

Attention		Bulletin No. KPB-F-1021	Date 8.MAR.93.
<input type="checkbox"/> T-K Group (Home, Car, Comm.) <input type="checkbox"/> All Agents <input type="checkbox"/> O/Sea Market(Home, Car) <input checked="" type="checkbox"/> O/Sea Market(Comm.) <input type="checkbox"/> Domes. Market(Home, Car) <input type="checkbox"/> Domes. Market(Comm.) <input type="checkbox"/> Other		Contents <input type="checkbox"/> A. Part Number Correction <input type="checkbox"/> B. Parts for Modification <input type="checkbox"/> C. Parts Substitution <input type="checkbox"/> D. Parts Price <input type="checkbox"/> E. Parts Impossible to Supply <input checked="" type="checkbox"/> F. New Parts Stock <input type="checkbox"/> G. Tool in Stock <input type="checkbox"/> H. Information from Service Dept. <input type="checkbox"/> I. Requests to Branch and Agents <input type="checkbox"/> J. Other	

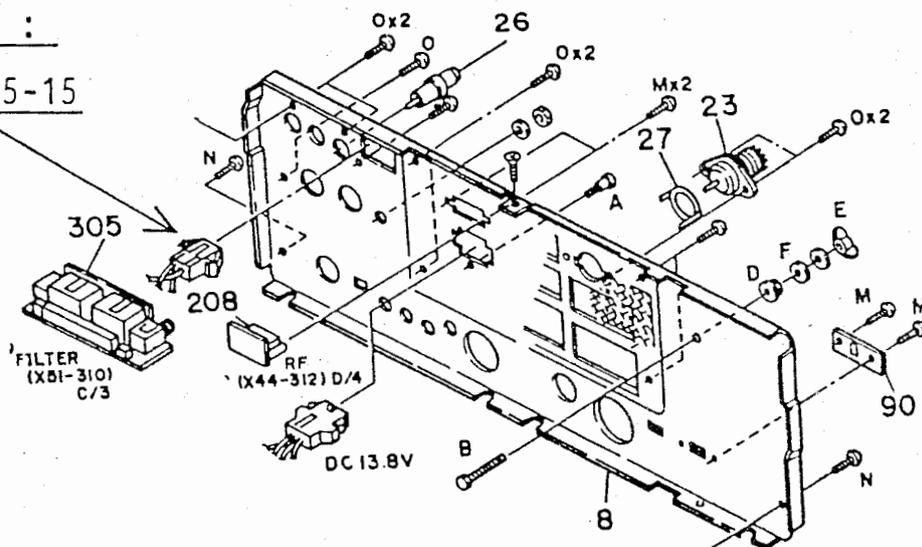
Model :	J Type	K,P Type	E Type	T Type	M Type	Others
TS-850S						

SUBJECT : PARTS SUPPLY OF THE CONNECTOR FOR TS-850S

The connector of following part is in stock now.

PARTS NO. :

E37-0115-15



The part has been registered as a new part.
 Please record it your service manual. (on page 93 B51-8098-00)

Thank you.

SERVICE TECHNICAL REPORT

KENWOOD
KENWOOD CORPORATION

Home Car A.R LMR/Marine

NO. E 5 1 - 9 1 - 0 7 9

MODEL TS-850 Series DATE Aug. 08 '91

SUBJECT Change of ROM (JBL1 → JBL2) associated with the addition of " Split Frequency Transfer Function ".

CONTENTS REFERENCE:

Problem: o The clone function of the TS-850 is to copy the transmit/receive frequency and operation status of a slave receiver to a master transceiver. The TS-950's function to simultaneously receive two signals (TF-watch) is not available.

o To simultaneously receive two signals, the slave receive's receive frequency should be transmitted to the master transceiver as transmit frequency. (The TS-950's TF-watch function transfers the SUB received frequency to TX-frequency.)

Counter-: o The split frequency transfer function is added to the menu. (Menu No. 35)
measure ROM No. changes in association with a change in problem.

C 2 5 6 B - 1 5 X F 1 J B L 1 → C 2 5 6 B - 1 5 X F 1 J B L 2 Changed
{ Digital unit (X46-3080-00): IC-18 }

o In association with the above-mentioned change in ROM, the contents of same pages of the instruction manual change, and the part number of the instruction manual also changes as follows:

Instruction manual: B 6 2 - 0 0 6 0 - 0 0 → B 6 2 - 0 0 6 0 - 1 0 Changed

Changes: 1) Menu No.35 has been added on page 44.

Menu No.	Function	Initial setting
35	When two TS-850S are connected, the split freq. transfer function can be turned ON or OFF	OFF

2) " Split frequency transfer function " has been added on page 69. Both transceivers are turned ON by so setting " function setting at power on " (menu No.35). (See 4-1-15 " Function setting at power on ")

35	ON
----	----

Remarks

Prod. change # 13007 S/N 301xxxx~

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: 98 B: x46-3080 C: IC18 D: 01

Distribution	<input checked="" type="checkbox"/> U.S.A. (3ヶ所) <input checked="" type="checkbox"/> U.K. <input type="checkbox"/> ショールーム	<input checked="" type="checkbox"/> 第3課	MANAGER
	<input checked="" type="checkbox"/> CANADA <input checked="" type="checkbox"/> ITALY <input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 営業管理 S	<u>S. Suzuki</u>
<input checked="" type="checkbox"/> GERMANY <input checked="" type="checkbox"/> AUSTRALIA <input checked="" type="checkbox"/> 部品 S	<input type="checkbox"/> 通、営業課	WRITER	
<input checked="" type="checkbox"/> BELGIUM <input checked="" type="checkbox"/> SINGAPORE <input checked="" type="checkbox"/> 教育担当	<input type="checkbox"/>		

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SERVICE TECHNICAL REPORT

KENWOOD
KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-091-077

MODEL TS-850 Series

DATE Aug. 08 '91

SUBJECT Countermeasure against buttons switches get stuck when depressed.

CONTENTS

REFERENCE:

Phenomenon: When a button on the front panel is pressed in a certain manner (the button's edge is pressed intentionally), it is caught at the hole edge and does not come out. (This problem sometimes occurs.)

Cause : It appears that is not enough clearance between the hole edge and a button is too small, and consequently the button is caught at the hole edge when it is pressed in a certain manner.

Counter- : The button shape is modified to prevent a button from being caught at the measure hole edge. This modification causes the part numbers of buttons and panel assemblies to change as listed below. When the panel assembly for the TS-850 is ordered, it is furnished with buttons listed below. * New parts No.

Name	Spec	Old parts No.	New parts No.
Button knob	1	K29-4611-03	K29-4611-13 *
↓	2	K29-4612-03	K29-4612-13 *
↓	3	K29-4613-03	K29-4613-13 *
↓	4	K29-4614-03	K29-4614-13 *
↓	5	K29-4615-03	K29-4615-13 *
↓	6	K29-4616-03	K29-4616-13 *
↓	7	K29-4617-03	K29-4617-13 *
↓	8	K29-4618-03	K29-4618-13 *
↓	9	K29-4619-03	K29-4619-13 *
↓	0	K29-4620-03	K29-4620-13 *
↓	CLR	K29-4621-03	K29-4621-13 *
↓	ENT	K29-4622-03	K29-4622-13 *
↓	METER	K29-4623-03	K29-4623-13 *
↓	8.83	K29-4624-03	K29-4624-13 *
↓	455	K29-4625-03	K29-4625-13 *
↓	VOICE	K29-4626-03	K29-4626-13 *
↓	M. IN	K29-4627-03	K29-4627-13 *
↓	MR	K29-4628-03	K29-4628-13 *
↓	1MHz	K29-4629-03	K29-4629-13 *
↓	F. LOCK	K29-4630-03	K29-4630-13 *
↓	TF-SET	K29-4631-03	K29-4631-13 *
↓	A=B	K29-4632-03	K29-4632-13 *
Panel Ass'Y	850S/SAT	A62-0045-12	A62-0045-22 *

Buttons and panel assemblies have compatibility between old and new parts numbers Also, in case of panel ass'y, parts section have no stock so far. Must be order to panel ass'y immediately.

Remarks

Prod. change # 6303 S/N 306xxxx~

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: 45 B: 10 C: 2C D: 01

Distribution

サービス管理 S

U.S.A. (3ヶ所) U.K. ショールーム

CANADA ITALY 相談室

GERMANY AUSTRALIA 部品S

BELGIUM SINGAPORE 教育担当

FRANCE Overseas Market

市場品質 S

第3課

営業管理 S

通、営業課

MANAGER

S. Suzuki

WRITER

H. Shimizu

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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-92-062 1/2

REFERENCE.

■ : A M A

MODEL : TS-850	DATE : Dec. 11. 1992
SUBJECT: Countermeasure against defective RF unit D31:RLS135(due to destruction by electrostatic surge).	
<p>Phenomenon:Unable to receive, or low receiver sensitivity. AF(audio output from speaker) not generated in CW and SSB modes.</p> <p>When one of these phenomena occurs, the RXB voltage is not normal. (The voltage is +2V at RX, while it should normally be +8V at RX & 0V at TX.)</p> <p>Cause: Leak fault of the TX SW diode(D31:RLS135) in the RF unit(X44-3120-00). Probably due to destruction by electrostatic surge from the antenna. The TX SW current of D31 itself is about 30mA, higher than the current of similar RLS135.</p> <p>Counter-:1) Temporary (by repair) measure Change the D31:RLS135 in the RF unit(X44-3120-00) to MI204. * *:Lead-type diode of better SW characteristic.</p> <p>2) Permanent Change the D31:RLS135 in the RF unit to <u>LFB01</u>. Add a <u>D103:LFB01</u> to the RF unit(X44-3120-00). ** **:Change the Printed Circuit Board pattern in the RF uit and add D103 in series with D31.</p>	

Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail	Service code																									
Parts stock <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Delivery * D <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	A(S) : 57 B : X44-3120-00																									
Prod. change Lot #54506 S/No. 411XXXX~	C(P) : D31 D(C) : 91																									
Application <input type="checkbox"/> All repair units <input checked="" type="checkbox"/> Defectives only <input type="checkbox"/>	MANAGER <i>S. Suzuki</i>																									
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2-003

SEPTEMBER 17, 1992

Ref.No. N51-92-037

KENWOOD SERVICE NOTE

During servicing in Japanese market, a problem (symptom and cause are described below) was found with some of our products. As a result, this report is issued to serve as a reference to the activities of service bench.

MODEL: TS-850S SERIAL NO.: 3100088

SYMPTOM Reception is disabled by an unknown impack (Except FM).

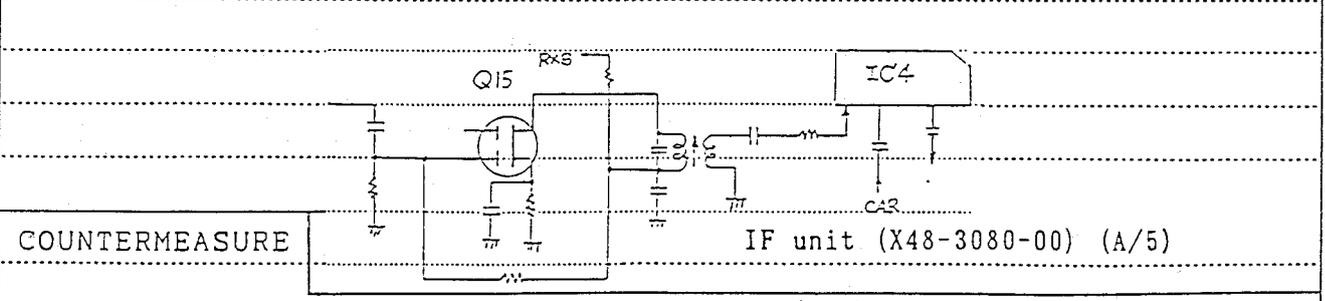
The failure can be reproduced during signal reception by :

- Giving shock from antenna terminal.
- Turning off and immediately turning on AGC.

