

CD RECEIVER

KDC-3028/328/MP4028/MP428
/MP5029/MP6029
/W5031/W5031Y/W531Y

SERVICE MANUAL

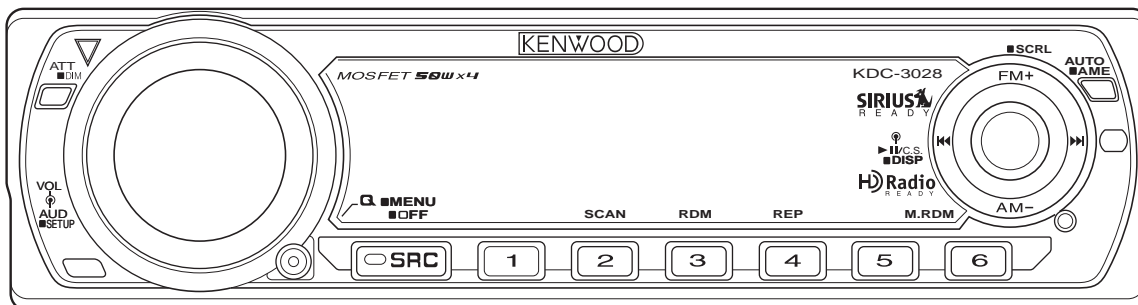
KENWOOD

Kenwood Corporation

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SWITCH UNIT (X16) TYPE 2

Illustration is KDC-3028

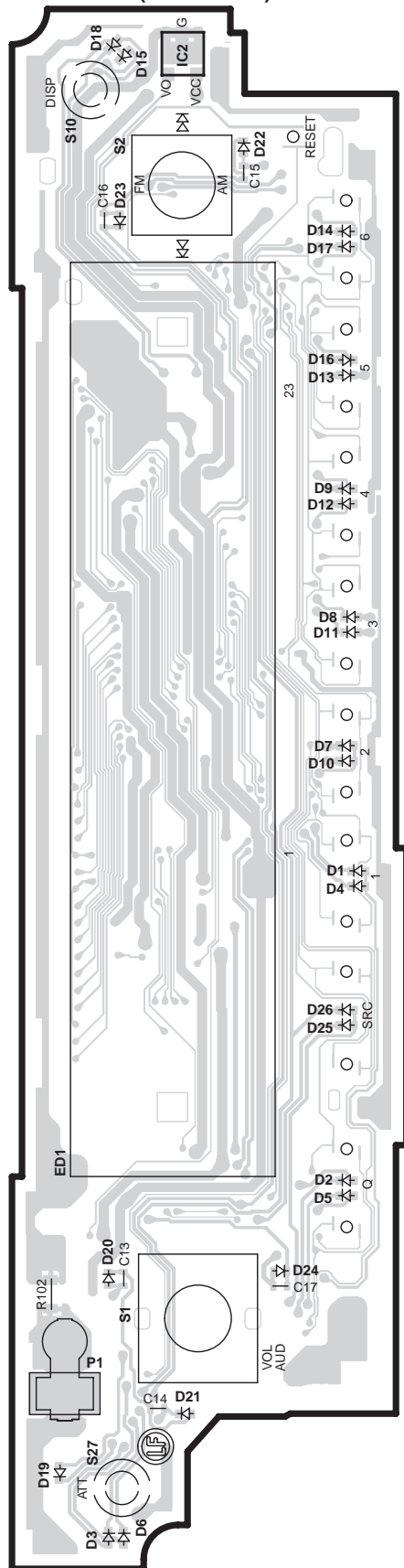


This service manual handles only switch unit (X16) for type 2.
Besides, please refer to the service manual of each model.
Switch unit (X16) has been changed from the following serial number to type 2.
Following system microcomputer (IC1: X34) also changes at the same time as changing switch unit (X16).

