

4.1.8.8 Fan Replacement/NKE-2632, NKE-2632-H

[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.



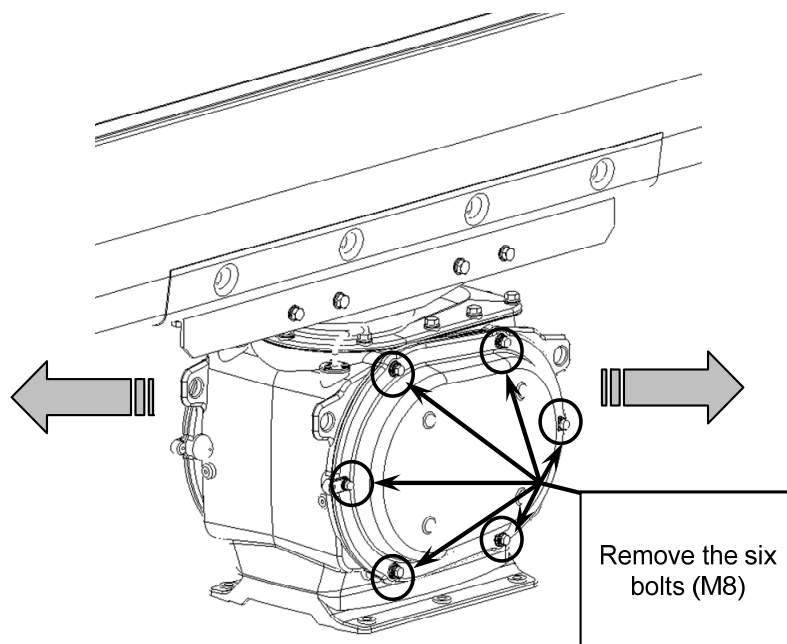
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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

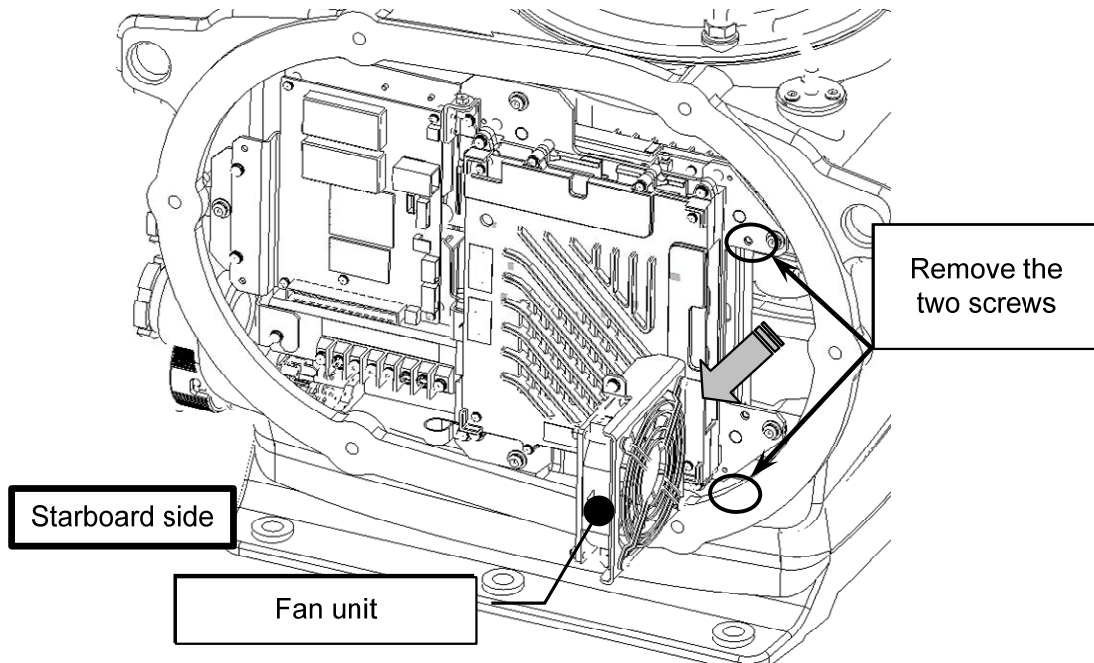
Step 1 Remove the cover.

Remove both the left and right covers before replacing the fan. Remove the covers by removing the fall prevention bolts (M8: 6 bolts on one side, 12 bolts on both sides).



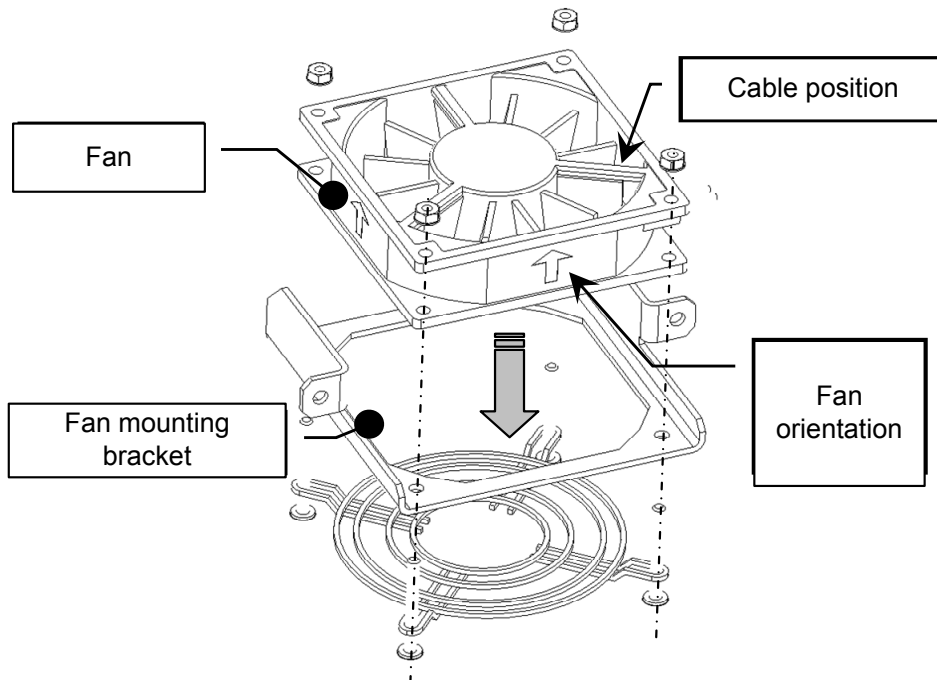
Step 2 **Remove the fan unit.**

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



Step 3 **Replace the fan.**

After replacing the fan, install the fan unit following the disassembly procedure in the reverse order and close the cover. 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.

4.2 Replacement Procedures for Transmitter-receiver Unit

Precautions

Follow the precautions below and take care to avoid injury while replacing parts.

CAUTION



Before you begin the replacement work, check that the power sources for all of the radar units (if more than one unit is in use) are turned off. As a safety precaution, shut off the main power circuit breaker.



Use gloves when working, and take care to avoid injury. In addition, in the interest of safety be careful not to drop tools or parts.



Where possible, perform the replacement work when the vessel is in still waters, such as in a harbor.

4.2.1 NTG-3225 Transmitter-receiver Unit

4.2.1.1 Magnetron Replacement/NTG-3225

CAUTION



When replacing magnetrons, make sure to shut off the main power and let the equipment stand for more than 5 minutes to discharge the high-voltage circuit.

Failure may result in electric shock.



Make sure to take off your watch when your hand must get close to the magnetron.

Failure may result in damage to the watch since the magnetron is a strong magnet.

Cautions on handling the magnetrons that have been stored for a long period of time

Since the magnetrons that have been stored for a long period of time may become unstable at the start of the use due to the occurrence of spark, etc., apply aging by using the following procedure.



- 1 Extend the preheat period. (Standby: **20 to 30 minutes**)
- 2 Start from the short pulse range and shift to the long pulse range sequentially.

If the operation becomes unstable during this period, return to Standby immediately, maintain the status for 5 to 10 minutes and start operation again. Repeat this procedure

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2	



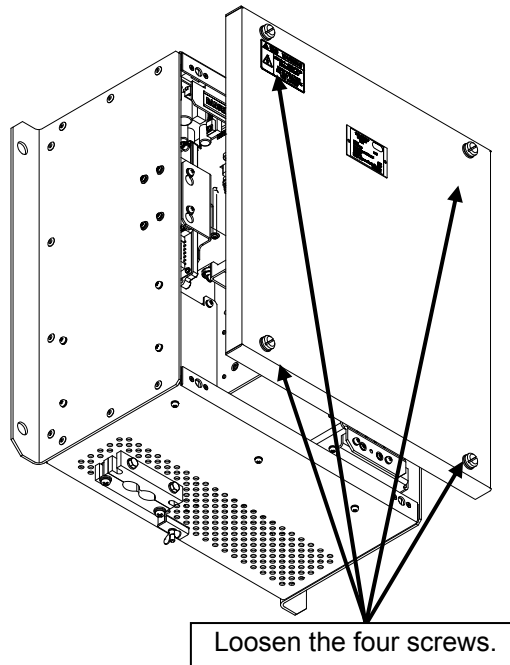
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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