CAUSE - Powering off and powering on.

In AGC FAST mode, the failure can be eliminated by turning on and off the SEND switch.

I finally found out that Q15 in the IF unit was the cause of the failure. When this failure occurs, the drain voltage of Q15 is lowered. I recall that a similar failure occurred when the D31/Q5 of the RF unit became faulty. When the volume was turned up, a slight reception could be confirmed.



COUNTERMEASURE IF unit (X48-3080-00) (A/5)

Replace Q15 (3SK131M).

REPORTED FROM HOKKAIDO SERVICE CENTER

REPORTER

MANAGER *Wada*

WRITER

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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-93-071 1/1

■ : A M A

REFERENCE.

MODEL : TS-850 series DATE. Dec. 21. 1993

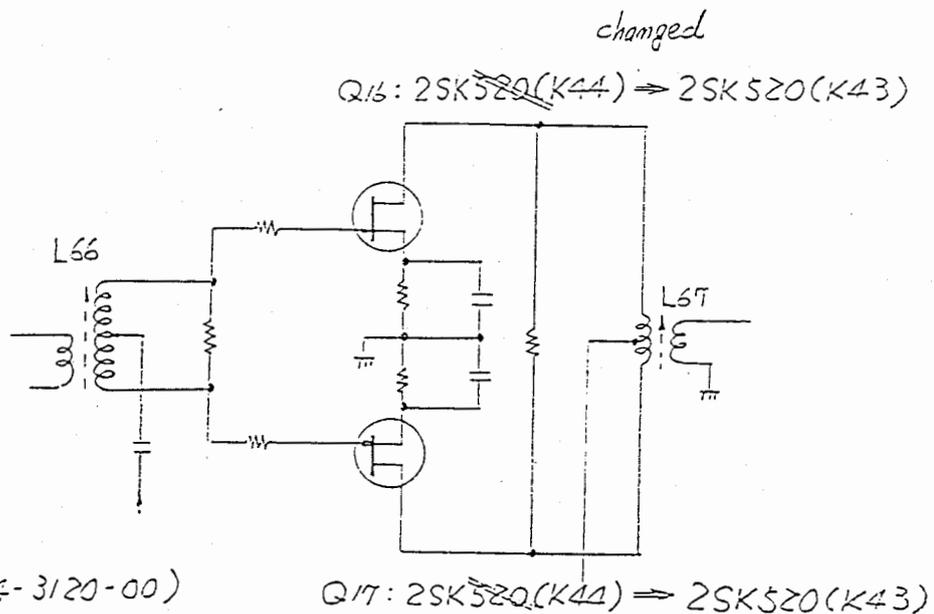
SUBJECT: Change 2SK520(K44) to 2SK520(K43); the mixer FET(Q16, Q17) of the RF unit.

Phenomenon: TS-850S that could not adjust S-1 (reception, S meter starting point level) and could not determine the SSB gain were found during production. The information serves as a tip for repairs.

Cause: Variation of Q16 and Q17 gain in the second mixer (73.05MHz to 8.83MHz) FET in the RF unit.

Counter- : Replace the Q16 and Q17 with low IDSS types in the RF unit (X44-3120-00)
measure Q16, Q17: 2SK520 (K44) → 2SK520 (K43) Changed

Note: In FET, the lower the IDSS (drain breaking current), the greater the mixer conversion gain. As a result, the total gain of the reception circuit gets greater.



Parts included No Yes Mail Service code

Parts stock Yes No Delivery Charge Free of charge A(S) : 43 B : X44-3120-00

Prod. change Lot # 55512 S / No. 511 XXXXX~ C(P) : Q16 D(C) :

Application All repair units Defectives only MANAGER *Wada*

W R I T E R *W Shimizu*

Distribution: ■ K-S.U. 技術教育S □ 国内サービス及び代行店(無線) ■ お客様相談室
 ■ 海外サービス ■ K-U.S.A. ■ TK-F. ■ K-LEE
 ■ B.L.O.(北京事務所) ■ K-CANADA ■ TK-U.K. ■ K-E.L.A.
 ■ K-General Market ■ K-GmbH ■ K-ITALIA ■ K-SPAIN
 ■ K-N.V. ■ K-AUST. ■ K-SINGAPORE

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-92-062 2/2

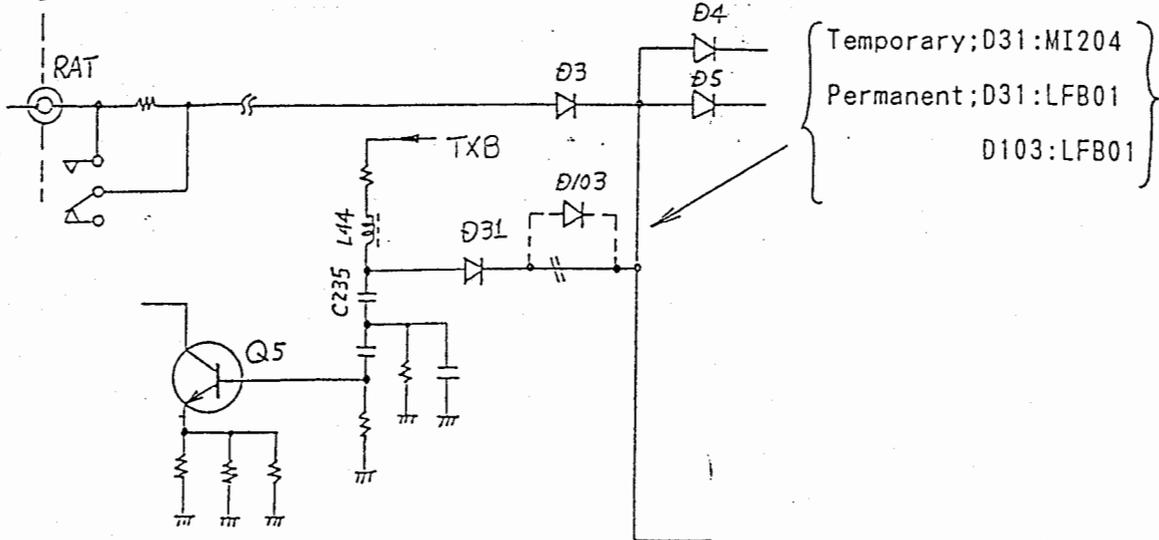
REFERENCE.

■ : A M A

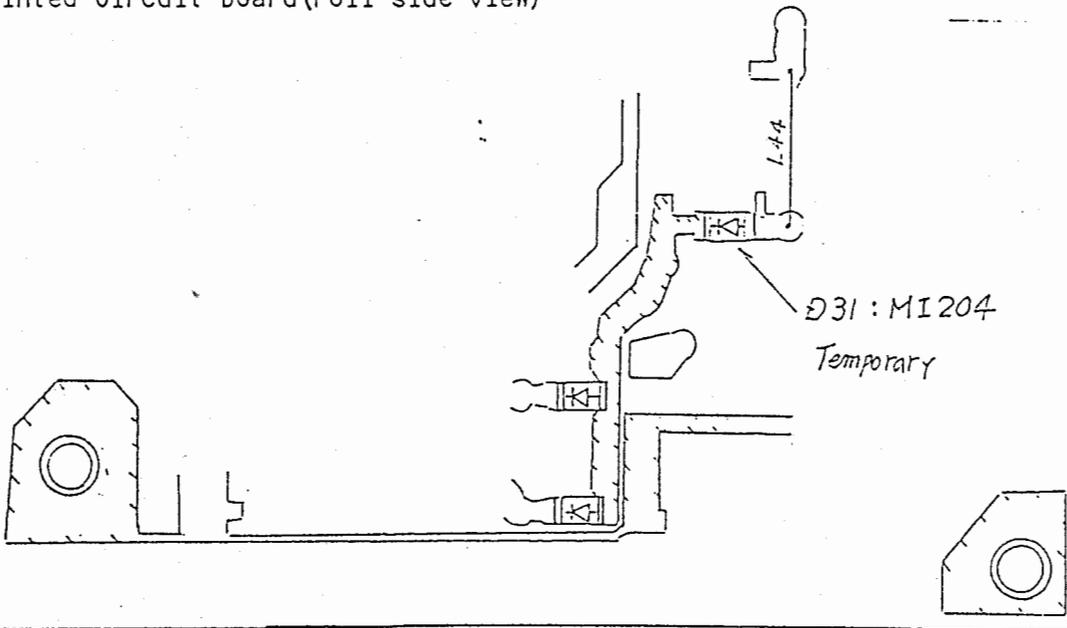
MODEL : TS-850 DATE. Dec. 11. 1992

SUBJECT: Countermeasure against defective RF unit D31:RLS135 (due to destruction by electrostatic surge).

Circuit diagram: RF unit (X44-3120-00)



Printed Circuit Board (Foil side view)



Note: In the permanent countermeasure, the pattern is changed, with D31 and D103 connected in series.

Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail	Service code
Parts stock <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Delivery <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	A(S) : 57 B : X44-3120-00
Prod. change Lot S/No.	C(P) : D31 D(C) : 91

Application All repair units Defectives only

Distribution <input checked="" type="checkbox"/> サービス部 (相談室) (部品) (教育) (テクニカルS) <input type="checkbox"/> ショールーム <input checked="" type="checkbox"/> IMD (第3課, 営業管理S, 研発) (計測) <input checked="" type="checkbox"/> K-U.S.A. <input checked="" type="checkbox"/> TK-F <input checked="" type="checkbox"/> K-LEE <input checked="" type="checkbox"/> General Market <input checked="" type="checkbox"/> K-CANADA <input checked="" type="checkbox"/> TK-U.K. <input type="checkbox"/> K-PANAMA <input checked="" type="checkbox"/> K-GmbH <input checked="" type="checkbox"/> K-LINEAR <input type="checkbox"/> K-S'pore <input checked="" type="checkbox"/> K-N.V. <input checked="" type="checkbox"/> K-AUST <input checked="" type="checkbox"/> K-SPAIN	MANAGER	S. Suzuki
	WRITER	H. Shimizu

SERVICE TECHNICAL REPORT

Home Car A.R LMR/Marine

NO. E51-91-024

MODEL TS-850 Series

DATE March 8 91

SUBJECT Change in specifications (With auto antenna tuner in " THRU " or bypass position.)

CONTENTS

REFERENCE:

- Background :
- The transmit output power described in the specification column in the standard value measured without using the antenna tuner. Since this condition is not clearly stated, it may be misunderstood by some users. When the antenna tuner is used, the transmit output power becomes 100 W or less due to the insertion loss. This may be mistaken as nonconformity to specification by some users.
 - The column for transmit output power is separated into a 1.9 to 24.5 MHz band and a 28 MHz band. This description is for the domestic models that have a 50 W transmit output power in the 28 MHz band. So this distinction is not necessary for the overseas models that have the same transmit output power in all bands.

Countermeasure:

- Add two asterisks (**) to the transmit output power item :
100 W → 100 W **
Add item No. 4 with the sentence below to the Notes.
4.** : With auto antenna tuner in "THRU" or bypass position.
- Delete all items about the 28 MHz from the specification of the transmit output power, then *change as follows* :
1.9 to 24.5 MHz → 1.9 MHz to 28 MHz.

Output power	1.9 to 24.5 MHz	SSB, CW, FSK, FM	MAX	100 W **
	Changed 28 MHz		AM	MIN
Deleted → (all items)		28 MHz		SSB, CW, FSK, FM
	MIN		20 W	
		AM	MAX	40 W
			MIN	10 W

Notes

- Circuit and ratings are subject to change without notice due to advancements in technology
- Remember to keep the transmit output power within the power limitations of your license.
- *: the U.S.A. version is 1.705 MHz.
- ** : With auto antenna tuner in "THRU" or bypass position. Added

Remarks

Prod. change #13007 (English) S/N 301xxxxx~ (English)
#23004 (Multi) S/N 302xxxxx~ (Multi)

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: B: C: D:

Distribution

K-US (3ヶ所) TK-UK ショールーム Exch課

K-Canada K-Aust 相談室 一般市場課

K-GmbH K-Liner 部品S 通、営業課

MANAGER

WRITER

S. Suzuki

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-025

MODEL TS-850 (Oversea models only) DATE March 8 91

SUBJECT Changes in adjustment procedure (ALC frequency characteristic adjustment changed from 90 W to 95 W).

