FURUNO

OPERATOR'S MANUAL

INTERFACE UNIT

MODEL IF-2300

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·Your Local Agent/Dealer

Initial : FEB 1996
B : JUN. 13, 1996

PUB. No. OME-43680
(ETMI) IF-2300

000807263 00

⚠ SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator and 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.

⚠ 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 open the equipment.

High voltage which can shock, burn or cause serious injury exists inside the equipment. Only qualified personnel should work inside the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Turn off the power immediately if water leaks into the equipment, or the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock.

Keep heater away from equipment.

Heat can melt the power cord, which can cause fire or electrical shock.

⚠ 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.

Use the correct fuse.

Use of a wrong fuse can cause fire or equipment damage.

Table of Contents

General

The FURUNO IF-2300 Interface Unit distributes CIF or NMEA data. Two inputs are combined into one line then distributed to three outputs.

1. Operation

In everyday operation, nothing is required of the operator, because the power to the interface unit is turned on/off with an external power supply.

2. I/O Data

Data distribution

The IF-2300 distributes two lines of CIF or NMEA0183 data into three lines. NMEA 0183 data (Ver. 2.0) can be converted to NMEA 0183 data (Ver. 1.5). Refer to page 5 for setting of switches.

Table 1 I/O data

Data	Input port	Output port
CIF	2	3
NMEA0183	2 (Ver. 1.5)	3 (Ver. 1.5)
	2 (Ver. 2.0)	3 (Ver. 1.5/2.0)

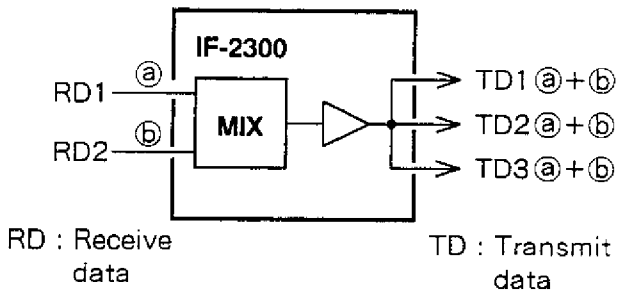


Figure 1 I/O data distribution

Tx/Rx data

CIF-Mix:

For FURUNO format data. When one record is over 300 bytes, all succeeding data are ignored.

NMEA-Mix:

For NMEA 0183 format data (Ver. 1.5 or 2.0), including "P" sentences. When the same data are input to both port 1 and port 2, port 1 has priority. The following data have priority: AAM, APA, APB, BOD, BWC, RMA, RMB, RMC, WPL, XTE and ZDA.

3. Maintenance

Preventative maintenance

Check all cables and ground monthly for tight connection.

Self test

This unit has a self test facility which checks the equipment for proper operation.

Power-on test

The following are checked each time the unit is turned on:

ROM test: Checks the program area.

RAM test: Checks all memories.

Input data test: Checks the input data size.

◆ LED display

Error is shown by the state of LEDs CR1 to CR4.

Table 2 LED state and meaning

LED No.	State	Meaning
CR1(GRN)	Blinks every second.	Normal
CR2(RED)	ON	Defective ROM
CR3(RED)	ON	Defective RAM
CR4(RED)	ON	Data error (data overflow)

Test mode

The test mode checks the ROM and RAM and tests for proper input and output of data (by loopback circuit). It can be enabled by turning on the #4 segment of DIP switch S1.

ROM test: Checks the program area.

RAM test: Checks all memories.

SIO test: CPU loop back test

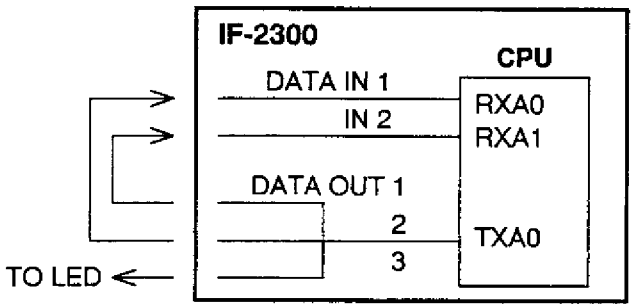


Figure 2 SIO test

◆ LED display

Error is shown by the state of LEDs CR1 to CR4.

