FURUNO

SERVICE MANUAL

SSB RADIOTELEPHONE

MODEL FS-1562

FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

9-52, Ashihara-cho,
Nishinomiya, Japan 662

Telephone: 0798-65-2111
Telefax: 0798-65-4200

·Your Local Agent/Dealer

FIRST EDITION : FEB 1994

PUB. No. SME-55722-A
(TOSA) FS-1562

FURUNO

Information

No. : FQ5-94-004

Date : 1994 - 03

Issued by: FURUNO ELECTRIC CO., LTD.
TECHNICAL DOCUMENTATION SECTION

Addenda No. 1 to FS-1562
Service Manual SM-E5572

Remarks on Operation to Clear User Channel Memory and Power Data

To clear all user channel memories or restore power data to default setting, follow the procedure shown below.

1. Turn the power on while pressing and holding down the **RCL** key.
2. Set system channel to "9999" by operating the **FREQ/CH** encoder.
3. Press the **RCL**, **1**, **5**, **6**, **2** and **ENT** keys in this order. (1562 is the password.)
4. To clear user channel memory, change system channel to "9901" and press the **RCL**, **1**, **ENT** keys in this order. (To clear power data, change system channel to "9925" and press the **RCL**, **1**, **ENT** keys in this order.)
5. Wait until the display changes from "1" to "0". (It takes numerous seconds to change.)
6. Turn the power off and on again.
7. Confirm that all user channel memories are cleared or power data is restored to default setting.

⑤

FURUNO

Information

No. : FQ5-94-008

Date : 1994 - 04

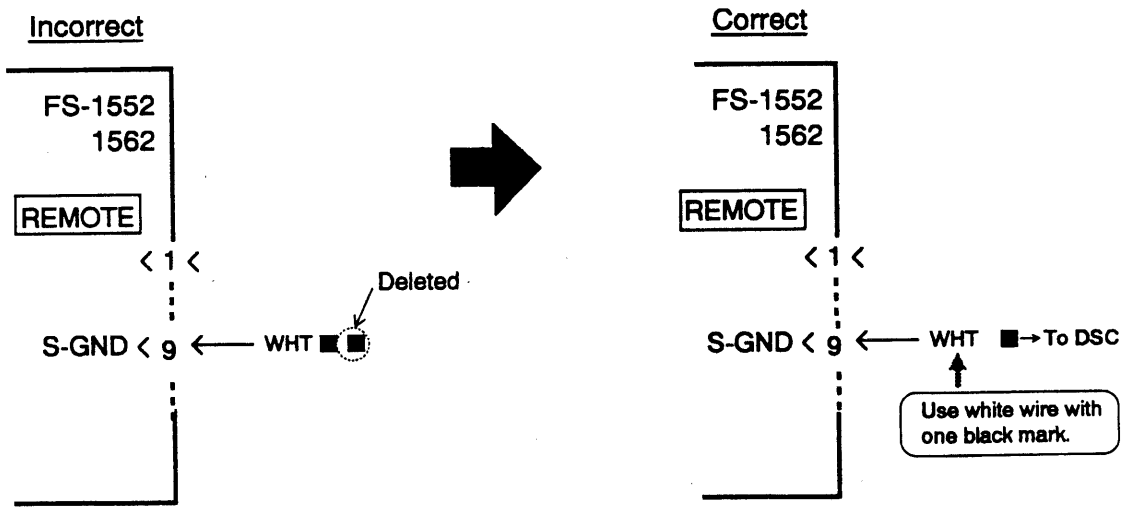
Issued by: FURUNO ELECTRIC CO., LTD.
TECHNICAL DOCUMENTATION SECTION

Addenda No. 1 to
FS-1552 SM-E5549

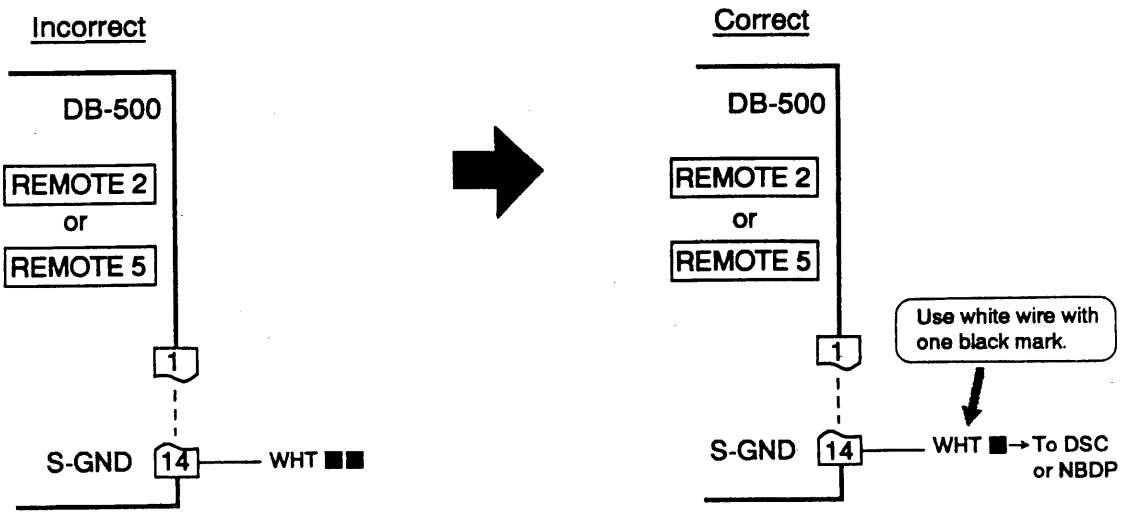
Addenda No. 2 to
FS-1562 SM-E5572

FS-1552/FS-1562
Errata for Interconnection Diagram

Please correct the interconnection diagrams of the REMOTE terminal as follows.

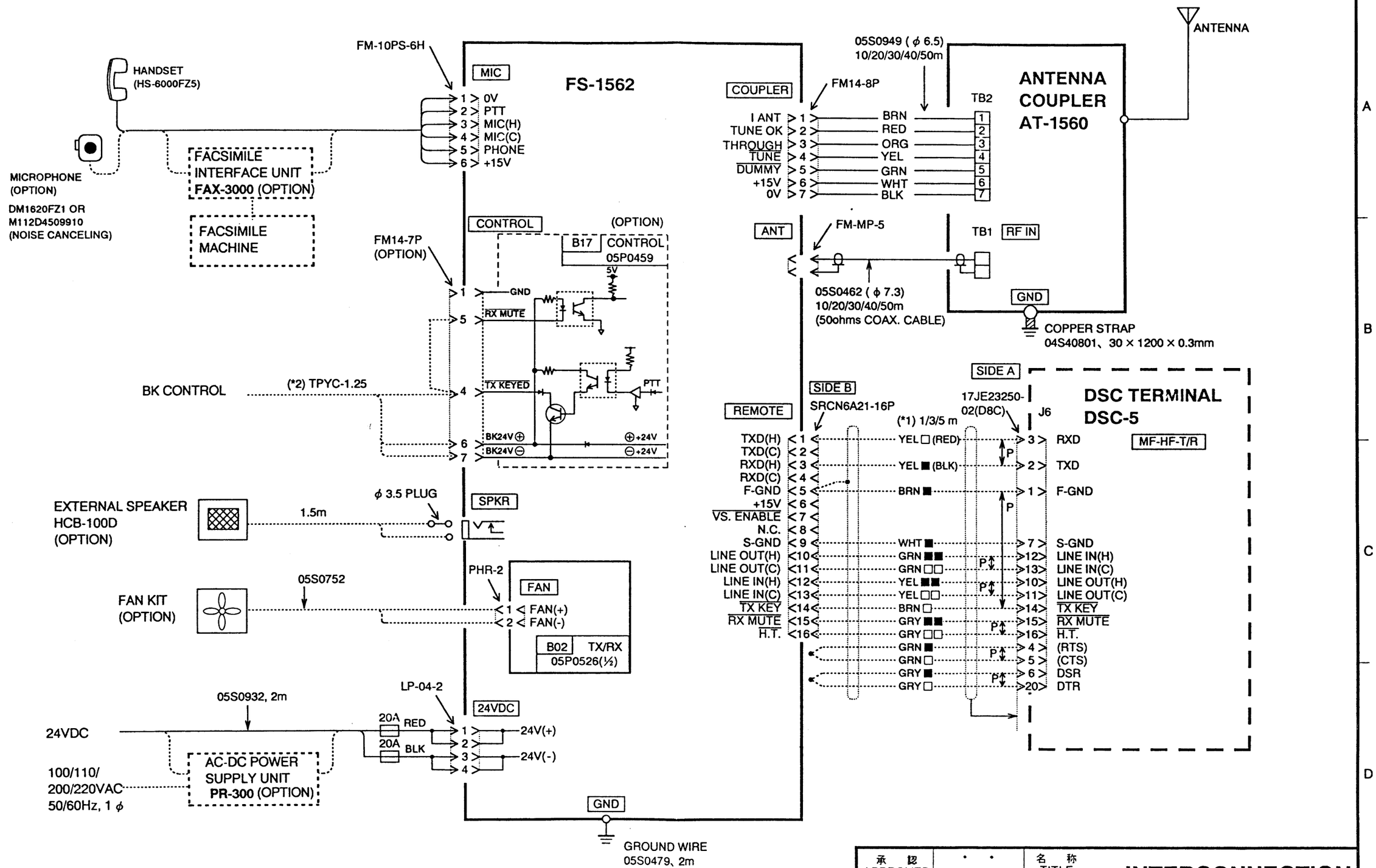


When using DB-500, correct the wiring as follows.



FURUNO

2/2



(*1) 05S0783: WITHOUT CONNECTORS
05S0784: WITH D-SUB CONNECTORS AT BOTH ENDS.

(*2) SHIPYARD SUPPLY

承認 APPROVED	・ ・	名称 TITLE	INTERCONNECTION DIAGRAM (1/2)
検図 CHECKED	Apr.・8・'94 T. SAITO	FS-1562	
製図 DRAWN	Apr.・8・'94 Y. HAMANO	図番 DWG.NO	E5572-C01-D

FURUNO ELECTRIC CO., LTD.

FURUNO

Information

No. : FQ5-94-015 1/1

Date : 1994 - 09

Issued by: FURUNO ELECTRIC CO., LTD.
TECHNICAL DOCUMENTATION SECTION

Addenda No.2 to
FS-1552 SM-E5549

Addenda No.3 to
FS-1562 SM-E5572

FS-1552/FS-1562
ROM Program Changes

Changes made to ROM program

Power adjustment cannot be made without changing system setting 9998.

9998	Setting No.
Power adjustment and user channel memory	0 : ENABLE
	1 : DISABLE

For access to system setting 9998 and method of power adjustment, refer to respective service manual.

Program number

FS-1552 0550169102 (Ver. No. 2)
Code No. 005-945-590
FS-1562 0550157103 (Ver. No. 3)
Code No. 005-944-800

⑤

Factory modification

From the production in Sept. 1994

Modified sets number

FS-1552 ····· Serial No. 2552-0241 and after
FS-1562 ····· Not yet decided

Addenda No. 4 to
FS-1562 SM-E5572

FS-1562
Amendment of System Channel Lists

Please use the following new system channel lists in behalf of those mentioned on pages 2-2 thru 2-4 in the Service Manual.

System Channels List

* : These channels can be recalled by entering the password "1562" on system channel 9999.
Functions of the system channels 9951 to 9959 are described on the Operator's Manual.

	System channel	Function	Setting					Default		
			0	1	2	3	4	Std	Italy	Holland
*	9900	Country of Delivery	Standard	Italy	Holland			0	1	2
*	9901	User Channel Clear	Press RCL, 1, ENT keys to clear. (Note 11)							
*	9902	TX Frequency Selection (Note 1)	Free	Marine	ROM	Marine Free		3	2	3
*	9903	RX Frequency Selection (Note 1)	Free	Marine	ROM	Marine Free		0	0	0
*	9904	TLX (Telex) Usage	TX/RX	RX	Disable			0	0	0
*	9905	TLX RX Bandwidth	Wide	Narrow				1	1	1
*	9906	TX Delay Time (Note 2)	5 to 50 ms					10	10	10
*	9907	Power Reduction on 2182kHz	Enable	Disable				0	0	1
*	9908	H3E Usage (Note 3)	TX/RX	RX	Disable	2182 (TX/RX)	RX +2182 (TX/RX)	4	4	4
*	9909	LSB Usage	TX/RX	RX	Disable			2	2	2
*	9910	FAX Usage		RX	Disable			1	1	1
*	9911	Emission Mode by [2182] key	H3E	J3E				0	0	0
*	9912	Alarm TX Time	45 sec.	No limit				0	0	0
*	9913	Test Alarm Transmission (Note 4)	Disable	Enable				1	1	1
*	9914	Test Alarm Frequency	1605.00 to 29999.99 kHz					2191.0	2191.0	2191.0
*	9915	TX TUNE (Note 5)	Enable	Disable	Auto			0	0	0

(continued to next page)

	System channel	Function	Setting					Default		
			0	1	2	3	4	Std	Italy	Holland
*	9916	Remote Control Format (Note 6)	MIF	TBUS				0	0	0
*	9917	Emission Mode with TX KEY on from external equipment (Note 7)	Auto	SSB	AM	TLX		0	0	0
*	9918	Key Response Beep	OFF	ON				1	1	1
*	9919	Noise Blanker	OFF	ON				1	1	1
*	9920	AGC	OFF	ON	Changeable			2	2	2
*	9921	Clarifier Change Width	±150Hz	±100Hz				0	0	0
*	9922	IA/RF Meter	IA	RF				0	0	0
*	9923	ITU Channel	Std	USA	Std+MF			2	2	2
*	9924	Channel/Frequency Display	Channel	Frequency				0	0	1
*	9925	Default setting of Power Data	Press RCL, 1, ENT keys to restore to default setting. (Note 11)							
*	9926	Tuning Circuit for RX (Note 8)	Enable	Disable				1	1	1
*	9927	(for factory use)	This setting should always be "0".					0	0	0
	9951	Scan Stop Signal Level	SQ level	1 to 10				3	3	3
	9952	Scan Stop Time	While receiving	1~99 seconds				2	2	2
	9953	Sweep Width	0.01 to 30000.00 kHz					100.0	100.0	100.0
	9954	Sweep Step Frequency	0.01 to 30000.00 kHz					1.00	1.00	1.00
	9955	Squelch Operation	Voice	Level	Voice + Level	Voice or Level		3	3	3
	9956	Squelch Level	0 to 10					5	5	5
	9957	Squelch Delay Time (Note 9)	500 to 4000 ms					1000	1000	1000
	9958	Squelch Activating Frequency	500 to 2000 Hz					1000	1000	1000
	9959	Squelch activating frequency when 2-tone alarm on 2182 kHz is received	Default (No change)	1300 Hz				1	1	1
*	9997	Selection of output power (Note 10)	150W	250W AT-5000	250W AT-1560-25			0	0	0
*	9998	User Channel Memory & Power Adj.	Enable	Disable				1	1	1
*	9999	Enter 1562 to access asterisk-marked channels.								

(Note 1) Free: Frequencies can be selected in the range of 1.6065MHz~29.9999MHz.
ITU and User channels are also available.

Marine: ITU and User channels are available.

ROM: User channel only

Marine Free: Frequencies can be selected in the following range. ITU and User channels are also available.

1606.5~4438	12230~13200	19680~19800	26100~26175
6200~6525	16360~17410	22000~22855	
8100~8815	18780~18900	25070~25210	kHz

(Note 2) Transmission start time after the TX KEY line goes low level (is activated).

(Note 3) Set to "0"(TX/RX) when the selcall unit is connected.

(Note 4) 1 (Enable): The dummy load is connected automatically and the text signal of 2191 kHz, modulated by two-tone alarm, is sent to the dummy load.

(Note 5) Enable: Tuning by PTT switch or TX TUNE key.
Auto: Automatic tuning when frequency is changed.

(Note 6) MIF: FURUNO Radio Interface. Select MIF when FURUNO DSC terminal or NBDP terminal is connected.
TBUS: For equipment made by "Thrane & Thrane A/S" of Denmark.
If TBUS data is used, it is not necessary to connect TXD/RXD lines.

(Note 7) Auto: FURUNO make DSC terminal and/or NBDP terminal is connected.
SSB: Other make of controller is connected. (J3E is selected when TX KEY level goes low.)
AM: Selcall unit is connected. (H3E is selected when TX KEY level goes low.)
TLX: Other make of NBDP terminal is connected. (TLX is selected when the TX KEY level goes low.)

(Note 8) 0: RX signal passes through tuning circuit. (This setting is useful when TX/RX frequencies are in the same band on HF or are the same on MF.)
If RX frequency is changed to other band, tune on the same band as the RX frequency.

RX signal does not pass through tuning circuit when the following situations occur.
1. Scan/sweep reception
2. Frequencies between TX and RX are separated more than 1.2 MHz on 4MHz band or higher band
3. TX/RX frequencies are not the same on 4MHz band or lower band
4. RX frequency is set to 1.6MHz or less

(Note 9) Ex. Delay time: 1000 ms
Squelch is opened 1000 ms after the signal goes away.

(Note 10) When 250 W Booster is connected, select 1 or 2.
1: Antenna coupler AT-5000 (For FS-5000/8000)
2: Antenna coupler AT-1560-25

(Note 11) Wait until the display changes from "1" to "0". (It takes 10 to 30 seconds to change.) Then turn the power off.

Addenda No. 5 to
FS-1562 SM-E5572

FS-1562-25 (250W) Service Manual

This is issued to supplement the FS-1562-15 (150W) Service Manual (SM-E5572). The main differences between the FS-1562-15 and the FS-1562-25 are as follows.

Item	FS-1562-15 (150W)	FS-1562-25 (250W)	Code No.
Dummy Load Board	05P0543	05P0610	005-944-790 (Supplied as an assembly)
Dummy Chassis	R1 only (10 ohms/100W)	R1 and R2 (20 ohms/100W × 2)	
Power Amp Unit (PA-2500)	Not provided	Provided	
Power Supply Unit	PR-300	PR-850/850A	
System Setting (9997)	"0"	"2"	

The transceiver unit and the antenna coupler functions are almost the same as those in the FS-1562-15, except for the output power.

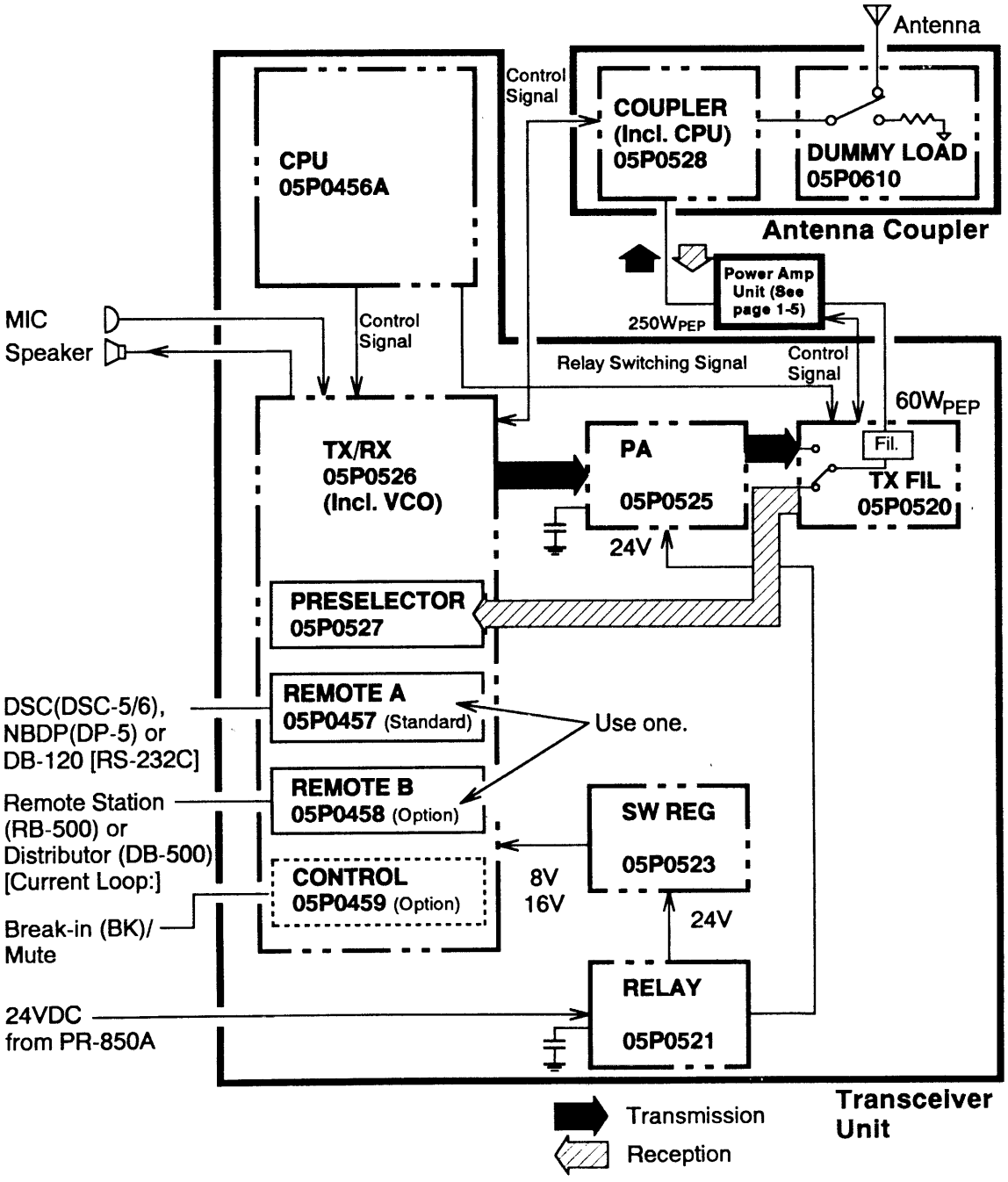
Contents

Chapter 1 Block Description

1.1 General

The FS-1562-25 is powered by 21.6 to 31.2VDC power and consists of three units: a Transceiver Unit, a Power Amp Unit (PA-2500) and an Antenna Coupler. It can be connected to a DSC terminal (DSC-5/DSC-6), NBDP terminal (DP-5), a Distributor (DB-120, DB-500) or a Remote Station (RB-500), by using the REMOTE A board or REMOTE B board on the TX/RX board. (See page 1-4.)

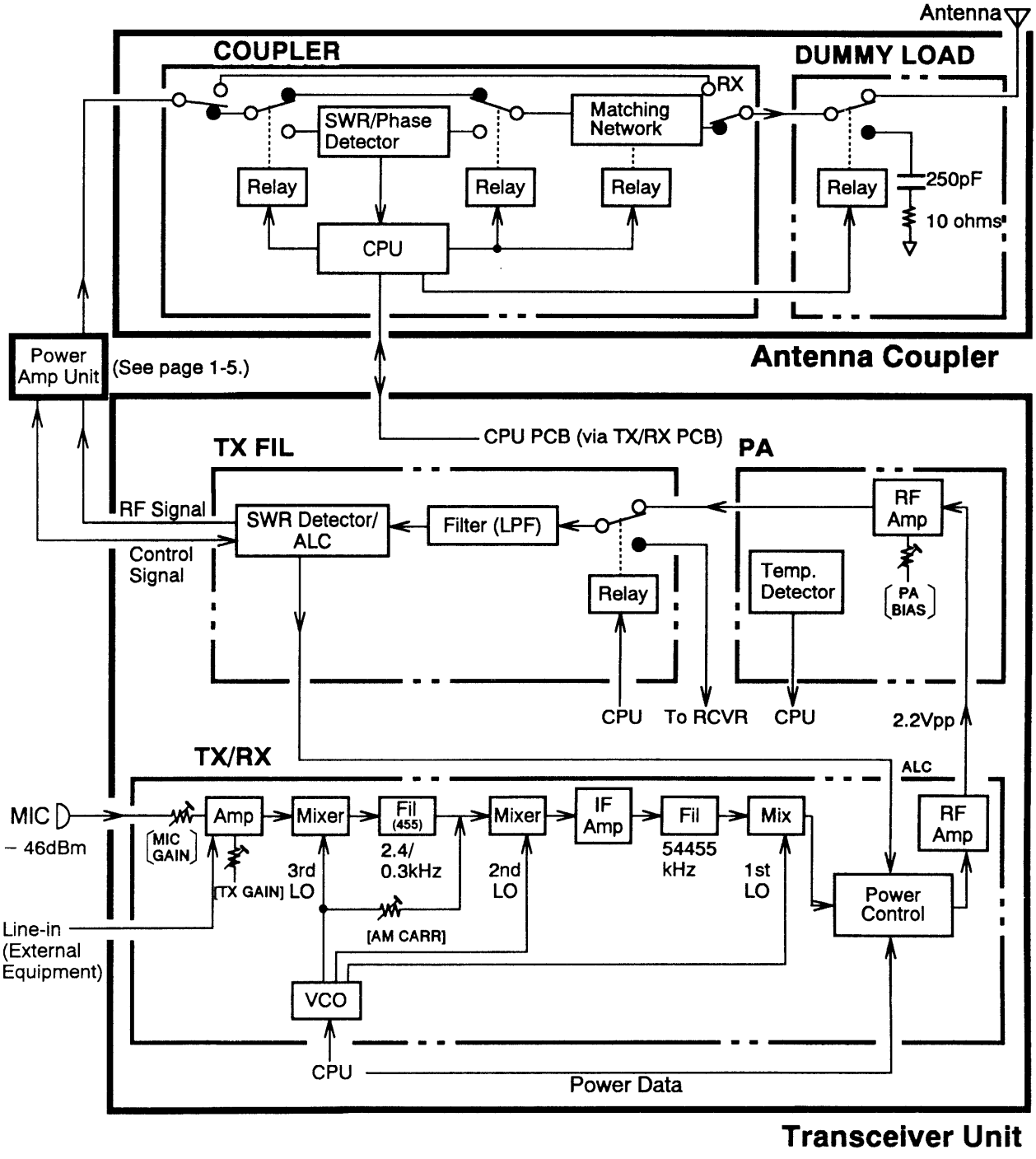
When turning the power on, the RELAY board in the Transceiver Unit is activated, causing the input voltage (24VDC) to be fed to the SW REG board which produces +8V and +16V for the TX/RX board. For the PA-2500, refer to page 1-5.



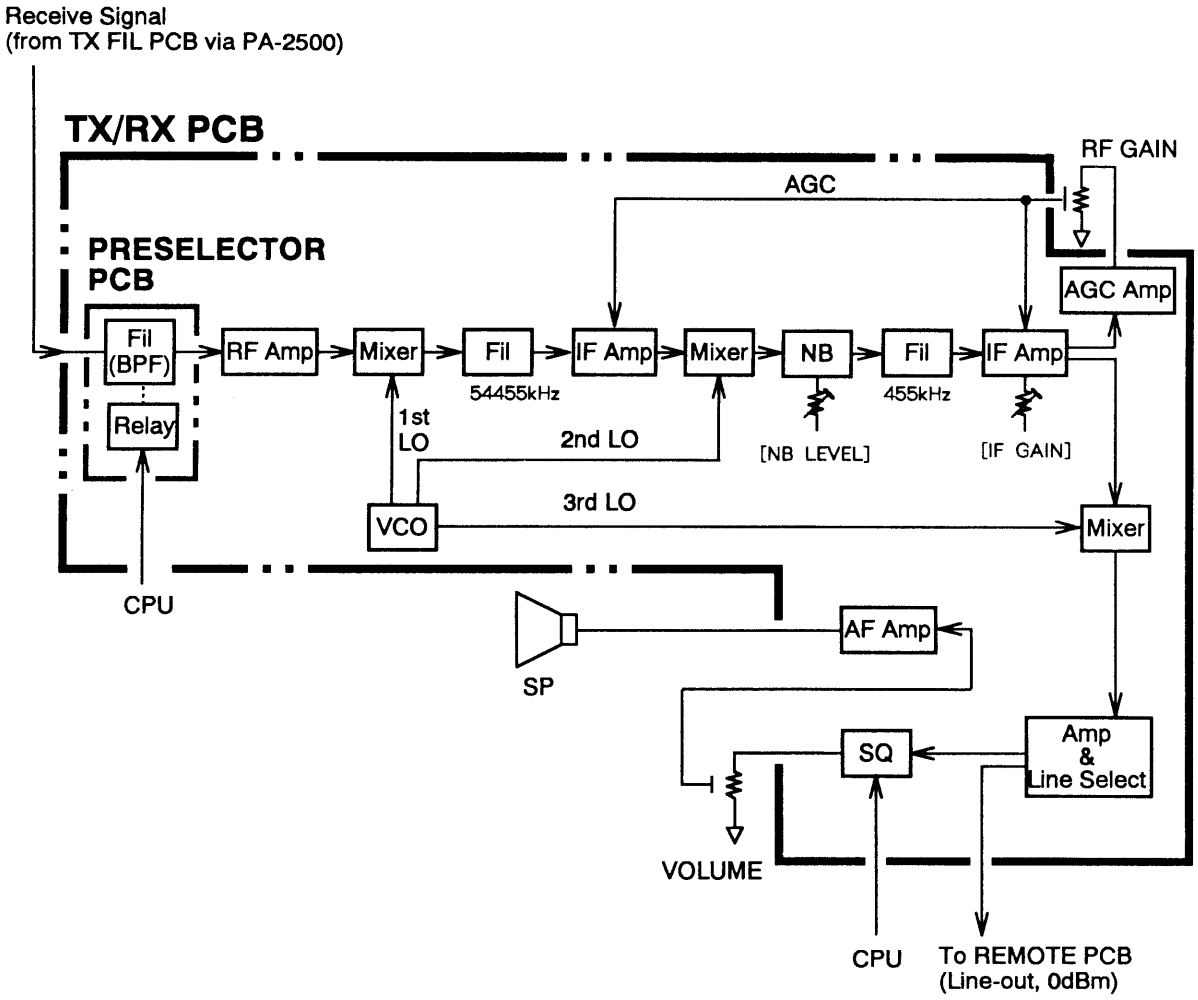
1.2 Transmitter (For PA-2500, refer to page 1-5.)

The FS-1562-25 incorporates an automatic power reduction circuit. When the temperature at the power amplifiers of the PA board in the Transceiver Unit exceeds 90 ℃, the output power is automatically changed to the reduced power set by low power adjustment.

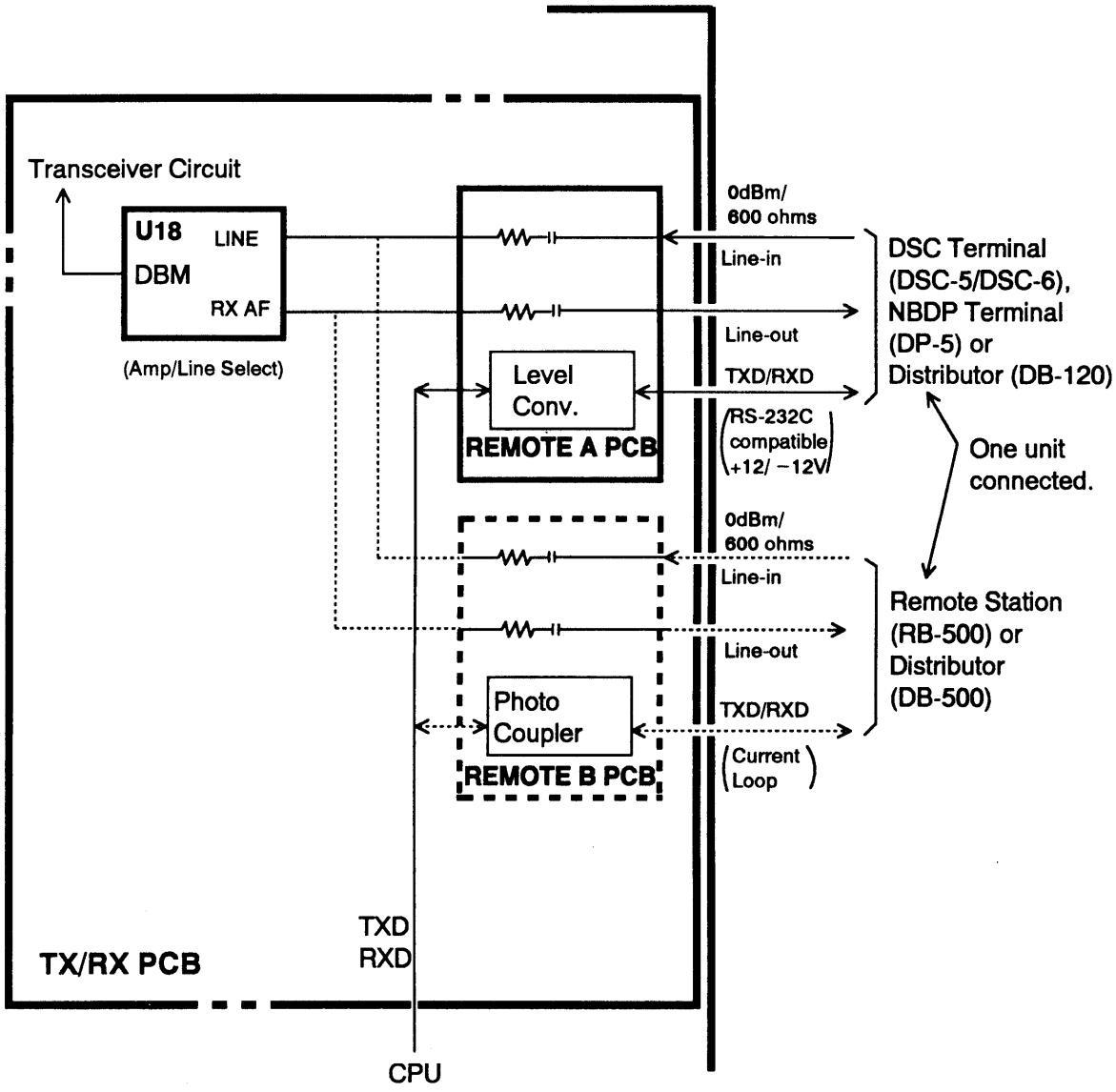
The ALC circuit on the TX FIL board is applied to the TX/RX board to keep the output power constant. Further, if the SWR value becomes worse, the output power is reduced through the ALC circuit to prevent the PA board from being damaged. These circuits (ALC/SWR) are also provided in the PA-2500. These of the PA-2500 operate faster than those of the Transceiver Unit, resulting in no effectiveness of SWR/ALC circuits in the Transceiver Unit.



1.3 Receiver


Receive Signal
(from TX FIL PCB via PA-2500)
TX/RX PCB
PRESELECTOR PCB
Fil (BPF)
Relay
RF Amp
Mixer
Fil
54455kHz
IF Amp
Mixer
NB
Fil
455kHz
IF Amp
AGC
RF GAIN
AGC Amp
1st LO
2nd LO
[NB LEVEL]
[IF GAIN]
VCO
3rd LO
Mixer
CPU
SP
AF Amp
Amp & Line Select
SQ
VOLUME
CPU
To REMOTE PCB
(Line-out, 0dBm)

1.4 Signal Flow of External Equipment



Note: Either REMOTE A board or REMOTE B board is used.