CONTENTS REFERENCE:

The adjustment procedure of the Service Manual has been changed. Currently, the transmit output power is adjusted to 90 ± 5 W in the 28 MHz band. (See item No. 26, ALC frequency characteristic, on page 104 of the Service Manual.)

The specification's transmit output power of the TS-850 is 100 W in all bands. The power should be increased to prevent such claims as low power in the 28 MHz band.

Item	Condition	Measurement			Adjustment			Spec/Remarks
		Test	Unit	Terminal	Unit	Parts	Method	
26. ALC Freq. characteristic	1) ENT 296 ENT key : Push, Display f : 29.600 MHz CAR VR : MAX STBY : SEND	equipment Power meter	Rear panel	ANT	Filter	VR-1	90 W 95 W Changed	± 5 W
	2) ENT 142 ENT key : Push, Display f : 14.200 MHz STBY : SEND						When the above range is exceeded during transmission, repeat the above adjustment	

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Remarks

Prod. change #62505 S/N Z12xxxx~

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: 93 B: x51-3100 C: TR1 D: 46

Distribution

K-US (3ヶ所) TK-UK ショールーム

K-Canada K-Aust 相談室

K-GmbH K-Liner 部品S

Exch課 一般市場課 通、営業課

MANAGER

WRITER S. Suzuki

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R LMR/Marine

NO. E 5 1 - 9 1 - 0 3 4

MODEL TS - 8 5 0 (EXport version only)

DATE March 18 '91

SUBJECT Unnecessary paragraph, " On occasion an electronic " on page 24 of the Instruction Manual of english and multiple version.

CONTENTS

REFERENCE:

Description : In the Instruction Manual of english and multiple version, the paragraph " ON occasion an electronic keyer " under " (b) Full-automatic break in " on page 24 differs from product specification.

This paragraph says that when the electronic key is used in the CW mode with the FULL/SEMI switch set to FULL position, set the REC/SEND switch for continuous transmission.

In TS-850, the above key and switch operations do not provided the said function. TUNE key (48) on page 14 provides the function similar to the function " continuous transmission ".

Cause : When the Instruction Manual for TS-850 was prepared referring to the manual for TS-950, the paragraph in the manual for TS-950 was transferred by mistake.

Countermeasure:

When preparing a Instruction Manual, we will check the contents of Instruction Manuals, both English and Japanese versions, used as references to prevent inconsistency paragraph on page 24 is removed.

Accordingly the part numbers of Instruction Manuals changes as follows :

From	To
B62-0061-00 (K, X)	→ B 6 2 - 0 0 6 1 - 1 0 (K, X)
B62-0062-00 (E, M, P)	→ B 6 2 - 0 0 6 2 - 1 0 (E, M, P)
B62-0063-00 (E)	→ B 6 2 - 0 0 6 3 - 1 0 (E)

P.S. Instruction manual of Japanese version do not require this problem because they do not contain the paragraph.

Remarks

Prod. change #13007 S/N 301XXXX~

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: B: C: D:

Distribution

K-US(3ヶ所) TK-UK ショールーム
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MANAGER

S. Suzuki
 WRITER

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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-027

MODEL TS-850 Series DATE March 15 91

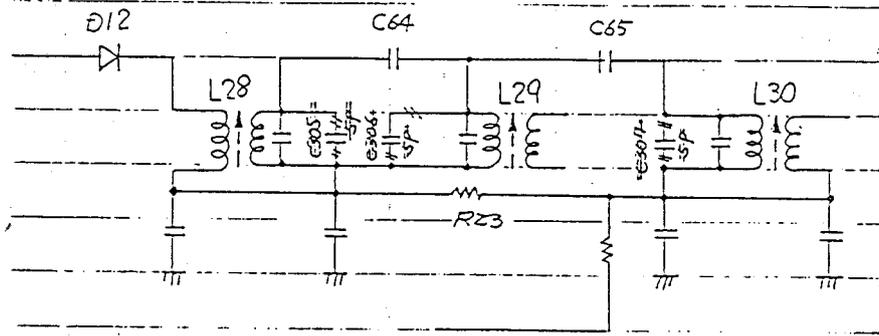
SUBJECT Removal of matching capacitors in association with use of new parts. (removal of capacitors C305 to C307: 5 pF for L28,29 and 30 from RF unit)

CONTENTS REFERENCE:

The ceramic capacitors, C305 to C307: 5 pF (CC45CH1H050C), were added to solve the problem of a failure to tune B.P.F. due to a matching capacitors connected to the tuning coils.

New tuning coils have a built-in 5 pF capacitor and so do not require C305 to C307.

Name	Ref. No	Old part number	New part number
Tuning coil	L28 ~ L30	L34-4268-05	L34-4289-05 (new part)



Remove ceramic capacitor C305 ~ C307 (5 pF)

RF unit (X44-3120 -xx)
Address E-5 in circuit diagram.

Remarks

Prod. change #23004 S/N 302xxxxx~

Application All repair units Defectives only When replace parts.

Parts included No Yes Mail

Service code A: B: C: D:

ribution

K-US (3ヶ所) TK-UK ショールーム
 K-Canada K-Aust 相談室
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MANAGER
S. Suzuki
WRITER

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-028

MODEL TS-850/950 Series

DATE March 15 91

SUBJECT

Use of substitute RAM IC because of currently used RAM IC's discontinue production (substitution of LC3564PL-12 or UM6264A-12LL for TC5564APL-15).

CONTENTS

REFERENCE:

The TOSHIBA RAM IC, TC5564APL-15, has been discontinue production, so a substitute RAM IC is used.
The substitute part is compatible with the old part and so does not require addition or removal of components.

Model names and units:

TS-950 : Digital unit (X46-3050-XX)

TS-850 : Digital unit (X46-3080-XX)

Name	Old part number	New parts number
IC (RAM)	TC5564APL-15	LC3564PL-12 or UM6264A-12LL

Remarks

Prod. change # z3004

S/N 302xxxx~

Application All repair units

Defectives only

Parts included No

Yes

Mail

Service code A:

B:

C:

D:

tribution

サービス

K-US(3ヶ所) TK-UK

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通、営業課

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MANAGER

S. Suzuki

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-033 1/2

MODEL TS-850 Series DATE March 18 '91

SUBJECT Defective of Q43 in RF unit when other external accessory equipment (e.g. Linear amplifier) is improperly connected.

CONTENTS REFERENCE:

- Phenomenon :
- 1) Low receiver sensitivity (10 to 20 dB drop in SSG input, normally less than 0.2 uV in SSG input level at signal to noise ratio.)
 - 2) When a 50 Ω load is connected, SWR is higher. (Usually VSWR = 1.0)

The above phenomena are observed when other external accessory equipment (e.g. Linear amplifier) is connected through the REMOTE socket, with pin 7 (RL line) used, on the rear panel.

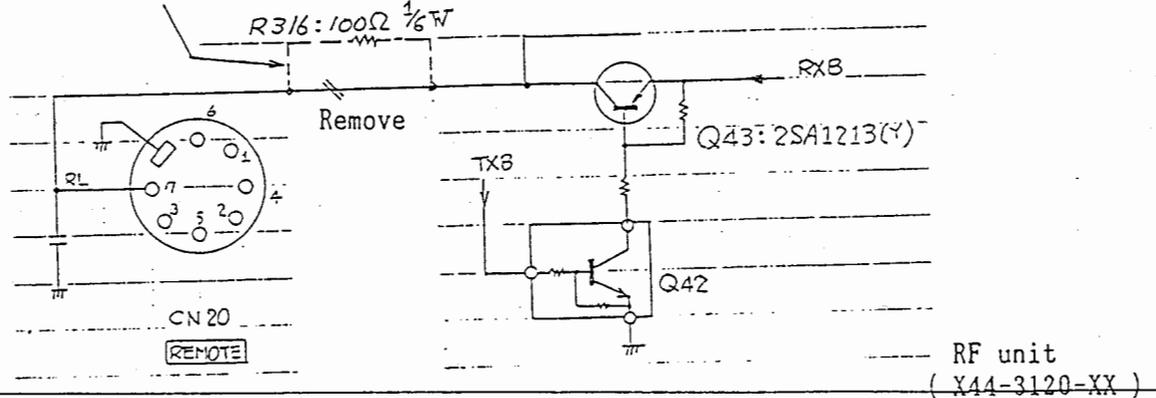
No problem arises when our linear amplifier TL-922A is connected (pin 7 is not used).

Cause : Pin 7 (RL line) is directly connected to Q43:2SA1213(Y) (TXB-RL DC SW Tr) on the RF unit. If pin 7 (RL line) of the REMOTE socket is grounded, the emitter and collector of Q43 short circuit in a quick time and consequently defective.

Note : Pin 7 of the REMOTE socket is an " external control terminal ", and +12 VDC, 10 mA, is generated at the pin when the unit is in the transmission mode.

Countermeasure : A protection resistor is installed against the defective of Q43 on the RF unit in case pin 7 of REMOTE socket is grounded.

Carbon resistor 100 Ω : RD14BB2C101J 1/6 W
Resistor to be added.



Remarks

Prod. change # 52505 S/N Z11XXXX~

Application All repair units Defectives only

Parts included No Yes Mail

Service code A: 18 B: X44-3120 C: Q43 D: 91

tribution

K-US (3ヶ所) TK-UK ショールーム

K-Canada K-Aust 相談室

K-GmbH K-Liner 部品S

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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-033 2/2

MODEL TS-850 Series

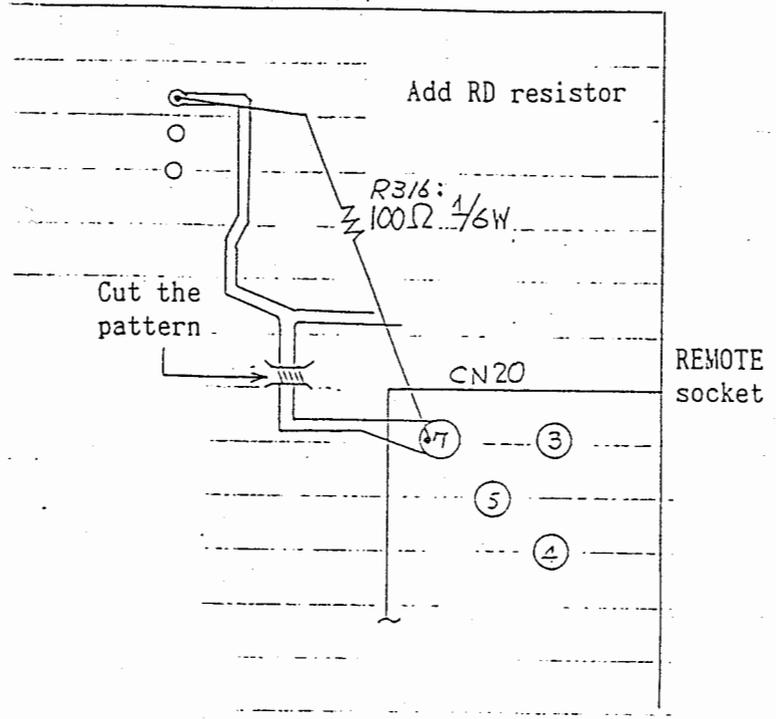
DATE March 18 '91

SUBJECT Defective of Q43 in RF unit when other external accessory equipment (e.g. Linear amplifier) is improperly connected.

