

# FC-40

## Technical Supplement

© 2004 VERTEX STANDARD CO., LTD. Printed in Japan.

EAD77X90A

**VERTEX STANDARD CO., LTD.**

4-8-8 Nakameguro, Meguro-Ku, Tokyo 153-8644, Japan

**VERTEX STANDARD**

**US Headquarters**

10900 Walker Street, Cypress, CA 90630, U.S.A.

**YAESU EUROPE B.V.**

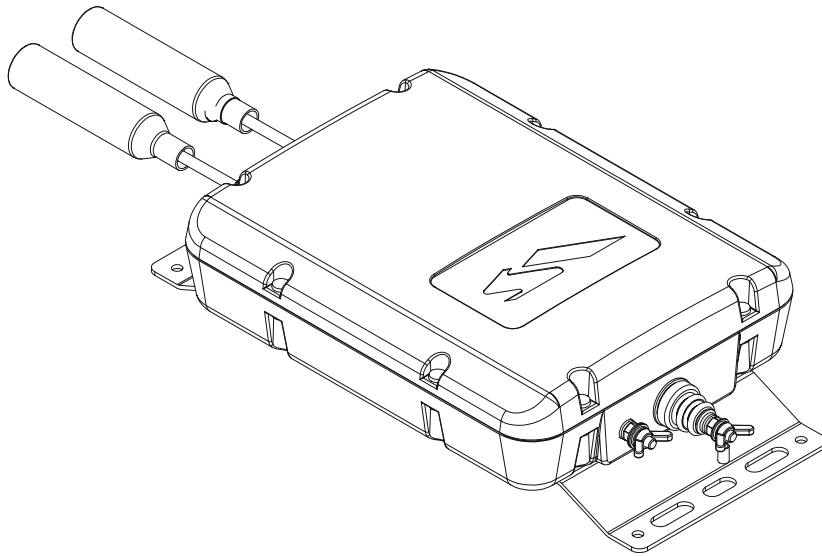
P.O. Box 75525, 1118 ZN Schiphol, The Netherlands

**YAESU UK LTD.**

Unit 12, Sun Valley Business Park, Winnall Close  
Winchester, Hampshire, SO23 0LB, U.K.

**VERTEX STANDARD HK LTD.**

Unit 5, 20/F., Seaview Centre, 139-141 Hoi Bun Road,  
Kwun Tong, Kowloon, Hong Kong



### Introduction

This manual provides technical information necessary for servicing the FC-40 Automatic-Matching Antenna Tuner. Attempts by non-qualified persons to service this equipment may result in permanent damage not covered by the warranty, and may be illegal in some countries.

While we believe the technical information in this manual to be correct, VERTEX STANDARD assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

