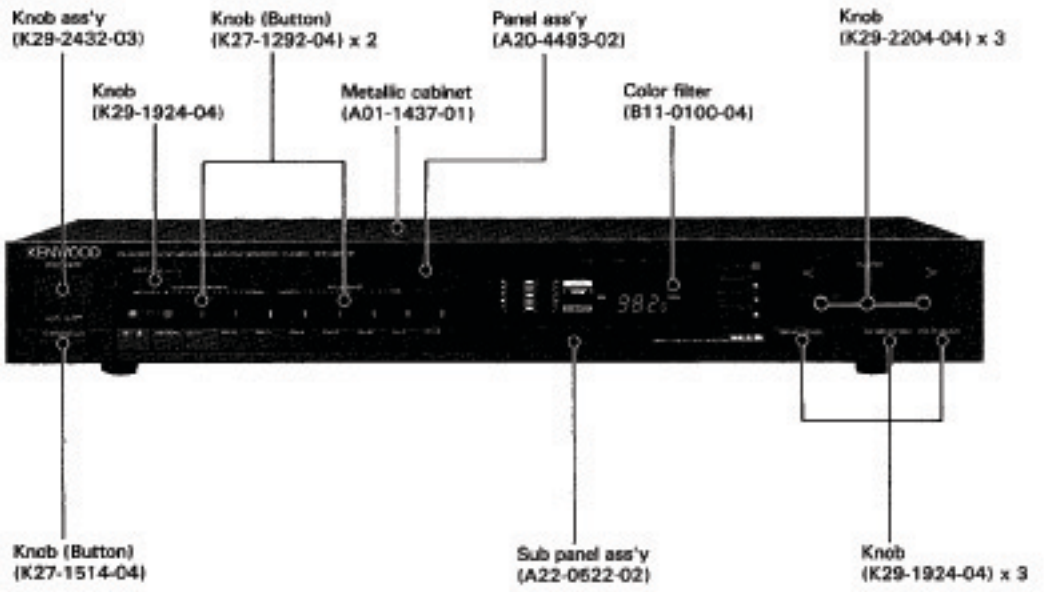
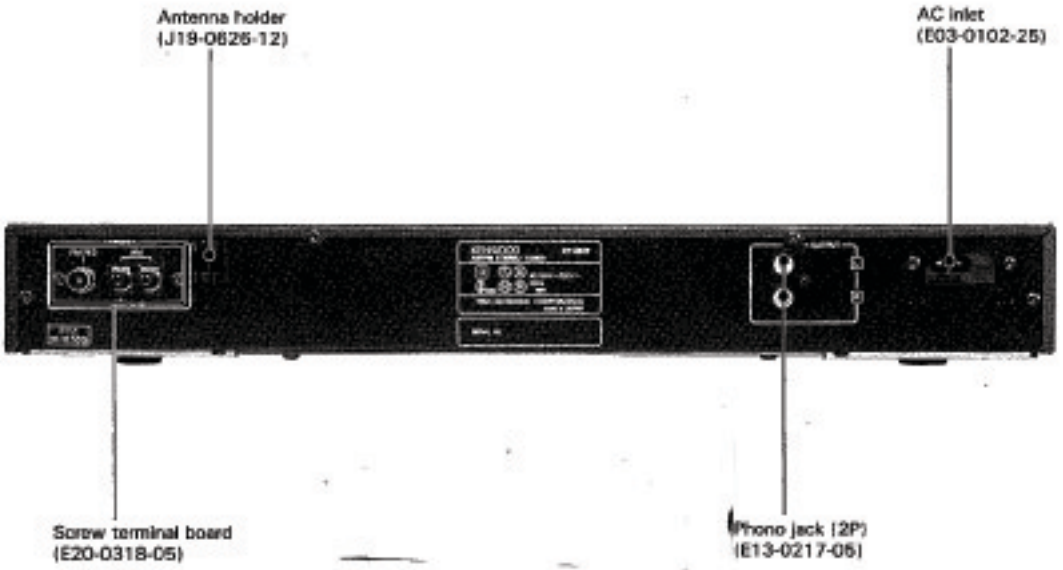
SERVICE MANUAL

KENWOOD

KT-980F

QUARTZ SYNTHESIZER AM-FM STEREO TUNER





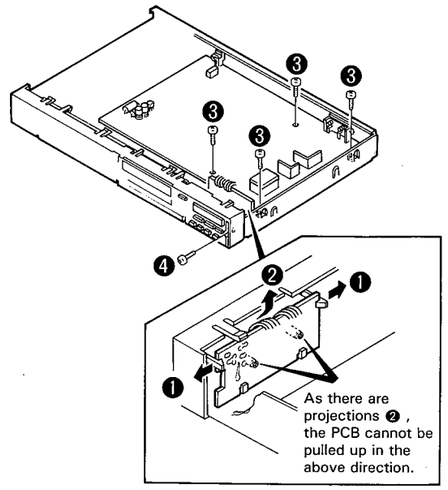
* Refer to Parts List on page 15.

DISASSEMBLY FOR REPAIR

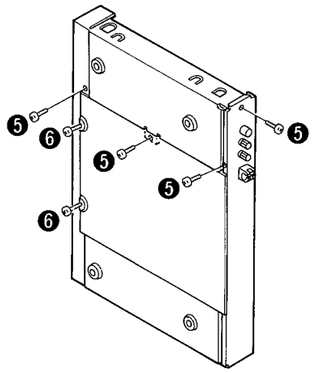
Removing Right Side Frame

For servicing the right part of the TUNER board, it is necessary to remove the right side frame.

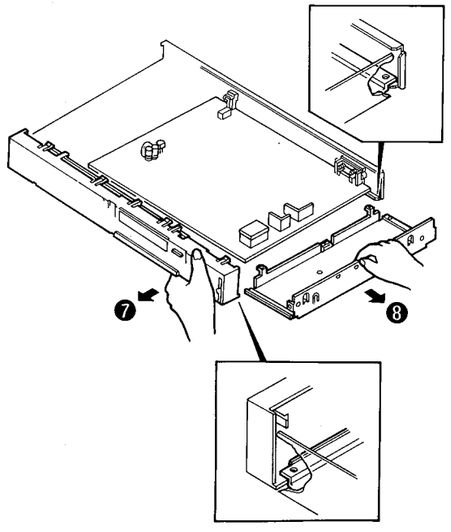
1. Remove the case and front panel.
2. While extending the holder claws on the left and right sides of the UP/DOWN board ❶, pull the PCB upwards to remove.
3. Remove four screws on the TUNER board. ❸
4. Remove screw on the front right side of the sub-panel. ❹



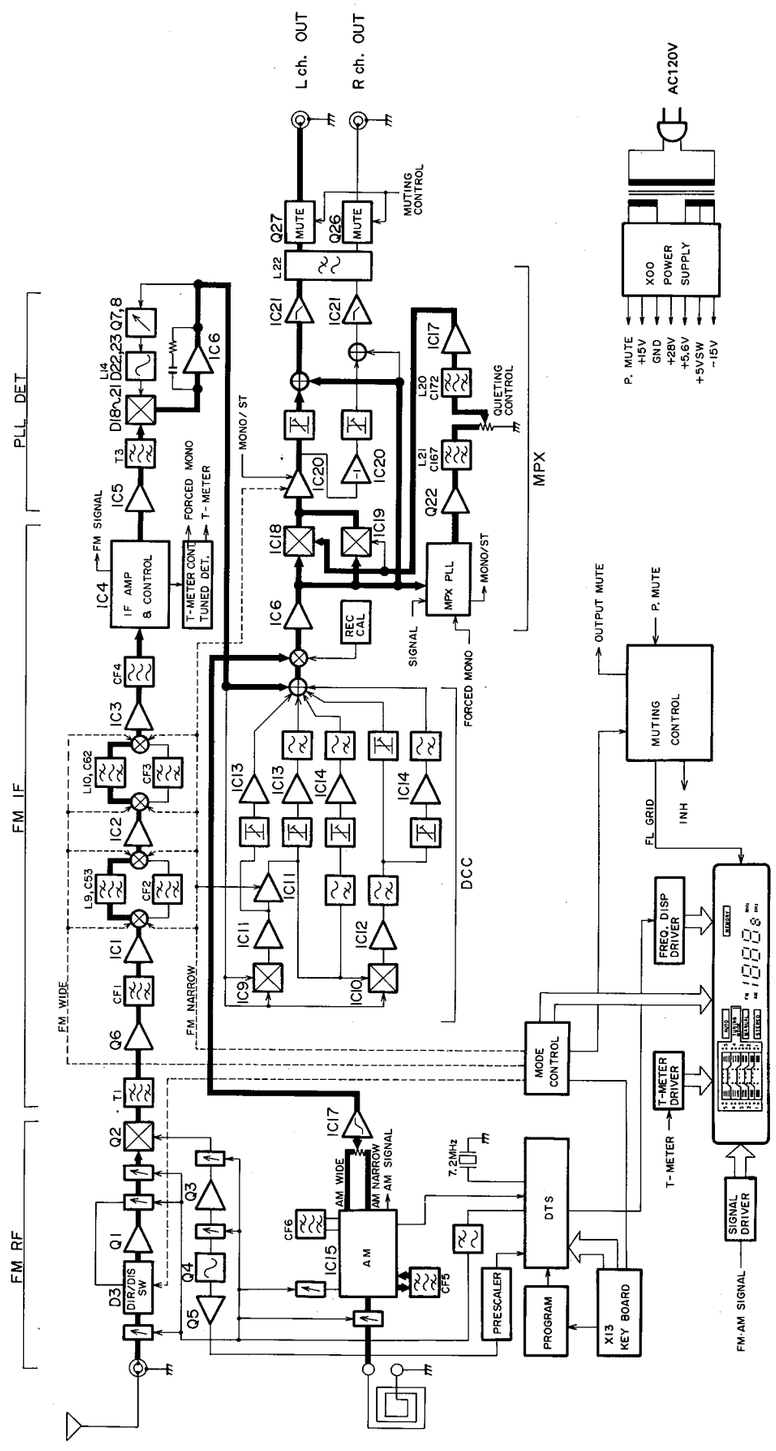
5. Remove screw on the left side of the rear panel and three screws retaining the right side frame from the bottom panel. ❺
6. Loosen two screws on the front side of the bottom panel. ❻



7. Widen the spaces between the front and rear panels ❼, and remove the right side frame. ❽



BLOCK DIAGRAM



CIRCUIT DESCRIPTION

DESCRIPTION OF ELEMENTS

Tuner unit (X05-2942-71)

Elements	Use & Function	Operation, Condition & Interchangeability
Q1	FM RF amplifier	
Q2	FM mixer	
Q3	FM OSC buffer	
Q4	FM OSC	
Q5	FM OSC buffer	
Q6	FM IF amp.	Impedance conversion by gate grounding.
Q7, 8	10.7MHz OSC	VCO for the FM PLL detector circuit.
Q9	FM SW	Turns ON in FM operation and OFF in AM and REC CAL operations.
Q10	AM SW	Turns ON in AM operation and OFF in FM and REC CAL operations.
Q11	REC CAL SW	Turns ON in REC CAL operation and OFF in other operations.
Q12, 13	REC CAL control	When REC CAL is ON: Q12 ON with collector LOW, Q13 OFF with collector High. When REC CAL is OFF: Q12 OFF with collector High, Q13 ON with collector Low.
Q14	STOP level switch	
Q15~17	T meter control	During tuning: Q15 OFF. During detuning: Q15 ON with collector High. Upward detuning: Q16 ON, Q17 OFF. Downward detuning: Q16 OFF, Q17 ON.
Q18	DCC WIDE/NARROW switch	WIDE: OFF. NARROW: Turns ON to activate VR7.
Q19	DCC input control	Turns DCC input OFF when the input level is weak.
Q20	MONO/ST switch	Turns OFF when the input level is weak, with the High collector level causing the forced MONO mode.
Q21	Inverter DC amplifier	FM S meter output inverter DC amp, used for auto-quieting control.
Q22	Waveform shaper switching transistor.	For shaping the 38kHz subcarrier square wave.
Q23	FM beacon switch	
Q24	WIDE/NARROW separation control switch	WIDE: OFF. NARROW: Turns ON to activate VR9.
Q25	MONO/ST SW	STEREO: OFF. MONO: Turns ON to make the IC20 gain zero.
Q26, 27	MUTE	MUTE: ON
Q28	MUTE DRIVER	MUTE: ON. MUTE: OFF.
Q29	PROGRAM CH DRIVE	Turns ON in the PROGRAM operation to drive program channels.
Q30, 31	AUTO/MANUAL switch	
Q32	FM WIDE/NARROW switch	WIDE: Turns ON with collector High. NARROW: OFF.
Q33	INH ON/OFF SW	Turns ON in AM operation to inhibit the WIDE and DIRECT display outputs from IC25.
Q34	MUTE DRIVE	MUTE: ON with collector High. MUTE: OFF with collector Low.
Q35	DTS MUTE DRIVE	Inverts the MUTE signal from the DTS to drive the MUTE circuit.
Q36	Instantaneous muting driver	Performs instantaneous muting when switching WIDE/NARROW, DIRECT/DISTANCE and REC CAL operations.
Q37	Instantaneous muting signal generator	
Q38	INH signal generator	
Q39	FL grid control	
Q40	Timing circuit	
Q41, 42	PRESET A/B LED DRIVE	
Q43, 44	PLL synthesizer DC amplifier	
Q45	T display erroneous lighting prevention	Turns OFF when the T display is OFF on the negative side, and the collector impedance becomes High.
Q46, 47	FREQ. DISPLAY DRIVER	For display in 50kHz step FM operation.
IC1~3	FM IF amp.	
IC4	FM IF control	IF amp, muting control (pin 12), S meter output (pin 13).
IC5	FM IF amp.	

