

KRC-13RG

KRC-178RA/RG/RYA/RYG

KRC-23RA/RG

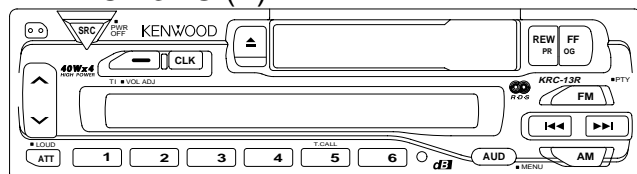
KRC-278RA/RG/RYA/RYG

KRC-280RG

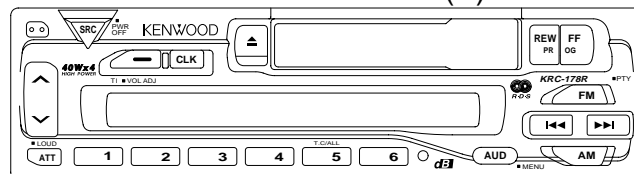
SERVICE MANUAL

© 2000-1 PRINTED IN KOREA
B51-7587-00 (K) 2204

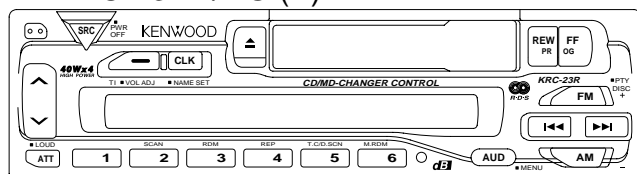
KRC-13RG (E)



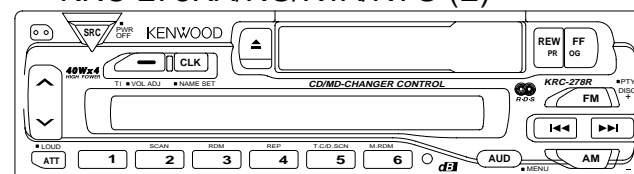
KRC-178RA/RG/RYA/RYG (E)



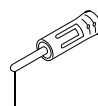
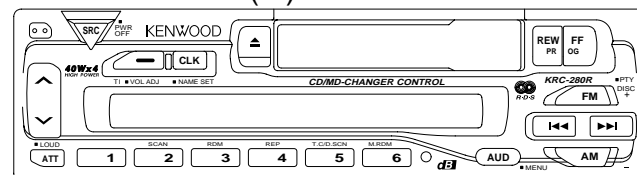
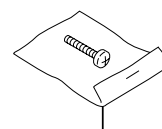
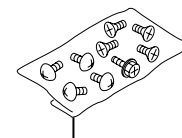
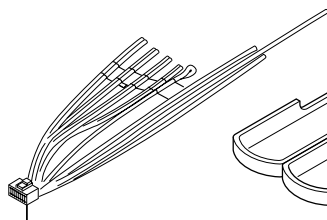
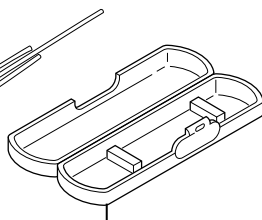
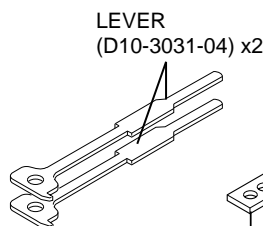
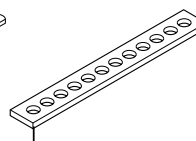
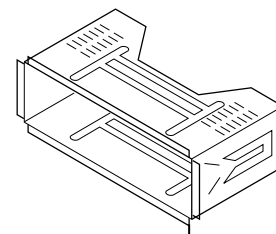
KRC-23RA/RG (E)



KRC-278RA/RG/RYA/RYG (E)

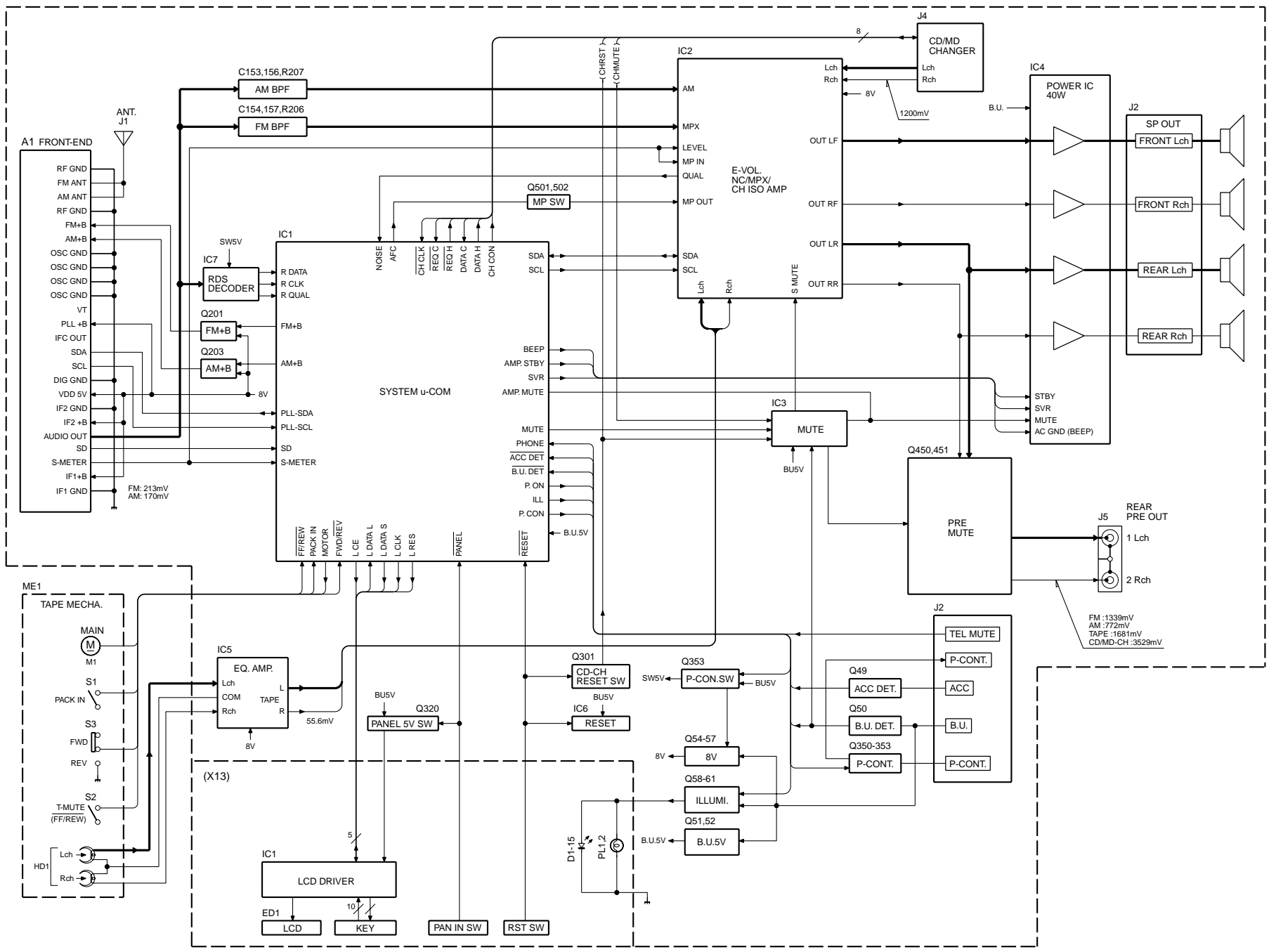


KRC-280RG (M)

ANTENNA ADAPTOR
(T90-0523-05)
(Except KRC-280RG)SCREW SET
(N99-1610-15)
(KRC-280RG only)SCREW SET
(N99-1632-05)
(KRC-280RG only)DC CORD
(E30-xxxx-xx)
(Refer to the parts list.)PLASTIC CABINET ASSY
(A02-1486-13)LEVER
(D10-3031-04) x2STAY
(J54-0606-04)
(KRC-280RG only)MOUNTING HARDWARE ASSY
(J21-9491-03)

KRC-13R,178R,23R,278R,280R

BLOCK DIAGRAM



KRC-13R,178R,23R,278R,280R (E,E,E,M)

KRC-13R,178R,23R,278R,280R

COMPONENT DESCRIPTION

SYNTHESIZER UNIT (X14-613x-xx)

REF. No.	FUNCTION	OPERATION
IC1	SYSTEM μ -COM	Controls system.
IC2	ELECTRIC VOLUME	Controls sound volume. Selects each source.
IC3	MUTE	Controls each mute output.
IC4	POWER IC	Amplifies power so that the speaker can drive audio signal.
IC5	EQUALIZER AMPLIFIER	Equalizer amplifier for cassette tape sound.
IC6	RESET	Resets power supply.
IC7	RDS DECODER	Decodes RDS signal.
Q49	ACC DETECTION SW	Works when ACC operation stops.
Q50	BACK-UP DETECTION SW	Works when the back-up voltage comes less than 9.2V.
Q51,52	BACK-UP 5V DRIVER	Works when the back-up works.
Q53	P.ON 5V SW	Works when the power comes.
Q54,55	8V SW	Works when the power comes.
Q56,57	8V DRIVER	Works when the power comes.
Q58,59	ILLUMINATION +B SW	Works when the power comes.
Q60,61	ILLUMINATION +B DRIVER	Works when the power comes.
Q150	ELECTRIC VOLUME MUTE SW	Works when the back-up voltage detection or the changer mute or μ -com mute works.
Q151	SVR FORCED DISCHARGE SW	Works when the amplifier mute works.
Q153	PRE OUT MUTE SW	Works when the back-up voltage detection or the changer mute or μ -com mute works.
Q201	FM +B SW	Works when FM mode is being selected.
Q203	AM +B SW	Works when AM mode is being selected.
Q260	MOTOR +B SW	Works when TAPE mode is being selected.
Q261	MOTOR +B DRIVER	Works when Q260 works.
Q301	CHANGER RESET SW	Works when power supply is being reset and IC6 works.
Q320	PANEL 5V SW	Works when the back-up works and panel is on the unit.
Q350	P-CON. DRIVER	Stops during POWER OFF and ALL OFF modes.
Q351	P-CON. PROTECTION SW	Works when P-CON is being short-circuited on GND.
Q352	P-CON. PROTECTION INHIBIT SW	Inhibits protection SW function when P-CON works momentary.
Q353	P-CON. SW	Stops during POWER OFF and ALL OFF modes.
Q450,451	PRE OUT MUTE SW	Works when the back-up voltage detection or the changer mute or μ -com mute works.
Q500	AUDIO OUT BUFFER	For RDS decoder (IC7).
Q501,502	AFC TIME CONSTANT SW	Works when receiving FM signal. Stops when seeking FM signal.
Q503	NOISE BUFFER	For noise level detection.

