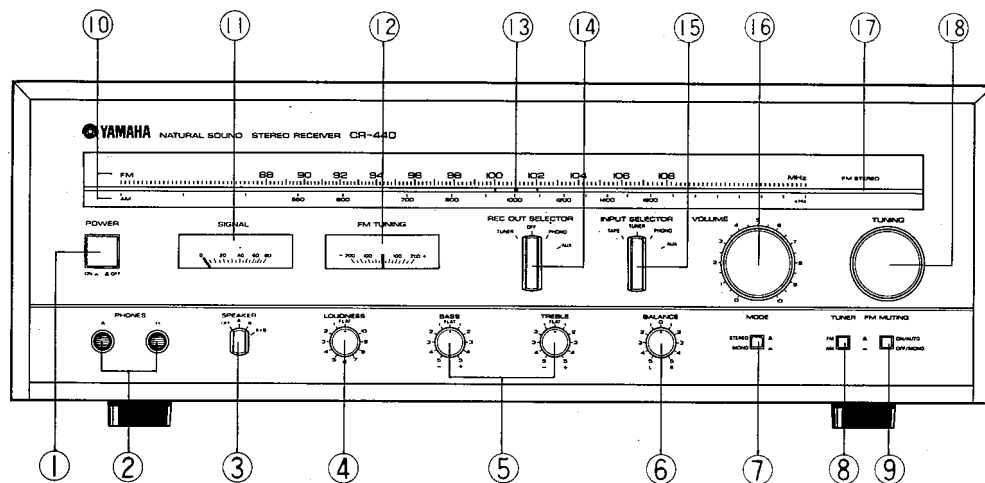


CR-440

SERVICE MANUAL

CR-440

FRONT PANEL



- | | |
|----------------------------|-----------------------|
| ① POWER SWITCH | ⑩ FM/AM TUNING SCALES |
| ② PHONES A and B JACKS | ⑪ SIGNAL METER |
| ③ SPEAKER SWITCH | ⑫ FM TUNING METER |
| ④ LOUDNESS CONTROL | ⑬ DIAL POINTER |
| ⑤ BASS and TREBLE CONTROLS | ⑭ REC OUT SELECTOR |
| ⑥ BALANCE CONTROL | ⑮ INPUT SELECTOR |
| ⑦ MODE SWITCH | ⑯ VOLUME CONTROL |
| ⑧ TUNER SWITCH | ⑰ FM STEREO INDICATOR |
| ⑨ FM MUTING SWITCH | ⑱ TUNING KNOB |

CONTENTS

REAR PANEL	2	BLOCK DIAGRAM	5
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SPECIFICATIONS	4	WIRING/P.CIRCUIT BOARD	9
DIAL MECHANISM	5	SCHEMATIC DIAGRAM	10

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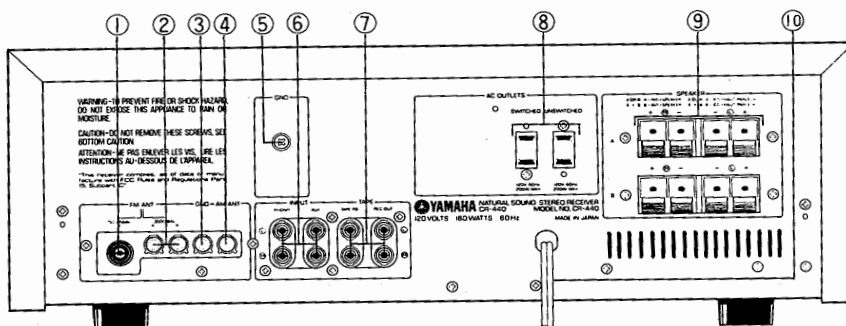
YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

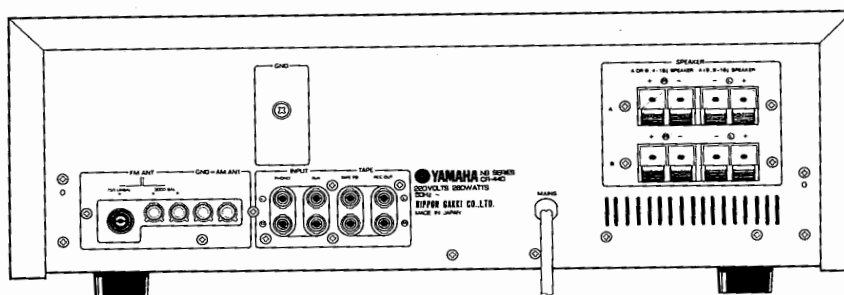
CR-440

REAR PANEL

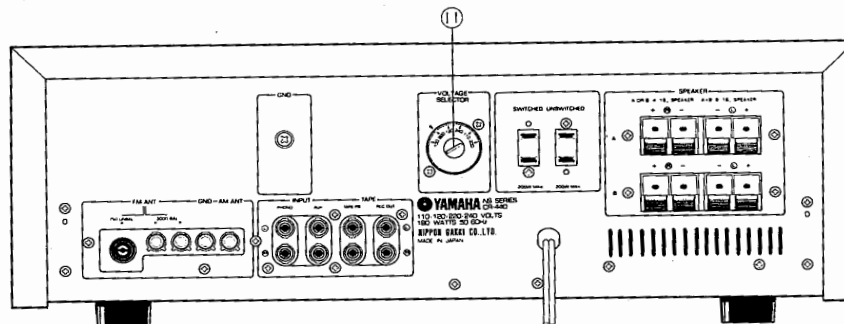
U,S,A and Canadian Models



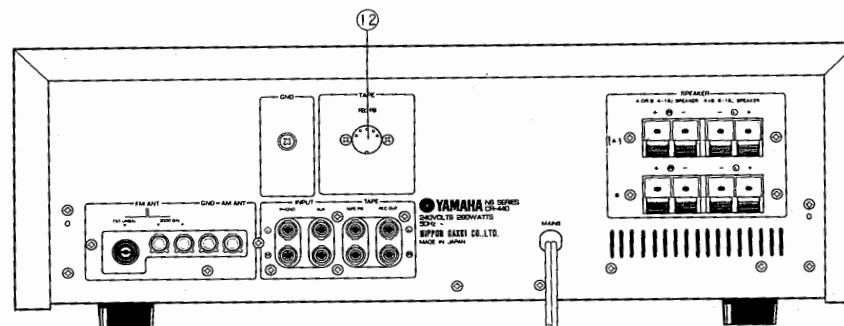
Australian and British Models



General Model



North European Model



- ① FM ANTENNA TERMINAL (75Ω)
- ② FM ANTENNA TERMINAL (300Ω)
- ③ AM GROUND TERMINAL
- ④ AM ANTENNA TERMINAL
- ⑤ GROUND TERMINAL
- ⑥ INPUT JACKS (PHONO, AUX)

- ⑦ TAPE PB/REC JACKS
- ⑧ AC OUTLETS
- ⑨ SPEAKERS TERMINAL
- ⑩ AC POWER CORD
- ⑪ VOLTAGE SELECTOR
- ⑫ TAPE PB/REC JACK (DIN)

■ DISASSEMBLY PROCEDURES

1. Top Cover Removal

Remove screws (1) to (4) in photo 1, slide the top cover slightly toward the rear panel and remove it.

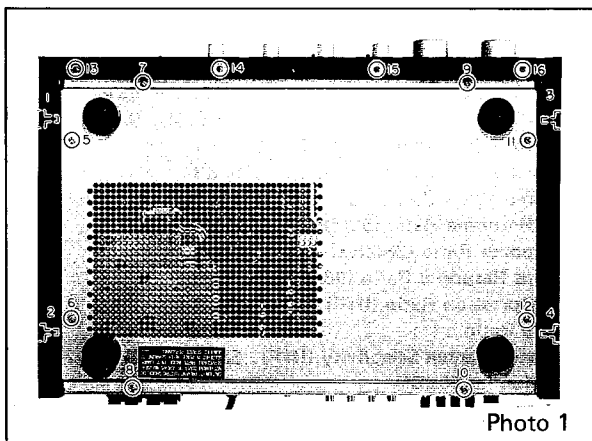


Photo 1

2. Bottom Cover Removal

Turn the set over, remove screws (5) to (12), and then the bottom cover can be removed. (Photo 1)

3. Front Panel Removal

- a. Remove the top cover. (Refer to step 1)
- b. Remove screws (13) to (16) in photo 1.
- c. Remove each knob Provided on the panel.
- d. Remove screws (1) to (3) in photo 2.
- e. Remove screws (1) to (6) in photo 3.
- * Screws (2) to (5) in photo 3 are for flange fixation, but when removing the panel, remove it together.
- f. Pull the front panel toward you under this condition and remove it.
(Remove the AC outlet lead wire.)

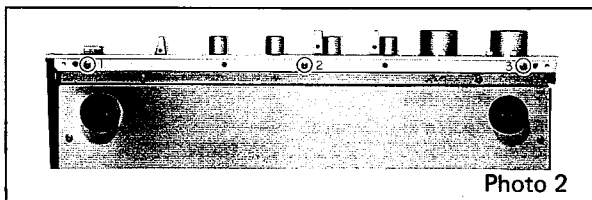


Photo 2

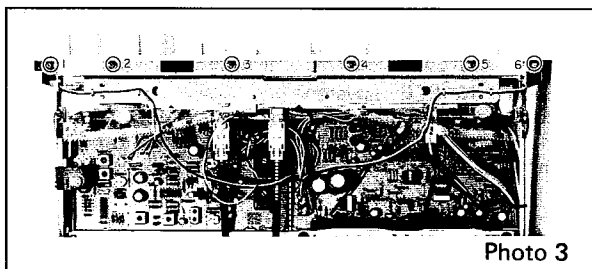


Photo 3

4. Rear Panel Removal

- a. Remove the top cover. (Refer to step 1)
- b. Remove the bottom cover. (Refer to step 2)
- c. Remove screws (1) to (15) in photo 4.
- * Screws (16) and (17) and screws (18) to (21) are for AC outlet and speaker terminal respectively.

