

# KENWOOD

## **Document Copyrights**

Copyright 2006 by Kenwood Corporation. All rights reserved.

No part of this manual may be reproduced, translated, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, for any purpose without the prior written permission of Kenwood.

## **Disclaimer**

While every precaution has been taken in the preparation of this manual, Kenwood assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Kenwood reserves the right to make changes to any products herein at any time for improvement purposes.

# TK-2180

## SERVICE MANUAL

### SUPPLEMENT

**TK-2180 K**

**TK-2180 K2**



This TK-2180 service manual contains a number of sections which differ from the service manual (B51-8689-00) for the TK-2180.

For items other than those in this TK-2180 service manual please refer to the service manual (B51-8689-00) for the TK-2180.

## CONTENTS

GENERAL .....	2
SYSTEM SET-UP .....	2
PARTS LIST .....	3
EXPLODED VIEW .....	12
PACKING .....	13
ADJUSTMENT .....	14
PC BOARD	
DISPLAY UNIT (X54-3470-XX) .....	26
TX-RX UNIT (X57-6930-10) .....	30
SCHEMATIC DIAGRAM	
DISPLAY UNIT (X54-3470-XX) .....	34
TX-RX UNIT (X57-6930-10) .....	36
BLOCK DIAGRAM .....	44
LEVEL DIAGRAM .....	46
SPECIFICATIONS .....	47

**Does not come with antenna.  
Antenna is available as an option.**

## GENERAL / SYSTEM SET-UP

### INTRODUCTION

#### SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication date. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

#### ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts : components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

### PERSONAL SAFETY

The following precautions are recommended for personal safety:

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

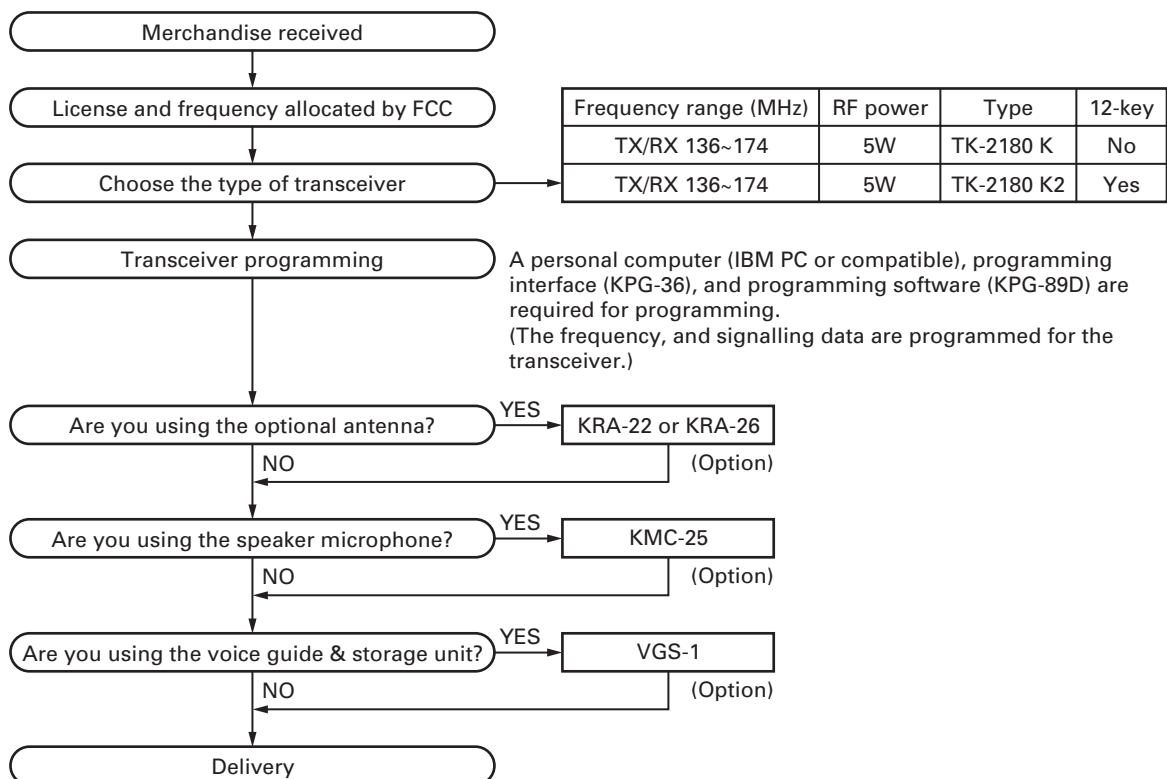
### SERVICE

This transceiver is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

#### Service Manual List

Title	Parts number	Remarks	Market code	TX-RX unit number	Display unit number
TK-2180	B51-8689-00		K,K2	X57-6930-10	X54-3470-XX
				J72-0919-09	J72-0921-09
TK-2180	B51-8725-00 (This service manual)	Supplement	K,K2	X57-6930-10	X54-3470-XX
				J72-0919-29	J72-0921-39

### SYSTEM SET-UP



## PARTS LIST

\* New Parts.  $\Delta$  indicates safety critical components.

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

**TK-2180 (Y50-5870-XX)**

**DISPLAY UNIT (X54-3470-XX)**

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
<b>TK-2180</b>											
1	1B		A02-3847-03	PLASTIC CABINET ASSY	K	59	1B		K29-9304-03	KNOB (VOLUME)	
2	1A		A02-3848-03	PLASTIC CABINET ASSY	K2	60	1A		K29-9305-03	KNOB (CH SELCTOR)	
3	3A	*	A10-4076-21	CHASSIS		A	2D	*	N08-0548-14	DRESSED SCREW ACCESSORY	
4	4B		A62-1093-02	PANEL		B	3B		N09-2426-04	HEXAGON HEAD SCREW	
6	2D		B09-0625-03	CAP ACCESSORY		C	3B		N14-0806-04	CIRCULAR NUT	
7	1A	*	B10-2752-22	FRONT GLASS		D	3B		N14-0810-04	CIRCULAR NUT	
8	2A		B11-1815-04	FILTER (LCD)		E	2A,3A		N30-2004-43	PAN HEAD MACHINE SCREW	
9	2A	*	B11-1816-12	ILLUMINATION GUIDE (LCD)		F	2B		N30-2604-48	PAN HEAD MACHINE SCREW	
10	3B		B11-1820-04	ILLUMINATION GUIDE (BUSY/TX)		G	3A		N30-2608-43	PAN HEAD MACHINE SCREW	
11	2A		B38-0900-05	LCD ASSY		H	2C		N30-3008-60	PAN HEAD MACHINE SCREW	
12	2C		B62-1759-10	INSTRUCTION MANUAL (ENGLISH)		J	2A,2B		N83-2005-48	PAN HEAD TAPTITE SCREW	
12	2C	*	B62-1868-00	INSTRUCTION MANUAL (FRENCH)		62	3B		R31-0652-05	VARIABLE RESISTOR	
13	3A		B72-2196-04	MODEL NAME-PLATE	K	64	2B		S60-0430-05	ROTARY SWITCH	
13	3A		B72-2197-04	MODEL NAME-PLATE	K2	66	1A	*	T07-0749-15	SPEAKER	
15	2B		E04-0416-05	RF COAXIAL RECEPTACLE (SMA)		68	3A		W09-0971-05	LITHIUM CELL	
16	3B		E23-1104-04	ANTENNA TERMINAL		<b>DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2</b>					
17	2A		E37-1101-05	SPEAKER WIRE (RED)		D501,502			B30-2215-05	LED	
18	2A		E37-1102-05	SPEAKER WIRE (BLACK)		D511-516			B30-2215-05	LED	K2
19	2A		E37-1107-05	FLAT CABLE		D517-520			B30-2210-05	LED (TLY)	
20	3B	*	E58-0511-05	RECTANGULAR RECEPTACLE		C500-503			CK73HB1H471K	CHIP C 470PF	K
21	3B		E72-0419-03	TERMINAL BLOCK		C508			CK73HB1H471K	CHIP C 470PF	K
23	3A		F07-1880-04	COVER		C513			CK73GB1C104K	CHIP C 0.10UF	K
26	2A		F15-1012-04	SHADE		C518			CK73HB1H471K	CHIP C 470PF	K
27	3B		F20-3350-04	INSULATING SHEET		C522			CK73HB1H102K	CHIP C 1000PF	K
29	2A		G10-1340-04	FIBROUS SHEET		C523,524			C92-0827-05	CHIP-TAN 4.7UF	10WV
30	2A		G10-1341-04	FIBROUS SHEET		C525			CK73HB1H471K	CHIP C 470PF	K
31	2A		G11-4272-04	RUBBER CUSHION		C527,528			C92-0826-05	CHIP-TAN 1.0UF	16WV
32	3A	*	G11-4273-14	SHEET		C537,538			CK73GB0J475K	CHIP C 4.7UF	K
33	3A	*	G11-4307-14	RUBBER SHEET (FINAL FET)		C539,540			CC73HCH1H470J	CHIP C 47PF	J
34	1A		G11-4326-04	SHEET		C543-546			CC73HCH1H470J	CHIP C 47PF	J
35	3A	*	G11-4332-04	SHEET		C548-551			CC73HCH1H470J	CHIP C 47PF	J
36	2B		G13-1934-04	CUSHION		C553,554			CK73HB1H102K	CHIP C 1000PF	K
37	2A	*	G13-2055-04	CUSHION		C555			CK73HB0J105K	CHIP C 1.0UF	K
38	2A		G13-2068-04	CUSHION		C556			CK73HB1H102K	CHIP C 1000PF	K
39	2B		G53-1598-01	PACKING	K	C557			CK73HB1H471K	CHIP C 470PF	K
40	1A		G53-1599-01	PACKING	K2	C562			CK73HB0J105K	CHIP C 1.0UF	K
41	3B		G53-1600-12	PACKING		C563,564			CK73HB1H102K	CHIP C 1000PF	K
42	3B		G53-1601-04	PACKING		C565			CK73HB0J105K	CHIP C 1.0UF	K
43	3A	*	G53-1602-14	PACKING		CN507			E40-6410-05	FLAT CABLE CONNECTOR	
44	2B,3B		G53-1603-04	PACKING		CN508,509			E40-6413-05	FLAT CABLE CONNECTOR	
46	2C,1D	*	H12-3180-12	PACKING FIXTURE		L550			L92-0163-05	BEADS CORE	
47	3D		H52-2011-02	ITEM CARTON CASE		L553-556			L92-0163-05	BEADS CORE	
49	2A		J19-5460-02	HOLDER		CP501			RK75HA1J102J	CHIP-COM 1.0K J	1/16W
50	2B		J19-5478-03	HOLDER		CP503,504			RK75HA1J102J	CHIP-COM 1.0K J	1/16W
51	2C		J29-0710-15	HOOK ACCESSORY		CP506,507			RK75HA1J102J	CHIP-COM 1.0K J	1/16W
52	3B		J30-1279-04	SPACER		CP509			RK75HA1J102J	CHIP-COM 1.0K J	1/16W
53	2B		J82-0089-05	FPC (VOL/SELCTOR)		R500,501			RK73HB1J102J	CHIP R 1.0K J	1/16W
54	3B		J82-0090-25	FPC (UNIVERSAL CONNECTOR)							
55	3A	*	J82-0091-15	FPC (PTT)							
57	1A	*	K29-9302-23	KNOB (PTT)							
58	1A		K29-9303-03	BUTTON KNOB (SIDE)							

## PARTS LIST

### DISPLAY UNIT (X54-3470-XX)

### TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R517			R92-1368-05	CHIP R 0 OHM		C23			CC73HCH1H180G	CHIP C 18PF G	
R518			RK73HB1J331J	CHIP R 330 J 1/16W		C24			C92-0001-05	CHIP-TAN 0.1UF 35WV	
R520			RK73HB1J472J	CHIP R 4.7K J 1/16W		C25			CC73HCH1H070B	CHIP C 7.0PF B	
R522			RK73HB1J391J	CHIP R 390 J 1/16W		C26			C92-0504-05	CHIP-TAN 0.68UF 20WV	
R524-526			RK73HB1J391J	CHIP R 390 J 1/16W	K2	C27			CK73HB1H471K	CHIP C 470PF K	
R527			R92-1368-05	CHIP R 0 OHM		C28			CK73HB1H102K	CHIP C 1000PF K	
R531			R92-1368-05	CHIP R 0 OHM		C29,30			CK73HB1H471K	CHIP C 470PF K	
R533			R92-1368-05	CHIP R 0 OHM		C31			C92-0001-05	CHIP-TAN 0.1UF 35WV	
R534			RK73HB1J101J	CHIP R 100 J 1/16W		C32,33			CC73HCH1H101J	CHIP C 100PF J	
R535			R92-1368-05	CHIP R 0 OHM		C34			CK73GB0J475K	CHIP C 4.7UF K	
R537			RK73HB1J101J	CHIP R 100 J 1/16W		C37			CC73HCH1H820J	CHIP C 82PF J	
R540-543			RK73HB1J471J	CHIP R 470 J 1/16W		C38			CC73HCH1H110J	CHIP C 11PF J	
R544			RK73HH1J184D	CHIP R 180K D 1/16W		C39			CC73HCH1H330J	CHIP C 33PF J	
R545			RK73HB1J474D	CHIP R 470K D 1/16W		C41			CC73HCH1H070D	CHIP C 7.0PF D	
R546			RK73HH1J273D	CHIP R 27K D 1/16W		C45			CC73HCH1HR75C	CHIP C 0.75PF C	
R547			RK73HH1J223D	CHIP R 22K D 1/16W		C46			CC73HCH1H070B	CHIP C 7.0PF B	
R552			RK73HB1J471J	CHIP R 470 J 1/16W		C47			CC73HCH1H080B	CHIP C 8.0PF B	
R559			R92-1368-05	CHIP R 0 OHM		C48			CC73HCH1H110J	CHIP C 11PF J	
R560			RK73HB1J474J	CHIP R 470K J 1/16W		C49			CC73HCH1H150G	CHIP C 15PF G	
R561			RK73HB1J103J	CHIP R 10K J 1/16W		C50,51			CK73GB1H103K	CHIP C 0.010UF K	
R562-568			RK73HB1J102J	CHIP R 1.0K J 1/16W		C52			C92-0784-05	CHIP-TAN 4.7UF 10WV	
R570			R92-1252-05	CHIP R 0 OHM J 1/16W		C53,54			CC73HCH1H0R5B	CHIP C 0.5PF B	
R571			R92-1368-05	CHIP R 0 OHM		C55			CK73HB1H102K	CHIP C 1000PF K	
R573			RK73HB1J474J	CHIP R 470K J 1/16W		C57-59			CK73HB1H102K	CHIP C 1000PF K	
R574			R92-1368-05	CHIP R 0 OHM		C60		*	C92-0838-05	CHIP-TAN 10UF 10WV	
R576-580			RK73HB1J331J	CHIP R 330 J 1/16W		C61			CK73HB1H102K	CHIP C 1000PF K	
R581			R92-1368-05	CHIP R 0 OHM		C62			CC73HCH1H330J	CHIP C 33PF J	
MIC500	2A		T91-0579-05	MIC ELEMENT		C63			CC73HCH1H050C	CHIP C 5.0PF C	
D500			MA2S111	DIODE		C64			CC73HCH1H150J	CHIP C 15PF J	
D522			DA221	DIODE		C65-67			CK73HB1H102K	CHIP C 1000PF K	
IC500			BU2099FV	MOS-IC		C68			CC73HCH1H100C	CHIP C 10PF C	
IC501			XC6201P352MR	MOS-IC		C70-73			CK73HB1H471K	CHIP C 470PF K	
IC502,503			HD74LV2G34AUS	MOS-IC		C76			CC73HCH1H101J	CHIP C 100PF J	
Q501			2SC4617(S)	TRANSISTOR		C77			CK73HB1H222K	CHIP C 2200PF K	
Q502			2SB1132(Q,R)	TRANSISTOR		C100			CK73HB1H471K	CHIP C 470PF K	
Q504			2SK1830	FET		C101			CK73HB1H102K	CHIP C 1000PF K	
Q505		*	2SJ144(Y)	FET		C106			CK73HB1H102K	CHIP C 1000PF K	
<b>TX-RX UNIT (X57-6930-10)</b>						C107			CC73HCH1H470J	CHIP C 47PF J	
D400			B30-2278-05	LED (RED/YELLOW)		C109,110			CK73HB1H102K	CHIP C 1000PF K	
C1,2			CK73HB1H102K	CHIP C 1000PF K		C111			CK73HB1A104K	CHIP C 0.10UF K	
C3			CC73HCH1H100C	CHIP C 10PF C		C112			CC73HCH1H390G	CHIP C 39PF G	
C4			CK73HB1C103K	CHIP C 0.010UF K		C113			CK73HB1H102K	CHIP C 1000PF K	
C5			CC73HCH1H100C	CHIP C 10PF C		C114			CC73HCH1H100B	CHIP C 10PF B	
C6,7			CK73HB1H102K	CHIP C 1000PF K		C116			CK73HB1H102K	CHIP C 1000PF K	
C8			CK73HB1H471K	CHIP C 470PF K		C117			CK73HB1A104K	CHIP C 0.10UF K	
C9-13			CK73HB1H102K	CHIP C 1000PF K		C118,119			CC73HCH1H100C	CHIP C 10PF C	
C14			CC73HCH1H390G	CHIP C 39PF G		C120			CC73HCH1H101J	CHIP C 100PF J	
C15			CC73HCH1H220G	CHIP C 22PF G		C121			CK73GB1E105K	CHIP C 1.0UF K	
C16			CC73HCH1H040B	CHIP C 4.0PF B		C122			CK73HB1H471K	CHIP C 470PF K	
C17			CC73HCH1H020B	CHIP C 2.0PF B		C123		*	C92-0847-05	CHIP-TAN 6.8UF 20WV	
C18			CK73HB1H102K	CHIP C 1000PF K		C125,126			CK73HB1H102K	CHIP C 1000PF K	
C19			CK73HB1H471K	CHIP C 470PF K		C128			CK73HBOJ105K	CHIP C 1.0UF K	
C20			CK73HB1H102K	CHIP C 1000PF K		C131			CK73HB1H102K	CHIP C 1000PF K	
C21			CK73HB1C223K	CHIP C 0.022UF K		C132			CC73HCH1H101J	CHIP C 100PF J	
C22			CC73HCH1H390G	CHIP C 39PF G		C133			CK73HB1H471K	CHIP C 470PF K	
						C134			CC73GCH1H100C	CHIP C 10PF C	
						C135			CK73HB1H102K	CHIP C 1000PF K	
						C136			CK73HB1C103K	CHIP C 0.010UF K	
						C138			CK73HB1H102K	CHIP C 1000PF K	
						C139			CK73GB1C104K	CHIP C 0.10UF K	

## PARTS LIST

TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C140			CK73GB1E105K	CHIP C 1.0UF K		C250			CK73HB1H102K	CHIP C 1000PF K	
C141			CC73GCH1H180J	CHIP C 18PF J		C253			CK73HB1H102K	CHIP C 1000PF K	
C142			CC73GCH1H820J	CHIP C 82PF J		C255			CC73GCH1H040B	CHIP C 4.0PF B	
C143			CK73HB1C103K	CHIP C 0.010UF K		C256			CC73HCH1H040B	CHIP C 4.0PF B	
C144			CK73HB1H102K	CHIP C 1000PF K		C257			CC73HCH1H470J	CHIP C 47PF J	
C145,146			CC73GCH1H120J	CHIP C 12PF J		C258			CK73HB1H102K	CHIP C 1000PF K	
C147			CC73GCH1H030B	CHIP C 3.0PF B		C260			CC73GCH1H020B	CHIP C 2.0PF B	
C149			CC73GCH1H101J	CHIP C 100PF J		C261			CK73HB1H102K	CHIP C 1000PF K	
C150			CC73HCH1H101J	CHIP C 100PF J		C262			CC73HCH1H470J	CHIP C 47PF J	
C151			CC73GCH1H330G	CHIP C 33PF G		C263			CC73HCH1H010B	CHIP C 1.0PF B	
C152			CK73GB1H102K	CHIP C 1000PF K		C264			C92-0784-05	CHIP-TAN 4.7UF 10WV	
C153			CC73HCH1H050B	CHIP C 5.0PF B		C265			CK73HB1H102K	CHIP C 1000PF K	
C154			CC73HCH1H090B	CHIP C 9.0PF B		C269			CK73HB1H102K	CHIP C 1000PF K	
C155			CC73HCH1H270G	CHIP C 27PF G		C270			CK73HB1H471K	CHIP C 470PF K	
C156			CC73HCH1H130G	CHIP C 13PF G		C271			CK73HB0J105K	CHIP C 1.0UF K	
C157			CC73HCH1H150G	CHIP C 15PF G		C273			CK73HB1H471K	CHIP C 470PF K	
C158			CC73HCH1H180G	CHIP C 18PF G		C274			CK73HB1H102K	CHIP C 1000PF K	
C159			CC73HCH1H050B	CHIP C 5.0PF B		C275			CC73GCH1H4R5B	CHIP C 4.5PF B	
C163			CC73HCH1H100B	CHIP C 10PF B		C276			CC73HCH1H010B	CHIP C 1.0PF B	
C165			CC73HCH1H270J	CHIP C 27PF J		C277			CC73HCH1H330J	CHIP C 33PF J	
C168			CC73HCH1H220J	CHIP C 22PF J		C279			CC73GCH1H1R5B	CHIP C 1.5PF B	
C200			CK73HB1A104K	CHIP C 0.10UF K		C280			CK73HB1H102K	CHIP C 1000PF K	
C201			CK73HB1C103K	CHIP C 0.010UF K		C281			CC73HCH1H330J	CHIP C 33PF J	
C202			CK73HB1C223K	CHIP C 0.022UF K		C282			CC73HCH1H020B	CHIP C 2.0PF B	
C203			CK73HB1H102K	CHIP C 1000PF K		C283			CC73HCH1H270J	CHIP C 27PF J	
C204			CK73HB1A104K	CHIP C 0.10UF K		C284			CC73GCH1H100C	CHIP C 10PF C	
C205			CK73HB1C103K	CHIP C 0.010UF K		C287			CC73HCH1H330J	CHIP C 33PF J	
C206,207			CK73HB1A104K	CHIP C 0.10UF K		C288,289			CC73HCH1H220J	CHIP C 22PF J	
C208			CK73HB1H182K	CHIP C 1800PF K		C290			CK73HB0J224K	CHIP C 0.22UF K	
C209,210			CK73HB1A104K	CHIP C 0.10UF K		C292			CK73HB1C103K	CHIP C 0.010UF K	
C211,212			CC73HCH1H121J	CHIP C 120PF J		C400			CK73HB1H102K	CHIP C 1000PF K	
C213			CC73HCH1H181J	CHIP C 180PF J		C401,402			CK73HB1H471K	CHIP C 470PF K	
C214		*	C92-0851-05	CHIP-TAN 15UF 10WV		C403			CK73HB1C103K	CHIP C 0.010UF K	
C215,216			CK73HB1A104K	CHIP C 0.10UF K		C404			CK73HB1H471K	CHIP C 470PF K	
C217			CC73HCH1H680J	CHIP C 68PF J		C405			CC73HCH1H101J	CHIP C 100PF J	
C219			CK73HB1A333K	CHIP C 0.033UF K		C406-414			CK73HB1H471K	CHIP C 470PF K	
C220			CK73HB1C103K	CHIP C 0.010UF K		C415			CK73FB1A475K	CHIP C 4.7UF K	
C221		*	C92-0838-05	CHIP-TAN 10UF 10WV		C416			CK73HB1H102K	CHIP C 1000PF K	
C222			CK73HB1A104K	CHIP C 0.10UF K		C417			CK73HB1H471K	CHIP C 470PF K	
C226			CK73HB1H471K	CHIP C 470PF K		C418			CK73HB1H102K	CHIP C 1000PF K	
C227,228			CK73HB1C103K	CHIP C 0.010UF K		C419			CK73GB1E105K	CHIP C 1.0UF K	
C229			CC73HCH1H1R5B	CHIP C 1.5PF B		C420			CK73GB1C104K	CHIP C 0.10UF K	
C230			CC73HCH1H270G	CHIP C 27PF G		C421			CK73GB1A224K	CHIP C 0.22UF K	
C231			CC73HCH1H060B	CHIP C 6.0PF B		C422			CK73GB1E105K	CHIP C 1.0UF K	
C232			CK73HB1C103K	CHIP C 0.010UF K		C423		*	C92-0852-05	CHIP-TAN 10UF 16WV	
C233			CK73HB1H471K	CHIP C 470PF K		C424			CK73HB1H471K	CHIP C 470PF K	
C234			CK73HB1A104K	CHIP C 0.10UF K		C425			CK73GB1E105K	CHIP C 1.0UF K	
C235,236			CK73HB1C103K	CHIP C 0.010UF K		C426			CC73HCH1H101J	CHIP C 100PF J	
C237			CK73HB1H102K	CHIP C 1000PF K		C427			CK73GB1E105K	CHIP C 1.0UF K	
C238			CC73HCH1H150J	CHIP C 15PF J		C428			CK73HB1H471K	CHIP C 470PF K	
C239			CC73HCH1H390J	CHIP C 39PF J		C429			CK73GB1E105K	CHIP C 1.0UF K	
C240			CC73HCH1H020B	CHIP C 2.0PF B		C431			CK73HB1H471K	CHIP C 470PF K	
C241			CC73HCH1H180J	CHIP C 18PF J		C432		*	C92-0852-05	CHIP-TAN 10UF 16WV	
C242			CK73HB1H102K	CHIP C 1000PF K		C433			CK73HB1H471K	CHIP C 470PF K	
C243			CK73HB1C103K	CHIP C 0.010UF K		C434			CC73HCH1H101J	CHIP C 100PF J	
C244			CC73HCH1H1R5B	CHIP C 1.5PF B		C435			CK73GB1A224K	CHIP C 0.22UF K	
C245			CK73HB1H102K	CHIP C 1000PF K		C436			CK73GB1H103K	CHIP C 0.010UF K	
C246			CC73HCH1H090B	CHIP C 9.0PF B		C437			CC73HCH1H101J	CHIP C 100PF J	
C247			CC73HCH1H030B	CHIP C 3.0PF B		C440			CK73HB1H471K	CHIP C 470PF K	
C248			CK73HB1H102K	CHIP C 1000PF K		C441			CK73GB1E105K	CHIP C 1.0UF K	

