
4.1.6.8 Brake Circuit (CFA-252) Replacement/NKE-2103

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2, Size #3	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

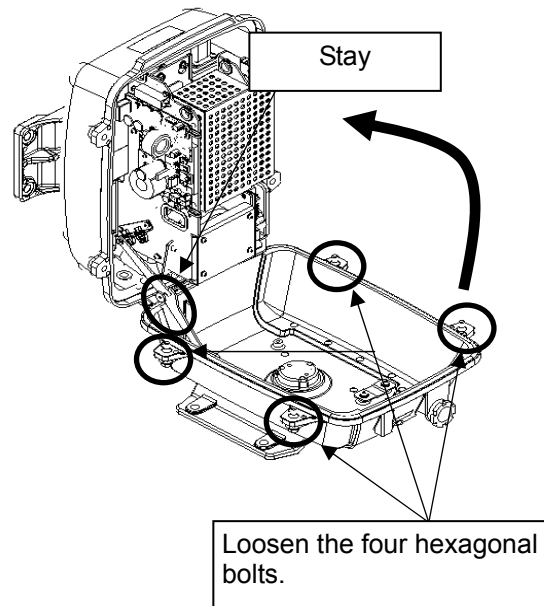
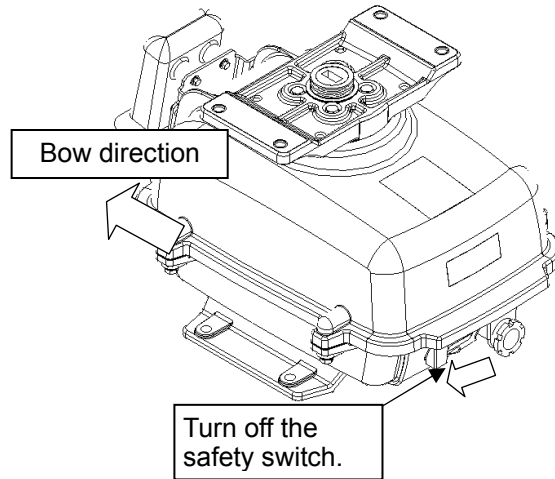
Step 1 Turn Off the safety switch and open the cover.

Before beginning work, turn Off the safety switch on the bottom of the scanner unit.

Loosen the hexagonal bolts (four bolts) and open the upper cover until the stopper of the stay operates.

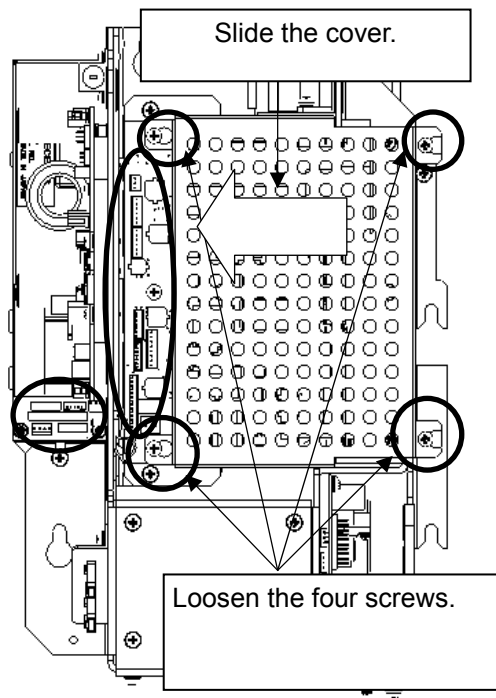


When closing the upper cover, release the stay stopper and then tighten the cover.



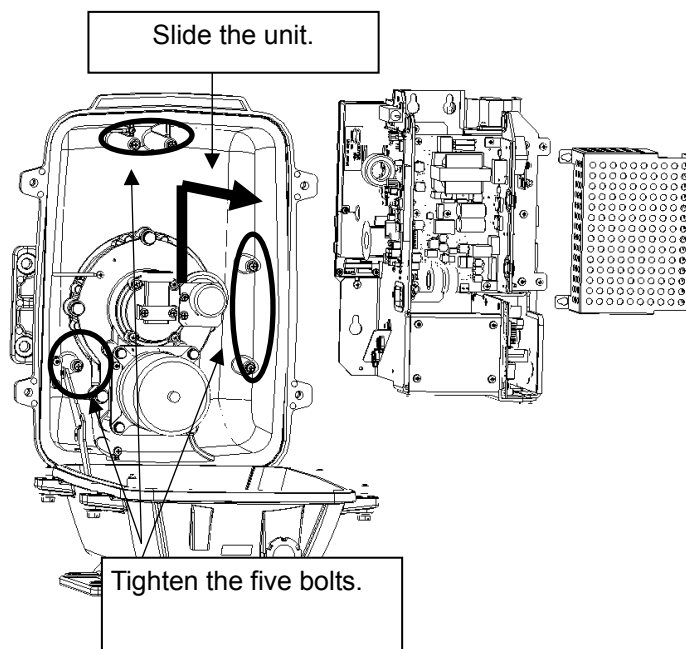
Step 2 Remove the transmitter-receiver unit cover

Open the upper cover, loosen the screws (four M4 screws), remove the transmitter-receiver unit cover, and disconnect the cables connected to the transmitter-receiver unit (ten cables). Slide the cover of the transmitter-receiver unit to remove it.



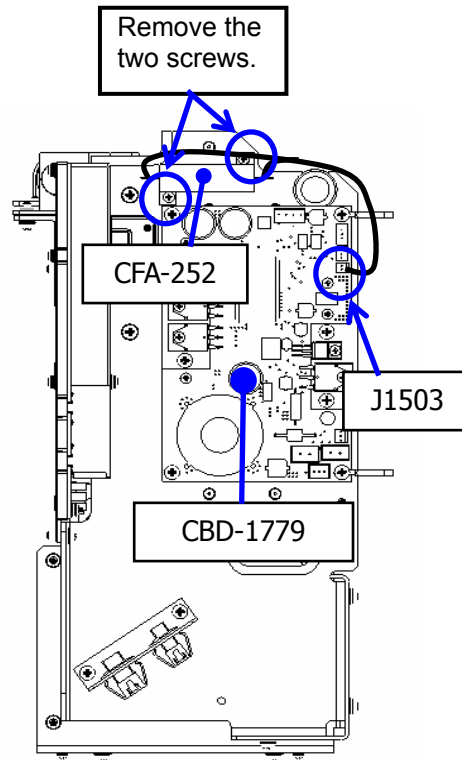
Step 3 Remove the transmitter-receiver unit

Loosen the bolts (five M5 bolts) and remove the transmitter-receiver unit. Slide it upward to remove.



Step 4 Replace the brake circuit.

Disconnect the cable that is connected to J1503 of the Motor driver circuit (CBD-1779). Remove the two screws (M3) that are holding the resistor and then replace the brake circuit (CFA-252: Resistor with cable). After replacing the brake circuit, reassemble the unit following the disassembly procedure in the reverse order. Do not forget to tighten the bolts or screws, and make sure that the cables are connected.



Step 5 Operation check

After completing the replacement work, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. After the countdown is completed, start transmission and check that the radar image appears without error.

This completes brake circuit replacement.

4.1.6.9 Performance Monitor (NJU-85) Replacement/NKE-2103

Instruction for Equipment

装備要領

1. Adapter installation

アダプタの取り付け

The adapter is installed in Performance Monitor (NJU-85) with the bolt of the attachment.

(6-B5X12SUS, SW5, W5)

パフォーマンスモニタ (NJU-85) にアダプタを付属のボルトで固定する。

(6-B5X12SUS, SW5, W5)

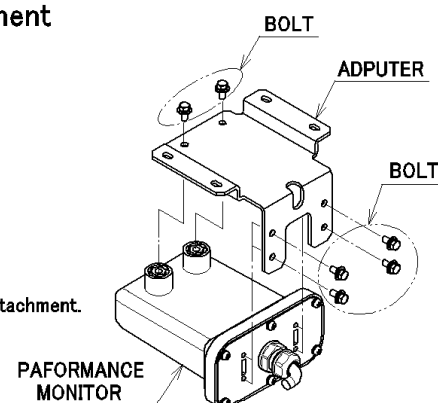


Fig1 (図1)

2. Performance Monitor Installation

パフォーマンスモニタユニットの取り付け

Mount Performance Monitor on the SCANNER UNIT with the attached bolt.

(4-B5X12SUS, SW5, W5)

パフォーマンスモニタを空中線に付属のボルトで固定します。

(4-B5X12SUS, SW5, W5)

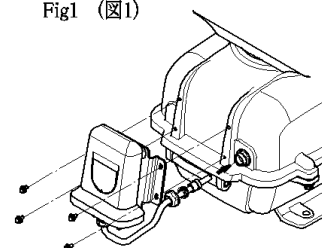


Fig2 (図2)

3. Wiring

配線

Remove the nut out and cut off the tip of the rubber bushing (shrouded end).

