

Installation Manual

COLOR LCD SOUNDER FCV-1150

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SAFETY INSTRUCTIONS

The operator and installer must read the applicable safety instructions before attempting to install or operate the equipment.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.



Warning, Caution



Prohibitive Action



Mandatory Action



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.
Connect to a dedicated breaker in the power distributor.

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 damage the equipment.

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.



WARNING

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 damage the equipment. The voltage rating of the equipment appears on the label above the power connector.

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.

For wooden or FRP vessel using a steel tank, attach a zinc plate to the hull to prevent electrolytic corrosion.

Electrolytic corrosion can, in the worst case, result in loss of the transducer.

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
CV-1150	0.75 m	0.50 m

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

The transducer may become damaged.

Do not turn on the power when the transducer is in air.

The transducer may become damaged.

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

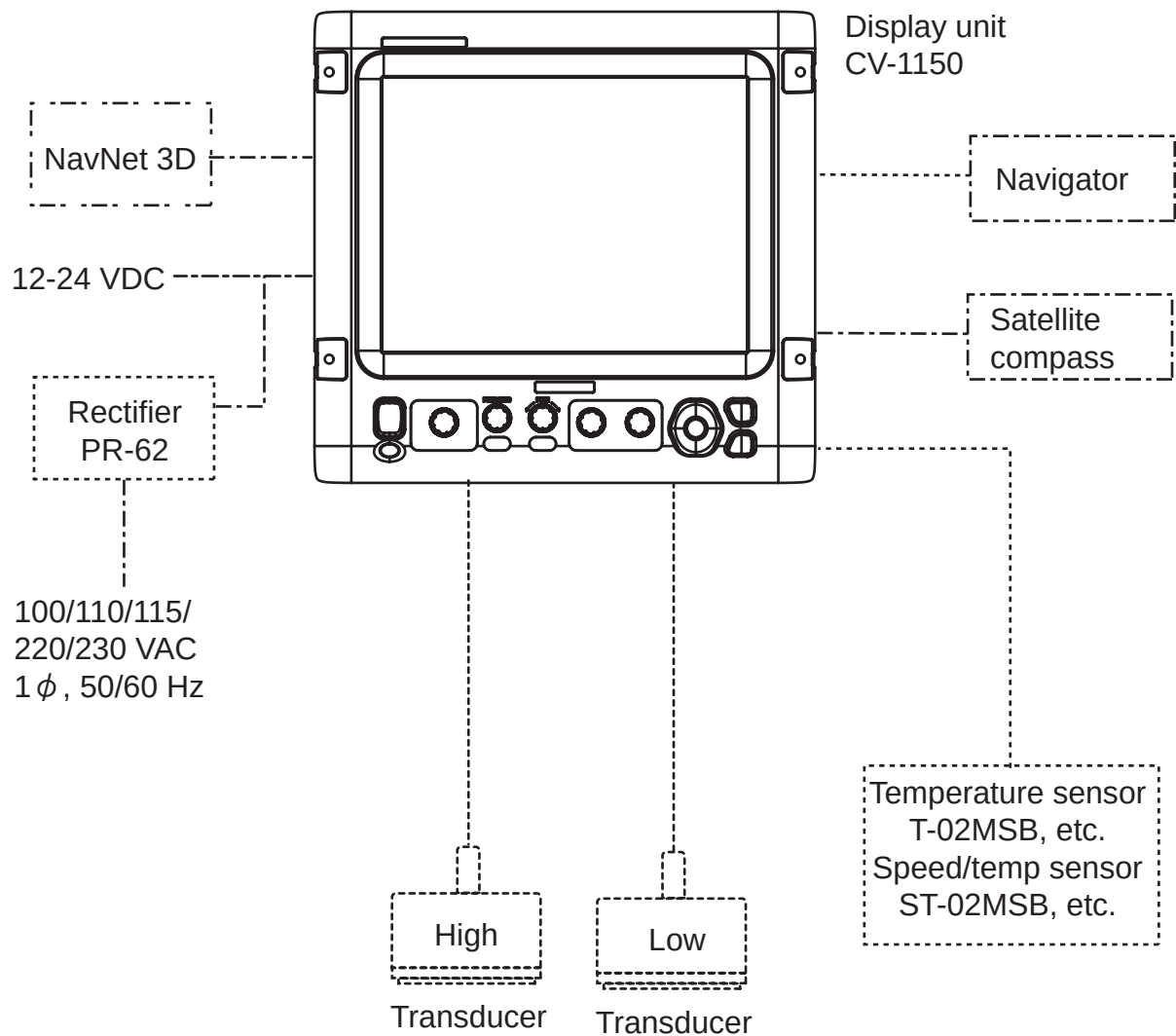
Performance will be affected.

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 are easily damaged by plastic solvents such as toluene. Locate the cable well away from plastic solvents.**

SYSTEM CONFIGURATION



- : Standard supply
- : Optional supply
- · - · - : Local supply, External device

EQUIPMENT LISTS

Standard supply

Name	Type	Code No.	Qty	Remarks
Display Unit	CV-1150	-	1	
Spare Parts	SP02-05401	001-032-550	1 set	See back of this manual.
Accessories	FP02-05700	000-011-976	1 set	
Installation Materials	CP02-08301	001-032-560	1 set	

Option

Name	Type	Code No.	Remarks
Transducer	See next pages.	-	
Thru-hull pipe		-	
Tank		-	
Cable	MJ-A6SPF0003-050C	000-154-054-10	one end 6 pin, 5 m, for navigator
	CO-SPEVV-SBC 2Px0.2SQ LF	000-111-680-10	5 m
		000-120-792-10	10 m
		000-120-793-10	15 m
Water temperature sensor	T-02MSB	000-040-040	Thru-hull type
	T-02MTB	000-040-026	Transom type
	T-03MSB	000-040-027	Thru-hull type
Speed/Temperature sensor	ST-02MSB	000-137-986-01	Thru-hull type
	ST-02PSB	000-137-987-01	Thru-hull type
Rectifier	PR-62	000-013-484	100 V AC
		000-013-485	110 V AC
		000-013-486	220 V AC
		000-013-487	230 V AC

Combination of transducer, thru-hull pipe and tank

Output (W)	Frequency (kHz)	Ship type	Transducer	Thru-hull pipe	Tank
1k/1k	28/50	Steel	28F-8	TWB-6000(2)	T-656
		FRP	50B-9B	-	-
	28/88	Steel	28F-8	TWB-6000(2)	T-657
		FRP	88B-8	-	-
	50/88	Steel	50B-9B	TWB-6000(2)	T-658
		FRP	88B-8	-	-
	50/200	Steel	50/200-1T	TFB-5000(1)	T-603
		FRP	50/200-1ST	-	T-603F
	1k/2k	28/200	Steel	28F-8	T-657
			FRP	200B-8/8B	-
		50/200	Steel	50B-9B	T-658
			FRP	200B-8/8B	-
		88/200	Steel	88B-8	T-659
			FRP	200B-8/8B	-
2k/2k	28/50	Steel	28F-18	TFB-7000(2)	T-634
		FRP	50B-12	TRB-1100(2)	T-634-F
	28/82	Steel	28F-18	TFB-7000(2)	T-636
		FRP	82B-35R	TRB-1100(2)	T-636-F
	28/88	Steel	28F-18	TFB-7000(2)	T-636
		FRP	88B-10	TRB-1100(2)	T-636-F
	28/200	Steel	28F-18	TFB-7000(2)	T-638
		FRP	200B-8/8B	TRB-1100(2)	T-638-F
		Steel	28BL-6HR	TFB-7000(2)	T-693
		FRP	200B-8/8B	TRB-1100(2)	T-693-F
	38/200	Steel	38BL-9HR	TFB-7000(2)	T-693
		FRP	200B-8/8B	TRB-1100(2)	T-693-F
	50/82	Steel	50B-12	TFB-7000(2)	T-643
		FRP	82B-35R	TRB-1100(2)	T-643-F
	50/88	Steel	50B-12	TFB-7000(2)	T-643
		FRP	88B-10	TRB-1100(2)	T-643-F
	50/200	Steel	50B-12	TFB-7000(2)	T-645
		FRP	200B-8/8B	TRB-1100(2)	T-645-F
		Steel	50BL-12HR	TFB-7000(2)	T-693
		FRP	200B-8/8B	TRB-1100(2)	T-693-F
	50/200	Steel	50BL-12	TFB-7000(2)	T-693
		FRP	200B-8/8B	TRB-1100(2)	T-693-F
	82/200	Steel	82B-35R	TFB-7000(2)	T-649
		FRP	200B-8/8B	TRB-1100(2)	T-649-F
	88/200	Steel	88B-10	TFB-7000(2)	T-649
		FRP	200B-8/8B	TRB-1100(2)	T-649-F
	28/107	Steel	28F-18	TFB-7000(2)	T-636
		FRP	100B-10H	TRB-1100(2)	T-636-F

