

SERVICE MANUAL

expert

FD-760

Stereo Cassette Deck

SPECIFICATIONS

Track System 4-track 2-channel, stereo recording and playback

Tape Speed 1-7/8 i.p.s. (4.75 cm/sec.)

Wow and Flutter 0.1% (WRMS)

Frequency Response 50 – 17,000 Hz (Metal tape)
50 – 16,000 Hz (CrO₂, tape)
50 – 14,000 Hz (Normal tape)
(Dolby NR off)

Signal-to-Noise Ratio 53 dB (Dolby NR off, CrO₂ or Metal tape, CCIR/ARM weighted 400 Hz)
The S/N is improved by 9 dB with Dolby NR on.

Total Harmonic Distortion 1.8% (at 1 kHz, 0 VU)

Erase Ratio 65 dB (at 1 kHz, 0 VU + 10 dB)

Fast Forward and Rewind Time 90 second (C-60 tape)

Input Sensitivity/Impedance

MIC 0.3 mV/4.7 kohms

LINE 40 mV/8.2 kohms

DIN 0.5 mV/3.3 kohms

Output Level (at Dolby level)

LINE 400 mV

DIN 800 mV

GENERAL

Power Consumption 15 watts

Power Supply AC 220V 50/60 Hz

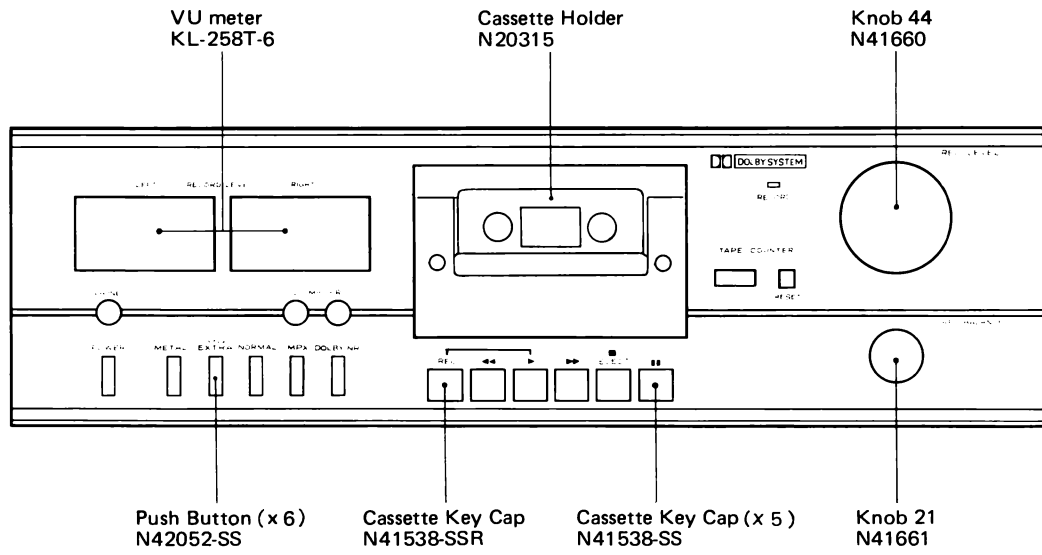
Dimensions 442(W) x 297 (D) x 133(H) mm

Weight (Net) 5 kg (11 lbs.)

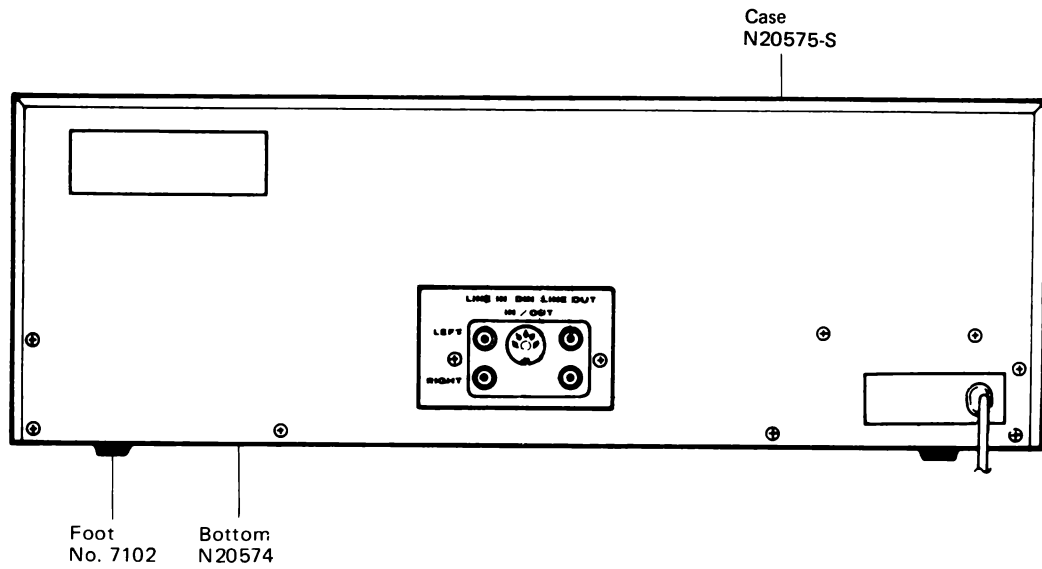
Accessory Shielded Audio Cables (2).

Specifications and design are subject to change without notice.

FRONT VIEW



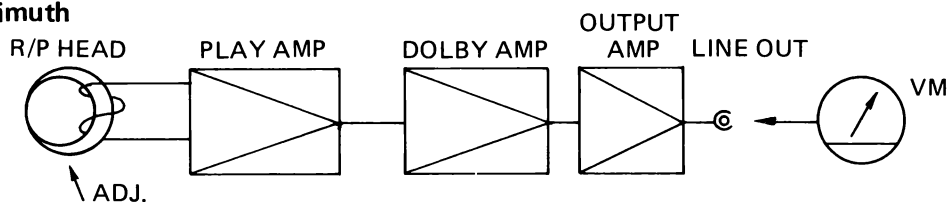
REAR VIEW



ALIGNMENT PROCEDURE (For Alignment points see page 5.)