Put the nut into the Cable, as shown in Fig.3

Each connector (J81, J82) and the earth terminal are connected, as shown in Fig.4

ナットを取り外し、ゴムブッシュの先端をカットします。

ナット、ラバーシール、ゴムブッシュをケーブルに通します。(図3)

コネクタ (J81, J82) に接続して、アースはねじにて固定します。(図4)

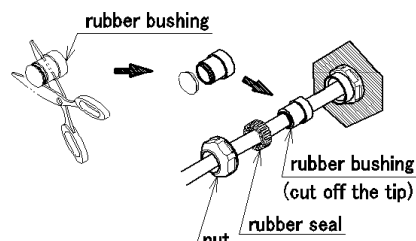


Fig3 (図3)

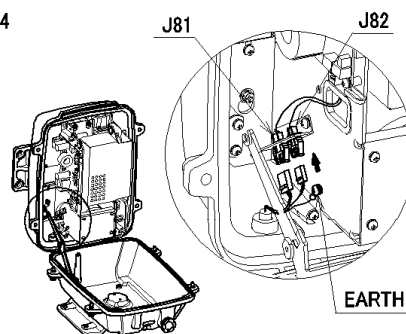


Fig4 (図4)

4. Check and adjustment

確認と調整

After installation, carry out the adjustment and check the operation of the Performance Monitor according to the "Radar operation manual".

装備後、「レーダ取扱説明書」要領に従い、パフォーマンスモニタの動作確認・調整を必ず実施してください。

5. Water proof

防水処理

Apply silicone sealant around the cable inlet, as shown in Fig.5

ケーブルグランド部をシールする。(図5)

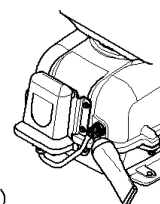


Fig5 (図5)

MTZ303917

4.1.7 NKE-1632 Scanner Unit

4.1.7.1 TRX Module (CMN-797) Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



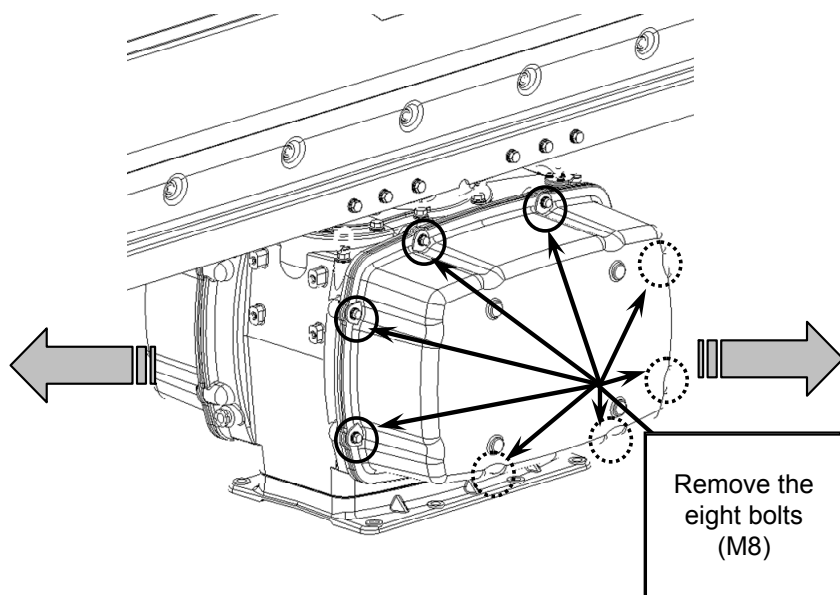
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

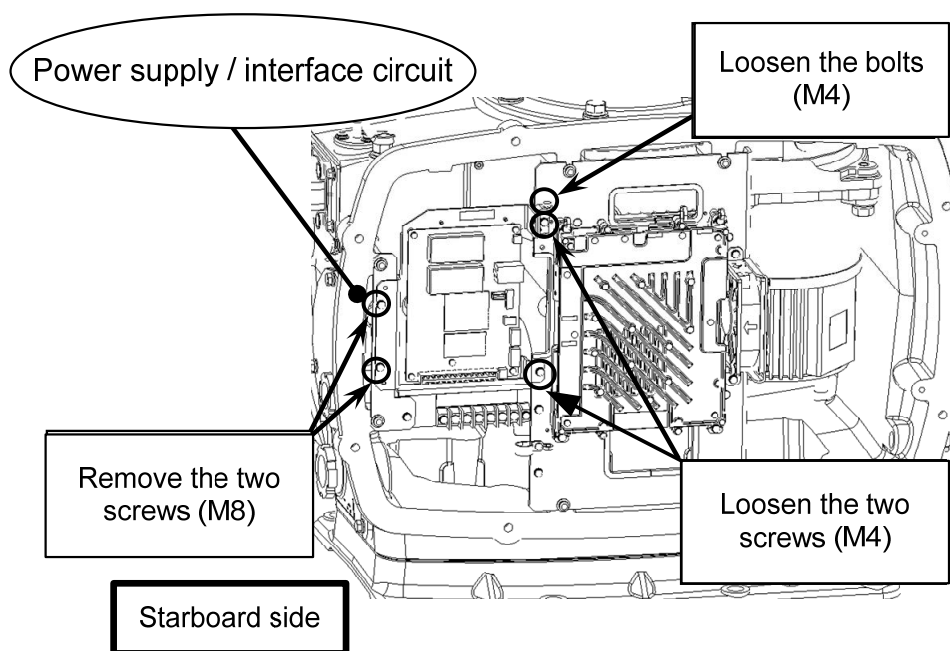
Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.

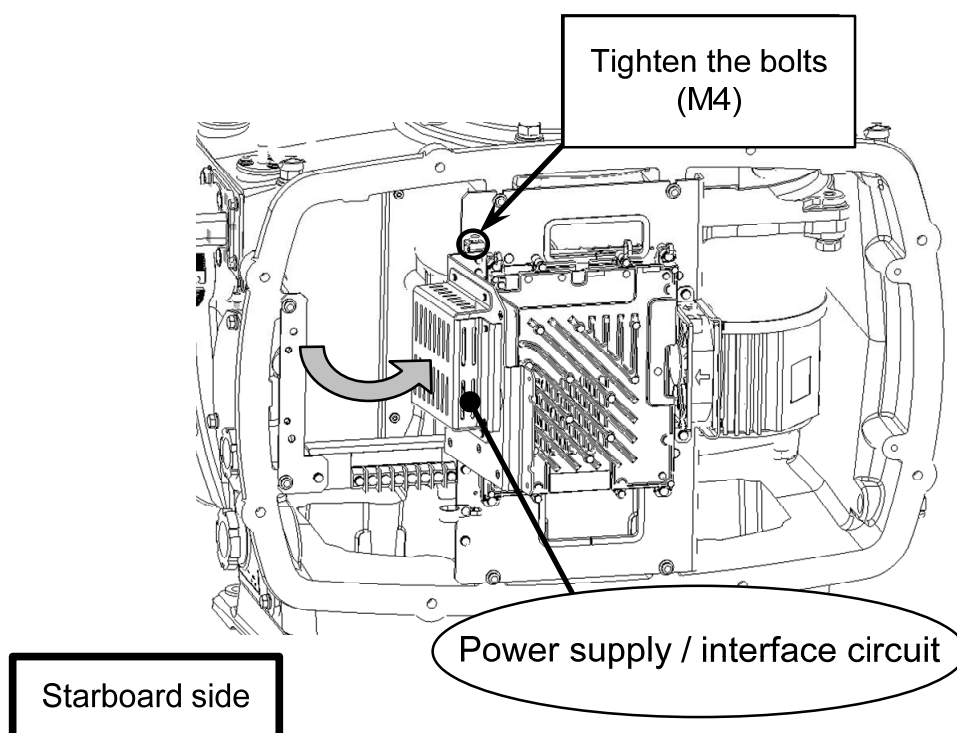


Step 2 Open the power supply/interface circuit unit (on the starboard side).

[Starboard side] By loosening the bolts (M4) and two screws (M4), the power supply/interface circuit can be opened towards the front.