### Contents

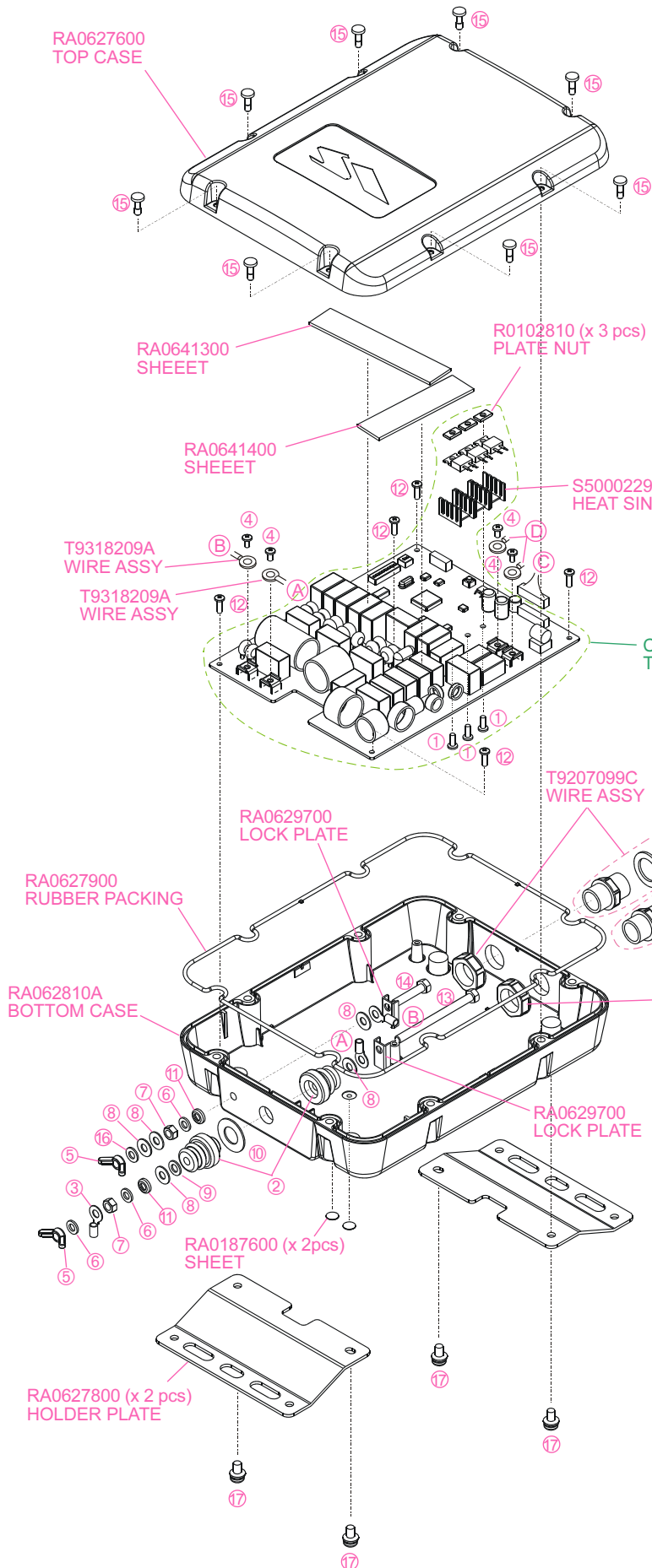
Specifications .....	2
Exploded View & Miscellaneous Parts .....	3
Board Unit (Schematics, Layouts & Parts)	
Circuit Diagram .....	5
Parts Layout .....	7
Parts List .....	9

## *Specifications*

<b>Operating Frequency Range:</b>	1.8 - 54 MHz with 20+ m end-fed wire 3.5 - 54 MHz with 7+ m end-fed wire 7 - 54 MHz with YA-007 HF 2.5 m Mobile Whip Antenna
<b>Input Impedance:</b>	50 Ohms
<b>Maximum Power:</b>	100W (3 minutes maximum continuous TX)
<b>Matched SWR:</b>	2.0:1 or less (if antenna is not exact multiple of 1/2 )
<b>Tune-up Power:</b>	4 - 60 W
<b>Tune-up Time:</b>	8 seconds maximum
<b>Impedance Matching Memories:</b>	200 channels
<b>Power supply:</b>	13.8V DC±15% (supplied from transceiver)
<b>Case Size (WHD):</b>	9" x 7" x 2.1" (228 x 175 x 55 mm)
<b>Weight:</b>	2.6 lbs. (1.2kg)