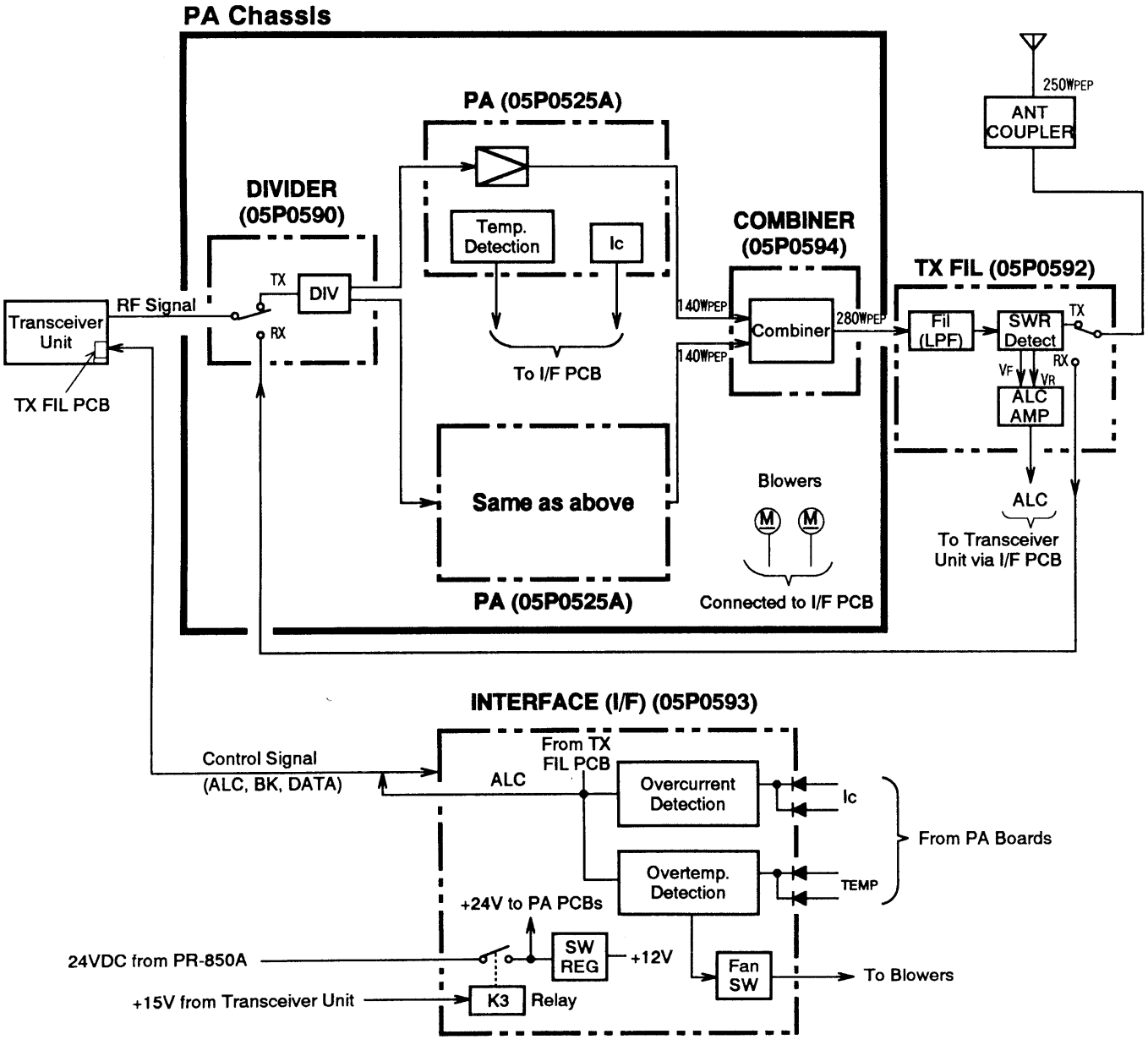
[REMOTE A board: RS-232C compatible (standard supply)
REMOTE B board: Current loop (optional supply)]

1.5 Power Amp Unit (PA-2500)

When the temperature at the power amplifiers of either of two PA boards (05P0525A) exceeds 80 ℃ , the output power is automatically reduced to a few watts (at the PA-2500 output), using the ALC circuit of the TX/RX board in the Transceiver Unit.

The overcurrent detection circuit is provided on the INTERFACE board to prevent Ic from exceeding about 16A in each PA board.

The TX FIL board has the SWR detection circuit and the ALC circuit. If the SWR value becomes worse, the output power at the PA-2500 is reduced to keep reverse power in the TX FIL board less than 80W approx. through the ALC circuit in the Transceiver Unit. The ALC circuit is to keep the output power constant.



When +15V from the Transceiver Unit (TX FIL board) is applied to the INTERFACE board, the relay K3 goes on, causing +24V (power supply) to be fed to the PA boards and the switching regulator which produces +12V.

Two blowers start operating when the temperature of either of two PA boards exceeds 40 ℃ .

Chapter 2 System Settings

This is almost the same as that of the FS-1562-15, except for the setting of the system channel 9997.

- 9997 → Setting No. = 2

Chapter 3 Adjustment

Power Data Setting

Difference point: List of power data

Power Data	0	20	40	60	80	100	120	140	150
PA-2500 Output (Wpep) (approx.)	25	50	80	115	160	200	260	320	345

Condition:
- 4 MHz, SSB
- Power meter (terminated by 50 ohms) connected to PA-2500 output
- Single tone (whistling into the handset)

Note that overcurrent protection circuit may be turned on when power data exceeds 120, causing the output power to be kept constant.

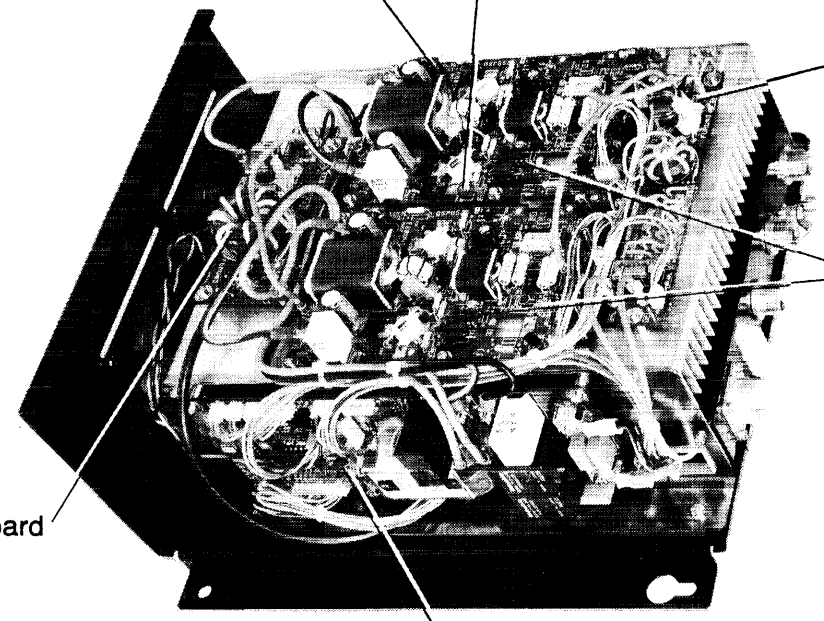
Other adjustments

They are the same as the FS-1562-15.

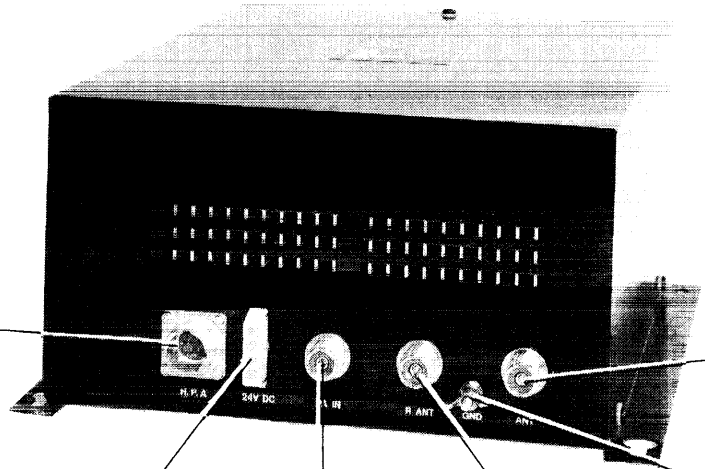
PA bias adjustment in the PA-2500 should be done in the same manner as mentioned in the FS-1562-15.

Chapter 4 Parts Location

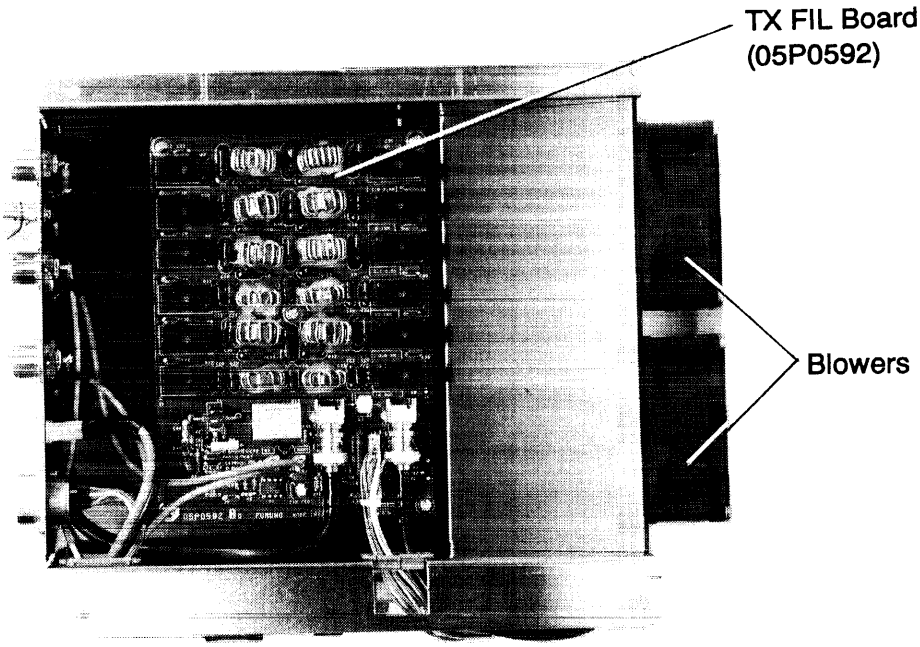
For the transceiver unit and the antenna coupler, refer to the FS-1562-15.
The following shows the parts location of the PA-2500.



T Photo No.1354



T Photo No.1353



T Photo No.1355

Bottom View

Chapter 5 Troubleshooting

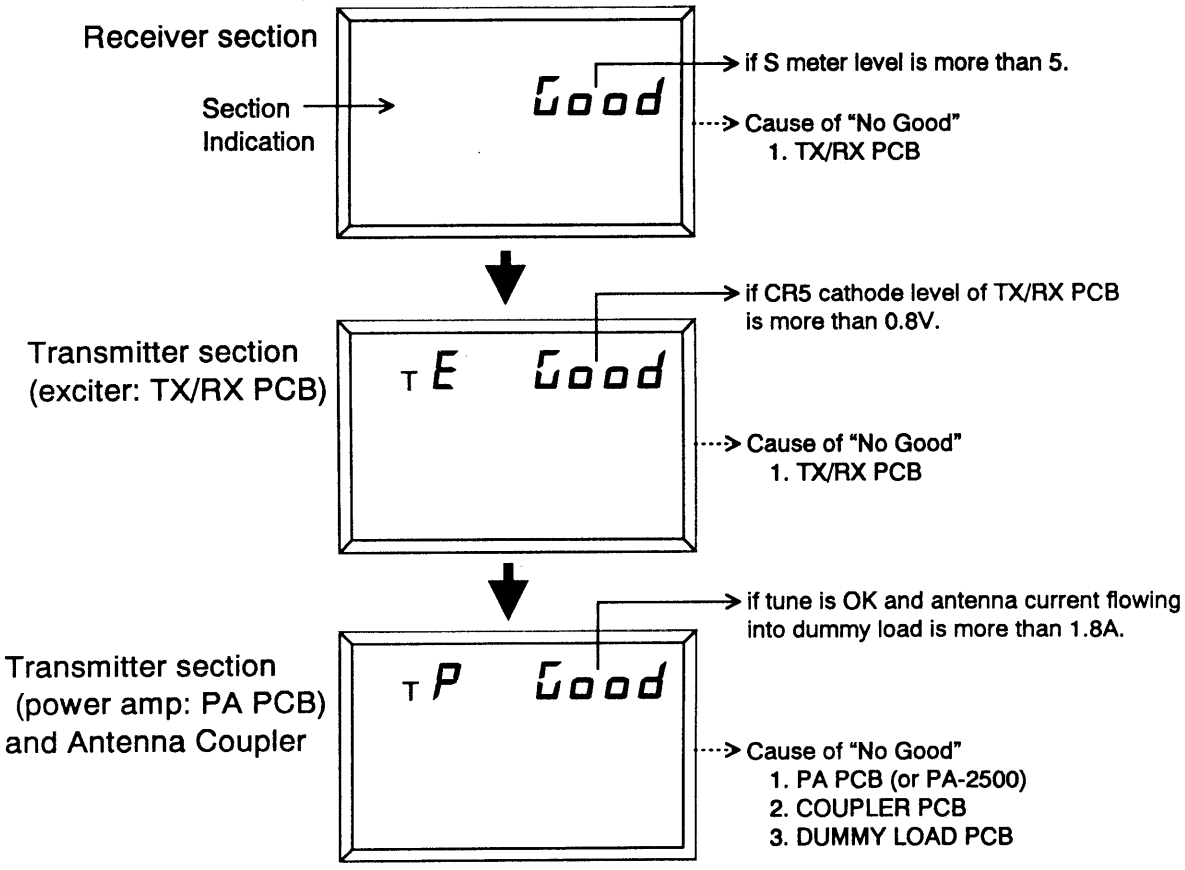
Self-test (Transceiver Unit)

This test checks the transceiver for proper operation. It should be conducted regularly to ensure proper operation. If the DSC terminal is connected, this test should be conducted along with the DSC terminal test. Before starting the test, set the **RF GAIN control to maximum (fully clockwise).**

Procedure

1. While pressing and holding down the **TX** key, turn on the power. All LCD segments appear.

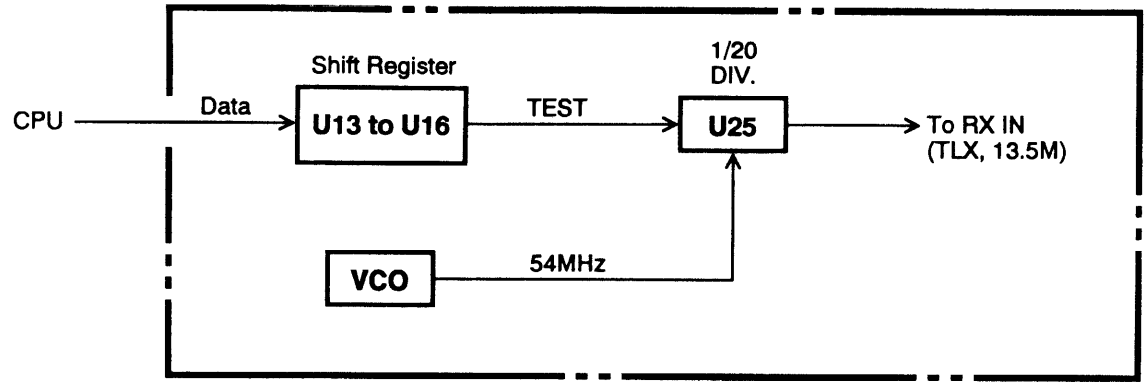
2. Release the **TX** key. The FS-1562 starts self-testing and the display shows the following indications in order.



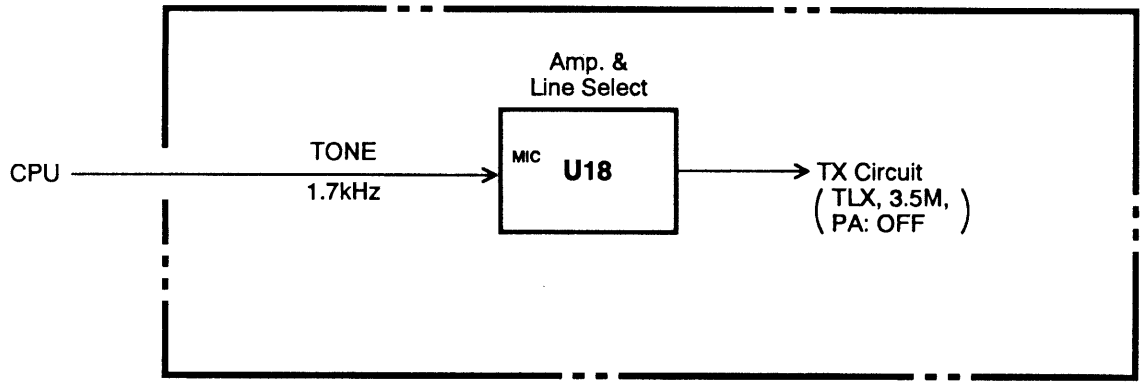
NOTE: *If fault is detected, "**no Good**" appears instead of "Good" and appropriate section indication blinks after completion of this test.*

Self-test signal flow

- **Receiver Section**



- **Exciter Section**



- **Power Section**

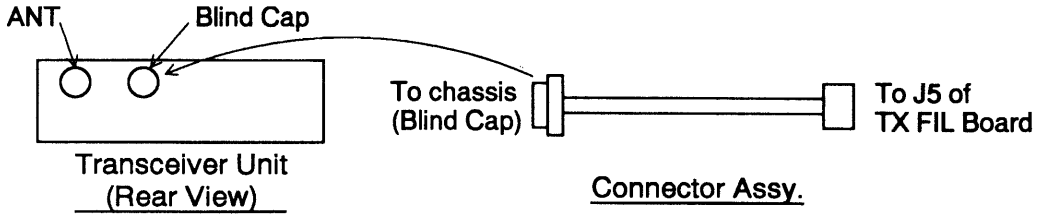
1. Turn relay on DUMMY LOAD PCB on.
2. Send TUNE command and tune signal (about 20W) to Antenna Coupler.
3. Receive TUNE OK command.
4. Transmit 1.7kHz signal (250W) in TLX mode (3MHz).
5. If antenna current flowing into DUMMY LOAD PCB is more than 1.8A, "Good" appears.

LCD/Keyboard Test Antenna Coupler Test	Same as the FS-1562-15

Modification from FS-1562-15 to FS-1562-25

Procedure

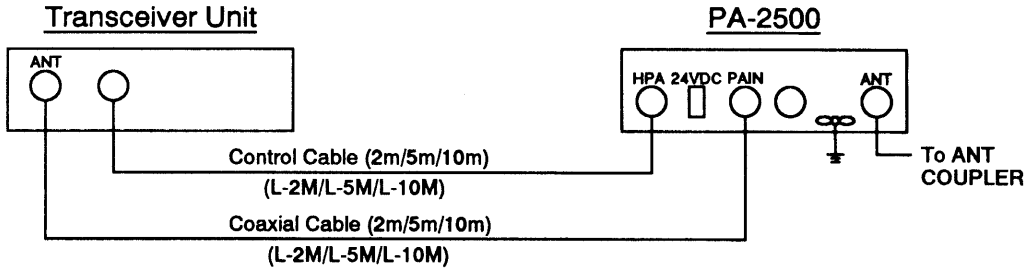
1. Remove the blind cap at the rear side of the Transceiver Unit and fix a connector assembly supplied. (Type: 05S0943-0, Code No.: 000-130-442)



2. Connect one end (PH connector) of the connector assembly to J5 of the TX FIL board.

3. Disconnect the antenna cable of the Transceiver Unit and connect it to the "ANT" terminal of the PA-2500.

4. Connect a coaxial cable supplied and a control cable supplied between the PA-2500 and the Transceiver Unit as shown below.



5. Take out the PR-300 and mount a PR-850 or PR-850A.

6. Connect a power cable supplied (05S0414-1) between the PR-850 and the PA-2500. Further connect the power cable of the Transceiver Unit to the PR-850.

7. Connect a ground wire supplied to the PA-2500.

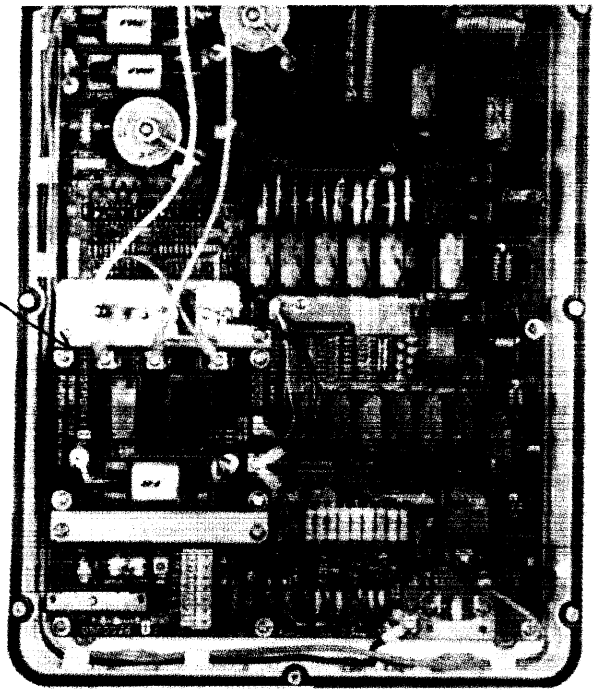
8. Replace the Dummy Chassis Assembly in the Antenna Coupler with a new one for 250W. (Code number of New Dummy Chassis Assembly: 005-944-790)

9. Change system setting 9997 to "2".
   - When 9997 is set to "2", the following data is automatically set.
     ① Tune data: 0 (≒ 25W)
     ② High Power Data: 120 (≒ 260W)
     ③ Low Power Data: 35 (≒ 75W)

10. Change name plates of the Transceiver Unit and the Antenna Coupler to new ones.

    (Transceiver Unit: FS-1562-25
      Antenna Coupler: AT-1560-25)

Replace Dummy Chassis Assembly.



Antenna Coupler

Power Control (using ALC circuit in Transceiver Unit)

- PA temperature: More than 80 ℃ ⇨ Output power: A few watts
- SWR value becomes worse ⇨ Reduced power for keeping reverse power (TX FIL PCB) less than 80W. (*1)
- ALC
- Ic on PA: Less than 16A in each PA board

(*1): These circuits operate faster than those in the Transceiver Unit.

FURUNO

ELECTRICAL PARTS LIST
電気部品表

1994- 7

MODEL	FS-1562-25			
UNIT	TRANSCEIVER 本体			PAGE
REF. DWG.	C5572-K10-B	BLOCK NO.	1B	1

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	PRINTED CIRCUIT BOARD	プリントキバン		
1B01A0001	05P0456A CPU		005-945-220	
1B02A0002	05P0526B TX/RX		005-945-290	
1B03A0003	05P0520 TX FIL		005-944-900	
1B04A0004	05P0525 PA		005-944-930	
1B05A0005	05P0521 RELAY		005-944-920	
1B06A0006	05P0523 SW REG		005-944-910	
1B10A0010	05P0527 PRESELECTOR		005-945-170	
1B11A0011	05P0467 IF AMP		005-938-850	
1B13A0013	05P0466 NB DET		005-938-860	
1B14A0014	05P0540 ALC AMP		005-945-160	
1B15A0015	05P0457 REMOTE A		005-517-480	
1B16A0016	05P0458 REMOTE B		005-517-500	OPTION
1B17A0017	05P0459 CONTROL		005-517-520	OPTION
	ASSEMBLY	クミヒン		
1B07A*0001	PANEL ASSY.		005-945-250	
	DIODE	ダイオード		
1B07CR0001	TLO-124		000-126-711	OVEN
	JACK	ジャック		
1B07J0001	FM10RS(1)-6HA		000-113-456	
1B08J0002	M-BR-191	05S0872-0	000-125-916	
1B08J0003	FM-148S	K1000ショウフカ91/01	000-511-412	
1B08J0004	FM14-7S	K1000ショウフカ91/10	000-115-846	
1B08J0005	SRCN6A21-16S		000-508-669	
	RELAY	リレー		
1B05K0001	FRL274N H02401AD-01A	05S9073-0	000-133-672	
	LOUDSPEAKER	スピーカー		
1B07LS0001	66P15N20 05S0450		000-116-923	
	PLUG	プラグ		
1B07P0001	FM-10PS-6H		000-117-029	
1B08P0003	FM-148P		000-511-408	
1B08P0004	FM14-7P		000-113-345	
1B08P0005	SRCN6A21-16P		000-508-664	
	TRANSISTOR	トランジスター		
1B06Q0001	IRFP150		000-121-823	
1B04Q0003	2SC2510		005-945-210	PA

UNIT	TRANSCEIVER	REF. DWG.	C5572-K10-B	BLOCK NO.	1B	2

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	TRANSISTOR	トランジスター		
1B04Q0004	2SC2510		005-945-210	PA
	RESISTOR	テイコウ		
1B07R0001	RK0971111(10KA)	05S0632-0	000-118-482	VOLUME
1B07R0002	RK09711100J0A(100KB)	05S0812-0	000-124-556	RF GAIN
	SWITCH	スイッチ		
1B07S0001	SRBMIL096A	05S0714	000-121-051	FREQ/CH
	CABLE WITH CONNECTOR	コネクターツキケーブル		
1B08W0701	PH/SAN03-100	05S0753-0	000-124-667	
1B08W0702	PH/SAN05-200-01	05S0809-0	000-124-668	
1B08W0703	PH/SAN03-200-01	05S0810-0	000-124-669	
1B08W0704	PH06S-300-01	05S0811-0	000-124-670	
1B08W0705	PH02S-300	05S0752-0	000-124-671	
1B08W0706	PH02S-300	05S0752-0	000-124-671	
1B08W0801	SMCD-1.25-20-300-N	08S0070-1	000-119-781	
1B08W0803	05S9034-0			
1B08W0804	PH04D-100	05S0752-0	000-130-434	
1B08W0805	PH05D-500	05S0752-0	000-124-969	
1B08W0806	PH06D-450	05S0752-0	000-130-435	
1B08W0807	PH06D-450	05S0752-0	000-130-436	
1B08W0808	05S0461-0	05S0461-0	000-113-468	
1B08W0809	PH02D-350	05S0752-0	000-130-437	
1B08W0810	L-500	05S0046-0	000-113-466	
1B08W0811	L-160	07S0046-0	000-522-075	
1B08W0812	L-160	07S0046-0	000-522-075	
1B08W0813	PH10D-500	05S0752-0	000-130-438	
1B08W0814	05S0415-1		000-113-469	
1B08W0815	L-160	07S0047-0	000-522-099	
1B08W0816	05S0942-0	05S0942-0	000-130-439	
1B08W0817	05S0846-0	05S0846-0	000-125-319	OPTION
1B08W0818	05S0928-0	05S0928-0	000-130-440	
1B08W0819	PH14D-150	05S0752-0	000-130-441	
1B08W0820	L-200	07S0046-0	000-522-003	
1B08W0821	L-580	07S0046-0	000-522-079	
1B08W0822	05S0943-0	05S0943-0	000-130-442	

FURUNO

ELECTRICAL PARTS LIST
電気部品表

1994- 7

MODEL	FS-1562-25			
UNIT	ANTENNA COUPLER アンテナカプラー (AT-1560-25)			PAGE
REF. DWG.	C5572-K15-A C5572-K01/K16	BLOCK NO.	2B01-2B04	3

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	PRINTED CIRCUIT BOARD	プリントキバン		
2B01A0001	05P0528	AT-1560	005-944-410	
2B03A0003	05P0610			**
	w/DUMMY CHASSIS		005-944-790	
	CAPACITOR	コンデンサー		
2B03C0001	DD306F104Z25	00S0130-0	000-108-968	
2B04C0001	DA-20 250PF		000-258-611	
2B03C0002	DD306F104Z25	00S0130-0	000-108-968	
2B03C0003	DD306F104Z25	00S0130-0	000-108-968	
2B03C0004	DD306F104Z25	00S0130-0	000-108-968	
2B03C0005	DD306F104Z25	00S0130-0	000-108-968	
	RELAY	リレー		
2B01K0001	FBR623ND012	05S0933-0	000-130-476	
2B03K0001	FBR611ND012	05S0934-0	000-130-477	
2B01K0002	FBR623ND012	05S0933-0	000-130-476	
2B03K0002	FRD-12023		000-106-069	
2B01K0003	FBR623ND012	05S0933-0	000-130-476	
2B03K0003	FRD12021		000-131-385	
2B01K0004	FBR623ND012	05S0933-0	000-130-476	
2B01K0005	FBR623ND012	05S0933-0	000-130-476	
2B01K0006	FBR623ND012	05S0933-0	000-130-476	
2B01K0007	FBR623ND012	05S0933-0	000-130-476	
2B01K0008	FBR623ND012	05S0933-0	000-130-476	
2B01K0009	FBR623ND012	05S0933-0	000-130-476	
2B01K0010	FBR623ND012	05S0933-0	000-130-476	
2B01K0011	FBR623ND012	05S0933-0	000-130-476	
2B01K0012	FBR623ND012	05S0933-0	000-130-476	
2B01K0013	FBR623ND012	05S0933-0	000-130-476	
2B01K0014	FBR623ND012	05S0933-0	000-130-476	
2B01K0015	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0016	FBR623ND012	05S0933-0	000-130-476	
2B01K0017	FBR623ND012	05S0933-0	000-130-476	
2B01K0018	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0019	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0020	FBR623ND012	05S0933-0	000-130-476	
2B01K0021	FBR623ND012	05S0933-0	000-130-476	
2B01K0022	FBR623ND012	05S0933-0	000-130-476	
2B01K0024	FBR611ND012	05S0934-0	000-130-477	
2B01K0025	FBR611ND012	05S0934-0	000-130-477	
2B01K0026	FBR611ND012	05S0934-0	000-130-477	
2B01K0027	FRD-12023		000-106-069	
2B01K0028	FRD-12023		000-106-069	
2B01K0029	G6B-2114P-US-AP-12V		000-114-406	

UNIT	ANTENNA COUPLER	REF. DWG.	C5572-K15-A C5572-K01/-K16	BLOCK NO.	2B01- 2B04	4

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	RESISTOR	テイコウ		
2B03R0001	ERD-16TJ2R2	0.16W 2.2	000-330-823	
2B04R0001	RFC-100 W20	100W, 20 (*1)		**
2B03R0002	ERD-16TJ2R2	0.16W 2.2	000-330-823	
2B04R0002	RFC-100 W20	100W, 20 (*1)		**
2B03R0003	ERD-16TJ2R2	0.16W 2.2	000-330-823	
	CABLE WITH CONNECTOR	コネクターツキケーブル		
2B02W0001	PH03D-100	05P0572	000-132-166	
2B02W0002	05S0956-0		000-132-167	
2B02W0003	05S0957-0		000-132-168	
2B02W0004	05S0958-0		000-132-169	
2B02W0005	05S0947-0		000-130-473	
2B02W0006	05S0948-0		000-130-474	

(*1) Mounted in Dummy Chassis.

FURUNO

ELECTRICAL PARTS LIST
電気部品表

1994- 7

MODEL	FS-1562-25			
UNIT	POWER AMP. パワーアンプ			PAGE
REF. DWG.	C5596-K01-A	BLOCK NO.		5

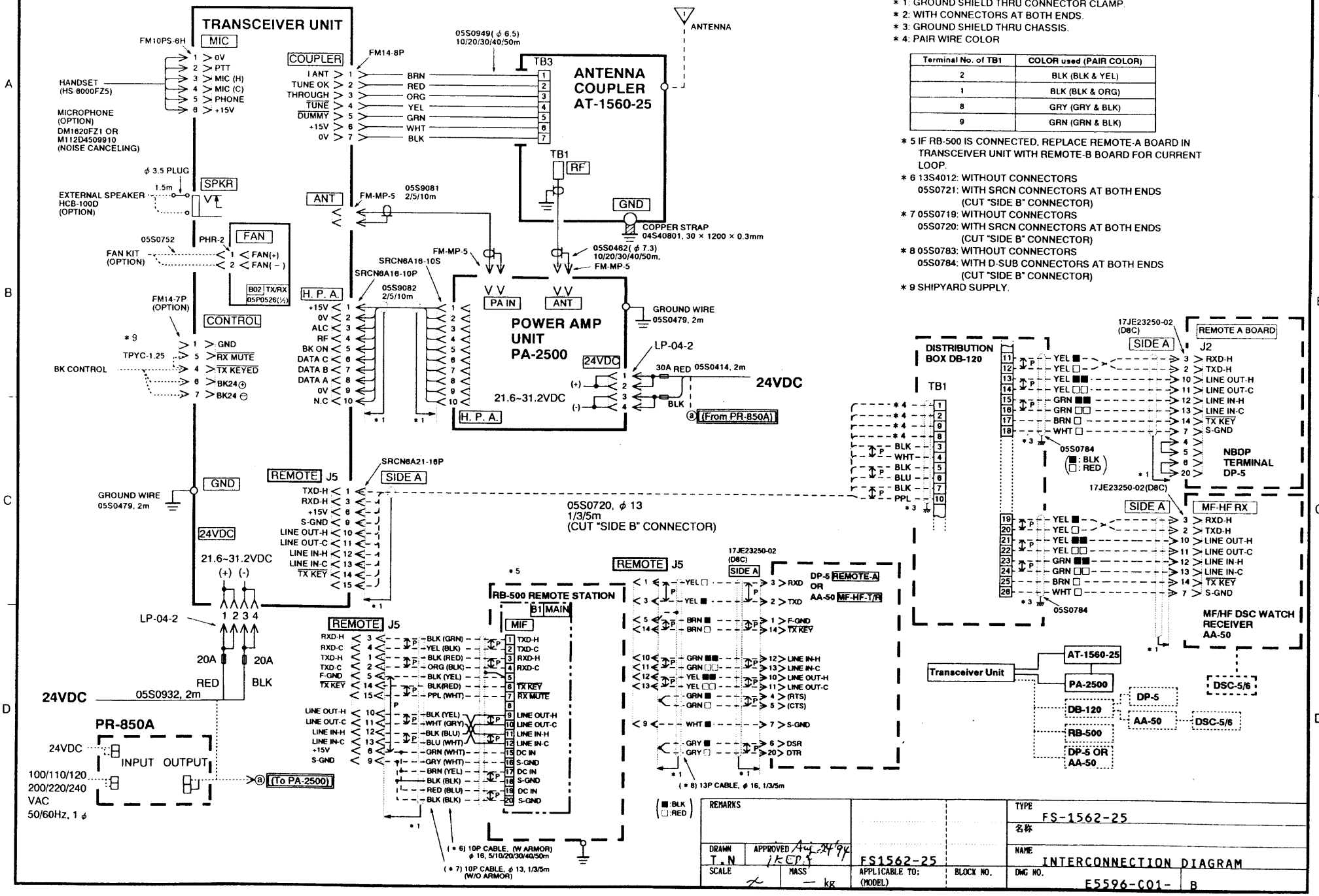
SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	PRINTED CIRCUIT BOARD	プリントキバン		
3B01A0001	05P0590,DIVIDER	FS-1562	005-853-110	
3B02A0002	05P0525A,PA	FS-1562	005-853-100	
3B03A0003	05P0525A,PA	FS-1562	005-853-100	
3B04A0004	05P0594,COMBINER	FS-1562	005-853-120	
3B05A0005	05P0592,TX FIL	FS-1562	005-853-130	
3B06A0006	05P0593,I/F	FS-1562	005-853-140	
	MOTOR	モーター		
3B08B0701	109P0824H202		000-134-204	
3B08B0702	109P0824H202		000-134-204	
	JACK	ジャック		
3B08J0801	M-BR-191	05S0872-0	000-125-916	
3B08J0802	M-BR-191	05S0872-0	000-125-916	
3B08J0803	M-BR-191	05S0872-0	000-125-916	
	PLUG	プラグ		
3B08P0804	SRCN6A16-10P		000-508-663	
	CABLE WITH CONNECTOR	コネクターツキケーブル		
3B08W0701	L-150	07S0046-0	000-133-027	
3B08W0702	L-150	07S0046-0	000-133-027	
3B08W0703	L-140	07S0046-0	000-522-074	
3B08W0704	L-140	07S0046-0	000-522-074	
3B08W0801	L-220	07S0047-0	000-522-024	
3B08W0802	05S0342-0 *L-350*	05S0342-0	000-128-200	
3B08W0803	05S0342-0 *L-350*	05S0342-0	000-128-200	
3B08W0804	05S9077-0	05S9077-0	000-134-200	
3B08W0805	05S9083-0	05S9083-0	000-134-201	
3B08W0806	L-300	07S0046-0	000-117-341	
3B08W0808	PH13D-200	05S0752-0	000-125-669	
3B08W0809	05S9078-0	05S9078-0	000-134-202	
3B08W0810	05S9078-0	05S9078-0	000-134-202	
3B08W0811	PH06D-450	05S0752-0	000-130-436	
3B08W0812	PH06D-450	05S0752-0	000-130-436	
3B08W0813	DN1E010M1S		000-124-007	
3B08W0814	PH02D-350	05S0752-0	000-130-437	
3B08W0815	PH02D-350	05S0752-0	000-130-437	

- END -

List of Schematic Diagrams

Block No.	Name	Type	Dwg. No.	Page	Remarks
	Interconnection Diagram	FS-1562-25	E5596-C01	S-1	
	Interconnection Diagram	Connection for GMDSS	E5572-C07	S-2	
	DISTRIBUTOR Board (DB-120, Option)	05P0606	C5597-K03	S-3	
	Transceiver Unit General		C5572-K10	S-4	Refer to FS-1562-15. (Same boards are used.)
1B01	CPU Board	05P0456	C5548-K02	S-5	
1B02	TX/RX Board	05P0526	C5572-K09	S-6	
1B03	TX FIL Board	05P0520	C5572-K08	S-7	
1B04	PA Board	05P0525	C5572-K07	S-8	
1B05	Relay Board	05P0521	C5572-K06	S-9	
1B06	SW REG Board	05P0523	C5572-K05	S-10	
1B09	VCO Board	05P0526	C5572-K04	S-11	
1B10	Preselector Board	05P0527	C5572-K11	S-12	
1B11/ 1B12	IF AMP Board	05P0467	C5548-K07	S-13	
1B13	NB DET Board	05P0466	C5548-K12	S-14	
1B14	ALC AMP Board	05P0540	C5572-K12	S-15	
1B15	Remote (A) Board	05P0457	C5548-K08	S-16	
1B16	Remote (B) Board	05P0458	C5548-K09	S-17	
1B17	Control Board (option)	05P0459	C5548-K11	S-18	
2B01	Coupler Board	05P0528	C5572-K01	S-19	
2B02	Antenna Coupler	AT-1560-25	C5572-K15	S-20	
2B03	DUMMY LOAD Board	05P0610	C5572-K16	S-21	
3B08	PA-2500 General		C5596-K01	S-22	
3B01	DIVIDER Board	05P0590	C5596-K02	S-23	
3B02/ 3B03	PA Board	05P0525A	C5596-K03	S-24	
3B04	COMBINER Board	05P0594	C5596-K04	S-25	
3B05	TX FIL Board	05P0592	C5596-K05	S-26	
3B06	INTERFACE Board	05P0593	C5596-K06	S-27	
	PR-850A (Option)	AC Power Unit	C5519-K20	S-28	

FURUNO



* 1: GROUND SHIELD THRU CONNECTOR CLAMP.
* 2: WITH CONNECTORS AT BOTH ENDS.
* 3: GROUND SHIELD THRU CHASSIS.
* 4: PAIR WIRE COLOR

Terminal No. of TB1	COLOR used (PAIR COLOR)
2	BLK (BLK & YEL)
1	BLK (BLK & ORG)
8	GRY (GRY & BLK)
9	GRN (GRN & BLK)

* 5 IF RB-500 IS CONNECTED, REPLACE REMOTE-A BOARD IN TRANSCEIVER UNIT WITH REMOTE-B BOARD FOR CURRENT LOOP.
* 6 13S4012: WITHOUT CONNECTORS
  05S0721: WITH SRCN CONNECTORS AT BOTH ENDS (CUT "SIDE B" CONNECTOR)
* 7 05S0719: WITHOUT CONNECTORS
  05S0720: WITH SRCN CONNECTORS AT BOTH ENDS (CUT "SIDE B" CONNECTOR)
* 8 05S0783: WITHOUT CONNECTORS
  05S0784: WITH D-SUB CONNECTORS AT BOTH ENDS (CUT "SIDE B" CONNECTOR)
* 9 SHIPYARD SUPPLY.

