

ONKYO SERVICE MANUAL

CASSETTE TAPE DECK COMPACT DISC PLAYER MODEL KCY-707

UD	120V AC, 60Hz
UM	220/230-240V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

CD Player Section

CD changer type: 10 disc bank system
 Signal readout system: Optical non-contact
 Reading rotation: About 500-200 r.p.m.
 (constant linear velocity)
 Linear velocity: 1.2-1.4 m/s
 Error correction system: Cross Interleave Reed Solomon code
 D/A converter: 1 Bit D/A converter
 Sampling frequency: 176.4 KHz
 (four-times oversampling)
 Number of channels: 2 (stereo)

Cassette Deck Section

Deck mechanism type: Double auto reverse
 Track format: 4-track, 2-channels
 Erasing system: AC erase
 Tape speed: 4.8 cm/sec
 9.6 cm/sec (high-speed dubbing)
 Wow and Flutter: 0.12 % (WRMS)
 Motors: DC servo motor x 2
 Heads: REC/PB: 1 PB: 1 RASE: 1

General

Power supply rating: U.S.A. model:
 AC 120V, 60Hz.
 Asian model:
 AC 220/230-240V 50/60Hz
 Dimensions (W x H x D): 270 x 185 x 322mm
 10-5/8" x 7-5/16" x 12-11/16"

Specifications and external appearance are subject to change without notice because of product improvements.



ADJUSTMENT PROCEDURES FOR CASSETTE TAPE DECK

PRECAUTION

- Before adjustment, clean the following parts with an alcohol moistend swab.
 - *record/playback head
 - *erase head
 - *pinch roller
 - *capstan
- Do not use magnetized screwdriver for adjustment.
- Demagnetized record/plaiback head with a lead demagnetizer.

TEST EQUIPMENT / TOOL REQUIRED

- Audio oscillator
- Digiyl frequency counter
- Oscilloscope
- Attenuater
- AC voltmeter
- Non-magnetic screwdriver
- Test tapes
 - TCC-153 : 10kHz, -10dB
 - MTT-111N : 3kHz, -10dB
 - MTT-150 : Dolby level calibration 400Hz, tone 200nWb/m

Item	Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remarks
1	Tape speed Frequency counter to TP1,2 output terminal		MTT-111N	PB	Frequency counter	Nomal Speed VR809,811	3,000 to 3030Hz	
						High Speed VR810,812	6,000 to 6060Hz	
2	Head azimuth AC voltmeter and oscilloscope to TP1,2 output terminal		TCC-153	PB	AC voltmeter	Head azimuth screw	Maximum level & same phase at channels L and R	Fig.1
3	Plaback level AC voltmeter to terminals TP1 (L) TP2 (R)		MTT-150	PB	AC voltmeter	A DECK VR803 (L ch) VR804 (R ch) B DECK VR806 (L ch) VR805 (R ch)	548mV (-3dBm)	
4	OSC Block Frequency counter to erase head lead loose coupling		METAL TAPE	REC	Frequency counter	L803	85KHz	
5	Bias current AC voltmeter to TP1,2 output terminal	1kHz & 12kHz	NORMAL TAPE	REC/PB	AC voltmeter	VR802 (L ch) VR801 (R ch)	Same level at REC/PB	Fig.2
6	Recording level Fig.2	1kHz	NORMAL TAPE	REC	AC voltmeter	Attenuator or AF OSC output	245mV (-10dBm)	TP3 (L ch) TP4 (R ch)
				REC/PB	AC voltmeter	VR807 (L ch) VR808 (R ch)	Same level at REC/PB	TP1 (L ch) TP2 (R ch)

Blank tapes

- NORMAL...UD-1 C-90
- HIGH...XL-II C-90
- METAL...XS C-90
- PLAY torque...30~70g/cm
- FF.REW torque...80~170g/cm
- Back tension...2~6g/cm

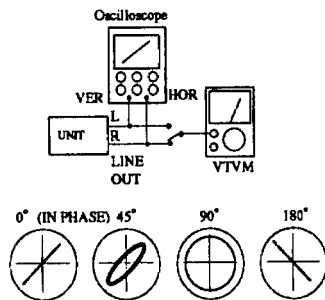


Fig.1 Confirming phase relationship

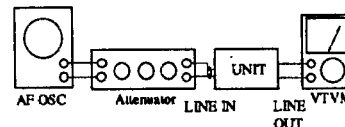


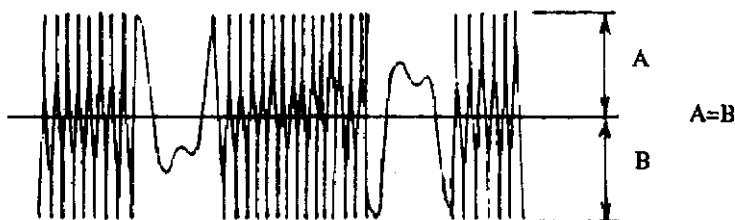
Fig. 2

ADJUSTMENT PROCEDURES FOR COMPACT DISC PLAYER

E-F BALANCE ADJUSTMENT

PROCEDURE:

