Echo Sounder

JFE-582/585

Service Manual

JRC Japan Radio Co., Ltd.

Contents

1. Specifications

Range	10	25	50	250	500
Depth Range Scale	0−10m	0−25m	0−50m	0−250m	0−500m
Sounding Capability (Note 1)	2m~10m	2m~25m	2m~50m	2m~250m	2m~500m
	below transducer's bottom under normal propagation conditions.				
Sounding rate	133times/minutes	133times/minutes	133times/minutes	66times/minutes	66times/minutes
Operating frequency	200kHz				
Recording Paper	W150mm x L15m				
Paper feed speed	10min. 20min. 30min. or stoopped (Note 2)				
Draft adjust	Max.50m				
Digital Depth	3 characters indication on the LCD. (Decimal values for less than 100m.)				
Depth Alarm	The buzzer sounds and the LED flickers when the depth is shallower than the set water depth.				
Power Fail Alarm	The buzzer sounds and the LED flickers when the power line happen to down the voltage. (Note 3)				
Illumination	Recording paper and operational panel, with dimmer				
Output Depth Data	NMEA0183(V2. 3, V1. 5)、JRC format (Note 4)				
Input Nav. Data	NMEA0183(V2. 3, V1. 5)／0180、JRC format				
Output Signal	Depth Alarm(Relay contact Max.120VAC10A or 30VDC8A、selectable NO／NC)				
	Power Fail Alarm(Relay contact Max.120VAC10A or 30VDC8A、selectable NO／NC)				
Input Signal	Depth Alarm acknowledge (selectable contact ／ current drive. Rated contact 5VDC 5mA, current drive 12VDC 1.2mA)				
	Power Fail Alarm acknowledge (selectable contact ／ current drive. Rated contact 24VDC 5mA, current drive 12VDC 1.2mA)				
Paint Color	Panel: Munsell N4、 Cover: Munsell N7 (Note 5)				
Power Supply	Main Unit: 100／110／115／200／220／230VAC (Operationable Voltage: 85~265VAC) 50／60Hz Max 60VA				
	Power Fail Alarm control unit: 24VDC(Operationable Voltage: 20~32VDC) Max 2. 5W				
Dimensions	Wall Hanger type or Build in (Flush) type is all the same. W376 x H325. 5 x D196 mm (Include the bulge of the knob W383 x H325. 5 x D212 mm)				
Mass	Wall Hanger type or Build in (Flush) type is all the same. 11kg				
Operating Temperature	−15℃ ~ +55℃				
Compass Safe Distance	Standard 1. 5m, Steering 1. 2m				

Note 1: Set the Gain level for the best pick up of the sea bottom on the recording paper. The maximum measurable depth largely depends on the shape of the ship, installation place of the transducer, quality of the sea bottom, channel, etc., and the maximum measurable depth bottoms shallower as the ship speed becomes faster, compared with the stopping ship. Also, when the ship moves backward, the transducer is covered with a lot of bubbles generated by the screw and the sound wave is attenuated. Thus, the depth measuring function deteriorates remarkably.

Note 2: Set the freeze to stop the paper feed. Though the depth display and the output depth data , alarms continue work.

Note 3: Use of the Power fail alarm capabilities requires the another power supply 24V DC.

Note 4: NMEA0183 output sentence, V1.5: SDDBS, SDDBT, SDDBK V2.3: SDDPT.

Note 5: A combination of painting colors Munsell N4 and N7 is JRC standard type.

2. Components

This section lists components and optional equipment.

Standard Equipment

Name	Type No.	Qty.	Remarks
Recorder	JFE-582	1	
Matching box	AW-154F	1	
Transducer mounting	NKF-341	1	Cable length: 20m
Spare unit	7ZXBS0010	1	
Instruction manual	7ZPBS2301B	1	

Optional Equipment

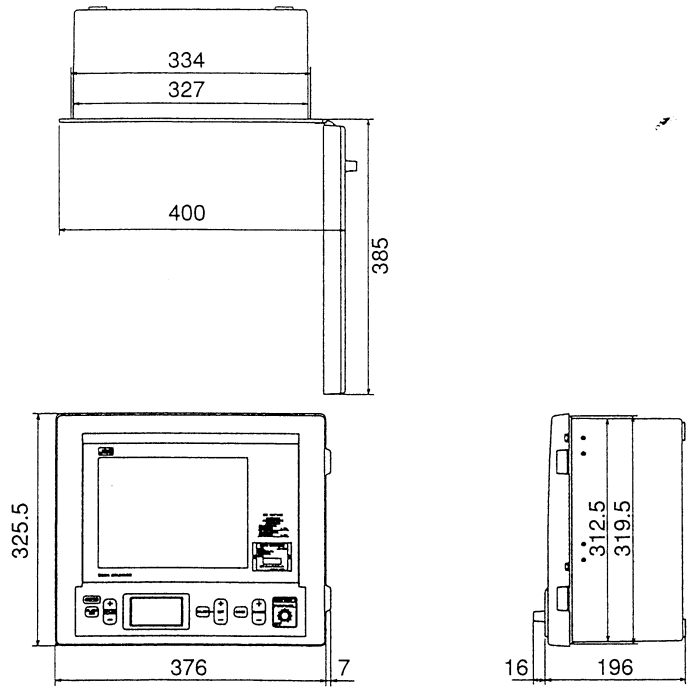
Name	Type No.	Qty.	Remarks
Transducer mounting	NKF-392C		Cable length: 20m

3. Construction

Equipment Outline

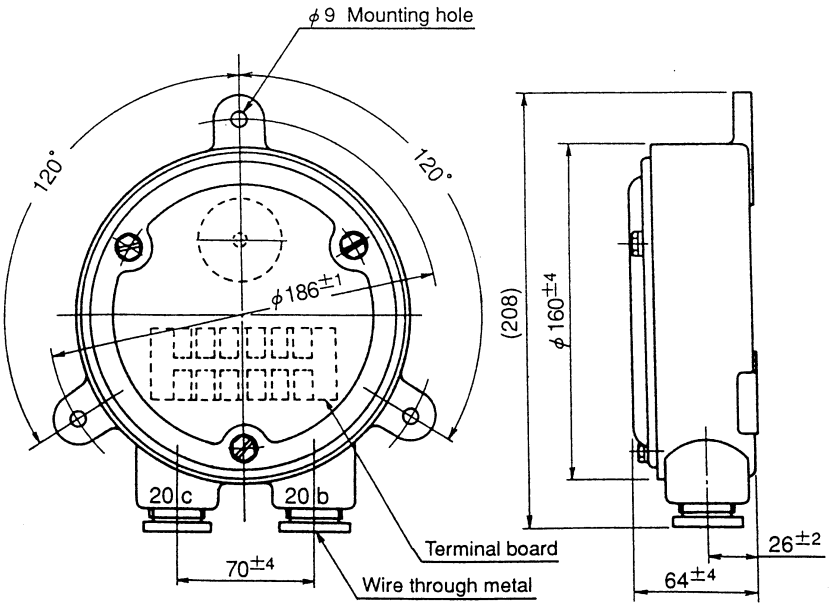
The following shows the external dimensions of the JFE-582.

1. External dimensions of JFE-582 recorder



(Unit: mm)
Mass: 11kg

2. Dimensions of AW-154F Matching box

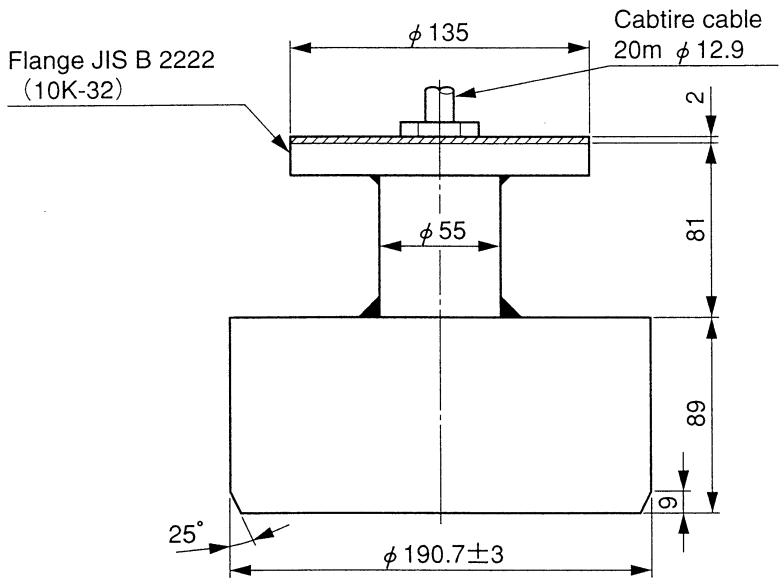


(Unit: mm)
Mass: 4kg

External Dimensions of Transducer mounting

The external dimensions illustrated below are for the standard equipment. Please refer to the separately supplied drawings if your specifications are not standard.

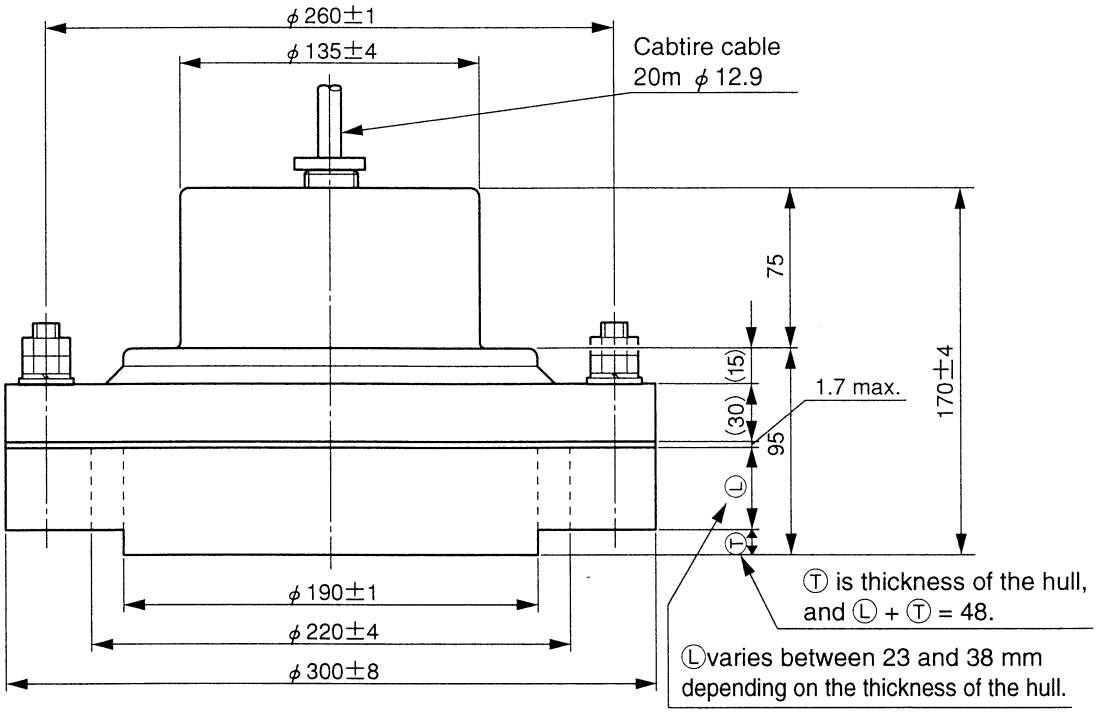
1. NKF-341 (Installed on ship's bottom)



(Unit: mm)

Mass: 22kg

2. NKF-392C (Installed on ship's bottom)

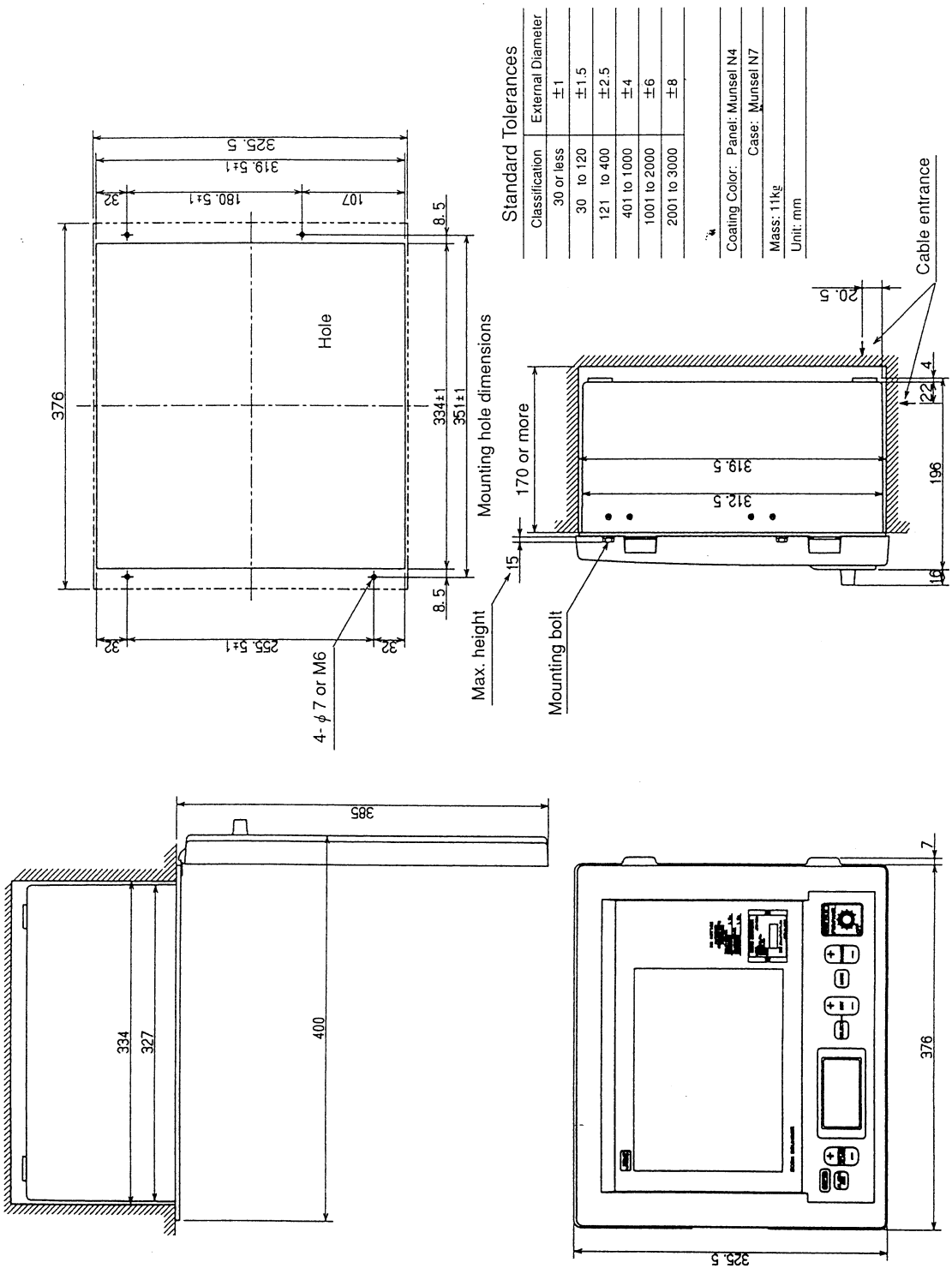


(Unit: mm)

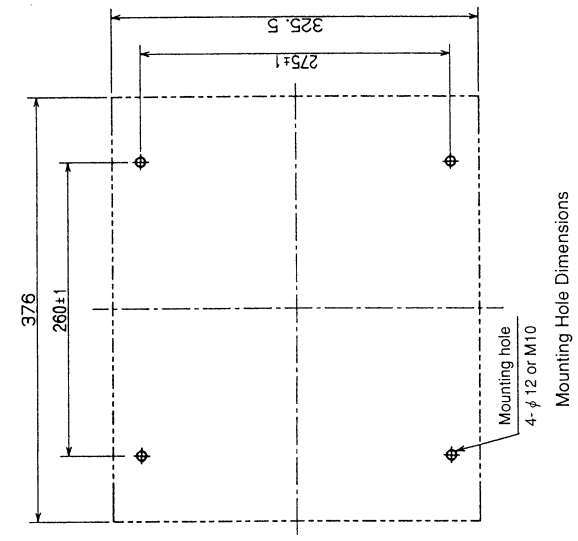
Mass: 41kg

4. Installing the Recorder Unit

Flush-Mounted Equipment



Wall-Mounted Equipment



Mounting Hole Dimensions

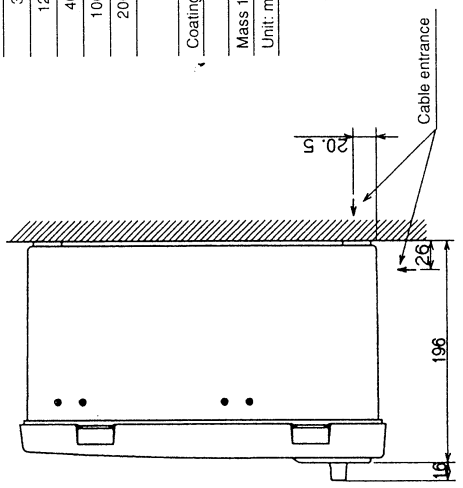
Standard Tolerances

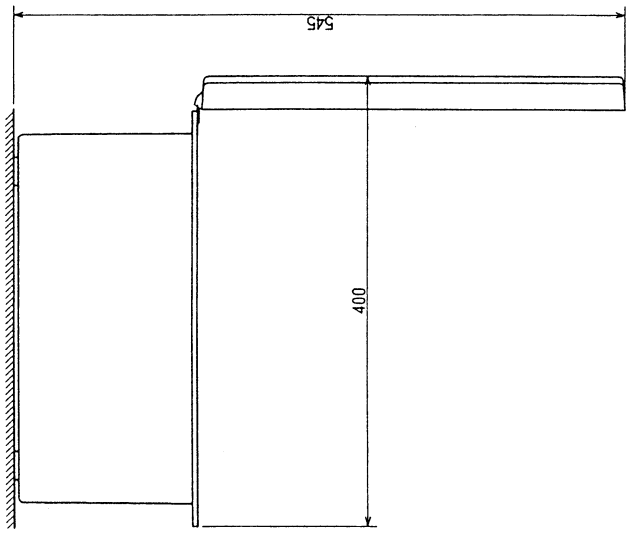
Classification	External Diameter
30 or less	±1
30 to 120	±1.5
121 to 400	±2.5
401 to 1000	±4
1001 to 2000	±6
2001 to 3000	±8

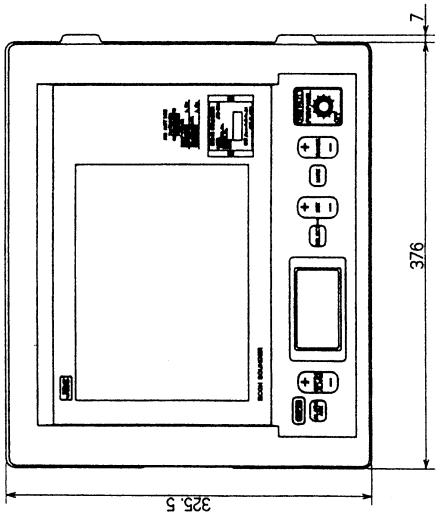
Coating Color: Panel: Munsel N4
Case: Munsel N7