Output (W)	Frequency (kHz)	Ship type	Transducer	Thru-hull pipe	Tank
2k/3k	28/150	Steel	28F-18	TFB-7000(2)	T-637
		FRP	150B-12H	TRB-1100(2)	T-637-F
	50/107	Steel	50B-12	TFB-7000(2)	T-643
		FRP	100B-10R	TRB-1100(2)	T-643-F
	50/150	Steel	50B-12	TFB-7000(2)	T-644
		FRP	150B-12R	TRB-1100(2)	T-644-F
3k/2k	68/200	Steel	68F-30H	TFB-7000(2)	T-647
		FRP	200B-8/8B	TRB-1100(2)	T-647-F
	107/200	Steel	100B-10R	TFB-7000(2)	T-649
		FRP	200B-8/8B	TRB-1100(2)	T-649-F
3k/3k	28/38	Steel	28BL-12HR	TFB-7000(2)	T-681
		FRP	38BL-15HR	TRB-1100(2)	T-681-F
		Steel	28F-24H	TFB-7000(2)	T-681
		FRP	38BL-15HR	TRB-1100(2)	T-681-F
	28/50	Steel	28BL-12HR	TFB-7000(2)	T-681
		FRP	50BL-24HR	TRB-1100(2)	T-681-F
		Steel	28BL-12HR	TFB-7000(2)	T-681
		FRP	50F-24H	TRB-1100(2)	T-681-F
		Steel	28F-24H	TFB-7000(2)	T-696
		FRP	50BL-24H	TRB-1100(2)	T-696-F
		Steel	28F-24H	TFB-7000(2)	T-681
		FRP	50BL-24HR	TRB-1100(2)	T-681-F
	28/88	Steel	28F-24H	TFB-7000(2)	T-681
		FRP	50F-24H	TRB-1100(2)	T-681-F
		Steel	28BL-12HR	TFB-7000(2)	T-682
		FRP	88F-126H	TRB-1100(2)	T-682-F
	28/150	Steel	28F-24H	TFB-7000(2)	T-682
		FRP	88F-126H	TRB-1100(2)	T-682-F
		Steel	28BL-12HR	TFB-7000(2)	T-683
		FRP	150B-12H	TRB-1100(2)	T-683-F
	28/200	Steel	28F-24H	TFB-7000(2)	T-683
		FRP	150B-12H	TRB-1100(2)	T-683-F
		Steel	28BL-12HR	TFB-7000(2)	T-683
		FRP	200B-12H	TRB-1100(2)	T-683-F
	38/50	Steel	28F-24H	TFB-7000(2)	T-683
		FRP	200B-12H	TRB-1100(2)	T-683-F
		Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	50BL-24HR	TRB-1100(2)	T-681-F
	38/88	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	50F-24H	TRB-1100(2)	T-681-F
		Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	50F-24H	TRB-1100(2)	T-681-F
	38/150	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	150B-12H	TRB-1100(2)	T-681-F
	38/200	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	200B-12H	TRB-1100(2)	T-681-F
	38/250	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	250B-12H	TRB-1100(2)	T-681-F
	38/300	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	300B-12H	TRB-1100(2)	T-681-F
	38/350	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	350B-12H	TRB-1100(2)	T-681-F
	38/400	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	400B-12H	TRB-1100(2)	T-681-F
	38/450	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	450B-12H	TRB-1100(2)	T-681-F
	38/500	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	500B-12H	TRB-1100(2)	T-681-F
	38/550	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	550B-12H	TRB-1100(2)	T-681-F
	38/600	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	600B-12H	TRB-1100(2)	T-681-F
	38/650	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	650B-12H	TRB-1100(2)	T-681-F
	38/700	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	700B-12H	TRB-1100(2)	T-681-F
	38/750	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	750B-12H	TRB-1100(2)	T-681-F
	38/800	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	800B-12H	TRB-1100(2)	T-681-F
	38/850	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	850B-12H	TRB-1100(2)	T-681-F
	38/900	Steel	38BL-15HR	TFB-7000(2)	T-681
		FRP	900B-12H	TRB-1100(2)	T-681-F

Output (W)	Frequency (kHz)	Ship type	Transducer	Thru-hull pipe	Tank
3k/3k	38/150	Steel	38BL-15HR	TFB-7000(2)	T-683
		FRP	150B-12H	TRB-1100(2)	T-683-F
	38/200	Steel	38BL-15HR	TFB-7000(2)	T-683
		FRP	200B-12H	TRB-1100(2)	T-683-F
	50/88	Steel	50BL-24H	TFB-7000(2)	T-697
		FRP	88F-126H	TRB-1100(2)	T-697-F
		Steel	50BL-24HR	TFB-7000(2)	T-682
		FRP	88F-126H	TRB-1100(2)	T-682-F
		Steel	50F-24H	TFB-7000(2)	T-682
		FRP	88F-126H	TRB-1100(2)	T-682-F
	50/150	Steel	50BL-24HR	TFB-7000(2)	T-683
		FRP	150B-12H	TRB-1100(2)	T-683-F
		Steel	50F-24H	TFB-7000(2)	T-683
		FRP	150B-12H	TRB-1100(2)	T-683-F
	50/200	Steel	50BL-24H	TFB-7000(2)	T-695
		FRP	200B-12H	TRB-1100(2)	T-695-F
		Steel	50BL-24HR	TFB-7000(2)	T-683
		FRP	200B-12H	TRB-1100(2)	T-683-F
		Steel	50F-24H	TFB-7000(2)	T-683
		FRP	200B-12H	TRB-1100(2)	T-683-F
	68/150	Steel	68F-30H	TFB-7000(2)	T-646
		FRP	150B-12H	TRB-1100(2)	T-646-F
	68/200	Steel	68F-30H	TFB-7000(2)	T-646
		FRP	200B-12H	TRB-1100(2)	T-646-F
	88/150	Steel	88F-126H	TFB-7000(2)	T-685
		FRP	150B-12H	TRB-1100(2)	T-685-F
	88/200	Steel	88F-126H	TFB-7000(2)	T-685
		FRP	200B-12H	TRB-1100(2)	T-685-F
1k	28	Steel	28F-8	TFB-5000(1)	T-604
		FRP		TRB-1000(1)	T-604-F
	50	Steel	50B-6/6B	TFB-5000(1)	T-605
		FRP		TRB-1000(1)	T-605-F
		Steel	50B-9B	TFB-5000(1)	T-603
		FRP		TRB-1000(1)	T-603-F
	68	Steel	68F-8H	TFB-5000(1)	T-621
		FRP		TRB-1000(1)	T-621-F
	88	Steel	88B-8	TFB-5000(1)	T-606
		FRP		TRB-1000(1)	T-606-F
	200	Steel	200B-5S	TFB-5000(1)	T-605
		FRP		TRB-1000(1)	T-605-F

Output (W)	Frequency (kHz)	Ship type	Transducer	Thru-hull pipe	Tank
2k	28	Steel	28F-18	TFB-5000(1)	T-612
		FRP		TRB-1000(1)	T-612-F
		Steel	28BL-6HR	TFB-5000(1)	T-702
		FRP		TRB-1000(1)	T-702-F
	38	Steel	38BL-9HR	TFB-5000(1)	T-702
		FRP		TRB-1000(1)	T-702-F
	50	Steel	50B-12	TFB-5000(1)	T-611
		FRP		TRB-1000(1)	T-611-F
		Steel	50BL-12	TFB-5000(1)	T-702
		FRP		TRB-1000(1)	T-702-F
		Steel	50BL-12HR	TFB-5000(1)	T-702
		FRP		TRB-1000(1)	T-702-F
	82	Steel	82B-35R	TFB-5000(1)	T-609
		FRP		TRB-1000(1)	T-609-F
	88	Steel	88B-10	TFB-5000(1)	T-609
		FRP		TRB-1000(1)	T-609-F
	200	Steel	200B-8/8B	TFB-5000(1)	T-608
		FRP		TRB-1000(1)	T-608-F
3k	28	Steel	28F-24H	TFB-4000(1)	T-616
		FRP		TRB-1000(1)	T-616-F
		Steel	28BL-12HR	TFB-4000(1)	T-616
		FRP		TRB-1000(1)	T-616-F
	38	Steel	38BL-15HR	TFB-4000(1)	T-616
		FRP		TRB-1000(1)	T-616-F
	50	Steel	50F-24H	TFB-4000(1)	T-616
		FRP		TRB-1000(1)	T-616-F
		Steel	50BL-24HR	TFB-4000(1)	T-616
		FRP		TRB-1000(1)	T-616-F
		Steel	50BL-24H	TFB-4000(1)	T-694
		FRP		TRB-1000(1)	T-694-F
	68	Steel	68F-30H	TFB-5000(1)	T-614
		FRP		TRB-1000(1)	T-614-F
	88	Steel	88F-126H	TFB-4000(1)	T-618
		FRP		TRB-1000(1)	T-618-F
	107	Steel	100B-10R	TFB-5000(1)	T-609
		FRP		TRB-1000(1)	T-609-F
	150	Steel	150B-12H	TFB-5000(1)	T-615
		FRP		TRB-1000(1)	T-615-F
	200	Steel	200B-12H	TFB-5000(1)	T-615
		FRP		TRB-1000(1)	T-615-F

1. MOUNTING

NOTICE

Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.

Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors.

1.1 Display Unit



WARNING

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

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

Mounting considerations

- Locate the unit out of direct sunlight.
- The operator should face the bow while viewing the display screen.
- Select a location where the display screen can be easily observed while operating the control panel.
- Leave sufficient space around the unit for maintenance and servicing. Recommended maintenance space appears in the outline drawing at the back of this manual.
- Observe the compass safe distances on page ii to prevent deviation of a magnetic compass.

The display unit can be mounted on the tabletop or on the panel (flush mounting). Mount the unit, referring to the outline drawing at the back of this manual.