1. Connect oscilloscope to the test points TE and Vref.
2. Press and hold down the SUPER DUBBING button, then press the POWER button.
3. Press FUNCTION CD button for 4 seconds or more. (CD section is TEST MODE.)
4. Put the disc (YEDS-18) in and press PLAY button.
5. Press the MEMORY button. (Tracking servo is OFF.)
6. Adjust VR701 so that the traverse waveform becomes symmetrical above and below.
7. Press the MEMORY button. (Tracking servo is ON.)
8. Press the STOP button.
9. Turn POWER switch off.

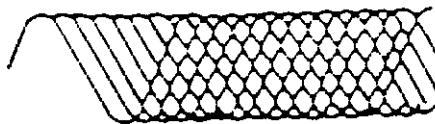


VOLT/DIV: 0.5V
TIME/DIV: 1mSEC

FOCUS BIAS ADJUSTMENT

PROCEDURE:

1. Connect oscilloscope to test points RF and GND.
2. Turn POWER switch on.
3. Put disc (YEDS-18) in and press PLAY button.
4. Adjust VR702 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.



RF signal waveform

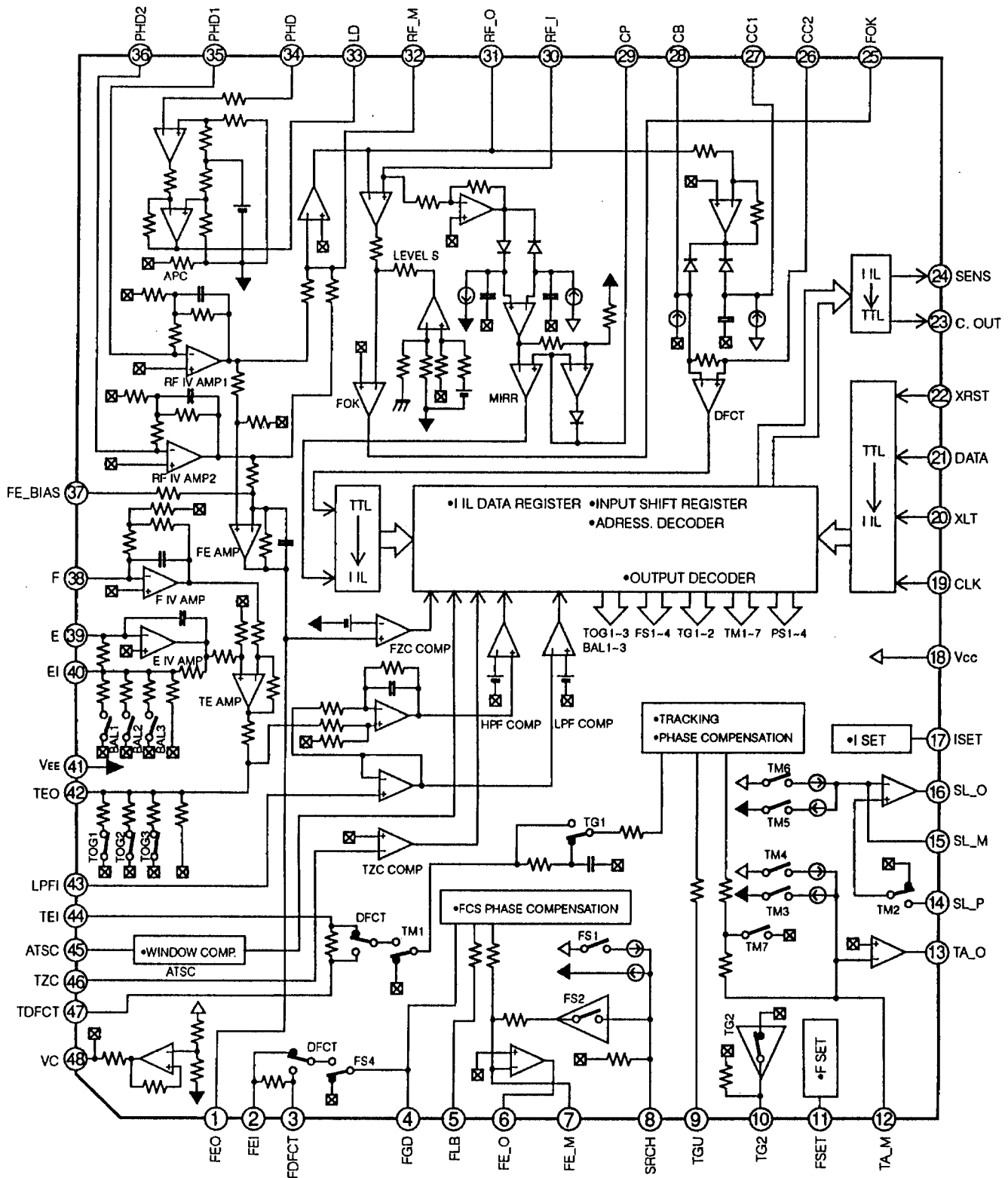
Remarks: When adjusting, set the oscilloscope AC rang and raise its vertical sensitivity so that the eye pattern can easily be seen.