KRC-13R,178R,23R,278R,280R

CIRCUIT DESCRIPTION

(X14-) IC1 : μ -COM

PORT No.	PORT NAME	I/O	FUNCTION	OPERATING CONDITION
1	PANEL	I	Panel on/off detection.	"L" : Panel on. "H" : Panel off.
2	L CE	O	LCD driver chip enable.	-
3	L RES	O	LCD driver reset.	-
4	AVSS	-	GND.	-
5	R DATA	I	RDS data.	-
6	R QUAL	I	RDS signal.	-
7	AVREF 1	I	Reference voltage.	-
8	IC2 SEL 1	I	To GND.	-
9	IC2 SEL 0	I	To GND.	-
10	-	-	No connection.	-
11	L DATA L	I	LCD driver data.	-
12	L DATA S	O	LCD driver data.	-
13	L CLK	O	LCD driver clock.	-
14,15	-	-	No connection.	-
16	DATA C	I	Changer data.	-
17	DATA H	O	Changer data.	-
18	CH CLK	I	Changer clock.	-
19-26	-	-	No connection.	-
27	MOTOR	O	Cassette motor on/off.	-
28	FF/REW	I	FF/REW.	-
29-31	-	-	No connection.	-
32	SD	I	Tuner signal detection.	"H" : Tuner signal exists. "L" : Tuner signal does not exist.
33	VSS 1	-	GND.	-
34	-	-	No connection.	-
35	PLL CLK	O	PLL clock.	-
36	PLL DATA	I/O	PLL data.	-
37	AM+B	O	AM power supply.	-
38	FM+B	O	FM power supply.	-
39	IC2 DATA	I/O	E-volume data.	-
40	IC2 CLK	O	E-volume clock.	-
41	AFC	O	FM noise detection time constant switch.	-
42	MUTE	O	Mute control.	-
43	AMP MUTE	O	Power IC (IC4) mute.	-
44	-	-	No connection.	-
45	CH CON	O	Changer control.	-
46	REC H	O	Request to head unit.	-
47	-	-	No connection.	-
48	SVR	O	Power IC (IC4) discharge control.	-
49	AMP STBY	O	Power IC (IC4) stand-by.	-
50	BEEP	O	Buzzer.	-
51,52	-	-	No connection.	-
53	P.CONT	O	Power control on/off.	-
54	ACC DET	I	ACC detection.	-
55	B.U. DET	I	Back-up detection.	-
56	P.ON	O	Power on/pff.	-
57	ILL	O	Illumination on/off.	-
58	FWD/REV	I	FWD/REV detection.	-
59	-	-	No connection.	-
60	RESET	I	System reset.	-
61	SEL 1	I	Destination switch.	-
62	R CLK	I	RDS clock.	-
63	REQ C	I	Request from changer.	-
64	PACK IN	I	Cassette tape Pack-in detection.	-
65	KEY-REQ	I	Key detection.	-
66	SEL 0	I	Destination switch.	-
67	VSS 0	-	GND.	-
68	VDD 1	-	VDD.	-
69	X2	-	Main system clock.	-
70	X1	-	Main system clock.	-
71	IC	-	GND.	-
72	XT2	-	No connection.	-
73	XT1	-	VDD.	-
74	VDD 0	-	VDD.	-
75	AVREF 0	I	Reference voltage.	-
76	S METER	I	Signal meter.	-
77	PHONE	I	Tel/Navi mute.	Tel mute : Less than 1V. Navi mute : More than 2.5V.
78	NOISE	I	FM noise detection.	-
79	AV CONT	O	A/D reference voltage control.	-
80	-	-	No connection.	-

KRC-13R,178R,23R,278R,280R

TEST MODE

1. How to enter the test mode

- Reset the unit while holding the "FM" key and preset "6" key.
- All indication segments go ON at the beginning of the test mode.

2. How to release the test mode

- Simply reset the unit.
- (NOTE) The test mode is not canceled by ACC OFF, power OFF, momentary power down or the panel off.

3. Audio adjustment

- Set the volume level to -10dB (which is shown as "30" on the display).
- Loudness OFF.
- The BASS/TREBLE and BALANCE/FADER can be set to the full-boost/full-cut and full-front/full-rear each by pressing the "Track UP" / "Track DOWN" keys.
- Sound coordination doesn't appear for the feed.

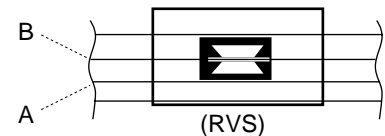
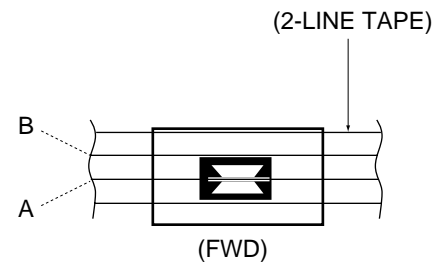
KRC-13R, 178R, 23R, 278R, 280R

ADJUSTMENT/EINSTELLUNGEN (MECHA.)

Head Angle Adjustment

Head height alignment procedure

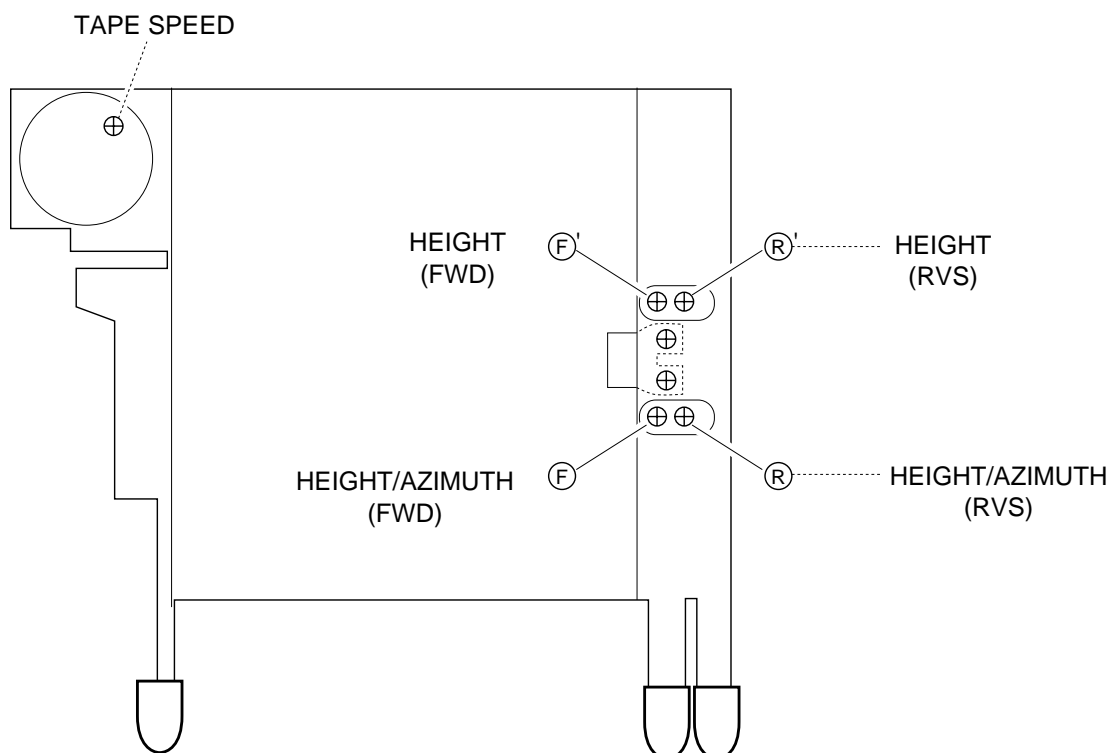
- During FWD transport adjust screws (F) and (F') so that line A of 2-LINE TAPE passes through the center of the head shield plate (core center area)
- During RVS transport adjust screws (R) and (R') so that line B of 2-LINE TAPE passes through the center of the head shield plate core (center area)
- After the alignment above, reverse the transport direction and check the FWD alignment again. If it is deviated, perform alignment again. (Tape used : SCC-1659, manufactured by A-BEX)



Einstellung des Kopfwinkels

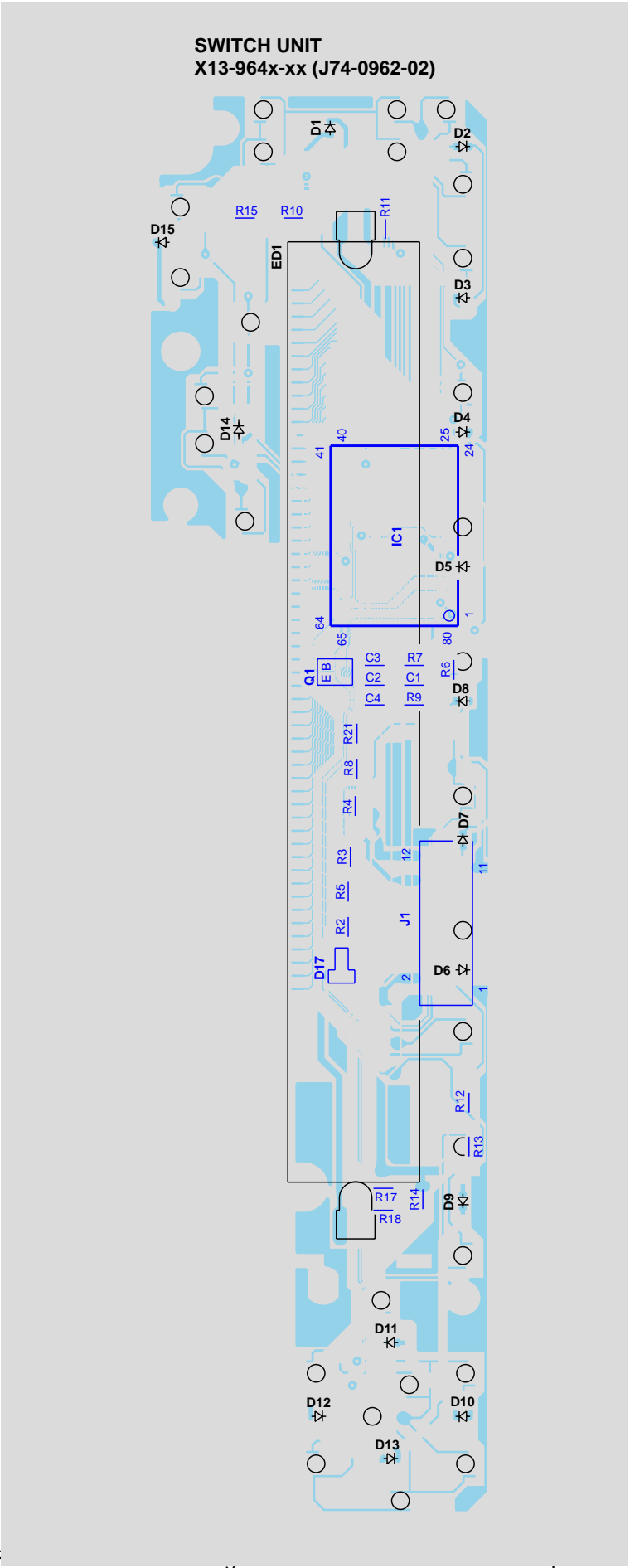
Vorgehensweise bei der Kopfhöhen-Einstellung