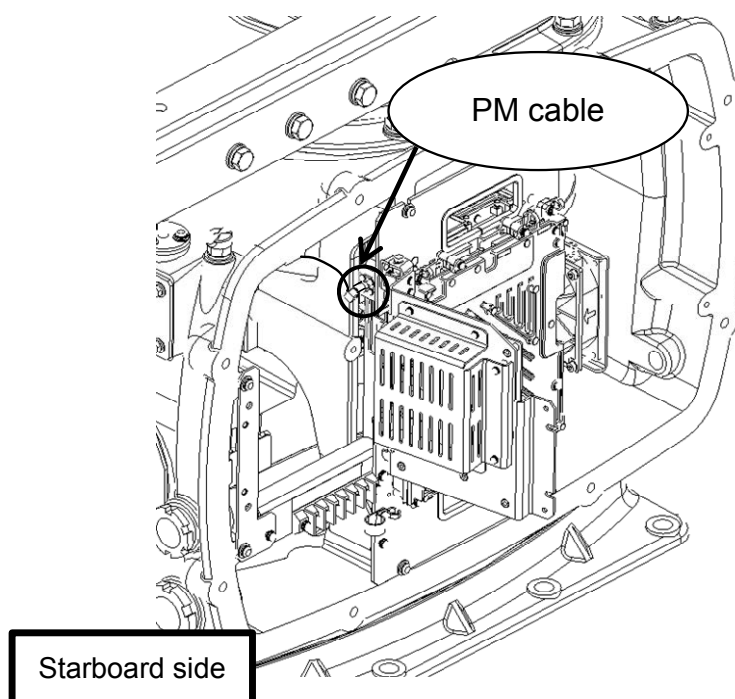


Hold the unit in place by tightening the bolts (M4) and opening the power supply/interface circuit.



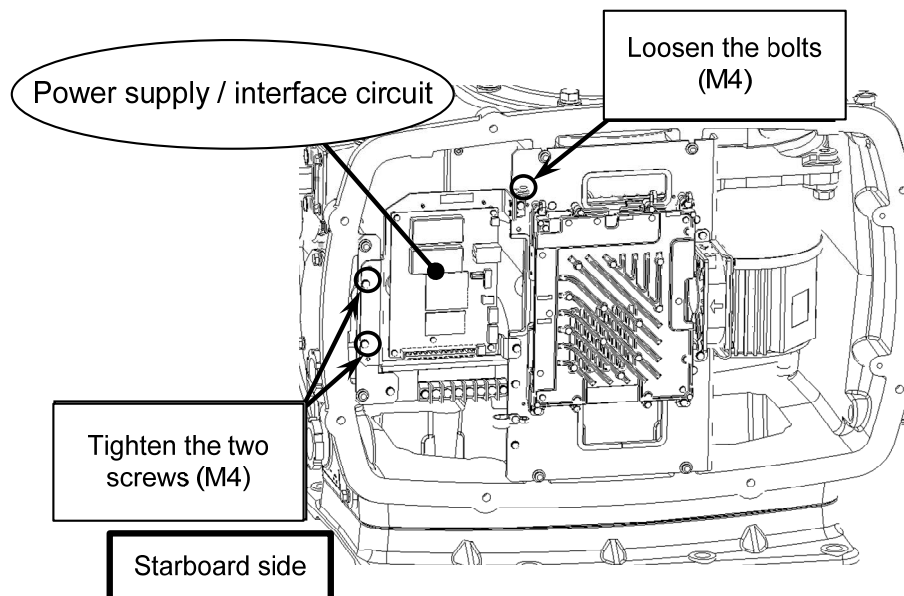
Step 3 Remove the PM cable.

[Starboard side] Remove the PM cable.



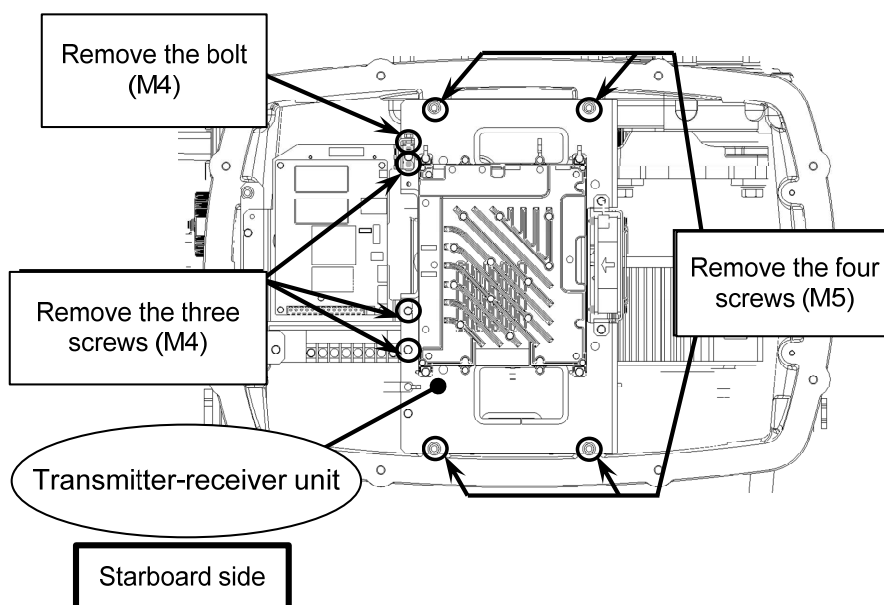
Step 4 Close the power supply/interface circuit unit.

Loosen the M4 bolts and close the power supply/interface circuit unit. Fix only two screws (M4) on the stern side.

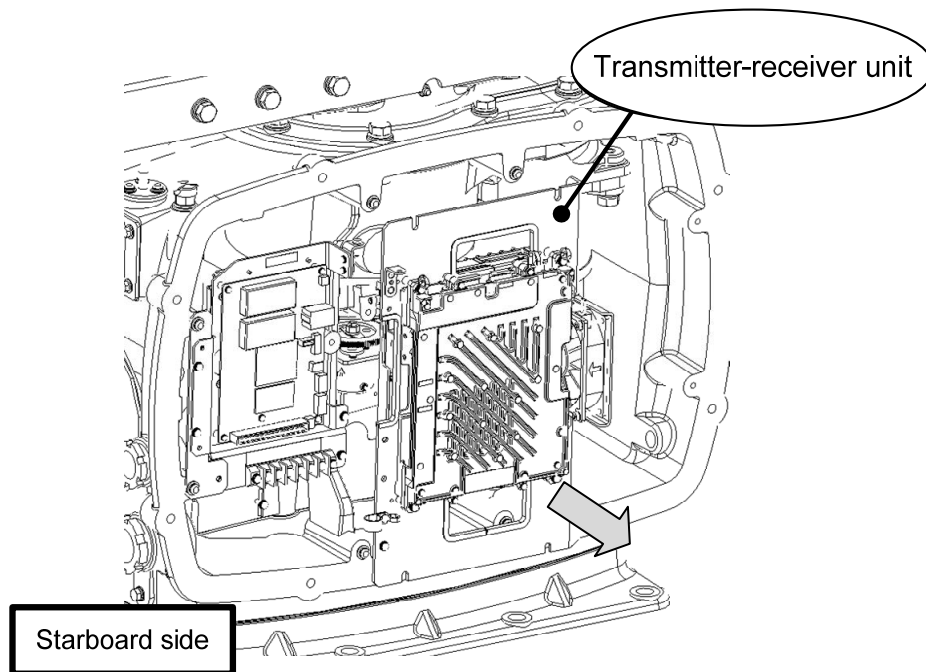


Step 5 Remove the transmitter-receiver unit.

[Starboard side] Remove the four screws (M5). Remove the bolt (M4). Remove the three screws (M4).

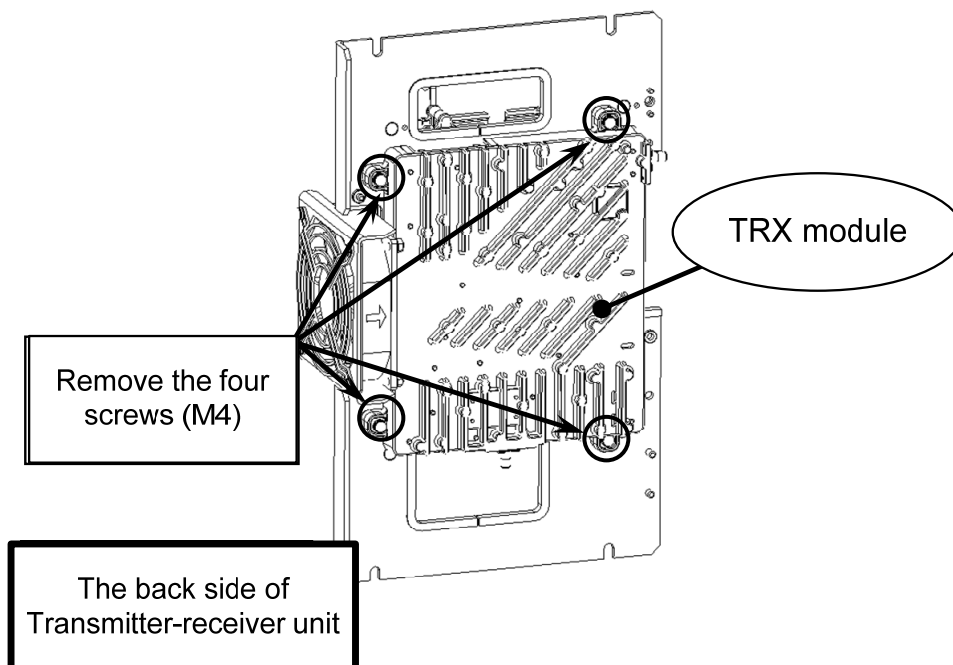


Remove the cable that is connected to the transmitter-receiver unit and remove the unit towards the front.