CIRCUIT DESCRIPTION

Elements	Use & Function	Operation, Condition & Interchangeability
IC6 1/2 (1~3)	Detector circuit DC amplifier	
IC6 2/2 (5~7)	Signal selector amplifier	FM/AM/REC CAL selector amp.
IC7 1/2 (1~3)	AUTO STOP signal generator	Signal level, noise detection, M conversion signal synthesis.
IC7 2/2 (5~7)	Tuning/detuning detector, tuning display control	FM operation: The output turns High when pin 12 of IC4 turns Low (2.5V or less). AM operation: Always High.
IC8	REC CAL oscillator	
IC9	Multiplier	Square multiplier (secondary distortion generation).
IC10	Multiplier	Cubic multiplier (tertiary distortion generation).
IC11 1/2 (1~3)	Current/voltage converter	
IC11 1/2 (5~7)	WIDE/NARROW gain switching amplifier	WIDE: Low gain. NARROW: High gain, Q18 ON.
IC12 1/2 (1~3)	Reference voltage (1/2 Vcc) supply	
IC12 2/2 (5~7)	Current/voltage converter	
IC13 1/2 (1~3)	Mono secondary distortion canceler	Varies the phase and gain depending on the inverted or non-inverted input.
IC13 2/2 (5~7)	Detector distortion canceler	Varies the phase and gain depending on the inverted or non-inverted input.
IC14 1/2 (1~3)	SUB distortion canceler	Varies the phase and gain depending on the inverted or non-inverted input.
IC14 2/2 (5~7)	L or R distortion canceler	Varies the phase and gain depending on the inverted or non-inverted input.
IC15	AM circuit	System IC of the AM section.
IC16	MPX PLL	Pilot detection, 38kHz signal generation, stereo/mono switching.
IC17 1/2 (1~3)	38kHz buffer	
IC17 2/2 (5~7)	AM AUDIO amp.	Frequency characteristic compensation.
IC18, 19	Multiplier	For SUB signal demodulation. IC18 and IC19 are connected in parallel.
IC20 1/2 (1~3)	Current/voltage converter, WIDE/NARROW gain switch	
IC20 2/2 (5~7)	Inverter amplifier	
IC21 1/2 (1~3)	Adder amplifier	Amplifier for L CH output.
IC21 2/2 (5~7)	Adder amplifier	Amplifier for R CH output.
IC22 1/2 (1~7)	AUTO/MANUAL switch	
IC22 2/2 (8~14)	Program control	
IC23		
IC24	CH, A, B switch	
IC25	• FM RF DIRECT/ DISTANCE switch • FM IF WIDE/ NARROW switch • REC CAL ON/OFF switch • STOP LEVEL Hi/Low switch	• Cyclic type flip-flop. • The output is inverted when the input signal level is Low. • The power supply for IC25 is backed up so the previous condition is held even after the power supply is turned OFF.
IC26 1/2 (1~3)	FM IF switch	WIDE: Low. NARROW: High.
IC26 2/2 (5~7)	FM RF switch	DIRECT: Low. DISTANCE: High.
IC27	FM prescaler	1/30 and 1/32 variable dividing ratio. pulse-swallow type.
IC28	DTS LSI	
IC29	T display L, C, R, MEMORY display, AUTO/MANUAL display, FM MHz display, AM kHz display	DRIVE

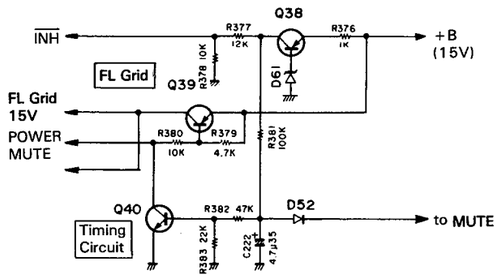
Display Unit (X13-5020-21)

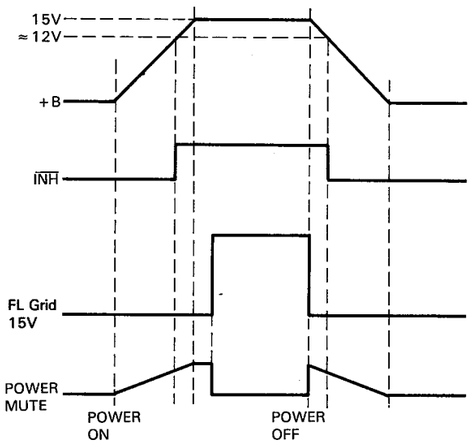
Elements	Use & Function	Operation, Condition & Interchangeability
IC1	Display tune driver	Frequency display IC.
IC2	Level meter driver	For 5-step lighting.

CIRCUIT DESCRIPTION

INH, FL GRID, Power Muting Signal Generator Circuit

+B rises after the power is turned ON and the INH signal is output when it exceeds approx. 12V. When the collector of Q38 turns "H", the 4.7μF capacitor starts charging. When the threshold level is attained, Q40 turns ON and the FL grid turns "H".
At this time, the POWER MUTE level turns "L".

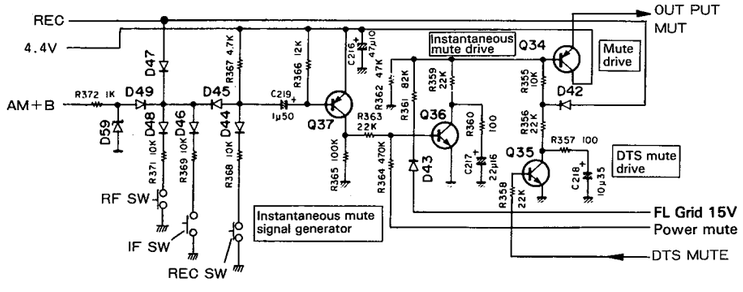




Muting Control Circuit

The output muting signal is controlled as described below.

1. **When switching power ON/OFF:** The POWER MUTE input level becomes "H", Q36 turns ON, and muting is turned ON.
2. **When switching REC ON/OFF:** Q37 turns ON for an instant, the collector becomes High, Q36 turns ON, and muting is turned ON.
3. **When operation DTS switch:** The DTS MUTE level becomes "H", Q35 turns ON, Q34 turns ON, and muting is turned ON. When REC is ON, Q34 is kept OFF by D42 even when Q35 turns ON.
4. **When switching RF and IF:** Q37 turns ON for an instant, the collector becomes High, Q36 turns ON, and muting is turned ON. When REC is ON or during AM operation, Q34 remains OFF because Q37 does not turn ON D47 or D49 which supplies 4.5V.



CIRCUIT DESCRIPTION

Tuning Display and STOP Signal Control

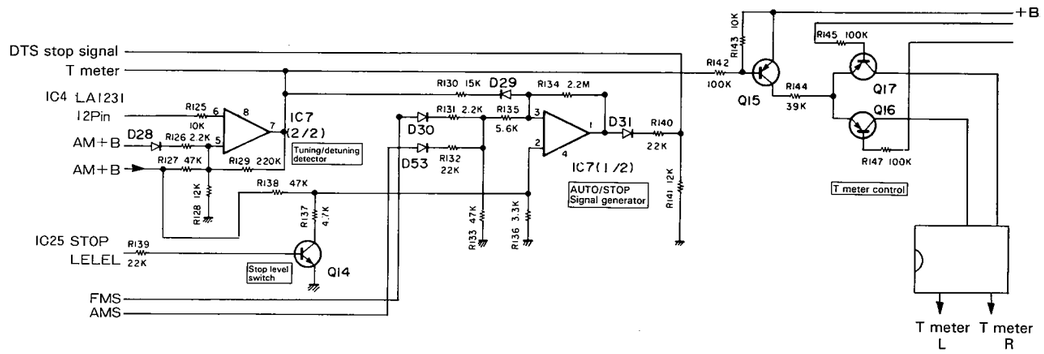
1. FM Operation

a) During detuning
As pin 12 of LA1231 becomes "H", the IC7-2/2 output turns "L" and the T display becomes L or R. At this time, the STOP signal is always "L" because the non-inverted output to IC7-1/2 is "L".

b) During tuning
As pin 12 of LA1231 becomes "L", the IC7-2/2 output turns "H" and the T display becomes CENTER. The comparison level of IC7-1/2 is varied by turning Q14 ON and OFF, in order to switch the STOP signal level.

2. AM Operation

AM+B is applied to the non-inverted input of IC7-2/2 so that CENTER of the T display is always "H". Tuning is detected by AM signal and the STOP signal level is switched in a similar method to FM operation.



Program Control Circuit

With the PROGRAM switch turned ON, the program is swtiched each time the power is turned ON, in the order from the last CH (Preset A) — Programmed CH (Preset A) — Programmed CH (Preset B) — Programmed CH (Preset A) — ... (A and B continued alternately), or from the last CH (Preset B) — Programmed CH (Preset B) — Programmed CH (Preset A) — Programmed CH (Preset B) — ... (B and A continued alternately).

1. FF1 Operation (One-Shot Multi)
When INH rises, Q1 also rises and the RESET terminal voltage rises with the time constant of 47KΩ and 4.7μF. When the RESET voltage attains the threshold level, FF1 is reset and Q1 turns "L".

2. FF2 Operation
Q2 turns "H" when $\overline{Q1}$ rises after the first power ON. This status is maintained until the Program function is turned OFF (when "H" is applied to the RESET terminal). The program channel driver transistor is released for the OFF status by this.

3. FF3 Operation
$\overline{Q3}$ turns "L" when Q2 (=FF3 data) turns "H" and $\overline{Q1}$ rises. This status is maintained until the Program function is turned OFF.

4. G1 Operation
The output is "H" when both $\overline{Q3}$ and $\overline{Q1}$ become "L". The level is "L" in other cases.

CIRCUIT DESCRIPTION

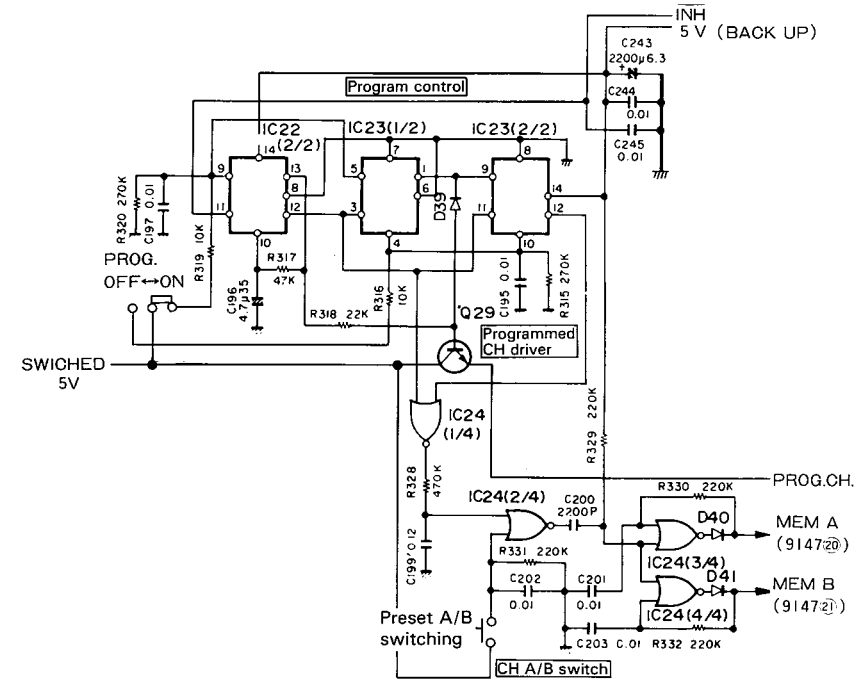
5. G2 Operation

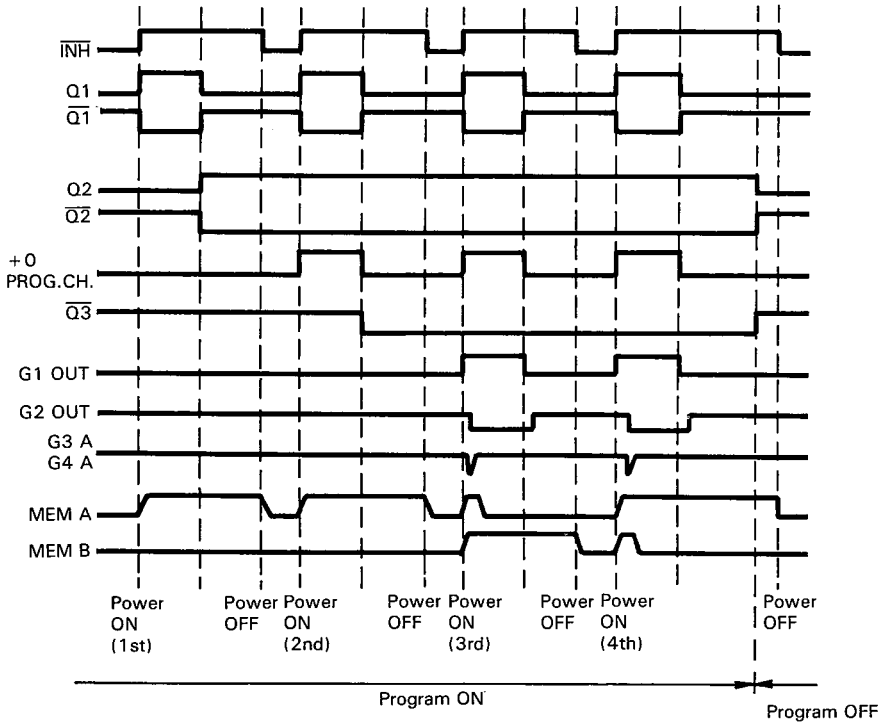
The output turns "L" when input A turns "H" after a delay determined by the time constant of 220kΩ and 0.047μF after the G1 output has become "H".

6. G3 and G4 Operations

At the instant the G2 output becomes "L", input A to G3 and G4 becomes "L" with a time constant determined by 220kΩ and 2200μF, and the G4 output turns "H" because MEM B is "L". At the next rise of $\overline{INH}$, the G3 output turns "H" because MEM A is "L".

7. PRESET A and B are switched by applying "H" to input B of G2 and inverting G3 and G4 between "H" and "L".





ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		Unless otherwise specified, the individual switches should be set as following: SELECTOR: FM TUNING MODE: AUTO					
1	BAND EDGE (1)	–	Connect a DC voltmeter between TP3 and TP4(GND).	87.5MHz	L8	3.0V	(a)
2	BAND EDGE (2)	–	Connect a DC voltmeter between TP3 and TP4(GND).	108.0MHz	TC1	25.0V	(a)
		Repeat alignments 1 and 2 several times.					
3	DETECTOR (1)	(A) 98.0MHz 0 dev 100dBμ(ANT input)	Connect a DC voltmeter between TP10 and TP11.	98.0MHz	T2	Confirm that voltage changes to both + and − direction. Then adjust to 0V.	(b)
4	DETECTOR (2)	(A) 98.0MHz 0 dev 100dBμ(ANT input)	Connect a DC voltmeter between TP12 and TP13.	98.0MHz	L14	Confirm that voltage changes to both + and − direction. Then adjust to 0V.	(c)
5	RF ALIGNMENT	(A) 90.0MHz 1kHz,±75kHz dev 60dBμ(ANT input)	(B)	90.0MHz	L1,3,4,7	Maximum amplitude and symmetry of the oscilloscope display.	
6	AUTO STOP LEVEL	(A) 98.0MHz 0 dev 10dBμ(ANT input)	–	98.0MHz	VR1	Adjust VR1 so that SIGNAL LED goes off. Then, adjust VR1 and stop at the point where LED "1" goes on.	
7	VCO	(A) 98.0MHz 0 dev 60dBμ(ANT input)	Connect a frequency counter to TP15 via an AC voltmeter.	98.0MHz	VR8	19000Hz	(d)
8	DISTORTION (1) (MONO)	(A) 98.0MHz 1kHz,±75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR2	Minimum distortion.	
9	DISTORTION (2) (MONO)	(C) 98.0MHz 1kHz,±68.25kHz dev SELECTOR: MONO Pilot:±6.75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR3	Minimum distortion.	
10	DISTORTION (3) (MONO)	(A) 98.0MHz 1kHz,±75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR6	Minimum distortion.	
		Repeat alignments 8～10 several times.					
11	DISTORTION (4) (STEREO)	(C) 98.0MHz 1kHz,±68.25kHz dev Selector: L Pilot:±6.75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR4	Minimum distortion.	
12	SEPARATION	(C) 98.0MHz 1kHz,±68.25kHz dev Selector: SUB Pilot: ±6.75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR5	Minimum crosstalk.	

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
13	DISTORTION (5)	(C) 98.0MHz 10kHz,±68.25kHz dev Selector: L Pilot: ±6.75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR7	Minimum distortion.	
14	SEPARATION (1) R→L	(C) 98.0MHz 1kHz,±68.25kHz dev Selector: R Pilot: ±6.75kHz dev 80dBμ(ANT input)	(B) Lch	98.0MHz	VR11	Minimum crosstalk.	
15	SEPARATION (2) L→R	(C) 98.0MHz 1kHz,±68.25kHz dev Selector: L Pilot: ±6.75kHz dev 80dBμ(ANT input)	(B) Rch	98.0MHz	VR10	Minimum crosstalk.	
16	SEPARATION (3) L→R	(C) 98.0MHz 1kHz,±68.25kHz dev Selector: L Pilot: ±6.75kHz dev 80dBμ(ANT input)	(B)	98.0MHz	VR9	Minimum crosstalk. A compromise adjustment may be required if L to R and R to L separation are unequal.	
AM SECTION		Keep the AM loop antenna installed. SELECTOR: AM					
(1)	BAND EDGE (1)	–	Connect a DC voltmeter between TP3 and TP4(GND).	530kHz (522kHz)	L16	1.5V	(a)
(2)	BAND EDGE (2)	–	Connect a DC voltmeter betwwen TP3 and TP4(GND).	1600kHz (1611kHz)	TC2	8.0V	(a)
		Repeat alignments (1) and (2) several times.					
(3)	RF ALIGNMENT (1)	(D) 630kHz 400Hz,30% mod	(B)	630kHz	L18	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1440kHz 400Hz,30% mod	(B)	1440kHz	TC3	Maximum amplitude and symmetry of the oscilloscope display.	
		Repeat alignments (3) and (4) several times.					

