PLOTTER

JMR-5400 SERIES INSTRUCTION MANUAL

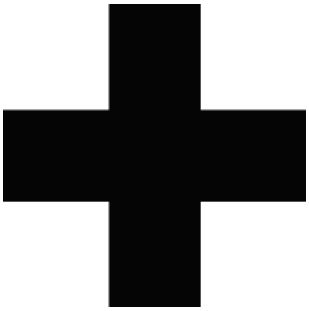
JRC Japan Radio Co., Ltd.

PREFACE

Thank you for purchasing the JRC Multi Function Display JMR-5400 Series.
This equipment meets the performance standards of the IMO (International Maritime Organisation), and serves to improve safety.

- For the best operation, read this manual thoroughly before use.
- Keep this manual in a convenient place for future reference.
  Make use of this manual when experiencing operation difficulties.
- This instruction manual illustrates only plotter operations. For radar operations, refer to marine radar equipment instruction manuals.
- The LCD of this equipment uses thin film transistors (TFT). If some pixels on the screen are not clear, the colour is different, or the screen is brighter than usual, it is not because of defect, instead it is because of inherent characteristic of the TFT display technology.
- The information in this manual is subject to change without notice at any time.

● Safety Cautions ●



Cautions for High Voltage

High voltages, ranging from several hundreds to tens of thousands of volts, are used in electronic apparatus, such as radio and radar instruments. These voltages are totally harmless in most operations. However, touching a component inside the unit is very dangerous. (Any person other than authorized service engineers should not maintain, inspect, or adjust the unit.)

High voltages on the order of tens of thousand volts are most likely to cause instant deaths from electrical shocks. At times, even voltages on the order of several hundred volts could lead to electrocution. To defend against electrical shock hazards, don't put your hand into the inside of apparatus.

When you put in a hand unavoidably in case of urgent, it is strongly suggested to turn off the power switch and allow the capacitors, etc. to discharge with a wire having its one end positively grounded to remove residual charges. Before you put your hand into the inside of apparatus, make sure that internal parts are no longer charged. Extra protection is ensured by wearing dry cotton gloves at this time. Another important precaution to observe is to keep one hand in your pocket at a time, instead of using both hands at the same time. It is also important to select a secure footing to work on, as the secondary effects of electrical shock hazards can be more serious. In the event of electrical shocks, disinfect the burnt site completely and obtain medical care immediately.

Precautions for Rescue of Victim of Electric Shock

When a victim of electric shock is found, turn off the power source and ground the circuit immediately. If this is impossible, move the victim away from the unit as quick as possible without touching him or her with bare hands. He or she can safely be moved if an insulating material such as dry wood plate or cloth is used.

It is necessary to perform first aid immediately.

Breathing may stop if current flows through the respiration centre of brain due to electric shock. If the electric shock is not large, breathing can be restored by artificial respiration. A victim of electric shock looks pale and his or her pulse may become very weak or stop, resulting in unconsciousness and rigidity at worst.

Method of First-Aid Treatment

☆Precautions for First-Aid Treatments

Apply artificial respiration to the person who collapsed, minimising moving as much as possible avoiding risks. Once started, artificial respiration should be continued rhythmically.

(1) Refrain from touching the patient carelessly as a resultof the accident; the first-aider could suffer from electrical shocks by himself or herself.

(2) Turn off the power calmly and certainly, and move the patient apart from the cable gently.

(3) Call or send for a physician or ambulance immediately, or ask someone to call doctor.

(4) Lay the patient on the back, loosening the necktie, clothes, belts and so on.

(5) (a) Feel the patient's pulse.
(b) Check the heartbeat by bringing your ear close to the patient's heart.
(c) Check for respiration by bringing your face or the back of your hand to the patient's face.
(d) Check the size of patient's pupils.

(6) Opening the patient's mouth, remove artificial teeth, cigarettes, chewing gum, etc. if any. With the patient's mouth open, stretch the tongue and insert a towel or the like into the mouth to prevent the tongue from being withdrawn into the throat. (If the patient clenches the teeth so tight that the mouth won't open, use a screwdriver or the like to force the mouth open and then insert a towel or the like into the mouth.)

(7) Wipe off the mouth to prevent foaming mucus and saliva from accumulating.

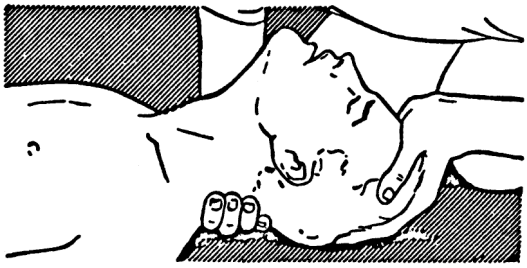
☆Treatment to Give When the Patient Has a Pulse Beating but Has Ceased to Breathe

∗ Performing mouth-to-mouth artificial respiration

(1) Bend the patient's face backward until it is directed to look back. (A pillow may be placed under the neck.)
(2) Pull up the lower jaw to open up the airway. (To spread the airway)
(3) Pinching the patient's nose, breathe deeply and blow your breath into the patient's mouth strongly, with care to close it completely. Then, move your mouth away and take a deep breath, and blow into his or her mouth. Repeat blowing at 10 to 15 times a minute (always with the patient's nostrils closed).
(4) Continue artificial respiration until natural respiration is restored.
(5) If the patient's mouth won't open easily, insert a pipe, such as one made of rubber or vinyl, into either nostril. Then, take a deep breath and blow into the nostril through the pipe, with the other nostril and the mouth completely closed.
(6) The patient may stand up abruptly upon recovering consciousness. Keep the patient lying calmly, giving him or her coffee, tea or any other hot drink (but not alcoholic drink) to keep him or her warm.

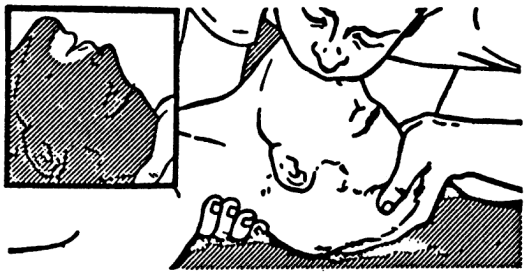
Mouth-to-mouth artificial respiration with the patient's head lifted

[1]



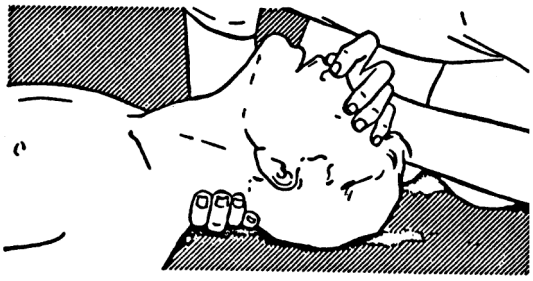
(1) Lift the back part of the patient's head. Support the forehead with one of your hand and the neck with the other hand.→ [1].
Many patients will have their airways opened by lifting their head in this way to ease mouth-to-mouth artificial respiration.

[2]



(2) Closing the patient's mouth with your mouth, press your cheek against the patient's nose→ [2].
Alternatively, hold the patient's nose with your finger to prevent air leak → [3].

[3]



(3) Blowing air into the patient's lungs. Blow air into the patient's lungs until chest is seen to rise. The first 10 breaths must be blown as fast as possible.

Fig. 1 Mouth-to-mouth artificial respiration

Flow of Cardiopulmonary Resuscitation (CPR)

A person is collapsing.
- Secure the safety of the surrounding area.
- Prevent secondary disasters.

↓

Check for response.
- Call while tapping the shoulder.

→ Responding → Listen to the appeal of the injured or ill person and give the necessary first-aid

↓ Not responding

Ask for help.
- Make an emergency call.
- Ask to bring an AED.

↓

Open the airway.
- Check for breathing.

→ Breathing → Recovery position
- Lay the injured or ill person on his/her side and wait for the arrival of the emergency services.

↓ Not breathing

Give 2 rescue breaths; omittable Note(1)

↓

Give CPR.
- 30 chest compressions
- Give 2 rescue breaths; omittable Note(1)

Note(1) Omission of rescue breathing:
If there is a fear of infection because the injured or ill person has an intraoral injury, you are hesitant about giving mouth-to-mouth resuscitation, or preparing the mouthpiece for rescue breathing takes too long, omit rescue breathing and proceed to the next step.

↓

Arrival of an AED
- Turn on the power.
- Use the AED by following its voice prompts. Fitting of the electrode pads, etc.

↓

Automatic electrocardiogram analysis
- Do not touch the injured or ill person.

→ Electric shock is not needed. → Resume CPR from chest compressions by following the voice prompts of the AED.

↓ Electric shock is needed.

Delivery of electric shock

↓

Resume CPR from chest compressions by following the voice prompts of the AED.

The AED automatically analyses the heart rhythm every 2 min.

→ When to stop CPR → When the injured or ill person has been handed over to the emergency services or has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.

Specific Procedures for Cardiopulmonary Resuscitation (CPR)

1. Check the scene for safety to prevent secondary disasters

a) Do not touch the injured or ill person in panic when an accident has occurred. (Doing so may cause electric shock to the first-aiders.)

b) Do not panic and be sure to turn off the power. Then, gently move the injured or ill person to a safe place away from the electrical circuit.

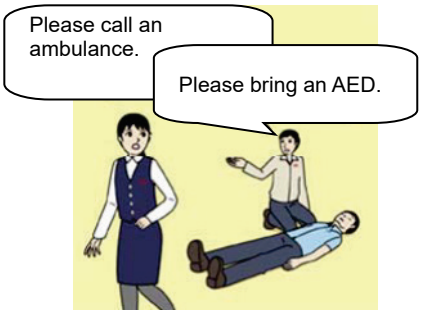
2. Check for responsiveness

a) Tap the shoulder of the injured or ill and shout in the ear saying, "Are you OK?"

b) If the person opens his/her eyes or there is some response or gesture, determine it as "responding." But, if there is no response or gesture, determine it as "not responding."

3. If responding

a) Give first-aid treatment.



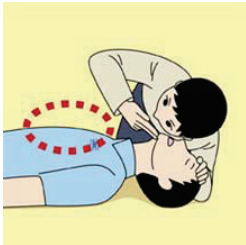
4. If not responding

a) Ask for help loudly. Ask somebody to make an emergency call and bring an AED.

- Somebody has collapsed. Please help.
- Please call an ambulance.
- Please bring an **AED**.
- If there is nobody to help, call an ambulance yourself.

5. Open the airway

a) Touch the forehead with one hand. Lift the chin with the two fingers of the middle finger and forefinger of the other hand and push down on the forehead as you lift the jaw to bring the chin forward to open the airway. If neck injury is suspected, open the airway by lifting the lower jaw.



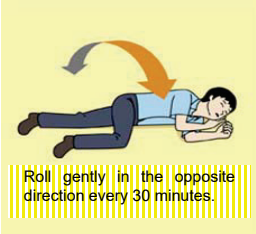
6. Check for breathing

a) After opening the airway, check quickly for breathing for no more than 10 seconds. Put your cheek down by the mouth and nose area of the injured or ill person, look at his/her chest and abdomen, and check the following three points.

- Look to see if the chest and abdomen are rising and falling.
- Listen for breathing.
- Feel for breath against your cheek.

b) If the injured or ill person is breathing, place him/her in the recovery position and wait for the arrival of the emergency services.

- Position the injured or ill person on his/her side, maintain a clear and open airway by pushing the head backward while positioning their mouth downward. To maintain proper blood circulation, roll him/her gently to position them in the recovery position in the opposite direction every 30 minutes.



7. Give 2 rescue breaths (omittable)

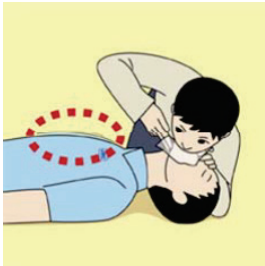
a) If opening the airway does not cause the injured or ill person to begin to breathe normally, give rescue breaths.

b) If there is a fear of infection because the injured or ill person has an intraoral injury, you are hesitant about giving mouth-to-mouth resuscitation, or getting and preparing the mouthpiece for rescue breathing takes too long, omit rescue breathing and perform chest compressions.

c) When performing rescue breathing, it is recommended to use a mouthpiece for rescue breathing and other protective devices to prevent infections.

d) While maintaining an open airway, pinch the person's nose shut with your thumb and forefinger of the hand used to push down the forehead.

e) Open your mouth widely to completely cover the mouth of the injured or ill person so that no air will escape. Give rescue breathing twice in about 1 second and check if the chest rises.

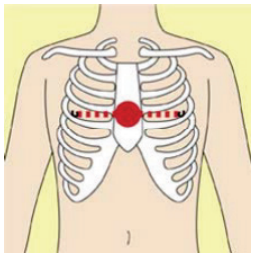


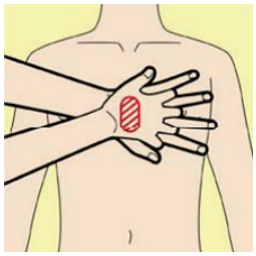
8. Cardiopulmonary resuscitation (CPR) (combination of chest compressions and rescue breaths)

a) Chest compressions

1) Position of chest compressions

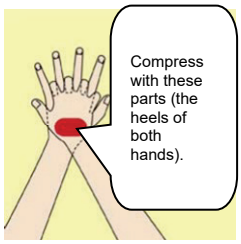
- Position the heel of one hand in the centre of the chest, approximately between the nipples, and place your other hand on top of the one that is in position.





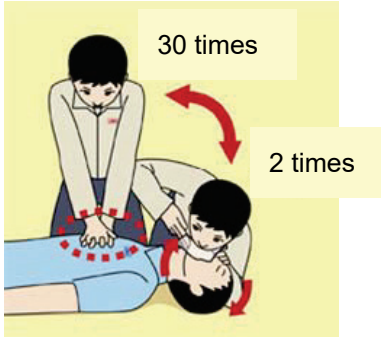
2) Perform chest compressions

- Perform uninterrupted chest compressions of 30 at the rate of about 100 times per minute. While locking your elbows positioning yourself vertically above your hands.
- With each compression, depress the chest wall to a depth of approximately 4 to 5 cm.



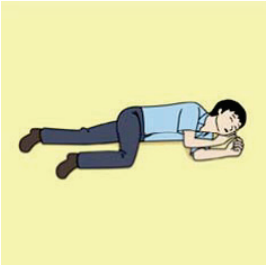
b) Combination of 30 chest compressions and 2 rescue breaths

1) After performing 30 chest compressions, give 2 rescue breaths. If rescue breathing is omitted, perform only chest compressions.
2) Continuously perform the combination of 30 chest compressions and 2 rescue breaths without interruption.
3) If there are two or more first-aiders, alternate with each other approximately every two minutes (five cycles of compressions and ventilations at a ratio of 30:2) without interruption.



9. When to stop cardiopulmonary resuscitation (CPR)

a) When the injured or ill person has been handed over to the emergency services
b) When the injured or ill person has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.

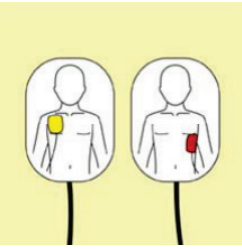


10. Arrival and preparation of an AED

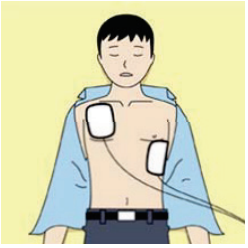
a) Place the AED at an easy-to-use position. If there are multiple first-aiders, continue CPR until the AED becomes ready.
b) Turn on the power to the AED unit. Depending on the model of the AED, you may have to push the power on button, or the AED automatically turns on when you open the cover.
c) Follow the voice prompts of the AED.

11. Attach the electrode pads to the injured or ill person's bare chest

a) Remove all clothing from the chest, abdomen, and arms.
b) Open the package of electrode pads, peel the pads off and securely place them on the chest of the injured or ill person, with the adhesive side facing the chest. If the pads are not securely attached to the chest, the AED may not function. Paste the pads exactly at the positions



indicated on the pads, If the chest is wet with water, wipe dry with a dry towel and the like, and then paste the pads. If there is a pacemaker or implantable cardioverter defibrillator (ICD), paste the pads at least 3cm away from them. If a medical patch or plaster is present, peel it off and then paste the pads. If the injured or ill person's chest hair is thick, paste the pads on the chest hair once, peel them off to remove the chest hair, and then paste new pads.



c) Some AED models require to connect a connector by following voice prompts.

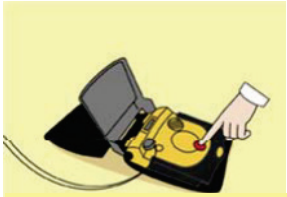
d) The electrode pads for small children should not be used for children over the age of 8 and for adults.

12. Electrocardiogram analysis

a) The AED automatically analyses electrocardiograms. Follow the voice prompts of the AED and ensure that nobody is touching the injured or ill person while you are operating the AED.

b) On some AED models, you may need to push a button to analyse the heart rhythm.

13. Electric shock (defibrillation)



Press the shock button.

a) If the AED determines that electric shock is needed, the voice prompt saying, "Shock is needed" is issued and charging starts automatically.

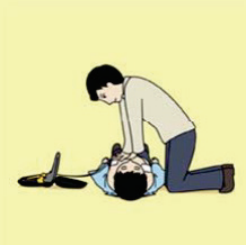
b) When charging is completed, the voice prompt saying, "Press the shock button" is issued and the shock button flashes.

c) The first-aider must get away from the injured or ill person, make sure that no one is touching him/her, and then press the shock button.

d) When electric shock is delivered, the body of the injured or ill person may jerk.

14. Resume cardiopulmonary resuscitation (CPR).

Resume CPR consisting of 30 chest compressions and 2 rescue breaths by following the voice prompts of the AED.



15. Automatic electrocardiogram analysis

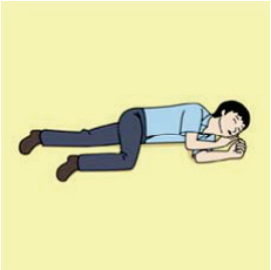
a) When 2 minutes have elapsed since you resumed cardiopulmonary resuscitation (CPR), the AED automatically analyses the electrocardiogram.

b) If you suspended CPR by following voice prompts and AED voice prompt informs you that shock is needed, give electric shock again by following the voice prompts.
If AED voice prompt informs you that no shock is needed, immediately resume CPR.

16. When to stop CPR (Keep the electrode pads on.)

a) When the injured or ill person has been handed over to the emergency services

b) When the injured or ill person has started moaning or breathing normally, lay him/her on his/her side in a recovery position and wait for the arrival of emergency services.



● Pictorial Indication ●

Meanings of Pictorial Indication

Various pictorial indications are included in this manual and are shown on this equipment so that you can operate them safely and correctly and prevent any danger to you and / or to other persons and any damage to your property during operation. Such indications and their meanings are as follows.
Please understand them before you read this manual:

DANGER	This indication is shown where incorrect equipment operation due to negligence may cause death or serious injuries.
WARNING	This indication is shown where any person is supposed to be in danger of being killed or seriously injured if this indication is neglected and this equipment is not operated correctly.
CAUTION	This indication is shown where any person is supposed to be injured or any property damage is supposed to occur if this indication is neglected and this equipment is not operated correctly.

Examples of Pictorial Indication

Electric Shock

The △ mark represents CAUTION (including DANGER and WARNING).
Detailed contents of CAUTION ("Electric Shock" in the example on the left) is shown in the mark.

Disassembling Prohibited

The ⃠ mark represents prohibition.
Detailed contents of the prohibited action ("Disassembling Prohibited" in the example on the left) is shown in the mark.

Disconnect the power plug

The ● mark represents instruction.
Detailed contents of the instruction ("Disconnect the power plug" in the example on the left) is shown in the mark.

Warning Label

There is a warning label on the top cover of the equipment.
Do not try to remove, break or modify the label.

● Precautions upon Equipment Operation ●

⚠ DANGER	
	Never attempt to check or repair the inside of the equipment. Checking or repair by an unqualified person may cause a fire or an electric shock. Contact our head office, or a nearby branch or local office to request servicing.
	Never remove the cover of this equipment. Touching the high-voltage section inside will cause an electric shock.
	Do not attempt to disassemble or tamper with this equipment. Otherwise, a fire, an electric shock, or a malfunction may occur.
	When conducting maintenance, make sure to turn the main power off. Failure may result in electric shock.
	Turn off all the main powers before cleaning the equipment. Make sure to turn it off since voltage is still outputted from the rectifier even after the indicator and the radar are turned off. Failure may result in equipment failure, or death or serious injury due to electric shock.

⚠WARNING

	When turning off the power supply, do not hold down the power button of the operation unit. Otherwise, a trouble may occur due to termination failure.
	When conducting maintenance work, make sure to turn off the power so that the power supply to the equipment is completely cut off. Some equipment components can carry electrical current even after the power switch is turned off, and conducting maintenance work may result in electric shock, equipment failure, or accidents.
	When cleaning the display screen, do not wipe it too strongly with a dry cloth. Also, do not use gasoline or thinner to clean the screen. Failure will result in damage to the screen surface.
	Confirm computer virus does not exist in USB flash memory beforehand when reading and writing of the file by using USB flash memory. Influences other equipment when the display unit is infected with the virus, and it may cause a breakdown.
	Do not remove USB flash memory while the access lamp (in USB flash drive) is flashing. Data may be damaged when the USB flash memory is inserted or removed while accessing it, and it may cause a breakdown.
	Confirm computer virus does not exist in external storage media beforehand when reading and writing of the file by using external storage media. Influences other equipment when the display unit is infected with the virus, and it may cause a breakdown.
	In case water or a metal object gets inside the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing. Keeping the equipment in operation under such condition may cause a fire, an electric shock or a malfunction.
	In case you find smoke, unusual odor or extreme high heat coming from the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing. Keeping the equipment in operation under such condition may cause a fire or an electric shock.

⚠WARNING	
	Do not use the offset function during navigation. If the equipment is used with the offset value entered as the own ship position (deviated from the actual position), accidents may result.
	Change of the colour of the Day/Night button, particularly the use of the [Night] colour, may interfere with the recognition of display information. Confirm display information can be recognised.
	Do not turn off the power during Backup/Restore. Otherwise, a function may fail, and an accident may occur.
	Do not turn off the power supply during recovery of C drive image. Otherwise, a function fault occurs, causing an accident.
	The reference target function is to be used if the own ship's speed cannot be displayed normally due to trouble such as a speed sensor malfunction. Do not use the reference target function except in emergencies.
	Do not set as a reference target a large radar echo such as a land target. The vectors of the speed and other tracking targets will not be displayed correctly and may cause an accident.
	Do not set as a reference target a sailing ship. The vectors of the speed and other tracking targets will not be displayed correctly and may cause an accident.
	Do not use own speed based on reference target tracking for relative speed and CPA/TCPA calculation of AIS targets because the response of own speed is slower than actual own ship's speed change and it may cause a big error on the collision judgement of AIS targets.

⚠CAUTION

	Do not use or leave the equipment under direct sunlight for a long time or in the temperatures above 55°C. Otherwise, a fire or a malfunction may occur.
	Do not place a glass or cup containing water, etc., or a small metal object on this equipment. If water or such object gets inside, a fire, an electric shock, or a malfunction may occur.
	Do not touch the equipment with hands or gloves wet with water. Otherwise, an electric shock or a malfunction may occur.
	• Do not place any object on the operation panel. In particular, if a hot object is placed on the operation panel, it can cause deformation of the surface of the operation panel. • Do not apply any undue shock on the operation panel, trackball and dials. Otherwise, a malfunction may result.
	Make sure that the main power is turned off before inspection or replacement of parts. Otherwise, an electric shock, a fire, or a malfunction may occur.
	Information is displayed in addition to a warning or a caution in the alert status area. Information is used to report operation errors and so on to the users. Unlike other alerts, no detail display is provided for Information.

Glossary

AIO	:	Admiralty Information Overlay published by United Kingdom Hydrographic Office (UKHO).
AIS	:	Automatic Identification System
AZ	:	Acquisition/Activation zone
Anti-clutter rain	:	Rain/snow clutter suppression
Anti-clutter sea	:	Sea clutter suppression
AZI	:	AZImuth stabilisation mode
BCR/BCT	:	Bow Crossing Range/Bow Crossing Time
Chart Maintenance	:	Software to manage the charts. Imports and updates the charts.
C-MAP MAX*[1]	:	Digital chart data by C-MAP
CTS	:	Course To Steer. Heading command.
COG	:	Course Over the Ground
C UP	:	Course up. Own ship's course is pointed to the top centre of the radar display.
CCRP	:	Consistent Common Reference Point. The own ship position, to which all horizontal measurements such as target range, bearing, relative course, relative speed, CPA or TCPA are referenced, typically the conning position of the bridge.
CORREL	:	CORRELation
CPA/TCPA	:	Distance to the Closest Point of Approach/Time to the Closest Point of Approach.
CTW	:	Course Through Water. The direction of the ship's movement through the water
DIST	:	Distance
DNV	:	Det Norske Veritas
DRIFT	:	The current velocity for manual correction or the current speed on the horizontal axis of the 2-axis log is displayed.
EBL	:	Electronic Bearing Line
ETA	:	Estimated Time of Arrival
ENH	:	Enhance
GPS	:	Global Positioning System
HDG	:	Heading. Ship's heading
HL	:	Heading Line
HSC	:	High Speed Craft. Vessels which comply with the definition in SOLAS for high speed craft
H UP	:	Head up. Own ship's heading line is always pointed to the top centre of the radar display.
IHO	:	International Hydrographic Office
IMO	:	International Maritime Organisation
IR	:	Radar Interference Rejecter
ISW	:	InterSWitch unit
LMT	:	Local Mean Time
LON	:	Longitude
LAT	:	Latitude

LP	:	Long Pulse
MED	:	Marine Equipment Directive. Request standard for standardisation of marine equipment within the EU region
MFD	:	The formal name is Multi Function Display. The navigation support functions such as RADAR, ECDIS, CID, and AMS can be executed by switching.
MMSI	:	Maritime Mobile Service Identity
MOB	:	Man Over Board
MON	:	Performance MONitor
MP	:	Medium Pulse
newpec	:	Electronic navigational chart by Japan Hydrographic Association
NM	:	Nautical Mile 1 nm=1852 m
N UP	:	The north is always pointed to the top centre of the radar display. (North up)
P0N	:	Unmodulated pulse, which is a type of transmission radio wave. While it is a type of radio wave usually used by radars equipped with magnetrons, radio waves with a short pulse length are used also by solid-state radars for short-range detection.
PI	:	Parallel Index line
Past positions	:	Equally time-spaced past position marks of a tracked or AIS target and the own ship.
POSN	:	POSitioN
PRF	:	Pulse Repetition Frequency. The number of radar pulses transmitted each second.
PROC	:	PROCess. Radar signal processing function
Q0N	:	A type of radio wave with intra-pulse frequency modulation. It is used for solid-state pulse compression radars.
RL	:	Rhumb Line
RR	:	Range Rings
Relative vector	:	A predicted movement of a target relative to own ship’s motion
RM	:	Relative Motion. A display on which the position of own ship remains fixed, and all targets move relative to own ship.
RM(R)	:	Relative Motion. Relative Trails
RM(T)	:	Relative Motion. True Trails
ROT	:	Rate Of Turn. Change of heading per time unit
Route	:	A set of waypoints
RPU	:	RADAR Processing Unit
SOG	:	Speed Over the Ground
SART	:	Search And Rescue Transponder
SET	:	The current direction for manual correction or the current speed on the horizontal axis of the 2-axis log is displayed.
SLC	:	Serial LAN Interface Circuit
SP	:	Short Pulse
STAB	:	STABilisation
STW	:	Speed Through Water
TCPA	:	Time to Closest Point of Approach to own ship

TM	:	True Motion. A display across which the own ship and targets move with their own true motions.
To WPT	:	To Waypoint (To WPT)
Trails	:	Tracks displayed by the radar echoes of targets in the form of an afterglow
Trial manoeuvre	:	A graphical simulation facility used to assist the operator to perform a proposed manoeuvre for navigation and collision avoidance purposes
True vector	:	A vector representing the predicted true motion of a target, as a result of input of the course and speed of the own ship
TT	:	Target Tracking
TTG	:	Time To Go. Time to next waypoint.
TXRX	:	Transmitter-Receiver Unit
UTC	:	Universal Time, Coordinated
VRM	:	Variable Range Marker
VDR	:	Voyage Data Recorder
WOL	:	Wheel Over Line
WPT	:	Waypoint
XTD	:	Cross Track Distance
XTL	:	Cross Track Limit
Activated target	:	A target representing the automatic or manual activation of a sleeping AIS target for the display of additional information
Associated target	:	A target simultaneously representing a tracked target and a AIS target which are decided as the same
Chirp	:	A type of transmission waveform with intra-pulse frequency modulation used by solid-state radars. Its radio wave type is classified as Q0N.
Clutter	:	Unwanted reflections on a radar screen, from sea surface, rain or snow.
Display	:	Screen displayed on the LCD
Frequency deviation range	:	The range of variation of the Q0N frequency used for transmission waves of a solid-state radar. Generally, the greater the frequency deviation range, the higher the resolution in the range direction.
Interswitch Unit	:	A device to switch over two or more radar display units and two or more radar antennas
Leg	:	Line between two consecutive waypoints
Lost AIS target	:	A target symbol representing the last valid position of an AIS target before the reception of its data was lost, or its last dead-reckoned position.
Lost tracked target	:	One for which target information is no longer available due to poor, lost or obscured signals.
Power amplifier	:	A radio frequency amplifier circuit consisting of semiconductor elements used for solid-state radars. It employs a high frequency, high power FET.
Primary	:	Main positioning sensor

Pulse compression	:	Correlation processing performed when a transmitted chirp signal is received by a solid-state radar after reflecting off the target. This processing gain enables the radar to have necessary detection capability even when a transmission power is low.
Radar beacon	:	A navigation aid which responds to the radar transmission and generates radio wave
Range	:	An area of the chart displayed on the screen. Represented by one half of the length of the chart display screen.
Range side lobe	:	False image that is generated as a result of pulse compression processing in the solid-state radar when there is a large target such as a large ship in the vicinity.
Reference target	:	A fixed target specified to calculate the speed over the ground
Rubber band	:	Border that indicates the selected range.
Scale	:	The display scale
Sea state	:	The average height of the wave expressed by dividing into several classes.
Sleeping AIS target	:	A target indicating the presence and orientation of a vessel equipped with AIS
Spot depth	:	Numeric representation of depth
SSR: Solid State Radar	:	Radar that uses semiconductor elements instead of magnetron, which requires periodic replacement. It is built with a system that ensures necessary detection capability even when a transmission output is low, by using chirp signals with a long pulse length upon transmission and performing pulse compression upon reception

*1 © C-MAP 2017, All rights reserved.

Notations

Operation notations

Trackball operations on the operation panel are expressed as follows.

Operation	Notation
Click the left button.	Click Example: Click on the object.
Double-click the left button.	Double-click Example: Determine the drawing by double-click.
Click the right button	Click the right mouse button Example: Display the context menu by clicking the right mouse button.

Button notations

The buttons and dialogue boxes on the screen are expressed as follows.

Button type	Notation
Button with button name indicated	Example: AUTO → [AUTO] (automatic) button
Button with an indication other than the button name such as an icon	Shown as follows. Example: → Day/Night button

Menu notations

A series menus are expressed as follows.

Type	Notation
Operation of menu	[Menu] button → User Map → File Operation
Position of menu	[User Map] – [File Operation]

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Section 1 Overview

⚠WARNING	
	In case water or a metal object gets inside the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing. Keeping the equipment in operation under such condition may cause a fire, an electric shock or a malfunction.
	In case you find smoke, unusual odor or extreme high heat coming from the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing. Keeping the equipment in operation under such condition may cause a fire or an electric shock.

⚠CAUTION	
	Do not use or leave the equipment where there is a direct sunshine and high humidity or the temperature exceeds 55°C. Otherwise, fire or other troubles may occur.
	Do not put any container with water or small metallic object on this equipment. Water may spill or metal may enter the equipment, causing fire, electric shock or other troubles.
	Do not touch the equipment when your hands or gloves are wet with fresh water or seawater. Otherwise, electric shock or other troubles may occur.

1.1 Functions

This marine radar equipment (referred to as "this equipment" in this manual) is navigation equipment that satisfies the following IMO performance standards.

- IMO Resolution MSC192(79): Radar performance standard
- IMO Resolution MSC191(79): Navigation information display
- IMO Resolution A.694(17): General requirements for marine radio facilities

Main functions

- The following databases can be displayed. JRC ROM card cannot use.
  - C-MAP MAX
  - newpec
- Own ship's track display and planned-route display on the chart
- TT target display and AIS target display on the chart
- Overlay of radar echo on the chart
- True/Relative motion display
- North-up/Course-up/Head-up
- Display of route information such as latitude/longitude at destinations, bearings/ranges up to waypoints, and planned arrival time
- Availability of two EBLs/VRMs
- Writing of memos with alphabetic characters into the chart
- Display of information such as the date/time, current position, heading, and ship's speed
- Selection of colours (conforming to the IMO/IHO) suitable for the daytime, nighttime, dawn and evening
- Editing of route information
  Addition, deletion, and modification of WPTs on the chart or the list
  Calculation of the distance between WPTs, bearings, and planned arrival time
  Up to 20 WPTs per route tracking (option)
- Waypoint arrival warning
- Off-track warning
- Logging of navigation information onto the SSD

1.2 Features

This equipment has the following features:

Utilization of an icon menu

Intuitive operation system based on the workflow

High-resolution large screen

Message reception notification function
Notifies arrival of a new AIS message and so on with a badge.

Utilization of a common information window
Enables display of target information and simple conning information (wind direction/wind speed information, etc.) with a simple switching operation.

Display of chart information read results by grouping
Enables immediate access to the required information.

Display of the cause of alert as well as the action guideline

Equipped with the Help function
The built-in HTML Help enables the search of operation methods in this equipment instead of the hardcopy manual whenever required.

Visual highlight of target symbols
Enables identification of the target that matches the condition such as the sailing direction, ship's length, and ship's type by highlighted display.

This function minimises the information that is displayed constantly and expands the chart display area.
- Can display two types of charts (C-MAP MAX and newpec).
- Realizes high operability through high-speed drawing and high-speed processing.
- Facilitates creation of user maps.
- Equipped with the multi-view function that can display two charts concurrently.
- Enables a course plan with multi-view.
- Can display a wide view screen while a single chart or multi-view is displayed.
- Enables creation of a route plan with the table editing function and the graphic editing function.
- Can update newpec charts. (Chart Maintenance)

Section 2 Basic Operations and Mode Screen

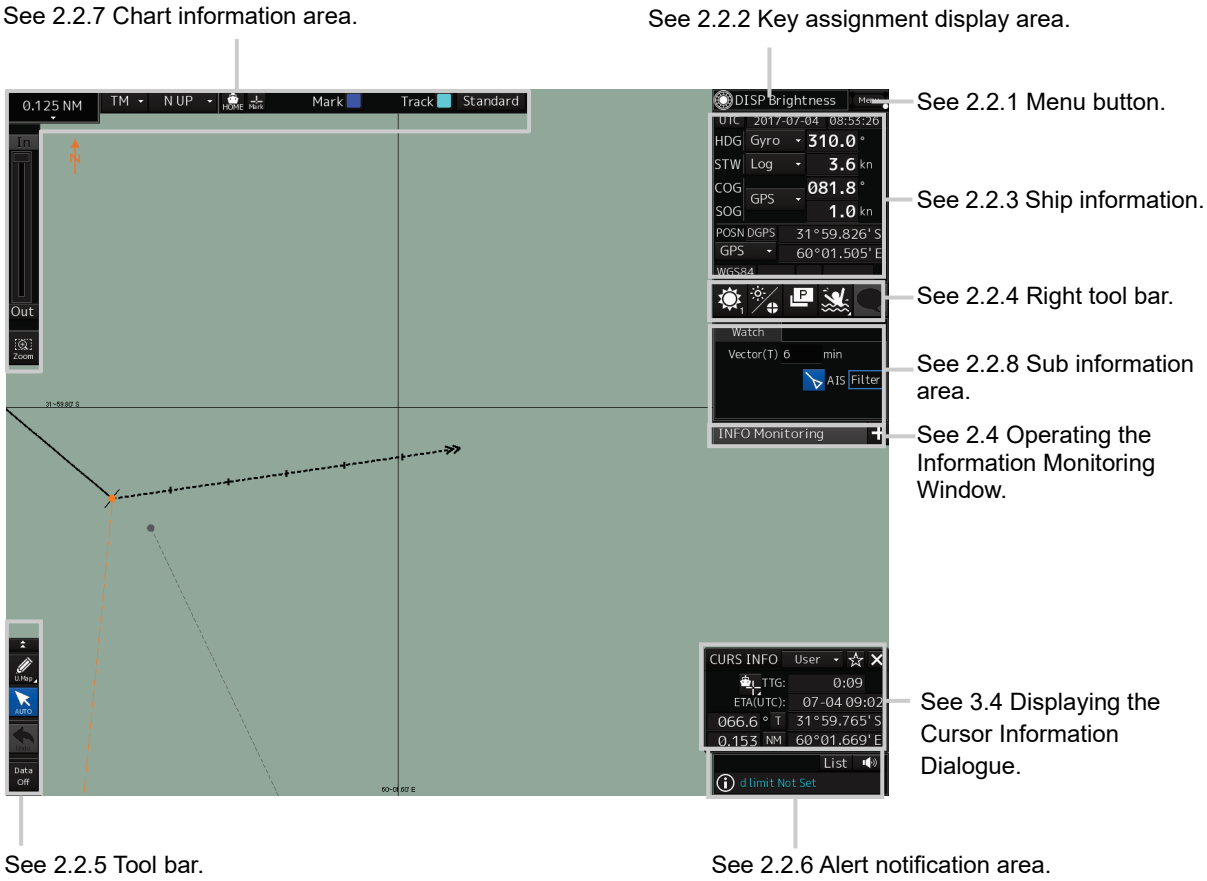
2.1 Changing the Mode

If an optional plotter is installed on the JMR-5400 series ship radar equipment, use the mode switching button on the right tool bar to switch the mode between the radar mode, synthesis mode, and plotter mode.