Step 6 Replace the TRX module.

The TRX module is held at the back of the receiver unit. Remove the four screws (M4) and replace the TRX module. After replacing the TRX module, close the cover following the disassembly procedure in the reverse order. Set the safety switch to On and check the operation. This completes TRX module replacement.



Step 7 Operation check

After completing the replacement work, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. Start transmission and check that the radar image appears without error.

This completes TRX module replacement.

4.1.7.2 Encoder (CHT-85) Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



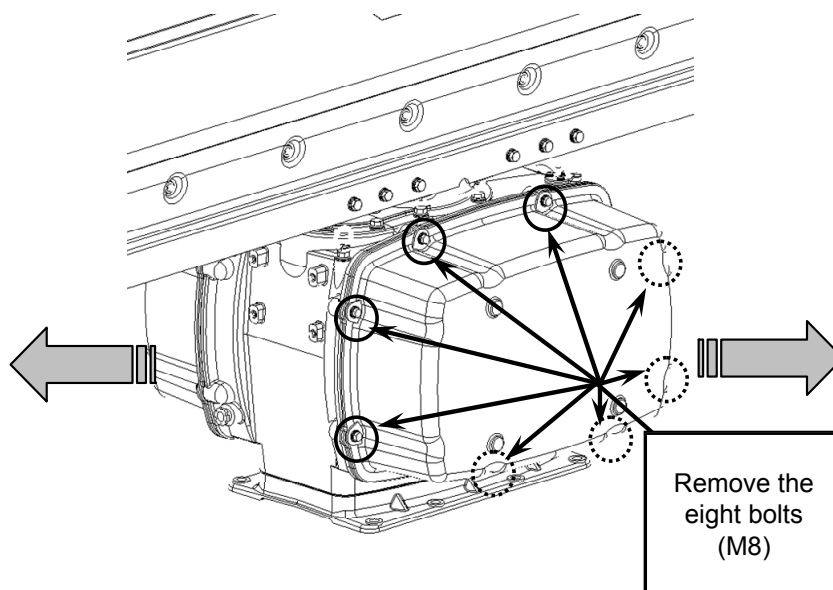
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

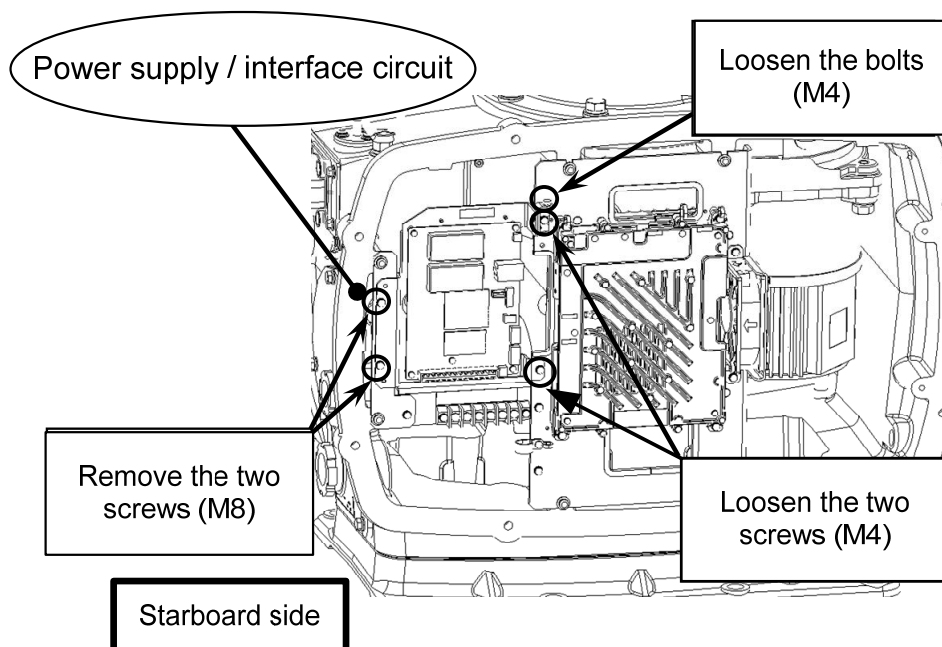
Step 1 Remove the cover.

Remove the eight M8 fall prevention bolts (M8) and remove the cover.

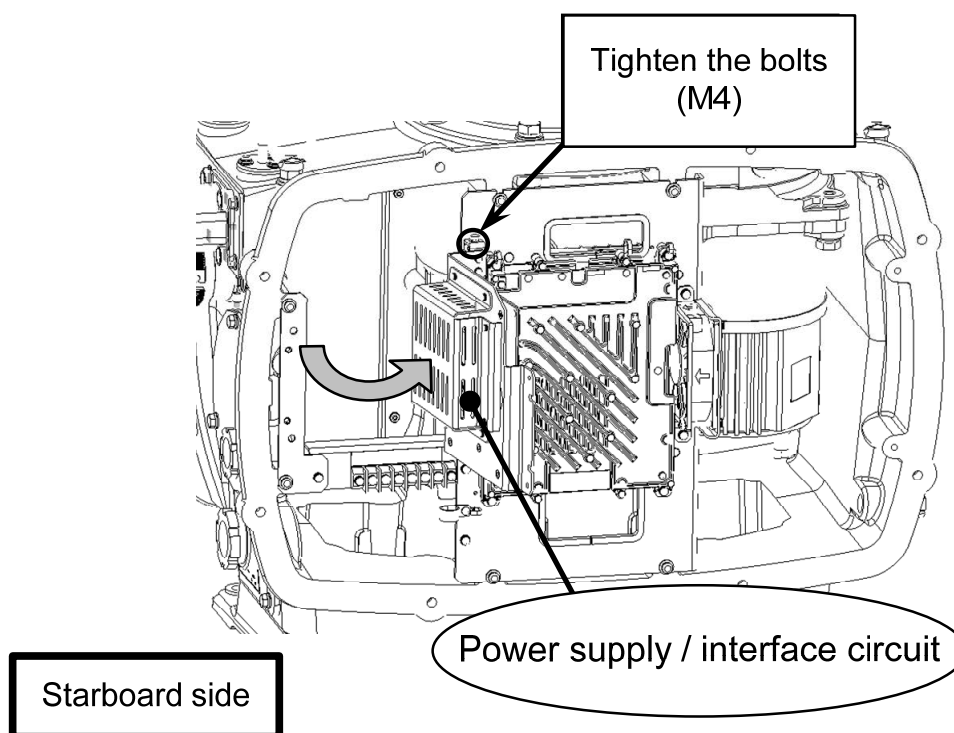


Step 2 (Starboard side) Open the power supply/interface circuit unit.

[Starboard side] By loosening the bolt (M4) and the two screws (M4) and then removing the two screws (M8), the power supply/interface circuit unit can be opened towards the front.

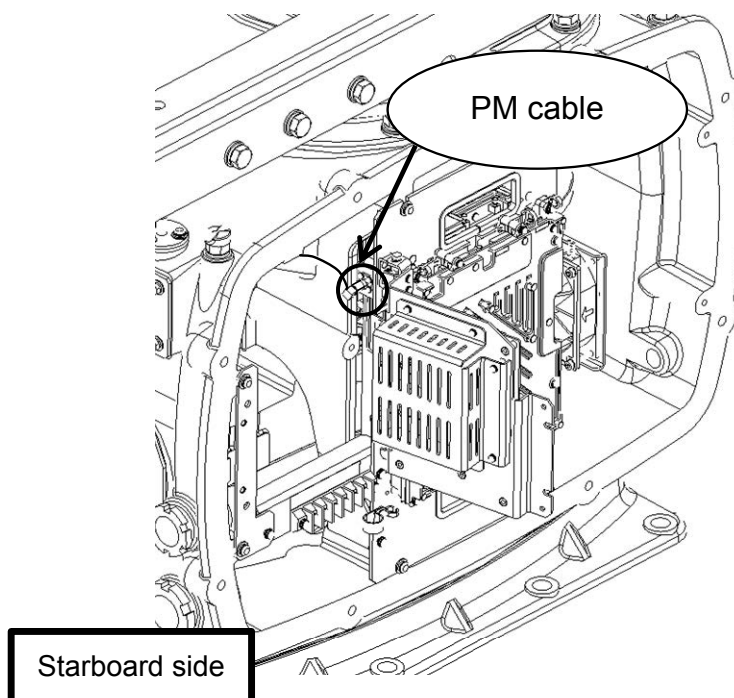


Tighten the bolt (M4) and hold the unit while the power supply/interface circuit is opened.