Mass 11kg

Unit: mm



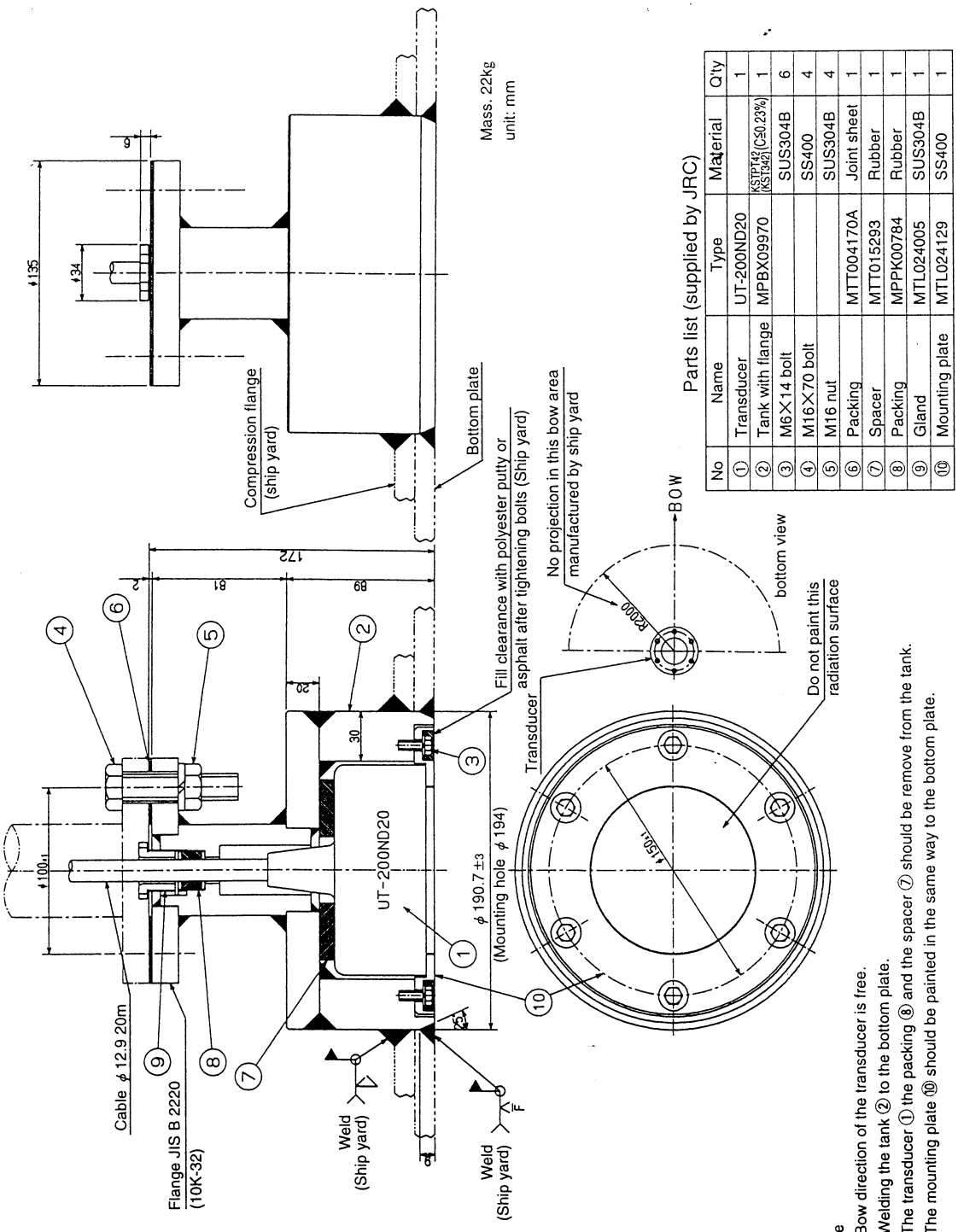




5. Installing the Transducer

The external dimensions illustrated below are for the standard equipment. Please refer to the separately supplied drawings if your specifications are not standard.

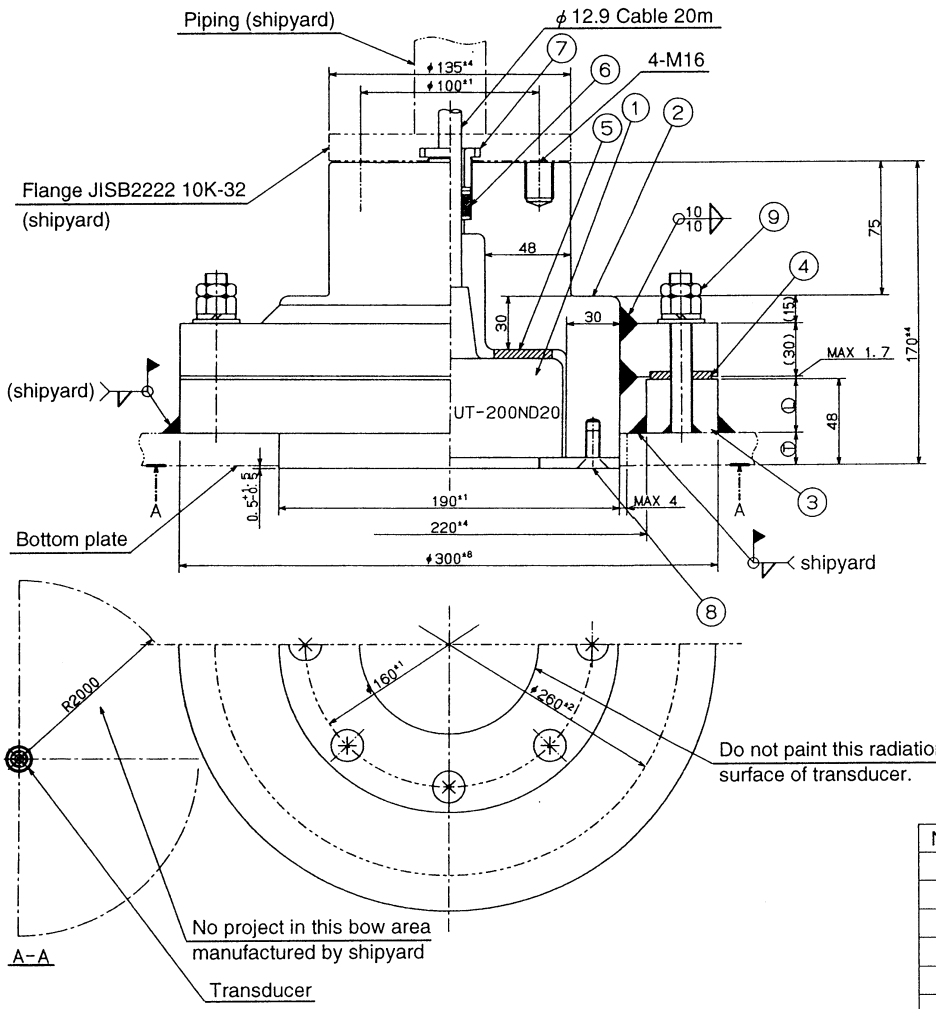
NKF-341



Parts list (supplied by JRC)

No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank with flange	MPBX09970	(KSTPT42)(C≤0.23%) (KS1342)	1
③	M6×14 bolt		SUS304B	6
④	M16×70 bolt		SS400	4
⑤	M16 nut		SUS304B	4
⑥	Packing	MTT004170A	Joint sheet	1
⑦	Spacer	MTT015293	Rubber	1
⑧	Packing	MPPK00784	Rubber	1
⑨	Gland	MTL024005	SUS304B	1
⑩	Mounting plate	MTL024129	SS400	1

Note
1. Bow direction of the transducer is free.
2. Welding the tank ② to the bottom plate.
   The transducer ① the packing ⑧ and the spacer ⑦ should be remove from the tank.
3. The mounting plate ⑩ should be painted in the same way to the bottom plate.



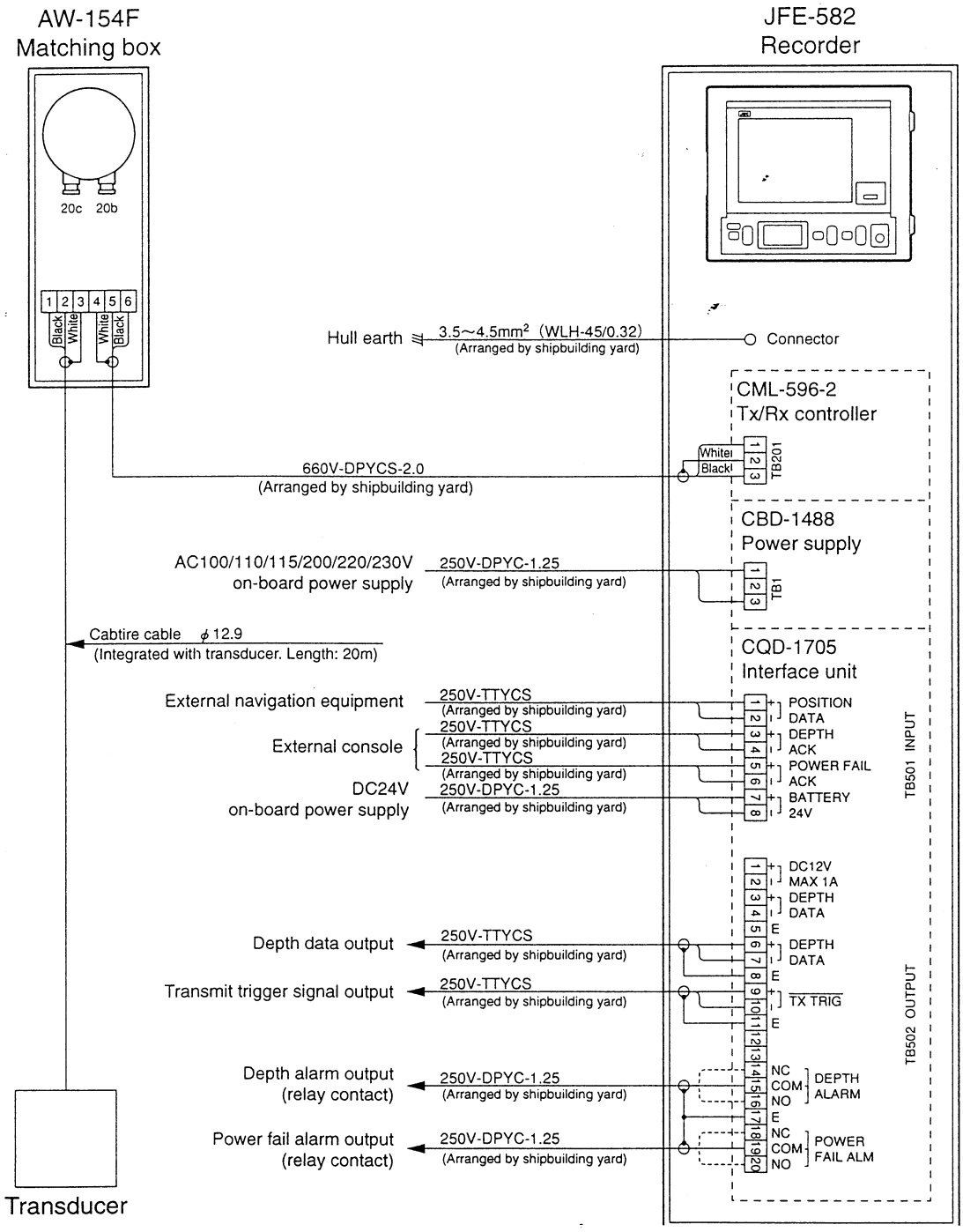
1. The mounting stand should be welded in the shipyard.
2. The dimension Ⓣ corresponds to the thickness of the steel hull bottom.
   This should be designated by the shipyard.
   The dimension Ⓛ of the mounting stand varies between 23mm and 38mm in accordance with the thickness of the steel hull bottom.
   (Ⓣ + Ⓛ =48)
3. The gap between the tank and the steel hull bottom should be less than 4mm.
4. The transducer mounting should be installed in the watertight recess and transducer cable to be protected by steel pipe. (by the shipyard)
5. Torque nuts ⑨ to 7200 to 8800 N•cm (730 to 900kgfcm).
6. The surface of transducer unit should be stuck out 0.5 $^{+1.5}_{-0.5}$ mm from bottom plate.

Parts list (supplied by JRC)

No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank	MPBX08424B	KSFR41 (KA) (C≦0.23%)	1
③	Mounting stand	————	KSFR41 (KA) (C≦0.23%)	1
④	Packing	MTT012873A	Rubber t5	1
⑤	Spacer	MTT012874A	Rubber t5	1
⑥	Packing	MPPK00784	Rubber	1
⑦	Gland	MTL024005	SUS304B	1
⑧	M8 flat head bolt	————	SUS304B	8
⑨	M12 nut	————	SUS304B	24

Mass. approx 41kg
Unit: mm

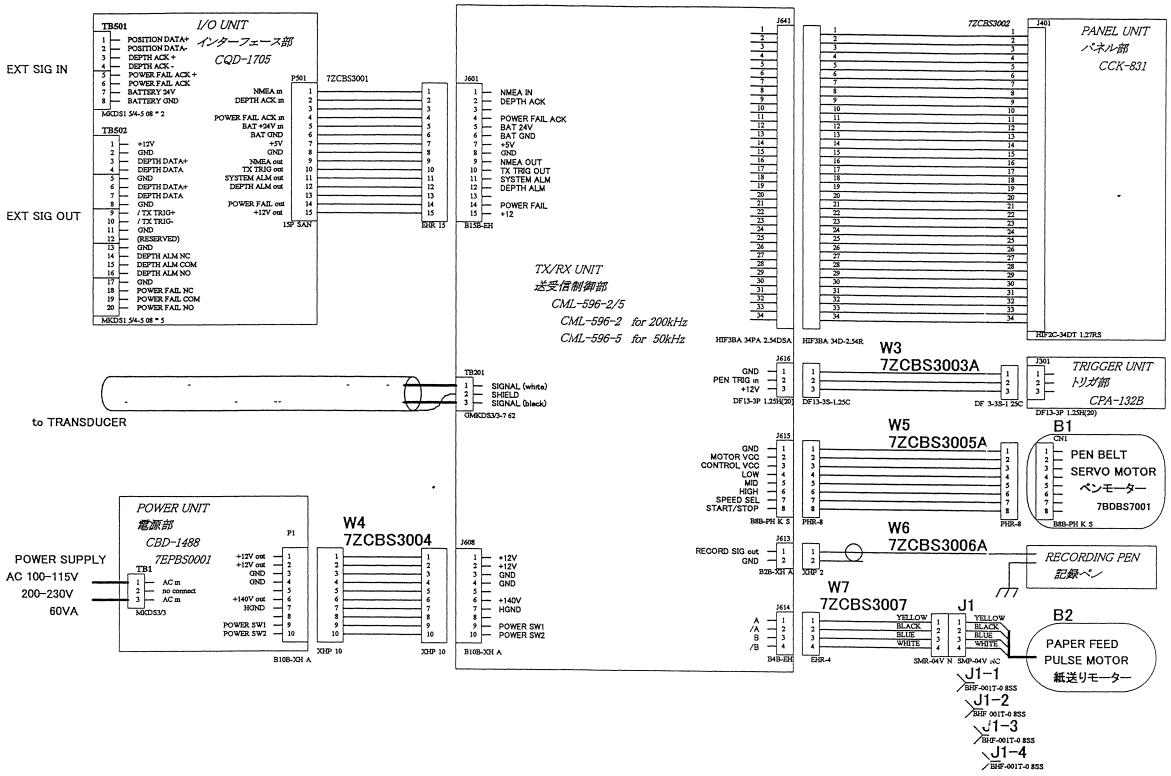
6. Connecting Components



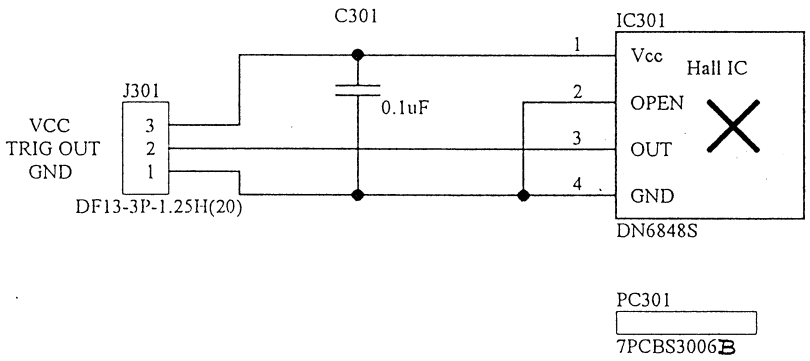
Notes:

1. The shield of each cable must be securely attached to the connectors and must not contact any other connectors, etc.
2. Casings must be grounded securely to the ship's hull using copper plates.
3. The exterior is to be grounded to the ship's hull using cable bands.
4. Select NC/NO for Depth Alarm and Power Fail Alarm.