*Specifications subject to change without notice of obligation.*

# Exploded View & Miscellaneous Parts



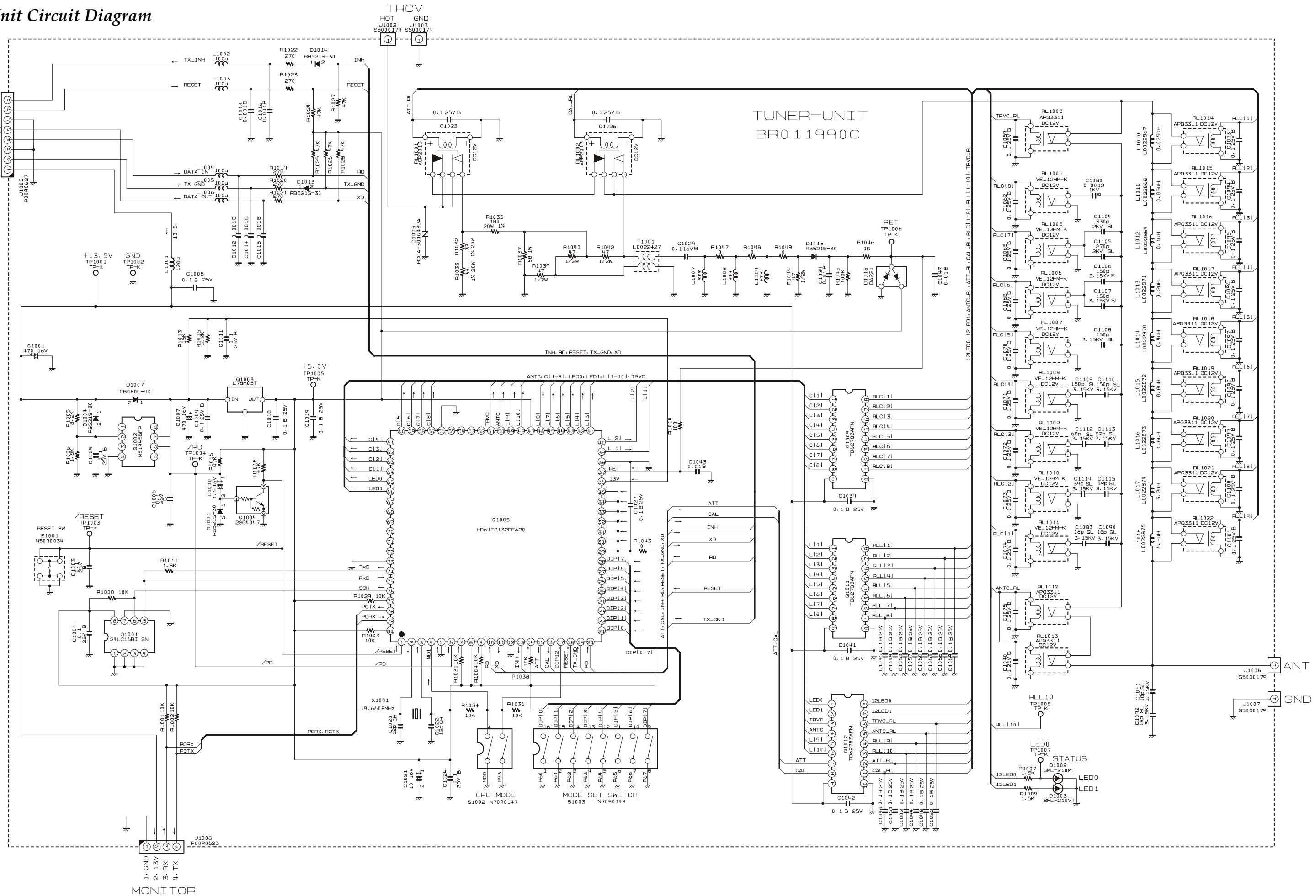
No.	VXSTD P/N	Description	Qty.
①	U20308001	BINDING HEAD SCREW M3X8	3
②	Q9000097	INSULATOR	1
③	Q6000135	TERMINAL D5	1
④	U04306012	SEMS SCREW HSM3X6BSNI	4
⑤	U65500120	WING NUT N5SUS	2
⑥	U71005020	SPRING LOCK WASHER SW5SUS	3
⑦	U60500120	HEXA NUT N5SUS #1	2
⑧	U70005020	PLAIN WASHER FW5SUS	5
⑨	RA0631700	RUBBER WASHER 5.5X10	1
⑩	RA0631600	RUBBER WASHER 12X23	1
⑪	U9900001	SEAL WASHER SM-5	2
⑫	U24310002	TAPTITE SCREW M3X10NI	5
⑬	U50565020	HEX HEAD BOLT M5X65SUS	1
⑭	U50525020	HEX HEAD BOLT M5X25SUS	1
⑮	RA0628000	SPECIAL SCREW	8
⑯	U72005020	TOOTHED LOCK WASHER OW5SUS	1
⑰	U04510020	SEMS SCREW HSM5X10SUS	4

VXSTD P/N	Description
T9101543A	CONTROL CABLE (CNTL) 5m
T9101544A	COAXIAL CABLE (5D-2V) 5m
L9190136	FERRITE CORE
S8002158	SEALING TAPE 50cm
R0123100	MAST HOLDER
S5000251	U-BOLT ASSEMBLY <ul style="list-style-type: none"> <li>• U-bolts (2 pcs)</li> <li>• Washes FW6 (2 pcs)</li> <li>• Spring washers SW6 (2 pcs)</li> <li>• Nuts N6 (2 pcs)</li> </ul>
C3910004	SCREWS SET <ul style="list-style-type: none"> <li>• TAPTITE SCREW 5X20SUS #1 (4 pcs)</li> <li>• PAN HEAD SCREW M5X20SUS (4 pcs)</li> <li>• HEX NUT N5SUS (4 pcs)</li> <li>• TOOTHED LOCK WASHER OW5SUS (4 pcs)</li> <li>• PLAIN WASHER FW5SUS (8 pcs)</li> </ul>