> **Memo**
> For details of the right tool bar, see 2.2.4 Right tool bar.

Mode screen in plotter mode

The following shows an example of the mode screen in plotter mode and relevant sections to be referenced for each part of the screen.



> **Memo**
> This document describes operations in plotter mode.
> See also the Instruction Manual of the ship radar equipment.

2.2 Sections and Features of the Mode Screen

2.2.1 Menu button

Click on the menu button to display the top menu.
For details of menu operations, see the Instruction Manual of the ship radar equipment.

Menu in plotter mode

The following table lists the menu items displayed only in plotter mode, menu items to which items only enabled in plotter mode are added, and menu items whose contents differ in plotter mode. The table also provide sections related to these menu items.

Menu item	Reference
Route Planning → Set Route/Destination	4.3 Opening the [Route/Destination] Dialogue 4.6.1 Edit on the [Route/Destination] dialogue
Route Planning → Destination List	4.5.1 Edit on the [Destination List] dialogue
Route Planning → Route List	4.4.2.2 Creating a route on the [Route List] dialogue 4.6.2 Edit on the [Route List] dialogue
Route Monitoring	5.1.1 Starting the route monitoring 5.1.2 Ending the route monitoring
Chart → My Port List	6.1.1 Registering/displaying my Ports
Chart → Off Centre by Entering Position	6.1.2 Displaying the chart by inputting the position
Tools → EBL/VRM	3.3 Displaying the EBL/VRM Button
Tools → Cursor Readout	3.4 Displaying the [Cursor Readout] Dialogue
Tools → File Manager	2.5 Managing Files on the [File Manager] Dialogue
View → Own Ship	6.2.1 Configuring the ship symbol display
View → Own Track	6.2.2 Configuring own track display
View → WPT/Route	4.2.1 Configuring [View] - [WPT/Route] from the menu 5.2.1 Configuring [View] - [WPT/Route] from the menu
View → Target	6.2.3 Configuring the TT/AIS target display
View → Chart View	3.1 Displaying the Chart in Multi-view Display
View → Tools	6.2.4 Configuring the distance/direction measuring function display
View → Control	6.2.5 Configuring display of the sub information area
Alert → Route	6.3.1 Configuring the alerts for the destination route
Settings → Signal Process(Basic)	6.4.1 Configuring the basic settings of radar signal processing
Settings → Route	5.2.2 Configuring [Settings] - [Route] from the menu
Settings → Preferences	6.4.4 Configuring the user preferences
Settings → Scale/Range Preset	6.4.3 Configuring the scale and range
Settings → Position Display	6.4.2 Configuring the current position display

2.2.2 Key assignment display area

Rotate the [Multi] Dial to operate assigned functions.

Assigned function

2.2.2.1 Change the assignment

1 Press the [Multi] Dial.

The Key Assignment dialogue box is displayed.

2 Rotate the [Multi] Dial to select an assigned function from [Multi Dial].

In plotter mode, the following functions can be selected.

No.	Function name	Functional overview
1	Vector Time	Select a vector length.
2	C UP Angle	Change the course up angle.
3	Own Track Colour	Select an own track colour.
4	Mark/Line Colour	User map colour
5	Manual Tune	Adjustment of manual tuning
6	Display Brightness	Adjust the brightness of the display unit.
7	Panel Brightness	Adjust the brightness of the operating unit.
8	Gain	Adjust the sensitivity.
9	Sea	Remove sea clutter.
10	Rain	Remove rain and snow clutter.

2.2.3 Ship information

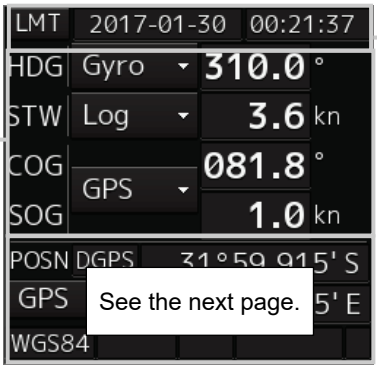
⚠WARNING

Do not use the offset function while the ship is underway.
If the equipment is used with an offset value input in the ship position (state of being shifted from the actual position), an accident may be caused.

The ship information is displayed.

Memo

- When the 1-axis log is used, the velocity component in the forward direction can be detected but the velocity component in the lateral direction cannot be detected. Therefore, the leeway effect (off-course movement due to wind) cannot be detected.
- When the 2-axis ground log is used, the accuracy may degrade in a shoal. The velocity may not be detected in the abyssal zone.
- When the GPS is used, the COG precision will be less than ±3° at velocities of 1 to 17 kn. The precision will be less than ±1° at velocities of more than 17 kn.



UTC/Local date and time

The current date and time are displayed.
Click on it to switch between the UTC time and the local time.
From the menu, select [Maintenance] - [Date/Time/Time Zone] - [Display Style] to configure the date format.
For details of configuring the data and time, see the Instruction Manual of the ship radar equipment.

Sensor information

Sensor information is displayed.

Sensor type

Sensor name	Description
HDG	Displays the value of the heading direction sensor.
STW	Displays the value of the water speed sensor.
COG/SOG	Displays the value of the ground speed sensor.

Background colours for sensor values

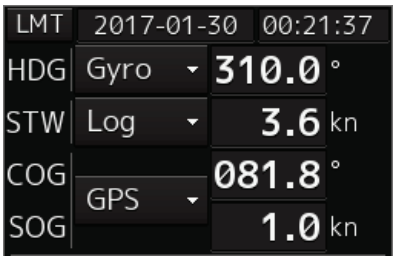
The meanings of the background colours are as follows.

Normal: Indicates a normal sensor value.

Yellow: The reliability of the sensor value is low.

Yellowish orange: The sensor value is abnormal.

Switching the sensor source



Select a sensor source from the [Source] combo box. The following sensor sources can be selected.
Select [Menu...] to display the [Sensor Selection/Status] dialogue.

Sensor name	Sensor source
HDG	Manual, Gyro, Gyro 1[*1*4], Gyro 2[*1*4], MAG (MAG Compass)[*4], G/C (GPS Compass)
STW	Manual, Log[*5], Log 1[*2*5], Log 2[*2*5]
COG	Log [*5], Log 1[*2*5], Log 2[*2*5], GPSx[*3]
SOG	

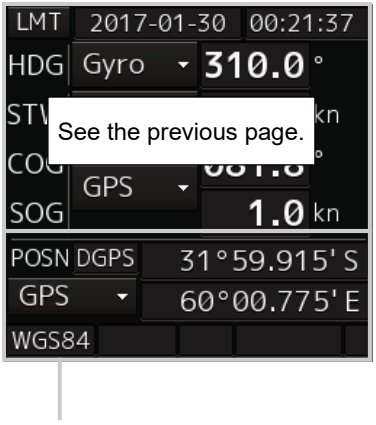
*1: Only with two gyrocompasses

*2: Only with two logs

*3: "x" indicates a device number if more than one GPS is used.

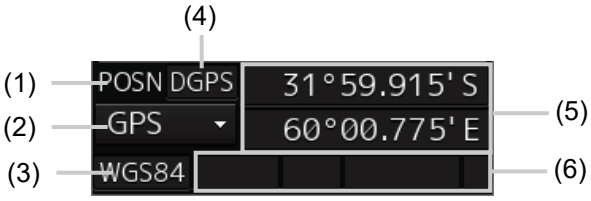
*4: If a gyrocompass system with the automatic switching feature is used, the sensor source display is automatically changed depending on the switching status.

*5: Logs with 1AX installed cannot be selected from the sensor source.



[Position] dialogue

The position information is displayed.



(1) The position data name is displayed.

(2) The position sensor source is displayed.
Select a sensor source from the [Source] combo box. The following sensor sources can be selected.
Select [Menu...] to display the [Sensor Selection/Status] dialogue.

Data name	Sensor source
Position	GPSx*, manual

* "x" indicates a device number if more than one GPS is used.

(3) The Geodetic Positioning System of POSN is displayed.

(4) The positioning precision is displayed.
If the positioning precision is differential positioning, "DGPS" is displayed. If the positioning is GPS-alone positioning, nothing is displayed.

(5) CCRP position
The CCRP position from the primary sensor is displayed.

(6) Badge display area

Offset : This badge is displayed, when offset is set for own ship's position.
AFT : This badge is displayed, when AFT Operation is enabled.
EBL/VRM : This badge is displayed, when EBL/VRM cursor mode is enabled.
V : This badge is displayed, when GPS Buoy mode is enabled.

2.2.4 Right tool bar

The following describes the functions of buttons on the right tool bar.

Daytime/night button

Change the screen brightness in five steps depending on the brightness in the bridge.
For details, see the Instruction Manual of the ship radar equipment.

Message notification button

Click on it to display the latest notification messages received regarding AIS, MSG Tray, and NAVTEX.
For details of the message dialogue of each received information, see the Instruction Manual of the ship radar equipment.
The badge on the icon indicates the no. of unread messages.

Brightness adjustment button for the screen and operating unit

The screen brightness can be adjusted in the range of 0 to 100, and the brightness of the operating unit can be adjusted in the range of 0 to 4 (five steps).

For details, see the Instruction Manual of the ship radar equipment.

MOB (Man Over Board) button

In case someone falls over board, the ship position when this button is clicked on is marked so as not lose the fallover position.

For details, see the Instruction Manual of the ship radar equipment.

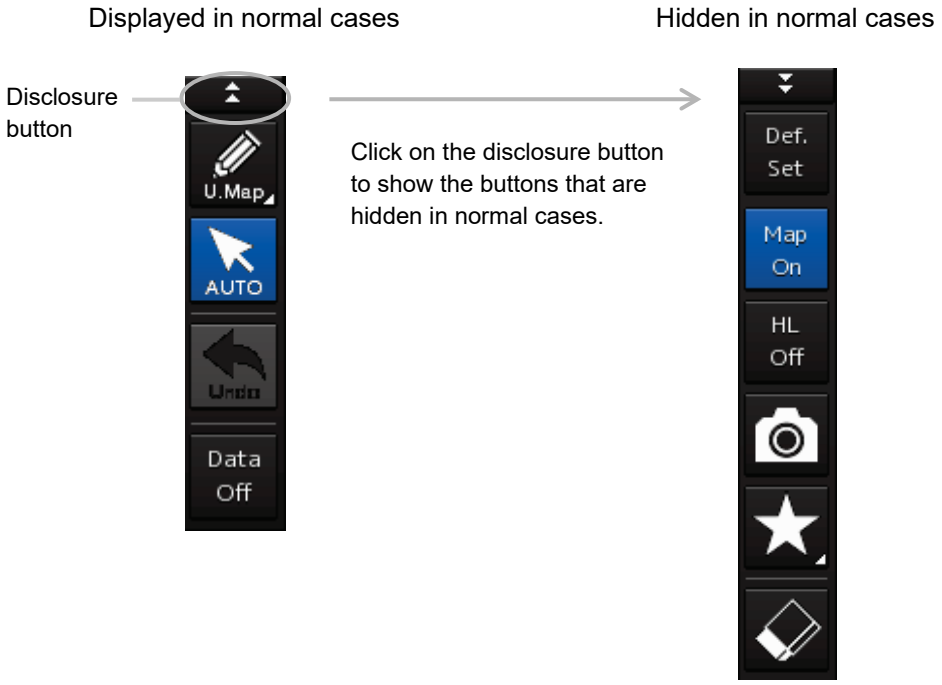
Mode change button

Click on it to change the mode.
The mode can be switched between [Radar mode], [Synthesis mode], and [Plotter mode] in this order.
The icon also changes accordingly when the mode changes.

Mode	Icon
Radar mode	
Synthesis mode	
Plotter mode	

2.2.5 Tool bar

The following describes the functions of buttons on the tool bar.
Some buttons are hidden in normal cases.
Change the button display by clicking on the disclosure button.



See the next page for the name and description of each button.

2.2.5.1 Buttons displayed in normal cases

[U.Map] (user map) button

Click on it to display the tool bar for drawing the user map.

[Undo] (cancel) button

Cancels the previous operation.
Operations in the following mode can be cancelled.

- User map creation mode
- Own Track
- Target Track

[AUTO] (Cursor mode selection) button

Click on it to set the cursor mode to the AUTO mode.

For details of the cursor mode, see the Instruction Manual of the ship radar equipment.

[Data Off] button

Click on it to display only the main information and hide other information.

The following information will be displayed.

RADAR

- Echo/trail
- Cursor

Plotter

- Chart
- Own ship symbol
- Route
- Cursor

2.2.5.2 Buttons hidden in normal cases

[Def.] button
Resets the user preferences to the factory default settings.
It works in the same way as the [Initialise the displayed settings] button on the [User preferences] dialogue of the [Settings] menu.
For details, see the Instruction Manual of the ship radar equipment.

[Screen capture] button
Click on it to capture the current screen.
For details, see the Instruction Manual of the ship radar equipment.

Eraser tool button
Click on it to activate the user map deletion mode. Continuous deletion is possible.

[Map On/Off] button
Shows or hides the user map.

[HL Off] button
Click on it to hide the heading flash.
For details of the heading flash, see the Instruction Manual of the ship radar equipment.

[Favourite] button
Click on it to display the list of functions registered in the favourite.
For details, see the Instruction Manual of the ship radar equipment.

2.2.6 Alert notification area

When an alert is issued, the alert status, content, and the number of occurrences are displayed in the alert notification area.

For details of the alert confirmation and approval operations, see the Instruction Manual of the ship radar equipment.

2.2.7 Chart information area

The chart information area consists of the following information display sections, buttons and tools.

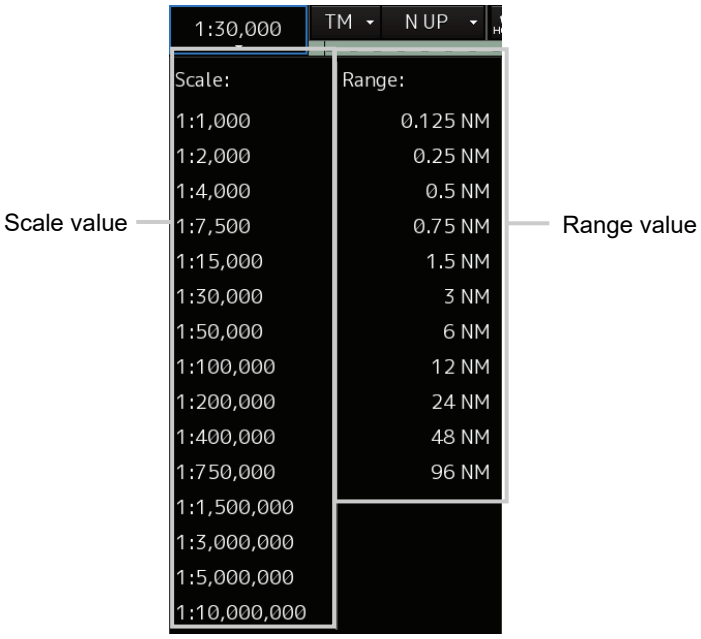
2.2.7.1 Scale/range combo box

The current scale or range is displayed.

Scale Range

Select a scale or range from this combo box.

Click on the scale/range combo box to display the scale/range selection list.



Select a scale or range value from the list to display the chart with the selected scale or range.

2.2.7.2 Motion mode combo box

Displays the current motion mode.

Select a motion mode from the combo box.

Click on the motion mode combo box to select a motion mode.

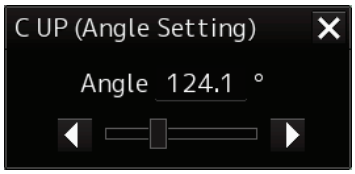
Setting item	Description
[TM]	True Motion Mode The ground and other objects are fixed on the screen and only the ship moves. The chart automatically shifts when the ship reaches the predefined end of the screen so that the ship is always displayed in the upper part of the screen.
[RM]	Relative Motion Mode The ship is fixed in the centre of the screen, and the ground and other objects move relatively.
[Free]	Free mode The chart can be moved freely regardless of the ship's traveling direction. The ship disappears when it moves.

2.2.7.3 Direction mode combo box

Displays the current direction mode.

Select a direction mode from the combo box.

Click on the direction mode combo box to select a direction mode.

Setting item	Description
[N UP]	North Up (true bearing) • The chart is displayed with the north always on top. It provides great chart visibility because of no flickering of fixed objects, and the true bearing of each object can be read easily.
[H UP]	Head Up (relative bearing) • The chart is displayed with the ship's heading direction upward. It cannot be selected in TM (true motion) or Fee mode.
[C UP]	Course Up display • The ship's heading direction (HDG) is fixed on top in course up mode.
[C UP (Angle Setting)...]	Course Up display (course angle setting) • Select this to display the [C UP (Angle Setting)] dialogue. The course angle (heading angle) set on the dialogue is fixed on top of the screen.  − Enter the angle in the [Angle] field on the [C UP (Angle Setting)] dialogue. − Move the angle input slider to adjust the value. − Click on [×] to complete the input.
[D UP]	Destination Up • To WPT (destination) is always displayed in the upper section of the screen. It can be selected only if the motion mode is RM (relative motion) and during route monitoring.

2.2.7.4 [HOME] button

Click on it to move the chart so that the ship position is displayed.
This button is useful when you lose sight of the ship position.

2.2.7.5 [Mark] (mark input position)

Select a position to insert a mark when inserting a mark using a numeric key.
Click on the mark positioning button to change the button as follows.

Button	Description
	Insert a mark on the ship position.
	Insert a mark on the cursor position.

2.2.7.6 [SD Card Removal] button

Displayed when a C-MAP MAX SD card is inserted.
To remove the SD card, click on this button, and remove the card after the icon is set to a removal enabled status.
The statuses of the icon are shown in the table below.

Icon	Status
	Enabled. When this icon is clicked on the removal of the card is requested.
	Disabled. The removal of the card is disabled while card removal is being requested.
	Removal enabled. The card removal request is successful and the SD card can be removed.

2.2.7.7 C-MAP MAX logo

Displayed when a C-MAP MAX chart is displayed.

2.2.7.8 [Mark] (user map colour)

Displays the user map colour common to marks, lines, and texts.

When the [Mark] is enclosed with blue borders, the [MULTI] dial is assigned the colour change function. Click on the colour icon to display the [Plot Colour] dialogue on which you can select a colour from the following.

White/Grey/Amber/Magenta/Blue/Cyan/Green/Yellow/Orange/Dark Red

2.2.7.9 [Track] (own track colour)

The current ship's own track colour is displayed.

When the [Track] is enclosed with blue borders, the multi-function knob is assigned the colour change function.

Click on the colour icon to display the [Plot Colour] dialogue on which you can select a colour from the following.

White/Grey/Amber/Magenta/Blue/Cyan/Green/Yellow/Orange/Dark Red

2.2.7.10 Observation scene selection button

Displays the current observation scene.

Standard

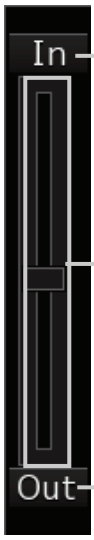
The signal processing pattern is set in accordance with the normal use state in order to acquire optimal radar images. Select an observation scene in accordance with the current oceanographic condition to acquire optimal images.
Click on the observation scene selection button and select an observation scene in accordance with the current oceanographic condition from the [Selection] (observation scene selection) dialogue.

Observation scene	Definition
Standard	Standard
Coast	Used for monitoring in a short distance such as a zone inside the bay where so many ships are present. (The resolution is prioritized.)
Open-sea	Used for monitoring in a long distance such as the ocean. (The long distance sensitivity is prioritized.)
Fishnet	Used to detect floating fishnet and other small objects hidden in see clutter. (Sea clutter restriction is prioritized while the sensitivity of moving objects degrades.)
Storm	Used in storms where the rain and snow clutter or sea clutter is significant. (Sea/rain and snow clutter restriction is prioritized while the sensitivity degrades a little.)
Calm	Used when the rain and snow clutter or sea clutter is not significant.
Rain	Used when the sea clutter is not significant but the rain and snow clutter is significant. (Rain and snow clutter restriction is prioritized while the sensitivity degrades a little.)
Bird	Used to detect seabirds.
Long	Used for monitoring in a relatively long distance in the ocean.
Buoy	Used to detect small objects such as radio buoys outside the sea clutter. (Objects with low detection ratios are displayed.)
User1	General-purpose mode used when all the above nine types are not relevant.
User2	General-purpose mode used when all the above nine types are not relevant.
AUTO(L)	A preset observation scene is selected automatically depending on the selected range*1.

*1: For details of automatic switching, see the Instruction Manual of the ship radar equipment.

2.2.7.11 Zoom slider

Used to scale the chart.



[In] button
Click on it to zoom in the chart.

Slider
Move the slider knob upward to zoom in the chart.
Move the slider knob downward to zoom out the chart.

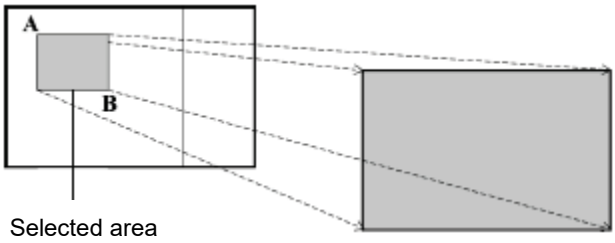
[Out] button
Click on it to zoom out the chart.

2.2.7.12 [Zoom] (zoom area) button

Enlarge the selected area to full-screen size.

Click on it to change the cursor to the zoom cursor.

Use the trackball to move the cursor to the upper left corner "A" of the target range, then move the cursor to the bottom right corner "B", and then click on the button.

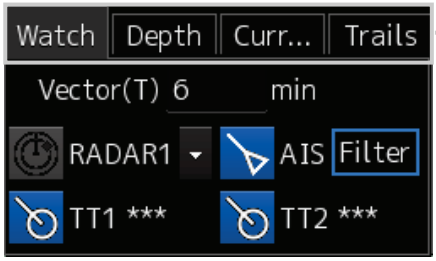


The selected area is enlarged to full-screen size.
The zoom cursor changes back to the cross-hair cursor.

2.2.8 Sub information area

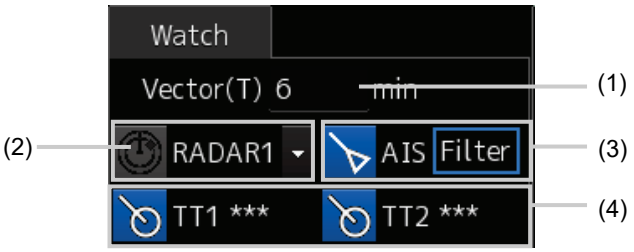
Click on each tab to display relevant information.

> **Memo**
> Tabs displayed differ depending on the setting on the [Control] dialogue of the [View] menu.



Tabs
Click on each tab to display relevant information.
- [Watch] dialogue
  (See 2.2.8.1 [Watch] dialogue.)
- [Depth] dialogue
  (See 2.2.8.2 [Depth] dialogue.)
- [Current] dialogue
  (See 2.2.8.3 [Current] dialogue.)
- [Trails] dialogue
  (See 2.2.8.4 [Trails] dialogue.)

2.2.8.1 [Watch] dialogue



(1) [Vector(T)] (vector length) field
Enter the vector length.
Input range: 1 to 120 min

(2) Radar overlay button
Turns on/off the radar overlay display.
Click on it to turn on/off the overlay.
If the radar is not installed, nothing is displayed.

ON: OFF:

If multiple radars are installed, select radar system to use from the combo box.

(3) AIS (AIS function) button and AIS filter display button

(a) AIS (AIS function) button

Turns on/off AIS.

Click on it to turn on/off the function.

If AIS is disabled, nothing is displayed.

ON: OFF:

(b) AIS filter display button

When AIS is ON, [Filter] is displayed.

When the AIS filter is ON, [Filter] is enclosed with blue borders.

(4) TT1/TT2 (TT1/TT2 function) button

(a) TT1 (TT1 function) button

Turns on/off TT1.

Click on it to turn on/off the function.

If TT1 is disabled, nothing is displayed.

ON: OFF:

(b) TT2 (TT2 function) button

Turns on/off TT2.

Click on it to turn on/off the function.

If TT2 is disabled, nothing is displayed.

ON: OFF:

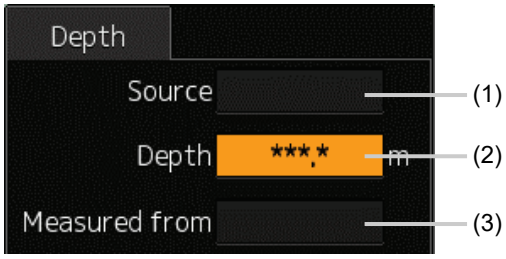
REL, GND, or SEA is added to the end of the display names of TT1 and TT2 buttons depending on the radar motion mode or stabilisation mode (e.g. TT1-GND).

Text	Motion mode	Stabilisation mode
REL	Relative motion display (RM)	—
GND	True motion display (TM)	Speed over ground
SEA	True motion display (TM)	Speed through the water

To use a TTM sentence for the TT symbol display, an OSD sentence must be received from the RADAR.

2.2.8.2 [Depth] dialogue

The [Depth] dialogue box is displayed if a depth sounder is installed.



(1) [Source]

Displays the depth sounder used.

FWD: Front depth sounder

AFT: Rear depth sounder

(2) [Depth]

Displays the water depth.

(3) [Measured from]

Displays the reference position to measure the water depth.

Transducer

Surface

Keel

2.2.8.3 [Current] dialogue

(1) [Set]

Displays the direction of the current.

(2) [Drift]

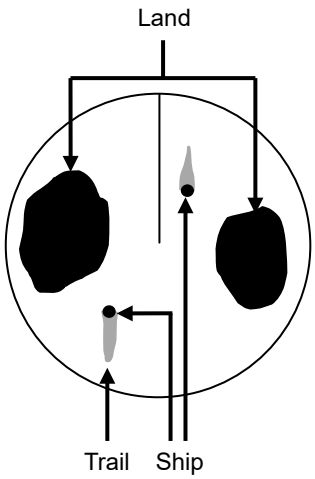
Displays the speed of the current.

2.2.8.4 [Trails] dialogue

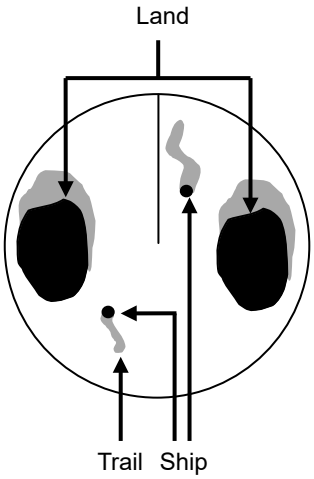
Use the [Trails] dialogue to set the display of other ships' trails.

True motion or relative motion can be used for the trail display mode.

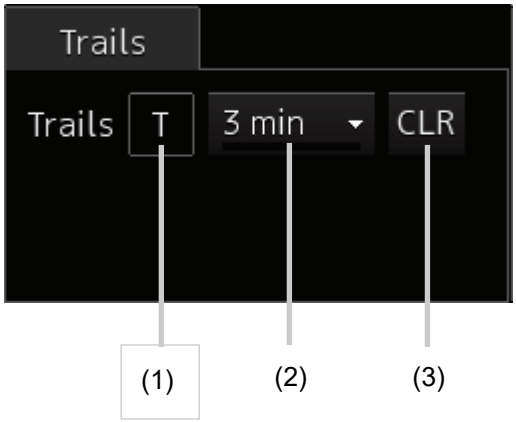
Display mode	Description
True motion display	Draws the absolute trails of other ships irrelevant to the own ship. This mode is useful to determine the courses and speeds of other ships. No motion trails for fixed objects such as the land is drawn.
Relative motion display	Draws the trails of other ships relative to the own ship. This mode is useful to determine whether other ships are coming closer to the own ship. Motion trails for fixed objects such as the land are also drawn.



True motion trail



Relative motion trail



(1) True/relative trail switching button

Click on it to change the trail display to true motion or relative motion.

T: True motion display

R: Relative motion display

Available trail display modes differ depending on the configured motion modes.

The display mode will be fixed to the true motion mode if the motion mode is TM (true motion).

(2) Trail length switching combo box

Changes the trail length

The following trail lengths can be selected depending on the radar trail length set in the radar mode.

Short mode: Off, 15 sec, 30 sec, 1 min, 3 min, 6 min, 10 min, 15 min, 30 min, 60 min

Long mode: Off, 30 min, 1 hour, 2 to 24 hours (units of hours)

Drawing of trails starts when transmission starts.

If the elapsed time after the transmission started is short, the display may not satisfy the specified value. The required time is indicated by the bottom blue bar.

(3) [CLR] button

Click on it to delete trails.

On the confirmation dialogue that opens, click on [OK] to delete the trails.

Click on [Cancel] to cancel the deletion.

2.3 Common Information Window

The Common Information window is used in the radar mode and plotter mode in the same manner.

Memo

For details of the Common Information window, see the Instruction Manual of the ship radar equipment.

The Common Information window consists of the Information Monitoring window and the Information Reference window.

In plotter mode, the Information Monitoring window is displayed at bottom right by default but this floating window can be moved freely.
For details of how to operate the Information Monitoring window, see 2.4 Operating the Information Monitoring Window.

2.4 Operating the Information Monitoring Window

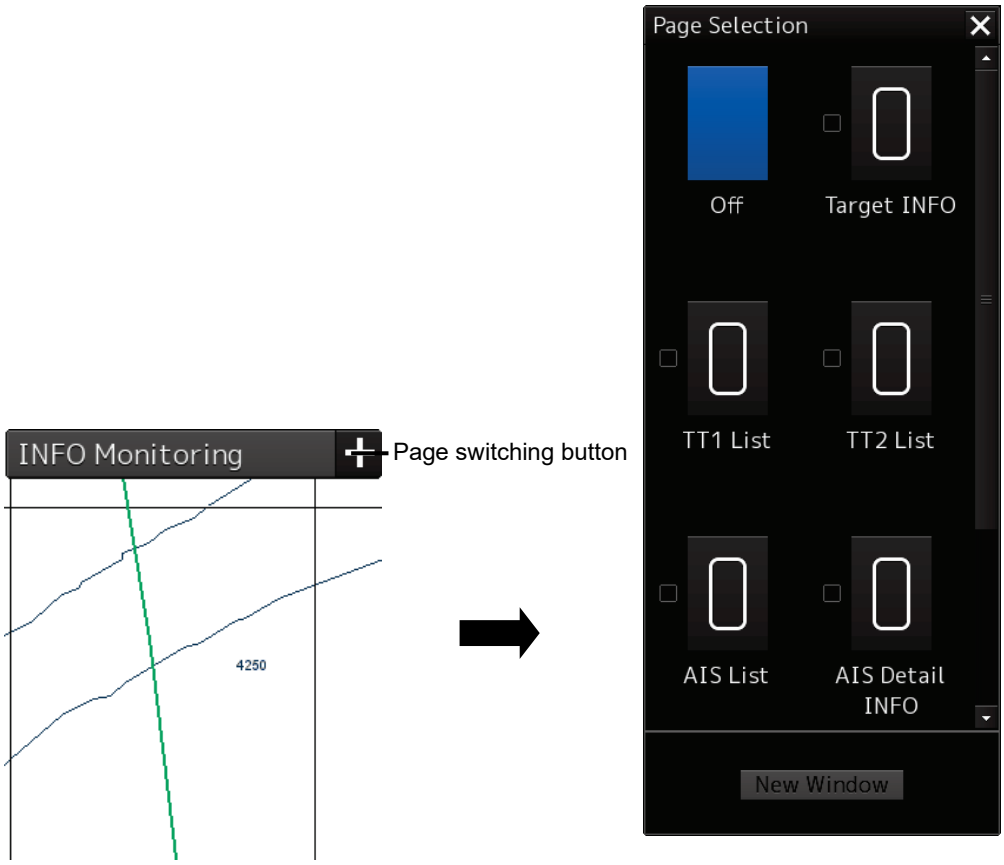
The following describes operations and edit of the Information Monitoring window in plotter mode.

2.4.1 Opening the information monitoring window

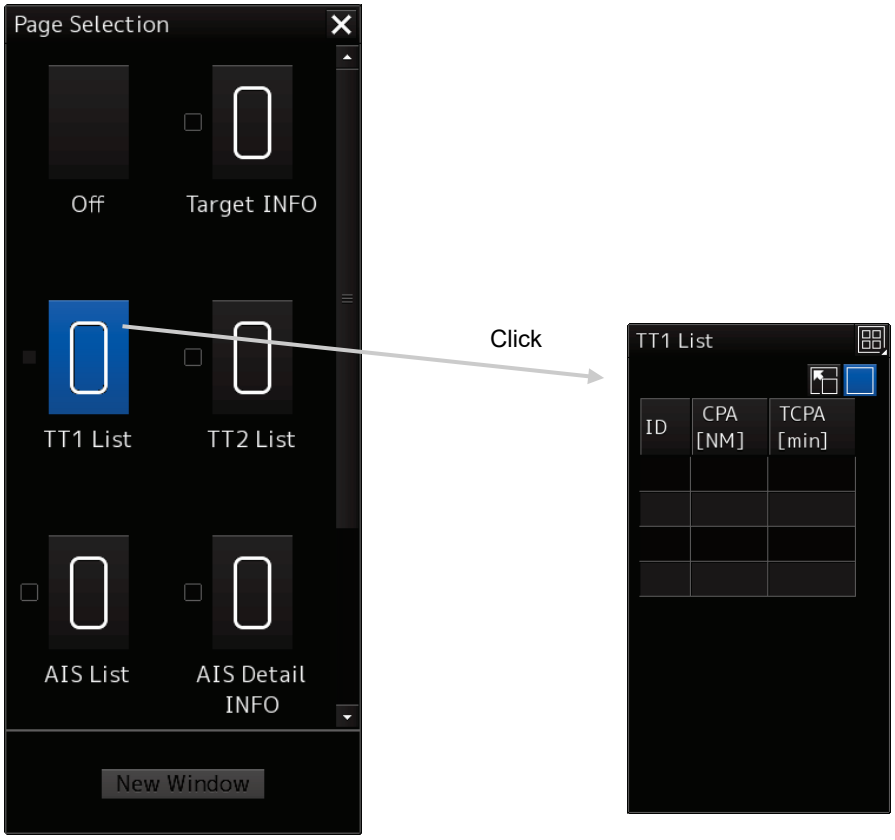
1 Click on the page switching button on the initial window.