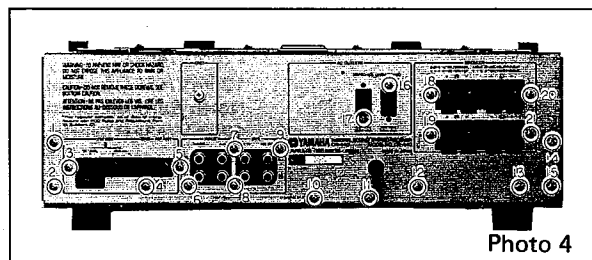


Photo 4

SPECIFICATIONS

AUDIO SECTION

Output Power (0.02% T-H-D, IHF)

Continuous R-M-S Power (both channels driven)

20Hz~20kHz 30W (8Ω)

1kHz 33W (8Ω)

1kHz 37W (4Ω)

Power Bandwidth 10Hz~40kHz

Damping Factor (at 1kHz) better than 40(8Ω)

Input Sensitivity/Impedance

Phono 2.5mV/47kΩ

Aux 120mV/45kΩ

Tape 120mV/45kΩ(except
North European model)
120mV/43kΩ(North
European model only)

DIN

(North European model only) . . 120mV/43kΩ

Maximum Input Level

Phono 140mV at 1kHz

Output Level/Impedance

Rec Out 120mV/330Ω

Frequency Response

Phono RIAA deviation 30Hz~15kHz ±0.5dB

Aux, Tape and DIN

(North European model only) . . 20Hz to 20kHz±0.5dB

Total Harmonic Distortion (20Hz~20kHz 8Ω)

Phono 0.04% at 15W

Aux, Tape 0.01% at 15W

IM Distortion

Aux to Sp Out 0.01% at 15W/8Ω (IHF)

Signal-to-Noise Ratio (IHF-A Network)

Phono 94dB for 10mV,
Shorted

Aux, Tape 100dB, Shorted

Tone Control Characteristics

Bass turnover frequency 350Hz ±3dB

Bass boost/cut ±10dB at 50Hz

Treble turnover frequency 3.5kHz ±3dB

Treble boost/cut ±10dB at 20kHz

Loudness Control Characteristics . . Level-related equaliza- tion

Maximum attenuation -20dB(1kHz)

AM SECTION

Tuning Range 525~1,605kHz

Sensitivity (IHF) 15μV/m

Selectivity (1,000kHz) 25dB

Signal-to-Noise Ratio 50 dB (at 80 dB/μV)

Image Response Ratio (1,000kHz) . . 35dB

IF Response Ratio (1,000kHz) . . . 35dB

Total Harmonic Distortion 0.4% (at 80 dB/μV)

Tuner Section Output Level/Impedance

FM (100% mod. at Rec Out) . . . 450mV/1.5kΩ (except
North European model)

(40kHz dev. at Rec Out) . . . 320mV/1.5kΩ (North
European model only)

AM (30% mod. at Rec Out) . . . 150mV/1.5kΩ

FM SECTION

Tuning Range 88~108MHz

50dB Quieting Sensitivity

Mono 16dBf (3.5μV/300Ω,
1.75μV/75Ω)

Stereo 37.2dBf (40μV/300Ω,
20μV/75Ω)

Usable Sensitivity (IHF Mono 98MHz)

300Ω 10.3dBf/1.8μV

75Ω 10.3dBf/0.9μV

Signal-to-Noise Ratio (at 65dBf, IHF)

Mono 80dB

Stereo 76dB

Image Response Ratio (98MHz) . . . 50dB

IF Response Ratio (98MHz) 75dB

Spurious Response Ratio (98MHz) . . 75dB

AM Suppression Ratio (IHF) 55dB

Capture Ratio 1.5dB

Alternate Channel Selectivity (IHF) . 65dB (±400kHz)

Distortion (at 65dBf)

Mono 100Hz 0.15%

1kHz 0.15%

6kHz 0.25%

Stereo 100Hz 0.2%

1kHz 0.2%

6kHz 0.6%

Intermodulation Distortion (IHF)

Mono 0.1%

Stereo 0.2%

Stereo Separation

50Hz 35dB

1kHz 45dB

10kHz 40dB

Frequency Response

50Hz~10kHz ±0.5dB

30Hz~15kHz ±1.5dB

Sub-Carrier Product Ratio 55dB

Muting Threshold 5μV

GENERAL

Semiconductor 21 Transistors, 7 ICs,
1 FET, 16 Diodes, 4
Zener Diodes, 1 LED

Power Supplies

USA and Canadian models AC120V,60Hz

North European model AC220V,50Hz

General model AC110/120/220/240V,
50/60Hz

British and Australian models . . AC240V,50Hz

Power Consumption

USA,Canadian and General
models 180W

North European, British and
Australian models 280W

Dimensions (W x H x D)

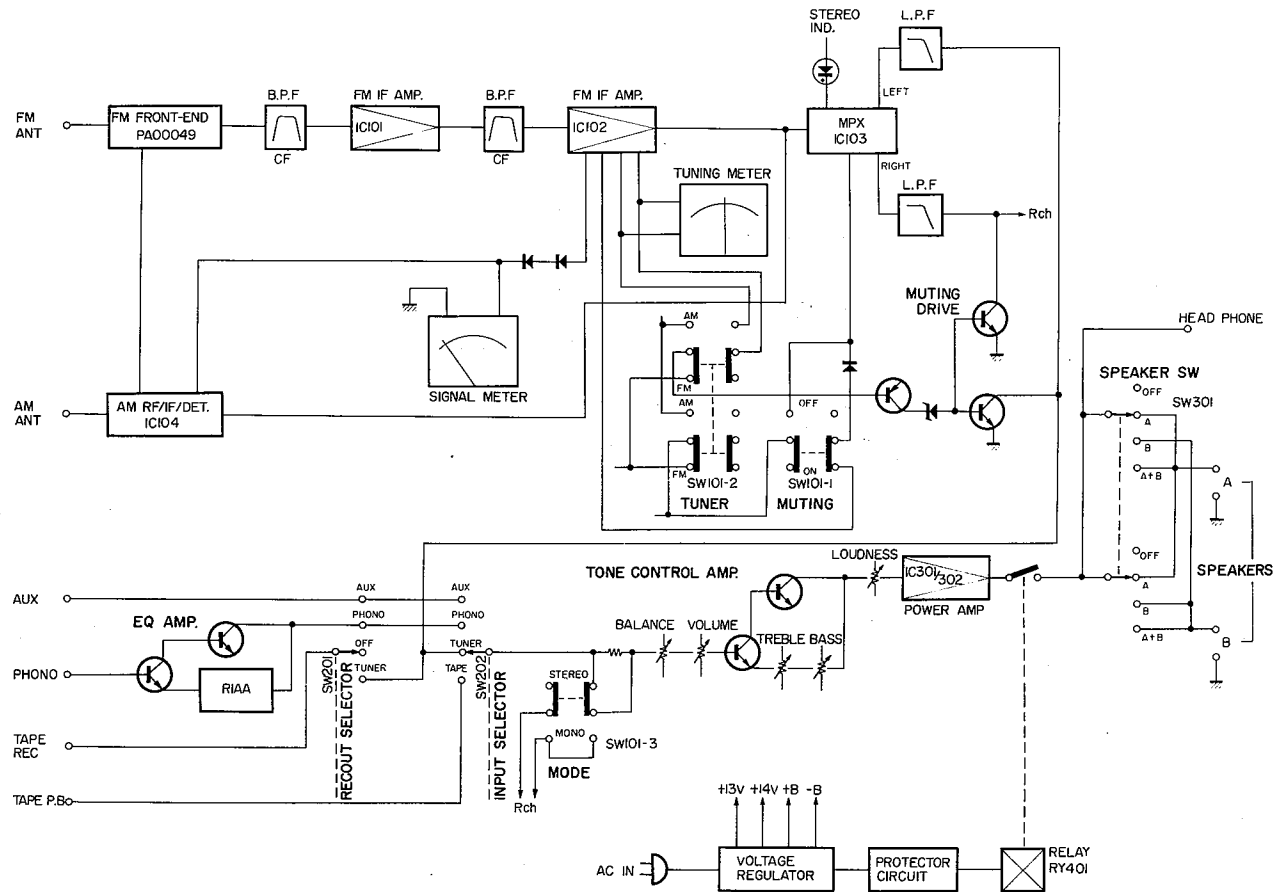
USA and Canadian models 453 x 162 x 327 mm
(17-7/8 x 6-3/8 x 12-7/8 in)

General, North European,
British and Australian models . . 435 x 149 x 327 mm
(17-1/8 x 5-7/8 x 12-7/8 in)

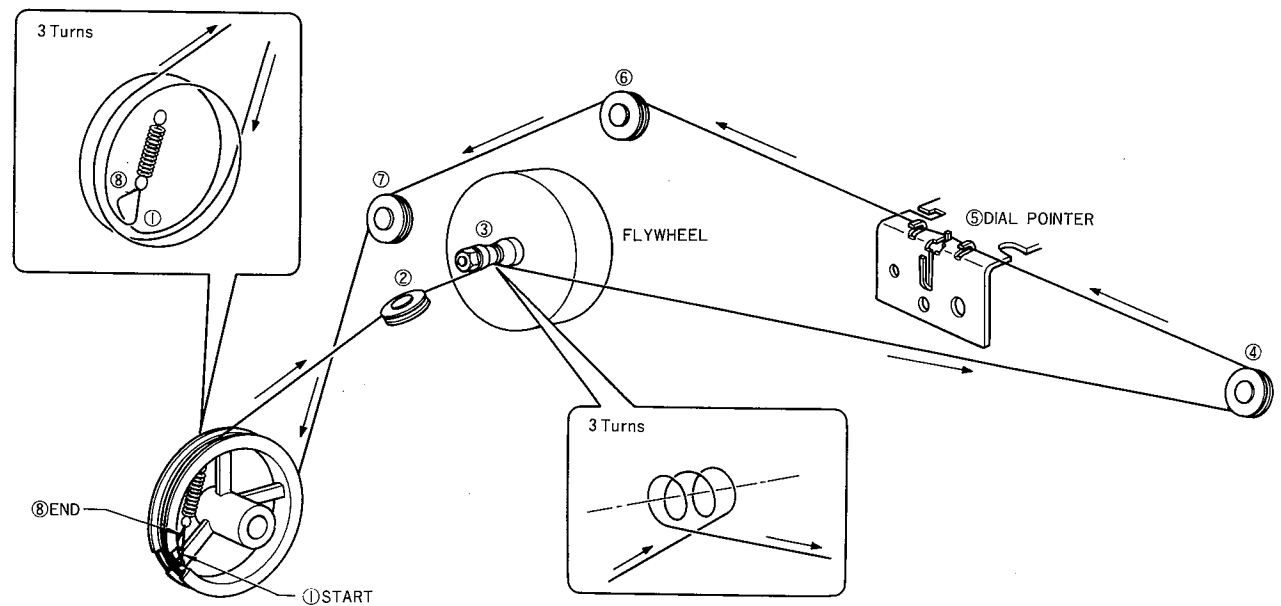
Weight 9 kg (19.8 lbs)

Specifications subject to change without notice.