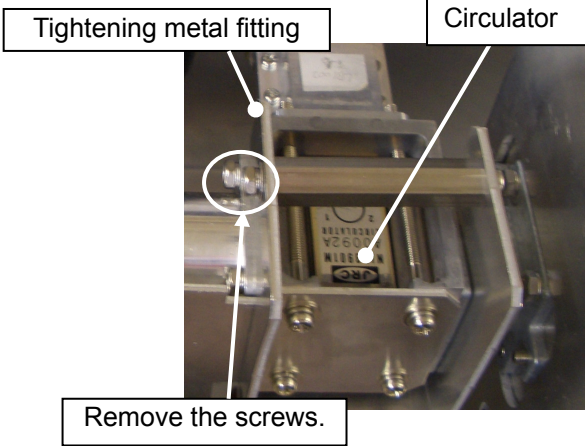
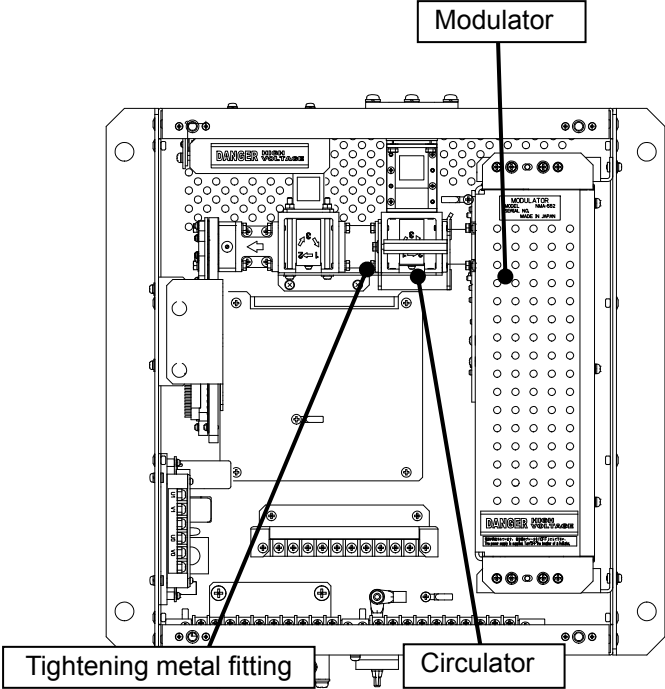
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



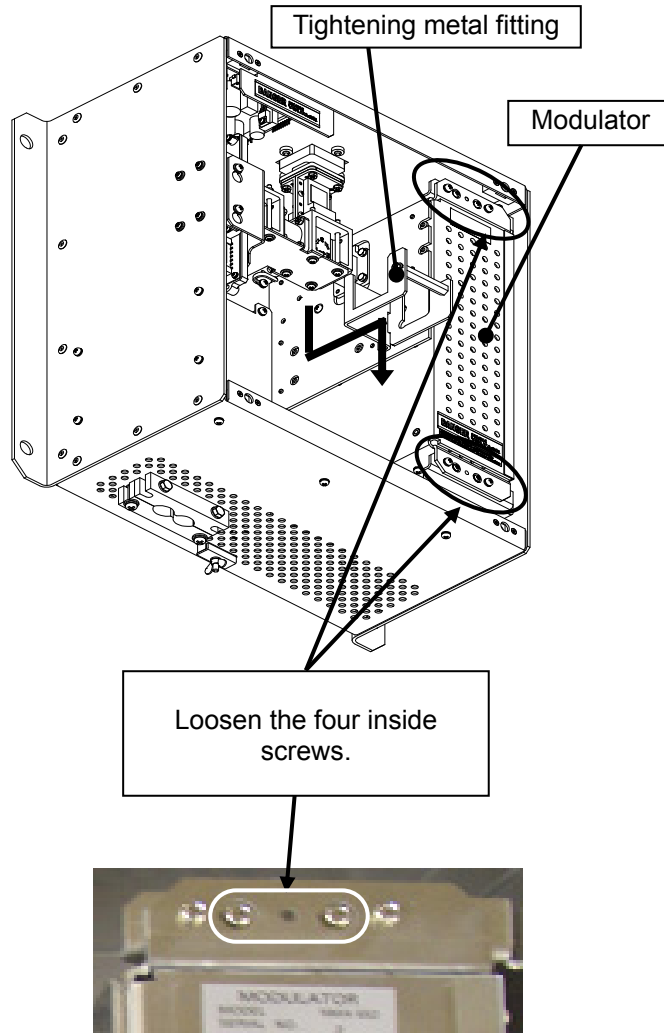
Step 2 Remove the tightening metal fitting.

Loosen the upset head bolt (one M4 bolt), and slide the tightening metal fitting, located between the modulator and the circulator, to remove it. The magnetron is installed within the modulator.



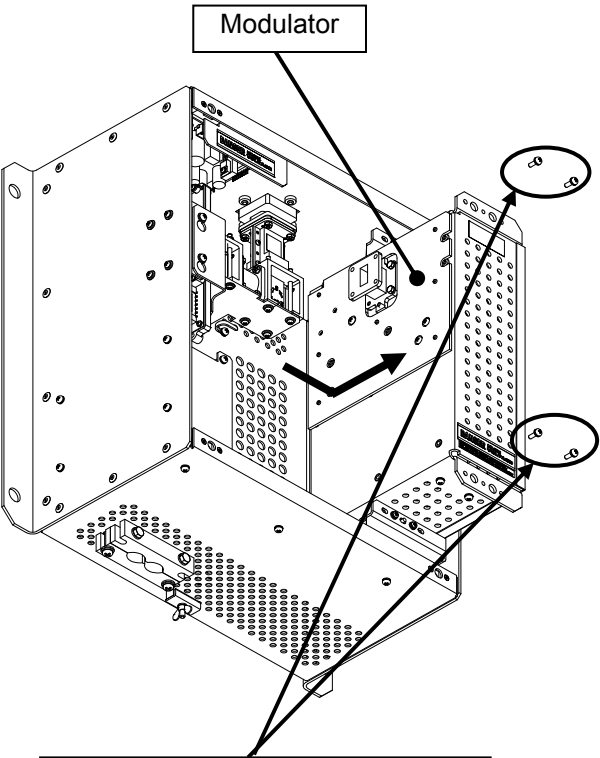
Step 3 Remove the screws of the modulation unit and slide the unit.

Loosen the inside screws of the modulator (four M4 screws). Removing the outside screws makes it possible to slide the modulator.

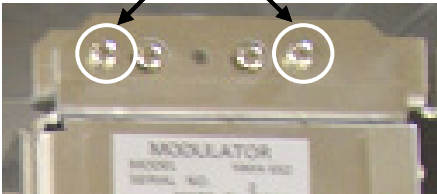


Step 4 Remove the modulation unit.

Remove the cables connected to the modulator and the screws on the outside of the modulator (four M4 screws) and slide the modulator to the right to remove it.

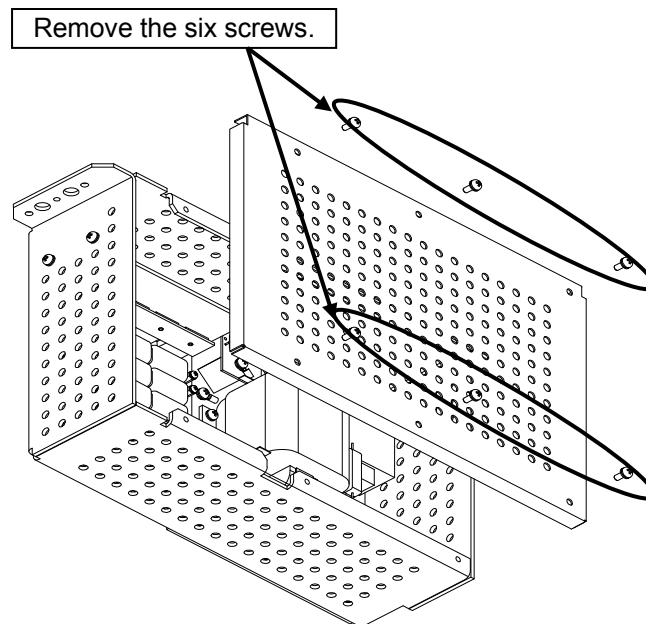


Remove the four outside screws.



Step 5 Remove the modulation unit cover.

Remove the screws (six M4 screws) and take off the modulator cover.



Step 6 Replace the magnetron cover.

Remove the screws holding the cables (two M4 screws) and the screws holding the magnetron (four M4 screws) and remove the metal fitting and the magnetron.

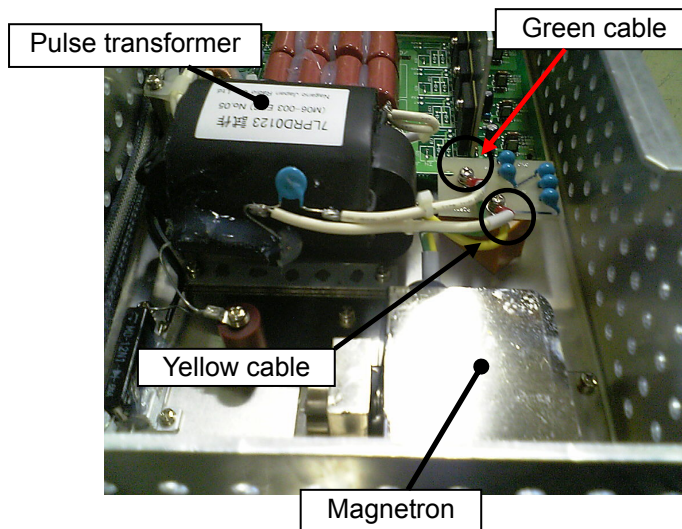
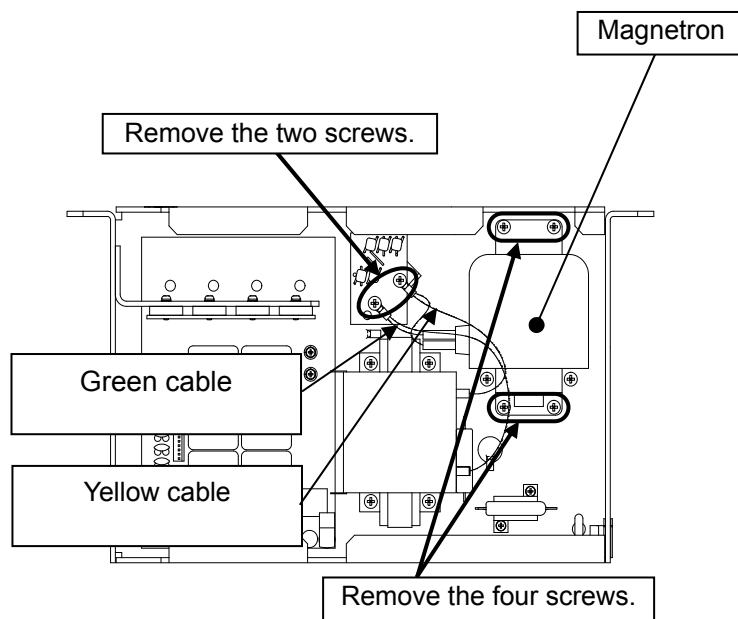
Be careful to attach the colored cables (yellow and green) to the correct connections on the replacement magnetron. After having replaced the magnetron, reassemble the unit by following the disassembly procedure in the reverse order. Do not forget to tighten the bolts or screws and connect the cables.



