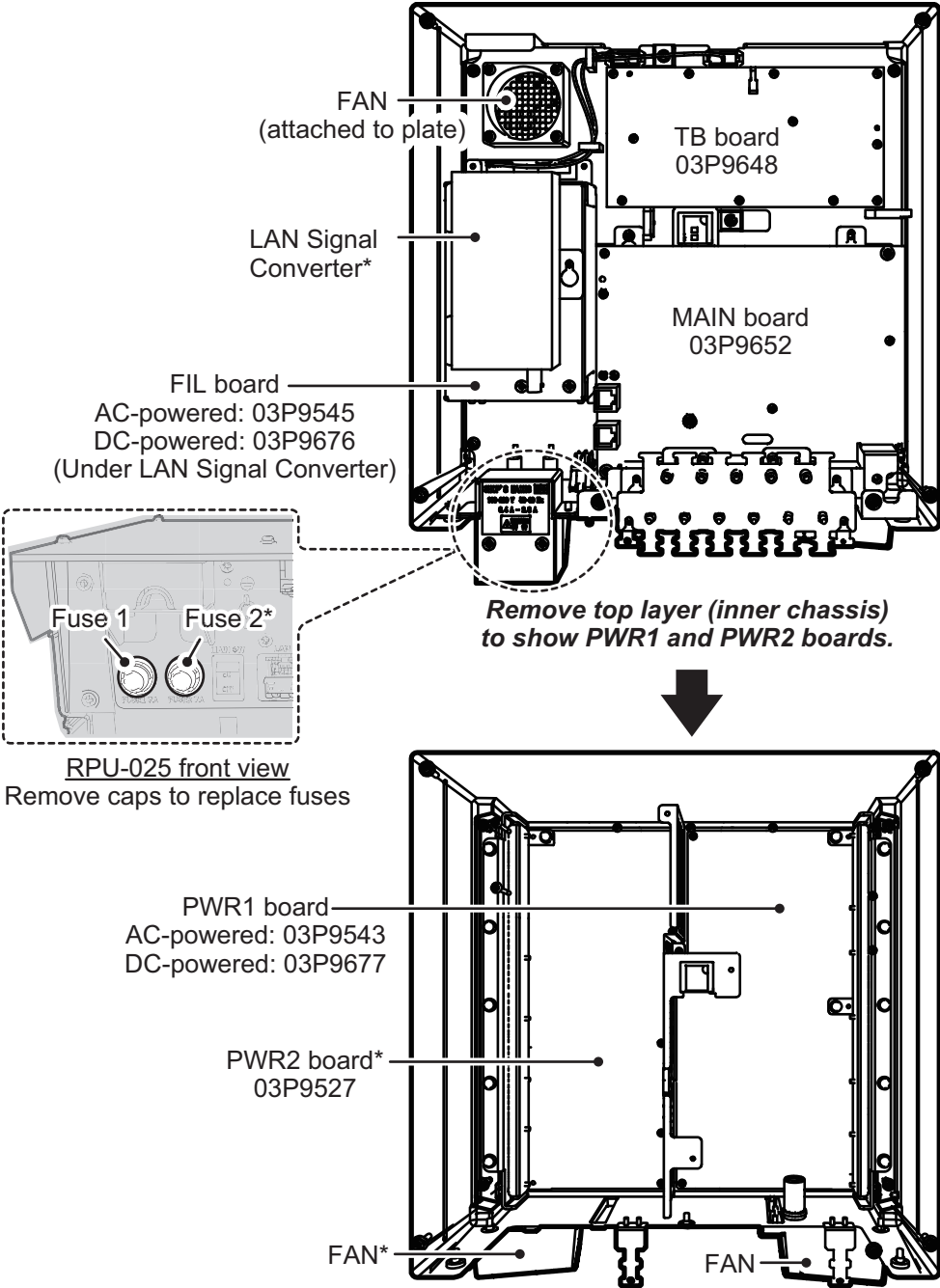
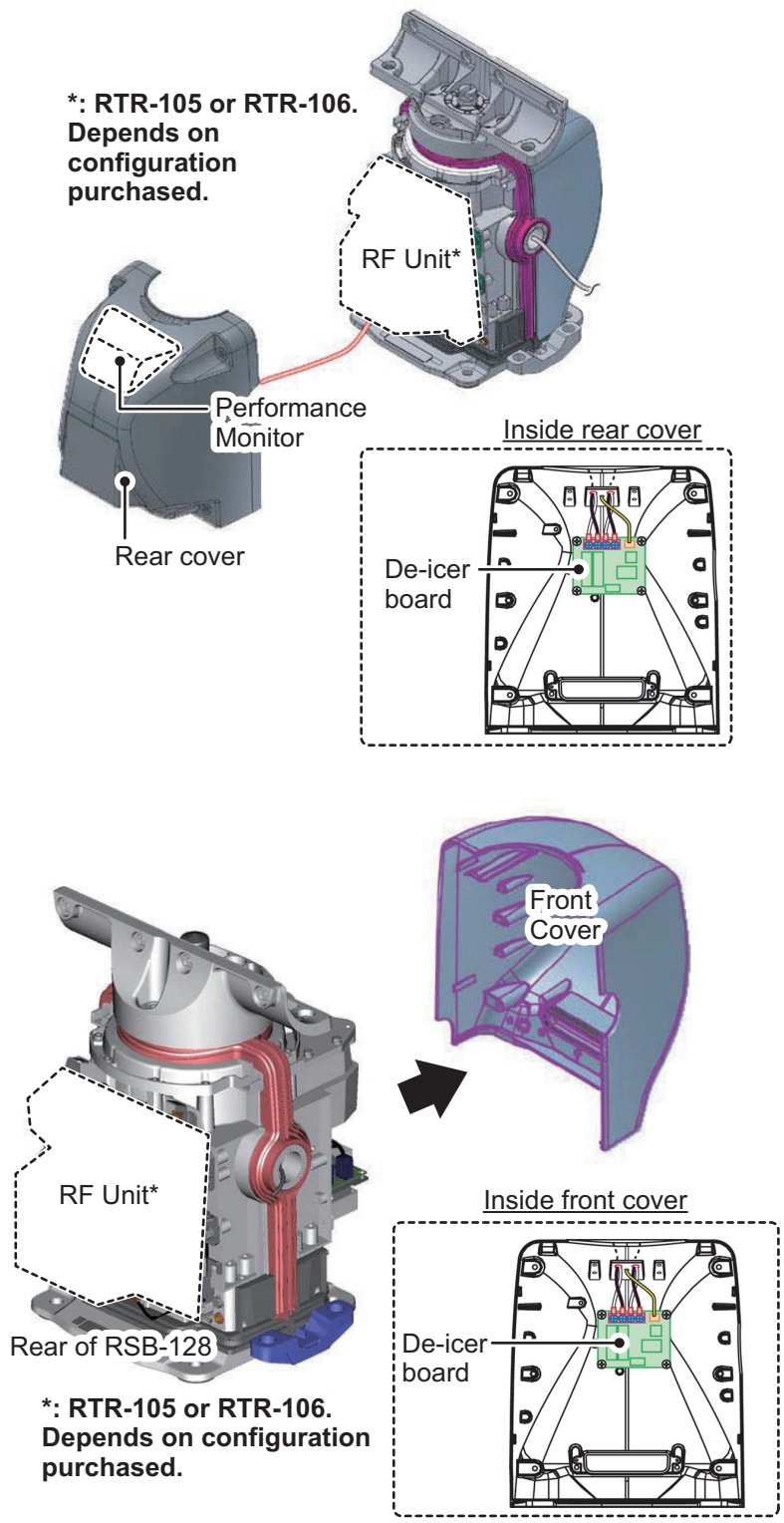