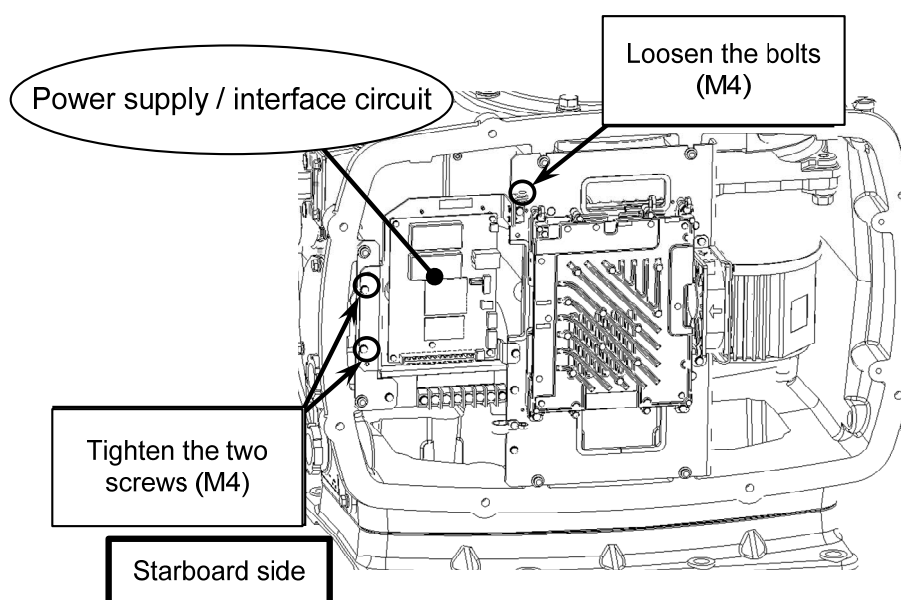
Step 3 Remove the PM cable.

[Starboard side] Remove the PM cable.



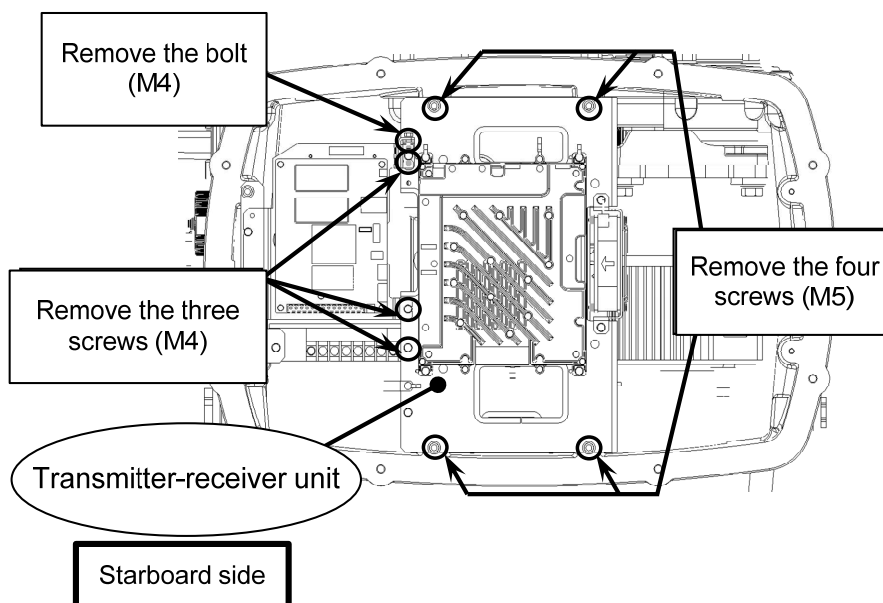
Step 4 Close the power supply/interface circuit unit.

Loosen the bolt (M4) and close the power supply/interface circuit unit. Fasten only the two screws (M4) on the stern side.

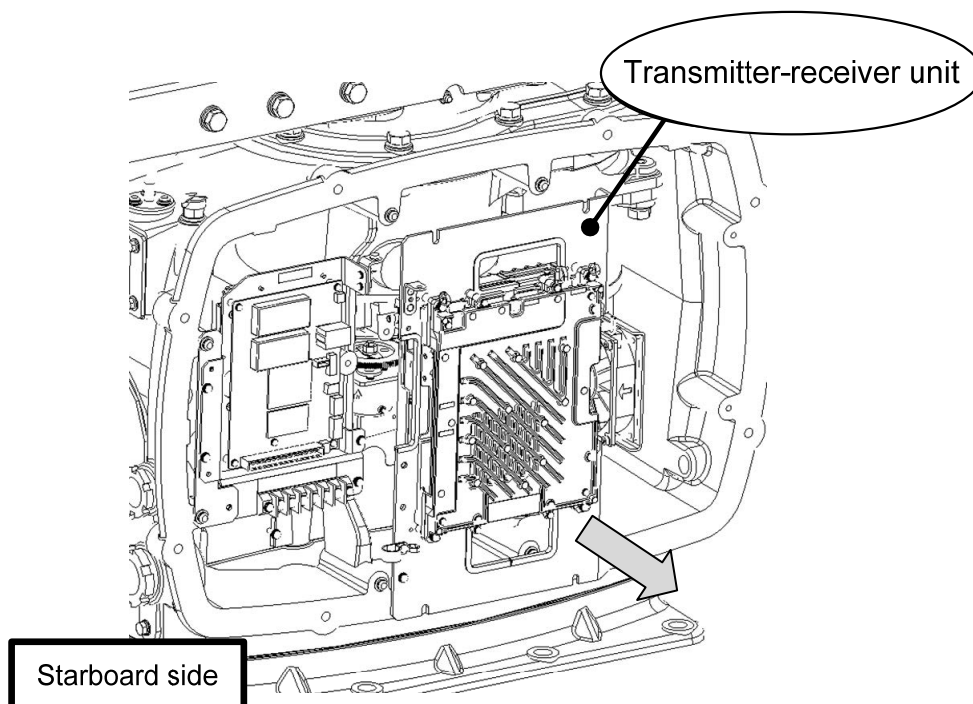


Step 5 Remove the transmitter-receiver unit.

[Starboard side] Remove the four screws (M5). Remove the bolt (M4) and remove the three screws (M4).

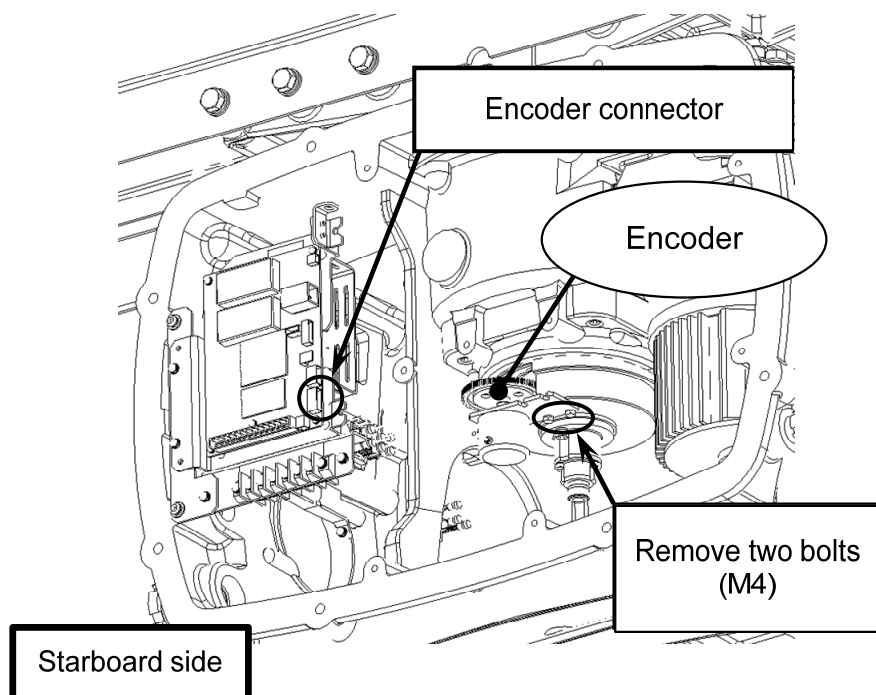


Remove the cable that is connected to the transmitter-receiver unit and remove the unit towards the front.



Step 6 Replace the encoder.

Remove the two bolts (M4) that hold the encoder and replace it. Hold the gear of the encoder by lightly pressing it to the gear of the main shaft. After replacing the encoder, close the cover following the disassembly procedure in the reverse order. Finally, set the safety switch to On and check the operation.



Step 7 Operation check

After completing the replacement work, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. After the countdown is completed, start transmission and check that the radar image appears without error. Open the service engineer menu to perform azimuth adjustment.

This completes encoder replacement.