CONTENTS

REFERENCE:

RF unit (X44-3120-XX)
 (Foil side view) PC Board
 address T-2,3



Remarks

Prod. change #52505 S/N Z11XXXXXX
 Application All repair units Defectives only
 Parts included No Yes Mail
 Service code A: 18 B: X44-3120 C: Q43 D: 91

Distribution

K-US (3ヶ所) TK-UK ショールーム
 K-Canada K-Aust 相談室
 K-GmbH K-Liner 部品S
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MANAGER
 S. Suzuki
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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-043

MODEL TS-850 Series

DATE April 8 '91

SUBJECT Countermeasure against spurious radiation from IC DDS's IC (Direct Digital Synthesizer). (Internal beat occur on position of SLOPE TUNE)

CONTENTS

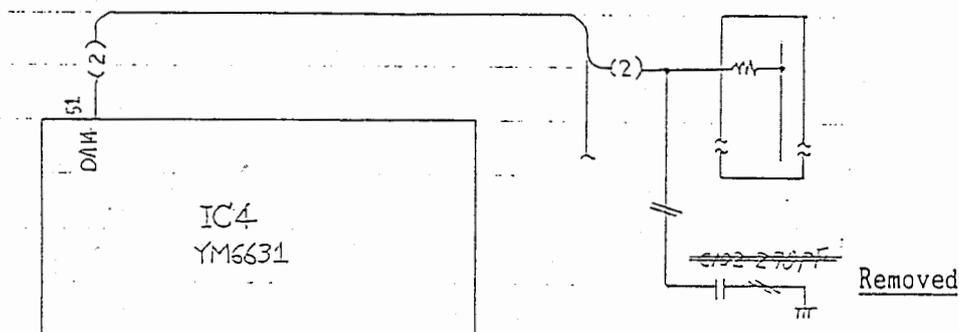
REFERENCE:

Phenomwnon : A internal beat is produced from the internal speaker when knobs are operated under certain conditions. The internal beat level is low, but is offensive to the ear when the radio is used in a silent room. However, there has been no complaint about this internal beat although the radio has been on the market for two months. (The phenomenon was reported from a new-product monitoring check.)

- Condition:
- 1) MODE:LSB (No problem in other modes)
 - 2) SLOPE TUNE (HIGH CUT) knob: At five-click position counterclockwise from MAX (no problem in other positions of SLOPE TUNE).
 - 3) RF GAIN : MIN, AF GAIN: MAX
Internal beat level is 3.5 mV rms (at 8 Ω load)

Cause : The capacitor C102: 270pF, was installed by mistake. This pacitor connects to the DDS IC in the CAR unit (X50-3140-00). (The circuit diagram shows that the capacitor connects between IC 4 pin 51 and GND. Actually, however, it was connected between IC pin 52 and GND on the PC Board.

Countermeasure:
The chip capacitor C102: 270pF, will be removed from the CAR unit (X50-3140-00).



Note: The C102: 270pF, has located on the component side of PC Board (it is on the upper-left corner of IC 4: PC Board address: B-6.) Removing this C102 improves the level of DDS produced spurious radiation from -60dBm to -75dBm, so there is no more beat at all. The improvement is from 3.5 mV to 1.5mV rms.

Remarks	Prod. change #23004	S/N 30Zxxxx ~	
	Application <input type="checkbox"/> All repair units	<input checked="" type="checkbox"/> Defectives only	<input type="checkbox"/>
	Parts included <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Mail
	Service code A: 10	B: x50-3140	C: C10Z D: 91

Distribution	<input checked="" type="checkbox"/> K-US(3ヶ所)	<input checked="" type="checkbox"/> TK-UK	<input type="checkbox"/> ショールーム	<input type="checkbox"/> Exch課	MANAGER S. Suzuki WRITER
	<input checked="" type="checkbox"/> K-Canada	<input checked="" type="checkbox"/> K-Aust	<input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 一般市場課	
	<input checked="" type="checkbox"/> K-GmbH	<input checked="" type="checkbox"/> K-Liner	<input checked="" type="checkbox"/> 部品S	<input checked="" type="checkbox"/> 通、営業課	

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R LMR/Marine

NO. E51-91-020

MODEL TS-850 Series DATE Feb. 25 '91

SUBJECT Countermeasure against antenna tuner imoperative on 10 MHz band due to ALC meter misadjustment (antenna tuner unable to tune).

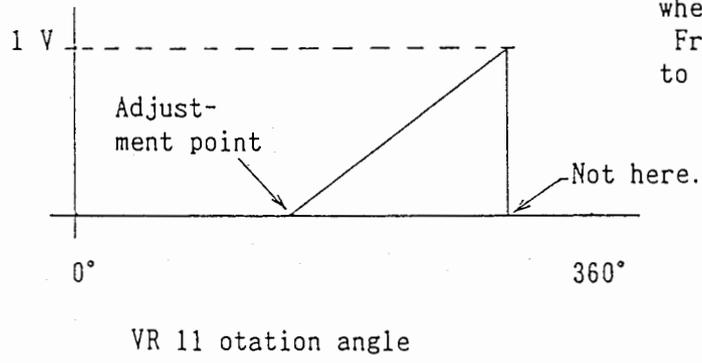
CONTENTS REFERENCE:

Phenomenon: When the antenna tuner is started in the 10 MHz band in the high temperature (about +50 °C) condition, the tuner cannot tune (the variable capacitor : VC continues moving, unable to find the tuning point forever.)
This failure was discovered during production. The information may be useful for services.

Cause : ALC meter misadjustment (RF unit : VR 11). VR 11, which is an endless semi-fixed variable resistor, is adjusted to the point that has no carbon (no resistance value).
To match the meter indication, the gain of the meter amplifier must be at the maximum. Then, the meter amplifier output exceeds the input range of the A/D converter.

Counter-measure : The adjustment procedure of the ALC meter (Item 34, on page 105 of the Service Manual) will be changed as follows :

	Method	Rated value
At present : RF unit VR 11	Adjust immediately before the voltage indicator moves.	0 V
After change : RF unit VR 11	Turn the VR 11 clockwise at around the 1 V range to lower the voltage until the point where no change is observed. From that point, fine-adjust to the starting point.	Approx. 10 mV



Remarks
 Prod. change # 52503 S/N Z11xxxxx~
 Application All repair units Defectives only
 Parts included No Yes Mail
 Service code A: 07 B: X44-3120 C: TR 11 D: 46

ribution
 K-US (3ヶ所) TK-UK ショールーム Exch課
 K-Canada K-Aust 相談室 一般市場課
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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-021

MODEL TS-850 Series

DATE Feb 25 '91

SUBJECT Parts No. of the External Control Instruction Manual is not wrote in the Service Manual (B62-0064-00)

CONTENTS

REFERENCE:

Overseas models include with an English version of External Control Instruction Manual. There are eight instruction manuals listed on page 53 of the Service Manual. Since the above manual description is not wrote. (shown Instruction Manual only)

The External Control Instruction Manual can be listed with the parts No. below.

	Description	Parts No.
At present	Instruction Manual change.	B62-0065-00
After change	Instruction Manual (EXTERNAL CONTROL INSTRUCTION MANUAL)	

Remarks

Prod. change

S/N

Application

All repair units

Defectives only

Parts included

No

Yes

Mail

Service code

A:

B:

C:

D:

tribution

K-US(3ヶ所) TK-UK
 K-Canada K-Aust
 K-GmbH K-Liner

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 相談室
 部品S

Exch課
 一般市場課
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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-022

MODEL TS-850 Series

DATE Feb. 26 '91

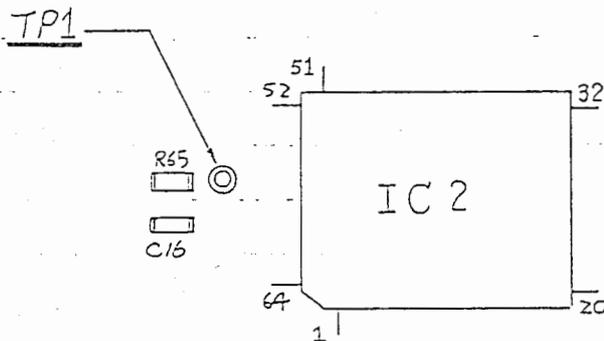
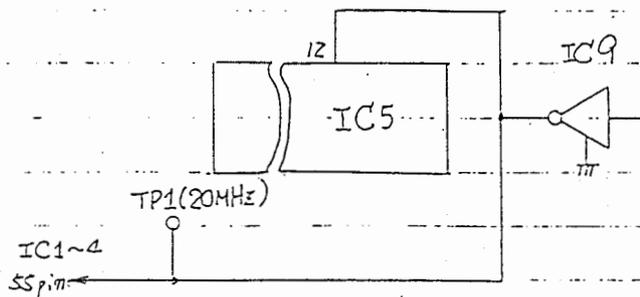
SUBJECT Changes in the printed circuit board diagram of the Service Manual
(addition of CAR unit TP 1 terminal).

CONTENTS

REFERENCE:

Background : The adjustment point of the 20 MHz Ref. OSC, which used to be in the PLL unit, had low oscillation level and showed incorrect display on the connected frequency counter.

So the adjustment point (TP 1 terminal) is moved to the CAR unit side on which the 20 MHz Ref. OSC, has a increase oscillation level; address B-3 (on the left side of the IC 2) on page 161 of the printed circuit board diagram of the Service Manual. (Also, the TP 1 terminal is not found in the circuit diagram address F-3 in-between the IC 5 pin 12 and IC1-4 pin 55).



Circuit diagram address: F-3

CAR unit
(X50-3140-00)

Printed circuit board
component side view address: B-3

Note: The TP-1 terminal can be seen through the square hole on the CAR unit shield plate.

Remarks	Prod. change # 32503	S/N 209xxxx~		
	Application <input type="checkbox"/> All repair units <input type="checkbox"/> Defectives only <input type="checkbox"/>			
	Parts included <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail			
Service code	A:	B:	C:	D:
Distribution	<input checked="" type="checkbox"/> K-US (3ヶ所) <input checked="" type="checkbox"/> TK-UK <input type="checkbox"/> ショールーム	<input type="checkbox"/> Exch課	MANAGER	
	<input checked="" type="checkbox"/> K-Canada <input checked="" type="checkbox"/> K-Aust <input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 一般市場課	S. Suzuki WRITER	
	<input checked="" type="checkbox"/> K-GmbH <input checked="" type="checkbox"/> K-Liner <input checked="" type="checkbox"/> 部品S	<input checked="" type="checkbox"/> 通、営業課		

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-037

MODEL TS-850 Series

DATE March 28 '91

SUBJECT Repairing know-how (2), Antenna tuner does not work properly, when CAR control is turned fully conterclockwise.

CONTENTS

REFERENCE:

In the two months since the release, several radio were brought into Service Center for repair owing to trifle operator mistakes.
This information may be useful to answer inquiries from the user about " the antenna tuner does not work. "

Phenomenon : The antenna tuner does not start. The antenna tuner motor keeps rotating and the tuning does not end.

Cause : 1) The CAR control (front panel, left) is turned fully conunterclockwise.
At the factory, it was set at the center (12 o'clock position).
Thinking that the CAR LEVEL knob is insignicant, some non-CW operator set it to the minimum (full conterclockwise position). It is stated in the Instruction Manual that the antenna tuner does not work if the CAR control is turned fully conterclockwise. See " Note " of item ② Auto Tune Mode on page 30.

Countermeasure :
Set the CAR control at the center or further clockwise.

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Remarks	Prod. change #1300Z	S/N 301xxxx~
	Application <input type="checkbox"/> All repair units	<input type="checkbox"/> Defectives only <input type="checkbox"/>
	Parts included <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> Mail
	Service code A: 07	B: 20 C: TR8 D: 51

ribution	<input checked="" type="checkbox"/> K-US (3ヶ所)	<input checked="" type="checkbox"/> TK-UK	<input type="checkbox"/> ショールーム	<input type="checkbox"/> Exch課	MANAGER <i>S. Suzuki</i> WRITER
	<input checked="" type="checkbox"/> K-Canada	<input checked="" type="checkbox"/> K-Aust	<input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 一般市場課	
	<input checked="" type="checkbox"/> K-GmbH	<input checked="" type="checkbox"/> K-Liner	<input checked="" type="checkbox"/> 部品S	<input checked="" type="checkbox"/> 通、営業課	

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Carry A.R. LMR/Marine

NO. E 5 1 - 9 1 - 0 3 6

MODEL TS-850 Series

DATE march 28 '91

SUBJECT Repairing know-how (1) Realignment TC 1 on the FILTER unit.

