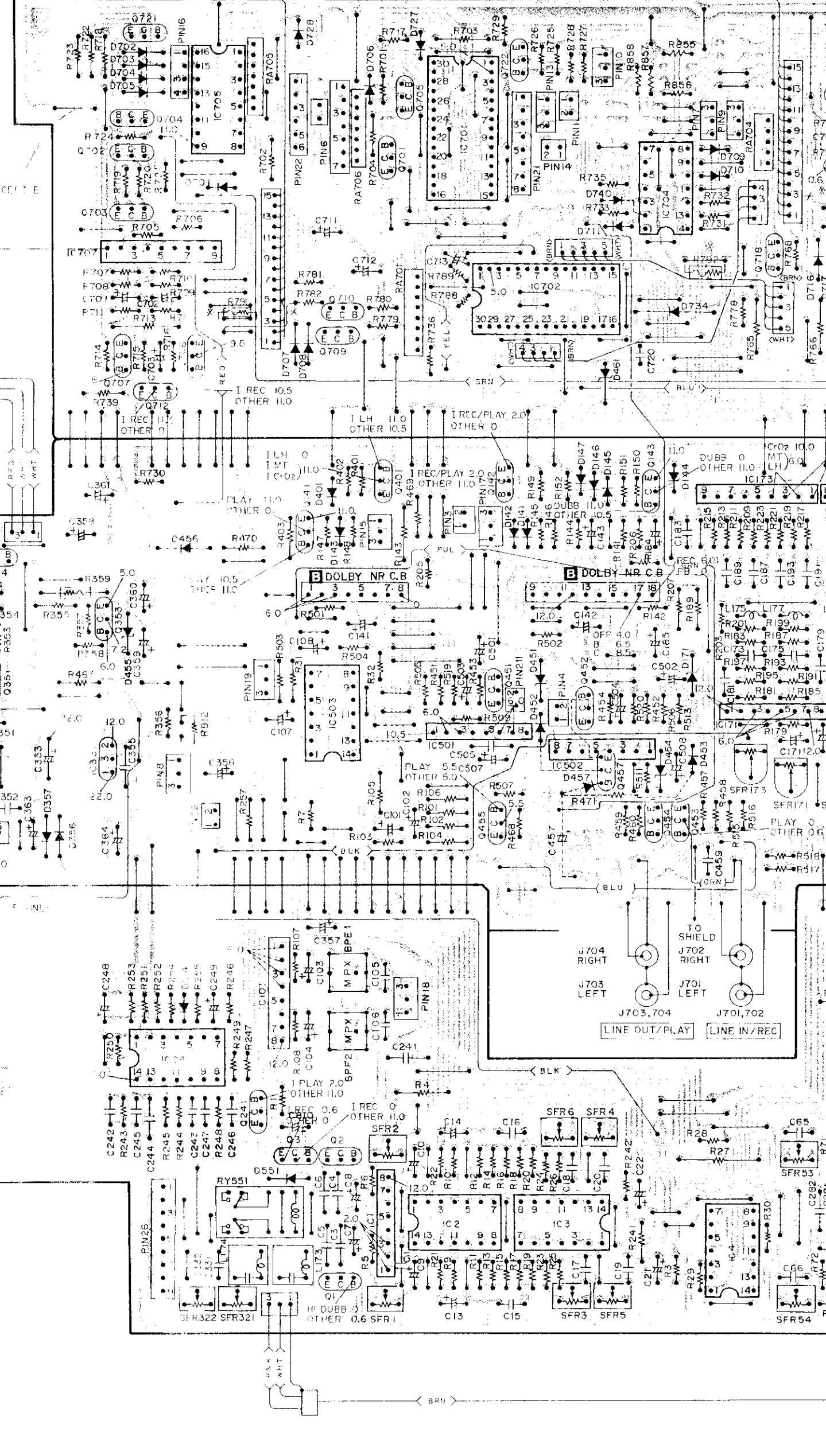
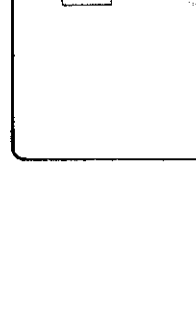
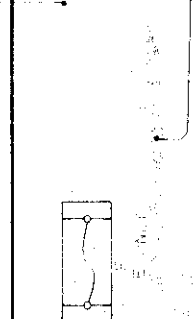
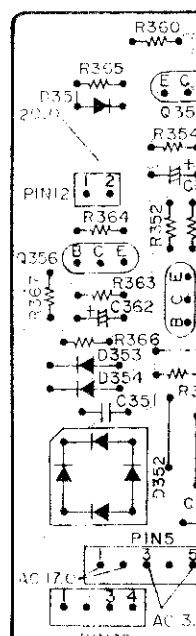
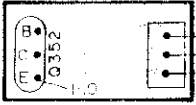
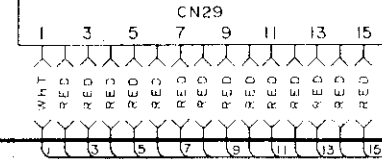
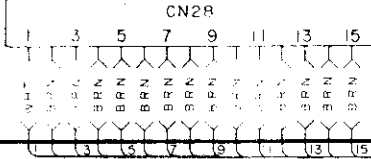
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

MAIN C.B.

TR C.B.

TO DECK I C.B. PIN28

TO DECK II C.B. PIN29



AWA 444

Diagram illustrating the genetic screen for the C.B. locus. The screen involves crossing individuals from two panels, CN5 and CN6, to identify the C.B. locus.

Panel CN5:

- Alleles: H K/WHY, CRG/WHY, BLU/WHY, WHT, RFD

Panel CN6:

- Alleles: ORG/WHY, BLU/WHY, WHT, RED, BLU, WHT, RED

The diagram shows the inheritance of these alleles and the resulting phenotypes (H K/WHY, CRG/WHY, BLU/WHY, WHT, RFD) for the C.B. locus.

