

FURUNO

SERVICE MANUAL

SSB RADIOTELEPHONE

MODEL FS-1562



FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

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(TOSA)

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FS-1562



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.



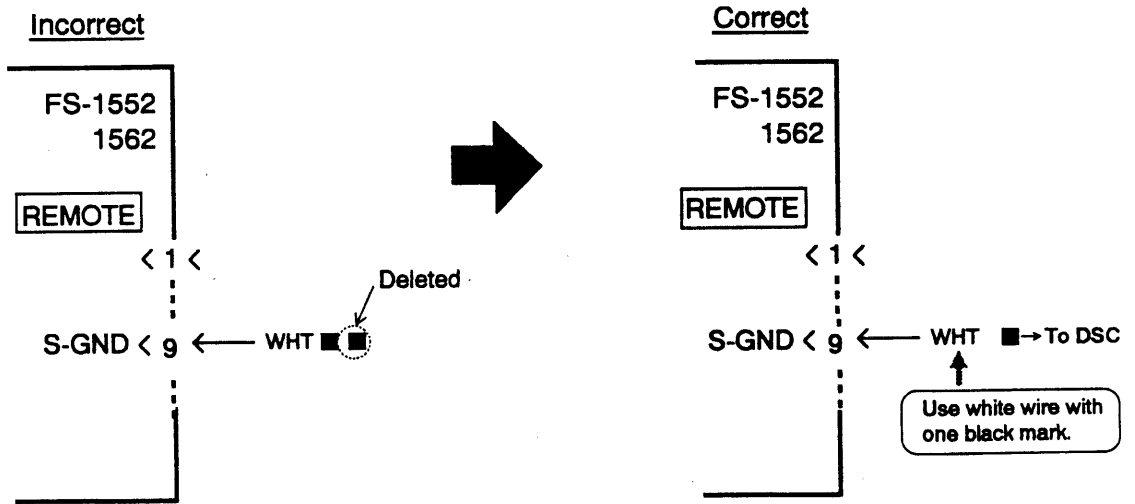


Addenda No. 1 to
FS-1552 SM-E5549

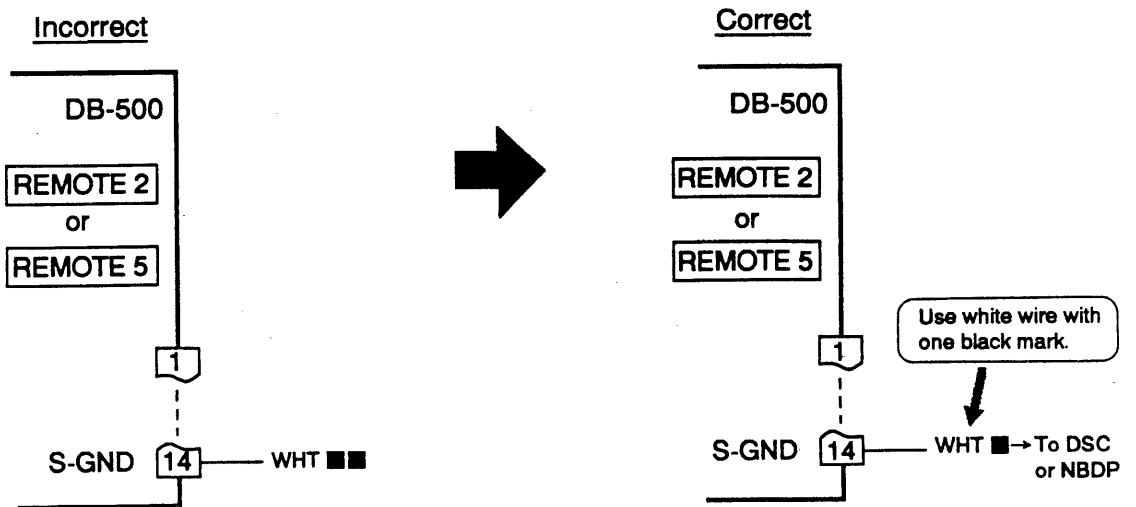
Addenda No. 2 to
FS-1562 SM-E5572

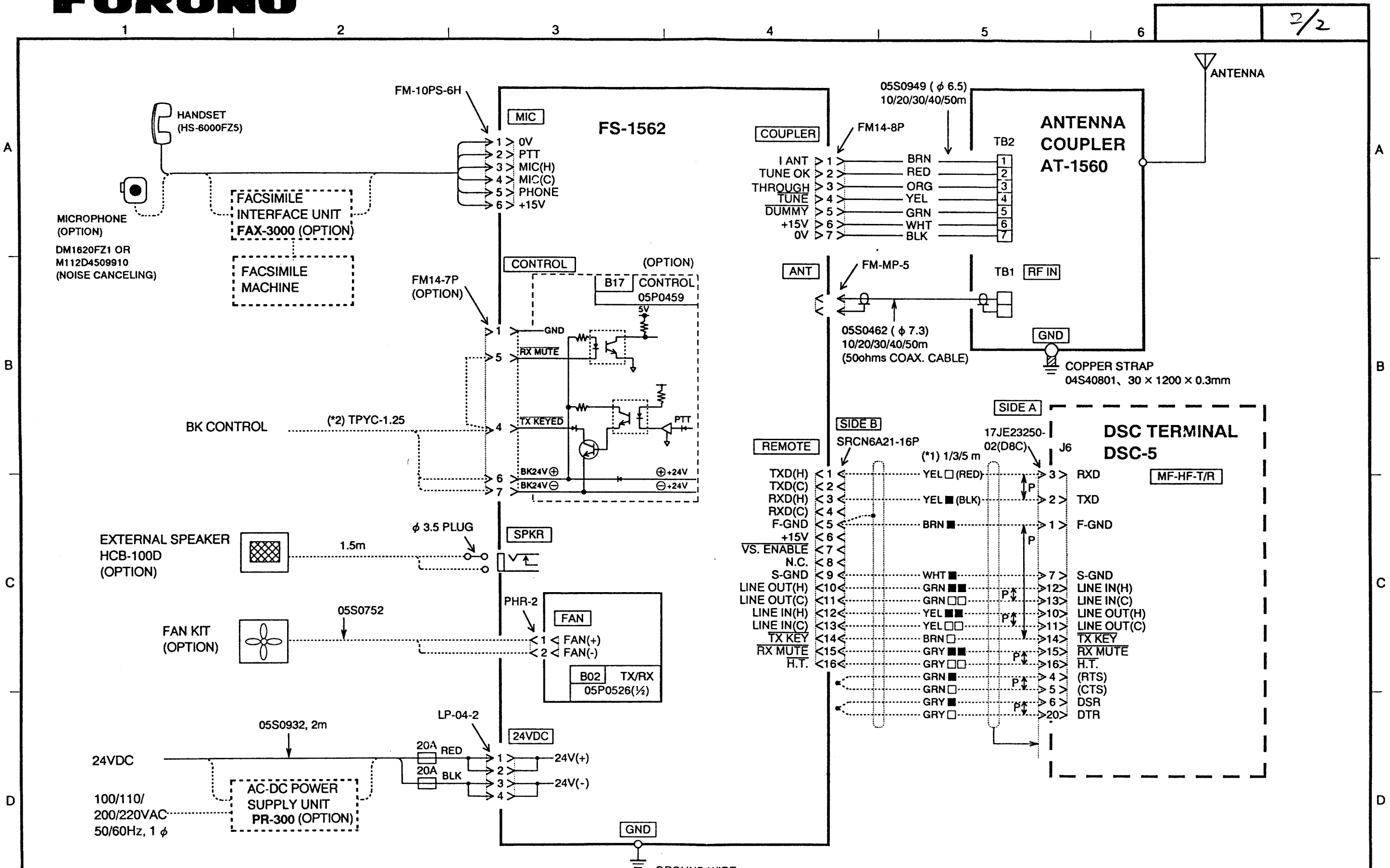
FS-1552/FS-1562 Errata for Interconnection Diagram

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



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





(*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	図番 DWG.NO	
製図 DRAWN	Apr. 8 '94 Y. HAMANO	名称 TITLE	INTERCONNECTION DIAGRAM (1/2)
		図番 DWG.NO	E5572-C01-D

Information

No. : FQ5-94-015 1/1Date : 1994 - 09Issued by: **FURUNO ELECTRIC CO., LTD.**
TECHNICAL DOCUMENTATION SECTION*M. Moe*Addenda No.2 to
FS-1552 SM-E5549Addenda 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

**Factory
modification**

From the production in Sept. 1994

**Modified sets
number**

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



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.

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

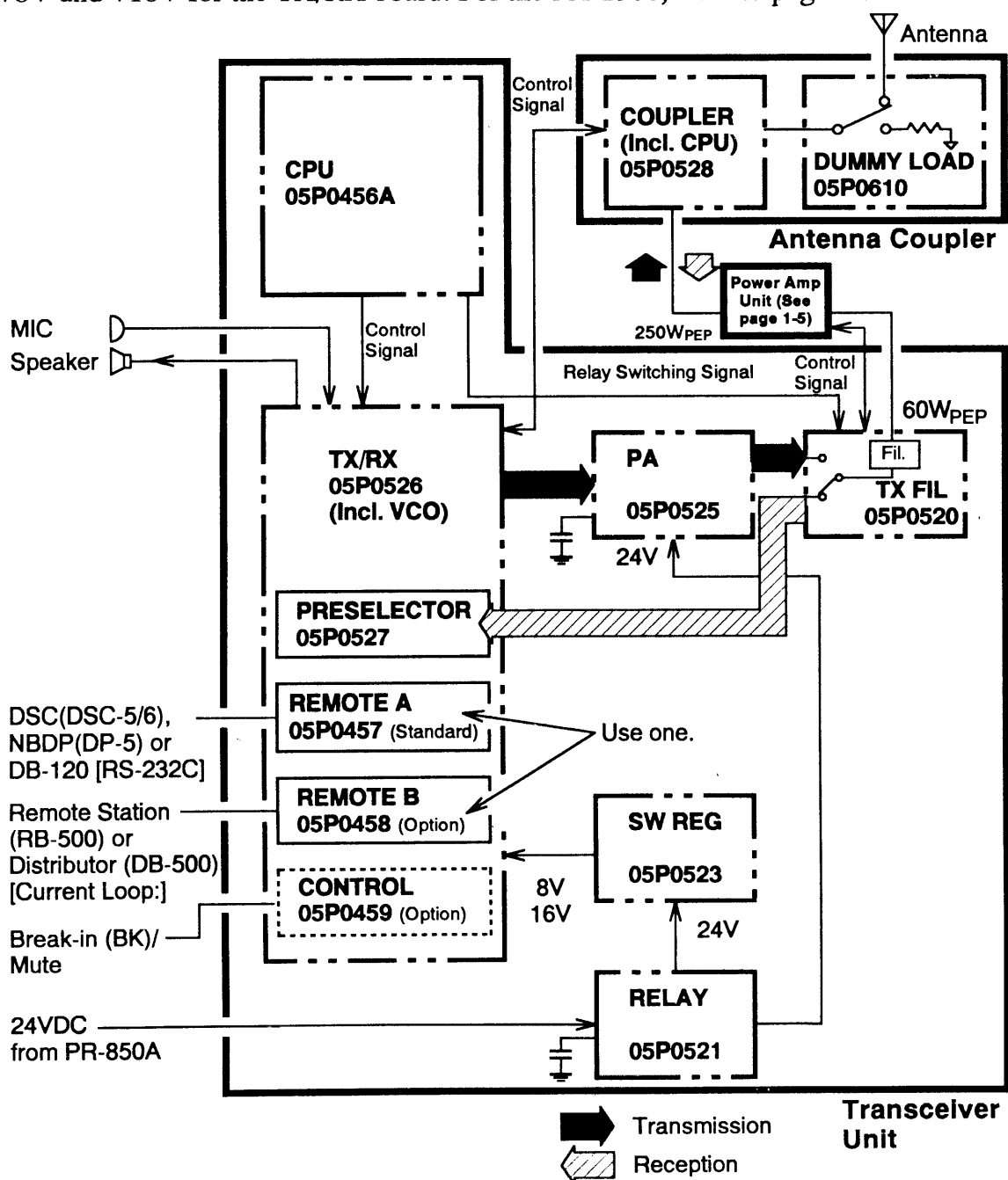
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Chapter 1 Block Description

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.)

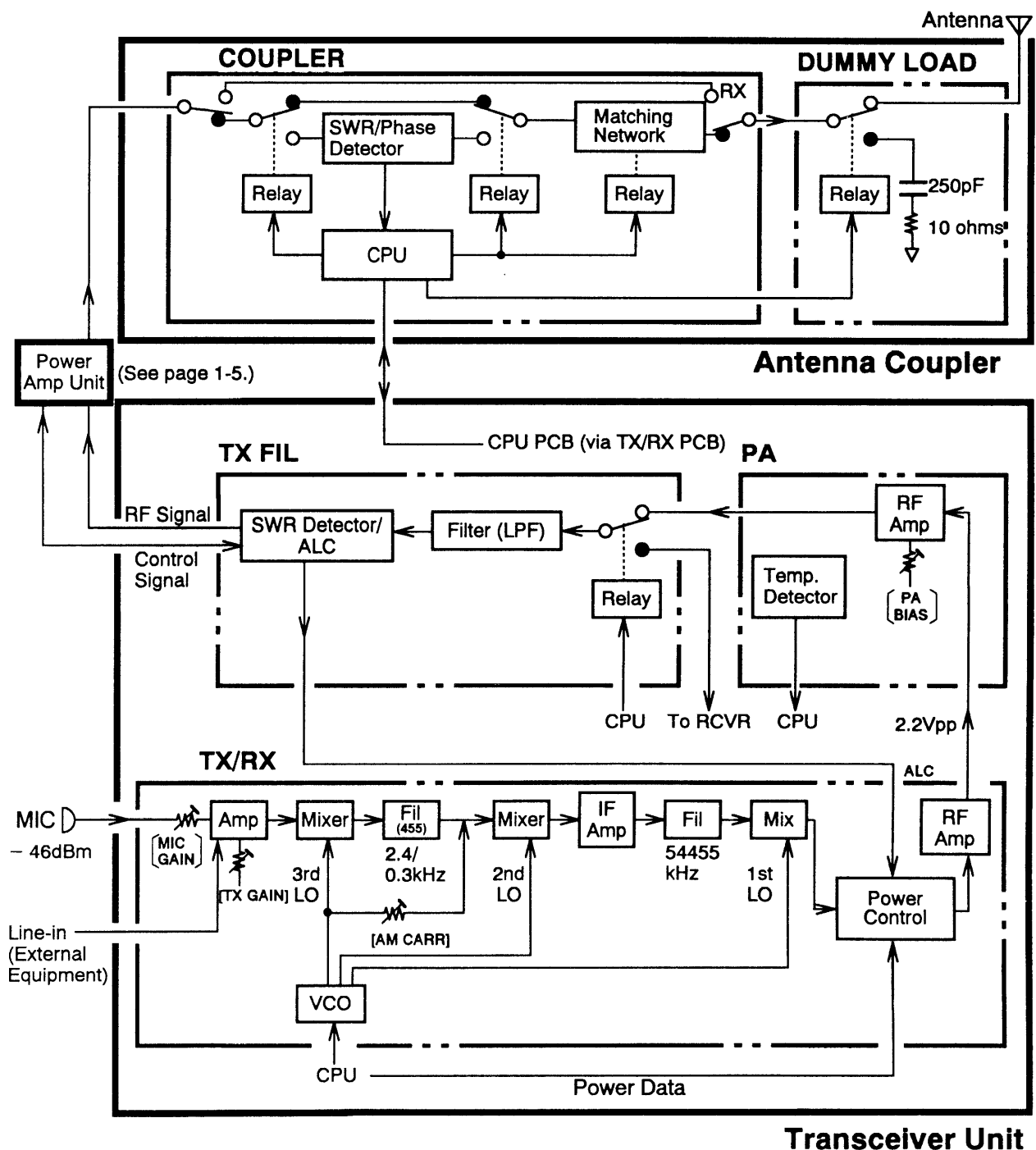
When turning the power on, the RELAY board in the Transceiver Unit is activated, causing the input voltage (24VDC) to be fed to the SW REG board which produces +8V and +16V for the TX/RX board. For the PA-2500, refer to page 1-5.



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

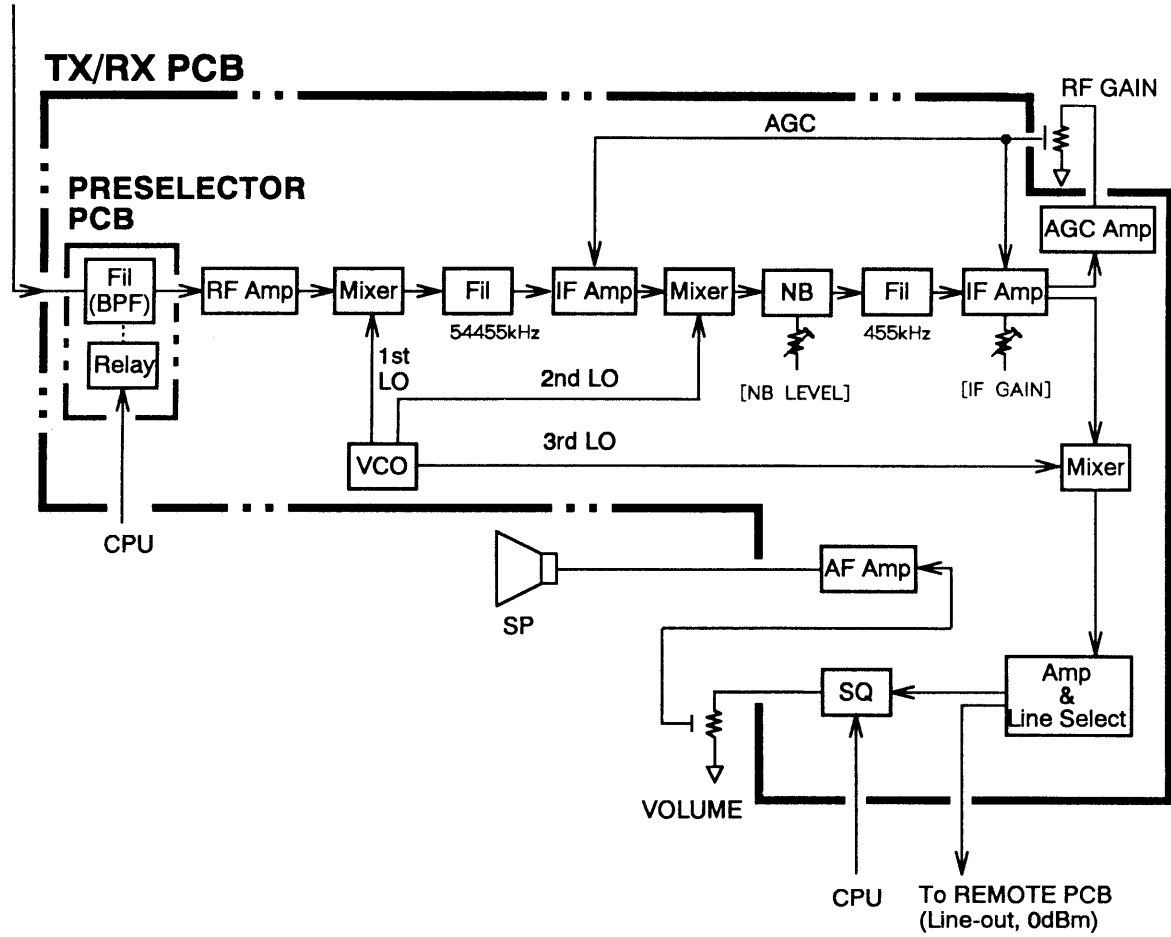
The FS-1562-25 incorporates an automatic power reduction circuit. When the temperature at the power amplifiers of the PA board in the Transceiver Unit exceeds 90 °C, the output power is automatically changed to the reduced power set by low power adjustment.

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.

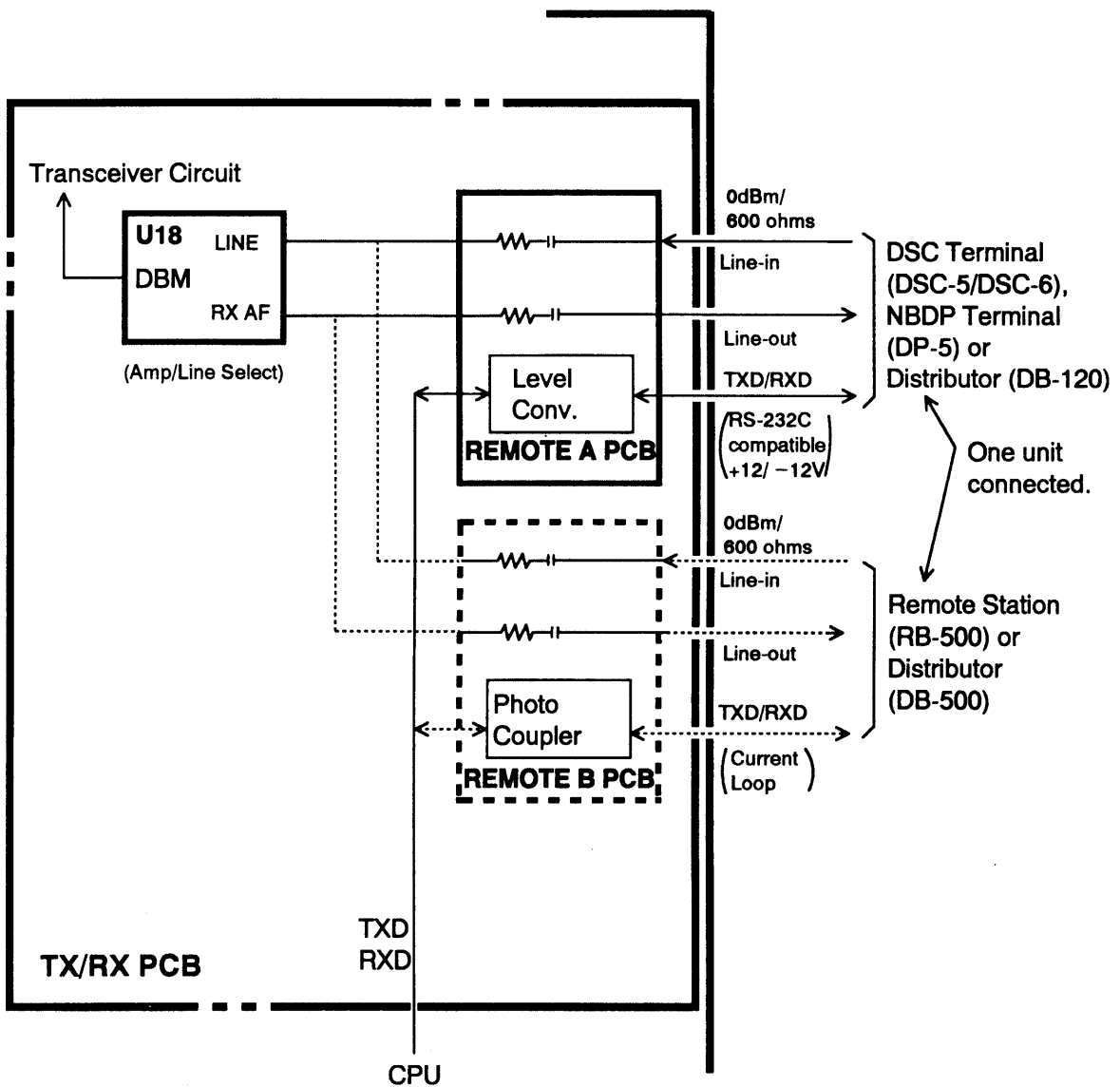


1.3 Receiver

Receive Signal
(from TX FIL PCB via PA-2500)



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)

When +15V from the Transceiver Unit (TX FIL board) is applied to the INTER-FACE 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 °C .

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 (W _{pep}) (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.

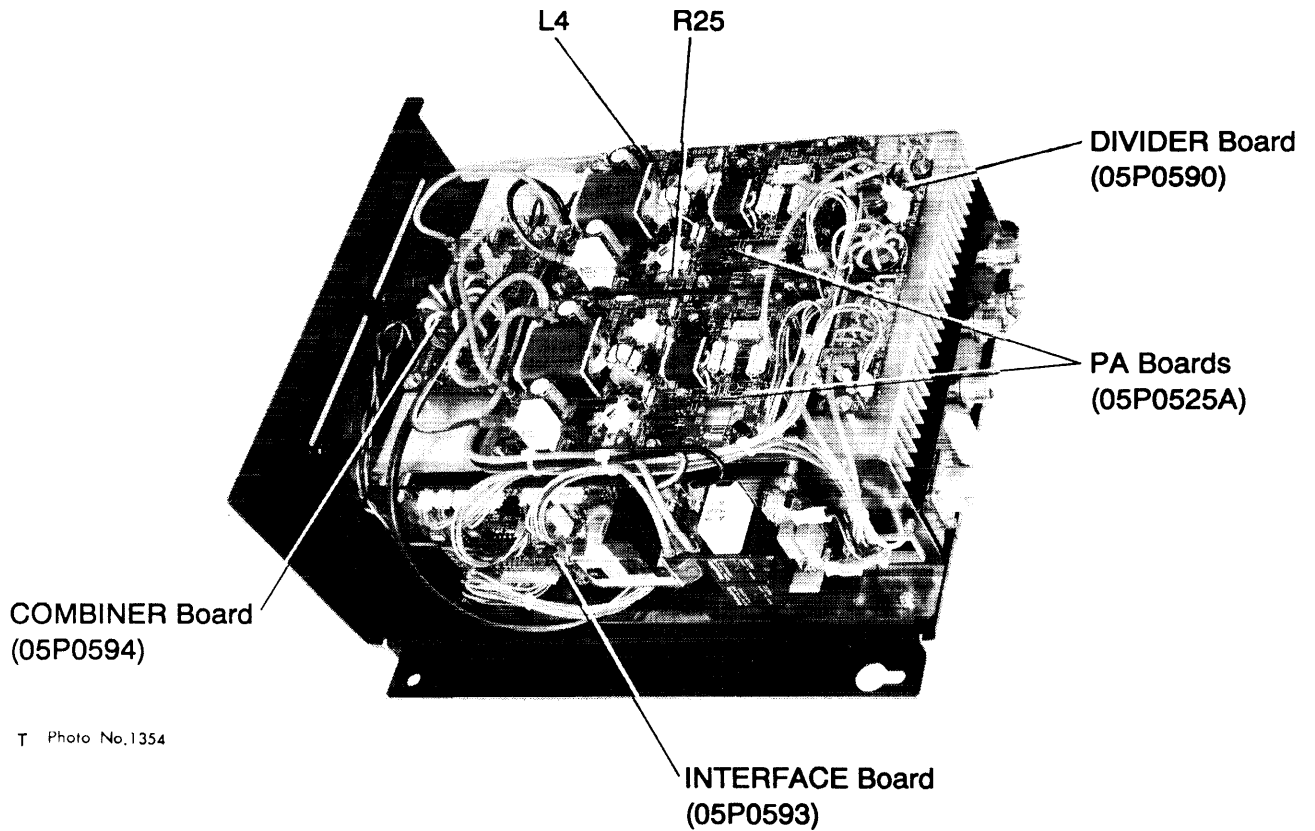
Other adjustments

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

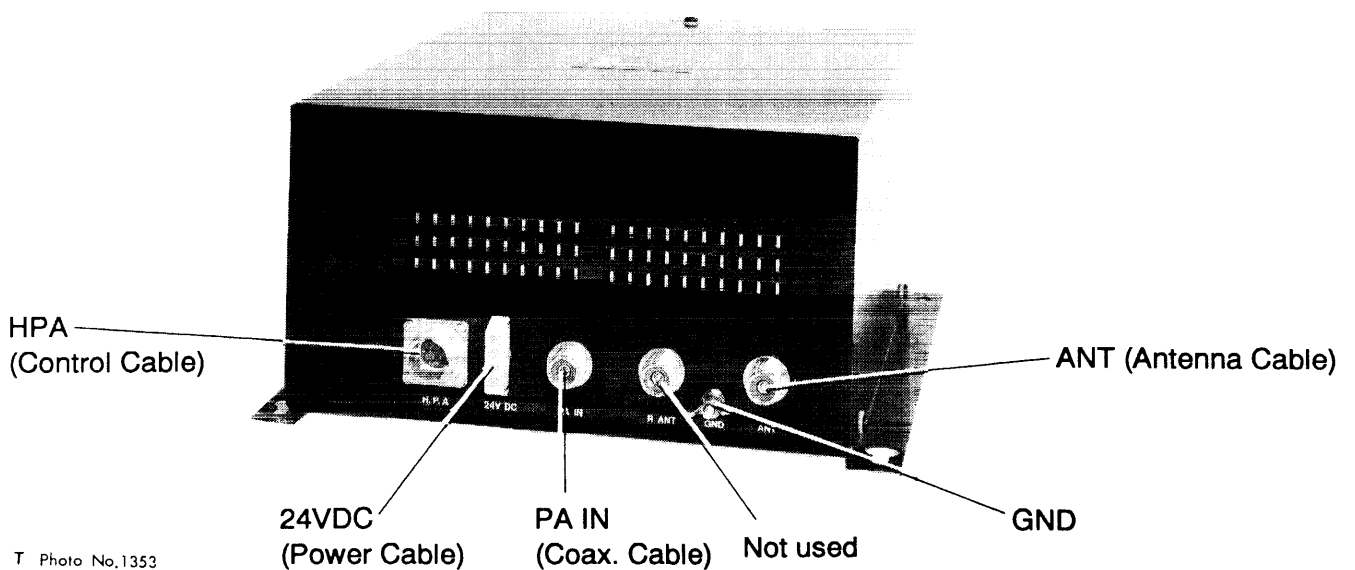
PA bias adjustment in the PA-2500 should be done in the same manner as mentioned in the FS-1562-15.