- Während des Bandlaufs in Vorwärtsrichtung die Schrauben (F) und (F') so einstellen, daß die Linie A eines 2-Linien-Bands (2-LINE TAPE) durch die Mitte der Kopfabschirmplatte (Zentrum des Mittelbereichs) verläuft.
- Während des Bandlaufs in Rückwärtsrichtung die Schrauben (R) und (R') so einstellen, daß die Linie B eines 2-Linien-Bands (2-LINE TAPE) durch die Mitte der Kopfabschirmplatte (Zentrum des Mittelbereichs) verläuft.
- Nachdem die obige Einstellung abgeschlossen ist, die Bandlaufrichtung umkehren und die Ausrichtung in Vorwärtsrichtung noch einmal überprüfen. Wenn eine Abweichung festgestellt wird, ist diese Einstellung zu wiederholen. (Verwendetes Band: SCC-1659, hergestellt von A-BEX)

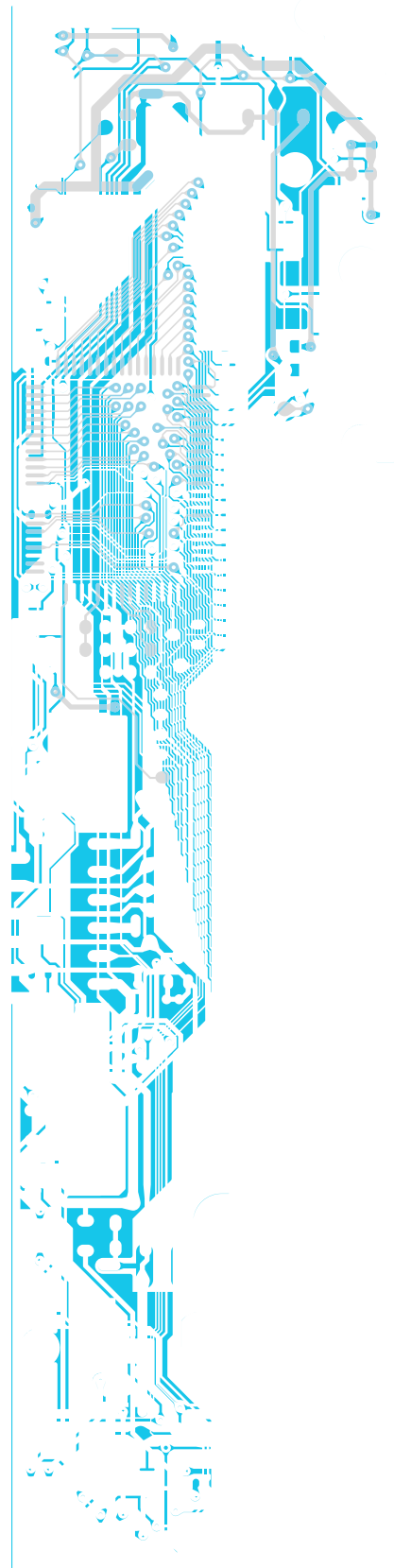


A B C D E F G H I J

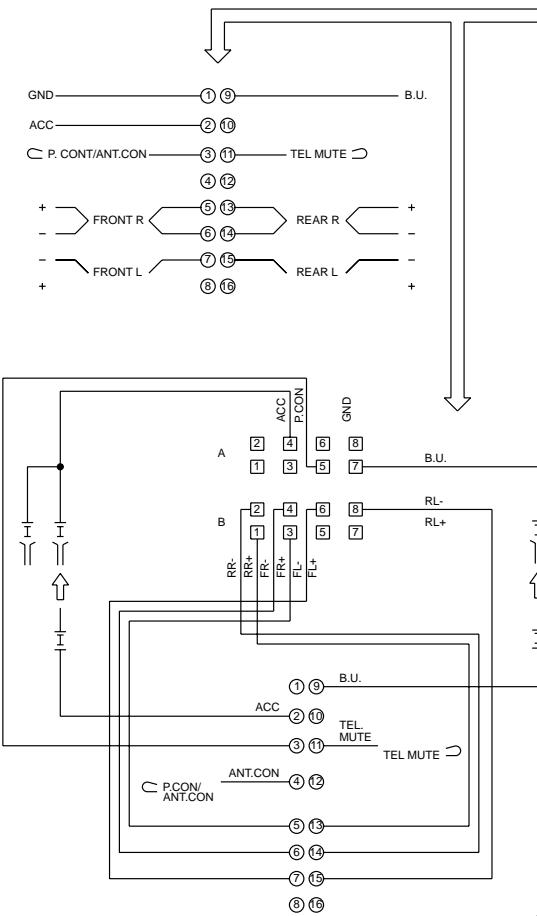
PC BOARD (Component side view)



PC BOARD (Foil side view)

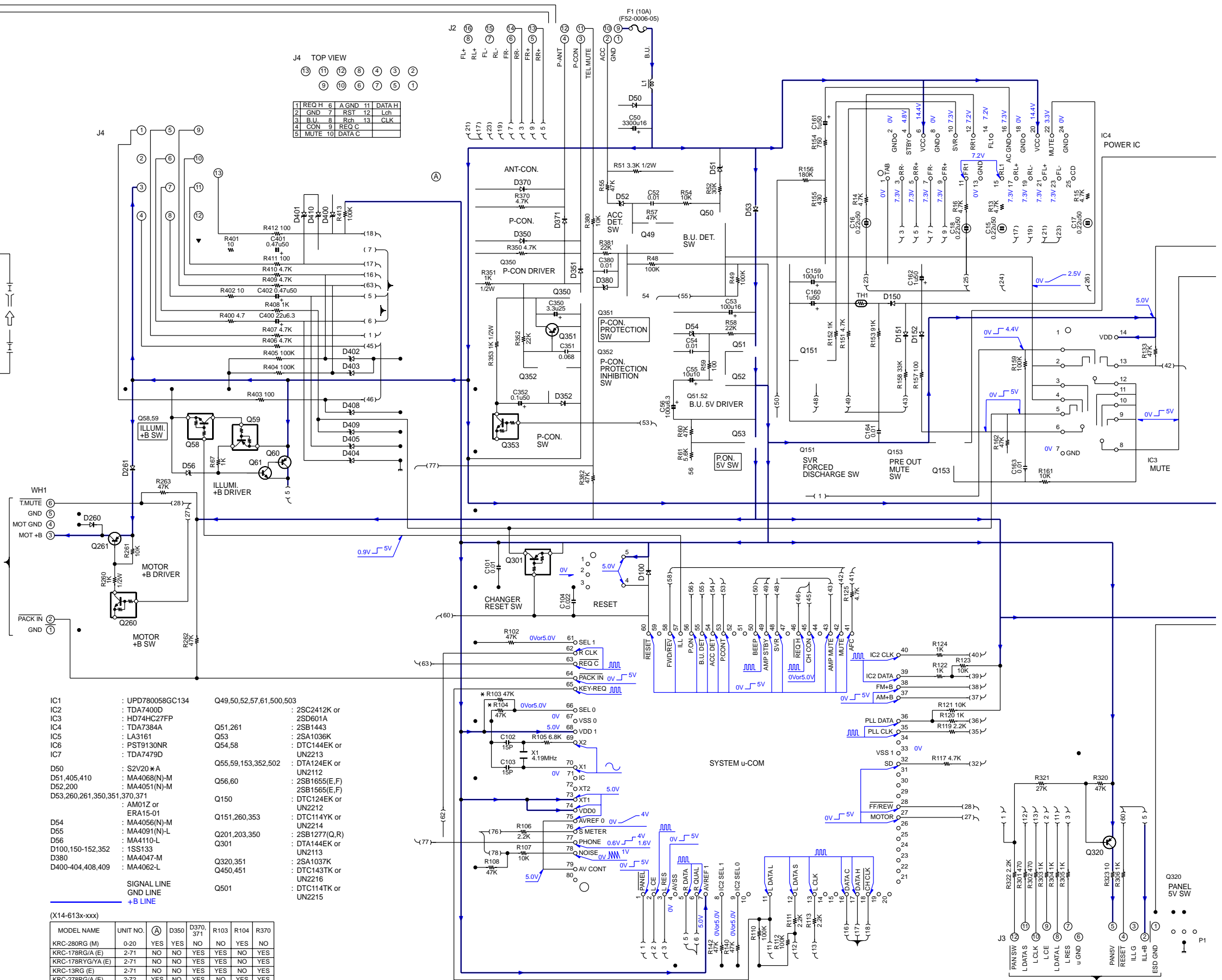


Refer to the schematic diagram for the value of resistors and capacitors.



J4 TOP VIEW

1	REQ H	6	A.GND	11	DATA H
2	GND	7	RST	12	Lch
3	B.U.	8	Rch	13	CLK
4	CON	9	REQ C		
5	MUTE	10	DATA C		

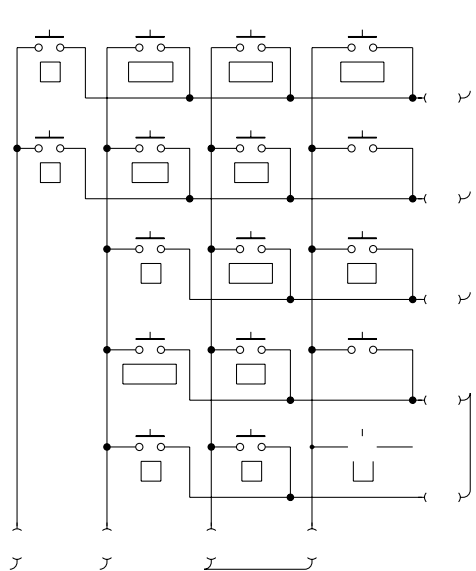


CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). **Δ** indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric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

