

SERVICE
MANUAL

2110



marantz

model 2110

Am/Fm Stereophonic Tuner

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.

Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

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Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified. If you order by mail, fulfil MARANTZ order forms.

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

TECHNICAL ASSISTANCE

Should you require any other technical support, do not hesitate to contact the Technical Department of MARANTZ EUROPE & Co.
Avenue Louise 326 - Bte. 32
B-1050 Brussels
Belgium
Telephone: (02) 6407830 (10 l)
Telex: 26602
Fax.: (02) 649.29.20

PARTS ORDERING

Parts may be ordered at the following addresses:

AUSTRIA
HORNYPHON
Vertriebsgesellschaft GmbH
Wienerbergstrasse 1
A 1101 Wien
Austria
Telex: 132.332

AUSTRALIA
MARANTZ AUSTRALIA
PTY., Ltd.
19 Chard Road
Brookvale, NSW 2100
Australia
Telex: 24121

BELGIUM
SVD DIVISION MARANTZ
Industrielaan 1
1720 Groot-Bijgaarden
Belgium
Telex: 24466

CHILE
MARANTZ
DIVISION OF PHILIPS S.A.
AV. Santa Maria, 0760
Casilla 2687
Santiago
Telex: 240.239

DENMARK
MARANTZ
DIVISION OF PHILIPS
SERVICE A/S
Prags Boulevard 80
Postbox 1919
DK-2300 København S
Denmark
Telex: 31201

EIRE
MARANTZ IRELAND Ltd.
Newstead
Gionkeagh
Dublin 4
Telex: 25200

FINLAND
MARANTZ
DIVISION OF OY PHILIPS AB
Kaivokatu 8
00100 Helsinki
Finland
Telex: 124811

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92800 Asnières
France
Telex: 611651

GERMANY
MARANTZ GERMANY GmbH
Max-Planck-Strasse 22
6072 Dreieich 1
Germany
Telex: 529821

THE NETHERLANDS
MARANTZ
De Limiet 3
4131 NR Vianen
The Netherlands
Telex: 47679

NORWAY
MARANTZ
DIVISION OF PHILIPS A/S
Sandstuveien 40
Oslo 6
Norway
Telex: 72640

GREAT BRITAIN
MARANTZ AUDIO U.K. Ltd
Unit 15/16
Saxon Way Industrial Estate
Moor Lane
Harmondsworth UB7 0LW
Great Britain
Telex: 935196

GREECE
ADAMCO S.A.
P.O.Box 21025
Hippocrates Street 188
Athens 11410
Greece
Telex: 216.795

ITALY
MARANTZ ITALIANA S.p.A.
Via Monte Napoleone 10
20121 Milano
Italia

JAPAN
MARANTZ JAPAN, Inc.
35-1, 7-chome, Sagami-cho
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
Ussama Building
Fahd al Saleem Street
P.O.Box 23781
Safat-Kuwait
Telex: 22694

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia
Telex: 201530

SOUTH AFRICA
MARANTZ
DIVISION OF PHILIPS S.A.
Rainer House
Ove Street, 10
Doornfontein
Johannesburg
Telex: 483.456

SPAIN
PHONO S.A.
Ignacio Iglesias 10
Badalona (Barcelona)
Spain
Telex: 59355

SWEDEN
MARANTZ
DIVISION OF PHILIPS
Försäljning AB
Tegeluddsvägen 1
S-115 84 Stockholm
Sweden
Telex: 14060

SWITZERLAND
DYNAVOX ELECTRONICS
Route de Villars 105
1701 Fribourg
Switzerland
Telex: 942377

TURKEY
DOGRUOL Ltd.
I.M.C.
6 Blok N°6310
Unkapani
Istanbul
Turkey
Telex: 22085

MALTA
CACHIA & GALEA
Republic Street, 68D
Valletta
Telex: 1682

U.S.A.
MARANTZ COMPANY, Inc.
National Service Department
P.O.Box 677
Chatsworth, CA 91311
U.S.A.

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

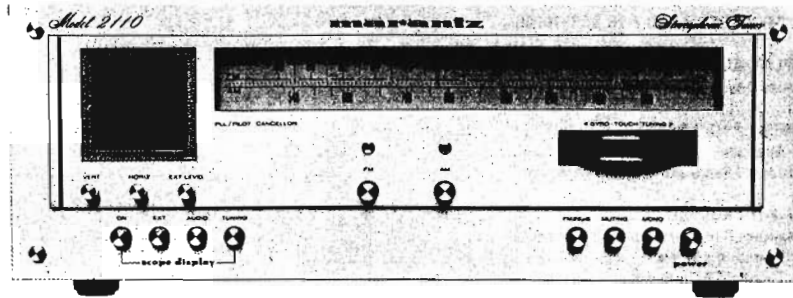
In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

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MODEL 2110 AM/FM STEREOGRAPHIC TUNER



INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2110 AM/FM Stereophonic Tuner.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the tuner.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

1. P.W. BOARDS

As can be seen from the circuit diagram, the chassis of Model 2110 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Tuner mounted on P.W. Board P200
2. Power Supply mounted on P.W. Board P800
3. Dial Lamp mounted on P.W. Board P201
4. Function Indicator mounted on P.W. Board PY00
5. Scope Amp mounted on P.W. Board P900
6. Scope Display Switches mounted on P.W. Board PRO0
7. Function Switches mounted on P.W. Board PS00
8. Mode Switches mounted on P.W. Board PT00

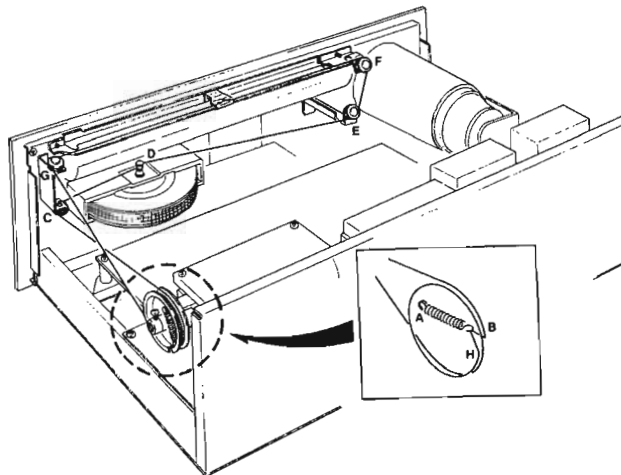


Figure 1. Dial Stringing

2. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2110 Tuner.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to tuner
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to tuner
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to tuner

3. SCOPE DISPLAY ADJUSTMENT

- Set the EXT LEVEL control to its fully counterclockwise position.
- Depress the SCOPE DISPLAY ON and AUDIO pushswitches in.
- Adjust the HORIZ and VERT controls to center the dot in the small circle in the center of the scope display.
- Adjust the BRIGHT control (R001) on the rear panel until the brightness becomes dark a little.
- Adjust the FOCUS control (R002) so that the spot may become smaller and circular.
- Turn the EXT LEVEL control to its fully clockwise position.
- Connect a 150 mV, 1 kHz signal to the SCOPE INPUTS R jack and adjust R928 (H. GAIN) until the horizontal deflection is around 3 cm.
- In turn, connect the same signal to the L jack and similarly, adjust R927 (V. GAIN) until the vertical deflection is around 3 cm.
- Set the HORIZ and VERT controls to the 12-o'clock position and adjust R925 (H. CENTER) until the spot comes in the horizontal deflection center.
- Similarly, adjust R926 (V. CENTER) until the spot comes in the vertical deflection center.

3.1 AM TUNING DISPLAY ADJUSTMENT

- Depress the SCOPE DISPLAY ON and TUNING pushswitches.
- Depress the AM pushswitch.
- Adjust R931 until the spot comes in the center below the base line without tuning into a station.

4. AM ALIGNMENT PROCEDURES

4.1 AM IF ALIGNMENT

- Connect a sweep generator to the TC3 and an alignment scope to the R155.
- Rotate each core of IF transformers L152 and L151 for the maximum height and flat top symmetrical response.

4.2 AM FREQUENCY RANGE AND TRACKING ALIGNMENT

- Set AM signal generator to 515 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L153 for maximum audio output.
- Set the signal generator to 1650 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer on the oscillator tuning capacitor for maximum audio output.
- Repeat steps 1 and 2 until no further adjustment is necessary.
- Set the generator to 600 kHz, tune the tuner to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
- Set the generator to 1400 kHz and tune the tuner to the same frequency and adjust the trimming capacitor on the antenna tuning capacitor for maximum output.
- Repeat procedures 4 and 5 until no further adjustment is necessary.

NOTE: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

5. FM ALIGNMENT PROCEDURES

5.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Connect an FM signal generator to the FM antenna terminals and an oscilloscope and an audio distortion analyzer to the OUTPUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5 μV . Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L105 to obtain maximum audio output.
3. Set the generator to 109 MHz and provide about 3 to 5 μV . Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the tuner to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L101 and RF coil L102 for maximum output.
6. Set the generator to 106 MHz and tune the tuner to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.

8. Connect the center tuning meter to the test points J136 and J137. Adjust the L201 so that the tuning meter pointer indicates its center. Depress the SCOPE DISPLAY TUNING pushswitch. Adjust the R227 until the tuning bar is located the center of the oscilloscope. Set the FM signal generator to 60 dB at 98 MHz and tune the tuner to the same frequency in the vertical trace of the oscilloscope. Adjust the L202 for minimum distortion.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 μV at 98 MHz. Tune the tuner to the same frequency so that the tuning bar is located the center of the oscilloscope. Then turn off the modulation of the generator, connect a frequency counter to test point J138 and adjust R304 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R336 for maximum and same separation in both channels.

5.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5 μV (IHF) at 98 MHz and tune tuner to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5 μV . (During this adjustment turn the FM MUTING pushswitch "on").