*Note*

# TUNER Unit Circuit Diagram

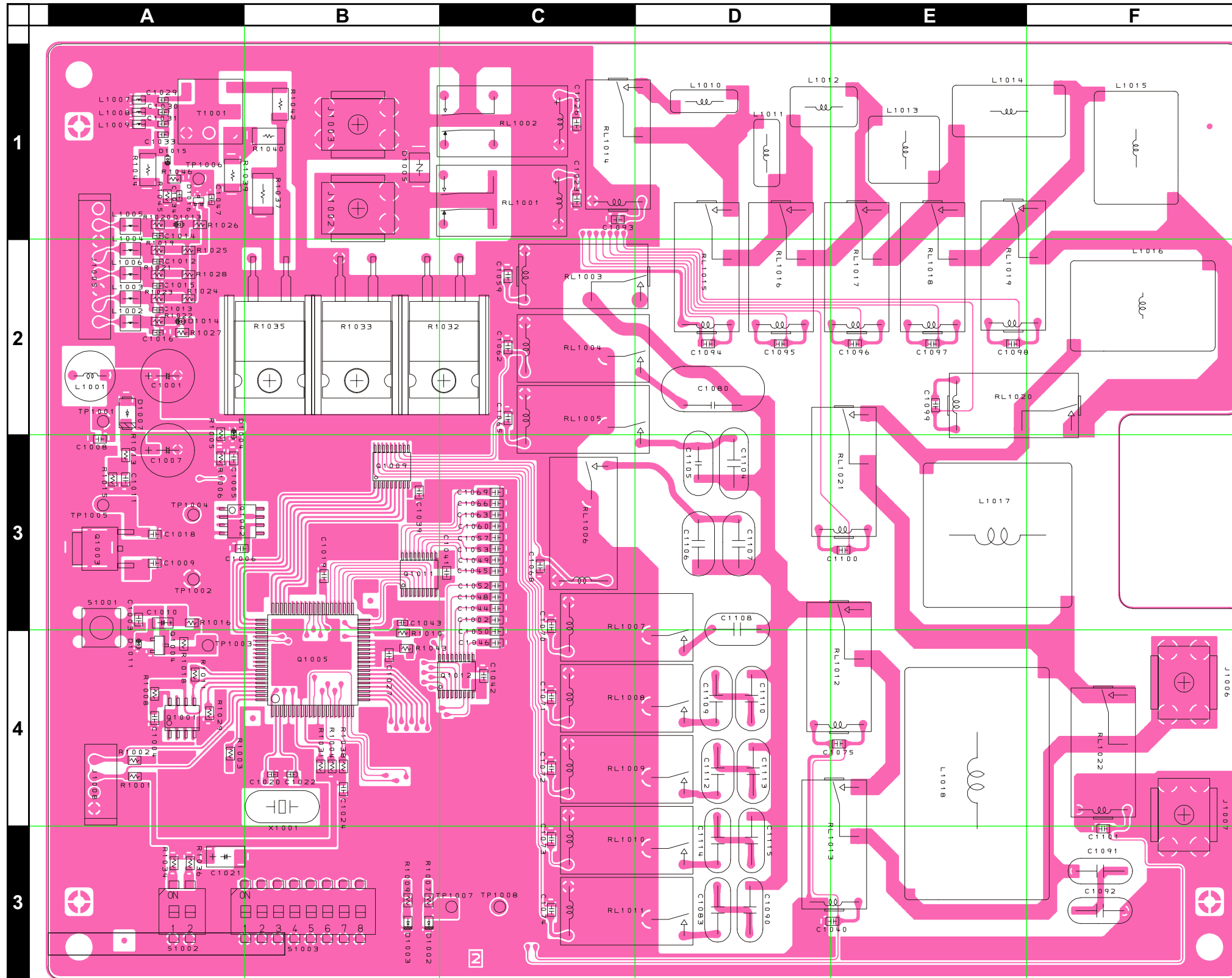
- CONTOROL
- 8. TX\_INH (OUT)
  - 7. RESET (IN)
  - 6. SENSE (GND)
  - 5. DATA OUT (OUT)
  - 4. DATA IN (IN)
  - 3. GND
  - 2. TX\_GND (IN)
  - 1. 13.5 (IN)