Table 3 LED indication in test mode

LED No.	State	Meaning
CR1(GRN)	Blinks every second.	Normal
CR2(RED)	ON	Defective ROM
CR3(RED)	ON	Defective RAM
CR4(RED)	ON	SIO (CPU loopback) error

Fuse replacement

To protect the unit from serious damage, a 0.5A fuse is provided on the unit's lone P.C. board. The fuse protects against overvoltage or internal fault of the equipment. If the fuse blows, find the cause of the problem before replacing it.

⚠ CAUTION

DO NOT use a fuse rated more than 0.5A, since it may cause serious damage to the equipment.

4. Installation

WARNING

Turn off the power at the ship's mains switchboard before beginning the installation.

Serious injury or death can result if the power is not turned off, or is applied while the equipment is being installed.

Only qualified personnel should work inside the equipment.

Mounting considerations

This equipment provides its intended function only when it is installed properly. The installation site is important for proper operation and continued performance; select it considering the following points.

- Keep away from water spray.
- Keep out of direct sunlight.
- Select a clean and well-ventilated place.
- Select a place where shock, vibration and noise are minimal.
- Select a location where temperature and humidity are moderate and stable.

Mounting

The unit can be mounted on a tabletop, a bulkhead, or on the overhead.

Procedure

1. Remove the cover.
2. Referring to the outline drawing, drill pilot holes in the mounting location.
3. Fix the unit with tapping screws (ϕ 4 x 16 mm, supplied). For thin walls, use nuts and bolts (local supply) instead of tapping screws.

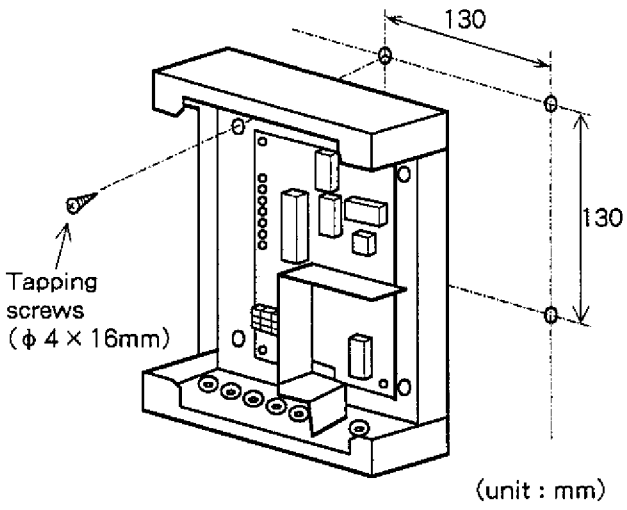


Figure 3 Mounting IF-2300

Note: Attach cover after wiring signal cable.

Wiring

Refer to the interconnection diagram on page S-1.

Power cable

1. Make a hole in the cable entrance above the ground terminal (right side of unit).
2. Pass the power cable through the entrance.
3. Remove the sheath by 30 mm.
4. Remove the insulation on the VH connector (supplied) by 3 mm.
5. Slip heat shrink tubing onto the vinyl wires of the cable. Solder vinyl-covered wires on the VH connector to vinyl-covered wires on the power cable.
6. Heat the heat shrink tubing.
7. Connect the VH connector to J1 on the I/F Board.