Initially, the content is empty.

Click on the page switching button to display the [Page Selection] dialogue.

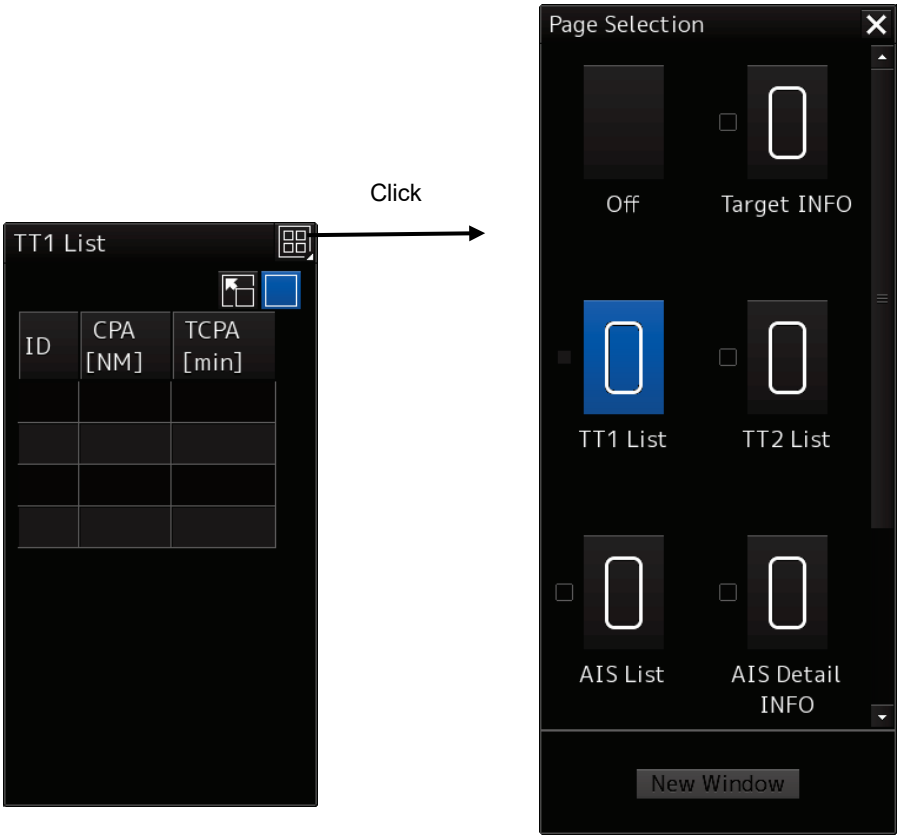


2 **Clicking on the monitoring information you want to show opens the relevant window.**



To go back to the [Page Selection] dialogue from each window

Click on the page switching button on each window to go back to the [Page Selection] dialogue.



Displaying items in a separate window

1 **Select check boxes for items you want to display in a separate window.**

2 **Click on [New Window] (separate window) button.**

The items are displayed in a separate window.

Memo

Windows already opened cannot be opened in a separate window.

2.4.2 Opening the information monitoring window from a dialogue other than the [Page Selection] dialogue

The following table lists the procedures to open the Information Monitoring window from a dialogue other than the [Page Selection] dialogue.

Information Monitoring window	Display method
Target INFO	1) Click on the TT symbol. (Cursor AUTO mode) 2) Right-click on the TT/AIS symbol and select [Readout information] from the context menu. 3) Click on the AIS Activated Target. (Cursor AUTO mode)
TT1 List, TT2 List	1) From [TT/AIS] of the menu, select the TT/AIS list.
AIS List	1) From [TT/AIS] of the menu, select the TT/AIS list.
AIS Detail INFO	1) Select an AIS target from the AIS List and click on [Details]. 2) Right-click on the AIS symbol and select [Readout detail information] from the context menu.

2.5 Managing Files on the [File Manager] Dialogue

⚠WARNING

Confirm computer virus does not exist in external storage media beforehand when reading and writing of the file by using external storage media.
Influences other equipment when the display unit is infected with the virus, and it may cause a breakdown.

The file manager function enables you to copy route files add user maps from the equipment hard disc to the external media or vice versa.

Procedure

Use the following operation to open the [File Manager] dialogue.
[Menu] button → Tools → File Manager

2.5.1 Managing the files

The [File Management] tab is used to manage files. The File Manager enables you to copy/delete files between the SSD of the equipment and external media.

Memo

The following describes operations on the [File Manager] dialogue in plotter mode.
For details of the operations on the [File Manager] dialogue in radar mode, see the Instruction Manual of the ship radar equipment.

The following table lists the items displayed on the [File Management] tab.

Item	Description
File Type	Select a file type. The following description is based on the premise that [Plotter Route] is selected as the file type.
Drive	Select a drive from the combo box.
Copy>>	Copies files selected in the [Drive] list on the left to the [Drive] list on the right.
<< Copy	Copies files selected in the [Drive] list on the right to the [Drive] list on the left.
Delete	Deletes the selected files.
File list	
Check box	Select a file to copy or delete.
Name	Lists files of the selected file type.

2.5.1.1 Copying Files

This section describes an example of copying the list of files on the drive specified in the [Drive] list on the left to the [Drive] list on the right on the dialogue.

1 Click on the [File Management] tab.

2 From the [Drive] combo box, select a drive where files to be copied are saved.

Files in the drive are listed.

The following file types can be displayed on the [File Management] tab.

File type	File extension	Description
Plotter Route	rtr	Destination route (plotter mode)
User Map	uchr	User map
Own Track	otr	Own Track
Target Track	ttr	Other ships routes (including GPS buoy routes)
Screen Shot(AUTO)	PNG file	Automatically generated screen shots
Screen Shot(User)	PNG file	Manually generated screen shots
Preferences	ini	Personal settings

3 Select check boxes of desired files.

4 Select a save destination drive from the [Drive] combo box and select a save location from the folder tree displayed.

5 Click on the [Copy>>] button.

Files will be copied. To copy files in an inverse way, click on [<<Copy] at step 5.

2.5.1.2 Deleting files

1 Select check boxes of the files to delete.

2 Click on the [Delete] button.

A confirmation dialogue is displayed.

3 Click on [OK] to delete the files.

2.5.2 Loading/saving the destination route file

On the [File Load/Save] tab, destination route files can be loaded and saved.

The following table lists the items displayed on the [File Load/Save] tab.

Item	Description
File Type	Select a file type. Available types are Own Track, Target Track, and Plotter Route.
[Load] button	Loads the file selected on the list.
[Save Current Route and Destinations]	It is displayed when [Plotter Route] is selected as the file type. The currently stored destination route and proposed destination are saved.
[Delete Current Route and Destinations]	It is displayed when [Plotter Route] is selected as the file type. The currently stored destination route and proposed destination are deleted.
File list	
Name	Displays the file name.

2.5.2.1 Loading the destination route file

1 Click on the [File Load/Save] tab.

2 Select [Plotter Route] from the [File Type] combo box.

3 Click on the [Load] button.

A confirmation dialogue is displayed.

4 Click on the [OK] button.

The selected file is loaded.

2.5.2.2 Unloading the destination route data (data deletion from the screen)

1 **Click on the [File Load/Save] tab.**

2 **Select [Plotter Route] from the [File Type] combo box.**

3 **Click on the [Delete Current Route and Destinations] button.**

A confirmation dialogue is displayed.

4 **Click on the [OK] button.**

The stored destination route data is deleted from the screen.

2.5.2.3 Saving the destination route file

1 **Click on the [File Load/Save] tab.**

2 **Select [Plotter Route] from the [File Type] combo box.**

3 **Click on the [Save Current Route and Destinations] button.**

A confirmation dialogue is displayed.

4 **Enter the file name in the input field, and click on [OK] to save the file.**

The stored route and destination are saved.

Section 3 Operations on the Chart Screen

This chapter describes chart operations available in plotter mode.

3.1 Displaying the Chart in Multi-View Display

The multi-view feature can divide the chart screen into two sections so that the same or a different chart can be displayed on each screen.
The multi-view feature can be configured on the [Chart View] dialogue of the [View] menu.

Procedure

Use the following operation to display the [Chart View] dialogue in the Edit pane of the [View] dialogue.
[Menu] button → View → Chart View

Use the [Multi View Mode] button on the [Chart View] dialogue to configure the multi-view display.

Memo

For details of buttons other than the [Multi View Mode] button of the [Chart View] dialogue, see the Instruction Manual of the ship radar equipment.

3.1.1 Displaying the multi-view screen

1 Click on the [Multi View Mode] button.

The [Multi View Mode] dialogue is displayed.
Select a display mode from [Multi View Mode] on the [Multi View Mode] dialogue.

Display mode	Multi-view screen
Single View	The chart screen is not divided (multi-view is OFF).
Top-Bottom	The chart screen is divided vertically into two screens. The divided screens are called View1 and View2.
Right-Left	The chart screen is divided horizontally into two screens. The divided screens are called View1 and View2.

2 Click on a display mode to select it.

The chart is displayed in the selected display mode.

3.1.2 Operating the multi-view screen

3.1.2.1 Behavior of the multi-view screen

- View1 and View2 look the same.
- View1 and View2 operate in the same manner except the items configured only in View2.
- The progress of the creation, edit, and other operations (e.g. destination route planning) is displayed only in the active view.
- The EBL/VRM and EBL menu bars are shared by View1 and View2, so the same contents should be displayed. However, the contents may differ depending on the measurement base point setting.

Memo
The direction mode of View2 is always linked with the direction mode of View1.

3.1.2.2 Displaying in View2 the area specified in View1

The area to be displayed in View2 can be specified in View1.

1. **Click on the [Select Area from View1 for View2] button on the [Multi View Mode] dialogue.**
   The button is highlighted.
2. **Move the cursor to View1.**
   The cursor changes to the range selection cursor.
3. **Move the cursor to the start point of the range and click, then drag the cursor to determine the range to display in View2.**
4. **Click.**
   The selected range is displayed in View2.
   The [Select Area from View1 for View2] button returns to its normal state.

3.1.2.3 Selecting a view

Various operations are available in the selected view.

1. **Move the cursor to the view you want to activate and click on it.**
   The view will become active.
   To confirm which view is active, check the active information display of [View1] or [View2].

3.1.2.4 Moving the view boundary

When the display mode is Top-Bottom or Right-Left, the view boundary can be moved.
Click on the view boundary to change the cursor to the up/down or left/right arrow, and drag it in the desired direction.

3.2 Operating EBL/VRM via the Context Menu

In plotter mode, the context menu for operating EBL/VRM can be displayed by right-clicking on the chart.

Memo

- The context menu described here is the one poped up by right-clicking on anywhere except on specific objects such as AIS and TT.
- For details of the context menu common to both the plotter mode and synthesis mode and the context menu displayed only in the synthesis mode, see the Instruction Manual of the ship radar equipment.

There are two types of context menus for operating EBL/VRM: [Dropped EBL/VRM] that uses any position as the measurement base point and [CCRP EBL/VRM] that uses the ship position as measurement base point.

Context menu	Reference
[Dropped EBL/VRM] - [Make EBL1/VRM1] or [Make EBL2/VRM2]	3.2.1 Operation via [Dropped EBL/VRM] - [Make EBL1/VRM1] or [Make EBL2/VRM2]
[Dropped EBL/VRM] - [Make EBL1] or [Make EBL2]	3.2.2 Operation via [Dropped EBL/VRM] - [Make EBL1] or [Make EBL2]
[Dropped EBL/VRM] - [Make VRM1] or [Make VRM2]	3.2.3 Operation via [Dropped EBL/VRM] - [Make VRM1] or [Make VRM2]
[Dropped EBL/VRM] - [Move base point of EBL1/VRM1] or [Move base point of EBL2/VRM2]	3.2.4 Operation via [Dropped EBL/VRM] - [Move base point of EBL1/VRM1] or [Move base point of EBL2/VRM2]
[CCRP EBL/VRM] - [Make EBL1/VRM1] or [EBL2/Make VRM2]	3.2.5 Operation via [CCRP EBL/VRM] - [Male EBL1/VRM1] or [Make EBL2/ VRM2]
[CCRP EBL/VRM] - [Make EBL1] or [Make EBL2]	3.2.6 Operation via [CCRP EBL/VRM] - [Make EBL1] or [Make EBL2]
[CCRP EBL/VRM] - [Make VRM1] or [Make VRM2]	3.2.7 Operation via [CCRP EBL/VRM] - [Make VRM1] or [Make VRM2]

[Dropped EBL/VRM] menu

This context menu is used to operate EBL/VRM using any position as the measurement base point. The following menu items are available.

- Make EBL1/VRM1
- Make EBL2/ VRM2
- Make EBL1
- Make EBL2
- Make VRM1
- Make VRM2
- Move base point of EBL1/VRM1
- Move base point of EBL2/VRM2

[CCRP EBL/VRM] menu

This context menu is used to operate EBL/VRM using the ship position as the measurement base point.

The following menu items are available.

- Make EBL1/VRM1
- Make EBL2/VRM2
- Make EBL1
- Make EBL2
- Make VRM1
- Make VRM2

3.2.1 Operation via [Dropped EBL/VRM] - [Make EBL1/VRM1] or [Make EBL2/VRM2]

Operations are common in EBL1/VRM1 and EBL2/VRM2. The following description is based on EBL1/VRM1.

1. **Right-click on the chart to display the context menu.**
2. **Select [Dropped EBL/VRM] - [Make EBL1/VRM1] from the context menu.**
   EBL1 is displayed and the measurement base point is displayed on the cursor.
3. **Move the cursor to any position and click.**
   The measurement base point will be fixed.
4. **Move the cursor to adjust the direction and distance and click at any position.**
   The ELB1 direction and VRM1 distance will be fixed.

3.2.2 Operation via [Dropped EBL/VRM] - [Make EBL1] or [Make EBL2]

Operations are common in EBL1 and EBL2. The following description is based on EBL1.

1. **Right-click on the chart to display the context menu.**
2. **Select [Dropped EBL/VRM] - [Make EBL1] from the context menu.**
   EBL1 is displayed and the measurement base point is displayed on the cursor.
3. **Move the cursor to any position and click.**
   The measurement base point will be fixed.
4. **Move the cursor to adjust the direction and click at any position.**
   The ELB1 direction will be fixed.

3.2.3 Operation via [Dropped EBL/VRM] - [Make VRM1] or [Make VRM2]

Operations are common in VRM1 and VRM2. The following description is based on VRM1.

1. **Right-click on the chart to display the context menu.**
2. **Select [Dropped EBL/VRM] - [Make VRM1] from the context menu.**
   VRM1 is displayed and the measurement base point is displayed on the cursor.
3. **Move the cursor to any position and click.**
   The measurement base point will be fixed.
4. **Move the cursor to adjust the distance and click at any position.**
   The VRM1 distance will be fixed.

3.2.4 Operation via [Dropped EBL/VRM] - [Move base point of EBL1/VRM1] or [Move base point of EBL2/VRM2]

Operations are common in [Move base point of EBL1/VRM1] and [Move base point of EBL2/VRM2]. The following description is based on [Move base point of EBL1/VRM1].

1. **Right-click on the chart to display the context menu.**
2. **Select [Dropped EBL/VRM] - [Move base point of EBL1/VRM1] from the context menu.**
   EBL1 and VRM1 are displayed and the measurement base point is displayed on the cursor.
3. **Move the cursor to any position and click.**
   The EBL/VRM measurement base point will be fixed.

3.2.5 Operation via [CCRP EBL/VRM] - [Make EBL1/VRM1] or [Make EBL2/ VRM2]

Operations are common in EBL1/VRM1 and EBL2/VRM2. The following description is based on EBL1/VRM1.

1. **Right-click on the chart to display the context menu.**
2. **Select [CCRP EBL/VRM] - [Make EBL1/VRM1] from the context menu.**
   EBL1 and VRM1 are displayed and the measurement base point is displayed on the ship.
3. **Move the cursor to any position and click.**
   The ELB1 direction and VRM1 distance will be fixed.

3.2.6 Operation via [CCRP EBL/VRM] - [Make EBL1] or [Make EBL2]

Operations are common in EBL1 and EBL2. The following description is based on EBL1.

1 **Right-click on the chart to display the context menu.**

2 **Select [CCRP EBL/VRM] - [Make EBL1] from the context menu.**
EBL1 is displayed and the measurement base point is displayed on the ship.

3 **Move the cursor to any position and click.**
The ELB1 direction will be fixed.

3.2.7 Operation via [CCRP EBL/VRM] - [Make VRM1] or [Make VRM2]

Operations are common in VRM1 and VRM2. The following description is based on VRM1.

1 **Right-click on the chart to display the context menu.**

2 **Select [CCRP EBL/VRM] - [Make VRM1] from the context menu.**
VRM1 is displayed and the measurement base point is displayed on the ship.

3 **Move the cursor to any position and click.**
The VRM1 distance will be fixed.

3.3 Displaying the EBL/VRM Button

The EBL/VRM button is used to create and configure EBL/VRM.

In plotter mode, the EBL/VRM button is displayed on the [EBL/VRM readout] dialogue. The following describes how to display the [EBL/VRM readout] dialogue.

Procedure

Use the following operation to display the [EBL/VRM readout] dialogue.

[Menu] button → Tools → EBL/VRM

Memo

In radar mode, the EBL/VRM button is always displayed. Operation of the EBL/VRM button is the same in both the plotter and radar modes. For details, see the Instruction Manual of the ship radar equipment.

3.4 Displaying the [CURS INFO] Dialogue

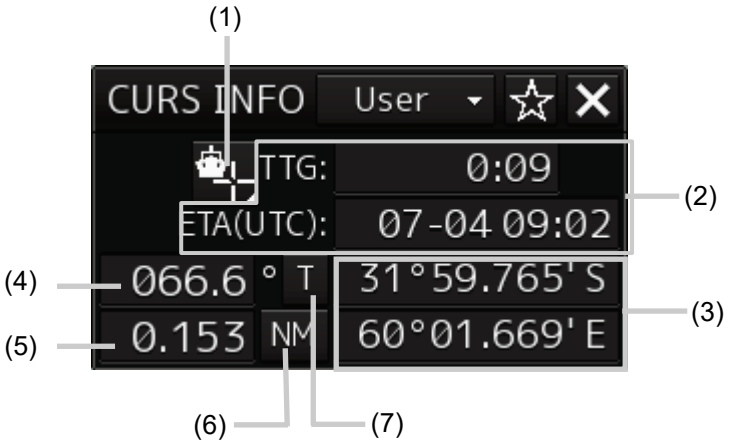
Move the cursor in the chart to change it to the cross-hair cursor. The [CURS INFO] dialogue displays information of the cursor position.

Procedure

Use the following operation to display the [CURS INFO] dialogue.

[Menu] button → Tools → Cursor Readout

> **Memo**
> The [CURS INFO] dialogue is open when the plotter mode is activated or when the system restarts in plotter mode.



(1) Base point setting button

The base point for the cursor direction/distance display can be set to any point.

For details, see 3.4.1 Setting the base point for CURS INFO.

(2) TTG and ETA display

Displays TTG (total time to go) and ETA (estimated time of arrival) from the ship to the cursor point.

(3) Latitude and longitude of the cursor point

Displays the latitude and longitude of the cursor point.

(4) Cursor direction display

Displays the direction from the ship or any base point to the cursor point.

(5) Cursor distance display

Displays the distance from the ship or any base point to the cursor point.

(6) Cursor distance display unit

Click on the button to change the unit to display the cursor distance.

Each time the button is clicked on, display switches in the order of [NM] → [km] → [sm] → [NM]

[NM]: The distance is displayed in NM units.

[km]: The distance is displayed in km units.

[sm]: The distance is displayed in sm units.

> **Memo**
> NM, km, and sm stand for sea miles, kilometres, and statute miles, respectively.

(7) True/relative display of cursor direction

Click on the button to switch the direction display between true and relative.

The icon changes between [T] and [R].

[T]: The cursor direction is displayed as true bearing.

[R]: The cursor direction is displayed as relative bearing.

3.4.1 Setting the base point for CURS INFO

Specify the latitude and longitude of the base point for CURS INFO.

Up to 20 base points can be configured.

1 Click on the base point setting button.

The menu is displayed.

2 Click on [Edit Ref. Mark…].

The [Edit Reference Mark] dialogue is displayed.

3 Click on the [LAT] input field of line #1.

4 Enter the latitude using the software keyboard.

When the latitude is entered, the longitude can be entered.

5 Enter the longitude using the software keyboard.

When the input latitude and longitude are valid, the position is set as Ref. Mark 1.

Then, Ref. Mark 2 can be configured.

Click on the [×] button to exit.

> **Memo**
> To set the base point to the ship position without configuring any base point, click on [From Own Ship] at step 2.

3.4.1.1 Setting the CURS INFO base point to the set base point

When one or more base points are configured, click on the base point setting button to display [From Ref. Mark1] and other additional items.

Click on a desired item to set the CURS INFO base point to that position.

3.4.1.2 Moving to the configured base point

On the [Edit Reference Mark] dialogue, click on the reference mark number to move to and click on the [Jump] button.
The chart is centred on the selected base point.

3.4.1.3 Deleting the configured base point

On the [Edit Reference Mark] dialogue, click on the reference mark number to delete and click on the [Delete] button.
The selected base point will be deleted.

Section 4 Route Planning

Ship routes can be created and edited in Route Planning.

4.1 Overview of the Destination Route

Destination routes can be created if the optional plotter is installed on the JMR-5400 series ship radar equipment.

4.1.1 Flow of destination route creation

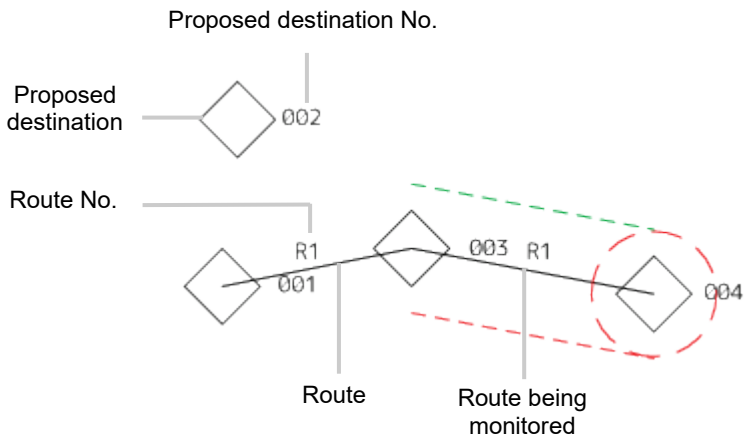
The flow of destination route creation is as follows.

Register multiple proposed destinations. See 4.4.1 Registering a new proposed destination.

↓

Connecting proposed destinations by legs See 4.4.2 Creating a new destination route.

Example destination route



In this example, proposed destinations 001 to 004 are registered.
Proposed destinations 004, 003, and 001 are connected by legs to create the destination route 1.

4.1.2 Editing the destination route

The destination route setting can be edited.

The following table lists the items that can be edited.

Setting		Overview and reference
Proposed destination display	Text display ON/OFF	Turns on/off the proposed destination number and comment display. 4.2.1 Configuring [View] - [WPT/Route] from the menu
	Symbol size change	Switch the proposed destination symbol size between Standard and Small. 4.2.1 Configuring [View] - [WPT/Route] from the menu
Route display	Route number display ON/OFF	Turns on/off the route number display. 4.2.1 Configuring [View] - [WPT/Route] from the menu
	Route number size change	Switch the route number text size between Standard and Small. 4.2.1 Configuring [View] - [WPT/Route] from the menu
Alert	Route entry/leaving alert setting	Configure the alert ON/OFF setting and the conditions for issuing the alerts (entry and leaving alert). 6.3.1 Configuring the alerts for the destination route
	Destination arrival/leaving alert setting	Configure the arrival circle, turn on/off the alert on the arrival circle, and configure the conditions for issuing alerts (the arrival circle entry and leaving alerts) 6.3.1 Configuring the alerts for the destination route
Route monitoring	To WPT switching setting	Set whether To WPT is switched automatically or manually. 5.2.2 Configuring [Settings] - [Route] from the menu
	Base point setting for direction/distance calculation.	Set the base point for direction/distance calculation to the ship position 5.2.1 Configuring [View] - [WPT/Route] from the menu
	Route width setting	Set the width of the route to be monitored. 6.3.1 Configuring the alerts for the destination route
	Route colour setting	Set the route colour to IALA-A (IALA-A) or IALA-B (IALA-B) compliant. 5.2.1 Configuring [View] - [WPT/Route] from the menu

4.2 Route Display Settings

Configure the route display setting before creating a route.

4.2.1 Configuring [View] - [WPT/Route] from the menu

Configure the route display settings on the [WPT/Route] dialogue of the [View] menu.

Procedure

Use the following operation to display the [WPT/Route] dialogue on the Edit pane of the [View] dialogue.

[Menu] → View → WPT/Route

The following table lists and describes the route display settings on the [WPT/Route] dialogue.

Memo

For the route monitoring settings on the [WPT/Route] dialogue, see 5.2.1 Configuring [View] - [WPT/Route] from the menu.

Setting item	Setting	Setting value
WPT Number, Comment	Turns on/off the proposed destination number and comment display. Check it to enable the setting.	Enabled: Checked Disabled: Unchecked
[Text Size] combo box (Destination Number, Comment)	Switch the text size between Standard and Small for the destination number and comment.	Standard/Small
Route Numb	Turns on/off the route number display. Check it to enable the setting.	Enabled: Checked Disabled: Unchecked
[Text Size] combo box (Route Number)	Switch the route number text size between Standard and Small.	Standard/Small
[WPT Label]	Set whether to add "WPT" next to the proposed destination symbol on the NMEA route. Check it to enable the setting.	Enabled: Checked Disabled: Unchecked
[WPT Mark Size] combo box	Switch the proposed destination symbol size between Standard and Small.	Standard/Small

4.3 Opening the [Route/Destination] Dialogue

The [Route/Destination] dialogue is used to register proposed destination, create and edit a route.

Procedure

Use the following operation to open the [Route/Destination] dialogue.

[Menu] button → Route Planning → Set Route/Destination

The following describes input fields and buttons for creating and editing a route on the [Route/Destination] dialogue.

> **Memo**
> The [Route/Destination] dialogue is also used for route monitoring. The buttons for route monitoring are described in relevant sections.

(1) Title Bar

The title [Route/Destination] is displayed on the dialogue.

Enter a number in the [No.] field. The contents of the dialogue change depending on whether the number is a proposed destination number or route number or new or existing number.

(2) [No.] input field

Enter the proposed destination number or route number.

Then, if the start point button is pressed, the input number is deemed as a route number.

Valid values are 1 to 999.

(3) [Enter] button

When creating a destination route, enter a destination number and then click on the [Enter] button.

(4) [Clear] button

Enter a destination number and click on the [Clear] button to delete the proposed destination.

Proposed destinations used for the destination route cannot be deleted.

(5) (start point) button

To create or edit a route, enter a number in the [No.] field and then click on the start point button.

(6) (end point) button

Click on it to determine the creation/edit of the route.

4.3.1 Key assignment on the operating unit

The functions of the above buttons of the [Route/Destination] dialogue are assigned to the keys of the operating unit as described in the following table.
This key assignment takes priority only while the [Route/Destination] dialogue is displayed.

Button on the dialogue	Standard operating unit	Advanced operating unit
[Enter] button	Left-click	Left-click, Input key
[Clear] button	Right-click	Right-click, CLR key
Start point button	—	Start point key
End point button	—	End point key

4.4 Creating a New Destination Route

Create and register proposed destinations and connect them by legs to create a new destination route.

4.4.1 Registering a new proposed destination

Procedure

Use the following operation to open the [Route/Destination] dialogue.

[Menu]button → Route Planning → Set Route/Destination

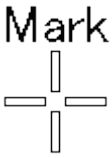
You can also open the [Route/Destination] dialogue by pressing the destination key on the operating dialogue.

1 Enter the number for the new proposed destination in the [No.] field.

Example: When 999 is entered

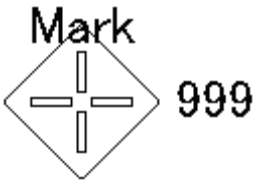
The title bar of the [Route/Destination] dialogue changes to [Destination(999 - New)].

The cursor on the chart changes to the Mark cursor.



2 Move the Mark cursor to the point on which you want to add a proposed destination, and click on it.

The proposed destination is created on that point and the dialogue is closed.



3 Repeat steps 1 to 2 to add another proposed destination as needed.

Added proposed destinations are registered on the [Destination List] dialogue (4.5.1 Edit on the [Destination List] dialogue).

4.4.2 Creating a new destination route

Connect registered proposed destinations by legs to create a new destination route.
A new route can be created on the [Route/Destination] dialogue or the [Route List] dialogue.

4.4.2.1 Creating a route on the [Route/Destination] dialogue

Use the following operation to open the [Route/Destination] dialogue.
[Menu] button → Route Planning → Set Route/Destination

You can also open the [Route/Destination] dialogue by pressing the destination key on the operating dialogue.

1. **Enter the number for the new route in the [No.] field.**
2. **Click on (Start point button). Or press the start point key on the operating unit.**
   Example: When 99 is entered
   The title bar of the [Route/Destination] dialogue changes to [Route(99 - New)].
3. **Enter the first proposed destination number of the route in the [No.] field and then click on the [Enter] button.**
   When you are using the operating unit, enter the number and left-click on anywhere except the dialogue buttons.
   When you are using the advanced operating unit, you can use the input key instead of left-clicking.
   The proposed destination specified becomes WPT.
4. **Enter the next proposed destination number of the route in the [No.] field and then click on the [Enter] button.**
   When you are using the operating unit, enter the number and left-click on anywhere except the dialogue buttons.
   When you are using the advanced operating unit, you can use the input key instead of left-clicking.
   The proposed destination specified at step 3 and the proposed destination specified at step 4 are connected by a leg.
5. **Repeat step 4 to connect another proposed destination by a leg to create the route.**
6. **Enter the final proposed destination number of the route in the [No.] field, click on the [Enter] button, and then click on (End point button). Or press the end point key on the operating unit.**
   This determine the route and closes the dialogue.
   The displayed legs will be hidden.

Memo

- When the number of proposed destinations reaches 20, the route is automatically determined and the dialogue is closed.
- To cancel the route creation, click on the start point button. (Or press the start point key on the operating unit.) This cancels the route creation and closes the dialogue.

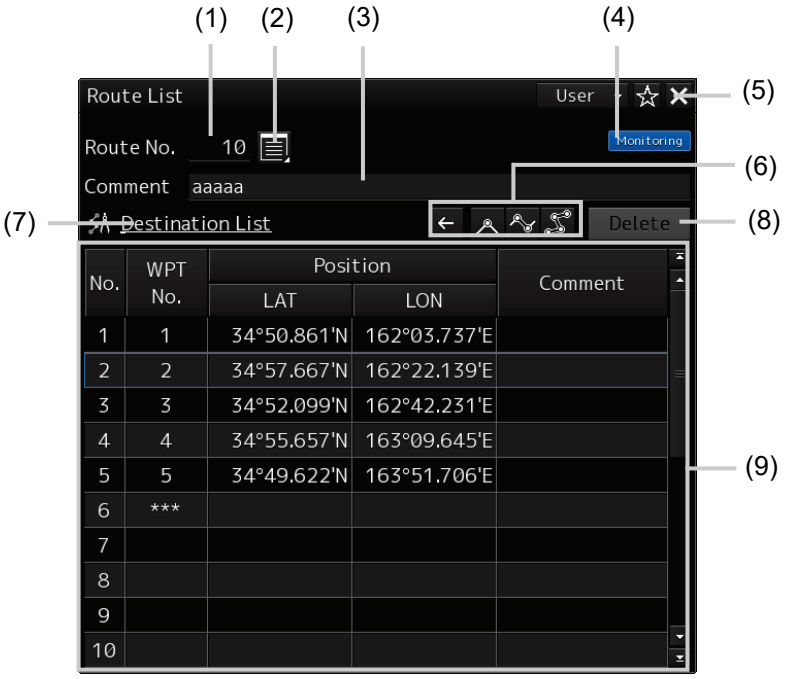
4.4.2.2 Creating a route on the [Route List] dialogue

Routes can be created and edited on the [Route List] dialogue.

Opening the [Route List] dialogue

Use the following operation to open the [Route List] dialogue.

[Menu] button → Route Planning → Route List



(1) [Route No.] input field

Enter the number for the destination route to create or edit.

Valid values are 1 to 999.

(2) Button to open the [Select Route] dialogue

Click on this button to open the [Select Route] dialogue.

The [Select Route] dialogue lists the route numbers and the comments created.

Click on a route you want to edit and click on the [Open] button to display the route on the [Route List] dialogue.

(3) [Comment] input field

Enter the comment for the route. Up to 32 characters can be entered. ("..." is displayed at the end if the text is longer than the field width.)

If there is only one proposed destination, a comment cannot be entered.

(4) [Route Monitoring] badge

This **badge** is displayed when the displayed route is being monitored.

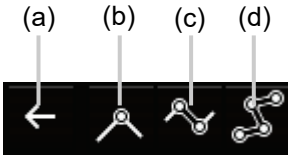
The routes being monitored cannot be edited.

(5) [×] (close) button

Click on this button to determine the route and exit the creation process.

(6) Display area switching buttons

Use these buttons to change or scale up/down the display area as needed.



(a) [Previous] button

Returns to the previous display area or scale.

(b) [Display centred WPT] button

WPT being edited is displayed in the centre of the chart.

(c) [Display WPT-WPT] button

WPT being edited and the previous WPT are displayed on the chart.

(d) [Display entire route] button

The entire route being edited is displayed on the chart.

(7) [Destination List] dialogue button

Click on this button to open the [Destination List] dialogue.

Proposed destinations registered and their positions (latitude and longitude) are displayed on the [Destination List] dialogue. Routes can be edited while referring to the [Destination List] dialogue.

When both the [Route List] dialogue and [Destination List] dialogue are open, the [Destination List] dialogue is not editable.

(8) [Delete] button

Click on this button to delete the line of the selected destination number.

(9) Route List

Up to 20 proposed destination can be registered for one route.

Only a proposed destination number can be entered.

Creating a new destination route

Open the [Route List] dialogue and operate it as follows.

1. **Enter the number for the new destination route in the [Route No.] field.**
2. **Enter the first proposed destination number in line 1 of the Route List.**
   To refer to the [Destination List] dialogue, click on the [Destination List] dialogue button.
3. **Enter the next proposed destination number in line 2 of the Route List.**
   The proposed destination specified at step 1 and the proposed destination specified at step 2 are connected by a leg.
4. **Repeat step 2 to connect other proposed destinations by legs to create the route.**
5. **Click on the [×] button to close the [Route List] dialogue.**
   The created route is determined as a new destination route.

Memo

If the number of proposed destinations for the route reaches 20, no more proposed destination can be added. Click on the [×] button to close the dialogue. The created route is determined as a new destination route.

4.5 Editing Proposed Destinations

The [Destination List] dialogue lists the proposed destinations registered.
On this dialogue, proposed destinations can be edited or created.

4.5.1 Edit on the [Destination List] dialogue

Use the following operation to open the [Destination List] dialogue.
[Menu] → Route Planning → Destination List

Up to 999 proposed destinations can be registered.
The [Destination List] dialogue consists of multiple pages, and displays ten proposed destinations per page. That means that the maximum number of pages of the [Destination List] dialogue is 100.

The following table lists and describes the items of the [Destination List] dialogue.

Item	Function and operation	Input range
Page feed buttons	Used to switch between pages when the dialogue has multiple pages. : Returns to the first page. : Returns to the previous page. : Goes to the next page. : Goes to the last page.	—
[Page] field	Enter the number of pages to display.	1 to 100
[Route List] dialogue	Opens the [Route List] dialogue.	—
[Jump] button	Displays the selected proposed destination in the centre of the chart.	—
[Delete] button	Deletes the selected proposed destination.	—
Destination List	Proposed destination numbers are displayed in the WPT No. column. The latitude, longitude, and comment are displayed for each proposed destinations registered. Click on a desired WPT No. to select the line. (The selected line is enclosed with blue borders.) Proposed destinations not used for the route can be edited. Proposed destinations used for the destination route cannot be edited.	—

4.5.1.1 Adding a new proposed destination

Open the [Destination List] dialogue and operate it as follows.