## PARTS LIST

## TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C442			CK73GB1A224K	CHIP C 0.22UF K		C658			CK73HB1A104K	CHIP C 0.10UF K	
C443			CK73GB1E105K	CHIP C 1.0UF K		C659,660			CK73GB1C104K	CHIP C 0.10UF K	
C444			CK73HB1H471K	CHIP C 470PF K		C661			CK73HB1A104K	CHIP C 0.10UF K	
C445			CC73HCH1H470J	CHIP C 47PF J		C662			CK73HB1H102K	CHIP C 1000PF K	
C446			CK73HB1H471K	CHIP C 470PF K		C663			CK73HBOJ105K	CHIP C 1.0UF K	
C447			CK73HB1E472K	CHIP C 4700PF K		C665			CK73GB1E223K	CHIP C 0.022UF K	
C450,451			CK73GB0J475K	CHIP C 4.7UF K		C666			CK73HB1A104K	CHIP C 0.10UF K	
C452		*	CK73GB1E104K	CHIP C 0.10UF K		C667			CC73HCH1H470J	CHIP C 47PF J	
C500		*	C92-0852-05	CHIP-TAN 10UF 16WV		C668			CC73HCH1H220J	CHIP C 22PF J	
C502		*	C92-0852-05	CHIP-TAN 10UF 16WV		C669			CK73HB1H102K	CHIP C 1000PF K	
C503			CK73GB1E105K	CHIP C 1.0UF K		C670			CK73HB1A104K	CHIP C 0.10UF K	
C505-508			CK73GB1E105K	CHIP C 1.0UF K		C672			CK73HB1H102K	CHIP C 1000PF K	
C509			CC73HCH1H270J	CHIP C 27PF J		C673-675			CK73HB1A104K	CHIP C 0.10UF K	
C510			CC73HCH1H040C	CHIP C 4.0PF C		C676			CC73HCH1H470J	CHIP C 47PF J	
C511			CC73HCH1H270J	CHIP C 27PF J		C677			CK73HB1H222K	CHIP C 2200PF K	
C512			CK73HB1C103K	CHIP C 0.010UF K		C678			CK73GB1C104K	CHIP C 0.10UF K	
C514			CK73HB1C103K	CHIP C 0.010UF K		C679,680			CK73HB1A104K	CHIP C 0.10UF K	
C515			CC73HCH1H150G	CHIP C 15PF G		C681			CK73HB1H102K	CHIP C 1000PF K	
C516			CK73HB1C103K	CHIP C 0.010UF K		C682			CK73HB1C153J	CHIP C 0.015UF J	
C517			CK73HB1A104K	CHIP C 0.10UF K		C683			CK73HB1C123J	CHIP C 0.012UF J	
C518			CK73HBOJ105K	CHIP C 1.0UF K		C684			CK73HB1H102K	CHIP C 1000PF K	
C600			CK73HB1A104K	CHIP C 0.10UF K		C685			CK73HB1A104K	CHIP C 0.10UF K	
C601			CC73HCH1H220J	CHIP C 22PF J		C686			CK73HB1A683K	CHIP C 0.068UF K	
C602			CK73HB1A104K	CHIP C 0.10UF K		C687		*	C92-0838-05	CHIP-TAN 10UF 10WV	
C603			CK73HB1E472K	CHIP C 4700PF K		C688			CK73GB1A474K	CHIP C 0.47UF K	
C604,605			CC73HCH1H680J	CHIP C 68PF J		C689			CK73HB1C103K	CHIP C 0.010UF K	
C608			CK73HB1A104K	CHIP C 0.10UF K		C690			CC73HCH1H470J	CHIP C 47PF J	
C609,610			CK73HB1C103K	CHIP C 0.010UF K		C691			CK73GB1A474K	CHIP C 0.47UF K	
C611			CC73HCH1H101J	CHIP C 100PF J		C692			CC73HCH1H470J	CHIP C 47PF J	
C612,613			CK73HB1A104K	CHIP C 0.10UF K		C693			CK73GB1A474K	CHIP C 0.47UF K	
C614			CK73HB1H471K	CHIP C 470PF K		C694			CK73HB1H152K	CHIP C 1500PF K	
C615			CC73HCH1H101J	CHIP C 100PF J		C695			CK73HB1A104K	CHIP C 0.10UF K	
C616			CK73HB1H471K	CHIP C 470PF K		C696			CK73HB1C103K	CHIP C 0.010UF K	
C617		*	C92-0848-05	CHIP-TAN 2.2UF 16WV		C697,698			CK73HB1A104K	CHIP C 0.10UF K	
C618		*	C92-0838-05	CHIP-TAN 10UF 10WV		C699			C92-0816-05	CHIP-TAN 10UF 16WV	
C619			CK73HB1H561K	CHIP C 560PF K		C700			CC73HCH1H470J	CHIP C 47PF J	
C620			CK73HB1A104K	CHIP C 0.10UF K		C702-704			CC73HCH1H470J	CHIP C 47PF J	
C621			CK73HB1C103K	CHIP C 0.010UF K		C705			CK73HB1A104K	CHIP C 0.10UF K	
C625			CK73HB1A104K	CHIP C 0.10UF K		C707			CK73HB1H102K	CHIP C 1000PF K	
C627			CK73HB1C103K	CHIP C 0.010UF K		C708,709			CC73HCH1H470J	CHIP C 47PF J	
C628			CK73HB1A104K	CHIP C 0.10UF K		C711-714			CK73HB1H102K	CHIP C 1000PF K	
C630			CK73HB1H271K	CHIP C 270PF K		C715-717			CK73HB1A104K	CHIP C 0.10UF K	
C631			CK73HB1A104K	CHIP C 0.10UF K		C718			CC73HCH1H180J	CHIP C 18PF J	
C632			CK73GB1E105K	CHIP C 1.0UF K		C719			CC73HCH1H220J	CHIP C 22PF J	
C633			CK73HB1C103K	CHIP C 0.010UF K		C720			CK73HB1H471K	CHIP C 470PF K	
C635			CC73HCH1H101J	CHIP C 100PF J		C721			CK73HB1H102K	CHIP C 1000PF K	
C636			CK73HB1A104K	CHIP C 0.10UF K		C725			CK73HB1H392K	CHIP C 3900PF K	
C638			CK73HB1H102K	CHIP C 1000PF K		C727			CK73HB1A104K	CHIP C 0.10UF K	
C640,641			CK73GB0J475K	CHIP C 4.7UF K		C728			CK73HBOJ105K	CHIP C 1.0UF K	
C642			CK73HB1A473J	CHIP C 0.047UF J		C729			CK73HB1H331K	CHIP C 330PF K	
C644			CK73HB1C123J	CHIP C 0.012UF J		C730			CK73HB1H332K	CHIP C 3300PF K	
C645			CK73HB1A104K	CHIP C 0.10UF K		C732			CK73HB1H471K	CHIP C 470PF K	
C646			CK73GB0J475K	CHIP C 4.7UF K		C734			CC73HCH1H220J	CHIP C 22PF J	
C647			CK73HB1C123J	CHIP C 0.012UF J		C736			CC73HCH1H470J	CHIP C 47PF J	
C648			CK73HB1H102K	CHIP C 1000PF K		C737			CK73GB0J475K	CHIP C 4.7UF K	
C650,651			CK73HB1A104K	CHIP C 0.10UF K		C738			CK73HB1H331K	CHIP C 330PF K	
C652			CC73HCH1H680J	CHIP C 68PF J		C739-748			CC73HCH1H470J	CHIP C 47PF J	
C653-655			CK73HB1A104K	CHIP C 0.10UF K		C750			CC73HCH1H470J	CHIP C 47PF J	
C656			CK73HBOJ224K	CHIP C 0.22UF K		C752,753			CC73HCH1H010B	CHIP C 1.0PF B	
C657			CC73HCH1H330J	CHIP C 33PF J		C754			CK73HB1A104K	CHIP C 0.10UF K	

## PARTS LIST

TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C755			CK73HB1E472K	CHIP C 4700PF K		L204		*	L41-2785-39	SMALL FIXED INDUCTOR (0.27UH)	
C756			CK73HB1A104K	CHIP C 0.10UF K		L206,207			L40-3975-92	SMALL FIXED INDUCTOR (39NH)	
C757			CK73HB1E472K	CHIP C 4700PF K		L208			L40-1085-92	SMALL FIXED INDUCTOR (100NH)	
C759			CK73HB1C123J	CHIP C 0.012UF J		L209			L40-2785-92	SMALL FIXED INDUCTOR (270NH)	
C762			CK73HB1H102K	CHIP C 1000PF K		L211			L41-6878-14	SMALL FIXED INDUCTOR (68NH)	
C765			CC73HCH1H270G	CHIP C 27PF G		L213			L92-0138-05	CHIP FERRITE	
C766,767			CK73HB1H102K	CHIP C 1000PF K		L214			L41-6878-14	SMALL FIXED INDUCTOR (68NH)	
C770			CK73HB1H102K	CHIP C 1000PF K		L215			L41-8278-14	SMALL FIXED INDUCTOR (82NH)	
C771			CC73HCH1H270G	CHIP C 27PF G		L216			L41-6878-14	SMALL FIXED INDUCTOR (68NH)	
TC1,2			C05-0384-05	CERAMIC TRIMMER (10PF)		L218			L40-5675-92	SMALL FIXED INDUCTOR (56NH)	
CN400			E40-6452-05	FLAT CABLE CONNECTOR		L220		*	L41-5685-39	SMALL FIXED INDUCTOR (0.56UH)	
CN500			E40-6413-05	FLAT CABLE CONNECTOR		L400			L92-0149-05	CHIP FERRITE	
CN502,503			E23-0342-05	TEST TERMINAL		L500-503			L92-0163-05	BEADS CORE	
CN600			E40-6389-05	PIN ASSY		L600			L92-0163-05	BEADS CORE	
CN602			E40-6453-05	FLAT CABLE CONNECTOR		L601			L92-0419-15	CHIP FERRITE	
CN603			E23-1263-05	TERMINAL		L602-607			L92-0163-05	BEADS CORE	
CN604			E23-1262-05	TERMINAL		L608,609			L92-0467-05	CHIP FERRITE	
F400			F53-0324-05	FUZE (2.5A)		L610,611			L92-0408-05	CHIP FERRITE	
F601,602			F53-0315-05	FUZE (250MA)		L612			L92-0163-05	BEADS CORE	
						L613			L92-0419-15	CHIP FERRITE	
CN501			J19-5386-05	HOLDER		L615			L92-0163-05	BEADS CORE	
CD200			L79-1834-05	TUNING COIL		X1			L77-1952-05	TCXO (16.8MHZ)	
CF200			L72-1013-05	CERAMIC FILTER		X200			L77-1957-05	CRYSTAL RESONATOR (59.395MHZ)	
CF201			L72-1014-05	CERAMIC FILTER		X500			L77-1958-05	CRYSTAL RESONATOR (11.0592MHZ)	
L1		*	L41-4795-39	SMALL FIXED INDUCTOR (4.7UH)		X501			L77-1802-05	CRYSTAL RESONATOR (32768HZ)	
L2,3			L41-5667-31	SMALL FIXED INDUCTOR (5.6NH)		X600		*	L77-1976-05	CRYSTAL RESONATOR (3.6864MHZ)	
						XF200			L71-0622-05	MCF (59.85MHZ)	
L4			L40-8275-92	SMALL FIXED INDUCTOR (82NH)		CP400,401			RK75HA1J473J	CHIP-COM 47K J 1/16W	
L5			L40-6875-92	SMALL FIXED INDUCTOR (68NH)		CP500-510			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L6,7			L41-5667-31	SMALL FIXED INDUCTOR (5.6NH)		CP511			RK75HA1J331J	CHIP-COM 330 J 1/16W	
L8			L92-0138-05	CHIP FERRITE		CP512-515			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L9,10			L40-1001-86	SMALL FIXED INDUCTOR (10UH)		CP516			RK75HA1J103J	CHIP-COM 10K J 1/16W	
L11			L40-2702-86	SMALL FIXED INDUCTOR (27UH)		CP517			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L12			L40-1502-86	SMALL FIXED INDUCTOR (15UH)		CP518			RK75HA1J473J	CHIP-COM 47K J 1/16W	
L17			L40-3978-67	SMALL FIXED INDUCTOR (39NH)		CP519			RK75HA1J103J	CHIP-COM 10K J 1/16W	
L18			L40-2278-67	SMALL FIXED INDUCTOR (22NH)		CP521			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L19,20			L40-1001-86	SMALL FIXED INDUCTOR (10UH)		CP522			RK75HA1J101J	CHIP-COM 100 J 1/16W	
L21			L92-0163-05	BEADS CORE		CP600			RK75HA1J473J	CHIP-COM 47K J 1/16W	
L22,23			L40-1085-92	SMALL FIXED INDUCTOR (100NH)		CP601-603			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L24			L40-3975-92	SMALL FIXED INDUCTOR (39NH)		CP604,605			RK75HA1J331J	CHIP-COM 330 J 1/16W	
L100			L40-4775-92	SMALL FIXED INDUCTOR (47NH)		CP606			RK75HA1J102J	CHIP-COM 1.0K J 1/16W	
L101			L40-1085-92	SMALL FIXED INDUCTOR (100NH)		CP607,608			RK75HA1J101J	CHIP-COM 100 J 1/16W	
L102			L92-0138-05	CHIP FERRITE		R2			RK73HB1J101J	CHIP R 100 J 1/16W	
L103			L40-2775-92	SMALL FIXED INDUCTOR (27NH)		R3			R92-1368-05	CHIP R 0 OHM	
L104			L40-1585-54	SMALL FIXED INDUCTOR (150NH)		R4			RK73HB1J100J	CHIP R 10 J 1/16W	
L105			L92-0149-05	CHIP FERRITE		R5			RK73HB1J103J	CHIP R 10K J 1/16W	
L106			L40-1875-54	SMALL FIXED INDUCTOR (18NH)		R6			RK73HB1J223J	CHIP R 22K J 1/16W	
L107			L34-4689-05	AIR-CORE COIL		R7			RK73HB1J472J	CHIP R 4.7K J 1/16W	
L108			L92-0149-05	CHIP FERRITE		R8-10			RK73HB1J100J	CHIP R 10 J 1/16W	
L109		*	L41-2295-39	SMALL FIXED INDUCTOR (2.2UH)		R11			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L110			L34-4576-05	AIR-CORE COIL		R12			RK73HB1J472J	CHIP R 4.7K J 1/16W	
L111,112			L34-4567-05	AIR-CORE COIL		R13			RK73HB1J154J	CHIP R 150K J 1/16W	
L113			L34-4566-05	AIR-CORE COIL		R14,15			RK73HB1J100J	CHIP R 10 J 1/16W	
L115			L34-4689-05	AIR-CORE COIL		R16,17			RK73HB1J223J	CHIP R 22K J 1/16W	
L116			L34-4573-05	AIR-CORE COIL		R18			RK73HB1J472J	CHIP R 4.7K J 1/16W	
L117			L34-4576-05	AIR-CORE COIL		R19			RK73HB1J182J	CHIP R 1.8K J 1/16W	
L200			L92-0141-05	CHIP FERRITE		R20			RK73HB1J331J	CHIP R 330 J 1/16W	
L201			L40-1091-86	SMALL FIXED INDUCTOR (1.0UH)		R21			RK73HB1J561J	CHIP R 560 J 1/16W	
L202			L40-1591-86	SMALL FIXED INDUCTOR (1.5UH)		R22			RK73HB1J560J	CHIP R 56 J 1/16W	
L203			L92-0138-05	CHIP FERRITE							



## PARTS LIST

## TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R23			RK73HB1J223J	CHIP R 22K J 1/16W		R206			RK73HB1J152J	CHIP R 1.5K J 1/16W	
R24			RK73HB1J103J	CHIP R 10K J 1/16W		R207			R92-1368-05	CHIP R 0 OHM	
R25			RK73HB1J563J	CHIP R 56K J 1/16W		R208,209			RK73HB1J223J	CHIP R 22K J 1/16W	
R26,27			R92-1368-05	CHIP R 0 OHM		R210			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R30			RK73HB1J473J	CHIP R 47K J 1/16W		R211,212			RK73HB1J223J	CHIP R 22K J 1/16W	
R34,35			RK73HB1J274J	CHIP R 270K J 1/16W		R213			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R36,37			RK73HB1J271J	CHIP R 270 J 1/16W		R214			RK73HB1J334J	CHIP R 330K J 1/16W	
R38,39			RK73HB1J220J	CHIP R 22 J 1/16W		R215			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R40			RK73HB1J154J	CHIP R 150K J 1/16W		R216			RK73HB1J153J	CHIP R 15K J 1/16W	
R41			RK73HB1J472J	CHIP R 4.7K J 1/16W		R217			RK73HB1J184J	CHIP R 180K J 1/16W	
R42			RK73HB1J474J	CHIP R 470K J 1/16W		R218			RK73HB1J273J	CHIP R 27K J 1/16W	
R43			RK73HB1J101J	CHIP R 100 J 1/16W		R219			RK73GB1J184J	CHIP R 180K J 1/16W	
R44			RK73HB1J472J	CHIP R 4.7K J 1/16W		R220			RK73HB1J184J	CHIP R 180K J 1/16W	
R45			RK73HB1J332J	CHIP R 3.3K J 1/16W		R221			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R46			RK73HB1J103J	CHIP R 10K J 1/16W		R222			RK73HB1J272J	CHIP R 2.7K J 1/16W	
R47			RK73HB1J271J	CHIP R 270 J 1/16W		R223			RK73HB1J474J	CHIP R 470K J 1/16W	
R48			RK73HB1J222J	CHIP R 2.2K J 1/16W		R224			RK73HB1J392J	CHIP R 3.9K J 1/16W	
R49			RK73HB1J470J	CHIP R 47 J 1/16W		R225			RK73HB1J100J	CHIP R 10 J 1/16W	
R50			RK73GB1J472J	CHIP R 4.7K J 1/16W		R226			RK73HB1J562J	CHIP R 5.6K J 1/16W	
R51			R92-1368-05	CHIP R 0 OHM		R227			R92-1368-05	CHIP R 0 OHM	
R53			R92-1368-05	CHIP R 0 OHM		R228			RK73HB1J221J	CHIP R 220 J 1/16W	
R100			RK73HH1J333D	CHIP R 33K D 1/16W		R230			RK73HB1J564J	CHIP R 560K J 1/16W	
R101			RK73HB1J472J	CHIP R 4.7K J 1/16W		R231			RK73HB1J181J	CHIP R 180 J 1/16W	
R103,104			R92-1368-05	CHIP R 0 OHM		R232			RK73HB1J221J	CHIP R 220 J 1/16W	
R106			R92-1368-05	CHIP R 0 OHM		R233			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R111			RK73HB1J101J	CHIP R 100 J 1/16W		R234			RK73HB1J470J	CHIP R 47 J 1/16W	
R112			RK73HB1J103J	CHIP R 10K J 1/16W		R235			RK73HB1J100J	CHIP R 10 J 1/16W	
R113			RK73HB1J223J	CHIP R 22K J 1/16W		R236			RK73HB1J681J	CHIP R 680 J 1/16W	
R115			RK73HB1J331J	CHIP R 330 J 1/16W		R237			RK73HB1J560J	CHIP R 56 J 1/16W	
R116			RK73HB1J683J	CHIP R 68K J 1/16W		R239-242			RK73HB1J823J	CHIP R 82K J 1/16W	
R117			RK73HB1J473J	CHIP R 47K J 1/16W		R243			R92-1252-05	CHIP R 0 OHM J 1/16W	
R119			RK73HB1J470J	CHIP R 47 J 1/16W		R245,246			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R121			RK73HB1J331J	CHIP R 330 J 1/16W		R248			RK73HB1J680J	CHIP R 68 J 1/16W	
R122			RK73HB1J271J	CHIP R 270 J 1/16W		R249			RK73HB1J221J	CHIP R 220 J 1/16W	
R123,124			R92-1368-05	CHIP R 0 OHM		R251			RK73HB1J104J	CHIP R 100K J 1/16W	
R125			RK73EB2ER39K	CHIP R 0.39 K 1/4W		R253			RK73HB1J184J	CHIP R 180K J 1/16W	
R126			RK73HB1J820J	CHIP R 82 J 1/16W		R254			RK73HB1J224J	CHIP R 220K J 1/16W	
R127			RK73EB2ER39K	CHIP R 0.39 K 1/4W		R255			RK73HB1J104J	CHIP R 100K J 1/16W	
R128			RK73HH1J104D	CHIP R 100K D 1/16W		R256,257			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R129			RK73HB1J473J	CHIP R 47K J 1/16W		R262-265			R92-1368-05	CHIP R 0 OHM	
R130			RK73EB2ER39K	CHIP R 0.39 K 1/4W		R266			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R132,133			RK73HH1J154D	CHIP R 150K D 1/16W		R400			R92-1368-05	CHIP R 0 OHM	
R134			R92-1368-05	CHIP R 0 OHM		R402			RK73HB1J821J	CHIP R 820 J 1/16W	
R135			RK73HB1J123J	CHIP R 12K J 1/16W		R403			RK73HB1J561J	CHIP R 560 J 1/16W	
R137-140			RK73HH1J154D	CHIP R 150K D 1/16W		R404			RK73HB1J103J	CHIP R 10K J 1/16W	
R141			RK73HB1J103J	CHIP R 10K J 1/16W		R405			RK73HB1J104J	CHIP R 100K J 1/16W	
R142			RK73HB1J473J	CHIP R 47K J 1/16W		R406			RK73HB1J224J	CHIP R 220K J 1/16W	
R143			R92-1368-05	CHIP R 0 OHM		R407			RK73HB1J684J	CHIP R 680K J 1/16W	
R144			RK73HB1J105J	CHIP R 1.0M J 1/16W		R408,409			RK73HB1J474J	CHIP R 470K J 1/16W	
R145			RK73HB1J222J	CHIP R 2.2K J 1/16W		R410			RK73HB1J103J	CHIP R 10K J 1/16W	
R146,147			RK73HB1J104J	CHIP R 100K J 1/16W		R411,412			RK73HH1J474D	CHIP R 470K D 1/16W	
R148,149			RK73HB1J271J	CHIP R 270 J 1/16W		R414			RK73HB1J103J	CHIP R 10K J 1/16W	
R150			R92-1252-05	CHIP R 0 OHM J 1/16W		R415			RK73HB1J153J	CHIP R 15K J 1/16W	
R152			R92-1368-05	CHIP R 0 OHM		R416			R92-1368-05	CHIP R 0 OHM	
R153			RK73HB1J393J	CHIP R 39K J 1/16W		R417			RK73HB1J684J	CHIP R 680K J 1/16W	
R200			RK73HB1J824J	CHIP R 820K J 1/16W		R418			RK73HB1J474J	CHIP R 470K J 1/16W	
R202			RK73HB1J224J	CHIP R 220K J 1/16W		R419			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R203			RK73HB1J334J	CHIP R 330K J 1/16W		R421			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R204			RK73HB1J104J	CHIP R 100K J 1/16W		R422			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R205			RK73HB1J472J	CHIP R 4.7K J 1/16W		R423,424			RK73HB1J103J	CHIP R 10K J 1/16W	

## PARTS LIST

TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R425-427			RK73HB1J473J	CHIP R 47K J 1/16W		R655			RK73HB1J682J	CHIP R 6.8K J 1/16W	
R428			RK73HB1J124J	CHIP R 120K J 1/16W		R656			RK73HB1J563J	CHIP R 56K J 1/16W	
R430			RK73HB1J103J	CHIP R 10K J 1/16W		R657			RK73HB1J564J	CHIP R 560K J 1/16W	
R500			R92-1368-05	CHIP R 0 OHM		R658			RK73HB1J473J	CHIP R 47K J 1/16W	
R504			R92-1368-05	CHIP R 0 OHM		R659			R92-1252-05	CHIP R 0 OHM J 1/16W	
R505			RK73HB1J473J	CHIP R 47K J 1/16W		R660			R92-1368-05	CHIP R 0 OHM	
R506			R92-1368-05	CHIP R 0 OHM		R661			RK73HB1J334J	CHIP R 330K J 1/16W	
R507			RK73HB1J474J	CHIP R 470K J 1/16W		R663			RK73HB1J103J	CHIP R 10K J 1/16W	
R508-510			RK73HB1J473J	CHIP R 47K J 1/16W		R664			RK73HB1J124J	CHIP R 120K J 1/16W	
R511			R92-1368-05	CHIP R 0 OHM		R666			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R512			RK73HB1J473J	CHIP R 47K J 1/16W		R667			RK73HB1J394J	CHIP R 390K J 1/16W	
R513			RK73HB1J102J	CHIP R 1.0K J 1/16W		R668			RK73HB1J154J	CHIP R 150K J 1/16W	
R514			RK73HB1J472J	CHIP R 4.7K J 1/16W		R669			RK73HB1J124J	CHIP R 120K J 1/16W	
R515			RK73HB1J473J	CHIP R 47K J 1/16W		R670			R92-1252-05	CHIP R 0 OHM J 1/16W	
R516,517			RK73HB1J102J	CHIP R 1.0K J 1/16W		R671			RK73HB1J104J	CHIP R 100K J 1/16W	
R518			RK73HB1J153J	CHIP R 15K J 1/16W		R672			RK73HB1J224J	CHIP R 220K J 1/16W	
R519			RK73HB1J474J	CHIP R 470K J 1/16W		R673,674			R92-1368-05	CHIP R 0 OHM	
R520			RK73HB1J103J	CHIP R 10K J 1/16W		R675			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R521			RK73HH1J272D	CHIP R 2.7K D 1/16W		R676			RK73HB1J274J	CHIP R 270K J 1/16W	
R522			RK73HH1J512D	CHIP R 5.1K D 1/16W		R677			RK73HB1J223J	CHIP R 22K J 1/16W	
R523,524			R92-1368-05	CHIP R 0 OHM		R679			R92-1368-05	CHIP R 0 OHM	
R525			RK73HB1J102J	CHIP R 1.0K J 1/16W		R680			RK73HB1J274J	CHIP R 270K J 1/16W	
R526			R92-1252-05	CHIP R 0 OHM J 1/16W		R681			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R527			RK73HB1J473J	CHIP R 47K J 1/16W		R682			RK73HB1J272J	CHIP R 2.7K J 1/16W	
R528			RK73HB1J474J	CHIP R 470K J 1/16W		R683			RK73HB1J154J	CHIP R 150K J 1/16W	
R600			RK73HB1J684J	CHIP R 680K J 1/16W		R684			R92-1252-05	CHIP R 0 OHM J 1/16W	
R601			RK73HB1J394J	CHIP R 390K J 1/16W		R685			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R603			R92-1368-05	CHIP R 0 OHM		R686			RK73HH1J474D	CHIP R 470K D 1/16W	
R604			RK73HB1J184J	CHIP R 180K J 1/16W		R687			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R605			RK73HB1J393J	CHIP R 39K J 1/16W		R688			RK73HB1J273J	CHIP R 27K J 1/16W	
R606			RK73HB1J184J	CHIP R 180K J 1/16W		R689			R92-1368-05	CHIP R 0 OHM	
R607			RK73HB1J223J	CHIP R 22K J 1/16W		R691			RK73HB1J103J	CHIP R 10K J 1/16W	
R609			RK73HB1J104J	CHIP R 100K J 1/16W		R692			RK73HB1J823J	CHIP R 82K J 1/16W	
R612			RK73HB1J103J	CHIP R 10K J 1/16W		R693			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R613			RK73HB1J104J	CHIP R 100K J 1/16W		R694			RK73HH1J104D	CHIP R 100K D 1/16W	
R614			RK73HB1J683J	CHIP R 68K J 1/16W		R695			RK73HB1J103J	CHIP R 10K J 1/16W	
R615			R92-1368-05	CHIP R 0 OHM		R696			RK73HB1J184J	CHIP R 180K J 1/16W	
R616			RK73HB1J104J	CHIP R 100K J 1/16W		R697			RK73HB1J474J	CHIP R 470K J 1/16W	
R617			RK73HB1J683J	CHIP R 68K J 1/16W		R698			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R618			R92-1368-05	CHIP R 0 OHM		R699			RK73HB1J334J	CHIP R 330K J 1/16W	
R619			RK73HB1J394J	CHIP R 390K J 1/16W		R700			RK73HB1J184J	CHIP R 180K J 1/16W	
R623			RK73HB1J104J	CHIP R 100K J 1/16W		R701			RK73HB1J223J	CHIP R 22K J 1/16W	
R624			R92-1368-05	CHIP R 0 OHM		R702,703			RK73HB1J473J	CHIP R 47K J 1/16W	
R625			RK73HB1J472J	CHIP R 4.7K J 1/16W		R704			RK73HB1J471J	CHIP R 470 J 1/16W	
R626			RK73HB1J184J	CHIP R 180K J 1/16W		R705,706			RK73HB1J153J	CHIP R 15K J 1/16W	
R627			RK73HB1J684J	CHIP R 680K J 1/16W		R707			RK73HB1J182J	CHIP R 1.8K J 1/16W	
R628,629			R92-1368-05	CHIP R 0 OHM		R708			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R631			RK73HB1J474J	CHIP R 470K J 1/16W		R709			RK73HB1J104J	CHIP R 100K J 1/16W	
R635,636			RK73HB1J472J	CHIP R 4.7K J 1/16W		R710			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R637			RK73HB1J332J	CHIP R 3.3K J 1/16W		R711			RK73HB1J473J	CHIP R 47K J 1/16W	
R638			RK73HB1J103J	CHIP R 10K J 1/16W		R712			RK73HB1J104J	CHIP R 100K J 1/16W	
R641			RK73HB1J273J	CHIP R 27K J 1/16W		R713			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R642			RK73HB1J472J	CHIP R 4.7K J 1/16W		R714			RK73HB1J104J	CHIP R 100K J 1/16W	
R643			RK73HB1J104J	CHIP R 100K J 1/16W		R715			RK73HB1J272J	CHIP R 2.7K J 1/16W	
R644			RK73HB1J103J	CHIP R 10K J 1/16W		R716			RK73HB1J104J	CHIP R 100K J 1/16W	
R645			RK73HB1J472J	CHIP R 4.7K J 1/16W		R717-720			RK73HB1J101J	CHIP R 100 J 1/16W	
R648			RK73HB1J104J	CHIP R 100K J 1/16W		R721			RK73HB1J103J	CHIP R 10K J 1/16W	
R650			RK73HB1J472J	CHIP R 4.7K J 1/16W		R722			RK73HB1J474J	CHIP R 470K J 1/16W	
R652			RK73HB1J103J	CHIP R 10K J 1/16W		R723			RK73HB1J470J	CHIP R 47 J 1/16W	
R654			RK73HB1J683J	CHIP R 68K J 1/16W		R724			RK73HB1J102J	CHIP R 1.0K J 1/16W	