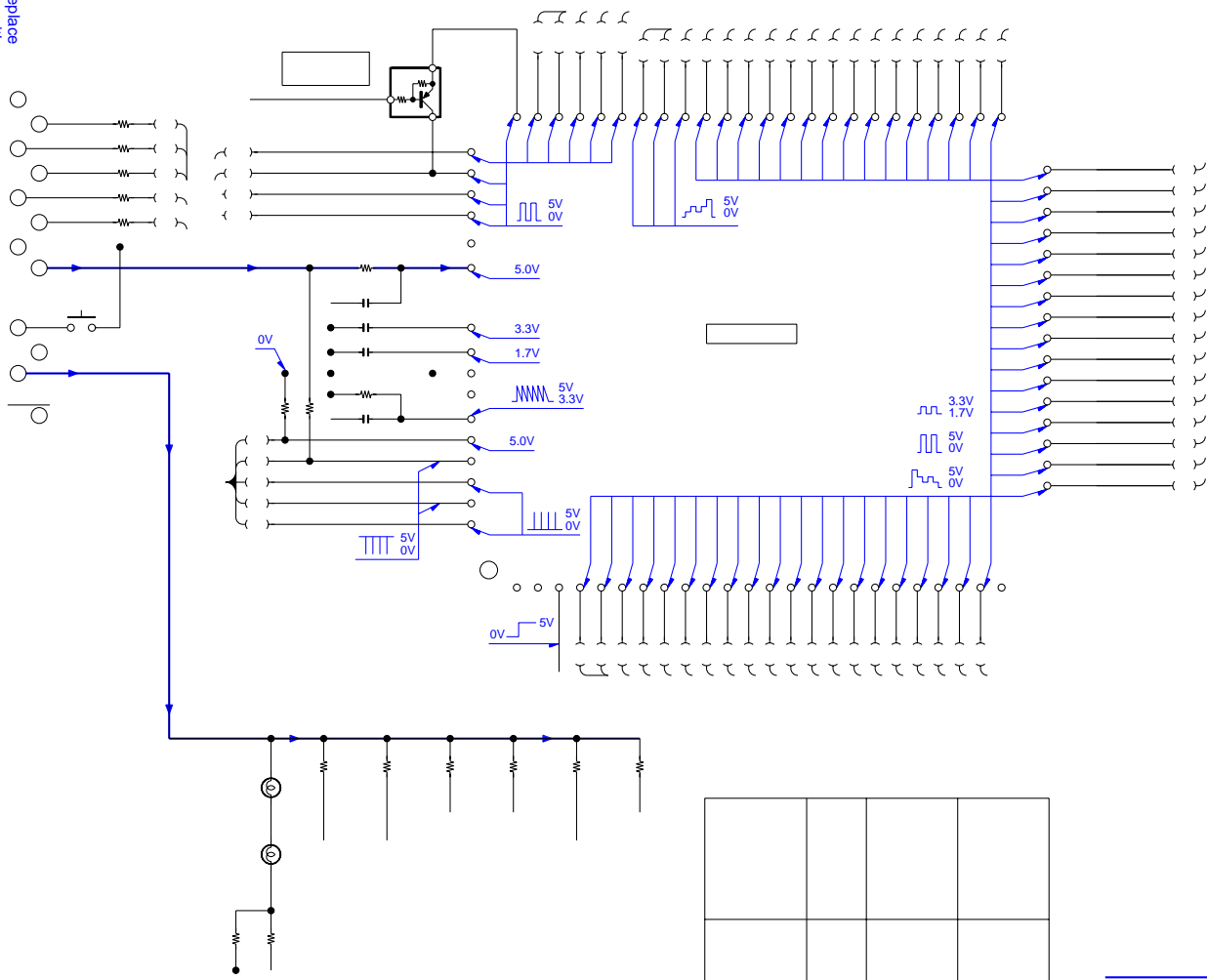
IC1	: UPD780058GC134	Q49,50,52,57,61,500,503
IC2	: TDA7400D	Q51,261
IC3	: HD74HC27FP	Q53
IC4	: TDA7384A	Q54,58
IC5	: LA3161	: 2SA1036K
IC6	: PST9130NR	: DTC144EK or UN2213
IC7	: TDA7479D	Q55,59,153,352,502
D50	: S2V20 *A	Q56,60
D51,405,410	: MA4068(N)-M	Q150
D52,200	: MA4051(N)-M	: DTC124EK or UN2212
D53,260,261,350,351,370,371	: AM012 or ERA15-01	Q151,260,353
D54	: MA4056(N)-M	Q201,203,350
D55	: MA4091(N)-L	: 2SB1277(Q,R)
D56	: MA4110-L	Q301
D100,150-152,352	: 1SS133	: DTA144EK or UN2113
D380	: MA4047-M	Q320,351
D400-404,408,409	: MA4062-L	Q450,451
		Q501
		: DTC114TK or UN2215

MODEL NAME	UNIT NO.	(A)	D350	D370, 371	R103	R104	R370
KRC-280RG (M)	0-20	YES	YES	NO	NO	YES	NO
KRC-178RG/A (E)	2-71	NO	NO	YES	YES	NO	YES
KRC-178RYG/YA (E)	2-71	NO	NO	YES	YES	NO	YES
KRC-13RG (E)	2-71	NO	NO	YES	YES	NO	YES
KRC-278RG/A (E)	2-72	YES	NO	YES	NO	YES	YES
KRC-278RYG/YA (E)	2-72	YES	NO	YES	NO	YES	YES
KRC-23RG/A (E)	2-72	YES	NO	YES	NO	YES	YES

(X14-613x-xxx)



— +B LINE

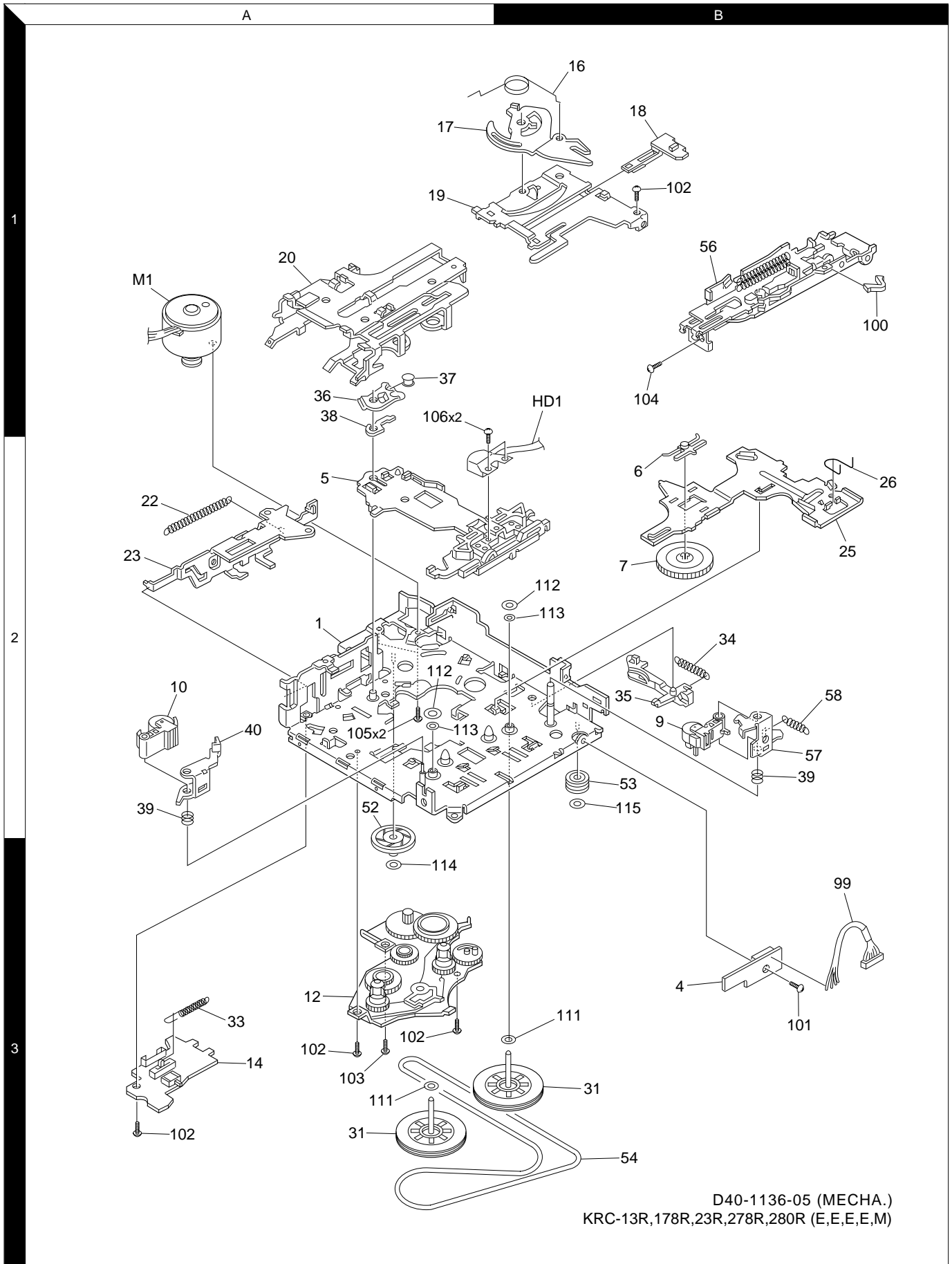


CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock,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



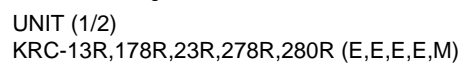
KRC-13R,178R,23R,278R,280R

EXPLODED VIEW (MECHANISM)

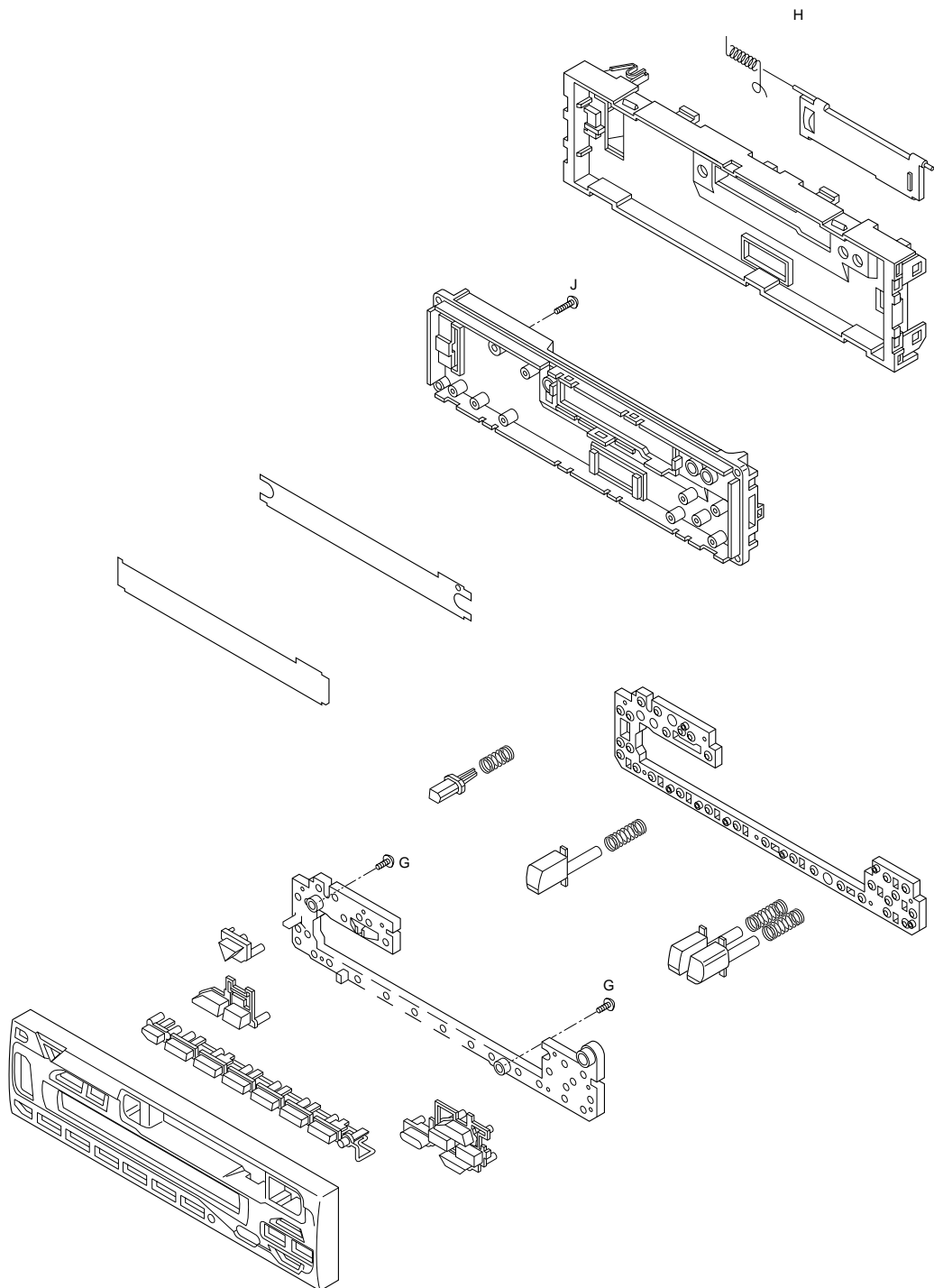


Parts with exploded numbers larger than 700 are not supplied.