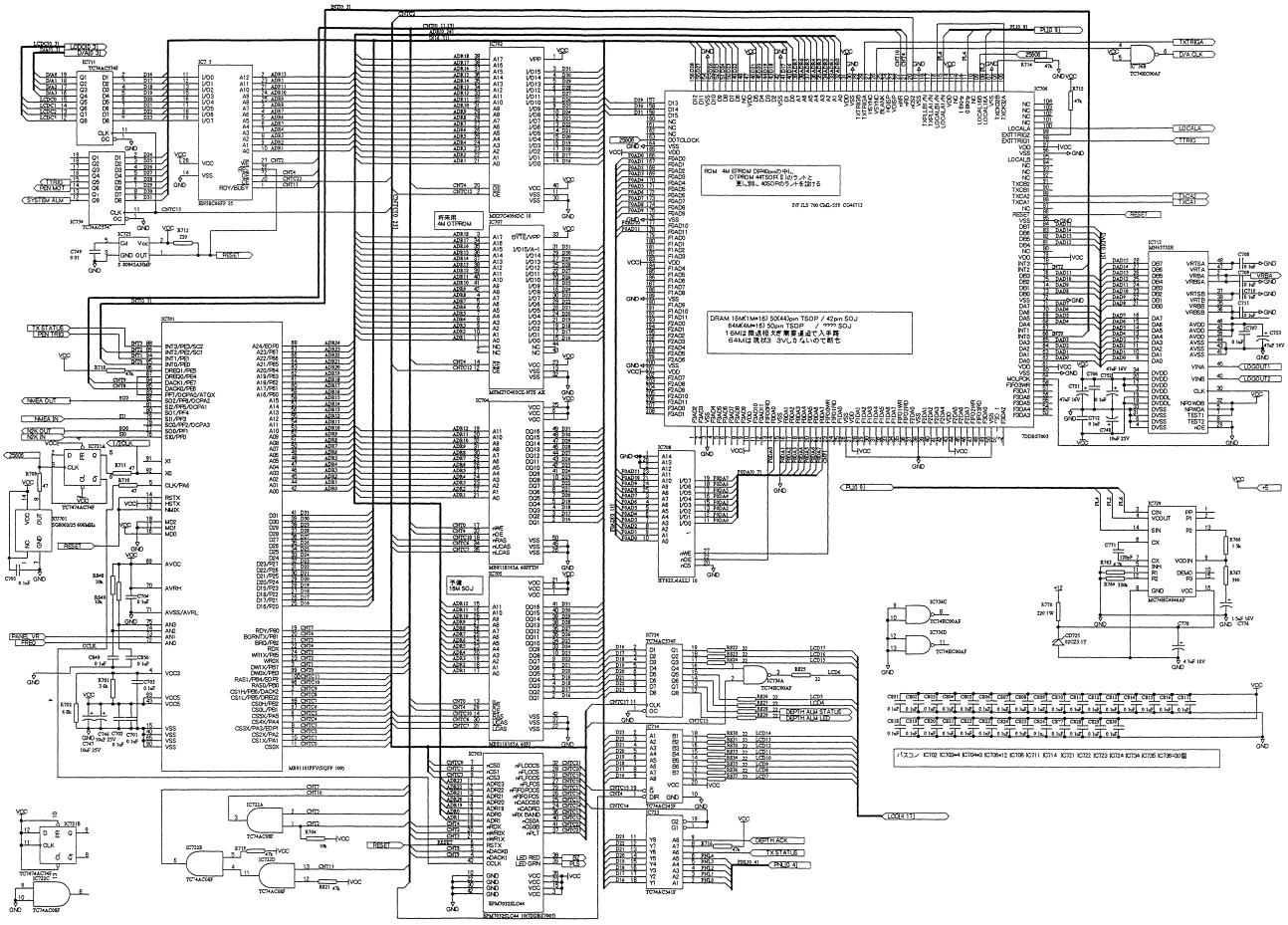
7. Schematic Diagram



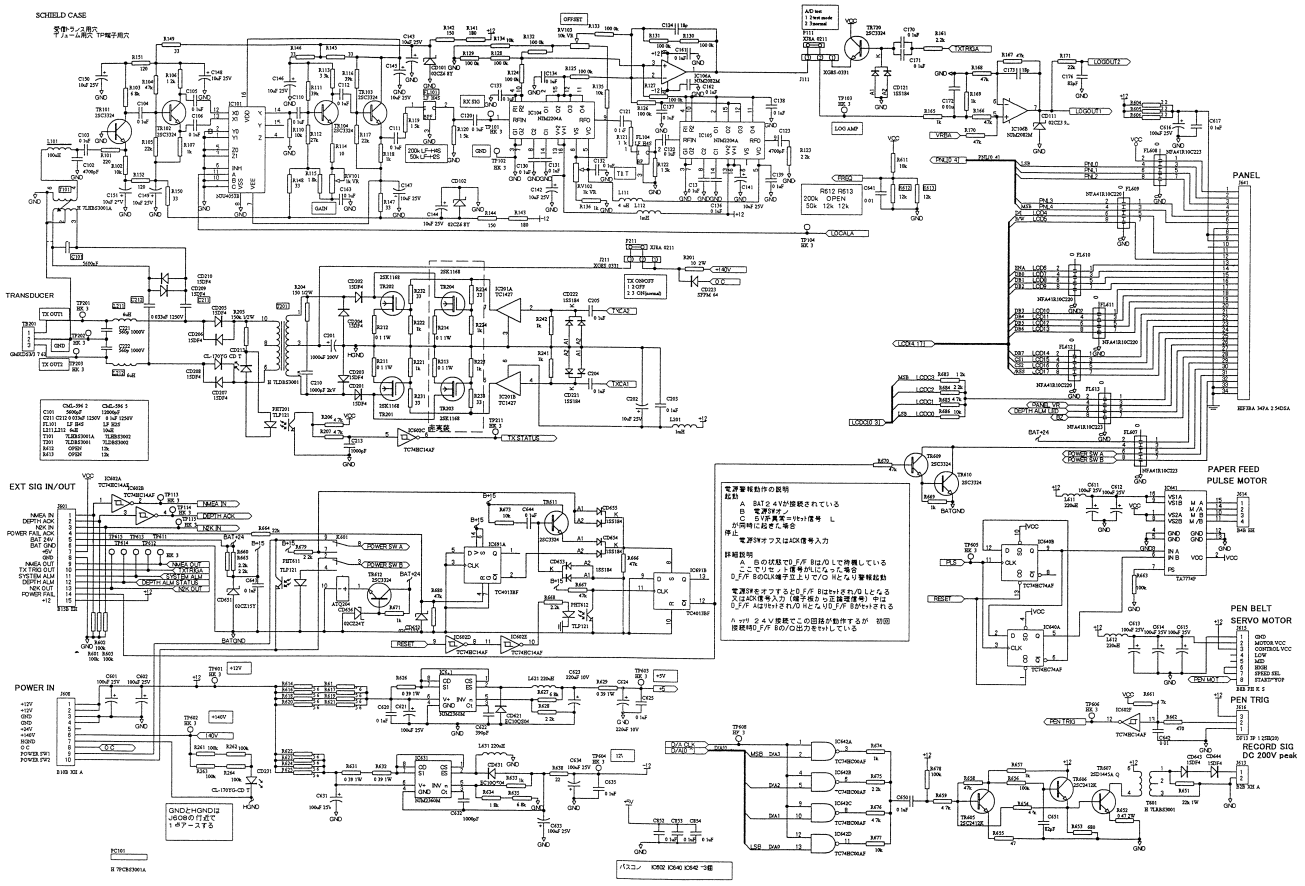
FRAME Section CWB-1094 Page 1/1



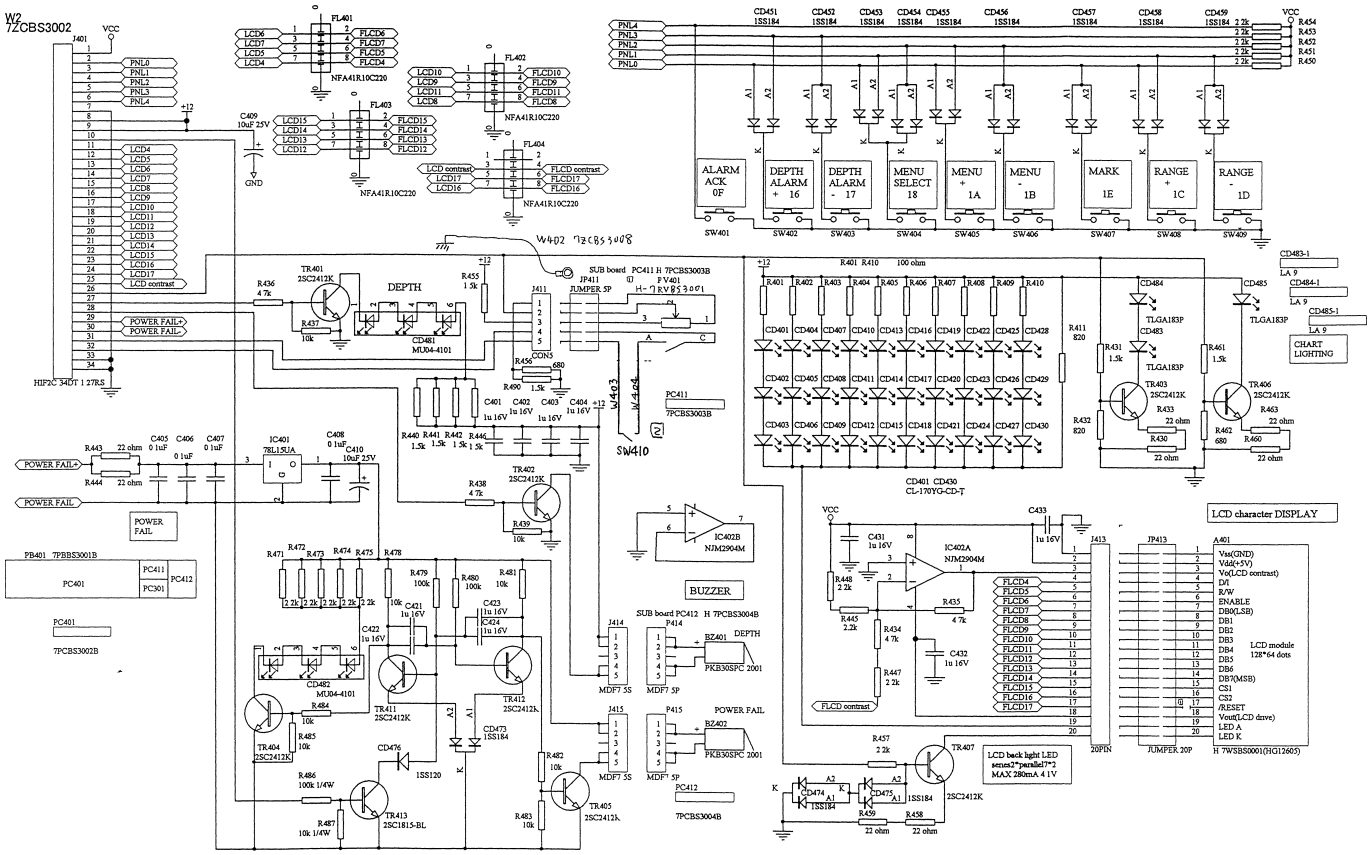
TRIGGER Unit CPA-132B Page 1/1



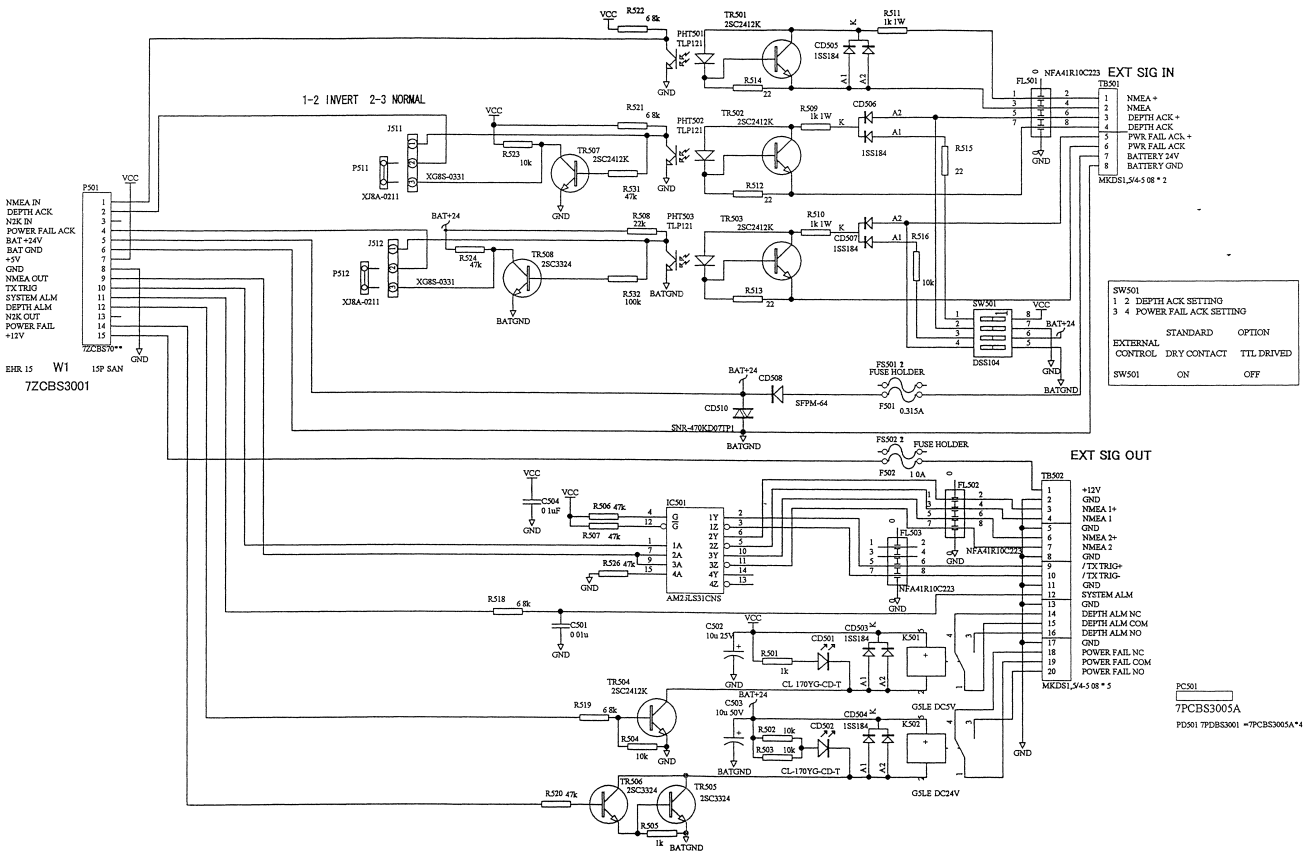
TX/RX Unit CML-596 Page 1/2



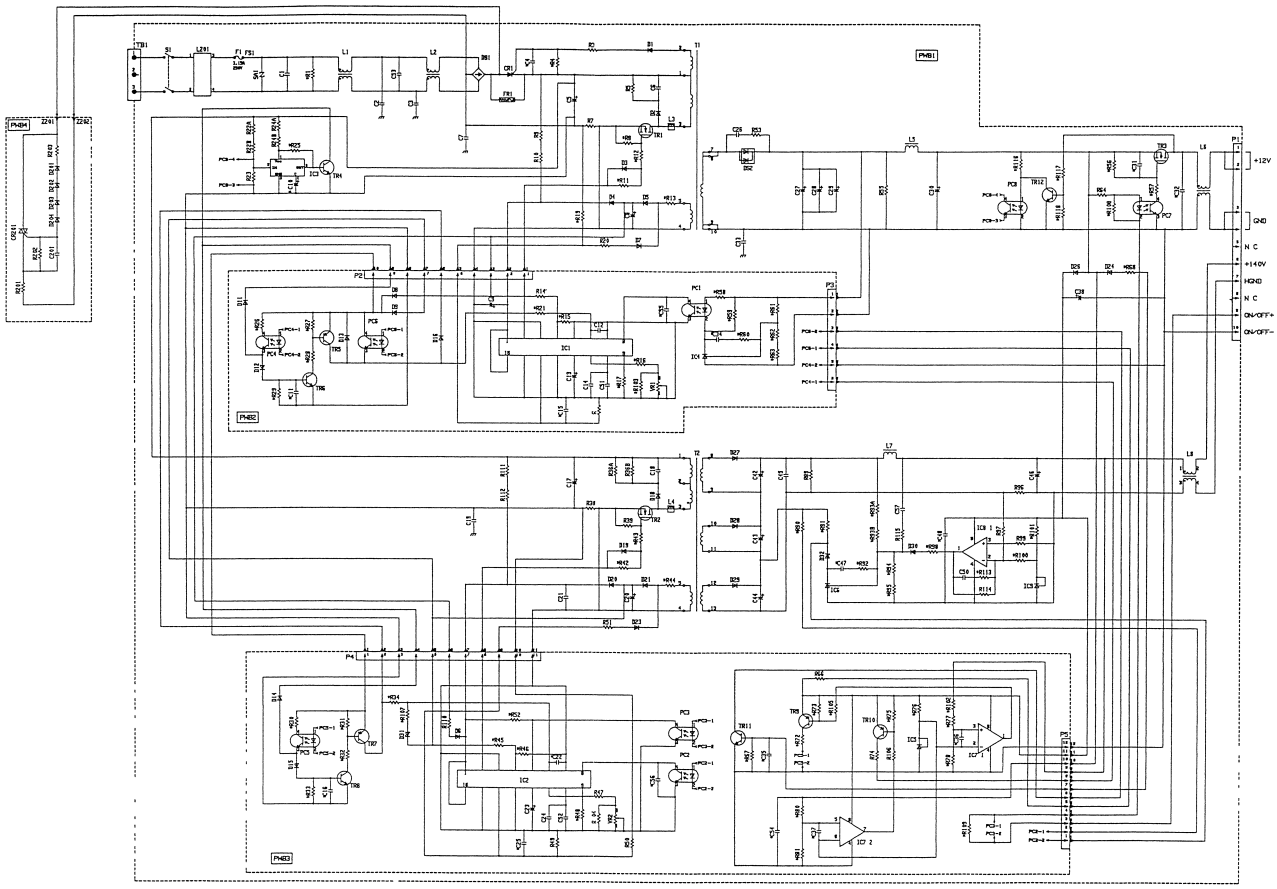
TX/RX Unit CML-596 Page 2/2



PANEL Unit CCK-831 Page 1/1

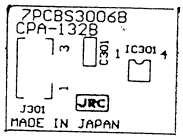


I/O Unit CQD-1705 Page 1/1

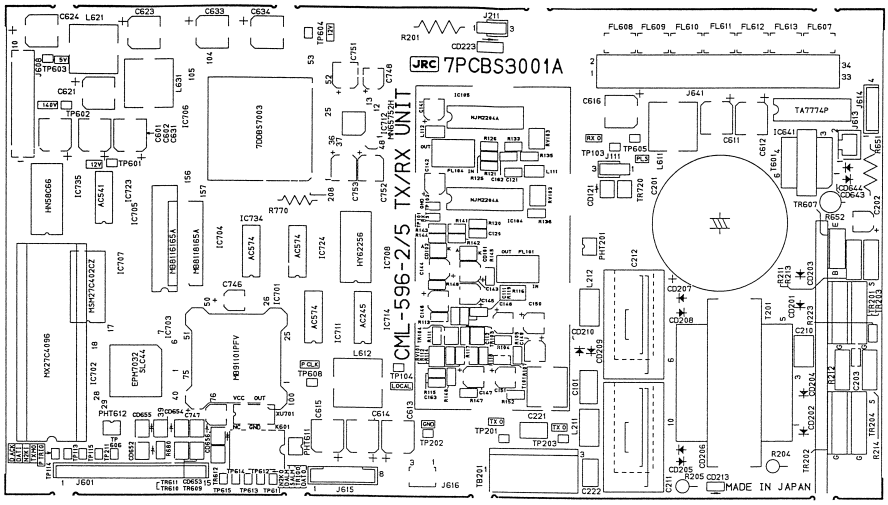


POWER Unit CBD-1488 Page 1/1

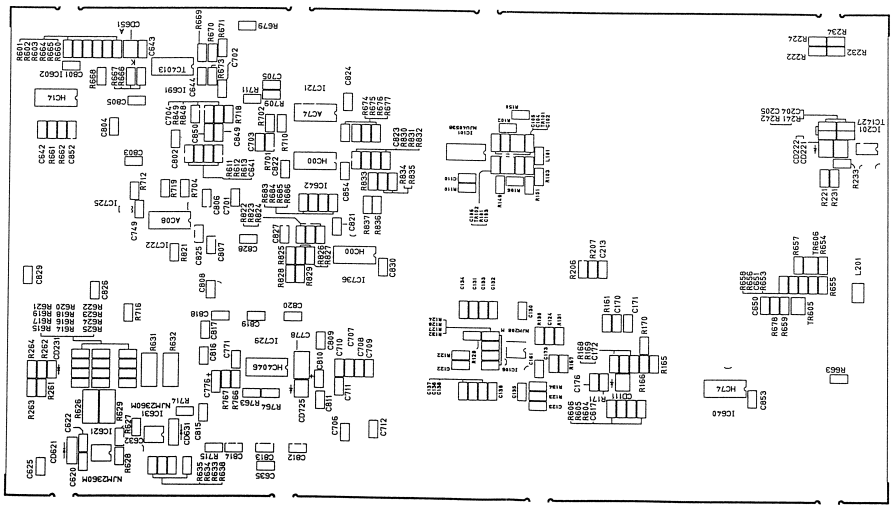
9. Electrical Parts Layout



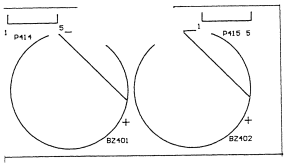
Parts side



Parts side

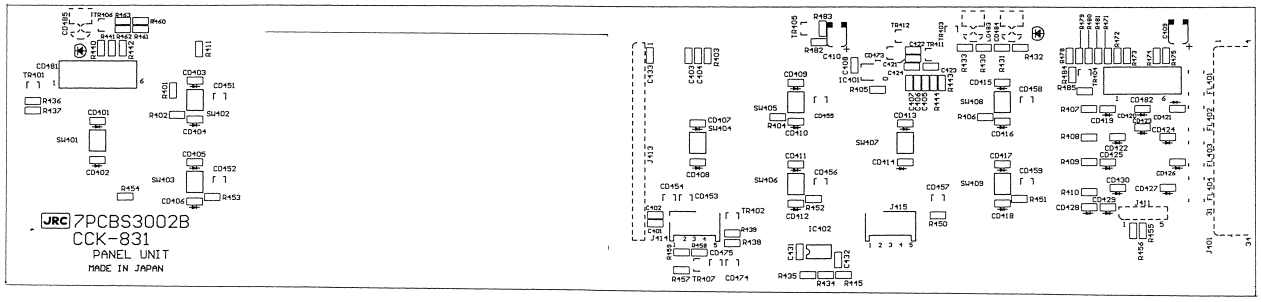


Solder side

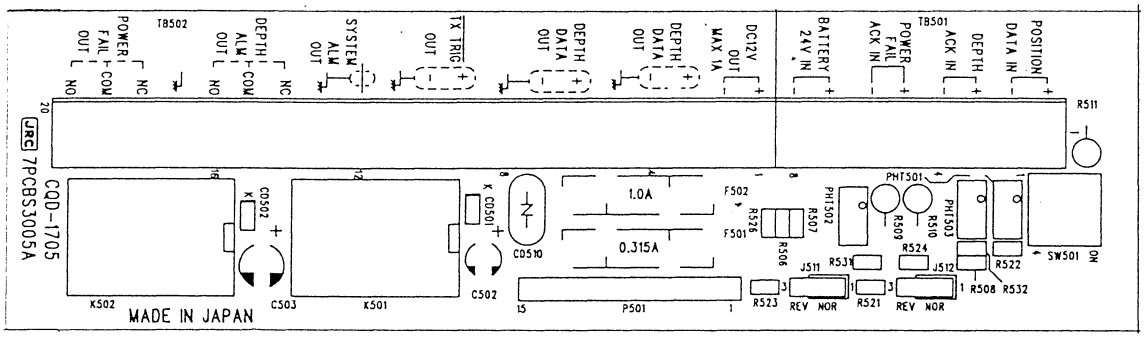


PC412 Parts side

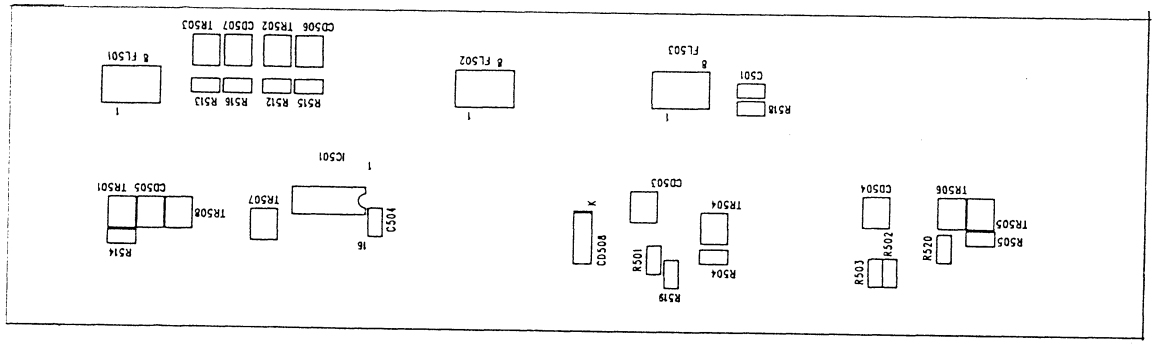
PC411 Parts side



PC401 Parts side

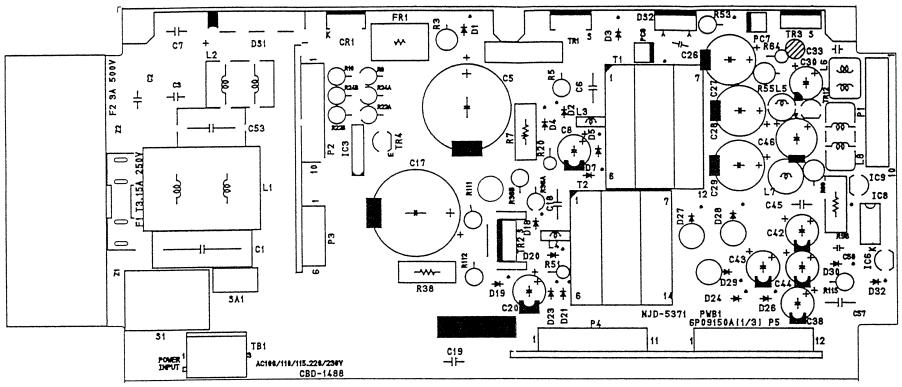


Parts side

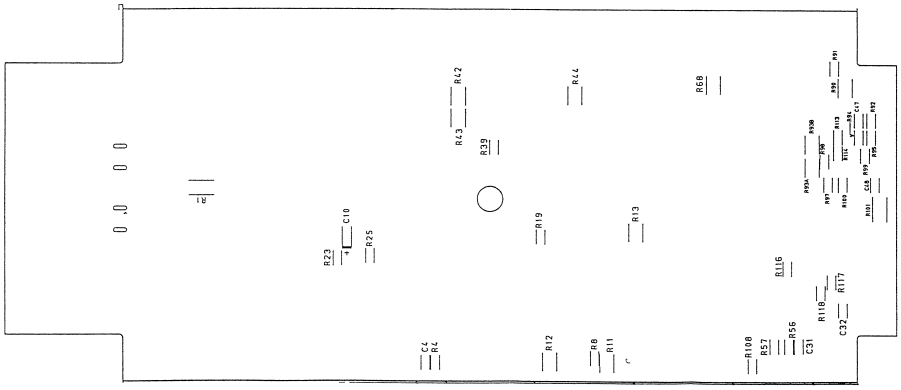


Solder side

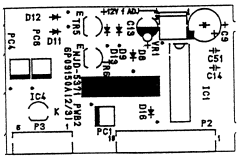
I/O Unit CQD-1705 Page 1/1



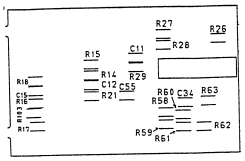
PWB1 Parts side



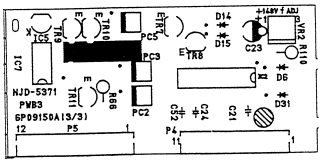
PWB1 Solder side



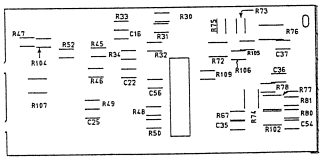
PWB2 Parts side



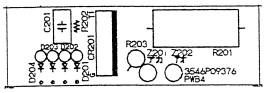
PWB2 Solder side



PWB3 Parts side

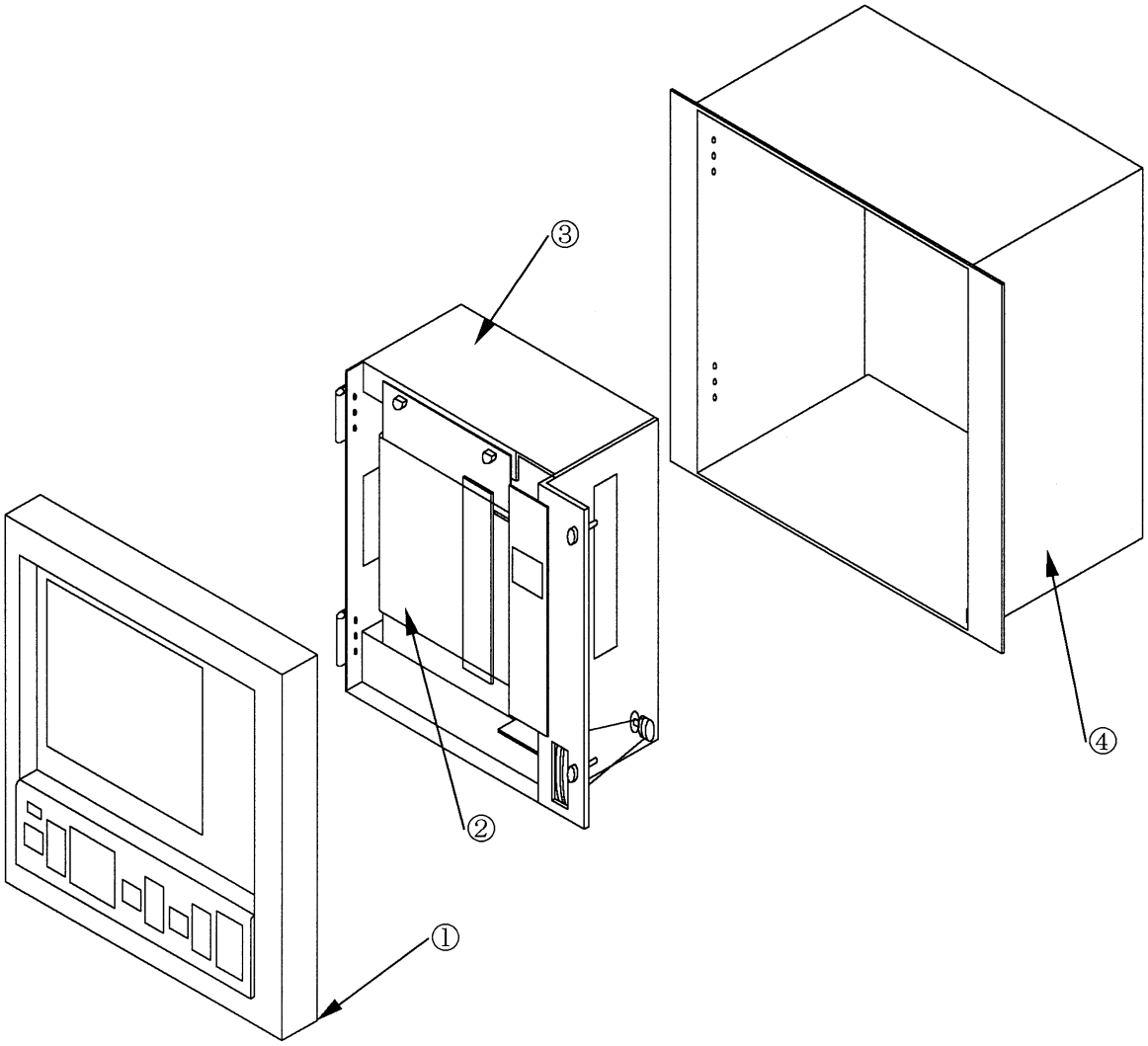


PWB3 Solder side



PWB4 Parts side

10. Mechanical Parts List



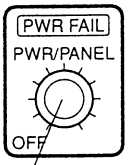
	Name	Parts No.
①	Front Cabinet	MPBC33964A
②	Platen Assembly	MPGK30082A
③	Chassis Assembly	MPBC33963
④	Outer Cabinet Assembly	MPBX36808

11. Replacing Consumables

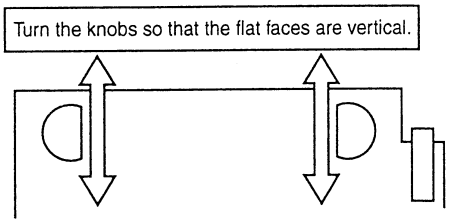
11.1 Replacing Recording Paper

Be sure to replace with the recording paper specified by JRC.

Name	Type	No.Part Code	Remarks
Recording paper	J8	6ZPBS00006	

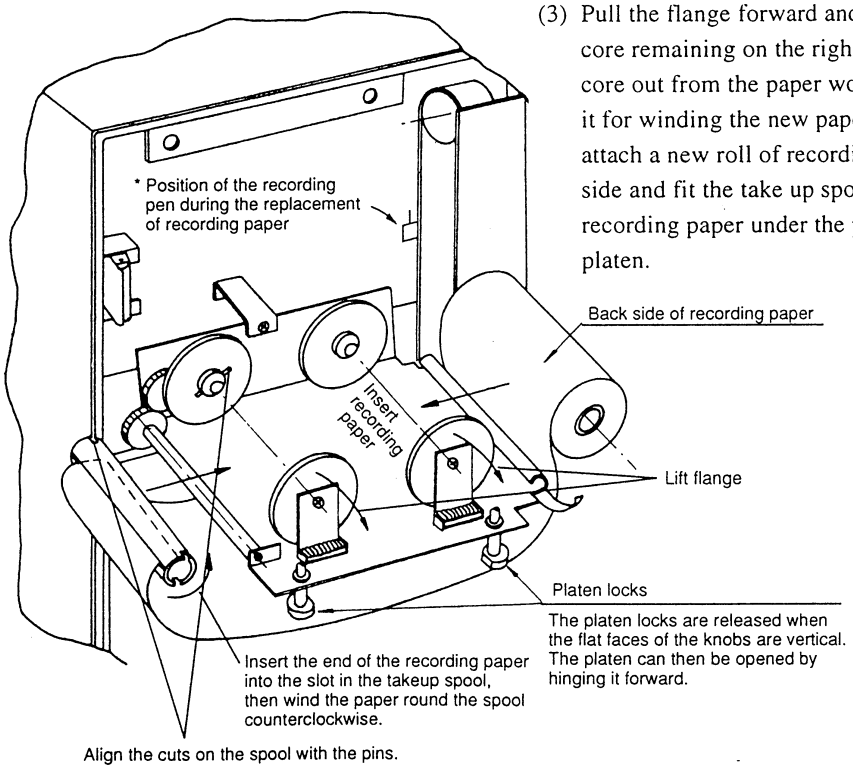


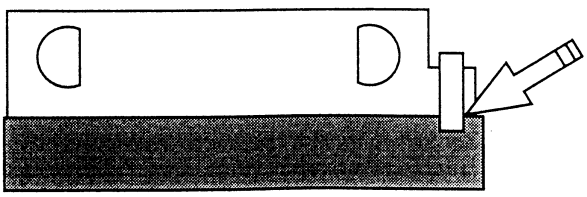