MODEL	SERIAL No.	SWITCH UNIT (TYPE2 UNIT)	ELECTRIC UNIT	MCU IC (IC1:X34)	TDF NAME	TDF PANEL No.
KDC-328	50200001~	X16-3320-11	X34-3390-11	784225GC280A	TDF-53D/O	Y33-2230-66
KDC-3028	50100501~	X16-3320-11	X34-3390-12	784225GC280A	TDF-53DB/O	Y33-2230-67
KDC-MP4028	50200001~	X16-3320-10	X34-3380-10	30624MGPA44GP	TDF-MP54DB/O	Y33-2230-60
KDC-MP428	50200001~	X16-3320-10	X34-3380-11	30624MGPA44GP	TDF-MP54D/O	Y33-2230-62
KDC-MP5029	T0200001~	X16-3320-22	X34-3390-21	784225GC279A	TDF-MP5029/O	Y33-2230-63
KDC-MP6029	T0200001~	X16-3320-21	X34-3380-21	30624MGPA44GP	TDF-MP6029/O	Y33-2230-61
KDC-W5031	T0104001~	X16-3322-71	X34-3392-71	784225GC279A	TDF-W5031/O	Y33-2230-64
KDC-W5031Y	T0200001~	X16-3322-71	X34-3392-71	784225GC279A	TDF-W5031/O	Y33-2230-64
KDC-W531Y	T0200001~	X16-3322-72	X34-3392-72	784225GC279A	TDF-W531Y/O	Y33-2230-65

PC BOARD (COMPONENT SIDE VIEW)

SWITCH UNIT
X16-332x-xx (J76-0142-02)

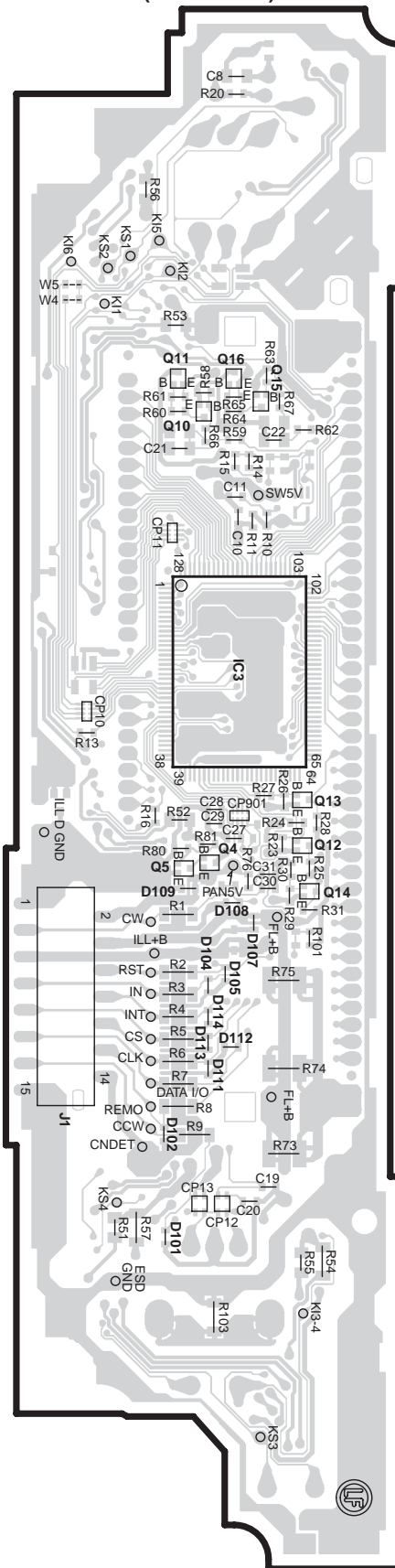


X16-332x-xx

Ref. No.	Address
IC2	2B

(FOIL SIDE VIEW)