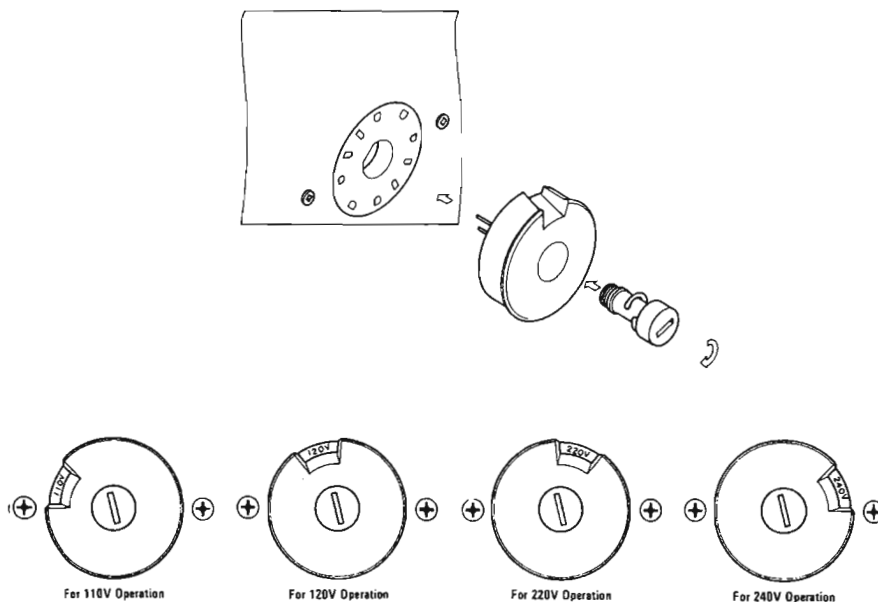


Figure 2. Voltage Conversion Chart

5.4 FM 25 μ S OUTPUT LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 k μ V output. Precisely tune the tuner to 98 MHz.
2. Depress the FM 25 μ S pushswitch, and adjust R216 until the outputs of both channels are 580 mV.

6. VOLTAGE CONVERSION FOR EUROPEAN MODEL

The European version of the Model 2110 is equipped with a universal power transformer that may be adjusted to operate at 110 V, 120 V, 220 V, or 240 V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

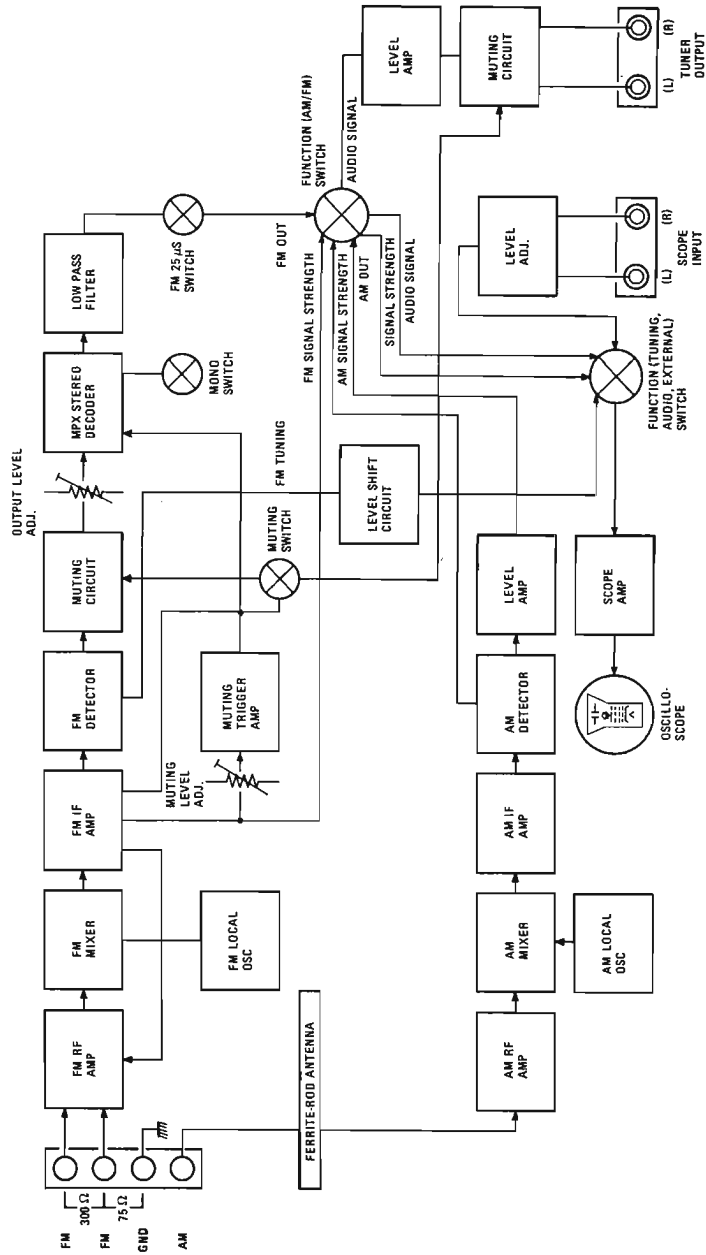
FTZ REGULATION

Instruction for the use in the range other than specified in FTZ codes.

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

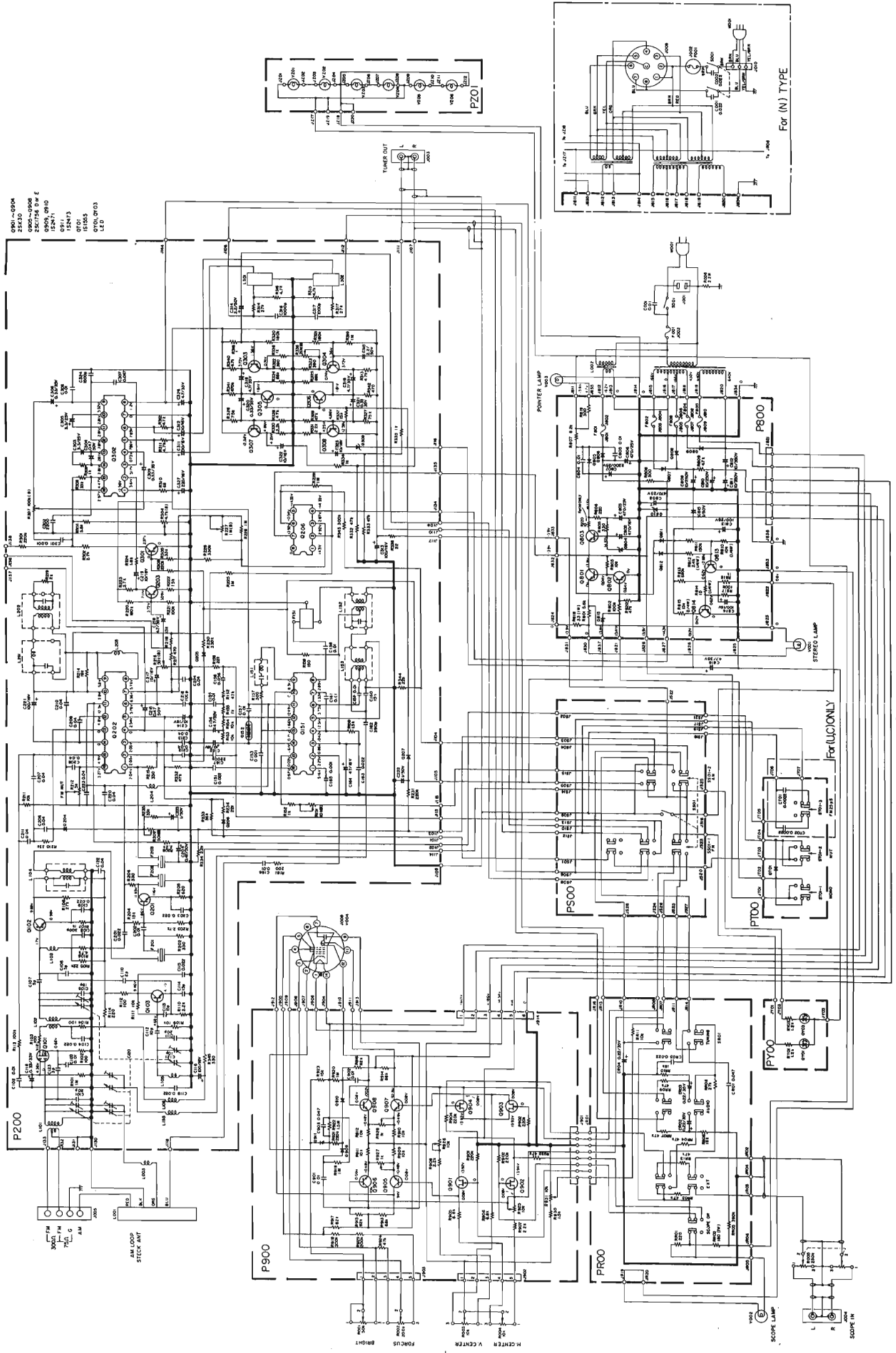
Sollte das Gerät auch für Frequenzen ausserhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatordspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