CONTENTS

REFERENCE:

Phenomenon : 1) Low RF power output when the antenna tuner (THRU/AUTO) is used with 50Ω dummy connected. Ordinarily, when the antenna tuner is used, the insertion loss should be 1 dB or less. (For example, the transmission power is usually 100 W with THRU/AUTO: THRU where it is 90 W with AUTO.) In case of phenomenon, the transmission power is only 85 W with AUTO.

2) Operation of the antenna tuner is normal. Tuning sometimes fails to complete. (When the antenna tuner is used, VSWR cannot be made any lower than 3.)

Cause : The NULL point adjustment trimmer TC-1 of the FILTER unit (X51-3100-00) is misadjusted.

Caution : 1) Use a high impedance digital DC voltmeter. Because the voltage subtly changes around the NULL point (reference value is 50 mV or low) change the range of the voltmeter and surely adjust to the NULL point.

2) Do not connect too many directional couplers between the radio and the dummy load (50 Ω) when adjusting the NULL point. Ordinarily, the VSWR value of one CM directional coupler is 1.07 MAX. One coupler causes no problem at connection, but with multiple couplers the VSWR value of the directional coupler may affect the NULL point adjustment.

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Remarks	Prod. change	S/N		
	Application	<input type="checkbox"/> All repair units	<input type="checkbox"/> Defectives only	<input type="checkbox"/>
	Parts included	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Mail
Service code A: 07 B: x51-3100 C: TC1 D: 46				

Distribution	サービス	<input checked="" type="checkbox"/> K-US(3ヶ所)	<input checked="" type="checkbox"/> TK-UK	<input type="checkbox"/> ショールーム	<input type="checkbox"/> Exch課	MANAGER <i>S. Suzuki</i> WRITER
		<input checked="" type="checkbox"/> K-Canada	<input checked="" type="checkbox"/> K-Aust	<input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 一般市場課	
		<input checked="" type="checkbox"/> K-GmbH	<input checked="" type="checkbox"/> K-Liner	<input checked="" type="checkbox"/> 部品S	<input checked="" type="checkbox"/> 通、営業課	

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

Home Car A.R. LMR/Marine

NO. E51-91-026

MODEL TS-850 (E,E2 versions only) DATE March 8 91

SUBJECT Changes in the receiver B.P.F. adjustment procedure (Countermeasure against cross modulation received in Europe, not a claim, lower than value measured for

CONTENTS TS-950 by a instruments. REFERENCE:

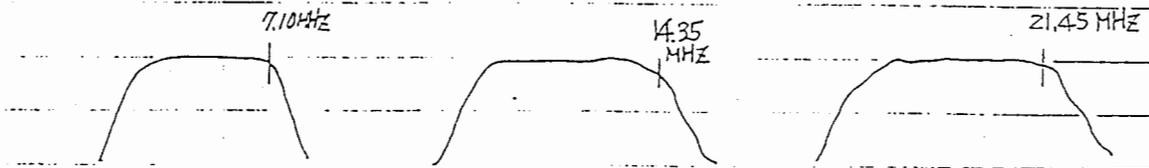
Phenomenon : A European (German) user measured the received cross modulation using a instruments. The measurement was a little lower than the value for TS-950. (No real claim has been received yet.)

Possible cause : The front end including the B.P.F.'s is configured differently than the TS-950, with a different number of B.P.F. layers and different constants value of inductance and capacitance.

Counter-measure : Shift the B.P.F. bandwidth of 7 MHz, 14 MHz and 21 MHz to the European amateur radio frequency bandwidths. With the changed B.P.F. bandwidths, cross modulation interference from broadcast stations in higher frequency ranges than the 7.10 MHz, 14.35 MHz and 21.45 MHz bands will decrease. Shifting the B.P.F. bandwidths to lower frequency ranges will cause no real trouble because no broadcast stations are in lower frequency range than the 7 MHz, 14 MHz; and 21 MHz bands.

Change the cut-off point of each B.P.F., than adjust the waveform and frequency as follows.

Adjustment procedure: Page 100 of the Service Manual. Adjustment parts : L59 ~ L62 on Item No. 7 : B.P.F. RF unit.



Adjust the B.P.F. waveforms so that 7.10 MHz, 14.35 MHz, and 21.45 MHz come at the right-shoulder. The left shoulder and center frequency are not specified but the height (B.P.F. gain) must be the same as the B.P.F. waveform of other versions. The right-shoulder frequency and the height (gain) adjustment will automatically determine the bandwidth.

Remarks	Prod. change # 62506	S/N 212xxxx~
	Application <input type="checkbox"/> All repair units <input checked="" type="checkbox"/> Defectives only <input type="checkbox"/>	
	Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail	
	Service code A: 19 B: x44-3120 C: L59 D:	

サービス	<input checked="" type="checkbox"/> K-US (3ヶ所) <input checked="" type="checkbox"/> TK-UK <input type="checkbox"/> ショールーム	仕場	<input type="checkbox"/> Exch課	MANAGER
	<input checked="" type="checkbox"/> K-Canada <input checked="" type="checkbox"/> K-Aust <input checked="" type="checkbox"/> 相談室		<input type="checkbox"/> 一般市場課	
	<input checked="" type="checkbox"/> K-GmbH <input checked="" type="checkbox"/> K-Liner <input checked="" type="checkbox"/> 部品S		<input checked="" type="checkbox"/> 通、営業課	
				WRITER <i>S. Suzuki</i>

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RESEND

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

△ x 2 93.7.22

STR No. E51-93-044 1/2

■ : A M A

REFERENCE.

MODEL : TS-850S DATE. Jul. 8. 1993

SUBJECT: Countermeasure against "click noise generated by NOTCH ON at strong signal reception"

Phenomenon: When a strong signal (about S-9) is received, the NOTCH goes on. When the NULL point is de-tuned after adjustment, a click noise is generated.

Cause: Reception of strong signal changes the NOTCH circuit frequency. AGC keeps up with the accompanied signal level changes. Excessive response of the AGC loop generates a click noise.

Counter-: Further delay the AGC time constant at NOTCH on. Make the following measure changes in the IF unit (X48-3080-00).

- a) Change the R289 chip resistor from 10k to 22k (RK73FB2A223J).
- b) Add a 0.47uF ~~ceramic capacitor (CK73FB1E4747) or its equivalent~~
[△] (CQ 92M1H474k)
~~(CK4551H474Z)~~ to the C43 chip capacitor (0.22uF).

Note: This countermeasure yields a secondary reaction of delayed AGC FAST time constant. Hence, the countermeasure shall be applied at case by case (Service basis).

Parts included No Yes Mail Service code

Parts stock Yes No ^{Delivery} Charge Free of charge A(S): 09 B: X48-3080-00

Prod. change Lot S/No. *Case by case (Service basis)* C(P): C43 D(C): 91

Application All repair units Defectives only MANAGER

サービス部 (相談室, 部品, 検査), テクニカルS) ショールーム
 IMD (第3課, 営業管理S, 企画 計測)
 K-U.S.A. TK-F K-LEE General Market
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SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. B510-94-027E 1/1
REFERENCE.

■ : AMA

MODEL : TS-850S	DATE. May 12 '94
SUBJECT : Change the main and encoder parts number.	
<div style="font-size: 2em; font-family: cursive;">2-003</div>	
<p>The ALPUS made encoder, W02-0855-05 (main) has been discontinued production, so a substitute encoder is used. Also, change the attaching screws as well.</p> <p>Encoder (main) : W02-0855-05 → → to be replaced with W02-1836-05 TP screw (2 pcs.) : N90-3008-46 → → to be replaced with N90-3006-46</p>	

Service code	A(S) : 99	B :	20	C(P) :	205	D(C) : 91
Parts included	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Mail	Index code		
Parts stock	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Delivery <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	Information 1 : 2 2 :		
Prod. change	Lot 26015 s/No. 602XXXX~				Symptom 1 : 2 :	

Application <input type="checkbox"/> All repair units <input checked="" type="checkbox"/> Defectives only <input type="checkbox"/> Refurbish	MANAGER	<div style="font-size: 1.5em; font-family: cursive;">D. Sakai</div>																					
<table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> K.S.J. 技術教育S</td> <td><input type="checkbox"/> 国内サービス及び代行店 (無線)</td> <td><input type="checkbox"/> ショールーム</td> </tr> <tr> <td><input checked="" type="checkbox"/> 海外サービス</td> <td><input checked="" type="checkbox"/> K.P.C.</td> <td><input checked="" type="checkbox"/> TK-F.</td> </tr> <tr> <td><input checked="" type="checkbox"/> K-LEE</td> <td><input checked="" type="checkbox"/> BLO (北京事務所)</td> <td><input checked="" type="checkbox"/> K-CANADA</td> </tr> <tr> <td><input checked="" type="checkbox"/> K-E. L. A.</td> <td><input checked="" type="checkbox"/> K-General Market</td> <td><input checked="" type="checkbox"/> K-GmbH</td> </tr> <tr> <td><input checked="" type="checkbox"/> K-SPAIN</td> <td><input checked="" type="checkbox"/> K-SINGAPORE</td> <td><input checked="" type="checkbox"/> K-AUST</td> </tr> <tr> <td></td> <td></td> <td><input checked="" type="checkbox"/> K-ITALIA</td> </tr> <tr> <td></td> <td></td> <td><input checked="" type="checkbox"/> K-N.Y.</td> </tr> </table>	<input checked="" type="checkbox"/> K.S.J. 技術教育S	<input type="checkbox"/> 国内サービス及び代行店 (無線)	<input type="checkbox"/> ショールーム	<input checked="" type="checkbox"/> 海外サービス	<input checked="" type="checkbox"/> K.P.C.	<input checked="" type="checkbox"/> TK-F.	<input checked="" type="checkbox"/> K-LEE	<input checked="" type="checkbox"/> BLO (北京事務所)	<input checked="" type="checkbox"/> K-CANADA	<input checked="" type="checkbox"/> K-E. L. A.	<input checked="" type="checkbox"/> K-General Market	<input checked="" type="checkbox"/> K-GmbH	<input checked="" type="checkbox"/> K-SPAIN	<input checked="" type="checkbox"/> K-SINGAPORE	<input checked="" type="checkbox"/> K-AUST			<input checked="" type="checkbox"/> K-ITALIA			<input checked="" type="checkbox"/> K-N.Y.	WRITER	
<input checked="" type="checkbox"/> K.S.J. 技術教育S	<input type="checkbox"/> 国内サービス及び代行店 (無線)	<input type="checkbox"/> ショールーム																					
<input checked="" type="checkbox"/> 海外サービス	<input checked="" type="checkbox"/> K.P.C.	<input checked="" type="checkbox"/> TK-F.																					
<input checked="" type="checkbox"/> K-LEE	<input checked="" type="checkbox"/> BLO (北京事務所)	<input checked="" type="checkbox"/> K-CANADA																					
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		<input checked="" type="checkbox"/> K-ITALIA																					
		<input checked="" type="checkbox"/> K-N.Y.																					