(1) Turn OFF the power. Open the front panel and, if the recording pen can be seen on the platen, turn the recording belt downward to move the recording pen behind the platen. (See the middle left figure.)



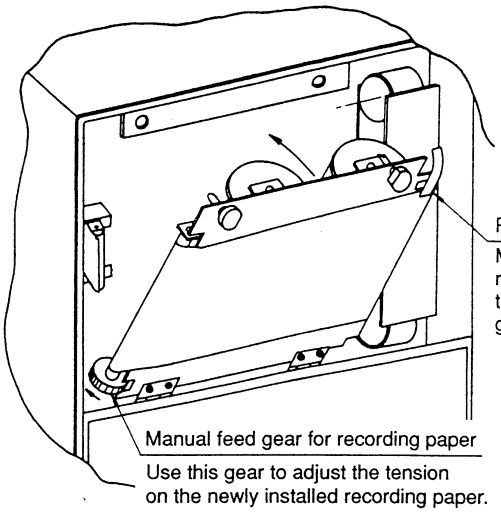
(2) Turn the knobs on the platen so that the flat faces are vertical, then open the platen forward.

(3) Pull the flange forward and remove the recording paper. The core remaining on the right side can be disposed of. Pull the core out from the paper wound onto the roll on the left and use it for winding the new paper. As shown in the figure at left, attach a new roll of recording paper to the spool on the right side and fit the take up spool to the left side. Thread the recording paper under the pen guide at the top right of the platen.

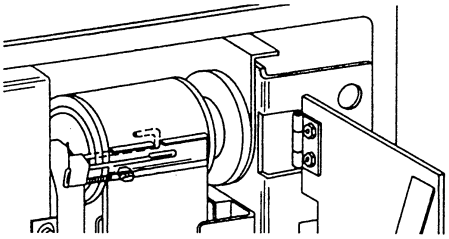




Make sure that the recording paper is threaded under the pen guide.



(4) After replacing the recoding paper, securely lock the platen.

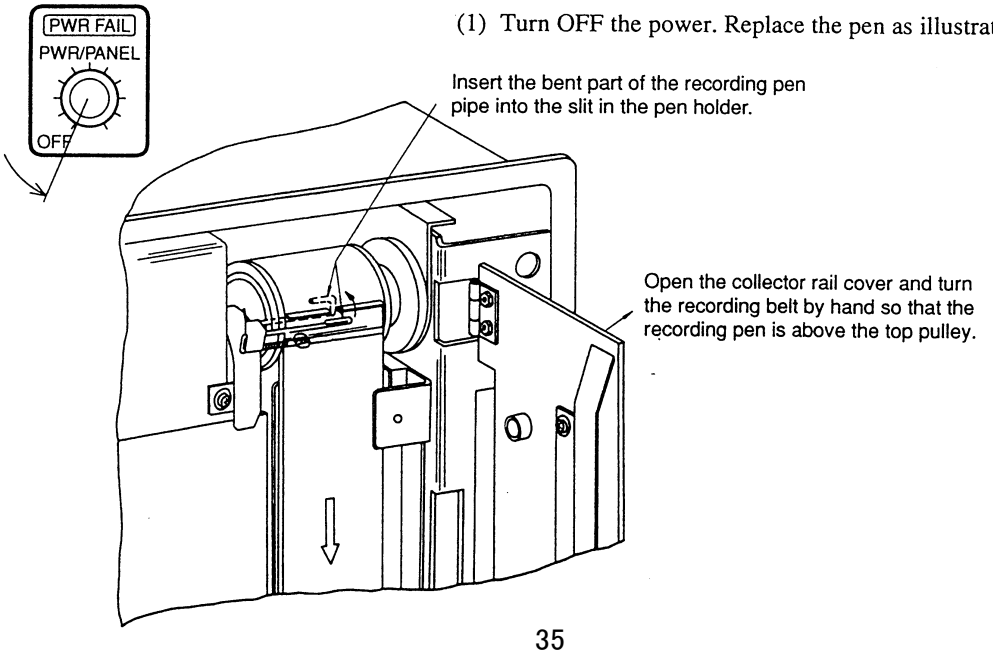


(5) Wipe down the collector rail with a dry cloth to remove carbon.

11.2 Replacing Recording Pen

The recording pen wears as it is used. When it has worn down to about 1mm, be sure to replace with the pen specified by JRC.

Name	Type	No.Part Code	Remarks
Recording pen	MPXP00791A	MPXP00791A	



(1) Turn OFF the power. Replace the pen as illustrated below.

12. Maintenance and Inspection

⚠WARNING

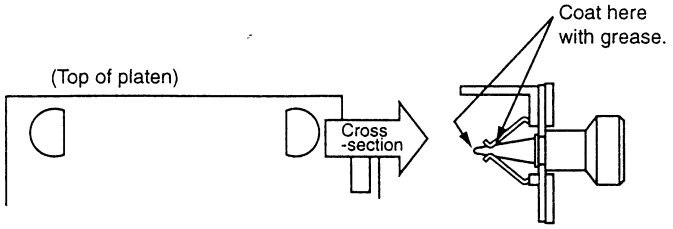
There are no user-serviceable parts. Do not attempt to inspect or repair this equipment as doing so without proper training may result in fire or electric shock.
For internal maintenance and inspection, please contact JRC or its agent.

12.1 Regular Maintenance

The life of this equipment depends on how scrupulously regular maintenance is performed. To ensure that the equipment is always in top condition, we recommend inspecting the equipment regularly. This will enable you to prevent faults developing.
Carry out the inspections shown in the table below on a regular basis.