1.2 Transducer

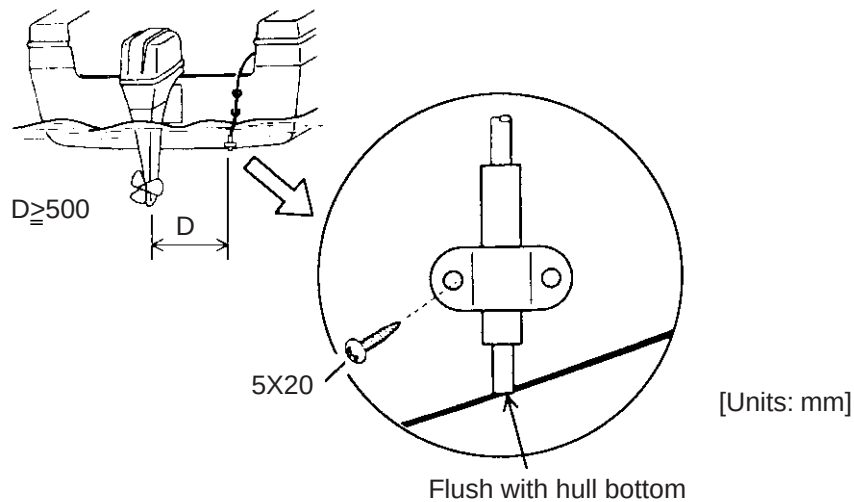
The performance of the echo sounder depends upon the transducer position. A place least affected by air bubbles should be selected since turbulence blocks the sounding path. Further, select a place least influenced by engine noise. It is known that air bubbles are fewest at the place where the bow first falls and the next wave rises, at usual cruising speed.

Note: The face of the transducer must be facing the sea bottom in normal cruising trim of the boat.

1.3 Water Temperature/ Speed Sensor

Transom mount water temperature sensor T-02MTB

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

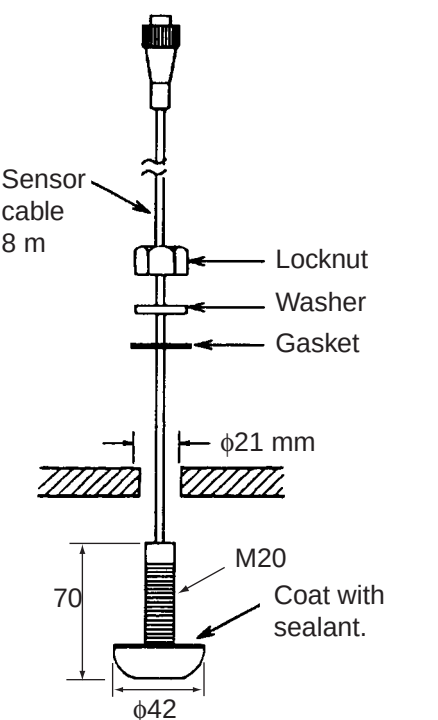
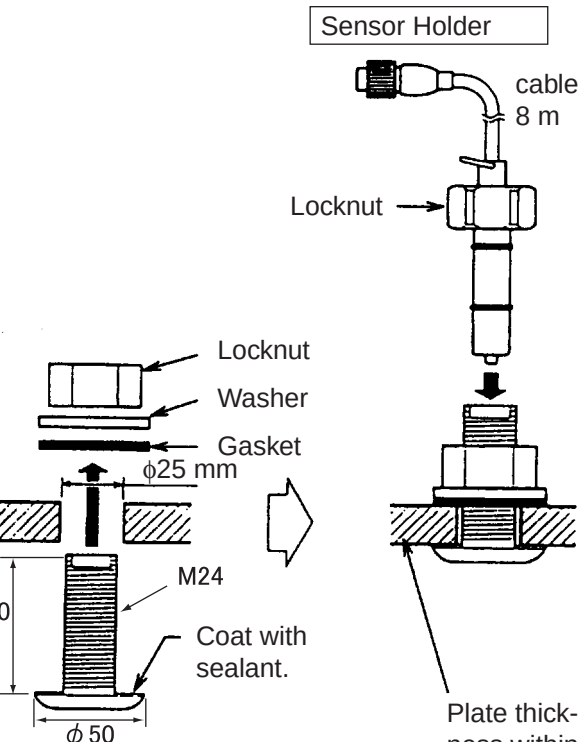


How to mount transom mount water temperature sensor T-02MTB

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
 Mounting procedure 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.	 Mounting procedure 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.

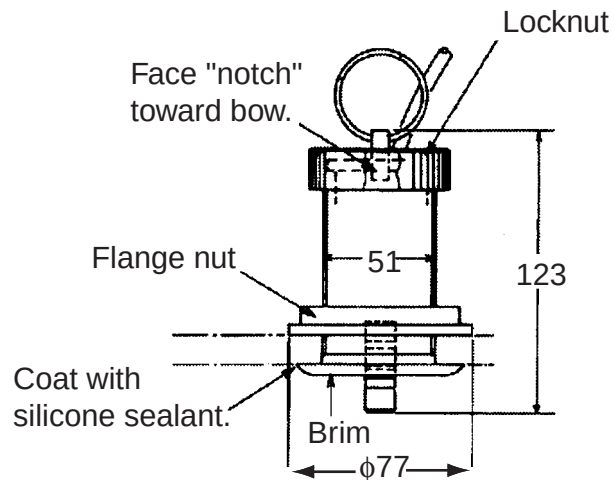
Assembling thru-hull water temperature sensor T-02MSB, T-03MSB

Through-hull mount water temperature/speed sensor ST-02MSB, ST02-PSB

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 located where it might get 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 diameter.
3. Unfasten locknut and remove the flange of the sensor.
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.

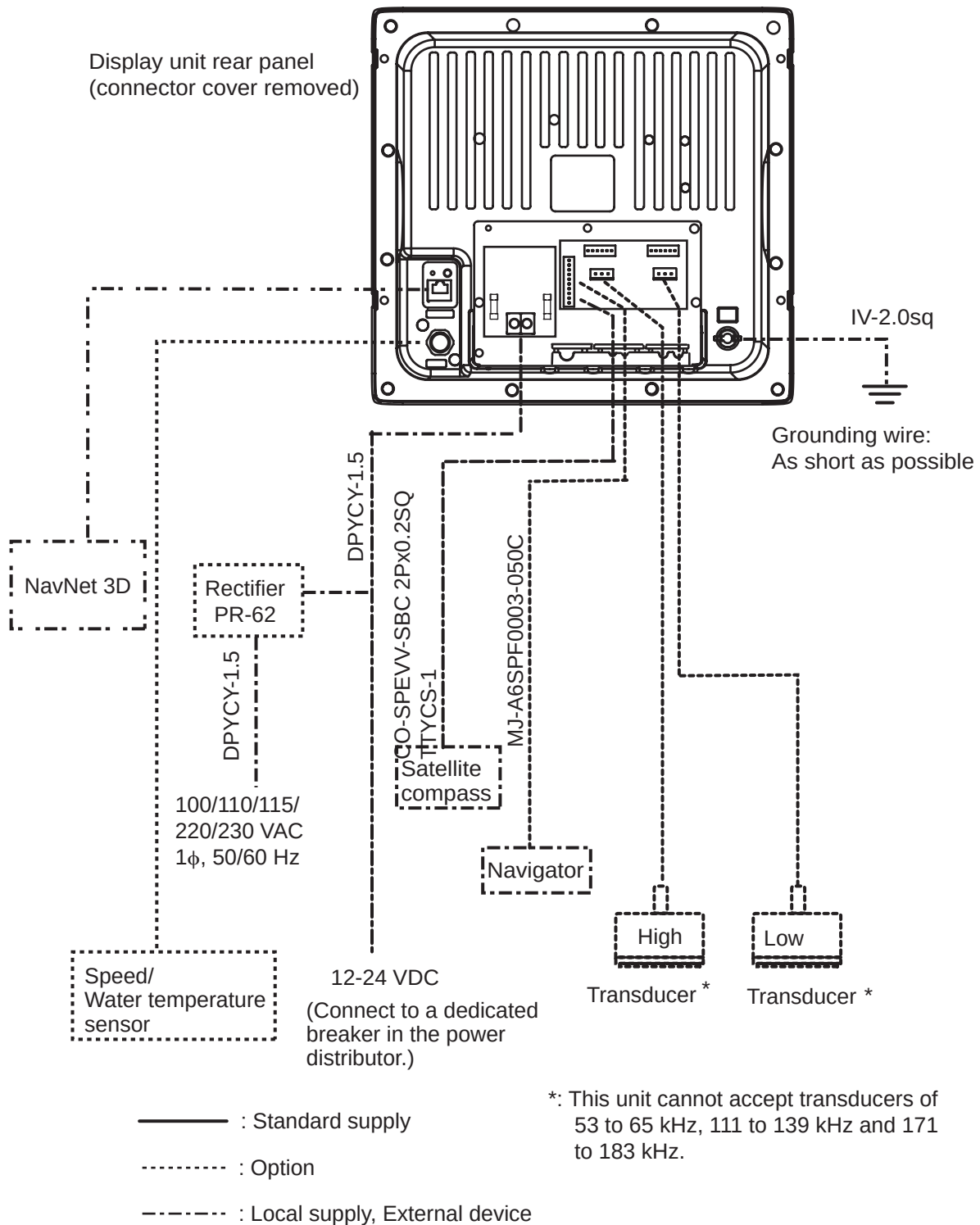


Water temperature/speed sensor ST-02MSB, ST-02PSB

2. WIRING

2.1 Interconnection

Refer to the interconnection diagram at the back of this manual for detailed information.