PARTS BULLETIN

KENWOOD

KENWOOD CORPORATION

Attention <input type="checkbox"/> T-K Group (Home, Car, Comm.) <input type="checkbox"/> All Agents <input type="checkbox"/> O/Sea Market (Home, Car) <input checked="" type="checkbox"/> O/Sea Market (Comm.) <input type="checkbox"/> Domes. Market (Home, Car) <input type="checkbox"/> Domes. Market (Comm.) <input type="checkbox"/> Other	Bulletin No. KPB-A-911		Date 5.MAR.92.		
	Contents	<input checked="" type="checkbox"/> A. Part Number Correction	<input type="checkbox"/> F. New Parts Stock		
<input type="checkbox"/> B. Parts for Modification		<input type="checkbox"/> G. Tool in Stock			
<input type="checkbox"/> C. Parts Substitution	<input type="checkbox"/> H. Information from Service Dept.				
<input type="checkbox"/> D. Parts Price	<input type="checkbox"/> I. Requests to Branch and Agents				
<input type="checkbox"/> E. Parts Impossible to Supply	<input type="checkbox"/> J. Other				

Model : TS-850S	J Type	K,P Type	E Type	T Type	M Type	Others
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SUBJECT : PARTS NUMBER CORRECTION OF TS-850S

Request for correction of parts number indicated in TS-850S service manual. (manual no. B51-8098-00)

Please correct your service manual as follows.

(CORRECTION)

On page 90 in TS-850S service manual.

INCORRECT

Ref. No.	Parts No.	Description
INV	W02-0677-08	INVERTER



CORRECT		
Ref. No.	Parts No.	Description
INV	W02-1677-08	INVERTER

Thank you.

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-92-036 1/2

REFERENCE.

■ : AMA

MODEL: TS-850	DATE: Jun. 12. 1992
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SUBJECT: Countermeasure against distorted transmission audio by use of TNC terminal (PK-232). (When the DC power supply is shared by the transceiver*

* and TNC)

Phenomenon: The transmission audio is distorted if the power supply is shared by the TNC terminal (PK232) and transceiver with a dummy load. This failure doesnot occur if the transceiver and TNC terminal unit are use separate powersupplies.

Cause: 1) The modulation output level of the TNC terminal (PK-232) is high. If the TNC terminal is connected to the TS-850, distorted the transmission audio by mic amp overinput. In the TS-440, the mic amp input does not overinput because the TNC modulation output is connected to the output circuit of the mic amp. However, in the TS-850, the TNC modulation output is connected to the input circuit of the mic amp, thus the TNC modulation output is amplified by the mic amp circuit and occurs overmodulation.

If the TNC modulation output is connected to the output circuit of the mic amp when FM packet is used, input gain shortage and low deviation occurred in the conventional transceiver (TS-440). Hence, the TS-850 can be use any FM packet. The problem occurred in some TNCs that have large modulation output.

2) Note reminding "to use separate power supplies when TNC is used" was missing from the Instruction Manual. (It is in the TS-440 Instruction Manual.)

Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail	Service code
Parts stock <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Delivery <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	A(S): 06 B: X48-3080-XX
Prod. change Lot #44006 S/No. 404XXXX~	C(P): R258, D(C): 91
Application <input type="checkbox"/> All repair units <input checked="" type="checkbox"/> Defectives only <input type="checkbox"/>	MANAGER
tribution <input checked="" type="checkbox"/> サービス部(組立等, 部品), 教育S, テクニカルS <input type="checkbox"/> ショールーム <input checked="" type="checkbox"/> IMD(第3課, 営業管理S, 通話 計測) <input checked="" type="checkbox"/> K-U.S.A. <input checked="" type="checkbox"/> TK-F <input checked="" type="checkbox"/> K-LEE <input checked="" type="checkbox"/> General Market <input checked="" type="checkbox"/> K-CANADA <input checked="" type="checkbox"/> TK-U.K. <input type="checkbox"/> K-PANAMA <input type="checkbox"/> K-LINEAR <input type="checkbox"/> K-S'none	S. Suzuki
	WRITER

s for General coverage transmission, please remove or cut a code, D11 on Digital Unit (X46-308X-XX).

Setting the Extended Functions

Setting for full-Morse function

Every time you turn the POWER ON while pressing the VOICE key, the full-Morse function is turned ON/OFF alternatively.

Morse for each key

IP key	AON - AOF
83 key	TH8 - AM8 - SW8 - SN8 - CW8 (It does not function at repeat.)
55 key	TH4 - AM4 - SB4 - CW4 - CN4 (It does not function at repeat.) At FM, FW - FN (It does not function at repeat.)
REC1,2,3 key	R1BT, R2BT, R3BT
LINE key	FNON - FNOF
key	TNON - TNOF
CLR key	CL
ENT key	ETON - ETOF
1-9,0 key	1-9, 0
M.IN key	MSCR - MIN
MÆVFO key	MV
SCAN key	SCST - SCON
QUICK M.IN key	QMIN
QUICK MR key	QMRON - QMROF
A=B key	AEB
A,B,M.CH key	RXA, RXB, RXM, TXM, TXB, TXM
1MHz key	1MON - 1MOF
F.LOCK key	FLON - FLOF
DOWN key	DN (It does not function at repeat.)
UP key	UP (It does not function at repeat.)
RIT key	RTON - RTOF
XIT key	XTON - XTOF
AT TUNE key	ATST - ATED
PITCH key	PTON - PTOF
key	At CW, CWN - CER
	At FSK, FSKN - FSKR

2) Setting for adjustment mode

Turning on while pressing F.LOCK key enters the menu mode under the adjustment mode.

Pressing the CLR key in the adjustment mode terminates the menu mode under the adjustment mode.

No other operation than pressing the CLR key or turning on again brings termination.

• Menu for adjustment mode

Menu No.	Menu items	Status (Display)
00	CAR correction FSX pseudo SSB Possible FILTER exchange at transmission	
01	CAR-W correction Possible FILTER exchange at transmission	
02	0 adjustment for RIT/XIT volume	-1.28-1.27
03	WIDE adjustment for SLOPE TUNE HIGH CUT volume	-128-127
04	WIDE adjustment for SLOPE TUNE LOW CUT volume	-128-127
05	Forced ON/OFF for receiving DSP carrier	ON/OFF
06	Forced ON/OFF for transmitting DSP carrier	ON/OFF
	Full-ON of LCD	
	Full-OFF of LCD	
	LCD test 1	
	LCD test 2	
	LCD test 3	
	LCD test 4	

3) Setting the extended functions

Turning on while pressing the SCAN key + TX-M.CH key enter the menu mode for extended functions.

Pressing the CLR key in the menu mode of the extended functions terminates the menu mode of the extended functions.

No other operation than pressing the CLR key or turning on again brings termination.

The menu items of the extended functions are shown in the table.

• Menu for extensive functions

Menu No.	Menu items	Status (Display)	Initial status
00	Indicates checksum of ROM	Indicates checksum of ROM in the range of 0003-FFFF.	
01	Turns ON/OFF FILTER exchange at transmission	ON/OFF	OFF
02	Forced ON/OFF AT power down	ON/OFF	OFF
03	AT non-stop mode ON/OFF	ON/OFF	OFF
04	MODE, FILTER of band memory ON/OFF	ON/OFF	ON
05	Power ON: ON/OFF for HELLO Morse	ON/OFF	OFF
06	Turns ON/OFF LCD full-ON mode at power ON	ON/OFF	OFF
07	Turns ON/OFF DDS subtone	ON/OFF	ON
08		ON/OFF	OFF

Treat Construction

Model name	Treat	Mark	AT function	Model name	Treat	Mark	AT function
TS-850S	North America	K	○	TS-850S	Belgium	E3	○
		K2	-			E4	-
TS-850S	Australia	X	○	TS-850S	Other Areas	M	○
		X2	-			M2	-
TS-850S	Canada	P	○			M3	○*
		P2	-			M4	-*
TS-850S	Europe	E	○				
		E2	-				

DIODE CHART (X46-308X-XX)

	0-00	0-01	0-01	0-22	0-71	0-71	0-71
	J19, D, V1	X, X2, P, P2	M, W2	M3, M4	X, X2	E, E2	E3, E4
D5	○	x	x	x	x	○	○
D6	x	x	○	○	x	○	x
D10	x	x	x	x	○	○	○
D11	○	○	○	○	○	○	○
D12	x	x	x	x	○	x	x

○... Diode ON
X... Diode OFF

* : General coverage

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-93-051 1/1

REFERENCE.

■ : A M A

MODEL : TS-850 DATE. AUG. 24. 1993

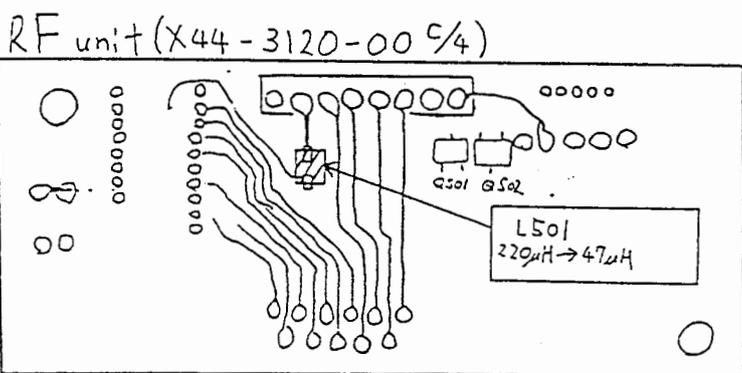
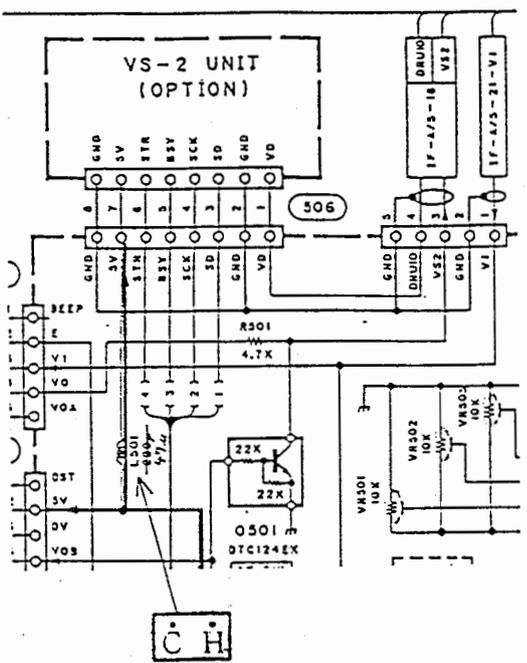
SUBJECT: Countermeasure Against VS-2 Can not talk.

Phenomenon: VS-2 Can not talk with TS-850 but depends on a Combination.

Cause: When connect VS-2, then 5C voltage drop down to 4.5V.

Countermeasure: RF unit (X44-3120-00 C/4) L501 change from 220 μ H to 47 μ H.

Old L40-2211-48 \Rightarrow New L40-4701-48



Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Mail	Service code
Parts stock <input type="checkbox"/> Yes <input type="checkbox"/> No Delivery <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	A (S) : 93 B : X44-3120-00
Prod. change Lot 15508 S/No. 507XXXX~	C (P) : L501 D (C) : 91
Application <input type="checkbox"/> All repair units <input checked="" type="checkbox"/> Defectives only <input type="checkbox"/>	MANAGER <i>J. Ando</i>

- サービス部 各セクション 国内サービス及び代行店 (無線) ショールーム
- K-U. S. A. TK-F. K-LEE BLO (北京事務所)
- K-CANADA TK-U. K. K-PANAMA K-General Market
- K-GmbH K-ITALIA K-E. L. A.

2003

JANUARY 10, 1992

Ref.No.	N51-92-025
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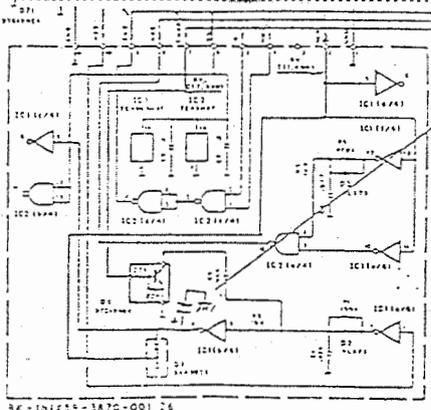
KENWOOD SERVICE NOTE

During servicing in Japanese market, a problem (symptom and cause are described below) was found with some of our products. As a result, this report is issued to serve as a reference to the activities of service bench.