Methods of Maintenance Inspections

Turn OFF the power, then inspect the following items.

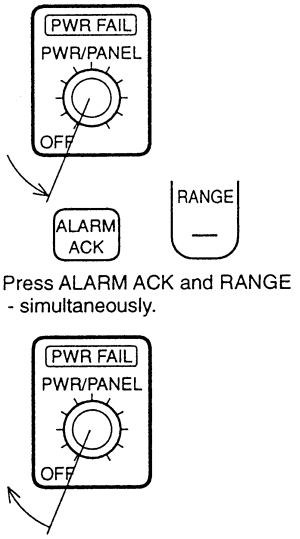
No.	Item	Method
1	Cleaning	Lightly wipe the panel surface, keys and knobs, etc., with a dry cloth. The plotter is particularly susceptible to soiling by carbon dust from the recording paper. Clean off any carbon dust, then wipe the cover glass and scale plate with a cloth dampened with alcohol.
2	Looseness of parts	Check that all bolts and screws and nuts are tight. Also check that all keys, knobs and connectors are securely in position.
3	Cable connections	Check the wiring of all cables between the respective components and that the connectors are securely connected.
4	Drive pulleys	If the pulleys make any abnormal noise, the bearings may be faulty. In this case, please contact JRC or its agent for servicing. (See the list of offices at the end of this manual.)
5	Platen lock knobs	If, when replacing the recording paper, it is hard to turn the knobs at the top of the platen, coat the location shown below with grease. 

12.2 Self-Diagnostic Function

⚠CAUTION

The normal depth-sounding function is suspended while the self-diagnostic function is operating. Do not use the self-diagnostic function while the ship is under way. Failure to observe this caution may result in accidents.

Selecting Self-Diagnostic Function



The self-diagnostic function consists of panel operations and visual observations.

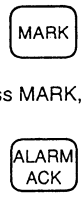
Turn OFF the power, then turn ON the power while simultaneously pressing and holding "ALARM ACK" and "RANGE -". The LCD will show screen 1 for the self-diagnostic function.

```
ROM  VER 1.01
RAM  TESTING 25%
UART SHORT  STAND BY
PANEL CHECK
XX      XX      XX
 X       X       X   1A
RAM SKIP   >>SELECT,ACK
EXIT MODE >> MARK,ACK
```

Note:

The self-diagnostic function changes from Screen 1 → Screen 2 → Screen 3.

Switching to Normal Operation



Press MARK, then ALARM ACK.

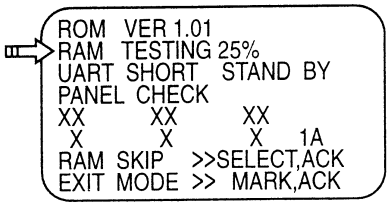
Press "MARK" followed by "ALARM ACK" to switch to normal operation.

Diagnostic functions from Self-Diagnosis Screen 1 (1) Program Version No.

```
ROM  VER 1.01
RAM  TESTING 25%
UART SHORT  STAND BY
PANEL CHECK
XX      XX      XX
 X       X       X   1A
RAM SKIP   >>SELECT,ACK
EXIT MODE >> MARK,ACK
```

The program version No. is displayed on the first line of the screen.

Diagnostic functions from Self-Diagnosis Screen 1 (2) Memory Test



The results of the memory test are shown on line 2 of the screen.

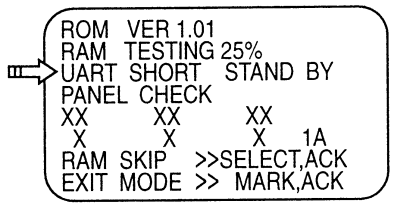
- During testing, progress is shown as a percentage.
- The results are shown for each IC No.

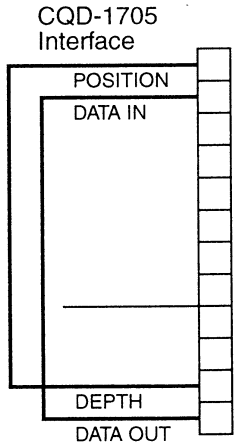
If OK : RAM OK
If no good : RAM NG

If NG is displayed, the Transducer Controller (CML-596) is faulty and requires servicing. (See the list of offices at the end of this manual.)

Note:
If you do not require a memory test, press "SELECT" and then press "ALARM ACK".

Output/Position Input Circuit Operation Test (3) Depth Output/Position Input Circuit Operation Test





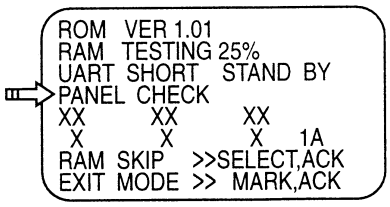
This test can only be completed by wiring the CQD-1705 interface connectors as shown in the figure. (See page 59.)
If these IO connectors are connected to other navigation equipment and the wiring cannot be altered, follow the instructions on Self-Diagnosis Screen 3 (See page 60.)
If the connectors are wired as shown in the figure at left, the results of the depth output/position input circuit operation are displayed on line 3 of the LCD.
On completion of the test, remember to restore the wiring to its original state.

- This test starts on completion of the memory test (2) on the previous page.
- The test result is displayed as one of the following:

Prior to testing : STANDBY
Test result OK : OK
Test result no good : NG

If NG is displayed, the Interface (CQD-1705) or the Transducer Controller (CML-596) may be faulty and may require servicing. (See the list of offices at the end of this manual.)

Diagnostic functions from Self-Diagnosis Screen 1 (4) Panel Circuit Operation Check



Press each location on the panel.

- If operation is OK, a O is displayed in place of the X.
- If operation is NG, the X remains.

Note that, in the case of the brightness adjuster...

- The value increases (1A in the illustration at left) as the adjuster is turned clockwise;
- The value decreases (1A in the illustration at left) as the adjuster is turned counterclockwise.

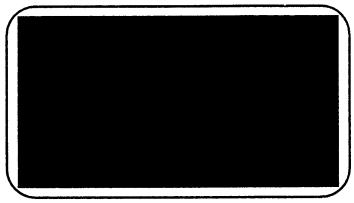
If faulty, the Panel (CCK-831) or the Transducer Controller (CML-596) may be faulty and may require servicing. (See the list of offices at the end of this manual.)

Selecting Self-Diagnostics Screen 2

Press SELECT and then press ALARM ACK.

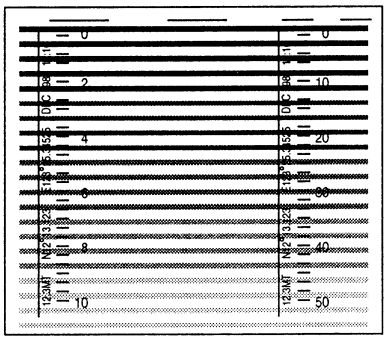
With Self-Diagnostics Screen 1 displayed, press "SELECT" and then press "ALARM ACK" to switch to Self-Diagnostics Screen 2.

Diagnostic Functions in Self-Diagnostics Screen 2 (1) LCD Check



- This test fills the whole LCD screen from the left to the right. The screen is repeatedly filled with black, followed by white. If there is any dropout, the Panel (CCK-831) or Transducer Controller (CML-596) may be faulty. Please contact JRC or its agent. (See the list of offices at the end of this manual.)

Diagnostic Functions in Self-Diagnostics Screen 2 (2) Recording Paper Surface Check



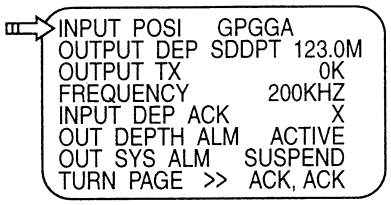
- This check prints a line at regular intervals on the recording paper. Except for the top line, the density is reduced every four lines.
- A fixed line is printed at regular intervals and the paper feed speed and depth scale alternated in the following order. Note that the equipment automatically prints a fixed line and switches paper feed speed and depth scale. The water depth, longitude and latitude, date, and time printed with the fixed line are as follows: 12.3MT N12°13. 123 E123°25. 345 23 DEC 98 10:10.
- If the printing is blurred, the pen may be worn out (see page 54) or the pen belt may be incorrectly tensioned (see page 63). See the respective pages for details of adjustment.

Selecting Self-Diagnostics Screen 3

Press SELECT and then press ALARM ACK.

With Self-Diagnostics Screen 2 displayed, press "SELECT" and then press "ALARM ACK" to switch to.

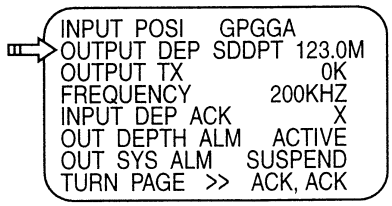
Diagnostic Functions in Self-Diagnostics Screen 3 (1) Data Input Format from External Navigation Equipment



The top line of the LCD shows the format of data input from external navigation equipment. Please make sure that, during testing, the external navigation equipment is operating. The results of the data check will differ according to the currently specified input format (see page 20). (Instruction Manual)

- NMEA0183 Format
  - INPUT POSI GPGGA or
  - INPUT POSI GPRMC or
  - INPUT POSI GPGLL
- NMEA0180 format
  - INPUT POSI TRUTH
- JRC format
  - INPUT POSI TRUTH
- If data format cannot be recognized:
  - INPUT POSI FALSE
  - Check if the connection with the external navigation equipment is faulty.

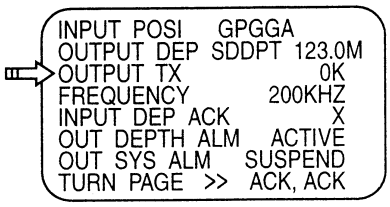
Diagnostic Functions in Self-Diagnostics Screen 3 (2) Depth Data Output Format to External Device



Diagnostic Functions in Self-Diagnostics Screen 3 (2) Depth Data Output Format to External Device.

The second line of the LCD shows the depth-detected condition of the external output data, which is switched between detecting and searching in 30-second intervals. Note that the output data varies according to the output data format setting (see page 20 (Manual)), draft setting (see page 17 (Manual)), keel setting (see page 22 (Manual)), depth display mode setting (see page 18 (Manual)), and measuring range setting (see page13 (Manual)). See page 20 for the examples of the external output data.

Diagnostic Functions in Self-Diagnostics Screen 3 (3) Result of Transmitter Operation Check

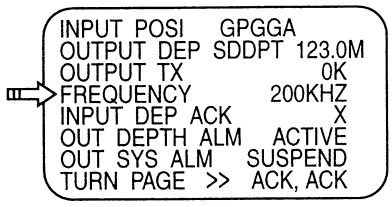


You can check the operation of the transmitter.

- If transmitter operation is OK:
  OUTPUT TX OK
- If transmitter operation is faulty:
  OUTPUT TX NG

If output is NG, the transducer (CML-596) may be faulty. Please contact JRC or its agent. (See the list of offices at the end of this manual.)

Diagnostic Functions in Self-Diagnostics Screen 3 (4) Transducer Frequency Check

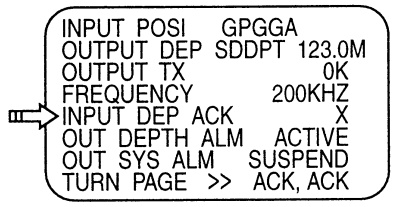


You can check the frequency used by the transducer.

- For the JFE-582:
  FREQUENCY 200kHz
- For the JFE-585
  FREQUENCY 50kHz

If the frequency does not match the model, continued use of the equipment may cause faults to develop in the respective components. Please contact JRC or its agent. (See the list of offices at the end of this manual.)

Diagnostic Functions in Self-Diagnostics Screen 3 (5) Result of External Water Depth Alarm Panel Operation

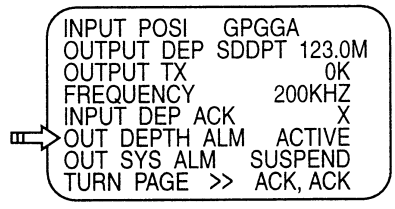


The same function as the DEPTH ACK operation of the JFE-582 can function by an input signal in the event of a depth alarm occurring (See (Manual) page 21). This check tests the signal input.

- When input signal confirmed:
  INPUT DEP ACK O
- When input signal not confirmed:
  INPUT DEP ACK X

If it is not possible to confirm the input signal, check the input lead connection, and check the Input "ALARM ACK" setting of the JFE-582 (See (Manual) page 21).

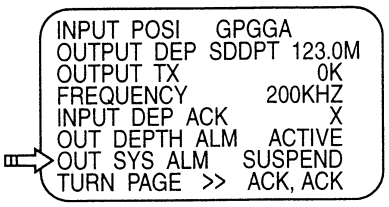
Diagnostic Functions in Self-Diagnostics Screen 3 (6) Depth Alarm Check



In this test, the operation of the depth alarm is displayed, making it possible to check the status of the output depth alarm signal, and therefore check the connections to external devices. To activate the depth alarm, you will need set the depth alarm value to 123 or more. (See (Manual) page 14.)

- Depth alarm active:
  OUT DEPTH ALARM ACTIVE
- Input signal not confirmed:
  OUT DEPTH ALARM SUSPEND

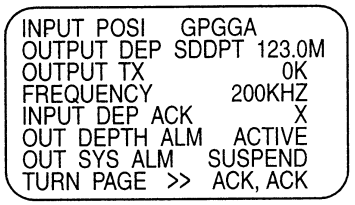
Diagnostic Functions in Self-Diagnostics Screen 3 (7) Sea bottom Detection Signal Check



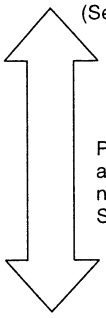
This test forcibly outputs the CQD-1705 interface SYSTEM ALM output signal as a sea bottom detection signal at 30-second cycles making it possible to check the connection to the external device.

- When able to detect sea floor:
  OUT SYS ALM SUSPEND
- When unable to detect sea floor:
  OUT SYS ALM ACTIVE

Diagnostic Functions in Self-Diagnostics Screen 3 (8) Switching to Function Settings

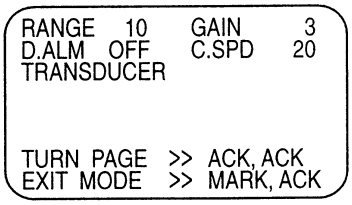


(Self-diagnostic screen 3)



ALARM ACK ALARM ACK

Press ALARM ACK twice to alternate between Self-Diagnostic Screen 3 and Function Setting Screen.



(Function setting screen)

Pressing the "ALARM ACK" key twice successively alternates between the Self-Diagnostics Screen 3 and the Function Setting Screen.
If you switch to the Function Setting Screen, you can change the following settings: measuring range (RANGE), depth alarm value (D.ALM), receiver sensitivity (GAIN), paper feed speed (C.SPD), draft value (DRAFT), LCD contrast (LCD CONT), STC, and depth display mode (DISP).

Switching to Normal Operation

MARK

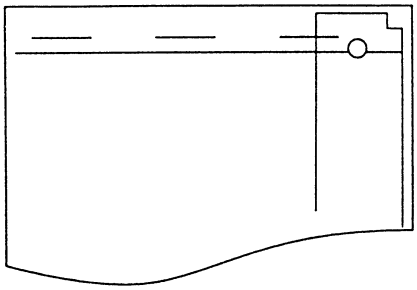
Press MARK followed by ALARM ACK

ALARM ACK

Press "MARK" followed by "ALARM ACK" to return to normal operation.

12.3 Positional Adjustment for 0m Depth

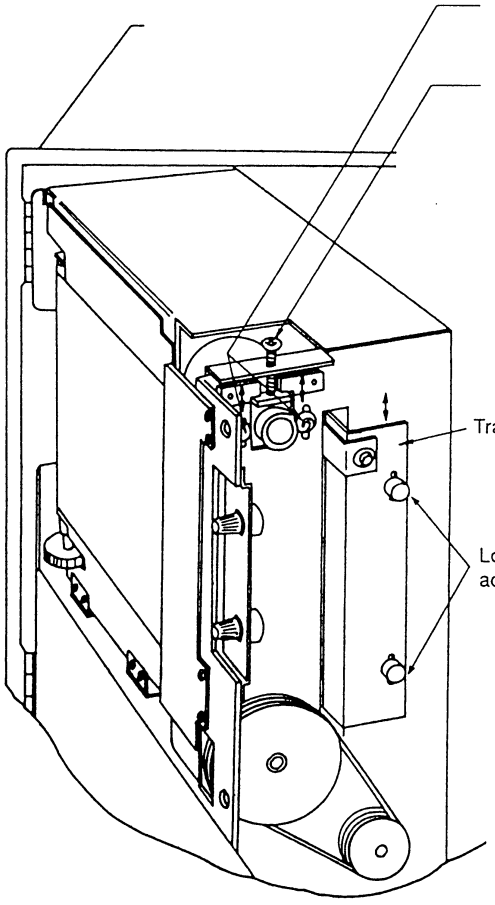
As the recording pen wears, the depth tends to become misaligned with the depth on the scale. If the misalignment is only slight, you can adjust the scale up or down. However, if moving the scale is insufficient to rectify the problem, you can adjust the position of the transmission trigger mount, as described below. Please refer to the figure below when adjusting the position of the transmission trigger mount.



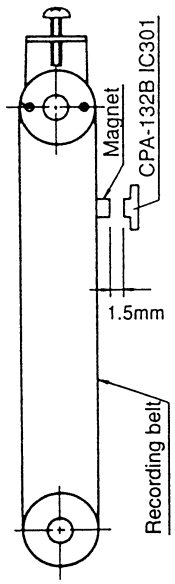
(1) Set the draft to 0m.
(2) Move the transmission trigger mount so that the top edge of the 0m recording line is aligned with 0m on the scale.
(3) Restore the original draft setting.

12.4 Adjust Recording Belt Tension

If the recording belt becomes slack, the magnet on the belt may collide with the transmission trigger detection sensor, making a noise. Also, the characters printed on the recording paper may become an uneven density. However, if the tension is too great, the belt will wear asymmetrically. The belt should therefore be tensioned as described below.



(1) Loosen the two screws holding the top pulley.
(2) Turn the belt tensioning screw clockwise to loosen the belt, or counterclockwise to tension the belt.
(3) Adjust the tension so that there is a gap of about 1.5mm between IC301 on the transmission trigger block (CPA-132B) and the magnet (fixed with a cover of about 5mm x 5mm) on the recording belt.
(4) After adjusting the belt tensioning screw, tighten the two screws holding the top pulley.



12.5 Replacing the Recording Belt

Use only the specified recording belt.