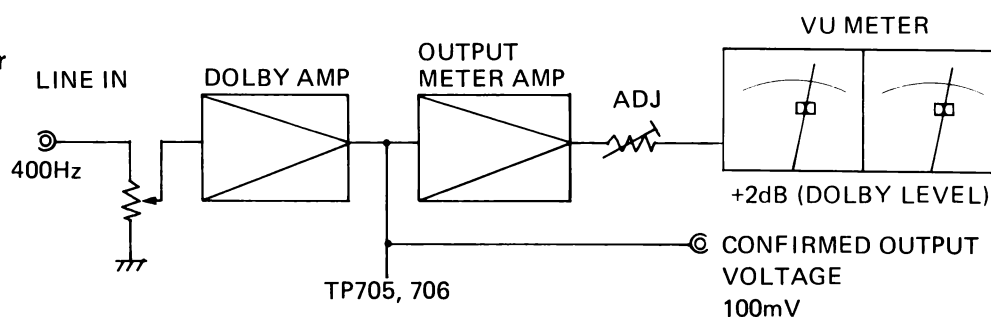
Set the position of Rec. Volume to Max., and of Bal. Volume, Bias Adj. to Center in all alignment.

1) Head Azimuth



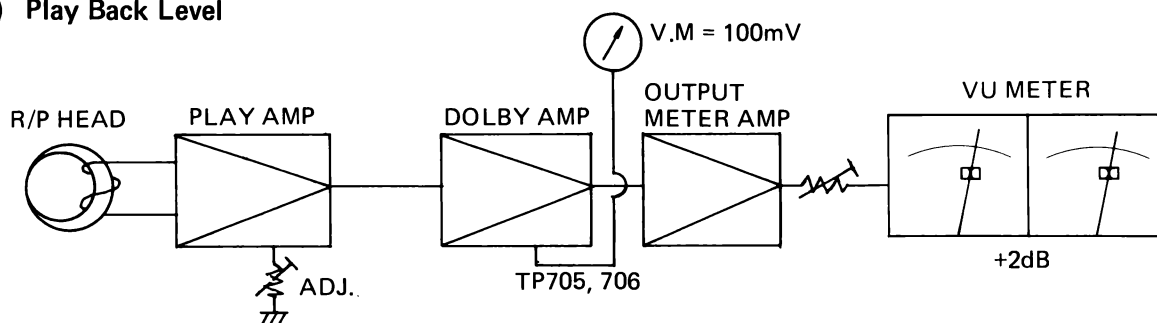
Controls to be positioned	Test Tape	Procedure
Dolby NR : OFF MPX : OFF Tape Selector : NORMAL Function : PLAY	MTT-114	1) Adjust the head mounting screw in order to obtain max. V.M. indication.

2) VU Meter



Controls to be positioned	Test Tape	Procedure
Dolby NR : OFF MPX : OFF Tape Selector : NORMAL Function : REC.	Blank Normal	1) Apply 400Hz, approx. 40mV signal at the LINE IN terminal. 2) Make the voltage at TP705 and TP706 be 100mV by adjusting applied signal level. (GND: TP710) 3) Set the VU meter indication to DOLBY LEVEL (+2dB) (double D mark position) by the adjustment of SVR811 and 812.

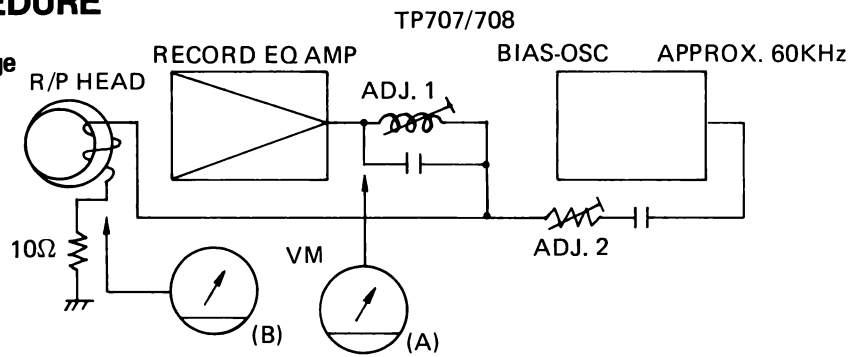
3) Play Back Level



Controls to be positioned	Test Tape	Procedure
Dolby NR : OFF MPX : OFF Tape Selector : NORMAL Function : PLAY	MTT-150	Adjust SVR701 and 702 to make the output voltage at Dolby testpoints of TP705 and 706 be 100mV. (GND: TP710)

ALIGNMENT PROCEDURE

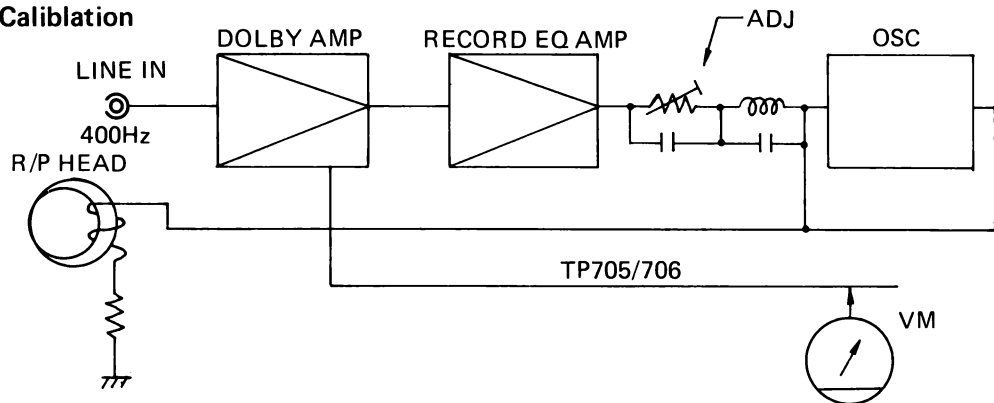
4) Bias Trap / Bias Voltage



ADJUSTMENT (A) (BIAS TRAP)						
Controls to be positioned		Test Tape	Procedure			
Dolby NR	: OFF	Blank	Adjusting L703, 704 to min. indication on the V.M. scale at the Test point of TP707 and 708. (GND: TP709)			
MPX	: OFF					
Tape Selector	: METAL					
Function	: REC.					
ADJUSTMENT (B) (BIAS VOLTAGE)						
Dolby NR	: OFF	Blank Metal XL-II BHF-60	1) Connect V.M. across TP701/703 and TP702/704.			
MPX	: OFF		Step	Tape Selector	Approx. Voltage	Adjust
Tape Selector	: METAL		1	METAL	8.0 mV	SVR707,708
	↓ EXTRA		2	EXTRA(CrO ₂)	5.5 mV	SVR2
	↓ NORMAL	3	NORMAL	3.8 mV	SVR1	