3



G $\phi 2 \times 6$: N80-2006-46
H $\phi 1.5$: N29-0205-04
J $\phi 2 \times 8$: N80-2008-45



Parts with exploded numbers larger than 700 are not supplied.

KRC-13R,178R,23R,278R,280R

PARTS LIST

* New Parts

Parts without **Part No.** are not supplied.

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

Teile ohne **Parts No.** werden nicht geliefert.

⚠ indicates safety critical components.

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
KRC-13R,178R,23R,278R,280R					
201	1C		A02-1486-13	PLASTIC CABINET ASSY	
204	1F	*	A22-2386-03	SUB PANEL ASSY	
207	1D	*	A52-0756-02	TOP PLATE	
208	1F		A53-1638-13	CASSETTE LID	
PA1	3E	*	A64-1918-02	PANEL ASSY	M3
PA1	3E	*	A64-1919-02	PANEL ASSY	EE1E2
PA1	3E	*	A64-1919-02	PANEL ASSY	E3
PA1	3E	*	A64-1920-02	PANEL ASSY	E4
PA1	3E	*	A64-1921-02	PANEL ASSY	E5E6E9
PA1	3E	*	A64-1921-02	PANEL ASSY	Z1
PA1	3E	*	A64-1922-02	PANEL ASSY	E7E8
216	3C		B07-2181-02	ESCUTCHEON	
-			B46-0100-50	WARRANTY CARD	EE1E4
-			B46-0100-50	WARRANTY CARD	E5E6E7
-			B46-0100-50	WARRANTY CARD	E8M3
-			B46-0182-14	ID CARD	E2E3E4
-			B46-0182-14	ID CARD	E7E8E9
-			B46-0182-14	ID CARD	Z1
-			B46-0606-04	ID CARD	EE1E5
-			B46-0606-04	ID CARD	E6M3
-		*	B64-1534-00	INST. MANUAL (ENG,FRE,GER,DUT)	EE1E5
-		*	B64-1534-00	INST. MANUAL (ENG,FRE,GER,DUT)	E6
-		*	B64-1535-00	INST. MANUAL (ITA,SPA,POR)	EE1E4
-		*	B64-1535-00	INST. MANUAL (ITA,SPA,POR)	E5E6E7
-		*	B64-1535-00	INST. MANUAL (ITA,SPA,POR)	E8
-		*	B64-1536-00	INST. MANUAL (ENG,RUS,POL)	E2E3E9
-		*	B64-1536-00	INST. MANUAL (ENG,RUS,POL)	Z1
-		*	B64-1537-00	INST. MANUAL (CZE,HUN,CRO)	E2E3E9
-		*	B64-1537-00	INST. MANUAL (CZE,HUN,CRO)	Z1
-		*	B64-1588-00	INST. MANUAL (ENG,CHI)	M3
-		*	B64-1590-00	INST. MANUAL (ARABIC)	M3
221	1C		D10-3031-04	LEVER	
222	1F	*	D10-4446-03	LEVER	
223	1F	*	D10-4447-03	LEVER	
224	1F	*	D21-2329-04	SHAFT	
ME1	2C	*	D40-1136-05	CASSETTE MECHANISM ASSY	
227	3F	*	E29-1599-02	CONDUCTIVE RUBBER	
⚠ DC1	1C		E30-4785-05	DC CORD	M3
⚠ DC1	1C		E30-4790-05	DC CORD	EE1E2
⚠ DC1	1C		E30-4790-05	DC CORD	E3E4E5
⚠ DC1	1C		E30-4790-05	DC CORD	E6E7E8
⚠ DC1	1C		E30-4790-05	DC CORD	E9Z1
⚠ F1	2D		F52-0006-05	FUSE (MINI BLADE TYPE) (10A)	
⚠ F1	2D		F52-0011-05	FUSE (MINI BLADE TYPE) (10A)	
231	1F		G01-2525-04	TORSION COIL SPRING	
232	3F		G01-2793-14	COMPRESSION SPRING	
233	1F	*	G01-2987-04	TORSION COIL SPRING	
234	1F	*	G01-2988-04	EXTENSION SPRING	
235	2F	*	G01-2990-04	COMPRESSION SPRING	
-		*	H10-4685-02	POLYSTYRENE FOAMED FIXTURE	
-			H25-0329-04	PROTECTION BAG (280X450X0.03)	E2E3E9
Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
-			H25-0329-04	PROTECTION BAG (280X450X0.03)	Z1M3
-			H25-0337-04	PROTECTION BAG (180X300X0.03)	
-			H25-1111-04	PROTECTION BAG (280X450X0.03)	EE1E4
-			H25-1111-04	PROTECTION BAG (280X450X0.03)	E5E6E7
-			H25-1111-04	PROTECTION BAG (280X450X0.03)	E8
-		*	H54-1602-03	ITEM CARTON CASE (KRC-280RG)	M3
-		*	H54-1607-03	ITEM CARTON CASE (KRC-178RG)	E
-		*	H54-1608-03	ITEM CARTON CASE (KRC-178RA)	E1
-		*	H54-1609-03	ITEM CARTON CASE (KRC-178RYG)	E2
-		*	H54-1610-03	ITEM CARTON CASE (KRC-178RYA)	E3
-		*	H54-1611-03	ITEM CARTON CASE (KRC-13RG)	E4
-		*	H54-1612-03	ITEM CARTON CASE (KRC-278RG)	E5
-		*	H54-1613-03	ITEM CARTON CASE (KRC-278RA)	E6
-		*	H54-1614-03	ITEM CARTON CASE (KRC-23RG)	E7
-		*	H54-1615-03	ITEM CARTON CASE (KRC-23RA)	E8
-		*	H54-1628-03	ITEM CARTON CASE (KRC-278RYG)	E9
-		*	H54-1629-03	ITEM CARTON CASE (KRC-278RYA)	Z1
241	3E	*	J19-4980-02	HOLDER	
242	1C		J21-9491-03	MOUNTING HARDWARE ASSY	
243	1C		J54-0606-04	STAY	M3
244	3D		J61-0307-05	WIRE BAND	
251	3E	*	K24-3542-04	KNOB (SRC)	
252	2E	*	K24-3544-04	KNOB (RELEASE)	
253	3F	*	K24-3545-04	KNOB (EJECT)	
254	3F	*	K24-3546-04	KNOB (FF)	
255	3F	*	K24-3547-04	KNOB (REW)	
256	3E	*	K25-1101-03	KNOB (CLK,AUTO)	
257	3E	*	K25-1102-03	KNOB (FM,AM,UP,DOWN,AUD)	
258	3E	*	K25-1103-03	KNOB (1,2,3,4,5,6,ATT)	
259	3E	*	K25-1108-03	KNOB (VOL)	
261	1C		N99-1610-15	SCREW SET (1-SCREW)	M3
262	1C		N99-1632-05	SCREW SET (9-SCREW)	M3
A	1D		N30-3004-46	PAN HEAD MACHINE SCREW	
B	1D		N83-3005-46	PAN HEAD TAPTITE SCREW	
G	3E		N80-2006-46	PAN HEAD TAPTITE SCREW	
H	1F		N29-0205-04	RETAINING RING	
J	2F		N80-2008-45	PAN HEAD TAPTITE SCREW	
265	1C		T90-0523-05	ANTENNA ADAPTOR	EE1E2
265	1C		T90-0523-05	ANTENNA ADAPTOR	E3E4E5
265	1C		T90-0523-05	ANTENNA ADAPTOR	E6E7E8
265	1C		T90-0523-05	ANTENNA ADAPTOR	E9Z1
265	1C		T90-0534-05	ANTENNA ADAPTOR	EE1E2
265	1C		T90-0534-05	ANTENNA ADAPTOR	E3E4E5
265	1C		T90-0534-05	ANTENNA ADAPTOR	E6E7E8
265	1C		T90-0534-05	ANTENNA ADAPTOR	E9Z1
SWITCH UNIT (X13-964x-xx)					
271	2E	*	B11-0991-04	OPTICAL DIFFUSER	
272	2E	*	B11-0992-04	REFLECTION SHEET	
273	2E	*	B19-2019-03	LIGHTING BOARD	
D1 -13		*	B30-1565-05	LED (PG)	EE2E4
D1 -13		*	B30-1565-05	LED (PG)	E5E7E9
D1 -13		*	B30-1565-05	LED (PG)	M3
D1 -13		*	B30-1566-05	LED (RED)	E1E3E6

E & Z : Europe

K : North America

M : Other Areas

E : KRC-178RG

E1 : KRC-178RA

E2 : KRC-178RYG

E3 : KRC-178RYA

E4 : KRC-13RG

E5 : KRC-278RG

E6 : KRC-278RA

E7 : KRC-23RG

E8 : KRC-23RA

E9 : KRC-278RYG

M3 : KRC-280RG

Z1 : KRC-278RYA

KRC-13R,178R,23R,278R,280R

PARTS LIST

* New Parts

Parts without **Part No.** are not supplied.

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

Teile ohne **Parts No.** werden nicht geliefert.

⚠ indicates safety critical components.