Chapter 4 Parts Location

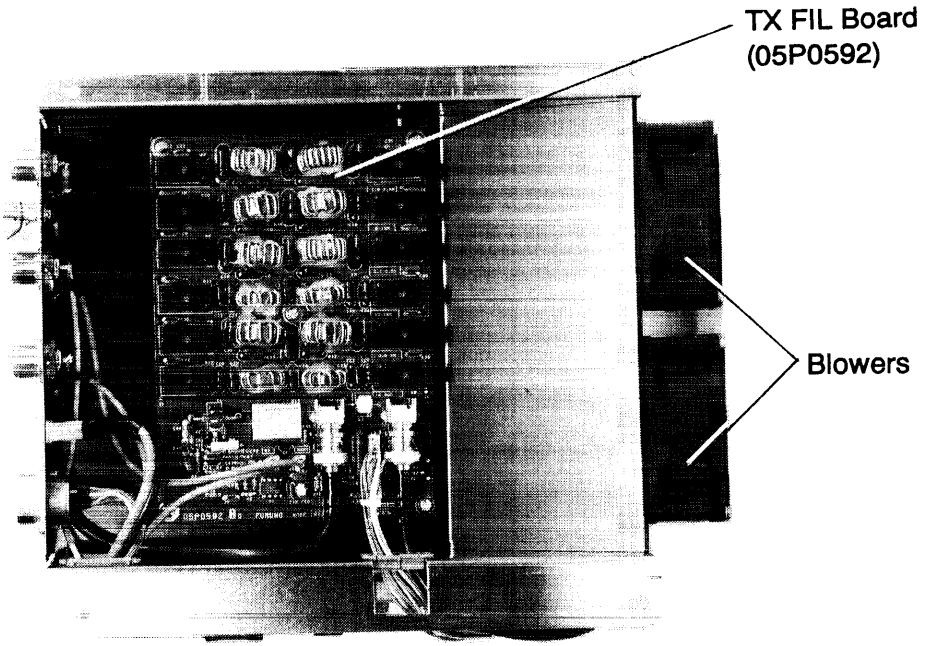
For the transceiver unit and the antenna coupler, refer to the FS-1562-15. The following shows the parts location of the PA-2500.



T Photo No.1354



T Photo No.1353



T Photo No.1355

Bottom View

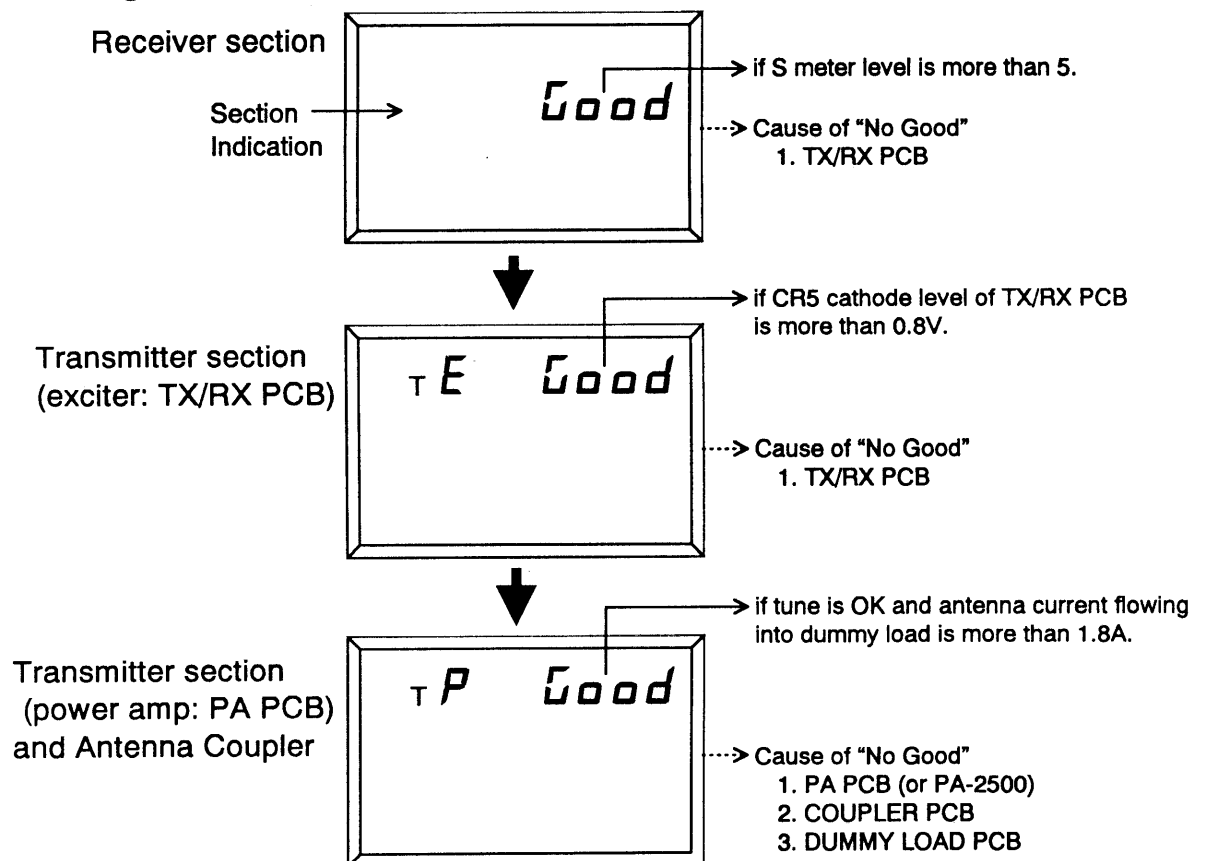
Chapter 5 Troubleshooting

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

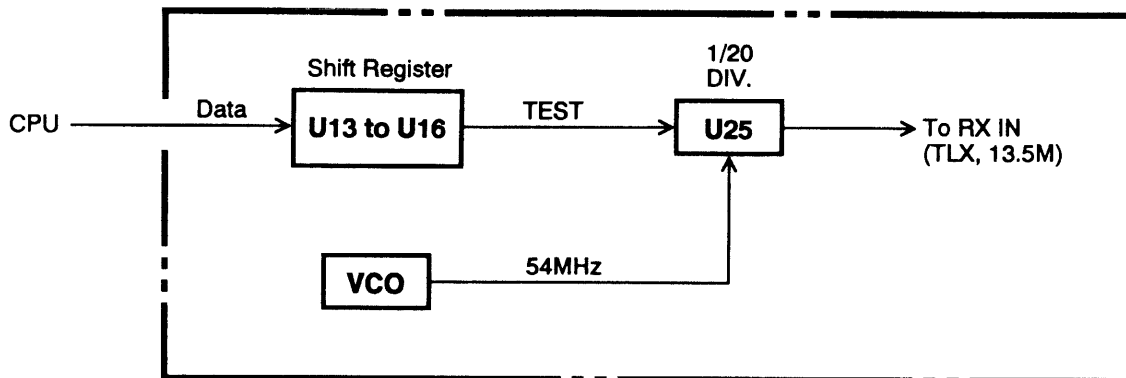
1. While pressing and holding down the **TX** key, turn on the power. All LCD segments appear.
2. Release the **TX** key. The FS-1562 starts self-testing and the display shows the following indications in order.



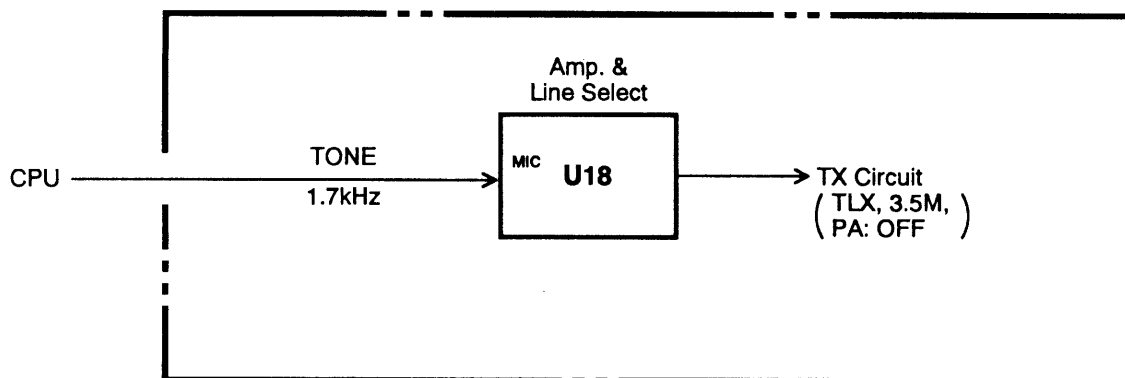
NOTE: If fault is detected, "no Good" appears instead of "Good" and appropriate section indication blinks after completion of this test.

Self-test signal flow

• Receiver Section



• Exciter Section



• Power Section

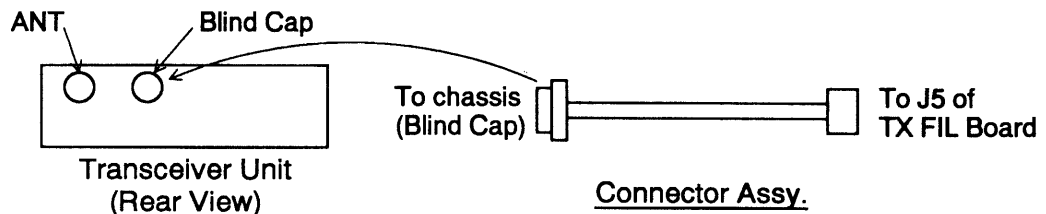
1. Turn relay on DUMMY LOAD PCB on.
2. Send TUNE command and tune signal (about 20W) to Antenna Coupler.
3. Receive TUNE OK command.
4. Transmit 1.7kHz signal (250W) in TLX mode (3MHz).
5. If antenna current flowing into DUMMY LOAD PCB is more than 1.8A, "Good" appears.

LCD/Keyboard Test Antenna Coupler Test	} Same as the FS-1562-15
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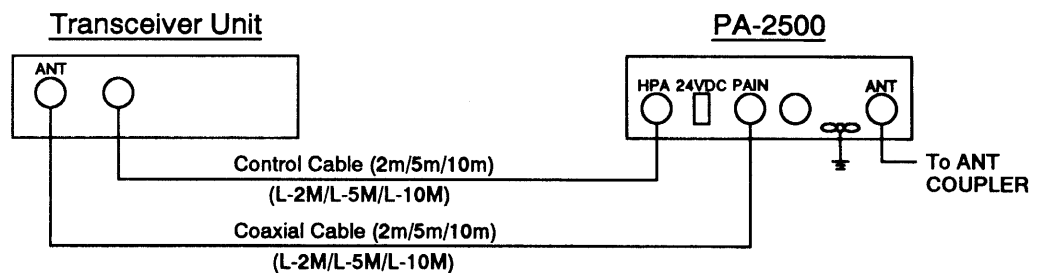
Modification from FS-1562-15 to FS-1562-25

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.

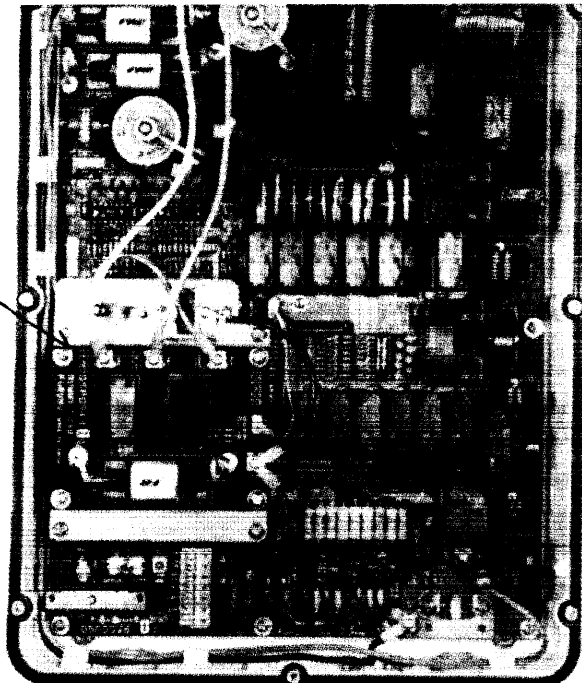


5. Take out the PR-300 and mount a PR-850 or PR-850A.
6. Connect a power cable supplied (05S0414-1) between the PR-850 and the PA-2500. Further connect the power cable of the Transceiver Unit to the PR-850.

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

(*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	T Y P E 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
PRINTED CIRCUIT BOARD		フロントパネル		
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シヨウワカ91/01	000-511-412	
1B08J0004	FM14-7S	K1000シヨウワカ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		
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		
1B06Q0001	IRFP150		000-121-823	
1B04Q0003	2SC2510		005-945-210	PA

UNIT	TRANSCIVER		REF. DWG.	C5572-K10-B	BLOCK NO.	1B	2
SYMBOL	T Y P E	SPECIFICATIONS		CODE NO.	REMARKS		
記号	型名	規	格	コード番号	備	考	
TRANSISTOR		トランジスタ-					
1B04Q0004	2SC2510			005-945-210	PA		
RESISTOR		抵抗					
1B07R0001	RK0971111(10KA)	05S0632-0		000-118-482	VOLUME		
1B07R0002	RK09711100JOA(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-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			

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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		プリント基板		
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	T Y P E	SPECIFICATIONS		CODE NO.	REMARKS		
記 号	型 名	規 格		コード番号	備 考		
RESISTOR		チヨウ					
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-ツキケ-フ"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

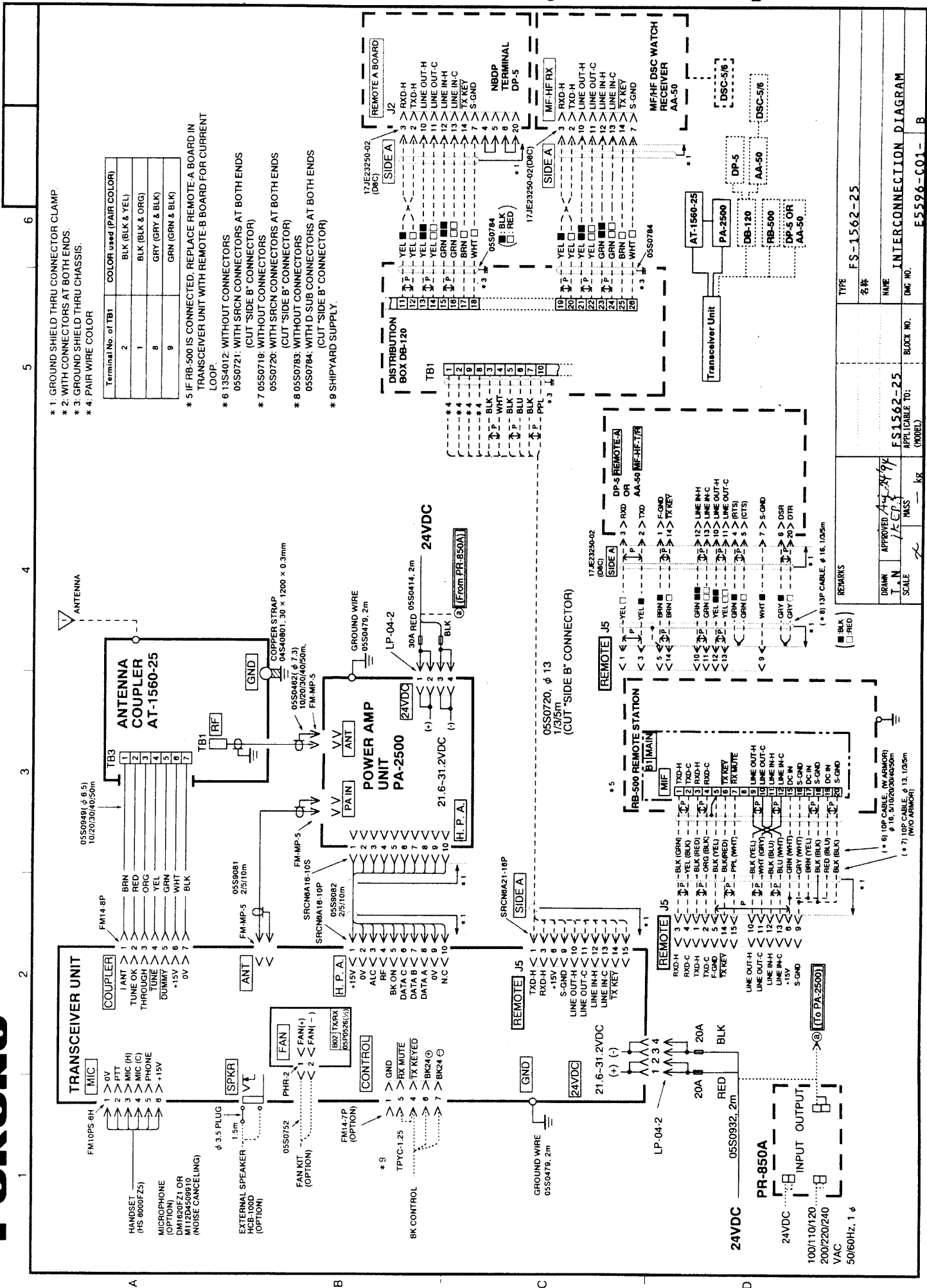
MODEL	FS-1562-25		
UNIT	POWER AMP. パワーアンプ		PAGE
REF. DWG.	C5596-K01-A	BLOCK NO.	5

SYMBOL 記号	T Y P E 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
PRINTED CIRCUIT BOARD		プリント基板		
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	

List of Schematic Diagrams

Block No.	Name	Type	Dwg. No.	Page	Remarks
	Interconnection Diagram	FS-1562-25	E5596-C01	S-1	Refer to FS-1562-15. (Same boards are used.)
	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	
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	



- * 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 TRANSCIEVER UNIT WITH REMOTE-B BOARD FOR CURRENT LOOP.
- * 6 13S4012: WITHOUT CONNECTORS
05S0721: WITH SRGN CONNECTORS AT BOTH ENDS (CUT "SIDE B" CONNECTOR)
- * 7 05S0719: WITHOUT CONNECTORS
05S0720: WITH SRGN 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.

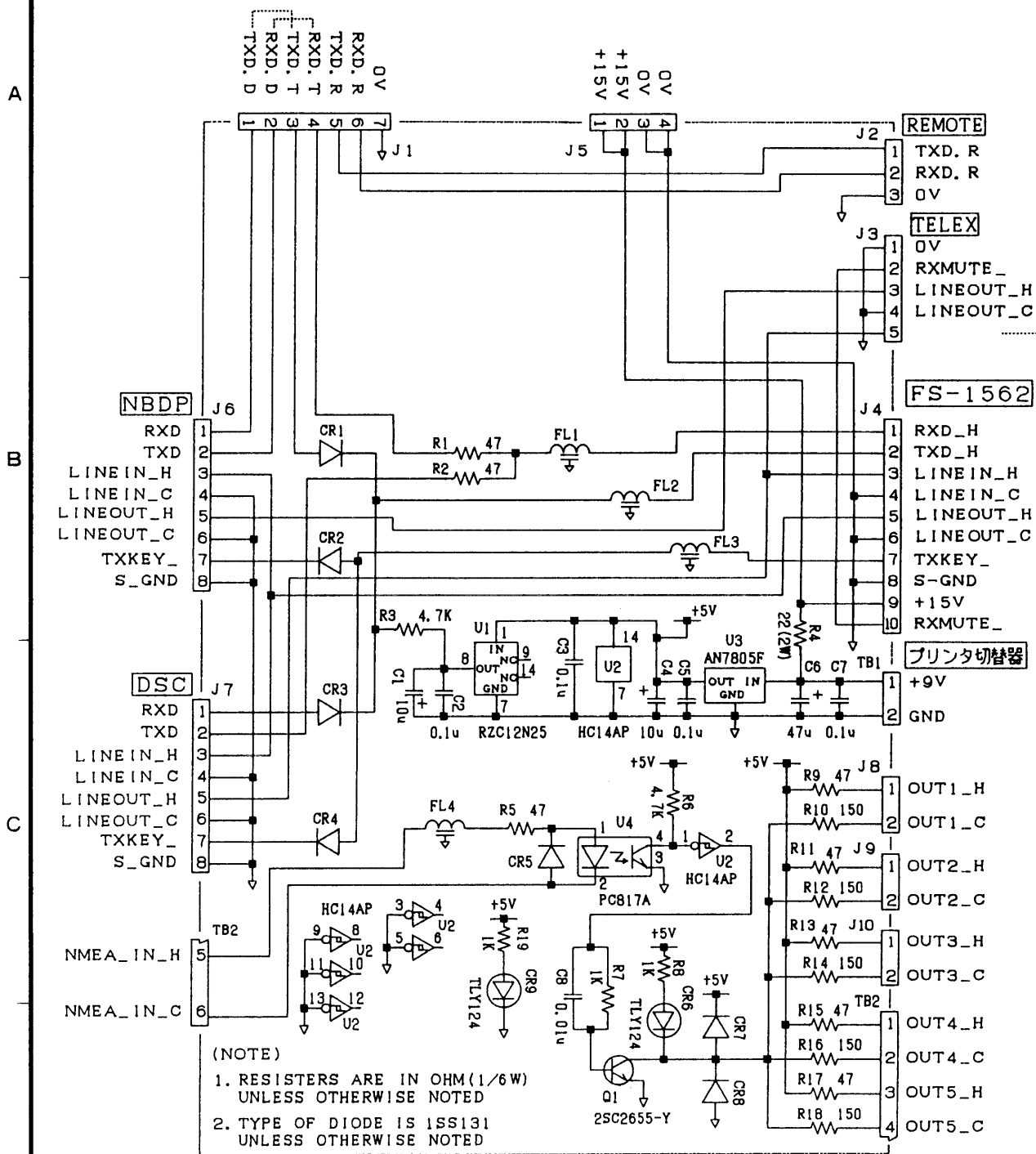
TYPE	名称
FS-1562-25	

NAME	INTERCONNECTION DIAGRAM
FS1562-25	

APPLICABLE TO:	BLOCK NO.	DATE NO.
FS1562-25 (MODEL)		

REMARKS
(* 6) 13P CABLE, φ 18, 1.025m (* 7) 10P CABLE, φ 13, 1.025m (W/O ARMOR) (* 8) 13P CABLE, φ 18, 1.025m (W/O ARMOR)

B3 05P0606 DISTRIBUTOR



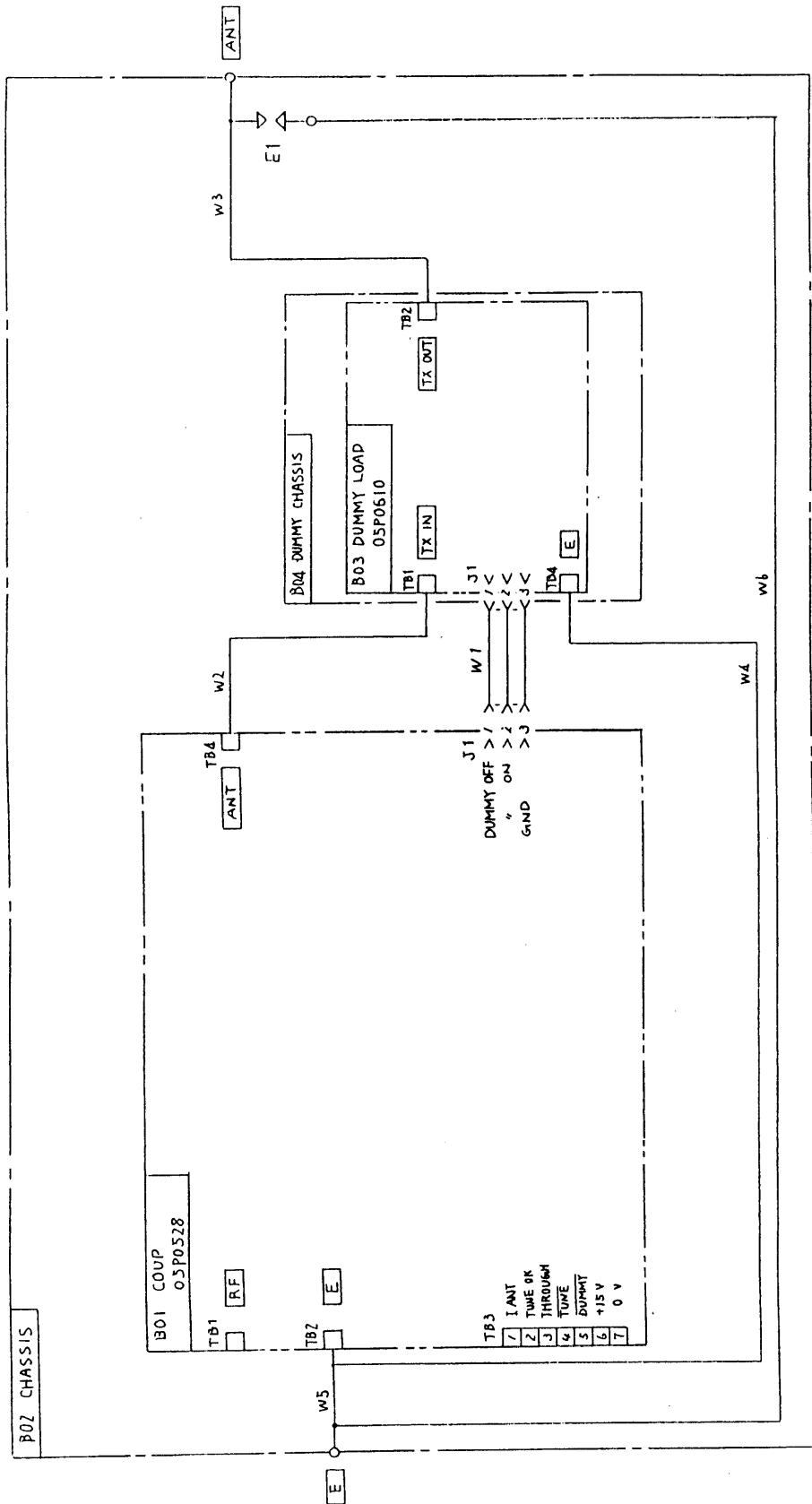
REMARKS				TYPE	05P0606	
				名称	分配器	
DRAWN	APPROVED	DB-120		NAME	DISTRIBUTOR	
T. Y	July 15 '94	RC-1500	B 3	DWG NO.	C5597-K03- C	
SCALE	MASS	APPLICABLE TO:	BLOCK NO.			
	kg	(MODEL)				