## PARTS LIST

## TX-RX UNIT (X57-6930-10)

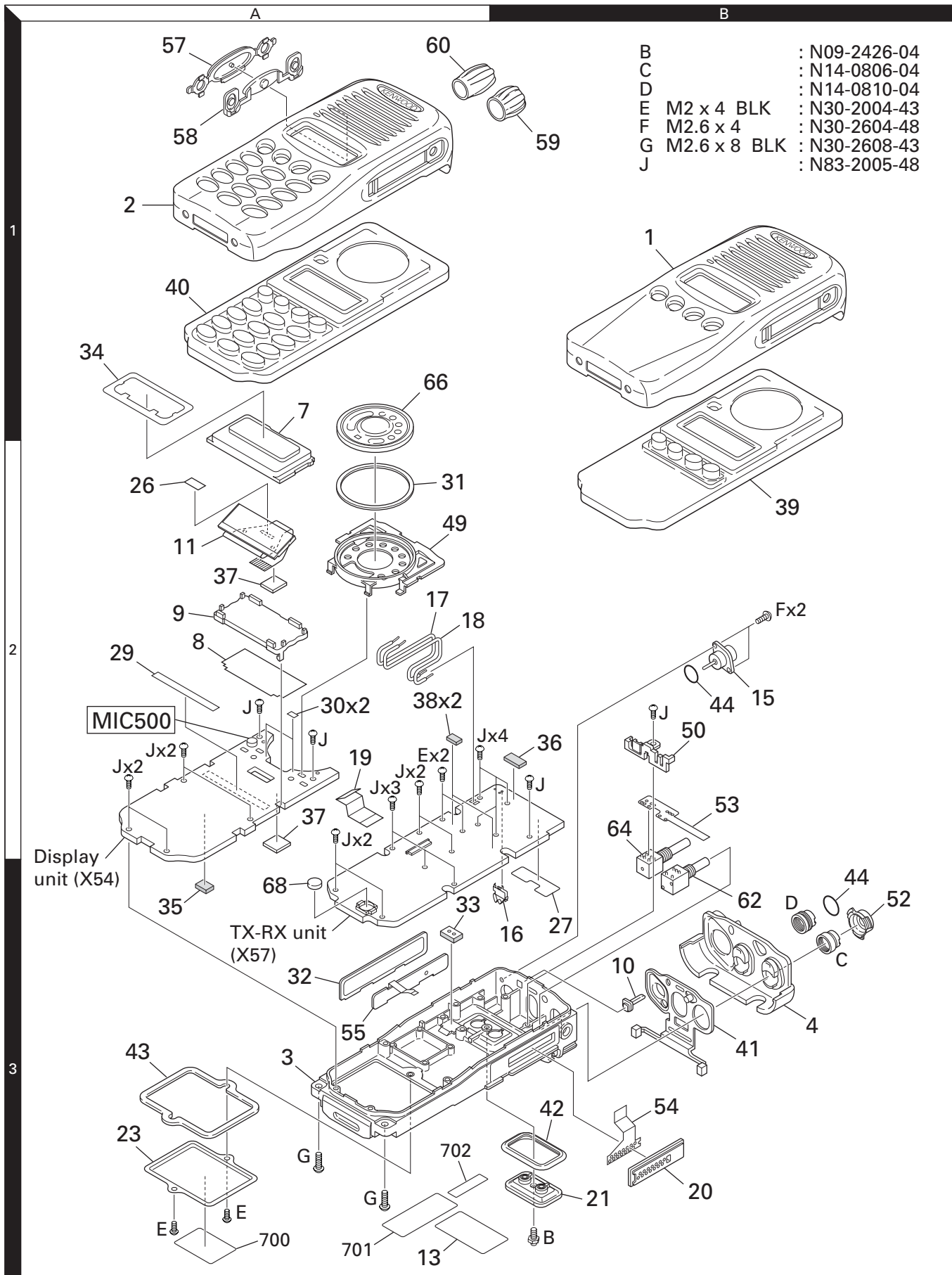
Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R725,726			RK73HB1J331J	CHIP R 330 J 1/16W		D13			1SV325	VARIABLE CAPACITANCE DIODE	
R728-734			RK73HB1J102J	CHIP R 1.0K J 1/16W		D17			1SV278	VARIABLE CAPACITANCE DIODE	
R735			RK73HB1J473J	CHIP R 47K J 1/16W		D18			MA2S111	DIODE	
R736,737			RK73HB1J472J	CHIP R 4.7K J 1/16W		D100			HSC277	DIODE	
R738			RK73HB1J124J	CHIP R 120K J 1/16W		D103			HZU4BLL	ZENER DIODE	
R739			RK73HB1J184J	CHIP R 180K J 1/16W		D106,107			HVC131	DIODE	
R740,741			RK73HB1J123J	CHIP R 12K J 1/16W		D108			HZU2ALL	ZENER DIODE	
R742			RK73HB1J822J	CHIP R 8.2K J 1/16W		D200			MA2S111	DIODE	
R744			RK73HB1J472J	CHIP R 4.7K J 1/16W		D201			DAN222	DIODE	
R745			RK73HB1J823J	CHIP R 82K J 1/16W		D202			RB706F-40	DIODE	
R747			R92-1368-05	CHIP R 0 OHM		D203			DAN222	DIODE	
R748			RK73HB1J104J	CHIP R 100K J 1/16W		D204			MA2S111	DIODE	
R750			RK73HB1J823J	CHIP R 82K J 1/16W		D205			HSC277	DIODE	
R752			R92-1368-05	CHIP R 0 OHM		D207-210			1SV305	VARIABLE CAPACITANCE DIODE	
R753			RK73HB1J103J	CHIP R 10K J 1/16W		D211			HVC131	DIODE	
R754			RK73HB1J472J	CHIP R 4.7K J 1/16W		D213			HVC131	DIODE	
R755			R92-1252-05	CHIP R 0 OHM J 1/16W		D314			MA2S111	DIODE	
R758			RK73HB1J473J	CHIP R 47K J 1/16W		D402			1SR154-400	DIODE	
R760			RK73HB1J104J	CHIP R 100K J 1/16W		D403			1SS301	DIODE	
R761			RK73HB1J222J	CHIP R 2.2K J 1/16W		D404			MA2S111	DIODE	
R762			RK73HB1J472J	CHIP R 4.7K J 1/16W		D405			RB521S-30	DIODE	
R764,765			R92-1252-05	CHIP R 0 OHM J 1/16W		D406			MA2S111	DIODE	
R766			RK73HB1J222J	CHIP R 2.2K J 1/16W		D408			MA2S111	DIODE	
R767			RK73HB1J474J	CHIP R 470K J 1/16W		D500			MA2S111	DIODE	
R768			RK73HB1J101J	CHIP R 100 J 1/16W		D501,502			1SS388	DIODE	
R769-771			RK73HB1J102J	CHIP R 1.0K J 1/16W		D600-603			RB706F-40	DIODE	
R772			R92-1368-05	CHIP R 0 OHM		D604			015AZ6.8	ZENER DIODE	
R773			RK73HB1J823J	CHIP R 82K J 1/16W		D605			1SS373	DIODE	
R775			RK73HB1J563J	CHIP R 56K J 1/16W		D606			015AZ6.8	ZENER DIODE	
R776			RK73HB1J473J	CHIP R 47K J 1/16W		D607			015AZ2.4-X	ZENER DIODE	
R777			RK73HB1J100J	CHIP R 10 J 1/16W		D608			015AZ6.8	ZENER DIODE	
R780			RK73HB1J103J	CHIP R 10K J 1/16W		D609,610			DA221	DIODE	
R781,782			R92-1368-05	CHIP R 0 OHM		D611			NNCD6.8G	ZENER DIODE	
R783			RK73HB1J563J	CHIP R 56K J 1/16W		D612			015AZ6.8	ZENER DIODE	
R784			RK73HB1J473J	CHIP R 47K J 1/16W		D613			DA221	DIODE	
R785			RK73HH1J123D	CHIP R 12K D 1/16W		D614			DAN222	DIODE	
R786			RK73HH1J562D	CHIP R 5.6K D 1/16W		IC1			ADF4111BCP7	MOS-IC	
R787			RK73HH1J822D	CHIP R 8.2K D 1/16W		IC100			TA75W01FU	MOS-IC	
R788			RK73HB1J473J	CHIP R 47K J 1/16W		IC200			TA31136FN	MOS-IC	
R790			R92-1368-05	CHIP R 0 OHM		IC400			XC61CC5602NR	MOS-IC	
R792			RK73HB1J223J	CHIP R 22K J 1/16W		IC401			TK11250CUCB	MOS-IC	
R794			R92-1368-05	CHIP R 0 OHM		IC402,403			XC6204B502MR	MOS-IC	
R796			R92-1252-05	CHIP R 0 OHM J 1/16W		IC404			TC75S51FE	MOS-IC	
R800			R92-1252-05	CHIP R 0 OHM J 1/16W		IC405			S-80942CNNBG9C	MOS-IC	
R801-804			R92-1368-05	CHIP R 0 OHM		IC406			TK11250CUCB	MOS-IC	
R805			RK73HB1J473J	CHIP R 47K J 1/16W		IC500		*	AT29C040A-90TU	ROM IC	
R806			RK73HB1J474J	CHIP R 470K J 1/16W		IC502		*	30625MGP-169GP	MICROPROCESSOR IC	
R807,808			RK73HB1J473J	CHIP R 47K J 1/16W		IC503			RV5C386A	MOS-IC	
R809			RK73HB1J474J	CHIP R 470K J 1/16W		IC504			AT24256N10SI27	ROM IC	
R810			RK73HB1J473J	CHIP R 47K J 1/16W		IC505			TC7W53FK	HYBRID IC	
R811-813			R92-1368-05	CHIP R 0 OHM		IC600-604			TC75W51FK	MOS-IC	
R815			R92-1368-05	CHIP R 0 OHM		IC605			M62364FP-F	MOS-IC	
R816			RK73HB1J105J	CHIP R 1.0M J 1/16W		IC606			TC7W53FK	HYBRID IC	
S400			S70-0483-05	TACT SWITCH		IC607			AQUA-L	MOS-IC	
D1-4			HVC131	DIODE		IC608			TC75W51FK	MOS-IC	
D5			1SV323	VARIABLE CAPACITANCE DIODE		IC609			TDA7053AT	BI-POLAR IC	
D7			1SV323	VARIABLE CAPACITANCE DIODE		Q1			DTC144EE	DIGITAL TRANSISTOR	
D9			1SV325	VARIABLE CAPACITANCE DIODE		Q2			2SC5108(Y)	TRANSISTOR	
D10,11			1SV323	VARIABLE CAPACITANCE DIODE		Q6,7			2SK508NV(K52)	FET	
						Q8,9			2SJ347	FET	

## PARTS LIST

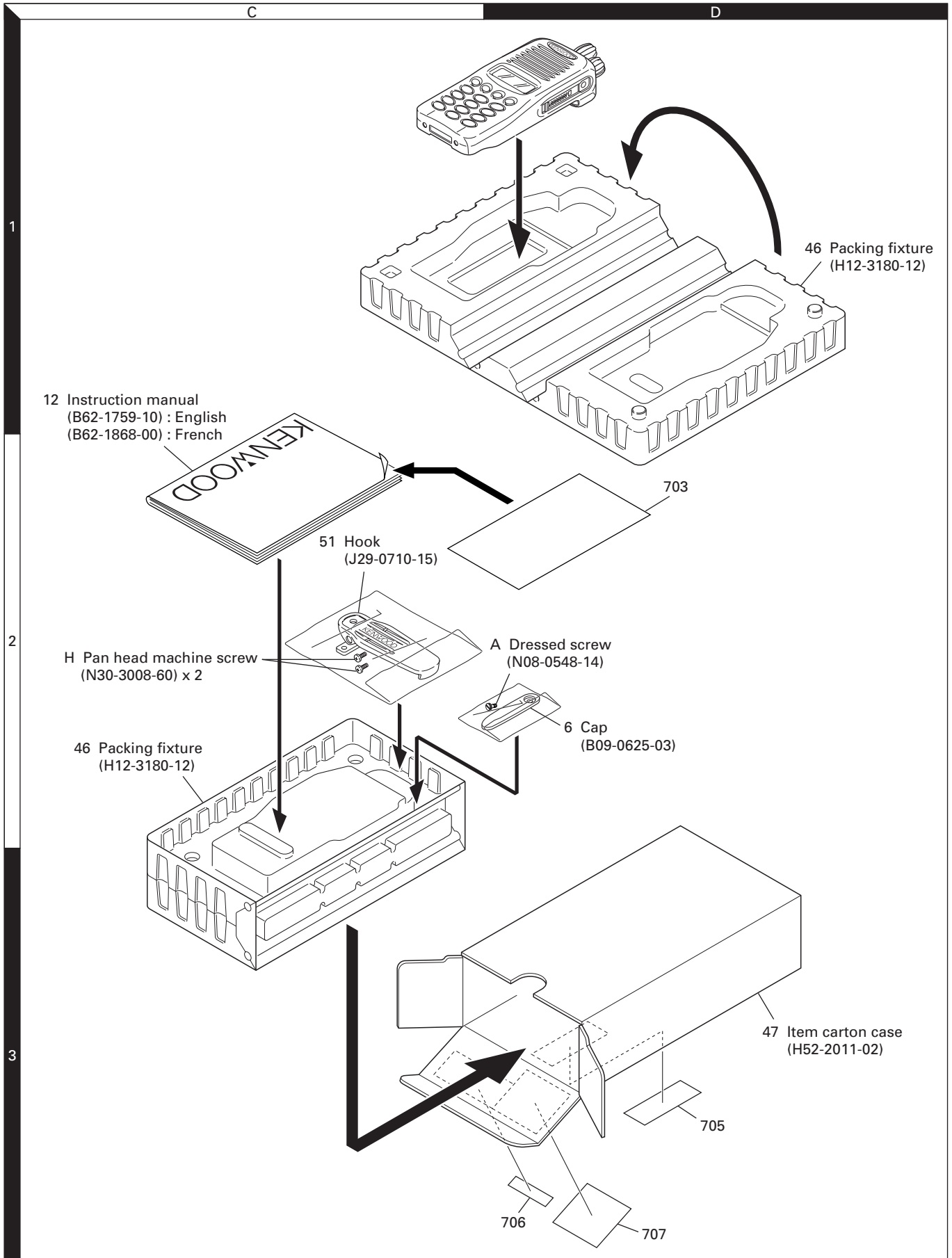
TX-RX UNIT (X57-6930-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
Q10			2SC5108(Y)	TRANSISTOR							
Q11			2SC4617(S)	TRANSISTOR							
Q12			2SK1830	FET							
Q13			2SC5108(Y)	TRANSISTOR							
Q14			DTA144EE	DIGITAL TRANSISTOR							
Q101			2SK3077	FET							
Q102			2SK2596	FET							
Q104			2SC4738(GR)	TRANSISTOR							
Q105			2SK2595	FET							
Q106			DTC114EE	DIGITAL TRANSISTOR							
Q107,108			2SK1824	FET							
Q200			HN1L02FU	FET							
Q201			2SC4617(S)	TRANSISTOR							
Q202			2SJ243	FET							
Q203			2SK1824	FET							
Q204			DTA144EE	DIGITAL TRANSISTOR							
Q205			2SC4649(N,P)	TRANSISTOR							
Q206			3SK318	FET							
Q207			3SK294	FET							
Q400			UMG9N	TRANSISTOR							
Q401			SSM3K15TE	FET							
Q402			2SK1830	FET							
Q403			2SA1955(A)	TRANSISTOR							
Q404			DTC144EE	DIGITAL TRANSISTOR							
Q405			2SJ347	FET							
Q406			2SA1955(A)	TRANSISTOR							
Q407			2SK1830	FET							
Q408			2SA1955(A)	TRANSISTOR							
Q409			2SJ347	FET							
Q502			SSM3K15TE	FET							
Q602			DTA114EE	DIGITAL TRANSISTOR							
Q605			RN4910	TRANSISTOR							
Q606			2SC4738(GR)	TRANSISTOR							
Q607			2SA1832(GR)	TRANSISTOR							
Q608-610			2SJ243	FET							
Q611			HN1L02FU	FET							
Q612			2SC4617(S)	TRANSISTOR							
Q613			2SB1132(Q,R)	TRANSISTOR							
Q614			2SJ347	FET							
Q615			2SC4617(S)	TRANSISTOR							
Q616,617			UPA672T	FET							
Q618			2SK1824	FET							
Q619			2SJ243	FET							
Q620			DTA144TE	DIGITAL TRANSISTOR							
Q621			2SC4649(N,P)	TRANSISTOR							
Q622			UFMMT717	TRANSISTOR							
Q623,624			2SK1830	FET							
Q625,626			2SC4649(N,P)	TRANSISTOR							
TH100			ERTJ0EV104H	THERMISTOR							
TH200			ERTJ0EV104H	THERMISTOR							

## EXPLODED VIEW



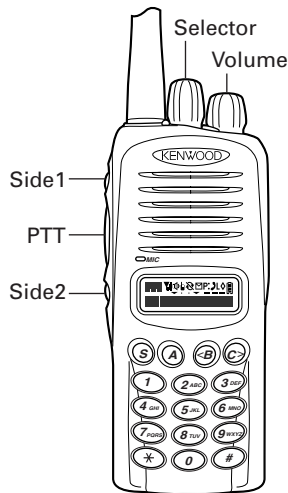
## PACKING



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

## ADJUSTMENT

### Controls



Key	"FNC" appears	
	Function	Display
[S]	High power / Low power	Low : <b>L</b> icon appears
[A]	Function off	-
[B]	Compander on/off	On : <b>J</b> icon appears
[C]	Beat shift on/off	On : <b>◇</b> icon appears
[Selector]	Test frequency CH up/down	-
[Side1]	Squelch level 0	On : <b>P</b> icon appears
[Side2]	LCD all lights	LCD all point appears
[PTT]	Transmit	-
[0] to [9] and [#],[*]	Function off	-

#### Notes :

- If a [S], [A], [B], [C] key is pressed during transmission, the DTMF corresponding to the key that was pressed is sent.
- The "Wide 4k" cannot use, please skip it.

### Panel Test Mode

#### ■ Test mode operation features

This transceiver has a test mode. **To enter test mode, press [A] key and turn power on. Hold [A] key until frequency version appears on LCD.** Test mode can be inhibited by programming. To exit test mode, switch the power on again. The following functions are available in test mode.

#### ■ Key operation

Key	"FNC" not appears	
	Function	Display
[S]	Shifts to Panel tuning mode	-
[A]	Function on	"FNC" appears
[B]	MSK 1200bps and 2400bps	2400bps : <input checked="" type="checkbox"/> icon appears
[C]	Test signaling CH up	Signaling No.
[Selector]	Test frequency CH up/down	Channel No.
[Side1]	Squelch on/off	<b>🔊</b>
[Side2]	Narrow/Wide 4k/Wide 5k	Narrow : "n" Wide 4k : "s" Wide 5k : "w"
[PTT]	Transmit	-
[0] to [9] and [#],[*]	Use as the DTMF keypad. If a key is pressed during transmission, the DTMF corresponding to the key that was presses is sent.	-

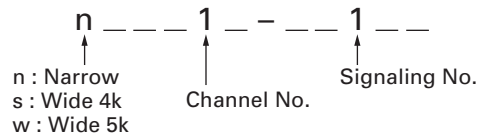
#### • LED indicator

- Red LED Lights during transmission. Blinks at the low battery voltage warning.
- Green LED Lights when there is carrier.

#### • Sub LCD indicator

"FNC" Appears at function on.

#### • LCD display in panel test mode



#### ■ Frequency and Signaling

The set has been adjusted for the frequencies shown in the following table. When required, readjust them following the adjustment procedure to obtain the frequencies you want in actual operation.

#### • Test frequency

CH	RX (MHz)	TX (MHz)
1	155.05000	155.10000
2	136.05000	136.10000
3	173.95000	173.90000
4	155.00000	155.00000
5	155.20000	155.20000
6	155.40000	155.40000
7	177.95000	177.90000
8~16	-	-

# ADJUSTMENT

## • Test signaling

No.	RX	TX
1	None	None
2	None	100Hz Square Wave
3	LTR Data : AREA=0, GOTO=12 HOME=12 ID=47, FREE=25	LTR Data : AREA=0, GOTO=12 HOME=12 ID=47, FREE=25
4	QT : 67.0Hz	QT : 67.0Hz
5	QT : 151.4Hz	QT : 151.4Hz
6	QT : 210.7Hz	QT : 210.7Hz
7	QT : 254.1Hz	QT : 254.1Hz
8	DQT : D023N	DQT : D023N
9	DQT : D754I	DQT : D754I
10	DTMF : 159D	DTMF : 159D
11	None	DTMF Code 9
12	2-tone : A : 304.7Hz B : 3106.0Hz	2-tone : A : 304.7Hz B : 3106.0Hz
13	Single Tone : 979.9Hz	Single Tone : 979.9Hz
14	None	Single Tone : 1000Hz
15	5-tone (CCIR 12345)	5-tone (CCIR 12345)
16	None	MSK
17	MSK : Preamble : 0xAAAA Sync : 0x23EB Data : 0x230960C6AAAA CRC : 0xC4D7	MSK : Preamble : 0xAAAA Sync : 0x23EB Data : 0x230960C6AAAA CRC : 0xC4D7

**Note :** The “5-tone signaling” cannot use, please skip it.

## Panel Tuning Mode

### ■ Preparations for tuning the transceiver

Before attempting to tune the transceiver, connect the unit to a suitable power supply.

Whenever the transmitter is turned, the unit must be connected to a suitable dummy load (i.e. power meter).

The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

### ■ Transceiver tuning

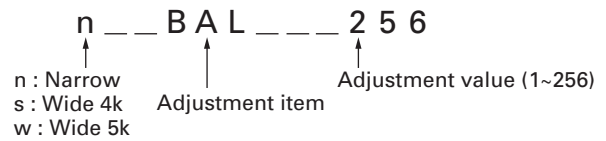
#### (To place transceiver in tuning mode)

Press [S] key, now in tuning mode. Use [B] key to write tuning data through tuning modes, and [Selector] to adjust tuning requirements (1 to 256 appears on LCD).

Use [C] key to select the adjustment item through tuning modes. Use [A] key to adjust 3 or 5 reference level adjustments, and use [Side2] key to switch between Wide 5k/Wide 4k/Narrow.

Channel appears on LCD. Set channel according to tuning requirements.

## • LCD display in panel tuning mode



## ■ Key operation

Key	Function	
	Push	Hold (1 second)
[S]	End of panel tuning mode	-
[A]	To enter 3 or 5 reference level adjustments	-
[B]	Writes the adjustment value	-
[C]	Go to next adjustment item	Back to last adjustment item
[Selector]	Adjustment value up/down	
[Volume]	Volume level up/down	
[Side1]	Squelch on/off	-
[Side2]	Selects Narrow, Wide 4k, Wide 5k	-

**Note :** The “Wide 4k” cannot use, please skip it.

## ■ 3 or 5 reference level adjustments frequency

Tuning point	RX (MHz)	TX (MHz)
Low	136.05000	136.10000
Low'	145.55000	145.60000
Center	155.05000	155.10000
High'	164.55000	164.60000
High	173.95000	173.90000

## ■ Adjustment item and Display (\*\*\*) : 1~256)

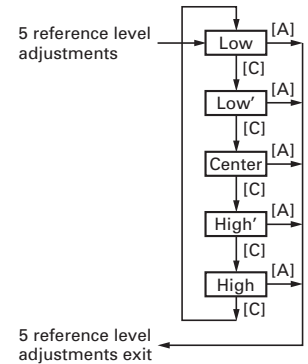
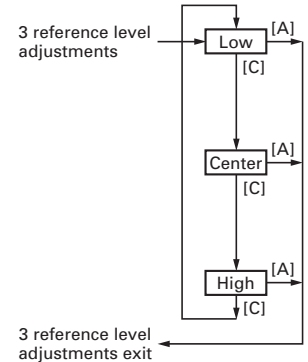
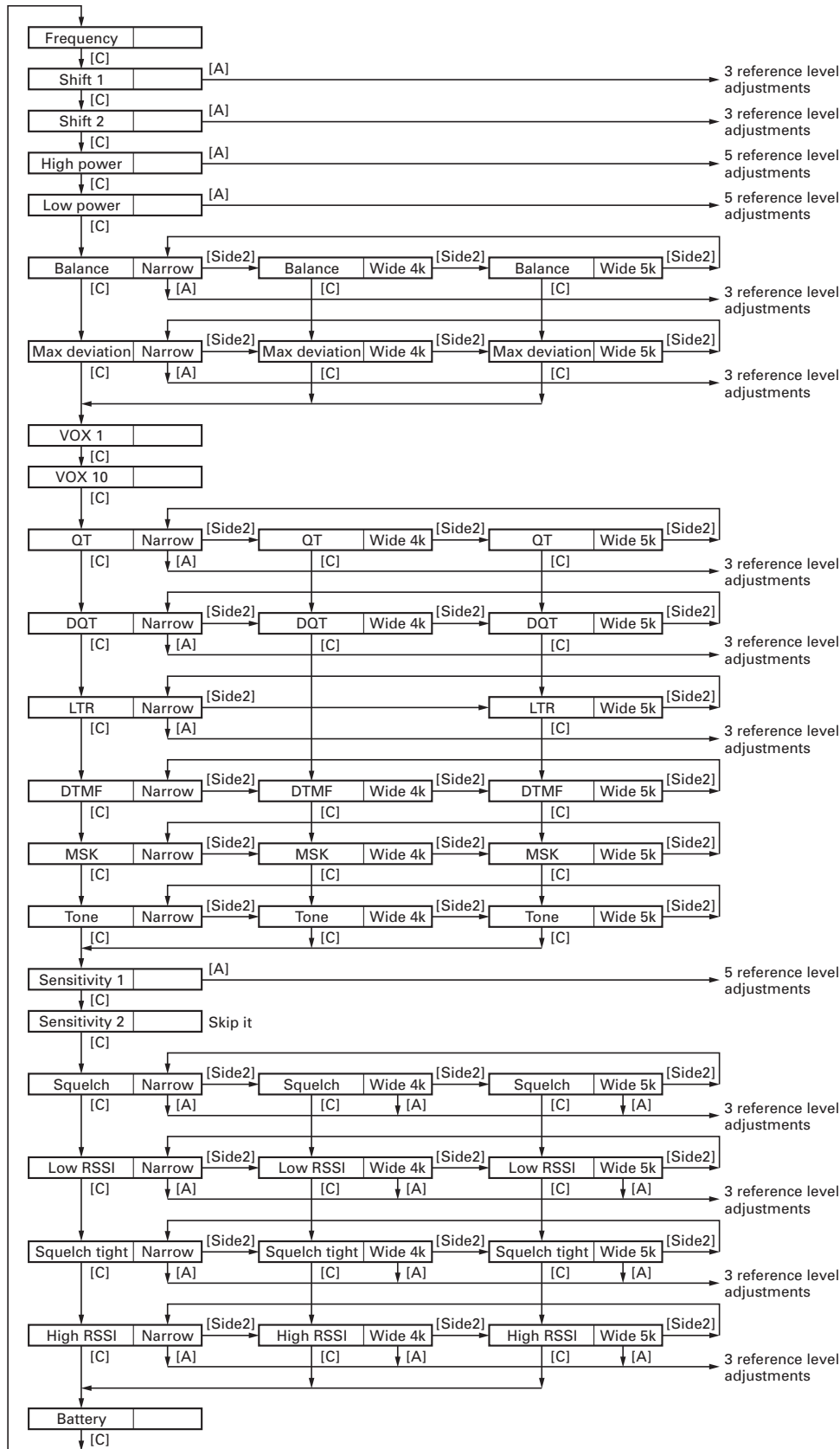
Order	Adjustment item	Display
1	Frequency	FREQ ***
2	Shift 1	SHFT1 ***
3	Shift 2	SHFT2 ***
4	High power	HPWR ***
5	Low power	LPWR ***
6	Balance	BAL ***
7	Max deviation	DEV ***
8	VOX 1	VOX1 ***
9	VOX 10	VOX10 ***
10	QT	QT ***
11	DQT	DQT ***
12	LTR	LTR ***
13	DTMF	DTMF ***
14	MSK	MSK ***
15	Tone	TONE ***
16	Sensitivity 1	SENS1 ***
17	Sensitivity 2	SENS2 ***
18	Squelch	SQL ***
19	Low RSSI	LRSSI ***
20	Squelch tight	SQLT ***
21	High RSSI	HRSSI ***
22	Battery	BATT ***



## ADJUSTMENT

### Flow chart

Note : The "Wide 4k" cannot use, please skip it.