(X14-613x-xx)

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation	Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
D1 -13		*	B30-1566-05	LED (RED)	E8Z1	C151			CK73GB1H103K	CHIP C 0.010UF K	
D14			B30-1511-05	LED (RED)	E1E3E6	C152			C90-2608-05	ELECTRO 1.0UF 50WV	
D14			B30-1511-05	LED (RED)	E8Z1	C153			CK73FB1H153K	CHIP C 0.015UF K	
D14			B30-2025-05	LED	EE2E4	C154			CK73FB1C224K	CHIP C 0.22UF K	
D14			B30-2025-05	LED	E5E7E9	C155			CK73GB1C104K	CHIP C 0.10UF K	
D14			B30-2025-05	LED	M3	C156			CK73GB1C333K	CHIP C 0.033UF K	
D15		*	B30-1565-05	LED (PG)	EE2E4	C157			CC73GCH1H151J	CHIP C 150PF J	
D15		*	B30-1565-05	LED (PG)	E5E7E9	C158			CC73GCH1H121J	CHIP C 120PF J	
D15		*	B30-1565-05	LED (PG)	M3	C159			CE04CW1A101M	ELECTRO 100UF 10WV	
D15		*	B30-1566-05	LED (RED)	E1E3E6	C160			C90-2608-05	ELECTRO 1.0UF 50WV	
D15		*	B30-1566-05	LED (RED)	E8Z1	C161			C90-2935-05	ELECTRO 1.0UF 50WV	
ED1	2E	*	B38-1037-05	LIQUID CRYSTAL		C162			C90-2608-05	ELECTRO 1.0UF 50WV	
PL1 ,2		*	B30-1485-05	LAMP (5.5V 0.125A)		C163,164			CK73FB1H103K	CHIP C 0.010UF K	
C1			CK73FB1H821K	CHIP C 820PF K		C202			CK73FB1H103K	CHIP C 0.010UF K	
C2 ,3			CK73FB1H473K	CHIP C 0.047UF K		C204			CK73FB1H103K	CHIP C 0.010UF K	
C4			CK73FB1H103K	CHIP C 0.010UF K							
274	2E	*	E29-1600-04	CONDUCTIVE RUBBER		C206			CK73FB1H103K	CHIP C 0.010UF K	
J1		*	E59-0831-05	RECTANGULAR PLUG		C209			CE04DW1A470M	ELECTRO 47UF 10WV	
R2			RK73FB2A102J	CHIP R 1.0K J 1/10W		C213			CK73FB1H103K	CHIP C 0.010UF K	
R3 -6			RK73FB2A101J	CHIP R 100 J 1/10W		C250			CE04CW1A101M	ELECTRO 100UF 10WV	
R7			RK73FB2A683J	CHIP R 68K J 1/10W		C251			CK73GB1C473K	CHIP C 0.047UF K	
R8			RK73FB2A102J	CHIP R 1.0K J 1/10W							
R9			RK73FB2A473J	CHIP R 47K J 1/10W		C350			C90-2598-05	ELECTRO 3.3UF 25WV	
R10			RK73EB2B331J	CHIP R 330 J 1/8W		C351			CK73FB1E683K	CHIP C 0.068UF K	
R11			RK73EB2B471J	CHIP R 470 J 1/8W		C352			C90-2602-05	ELECTRO 0.10UF 50WV	
R12 ,13			RK73EB2B331J	CHIP R 330 J 1/8W		C380			CK73GB1H103K	CHIP C 0.010UF K	
R14 ,15			RK73EB2B471J	CHIP R 470 J 1/8W		C400			CE04CW0J220M	ELECTRO 22UF 6.3WV	E5E6E7
R17 ,18			RK73EB2B130J	CHIP R 13 J 1/8W		C400			CE04CW0J220M	ELECTRO 22UF 6.3WV	E8E9Z1
R21			RK73FB2A4R7J	CHIP R 4.7 J 1/10W		C401,402			C90-2606-05	ELECTRO 0.47UF 50WV	E5E6E7
D17			MA3062-M	ZENER DIODE		C401,402			C90-2606-05	ELECTRO 0.47UF 50WV	E8E9Z1
IC1			LC75883E	MOS-IC		C450,451			C90-2597-05	ELECTRO 10UF 16WV	
Q1			DTA114EK	DIGITAL TRANSISTOR		C452			CK73FB1H103K	CHIP C 0.010UF K	
Q1			UN2111	DIGITAL TRANSISTOR		C500			C90-2592-05	ELECTRO 10UF 6.3WV	
SYNTHESIZER UNIT (X14-613x-xx)						C501			CC73GCH1H271J	CHIP C 270PF J	
C1 ,2			CK73GB1H152K	CHIP C 1500PF K		C502			CK73GB1H103K	CHIP C 0.010UF K	
C3 ,4			CE04CW0J470M	ELECTRO 47UF 6.3WV		C503			C90-2592-05	ELECTRO 10UF 6.3WV	
C5 ,6			CC73GCH1H101J	CHIP C 100PF J		C504,505			CC73GCH1H100D	CHIP C 10PF D	
C7 ,8			CK73GB1H223K	CHIP C 0.022UF K		C506			CK73GB1C823K	CHIP C 0.082UF K	
C9 ,10			CE04CW1A101M	ELECTRO 100UF 10WV		CN1			E40-3240-05	PIN ASSY	
C13 ,14			CK73FB1C224K	CHIP C 0.22UF K		J1	2D		E04-0312-05	RF COAXIAL CABLE RECEPTACLE	
C15 -18			C90-5296-05	NP-ELECT 0.22UF 50WV		J2	2D		E58-0863-15	RECTANGULAR RECEPTACLE	
C50			C90-5236-05	ELECTRO 3300UF 16WV		J3		*	E58-0888-05	RECTANGULAR RECEPTACLE	
C52			CK73GB1H103K	CHIP C 0.010UF K		J4	2D		E56-0834-05	CYLINDRICAL RECEPTACLE	E5E6E7
C53			CE04CW1C101M	ELECTRO 100UF 16WV		J4	2D		E56-0834-05	CYLINDRICAL RECEPTACLE	E8E9Z1
C54			CK73GB1H103K	CHIP C 0.010UF K		J5	2D		E63-0013-05	PIN JACK	M3
C55			C90-2594-05	ELECTRO 10UF 10WV		P1		*	E23-0745-05	TERMINAL	
C56			CE04CW0J101M	ELECTRO 100UF 6.3WV		WH1		*	E39-0344-05	WIRING HARNESS	
C57			CE04CW1C101M	ELECTRO 100UF 16WV		L1	2D		L33-1063-15	CHOKE COIL	
C58			CE04CW1A101M	ELECTRO 100UF 10WV		L3			L40-4795-91	SMALL FIXED INDUCTOR (4.7UH,J)	
C101			CK73GB1H103K	CHIP C 0.010UF K		L4			L33-1123-05	LINE FILTER COIL (52MH)	
C102,103			CC73GCH1H150J	CHIP C 15PF J		L5 -7			L40-4795-91	SMALL FIXED INDUCTOR (4.7UH,J)	
C104			CK73GB1H223K	CHIP C 0.022UF K		L10			L40-4795-91	SMALL FIXED INDUCTOR (4.7UH,J)	
C150			CE04CW1A470M	ELECTRO 47UF 10WV		X1			L77-1167-05	CRYSTAL RESONATOR (4.19MHZ)	

E & Z : Europe

K : North America

M : Other Areas

E : KRC-178RG

E1 : KRC-178RA

E2 : KRC-178RYG

E3 : KRC-178RYA

E4 : KRC-13RG

E5 : KRC-278RG

E6 : KRC-278RA

E7 : KRC-23RG

E8 : KRC-23RA

E9 : KRC-278RYG

M3 : KRC-280RG

Z1 : KRC-278RYA

KRC-13R,178R,23R,278R,280R

PARTS LIST

* New Parts

Parts without **Part No.** are not supplied.

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

Teile ohne **Part No.** werden nicht geliefert.

⚠ indicates safety critical components.

(X14-613x-xx)

