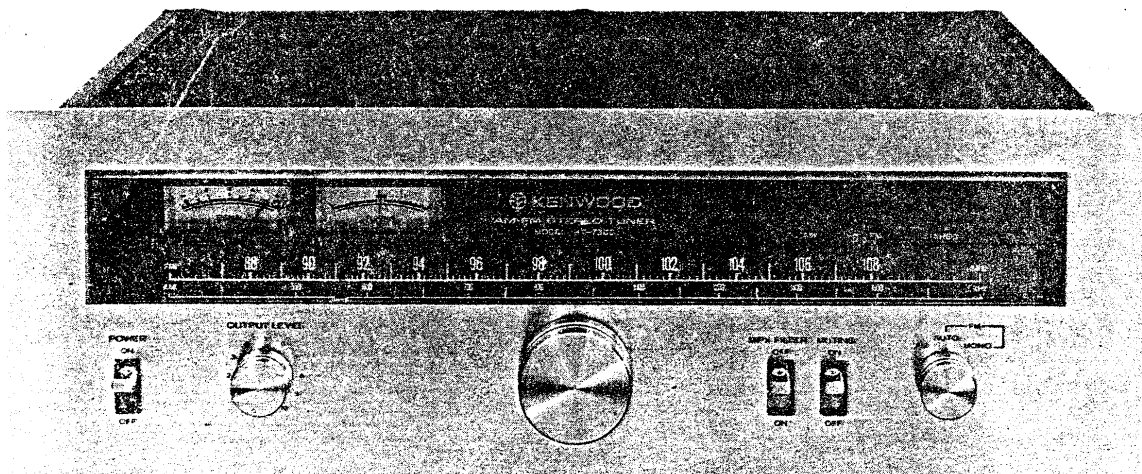


**KENWOOD**  
HI/FI STEREO COMPONENTS

# SERVICE MANUAL

**KT-7300**



**AM-FM STEREO TUNER**

# CONTENTS

EXTERNAL & TOP VIEW .....	3
DISASSEMBLY .....	4
PACKING .....	4
DIAL CORD STRINGING .....	5
BLOCK DIAGRAM .....	5
CIRCUIT DESCRIPTIONS .....	6
TROUBLESHOOTING .....	6
ADJUSTMENTS .....	7
DESTINATIONS' PARTS LIST .....	8
<b>PARTS LIST</b>	
TOTAL .....	9
POWER SUPPLY (X00-1660-00, -11, -61) .....	9
TUNER (X05-1280-11) .....	10
<b>PC BOARD</b>	
TUNER .....	11
POWER SUPPLY .....	11
SCHEMATIC DIAGRAM .....	12
SEMICONDUCTOR SUBSTITUTIONS & LEADS .....	13
SPECIFICATIONS .....	14

## Note 1:

The products are subject to modification in components and circuits in different countries and regions. This is because each products must be used under the best condition.

This manual provides information of modification based on the standard in the U.S., for the convenience of ordering associated components and parts:

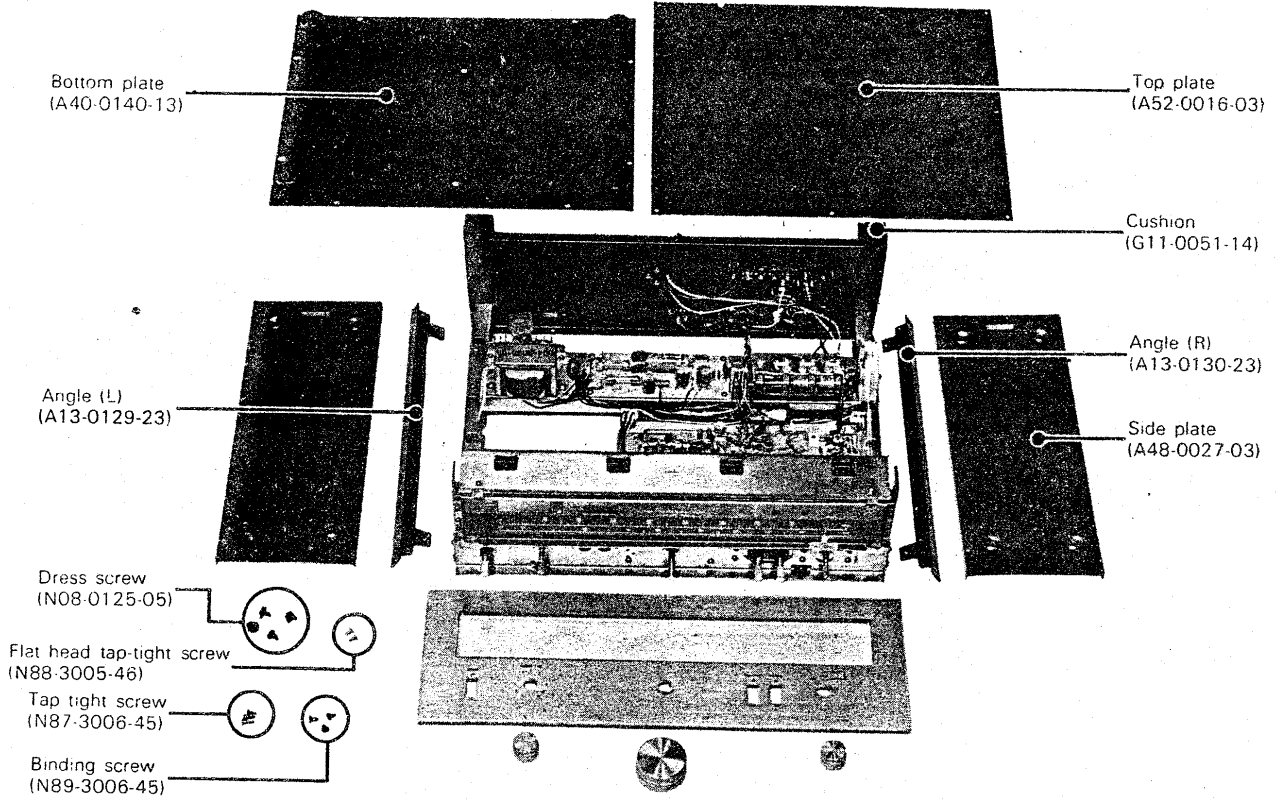
U.S.A. ....	K
Canada .....	P
PX .....	U
Australia .....	X
Europe .....	W
England .....	T
Scandinavia .....	L
South Africa .....	S
Other area .....	M

## Note 2:

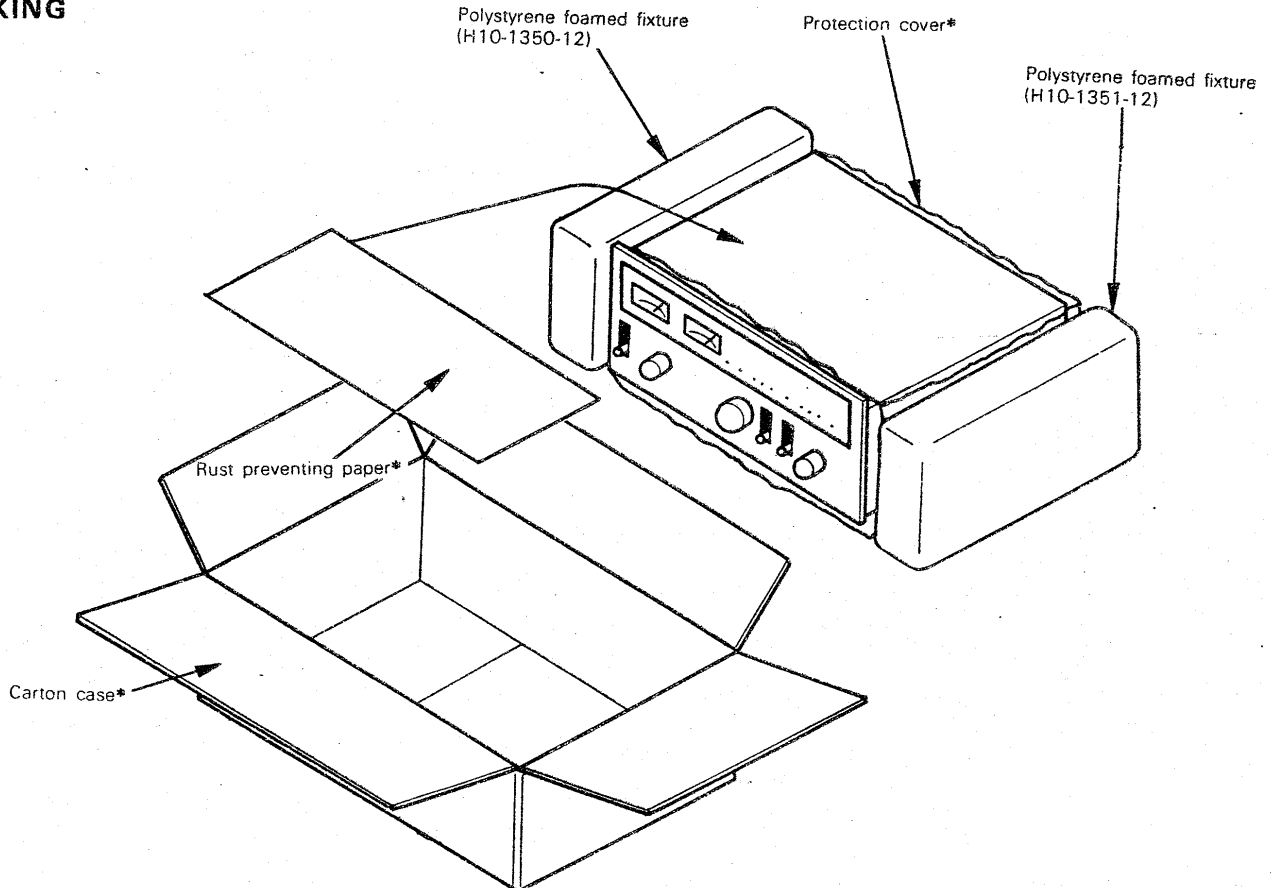
symbol \* and symbol ● in parts list mean the new parts not being kept in stock respectively.