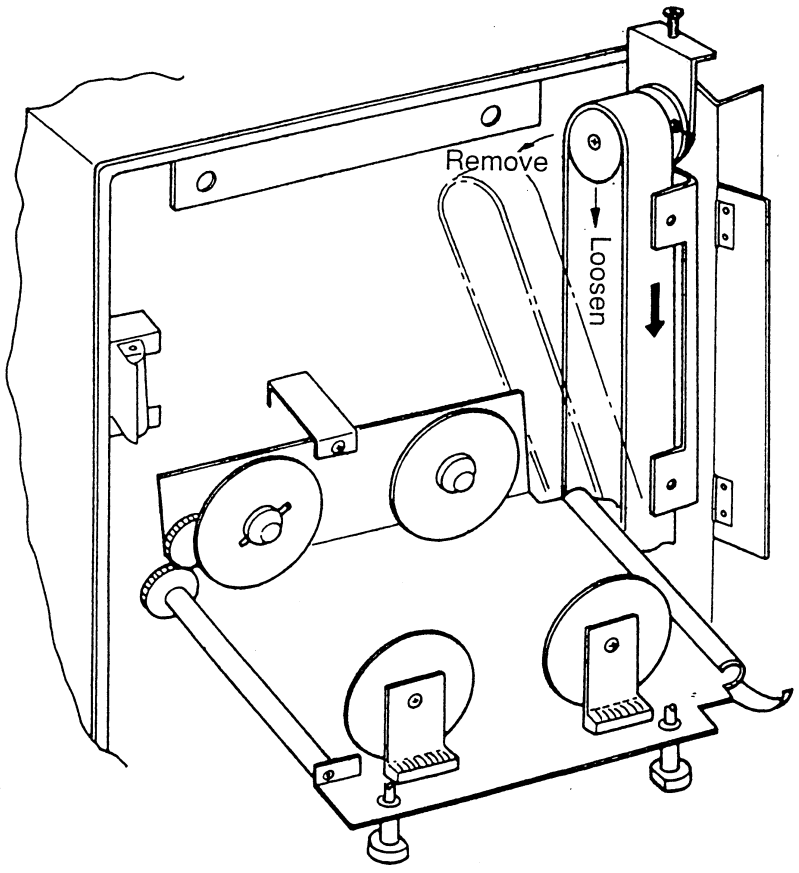
Name	Type	No.Part Code	Remarks
Recording belt	MPGK30636	MPGK30636	Standard Goods
Recording belt	MPGK01821	MPGK01821	Substitute Goods

(1) Following the instructions in 5.2, "Replacing Recording Pen," remove the pen from the belt. (See page 54.)

(2) Following the instructions in 6.4, "Adjusting Recording Belt Tension," loosen the two screws holding the top pulley. Next, rotate the belt tensioning screw clockwise to loosen the belt, then remove the belt. (See page 63.)

(3) When renewing the recording belt, make sure that the arrow printed on the belt points DOWN.

(4) Following the instructions in 6.4, "Adjusting Recording Belt Tension," adjust the belt tension. (See page 63)

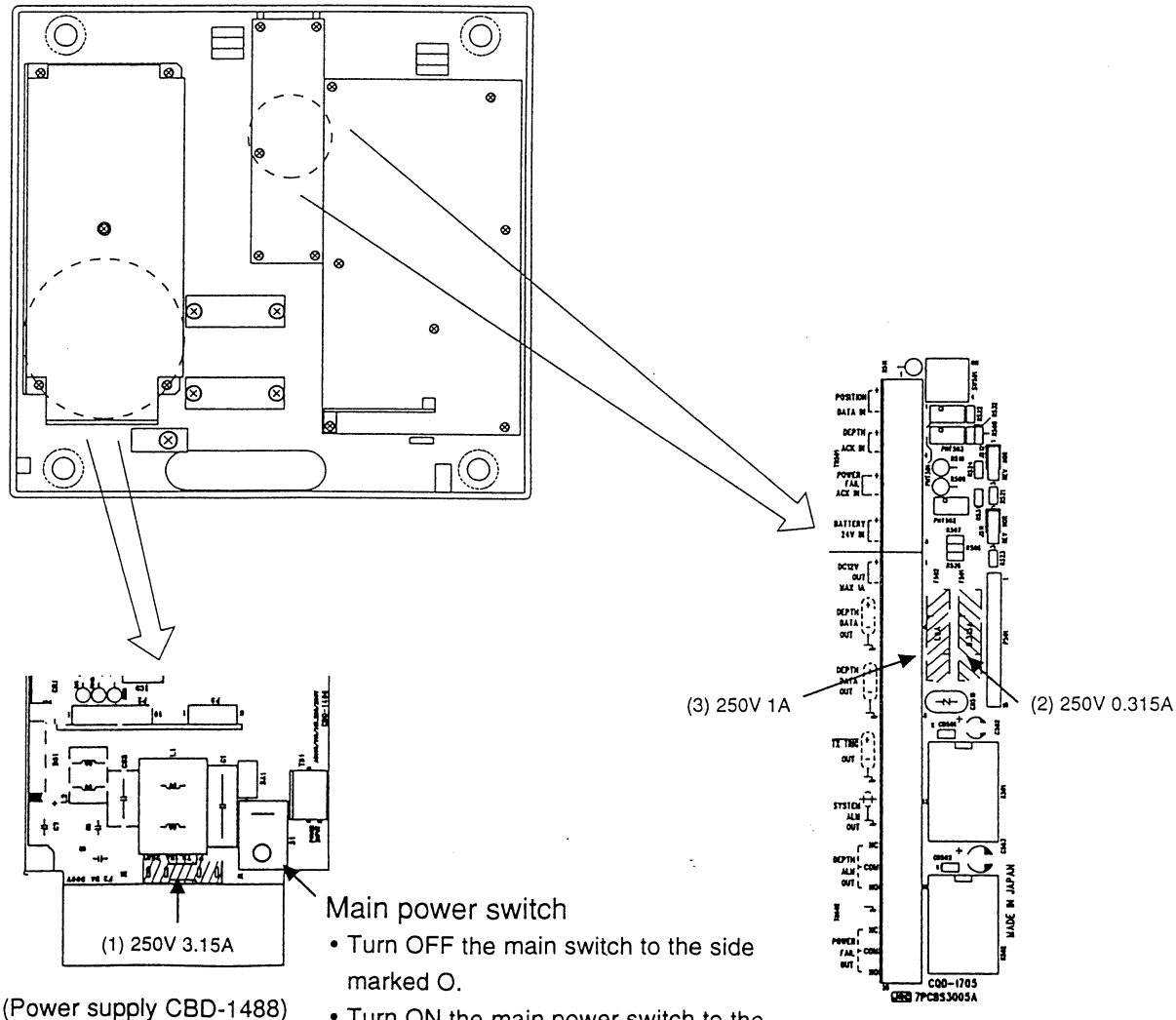


12.6 Replacing the Fuse

Use only the specified fuses, and check the cause of the fuses blowing before replacing them. Be sure to turn OFF the main power switch (to the side marked O) on the power supply (CBD-1488) before replacing the fuses.

No.	Type No.	Spec.	Part Code	Remarks
1	MF51NN-3.15A	250V 3.15A	5ZFAD00227	For power supply
2	MF51NN-0.315A	250V 0.315A	5ZFAD00360	For power supply alarm circuit
3	MF51NN-1A	250V 1A	5ZFAD00042	For 12VDC power output

Fuse Positions



(1) Replacing Main Power Supply Fuse

One reason for this fuse blowing is a faulty cable attached to the power supply. Check the cables before replacing the fuse, then turn the power on. If the fuse blows again, the Power Supply (CBD-1488) may be faulty. Contact JRC or its agent.

(2) Replacing Power Fail Alarm Circuit Fuse

One reason for this fuse blowing is the input of an abnormal voltage. Check the input voltage at pins (7) and (8) of the Interface Block (CQD-1705, TB501). Check that the voltage is as rated (24VDC) (operating voltage: 21.5 to 31.5VDC) before replacing the fuse. If the fuse blows again, the Transducer Controller (CML-596) may be faulty. (See the list of offices at the end of this manual.)

(3) Replacing 12VDC Output Power Supply Fuse

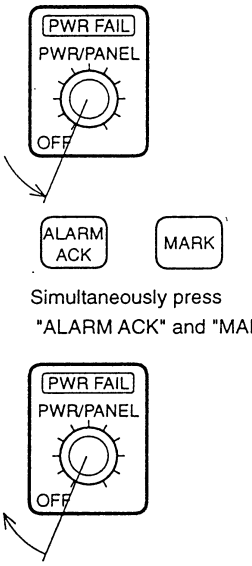
One reason for this fuse blowing is an overcurrent in an external device connected to pins (1) and (2) of the interface block (CQD-1705, TB502). Temporarily remove the cable to the external device. If the fuse blows again, either the Transducer Controller (CML-596) or Interface Block (CQD-1705) may be faulty. Contact JRC or its agent. (See the list of offices at the end of this manual.)

12.7 Replacing the Unit

Unit	Type	Code	Remarks
Panel	CCK-831	CCK-831	
Interface	CQD-1705	CQD-1705	
Tx/Rx Control	CML-596-2	CML-596-2	
Power Supply	CBD-1488	CBD-1488	
Recording paper	J8	6ZPBS00006	
Recording pen	MPXP00791A	MPXP00791A	
Recording belt	MPGK30636	MPGK30636	
Transducer	UT-200ND20	UT-200ND20	Cable length: 20m

13. Master Rest

Switching to Standard Default Resetting Function



Turn OFF the power, then turn ON the power while simultaneously pressing and holding both the "ALARM ACK" and "MARK" keys. The LCD displays a message asking for confirmation to reset the equipment to the standard defaults.

```
RESET

ARE YOU SURE?
   YES  >>  MARK
   NO   >>  ALARM ACK
```

Switching to Normal Operation

ALARM ACK

Press "ALARM ACK" to abort the operation (resetting standard defaults) and return to normal operation.

Note:
If no keys on the control panel are operated for more than approximately 70 seconds, the resetting operation is aborted and normal operation is forcibly resumed.

Executing Standard Default Settings

MARK

Press "MARK" to reset the equipment to the standard defaults.

Note:
You cannot abort this operation after you press "MARK". The following items are reset to the standard defaults.

Item	Default	Item	Default
Depth range	250m	Input format	NMEA0183
Depth alarm	OFF (0.0m)	Output format	NMEA0183V2.3
Reception sensitivity	4.0	Depth alarm signal mode	Level output
Paper feed speed	30 minutes	Recorder "ALARM ACK" function	OWN SELF
Draft	0.0m	External input "ALARM ACK" function	OUT ALM STATUS
LCD contrast	7	Recorder display resolution	6
STC	MID	Depth display mode	DIPS TRANS

JFE-582 / 585

DESCRIPTION OF WORKING
AND
PARTS LIST

Description of working

1.TRANSDUCER　UT－200ND20

1-1.The signal from CML-596-2 TX/RX UNIT is converted into supersonic signal by TRANSDUCER and transmitted to underwater.

1-2. The signal that is sea bottom echo is received, and converted into electronic signal for CML-596-2 TX/RX UNIT.

1-3. Inside the transducer consists of element like condenser, and insulation resistance of its core cable is infinity. (∞)

2.MATCHING BOX　AW-154F

2-1. This box included matching transformer is installed between JFE-582 (RECORDER) and TRANSDUCER to match cable loss.

3.RECORDER　JFE-582

3-1. CML-596-2　TX/RX UNIT

3-1-1. TX/RX signal control

Received signals are divided into the paper-recording signal and the digital depth indicator signal.

＊Received signal for Digital depth indicator is set and controlled by software, so it is unable to operate GAIN and STC on the LCD menu.

3-1-2. Carry out the control of NMEA, TX TRIG, and ALARM signal to I/O UNIT CQD-1705.

3-1-3. +12V source from CBD-1488 Power Unit is converted into +5V and –12V.

3-2. CQD-1705 I/O UNIT

3-2-1. Each signal of NMEA (POSITION), DEPTH ACK, and POWER FAIL ACK from External equipment is received by Photo coupler, and output it to CML-596-2 TX/RX UNIT.

3-2-2. Each signal of NMEA (DEPTH), TX TRIG, and DEPTH (ALARM) from CML-596-2 TX/RX Unit is output to External equipment.

3-2-3. When carried out self-test (NMEA Loop Test), No.6 and No.7 Depth Data on Terminal TB502 have to be connected to No.1 and No.2 position on Terminal TB501;otherwise, NG will be indicated.

3-3. CBD-1488 POWER UNIT

3-3-1. To input Ships power supply voltage between AC85 and A265V and provide DC+140V of transmitting High voltage, and 12V of common voltage for IC circuit.

3-3-2. +12V for IC is converted into +5V and -12V inside the CML-596-2 TX/RX UNIT.

3-4. CCK-831 PANEL UNIT

3-4-1. Carry out operation key control, panel dimmer, and LCD indication.

3-4-2. There is a safety switch behind the front door. While it is open, the power supply of recorder will not turn on (or will not apply).
In this case push the switch SW410 to be ON.

3-5. CPA-132B TRIGGER UNIT

3-5.1. TX trigger occurs when IC301 on CPA-132B sense (or detect) the magnet fixed on recording belt.

3-5-2. Adjusting CPA-132B Transmission trigger Unit for Zero line position.

3-6. RECORDING PEN

3-6-1. Recording signal fromCML-596-2 TX/RX UNIT is provided to collector rail, and it provides recording signal to Recording pen through its brush.

3-6-2. It will not be recorded if collector rail and recording pen brush are poor contact.

Parts List

NAME		TYPE	CODE
JFE-582 (JFE-585) RECORDER	200K TX/RX UNIT	**CML-596-2** (JFE-582) 200kHz	CML-596-2
	50K TX/RX UNIT	**CML-596-5** (JFE-585) 50kHz	CML-596-5
	I/O UNIT	**CQD-1705**	CQD-1705
	POWER UNIT	**CBD-1488**	CBD-1488
	PANEL UNIT	**CCK-831**	CCK-831
	TRIGGER UNIT	**CPA-132B**	CPA-132B
	PEN BELT MOTOR	**H-7DBS7001**	7DBS7001
	RECORDING BELT	**MPGK01821**	MPGK01821
	RECORDING PEN	**MPXP00791A**	MPXP00791A
	PAPER FEED MOTOR	**P43AG2130-500(12)6NM**	5BPAE00005
	RECORDING PAPER	**J8**	6ZPBS00006
	MATCHING BOX	**AW-154F** (JFE-582) 200kHz	AW-154F
	MATCHING TRANS.	TD-LD169-42	6LHBS00120
	JUNCTION BOX	**AW-154F-50** (JFE-585) 50kHz *ONLY JUNCTION BOX	AW-154F-50
TRANSDUCER	TRANSDUCER 200kHz	**UT-200ND20** (JFE-582) 200kHz	5UNAB00015
	TRANSDUCER 50kHz	**UT-50MD20** (JFE-585) 50kHz	5UNAB00134

JFE-585 50kHz

JFE-582 / 585

CHECK SHEET
for
GENERAL CHECKING

Check Sheet for Echo Sounder

Japan Radio co.,Ltd

HOW MANY TRANSDUCERS?

		FWD	AFT
1	ONLY ONE		
2	TWO		

WHICH TRANSDUCER IS ABNORMAL?

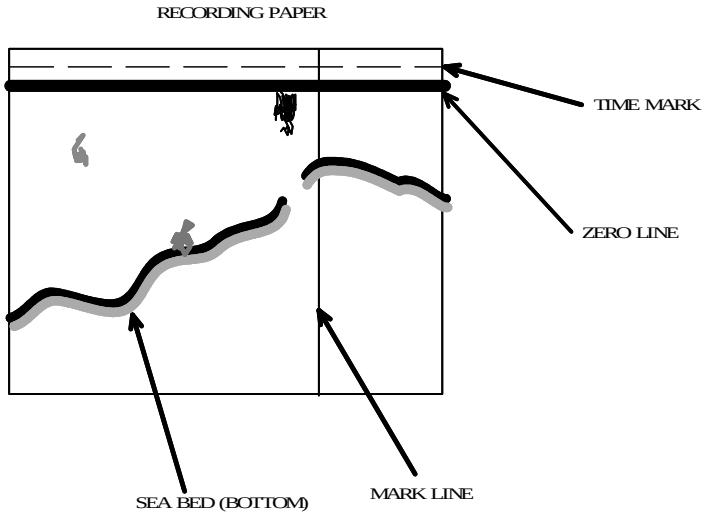
1 FWD
2 AFT
3 BOTH

VISUAL INSPECTION

1 WHAT KIND OF SYMPTOM?

1	DOES A "SEABED" IMAGE RECORDING ON PAPER?	YES	NO
2	DIGITAL "DEPTH" INDICATION ON LCD?	YES	NO

INDICATE THE FOLLOWING?



2 INDICATE THE FOLLOWING LINE WHEN ABNORMAL WORKING?

1	TIME MARK	YES	NO
2	ZERO LINE	YES	NO
3	SEABED (BOTTOM LINE)	YES	NO
4	MARK LINE (WHEN PUSH THE "MARK" SWITCH)	YES	NO

3 CABLE CONNECTION

1 TRANSDUCER CABLE

RECORDER (MAIN EQUPMENT)	TERMINAL NO.		
"TB201" ON CML-596-2 (5) TXRX CO	1- WHITE	OK	NG
	2- SHIILD	OK	NG
	3- BLACK	OK	NG

2 JUNCTION BOX AW-154F-(50)

	TERMINAL NO.		
	1- BLACK -6	OK	NG
FWD	2- WHITE -5	OK	NG
	3- SHILD -4	OK	NG
	1- BLACK -6	OK	NG
AFT	2- WHITE -5	OK	NG
	3- SHILD -4	OK	NG

4 ROM VERSION

1 CML-596-2 TX/RX UNIT (This type only for JFE-582 200kHz) **CO-R1.02**
CML-596-5 TX/RX UNIT (This type only for JFE-585 50kHz) **CO-R1.02SP0**

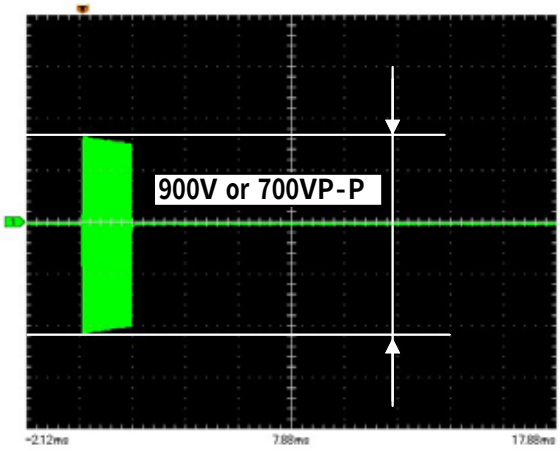
VERSION NO._____

5 TRANSMITTING WAVE

CHECK ON "TB201" TERMINAL NO.1 AND 3

CML-596-2 TX/RX UNIT (JFE-582 200kHz) **900VP-P**_____

CML-596-5 TX/RX UNIT (JFE-585 50kHz) **700VP-P**_____



TRANSDUCER INSPECTION

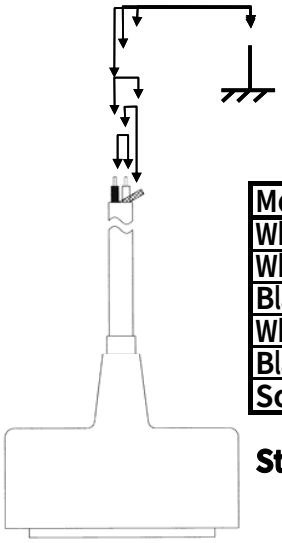
INSURATION

1 TRANSDUCER

Measurement the Transducer insulation resistance. (include transducer cable)

1 Transducer cable is remove from the terminal of Matching Box.
2 Measure the following core cables by the insulation resistance meter (DC500V).
3 White and black, white and screen, black and screen.
Each core cable and grounds (ship's body).
4 If resistance is beyond 10MΩ, Transducer is normal as a result of the measurement.

In case of following, replace the transducer in dry dock.
5 If resistance is less than 10MΩ, Transducer is poor as a result of the measurement.