7. DIAGRAMS
7.1 BLOCK DIAGRAM

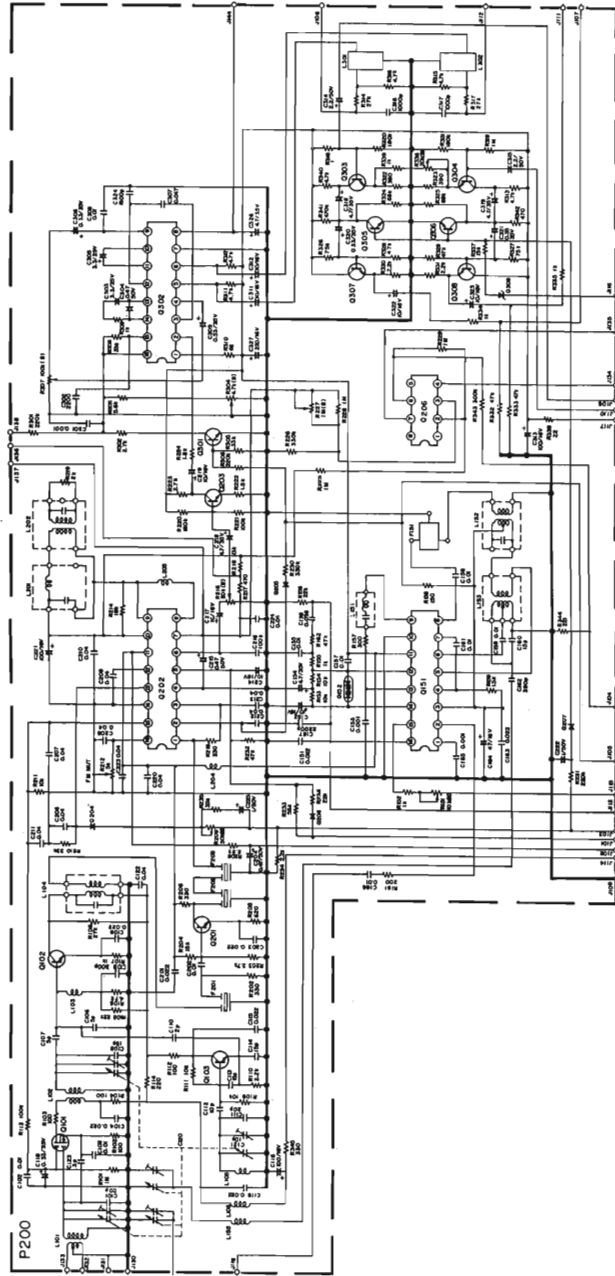


7.2 SCHEMATIC DIAGRAM

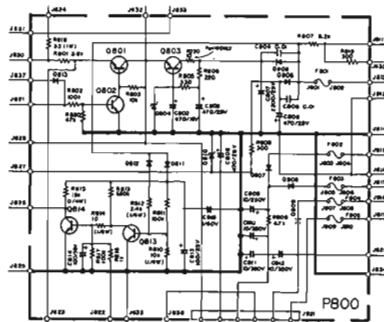
- 0101 384339
- 0102 0122
- 0103 21C289 C
- 0104 21C287 C
- 0105 21C289 C
- 0106 21C287 C
- 0107 21C289 C
- 0108 21C287 C
- 0109 21C289 C
- 0110 21C287 C
- 0111 21C289 C
- 0112 21C287 C
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- 0199 21C289 C
- 0200 21C287 C



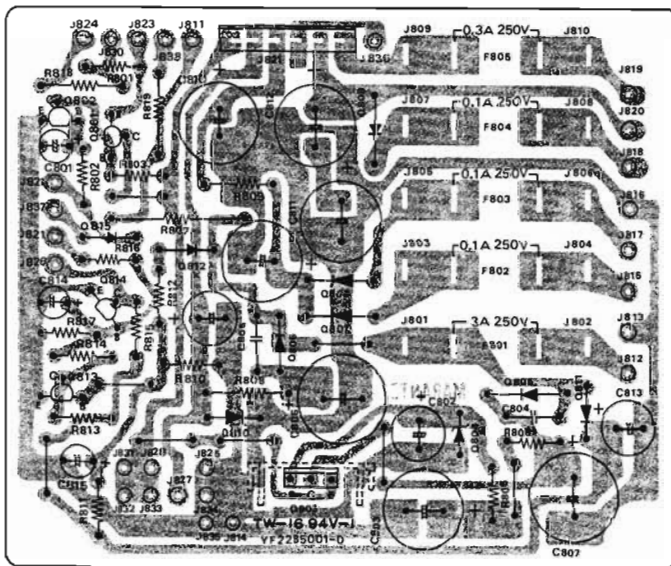
7.3 TUNER BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P200



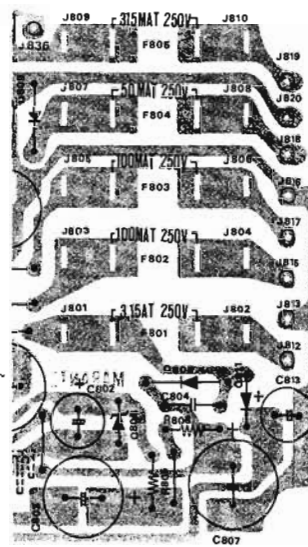
7.4 POWER SUPPLY SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P800



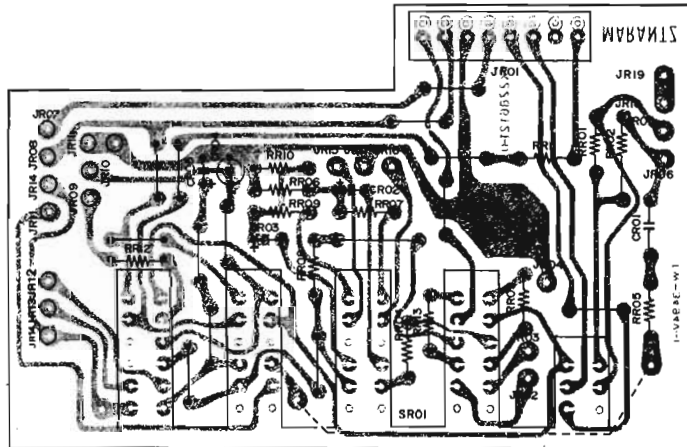
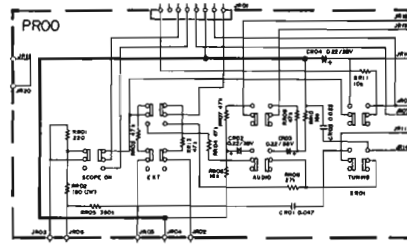
[U.S.A. & CANADIAN MODELS ONLY]



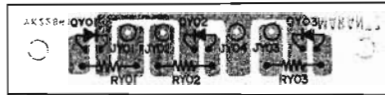
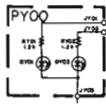
[EUROPEAN MODEL ONLY]



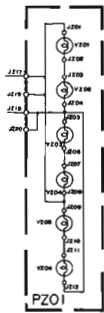
7.8 SCOPE DISPLAY SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PROO



7.9 FUNCTION INDICATOR SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PY01

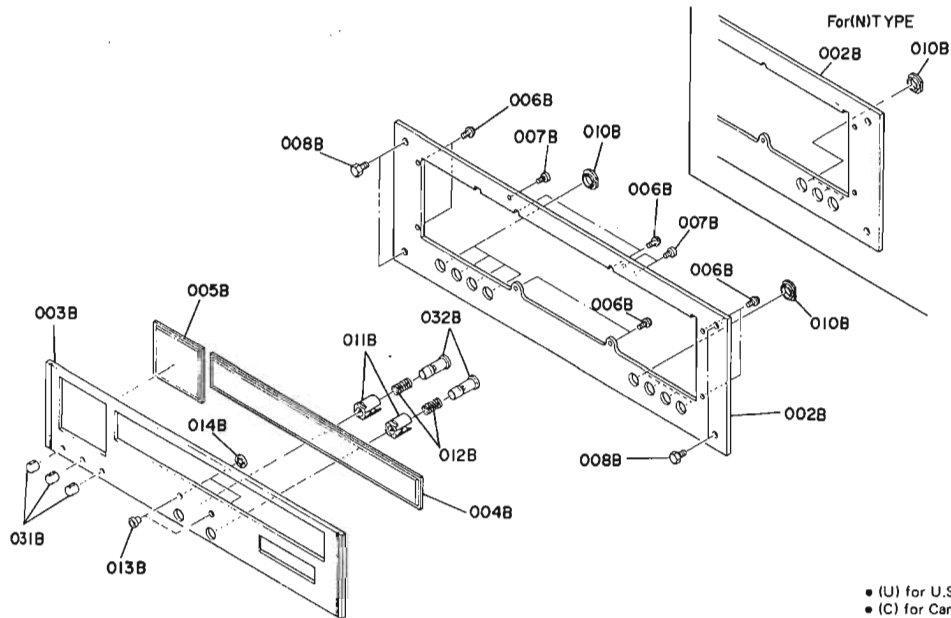


7.10 DIAL LAMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PZ01



8. EXPLODED VIEWS AND PARTS LIST

8.1 [C01-99] FRONT PANEL

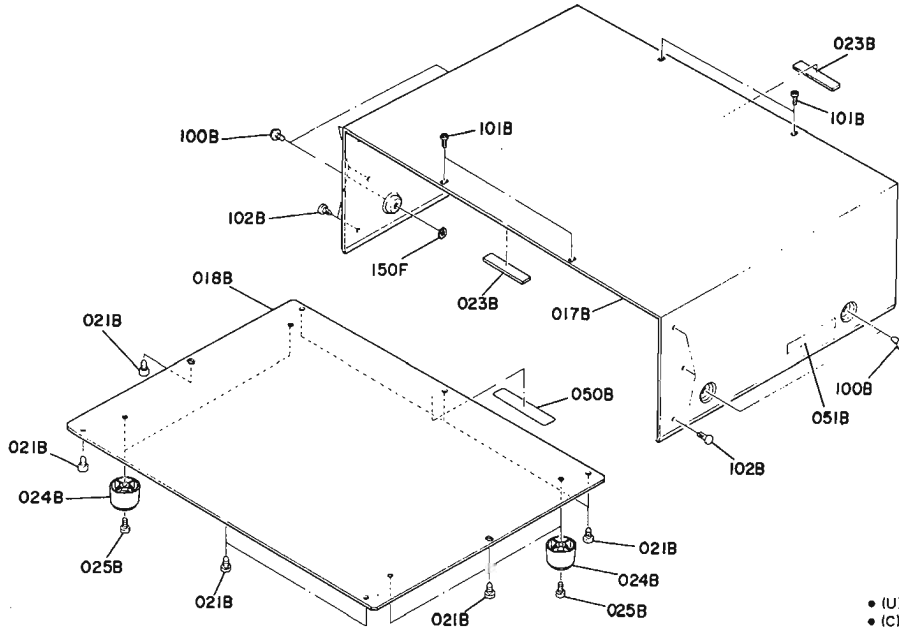


- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
A	1	1		2285063400	Front Panel Assembly
A1			1	2285063410	Front Panel Assembly
002B	1	1		2285063010	Escutcheon, Main
002B			1	2285063030	Escutcheon, Main
003B	1	1		2285063022	Escutcheon, Sub
004B	1	1		2286158020	Window, Dial
005B	1	1		2286158010	Window, Scope
006B	8	8		51480306A9	F. Washer Screw F3 x 6
007B	3	3		51570305B9	P. TAPT. Screw P3 x 5
010B	8	8		2978259012	Bushing
011B	2	2		2279259013	Bushing
012B	2	2		2979115012	Spring
013B	2	2		2979259022	Bushing
014B	2	2		64020600C0	RG Ring, CS Type