Use a shielded screwdriver because the contact of the metal tool with the magnetron causes deterioration of its performance.



Make sure that the magnetron leads (yellow and green) do not contact and are pulled away from other parts or the casing. Contact may cause them to discharge.



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 radar and allow sufficient preheating time (20 to 30 minutes in the STBY mode).
- (2) Start transmission on a short pulse range and change the range to the long pulse range. Open the service engineer menu and provisionally adjust the tuning.



Check the magnetron current on the test menu during the time and if operation becomes unstable, bring the radar unit back to STBY mode and restart transmission after allowing for an interval of 5 to 10 minutes.

- (3) After transmitting on a long range for about fifteen minutes, return to the service engineer menu and adjust the tuning. Perform the adjustment in the service engineer menu until the tuning display bar on the display unit reaches the 8th calibration mark. With the service engineer menu open, also make sure the magnetron current is shown between the 6th and 9th calibration markings.

- (4) Finally, initialize the transmission time in the service engineer menu.



This completes magnetron replacement.



4.2.1.2 Modulator Circuit Board (CPA-264) Replacement/NTG-3225

[Required Tools]

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

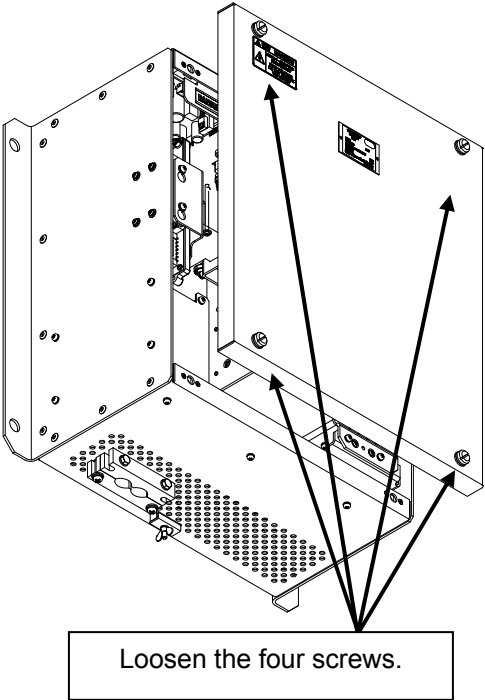
Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	

-  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.

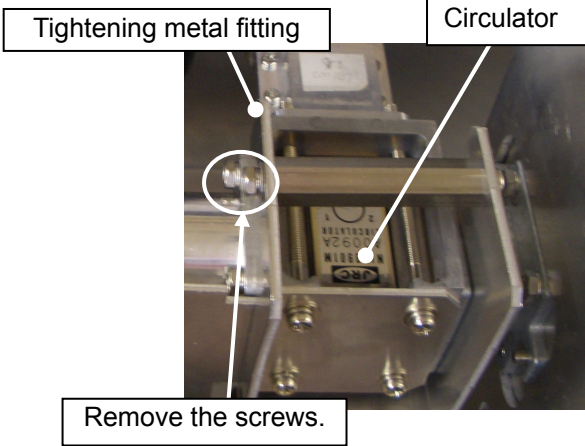
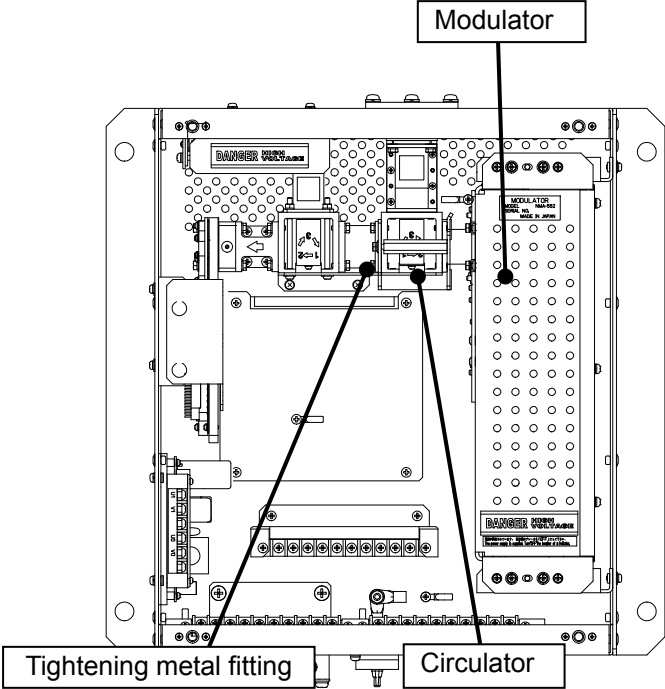
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



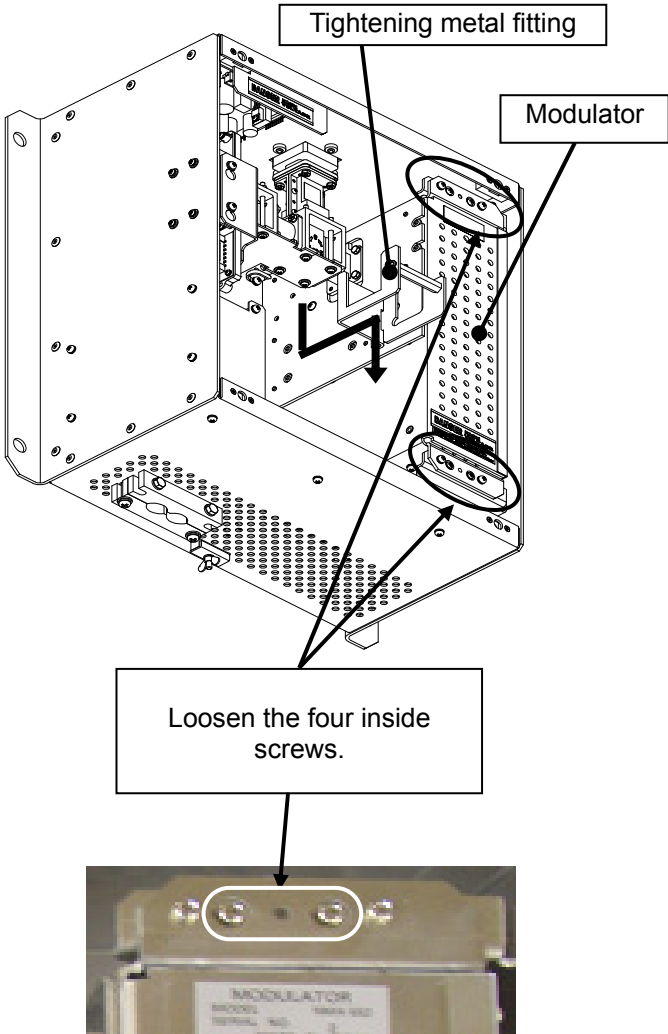
Step 2 Remove the tightening metal fitting.

Loosen the upset head bolt (one M4 bolt), and slide the tightening metal fitting, located between the modulator and the circulator, to remove it. The magnetron is installed within the modulator.



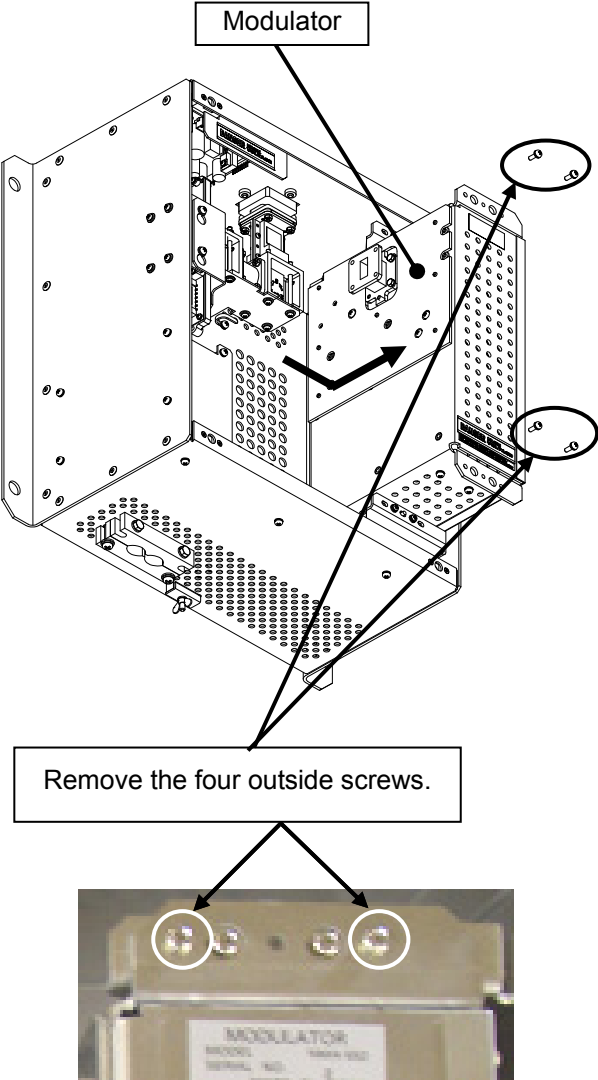
Step 3 Remove the screws of the modulation unit and slide the unit.