# DISASSEMBLY / PACKING

## DISASSEMBLY



## PACKING

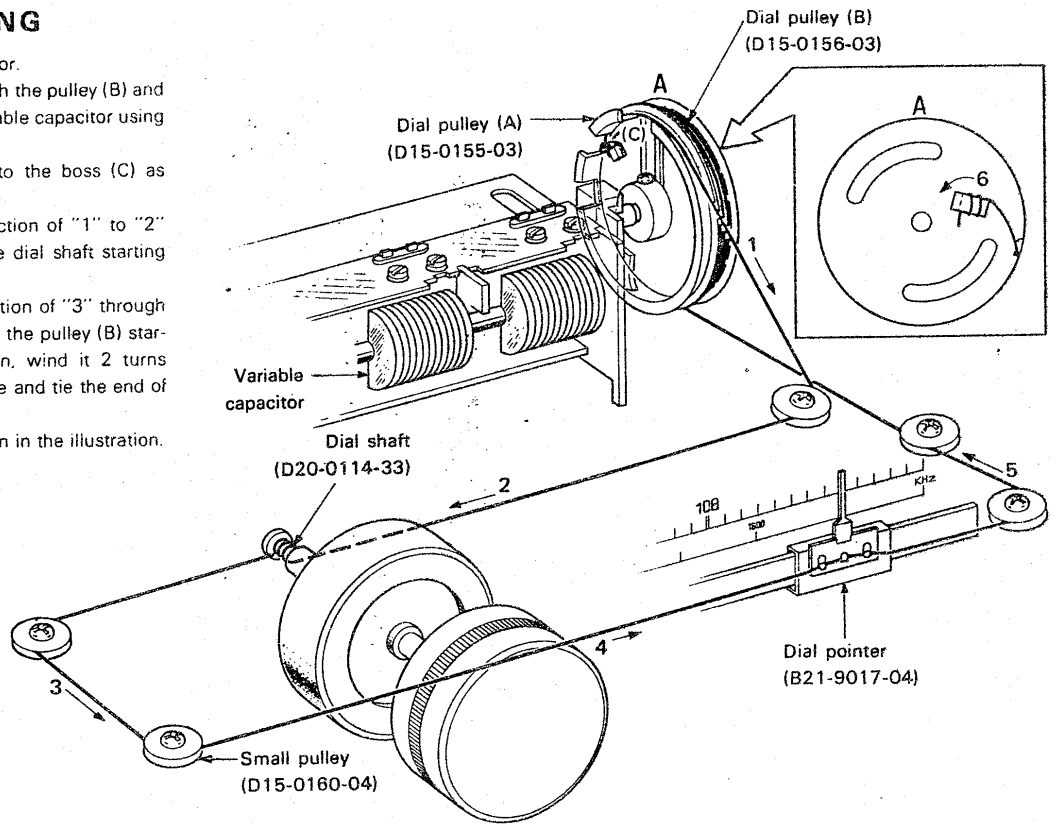


\* Refer to DESTINATIONS PARTS LIST

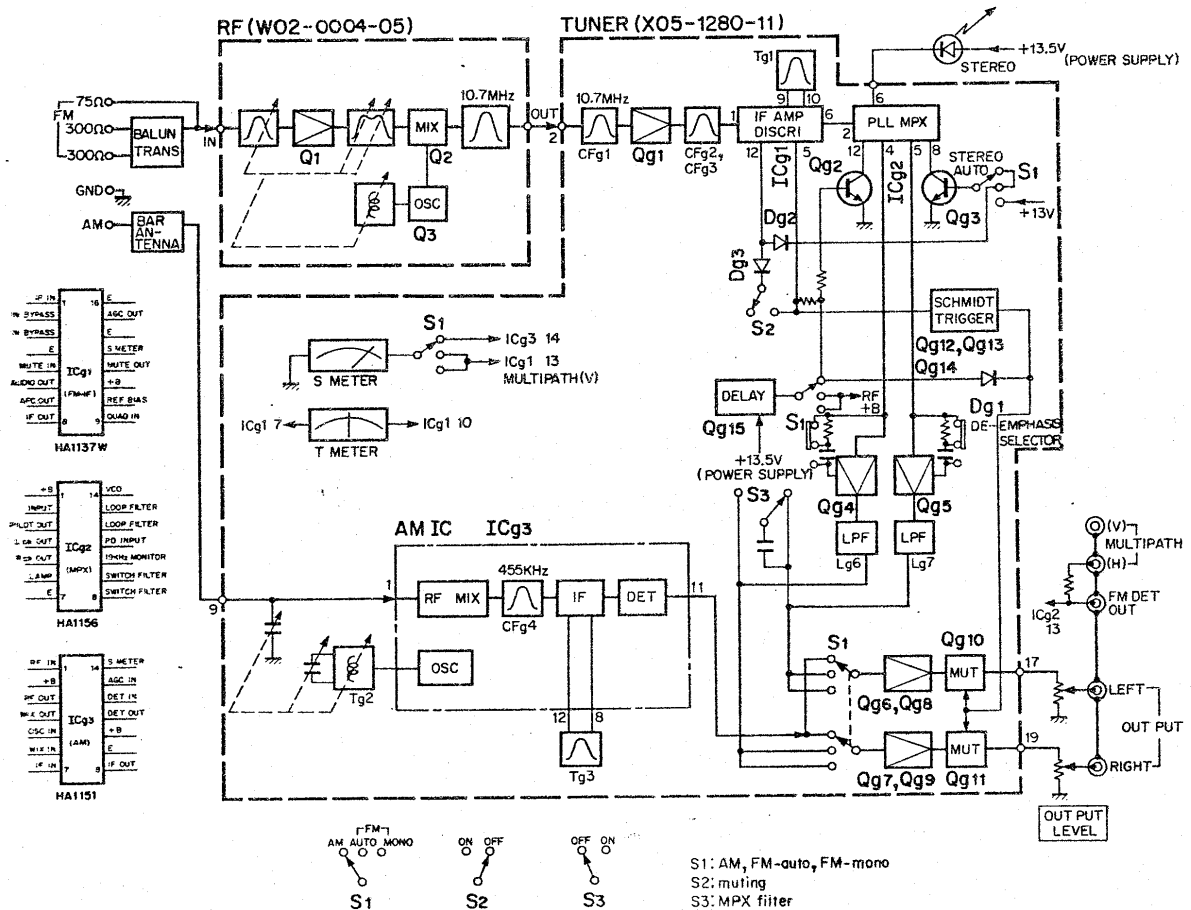
# DIAL CORD STRINGING / BLOCK DIAGRAM

## DIAL CORD STRINGING

1. Fully open the variable capacitor.
2. Assemble the dial pulley (A) with the pulley (B) and fix them on the shaft of the variable capacitor using 2 screws.
3. Tie the end of the dial cord to the boss (C) as shown.
4. Dress the dial cord in the direction of "1" to "2" and wind it 3 turns around the dial shaft starting from its lower side.
5. Dress the dial cord in the direction of "3" through "5" and wind it 2 turns around the pulley (B) starting from its lower side. Then, wind it 2 turns around the boss at the rear side and tie the end of it.
6. Mount the dial pointer as shown in the illustration.



## BLOCK DIAGRAM



# CIRCUIT DESCRIPTIONS / TROUBLESHOOTING

## FRONT END

The front end circuit is highly stable and efficient since the RF amplifier uses dual gate MOS FET's.

Essential resistors in the front-end are not repairable since they are printed resistors. If replacement of FET's and transistors does not solve a trouble, replace the front-end (W02-0004-05). The adjustment of sensitivity is the same as before. As to the adjustment of dial indication, fit the pointer so that it points to 90 MHz receiving 90-MHz signal of a signal generator or an FM broadcasting station.