1. **On a proposed destination row where the latitude and longitude are not determined, click on the [LAT] field.**
2. **Enter the latitude using the software keyboard.**
   When the latitude is entered, the longitude can be entered.
3. **Enter the longitude using the software keyboard.**
   When the input latitude and longitude are valid, the position is registered as a proposed destination.
4. **Click on the [×] button to close the [Destination List] dialogue.**

4.5.1.2 Changing the position of a proposed destination

Open the [Destination List] dialogue and operate it as follows.

1. **On a proposed destination row for which you want to change the position, click on the [LAT] field.**
2. **Enter the latitude using the software keyboard.**
   When the latitude is entered, the longitude can be entered.
3. **Enter the longitude using the software keyboard.**
   When the input latitude and longitude are valid, this new position is set for the destination.
4. **Click on the [×] button to close the [Destination List] dialogue.**

4.5.1.3 Editing the comment of a proposed destination

Open the [Destination List] dialogue and operate it as follows.

1. **On a proposed destination row to which you want to add/edit a comment, click on the [Comment] field.**
2. **Enter a comment.**
   Up to 32 characters can be entered.
3. **Click on the [×] button to close the [Destination List] dialogue.**

4.5.1.4 Moving to a proposed destination

Open the [Destination List] dialogue and operate it as follows.

1. **Click on the number for the destination to move to.**
2. **Click on the [Jump] button.**
   The selected proposed destination is displayed in the centre of the chart.
3. **Click on the [×] button to close the [Destination List] dialogue.**

4.5.1.5 Deleting a proposed destination

Open the [Destination List] dialogue and operate it as follows.

1. **Click on the number for the destination you want to delete.**
2. **Click on the [Delete] button.**
   The selected destination will be deleted.
3. **Click on the [×] button to close the [Destination List] dialogue.**

4.6 Editing the Destination Route

Destination routes can be edited.

Use the [Route/Destination] dialogue or the [Route List] dialogue to edit the route.

Memo

The routes being monitored cannot be edited.

4.6.1 Edit on the [Route/Destination] dialogue

4.6.1.1 Opening the [Route/Destination] dialogue

Procedure

Use the following operation to open the [Route/Destination] dialogue.

[Menu] button → Route Planning → Set Route/Destination

You can also open the [Route/Destination] dialogue by pressing the destination key on the operating dialogue.

Memo

For details of the input fields and buttons for creating and editing a route on the [Route/Destination] dialogue, see 4.3 Opening the [Route/Destination] Dialogue.

4.6.1.2 Moving to a proposed destination

1 **Enter a destination number in the [No.] field to display the destination.**

Example: When 1 is entered

The title bar of the [Route/Destination] dialogue changes to [Destination(1)].

2 **Click on the [Off Centre] button.**

The proposed destination specified at step 1 is displayed in the centre of the chart, and the dialogue is closed.

4.6.1.3 Deleting the specified destination

1 **In the [No.] input field, enter the number for the destination you want to delete.**

Example: When 1 is entered

The title bar of the [Route/Destination] dialogue changes to [Destination(1)].

2 **Click on the [Clear] button.**

The specified destination is deleted and the dialogue is closed.

Memo

Proposed destinations used for the route cannot be deleted even when the [Delete] button is pressed.

4.6.1.4 Deleting the specified destination route

1 **In the [No.] field, enter the number for the destination route you want to edit.**

2 **Click on (Start point button). Or press the start point key on the operating unit.**
Example: When 99 is entered
The title bar of the [Route/Destination] dialogue changes to [Route(99)].

3 **Click on the [Clear] button.**

4 **Click on (End point button).**
The specified destination route is deleted and the dialogue is closed.
To cancel the deletion, click on .

4.6.2 Edit on the [Route List] dialogue

Routes can be edited on the [Route List] dialogue.

4.6.2.1 Opening the [Route List] dialogue

Use the following operation to open the [Route List] dialogue.
[Menu] button → Route Planning → Route List

For details of functions and operations of the [Route List] dialogue, see 4.4.2.2 Creating a route on the [Route List] dialogue.

4.6.2.2 Adding/editing a comment to the destination route

Open the [Route List] dialogue and operate it as follows.

1 **In the [Route No.] field, enter the number for the destination route you want to edit.**
Click on the [Select Route] dialogue display button, click to select a route to edit on the [Select Route] dialogue, and then click on the [OK] button.

2 **Enter or edit the comment in the [Comment] field.**

3 **Click on the [×] button to close the [Route List] dialogue.**

4.6.2.3 Deleting the specified destination from the route

Open the [Route List] dialogue and operate it as follows.

1 **On the Route List, click on any location other than "WPT No." on the row for the destination you want to delete.**

2 **Click on the [Delete] button.**
The row selected at step 1 is deleted, and the subsequent rows are shifted upward.

Memo
The destination is only removed from the route. The destination itself is not deleted.

4.7 Creating a Temporal Route

A temporal route is not saved as a file but can be used for route monitoring.
Route monitoring starts automatically when a temporal route is created.
While destination routes are created on the [Route/Destination] dialogue, temporal routes are created via key operations on the operating unit without opening the [Route/Destination] dialogue.

Memo

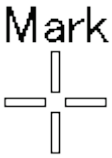
Use the [Settings] menu if you want to save a temporal route even after the power supply is turned off. For details, see 5.2.2 Configuring [Settings] - [Route] from the menu.

Use the procedure to create a temporal route.

1 Display the first WPT point in the chart.

2 Press the start point key.

WPT is created on the point where the key is pressed, and the cursor changes to the Mark cursor.



3 Hover the Mark cursor on the next WPT position and press the start point key.

These two WPT are connected by legs.

4 Repeat step 3 to add another WPT.

5 When the last WPT is specified, press the end point key.

The temporal route is determined and route monitoring starts automatically.

Memo

For details of route monitoring using a temporal route, see 5.1.1.3 Route monitoring using a temporal route/GoTo route.

4.8 Creating a GoTo Route (Temporal Route Between Two Points)

The GoTo route is a temporal route connecting the ship position and the specified point.
Route monitoring starts automatically when a GoTo route is created.
In the same way as temporal routes, GoTo routes are created via key operations on the operating unit without opening the [Route/Destination] dialogue.

Use the procedure to create a GoTo route.

1 Hover the cursor on the end point of the GoTo route.

2 Press the end point key.

The GoTo route connecting the ship and another point is determined and route monitoring starts automatically.

Memo

For details of route monitoring using a GoTo route, see 5.1.1.3 Route monitoring using a temporal route/GoTo route.

Section 5 Route monitoring

5.1 About Route Monitoring

The route monitoring function monitors the ship position, bow and speed, and calculates the estimated time of arrival based on the route created in route planning.

Memo

The destination route must be created before using the route monitoring function.

For details of Route Planning, see Chapter 4 Route Planning.

5.1.1 Starting the route monitoring

Start route monitoring by loading the route to be monitored on the [Route Monitoring] dialogue or specifying the route to be monitored on the [Route/Destination] dialogue.

5.1.1.1 Starting route monitoring on the [Route Monitoring] dialogue

Use the following operation to open the [Route Monitoring] dialogue.

[Menu] button → Route Monitoring

1 Select a destination route to be monitored.

Using the [Route No.] field

Enter the number for the destination route to be monitored.

Valid values are 1 to 999.

Selecting from the route file list

1) Click on the [Select Route] dialogue display button ( ).
2) Select a destination route to be monitored from the list on the [Select Route] dialogue.
3) Click on the [Open] button.

Memo

If another route is being monitored, that route will be unloaded.

The [Voyage Information] dialogue opens when route monitoring starts.

For details of the [Voyage Information] dialogue, see 5.3 [Voyage Information] Dialogue.

Note that the [Route Monitoring] dialogue is still open behind the [Voyage Information] dialogue after route monitoring starts.

5.1.1.2 Starting route monitoring on the [Route/Destination] dialogue

Use the following operation to open the [Route/Destination] dialogue.
[Menu] button → Route Planning → Set Route/Destination

> **Memo**
> The [Route/Destination] dialogue is also used for creating and editing a route.
> For details, see 4.3 Opening the [Route/Destination] dialogue.

1. **In the [No.] field, enter the number for the destination route to be monitored.**
   Ensure that the route number entered is not currently being monitored.
2. **Click on (Start point) button.**
3. **Click on (End point) button.**
   Route monitoring starts.

> **Memo**
> If another route is being monitored, that route will be unloaded.

The [Route/Destination] dialogue closes and the [Voyage Information] dialogue opens when route monitoring starts.
For details of the [Voyage Information] dialogue, see 5.3 [Voyage Information] Dialogue.

5.1.1.3 Monitoring a temporal/GoTo route

Route monitoring starts and the [Voyage Information] dialogue opens when a temporal or GoTo route is created.
If another route is being monitored, that route will be unloaded.
For details of the [Voyage Information] dialogue, see 5.3 [Voyage Information] Dialogue.
For details of creating a temporal route, see 4.7 Creating a Temporal Route.
For details of creating a GoTo route, see 4.8 Creating a GoTo Route (Temporal Route between Two Points).

5.1.2 Ending the route monitoring

5.1.2.1 When route monitoring is started from the [Route Monitoring] dialogue

When route monitoring is started from the [Route Monitoring] dialogue, Use the following operation to end the route monitoring.

1. **Activate the [Route Monitoring] dialogue that is behind the [Voyage Information] dialogue.**
2. **Click on the [Unload] button.**
   Monitoring of the currently selected route will end.

5.1.2.2 When route monitoring is started from the [Route/Destination] dialogue

When route monitoring is started from the [Route/Destination] dialogue, first Use the following operation to open the [Route Monitoring] dialogue.
[Menu] → Route Monitoring

1. **Ensure that the number for the route being monitored is displayed in the [Route No.] field.**
2. **Click on the [Unload] button.**
   Monitoring of the currently selected route will end.

5.2 Route Monitoring Settings

Route monitoring settings can be configured on the [WPT/ROUTE] dialogue of the [View] menu or the [Route] dialogue of the [Settings] menu.

5.2.1 Configuring [View] - [WPT/ROUTE] from the menu

Procedure

Use the following operation to display the [WPT/ROUTE] dialogue in the Edit pane of the [View] dialogue.

[Menu] button → View → WPT/Route

The following table lists and describes the route monitoring settings on the [WPT/ROUTE] dialogue.

Memo

For the route display settings on the [WPT/ROUTE] dialogue, see 4.2.1 Configuring [View] - [WPT/ROUTE] from the menu.

Setting item	Description	Setting value
[Colour] combo box	Configure the starboard and port side colours for displaying the XTL (cross track limit) for the route. IALA-A: Displays the port side in red and the starboard side in green. IALA-B: Displays the port side in green and the starboard side in red.	IALA-A / IALA-B
[Alert-Route] dialogue display	Click on this button to open the [Alert] dialogue with the [Route] dialogue displayed in the Edit pane. On this dialogue, configure the conditions (the XTL width, radius of the arrival circle, etc.) for issuing alerts for the destination route.	—
[WPT Vector] check box	Check it to enable the WPT direction vector display.	Enabled: Checked Disabled: Unchecked
[Base Point] combo box (WPT Vector)	The WPT direction vector is a line connecting the selected base point and To WPT. When the WPT direction vector display is enabled, configure the base point of the vector. From Current POSN: Set the base point to the own ship. From Origin: Set the base point to WPT that is one before To WPT. The WPT direction vector is displayed as a dotted line. When [From Origin] is selected, the vector and leg are overlapped, so the vector display is prioritized and the overlapped section is displayed as a dotted line.	From Current POSN / From Origin
[Base Point] combo box (BRG/DST (Route Monitoring))	Configure the base point for calculating the direction/ distance displayed on the screen during route monitoring. From Current POSN: Set the base point to the own ship. From Origin: Set the base point to WPT that is one before To WPT.	From Current POSN / From Origin

5.2.2 Configuring [Settings] - [Route] from the menu

Procedure

Use the following operation to display the [Route] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Route

The following table lists the setting items of the [Route] dialogue.

Setting item	Description	Setting value
[Route Mode] combo box	Select a route type. Plotter: Uses the destination route. NMEA: Uses the NMEA destination display feature. When [NMEA] is selected, all the other setting items of this dialogue are disabled.	Plotter / NMEA
[WPT Switching Mode] combo box	Set whether To WPT is switched automatically or manually. AUTO: To WPT is switched automatically. Manual: To WPT is switched manually. With [AUTO] selected, when the ship enters the arrival circle of the To WPT, the next WPT will be the To WPT. [AUTO] works only if [Alert Type] is set to [Arrival] in the [Alert] menu (see 6.3.1 Configuring the alerts for the destination route).	AUTO / Manual
[Save Temporary Route] check box	When it is checked, the temporal/GoTo route is saved even after the power supply is turned off.	Enabled: Checked Disabled: Unchecked

5.3 [Voyage Information] Dialogue

The [Voyage Information] dialogue opens when route monitoring starts. This dialogue displays information of the route being monitored.

Extending and shrinking the dialogue

The [Voyage Information] dialogue can be extended or shrunken as needed.
The dialogue box is shrunken when the route monitoring starts.
To extend the dialogue, click on the extend button ( ).
To shrink the dialogue, click on the shrink button ( ).

The following table lists and describes the setting items of the [Voyage Information] dialogue.

Item	Display content and operation	Display/input range
[Route] filed	It is displayed only when the dialogue is extended. The number for the route being monitored is displayed.	1 to 999
[WPT] filed	Select a number for the destination for which route monitoring information is displayed.	1 to 1020
[To WPT] field	It is displayed only when the dialogue is extended. The To WPT number is displayed.	1 to 1020
[LAT]/[LON] field	It is displayed only when the dialogue is extended. The latitude and longitude of the proposed destination selected from the WPT combo box are displayed.	—
[BRG] field	Displays the direction from the ship position to the destination selected from the WPT combo box.	—
[DIST] field	Displays the distance from the ship position to the destination selected from the WPT combo box.	—

Item	Display content and operation	Display/input range
Destination arrival/leaving alert icons	The following icons are displayed depending on the setting of the [Alert] menu. : The destination arrival alert is not selected. : The destination arrival alert is selected but no alert is occurring. : The destination arrival alert is selected and an alert is occurring. : The destination leaving alert is not selected. : The destination leaving alert is selected but no alert is occurring. : The destination leaving alert is selected and an alert is occurring.	—
Route entry/ leaving alert icons	The following icons are displayed depending on the setting of the [Alert] menu. : The route entry alert is not selected. : The route entry alert is selected but no alert is occurring. : The route entry alert is selected and an alert is occurring. : The route leaving alert is not selected. : The route leaving alert is selected but no alert is occurring. : The route leaving alert is selected and an alert is occurring.	—
[TTG] field	Displays the time required to arrive at the destination selected from the WPT combo box.	0.0 to 9999h59m59s
[ETA] field	Displays the estimated time of arrival at the destination selected from the WPT combo box. If the ETA value is out of the valid range such as when the speed sensor information is not entered, the asterisk (*) is displayed to indicate that the value is invalid.	1970/01/01 to 2099/12/31 0:00 to 23:59
UTC/LMT switching button	Changes the ETA display format. Click on it to switch between UTC and LMT.	—
[Comment] field	It is displayed only when dialogue is extended. The comment added to the proposed destination selected from the WPT combo box is displayed. An ellipsis [...] is added to the end if the text is longer than the field width.)	—

5.4 Reversing the Route

The direction of the route being monitored can be reversed.

When it is reversed, the WPT next to the start point after the reversal becomes new To WPT.

The reversed state is retained even after the power supply is turned off.

The reversed state is cancelled when another route monitoring is started.

Use the following operation to open the [Route/Destination] dialogue.

[Menu] button → Route Planning → Set Route/Destination

1 Click on (Reverse button).

The route being monitored is reversed.

Memo

The reverse button is disabled if no route is being monitored.

5.5 Changing the To WPT

The To WPT for the route being monitored can be changed.

5.5.1 Changing to WPT using the [Route Monitoring] dialogue

5.5.1.1 When route monitoring is started from the [Route Monitoring] dialogue

When route monitoring is started from the [Route Monitoring] dialogue, Use the following operation to change the To WPT.

1. **Activate the [Route Monitoring] dialogue that is behind the [Voyage Information] dialogue.**
2. **Select a destination to be used as To WPT from the [To WPT] combo box.**
   The changed To WPT number will be displayed also in the [To WPT] field of the [Voyage Information] dialogue.

5.5.1.2 When route monitoring is started from the [Route/Destination] dialogue

When route monitoring is started from the [Route/Destination] dialogue, first Use the following operation to open the [Route Monitoring] dialogue.
[Menu] button → Route Monitoring

1. **Ensure that the number for the route being monitored is displayed in the [Route No.] field.**
2. **Select a destination to be used as To WPT from the [To WPT] combo box.**
   The changed To WPT number will be displayed also in the [To WPT] field of the [Voyage Information] dialogue.

5.5.2 Changing to WPT using the [Route/Destination] dialogue

Use the following operation to open the [Route/Destination] dialogue.
[Menu] button → Route Planning → Set Route/Destination

1. **In the [No.] field, enter the number for the route to be monitored.**
2. **To shift To WPT backward (reverse to the moving direction), click on the [Prev. WPT] button. To shift To WPT forward (in the moving direction), click on the [Next WPT] button.**
   The changed To WPT number will be displayed also in the [To WPT] field of the [Voyage Information] dialogue.

Section 6 Settings

6.1 Chart Settings

6.1.1 Registering/displaying my Ports

Any port in the chart can be registered on My Port List. To display a registered port, select a port name from My Port List.

6.1.1.1 Registering a port

Procedure

Centre the chant on the place you want to register as My Port.
Use the following operation to display the [My Port List] dialogue.
[Menu] button → Chart → My Port List

The following table describes operations of the [My Port List] dialogue.

Setting item	Description	Setting value
[My Port List] field	Enter a port name to register.	—
[Save] button	Clicking on this button registers the coordinates (latitude/longitude) of the centre and the display scale of the chart in My Port List.	—

6.1.1.2 Centring the chart on the coordinates of the port

Procedure

Use the following operation to display the [My Port List] dialogue.
[Menu] button → Chart → My Port List

The following table describes operations of the [My Port List] dialogue.

Setting item	Description	Setting value
[My Port List]	Select a list you want to display by clicking on it.	—
[Move] button	Clicking on this button centres the chart on the coordinates of the selected port.	—

6.1.1.3 Deleting a port

Procedure

Use the following operation to display the [My Port List] dialogue.

[Menu] button → Chart → My Port List

The following table describes operations of the [My Port List] dialogue.

Setting item	Description	Setting value
My Port List	Select a list you want to delete by clicking on it.	—
[Delete] button	Clicking on this button deletes the selected port from the list.	

6.1.2 Displaying the chart by inputting the position

Input a position to display the chart on the desired position.

Procedure

Use the following operation to display the [Off Centre by Entering Position] dialogue.

[Menu] button → Chart → Off Centre by Entering Position

The following table describes operations of the [Off Centre by Entering Position] dialogue.

Setting item	Description	Setting value
[Jump to the following position] button	Clicking on this button centres the chart on the coordinates input in the latitude and longitude fields.	—
Latitude/longitude field	When this dialogue is opened, the current centre coordinates of the chart are displayed. Click on the field and use the software keyboard to enter the coordinates to centre the chart on.	—

6.2 Screen Display Settings

6.2.1 Configuring the ship symbol display

Configure the own ship symbol display setting.

Procedure

Use the following operation to display the [Own Ship] dialogue in the Edit pane of the [View] dialogue.

[Menu] button → View → Own Ship

The following table lists the setting items available in plotter mode.

Setting item	Description	Setting value
[Heading and Beam Line]	Selecting this enables to display heading lines and beam lines	Enable: Check. Disable: Uncheck.

Memo

For details of setting items of the [Own Ship] dialogue, see the Instruction Manual of the ship radar equipment.

6.2.2 Configuring the own track display

Configure the own track display.
Own track information of own tracks is recorded in the SSD at intervals in accordance with the settings. Information of a maximum of 20,000 points (When the plotter option is available, maximum of 1,000,000 points) are displayed on a chart as own tracks.

Procedure

Use the following operation to display the [Own Track] dialogue in the Edit pane of the [View] dialogue.
[Menu] → View → Own Track

The [Own Track] dialogue consists of the [Display] tab, [Plot] tab, and [Clear] tab.

> **Memo**
> Some items may not be displayed depending on the installation setting.

[Display] tab

The following table lists the setting items of the [Display] tab.

Setting item	Description	Setting value
[Own Track Display]	Check it to enable the own track display. Check the colour to enable.	Enable: Check. Disable: Uncheck.
[Show Values/Vector on Track] check box	Check it to display the water depth, water temperature, and the current vector. Select Depth, Temperature, or Current from the [Show Values/Vector on Track] combo box.	Enable: Check. Disable: Uncheck.
[Show Values/ Vector on Track] combo box	Select Depth, Temperature, or Current to display it next the track.	Depth/Temperature/ Current
[Current Vector]	This item is enabled when [Current] is selected in the [Show Values/Vector on Track] combo box.	—
[Current Size] filed	Enter the vector length.	0.1 to 99.9 kn/cm
[Layer A], [Layer B], [Layer C], [Layer D], and [Layer E] check boxes	Check the check box(es) for the layer(s) A/B/C/D/E whose display you want to enable.	Enable: Check. Disable: Uncheck.
Colour selection combo boxes	When Layer [A]/[B]/[C]/[D]/[E] is enabled, select the display colour of each layer.	White / Grey / Amber / Magenta / Blue / Cyan / Green / Yellow / Orange / Dark Red

[Plot] tab (normal track)

The following table lists the settings when [Standard] is selected for [Track type] on the [Plot] tab.

Setting item	Description	Setting value
[Track type] combo box	Select a type of own track. Standard: Normal track. It can be displayed without the plotter option. For the case when [Depth] is selected, see the '[Plot] tab (depth track)' section. For the case when [Temperature] is selected, see the '[Plot] tab (temperature track)' section.	Standard / Depth / Temperature
[Plot Colour] combo box	Select a colour of own track.	White / Grey / Amber / Magenta / Blue / Cyan / Green / Yellow / Orange / Dark Red
[Plot Interval] combo box (own track plot)	Select a plot interval.	Off/3 s/5 s/10 s/30 s/ 1 min/3 min/5 min/ 10 min/30 min/60 min/ 1 NM/3 NM/5 NM/10 NM/ 0.1 NM/0.2 NM/0.3 NM/ 0.5 NM
[Time Label] check box	Check it to enable the time label interval display.	Enable: Check. Disable: Uncheck.
[Plot Interval] combo box (Time Label)	When the time label interval display is enabled, select a time label interval.	1/3/5/10/30/60 min
[File Load/Save] shortcut	Opens the [File Load/Save] tab of the [File Manager] dialogue. The use state can be confirmed on the [File Manager] dialogue.	—

[Plot] tab (depth track)

The following table lists the settings when [Depth] is selected for [Track type] on the [Plot] tab.

Setting item	Description	Setting value
[Track type] combo box	Select a type of own track. Depth: Selectable if the optional plotter and depth sounder are installed. The depth value is displayed next to the track. For the case when [Standard] is selected, see the '[Plot] tab (normal track)' section. For the case when [Temperature] is selected, see the '[Plot] tab (temperature track)' section.	Standard / Depth / Temperature
Depth field 1	Enter the own track grey/blue boundary (minimum depth) value.	0 to [Depth field 2] – 1 m
Depth field 2	Enter the own track blue/cyan boundary (minimum depth) value.	[Depth field 1] + 1 to [Depth field 3] – 1 m
Depth field 3	Enter the own track cyan/green boundary (minimum depth) value.	[Depth field 2] + 1 to [Depth field 4] – 1 m
Depth field 4	Enter the own track green/yellow boundary (minimum depth) value.	[Depth field 3] + 1 to [Depth field 5] – 1 m
Depth field 5	Enter the own track yellow/orange boundary (minimum depth) value.	[Depth field 4] + 1 to [Depth field 6] – 1 m
Depth field 6	Enter the own track orange/dark red boundary (minimum depth) value.	[Depth field 5] + 1 to 9999 m
[Plot Interval] combo box	Select a plot interval.	Off/3 s/5 s/10 s/30 s/ 1 min/3 min/5 min/ 10 min/30 min/60 min/ 1 NM/3 NM/5 NM/10 NM/ 0.1 NM/0.2 NM/0.3 NM/ 0.5 NM
[File Load/Save] shortcut	Opens the [File Load/Save] tab of the [File Manager] dialogue.	—

Memo

If a depth error occurs due to sensor failure, the depth value cannot be displayed on the track.

[Plot] tab (temperature track)

The following table lists the settings when [Temperature] is selected for [Track type] on the [Plot] tab.

Setting item	Description	Setting value
[Track type] combo box	Select a type of own track. Temperature: Selectable if the optional plotter and thermometer are installed. The depth value is displayed next to the track. For the case when [Standard] is selected, see the '[Plot] tab (normal track)' section. For the case when [Depth] is selected, see the '[Plot] tab (depth track)' section.	Standard / Depth / Temperature
Temperature field 1	Enter the own track grey/blue boundary (minimum temperature) value.	–5.0 to [Temperature field 2] – 0.1°C
Temperature field 2	Enter the own track blue/cyan boundary (minimum temperature) value.	[Temperature field 1] + 0.1 to [Temperature field 3] – 0.1°C
Temperature field 3	Enter the own track cyan/green boundary (minimum temperature) value.	[Temperature field 2] + 0.1 to [Temperature field 4] – 0.1°C
Temperature field 4	Enter the own track green/yellow boundary (minimum temperature) value.	[Temperature field 3] + 0.1 to [Temperature field 5] – 0.1°C
Temperature field 5	Enter the own track yellow/orange boundary (minimum temperature) value.	[Temperature field 4] + 0.1 to [Temperature field 6] – 0.1°C
Temperature field 6	Enter the own track orange/dark red boundary (minimum temperature) value.	[Temperature field 5] + 0.1 to 99.9°C
[Plot Interval] combo box	Select a plot interval.	Off/3 s/5 s/10 s/30 s/ 1 min/3 min/5 min/ 10 min/30 min/60 min/ 1 NM/3 NM/5 NM/10 NM/ 0.1 NM/0.2 NM/0.3 NM/ 0.5 NM
[File Load/Save] shortcut	Opens the [File Load/Save] tab of the [File Manager] dialogue.	—

Memo

If a temperature error occurs due to sensor failure, the water temperature value cannot be displayed on the track.

[Clear] tab

The following table lists the setting items of the [Clear] tab.

Setting item	Description	Setting value
[Track Colour] combo box	Specify the own track colour to delete the own track.	All / White / Grey / Amber / Magenta / Blue / Cyan / Green / Yellow / Orange / Dark Red
[Clear] button	Delete the own track of the colour specified with the [Track Colour] combo box.	—
[File Load/Save] shortcut	Opens the [File Load/Save] tab of the [File Manager] dialogue.	—

6.2.3 Configuring the TT/AIS target display

Configure the TT/AIS target display.

Procedure

Use the following operation to display the [Target] dialogue in the Edit pane of the [View] dialogue.

[Menu] button → View → Target

The following table lists the setting items available in plotter mode.

Setting item	Description	Setting value
[TT1 Symbol] / [TT2 Symbol] check boxes and combo boxes	Check the check box to enable TT1/TT2 symbol display. Select a TT symbol to be used from the combo box. TT1 Symbol: Indicates the tracking target received from Radar 1. The TT target ID will be displayed in a format like [T1-***] (*** is the target number or ship name). TT2 Symbol: Indicates the tracking target received from Radar 2. The TT target ID will be displayed in a format like [T2 ***] (*** is the target number or ship name).	Enable: Check. Disable: Uncheck.
[TT Vector] check box	Check it to enable the TT vector display.	Enable: Check. Disable: Uncheck.

Memo

For details of setting items of the [Target] dialogue, see the Instruction Manual of the ship radar equipment.

6.2.4 Configuring the distance/direction measuring function display

Procedure

Use the following operation to display the [Tools] dialogue in the Edit pane of the [View] dialogue.

[Menu] button → View → Tools

The following table lists the setting items available in plotter mode.

Setting item	Description	Setting value
[Bearing Scale] check box	Check it to enable the bearing scale. **Memo** It is available only when the radar overlay is ON.	Enable: Check. Disable: Uncheck.
Expanded information display		
[Top Left] combo box	Set the information to be expanded and displayed at the top left section of the chart display area.	Off / Cursor Readout / Own Ship INFO / Voyage INFO
[Top Right] combo box	Set the information to be expanded and displayed at the top right section of the chart display area.	Off / Cursor Readout / Own Ship INFO / Voyage INFO
[Bottom Left] combo box	Set the information to be expanded and displayed at the bottom left section of the chart display area.	Off / Cursor Readout / Own Ship INFO / Voyage INFO
[Bottom Right] combo box	Set the information to be expanded and displayed at the bottom right section of the chart display area.	Off / Cursor Readout / Own Ship INFO / Voyage INFO
[Font Size] combo box	Set the font size of the expanded information display.	Large / Middle / Small

Memo

For details of setting items of the [Tools] dialogue, see the Instruction Manual of the ship radar equipment.

6.2.5 Configuring display of the sub information area

Configure display of the sub information area.

Procedure

Use the following operation to display the “Control” dialogue in the Edit pane of the [View] dialogue.

[Menu] button → View → Control

The following table lists the setting items available in plotter mode.

Setting item	Description	Setting value
[Show Sub Information Window] check box	Check it to enable the sub information area.	Enable: Check. Disable: Uncheck.
[Watch(Vector/RADAR/Target Status)] check box	Check it to enable the [Watch] dialogue.	Enable: Check. Disable: Uncheck.
[Depth] check box	Check it to enable the [Depth] dialogue.	Enable: Check. Disable: Uncheck.
[Current] check box	Check it to enable the [Current] dialogue.	Enable: Check. Disable: Uncheck.
[Trails] check box	Check it to enable the [Trails] dialogue.	Enable: Check. Disable: Uncheck.

Memo

For details of setting items of the [Control] dialogue, see the Instruction Manual of the ship radar equipment.

6.3 Alert Settings

6.3.1 Configuring the alerts for the destination route

When using destination routes, configure the conditions for issuing alerts.
Alerts regarding arrival at the destination and alerts regarding leaving from the route are available.

Procedure

Use the following operation to display the [Route] dialogue in the Edit pane of the [Alert] dialogue.
[Menu] button → Alert → Route

The following table lists the setting items of the [Route] dialogue.

Setting item	Description	Setting value
[WPT Alert] check box	Specify whether to issue destination arrival/leaving alerts. Check it to enable the alert.	Enable: Check. Disable: Uncheck.
[Alert Type] (WPT alarm) combo box	Select an alert type if the WPT alarm is ON. Arrival: An alert is issued when the ship arrives in the circle with the configured radius. Break Off: An alert is issued when the ship leaves the circle with the configured radius.	Arrival/Break Off
[Arrival Radius] field	When the WPT alarm is ON, set the radius of the arrival circle of the destination.	0.01 to 99.99 NM
[Route Alert] check box	Specify whether to issue route entry/leaving alerts. Check it to enable the alert.	Enable: Check. Disable: Uncheck.
[Alert Type] (Route Alert) combo box	Select an alert type if the route alarm is ON. XTE: An alert is issued when the ship travels off the route (specified width). Approach: An alert is issued when the ship enters the route (specified width).	XTE/Approach
[XTL] field	When the route alarm is ON, set the route width. The starboard and port side cross track limits should be added to this value.	0.01 to 99.99 NM

6.4 Operating Mode Settings

6.4.1 Configuring the basic settings of radar signal processing

Configure the basic processing of radar signals.

Procedure

Use the following operation to display the [Signal Process(Basic)] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Signal Process(Basic)

The following table lists the setting items of the [Signal Process(Basic)] dialogue.

Setting item	Description	Setting value
Gain	Rotate the knob to enter the receiving sensitivity adjustment mode.	0 to 100
Sea	Rotate the knob to enter the sea clutter adjustment mode. In adjustment mode, clicking on the knob or the button next to the slider can switch the mode between auto (AUTO) and manual (MAN).	0 to 100 MAN: Remove sea clutter manually. AUTO: Sea clutter is removed automatically.
Rain	Rotate the knob to enter the rain and snow clutter adjustment mode. In adjustment mode, clicking on the knob or the button next to the slider can switch the mode between auto (AUTO) and manual (MAN).	0 to 100 MAN: Remove rain and snow clutter manually. AUTO: Rain and snow clutter is removed automatically.
IR	Configure the interference removal function.	IR Off IR Low IR Middle IR High
Target Enhance	Configure the object enhancement function.	Off ENH Level 1 ENH Level 2 ENH Level 3
Echo Process	Configure the imaging function. [PROC Off] is set if the heading direction cannot be acquired.	PROC Off 3 Scan CORREL 4 Scan CORREL 5 Scan CORREL Remain Peak Hold

6.4.2 Configuring the scale and range

Configure the scales and ranges that can be selected from the Scale/Range combo box in the chart information area.

Procedure

Use the following operation to display the [Scale/Range Preset] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Scale/Range Preset

The [Scale/Range Preset] dialogue consists of the [Scale] tab and the [Range] tab.

[Scale] tab

Setting item	Description	Setting value
[Scale] field	Enter a scale value you want to add. To add a 1:8500 scale, enter "8500". Note that no more than 20 scales can be registered.	1000 to 10000000
[Add] button.	Click on this button to add the scale value input in the [Scale] field to the scale list. The scale list is always sorted in ascending order.	—
[Delete] button	Click on it to delete scales checked on the scale list located below the button. Scales cannot be deleted if all the scales are selected or there is only one scale.	—
[Def. Set] button	Resets the scales to the default settings. On the confirmation dialogue that opens, click on [OK] to restore the default. For the default scale settings, see [Default values of scales and ranges].	—
Check box	Check the check boxes for the scales you want to delete. Click on [Delete] to delete the selected scales.	Enable: Check. Disable: Uncheck.
Scale list	Registered scales are displayed in ascending order. Up to 20 scales in the range of 1:1,000 to 1:30,000,000 can be displayed. Use the scroll bar to scroll the list as needed to view the scales.	—

[Range] tab

Setting item	Description	Setting value
[Range] field	Enter a range value you want to add. The configured range unit is used.	When the unit is NM/sm: 0.125 to 96.000 When the unit is km: 0.15 to 128.00
[Add] button.	Click on this button to add the range input in the [Range] field to the Range list described below. The range list is always sorted in ascending order.	—
[Delete] button	Click on it to delete ranges checked on the Range list described below. Ranges cannot be deleted if all the ranges are selected or there is only one range.	—
[Def. Set] button	Resets the ranges to the default settings. On the confirmation dialogue that opens, click on [OK] to restore the default. For the default scale settings, see [Default values of scales and ranges].	—
Check box	Check the check boxes for the ranges you want to delete. Click on [Delete] to delete the selected ranges.	Enable: Check. Disable: Uncheck.
Range list	Registered ranges are displayed in ascending order. Up to 20 ranges in the range of 0.125 to 96.000 NM/sm or 0.15 to 128.00 km can be displayed. Use the scroll bar to scroll the list as needed to view the ranges.	—

Default values of scales and ranges

No.	Scale	Range	
		Unit: NM/sm	Unit: km
1	1/1,000	0.125	0.15
2	1/2,000	0.25	0.30
3	1/4,000	0.500	0.50
4	1/7,500	0.750	0.80
5	1/15,000	1.500	1.20
6	1/30,000	3.000	1.60
7	1/50,000	6.000	2.00
8	1/100,000	12.000	4.00
9	1/200,000	24.000	8.00
10	1/400,000	48.000	16.00
11	1/750,000	96.000	32.00
12	1/1,500,000	—	64.00
13	1/3,000,000	—	128.00
14	1/5,000,000	—	—
15	1/10,000,000	—	—
16	—	—	—
17	—	—	—
18	—	—	—
19	—	—	—
20	—	—	—

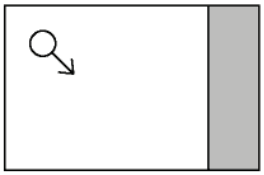
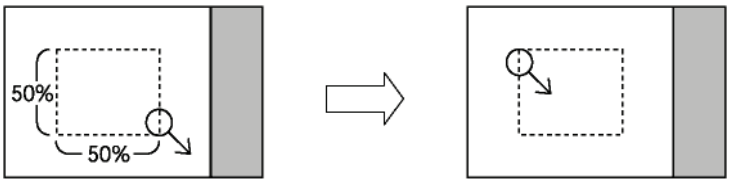
6.4.3 Configuring the chart operation

Set chart operation.