Loosen the inside screws of the modulator (four M4 screws). Removing the outside screws makes it possible to slide the modulator.



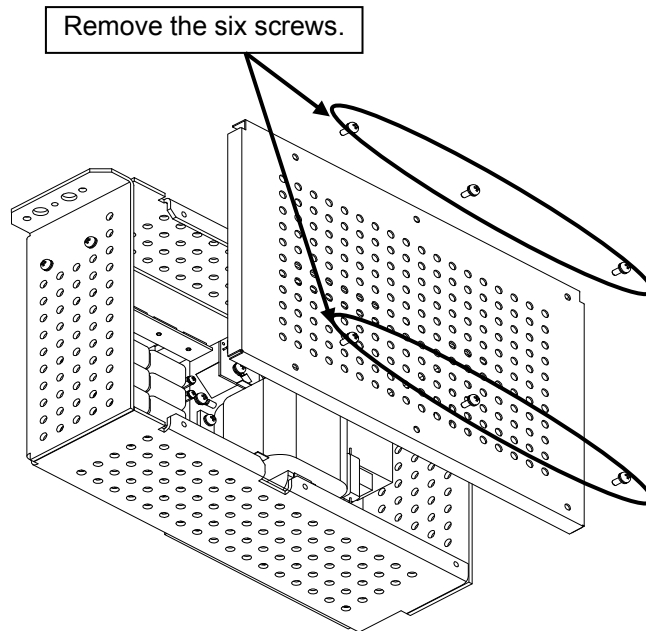
Step 4 Remove the modulation unit.

Remove the cables connected to the modulator and the screws on the outside of the modulator (four M4 screws) and slide the modulator to the right to remove it.



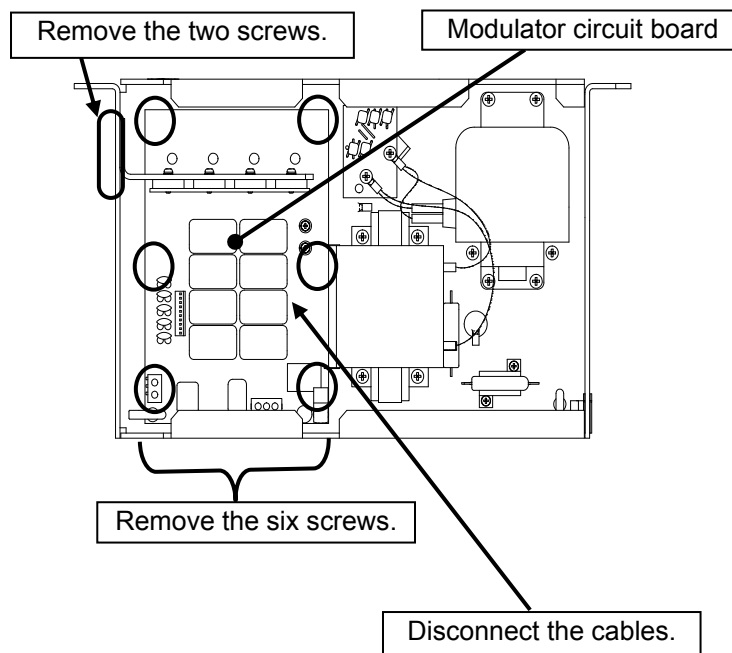
Step 5 Remove the modulation unit cover.

Remove the screws (six M4 screws) and take off the modulator cover.



Step 6 Replace the modulator circuit board.

Remove all the cables connected to the modulator circuit board and remove the screws holding the modulator circuit board (six M4 screws) and the screws holding the heat radiation plate (two M4 screws) and remove the modulator circuit board. After having replaced the modulator circuit board, 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 7 Operation check

After having completed the replacement, 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.

Transmit the radar wave in long pulse range mode and open the service engineer menu to check that the magnetron current stands between the 5th and 7th calibration markings.

This completes modulator circuit board replacement.

4.2.1.3 Modulator (NMA-552) Replacement/NTG-3225



See Section, "Magnetron replacement/NTG-3225".



4.2.1.4 Power Supply Circuit Board (CBD-1682A) Replacement/NTG-3225

[Required Tools]

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

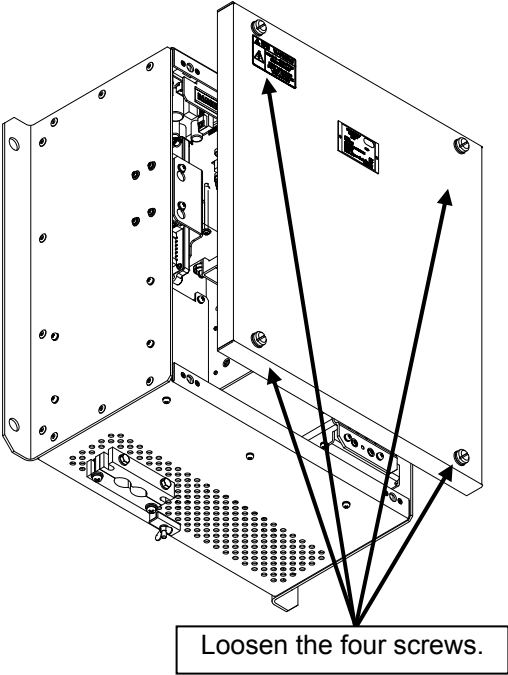
Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	

-  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.

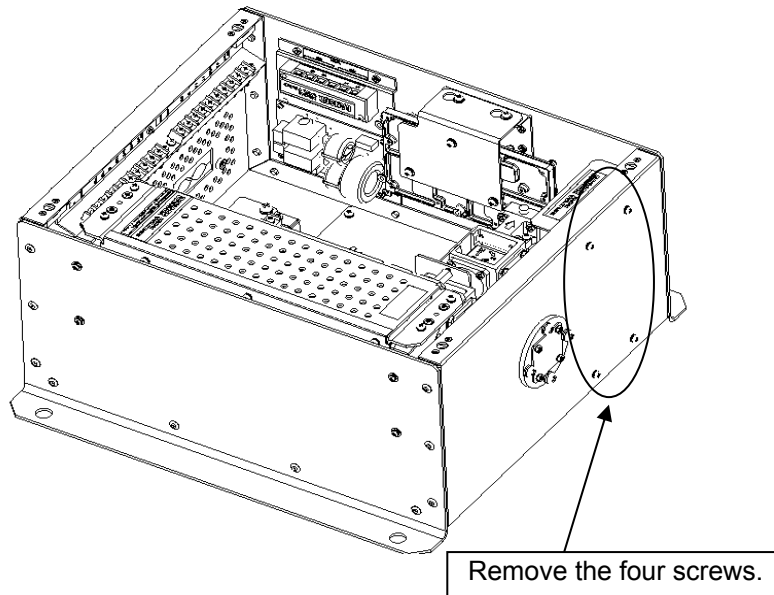
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



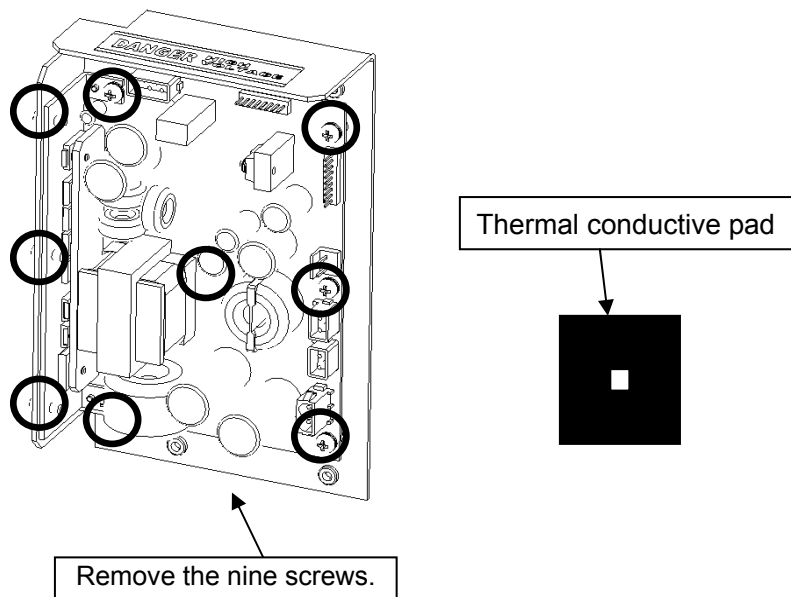
Step 2 Remove the power supply circuit board.

After having removed all the cables connected to the power supply circuit board, remove the fixing screws (four M4 screws) and remove the power supply circuit board with the attached heat radiation plate.