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
008B	4	4		52017069J2	H. Head Bolt
031B	3	3		2286154012	Knob, Scope VR.
032B	2	2		2979154022	Knob, AM/FM

8.2 [C02-99] TOP COVER

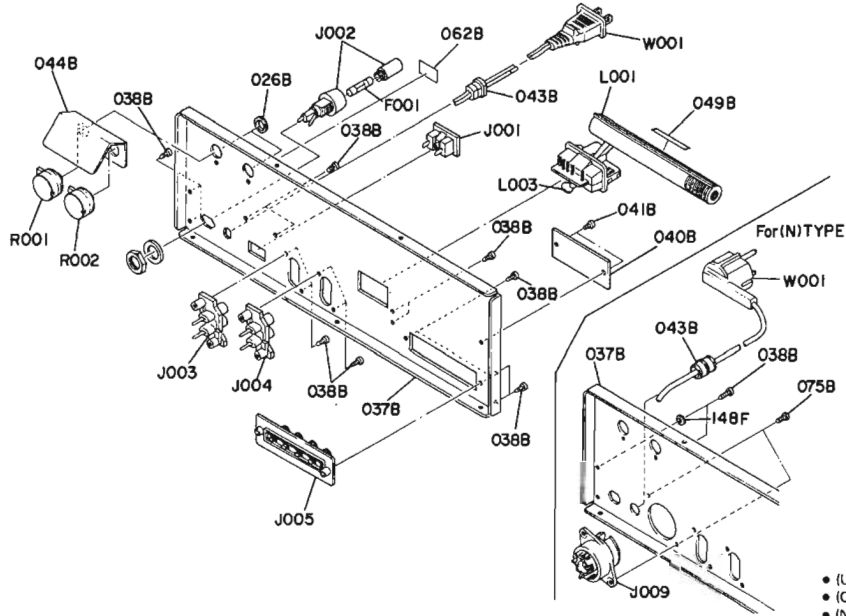


• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
017B	1	1	1	2216257112	Lid, Top Cover
018B	1	1	1	2216257022	Lid, Bottom Cover
021B	8	8	8	51280408U0	B.H. Tapped Screw B4 x 8
023B	2	2	2	2965118010	Spacer
024B	4	4	4	2932057010	Leg
025B	4	4	4	51570410S0	P. TAPT Screw P4 x 10

REF. DESID.	QTY			PART NO.	DESCRIPTION
	U	C	N		
050B	1	1	1	2578861010	Label
050B	1	1	1	2911861112	Label
051B	1	1	1	2932861012	Label
051B	1	1	1	2911861143	Label
100B	4	4	4	51480406S9	F. Washer Screw F4 x 6
101B	4	4	4	51280306U0	B.H. Tapped Screw B3 x 6
102B	6	6	6	2991259010	Bushing
150F			1	54050400R0	T.L. Washer OR

8.3 [C03-99] REAR PANEL

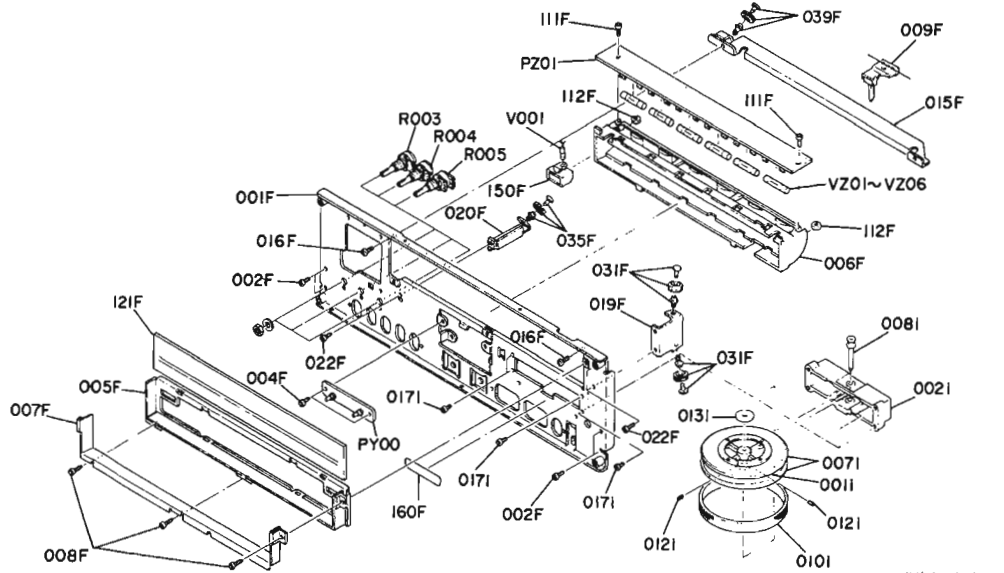


• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
026B	2	2	2	53228059E0	S.C. Nut
037B	1	1		2285160210	Bracket, Rear Panel
037B			1	2285160223	Bracket, Rear Panel
038B	14	14	14	51280308U0	B.H. Tapped Screw B3 x 8
040B	1			2285265010	Indicator
040B	1			2285265020	Indicator
040B	1			2285265050	Indicator
041B	2	2	2	5176030680	OS Tapped Screw 3 x 6
043B	1	1		1455259030	Bushing
043B			1	2286259110	Bushing
044B	1	1	1	2286120020	Insulator
049B	1	1		2506265060	Label
049B			1	2911861172	Label
062B	1			2911861280	Label
075B			2	51100308S9	B.H.M. Screw B3 x 8
148F			1	54050300R0	T.L. Washer, OR

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
J001	1	1		YJ04000560	Jack, AC Outlet
J002	1	1		YJ08000230	Jack, Fuse Holder
J002			1	YJ08000220	Jack, Fuse Holder
J003	1	1	1	YT02020140	Terminal, Output
J004	1	1	1	YT02020140	Terminal, Scope In
J005	1	1	1	YT01040182	Terminal, Ant.
J009			1	BY03110010	Plug, Voltage Selector
F001	1	1		FS10150050	Fuse 1.5A 250V
F001			1	FS10063800	Fuse 630mA 250V
L001	1	1	1	LF11200620	Ant Coil, AM Bar Ant
L003	1	1	1	LC13320020	Choke Coil 3.3μH
R001	1	1	1	RA05030180	Trimming Resistor 50KΩ (B)
R002	1	1	1	RK02040060	Variable Resistor 200KΩ (B)
W001	1	1		YC02000140	A.C. Power Cord
W001			1	YC01900030	A.C. Power Cord

8.4 [P01-99] FRONT CHASSIS AND GENERAL PARTS

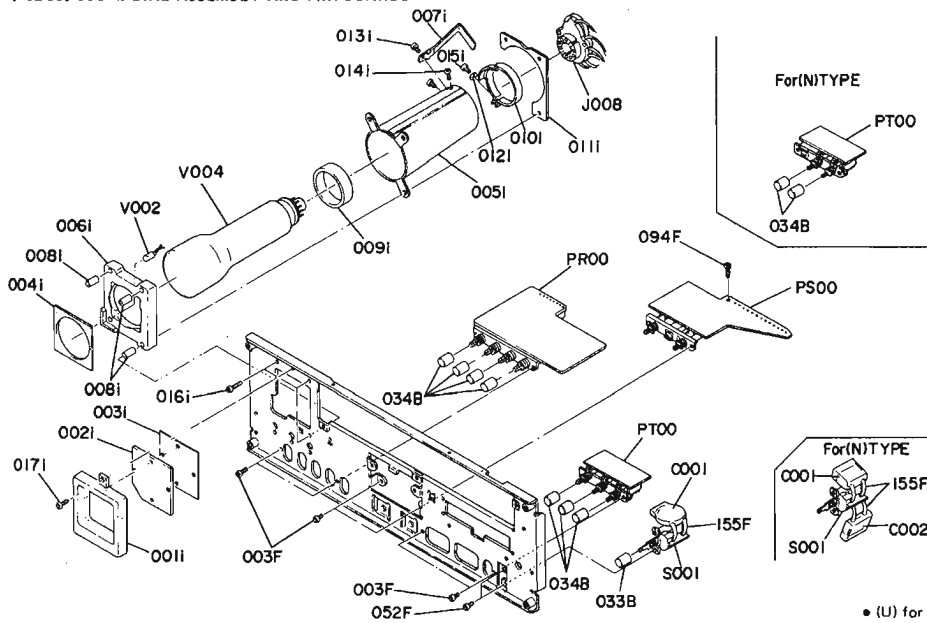


• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
D	1	1	1	2219273420	Flywheel Assembly
001i	1	1	1	2219273012	Flywheel
007i	2	2	2	2219063030	Escutcheon
010i	1	1	1	2215353010	Ring
012i	2	2	2	51690306Q9	Socket Screw, HP 3 x 6
002i	1	1	1	2219104502	Retainer, K
008i	1	1	1	2219112012	Shaft
013i	1	1	1	59031405G9	Washer
017i	4	4	4	51280308B0	B.H. Tapped Screw B3 x 8
001F	1	1	1	2285160012	Bracket
002F	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
004F	2	2	2	51280306B0	B.H. Tapped Screw B3 x 6
005F	1	1	1	2218271013	Holder
006F	1	1	1	2218274013	Reflector
007F	1	1	1	2219053022	Cover
008F	3	3	3	51280306B0	B.H. Tapped Screw B3 x 6
009F	1	1	1	2991103500	Pointer, K
015F	1	1	1	2286051010	Guide
016F	2	2	2	51100306A9	B.H.M. Screw B3 x 6
019F	1	1	1	2285271010	Holder
020F	1	1	1	2286271020	Holder
022F	3	3	3	51100306A9	B.H.M. Screw B3 x 6
031F	2	2	2	2286262500	Pulley, K
035F	1	1	1	2286262500	Pulley, K