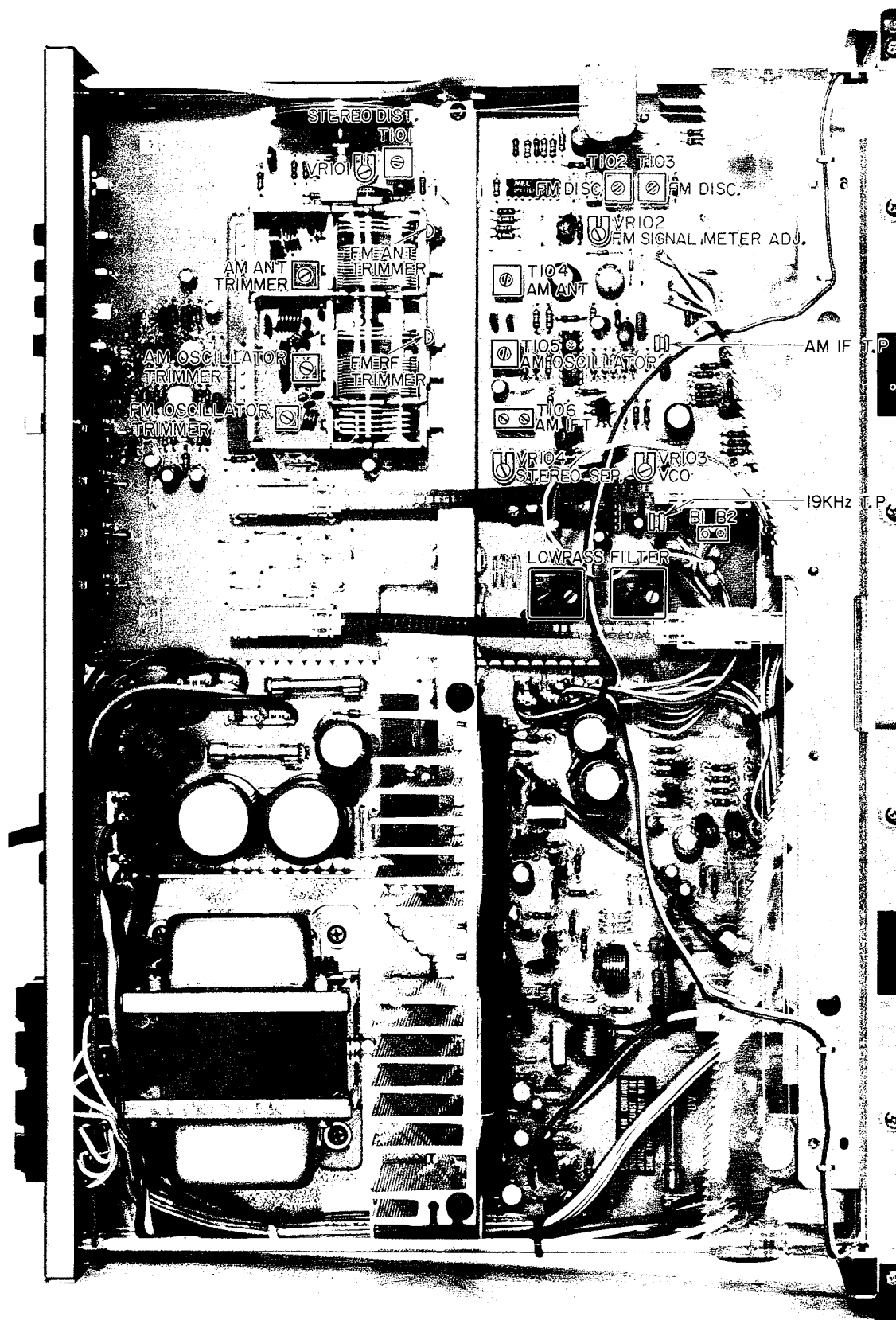
BLOCK DIAGRAM



DIAL MECHANISM



MEASUREMENT and ADJUSTMENTS



1. FM tuner overall adjustment

1. Set the switches to the following positions.
TUNER FM
2. Perform this adjustment and a lowpass filter must be used.

3. Abbreviation of instruments
- FM SG : FM signal generator
OSC : Oscilloscope
D.M : Digital multimeter
DIST.M : Distortion meter
F.C : Frequency counter

Step	Adjustment items	Terminals to be connected	Instrument required	Adjustment location	Adjustment method	Rating	Remarks
1	Discriminator balance			T 102 discriminator coil	Move core until tuning meter pointer deflects to 0 with noise at detuned point near 98MHz.		Check that meter pointer mechanically points to 0 when power switch is set OFF.
2	Pointer alignment			Tuning knob pointer	Rotate the tuning knob and align pointer with the starting point of the dial scale.	Less than $\pm 1\text{mm}$	
3	Tracking adjustment I	FM antenna terminal REC OUT terminal	FM SG 104MHz 100% MONO 1kHz 60dB μ OSC D.M. DIST.M	Tuning knob Local oscillator trimmer	Rotate tuning knob and align pointer with 104MHz on dial scale. Rotate trimmer and set to center of tuning meter.		
4	Tracking adjustment II	—do.—	—do.— FM SG	Local oscillator trimmer	Adjust deviation all over the frequency range.	Less than $\pm 2\text{mm}$ (92 ~ 104 MHz)	Adjust only when pointer deviates with step 3.
5	Setting tuned point	—do.—	—do.— Antenna input 60 dB μ 98MHz	Tuning knob	Set tuning meter pointer to indicate the center.		
6	Monaural distortion adjustment	—do.— REC OUT L alone	—do.— 98MHz 100% Mono 1kHz 60dB μ	T103 discriminator coil	Reduce distortion to minimum.	Less than 0.12%	
7	VCO adjustment	—do.— 19kHz, T.P	—do.— nonmodulated F.C	VCO VR VR103 (5K Ω)	Set to 19kHz.	19kHz $\pm 20\text{Hz}$	
8	Stereo distortion adjustment	—do.— Same as step 7.	—do.— stereo L 1kHz 100%	VR101 (1K Ω) T101	Reduce distortion to minimum.	Less than 0.12%	
9	Stereo separation adjustment	—do.—	—do.— stereo L, R 1kHz 100%	SEP. VR VR104 (500K Ω)	Set the separation to maximum	More than 45dB	
10	Signal meter full scale adjustment	—do.—	—do.— nonmodulated 80dB μ	FM signal Meter VR102 (10K Ω)	Adjust so that pointer is within rated range.	70 ~ 80	

2. AM tuner adjustment

1. Set the switch to the following position.
TUNER AM
2. Proceed with the AM section adjustments after having finished the FM section adjustment.
3. The quasi-antenna circuit for AM section adjustment.

Note 1. Quasi-antenna circuit for AM section adjustment.
Set to be measured.
Output level shows 50 Ω load terminal.

Note 2. Adjustment is made with loop antenna installed and the loop antenna is not to be close to any metal parts.

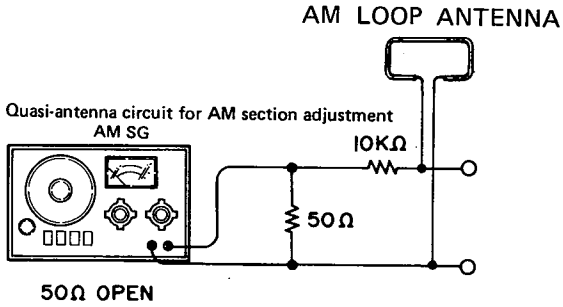


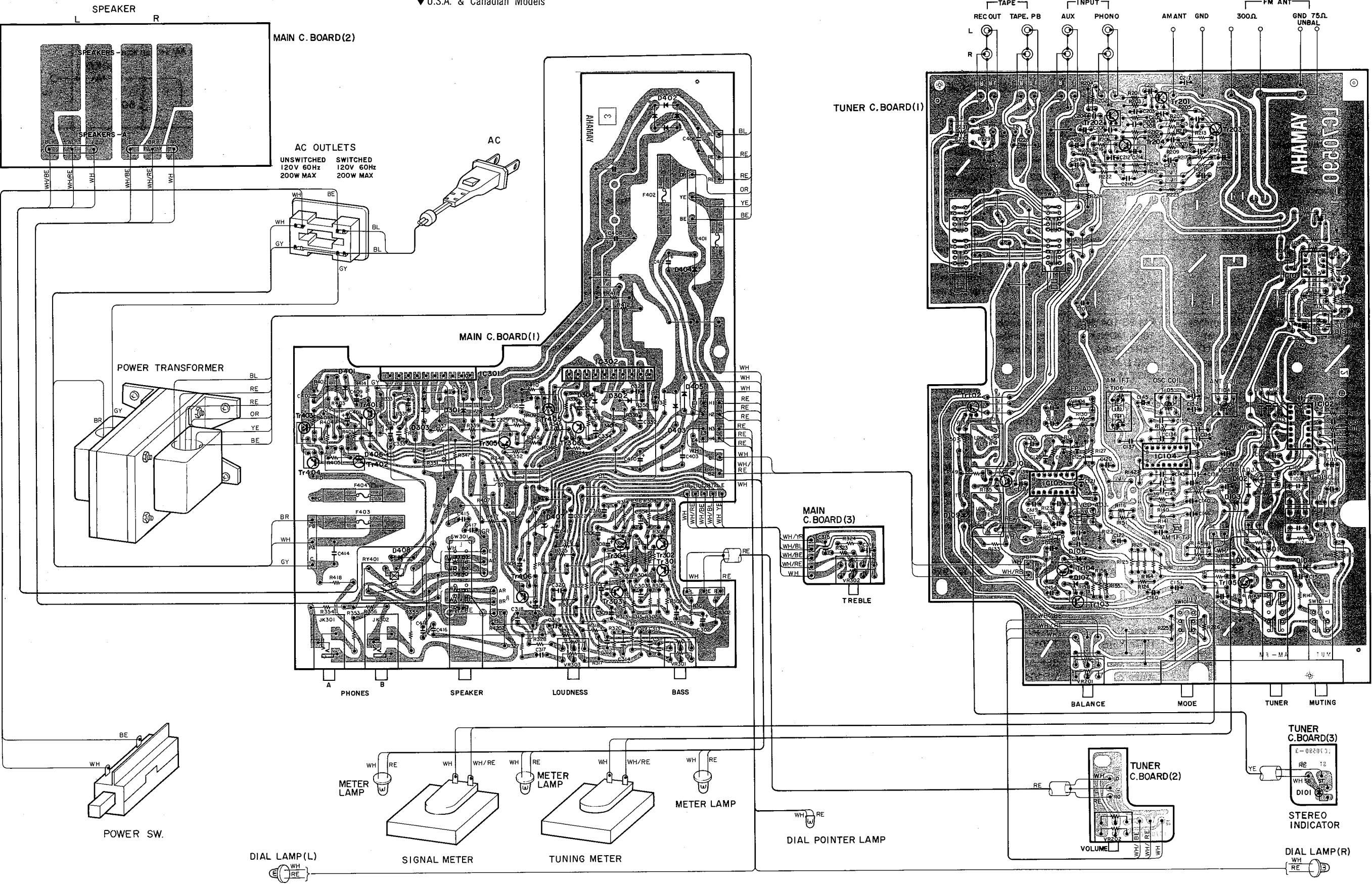
Fig. 1

Output level shows the 50 Ω load terminal.
The loop antenna is not to be close to the metal parts.