Step 3 Replace the power supply circuit board

Remove the fixing screws (nine M4 screws) and remove the power supply circuit board from the heat radiation plate. If the thermal conductive pad on the heat radiation plate is torn, replace it with the sheet that comes with the replacement power supply circuit board. After having replaced the power supply circuit board, reassemble the unit by 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 4 Operation check

After having completed the replacement, 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 is correctly displayed.




This completes power supply circuit board replacement.

4.2.1.5 T/R Control Circuit Board (CMC-1205R) Replacement

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Socket wrench*1	Width across flats 13 mm (for M7 screws)	



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 Back up the scanner unit data.

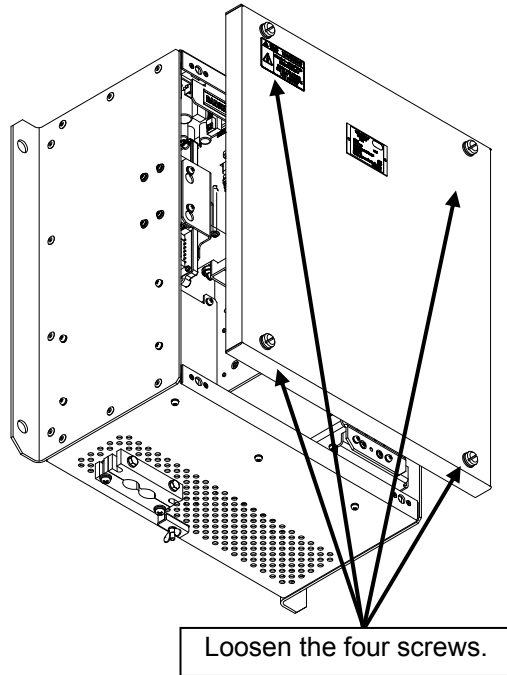
Before beginning the replacement procedure, open the service engineer menu of the radar display unit and back up the scanner unit data (transmission time and motor rotation time).



Unless backing up this data, it will not be possible to maintain continuity in scanner data such as the magnetron usage time.

Step 2 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



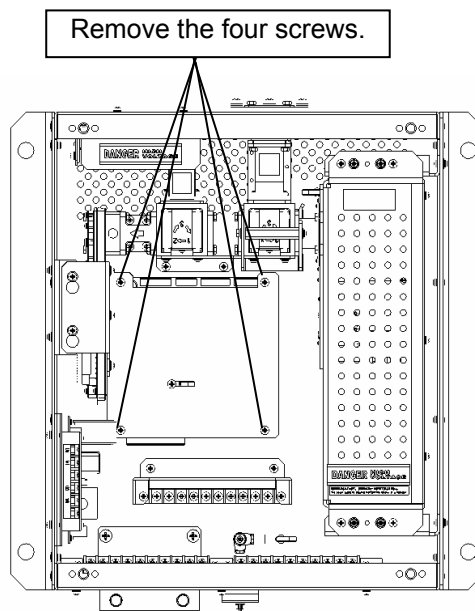
Step 3 Remove the cover of the T/R control circuit and replace the circuit.

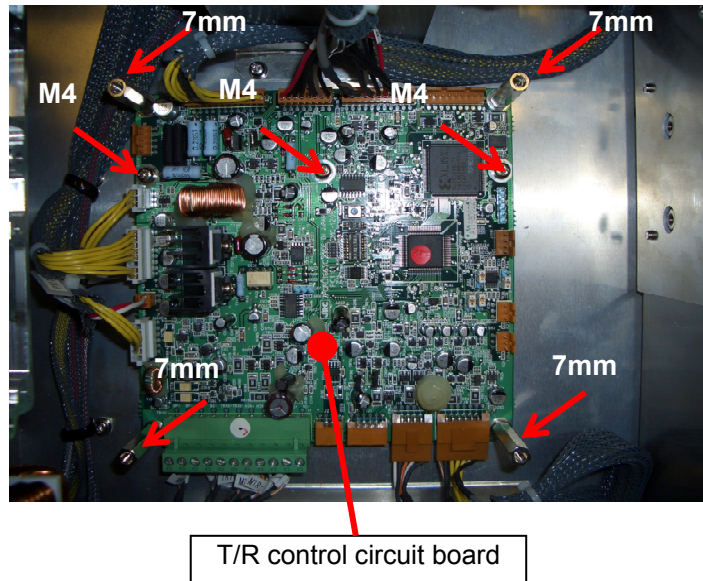
Remove the T/R control circuit board cover (Four M4 screws). Remove the cables connected to the T/R control circuit board and then remove the supports (four 7 mm supports) and the screws (three M4 screws) and replace the T/R control circuit board.



Set the DIP switch and jumper pins of the T/R control circuit board to suit the NTG-3225.

After replacing the T/R control circuit board, assemble the unit in the reverse order of the disassembly procedure. Do not forget to tighten the bolts or screws, and make sure that the cables are connected.





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 radar, open the service engineer menu, restore the scanner unit times, and make sure that the data has been correctly continued before/after the T/R control circuit board replacement (check the transmission time and the motor rotation time).

- (2) Begin transmission once the countdown is complete and check that the radar image is correctly displayed.



This completes T/R control circuit board replacement.



4.2.1.6 Relay Filter Circuit (CSC-656) Replacement/NTG-3225

[Required Tools]

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

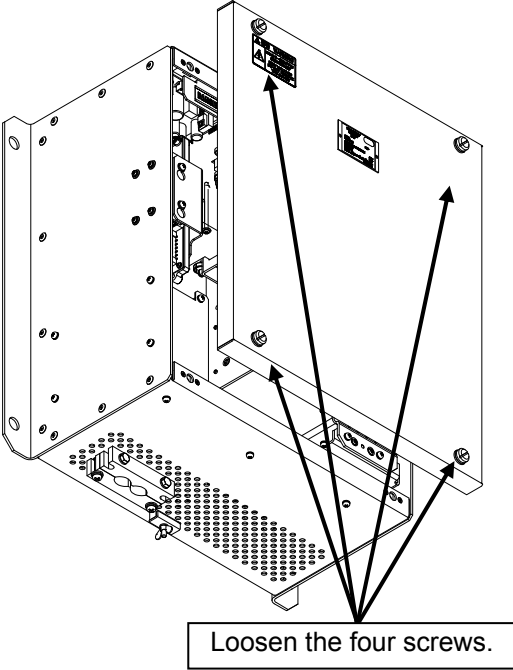
Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	

-  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.

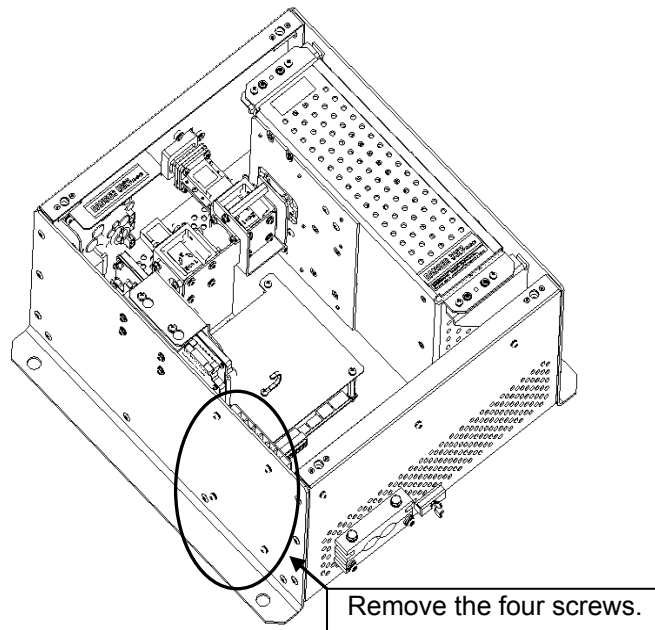
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



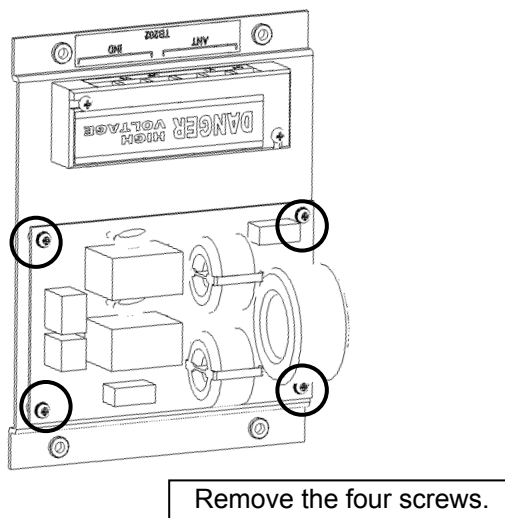
Step 2 Remove the relay filter circuit board.

After having removed all the cables connected to the relay filter circuit board, remove the fixing screws (four M4 screws) and remove the relay filter circuit board together with the metal fitting.



Step 3 Replace the relay filter circuit board.

Remove the screws holding the relay filter circuit board in place (four M4 screws) and replace the relay filter circuit on the metal fitting. After having replaced the relay filter circuit board, reassemble the unit following the disassembly procedure in the reverse order. Do not forget to tighten the screws and connect the cables.



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. After the countdown is completed, start transmission and check that the radar image appears without error.




This completes relay filter circuit board replacement.