## ADJUSTMENT

### Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range	136 to 174MHz
	Modulation	Frequency modulation and external modulation
	Output	-127dBm/0.1μV to greater than -47dBm/1mV
2. Power Meter	Input Impedance	50Ω
	Operation Frequency	136 to 174MHz or more
	Measurement Capability	Vicinity of 10W
3. Deviation Meter	Frequency Range	136 to 174MHz
4. Digital Volt Meter (DVM)	Measuring Range	10mV to 10V DC
	Input Impedance	High input impedance for minimum circuit loading
5. Oscilloscope		DC through 30MHz
6. High Sensitivity Frequency Counter	Frequency Range	10Hz to 1000MHz
	Frequency Stability	0.2ppm or less
7. Ammeter		5A
8. AF Volt Meter (AF VTVM)	Frequency Range	50Hz to 10kHz
	Voltage Range	1mV to 10V
9. Audio Generator (AG)	Frequency Range	50Hz to 5kHz or more
	Output	0 to 1V
10. Distortion Meter	Capability	3% or less at 1kHz
	Input Level	50mV to 10Vrms
11. 8Ω Dummy Load		Approx. 8Ω, 3W
12. Regulated Power Supply		5V to 10V, approx. 5A Useful if ammeter equipped

#### ■ Universal connector

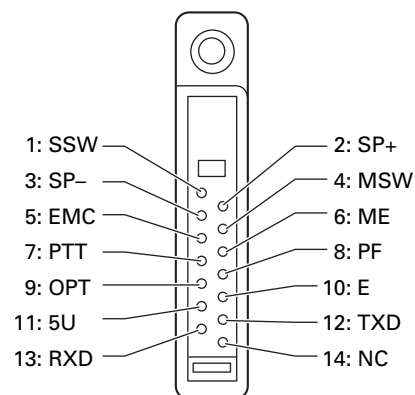
Use the interface cable (KPG-36) for PC tuning or the lead wire with plug (E30-3287-18) and screw (N08-0535-08) for panel tuning. Connect the plug to the universal connector of the radio and tighten the screw.

The lead wire with plug (E30-3287-18) and screw (N08-0535-08) terminals are as follows. Numbers are universal connector terminal numbers.

#### Caution

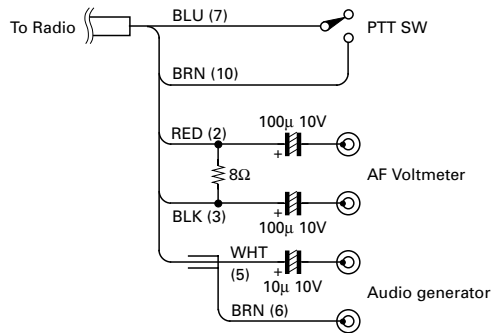
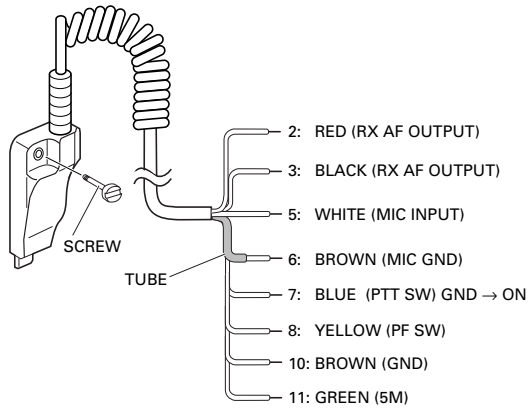
- When connecting the plug to the universal connector of the radio, a short circuit may occur. To prevent this, be sure to turn the radio POWER switch off.
- Since the RX AF output is a BTL output, there is a DC component. Isolate this with a capacitor or transformer as shown in the figure.
- Do not connect an instrument between red or black and GND.

#### • Universal connector



## ADJUSTMENT

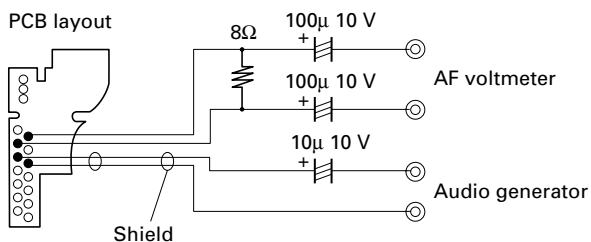
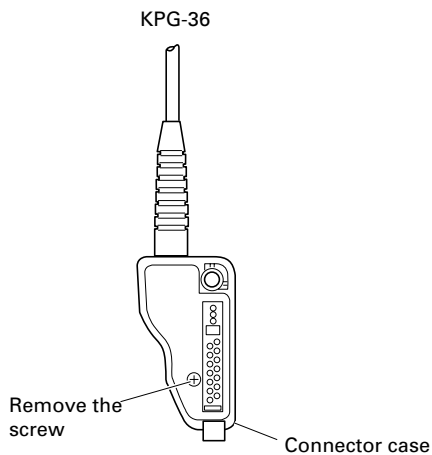
### • Panel tuning



### • PC tuning

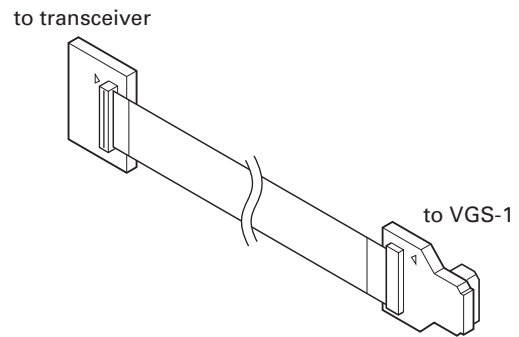
Connect the wires to the PCB in the connector case of interface cable.

For output the wires out of the connector case, need to process the connector case.



### ■ Check Jig for the VGS-1

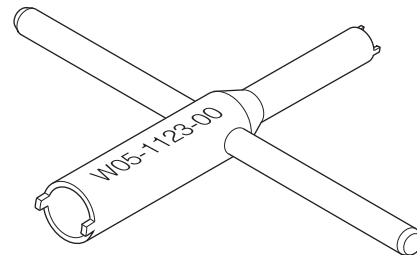
KENWOOD part No. : W05-1127-00



### ■ Nut wrench

In order to turn the volume nut and the channel selector nut, use a recommendation tool.

KENWOOD part No. : W05-1123-00



## ADJUSTMENT

## Common Section


Item	Condition	Measurement			Adjustment			Specifications/Remarks	
		Test-equipment	Unit	Terminal	Unit	Parts	Method		
1. Setting	1) BATT terminal voltage : 7.5V 2) SSG standard modulation [Wide 5k] MOD : 1kHz, DEV : 3kHz [Wide 4k] MOD : 1kHz, DEV : 2.4kHz [Narrow] MOD : 1kHz, DEV : 1.5kHz								
2. VCO lock voltage • RX	<b>[Panel test mode]</b> 1) CH-Sig : 7-1	Power meter	Panel	ANT	TX-RX	TC2	4.20V	±0.1V	
	2) CH-Sig : 2-1	DVM	TX-RX	CV			Check	0.7V or more	
	• TX	<b>[Panel tuning mode] LPWR*</b> 3) CH-Sig : 7-1 PTT : ON				TX-RX	TC1	4.20V	±0.1V
		4) CH-Sig : 2-1 PTT : ON						Check	0.7V or more

\* TX can be continued on unlock condition in panel tuning mode.

## Transmitter Section (K market model skips adjustment of Wide 4k.)

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Frequency adjust	1) Adj item : [FREQ] Adjust : [***] PTT : ON	f. counter	Panel	ANT	Panel	Selector knob	Center frequency ±40Hz	Note : After replacing the TCXO (X1) align frequency.
2. Frequency shift 1 adjust	1) Adj item : [SHFT1] Adjust : [***] 2) Adj item : [L SHFT1] → [C SHFT1] → [H SHFT1] Adjust : [***] PTT : ON						[L SHFT1] Low frequency+1.25kHz [C SHFT1] Center frequency+1.25kHz [H SHFT1] High frequency+1.25kHz	±40Hz
3. Frequency shift 2 adjust	1) Adj item : [SHFT2] Adjust : [***] 2) Adj item : [L SHFT2] → [C SHFT2] → [H SHFT2] Adjust : [***] PTT : ON						[L SHFT2] Low frequency+2.5kHz [C SHFT2] Center frequency+2.5kHz [H SHFT2] High frequency+2.5kHz	±40Hz
4. High power adjust	1) Adj item : [HPWR] Adjust : [***] 2) Adj item : [L HPWR] → [L' HPWR] → [C HPWR] → [H' HPWR] → [H HPWR] Adjust : [***] PTT : ON	Power meter Ammeter					5.0W	±0.1W 2.0A or less
5. High power check	<b>[Panel test mode]</b> 1) CH-Sig : 1-1 PTT : ON						Check	4.5~5.5W 2.1A or less
	2) CH-Sig : 2-1 PTT : ON							
	3) CH-Sig : 3-1 PTT : ON							

## ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
6. Low power adjust	1) Adj item : [LPWR] Adjust : [***] 2) Adj item : [L LPWR] → [L' LPWR] → [C LPWR] → [H' LPWR] → [H LPWR] Adjust : [***] PTT : ON	Power meter Ammeter	Panel	ANT	Panel	Selector knob	1.0W	±0.1W 1.0A or less
7. Low power check	<b>[Panel test mode]</b> 1) CH-Sig : 1-1 Set low power (Push [S]) PTT : ON						Check	0.7~1.4W 1.2A or less
	2) CH-Sig : 2-1 PTT : ON							
	3) CH-Sig : 3-1 PTT : ON							
8. DQT balance adjust	1) Adj item : [n BAL] Adjust : [***] Deviation meter filter LPF : 3kHz, HPF : OFF • Narrow 2) Adj item : [nL BAL] → [nC BAL] → [nH BAL] Adjust : [***] PTT : ON	Deviation meter Oscilloscope AG AF VTVM	Panel	ANT  Universal connector	Panel	Selector knob	Make the demodulation waves into square waves.	
	• Wide 4k 3) Adj item : [s BAL] Adjust : [***] PTT : ON							
	• Wide 5k 4) Adj item : [w BAL] Adjust : [***] PTT : ON							
9. Max DEV adjust	1) Adj item : [n DEV] Adjust : [***] AG : 1kHz/125mV at MIC terminal Deviation meter filter LPF : 15kHz, HPF : OFF • Narrow 2) Adj item : [nL DEV] → [nC DEV] → [nH DEV] Adjust : [***] PTT : ON						2.10kHz (According to the larger +, -)	±50Hz
	• Wide 4k 3) Adj item : [s DEV] Adjust : [***] PTT : ON						3.5kHz (According to the larger +, -)	±50Hz
	• Wide 5k 4) Adj item : [w DEV] Adjust : [***] PTT : ON						4.4kHz (According to the larger +, -)	±50Hz
10. MIC sensitivity check	<b>[Panel test mode]</b> 1) CH-Sig : 1-1 DEV : 1.5kHz (Narrow) 2.4kHz (Wide 4k) 3.0kHz (Wide 5k) Deviation meter filter LPF : 15kHz, HPF : OFF PTT : ON						Check	AG : 1kHz/6.7mV ~18.3mV at MIC terminal

## ADJUSTMENT

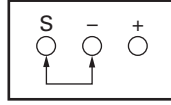
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
11. VOX1 adjust	1) Adj item : [VOX1] Adjust : [***] AG : 1kHz/45mV at MIC terminal	AG	Panel	Universal connector	Panel		After apply signal from AG, press [B] key that numeric will be stored in memory.	
12. VOX10 adjust	1) Adj item : [VOX10] Adjust : [***] AG : 1kHz/3mV at MIC terminal							
13. QT deviation adjust	1) Remove the panel tuning cable assembly from the universal connector. Adj item : [n QT] Adjust : [***] Deviation meter filter LPF : 3kHz HPF : OFF • Narrow 2) Adj item : [nL QT] → [nC QT] → [nH QT] Adjust : [***] PTT : ON	Power meter  Deviation meter Oscilloscope AG AF VTVM	Panel	ANT  Universal connector	Panel	Selector knob	0.35kHz	±50Hz
• Wide 4k	3) Adj item : [s QT] Adjust : [***] PTT : ON						0.60kHz	±50Hz
• Wide 5k	4) Adj item : [w QT] Adjust : [***] PTT : ON						0.75kHz	±50Hz
14. DQT deviation adjust	1) Adj item : [n DQT] Adjust : [***] Deviation meter filter LPF : 3kHz HPF : OFF • Narrow 2) Adj item : [nL DQT] → [nC DQT] → [nH DQT] Adjust : [***] PTT : ON							
• Wide 4k	3) Adj item : [s DQT] Adjust : [***] PTT : ON						0.60kHz	±50Hz
• Wide 5k	4) Adj item : [w DQT] Adjust : [***] PTT : ON						0.75kHz	±50Hz
15. LTR deviation adjust	1) Adj item : [n LTR] Adjust : [***] Deviation meter filter LPF : 3kHz HPF : OFF • Narrow 2) Adj item : [nL LTR] → [nC LTR] → [nH LTR] Adjust : [***] PTT : ON						0.75kHz	±0.10kHz
• Wide	3) Adj item : [w LTR] Adjust : [***] PTT : ON						1.00kHz	±0.10kHz

## ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks	
		Test-equipment	Unit	Terminal	Unit	Parts	Method		
16. DTMF deviation adjust • Narrow	1) Adj item : [n DTMF] Adjust : [***] Deviation meter filter LPF : 15kHz HPF : OFF PTT : ON	Power meter  Deviation meter Oscilloscope AG AF VTVM	Panel	ANT  Universal connector	Panel	Selector knob	1.25kHz	±0.1kHz	
	• Wide 4k						2) Adj item : [s DTMF] Adjust : [***] PTT : ON	2.0kHz	±0.1kHz
	• Wide 5k						3) Adj item : [w DTMF] Adjust : [***] PTT : ON	2.5kHz	±0.1kHz
17. MSK deviation adjust • Narrow	1) Adj item : [n MSK] Adjust : [***] Deviation meter filter LPF : 15kHz HPF : OFF PTT : ON						1.5kHz	±0.1kHz	
	• Wide 4k						2) Adj item : [s MSK] Adjust : [***] PTT : ON	2.4kHz	±0.1kHz
	• Wide 5k						3) Adj item : [w MSK] Adjust : [***] PTT : ON	3.0kHz	±0.1kHz
18. TONE deviation adjust • Narrow	1) Adj item : [n TONE] Adjust : [***] Deviation meter filter LPF : 15kHz HPF : OFF PTT : ON						1.5kHz	±0.1kHz	
	• Wide 4k						2) Adj item : [s TONE] Adjust : [***] PTT : ON	2.4kHz	±0.1kHz
	• Wide 5k						3) Adj item : [w TONE] Adjust : [***] PTT : ON	3.0kHz	±0.1kHz
19. BATT detection writing	1) Adj item : [BATT] Adjust : [***] PTT : ON	Power meter  DVM	Panel	ANT  BATT terminal	Panel		After pressing the PTT switch, confirm that one predetermined numeric in the range 1 to 256 appears and then press [B] key. That numeric will be stored in memory.	BATT terminal voltage : 5.8V	

## ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
20. BATT detection check	<b>[Panel test mode]</b> 1) CH-Sig : 1-1 BATT terminal voltage : 6.6V Connect "S" terminal to GND. PTT : ON	Power meter  DVM	Panel	ANT  BATT terminal	Panel		Check	The transceiver can transmit without causing the LED to blink.
	2) BATT terminal voltage : 5.8V Connect "S" terminal to GND. PTT : ON							The transceiver should not transmit and LED blinking.



## Receiver Section (K market model skips adjustment of Wide 4k.)

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Sensitivity adjust	1) Adj item : [SENS1] Adjust : [***] 2) Adj item : [L SENS1] → [L' SENS1] → [C SENS1] → [H' SENS1] → [H SENS1] Adjust : [***] SSG output : -119dBm (0.25μV) (MOD : 1kHz±1.5kHz)	SSG  AF VTVM Oscilloscope	Panel	ANT  Universal connector	Panel	Selector knob	Adjust for 12dB SINAD	Rotate the selector knob and increase the adjustment value starting from "1" to obtain SINAD 12dB.  Skip adjustment item of [SENS2].
2. Sensitivity check	<b>[Panel test mode]</b> 1) CH-Sig : 1-1 SSG output Wide 5k : -118dBm (0.28μV) (MOD : 1kHz±3kHz) Narrow : -118dBm (0.28μV) (MOD : 1kHz±1.5kHz)						Check	12dB SINAD or more
3. Squelch (Preset) adjust • Narrow  • Wide 4k  • Wide 5k	1) Adj item : [n SQL] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±1.5kHz)				Panel	Selector knob	After input signal from SSG, press [B] key. That numeric will be stored in memory.	After adjusting SQL, check SQL open/close. SSG -118dBm : Open SSG OFF : Close [nC SQL] MOD 1kHz±1.5kHz [sC SQL] MOD 1kHz±2.4kHz [wC SQL] MOD 1kHz±3.0kHz
	2) Adj item : [nL SQL] → [nC SQL] → [nH SQL] Adjust : [***]							
	3) Adj item : [s SQL] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±2.4kHz)							
	4) Adj item : [sL SQL] → [sC SQL] → [sH SQL] Adjust : [***]							
	5) Adj item : [w SQL] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±3.0kHz)							
	6) Adj item : [wL SQL] → [wC SQL] → [wH SQL] Adjust : [***]							



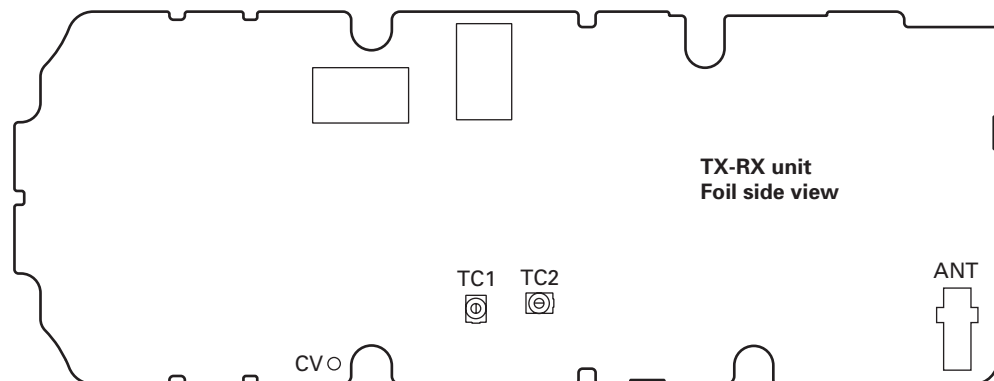
## ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks	
		Test-equipment	Unit	Terminal	Unit	Parts	Method		
4. Low RSSI adjust • Narrow	1) Adj item : [n LRSSI] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±1.5kHz)	SSG  AF VTVM Oscilloscope	Panel	ANT  Universal connector	Panel	Selector knob	After input signal from SSG, press [B] key. That numeric will be stored in memory.		
	2) Adj item : [nL LRSSI] → [nC LRSSI] → [nH LRSSI] Adjust : [***]								
	• Wide 4k								3) Adj item : [s LRSSI] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±2.4kHz)
	4) Adj item : [sL LRSSI] → [sC LRSSI] → [sH LRSSI] Adjust : [***]								
	• Wide 5k								5) Adj item : [w LRSSI] Adjust : [***] SSG output : -118dBm (0.28μV) (MOD : 1kHz±3.0kHz)
	6) Adj item : [wL LRSSI] → [wC LRSSI] → [wH LRSSI] Adjust : [***]								
5. Squelch (Tight) adjust • Narrow	1) Adj item : [n SQLT] Adjust : [***] SSG output : -113dBm (0.5μV) (MOD : 1kHz±1.5kHz)						After input signal from SSG, press [B] key. That numeric will be stored in memory.	After adjusting SQL, check SQL open/close. SSG -113dBm : Open SSG OFF : Close [nC SQLT] MOD 1kHz±1.5kHz [sC SQLT] MOD 1kHz±2.4kHz [wC SQLT] MOD 1kHz±3.0kHz	
	2) Adj item : [nL SQLT] → [nC SQLT] → [nH SQLT] Adjust : [***]								
	• Wide 4k								3) Adj item : [s SQLT] Adjust : [***] SSG output : -113dBm (0.5μV) (MOD : 1kHz±2.4kHz)
	4) Adj item : [sL SQLT] → [sC SQLT] → [sH SQLT] Adjust : [***]								
	• Wide 5k								5) Adj item : [w SQLT] Adjust : [***] SSG output : -113dBm (0.5μV) (MOD : 1kHz±3.0kHz)
	6) Adj item : [wL SQLT] → [wC SQLT] → [wH SQLT] Adjust : [***]								

## ADJUSTMENT

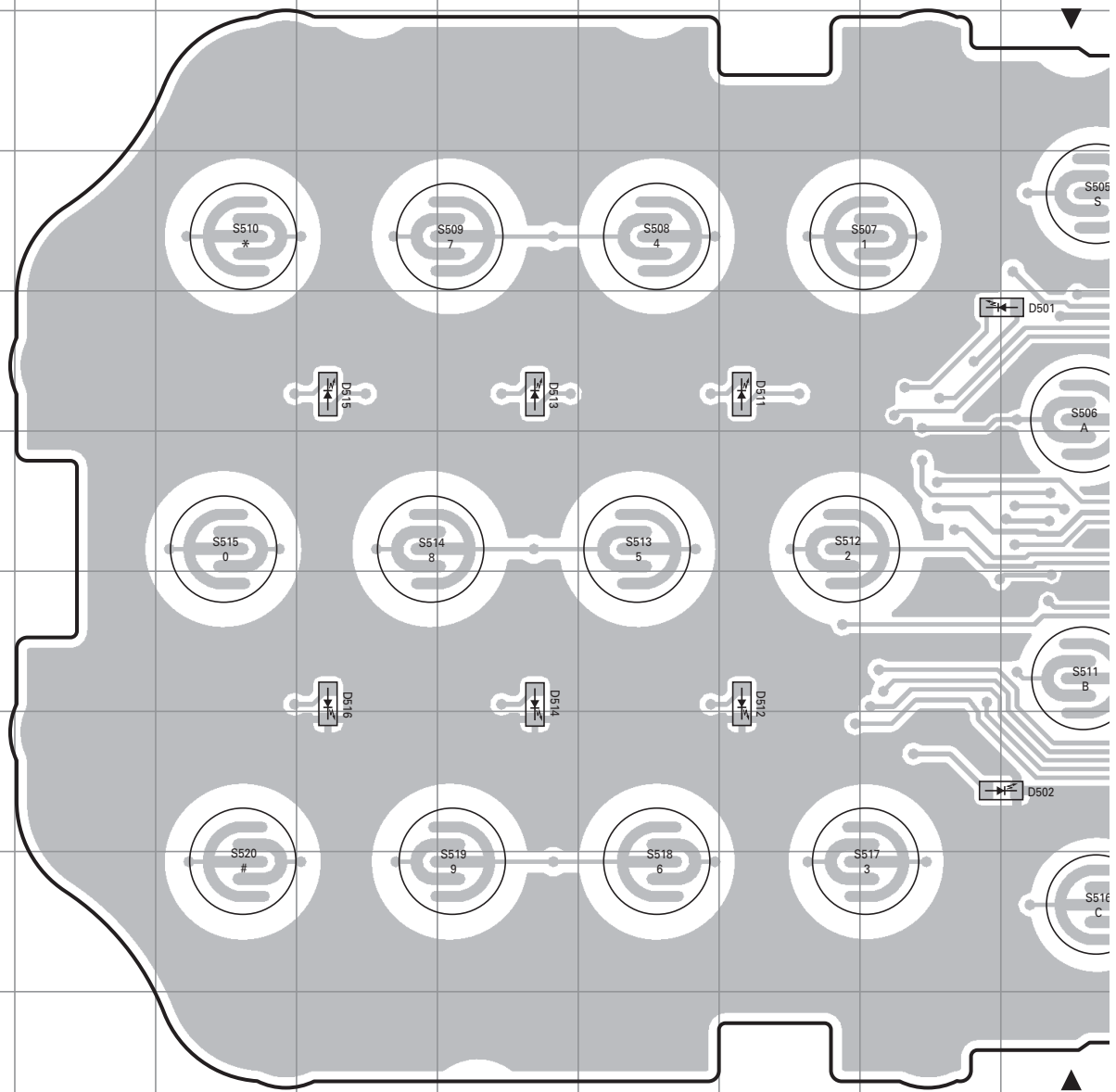
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
6. High RSSI adjust • Narrow	1) Adj item : [n HRSSI] Adjust : [***] SSG output : -70dBm (MOD : 1kHz±1.5kHz)	SSG  AF VTVM Oscilloscope	Panel	ANT	Panel	Selector knob	After input signal from SSG, press [B] key. That numeric will be stored in memory.	
	2) Adj item : [nL HRSSI] → [nC HRSSI] → [nH HRSSI] Adjust : [***]			Universal connector				
	• Wide 4k			3) Adj item : [s HRSSI] Adjust : [***] SSG output : -70dBm (MOD : 1kHz±2.4kHz)				
	4) Adj item : [sL HRSSI] → [sC HRSSI] → [sH HRSSI] Adjust : [***]							
	• Wide 5k			5) Adj item : [w HRSSI] Adjust : [***] SSG output : -70dBm (MOD : 1kHz±3.0kHz)				
	6) Adj item : [wL HRSSI] → [wC HRSSI] → [wH HRSSI] Adjust : [***]							