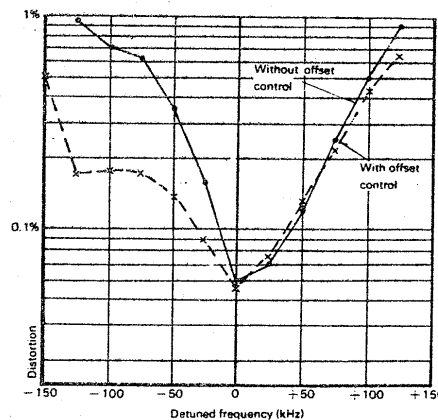
## IF STAGE

The IF stage uses three units of two-element ceramic filters having excellent group delay characteristics so that phase response is improved. Distortion remains satisfactorily low over a wide frequency range centering on the modulation frequency (see the distortion vs. frequency curves) due to the IC offset voltage control circuit provided. The detection circuit uses a wide-band quadrature-type detector. The effective selectivity is high. The conventional problem that distortion is not minimized when the tuning meter indicates the middle has been solved. The 25  $\mu$ Sec setting of the de-emphasis switch is to be used for receiving Dolbyized FM broadcasting.

## MULTIPLEXER, LOW-PASS FILTER AND MUTING CIRCUIT

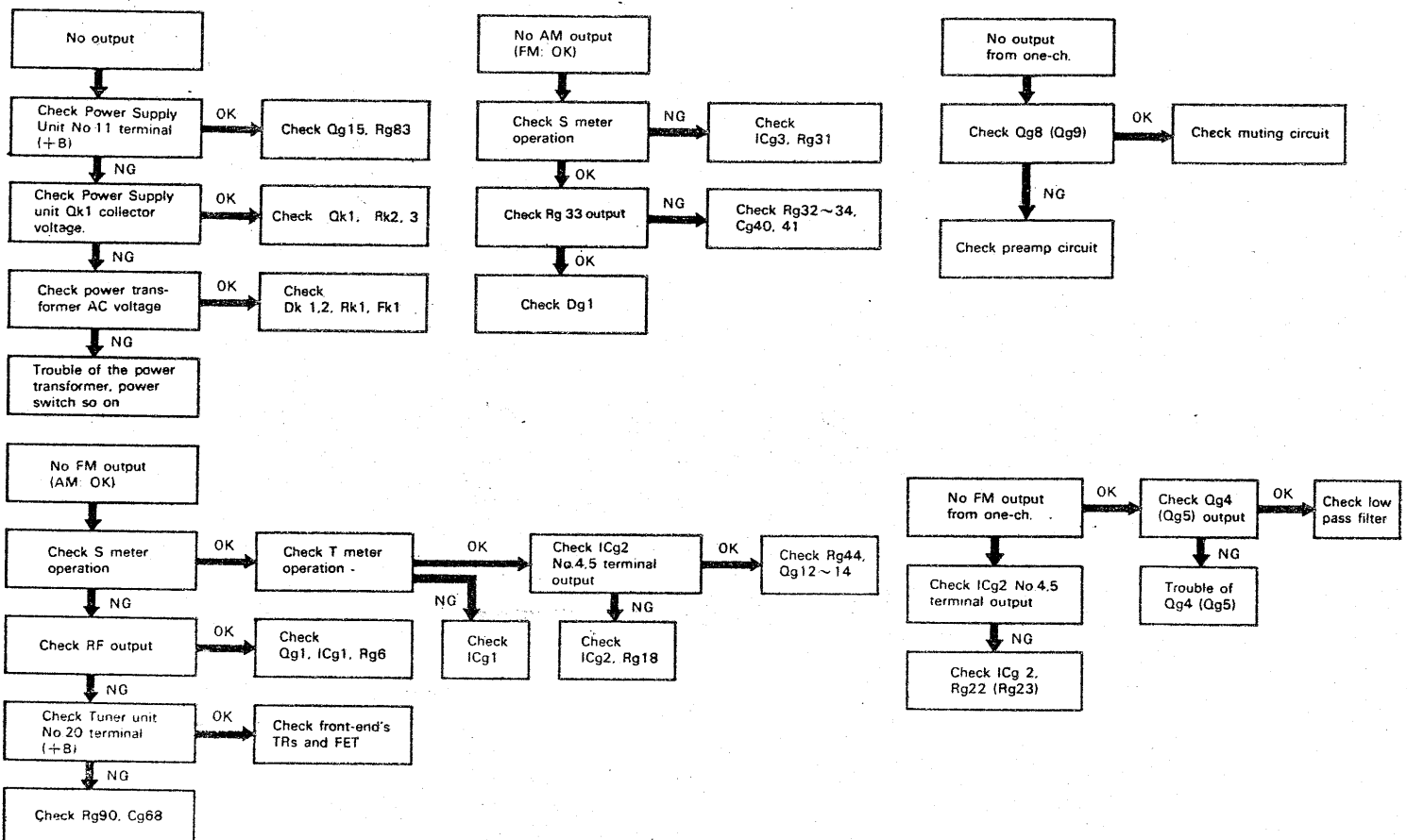
A PLL MPX circuit having good temperature and humidity characteristics has realized separation of 35 dB or more over a frequency range from 50 Hz to 10 kHz. Using a newly developed low-pass filter of 5-element separate LC type, carrier leak is suppressed without affecting frequency response. The muting circuit uses an FET as a switching element. Popping noises have been eliminated by using the signal, generated by S-curve narrow band detection, as trigger input and controlling the audio output with an FET.

	Function	Operation	Purpose
Qg2	To stop MPX and VCO	ON at AM	To stop oscillation of VCO of PLL MPX IC during AM reception
Qg3	For forced MONO mode	ON at MONO	To stop MPX in MONO mode and if no signal comes in at FM AUTO mode
Qg12 ~ 14	To control FET	When receiving no signal: Qg 12: ON Qg 13: OFF Qg 14: ON	FM muting
Qg15	To determine power supply time constant	Goes ON with time constant of Rg83 and Cg68 after power switch is turned on.	To prevent shock noise at turning on power switch



Center frequency: 10.7 MHz  
Deviation:  $\pm 75$  kHz  
Modulation frequency: 400 Hz

DISTORTION IN RF AND IF STAGES



# ADJUSTMENTS

## TEST EQUIPMENTS

RF signal generator ..... RF-SG  
 Oscilloscope ..... scope  
 Solid state volt meter ..... SSVM  
 FM stereo generator ..... MPX-SG  
 Frequency counter

## NOTE

1. Tuning dial is set to the proper point corresponding to no radio stations.
2. RF-SG is set to the lowest response possible on oscilloscope.
3. The output level of RF-SG is made a 6 dB drop by the dummy ant. The input level 60 dB means 66 dB read on RF-SG.
4. Repeat TRACKING adjustment several times and confirm the reception of broadcasting.
5. Test point is shown in the schematic diagram.

NO.	ALIGN	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
<b>FM SECTION</b>							
1	OFF SET	—	—	AM	T meter	VRg 2	Make the pointer position in the center of the meter
2		—	—	FM	- ditto -	Tg 1 (bottom)	- ditto -
3	DISCRI	RF-SG to ANT terminal via dummy ant.	98 MHz, 60 dB 400 Hz (Mod.) 75 kHz (Dev.)	98 MHz	SSVM and scope to output jack (L)	Tg 1 (top)	Maximum defection and minimum distortion
4	S METER	- ditto -	- ditto -	- ditto -	S meter	VRg 1	Make the pointer indication "5" digit.
5a		—	—	—	Frequency counter TP 1	VRg 3	Adjust VCO frequency to 19 kHz
5b	MPX	RF-SG to ANT terminal MPX-SG to RF-SG ext. Mod.	MPX-SG: SELECTOR→L+R 400 Hz (Mod.) RF-SG: 98 MHz, 60 dB 67.5 kHz (Dev)	- ditto -	Scope to TP 1		Make the wave form not to move if the pilot signal is switched on-off. (Fig. 1)
6	SEPARATION	- ditto -	MPX-SG: SELECTOR→L or R 400 Hz (Mod.) RF-SG: 98 MHz, 60 dB 67.5 kHz (Dev.)	- ditto -	SSVM and scope to output jack (R) or (L)	VRg 4	Minimum cross-talk (Maximum separation)
<b>AM SECTION</b>							
1	IF	RF-SG to ANT terminal via dummy ant.	1000 kHz 400Hz, 30% (Mod.) 100 dB	1000 kHz	SSVM and scope to output jack (L)	CFg 4	Maximum deflection
2			600 kHz 400 Hz, 30% (Mod.) 100 dB	600 kHz		Tg 2 Bar antenna	
3	TRACKING	- ditto -	1400 kHz 400 Hz, 30% (Mod.) 100 dB	1400 kHz	- ditto -	CT 5, 6	- ditto -
4	S METER	- ditto -	1000 kHz 400 Hz, 30% (Mod.) 100 dB	1000 kHz	S meter	VRg 5	Meter indicates 4.5.