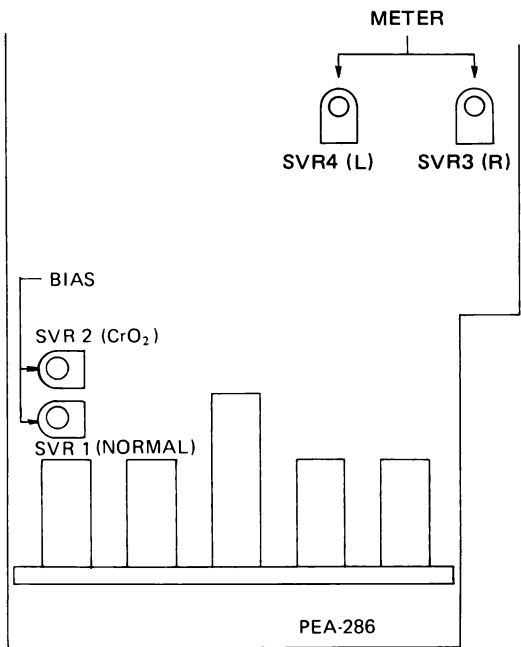
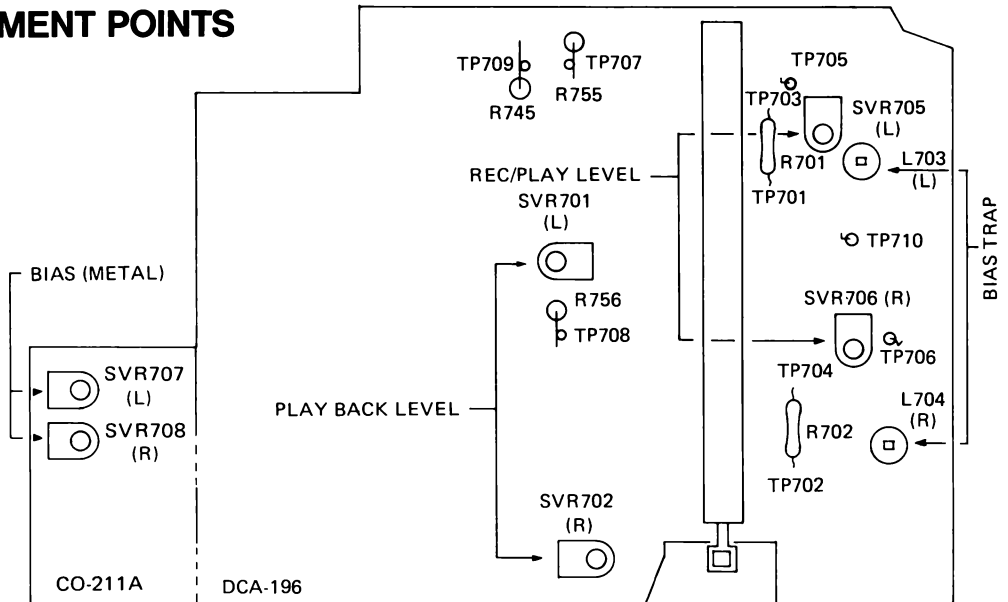
NOTE: The Bias Voltages indicated in the above table do not necessarily correspond to the best recording characteristics of dynamic range, distortion, frequency response, etc.
Make some adjustments according to the best values actually obtained.