### Adjustment Points



# TK-2180 PC BOARD

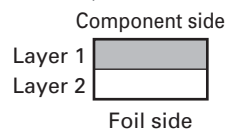
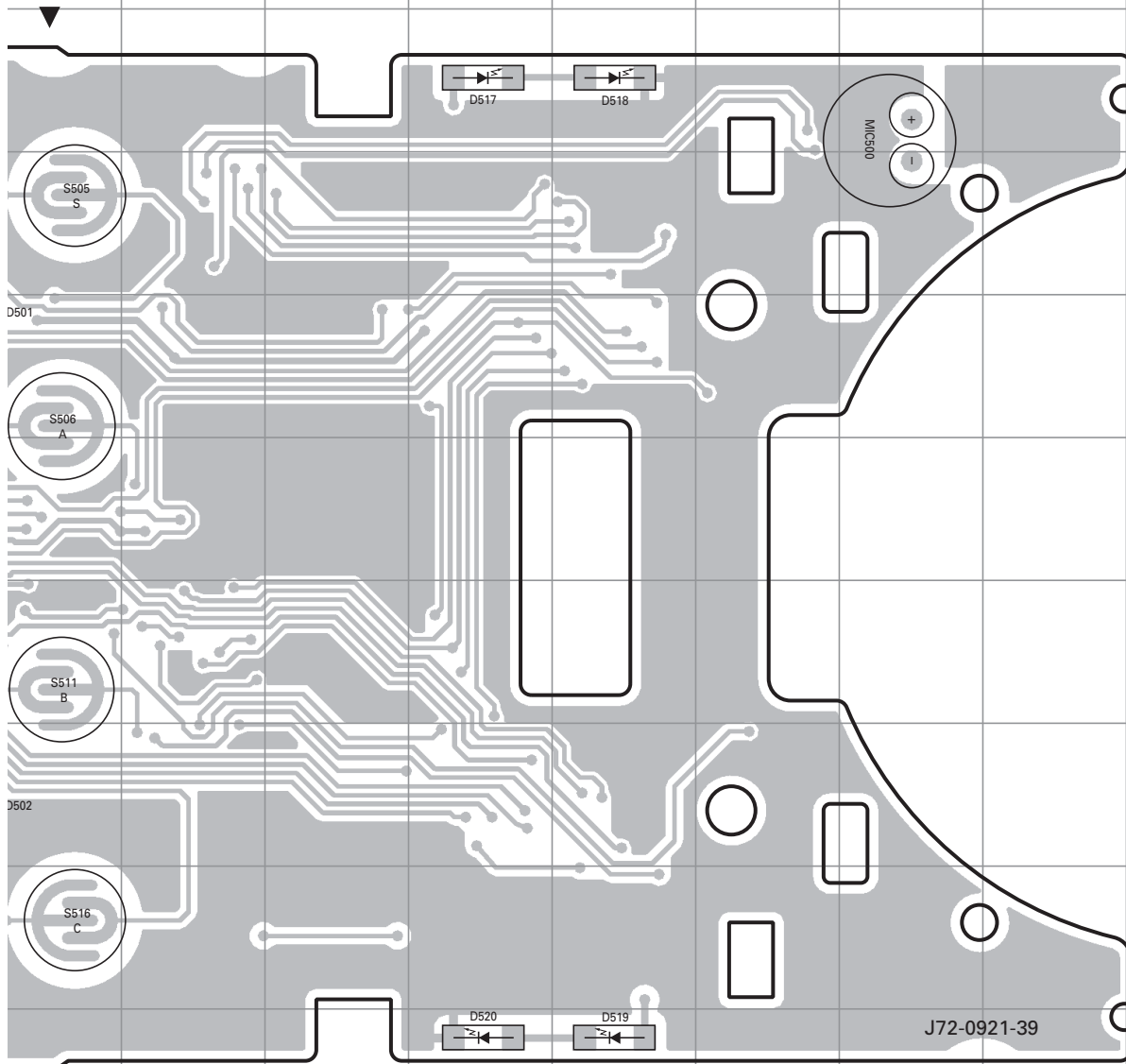
DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
 Component side view (J72-0921-39)



Ref. No.	Address	Ref. No.	Address
D501	5J	D515	5E
D502	8J	D516	7E
D511	5H	D517	3M
D512	7H	D518	3N
D513	5F	D519	10N
D514	7F	D520	10M

# PC BOARD TK-2180

DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Component side view (J72-0921-39)

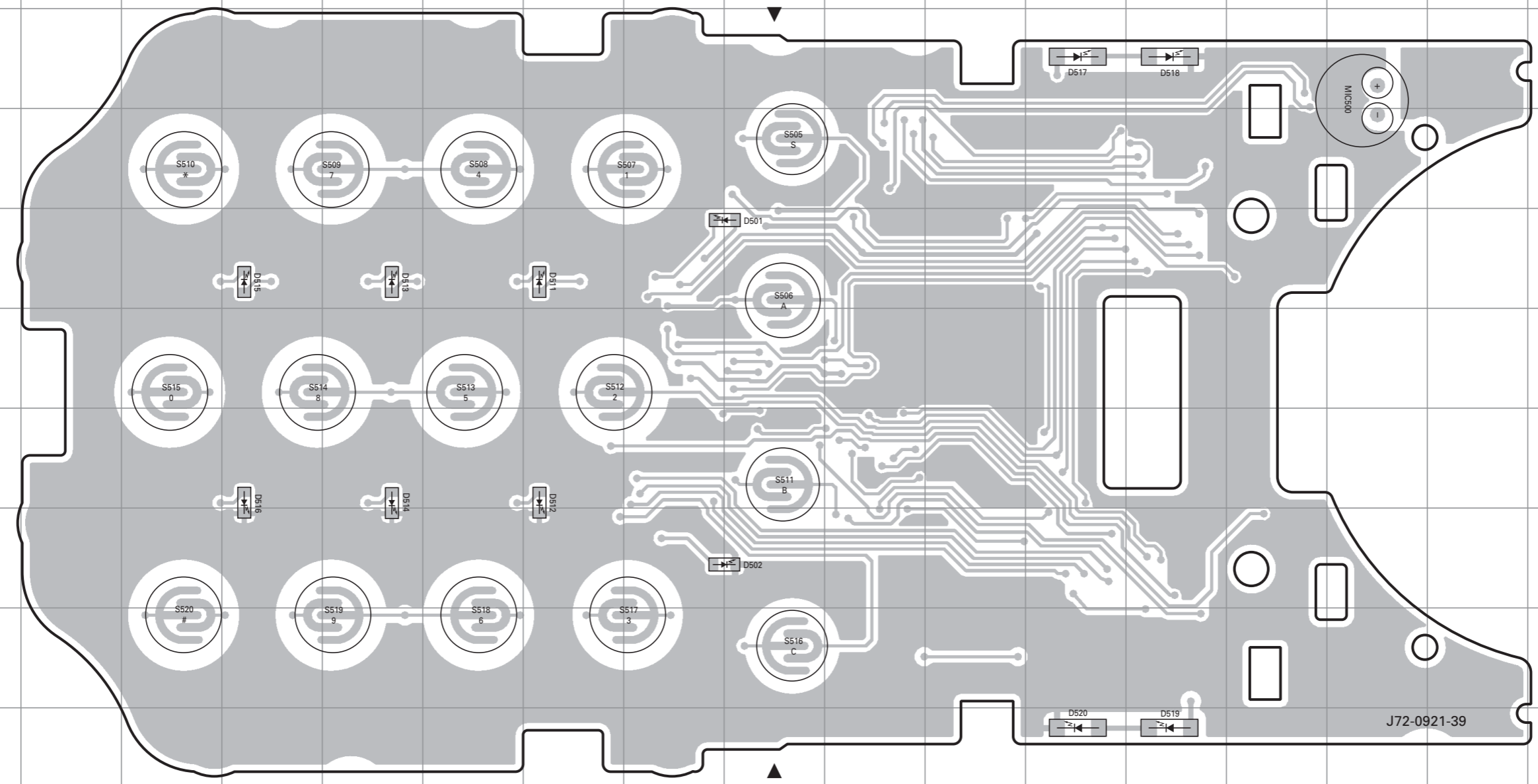


# TK-2180 PC BOARD

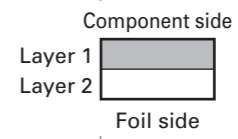
# PC BOARD TK-2180

DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Component side view (J72-0921-39)

DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Component side view (J72-0921-39)



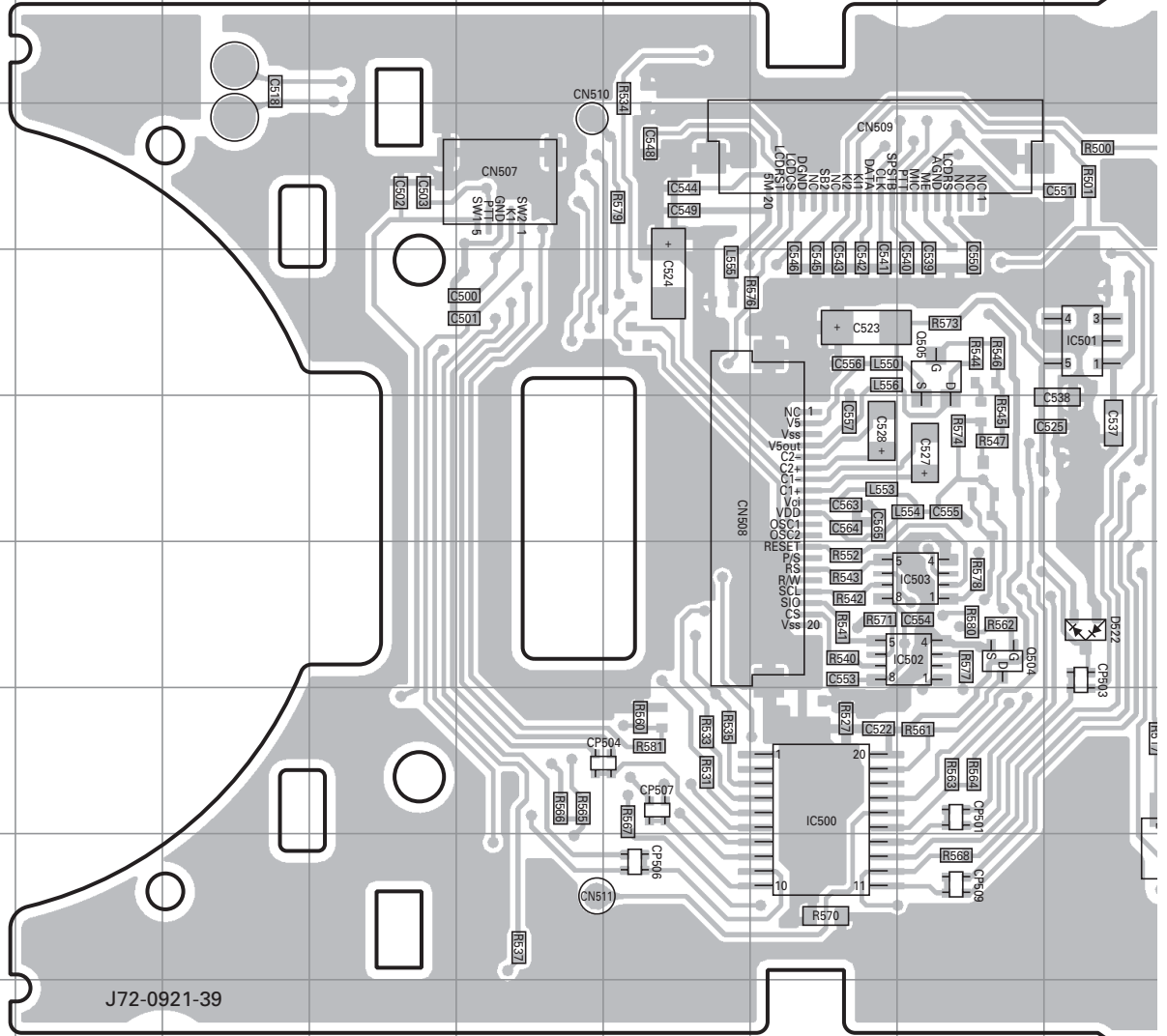
Ref. No.	Address	Ref. No.	Address
D501	5J	D515	5E
D502	8J	D516	7E
D511	5H	D517	3M
D512	7H	D518	3N
D513	5F	D519	10N
D514	7F	D520	10M



J72-0921-39

# TK-2180 PC BOARD

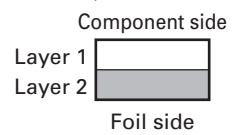
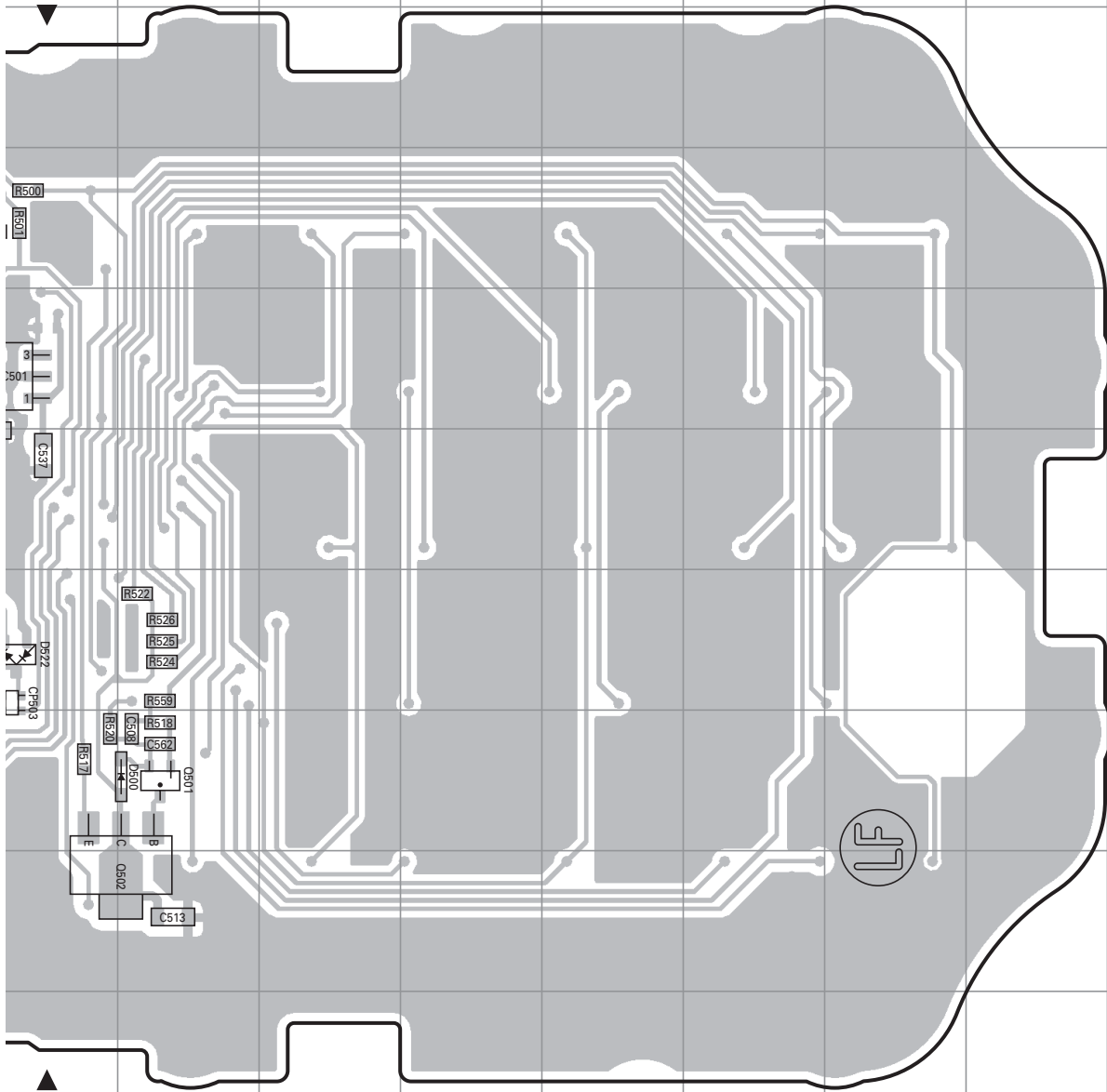
DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Foil side view (J72-0921-39)



Ref. No.	Address	Ref. No.	Address
IC500	8H	Q502	9K
IC501	5J	Q504	7I
IC502	7I	Q505	5I
IC503	7I	D500	8K
Q501	8K	D522	7J

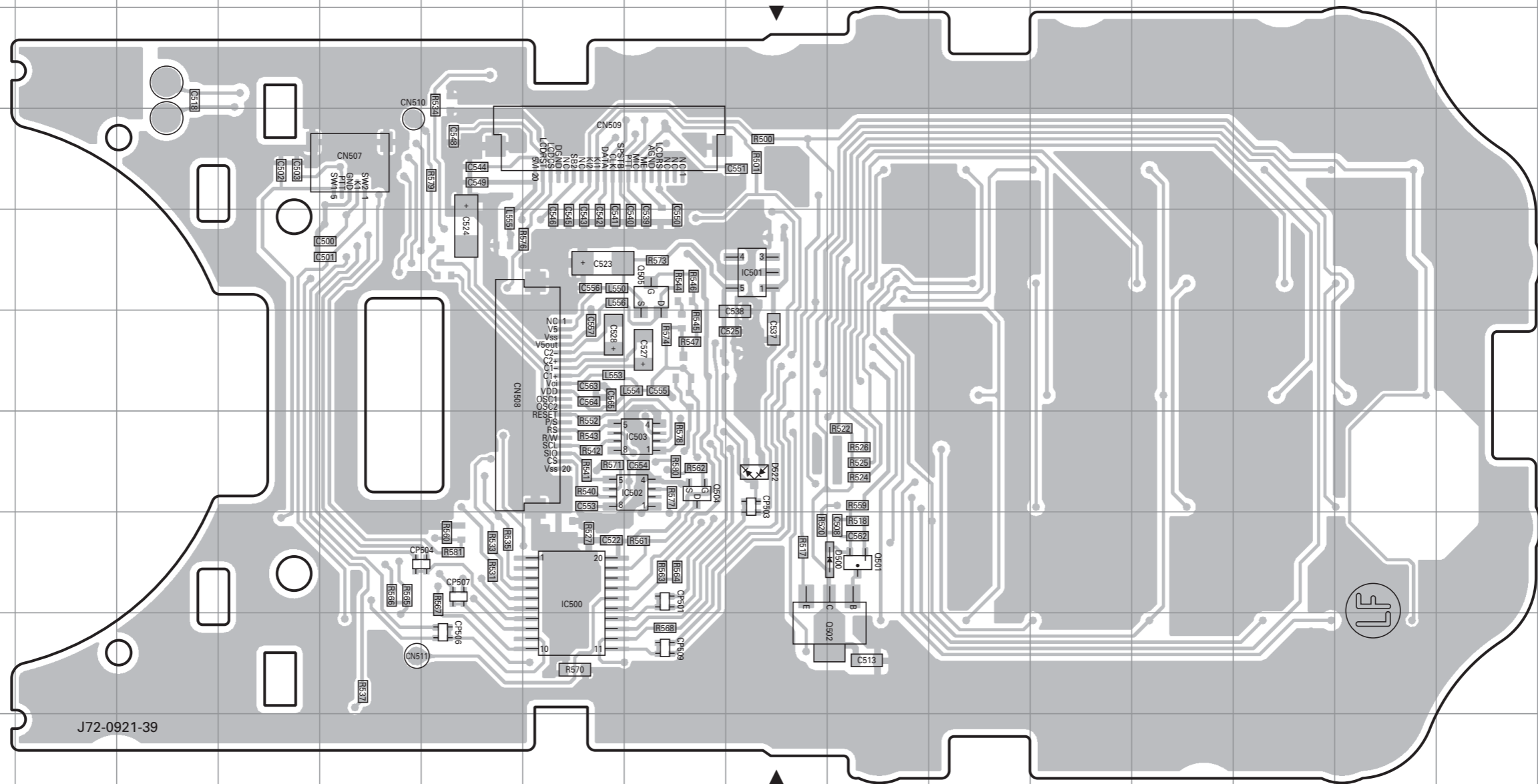
# PC BOARD TK-2180

DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Foil side view (J72-0921-39)

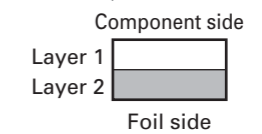


DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Foil side view (J72-0921-39)

DISPLAY UNIT (X54-3470-XX) -10 : K -11 : K2  
Foil side view (J72-0921-39)



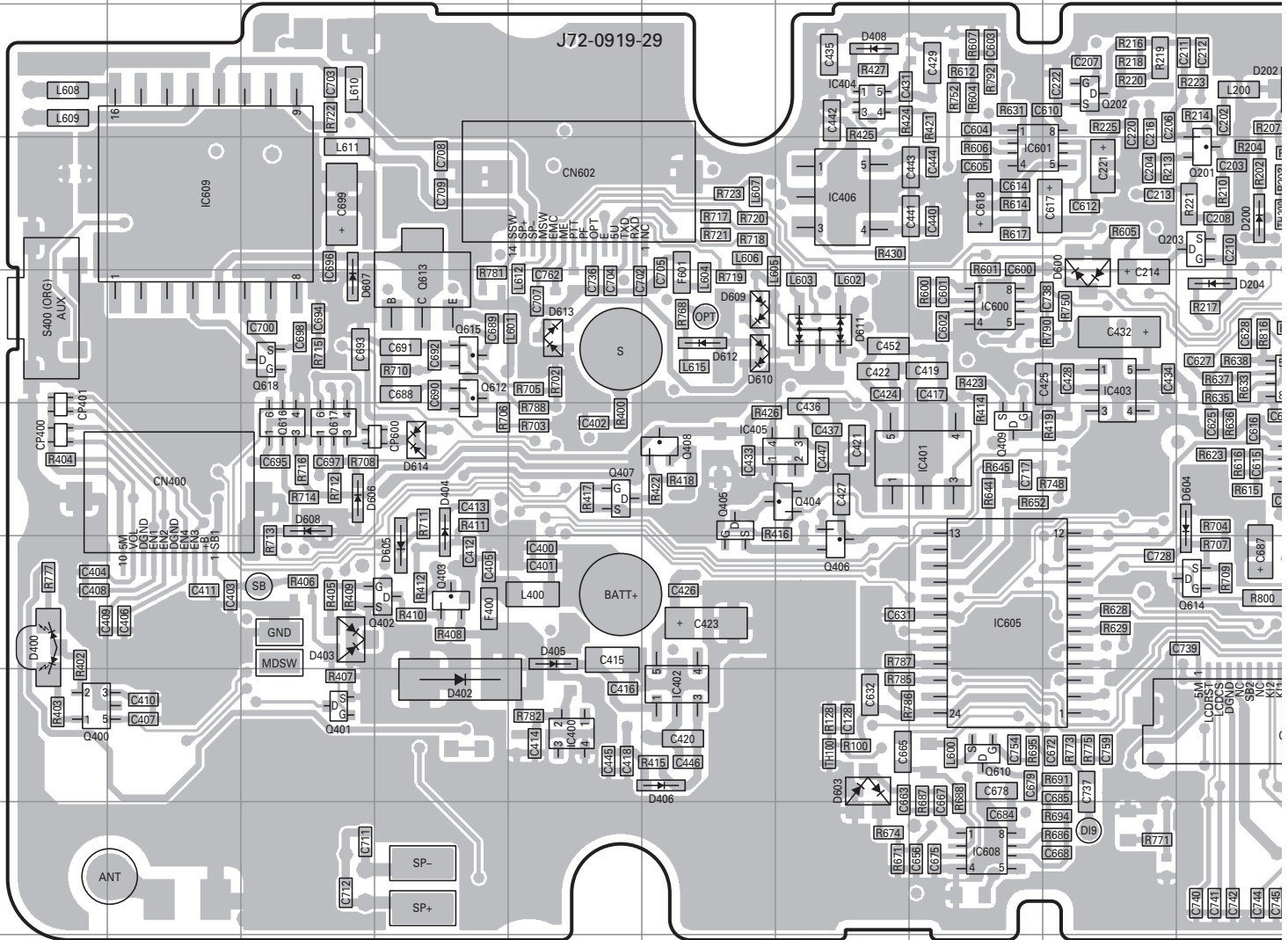
Ref. No.	Address	Ref. No.	Address
IC500	8H	Q502	9K
IC501	5J	Q504	7I
IC502	7I	Q505	5I
IC503	7I	D500	8K
Q501	8K	D522	7J