Step	Adjustment item	Terminals to be connected	Instrument required	Adjustment location	Adjustment method	Rating
1	Local oscillator coil adjustment	REC OUT L or R	AM SG 600kHz, 55dB μ	Tuning knob T104 (GE6013)	Align pointer with 600kHz using tuning knob, rotate coil core and adjust for a maximum output.	
2	Low-frequency range sensitivity adjustment	—do.—	—do.—	T103 (GE10023)	Adjust for a maximum output at same tuning point under step 1.	
3	Local oscillator trimmer adjustment	—do.—	AM SG 1350kHz, 55dB μ	Tuning knob Front end Local oscillator Trimmer	Align pointer with 1350kHz using tuning knob, rotate trimmer and set for a maximum output.	
4	High-frequency range sensitivity adjustment	—do.—	—do.—	Front end AM ANT, Trimmer	Set for a maximum output at same tuning point under step 3.	
5	Sensitivity difference adjustment	—do.—	AM SG 600kHz 1350kHz	Repeat steps 1 to 4.		Scale deviation: Less than 1.5mm for 600kHz and 1350kHz
6	Medium frequency range check	—do.—	AM SG 950kHz	Tuning knob	Set for a maximum point.	Scale deviation must be within $\pm 2\text{mm}$.

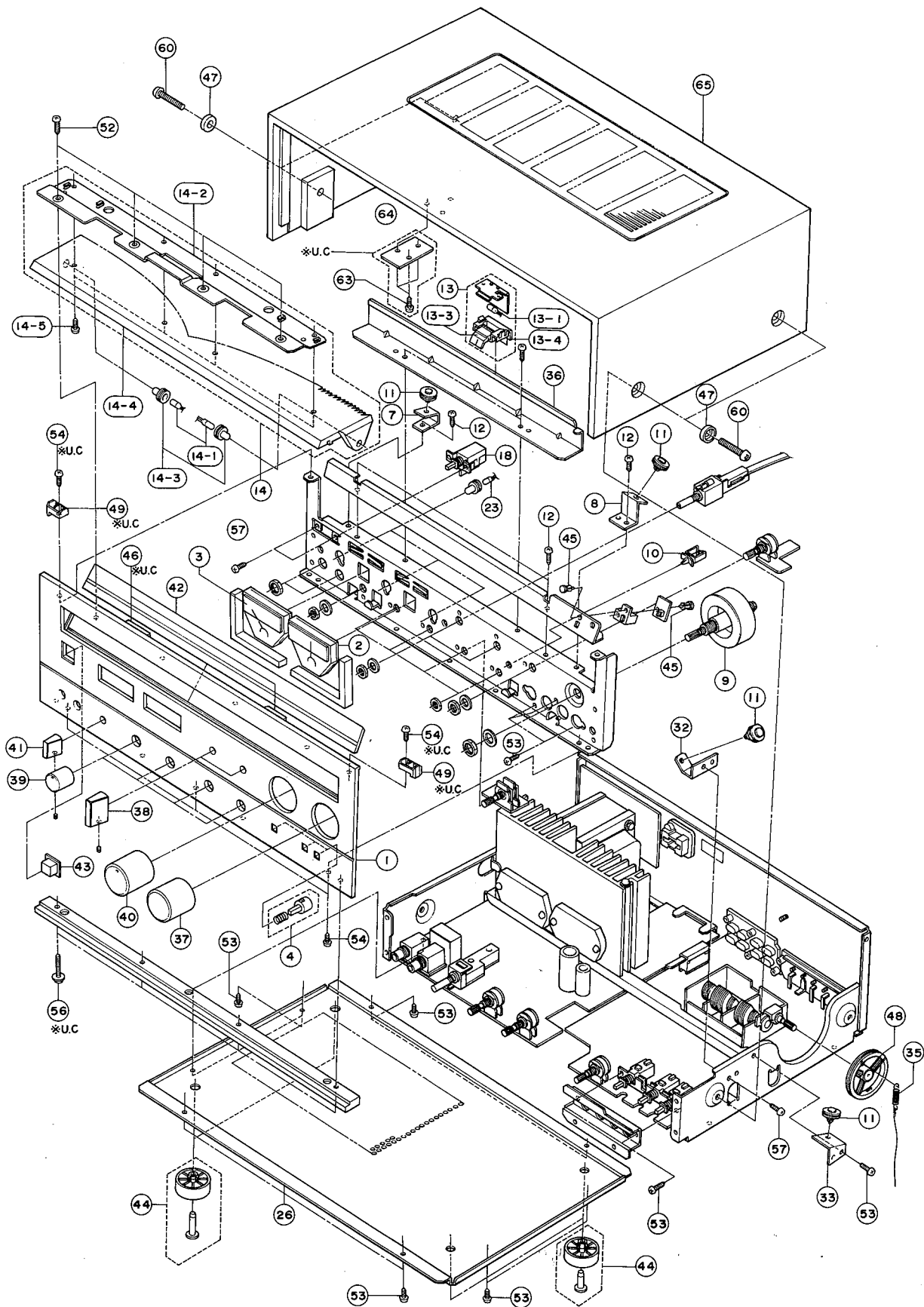
WIRING

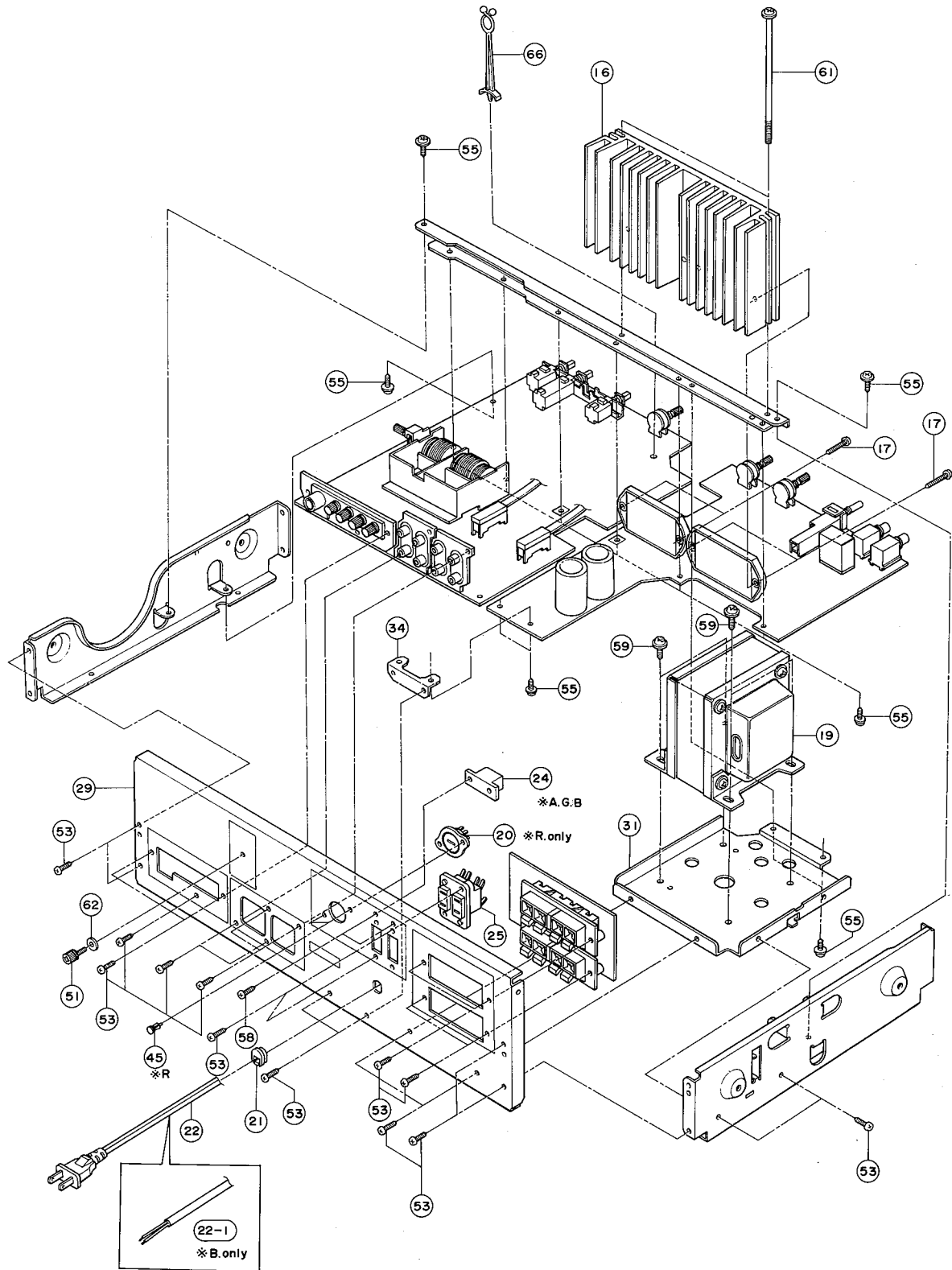
▼U.S.A. & Canadian Models



PARTS LIST

CR-440





Ref. No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
※ 1	32:00:00 NB:09:38:60	Panel Unit	パネルユニット			R, U, A, G, C, B
※ "	32:00:00 NB:09:38:70	" (Black)	"			G
※ 2	42:00:00 Ji:00:11:50	Tuning Meter (Silver)	チューニングメーター	inter-changeable		R, U, A, G, C, B
※ "	42:00:00 Ji:00:10:60	" "	"			"
※ "	42:00:00 Ji:00:11:70	" (Black)	"			G
※ "	42:00:00 Ji:00:10:80	" "	"			"
※ 3	42:00:00 Ji:00:11:40	Signal Meter (Silver)	シグナルメーター	}		R, U, A, G, C, B
※ "	42:00:00 Ji:00:10:50	" "	"			"
※ "	42:00:00 Ji:00:11:60	" (Black)	"			G
※ "	42:00:00 Ji:00:10:70	" "	"			"
※ 4	32:00:00 NB:09:39:20	Push Button Ass'y	プッシュボタン Ass'y		CR-640	R, U, A, G, C, B
※ "	32:00:00 NB:09:39:30	"	"		CR-640B	G
※ 7	32:00:00 AA:60:02:30	Holder-Pulley (L) #60023	滑車ホルダー(L)			
※ 8	32:00:00 AA:09:96:70	" (R) #9967	" (R)			
※ 9	32:00:00 NB:09:15:30	Tuning Unit #9153 φ48	チューニングユニット			
10	42:00:00 CB:06:94:80	Wire Clip #6948	ワイヤークリップ			
11	32:00:00 CB:09:00:40	Wheel #9004	滑車 Ass'y		CR-640	
12	42:00:00 EN:03:00:20	Bind Head Tapping Screw Type II 3×8(ZMC2-Y)	鉄バインド タッピングネジ 2種			
※ 13	32:00:00 NB:09:38:90	Dial Pointer Unit	ダイヤル指針ユニット			
※ 13-1	42:00:00 JB:00:08:50	Pilot Lamp Lead Type 14.5V 85mA	パイロットランプ			
13-3	32:00:00 CB:09:26:00	Dial Pointer #9260	ダイヤル指針		CR-640	
13-4	32:00:00 CB:08:90:80	Pointer Holder #8908	指針ホルダー		"	
	42:00:00 CB:07:50:10	Luminary #7501	指針ルミラー		"	
※ 14	32:00:00 NB:09:39:00	Lamp Lens Unit	ランプレズユニット			
※ 14-1	42:00:00 JB:00:08:30	Pilot Lamp 14.5V 85mA	パイロットランプ			
※ 14-2	32:00:00 AA:09:96:30	Lens Holder #9963	レンズホルダー			
※ 14-3	42:00:00 CB:09:43:80	Lamp Cap #9438	ランプキャップ			
※ 14-4	32:00:00 CB:09:37:90	Lamp Lens #9379	ランプレズ			
14-5	42:00:00 EN:03:00:60	Bind Head Tapping Screw Type II 3×10 (ZMC2-Y)	鉄バインドタッピングネジ			
※ 15	42:00:00 IG:02:99:00	Power IC	パワーIC	IC301 IC302		
※ 16	32:00:00 BA:07:71:10	Heat Sink	放熱板			
17	42:00:00 EN:03:01:00	Bind Head Tapping Screw Type II 3×16 (ZMC2-Y)	鉄バインドタッピングネジ			
18	42:00:00 KA:80:06:90	Push Switch SDG5P-E 250 5/80A	プッシュSW			R, A, G, B
"	42:00:00 KA:80:10:70	" SDV2P TV-5	"			U, C
※ 19	42:00:00 GA:63:10:00	Power Transformer	電源トランス			U, C
※ "	42:00:00 GA:63:11:00	"	"			G
※ "	42:00:00 GA:63:12:00	"	"			A, B
※ "	42:00:00 GA:63:13:00	"	"			R
20	42:00:00 LB:20:14:80	Voltage Selector	電圧切換器			R
21	42:00:00 CB:06:86:30	Cord Stopper SR-3P-4	コードストッパー			U, C
"	42:00:00 CB:07:27:50	" SR-4N-4	"			R, A, G, B
22	42:00:00 MG:00:07:80	Power Cord (Black) 6A, 250V	電源コード			R
"	42:00:00 MG:00:08:40	" 10A, 125V SPT-1 POT-64	"			U, C
"	42:00:00 MG:00:08:60	" (Gray) 25A, 250V	"			G