S801
OPEN/CLOSE

LH	11.0
CrO ₂	10.5
MT	1.5
T	10.0
rO ₂	5.0
M	4.0

5POINT PEAK PROGRAM
METER

	LED609			LED607		
	LED610		LED608	LED606		
Lch	-6	-3	0	+3	+6	
Rch						
	LED605		LED603	LED601		
	LED604		LED602			

LED628 LED626
LED625 LED627 LED623

④
 ↳ DIRECTION (DECK II)---

PROGRAM TAPE NO. SIDE MUSIC NO. LOAD MS

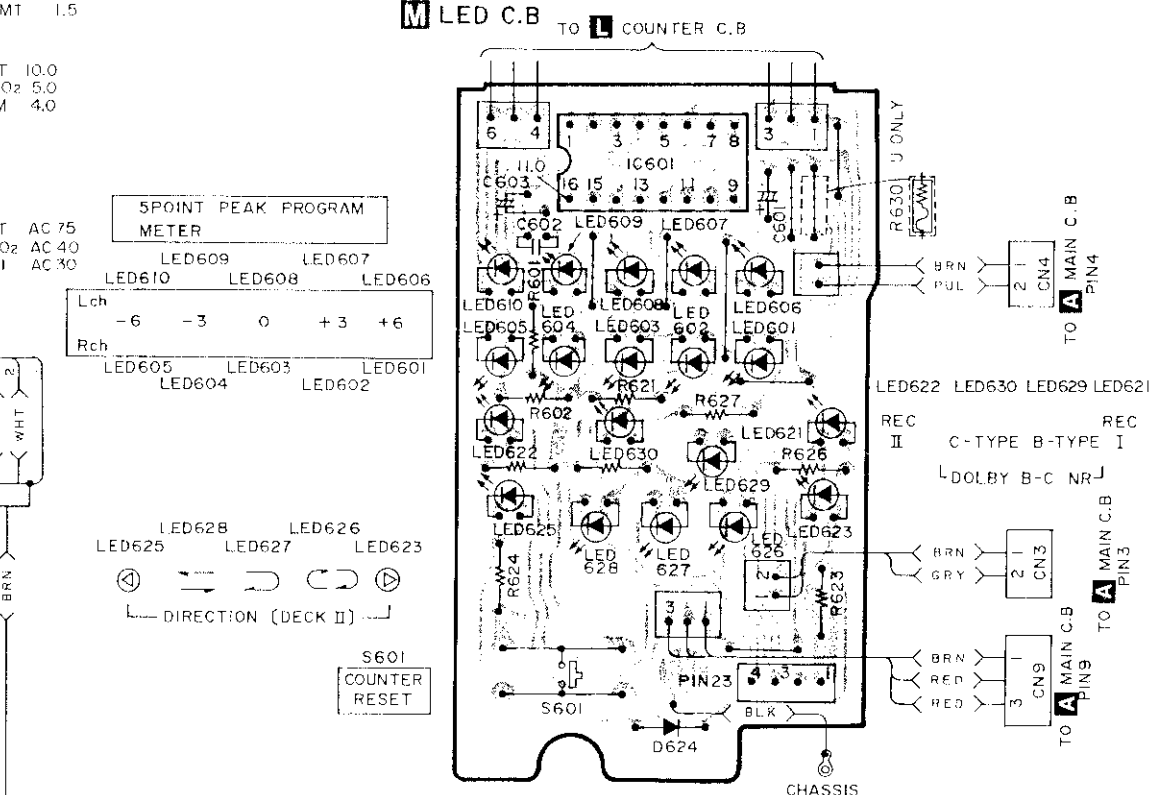
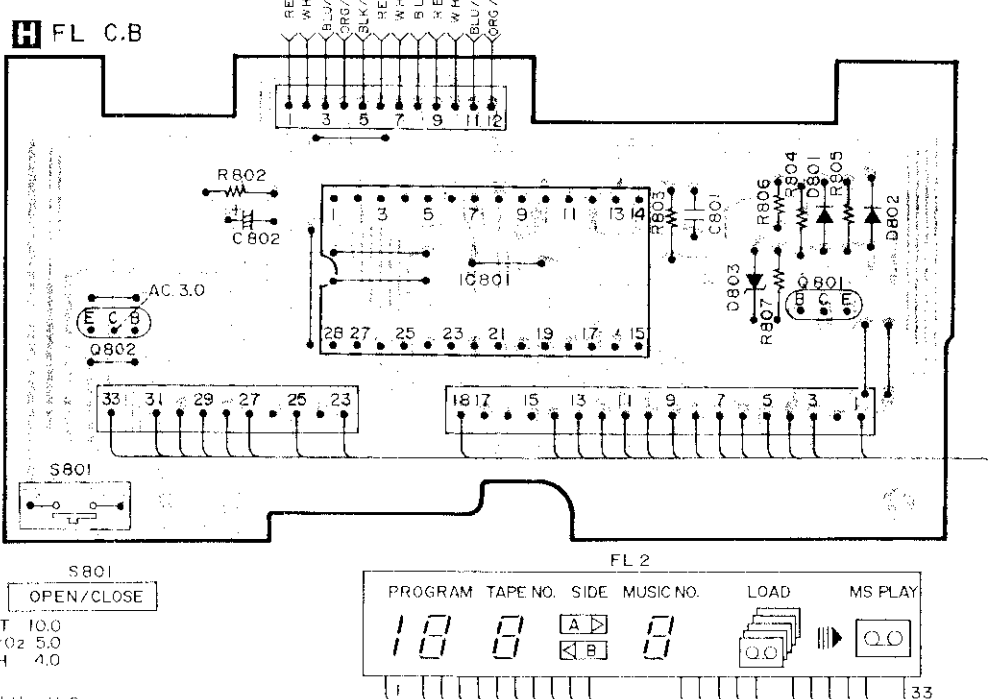
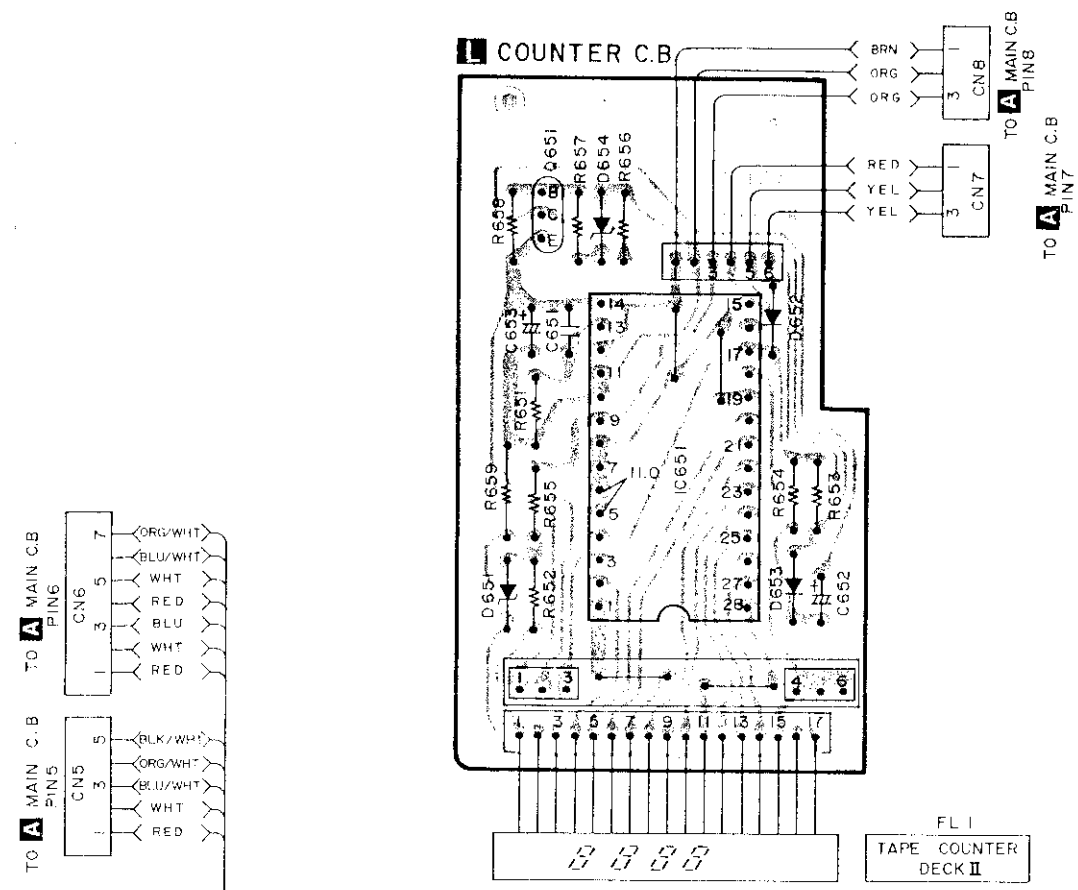
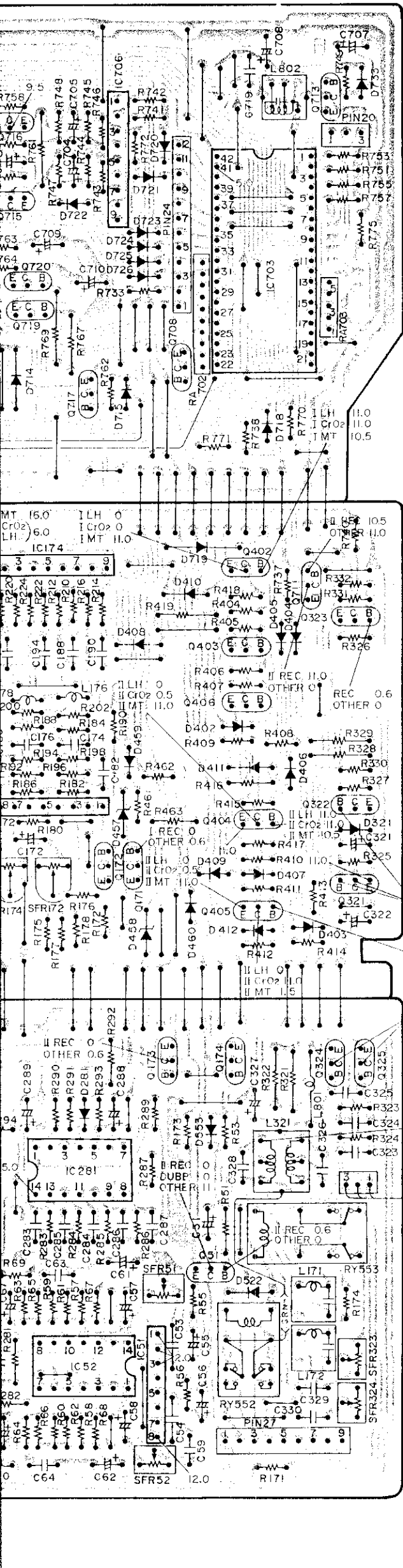
18 8 A B 8