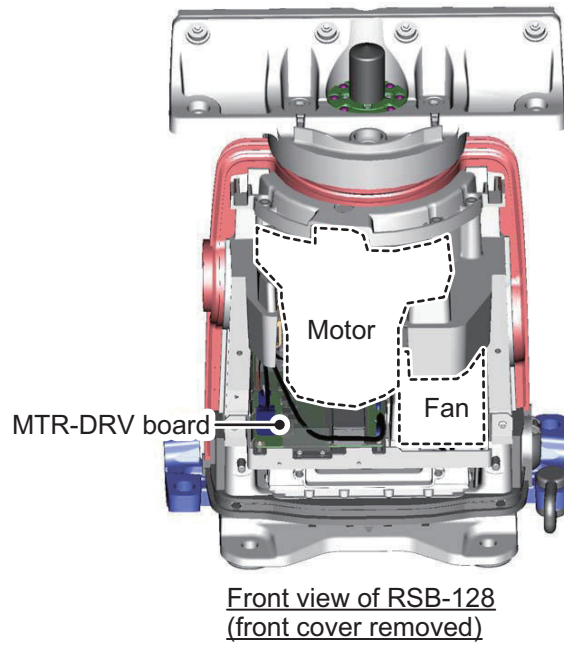
Processor Unit RPU-025



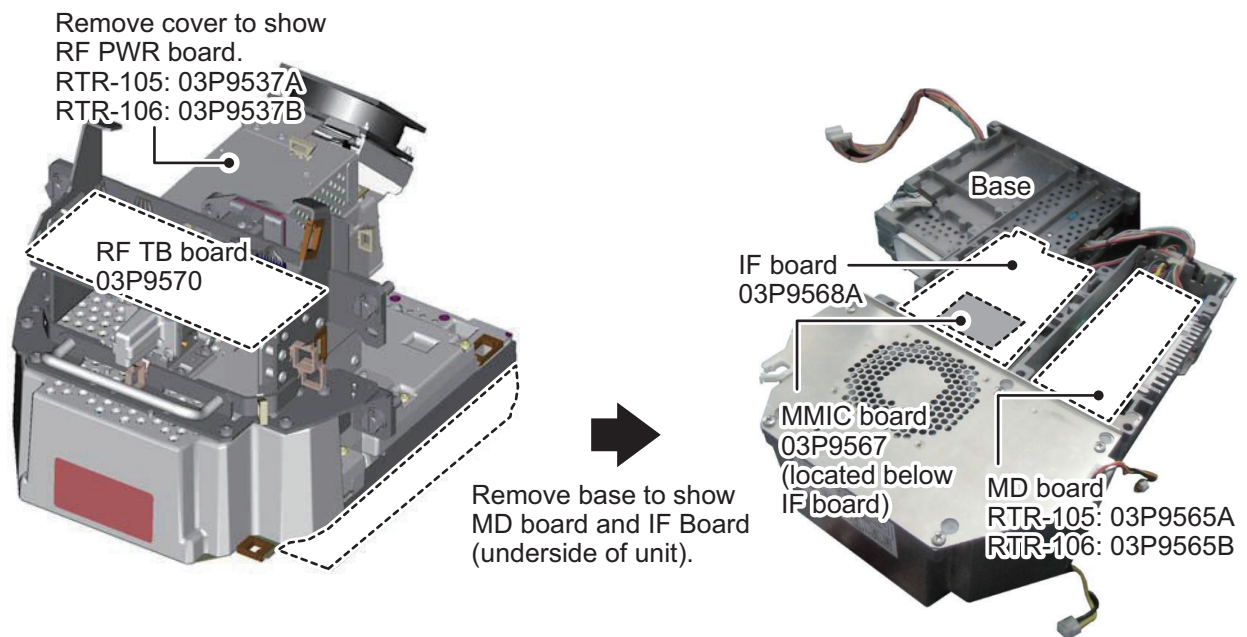
\*: The presence of this component depends on configuration purchased.

Scanner Unit RSB-128 (FAR-2218(-BB), FAR-2318, FAR-2228(-BB), FAR-2328)

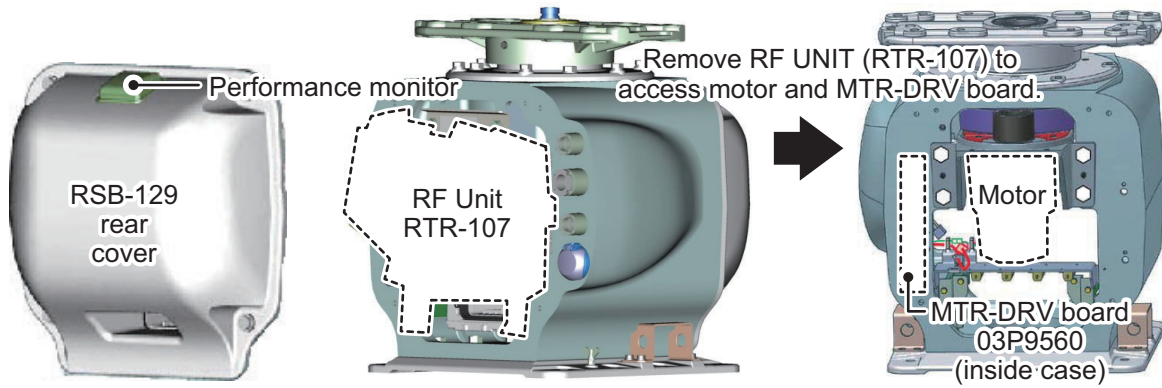




RF Unit RTR-105/106 (FAR-2218(-BB), FAR-2318, FAR-2228(-BB), FAR-2328)

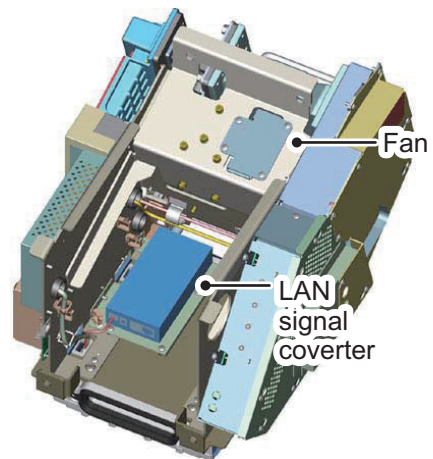
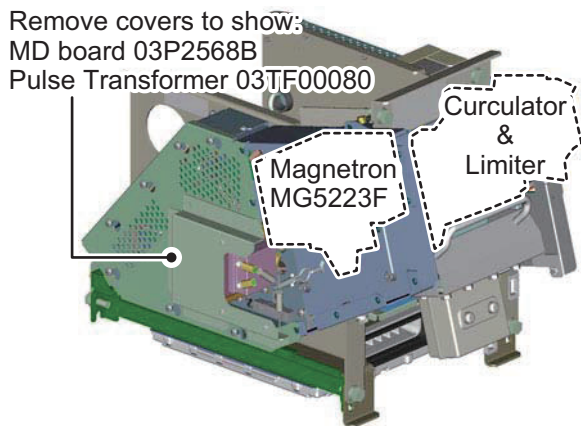
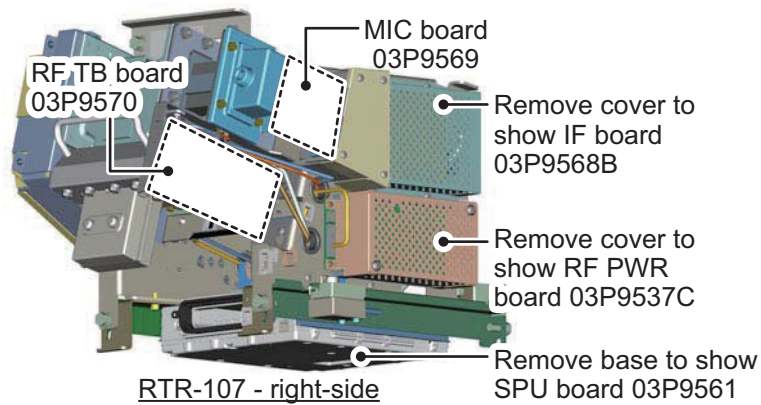