A

B

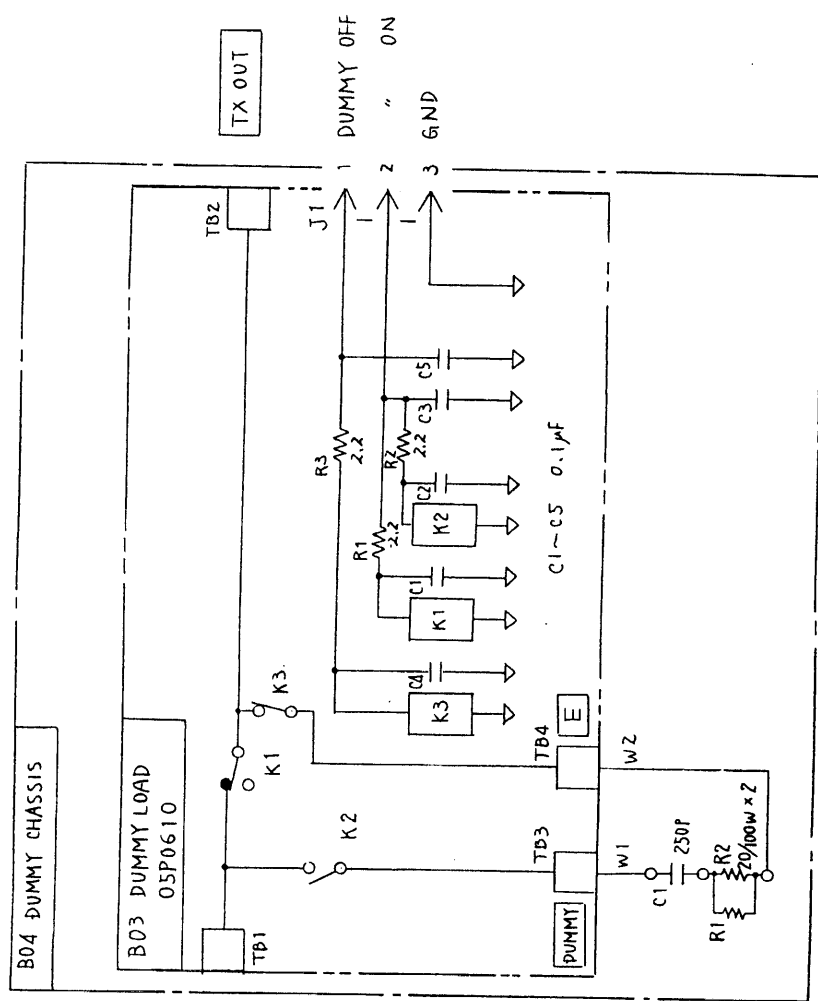
C

D



REMARKS				TYPE	AT-1560-25	
				名称	総合回路図	
DRAWN	APPROVED	FS-1562-25	B 2	NAME	GENERAL (250W)	
T.Y.	<i>July 19 1994</i> <i>IKEDA</i>			DWG NO.	C5572-K15- A	
SCALE	MASS	APPLICABLE TO: (MODEL)	BLOCK NO.			
/	kg					

A
B
C
D



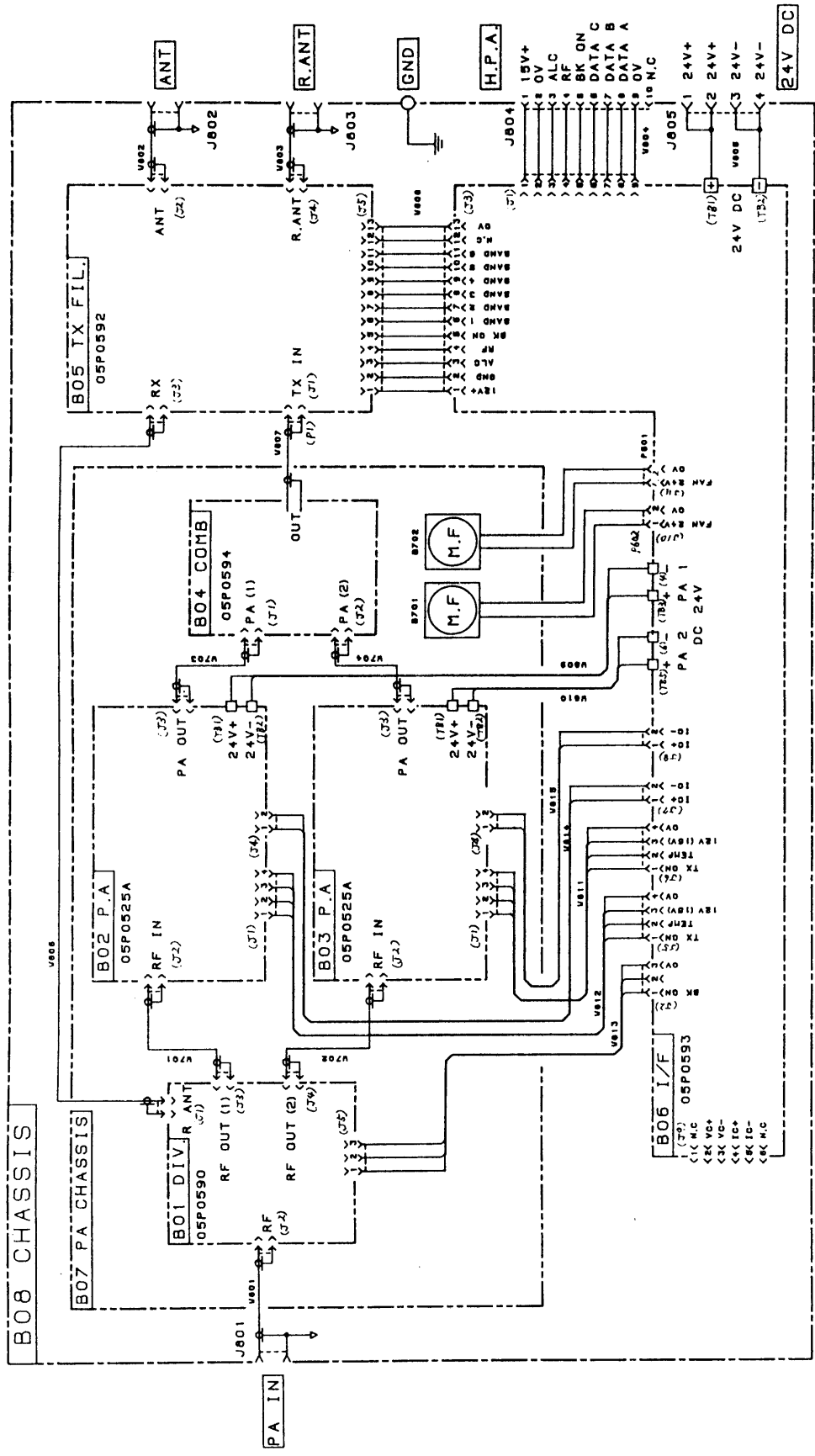
REMARKS				TYPE	05P0610
				名称	ダミーロード基板
DRAWN	APPROVED	FS-1562-25	B 4	NAME	DUMMY LOAD BOARD(250W)
T.Y	<i>July 19 64</i> <i>IKEDA</i>		B 3	DWG NO.	C5572-K16- A
SCALE	MASS	APPLICABLE TO;	BLOCK NO.		
	kg	(MODEL)			

A

B

C

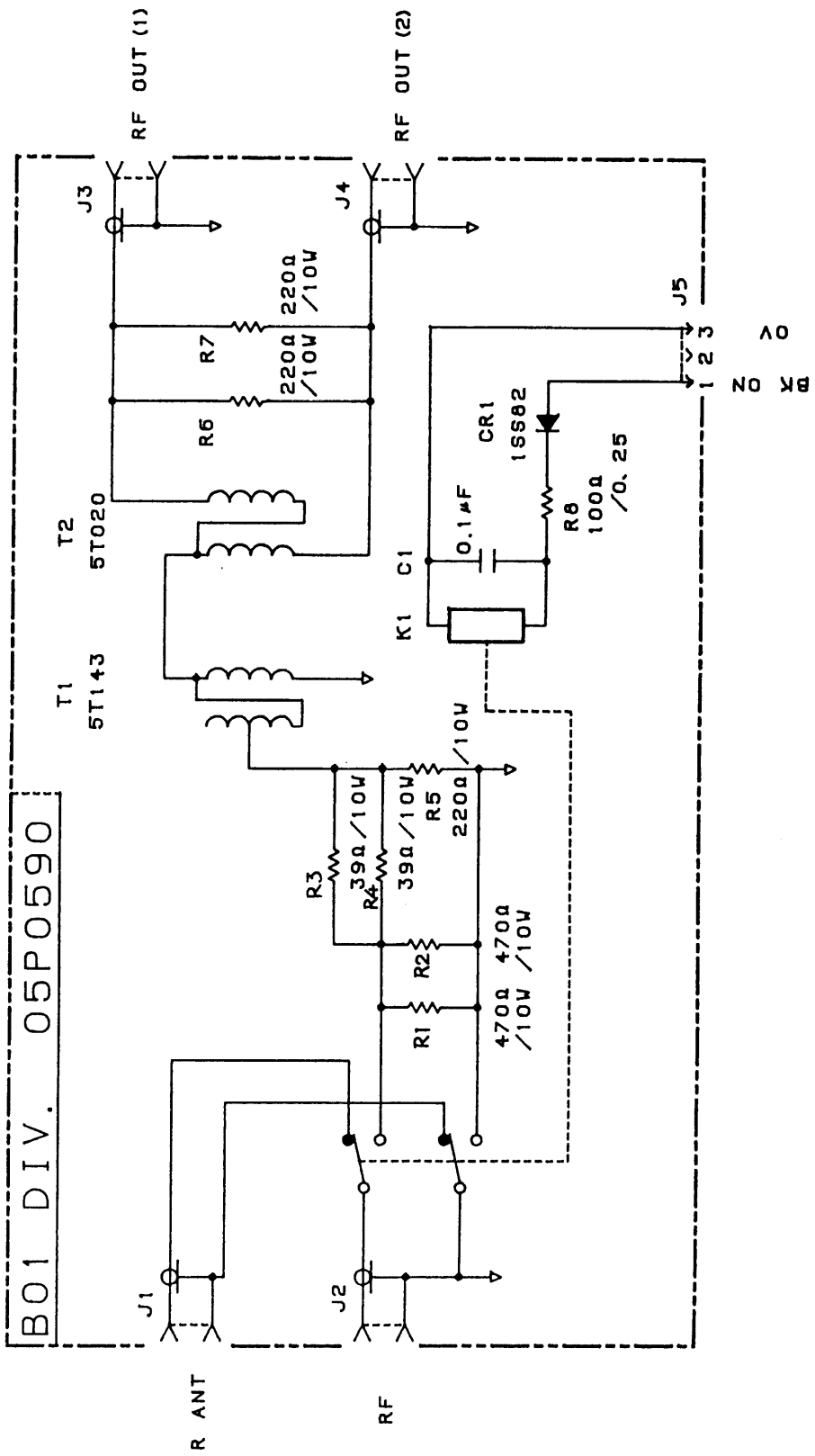
D



REMARKS		TYPE PA-2500	
		名称 総合回路図	
DRAWN T.Y.	APPROVED JUL 1974 I. REDA	FS-1562	B08
SCALE	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO. DWG NO.
		C5596-K01- A	

A
B
C
D

2 3



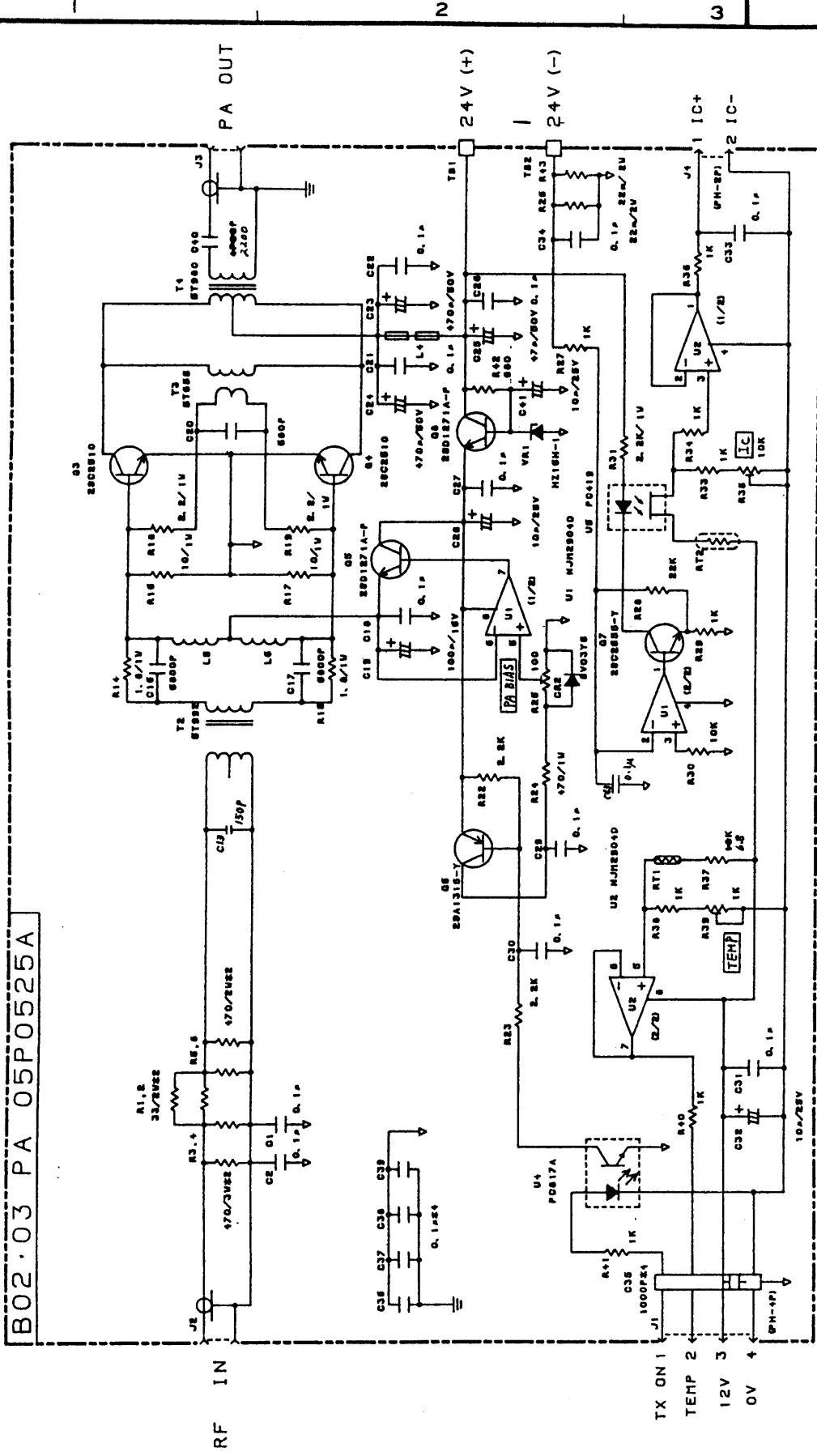
REMARKS				TYPE	05P0590
				名称	分配基板
DRAWN	APPROVED			NAME	DIVIDER BOARD
T.Y.	T. SAITO	PA-2500	B 1	DWG NO.	C5596-K02- B
SCALE	MASS	APPLICABLE TO;	BLOCK NO.		
1/2	- kg	(MODEL)			

A

B

C

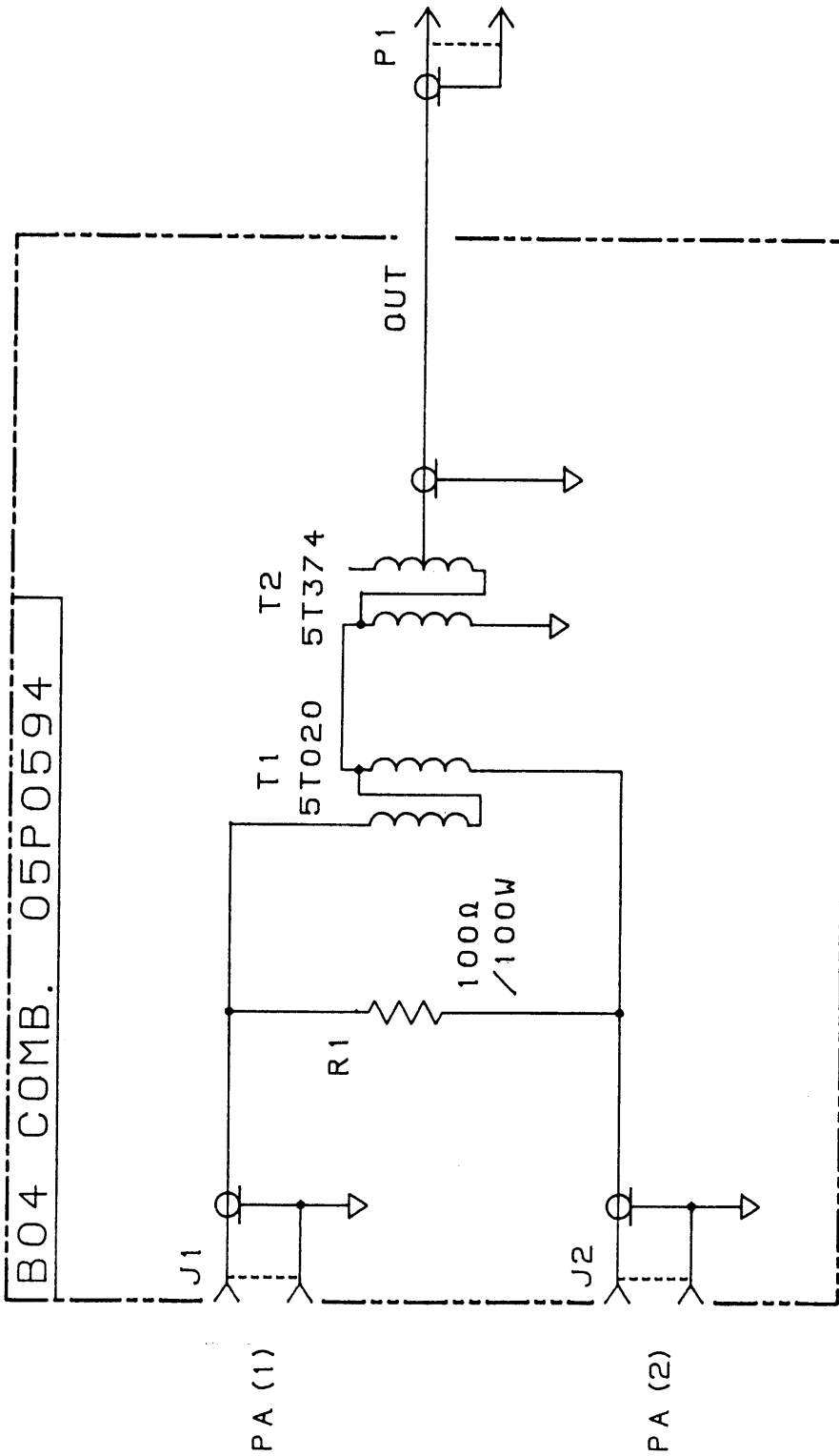
D



B02.03 PA 05P0525A

REMARKS		TYPE 05P0525A	
DRAWN T.Y.		名称 パワーアンプ基板	
APPROVED July 19 91 KEDA	PA-2500	B 3 B 2	NAME POWER AMP BOARD
SCALE MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	DWG NO. C5596-K03- A

A
B
C
D



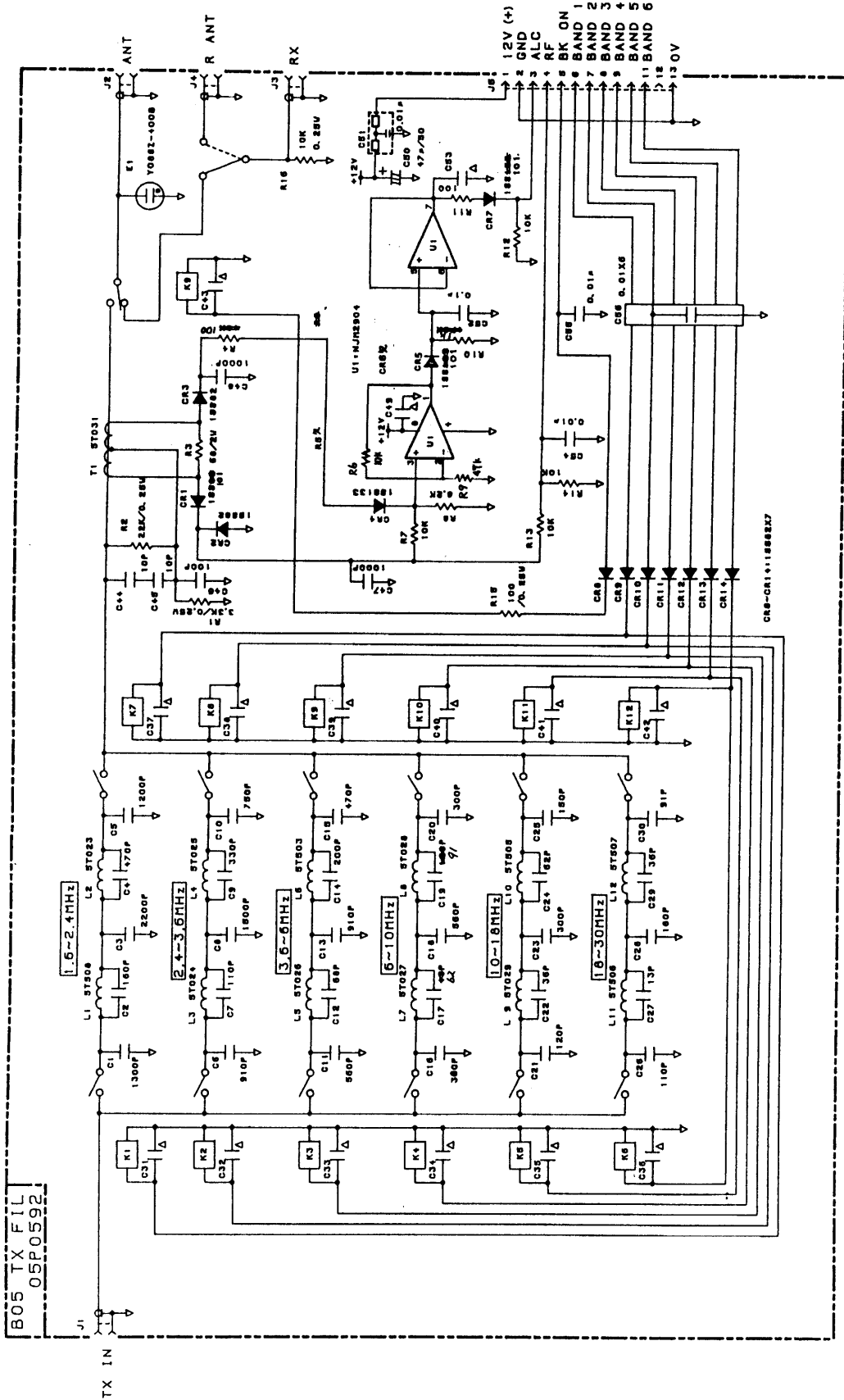
REMARKS				TYPE	05P0594
				名称	コンバイナー基板
DRAWN	APPROVED	PA-2500	B 4	NAME	COMBINER BOARD
T.Y	<i>July 19/94</i>	APPLICABLE TO;	BLOCK NO.	DWG NO.	C5596-K04- A
SCALE	MASS	(MODEL)			
/	kg				

A

B

C

D

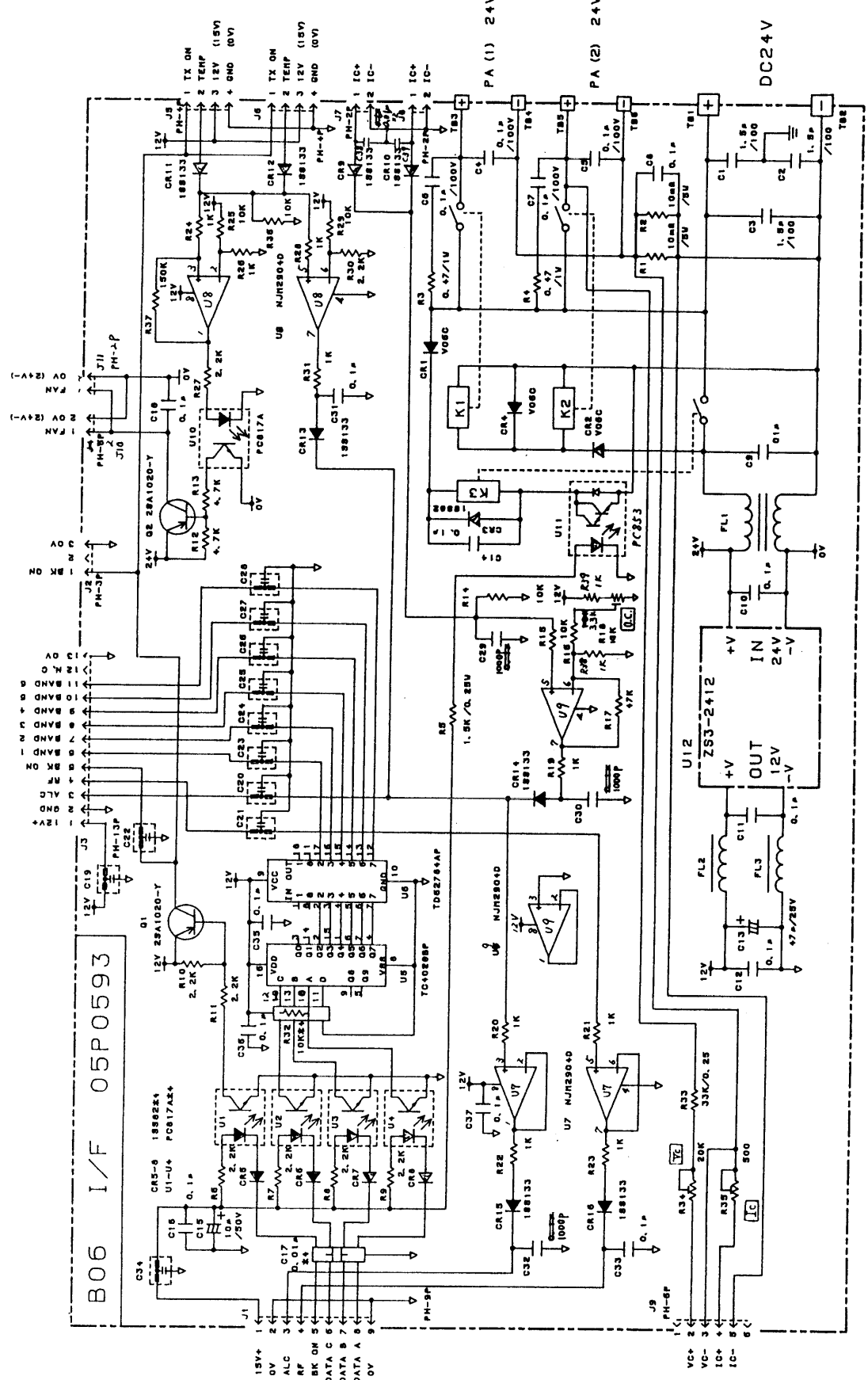


B05 TX FIL
05P0592

REMARKS		TYPE 05P0592	
DRAWN T.Y		名称 TXフィルター基板	
APPROVED 1/19/84 KEDA		NAME TX FIL BOARD	
SCALE	MASS kg	PA-2500 APPLICABLE TO: (MODEL)	B 5 BLOCK NO.
		DWG NO. C5596-K05-	
		A	

