

FURUNO

OPERATOR'S MANUAL

NETWORK SOUNDER

MODEL ETR-6/10N



FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

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ETR-6/10N



* 00080917300 *



SAFETY INSTRUCTIONS



WARNING



ELECTRICAL SHOCK HAZARD
Do not open the equipment unless totally familiar with electrical circuits and service manual.

Only qualified personnel should work inside the equipment.

Turn off the power at the switchboard before beginning the installation.

Fire or electrical shock can result if the power is left on.

Do not install the equipment where it may get wet from rain or water splash.

Water in the equipment can result in fire, electrical shock or equipment damage.

Be sure no water leaks in at the transducer mounting location.

Water leakage can sink the vessel. Also, confirm that the transducer will not loosen by ship's vibration. The installer of the equipment is solely responsible for the proper installation of the equipment. FURUNO will assume no responsibility for any damage associated with improper installation.

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

Connection of an incorrect power supply can cause fire or equipment damage. The voltage rating of the equipment appears on the label above the power connector.



WARNING

Install the transducer according to the installation instructions.

Failure to install the transducer correctly may result in water leakage and damage to the ship's hull.

CAUTION



Ground the equipment to prevent mutual interference.

Observe the following compass safe distances to prevent interference to a magnetic compass:

	Standard compass	Steering compass
Network Sounder	0.80 m	0.55 m

Do not allow warm water or any liquid other than seawater or freshwater to contact the transducer.

Damage to the transducer may result.

Do not install the transducer where noise or air bubbles is present.

Performance will be affected.

- **Turn off the power at the switchboard when will not be used for a long period.**
- **Turn off the power at the switchboard or detach the power cable from the connector to turn off the equipment when trouble occurs.**

CAUTION

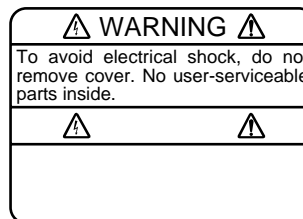
The transducer cable must be handled carefully, following the guidelines below.

- **Keep fuels and oils away from the cable.**
- **Locate the cable where it will not be damaged.**
- **The cable sheath is made of chlorophrene or polychloride vinyl, which is easily by damaged plastic solvents such as toulene. Locate the cable well away from plastic solvents.**

Use the correct fuse.

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

A warning label is attached to the equipment. Do not remove the label. If the label is missing or illegible, contact a FURUNO agent or dealer.

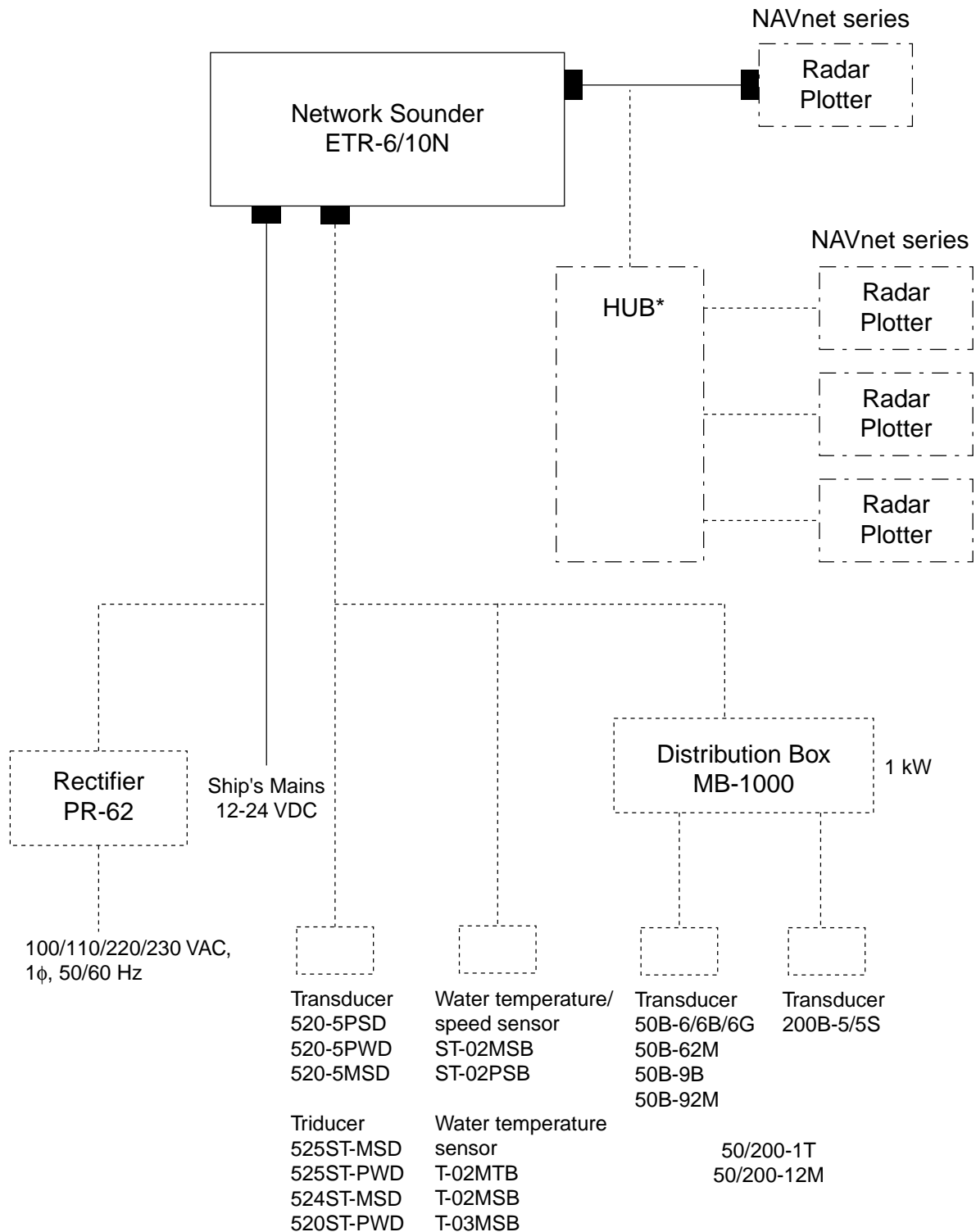


Name: Warning Label (1)
Type: 86-003-1011-0
Code No.: 100-236-230

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SYSTEM CONFIGURATION



*: HUB may be connected to 3 sets of NAVnet radar or plotter.

- : Standard
- : Option
- - - - - : External Equipment

EQUIPMENT LISTS

Standard supply

No.	Name	Type	Code No.	Qty	Remarks
1	Network Sounder	ETR-6/10N	-	1	
2	Spare Parts	SP02-04301	-	1 set	
3	Installation Materials	CP02-06800	000-027-897	1 set	MJ-A3SPF0013-035 (3 A) MJ-A6SPF0014-050 (5 m) +Tapping screw
		CP02-06810	000-027-898		MJ-A3SPF0013-035 (3 A) +Tapping screw

Optional supply

No.	Name	Type	Code No.	Remarks
1	Distribution Box	MB-1000	000-040-809	For 1 kW
2	Cable Assy.	02S4089	000-133-622	10P-8P, For MB-1000
		MJ-A6SPF0014-010	000-144-421	6P-6P, 1 m, For NAVnet
		MJ-A6SPF0014-050	000-144-422	6P-6P, 5 m, For NAVnet
		MJ-A6SPF0014-100	000-144-423	6P-6P, 10 m, For NAVnet
		MJ-A6SPF0014-200	000-144-424	6P-6P, 20 m, For NAVnet
		MJ-A6SPF0014-300	000-144-425	6P-6P, 30 m, For NAVnet
		MJ-A6SRMD/TM11AP8-005	000-144-463	For HUB
3	Inside Hull Kit S	22S0191	000-802-598	
4	Triducer	524ST-MSD	000-015-224	
		520ST-PWD	000-015-128	
		525ST-MSD	000-144-528	
		525ST-PWD	000-144-526	
5	Transducer	520-5PSD	000-015-204	
		520-5PWD	000-015-126	
		520-5MSD	000-015-127	
		50B-6	000-015-042	10 m, For 1 kW
		50B-6B	000-015-043	15 m, For 1 kW
			000-015-018	30 m, For 1 kW
			000-015-255	40 m, For 1 kW
		50B-6G	000-015-016	10 m
		50B-9B	000-015-065	15 m, For 1 kW
		50B-62M	000-015-251	For 1 kW
		50B-92M	000-015-252	For 1 kW
		200B-5	000-015-027	10 m, For 1 kW
		200B-5S	000-015-029	10 m, For 1 kW
		50/200-1T	000-015-170	10 m, For 1 kW
50/200-12M	000-015-171	10 m		
6	ST Sensor	ST-02MSB	000-137-986	Speed/Temperature sensor
		ST-02PSB	000-137-987	
7	Temperature Sensor	T-02MTB	000-040-026	
		T-02MSB	000-040-040	
		T-03MSB	000-040-027	
8	Cable Assy.	02S4147	000-141-082	10P-10, 6P For the water temperature/speed sensor
9	Rectifier	PR-62	000-013-484	100 VAC
			000-013-485	110 VAC
			000-013-486	220 VAC
			000-013-487	230 VAC

1. MOUNTING

1.1 Network Sounder

Mounting considerations

The network sounder can be installed on the deck or on the bulkhead. When selecting a mounting location for the network sounder, keep the following in mind:

- The temperature and humidity should be moderate and stable.
- Locate the unit away from exhaust pipes and vents.
- The mounting location should be well ventilated.
- Mount the unit where shock and vibration are minimal.
- Keep the unit away from electromagnetic field-generating equipment such as motors and generators.
- Leave slack in cables for maintenance and servicing ease.
- A magnetic compass will be affected if the network sounder placed too close to the magnetic compass. Observe the following compass safe distances to prevent disturbance to the magnetic compass:
 - a) Standard compass: 0.80 meters
 - b) Steering compass: 0.55 meters

Mounting procedure

Fasten the network sounder to the mounting location with four tapping screws (4 x 16).