Scanner Unit RSB-129 (FAR-2238S(-BB), FAR-2338S)

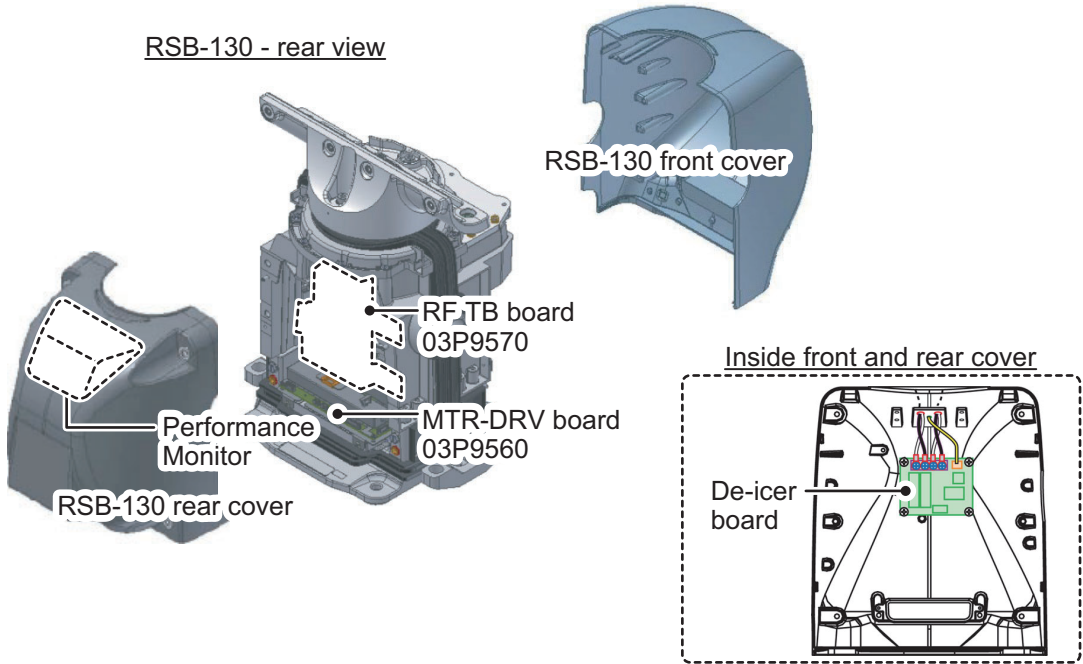


Remove rear cover to show the RF UNIT (RTR-107)

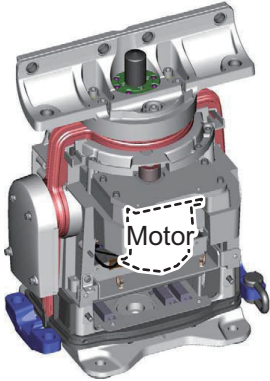
RF Unit RTR-107 (FAR-2238S(-BB), FAR-2338S)



Scanner Unit RSB-130 (FAR-2328W)

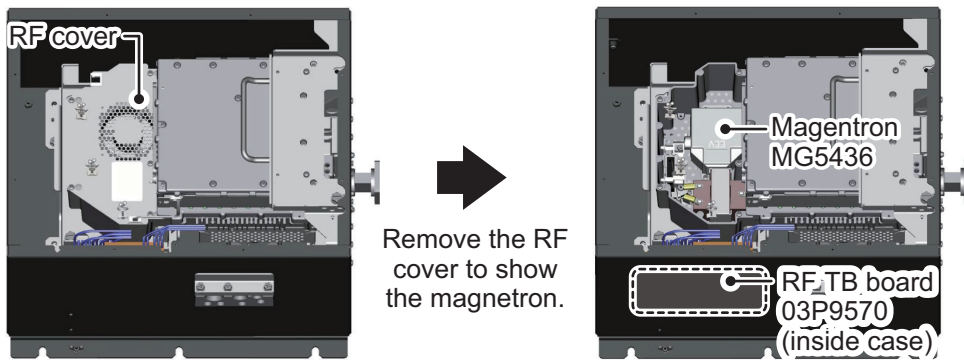


RSB-130 - front view

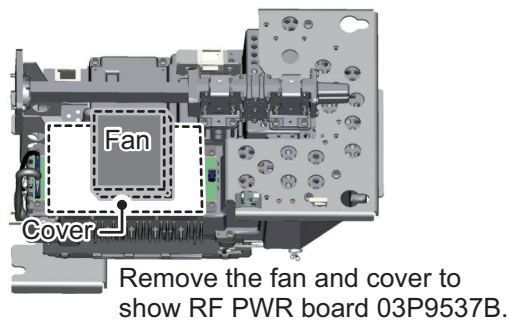


RF Unit RTR-108 (FAR-2328W)

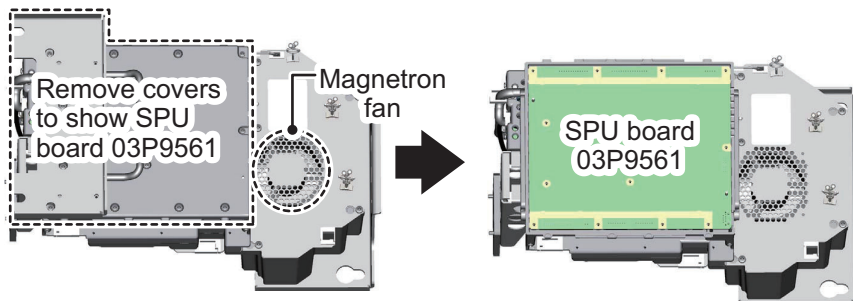
RTR-108 - Case cover removed



RTR-108 - RF Unit removed from case (top view)

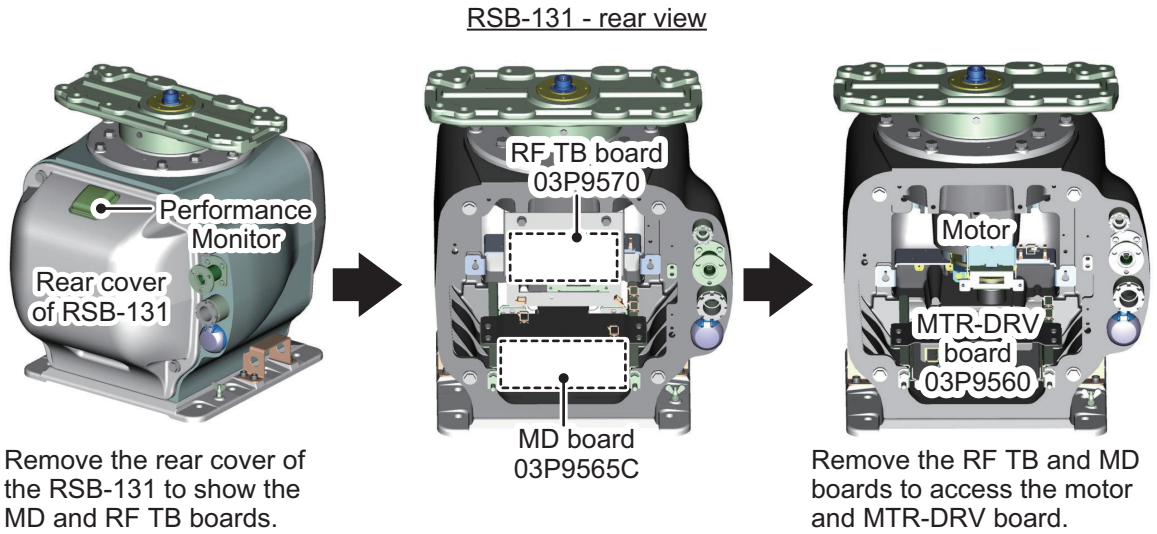


RTR-108 - RF Unit removed from case (bottom view)