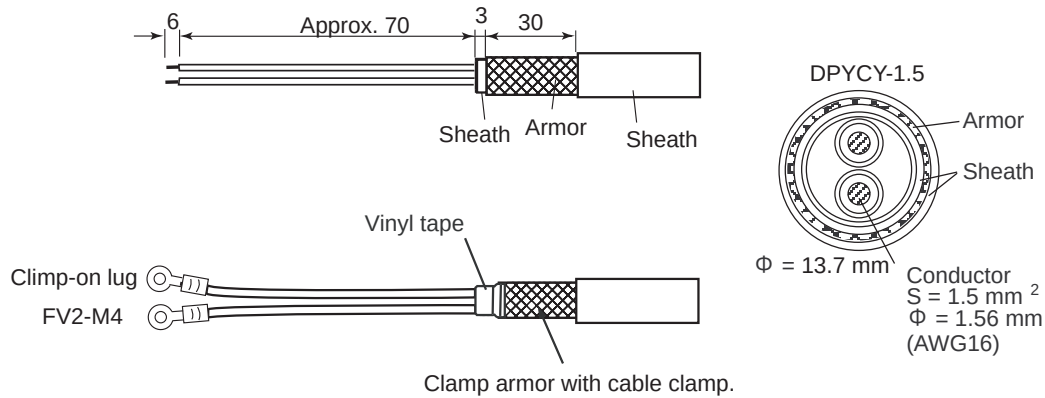


Wiring diagram for FCV-1150

2.2 Wiring Standard Equipment

Power cable

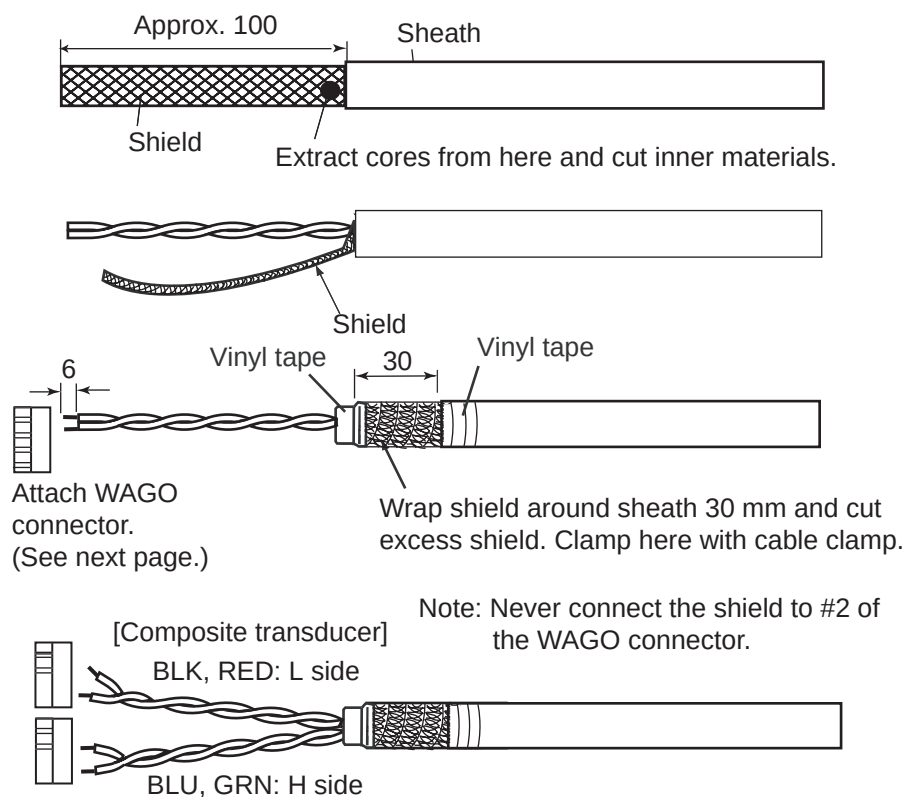
This video sounder is designed to be powered with 12-24 VDC power. Use the cable DPYCY-1.5 (Japan Industry Standard) or equivalent.



Power cable DPYCY-1.5 (JIS cable)

Transducer

Separate the transducer cable well away from power cables to prevent interference. Connect the cable to the transducer port (for high frequency and/or low frequency) at the rear of the display unit. Fabricate the cable as below.



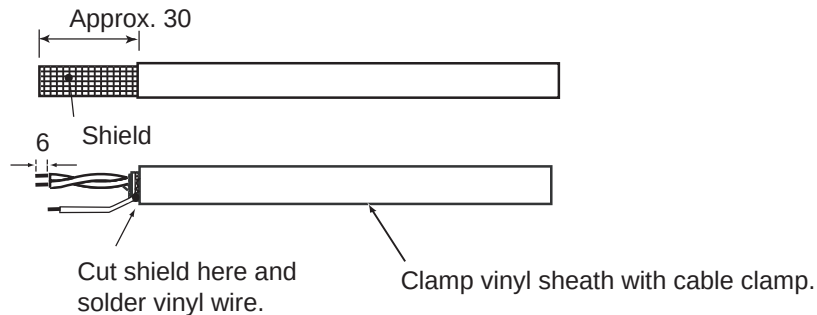
Fabrication of transducer cable

Note: FCV-1150 cannot accept the transducers of 53 - 65 kHz, 111 to 139 kHz and 171 - 183 kHz.

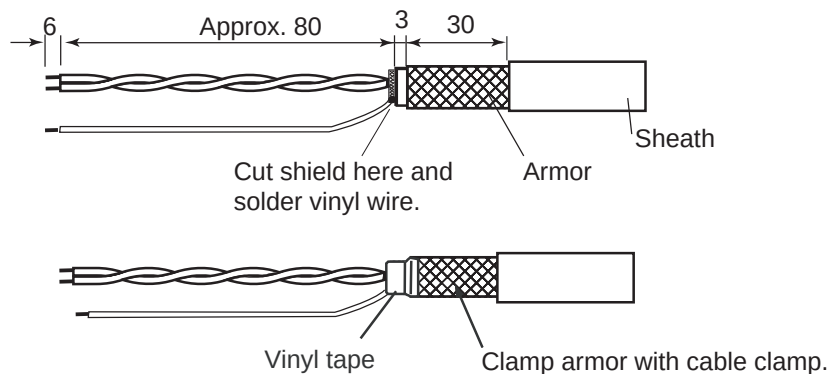
NMEA port

Connect a GPS navigator, etc. to NMEA port J2 #1 to #4. You can connect two sensors (for example, GPS receiver GP-310B and smart sensor). One connects to NMEA port J2 #1 to #2 and the other connects to the NMEA port J2 #3 to #4. A satellite compass can be connected to NMEA port J2 #5 to #6.

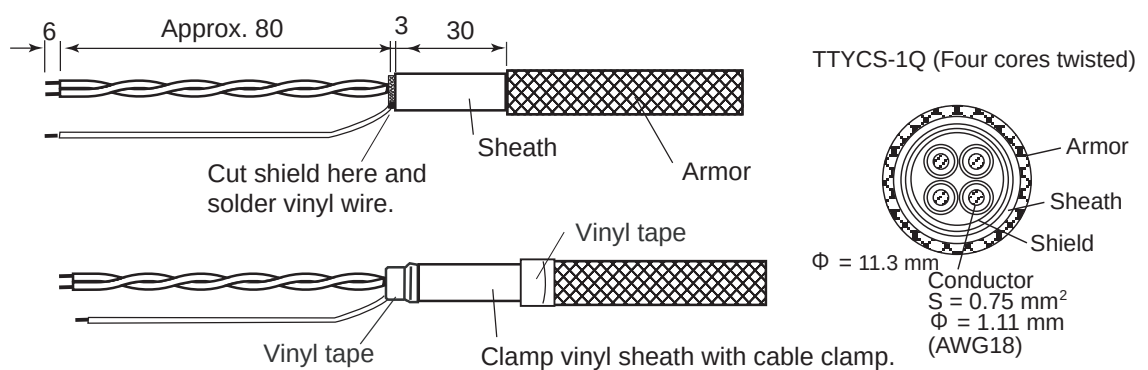
Cable connected to NMEA port: Furuno cable MJ series



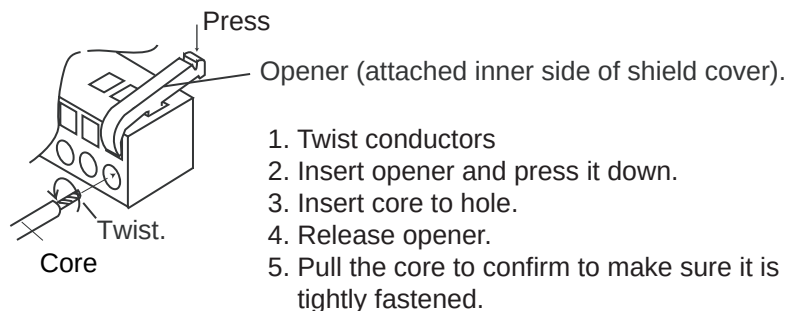
Cable connected to NMEA port: Furuno cable CO-SPEVV-SB-C



Cable connected to NMEA port: JIS cable TTYCS-1Q



WAGO connector (for transducer and NMEA port)



2.3 Input/Output Sentences

Input sentences

Sentence	Data	Remarks
BWC	Range/bearing to waypoint	
GGA	Time, position	GPS position
GLC	GRI, Time difference	Loran C
GLL	Latitude and longitude	GPS position
GNS	GNSS position fixing	
GTD	Time difference	Loran C
HDG	Ship's heading, deviation, variation	
HDT	True heading	
MDA	Weather information	
MTW	Water temperature	
MWV	Wind direction, wind speed (true or apparent)	
RMA	Latitude and longitude, TD, ground speed and course	Loran C
RMB	Recommended minimum navigation information	
RMC	Latitude and longitude, speed over ground and course over ground	GPS
VHW	True/magnetic bearing, speed through water	
VTG	Speed over ground and course over ground	
XTE	Cross track error	
att	Roll, pitch	
hve	Heaving data	
req	Output request for specified attribute	