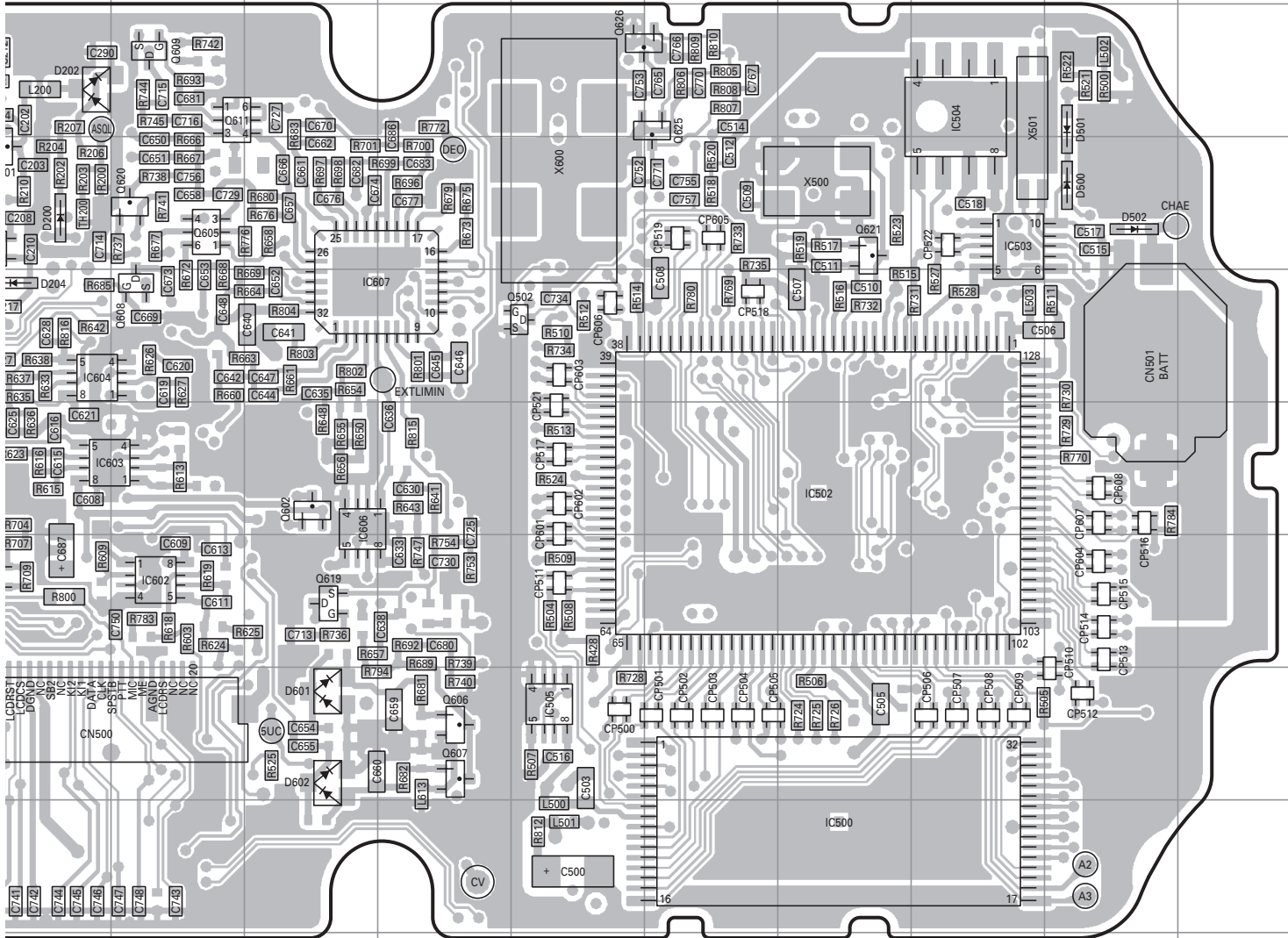
# TK-2180 PC BOARD

## TX-RX UNIT (X57-6930-10) Component side view (J72-0919-29)

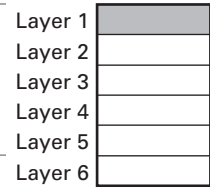


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC400	8E	IC602	7K	Q403	7D	Q610	8H	D200	4J	D601	8L
IC401	6H	IC603	6J	Q404	6G	Q611	3K	D202	3J	D602	8L
IC402	8F	IC604	5J	Q405	6F	Q612	5D	D204	5J	D603	8G
IC403	5I	IC605	7H	Q406	7G	Q613	5D	D400	7A	D604	6J
IC404	3G	IC606	6L	Q407	6E	Q614	7J	D402	8D	D605	7D
IC405	6G	IC607	5L	Q408	6F	Q615	5D	D403	7C	D606	6C
IC406	4G	IC608	9H	Q409	6H	Q616	6C	D404	6D	D607	5C
IC500	9P	IC609	4B	Q502	5N	Q617	6C	D405	7E	D608	6C
IC502	6P	Q201	4J	Q602	6L	Q618	5C	D406	8F	D609	5F
IC503	4Q	Q202	3I	Q605	4K	Q619	7L	D408	3G	D610	5F
IC504	3Q	Q203	4J	Q606	8M	Q620	4K	D500	4R	D611	5G
IC505	8N	Q400	8A	Q607	8M	Q621	4P	D501	3R	D612	5F
IC600	5H	Q401	8C	Q608	5K	Q625	3O	D502	4R	D613	5E
IC601	4H	Q402	7D	Q609	3K	Q626	3N	D600	5I	D614	6D

## TX-RX UNIT (X57-6930-10) Component side view (J72-0919-29)



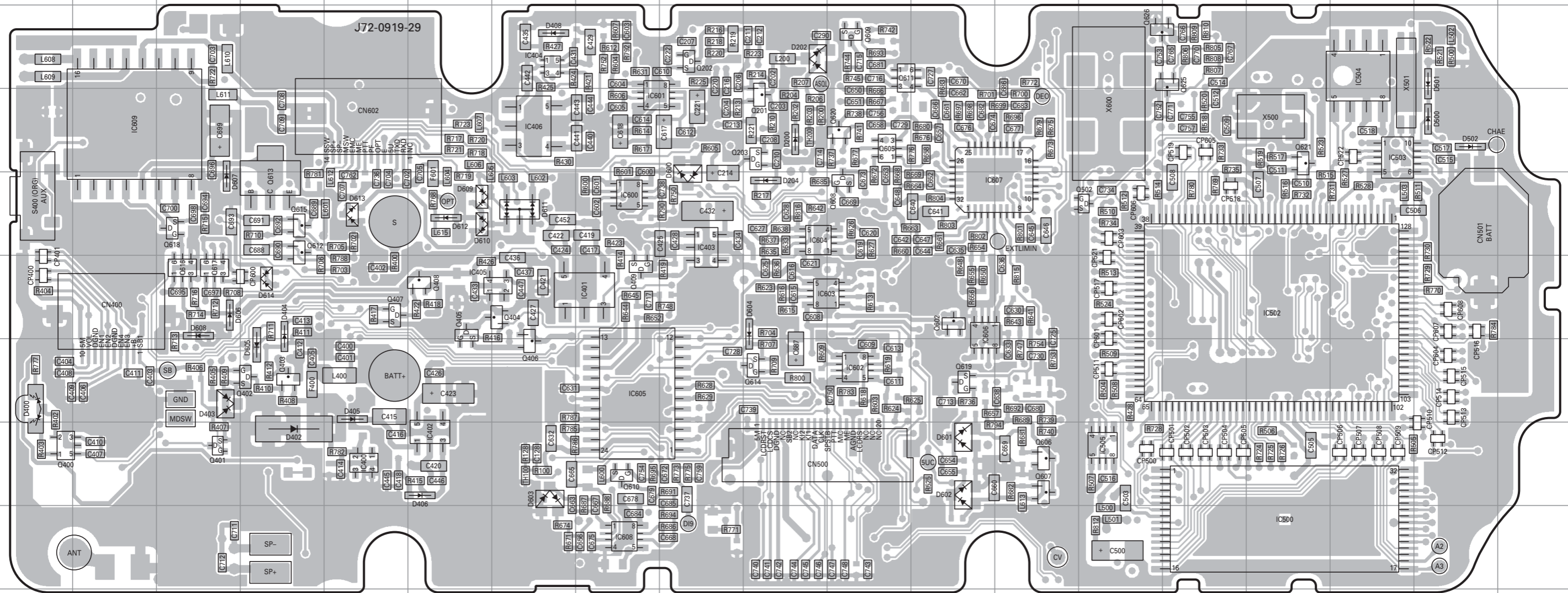
Component side



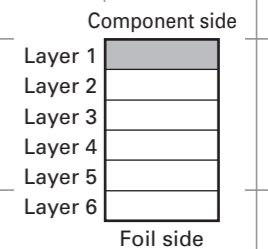
Foil side

TX-RX UNIT (X57-6930-10) Component side view (J72-0919-29)

TX-RX UNIT (X57-6930-10) Component side view (J72-0919-29)

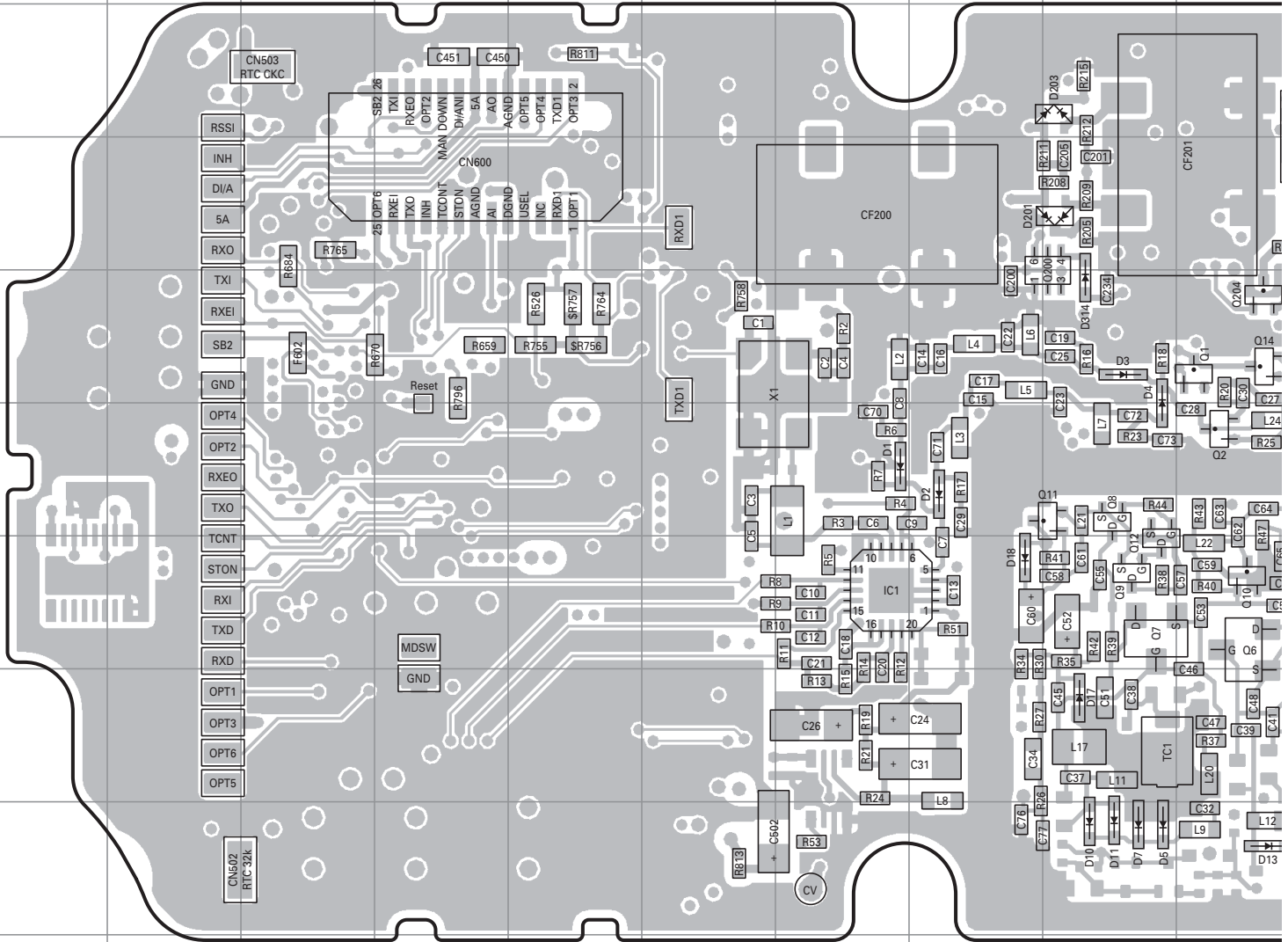


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC400	8E	IC602	7K	Q403	7D	Q610	8H	D200	4J	D601	8L
IC401	6H	IC603	6J	Q404	6G	Q611	3K	D202	3J	D602	8L
IC402	8F	IC604	5J	Q405	6F	Q612	5D	D204	5J	D603	8G
IC403	5I	IC605	7H	Q406	7G	Q613	5D	D400	7A	D604	6J
IC404	3G	IC606	6L	Q407	6E	Q614	7J	D402	8D	D605	7D
IC405	6G	IC607	5L	Q408	6F	Q615	5D	D403	7C	D606	6C
IC406	4G	IC608	9H	Q409	6H	Q616	6C	D404	6D	D607	5C
IC500	9P	IC609	4B	Q502	5N	Q617	6C	D405	7E	D608	6C
IC502	6P	Q201	4J	Q602	6L	Q618	5C	D406	8F	D609	5F
IC503	4Q	Q202	3I	Q605	4K	Q619	7L	D408	3G	D610	5F
IC504	3Q	Q203	4J	Q606	8M	Q620	4K	D500	4R	D611	5G
IC505	8N	Q400	8A	Q607	8M	Q621	4P	D501	3R	D612	5F
IC600	5H	Q401	8C	Q608	5K	Q625	3O	D502	4R	D613	5E
IC601	4H	Q402	7D	Q609	3K	Q626	3N	D600	5I	D614	6D



# TK-2180 PC BOARD

## TX-RX UNIT (X57-6930-10) Foil side view (J72-0919-29)

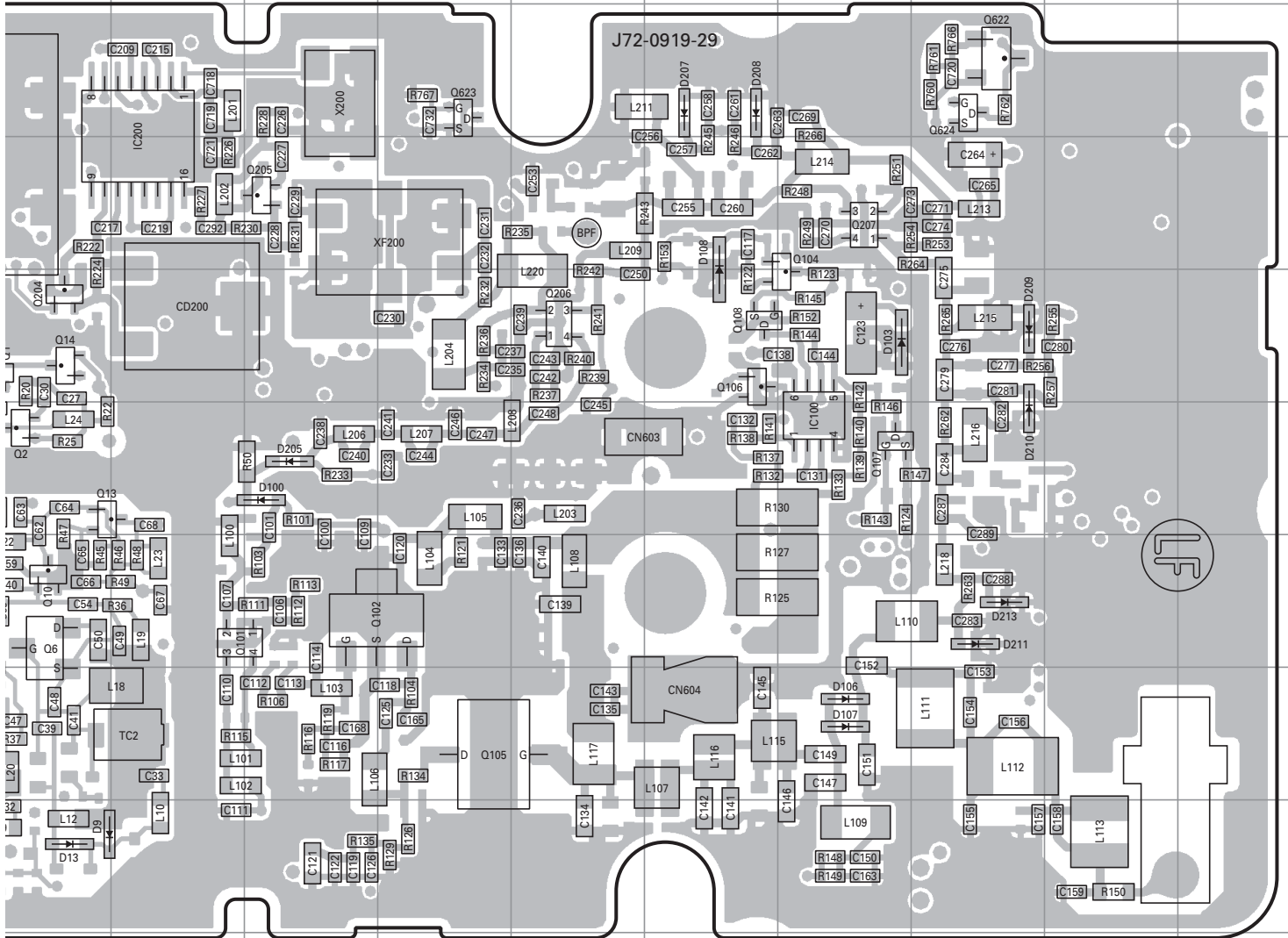


The components marked with a \$ are not mounted parts on the PCB.

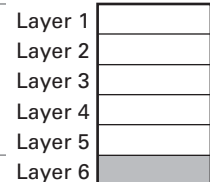
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	7G	Q11	6I	Q108	5O	D2	6H	D18	7H	D208	3O
IC100	6P	Q12	7I	Q200	5I	D3	5I	D100	6L	D209	5Q
IC200	4K	Q13	6J	Q204	5J	D4	5I	D103	5P	D210	6Q
Q1	5J	Q14	5J	Q205	4L	D5	9I	D106	8P	D211	7Q
Q2	6J	Q101	7K	Q206	5N	D7	9I	D107	8P	D213	7Q
Q6	7J	Q102	7L	Q207	4P	D9	9J	D108	4O	D314	5I
Q7	7I	Q104	5P	Q622	3Q	D10	9I	D201	4I		
Q8	6I	Q105	8M	Q623	3M	D11	9I	D203	3I		
Q9	7I	Q106	5O	Q624	3Q	D13	9J	D205	6L		
Q10	7J	Q107	6P	D1	6G	D17	8I	D207	3O		

# PC BOARD TK-2180

## TX-RX UNIT (X57-6930-10) Foil side view (J72-0919-29)



Component side



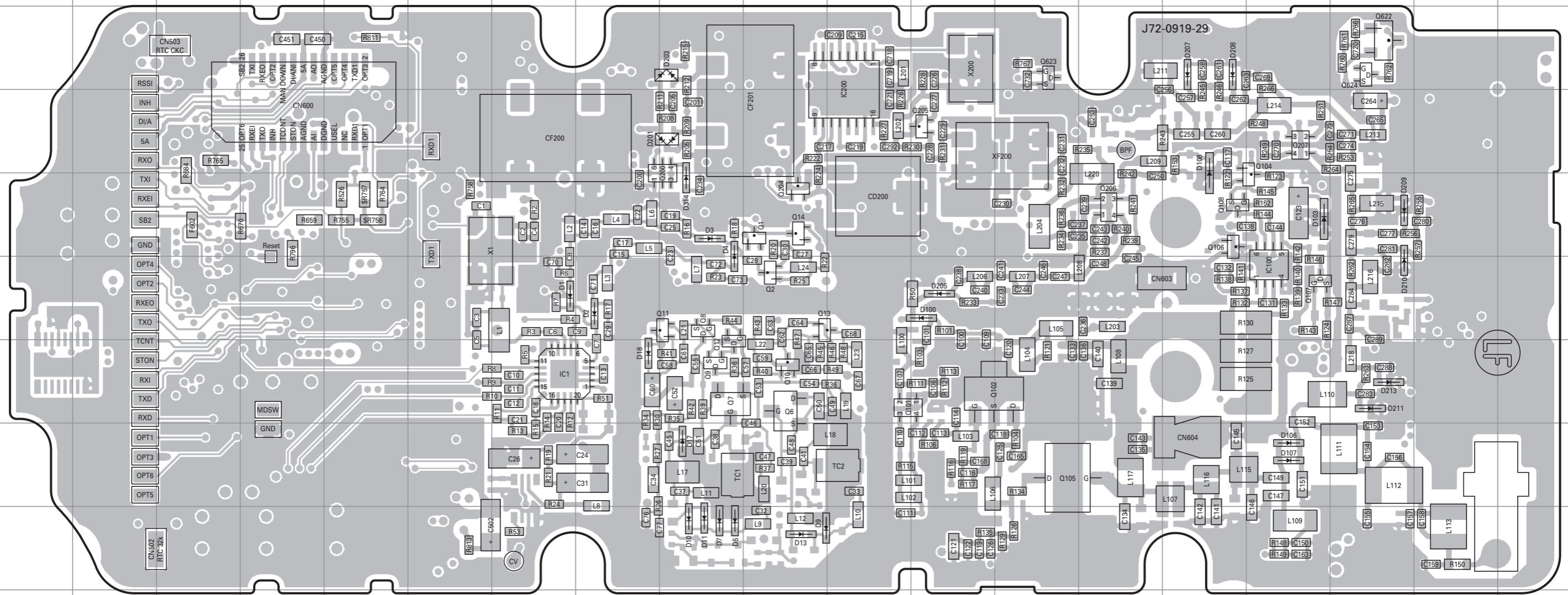
Foil side

# TK-2180 PC BOARD

# PC BOARD TK-2180

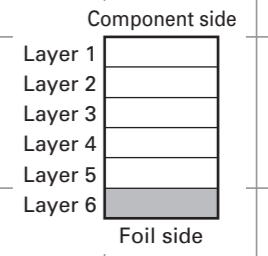
TX-RX UNIT (X57-6930-10) Foil side view (J72-0919-29)

TX-RX UNIT (X57-6930-10) Foil side view (J72-0919-29)



The components marked with a \$ are not mounted parts on the PCB.

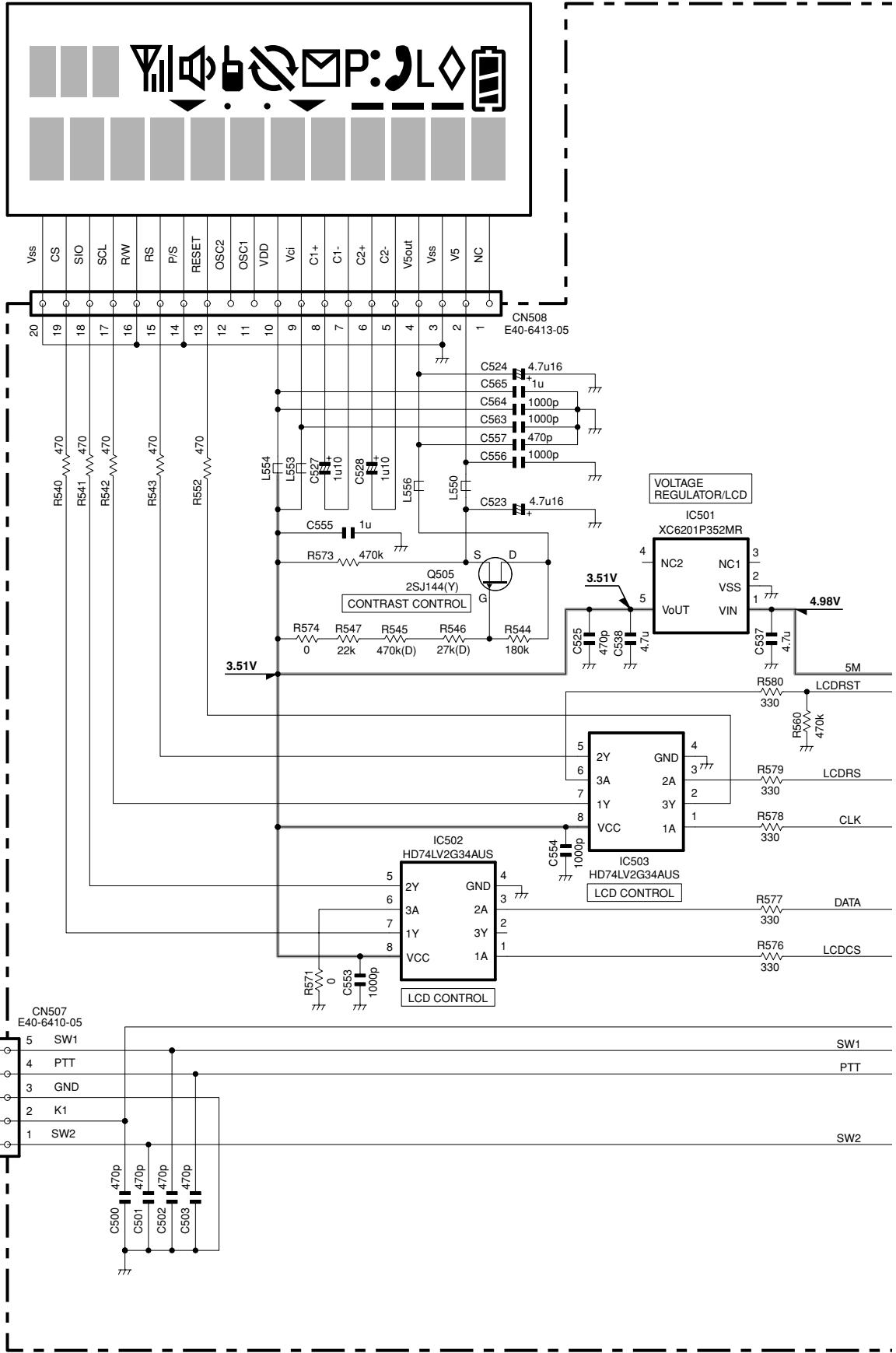
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	7G	Q11	6I	Q108	5O	D2	6H	D18	7H	D208	3O
IC100	6P	Q12	7I	Q200	5I	D3	5I	D100	6L	D209	5Q
IC200	4K	Q13	6J	Q204	5J	D4	5I	D103	5P	D210	6Q
Q1	5J	Q14	5J	Q205	4L	D5	9I	D106	8P	D211	7Q
Q2	6J	Q101	7K	Q206	5N	D7	9I	D107	8P	D213	7Q
Q6	7J	Q102	7L	Q207	4P	D9	9J	D108	4O	D314	5I
Q7	7I	Q104	5P	Q622	3Q	D10	9I	D201	4I		
Q8	6I	Q105	8M	Q623	3M	D11	9I	D203	3I		
Q9	7I	Q106	5O	Q624	3Q	D13	9J	D205	6L		
Q10	7J	Q107	6P	D1	6G	D17	8I	D207	3O		



# TK-2180 SCHEMATIC DIAGRAM

LCD ASSY (B38-0900-05)

DISPLAY UNIT (X54-3470-XX)



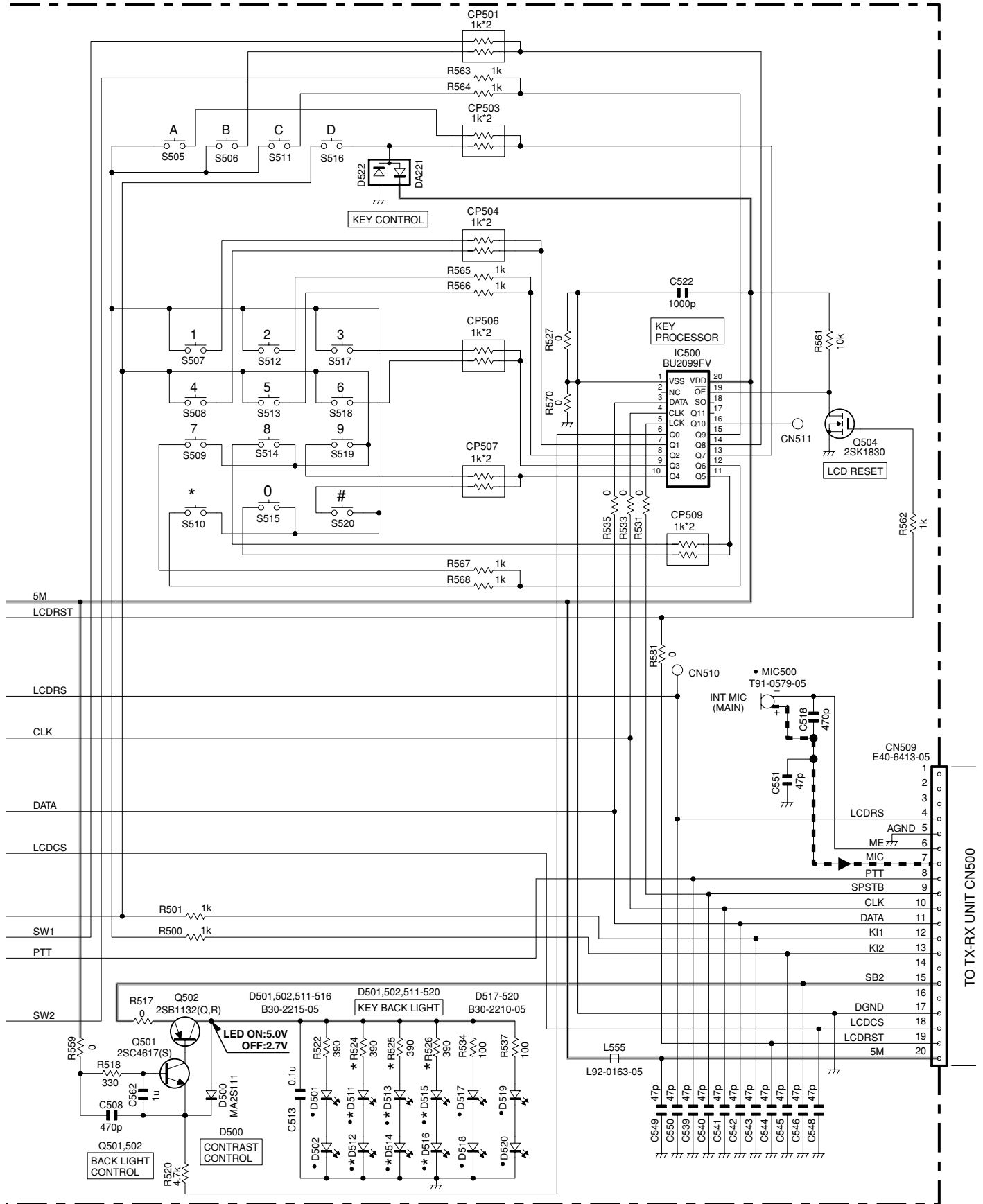
SIDE KEY SECTION



X54-3470-XX		D511	D512	D513	D514	D515	D516	R524	R525	R526
-10	K	NO	NO	NO	NO	NO	NO	NO	NO	NO
-11	K2	B30-2215-05	B30-2215-05	B30-2215-05	B30-2215-05	B30-2215-05	B30-2215-05	390	390	390