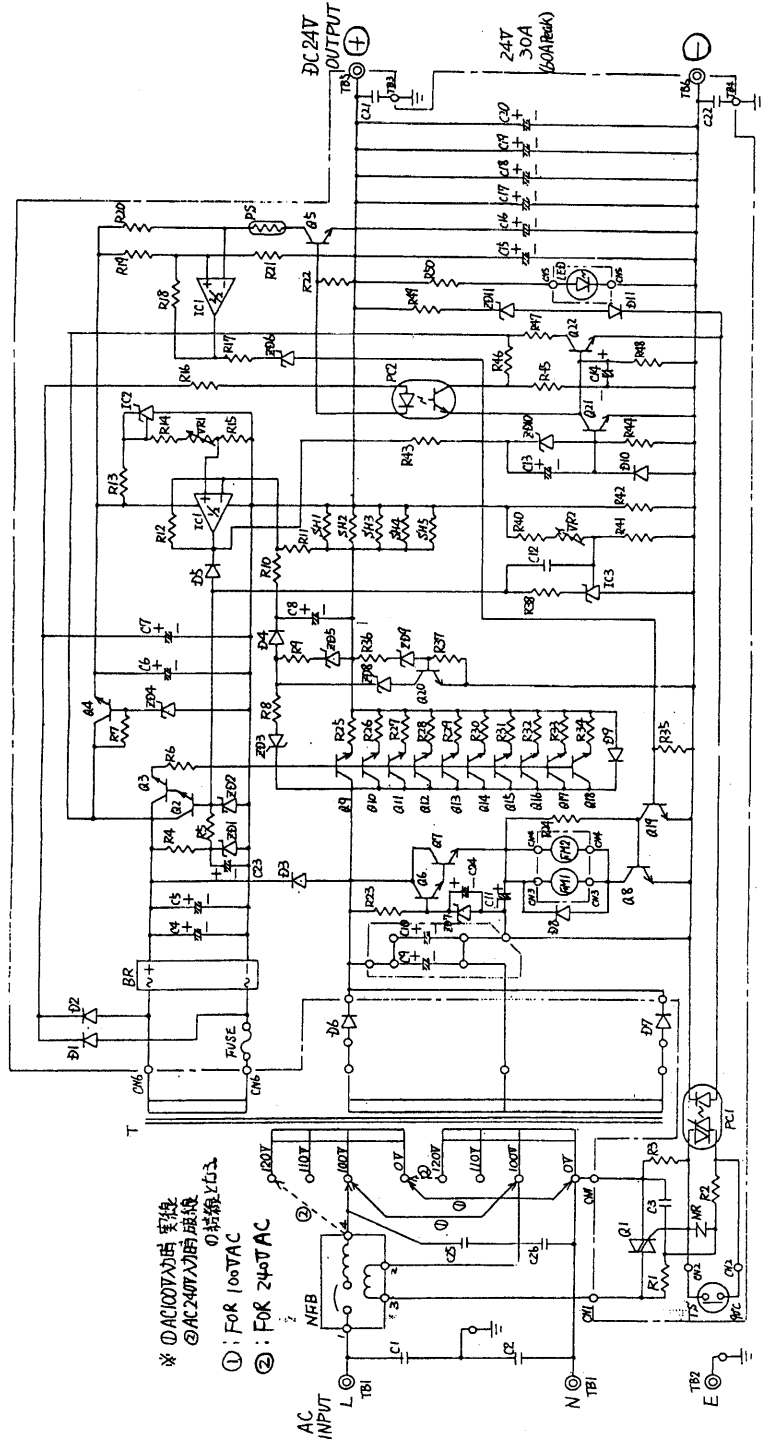
A
B
C
D

N 3



B06 I/F 05P0593

REMARKS		TYPE 05P0593	
DRAWN T.Y.		名称 インターフェース基板	
APPROVED July 19 84 KEDA		NAME INTERFACE BOARD	
SCALE	MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO. B 6
		DWG NO. C5596-K06-	
		A	



※ ① AC100V用 基板
 ② AC240V用 基板
 ③ 基板 Y 1.5


① : FOR 100VAC
 ② : FOR 240VAC

承認	品名	材料	数量	図番	機要
APPROVED	THIRD ANGLE PROJECTION	MATERIAL	Q.TY	DWG.NO.	REMARKS
CHECKED	R SCALE	PR-850 AC電源ユニット			
DRAWN	WEIGHT	PR-850 AC電源ユニット			
	FS-1600	C5519-K20-B			
	2500				
	5000				
	8000				

FURUNO ELECTRIC CO., LTD.

Addenda No. 6
to FS-1562 SM-E5572*M. M. M.***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**

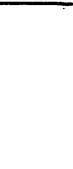
From the production in January 1995.

Urgency

When it is convenient.

RemarksThe 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

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

APPROVED BY K. Ota

WRITTEN BY T. Nishino

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

Correction

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

(Code number)

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

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.

⑤

COMM

Information

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

APPROVED BY *S. Yamari*
 WRITTEN BY *K. Kamoto*

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 December 1995 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.

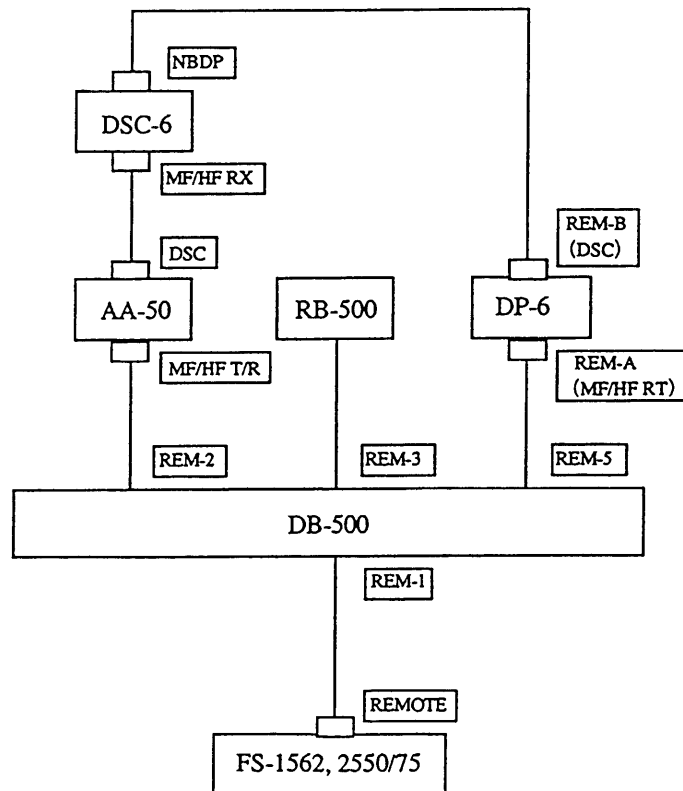
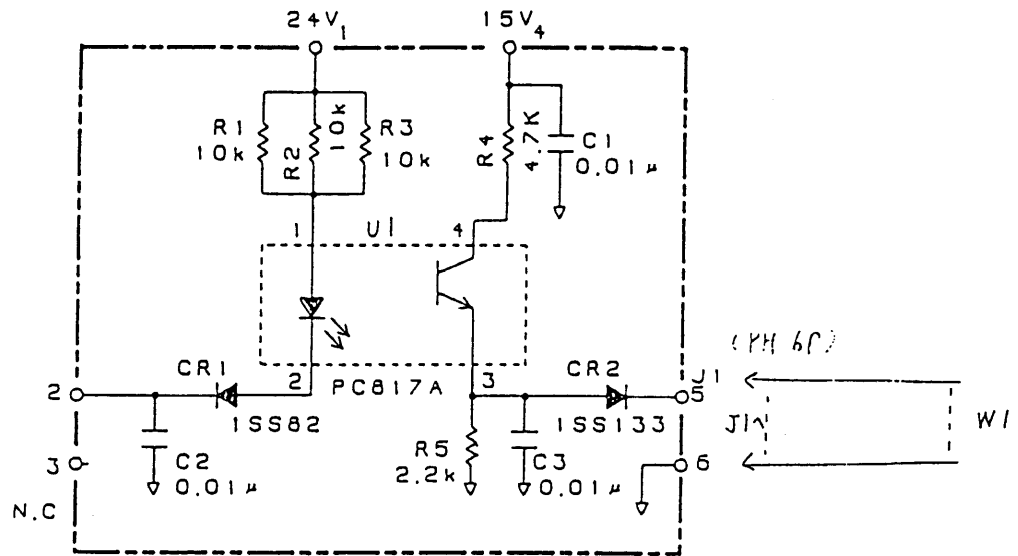


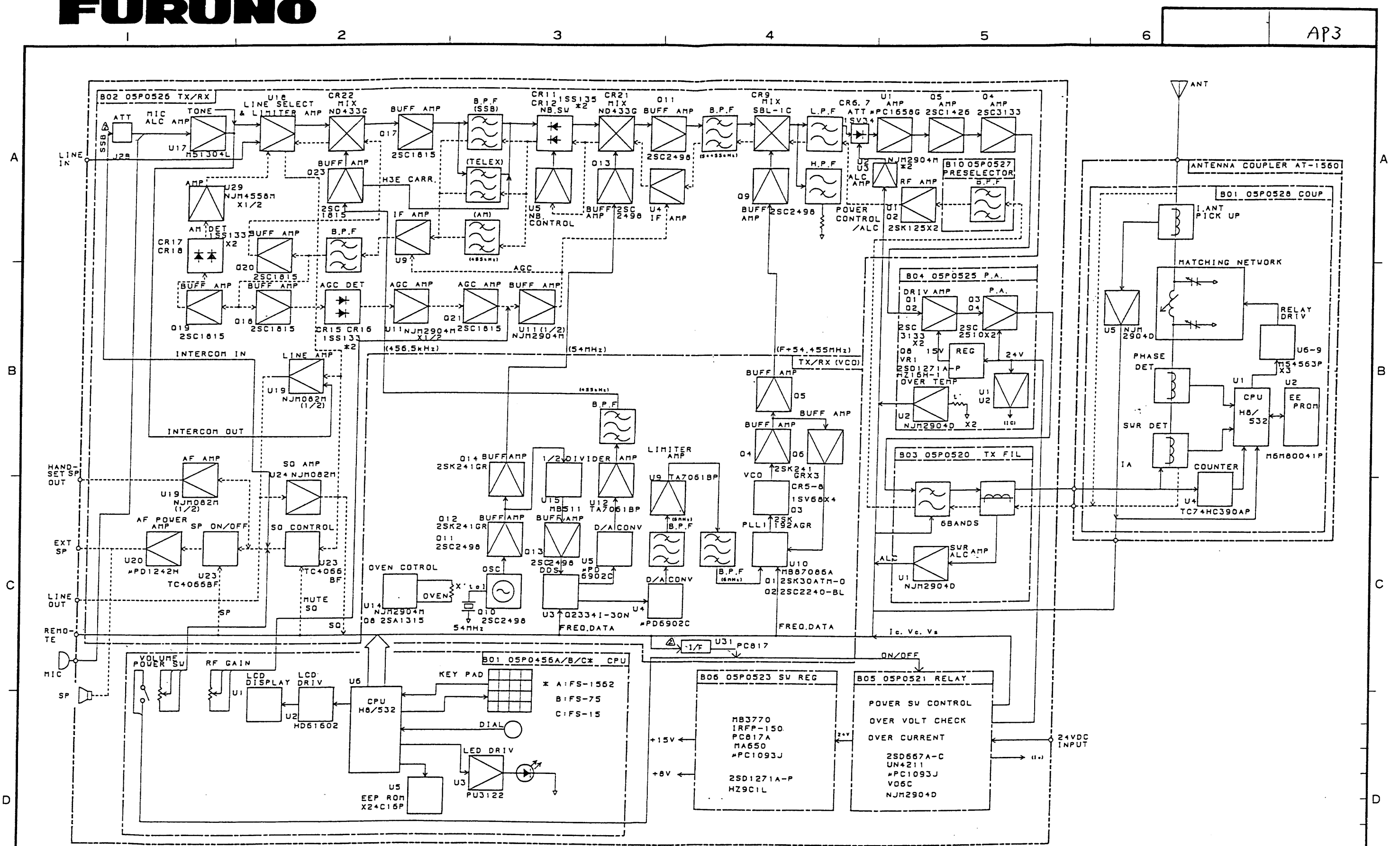
Fig. 1 Typical Connection of GMDSS Equipment

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

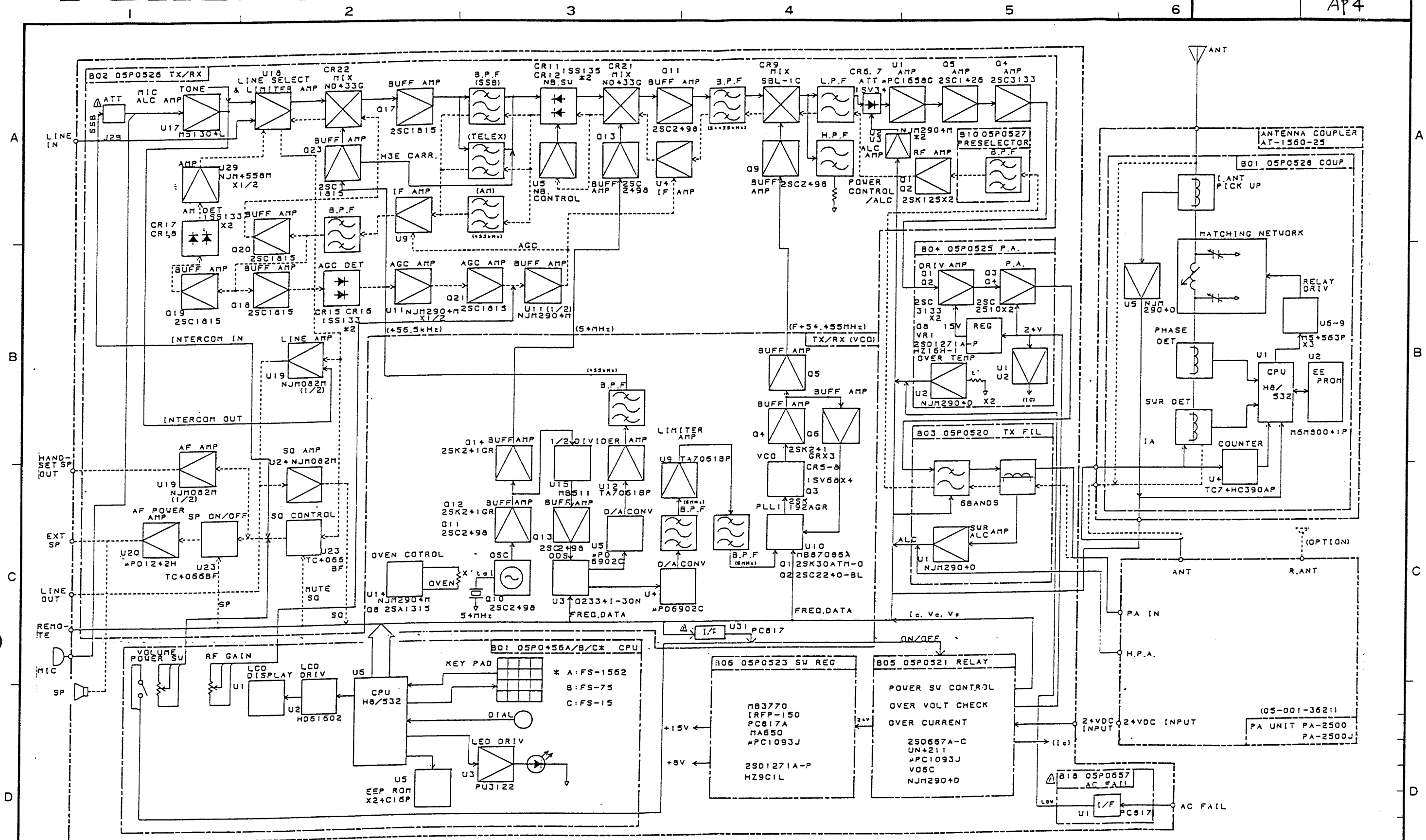


DRAWN <i>N. Yokoyama</i>			TYPE 05P0657
CHECKED Sep. 97 <i>K. Okamoto</i>			名称 AC FAIL
APPROVED Sep. 97 <i>A. Yamaguchi</i>	FS-2550 FS1562-25		回路図
SCALE /	MASS kg	APPLICABLE TO; (MODEL)	BLOCK NO. NAME AC FAIL
DWG NO. C5601-K18- A			SCHEMATIC DIAGRAM

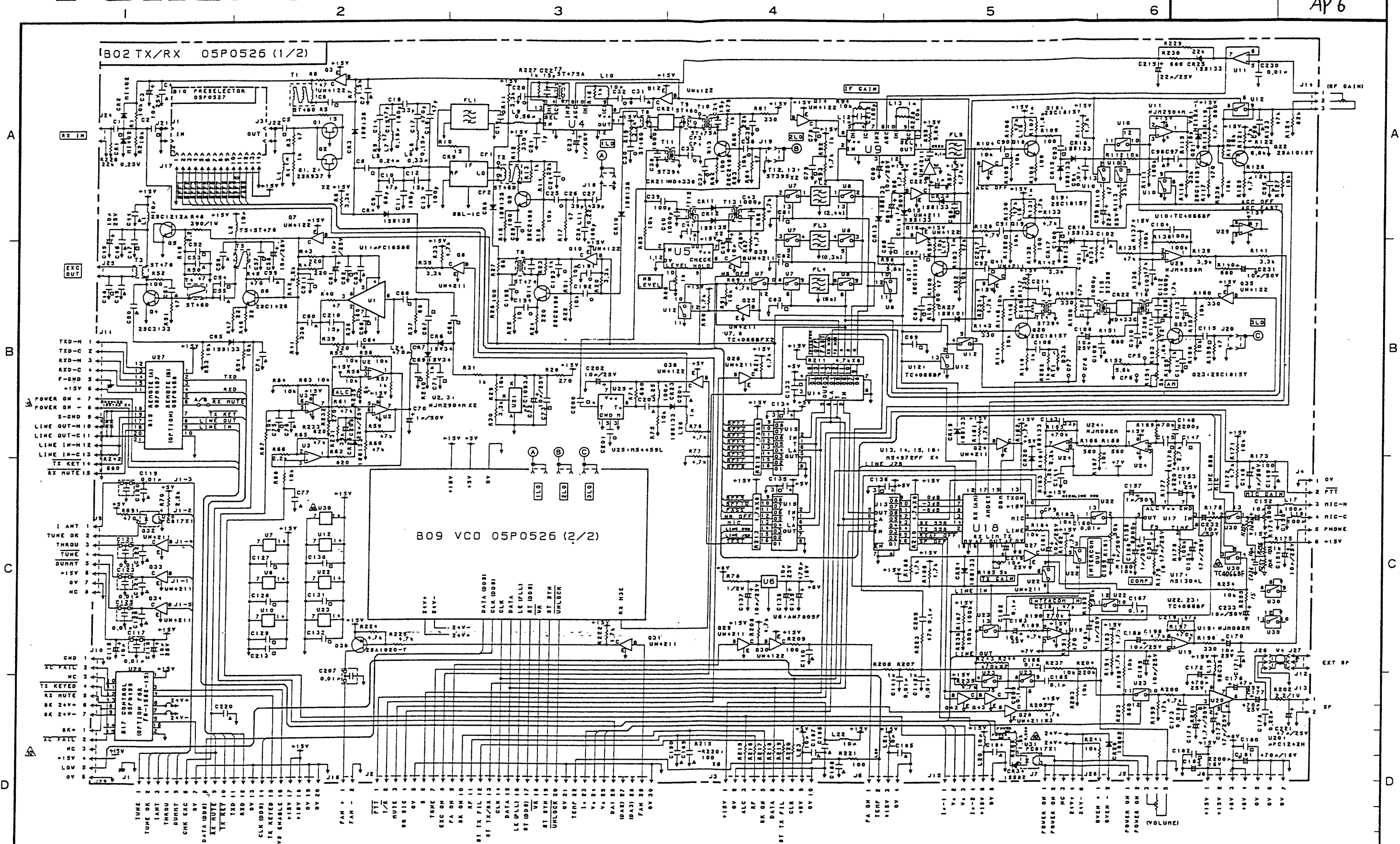


FS-1562
FS-15/75

DRAWN <i>N. Yonegawa</i> CHECKED Sy. 197 K. Okamoto APPROVED Sep 12 '97 A. Yamaguchi SCALE / MKSS kg DWG NO. C5573-B01-C	TYPE 名称 ブロック図 (系統図) NAME BLOCK DIAGRAM
APPLICABLE TO: (MODEL)	BLOCK NO.



DRAWN N. Yoda	TYPE
CHECKED Sep 197 K. Okamoto	名称
APPROVED Sep 12 '97 T. Yamaguchi	ブロック図 (系統図)
SCALE 1/1000	NAME
DWG NO. C5573-B02-A	BLOCK NO.
	BLOCK DIAGRAM



NOTE (1) RESISTORS ARE IN Ω , CAPACITORS ARE IN F, INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
 (2) MARKS \circ : 1000pF/50V
 \triangle : 0.01 μ F/50V
 \square : 0.1 μ F/25V

DRAWN	<i>N. Yokoyama</i>	TYPE	05P0526
CHECKED	<i>Sep '97 K. Okamoto</i>	名称	TX/RX基板 (1/2)
APPROVED	<i>Sep '97 T. Yamaguchi</i>	FS-2550	回路図
SCALE	MASS	FS-15/75	1B 2
DWG NO.	C5572-K09-F	FS-1562	NAME
		APPLICABLE TO:	TX/RX BOARD (1/2)
		BLOCK NO.	SCHEMATIC DIAGRAM



Information

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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

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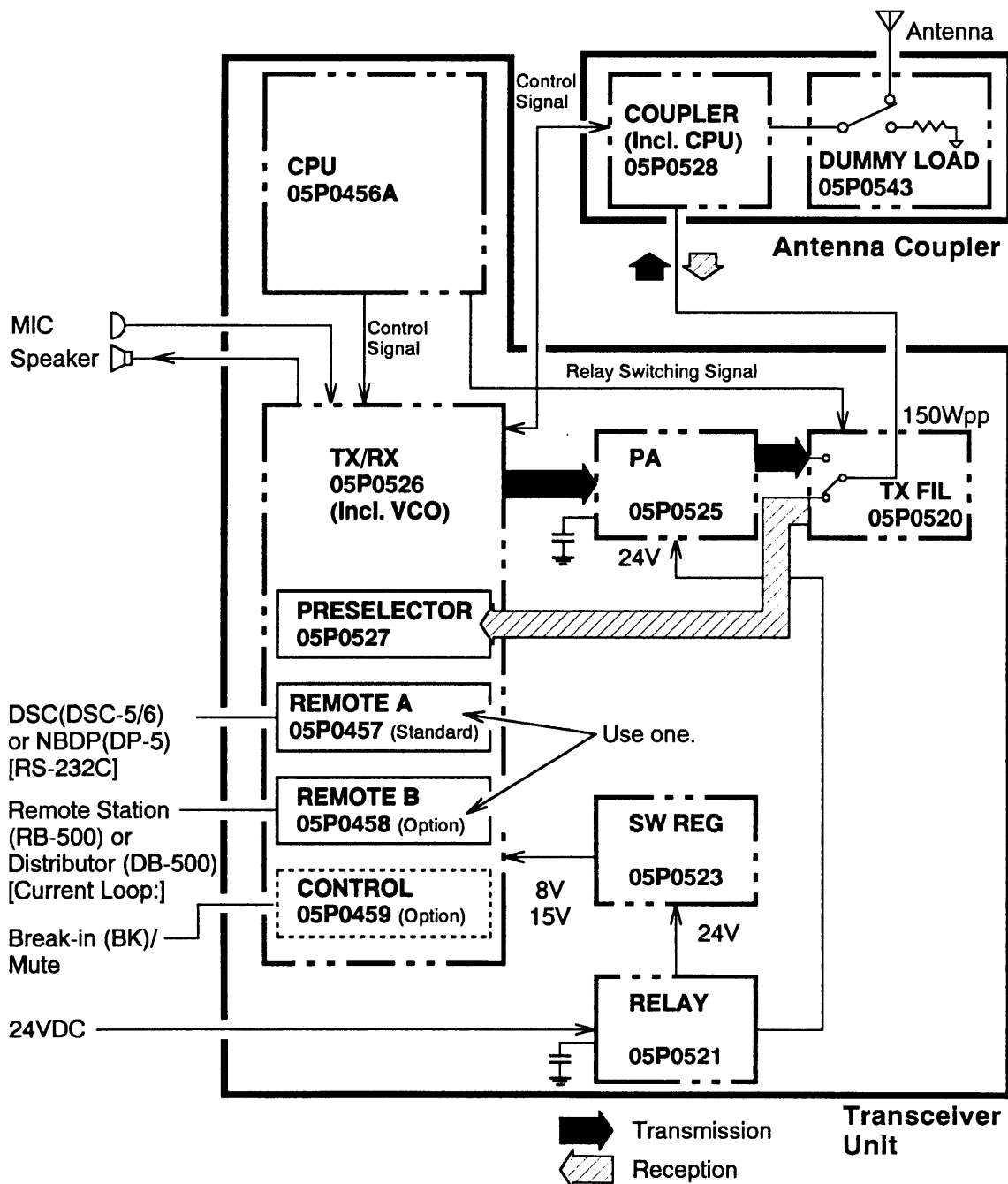
Chapter 1 Block Description	1-1
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Chapter 1 Block Description

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.)