MICROPROCESSOR TERMINAL DESCRIPTION

PIN NO.	SYMBOL	I/O	DESCRIPTION	PIN NO.	SYMBOL	I/O	DESCRIPTION
1	MIB	0	Motor control for CD changer mechanism	41	SPXOE	0	Chip enable output to extended port IC
2	MC	0		42	NC	0	Not used
3	PRG	0	Plunger control for CD changer mechanism	43	CDCLK	0	Clock output to CD servo IC
4	CD-MUTE	0	Muting control for audio signal of (C)	44	CDXLT	0	Data latch output to CD servo IC
5	CD-POWER	0	Power supply control for (C) circuit	45	CDDATA	0	Data output to CD servo IC
6	AUSEL2	0	Output selector pin for CD or cassette signal	46	NC	1	Not used
7	AUSEL1	0		47	CDXRST	0	Reset input for (C) section
8	TEST	1	Test mode setting input pin	48	S-CLK	1	Transfer clock signal input from main microprocessor
9	NC	0	Not used	49	S-IN	1	Transfer data signal input from main microprocessor
10	DOLBY	0	Dolby (B/N) control	50	S-OUT	0	Transfer data signal output to main microprocessor
11	DUBBING	0	Dubbing setting signal	51	SOCLK	0	Data read clock output to CD DSP IC
12	L-MUTE	0	Muting control for audio signal of DECK	52	SQSI	1	Data input pin from CD DSP IC
13	HI-SPEED	0	Double speed dubbing control	53	NC	0	Not used
14	PB-SFL	0	Playback selector control for deck A/B	54	DISC SEN	1	Detection input for size of CD
15	BIAS	0	Recording bias resonator control for cassette deck	55	TRV-DWN	1	Detection input for finish of down operation of traverse
16	REC MUTE	0	Recording muting control	56	TRV UP	1	Detection input for finish of up operation of traverse
17	REC/PB	0	Recording/playback control signal for deck B	57	TRV-CLS	1	Detection switch input for tray close
18	B-MTR	0	Motor speed control for deck B	58	NC	0	Not used
19	B-SOL	0	Solenoid coil control for deck B	59	NC	0	Not used
20	ERP-B	1	Prevention detection input for the side B of cassette tape	60	TRV-OPN	1	Detection switch input for tray open
21	ERP-A	1	Prevention detection input for the side A of cassette tape	61	LOAD-SEL	1	Detection sensor input for position of loading plate
22	B-PST	1	Detection input for cassette tape for deck B	62	S-ROO	0	Transfer request output to main microprocessor
23	B-END	1	Tape ending detection input for deck A	63	S-ROI	1	Transfer request input from main microprocessor
24	B-MODESW	1	Operation switch input for deck A	64	LOAD SW	1	Position detection input for loading plate
25	A-PST	1	Detection input for cassette tape for deck A	65	LEDS1	0	Scan signal output for operation indicator
26	A-END	1	Tape finish detection input for deck A	66	LHDS2	0	
27	A-MODESW	1	Operation switch input for deck A	67	LEDS3	0	
28	A-SOL	0	Solenoid coil control for deck A	68	KEYIN0	1	Key matrix input
29	A-MTR	0	Motor speed control for deck A	69	KEYIN1	1	
30	RESET	1	Reset input for sub microprocessor	70	KEYIN2	1	
31	EXTAL	1	Resonator connection terminal for system clock	71	KEYIN3	1	
32	XTAL		Connect the 8.0MHz ceramic resonator.	72	Void		Power supply pin (-5V)
33	V _{SS}		Ground pin	73	NC		Connect to +5v
34	NC		Not used	74	KEYIN4	1	Key matrix input
35	NC	1	Not used	75	KEYIN5	1	
36	AV _{ES}		Ground pin for A/D converter	76	KEYIN6	1	
37	AV _{ref}		Reference voltage pin for A/D converter	77	KEYIN7	1	
38	SPCLK	0	Clock output to extended port IC	78	CASE-POS	1	Sensor input for position of disc case
39	SPDATA	0	Data output to extended port IC	79	CASE-RST	1	Initialize position detection for disc case
40	SPLCK	0	Data latch output to extended port IC	80	MFA	0	Motor control for CD changer mechanism

