

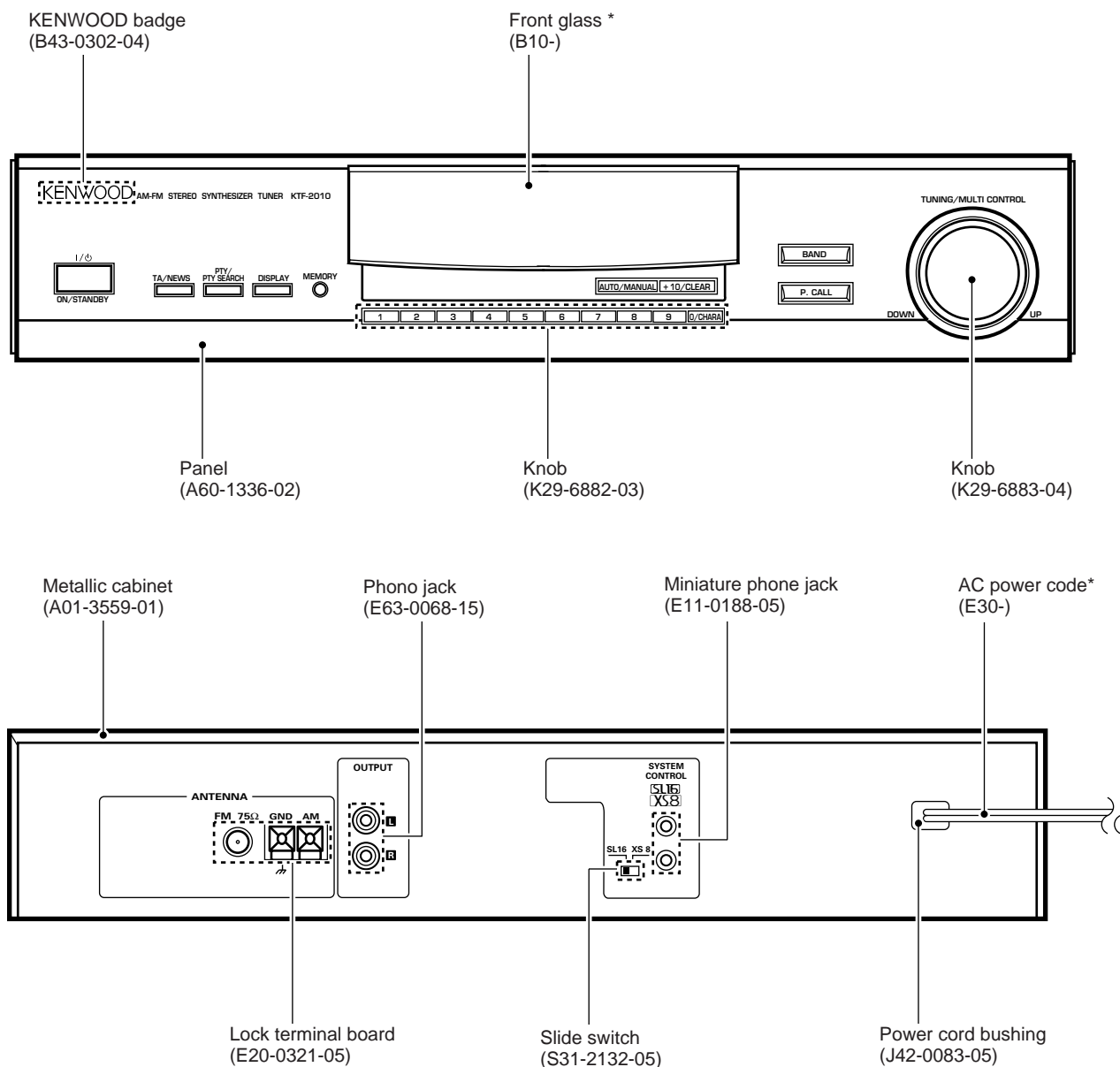
KTF-2010/3010

SERVICE MANUAL

KENWOOD

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Illustration is KTF-2010.



* Refer to parts list on page 18.

How to reset the microcomputer

The microcomputer may malfunction (impossibility operation, erroneous display, etc.) when the power cord is unplugged and plugged in again while the unit is in ON mode with the Key pressed or due to other external causes. In this case, execute the procedure on the right to reset the microcomputer and return the unit to the normal condition.

- ① Unplug the power cord from the wall outlet.
- ② While pressing and holding the (ON/STANDBY) key, plug the AC cord into the wall outlet again.

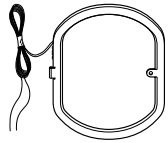
•Resetting the microcomputer clears the memory you entered and returns it to the initial condition when the unit left the factory.

KTF-2010/3010

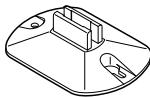
ACCESSORIES / CONTROLS

Accessories

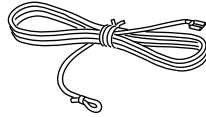
- AM loop antenna ass'y1
(T90-0195-05)



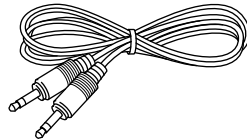
- Loop antenna stand
(J19-3645-05)



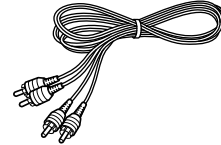
- Lead wire antenna.....1
(T90-0809-05)



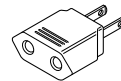
- System control cord1
(E30-2733-05)



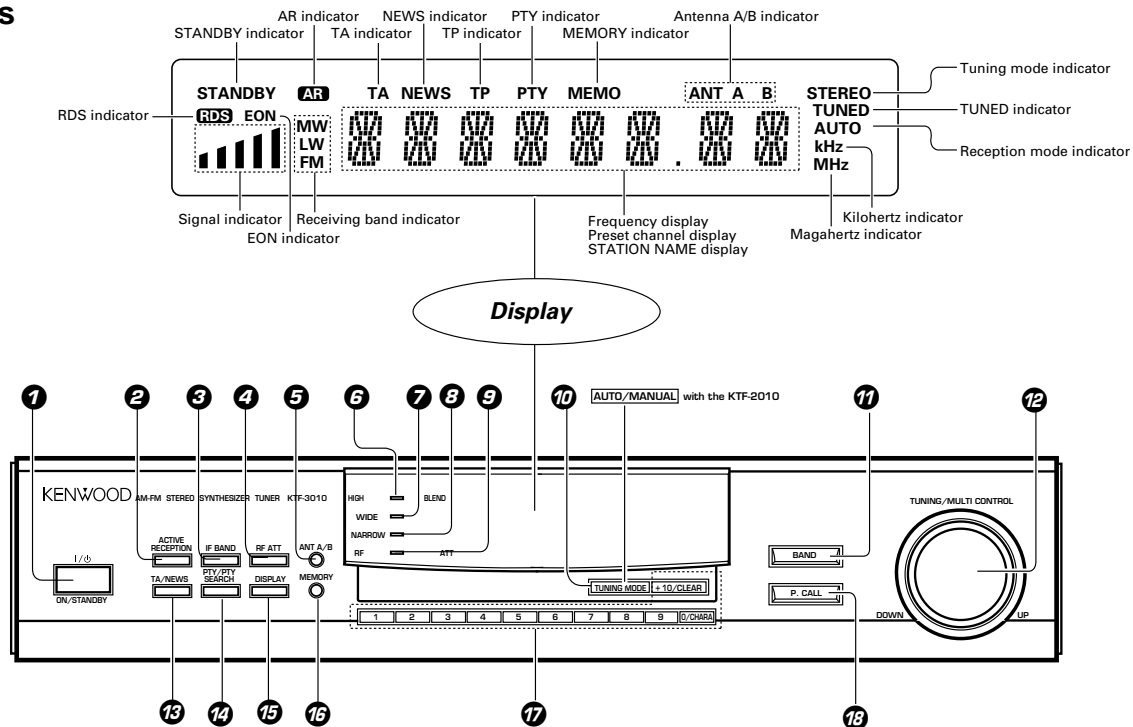
- Audio cord1
(E30-0505-05)



- AC plug adapter1
(E03-0115-05)
(M type only)



Controls

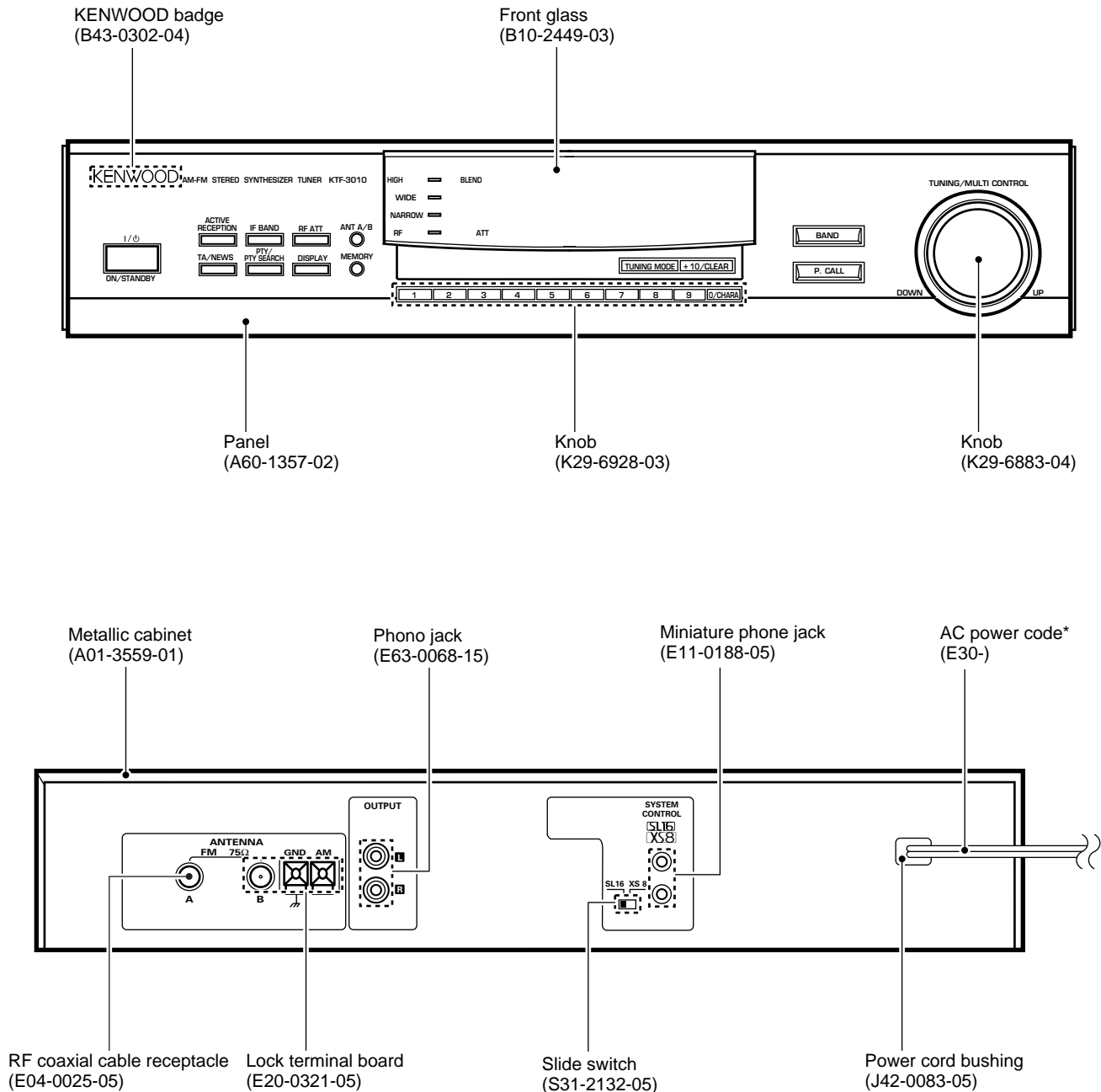


- POWER key**
Press to turn on/off the power.
- ACTIVE RECEPTION key(KTF-3010 only)**
Press to obtain the optimum reception conditions for the signals being received.
- IF BAND key(KTF-3010 only)**
Press to the intermediate frequency pass band between WIDE(wide band) and NARROW(narrow band).
- RF ATT(KTF-3010 only)**
Press to minimize the RF reciprocal modulation and mixed modulation distortion when there is an adjacent channel with strong.
- ATT A/B key(KTF-3010 only)**
Press to select the antenna when using 2 antennas.
- HIGH BLEND indicator(KTF-3010 only)**
- WIDE indicator(KTF-3010 only)**
- NARROW indicator(KTF-3010 only)**
- RF-ATT indicator (KTF-3010 only)**
- AUTO/MANUAL key(KTF-2010) TUNING MODE key(KTF-3010)**
Press to select the tuning mode.
- BAND key**
Press to switch the broadcast band.
- TUNING/MULTI CONTROL knob**
Used for tuning broadcast stations, selecting the program type and entering characters.
- TA/NEWS key**
- PTY/PTY SEARCH key**
- DISPLAY key**
- MEMORY key**
Used for storing broadcast stations and entering station names.
- Numeric keys**
Used for storing and calling up broadcast stations and entering station names.
- P.CALL key**
Press to recall a preset station.