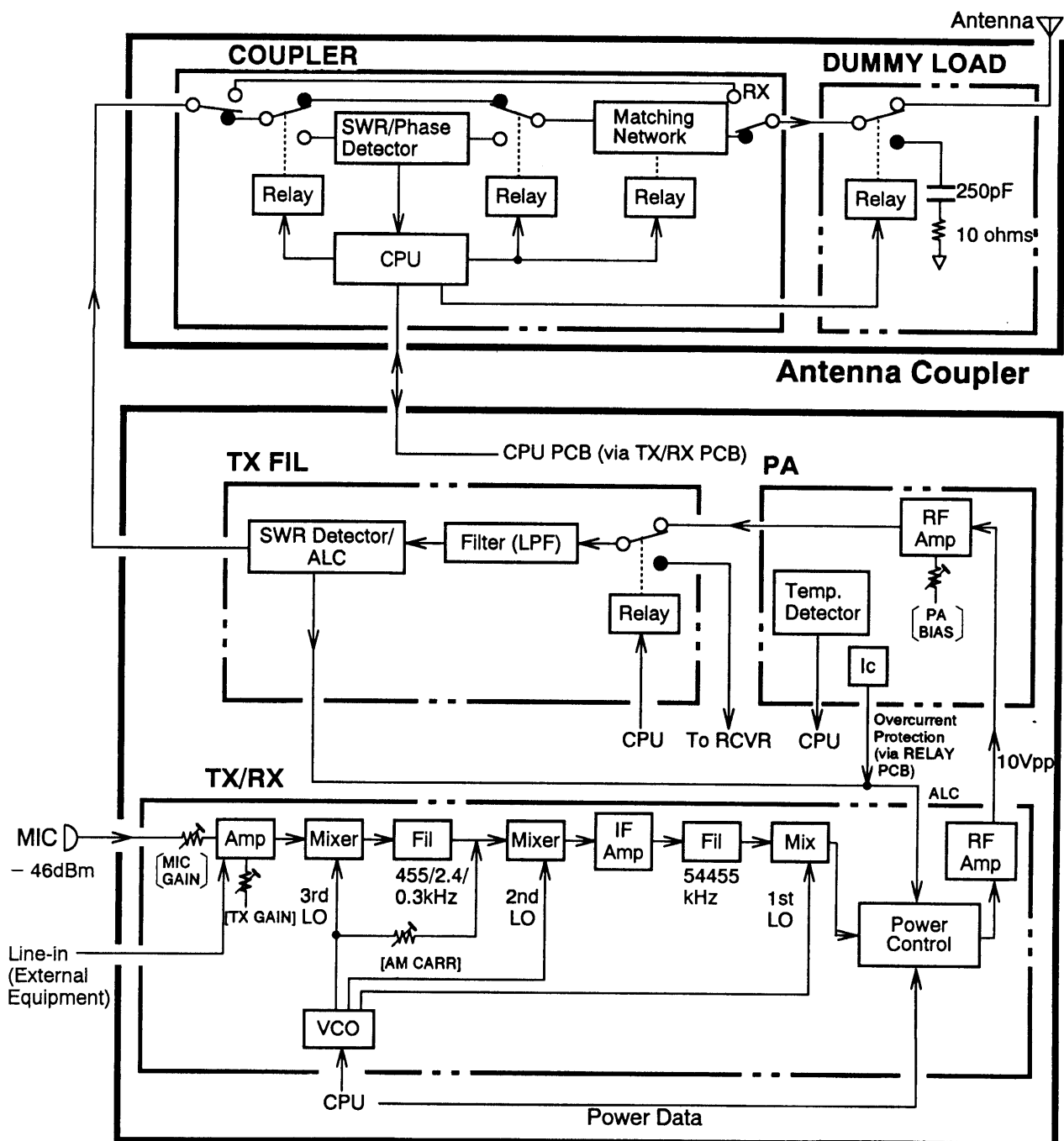
When turning the power on, the RELAY board is activated, causing the input voltage (24VDC) to be fed to the SW REG board which produces +8V and +15V for the TX/RX board.



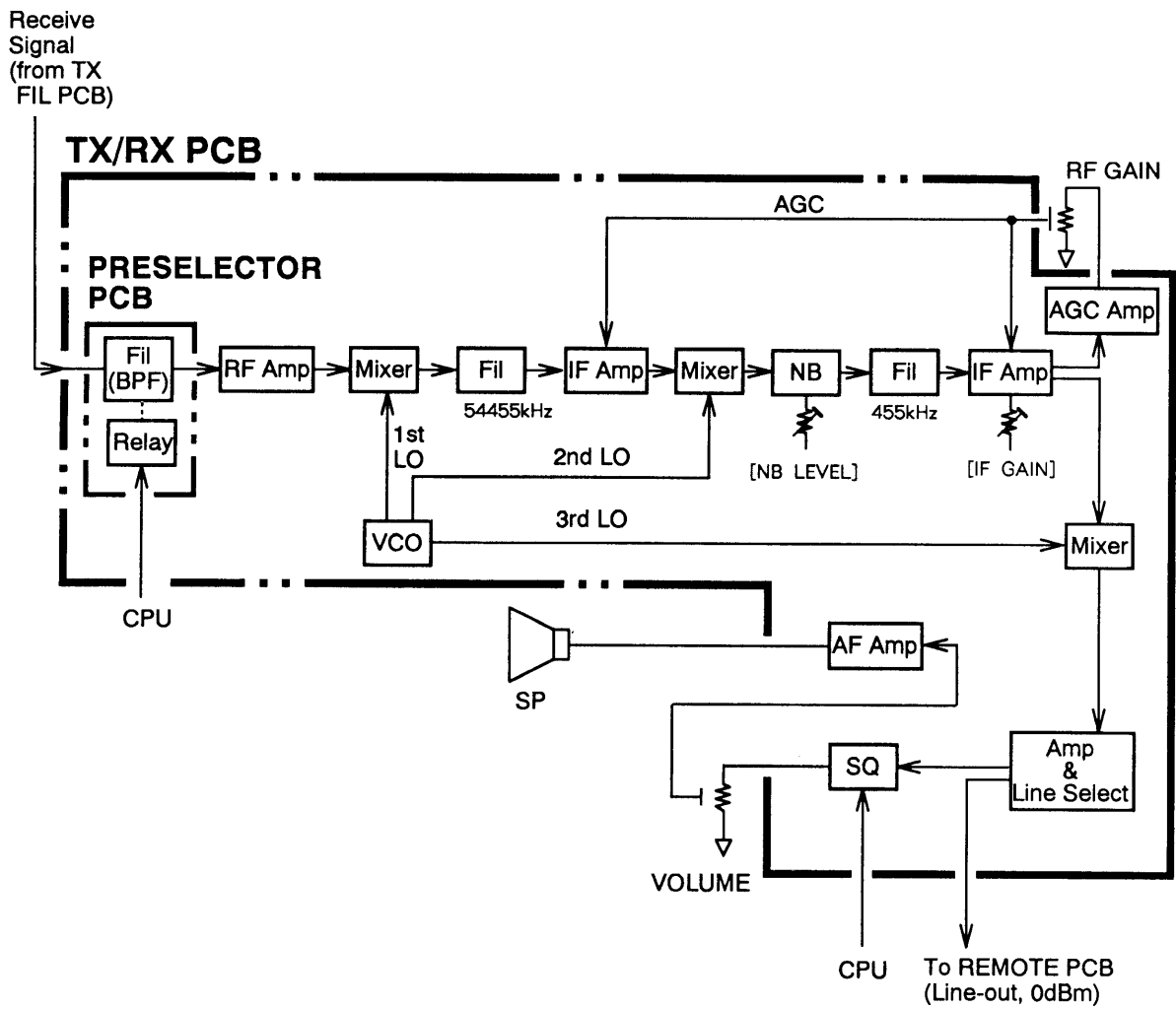
1.2 Transmitter

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

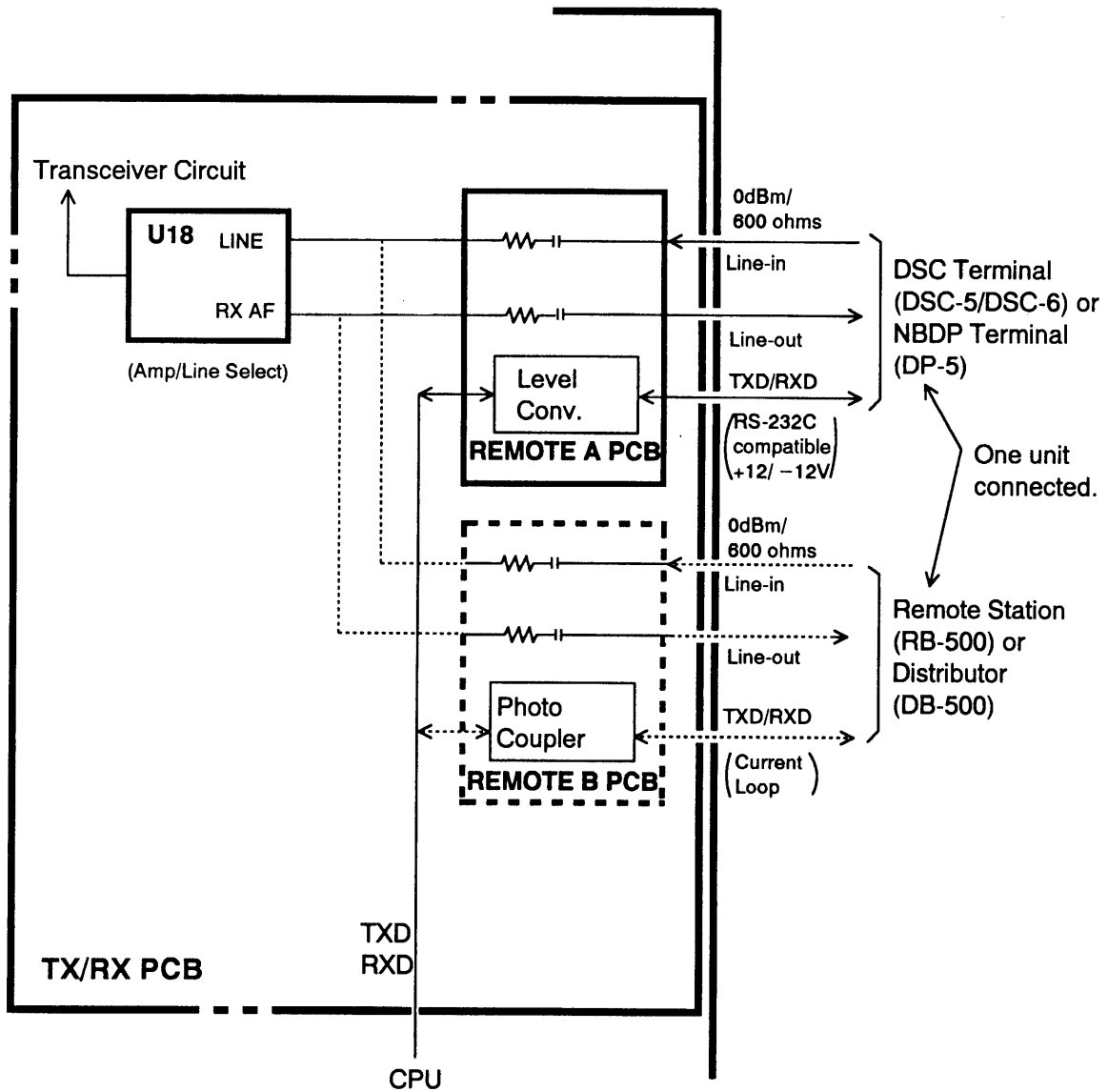
The ALC circuit on the TX FIL board and the overcurrent (Ic) protection circuit on the PA board are applied to the TX/RX board to keep the output power constant and prevent Ic from exceeding 16 to 17A, respectively. Further, if the SWR value becomes worse, the output power is reduced through the ALC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



1.3 Receiver



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

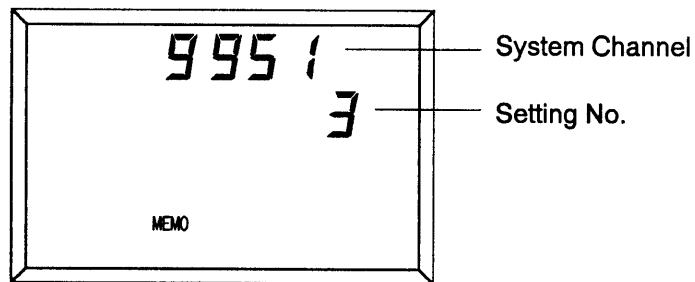
General

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

2.1 Changing System Settings

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

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	○	○	○	○	○	○			
2.0—2.4999	○	○	○						
2.5—2.9999	○	○	○						
3.0—3.4999	○	○	○						
3.5—3.9999	○	○	○	○	○	○			
4.0—5.9999	○	○	○						
6.0—7.9999	○	○	○						
8.0—11.9999	○	○	○						
12.0—15.9999	○	○	○						
16.0—17.9999	○	○	○						
18.0—21.9999	○	○	○						
22.0—24.9999	○	○	○						
25.0—27.5	○	○	○						
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)									
	○			same power data as 1.6-3.9999MHz	same power data as 1.6-3.9999MHz	same power data as 1.6-3.9999MHz			

“○” – marked power data can be set individually.

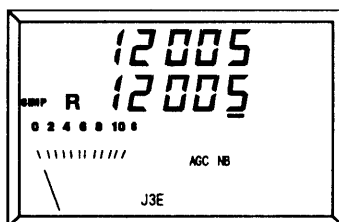
NOTE: Power data (HI/LOW) for user channel is commonly used for all class of emission.

**HI (normal)
power data**

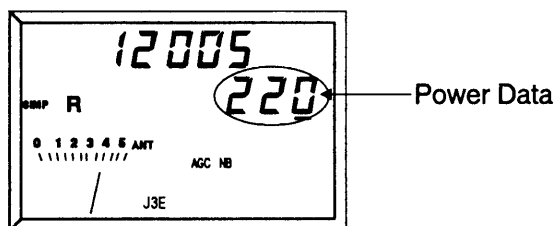
J3E

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

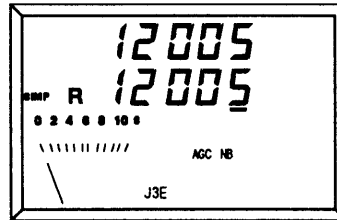
6. Press the **ENT** key to register power data. Power data disappears from the LCD.
7. To set another channel, repeat steps 2 to 6.

**LOW (reduced)
power data**

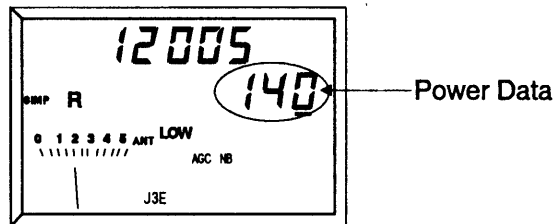
Procedure

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

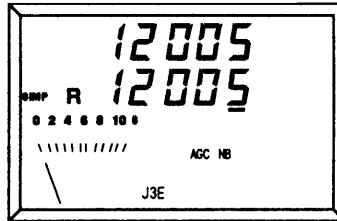
6. Press the **ENT** key to register power data. Power data disappears from the LCD.
7. To set another channel, repeat steps 2 to 6.

**TUNE power data
(Factory-adjusted)**

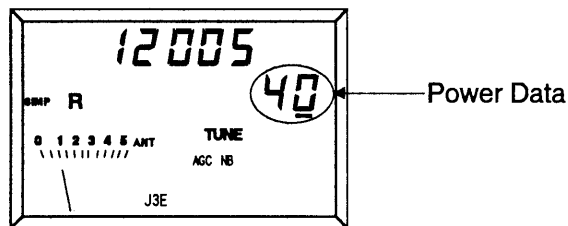
Procedure

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.

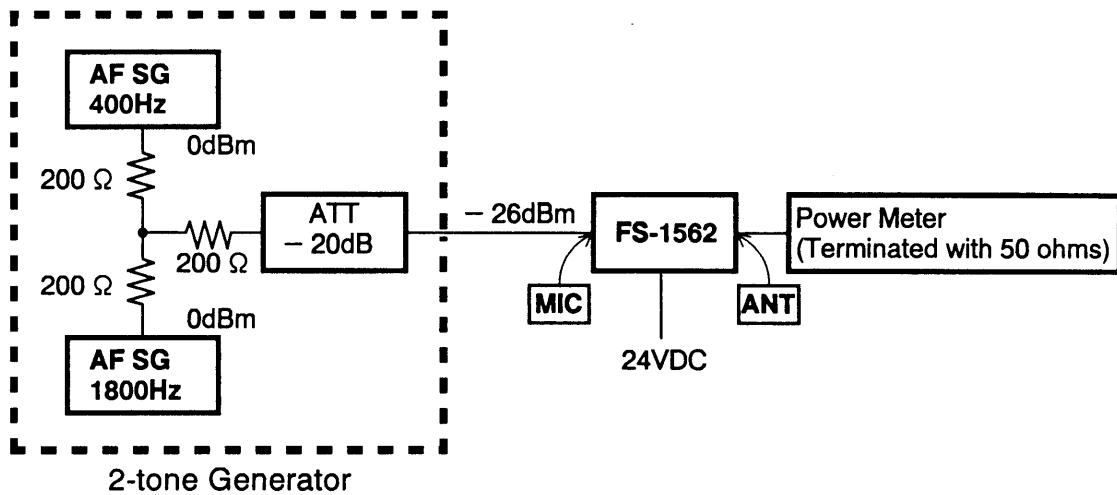
3.2 Line Voltage Check

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.



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)	$500 \pm 50\text{mA}$	R25	J3E PTT ON (No AF input)

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

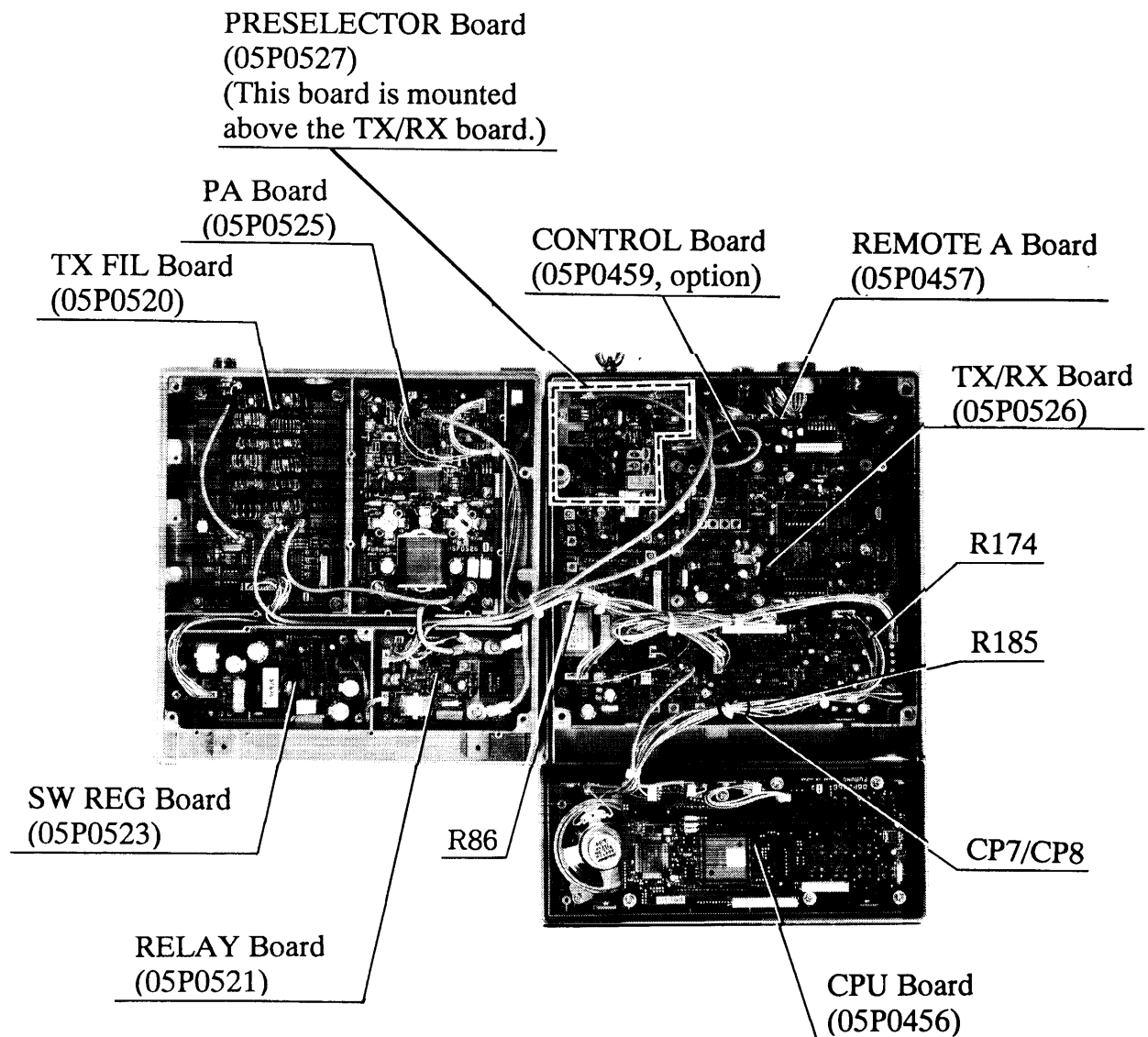
3.5 MIC Gain

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

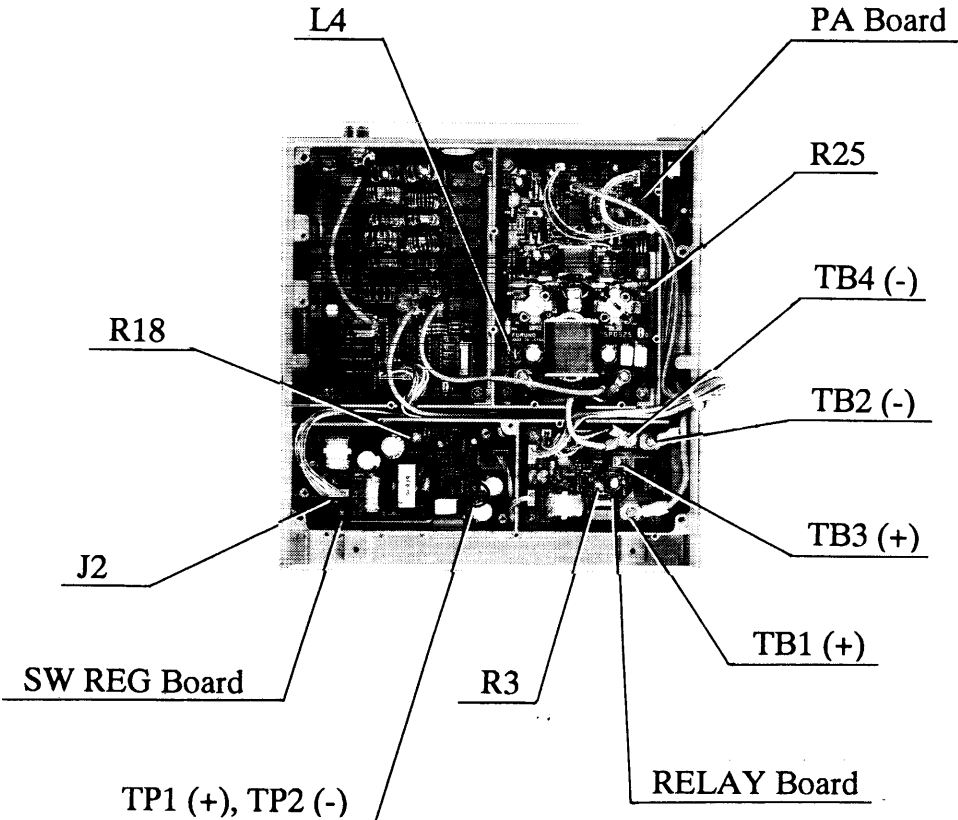
3.6 NB (Noise Blanker) Level

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

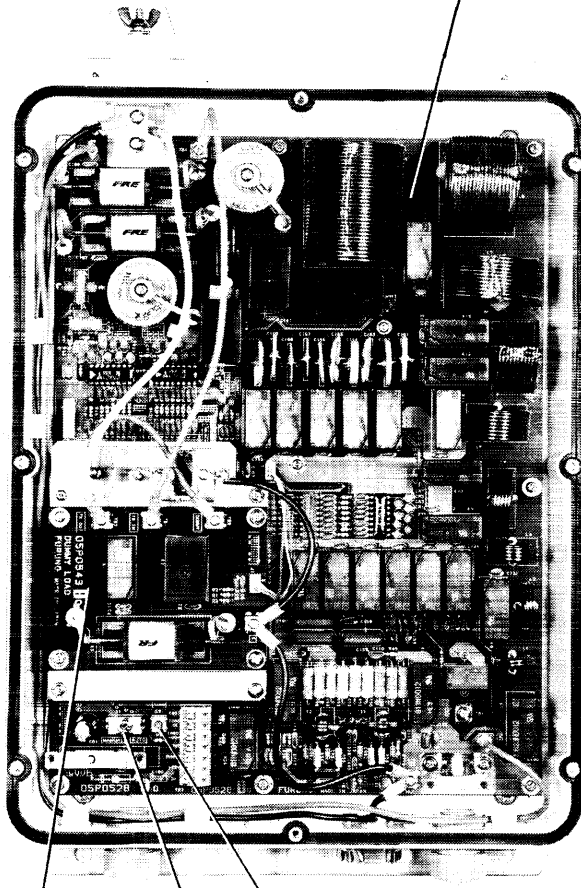


† Photo No. 1297



T Photo No.1297

COUPLER Board
(05P0528)



DUMMY LOAD Board
(05P0543)

TUNE Switch

Auto/Manual
Switch

Chapter 5 Troubleshooting

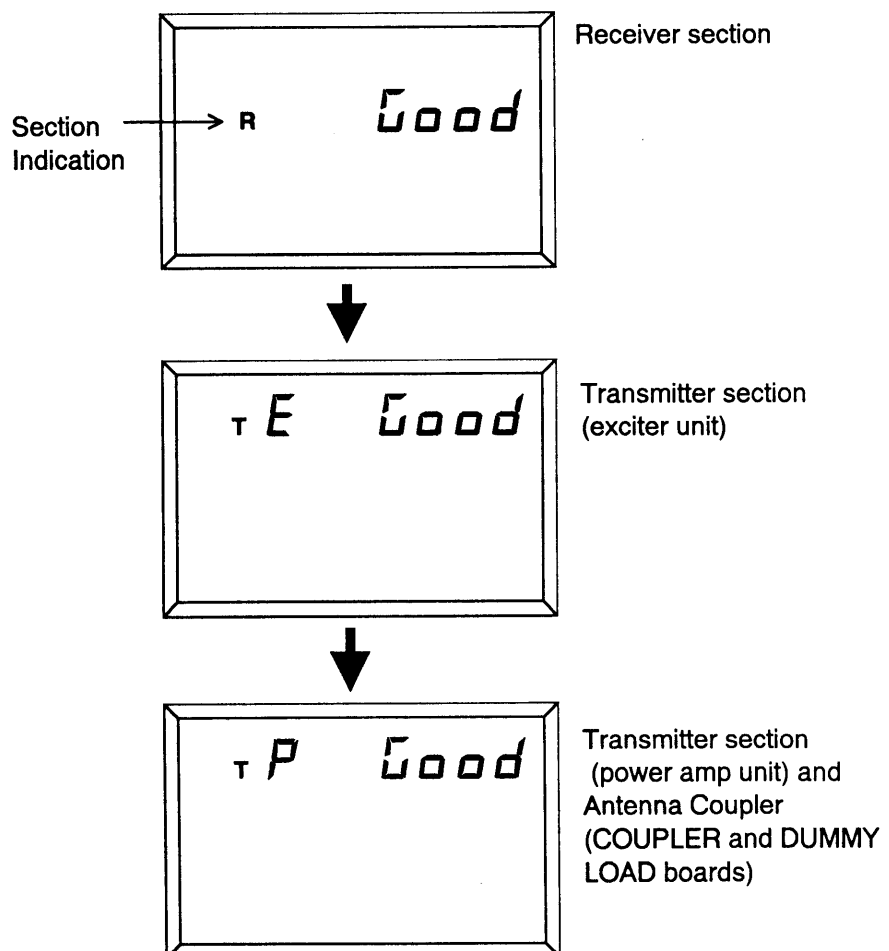
5.1 Self-test

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.