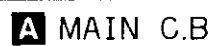
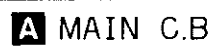
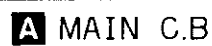
QO C

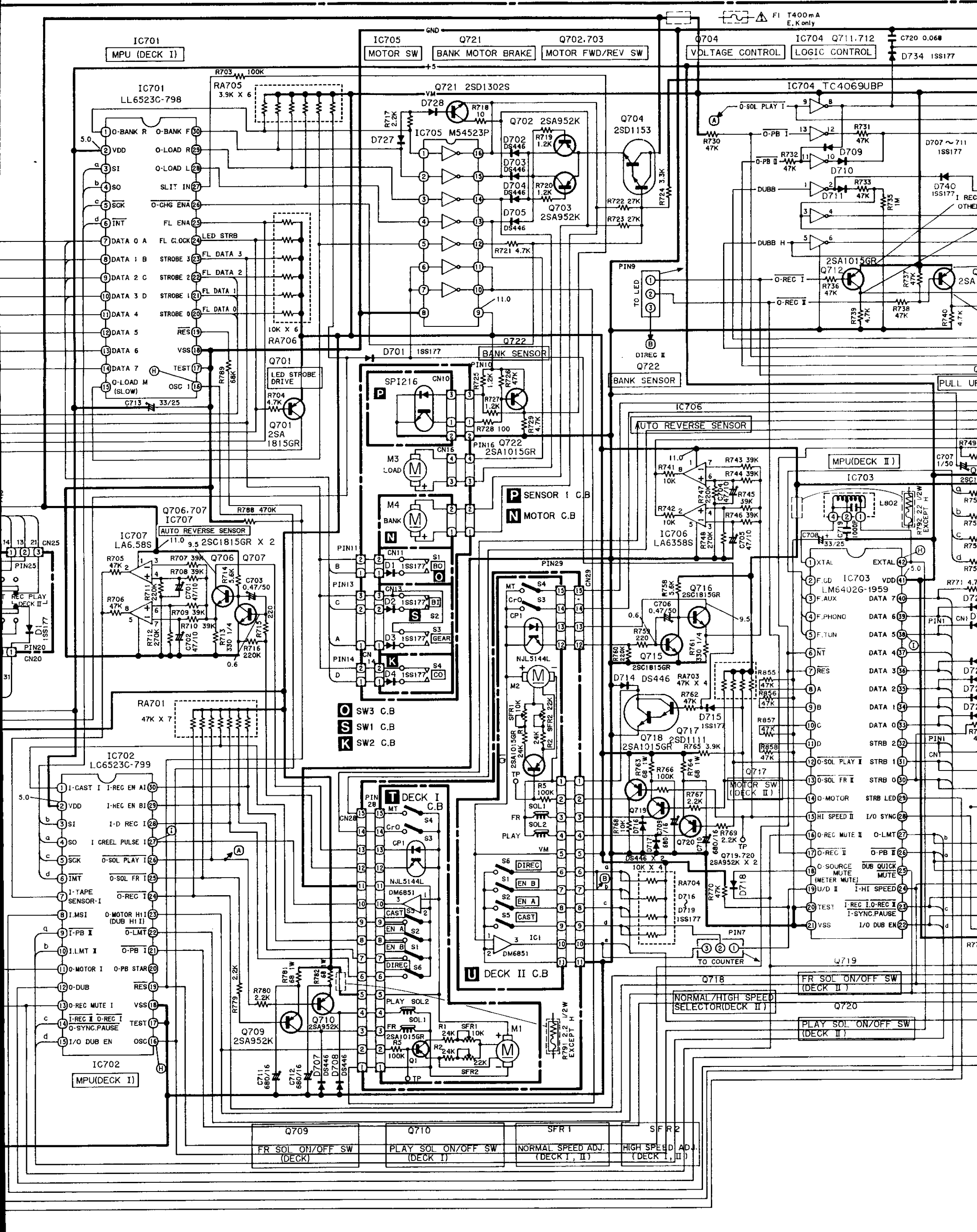
M LED C.B TO **L** COUNTER C.B

[illegible]