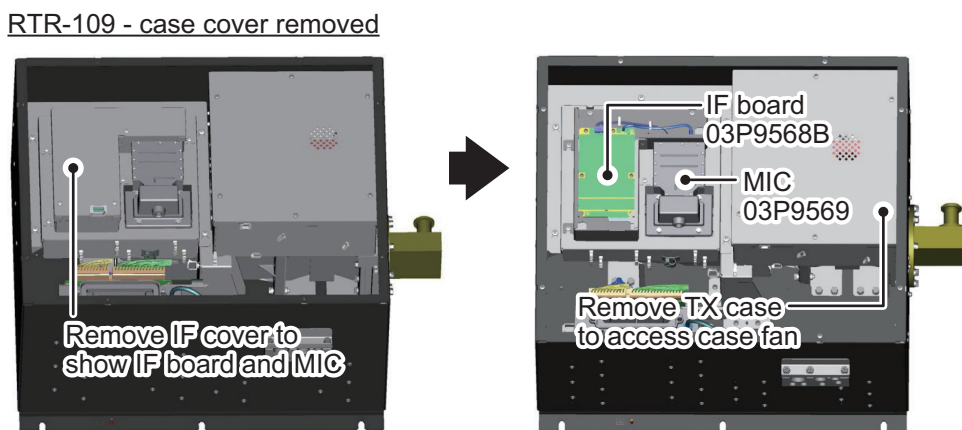
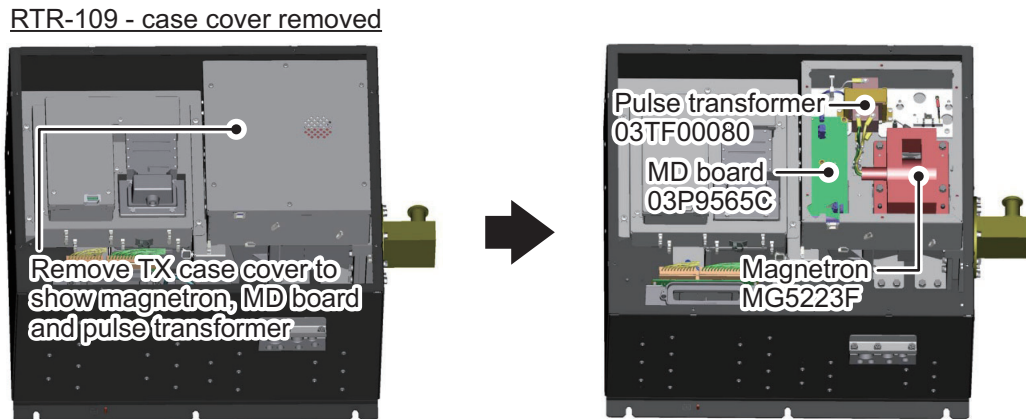


- MD board 03P9565B
- IF board 03P9568A
- MMIC board 03P9567
- Pulse Transformer 03TF00073

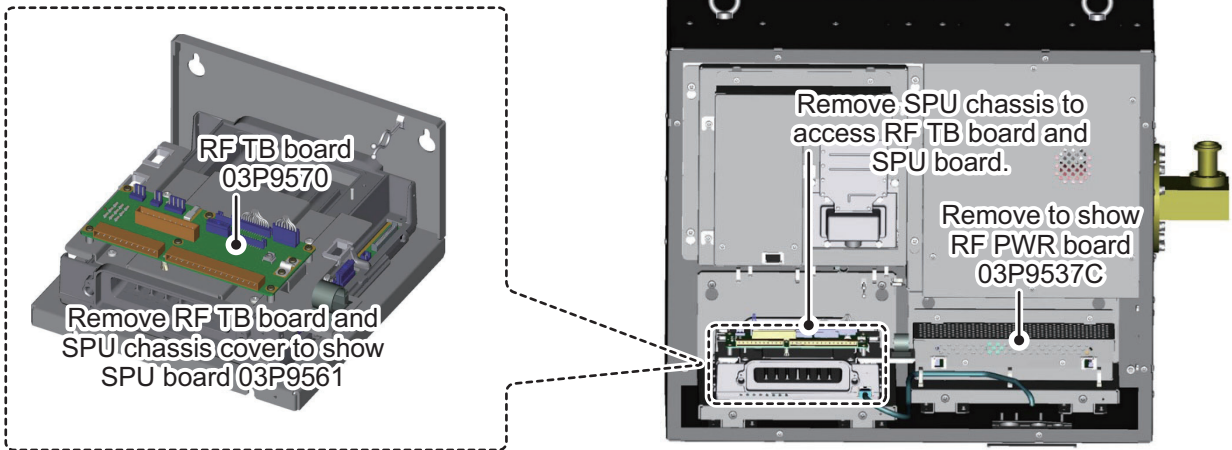
Scanner Unit RSB-131 (FAR-2338SW)



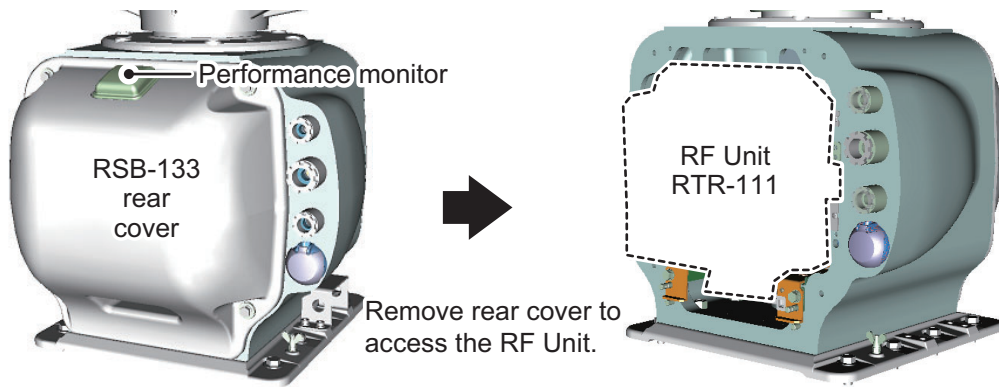
RF Unit RTR-109 (FAR-2338SW)