"	42:00:00 MG:00:09:20	" 7.5A, 250V	"			A
22-1	42:00:00 MZ:07:28:90	Power Cord Ass'y (BS)	BS 電源コード Ass'y			B
※ 23	42:00:00 JB:00:08:40	Pilot Lamp C-2F 14.5V 85mA	パイロットランプ			
24	42:00:00 LA:00:29:50	2P Terminal Board MA 0092	2P中継端子台			A, G, B
※ 25	42:00:00 LB:44:06:50	AC Outlet 2	ACアウトレット			R,U,C
※ 26	32:00:00 AA:09:94:90	Bottom Cover #9949	ボトムカバー			

※ : New Part (新部品)

DESTINATION ABBREVIATIONS

R : General, A : Australian, C : Canadian, B : British, G : North European U : U.S.A

Ref. No.	Part No.			Description	(部 品 名)	Remarks	Common model	Markets
※ 29	32 00 00	AA 09 95 40		Rear Panel #9954	リアパネル			R
※ "	32 00 00	AA 09 95 50		" #9955	"			U,C
※ "	32 00 00	AA 09 95 90		" #9959	"			G
※ "	32 00 00	AA 09 96 10		" #9961	"			A,B
※ 31	32 00 00	AA 09 96 40		Holder, Transformer #9964	トランスホルダー			
※ 32	32 00 00	AA 09 96 80		Holder-Pulley #9968	滑車ホルダー(RB)			
※ 33	32 00 00	AA 09 96 90		" #9969	" (RS)			
※ 34	32 00 00	AA 09 97 00		Holder, P.C Board #9970	シートホルダー			
35	32 00 00	AA 08 98 60		Dial Spring #8986	ダイヤルスプリング		CR-640	
36	32 00 00	AA 09 58 70		Pointer Rail #9587	指針レール		"	
※ 37	32 00 00	BA 07 71 20		Tuner Knob #7712 (Silver)	T Uツマミ			R,U,A,G,C,B
※ "	32 00 00	BA 07 71 60		" #7716 (Black)	"			G
38	32 00 00	BA 06 80 60		Switch Knob #6806 (Silver)	SWツマミ		CR-640	R,U,A,G,C,B
"	32 00 00	BA 06 85 50		" #6855 (Black)	"			G
39	32 00 00	BA 07 52 70		Tone Knob #7527 (Silver)	トーンツマミ		CR-640	R,U,A,G,C,B
"	32 00 00	BA 07 66 70		" #7667 (Black)	"			G
40	32 00 00	BA 07 53 60		Volume Knob #7536 (Silver)	Vol ツマミ		CR-640	R,U,A,G,C,B
"	32 00 00	BA 07 66 50		" #7665 (Black)	"			G
41	32 00 00	BA 07 53 70		Switch Knob (Small) (Silver)	SWツマミ(小)		CR-640	R,U,A,G,C,B
"	32 00 00	BA 07 66 60		" (Black)	"			G
※ 42	32 00 00	CB 09 38 10		Dial Scale #9381 (Silver)	ダイヤルスケール			R,U,A,G,C,B
※ "	32 00 00	CB 09 38 60		" #9386 (Black)	"			G
※ 43	32 00 00	CB 09 38 30		Power Button #9383 (Silver)	パワーボタン			R,U,A,G,C,B
※ "	32 00 00	CB 09 38 70		" #9387 (Black)	"			G
※ 44	32 00 00	CB 09 38 50		Leg #9385	脚			U,C
"	32 00 00	CB 08 13 90		" #8139	"			R,A,G,B
45	42 00 00	CB 06 88 80		Plastic Rivet #6888 $\phi 3.5$	プラスチックリベット			
46	32 00 00	CB 07 93 20		Spacer #7932	反り止めスペーサー		CR-640	U,C
47	32 00 00	CB 07 95 20		Hole Cap #7952	ホールキャップ		"	
48	32 00 00	CB 08 97 90		Pulley : Variable Cap #8979	バリコンプーリー		"	
49	32 00 00	CB 08 98 90		Spacer #8989	スペーサー		"	U,C
51	42 00 00	EZ 00 14 00		⊕ Earh Terminal Screw 3×13.5 MFNi II	アース端子ネジ⊕		"	
52	42 00 00	EN 03 00 10		Bind Head Tapping Screw TypeII $\frac{3 \times 8}{(ZMC2-Y)}$	鉄バインドタッピンネジ2種			
53	42 00 00	EN 03 00 20		" $\frac{3 \times 8}{(ZMC2-Y)}$	"			
54	42 00 00	EN 03 00 60		" $\frac{3 \times 10}{(ZMC2-Y)}$	鉄バインドタッピンネジ			U,C
55	42 00 00	EK 03 00 60		B.W Head Tapping Screw TypeII $\frac{3 \times 8 \phi 8}{(ZMC2-Y)}$	鉄B.Wヘッドタッピンネジ			
56	42 00 00	EK 03 00 40		" $\frac{3 \times 20 \phi 10}{(ZMC2-Y)}$	鉄ナベB.Wヘッドタッピンネジ			U,C
57	42 00 00	ED 03 00 60		Bind Head Screw 3×6(ZMC2-Y)	鉄バインド小ネジ			
58	42 00 00	ED 03 00 80		" 3×8(ZMC2-Y)	"			A,G
59	42 00 00	EK 03 00 50		B.W Head Tapping Screw TypeII $\frac{4 \times 8 \phi 10}{(ZMC2-Y)}$	鉄B.Wヘッドタッピンネジ			
60	42 00 00	ED 35 01 20		Bind Head Screw 5×12 FCM3-BI	鉄バインド小ネジ			R,A,G,B
"	42 00 00	ED 35 02 50		" 5×25 "	"			U,C
61	42 00 00	EK 06 50 40		B.W Pan Head Screw $\frac{4 \times 97 \phi 10}{(ZMC2-Y)}$	鉄ナベB.Wヘッド小ネジ			
62	42 00 00	EV 90 13 60		Sems Flat Washer $\phi 3.6 \times \phi 10 \times t 0.8$ (FNM3-3g)	鉄セムス平座金			
63	42 00 00	EQ 03 11 00		Round Head Wooden Screw $\frac{3.1 \times 10}{(ZMC2-Y)}$	鉄丸木ネジ			U,C
※ 64	32 00 00	AA 60 00 80		Holder, Plate #60008 (ZMC2-Y)	反り止め金具			
※ 65	32 00 08	00 62 30 10		Cabinet	外装組立			U,C
※ 65	32 00 08	00 62 31 10		Cabinet	"			R,A,G,B
※ "	32 00 08	00 62 31 20		"	"			G
66	32 00 00	CB 07 39 20		Clamper #7392 No.0435	リードクランパー			