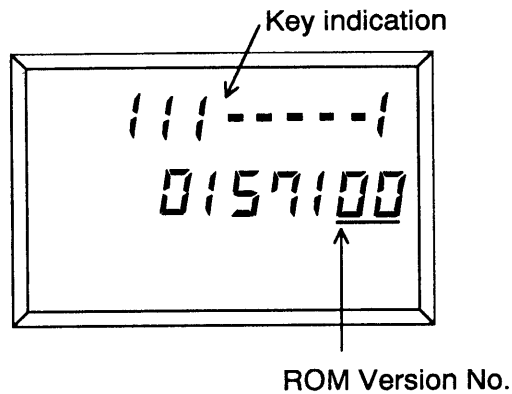
NOTE: If fault is detected, "no Good" appears instead of "Good" and appropriate section indication blinks after completion of this test.

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

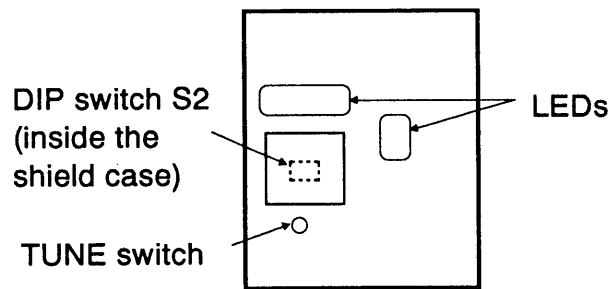
Antenna Coupler Test

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.

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	Transmit: 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 °C
Relative Humidity	93% at 40 °C
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) \times 256 mm(H) \times 300 mm(D), 6.4 kg

RECEIVER

Receiving System

Double-conversion superheteodyne
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 μ V)

(*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 °C 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	TRANSCIVER 本体		PAGE
REF. DWG.	C5572-K10-B	BLOCK NO.	1B
			1

SYMBOL 記号	T Y P E 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
PRINTED CIRCUIT BOARD		プリント基板		
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ヨウワカ91/01	000-511-412	
1B08J0004	FM14-7S	K1000ヨウワカ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		
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	TRANSCIVER			REF. DWG.	C5572-K10-B	BLOCK NO.	1B	2	
SYMBOL	T	Y	P	E	SPECIFICATIONS	CODE NO.	REMARKS		
記号	型	名	規	格	コード番号	備考			
TRANSISTOR					トランジスタ				
1B06Q0001	IRFP150					000-121-823			
1B04Q0003	2SC2510					005-945-210	PA		
1B04Q0004	2SC2510					005-945-210	PA		
RESISTOR					抵抗				
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	T Y P E 型名	SPECIFICATIONS 規格	CODE NO. コード番号	REMARKS 備考
PRINTED CIRCUIT BOARD		プリント基板		
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	

SYMBOL	T Y P E	SPECIFICATIONS	CODE NO.	REMARKS
記号	型名	規格	コード番号	備考

RESISTOR

テイクウ

2B03R0001	ERD-16TJ2R2	0.16W 2.2	000-330-823	
2B04R0001	RFC-10010	チツフ ^o ノミ 10オ-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

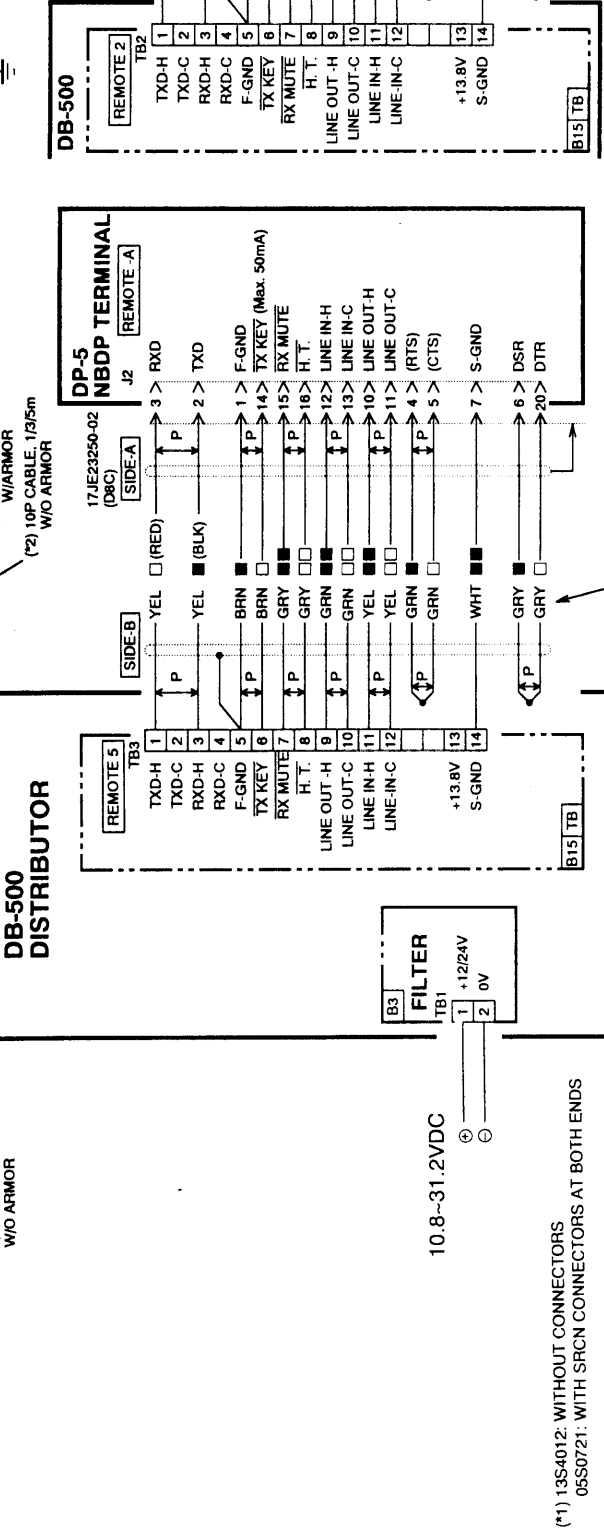
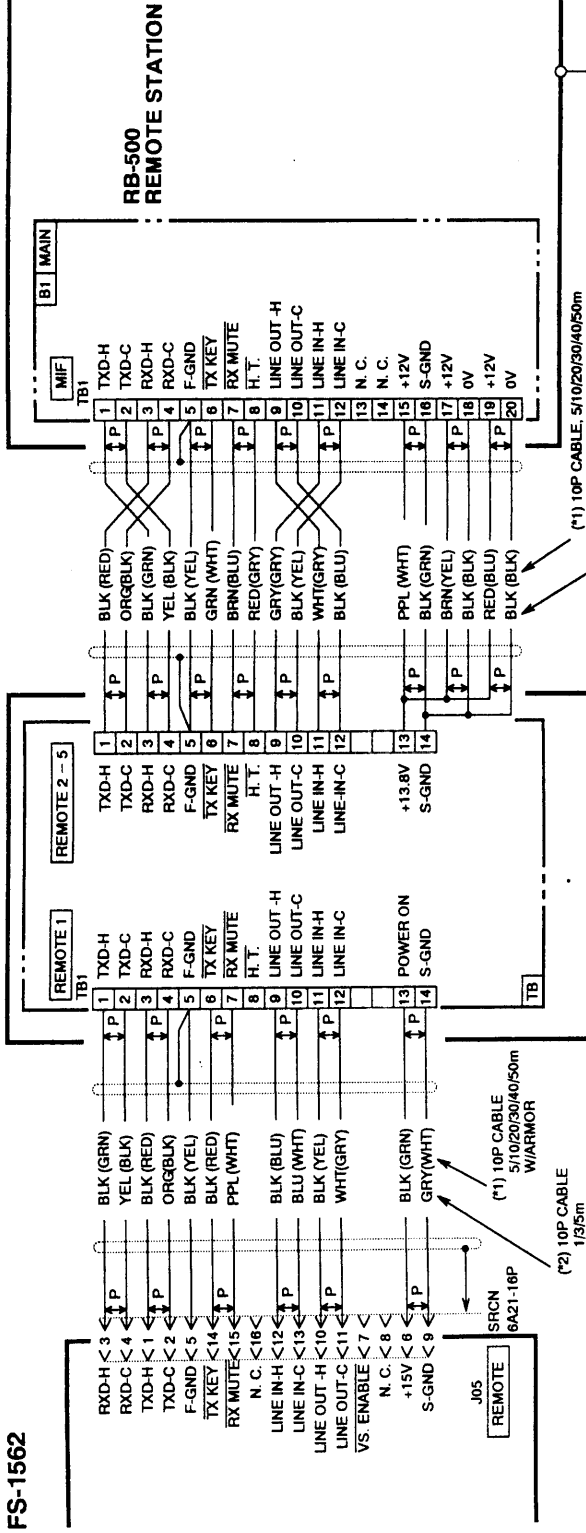
コネクタ-ツキケ-フ^oル

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	

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

FS-1562



承認 APPROVED	名 称 TITLE	製 図 DRAWN	番 号 DWG. NO
検 査 CHECKED	FS-1562 INTERCONNECTION DIAGRAM(2/2)	吉 田 大 輔 Y. SAITO	E5572-C02-B
検 査 CHECKED		吉 田 大 輔 Y. SAITO	
製 図 DRAWN		吉 田 大 輔 Y. SAITO	

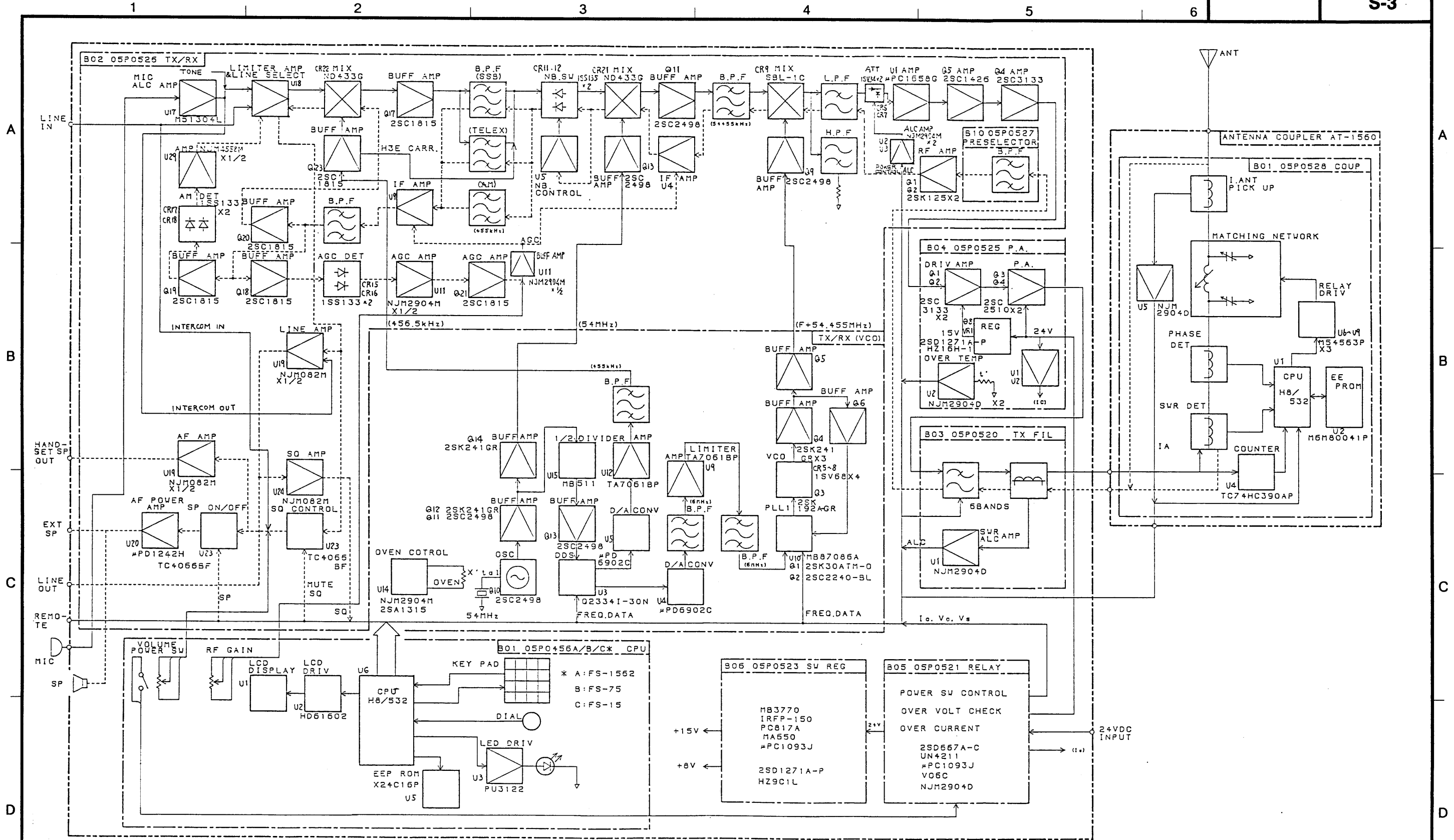
SSB+DB-500+DP-5/DSC-5/RB-500

FURUNO ELECTRIC CO., LTD.

(*1) 13S4012: WITHOUT CONNECTORS
05S0721: WITH SRCN CONNECTORS AT BOTH ENDS

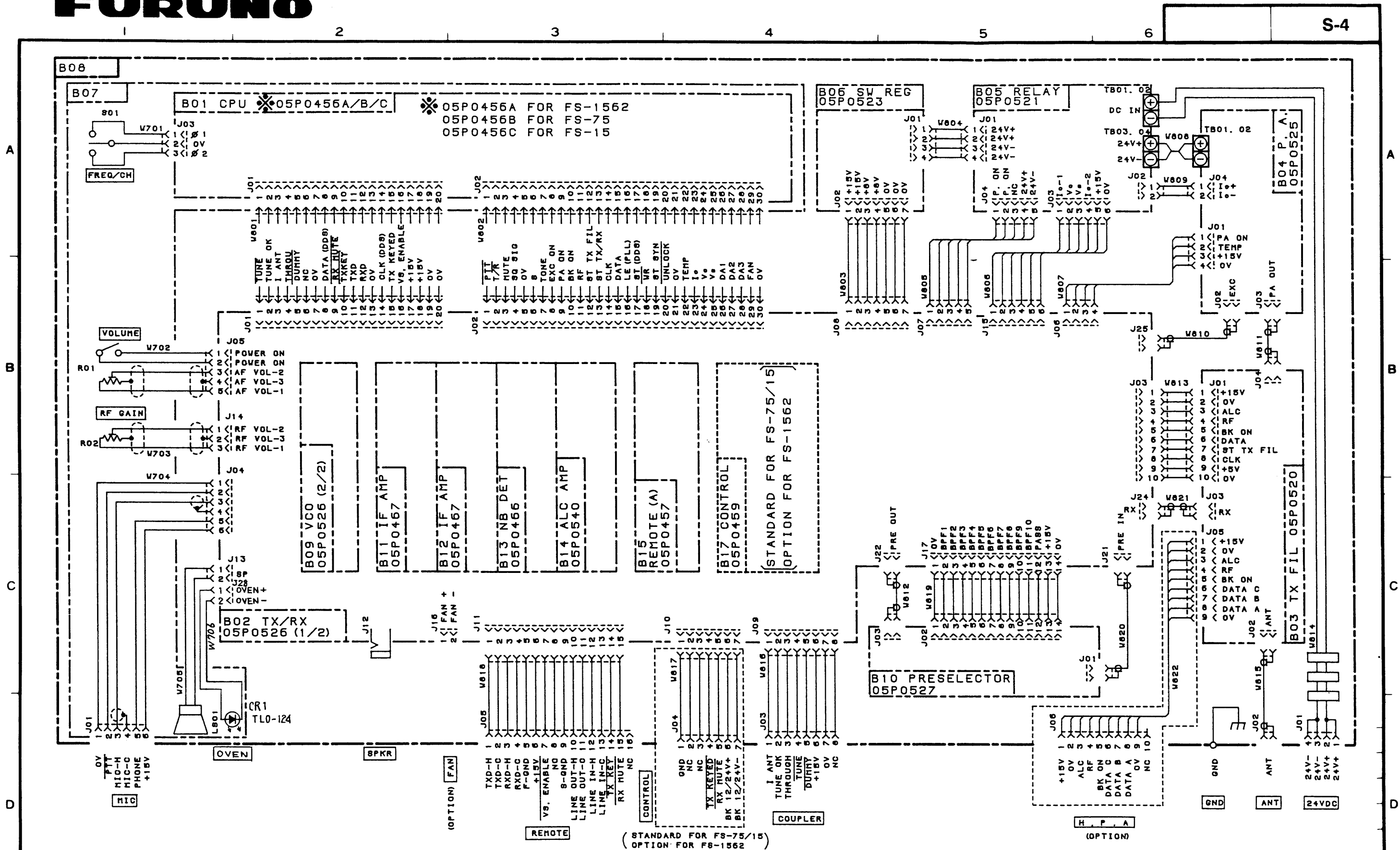
(*2) 05S0719: WITHOUT CONNECTORS
05S0720: WITH SRCN CONNECTORS AT BOTH ENDS

(*3) 05S0783: WITHOUT CONNECTORS
05S0784: WITH D-SUB CONNECTORS AT BOTH ENDS
(CUT 'SIDE B' CONNECTOR)

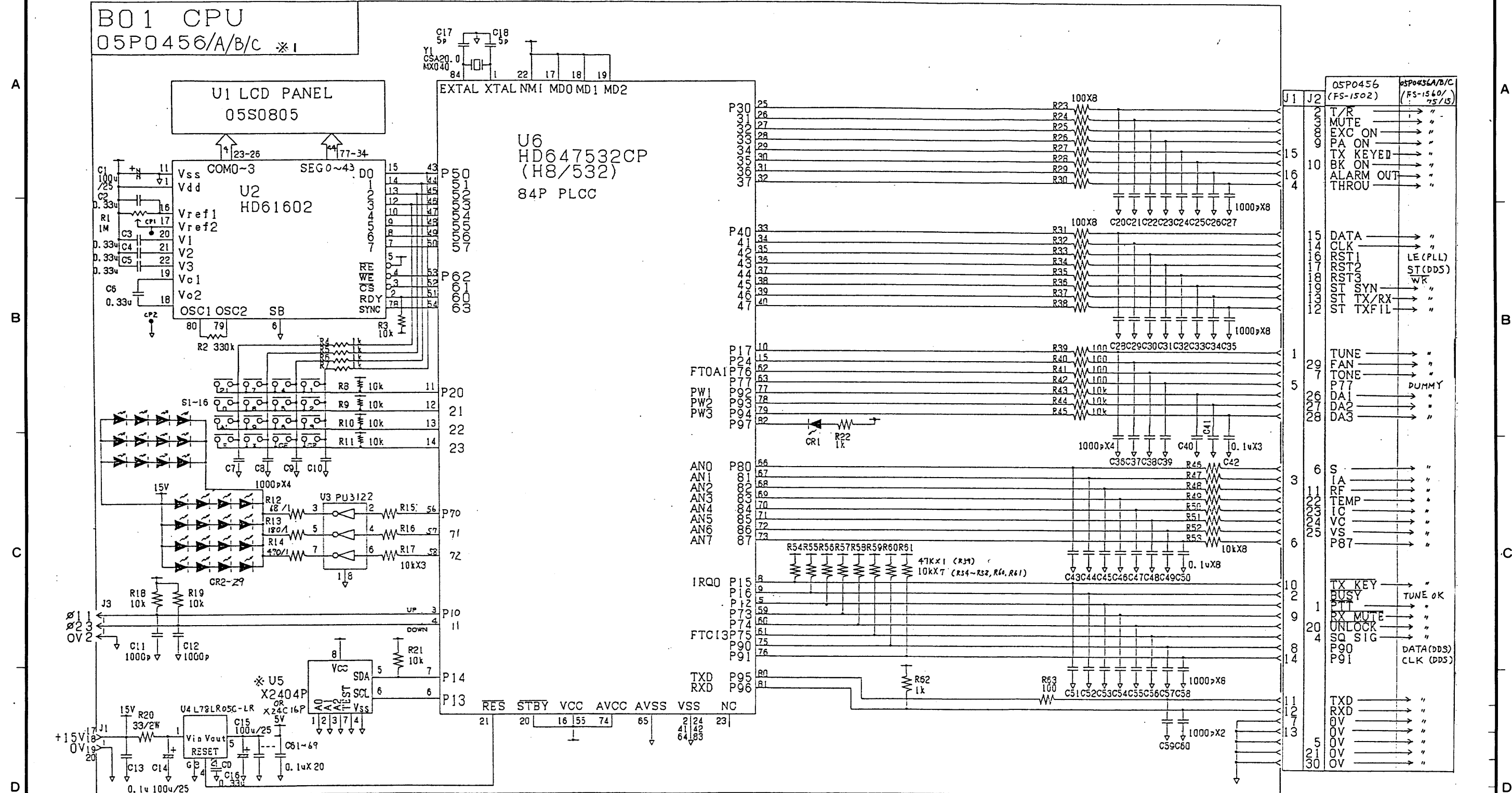


FS-15
FS-75
FS-1562

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 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. HATAI	尺度 SCALE	図番 DWG. NO.	C5573-B01-B	
製図 DRAWN	JUL 15 '93 M. USAKO	重量 WEIGHT	kg		



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	図番 DWG. NO.	C5572-K10-B
製図 DRAWN	May. 31. '93 T. NISHINO		

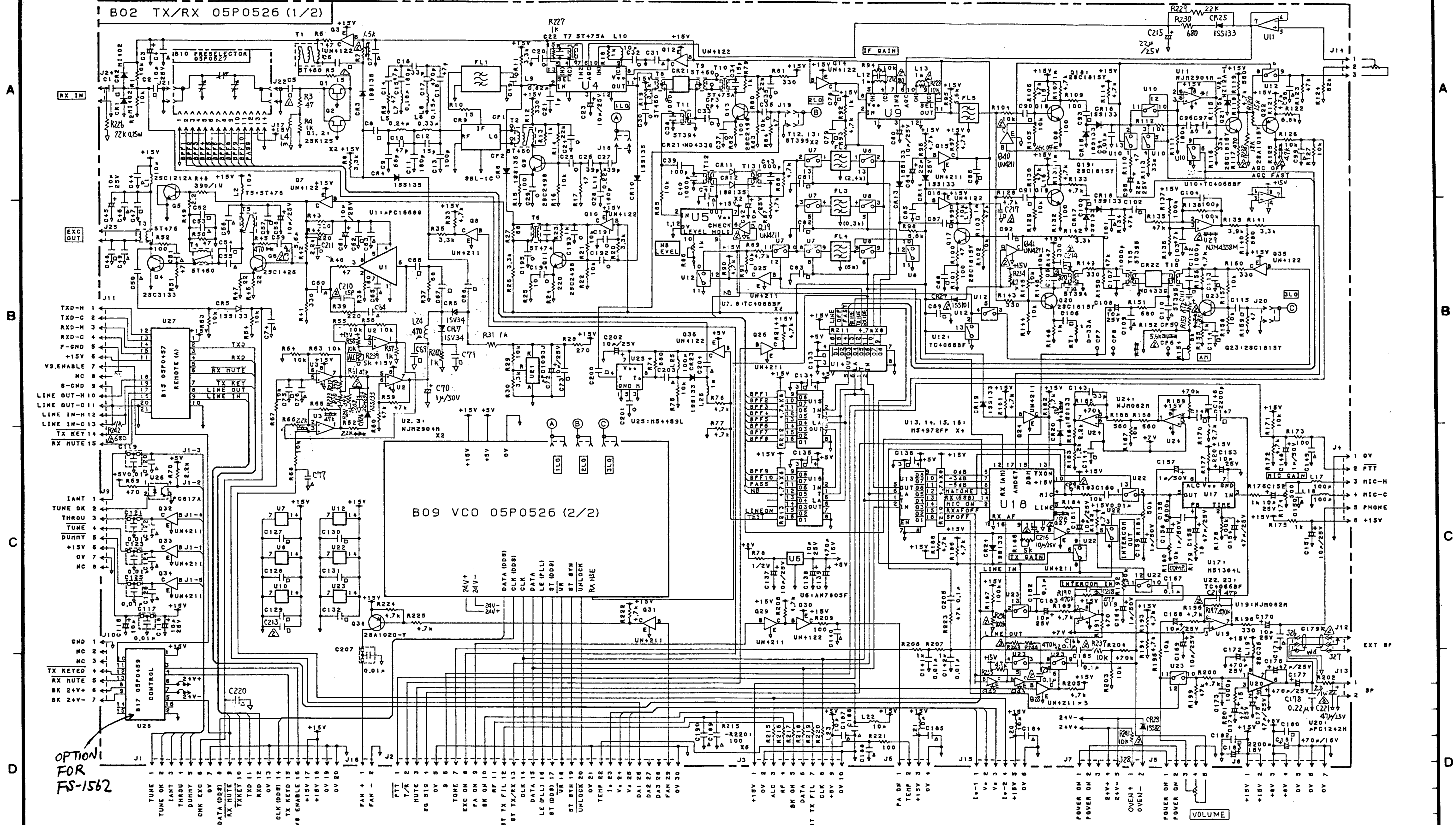


*1

MODEL	P.C.B NAME	* U5	U6 PROGRAM No
FS-1502	05P0456	X2404P	05501441XX
FS-1562	05P0456A	X24C16P	05501571XX
FS-1575	05P0456B	X24C16P	05501581XX
FS-15	05P0456C	X24C16P	05501591XX
FS-1552	05P0456D	X24C16P	05501691XX