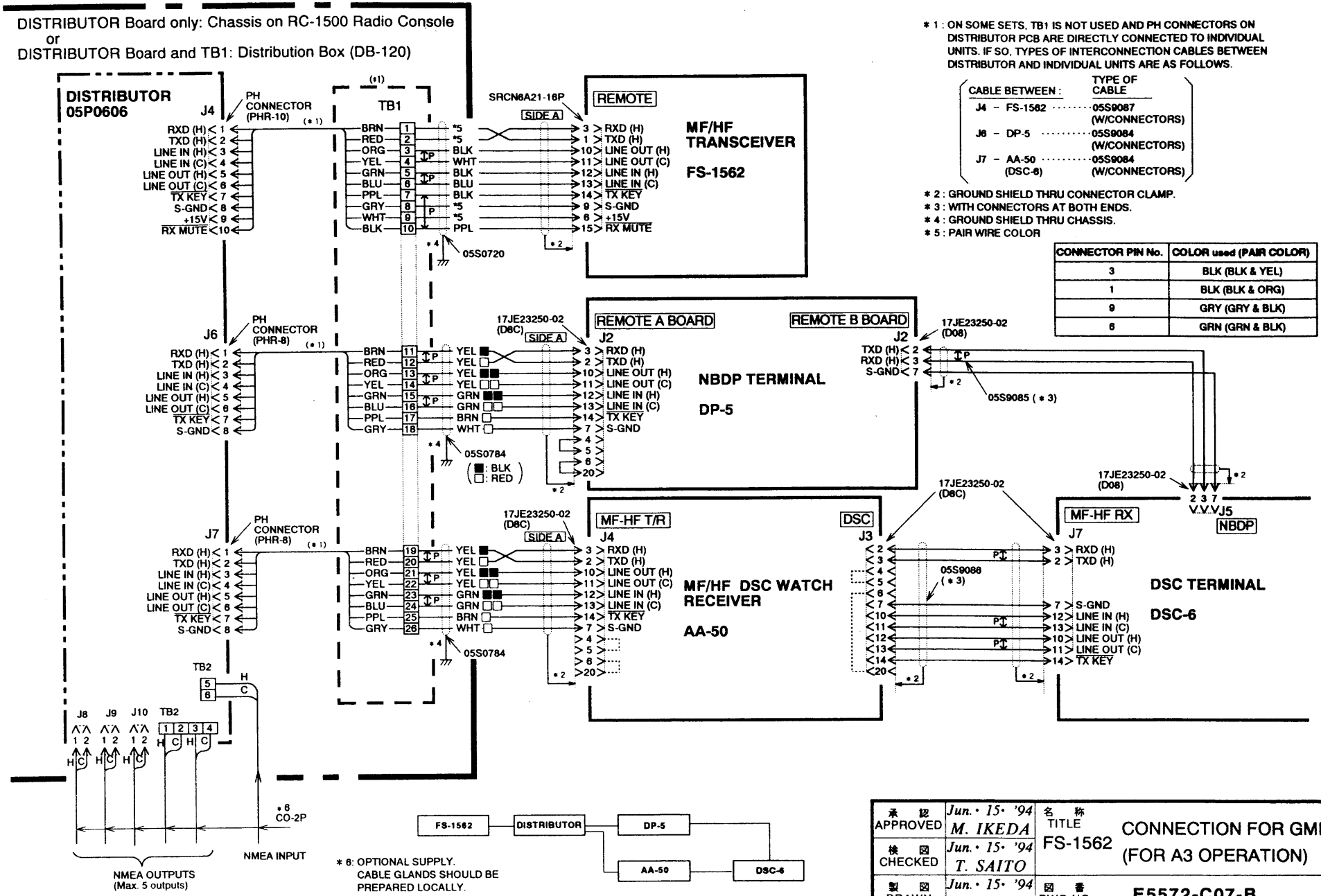
REMARKS		TYPE	FS-1562-25
DRAWN T.N	APPROVED Aug.24'94	名称	
SCALE —	MASS — kg	FS1562-25	NAME INTERCONNECTION DIAGRAM
		APPLICABLE TO: (MODEL)	BLOCK NO.
			DWG NO. E5596-C01- B

S-1

FURUNO ELECTRIC CO., LTD.

FURUNO

DISTRIBUTOR Board only: Chassis on RC-1500 Radio Console
or
DISTRIBUTOR Board and TB1: Distribution Box (DB-120)



* 1 : ON SOME SETS, TB1 IS NOT USED AND PH CONNECTORS ON DISTRIBUTOR PCB ARE DIRECTLY CONNECTED TO INDIVIDUAL UNITS. IF SO, TYPES OF INTERCONNECTION CABLES BETWEEN DISTRIBUTOR AND INDIVIDUAL UNITS ARE AS FOLLOWS.

CABLE BETWEEN :	TYPE OF CABLE
J4 – FS-1562	05S9087 (W/CONNECTORS)
J6 – DP-5	05S9084 (W/CONNECTORS)
J7 – AA-50 (DSC-6)	05S9084 (W/CONNECTORS)

* 2 : GROUND SHIELD THRU CONNECTOR CLAMP.
* 3 : WITH CONNECTORS AT BOTH ENDS.
* 4 : GROUND SHIELD THRU CHASSIS.
* 5 : PAIR WIRE COLOR

CONNECTOR PIN No.	COLOR used (PAIR COLOR)
3	BLK (BLK & YEL)
1	BLK (BLK & ORG)
9	GRY (GRY & BLK)
6	GRN (GRN & BLK)

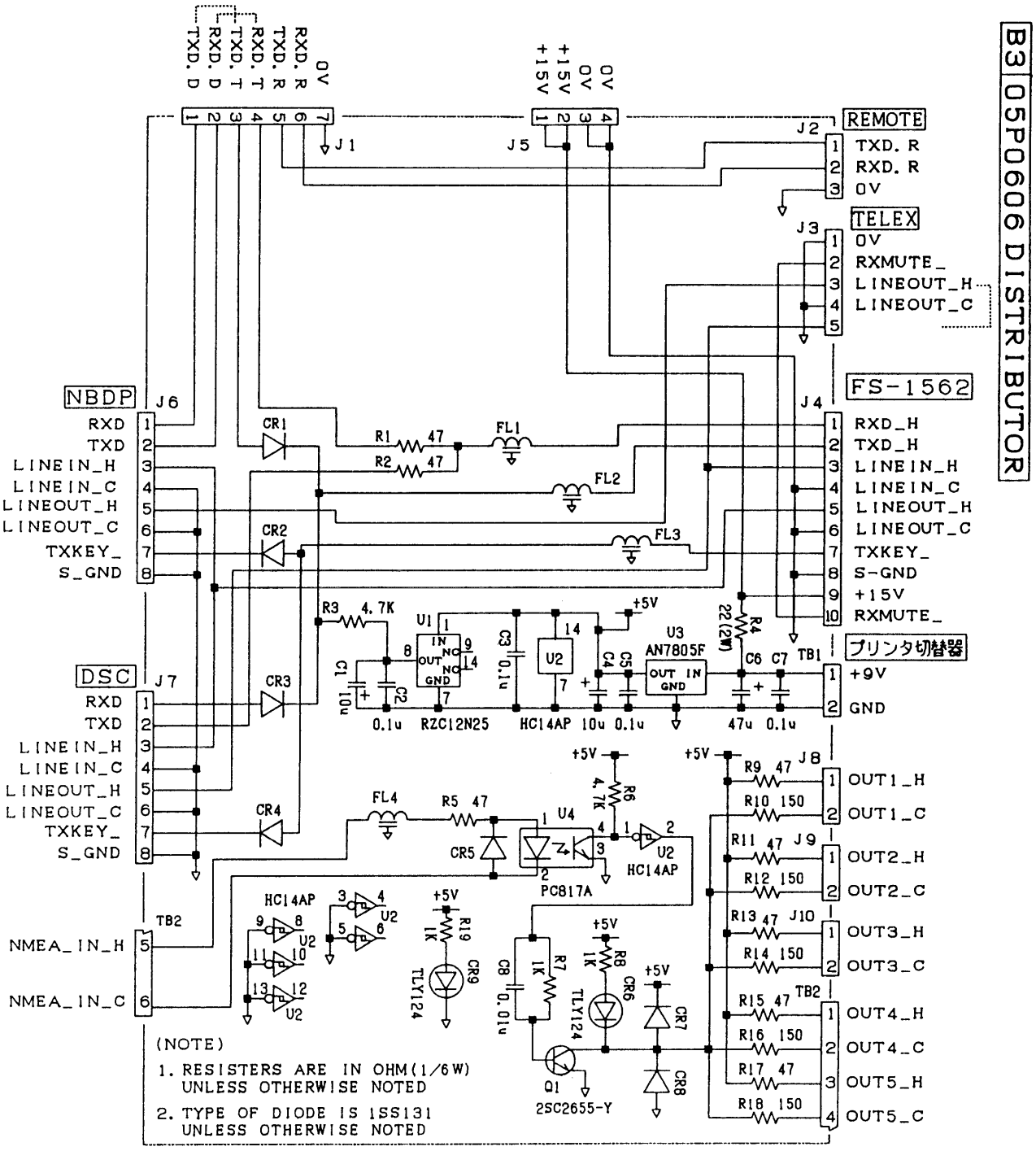
* 6: OPTIONAL SUPPLY. CABLE GLANDS SHOULD BE PREPARED LOCALLY.

承認 APPROVED	Jun. 15. '94 M. IKEDA	名称 TITLE	CONNECTION FOR GMDSS (FOR A3 OPERATION)
検図 CHECKED	Jun. 15. '94 T. SAITO	FS-1562	
製図 DRAWN	Jun. 15. '94 Y. HAMANO	図番 DWG.NO	E5572-C07-B

FURUNO ELECTRIC CO., LTD.

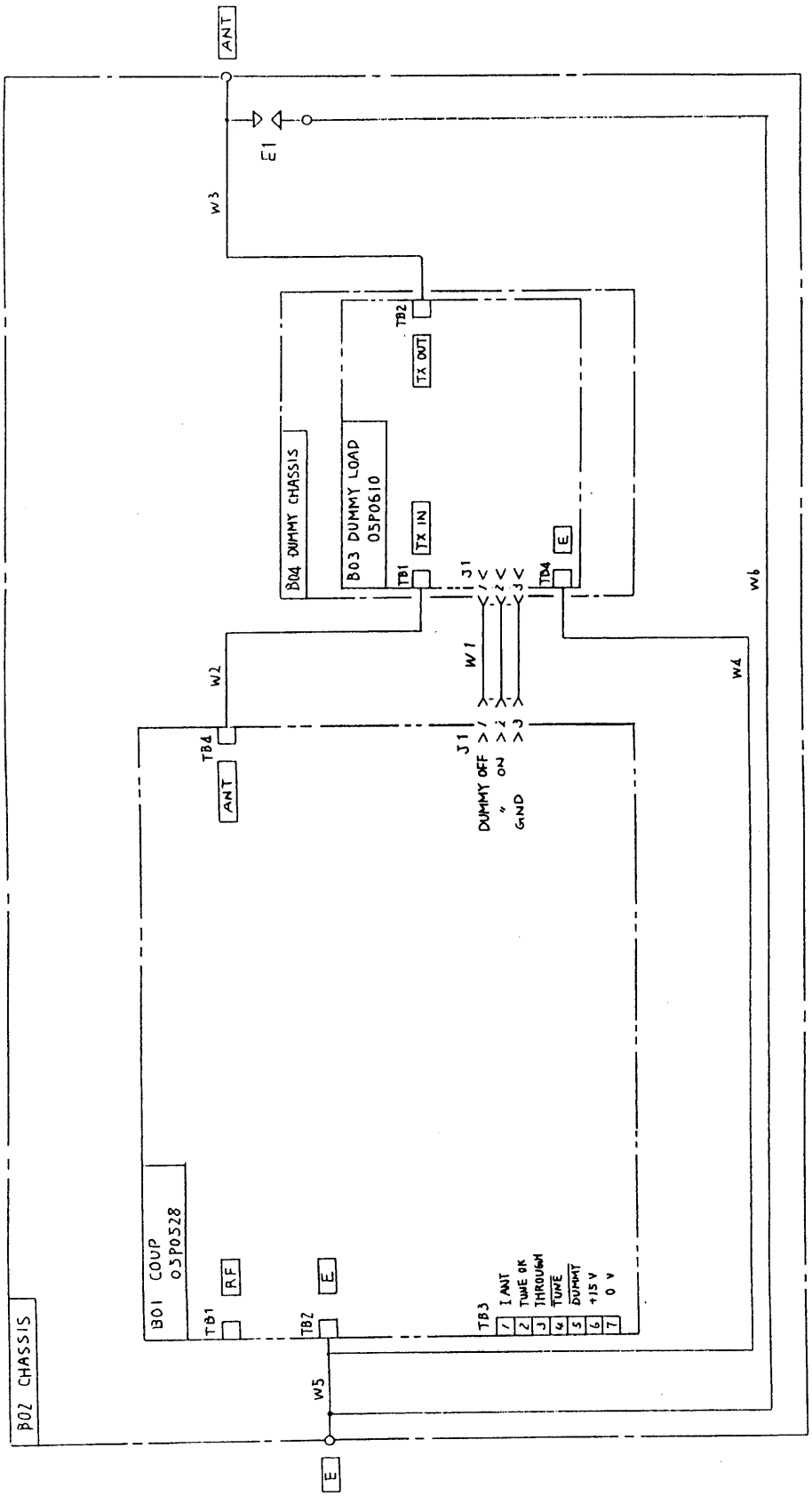
S-2

B3 05P0606 DISTRIBUTOR



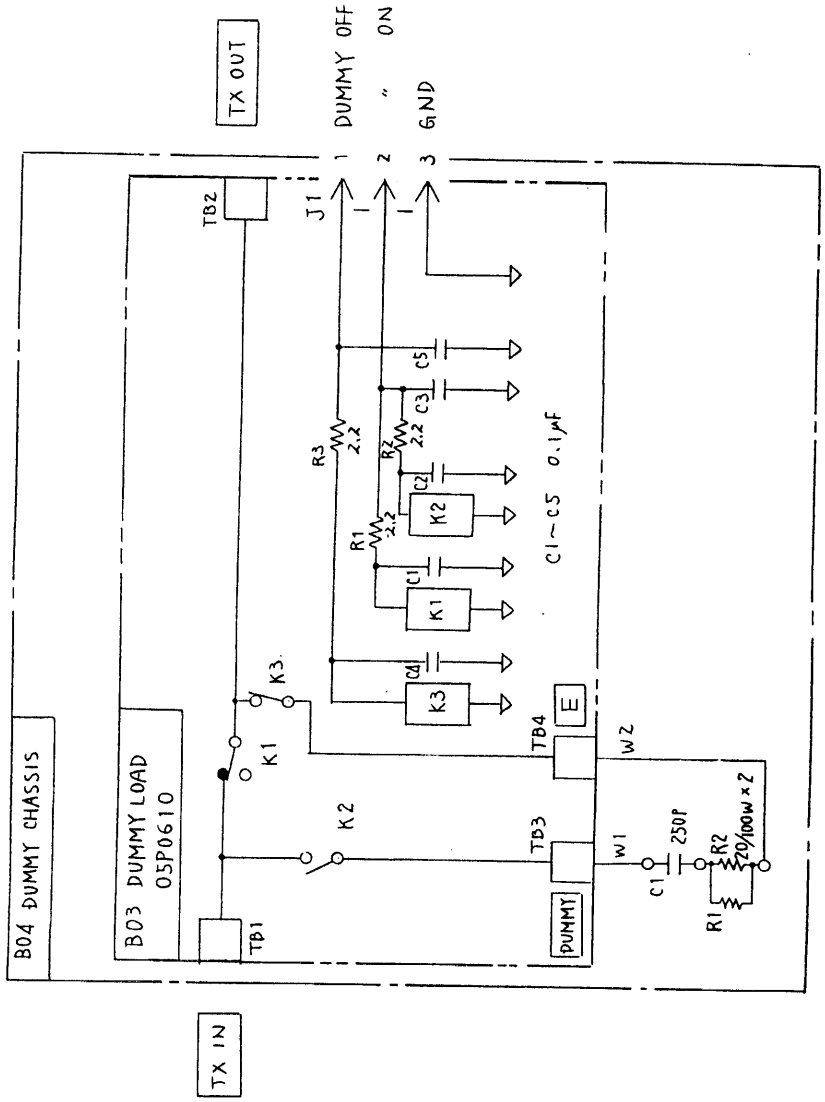
REMARKS			TYPE 05P0606	
			名称 分配器	
DRAWN T.Y	APPROVED July 15'94 IKEDA	DB-120 RC-1500	NAME DISTRIBUTOR	
SCALE /	MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO. B 3	DWG NO. C5597-K03- C

FURUNO ELECTRIC CO., LTD.



REMARKS			TYPE	AT-1560-25
			名称	総合回路図
DRAWN T.Y	APPROVED July 19'94 IKEDA	FS-1562-25	B 2	NAME GENERAL(250W)
SCALE /	MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	DWG NO. C5572-K15- A

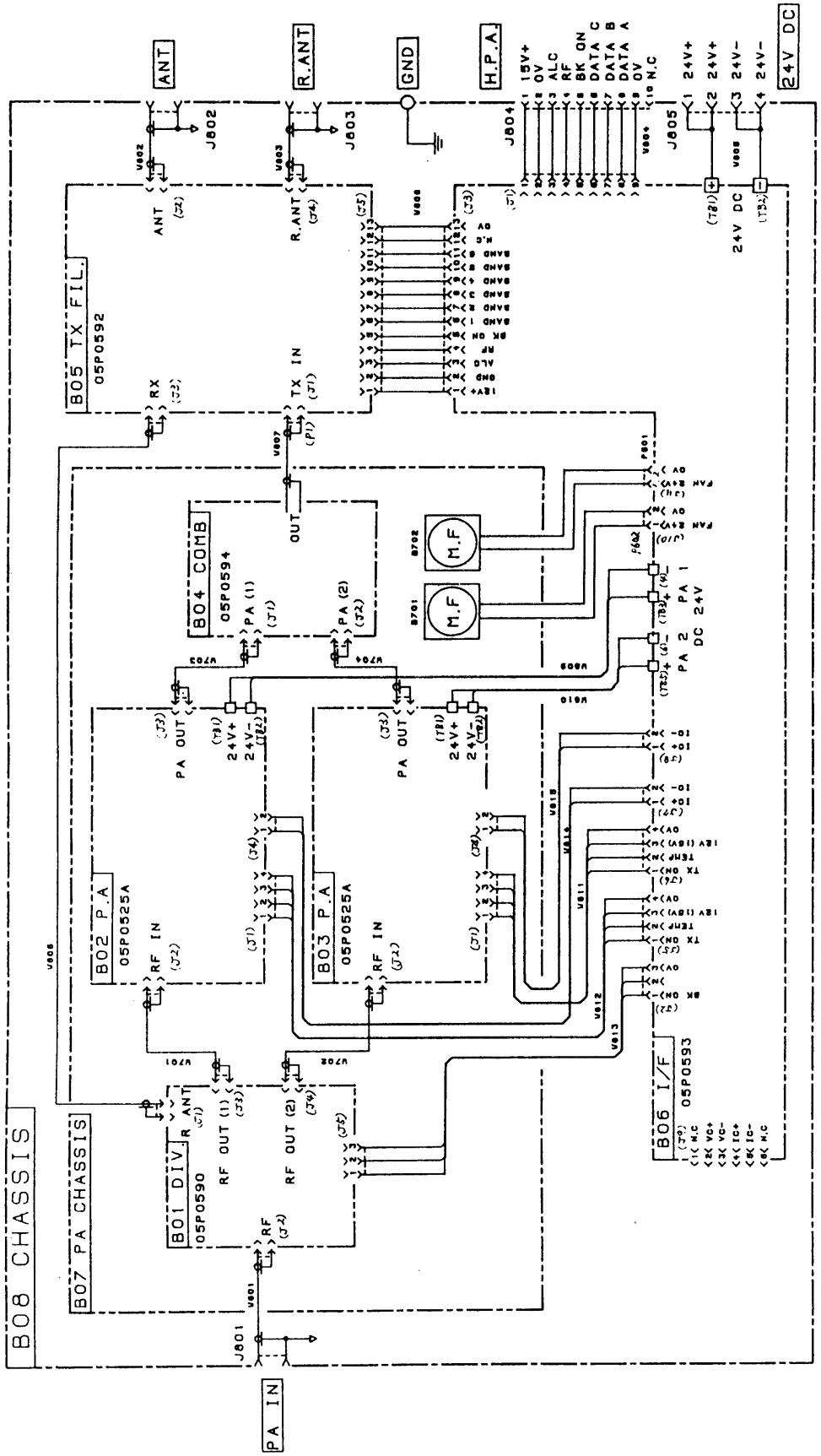
FURUNO ELECTRIC CO., LTD.



REMARKS			TYPE 05P0610
DRAWN T.Y / APPROVED July 19 '94 IKEDA	FS-1562-25	B 4 B 3	NAME DUMMY LOAD BOARD(250W)
SCALE / MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	DWG NO. C5572-K16- A

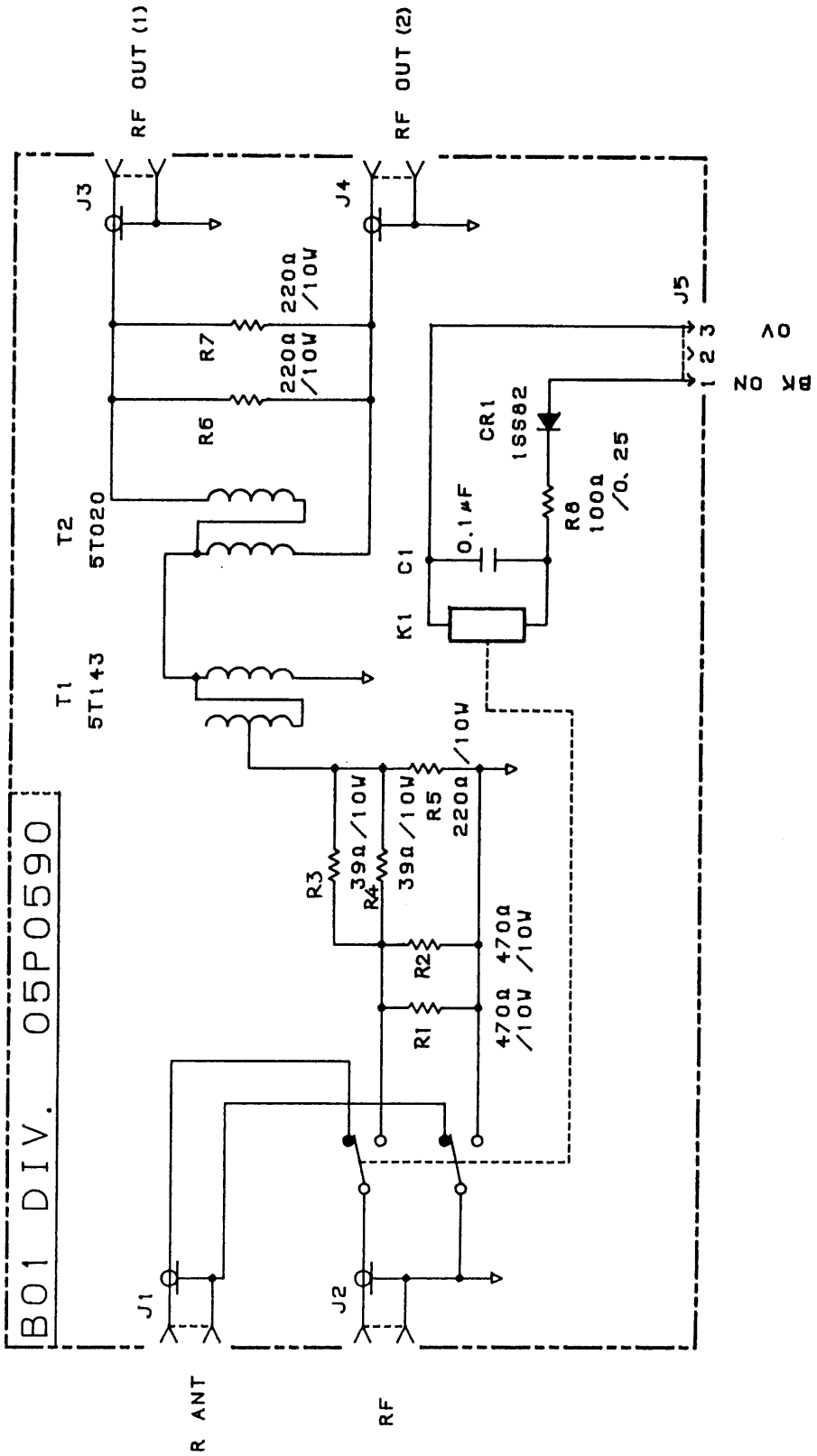
名称 ダミーロード基板

FURUNO ELECTRIC CO., LTD.



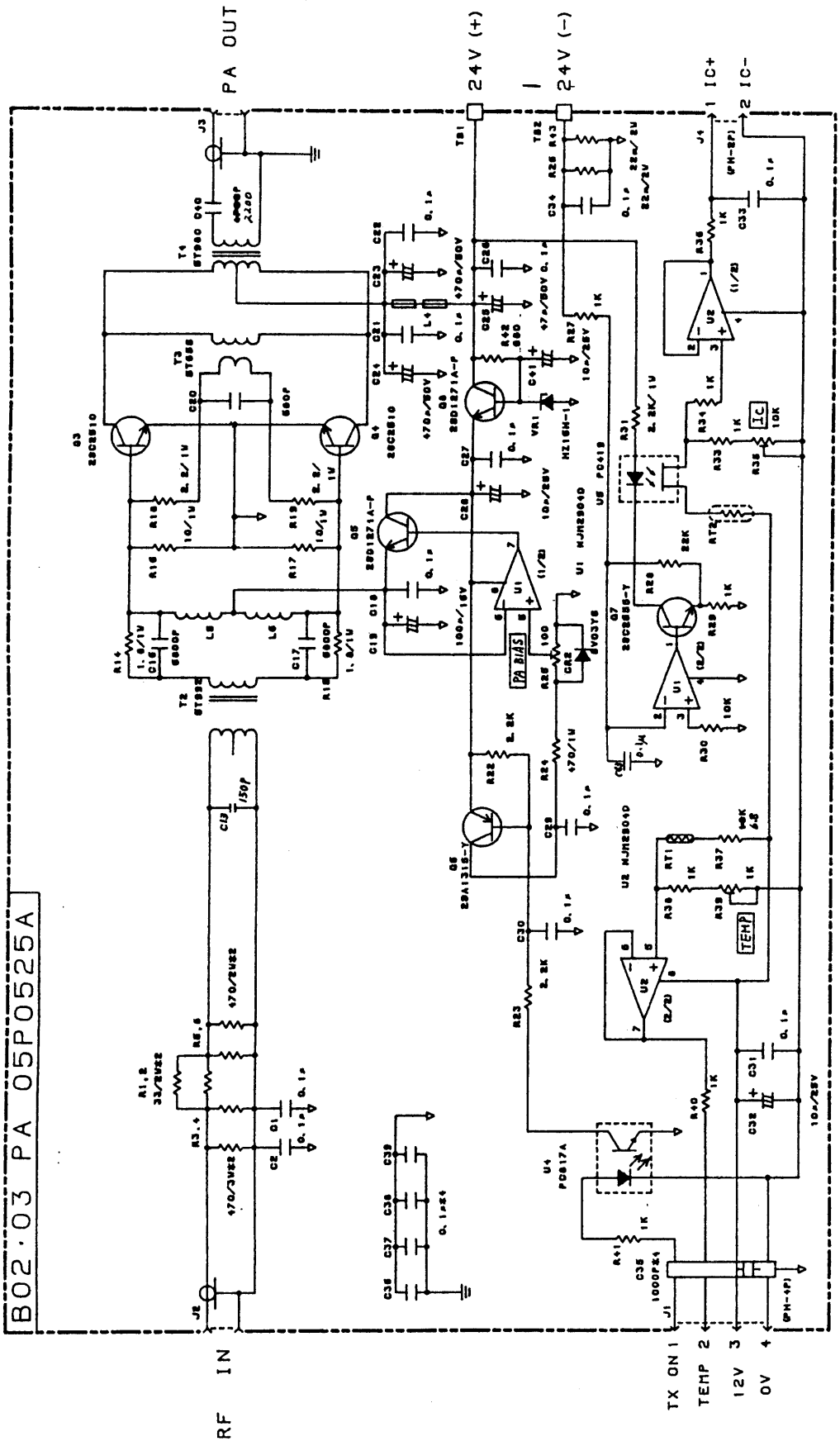
REMARKS			TYPE	PA-2500
			名称	総合回路図
DRAWN T.Y	APPROVED July 19'94 IKEDA	FS-1562	B08	NAME GENERAL
SCALE /	MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	DWG NO. C5596-K01- A

FURUNO ELECTRIC CO., LTD.