Output sentences

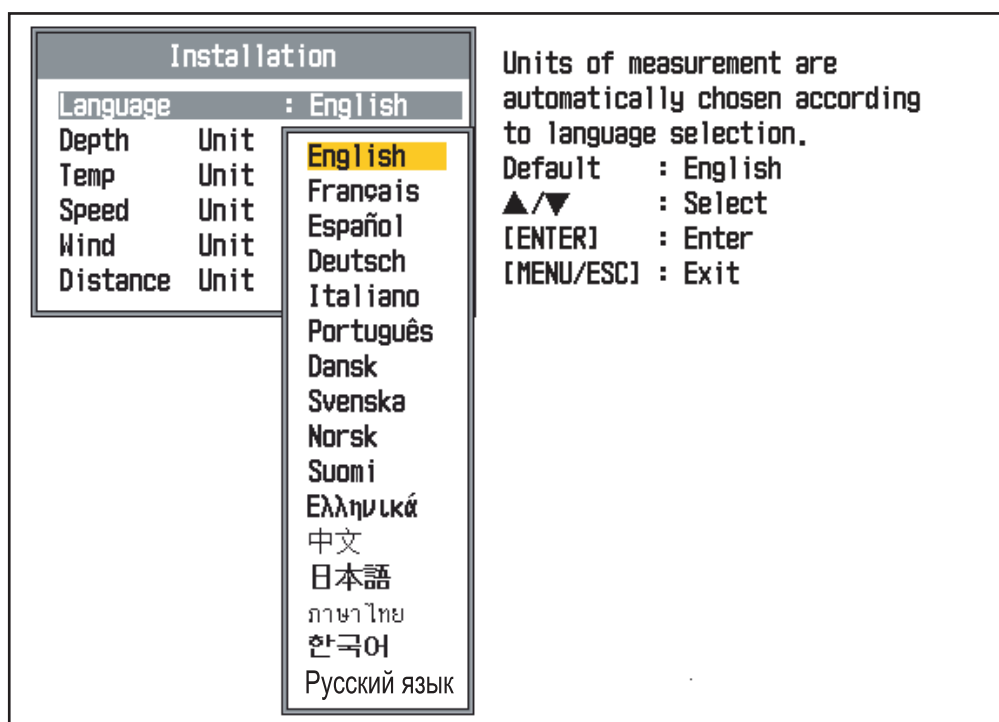
Sentence	Data	Remarks
DBT	Depth below transducer	Ver. 1.5
DPT	Depth below transducer and offset	Ver. 2.0
MTW	Water temperature	With connection of water temperature sensor
TLL	Marker line position	Ver. 2.0
SDmrk	Mark position (L&L) and its additional data	
VHW	Speed thru water	
RMB	Navigation information	
dat	Data of specified attribute (device name)	
DBS	Depth below sea surface	

3. INITIAL SETTING

This chapter provides the information necessary for initial setup of the equipment. First turn on the power and set display language. Then, set transducer used, by model number (FURUNO transducer only) or by specifications.

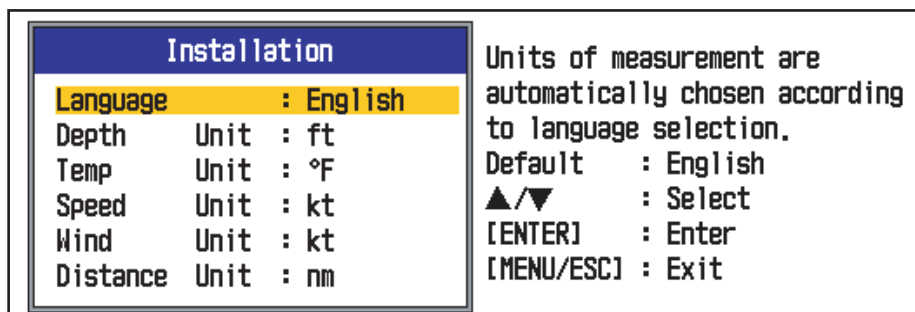
3.1 Language Setting

1. Press [⏻ /BRILL] key to turn on the power. The following display appears.



Language setting screen

2. Press ▼ or ▲ to select English as an example, and then press the **ENTER** key to set. The unit setting screen appears.



Unit setting screen

3. Set the units of measurement if necessary. For example, to set the distance unit, press ▼ to select "Distance Unit" and press the **ENTER** key. The list of selectable distance units is displayed.

4. Press ▼ or ▲ to select necessary unit and then press the **ENTER** key to set.

- Depth: m, ft, fa, pb, HR (Japanese unit)
- Temp: °C, °F
- Speed: kt, km/h, mph
- Wind: kt, km/h, mph, m/h
- Distance: nm, km, sm

5. Press the **MENU** key. The following message appears.

The transducer setting is not appropriate.
Please set the transducer appropriately.

6. Press any key. The transducer setting screen appears. Proceed to next section.

3.2 Transducer Data



CAUTION

Set the transducer model number properly.

Wrong transducer setting can damage the transducer and void the warranty.

ENTERing transducer data by transducer model

The following table shows the transducers programmed in the FCV-1150.

Type	Output (kW)	Tap	Type	Output (kW)	Tap
28F-8	1	B	50BL-24HR	3	D
28BL-6HR	2	A	50F-24H	3	B
28F-18	2	B	68F-8H	1	A
28BL-12HR	3	A	68F-30H	3	B
28F-24H	3	D	82B-35R	2	E
38BL-9HR	2	B	88B-8	1	D
38BL-15HR	3	D	88B-10	2	C
50B-6B	1	A	88F-126H	3	E
50/200-IT* (50 kHz)	1	B	100B-10R	3	E
50/200-1ST (50 kHz)	1	B	150B-12H	3	C
50B-9B	1	A	200B-5S	1	D
50B-12	2	A	50/200-1T* (200 kHz)	1	C
50BL-12	2	A	50/200-1ST (200 kHz)	1	A
50BL-12HR	2	B	200B-8B	2	C
50BL-24H	3	D	200B-12H	3	C

*: for ACCU-FiSH (Fish information display)

1. At the transducer setting screen, confirm that “XDCR Select” is set to “XDCR Type” (default setting).

XDCR Setting	
XDCR Select	: XDCR Type
HF Connection	: Not Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
LF Connection	: Not Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
Tx Power	: Auto
Demonstrate	: Off
NavNet Mode	: Off

Select how to set XDCR type

Default : XDCR Type

▲/▼ : Select

[ENTER] : Enter

[POWER/BRILL]: Exit

Transducer setting screen

2. If a high frequency transducer is fitted, press ▼ to select “HF Connection” and then press the **ENTER** key.

Connected
Not connected

3. Press ▲ to select “Connected” and then press the **ENTER** key.
4. Press ▼ to select “Freq” and then press the **ENTER** key.

XDCR Setting	
XDCR Select	: XDCR Type
HF Connection	: Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
LF Connection	: Not Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
Tx Power	: Auto
Demonstrate	: Off
NavNet Mode	: Off

Specify the freq of XDCR installed as high freq.

Default : ---kHz

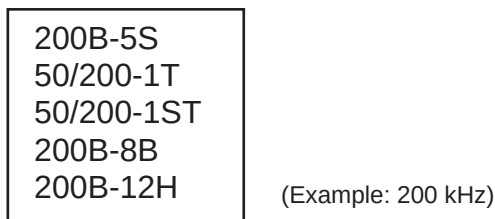
▲/▼ : Select

[ENTER] : Enter

[POWER/BRILL]: Exit

5. Press ▼ or ▲ to select the transducer frequency and then press the **ENTER** key.

6. Press ▲ to select “Transducer” and then press the **ENTER** key. The list of programmed transducers appears.



7. Press ▼ to select transducer connected and then press the **ENTER** key.
8. Jot down the alphabet which appears on the “TAP” line. You may need to change the tap setting at the rear of the display unit depending on the transducer type which is connected. For details, see below.
9. If a low frequency transducer is fitted, repeat steps 2 to 8.

Note: Leave the “Tx Power” setting at “Auto”.

10. To connect to the NavNet 3D system, press ▼ to select “NavNet Mode” and then press the **ENTER** key. Select “On” and press the **ENTER** key.

The following program versions can be connected to the FCV-1150.

MFD8/12: 1950055-02.01 and later

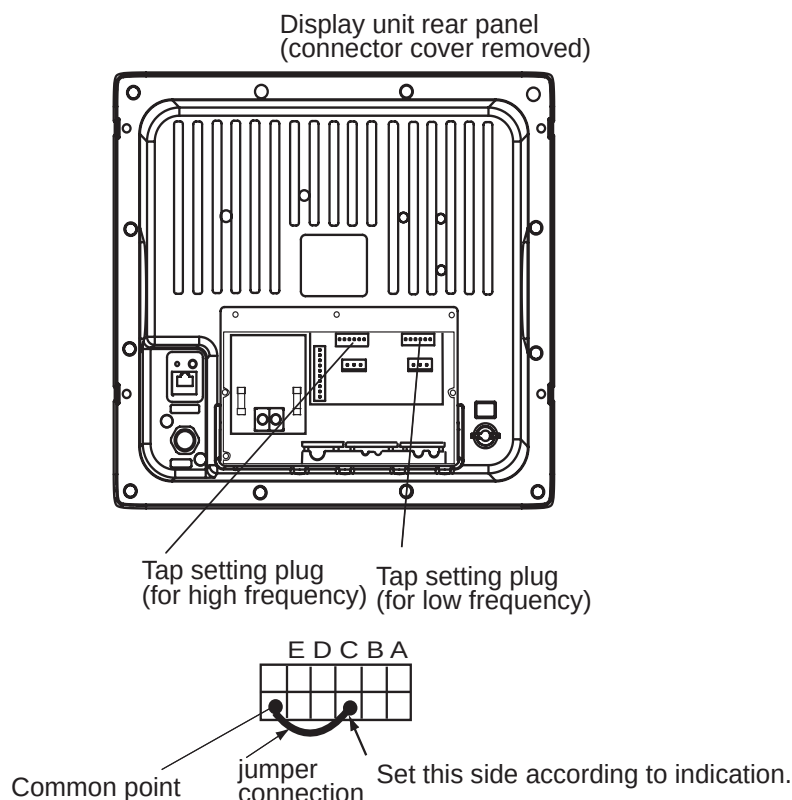
MFDBB: 1950064-02.01 and later

11. Press and hold down the [⏻ /BRILL] key to turn off the power.

Note: To confirm the transducer selection after completion of the setting, turn on the power while pressing any key. Release the key after the “XDCR Setting” dialog box appears.