Note: Do not install the equipment where it may get wet from rain or water splash.
Waterproof level is IPX2 (IEC 60529).

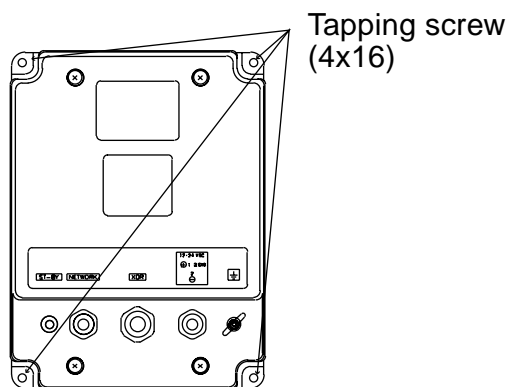


Figure 1-1 Mounting the network sounder

1.2 Thru-hull Mount Transducer 520-5PSD, 520-5MSD

Transducer mounting location

This type of mounting provides the best performance of all, since the transducer protrudes from the hull and the effect of air bubbles and turbulence near the hull skin is reduced. When the boat has a keel, the transducer should be at least 30 cm away from it. Typical thru-hull mountings are shown in the figure on the next page.

The performance of this sounder is directly related to the mounting location of the transducer, especially for high-speed cruising. The installation should be planned in advance, keeping the standard cable length (8 m) and the following factors in mind:

- Air bubbles and turbulence caused by movement of the boat seriously degrade the sounding capability of the transducer. The transducer should, therefore, be located in a position where water flow is the smoothest. Noise from the propellers also adversely affects performance and the transducer should not be mounted nearby. The lifting strakes are notorious for creating acoustic noise, and these must be avoided by keeping the transducer inboard of them.
- The transducer must always remain submerged, even when the boat is rolling, pitching or up on a plane at high speed.
- A practical choice would be somewhere between 1/3 and 1/2 of the boat's length from the stern. For planing hulls, a practical location is generally rather far astern, so that the transducer is always in water regardless of the planing attitude.

Transducer outline drawings

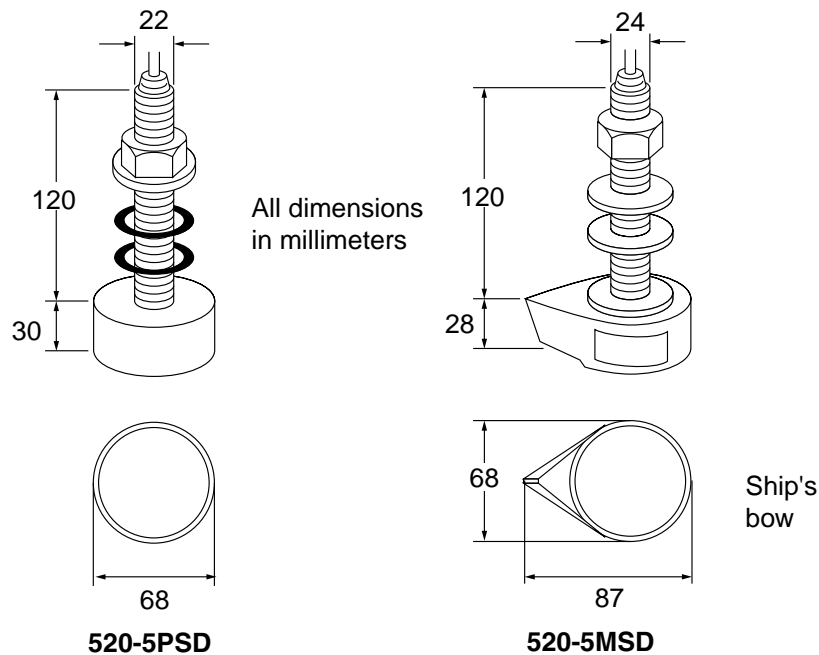
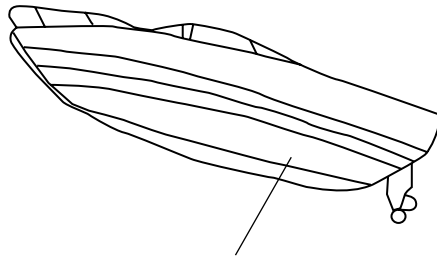


Figure 1-2 Dimensions of transducers 520-5PSD, 520-5MSD

Acceptable transducer mounting locations

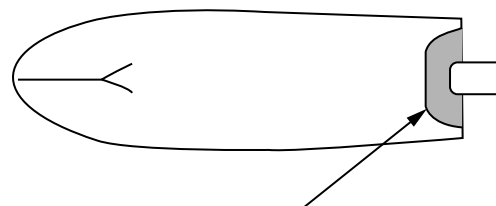
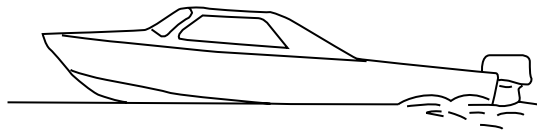
Deep-V hull



- * Position 1/2 to 1/3 length of the hull from stern.
- * 15 to 30 cm from center line (inside first lifting strakes).

Figure 1-3 Transducer mounting location on deep-V hull

High speed V-planing hull



- * Within the wetted bottom area
- * Deadrise angle within 15°

Figure 1-4 Transducer mounting location on high speed V-planing hull

Typical thru-hull mount transducer installations

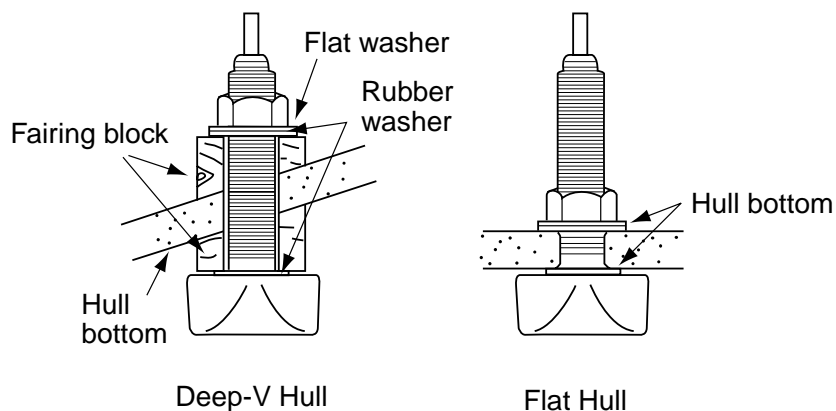


Figure 1-5 Typical thru-hull mount transducer installations

Procedure for installing the thru-hull mount transducer

1. With the boat hauled out of the water, mark the location selected for mounting the transducer on the bottom of the hull.
2. If the hull is not level within 15° in any direction, fairing blocks made out of teak should be used between the transducer and hull, both inside and outside, to keep the transducer face parallel with the water line. Fabricate the fairing block as shown below and make the entire surface as smooth as possible to provide an undisturbed flow of water around the transducer.

The fairing block should be smaller than the transducer itself to provide a channel to divert turbulent water around the sides of the transducer rather than over its face.

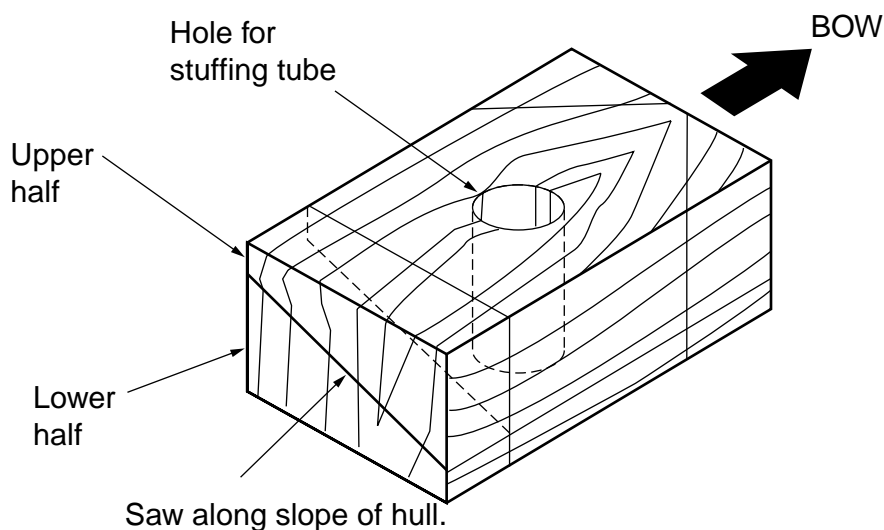


Figure 1-6 Construction of fairing block

3. Drill a hole just large enough to pass the threaded stuffing tube of the transducer through the hull, making sure it is drilled vertically.
4. Apply a sufficient amount of high quality caulking compound to the top surface of the transducer, around the threads of the stuffing tube and inside the mounting hole (and fairing blocks if used) to ensure watertight mounting.
5. Mount the transducer and fairing blocks and tighten the locking nuts. Be sure that the transducer is properly oriented and its working face is parallel to the water line.

Note: Do not over-stress the stuffing tube and locking nuts through excessive tightening, since the wood block will swell when the boat is placed in the water. It is suggested that the nut be tightened lightly at installation and retightened several days after the boat has been launched.

1.3 Transom Mount Transducer 520-5PWD, Optional Transom Mount Triducer 520ST-PWD

This type of mounting is very commonly employed for outboard motor boats. Do not use this method on an inboard motor boat because turbulence is created by the propeller ahead of the transducer.

There are two methods of installation: flush with hull (for flat hulls) and projecting from hull (for deep V-hulls).