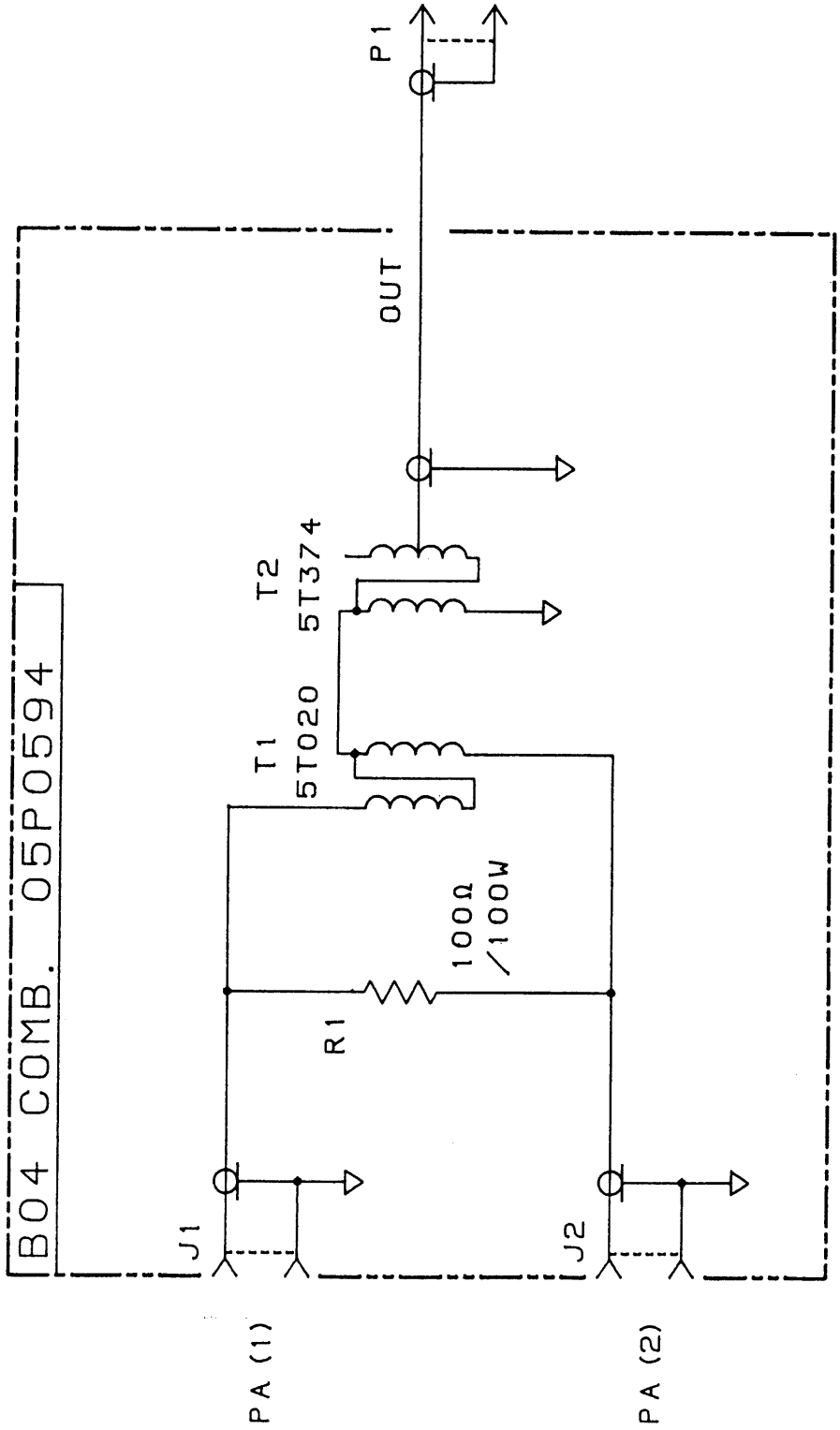
REMARKS				TYPE 05P0590
				名称 分配基板
DRAWN T.Y / APPROVED T.SAITO	PA-2500	B 1		NAME DIVIDER BOARD
SCALE ∝ / MASS — kg	APPLICABLE TO; (MODEL)	BLOCK NO.		DWG NO. C5596-K02- B

FURUNO ELECTRIC CO., LTD.



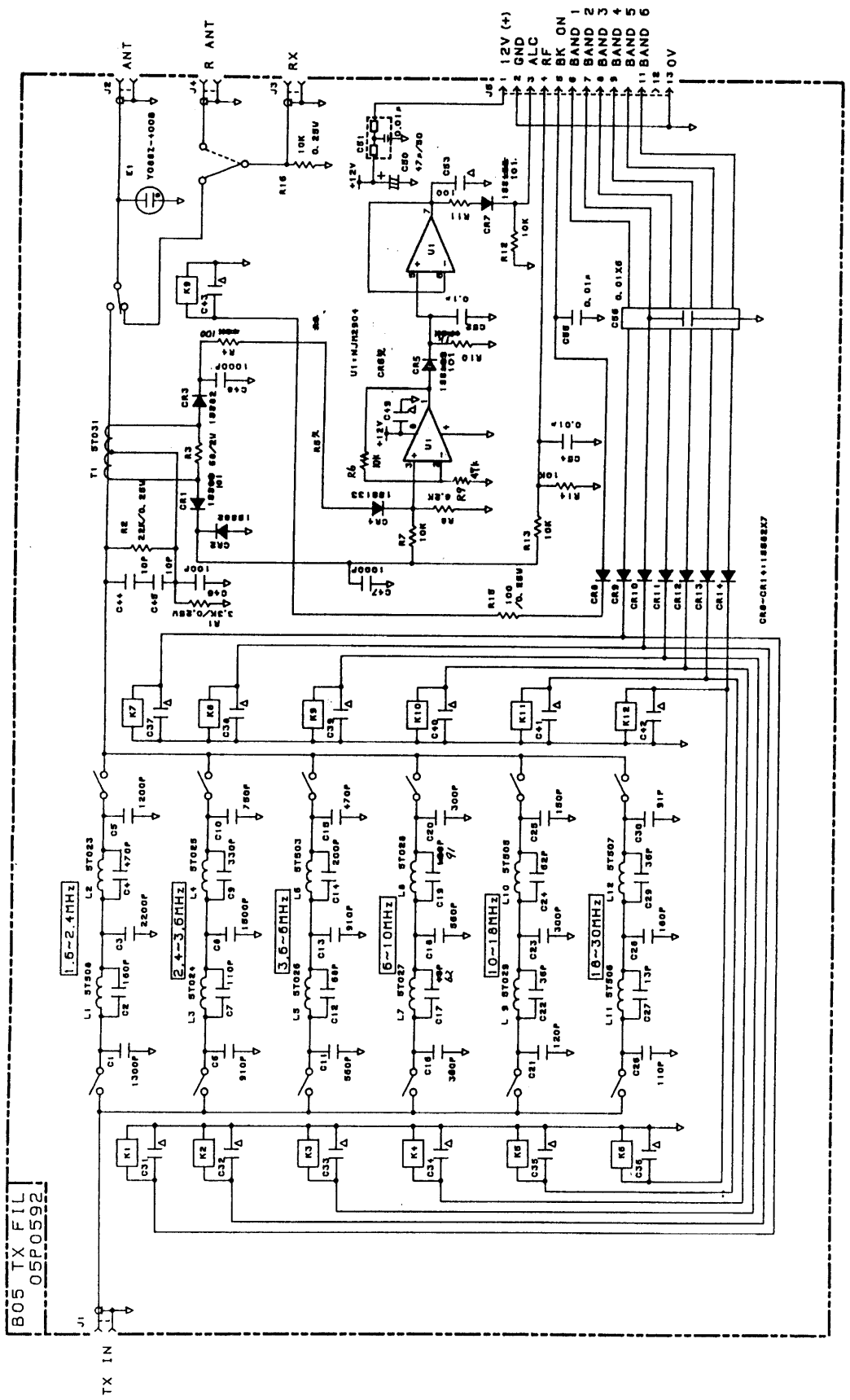
REMARKS			TYPE 05P0525A
			名称 パワーアンプ基板
DRAWN T.Y	APPROVED July 19'94 HEDA	B 3	NAME POWER AMP BOARD
SCALE /	MASS kg	APPLICABLE TO: PA-2500 (MODEL)	BLOCK NO. B 2
			DWG NO. C5596-K03- A

FURUNO ELECTRIC CO., LTD.



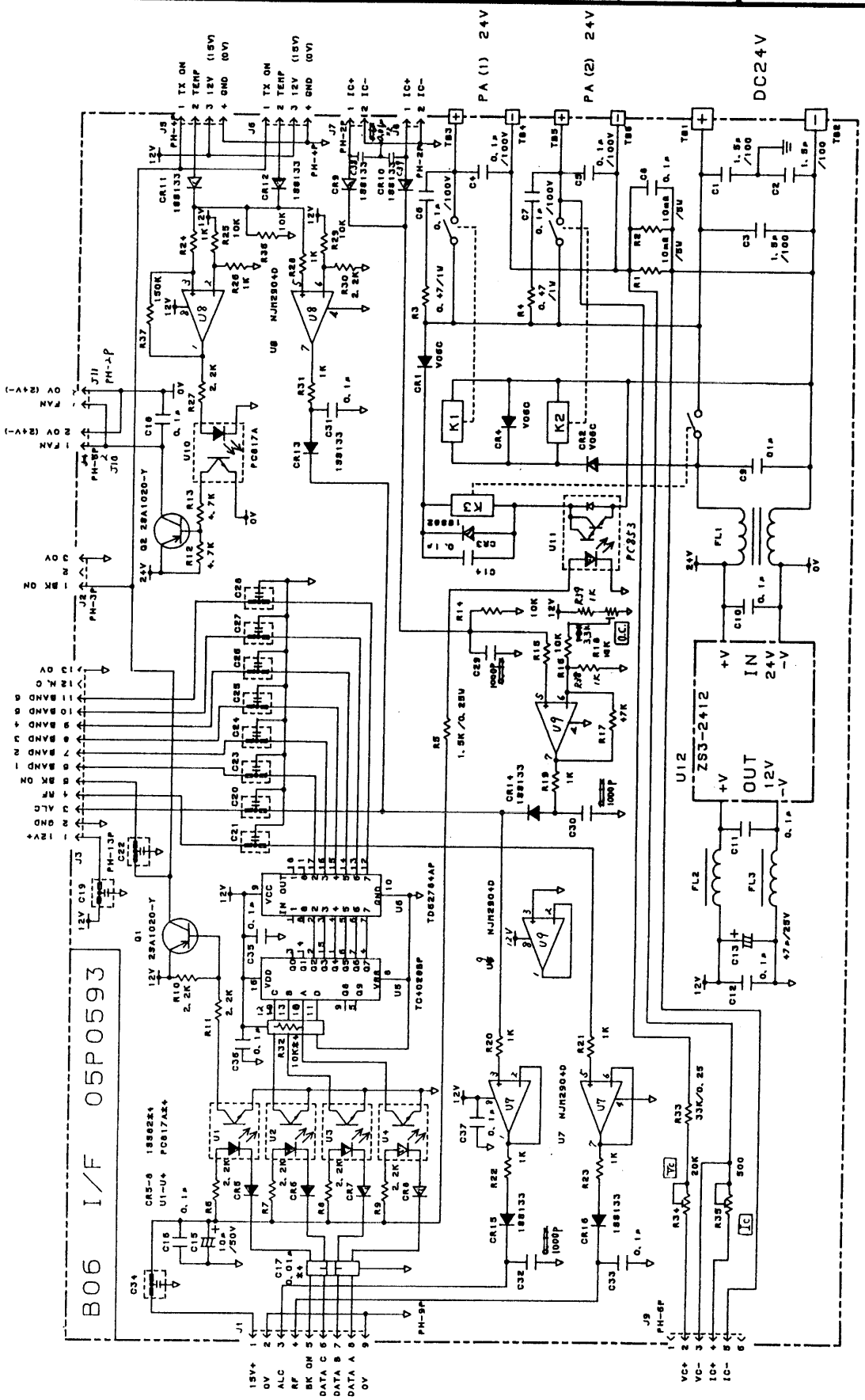
REMARKS			TYPE 05P0594
			名称 コンバイナー基板
DRAWN T.Y / APPROVED July 19'94 IKEDA	PA-2500	B 4	NAME COMBINER BOARD
SCALE / MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	DWG NO. C5596-K04- A

FURUNO ELECTRIC CO., LTD.



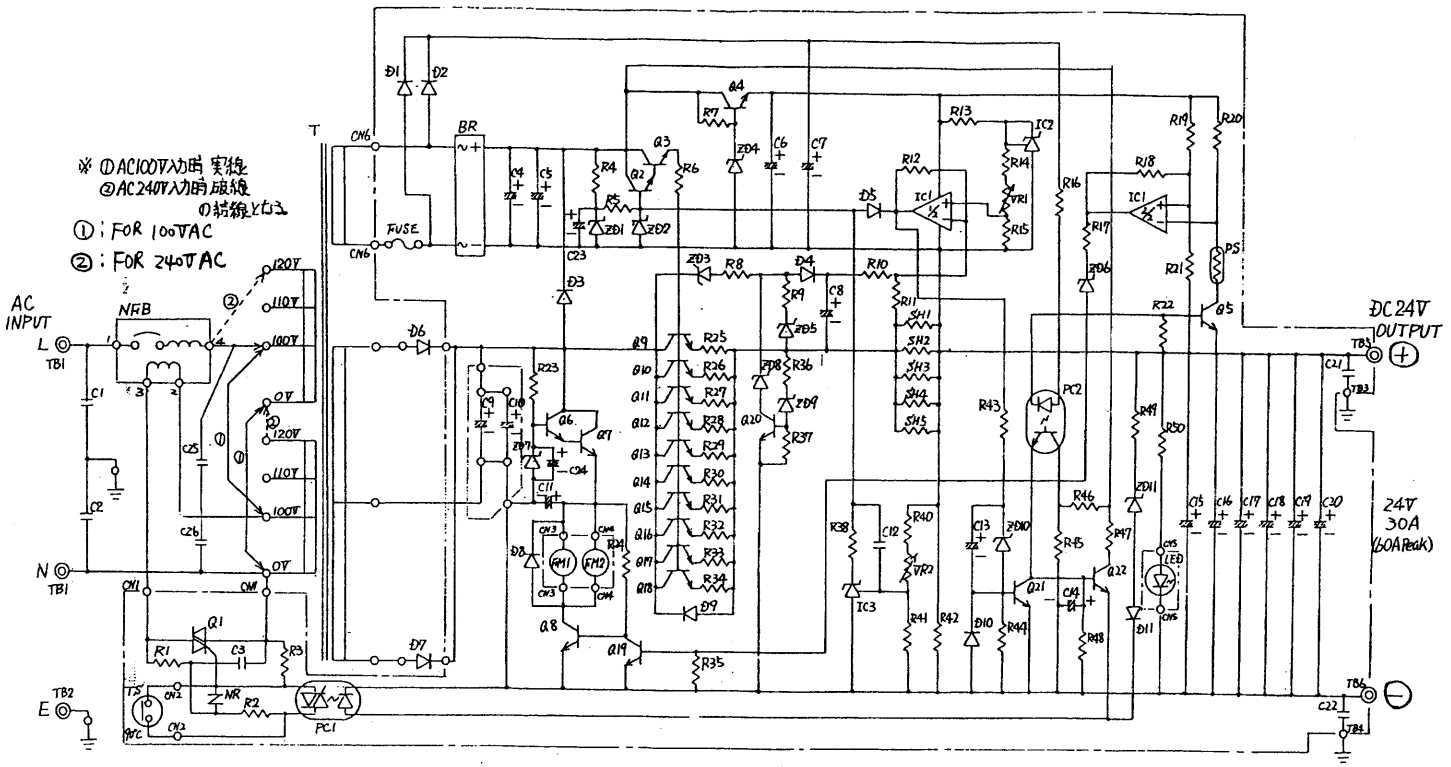
REMARKS				TYPE 05P0592
				名称 TXフィルター基板
DRAWN T.Y	APPROVED Jul 1994 IKEDA	PA-2500	B 5	NAME TX FIL BOARD
SCALE 1/	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	DWG NO. C5596-K05- A

FURUNO ELECTRIC CO., LTD.



REMARKS			TYPE	05P0593
			名称	インターフェース基板
DRAWN T.Y	APPROVED July 19 94 ICOM	PA-2500	NAME	INTERFACE BOARD
SCALE /	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO. B 6	DWG NO. C5596-K06- A

FURUNO ELECTRIC CO., LTD.



ITEM 品番	NAME 品名	MATERIAL 材質	Q'TY 数量	DWG.NO. 図番	REMARKS 摘要

承認 APPROVED	三角法 THIRD ANGLE PROJECTION	名称 TITLE	AC電源ユニット PR-850 AC POWER UNIT
検 ☒ CHECKED	尺度 SCALE		
製 ☒ DRAWN	重量 WEIGHT kg	図番 DWG. NO.	C5519-K20-B

FS-1600
2500
5000
8000

FURUNO

Information

No. : FQ5-94-019

Date : 1994 - 12

Issued by: FURUNO ELECTRIC CO., LTD.
TECHNICAL DOCUMENTATION SECTION

Addenda No. 6
to FS-1562 SM-E5572

FS-1562
ROM Program Changes (Ver. No. 5)

Changes made to ROM program

The system channel 9911 will be changed as follows. (Setting number "2" added.)

Ch No.	Function	Setting No.		
		0	1	2
9911	Class of emission by [2182] key	H3E (changeable)	J3E (changeable)	H3E (fixed)

Added

Setting number "2" fixes class of emission on 2182 kHz to "H3E".

Program number

0550157105

Code number

005-944-800

Factory modification

From the production in January 1995.

Urgency

When it is convenient.

Remarks

The power data for 250 W set is also changed at the same time.

Power data	Previous	New
Preset value	High : 100 Low : 50 Tune : 25	High : 120 Low : 35 Tune : 0
Upper limit of tune power data	60	10
Upper limit of high power data	255	150

Information

No. : FQ5-95-022
Date: 1995 - 12

APPROVED BY K. OTA
WRITTEN BY T. Nishino

Issued by: FURUNO ELECTRIC CO., LTD.
CUSTOMER'S SERVICE DEPARTMENT

Addenda No. 7 to FS-1562 Service Manual SME-55722

Correction

(Code number)

FS-1562-15/FS-1562-25
ROM Program Changes (Ver. 6)

Change made to ROM program

Deleted automatic setting of output power by system channel 9900 (country of delivery).

Reason

For the FS-1562-25, output power could not be lowered on system channel 9997, (causing excessive power input to the PA unit), since it was determined by system channel 9900.

Factory modification

From the production in November 1995

Program number

0550158106

⑤

COMM

Code number

~~000-594-481~~

005-944-810

Note

For FS-1562-25, ROM version 5 and earlier, re-set system channel 9997 after changing system channel 9900.

FURUNO

No. : FQ5-98-002 1/3

Date: 1998 - 02

Information

Issued by: FURUNO ELECTRIC CO., LTD
QUALITY ASSURANCE DEPARTMENT

APPROVED BY

WRITTEN BY K Kamata

Addenda No. 8 to FS-1562 Service Manual SME-55722

FS-1562

Change of System Program

The program for the above mentioned radiotelephones is updated as below.

From 05 to 06

On "Standard" version, default setting of "9902 TX Frequency Selection" has been changed from Marine Free (3) to Marine (1), from the production in November 1995. Thus, TX frequencies other than ITU and user channels have been no longer available. Change the system setting, if necessary.

See Furuno Information Pub. No. FQ5-95-022 dated December1995 for further details.

From 06 to 07

Changes 1) to 5) have been made to conform with ETS (European Telecommunication Standard).

1) 9928 (Priority setting on 2182 kHz) is added to the system setting menu. See the next page for details.
2) AF signal is applied to the compressor circuit at the transmission from the remote station RB-500 having new program.(*) The TX/RX board has also been modified for this change and the board level now is –44.
3) The connector for AC Fail signal detector board is added. FS-1562-25 250W radiotelephone equipped with new TX/RX board uses the detector board.
4) Emission type, TX/RX frequencies, channel number, and status of SQ and power reduction can be monitored on the remote station RB-500 having new program. (*)
5) System settings 9918 (Key response beep on/off), 9919 (Noise Blanker on/off), and 9920 (AGC) are changed to 'user-selectable'.
6) AGC is automatically turned on when 2182 kHz is selected.
7) The loudspeaker in the main unit is automatically turned on when the intercom call is made from a remote station RB-500.

⑤ SSB

*: The modification on the distributor DB-500 is also required. Details will come when the modification of the RB-500 is made.

Factory-modified sets

Models	Modified sets	New Program	TX/RX board
FS-1562-15/25	From August '97 2560-1785 to 1805, 1828 to 1838, 1865, and after	05-505-57-107	05P0526-44 (modified one)
RB-500	February '98 (scheduled)	05-501-47-104	

How to set 9928

9928 (Priority setting of 2182 kHz) has the following selections.
0 (default): Function of the RB-500 is prohibited when 2182 kHz is selected on the radiotelephone. During the operation of the RB-500, 2182 kHz can be selected on the radiotelephone.

1: Function of the RB-500 is accepted even when 2182 kHz is selected on the radiotelephone. When the RB-500 is in use, the operation from the radiotelephone is disabled as well as 2182 kHz operation. The "1" is selected when the RB-500 is fitted in the bridge.

The table below summarizes the priority of the information.

Priority	Setting of 9928	
	0	1
1	DSC distress alert	DSC distress alert
2	2182 kHz (Main unit)	DSC other than distress
3	DSC other than distress	RB-500
4	RB-500	NBDP
5	NBDP	2182 kHz (Main unit)
6	Main unit	Main unit

The typical connection of GMDSS shipboard equipment is illustrated on the next page.

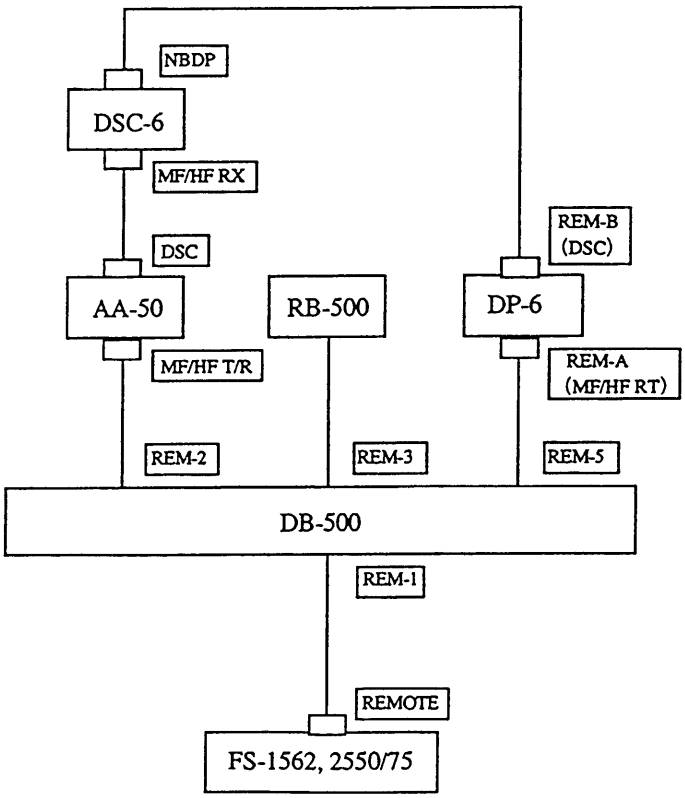


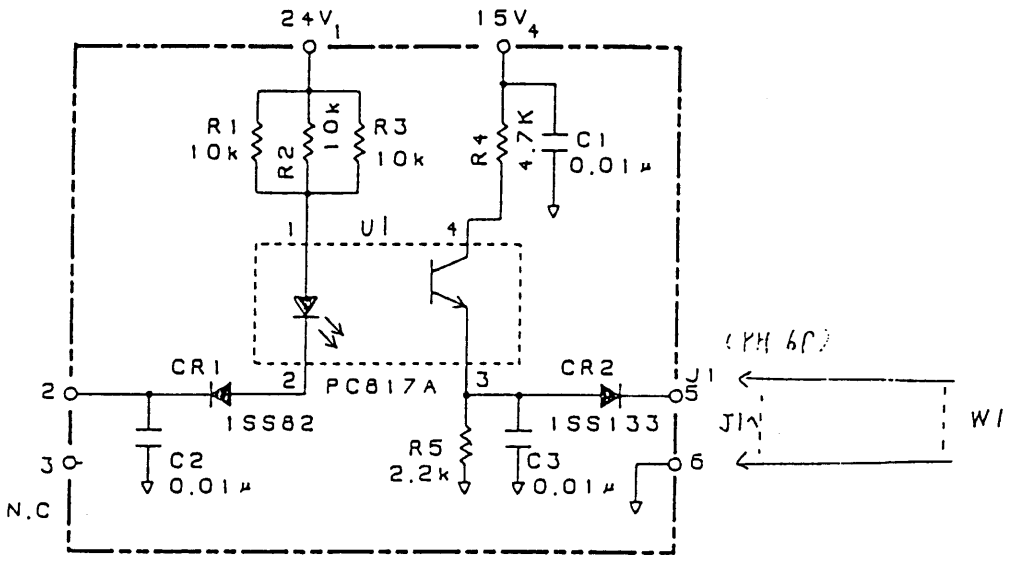
Fig. 1 Typical Connection of GMDSS Equipment

Attachment:

1) System Channel List
2) Block Diagram for FS-2550 and FS-1562-25
3) Block Diagram for FS-15/75/1562
4) General Circuit Diagram for FS-15/75/1562
5) Circuit Diagram of TX/RX Board 05P0526, (1/2) for FS-15/75/1562/2550
6) Circuit Diagram of AC FAIL Board 05P0657

FURUNO

AP 2

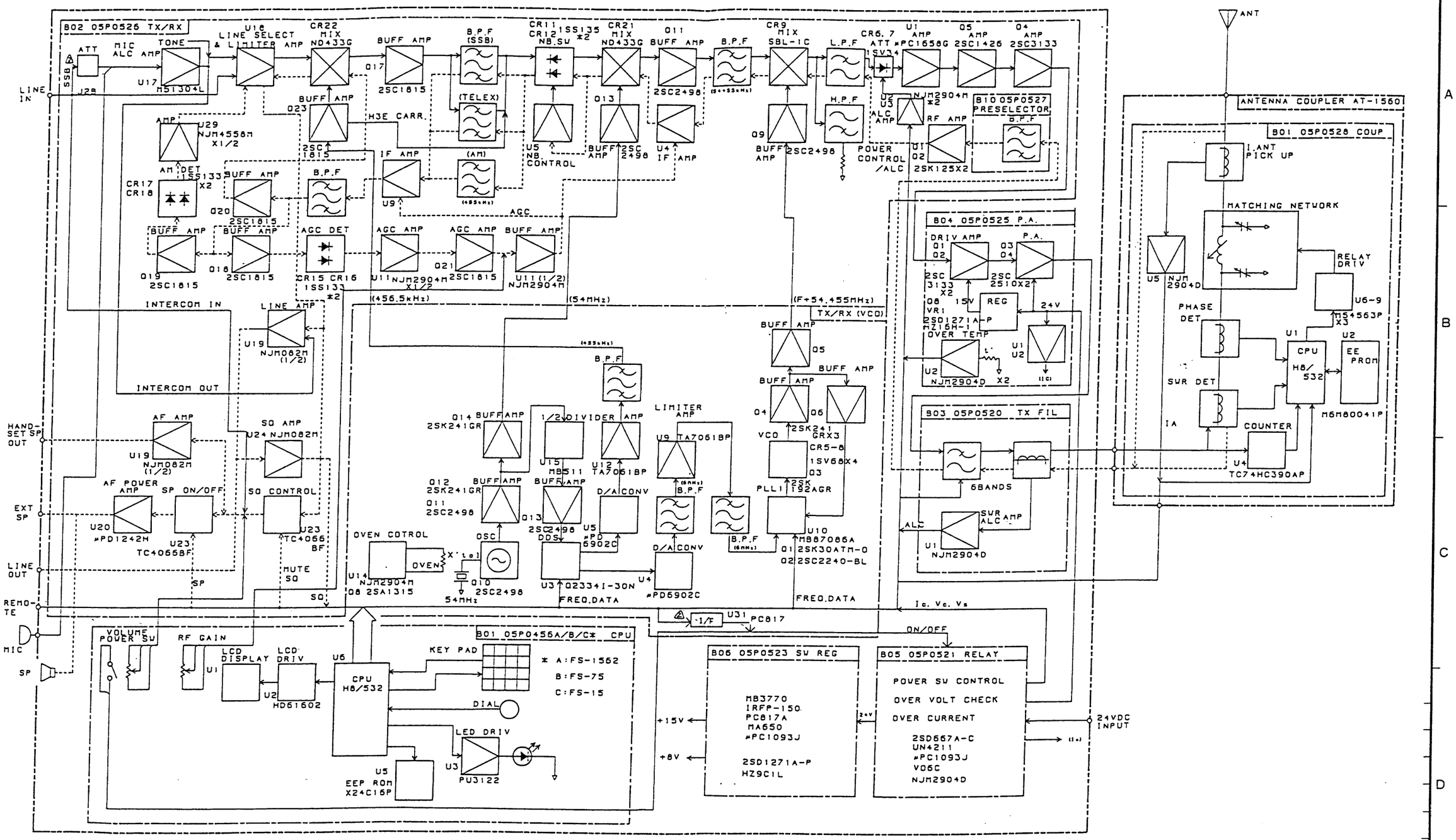


DRAWN N. Yokoyama			TYPE 05P0657
CHECKED Sep.'97 K.Okamoto			名称 AC FAIL
APPROVED Sep.'97 H.Yamaguchi	FS-2550 FS1562-25		回路図
SCALE / MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME AC FAIL
DWG NO. C5601-K18- A			SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.

FURUNO

AP3



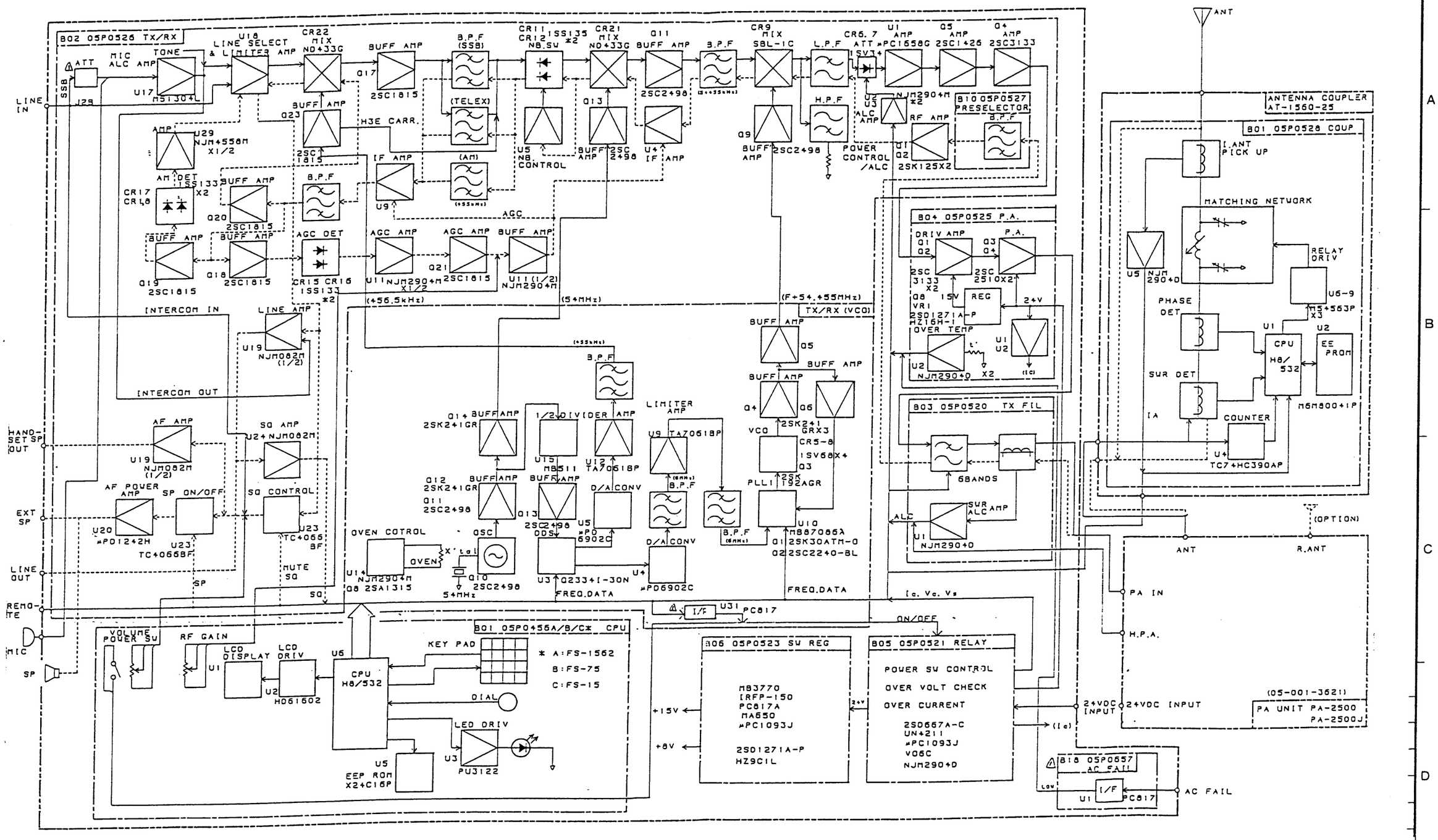
FS-1562
FS-15/75

DRAWN N. Yokoyama			TYPE
CHECKED Sep.19'97 K. Okamoto			名称
APPROVED Sep12'97 H. Yamaguchi			ブロック図（系統図）
SCALE /	MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME BLOCK DIAGRAM
DWG NO. C5573-B01- C			

FURUNO ELECTRIC CO., LTD.

FURUNO

AP4



DRAWN N. Yokoyama			TYPE
CHECKED Sep.'97 K. Okamoto			名称
APPROVED Sep 12'97 H. Taniguchi	FS2550 FS1562-25		ブロック図（系統図）
SCALE / MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME
DWG NO. C5573-B02- A			BLOCK DIAGRAM

FURUNO ELECTRIC CO., LTD.

FURUNO

A5

B08 CHASSIS

B07 PANEL

B01 CPU ◆05P0456A/B/C

◆05P0456A FOR FS-1562
05P0456B FOR FS-2550/75
05P0456C FOR FS-15

S01 FREQ/CH

VOLUME

RF GAIN

B06 SW REG 05P0523

B05 RELAY 05P0521

B04 P.A. 05P0525

B18 AC FAIL 05P0657

STANDARD FOR FS-2550
OPTION FOR FS-1562-25

B09 VCO 05P0526 (2/2)

B11 IF AMP 05P0467

B12 IF AMP 05P0467

B13 NB DET 05P0466

B14 ALC AMP 05P0540

B15 REMOTE (A) 05P0457

B17 CONTROL 05P0459

STANDARD FOR FS-1562-25
FS-2550/75/15
OPTION FOR FS-1562-15

B02 TX/RX 05P0526 (1/2)

B10 PRESELECTOR 05P0527

B03 TX FIL 05P0520

(B02 TX/RX) J29

(OPTION)

SPKR

(OPTION) FAN

REMOTE

CONTROL

COUPLER

STANDARD FOR FS-1562-25
FS-2550/75/15
OPTION FOR FS-1562-15

H.P.A

STANDARD FOR FS-1562-25
FS-2550

GND

ANT

2+VDC

DRAWN N. Yokoyama	FS-2550 FS-1562 FS-75 FS-15		TYPE CHASSIS
CHECKED Sep '97 K. Okamoto			名称 総合
APPROVED Sep 12 '97 H. Yamaguchi			回路図
SCALE /	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME GENERAL
DWG NO. C5572-K10- F	05-001-3485- 3		SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.

FURUNO

AP 6

B02 TX/RX 05P0526 (1/2)

B09 VCO 05P0526 (2/2)

B10 PRESELECTOR 05P0527

B13 REMOTE (A) 05P0157

B13 REMOTE (B) 05P0158 (OPTION)

B17 CONTROL 05P0155 (OPTION)

NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
(2) MARKS ○: 1000pF/50V
△: 0.01μF/50V
□: 0.1 μF/25V

DRAWN N.Yokoyama			TYPE 05P0526
CHECKED Sep.'97 K.Okamura	FS-2550 FS-15/75 FS-1562		名称 TX/RX基板 (1/2)
APPROVED Sep 12 '97 H.Yamaguchi		1B 2	回路図
SCALE / MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO.	NAME TX/RX BOARD (1/2)
DWG NO. C5572-K09- F			SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.

FURUNO

Information

No. : FQ5-98-005
Date: 1998 - 07

Issued by: FURUNO ELECTRIC CO., LTD
QUALITY ASSURANCE DEPARTMENT

APPROVED BY
WRITTEN BY

Addenda No. 9 to FS-1562 Service Manual SME-55722

FS-1562
Change of ROM Program (Ver.08)

The program for the radiotelephone FS-1562 has been updated from Ver. 07 to Ver. 08.

Change made to ROM program

1) Solved is the problem that the system works normally, but NG appears when the self-test is performed.

2) The temperature, in which the fan is turned on, is decreased from 58 to 46 degrees Centigrade.

Factory-modified sets

From the production in April 1998 and after; Serial number 2560-3179 and after

Combination of hardware and software

The latest program version –08 cannot be used on the TX/RX board of level –33 and before. Refer to Furuno Information FQ5-98-003 for the reason why the board has been changed.