5) Recording Level Calibration

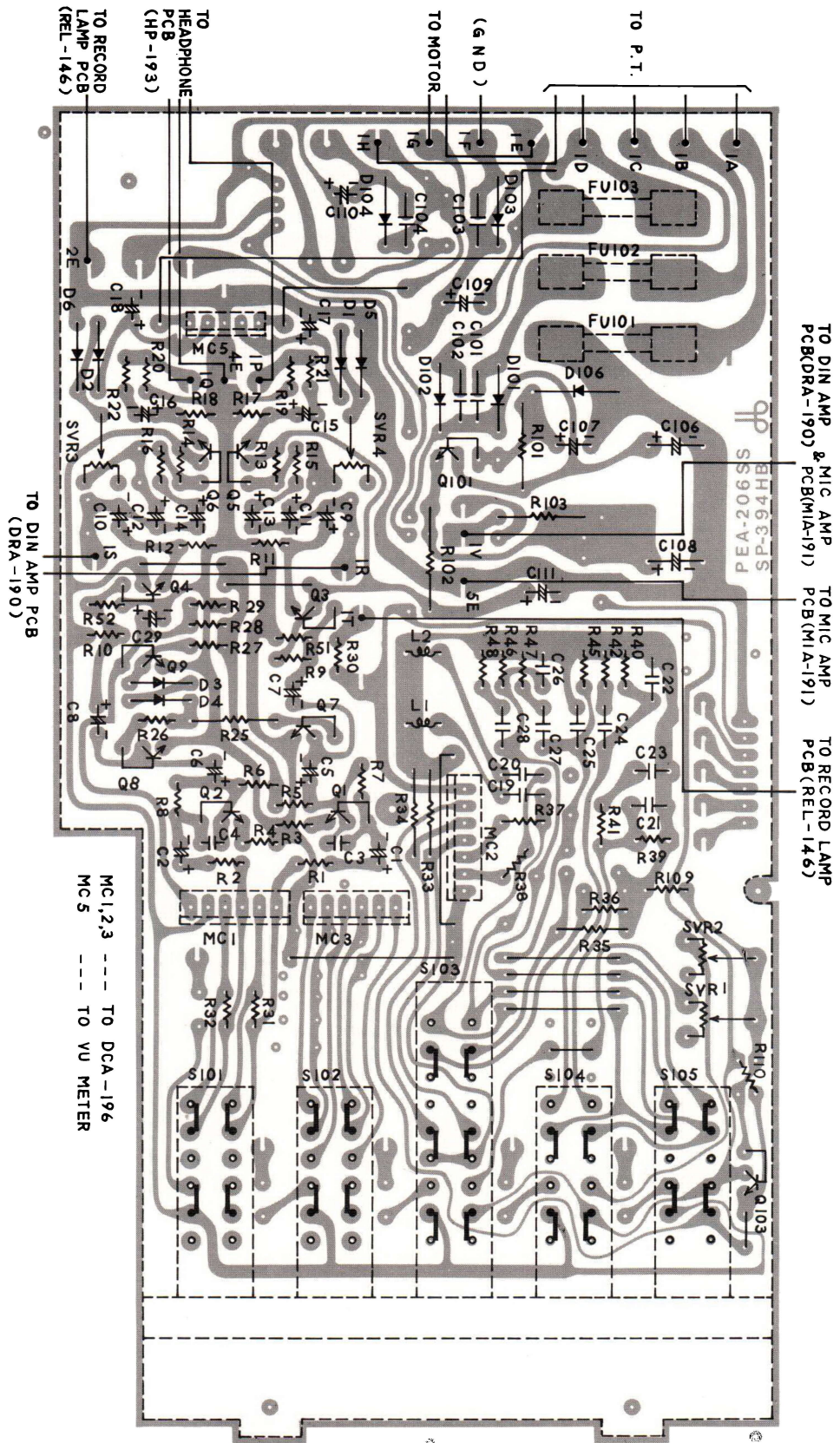


Controls to be positioned		Test Tape	Procedure
Dolby NR	: OFF		1) Apply 400Hz, approx. 40mV signal at the LINE IN terminal. 2) Make the voltage at TP705 and TP706 be 100mV by adjusting applied signal level.(GND: TP710) 3) Set the SVR705 and 706 to the mechanical center. 4) Record the signal into the test tape. 5) Play the recorded signal and check the output voltage at TP705 and 706 being either 100mV or not. If not, adjust SVR705 and 706, and then repeat step 4) and 5) until 100mV is obtained.
MPX	: OFF		
Tape Selector	: NORMAL		

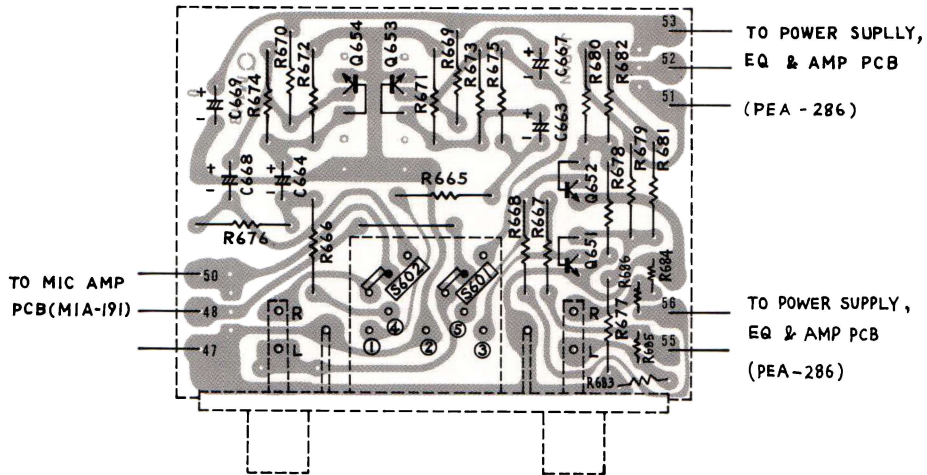
ALIGNMENT POINTS



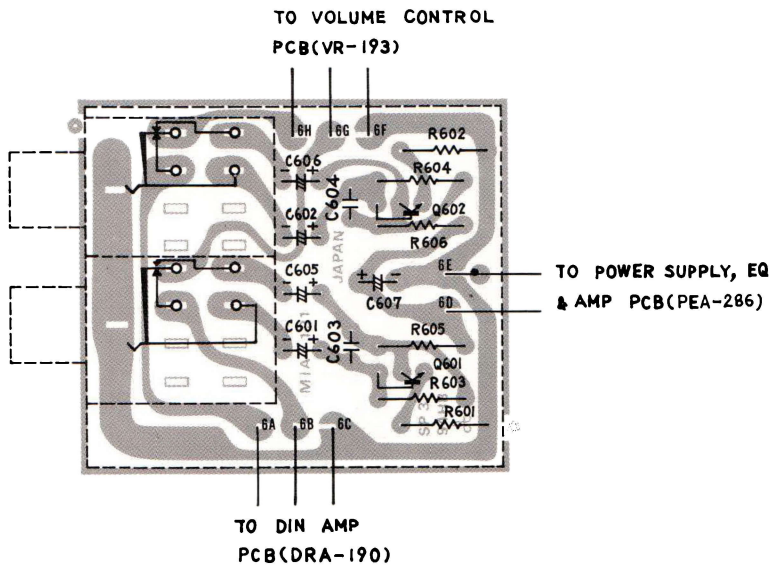
POWER SUPPLY, EQ & AMP BOARD (PEA-286)



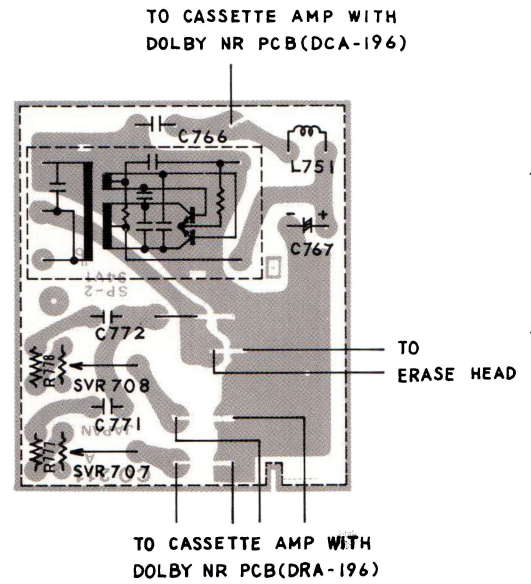
DIN AMP BOARD (DRA-190)