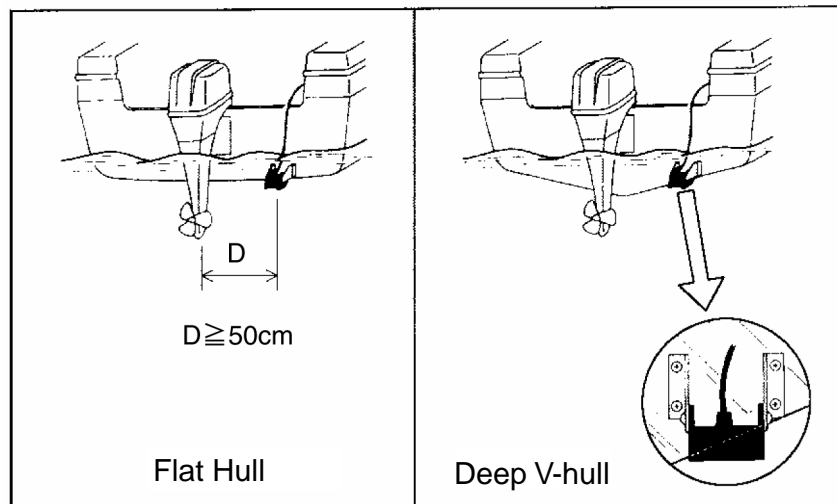


Figure 1-7 Transom mount transducer mounting locations

Installing the transom mount transducer flush with hull (for flat hulls)

A suitable mounting location is at least 50 cm away from the engine and where the water flow is smooth.

1. Drill four pilot holes in the mounting location.
2. Attach the transducer to the bracket with tapping screws (supplied).
3. Adjust the transducer position so the transducer faces right to the seabed.

Note: If necessary, to improve water flow and minimize air bubbles staying on the transducer face, incline the transducer about 5° at the rear. This may require a certain amount of experimentation for fine tuning at high cruising speeds.

4. Fill the gap between the wedge front of the transducer and transom with epoxy material to eliminate any air spaces.

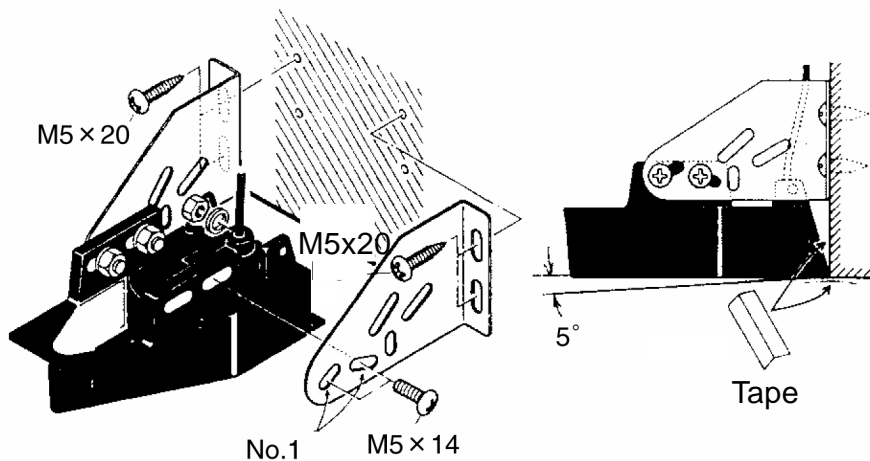


Figure 1-8 Transom mount transducer, mounting flush with hull

Installing the transom mount transducer projecting from hull (for deep-V hulls)

This method is employed on deep-V hulls and provides good performance because the effects of air bubbles are minimal. Install the transducer parallel with water surface; not flush with hull. If the boat is placed on a trailer care must be taken not to damage the transducer when the boat is hauled out of the water and put on the trailer.

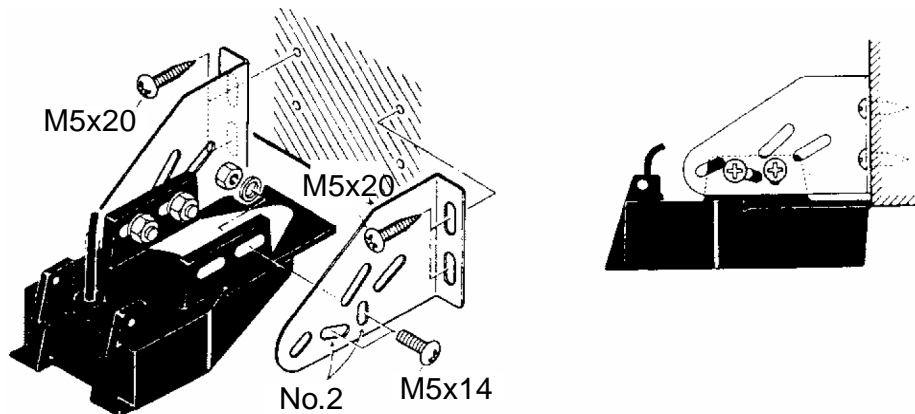


Figure 1-9 Transom mount transducer, projecting from hull

Transducer preparation

Before putting the boat in water, wipe the face of the transducer thoroughly with a detergent liquid soap. This will lessen the time necessary for the transducer to have good contact with the water. Otherwise the time required for complete "saturation" will be lengthened and performance will be reduced.

Note: Do not paint the transducer. Performance will be affected.

1.4 Inside-hull Mount Transducer 520-5PSD, 520-5MSD

Necessary tools

You will need the following tools:

- Sandpaper (#100)
- Silicone sealant
- Silicone grease

Remarks on installation

- Turn off the engine and anchor the boat while installing the equipment.
- Install the transducer in the engine room.

Selecting the mounting location

Keep the following points in mind when selecting a mounting location:

- The mounting location should be where the hull is of single-hull thickness and is void of air or flotation materials other than solid fiberglass between the transducer face and the water.
- Do not place the transducer over hull struts or ribs which run under the hull.
- Avoid a location where the rising angle of the hull exceeds 15° , to minimize the effect of the boat's rolling.
- You will finalize the mounting location through some trial and error. The procedure for this is shown later.

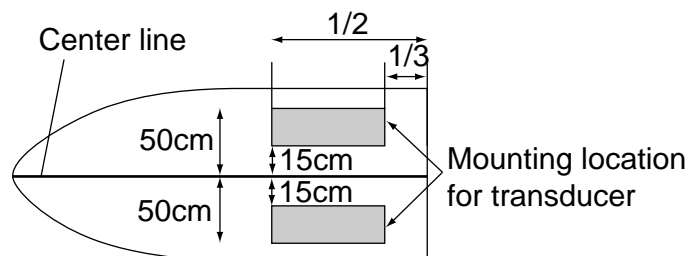


Figure 1-10 Inside-hull transducer mounting location

Attaching the inside-hull mount transducer

1. Clean the transducer face to remove any foreign material. Lightly roughen the transducer face with #100 sandpaper. Also, roughen the inside of the hull where the transducer is to be mounted.
2. Warm the silicone sealant to 40°C before usage to soften it. Coat the transducer face and mounting location with silicone sealant.

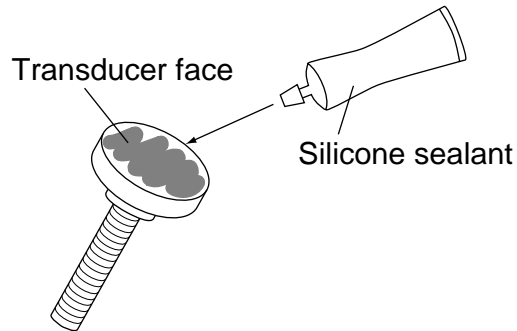


Figure 1-11 Coating the transducer face with silicone sealant

3. Press the transducer firmly down on the hull and gently twist it back and forth to remove any air which may be trapped in the silicone sealant.

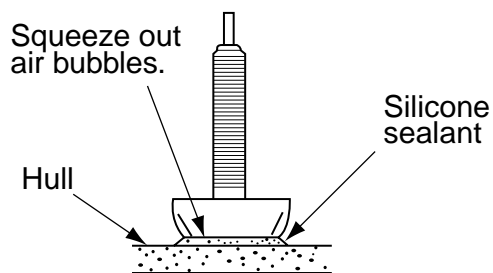


Figure 1-12 Attaching transducer to hull with silicone sealant

1.5 Optional Water Temperature/Speed Sensors

Through-hull mount water temperature/speed sensor ST-02MSB, ST-02PSB

Select a suitable mounting location considering the following:

- Select a mid-boat flat position. The sensor does not have to be installed perfectly perpendicular. The sensor must not be damaged in dry-docking operation.
- Select a place apart from equipment generating heat.
- Select a place in the forward direction viewing from the drain hole, to allow for circulation of cooling water.
- Select a place free from vibration.

1. Dry-dock the boat.
2. Make a hole of approx. 51 mm in diameter.
3. Unfasten locknut and remove the sensor section.
4. Apply high-grade sealant to the flange of the sensor.
5. Pass the sensor casing through the hole.
6. Face the notch on the sensor toward boat's bow and tighten the flange.
7. Set the sensor section to the sensor casing and tighten the locknut.
8. Launch the boat and check for water leakage around the sensor.

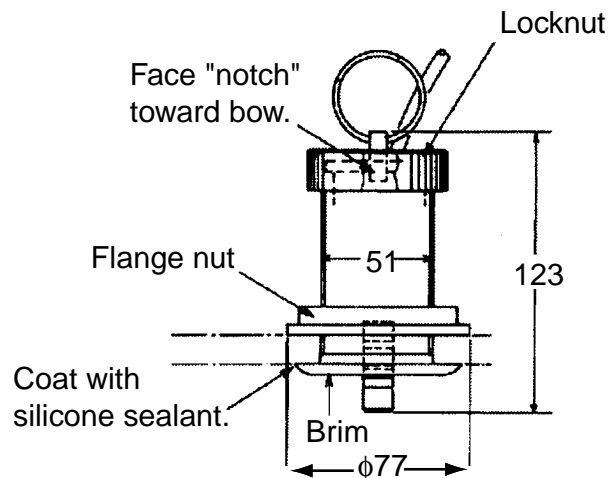


Figure 1-13 Water temperature/speed sensor ST-02MSB, ST-02PSB

1.6 Optional Water Temperature Sensors

Transom mount water temperature sensor T-02MTB

- Fix the cable at a convenient location with cable clamp.
- When the cable is led in through the transom board, make a hole of approx. 17 mm in diameter to pass the connector. After passing the cable, fill the hole with a sealing compound.