If the change is applied to the set having the old board, both hardware and software must be changed.

⑤
SSB

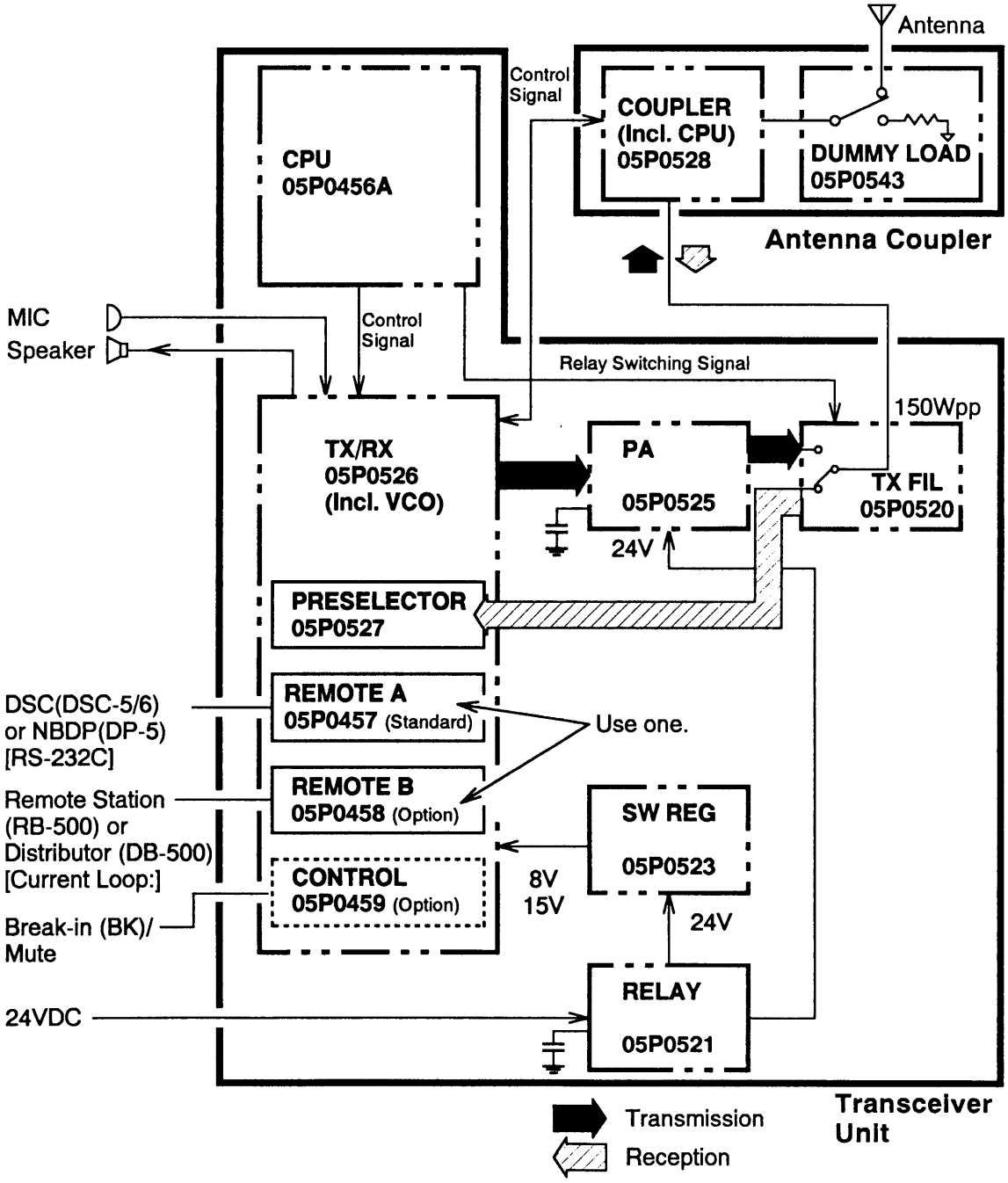
Table of Contents

Chapter 1 Block Description

1.1 General

The FS-1562 is powered by 21.6 to 31.2VDC power and consists of two units: a Transceiver Unit and an Antenna Coupler. It can be connected to a DSC terminal (DSC-5/DSC-6), NBDP terminal (DP-5) or a Remote Station (RB-500), by using the REMOTE A board or REMOTE B board on the TX/RX board. (See page 1-4.)

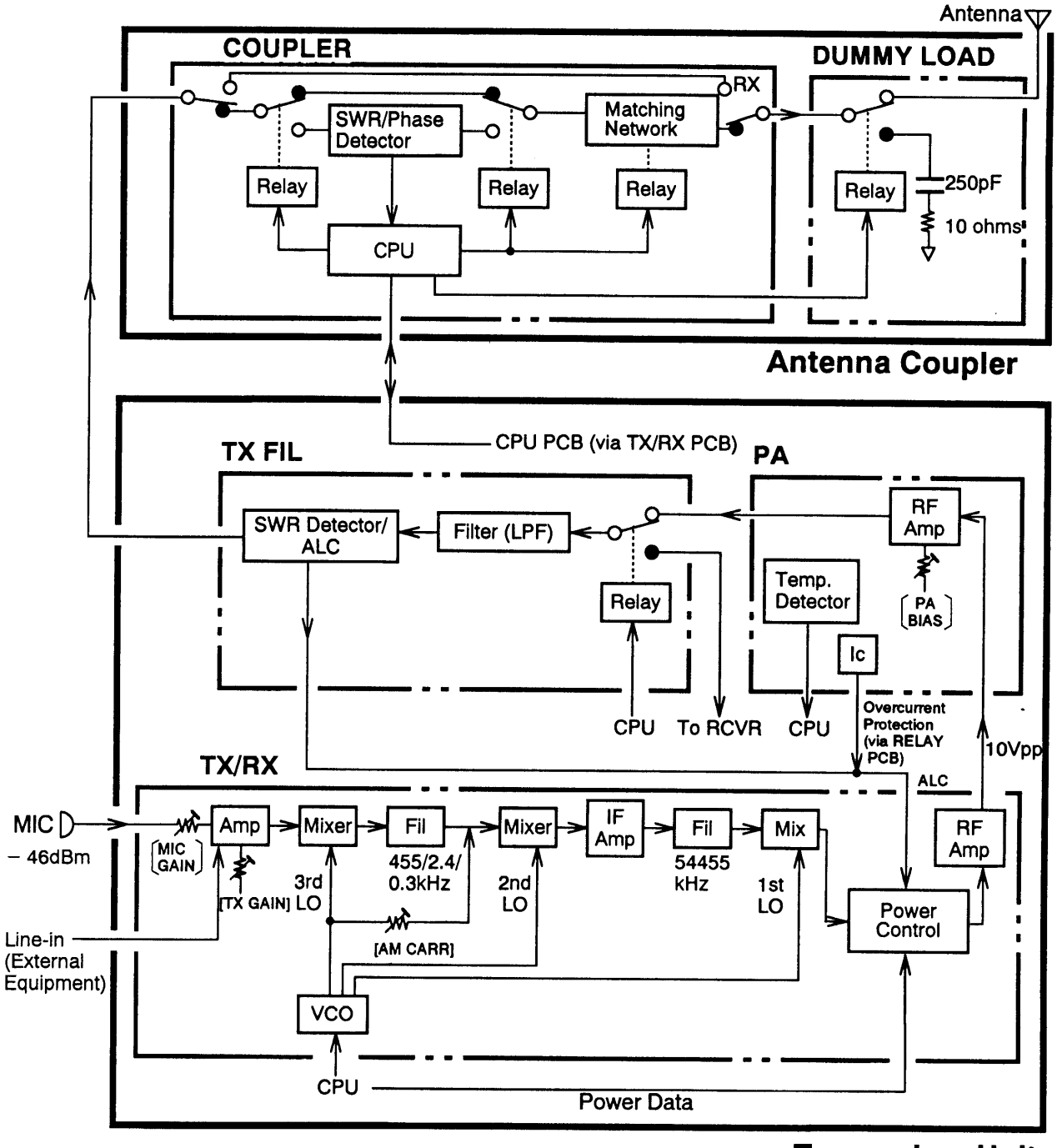
When turning the power on, the RELAY board is activated, causing the input voltage (24VDC) to be fed to the SW REG board which produces +8V and +15V for the TX/RX board.



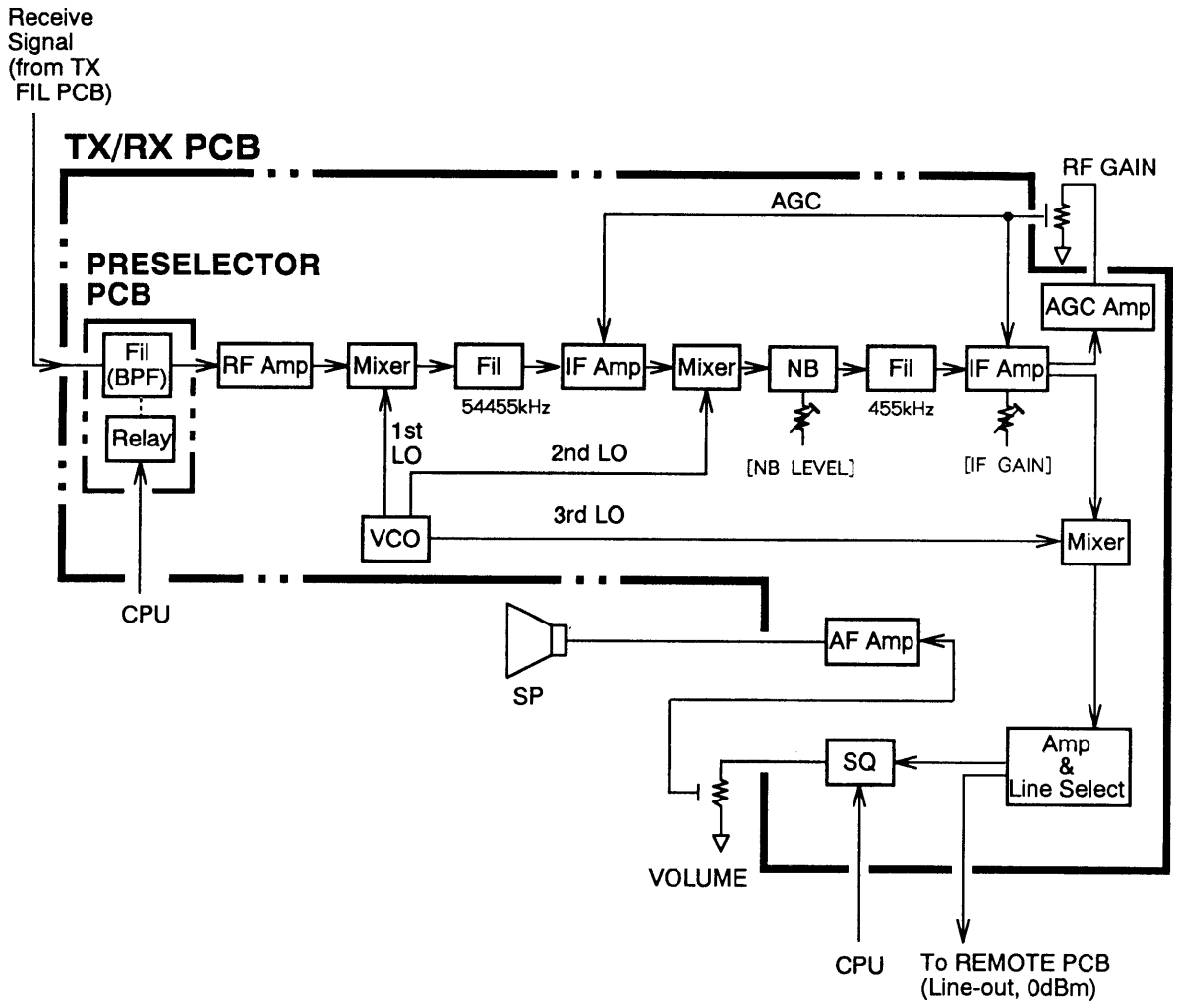
1.2 Transmitter

The FS-1562 incorporates an automatic power reduction circuit. When the temperature at the power amplifiers of the PA board exceeds 90 ℃, the output power is automatically changed to the reduced power set by low power adjustment. See page 3-5.

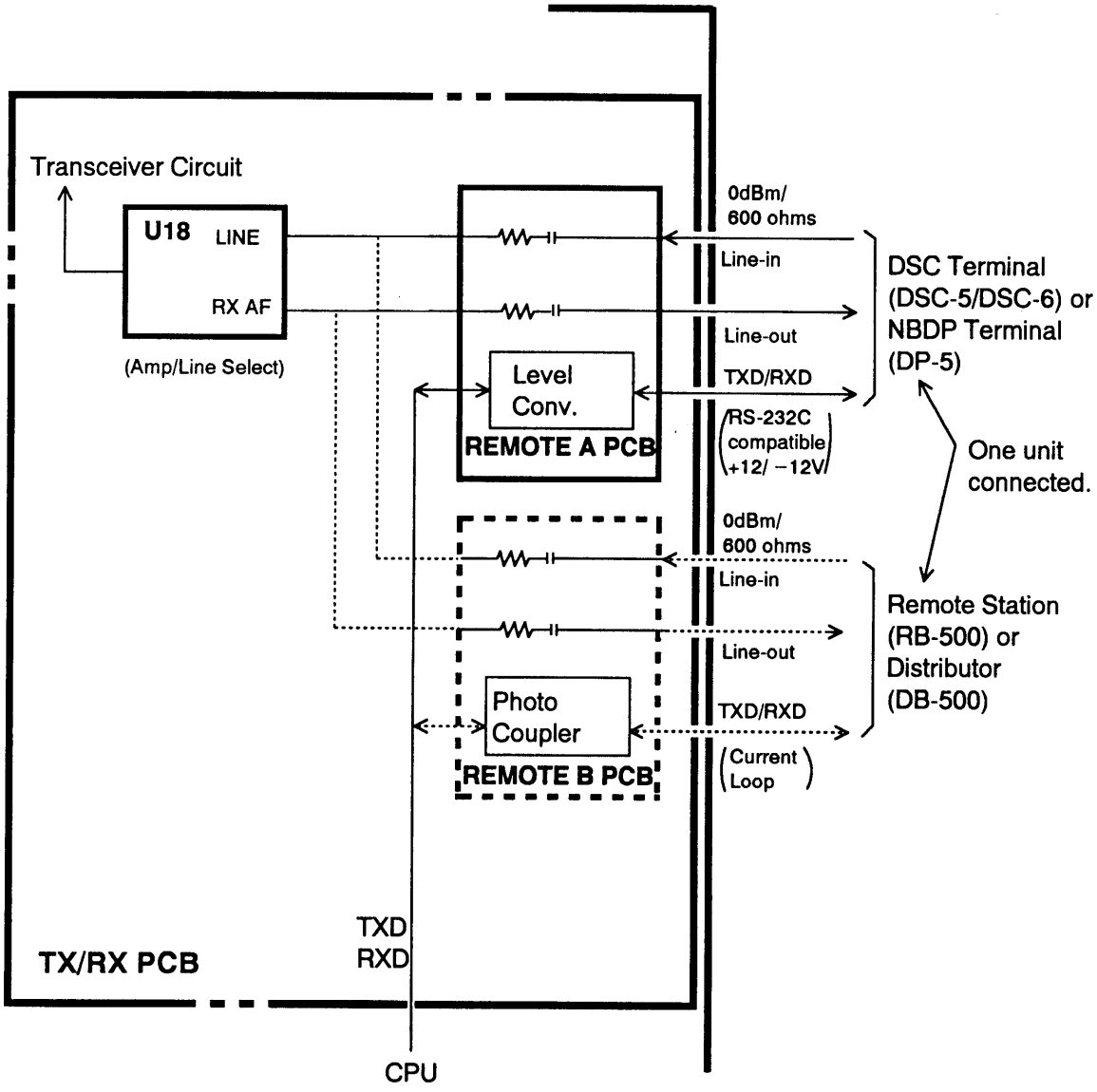
The ALC circuit on the TX FIL board and the overcurrent (Ic) protection circuit on the PA board are applied to the TX/RX board to keep the output power constant and prevent Ic from exceeding 16 to 17A, respectively. Further, if the SWR value becomes worse, the output power is reduced through the ALC circuit to prevent the PA board from being damaged.



1.3 Receiver


Receive
Signal
(from TX
FIL PCB)
TX/RX PCB
PRESELECTOR
PCB
Fil
(BPF)
Relay
RF Amp
Mixer
Fil
54455kHz
IF Amp
Mixer
NB
Fil
455kHz
IF Amp
AGC
RF GAIN
AGC Amp
1st
LO
2nd LO
[NB LEVEL]
[IF GAIN]
3rd LO
VCO
Mixer
CPU
SP
AF Amp
SQ
Amp
&
Line Select
VOLUME
CPU
To REMOTE PCB
(Line-out, 0dBm)

1.4 Signal Flow of External Equipment



Note: Either REMOTE A board or REMOTE B board is used.

[REMOTE A board: RS-232C compatible (standard supply)
REMOTE B board: Current loop (optional supply)]

Chapter 2 System Settings

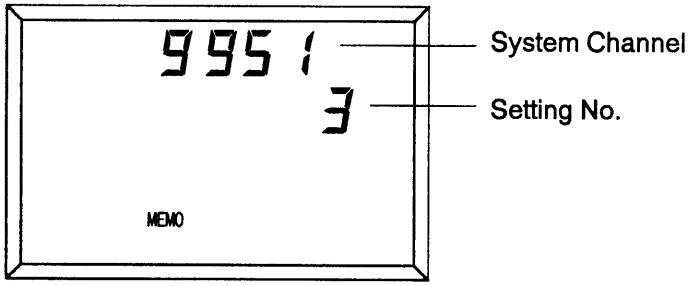
General

The system channels list is shown on the next page. The system channels marked * can only be set by a FURUNO service agent or dealer. (These channels can be recalled by entering the password "1562".) The procedure for changing user settable system settings appears in the Operator's Manual.

2.1 Changing System Settings

Procedure

1. While pressing and holding down the **RCL** key, turn the power on.
   System channel "9951", setting number "3" and "MEMO" appear on the LCD as shown below.



2. Select the system channel "9999" by rotating the **FREQ/CH** encoder.

3. Press the **RCL, 1, 5, 6, 2** and **ENT** keys in this order. (1562 is the password.)

4. Select channel to change by operating the **FREQ/CH** encoder.

5. Press the **RCL** key, enter setting no., and press the **ENT** key.

6. To change another channel, repeat steps 4 and 5.

7. To restore normal operation, turn the power off, and on.

2.2 System Channels List

* : These channels can be recalled by entering the password "1562" on system channel 9999.
Functions of the system channels 9951 to 9959 are described on the Operator's Manual.

	System channel	Function	Setting					Default		
			0	1	2	3	4	Std	Italy	Holland
*	9900	Country of Delivery	Standard	Italy	Holland			0	1	2
*	9901	User Channel Clear	Press RCL, 1, ENT keys to clear.							
*	9902	TX Frequency Selection (Note 1)	Free	Marine	ROM	Marine Free		3	2	3
*	9903	RX Frequency Selection (Note 1)	Free	Marine	ROM	Marine Free		0	0	0
*	9904	TLX (Telex) Usage	TX/RX	RX	Disable			0	0	0
*	9905	TLX RX Bandwidth	Wide	Narrow				1	1	1
*	9906	TX Delay Time (Note 2)	5 to 50 ms					10	10	10
*	9907	Power Reduction on 2182kHz	Enable	Disable				0	0	1
*	9908	AM Usage (Note 3)	TX/RX	RX	Disable	2182 (TX/RX)	RX+2182	4	4	4
*	9909	LSB Usage	TX/RX	RX	Disable			2	2	2
*	9910	FAX Usage	TX/RX	RX	Disable			1	1	1
*	9911	Emission Mode on 2182 kHz	H3E	USB				0	0	0
*	9912	Alarm TX Time	45 sec.	No limit	While pressing			0	0	0
*	9913	Test Alarm Transmission (Note 4)	Disable	Enable				1	1	1
*	9914	Test Alarm Frequency	1605.00 to 29999.99 kHz					2191.0	2191.0	2191.0
*	9915	TX TUNE (Note 5)	Enable	Disable	Auto			0	0	0
*	9916	Remote Control Format (Note 6)	MIF	TBUS				0	0	0
*	9917	Emission Mode with TX KEY on from external equipment (Note 7)	Auto	SSB	AM	TLX		0	0	0
*	9918	Key Response Beep	OFF	ON				1	1	1
*	9919	Noise Blanker	OFF	ON				1	1	1
*	9920	AGC	OFF	ON	Changeable			2	2	2
*	9921	Clarifier Change Width	±150Hz	±100Hz				0	0	0
*	9922	IA/RF Meter	IA	RF				0	0	0
*	9923	ITU Channel	Std	USA	Std+MF			2	2	2
*	9924	Channel/Frequency Display	Channel	Frequency				0	0	1
*	9925	Default setting of Power Data	Press RCL, 1, ENT keys to restore to default setting.							
*	9926	Tuning Circuit for RX (Note 8)	Enable	Disable				1	1	1
*	9927	(for factory use)	This setting should always be "0".					0	0	0
	9951	Scan Stop Signal Level	SQ level	1 to 10				3	3	3
	9952	Scan Stop Time	While receiving	1~99 seconds				2	2	2

(continued to next page)

	System channel	Function	Setting					Default		
			0	1	2	3	4	Std	Italy	Holland
	9953	Sweep Width	0.01 to 30000.00 kHz					100.0	100.0	100.0
	9954	Sweep Step Frequency	0.01 to 30000.00 kHz					1.00	1.00	1.00
	9955	Squelch Activation	Voice	Level	Voice + Level	Voice or Level		3	3	3
	9956	Squelch Level	0 to 10					5	5	5
	9957	Squelch Delay Time (Note 9)	500 to 4000 ms					1000	1000	1000
	9958	Squelch Activating Frequency	500 to 2000 Hz					1000	1000	1000
	9959	Squelch on/off when 2-tone alarm on 2182 kHz is received	Off	On				1	1	1
*	9997	Selection of output power (Note 10)	150W	250W AT-5000	250W AT-1560-25			0	0	0
*	9998	User Channel Memory	Enable	Disable				1	1	1
	9999	Enter 1562 to access asterisk-marked channels.								

(Note 1) Free: Frequencies can be selected in the range of 1.6065MHz~29.9999MHz. ITU and User channels are also available.
Marine: ITU and User channels are available.
ROM: User channel only
Marine Free: Frequencies can be selected in the following range. ITU and User channels are also available.

1606.5~4438	12230~13200	19680~19800	26100~26175
6200~6525	16360~17410	22000~22855	
8100~8815	18780~18900	25070~25210	kHz

(Note 2) Transmission start time after the TX KEY line goes low level (is activated).

(Note 3) Set to "0"(TX/RX) when the selcall unit is connected.

(Note 4) 1 (Enable): The dummy load is connected automatically and the text signal of 2191 kHz, modulated by two-tone alarm, is sent to the dummy load.

(Note 5) Enable: Tuning by PTT switch or TX TUNE key.
Auto: Automatic tuning when frequency is changed.

(Note 6) MIF: FURUNO Radio Interface. Select MIF when FURUNO DSC terminal or NBDP terminal is connected.
TBUS: For equipment made by "Thrane & Thrane A/S" of Denmark. If TBUS data is used, it is not necessary to connect TXD/RXD lines.

(Note 7) Auto: FURUNO make DSC terminal and/or NBDP terminal is connected.
SSB: Other make of controller is connected. (J3E is selected when TX KEY level goes low.)

AM: Selcall unit is connected. (H3E is selected when TX KEY level goes low.)
TLX: Other make of NBDP terminal is connected. (TLX is selected when the TX KEY level goes low.)

(Note 8) 0: RX signal passes through tuning circuit. (This setting is useful when TX/RX frequencies are in the same band on HF or are the same on MF.)
If RX frequency is changed to other band, tune on the same band as the RX frequency.

RX signal does not pass through tuning circuit when the following situations occur.
1. Scan/sweep reception
2. Frequencies between TX and RX are separated more than 1.2 MHz on 4MHz band or higher band
3. TX/RX frequencies are not the same on 4MHz band or lower band
4. RX frequency is set to 1.6MHz or less

(Note 9) Ex. Delay time: 1000 ms
Squelch is opened 1000 ms after the signal goes away.

(Note 10) When 250 W Booster (under development) is connected, select 1 or 2.
1: Antenna coupler AT-5000 (For FS-5000/8000)
2: Antenna coupler AT-1562-25

2.3 Channel Programming

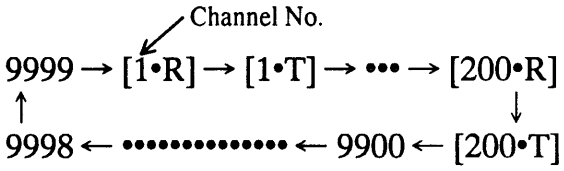
General

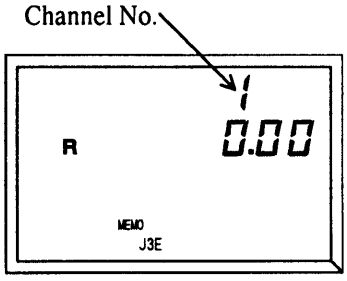
The FS-1562 can store up to 200 user channels, numbered 1 to 200.

Programming

Procedure

1. While pressing and holding down the **RCL** key, turn the power on.
2. Select the system channel 9999 by operating the **FREQ/CH** encoder.
3. Press the **RCL**, **1**, **5**, **6**, **2** and **ENT** keys in this order.
4. Select the system channel 9998 with the **FREQ/CH** encoder.
5. Press the **RCL**, **0** and **ENT** keys to enable channel programming.
6. Select an RX channel to program, by operating the **FREQ/CH** encoder.
   Display changes as follows when the **FREQ/CH** encoder is operated.





7. Select emission mode with the **MODE** key.
8. To enter an RX frequency, press the **RCL** key and enter a frequency with the numeral keys, then press the **ENT** key.

9. Select a TX channel of the same channel as RX with the **FREQ/CH** encoder.

10. Enter a TX frequency as follows.
    Simplex
    Press the **ENT** key. The same frequency entered at step 8 is stored.

    Duplex
    Press the **RCL** key, enter a frequency with the numeral keys, then press the **ENT** key.

11. To program another channel, repeat steps 6 to 10.

12. Set the system channel 9998 to "1" (User channel memory: disable).

13. Turn the power off to store channels programmed.

To erase a user channel

1. Select an RX channel to erase with the **FREQ/CH** encoder.

2. Press the **RCL, 0, ENT** keys in this order.

3. Rotate the **FREQ/CH** encoder clockwise by one turn to select a TX channel of the same channel as RX.

4. Press the **RCL, 0, ENT** keys in this order.

To erase another user channel, repeat steps 1 to 4.

Chapter 3 Adjustment

3.1 Power Data Setting

Introduction

The output power can be set by changing the power data by direct keyboard input. (Adjustment of the potentiometers inside the unit is not necessary.)

Connection

If necessary, connect a power meter with 50-ohm dummy terminated to the transceiver output.

Power data

HI (normal) power

- It is possible to adjust each user channel and 2182 kHz. (Power data of ITU channels are the same as those of each band.)
- Power data of LSB and FAX is the same as for J3E.
- Where manually entered frequency or ITU channel is permitted, the data are set depending on the band and class of emission, as shown on the next page.

LOW (reduced) power

- All low power data between 1.6 and 3.9999 MHz are the same. (It can be set for each class of emission.)
- Power data of LSB and FAX is the same data as that for J3E.
- Where manually entered frequency or ITU channel is permitted, the data are set depending on the band and class of emission, as shown on the next page.

Remarks on Low Power Data Setting

You cannot set low power data individually for band, user channel and 2182 kHz (**2182** key). For example, when you set low power data for 4.0 to 5.9999 MHz and then set it for ITU 401, the low power data for 4.0 to 5.9999 MHz is changed to that of ITU 401.

TUNE power (Factory-adjusted. Normally this adjustment is not necessary locally.)

The TUNE power set on a channel can be used on all channels.

	HI (normal) Power			LOW (reduced) Power		
	J3E/LSB/FAX	H3E	TLX	J3E/LSB/FAX	H3E	TLX
Band (MHz)						
1.6—1.9999	o	o	o	o	o	o
2.0—2.4999	o	o	o			
2.5—2.9999	o	o	o			
3.0—3.4999	o	o	o			
3.5—3.9999	o	o	o			
4.0—5.9999	o	o	o	o	o	o
6.0—7.9999	o	o	o	o	o	o
8.0—11.9999	o	o	o	o	o	o
12.0—15.9999	o	o	o	o	o	o
16.0—17.9999	o	o	o	o	o	o
18.0—21.9999	o	o	o	o	o	o
22.0—24.9999	o	o	o	o	o	o
25.0—27.5	o	o	o	o	o	o
ITU Channel						
	same power data as Band	same power data as Band	same power data as Band	same power data as Band	same power data as Band	same power data as Band
User Channel						
1 to 200	each channel			same power data as Band	same power data as Band	same power data as Band
2182 kHz (set by [2182] key)						
	o			same power data as 1.6~3.9999MHz	same power data as 1.6~3.9999MHz	same power data as 1.6~3.9999MHz

" o " – marked power data can be set individually.

NOTE: Power data (HI/LOW) for user channel is commonly used for all class of emission.

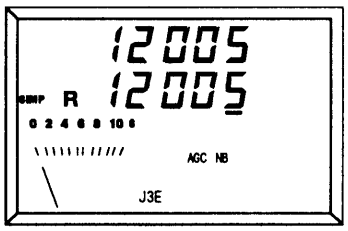
HI (normal) power data

J3E

1. Turn the power on.

2. Select a channel.
   (*1) ITU channel or manually entered frequency can be selected where permitted.

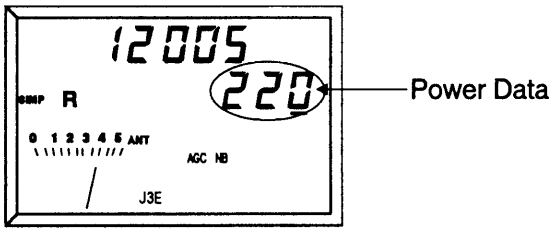
ITU channel 12005 is selected.



3. Press the **TX TUNE** key.
   "TUNE" appears and the coupler starts tuning. When the tuning is completed successfully, "TUNE OK" appears. (The tuning time is within 15 seconds.)

4. While pressing and holding down the **ENT** key, press the **8** key. Power data appears.

5. Set the power data (0 to 255) by rotating the **FREQ/CH** encoder. (Observe the readout on power meter, if connected, while pressing the **PTT** switch and whistling or speaking into the handset.)



Reference data when 50 ohms dummy load is connected to the transceiver unit.

Power Data	255	240	220	200	180	160	140	120	100	80	60	40	20	10	0
Output(W)	180	178	153	132	112	92	76	61	48	34	23	18	15	8	8

6. Press the **ENT** key to register power data. Power data disappears from the LCD.

7. To set another channel, repeat steps 2 to 6.

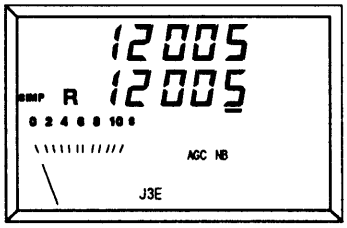
LOW (reduced) power data

Procedure

1. Turn the power on.

2. Select a channel desired.
   (*1) ITU channel or manually entered frequency can be selected where permitted.

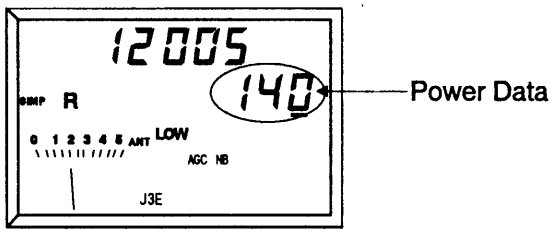
ITU channel 12005 is selected.



3. Press the **TX TUNE** key.
   "TUNE" appears and the coupler starts tuning. When the tuning is completed successfully, "TUNE OK" appears.

4. While pressing and holding down the **ENT** key, press the **9** key.

5. Set the power data (0 to 255) by rotating the **FREQ/CH** encoder. (Check the readout on the power meter, if connected, while pressing the **PTT** switch and whistling or speaking into the handset.)



Reference data when 50 ohms dummy load is connected to the transceiver unit.

Power data	255	240	220	200	180	160	140	120	100	80	60	40	20	10	0
Output(W)	180	178	153	132	112	92	76	61	48	34	23	18	15	8	8

6. Press the **ENT** key to register power data. Power data disappears from the LCD.

7. To set another channel, repeat steps 2 to 6.

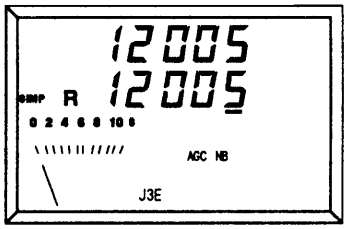
TUNE power data (Factory-adjusted)

Procedure

1. Turn the power on.

2. Select a channel desired.
   (*1) ITU channel or manually entered frequency can be selected where permitted.

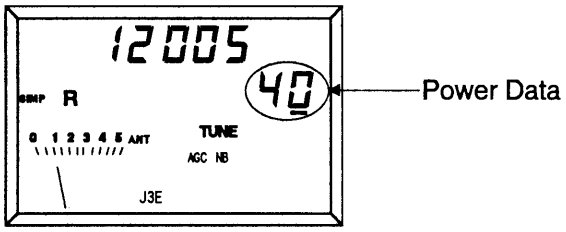
ITU channel 12005 is selected.



3. Press the **TX TUNE** key.
   "TUNE" appears and the coupler starts tuning. When the tuning is completed successfully, "TUNE OK" appears.

4. While pressing and holding down the **ENT** key, press the **7** key.

5. Set the power data to obtain 10 to 20 W output by rotating the **FREQ/CH** encoder. (Check the readout on the power meter, if connected, while pressing the **PTT** switch and whistling or speaking into the handset.)



Reference data when 50 ohms dummy load is connected to the transceiver unit.

Power data	255	240	220	200	180	160	140	120	100	80	60	40	20	10	0
Output(W)	180	178	153	132	112	92	76	61	48	34	23	18	15	8	8

6. Press the **ENT** key. Power data disappears from the LCD.

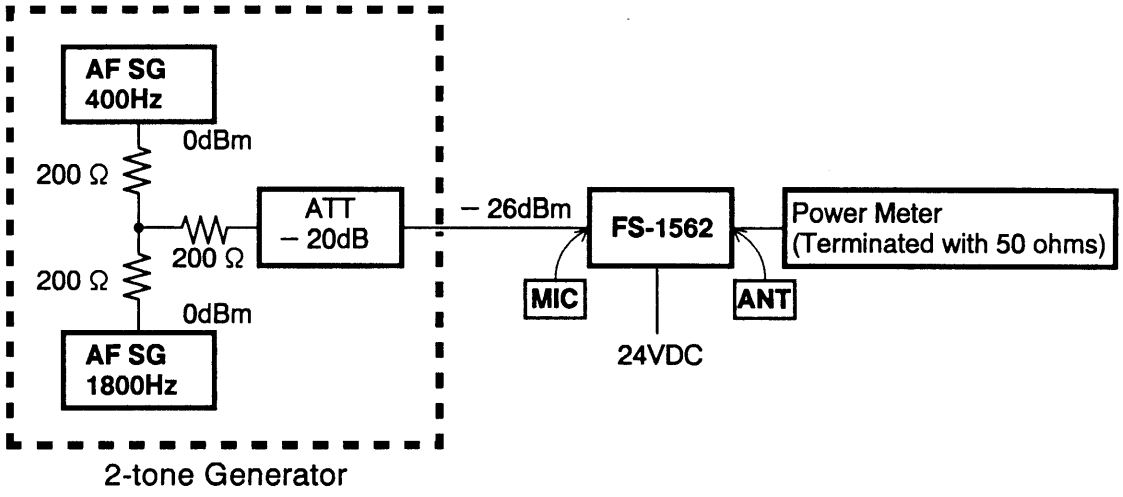
3.2 Line Voltage Check

Refer to page 4-2 for parts location.