Tap setting

Set the tap according to the alphabet shown when you selected transducer type.



ENTERing transducer data by transducer specifications

To connect the transducers which are not programmed, do as follows:

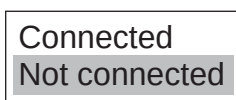
Note: The transducers of 53 - 65 kHz, 111 to 139 kHz and 171 - 183 kHz cannot be connected to the FCV-1150 because of noise.

1. At the XDCR Setting dialog box, select "XDCR Select" and press the **ENTER** key.

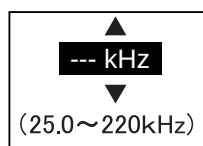
The following screen appears.



2. Press ▼ to select "Manual", and then press the **ENTER** key.
3. If a high frequency transducer is fitted, press ▼ to select "HF Connection" and then press the **ENTER** key.



4. Press ▲ to select "Connected" and then press the **ENTER** key.
5. Press ▼ to select "Freq" and then press the **ENTER** key.



6. Press ▼ or ▲ to set the value for the frequency which is connected and then press the **ENTER** key.
7. Press ▼ to select "Band width" and then press the **ENTER** key.
8. Press ▼ or ▲ to set the value for the band width and then press the **ENTER** key. If the band width is not ENTERed manually, it is automatically set to 1/10 of the transducer frequency.
9. If a low frequency transducer is fitted, repeat steps 3 to 8.

Note: Leave the "Tx Power" at "Auto".

10. Press and hold down the [⏻/BRILL] key to turn off the power.

3.3 Speed/Water Temperature Sensor Calibration

If the optional speed and/or water temperature sensor is connected, set up as follows:

1. Turn on the power and press the **MENU** key.
The main menu and sub-menu appears.
2. Press ▼ to select "System" and "Calib" and then press the **ENTER** key.

3. Press ▼ to select "Temp" and then press the **ENTER** key.

Menu	Calib
Sounder	Sound Speed : 1500.0m/s
TxRx	Temp : + 0.0°F
Display	Speed(STW)
Stabi	Bottom Level
Alarm	Zero Line
Data	Zero Line Area
▼ System	[HF]
User	Draft : + 0.0ft
Range	Gain ADJ : + 0
Key	[LF]
Lang	Draft : + 0.0ft
Units	Gain ADJ : + 0
NMEA	
Calib	
Tests	
Reset	

▲
 + 0.0°F
 ▼
 (-20.0~+20.0°F)

Temperature calibration screen

4. Press ▼ or ▲ to set the value for the temperature calibration and then press the **ENTER** key.
 For example, if the temperature indication is 2.5°C higher than the actual value, set "-2.5°C".
5. To calibrate the speed value, press ▼ to select "Speed(STW)" and then press the **ENTER** key.

Menu	Calib
Sounder	Sound Speed : 1500.0m/s
TxRx	Temp : + 0.0°F
Display	Speed(STW) : + 0%
Stabi	Bottom Level
Alarm	Zero Line
Data	Zero Line Area
▼ System	[HF]
User	Draft
Range	Gain ADJ : + 0
Key	[LF]
Lang	Draft : + 0.0ft
Units	Gain ADJ : + 0
NMEA	
Calib	
Tests	
Reset	

▲
 + 0%
 ▼
 (-50~+50%)

6. Press ▼ or ▲ to set the value for the speed calibration and then press the **ENTER** key.
 For example, if the speed indication is 5% lower than the actual value, set +5%.
7. To close the menu, press the **MENU/ESC** key twice.

3.4 NMEA Port Setting

If a GPS navigator and/or other sensor are connected, set up as follows.

1. Press the **MENU** key.
2. Press ▼ to select "System" and "NMEA" and then press the **ENTER** key.

Menu	NMEA
Sounder	NMEA0183 : Ver 2.0
TxRx	NMEA Port : In/Out
Display	NMEA Output : Off
Stabi	WAAS Setup : Off
Alarm	TLL Output : TLL
Data	Port Monitor
▼ System	
User	
Range	
Key	
Lang	
Units	
NMEA	
Calib	
Tests	
Reset	

NMEA setting menu

3. Press ▼ to select the item to set and then press the **ENTER** key.
4. Press ▼ or ▲ to select an appropriate one and then press the **ENTER** key.

Description for each item of the NMEA menu

NMEA0183: Choose NMEA0183 version of navigation equipment connected to the NMEA port, among Ver. 1.5, Ver. 2.0 or Ver. 3.0. "SPECIAL" is for use with a navigator whose baud rate is 600 bps.

NMEA Port: The NMEA terminals in the NMEA port can function as input ports or input/output port. Change the setting to "In/In" when connecting GP-310B/320B and a wind sensor. When connecting the GP-320B and a wind sensor, first turn on "WAAS Setup" and then select "In/In" as the NMEA Port setting.

- In/Out: NMEA port J2 #1 & #2 is output port and J2 #3 & #4 is input port.
- In/In: NMEA port J2 #1 & #2 changes to input port. (Available with connection of the GP-310B/320B and a wind sensor.)

NMEA Output: Set the output data sentences.

- Off: Outputs the "output data sentences" (see page 9).
- On: Outputs the "output data sentences" of FCV-1150 and sentences which are input from other equipment.

WAAS Setup: Choose how to use the WAAS signal when connecting with a WAAS receiver, for example GP-320B. The message types (WAAS-00 to WAAS-27) are used as WAAS correction. Choose WAAS-00 to enable WAAS.

Note: Currently, WAAS is only available in North America, and Japan and it is in the developmental stage in Europe and Japan. During the developmental phase the reliability and availability of the WAAS signal cannot be guaranteed. Therefore, any position data should be verified against other sources to confirm reliability. This function is available only when In/Out is selected at NMEA Port.

TLL Output: Output the position specified by the **MARK** key to the plotter connected.

- Off: Does not output latitude/longitude.
- TLL: Outputs latitude/longitude.
- FURUNO-TLL: Outputs latitude/longitude, depth and water temperature. This requires FURUNO-TLL enabled device.

Port Monitor: Port Monitor provides information for the data sentences input from the NMEA port. Press the **ENTER** key to display the latest data sentence information. To display this information on the Port 2 screen when two sensors are connected, set NMEA Port on the NMEA menu to In/In.

3.5 Heaving Setting

For the heaving feature to function correctly, set the distance between satellite compass antenna (GPS sensor) and transducer as follows.

1. Press the **MENU** key to display the main menu.
2. Press ▼ to select "Stabi" and then press the **ENTER** key.

Menu	Stabi
Sounder	Stabilization : Off
TxRx	Sensor : SC50/110
Display	[HF]
Stabi	TD fore-aft : 0.0
Alarm	TD port-stbd : 0.0
Data	ANT-TD height : 0.0
► System	[LF]
	TD fore-aft : 0.0
	TD port-stbd : 0.0
	ANT-TD height : 0.0

3. Press ▲ to select "Stabilization" and then press the **ENTER** key.
4. Press ▼ to select "On" and then press the **ENTER** key.
5. Press
6. ▼ to select "Sensor" and then press the **ENTER** key.

SC50/110
SC30

7. Select the type of satellite compass connected and then press the **ENTER** key.

8. Set the distance between transducer(s) and antenna unit (or sensor) of the satellite compass as follows.

TD fore-aft: Set the distance from antenna unit to the transducer in fore-aft direction. When the transducer is located on the fore side, set a positive value.

TD port-stbd: Set the distance from antenna unit to the transducer in port-starboard direction. When the transducer is located on the starboard side, set a positive value.

ANT-TD height: Set the distance from the transducer to the antenna unit in the vertical direction.

Note: For the heaving feature, set the output of satellite compass SC-50/110/30 as follows.

	SC-50/110 (DATA OUT menu)	SC-30 (Set IF-NMEASC)
Sentence	ATT, HVE	ATT, HVE
Baud rate	38400 BPS	38400 BPS
Cycle	25 ms	25 ms
Format	IECED1	-

APPENDIX

TRANSDUCER 82B-35R

The 82B-35R is a transducer with wide bandwidth of 65 kHz-110 kHz. It is constructed to provide protection against slamming.