4.2.1.7 Receiver (NRG-162A) Replacement/NTG-3225

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Open-end wrench	Width across flats 7 mm (for M4 screws)	



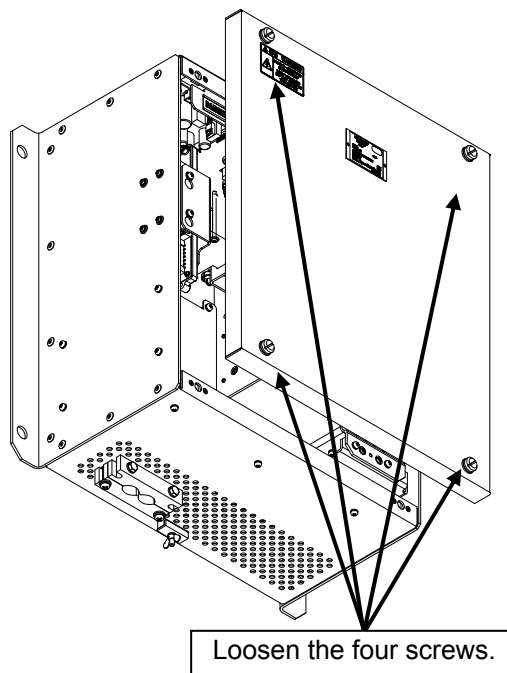
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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.

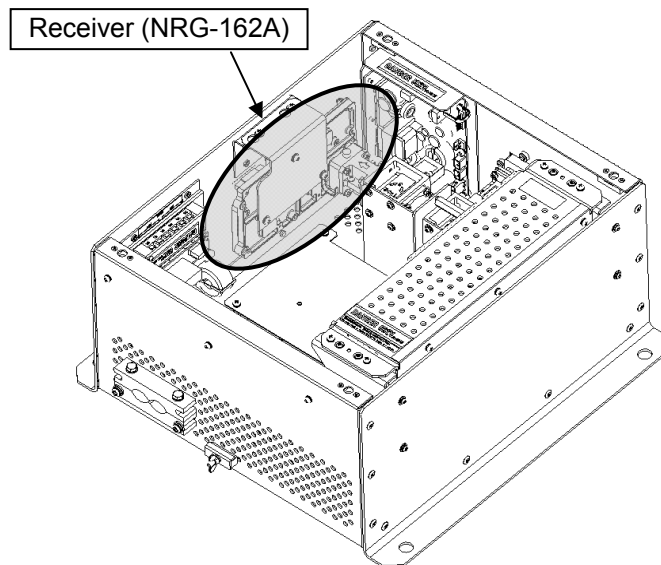
Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.

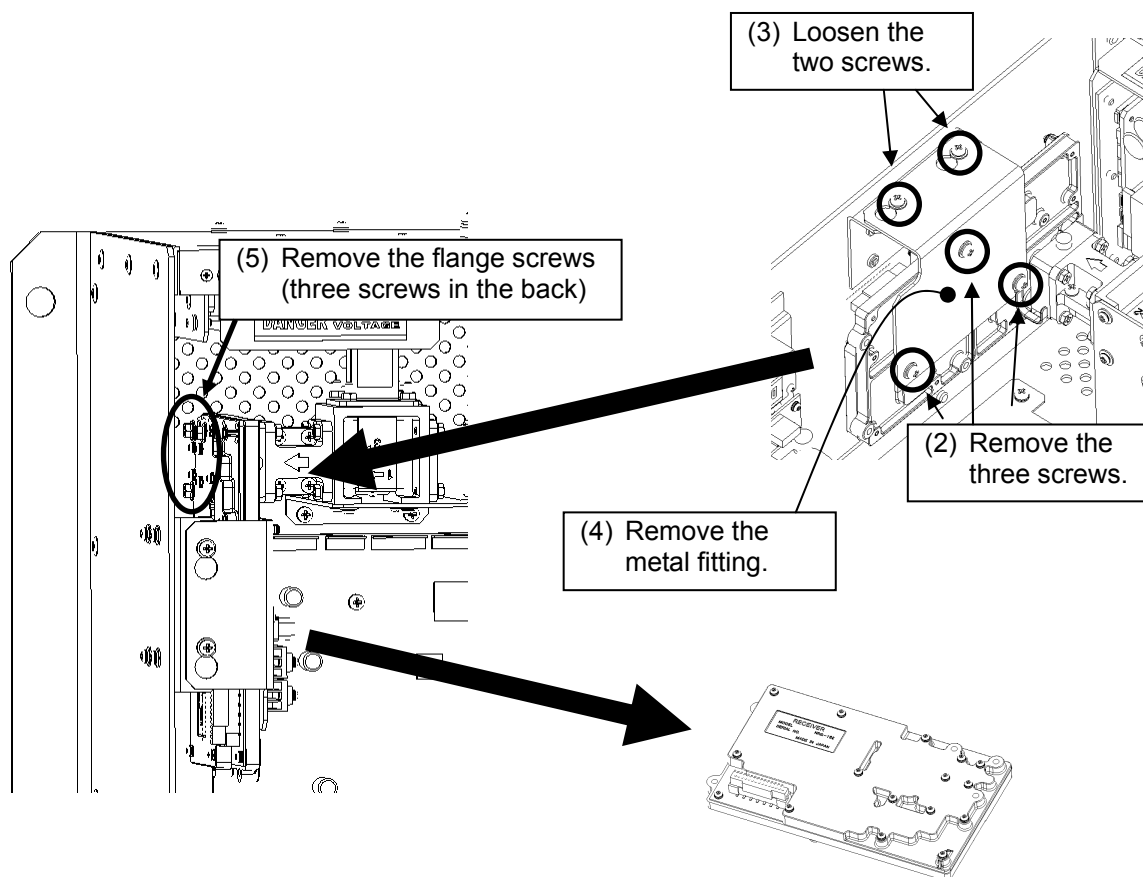


Step 2 Replace the receiving unit.

Replace the receiving unit according to the following procedure.

- (1) Remove the cable connected to the receiver. (One cable)
- (2) Remove the screws holding the metal fitting for the receiver. (Three screws)
- (3) Loosen the screws on the metal fitting holding the receiver. (Two screws)
- (4) Remove the metal fitting. (One fitting)
- (5) Remove the screws on the receiver flange. (Three screws in the back)





After having replaced the receiver, reassemble the unit by 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 3 Operation check

After having completed the replacement, 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. Transmit the radar wave in the long range mode and open the service engineer menu to perform tuning adjustment. With the service engineer menu open, also make sure the magnetron current is shown between the 8th and 10th calibration markings.

This completes receiving unit replacement.

4.2.2 NTG-3230 Scanner Unit

4.2.2.1 Magnetron Replacement/NTG-3230

CAUTION



When replacing magnetrons, make sure to shut off the main power and let the equipment stand for more than 5 minutes to discharge the high-voltage circuit.

Failure may result in electric shock.



Make sure to take off your watch when your hand must get close to the magnetron.

Failure may result in damage to the watch since the magnetron is a strong magnet.

Cautions on handling the magnetrons that have been stored for a long period of time

Since the magnetrons that have been stored for a long period of time may become unstable at the start of the use due to the occurrence of spark, etc., apply aging by using the following procedure.



- 1 Extend the preheat period. (Standby: **20 to 30 minutes**)
- 2 Start from the short pulse range and shift to the long pulse range sequentially.

If the operation becomes unstable during this period, return to Standby immediately, maintain the status for 5 to 10 minutes and start operation again. Repeat this procedure

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2, Size #3	



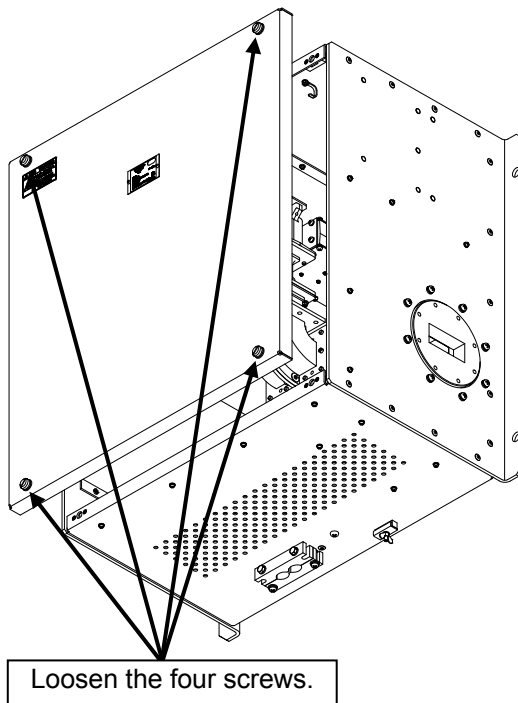
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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

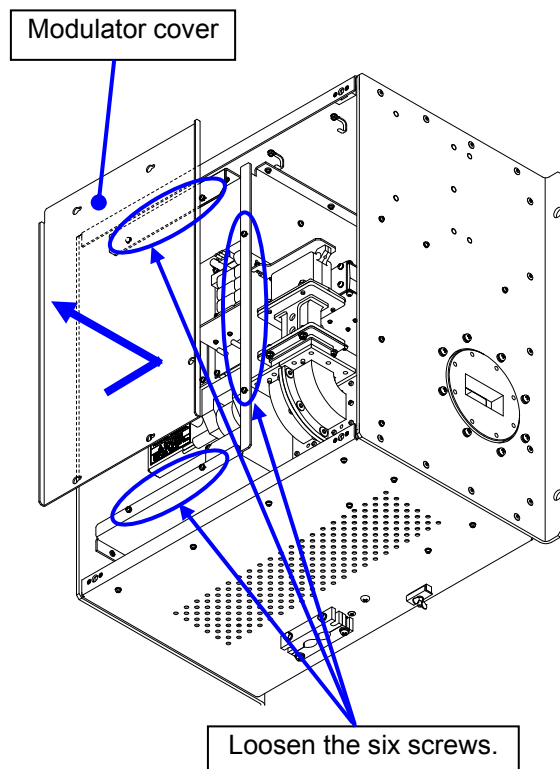
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



Step 2 Remove the modulation unit cover.