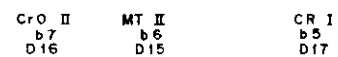
,E ONLY X PATTERN CUT

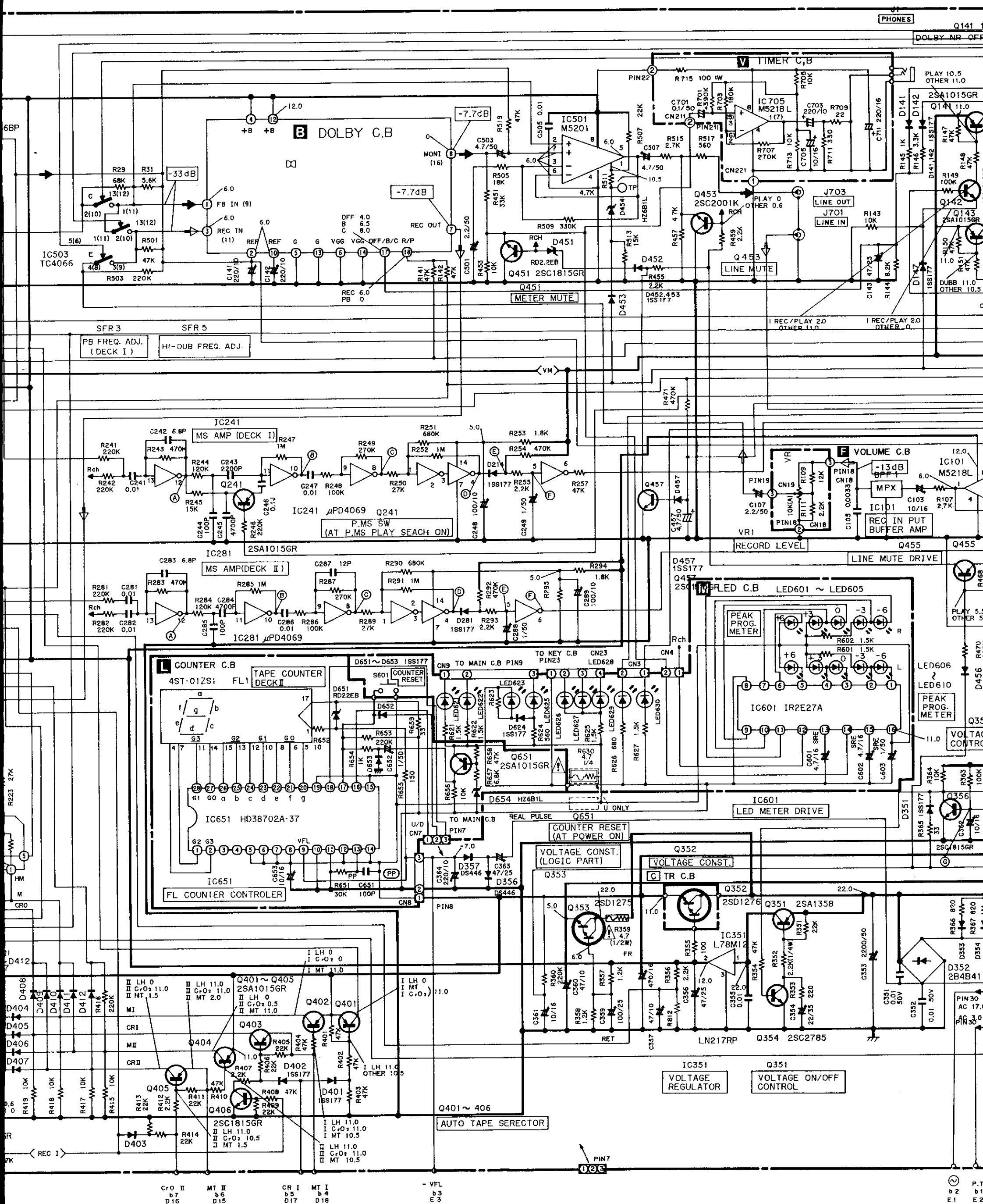




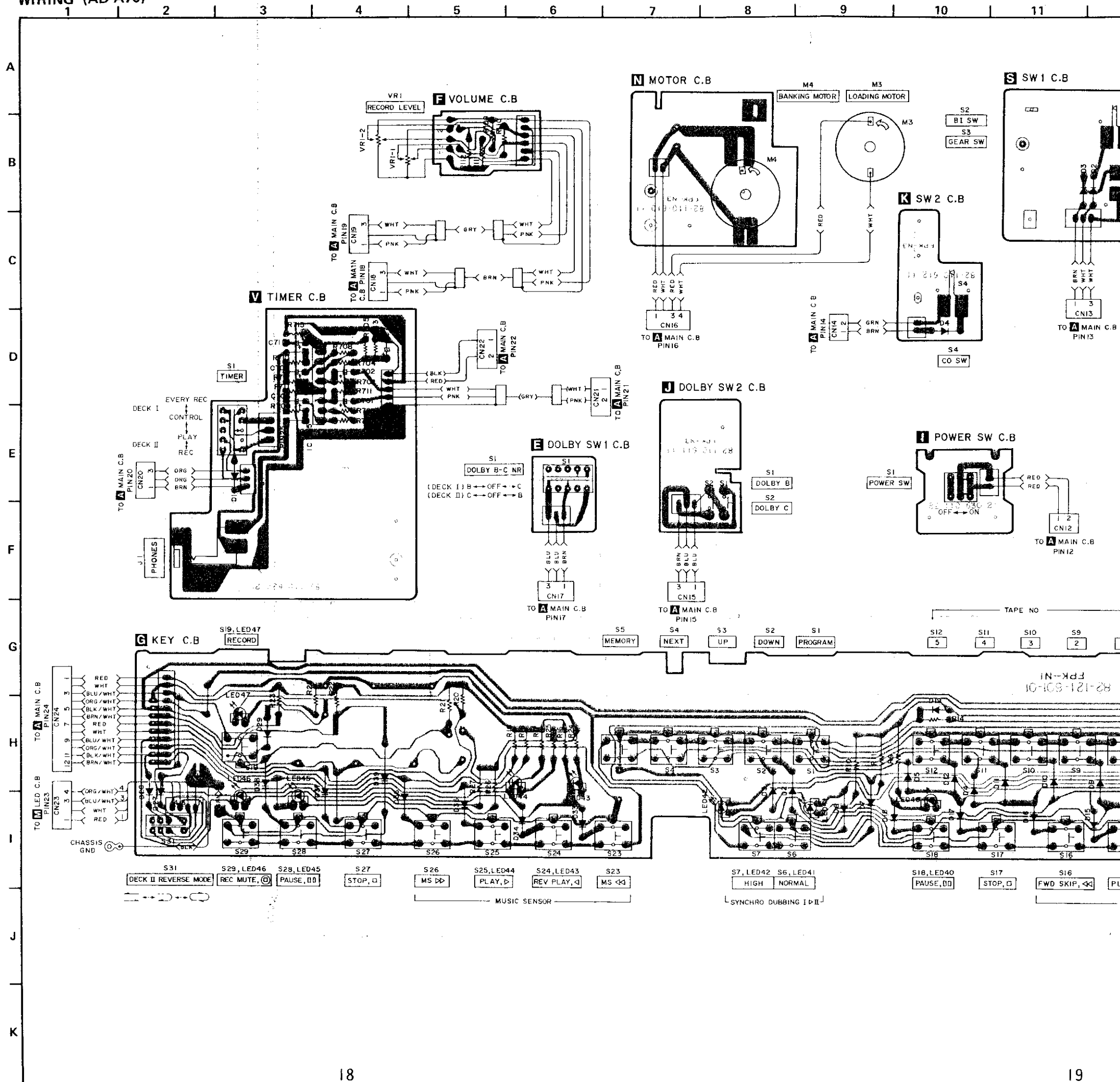








WIRING (AD-A70)