4.1.7.3 Power Supply/Interface Circuit (CMP-493) Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



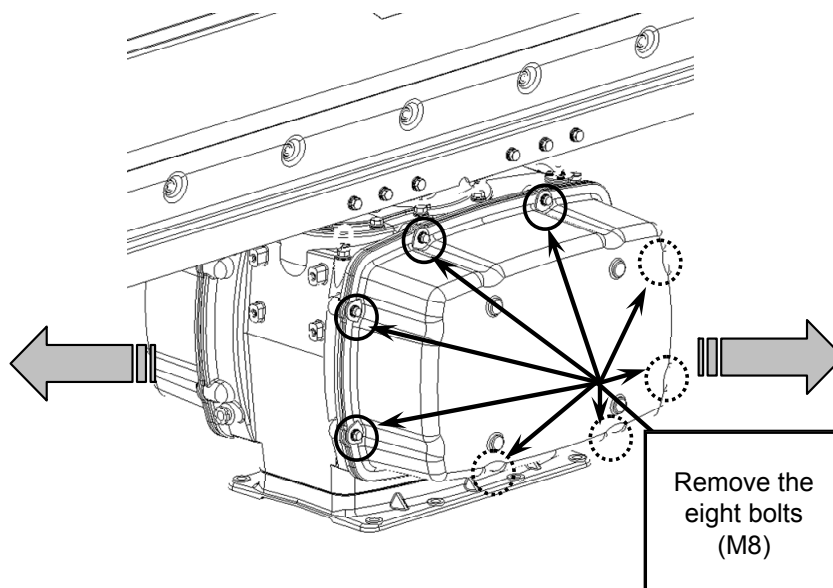
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

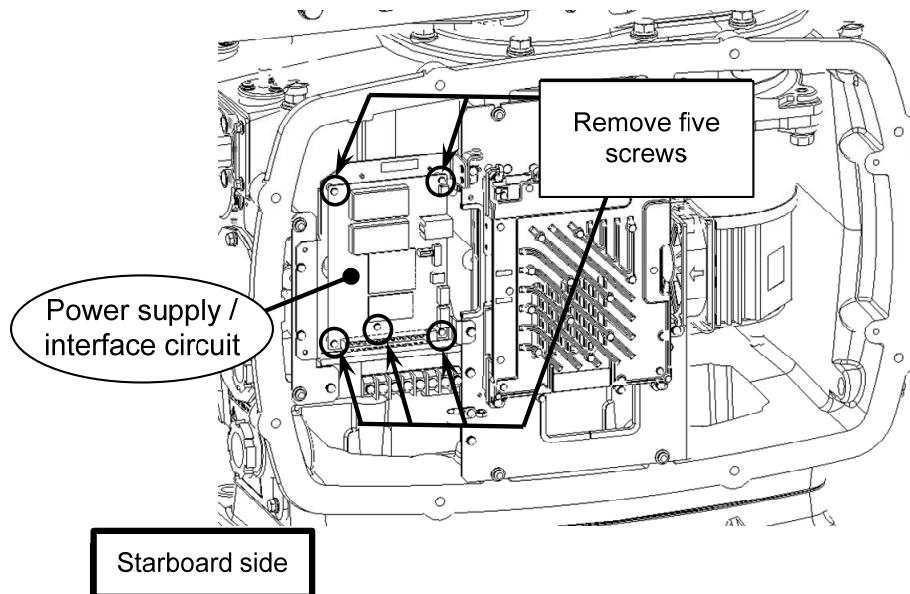
Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.



Step 2 Replace the power supply/interface circuit.

The power supply/interface circuit is installed on the starboard side. Remove all the connectors that are connected to the power supply/interface circuit. Remove the five screws that are holding the power supply/interface circuit and replace it. Connect the power supply/interface circuit following the disassembly procedure in the reverse order. Finally, set the safety switch to On and check the operation.



Step 3 Operation check

After completing the replacement work, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. Start transmission and check that the radar image appears without error.

This completes the power supply/interface circuit. replacement.

4.1.7.4 Radar Processor Unit (NDC-4920) Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



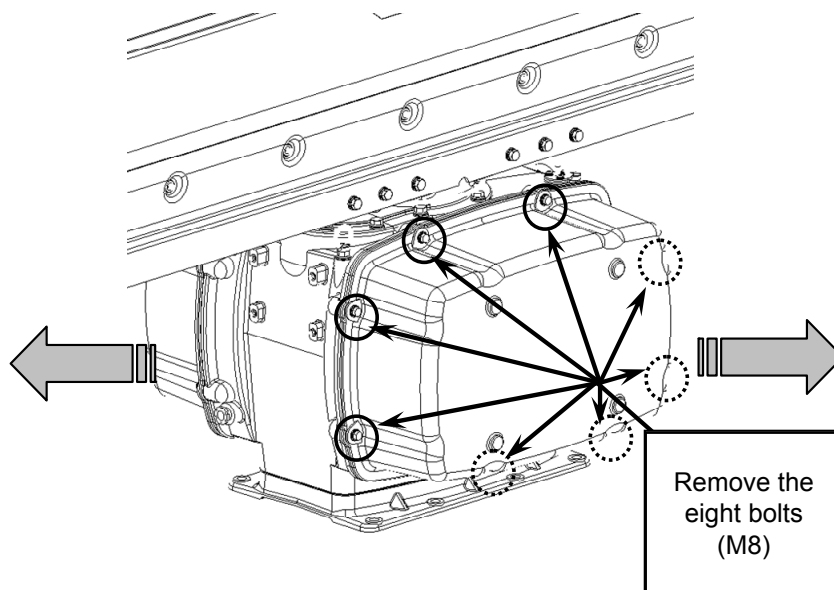
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

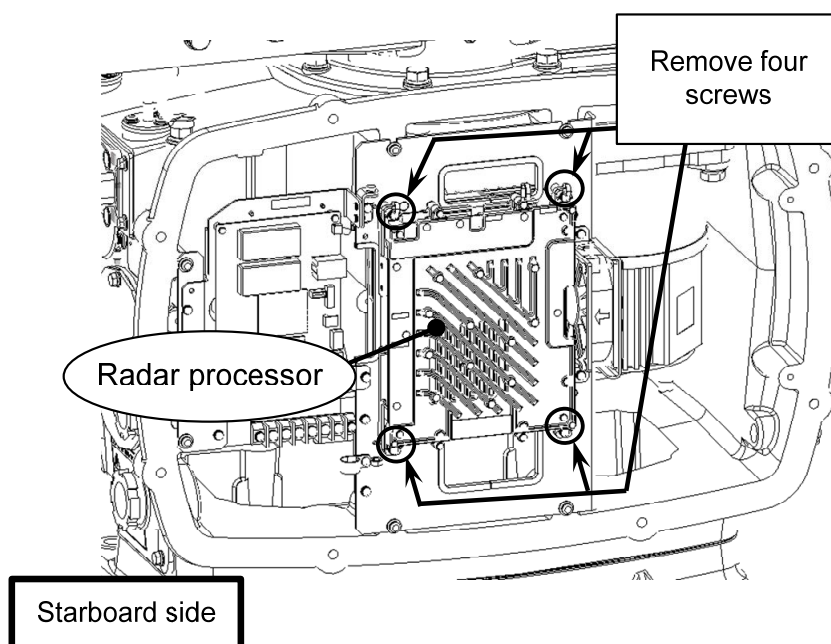
Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.



Step 2 Replace the radar processor unit.

The radar processor unit is installed on the starboard side. Remove all the connectors that are connected to the radar processor unit. Remove the four screws that are holding the radar processor unit and replace it. Connect the radar processor unit following the disassembly procedure in the reverse order and close the cover. Finally, set the safety switch to On and check the operation. This completes the radar processor unit replacement.



Step 3 Operation check

After completing the replacement work, turn on the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit. Start transmission and check that the radar image appears without error.

This completes radar processor unit replacement.

4.1.7.5 Motor Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 8 mm (for M5 screws). 13 mm (for M8 screws). 17 mm (for M10 screws)	
3	Socket wrench*1	Width across flats 8 mm (for M5 screws). 13 mm (for M8 screws). 17 mm (for M10 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



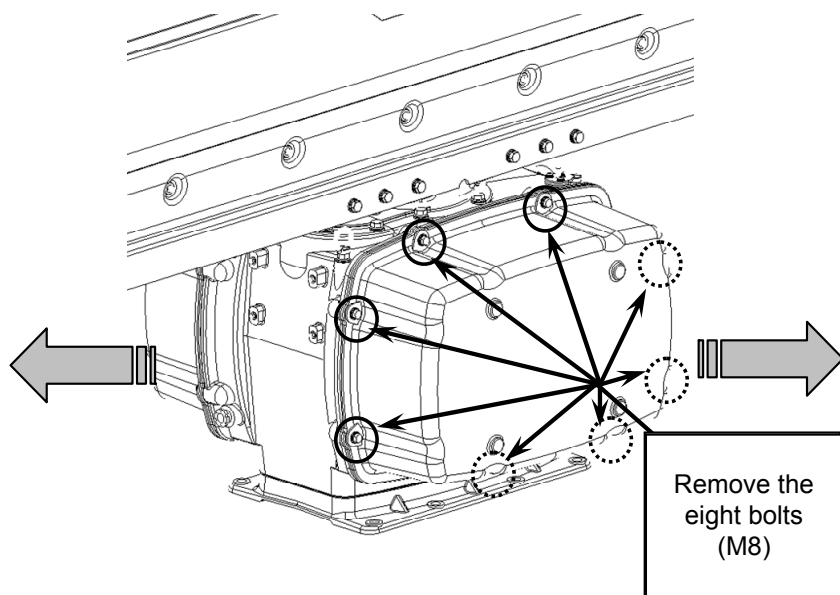
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.