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
039F	1	1	1	2286262500	Pulley, K
111F	2	2	2	51100308A9	B.H.M. Screw B3 x 8
112F	2	2	2	53110303E9	Hexagon Nut
121F	1	1	1	2285302012	Dial
150F	1	1	1	2218274033	Reflector
160F	1	1	1	2991861010	Label
R003	1	1	1	RB01030240	Variable Resistor 10KΩ (B)
R004	1	1	1	RB01030240	Variable Resistor 10KΩ (B)
R005	1	1	1	RM02540440	Variable Resistor 250KΩ
V001	1	1	1	IN10080340	Lamp, Stereo 60mA 8V
PY00	1	1	1	YK22861220	P.W. Board, L.E.D.
	1	1	1	ZZ22861220	P.W. Board Assembly
PZ01	1	1	1	YF22860020	P.W. Board, Dial Illuminator
	1	1	1	ZZ22860020	P.W. Board Assembly
VZ01	6	6	6	IN10080070	Dial Lamp 0.2A 8V
VZ06					

8.5 [P02-99] SCOPE DIAL ASSEMBLY AND P.W. BOARDS

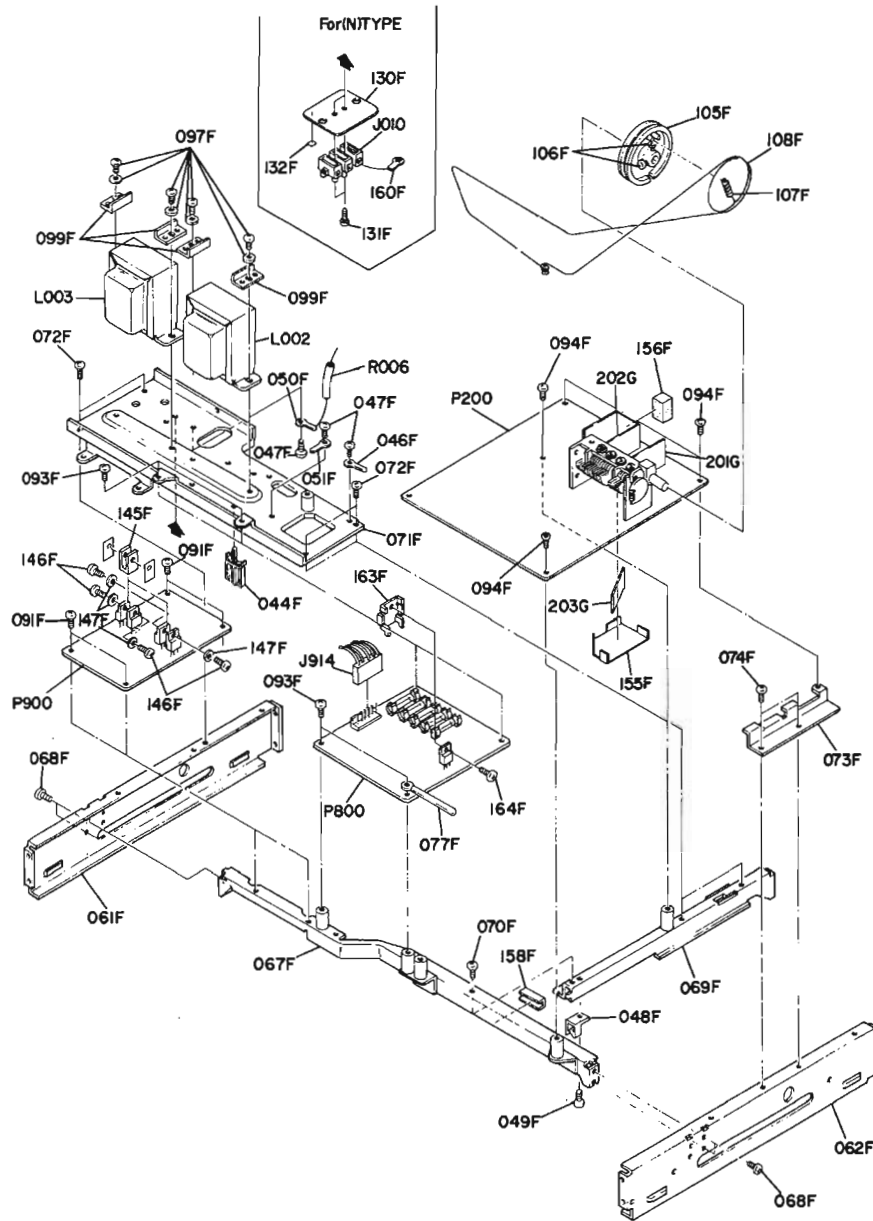


• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
033B	1	1	1	2963154022	Knob
034B	7	7	6	2970154032	Knob
003F	6	6	6	51100306A9	B.H.M. Screw B3 x 6
052F	2	2	2	51100306A9	B.H.M. Screw B3 x 6
094F	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
155F	1	1	1	2285120010	Insulator
155F	1	1	2	3926120010	Insulator
C001	1	1	1	DK18103520	Ceramic Cap. 0.01μF 125V
C001	1	1	1	DF17223800	Film Cap. 0.022μF 1000V
C002	1	1	1	DF17223800	Film Cap. 0.022μF 1000V
S001	1	1	1	SP01010210	Push Switch, Power
S001	1	1	1	SP02010300	Push Switch, Power
PR00	1	1	1	YK22861210	P.W. Board, Scope Switch
PR00	1	1	1	ZZ22852210	P.W. Board Assembly
PS00	1	1	1	YH22851210	P.W. Board Function Switch
PS00	1	1	1	ZZ22851210	P.W. Board Assembly
PT00	1	1	1	YH22851220	P.W. Board, Mode Switch
PT00	1	1	1	ZZ22851220	P.W. Board Assembly

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
D	1	1	1	2286302400	Scope Dial Assembly
002i	1	1	1	2286302030	Dial
003i	1	1	1	2286303010	Mask
004i	1	1	1	2286053030	Cover
001i	1	1	1	2286401010	Frame
005i	1	1	1	2219109012	Shield
006i	1	1	1	2219357012	Rod, Scope Pade
007i	1	1	1	2286005012	Clamper
008i	3	3	3	2219055020	Collar
009i	1	1	1	2904056022	Buffer
010i	1	1	1	2904005030	Clamper
011i	1	1	1	2207005010	Clamper
012i	1	1	1	5402030150	Flat Washer, P.
013i	1	1	1	51100308S9	B.H.M. Screw B3 x 8
014i	2	2	2	51100304S9	B.H.M. Screw B3 x 4
015i	1	1	1	51100305S9	B.H.M. Screw B3 x 5
016i	3	3	3	51100316S9	B.H.M. Screw B3 x 16
017i	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
J008	1	1	1	YJ05000182	Jack, CRT Socket
V002	1	1	1	IN10080340	Lamp, 60mA 8V
V004	1	1	1	VB00235012	Picture Tube

8.6 [P03-99] MAIN CHASSIS AND P.W. BOARDS



- (U) for U.S.
- (C) for Can.
- (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
B	1	1	1	2258159400	Drum Assembly
105F	1	1	1	2219159010	Drum
106F	2	2	2	51064019A9	P.H.M. Screw
107F	1	1	1	71101689L0	Spring
044F	1	1	1	2886005040	Clamper
046F	1	1	1	62030049W0	Lug
047F	3	3	3	5128030680	B.H. Tapped Screw B3 x 6
048F	1	1	1	2887005012	Clamper
049F	1	1	1	5128030680	B.H. Tapped Screw B3 x 6
050F	1	1	1	62030049W0	Lug
051F	1	1	1	62030049W0	Lug
061F	1	1	1	2216105023	Chassis (L)
062F	1	1	1	2216105033	Chassis (R)
067F	1	1	1	2285126012	Stay, Front
068F	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
069F	1	1	1	2285126030	Stay, Main
070F	1	1	1	5128030680	B.H. Tapped Screw B3 x 6
071F	1	1	1	2285105012	Chassis, Main
072F	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
073F	1	1	1	2285126020	Stay, Side
074F	2	2	2	5128030680	B.H. Tapped Screw B3 x 6
077F	1	1	1	2871005010	Clamper
091F	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
093F	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
094F	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
097F	4	4	4	51470408A9	L. Washer Screw L4 x 8
099F	4	4	4	2896104010	Retainer
108F	1	1	1	72071605A0	String (150)
130F	1	1	1	3953120030	Insulator
131F	2	2	2	5128031480	B.H. Tapped Screw B3 x 14
132F	1	1	1	2882861020	Label
145F	2	2	2	2219267040	Heatsink
146F	4	4	4	5002030589	Screw 3 x 5
147F	4	4	4	54040302A0	Spring Washer
155F	1	1	1	2285109050	Shield
156F	1	1	1	3918104010	Retainer
158F	1	1	1	4640259010	Bushing
160F	1	1	1	62030049W0	Lug
163F	1	1	1	2963267020	Heatsink
164F	1	1	1	5128030680	B.H. Tapped Screw B3 x 6

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
201G	1	1	1	2259109040	Shield
202G	1	1	1	2259109053	Shield
203G	1	1	1	2259109062	Shield
J010			1	YL09030010	Terminal
J914	1	1	1	YJ06001310	Jack (6P)
L002	1	1	1	TS15713010	Power Transformer
L002	1	1	1	TS15713020	Power Transformer
L003	1	1	1	TS15713040	Power Transformer
L003	1	1	1	TS15713050	Power Transformer
R006	1	1	1	RC10225120	Resistor 2.2MΩ ±10% 1/4W
P200	1	1	1	YG22850010	P.W. Board, Tuner MPX
	1	1	1	ZZ22850110	P.W. Board Assembly
			1	ZZ22858110	P.W. Board Assembly
P800	1	1	1	YF22850010	P.W. Board, Power Supply
	1	1	1	ZZ22850010	P.W. Board Assembly
P800	1	1	1	YF22850020	P.W. Board, Power Supply
	1	1	1	ZZ22858020	P.W. Board Assembly
P900	1	1	1	YK22190310	P.W. Board, Scope Amp.
	1	1	1	ZZ22860310	P.W. Board Assembly