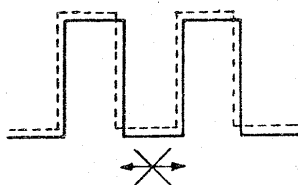


Fig. 1

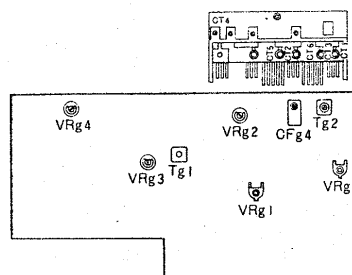


Fig. 2 Tuner unit

# DESTINATIONS' PARTS LIST

Ref. No.	U.S.A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	Scandinavia (L)	England (T)	South Africa (S)	Other Area (M)	Description
Ck1	C90-0145-05	C90-0145-05	—	CK45E3D103 PMU	CK45E3D103 PMU	CK45E3D103 PMU	CK45E3D103 PMU	—	CK45E3D103 PMU	Capacitor 0.01 $\mu$ F
Ck2, 3	CQ93M1H123J	CQ93M1H123J	—	—	—	—	—	—	—	Mylar capacitor 0.012 $\mu$ F $\pm$ 5%
Ck4	—	—	—	CK45E3D103 PMU	CK45E3D103 PMU	CK45E3D103 PMU	CK45E3D103 PMU	—	CK45E3D103 PMU	Mylar capacitor 0.0056 $\mu$ F $\pm$ 5% Ceramic capacitor 0.01 $\mu$ F 2 kWV
Rk4	RC05GF2H225K	RC05GF2H225K	—	—	—	—	—	—	—	Carbon resistor 2.2 M $\Omega$ $\pm$ 10% 1/2W
—	A23-0599-02	A23-0599-02	—	A23-0610-02	A23-0613-02	A23-0614-02	A23-0614-02	—	A23-0600-02	Rear Panel
—	B20-0356-02	B20-0356-02	—	B20-0356-02	B20-0356-02	B20-0356-02	B20-0357-02	—	B20-0356-02	Dial calibrations
—	B40-1280-04	B40-1280-04	—	B40-1281-04	B40-1283-04	B40-1284-04	B40-1282-04	—	B40-1281-04	Model name plate
—	—	—	—	—	B42-0024-04	—	—	—	—	SEV sticker
—	—	—	—	—	B42-0574-04	—	—	—	—	FTZ sticker
—	B42-0611-04	—	—	—	—	—	—	—	—	Caution sticker
—	B46-0056-00	B46-0055-10	—	—	—	—	—	—	—	Warranty card
—	B50-1407-00	B50-1407-00	—	B50-1407-00	B50-1407-00	B50-1407-00	B50-1408-00	—	B50-1407-00	Instruction manual
—	—	—	—	B58-0003-00	B58-0156-00	—	—	—	B58-0003-00	Power supply caution card
—	B58-0043-00	B58-0043-00	—	—	—	—	—	—	—	Carton case caution card
—	—	—	—	B58-0101-00	B58-0157-00	—	—	—	B58-0101-00	Power supply voltage selector caution card
—	—	—	—	—	—	—	—	—	—	Power cord caution card
—	D32-0075-04 x1	D32-0075-04 x1	—	D32-0075-04 x2	D32-0075-04 x2	D32-0075-04 x1	D32-0075-04 x1	—	D32-0075-04 x1	Switch stopper
—	E29-0047-04	E29-0047-04	—	—	—	—	—	—	—	Lead wire holder
—	E30-0181-05	E30-0181-05	—	—	—	—	—	—	E30-0545-05	Power cord
—	—	F09-0033-05	—	—	F09-0033-05	F09-0033-05	—	—	—	Capacitor cover
—	H01-1443-04	H01-1445-04	—	H01-1443-04	H01-1443-04	H01-1443-04	H01-1444-04	—	H01-1443-04	Carton case
—	H20-0394-04	H20-0394-04	—	H20-0394-04	H20-0394-04	H20-0394-04	H20-0394-04	—	H20-0416-04	Protection cover
—	—	—	—	—	—	—	—	—	H40-0004-04	Rust preventing paper
—	J02-0073-04	J02-0049-14	—	J02-0049-14	J02-0049-14	J02-0049-14	J02-0049-14	—	J02-0049-14	Leg x 4
—	J41-0034-05	J41-0034-05	—	J41-0024-15	J41-0033-05	J41-0033-05	J41-0024-15	—	J41-0034-05	Power cord bushing
—	—	—	—	—	—	J61-0038-05	—	—	—	Cord band
—	L04-0096-05	L01-1211-05	—	L03-0113-05	L09-0158-05	L09-0159-05	L03-0113-05	—	L03-0113-05	Power transformer
S4	S39-1021-05	S39-1021-05	—	S39-1022-05	S39-1022-5	S39-1022-05	S39-1022-05	—	S39-1022-05	Power switch
—	—	—	—	S31-2001-05	S31-2001-05	—	—	—	S31-2001-05	Slide switch (Power voltage selector)
—	X00-1660-11	X00-1660-11	—	X00-1660-00	X00-1660-61	X00-1660-61	X00-1660-61	—	X00-1560-00	Power supply unit

# PARTS LIST

☆ : New parts, ● : The parts not being kept in stock.

Ref. No.	Parts No.	Description	Re- marks
<b>CAPACITOR</b>			
—	CK45D1H561M	Ceramic 560pF ±20%	
<b>RESISTOR</b>			
R1	PD14BY2E104J	Carbon 100kΩ ±5% 1/4W	
R2,3	PD14BY2E224J	Carbon 220kΩ ±5% 1/4W	
<b>SEMICONDUCTOR</b>			
D1~3	V11-0392-05	LED GD-4-203CD	
<b>POTENTIOMETER</b>			
—	R06-4027-05	10kΩ (B) × 2 OUTPUT LEVEL	
<b>SWITCH</b>			
—	S31-2007-05	Slide de-emphasis selector	
<b>MISCELLANEOUS</b>			
—	A10-0467-02	Chassis	● ☆
—	A13-0129-23	Angle (L)	●
—	A13-0130-23	Angle (R)	●
—	A13-0132-03	Frame (L)	● ☆
—	A13-0133-03	Frame (R)	●
—	A20-0990-02	Panel ass'y	☆
—	A20-0991-02	Panel	● ☆
—	A22-0183-12	Sub panel	● ☆
—	A40-0140-13	Bottom plate	● ☆
—	A48-0027-03	Side plate × 2	
—	A52-0016-03	Top plate	☆
—	B10-0190-03	Front glass	☆
—	B19-0184-03	Lighting acryl resin board	☆
—	B21-9017-04	Dial pointer	☆
—	B30-0108-15	Pilot lamp × 2 (8V 300mA)	
—	B30-0109-05	Pilot lamp × 2 (8V 300mA)	☆
—	B31-0235-05	S meter	☆
—	B31-0236-05	T meter	☆
—	B42-0009-04	Passed sticker	
—	D15-0155-03	Dial pulley (A)	☆
—	D15-0156-03	Dial pulley (B)	☆
—	D15-0160-04	Small pulley × 5	☆
—	D20-0114-33	Dial shaft	☆
—	E13-0104-05	Pin jack (1P)	
—	E13-0205-05	Pin jack (2P) × 2	
—	E20-0514-05	Terminal strips	
—	E22-0215-05	Strips with lugs (1-0-1)	
—	E22-0421-05	Strips with lugs (0-4-0)	
—	E30-0505-05	Audio cord	
—	E30-0518-05	Mini-connector	☆
—	E30-0519-05	Mini-connector	☆
—	E30-0533-05	Mini-connector	☆
—	F19-0204-04	Screen board (L)	● ☆
—	F19-0205-04	Screen board (R)	● ☆
—	F31-0105-05	Reinforcement hardware × 2	●
—	F99-0011-04	Slider	● ☆
—	G01-0313-04	Spring	☆
—	G01-0314-04	Dial spring	☆
—	G11-0051-14	Cushion × 2	
—	H10-1350-12	Polystyrene foamed fixture	☆
—	H10-1351-12	Polystyrene foamed fixture	☆
—	H25-0048-03	Polyethylene bag (110 × 250mm)	
—	H25-0078-00	Instruction bag	

Ref. No.	Parts No.	Description	Re- marks
—	J11-0021-05	Clamper	
—	J21-0480-13	Bar antenna mounting hardware	
—	J21-1391-02	Lamp mounting hardware	● ☆
—	J21-1392-14	PC board mounting hardware	● ☆
—	J21-1393-04	Dial calibrations mounting hardware (L)	● ☆
—	J21-1394-04	Dial calibrations mounting hardware (R)	● ☆
—	J21-1395-04	Pulley mounting hardware (A)	● ☆
—	J21-1397-04	Pulley mounting hardware (B)	● ☆
—	J32-0213-04	Boss (dial shaft)	☆
—	J61-0024-05	Wire clip (small) × 4	
—	J61-0045-05	Combex × 3	
—	K21-0300-04	Knob (TUNING)	☆
—	K23-0215-04	Knob (SELECTOR, LEVEL) × 2	
—	K27-0039-04	Knob (LEVER) × 3	☆
—	L19-0009-05	Balun transformer	
—	N08-0125-05	Dress screw (8mm) × 8	
—	N09-0100-14	Screw (small pulley) × 5	
—	T90-0002-05	FM indoor antenna	
—	T90-0031-05	AM bar antenna	
—	W02-0004-05	FM front-end	☆
—	X05-1280-11	Tuner unit	☆