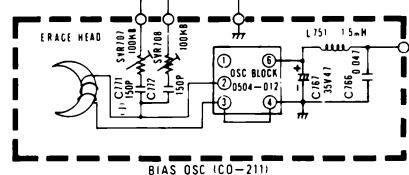
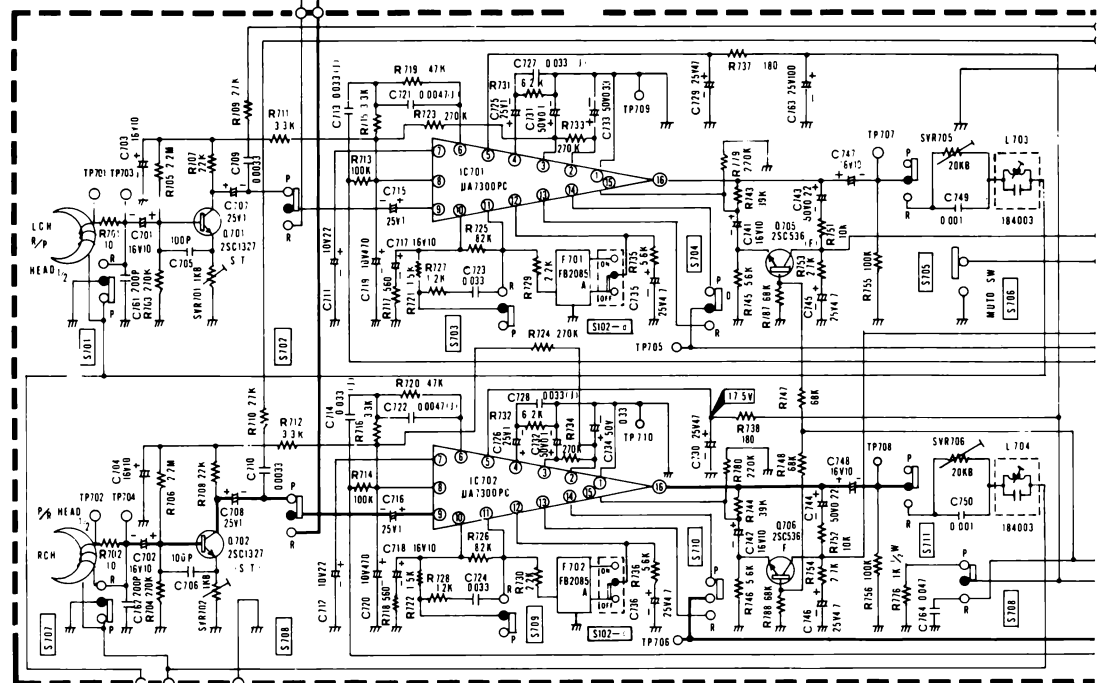
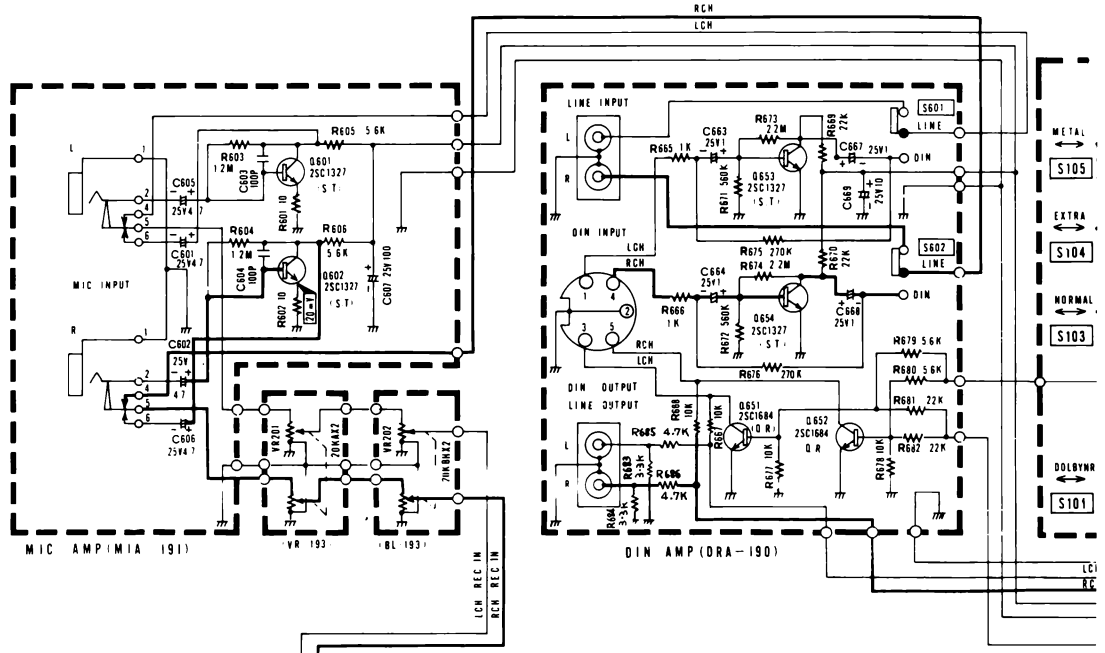
MIC AMP BOARD (MIA-191)



BIAS OSC BOARD (CO-211A)



CIRCUIT DIAGRAM



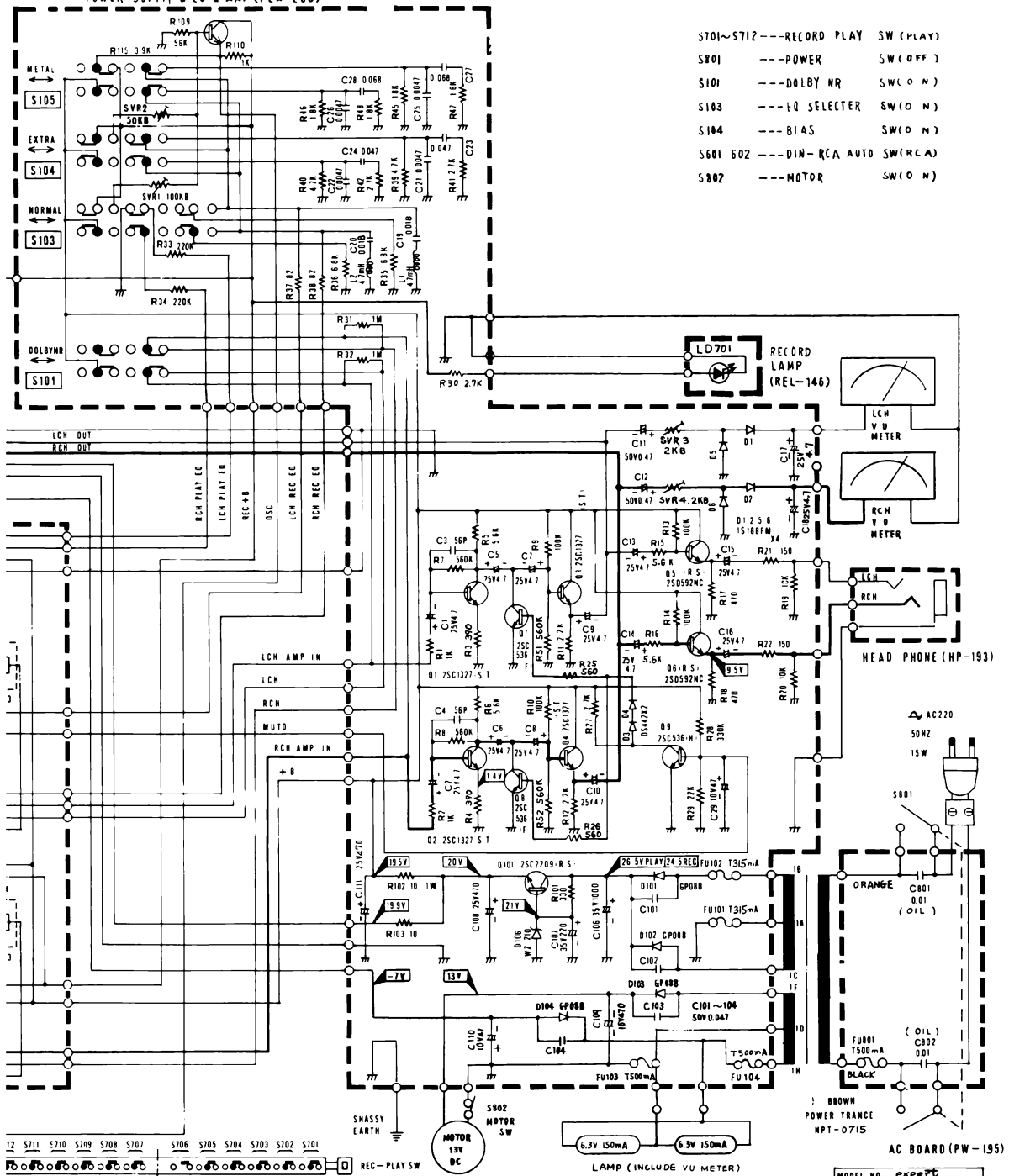
IC701, 702: UA7300PC PIN VOLTAGE VOLT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	6.5	6.5	7	17.5	6.5	6.5	6.5	7	6.5	6	6	5.5	7	5.5	7