IC BLOCK DIAGRAMS

IC701 CXA1782BQ

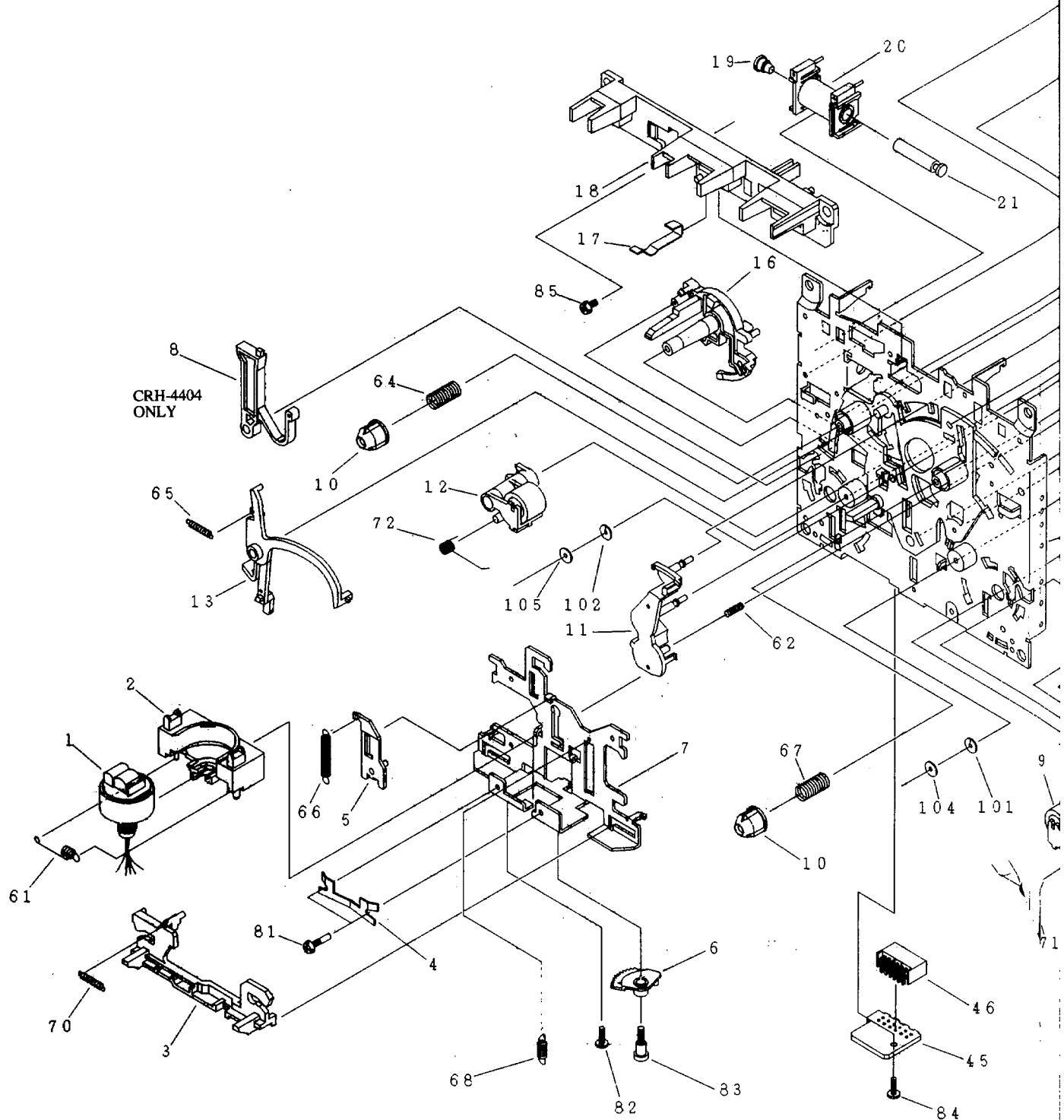


PARTS LIST

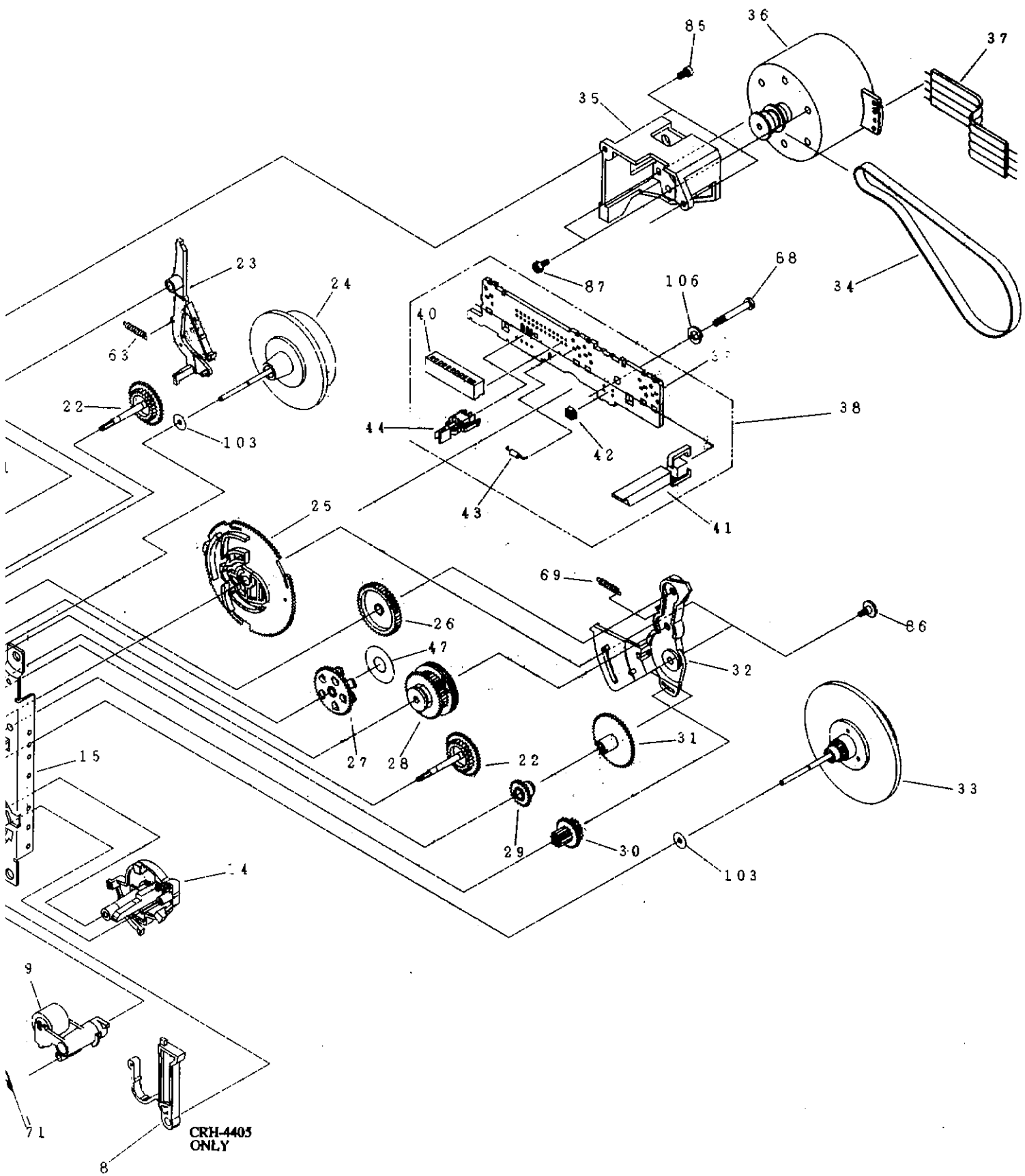
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
166	10-3467010101	FRONT PANEL (A)	202	20-1129010101	TAPE HOLDER BRACKET
167	10-3468010101	CD DOOR	203	20-1168010101	CABLE BRACKET
168	10-3469010101	CD PANEL	207	30-0756010101	FOOT RUBBER
169	10-3470010101	TAPE COVER (A)	209	46-0402-1	REFLECTION PAPER
170	10-3471010101	TAPE COVER (B)	211	10-3494010101	LED FILTER (A)
171	10-3472010101	TAPE COVER WINDOW (A)	212	10-3495010101	LED FILTER (B)
172	10-3473010101	TAPE COVER WINDOW (B)	213	10-3496010101	LED FILTER (C)
173	10-3474010101	TAPE HOLDER (A)	214	20-1136010101	PUSH LOCK SPRING
174	10-3475010101	TAPE HOLDER (B)	215	20-1133010101	TAPE HOLDER SPRING (A)
175	10-3476010101	DECK BUTTON	216	20-1134010101	TAPE HOLDER SPRING (B)
176	10-3482010101	CD BUTTON	501	34-0022-1	TN-2300T-122.CD MECHANISM
177	10-3477010101	REC BUTTON	502	31-0064-1	CRH-44-04(REC/PB),CASSETTE MECHANISM
178	10-3481010101	DISC BUTTON	503	31-0065-1	CRH-44-05(PB),CASSETTE MECHANISM