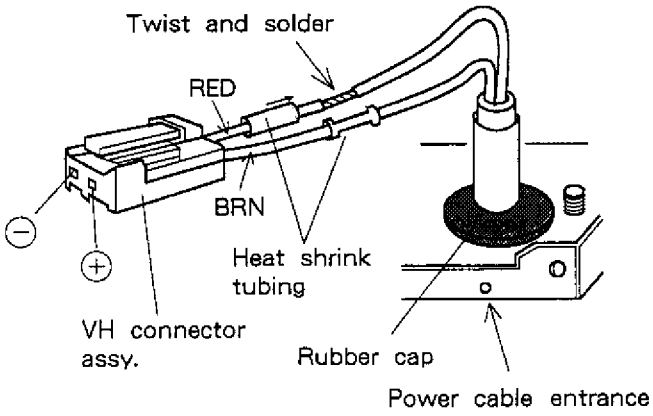


Figure 4 Power cable and VH connector

Signal cables

1. Open a hole in one of the cable entrances.
2. Remove the outer sheath by 50 mm.
3. Pass the signal cable through the entrance selected.
4. Remove the inner sheath by 30 mm and the insulation of cores by 3 mm.
5. Twist wire shield and pass it through a 25 mm tubing (local supply).
6. Attach crimp-on lugs (supplied) to cores.

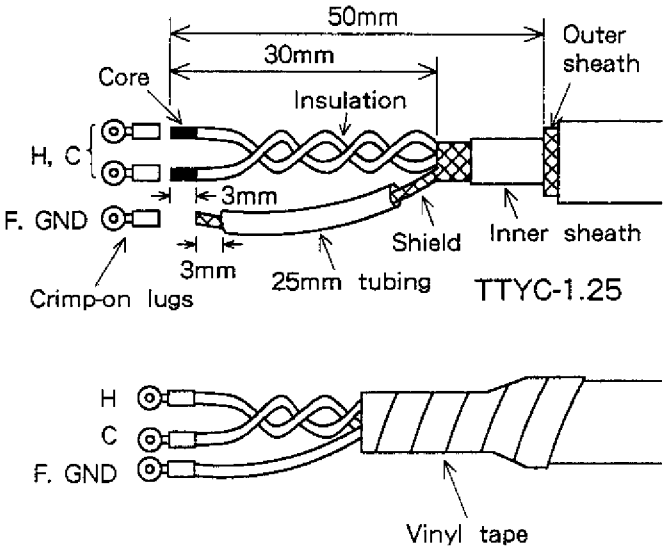


Figure 5 Signal cable

7. Cover area between the shield and the armor with vinyl tape.
8. Connect wires to terminal strip, referring to the interconnection diagram.
9. Attach the cover.

NOTICE

Do not open unused cable entrances.

Grounding

Connect a ground wire (IV-8sq.) between the ground terminal on the unit and ship's ground bus, to prevent interference.

5. Check and Adjustment

Parts location

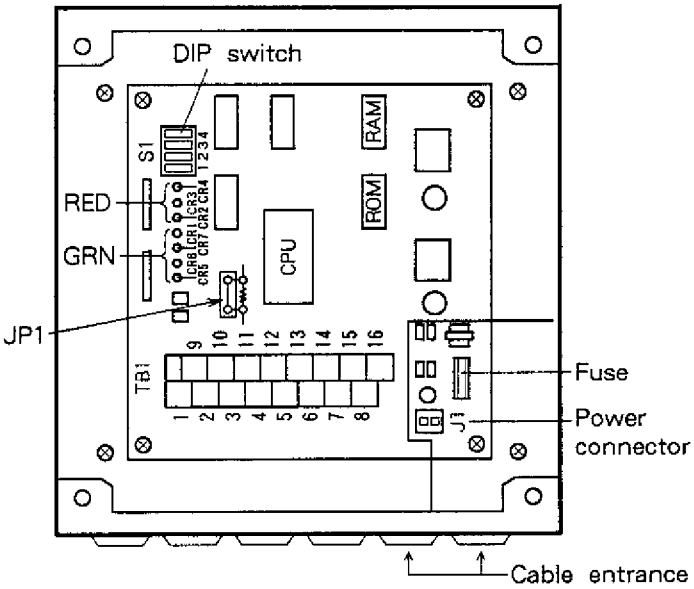


Figure 6 Parts location

Setting DIP switch S1

DIP switch S1 (on the I/F Board) sets input data format (CIF or NMEA) and NMEA output format and enables the self test.