Remove the screws (six M4 screws) and slide the modulator cover to the right to remove it.



Step 3 Replace the magnetron cover.

Remove the screws holding the cables (two M4 screws) and the bolts holding the magnetron (eight M6 screws) and remove the metal fitting and the magnetron.

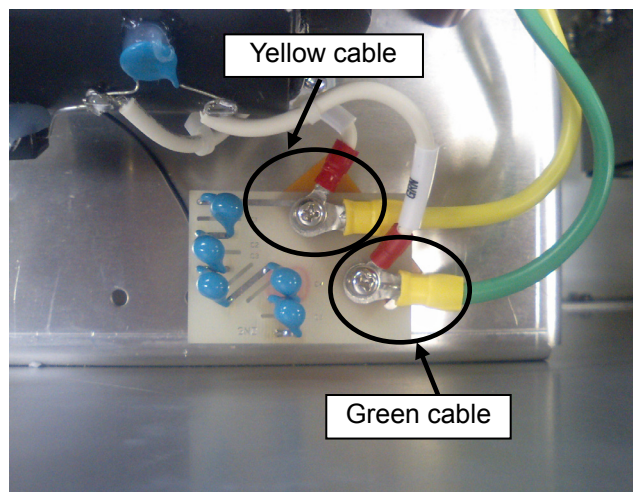
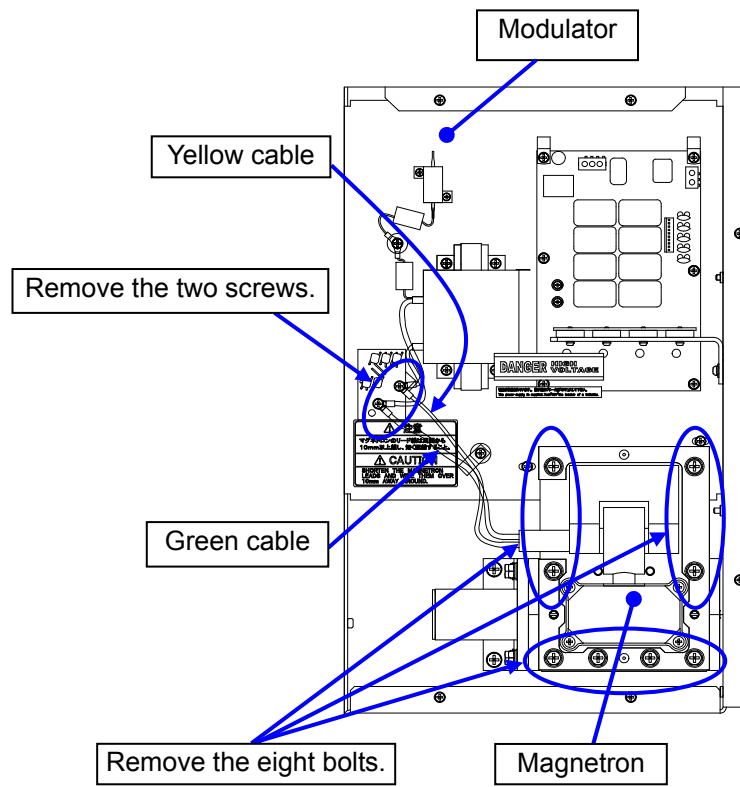
Be careful to attach the colored cables (yellow and green) to the correct connections on the replacement magnetron. After having replaced the magnetron, reassemble the unit by following the disassembly procedure in the reverse order. Do not forget to tighten the bolts or screws and connect the cables.



Use a shielded screwdriver because the contact of the metal tool with the magnetron causes deterioration of its performance.



Make sure that the magnetron leads (yellow and green) do not contact and are pulled away from other parts or the casing. Contact may cause them to discharge.



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 radar and allow sufficient preheating time (20 to 30 minutes in the STBY mode).
- (2) Start transmission on a short pulse range and change the range to the long pulse range. Open the service engineer menu and provisionally adjust the tuning.



Check the magnetron current on the test menu during the time and if operation becomes unstable, bring the radar unit back to STBY mode and restart transmission after allowing for an interval of 5 to 10 minutes.

- (3) After transmitting on a long range for about fifteen minutes, return to the service engineer menu and adjust the tuning. Perform the adjustment in the service engineer menu until the tuning display bar on the display unit reaches the 8th calibration mark. With the service engineer menu open, also make sure the magnetron current is shown between the 6th and 9th calibration markings.
- (4) Finally, initialize the transmission time in the service engineer menu.



This completes magnetron replacement.

4.2.2.2 Modulator Circuit Board (CPA-264) Replacement/NTG-3230

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2	



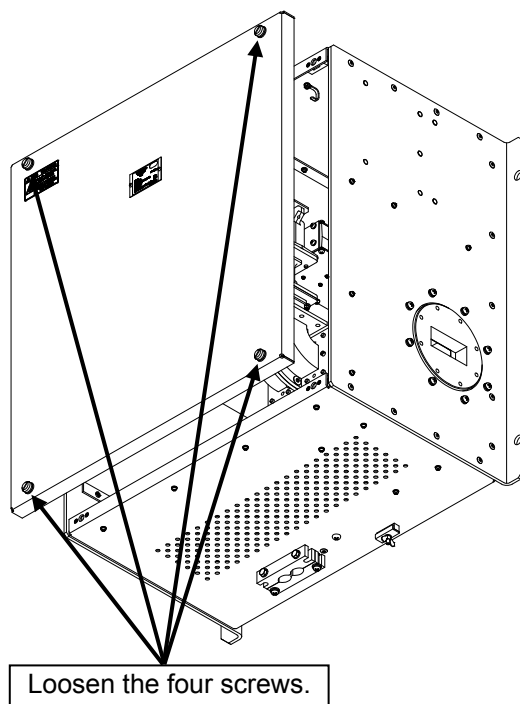
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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.

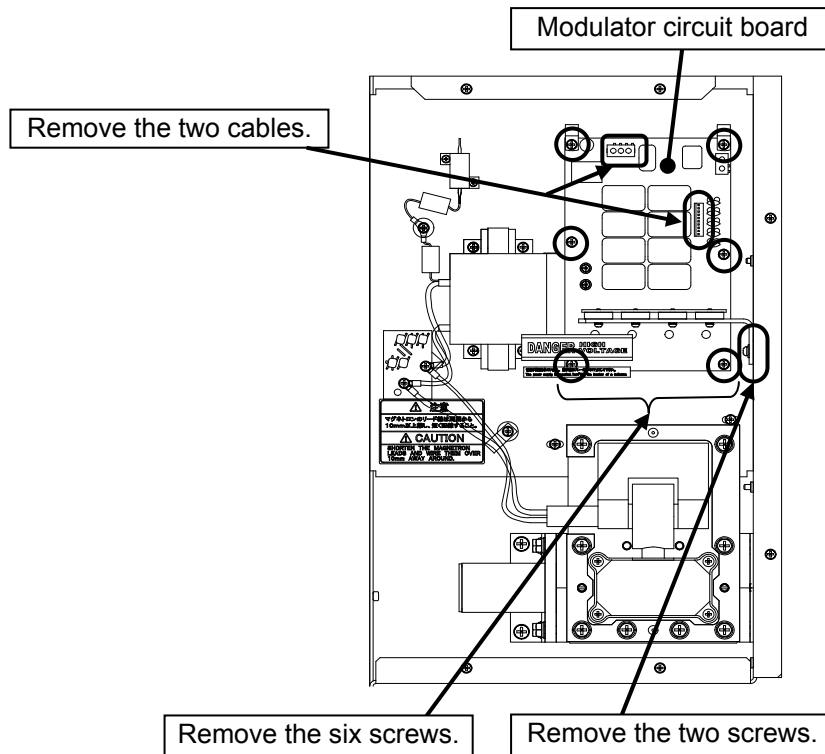
Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



Step 2 Replace the modulator circuit board.

Remove all the cables connected to the modulator circuit board and remove the screws holding the modulator circuit board (six M4 screws) and the screws holding the heat radiation plate (two M4 screws) and remove the modulator circuit board.

After having replaced the modulator circuit board, reassemble the unit by 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 3 Operation check

After having completed the replacement, 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.

Transmit the radar wave in long pulse range mode and open the service engineer menu to check that the magnetron current stands between the 5th and 7th calibration markings.




This completes modulator circuit board replacement.