FS-1552
FS-1562
FS-1575
FS-1502

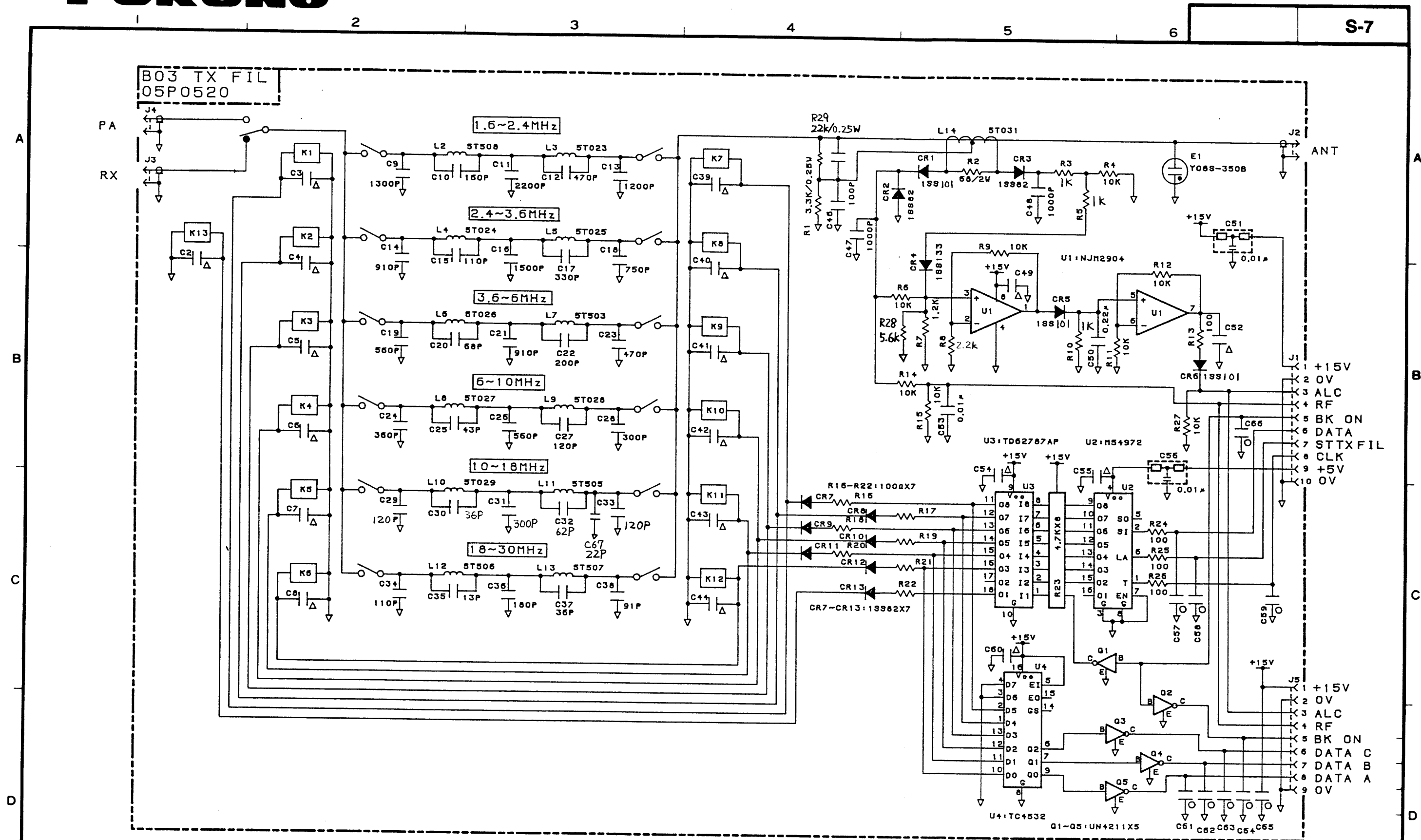
承認 APPROVED	2009.11.10 TAKAKI	名称 TITLE	B01 05P0456 CPU
検 CHECKED	2009.11.10 M. ICHIDA	製 DRAWN	製番 DWG. NO. C5548 - K02 - C



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

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

FS-1562
FS-15/75

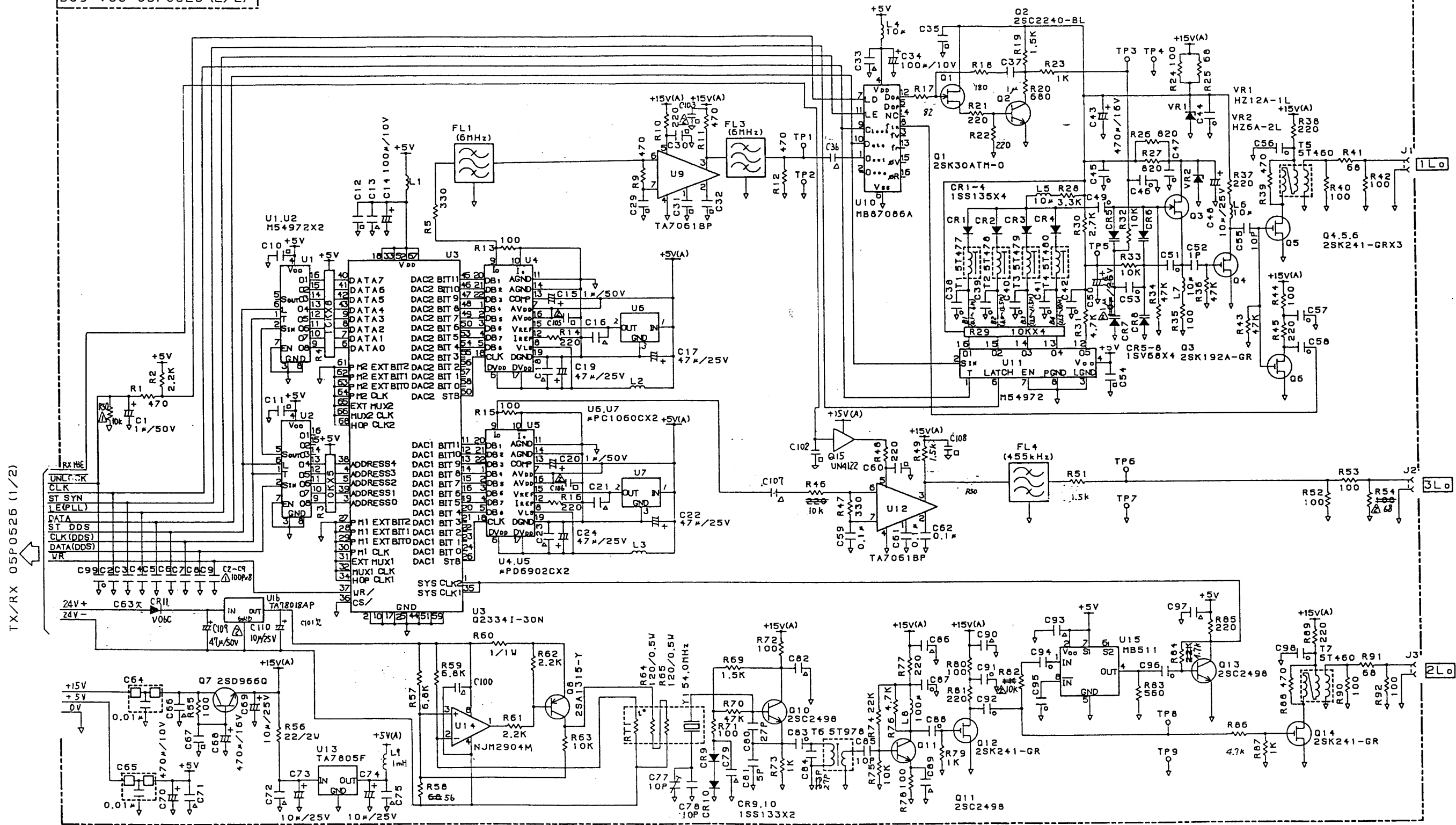


NOTE (1) RESISTORS ARE IN Ω, CAPACITORS ARE IN F,
 INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
 (2) MARKS ○: 1000pF/50V
 △: 0.01μF/50V

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	図番 DWG. NO.	C5572-K08-B
製図 DRAWN	May 31 '93 T. NISHINO		

B09 VCO 05P0526 (2/2)

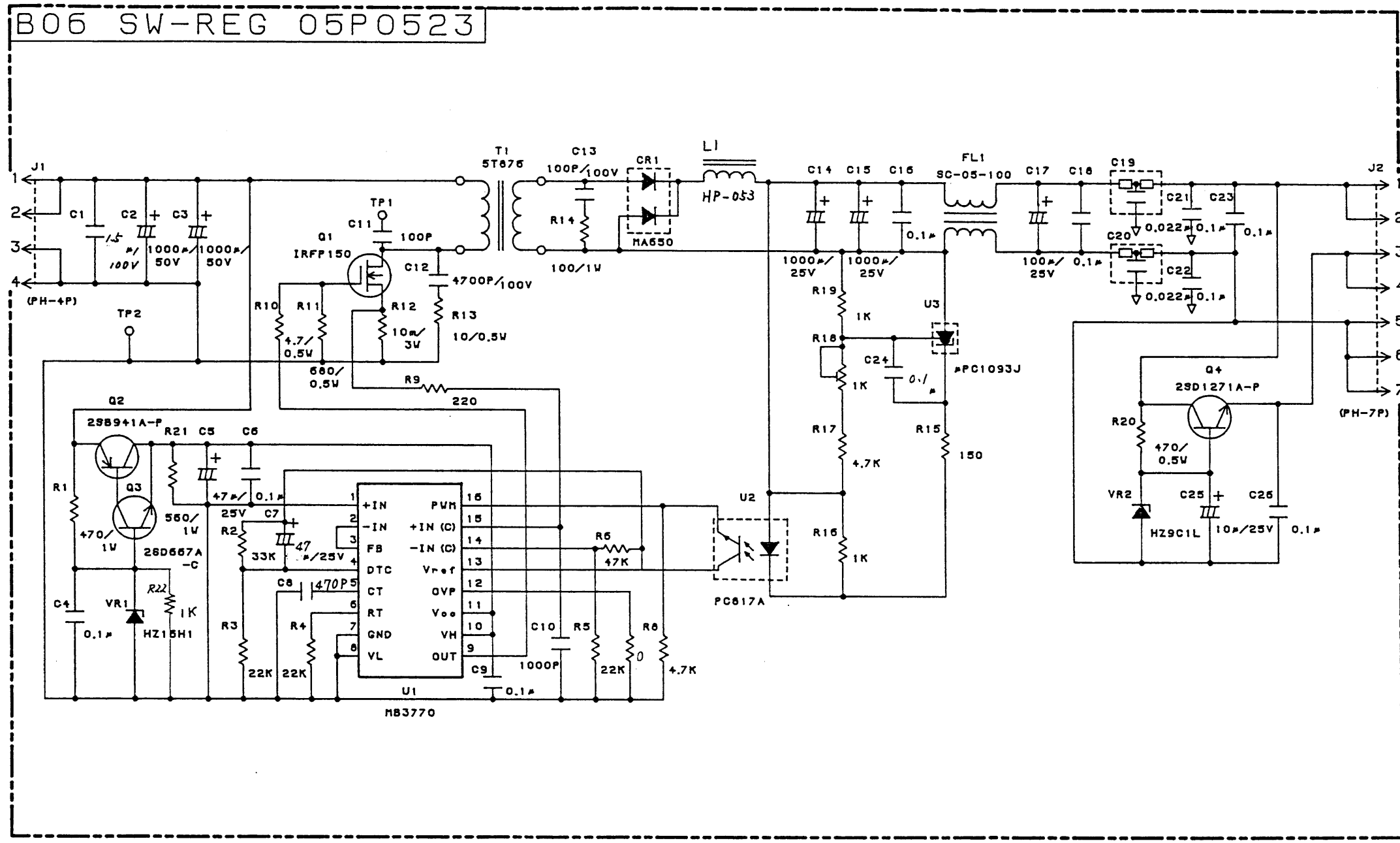


NOTE (1) RESISTORS ARE IN Ω , CAPACITORS ARE IN F,
INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.

(2) MARKS \circ : 1000pF/50V
 Δ : 0.01 μ F/50V
 \square : 0.1 μ F/25V

FS-1562
 FS-15/75

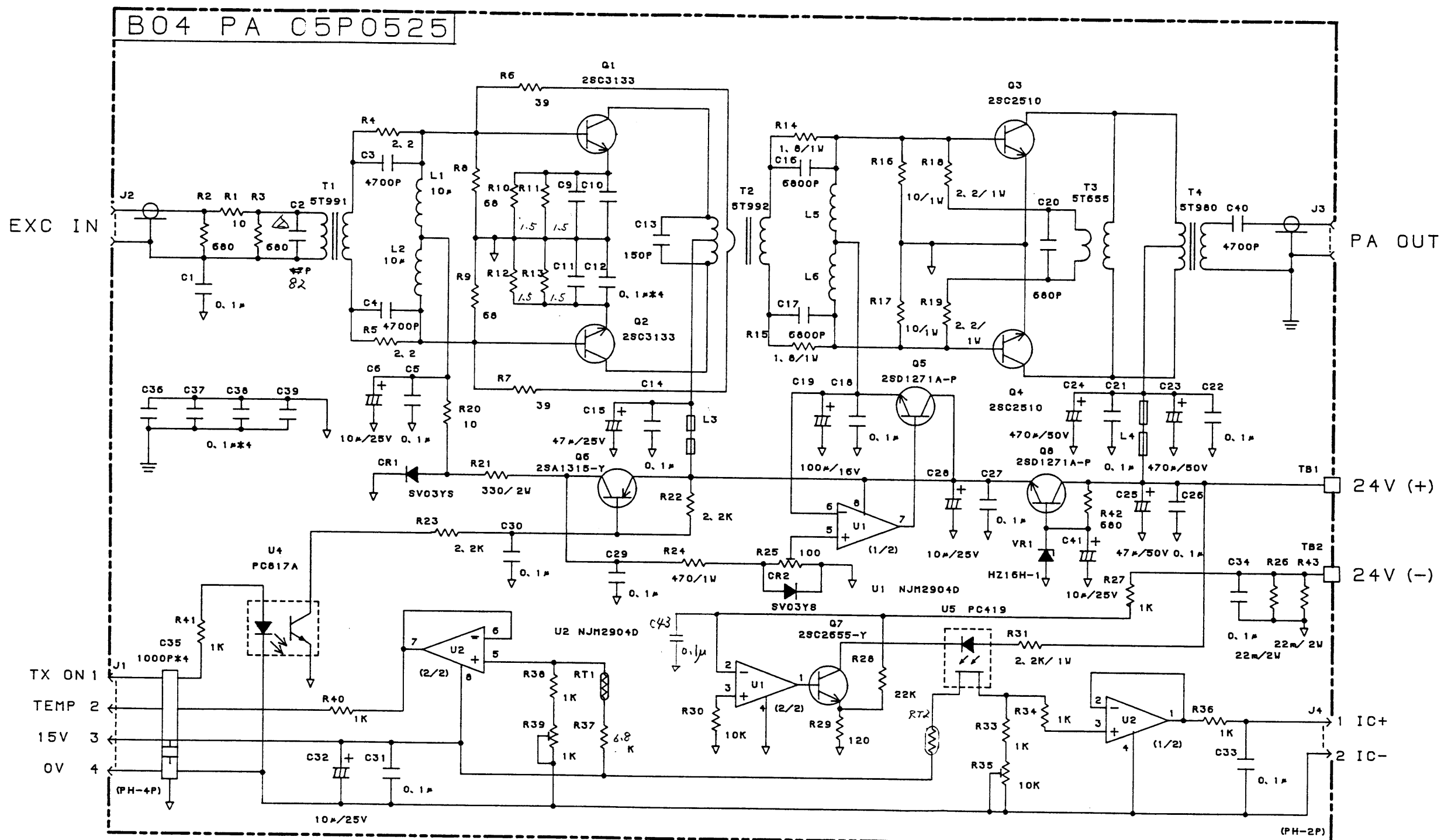
承認 APPROVED	May 31-93 M. KEDA	名稱 TITLE	VCO 基板 VCO BOARD (2/2)
検閲 CHECKED	May 31-93 T. SAITO	番 NO.	1B09 05P0526
製図 DRAWN	May 31-93 T. NISHINO	番 NO.	C5572-K07-C



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

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

FS-1562
FS-15/75



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

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

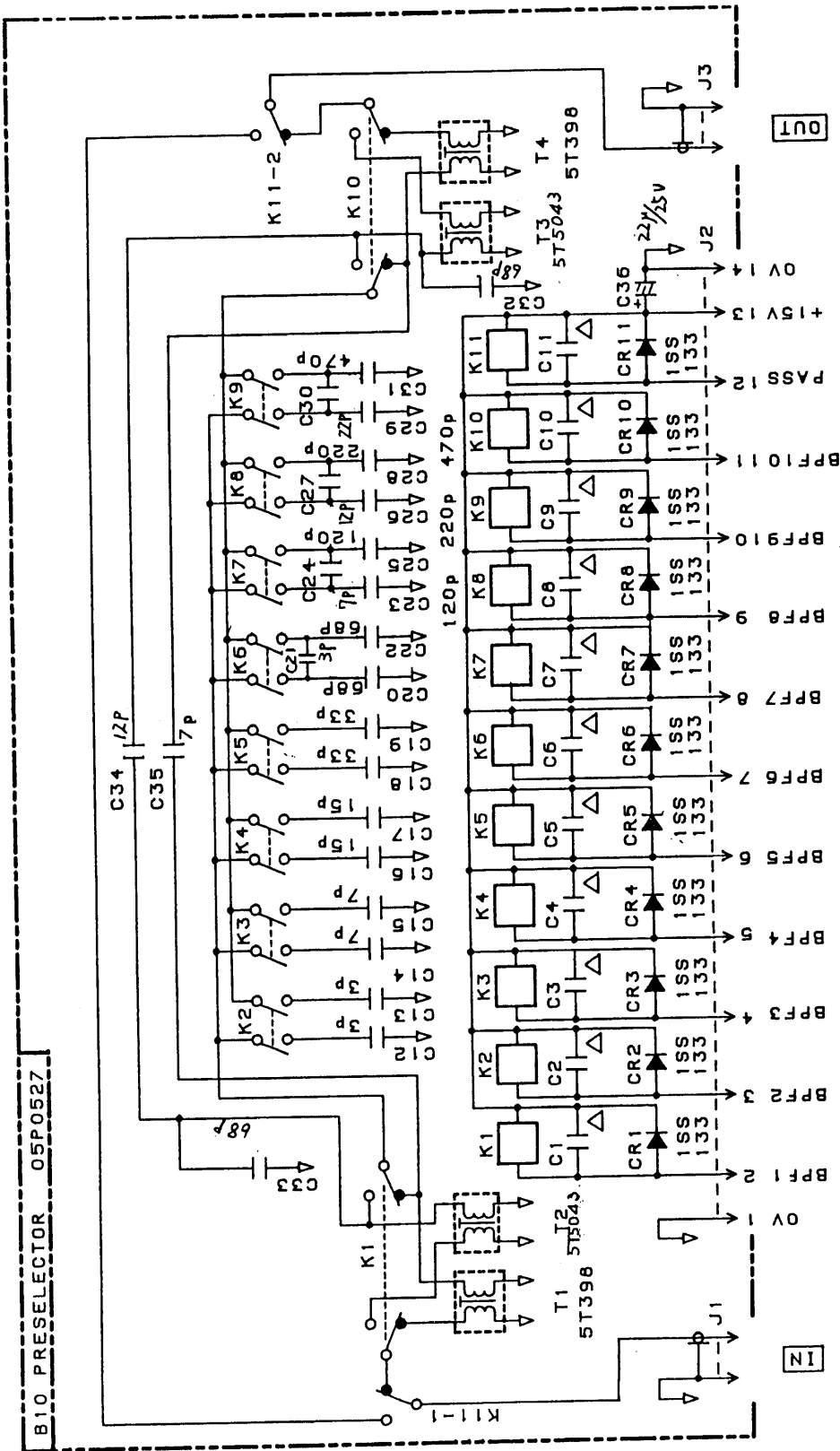
FS-1562
FS-15/75

A

B

C

D



NOTE: MARKS Δ ARE 0.01 μ F / 50V CAPACITORS. OTHER CAPACITORS ARE IN F.

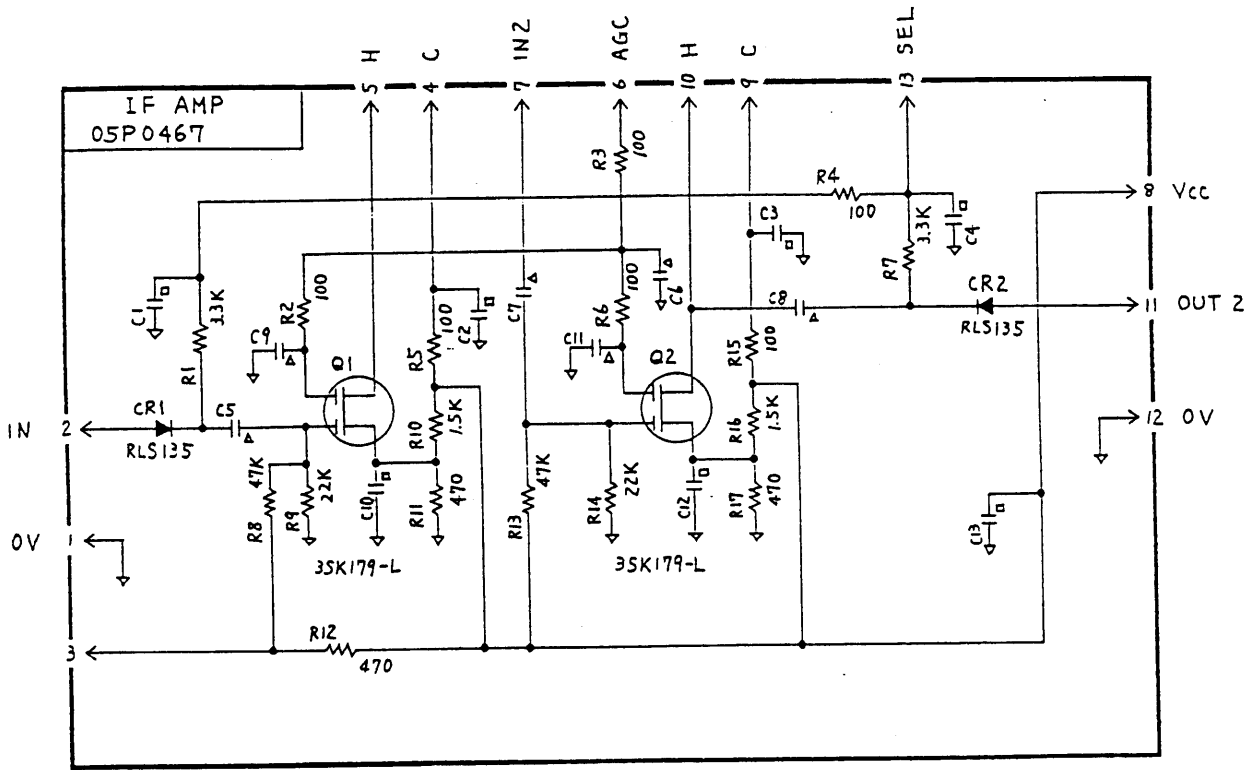
FS-1562

FS-15/75

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
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承認 APPROVED	May 31 '93 M. IKEDA	三角法 THIRD ANGLE PROJECTION		名称 TITLE	
検図 CHECKED	May 31 '93 T. SAITO	尺度 SCALE	/	1B10 05P0527 プリセクター基板 PRESELECTOR BOARD	
製図 DRAWN	May 31 '93 T. NISHIKI	重量 WEIGHT	kg	図番 DWG.NO.	C5572-K11-C

A
B
C
D



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

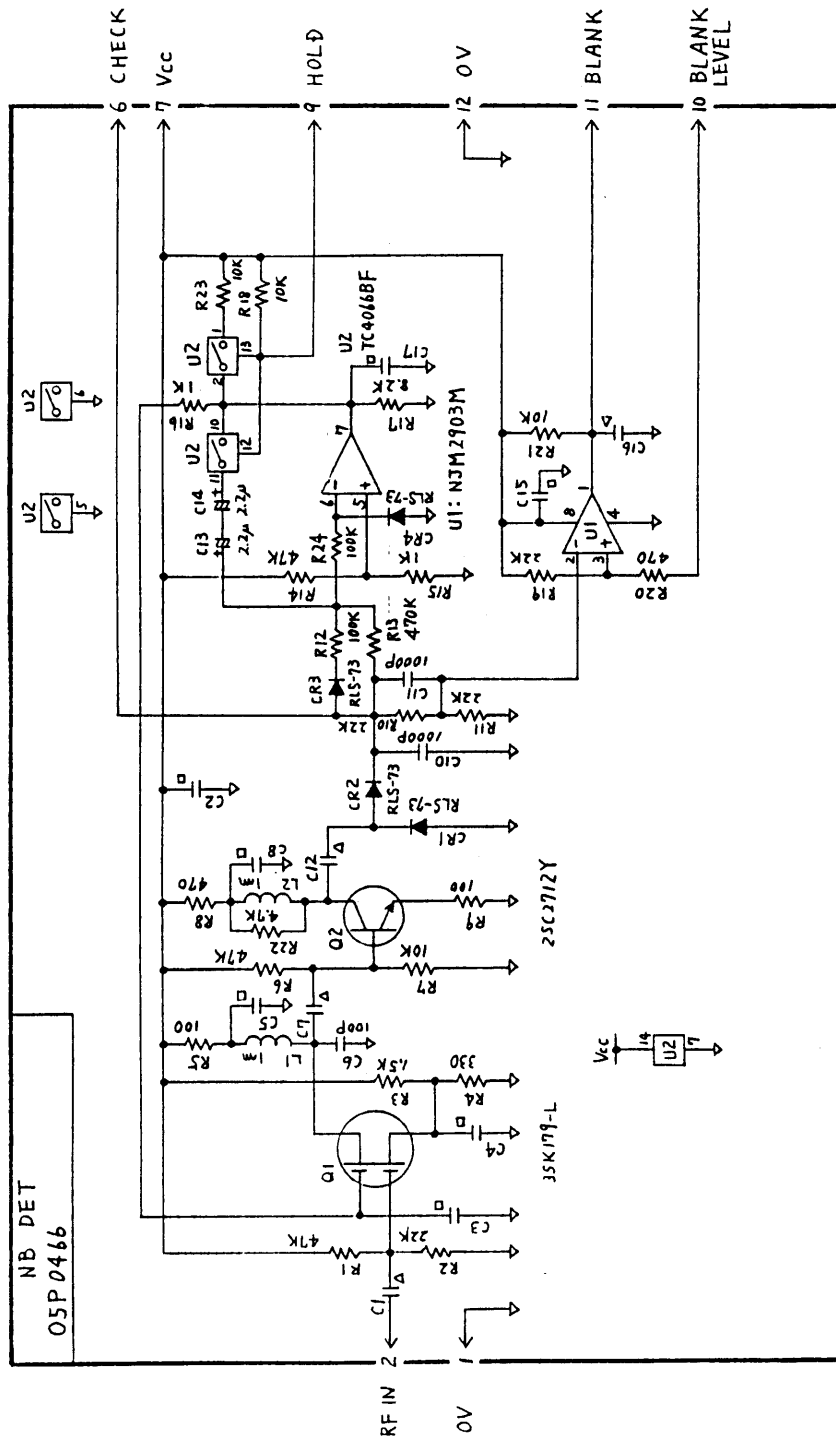
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
承認 APPROVED	三角法 THIRD ANGLE PROJECTION	名称 TITLE	05P0467		
検 CHECKED	尺度 SCALE	IF AMP			
製 DRAWN	重量 WEIGHT	kg	図番 DWG.NO.	C5548 - K07 - C	

A

B

C

D

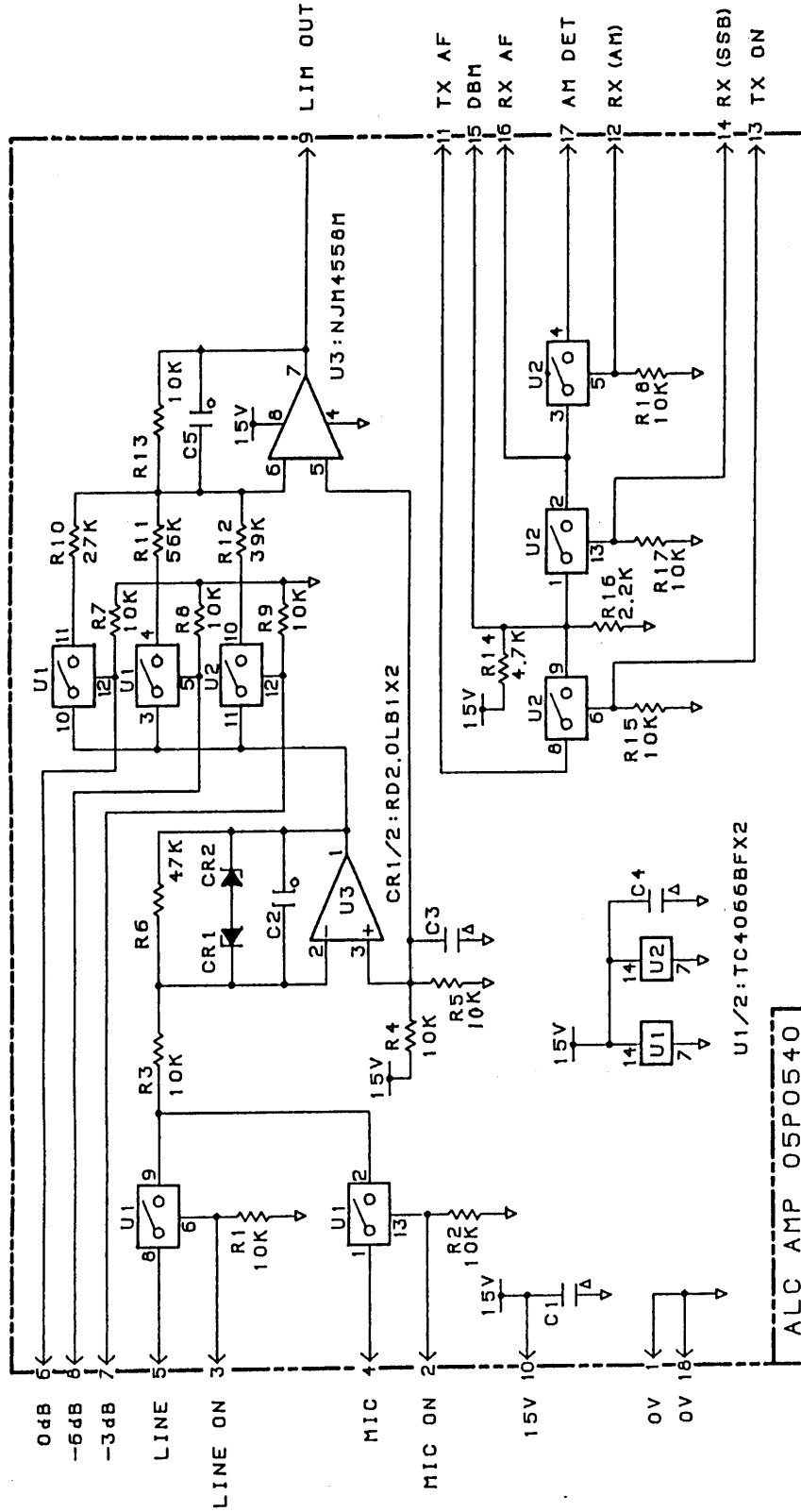


FS-1562	B13
FS-15/75	
FS-1502/1552	B14

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
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承認 APPROVED		三角法 THIRD ANGLE PROJECTION		名称 TITLE	
検査 CHECKED	Nov. 20 '91 H. KEDD	尺度 SCALE	/	05P0466 NB DET	
製図 DRAWN	Nov. 20 '91 Y. HAYASHI	重量 WEIGHT	kg	図番 DWG.NO. C5548 - K12 - C	

A
B
C
D



NOTE : (1) RESISTORS ARE IN Ω . CAPACITORS ARE IN F
(2) MARKS \circ ARE 1000PF/500V CAPACITORS .
 Δ , ARE 0.01 μ F/500V CAPACITORS .