## POWER SUPPLY (X00-1660-00,-11,-61)

Ref. No.	Parts No.	Description	Re- marks
<b>CAPACITOR</b>			
Ck1,2	CK45E2H103P	Ceramic 0.01μF 500WV	
Ck3	CE02W1E102EL	Electrolytic 1000μF 25WV	
Ck4	CE04W1E221EL	Electrolytic 220μF 25WV	
Ck5	CE04W1C331EL	Electrolytic 330μF 16WV	
Ck6	CC45SL1H101K	Ceramic 100pF 50WV	
Ck7	CE04W1A101EL	Electrolytic 100μF 10WV	
Ck8	CE04W1C102EL	Electrolytic 1000μF 16WV	
Ck9	CK45E2H103P	Ceramic 0.01μF 500WV	
<b>RESISTOR</b>			
Rk2	PD14BY2E471J	Carbon 470Ω ±5% 1/4W	
Rk3	PD14BY2E331J	Carbon 330Ω ±5% 1/4W	
Rk4	PD14BY2E471J	Carbon 470Ω ±5% 1/4W	
<b>SEMICONDUCTOR</b>			
Qk1	V03-0343-05	Transistor 2SC1419 (B) or (C)	
Dk1~3	V11-0295-05	Diode W06B	
DZk1	V11-0254-05	Zener diode YZ-140	
<b>MISCELLANEOUS</b>			
Fk1	F05-5013-05	Fuse 500mA 250V	▽ -00
	F05-5011-05	Fuse 500mA 250V	UL -11
	F05-5015-05	Fuse 500mA 250V	-61
Fk2	F05-2023-05	Fuse 2A 250V	▽ -00



# PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
	F05-2021-05	Fuse 2A 250V (UL)	-11
	F05-2029-05	Fuse 2A 250V	-61
—	J13-0020-05	Fuse holder (6 × 30mm) × 4	-00
—	J13-0039-05	Fuse holder (5 × 20mm) × 4	-11 -61

## TUNER (X05-1280-11)

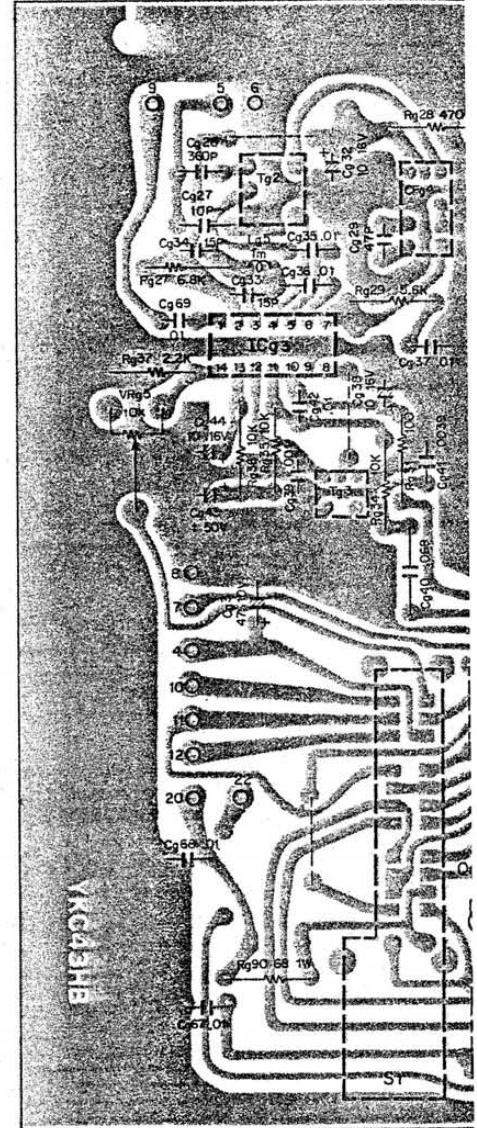
Ref. No.	Parts No.	Description	Re- marks
<b>CAPACITOR</b>			
Cg1,2	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg3	CE04W1A470	Electrolytic 47μF 10WV	
Cg4~6	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg7	CS15E1E010M	Tantalum 1μF 25WV	
Cg8	CC45SL1H101K	Ceramic 100pF ±10%	
Cg9	CS15E1E010M	Tantalum 1μF 25WV	
Cg10,11	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg12	CS15E1C2R2M	Tantalum 2.2μF 16WV	
Cg13	CK45F1H473	Ceramic 0.047μF +80%—20%	
Cg14	CE04W1C470	Electrolytic 47μF 16WV	
Cg15	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg16	CE04W1E4R7	Electrolytic 4.7μF 25WV	
Cg17	CK45F1H473Z	Ceramic 0.047μF +80%—20%	
Cg18	CQ93M1H473K	Mylar 0.047μF ±10%	
Cg19	CQ09S1H471J	Polystyrene 470pF ±5%	
Cg20	CQ92M1H224MDA	Mylar 0.22μF ±20%	
Cg21	CQ92M1H474MDA	Mylar 0.47μF ±20%	
Cg22	CK45B1H681K	Ceramic 680pF ±10%	
Cg23	CE04W1C101	Electrolytic 100μF 16WV	
Cg24,25	CQ93M1H562J	Mylar 0.0056μF ±5%	
Cg26	CQ92M1H104MDA	Mylar 0.1μF ±20%	
Cg27	CC45SL1H100D	Ceramic 10pF ±0.5pF	
Cg28	CQ09S1H361J	Polystyrene 360pF ±5%	
Cg29	CC45SL1H470K	Ceramic 47pF ±10%	
Cg30,31	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg32	CE04W1C100	Electrolytic 10μF 16WV	
Cg33,34	CC45SL1H150K	Ceramic 15pF ±10%	
Cg35	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
~37			
Cg38	CE04W1C100	Electrolytic 10μF 16WV	
Cg39	CQ93M1H102K	Mylar 0.001μF ±10%	
Cg40	CQ93M1H683K	Mylar 0.068μF ±10%	
Cg41	CQ93M1H392K	Mylar 0.0039μF ±10%	
Cg42	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
Cg43	CE04W1H010	Electrolytic 1μF 50WV	
Cg44	CE04W1C100	Electrolytic 10μF 16WV	
Cg45,46	CE04W1E4R7	Electrolytic 4.7μF 25WV	
Cg47	CQ93M1H153K	Mylar 0.015μF ±10%	
Cg48	CQ93M1H124K	Mylar 0.12μF ±10%	
~51			
Cg52,53	CK45D1H561M	Ceramic 560pF ±20%	
Cg54	CE04W1C221	Electrolytic 220μF 16WV	
Cg55,56	CE04W1A470	Electrolytic 47μF 10WV	
Cg57,58	CC45SL1H180K	Ceramic 18pF ±10%	
Cg59,60	CE04W1A470	Electrolytic 47μF 10WV	
Cg61	CE04W1E3R3	Electrolytic 3.3μF 25WV	
~64			
Cg65	CK45D1H471M	Ceramic 470pF ±20%	
Cg66	CE04W1C221MBR	Electrolytic 220μF 16WV	
Cg67	CK45F1H103Z	Ceramic 0.01μF +80%—20%	
~69			
Cg70,71	CK45F1H473Z	Ceramic 0.047μF +80%—20%	
Cg72,73	CK45D1H332M	Ceramic 3300pF ±20%	
Cg74	CK45F1H473Z	Ceramic 0.047μF +80%—20%	