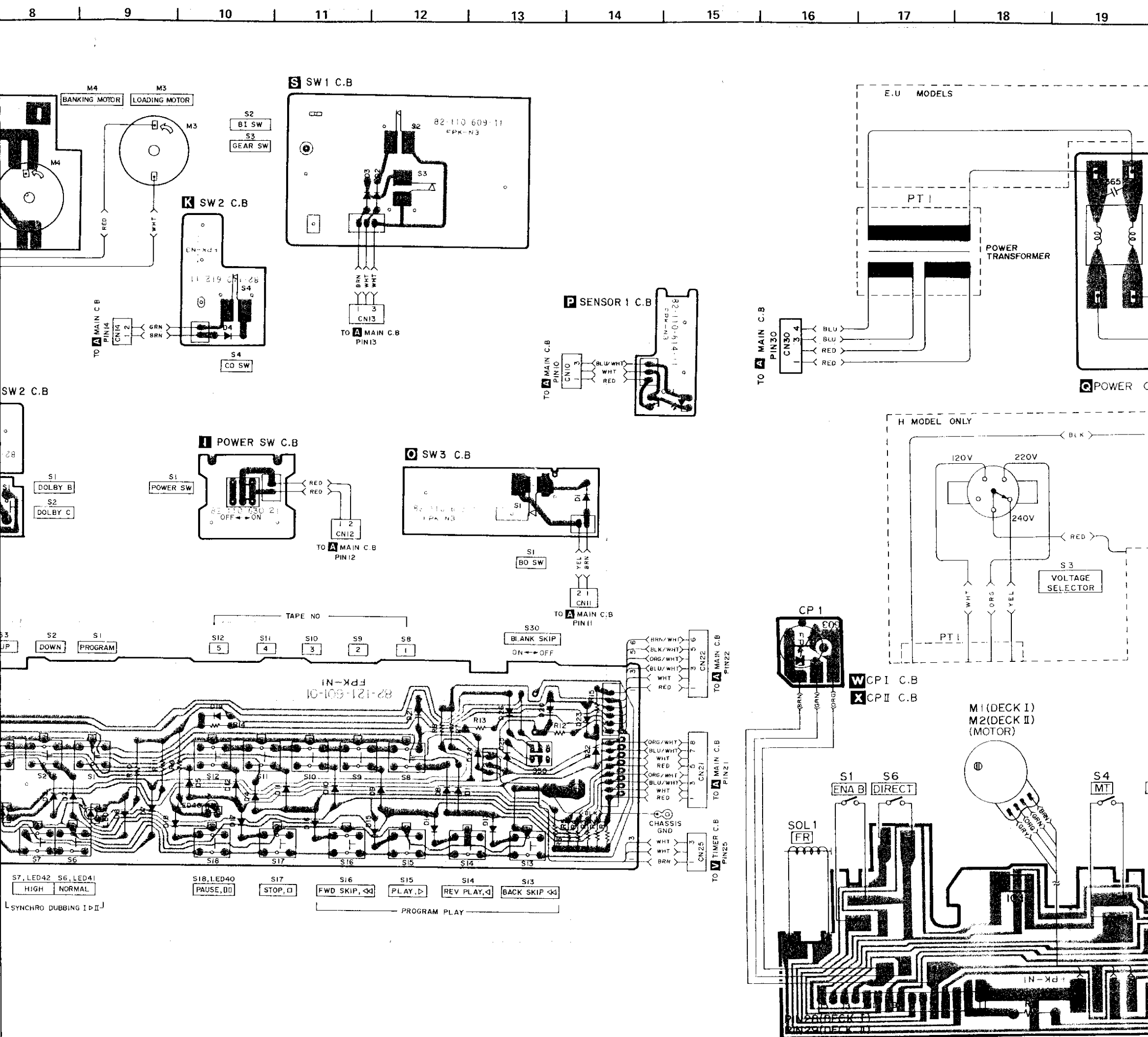
NOTES:

- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of $\pm 5\%$.
- 3) Capacitors with no designation have a dielectric strength of less than 50WV.
- 4) The only capacitor tolerance indicated are $\pm 5\%$ (J) and $\pm 10\%$ (K).
- 5) Ceramic capacitor symbols:
 - For temperature compensation (SL)
 - High dielectric constant system (YY)
 - High dielectric constant system (YW, YP, YZ)
 - Semiconductor ceramic
 - For temperature compensation (SH)
- 6) Explanation of symbols
 - Ⓜ Mylar capacitor
 - Ⓐ Aluminum solid capacitor
 - Ⓟ Polypropylene film capacitor
 - Ⓟ Bi-polarized capacitor
 - Ⓛ Low-leakage capacitor
 - Ⓣ Tantalum capacitor
 - Ⓢ Styrol capacitor
 - Ⓜ Printed resistor
 - Ⓜ Fuse resistor

Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are subject to special safety specifications. Therefore, when replacing a component with a new part, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.



NOTES:

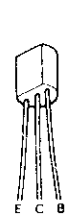
- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
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 - Ⓢ Styrol capacitor
 - Ⓢ Printed resistor
 - Ⓢ Fuse resistor



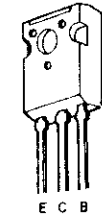
Safety component symbol

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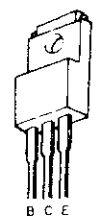
- This schematic diagram is subject to change without notice in the interests of improved performance.