REGLAGES

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG
SECTION MF		Sauf en cas d'indications spéciales, régler chaque commutateur comme suit: SELECTOR: FM TUNING MODE: AUTO					
1	BORD DE BANDE (1)	–	Connecter un voltmètre CC entre les TP3 et TP4(GND).	87,5MHz	L8	3,0V	(a)
2	BORD DE BANDE (2)	–	Connecter un voltmètre CC entre les TP3 et TP4(GND).	108,0MHz	TC1	25,0V	(a)
Répéter les alignements 1 et 2 plusieurs fois.							
3	DETECTEUR (1)	(A) 98,0MHz 0 dév 100dBμ (Entrée ANT)	Connecter un voltmètre CC entre les TP10 et TP11.	98,0MHz	T2	Affermir que la tension change dans la direction + et −. Alors ajuster à 0V.	(b)
4	DETECTEUR (2)	(A) 98,0MHz 0 dév 100dBμ (Entrée ANT)	Connecter un voltmètre CC entre les TP12 et TP13.	98,0MHz	T14	Affermir que la tension change dans la direction + et −. Alors ajuster à 0V.	(c)
5	ALIGNEMENT HT	(A) 90,0MHz 1kHz.±75kHz dév 60dBμ (Entrée ANT)	(B)	90,0MHz	L1.3.4.7	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
6	NIVEAU DE AUTO ARRET	(A) 98,0MHz 0 dév 10dBμ (Entrée ANT)	–	98,0MHz	VR1	Ajuster VR1 que SIGNAL LED est non allume. Alors, ajuster VR1 et arrêter le mouvement de VR1 au moment où le LED "1" s'allume.	
7	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 60dBμ (Entrée ANT)	Connecter un compteur de fréquence à TP15 par l'intermédiaire d'un voltmètre CA.	98,0MHz	VR8	19000Hz	(d)
8	DISTORSION (1) (MONO)	(A) 98,0MHz 1kHz.±75kHz dév 80dBμ (Entrée ANT)	(B)	98,0MHz	VR2	Distorsion minimale.	
9	DISTORSION (2) (MONO)	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:MONO Signal pilote: ±6,75kHz dév 80dBμ (Entrée ANT)	(B)	98,0MHz	VR3	Distorsion minimale.	
10	DISTORSION (3) (MONO)	(A) 98,0MHz 1kHz.±75kHz dév 80dBμ (Entrée ANT)	(B)	98,0MHz	VR6	Distorsion minimale. Affermir que le figure de Lissajou sur l'écran de l'oscilloscope ne soit plus qu'une ligne droit.	
Répéter les alignements 8～10 plusieurs fois.							
11	DISTORSION (4) (STEREO)	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:L Signal pilote: ±6,75kHz dév 80dBμ (Entrée ANT)	(B)	98,0MHz	VR4	Distorsion minimale.	
12	SEPARATION	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:SUB Signal pilote: ±6,75kHz dév 80dBμ (Entrée ANT)	(B)	98,0MHz	VR5	Diaphonie minimale.	

REGLAGES

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG
13	DISTORTION (5)	(C) 98,0MHz 10kHz.±68,25kHz dév Sélection:L Signal pilote:ON 80dBμ (Entrée ANT)	(B)	98,0MHz	VR7	Distorsion minimale.	
14	SEPARATION (1) D→G	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:R Signal pilote:ON 80dBμ (Entrée ANT)	(B) Lch	98,0MHz	VR11	Diaphonie minimale.	
15	SEPARATION (2) G→D	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:L Signal pilote:ON 80dBμ (Entrée ANT)	(B) Rch	98,0MHz	VR10	Diaphonie minimale.	
16	SEPARATION (3) G→D	(C) 98,0MHz 1kHz.±68,25kHz dév Sélection:L Signal pilote:ON 80dBμ (Entrée ANT)	(B)	98,0MHz	VR9	Diaphonie minimale. Un compromis de réglage peut être nécessaire si les séparations de gauche à droite et de droite à gauche sonr inégales.	
SECTION MA		Laisser l'antenne boucle MA installée. SELECTOR: AM					
(1)	BORD DE BANDE (1)	–	Connecter un voltmètre CC entre les TP3 et TP4(GND).	530kHz (522kHz)	L16	1,5V	(a)
(2)	BORD DE BANDE (2)	–	Connecter un voltmètre CC entre les TP3 et TP4(GND).	1600kHz (1611kHz)	TC2	8,0V	(a)
Répéter les alignements (1) et (2) plusieur fois.							
(3)	ALIGNEMENT HT (1)	(D) 630kHz 400Hz.30% mod	(B)	630kHz	L18	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT HT (2)	(D) 1440kHz 400Hz.30% mod	(B)	1440kHz	TC3	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les alignements (3) et (4) plusieur fois.							

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FüR	ABB.
UKW-EMPFANGSABTEILUNG		Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen: SELECTOR: FM TUNING MODE: AUTO					
1	BANDKANTE (1)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	87,5MHz	L8	3,0V	(a)
2	BANDKANTE (2)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	108,0MHz	TC1	25,0V	(a)
Abstimmungen 1 und 2 mehrere Male wiederholen.							
3	DETEKTOR (1)	(A) 98,0MHz 0 Hub 100dBμ (ANT-Eingang)	Einen Gleichspannungs-messer zwischen TP10 und TP11 anschließen.	98,0MHz	T2	Bestätigen so daß die Spannung beide richtung zu + und − ändert. Dann zu 0V einstellen.	(b)
4	DETEKTOR (2)	(A) 98,0MHz 0 Hub 100dBμ (ANT-Eingang)	Einen Gleichspannungs-messer zwischen TP12 und TP13 anschließen.	98,0MHz	L14	Bestätigen so daß die Spannung beide richtung zu + und − ändert. Dann zu 0V einstellen.	(c)
5	HF-ABGLEICH	(A) 90,0MHz 1kHz.±75kHz Hub 60dBμ (ANT-Eingang)	(B)	90,0MHz	L1.3.4.7	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
6	AUTO HALT PAGEL	(A) 98,0MHz 0 Hub 10dBμ (ANT-Eingang)	–	98,0MHz	VR1	Den Pegel widerstand VR1 so einstellen,daß der SIGNAL LED anzeiger nicht leuchtet Dann der Pegel widerstand aufdrehen,und dem VR1 Halt geben wobei den LED "1" anzeiger leuchtet wird.	
7	SPANNUNGS-GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 60dBμ (ANT-Eingang)	Einen Frequenzmesser an TP15 über einen Wechselspannungsmesser anschließen.	98,0MHz	VR8	19000Hz	(d)
8	KLIRRFAKTOR (1) (MONO)	(A) 98,0MHz 1kHz.±75kHz Hub 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR2	Minimale Klirrfaktor.	
9	KLIRRFAKTOR (2) (MONO)	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:MONO Pilotten: ±6,75kHz Hub 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR3	Minimale Klirrfaktor.	
10	KLIRRFAKTOR (3) (MONO)	(A) 98,0MHz 1kHz.±75kHz Hub 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR6	Minimale Klirrfaktor.	
Abstimmungen 8～10 mehrere Male wiederholen.							
11	KLIRRFAKTOR (4) (STEREO)	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:L Pilotten: ±6,75kHz Hub 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR4	Minimale Klirrfaktor.	
12	STEREO KANAL TRENNUNG	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:SUB Pilotten: ±6,75kHz Hub 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR5	Minimales übersprechen.	

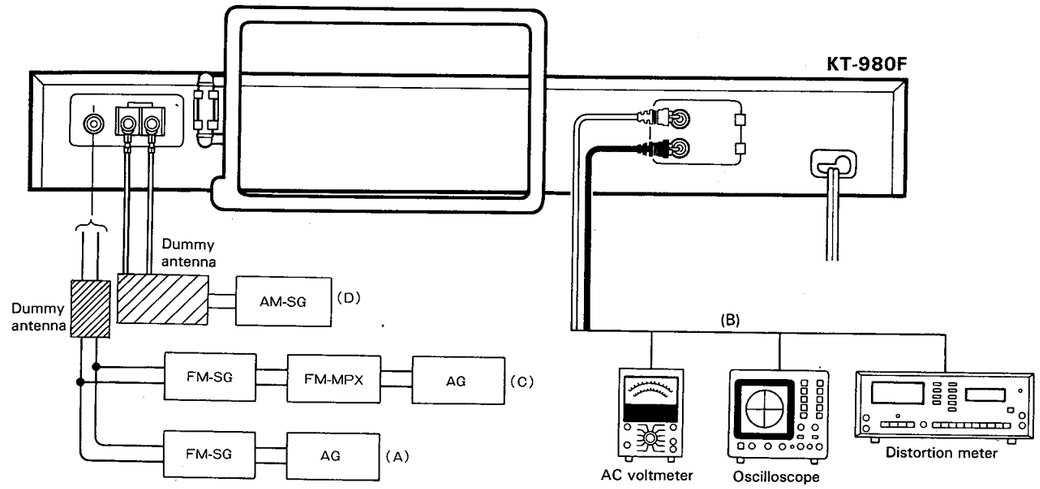
ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FüR	ABB.
13	KLIRRFAKTOR (5)	(C) 98,0MHz 10kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR7	Minimale Klirrfaktor.	
14	STEREO KANAL TRENNUNG (1) R→L	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:R Pilotten:ON 80dBμ (ANT-Eingang)	(B) Lch	98,0MHz	VR11	Minimales übersprechen.	
15	STEREO KANAL TRENNUNG (2) L→R	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B) Rch	98,0MHz	VR10	Minimales übersprechen.	
16	STEREO KANAL TRENNUNG (3) L→R	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR9	Minimales übersprechen. Einen Ausgleichregelung kann notwendig sein, falls links zu rechts und rechts zu links Trennungen ungleich sind.	
MW-EMPFANGSABTEILUNG		Die MW-Rahmenantenne angebracht lassen. SELECTOR: AM					
(1)	BANDKANTE (1)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	530kHz (522kHz)	L16	1,5V	(a)
(2)	BANDKANTE (2)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	1600kHz (1611kHz)	TC2	8,0V	(a)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 630kHz 400Hz.30% mod	(B)	630kHz	L18	Maximale Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1440kHz 400Hz.30% mod	(B)	1440kHz	TC3	Maximale Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
13	KLIRRFAKTOR (5)	(C) 98,0MHz 10kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR7	Minimale Klirrfaktor.	
14	STEREO KANAL TRENNUNG (1) R→L	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:R Pilotten:ON 80dBμ (ANT-Eingang)	(B) Lch	98,0MHz	VR11	Minimales übersprechen.	
15	STEREO KANAL TRENNUNG (2) L→R	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B) Rch	98,0MHz	VR10	Minimales übersprechen.	
16	STEREO KANAL TRENNUNG (3) L→R	(C) 98,0MHz 1kHz.±68,25kHz Hub Wahler:L Pilotten:ON 80dBμ (ANT-Eingang)	(B)	98,0MHz	VR9	Minimales übersprechen. Einen Ausgleichregelung kann notwendig sein, falls links zu rechts und rechts zu links Trennungen ungleich sind.	
MW-EMPFANGSABTEILUNG		Die MW-Rahmenantenne angebracht lassen.		SELECTOR: AM			
(1)	BANDKANTE (1)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	530kHz (522kHz)	L16	1,5V	(a)
(2)	BANDKANTE (2)	–	Einen Gleichspannungs-messer zwischen TP3 und TP4(GND) anschließen.	1600kHz (1611kHz)	TC2	8,0V	(a)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 630kHz 400Hz.30% mod	(B)	630kHz	L18	Maximale Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1440kHz 400Hz.30% mod	(B)	1440kHz	TC3	Maximale Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							