Ref. No.	Parts No.	Description	Re- marks
<b>RESISTOR</b>			
Rg1	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rg2	PD14BY2E332J	Carbon 3.3kΩ ±5% 1/4W	
Rg3	PD14BY2E561J	Carbon 560Ω ±5% 1/4W	
Rg4	PD14BY2E331J	Carbon 330Ω ±5% 1/4W	
Rg5	PD14BY2E391J	Carbon 390Ω ±5% 1/4W	
Rg6	PD14BY2E101J	Carbon 100Ω ±5% 1/4W	
Rg7	PD14BY2E331J	Carbon 330Ω ±5% 1/4W	
Rg8	PD14BY2E123J	Carbon 12kΩ ±5% 1/4W	
Rg9	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rg10	PD14BY2E473J	Carbon 47kΩ ±5% 1/4W	
Rg12	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
Rg13	PD14BY2E221J	Carbon 220Ω ±5% 1/4W	
Rg14	PD14BY2E473J	Carbon 47kΩ ±5% 1/4W	
Rg15	PD14BY2E822J	Carbon 8.2kΩ ±5% 1/4W	
Rg16	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rg17	PD14BY2E683J	Carbon 68kΩ ±5% 1/4W	
Rg18	PD14BY2E101J	Carbon 100Ω ±5% 1/4W	
Rg19	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rg20	PD14BY2E163J	Carbon 16kΩ ±5% 1/4W	
Rg21	PD14BY2E102J	Carbon 1kΩ ±5% 1/4W	
Rg22,23	PD14BY2E432J	Carbon 4.3kΩ ±5% 1/4W	
Rg24	PD14BY2E333J	Carbon 33kΩ ±5% 1/4W	
Rg26	PD14BY2E105J	Carbon 1MΩ ±5% 1/4W	
Rg27	PD14BY2E682J	Carbon 6.8kΩ ±5% 1/4W	
Rg28	PD14BY2E471J	Carbon 470Ω ±5% 1/4W	
Rg29	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rg31	PD14BY2E101J	Carbon 100Ω ±5% 1/4W	
Rg32	PD14BY2E183J	Carbon 18kΩ ±5% 1/4W	
Rg33	PD14BY2E822J	Carbon 8.2kΩ ±5% 1/4W	
Rg34	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
~36			
Rg37	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
~39			
Rg40,41	PD14BY2E472J	Carbon 4.7kΩ ±5% 1/4W	
Rg42,43	PD14BY2E302J	Carbon 3kΩ ±5% 1/4W	
Rg44	PD14BY2E101J	Carbon 100Ω ±5% 1/4W	
Rg45,46	PD14BY2E224J	Carbon 220kΩ ±5% 1/4W	
Rg47,48	PD14BY2E683J	Carbon 68kΩ ±5% 1/4W	
Rg49,50	PD14BY2E394J	Carbon 390kΩ ±5% 1/4W	
Rg51,52	PD14BY2E224J	Carbon 220kΩ ±5% 1/4W	
Rg53,54	PD14BY2E473J	Carbon 47kΩ ±5% 1/4W	
Rg55,56	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
		ICg2 = HA1156W (C)	
		2.4kΩ ±5% 1/4W	
		ICg2 = HA1156W (B)	
Rg57,58	PD14BY2E183J	Carbon 18kΩ ±5% 1/4W	
Rg59,60	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rg61,62	PD14BY2E151J	Carbon 150Ω ±5% 1/4W	
Rg63,64	PD14BY2E474J	Carbon 470kΩ ±5% 1/4W	
Rg65,66	PD14BY2E684J	Carbon 680kΩ ±5% 1/4W	
Rg67,68	RC05GF2H475K	Carbon 4.7MΩ ±10% 1/2W	
Rg69,70	PD14BY2E474J	Carbon 470kΩ ±5% 1/4W	
Rg71,72	PD14BY2E684J	Carbon 680kΩ ±5% 1/4W	
Rg73,74	PD14BY2E102J	Carbon 1kΩ ±5% 1/4W	
Rg75	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
Rg76	PD14BY2E333J	Carbon 33kΩ ±5% 1/4W	
Rg77	PD14BY2E221J	Carbon 220Ω ±5% 1/4W	
Rg78	PD14BY2E333J	Carbon 33kΩ ±5% 1/4W	
~80			
Rg81	PD14BY2E563J	Carbon 56kΩ ±5% 1/4W	
Rg82	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
Rg83	PD14BY2E392J	Carbon 3.9kΩ ±5% 1/4W	
Rg84	PD14BY2E821J	Carbon 820Ω ±5% 1/4W	
Rg85	PD14BY2E224J	Carbon 220kΩ ±5% 1/4W	
Rg86	PD14BY2E821J	Carbon 820Ω ±5% 1/4W	
Rg87	PD14BY2E123J	Carbon 12kΩ ±5% 1/4W	

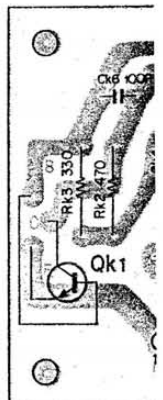
# PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
Rg88	PD14BY2E470J	Carbon 47Ω ±5% 1/4W	
Rg89	PD14BY2E100J	Carbon 10Ω ±5% 1/4W	
Rg90	RN14A83A680JB	Metal film 68Ω ±5% 1W	
Rg91	PD14BY2E333J	Carbon 33kΩ ±5% 1/4W	
<b>SEMICONDUCTOR</b>			
Qg1	V03-0092-05	Transistor 2SC381 (O)	
Qg2,3	V03-0270-05	Transistor 2SC945 (R) or (Q)	
Qg4~7	V01-0146-05	Transistor 2SA640	
Qg8,9	V03-0309-05	Transistor 2SC1345 (D) or (E)	
Qg10,11	V09-0086-05	FET 2SK40 (D)	
Qg12	V03-0270-05	Transistor 2SC945 (R) or (Q)	
~15			
ICg1	V30-0133-05	IC HA1137W	
ICg2	V30-0099-05	IC HA1156W (B) or HA1156W (C)	
ICg3	V30-0134-05	IC HA1151	
Dg1,2	V11-0076-05	Diode 1S2076 or 1S1555	
Dg3	V11-0051-05	Diode 1N60	
Dg4	V11-0076-05	Diode 1S2076 or 1S1555	
<b>COIL/IFT/FILTER</b>			
Tg1	L30-0205-05	FM IFT	
Tg2	L32-0181-05	AM OSC coil	
Tg3	L30-0284-05	AM IFT	
Lg1,2	L40-1512-03	Inductor 150μH	
Lg3	L40-1805-61	Inductor 18μH	
Lg4	L40-1092-44	Inductor 1μH	
Lg5	L40-1021-43	Inductor 1mH	
Lg6,7	L79-0027-05	Low pass filter	☆
CFg1~3	L72-0034-05	FM ceramic filter (10.7MHz)	
CFg4	L72-0036-05	AM ceramic filter (455kHz)	
<b>POTENTIOMETER</b>			
VRg1	R12-5019-05	100kΩ (FM.S.METER)	
VRg2	R12-5025-05	100kΩ (OFF SET)	
VRg3	R12-1028-05	4.7kΩ (VCO CONT)	
VRg4	R12-5026-05	220kΩ (MPX SEP)	
VRg5	R12-3030-05	10kΩ (AM.S.METER)	
<b>SWITCH</b>			
S1	S29-1077-05	Slide rotary (SELECTOR)	☆
S2,3	S32-2013-05	Lever (MUTING, MPX FIL)	
<b>MISCELLANEOUS</b>			
—	F11-0219-05	Shield case (Lg3)	●
—	J19-0476-04	Lever switch holder	
—	J21-1398-04	PC board mounting hardware	● ☆