179	10-3446010101	FUNCTION BUTTON	504	10-3510010101	FLAT CABLE BUSHING
180	10-3446020101	FUNCTION BUTTON	LW601	12P15-0003	CFG1315-0101+FLAT,LEAD CONNECTOR ASSY
181	10-3480010101	RANDOM BUTTON	LW701	12-0157-1	AWM2896 BNC-D-P1.25x18,FFC <i>Flat Cable</i>
182	10-3479010101	OPEN BUTTON	LW702	CL019 06-35	6P WHT,LEAD CONNECTOR ASSY
183	10-3483010101	DUMPER GEAR	LW703	CL019 08-25	8P RED,LEAD CONNECTOR ASSY
184	10-3484010101	DUMPER CASE	LW704	CL019 08-25	8P WHT,LEAD CONNECTOR ASSY
185	10-3485010101	PUSH LOCK HOLDER	LW801	CL0412 6/7-18	6P-7P WHT,LEAD CONNECTOR ASSY
186	10-3486010101	PUSH LOCK HOLDER	LW802	CL041 03-18	3P WHT,LEAD CONNECTOR ASSY
187	10-3487010101	LIGHT GUIDE (A)			
188	10-3488010101	LIGHT GUIDE (B)			
189	10-3490010101	LED BOX (A)			
190	10-3491010101	LED BOX (B)			
191	10-3492010101	LED BOX (C)			
195	20-1127010101	BOTTOM COVER (A)			
196	20-1126010101	TOP COVER (A)			
197	20-1128010101	REAR COVER (A) <U>			
198	20-1128020101	REAR COVER (A) <A>			
199	20-1115010101	PCB BRACKET(A)			
200	20-1116010101	PCB BRACKET(B)			
201	20-1135010101	TAPE SPRING			