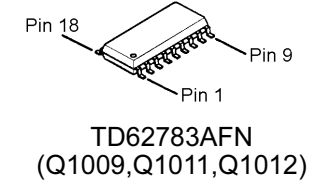
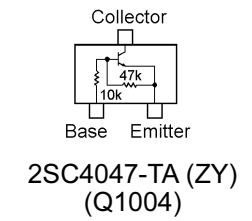
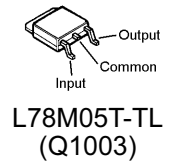
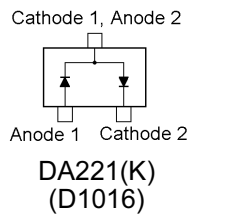
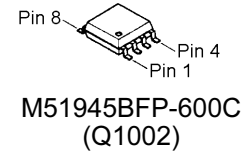
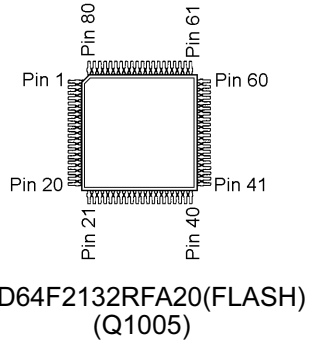
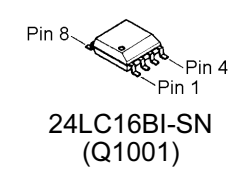
MONITOR