8.8 ELECTRICAL PARTS LIST

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
P200	1	1	1	YG22850010	P200-TUNER MPX CIRCUIT BOARD
	1	1	1	ZZ22850110	P.W. Board, Tuner MPX
	1	1	1	ZZ22858110	P.W. Board Assembly
P200-CAPACITORS					
C101	1	1	1	DD15200300	Ceramic 20pF ±5%
C102	1	1	1	DK18103320	Ceramic 0.01μF +80% -20%
C103	1	1	1	DK18103320	Ceramic 0.01μF +80% -20%
C104	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C105	1	1	1	DD15150300	Ceramic 15pF ±5%
C106	1	1	1	DD10050300	Ceramic 5pF ±0.25pF
C107	1	1	1	DD10050370	Ceramic 5pF ±0.25pF
C108	1	1	1	DD15301360	Ceramic 300pF ±5%
C109	1	1	1	DK18223320	Ceramic 0.022pF +80% -20%
C110	1	1	1	DD10020300	Ceramic 2pF ±0.25pF
C111	1	1	1	DD15200350	Ceramic 20pF ±5%
C112	1	1	1	DD11100300	Ceramic 10pF ±0.5pF
C113	1	1	1	DD15150300	Ceramic 15pF ±5%
C114	1	1	1	DD15150300	Ceramic 15pF ±5%
C115	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C116	1	1	1	EA10701690	Elect 100μF 16V
C118	1	1	1	EV33403560	Elect 0.33μF 35V
C119	1	1	1	DK18223320	Ceramic 0.022μF
C120	1	1	1	CA32400090	Variable C752J
C121	1	1	1	CT11000080	Trimming 10pF ±0.5pF
C122	1	1	1	DK18403320	Ceramic 0.04μF +100% -0
C123	1	1	1	DD10030370	Ceramic 3pF ±0.25pF
C151	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C152	1	1	1	EA10601690	Elect 10μF 16V
C153	1	1	1	DF17102300	Film 0.001μF ±20%
C154	1	1	1	EA47503590	Elect 4.7μF 35V
C155	1	1	1	DF17103300	Film 0.01μF ±20%
C156	1	1	1	DF17563300	Film 0.056μF ±20%
C157	1	1	1	DF17103300	Film 0.01μF ±20%
C158	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C159	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C160	1	1	1	DD15150370	Ceramic 15pF ±5%
C161	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C162	1	1	1	DF65391010	Film 390pF ±5%
C163	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C164	1	1	1	EA47601690	Elect 47μF 16V
C165	1	1	1	DF17102300	Film 0.001μF ±20%
C166	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C167	1	1	1	DF17223300	Film 2200pF ±20%
C201	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C202	1	1	1	DK18103320	Ceramic 0.01μF +80% -20%
C203	1	1	1	DK18223320	Ceramic 0.022μF +80% -20%
C204	1	1	1	EA47405090	Elect 0.47μF 50V
C206	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C207	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C208	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C209	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C210	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C211	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C212	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
C213	1	1	1	DK18403320	Ceramic 0.04μF +80% -20%
C214	1	1	1	EA10601690	Elect 10μF 16V
C215	1	1	1	EA47405090	Elect 0.47μF 50V
C216	1	1	1	DD15101370	Ceramic 100pF ±5%
C217	1	1	1	EA10601690	Elect 10μF 16V
C218	1	1	1	EA47503590	Elect 4.7μF 35V
C219	1	1	1	EA10601690	Elect 10μF 16V
C220	1	1	1	DK18403320	Ceramic 0.04μF +100% -0
C221	1	1	1	EA10701690	Elect 100μF 16V
C222	1	1	1	EA10505090	Elect 1μF 50V
C223	1	1	1	DK18403320	Ceramic 0.04μF +100% -0
C224	1	1	1	DK18403320	Ceramic 0.04μF +100% -0
C225	1	1	1	EA10505090	Elect 1μF 50V
C301	1	1	1	DF55102090	Film 0.001μF ±5%
C302	1	1	1	DF16222300	Film 2200pF ±10%
C303	1	1	1	EA33502590	Elect 3.3μF 25V
C304	1	1	1	EQ47405010	Elect 0.47μF 50V
C305	1	1	1	EA33502590	Elect 3.2μF 25V
C306	1	1	1	EV33403560	Elect 0.33μF 35V
C307	1	1	1	DF17473010	Film 0.047μF ±20%
C308	1	1	1	DF15103300	Film 0.01μF ±5%
C309	1	1	1	EV33403560	Elect 0.33μF 35V
C311	1	1	1	EA10601690	Elect 10μF 16V
C312	1	1	1	EA10601690	Elect 10μF 16V
C313	1	1	1	EA10701690	Elect 100μF 16V
C314	1	1	1	EA22505090	Elect 2.2μF 50V
C315	1	1	1	EA22505090	Elect 2.2μF 50V
C316	1	1	1	DF15102300	Film 1000pF ±5%
C316	1	1	1	DF15222300	Film 0.002μF ±5%
C317	1	1	1	DF15102300	Film 1000pF ±5%
C317	1	1	1	DF15222300	Film 0.002μF ±5%
C318	1	1	1	EA47503590	Elect 4.7μF 35V
C319	1	1	1	EA47503590	Elect 4.7μF 35V
C320	1	1	1	EV33403560	Elect 0.33μF 35V
C321	1	1	1	EV33403560	Elect 0.33μF 35V
C322	1	1	1	EA10601690	Elect 10μF 16V
C323	1	1	1	EA10601690	Elect 10μF 16V
C324	1	1	1	DF15152300	Film 1500pF ±5%
C326	1	1	1	EA47503590	Elect 4.7μF 35V
C327	1	1	1	EA22701690	Elect 220μF 16V

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
P200-RESISTORS (All Resistors are ±5% and ¼W)					
R101	1	1	1	GD05105140	1MΩ
R102	1	1	1	GD05101140	100Ω
R103	1	1	1	GD05101140	100Ω
R104	1	1	1	GD05101140	100Ω
R105	1	1	1	GD05223140	22KΩ
R106	1	1	1	GD05472140	4.7KΩ
R107	1	1	1	GD05102140	1KΩ
R108	1	1	1	GD05273140	27KΩ
R109	1	1	1	GD05103140	10KΩ
R110	1	1	1	GD05222140	2.2KΩ
R111	1	1	1	GD05103140	10KΩ
R112	1	1	1	GD05101140	100Ω
R113	1	1	1	GD05104140	100KΩ
R114	1	1	1	GD05221140	220Ω
R151	1	1	1	RA01030260	Trimming 10KΩ (B)
R152	1	1	1	GD05102140	1KΩ
R153	1	1	1	GD05103140	10KΩ
R154	1	1	1	GD05103140	10KΩ
R155	1	1	1	GD05102140	1KΩ
R156	1	1	1	GD05223140	22KΩ
R157	1	1	1	GD05301140	300Ω
R158	1	1	1	GD05151140	150Ω
R159	1	1	1	GD05152140	1.5KΩ
R161	1	1	1	GD05201140	200Ω
R162	1	1	1	GD05473140	47KΩ
R202	1	1	1	GD05331140	330Ω
R203	1	1	1	GD05272140	2.7KΩ
R204	1	1	1	GD05153140	15KΩ
R205	1	1	1	GD05621140	620Ω
R206	1	1	1	GD05331140	330Ω
R208	1	1	1	GD05222140	2.2KΩ
R209	1	1	1	RA05030090	Trimming 50KΩ (B)
R210	1	1	1	GD05333140	33KΩ
R211	1	1	1	GD05103140	10KΩ
R212	1	1	1	RA05020180	Trimming 5KΩ
R214	1	1	1	GD05183140	18KΩ
R215	1	1	1	GD05331140	330Ω
R216	1	1	1	RA05030090	Trimming 50KΩ (B)
R217	1	1	1	GD05471140	470Ω
R218	1	1	1	GD05133140	13KΩ
R219	1	1	1	GD05202140	2KΩ
R220	1	1	1	GD05184140	180KΩ
R221	1	1	1	GD05104140	100KΩ
R222	1	1	1	GD05152140	1.5KΩ
R223	1	1	1	GD05272140	2.7KΩ
R224	1	1	1	GD05182140	1.8KΩ
R225	1	1	1	GD05105140	1MΩ
R226	1	1	1	GD05334140	330KΩ
R227	1	1	1	RA01060090	Trimming 1MΩ (B)
R229	1	1	1	GD05105140	1MΩ

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
R230	1	1	1	GD05334140	330KΩ
R231	1	1	1	GD05224140	220KΩ
R232	1	1	1	GD05473140	47KΩ
R233	1	1	1	GD05563140	56KΩ
R234	1	1	1	GD05222140	2.2KΩ
R235	1	1	1	GD05333140	33KΩ
R236	1	1	1	GD05223140	22KΩ
R301	1	1	1	GD05224140	220KΩ
R302	1	1	1	GD05272140	2.7KΩ
R303	1	1	1	GD05562140	5.6KΩ
R304	1	1	1	RA04720050	Trimming 4.7KΩ (B)
R305	1	1	1	GD05333140	33KΩ
R306	1	1	1	GD05224140	220KΩ
R307	1	1	1	RA01040110	Trimming 100KΩ (B)
R308	1	1	1	GD05333140	33KΩ
R309	1	1	1	GD05102140	1KΩ
R311	1	1	1	GD05472140	4.7KΩ
R312	1	1	1	GD05472140	4.7KΩ
R313	1	1	1	GD05472140	4.7KΩ
R314	1	1	1	GD05273140	27KΩ
R315	1	1	1	GD05472140	4.7KΩ
R316	1	1	1	GD05472140	4.7KΩ
R317	1	1	1	GD05273140	27KΩ
R318	1	1	1	GD05105140	1MΩ
R319	1	1	1	GD05105140	1MΩ
R320	1	1	1	GD05184140	180KΩ
R322	1	1	1	GD05391140	390Ω
R323	1	1	1	GD05391140	390Ω
R324	1	1	1	GD05683140	68KΩ
R325	1	1	1	GD05683140	68KΩ
R326	1	1	1	GD05753140	75KΩ
R327	1	1	1	GD05753140	75KΩ
R328	1	1	1	GD05473140	47KΩ
R329	1	1	1	GD05473140	47KΩ
R330	1	1	1	GD05222140	2.2KΩ
R331	1	1	1	GD05222140	2.2KΩ
R332	1	1	1	GD06473140	47KΩ
R333	1	1	1	GD06473140	47KΩ
R334	1	1	1	GD05102140	1KΩ
R335	1	1	1	GD05102140	1KΩ
R336	1	1	1	RA02030060	Trimming 20KΩ (B)
R337	1	1	1	GD05153140	15KΩ
R338	1	1	1	GD05220140	22Ω
R339	1	1	1	GD05102140	1KΩ
R340	1	1	1	GD05472140	4.7KΩ
R341	1	1	1	GD05474140	470KΩ
R342	1	1	1	GD05471140	470Ω
R343	1	1	1	GD05304140	300KΩ
R344	1	1	1	GD05223140	22KΩ
R345	1	1	1	GD05331140	330Ω