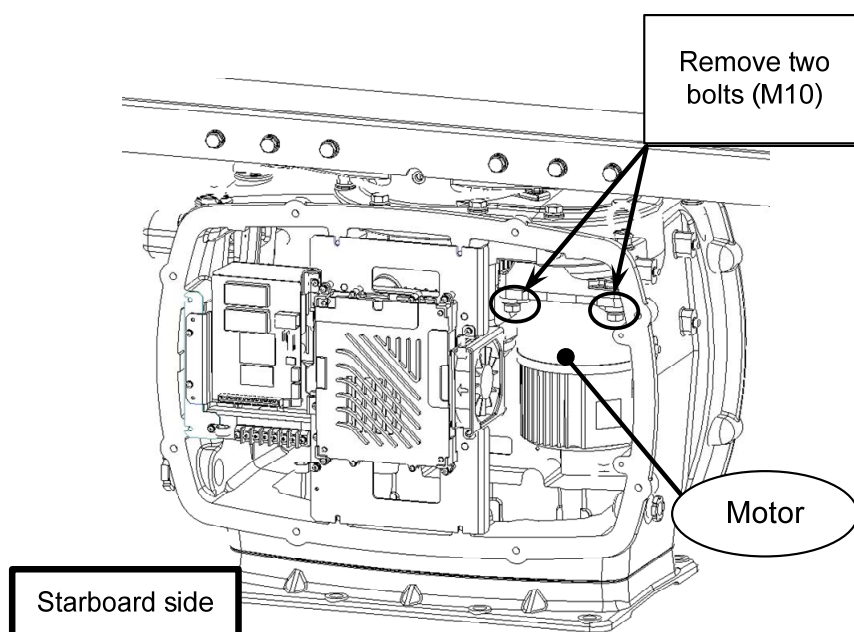
Step 2 Replace the motor.

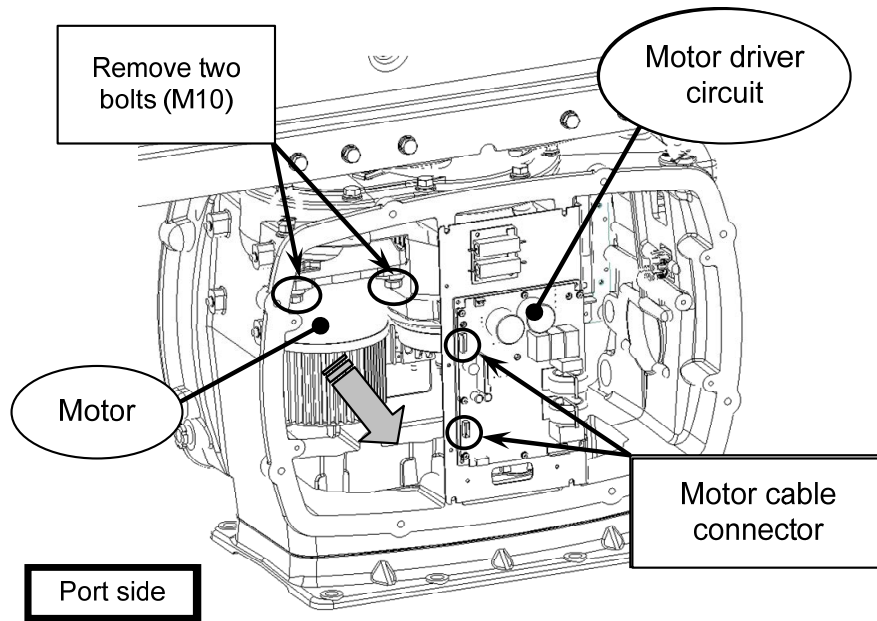
[Starboard side] Remove the two bolts (M10).

[Port side] Remove the motor cable that is connected to the motor driver unit. Remove the two bolts (M10) and remove the motor towards the front.

Apply grease, in advance, on the gear of the motor to be replaced.

Tighten the hexagon head bolts with the proper torque (380 kgf.cm) to guarantee tightening them and not leaving loose bolts. After replacing the motor, close the cover following the disassembly procedure in the reverse order. Finally, set the safety switch to On and check the operation.





Step 3 **Operation check**

After completing the replacement work, turn On the safety switch and follow the steps below to check the operation.

1. Turn On the Display unit. Start transmission and check that the radar image appears without error. Check that the motor does not make any abnormal sound when it starts to rotate, while it is rotating, or when it stops.
2. Open the service engineer menu to initialize the motor rotation time.

This completes motor replacement.

4.1.7.6 Motor Drive Circuit Board (CBD-1949) Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



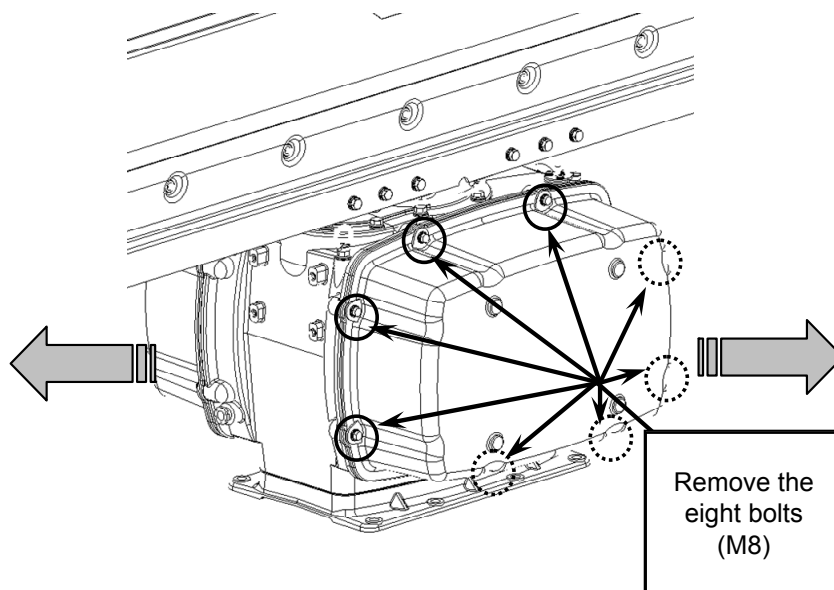
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

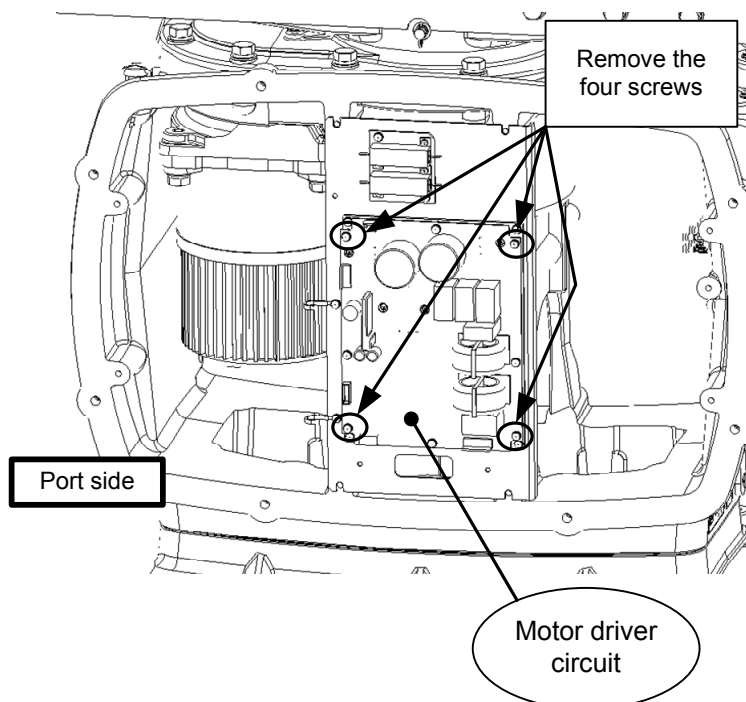
Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.



Step 2 Remove the motor driver circuit board.