KTF-2010/3010

EXTERNAL VIEW

Illustration is KTF-3010.



* Refer to parts list on page 18.

CIRCUIT DESCRIPTION

1. Test mode

1-1. Test mode with the main unit keys

a) Setting procedure

- While pressing the [P.CALL] key, plug the AC power cord to the power outlet.

b) Cancellation

- Unplug the AC power cord. The initial setting will take effect and the test mode will be canceled.

c) Description

Auto POWER ON

- When the AC power cord is plugged while pressing the [P.CALL] key, the POWER will turn ON and all function will be at the initial setting.

ALL LED ON mode

- When the AC power cord is plugged while pressing the [P.CALL] key, all the LEDs will turn ON. Any key operation on the main unit thereafter will return the LEDs to normal.

Main unit key validity check

- Whether the main unit's keys are operable (valid) can be checked. Regarding the keys whose display does not change when they are used, their display will be made to change.

0~9, +10 key operation

- Preset display : "—" or "01" ~ "09"
When "0" key is pressed, 10 ch is called.
When "1" ~ "9" key is pressed, 1 ch ~ 9 ch is called.
When "+10" key is pressed, "1-" is displayed.
- Preset display : "1 -" or "10" ~ "19"
When "0" key is pressed, 20 ch is called.
When "1" ~ "9" key is pressed, 11 ch ~ 19 ch is called.
When "+10" key is pressed, "2 -" is displayed.
- Preset display : "2 -" or "20" ~ "29"
When "0" key is pressed, 30 ch is called.
When "1" ~ "9" key is pressed, 21 ch ~ 29 ch is called.
When "+10" key is pressed, "3 -" is displayed.
- Preset display : "3 -" or "30" ~ "39"
When "0" key is pressed, 40 ch is called.
When "1" ~ "9" key is pressed, 31 ch ~ 39 ch is called.
When "+10" key is pressed, "0 -" is displayed.

MUTE signal output

- The MUTE signal is not output.

No Display for FL

- Press the DISPLAY key to turn on/off the segments of the FL.

Slide Switch Check

- The FL shows the Serial Code(XS8/SL16) by pressing the MEMORY key.
- The FL shows the Channel Space(100kHz/50kHz) by pressing the CH. SPACE key.

- The FL shows the normal mode by pressing the key and the switch except the MEMORY and the Slide switch.

Display ex.

Serial Code	Channel Space
XS8(or SL16)	100(or 50)

1-2. Test mode with serial communications

Refer to the test mode serial code table.

a) Setting procedure

- Plug the AC power cord and enter the TEST ON code.
8 bit serial communications : 71H
16 bit serial communications : 0C2FFH

b) Cancellation

- Enter the TEST OFF code (0CFEH) or unplug the AC power cord.

c) Description

Other operations during the serial test mode

- The main unit's keys will be effective.
- The serial test code can be received even within 1 second of POWER ON / OFF.

Required operations for the serial test mode

- The serial code for the serial test mode can be used to check the operation of all circuits.
- The code entered during the serial test mode will become valid regardless of the display mode.
- The following functions are available in the serial test mode.
0 ~ 9, +10
AUTO (AUTO ST. / HI BLEND / MONO)
MEMORY
UP / DOWN (MANUAL SCAN unnecessary)
IF BAND, RF ATT
ACTIVE RECEPTION
ANTENNA A, ANTENNA B, PTY, DISPLAY, ALL LED ON/OFF
- The MUTE signal is not output. This is for reducing the input-output switching time during the measurement.
- When a valid serial code for the test mode is received, the code identical to the code entered will be output.
- For checking the MUTE operation, MUTE has specific codes.

MUTE ON/OFF

- To switch cyclically, enter the individual serial code. For example for AUTO STEREO / MONO, enter the two codes for AUTO STEREO and MONO.
- All the LEDs, turn ON / OFF is cancelled by inputting the cancelling code and returned the LEDs to normal.
- All functions (including the test mode) will be initialized.

CIRCUIT DESCRIPTION

1-3. Initial settings**a) Setting procedure**

- If the unit has a back-up function, hold down the POWER key and plug the AC power cord.
- During the test mode with the main unit keys and the test mode with serial communications, the initial settings can be obtained by unplug and plug the AC power cord.

b) Description

- All function (including test mode) will be initialized.
- The manufacturer's memory is always set in the preset CH and area.

1-4. POWER ON startup

- Since the unit has a POWER key, no setting is required.

1-5. Initial status

POWER ON/OFF	: OFF
TUNING MODE	: AUTO
PRESET MEMORY	: TEST FREQUENCY
LAST BAND	: FM
FM LAST FREQUENCY	: OVERSEAS 87.5MHz /JAPAN 76.0MHz
AM.MW LAST FREQUENCY	: CH SPACE 9K 531kHz : CH SPACE 10K 530kHz
LW LAST FREQUENCY	: 153kHz
LAST P.ch	: [--ch]

RDS DISPLAY MODE	: FREQUENCY DISPLAY MODE
TA / NEWS / TA, NEWS	: OFF
ACTIVE RECEPTION	: OFF
ANT A/B	: A
IF BAND	: WIDE
RF ATT	: OFF
SERIAL	: XS8

1-6. Back-up status

POWER ON/OFF
TUNING MODE
PRESET MEMORY 1~40ch
LAST BAND
LAST P.ch
LAST FM FREQUENCY
LAST AM (MW) FREQUENCY
RDS AUTO MEMORY LIST
LAST LW FREQUENCY
ACTIVE RECEPTION
ANT A/B**
IF BAND**
RF ATT**
TA / NEWS / TA, NEWS*
PS STATION NAME*

* : E, T type

** : KTF-3010

1-7. 16-bit serial test code (C2XXH)

	8	9	A	F
0	POWER OFF	0	MEMORY		
1	POWER ON	1			
2	MUTE OFF	2			
3	MUTE ON	3			
4	AUTO STEREO	4			
5	MONO	5	PTY		
6		6	DISPLAY		
7		7	ANTENNA A		
8	Active reception OFF	8	ANTENNA B		
9	Active reception ON	9			All LED goes OFF
A	RF ATT OFF	+10			All LED goes ON
B	RF ATT ON	BAND FM			All LED ON : OFF
C	IF WIDE	BAND AM/MW			All LED ON : ON
D		BAND LW	HI BLEND		Initial setting
E	IF NARROW	TUNING DOWN			TEST OFF
F		TUNING UP			TEST ON

: KTF-3010 ONLY

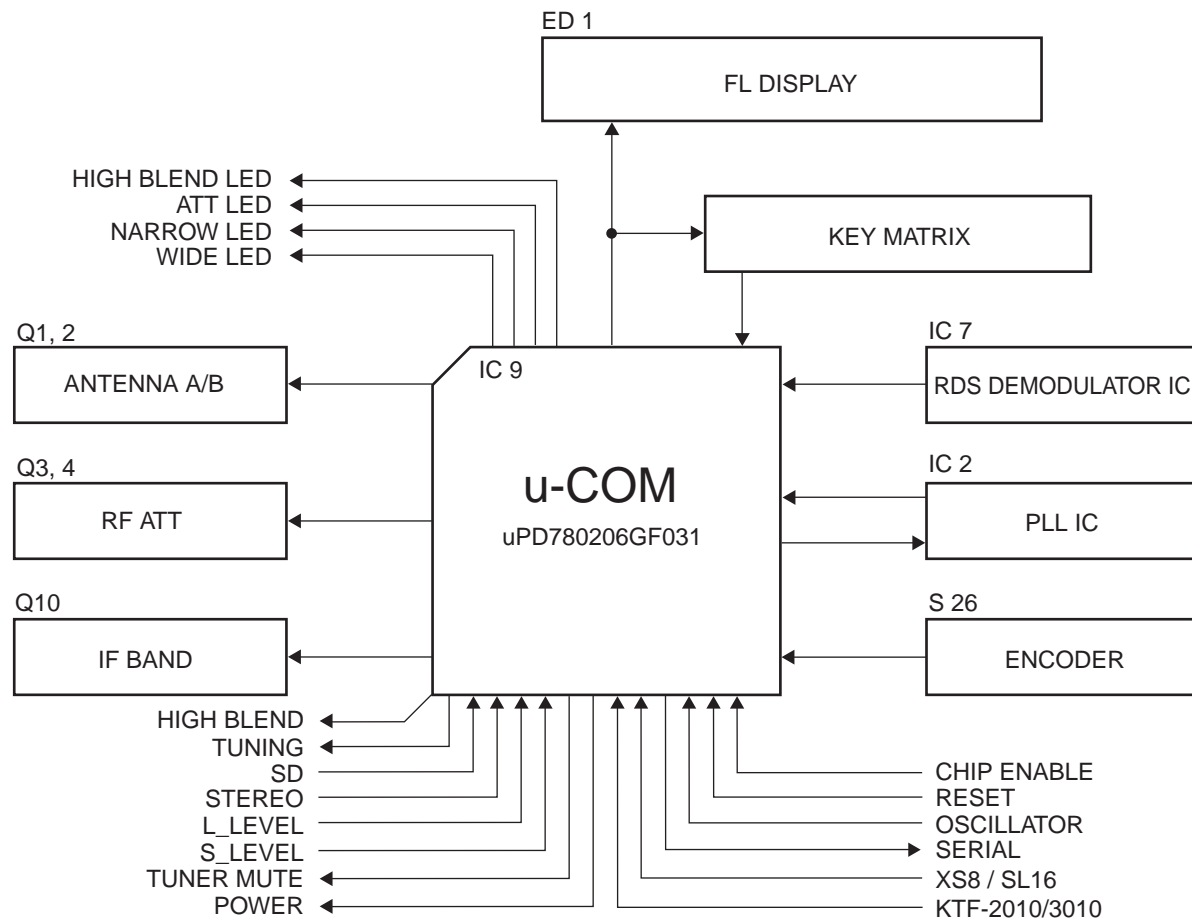
Note : Pls KT-2080/3080 service manual (B51-5128-00) on test frequency table and channel space table.