Procedure

Use the following operation to display the [Chart] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Chart

Setting Item	Description of Setting	Setting Value
Border Range	Set up the range for the own ship in order to move the chart. • When the own ship is sailing in the direction of the arrow in the figure below.  • If the border range you set up is 50%, the screen display switches when the own ship reaches a 50% area from an edge of the screen. 	30 to 80 %

6.4.4 Configuring the current position display

Select LAT/LON, LORAN C, LORAN A, or DECCA to display the current position.

Procedure

Use the following operation to display the [Position Display] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Position Display

The following table lists the setting items of the [Position Display] dialogue.

Setting item	Description	Setting value
[Mode] combo box	Select a display mode for the current position. LAT/LON: Displayed in latitude and longitude. LORAN C: Displayed in LORAN C. LORAN A: Displayed in LORAN A. DECCA: Displayed in DECCA.	LAT/LON / LORAN C / LORAN A / DECCA
[LORAN C] tab		
[Chain] combo box	Select GRI for the master station (chain). For details of master stations, see the List of LORAN C master stations.	—
[TD1] field	Set the ID of slave station 1.	0 to 99
[TD1 Correction] field	Set the transmission delay time for slave station 1.	–9.9 to 9.9 μs
[TD2] field	Set the ID of slave station 2.	0 to 99
[TD2 Correction] field	Set the transmission delay time for slave station 2.	–9.9 to 9.9 μs
[LORAN A] tab		
[LOP1] combo box	Select a master station.	1S1/1S2/1S3/1S4/1S6/1L0/1L1/1L4/1L5/2S0/2S1/2S2/2S3/2S4/2S5/2S6/2S7/2H4/2H5/2H6
[TD1 Correction] field	Set the transmission delay time for master station 1.	–9.9 to 9.9 μs
[LOP2] combo box	Select a slave station.	1S1/1S2/1S3/1S4/1S6/1L0/1L1/1L4/1L5/2S0/2S1/2S2/2S3/2S4/2S5/2S6/2S7/2H4/2H5/2H6
[TD2 Correction] field	Set the transmission delay time for the slave station.	–9.9 to 9.9 μs

Setting item	Description	Setting value
[DECCA] tab		
[Chain] combo box	Select a master station (chain).	0/1/2/4/11/12/20/22/24/31/34/40/41/42/44/51/52/55/60/61/62/64/71/72/73/74/80/81/82/84/91/92/94
[LOP1] combo box (zone)	Set the zone of slave station 1.	0 to 9
[LOP1] combo box (lane)	Set the lane of slave station 1.	A to J
[LOP1] field	Set the frequency of slave station 1.	00.00 to 99.99
[TD1 Correction] field	Set the transmission delay time for slave station 1.	–9.9 to 9.9 μs
[LOP2] combo box (zone)	Set the zone of slave station 2.	0 to 9
[LOP2] combo box (lane)	Set the lane of slave station 2.	A to J
[LOP2] field	Set the frequency of slave station 2.	00.00 to 99.99
[TD2 Correction] field	Set the transmission delay time for slave station 2.	–9.9 to 9.9 μs

List of LORAN C master stations

Master station	Remarks	Master station	Remarks
4990	—	7980	—
5930	—	7990	—
5970	—	8000	—
5980	—	8290	NORTH CENTRAL U.S.
5990	—	8390	CHINA EAST SEA
6730	CHINESE	8830	SAUDI ARABIA NORTH
6731	LESSAY	8930	—
6780	CHINESE	8970	—
7001	BO	8990	—
7030	SAUDI ARABIA SOUTHARABIA	9007	EJDE
7170	—	9610	SOUTH CENTRAL U.S.
7270	—	9930	KOREAN
7430	CHINA NORTHSEA	9940	—
7499	—	9960	—
7930	—	9970	—
7950	—	9980	—
7960	—	9990	—
7970	—	—	—

6.4.5 Setting the colour and brightness

Set the color and the brightness of the display contents.

Procedure

Use the following operation to display the [Colour and Brightness] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Colour and Brightness

[Display Colour] tab

Setting item	Description	Setting value
Page 2		
[Expand Information] combo box	Set a colour of the characters displayed for the expanded information.	Black (White)*1/ Green/Yellow/Orange/ Magenta

(*1) Black when the day/night mode is Day 1/Day 2/Day 3 and White in other cases.

[Brightness] tab

Setting item	Description	Setting value
Page 1		
[Expand Information] combo box	Set a brightness of the characters displayed for the expanded information.	Level1 (Dark) / Level2 / Level3 / Level4 (Light)

Memo

For other setting items of the [Colour and Brightness] dialogue, see the Instruction Manual of the ship radar equipment.

6.4.6 Setting the key assignment

Set the keys on the operation unit and the functions that are assigned to the [MULTI] dial.

Only the items whose functions are available on the mode screen are displayed on the screen.

[Operation procedure]

Open the key assignment setting screen by performing the following menu operations.

[Menu] button → Settings → Key Assignment

[User Key] tab

Setting Item	Description of Setting	Setting Value
User Key1	Select a function to assign to the [USER1] (U1*) key on the operation unit. When the [Detail] button is clicked on while the button is enabled, the detail setting screen of the function that was assigned is displayed.	Refer to a separate table, “User key list”.
User Key 2	Select a function to assign to the [USER2] (U2*) key on the operation unit. When the [Detail] button is clicked on while the button is enabled, the detail setting screen of the function that was assigned is displayed.	Same as above

(*) Set a User key1 to 10 only if the multi-function operation unit is connected.

Memo

For other setting items of the [Key Assignment] dialogue, see the Instruction Manual of the ship radar equipment.

User Key list

The following table shows the functions that can be assigned to user keys.

Function	Description
Show Preset Menu	Display the pre-registered screen. By displaying a screen to be registered and holding down the key to which [Show Press Menu] is assigned, the screen can be registered/cancelled. A screen can also be registered from the combo box (User) that is displayed on the title bar on each screen. When “Off” is selected in the item of the combo box, the registration is cancelled. Combo box: User1 — Indicates that the screen is assigned to the user key (User [number that is assigned]) Combo box: User — Indicates that the screen is not assigned to the user key.
Show Favourite	Display the favourite list screen.
Zoom	Enable/disable the Zoom function.
Capture Screen	Execute screen capture.
Show Geodetic	Display the geodetic system display screen by selecting [Settings] – [Geodetic].
Clear Target Track	Clear other ship’s track by selecting it.

Function	Description
Clear Mark/Line	Clear a mark/line. Select the mark/line on the setting screen that is displayed by pressing the [Detail] button.
Plot Event Mark	Enter an event mark on the own ship's position. Select the event mark on the setting screen that is displayed by pressing the [Detail] button.
Plot Mark	Enter a mark on the cursor position. Select the mark to be entered on the setting screen that is displayed by pressing the [Detail] button.
Select Obs. Scene	Select an observation scene that was set. Select the observation scene on the setting screen that is displayed by pressing the [Detail] button.
Load User Setting (Obs. Scene)	Execute [Settings] – [Obs. Scene Preset] – [Load User Setting] for the observation scene that is currently selected by the user.
Add Reference Mark	Add any reference mark on the cursor position. This item can be used in synthesis mode only.
Record Operation (Macro name)	Reproduce the key operation that was registered by [Record Operation].
TM Reset	Execute the TM reset function
PRF Fine Tuning	Increment by 1, the setting of [Settings] – [TXRX] – [PRF Fine Tuning].
Acquire	Perform the same operation as the acquisition key of the multi-function operation unit.
Readout Information	Perform the same operation as the numeric key of the multi-function operation unit.
Clear	Execute the Clear function for the object under the cursor.
Set Route / Destination	Display the [Route / Destination] dialogue. Perform the same operation as the destination key of the multi-function operation unit.
	Perform the same operation as the start point key of the multi-function operation unit.
	Perform the same operation as the end point key of the multi-function operation unit.
	Perform the same operation as the reverse key of the multi-function operation unit.
Scale (Zoom In)	Perform the same operation as the scale key of the multi-function operation unit. It to zoom in the chart.
Scale (Zoom Out)	Perform the same operation as the scale key of the multi-function operation unit. It to zoom out the chart.
Close All Dialogue	Close all the dialogues/menus that are displayed on the screen.

6.4.7 Configuring user preferences

Main operations and setting information in radar mode, synthesis mode, and plotter mode can be saved and invoked collectively.

Procedure

Use the following operation to display the [Preference] dialogue in the Edit pane of the [Settings] dialogue.

[Menu] button → Settings → Preference

The following table lists the items displayed on the dialogue.

Items	Description
Preference name list	Up to 10 preference names are displayed on the list. The ellipsis [...] is added to the end if the text is longer than the field width.
[Save] button	Saves the current setting.
[Load] button	Loads the selected setting.
[Delete] button	Deletes the selected setting.
[Default display configurations] button	Restores the default display configuration.

To save user preference

1 **Click on the [Save] button.**
A confirmation dialogue is displayed.

2 **Enter a name and click on the [OK] button.**
The current user preference is saved.
Up to 64 characters can be entered. An ellipsis [...] is added to the end if the text is longer than the field width.
To cancel the save, click on the [Cancel] button.

The user preference is saved and added to the list.

To load user preference

1 **Select a user preference you want to load and click on [Load] button.**
A confirmation dialogue is displayed.

2 **Click on the [OK] button.**
The user preference is loaded.
Up to 64 characters can be displayed for the file name. An ellipsis [...] is added to the end if the text is longer than the field width.
To cancel the loading, click on the [Cancel] button.

To delete user preference

1 Select a user preference you want to delete and click on [Delete] button.

A confirmation dialogue is displayed. Up to 64 characters can be displayed for the file name. An ellipsis [...] is added to the end if the text is longer than the field width.

2 Click on the [OK] button.

The user preference is deleted.

To cancel the deletion, click on the [Cancel] button.

Configuring the default display setting

1 Click on the [Default display configurations] button.

A confirmation dialogue is displayed.

2 Click on the [OK] button.

The factory default display configuration is restored.

To cancel the change, click on the [Cancel] button.

Setting items and default settings of user preference

The following table lists the setting items and default settings of user preference with the optional plotter installed.

Plotter mode

Save item	Preference to be saved		Default setting or value after [Default display configurations] is clicked on
	Location	Item	
Range	Plotter screen - Chart Information area	Either selected scale or selected range	Range 3 NM
Orientation	Plotter screen - Chart Information area	- Motion mode - Direction mode	True motion N-UP TM reset position
Position Sensor	Plotter screen - Ship information or Maintenance screen - Sensor Selection	Position source	GPS 1

Radar mode

Save item	Preference to be saved		Default setting or value after [Default display configurations] is clicked on
	Location	Item	
Gain and anti-clutter functions	Radar screen - Radar signal information	• Receiving sensitivity adjustment value (Gain) • Sea clutter adjustment value (Sea) • Sea clutter removal mode • Rain and snow clutter adjustment (Rain) • Rain and snow clutter removal mode	-
Tuning	Radar screen - Radar system information	• Tuning mode AUTO/MAN • Fine tuning value (MAN)	• Tuning mode AUTO/MAN: AUTO • Fine tuning value (MAN): 0
Range	Radar screen - Range and mode information	• Range scale	6 NM
Fixed rings	Radar screen - Range and mode information	• Range rings ON/OFF	OFF
Operational alarms	Alert - Collision Avoidance - AIS Lost Warning	AIS Lost Warning • AIS Lost Warning detection target setting ON/OFF	TT & Activated AIS
VRMs	Radar screen - Measuring tools - EBL/VRM button area	VRM1 (VRM2) • Display ON/OFF • Control right • Distance value • EBL1/VRM1 measurement base point (Empty/C/D and floating position. C is saved with the DC coordinates, and D is saved with the coordinates.) • VRM distance unit (common to VRM1 and VRM2)	VRM1: • Display ON/OFF: ON • Control right: ON • Distance value: 0.25 NM • EBL1/VRM1 measurement base point: Empty (CCRP) • EBL2/VRM2 measurement base point: Empty (CCRP) VRM2: OFF • VRM distance unit: NM
EBLs	Radar screen - Measuring tools - EBL/VRM button area	EBL1 (EBL2) • Display ON/OFF • Control right • Bearing value • EBL bearing True/Relative (common to EBL1 and EBL2)	EBL1 • Display ON/OFF: ON • Control right: ON • Bearing value: 000.0 EBL2: OFF • EBL bearing True/Relative: True

Radar mode

Save item	Preference to be saved		Default setting or value after [Default display configurations] is clicked on
	Location	Item	
Parallel index lines	Radar screen - Measuring tools - PI (parallel index)	PI (parallel index) • Display ON/OFF • Control, measurement base point (Empty/C/D and floating position. C is saved with the DC coordinates, and D is saved with the coordinates.)	• Display ON/OFF: OFF • Control right: ON • Bearing value: 0° • Interval: +0.00 NM Display for All Lines: OFF Mode: All Operation Area: One Side Floating: OFF Heading Link: OFF Reference Bearing: True
Display mode of the radar picture	Radar screen - Range and mode information	• Motion mode • Direction mode	TM N-UP TM reset position
Stabilisation Sea/Ground	Radar screen - Range and mode information	• Stabilisation mode (combo box)	GND
Off-Centring	Radar screen - Range and mode information	• Off-Centring button → Off-centring ON/OFF state and off-centring DC state	Off-Centring: OFF (off-centring)
Target trails	Radar screen - Target information	• Route True/Relative • Route length	• Route True/Relative: True • Route length: 6 min
Past Positions	Radar screen - Target information	• Past POSN	OFF
Vector mode	Radar screen - Target information	• Vector past position True/Relative	Relative
Vector Time	Radar screen - Target information	Vector length	6 min

Radar mode

Save item	Preference to be saved		Default setting or value after [Default display configurations] is clicked on
	Location	Item	
Automatic radar target acquisition	Alert - New Target Warning	• AZ1 function ON/OFF • AZ1 Start Angle • AZ1 End Angle • AZ1 Start Distance • AZ1 End Distance • AZ2 function ON/OFF • AZ2 Start Angle • AZ2 End Angle • AZ2 Start Distance • AZ2 End Distance	• AZ1 function ON/OFF: OFF • AZ1 Start Angle: 315.0° • AZ1 End Angle: 045.0° • AZ1 Start Distance: 3.00 NM • AZ1 End Distance: 3.50 NM • AZ2 function ON/OFF: OFF • AZ2 Start Angle: 135.0° • AZ2 End Angle: 225.0° • AZ2 Start Distance: 3.00 NM • AZ2 End Distance: 3.50 NM
Graphical AIS reported target fusion	View - Target	AIS Symbol ON/OFF TT Symbol ON/OFF	AIS Symbol ON/OFF : ON TT Symbol ON/OFF : ON
Radar and AIS Target fusion	Settings - Association	Association function ON/OFF	ON
Collision warning	Radar screen - Target information (Vector/Past POSN/Limit/Trails)	• CPA Limit • TCPA Limit	• CPA Limit: 2.0 NM • TCPA Limit: 12 min

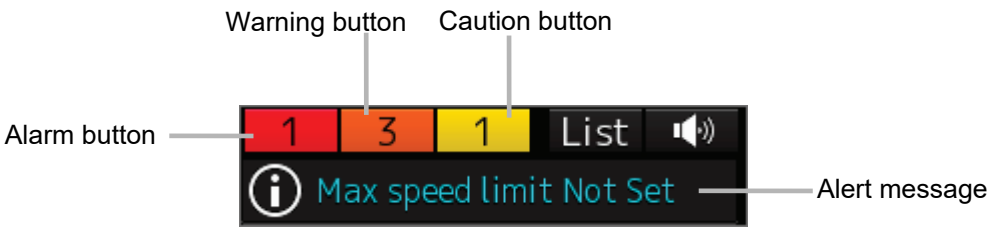
Section 7 Specifications

7.1 Plotter Functions

FUNCTIONAL SPECIFICATIONS	
Projection	Mercator projection (Latitude 85 degree or less)
Scale	Synchronise range scale (Synthesis mode) 1/1,000 ~ 1/30,000,000 are continuously selected. 15 stage can be changed (preset can be used). (Plotter mode)
Position correction	Latitude / Longitude correction Radar video synchronise range scale coast line by manual.
Own track	
Colours	10 colours
Interval of save	3/5/10/30 sec, 1/3/5/10/30/60 min, or 0.1/0.2/0.3/0.5/1/3/5/10 NM and Off.
Capacity of own track	1000,000 point
User Map	
Colours (Mark / Line)	10 colours
Capacity of mark and line	200,000 point
Variety of mark	29
Variety of line	Solid line, Dotted line, and Broken line
Waypoint and route	
Waypoint	Waypoint can be set up to 999 point.
Information of waypoint	Azimuth, distance and the time to required destination.
Setting of sea route	999 sea routes.
Alarm of route	Waypoint arrival / break off, Route arrival / break off.

Appendix A Alert List

When an alert occurs, alert information is displayed in the alert notification area.



The numbers displayed in the buttons indicate the number of such alerts that have occurred.

Memo

The alert button of a category that has not occurred will not be displayed.

The display colours of alert messages are defined as follows according to the type and seriousness of alerts.

Alert Type	Alert Class (Seriousness)	Display Colour	Alert Display Status	Alert Sound
Alarms (An alert indicating a state asking sailors to pay immediate attention and take immediate action.)	Alarms	Red	Before alarm acknowledgement: Blinking After alarm acknowledgement: Lighting	3 short audible signals. Interval of audible signal is 8 seconds.
Warnings (An alert indicating that the state has changed, which although is not immediately dangerous, but may become so in the near future if no action is taken. Warnings are alerts displayed for preventing possible future hazardous states.)	Warnings	Orange	Before warning acknowledgement: Blinking After warning acknowledgement: Lighting	once 2 short audible signals.
Cautions (Although these are neither alarms nor warnings, these alerts indicate that it is necessary to pay more than normal attention to cautions, statuses, or to the supplied information.)	Cautions	Yellow	Lighting	No sound
No Alarm	-	Green	-	-

The list of alert messages by alert type is shown below.

A.1 Alarms

Message	Condition to raise	Condition to rectify	Cate gory	Description
CPA/TCPA(AIS)	AIS target was detected within a preset CPA/TCPA limit.	AIS target exceeded a preset CPA/TCPA limit.	A	CPA/TCPA alert (AIS)
CPA/TCPA(TT)	TT target was detected within a preset CPA/TCPA limit.	TT target exceeded a preset CPA/TCPA limit.	A	CPA/TCPA alert (TT)
Cross Track	The off-track distance from the planned route exceeded the limit.	The off-track distance from the planned route was below the limit.	A	The off-track distance from the planned route exceeded the limit.
Dragging anchor	Dragging anchor warning was not acknowledged for 120 seconds.	Own ship entered the dragging anchor monitoring area.	A	The ship has left the dragging anchor monitoring area.

A.2 Warnings

Message	Condition to raise	Condition to rectify	Cate gory	Description
AIS MAX Capacity	The AIS target count exceeded the maximum target display count.	The AIS target count is less than the maximum target display count.	A	The AIS target count has reached the maximum target display count.
Antenna Reverse Rotation	Reverse rotation of the antenna was detected.	Antenna rotation is normal condition.	B	In the radar antenna, the antenna is rotating in the reverse direction.
Antenna Safety Switch Off	Safety switch of antenna is off.	Safety switch of antenna is on.	B	The safety switch of radar antenna is OFF.
Arrived at WOL	Own ship has arrived at WOL.	Warning is acknowledged.	A	The ship has arrived at a WOL.
Arrived at WPT	Own ship has arrived at WPT.	Warning is acknowledged.	A	The ship is inside of a course change point circle.
Dragging anchor	Own ship exited from the dragging anchor monitoring area. If Dragging anchor warning is not acknowledged for 2 minutes, the warning escalates to Dragging anchor alarm.	Own ship entered the dragging anchor monitoring area.	A	The ship has left the dragging anchor monitoring area.
Lost AIS	AIS data is lost.	AIS data is received.	B	-
Lost AIS Target	The AIS target is lost.	Warning is acknowledged.	A	Signals of AIS target have become unable to receive. The current position is predicted based on the data received last.
Lost Antenna Control	Antenna control is lost.	Antenna control is normal condition.	B	-
Lost COG/SOG	COG/SOG data is lost.	COG/SOG data is received.	B	-
Lost HDG	Heading data is lost.	Heading data is received.	B	-
Lost OPU	OPU failure is occurred.	OPU failure is repaired.	B	-
Lost POSN	Position data is lost.	Position data is received.	B	-
Lost RADAR Echo	RADAR echo cannot be displayed.	RADAR echo data is received.	B	-
Lost STW	STW data is lost.	STW data is received.	B	-
Lost TT REF Target	The referential TT target is lost.	Warning is acknowledged.	A	The reference target of TT reference has been lost.

Lost TT Target	The TT target is lost.	Warning is acknowledged.	A	The TT target has been lost sight of. It is because the reception condition is bad or the target has entered other object's shadow.
New AIS Target	New AIS target is detected within AZ.	Warning is acknowledged.	A	The target of AIS has been complemented and activated.
New TT Target	New TT target is detected within AZ.	Warning is acknowledged.	A	The target of TT has been complemented.
RADAR Alarm(In)	RADAR echo above the threshold level is occurred at the alarm area.	There are no more RADAR echoes above the threshold in the alarm area.	B	Echo whose level is at the threshold value or more occurred at the alarm area.
RADAR Alarm(Out)	RADAR echo above the threshold level is disappeared at the alarm area.	There are no more RADAR echoes above the threshold outside alarm area.	B	Echo whose level is at the threshold value or more has disappeared at the alarm area.
TT MAX Capacity	The TT target count exceeded the maximum target display count.	The TT target count is less than the maximum target display count.	A	The TT target count has reached the maximum target count.
TT Out of Range	The TT target exceeded 32NM.	The TT target moved within 32NM.	A	TT has become out of 32NM range.
VDR Delivery Failed	Equipment cannot send the image to VDR for 1 minute.	Equipment can send the image to VDR for more than 1 minute.	B	Delivery of captured image for VDR failed.

A.3 Cautions

Message	Condition to raise	Condition to rectify	Cate gory	Description
AIS 95% Capacity	The AIS target count exceeded 95% of the maximum target display count.	The AIS target count is less than 95% of the maximum target display count.	B	The target number of AIS has reached 95% of the acceptable amount.
Antenna Rotating	ICE class standby of standby setting is ON.	ICE class standby of standby setting is OFF.	B	The radar antenna is rotating.
Lost AIS	AIS data is lost.	AIS data is received.	B	-
Lost COG/SOG	COG/SOG data is lost.	COG/SOG data is received.	B	-
Lost DATUM	DATAM data is lost.	DATUM data is received.	B	The DTM data cannot be received.
Lost Depth	Depth data is lost.	Depth data is received.	B	-
Lost External TT	The external TT target data is lost.	The external TT target data is received.	B	-
Lost ISW	Interswitch data is lost.	Interswitch data is received.	B	-
Lost ISW TT	The TT target data from interswitch is lost.	The TT target data from interswitch is received.	B	TT data could not be received via RADAR-LAN network. While using the Simple ISW (LAN) function slave state, TT data cannot be displayed. There is a possibility that the indicator of Master side is using "Reference Target" function.
Lost Multi Current	Multi Current data is lost.	Multi Current data is received.	B	-
Lost ROT	ROT data is lost.	ROT data is received.	B	-
Lost STW	STW data is lost.	STW data is lost.	B	-
On Trial(CPA/TCPA)	AIS or TT target was detected within a preset CPA/TCPA limit on trial mode.	AIS or TT target exceeded a preset CPA/TCPA limit on trial mode.	B	It is in trial.
RADAR-LAN(IP Duplication)	IP address on the RADAR-LAN network is duplicated.	IP address duplication on the RADAR-LAN network is eliminated.	B	IP on the RADAR-LAN network was duplicated. Network video function can not be used.
RADAR-LAN(Link-Down)	The RADAR-LAN port cannot link up.	The RADAR-LAN port can link up.	B	The RADAR-LAN port could not link up. Network Video function cannot be

				used.
RADAR-LAN(Link-Speed)	The RADAR-LAN port cannot link up by 1000Base-T.	The RADAR-LAN port can link up by 1000Base-T.	B	The RADAR-LAN port could not link up by 1000Base-T. Network Video function cannot be used.
RADAR-LAN(Sweep Tx Failed)	Sweep quality on the RADAR-LAN network is degraded.	Sweep quality on the RADAR-LAN network is restored.	B	Sweep quality on the RADAR-LAN network is degraded.
RADAR-LAN(TT Option Mismatch)	The TT option of the equipment on the RADAR-LAN network is different.	The TT option of the equipment on the RADAR-LAN network is same.	B	The TT option of the device on the RADAR-LAN network is different. While using the Simple ISW (LAN) function slave state, TT data cannot be displayed.
TT 95% Capacity	The TT target count exceeded 95% of the maximum target display count.	The TT target count is less than 95% of the maximum target display count.	B	The target number of TT has reached 95% of the acceptable amount.

A.4 List of Alert escalation

There is unacknowledged alert that escalates as follows.

- Warning to Alarm

If warning is not acknowledged, the warning escalates to alarm.

- Warning to Warning

An unacknowledged warning will be generated repeatedly until it is acknowledged.

The alerts to escalation are as shown below.

Cause	Escalation	Time	Explanation
Dragging anchor warning	Warning to Alarm	120s	If dragging anchor warning is not acknowledged for 2 minutes, the warning escalates to dragging anchor alarm.
Other warning	Warning to Warning	60s (Default)	An unacknowledged warning will be generated repeatedly until it is acknowledged.

A.5 List of Alert with responsibility-transferred state

The responsibility-transferred state is a state for priority reduction. When the equipment managing the alert in the system requests a transfer of responsibility of alert, the requested equipment changes state of the alert to responsibility transferred.

The alerts with responsibility transferred states are as shown below.

Cause	Priority	Category
Antenna Reverse Rotation	Warning	B
Antenna Safety Switch Off	Warning	B
Lost AIS	Warning	B
Lost Antenna Control	Warning	B
Lost COG/SOG	Warning	B
Lost HDG	Warning	B
Lost OPU	Warning	B
Lost POSN	Warning	B
Lost RADAR Echo	Warning	B
Lost STW	Warning	B
VDR Delivery Failed	Warning	B

A.6 List of Alert Icons

The alert icons displayed in the alert status area are listed below.

No.	Name of alert icon	Functional outline	Alert icon
1	Active – unacknowledged alarm	A flashing red triangle. A symbol of loudspeaker in the middle of the triangle.	
2	Active – silenced alarm	A flashing red triangle. A symbol as in icon number 1 with a prominent diagonal line above it.	
3	Active – acknowledged alarm	A red triangle. An exclamation mark in the middle of the triangle.	
4	Active - responsibility transferred alarm	A red triangle. An arrow pointing towards the right in the middle of the triangle.	
5	Rectified – unacknowledged alarm	A flashing red triangle. A tick mark in the middle of the triangle.	
6	Active - unacknowledged warning	A flashing yellowish orange circle. A symbol of loudspeaker in the middle of the circle.	
7	Active – silenced warning	A flashing yellowish orange circle. A symbol as in icon number 6 with a prominent diagonal line above it.	
8	Active – acknowledged warning	A yellowish orange circle. An exclamation mark in the middle of the circle.	
9	Active - responsibility transferred warning	A yellowish orange circle. An arrow pointing towards the right in the middle of the circle.	
10	Rectified – unacknowledged warning	A flashing yellowish orange circle. A tick mark in the middle of the circle.	
11	Caution	A yellow square. An exclamation mark in the middle of the square.	
a	Aggregation	A plus sign. To be presented together with icons number 1 to 11	
b	Acknowledge not allowed for alarm	A red triangle with a cross in the middle of triangle. To be presented together with icons number 1, 2 and 5.	
c	Acknowledge not allowed for warning	A yellowish orange circle with a cross in the middle of circle. To be presented together with icons number 6, 7 and 10.	

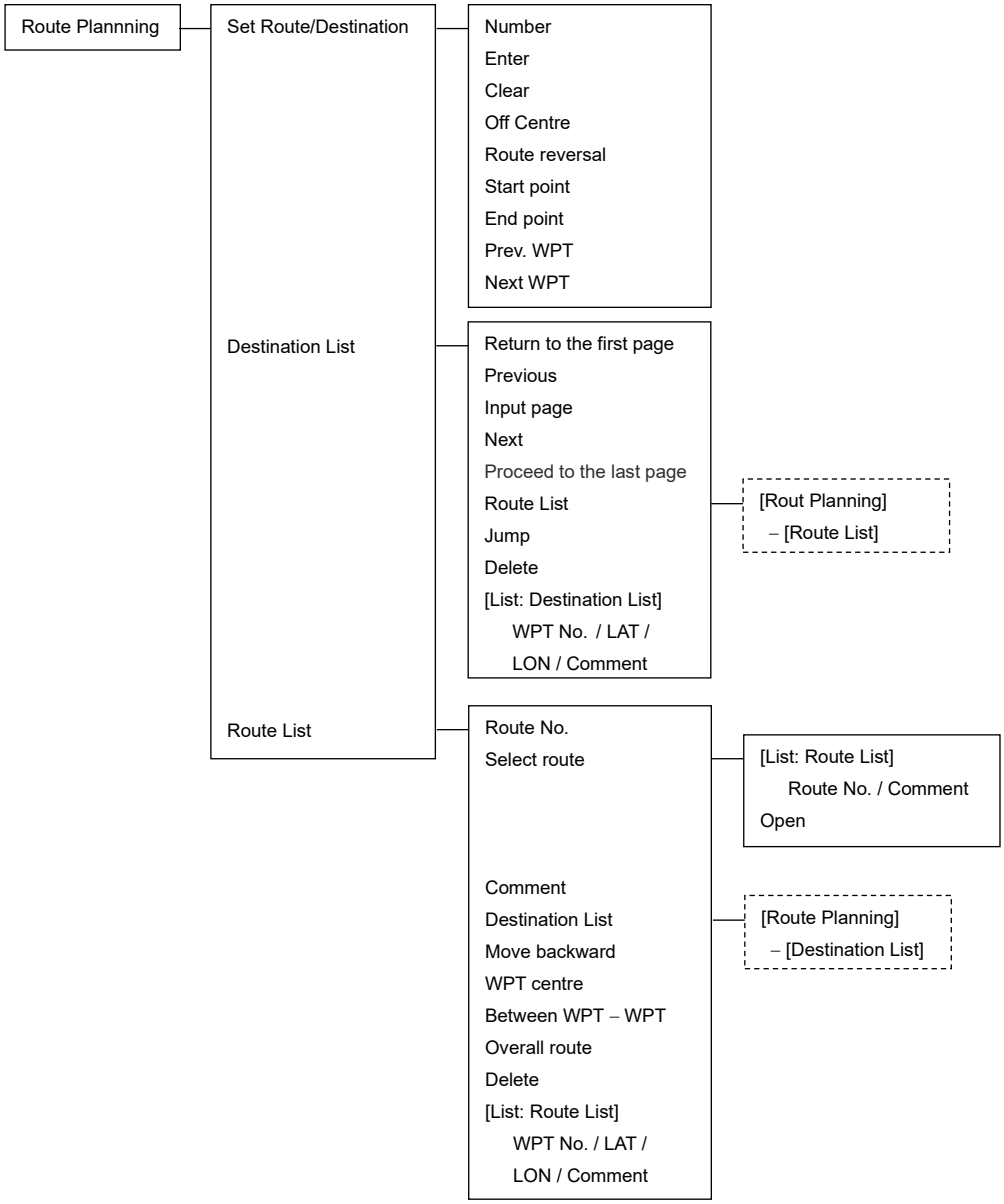
Appendix B Menu List and Materials

B.1 Menu List

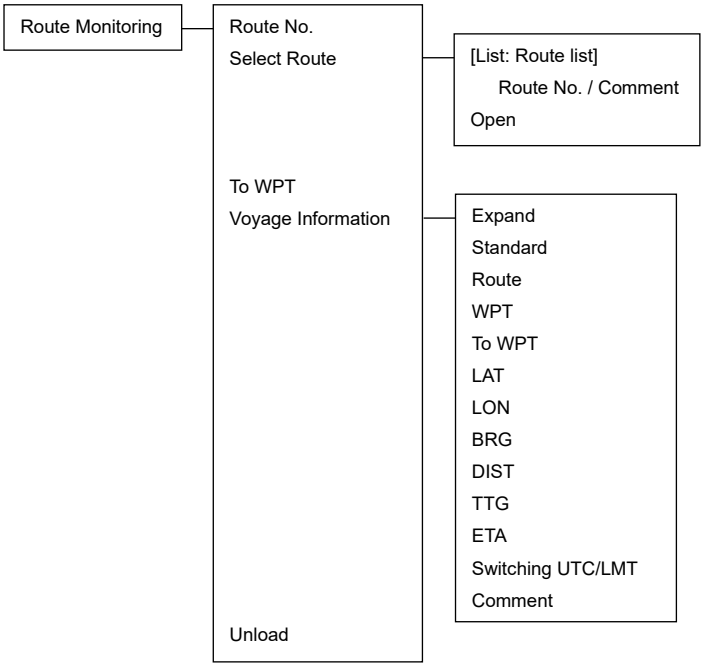
This section shows the menus and dialogue items of this equipment by target menu.

* Items that are enclosed by a frame of broken lines indicate the dialogue and window names that are displayed by selecting the relevant menu.