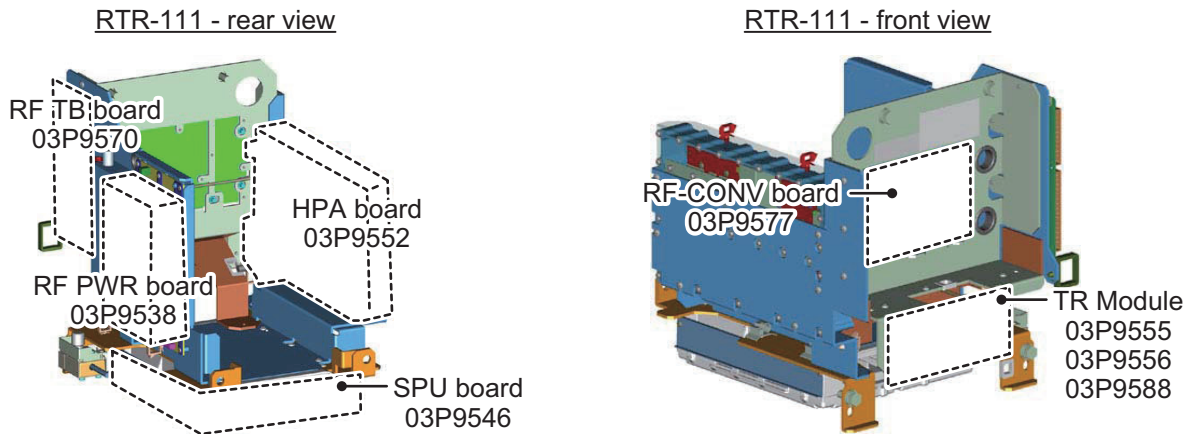
RTR-109 - Top view, case cover removed



Scanner Unit RSB-133 (FAR-2238S-NXT(-BB)/2338S-NXT)



RF Unit RTR-111 (FAR-2238S-NXT(-BB)/2338S-NXT)





# APPENDIX 8 RADIO REGULATORY INFORMATION

## USA-Federal Communications Commission (FCC)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **Caution: Exposure to Radio Frequency Radiation**

- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65.
- This equipment should be installed and operated keeping the radiator at least XX cm or more away from person's body.
- This device must not be co-located or operating in conjunction with any other antenna or transmitter.

## Innovation, Science and Economic Development Canada (ISED)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient un ou plusieurs émetteurs / récepteurs exempts de licence qui sont conformes à la norme « exempts de licence RSS (s) » Canadienne d'Innovation, Sciences et Développement économique. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage.
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **Caution: Exposure to Radio Frequency Radiation**

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the ISED radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least XX cm or more away from person's body.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'ISED. Cet équipement doit être installé et utilisé en gardant une distance de XX cm ou plus entre le dispositif rayonnant et le corps.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

XX cm

FAR-2218(-BB) FAR-2318	RTR-105	440 cm	FAR-2338SW	RTR-109	230 cm
FAR-2228(-BB) FAR-2328	RTR-106	950 cm	FAR-2228-NXT(-BB) FAR-2328-NXT	RTR-123	330 cm
FAR-2328W	RTR-108	550 cm	FAR-2238S-NXT(-BB) FAR-2338S-NXT	RTR-111	100 cm
FAR-2238S(-BB) FAR-2338S	RTR-107	460 cm			

## SPECIFICATIONS OF MARINE RADAR FAR-2xx8 SERIES

### 1 ANTENNA RADIATOR

- 1.1 Type Slotted waveguide array  
 1.2 Beam width and sidelobe attenuation

Radiator type	X-band			S-band		
	XN12CF	XN20CF	XN24CF**	SN24CF*	SN30CF*	SN36CF
Length	4 ft	6.5 ft	8 ft	8 ft	10 ft	12 ft
Horizontal beam width	1.9°	1.23°	0.95°	2.6°	2.3°	1.8°
Vertical beam width	20°			25°		
Sidelobe within ±10°	-24 dB	-28 dB	-28 dB	—		-24 dB
Sidelobe outside ±10°	-30 dB	-32 dB	-32 dB	—		-30 dB
Sidelobe within ±20°	—			-23 dB	-24 dB	—
Sidelobe outside ±20°	—			-27 dB	-30 dB	—

\*: A/B-type radar only. \*\*: 24 rpm only.

- 1.3 Polarization Horizontal  
 1.4 Rotation 24 rpm or 42 rpm (for high speed craft)  
 1.5 Wind load 100 kn relative  
 1.6 De-icer (option) On: when temperature goes down to 0°C  
Off: when temperature goes up to +5°C

### 2 TRANSCEIVER

- 2.1 TX Frequency and modulation

- X-band (Magnetron) 9410 MHz ±30 MHz, P0N  
 X-band (Solid state) CH1 P0N: 9403.75 MHz/ Q0N: 9423.75 MHz ±5 MHz or  
CH2 P0N: 9413.75 MHz/ Q0N: 9433.75 MHz ±5 MHz  
 S-band (Magnetron) 3050 MHz ±30 MHz, P0N  
 S-band (Solid state) CH1 P0N: 3043.75 MHz/ Q0N: 3063.75 MHz ±5 MHz or  
CH2 P0N: 3053.75 MHz/ Q0N: 3073.75 MHz ±5 MHz

- 2.2 Output power

- FAR-2218(BB)/2318 12 kW  
 FAR-2228(BB)/2328/2328W 25 kW  
 FAR-2228-NXT(BB)/2328-NXT 600 W (equivalent to magnetron radar 25 kW)  
 FAR-2238S(BB)/2338S/2338SW 30 kW  
 FAR-2238S-NXT(BB)/2338S-NXT 250 W (equivalent to magnetron radar 30 kW)

- 2.3 Range scale, Pulse Repetition Rate and Pulselength

X/S-band Magnetron radar

PRR (Hz approx.)	Range scale (NM)																		
	0.125	0.25	0.5	0.75	1	1.5	2	3	4	6	8	12	16	24	32	48	96		
3000*	S1																		
3000*			S2																
1500				M1															
1200					M2														
1000						M3													
600**									L										

1/2/4/8/16/32 NM ranges: B/W-type radar only

\*: 2200 Hz with TT range on 32 NM. \*\*: 500 Hz on 96 NM range.

X-band Solid state radar

PRR (Hz approx.)	Range scale (NM)																			
	0.125	0.25	0.5	0.75	1	1.5	2	3	4	6	8	12	16	24	32	48	96			
1500	S1																			
1500		S2																		
1200			M1																	
1000				M2																
1000					M3															
600								L												

1/2/4/8/16/32 NM ranges: B/W-type radar only

S-band Solid state radar

PRR (Hz approx.)	Range scale (NM)																			
	0.125	0.25	0.5	0.75	1	1.5	2	3	4	6	8	12	16	24	32	48	96			
2400*	S1																			
2000*		S2																		
1500			M1																	
1060				M2																
1000					M3															
600								L												

1/2/4/8/16/32 NM ranges: B/W-type radar only

\*: 1800 Hz (S1) and 1500 Hz (S2) with TT range on 32 NM.

**3 PROCESSOR UNIT**

- 3.1 Minimum range 22 m
- 3.2 Range discrimination 26 m
- 3.3 Range accuracy 1% of the maximum range of the scale in use or 10 m, whichever is the greater
- 3.4 Bearing discrimination  
 X-band: 2.1° (XN12CF), 1.5° (XN20CF), 1.2° (XN24CF),  
 S-band: 2.8° (SN24CF), 2.5° (SN30CF), 2.0° (SN36CF)
- 3.5 Bearing accuracy ±1°
- 3.6 Range scale and Range ring interval (RI)

Range (NM)	0.125	0.25	0.5	0.75	1	1.5	2	3	4	6	8	12	16	24	32	48	96
RI (NM)	0.025	0.05	0.1	0.25	0.25	0.25	0.5	0.5	1	1	2	2	4	4	8	8	16
Number of rings	5	5	5	3	4	6	4	6	4	6	4	6	4	6	4	6	6

- 3.7 Warm-up time  
 Magnetron radar 3 min. approx.  
 Solid state radar Nil
- 3.8 Presentation mode Head-up, STAB head-up, Course-up, North-up (RM/TM), Stern-up
- 3.9 Marks Cursor, Range ring, Heading mark, North mark, Bearing mark, VRM, EBL, Acquisition zone
- 3.10 Target tracking (TT) Auto or manual acquisition: 100 targets in 24/32 NM (range selected from menu for maintenance)  
 Auto tracking on all acquired targets,  
 Tracking: 5/10 pts on all activated targets  
 Vector time: Off, 30 s, 1-60 min
- 3.11 AIS Display capacity: 350 targets,  
 Tracking: 5/10 pts on all activated targets