*Note*

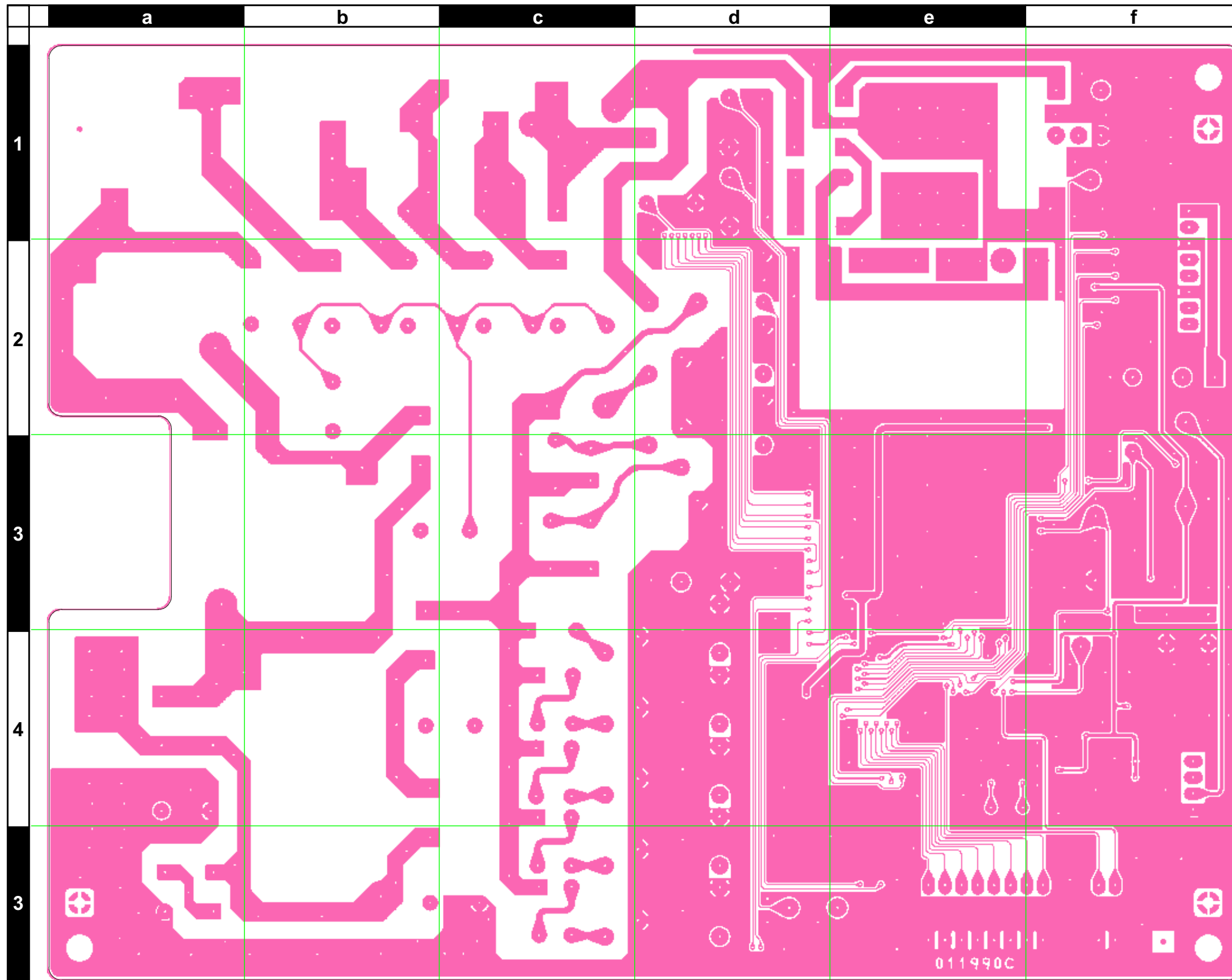
# TUNER Unit Parts Layout



Side A



TUNER Unit Parts Layout



Side B



# TUNER Unit Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
PCB with Component Printed Circuit Board						CS1822001 FR011990C				
C 1001	AL.ELECTRO.CAP.	470uF	16V		RE3-16V471M 470UF	K40129066		1-	A	A2
C 1002	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1003	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1004	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A4
C 1005	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1006	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	B3
C 1007	AL.ELECTRO.CAP.	470uF	16V		RE3-16V471M 470UF	K40129066		1-	A	A3
C 1008	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1009	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1010	CHIP TA.CAP.	1.5uF	16V		TESVA1C155M1-8R	K78120020		1-	A	A3
C 1011	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1012	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1013	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1014	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A1
C 1015	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1016	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1018	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	A3
C 1019	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	B3
C 1020	CHIP CAP.	12pF	50V	CH	GRM39CH120J50PT	K22174213		1-	A	B4
C 1021	CHIP TA.CAP.	10uF	16V		TESVC1C106M12R	K78120011		1-	A	A5
C 1022	CHIP CAP.	12pF	50V	CH	GRM39CH120J50PT	K22174213		1-	A	B4
C 1023	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C1
C 1024	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	B4
C 1026	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C1
C 1027	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	B4
C 1029	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A1
C 1034	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	A1
C 1039	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	B3
C 1040	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E5
C 1041	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1042	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1043	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	B3
C 1044	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1045	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1046	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1047	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	A1
C 1048	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1049	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1050	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1052	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1053	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1057	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1059	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C2
C 1060	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1062	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C2
C 1063	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1065	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C2
C 1066	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1068	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1069	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C3
C 1070	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1071	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1072	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C4
C 1073	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C5
C 1074	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C5
C 1075	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E4
C 1080	MICA CAP.	0.0012uF	1KV		DML2 122J10	K30309044		1-	A	D2
C 1083	CERAMIC CAP.	18pF	3.15KV	SL	DEA1X3F180JCDB	K00539002		1-	A	D5