ADJUSTMENT/REGLAGES/ABGLEICH

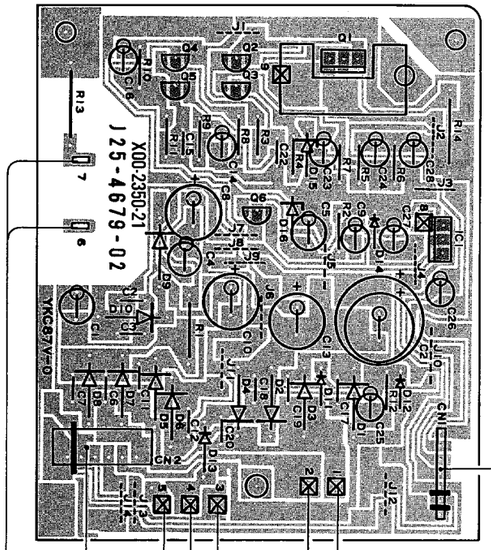


KT-980F KT-980F

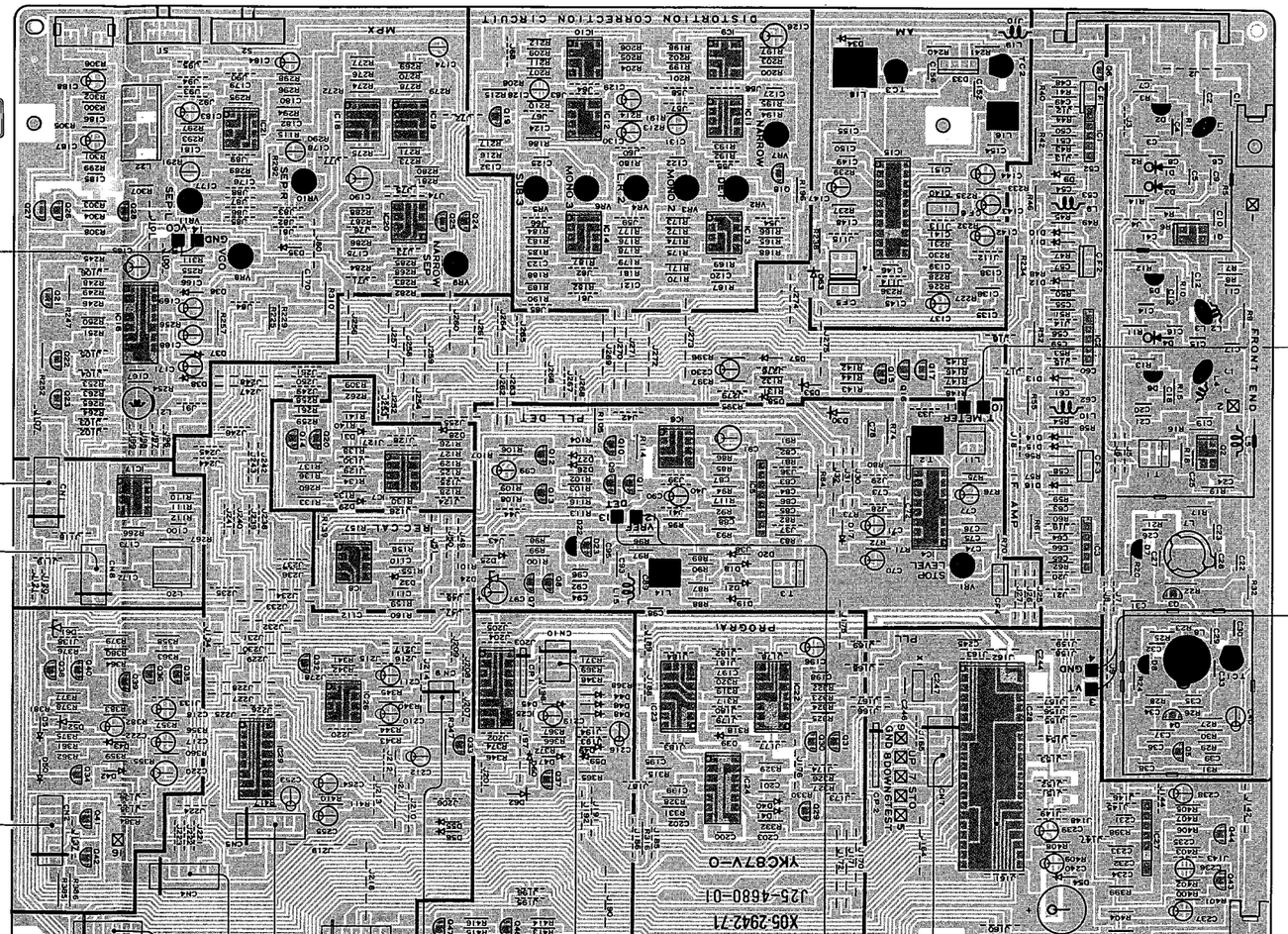
PC BOARD

To AC inlet

POWER SUPPLY UNIT (X00-2350-21)
Component side view



TUNER UNIT (X05-2942-71) Component side view



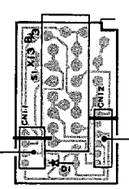
(d)
Frequency counter

AC voltmeter

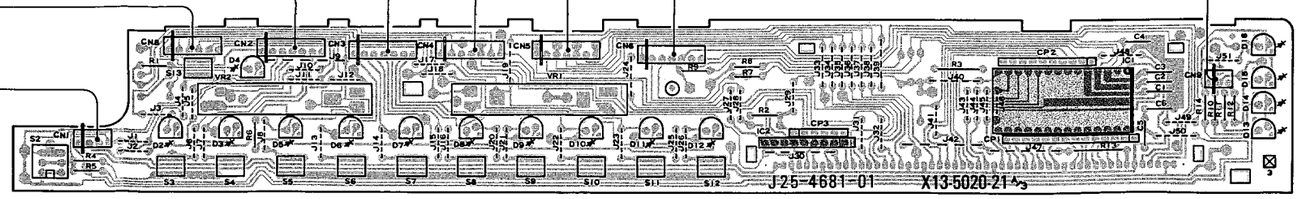
(b)
DC voltmeter

(a)
DC voltmeter

(c)
DC voltmeter



FRONT



DISPLAY UNIT (X13-5020-21) Component side view

KT-980F

X05-2942-71

IC1,2,3

1	1.3V
2	1.3V
3	0V
4	11.5V
5	12.5V

IC4

1	3V
2	
3	
4	0V
5	
6	6V
7	
8	
9	
10	
11	13.5V
12	<0.2V> [5V]
13	6V (0V)
14	0V
15	3V
16	0V

IC5

1	11V
2	10.5V
3	0.8V
4	0V
5	1.5V
6	3.5V
7	

IC7

4	−15.5V
8	14.5V

IC8

4	0V
8	14.5V

IC9

2	7.1V
3	0V
6	7.1V
7	

IC10

2	7.1V
3	0V
6	7.1V
7	

IC11

3	7.1V
4	0V
8	14.5V

IC12

1	7.1V
2	
4	0V
5	7.1V
8	14.5V

IC13,14

4	0V
8	14.5V

IC15

1	2.8V
2	2.3V
3	2.8V
4	0V
5	11.8V
6	2V
7	12V
8	
9	2.7V
10	11.3V
11	0.7V
12	0V
13	2.9V
14	13.4V
15	1.7V
16	3.8V
17	2.9V(2V)
18	5.5V
19	
20	2.8V

IC16

1	12.8V
2	1.5V (2.7V)
3	—
4	11.3V
5	
6	14V
7	0V
8	1.7V
9	6V
10	2V
11	
12	
13	
14	
15	
16	2.8V

IC17

4	0V
8	14.5V

IC18

2	7.1V
3	0V
6	7.1V
7	

IC19

2	7.1V
3	0V
6	7.1V
7	

IC20,21

3	7.1V
4	0V
5	7.1V
8	14.5V

IC22

4	0V
5	
7	
8	
11	5V
14	AM: 13.5V

IC23

6	0V
7	
8	
14	AM: 13.5V

IC25

6	5V
8	0V
9	5V
10	
12	AM: 13.5V
13	
14	
15	
16	

IC26

4	−15.5V
8	14.5V

IC28

1	0V
31	AM: 13.5V
40	5V
42	AM: 13.5V

IC29

6	FM: 13.5V
7	AM: 13.5V
8	14.5V
9	0V

Q1

GA	10V
GB	—
S	0V
D	—

Q2

D	10.5V
S	0V
G	—

Q4

E	—
C	12V
B	—

Q5

G	—
S	0V
D	7.6V

Q23

E	14.5V
C	—
B	—

Q24,18

G	—
S	7.1V
D	—

Q15

E	14.5V
C	—
B	—

Q29

E	—
C	5.6V
B	—

Q30,31

E	5.6V
C	—
B	—

Q32

E	14.5V
C	—
B	—

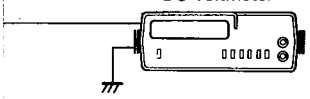
Q39

E	14.5V
C	14.2V
B	—

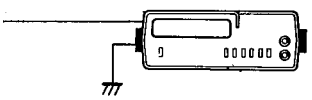
Q28

E	MUTE ON:4.2V OFF:0V
C	—
B	—

(b)
DC voltmeter



(a)
DC voltmeter



X00-2350-21

Q1

E	14.5V
C	22.5V
B	—

Q2

E	—
C	22.5V
B	—

Q4

E	28.0V
C	46.0V
B	—

IC1

1	17.5V
2	—
3	5.6V

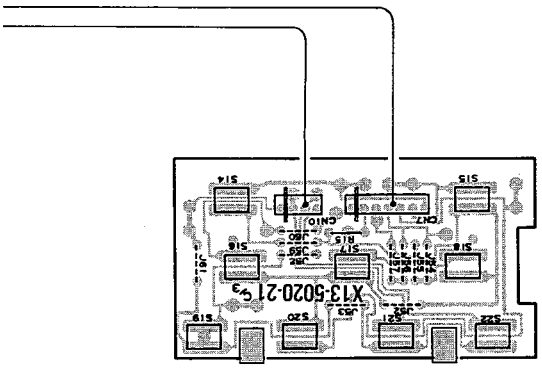
X13-5020-21

IC1

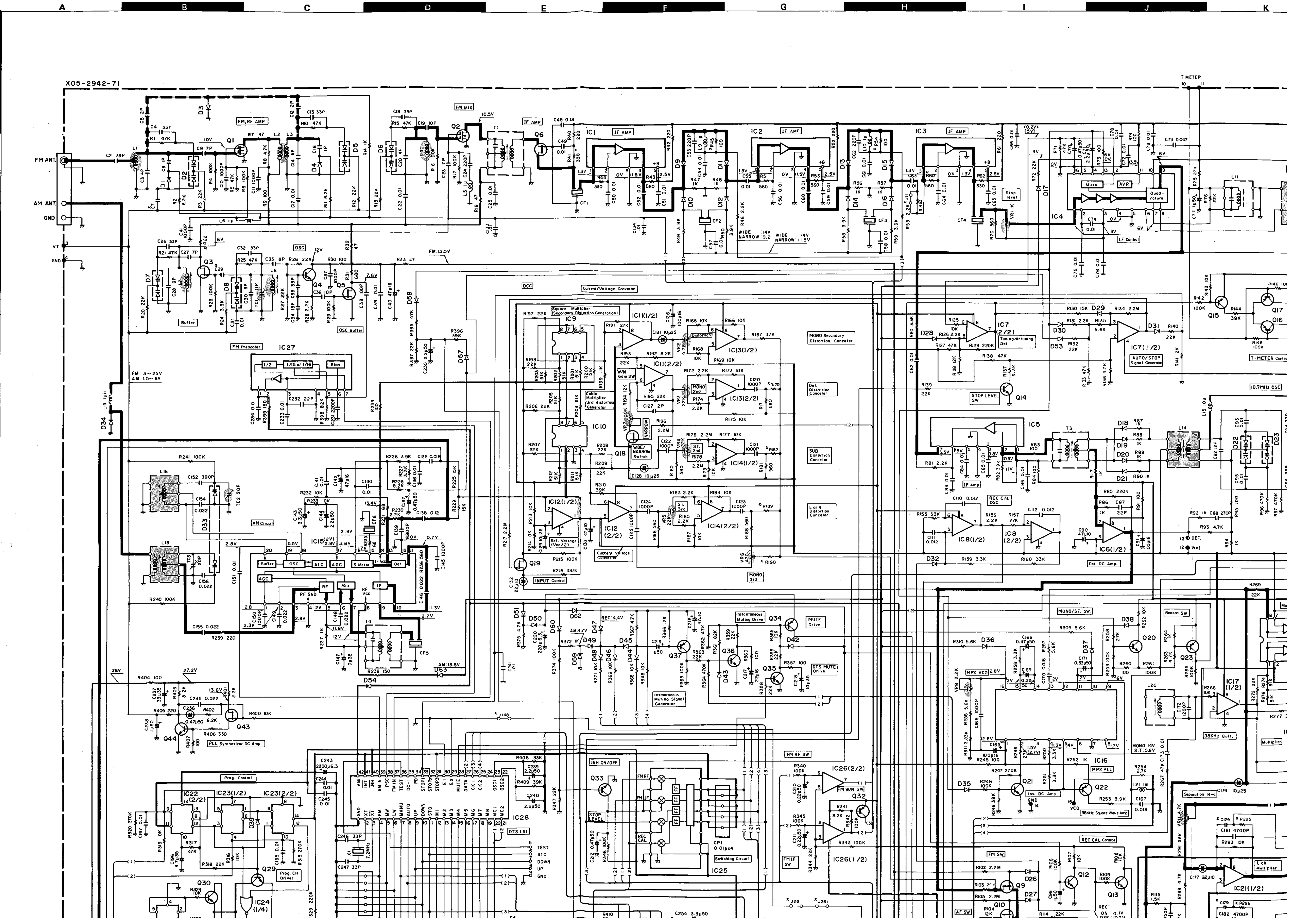
1,14	0V
5~13	0.7~12.3V
15~27	
28	5.0V

IC2

1~4,6	13.3V
5	0V
7	0.9V
9	14.4V



Refer to the schematic diagram for the values of resistors and capacitors.
The PC board drawing is viewing from the side easy to check.


X05-2942-71
FM ANT.
AM ANT.
GND
FM,RF AMP
FM MIX
IF AMP
OSC
Buffer
OSC Buffer
FM Prescaler
IC27
AM Circuit
IC15
PLL Synthesizer DC Amp
Prog. Control
Prog. CH Driver
IC28
DTS LSI
DCC
Current/Voltage Converter
Square Multiplier (Secondary Distortion Generation)
Cubic Multiplier 3rd distortion Generator
Ref. Voltage (Vcc/2)
INPUT Control
MONO Secondary Distortion Canceler
Det. Distortion Canceler
SUB Distortion Canceler
L or R Distortion Canceler
Instantaneous Muting Drive
Instantaneous Muting Signal Generator
MUTE Drive
DTS MUTE Drive
INH ON/OFF
STOP LEVEL
REC CAL
Switching Circuit
IC25
FM RF SW
FM W/N SW
FM IF SW
Stop level
IF Control
Mute
AVR
Quadrature
Tuning/detuning Det.
STOP LEVEL SW
AUTO/STOP Signal Generator
T-METER Control
10.7MHz OSC
IF Amp
REC CAL OSC
Det. DC Amp.
MONO/ST. SW.
Beacon SW
MPX VCO
MPX PLL
Inv. DC Amp
38KHz Square Wave Amp
38KHz Buff.
Separation R-L
Multiplier
Lch Multiplier
REC CAL Control
FM SW
AF SW
T METER

Q1,2	: 3SK73(GR)
Q3,5,6	: 2SK241(GR)
Q4	: 2SC461
Q7,8,	: 2SK161(Y,GR)
Q9,25,43	: 2SK364(GR,BL)
Q10,11,18,19,24	: 2SK246(Y,GR)
Q12~14,20,21, 29,33,35,36,40,44	: 2SC945(A)(Q,P) or 2SC2320(E,F)
Q16,22,23,28, 30,31,32,34,37,38,41,42	: 2SA733(A)(Q,P) or 2SA999(E,F)
Q16,17	: 2SA992(F,E)
Q26,27	: 2SD1302(S)
Q39	: 2SA954(L,K)

(X05-2942-)

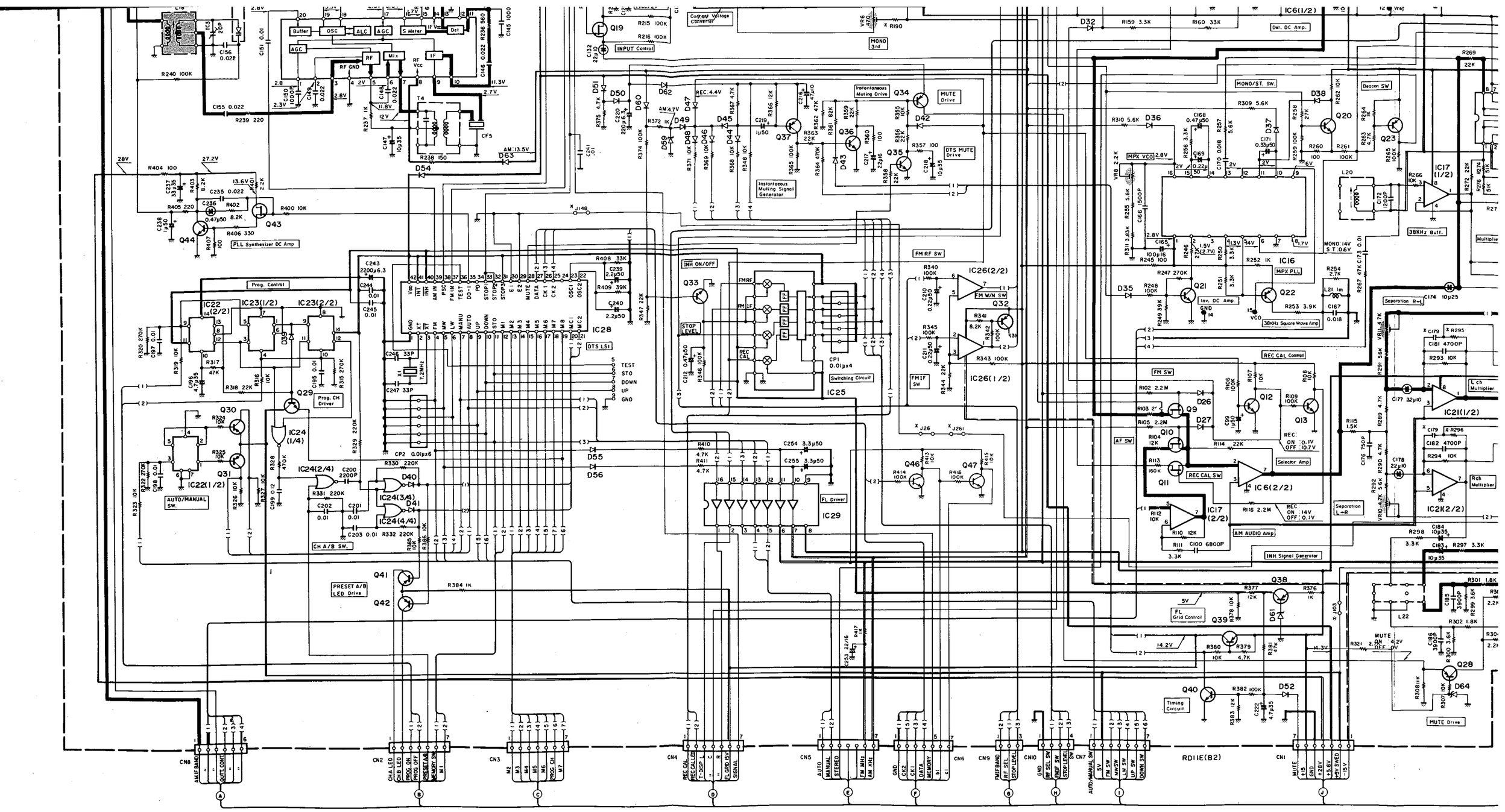
	0-21	2-71
C29	4P	3P
R45,54	120	220
C179,180	2400P	—
R295,296	100K	—
C189	—	.01
R63	—	200
J149	—	
C7	.01	—
J11	○	—
R60	560	360
R22	680	470
S1,2	○	—
J26,103	○	—
J48,261	○	—

■ **This circuit is a standard circuit, but is subject to change without notice.**

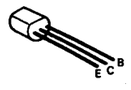
DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

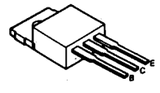
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanden die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.