Procedure

Set the switch referring to Table 4. Turn off the power to reset the CPU and register settings.

Table 4 DIP switch settings

No.	Function	ON	OFF
1	CIF or NMEA	CIF	NMEA
2	NMEA output	Ver. 1.5	I/O
3	Not used	-	-
4	Self test	Test	Normal

Note 1: *When No.1 (CIF or NMEA) is selected to ON (CIF), setting of No.2 is ignored.*

Note 2: *When No.2 is selected to ON (NMEA output Ver. 1.5), GLL and GGA data are converted to NMEA Version 1.5 data and other data are output directly.*

For CIF data

When the CIF data is selected, cut pattern at Jumper JP1 on the I/F Board (14P0272). See Figure 6 for location of JP1.

Specifications

Input ports

CIF or NMEA 0183

(Ver. 1.5/2.0), 2 ports

Output ports

CIF or NMEA 0183

(Ver. 1.5/2.0), 3 ports

Power supply

10 VDC to 35 VDC

Power consumption

5 W or less

Dimensions (mm) & weight

150 (W) x 180 (H) x 45 (D),

0.5 kg

Color

2.5GY5/1.5 Newtone No.5

Usable temperature

− 15 ℃ to +55 ℃

Equipment List

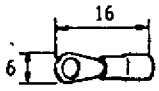
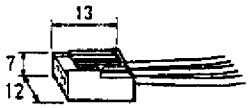
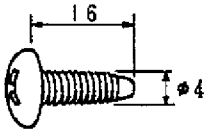
Complete set

No.	Name	Type	Wt.	Qty	Remarks
1	Main Unit	IF-2300	0.5 kg	1	
2	Installation Materials	CP14-04500		1 set	
3	Spare Parts	SP14-01100		1 set	

FURUNO

CODE NO.	000-043-987	
TYPE	CP14-04500	C4368-M01-B

工事材料表 INSTALLATION MATERIALS	IF-2300 インターフェース INTERFACE	

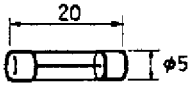
番号 No.	名称 NAME	略図 OUTLINE	型名／規格 DESCRIPTIONS	数量 Q'TY	用途／備考 REMARKS
1	圧着端子 CRIMP-ON LUG		FV1.25-3 アカ RED CODE NO. 000-538-113	16	
2	VHコネクタ組品 CONNECTOR ASSY.		14-338(2P) CODE NO. 000-439-326	1	
3	+トラスタッピングネジ TAPPING SCREW		4X16 1シュ SUS304 CODE NO. 000-802-080	4	