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
P200-SEMICONDUCTORS					
Q101	1	1	1	HF400451B0	F.E.T. 3SK45B
Q102	1	1	1	HT310471C0	Transistor 2SC1047 (C)
Q103	1	1	1	HT308291C0	Transistor 2SC829 (C)
Q151	1	1	1	HC10019010	IC HA1197
Q152	1	1	1	HV00006120	Varistor MV-203
Q201	1	1	1	HT308291C0	Transistor 2SC829 (C)
Q202	1	1	1	HC10033010	IC HA11225
Q203	1	1	1	HT309452A0	Transistor 2SC945 (P or Q)
Q204	1	1	1	HD20011050	Diode 1S1555
Q205	1	1	1	HD20011050	Diode 1S1555
Q206	1	1	1	HC10019060	IC μ PC741C
Q207	1	1	1	HV00006120	Varistor MV-203
Q208	1	1	1	HD20011050	Diode 1S1555
Q301	1	1	1	HT309452A0	Transistor 2SC945 (P or Q)
Q302	1	1	1	HC10029010	IC HA11223
Q303	1	1	1	HT317400S0	Transistor 2SC1740LN (S)
Q304	1	1	1	HT317400S0	Transistor 2SC1740LN (S)
Q305	1	1	1	HT309452A0	Transistor 2SC945 (P or Q)
Q306	1	1	1	HT309452A0	Transistor 2SC945 (P or Q)
Q307	1	1	1	HT317400S0	Transistor 2SC1740LN (S)
Q308	1	1	1	HT317400S0	Transistor 2SC1740LN (S)
Q309	1	1	1	HD30033090	Zener WZ052
P200-FILTERS					
F151	1	1	1	FF10045190	Ceramic 455kHz
F201	1	1	1	FF11070050	Ceramic 10.7MD1
F202	1	1	1	FF11070050	Ceramic 10.7MD1
F203	1	1	1	FF11070050	Ceramic 10.7MD1
P200-COILS					
L101	1	1	1	LA12026170	Ant Coil FM
L102	1	1	1	LA12026180	Ant Coil FM
L103	1	1	1	LC17510010	Choke Coil 0.75 μ F
L104	1	1	1	LI10016010	I.F.T. FM
L105	1	1	1	LO12046010	OSC Coil FM
L106	1	1	1	LC13320020	Choke Coil 3.3 μ H
L151	1	1	1	LI10015060	I.F.T. AM
L152	1	1	1	LI10010720	I.F.T. AM
L153	1	1	1	LO10010480	OSC Coil AM
L155	1	1	1	LC13320020	Choke Coil 3.3 μ H
L201	1	1	1	LI10156210	I.F.T. FM
L202	1	1	1	LI10156220	I.F.T. FM
L203	1	1	1	LC11830010	Choke Coil 18 μ H
L204	1	1	1	LC13320020	Choke Coil 3.3 μ H
L301	1	1	1	LS20010010	M.P.X. Coil
L302	1	1	1	LS20010010	M.P.X. Coil

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
P800-POWER SUPPLY CIRCUIT BOARD					
P800	1	1		YF22850010	P.W. Board, Power Supply
				ZZ22850010	P.W. Board Assembly
P800	1	1		YF22850020	P.W. Board, Power Supply
				ZZ22850020	P.W. Board Assembly
P800-CAPACITORS					
C802	1	1	1	EA47701690	Elect 470 μ F 16V
C803	1	1	1	EA47702590	Elect 470 μ F 25V
C804	1	1	1	DK18103510	Ceramic 0.01 μ F
C805	1	1	1	DK18103510	Ceramic 0.01 μ F
C806	1	1	1	EA47702590	Elect 470 μ F 25V
C807	1	1	1	EA22802590	Elect 2200 μ F 25V
C808	1	1	1	EA47702590	Elect 470 μ F 25V
C809	1	1	1	EA10625010	Elect 10 μ F 250V
C810	1	1	1	EA10625010	Elect 10 μ F 250V
C811	1	1	1	EA10635010	Elect 10 μ F 350V
C812	1	1	1	EA10635010	Elect 10 μ F 350V
C813	1	1	1	EA10702590	Elect 100 μ F 25V
C814	1	1	1	EA33601690	Elect 33 μ F 16V
C815	1	1	1	EQ10505010	Elect 1 μ F 50V
C816	1	1	1	EA47503590	Elect 4.7 μ F 35V
P800-RESISTORS (All Resistors are \pm 5% and $\frac{1}{4}$ W)					
R801	1	1	1	GD05562140	5.6K Ω
R802	1	1	1	GD05104140	100K Ω
R803	1	1	1	GD05103140	10K Ω
R805	1	1	1	GG05331140	330 Ω
R806	1	1	1	GG05221140	220 Ω
R807	1	1	1	GW10822030	8.2K Ω \pm 10%
R808	1	1	1	GG05301120	300 Ω $\frac{1}{4}$ W
R809	1	1	1	GG05472140	4.7K Ω
R810	1	1	1	GD05103140	10K Ω
R811	1	1	1	GD05154140	150K Ω
R812	1	1	1	GD05123140	12K Ω
R813	1	1	1	GD05105140	1M Ω
R814	1	1	1	GD05100140	10 Ω
R815	1	1	1	GD05153140	15K Ω
R816	1	1	1	GD05471140	470 Ω
R817	1	1	1	GD05104140	100K Ω
R818	1	1	1	GA05330010	33 Ω 1W
R819	1	1	1	GA05301010	300 Ω 1W
R820	1	1	1	GD05473140	47K Ω
R821	1	1	1	RF05100140	Fusible 10 Ω

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
P800-SEMICONDUCTORS					
Q801	1	1	1	HT309452A0	Transistor 2SC945 (Q or R)
Q802	1	1	1	HT309452A0	Transistor 2SC945 (Q or R)
Q803	1	1	1	HT403132A0	Transistor 2SD313 (D or E)
Q804	1	1	1	HD30027090	Zener WZ140
Q805	1	1	1	HD20005010	Diode W06B
Q806	1	1	1	HD20005010	Diode W06B
Q807	1	1	1	HD20014030	Diode DS130YA
Q808	1	1	1	HD20014030	Diode DS130YA
Q809	1	1	1	HD20021100	Diode 2DL15
Q810	1	1	1	HD30027090	Zener WZ140
Q811	1	1	1	HD20011050	Diode 1S1555
Q812	1	1	1	HD20011050	Diode 1S1555
Q813	1	1	1	HT309452A0	Transistor 2SC945 (Q or R)
Q814	1	1	1	HT309452A0	Transistor 2SC945 (Q or R)
Q815	1	1	1	HD20011050	Diode 1S1555
P800-MISCELLANEOUS					
F801	1	1	1	FS10300060	Fuse 3A
F802	1	1	1	FS10010080	Fuse 0.1A
F803	1	1	1	FS10010080	Fuse 0.1A
F804	1	1	1	FS10010080	Fuse 0.1A
F805	1	1	1	FS10030020	Fuse 0.3A
F801	1	1	1	FS10125800	Fuse 1.25AT
F802	1	1	1	FS30500010	Fuse 50mAT
F803	1	1	1	FS30500010	Fuse 50mAT
F804	1	1	1	FS30500010	Fuse 50mAT
F805	1	1	1	FS10031800	Fuse 315mA
J801					
J810	10	10		YJ08000170	Jack, Fuse Holder
J801					
J810					
J821	1	1	1	YP06001310	Plug (6P)
P900-SCOPE AMP. CIRCUIT BOARD					
P900	1	1	1	YK22190310	P.W. Board, Scope Amp.
	1	1	1	ZZ22860310	P.W. Board Assembly
P900-CAPACITORS					
C901	1	1	1	DK18103820	Ceramic 0.01 μ F 1KV
C902	1	1	1	DK18103820	Ceramic 0.01 μ F 1KV
C903	1	1	1	DF17473520	Film 0.047 μ F \pm 20% 200V
P900-RESISTORS					
(All Resistors are \pm 5% and 1/4W)					
R901	1	1	1	RT05224140	220K Ω
R902	1	1	1	RT05224140	220K Ω
R903	1	1	1	RT05224140	220K Ω
R904	1	1	1	RT05224140	220K Ω
R905	1	1	1	RT05682140	6.8K Ω
R906	1	1	1	RT05682140	6.8K Ω
R907	1	1	1	RT05222140	2.2K Ω
R908	1	1	1	RT05222140	2.2K Ω
R909	1	1	1	RT05103140	10K Ω
R910	1	1	1	RT05103140	10K Ω

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
R911	1	1	1	RT05103140	10K Ω
R912	1	1	1	RT05103140	10K Ω
R913	1	1	1	RT05683140	68K Ω
R914	1	1	1	RT05683140	68K Ω
R915	1	1	1	RT05623140	62K Ω
R916	1	1	1	RT05623140	62K Ω
R917	1	1	1	RT05823140	82K Ω
R918	1	1	1	RT05204140	200K Ω
R919	1	1	1	RT05105140	1M Ω
R920	1	1	1	RT05105140	1M Ω
R921	1	1	1	RT05224140	220K Ω
R922	1	1	1	RT05155140	1.5M Ω
R923	1	1	1	RT05153140	15K Ω
R924	1	1	1	RT05473140	47K Ω
R925	1	1	1	RA01030250	Trimming, 10K Ω
R926	1	1	1	RA01030250	Trimming, 10K Ω
R927	1	1	1	RA01020150	Trimming, 1K Ω
R928	1	1	1	RA01020150	Trimming, 1K Ω
R929	1	1	1	RT05204140	200K Ω
R930	1	1	1	RT05152140	1.5K Ω
R931	1	1	1	RA01030070	Trimming, 10K Ω
R932	1	1	1	RT05473140	47K Ω
P900-SEMICONDUCTORS					
Q901	1	1	1	HF200304A0	F.E.T. 2SK30A
Q902	1	1	1	HF200304A0	F.E.T. 2SK30A
Q903	1	1	1	HF200304A0	F.E.T. 2SK30A
Q904	1	1	1	HF200304A0	F.E.T. 2SK30A
Q905	1	1	1	HT317562B0	Transistor 2SC1756
Q906	1	1	1	HT317562B0	Transistor 2SC1756
Q907	1	1	1	HT317562B0	Transistor 2SC1756
Q908	1	1	1	HT317562B0	Transistor 2SC1756
Q909	1	1	1	HD20003210	Diode 1S2471
Q910	1	1	1	HD20003210	Diode 1S2471
Q911	1	1	1	HD20001210	Diode 1S2473
P900-MISCELLANEOUS					
J901	1	1	1	YP06001630	Plug (8P)
J902	1	1	1	YP06001050	Plug (5P)
J903	1	1	1	YP06001050	Plug (5P)
J904	1	1	1	YB00140030	Connective Cord
J905	1	1	1	YB00180010	Connective Cord
J906	1	1	1	YB00140030	Connective Cord
J907	1	1	1	YB00120010	Connective Cord
J908	1	1	1	YB00140040	Connective Cord
J909	1	1	1	YB00150010	Connective Cord
J910	1	1	1	YB00180020	Connective Cord
J911	1	1	1	YB00200290	Connective Cord
J912	1	1	1	YB00180030	Connective Cord
J913	1	1	1	YB00210010	Connective Cord
J914	1	1	1	YJ06001310	Jack (6P)