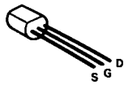
2SA733(A) 2SA954 2SA992 2SA999 2SC2320 — 2SC461 2SC945(A) 2SD1302 2SD863



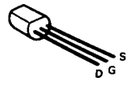
2SC2167



2SK246

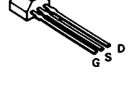


2SK364

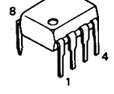


3SK73

2SK161 2SK241

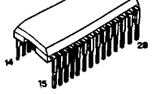


NJM4200D

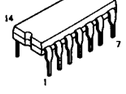


TD6104P

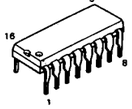
TD6301AP



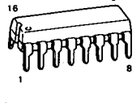
UPD4001BC UPD4013BC



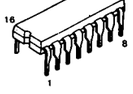
BA618



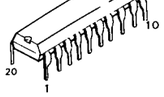
LA1231NS LA3350S



TC9130P



LA1245

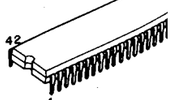


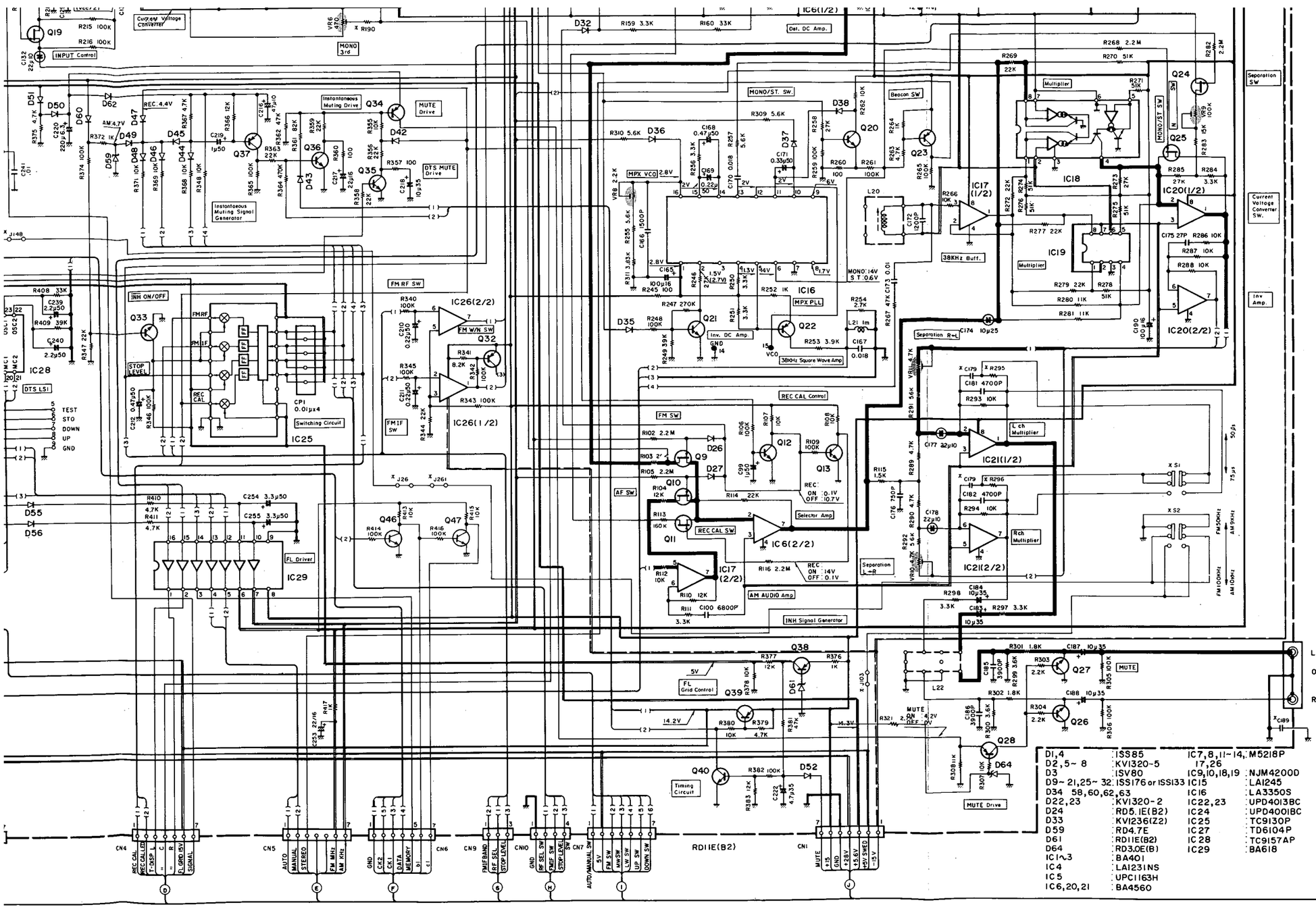
UPC1163H

BA6104 BA4560

M5218P

TC9157AP





■ **This circuit is a standard circuit, but is subject to change without notice.**

DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

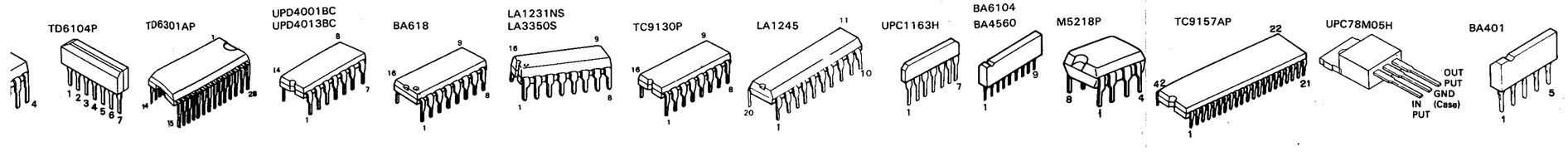
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanden die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

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.

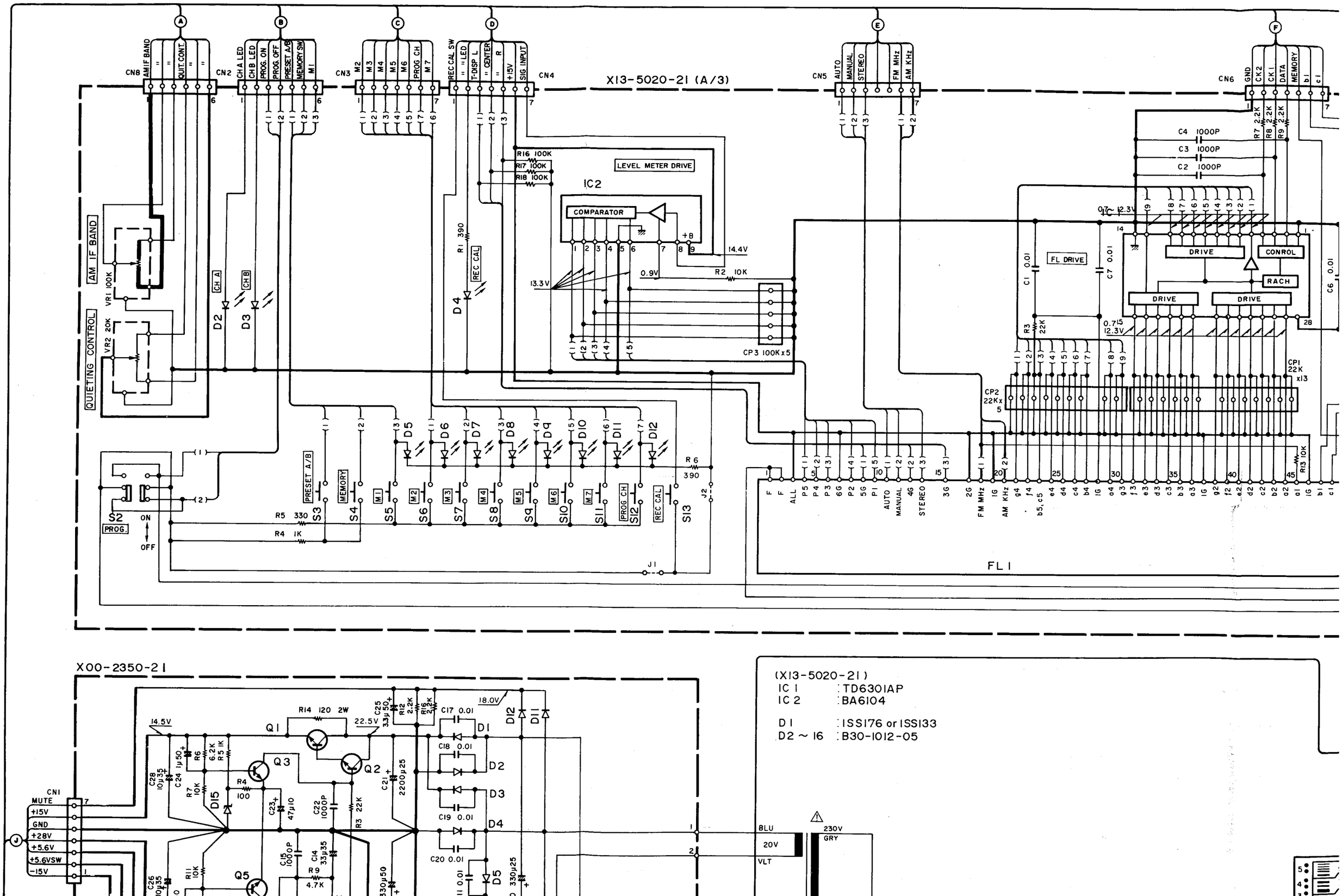
D1,4	: ISS85	IC7,8,11~14, 17,26	: M5218P
D2,5~8	: KVI320-5	IC9,10,18,19	: NJM4200D
D3	: ISV80	IC15	: LAI245
D9~21,25~32	: ISS176 or ISS133	IC16	: LA3350S
D34 58,60,62,63		IC22,23	: UPD4013BC
D22,23	: KVI320-2	IC24	: UPD4001BC
D24	: RD5.1E(B2)	IC25	: TC9130P
D33	: KVI236(Z2)	IC27	: TD6104P
D59	: RD4.7E	IC28	: TC9157AP
D61	: RDIIE(B2)	IC29	: BA618
D64	: RD3.0E(B)		
IC1~3	: BA401		
IC4	: LAI231NS		
IC5	: UPC1163H		
IC6,20,21	: BA4560		

KT-980F(K)(1/2)