2SA952
2SA1015
2SC1815
2SC2001
2SD1111
2SD1302



2SA1358



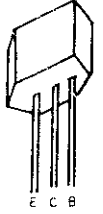
2SD1275
2SD1276



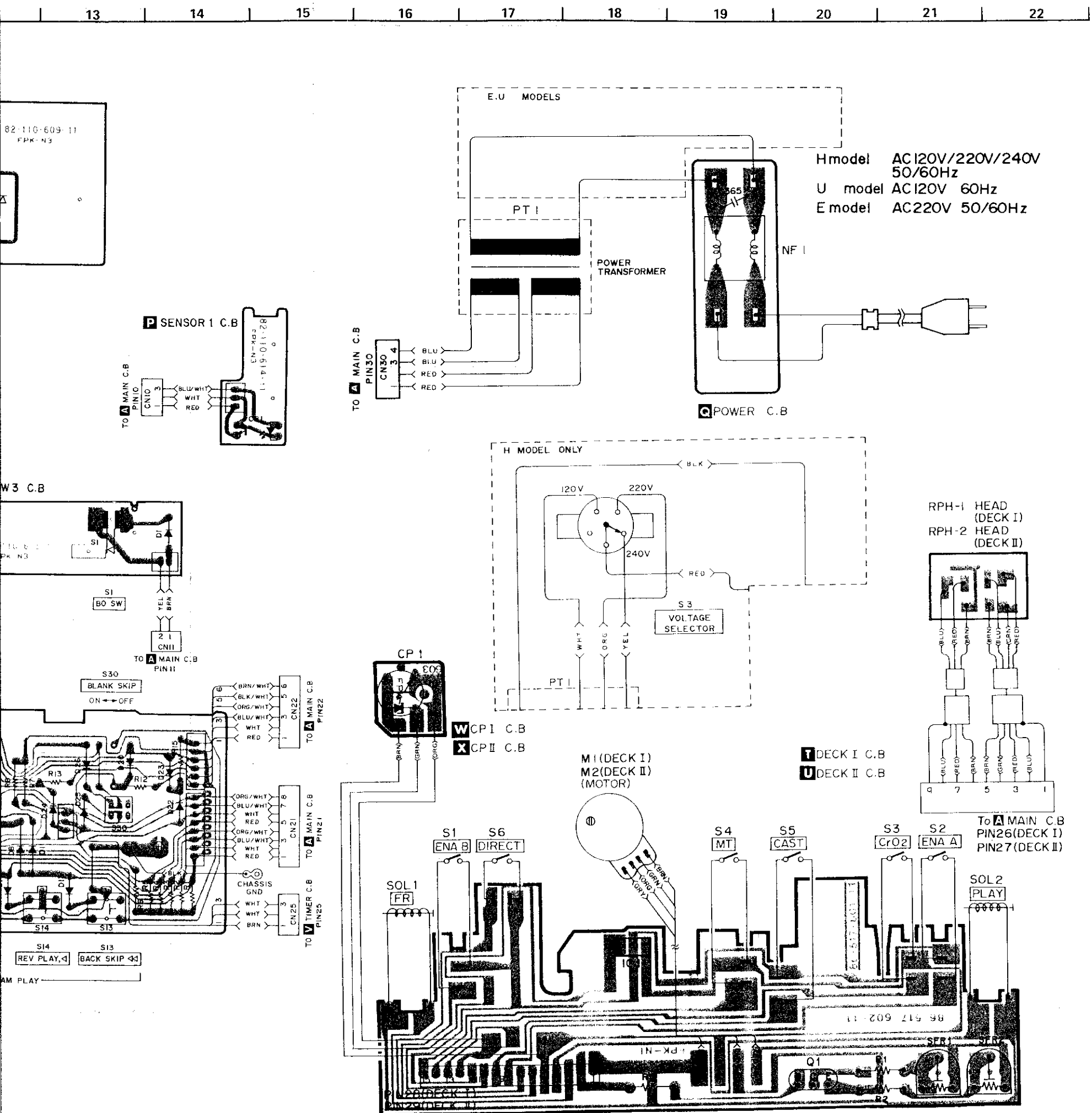
2SA855



2SD1153



2SA1346
2SC2785



A horizontal number line with tick marks labeled 1 through 11. The line starts at 1 on the left and ends at 11 on the right.



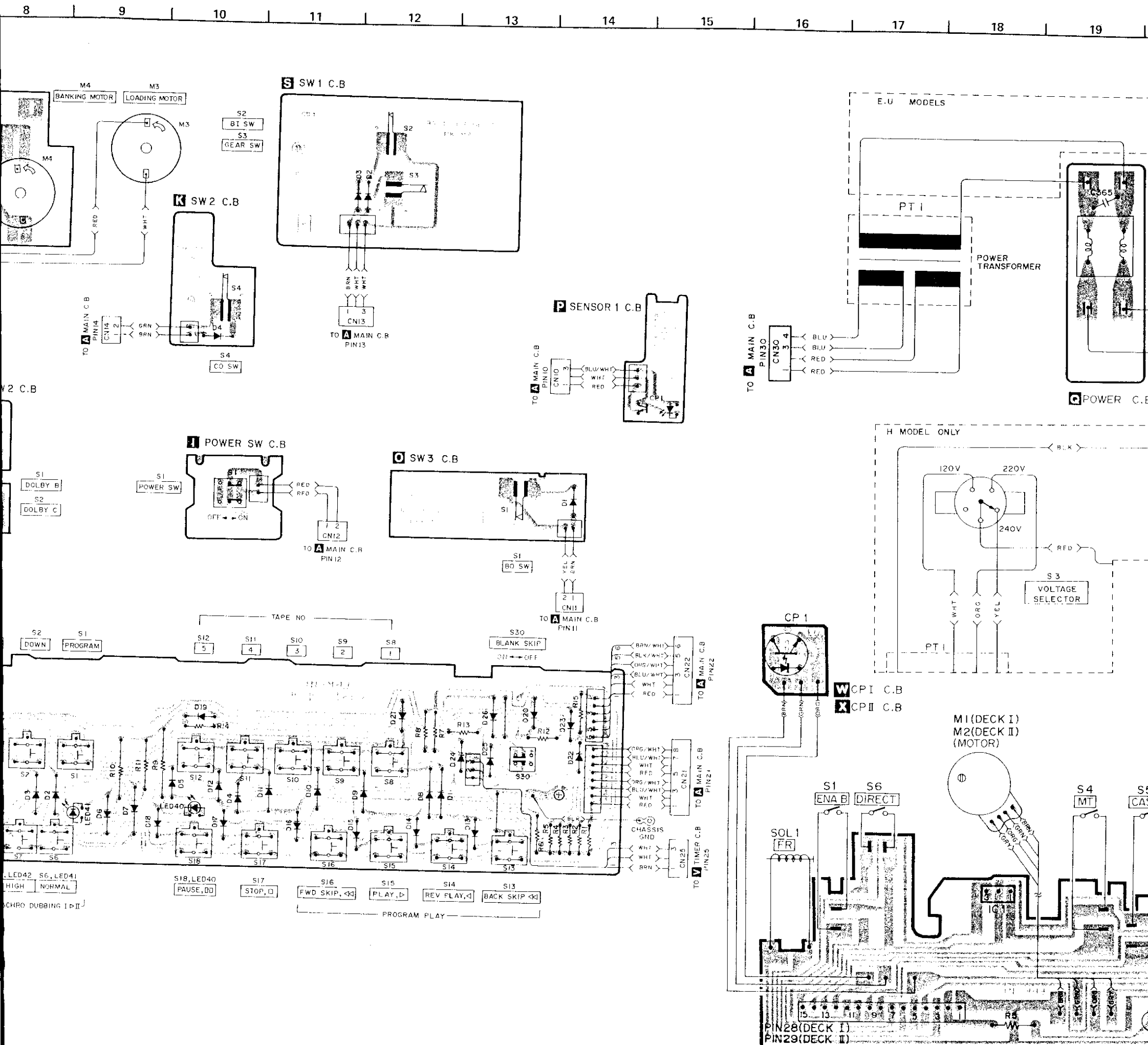
NOTES:

- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of $\pm 5\%$.
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 - Ⓟ Bi-polarized capacitor
 - Ⓛ Low-leakage capacitor
 - Ⓣ Tantalum capacitor
 - Ⓢ Styrol capacitor
 - Ⓜ Printed resistor
 - Ⓜ Fuse resistor

Safety component symbol

This symbol is given to important parts which maintain the safety of the product, and which are to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

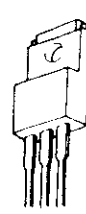


- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of $\pm 5\%$.
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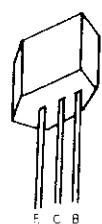
- This schematic diagram is subject to change without notice in the interests of improved performance.