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation	Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
X2			L77-2002-05	CRYSTAL RESONATOR (4.3320MHZ)		R152			RK73FB2A102J	CHIP R 1.0K J 1/10W	
B	1D		N83-3005-46	PAN HEAD TAPTITE SCREW		R153			RK73FB2A913J	CHIP R 91K J 1/10W	
C	2D		N64-3010-46	PAN HEAD SEMS SCREW		R154			RK73FB2A751J	CHIP R 750 J 1/10W	
D	1D		N80-3008-46	PAN HEAD TAPTITE SCREW		R155			RK73FB2A431J	CHIP R 430 J 1/10W	
E	1D		N83-3020-46	PAN HEAD TAPTITE SCREW		R156			RK73GB1J184J	CHIP R 180K J 1/16W	
F	2D		N86-2606-46	BINDING HEAD TAPTITE SCREW		R157			RK73GB1J101J	CHIP R 100 J 1/16W	
R1 ,2			RK73GB1J223J	CHIP R 22K J 1/16W		R158			RK73GB1J333J	CHIP R 33K J 1/16W	
R3			RK73EB2B101J	CHIP R 100 J 1/8W		R159			RK73GB1J104J	CHIP R 100K J 1/16W	
R4			RK73GB1J101J	CHIP R 100 J 1/16W		R160			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R5 ,6			RK73GB1J682J	CHIP R 6.8K J 1/16W		R161			RK73GB1J103J	CHIP R 10K J 1/16W	
R7 ,8			RK73GB1J124J	CHIP R 120K J 1/16W		R162			RK73FB2A473J	CHIP R 47K J 1/10W	
R13			RK73EB2B472J	CHIP R 4.7K J 1/8W		R200			RD14BB2C102J	RD 1.0K J 1/6W	
R14 ,15			RK73GB1J472J	CHIP R 4.7K J 1/16W		R201			RK73EB2B223J	CHIP R 22K J 1/8W	
R16			RK73EB2B472J	CHIP R 4.7K J 1/8W		R202			RD14BB2C102J	RD 1.0K J 1/6W	
R48 ,49			RK73EB2B104J	CHIP R 100K J 1/8W		R203			RK73EB2B223J	CHIP R 22K J 1/8W	
R51			RD14DB2H332J	SMALL-RD 3.3K J 1/2W		R205			RK73EB2B151J	CHIP R 150 J 1/8W	
R52			RK73FB2A303J	CHIP R 30K J 1/10W		R206			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R54			RK73FB2A103J	CHIP R 10K J 1/10W		R207			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R55			RD14BB2C473J	RD 47K J 1/6W		R250			RK73EB2B100J	CHIP R 10 J 1/8W	
R57			RK73GB1J473J	CHIP R 47K J 1/16W		R251			RK73GB1J103J	CHIP R 10K J 1/16W	
R58			RK73FB2A223J	CHIP R 22K J 1/10W		R252			RD14BB2C473J	RD 47K J 1/6W	
R59			RK73GB1J101J	CHIP R 100 J 1/16W		R260			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R60			RK73GB1J473J	CHIP R 47K J 1/16W		R261			RD14BB2C103J	RD 10K J 1/6W	
R61			RK73GB1J562J	CHIP R 5.6K J 1/16W		R262,263			RD14BB2C473J	RD 47K J 1/6W	
R62			RK73GB1J103J	CHIP R 10K J 1/16W		R301,302			RK73EB2B471J	CHIP R 470 J 1/8W	
R63 ,64			RK73GB1J102J	CHIP R 1.0K J 1/16W		R303-306			RK73EB2B102J	CHIP R 1.0K J 1/8W	
R65 ,66			RD14DB2H2R2J	SMALL-RD 2.2 J 1/2W		R320			RK73GB1J473J	CHIP R 47K J 1/16W	
R67			RD14BB2C102J	RD 1.0K J 1/6W		R321			RK73EB2B273J	CHIP R 27K J 1/8W	
R102			RK73GB1J473J	CHIP R 47K J 1/16W		R322			RK73EB2B222J	CHIP R 2.2K J 1/8W	
R103			RK73GB1J473J	CHIP R 47K J 1/16W	EE1E2	R323			RK73EB2B100J	CHIP R 10 J 1/8W	
R103			RK73GB1J473J	CHIP R 47K J 1/16W	E3E4	R350			RD14BB2C472J	RD 4.7K J 1/6W	
R104			RK73GB1J473J	CHIP R 47K J 1/16W	E5E6E7	R351			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R104			RK73GB1J473J	CHIP R 47K J 1/16W	E8E9Z1	R352			RK73FB2A223J	CHIP R 22K J 1/10W	
R104			RK73GB1J473J	CHIP R 47K J 1/16W	M3	R353			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R105			RK73GB1J682J	CHIP R 6.8K J 1/16W		R370			RD14BB2C472J	RD 4.7K J 1/6W	EE1E2
R106			RK73FB2A222J	CHIP R 2.2K J 1/10W		R370			RD14BB2C472J	RD 4.7K J 1/6W	E3E4E5
R107			RD14BB2C103J	RD 10K J 1/6W		R370			RD14BB2C472J	RD 4.7K J 1/6W	E6E7E8
R108			RK73GB1J473J	CHIP R 47K J 1/16W		R370			RD14BB2C472J	RD 4.7K J 1/6W	E9Z1
R110			RK73GB1J104J	CHIP R 100K J 1/16W		R380			RK73EB2B103J	CHIP R 10K J 1/8W	
R111			RK73GB1J222J	CHIP R 2.2K J 1/16W		R381			RK73GB1J223J	CHIP R 22K J 1/16W	
R112			RK73FB2A104J	CHIP R 100K J 1/10W		R382			RK73GB1J473J	CHIP R 47K J 1/16W	
R113			RK73GB1J222J	CHIP R 2.2K J 1/16W		R400			RK73EB2B4R7J	CHIP R 4.7 J 1/8W	E5E6E7
R117			RK73GB1J472J	CHIP R 4.7K J 1/16W		R400			RK73EB2B4R7J	CHIP R 4.7 J 1/8W	E8E9Z1
R119			RD14BB2C222J	RD 2.2K J 1/6W		R400			RK73EB2B4R7J	CHIP R 4.7 J 1/8W	M3
R120			RD14BB2C102J	RD 1.0K J 1/6W		R401,402			RK73EB2B100J	CHIP R 10 J 1/8W	E5E6E7
R121			RK73EB2B103J	CHIP R 10K J 1/8W		R401,402			RK73EB2B100J	CHIP R 10 J 1/8W	E8E9Z1
R122			RK73GB1J102J	CHIP R 1.0K J 1/16W		R401,402			RK73EB2B100J	CHIP R 10 J 1/8W	M3
R123			RK73FB2A103J	CHIP R 10K J 1/10W		R403			RK73EB2B101J	CHIP R 100 J 1/8W	E5E6E7
R124			RK73GB1J102J	CHIP R 1.0K J 1/16W		R403			RK73EB2B101J	CHIP R 100 J 1/8W	E8E9Z1
R125			RK73FB2A472J	CHIP R 4.7K J 1/10W		R403			RK73EB2B101J	CHIP R 100 J 1/8W	M3
R133			RK73GB1J473J	CHIP R 47K J 1/16W		R404,405			RK73GB1J104J	CHIP R 100K J 1/16W	E5E6E7
R140			RK73GB1J473J	CHIP R 47K J 1/16W		R404,405			RK73GB1J104J	CHIP R 100K J 1/16W	E8E9Z1
R142			RK73GB1J473J	CHIP R 47K J 1/16W		R404,405			RK73GB1J104J	CHIP R 100K J 1/16W	M3
R150,151			RK73GB1J472J	CHIP R 4.7K J 1/16W		R406,407			RK73EB2B472J	CHIP R 4.7K J 1/8W	E5E6E7
						R406,407			RK73EB2B472J	CHIP R 4.7K J 1/8W	E8E9Z1

E & Z : Europe

K : North America

M : Other Areas

E : KRC-178RG

E1 : KRC-178RA

E2 : KRC-178RYG

E3 : KRC-178RYA

E4 : KRC-13RG

E5 : KRC-278RG

E6 : KRC-278RA

E7 : KRC-23RG

E8 : KRC-23RA

E9 : KRC-278RYG

M3 : KRC-280RG

Z1 : KRC-278RYA

KRC-13R,178R,23R,278R,280R

PARTS LIST

* New Parts

Parts without **Part No.** are not supplied.

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

Teile ohne **Parts No.** werden nicht geliefert.

⚠ indicates safety critical components.

(X14-613x-xx)

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation	Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
R406,407			RK73EB2B472J	CHIP R 4.7K J 1/8W	M3	D405			MA4068(N)-M	ZENER DIODE	E8E9Z1
R408			RK73EB2B102J	CHIP R 1.0K J 1/8W	E5E6E7	D405			MA4068(N)-M	ZENER DIODE	M3
R408			RK73EB2B102J	CHIP R 1.0K J 1/8W	E8E9Z1	D408,409			MA4062-L	ZENER DIODE	E5E6E7
R408			RK73EB2B102J	CHIP R 1.0K J 1/8W	M3	D408,409			MA4062-L	ZENER DIODE	E8E9Z1
R409,410			RK73EB2B472J	CHIP R 4.7K J 1/8W	E5E6E7	D408,409			MA4062-L	ZENER DIODE	M3
R409,410			RK73EB2B472J	CHIP R 4.7K J 1/8W	E8E9Z1	D410			MA4068(N)-M	ZENER DIODE	E5E6E7
R409,410			RK73EB2B101J	CHIP R 100 J 1/8W	M3	D410			MA4068(N)-M	ZENER DIODE	E8E9Z1
R411,412			RK73EB2B101J	CHIP R 100 J 1/8W	E5E6E7	D410			MA4068(N)-M	ZENER DIODE	M3
R411,412			RK73EB2B101J	CHIP R 100 J 1/8W	E8E9Z1	IC1		*	UPD780058GC134	MI-COM IC	
R411,412			RK73EB2B101J	CHIP R 100 J 1/8W	M3	IC2			TDA7400D	ANALOGUE IC	
R413			RK73GB1J104J	CHIP R 100K J 1/16W	E5E6E7	IC3			HD74HC27FP	MOS-IC	
R413			RK73GB1J104J	CHIP R 100K J 1/16W	E8E9Z1	IC4			TDA7384A	ANALOGUE IC	
R413			RK73GB1J104J	CHIP R 100K J 1/16W	M3	IC5			LA3161	IC(PREAMP X2)	
R450,451			RK73FB2A271J	CHIP R 270 J 1/10W		IC6			PST9130NR	ANALOGUE IC	
R452,453			RK73FB2A303J	CHIP R 30K J 1/10W		IC7			TDA7479D	ANALOGUE IC	
R454,455			RK73EB2B101J	CHIP R 100 J 1/8W		Q49,50			2SC2412K	TRANSISTOR	
R500-502			RD14BB2C222J	RD 2.2K J 1/6W		Q49,50			2SD601A	TRANSISTOR	
R503			RK73EB2B102J	CHIP R 1.0K J 1/8W		Q51			2SB1443	TRANSISTOR	
R504			RK73FB2A472J	CHIP R 4.7K J 1/10W		Q52			2SC2412K	TRANSISTOR	
R505			RD14BB2C100J	RD 10 J 1/6W		Q52			2SD601A	TRANSISTOR	
W153,154			R92-2053-05	CHIP R 0 J 1/8W		Q53			2SA1036K	TRANSISTOR	
W156-170			R92-2053-05	CHIP R 0 J 1/8W		Q54			DTC144EK	DIGITAL TRANSISTOR	
W173,174			R92-2053-05	CHIP R 0 J 1/8W		Q54			UN2213	DIGITAL TRANSISTOR	
D50			S2V20*A	DIODE		Q55			DTA124EK	DIGITAL TRANSISTOR	
D51			MA4068(N)-M	ZENER DIODE		Q55			UN2112	DIGITAL TRANSISTOR	
D52			MA4051(N)-M	ZENER DIODE		Q56			2SB1565(E,F)	TRANSISTOR	
D53			AM01Z	DIODE		Q56			2SB1655(E,F)	TRANSISTOR	
D53			ERA15-01	DIODE		Q57			2SC2412K	TRANSISTOR	
D54			MA4056(N)-M	ZENER DIODE		Q57			2SD601A	TRANSISTOR	
D55			MA4091(N)-L	ZENER DIODE		Q58			DTC144EK	DIGITAL TRANSISTOR	
D56			MA4110-L	ZENER DIODE		Q58			UN2213	DIGITAL TRANSISTOR	
D100			1SS133	DIODE		Q59			DTA124EK	DIGITAL TRANSISTOR	
D150-152			1SS133	DIODE		Q59			UN2112	DIGITAL TRANSISTOR	
D200			MA4051(N)-M	ZENER DIODE		Q60			2SB1565(E,F)	TRANSISTOR	
D260,261			AM01Z	DIODE		Q60			2SB1655(E,F)	TRANSISTOR	
D260,261			ERA15-01	DIODE		Q61			2SC2412K	TRANSISTOR	
D350			AM01Z	DIODE	M3	Q61			2SD601A	TRANSISTOR	
D350			ERA15-01	DIODE	M3	Q150			DTC124EK	DIGITAL TRANSISTOR	
D351			AM01Z	DIODE		Q150			UN2212	DIGITAL TRANSISTOR	
D351			ERA15-01	DIODE		Q151			DTC114YK	DIGITAL TRANSISTOR	
D352			1SS133	DIODE		Q151			UN2214	DIGITAL TRANSISTOR	
D370,371			AM01Z	DIODE	EE1E2	Q153			DTA124EK	DIGITAL TRANSISTOR	
D370,371			AM01Z	DIODE	E3E4E5	Q153			UN2112	DIGITAL TRANSISTOR	
D370,371			AM01Z	DIODE	E6E7E8	Q201			2SB1277(Q,R)	TRANSISTOR	
D370,371			ERA15-01	DIODE	E9Z1	Q203			2SB1277(Q,R)	TRANSISTOR	
D370,371			ERA15-01	DIODE	EE1E2	Q260			DTC114YK	DIGITAL TRANSISTOR	
D370,371			ERA15-01	DIODE	E3E4E5	Q260			UN2214	DIGITAL TRANSISTOR	
D370,371			ERA15-01	DIODE	E6E7E8	Q261			2SB1443	TRANSISTOR	
D370,371			ERA15-01	DIODE	E9Z1	Q301			DTA144EK	DIGITAL TRANSISTOR	
D380			MA4047-M	ZENER DIODE		Q301			UN2113	DIGITAL TRANSISTOR	
D400-404			MA4062-L	ZENER DIODE	E5E6E7	Q320			2SA1037K	TRANSISTOR	
D400-404			MA4062-L	ZENER DIODE	E8E9Z1	Q350			2SB1277(Q,R)	TRANSISTOR	
D400-404			MA4062-L	ZENER DIODE	M3	Q351			2SA1037K	TRANSISTOR	
D405			MA4068(N)-M	ZENER DIODE	E5E6E7	Q352			DTA124EK	DIGITAL TRANSISTOR	
						Q352			UN2112	DIGITAL TRANSISTOR	

E & Z : Europe

K : North America

M : Other Areas

E : KRC-178RG

E1 : KRC-178RA

E2 : KRC-178RYG

E3 : KRC-178RYA

E4 : KRC-13RG

E5 : KRC-278RG

E6 : KRC-278RA

E7 : KRC-23RG

E8 : KRC-23RA

E9 : KRC-278RYG

M3 : KRC-280RG

Z1 : KRC-278RYA

KRC-13R,178R,23R,278R,280R

PARTS LIST

* New Parts
Parts without **Part No.** are not supplied.
Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

 indicates safety critical components.