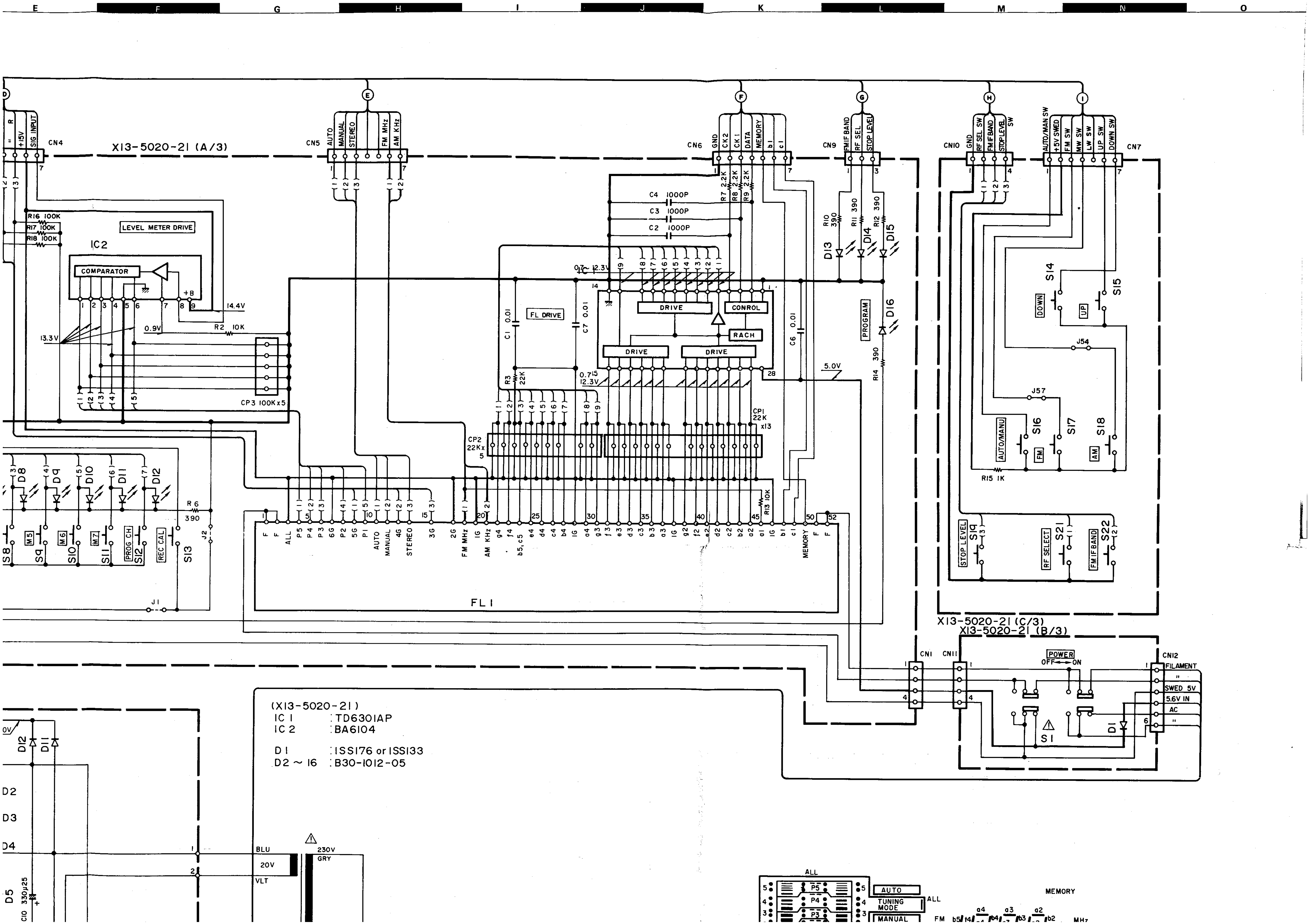
KT-980F

KENWOOD



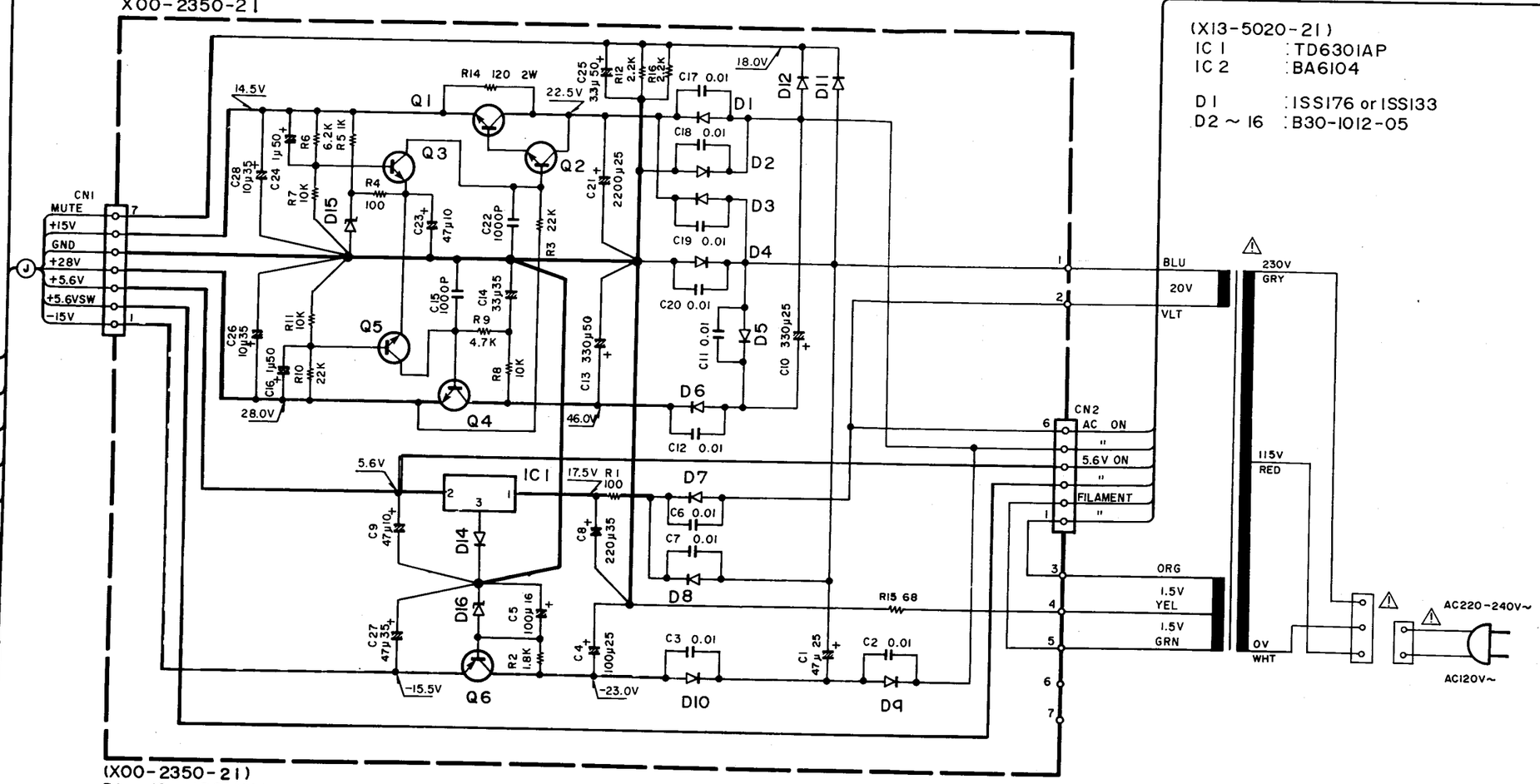
(X13-5020-21)

IC 1	: TD6301AP
IC 2	: BA6104
D 1	: ISS176 or ISS133
D2 ~ 16	: B30-1012-05


E F G H I J K L M N O
X13-5020-21 (A/3)
X13-5020-21 (C/3)
X13-5020-21 (B/3)
CN4
SIG INPUT
+15V
CN5
AUTO
MANUAL
STEREO
FM MHz
AM KHz
CN6
GND
CK2
CK1
DATA
MEMORY
b1
c1
CN9
FM IF BAND
RF SEL
STOP LEVEL
CN10
RF SEL SW
FM IF BAND
STOP LEVEL SW
CN7
AUTO/MAN SW
+5V SWED
FM SW
MW SW
LW SW
UP SW
DOWN SW
LEVEL METER DRIVE
IC2
COMPARATOR
R16 100K
R17 100K
R18 100K
14.4V
13.3V
0.9V
R2 10K
CP3 100K x5
C4 1000P
C3 1000P
C2 1000P
R7 2.2K
R8 2.2K
R9 2.2K
R10 390
R11 390
R12 390
R14 390
D13
D14
D15
D16
PROGRAM
FL DRIVE
C1 0.01
C7 0.01
C6 0.01
DRIVE
CONTROL
RACH
R3 22K
CP1 22K x13
CP2 22K x 5
R13 10K
5.0V
12.3V
S14
S15
DOWN
UP
J54
J57
S16
S17
S18
AUTO/MANU
FM
AM
R15 1K
S19
S21
S22
STOP LEVEL
RF SELECT
FM IF BAND
D8
D9
D10
D11
D12
M5
M6
M7
PROG CH
REC CAL
S8
S9
S10
S11
S12
S13
R6 390
J1
J2
FL1
ALL
MEMORY
CN1
CN11
CN12
POWER
OFF ON
FILAMENT
SWED 5V
5.6V IN
AC
S1
D1
(X13-5020-21)
IC1 :TD6301AP
IC2 :BA6104
D1 :1SS176 or 1SS133
D2 ~ 16 :B30-1012-05
D2
D3
D4
D5
C10 330μ25
BLU
20V
VLT
230V
GRY
ALL
AUTO
TUNING MODE
MANUAL
P5
P4
P3

PROG.
OFF
R4 1K
J1
FL1

X00-2350-21



(X13-5020-21)
IC 1 : TD6301AP
IC 2 : BA6104

D1 : ISS176 or ISS133
D2 ~ 16 : B30-1012-05

(X00-2350-21)
D1 ~ 10 : DSMIA1
D11, 12 : ISS178 or ISS131
D14 : ISS176 or ISS133
D15 : RD8.2E(B2)
D16 : RD15E(B)

Q1 : 2SC2176(O,Y)
Q2,3,5 : 2SC2320(E,F) or 2SC945(A)(Q,P)
Q4 : 2SD863(E,F)
Q6 : 2SA954(L,K)

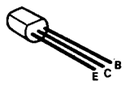
IC 1 : µPC78M05H

KT-980F(K)(2/2)

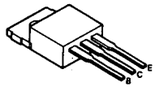
■ This circuit is a standard circuit, but is subject

DC voltages are as measured with a high i
voltmeter with no signal input. Values
slightly due to variations between individu
ments or/and units.

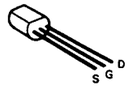
2SA733(A) 2SC461
2SA954 2SC945(A)
2SA992 2SD1302
2SA999 2SD863
2SC2320



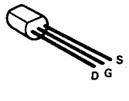
2SC2167



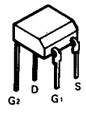
2SK246



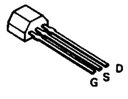
2SK364



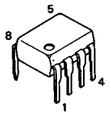
3SK73



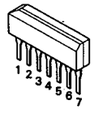
2SK161
2SK241



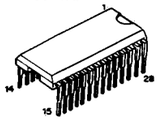
NJM4200D



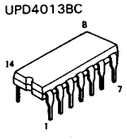
TD6104P



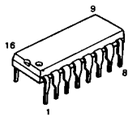
TD6301AP



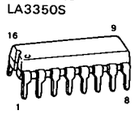
UPD4001BC
UPD4013BC



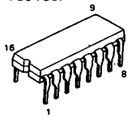
BA618



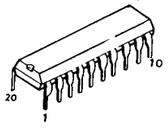
LA1231NS
LA3350S



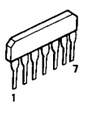
TC9130P



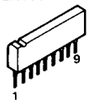
LA1245



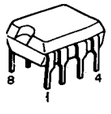
UPC1163H



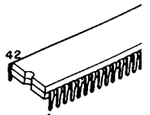
BA6104
BA4560

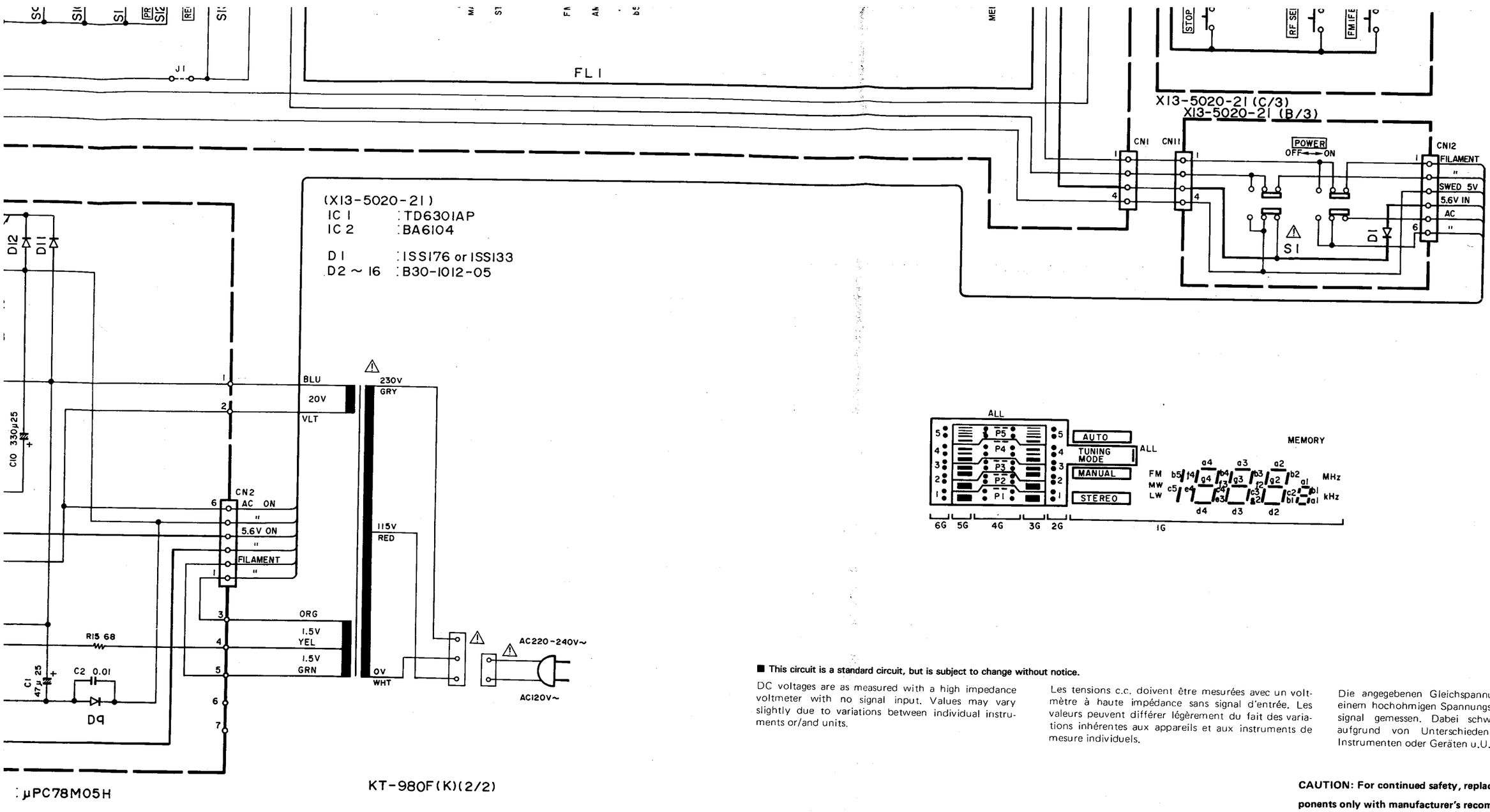


M5218P



TC9157AP





KT-980F(K)(2/2)

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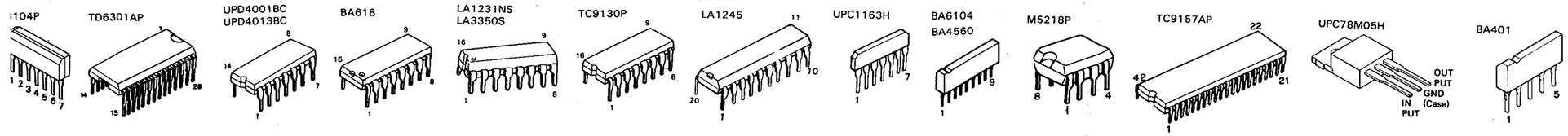
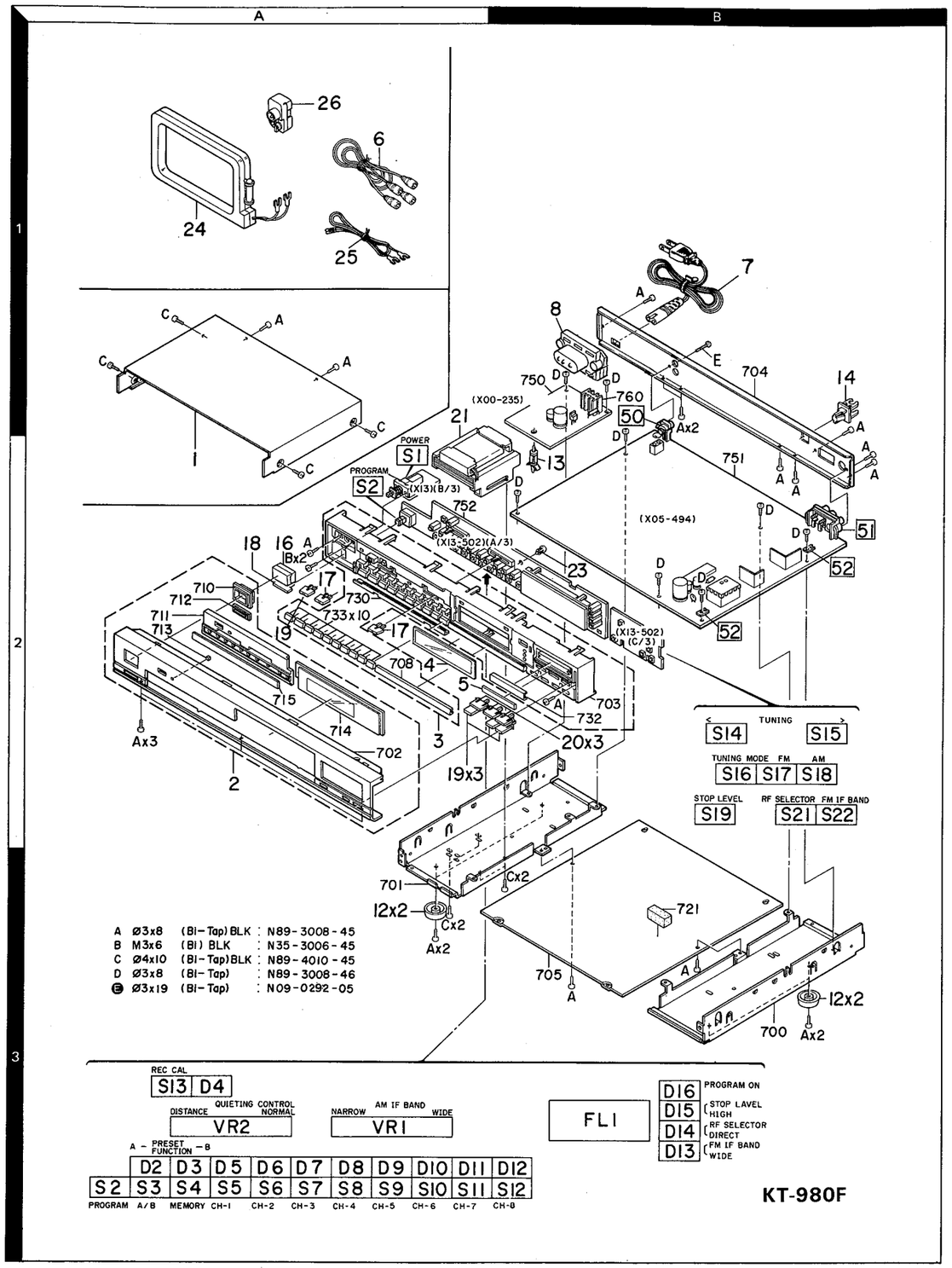