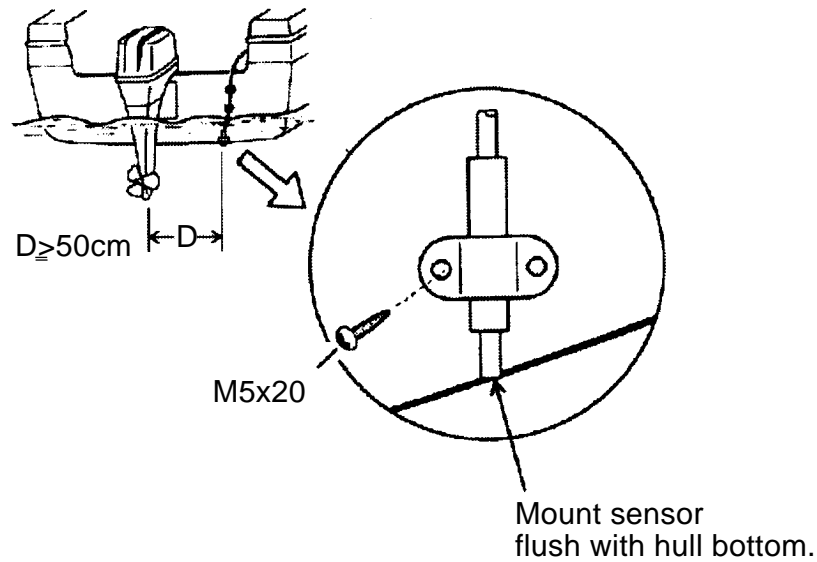


Figure 1-14 How to install transom mount water temperature sensor T-02MTB

Thru-hull mount water temperature sensor T-02MSB, T-03MSB

Select a suitable mounting location considering the following points:

- Select a mid-boat flat position. The sensor does not have to be installed perfectly perpendicular. However, the location should not be such that the transducer may be damaged when the boat is dry-docked.
- Locate away from equipment which gives off heat.
- Locate away from drain pipes.
- Select a location where vibration is minimal.

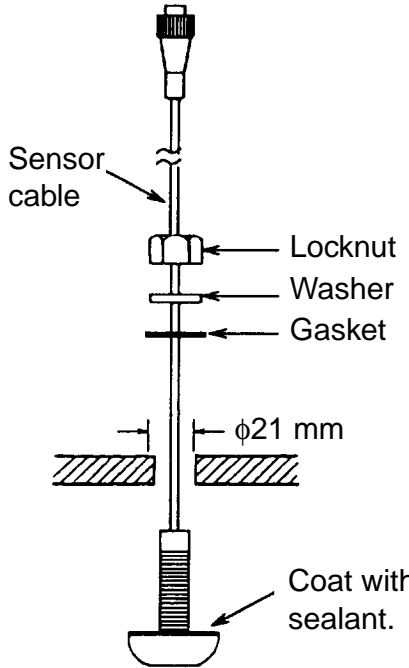
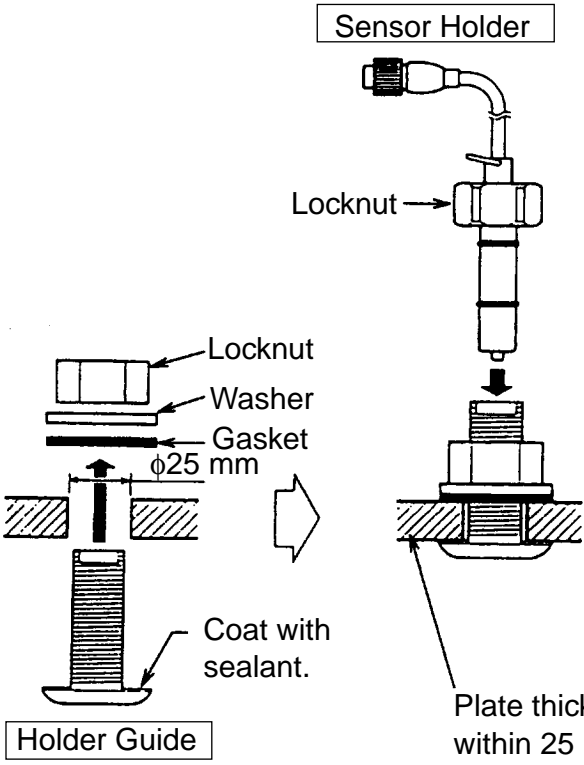
T-02MSB	T-03MSB
 <p>The diagram shows the T-02MSB sensor assembly. A sensor cable passes through a hole in a mounting plate. From top to bottom, the components are: a locknut, a washer, and a gasket. The hole in the plate has a diameter of $\phi 21$ mm. The sensor flange is coated with sealant before being fastened with the locknut.</p> <p>Mounting procedure</p> <ol style="list-style-type: none"> 1. Drill a hole of 21 mm in diameter in the mounting location. 2. Pass the sensor cable through the hole. 3. Pass gasket, washer and locknut onto cable in that order. 4. Coat the sensor flange with high quality sealant and then fasten the sensor with the locknut. (Torque: max. 59N·m) 5. Launch the boat to check for water leakage around the sensor. 	 <p>The diagram shows the T-03MSB sensor assembly. It involves a sensor holder, a locknut, a washer, and a gasket. The hole in the mounting plate has a diameter of $\phi 25$ mm. A holder guide is used to align the sensor holder. The holder guide is coated with sealant. The sensor holder is set from the inside of the boat, and the locknut is tightened.</p> <p>Mounting procedure</p> <ol style="list-style-type: none"> 1. Drill a hole of 25 mm in diameter in the mounting location. 2. Coat holder guide with high quality sealant, and pass gasket, washer and locknut onto holder guide in that order and then tighten the locknut. 3. Set the sensor holder to the holder guide from inside the boat and then tighten the locknut. 4. Launch the boat to check for water leakage around the sensor.

Figure 1-15 Assembling thru-hull water temperature sensor T-02MSB, T-03MSB

1.7 Optional Triducer 524ST-MSD

The triducer is designed for thru-hull mounting.

Mounting considerations

When selecting a mounting location keep the following points in mind:

- Air bubbles and turbulence caused by movement of the boat seriously degrade the sounding capability of the transducer. The transducer should, therefore, be located in a position where water flow is the smoothest. Noise from the propellers also adversely affects performance and the transducer should not be mounted nearby. The lifting strakes are notorious for creating acoustic noise, and these must be avoided by keeping the transducer inboard of them.
- The transducer must always remain submerged, even when the boat is rolling, pitching or up on a plane at high speed.
- A practical choice would be somewhere between 1/3 and 1/2 of the boat's length from the stern. For planing hulls, a practical location is generally rather far astern, so that the transducer is always in water regardless of the planing attitude.

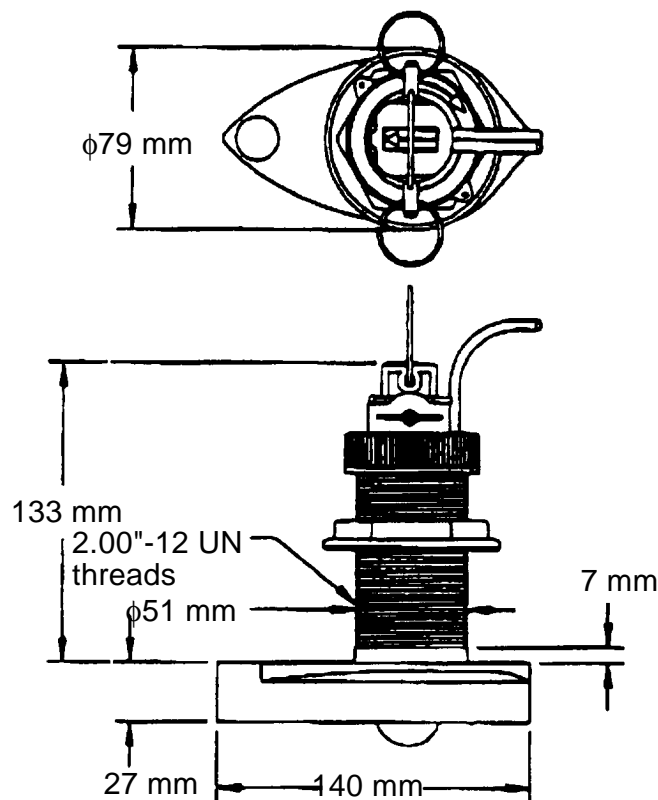


Figure 1-16 Dimensions of triducer 524ST-MSD

2. WIRING

2.1 Wiring

All wiring is terminated at the network sounder.