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
PR00	1	1	1	YK22861210	PR00-SCOPE SWITCH CIRCUIT BOARD P.W. Board, Scope Switch P.W. Board Assembly
	1	1	1	ZZ22852210	
PR00-CAPACITORS					
CR01	1	1	1	DF17473050	Film 0.047 μ F \pm 20%
CR02	1	1	1	EV22403560	Elect 0.22 μ F 35V
CR03	1	1	1	EV22403560	Elect 0.22 μ F 35V
CR04	1	1	1	EV22403560	Elect 0.22 μ F 35V
CR05	1	1	1	DK18223320	Ceramic 0.022 μ F +100% -0
PR00-RESISTORS (All Resistors are \pm 5% and $\frac{1}{4}$ W)					
RR01	1	1	1	GG05221140	220 Ω
RR02	1	1	1	GA05181010	180 Ω 1W
RR03	1	1	1	GD05473140	47K Ω
RR04	1	1	1	GD05473140	47K Ω
RR05	1	1	1	GD05394140	390K Ω
RR06	1	1	1	GD05183140	18K Ω
RR07	1	1	1	GD05473140	47K Ω
RR08	1	1	1	GD05273140	27K Ω
RR09	1	1	1	GD05473140	47K Ω
RR10	1	1	1	GD05183140	18K Ω
RR11	1	1	1	GD05103140	10K Ω
RR13	1	1	1	GD05473140	47K Ω
PR00-MISCELLANEOUS					
JR01	1	1	1	YJ06001330	Jack, (8P)
SR01	1	1	1	SP04040202	Push Switch, Scope
PS00-FUNCTION SWITCH CIRCUIT BOARD					
PS00	1	1	1	YH22851210	P.W. Board, Function Switch
	1	1	1	ZZ22851210	P.W. Board Assembly
SS01	1	1	1	SP06020100	Push Switch, Function
PT00-MODE SWITCH CIRCUIT BOARD					
PT00	1	1	1	YH22851220	P.W. Board, Mode Switch
	1	1	1	ZZ22851220	P.W. Board Assembly
	1	1	1	ZZ22858220	P.W. Board Assembly
PT00-CAPACITORS					
CT01	1	1	1	DF15222350	Film 0.0022 μ F \pm 5%
CT02	1	1	1	DF15222350	Film 0.0022 μ F \pm 5%
PT00-SEMICONDUCTOR					
QT01	1	1	1	HD20011050	Diode 1S1555
PT00-SWITCH					
ST00	1	1	1	SP02030092	Push Switch, Mode
ST00	1	1	1	SP02020433	Push Switch, Mode

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	N		
PY00	1	1	1	YK22861220	PY00-LED CIRCUIT BOARD P.W. Board, LED P.W. Board Assembly
	1	1	1	ZZ22861220	
PY00-RESISTORS					
RY01	1	1	1	GD05122140	1.2K Ω \pm 5% $\frac{1}{4}$ W
RY03	1	1	1	GD05122140	1.2K Ω \pm 5% $\frac{1}{4}$ W
PY00-SEMICONDUCTORS					
QY01	1	1	1	HI10004030	L.E.D
QY03	1	1	1	HI10004030	L.E.D
PZ01-DIAL ILLUMINATOR CIRCUIT BOARD					
PZ01	1	1	1	YF22860020	P.W. Board, Dial Illuminator
	1	1	1	ZZ22860020	P.W. Board Assembly
JZ03	1	1	1	YJ08000170	Jack, Lamp Holder
JZ14	12	12	12	YJ08000170	Jack, Lamp Holder
VZ01	6	6	6	IN10080070	Dial Lamp 0.2A 8V
VZ06	6	6	6	IN10080070	Dial Lamp 0.2A 8V

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

[FOR EUROPEAN MODEL ONLY]

FM TUNER SECTION

Frequency Range	87.5~108 MHz
Usable Sensitivity 40 kHz Deviation, 98 MHz	
Mono, S/N 26 dB	1.4 μ V
Stereo, S/N 46 dB	45 μ V
Alternate Channel Selectivity, 98 MHz \pm 300 kHz	75 dB
Image Response Rejection, 98 MHz	60 dB
IF Rejection, 98 MHz	98 dB
Spurious Response Rejection, 98 MHz	98 dB
AM Suppression, 98 MHz	59 dB
Signal-to-Noise Ratio, 98 MHz	
Unweighted: Mono	65 dB
Stereo	60 dB
Weighted: Mono	68 dB
Stereo	64 dB
Pilot Signal & Subcarrier Rejection	
19 kHz	68 dB
38 kHz	74 dB
Total Harmonic Distortion, 98 MHz	
Mono	0.06%
Stereo	0.17%
Frequency Response	
30 Hz~15 kHz	+0, -0.4 dB
Separation	
Stereo	55 dB
Channel Balance	0.3 dB
Output Voltage, 1 kHz	560 mV
Output Impedance, 1 kHz	1.0 kohms
Acceptable Load Impedance, 1 kHz	10 kohms
Antenna Terminals	
Balanced	300 ohms
Unbalanced	75 ohms

AM TUNER SECTION

Frequency Range	515~1650 kHz
Usable Sensitivity (26 dB S/N 30% Mod., 1 MHz)	25 μ V
Selectivity, 1 MHz \pm 9 kHz	46 dB
Image Rejection, 1 MHz	50 dB
IF Rejection, 1 MHz	40 dB
Spurious Response Rejection, 1 MHz	105 dB
Signal-to-Noise Ratio, 1 MHz	60 dB
Frequency Response, 1 MHz \pm 3 dB	40 Hz~2.6 kHz
Total Harmonic Distortion, 1 MHz	0.5%

GENERAL

Power Requirements	220 V AC, 50 Hz
	(E and N versions are featuring an external voltage selector for use on 110/120/240 V. Other versions can be converted by a qualified technician to operate on 110/120/240 V.)
Power Consumption	30 W
Semiconductor Complement	
Integrated Circuits	4
Transistors	20
Diodes	19
Field Effect Transistors	5
Dimensions	
Panel Width	416 mm (16-3/8")
Panel Height	146 mm (5-3/4")
Depth	301 mm (11-7/8")

9. TECHNICAL SPECIFICATIONS

[FOR U.S.A. & CANADIAN MODELS ONLY]

FM TUNER SECTION:

Sensitivity	
IHF Usable	10.3 dBf (1.8 μ V)
IHF 50 dB Quieting (Mono)	13.2 dBf (2.5 μ V)
(Stereo)	37.3 dBf (40 μ V)
Quieting Slope (Mono)	
RF Input for 30 dB Quieting	9.3 dBf (1.6 μ V)
Quieting at:	
20 dBf (5.5 μ V)	58 dB
25 dBf (10 μ V)	62 dB
40 dBf (55 μ V)	70 dB
65 dBf (1000 μ V)	74 dB
Quieting Slope (Stereo)	
Quieting at:	
30 dBf (17 μ V)	42 dB
40 dBf (55 μ V)	53 dB
50 dBf (173 μ V)	58 dB
65 dBf (1000 μ V)	65 dB
Distortion (Mono) at 65 dBf (1000 μ V)	
100 Hz	0.25%
1000 Hz	0.15%
6000 Hz	0.3%
Distortion (Stereo) at 65 dBf (1000 μ V)	
100 Hz	0.35%
1000 Hz	0.3%
6000 Hz	0.5%
Distortion (Mono and Stereo)	
at 50 dB Quieting, 100 Hz	0.6%
Hum and Noise	
at 65 dBf (1000 μ V)	
Mono	72 dB
Frequency Response	
30 Hz to 15 kHz	
Mono	+0.2 dB, -1.5 dB
Stereo	+0.2 dB, -1.5 dB
Capture Ratio	
at 45 dBf (100 μ V)	1.5 dB
at 65 dBf (1000 μ V)	1.0 dB
Alternate Channel Selectivity	70 dB
Spurious Response Rejection	90 dB
Image Response Rejection	60 dB
I.F. Rejection (Balanced)	80 dB
A.M. Suppression	50 dB
Stereo Separation	
100 Hz	40 dB
1000 Hz	45 dB
10 kHz	40 dB
Subcarrier Rejection	60 dB

AM TUNER SECTION:

IHF Usable Sensitivity	15 μ V
Distortion (THD), 30% Modulation	0.5%
Signal-to-Noise Ratio	50 dB
Alternate Channel Selectivity	46 dB
Image Rejection	45 dB
Spurious Response Rejection	60 dB
I.F. Rejection	40 dB

GENERAL:

Power Requirements	120 V AC, 60 Hz
Power Consumption	30 W

Dimensions:
Panel Width 416 mm (16-3/8 inches)
Panel Height 146 mm (5-3/4 inches)
Depth 301 mm (11-7/8 inches)
Weight:
Unit alone 8.5 kg (18.7 lbs)
Packed for shipment ! 10.5 kg (23.1 lbs)