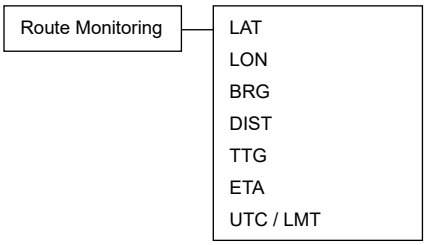
B.1.1 Route Planning (Destination Route)



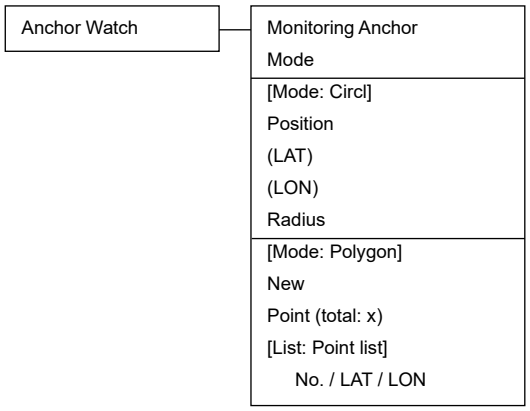
B.1.2 Route Monitoring (Destination Route)



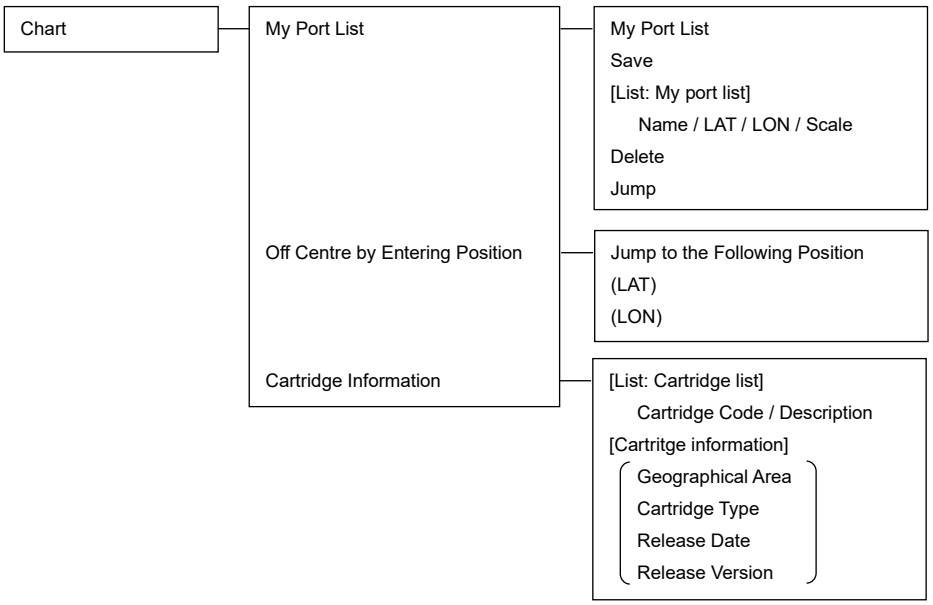
B.1.3 Route Monitoring (NMEA)



B.1.4 Anchor Watch



B.1.5 Chart

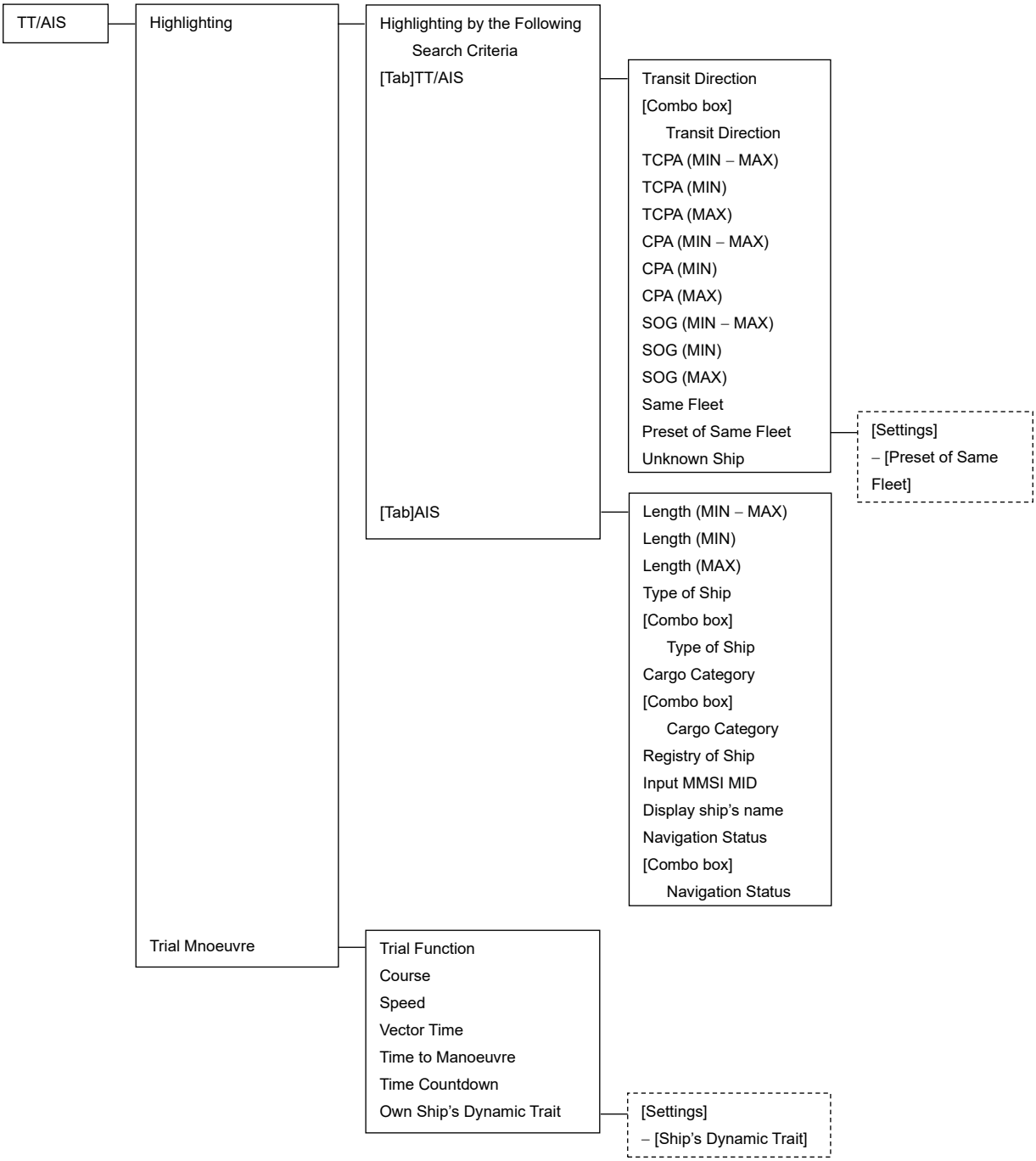


B.1.6 User Map

- User Map
  - File Operation
    - New
    - Delete
    - Copy
    - Merge Display Files
    - [List: User map file list]
      - Display / Editing / Name /
      - Count / Comment /
      - Date (UTC) / Geodetic
    - Edit User Map
  - Mark/Line List
    - [Tab]Mark
      - [List: Object list]
        - No. / Type / Colour /
        - LAT / LON / Comment /
        - Last Update (UTC) / File Name
    - [Tab]Line
      - [List: Object list]
        - No. / Type / Line Colour /
        - Line Width / LAT / LON /
        - Comment / Last Update (UTC) /
        - File Name
    - [Tab]Text
      - [List: Object list]
        - No. / Type / Colour /
        - LAT / LON / Comment /
        - Last Update (UTC) / File Name
    - Insert
    - Delete
    - |◄
    - ◄
    - The number of the current page
    - The number of the total page
    - ►
    - ►|
    - Jump
  - Delete by Type/Colour
    - Type
    - Colour
    - OK

B.1.7 TT/AIS

- TT/AIS
  - AIS Voyage Data
    - Destination
    - [Combo box]▼
    - ETA (UTC)
    - Calendar picker
    - NAV Status
    - Draft
    - Cargo Cat.
    - Persons On – Board
    - Send
  - Edit and Send AIS Message
    - [Send to]
      - Addressed
      - MMSI
      - Name
      - Target ID
      - Broadcast
    - Category
    - LL & Time
    - View Tray
    - Message
    - Save
    - Send
  - AIS Message Tray
    - TX Tray
      - Message Format
      - Message Category
      - [List: Message list]
        - No. / Date / MMSI / Ship's Name
      - [Message – Detail]
      - MMSI
      - Ship's Name
      - AIS Message
      - Edit
      - Select
    - Saved Tray
      - Message Foramt
      - Message Category
      - [List: Message list]
        - No. / Date / MMSI / Ship's Name
      - [Message – Detail]
      - MMSI
      - Ship's Name
      - AIS Message
      - Edit
      - Select
    - RX Tray
      - Message Format
      - Message Category
      - [List: Message list]
        - No. / Date / MMSI / Ship's Name
      - [Message – Detail]
      - MMSI
      - Ship's Name
      - AIS Message
      - Edit
      - Select

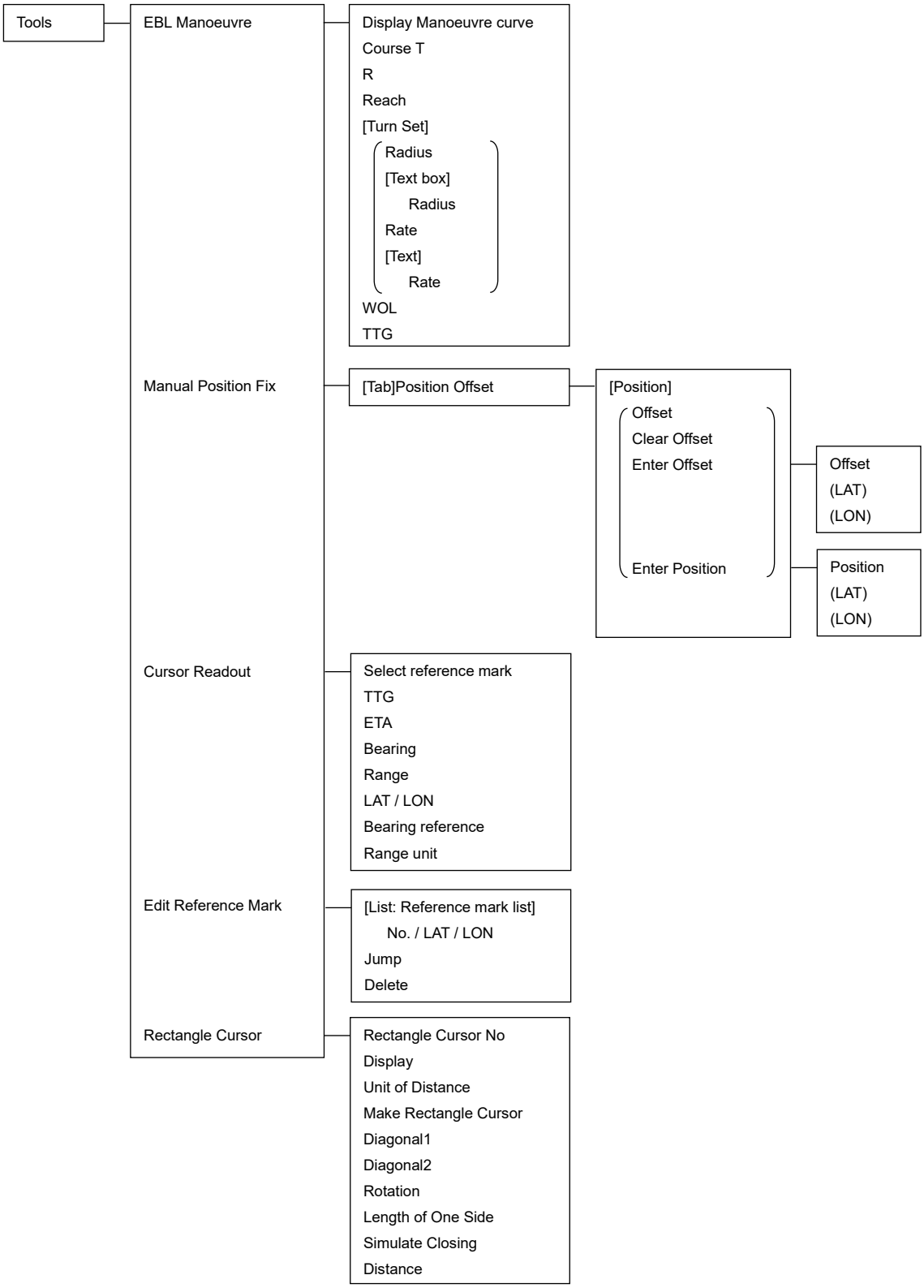

TT/AIS
Highlighting
Highlighting by the Following Search Criteria
[Tab]TT/AIS
Transit Direction
[Combo box]
Transit Direction
TCPA (MIN – MAX)
TCPA (MIN)
TCPA (MAX)
CPA (MIN – MAX)
CPA (MIN)
CPA (MAX)
SOG (MIN – MAX)
SOG (MIN)
SOG (MAX)
Same Fleet
Preset of Same Fleet
Unknown Ship
[Settings]
– [Preset of Same Fleet]
[Tab]AIS
Length (MIN – MAX)
Length (MIN)
Length (MAX)
Type of Ship
[Combo box]
Type of Ship
Cargo Category
[Combo box]
Cargo Category
Registry of Ship
Input MMSI MID
Display ship's name
Navigation Status
[Combo box]
Navigation Status
Trial Mnoeuvre
Trial Function
Course
Speed
Vector Time
Time to Manoeuvre
Time Countdown
Own Ship's Dynamic Trait
[Settings]
– [Ship's Dynamic Trait]

- TT/AIS
  - TT/AIS List
    - [RADAR Mode]
      - [Tab]TT List
        - BRG/RNG
        - LAT/LON
        - [List: BRG/RNG selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / BRG / RNG / Status
        - [List: LAT/LON selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / LAT / LON / Status
      - [Tab]AIS List
        - COG/SOG/Name/Call Sign/ MMSI/Source
        - BCR/BCT/BRG/RNG/HDG/POSN/Status
        - [List: COG/SOG etc selected]
          - ID / CPA / TCPA / COG/CTW / SOG/STW / Name / Call Sign / MMSI / Source
        - [List: BCR/BCT etc selected]
          - ID / CPA / TCPA / BCR / BCT / BRG / RNG / HDG / LAT / LON / Status
        - Show AIS Detail
    - [Plotter Mode]
      - [Tab]TT1 List
        - BRG/RNG
        - LAT/LON
        - [List: BRG/RNG selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / BRG / RNG / Status
        - [List: LAT/LON selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / LAT / LON / Status
      - [Tab]TT2 List
        - BRG/RNG
        - LAT/LON
        - [List: BRG/RNG selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / BRG / RNG / Status
        - [List: LAT/LON selected]
          - ID / CPA / TCPA / BCR / BCT / COG/CTW / SOG/STW / LAT / LON / Status
      - [Tab]AIS List
        - COG/SOG/Name/Call Sign/ MMSI/Source
        - BCR/BCT/BRG/RNG/HDG/POSN/Status
        - [List: COG/SOG etc selected]
          - ID / CPA / TCPA / COG/CTW / SOG/STW / Name / Call Sign / MMSI / Source
        - [List: BCR/BCT etc selected]
          - ID / CPA / TCPA / BCR / BCT / BRG / RNG / HDG / LAT / LON / Status
        - Show AIS Detail

- TT/AIS
  - Own Ship AIS Data
    - Name
    - Call Sign
    - MMSI
    - IMO No.
    - Length
    - Beam
    - Destination
    - ETA (UTC)
    - Navigation Status
    - Draft
    - Type of Ship
    - Cargo Category
    - COG or CTW
    - SOG or STW
    - Heading
    - ROT
    - Position
    - Position Accuracy
    - Position Sensor
  - Last Lost AIS Target
    - Name
    - Call Sign
    - MMSI
    - IMO No.
    - Lenght
    - Beam
    - Destination
    - ETA (UTC)
    - Navigation Status
    - Draft
    - Type of Ship
    - Cargo Category
    - Bearing
    - Range
    - COG or CTW
    - SOG or STW
    - Heading
    - ROT
    - Position
    - Position Accuracy
    - Position Sensor
    - Source

B.1.8 Tools

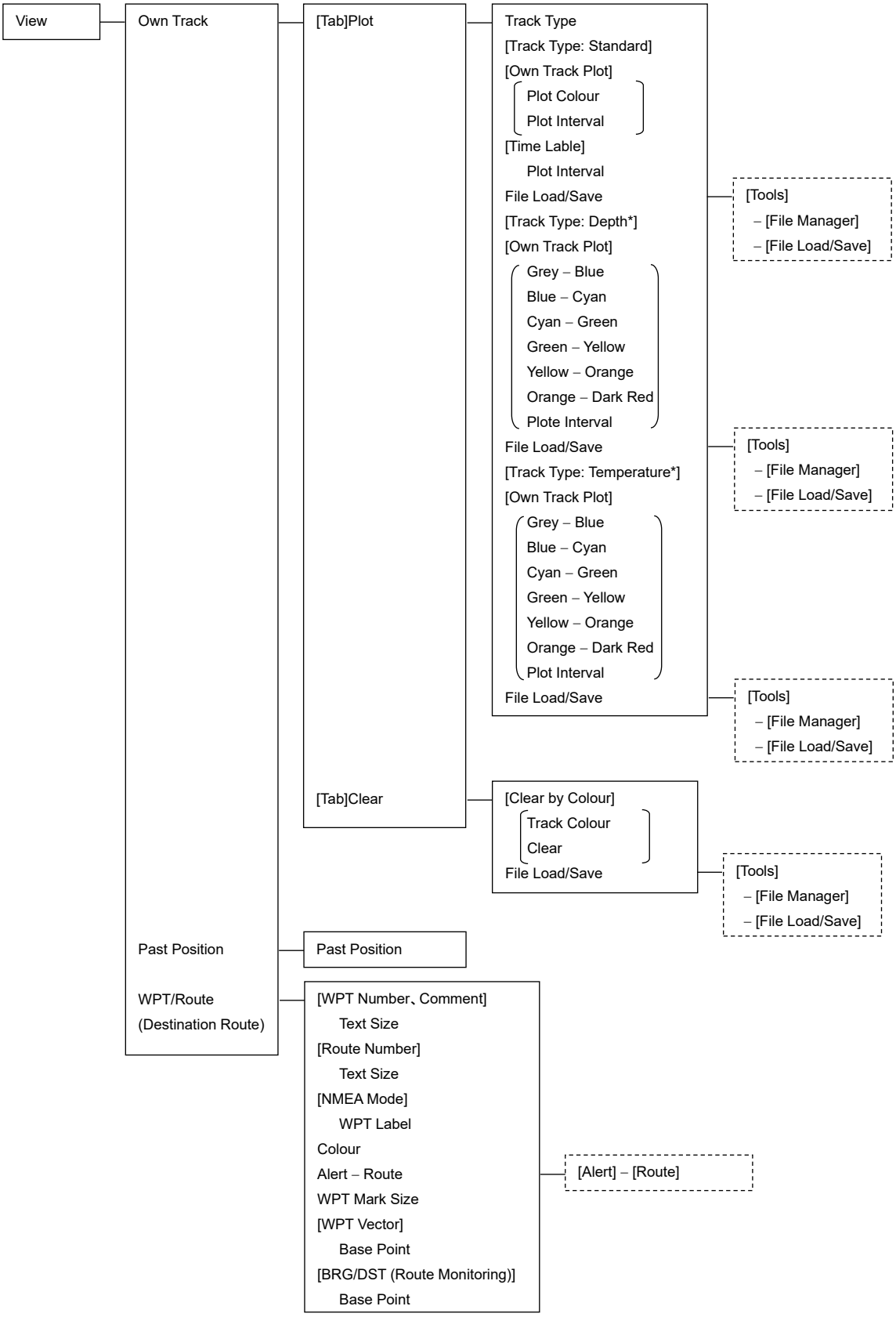
- Tools
  - MOB
    - Position
    - (LAT)
    - (LON)
    - Bearin
    - Range
    - Unit switching button
    - TTG
    - Time
  - EBL / VRM
    - Origin position of EBL1/VRM1
    - Origin position of EBL2/VRM
    - EBL1
    - EBL2
    - EBL Bearing reference
    - VRM1
    - VRM2
    - VRM Distance unit
  - PI
    - Display for All Lines
    - Mode
    - [Mode: All]
      - PI Bearing
      - Interval
      - Unit switching button
      - Operation Area
    - [Mode: Individual]
      - Index Line
      - Display
      - PI Bearing
      - Interval
      - Unit switching button (Interval)
      - Length L
      - (Length) R
      - Unit switching button (Length)
      - Sequential
    - [Mode: Track]
      - Group
      - Display
      - PI Bearing
      - Interval
      - Unit switching button (Interval)
    - [Mode: Equiangular]
      - Group
      - Display
      - PI Bearing
      - Vertical Angle
    - Floating
      - Heading Link
      - Reference Bearing


Tools
EBL Manoeuvre
Display Manoeuvre curve
Course T
R
Reach
[Turn Set]
Radius
[Text box]
Radius
Rate
[Text]
Rate
WOL
TTG
Manual Position Fix
[Tab]Position Offset
[Position]
Offset
Clear Offset
Enter Offset
Enter Position
Offset
(LAT)
(LON)
Position
(LAT)
(LON)
Cursor Readout
Select reference mark
TTG
ETA
Bearing
Range
LAT / LON
Bearing reference
Range unit
Edit Reference Mark
[List: Reference mark list]
No. / LAT / LON
Jump
Delete
Rectangle Cursor
Rectangle Cursor No
Display
Unit of Distance
Make Rectangle Cursor
Diagonal1
Diagonal2
Rotation
Length of One Side
Simulate Closing
Distance

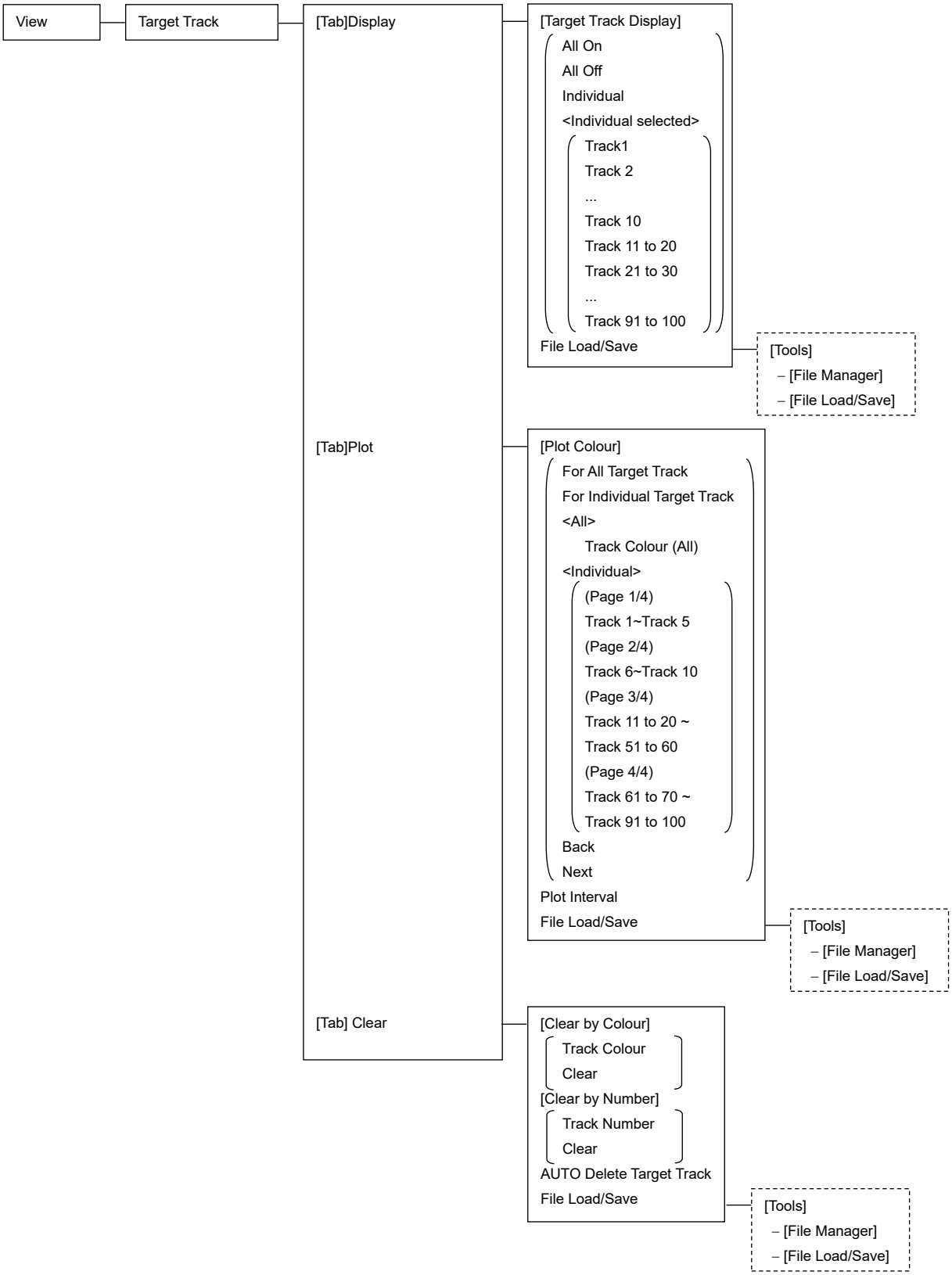
- Tools
  - File Manager
    - [Tab]File Management
      - File Type
      - Drive
      - [List: Folder Tree]
      - [List: File list]
        - Name
      - Copy >>
      - << Copy
      - Delete
      - Drive
      - [List: Folder Tree]
      - [List: File list]
        - Name
      - Delete
    - [Tab]File Load/Save
      - File Type
      - [List: File list]
        - Name
      - [File Type: Own Track]
      - Load Mode
      - Load
      - Save Current Own Track
      - Delete Current Own Track
      - Display Track:
      - MAX:
      - [File Type: Target Track]
      - Load Mode
      - Load
      - Save Current Target Track
      - Delete Current Target Track
      - [File Type: RADAR Trails]
      - Load Mode
      - Load
      - Save Current RADAR Trails
      - [File Type: Plotter Route]
      - Load
      - Save Current Route and Destinations
      - Delete Current Route and Destinations
    - Record Operation
      - User Key No
      - Name
      - Record
      - [List: Operation list]
        - No. / Operation
      - Exit Operation Record

B.1.9 View

- View
  - Own Ship
    - (Page 1/2)
      - Type
      - Blink Interval
      - Stern Line (RADAR Mode)
      - Heading and Beam Line
        (Plotter Mode)
      - [Vector]
        - Ground stabilised Vector
        - Sea stabilised Vector
        - Time
        - Stabilisation indicator
        - Vector Time Mark
        - Interval
      - Next
    - (Page 2/2)
      - Settings of AIS Filter
        - [Settings] – [Filter]
      - Settings of AZ
        - [Alert]
          – [New Target Warning]
      - Back
  - Own Track
    - [Tab]Display
      - [Plotter option: None]
      - Own Track Display (On)
      - Own Track Display (Off)
      - [Plotter option: Yes]
      - [Own Track Display]
        - White/Black
        - Grey
        - Amber
        - Magenta
        - Blue
        - Cyan
        - Green
        - Yellow
        - Orange
        - Dark Red
      - Show Values/Vector on Track
      - [Combo box]
        Show Values/Vector on Track
      - [Current Vecot]
        - Current Size
        - Layer A
        - [Combo box]Layer A
        - Layer B
        - [Combo box]Layer B
        - Layer C
        - [Combo box]Layer C
        - Layer A
        - [Combo box]Layer D
        - Layer E
        - [Combo box]Layer E


View
Own Track
[Tab]Plot
Track Type
[Track Type: Standard]
[Own Track Plot]
Plot Colour
Plot Interval
[Time Lable]
Plot Interval
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
[Track Type: Depth*]
[Own Track Plot]
Grey – Blue
Blue – Cyan
Cyan – Green
Green – Yellow
Yellow – Orange
Orange – Dark Red
Plote Interval
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
[Track Type: Temperature*]
[Own Track Plot]
Grey – Blue
Blue – Cyan
Cyan – Green
Green – Yellow
Yellow – Orange
Orange – Dark Red
Plot Interval
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
[Tab]Clear
[Clear by Colour]
Track Colour
Clear
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
Past Position
Past Position
WPT/Route
(Destination Route)
[WPT Number、Comment]
Text Size
[Route Number]
Text Size
[NMEA Mode]
WPT Label
Colour
Alert – Route
WPT Mark Size
[WPT Vector]
Base Point
[BRG/DST (Route Monitoring)]
Base Point
[Alert] – [Route]

- View
  - User Map
    - (Page 1/2)
      - [Object Type]
        - All On
        - Individual
        - <Individual selected>
          - Mark
          - Line
          - Text
      - Next
    - (Page 2/2)
      - [Mark/Line Colour]
        - White/Black
        - Grey
        - Amber
        - Mgenta
        - Blue
        - Cyan
        - Green
        - Yellow
        - Orange
        - Dark Red
      - Mark Size
      - [Comment Font Size]
        - Standard
        - Small
      - Back
  - RADAR
    - RADAR Overlay
    - RADAR Overlay Source Selection
    - Tranparency of Echo/Trails
  - Target
    - CPA Ring (Only Relative mode)
    - AIS Symbol
    - Physical AtoN
    - Virtual AtoN
    - [Plotter mode]
    - TT1 Symbol
    - [Combo box]TT1 Symbol
    - TT2 Symbol
    - [Combo box]TT2 Symbol
    - TT Vector
    - TT Target ID
    - AIS Target ID
    - [RADAR mode]
    - TT Symbol
    - TT Target ID
    - AIS Target ID

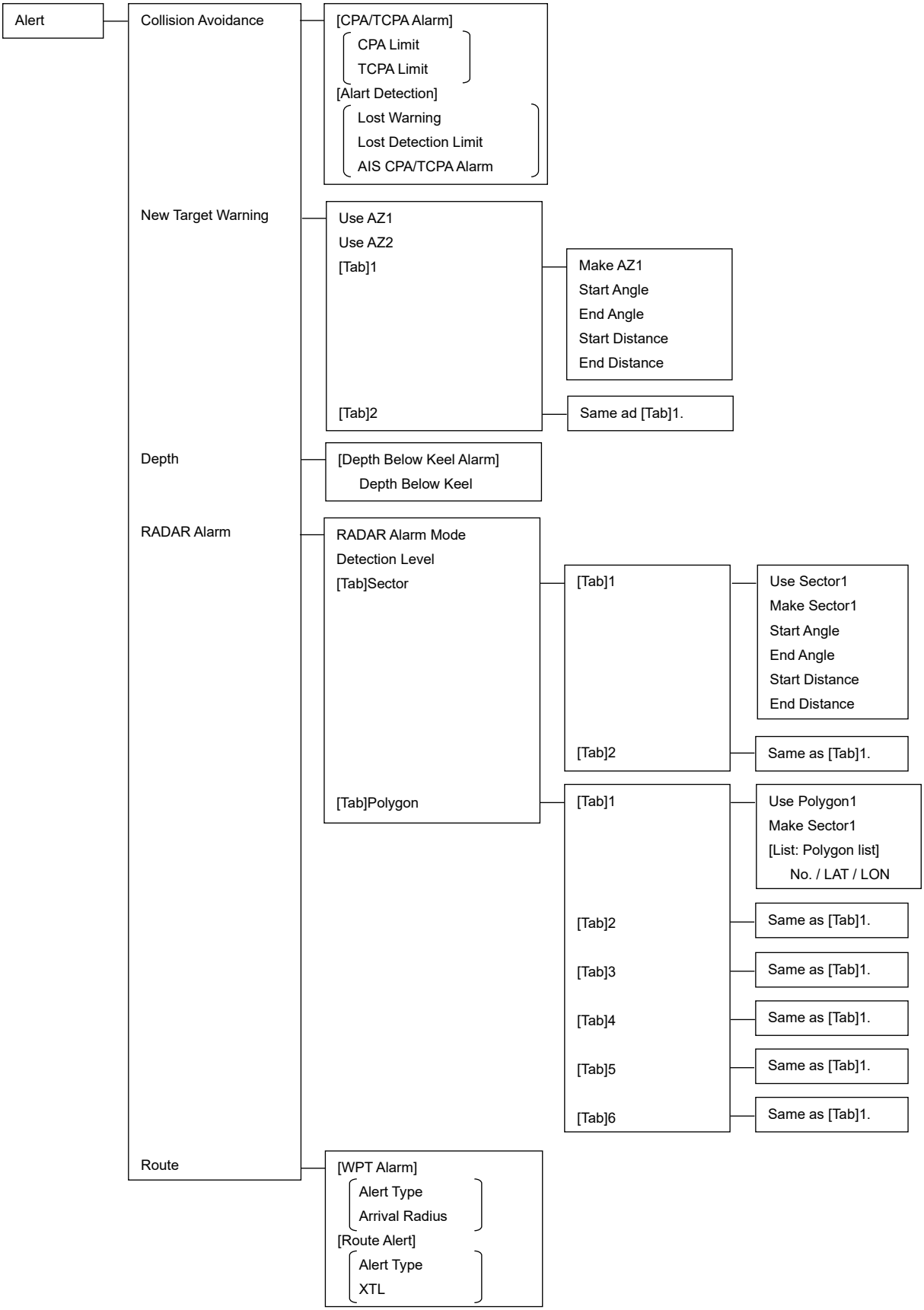

View
Target Track
[Tab]Display
[Target Track Display]
All On
All Off
Individual
<Individual selected>
Track1
Track 2
...
Track 10
Track 11 to 20
Track 21 to 30
...
Track 91 to 100
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
[Tab]Plot
[Plot Colour]
For All Target Track
For Individual Target Track
<All>
Track Colour (All)
<Individual>
(Page 1/4)
Track 1~Track 5
(Page 2/4)
Track 6~Track 10
(Page 3/4)
Track 11 to 20 ~
Track 51 to 60
(Page 4/4)
Track 61 to 70 ~
Track 91 to 100
Back
Next
Plot Interval
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]
[Tab] Clear
[Clear by Colour]
Track Colour
Clear
[Clear by Number]
Track Number
Clear
AUTO Delete Target Track
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]

- View
  - Chart View
    - Multi View Mode
      - [Chart Type]
        - C – MAP MAX
        - newpec
      - Display Fishing Area
      - [Multi View Mode]
        - Single View
        - Top – Bottom
        - Right – Left
        - Select Area from View1 for View2
  - C – MAP MAX
    - (Page 1/4)
      - [Depth Shading]
        - Mode
        - [Highlight Depth Area]
          - Minimum Depth
          - Maximum Depth
        - Safety Contour
      - Next
    - (Page 2/4)
      - [Land Setting]
        - Point of Interested
        - Land Elevation
        - Roads
        - Land Elevation Value
        - Land Marks
        - River & Lake
      - Back
      - Next
    - (Page 3/4)
      - [Marine Settings]
        - Name Tags
        - Tides and Currents
        - Place Name
        - Seabed Type
        - Port & Service
        - Attention Areas
        - Track & Routes
        - Under Water
        - [Light]
          - Naviagtion Aids & Light Sector
          - Light Sector Level
      - Back
      - Next
    - (Page 4/4)
      - [Chart Setting]
        - VAD (Value Added Data)
        - Chart Boundaries
        - [Combo box]Select Boundaries
      - [Under Water Setting]
        - Wrecs Depth Label
        - Diffusers Depth Label
        - Obstructions Depth Label
        - Rocks Depth Label
      - Graticule
      - Back

- View
  - newpec
    - [Tab]Contour
      - (Page 1/2)
        - Safety Contour
        - Contour Display
        - Shallow Contour
        - Deep Contour
        - Contour Interval
        - Line Type
        - [Contour Colour]
          - Colour Mode
          - [Colour Mode: Simple Colour]
          - Colour
        - Next
      - (Page 2/2)
        - [Highlight Depth]
          - Contour
          - [Combo box]▼
          - Add
          - Delete
          - [List: Contour list]
            - Contour / Colour / Line Type
        - Back
    - [Tab]Chart
      - Name
      - Text Size
      - Anchor Obstruction with Caution
      - Miscellaneous Boundary
      - Inshore Light, Ports and Harbors Light
      - Navigation Dangerous Obstruction
      - Route Boundary
      - Beacon
      - Anchorage Area
      - Landmark
      - Graticule
      - Sea Fill
    - Tools
      - Range Rings
      - Bearing Scale
      - EBL1
      - EBL2
      - VRM1
      - VRM2
      - PI
      - Index Line1
      - Index Line 2
      - Index Line 3
      - Index Line 4
      - Index Line 5
      - Index Line 6
      - Index Line 7
      - Index Line 8
      - Expand Cursor readout & EBL/VRM
      - [Display Expand Information]
        - Top Left
        - Top Right
        - Bottom Left
        - Bottom Right
        - Font Size

- View
  - Unit
    - Depth
    - Depth(C – MAP MAX)
    - Current Speed
    - Wind Speed
    - Air TEMP
    - Water TEMP
    - Air Pressure
    - Wind Direction (True)
    - [Range Unit AUTO Selection]
      - Range Threshold
      - Use same unit for Cursor/VRM/PI
  - Control
    - (Page 1/4)
    - [Top Level Screen Information]
      - [RADAR Mode]
      - Show Own Track Control
      - [Plotter Mode]
      - Show Sube Information Window
      - Watch (Vector/RADAR/Target Status)
      - Depth
      - Current
      - Trails
    - Display Key Operation Number
    - Next
    - (Page 2/4)
    - [Tab]RADAAR
      - [List: RADAR Menu list]
    - [Tab]Plotter
      - [List: Plotter Menu list]
    - Back
    - Next
    - (Page 3/4)
    - [Context Menu]
      - Readout detail information
      - Message
      - Mask trails
      - Assign as same fleet
    - Back
    - Next
    - (Page 4/4)
    - [Rudder Block]
      - Display Order Value
      - MAX
    - [Weather INFO Block]
      - Display Air Temperature
      - Display Water Temperature
      - Display Air Pressure
      - Display Humidity
    - Back
  - Depth Graph
    - Depth Range
    - Time Range
    - Reference
  - Water TEMP Graph
    - Graph Colour
    - Time Range