2SA952
2SA1015
2SC1815
2SC2001
2SD1111
2SD1302

2SA 1358

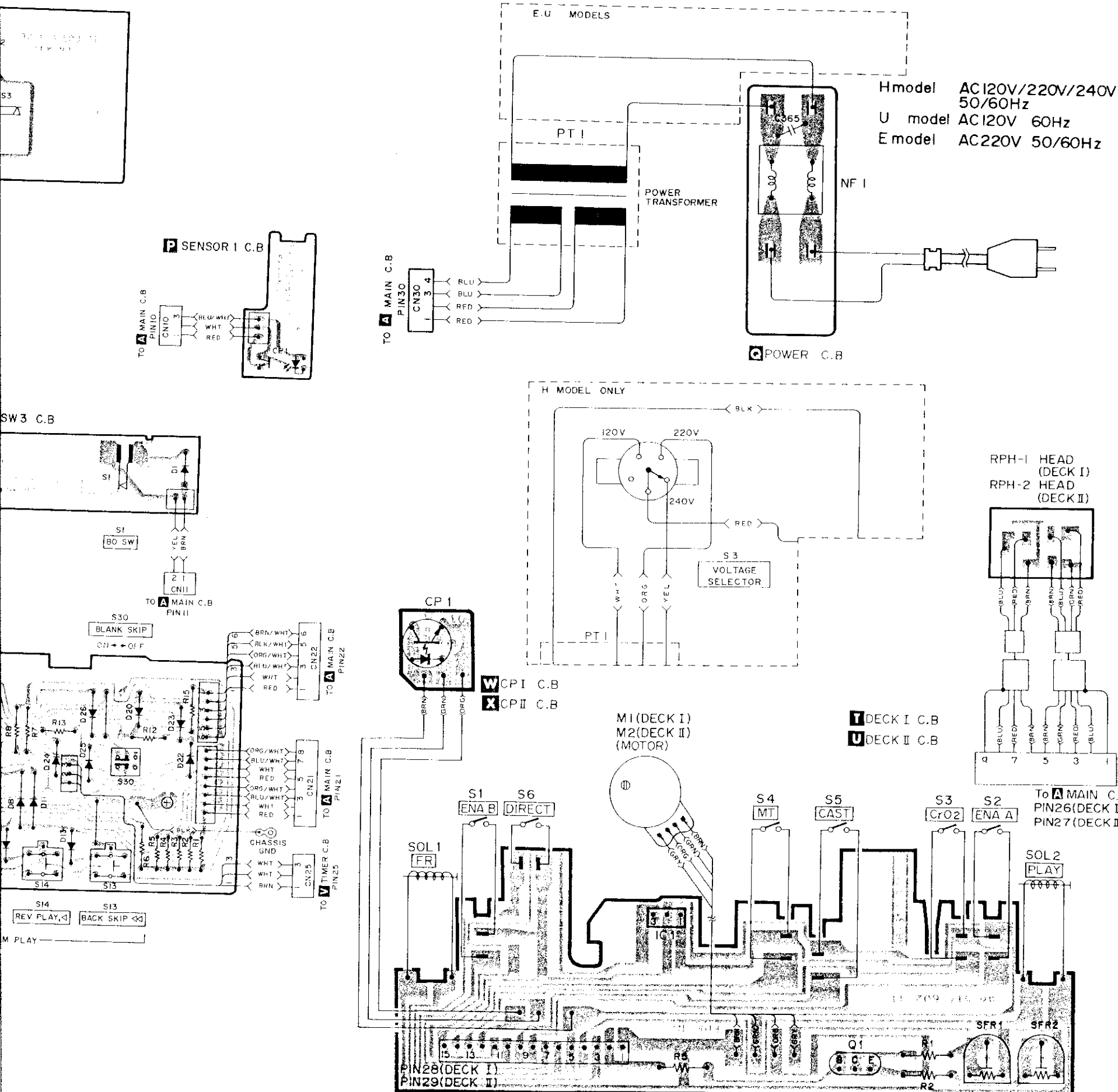
2SD1275
2SD1276



2SA855

2SD1153

2SA1346
2SC2785



MECHANICAL PARTS LIST

AD-A70(Alteration Parts List as against FX-A770) • * -mark in this part list shows exclusive part.
 • * -mark means less required items and availabilities may be limited.

Part No. Changed to	Ref No.	Part No.	Description	Common Model	Q'ty	
	1-2	★82-115-202	T-SPRING, EJECT		1	
	1-3	★82-121-009	FRONT CABINET 2 (B) EX Ass'y F	※	1	
	1-14	82-121-007	DOOR CASSETTE Ass'y	※	1	
	1-36	★82-110-035	STEEL CABINET H (B) (H only)		1	
		★82-110-022	STEEL CABINET (B) (U, E only)		1	
	1-49	★87-034-732	AC POWER CORD Ass'y (H only)		1	
		★87-034-731	AC POWER CORD Ass'y (U only)		1	
		★87-034-736	AC POWER CORD Ass'y (E only)		1	
	2-22	★82-110-228	COVER, RELAY CIRCUIT BOARD (H, U only)		1	
		★82-110-229	COVER, RELAY CIRCUIT BOARD EX Ass'y (E only)		1	

■ ACCESSORIES/PACKAGE LIST

Part No. Changed to	Ref.No.	Part No.	Description	Common Model	Q'ty	
	1	★82-121-901	INSTRUCTION BOOKLET (H, E ONLY)	※	1	
	2	★82-121-902	INSTRUCTION BOOKLET (U ONLY)	※	1	
	3	★82-141-022	CASSETTE BANK ASS'Y		2	
	4	★87-034-978	CW-254 BSK		2	