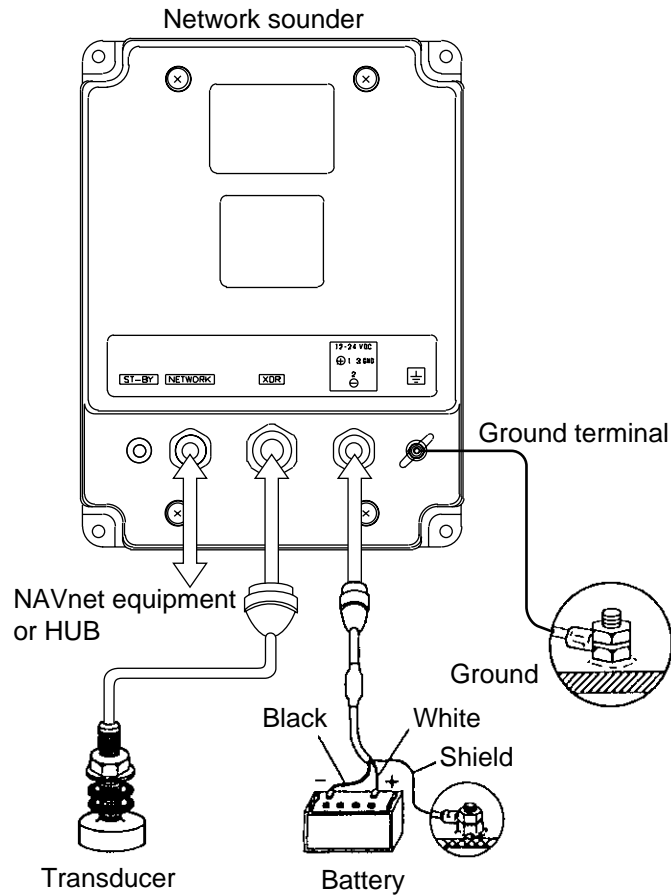


Figure 2-1 Network sounder

Power cable

Connect the power cable to the power connector. Connect the leads to the battery (12-24 VDC); white to plus (+) terminal and black to minus (-) terminal.

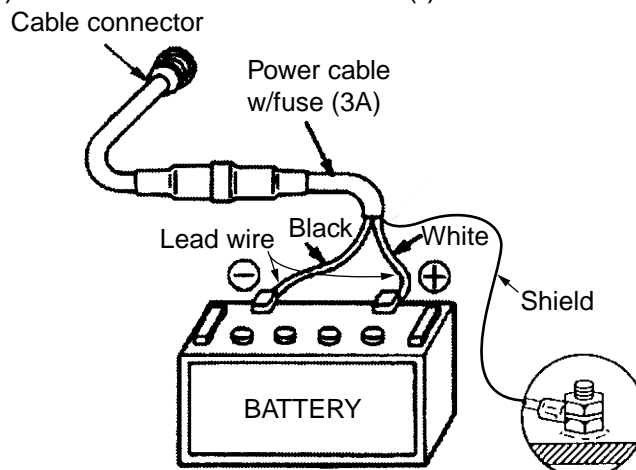


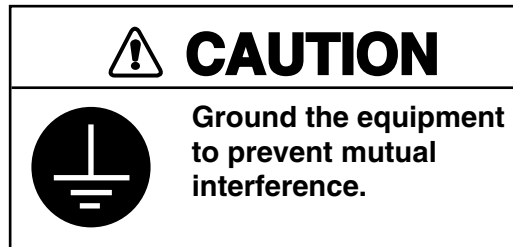
Figure 2-2 Connecting the power cable to the battery


Transducer, optional triducer

Connect the transducer cable to the XDR connector.

Ground

Connect the ground wire (2.0sq) to ship's ground to prevent interference to the picture. Shorten the ground wire as much as possible. For FRP vessels, install a ground plate that measures about 20 cm by 30 cm on the outside of the hull bottom to provide a ground point.



Note: Use a "closed" lug to make the ground connection at the network sounder. Do not use an "open-type" lug (.

2.2 Optional Sensors

Water temperature sensor

Connect the water temperature sensor (option) or water temperature/speed sensor (option) to the XDR port with the converter connector (Type: 02S4147, Code No.: 000-141-082, option).