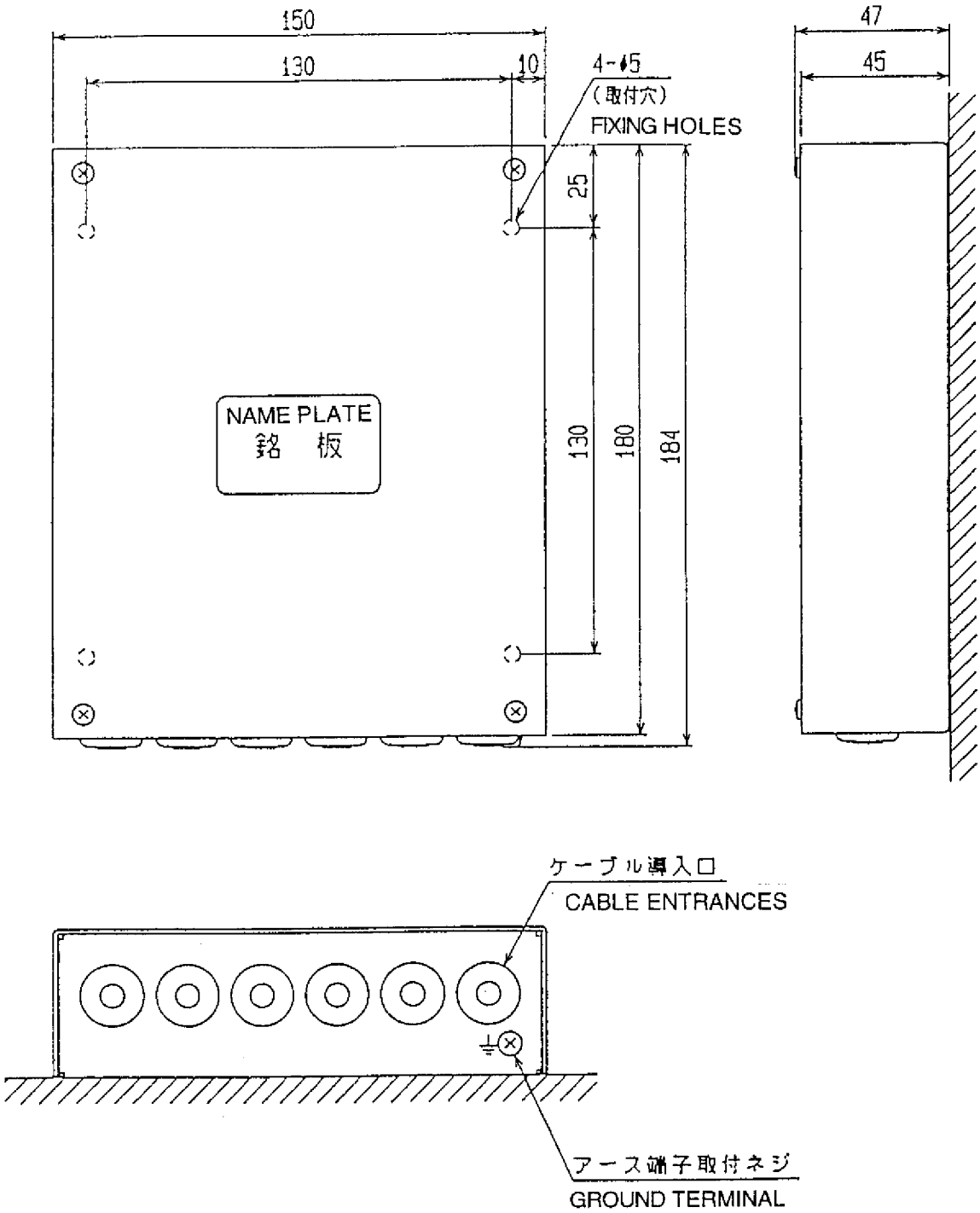
000-043-987
CP14-04500

FURUNO

CODE NO.	000-043-093	DWG. NO.	C4368-P01-A
TYPE	SP14-01100	BOX NO.	P

SHIP NO.	SPARE PARTS LIST FOR	U S E	SETS PER VESSEL
	IF-2300 インターフェース INTERFACE		

ITEM NO.	NAME OF PART	OUTLINE	DWG. NO. OR TYPE NO.	QUANTITY WORKING PER SET	QUANTITY WORKING PER VES.	QUANTITY SPARE	REMARKS/CODE NO.
1	ミゼットヒューズ FUSE		FGMB 0.5A AC125V	1		3	000-114-994