KT-980F

KENWOOD

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

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

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			KT-980F			
1	2A	*	A01-1437-01	METALLIC CABINET		
2	2A	*	A20-4493-02	PANEL ASSY		
3	2A	*	A22-0522-02	SUB PANEL ASSY		
4	2A	*	B11-0100-04	COLOR FILTER		
5	2A	*	B12-0018-04	INDICATOR		
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-5850-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-5851-00	INSTRUCTION MANUAL(FRENCH)		
-		*	B50-5852-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-5854-00	INSTRUCTION MANUAL(D,G,I)	E	
-		*	B50-5899-00	INSTRUCTION MANUAL(ARABIC)	M	
-			B58-0245-33	CAUTION CARD (FTZ)	E	
6	1A		E30-0505-05	AUDIO CORD		
⚠ 7	1B		E30-1305-15	AC POWER CORD (INLET)	M	
⚠ 7	1B		E30-1329-05	AC POWER CORD (INLET)	E	
⚠ 8	1B	*	E03-0102-25	AC INLET		
-		*	H01-5647-04	ITEM CARTON CASE		
-			H10-1671-23	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400)		
-			H25-0232-04	PROTECTION BAG (235X350)		
12	3A,3B		J02-0130-05	FOOT		
13	2B		J19-0514-05	UNIT HOLDER		
14	1B		J19-0626-12	ANTENNA HOLDER		
-			J61-0307-05	WIRE BAND		
16	2A		K29-2432-03	KNOB ASSY (POWER)		
17	2A		K27-1292-04	KNOB (BUTTON)IF BAND,QUIETING		
18	2A	*	K27-1514-04	KNOB (BUTTON) PROGRAM		
19	2A		K29-1924-04	KNOB (REC CAL.ETC)		
20	2B	*	K29-2204-04	KNOB (SELECTOR)		
⚠ 21	1A	*	L01-6774-05	POWER TRANSFORMER		
23	2B		N29-0216-05	RIVET		
E	1B		N09-0292-05	STEPPED SCREW (3X19)	E	
24	1A		T90-0111-15	LOOP ANTENNA		
25	1A		T90-0132-05	T TYPE ANTENNA		
26	1A		T90-0136-05	ANTENNA ADAPTOR		
			POWER SUPPLY UNIT (X00-2350-21)			
C1			CE04KW1E470M	ELECTRO 47UF 25WV		
C2 ,3			CK45FF1H103Z	CERAMIC 0.010UF Z		
C4			CE04KW1E101M	ELECTRO 100UF 25WV		
C5		*	CE04KW1C101M	ELECTRO 100UF 16WV		
C6 ,7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8		*	CE04KW1V221M	ELECTRO 220UF 35WV		
C9			CE04KW1A470M	ELECTRO 47UF 10WV		
C10		*	CE04KW1E331M	ELECTRO 330UF 25WV		
C11 ,12			CK45FF1H103Z	CERAMIC 0.010UF Z		
C13			CE04KW1H331M	ELECTRO 330UF 50WV		
C14			CE04KW1V330M	ELECTRO 33UF 35WV		
C15			CK45FB1H102K	CERAMIC 1000PF K		
C16			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C17 -20			CK45FF1H103Z	CERAMIC 0.010UF Z		

E: Scandinavia & Europe H:Audio Club K: USA P: Canada
T: England U: PX(Far East, Hawaii)
UE: AAFES(Europe) X: Australia M: Other Areas

⚠ indicates safety critical components.

PARTS LIST

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

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C21			CE04KW1E222M	ELECTRO 2200UF 25WV		
C22			CK45FB1H102K	CERAMIC 1000PF K		
C23			CE04KW1A470M	ELECTRO 47UF 10WV		
C24			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C25			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C26			CE04KW1V100M	ELECTRO 10UF 35WV		
C27			CE04KW1C470M	ELECTRO 47UF 16WV		
C28			CE04KW1V100M	ELECTRO 10UF 35WV		
R1			RS14DB3A101J	FL-PROOF RS 100 J 1W		
R14		*	RS14DB3D121J	FL-PROOF RS 120 J 2W		
D1 -10			DSM1A1	DIODE		
D11 ,12			1SS131	DIODE		
D11 ,12			1SS178	DIODE		
D14			1SS133	DIODE		
D14			1SS176	DIODE		
D15			RD8.2E(B2)	ZENER DIODE		
D16			RD15E(B)	ZENER DIODE		
IC1			UPC78M05H	IC(VOLTAGE REGULATOR/ +5V)		
Q1			2SC2167(O,Y)	TRANSISTOR		
Q2 ,3			2SC2320(E,F)	TRANSISTOR		
Q2. ,3			2SC945(A)(Q,P)	TRANSISTOR		
Q4			2SD863(E,F)	TRANSISTOR		
Q5			2SC2320(E,F)	TRANSISTOR		
Q5			2SC945(A)(Q,P)	TRANSISTOR		
Q6			2SA954(L,K)	TRANSISTOR		
TUNER UNIT (X05-2942-71)						
C2			CC45FSL1H390J	CERAMIC 39PF J		
C3			CC45FTH1H040C	CERAMIC 4.0PF C		
C4			CC45FPH1H330J	CERAMIC 33PF J		
C5			CC45FSL1H020C	CERAMIC 2.0PF C		
C7			CK45FF1H103Z	CERAMIC 0.010UF Z	M	
C8			CC45FSL1H010C	CERAMIC 1.0PF C		
C9			CC45FSL1H070D	CERAMIC 7.0PF D		
C10 ,11			CK45FB1H102K	CERAMIC 1000PF K		
C12			CC45FSL1H020C	CERAMIC 2.0PF C		
C13			CC45FPH1H330J	CERAMIC 33PF J		
C14		*	CC45FTH1H060D	CERAMIC 6.0PF D		
C16			CC45FSL1H010C	CERAMIC 1.0PF C		
C17			CK45FF1H103Z	CERAMIC 0.010UF Z		
C18			CC45FPH1H330J	CERAMIC 33PF J		
C19			CC45FSL1H100D	CERAMIC 10PF D		
C20			CC45FTH1H040C	CERAMIC 4.0PF C		
C21			CC45FSL1H020C	CERAMIC 2.0PF C		
C22			CK45FF1H103Z	CERAMIC 0.010UF Z		
C23			CC45FSL1H070D	CERAMIC 7.0PF D		
C24			CC45FSL1H221J	CERAMIC 220PF J		
C25			CK45FF1H103Z	CERAMIC 0.010UF Z		
C26			CC45FPH1H330J	CERAMIC 33PF J		
C27			CC45FSL1H070D	CERAMIC 7.0PF D		
C28		*	CC45FTH1H090D	CERAMIC 9.0PF D		
C29			CC45FSL1H030C	CERAMIC 3.0PF C	E	
C29			CC45FSL1H040C	CERAMIC 4.0PF C	M	
C30			CC45FRH1H030C	CERAMIC 3.0PF C		
C31			CK45FF1H103Z	CERAMIC 0.010UF Z		

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C32			CC45FPH1H330J	CERAMIC	33PF	J		
C33			CC45FTH1H080D	CERAMIC	8.0PF	D		
C34			CC45FSL1H150J	CERAMIC	15PF	J		
C35			CC45FSL1H330J	CERAMIC	33PF	J		
C36			CC45FSL1H100D	CERAMIC	10PF	D		
C37			C91-0757-05	CERAMIC	0.001UF	K		
C38			CC45FSL1H101J	CERAMIC	100PF	J		
C39			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C40		*	CE04KW1C470M	ELECTRO	47UF	16WV		
C41			CK45FB1H102K	CERAMIC	1000PF	K		
C48 -52			C91-0769-05	CERAMIC	0.01UF	M		
C53			C91-0749-05	CERAMIC	220PF	K		
C54 -61			C91-0769-05	CERAMIC	0.01UF	M		
C62			C91-0749-05	CERAMIC	220PF	K		
C63 -66			C91-0769-05	CERAMIC	0.01UF	M		
C70			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C71		*	CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C72			C91-0769-05	CERAMIC	0.01UF	M		
C73			CK45FF1H473Z	CERAMIC	0.047UF	Z		
C74 -76			C91-0769-05	CERAMIC	0.01UF	M		
C77			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C78			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C82 -86			C91-0769-05	CERAMIC	0.01UF	M		
C87			CC45FSL1H220J	CERAMIC	22PF	J		
C88			CQ09FS1H271J	POLYSTY	270PF	J		
C90			CE04KW1A470M	ELECTRO	47UF	10WV		
C91			CE04KW1C101M	ELECTRO	100UF	16WV		
C92			CC45FUJ1H120J	CERAMIC	12PF	J		
C93			C91-0769-05	CERAMIC	0.01UF	M		
C94			CC45FSL1H330J	CERAMIC	33PF	J		
C95			C91-0769-05	CERAMIC	0.01UF	M		
C96			CC45FSL1H330J	CERAMIC	33PF	J		
C97			CE04KW0J331M	ELECTRO	330UF	6.3WV		
C98			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C99			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C100			CF92FV1H682J	MF	6800PF	J		
C110-112			CF92FV1H123J	MF	0.012UF	J		
C120-125			CF92FV1H102J	MF	1000PF	J		
C126			CE04KW1C101M	ELECTRO	100UF	16WV		
C127			CC45FSL1H020C	CERAMIC	2.0PF	C		
C128			CE04HW1E100M	NP-ELEC	10UF	25WV		
C129			CE04KW1V100M	ELECTRO	10UF	35WV		
C130			CE04KW1A470M	ELECTRO	47UF	10WV		
C131			CE04HW1E100M	NP-ELEC	10UF	25WV		
C132			CE04HW1A220M	NP-ELEC	22UF	10WV		
C133			C91-0769-05	CERAMIC	0.01UF	M		
C134			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C135			CF92FV1H183J	MF	0.018UF	J		
C136			C91-0769-05	CERAMIC	0.01UF	M		
C137			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C138			CF92FV1H124J	MF	0.12UF	J		
C139			CF92FV1H682J	MF	6800PF	J		
C140,141			C91-0769-05	CERAMIC	0.01UF	M		
C142		*	CE04KW1C470M	ELECTRO	47UF	16WV		
C143			CE04KW1H3R3M	ELECTRO	3.3UF	50WV		

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C144		*	CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C145			CK45FB1H102K	CERAMIC	1000PF	K		
C146			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C147			CE04KW1V100M	ELECTRO	10UF	35WV		
C148,149			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C150			C91-0757-05	CERAMIC	0.001UF	K		
C151			C91-0769-05	CERAMIC	0.01UF	M		
C152			CQ09FS1H391JY0	POLYSTY	390PF	J		
C154-156			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C165			CE04KW1C101M	ELECTRO	100UF	16WV		
C166			CQ09FS1H152JY0	POLYSTY	1500PF	J		
C167			CF92FV1H183J	MF	0.018UF	J		
C168			CE04GW1HR47M	LL-ELEC	0.47UF	50WV		
C169			CE04GW1HR22M	LL-ELEC	0.22UF	50WV		
C170			CF92FV1H183J	MF	0.018UF	J		
C171			CE04GW1HR33M	LL-ELEC	0.33UF	50WV		
C172			CQ09FS1H122JY0	POLYSTY	1200PF	J		
C173			CF92FV1H103J	MF	0.010UF	J		
C174			CE04HW1E100M	NP-ELEC	10UF	25WV		
C175			CC45FSL1H270J	CERAMIC	27PF	J		
C176			CQ09FS1H561JY0	POLYSTY	560PF	J	M	
C176		*	CQ09FS1H751JY0	POLYSTY	750PF	J	E	
C177,178			CE04HW1A220M	NP-ELEC	22UF	10WV		
C179,180			CF92FV1H242J	MF	2400PF	J	M	
C181,182			CF92FV1H472J	MF	4700PF	J		
C183,184			CE04KW1V100M	ELECTRO	10UF	35WV		
C185,186			CF92FV1H392J	MF	3900PF	J		
C187,188			CE04KW1V100M	ELECTRO	10UF	35WV		
C189			CK45F1H103Z	CERAMIC	0.010UF	Z	E	
C190			CE04KW1C101M	ELECTRO	100UF	16WV		
C195			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C196		*	CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C197			C91-0769-05	CERAMIC	0.01UF	M		
C198			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C199			CF92FV1H124J	MF	0.12UF	J		
C200			CF92FV1H222J	MF	2200PF	J		
C201			CF92FV1H103J	MF	0.010UF	J		
C202			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C203			CF92FV1H103J	MF	0.010UF	J		
C210,211		*	CE04KW1HR22M	ELECTRO	0.22UF	50WV		
C212			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C216			CE04KW1A470M	ELECTRO	47UF	10WV		
C217		*	CE04KW1C220M	ELECTRO	22UF	16WV		
C218			CE04KW1V100M	ELECTRO	10UF	35WV		
C219			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C220		*	CE04KW0J221M	ELECTRO	220UF	6.3WV		
C222		*	CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C230		*	CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C231			CK45FB1H222K	CERAMIC	2200PF	K		
C232			CC45FSL1H220J	CERAMIC	22PF	J		
C233,234			C91-0769-05	CERAMIC	0.01UF	M		
C235			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C236			CE04HW1HR47M	NP-ELEC	0.47UF	50WV		
C237			CE04KW1V330M	ELECTRO	33UF	35WV		
C238			CE04KW1H010M	ELECTRO	1.0UF	50WV		

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C239,240		*	CE04KW1H2R2M	ELECTRON 2.2UF 50WV		
C241			C91-0769-05	CERAMIC 0.01UF M		
C243		*	CE04KW0J222M	ELECTRON 2200UF 6.3WV		
C244			CK45FF1H103Z	CERAMIC 0.010UF Z		
C245			C91-0769-05	CERAMIC 0.01UF M		
C246,247			CC45FCH1H330J	CERAMIC 33PF J		
C253		*	CE04KW1C220M	ELECTRON 22UF 16WV		
C254,255			CE04KW1H3R3M	ELECTRON 3.3UF 50WV		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
TC2 ,3			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF		
50	1B		E13-0217-05	PHONO JACK (2P) OUTPUT		
51	2B		E20-0318-05	SCREW TERMINAL BOARD(2P)AM ANT		
52	2B		E23-0125-05	TERMINAL (GND)		
CF1 -4			L72-0190-05	CERAMIC FILTER	E	
CF1 -4			L72-0505-05	CERAMIC FILTER	M	
CF5			L72-0099-05	CERAMIC FILTER		
CF6			L72-0096-05	CERAMIC FILTER		
L1		*	L31-0536-05	FM-RF COIL		
L2 ,3		*	L31-0537-05	FM-RF COIL		
L4		*	L31-0538-05	FM-RF COIL		
L5 ,6			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
L7 ,8			L32-0270-05	FM OSCILLATING COIL		
L9 ,10			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
L11			L39-0128-05	PEAKING COIL		
L14			L32-0294-05	FM OSCILLATING COIL		
L15			L40-1001-14	SMALL FIXED INDUCTOR(10UH,K)		
L16			L32-0277-15	MW OSCILLATING COIL		
L18			L31-0509-05	MW-RF COIL		
L19			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
L20			L35-0059-05	MPX COIL		
L21		*	L40-1028-29	SMALL FIXED INDUCTOR(1MH,G)		
L22			L79-0154-05	LC FILTER		
T1		*	L30-0434-05	FM IFT		
T2		*	L30-0435-05	FM IFT		
T3		*	L30-0434-05	FM IFT		
T4			L30-0362-05	AM IFT		
X1			L77-0578-05	CRYSTAL RESONATOR(7.2MHZ)		
CP1			R90-0188-05	MULTI-COMP 0.01UF X4		
CP2			R90-0241-05	MULTI-COMP 10000UF X7		
R33			RD14AB2E470J	FL-PROOF RD 47 J 1/4W	E	
R42			RD14AB2E221J	FL-PROOF RD 220 J 1/4W	E	
R52			RD14AB2E221J	FL-PROOF RD 220 J 1/4W	E	
R61			RD14AB2E221J	FL-PROOF RD 220 J 1/4W	E	
R74			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
R84			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
R91			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
R234			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
R245			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
R311		*	RN14BK2C3831F	RN 3.83K F 1/6W		
R404			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	E	
VR1			R12-1066-05	TRIMMING POT.(1K) STOP LEVEL		
VR2			R12-1069-05	TRIMMING POT.(4.7K) DISTOR.		
VR3 -5			R12-3097-05	TRIMMING POT.(22K) DISTOR.		
VR6			R12-0094-05	TRIMMING POT.(47O) DISTOR.		