<U> : U.S.A. model only
 <A> : Asian model only

CASSETTE DECK MECHANISM EXPLODED VIEW



CRH-4404 ONLY



CRH-4405
ONLY

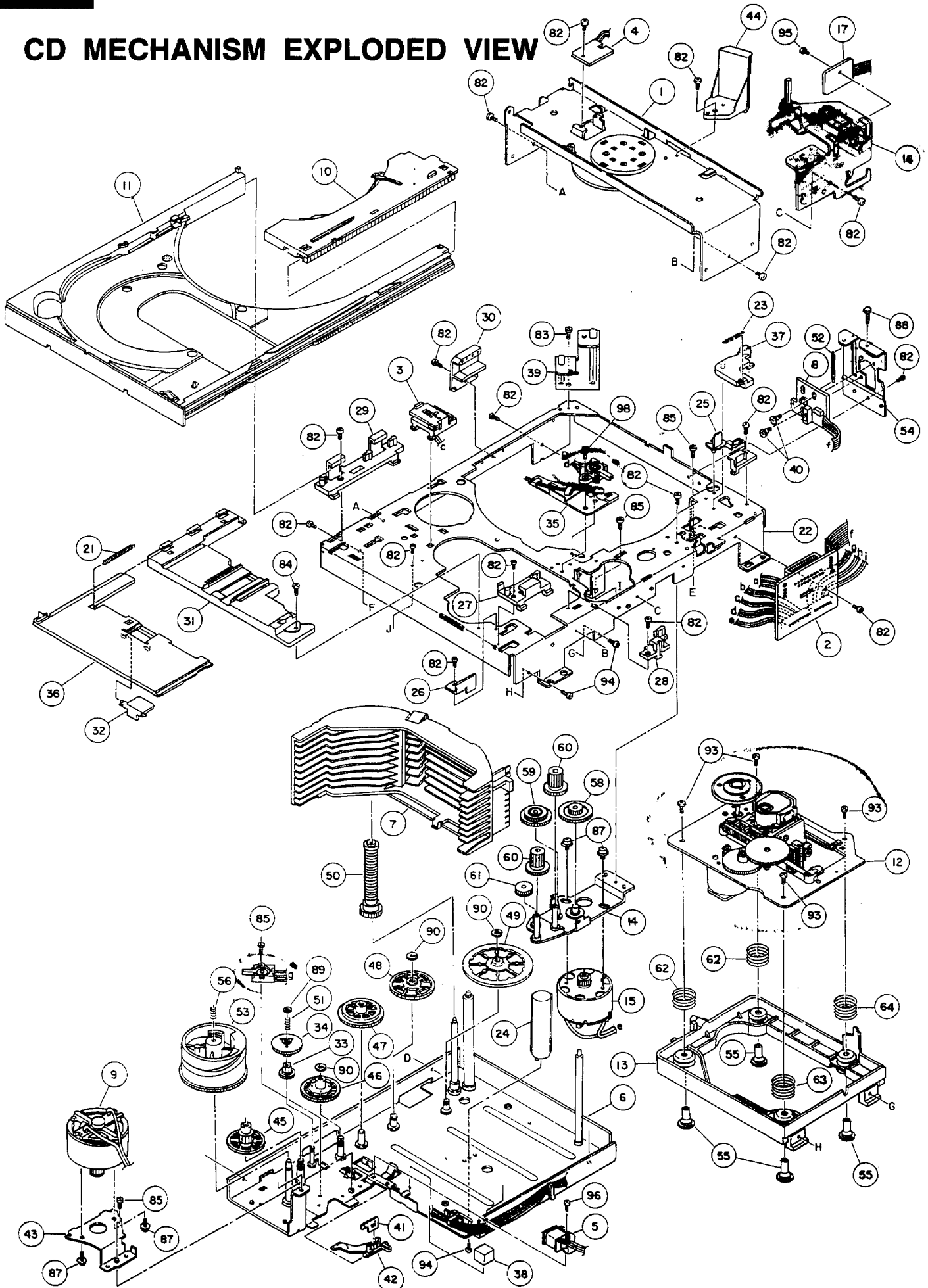
CASSETTE DECK MECHANISM PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	330934148	holder head ass'y 	47	330004140	reflector
	330934120	holder head ass'y <A>	61	10804535	spring
2	332193023	frame head	62	10814483	spring
3	332593015	lever head	63	10804480	spring
4	161604032	spring azimuth	64	10814493	spring
5	330934055	lever assist ass'y	65	10804482	spring
6	222394020	gear arm head	66	10804489	spring
7	33112303	chassis head B	67	10814492	spring
8	332394024	eject lock	68	10804478	spring
9	330934060	arm pinch R ass'y	69	10804543	spring
10	182283231	cap reel	70	10804479	spring
11	332393012	arm UD	71	10824485	spring
12	330934059	arm pinch L ass'y	72	10824486	spring
13	332393014	arm brake	81	33004056	screw
14	332113019	frame B	82	GSL20A2008	screw
15	330933056	chassis ass'y	83	33004043	screw
16	332112020	frame C	84	GSE10A2004	screw
17	331604031	spring cassette	85	GSD20A2005	screw