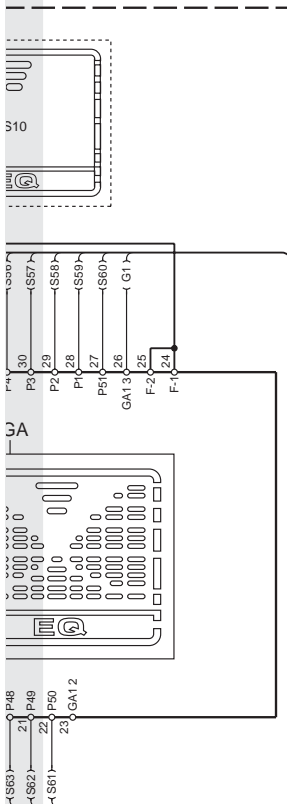
SWITCH UNIT
X16-332x-xx (J76-0142-02)



X16-332x-xx

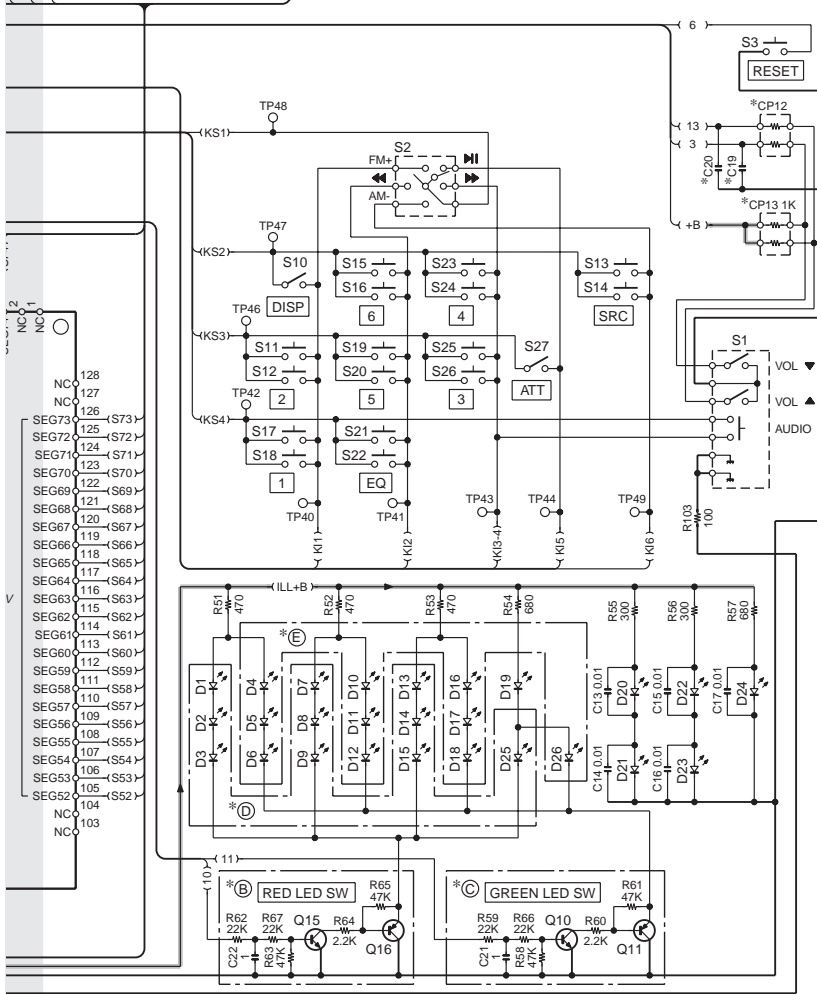
Ref. No.	Address
IC3	4E
Q4	5E
Q5	5E
Q10	3E
Q11	3E
Q12	4E
Q13	4E
Q14	5E
Q15	3E
Q16	3E

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



- ED1 : 3-BT-225NM
- IC2 : PNA4S22M
- IC3 : ML9228GAZ-A
- Q5,10,15 : 2SC4617 or 2SC5383(E,F)
- Q11-14,16 : 2SA1774 or 2SA1989(Q,R,S)
- Q4 : RT1P141U
- D1-3,7-9,13-15,19,25 : B30-1566-05
- D4-6,10-12,16-18,26 : *
- D20-24 : B30-1729-05
- D101,102,104,105,107-109, 111-114 : AVR1608180M6A