# SCHEMATIC DIAGRAM TK-2180

DISPLAY UNIT (X54-3470-XX)

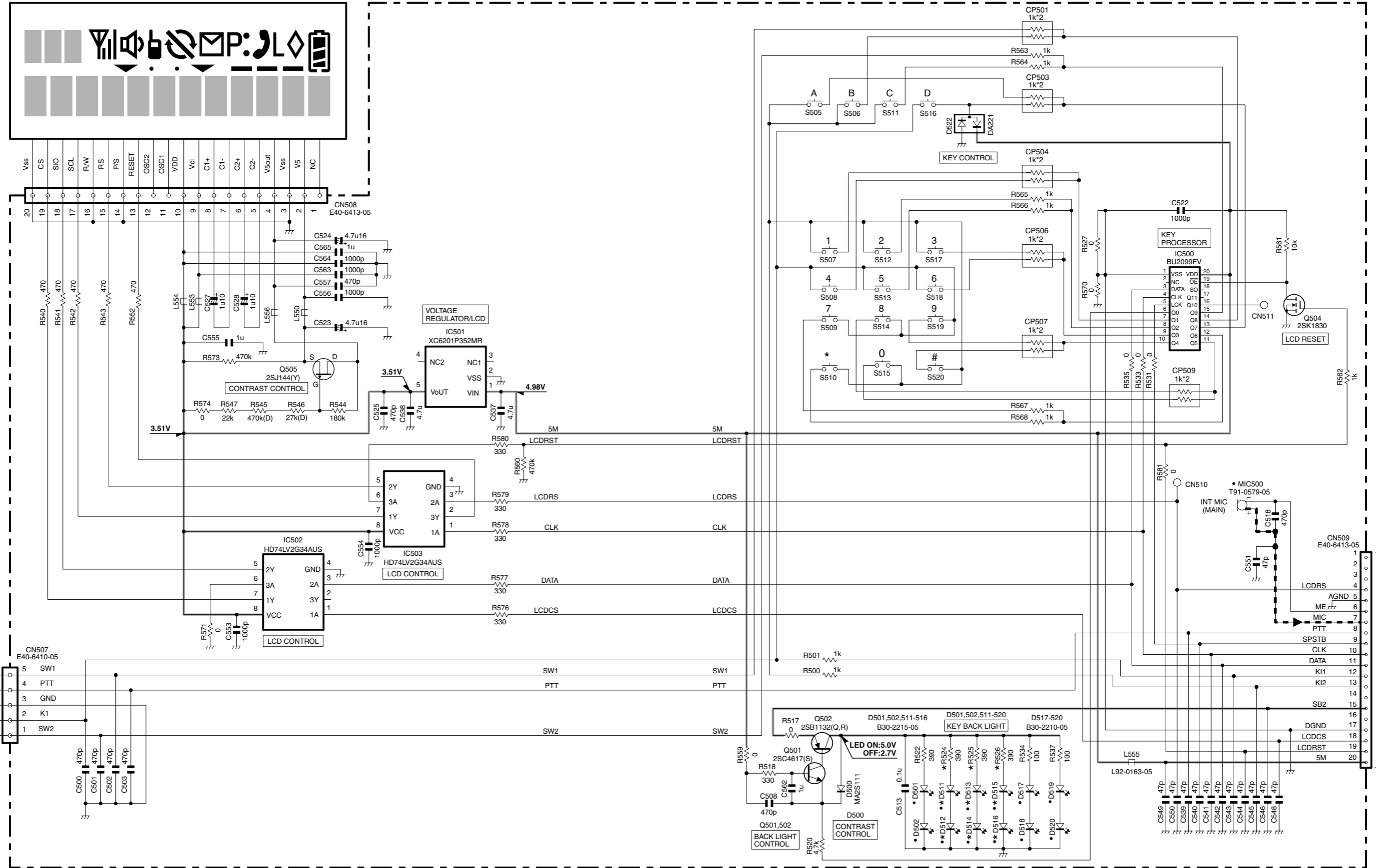


**Note :** The components marked with a dot (•) are parts of layer 1.

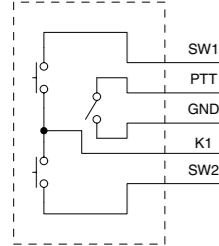


LCD ASSY (B38-0900-05)

DISPLAY UNIT (X54-3470-XX)



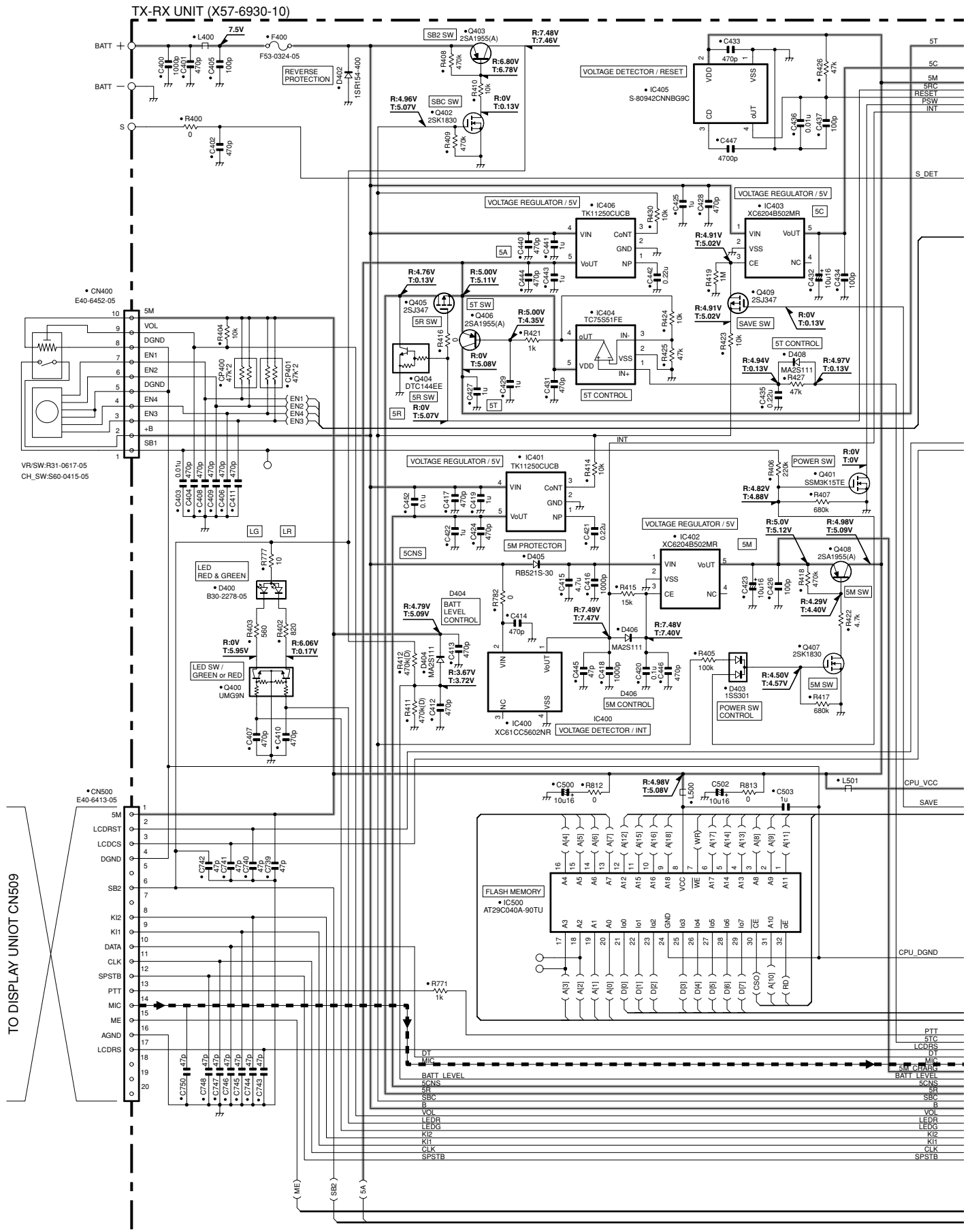
SIDE KEY SECTION



X54-3470-XX	D511	D512	D513	D514	D515	D516	R524	R525	R526
-10	K	NO	NO	NO	NO	NO	NO	NO	NO
-11	K2	B30-2215-05	B30-2215-05	B30-2215-05	B30-2215-05	B30-2215-05	390	390	390

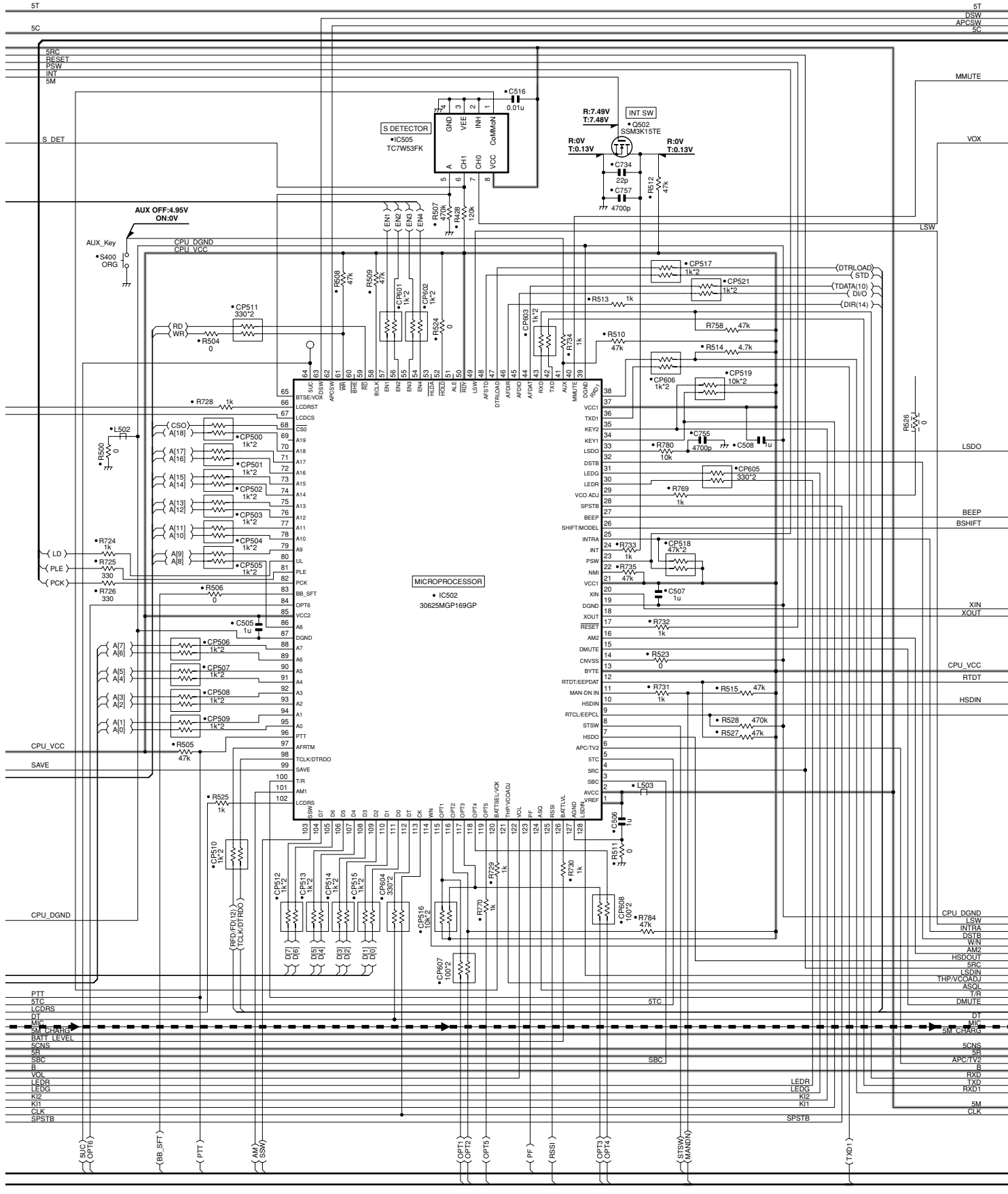
TO TX-RX UNIT CN500

# TK-2180 SCHEMATIC DIAGRAM



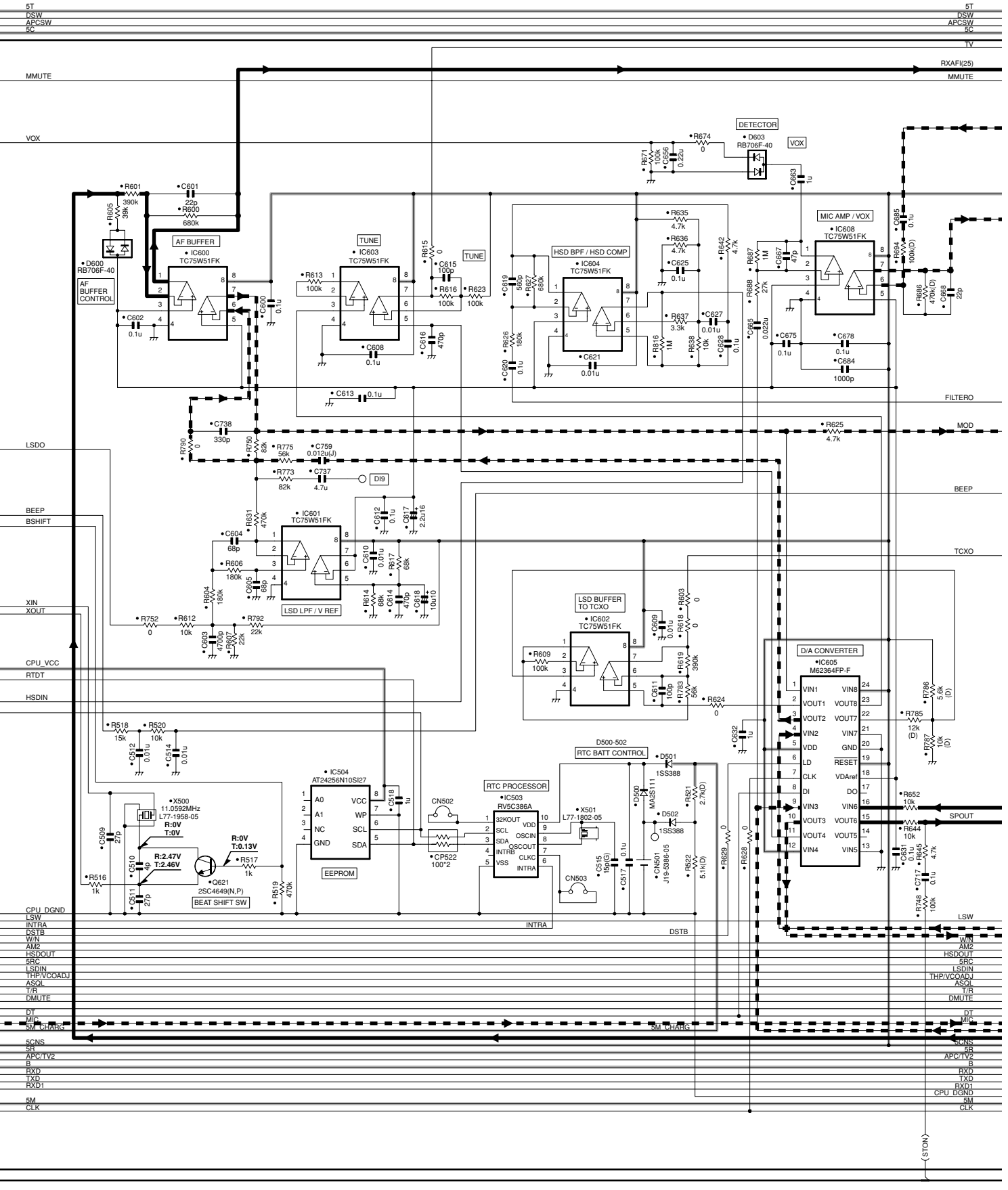
# SCHEMATIC DIAGRAM TK-2180

TX-RX UNIT (X57-6930-10)



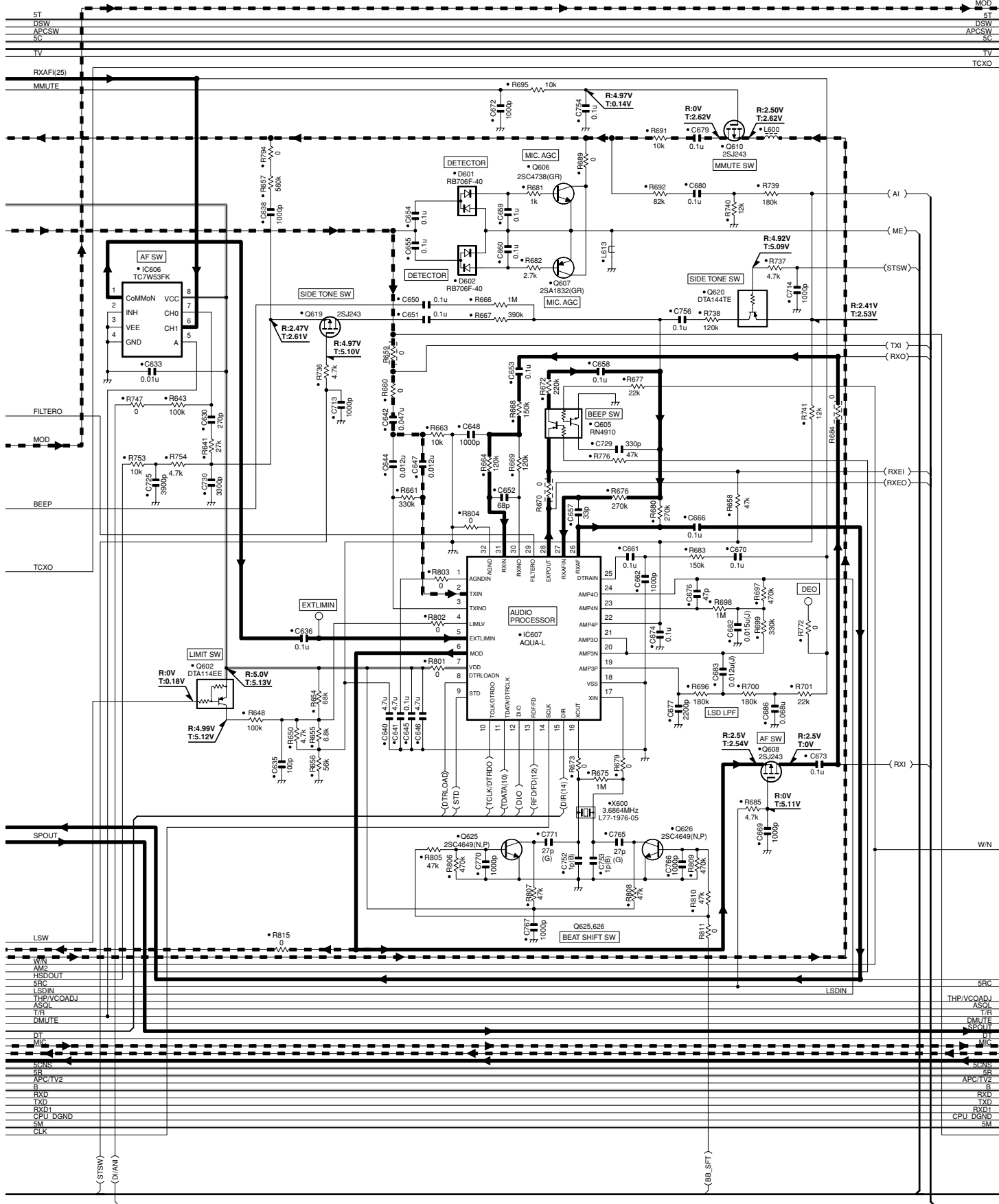
# TK-2180 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-6930-10)



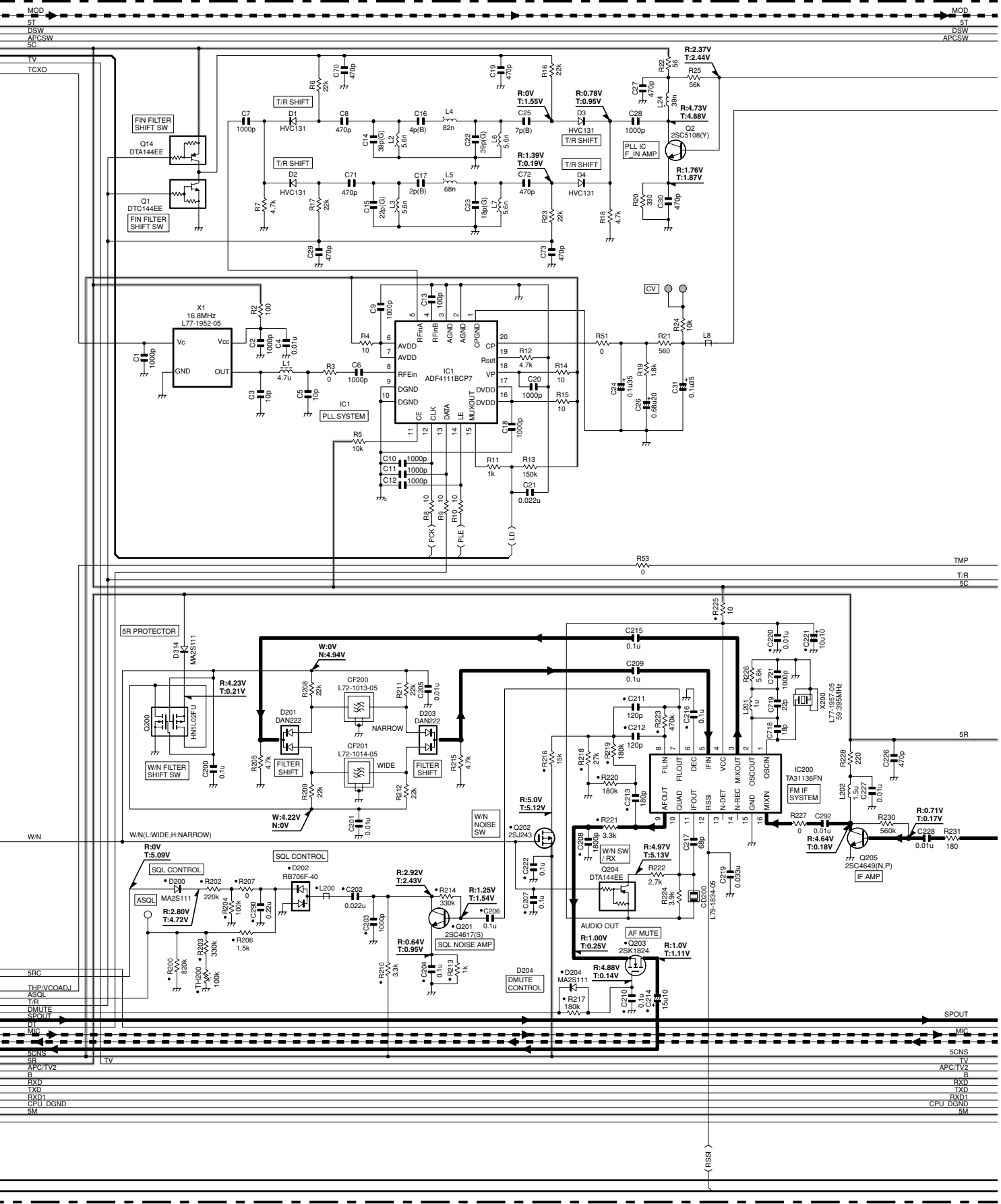
# SCHEMATIC DIAGRAM TK-2180

TX-RX UNIT (X57-6930-10)



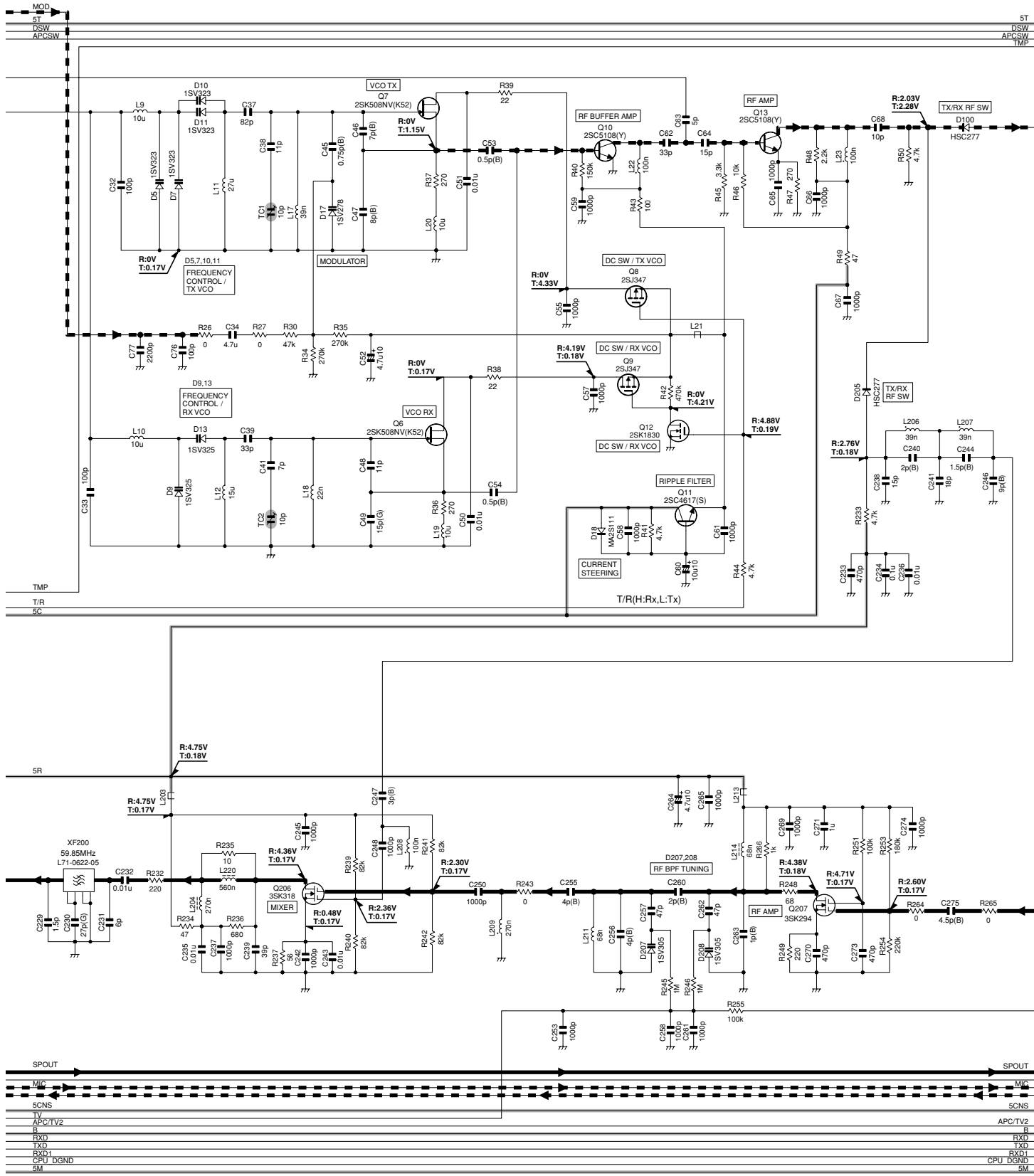
# TK-2180 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-6930-10)