18	332112021	frame D	86	33004344	screw
19	033194259	K. plunger	87	GSP11A2605	screw
20	330934051	coil ass'y	88	33004368	screw
21	033004338	plunger	101	GWN13X050040S	washer
22	332224009	gear reel	102	GWN13X060040S	washer
23	3322683013	arm trigger	103	GWP18X060050	washer
24	330934050	flywheel L ass'y	104	GWN16X40050	washer
25	332212010	gear cam	105	GWN15S040050	washer
26	332224008	gear idl	106	GWS30N	washer
27	332224007	gear ref			
28	330933045	clutch ass'y			
29	332224002	gear P			
30	332224001	gear A			
31	33222403	gear fr			
32	332393011	arm fr			
33	330934048	flywheel R ass'y			
34	020844124	belt			
35	332193025	bracket MM	<A> :	DECK-A(CRH-4405) ONLY	
36	330934104	motor ass'y	 :	DECK-B(CRH-4404) ONLY	
37	160724055	wire			
38	330933100	P.C.B. ass'y 			
	330933145	P.C.B. ass'y <A>			
39	330703035	P.C.B.			
40	HBRK11R-2	housing 			
	HBRK9R-2	housing <A>			
41	LSA1135 or MTS10041MVLO	switch (leaf)			
42	SG105 BC	photo sensor			
43	ERDS2TJ681	resistor			
44	MSW1722NCV	mode switch			
45	3307040615	P.C.B. head			
46	S6BEH	housing 			
	S3BEH	housing <A>			