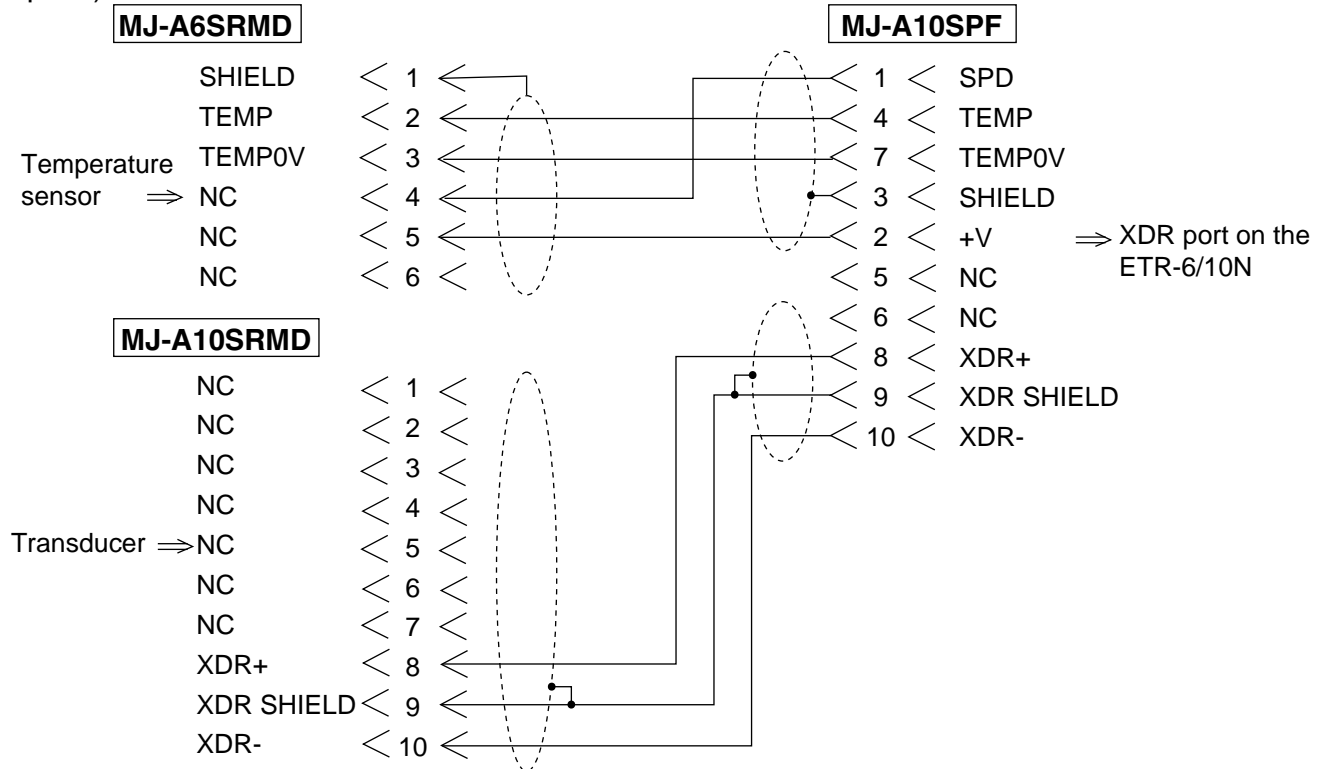


Figure 2-3 Connection of water temperature speed sensor

Connection of water temperature/speed sensor

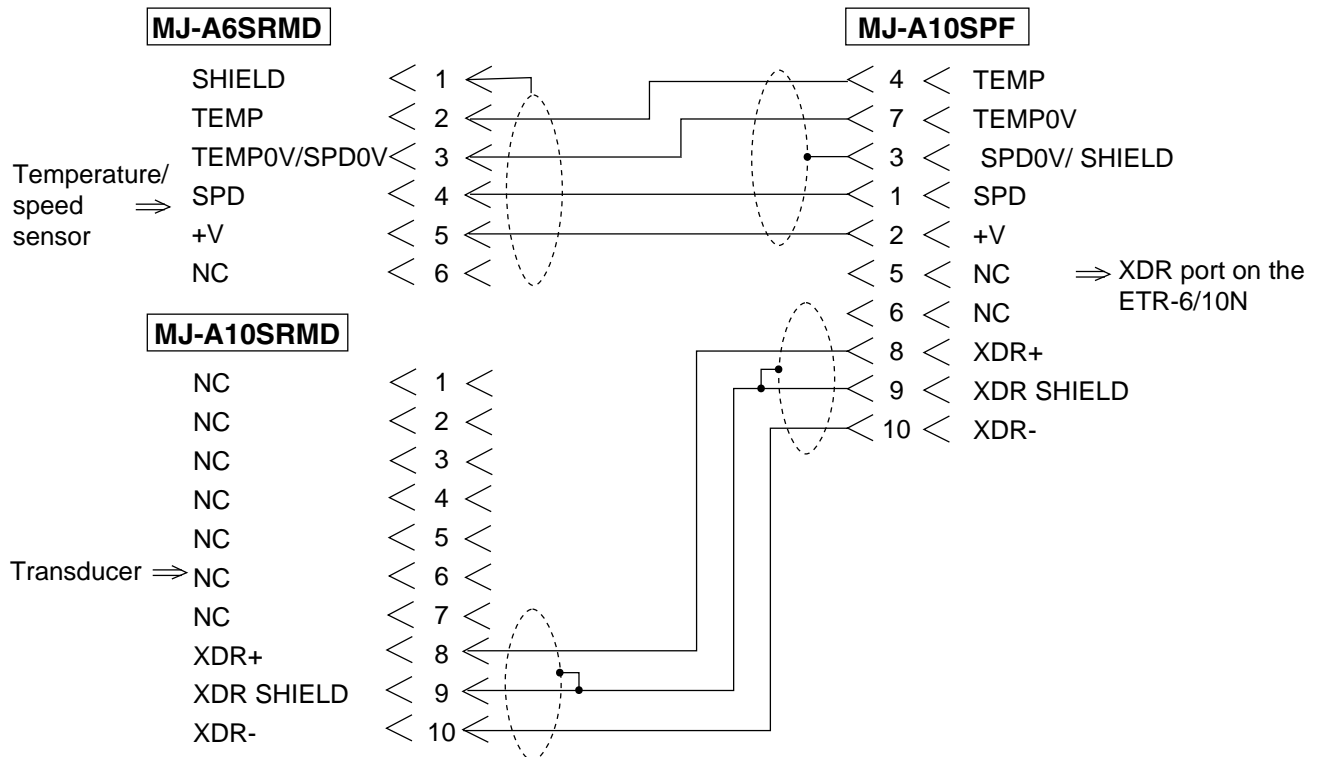


Figure 2-4 Connection of water temperature/speed sensor

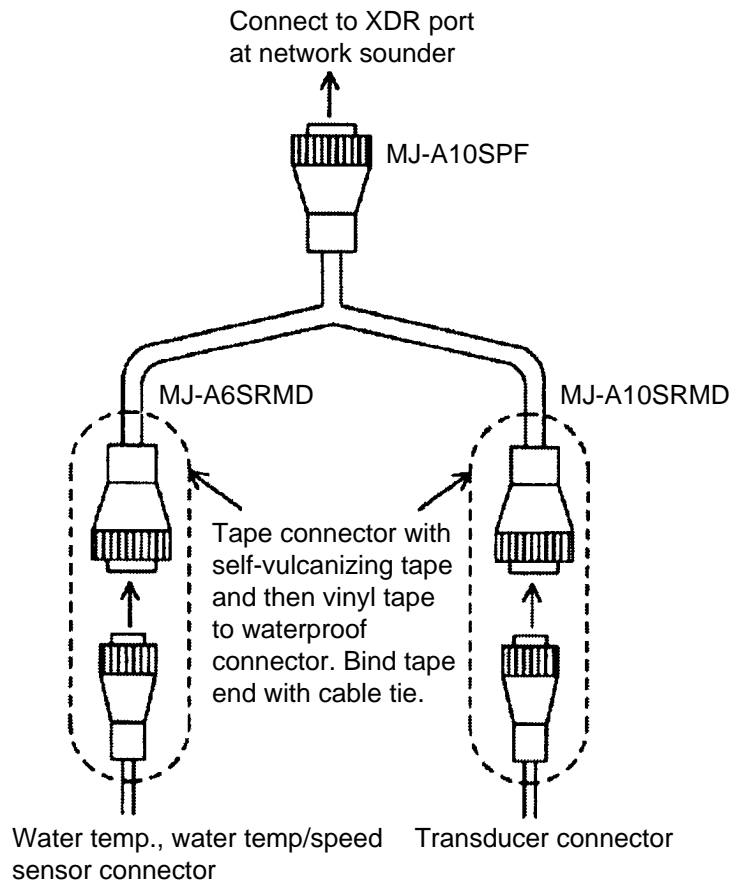


Figure 2-5 Connection of transducer, water temperature sensor, water temperature/speed sensor

2.3 Optional 50 kHz and 200 kHz Transducers

To connect optional transducer 50B-6, 50B-6B, 50B-6G, 50B-62M, 50B-9B, 50B-92M, 200B-5, 200B-5S, 50/200-1T or 50/200-12M, the optional Distribution Box (MB-1000, code no. 000-040-809) is required. Additionally, a cable assembly (02S4089, code no. 000-133-622) is required to connect to the network sounder. Fasten the cable from the Distribution Box to the XDR connector on the network sounder.

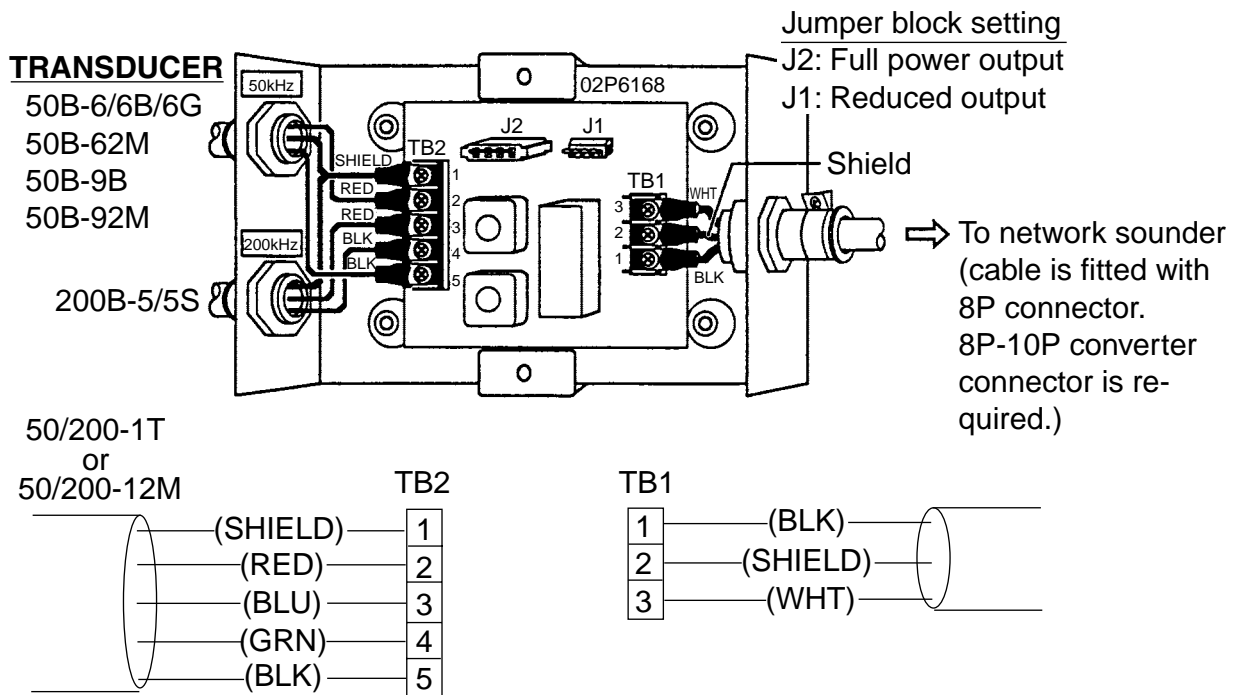


Figure 2-6 Distributor MB-1000

Distribution Box (Type: MB-1000, Code No.: 000-040-809)

Name	Type	Code No.	Qty	Remarks
Distribution Box	MB-1000	000-040-805	1	Cable w/8P connector supplied for connection to network sounder
Crimp-on Lug	FV1.25-3 Red	000-538-113	6	
Cord Lock	NC-1	000-516-650	1	For use with separate transducer

Fabrication of transducer cable

Fabricate the transducer cable as illustrated below to connect it to the Distribution Box.

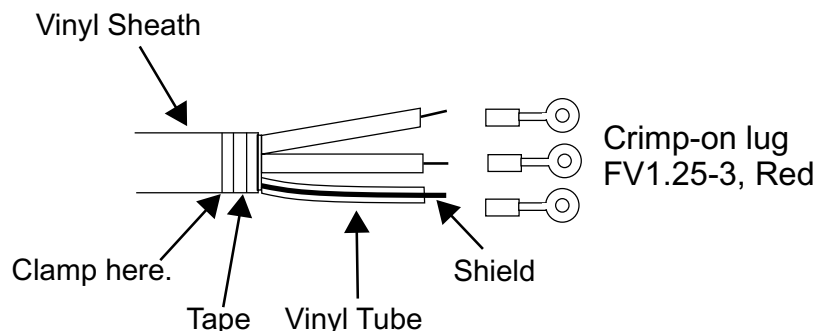


Figure 2-7 Fabrication of transducer cable

3. INITIAL SETTINGS



3.1 Selecting the Transmission Power

The default transmission power is 600 W. If you install the 1 kW transducer, change the jumper connector to #3-4 from #1-2 on J12 as follows:.

1. Detach the power cable from the connector.
2. Open the cover of the ETR-6/10N.
3. Remove the jumper connector on J12 by using long-nose pliers.
4. Insert it to #3-4 pins of the J12 for 1 kW transducer.

Note: Do not insert the jumper connector upside down.

5. Close the cover.

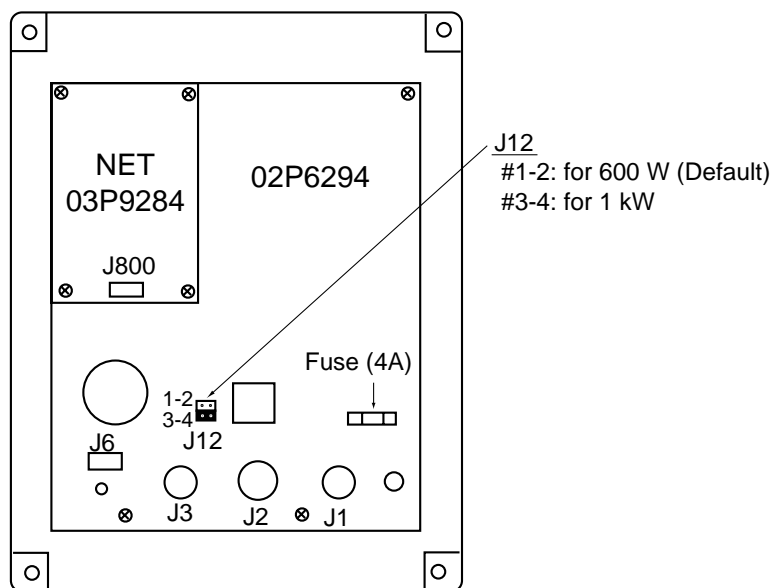
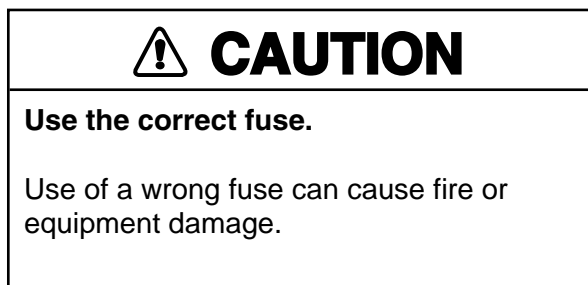


Figure 3-1 Location of parts inside ETR-6/10N

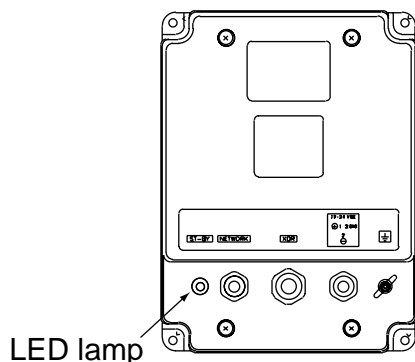
3.2 Replacing the Fuse

The 3 A fuse in the snap-in fuse holder on the power cable protects the equipment from equipment fault and reverse polarity of the ship's mains. If the fuse blows find out the cause before replacing it. If the fuse blows again after replacement, contact a FURUNO agent or dealer for advice. If the LED lamp on the front panel does not light, the 4 A fuse inside the network sounder may have blown. In the case, contact a FURUNO agent or dealer for advice.