Item	Check Point (PCB)	Ratings	Adjuster	Remarks
Input Volt.	TB1(+), TB2(RELAY)	21.6 to 31.2V	–	
Output Volt.	J2-1(+), J2-5(SW REG)	16.0 ± 0.2V	R18	
Ref. OSC	TP1(+), TP2(SW REG)	170 ± 10kHz	–	
Overvoltage Protection	TB3(+), TB4(RELAY)	21.6 to 31.2V	–	Input Volt.: 21.6 to 31.2V
		0V	R3	Input Volt.: higher than 31.2V

3.3 TX Gain

A 2-tone generator is required. Refer to page 4-1 for parts location.



2-tone Generator

Item	Check Point	Ratings	Adjuster	Settings
TX Gain	CP7, CP8 (TX/RX PCB)	0.3 Vpp	R185	R174: center ITU SSB401, USB Mic input: -26dBm/600 ohms, 2-tone PTT ON

3.4 PA Bias

Do this adjustment whenever the transistors of the final stage are replaced. Refer to page 4-2 for parts location.

Item	Check Point	Ratings	Adjuster	Settings
Bias Current	L4 (*1) (PA PCB)	500 ± 50mA	R25	J3E PTT ON (No AF input)

(*1) Desolder L4 and connect ammeter there. Resolder L4 after completion of adjustment.

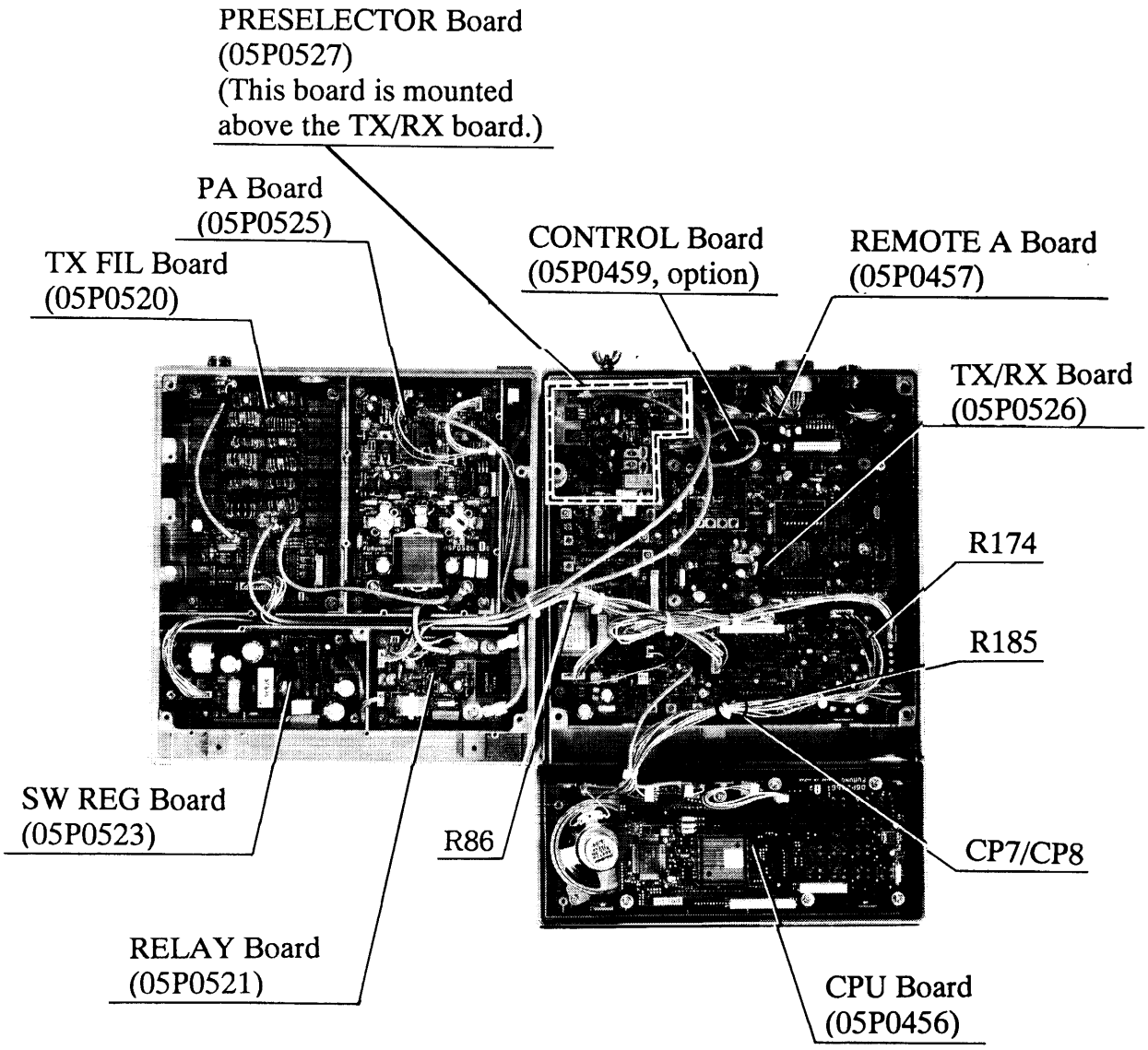
3.5 MIC Gain

The MIC gain can be adjusted by R174 (p. 4-1) on the TX/RX board.

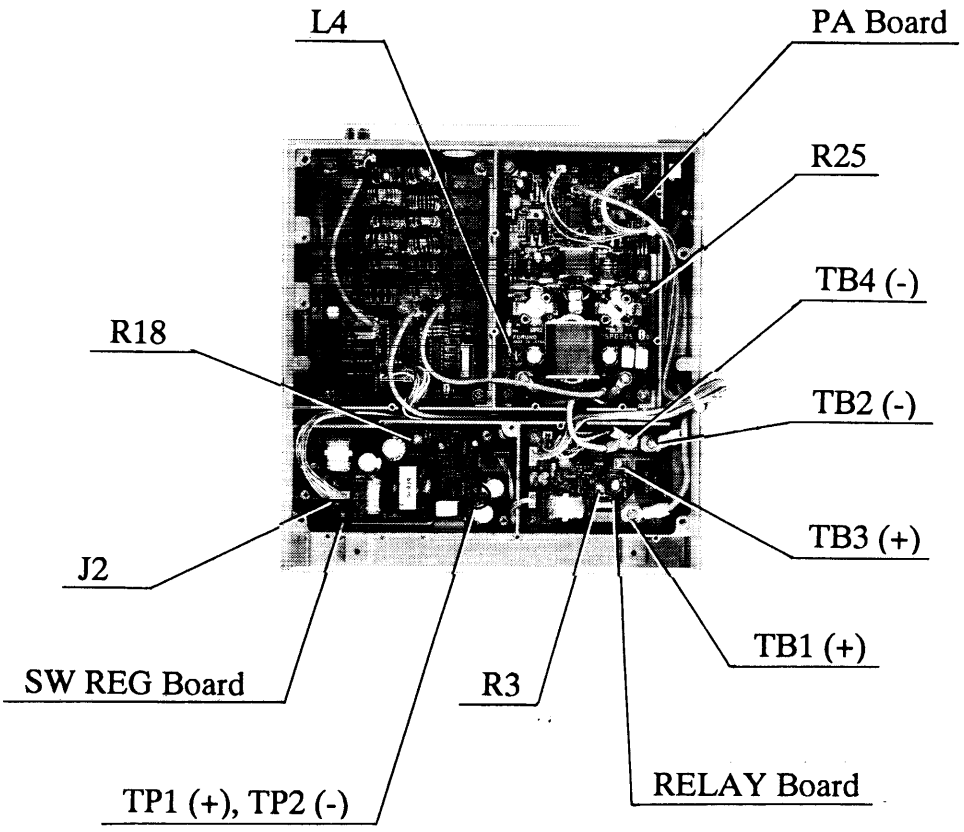
3.6 NB (Noise Blanker) Level

The threshold level of the noise blanker may be adjusted by R86 (p. 4-1) on the TX/RX board to eliminate pulse noise. The potentiometer is so adjusted that noise is effectively decreased with minimum signal distortion.

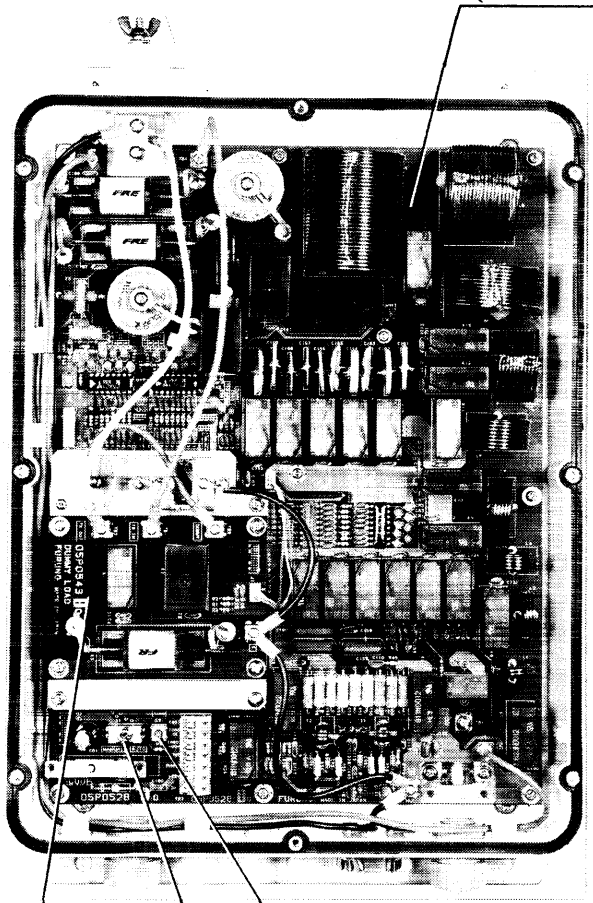
Chapter 4 Parts Location



T Photo No.1297



T Photo No.1297



T Photo No.1299

Chapter 5 Troubleshooting

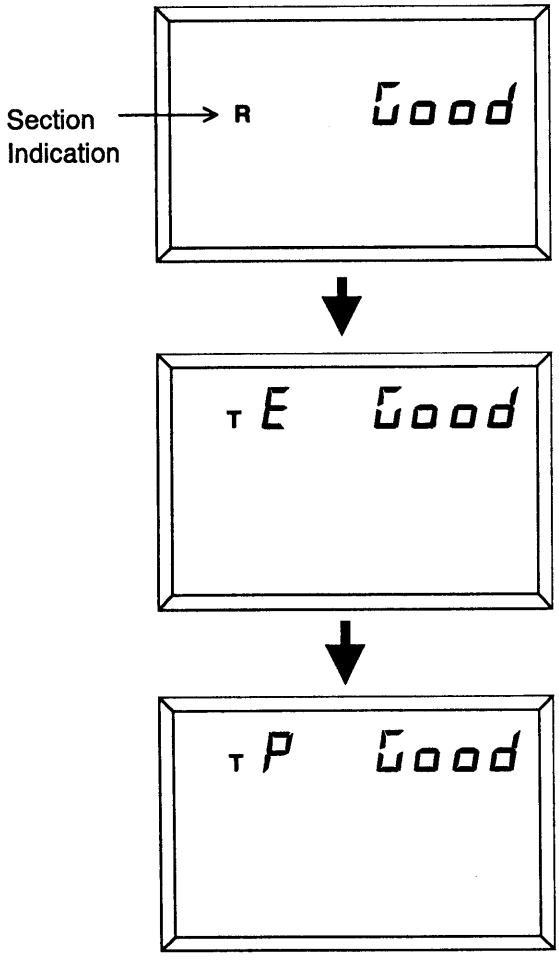
5.1 Self-test

Transceiver Test

This test checks the transceiver for proper operation. It should be conducted regularly to ensure proper operation. If the DSC terminal is connected, this test should be conducted along with the DSC terminal test. Before starting the test, set the RF GAIN control to maximum (fully clockwise).

Procedure

1. While pressing and holding down the **TX** key, turn on the power. All LCD segments appear.
2. Release the **TX** key. The FS-1562 starts self-testing and the display shows the following indications in order.



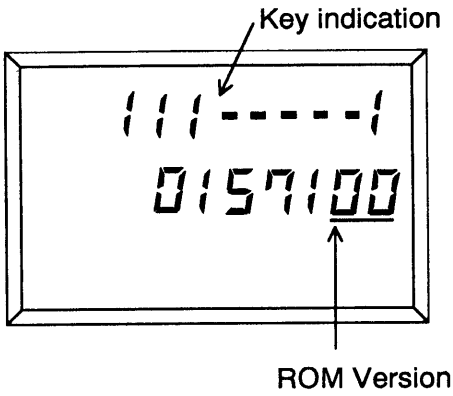
NOTE: *If fault is detected, "no Good" appears instead of "Good" and appropriate section indication blinks after completion of this test.*

LCD/Keyboard Test & ROM Version No. Confirmation

Procedure

1. While pressing and holding down the **ENT** key, turn on the power. All LCD segments appear.
2. Release the **ENT** key.
3. Press keys one by one. Check the indication on the upper hand-side of the LCD referring to the table below.

(Ex.) The **2** key is pressed.



All LCD segments reappear several seconds after the **2** key is pressed

Key	**1**	**2**	**3**	**TX**
Indication	0	1	2	3
Key	**4**	**5**	**6**	**RX**
Indication	4	5	6	7
Key	**7**	**8**	**9**	**RCL**
Indication	8	9	A	b
Key	**2182**	**0**	**ALARM**	**ENT**
Indication	C	d	E	F

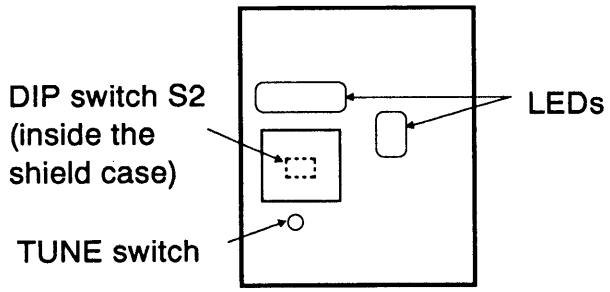
Antenna Coupler Test

The CPU and the relays which select capacitors and coils for tuning can be checked.

Procedure

1. Open the antenna coupler cover.
2. Open the shield cover inside the coupler.
3. Turn on no. 2 of the DIP switch S2.
4. Press the TUNE switch in the antenna coupler.
5. The 24 LEDs (CR1 to CR24) light one by one 1 second each.
6. Turn off no. 2 of the DIP switch S2.
7. Close the covers.

If CPU error is detected, CR1 lights for ROM error, CR2 for RAM error, CR3 for A/D converter error. (ROM/RAM/AD Converter incorporated in the CPU.)



COUPLER Board

5.2 Troubleshooting Matrix Table

General

This section provides a troubleshooting matrix table which helps the service technician to quickly identify defective pcbs or blocks. To use the table, locate the symptom in one of the three columns of the table. Possibly defective circuits and their likelihood of defect, indicated by a circle, star or triangle, corresponding to 70 – 80%, approximately 20% and a few percent respectively, are listed in each column. Numeral inside circle shows degree of possibility; the smaller the number, the higher the possibility of defect.

Note: 1. Check the input supply voltage (21.6 to 31.2 VDC) at transmission for proper voltage before using the matrix table.

2. Before using the flow chart, check both the cable connections inside the unit and external equipment connections.

Symptom		1. Power can not be supplied. 2. No reception. 3. No transmission.			4. Keyboard locks. 5. No automatic tuning 6. Remote control does not function.					
		1	2	3	4	5	6			
Main Unit	CPU PCB				①	△	☆			
	TX/RX PCB	△	①	①		☆	△			
	PRESELECTOR PCB		②							
	REMOTE PCB						①			
	TX FIL PCB		△	☆		☆				
	PA PCB			②		☆				
	RELAY PCB	①								
	SW REG PCB	②								
	Power Switch (VOLUME control)	△								
Antenna Coupler	COUPLER PCB		☆			①				
	DUMMY LOAD PCB									

Likelihood of defectiveness

○ ··· 70 to 80 %

☆ ··· 20 % approx.

△ ··· a few percent

Specifications

GENERAL

Communication System	Simplex or semi-duplex
Frequency Range	1.6 to 27.5 MHz (transmit) 0.1 to 30 MHz (receive)
Frequency Resolution	Tranmit: 100 Hz Receive: 10 Hz
Class of Emission	J3E (USB) J3E (LSB) H3E (AM compatible) F1B, J2B (for DSC, NBDP Terminal) F3C (weather facsimile, reception only)
Frequency Stability	±10 Hz
Number of Channels	User Channel: 200 ITU SSB/TELEX Channel 2182 kHz (single action)
Ambient Temperature Range	−20 to +55 ℃
Relative Humidity	93% at 40 ℃
Power Supply and Power Consumption	24 VDC +30 −10% Receive: 2 A Transmit (max.): 20 A
Frequency Selection	Key or dial encoder
Dimmer	Illumination for keyboard and LCD (four levels incl. off)
Dimensions and Mass	105 mm(W) × 256 mm(H) × 300 mm(D), 6.4 kg

RECEIVER

Receiving System

Double-conversion superhetelodyne
IF: 54.455 MHz and 455 kHz

Sensitivity

Input level to produce SINAD 20 dB

	J3E	H3E	F1B
0.1 to 0.3 MHz (*1)	+40	+54	
0.3 to 1.6 MHz (*1)	+25	+39	
1.6 to 4 MHz (*1)	+16	+30	+6
4 to 30 MHz (*2)	+3		−7

(dB μV)

(*1): at 10 Ω + 250 pF (*2): at 50 Ω

Selectivity

2.4 kHz at −6 dB (J3E)
6.0 kHz at −6 dB (H3E)
300 Hz at −6 dB (F1B)

Spurious Response

Better than 70 dB

Intermodulation

Better than 80 dB

Audio Output

Internal speaker: 1 W/8 Ω
External speaker: 5 W/4 Ω
Line output: 0 dBm/600 Ω

Other Features

RF Gain: Adjustable
Squelch: ON/OFF, Activated by voice/signal strength
Dimmer: OFF/Low/Medium/High
Speaker: ON/OFF (Handset always alive)
AGC: ON/OFF
Noise blanker: always ON

TRANSMITTER

Output Impedance	50 ohms
Output Power	J3E/H3E: 150 W F1B: 150 W (FEC mode: reduced to 75 W) Tune: 10 W approx.
Power Reduction	60 to 70 W
Controls	Output HI/LOW, test/send of two-tone alarm generator, 2182 kHz single action key

ANTENNA COUPLER

Tuning System	CPU controlled fully automatic tuning system
Frequency Range	1.6 to 27.5 MHz
Input Impedance	50 ohms (viewed from transceiver)
Antenna Required	7 to 30 meters wire or whip
Power Capability	150 W
Tuning Power	10 W
VSWR	Less than 1.5
Tuning Time	Within 2 to 15 seconds Within 0.5 seconds on pretuned bands
Dummy Load	Mounted in the COUPLER (10 ohms + 250 pF)
Power Requirement	15 VDC 0.6 A (supplied from transceiver)
Ambient Temperature	− 30 to +70 ℃ at 95% relative humidity
Construction	Waterproof plastic cabinet, stainless steel mount
Dimensions and Mass	297 mm(W) × 390mm(H) × 90mm(D), 3.1 kg approx.

FURUNO

ELECTRICAL PARTS LIST
電気部品表

1994- 2

MODEL	FS-15／75／1562			
UNIT	TRANSCEIVER 本体			PAGE
REF. DWG.	C5572-K10-B	BLOCK NO.	1B	1

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	PRINTED CIRCUIT BOARD	プリントキバン		
1B01A0001	05P0456C CPU		005-945-240	FS-15
	05P0456B CPU		005-945-230	FS-75
	05P0456A CPU		005-945-220	FS-1562
1B02A0002	05P0526B TX/RX		005-945-290	
1B03A0003	05P0520 TX FIL		005-944-900	
1B04A0004	05P0525 PA		005-944-930	
1B05A0005	05P0521 RELAY		005-944-920	
1B06A0006	05P0523 SW REG		005-944-910	
1B10A0010	05P0527 PRESELECTOR		005-945-170	
1B11A0011	05P0467 IF AMP		005-938-850	
1B13A0013	05P0466 NB DET		005-938-860	
1B14A0014	05P0540 ALC AMP		005-945-160	
1B15A0015	05P0457 REMOTE A		005-517-480	
1B16A0016	05P0458 REMOTE B		005-517-500	OPTION
1B17A0017	05P0459 CONTROL		005-517-520	OPTION
	ASSEMBLY	クミヒン		
	PANEL ASSY.		005-945-260	FS-75
	PANEL ASSY.		005-945-270	FS-15
	PANEL ASSY.		005-945-250	FS-1562
	DIODE	ダイオード		
1B07CR0001	TLO-124		000-126-711	OVEN
	JACK	ジャック		
1B07J0001	FM10RS(1)-6HA		000-113-456	
1B08J0002	M-BR-191	05S0872-0	000-125-916	
1B08J0003	FM-148S	K1000ショウフカ91/01	000-511-412	
1B08J0004	FM14-7S	K1000ショウフカ91/10	000-115-846	
1B08J0005	SRCN6A21-16S		000-508-669	
	RELAY	リレー		
1B05K0001	FRL274N H02401AD-01A	05S9073-0	000-133-672	
	LOUDSPEAKER	スピーカー		
1B07LS0001	66P15N20 05S0450		000-116-923	
	PLUG	プラグ		
1B07P0001	FM-10PS-6H		000-117-029	
1B08P0003	FM-148P		000-511-408	
1B08P0004	FM14-7P		000-113-345	
1B08P0005	SRCN6A21-16P		000-508-664	

UNIT	TRANSCEIVER	REF. DWG.	C5572-K10-B	BLOCK NO.	1B	2

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	TRANSISTOR	トランジスター		
1B06Q0001	IRFP150		000-121-823	
1B04Q0003	2SC2510		005-945-210	PA
1B04Q0004	2SC2510		005-945-210	PA
	RESISTOR	テイコウ		
1B07R0001	RK0971111(10KA)	05S0632-0	000-118-482	VOLUME
1B07R0002	RK09711100J0A(100KB)	05S0812-0	000-124-556	RF GAIN
	SWITCH	スイッチ		
1B07S0001	SRBMIL096A	05S0714	000-121-051	FREQ/CH
	CABLE WITH CONNECTOR	コネクターツキケーブル		
1B08W0701	PH/SAN03-100	05S0753-0	000-124-667	
1B08W0702	PH/SAN05-200-01	05S0809-0	000-124-668	
1B08W0703	PH/SAN03-200-01	05S0810-0	000-124-669	
1B08W0704	PH06S-300-01	05S0811-0	000-124-670	
1B08W0705	PH02S-300	05S0752-0	000-124-671	
1B08W0706	PH02S-300	05S0752-0	000-124-671	
1B08W0801	SMCD-1.25-20-300-N	08S0070-1	000-119-781	
1B08W0803	05S9034-0			
1B08W0804	PH04D-100	05S0752-0	000-130-434	
1B08W0805	PH05D-500	05S0752-0	000-124-969	
1B08W0806	PH06D-450	05S0752-0	000-130-435	
1B08W0807	PH06D-450	05S0752-0	000-130-436	
1B08W0808	05S0461-0	05S0461-0	000-113-468	
1B08W0809	PH02D-350	05S0752-0	000-130-437	
1B08W0810	L-500	05S0046-0	000-113-466	
1B08W0811	L-160	07S0046-0	000-522-075	
1B08W0812	L-160	07S0046-0	000-522-075	
1B08W0813	PH10D-500	05S0752-0	000-130-438	
1B08W0814	05S0415-1		000-113-469	
1B08W0815	L-160	07S0047-0	000-522-099	
1B08W0816	05S0942-0	05S0942-0	000-130-439	
1B08W0817	05S0846-0	05S0846-0	000-125-319	OPTION FOR FS-1562
1B08W0818	05S0928-0	05S0928-0	000-130-440	
1B08W0819	PH14D-150	05S0752-0	000-130-441	
1B08W0820	L-200	07S0046-0	000-522-003	
1B08W0821	L-580	07S0046-0	000-522-079	
1B08W0822	05S0943-0	05S0943-0	000-130-442	

FURUNO

ELECTRICAL PARTS LIST
電気部品表

1994- 2

MODEL	FS-15/75/1562			
UNIT	ANTENNA COUPLER アンテナカプラー			PAGE
REF. DWG.	C5572-K03-B	BLOCK NO.	2B02	3

SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	PRINTED CIRCUIT BOARD	プリントキバン		
2B01A0001	05P0528 COUPLER	AT-1560	005-944-950	
2B03A0003	05P0543 DUMMY LOAD	AT-1560	005-944-980	
	CAPACITOR	コンデンサー		
2B03C0001	DD306F104Z25	00S0130-0	000-108-968	
2B04C0001	DA-20 250PF		000-258-611	
2B03C0002	DD306F104Z25	00S0130-0	000-108-968	
2B03C0003	DD306F104Z25	00S0130-0	000-108-968	
2B03C0004	DD306F104Z25	00S0130-0	000-108-968	
2B03C0005	DD306F104Z25	00S0130-0	000-108-968	
	RELAY	リレー		
2B01K0001	FBR623ND012	05S0933-0	000-130-476	
2B03K0001	FBR611ND012	05S0934-0	000-130-477	
2B01K0002	FBR623ND012	05S0933-0	000-130-476	
2B03K0002	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0003	FBR623ND012	05S0933-0	000-130-476	
2B03K0003	FRD12021		000-131-385	
2B01K0004	FBR623ND012	05S0933-0	000-130-476	
2B01K0005	FBR623ND012	05S0933-0	000-130-476	
2B01K0006	FBR623ND012	05S0933-0	000-130-476	
2B01K0007	FBR623ND012	05S0933-0	000-130-476	
2B01K0008	FBR623ND012	05S0933-0	000-130-476	
2B01K0009	FBR623ND012	05S0933-0	000-130-476	
2B01K0010	FBR623ND012	05S0933-0	000-130-476	
2B01K0011	FBR623ND012	05S0933-0	000-130-476	
2B01K0012	FBR623ND012	05S0933-0	000-130-476	
2B01K0013	FBR623ND012	05S0933-0	000-130-476	
2B01K0014	FBR623ND012	05S0933-0	000-130-476	
2B01K0015	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0016	FBR623ND012	05S0933-0	000-130-476	
2B01K0017	FBR623ND012	05S0933-0	000-130-476	
2B01K0018	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0019	G4W-2212PUSTV5-DC12V		000-113-485	
2B01K0020	FBR623ND012	05S0933-0	000-130-476	
2B01K0021	FBR623ND012	05S0933-0	000-130-476	
2B01K0022	FBR623ND012	05S0933-0	000-130-476	
2B01K0024	FBR611ND012	05S0934-0	000-130-477	
2B01K0025	FBR611ND012	05S0934-0	000-130-477	
2B01K0026	FBR611ND012	05S0934-0	000-130-477	
2B01K0027	FRD-12023		000-106-069	
2B01K0028	FRD-12023		000-106-069	
2B01K0029	G6B-2114P-US-AP-12V		000-114-406	

UNIT	ANTENNA COUPLER	REF. DWG.	C5572-K03-B	BLOCK NO.	2B02	4

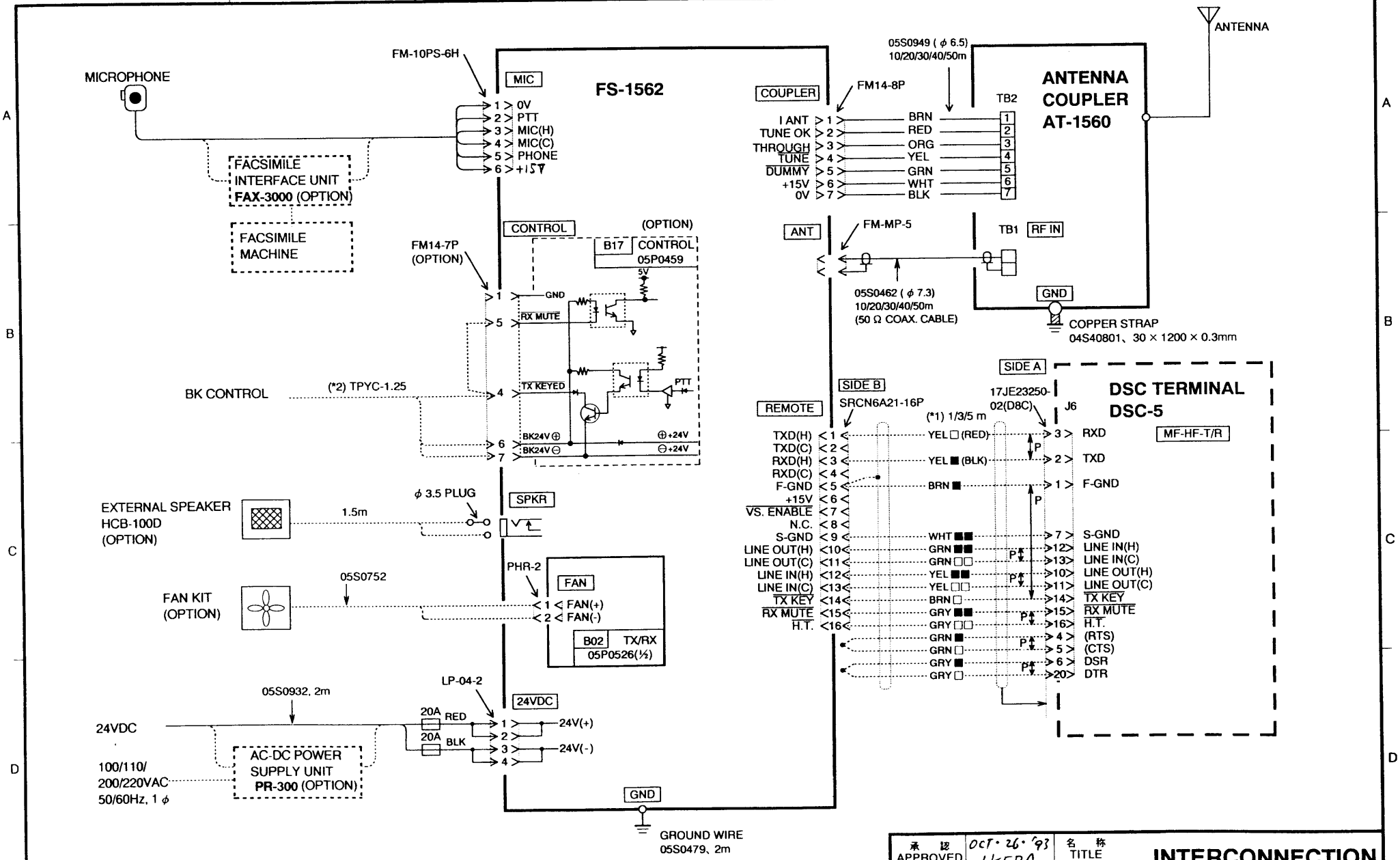
SYMBOL 記号	TYPE 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
	RESISTOR	テイコウ		
2B03R0001	ERD-16TJ2R2	0.16W 2.2	000-330-823	
2B04R0001	RFC-10010	チップノミ 10オーム 100W	000-121-347	
2B03R0002	ERD-16TJ2R2	0.16W 2.2	000-330-823	
2B03R0003	ERD-16TJ2R2	0.16W 2.2	000-330-823	
	CABLE WITH CONNECTOR	コネクターツキケーブル		
2B02W0001	PH03D-100	05P0572	000-132-166	
2B02W0002	05S0956-0		000-132-167	
2B02W0003	05S0957-0		000-132-168	
2B02W0004	05S0958-0		000-132-169	
2B02W0005	05S0947-0		000-130-473	
2B02W0006	05S0948-0		000-130-474	

- END -

List of Interconnection and Schematic Diagrams

Name	Block No.	Type	Dwg. No.	Page
Interconnection Diagram (1/2)		FS-1562	E5572-C01	S-1
Interconnection Diagram (2/2)		SSB + DB-500/ DP-5/DSC-5	E5572-C02	S-2
Block Diagram			C5573-B01	S-3
General			C5572-K10	S-4
CPU Board	1B01	05P0456	C5548-K02	S-5
TX/RX Board	1B02	05P0526	C5572-K09	S-6
TX FIL Board	1B03	05P0520	C5572-K08	S-7
PA Board	1B04	05P0525	C5572-K07	S-8
Relay Board	1B05	05P0521	C5572-K06	S-9
SW REG Board	1B06	05P0523	C5572-K05	S-10
VCO Board	1B09	05P0526	C5572-K04	S-11
Preselector Board	1B10	05P0527	C5572-K11	S-12
IF AMP Board	1B11/ 1B12	05P0467	C5548-K07	S-13
NB DET Board	1B13	05P0466	C5548-K12	S-14
ALC AMP Board	1B14	05P0540	C5572-K12	S-15
Remote (A) Board	1B15	05P0457	C5548-K08	S-16
Remote (B) Board (option)	1B16	05P0458	C5548-K09	S-17
Control Board (option)	1B17	05P0459	C5548-K11	S-18
Coupler Board	2B01	05P0528	C5572-K01	S-19
Antenna Coupler	2B02	AT-1560	C5572-K03	S-20
Dummy Load Board	2B03	05P0543	C5572-K02	S-21

FURUNO



(*1) 05S0783: WITHOUT CONNECTORS
05S0784: WITH D-SUB CONNECTORS AT BOTH ENDS

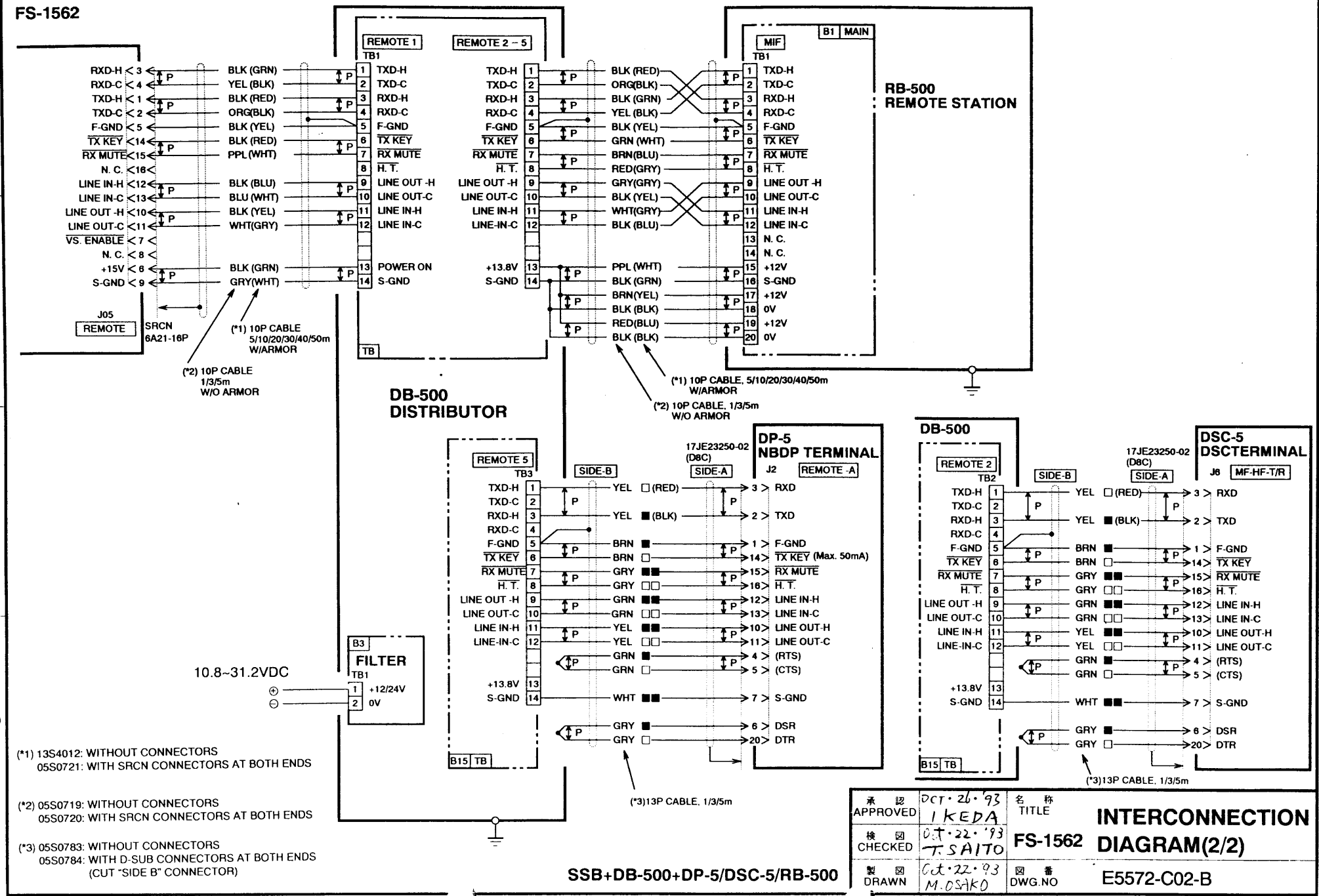
(*2) SHIPYARD SUPPLY

承認 APPROVED	Oct·26·'93 IKEDA	名称 TITLE	INTERCONNECTION DIAGRAM (1/2)
検図 CHECKED	Oct·22·'93 T.SAITO	FS-1562	
製図 DRAWN	Oct·22·'93 M.OSAKO	図番 DWG.NO	E5572-C01-C

FURUNO ELECTRIC CO., LTD.