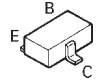
— GND LINE
 — +B LINE



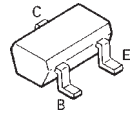
ANODE CONNECTION

PIN NAME	3G	2G	1GA,1GB
P1	1d	3d	Ch
P2	1n	3n	d
P3	1p	3p	e
P4	1r	3r	c
P5	1e	3e	f
P6	1c	3c	b
P7	1g	3g	a
P8	1m	3m	S1
P9	1f	3f	S2
P10	1b	3b	S3
P11	1k	3k	S4
P12	1j	3j	S5
P13	1h	3h	S6
P14	1a	3a	S7
P15	—	—	S8
P16	—	—	S9
P17	—	—	—
P18	ATT	TI	IN
P19	DAB	NEWS	PS
P20	ST	NEWS	PTY
P21	2a	1a	1a
P22	3a	2a	2a
P23	2h	1h	1h
P24	3h	2h	2h
P25	2j	1j	1j
P26	3j	2j	2j
P27	2k	1k	1k
P28	3k	2k	2k
P29	2b	1b	1b
P30	3b	2b	2b
P31	2f	1f	1f
P32	3f	2f	2f
P33	3d	2d	2d
P34	2d	1d	1d
P35	3n	2n	2n
P36	2n	1n	1n
P37	3p	2p	2p
P38	—	col2	col1
P39	2m	1m	1m
P40	3m	2m	2m
P41	2g	1g	1g
P42	3g	2g	2g
P43	2c	1c	1c
P44	3c	2c	2c
P45	2e	1e	1e
P46	3e	2e	2e
P47	2r	1r	1r
P48	—	col4	—
P49	3r	2r	2r
P50	—	col3	S10
P51	2p	1p	1p

2SC4617



2SA1774



MODEL NAME	UNIT No.	(A)	(B)	(C)	(E)	CP12	CP13	CP19	CP20	CP12	CP13	CP19	CP20	CP12	CP13	CP19	CP20	
KDC-MP4028	X16-3320-10	YES	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP428	X16-3320-11	YES	YES	YES	YES	2.2	2.2	—	—	—	—	—	—	—	—	—	—	—
KDC-MP5029	X16-3320-21	YES	YES	YES	YES	2.2	2.2	—	—	—	—	—	—	—	—	—	—	—
KDC-328	X16-3320-01	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-328	X16-3320-01	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP5029	X16-3320-22	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP5031	X16-3322-10	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP5031Y	X16-3322-11	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP531Y	X16-3322-22	YES	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
KDC-MP531Y	X16-3322-21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).

⚠ Indicates safety critical components. 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.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

PARTS LIST (KDC-3028/328/MP4028/MP428/MP5029/MP6029)