※ : New Part (新部品)

Ref. No.	Part No.				Description	(部 品 名)	Remarks	Common model	Markets
※		32:00:00	NA:07:37:80		MAIN CIRCUIT BOARD	メインシート			R
※		32:00:00	NA:07:37:90		"	"			U
※		32:00:00	NA:07:38:00		"	"			A
※		32:00:00	NA:07:38:10		"	"	(Black)		G
※		32:00:00	NA:07:38:20		"	"			C
※		32:00:00	NA:07:38:30		"	"			B
※		32:00:00	NA:07:39:60		"	"			C
C301 302	42:00:00	FJ	26:52:20		Electrolytic Capacitor Vert 0.22 μ F 50V	ケミコンタテ形			
C303 304	42:00:00	FG	51:11:50		Ceramic Capacitor 15P 50V SL (K)	フォーミングセラコン			
C305 306	42:00:00	FJ	11:82:20		Electrolytic Capacitor Vert 220 μ F 6.3V	ケミコンタテ形			
C307 308	42:00:00	FJ	14:71:00		" 10 μ F 25V	"			
C309 310	42:00:00	FJ	33:71:00		" 10 μ F 10V	"			
C311 312	42:00:00	FG	71:31:00		Ceramic Capacitor 0.001 μ F 50V B(K)	フォーミングセラコン			
C313 314	42:00:00	FA	45:51:00		Mylar Capacitor 0.1 μ F 50V (J)	マイラーコン			
C315 316	42:00:00	FA	45:43:30		" 0.033 μ F "	"			
C317 318	42:00:00	FA	11:46:80		" 0.068 μ F 50V MS(K)	"			
C319 320	42:00:00	FA	45:31:20		" 0.0012 μ F 50V(J)	"			
C321 322	42:00:00	FJ	16:61:00		Electrolytic Capacitor Vert 1 μ F 50V	ケミコンタテ形			
C325 326	42:00:00	FJ	11:81:00		" 100 μ F 6.3V	"			
C327 328	42:00:00	FG	74:44:70		Ceramic Capacitor 0.047 μ F 50V F(Z)	フォーミングセラコン			
C329	42:00:00	FG	54:42:20		" 0.022 μ F "	"			
C332	42:00:00	FG	54:42:20		" 0.022 μ F "	"			
C333 334	42:00:00	FG	21:12:70		" 27PF "	"			
C401	42:00:00	FJ	33:73:30		Electrolytic Capacitor Vert 33 μ F 16V	ケミコンタテ形			
C402	42:00:00	FM	44:81:00		" 100 μ F 6.3V (M)	Zコン			
C403	42:00:00	FJ	26:84:70		Electrolytic Capacitor Vert 470 μ F 50V	ケミコンタテ形			
C404	42:00:00	FJ	16:74:70		" 47 μ F 50V	"			
C405	42:00:00	FG	71:31:00		Ceramic Capacitor 0.001 μ F 50V B(K)	フォーミングセラコン			
C406	42:00:00	FH	23:41:00		" 0.01 μ F 500V YZ(P)	セラコン			
※ C407 408	42:00:00	FZ	00:20:50		Electrolytic Capacitor 6.800 μ F 40V	ケミコン基板形	inter-changeable		
※ "	42:00:00	FZ	00:20:70		" 6.800 μ F 40V	"			
C409	42:00:00	FJ	12:72:20		" Vert 22 μ F 10V	ケミコンタテ形			
C410	42:00:00	FJ	26:91:00		" " 1000 μ F 50V	"			
C411	42:00:00	FJ	15:81:00		" " 100 μ F 35V	"			
C412	42:00:00	FJ	24:92:20		" " 2.200 μ F 25V	"			
C413	42:00:00	FJ	15:64:70		" " 4.7 μ F 35V	"			
※ C414	42:00:00	FZ	00:20:30		Spark-Killer Capacitor 0.01 μ F	スパークキラーコン			R,U,A,G,C
C415 418	42:00:00	FG	54:42:20		Ceramic Capacitor 0.022 μ F 50V F(Z)	フォーミングセラコン			
L301 302	42:00:00	GD	90:02:80		Coil 3 μ H	空芯コイル			
R301 302	42:00:00	HK	35:52:20		Carbon Resistor RD25 SM-8 220 Ω	カーボン抵抗			
R303 304	42:00:00	HK	35:81:00		" 100K Ω	"			
R305 308	42:00:00	HK	35:61:00		" 1K Ω	"			
R309 310	42:00:00	HK	35:81:20		" 120K Ω	"			
R311 312	42:00:00	HK	35:63:90		" 3.9K Ω	"			
R313 314	42:00:00	HJ	35:52:70		" 270 Ω	"			
R315 318	42:00:00	HK	35:75:60		" 56K Ω	"			
R319 322	42:00:00	HK	35:63:90		" 3.9K Ω	"			
R323 324	42:00:00	HK	35:54:70		" 470 Ω	"			
R325 326	42:00:00	HK	35:62:20		" 2.2K Ω	"			
R327 328	42:00:00	HK	35:64:70		" 4.7K Ω	"			
R329 330	42:00:00	HK	35:72:20		" 22K Ω	"			
R333 334	42:00:00	HK	35:72:20		" 22K Ω	カーボン抵抗			
R335 336	42:00:00	HK	35:53:30		" 330 Ω	"			
※ R337 338	42:00:00	HZ	00:12:00		Metal Plate Resistor 0.1 Ω MPC-70 2P	金属板抵抗(フォーミング)			

※ : New Part (新部品)

Ref. No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
R339 340	42:00:00 HZ:00:61:50	Carbon Resistor RD25 SM-8 1.5KΩ	カーボン抵抗			
R341 342	42:00:00 HZ:00:72:20	" 22KΩ	"			
R343 346	42:00:00 HZ:00:66:80	" 6.8KΩ	"			
R347 348	42:00:00 HL:31:41:00	Metal Oxide Film Resistor 1P 10Ω	酸金抵抗			
R351 352	42:00:00 HK:35:81:00	Carbon Resistor RD25 SM-8 100KΩ	カーボン抵抗			
R353 356	42:00:00 HL:31:52:20	Metal Oxide Film Resistor 1P 220Ω	酸金抵抗			
R357 358	42:00:00 HV:35:34:70	Fire Proof Carbon Resistor RDF25 4.7Ω	不燃化カーボン抵抗			
R401	42:00:00 HK:35:78:20	Carbon Resistor RD25 SM-8 82KΩ	カーボン抵抗			
R402	42:00:00 HK:35:84:70	" 470KΩ	"			
R403	42:00:00 HK:35:46:80	" 68Ω	"			
R404	42:00:00 HK:35:71:50	" 15KΩ	"			
R405	42:00:00 HK:35:88:20	" 820KΩ	"			
R406	42:00:00 HK:35:71:50	" 15KΩ	"			
R407	42:00:00 HL:41:56:80	Metal Oxide Film Resistor 1P 680Ω	酸金抵抗(フォーミング)			
R408	42:00:00 HL:42:53:30	" 2P 330Ω	"			
R409	42:00:00 HK:35:63:90	Carbon Resistor RD25 SM-8 3.9KΩ	カーボン抵抗			
R410	42:00:00 HK:35:71:50	" 15KΩ	"			
R411 412	42:00:00 HL:31:63:30	Metal Oxide Film Resistor 1P 3.3KΩ	酸金抵抗			
R413	42:00:00 HK:35:66:80	Carbon Resistor RD25 SM-8 6.8KΩ	カーボン抵抗			
R414	42:00:00 HK:35:61:00	" 1KΩ	"			
R415	42:00:00 HK:35:63:30	" 3.3KΩ	"			
R416	42:00:00 HK:35:62:20	" 2.2KΩ	"			
R417	42:00:00 HK:35:71:50	" 15KΩ	"			
R418	42:00:00 HG:30:92:20	Carbon Resistor RD50S 2.2MΩ	"			U,C
R419 420	42:00:00 HL:31:41:00	Metal Oxide Film Resistor 1P 10Ω	酸金抵抗			
※ VR301	42:00:00 HS:31:08:70	Variable Resistor 20KB×2 11 Click	VR φ16 2連11点クリック			
VR302	42:00:00 HS:31:06:60	" 20KG×2 "	" (CT付)			
※ VR303	42:00:00 HS:31:08:80	" 50KB×2 "	" 11点クリック			
TR301 364	42:00:00 IC:22:40:10	Transistor 2SC2240 BL	トランジスタ			
※ TR305 306	42:00:00 IA:09:70:00	" 2SA970 G R,BL	"			
TR401	42:00:00 IA:09:99:10	" 2SA999 E,F	"	inter- changeable		
※ "	42:00:00 IA:10:15:30	" 2SA1015 Y,GR	"			
TR402	42:00:00 IC:18:15:80	" 2SC1815 Y,GR	"	}		
※ "	42:00:00 IC:23:20:10	" 2SC2320 E,F	"			
TR403 404	42:00:00 IA:09:99:10	" 2SA999 E,F	"	}		
※ "	42:00:00 IA:10:15:30	" 2SA1015 Y,GR	"			
TR405	42:00:00 IC:18:15:80	" 2SC1815 Y,GR	"	}		
※ "	42:00:00 IC:23:20:10	" 2SC2320 E,F	"			
TR406	42:00:00 ID:06:67:00	" 2SD667 C,D	"			
※ D301 304	42:00:00 IF:00:00:40	Diode 1S1555	ダイオード	}		
D401	42:00:00 IF:00:00:50	" 1S2076	"			
※ D402	42:00:00 IH:00:07:40	Bridge Diode M4B-31 3A 100V	ダイオードブリッジ			
D403 405	42:00:00 IH:00:02:40	Diode 1S1885	ダイオード	}		
"	42:00:00 IH:00:07:20	" WO-3B	"			
※ D406	42:00:00 IF:00:10:90	" 1S1553	"	}		
"	42:00:00 IF:00:16:20	" 1S2076A	"			
※ D407	42:00:00 IF:00:16:10	Zener Diode HZ30 (3)	ツェナーダイオード			
SW301	42:00:00 KA:50:14:20	Rotary Switch SRZ044N	ロータリSW			
F401 402	42:00:00 KB:00:02:20	Fuse 1.5AT 125V	ヒューズ			R,A
F401 402	42:00:00 KB:00:07:30	Fuse 1.0AT 125V	ヒューズ			G,B
"	42:00:00 KB:00:15:90	" UL ASB3 1.5A 250V	"			U,C