9-1

FURUNO

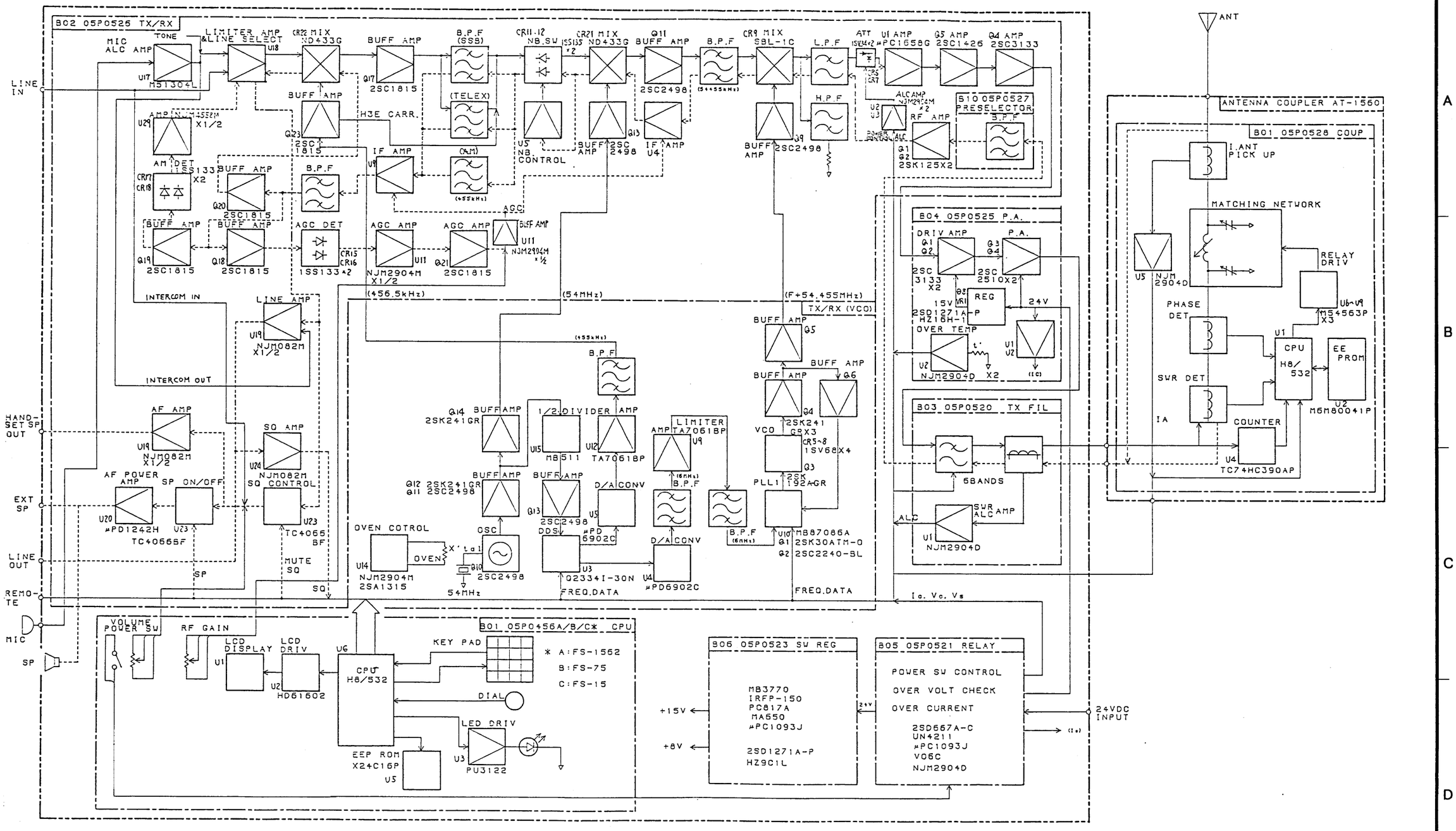


承認 APPROVED	OCT・26・'93 IKEDA	名称 TITLE	INTERCONNECTION DIAGRAM(2/2)
検図 CHECKED	OCT・22・'93 T.SAITO	FS-1562	
製図 DRAWN	Oct・22・'93 M.OSAKO	図番 DWG.NO	E5572-C02-B

FURUNO ELECTRIC CO., LTD.

FURUNO

S-3



ITEM	NAME	MATERIAL	Q'TY	DWG. NO.	REMARKS

承認 APPROVED	July·26'93 M.IKEDA	三角法 THIRD ANGLE		名称 TITLE	ブロック図 BLOCK DIAGRAM
検図 CHECKED	JULY·19·'93 Y.HATA	尺度 SCALE	/		
製図 DRAWN	JUL·15·'93 M.USUKO	重量 WEIGHT	kg	図番 DWG.NO	C5573-B01-B

FS-15
FS-75
FS-1562

FURUNO ELECTRIC CO., LTD.

FURUNO

B08

B07

B01 CPU ※05P0456A/B/C

※05P0456A FOR FS-1562
05P0456B FOR FS-75
05P0456C FOR FS-15

B06 SW REG 05P0523

B05 RELAY 05P0521

B04 P.A. 05P0525

B09 VCO 05P0526 (2/2)

B11 IF AMP 05P0467

B12 IF AMP 05P0467

B13 NB DET 05P0466

B14 ALC AMP 05P0540

B15 REMOTE (A) 05P0457

B17 CONTROL 05P0459

STANDARD FOR FS-75/15
OPTION FOR FS-1562

B02 TX/RX 05P0526 (1/2)

B10 PRESELECTOR 05P0527

B03 TX FIL 05P0520

S01 FREQ/CH

VOLUME

RF GAIN

CR1 TLO-124

MIC

OVEN

SPKR

(OPTION) FAN

REMOTE

CONTROL

(STANDARD FOR FS-75/15
OPTION FOR FS-1562)

COUPLER

H.P.A (OPTION)

GND

ANT

24VDC

承認 APPROVED	May·31·'93 M.IKEDA	名称 TITLE	FS-1562 総合回路図 FS-15/75 GENERAL
検図 CHECKED	May·31·'93 T.SAITO		
製図 DRAWN	May·31·'93 T.NISHINO	図番 DWG.NO.	C5572-K10-B

B01 CPU
05P0456/A/B/C ※1

U1 LCD PANEL
05S0805

U2
HD61602

U6
HD647532CP
(H8/532)
84P PLCC

※U5
X2404P
OR
X24C16P

U4 L78LR05C-LR

※1	MODEL	P.C.B NAME	※ U5	U6 PROGRAM NO
	FS-1502	05P0456	X2404P	055D1441××
	FS-1562	05P0456A	X24C16P	055D1571××
	FS-75	05P0456B	X24C16P	055D1581××
	FS-15	05P0456C	X24C16P	055D1591××
	FS-1552	05P0456D	X24C16P	055D1691××

FS-1552
FS-1562
FS-15/75
FS-1502

承認 APPROVED		名称 TITLE	B01 05P0456 CPU
検図 CHECKED	Nov.20.'91 M.IKEDA		
製図 DRAWN	Nov.20.'91 Y.HAMADA	図番 DWG.NO.	C5548 – K02 – C

FURUNO ELECTRIC CO., LTD.

B02 TX/RX 05P0526 (1/2)

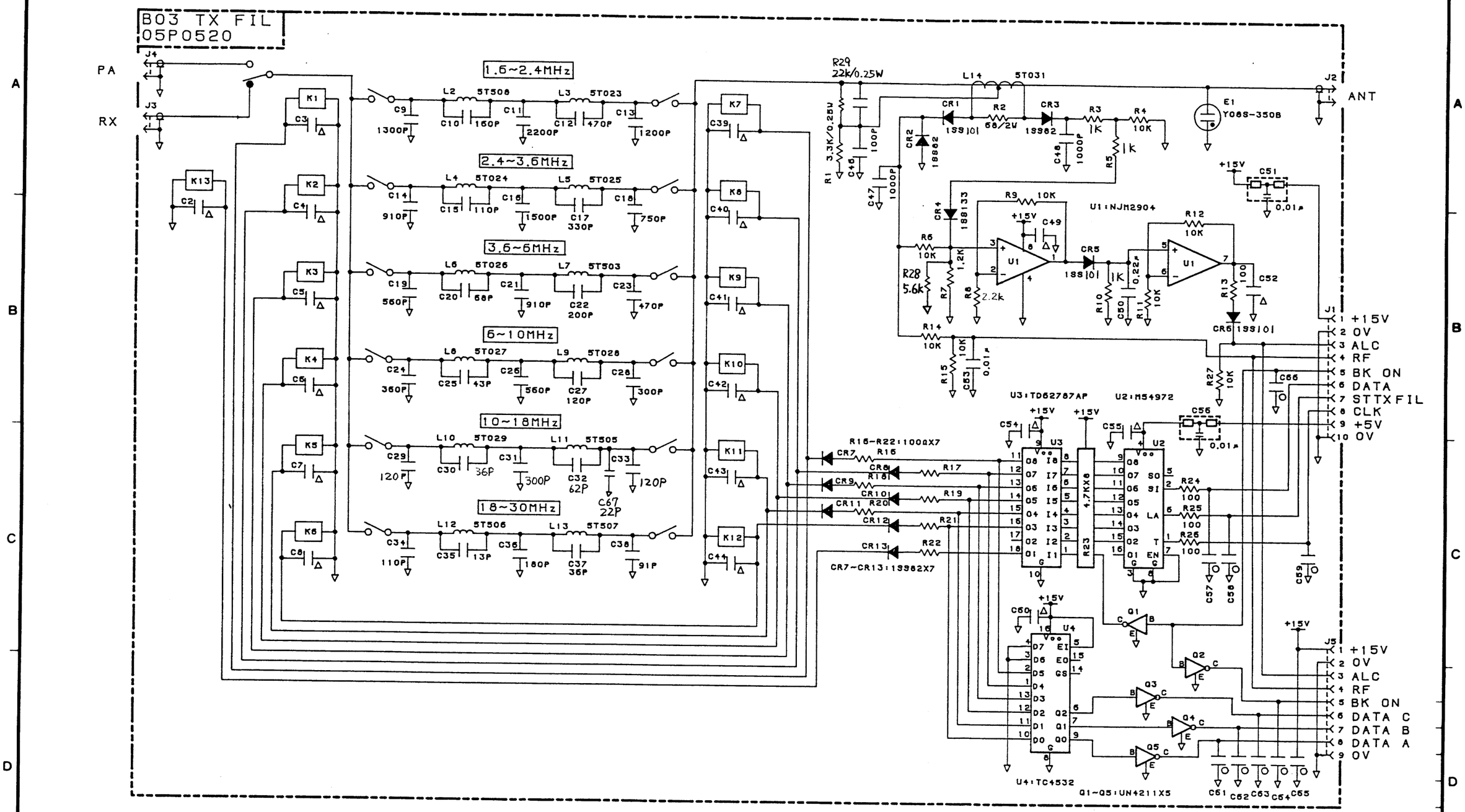
B09 VCO 05P0526 (2/2)

OPTION FOR FS-1562

NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
(2) MARKS ○: 1000pF/50V
△: 0.01μF/50V
□: 0.1 μF/25V

FS-1562
FS-15/75

承認 APPROVED	May 31 '93 M. IKEDA	名称 TITLE	TX/RX 基板 TX/RX BOARD (1/2)
検図 CHECKED	May 31 '93 T. SAITO	1B02 05P0526	
製図 DRAWN	May 31 '93 T. NISHIZAKI	図番 DWG. NO.	C5572-K09-C



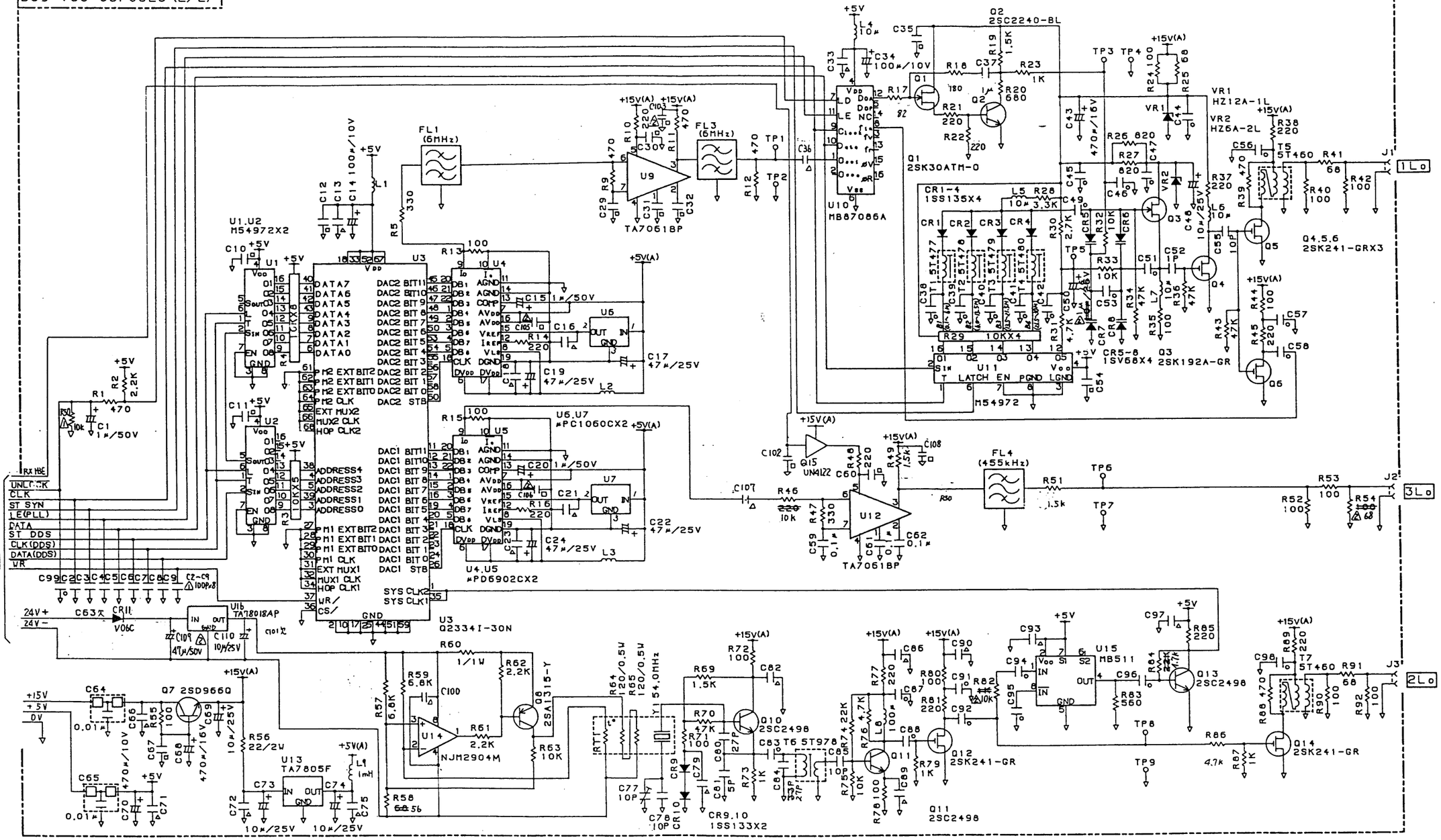
NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
(2) MARKS ○: 1000pF/50V
△: 0.01μF/50V

FS-1562
FS-15/75

承認 APPROVED	May 31. '93 M. IKEDA	名称 TITLE	TX FIL 基板 TX FIL BOARD
検図 CHECKED	May 31. '93 T. SAITO	1B03 05P0520	
製図 DRAWN	May 31. '93 T. NISHINO	図番 DWG. NO.	C5572-K08-B

FURUNO ELECTRIC CO., LTD.

B09 VCO 05P0526 (2/2)



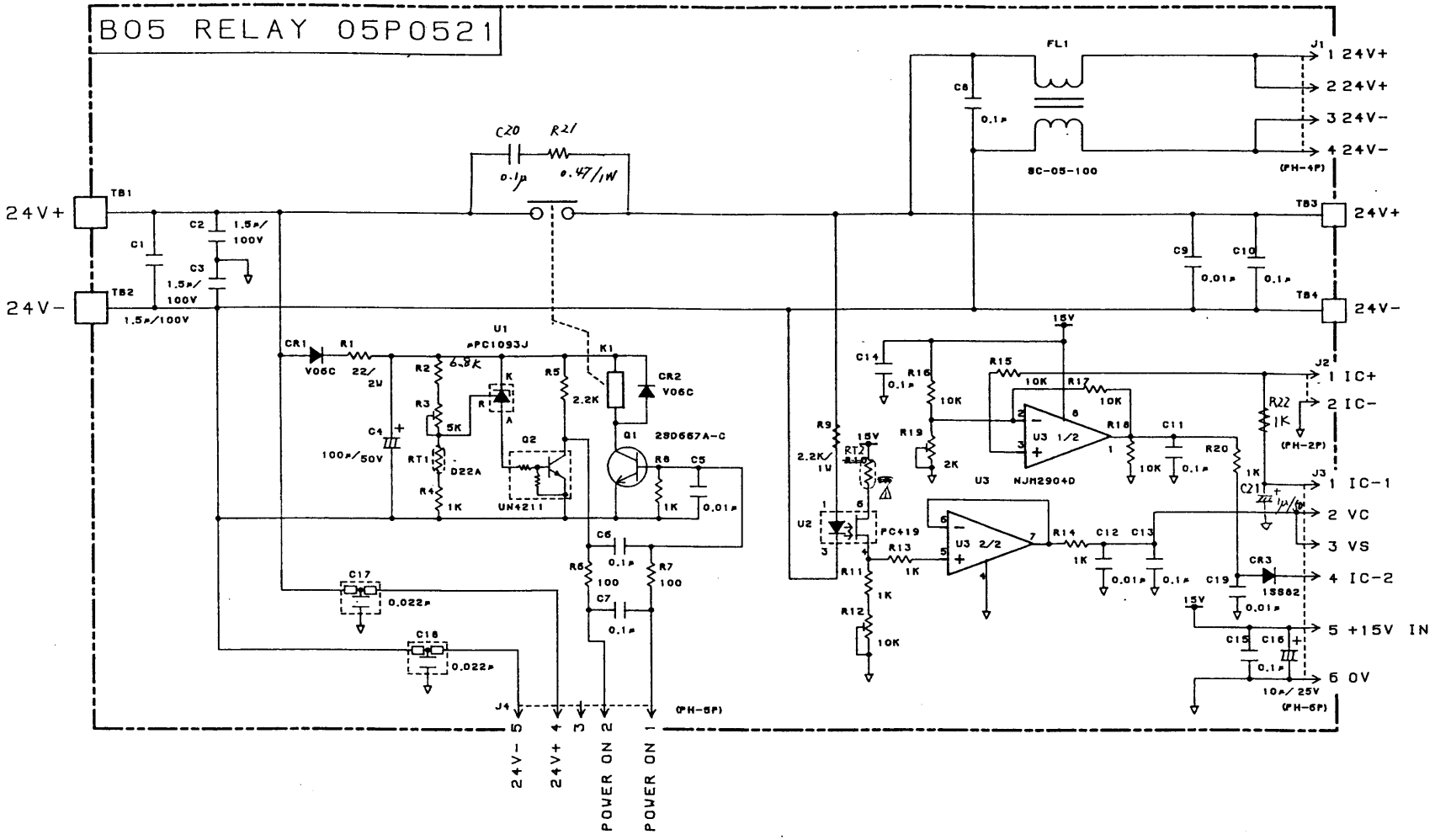
NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
(2) MARKS○: 1000pF/50V
△: 0.01μF/50V
□: 0.1 μF/25V

承認 APPROVED	May 31.'93 M.IKEDA	名称 TITLE	VCO 基板 VCO BOARD (2/2)
検図 CHECKED	May.31.'93 T.SAITO	1B09 05P0526	
製図 DRAWN	May.31.'93 T.NISHINO	図番 DWG.NO.	C5572-K07-C

FS-1562
FS-15/75

FURUNO ELECTRIC CO., LTD.

FURUNO

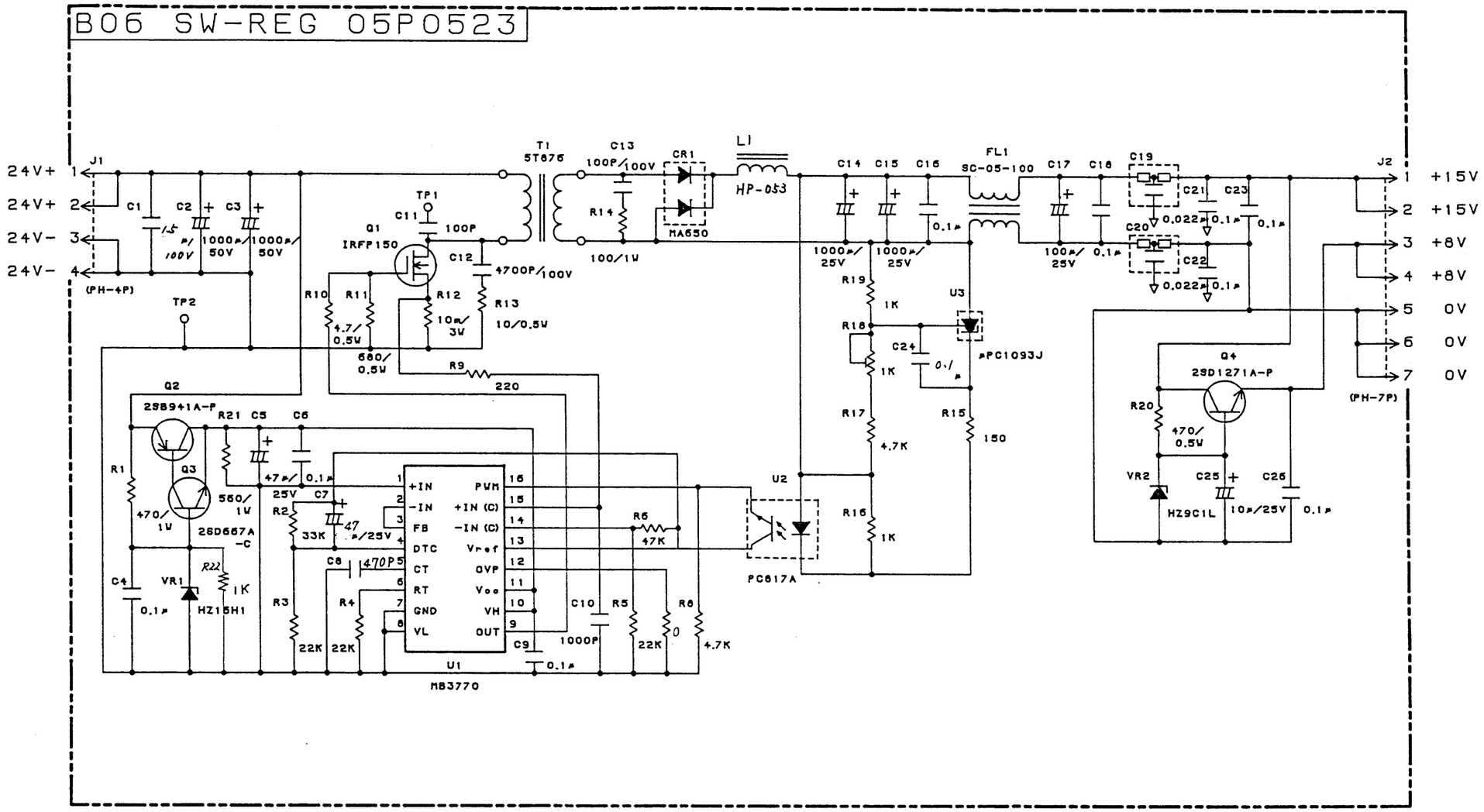


NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
UNLESS OTHERWISE NOTED.

FS-1562
FS-15/75

承認 APPROVED	May 31 '95	名称 TITLE	RELAY 基板 RELAY BOARD
検図 CHECKED	May 31 '95 T. SAITO	1B05 05P0521	
製図 DRAWN	May 31 '95 T. NISHIYAMA	図番 DWG. NO.	C5572-K06-C

FURUNO ELECTRIC CO., LTD.

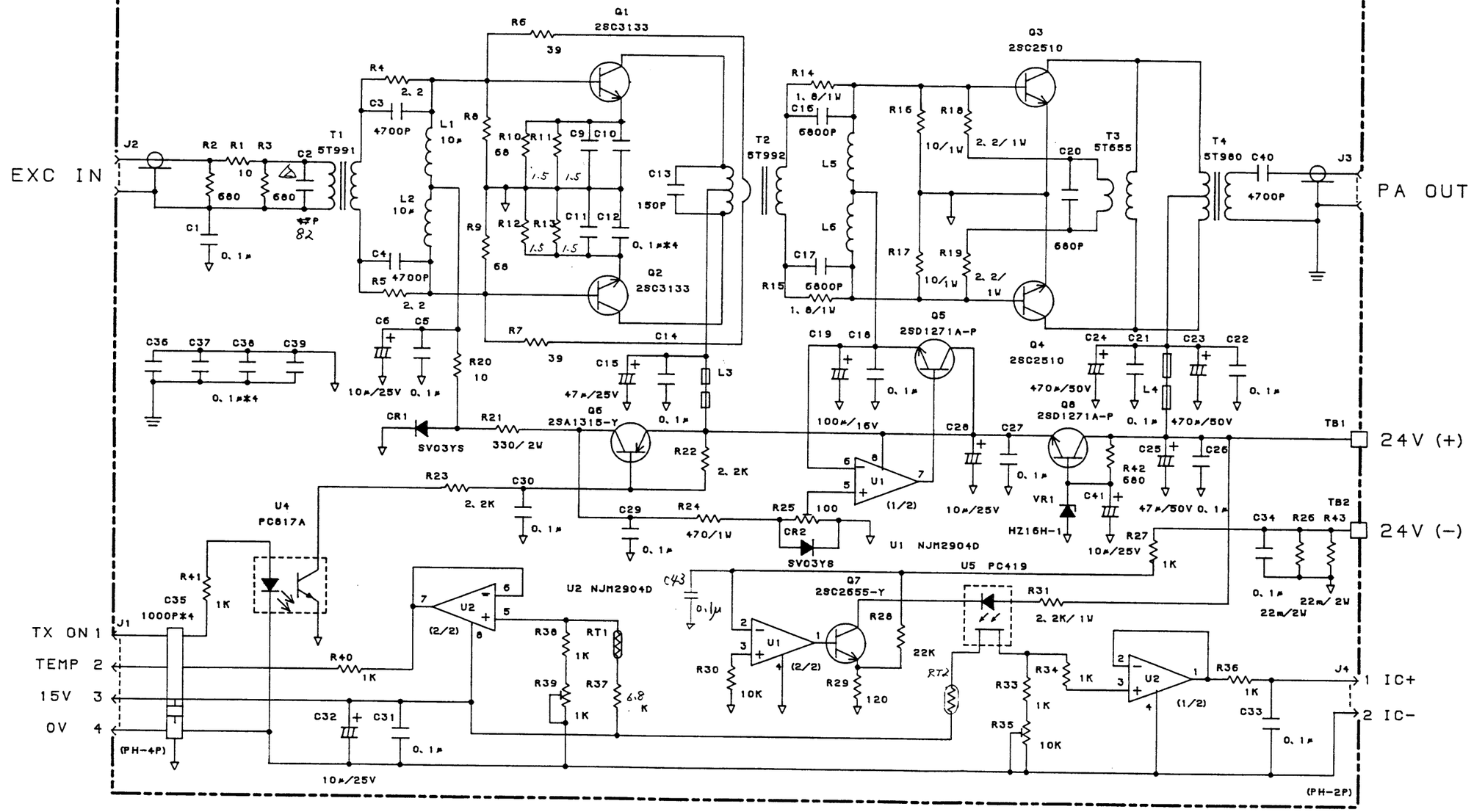


NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
UNLESS OTHERWISE NOTED.

FS-1562
FS-15/75

承認 APPROVED	May·31·'93 M. IKEDA	名称 TITLE	SW REG 基板 SW REG BOARD
検図 CHECKED	May 31 '93 T. SAITO	1B06 05P0523	
製図 DRAWN	May·31·'93 T. NISHI	図番 DWG. NO.	C5572-K05-B

B04 PA C5P0525

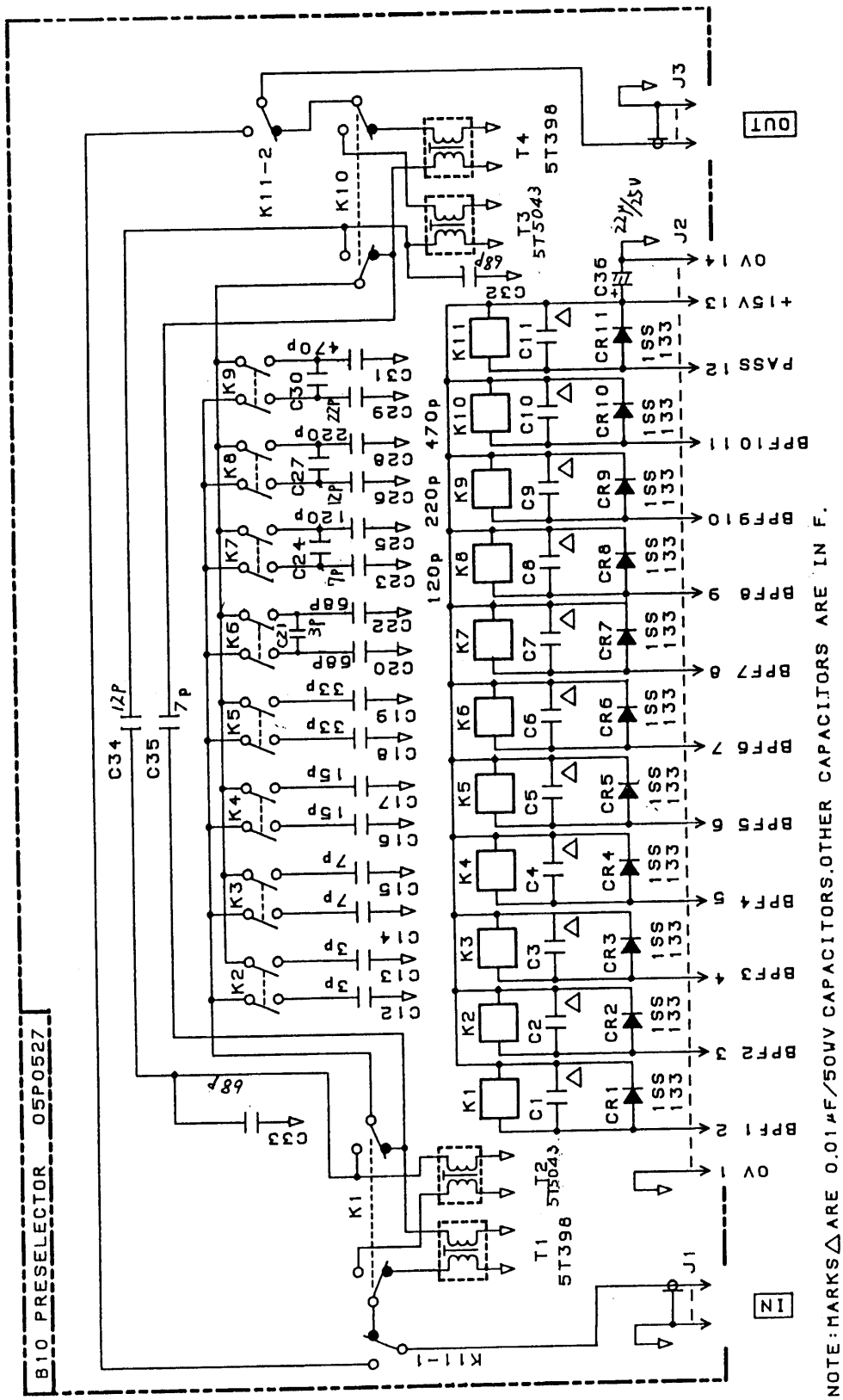


NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.

FS-1562
FS-15/75

承認 APPROVED	May·31·'93 M. IKEDA	名称 TITLE	PA 基板 PA BOARD
検図 CHECKED	May·31·'93 T.SAITO	1B04 05P0525	
製図 DRAWN	May·31·'93 T.NISHINO	図番 DWG. NO.	C5572-K04-C

FURUNO ELECTRIC CO., LTD.