# TUNER Unit Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
C 1090	CERAMIC CAP.	18pF	3.15KV	SL	DEA1X3F180JCDB	K00539002		1-	A	D5
C 1091	CERAMIC CAP.	18pF	3.15KV	SL	DEA1X3F180JCDB	K00539002		1-	A	F5
C 1092	CERAMIC CAP.	18pF	3.15KV	SL	DEA1X3F180JCDB	K00539002		1-	A	F5
C 1093	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	C1
C 1094	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	D2
C 1095	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	D2
C 1096	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E2
C 1097	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E2
C 1098	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E2
C 1099	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E2
C 1100	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E3
C 1101	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	F5
C 1104	CERAMIC CAP.	330pF	2KV	SL	DEA1X3D331JA3B	K00339003		1-	A	D3
C 1105	CERAMIC CAP.	270pF	2KV	SL	DEA1X3D271JA2B	K00339002		1-	A	D3
C 1106	CERAMIC CAP.	150pF	3.15KV	SL	DEA1X3F151JA3B	K00539008		1-	A	D3
C 1107	CERAMIC CAP.	150pF	3.15KV	SL	DEA1X3F151JA3B	K00539008		1-	A	D3
C 1108	CERAMIC CAP.	150pF	3.15KV	SL	DEA1X3F151JA3B	K00539008		1-	A	D4
C 1109	CERAMIC CAP.	150pF	3.15KV	SL	DEA1X3F151JA3B	K00539008		1-	A	D4
C 1110	CERAMIC CAP.	150pF	3.15KV	SL	DEA1X3F151JA3B	K00539008		1-	A	D4
C 1112	CERAMIC CAP.	68pF	3.15KV	SL	DEA1X3F680JA3B	K00539005		1-	A	D4
C 1113	CERAMIC CAP.	82pF	3.15KV	SL	DEA1X3F820JA3B	K00539006		1-	A	D4
C 1114	CERAMIC CAP.	39pF	3.15KV	SL	DEA1X3F390JC3B	K00539004		1-	A	D5
C 1115	CERAMIC CAP.	39pF	3.15KV	SL	DEA1X3F390JC3B	K00539004		1-	A	D5
D 1002	LED				SML-210MTT86	G2070524		1-	A	B5
D 1003	LED				SML-210VTT86	G2070768		1-	A	B5
D 1004	DIODE				RB521S-30 TE61	G2070642		1-	A	A3
D 1005	SURGE ABSORBER				RCCA-301Q43UA	Q9000756		1-	A	B1
D 1007	DIODE				RB060L-40 TE25	G2070744		1-	A	A2
D 1011	DIODE				RB521S-30 TE61	G2070642		1-	A	A4
D 1013	DIODE				RB521S-30 TE61	G2070642		1-	A	A1
D 1014	DIODE				RB521S-30 TE61	G2070642		1-	A	A2
D 1015	DIODE				RB521S-30 TE61	G2070642		1-	A	A1
D 1016	DIODE				DA221 TL	G2070178		1-	A	A1
J 1002	TERMINAL				Y106	S5000179		1-	A	B1
J 1003	TERMINAL				Y106	S5000179		1-	A	B1
J 1005	CONNECTOR				SC25-08WS	P0090627		1-	A	A1
J 1006	TERMINAL				Y106	S5000179		1-	A	F4
J 1007	TERMINAL				Y106	S5000179		1-	A	F4
J 1008	CONNECTOR				SC25-04WS	P0090623		1-	A	A4
L 1001	M.RFC	120uH			RCH-875 121K	L1190396		1-	A	A2
L 1002	CHIP COIL	100uH			LQH32MN101K23L	L1690099		1-	A	A2
L 1003	CHIP COIL	100uH			LQH32MN101K23L	L1690099		1-	A	A2
L 1004	CHIP COIL	100uH			LQH32MN101K23L	L1690099		1-	A	A2
L 1005	CHIP COIL	100uH			LQH32MN101K23L	L1690099		1-	A	A1
L 1006	CHIP COIL	100uH			LQH32MN101K23L	L1690099		1-	A	A2
L 1010	COILA1				1.5T8.0D1.2PEW R	L0022867		1-	A	D1
L 1011	COILA1				2.5T8.0D1.2PEW R	L0022868		1-	A	D1
L 1012	COILA1				4.5T8.0D1.2PEW R	L0022869		1-	A	E1
L 1013	COILA1				7.5T8.0D1.2PEW R	L0022871		1-	A	E1
L 1014	COILA1				5.5T15.1D1.2PEW R	L0022870		1-	A	F1
L 1015	COILA1				9.5T15.1D1.2PEW R	L0022872		1-	A	F1
L 1016	COILA1				10.5T20.0D1.2PEW R	L0022873		1-	A	F2
L 1017	COILA1				17.5T20.0D1.2PEW R	L0022874		1-	A	F3
L 1018	COILA1				27.5T20.0D1.2PEW R	L0022875		1-	A	E5
Q 1001	IC				24LC16BI-SN TER	G1091852		1-	A	A4
Q 1002	IC				M51945BFP-600C	G1091990		1-	A	B3
Q 1003	IC				L78M05T-TL	G1091731		1-	A	A3
Q 1004	TRANSISTOR				2SC4047-TA	G3340477		1-	A	A4
Q 1005	IC				HD64F2132RFA20(FLASH)	G1093150		1-	A	B4
Q 1009	IC				TD62783AFN(EL)	G1092700		1-	A	B3