B.1.10 Alert


Alert
Collision Avoidance
[CPA/TCPA Alarm]
CPA Limit
TCPA Limit
[Alart Detection]
Lost Warning
Lost Detection Limit
AIS CPA/TCPA Alarm
New Target Warning
Use AZ1
Use AZ2
[Tab]1
Make AZ1
Start Angle
End Angle
Start Distance
End Distance
[Tab]2
Same ad [Tab]1.
Depth
[Depth Below Keel Alarm]
Depth Below Keel
RADAR Alarm
RADAR Alarm Mode
Detection Level
[Tab]Sector
[Tab]1
Use Sector1
Make Sector1
Start Angle
End Angle
Start Distance
End Distance
[Tab]2
Same as [Tab]1.
[Tab]Polygon
[Tab]1
Use Polygon1
Make Sector1
[List: Polygon list]
No. / LAT / LON
[Tab]2
Same as [Tab]1.
[Tab]3
Same as [Tab]1.
[Tab]4
Same as [Tab]1.
[Tab]5
Same as [Tab]1.
[Tab]6
Same as [Tab]1.
Route
[WPT Alarm]
Alert Type
Arrival Radius
[Route Alert]
Alert Type
XTL

- Alert
  - Position Integrity
    - [Position monitor]
      - Position Difference Limit
      - Radius Limit (GPS)
      - Radius Limit (DGPS)
      - Time Limit
    - [HDOP exceeded]
      - HDOP Limit
  - AMS
    - [Reactivation of Silenced Alert]
      - Time Limit
    - [Transfer to BNWAS]
      - Time Limit
    - [Repetition of UNACK Warning]
      - Time Limit

B.1.11 Settings

- Settings
  - Signal Process (Basic)
    - Gain
    - Sea
    - [Button]AUTO/MAN
    - Rain
    - [Button]AUTO/MAN
    - IR
    - Target Enhance
    - Echo Process
  - Signal Process
    - Video Latitude
    - Video Noise Rejection
    - AUTO Dynamic Range Control
    - [Process Switch]
      - Process Switch
      - 2nd Process Mode
      - Process Switch Range
    - Fast Target Detection
    - SART
    - Enable Small Target Highlight
  - Small Target Highlight
    - Obs. Scene
    - Gain
    - Sea
    - [Button]AUTO/MAN
    - Rain
    - [Button]AUTO/MAN

Settings — Obs. Scene Preset —

(Common)
Obs. Scene

(Page 1/6)
IR
Target Enhance
Echo Process
Sea
Rain
AUTO Change H – Up
Next

(Page 2/6)
0.75 (0.75 to 1.5)
1.5 (1.5 to 3) NM
3 (3 to 6) NM
6 (6 to 12) NM
12 (12 to 16) NM
Back
Next

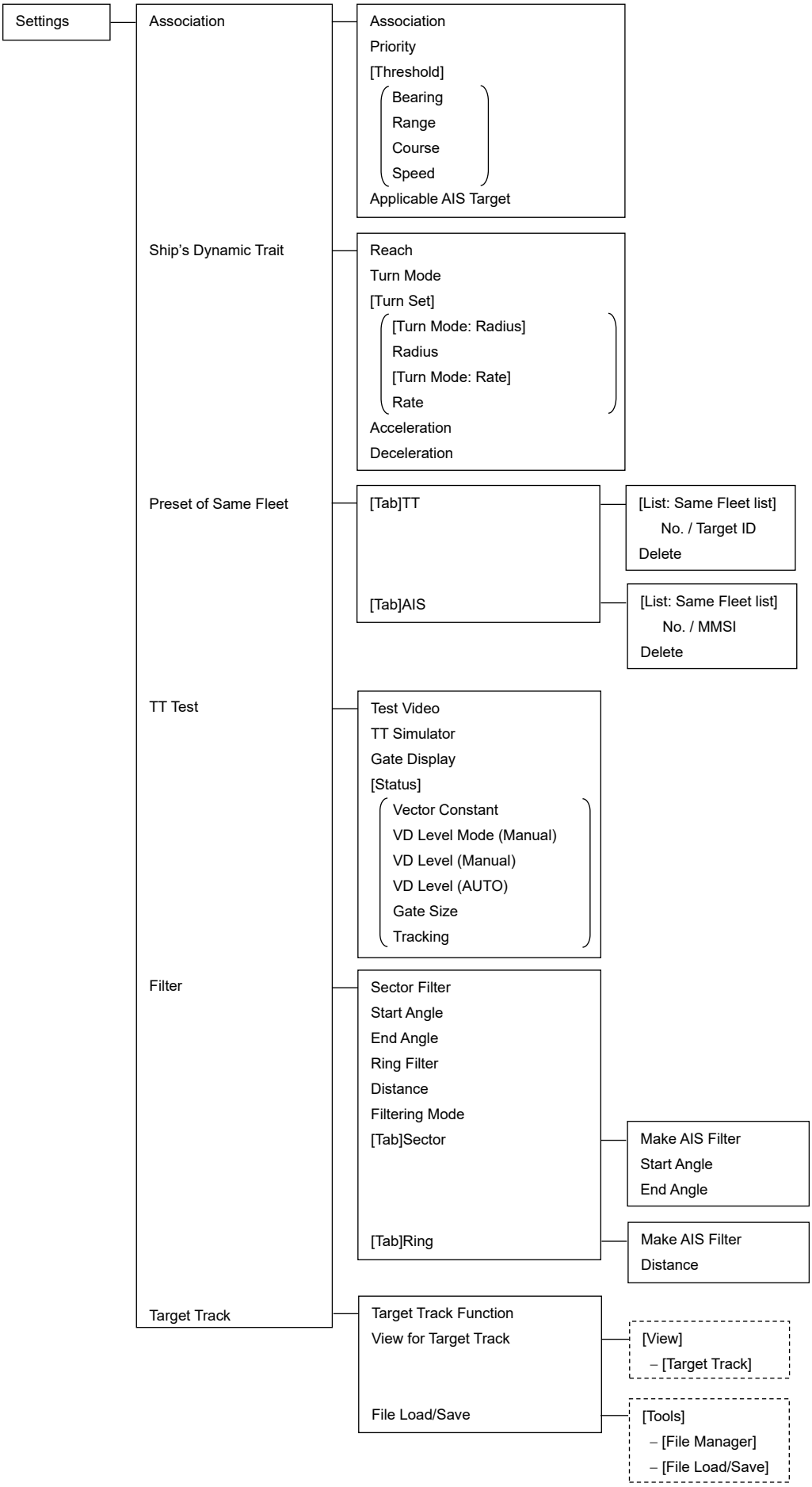
(Page 3/6)
Video Latitude
Video Noise Rejection
AUTO Dynamic Range Control
[Process Switch]
(Process Switch
2nd Process Mode
Process Switch Range)
Fast Target Detection
Back
Next

(Page 4/6)
[Trails]
(Trails Mode
Trails Ref Level
Trails Reduction
Use MAX Length Preset
[Combo box]Max Length
Trails Length
Time/All Combine)
[Vector]
(Use Vector Length Preset
[Combo box]Vector Length)
Back
Next

(Page 5/6)
Gain Offset
PRF
Small Buoy Detection
Fishnet Detection
Antenna Height
Back
Next

(Page 6/6)
Save as User Settings
Load User Settings
Initialise
Back

- Settings
  - Obs. Scene Common
    - [AUTO Change Obs. Scene]
      - Short
      - Short (Maximum)
      - MID
      - MID (Maximum)
      - Long
      - [Obs. Scene]
        - Short
        - MID
        - Long
  - Trails
    - Trails Mode
    - Trails Ref Level
    - Trails Reduction
    - MAX Length
    - Time/All Combine
  - Trails Masking
    - [Show Trails Masking Area]
      - Expand Masking Size
      - Def.
  - TXRX
    - PRF Fine Tuning
    - Stagger Trigger
    - PRF
    - Ice Class Standby Mode
  - Rotation Speed
    - [Scanner Unit: 25/30kW]
    - 0.07uS/2250Hz: SP1
    - 0.2uS/2250Hz: MP1
    - 0.3uS/1900Hz: MP2
    - 0.4uS/1400Hz: MP3
    - 0.8uS/750Hz: LP1
    - 1.0uS/650Hz: LP2
    - 1.2uS/510Hz: LP3
    - [Scanner Unit: 50/60kW]
    - 0.08uS/1700Hz: SP1
    - 0.25uS/1700Hz: MP1
    - 0.75uS/860Hz: LP1
    - 1.0uS/650Hz: LP2
    - [Scanner Unit: 4/6kW]
    - 0.08uS/2250Hz: SP1
    - 0.25uS/1700Hz: MP1
    - 0.5uS/1200Hz: MP2
    - 1.0uS/650Hz: LP1
    - [Scanner Unit: 10kW]
    - 0.08uS/2250Hz: SP1
    - 0.25uS/1700Hz: MP1
    - 0.5uS/1200Hz: MP2
    - 0.8uS/750Hz: LP1
    - 1.0uS/650Hz: LP2


Settings
Association
Association
Priority
[Threshold]
Bearing
Range
Course
Speed
Applicable AIS Target
Ship's Dynamic Trait
Reach
Turn Mode
[Turn Set]
[Turn Mode: Radius]
Radius
[Turn Mode: Rate]
Rate
Acceleration
Deceleration
Preset of Same Fleet
[Tab]TT
[List: Same Fleet list]
No. / Target ID
Delete
[Tab]AIS
[List: Same Fleet list]
No. / MMSI
Delete
TT Test
Test Video
TT Simulator
Gate Display
[Status]
Vector Constant
VD Level Mode (Manual)
VD Level (Manual)
VD Level (AUTO)
Gate Size
Tracking
Filter
Sector Filter
Start Angle
End Angle
Ring Filter
Distance
Filtering Mode
[Tab]Sector
Make AIS Filter
Start Angle
End Angle
[Tab]Ring
Make AIS Filter
Distance
Target Track
Target Track Function
View for Target Track
[View]
– [Target Track]
File Load/Save
[Tools]
– [File Manager]
– [File Load/Save]

- Settings
  - Route (Destination Route)
    - Route Mode
    - WPT Switching Mode
    - Save Temporary Route
  - Scale/Range Preset
    - [Tab]Scale
      - Scale
      - Add
      - Delete
      - Def.
      - [List: Scale list]
        - No. / Scale
    - [Tab]Range
      - Range
      - Add
      - Delete
      - Def.
      - [List: Range list]
        - No. / Range
  - Chart
    - [Redraw]
      - Border Range
  - NAVTEX
    - Show NAVTEX
    - [Highlighting of Message List]
      - Navigation Alarm
      - Weather Alarm
      - Ice Warning
      - Search and Rescue Information
      - Extended Navigational Information
    - Display Filtering for NAVTEX Messages
  - Event Mark
    - [Contact In (RPU)]
      - [List: RPU list]
        - No. / Type / Colour
    - [Contact In (SLC)]
      - [Tab]SLC1
        - [List: SLC1 list]
          - No. / Type / Colour
      - [Tab]SLC2
        - [List: SLC2 list]
          - No. / Type / Colour
    - [Numeric Keys (1,2,3)]
      - Settings – Numeric Keys
        - [Settings] – [Numeric Keys]
  - Numeric Keys
    - [Event Mark (1,2,3)]
      - [List: Event Mark list]
        - Key / Type / Colour
    - [Plot Mark (4,5,6,7)]
      - [List: Plot Mark list]
        - Key / Type
    - Numeric Mark (8)
    - [Plot Line (9,0)]
      - Type
      - Line Width
  - Geodetic
    - Convert WGS – 84 to Tokyo

- Settings
  - Postion Display
    - Mode
      - [Tab]LORAN C
        - Chain
        - TD1
        - TD1 Correction
        - TD2
        - TD2 Correction
      - [Tab]LORAN A
        - LOP 1
        - TD1 Correction
        - LOP 2
        - TD2 Correction
      - [Tab]DECCA
        - Chain
        - [Combo box]LOP1 (Zone)
        - [Combo box]LOP1 (Lane)
        - [Text box]LOP1 (Frequency)
        - TD1 Correction
        - [Combo box]LOP2 (Zone)
        - [Combo box]LOP2 (Lane)
        - [Text box]LOP2 (Frequency)
        - TD2 Correction
    - General
      - [NSK]
        - Gyro Setting
    - GPS
      - [GPS Ver. ~R26.00]
      - [Position]
        - LAT
        - LON
      - [Exclusion Satellite]
        - Exclusion Satellite 1
        - Exclusion Satellite 2
        - Exclusion Satellite 3
        - Exclusion Satellite 4
        - Exclusion Satellite 5
        - Exclusion Satellite 6
      - Geodetic Datum
      - Antenna Height
      - Fix Mode
      - DOP Level
      - Position Averasing
      - Elevation Mask
      - Master Reset
      - Send Data
      - Status

Settings — GPS

[GPS Ver. R26.01~R30.99]

[Position]

- LAT
- LON

[Exclusion Satellite]

- Exclusion Satellite 1
- Exclusion Satellite 2
- Exclusion Satellite 3
- Exclusion Satellite 4
- Exclusion Satellite 5
- Exclusion Satellite 6

Geodetic Datum

Antenna Height

Fix Mode

DOP Level

Position Averasing

Elevation Mask

Master Reset

Send Data

Status

[GPS Ver. R31.00~R38.99]

[Position]

- LAT
- LON

Geodetic Datum

Antenna Height

Fix Mode

DOP Level

Position Averasing

Elevation Mask

Master Reset

Send Data

Status

[GPS Ver. R39.00~R39.99]

[Position]

- LAT
- LON

Geodetic Datum

Antenna Height

Fix Mode

DOP Level

Position Averasing

Elevation Mask

RAIM Level

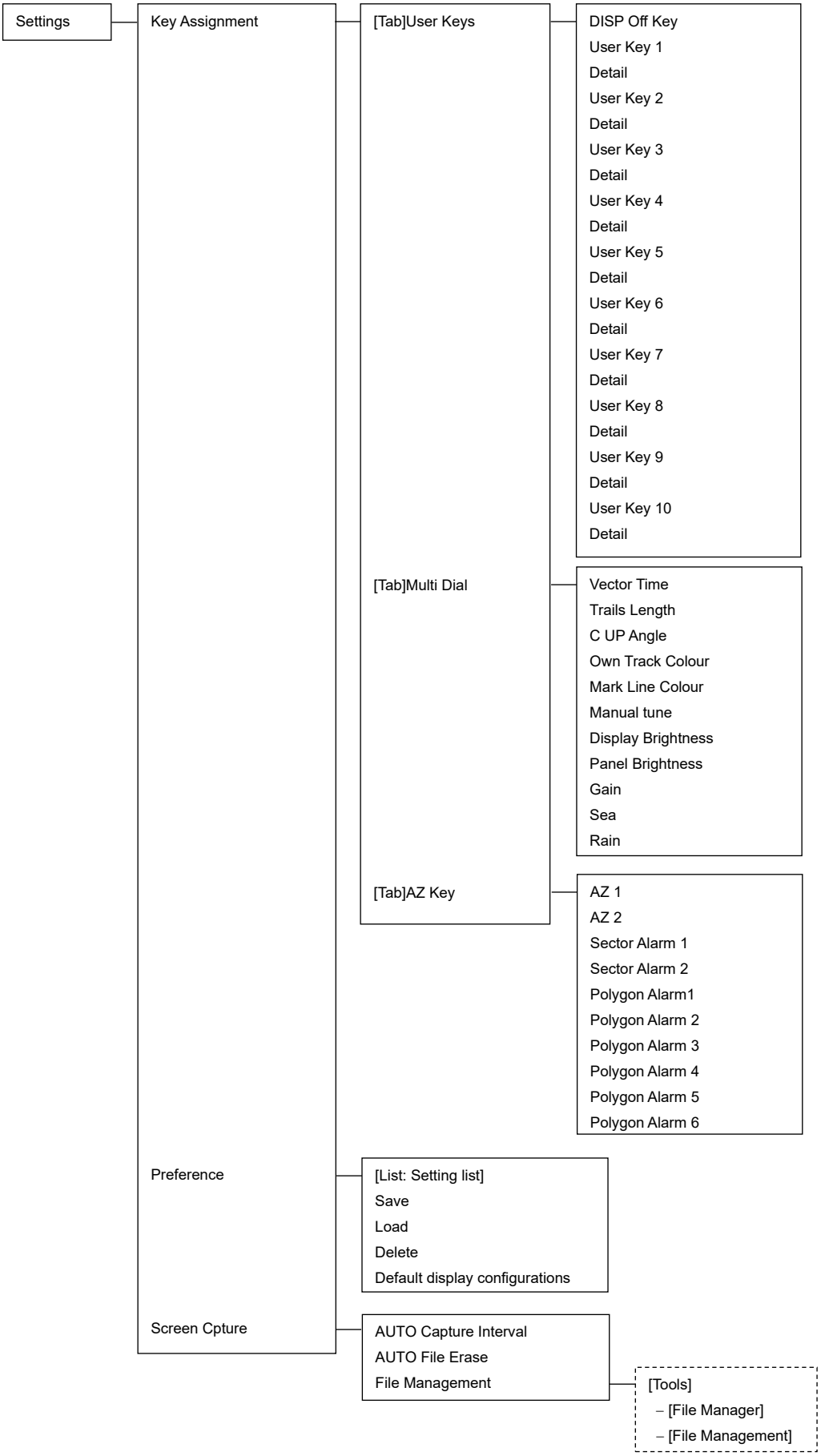
Master Reset

Send Data

Status

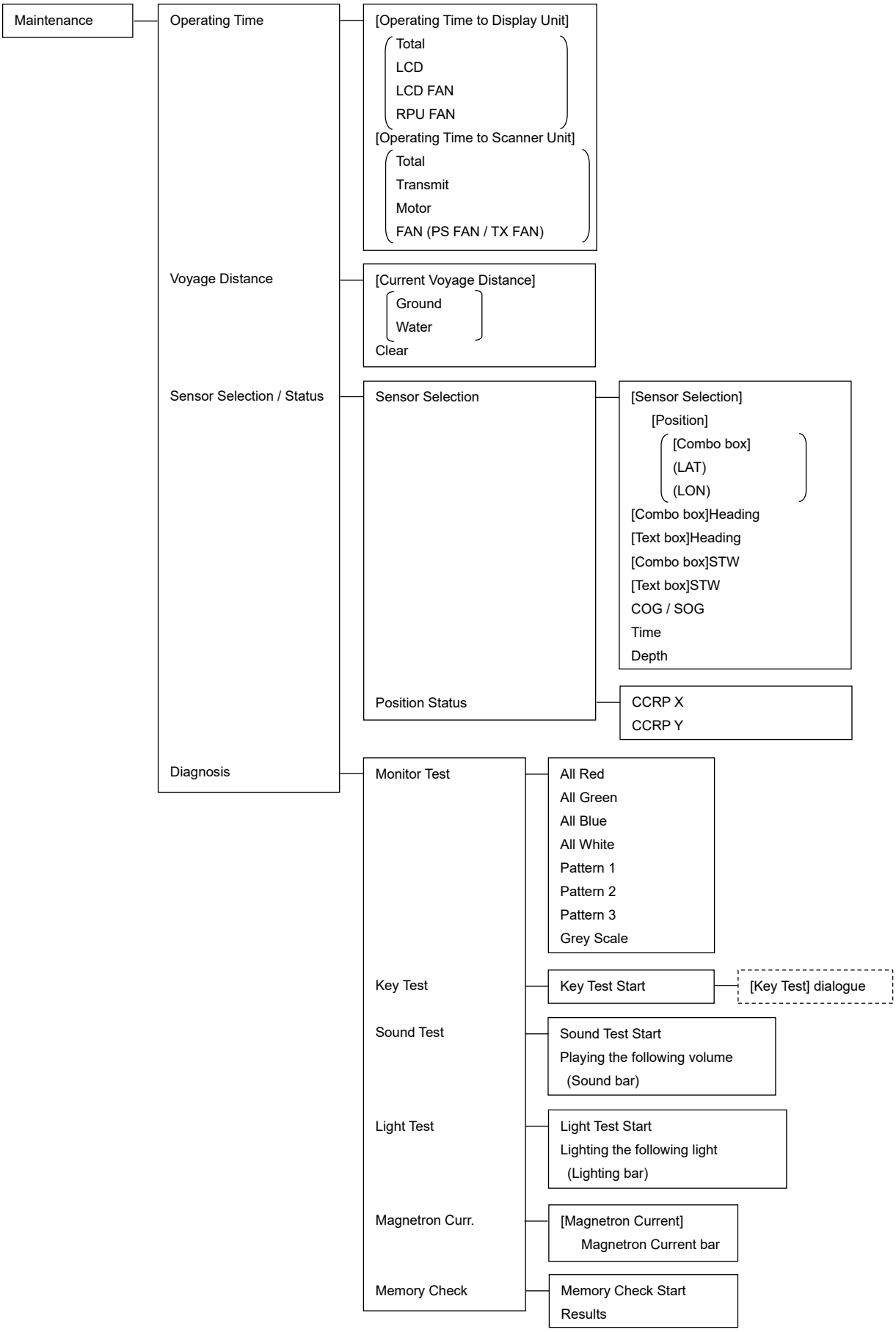
- Settings
  - GPS
    - [GPS Ver. R40.00~]
    - [Position]
      - LAT
      - LON
    - Geodetic Datum
    - Antenna Height
    - Fix Mode
    - DOP Level
    - [Position Averasing]
      - Position
      - Speed
      - Course
    - Elevation Mask
    - RAIM Level
    - [GNSS](* In case of there is a satellite type)
      - QZSS
      - GLONASS
      - BDS
    - Master Reset
    - Send Data
    - Status
  - DGPS
    - Select Station
    - Frequency
    - Bit Rate
    - DGPS Mode
    - [DGPS Status]
      - Frequency
      - Bit Rate
      - RSSI
    - Send Data
    - Status
  - SBAS
    - Search SBAS
    - Ranging
    - Type 0 Information
    - SBAS Select Mode
    - SBAS No.
    - Send Data
    - Status
  - Cursor, EBL/VRM
    - Change distance unit to “m” with less than 1NM
    - EBL/VRM Control Cursor
    - Cross-hair Cursor Pattern

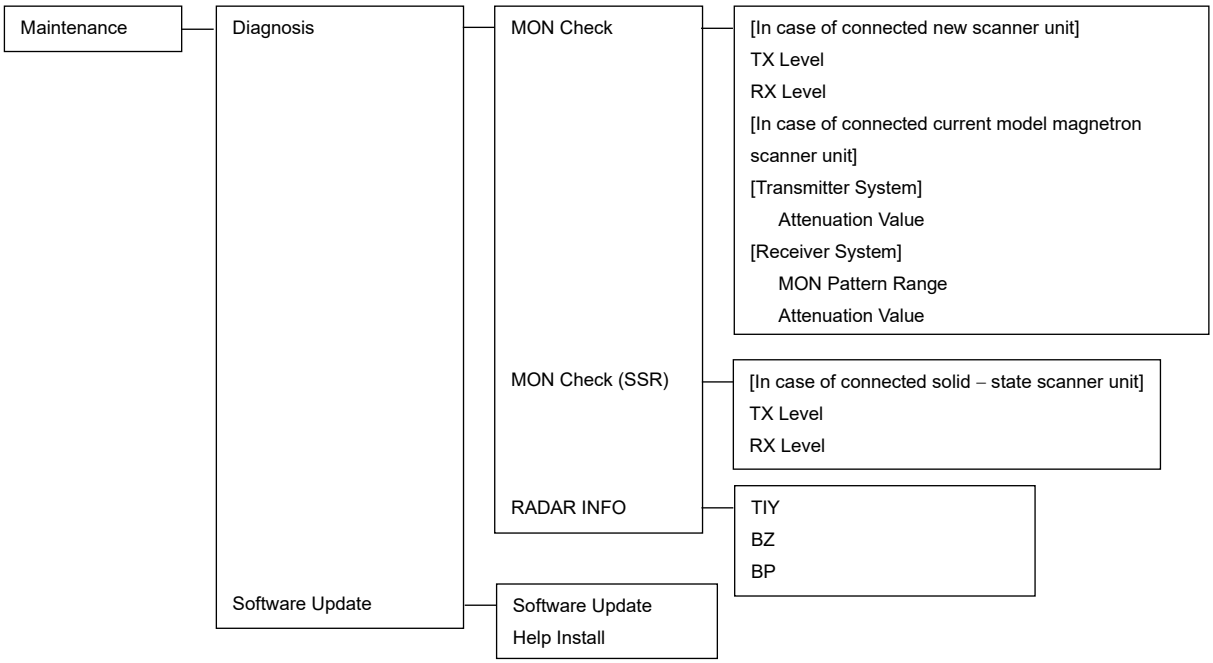
- Settings
  - Colour and Brightness
    - Day/Night
    - Def.
    - [Tab]Display Colour
      - (Page 1/2)
      - Outer PPI (RADAR Mode)
      - Dialogue (Plotter Mode)
      - Inner PPI
      - Charcter
      - RADAR Video
      - RADAR Video (Small Target Highlight)
      - RADAR Trails (Time)
      - RADAR Trails (All)
      - Target Symbol
      - Detail
        - [Target Symbol: Individual]
          - No.1 MID
          - No.1 Colour
          - No.2 MID
          - No.2 Colour
          - No.3 MID
          - No.3 Colour
          - No.4 MID
          - No.4 Colour
          - No.5 MID
          - No.5 Colour
          - No.6 MID
          - No.6 Colour
          - No.7 MID
          - No.7 Colour
          - Others Colour
        - [Target Symbol: JPN/Others]
          - Japan
          - Others
      - Target Vector
      - Range Rings
      - Next
      - (Page 2/2)
      - Own Symbol / HL / Vector
      - EBL1 / VRM1 / PI
      - EBL2 / VRM2
      - Back
    - [Tab]Brightness
      - Character
      - RADAR Video
      - RADAR Trails
      - Target Symbol
      - Range Rings
      - EBL / VRM / PI
      - Own Symbol / HL / Vector
      - Panel
      - Display
  - Sounds
    - [Tab]Volume
      - Key ACK
      - Misoperation
      - Response / Notification
      - Message Notification
      - Alert Setting Reminder
      - Alarm
      - Warning
    - [Tab]Melody
      - Alarm
      - Warning


Settings
Key Assignment
[Tab]User Keys
DISP Off Key
User Key 1
Detail
User Key 2
Detail
User Key 3
Detail
User Key 4
Detail
User Key 5
Detail
User Key 6
Detail
User Key 7
Detail
User Key 8
Detail
User Key 9
Detail
User Key 10
Detail
[Tab]Multi Dial
Vector Time
Trails Length
C UP Angle
Own Track Colour
Mark Line Colour
Manual tune
Display Brightness
Panel Brightness
Gain
Sea
Rain
[Tab]AZ Key
AZ 1
AZ 2
Sector Alarm 1
Sector Alarm 2
Polygon Alarm1
Polygon Alarm 2
Polygon Alarm 3
Polygon Alarm 4
Polygon Alarm 5
Polygon Alarm 6
Preference
[List: Setting list]
Save
Load
Delete
Default display configurations
Screen Cpture
AUTO Capture Interval
AUTO File Erase
File Management
[Tools]
– [File Manager]
– [File Management]

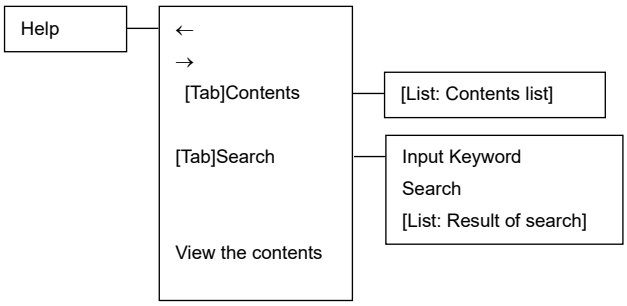
B.1.12 Maintenance

- Maintenance
  - Date/Time/Time Zone
    - [Date]
      - Month ◄ / ►
      - Year ◄ / ►
      - Date (Calender)
    - Time (LMT)
    - Time Zone
    - Display Style
    - Synchronise with Time Source (Date/Time)
    - Synchronise with Time Source (Time Zone)
  - System Information
    - [Tab]Software
      - [List]
        - Application
        - Maintenance No.
        - TXRX
        - No.1 GPS
        - No.2 GPS
        - No.3 GPS
        - No.4 GPS
      - Save to USB Device
    - [Tab]Functionality
      - [List]
      - Opetion Licence / Status
        - Plotter
        - MAX TT Number
        - MAX AIS Number
      - Save to USB Device
    - [Tab]Specification
      - Save to USB Device
  - GPS Status
    - [Tab]GPS1
      - Date/Time (UTC)
      - LAT
      - LON
      - Altitude
      - Fix Mode
      - DOP Level
      - RAIM Level
      - WER
      - RSSI
      - RAIM Status
      - Fix Status
      - Ver.
      - [List: GPS Status list]
      - System / Satellite No. / Fix / Azimuth / Elevation / Level
    - [Tab]GPS2
      - Same as GPS1.
    - [Tab]GPS3
      - Same as GPS1.
    - [Tab]GPS4
      - Same as GPS1.

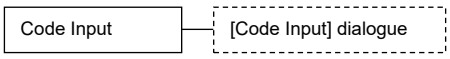

Maintenance
Operating Time
[Operating Time to Display Unit]
Total
LCD
LCD FAN
RPU FAN
[Operating Time to Scanner Unit]
Total
Transmit
Motor
FAN (PS FAN / TX FAN)
Voyage Distance
[Current Voyage Distance]
Ground
Water
Clear
Sensor Selection / Status
Sensor Selection
[Sensor Selection]
[Position]
[Combo box]
(LAT)
(LON)
[Combo box]Heading
[Text box]Heading
[Combo box]STW
[Text box]STW
COG / SOG
Time
Depth
Position Status
CCRP X
CCRP Y
Diagnosis
Monitor Test
All Red
All Green
All Blue
All White
Pattern 1
Pattern 2
Pattern 3
Grey Scale
Key Test
Key Test Start
[Key Test] dialogue
Sound Test
Sound Test Start
Playing the following volume
(Sound bar)
Light Test
Light Test Start
Lighting the following light
(Lighting bar)
Magnetron Curr.
[Magnetron Current]
Magnetron Current bar
Memory Check
Memory Check Start
Results



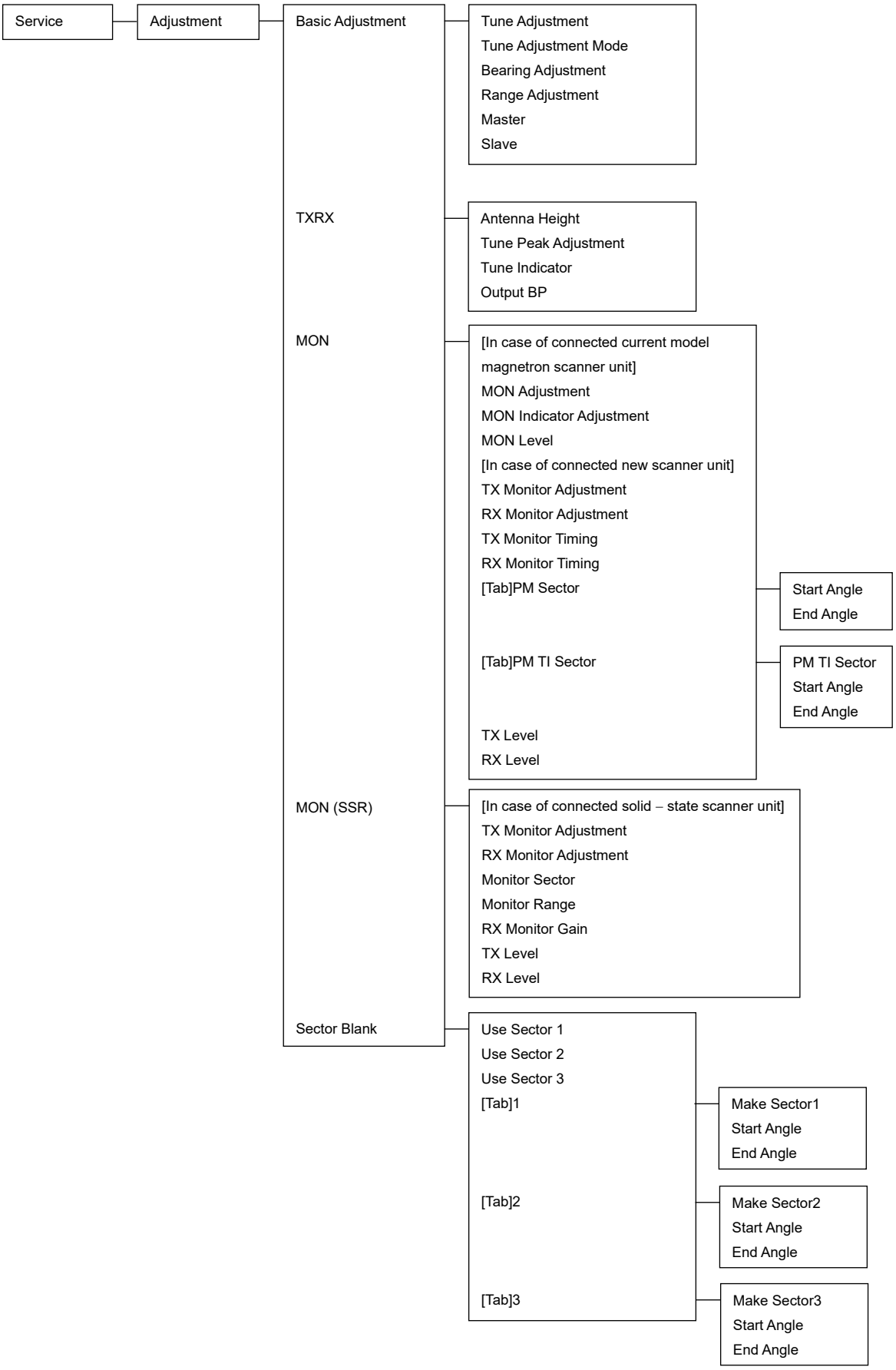
B.1.13 Help

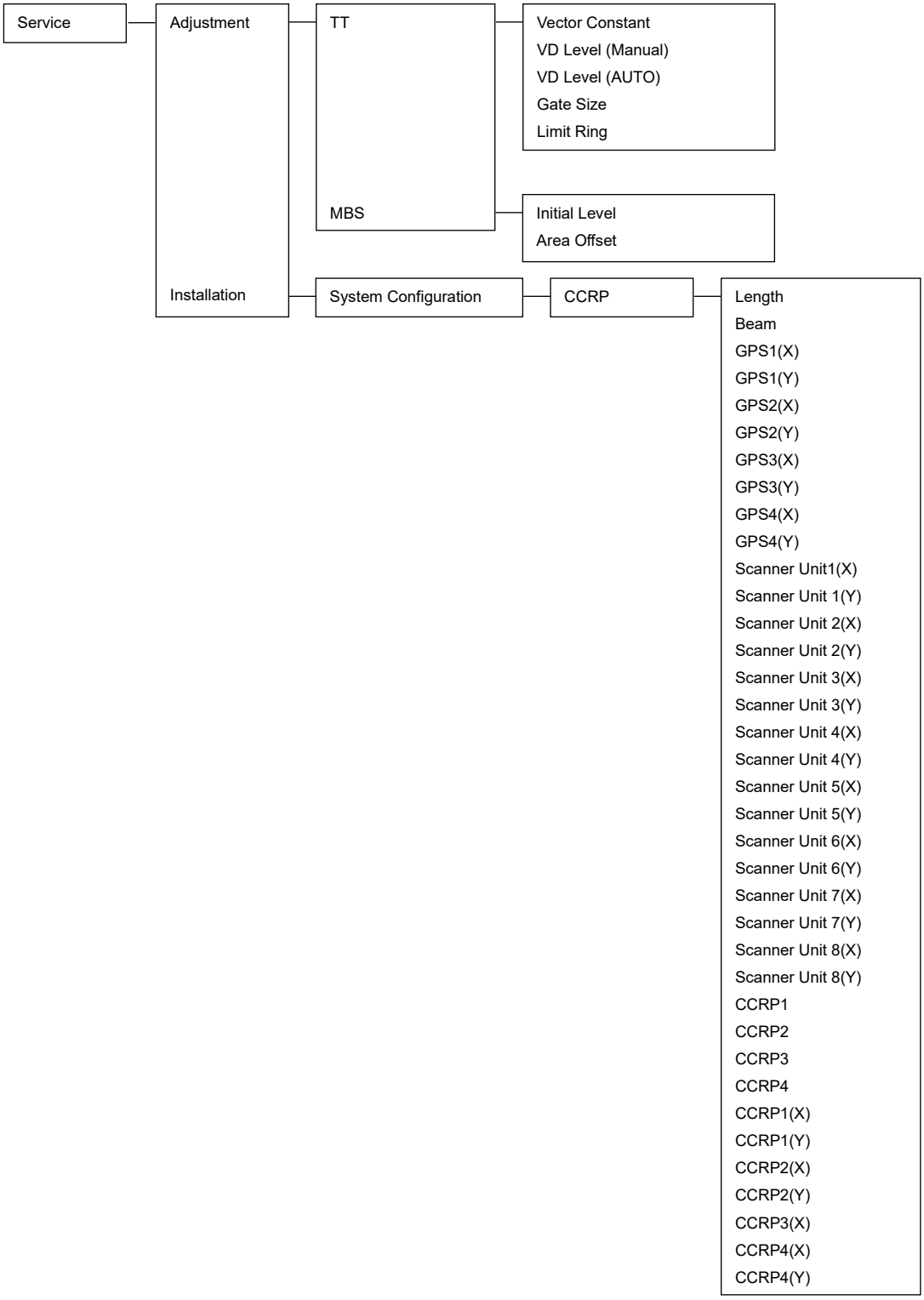


B.1.14 Code Input



B.1.15 Service

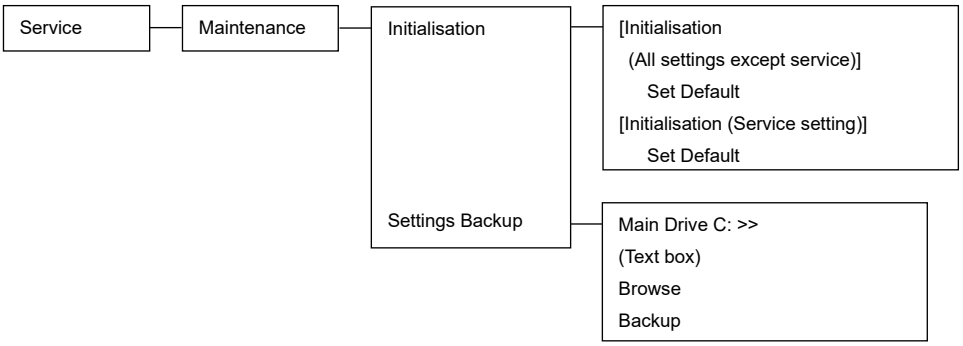



Service
Adjustment
TT
Vector Constant
VD Level (Manual)
VD Level (AUTO)
Gate Size
Limit Ring
MBS
Initial Level
Area Offset
Installation
System Configuration
CCRP
Length
Beam
GPS1(X)
GPS1(Y)
GPS2(X)
GPS2(Y)
GPS3(X)
GPS3(Y)
GPS4(X)
GPS4(Y)
Scanner Unit1(X)
Scanner Unit 1(Y)
Scanner Unit 2(X)
Scanner Unit 2(Y)
Scanner Unit 3(X)
Scanner Unit 3(Y)
Scanner Unit 4(X)
Scanner Unit 4(Y)
Scanner Unit 5(X)
Scanner Unit 5(Y)
Scanner Unit 6(X)
Scanner Unit 6(Y)
Scanner Unit 7(X)
Scanner Unit 7(Y)
Scanner Unit 8(X)
Scanner Unit 8(Y)
CCRP1
CCRP2
CCRP3
CCRP4
CCRP1(X)
CCRP1(Y)
CCRP2(X)
CCRP2(Y)
CCRP3(X)
CCRP4(X)
CCRP4(Y)