	Vector time: Off, 30 s, 1-60 min
3.12 Echo trail	True/Relative, Trail length: 0 to 30 minutes (30 s steps) or continue Maximum 48 hours setting available for B/W-type radar
3.13 Radar map	20,000 pts
3.14 Acquisition zone	2 zones
3.15 Interswitch function	Selectable from menu

## 4 MONITOR UNIT

4.1 Screen type	
MU-190	19-inch color LCD, 1280 x 1024 (SXGA)
MU-231	23.1-inch color LCD, 1600 x 1200 (UXGA)
MU-270W	27-inch color LCD, 1920 x 1200 (WUXGA)
4.2 Brightness	
MU-190	450 cd/m <sup>2</sup> typical
MU-231/270W	400 cd/m <sup>2</sup> typical
4.3 Visible distance	
MU-190/270W	1.02 m nominal
MU-231	1.2 m nominal
4.4 Radar effective diameter	
MU-190	282 mm
MU-231	331 mm
MU-270W	349 mm

## 5 INTERFACE

5.1 Number of port (processor unit)	
Serial	7 ports (IEC61162-1/2: 2 ports, IEC61162-1: 4 ports, AD-10: 1 port)
Alarm output	6 ports: contact signal, load current 250mA (Normal close/ open: 4, System fail: 1, Power fail: 1)
DVI output	2 ports: DVI-D, DVI-I or RGB picture data (for VDR) (RGB resolution 1280x1024 (SXGA), 60.0Hz or 1440x900 (WXGA+), 59.9Hz)
LAN	2 ports: Ethernet 100Base-TX
RS-232C	1 port: brilliance control
Sub display (for ECDIS)	2 ports: HD, BP, Trigger and Video signal
5.2 Data sentences (IEC61162-1/2)	
Input	ABK, ACK, ACN, ALR, BWC, BWR, CUR, DBK <sup>*1</sup> , DBS <sup>*1</sup> , DBT, DDC, DPT, DTM, GGA, GLL, GNS, HBT, HDT <sup>*1</sup> , MTW, MWV, OSD, RAQ, RMB, RMC, ROT, RTE, THS, VBW, VDM, VDO, VDR, VHW, VSD, VTG, VWR <sup>*1</sup> , VWT <sup>*1</sup> , WPL, ZDA
Output	ABM, ACK, AIQ, ALC, ALF, ALR, ARC, BBM, DDC, EVE, HBT, OSD, RSD, TLB, TLL <sup>*2</sup> , TTD, TTM, VSD <sup>*1</sup> : for retrofit. <sup>*2</sup> : for B/W-type radar
5.3 Ethernet interface for IEC61162-450	
Port (LAN2)	100Base-TX, IPv4, 8P8C connector
Data sentences	Same as 5.2 sentences
IEC61162-450 transmission group	
Input	MISC, TGTD, SATD, NAVD, TIME, PROP
Output	Arbitrary (default: TGTD)

- Multicast address 239.192.0.1 to 239.192.0.16
- Destination port 60001 to 60016
- Re-transmittable binary image transfer
  - Multicast address 239.192.0.26 to 239.192.0.30
  - Destination port 60026 to 60030
- Other network function excepted IEC61162-450
  - SNMP, HTTP, Syslog, Furuno Management Protocol (FMP)

- 5.4 Output port on antenna unit
  - Sub display (for radar) 1 port: HD, BP, Trigger and Video signal

## 6 POWER SUPPLY

- 6.1 Processor unit (w/ antenna and transceiver unit)
  - FAR-2218/2318 100-230 VAC: 2.2-1.1 (2.8-1.4) A, 1 phase, 50-60 Hz or 24 VDC: 6.4 A (9.9 A)
  - FAR-2228/2328 100-230 VAC: 2.6-1.3 (3.9-1.7) A, 1 phase, 50-60 Hz or 24 VDC: 10.2 A (13.7 A)
  - FAR-2228-NXT/2328-NXT 100-230 VAC: 2.1-1.1 (2.9-1.3) A, 1 phase, 50-60 Hz
  - FAR-2328W 100-230 VAC: 2.6-1.3 (3.9-1.7) A, 1 phase, 50-60 Hz
  - FAR-2238S/2338S/2338SW 100-230 VAC: 3.9-1.7 (6.6-2.8) A, 1 phase, 50-60 Hz
  - FAR-2238S-NXT/2338S-NXT 100-230 VAC: 3.0-1.5 (5.8-2.6) A, 1 phase, 50-60 Hz ( ): 42 rpm
- 6.2 Monitor unit
  - MU-190 100-230 VAC: 0.7-0.4 A, 1 phase, 50-60 Hz
  - MU-231 100-230 VAC: 1.0-0.6 A, 1 phase, 50-60 Hz
  - MU-270W 100-230 VAC: 0.7-0.4 A, 1 phase, 50-60 Hz
- 6.3 HUB (option) 100-230 VAC: 0.1 A max. 1 phase, 50/60 Hz
- 6.4 De-icer (option) 100-115/220-230 VAC: 2.6/1.3 A, 1 phase, 50-60 Hz

## 7 ENVIRONMENTAL CONDITIONS

- 7.1 Ambient temperature
  - Antenna unit -25°C to +55°C (storage: -25°C to +70°C)
  - Indoor units -15°C to +55°C (storage: -20°C to +70°C)
- 7.2 Relative humidity 93% or less at +40°C
- 7.3 Degree of protection
  - Antenna unit IP56
  - Processor/ monitor unit IP22
  - Transceiver/ control unit IP20
  - HUB IP20 (HUB-100), IP22 (HUB-3000)
- 7.4 Vibration IEC 60945 Ed.4

## 8 UNIT COLOR

- 8.1 Antenna unit N9.5
- 8.2 Processor/ transceiver unit N2.5
- 8.3 Control/ monitor unit N2.5
- 8.4 HUB N3.0 (HUB-100), N2.5 (HUB-3000)
- 8.5 Radar console 2.5GY5/1.5 (standard), 7.5BG7/2, 2.5G7/2, N7.5

**9 PERFORMANCE MONITOR**

## 9.1 PM-32A (X-band, MAG)

Frequency range	9380 to 9440 MHz
Input power	+18 dBm to +30 dBm
Output power	-21 dBm (1 <sup>st</sup> pulse max. output), -41 dBm (1 <sup>st</sup> pulse min. output)
Step level	8 to 12 dB (1 <sup>st</sup> pulse to last pulse)

## 9.2 PM-32B (X-band, SSD)

Frequency range	9423.75 ±1.6 MHz
Input power	+6 dBm to +26 dBm
Output power	-35 dBm (1 <sup>st</sup> pulse max. output), -66 dBm (1 <sup>st</sup> pulse min. output)
Step level	8 to 12 dB (1 <sup>st</sup> pulse to last pulse)

## 9.3 PM-52A (S-band, MAG)

Frequency range	3040 to 3080 MHz
Input power	+25 dBm to +40 dBm
Output power	-38 dBm (1 <sup>st</sup> pulse max. output), -58 dBm (1 <sup>st</sup> pulse min. output)
Step level	8 to 12 dB (1 <sup>st</sup> pulse to last pulse)

## 9.4 PM-52B (S-band, SSD)

Frequency range	3063.75 ±2 MHz
Input power	+5 dBm to +25 dBm
Output power	-52 dBm (1 <sup>st</sup> pulse max. output), -72 dBm (1 <sup>st</sup> pulse min. output)
Step level	8 to 12 dB (1 <sup>st</sup> pulse to last pulse)