注 記

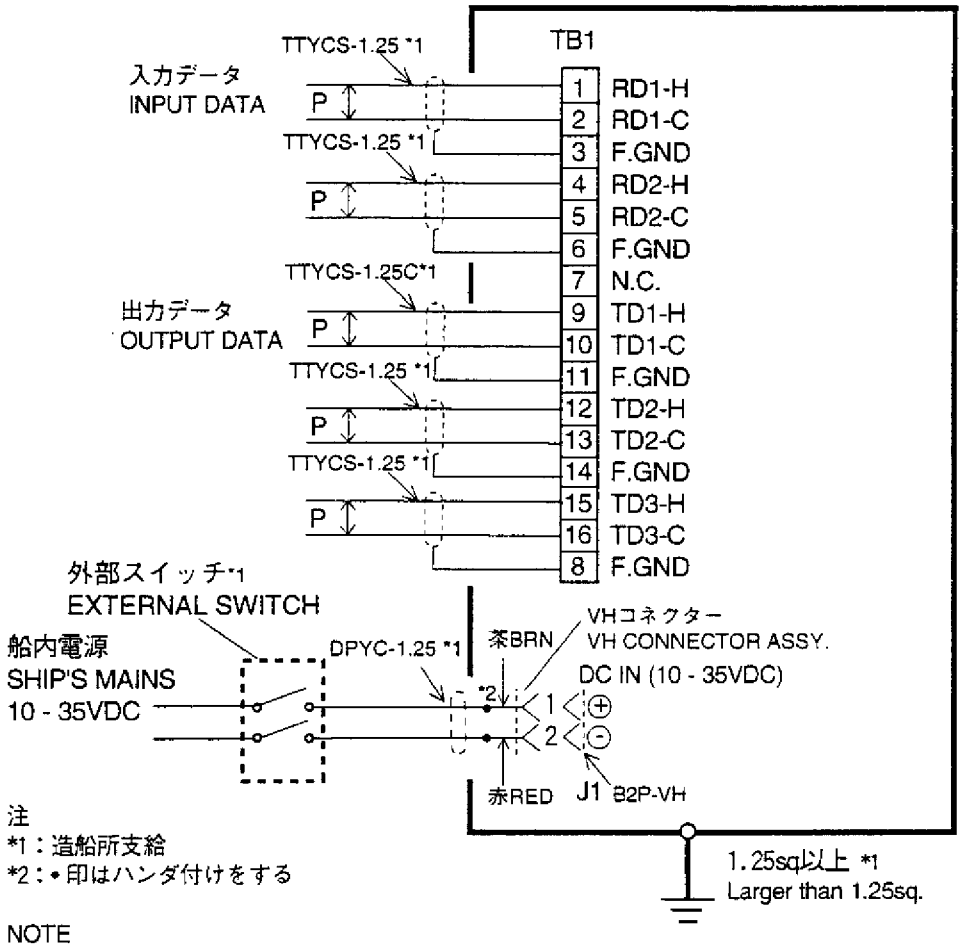
取付ネジは＋トラスタッピンネジ呼び径４×１６を使用のこと

Note: Use four tapping screws (ϕ4 x 16mm) for fixing the unit.

DRAWN Sep. 8 '95 T.Yamasaki				TYPE IF-2300	
CHECKED Sept.28 '95 K. Okamoto				名称 インターフェース	
APPROVED Sep 28 '95 OTM				NAME INTERFACE UNIT	
SCALE 1/2	MASS 0.5 kg	APPLICABLE TO: (MODEL)	BLOCK NO.	DWG NO. C4368-G01- A	14-051-1000- 00

FURUNO ELECTRIC CO., LTD.