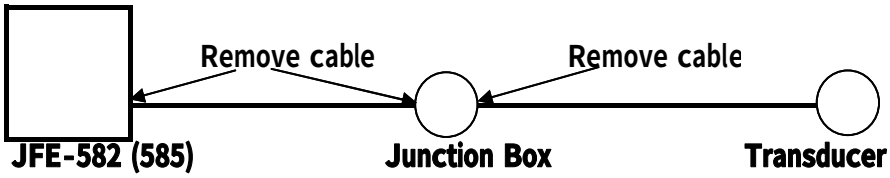
Measurement	1.TRANSDUCER	2.EXTEN. CABLE
White — Black		
White — Screen		
Black — Screen		
White — Ground		
Black — Ground		
Screen — Ground		

Standard Over 10MΩ

2 EXTENTION CABLE

Measurement the Extension Cable insulation resistance.

1 Remove the following all transducer cables.
Terminal of Echo sounder, Matching (Junction) Box,



2 Measure the following core cables by the insulation resistance meter (DC500V).
3 White and black, white and screen, black and screen.
Each core cable and grounds (ship's body).
4 If resistance is beyond 10MΩ, Extension Cable is normal as a result of the measurement

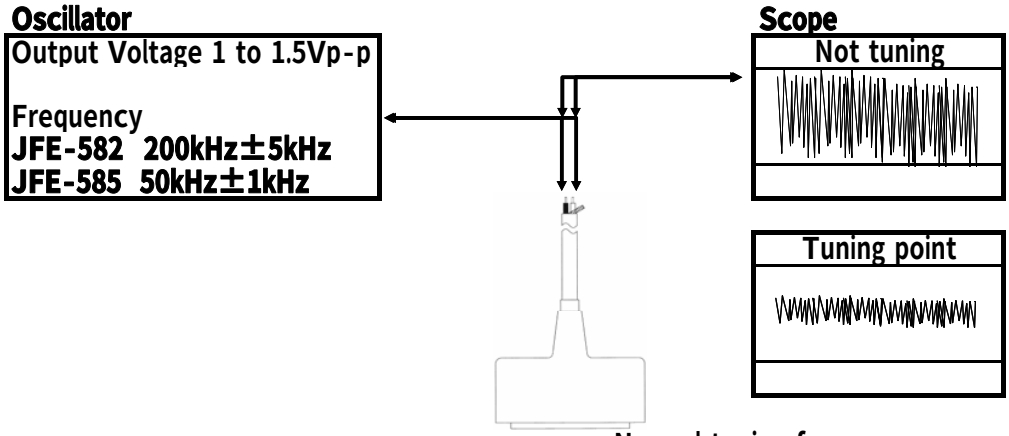
In case of following, replace the extention cable in dry dock.
5 If resistance is less than 10MΩ, Extension Cable is poor as a result of the measurement.

TUNING POINT

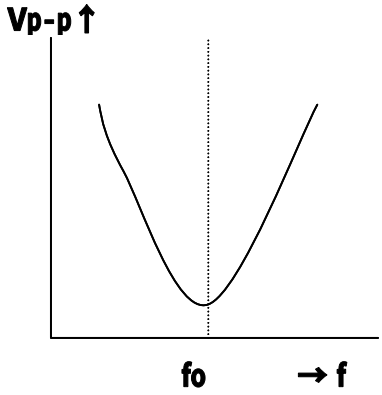
When there is transducer checker , it doesn't need to have this check.

Check the tuning frequency of Transducer.

1 Transducer cable is remove from the terminal of Matching Box.
2 Measure the following core cables by the Oscillator (Signal Generator) and Oscilloscope.
3 Input following signals to White and black.
4 Signal monitoring by Oscilloscope.
5 Frequency is moved up and down, and a DIP point (Signal level minimum point) is a tuning point.
6 The tuning frequency of transducer is normal if there is a dip point in the following range.



Normal tuning frequency range
JFE-582 200kHz ± 5kHz
JFE-585 50kHz ± 1kHz



fo = _____ kHz

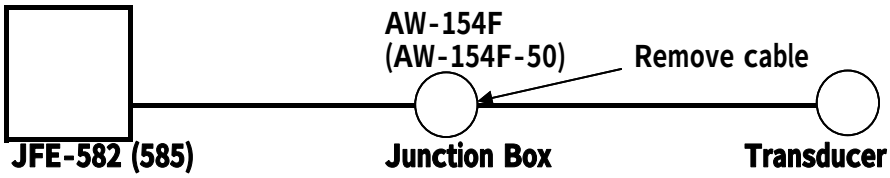
JFE-582 fo =200kHz±5kHz
JFE-585 fo = 50kHz±1kHz

7 If the result of the measurement is except for the above range then transducer defective

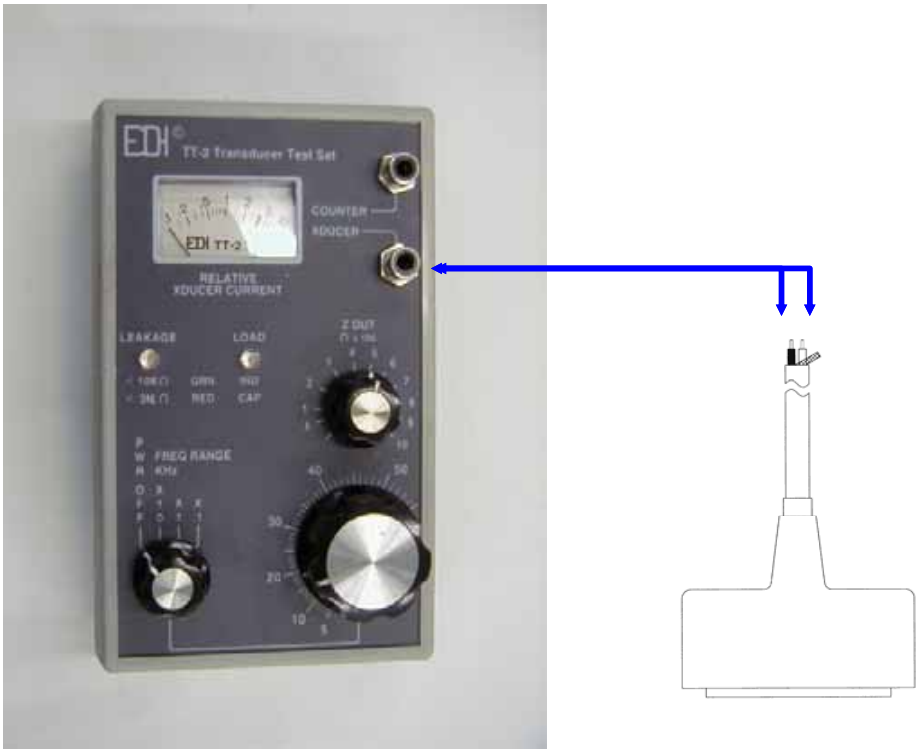
IMPEDANCE

Check on junction box. AW-154F-(50)

1 Remove the following all transducer cables.
Terminal of Echo sounder, Matching (Junction) Box,



2 Measure the following core cables by transducer checker.



JFE-582 200kHz	Zo= 120 ± 80Ω	Zo= _____ Ω
JFE-585 50kHz	Zo= 300 ± 100Ω	Zo= _____ Ω

JFE-582 / 585

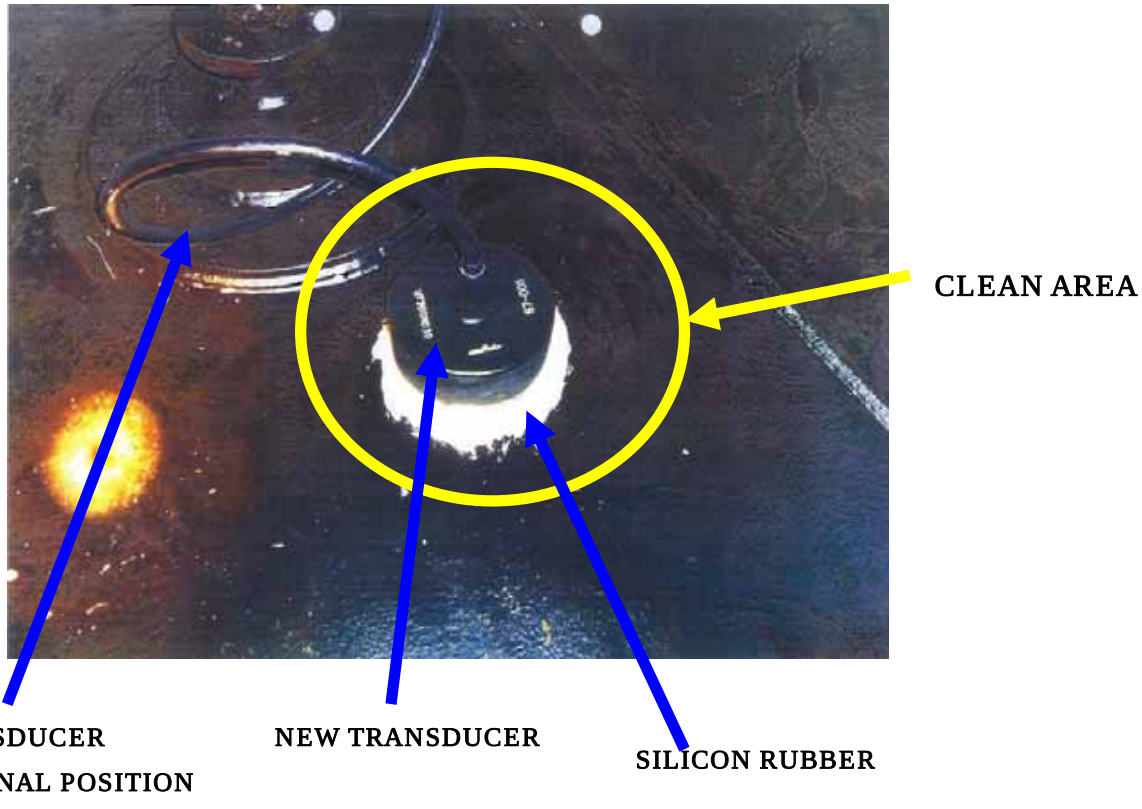
THE FIRST AID
for
TRANSDUCER PROBLEM

Inner Hull installation for Echo Sounder's transducer

The temporary modification when damaged transducer of the Echo Sounder.

TRANSDUCER

1. The installation method of transducer to the ship's bottom.
2. For safety;
   Open the manhole on before 24-hour work start, and remove the poisonous gas.
3. Clean the water and oil at transducer area.
4. New transducer is installed on the flat bottom of inside the same area with the silicone rubber.
5. Silicone rubber is applied in the thickness of about 2mm to 3mm, and a air bubble is made not to come in.
6. Transducer is fixed, an old transducer cable is cut and connected with the new transducer cable.
7. After above transducer cable connection, and taping for the waterproof.



ECHO SOUNDER FITTING ON INNER HULL.

This photograph for JFE-582 (200kHz)

Photograph 1

The digital display is none only in the time mark and the oscillation line recording on paper.

Photograph 2

Transducer tank

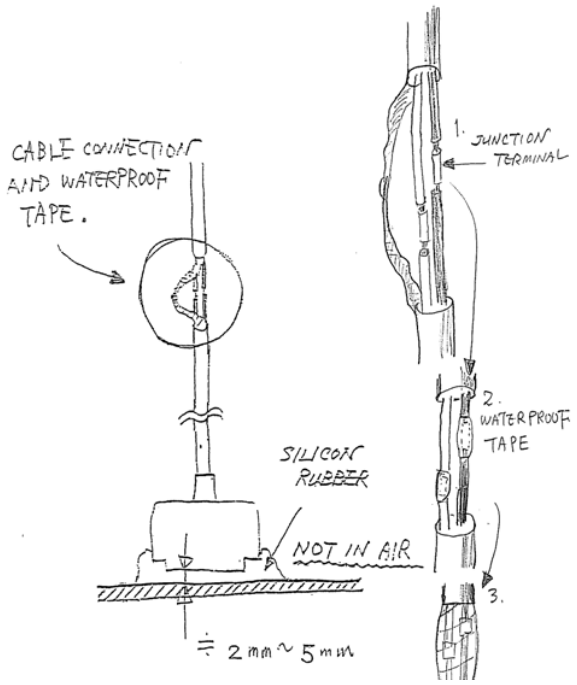
Check the following item of the old cable before connect it.

*Insulation resistance .

*The breakage of the cable .

Photograph 3

Transducer cable connection part



Old Transducer cable

Waterproof processing execution ending

Photograph 4

Position where Transducer is installed inner Hull

Photograph 5

Silicon rubber was spread from 2 to 3mm on the hull bottom of a ship and the transducer side, and this silicon rubber fixed surroundings.

Confirmation

Check it after about 24 hours after the above working end.

Silicone rubber is necessary to fix for 24 hours.

Material to prepare

ITEM		TYPE	JRC CODE		
Transducer	for JFE-582	UT-200ND20 (200kHz)	6UNBS00285		
	JFE-585	UT-50MD-20 (50kHz)	5UNAB00025		
Silicone rubber	ex.KE-45-W	SHINETSU	1162010009	@100g	3pcs
Rubber tape			BRXP00469	one roll	
Plastic tape				one roll	

Or equivalent

JFE-582 / 585

IN CASE
of
OTHER PROBLEMS

In case of "Date & Time" is no print out.

The order of priority of the NMEA sentence of this Echo Sounder is the following.

1st. GGA

GGA-Global positioning system (GPS) fix data

Time,position and fix-releted data for a GPS receiver.

$---GGA,hhmmss.ss,llll.ll,a,x,xx,x.x,M,x.x,M,x.x,xxxx*hh<CR><LF>

UTC of position fix. Only time sentence

2nd. RMC

RMC-Recommended minimum specific GNSS data.

$---RMC,hhmmss.ss,A,llll.ll,a,yyyy.yy,a,x.x,x.x,xxxxxx,x.x,a,a*hh<CR><LF>

UTC of position fix **Date:dd/mm/yyyy**

3rd. GLL

GLL-Geographic position – latitude/longitude

Latitude and longitude of vessel position, time of position fix and status.

$---GLL,llll.ll,a,yyyy.yy,a,hhmmss.ss,A,a*hh<CR><LF>

UTC of position fix. Only time sentence

*

GGA sentence is received first when a GGA sentence is outputted from connected GPS. Therefore, a date isn't printed out because there is no DATE sentence.

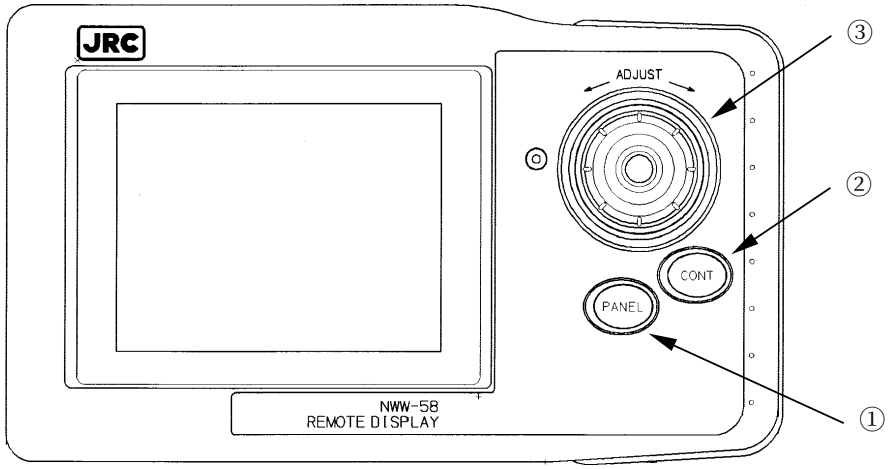
OPTION

NWW-58

REMORTE DISPLAY

NWW－５８ Remote Display

Operating Controls

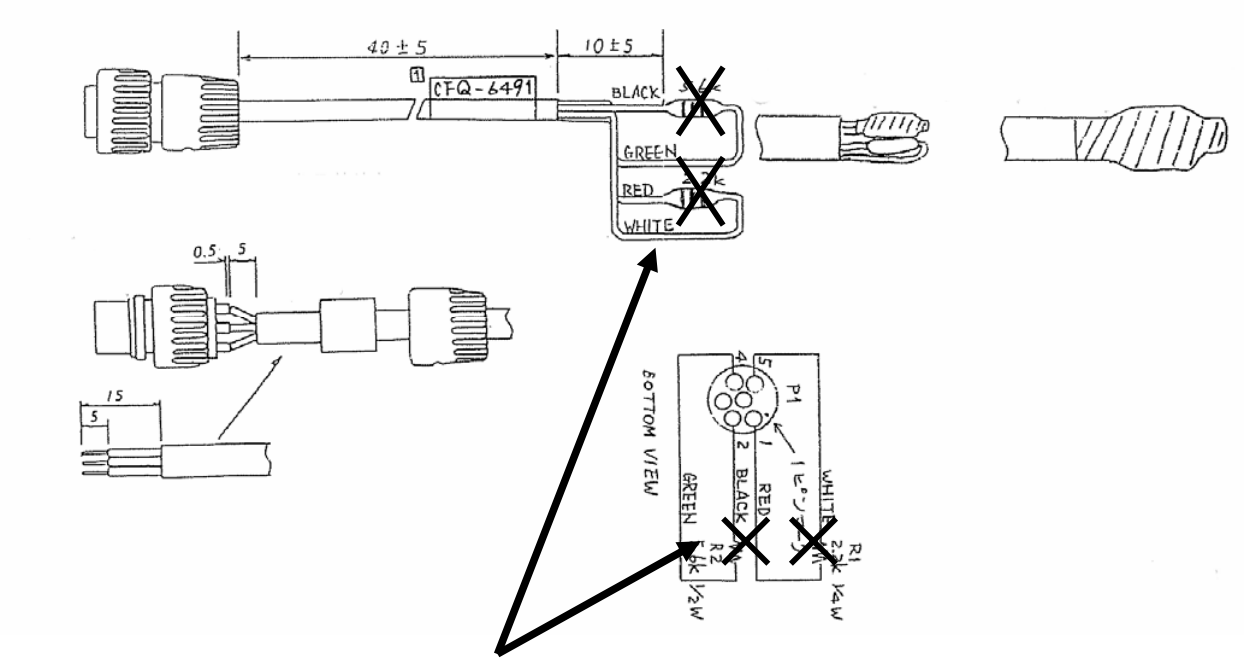


No.	Name	Function
①	Panel Dimmer	Set panel dimmer level with the adjust dial.
②	LCD Contrast	Set LCD contrast level with the adjust dial.
③	Adjust Level	Adjust level.