# INDEX

## A

- Acquisition zone ..... 3-22
  - acknowledge AZ alert..... 3-24
  - activate AZ1 ..... 3-23
  - AZ shape ..... 3-25
  - AZ stabilization ..... 3-25
  - AZ2 polygon ..... 3-23
  - change AZ reference..... 3-25
  - sleep a zone ..... 3-24

## AIS

- CPA/TCPA alarm ..... 4-18
- pop-up info ..... 4-10

## AIS lost target

- filtering..... 4-16

## AIS operation

- activate target..... 4-6
- auto activate function enable/disable ..... 4-7
- controls..... 4-2
- CPA/TCPA ..... 4-18
- create and save messages ..... 4-22
- display AIS alerts ..... 4-25
- display filter ..... 4-4
- how to set up for a voyage ..... 4-9
- how to sleep all targets ..... 4-8
- how to sleep individual targets ..... 4-8
- how to sleep targets ..... 4-8
- manually activate target ..... 4-6
- messages ..... 4-22
- own ship data ..... 4-21
- ROT setting ..... 4-17
- symbols and meanings ..... 4-4
- system messages ..... 4-26
- target data ..... 4-10
- transmit messages ..... 4-23
- TT/AIS association ..... 4-19
- view messages..... 4-24

## AIS operation

- lost target ..... 4-16
- past position display ..... 4-15
- past position orientation ..... 4-15
- past position stabilization ..... 4-16
- symbol attributes ..... 4-13
- symbol brilliance..... 4-13
- symbol color ..... 4-13

## AIS target data

- how to display AIS target data ..... 4-11
- how to remove AIS target data..... 4-12

## Alerts

- alert icons and meanings ..... 1-100
- alert list..... 1-99

Automatic Clutter Elimination (ACE) function. 1-38

AZ..... 3-22

## B

- Background colors ..... 1-83, 1-85
- Bearing measurement..... 1-53
  - EBL key ..... 1-54
  - methods ..... 1-54
  - on-screen box ..... 1-54
  - true/relative ..... 1-54

## C

### Chart

- align..... 5-26
- chart settings ..... 5-27
- icons ..... 5-26
- settings menu ..... 5-27
- show/hide ..... 5-25
- type selection ..... 5-27

Chart functions ..... 5-25

Chart settings ..... 5-27

Color palettes ..... 1-83, 1-85

CPA/TCPA ..... 3-21

acknowledge alarm ..... 3-21

set ranges ..... 3-21, 4-18

### Cursor

- diamond ..... 1-76
- net ..... 1-76

### Customized echo

- editing..... 1-44
- restoring to factory default settings ..... 1-46
- restoring to saved settings ..... 1-45

## D

Diamond cursor ..... 1-76

Display mode ..... 1-102

DRIFT..... 3-20

Dual Radar ..... 1-107

enable/disable ..... 1-108

operational considerations ..... 1-109

## E

### EBL collision assessment

- assess risk..... 1-55
- set reference point ..... 1-56

## F

### False echoes

- multiple echoes ..... 2-3
- shadow sectors ..... 2-5
- sidelobe echoes ..... 2-4
- virtual images ..... 2-4

## H

### Heading line

- how to hide the heading line ..... 1-79

## I

### Interswitch

- antenna information ..... 1-90

## INDEX

### L

- Lost target alert
  - enable/disable alert ..... 3-8, 4-17

### M

- Maintenance
  - major parts life expectancy .....6-4
  - periodic schedule .....6-2

### Marks

- barge mark ..... 1-80
  - delete marks ..... 5-6
  - hide heading line ..... 1-79
  - how to inscribe a mark ..... 5-4, 5-8
  - INS mark ..... 5-11
  - mark inscription position ..... 5-2
  - mark type ..... 5-1
  - origin mark stabilization ..... 5-9
  - own ship symbol settings ..... 1-80
  - radar map marks ..... 5-3
  - show/hide radar map marks ..... 5-3
  - show/hide stern mark ..... 1-79
- Menu operations ..... 1-10
    - main menu ..... 1-10
    - menu layers ..... 1-10

### N

- Nav data
  - display settings ..... 1-86
  - enable/disable display ..... 1-87
- Net cursor ..... 1-76
- Noise rejector ..... 1-40
- NR ..... 1-40

### O

- Observation
  - bearing accuracy ..... 2-3
  - false echoes ..... 2-3
  - range measurement ..... 2-3
  - resolution ..... 2-2
- Off-center ..... 1-59
- Orientation modes
  - description ..... 1-48
  - selection ..... 1-48

### P

- Parallel index lines ..... 1-73
  - bearing and interval ..... 1-74
  - bearing reference ..... 1-74
  - displayed lines ..... 1-73
  - length adjustment ..... 1-75
  - orientation ..... 1-75
  - reset ..... 1-75
- Past position
  - POSN plotting intervals ..... 3-19, 4-15
  - set points to display ..... 3-19, 4-15
  - show/hide past POSN ..... 3-19, 4-15
- Past position display ..... 3-19
- PAST POSN ..... 3-19
- Performance monitor
  - activate/deactivate ..... 1-93

- check radar performance ..... 1-95
- PI ..... 1-73
- PI lines ..... 1-73

### R

- RACON ..... 2-7
- Radar map ..... 5-3
  - disable map alignment ..... 5-7, 5-27
  - enable map alignment ..... 5-7
- Radar Target Enhancer ..... 2-7
- Range and bearing measurement ..... 1-57
  - how to measure ..... 1-58
- Range measurement ..... 1-51
  - on-screen box ..... 1-52
  - TTG to VRM ..... 1-53
  - VRM key ..... 1-52
  - VRM units ..... 1-52
- Range rings
  - hide/show rings ..... 1-51
- RTE ..... 2-7

### S

- SART ..... 2-5
  - bandwidth ..... 2-7
  - description ..... 2-5
  - radar sidelobes ..... 2-7
  - range errors ..... 2-6
  - show/hide SART marks ..... 2-6
- SC card
  - delete data ..... 1-105
  - load data ..... 1-105
  - read data ..... 1-105
  - save data ..... 1-105
- Search and rescue transponder ..... 2-5
- SET ..... 3-20
- SET DRIFT ..... 3-20
- Static trial maneuver ..... 3-28
- Symbols
  - general radar symbols ..... AP-28
  - IMO map radar symbols ..... AP-30
  - radar map ..... AP-29
  - radar(AIS symbols) ..... AP-31
  - radar(TT symbols) ..... AP-31

### T

- Target alarm ..... 1-71
  - alarm settings ..... 1-72
  - deactivate ..... 1-72
  - mute ..... 1-72
  - on/off ..... 1-71
  - setting ..... 1-71
- Target tracking
  - controls ..... 3-2
  - display/remove target data ..... 3-11
  - echo referenced speed ..... 3-5
  - hide target list ..... 3-12
  - lost target ..... 3-8
  - lost target filter ..... 3-8
  - mode selection ..... 3-3
  - on-screen box overview ..... 3-2



own ship speed .....	3-5
selection criteria .....	3-33
show target list .....	3-12
simulation mode .....	3-32
sort target list.....	3-12
symbol brilliance.....	3-9
symbol color .....	3-9
symbols and attributes .....	3-9
system messages .....	3-31
Target trails .....	1-60
clutter prevention.....	1-64
hide trails.....	1-63
narrow trails.....	1-63
trail erase/restart .....	1-63
trail gradation .....	1-62
trail level .....	1-62
trail stabilization.....	1-63
trail time.....	1-61
true/relative .....	1-60
Trial maneuver	
static trial .....	3-28
Troubleshooting	
advanced troubleshooting .....	6-6
basic troubleshooting .....	6-5
diagnostics .....	6-8
TT .....	1-60
dual radar behavior .....	1-107
static trial maneuver .....	3-28
<b>V</b>	
Vector modes .....	3-16
description .....	3-16
vector length.....	3-18
vector time.....	3-18
Video plotter	
create waypoints .....	5-17
delete own ship's track.....	5-15
delete waypoints .....	5-18
display waypoint list .....	5-19
display waypoint name/number.....	5-19
enter waypoints .....	5-17
orientation modes.....	5-1
own ship's track.....	5-12
own ship's track color .....	5-14
own ship's track plot interval .....	5-13
radar map.....	5-3
waypoints .....	5-16
<b>W</b>	
Wiper .....	1-40