# TUNER Unit Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
Q 1011	IC				TD62783AFN(EL)	G1092700		1-	A	B3
Q 1012	IC				TD62783AFN(EL)	G1092700		1-	A	C4
R 1001	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A4
R 1002	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A4
R 1003	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A4
R 1004	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	B4
R 1005	CHIP RES.	8.2k	1/10W	5%	RMC1/10T 822J	J24205822		1-	A	A3
R 1006	CHIP RES.	1.8k	1/10W	5%	RMC1/10T 182J	J24205182		1-	A	A3
R 1007	CHIP RES.	1.5k	1/10W	5%	RMC1/10T 152J	J24205152		1-	A	B5
R 1008	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A4
R 1009	CHIP RES.	1.5k	1/10W	5%	RMC1/10T 152J	J24205152		1-	A	B5
R 1010	CHIP RES.	100	1/10W	5%	RMC1/10T 101J	J24205101		1-	A	B4
R 1011	CHIP RES.	1.8k	1/10W	5%	RMC1/10T 182J	J24205182		1-	A	A4
R 1013	CHIP RES.	15k	1/10W	5%	RMC1/10T 153J	J24205153		1-	A	A3
R 1015	CHIP RES.	8.2k	1/10W	5%	RMC1/10T 822J	J24205822		1-	A	A3
R 1016	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A3
R 1018	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A4
R 1019	CHIP RES.	270	1/10W	5%	RMC1/10T 271J	J24205271		1-	A	A2
R 1020	CHIP RES.	270	1/10W	5%	RMC1/10T 271J	J24205271		1-	A	A1
R 1021	CHIP RES.	270	1/10W	5%	RMC1/10T 271J	J24205271		1-	A	A2
R 1022	CHIP RES.	270	1/10W	5%	RMC1/10T 271J	J24205271		1-	A	A2
R 1023	CHIP RES.	270	1/10W	5%	RMC1/10T 271J	J24205271		1-	A	A2
R 1024	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A2
R 1025	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A2
R 1026	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A1
R 1027	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A2
R 1028	CHIP RES.	47k	1/10W	5%	RMC1/10T 473J	J24205473		1-	A	A2
R 1029	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A4
R 1031	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	B4
R 1032	METAL FILM RES.	33	20W	1%	RNP-20S C330F 33	J22439011		1-	A	C2
R 1033	METAL FILM RES.	33	20W	1%	RNP-20S C330F 33	J22439011		1-	A	B2
R 1034	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A5
R 1035	METAL FILM RES.	180	20W	1%	RNP-20S C181F 180	J22439013		1-	A	B2
R 1036	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	A5
R 1037	CHIP RES.	68	1W	5%	RMC1 680JTE	J24305680		1-	A	B1
R 1038	CHIP RES.	10k	1/10W	5%	RMC1/10T 103J	J24205103		1-	A	B4
R 1039	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	A	A1
R 1040	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	A	B1
R 1042	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	A	B1
R 1043	CHIP RES.	0	1/10W	5%	RMC1/10T 000J	J24205000		1-	A	B4
R 1044	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	A	A1
R 1045	CHIP RES.	100k	1/10W	5%	RMC1/10T 104J	J24205104		1-	A	A1
R 1046	CHIP RES.	1k	1/10W	5%	RMC1/10T 102J	J24205102		1-	A	A1
R 1047	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-		
R 1048	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-		
R 1049	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-		
RL1001	RELAY		DC12V		AGP2013 DC12V	M1190069		1-	A	C1
RL1002	RELAY		DC12V		AGP2013 DC12V	M1190069		1-	A	C1
RL1003	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	C2
RL1004	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C2
RL1005	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C3
RL1006	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C3
RL1007	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C4
RL1008	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C4
RL1009	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C4
RL1010	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C5
RL1011	RELAY		DC12V		VE 12HM-K DC12V	M1190186		1-	A	C5
RL1012	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	D4
RL1013	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	D5
RL1014	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	C1

## TUNER Unit Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
RL1015	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	D2
RL1016	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	D2
RL1017	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	E2
RL1018	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	E2
RL1019	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	E2
RL1020	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	E2
RL1021	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	D3
RL1022	RELAY		DC12V		APQ3311 DC12V	M1190185		1-	A	F4
S 1001	TACT SWITCH				SKHHAR	N5090034		1-	A	A4
S 1002	DIP SWITCH				SSGM120100	N7090147		1-	A	A5
S 1003	DIP SWITCH				SSGM180100	N7090149		1-	A	B5
T 1001	COIL 10WIDE				1-1 FB801-43	L0022427		1-	A	A1
TP1001	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A2
TP1002	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A3
TP1003	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A4
TP1004	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A3
TP1005	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A3
TP1006	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	A1
TP1007	TERMINAL				TP-K IPS-1136	Q5000050		1-	A	C5
X 1001	XTAL HC-49U/4	19.6608MHz			19.6608MHZ	H0103052		1-	A	B4
	HEAT SINK				SP141K	S5000229		1-		
	PLATE NUT					R0102810		1-		
	BINDING HEAD SCREW				M3X8	U20308001		1-		





Copyright 2004  
VERTEX STANDARD CO., LTD.  
All rights reserved

No portion of this manual  
may be reproduced without  
the permission of  
VERTEX STANDARD CO., LTD.