MODEL: TS-850S SERIAL NO.: ALL QTY

SYMPTOM When the MODE changes to the CW MODE from another MODE, the ON-AIR LED goes on instantaneously. (no transmission is performed). However, this happens only once after power-on. The failure can be reproduced by powering off and powering on a few seconds later, then changing to the CW MODE.

CAUSE When the MODE changes, a spike noise (of about 500 mV to 2 V) is generated in the CTXB line in the TX unit (X59-3680-01) of the IF unit. This causes the TxB level to be High (about 7V) instantaneously. Actually, this status lasts while BK-IN (X59-3870-00) CWBD is High during CW MODE. Consequently, pin-3 of IC1 (b/6) changes to Low and pin-4 instantaneously changes to High while C6 is being charged.



COUNTERMEASURE: Add a capacitor (1 uF or 3.3 uF) between IC1 (b/6) pin-4 and GND to absorb the spike noise. Adding a capacitor will not affect the rising time of transmission but affects the falling time of TxB a littel.

	DATA	(A)	(B)	
A 1-μF capacitor causes TxB to be about 1 V but the on-air lamp goes off. We had a complaint, however, no wave is output. This failure is not so serious.	Normal	12mSec	7.6V	(A):Time it takes NSS to go off and TxB to go on.
	1uF	15mSec	1V	
	3.3uF	20mSec	25mV	
	10uF	30mSec	-	
				(B):TxB spike

REPORTED FROM
HOKKAIDO SERVICE CENTER

REPORTER

MANAGER
Wada

WRITER
M...

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

STR No. E51-93-039 1/1

REFERENCE.

■ : A M A

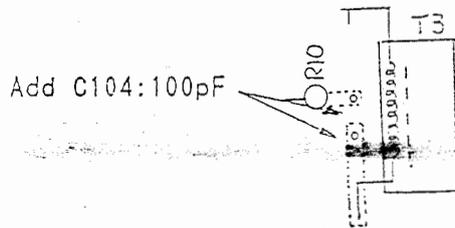
MODEL : TS-850S DATE. Jun. 2. 1993

SUBJECT: Part change due to production discontinuation of drive transistors Q2, Q3: 2SC2509 (2SC2509 → 2SC3133).

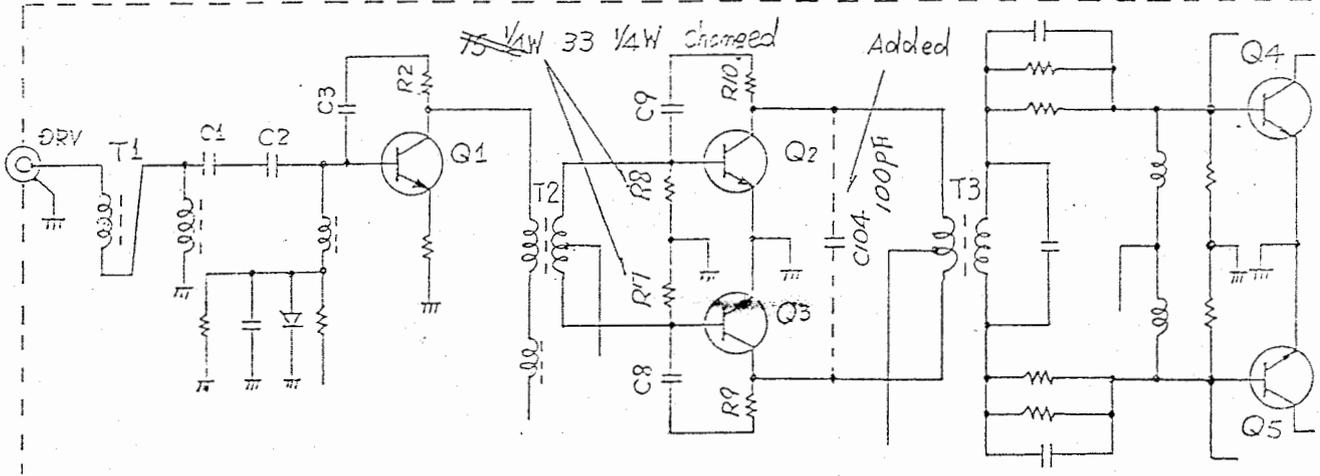
With the production discontinuation of drive transistors Q2, Q3 (2SC2509), substitute parts will be used. Accordingly, part numbers will be changed as follows:

- 1) Transistors Q2, Q3 (2SC2509) → → 2SC3133 Changed
- 2) Carbon resistors R7, R8, 15-ohm, 1/4W → → 33-ohm, 1/4W (RD14CB2E330J) Changed
- 3) Ceramic capacitor C104, 100pF (CC45SL2H101J)* Added

*: C104 (100pF) will be soldered on the T3 input side. Holes for this are provided in the Printed board (between R10 and T3).



FINAL UNIT (X45-1470-00)



Parts included <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Wait	Service code
Parts stock <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Delivery <input type="checkbox"/> Charge <input type="checkbox"/> Free of charge	A (S) : B :
Prod. change Lot # 35008 S/No. 503XXXX~	C (P) : D (C) :
Application <input type="checkbox"/> All repair units <input type="checkbox"/> Defectives only <input checked="" type="checkbox"/> Replacement	MANAGER

<input checked="" type="checkbox"/> K-U.S.A. <input checked="" type="checkbox"/> TK-F <input checked="" type="checkbox"/> K-LEE <input checked="" type="checkbox"/> General Market <input checked="" type="checkbox"/> K-CANADA <input checked="" type="checkbox"/> TK-U.K. <input checked="" type="checkbox"/> K-PANAMA	S. S. EDITED
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Home Car XAB LMR/Marine

NO. E51-91-087 1/2

MODEL DRU-2 DATE Sep. 20 '91

SUBJECT Countermeasures against "battery drying up a few month after installed the TS-850" (More than 100uA backup current flows.)

CONTENTS REFERENCE:

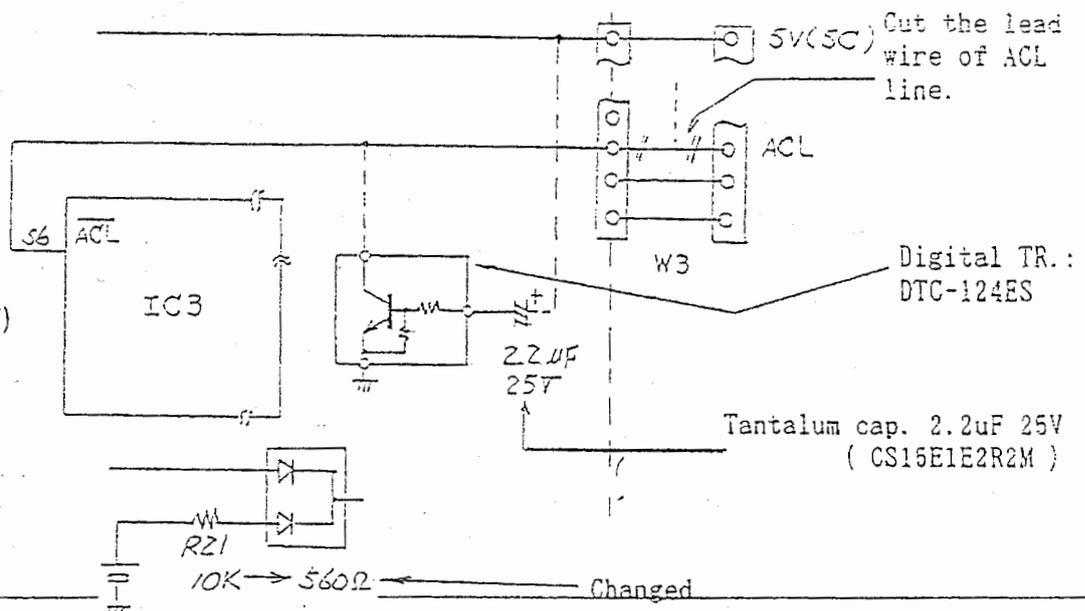
Phenomenon: A few month after the DRU-2 is installed the TS-850:
 a) Recorded data becomes erased.
 b) Haphazard data is replayed.

Cause: The lithium battery that back up data in the TS-850 containing the DRU-2 has dried up. When the TS-850 power switch is turned off, the lithium battery in the DRU-2 backs up recorded data, but it dries up much earlier because more than 100uA backup current flows (as compared to normal current of 1-2uA).
 When the DRU-2 is kept in storage by itself, the backup current is normal. Only when the DRU-2 is installed the TS-850 does the trouble occur.
 When power to the TS-850 is turned off with the DRU-2 connected to the TS-850, excessive backup current flows from the DRU-2's ACL line to the TS-850's reset line.

- Counter-measure : 1) Add a digital transistor DTC-124ES and tantalum capacitor 2.2uF 25V: CS15E1E2R2M to the ACL line of the DRU-2 unit.
 2) Change part of the circuit to accommodate the addition of 1).
 R21:10K →→1.2KΩ (RK73FB2A122J) Changed
 3) Cut the lead wire of ACL line at the connector W3.

Modification parts kit.
 (W05-0379-00)

- o Lithium BAT. (W09-0326-05)
- o Insulator (UP) (F20-0520-04)
- o Insulator (DWN) (F20-0521-04)
- o Digital TR: DTC-124ES
- o Tantalum cap. 2.2uF 25V: CS15E1E2R2M
- o Tube: 10mm (212-1016-05)



Prod. change S/N 307
 Application All repair units Defectives only
 Parts included No Yes Mail
 Service code A: 34 B: X4Z-3010 C: ADD D: 91

Distribution
 U.S.A. (3ヶ所) U.K. ショールーム
 CANADA ITALY 相談室
 GERMANY AUSTRALIA 部品S
 BELGIUM SINGAPORE 教育担当
 第3課
 営業管理S
 通、営業課
 MANAGER
 S. Suzuki
 WRITER

Home Car A.R LMR/Marine

NO. E51-91-087 2/2

MODEL DRU-2

DATE Sep. 20 '91

SUBJECT

Countermeasures against "battery drying up a few months after installed the TS-850" (More than 100uA backup current flows.)

CONTENTS

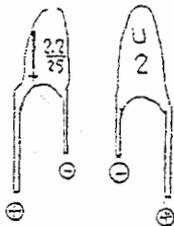
REFERENCE:

We have service parts stock for modification kit (W05-0379-00). Modifying procedure is as below.

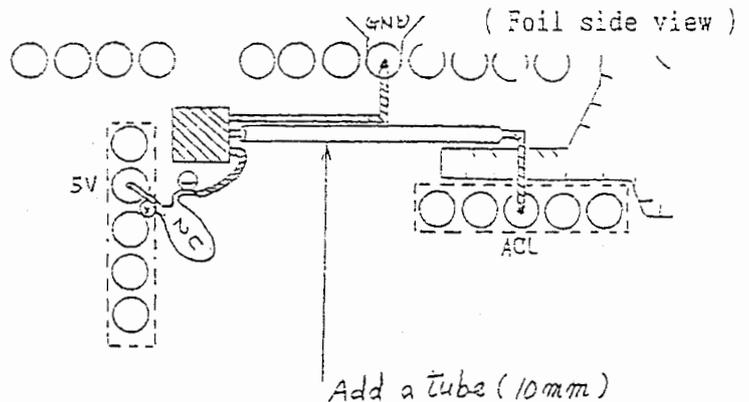
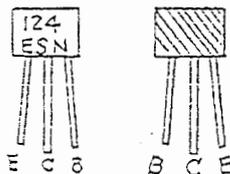
o Modifying procedure:

- 1) Replace the lithium battery (W09-0326-05) and insulator to the lithium battery. (Upper and lower side)
 Note: Lithium battery replacement is not required if the DRU-2 is in storage by itself.
- 2) Add a digital transistor DTC-124ES and tantalum capacitor 2.2uF 25V: (CS15E1E2R2M) to the ACL line of the DRU-2 unit.
 Note: Add a *tube* to digital transistor DTC-124ES of collector lead.
- 3) Cut the lead wire of ACL line at the connector W3.