Transducer, thru-hull pipe and tank list

Frquency (kHz)	Transducer	Hull Material	Tank (Code No.)	Fasten inside hull (Code No.)	Fasten outside hull (Code No.)
15/88	15F-4S/82B-35R	Steel	T-628 (000-015-921)	TWB-6000 (2) (000-015-207)	-
		FRP	T-628-F (000-015-922)	TRB-1100 (2) (000-015-218)	-
	15F-10/82B-35R	Steel	T-629 (000-015-804)	TWB-6000 (2) (000-015-207)	TFB-7000 (2) (000-015-209)
		FRP	T-629-F (270-601-660)	TRB-1100 (2) (000-015-218)	-
28/88	28F-18/82B-35R	Steel	T-636 (000-015-813)	TWB-6000 (2) (000-015-207)	TFB-7000 (2) (000-015-209)
		FRP	T-636F (000-015-814)	TRB-1100 (2) (000-015-218)	-
50/88	50F-8G/82B-35R	Steel	T-636 (000-015-813)	TWB-6000 (2) (000-015-207)	TFB-7000 (2) (000-015-209)
		FRP	T-636F (000-015-814)	TRB-1100 (2) (000-015-218)	-
	50B-12/82B-35R	Steel	T-643 (000-015-821)	TWB-6000 (2) (000-015-207)	TFB-7000 (2) (000-015-209)
		FRP	T-643F (000-015-822)	TRB-1100 (2) (000-015-218)	-
88/200	82B-35R/200B-8/200B-8B/200B-8N	Steel	T-649 (000-015-833)	TWB-6000 (2) (000-015-207)	TFB-7000 (2) (000-015-209)
		FRP	T-649F (000-015-834)	TRB-1100 (2) (000-015-218)	-

Connection

Connect the 82B-35R transducer to either the "HF" or "LF" connector, referring to page S-1.

Tap Setting

Referring to page 13, set the tap to E.

Setting for dual frequency transmitting

1. Set the XDCR SELECT menu as follows (see page 12 and 13).

Setting for "HF" connection

XDCR Setting	
XDCR Select	: XDCR Type
HF Connection	: Connected
Freq	: 82 kHz
Transducer	: 82B-35R
Tap	: E
Freq	: ---kHz
Band width	: ---kHz
LF Connection	: Not Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
Tx Power	: Auto
Demonstrate	: Off
NavNet Mode	: Off

Setting for "LF" connection

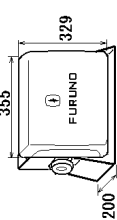
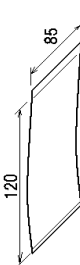
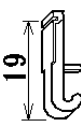
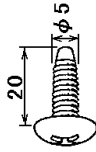
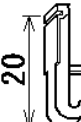
XDCR Setting	
XDCR Select	: XDCR Type
HF Connection	: Not Connected
Freq	: ---kHz
Transducer	: -----
Tap	: --
Freq	: ---kHz
Band width	: ---kHz
LF Connection	: Connected
Freq	: 82 kHz
Transducer	: 82B-35R
Tap	: E
Freq	: ---kHz
Band width	: ---kHz
Tx Power	: Auto
Demonstrate	: Off
NavNet Mode	: Off

2. Press the [PWR] key to turn the power off, and turn it on again.
3. Press the MENU key to show the menu.
4. Select the [Sounder] and press the ENTER key.
5. See the section "1.20.1 Sounder menu" in the Operator's Manual for how to set "Freq Choice" and "Freq Control" for high and low frequencies.

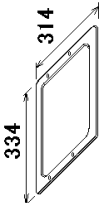
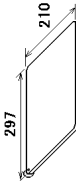
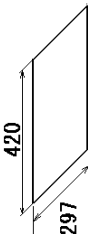
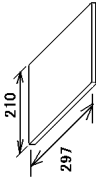
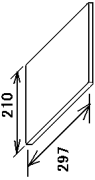
PACKING LIST FGV-1150-J/E

02GD-X-9851-2

1/1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
ユニット UNIT			
指示器 DISPLAY UNIT		CV-1150	1
		000-011-708-00 **	
予備品 SPARE PARTS SP02-05401			
ヒューズ FUSE GLASS TUBE TYPE		FGMB 125V 7A PBF	4
		000-157-493-10	
付属品 ACCESSORIES FP02-05700			
フィルタークリーナー LCD CLEANING CLOTH		02-155-1082-1 100-332-651-10	1
工事材料 INSTALLATION MATERIALS CP02-08301			
圧着端子 CRIMP-ON LUG		FV2-M4	2
		000-157-229-10	
操作レバ - TERMINAL OPENER		734-230	1
		000-147-417-10	
+トラスタップソネジ 1ｼﾍﾞ SELF-TAPPING SCREW		5X20 SUS304	5
		000-162-608-10	
操作レバ - TERMINAL OPENER		231-131	1
		000-165-800-10	

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

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
Fマウントヨスホ [®] ソグ [®] FLUSH MOUNTING SPONGE		02-157-1302-0	1
		100-342-010-10	
		図書 DOCUMENT	
操作要領書 (タゲ [®] ン) OPERATOR'S GUIDE		MLG-23780-*	1
		000-167-734-1*	
フラッシュマウント型紙 FLUSH MOUNTING TEMPLATE		C22-00702-* 7/14	1
		000-167-736-1*	
装備要領書 INSTALLATION MANUAL		IM*-23780-*	1
		000-167-732-1* **	
取扱説明書 OPERATOR'S MANUAL		OM*-23780-*	1
		000-167-728-1* **	

型式/コード番号が2段の場合、下段より上段に代わる通渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

A-1

02GD-X-9851

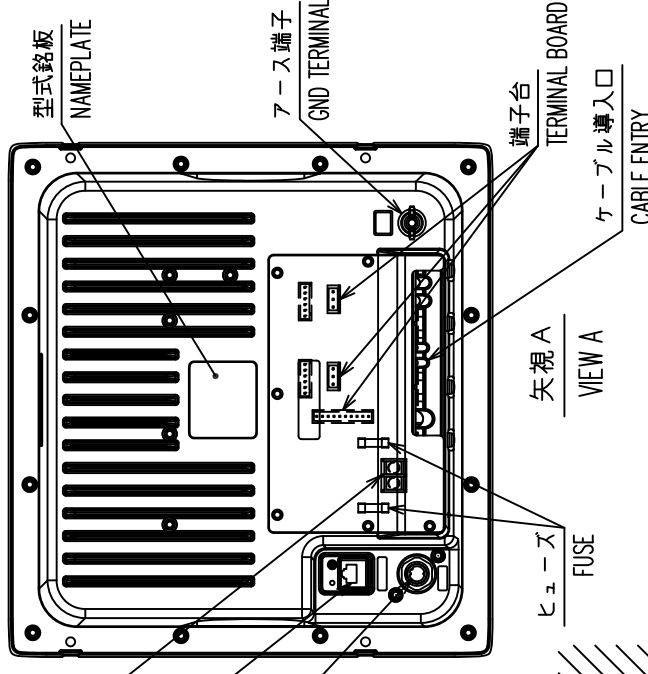
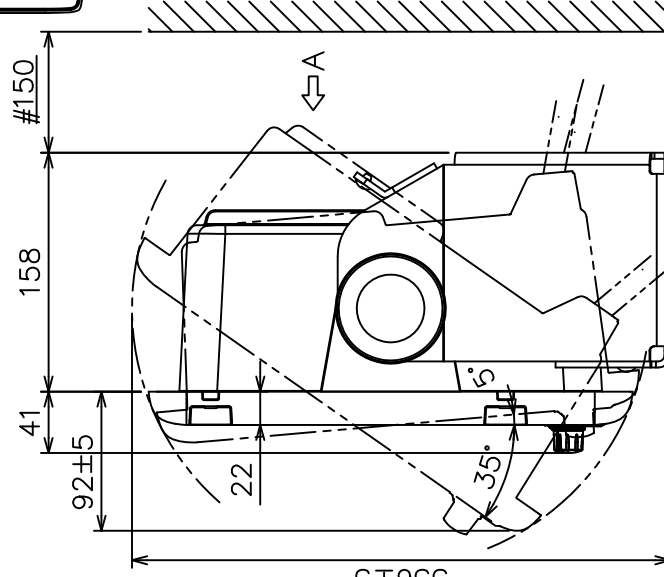
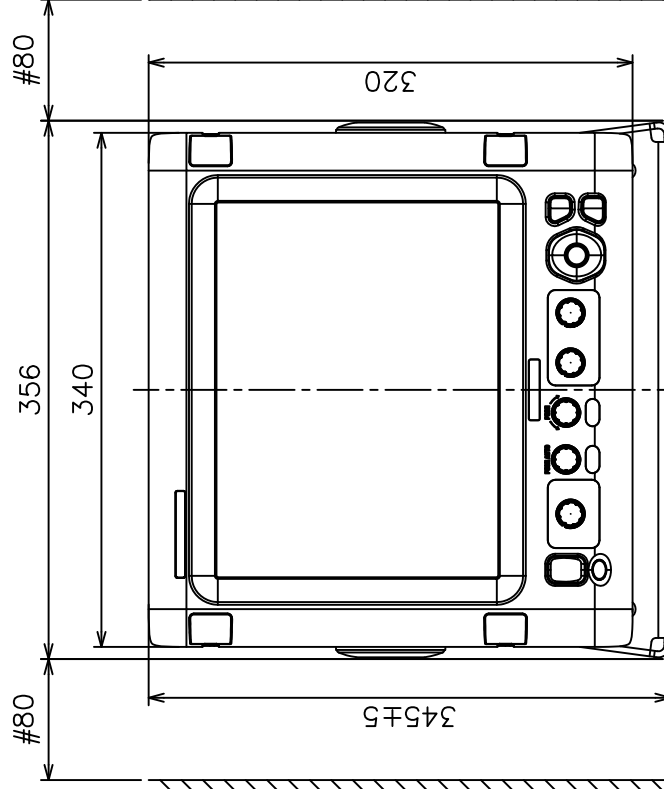
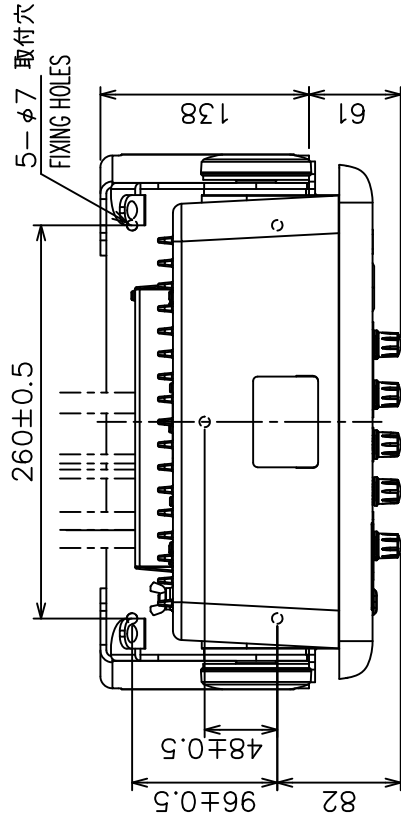


表1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	± 1.5
$50 < L \leq 100$	± 2.5
$100 < L \leq 500$	± 3

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) 取付用ネジはトラスタップピンネジ呼び径 5×20 を使用のこと。

NOTE

1. # MINIMUM SERVICE CLEARANCE.