* New parts

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

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

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

Ref. No.	Add	New	Parts No.	Description	Destination
SWITCH UNIT (X16-3320-xx)					
D1-3			B30-1566-05	LED (1608, RED)	KK1M1
D4-6			B30-1565-05	LED (1608, PG)	M1M2
D7-9			B30-1566-05	LED (1608, RED)	KK1M1
D10-12			B30-1565-05	LED (1608, PG)	M1M2
D13-15			B30-1566-05	LED (1608, RED)	KK1M1
D16-18			B30-1565-05	LED (1608, PG)	M1M2
D19			B30-1566-05	LED (1608, RED)	
D20-24			B30-1729-05	LED (1608, BLUE)	
D25			B30-1566-05	LED (1608, RED)	KK1M1
D26			B30-1565-05	LED (1608, PG)	M1M2
C8			CK73FB1A225K	CHIP C 2.2UF K	
C10			CK73GB1H103K	CHIP C 0.010UF K	
C11			CC73GCH1H270J	CHIP C 27PF J	
C13-17			CK73GB1H103K	CHIP C 0.010UF K	
C19,20			CK73GB1H103K	CHIP C 0.010UF K	K1M2
C20			CK73GB1H104K	CHIP C 0.10UF K	KM1
C21			CK73FB1C105K	CHIP C 1.0UF K	M1M2
C22			CK73FB1C105K	CHIP C 1.0UF K	KK1M1
C27			CC73GCH1H471J	CHIP C 470PF J	
C28			CK73GB1H102K	CHIP C 1000PF K	
C29			CC73GCH1H471J	CHIP C 470PF J	
C30			CK73GB1A105K	CHIP C 1.0UF K	
C31			CC73GCH1H471J	CHIP C 470PF J	
J1			E59-0840-05	RECTANGULAR PLUG (15PIN)	
CP10,11			RK74HB1J102J	CHIP-COM 1.0K J 1/16W	
CP12			RK74GA1J101J	CHIP-COM 100 J 1/16W	KM1
CP12,13			RK74GA1J102J	CHIP-COM 1.0K J 1/16W	K1M2
CP901			RK74HB1J101J	CHIP-COM 100 J 1/16W	
R1			RK73EB2E101J	CHIP R 100 J 1/4W	KM1
R1			RK73EB2E472J	CHIP R 4.7K J 1/4W	K1M2
R2			RK73EB2E102J	CHIP R 1.0K J 1/4W	
R3-8			RK73EB2E101J	CHIP R 100 J 1/4W	
R9			RK73EB2E101J	CHIP R 100 J 1/4W	KM1
R9			RK73EB2E472J	CHIP R 4.7K J 1/4W	K1M2
R10			RK73GB2A103J	CHIP R 10K J 1/10W	
R11			RK73GB2A4R7J	CHIP R 4.7 J 1/10W	
R13			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R14			RK73GB2A102J	CHIP R 1.0K J 1/10W	KM1
R15			RK73GB2A102J	CHIP R 1.0K J 1/10W	K1M2
R16			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R20			RK73GB2A101J	CHIP R 100 J 1/10W	
R23			RK73GB2A473J	CHIP R 47K J 1/10W	
R24			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R25,26			RK73GB2A473J	CHIP R 47K J 1/10W	
R27			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R28,29			RK73GB2A473J	CHIP R 47K J 1/10W	
R30			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R31			RK73GB2A473J	CHIP R 47K J 1/10W	
R51-53			RK73FB2B471J	CHIP R 470 J 1/8W	
R54			RK73EB2E681J	CHIP R 680 J 1/4W	
R55,56			RK73FB2B301J	CHIP R 300 J 1/8W	
R57			RK73EB2E681J	CHIP R 680 J 1/4W	

Ref. No.	Add	New	Parts No.	Description	Destination
R58			RK73GB2A473J	CHIP R 47K J 1/10W	M1M2
R59			RK73GB2A223J	CHIP R 22K J 1/10W	M1M2
R60			RK73GB2A222J	CHIP R 2.2K J 1/10W	M1M2
R61			RK73GB2A473J	CHIP R 47K J 1/10W	M1M2
R62			RK73GB2A223J	CHIP R 22K J 1/10W	KK1M1
R63			RK73GB2A473J	CHIP R 47K J 1/10W	KK1M1
R64			RK73GB2A222J	CHIP R 2.2K J 1/10W	KK1M1
R65			RK73GB2A473J	CHIP R 47K J 1/10W	KK1M1
R66			RK73GB2A223J	CHIP R 22K J 1/10W	M1M2
R67			RK73GB2A223J	CHIP R 22K J 1/10W	KK1M1
R73			RK73PB2H2R2J	CHIP R 2.2 J 1/2W	KM1
R73			RK73PB2H330J	CHIP R 33 J 1/2W	K1M2
R74,75			RK73PB2H220J	CHIP R 22 J 1/2W	K1M2
R76			RK73GB2A473J	CHIP R 47K J 1/10W	
R80			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R81			RK73GB2A223J	CHIP R 22K J 1/10W	
R101			RK73GB2A473J	CHIP R 47K J 1/10W	
R102,103			RK73EB2E101J	CHIP R 100 J 1/4W	
W4			R92-1252-05	CHIP R 0 OHM J 1/16W	K1M2
W5			R92-1252-05	CHIP R 0 OHM J 1/16W	KM1
S2			S70-0106-05	TACT SWITCH	
S10			S70-0051-15	TACT SWITCH	
S27			S70-0051-15	TACT SWITCH	
S1			T99-0457-15	ROTARY ENCODER	
D101,102			AVRM1608180M6A	VARIATOR	
D104,105			AVRM1608180M6A	VARIATOR	
D107-109			AVRM1608180M6A	VARIATOR	
D111-114			AVRM1608180M6A	VARIATOR	
ED1			3-BT-225NM	FLUORESCENT INDICATOR TUBE	
IC2			PNA4S22M	ANALOGUE IC	
IC3		*	ML9228GAZ-A	MOS-IC	
Q4			RT1P141U	TRANSISTOR	
Q5			2SC4617	TRANSISTOR	K1M2
Q5			2SC5383(E,F)	TRANSISTOR	KM1
Q10			2SC4617	TRANSISTOR	M2
Q10			2SC5383(E,F)	TRANSISTOR	M1
Q11-14			2SA1774	TRANSISTOR	M2
Q11-14			2SA1989(Q,R,S)	TRANSISTOR	M1
Q12-14			2SA1774	TRANSISTOR	K1
Q12-14			2SA1989(Q,R,S)	TRANSISTOR	K
Q15			2SC4617	TRANSISTOR	K1
Q15			2SC5383(E,F)	TRANSISTOR	KM1
Q16			2SA1774	TRANSISTOR	K1
Q16			2SA1989(Q,R,S)	TRANSISTOR	KM1
ELECTRIC UNIT (X34-3380-xx)					
IC1		*	30624MGPA44GP	MCU IC	#
ELECTRIC UNIT (X34-3390-xx)					
IC1		*	784225GC280A	MCU IC	#

K : KDC-MP4028/MP428 K1 : KDC-3028/328 M1 : KDC-MP6029
M2 : KDC-MP5029 # : Refer to cover page

△ Indicates safety critical components.

PARTS LIST (KDC-W5031/W5031Y/W531Y)

* New parts

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

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

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

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
SWITCH UNIT (X16-3322-7x)					
D1-3			B30-1566-05	LED (1608, RED)	
D4-6			B30-1565-05	LED (1608, PG)	
D7-9			B30-1566-05	LED (1608, RED)	
D10-12			B30-1565-05	LED (1608, PG)	
D13-15			B30-1566-05	LED (1608, RED)	
D16-18			B30-1565-05	LED (1608, PG)	
D19			B30-1566-05	LED (1608, RED)	
D20-24			B30-1729-05	LED (1608, BLUE)	
D25			B30-1566-05	LED (1608, RED)	
D26			B30-1565-05	LED (1608, PG)	
C8			CK73FB1A225K	CHIP C 2.2UF K	E1
C10			CK73GB1H103K	CHIP C 0.010UF K	
C11			CC73GCH1H270J	CHIP C 27PF J	
C13-17			CK73GB1H103K	CHIP C 0.010UF K	
C19,20			CK73GB1H103K	CHIP C 0.010UF K	
C21,22			CK73FB1C105K	CHIP C 1.0UF K	
C27			CC73GCH1H471J	CHIP C 470PF J	
C28			CK73GB1H102K	CHIP C 1000PF K	
C29			CC73GCH1H471J	CHIP C 470PF J	
C30			CK73GB1A105K	CHIP C 1.0UF K	
C31			CC73GCH1H471J	CHIP C 470PF J	
J1			E59-0840-05	RECTANGULAR PLUG (15PIN)	
CP10,11			RK74HB1J102J	CHIP-COM 1.0K J 1/16W	
CP12,13			RK74GA1J102J	CHIP-COM 1.0K J 1/16W	
CP901			RK74HB1J101J	CHIP-COM 100 J 1/16W	
R1			RK73EB2E472J	CHIP R 4.7K J 1/4W	
R2			RK73EB2E102J	CHIP R 1.0K J 1/4W	
R3-7			RK73EB2E101J	CHIP R 100 J 1/4W	
R8			RK73EB2E101J	CHIP R 100 J 1/4W	E1
R9			RK73EB2E472J	CHIP R 4.7K J 1/4W	
R10			RK73GB2A103J	CHIP R 10K J 1/10W	
R11			RK73GB2A4R7J	CHIP R 4.7 J 1/10W	
R13			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R15,16			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R20			RK73GB2A101J	CHIP R 100 J 1/10W	E1
R23			RK73GB2A473J	CHIP R 47K J 1/10W	
R24			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R25,26			RK73GB2A473J	CHIP R 47K J 1/10W	
R27			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R28,29			RK73GB2A473J	CHIP R 47K J 1/10W	
R30			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R31			RK73GB2A473J	CHIP R 47K J 1/10W	