KTF-2010/3010

CIRCUIT DESCRIPTION


2. Microprocessor : μ PD780206GF031 (IC9)

2-1. Pin connection



KEY MATRIX

	KR1 (#70)	KR2 (#69)	KR3 (#68)	KR4 (#67)	KR5 (#66)	KR6 (#65)
KS1 (#82)	ANT A/B	ON / STANBY	MEMORY	4	8	P.CALL
KS2 (#81)	ACTIVE RECEPTION	PTY	1	5	9	BAND
KS3 (#80)	RF ATT	TA / NEWS	2	6	0	+10
KS4 (#78)	IF BAND	DISPLAY	3	7	-	TUNING MODE
KS5 (#77)	DSW0 (D56)	DSW1 (D57)	DSW2 (D58)	-	-	-


 means KTF-3010 ONLY

CIRCUIT DESCRIPTION

2-2 Pin function

Pin No.	Pin Name	I/O	Descriptions
1	Vdd	–	Power supply(+5V)
2~8	–	I	No use
9	/CE	I	Chip enable L : CE detection
10	/RESET	I	Microprocessor reset L : RESET
11,12	X1,2	I	Main clock oscillator
13	IC(Vpp)	–	Connect to VSS
14,15	XT1,2	I	–
16	Vdd	–	Power supply(+5V)
17,18	–	I	No use
19	SBUSY	I/O	Serial busy signal
20	SDATA	I/O	Serial data signal
21	/HIGH BLEND	I	Hi blend L : HIGH BLEND
22	8/16	O	XS8/SL16 selector L : SL16
23	/2080,3080	I	model selector L : KTF-2010
24	POWER	O	POWER detection L : STANDBY
25	Avss	–	A/D converter gnd
26	PLL_DO	I	PLL DO
27	PLL_CE	O	PLL chip enable
28	PLL_DATA	O	PLL data detection
29	PLL_CLK	O	PLL clock
30	/T_MUTE	O	TUNER mute L : MUTE ON
31	–	I	No use
32	S_LEVEL	I	Signal level
33	N_LEVEL	I	Noise level
34	Avdd	–	A/D converter analog voltage
35	Avref	–	A/D converter standard voltage
36	RDS_CLK	I	RDS demodulator IC clock
37	RDS_DATA	I	RDS demodulator IC data
38,39	–	I	No use
40	Vss	–	Gnd
41,42	–	I	No use
43	/STEREO	I	STEREO pilot detection
44	/SD	I	SD pilot detection
45	TUNING	O	To stop noise level detection in tuning H : TUNING
46	Vdd	–	Power supply(+5V)
47~52	–	I	No use
53	/IF_BAND	O	IF BAND selector L : WIDE
54	/RF_ATT	O	RF_ATT selector L : ON
55	ANT_B	O	Antenna–B control H : ANT B
56	ANT_A	O	Antenna–A control H : ANT A
57	ENC_B	I	Encoder counterclockwise detection
58	ENC_A	I	Encoder clockwise detection
59	HIGH_BLEND_LED	O	HIGH BLEND LED H : LED ON
60	WIDE_LED	O	WIDE LED H : LED ON
61	NARROW_LED	O	NARROW LED H : LED ON
62	ATT_LED	O	ATT LED H : LED ON
63,64	–	I	No use
65~70	KR6~1	I	Key return 6~1
71~73	–	O	No use
74~76	SEG16~14	O	FL segment output16~14
77	SEG13/KS5	O	FL segment output13/key scan5(TUNER selector)
78	SEG12/KS4	O	FL segment output12/key scan4
79	Vload	–	FL controller/driver pull down resistor
80~82	SEG11~9/KS3~1	O	FL segment output11~9/key scan3~1
83~90	SEG8~1	O	FL segment output8~1
91~100	GRID1~10	O	FL grid output1~10

ADJUSTMENT

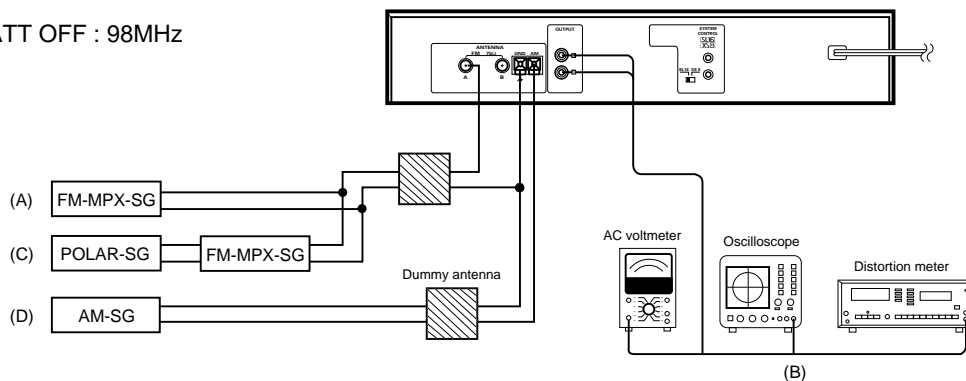
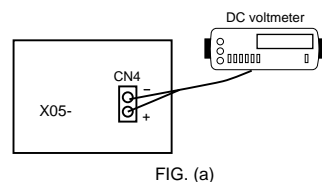
NO.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		BAND : FM					
1.	SENSITIVITY (KTF-3010 ONLY)	(A) 98MHz MONO 1kHz, ± 40 kHz dev Approx. 20dBf (ANT input)	(B)	AUTO : WIDE RF ATT : OFF 98.0MHz	L1	Maximum amplitude	
2.	DISCRIMINATOR	(A) 98.0 MHz MONO 1kHz, ± 40 kHz dev 70dBf (ANT input)	Connect a DC voltmeter (X05-) to CN4.	✚	L6	0V \pm 30mV	(a)
3.	DISTORTION	(A) 98MHz MONO 1kHz, ± 40 kHz dev 70dBf (ANT input)	(B)	✚	L7	Minimum distortion	
4.	DISTORTION (STEREO) (KTF-2010 ONLY)	(C) 98.0MHz 1kHz, ± 68.25 kHz dev Selector : L or R 60dBf (ANT input)	(B)	AUTO 98.0MHz	A1(FRONT END)	Minimum distortion	
5.	S.METER LEVEL	(A) 98MHz MONO 1KHz, ± 40 kHz dev 36dBf (ANT input)		✚	VR1 VR4	Turn VR1 to fully clockwise. Adjust VR4 and 3 LEDs light on. 	
6.	AUTO STOP LEVEL	(A) 98.0MHz MONO 1kHz, ± 40 kHz dev 25dBf (ANT input)		✚	VR1	Adjust VR1 and stop at the point where ED1 (TUNED) goes ON.	
7.	SEPARATION	(A) 98.0MHz 1kHz, ± 40 kHz dev pilot 6kHz dev Selector : L or R 70dBf (ANT input)	(B)	✚	VR3	Minimum crosstalk	
AM SECTION		BAND : AM(MW)					
1	AUTO STOP LEVEL	(D) 999kHz MONO 400Hz, 30% mod 28dB μ (ANT input)		999 kHz	VR2	Adjust VR2 and stop at the point where ED1 (TUNED) goes ON.	

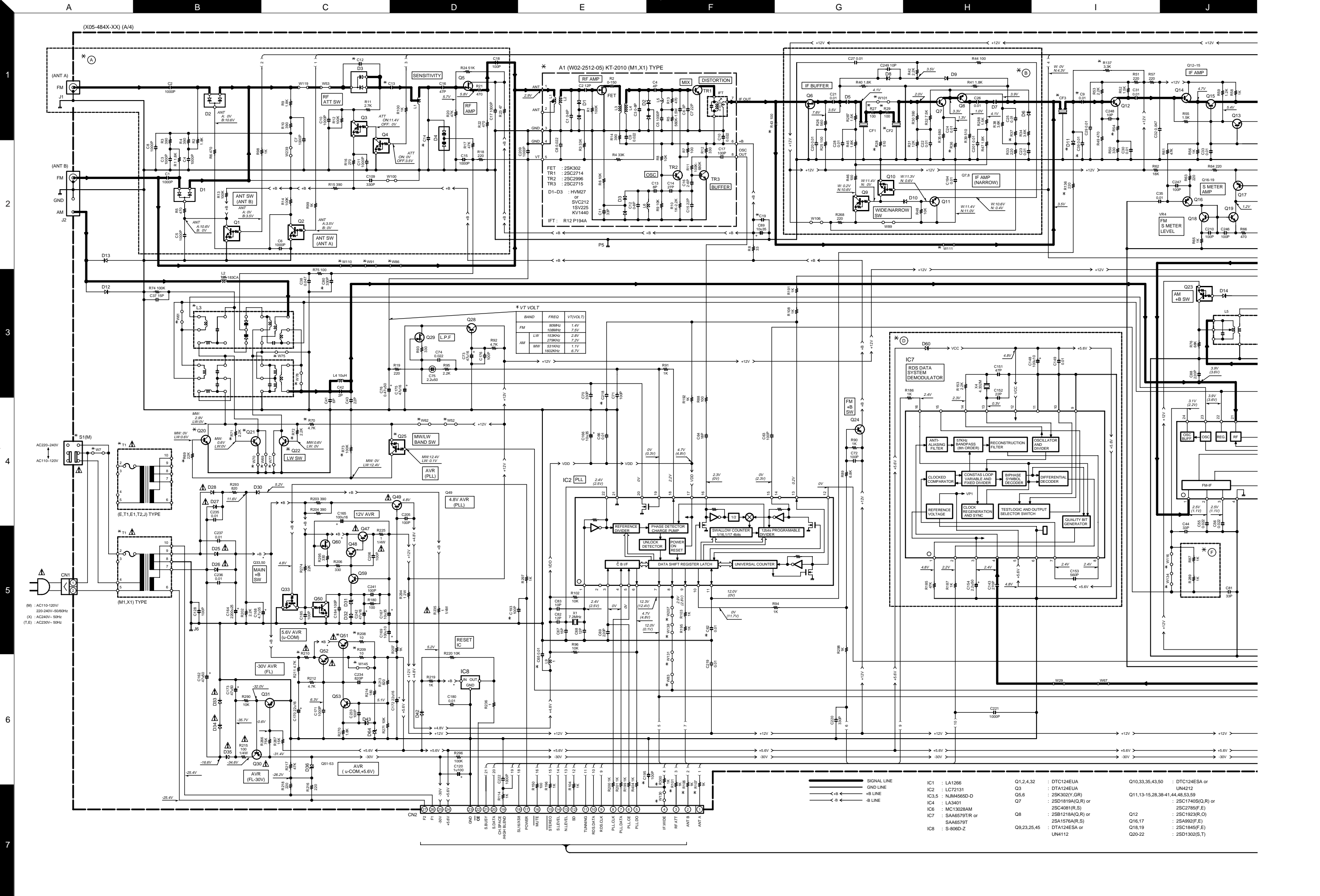
When TUNER PCB (X05-) is disconnected from main unit, connect PCB's GND (ANT shield plate) and main unit chassis using aligator clip. Then, check TUNER PCB.