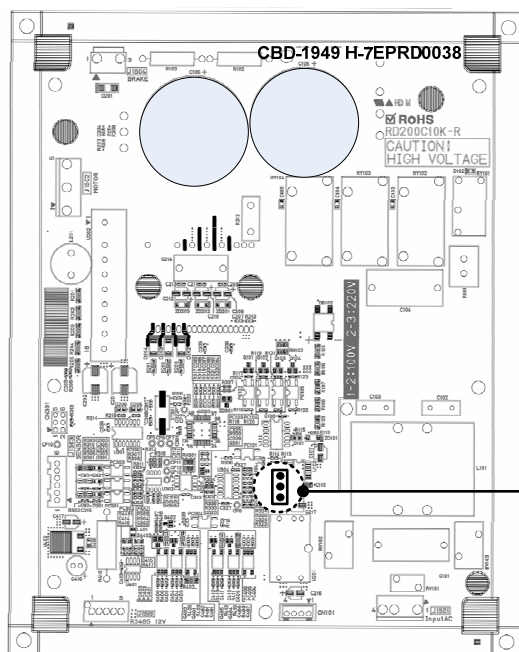
Remove all the connectors that are connected to the motor driver. Remove the four screws that hold the motor driver unit.



Step 3 Check the setting of the motor driver circuit.

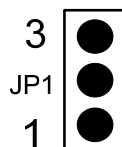
The motor driver applies the 100 V/220 V common circuit. Before commencing replacement, set the power supply of the driver to be replaced according to the power supply specification.

Motor Driver Circuit CBD-1949



Motor drive circuit board CBD-1949

JP1	setting	Description
1-2	Short-circuit	100 VAC
2-3	Short-circuit	220 VAC



1-2:100V 2-3:220V

Step 4 Operation check

After replacing the motor driver circuit board, turn On the safety switch and follow the steps below to check the operation.

1. Turn On the Display unit. Start transmission and check that the radar image appears without error. Check that the motor does not make any abnormal sound when it starts to rotate, while it is rotating, or when it stops.

This completes motor drive circuit board replacement.

4.1.7.7 Fan Replacement/NKE-1632

[Required Tools]

The tools shown in the following table are required for replacement work.

Table: Required Tools

No	Name	Size	Appearance
1	Phillips screwdriver	Size #2	
2	Open-end wrench*1	Width across flats 13 mm (for M8 screws)	
3	Socket wrench*1	Width across flats 13 mm (for M8 screws)	

*1 Either the wrench (adjustable wrench) or socket wrench is mandatory. (mounting/removing the cover, etc.)



Before beginning work, turn Off the safety switch of the radar antenna.



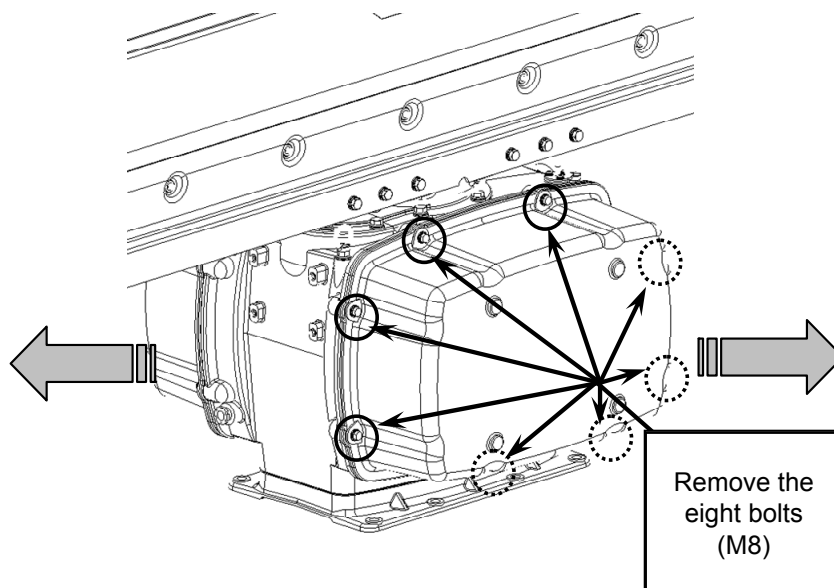
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



Exercise care not to lose bolts, screws and other parts removed from the radar antenna, as they will be used again in later steps.

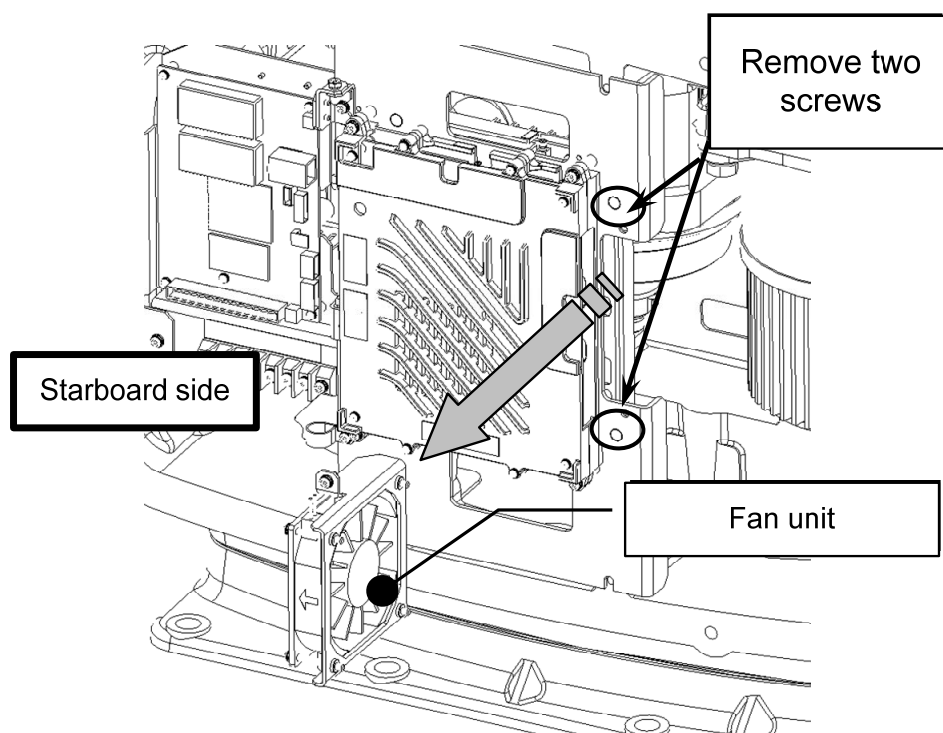
Step 1 Remove the cover.

Remove the eight fall prevention bolts (M8) and remove the cover.



Step 2 Remove the fan unit.

[Starboard side] Remove the connector that connects the fan. Remove the two screws that hold the fan unit.

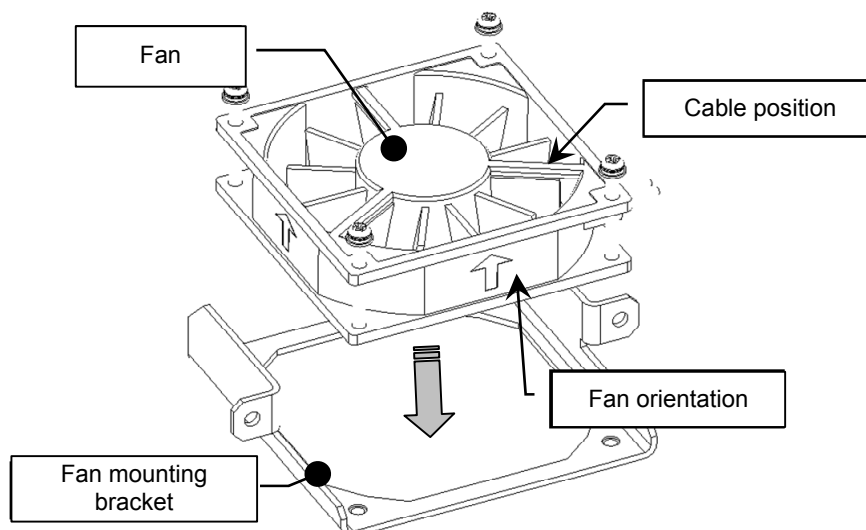


Step 3 Replace the fan.

[Starboard side] Remove the connector that connects the fan. Remove the two screws that hold the fan unit. Remove the fan from the fan unit that was removed.

Remove the four fan screws and replace the fan. After fan replacement, install the fan by checking the “orientation of the fan” and the “cable position”.

After replacing the fan, install the fan unit following the disassembly procedure in the reverse order. Finally, set the safety switch to On and check the operation.



Step 4 Operation check

After completing the replacement work, turn On the safety switch and check operation by following the procedure below.

- (1) Turn On the Display unit and check that radar images are displayed correctly without issuing a fan alarm.

This completes fan replacement.