FS-1562
FS-15/75

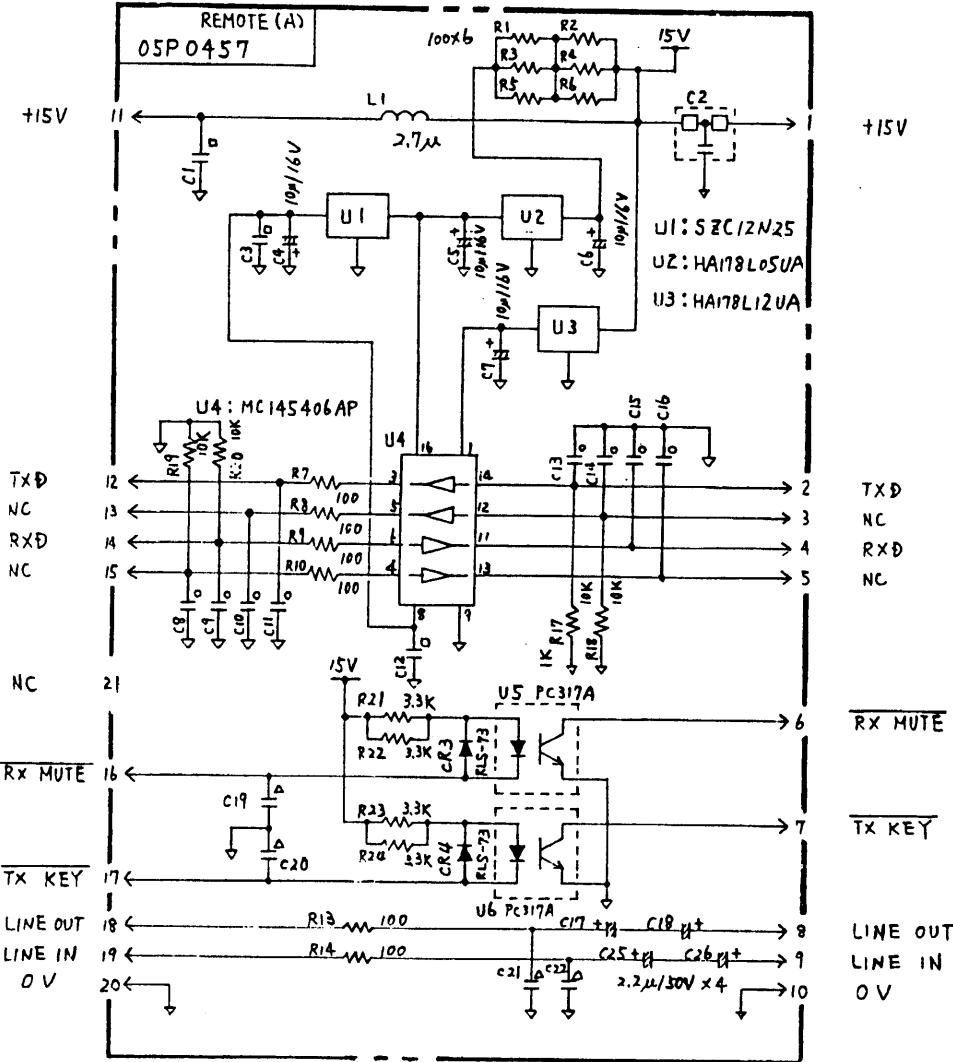
承認 APPROVED	品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
May 31 '93 M. IKEDA		三角法 THIRD ANGLE PROJECTION				
検 CHECKED	May 31 '93 T. SAITO	尺 SCALE				名称 TITLE ALC アンプ基板 ALC AMP BOARD
製 DRAWN	May 31 '93 T. NISHIWA	重 WEIGHT	kg		図番 DWG.NO. C5572-K12-A	

A

B

C

D



MODEL	7077番号 BLOCK No.
DB-500	B8/B10/B12/B17/B19
FS-1502/1552	B9
FS-1562 FS-1575	B15

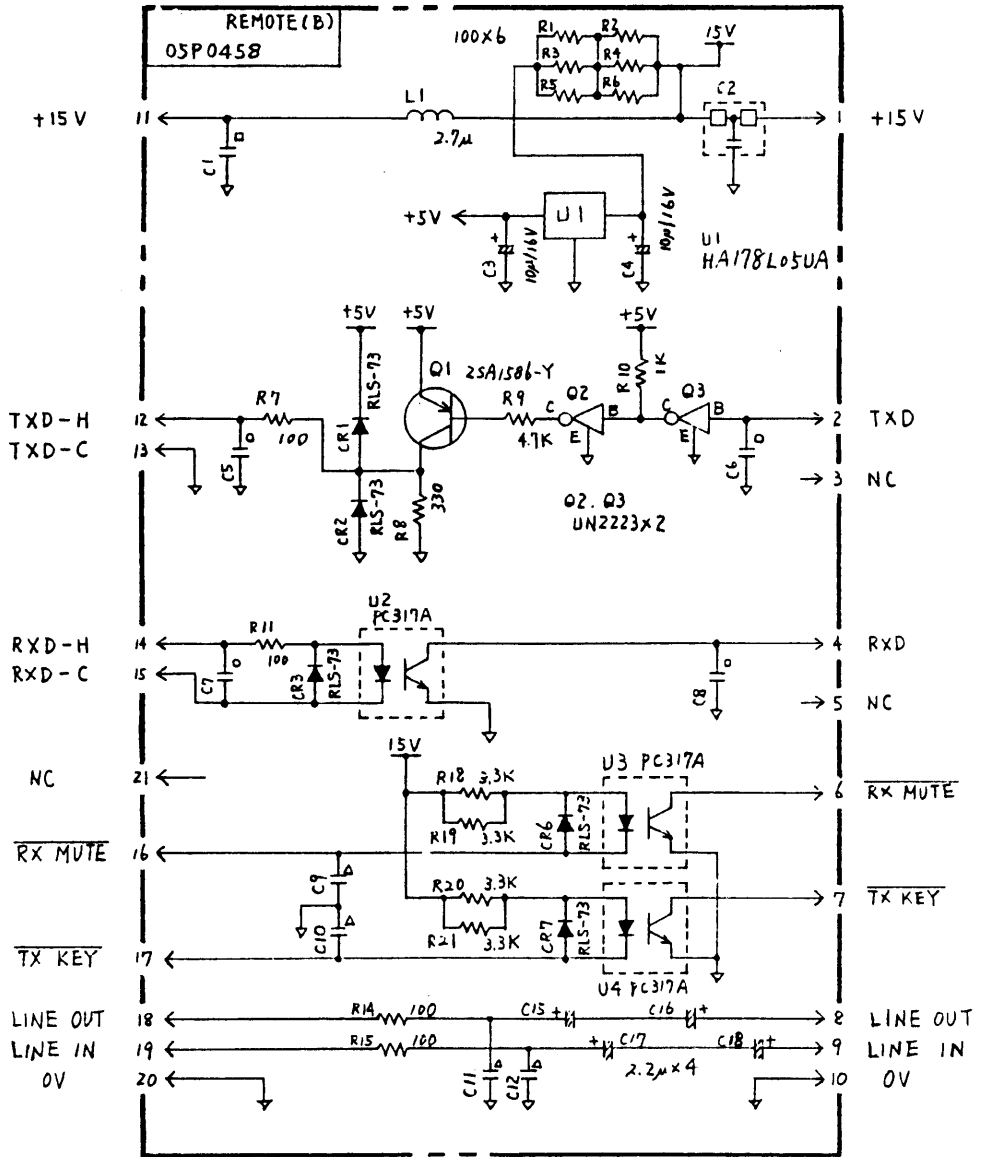
承認 APPROVED	品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
承認 APPROVED	2002.09 T. IYAMA	三角法 THIRD ANGLE PROJECTION	名称 TITLE		05P0457 REMOTE (A)	
検 CHECKED	Nov. 20 '91 M. IKEDA	尺度 SCALE				
製 DRAWN	2002.09 Y. HAMANO	重量 WEIGHT	kg	図番 DWG.NO.	C5548 - K08 - D	

A

B

C

D



MODEL	加工番号 BLOCK No.
DB-500	B9/B11/B13/B18/B20
FS-1502/1552	B10
FS-1562 FS-1575	B16

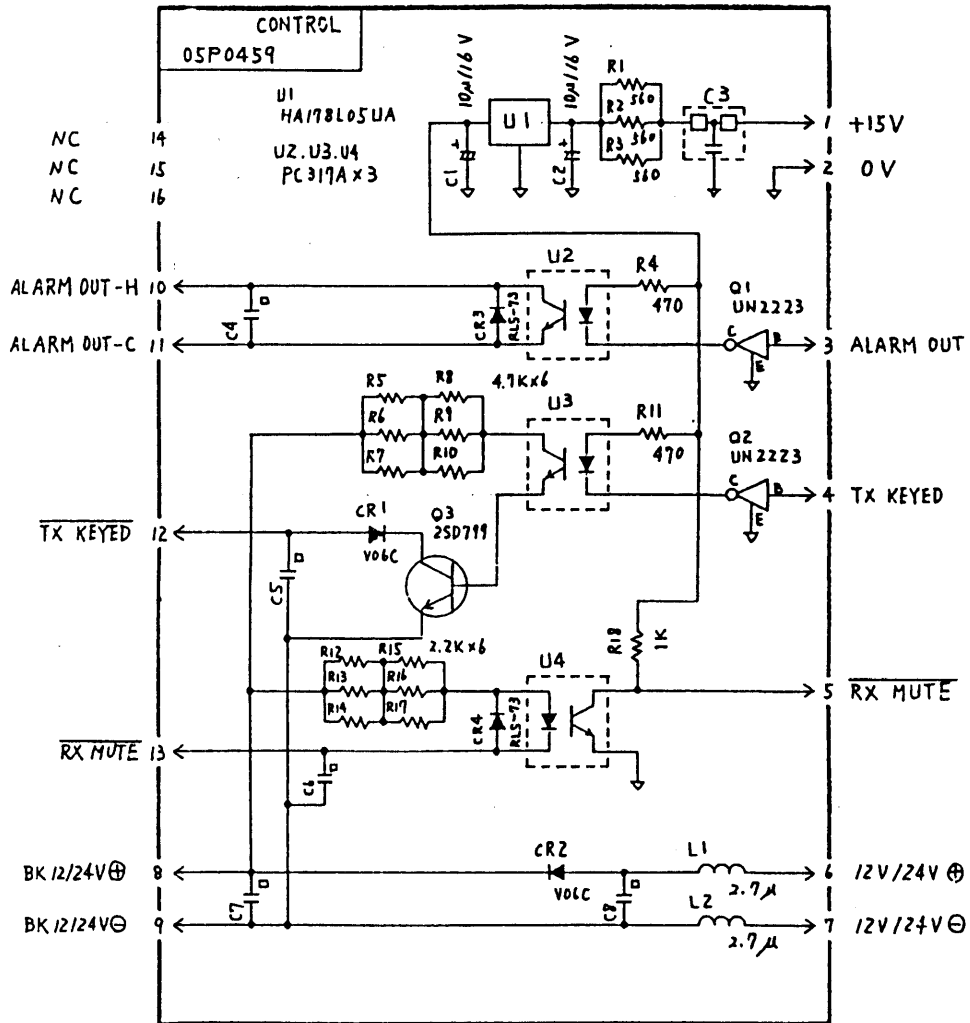
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
承認 APPROVED	加工番号 T. LAYANO	三角法 THIRD ANGLE PROJECTION	名称 TITLE	05P0458	
検 CHECKED	Nov 20 '91 M. IKEDA	尺 SCALE		REMOTE (B)	
製 DRAWN	Nov 20 '91 Y. HAMANO	重 WEIGHT	kg	C5548 - K09 - D	

A

B

C

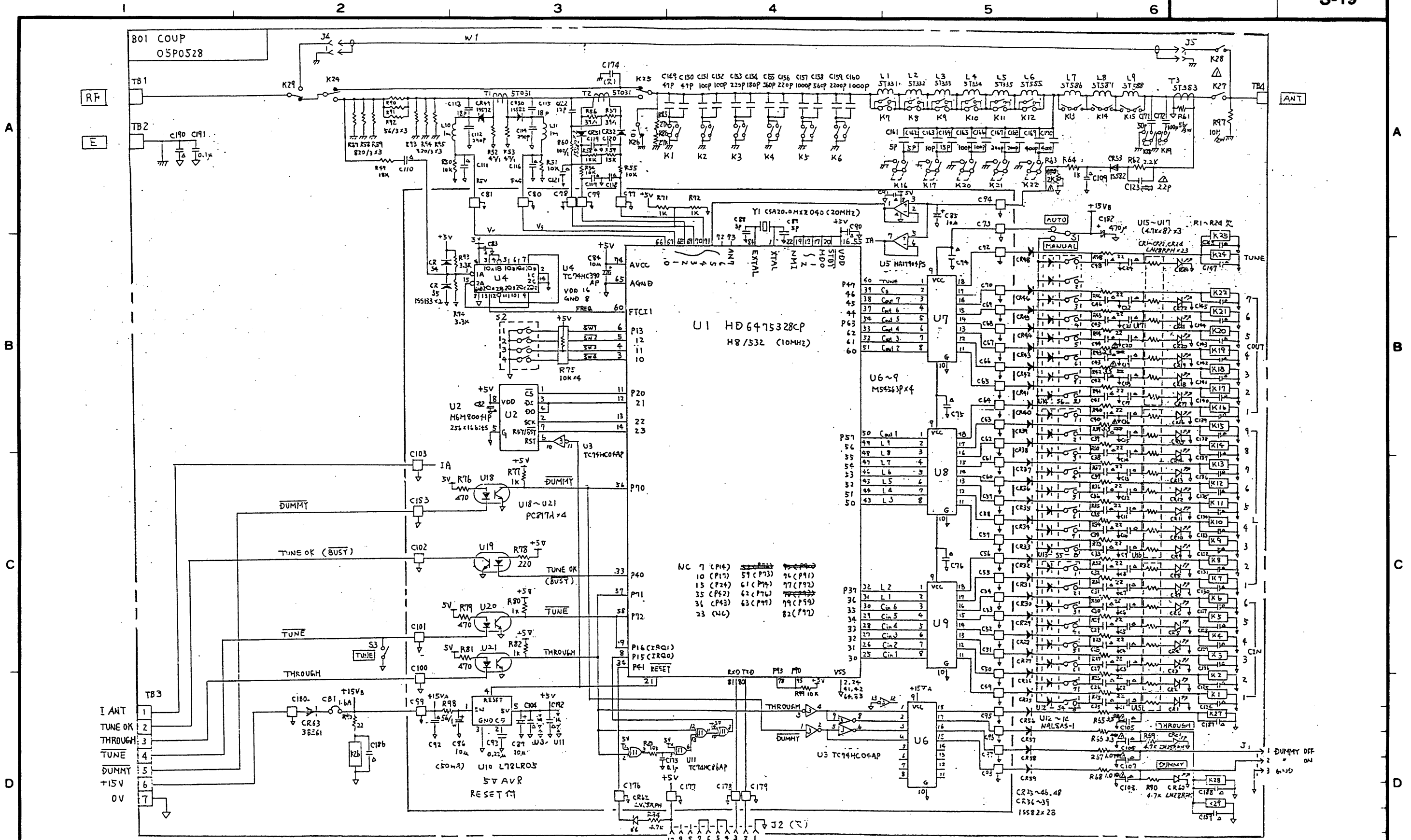
D



FS-1562	B17
FS-15/75	
FS-1502/1552	B11

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS
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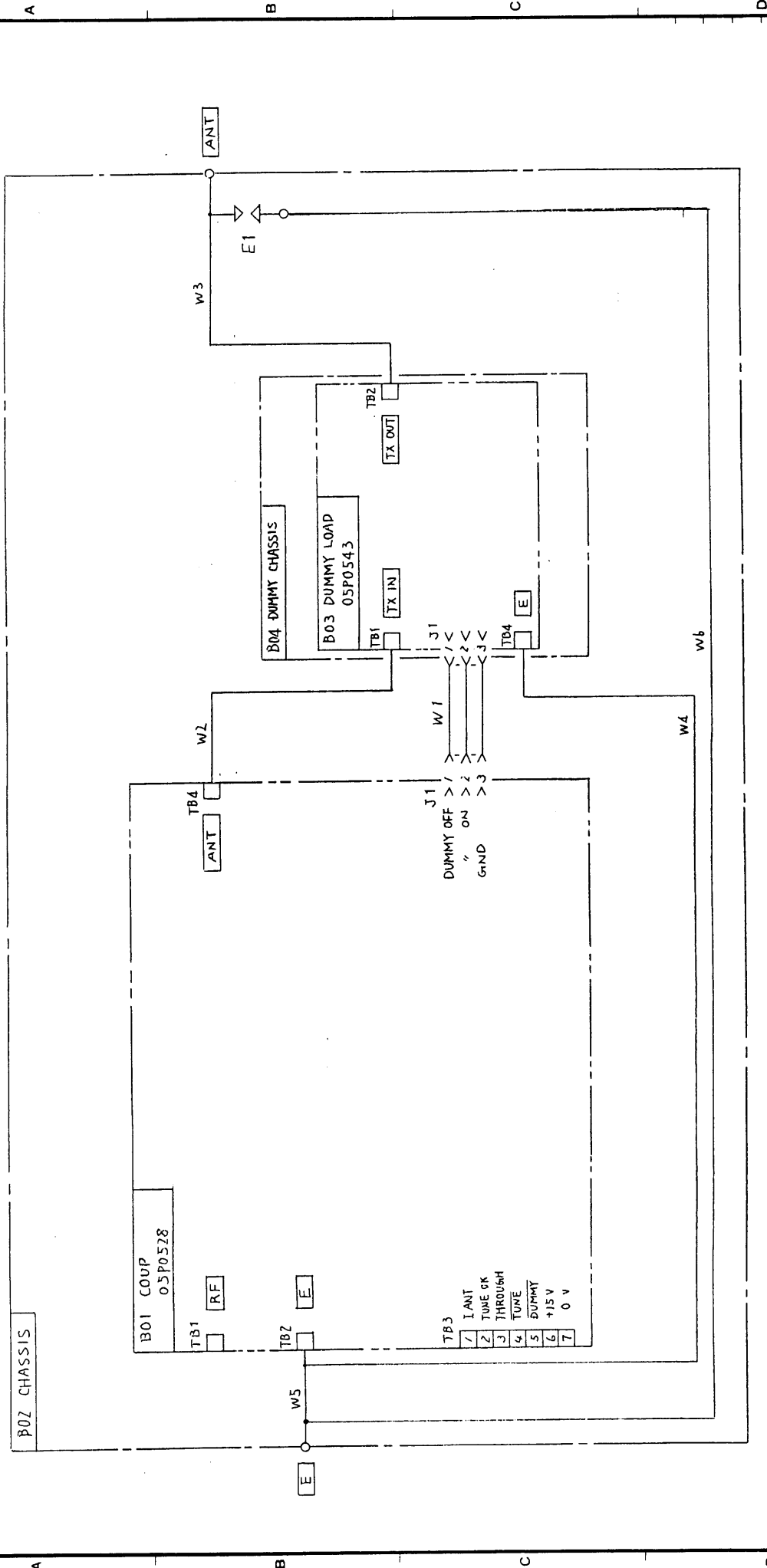
承認 APPROVED		三角法 THIRD ANGLE PROJECTION	名称 TITLE 05P0459 CONTROL		
検 CHECKED	Nov. 20. '91 M. IKEDA	尺 SCALE			
製 DRAWN	Nov. 20. '91 Y. HATAHARA	重 WEIGHT	kg	図番 DWG. NO. C5548 - K11 - C	



NOTE (1) RESISTORS ARE IN Ω (0.16W), CAPACITORS ARE IN F, INDUCTORS ARE IN H, UNLESS OTHERWISE NOTED.
 (2) MARKS Δ : 0.1 μ F/25V
 \square : 0.01 μ F/16V

承認 APPROVED	May 31 '93 M. IKEEDA	名称 TITLE	カプラー基板 COUPLER BOARD
検図 CHECKED	May 31 '93 T. SAITO	2B01 05P0528	
製図 DRAWN	May 31 '93 T. NISHINO	図番 DWG. NO.	C5572-K01-A

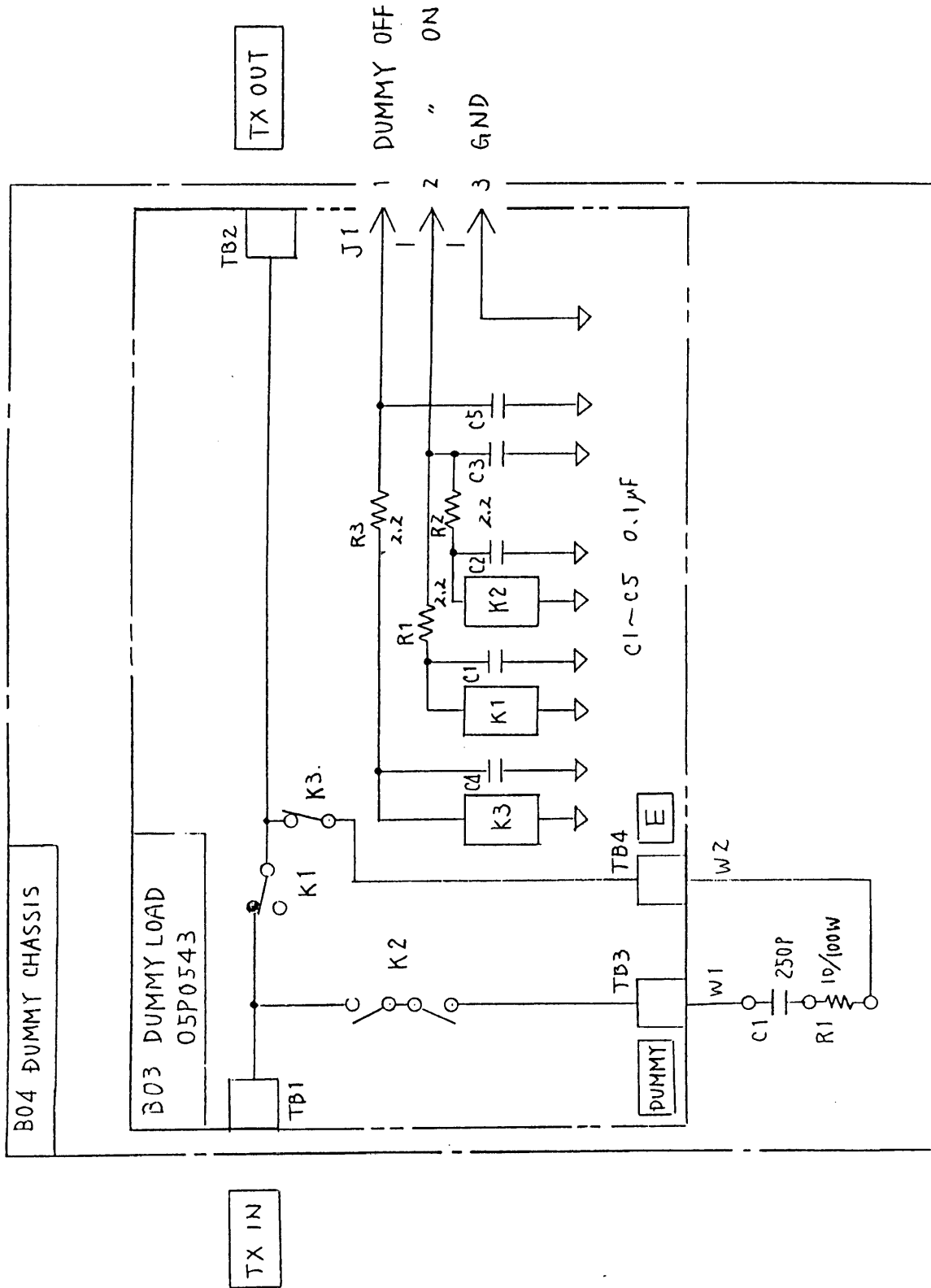
FS-1562
FS-15/75



承認 APPROVED	名 称 TITLE
May. 31. '93 M. KIDA	アンテナカプラー
検 査 CHECKED	2B02 AT-1560 ANTENNA COUPLER
May. 31. '93 T. SAITO	
製 図 DRAWN	図 番 DWG. NO.
May. 31. '93 T. SAITO	C. 5572-K03-A

FS-1562
FS-15/75

A
B
C
D



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