## Declaration of Conformity

**[FAR-2218/FAR-2218-BB/FAR-2228/FAR-2228-BB/FAR-2228-NXT/FAR-2228-NXT-BB/  
FAR-2238S/FAR-2238S-BB/FAR-2238S-NXT/FAR-2238S-NXT-BB/FAR-2318/FAR-2328/  
FAR-2328-NXT/FAR-2328W/FAR-2338SW/FAR-2338S/FAR-2338S-NXT Marine Radar]**

- Bulgarian (BG) С настоящото Furuno Electric Co., Ltd. декларира, че гореспоменат тип радиосъоръжение е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес:
- Spanish (ES) Por la presente, Furuno Electric Co., Ltd. declara que el tipo de equipo radioeléctrico arriba mencionado es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente:
- Czech (CS) Tímto Furuno Electric Co., Ltd. prohlašuje, že výše zmíněné typ rádiového zařízení je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:
- Danish (DA) Hermed erklærer Furuno Electric Co., Ltd., at ovennævnte radioudstyr er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse:
- German (DE) Hiermit erkläre die Furuno Electric Co., Ltd., dass der oben genannte Funkanlagentyp der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar:
- Estonian (ET) Käesolevaga deklareerib Furuno Electric Co., Ltd., et ülalmainitud raadioseadme tüüp vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil:
- Greek (EL) Με την παρούσα η Furuno Electric Co., Ltd., δηλώνει ότι ο προαναφερθέντας ραδιοεξοπλισμός πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο:
- English (EN) Hereby, Furuno Electric Co., Ltd. declares that the above-mentioned radio equipment type is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:
- French (FR) Le soussigné, Furuno Electric Co., Ltd., déclare que l'équipement radioélectrique du type mentionné ci-dessus est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante:
- Croatian (HR) Furuno Electric Co., Ltd. ovime izjavljuje da je gore rečeno radijska oprema tipa u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi:
- Italian (IT) Il fabbricante, Furuno Electric Co., Ltd., dichiara che il tipo di apparecchiatura radio menzionato sopra è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet:

- Latvian (LV) Ar šo Furuno Electric Co., Ltd. deklarē, ka augstāk minēts radioiekārta atbilst Direktīvai 2014/53/ES.  
Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē:
- Lithuanian (LT) Aš, Furuno Electric Co., Ltd., patvirtinu, kad pirmiau minēta radijo įrenginių tipas atitinka Direktyvą 2014/53/ES.  
Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu:
- Hungarian (HU) Furuno Electric Co., Ltd. igazolja, hogy fent említett típusú rádióberendezés megfelel a 2014/53/EU irányelvnek.  
Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen:
- Maltese (MT) B'dan, Furuno Electric Co., Ltd., niddikjara li msemmija hawn fuq-tip ta' tagħmir tar-radju huwa konformi mad-Direttiva 2014/53/UE.  
It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej:
- Dutch (NL) Hierbij verklaar ik, Furuno Electric Co., Ltd., dat het hierboven genoemde type radioapparaat conform is met Richtlijn 2014/53/EU.  
De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres:
- Polish (PL) Furuno Electric Co., Ltd. niniejszym oświadcza, że wyżej wymieniony typ urządzenia radiowego jest zgodny z dyrektywą 2014/53/UE.  
Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym:
- Portuguese (PT) O(a) abaixo assinado(a) Furuno Electric Co., Ltd. declara que o mencionado acima tipo de equipamento de rádio está em conformidade com a Diretiva 2014/53/UE.  
O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet:
- Romanian (RO) Prin prezenta, Furuno Electric Co., Ltd. declară că menționat mai sus tipul de echipamente radio este în conformitate cu Directiva 2014/53/UE.  
Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet:
- Slovak (SK) Furuno Electric Co., Ltd. týmto vyhlasuje, že vyššie spomínané rádiové zariadenie typu je v súlade so smernicou 2014/53/EÚ.  
Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese:
- Slovenian (SL) Furuno Electric Co., Ltd. potrjuje, da je zgoraj omenjeno tip radijske opreme skladen z Direktivo 2014/53/EU.  
Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu:
- Finnish (FI) Furuno Electric Co., Ltd. vakuuttaa, että yllä mainittu radiolaitetyyppi on direktiivin 2014/53/EU mukainen.  
EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa:
- Swedish (SV) Härmed försäkrar Furuno Electric Co., Ltd. att ovan nämnda typ av radioutrustning överensstämmer med direktiv 2014/53/EU.  
Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress:

## Online Resource

[http://www.furuno.com/en/support/red\\_doc](http://www.furuno.com/en/support/red_doc)

## Declaration of Conformity



# 0560

We **FURUNO ELECTRIC CO., LTD.**

-----  
(Manufacturer)

9-52 Ashihara-Cho, Nishinomiya City, 662-8580, Hyogo, Japan

-----  
(Address)

declare under our sole responsibility that the product

### MARINE RADAR

FAR-2218, FAR-2218-BB, FAR-2228, FAR-2228-BB, FAR-2238S, FAR-2238S-BB,  
FAR-2238S-NXT, FAR-2238S-NXT-BB, FAR-2318, FAR-2328, FAR-2328W,  
FAR-2338SW, FAR-2338S and FAR-2338S-NXT

(Serial No.1000-79xx-xxxx)

-----  
(Model name, type number)

to which this declaration relates conforms to the following standard(s) or normative document(s)

IMO Resolution A.278(VIII) , A.694(17)  
IMO Resolution MSC.36(63), MSC.97(73)  
IMO Resolution MSC.191(79) , MSC.192(79)  
IMO Resolution MSC. 302(87)  
IMO MSC.1/Circ.1349  
ITU-R M.1177-4

IEC 60945 Ed. 4.0: 2002 incl. Corr. 1, 2008  
IEC 61162-1 Ed. 5.0: 2016  
IEC 61162-2 Ed. 1.0: 1998  
IEC 61162-450 Ed. 1.0 A1: 2016  
IEC 62288 Ed. 2.0: 2014  
IEC 62388 Ed. 2.0: 2013  
IEC 61996-1 Ed. 2.0: 2013

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(title and/or number and date of issue of the standard(s) or other normative document(s))

For assessment, see

- EC Type Examination (Module B) certificates No. MEDB00002AU Rev.4 and MEDB00002ZW Rev.3 (high speed craft) issued by DNV GL AS (0575), Norway.
- Product Quality System (Module D) certificate No. P 112 (Issue 41) issued by Telefication, The Netherlands.

This declaration is issued according to the Directive 2014/90/EU of the European Parliament and of the Council on marine equipment, and the Implementing Regulation (EU) 2019/1397.

On behalf of Furuno Electric Co., Ltd.

Nishinomiya City, Japan  
November 18, 2019

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(Place and date of issue)

Yoshitaka Shogaki  
Department General Manager  
Quality Assurance Department

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(name and signature or equivalent marking of authorized person)