3.3 LED Lamp

The green LED lamp on the front panel lights or flashes according to equipment stats. When a radar or plotter is OFF, or the network sounder is not connected to a radar or plotter, the LED lamp flashes for 3 minutes and then lights continuously. When a radar or plotter is ON, the LED lamp flashes continuously.



Lighting (after flashing 3 minutes):

A radar or plotter is OFF or the net cable is disconnected or damaged.

Flashing:

The network sounder works with a radar or plotter.

Figure 3-2 LED lamp

SPECIFICATIONS OF THE NETWORK SOUNDER ETR-6/10N

1. GENERAL

- 1.1. Output Power 600 W/ 1 kW rms nominal, 1 kW requires optional MB-1000
- 1.2. TX Frequency 50 kHz or 200 kHz, 50/200 kHz exchangeable
- 1.3. Amplifier type Log amplifier
- 1.4. Network protocol Ethernet 10BASE-T
- 1.5. Depth Range and Pulse Repetition Rate

Range (m)	PRR (/min.)
2	1500
5	1500
10	750
40	375
100	150
200	75
400	41
1200	12

2. POWER SUPPLY

- 2.1. Main Unit 12-24 VDC: 1.0-0.5 A, 12.0 VA max. (at 1 kW output)
Stand-by: 1.0 VA or less

3. ENVIRONMENTAL CONDITION

- 3.1. Ambient Temperature -15°C to +55°C
- 3.2. Relative Humidity 95% at 40°C
- 3.3. Water proofing IPX2
- 3.4. Vibration IEC 60945

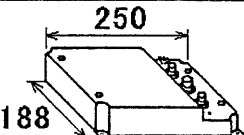
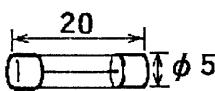
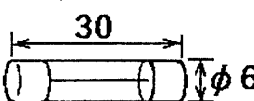
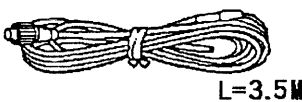
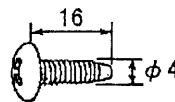
4. COATING COLOR

- 4.1. Main Unit N3.0

PACKING LIST

02FK-X-9851 -2 1/1

ETR-6/10N

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
魚採用送受信器 NETWORK SOUNDER		ETR-6/10N 000-027-899	1
予備品 SPARE PARTS		SP02-04301	
ヒューズ FUSE		FGMB 4A AC125V 000-119-976	3
管入りヒューズ FUSE		FGBO-A 3A AC125V 000-130-323	3
工事材料 INSTALLATION MATERIALS		CP02-06810	
ケーブル組品MJ POWER CABLE		MJ-A3SPF0013-035 000-135-397	1
+トラスタップピンネジ +TAPPING SCREW		4X16 SUS304 000-802-080	4

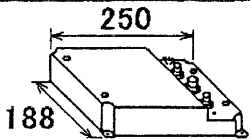
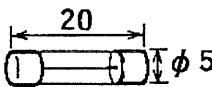
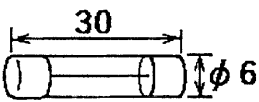
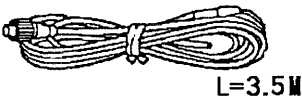
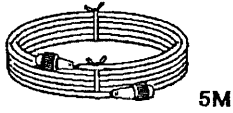
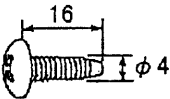
DWG NO.
C2024-Z01-A

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

PACKING LIST

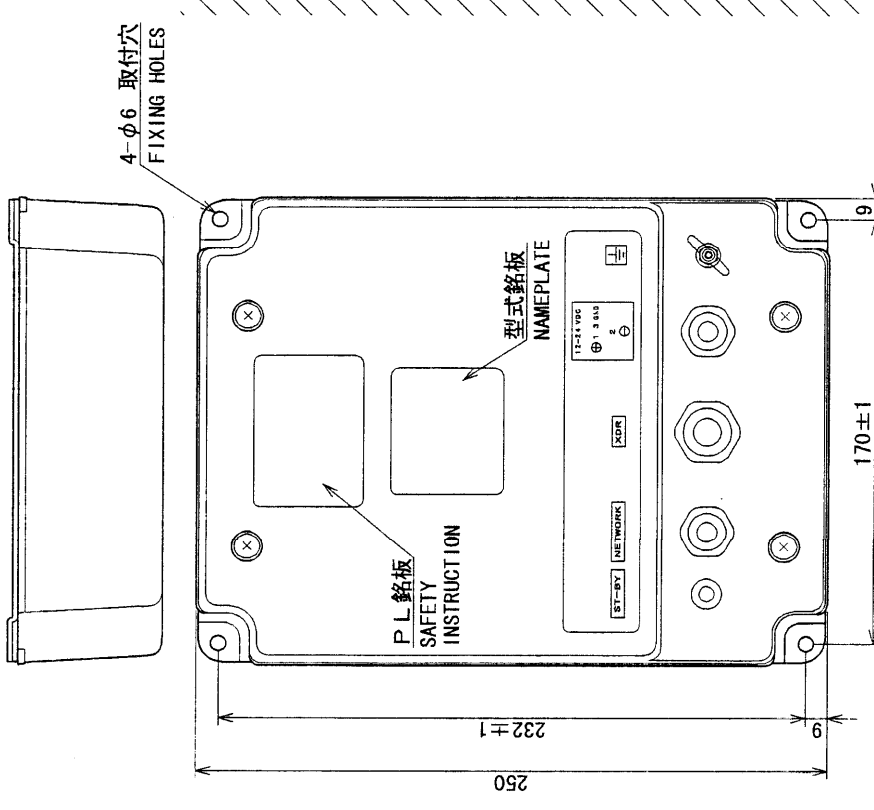
02FK-X-9852 -1 1/1

ETR-6/10N

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
魚採用送受信器 NETWORK SOUNDER		ETR-6/10N 000-027-899	1
予備品 SPARE PARTS		SP02-04301	
ヒューズ FUSE		FGMB 4A AC125V 000-119-976	3
管入りヒューズ FUSE		FGB0-A 3A AC125V 000-130-323	3
工事材料 INSTALLATION MATERIALS		CP02-06800	
ケーブル組品MJ POWER CABLE		MJ-A3SPF0013-035 000-135-397	1
ケーブル組品MJ CABLE ASSY.		MJ-A6SPF0014-050 *5M* 000-144-422	1
+トラスタップ*ソネジ +TAPPING SCREW		4X16 SUS304 000-802-080	4

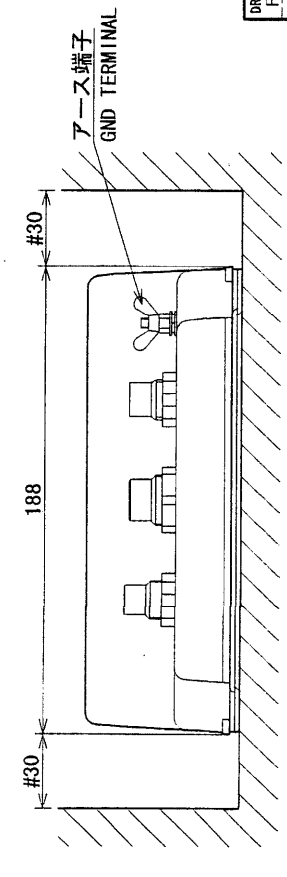
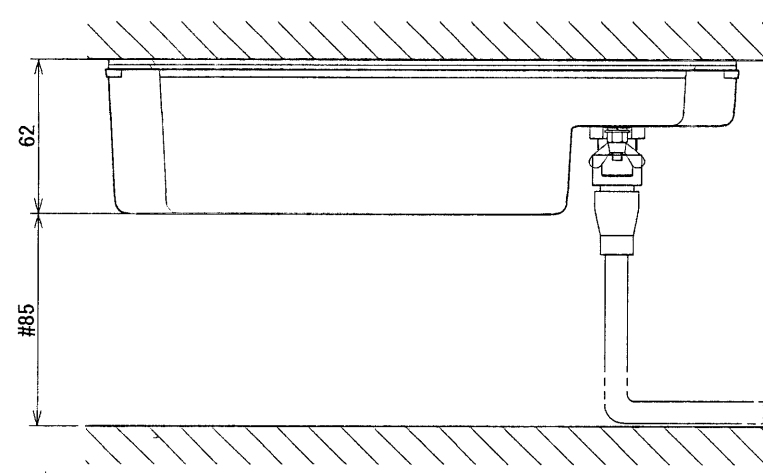
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(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)



寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

表 1 TABLE 1



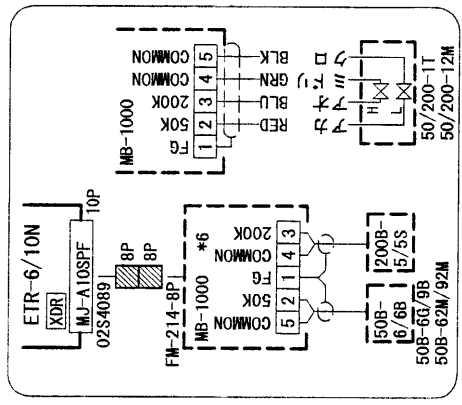
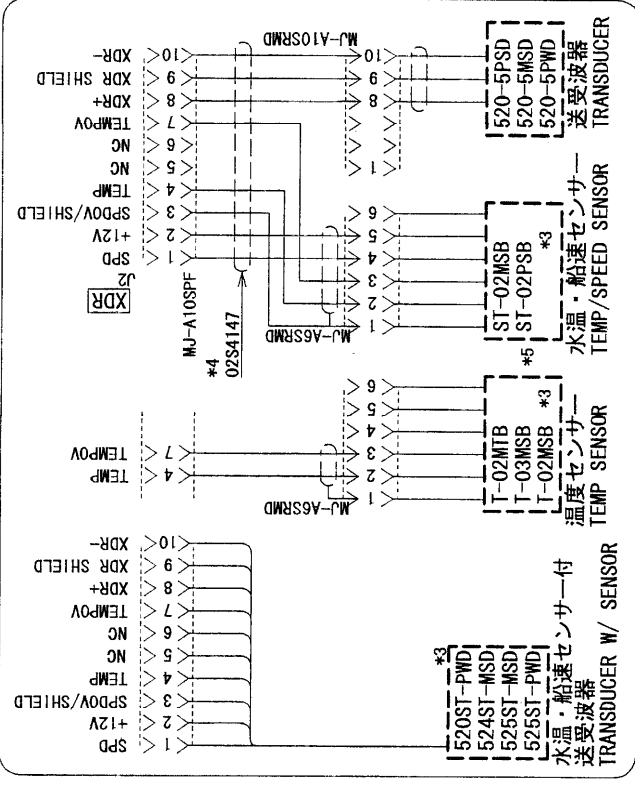
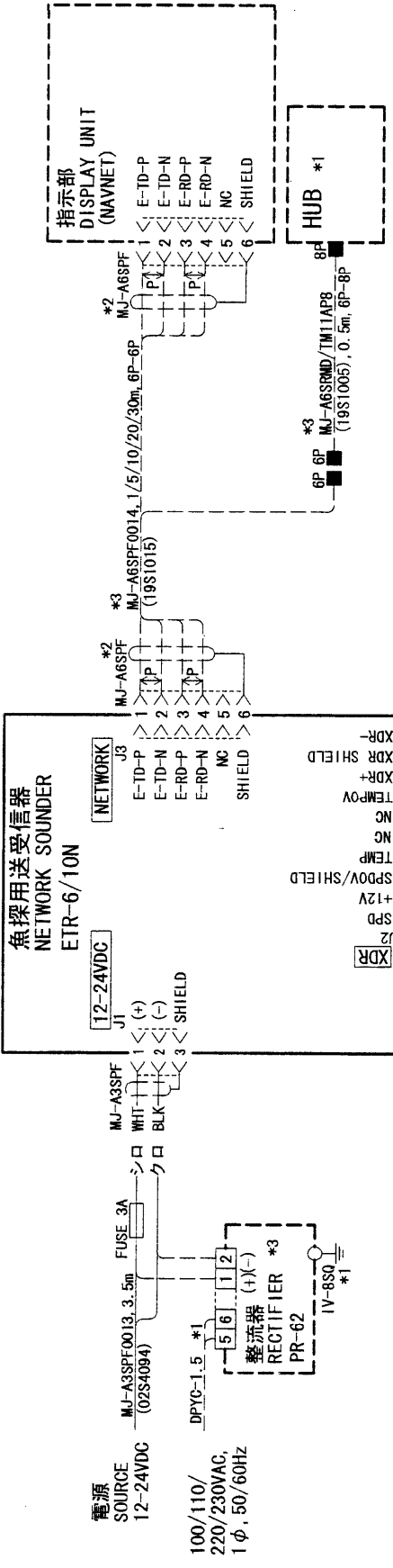
- 注 記
- 1) #印寸法は最小サービス空間寸法とする。
 - 2) 指定外の寸法公差は表 1 による。
 - 3) 取付は+トラスタップピンネジ4x16とする
- NOTE
1. #: RECOMMENDED SERVICE CLEARANCE.
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
 3. USE TAPPING SCREWS 4x16 FOR FIXING THE UNIT.

DRAWN FEB. 26 '01 CHECKED FEB 26 '01 APPROVED FEB 26 '01	T. YAMASAKI L. Y. King S. Yoshida	TITLE 名称 名称	ETR-6/10N 魚探用送受信器 外寸図
SCALE 1/3	MASS 1.5 ±10% KG	NAME NETWORK SOUNDER	
DWG. No. C2024-601-A	02-131-1006-2	OUTLINE DRAWING	

4

3

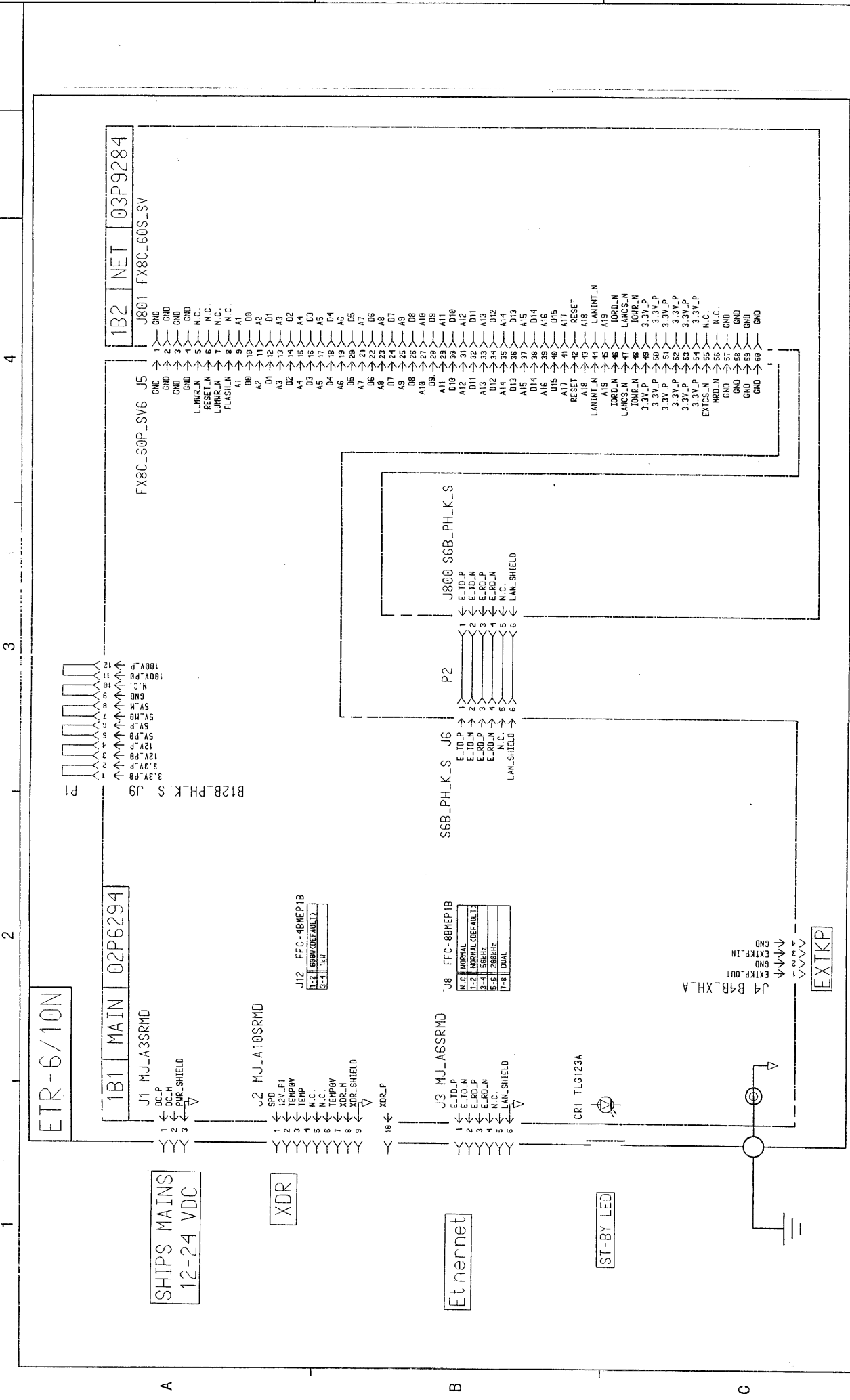
2



- 注記
- * 1) 現地手配
 - * 2) 工場にて取付済み
 - * 3) オプション
 - * 4) 変換ケーブル組品が必要。
 - * 5) どちらから一方のみ。
 - * 6) ETR-6/10N内部でジャンパーコネクタ切換が必要。

DRAWN	Mag. 2 '01	T. YAMASAKI	TITLE	ETR-6/10N
CHECKED	2002 '01	Y. Kunita	名称	魚探用送受信器
APPROVED	Mag. 5 '01	S. Fukumura	相互結線図	
SCALE		MASS	NAME	NETWORK SOUNDER
DWG. No.		kg	INTERCONNECTION DIAGRAM	
				C2024-C01-B

- NOTE
- *1. LOCAL SUPPLY.
 - *2. FITTED AT FACTORY.
 - *3. OPTION
 - *4. THREE-WAY CONVERSION CABLE NEEDED (OPTION).
 - *5. EITHER ONE CAN BE CONNECTED.
 - *6. CHANGE JUMPER CONNECTOR IN THE ETR-6/10N.



TYPE	EIR-6/10N
名称	魚探用送受信器
回路図	回路図
NAME	NETWORK_SOUNDER
SCHEMATIC DIAGRAM	SCHEMATIC DIAGRAM
APPLICABLE TO:	02-131-1001-0
BLOCK NO.	
SCALE	1/1
DATE	2024-K01-A
DWG NO.	C2024-K01-A

DRAWN: *Mar 9 '01 TAKASAKI*
 CHECKED: *Mar 9 '01 Y.K.*
 APPROVED: *Mar 9 '01 Y.K.*
 SCALE: 1/1
 MASS: REE:

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