(D40-1136-05)

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation	Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
Q353			DTC114YK	DIGITAL TRANSISTOR		105	2A		N09-4058-08	SCREW	
Q353			UN2214	DIGITAL TRANSISTOR		106	1A		N09-4109-08	SCREW	
Q450,451			DTC143TK	DIGITAL TRANSISTOR		111	3A		N19-2082-08	FLAT WASHER	
Q450,451			UN2216	DIGITAL TRANSISTOR		112	2A		N19-2083-08	FLAT WASHER	
Q500			2SC2412K	TRANSISTOR		113	2A		N19-2084-08	FLAT WASHER	
Q500			2SD601A	TRANSISTOR		114	3A		N19-2043-08	FLAT WASHER	
Q501			DTC114TK	DIGITAL TRANSISTOR		115	2B		N19-2038-08	FLAT WASHER	
Q501			UN2215	DIGITAL TRANSISTOR							
Q502			DTA124EK	DIGITAL TRANSISTOR		HD1	1B	*	T31-0229-08	PLAYBACK HEAD	
Q502			UN2112	DIGITAL TRANSISTOR		M1	1A	*	T42-1025-08	MOTOR ASSY	
Q503			2SC2412K	TRANSISTOR							
Q503			2SD601A	TRANSISTOR							
TH1			PTH9C42BD471Q	POSITIVE RESISTOR							
A1	2D	*	X86-3162-70	FRONT-END UNIT							
CASSETTE MECHANISM ASSY (D40-1136-05)											
1	2A		A10-4328-08	CHASSIS CALKING ASSY							
4	3B		J26-4017-08	PRINTED WIRING BOARD ASSY							
5	2A		J21-7778-08	MOUNTING HARDWARE							
6	2B		D10-4091-08	SLIDER							
7	2B		D13-1323-08	GEAR							
9	2B		D10-4200-08	ARM ASSY (F)							
10	2A		D10-4201-08	ARM ASSY (R)							
12	3A		A11-0930-08	SUB CHASSIS CALKING ASSY							
14	3A		J26-4018-08	PRINTED WIRING BOARD ASSY							
16	1B		G01-2826-08	TORSION COIL SPRING							
17	1A		D10-4094-08	SLIDER							
18	1B		D10-4095-08	SLIDER							
19	1A		D10-4096-08	ARM							
20	1A		J19-4736-08	HOLDER ASSY							
22	2A		G01-2827-08	TENSION COIL SPRING							
23	2A		D10-4097-08	LEVER							
25	2B		D10-4098-08	SLIDER							
26	2B		G09-2019-08	SPRING							
31	3A		D01-0608-08	FLYWHEEL ASSY							
33	3A		G01-2828-08	TENSION COIL SPRING							
34	2B		G01-2829-08	TENSION COIL SPRING							
35	2B		D10-4099-08	ARM							
36	1A		D10-4100-08	ARM							
37	1A		D14-0682-08	ROLLER							
38	1A		D10-4101-08	LEVER							
39	2A		G01-2830-08	COMPRESSION COIL SPRING							
40	2A		D10-4102-08	ARM							
52	2A		D13-1110-08	GEAR							
53	2B		D15-0909-08	PULLEY							
54	3B		D16-0606-08	BELT							
56	1B		D10-4105-08	ARM ASSY							
57	2B		D10-4104-08	ARM							
58	2B		G01-2831-08	TENSION COIL SPRING							
99	3B		E39-0181-08	WIRE HARNESS							
100	1B		J11-0618-08	CLAMPER							
101	3B		N09-4328-08	SCREW							
102	3A		N09-4326-08	SCREW							
103	3A		N09-4191-08	SCREW							
104	1B		N09-4192-08	SCREW							

E & Z : Europe
K : North America
M : Other Areas

E : KRC-178RG
E1 : KRC-178RA
E2 : KRC-178RYG

E3 : KRC-178RYA
E4 : KRC-13RG
E5 : KRC-278RG

E6 : KRC-278RA
E7 : KRC-23RG
E8 : KRC-23RA

E9 : KRC-278RYG
M3 : KRC-280RG
Z1 : KRC-278RYA

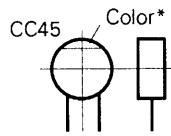
KRC-13R, 178R, 23R, 278R, 280R

PARTS DESCRIPTIONS

CAPACITORS

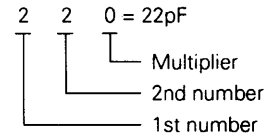
CC 45 TH 1H 220 J
1 2 3 4 5 6

- 1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, ect.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance



Capacitor value

010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001μF
103 = 0.01μF



Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example : CC45TH = -470 ± 60ppm/°C

Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 -20	+80 -20	+100 -0	More than 10μF - 10 ~ +50 Less than 4.7μF - 10 ~ +75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

Voltage rating

2nd word 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	-
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	-
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	-

Chip capacitors

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7

(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7

(Chip) (B, F)

Refer to the table above.

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

RESISTORS

Chip resistor (Carbon)

(EX) R K 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7

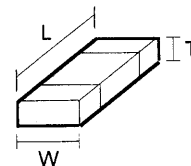
(Chip) (B, F)

Carbon resistor (Normal type)

(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7

- 1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Rating wattage
6 = Value
7 = Tolerance

Dimension



Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6 ± 0.2	0.8 ± 0.2	0.5 ± 0.1

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

KRC-13R,178R,23R,278R,280R

SPECIFICATIONS

		KRC-13R (E) KRC-178R (E) KRC-23R (E) KRC-278R (E)	KRC-280R (M)
Tuner Type		TDF	TDF
		CR2	CR2
FM	Frequency Range (Frequency Step)	87.5MHz-108.0MHz (50KHz)	87.5MHz-108.0MHz (50KHz)
	Usable Sensitivity (S/N 26dB)	0.7μV/75Ω	-
	Usable Sensitivity (S/N 30dB)	-	0.7μV/75Ω
	Quieting Sensitivity (S/N 46dB)	1.6μV/75Ω	-
	Quieting Sensitivity (S/N 50dB)	-	1.6μV/75Ω
	Frequency Response (±3.0dB)	30Hz-15KHz	30Hz-15KHz
	S/N	65dB (MONO)	65dB (MONO)
	Selectivity	≥80dB (±400KHz)	≥80dB (±400KHz)
	Stereo Separation	35dB (1KHz)	35dB (1KHz)
	Frequency Range (Frequency Step)	531KHz-1611KHz (9KHz)	531KHz-1611KHz (9KHz)
MW or AM	Usable Sensitivity (S/N 20dB)	25μV	25μV
LW	Frequency Range	153KHz-281KHz	153KHz-281KHz
	Usable Sensitivity (S/N 20dB)	45μV	45μV
CASSETTE	Tape Speed	4.76cm/sec.	4.76cm/sec.
	Wow/Flutter	0.12% (WRMS)	0.12% (WRMS)
	Frequency Response (±3.0dB)	30Hz-14KHz (120μs)	30Hz-14KHz (120μs)
	Separation	40dB (1KHz)	40dB (1KHz)
S/N Dolby NR OFF		52dB	52dB
Preout Level / Load		1800mV/10KΩ	1800mV/10KΩ
Preout Impedance		≤600Ω	≤600Ω
AMPLIFIER	Maximum Power	40W x4	40W x4
	Power DIN45324, +B=14.4V	26W x4	-
	Full Bandwidth Power (at less than 1% THD)	-	20W x4
TONE	Bass	100Hz ±10dB	100Hz ±10dB
	Treble	10KHz ±10dB	10KHz ±10dB
GENERAL	Operating Voltage (11V-16V allowable)	14.4V	14.4V
	Current Consumption	10A	10A
	Installation Size (Width)	182mm	182mm
	(Height)	53mm	53mm
	(Depth)	155mm	155mm
Weight		1400g	1400g

KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

KENWOOD CORPORATION

14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo, 150-8501 Japan

KENWOOD SERVICE CORPORATION

P.O. Box 22745, 2201 East Dominguez Street,
Long Beach, CA90801-5745, U.S.A.

KENWOOD ELECTRONICS CANADA INC.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS LATIN AMERICA S.A.

P.O. Box 55-2791, Piso 6, Plaza Chase, Cl. 47 y,
Aquilino de la Guardia, Panama, Republic of Panama

KENWOOD ELECTRONICS BRASIL LTDA.

Av. Moema, 170-17", Andar-Cobertura "B",
Ed. Maximum Service Center, 04077-020 Moema,
São Paulo-SP-Brasil

KENWOOD ELECTRONICS UK LIMITED

Kenwood House, Dwight Road, Watford,
Herts, WD1 8EB, United Kingdom

KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

KENWOOD ELECTRONICS FRANCE S.A.

13, Boulevard Ney, 75018 Paris, France

KENWOOD ELECTRONICS BELGIUM N.V.

Mechelsesteenweg 418, B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS ITALIA S.p.A.

Via G. Sirtori 7/9, 20129 Milano, Italy

KENWOOD IBÉRICA S.A.

Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

(A.C.N. 001 499 074)
16 Giffnock Avenue, North Ryde, N.S.W. 2113, Austraria

KENWOOD ELECTRONICS (HONG KONG) LTD.

Unit 3712-3724, Level 37, Tower 1, Metroplaza,
223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

KENWOOD ELECTRONICS GULF FZE

P.O.Box 61318, Jebel Ali, Dubai, U.A.E.

KENWOOD ELECTRONICS (THAILAND) CO., LTD.

2019 New Pechburi Road, Bangkok, Huaykwang,
Bangkok, 10320 Thailand

KENWOOD ELECTRONICS SINGAPORE PTE LTD.

1 Genting Lane, #07-00, Kenwood Building, Singapore 349544

KENWOOD ELECTRONICS (MALAYSIA) SDN BHD

#4.01 Level 4, Wisma Academy Lot 4A, Jalan 19/1,
46300 Petaling Jaya, Selangor Darul Ehsan, Malaysia