CASSETTE DECK MECHANISM

<A> : DECK-A(CRH-4405) ONLY
 : DECK-B(CRH-4404) ONLY

CD MECHANISM EXPLODED VIEW



PRINTED CIRCUIT BOARD PART LIST

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
MAIN CIRCUIT PC BOARD					
	IC			CAPACITOR	
IC602	222780053 or 1-0185-1	NJM78L05	C605	354753329	25V3300 μ F
IC603	222780091 or 1-0138-1	NJM78M09	C618	3000079	5.5V0.22F
IC604	1-0311-1	CXP84124-136Q	VR701,702,801,802	TRIMER RESISTOR	
IC605	22240328 or 1-0207-1	BU4052BC	VR803-806	5210068	47K Ω
IC701	1-0302-1	CXA1782BQ	VR807,808	5210064	10K Ω
IC702	1-0303-1	CXD2508AQ	VR809,811-812	5210066	22K Ω
IC703	222652 or 1-0281-1	M5218L		5210062	4.7K Ω
IC704	1-0304-1	BA6398FP	J701	SOCKET	
IC705	1-0306-1	BA6247	J702	12-0151-1	CFF1118-0101 or HLEM18S-1
IC801	22240147 or 1-0309-1	μ PC1330HA	J703,704	12S6-J0001	B6B-PH
IC802	1-0307-1	BA3442BKS	J801	12S8-J0001	B8B-PH
IC803	22240086 or 1-0308-1	CXA1101P	J802	12S7-J0001	B7B-EH
Q601,603,607	TRANSISTOR 2202705 or 2-2SD2394E-7	2SD2394E	J805	12S3-J0001	B3B-EH
Q602,604,606,608, Q704,705,709,804, Q805,806,807,815, Q820,823,824	2213284 or 2-2SC1740S-S7	2SC1740SR	J806	12S6-C0002	52147-0610
Q605	2213355 or 2-2SA933S-S7	2SA933AS	J807	12S3-C0002	52147-0310
Q609,610,611	2-2SB1333-7	2SB1333		12S8-C0002	52147-0810
Q613-617,703,707, Q801,802,808,809, Q812,817	2213160 or 2-DTC124ES-7	DTC124ES	LW803	FLAT CABLE	
Q701,810	2-2SA1585SQ-7	2SA1585SQ	LW804	12-0177-1	UL2651#26 \times 9
Q702,706,803,825	2212600 or 2-DTA124ES-7	DTA124ES	LW808	12-0178-1	UL2651#26 \times 11
Q708,814,819	2-2SB1374Q-7	2SB1374Q	E600	12-0171-1	UL2651#26 \times 6
Q811	2-2SD2172-7	2SD2172	OTHERS		
Q813,816,818,821	2-2SC1741S-7	2SC1741S		20-1132010101	HEAT SINK(C)
Q710,711	2212195	2SK241GR	CONTROL CIRCUIT PC BOARD		
D605	ZENER DIODE 3-Z-MTZJ10B-8	MTZJ10B	IC606	IC 1-0319-1	BU2092F
D606	3-Z-MTZJ5.6B8	MTZJ5.6B	D614,615,616,617	DIODE 223163 or 3-1SS133-1	1SS133
D607	3-Z-MTZJ13B-8	MTZJ13B	LED601,602	LED 28-0063-1	SLR332MG
D609,610,611	3-Z-MTZJ8.2B8	MTZJ8.2B	LED603,604,607,608, LED611-613,615,617, LED619,621,623,625, LED627,629,631,633, LED634	28-0057-1	SLV-312VC
D608	DIODE 3-RB100A	RB100A	LED605,606	28-0062-1	SLR332VR
D612	223839	1N4002	LED609,610,614,616, LED618,620,622,624, LED626,628,630,632, LED635,636	28-0058-1	SLV-312MC
X601	CERAMIC RESONATOR 29-0069-1	CST8MTW	SW601-611,614-632	TACT SWITCH	
X701	29-0085-1	CSA33.86MXZ040	SW612,613	8-0263-2	SKHHAM
L801,802	COIL 6-0310-1	10RB type,39mH	LW805	8-0269-1	SKHHAR
L803	CHNS-6010	10PA type	LW806	FLAT CABLE	
L601,701	MICRO INDUCTOR 26-0012-2	LAL03,10 μ H	LW807	12-0174-1	UL2651#26 \times 6
L602	26-0056-1	LAL03,100 μ H		12-0163-1	UL2651#26 \times 3
				12-0176-1	UL2651#26 \times 8

SCHEMATIC DIAGRAM

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