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VR7			R12-5046-05	TRIMMING POT.(100K) NARROW		
VR8			R12-1067-05	TRIMMING POT.(2.2K) MPX VCO		
VR9			R12-5046-05	TRIMMING POT.(100K) SEPARATION		
VR10,11			R12-1069-05	TRIMMING POT.(4.7K) SEPARATION		
S1 ,2			S31-2094-05	SLIDE SWITCH(DE-EMPA,CH-SPACE)	M	
D1			1SS85	DIODE		
D2			KV1320-5	VARIABLE CAPACITANCE DIODE		
D3			1SV80	DIODE		
D4			1SS85	DIODE		
D5 -8			KV1320-5	VARIABLE CAPACITANCE DIODE		
D9 -21			1SS133	DIODE		
D9 -21			1SS176	DIODE		
D22 ,23			KV1320-2	VARIABLE CAPACITANCE DIODE		
D24			RD5.1E(B2)	ZENER DIODE		
D25 -32			1SS133	DIODE		
D25 -32			1SS176	DIODE		
D33			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
D34 -58			1SS133	DIODE		
D34 -58			1SS176	DIODE		
D59			RD4.7E(B)	ZENER DIODE		
D60			1SS133	DIODE		
D60			1SS176	DIODE		
D61			RD11E(B2)	ZENER DIODE		
D62 ,63			1SS133	DIODE		
D62 ,63			1SS176	DIODE		
D64			RD3.0E(B)	ZENER DIODE		
IC1 -3		*	BA401	IC(FM IF)		
IC4			LA1231NS	IC(FM IF/DETECTION)		
IC5			UPC1163H	IC(IF AMP)		
IC6		*	BA4560	IC(OP AMP X2)		
IC7 ,8		*	M5218P	IC(OP AMP X2)		
IC9 ,10			NJM4200D	IC(OP AMP X2)		
IC11-14		*	M5218P	IC(OP AMP X2)		
IC15			LA1245	IC(AM)		
IC16			LA3350S	IC(FM MPX)		
IC17		*	M5218P	IC(OP AMP X2)		
IC18,19			NJM4200D	IC(OP AMP X2)		
IC20,21		*	BA4560	IC(OP AMP X2)		
IC22,23			UPD4013BC	IC(D FLIP-FLOP X2)		
IC24			UPD4001BC	IC(NOR X6)		
IC25			TC9130P	IC(4CH IND CYCLIC TOUCH SWITCH		
IC26		*	M5218P	IC(OP AMP X2)		
IC27			TD6104P	IC(PRE SCALER)		
IC28			TC9157AP	IC(DIGITAL TUNING SYSTEM)		
IC29			BA618	IC(7-SEG LED DRIVER)		
Q1 ,2			3SK73(GR)	FET		
Q3			2SK241(GR)	FET		
Q4		*	2SC461	TRANSISTOR		
Q5 ,6			2SK241(GR)	FET		
Q7 ,8			2SK161(Y,GR)	FET		
Q9			2SK364(GR,BL)	FET		
Q10 ,11			2SK246(Y,GR)	FET		
Q12 -14			2SC2320(E,F)	TRANSISTOR		
Q12 -14			2SC945(A)(Q,P)	TRANSISTOR		

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Q15			2SA733(A)(Q,P)	TRANSISTOR		
Q15			2SA999(E,F)	TRANSISTOR		
Q16 ,17			2SA992(F,E)	TRANSISTOR		
Q18 ,19			2SK246(Y,GR)	FET		
Q20 ,21			2SC2320(E,F)	TRANSISTOR		
Q20 ,21			2SC945(A)(Q,P)	TRANSISTOR		
Q22 ,23			2SA733(A)(Q,P)	TRANSISTOR		
Q22 ,23			2SA999(E,F)	TRANSISTOR		
Q24			2SK246(Y,GR)	FET		
Q25			2SK364(GR,BL)	FET		
Q26 ,27			2SD1302(S)	TRANSISTOR		
Q28			2SA733(A)(Q,P)	TRANSISTOR		
Q28			2SA999(E,F)	TRANSISTOR		
Q29			2SC2320(E,F)	TRANSISTOR		
Q29			2SC945(A)(Q,P)	TRANSISTOR		
Q30 -32			2SA733(A)(Q,P)	TRANSISTOR		
Q30 -32			2SA999(E,F)	TRANSISTOR		
Q33			2SC2320(E,F)	TRANSISTOR		
Q33			2SC945(A)(Q,P)	TRANSISTOR		
Q34			2SA733(A)(Q,P)	TRANSISTOR		
Q34			2SA999(E,F)	TRANSISTOR		
Q35 ,36			2SC2320(E,F)	TRANSISTOR		
Q35 ,36			2SC945(A)(Q,P)	TRANSISTOR		
Q37 ,38			2SA733(A)(Q,P)	TRANSISTOR		
Q37 ,38			2SA999(E,F)	TRANSISTOR		
Q39			2SA954(L,K)	TRANSISTOR		
Q40			2SC2320(E,F)	TRANSISTOR		
Q40			2SC945(A)(Q,P)	TRANSISTOR		
Q41 ,42			2SA733(A)(Q,P)	TRANSISTOR		
Q41 ,42			2SA999(E,F)	TRANSISTOR		
Q43			2SK364(GR,BL)	FET		
Q44			2SC2320(E,F)	TRANSISTOR		
Q44			2SC945(A)(Q,P)	TRANSISTOR		
Q46 ,47			2SC2320(E,F)	TRANSISTOR		
Q46 ,47			2SC945(A)(Q,P)	TRANSISTOR		
DISPLAY UNIT (X13-5020-21)						
D2 -16	2A,3A		B30-1012-05	LED(SLP-981C-50)		
C1			C91-0769-05	CERAMIC 0.01UF M		
C2 -4			C91-0757-05	CERAMIC 0.001UF K		
C6 ,7			C91-0769-05	CERAMIC 0.01UF M		
CP1			R90-0443-05	MULTI-COMP 22KX13 J 1/6W		
CP2			R90-0442-05	MULTI-COMP 22KX9 J 1/6W		
CP3			R90-0203-05	MULTI-COMP 100KX5 J 1/6W		
VR1	3A	*	R13-5072-05	POTENTIOMETER(100K) IF BAND		
VR2	3A	*	R13-3027-05	POTENTIOMETER(100K) QUIETING		
⚠ S1	2A		S40-4056-05	PUSH SWITCH (POWER)		
S2	3A		S40-2323-05	PUSH SWITCH (PROGRAM)		
S3 -19	2B,3A		S40-1064-05	PUSH SWITCH (A/B,MEMO,CH1-8)		
S21 ,22	2B		S40-1064-05	PUSH SWITCH(RF SEL,FM IF BAND)		
D1			1SS133	DIODE		
D1			1SS176	DIODE		
FL1	2B,3B	*	FIP13AM14S	FLUORESCENT INDICATOR TUBE		
IC1			TD6301AP	IC(FL/LED/LCD FREQ DISPLAY DR)		
IC2		*	BA6104	IC(5PT LEVEL METER DRIVER)		

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SPECIFICATIONS

– EIA –

[FM tuner section]	DISTANCE	DIRECT
Usable sensitivity	10.8 dBf (0.95 μV)	31.2 dBf (10 μV)
50 dB quieting sensitivity		
Mono	16.2 dBf (1.8 μV)	36.3 dBf (18 μV)
Stereo	38.8 dBf (24 μV)	58.8 dBf (240 μV)
Signal to noise ratio		
Mono	88 dB (at 65 dBf)	88 dB(at 85 dBf)
Stereo	76 dB (at 65 dBf)	83 dB (at 85 dBf)
Total harmonic distortion at 1 kHz		
Mono	0.009% (WIDE)	0.03% (NARROW)
Stereo	0.01% (WIDE)	0.06% (NARROW)
Frequency response	20 Hz to 15 kHz ±0.5 dB	
Capture ratio		
WIDE	1.0 dB	
NARROW	2.5 dB	
Image rejection ratio	80 dB	
Spurious rejection ratio	100 dB	
IF rejection ratio	110 dB	
Alternate channel selectivity		
WIDE	70 dB	
NARROW	100 dB	
AM suppression ratio	70 dB	
Stereo separation ratio		
WIDE	70 dB (at 1 kHz), 50 dB (at 50 Hz ~ 10 kHz)	
NARROW	50 dB (at 1 kHz), 40 dB (at 50 Hz ~ 10 kHz)	
Antenna impedance	75 ohms unbalanced	
Output level at 1 kHz, 100% mod	0.6V/3.3 kohms	
FM frequency range	87.5 MHz ~ 108 MHz	

[AM tuner section]	
Usable sensitivity	10 μV (WIDE)
Signal to noise ratio	52 dB (WIDE)
Total harmonic distortion	
WIDE	0.4%
NARROW	0.8%
Image rejection	40 dB
Selectivity	
WIDE	25 dB
NARROW	50 dB
Output level	0.18V/3.3 kohms

[General]	
Power requirements	50/60 Hz 120/220-240V, Switchable
Power consumption	18W
Dimensions	W: 440 mm (17-5/16") H: 64 mm (2-1/2") D: 319 mm (12-9/16")
Weight (Net)	3.5 kg (7.7 lb)

– IEC –

[FM tunersection]	DISTANCE	DIRECT
Sensitivity at 75 ohms		
Mono: S/N 26 dB, 40 kHz Dev	0.9 μV	10μV
Stereo: S/N 46 dB, 46 kHz Dev	20 μV	200 μV
Limiting level		
–3 dB, point, 40 kHz dev	0.45 μV	45 μV
Frequency response	20 Hz ~ 15 kHz ±0.5 dB	
Total harmonic distortion	**WIDE**	**NARROW**
Mono: 1 kHz, 40 kHz dev	0.02%	0.06%
Stereo: 1 kHz, 46 kHz dev	0.1%	0.35%
S/N weighted (DIN)		
Mono: 40 kHz dev., 1 mV input	80 dB	
Stereo: 46 kHz dev., 1 mV input	67 dB	
FM stereo separation: 1 mV input (DIN)	**WIDE**	**NARROW**
250 Hz	55 dB	50 dB
1 kHz	60 dB	50 dB
6.3 kHz	50 dB	45 dB
Image rejection ratio	80 dB	
IF rejection ratio	110 dB	
AM suppression ratio	70 dB	
Spurious rejection ratio	100 dB	
Capture ratio		
WIDE	2.0 dB	
NARROW	3.5 dB	

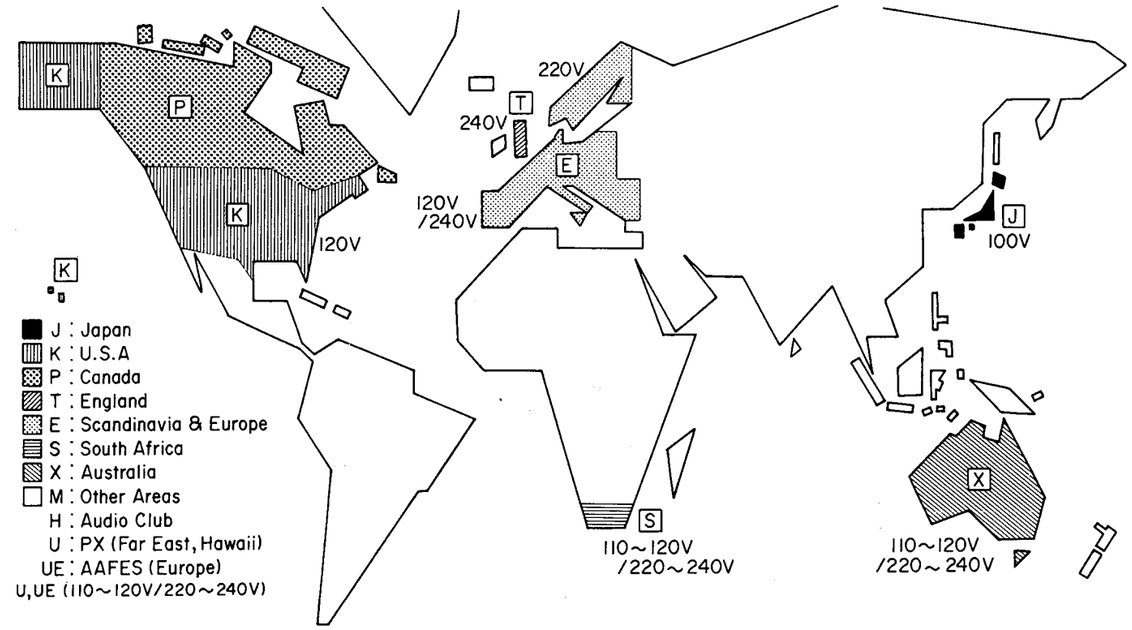
[AM tuner section]	
Sensitivity S/N 20 dB	10 μV
S/N ratio: 1 mV input	52 dB
Image rejection ratio	40 dB

[General]	
Power consumption	
IEC	18W
Dimensions (W x H x D)	440 x 64 x 319 mm
Weight (Net)	3.5 kg

Note:

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

WORLD MAP & AREA CODE



Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the Europe (E) 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.

KENWOOD CORPORATION
Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD U.S.A. CORPORATION
2201 East Dominguez Street, Long Beach, CA 90810;
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

KENWOOD ELECTRONICS CANADA INC.
P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker-Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.
Hi-Fi·VIDEO·CAR Hi-Fi
13, Boulevard Ney, 75018 Paris, France

TRIO-KENWOOD U.K. LTD.
17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UB6 8UP England

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.
Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong