FURUNO

INSTALLATION MANUAL

DISTRIBUTOR

MODEL DB-500

FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

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·Your Local Agent/Dealer

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(TENI) DB-500

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⚠ SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the installer of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

The level of risk appearing in the notices is defined as follows:

⚠ **DANGER**	This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.
⚠ **WARNING**	This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **CAUTION**	This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.

⚠ WARNING

Do not work inside the equipment unless totally familiar with electrical circuits.

Hazardous voltage which can shock, burn or cause serious injury exists inside the equipment.

Turn off the power at the mains switchboard before beginning the installation. Post a sign near the switch to indicate it should not be turned on while the equipment is being installed.

Fire, electrical shock or serious injury can result if the power is left on or is applied while the equipment is being installed.

⚠ CAUTION

Ground the equipment to prevent electrical shock and mutual interference.

Confirm that the power supply voltage is compatible with the voltage rating of the equipment.

Connection to the wrong power supply can cause fire or equipment damage. The voltage rating appears on the label at the rear of the display unit.

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GENERAL

The FURUNO DB-500 Distributor provides connection of up to four controllers (RB-500, RB-700, DSC-6 or DP-6), which control a VHF or SSB radiotelephone.

The main features of the DB-500 are as follows.

- Priority order of the controllers can be set.
- Ship's mains for Remote Station RB-500/700 is supplied from DB-500.
- Cable inlets location is selectable among top, bottom, and rear of DB-500.

SPECIFICATIONS

Number of inputs:	2 (standard) 4 max. (option)
Line in/out level:	0dBm (600Ω)
Audio harmonic distortion:	3% or less
Line in/out frequency characteristics:	300 to 3000Hz ± 1dB
Interface:	MIF (current loop or RS-232C) MIF: Furuno radio interface

Environment

Temperature:	-20 to + 55°C
Relative humidity:	93% (at + 40°C)
Vibration:	3.2 mm (1.0 to 12.5Hz) 0.8 mm (12.5 to 25.0Hz) 0.2 mm (25.0 to 50.0Hz)

Power supply:	10.8 to 31.2Vdc (floating ground), approx. 3A
Power for Remote Station:	13.8Vdc, approx. 1A

EQUIPMENT LIST

Standard

Name	Type	Code No.	Remarks
Distributor	DB-500		
	DB-500-RS		
Installation Materials	CP05-05000	000-056-822	For DB-500
	CP05-05010	000-056-828	For DB-500-RS

Option

Name	Type	Code No.	Remarks
Remote Cable CO-SPEVV-SB-C 0.2 × 5P	10P cable * 5M *	000-560-421	5m length
	10P cable * 10M *	000-560-422	10m length
	10P cable * 20M *	000-560-423	20m length
	10P cable * 30M *	000-560-424	30m length
	10P cable * 40M *	000-560-425	40m length
	10P cable * 50M *	000-560-426	50m length
REMOTE-A Board	05P0457	005-517-480	
TB Board	05P0496	005-840-750	
REMOTE-A Assy	OP05-39	005-920-310	REMOTE-A pcb and connector assy
REMOTE-B Assy	OP05-40	005-920-320	REMOTE-B pcb and connector assy
Extension Kit	OP05-44	000-056-823	2 REMOTE-B pcbs, 1 TB pcb and 2 cable glands
	OP05-45	000-056-824	1 REMOTE-A pcb

Installation Materials

CP05-05000

Name	Type	Code No.	Remarks
Tapping Screw	5 × 20, SUS304	000-802-081	4 pcs. for mounting unit
Hose Clamp	TM-145SS No.14	000-803-129	3 pcs. for clamping remote cable

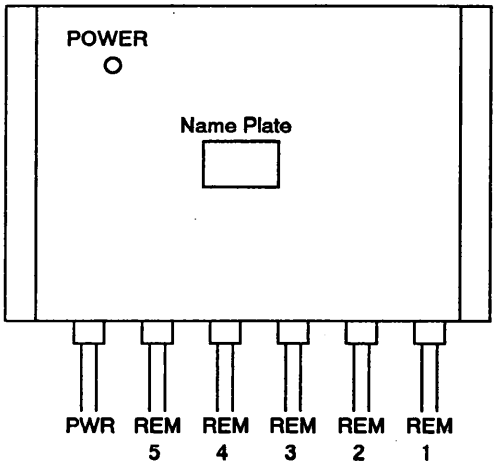
CP05-05010

Name	Type	Code No.	Remarks
Tapping Screw	5x20, SUS304	000-802-081	4 pcs. for mounting unit
Hose Clamp	TM-145SS No.14	000-803-129	5 pcs. for clamping remote cable

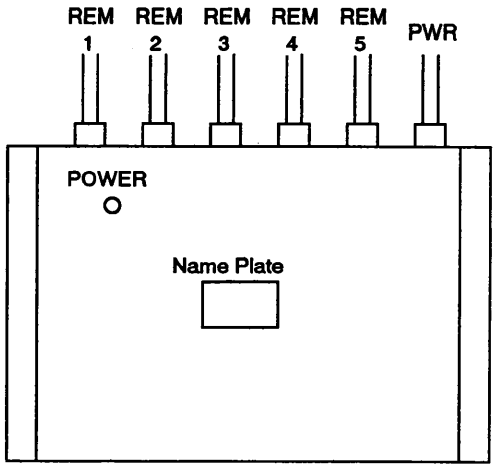
MOUNTING (For qualified person)

The DB-500 is designed for bulkhead mounting. It can be mounted one of four ways.

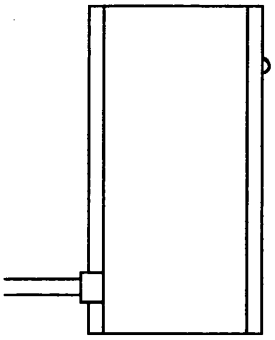
① Bottom cable outlet



② Top cable outlet

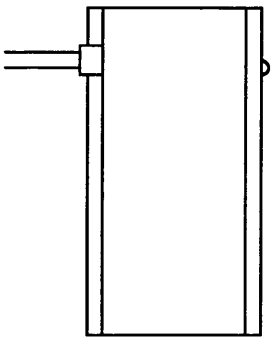


③ Rear bottom cable outlet



Cable arrangement same as ①.

④ Rear top cable outlet



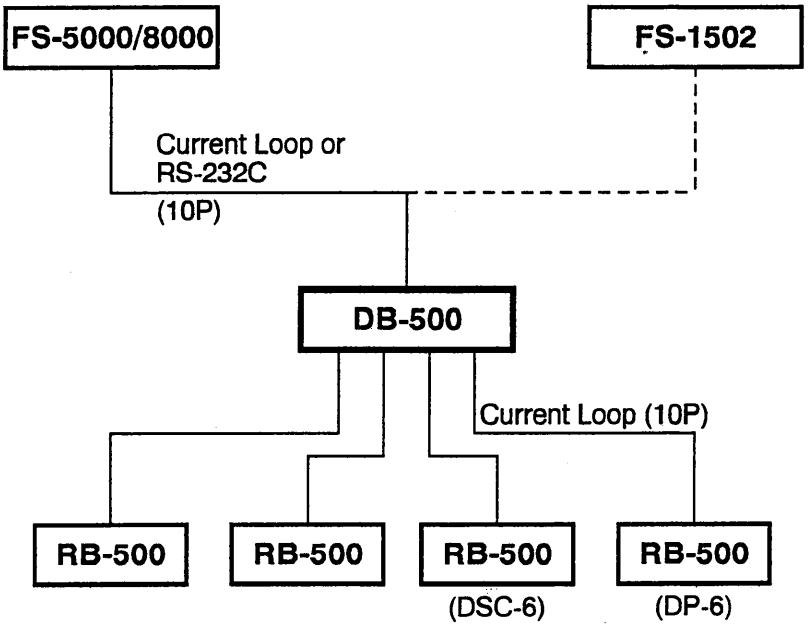
Cable arrangement same as ②.

Note: Alteration from ① to ② is done by rotating the lid 180°.

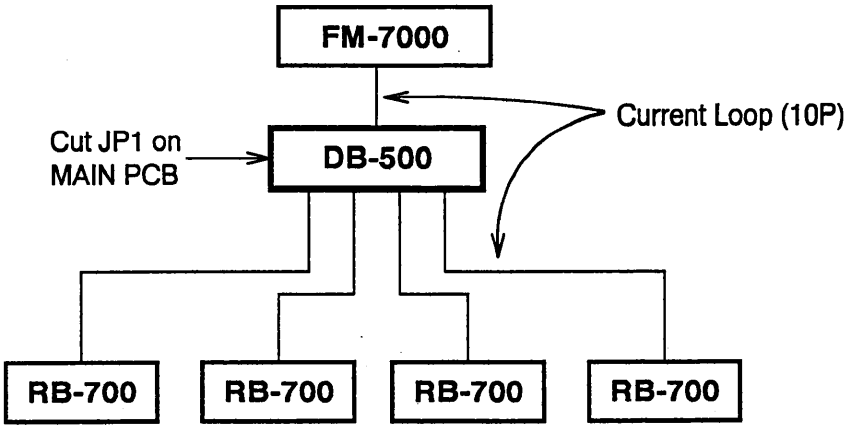
SYSTEM CONFIGURATION

There are two types of connections: MF/HF and VHF.

SYSTEM 1 ··· **MF/HF Connection (Refer to pages 6 and 7.)**



SYSTEM 2 ··· **VHF Connection (Refer to page 14.)**



***Note** : When three or four remote stations are connected, that is, no DSC-8V connection, cut jumper wires JP2, JP3 and JP4 on MAIN PCB. (Refer to page 15.)*

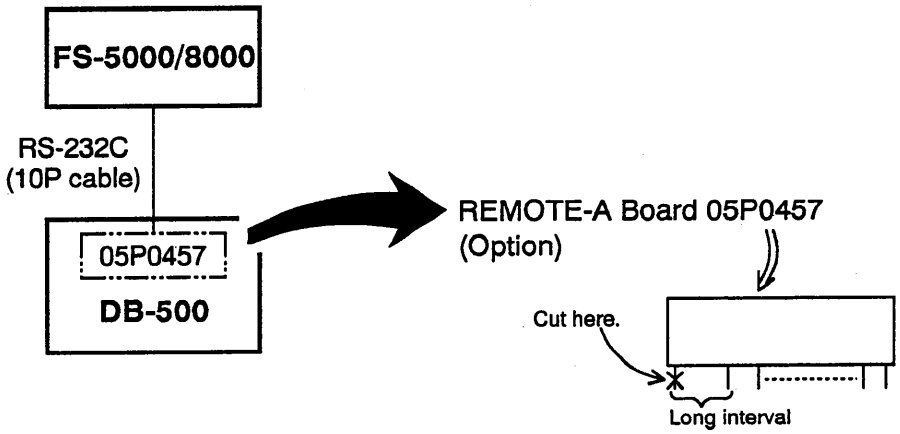
MF/HF CONNECTION (For qualified person)

FS-5000/8000

When using RS-232C between FS-5000/8000 and DB-500

1. Remove the REMOTE-B board at slot "B8 or B9" on the MAIN board.
2. Install the optional REMOTE-A board in slot "B8 or B9". Refer to page 8 for the location.

Note: Cut the leg of the board as shown below.

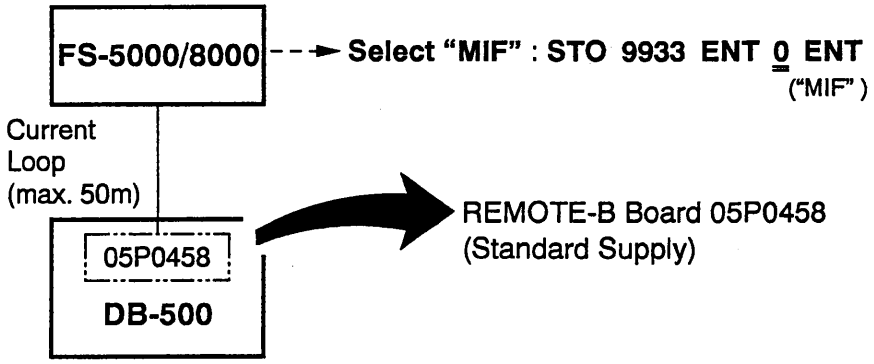


3. Refer to page 12 for detailed connection.

When using current loop between FS-5000/8000 and DB-500

For AF board (of FS-5000/8000) having suffix number -22 and before

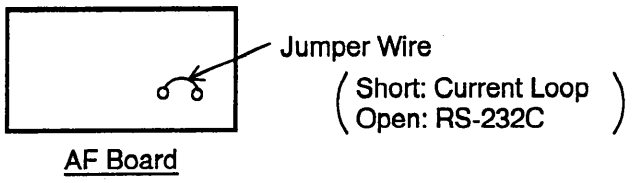
1. Change specification at the FS-5000/8000 to "MIF". See keying sequence in figure below.

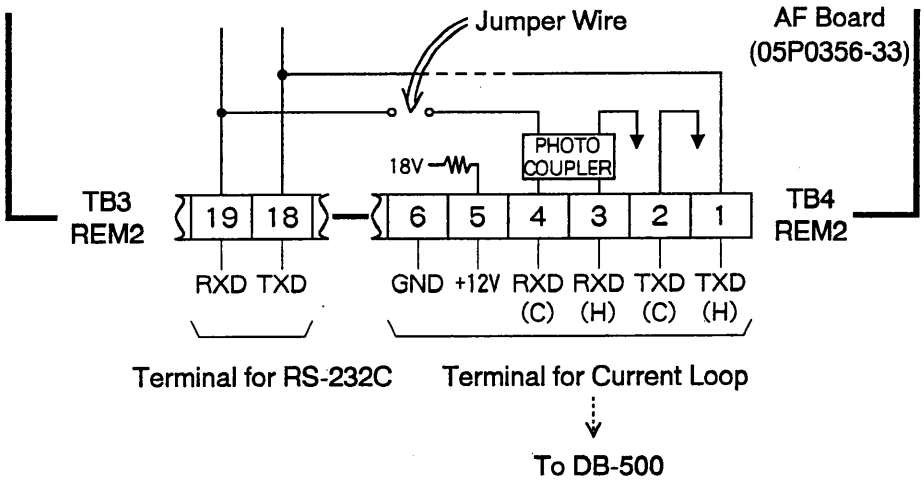


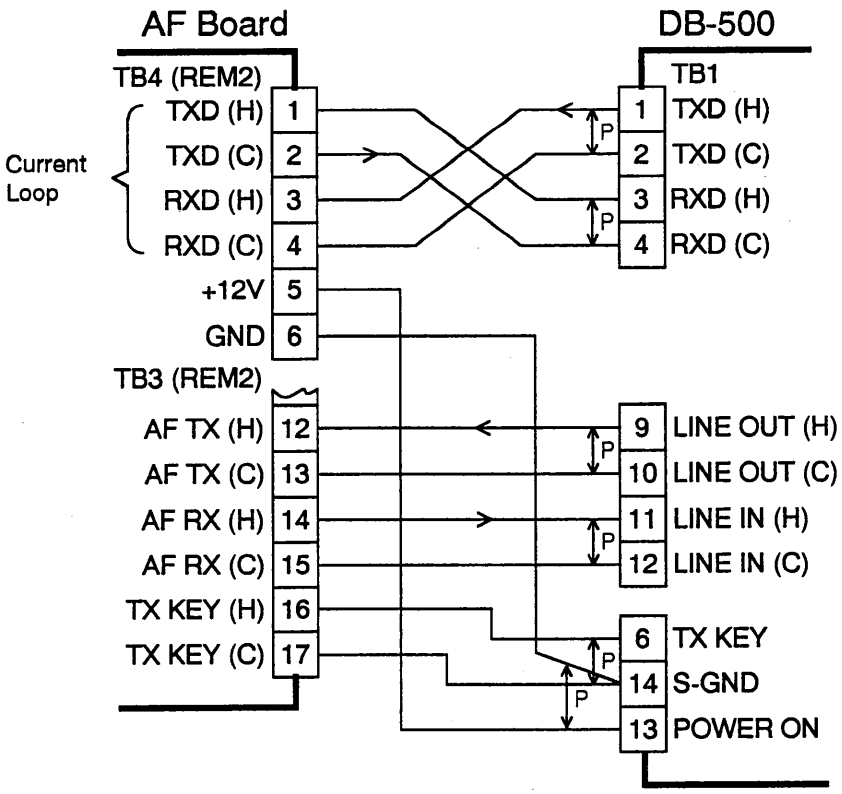
2. Refer to page 12 for detailed connection.

For AF board having suffix number -33 and after

1. Put a jumper wire on the AF board to enable current loop format.





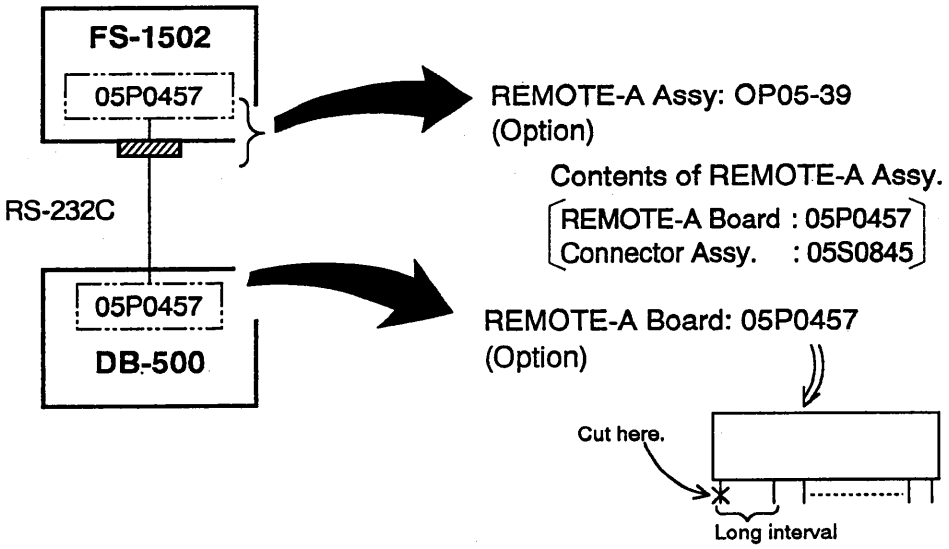


FS-1502

When using RS-232C between FS-1502 and DB-500

1. Install the optional REMOTE-A assy to FS-1502.
2. Pull out the REMOTE-B board at slot "B8 or B9" on the MAIN board of DB-500.
3. Install the optional REMOTE-A board in slot "B8 or B9". Refer to page 8 for the location.

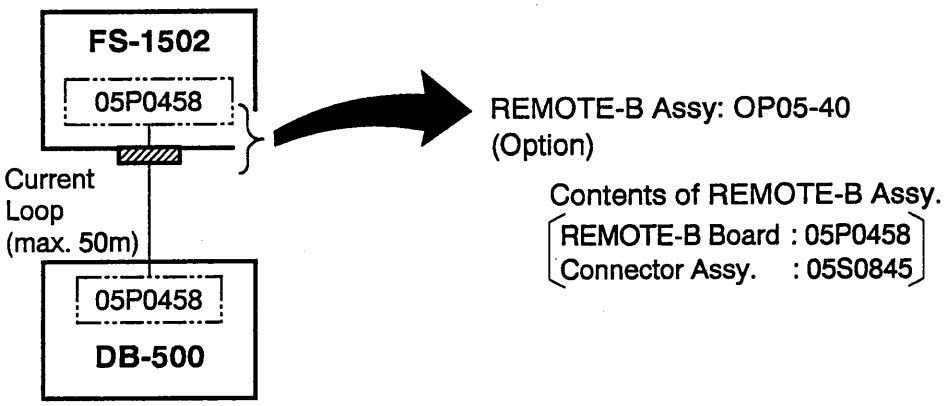
Note: Cut the leg of the board as shown below.



4. Refer to page 13 for detailed connection.

When using current loop between FS-1502 and DB-500

1. Install the optional REMOTE-B assy in FS-1502.

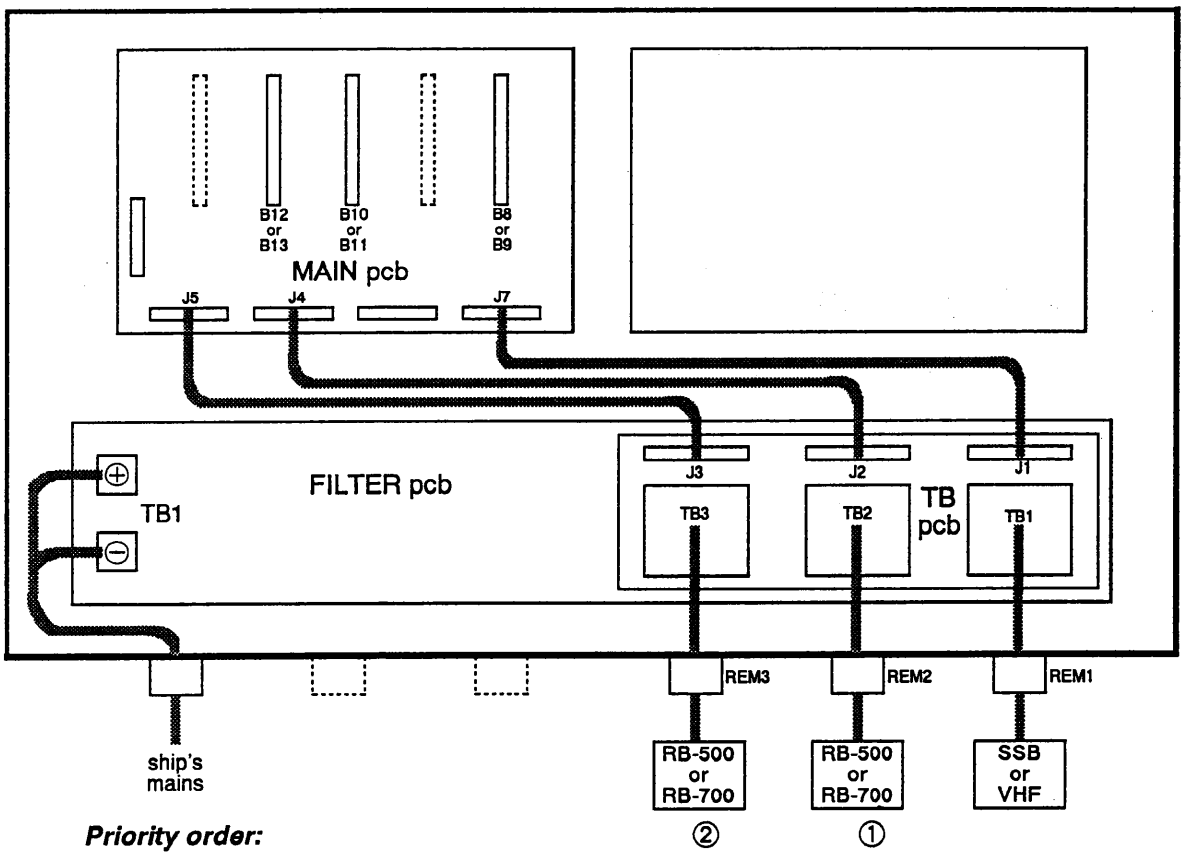


2. Refer to page 13 for detailed connection.

RB-500/700 CONNECTION (For qualified person)

Connect Remote Stations RB-500 (or RB-700) to the DB-500 as shown below.

When connecting two Remote Stations (Standard)



When connecting three or four Remote Stations (Option)

The optional Extenson Kit OP05-44 (two 05P0458 pcbs, one TB board and two cable glands) for REMOTE4 and REMOTE5 is necessary.

1. Insert two optional 05P0458 pcbs into slots "B17 or B18", "B19 or B20" on the MAIN board.

   Note: Cut the leg of the REMOTE-A boards as shown on page 6.

2. Mount the optional TB board 05P0496.

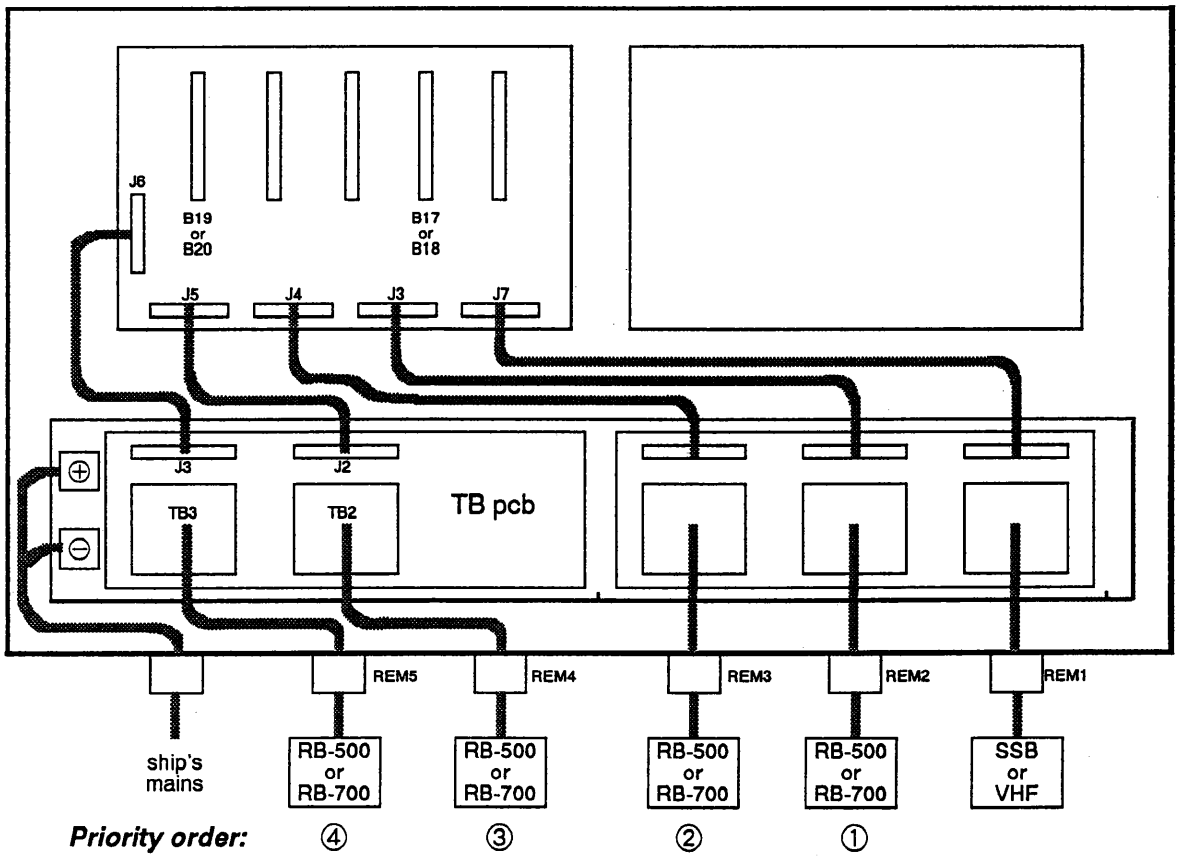
3. Pull out the plug from jack J4 and plug it into J3 on the MAIN board.

4. Pull out the plug from jack J5 and plug it into J4 on the MAIN board.

5. Connect the cable from remote station to TB2 on the optional TB board thru the cable gland for REMOTE4.

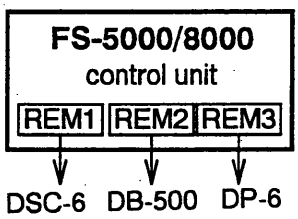
6. Connect the cable from remote station to TB3 on the optional TB board thru the cable gland for REMOTE5.

7. Connect J2 and J3 on the optional TB board to J5 and J6 on the MAIN board, respectively.



DSC-6/DP-6 CONNECTION (For qualified person)

FS-5000/8000



Connect DSC-6 and DP-6 to Remote 1 and Remote 3 terminals of the control unit, respectively.

FS-1562

1. Insert two optional REMOTE-A boards into slots "B17 or B18" and "B19 or B20" on the MAIN board.

   Note: Cut the leg of the REMOTE-A boards as shown on page 6.

2. Mount the optional TB board next to the existing TB board.

3. Pull out the plug from jack J4 and plug into J3 on the MAIN board.

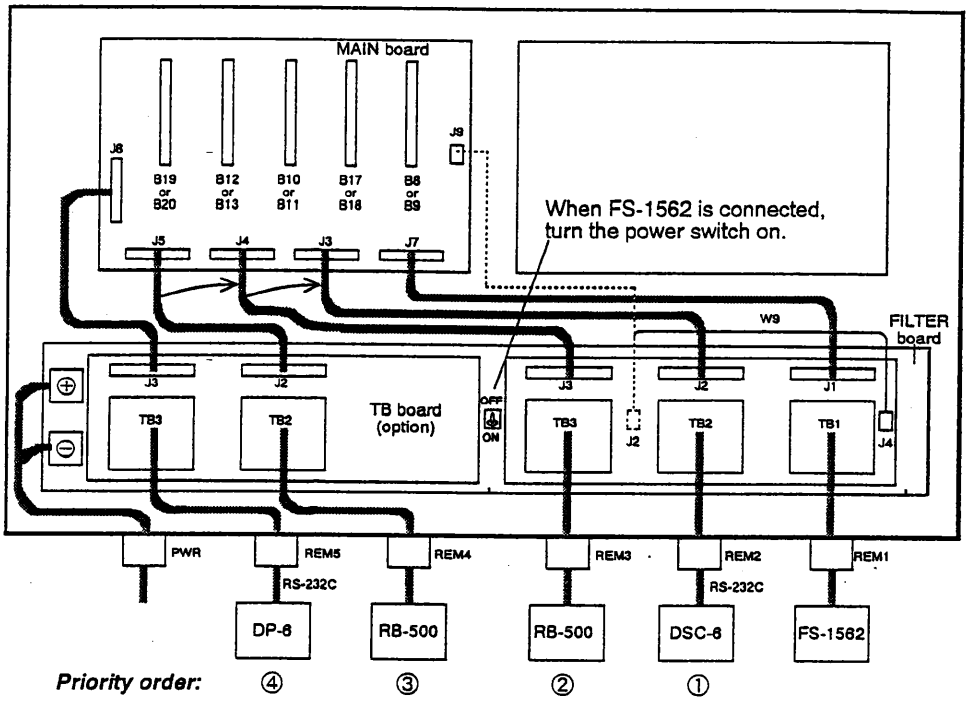
4. Pull out the plug from jack J5 and plug into J4 on the MAIN board.

5. Remove W9 cable from J2 on the FILTER board.

6. Connect W9 cable to J9 on the MAIN board.

7. Connect the RS-232C cable from DSC-6 to TB2 on the existing TB board thru cable gland REM2.

8. Connect the RS-232C cable from DP-6 to TB3 on the optional TB board thru cable gland REM5.

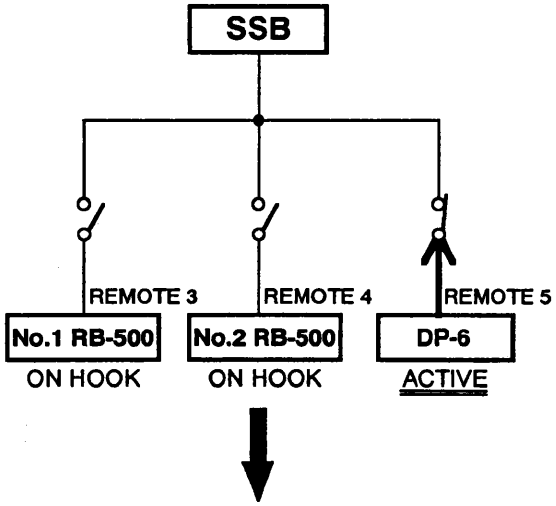


Priority

Below are examples of how the DB-500 determines which unit connected to it has priority.

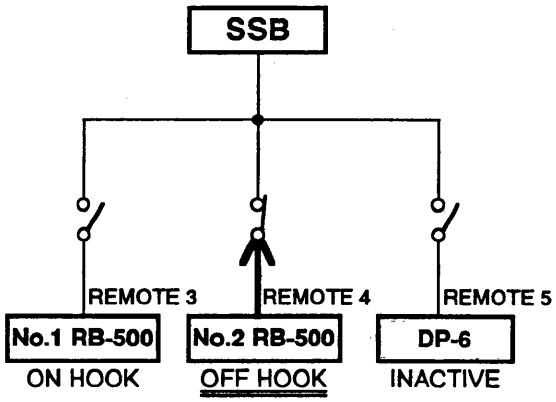
No remote station operation

The DP-6 is connected while remote stations are not in use.



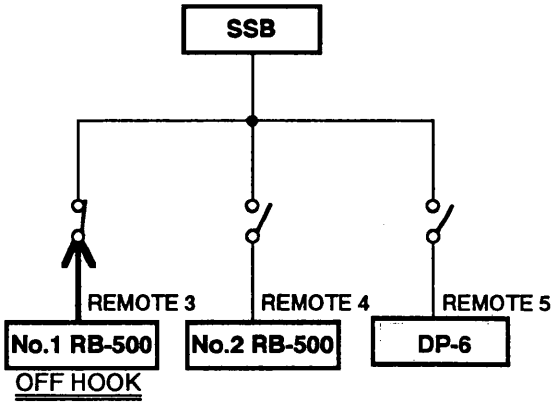
No.2 Remote station operated

When the No.2 handset at remote terminal 4 is picked up, for example, DP-6 is automatically disconnected and remote terminal 4 becomes active. This is because all remote terminals have priority over DP-6.



No.1 and No.2 remote stations operated

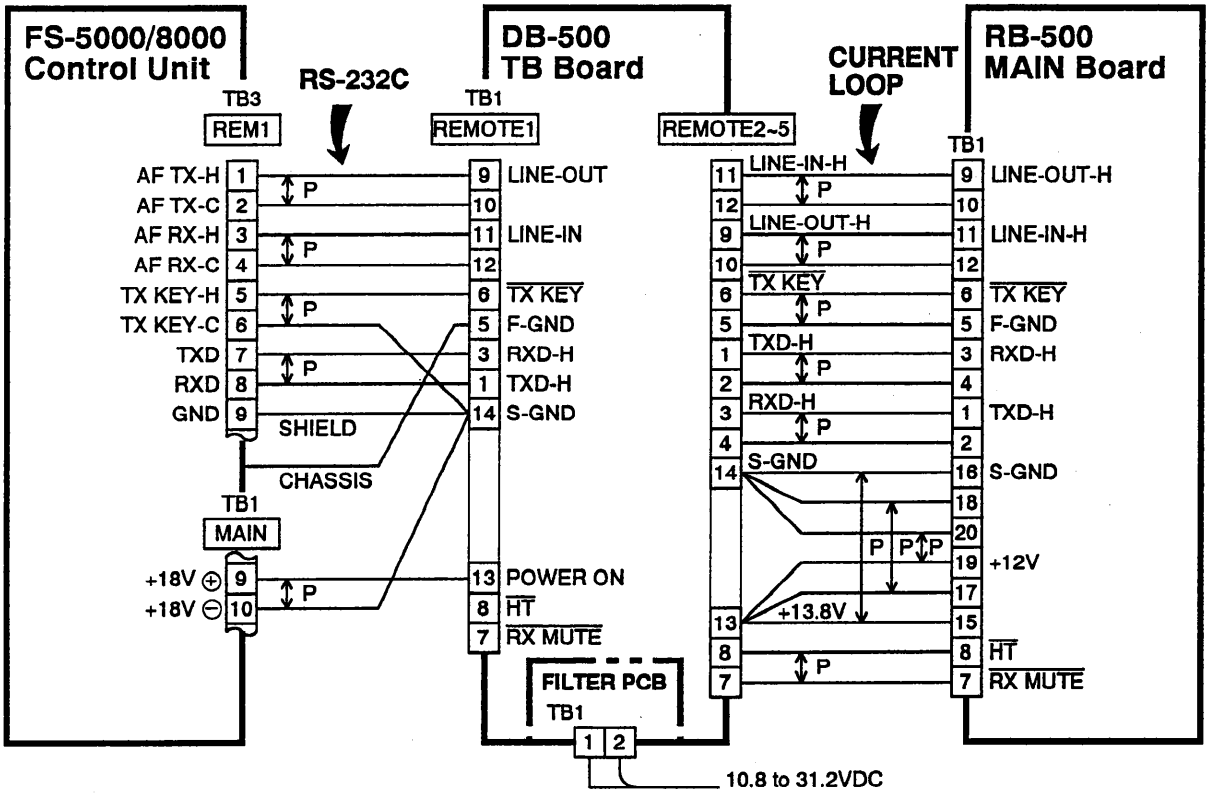
If the No.1 handset at remote terminal 3 is picked up while remote terminal 4 is being operated, remote terminal 4 is disconnected and remote terminal 3 becomes active. This is because remote terminal 3 has higher priority than remote terminal 4.



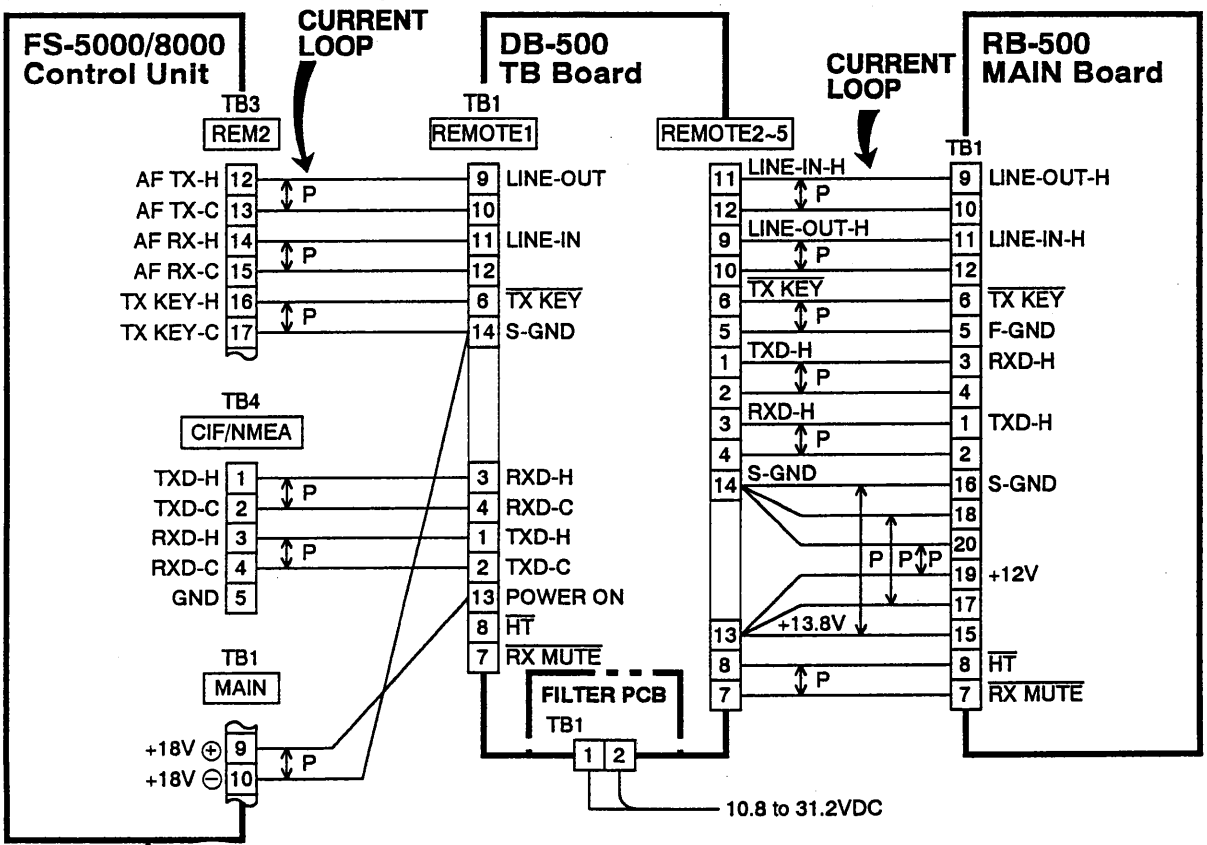
INTERCONNECTION DIAGRAMS

1. FS-5000/8000 + DB-500 + RB-500

When using RS-232C between FS-5000/8000 and DB-500

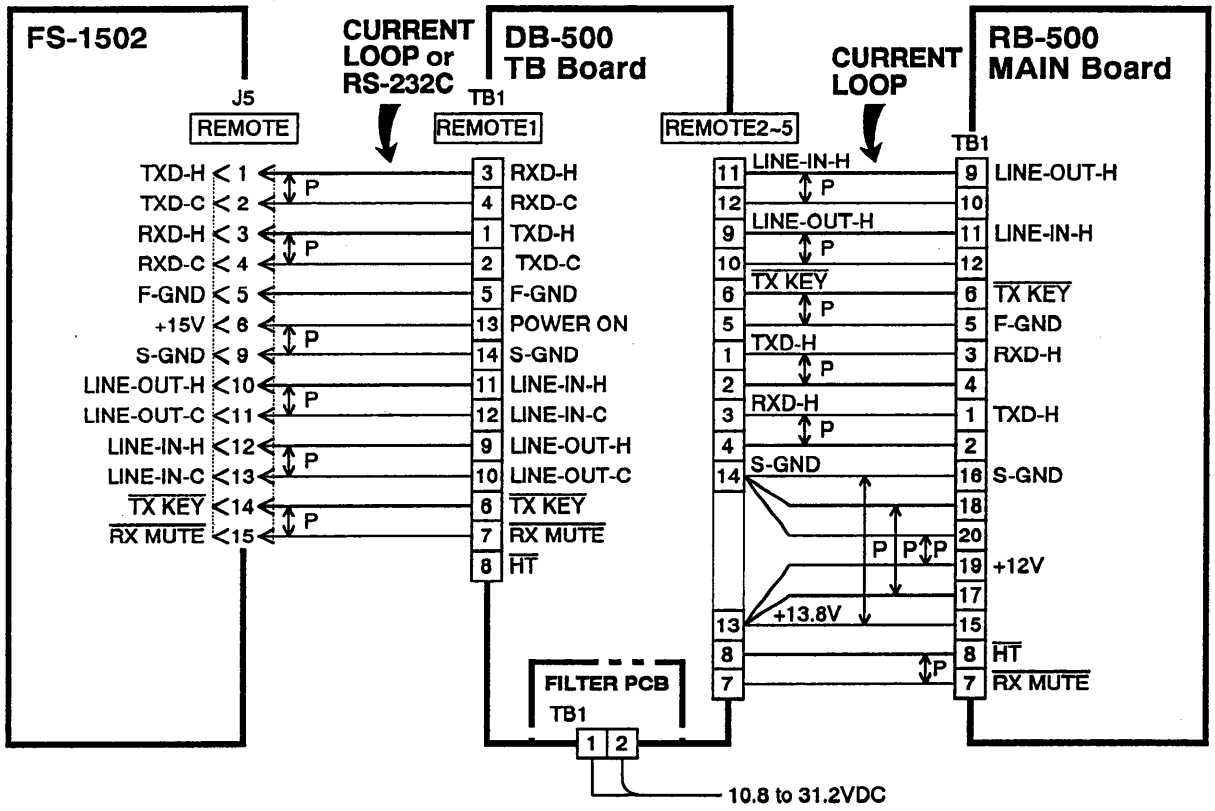


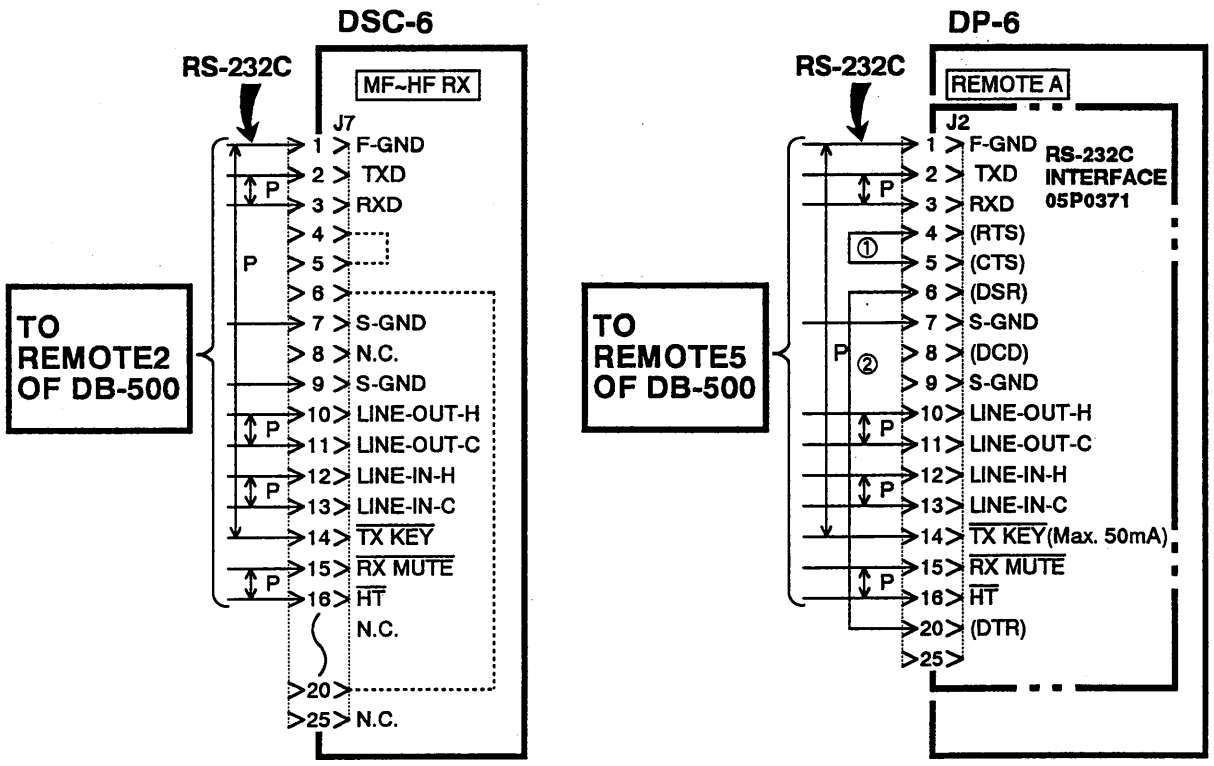
When using current loop between FS-5000/8000 and DB-500



For AF board having suffix number -22 and before (For AF board -33 and after, refer to page 6a.)

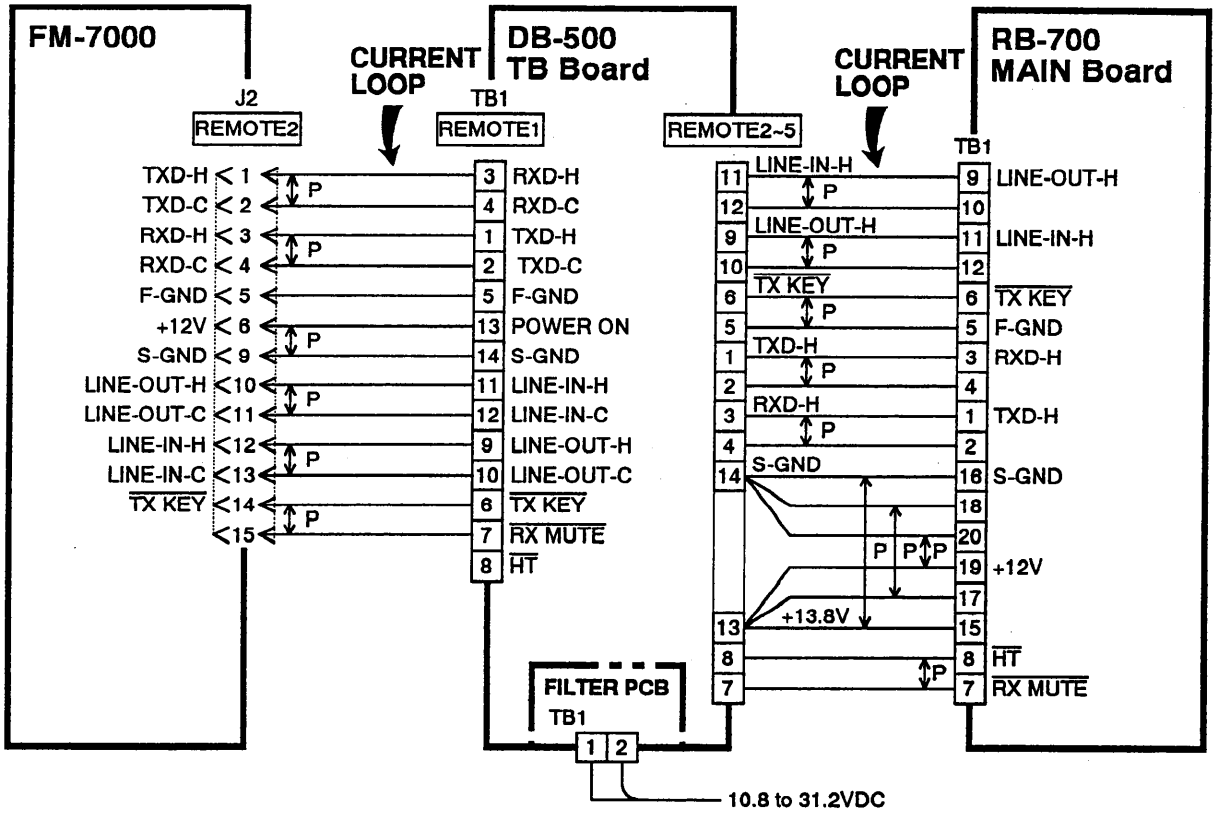
2. FS-1502 + DB-500 + RB-500 (DP-5/DSC-5)





Note: Add jumpers ① and ②.

3. FM-7000 + DB-500 + RB-700



JUMPER SETTINGS ON MAIN BOARD (For qualified person)

Set four jumpers on MAIN board 05P0494 according to system configuration.

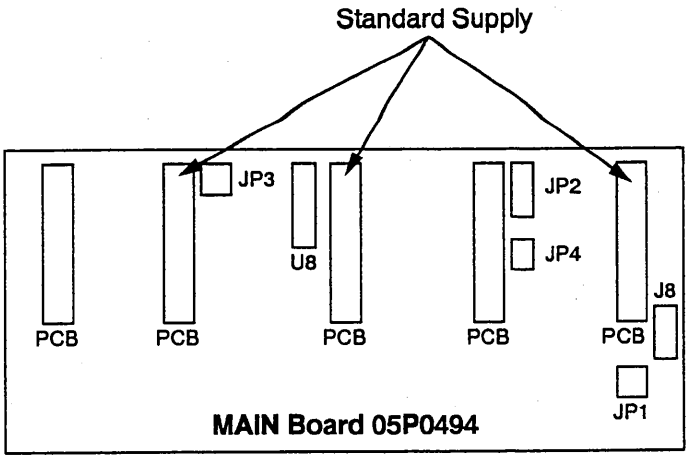
When connecting with VHF

Jumper	Open	Short	Facrory Setting
JP1	excluding FM-7500 connection	FM-7500 connection	Short
JP2	Radiotelephone has priority	RB-700 has priority. (RB-700 installed on the bridge)	Short
JP3			
JP4	always open	-	Short

When connecting with SSB and RB-500

Jumper	Open	Short	Facrory Setting
JP1		always short	Short
JP2	3 or 4 sets of RB-500 are installed.	2 sets of RB-500 are installed.	Short
JP3			
JP4	when DSC is not connected.	when DSC is connected.	Short

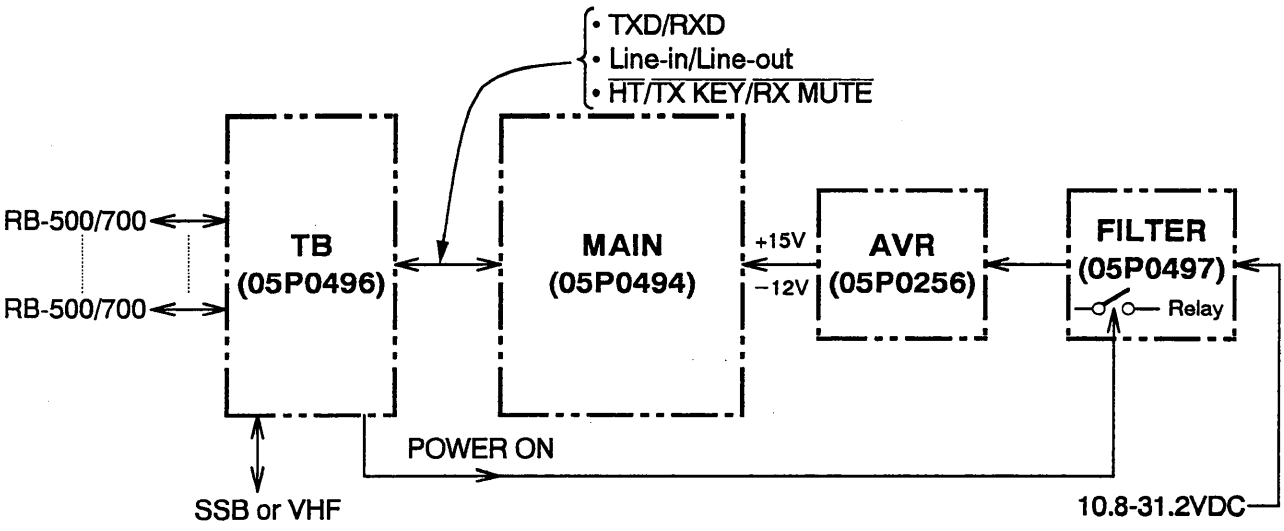
Note: If the DSC-6 is installed, all jumpers should be shorted even if RB-500 and/or DP-6 is connected.



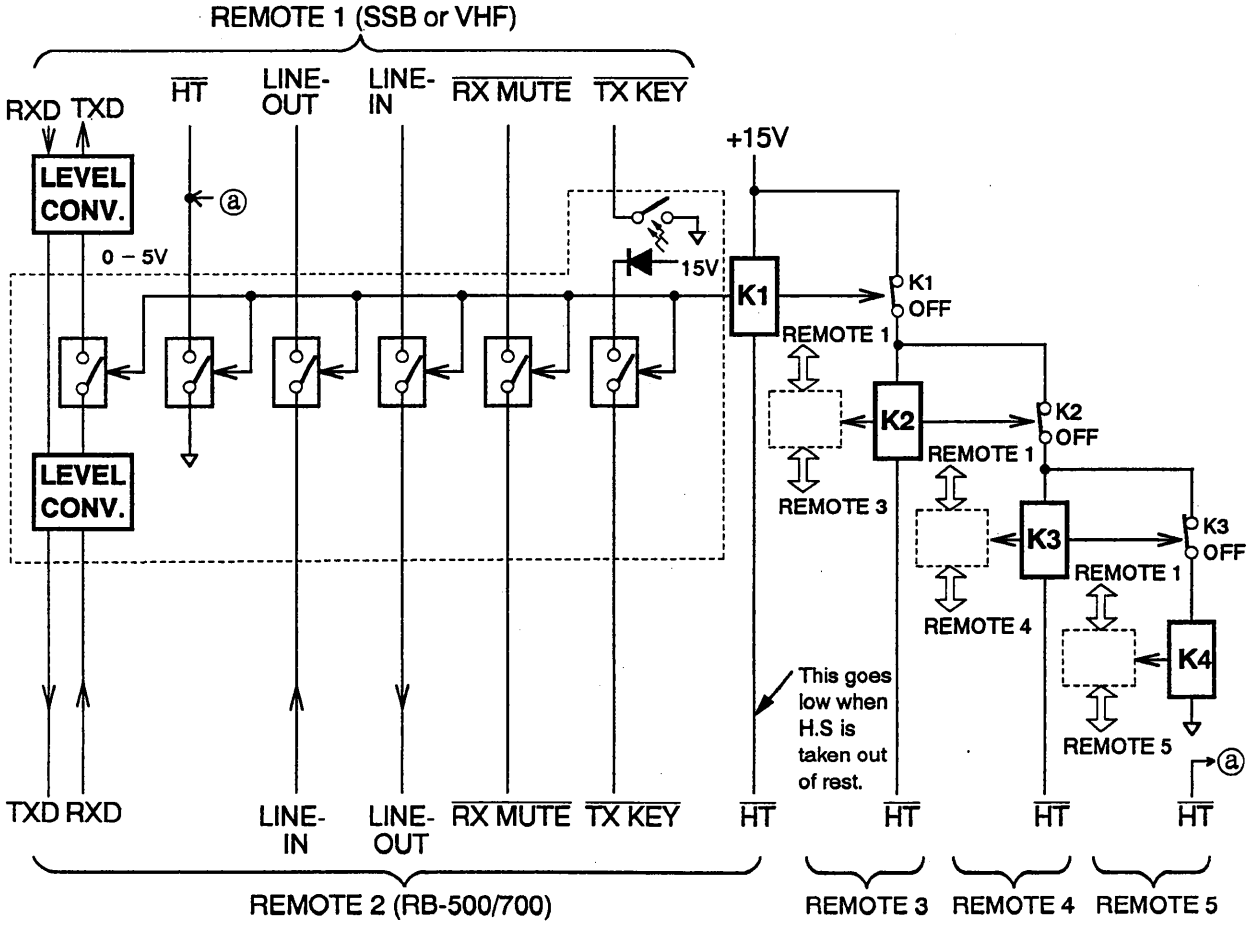
Parts Side

BLOCK DIAGRAM

General



MAIN Board

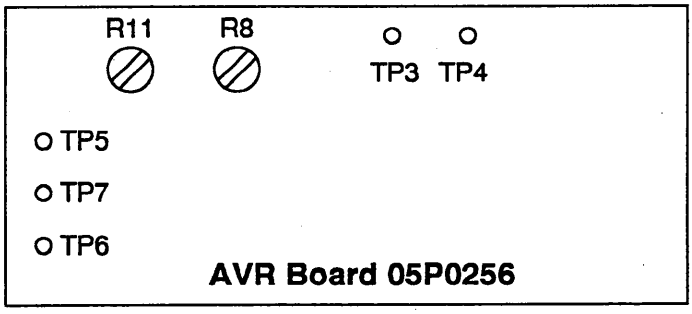


ADJUSTMENT (For qualified person)

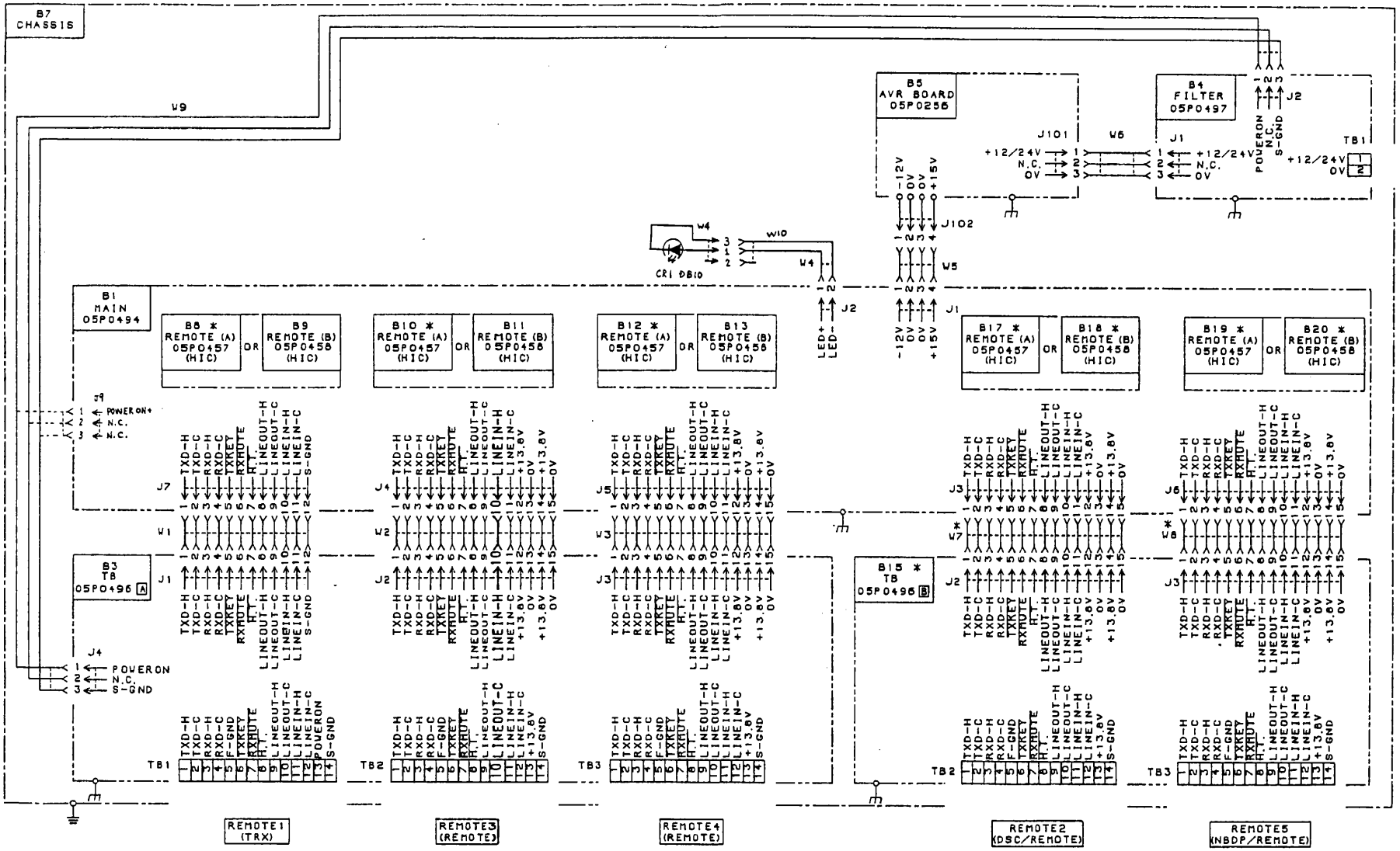
Note: The following adjustment has been done at factory.

AVR Board (05P0256)

Item	Rating	Check Point	Adjuster
Ref. OSC frequency	160kHz ± 2kHz	TP3 (+) -TP4 (−)	R11
+ 15V regulated voltage	15V ± 0.5V	TP6 (+) -TP7 (−)	R8
- 12V line voltage (confirmation only)	-12V ± 0.6V	TP5 (+) -TP7 (−)	−



FURUNO



注記：＊印はオプションを示す。

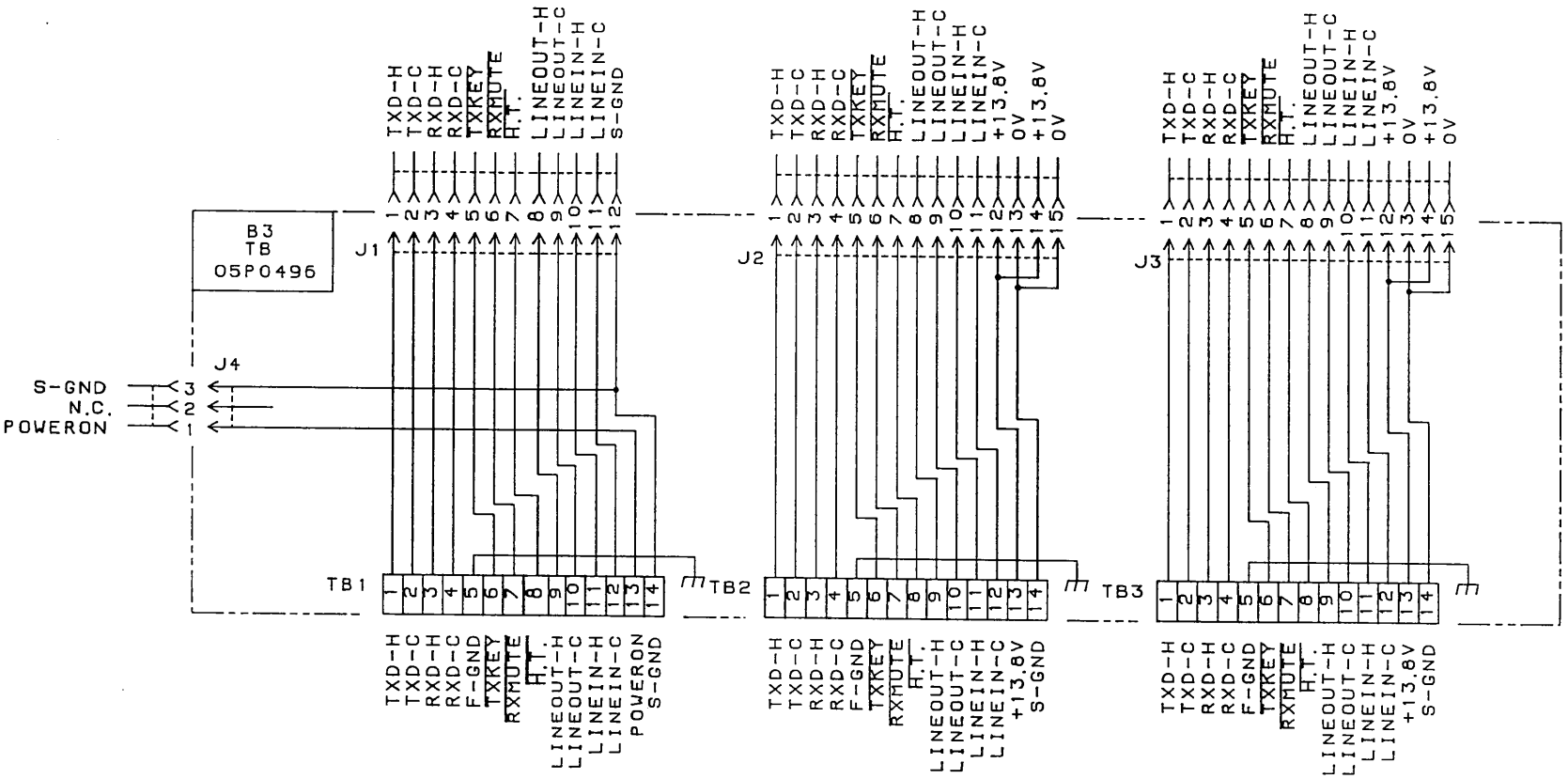
*:OPTION

DRAWN Jun 16 '99 T.TAKASAKI			TYPE DB-500
CHECKED Jun 16'99 K.KUROSAKI			名称 分配器（総合）
APPROVED Jun 16'99 K.KUROSAKI			回路図
SCALE / MASS kg	APPLICABLE TO: (MODEL)	BLOCK NO.	NAME DISTRIBUTOR(GENERAL)
DWG NO. C5072-K01- B	05-001-2056- 3		SCHEMATIC DIAGRAM

FURUNO ELECTRIC CO., LTD.

S-1

FURUNO

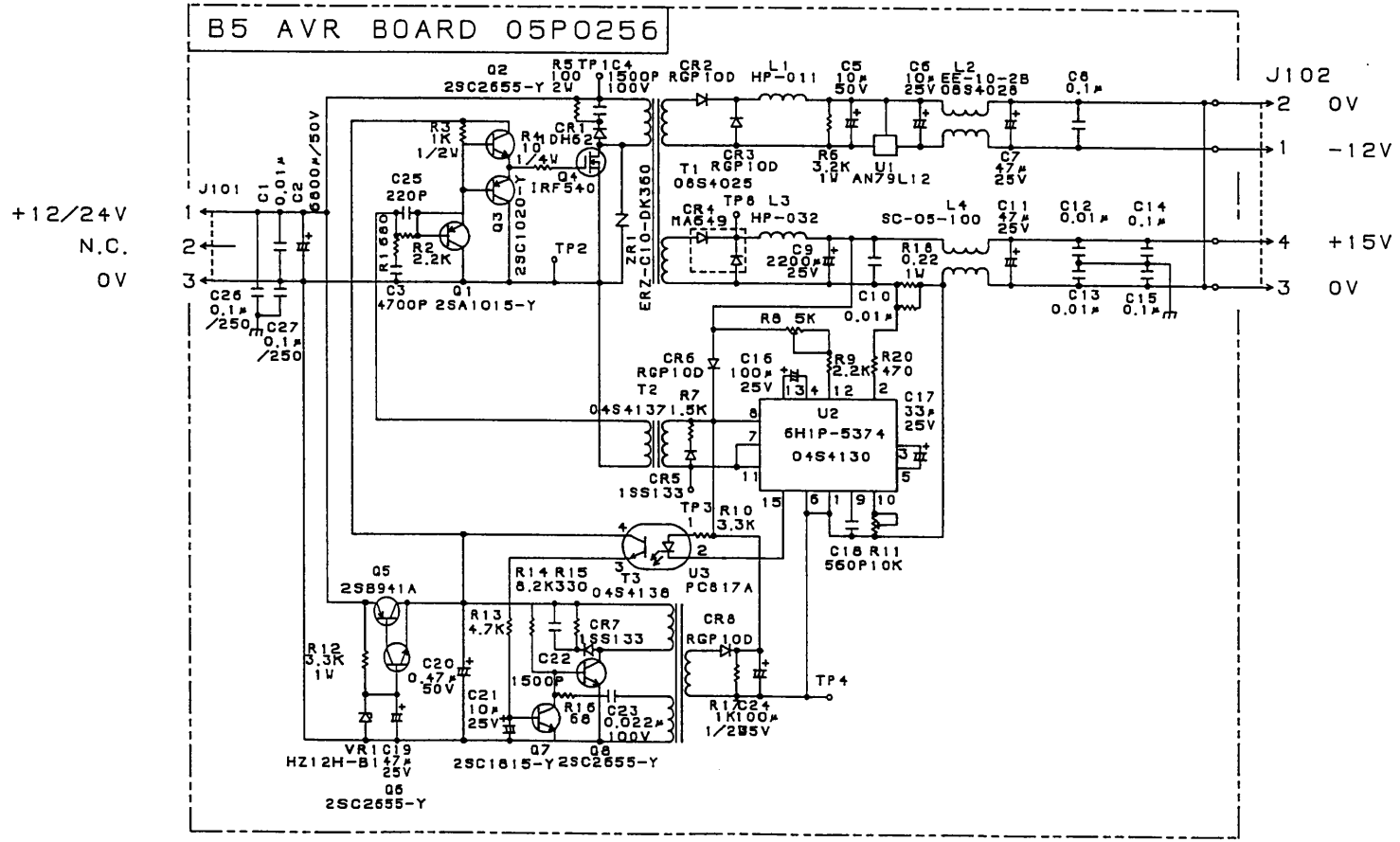


承認 APPROVED	MAY.25.'92 T.TAKAI	名称 TITLE	TB基板
検図 CHECKED	MAY.27.'92 M.IKEDA	B03 05P0496	TB BOARD
製図 DRAWN	MAY.21.'92 M.OSAKO	図番 DWG.NO.	C5072-K03-A

DB-500

FURUNO ELECTRIC CO., LTD.

FURUNO



承認 APPROVED	MAY・25・'92 T.NAKAO	名称 TITLE	AVR基板
検図 CHECKED	MAY・22・'92 M. IKEDA	B05 05P0256	AVR BOARD
製図 DRAWN	MAY・21・'92 M. OSAKO	図番 DWG. NO.	C5072-K05-A

DB-500

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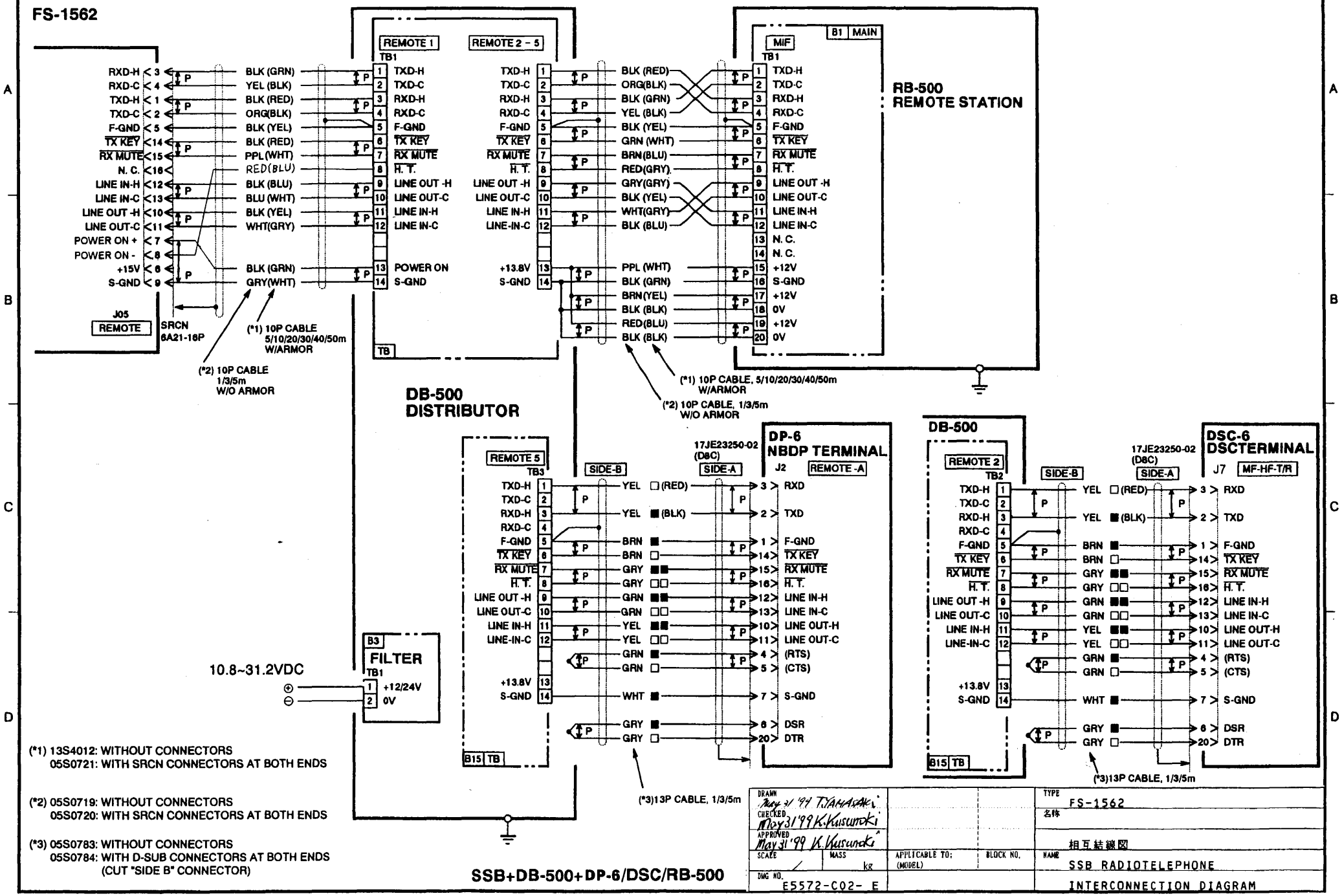
FURUNO



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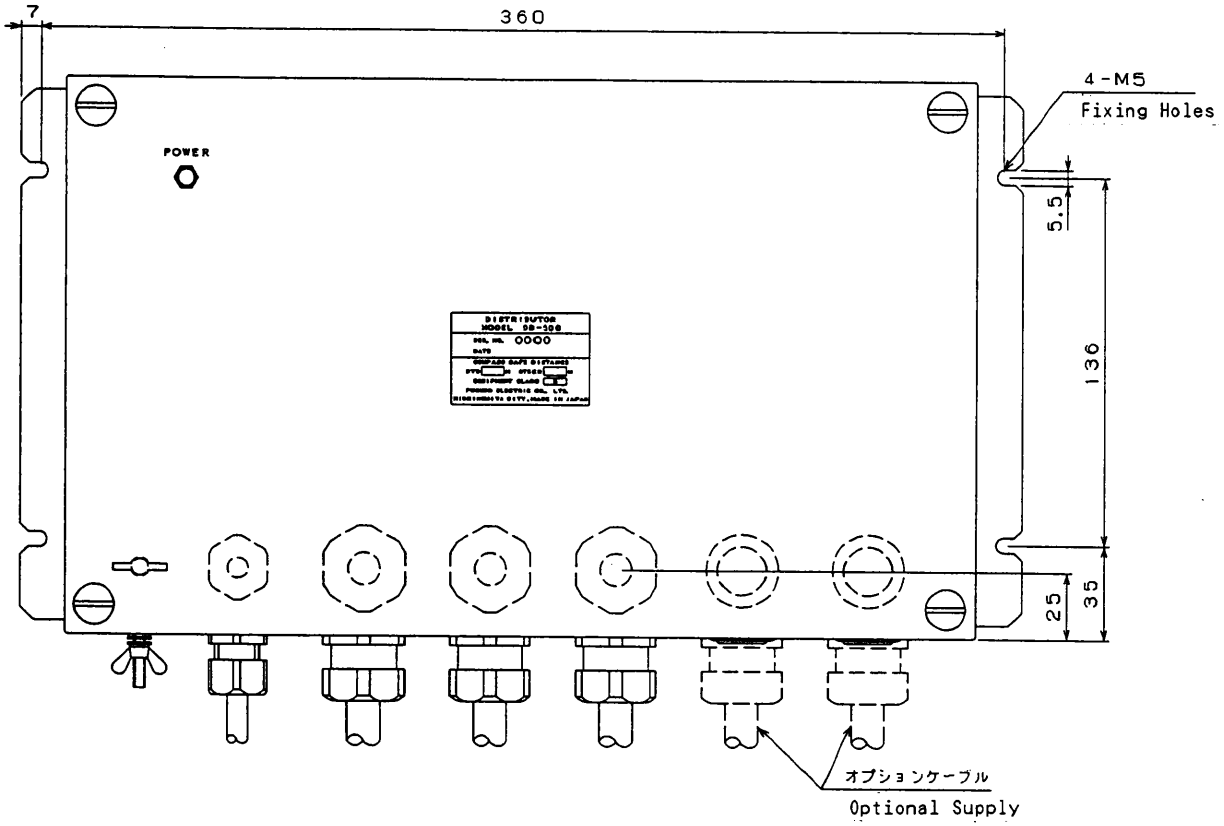

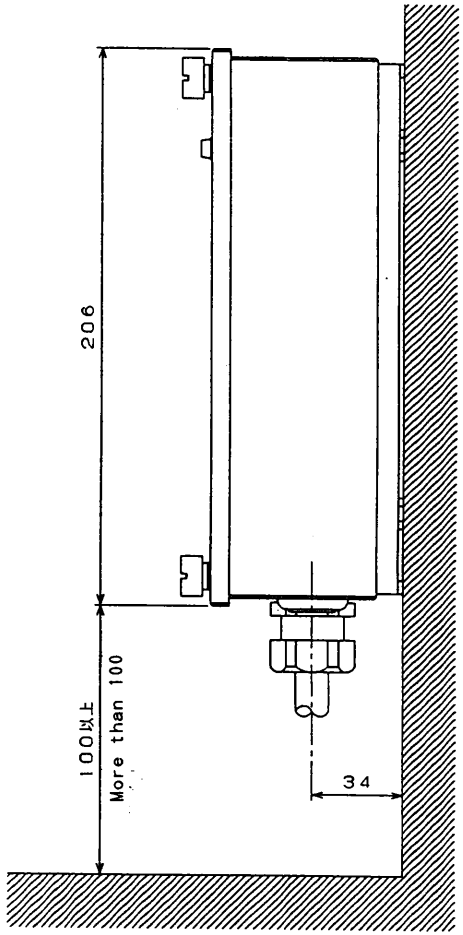

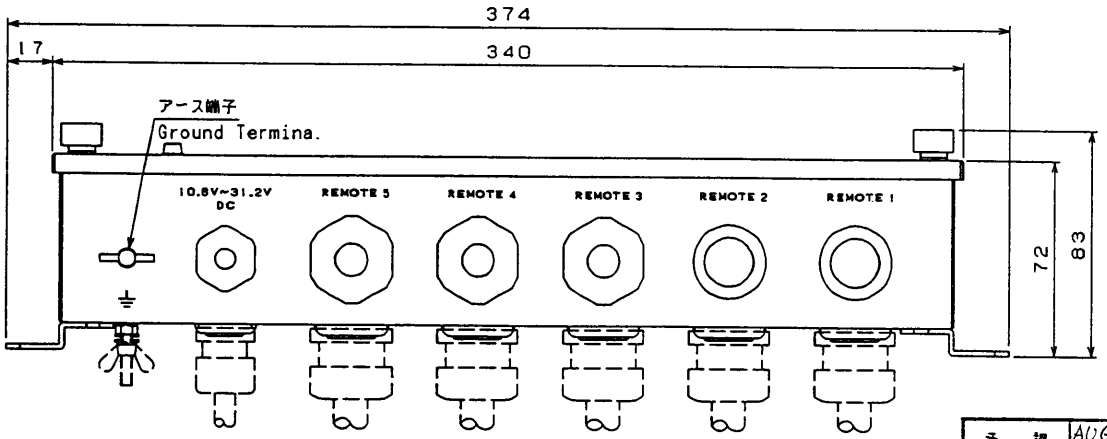

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

承認 APPROVED	AUG. 30.'91 T.NAKANO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	DB-500 ディストリビュータ DISTRIBUTOR
検図 CHECKED	Aug. 30.'91 M. IKEDA	尺度 SCALE			
製図 DRAWN	Aug. 30. '91 M. OSAKO	重量 WEIGHT	3 kg	図番 DWG.NO.	C5072-G01-C

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