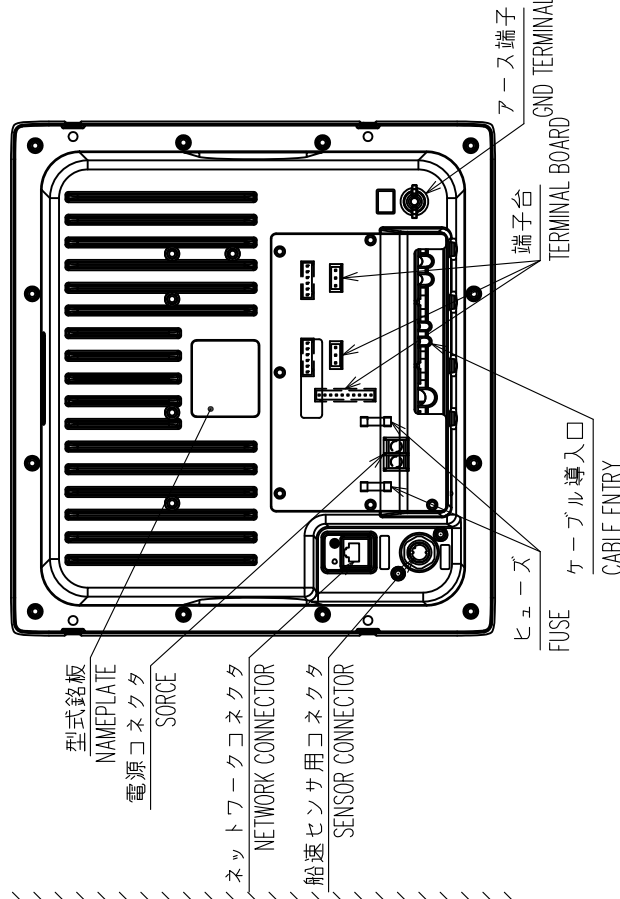
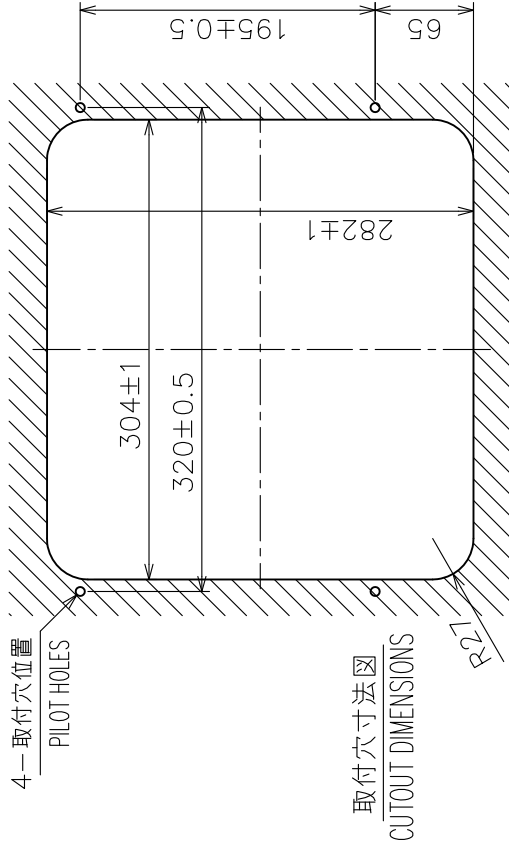
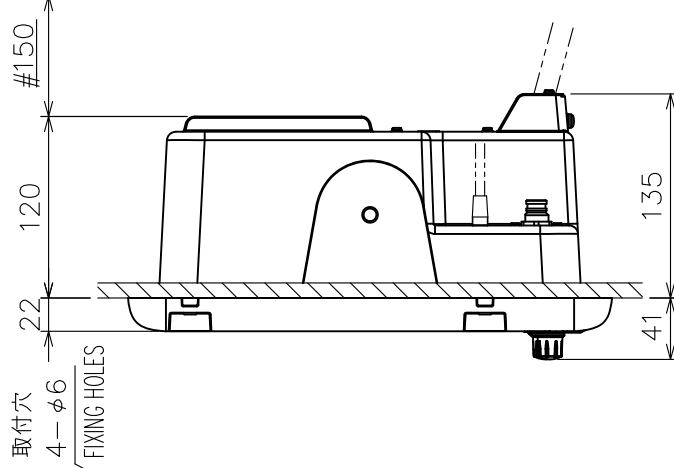
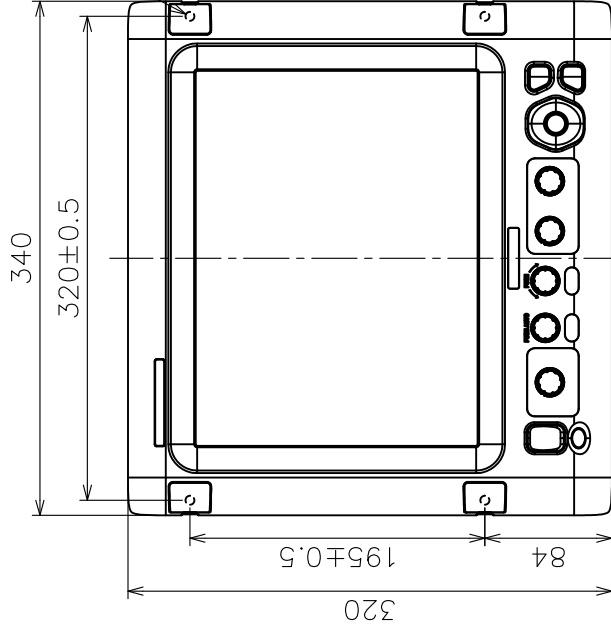
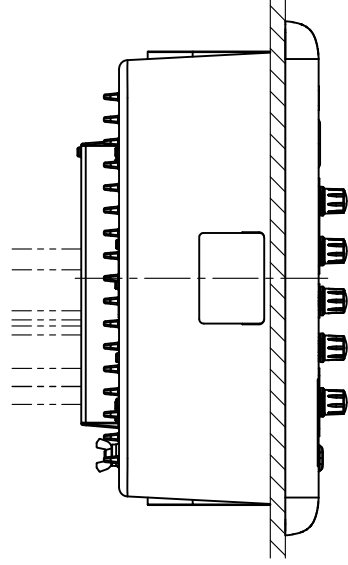
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

3. USE TAPPING SCREWS $\phi 5 \times 20$ FOR FIXING THE UNIT.

DRAWN	Oct. 1 '07	I. YAMASAKI	TITLE	CV-1150
CHECKED	Oct. 1 '07	I. TAKENO	名称	指示器 (卓上装備)
APPROVED	Oct. 4 '07	R. Esumi	外寸図	
SCALE	1/5	WASS 8.2 kg	質量はケーブルを含みず。 MASS W/O CABLE	DISPLAY UNIT (TABLETOP MOUNT)
DWG. No.	C2378-G01-A	REF. No.	02-157-100G-0	OUTLINE DRAWING

表1 TABLE 1

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



- 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) 取付用ネジはトラスタッピンネジ呼び径5×20を使用のこと。
- NOTE 1. # MINIMUM SERVICE CLEARANCE.
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
 3. USE TAPPING SCREWS φ5x20 FOR FIXING THE UNIT.

DRAWN	Oct. 1 '07	I. YAMASAKI	TITLE	CV-1150
CHECKED	Oct. 1 '07	I. TAKENO	名称	指示器 (埋込装備)
APPROVED	Oct. 3 '07	R. ESUMI	外寸図	
SCALE	1/5	WASS 6.8 ±10% kg	質量はケーブルを含みず。 MASS W/O CABLE	DISPLAY UNIT (FLUSH MOUNT)
DWG. No.	C2378-G02-A	REF. No.	02-157-110G-1	OUTLINE DRAWING



*4: CONNECT THE 82B-35R TRANSDUCER TO EITHER HF OR LF.

DRAWN	16/Apr/09	T. YAMASAKI				TITLE	FCV-1150
CHECKED	16/Apr/09	T. TAKENO				名称	カラ一魚群探知機
APPROVED	9/Jun/09	R. Esumi					相互結線図
SCALE		MASS				NAME	COLOR LCD SOUNDER
DWG. No.	C2378-C01	F	REF. No.	A02-157-1001-0			INTERCONNECTION DIAGRAM



(Elemental Chlorine Free)

The paper used in this manual
is elemental chlorine free.

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