Service — Installation — System Configuration — Serial Port

- [Tab]RPU
  - GPS
  - [Combo box]GPS
  - GPS – Detail
  - GPS – Monitor
  - Gyro Compass
  - [Combo box]
    - Gyro Compass
    - [NSK selected]
    - Heading Sensor
    - Log
  - Gyro Compass – Detail
  - Gyro Compass – Monitor
  - CH1
  - [Combo box]CH1
  - CH1 – Detail
  - CH1 – Monitor
  - CH2
  - [Combo box]CH2
  - CH2 – Detail
  - CH2 – Monitor
  - CH3
  - [Combo box]CH3
  - CH3 – Detail
  - CH3 – Monitor
  - CH4
  - [Combo box]CH4
  - CH4 – Detail
  - CH4 – Monitor
  - CH5
  - [Combo box]CH5
  - CH5 – Detail
  - CH5 – Monitor
  - CH6
  - [Combo box]CH6
  - CH6 – Detail
  - CH6 – Monitor
  - Gyro
  - [Combo box]Gyro
  - Gyro – Detail
  - Gyro – Monitor
  - ISW/MTR – Monitor
  - Serial OPU1 – Monitor
  - Serial OPU2 – Monitor
- [Tab]SLC1
  - CH1
  - [Combo box]CH1
  - CH1 – Detail
  - CH1 – Monitor
  - CH2
  - [Combo box]CH2
  - CH2 – Detail
  - CH2 – Monitor
  - ...
  - CH10
  - [Combo box]CH10
  - CH10 – Detail
  - CH10 – Monitor
- [Tab]SLC2
  - Same as SLC1 Tab

- Service
  - Installation
    - Ship's Paramaters
      - Ship's Name
      - Length
      - Beam
      - Keel – Trans
      - MAX Speed Limit
    - Settings
      - AIS
        - Setting Password
  - Maintenance
    - Information
      - [Tab]Storage
        - [Drive Information]
          - Drive / Total / Free
        - [File Information]
          - File / Usage
      - [Tab]Hardware
        - MAC Address
      - RADAR
        - Safety Switch
        - [In case of connected new scanner unit]
        - Clear TX Time
        - Clear Motor Time
        - Clear PS FAN Time
        - Clear TX FAN Time
        - TXRX to Display Unit
        - Display Unit to TXRX
        - Status
        - [Save Time to Display Unit]
          - Transmit
          - Motor Rotate
          - PS FAN
          - TX FAN
        - [In case of connected current model magnetron scanner unit]
        - Clear TX Time
        - Clear Motor Time
        - Clear FAN Time
        - TXRX To Display Unit
        - Display Unit to TXRX
        - Status
        - [Save Time to Display Unit]
          - Transmit
          - Motor Rotate
        - [In case of connected solid – state scanner unit]
        - Clear TX Time
        - Clear Motor Time
        - Clear FAN Time
        - TXRX To Display Unit
        - Display Unit to TXRX
        - Status
        - [Save Time to Display Unit]
          - Transmit
          - Motor Rotate
          - FAN Rotate
        - [In case of not connected scanner unit]
        - Clear TX Time
        - Clear Motor Time
        - TXRX To Display Unit
        - Display Unit to TXRX
        - Status
        - [Save Time to Display Unit]
          - Transmit
          - Motor Rotate

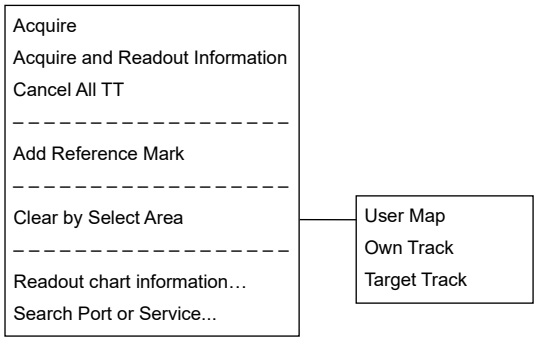

Service
Maintenance
Initialisation
Settings Backup
[Initialisation
(All settings except service)]
Set Default
[Initialisation (Service setting)]
Set Default
Main Drive C: >>
(Text box)
Browse
Backup

B.2 Context Menu List

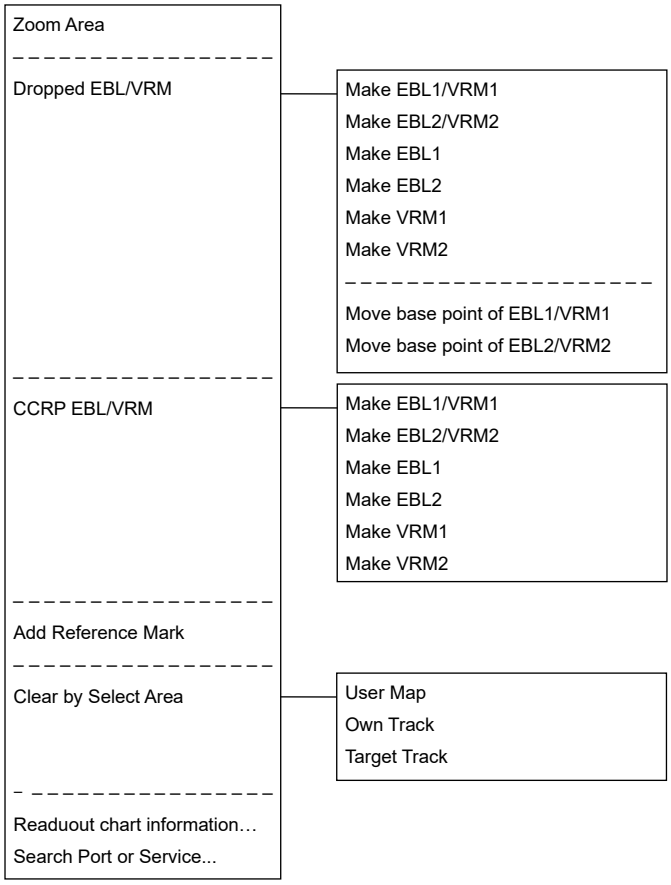
This section shows the context menus that are displayed by clicking the right button by target object.

*[Acquire] is a menu item displayed only radar mode and synthesis mode.

B.2.1 No object (RADAR/Synthesis mode)



B.2.2 No object (Plotter mode)



B.2.3 AIS

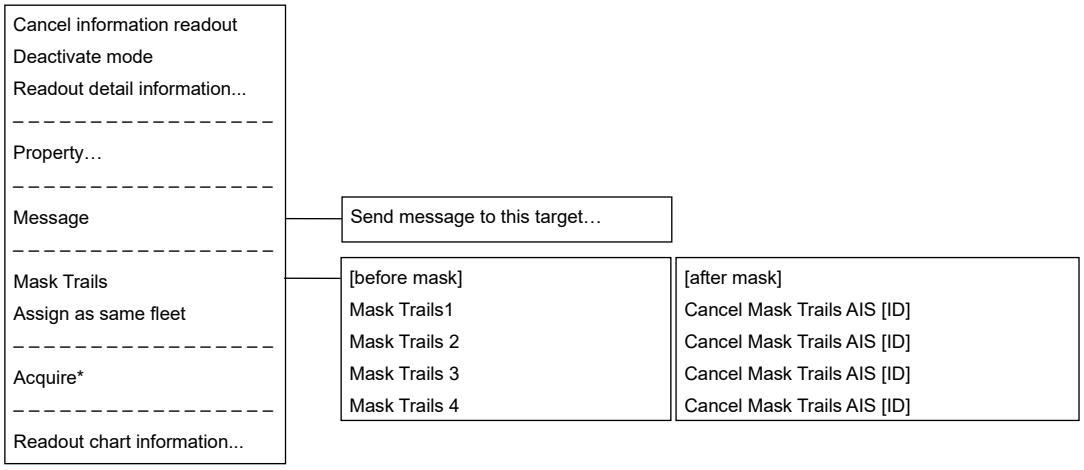
B.2.3.1 Sleeping AIS target

- Activate
- Deactivate mode
- Readout information...
- Readout detail information...
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails2
    - Mask Trails3
    - Mask Trails4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Assign as same fleet
- Acquire*
- Readout chart information...

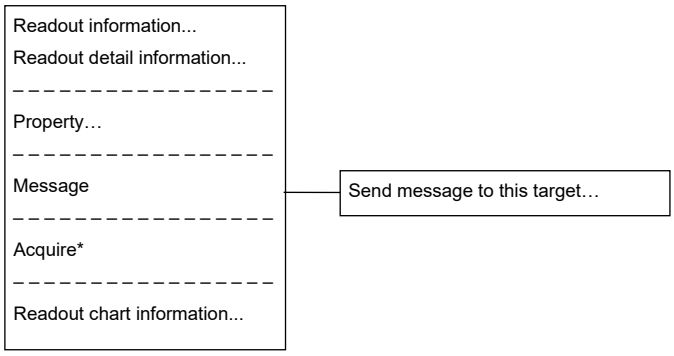
B.2.3.2 Activated AIS target

- Readout information...
- Readout detail information...
- Deactivate
- Deactivate mode
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails 2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Assign as same fleet
- Acquire*
- Readout chart information...

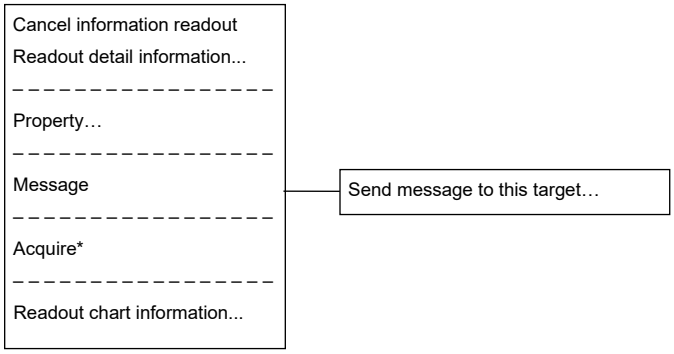
B.2.3.3 Numeric displayed AIS target



B.2.3.4 Normal AIS - SAR aircraft target



B.2.3.5 Numeric displayed AIS - SAR aircraft target



B.2.3.6 Sleeping AIS - SAR ship target

- Activate
- Deactivate mode
- Readout information...
- Readout detail information...
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails 2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Assign as same fleet
- Acquire*
- Readout chart information...

B.2.3.7 Activate AIS - SAR ship target

- Readout information...
- Readout detail information...
- Deactivate
- Deactivate mode
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails 2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Assign as same fleet
- Acquire*
- Readout chart information...

B.2.3.8 Numeric displayed AIS - SAR ship target

- Cancel information readout
- Deactivate
- Readout detail information...
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Traisl AIS [ID]
    - Cancel Mask Traisl AIS [ID]
- Assign as same fleet
- Acquire*
- Readout chart information...

B.2.3.9 Sleeping AIS - SART target

- Activate
- Deactivate mode
- Readout information...
- Readout detail information...
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Acquire*
- Readout chart information...

B.2.3.10 Activate AIS - SART target

- Readout information...
- Readout detail information...
- Deactivate
- Deactivate mode
- Property…
- Message
  - Send message to this target…
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails 2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- Acquire*
- Readout chart information...

B.2.3.11 Numeric displayed AIS - SART target

- Cancel information readout
- Deactivate mode
- Readout detail information...
- ---
- Property…
- ---
- Message
  - Send message to this target…
- ---
- Mask Trails
  - [before mask]
    - Mask Trails1
    - Mask Trails 2
    - Mask Trails 3
    - Mask Trails 4
  - [after mask]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
    - Cancel Mask Trails AIS [ID]
- ---
- Acquire*
- ---
- Readout chart information...

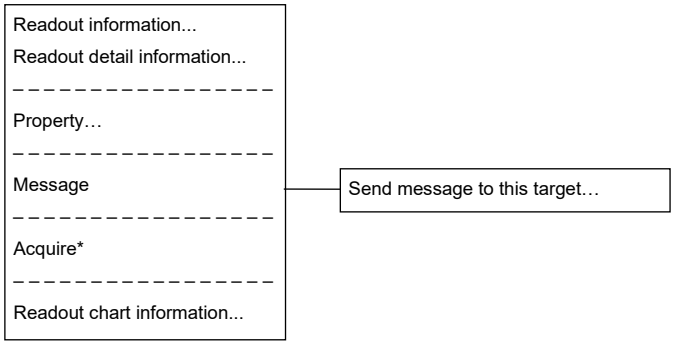
B.2.3.12 Normal AIS - AtoN target

- Readout information...
- Readout detail information...
- ---
- Property…
- ---
- Acquire*
- ---
- Readout chart information...

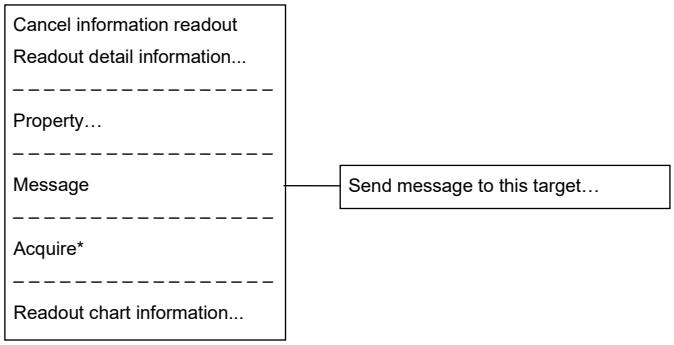
B.2.3.13 Numeric displayed AIS - AtoN target

- Cancel information readout
- Readout detail information...
- ---
- Property…
- ---
- Acquire*
- ---
- Readout chart information...

B.2.3.14 Normal AIS - BS target



B.2.3.15 Numeric displayed AIS - BS target



B.2.4 TT

B.2.4.1 Internal TT

- Readout information...
- Cancel TT
- Cancel all TT
- Cancel TT mode
- ---
- Property...
- ---
- Mask Trails
- Assign as same fleet
- ---
- Readout chart information...

[before mask]	[after mask]
Mask Trails1	Cancel Mask Trails TT [ID]
Mask Trails 2	Cancel Mask Trails TT [ID]
Mask Trails 3	Cancel Mask Trails TT [ID]
Mask Trails 4	Cancel Mask Trails TT [ID]

B.2.4.2 Internal TT - numeric display

- Cancel information readout
- Cancel all TT
- ---
- Property...
- ---
- Mask Trails
- Assign as same fleet
- ---
- Readout chart information...

[before mask]	[after mask]
Mask Trails1	Cancel Mask Trails TT [ID]
Mask Trails 2	Cancel Mask Trails TT [ID]
Mask Trails 3	Cancel Mask Trails TT [ID]
Mask Trails 4	Cancel Mask Trails TT [ID]

B.2.4.3 External TT

- Readout information...
- ---
- Property...
- ---
- Readout chart information...

B.2.4.4 External TT - numeric display

- Cancel information readout
- ---
- Property...
- ---
- Readout chart information...

B.2.5 GPS Buoy

B.2.5.1 Normal GPS Buoy target

Cancel GPS Buoy...
Readout information...
– – – – – – – – – – – – – – – – –
Property...
– – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – –
Readout chart information...

B.2.5.2 Numeric displayed GPS Buoy target

Cancel GPS Buoy...
Cancel information readout
– – – – – – – – – – – – – – – – –
Property...
– – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – –
Readout chart information...

B.2.6 NAVTEX

B.2.6.1 NAVTEX

Readout NAVTEX information
– – – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.7 User Map

B.2.7.1 Mark

Move this object
Delete this object
– – – – – – – – – – – – – – – – – – –
Show Mark/Line List...
– – – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.7.2 Line (Start point・End point)

Add vertex
Move vertex
Delete vertex
– – – – – – – – – – – – – – – – – – –
Select All
Move this object
Delete this object
– – – – – – – – – – – – – – – – – – –
Show Mark/Line List
– – – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.7.3 Line (Midpoint)

Move vertex
Delete vertex
– – – – – – – – – – – – – – – – – – –
Select All
Move this object
Delete this object
– – – – – – – – – – – – – – – – – – –
Show Mark/Line List
– – – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.7.4 Line (Line segment)

Insert vertex
– – – – – – – – – – – – – – – – – –
Select All
Move this object
Delete this object
– – – – – – – – – – – – – – – – – –
Show Mark/Line List
– – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – –
Readout chart information ...

B.2.7.5 Line (Select All)

Move this obeject
Delete this object
– – – – – – – – – – – – – – – – – –
Show Mark/Line List
– – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.7.6 Text

Move this object
Delete this object
– – – – – – – – – – – – – – – – – –
Show Mark/Line List
– – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.8 Monitoring dargging anchor

B.2.8.1 Dragging anchor monitoring circle (Circumference)

Move this object
Finish Anchor Watch
– – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.8.2 Dragging anchor monitoring circle (Square of the four corners)

Change radius
Move this object
Finish Anchor Watch
– – – – – – – – – – – – – – – – – –
Acquire*
– – – – – – – – – – – – – – – – – –
Readout chart information...

B.2.8.3 Dragging anchor monitoring polygon (Vertex)

Delete vertex
Move this object
Delete this object
– – – – – – – – – – – – – – – – – –
Acquire*

B.2.8.4 Dragging anchor monitoring polygon (Line segment)

Insert vertex
Move this object
Delete this object
– – – – – – – – – – – – – – – – – –
Acquire*

B.2.8.5 Dragging anchor monitoring polygon (Internal)

Move this object
Delete this object
– – – – – – – – – – – – – – – – – –
Acquire*

B.3 List of Terminologies, Units, and Abbreviations

Abbreviations	Term
A	
A/D = AD	Analogue/Digital
AC	Alternating Current
ACK	Acknowledge
ACQ	Acquire, Acquisition
ACT	Activate
AIO	Admiralty Information Overlay (additional information to the navigation)
AIS	Automatic Identification System
AMP	Amplifiers
AMS	Alert Management System
ANT	Antenna
ASCII	American Standard Code for Information Interchange
ASIC	Application Specific Integrated Circuit
AtoN	Aids to Navigation
AUTO = auto	Automatic
Av. = AVE	Average
AZ	Acquisition Zone
AZI	Azimuth Stabilisation Mode
B	
BAM	Bridge Alert Management
BCR	Bow Crossing Range
BCT	Bow Crossing Time
BFT	Beaufort
BNWAS	Bridge Navigational Watch Alarm System
BP	Bearing Pulse
BRG	Bearing
BZ	Bearing Zero

Abbreviations	Term
C	
C UP	Course Up
CA – CFAR	Cell Averaging CFAR
Cargo.Cat	Cargo Category
CCRP	Consistent Common Reference Point
CCRS	Consistent Common Reference System
CCW	Counterclockwise
CFAR	Constant False Alarm Rate
CH	Channel
CHG	Change
CID	Conning Information Display
CIF	Companion MPU Interface
CLR	Clear
COG	Course Over the Ground
COM	Communication Port
CONT	Contrast, Control
CONV	Conventional
CORREL	Correlation
CPA	Closest Point of Approach
CPU	Central Processing Unit
CTW	Course Through the Water
Curr.	Current
CW	Clockwise
D	
D/N	Day/Night
DC	Direct Current
Def.	Definition
DGPS	Differential GPS
DIFF	Difference
DIR = Dir.	Direction
DISP = Disp	Display
DIST	Distance
DSP	Digital Signal Processor
E	
EBL	Electronic Bearing Line
ECDIS	Electronic Chart Display and Information System
Ed.	Edition
EGC	Enhanced Group Calling

Abbreviations	Term
ENH	Enhance
EP	Estimated Position
EPA	Electronic Plotting Aids
EPFS	Electronic Position Fixing System
EQUIP	Equipment
ETA	Estimated Time of Arrival
F	
FPGA	Field Programmable Gate Array
FTC	Fast Time Constant
FWD	Forward
G	
GIF	Gyro Interface
GLONASS	Global Orbiting Navigation Satellite System
GND	Ground
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GZ	Guard Zone
H	
H UP	Head Up
H/W = HW	HardWare
HDG	Heading
HDOP	Horizontal Dilution of Precision
HL	Heading Line
HO	Hydrographic Organisation
HSC	High Speed Craft
I	
I/F = IF	Interface
I/O	Input/Output
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IALA – A	IALA – Region A
IALA – B	IALA – Region B
ID	Identification
IMO	International Maritime Organisation
IND	Indication
INFO	Information
INIT	Initialisation

Abbreviations	Term
INT	Interval
IP Address	Internet Protocol Address
IR	Interference Rejection
ISW	Interswitch
J	
K	
L	
L/L = LL	Latitude/Longitude
LAN	Local Area Network
LAT	Latitude
LCD	Liquid Crystal Display
LMT	Local Mean Time
LON	Longitude
LOP	Line of Position
LORAN	Long Range Navigation
LP	Long Pulse
M	
MAG	Magnetic
MAN	Manual
MAX	Maximum
MBS	Main Bang Suppression
MFDF	Medium Frequency Direction Finding
MHV	Modulator High Voltage
MIC	Microphone
MID	Middle
MIN	Minimum
MMSI	Maritime Mobile Services Identity Number
MOB	Man Overboard
MON	Monitor
MP	Medium Pulse
MSC	Maritime Safety Committee
MSG	Message
N	
N UP	North Up
NAV = NAVI	Navigation
NAVTEX	Navigational Telex
NE	North East
NFU	Non Follow Up
NLT	Not Less Than
NMEA	National Marine Electronics Association

Abbreviations	Term
NMEA0183	NMEA 0183 standards
NMT	Not More Than
No. = NUM	Number
NSK	North Stabilisation Kit
NW	North West
O	
OPE	Operation
OPU	Operation Unit
OSD	Own Ship Data
OVRD	Override
P	
PI	Parallel Index Line
PIN	Personal Identification Number
PL	Pulse Length
PORT	Port/ Portside
POS = POSN	Position
PPI	Plan Position Indicator
PRF	Pulse Repetition Frequency
PROC	Process
PS	Power Supply
PWR	Power
Q	
R	
R	Relative
RADAR	Radio Detecting and Ranging
RAND	Random
REF	Reference
REL	Relative
Rev.	Revolution
RL	Rhumb Line
RM	Relative Motion
RM(R)	Relative Motion. Relative Trails.
RM(T)	Relative Motion. True Trails.
RMS	Root Mean Square
RNG	Range
RoRo	Roll On/ Roll Off (Vessel)
ROM	Read Only Memory
ROT	Rate of Turn
RPS	Route Planning System
RPU	RADAR Processing Unit
RX	Receiver

Abbreviations	Term
S	
SA	Scheme Administrator
SAR	Search and Rescue
SART	Search and Rescue Transponder
SATNAV	Satellite Navigation
SBAS	Satellite Based Augmentation System
SDK	Software Development Kit
SE	South East
SEL	Select
Seq	Sequence
SFI	System Function ID
SLC	Serial LAN Interface Circuit
SOG	Speed Over the Ground
SP	Short Pulse
SPD	Speed
SprsLvl	Spurious Level
SSD	Solid State Drive
SSR	Solid State RADAR
SSW	Safety Switch
STAB	Stabilised, Stabilisation
STBD	Starboard, Starboard Side
STC	Sensitivity Time Control
STD	Standard
STW	Speed Through the Water
SW HUB	Switching Hub
SYNC	Synchronisation
SYS	System
T	
T	True
T & P	Temporary and Preliminary Notice to Mariners
TCPA	Time to CPA
TD	Time Difference
TEMP = Temp.	Temperature
TGT	Target
TM	True Motion
TNI	Tune Indicator
TPL	Transferred Line of Position

Abbreviations	Term
TRX	Transceiver
TT	Target Tracking
TTG	Time to Go
TX	Transmitter
TXRX	Transmitter Receiver Unit
U	
U.Map	User Map
UNACK	Un – Acknowledge
Up.No.	Update Number
USB	Universal Serial Bus
UTC	Coordinated Universal Time
V	
VD	Video
VDIN	Video In
VDR	Voyage Data Recorder
Ver.	Version
VHF	Very High Frequency
VOL	Volume
VRM	Variable Range Marker
W	
WGS	World Geodetic System
WIG	Wing – in – ground effect craft
WOL	Wheel Over Line
WPT	Waypoint
WTRST	Watch Timer Reset
X	
XTD	Cross Track Distance
XTL	Cross Track Limit, Route Width
Y	
Z	
Unit	
bps	bit per second
cm	centimetre
dB	decibel
deg	degree
fm	fathom
ft	feet, foot
h = hr	hour
hPa	hecto pascal
Hz	hertz

Abbreviations	Term
kg	kilogram
km	kilometre
kn = kts	knot
m	metre
mbar	millibar
min	minute
mph	mile per hour
NM	nautical mile
RAD	radius
rpm	revolutions per minute
s	second
sm	statute mile

B.4 List of Navigation - related Symbols

The navigation – related symbols that are displayed in this equipment are listed below.

B.4.1 Navigation monitoring related

No.	Drawn object name	Drawn object display example
1	WPT	
	Route	

B.5 List of Icons/Icon Buttons

The icons/icon buttons displayed in this equipment are listed below.

No.	Name	Functional outline	Displayed image
1	Active indicator	Indicates that the computer is processing by an animation.	
2	Delete	Delete the item.	
3	Check again	Checks the contents being displayed again.	
4	Setting mark	Displayed when the operation is valid. (E.g., Latitude and longitude offset of chart)	
5	Drive	Displayed at the left of the name when a drive is selected.	
6	Folder	Displayed at the left of the name when a folder is selected.	
7	Home	Changes from the currently displayed screen to the home screen.	
8	Close	Closes the dialogue box.	
9	Date selection	Displays the calendar picker.	
10	Dialogue box display	Opens another dialogue box. (E.g., [File Operation] dialogue)	
11	Day/Night	Displays the state of the current Day/Night setting by an icon.	
12	Screen and panel brightness	Enables adjustment of the screen and panel brightness.	
13	Mode switching	Changes to the mode, whitch includes radar mode [a)], synthesis mode [b)], and plotter mode [c)]. Icon changes according to mode.	a) b) c)
14	MOB	Starts the MOB (Man Over Board) mode. In the MOB mode, a symbol display of the position of the sailor falling over board and a dotted like connecting it to the own ship are displayed graphically.	

No.	Name	Functional outline	Displayed image
15	Message notification	When there is a message from outside (AIS safety related messages, etc.), the number of messages is displayed in a badge over the icon. The message window is displayed when the icon is clicked.	
16	Menu	"Menu" button with freeze indicator function. Displays the menu. Indicates using animation that the system is operating.	Menu Menu Menu Menu
17	Writing tool	Writes in the User map creation mode.	U.Map
18	Cursor mode selection	Changes the cursor mode to AUTO mode.	AUTO
19	Undo	Executes an undo operation.	Undo
20	Screen capture	Creates the capture image at the time this is pressed.	
21	Favourite	The favourite list is displayed.	
22	Eraser tool	Changes to the user map deleting mode, and user maps can be deleted successively.	
23	Silencing	Silences the alert sound.	
24	Multiple knob (small knob)	Displays the functions assigned to the multiple knob. Displayed as an icon with the function name at left.	
25	Brightness	Sets the brightness of the screen.	
26	Reversal key	Switches the marking position at mark input, whitch includes position of own ship [a)], position of cursor [b)]. Icon changes according to settings.	Mark Mark a) b)
27	Reference mark	Set a reference point, whitch includes from own ship [a)], from ref. mark 1 to 20 [b)]. Icon changes according to settings.	10 a) b)
28	Page selection	The [Page Selection] dialogue box is displayed.	
29	Add Page	(Only in the case of Plotter) Displays the [Page Selection] dialogue box.	

No.	Name	Functional outline	Displayed image
30	Expand List	Displays the TT/AIS list of the standard mode newly in an expanded window.	
31	Standard List	Closes the expand mode TT/AIS list (separate window), and displays in the standard mode (information monitoring window pane)	
32	Standard AIS	Changes to standard AIS display.	
33	Expand AIS	Changes to expanded AIS display.	
34	Registering Favourite	Registering/Cancelling favourites, whitch includes unregistered [a)], registered [b)], not be registered[c)]. Icon changes according to settings.	a) b) c)
35	Route Plannning	Opens the Route Plannning related menu.It is possible to create route.	
36	Route Monitoring	Opens the dialogue box for route monitoring. When a route is selected, displays the information up to the next target location, and monitors whether the own ship is traveling according to the route.	
37	Anchor Watch	Monitors the anchor dredging. When the anchor has been lowered, monitors if the ship is being swept away	
38	Chart	Opens the Chart related menu.	
39	User Map	Opens the user map related menu. It is possible to write marks or lines in the user map.	
40	TT/AIS	Opens the TT/AIS related menu. This also has the function of highlighting the display of the TT/AIS symbol depending on the conditions, or the function of sending a message to an AIS ship, etc.	
41	Tools	Tool related menu, such as the range and bearing measurement EBL/VRM or PI, etc.	
42	View	Opens the View related menu. Settings are made of the display of objects in the radar PPI or in the chart.	

No.	Name	Functional outline	Displayed image
43	Alert	Opens the alert related menu. Settings related to the alerts from the equipment can be made. When clicked, the [Alert] dialogue box appears. Alert settings can be made in the dialogue box.	
44	Settings	Opens the menu related to the operation settings of the equipment.	
45	Maintenance	The maintenance related menu for the users is displayed. It is possible to check the software version and to monitor the status of the equipment.	
46	Help	Opens the help screen.	
47	Code Input	Input the password.	
48	Service	The menu related to adjustment, servicing, and maintenance is displayed for the servicing personnel.	
49	Back space	Carries out a backspace operation.	
50	Backward movement of the input position	Moves back the input position.	
51	Forward movement of the input position	Moves the input position forward	
52	Operation guide	Displays the operation guide when clicked.	
53	Search	Displayed in the search text box.	
54	Thumbnail / list display selection	Switches between thumbnail and list displays.	
55	Home position	Displays the chart position in which the forward direction of the own ship can be seen wide.	HOME

No.	Name	Functional outline	Displayed image
56	Zoom Area	Makes and enlarged display of the specified square area.	
57	Radar Overlay	Selects ON/OFF of the Radar Overlay display.	
58	AIS display	Selects ON/OFF of the AIS display.	
59	TT display	Selects ON/OFF of the TT display.	
60	Move backward	Changes the chart display to the position and scale before the display was changed.	
61	WPT centre	Displays the surroundings of the WPT being selected.	
62	Between WPT – WPT	Displays between the "currently selected WPT" and the "immediately previous WPT".	
63	Overall route	Displays the entire route.	
64	Reverse	Reverse of the route.	
65	Start point	Create or edit a route.	
66	End point	Determine the creation / edit of the route.	
67	All	Consolidated mode of PI. This is the mode of operating the orientation and spacing of all the parallel lines.	
68	Individual	Individual mode of PI. The orientation of each line, the distance from the reference position, and the length are operated independently in this mode.	
69	Track	PI tracking mode. This is the mode of operating the orientation and spacing between two parallel lines.The two parallel lines are placed to the left and right taking CCRP as the reference.	
70	Equiangular	Equal angle mode of PI. This is the mode of operating the angle of two lines that intersect at the reference position.	
71	Contents selection	The display contents of the pane are changed directly	

B.6 Cursor types

The following cursors are displayed by this equipment (plotter mode).

Cursor	Cursor Name	Description
	Pointer cursor	Indicates a position on the display panel, menu bar, dialogue box, or context menu.
	Cross-hair cursor	Indicates a position on the chart or PPI.
	Hand cursor	Appears when the cursor is moved while pressing the left button on a chart. This function enables moving the position freely by dragging the chart.
Zoom	Zoom cursor	Appears when a zoom function is selected.
Edit	Edit cursor	Moves an object in user map mode.
	Offset cursor	Appears when the offset of the ship's own position is set in adjustment cursor mode.
SEL	Select cursor	Displays the position on the chart during the editing of the user map.
Mark	Mark cursor	Displayed at execution of User Map or route plan (addition of WPT).
	Arrow cursors	Appear when any of the following operations is performed. • EBL/VRM, AIS filter, AZ, PI • User map • Moving the multi-view bar • Operation of EBL, VRM
	Rotation cursor	Appears at PI operation or in route rotation mode of route planning.
	Eraser cursor	Appears in eraser tool mode.

Cursor	Cursor Name	Description
	Target activation cursor	Appears when the cursor is moved over a sleeping AIS target.
	Numeric displayed AIS target cursor	Appears when the cursor is moved over an activated AIS target or TT.
	Numeric displayed AIS target cancellation cursor	Appears when the cursor is moved over an AIS digital information target or a TT digital information target.
	Pointer cursor	Appears when the cursor is moved over a hyperlink.
	Move cursor	• Appears during the dialogue box move mode. • Appears when moving an intersection point of EBL/VRM.
	EBL cursor	Appears at EBL manoeuvre is created.

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