Polarity of Tantalum cap.



Digital TR: DTC124ES



R21
10K → 560Ω

Remarks	Prod. change	S/N		
	Application	<input type="checkbox"/> All repair units	<input type="checkbox"/> Defectives only	<input type="checkbox"/>
	Parts included	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> Mail
	Service code	A:	B:	C: D:

Distribution	<input checked="" type="checkbox"/> U.S.A. (3ヶ所)	<input checked="" type="checkbox"/> U.K.	<input type="checkbox"/> ショールーム	<input type="checkbox"/> 第3課	MANAGER S. Suzuki WRITER
	<input checked="" type="checkbox"/> CANADA	<input checked="" type="checkbox"/> ITALY	<input checked="" type="checkbox"/> 相談室	<input type="checkbox"/> 営業管理S	
	<input checked="" type="checkbox"/> GERMANY	<input checked="" type="checkbox"/> AUSTRALIA	<input checked="" type="checkbox"/> 部品S	<input checked="" type="checkbox"/> 通、営業課	

KENWOOD

ASB-1046

Service Bulletin

Amateur Radio Division

Subject: TS-850S Mixer FET Change

Date: March 28, 1994

Symptom:

Several units were discovered during production by our QC department that experienced difficulty when the transceiver was being adjusted for an S-1 reading on the S-Meter.

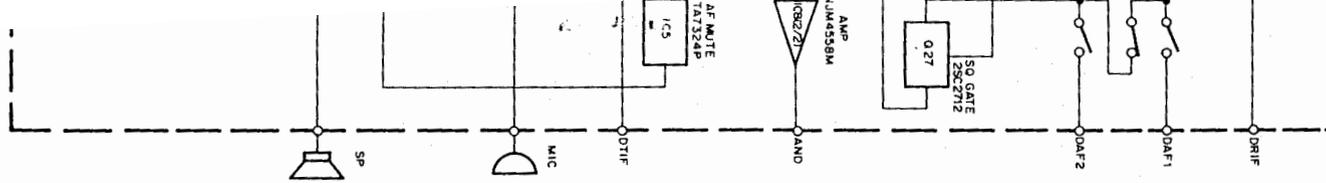
Countermeasures:

Variations in the gain of the devices used for Q16 and Q17, the second mixers, on the RF Unit (X44-3120-00) appear to cause of this symptom. We, therefore, recommend replacing these two transistors with 2SK520 (K43) devices. These devices have lower IDSS (Drain breakdown current), and therefore provide a greater conversion gain. As a result the total gain of the circuit is increased.

Parts Required:

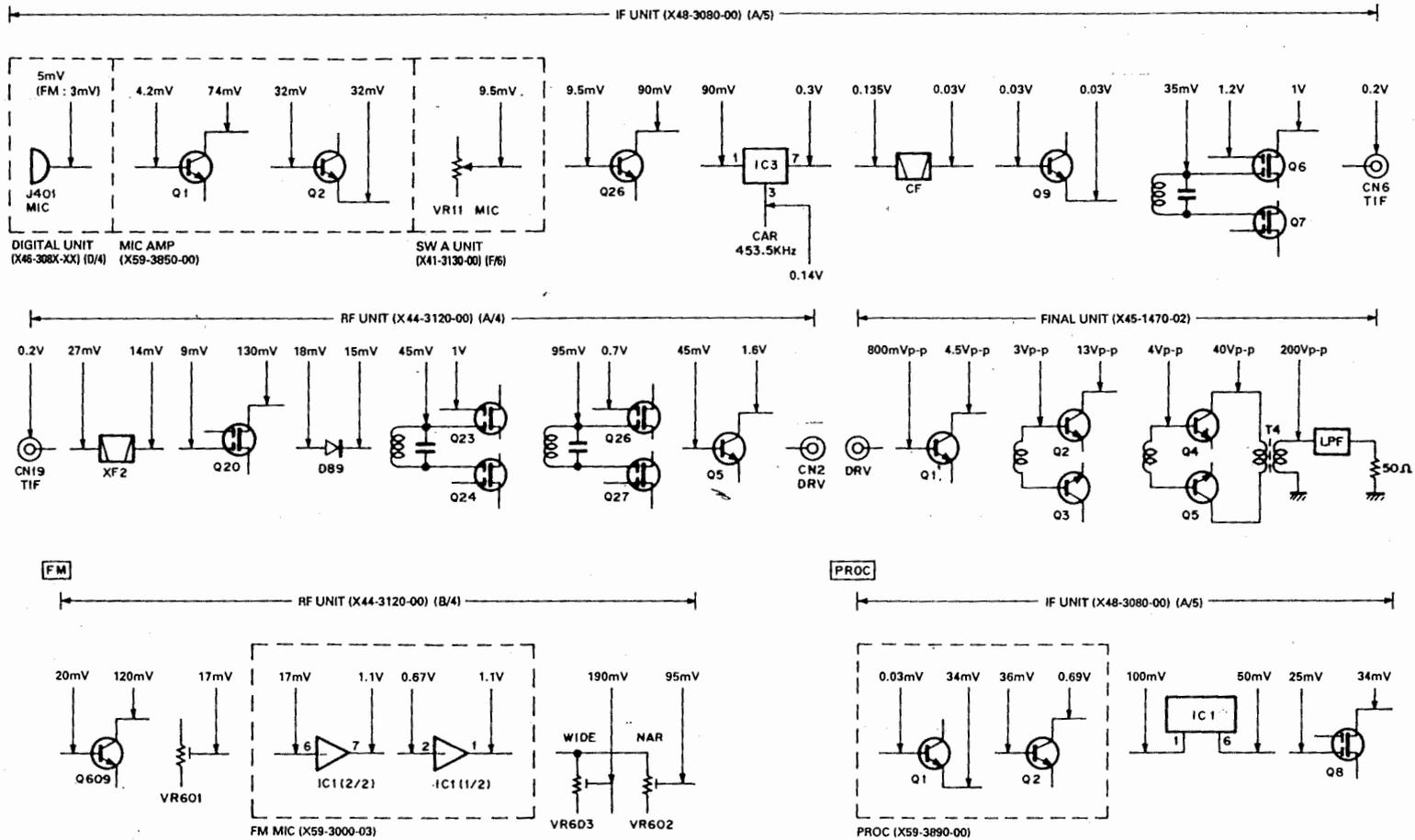
Qty	Description	Old Part No.	New Part No.	Circuit Description
2	Second Mixer FET	2SK520 (K44)	2SK520 (K43)	Q16, Q17

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Receiver Section

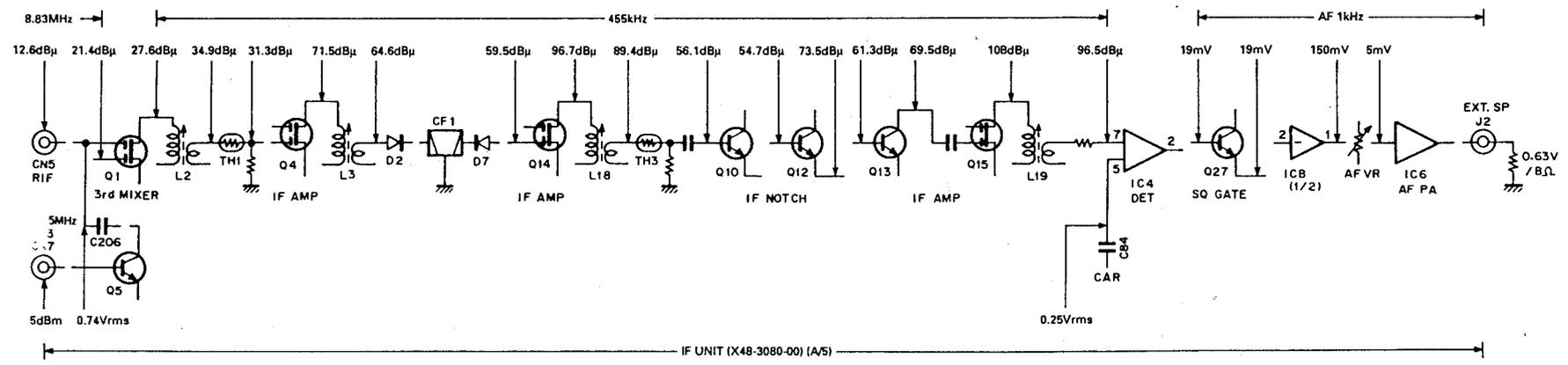
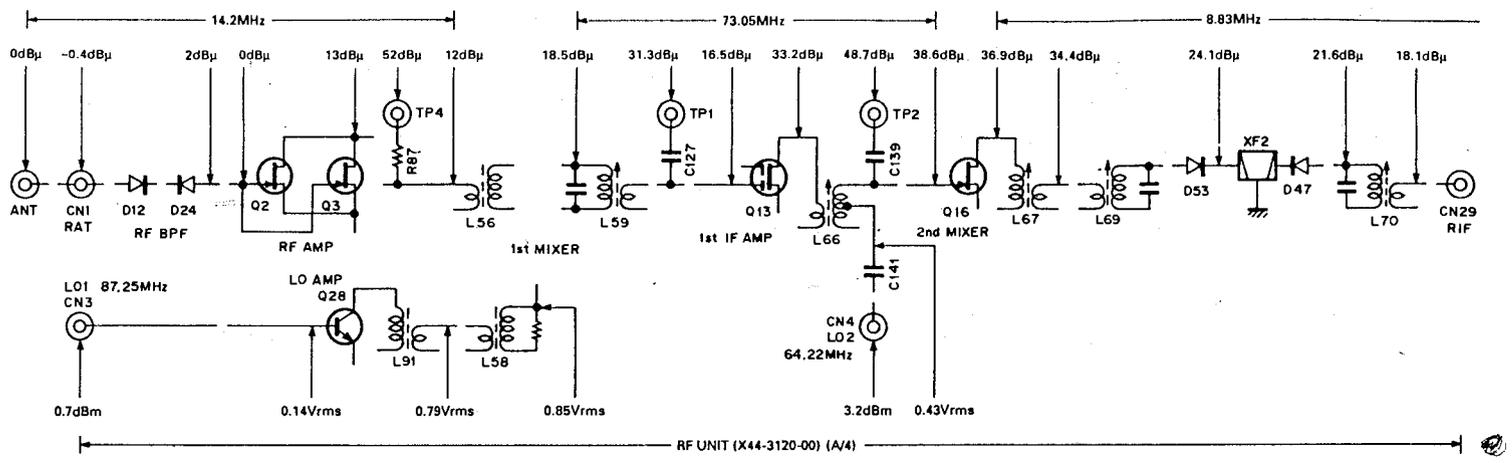


LEVEL DIAGRAM

1. Microphone is 5mV, 1kHz input
2. The low-frequency section is measured with an AF variable voltmeter
3. The high-frequency section is measured with an RF variable voltmeter
4. The outputs are all ALC zone maximum
5. FM wide is 3kHz deviation, narrow is 1.5kHz deviation
6. PROC when 20dB COMP

TS-8

Transmitter Section



AIP : OFF
ATT : OFF
IF FILTER
8.83 : 2.7kHz
455 : 2.7kHz

1. Connect the signal generator to the ANT terminal at 14.2MHz USB, apply a signal of 0 dB μ (EMF), tune so that the AF output beat frequency is 1kHz, and adjust the AF VR so that the AF output is 0.63V/8 Ω .
2. Connect the signal generator to each measurement point (cut off the DC), and the AF output in (1) so that the above EMFs set are obtained. During measurement, the beat frequency of the AF output is normally 1kHz.

3. The signal type connector, TP, shown by $\textcircled{\otimes}$ is measured by removing the coaxial cable inside the set, which is connected to that connector, and connecting the signal generator in its place. The station transmission system connector shown by $\textcircled{\odot}$ is a value measured by connecting the coaxial cable within the set connected to that connector (input must be 50 Ω) to the spectrum analyzer.
4. The AF stage level is the level measured at AF V.M for each stage during the conditions indicated in (1).