※ : New Part (新部品)

Ref. No.	Part No.				Description	(部 品 名)	Remarks	Common model	Markets
F403	42:00:00	KB:00:03:40			Fuse 1.5AT 250V	ヒューズ			A
"	42:00:00	KB:00:06:80			" 1.25AT 250V	"			G,B
"	42:00:00	KB:00:18:80			" UL ASG3 3.0A 250V	"			U,C
"	42:00:00	KB:00:02:40			" 3.0AT 125V	"			R
F404	42:00:00	KB:00:03:40			" 1.5AT 250V	"			R
※ RY401	42:00:00	KC:00:08:60			Relay G2Z222P 24V	リレー			
※ JK301 302	42:00:00	LB:30:10:60			Head Phone Jack	ヘッドホンジャック			R,U,A,G,C,B
※ "	42:00:00	LB:30:10:70			" (Black)	ヘッドホンジャック(黒)			G
	42:00:00	LA:00:25:40			Wrapping Terminal L Type P=5(0) 2P	i 型ラッピング端子板			
	42:00:00	LA:00:20:00			" P=7.5 2P	"			
	42:00:00	LA:00:21:40			" P=10 2P	"			R
	42:00:00	LA:00:25:90			" P=10(0) 3P	"			A,G,B
	42:00:00	LA:00:23:20			" P=7.5 3P	"			
	42:00:00	LA:00:21:50			" P=10 3P	"			
	42:00:00	LA:00:29:60			Push Terminal K5676	4Pプッシュターミナル			
	42:00:00	LB:20:09:00			Fuse Holder Pin PC YSH402P	ヒューズホルダーピン			R,U,A,C
	42:00:00	LB:20:15:30			"	"			G,B
	32:00:00	BB:06:83:70			Earth Plate #6837	アース金具			
	42:00:00	CB:07:30:30			Shield Cap 332515	シールドキャップ			
	42:00:00	Mi:06:81:10			Ribbon Wire UL2468 5P $\ell=100$	リボンワイヤー			
※	32:00:00	NA:07:38:40			TUNER CIRCUIT BOARD	チューナーシート			R,U,C
※	32:00:00	NA:07:38:50			"	"			A,B
※	32:00:00	NA:07:38:60			"	"			G
C101	42:00:00	FJ:33:71:00			Electrolytic Capacitor Vert 10 μ F 16V	ケミコンタテ形			
C102 107	42:00:00	Fi:17:41:00			Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C108	42:00:00	FJ:33:74:70			Electrolytic Capacitor Vert 47 μ F 16V	ケミコンタテ形			
C109	42:00:00	Fi:17:41:00			Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C110	42:00:00	FJ:33:74:70			Electrolytic Capacitor Vert 47 μ F 16V	ケミコンタテ形			
C111 114	42:00:00	Fi:17:41:00			Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C115	42:00:00	FJ:33:71:00			Electrolytic Capacitor Vert 10 μ F 16V	ケミコンタテ形			
C116	42:00:00	FD:15:24:70			Polystyrene Capacitor 470P 50V(J)	スチコン			
C117	42:00:00	FJ:14:63:30			Electrolytic Capacitor Vert 3.3 μ F 25V	ケミコンタテ形			
C118	42:00:00	FJ:16:61:00			" 1 μ F 50V	"			
C119	42:00:00	FJ:26:52:20			" 0.22 μ F 50V	"			
C120	42:00:00	FJ:33:71:00			" 10 μ F 16V	"			
C121	42:00:00	FG:71:25:60			Ceramic Capacitor 560PF 50V B(K)	フォーミングセラコン			
C122	42:00:00	FJ:23:82:20			Electrolytic Capacitor Vert 220 μ F 16V	ケミコンタテ形			
C123 124	42:00:00	FJ:33:71:00			" 10 μ F 16V	"			
C125	42:00:00	FG:51:14:70			Ceramic Capacitor 47PF 50V SL(K)	フォーミングセラコン			
C127 128	42:00:00	FA:45:31:00			Mylar Capacitor 0.001 μ F 50V(J)	マイラーコン			A,G,B
"	42:00:00	FA:45:31:50			" 0.0015 μ F "	"			R,U,C
C129 130	42:00:00	FJ:16:61:00			Electrolytic Capacitor Vert 1 μ F 50V	ケミコンタテ形			
C131	42:00:00	FJ:11:82:20			" 220 μ F 6.3V	"			
C132	42:00:00	FG:51:11:00			Ceramic Capacitor 10PF 50V SL(K)	フォーミングセラコン			
C133	42:00:00	FS:25:23:30			SA Capacitor 330PF 50V(J)	SAコン			
C134	42:00:00	Fi:17:31:00			Ceramic Capacitor 0.001 μ F	セラコン円筒形			
C135 138	42:00:00	Fi:17:41:00			" 0.01 μ F	"			
C139	42:00:00	FJ:33:71:00			Electrolytic Capacitor Vert 10 μ F 16V	ケミコンタテ形			
C140	42:00:00	FJ:16:61:00			" 1 μ F 50V	"			
C141	42:00:00	Fi:17:41:00			Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C142	42:00:00	Fi:17:34:70			" 0.0047 μ F	"			

※ : New Part (新部品)

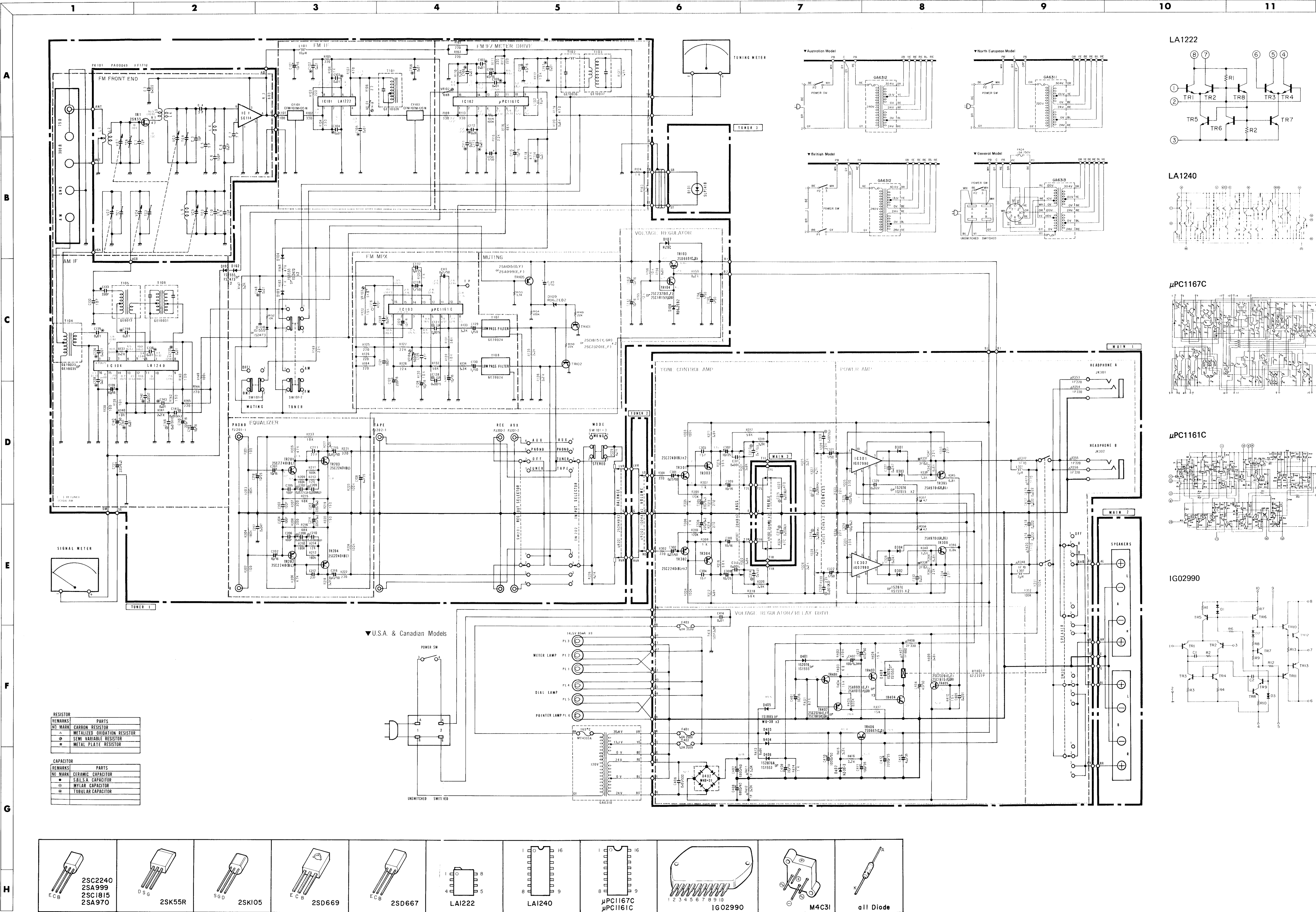
Ref. No.	Part No.		Description	(部 品 名)	Remarks	Common model	Markets
C143	42:00:00	Fi 17:41:00	Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C144	42:00:00	FJ 23:82:20	Electrolytic Capacitor Vert 220 μ F 16V	ケミコンタテ形			
C145	42:00:00	FJ 33:71:00	" 10 μ F 16V	"			
C146 147	42:00:00	FA 41:41:50	Mylar Capacitor 0.015 μ F 50V(K)	マイラーコン			
C148	42:00:00	Fi 17:41:00	Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C149 150	42:00:00	FJ 16:61:00	Electrolytic Capacitor Vert 1 μ F 50V	ケミコンタテ形			
C151	42:00:00	FJ 33:71:00	" 10 μ F 16V	"			
C154 155	42:00:00	FJ 16:61:00	" 1 μ F 50V	"			
C156 157	42:00:00	Fi 17:41:00	Ceramic Capacitor 0.01 μ F	セラコン円筒形			
C158	42:00:00	FS 23:44:70	SBL Capacitor 0.047 μ F 25 V $\times$ (K)	フォーミングSBLコン			
C159	42:00:00	Fi 17:41:00	Ceramic Capacitor 0.01 μ F	セラコン同筒形			
C160	42:00:00	FJ 33:71:00	Electrolytic Capacitor Vert 10 μ F 16V	ケミコンタテ形			
C201 202	42:00:00	FJ 33:71:00	"	"			
C203 206	42:00:00	FG 51:21:00	Ceramic Capacitor 100PF 50V SL(K)	フォーミングセラコン			
C207 208	42:00:00	FA 45:42:20	Mylar Capacitor 0.022 μ F 50V(J)	マイラーコン			
C209 210	42:00:00	FA 45:36:80	" 0.0068 μ F 50V(K)	"			
C211 212	42:00:00	FG 51:12:70	Ceramic Capacitor 27PF 50V SL(K)	フォーミングセラコン			
C213 214	42:00:00	FJ 11:82:20	Electrolytic Capacitor Vert 220 μ F 6.3V	ケミコンタテ形			
C215 216	42:00:00	FJ 16:54:70	" 0.47 μ F 50V	"			
C217	42:00:00	FG 74:44:70	Ceramic Capacitor 0.047 μ F F(Z)	フォーミングセラコン			
C218	42:00:00	FJ 34:71:00	Electrolytic Capacitor Vert 10 μ F 25V	ケミコンタテ形			
T101	42:00:00	GE 10:02:60	IF Coil GE10026	I F コイル			
※ T102	42:00:00	GE 10:03:60	Coil	クォードラチュア検波コイル			
※ T103	42:00:00	GE 10:03:70	"	"			
T104	42:00:00	GE 10:02:30	AM Antenna Coil GE10023	AMアンテナコイル	inter-changeable		
※ "	42:00:00	GE 10:03:50	" GE10035	"			
T105	42:00:00	GE 10:01:50	AM OSC Coil GE6013	AM OSC Coil			
※ T106	42:00:00	GE 10:03:10	AM IF Coil GE10031	AM IF コイル			
※ T107 108	42:00:00	GE 20:02:40	MPX Filter FB-20	MPX フィルター			
L101	42:00:00	GE 30:02:40	Inductor LA204N 100K 10 μ H	インダクター			
※ L102	42:00:00	GE 30:03:40	" 18 μ H	"			
CF101 102	42:00:00	GG 00:03:60	Ceramic Filter CFM-107M-12C-N	セラミックフィルター			
R101	42:00:00	HK 35:51:00	Carbon Resistor RD25 SM-8 100 Ω	カーボン抵抗			
R102	42:00:00	HK 35:53:30	" 330 Ω	"			
R103	42:00:00	HK 35:52:20	" 220 Ω	"			
R104	42:00:00	HK 35:53:30	" 330 Ω	"			
R105	42:00:00	HK 35:52:20	" 220 Ω	"			
R106	42:00:00	HK 35:61:00	" 1K Ω	"			
R107	42:00:00	HK 35:54:70	" 470 Ω	"			
R108	42:00:00	HK 35:42:20	" 22 Ω	"			
R109	42:00:00	HK 35:53:30	" 330 Ω	"			
R110	42:00:00	HK 35:65:60	" 5.6K Ω	"			
R111 112	42:00:00	HK 35:52:20	" 220 Ω	"			
R113	42:00:00	HK 35:53:30	" 330 Ω	"			
R114	42:00:00	HK 35:81:00	" 100K Ω	"			
R115	42:00:00	HK 35:72:20	" 22K Ω	"			
R116	42:00:00	HK 35:74:70	" 47K Ω	"			G
"	42:00:00	HK 35:76:80	" 68K Ω	"			R,U,A,C,A
R117	42:00:00	HK 35:71:00	" 10K Ω	"			
R118	42:00:00	HK 35:74:70	" 47K Ω	"			
R119	42:00:00	HK 35:54:70	" 470 Ω	"			
R120	42:00:00	HK 35:65:60	" 5.6K Ω	"			
R121	42:00:00	HK 35:61:50	" 1.5K Ω	"			