REMOTE DISPLAY NWW-58

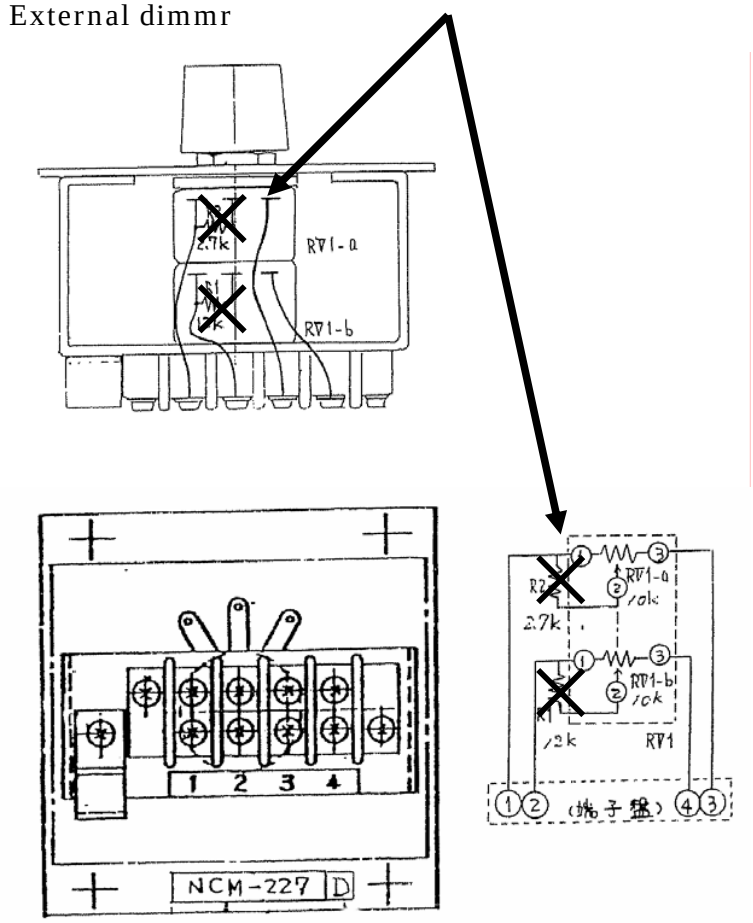
In case of panel and LCD dimmer are dark.

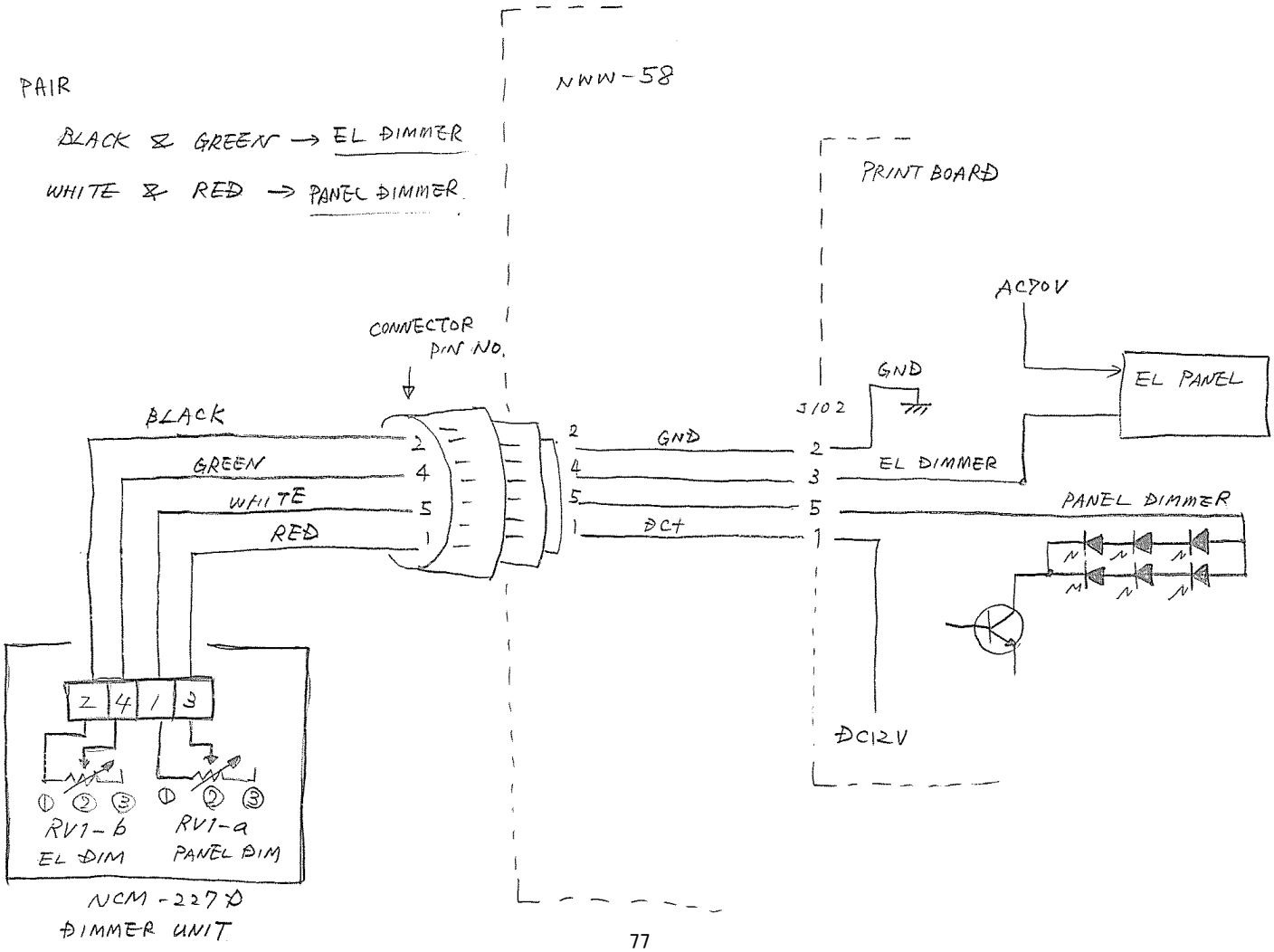
1. Internal dimmer



Cut and short the resistor.

2. External dimmr

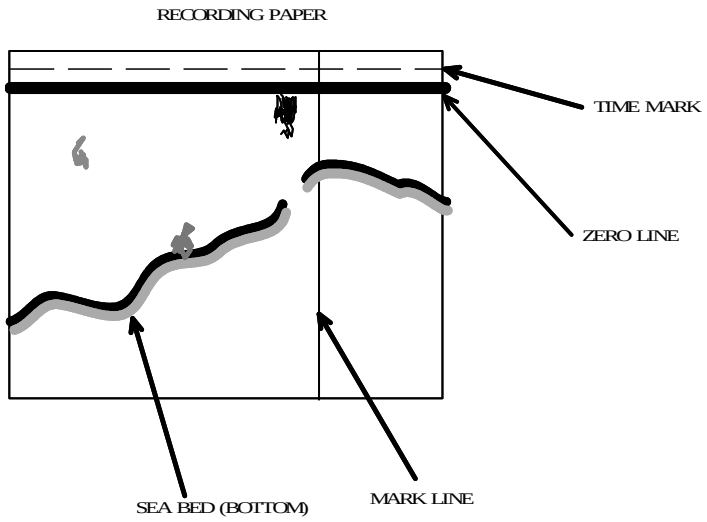



PAIR
BLACK & GREEN → EL DIMMER
WHITE & RED → PANEL DIMMER
NWW-58
PRINT BOARD
AC70V
EL PANEL
CONNECTOR PIN NO.
GND
J102
BLACK
GREEN
WHITE
RED
2
4
5
1
GND
EL DIMMER
PANEL DIMMER
DC+
DC12V
RV1-b
EL DIM
RV1-a
PANEL DIM
NCM-227D
DIMMER UNIT

INSPECTION AFTER WORK

Japan Radio co.,Ltd

Q.1 INDICATE THE FOLLOWING ON THE RECORDING PAPER?

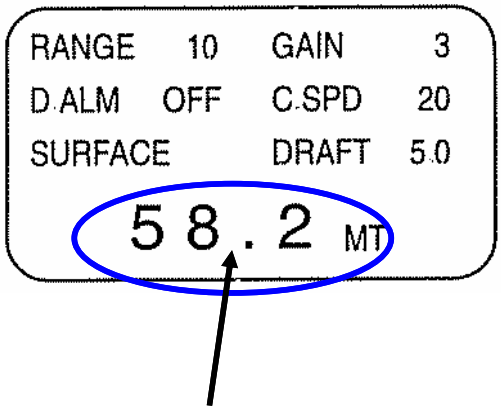


INDICATE THE FOLLOWING LINE?

		YES	NO
1	TIME MARK		
2	ZERO LINE		
3	SEABED (BOTTOM LINE)		
4	MARK LINE (WHEN PUSH THE "MARK" SWITCH)		

* RECORDING "MARK LINE" FROM TOP TO BOTTOM.

Q.2 INDICATE THE FOLLOWING ON THE LCD DISPLAY?



		YES	NO
1	DIGITAL DEPTH INDICATE.		

Q.3 OUTPUT "NMEA" TO EXTRNAL EQUIPMENT?

YES	NO

GRASPING OF THE CONDITION!!!

The confirmation of the condition is important for the repair of Echo Sounder

Let's send attached "ASKS ABOUT THE CONDITION OF ECHO SOUNDER" to the ship directly, and get reliable information.

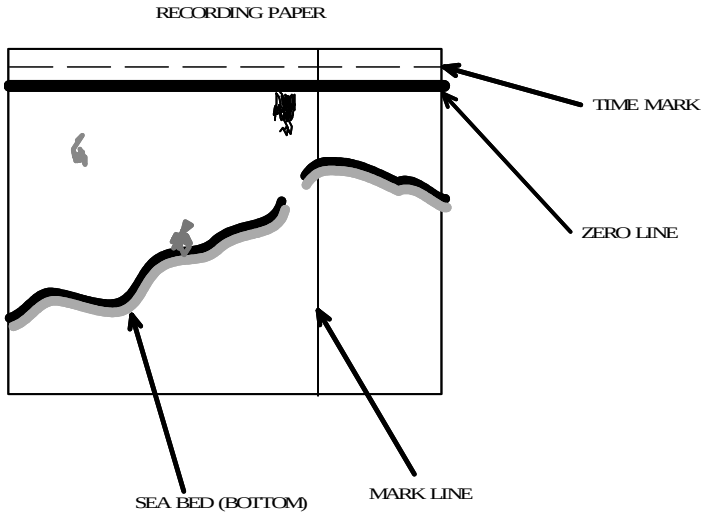
ASKS ABOUT THE CONDITION OF ECHO SOUNDER

Japan Radio co.,Ltd

Q1. WHICH TRANSDUCER IS ABNORMAL?
1 FWD
2 AFT
3 BOTH

Q2. WHAT KIND OF SYMPTOM?
1 DOES A "SEABED" IMAGE RECORDING ON PAPER? YES NO
2 DIGITAL "DEPTH" INDICATION ON LCD? YES NO

Q.3 INDICATE THE FOLLOWING?



INDICATE THE FOLLOWING LINE WHEN ABNORMAL WORKING?
1 TIME MARK YES NO
2 ZERO LINE YES NO
3 SEABED (BOTTOM LINE) YES NO
4 MARK LINE (WHEN PUSH THE "MARK" SWITCH) YES NO

Q4. THE OCCURRENCE FREQUENCY OF SYMPTOM.
1 ALL TIME
2 ONCE/1 MONTH
3 ONCE/1 WEEK
4 ONCE/1 DAY
5 ONCE/1 HOUR
6 OTHER ONCE /

Q5. HOW LONG TIME WHEN ABNORMAL CONDITION CONTINUES?
*PAST CASE
MAX _____ hh _____ mm MINI _____ hh _____ mm

Q6. WHERE HERE DOSE A SYMPTOM OCCUR?
1 SAILING
2 BERTHING
3 ON BERTH
4 ANCHORING AT PORT
5 WHEN PROPELLER WAS TURNED CONVERSELY.

Q7. WHICH PORT DOSE ABNORMAL CONDITION OCCUR IT.
1 ANY PORT
2 SPECIFIC PORT PORT NAME & COUNTRY _____

JFE-582 / 585

TECHNICAL INFORMATION

Technical information		transaction : company secret : up to agency : open
Issue Number	02BSCN0002	Order of priority ☐A：reform immediately ☑B：Improve with regular check or visiting ☐C：Improve with customer's request ☐D：Information and news
Date	June 24, 2002	
Model	JFE-585	
Equipment	Echo sounder	
Section in charge	Navigation & Fishing Electronics Group	

1. Subject

Prevent the damage of Transducer.

2. Contents

2.1 Apply to

All of JFE-585 (frequency: 50kHz) shipped before June 6, 2002.
Serial No. : HD5009 to 50028, 54476 to 54515, 54576 to 54635
, 55236 to 55285, 59919, 59920, 59924 to 59932

2.2 Detail

Echo sounder JFE-585 would seldom damage the transducer in case of cable extension.
To prevent the damage, we would modify the software.
The modified software version is CO-R1.02SP0. (current version : CO-R1.02)

To modify the software, change the ROM IC on TX/RX unit CML-596-5.

The new ROM version CO-R1.02SP0 (our product code 7DEBS3003) is in stock.

NOTE: to prevent confusion, please return the changed old version ROM.

2.3 Attached sheet

Procedure sheet to change ROM IC (total 3 pages)

Procedure

1. Open the front panel of echo sounder and mechanical block. (photo. 1, 2)
2. Turn off the main switch on the power supply unit. (photo. 4)
3. Remove the ROM IC (version CO-R1.02) on the TX/RX unit. (photo. 5)
4. Insert the modified ROM IC: version CO-R1.02SP0. (photo. 6)
5. Turn on the main switch. (photo. 7)
6. Close the mechanical block and front panel of echo sounder. (photo. 8)
7. Turn on the power switch on the front panel.
8. Verify the LCD display on the front panel. (photo. 9)

Verifying point

1. When start to work, buzzer will sound four and half times.
2. During the sounds, LCD will display opening massage with ROM version. The displayed ROM version should be "CO-R1.02SP0".

If no buzzer sounding or no LCD displaying, ROM would not be inserted correctly. Please confirm IC's direction and lead bending.

[Reference] TX voltage with TX dummy(8000pF 250 ohm)

	CO-R1.02	CO-R1.02SP0
TX voltage Vp-p	1250V	700V

Photographs

Photo. 1 Open the front panel

Photo. 2 Open the mechanical Section

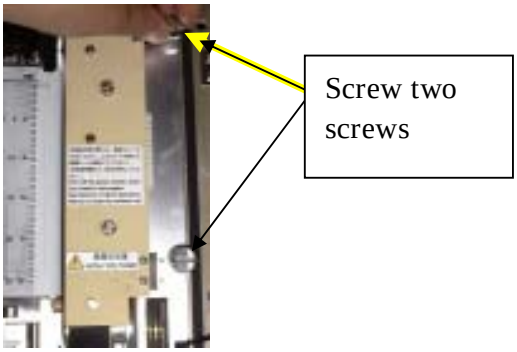


Photo. 3 Flame section

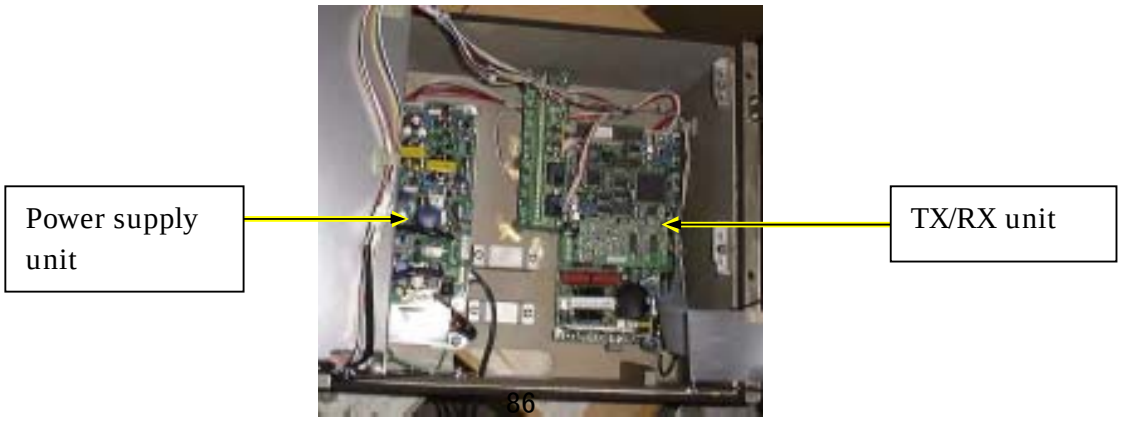


Photo. 4 Turn off main switch
On the power supply unit
Press “O” mark side

Photo. 5 Remove the ROM IC
Lift the IC from both side

Photo. 6 Insert new ROM IC version CO-R.02SP0

Note: 1 New IC’s pins are spread. Narrow the pins to fit the IC socket.

2 Insert IC to correct direction.

3 The IC has 40 pins. Check the whole pins set to the socket.

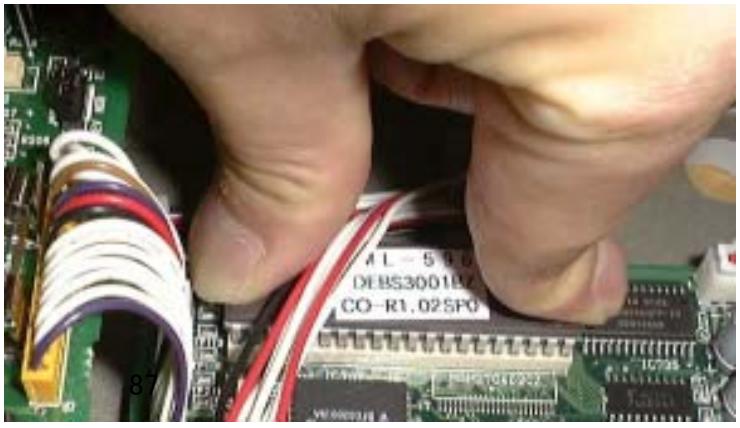
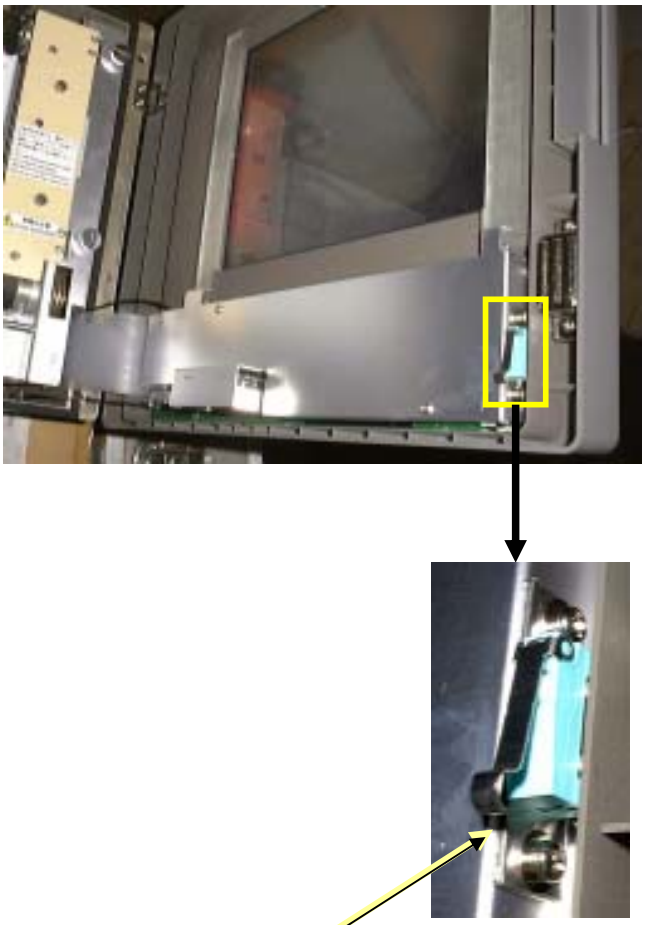


Photo. 7 Turn on the main switch
Press "—" mark side

Photo. 8 safety door-switch



The lever of door-switch
* Take care for not losing this lever.

Photo. 9 LCD display on normal opening

JFE-582 / 585　ECHO SOUNDER
SERVICE MANUAL