## TUNER (X05-1280-11)



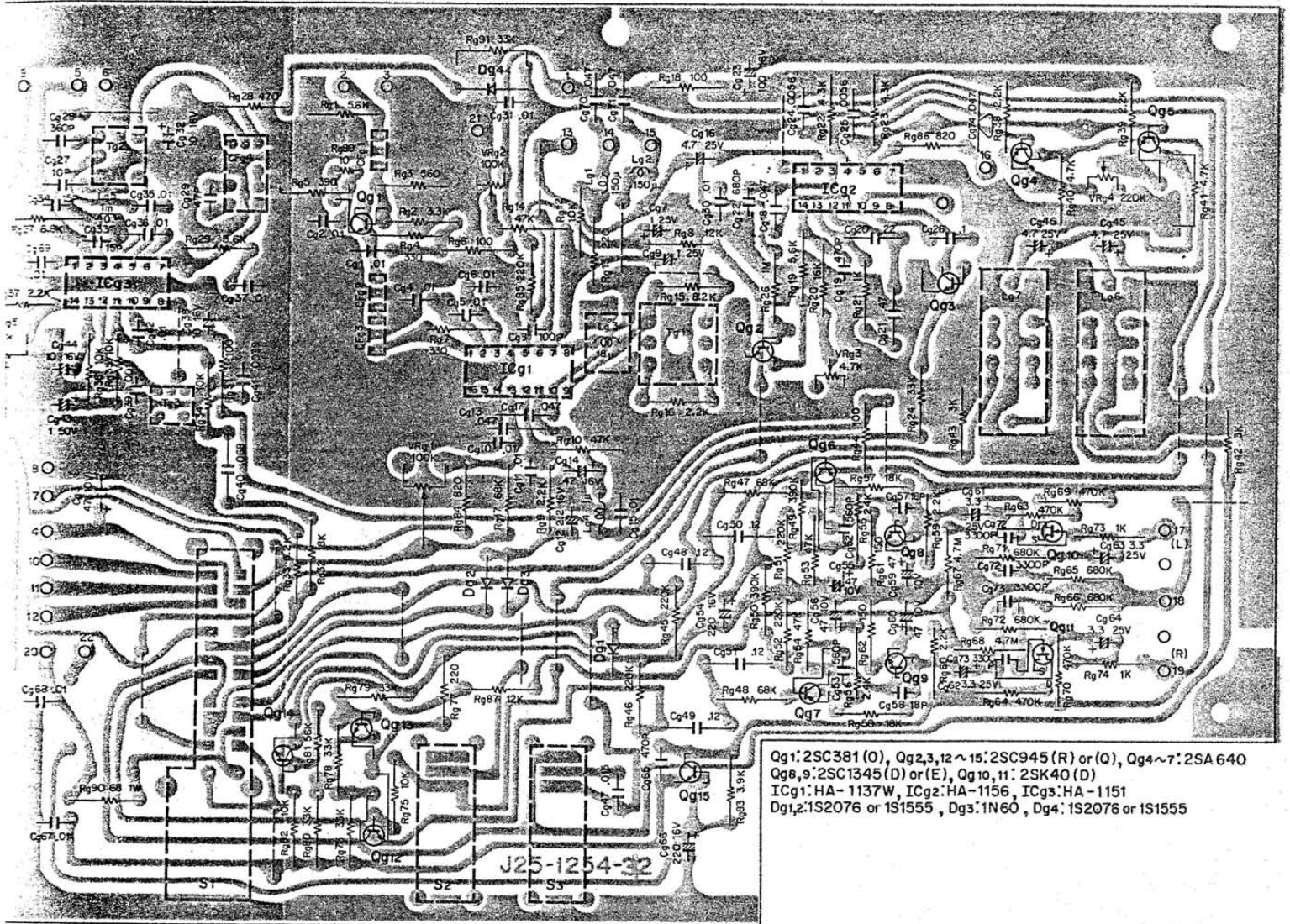
## POWER S



Qk1: 2SC1419 (

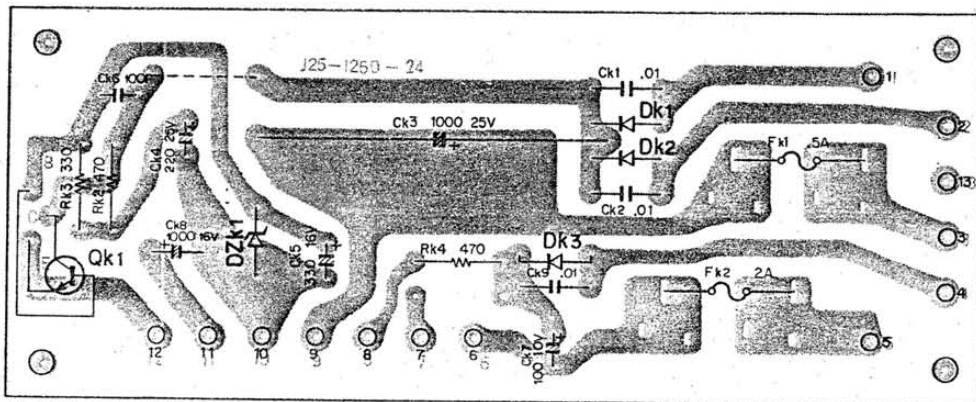
# PARTS LIST / PC BOARD

(X05-1280-11)



Qg1: 2SC381 (O), Qg2,3,12 ~ 15: 2SC945 (R) or (Q), Qg4 ~ 7: 2SA 640  
 Qg8,9: 2SC1345 (D) or (E), Qg10,11: 2SK40 (D)  
 ICg1: HA-1137W, ICg2: HA-1156, ICg3: HA-1151  
 Dg1,2: 1S2076 or 1S1555, Dg3: 1N60, Dg4: 1S2076 or 1S1555

## POWER SUPPLY (X00-1660-11)

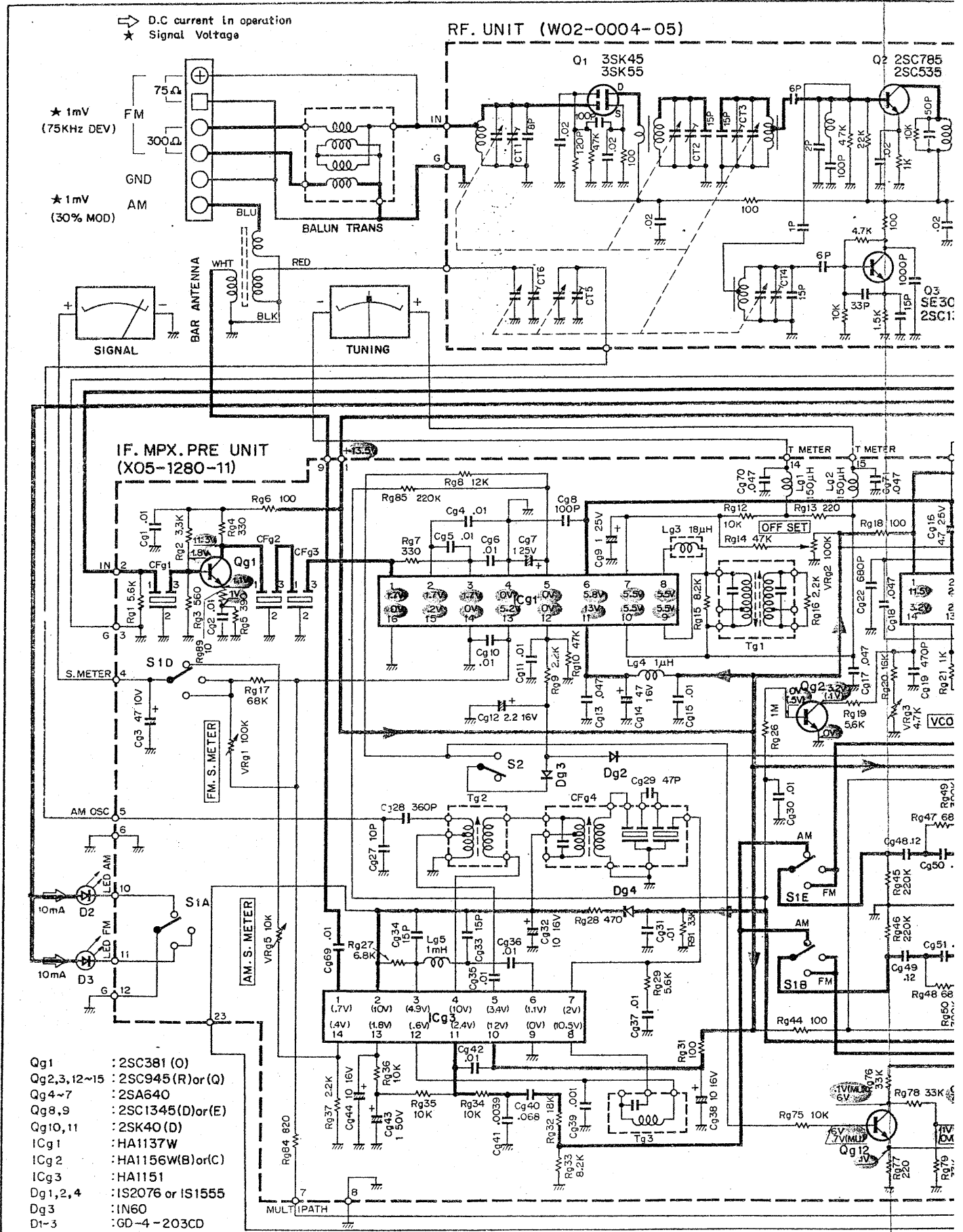


Qk1: 2SC1419 (B) or (C), Dk1 ~ 3: W06B, DZk1: YZ-140

# SCHEMATIC DIAG

NOTE: The value of Rg55, 56 is 2.2 kΩ when using HA1156W(C) as ICg2, 2.4 kΩ when using HA1156W(B) as ICg2.

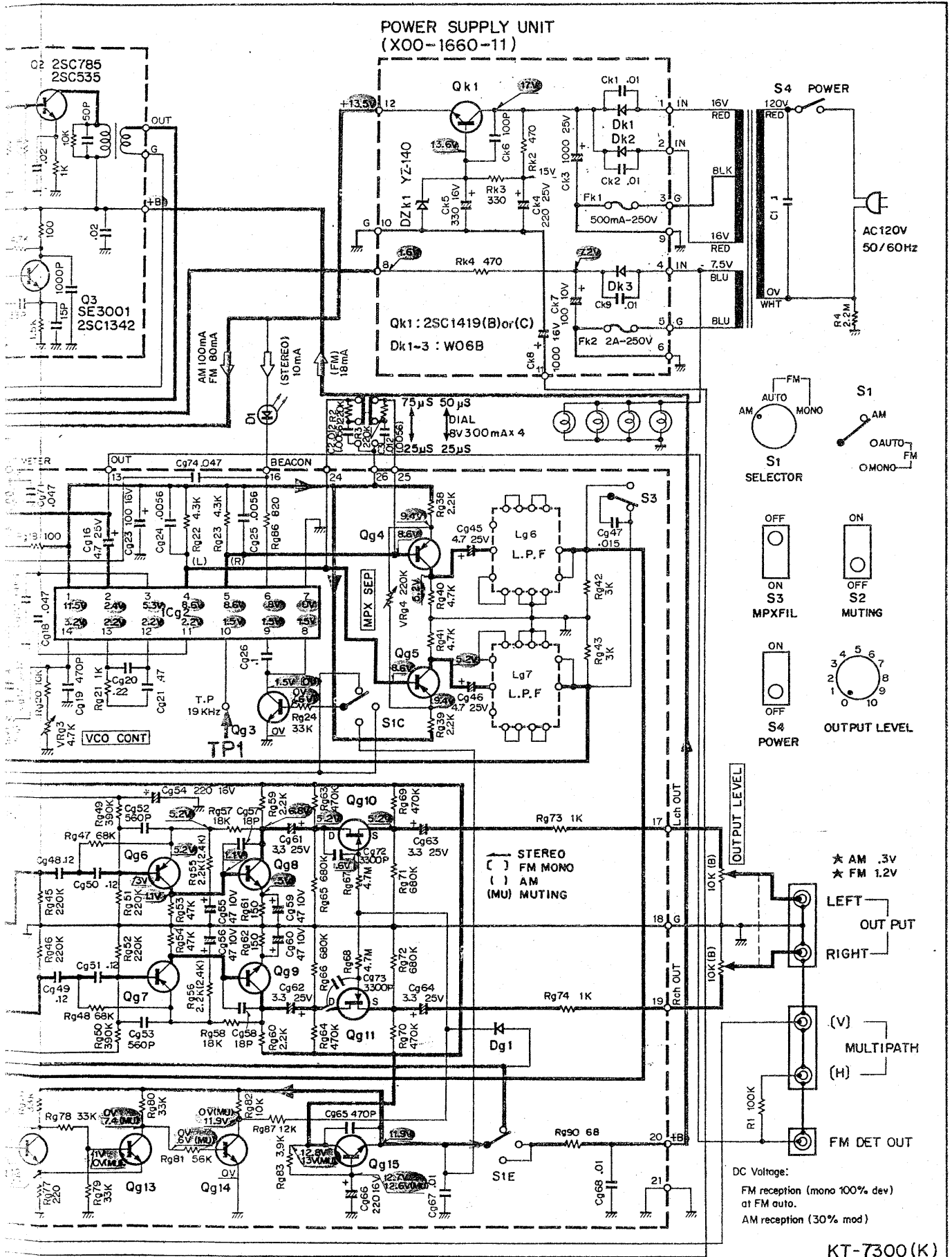
DC voltage measured with 20 kΩ/V



# WIRING DIAGRAM

Resistor values are in ohms unless otherwise specified. All capacitors are in pF unless otherwise specified.