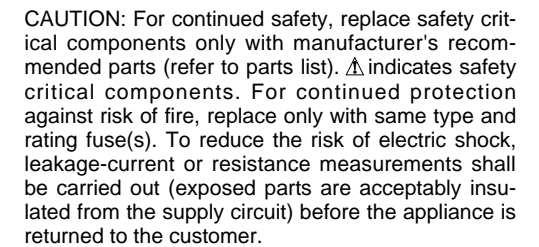
✂ TUNER SETTINGS

KTF-2010 : AUTO, 98.0MHz

KTF-3010 : AUTO : WIDE, RF ATT OFF : 98MHz





[illegible]

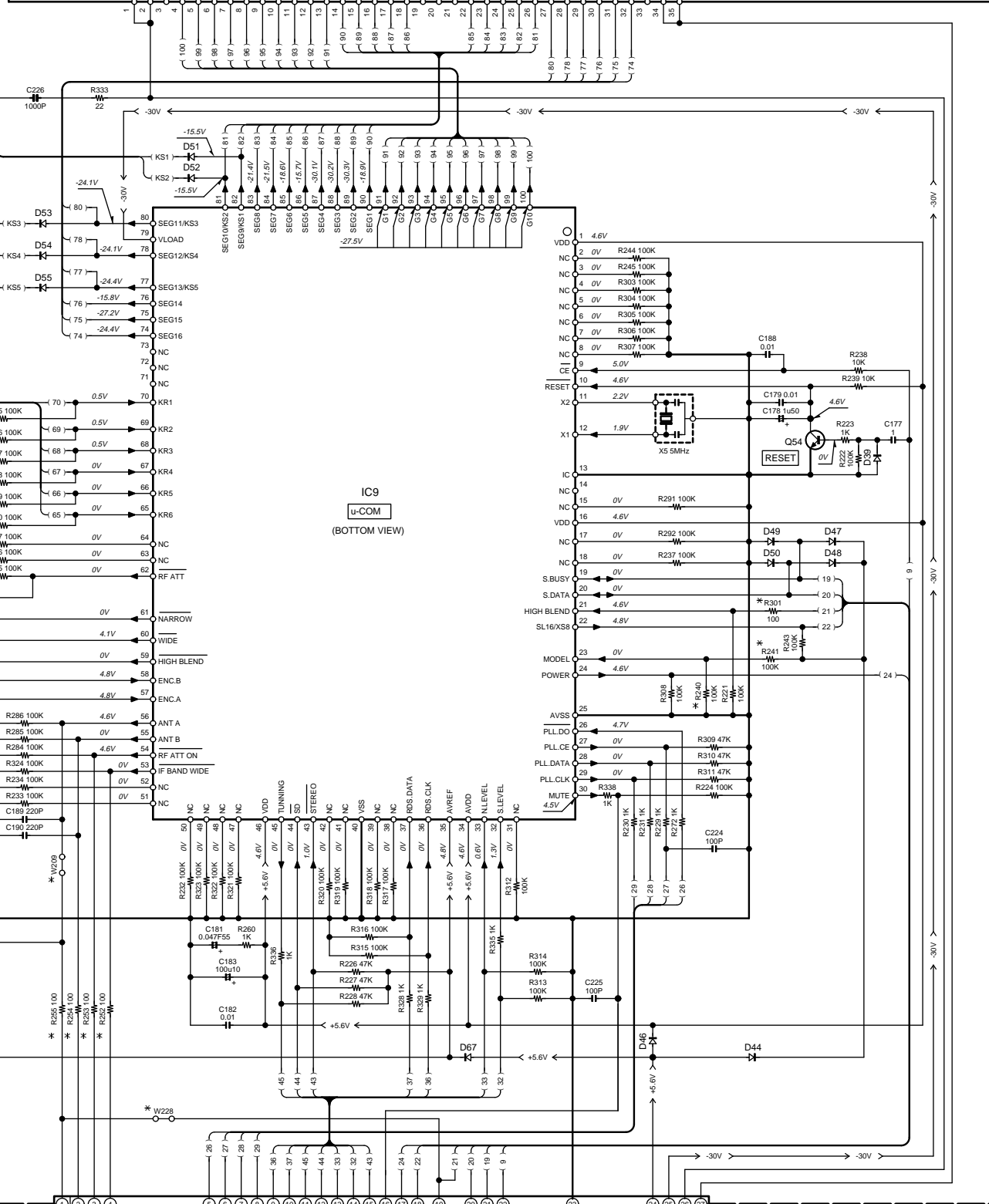
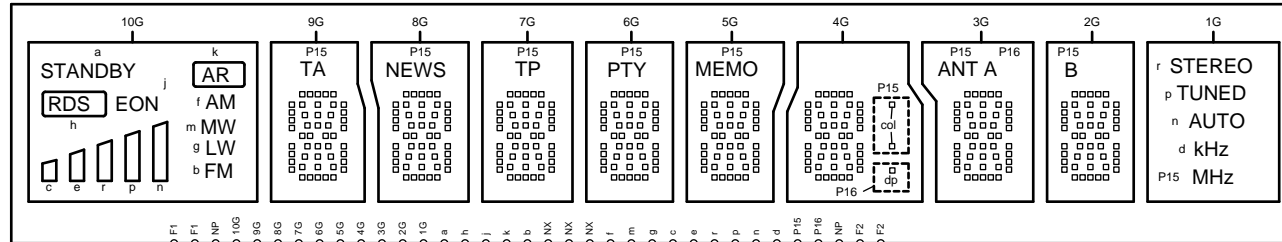
The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in () is actual reading measured in the AM made.

D36,64	: RD5.1JS(B2) or HZS5.1S(B2)
--------	---------------------------------

MODE	CARRIER	MODULATION		ANT INPUT
		FREQUENCY	DEVIATION	
FM	98MHz	1kHz	STEREO 67.5kHz 7.5kHz(Pilot)	60dB
AM	1000(999)kHz	400Hz	MONO 30% MOD	60dB

(X05-484X-XX) (B/4)

ED1



CN3

IC9 : UPD780206GF031

Q54 : 2SD1819A(Q,R) or 2SC4081(R,S)

Q58 : DTA124ESA or UN4112

D39,44,47-50,67 : MA111

D46,51-59 : 1SS133 or HSS104A

D61-63,66 : B30-2493-05

ED1 : 10-BT-202GX

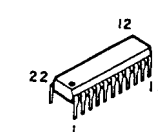
KTF-2010 (X05-484X-XX)

DESTINATION	COUNTRY	ABB.	UNIT NAME	R240	R241,249-254, 273,301	R255	D56	D57	D58	D59	D61-63, 66	W162, 210,228	W181-184,209 223-226	C230- 232	S3-6	S8-9	Q58
EUROPE	E	2-70			NO	NO	YES	NO	YES	NO	NO	NO	NO	YES	NO	YES	NO
U.K.	T	0-51			NO	NO	NO	YES	NO	NO	NO	NO	NO	YES	NO	NO	NO
AUSTRALIA	X	0-71			YES	YES	NO	NO	YES	NO	NO	YES	NO	YES	NO	NO	NO
GENERAL MARKET	M	0-21			YES	YES	NO	NO	YES	NO	NO	YES	NO	YES	NO	YES	YES

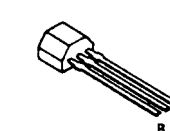
KTF-3010 (X05-484X-XX)

DESTINATION	COUNTRY	ABB.	UNIT NAME	R240	R241,249-255, 273,301	D56	D57	D58, 61-63,66	D59	W162, 210,228	W181-184,209 223-226	C230- 232	S3-6	S8-9	Q58
EUROPE	E	2-71			YES	YES	NO	YES	NO	NO	YES	NO	YES	YES	NO
U.K.	T	0-52		NO	YES	NO	NO	YES	NO	NO	YES	NO	YES	YES	NO
JAPAN	J	0-01			YES	YES	YES	YES	YES	NO	YES	NO	YES	YES	NO

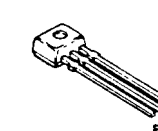
LA3401
LC72131



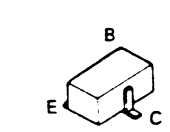
DTA124ESA
DTC124ESA
UN4112
2SC1740S



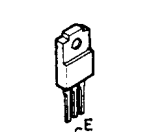
2SA1175
2SC2785



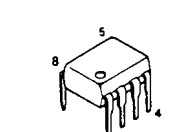
2SB1218A
2SC4081
2SD1819A



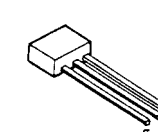
2SD2061



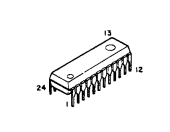
NJM4565D-D



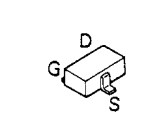
UN4212



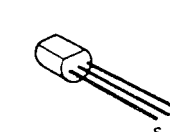
LA1266



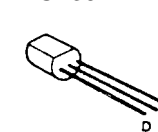
2SK302



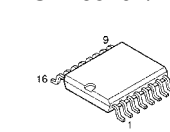
2SK246



2SK364



SAA6579T/R



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

The DC voltage is an actual reading measured with a high impedance type voltmeter as the AM/FM signal generator is specified to the conditions as shown in the list below. The measurement value may vary depending on the measuring instruments used or on the product. The value shown in () is actual reading measured in the AM made.

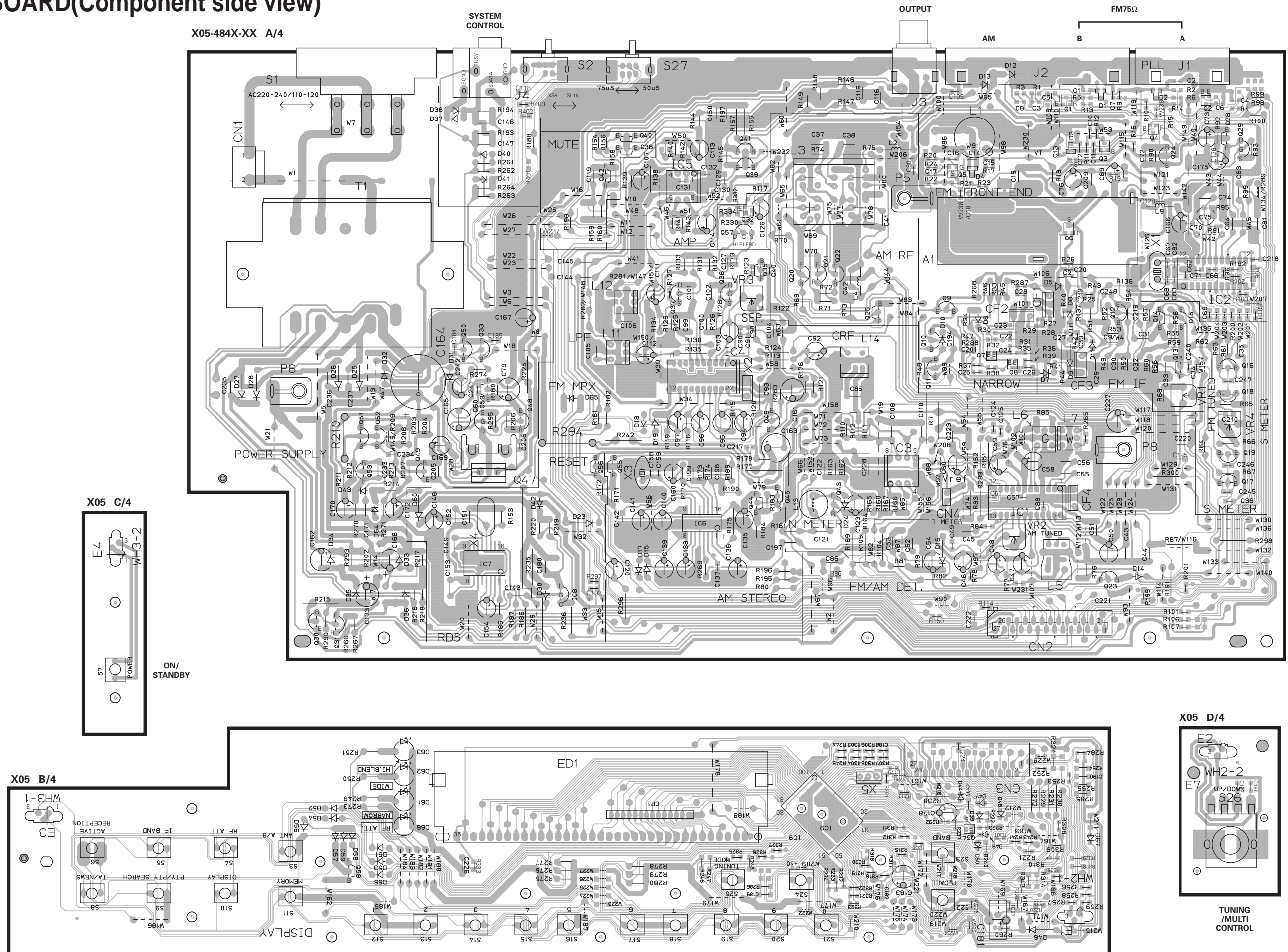
KTF-2010/3010(K) (2/2)

Y07-3842-70

KTF-2010/3010

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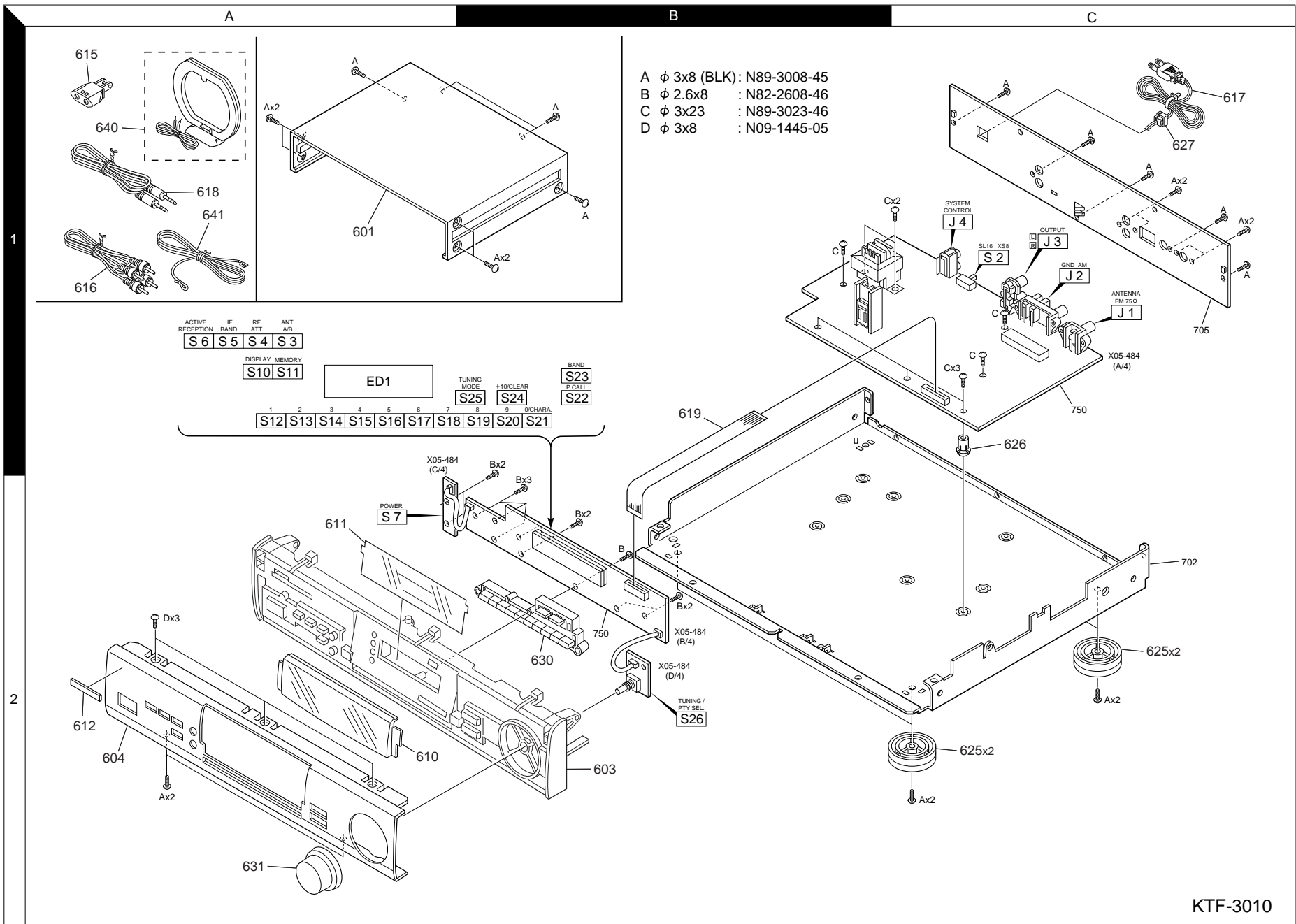
PC BOARD(Component side view)



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

KTF-2010/3010 EXPLODED VIEW

KTF-3010



* New Parts

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Ref. No	Add-ress	New Parts	Parts No.	Description	Desti-nation	Re-marks
KTF-2010/3010 (KTF2010: E,M1,X1,T1/KTF3010: E1,T2)						
601	1A	*	A01-3559-01	METALLIC CABINET		
603	2B	*	A22-1793-01	SUB PANEL		
604	2A	*	A60-1336-02	PANEL	ET1	
604	2A	*	A60-1356-02	PANEL	M1X1	
604	2A	*	A60-1357-02	PANEL	E1T2	
610	2A	*	B10-2429-03	FRONT GLASS	ET1	
610	2A	*	B10-2449-03	FRONT GLASS	E1T2	
610	2A	*	B10-2454-03	FRONT GLASS	M1X1	
611	2A	*	B11-0360-04	COLOR FILTER	EM1X1	
611	2A	*	B11-0360-04	COLOR FILTER	T1	
611	2A	*	B11-0364-04	COLOR FILTER	E1T2	
612	2A	*	B43-0302-04	KENWOOD BADGE		
-			B46-0096-53	WARRANTY CARD	X1	
-			B46-0310-03	WARRANTY CARD	ET1E1	
-			B46-0310-03	WARRANTY CARD	T2	
-			B58-0945-03	CAUTION CARD	T1T2	
-			B58-0965-13	CAUTION CARD (PL)	X1T1T2	
-			B58-0966-13	CAUTION CARD (PL)	EM1E1	
-		*	B60-3700-00	INSTRUCTION MANUAL(F,G,N,I)	EE1	
-		*	B60-3701-00	INSTRUCTION MANUAL(ENG)	M1X1	
-		*	B60-3702-00	INSTRUCTION MANUAL(SP,TW)	M1	
-		*	B60-3703-00	INSTRUCTION MANUAL(ENG)	T1T2	
△ 615	1A		E03-0115-05	AC PLUG ADAPTER	M1	
△ 616	1A		E30-0505-05	AUDIO CORD		
△ 617	1C		E30-2592-15	AC POWER CORD	EM1E1	
△ 617	1C		E30-2717-05	AC POWER CORD	X1	
△ 617	1C		E30-2721-05	AC POWER CORD	T1T2	
618	1A		E30-2733-05	CORD WITH PLUG		
619	1B		E35-1218-05	FLAT CABLE		
-			G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H10-7437-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-7438-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H12-2389-04	PACKING FIXTURE	T1T2	
-			H25-0225-04	PROTECTION BAG (850X450X0.03)	EM1X1	
-			H25-0225-04	PROTECTION BAG (850X450X0.03)	E1	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	EM1X1	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	E1	
-			H25-0651-04	PROTECTION BAG	T1T2	
-			H25-0654-04	PROTECTION BAG	T1T2	
-			H50-2790-04	ITEM CARTON CASE	EX1	
-			H50-2791-04	ITEM CARTON CASE	T1	
-		*	H50-2792-04	ITEM CARTON CASE	M1	
-		*	H50-2793-04	ITEM CARTON CASE	E1	
-		*	H50-2794-04	ITEM CARTON CASE	T2	
△ 625	2C	*	J02-1407-03	FOOT (D=46,H=14.5,T)		
626	1C		J19-3752-14	UNIT HOLDER		
627	1C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
630	2B	*	K29-6882-03	KNOB	EM1X1	
630	2B	*	K29-6882-03	KNOB	T1	
630	2B	*	K29-6928-03	KNOB	E1T2	
631	2A	*	K29-6883-04	KNOB TUNE		

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640	1A		T90-0195-05	LOOP ANTENNA		
641	1A		T90-0809-05	LEAD WIRE ANTENNA		
TUNER (X05-4842-70)						
D61 -63			B30-2493-05	LED(RED)	E1T2	
D66			B30-2493-05	LED(RED)	E1T2	
C1 -8			CK73FB1H102K	CHIP C	1000PF	K
C9			CK45FF1H103Z	CERAMIC	0.010UF	Z
C9			CK45FF1H103Z	CERAMIC	0.010UF	Z
C10 ,11			CK73FB1H102K	CHIP C	1000PF	K
C12			CC73FSL1H010C	CHIP C	1.0PF	C
C13			CC73FSL1H391J	CHIP C	390PF	J
C14			CC73FSL1H050C	CHIP C	5.0PF	C
C15			CK73FB1H102K	CHIP C	1000PF	K
C16			CC73FSL1H470J	CHIP C	47PF	J
C17			CK73FB1H102K	CHIP C	1000PF	K
C19			CK45FSL1H331J	CERAMIC	330PF	J
C20 -28			CK73FB1H103K	CHIP C	0.010UF	K
C29 -31			CK45FF1H103Z	CERAMIC	0.010UF	Z
C32			CK45FF1H473Z	CERAMIC	0.047UF	Z
C33			CK45FF1H103Z	CERAMIC	0.010UF	Z
C34			CK73FB1H103K	CHIP C	0.010UF	K
C35			CK45FF1H103Z	CERAMIC	0.010UF	Z
C36			CK73FB1H103K	CHIP C	0.010UF	K
C37			CC45FSL1H150J	CERAMIC	15PF	J
C38			CK45FF1H473Z	CERAMIC	0.047UF	Z
C39			CK73FB1H103K	CHIP C	0.010UF	K
C39			CK73FB1H103K	CHIP C	0.010UF	K
C40			CK73FF1H223Z	CHIP C	0.022UF	Z
C41			CC45FSL1H060D	CERAMIC	6.0PF	D
C42			CC45FSL1H020C	CERAMIC	2.0PF	C
C43			CC45FSL1H220J	CERAMIC	22PF	J
C44			CC45FSL1H330J	CERAMIC	33PF	J
C45			CK45FF1H473Z	CERAMIC	0.047UF	Z
C46			CE04KW1V4R7M	ELECTRO	4.7UF	35WV
C47			CE04KW1H2R2M	ELECTRO	2.2UF	50WV
C48			CE04KW1H3R3M	ELECTRO	3.3UF	50WV
C49			CK73FF1H473Z	CHIP C	0.047UF	Z
C50			CE04KW1H2R2M	ELECTRO	2.2UF	50WV
C51			CK45FF1H103Z	CERAMIC	0.010UF	Z
C52			CK45FB1H561K	CERAMIC	560PF	K
C52			CK45FF1H472Z	CERAMIC	4700PF	Z
C52			CK45FF1H472Z	CERAMIC	4700PF	Z
C53			CK45FF1H473Z	CERAMIC	0.047UF	Z
C54			CE04KW1HR22M	ELECTRO	0.22UF	50WV
C55 ,56			CK45FF1H223Z	CERAMIC	0.022UF	Z
C57			CK73FB1H103K	CHIP C	0.010UF	K
C58			CE04KW1C470M	ELECTRO	47UF	16WV
C59			CE04KW1H0R1M	ELECTRO	0.1UF	50WV
C60			CE04KW1HR47M	ELECTRO	0.47UF	50WV
C61			CC73FSL1H100D	CHIP C	10PF	D
C62			CK73FB1H103K	CHIP C	0.010UF	K
C63			CC45FSL1H101J	CERAMIC	100PF	J
C64			CC45FSL1H180J	CERAMIC	18PF	J
C65			CK45FF1H103Z	CERAMIC	0.010UF	Z

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C66			CK73FB1H103K	CHIP C 0.010UF K		
C67			CC73FCH1H150J	CHIP C 15PF J		
C68			CC73FCH1H120J	CHIP C 12PF J		
C69			CC73FSL1H221J	CHIP C 220PF J		
C70			CC73FSL1H331J	CHIP C 330PF J		
C71			CC73FSL1H101J	CHIP C 100PF J		
C72			CC45FSL1H101J	CERAMIC 100PF J		
C73			CE04KW1C470M	ELECTRO 47UF 16WV		
C74			CQ93FMG1H223J	MYLAR 0.022UF J		
C75			CE04HW1H2R2M	NP-ELEC 2.2UF 50WV		
C76			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C80			CC73FSL1H331J	CHIP C 330PF J	M1X1	
C81			CC45FSL1H330J	CERAMIC 33PF J		
C82			CC73FCH1H120J	CHIP C 12PF J		
C83			CC73FCH1H100D	CHIP C 10PF D		
C85			CK45FB1H102K	CERAMIC 1000PF K		
C86			CK45FF1H103Z	CERAMIC 0.010UF Z		
C88			CC73FCH1H220J	CHIP C 22PF J		
C89			CE04KW1V100M	ELECTRO 10UF 35WV		
C90			CC73FSL1H101J	CHIP C 100PF J	ET1E1	
C90			CC73FSL1H101J	CHIP C 100PF J	T2	
C91			CK73FB1H122K	CHIP C 1200PF K		
C92			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C93			CK45FF1H103Z	CERAMIC 0.010UF Z		
C94			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C95			CE04KW1HR22M	ELECTRO 0.22UF 50WV		
C96 ,97			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C98			CQ93FMG1H104J	MYLAR 0.10UF J		
C99 ,100			CQ93FMG1H681J	MYLAR 680PF J		
C101,102			CC45FSL1H331J	CERAMIC 330PF J	M1	
C103			CE04KW1V100M	ELECTRO 10UF 35WV		
C104			CK45FB1H561K	CERAMIC 560PF K		
C105,106			CQ93FMG1H682J	MYLAR 6800PF J		
C107			CE04KW1C470M	ELECTRO 47UF 16WV	E1T2	
C108			CC45FSL1H101J	CERAMIC 100PF J		
C109			CC73FSL1H331J	CHIP C 330PF J	E1T2	
C110			CC45FSL1H101J	CERAMIC 100PF J		
C111,112			CE04KW1V100M	ELECTRO 10UF 35WV	EM1X1	
C111,112			CE04KW1V100M	ELECTRO 10UF 35WV	T1	
C113,114			CE04KW1V100M	ELECTRO 10UF 35WV	E1T2	
C115,116			CK45FB1H391K	CERAMIC 390PF K		
C119			CK45FF1H103Z	CERAMIC 0.010UF Z		
C120			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C121			CK45FB1H471K	CERAMIC 470PF K	E1T2	
C122			CQ93FMG1H104J	MYLAR 0.10UF J	E1T2	
C123			CE04KW1H0R1M	ELECTRO 0.1UF 50WV	E1T2	
C124,125			CC73FSL1H101J	CHIP C 100PF J		
C126			CE04KW1H010M	ELECTRO 1.0UF 50WV	E1T2	
C127			CK73FF1H223Z	CHIP C 0.022UF Z	E1T2	
C128			CC73FSL1H101J	CHIP C 100PF J		
C129			CC73ESL1H101J	CHIP C 100PF J	E1T2	
C130-132			CC73FSL1H101J	CHIP C 100PF J	E1T2	
C143			CC45FSL1H271J	CERAMIC 270PF J	ET1E1	
C143			CC45FSL1H271J	CERAMIC 270PF J	T2	
C146,147			CC45FSL1H221J	CERAMIC 220PF J		

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C148			CE04KW1A101M	ELECTRO 100UF 10WV	ET1E1	
C148			CE04KW1A101M	ELECTRO 100UF 10WV	T2	
C149			CK45FF1H103Z	CERAMIC 0.010UF Z	ET1E1	
C149			CK45FF1H103Z	CERAMIC 0.010UF Z	T2	
C150			CF92FV1H474J	MF-C 0.47UF J	T2	
C151			CC45FCH1H470J	CERAMIC 47PF J	ET1E1	
C151			CC45FCH1H470J	CERAMIC 47PF J	T2	
C152			CC45FCH1H220J	CERAMIC 22PF J	ET1E1	
C152			CC45FCH1H220J	CERAMIC 22PF J	T2	
C153			CC45FSL1H561J	CERAMIC 560PF J	ET1E1	
C153			CC45FSL1H561J	CERAMIC 560PF J	T2	
C154			CE04KW1H2R2M	ELECTRO 2.2UF 50WV	ET1E1	
C154			CE04KW1H2R2M	ELECTRO 2.2UF 50WV	T2	
C161			CE04KW1C470M	ELECTRO 47UF 16WV		
C162			CE04KW1H470M	ELECTRO 47UF 50WV		
C163			CE04KW1C221M	ELECTRO 220UF 16WV		
C164			CE04KW1E222M	ELECTRO 2200UF 25WV		
C165			CE04KW1C101M	ELECTRO 100UF 16WV		
C166,167			CE04KW1V100M	ELECTRO 10UF 35WV		
C168			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C169			CE04KW1A101M	ELECTRO 100UF 10WV		
C170			CE04KW1C220M	ELECTRO 22UF 16WV		
C171			CK45FB1H102K	CERAMIC 1000PF K		
C172			CE04KW1C220M	ELECTRO 22UF 16WV		
C173			CE04KW1H470M	ELECTRO 47UF 50WV		
C175			CE04KW1C470M	ELECTRO 47UF 16WV		
C176			CC73FSL1H101J	CHIP C 100PF J		
C177			CK73EF1C105Z	CHIP C 1.0UF Z		
C178			C90-3253-05	ELECTRO 1.0UF 50WV		
C179			CK73FB1H103K	CHIP C 0.010UF K		
C180			CK45FF1H103Z	CERAMIC 0.010UF Z		
C181			C90-1826-05	BACKUP-C 0.047F 5.5WV		
C182			CK73EB1H103K	CHIP C 0.010UF K		
C183			CE04KW1A101M	ELECTRO 100UF 10WV		
C184,185			CC73FSL1H101J	CHIP C 100PF J		
C186,187			CC73FSL1H391J	CHIP C 390PF J		
C188			CK73FB1H103K	CHIP C 0.010UF K		
C189,190			CC73ESL1H221J	CHIP C 220PF J		
C194			CK45FF1H103Z	CERAMIC 0.010UF Z	E1T2	
C201			CK73FB1H103K	CHIP C 0.010UF K	E1T2	
C205			CC45FSL1H101J	CERAMIC 100PF J		
C206			CC73FSL1H101J	CHIP C 100PF J		
C209			CQ93FMG1H102J	MYLAR 1000PF J		
C210			CC73FSL1H101J	CHIP C 100PF J		
C217			CC73FSL1H101J	CHIP C 100PF J		
C218			CK73FB1H221J	CHIP C 220PF J		
C218			CK73FB1H221J	CHIP C 220PF J		
C219			CK45FF1H103Z	CERAMIC 0.010UF Z		
C220			CC45FSL1H331J	CERAMIC 330PF J		
C221			CK45FB1H102K	CERAMIC 1000PF K		
C222			CK73EB1H102K	CHIP C 1000PF K		
C223			CK45FF1H103Z	CERAMIC 0.010UF Z		
C224,225			CC73FSL1H101J	CHIP C 100PF J		
C226			CK45FB1H102K	CERAMIC 1000PF K		
C227			CE04KW1C470M	ELECTRO 47UF 16WV		

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5

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C228			CC45FSL1H101J	CERAMIC 100PF J		
C233			CC45FSL1H101J	CERAMIC 100PF J		
C234			CC73FSL1H821J	CHIP C 820PF J		
C235-237			CK45FF1H103Z	CERAMIC 0.010UF Z		
C240,241			CC73FSL1H101J	CHIP C 100PF J		
C242			CE04KW1C470M	ELECTRO 47UF 16WV		
C245-247			CC73FSL1H101J	CHIP C 100PF J		
C248			CC73FSL1H100D	CHIP C 10PF D		
C249			CC73FCH1H100D	CHIP C 10PF D	E1T2	
CN1			E40-4245-05	PIN ASSY		
CN2			E40-4914-05	FLAT CABLE CONNECTOR		
CN3			E40-4952-05	FLAT CABLE CONNECTOR		
CN4			E40-4871-05	PIN ASSY		
J1			E04-0025-05	RF COAXIAL CABLE RECEPTACLE	E1T2	
J2			E20-0321-05	LOCK TERMINAL BOARD(2P,F)	E1T2	
J2			E70-0052-05	LOCK TERMINAL BOARD	EM1X1	
J2			E70-0052-05	LOCK TERMINAL BOARD	T1	
J3			E63-0068-15	PHONO JACK		
J4			E11-0188-05	MINIATURE PHONE JACK(2P)		
-			J19-3610-04	HOLDER		
E7			J11-0098-05	WIRE CLAMPER		
CF1 ,2			L72-0566-05	CERAMIC FILTER	E1T2	
CF3 ,4			L72-0120-05	CERAMIC FILTER	E1T2	
CF3 ,4			L72-0536-05	CERAMIC FILTER	ET1	
CF3 ,4			L72-0546-05	CERAMIC FILTER	M1X1	
L1			L31-0545-05	FM-RF COIL	E1T2	
L2			L40-1091-17	SMALL FIXED INDUCTOR		
L3			L39-1325-05	COMBINATION COIL	T1T2	
L3			L39-1328-05	COMBINATION COIL	EM1X1	
L3			L39-1328-05	COMBINATION COIL	E1	
L4			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L5			L30-0911-05	AM IFT		
L6			L30-0484-05	FM IFT		
L7			L30-0485-05	FM IFT		
L9			L40-1091-17	SMALL FIXED INDUCTOR		
L11 ,12			L79-1236-05	LC FILTER		
L13			L40-6825-20	SMALL FIXED INDUCTOR(6.8MH,J)	E1T2	
L14			L79-1237-05	LC FILTER		
T1			L07-2082-05	POWER TRANSFORMER	ET1	
T1			L07-2084-05	POWER TRANSFORMER	M1X1	
T1			L07-2086-05	POWER TRANSFORMER	E1T2	
X1			L77-1122-05	CRYSTAL RESONATOR(7.2MHZ)		
X2			L78-0208-05	RESONATOR (456KHZ)		
X4			L77-2002-05	CRYSTAL RESONATOR(4.332MHZ)	ET1E1	
X4			L77-2002-05	CRYSTAL RESONATOR(4.332MHZ)	T2	
X5			L78-0284-05	RESONATOR (5MHZ)		
R1 ,2			RK73FB2A182J	CHIP R 1.8K J 1/10W	E1T2	
R3 ,4			RK73FB2A391J	CHIP R 390 J 1/10W	E1T2	
R5 ,6			RK73FB2A471J	CHIP R 470 J 1/10W	E1T2	
R7			RD14NB2E100J	RD 10 J 1/4W	E1T2	
R8			RK73FB2A330J	CHIP R 33 J 1/10W	E1T2	
R9			RK73FB2A182J	CHIP R 1.8K J 1/10W	E1T2	
R10			RK73FB2A391J	CHIP R 390 J 1/10W	E1T2	
R11			RK73FB2A272J	CHIP R 2.7K J 1/10W	E1T2	

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R12 -14			RK73FB2A104J	CHIP R 100K J 1/10W	E1T2	
R15			RK73FB2A391J	CHIP R 390 J 1/10W	E1T2	
R16			RK73FB2A271J	CHIP R 270 J 1/10W	E1T2	
R17			RK73FB2A473J	CHIP R 47K J 1/10W	E1T2	
R19			RK73FB2A221J	CHIP R 220 J 1/10W		
R20			RK73FB2A473J	CHIP R 47K J 1/10W	E1T2	
R21 ,22			RK73FB2A471J	CHIP R 470 J 1/10W	E1T2	
R23			RK73FB2A470J	CHIP R 47 J 1/10W	E1T2	
R24			RK73FB2A513J	CHIP R 51K J 1/10W	E1T2	
R25			RK73FB2A101J	CHIP R 100 J 1/10W	E1T2	
R26			RK73FB2A561J	CHIP R 560 J 1/10W	E1T2	
R27			RK73FB2A101J	CHIP R 100 J 1/10W	E1T2	
R28			RK73FB2A511J	CHIP R 510 J 1/10W	E1T2	
R29			RK73FB2A101J	CHIP R 100 J 1/10W	E1T2	
R30			RK73FB2A391J	CHIP R 390 J 1/10W	E1T2	
R31			RK73FB2A123J	CHIP R 12K J 1/10W	E1T2	
R32			RK73FB2A752J	CHIP R 7.5K J 1/10W	E1T2	
R35			RK73FB2A681J	CHIP R 680 J 1/10W	E1T2	
R36 ,37			RK73FB2A121J	CHIP R 120 J 1/10W	E1T2	
R38			RK73FB2A362J	CHIP R 3.6K J 1/10W	E1T2	
R39			RK73FB2A511J	CHIP R 510 J 1/10W	E1T2	
R40 ,41			RK73FB2A182J	CHIP R 1.8K J 1/10W	E1T2	
R42			RK73FB2A222J	CHIP R 2.2K J 1/10W	E1T2	
R47			RK73FB2A182J	CHIP R 1.8K J 1/10W	E1T2	
R78			RK73FB2A103J	CHIP R 10K J 1/10W		
R84			RK73FB2A200J	CHIP R 20 J 1/10W		
R86			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R91			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R94			RK73EB2B102J	CHIP R 1.0K J 1/8W		
R95			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R96			RK73FB2A103J	CHIP R 10K J 1/10W	E1T2	
R101			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R102			RK73FB2A103J	CHIP R 10K J 1/10W		
R103			RK73FB2A102J	CHIP R 1.0K J 1/10W	E1T2	
R106,107			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R108			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R114			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R117			RK73FB2A123J	CHIP R 12K J 1/10W	M1	
R122			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R123			RK73FB2A363J	CHIP R 36K J 1/10W	E1T2	
R127,128			RK73FB2A225J	CHIP R 2.2M J 1/10W	M1	
R150			RK73FB2A101J	CHIP R 100 J 1/10W		
R177			RD14NB2E392J	RD 3.9K J 1/4W		
R179			RK73FB2A105J	CHIP R 1.0M J 1/10W	E1T2	
R192			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R199			RK73EB2B102J	CHIP R 1.0K J 1/8W		
R200,201			RK73FB2A102J	CHIP R 1.0K J 1/10W		
Δ R210			RS14KB3A101J	FL-PROOF RS 100 J 1W	E1T2	
Δ R210			RS14KB3A221J	FL-PROOF RS 220 J 1W	EM1X1	
Δ R210			RS14KB3A221J	FL-PROOF RS 220 J 1W	T1	
Δ R215			RD14NB2E101J	RD 100 J 1/4W		
R221,222			RK73FB2A104J	CHIP R 100K J 1/10W		
R223			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R224			RK73FB2A104J	CHIP R 100K J 1/10W		
Δ R225			RD14NB2E1R0J	RD 1 J 1/4W		
R226			RK73EB2B473J	CHIP R 47K J 1/8W		

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7

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Δ R227,228 R232-234 R235 R237 R239			RK73FB2A473J RK73FB2A104J RD14NB2E1R0J RK73FB2A104J RK73FB2A103J	CHIP R 47K J 1/10W CHIP R 100K J 1/10W RD 1 J 1/4W CHIP R 100K J 1/10W CHIP R 10K J 1/10W		
R240 R240 R241 Δ R242 R243-245			RK73EB2B104J RK73EB2B104J RK73FB2A104J RD14NB2E1R0J RK73FB2A104J	CHIP R 100K J 1/8W CHIP R 100K J 1/8W CHIP R 100K J 1/10W RD 1 J 1/4W CHIP R 100K J 1/10W	EM1X1 T1 E1T2	
R246-248 R252,253 R254,255 R255 R256,257			RK73EB2B104J RK73FB2A101J RK73EB2B101J RK73EB2B101J RK73FB2A221J	CHIP R 100K J 1/8W CHIP R 100 J 1/10W CHIP R 100 J 1/8W CHIP R 100 J 1/8W CHIP R 220 J 1/10W	E1T2 E1T2 M1	
R258,259 R260 R265 R284 R285,286			RK73FB2A103J RK73FB2A102J RK73FB2A512J RK73FB2A104J RK73EB2B104J	CHIP R 10K J 1/10W CHIP R 1.0K J 1/10W CHIP R 5.1K J 1/10W CHIP R 100K J 1/10W CHIP R 100K J 1/8W		
R287,288 R291 R292 R294 R297			RK73FB2A152J RK73EB2B104J RK73FB2A104J RS14KB3D1R0J RK73FB2A102J	CHIP R 1.5K J 1/10W CHIP R 100K J 1/8W CHIP R 100K J 1/10W FL-PROOF RS 1 J 2W CHIP R 1.0K J 1/10W	E1T2	
R301 R303-308 R309 R310,311 R312			RK73FB2A101J RK73FB2A104J RK73EB2B473J RK73FB2A473J RK73FB2A104J	CHIP R 100 J 1/10W CHIP R 100K J 1/10W CHIP R 47K J 1/8W CHIP R 47K J 1/10W CHIP R 100K J 1/10W	E1T2	
R313,314 R315-323 R324 R325-327 R328,329			RK73EB2B104J RK73FB2A104J RK73EB2B104J RK73FB2A104J RK73EB2B102J	CHIP R 100K J 1/8W CHIP R 100K J 1/10W CHIP R 100K J 1/8W CHIP R 100K J 1/10W CHIP R 1.0K J 1/8W		
R330 R331 R332 R333 R334			RK73FB2A225J RK73FB2A225J RK73FB2A104J RK73FB2A220J RK73FB2A223J	CHIP R 2.2M J 1/10W CHIP R 2.2M J 1/10W CHIP R 100K J 1/10W CHIP R 22 J 1/10W CHIP R 22K J 1/10W	E1T2 E1T2 E1T2 E1T2	
R335,336 R338 R401 R402 R404			RK73FB2A102J RK73FB2A102J RK73FB2A100J RK73FB2A822J RK73FB2A102J	CHIP R 1.0K J 1/10W CHIP R 1.0K J 1/10W CHIP R 10 J 1/10W CHIP R 8.2K J 1/10W CHIP R 1.0K J 1/10W	M1 M1	
VR1 VR2 VR3 VR4 W201-204			R12-0606-05 R12-3685-05 R12-3686-05 R12-1618-05 R92-0670-05	TRIMMING POT.(330) TRIMMING POT.(10K) TRIMMING POT.(22K) TRIMMING POT.(3.3K) CHIP R 0 OHM		
W205 W207 W208 W208 W208,209 W210-212			R92-0679-05 R92-0679-05 R92-0670-05 R92-0670-05 R92-0670-05 R92-0679-05	CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM	M1T1T2 EM1X1 T1 E1T2 M1	

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8

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W211-217 W211-217 W211,212 W215-217 W218			R92-0679-05 R92-0679-05 R92-0679-05 R92-0679-05 R92-0670-05	CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM	ET1E1 T2 X1 M1X1	
W219-222 W219-222 W219-227 W227 W227			R92-0679-05 R92-0679-05 R92-0679-05 R92-0679-05 R92-0679-05	CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM	EM1X1 T1 E1T2 EM1X1 T1	
W228 W229 W232			R92-0670-05 R92-0670-05 R92-0679-05	CHIP R 0 OHM CHIP R 0 OHM CHIP R 0 OHM	M1 E1T2 E1T2	
Δ S1 S2 S3 -6 S7 S8 ,9			S62-0001-05 S31-2132-05 S70-0031-05 S70-0031-05 S70-0031-05	SLIDE SWITCH SLIDE SWITCH TACT SWITCH TACT SWITCH TACT SWITCH	M1 E1T2 ET1E1	
S8 ,9 S10 -25 Δ S27			S70-0031-05 S70-0031-05 S31-2132-05	TACT SWITCH TACT SWITCH SLIDE SWITCH	T2 M1	
S26			T99-0598-05	ROTARY ENCODER		
D1 -3 D4 D5 -10 D5 -10 D11			1SS268 SVC212(2,3) HSS104A 1SS133 MA111	DIODE VARIABLE CAPACITANCE DIODE DIODE DIODE DIODE	E1T2 E1T2 E1T2 E1T2 ET1E1	
D11 D12 -14 D12 -14 D16 D16			MA111 HSS104A 1SS133 HSS104A 1SS133	DIODE DIODE DIODE DIODE DIODE	T2	
D18 ,19 D18 ,19 D23 D23 D24			HSS104A 1SS133 HSS104A 1SS133 HSS104A	DIODE DIODE DIODE DIODE DIODE	E1T2 E1T2	
Δ D24 Δ D25 ,26 Δ D27 ,28 Δ D27 ,28 D30			1SS133 S5688B HSS104A 1SS133 HSS104A	DIODE DIODE DIODE DIODE DIODE		
D30 D31			1SS133 HZS11N(B2)	DIODE ZENER DIODE		
Δ D31 Δ D32 -35 Δ D32 -35 D36 D36			MTZJ11(B) HSS104A 1SS133 HZS5.1S(B2) RD5.1JS(B2)	ZENER DIODE DIODE DIODE ZENER DIODE ZENER DIODE		
D37 ,38 D37 ,38 D39 D40 -43 D40 -43			HSS104A 1SS133 MA111 HSS104A 1SS133	DIODE DIODE DIODE DIODE DIODE		

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KTF-2010/3010

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9

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D44			MA111	DIODE		
D46			HSS104A	DIODE		
D46			1SS133	DIODE		
D47 -50			MA111	DIODE		
D51 -55			HSS104A	DIODE		
D51 -55			1SS133	DIODE		
D56			HSS104A	DIODE	EM1E1	
D56			HSS104A	DIODE	X1	
D56			1SS133	DIODE	EM1E1	
D56			1SS133	DIODE	X1	
D57			HSS104A	DIODE	X1T1T2	
D57			1SS133	DIODE	X1T1T2	
D58			HSS104A	DIODE	ET1E1	
D58			HSS104A	DIODE	T2	
D58			1SS133	DIODE	ET1E1	
D58			1SS133	DIODE	T2	
D59			HSS104A	DIODE	M1	
D59			1SS133	DIODE	M1	
D60			HSS104A	DIODE	ET1E1	
D60			HSS104A	DIODE	T2	
D60			1SS133	DIODE	ET1E1	
D60			1SS133	DIODE	T2	
D64			HZS5.1S(B2)	ZENER DIODE		
D64			RD5.1JS(B2)	ZENER DIODE		
D65			HSS104A	DIODE		
D65			1SS133	DIODE		
D67			MA111	DIODE		
ED1			10-BT-202GK	INDICATOR TUBE		
IC1			LA1266	IC(AM/FM IF)		
IC2			LC72131	MOS-IC		
IC3			NJM4565D-D	IC(OP AMP X2)		
IC4			LA3401	IC(FM MPX)		
IC5			NJM4565D-D	IC(OP AMP X2)	E1T2	
IC7			SAA6579T	ANALOGUE IC	ET1E1	
IC7			SAA6579T	ANALOGUE IC	T2	
IC8			S-806D-Z	ANALOGUE IC		
IC9			UPD780206GF031	MI-COM IC		
Q1 ,2			DTC124EUA	DIGITAL TRANSISTOR	E1T2	
Q3			DTA124EUA	DIGITAL TRANSISTOR	E1T2	
Q4			DTC124EUA	DIGITAL TRANSISTOR	E1T2	
Q5 ,6			2SK302(Y,GR)	FET	E1T2	
Q7			2SC4081(R,S)	TRANSISTOR	E1T2	
Q7			2SD1819A(Q,R)	TRANSISTOR	E1T2	
Q8			2SA1576A(R,S)	TRANSISTOR	E1T2	
Q8			2SB1218A(Q,R)	TRANSISTOR	E1T2	
Q9			DTA124ESA	DIGITAL TRANSISTOR	E1T2	
Q9			UN4112	DIGITAL TRANSISTOR	E1T2	
Q10			DTC124ESA	DIGITAL TRANSISTOR	E1T2	
Q10			UN4212	DIGITAL TRANSISTOR	E1T2	
Q11			2SC1740S(Q,R)	TRANSISTOR	E1T2	
Q11			2SC2785(F,E)	TRANSISTOR	E1T2	
Q12			2SC1923(R,O)	TRANSISTOR	E1T2	
Q13 -15			2SC1740S(Q,R)	TRANSISTOR	E1T2	

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10

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Q13 -15			2SC2785(F,E)	TRANSISTOR		
Q16 ,17			2SA992(F,E)	TRANSISTOR		
Q18 ,19			2SC1845(F,E)	TRANSISTOR		
Q20 -22			2SD1302(S,T)	TRANSISTOR	T1T2	
Q23			DTA124ESA	DIGITAL TRANSISTOR		
Q23			UN4112	DIGITAL TRANSISTOR		
Q24			2SA954(L,K)	TRANSISTOR		
Q25			DTA124ESA	DIGITAL TRANSISTOR	T1T2	
Q25			UN4112	DIGITAL TRANSISTOR	T1T2	
Q28			2SC1740S(Q,R)	TRANSISTOR		
Q28			2SC2785(F,E)	TRANSISTOR		
Q29			2SK246(Y,GR)	FET		
Q30 ,31			2SA1175(F,E)	TRANSISTOR		
Q30 ,31			2SA933AS(Q,R)	TRANSISTOR		
Q32			2SA1576A(R,S)	TRANSISTOR	E1T2	
Q32			2SB1218A(Q,R)	TRANSISTOR	E1T2	
Q33			DTC124ESA	DIGITAL TRANSISTOR		
Q33			UN4212	DIGITAL TRANSISTOR		
Q35			DTC124ESA	DIGITAL TRANSISTOR	E1T2	
Q35			UN4212	DIGITAL TRANSISTOR	E1T2	
Q36 ,37			2SK364(GR,BL)	FET	M1	
Q38 -41			2SC1740S(Q,R)	TRANSISTOR		
Q38 -41			2SC2785(F,E)	TRANSISTOR		
Q42			2SA1175(F,E)	TRANSISTOR		
Q42			2SA933AS(Q,R)	TRANSISTOR		
Q43			DTC124ESA	DIGITAL TRANSISTOR	E1T2	
Q43			UN4212	DIGITAL TRANSISTOR	E1T2	
Q46			2SA1534A(R,S)	TRANSISTOR		
Q47			2SD2061(E,F)	TRANSISTOR		
Q48			2SC1740S(Q,R)	TRANSISTOR		
Q48			2SC2785(F,E)	TRANSISTOR		
Q49			2SC3940A(R,S)	TRANSISTOR		
Q50			DTC124ESA	DIGITAL TRANSISTOR		
Q50			UN4212	DIGITAL TRANSISTOR		
Q51			2SC3940A(R,S)	TRANSISTOR	E1T2	
Q52			2SC3940A(R,S)	TRANSISTOR		
Q53			2SC1740S(Q,R)	TRANSISTOR		
Q53			2SC2785(F,E)	TRANSISTOR		
Q54			2SC4081(R,S)	TRANSISTOR		
Q54			2SD1819A(Q,R)	TRANSISTOR		
Q57			2SK364(GR,BL)	FET	E1T2	
Q58			DTA124ESA	DIGITAL TRANSISTOR	M1	
Q58			UN4112	DIGITAL TRANSISTOR	M1	
Q59			2SC1740S(Q,R)	TRANSISTOR		
Q59			2SC2785(F,E)	TRANSISTOR		
Q60			2SK364(GR,BL)	FET		
A1			W02-2509-05	FM FRONT-END ASSY	ET1E1	
A1			W02-2509-05	FM FRONT-END ASSY	T2	
A1			W02-2512-05	FM FRONT-END ASSY	M1X1	

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KTF-2010/3010
PARTS LIST

KTF-2010/3010

SPECIFICATIONS

KTF-2010

FM tuner section

Tuning frequency range	87.5 MHz ~ 108 MHz
(For Russia)	65.0 MHz~74 MHz 87.5 MHz~108 MHz
Usable sensitivity (DIN)	
MONO	1.3μV(75 Ω)/13.5 dBf(40 kHz dev.,S/N 26 dB)
STEREO	50μV(75 Ω)/45.2 dBf(46 kHz dev.,S/N 46 dB)
Limiting level (DIN)	1.0μV(75 Ω) /11.2 dBf
Total harmonic distortion(DIN at 1 kHz)	
MONO	0.1 % (65 .2 dBf input)
STEREO	0.3% (65 .2 dBf input)
Signal to noise ratio (at 1 kHz)	
(DIN weighted at 1 kHz, 40 kHz dev.)	
MONO	69 dB (65.2 dBf input)
STEREO	61 dB (65.2 dBf input)
Stereo separation (DIN)	
1 kHz	45 dB
Capture ratio	2.0 dB
Selectivity (DIN ± 300 kHz)	60 dB
Image rejection ratio (at 98 MHz)	80 dB
IF rejection ratio (at 98 MHz)	100 dB
Spurious rejection ratio (at 98 MHz)	100 dB
AM suppression ratio	68 dB
Sub carrier suppression ratio (DIN)	55 dB (at 19 kHz)
	65 dB (at 38 kHz)
Frequency response (30 Hz ~ 15 kHz)	+ 0.5 dB, -2.0 dB
Output level / impedance (FM at 1 kHz, 75 kHz dev.)	
Fixed	0.6 V / 1.3 kΩ

MW(AM) tuner section

Tuning frequency range	531 kHz ~ 1,602 kHz
Usable sensitivity	
(at 30 % mod., S/N 20 dB)	12 μV / (400 μV/ m)
Signal to noise ratio	
(at 30 % mod., 1 mV input)	50 dB
Total harmonic distortion	0.4 %
Image rejection ratio	30 dB
Selectivity	30 dB
Output level / impedance	
(at 30 % mod., 1mV input)	0.18 V / 1.3 kΩ

LW(for U.K. only) tuner section

Tuning frequency range	153 kHz ~ 279 kHz
Usable sensitivity	
(at 30 % mod., S/ N 20 dB)	22 μV
Signal to noise ratio	
(at 30 % mod., 1 mV input)	47 dB
Total harmonic distortion	0.6 %
Image rejection ratio	27 dB
Selectivity	33 dB
Output level / impedance	
(at 30 % mod., 1mV input)	0.18 V / 1.3 kΩ

General

Power consumption	10 W
Dimensions	W : 440 mm H : 93 mm D : 384 mm
Weight (Net)	3.3kg

KTF-3010

FM tuner section

Tuning frequency range	87.5 MHz ~ 108 MHz
(For Russia)	65.0 MHz~74 MHz 87.5 MHz~108 MHz
Usable sensitivity (DIN)	
MONO	1.3μV(75 Ω)/13.5 dBf(40 kHz dev.,S/N 26 dB)
STEREO	50μV(75 Ω)/45.2 dBf(46 kHz dev.,S/N 46 dB)
Limiting level (DIN)	1.0μV(75 Ω)/11.2 dBf
Total harmonic distortion (DIN at 1 kHz)	
MONO	0.08 % (85 .2 dBf input,WIDE)
STEREO	0.2% (85 .2 dBf input,WIDE)
Signal to noise ratio	
(DIN weighted at 1 kHz, 40 kHz dev.)	
MONO	70 dB (85.2 dBf input)
STEREO	65 dB (85.2 dBf input)
Stereo separation (DIN)	
1 kHz	50 dB (WIDE)
Capture ratio	2.0 dB (WIDE)
Selectivity	
(DIN ± 300 kHz)	45 dB (WIDE)
(DIN ± 200 kHz)	55 dB(NARROW)
Image rejection ratio (at 98 MHz)	85 dB
IF rejection ratio (at 98 MHz)	105 dB
Spurious rejection ratio (at 98 MHz)	105 dB
AM suppression ratio	68 dB
Sub carrier suppression ratio (DIN)	55 dB (at 19 kHz)
	65 dB (at 38 kHz)
Frequency response (30 Hz ~ 15 kHz)	+ 0.5 dB, -1.5 dB
Output level / impedance (FM at 1 kHz, 75 kHz dev.)	
Fixed	0.6 V / 600 Ω

MW(AM) tuner section

Tuning frequency range	531 kHz ~ 1,602 kHz
Usable sensitivity	
(at 30 % mod., S/N 20 dB)	12 μV / (400 μV/ m)
Signal to noise ratio	
(at 30 % mod., 1 mV input)	50 dB
Total harmonic distortion	0.4 %
Image rejection ratio	30 dB
Selectivity	30 dB
Output level / impedance	
(at 30 % mod., 1 mV input)	0.18 V / 600 Ω

LW(for U.K. only) tuner section

Tuning frequency range	153 kHz ~ 279 kHz
Usable sensitivity	
(at 30 % mod., S/N 20 dB)	22 μV
Signal to noise ratio	
(at 30 % mod., 1 mV input)	47 dB
Total harmonic distortion	0.6 %
Image rejection ratio	27 dB
Selectivity	33 dB
Output level / impedance	
(at 30 % mod., 1mV input)	0.18 V / 600 Ω

General

Power consumption	10 W
Dimensions	W : 440 mm H : 93 mm D : 384 mm
Weight (Net)	3.3kg

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

Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the General market(M) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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