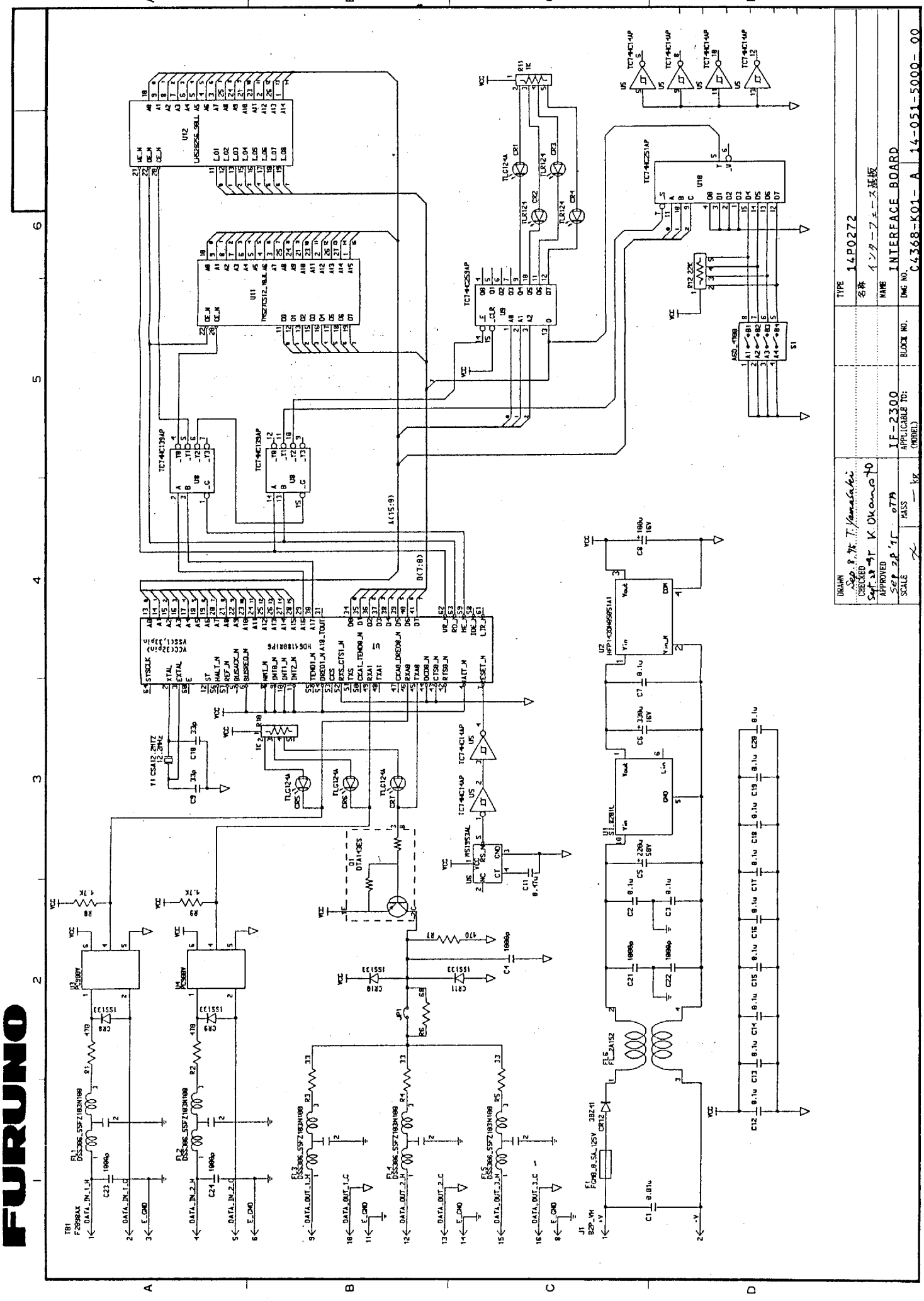
インターフェイスユニット
INTERFACE UNIT
IF-2300



注
*1：造船所支給
*2：•印はハンダ付けをする

NOTE
*1: SUPPLIED BY SHIPYARD.
*2: SOLDER.

DRAWN Sep.12'95 T. Yamasaki				TYPE IF-2300
CHECKED Sep 12'95 K. Okamoto				名称 インターフェース
APPROVED Sep 28 '95 OTA				NAME INTERFACE UNIT
SCALE —	MASS — kg	APPLICABLE TO: (MODEL)	BLOCK NO.	DWG NO. C4368-C01- B


FURUNO
FURUNO ELECTRIC CO., LTD.
TYPE 14P0272
名称 インターフェース基板
NAME INTERFACE BOARD
DWG NO. C4368-K01-A 14-051-5000-00
BLOCK NO.
APPLICABLE TO: IF-2300
(MODEL)
MASS — kg
SCALE
DRAWN Sep.8.'97 T.Yamasaki
CHECKED Sep.8.'97 K.Okamoto
APPROVED Sep.22.'97
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