S712 S711 S71

S701	~	712
S801		
S101		
S103	~	105

POWER SUPPLY & EQ & AMP (PEA-286)



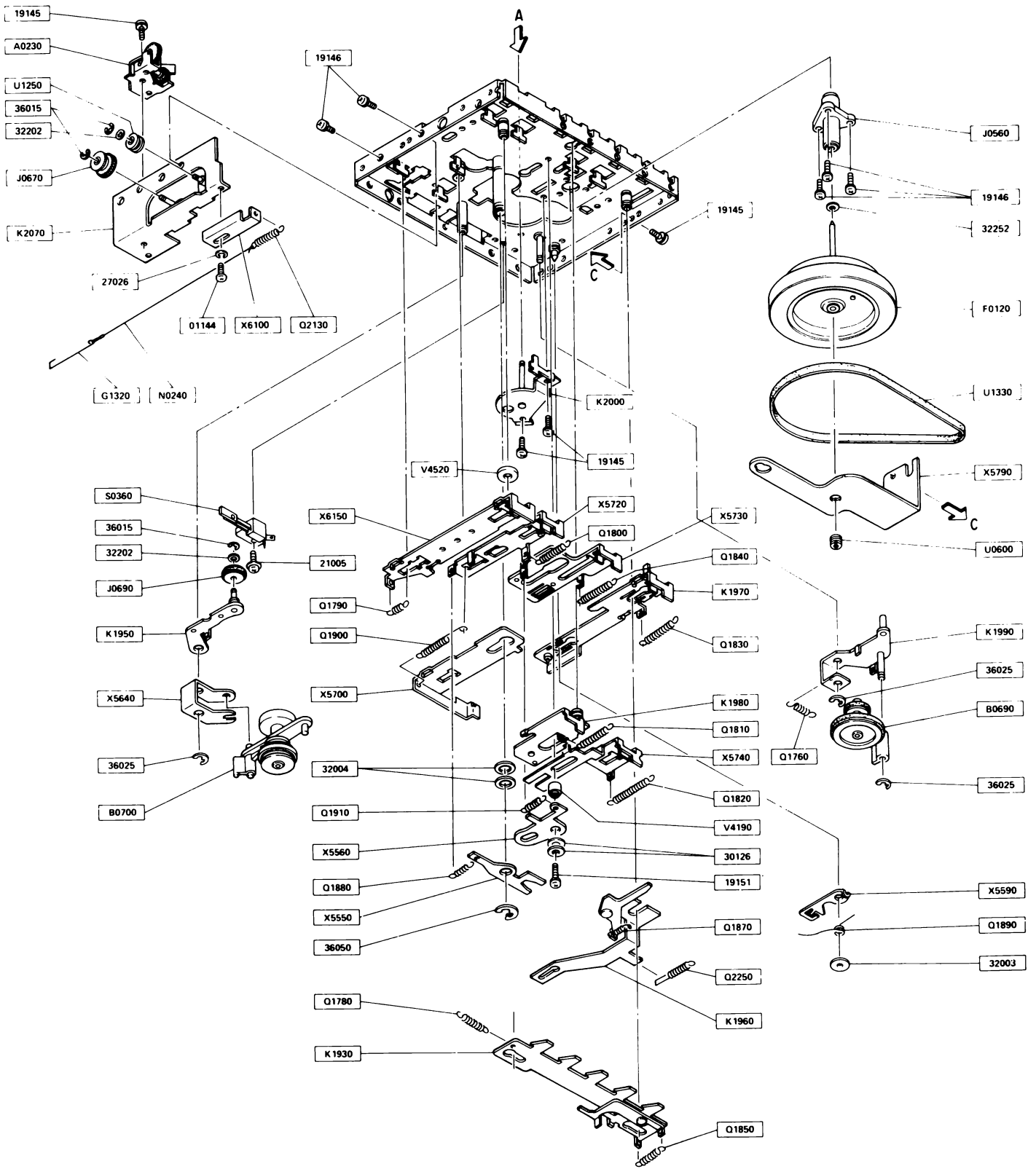
- S101~S102 --- RECORD PLAY SW (PLAY)
- S101 --- POWER SW (OFF)
- S101 --- DOLBY NR SW (ON)
- S103 --- EQ SELECTOR SW (ON)
- S104 --- BIAS SW (ON)
- S601 S602 --- DIN-RCA AUTO SW (RCA)
- S802 --- MOTOR SW (ON)

12 S711 S710 S709 S708 S707 S706 S705 S704 S703 S702 S701

- 701 ~ 712 REC-PLAY SW (PLAY)
- 701 POWER SW (OFF)
- 701 DOLBY NR SW (ON)
- 103 ~ 105 TAPE SELECTOR SW (METAL)
- S802 MOTOR SW (ON)
- S601.602 DIN-RCA AUTO SW (RCA)
- S102 MPX SW (OFF)

MODEL NO. *exp. 76*
FD-760
 DRAWING NO.