※ : New Part (新部品)

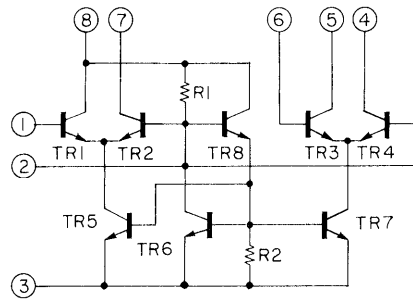
Ref. No.	Part No.				Description	(部 品 名)	Remarks	Common model	Markets
R122	42	00	00	HK 35 71 50	Carbon Resistor RD25 SM-8 15K Ω	カーボン抵抗			
R123 124	42	00	00	HK 35 61 00	" 1K Ω	"			
R125 126	42	00	00	HK 35 52 20	" 220 Ω	"			
R127 128	42	00	00	HK 35 72 20	" 22K Ω	"			
R129 130	42	00	00	HK 35 71 00	" 10K Ω	"			
R131 132	42	00	00	HK 35 74 70	" 47K Ω	"			G
"	42	00	00	HK 35 75 60	" 56K Ω	"			R,U,A,C,B
R133 134	42	00	00	HK 35 63 30	" 3.3K Ω	"			
R135 137	42	00	00	HK 35 62 20	" 2.2K Ω	"			
R138	42	00	00	HK 35 51 00	" 100 Ω	"			
R139 140	42	00	00	HK 35 71 00	" 10K Ω	"			
R141	42	00	00	HK 35 62 20	" 2.2K Ω	"			
R142	42	00	00	HJ 35 51 50	" 150 Ω	"			
R143	42	00	00	HK 35 51 00	" 100 Ω	"			
R144 145	42	00	00	HK 35 52 20	" 220 Ω	"			
R146	42	00	00	HK 35 81 00	" 100K Ω	"			
R147	42	00	00	HK 35 63 30	" 3.3K Ω	"			
R148	42	00	00	HK 35 74 70	" 47K Ω	"			
R149 151	42	00	00	HK 35 72 20	" 22K Ω	"			
R152	42	00	00	HK 35 71 00	" 10K Ω	"			
R153	42	00	00	HK 35 63 30	" 3.3K Ω	"			
R154	42	00	00	HK 35 81 00	" 100K Ω	"			
R155	42	00	00	HJ 35 71 20	" 12K Ω	"			
R156	42	00	00	HK 35 71 00	" 10K Ω	"			
R158	42	00	00	HK 35 66 80	" 6.8K Ω	"			
R159	42	00	00	HK 35 68 20	" 8.2K Ω	"			
R160	42	00	00	HK 35 63 30	" 3.3K Ω	"			
R161 162	42	00	00	HK 35 52 20	" 220 Ω	"			
R163	42	00	00	HK 35 61 00	" 1K Ω	"			
R164	42	00	00	HK 35 52 20	" 220 Ω	"			
R201 202	42	00	00	HK 35 51 00	" 100 Ω	"			
R203 204	42	00	00	HK 35 81 80	" 180K Ω	"			
R205 206	42	00	00	HK 35 74 70	" 47K Ω	"			
R207 208	42	00	00	HK 35 53 00	" 300 Ω	"			
R209 212	42	00	00	HK 35 81 80	" 180K Ω	"			
R213 214	42	00	00	HK 35 71 20	" 12K Ω	"			
R215 216	42	00	00	HK 35 76 80	" 68K Ω	"			
R217 218	42	00	00	HK 35 63 30	" 3.3K Ω	"			
R219 220	42	00	00	HJ 35 51 50	" 150 Ω	"			
R221 222	42	00	00	HK 35 52 20	" 220 Ω	"			
R223 224	42	00	00	HK 35 81 00	" 100K Ω	"			
R225 226	42	00	00	HK 35 64 70	" 4.7K Ω	"			
R227 228	42	00	00	HK 35 88 20	" 820K Ω	"			G
R229 230	42	00	00	HK 35 76 80	" 68K Ω	"			G
R231 232	42	00	00	HK 35 82 20	" 220K Ω	"			G
R233	42	00	00	HK 35 71 00	" 10K Ω	"			
VR101	42	00	00	HT 17 00 10	Semi Variable Resistor B1K Ω V8K4-1	半固定 VR			
VR102	42	00	00	HT 17 00 20	" B 10K Ω "	"			
VR103	42	00	00	HT 17 00 50	" B 5K Ω "	"			
VR104	42	00	00	HT 17 01 30	" B500K Ω "	"			
TR101 102	42	00	00	i C 18 15 80	Transistor 2SC1815 Y,GR	トランジスター	inter-changeable		
"	42	00	00	i C 23 20 10	" 2SC2320 E,F	"			

※ : New Part (新部品)

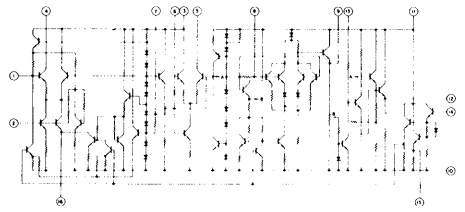
SCHEMATIC DIAGRAM



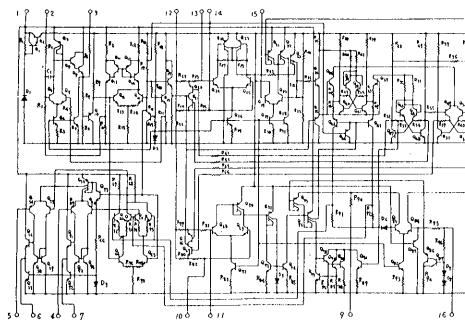
LA1222



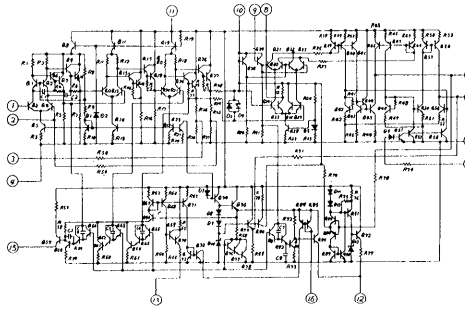
LA1240



μPC1167C



μPC1161C



IG02990