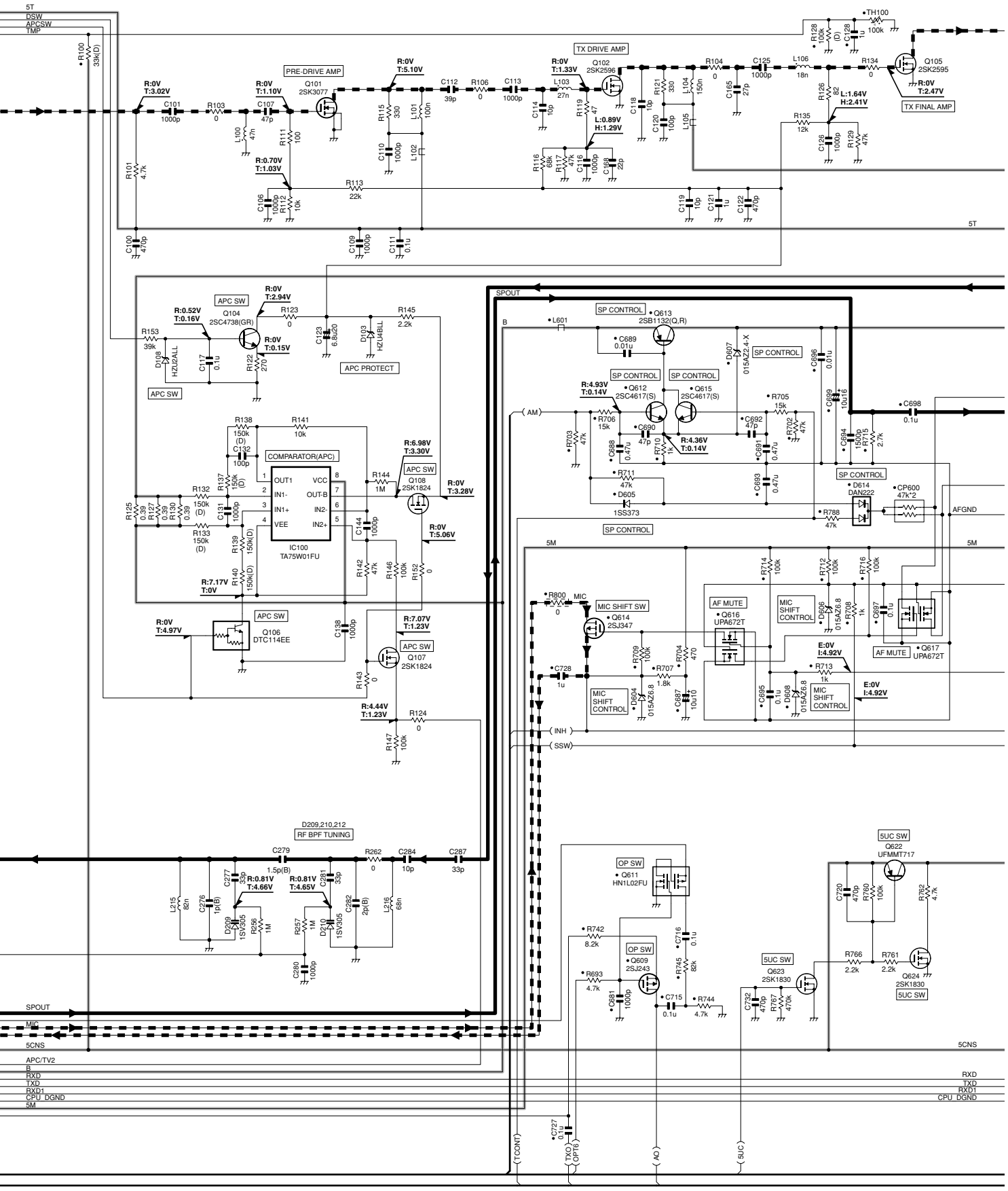
# SCHEMATIC DIAGRAM TK-2180

TX-RX UNIT (X57-6930-10)



# TK-2180 SCHEMATIC DIAGRAM

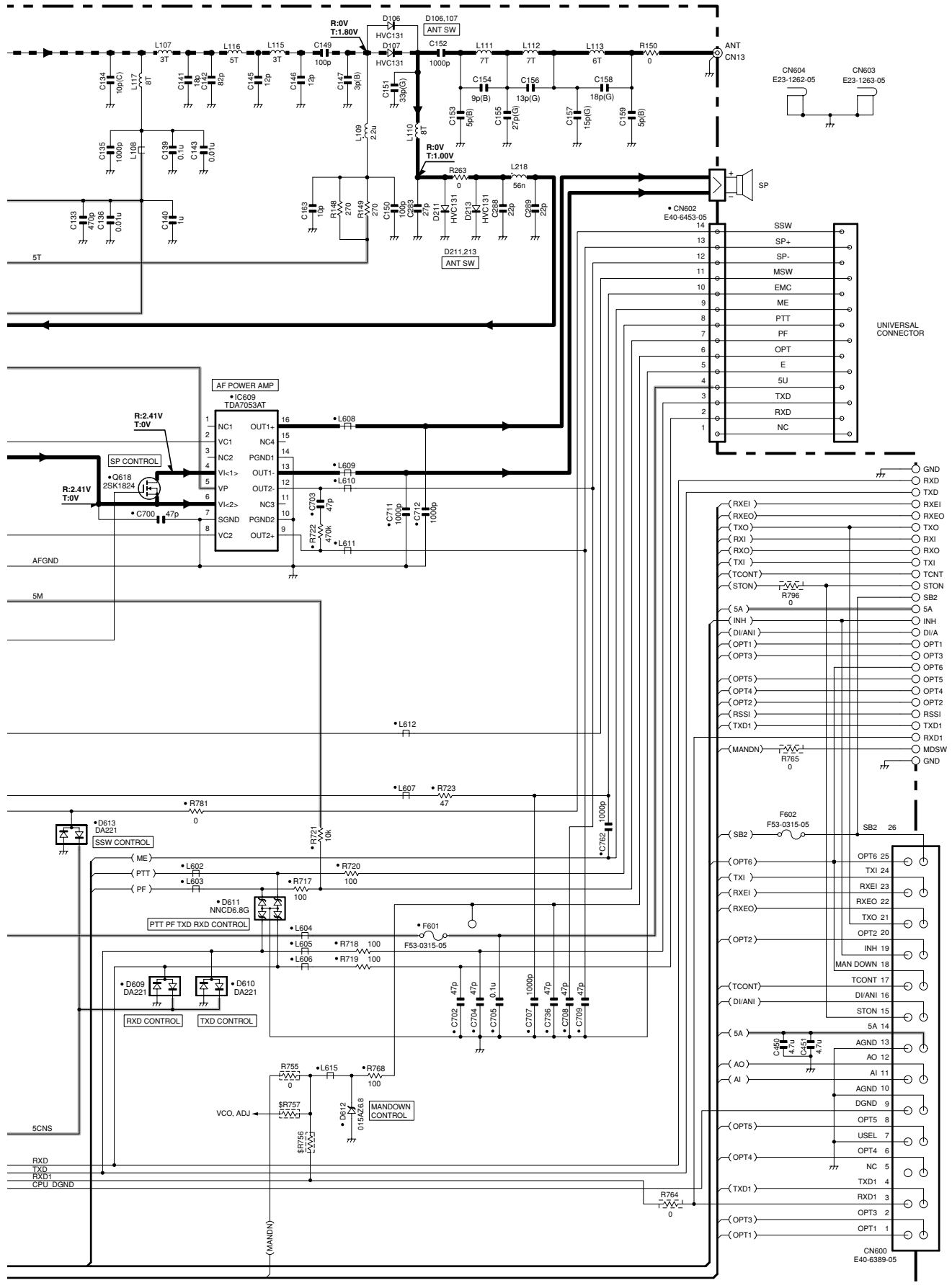
TX-RX UNIT (X57-6930-10)



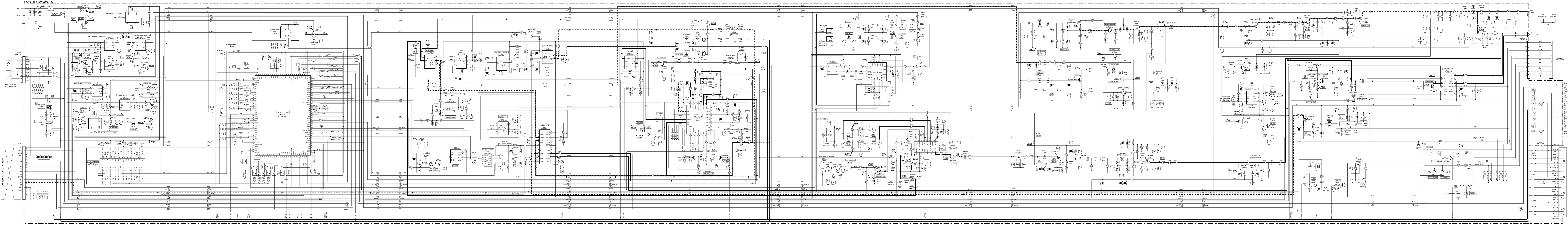


## SCHEMATIC DIAGRAM TK-2180

TX-RX UNIT (X57-6930-10)



Note : The components marked with a dot (•) are parts of layer 1.

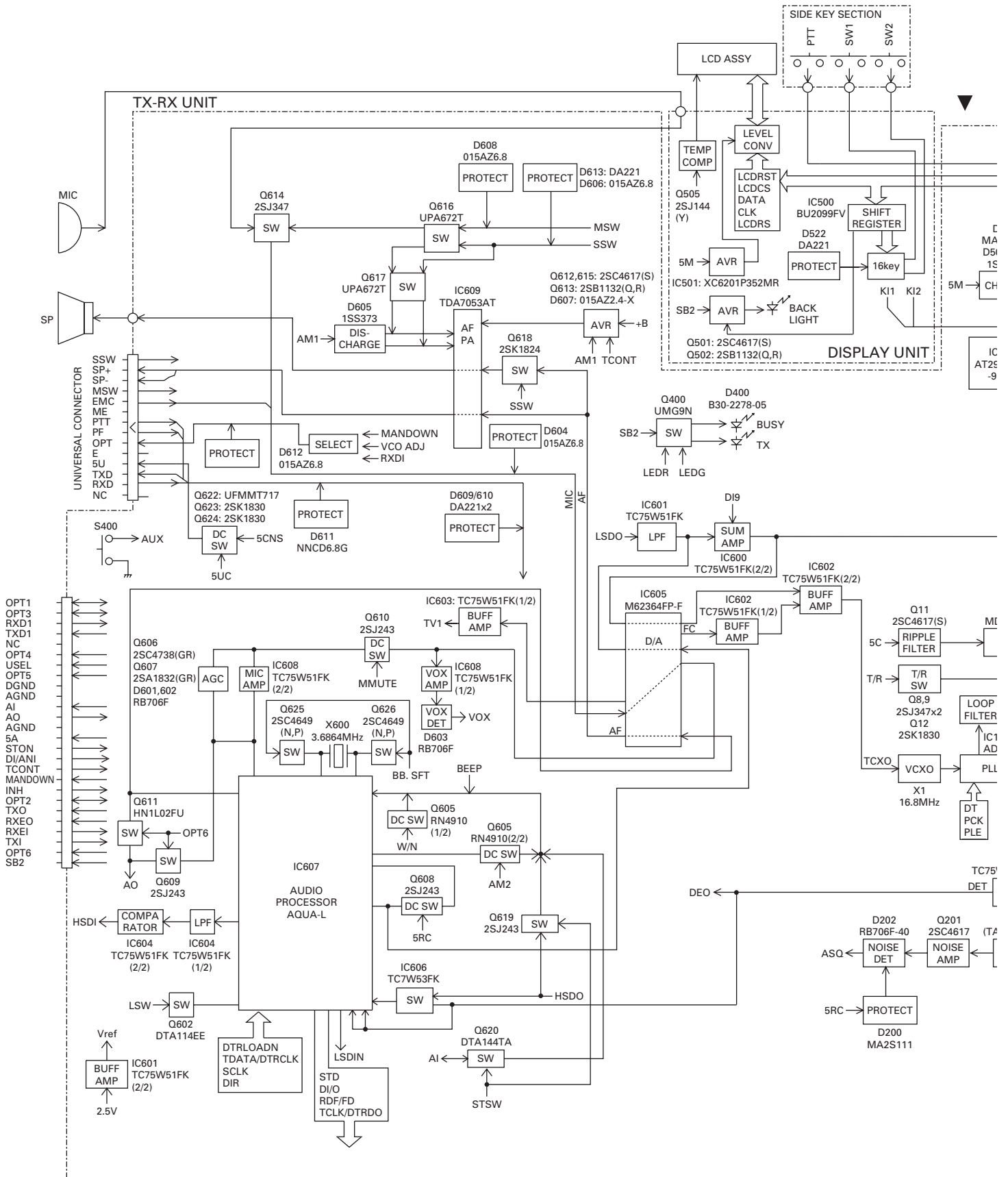


TO DISPLAY UNIT (CN59)

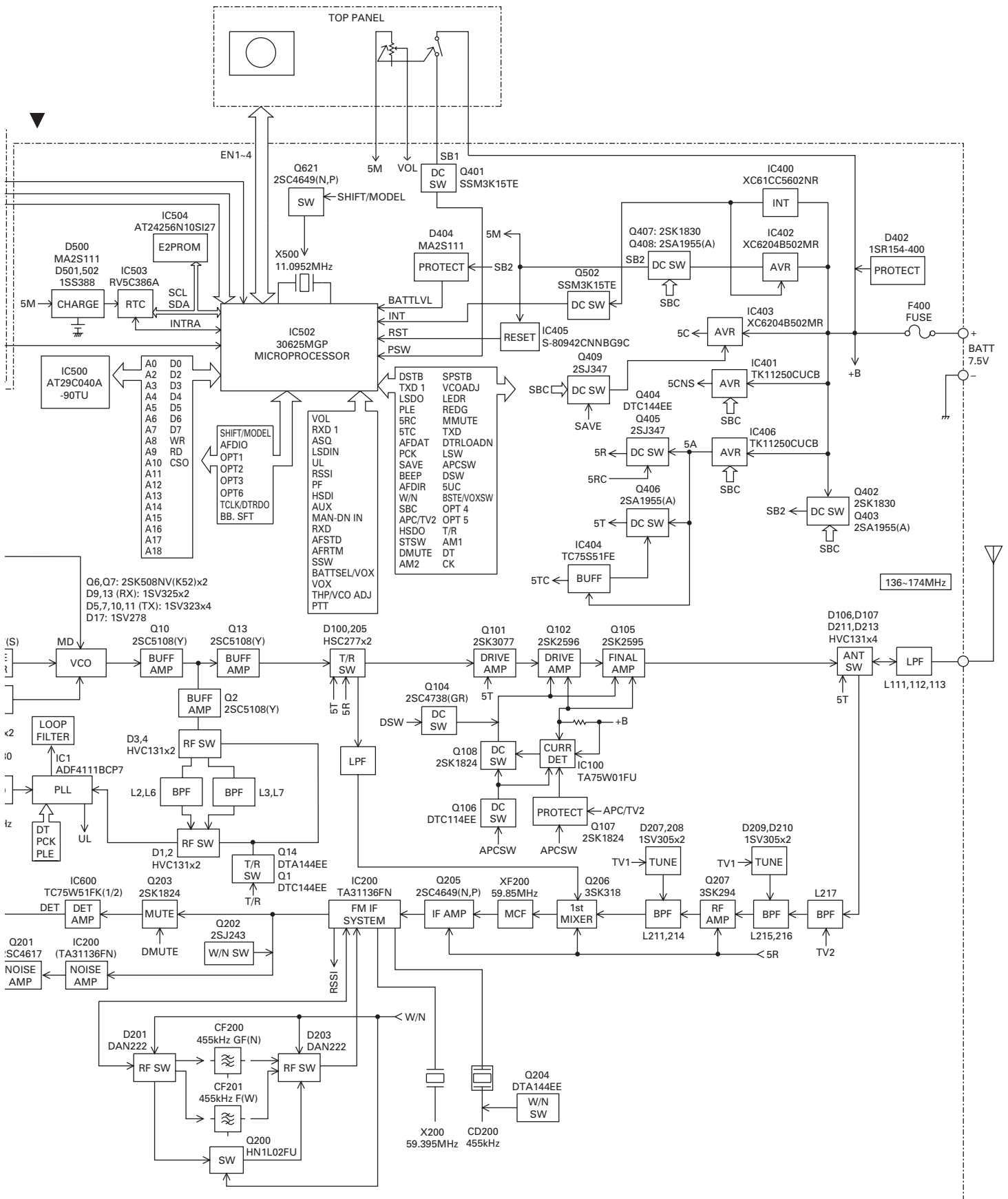
UNIVERSAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	

6-00000-10

## BLOCK DIAGRAM

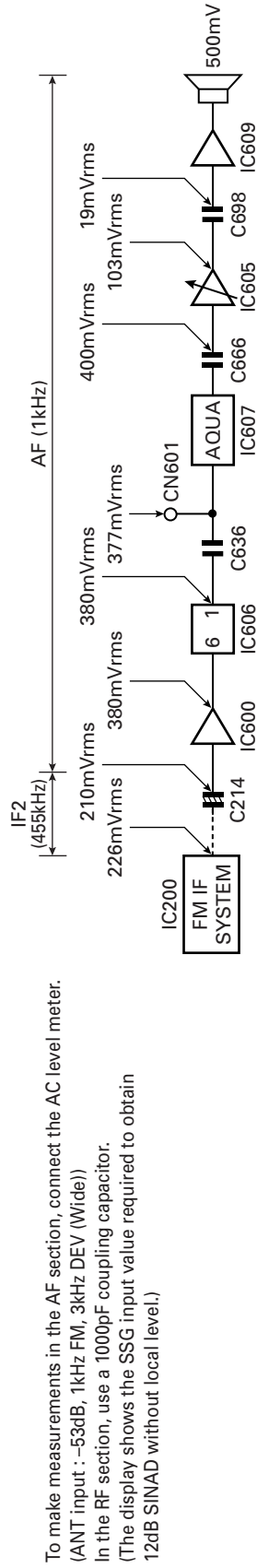
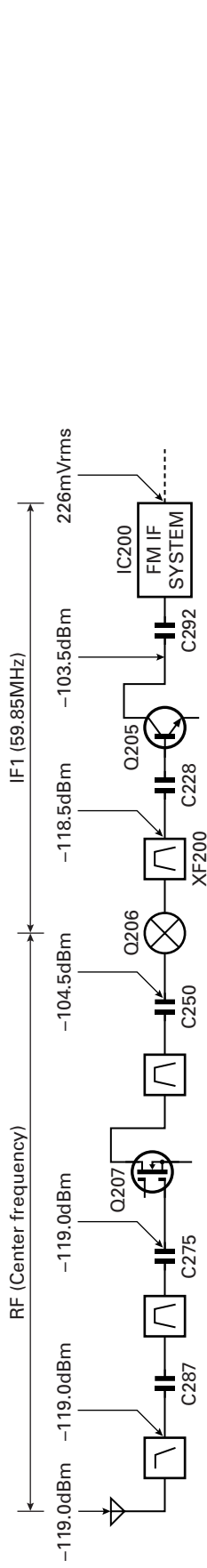


## BLOCK DIAGRAM



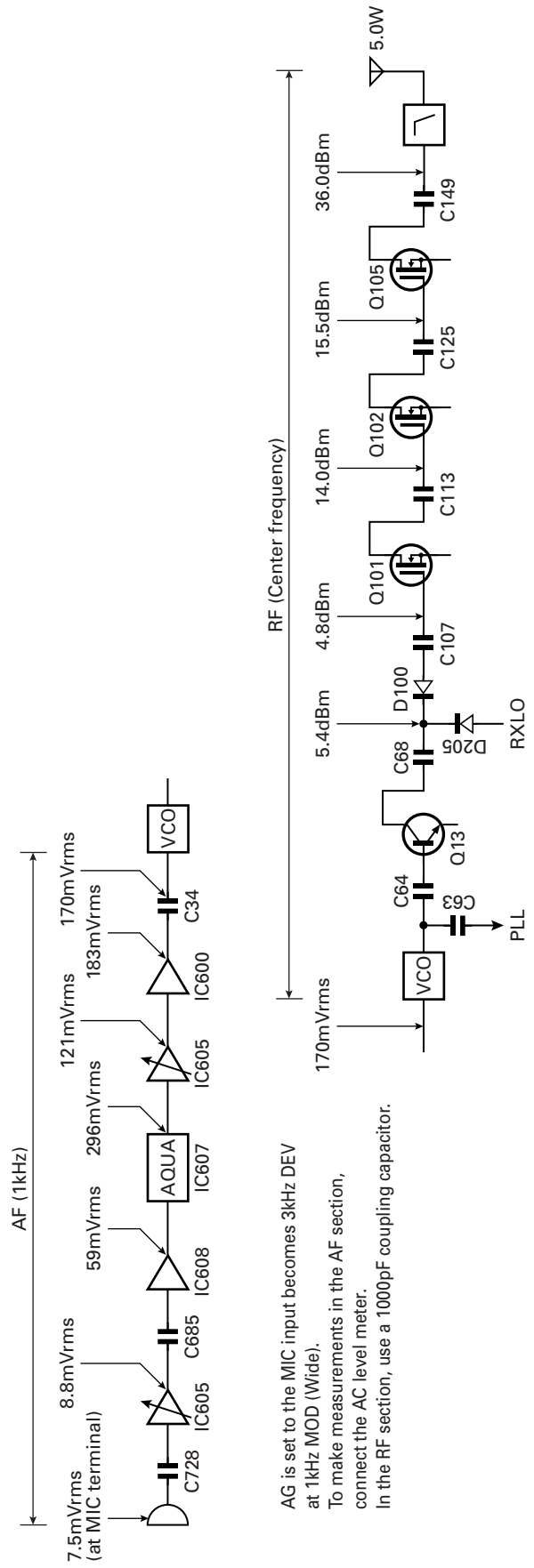
## LEVEL DIAGRAM

### Receiver Section



To make measurements in the AF section, connect the AC level meter.  
 (ANT input : -53dB, 1kHz FM, 3kHz DEV (Wide))  
 In the RF section, use a 1000pF coupling capacitor.  
 (The display shows the SSG input value required to obtain  
 12dB SINAD without local level.)

### Transmitter Section



AG is set to the MIC input becomes 3kHz DEV  
 at 1kHz MOD (Wide).  
 To make measurements in the AF section,  
 connect the AC level meter.  
 In the RF section, use a 1000pF coupling capacitor.

## SPECIFICATIONS

### GENERAL

Frequency range .....	136~174MHz	
Number of channels .....	Zone : Max. 128 per radio	Ch/GID : Max. 250 per zones (Max. 512 [Conv. Ch's + GID's] total per radio)
Channel spacing .....	Wide : 25, 30kHz	Narrow : 12.5, 15kHz
Battery voltage .....	7.5V DC $\pm$ 20%	
Battery life (5-5-90 duty cycle) / Approx. hours		
KNB-31A (1700mAh) .....	9	
KNB-32N (2500mAh) .....	14	
KNB-33L (1700mAh) .....	10	
Operating temperature range .....	-22°F~+140°F (-30°C~+60°C)	
Frequency stability .....	$\pm$ 0.00025% (-22°F~+140°F)	
Antenna impedance .....	50 $\Omega$	
Channel frequency spread .....	38MHz	
Dimensions (W x H x D) .....	2-5/16 x 5-6/16 x 1-5/16 in. (58 x 136 x 33 mm) with KNB-33L battery	
(Projections not included) .....	2-5/16 x 5-6/16 x 1-9/16 in. (58 x 136 x 39.5 mm) with KNB-31A or 32N battery	
Weight (net) .....	14.1 oz. (400 g) with battery (KNB-33L), antenna (KRA-22) and beltclip (KBH-11)	

### RECEIVER (Measurements made per EIA/TIA-603)

Sensitivity (12dB SINAD) .....	Wide : 0.25 $\mu$ V	Narrow : 0.28 $\mu$ V
Selectivity .....	Wide : 70dB	Narrow : 65dB
Intermodulation distortion .....	W/N : 70dB ( $\pm$ 50, 100kHz)	
Spurious response .....	70dB	
Audio output (8 $\Omega$ impedance) .....	500mW with less than 3% distortion	

### TRANSMITTER (Measurements made per EIA/TIA-603)

RF power output .....	HI : 5W	LO : 1W
Spurious response .....	70dB	
Modulation .....	Wide : 16K0F3E	Narrow : 11K0F3E
FM hum & noise .....	Wide : 45dB	Narrow : 40dB
Audio distortion .....	W/N : 3%	

## Kenwood Corporation

2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan

### Kenwood U.S.A. Corporation

P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

### Kenwood Electronics Canada Inc.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

### Kenwood Electronics Deutschland GmbH.

Rembrücker Str. 15, 63150 Heusenstamm, Germany

### Kenwood Electronics Belgium N.V.

Leuvensesteenweg 248 J, 1800 Vilvoorde, Belgium

### Kenwood Electronics France S.A.

13, Boulevard Ney, 75018 Paris, France

### Kenwood Electronics U.K. Ltd.

KENWOOD House, Dwight Road, Watford, Herts., WD18 9EB United Kingdom

### Kenwood Electronics Europe B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

### Kenwood Electronics Italia S.p.A.

Via G. Sirtori, 7/9 20129 Milano, Italy

### Kenwood Electronics Iberica S.A.

Bolivia, 239-08020 Barcelona, Spain

### Kenwood Electronics Australia Pty. Ltd.

(A.C.N. 001 499 074)

16 Giffnock Avenue, Centrecourt Estate, North Ryde, N.S.W. 2113 Australia

### Kenwood Electronics (Hong Kong) Ltd.

Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

### Kenwood Electronics Singapore Pte. Ltd.

1 Ang Mo Kio Street 63, Singapore 569110