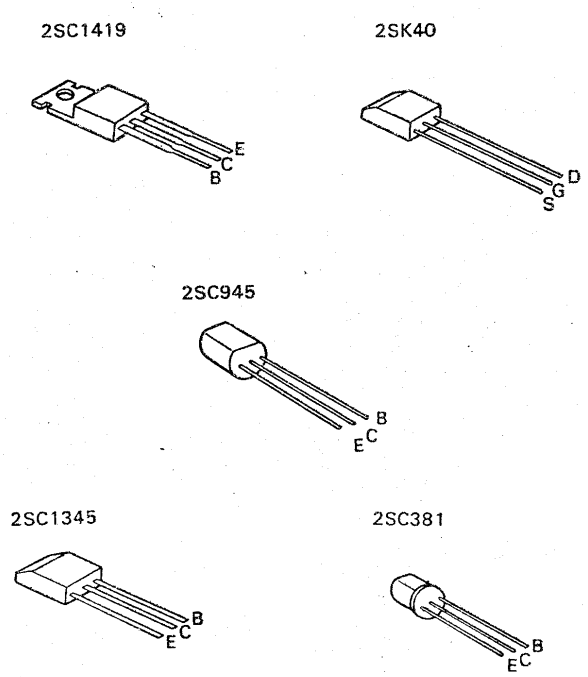
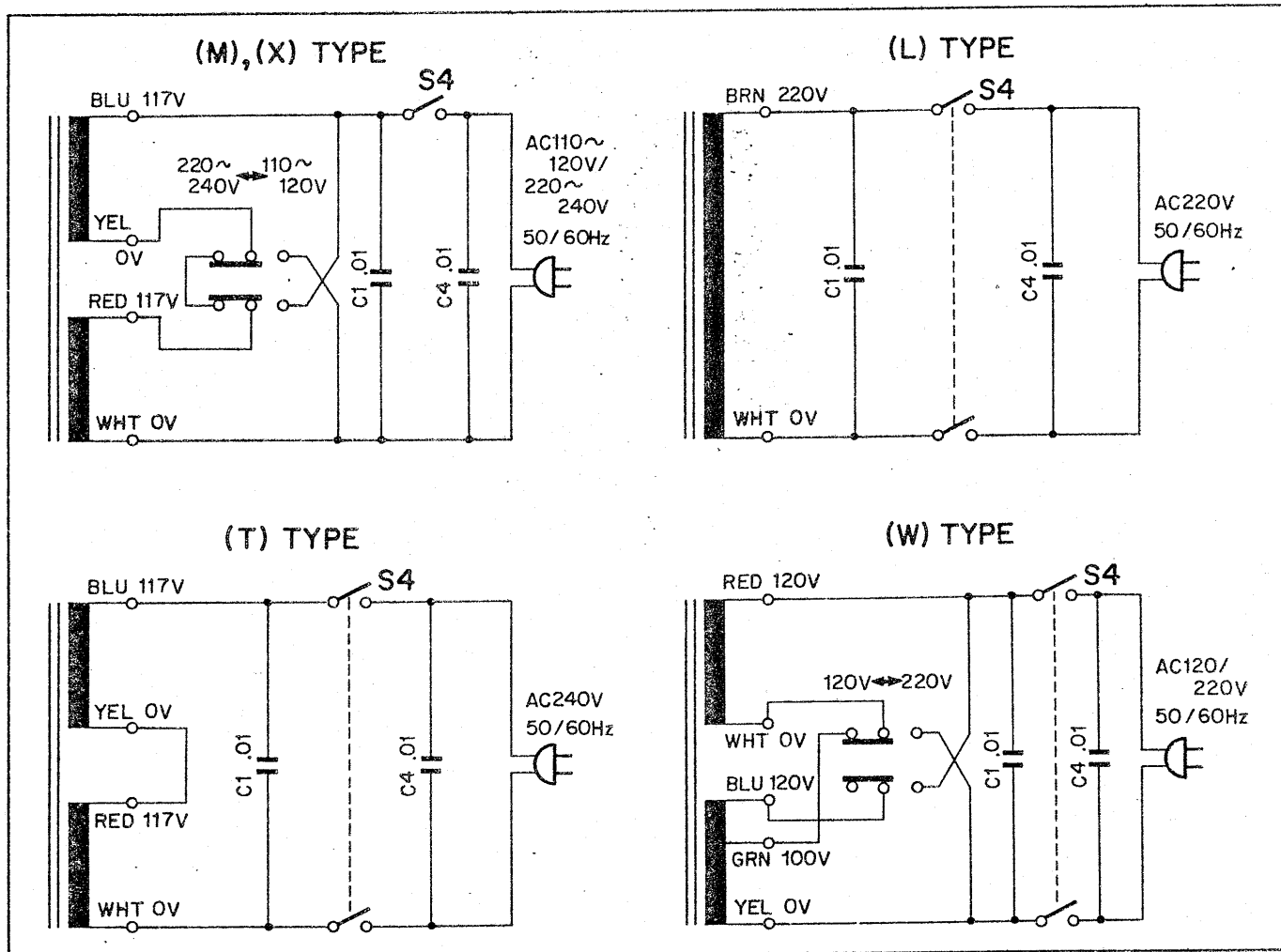
DC voltage at FM STEREO reception (MU) DC voltage at FM MONO reception  
DC voltage at AM reception DC voltage at MUTING ON



# SCHEMATIC DIAGRAM / SEMICONDUCTOR SUBSTITUTIONS & LEADS

The fundamental schematic diagram is for K-type.

The primary circuit of the power transformer is modified according to the destination as follows:



SEMI CONDUCTOR NAME	SUBSTITUTIONS
2SA640	2SA620
2SC381 (O)	2SC535 (B)
2SC945 (R), (Q)	2SC1416
2SC1345 (D), (E)	2SC1000, 2SC1416
2SC1419	2SC1061
2SK40 (D)	3SK30 (A), (B)
HA1137W	—
HA1151	—
HA1156W (B) or C	—

## FM TUNER SECTION

**Frequency Range:** 88 MHz to 108 MHz  
**Antenna Impedance:** 300 ohms balanced and  
75 ohms unbalanced  
**Usable Sensitivity (IHF):** 1.8 $\mu$ V  
**50 dB Quieting:** 3.8 $\mu$ V (MONO)  
45 $\mu$ V (STEREO)  
**Harmonic Distortion:** 0.1% (MONO), 0.2% (STEREO)  
(at 400 Hz 100% Mod)  
**Signal to Noise Ratio:** 75 dB (MONO), 68 dB (STEREO)  
(at 1 mV Input 100% Mod)  
**Capture Ratio:** 1.0 dB  
**Selectivity:** 80 dB or more  
(IHF ALT Channel)  
**Image Rejection:** 85 dB or more  
**IF Rejection:** 90 dB or more  
**AM Suppression:** 60 dB or more  
**Spurious Signal Rejection:** 90 dB or more  
**Stereo Separation:**  
**400 Hz** 45 dB  
**50 Hz ~ 10 kHz** 35 dB  
**Sub Carrier** 65 dB or more  
**Suppression:**  
**Frequency Response:**  
**50 ~ 10,000 Hz** +0.2 dB, -0.3 dB  
**30 ~ 15,000 Hz** +0.2 dB, -1.5 dB

## AM TUNER SECTION

**Frequency Range:** 525 kHz ~ 1605 kHz  
**Usable Sensitivity (IHF):** 18 $\mu$ V  
**Harmonic Distortion:** 0.5%  
**Image Rejection:** 60 dB or more  
**Signal to Noise Ratio:** 50 dB  
(at 1 mV Input 30% Mod)  
**Selectivity:** 35 dB  
(IHF ALT Channel)

## OUTPUT VOLTAGE AND IMPEDANCE

**FM** 0 ~ 1.2V 2.5 k $\Omega$   
(at 400 Hz 100% Mod):  
**AM** 0 ~ 0.3V 2.5 k $\Omega$   
(at 400 Hz 30% Mod):  
**Multipath Output** 0.2V 1 k $\Omega$   
**FM DET Out:** 250 mV 1.5 k $\Omega$

## GENERAL

**Power Consumption:** 13W  
**Dimensions:** W 16-15/16" (430 mm)  
H 5-7/8" (149 mm)  
D 14-13/16" (376 mm)  
**Weight (Net):** 17.6 lbs. (8 kg)

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