AC BOARD (PW-195)
 BROWN POWER TRANCE
 NPT-0715



PARTS LIST

CASSETTE MECHANISM (CT-3709B)

Part No.	Description	Q'ty	Part No.	Description	Q'ty
A0230	Soft Damp Ass'y (C)	1	V2910	Spring Tube	3
B0680	Pinch Roller Ass'y	1	V3870	Sensor Arm Spacer	1
B0690	TU Idler Ass'y	1	V4140	Case Lock Arm Collar (B)	1
B0700	FF Idler Ass'y	1	V4170	Motor Pulley	1
B0710	Supply Reel Ass'y	1	V4190	FF Collar (A)	1
B0720	Take Up Reel Ass'y	1	V4250	Button Shaft (F)	1
C0330 (MP-390-323)	Counter	1	V4520	Rec Arm Collar	1
F0120	Flywheel (L)	1	X1990	R/P Head Washer	1
G0230 (H2331-0110)	R/P Head	1	X5350	Lug Terminal (F)	1
G0320 (H53203-05)	Erase Head	1	X5550	Rew Lever (D)	1
G1240	Cassette Button	6	X5560	FF Lever (D)	1
G1290	Shield Wire (Double-280)	1	X5590	Pause Cam (C)	1
G1300	Shield Wire (Double-220)	1	X5640	FF Idler Lever (A)	1
G1310	Shield Wire (Single-280)	1	X5700	Switch Arm (A)	1
G1320	Cord Hook	1	X5720	Rew Arm (D)	1
G1330 (MMI-6A2LK)	Motor	1	X5730	FF Arm (D)	1
J0560	Flywheel Metal (I)	1	X5740	Stop Arm (A)	1
J0670	Cord Pulley Ass'y (A)	1	X5750	Button Side (LA)	1
J0690	Rew Idle (C)	1	X5760	Head Panel Pushing Plate (H)	2
K1890	Chassis Ass'y	1	X5780	Case Lock Arm (A)	1
K1920	Sensor Arm	1	X5790	Flywheel Support (N)	1
K1930	Lock Plate	1	X5800	Spring Plate (R) (Holding Pack)	1
K1950	Rew Idler Arm	1	X5810	Motor Bracket (M)	1
K1960	Eject Arm	1	X6100	Soft Ajust Plate	1
K1970	Pause Arm	1	X6150	Res Arm (D)	1
K1980	Play Arm	1	01144	Pan Head Screw M2.6 x 3	3
K1990	TU Lever	1	01146	Pan Head Screw M2.6 x 5	2
K2000	Reel Base	1	04145	Flat Head Screw M2.6 x 4	3
K2010	Head Panel Ass'y	1	04166	Flat Head Screw M3 x 5	2
K2070	Soft Damp Plate	1	08087	Pan Head Screw M2 x 6 (Bind)	3
N0240	Eject Cord (E)	1	17166	Pan Head Tapping Screw M3 x 5	6
Q0240	R/P Head Spring (B)	1	19086	Pan Head Screw M2 x 5 W/Spring Washer	1
Q0870	Rew Reel Spring (B)	1	19145	Pan Head Screw M2.6 x 4 W/Spring Washer	4
Q1740	Pinch Roller Spring (G)	1	19146	Pan Head Screw M2.6 x 5 W/Spring Washer	5
Q1760	TU Lever Spring (A)	1	19151	Pan Head Screw M2.6 x 10 W/Spring Washer	1
Q1780	Rec Sensor Spring (F)	2	19166	Pan Head Screw M3 x 5 W/Spring Washer	1
Q1790	Rec Arm Spring (A)	1	20148	Pan Head Screw M2.6 x 7 W/Flat Washer	3
Q1800	Rew Arm Spring (C)	1	21005	Pan Head Screw M2 x 4 W/Flat Washer	1
Q1810	Play Arm Spring (A)	1	27026	Spring Washer M2.6	3
Q1820	Stop Arm Spring (A)	1	30126	Flat Washer M2.6	2
Q1830	Pause Arm Spring (C)	1	30130	Flat Washer M3	1
Q1840	FF Arm Spring (B)	1	32003	Poly. Slide Washer $\phi 2 \times 0.25t$	1
Q1850	Pick Up Lever Spring (E)	1	32004	Poly. Slide Washer $\phi 6.0 \times 1.0t$	2
Q1870	Eject Lever Spring (N)	1	32202	Poly. Slide Washer $\phi 2 \times 0.25$	4
Q1880	Rew Lever Spring (C)	1	32252	Poly. Slide Washer $\phi 2.5 \times 0.25$	1
Q1890	Pause Cam Spring (E)	1	32602	Poly. Slide Washer $\phi 6.0 \times 0.25$	1
Q1900	Switch Arm Spring (A)	1	36015	E Ring $\phi 1.5$	3
Q1910	FF Lever Spring (C)	1	36025	E Ring $\phi 2.5$	5
Q1920	Case Lock Arm Spring (A)	1	36040	E Ring $\phi 4.0$	2
Q1930	Head Panel Spring (G)	1	36050	E Ring $\phi 5.0$	1
Q2130	Eject Cord Spring (D)	1	36215	E Ring $\phi 1.5$ (Black)	2
Q2250	Eject Arm Spring (A)	1	42025	Steel Ball	2
S0360	Leaf Switch	1			
U0340	Rubber Cushion	3			
U0600	Polyacetal Screw	1			
U1100	Rec Sensor (I)	1			
U1120	Cassette Guide (G)	2			
U1190	Sensor	1			
U1230	Counter Belt	1			
U1250	Cord Pulley (C)	1			
U1330	Drive Belt	1			

- NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Part No.	Description	Symbol No.	Q'ty a set
INTEGRATED CIRCUITS & TRANSISTORS			
μA7300PC	IC	IC701, 702	2
2SC1327 (S,T) or 2SC693 (G) or 2SC1571 (G)	Transistor	Q1-4, 601, 602 653, 654, 701 702	10
2SD612 (K) or 2SC2209 (R,S)	Transistor	Q101	1
2SC536AUD (F) or 2SC1684 (Q,R)	Transistor	Q651, 652 705, 706	4
2SD592NC (R, S)	Transistor	Q5, 6, 103	3
2SC1685 (Q,R) or 2SC536AUD (F)	Transistor	Q5, 6, 103 Q7, 8	2
2SC1684 (T) or 2SC838 (T) or 2SC536 (H) or 2SC945 (K)	Transistor	Q9	1
DIODES			
IS188FM or 20A90E	Germanium Diode	D1, 2, 5, 6	4
GP-08B or 10E1	Silicon Diode	D101-104	4
WZ-210	Zener Diode	D106	1
GL-9PR2	LED	LD701	1
IS1555 or MA150 or DS442	Silicon Diode	D3, 4	2
CONTROLS			
1KΩB, 8φ	Carbon Trimmer	SVR701, 702	2
2KΩB, 8φ	Carbon Trimmer	SVR3, 4	2
20KΩB, 8φ	Carbon Trimmer	SVR705, 706	2
50KΩB, 8φ	Carbon Trimmer	SVR2	1
100KΩB, 8φ	Carbon Trimmer	SVR707, 708	3
		1	
EWK-HWA332A24	Potentiometer	VR201	1
EWK-G4A332703	Potentiometer	VR202	1
COILS & TRANSFORMERS			
1.5mH	Inductor	L751	1
4.7mH	Inductor	L1, 2	2
184003	Bias Trap Coil	L703, 704	2
0504-012	OSC Block		1
NPT 0715	Power Transformer		1
SWITCHES			
SW-1501037	5 Key Push SW		1
ESB-70294	Power Switch	S801	1
ESD-81559	Slide Switch		1
CONNECTORS & TERMINALS			
HLJ0307-01-020	Headphone Jack		1
HLJ0337-01-030	Mic Jack		1
323HDS	Terminal Block		1
RP-001	Terminal Pin		15
CS728-1-2	8 Hole DIN Socket		1
N41572	DIN RCA4P Socket		1
MB05-107	Micro Connector Ass'y, 5-Pin		1
MC06-051	Micro Connector Ass'y, 6-Pin		1
MC06-052	Micro Connector Ass'y, 6-Pin		1
MC07-050	Micro Connector Ass'y, 7-Pin		1
171825-5	Micro Plug, 5-Pin		1
171825-6	Micro Plug, 6-Pin		2
171825-7	Micro Plug, 7-Pin		1
SR-3P-4	Cord Bush		1
PC-002	RCA Pair Cord		2
ACC-010	Line Cord		1

Part No.	Description	Symbol No.	Q'ty a set
FILTERS			
FB2085A	Filter Block	F701, 702	2
FUSE & FUSE HOLDERS			
FU-523115T	Fuse (0.315A)	FU101, 102	2
FU-525015T	Fuse (0.5A)	FU103, 104, 801	3
FUH-001	Fuse Holder	FU104	1
S-N5053	Fuse Holder	FU101-103, 801	8
METERS			
KL-258T-6	VU Meter		2
RESISTORS			
1/4W 3.3KΩ	Metal Film	R715, 716	2
1W 10Ω	Metal Film	R102	1
1/2W (J) 1KΩ	Carbon	R776	1
CAPACITORS			
10TW 22μF	Electrolytic	C711, 712	2
10TW 47μF	Electrolytic	C29, 110	2
10TW 470μF	Electrolytic	C719, 720	2
16TW 10μF	Electrolytic	C701, 702 703, 704, 717 718, 741, 742 747, 748	10
16TW 470μF	Electrolytic	C109	1
25TW 1μF	Electrolytic	C707, 708 715, 716, 725 726, 663, 664 667, 668	10
25TW 4.7μF	Electrolytic	C1, 2, 5, 6, 7, 8 9, 10, 13, 14 15, 16, 17, 18 601, 602, 605 606, 735, 736 745, 746	22
25TW 10μF	Electrolytic	C669	1
25TW 47μF	Electrolytic	C729, 730	2
25TW 100μF	Electrolytic	C607, 763	2
25TW 470μF	Electrolytic (13φ)	C111	1
35TW 47μF	Electrolytic	C767	1
35TW 220μF	Electrolytic (13φ)	C107	1
35TW 470μF	Electrolytic (16φ)	C108	1
35TW 1000μF	Electrolytic (18φ)	C106	1
50TW 0.33μF	Aluminum	C733, 734	2
50TW 0.22μF	Aluminum	C743, 744	2
50TW 0.1μF	Aluminum	C731, 732	2
50TW 0.47μF	Aluminum	C11, 12	2
ECN-C4A103M	Oil	C801, 802	2
HE13SJYF473Z	Ceramic	C764, 766	2
HE13SJYF473Z	Ceramic	C101-104	4
HE40SJSLS60K	Ceramic	C3, 4	2
HE40SJYB101K	Ceramic	C603, 604	2
HE50SJSLS101K	Ceramic	C705, 706	2
HE40SJYB151K	Ceramic	C771, 772	2
HF70SJSLS201K	Ceramic	C761, 762	2
50V 0.0022μF (K)	Mylar	C19A, 20A	2
50V 0.0033μF (M)	Mylar	C709, 710	2
50V 0.033μF (M)	Mylar	C723, 724	2
50V 0.015μF (J)	Mylar	C19, 20	2
50V 0.033μF (J)	Mylar	C727, 728	2
50V 0.001μF (K)	Mylar	C749, 750	2
50V 0.0047μF (K)	Mylar	C21, 22, 25, 26	4
50V 0.047μF (K)	Mylar	C23, 24	2
50V 0.068μF (K)	Mylar	C27, 28	2
50V 0.033μF (J)	Mylar	C713, 714	2
or ECQ-P1333FZ	or Polypropylene		
50V 0.0047μF (J)	Mylar	C721, 722	2
or ECQ-P1472FZ	or Polypropylene		

Part No.	Description	Symbol No.	Q'ty a set
APPEARANCE PARTS			
N10153	Front Panel		1
N20597-2	Rear Panel		1
N41756-GY-T	Side Cap		2
N42052-SS	Push Button		6
N41660	Knob 44		1
N41661	Knob 21		1
N20575-S	Case		1
No. 7102	Foot		4
CASSETTE PARTS			
CT-3709B (C)	Cass' Mechanism	See page 11-13.	1
N20315	Cass' Holder		1
N30215	Holder Rear Base		1
N41110	Cass' Window		1
N41109	Counter Window		1
N40769A	Sheet for Cass' Holder		1
N41538-SS	Cass' Key Cap		5

Part No.	Description	Symbol No.	Q'ty a set
CASSETTE PARTS			
N41538-SSR	Cass' Key Cap (Red)		1
N30204A	Cass' Button		6
N41841-DB	Cass' Display Plate		1
N41380	Decoration Screw		2
N40271	Cass' Mirror		1
N42034-DB	Cass' Plate		1
PACKING MATERIAL & MISC.			
N41318	Bag, For Unit		1
N40487	Bag, For Inst. Book		1
N20577	Pad, Land R		2
N42121	Inner Carton		1
N42122	Outer Carton		1
N42156	Pad		2
N20574	Bottom Chassis		1
N41471A	Heat Sink		1
OM-237	Instruction Book		1

- NOTE: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.
3. Resistors not detailed in parts list are all carbon type 1/4 watt, with regard to the value, refer to the schematic diagram.