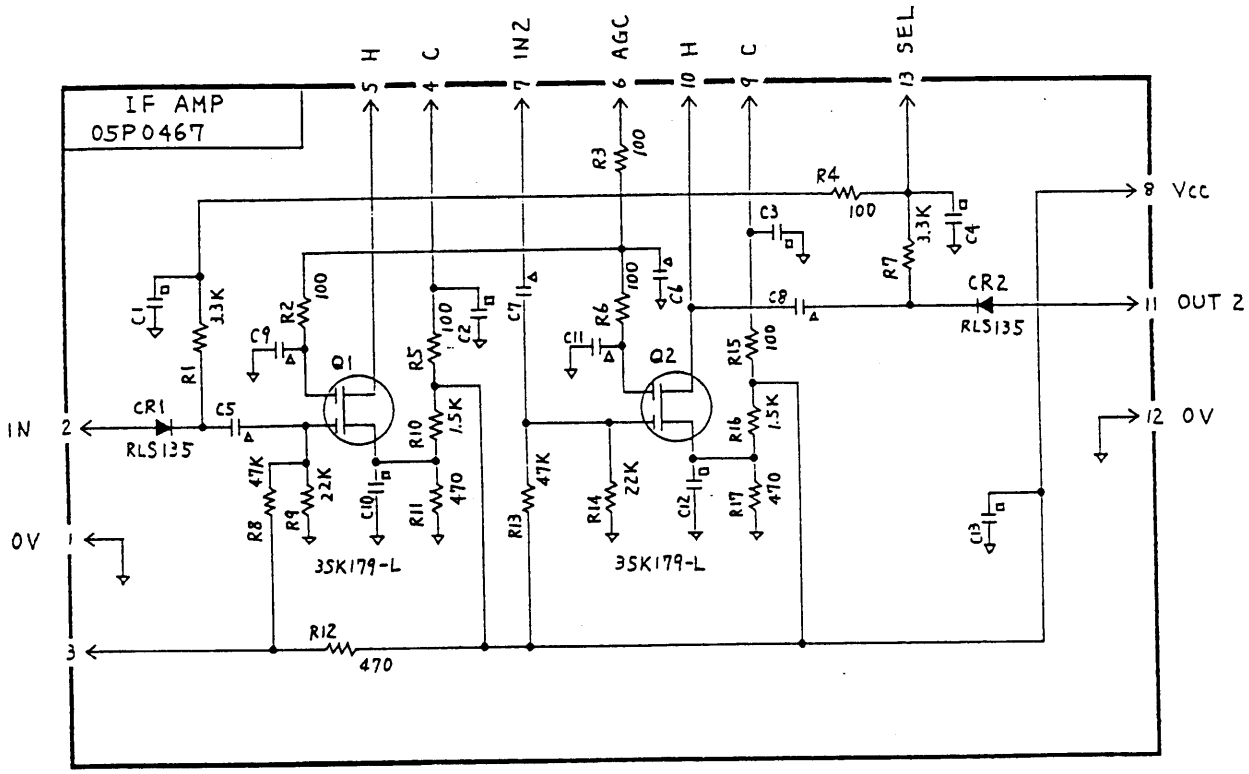


FS-1562
FS-15/75

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	May 31 '93 M. IKEDA	三角法 THIRD ANGLE PROJECTION		名称 TITLE	プリセレクター基板
検図 CHECKED	May 31 '93 T. SAITO	尺度 SCALE	/	1B10 05P0527	PRESELECTOR BOARD
製図 DRAWN	May 31 '93 T. NISHINO	重量 WEIGHT	kg	図番 DWG.NO.	C5572-K11-C

FURUNO ELECTRIC CO., LTD.

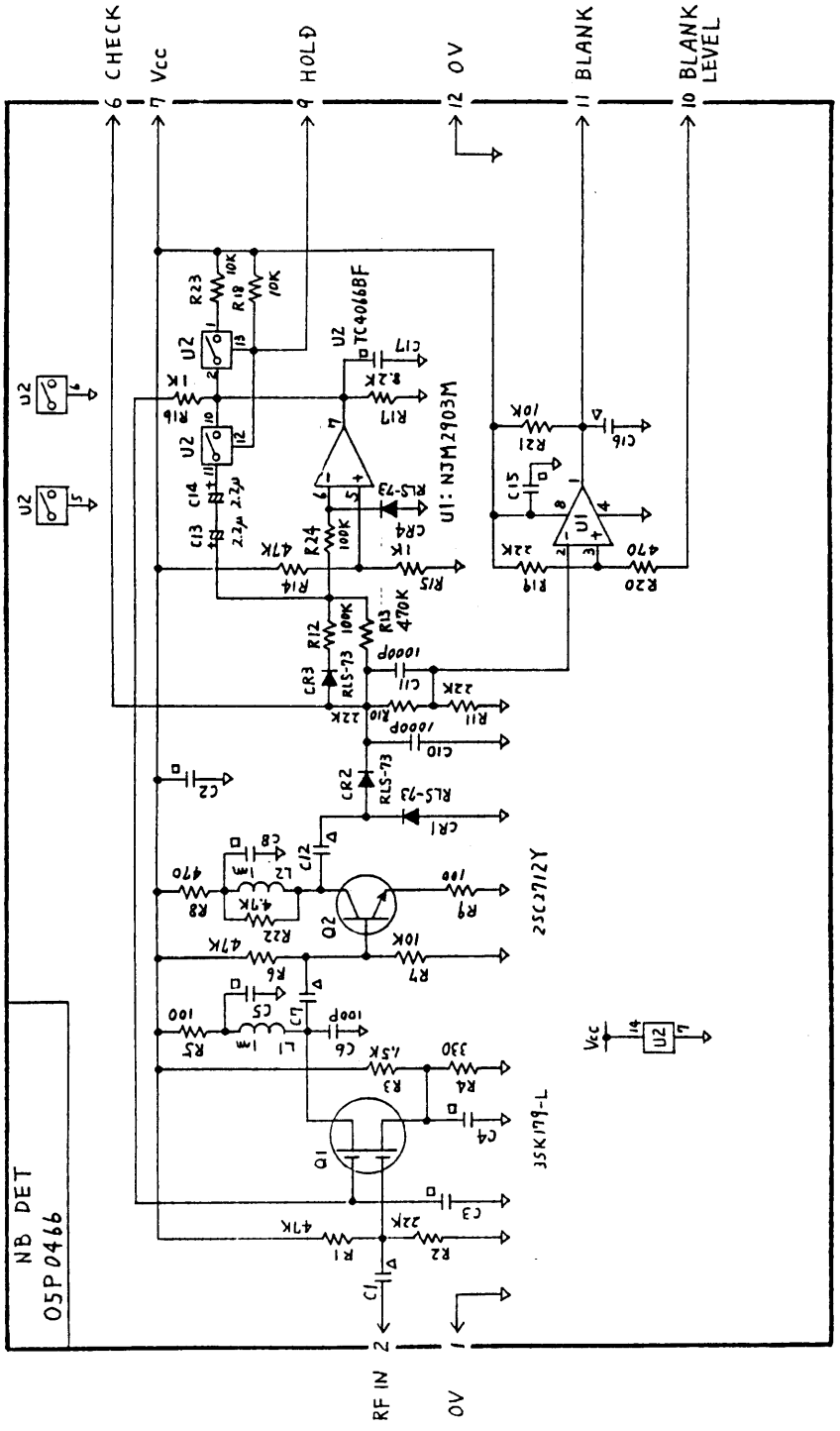


FS-1562 FS-15/75	B11 B12
FS-1502/ 1552	B12/B13

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	Nov.22.'91 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	05P0467 IF AMP
検図 CHECKED	Nov.20.'91 M.IKEDA	尺度 SCALE	/		
製図 DRAWN	Nov.20.'91 Y.HAMADA	重量 WEIGHT	kg	図番 DWG.NO.	C5548 – K07 – C

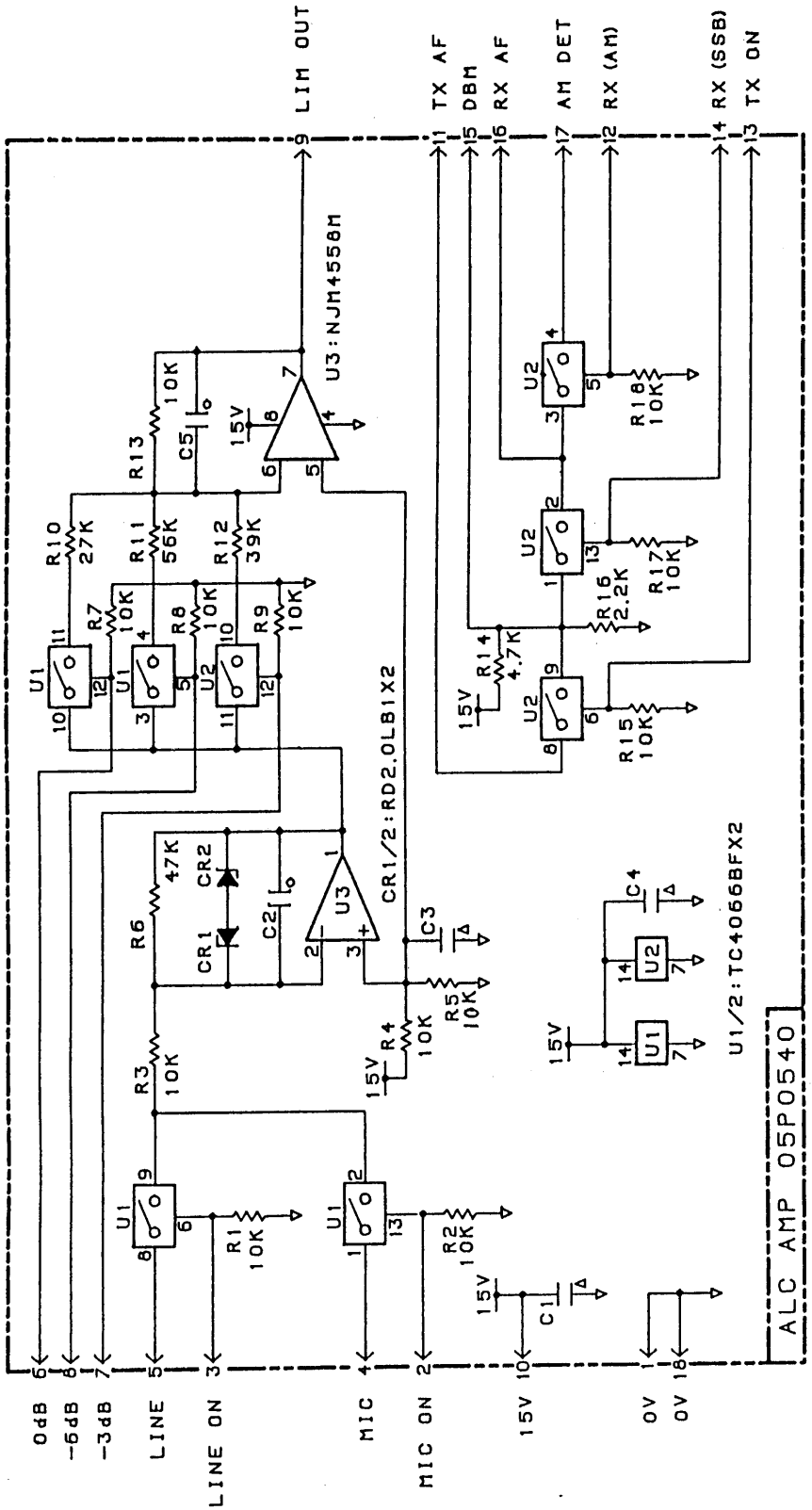
FURUNO ELECTRIC CO., LTD.



FS-1562 FS-15/75	B13
FS-1502/ 1552	B14

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED		三角法 THIRD ANGLE PROJECTION		名称 TITLE	05P0466 NB DET
検図 CHECKED	Nov.20.'91	尺度 SCALE	/		
製図 DRAWN	Nov.20.'91	重量 WEIGHT	kg	図番 DWG.NO.	C5548 – K12 – C

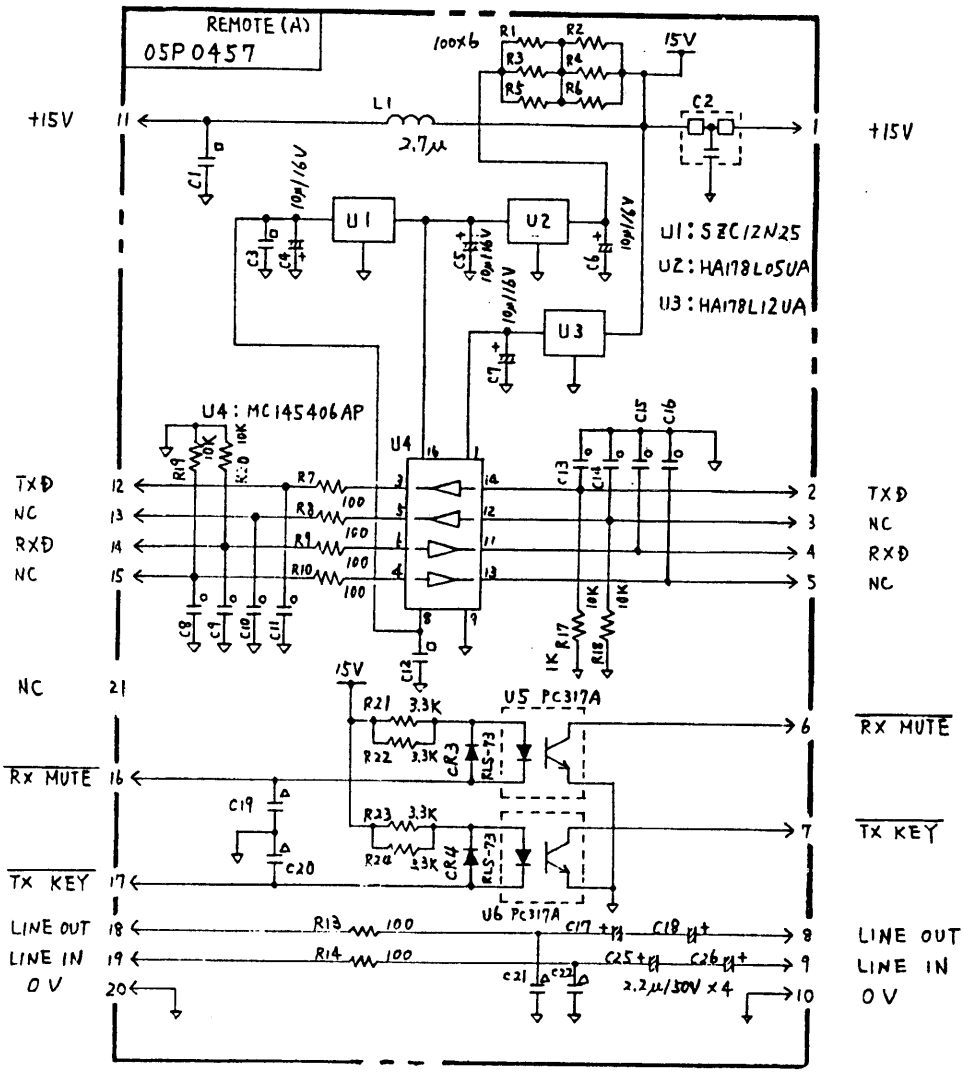


FS-1562
FS-15/75

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	May 31.'93 M. IKEDA	三角法 THIRD ANGLE PROJECTION		名称 TITLE	ALCアンプ基板 ALC AMP BOARD
検図 CHECKED	May.31.'93 T.SAITO	尺度 SCALE	/	1B14 05P0540	
製図 DRAWN	May.31.'93 T.NISHIMO	重量 WEIGHT	kg	図番 DWG.NO.	C5572-K12-A

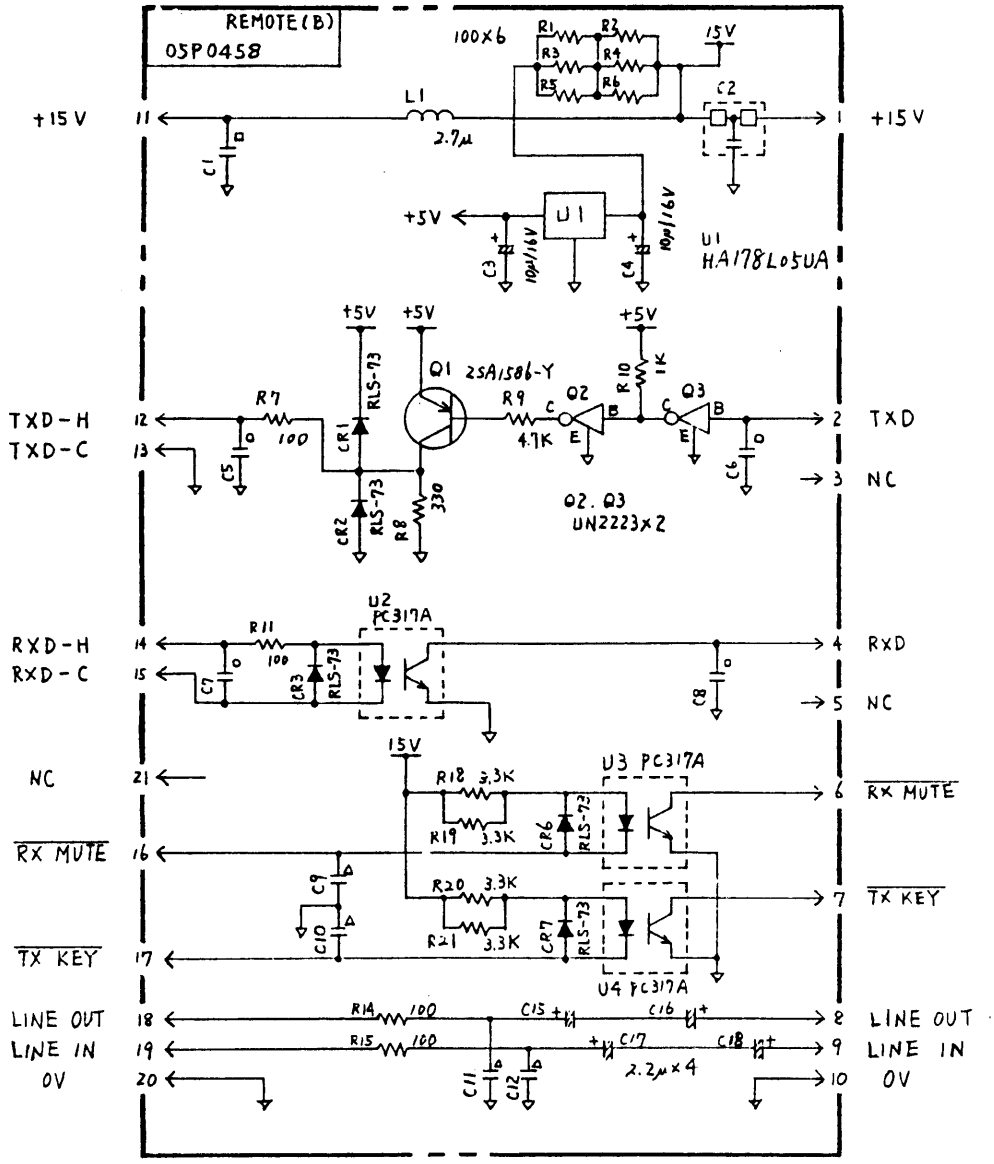
FURUNO ELECTRIC CO., LTD.



MODEL	ブロック番号 BLOCK No.
DB-500	B8/B10/B12/B17/B19
FS-1502/1552	B9
FS-1562 FS-15/75	B15

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

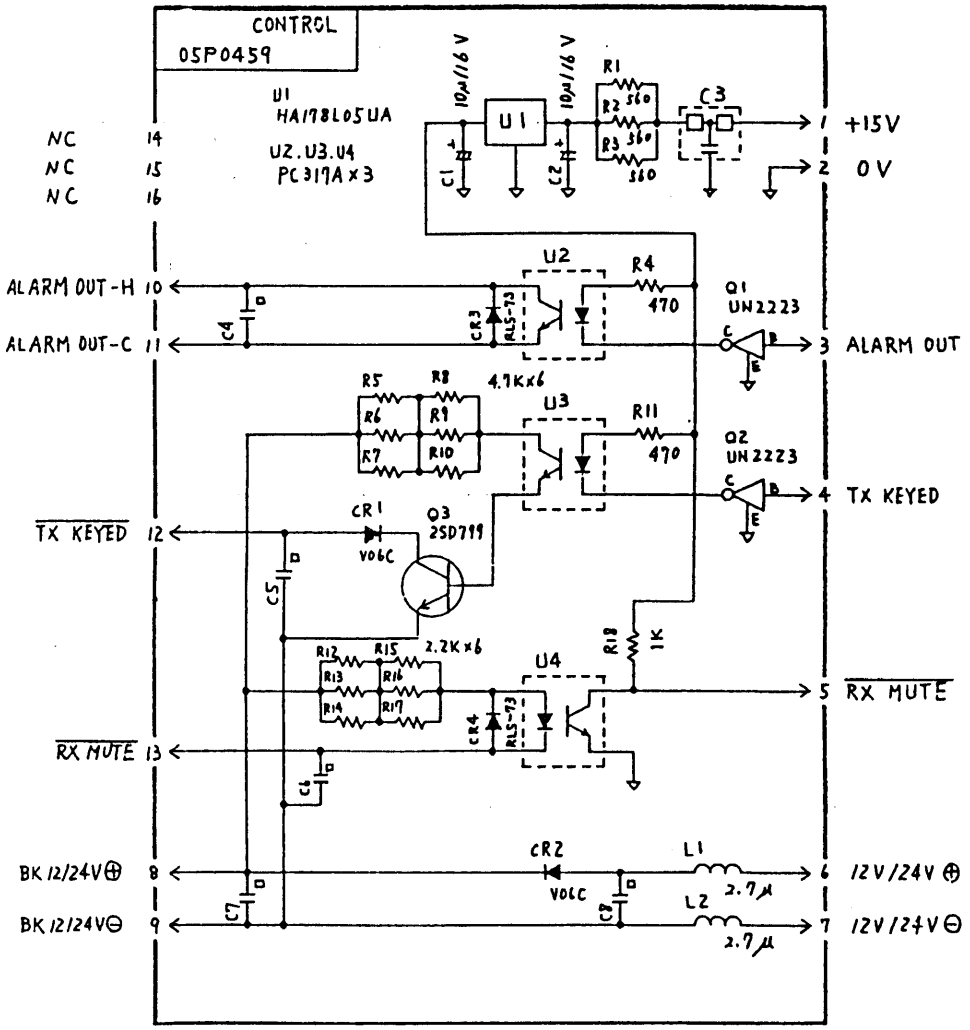
承認 APPROVED	[illegible] T. KAWANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	05P0457 REMOTE (A)
検図 CHECKED	Nov. 20. '91 M. IKEDA	尺度 SCALE	/		
製図 DRAWN	[illegible]. 20. '91 Y. HAMANO	重量 WEIGHT	kg	図番 DWG. NO.	C5548 – K08 – D



MODEL	ブロック番号 BLOCK No.
DB-500	B9/B11/B13/B18/B20
FS-1502/1552	B10
FS-1562 FS-15/75	B16

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

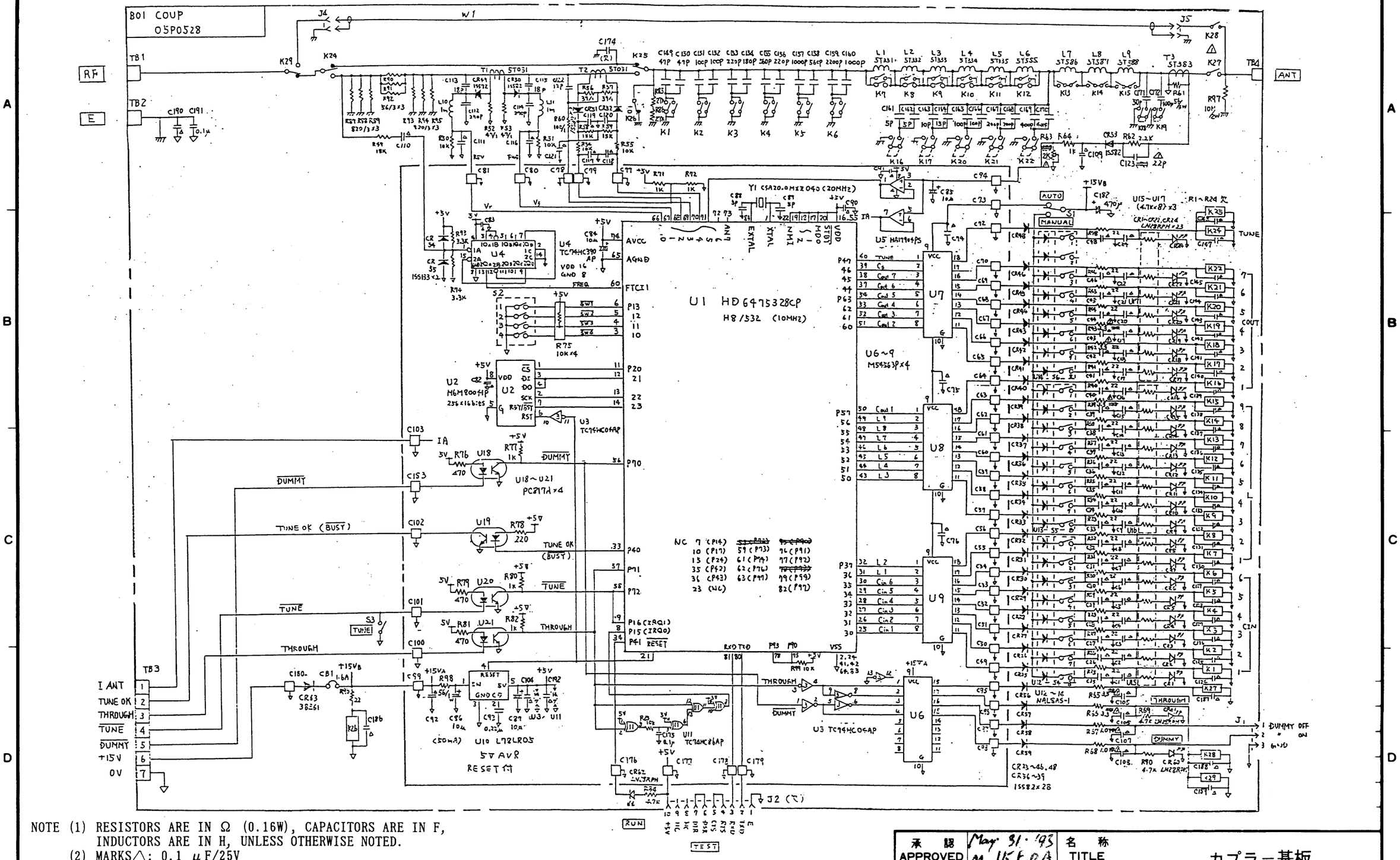
承認 APPROVED	NOV.22.'91 T.KAWADO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	05P0458 REMOTE (B)
検図 CHECKED	Nov 20.'91 M. IKEDA	尺度 SCALE	/		
製図 DRAWN	NOV.20.'91 Y. HAMANO	重量 WEIGHT	kg	図番 DWG.NO.	C5548 – K09 – D



FS-1562 FS-15/75	B17
FS-1502/ 1553	B11

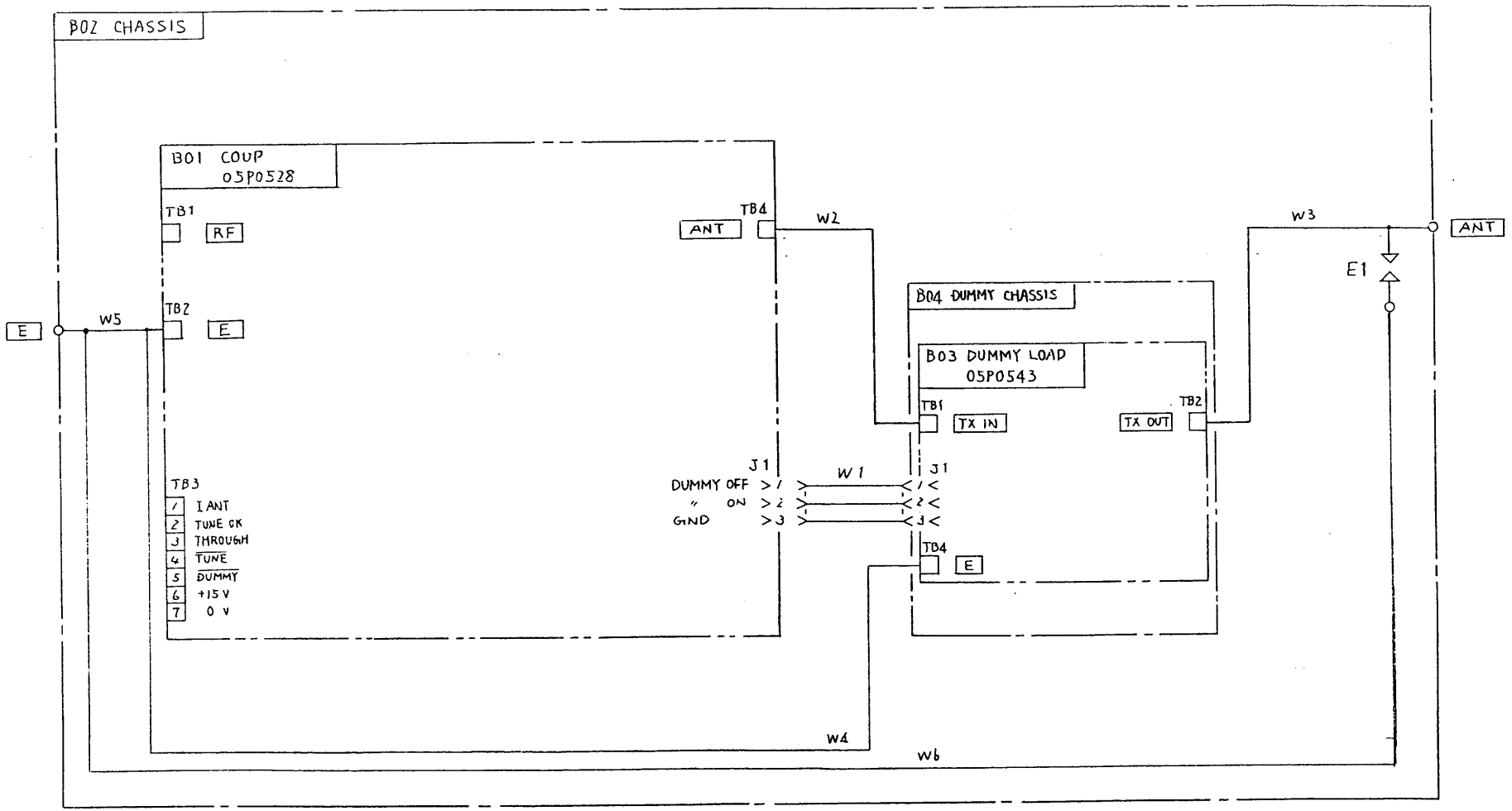
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED		三角法 THIRD ANGLE PROJECTION		名称 TITLE	05P0459 CONTROL
検図 CHECKED	Nov·20·'91 M. IKEDA	尺度 SCALE	/		
製図 DRAWN	Nov·20·'91 Y. HAMANO	重量 WEIGHT	kg	図番 DWG.NO.	C5548 – K11 – C



FURUNO ELECTRIC CO., LTD.

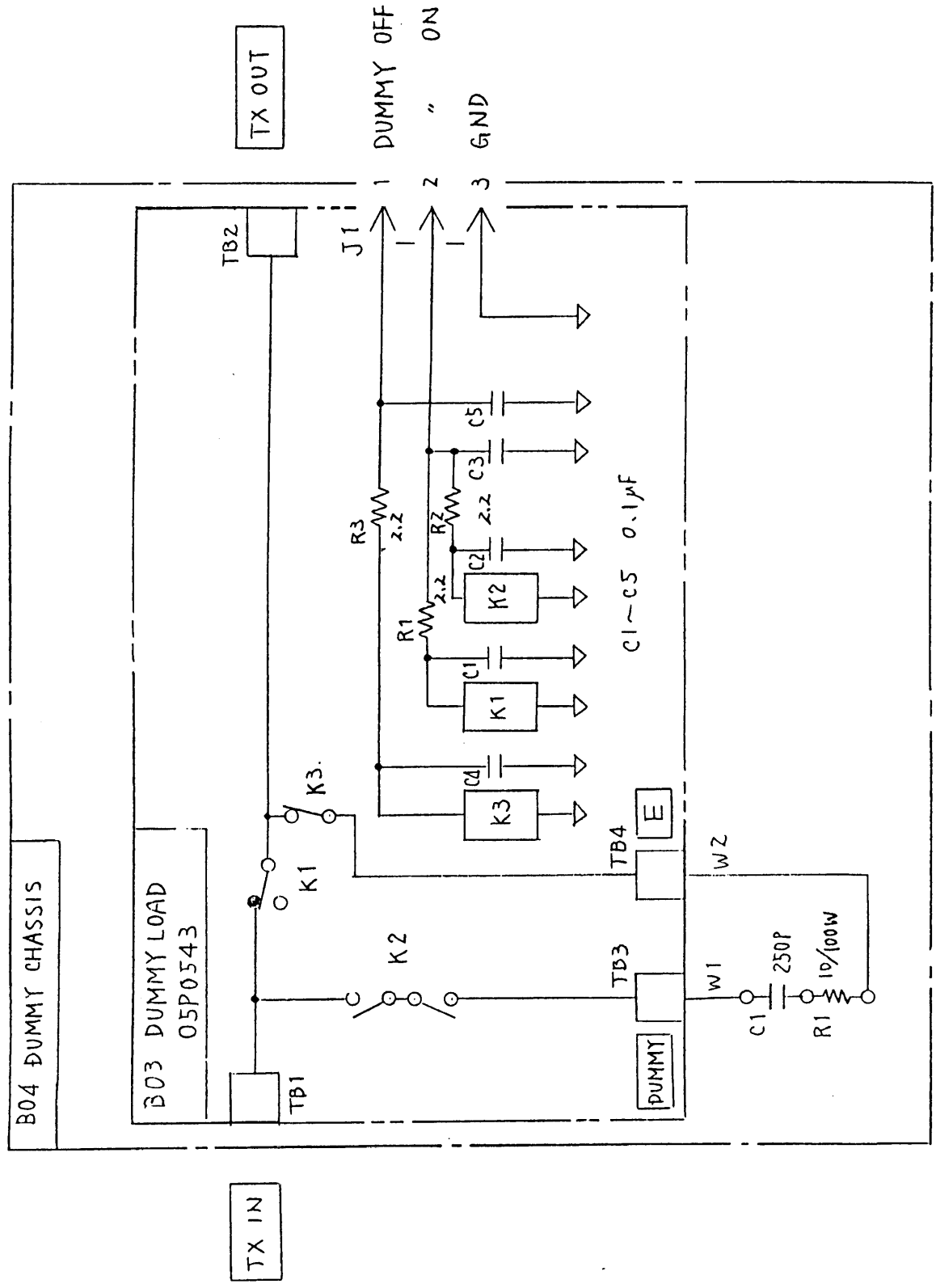
FURUNO



承認 APPROVED	May. 31. '93 M. IKEDA	名称 TITLE	アンテナカプラー 2B02 AT-1560 ANTENNA COUPLER
検図 CHECKED	May. 31. '93 T. SAITO		
製図 DRAWN	May. 31. '93 T. NISHIMI	図番 DWG.NO.	C5572-K03-A

FS-1562
FS-15/75

FURUNO ELECTRIC CO., LTD.



FS－1562
FS－15／75

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	May 31 '93 M. IKEDA	三角法 THIRD ANGLE PROJECTION		名称 TITLE	ダミーロード基板
検図 CHECKED	May 31 '93 T. SAITO	尺度 SCALE	／	2B03 05P0543	DAMMY LOAD BOARD
製図 DRAWN	May 31 '93 T. NISHINO	重量 WEIGHT	kg	図番 DWG.NO.	C5572－K02－A

FURUNO ELECTRIC CO., LTD.