E1 : KDC-W5031/W5031Y E2 : KDC-W531Y

Ref. No.	A d d	N e w	Parts No.	Description	Desti- nation
R51-53			RK73FB2B471J	CHIP R 470 J 1/8W	
R54			RK73EB2E681J	CHIP R 680 J 1/4W	
R55,56			RK73FB2B301J	CHIP R 300 J 1/8W	
R57			RK73EB2E681J	CHIP R 680 J 1/4W	
R58			RK73GB2A473J	CHIP R 47K J 1/10W	
R59			RK73GB2A223J	CHIP R 22K J 1/10W	
R60			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R61			RK73GB2A473J	CHIP R 47K J 1/10W	
R62			RK73GB2A223J	CHIP R 22K J 1/10W	
R63			RK73GB2A473J	CHIP R 47K J 1/10W	
R64			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R65			RK73GB2A473J	CHIP R 47K J 1/10W	
R66,67			RK73GB2A223J	CHIP R 22K J 1/10W	
R73			RK73PB2H330J	CHIP R 33 J 1/2W	
R74,75			RK73PB2H220J	CHIP R 22 J 1/2W	
R76			RK73GB2A473J	CHIP R 47K J 1/10W	
R80			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R81			RK73GB2A223J	CHIP R 22K J 1/10W	
R101			RK73GB2A473J	CHIP R 47K J 1/10W	
R102,103			RK73EB2E101J	CHIP R 100 J 1/4W	
W4			R92-1252-05	CHIP R 0 OHM J 1/16W	
S2			S70-0106-05	TACT SWITCH	
S10			S70-0051-15	TACT SWITCH	
S27			S70-0051-15	TACT SWITCH	
S1			T99-0457-15	ROTARY ENCODER	
D101			AVRM1608180M6A	VARISTOR	E1
D102			AVRM1608180M6A	VARISTOR	
D104,105			AVRM1608180M6A	VARISTOR	
D107-109			AVRM1608180M6A	VARISTOR	
D111-114			AVRM1608180M6A	VARISTOR	
ED1			3-BT-225NM	FLUORESCENT INDICATOR TUBE	E1
IC2			PNA4S22M	ANALOGUE IC	
IC3		*	ML9228GAZ-A	MOS-IC	
Q4			RT1P141U	TRANSISTOR	
Q5			2SC4617	TRANSISTOR	
Q10			2SC4617	TRANSISTOR	
Q11-14			2SA1774	TRANSISTOR	
Q15			2SC4617	TRANSISTOR	
Q16			2SA1774	TRANSISTOR	
ELECTRIC UNIT (X34-3392-7x)					
IC1		*	784225GC279A	MCU IC	

△ Indicates safety critical components.