4.2.2.3 Modulator (NMA-553) Replacement/NTG-3230

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver	Size #2	
3	Open-end wrench	Width across flats 7 mm (for M4 screws)	



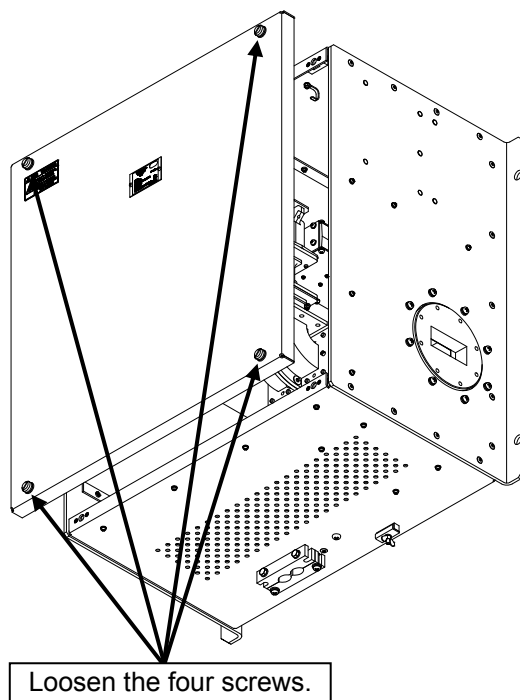
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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

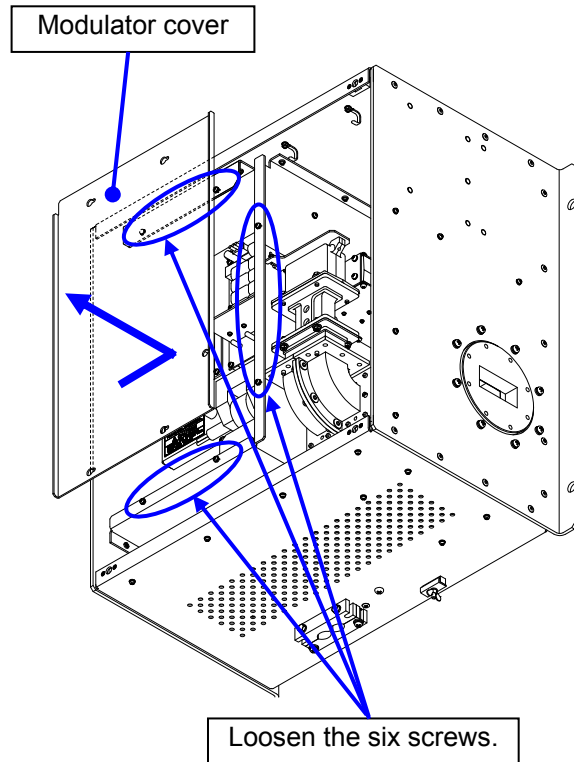
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



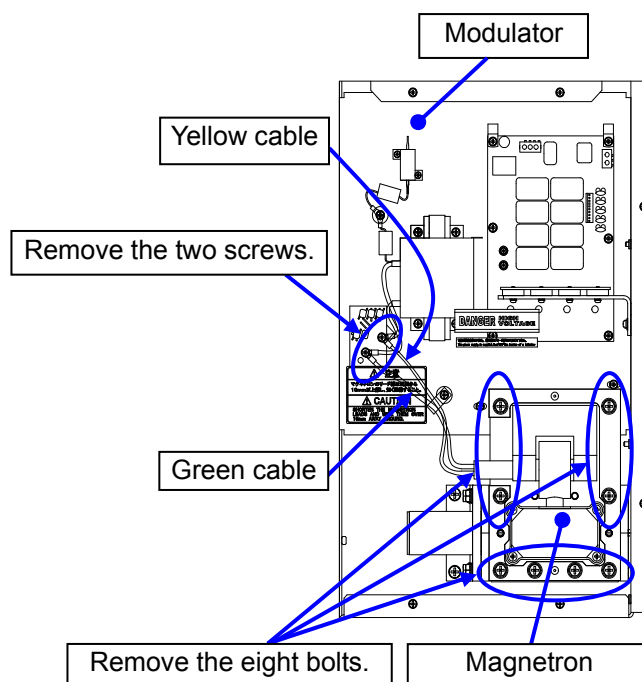
Step 2 **Remove the modulation unit cover.**

Remove the screws (six M4 screws) and slide the modulator cover to the right to remove it.



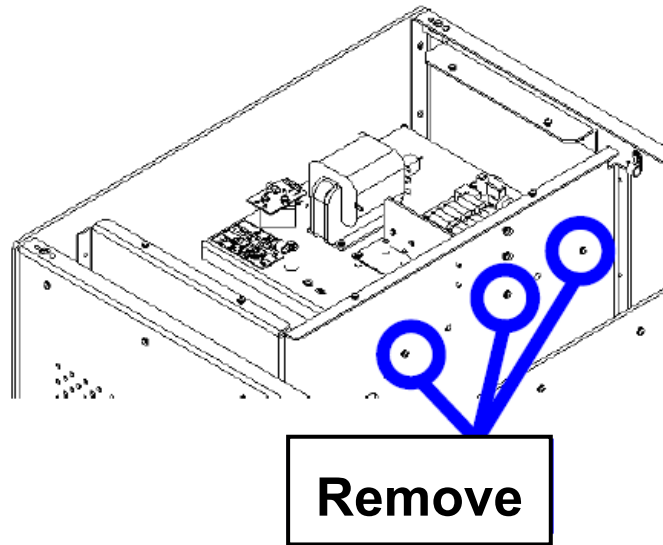
Step 3 **Replace the magnetron cover.**

Remove the screws holding the cables (two M4 screws) and the bolts holding the magnetron (eight M6 screws) and remove the metal fitting and the magnetron.

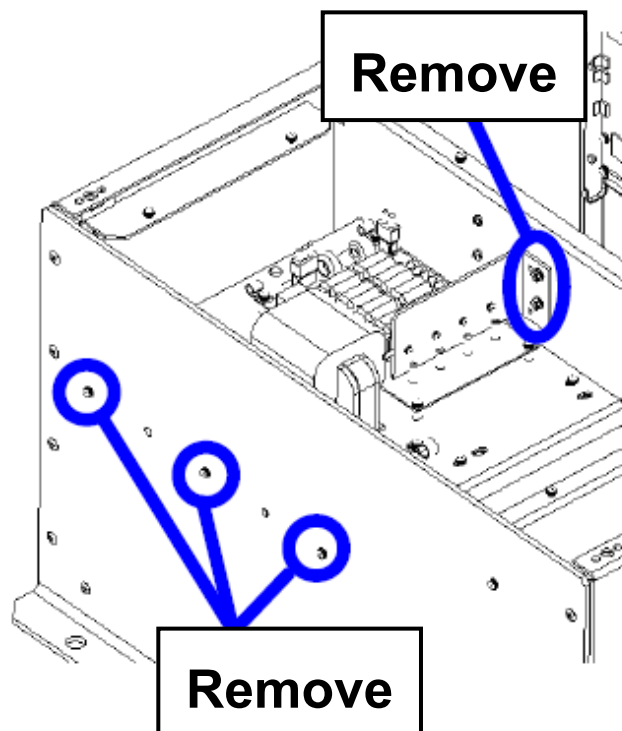


Step 4 Replace the modulation unit.

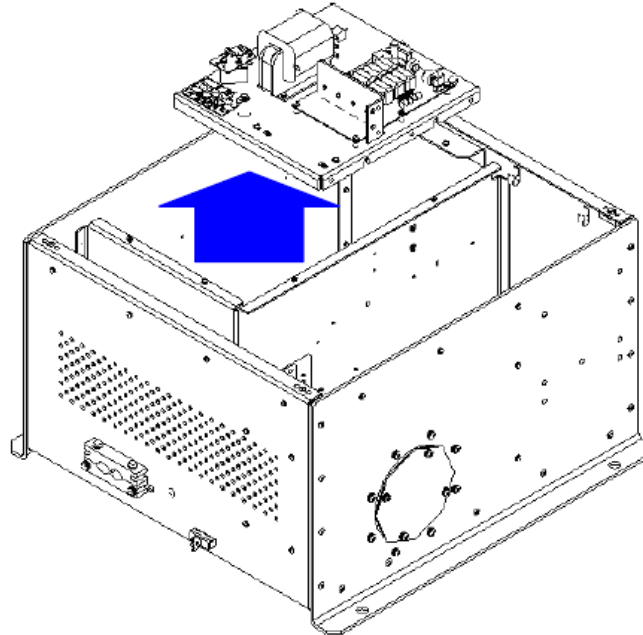
Remove all the cables that are connected to the modulation circuit and remove the three screws (M4) that hold the modulation unit.



Remove the three screws (M4) that hold the modulation unit outside of the transmitter-receiver unit and the two bolts inside of the modulation unit.



Remove the modulation unit together with the plate and replace the modulation unit. After replacing the modulation unit, reassemble the unit following the disassemble procedure in the reverse order. Make sure that there are no omissions of magnetron installation, bolt tightening, and cable connection.



Step 5 Operation check

After having completed the replacement, 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.

Transmit the radar wave in long pulse range mode and open the service engineer menu to check that the magnetron current stands between the 5th and 7th calibration markings.



This completes modulation unit replacement.

4.2.2.4 Power Supply Circuit Board (CBD-1682A) Replacement/NTG-3230

[Required Tools]

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

Table Required Tools

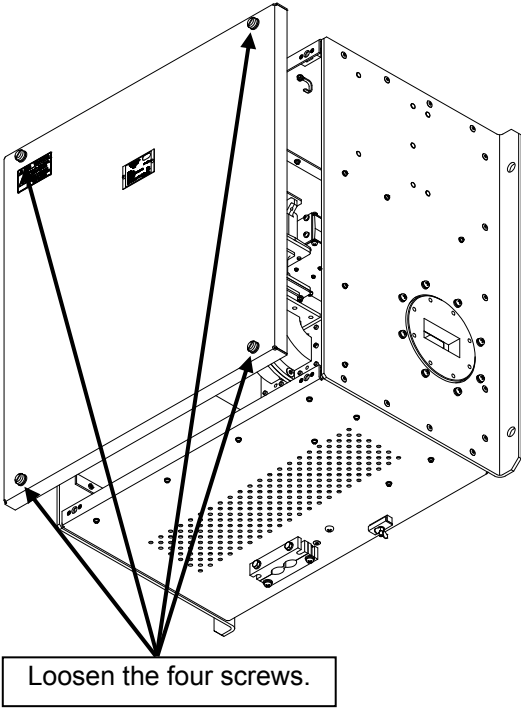
No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2	



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

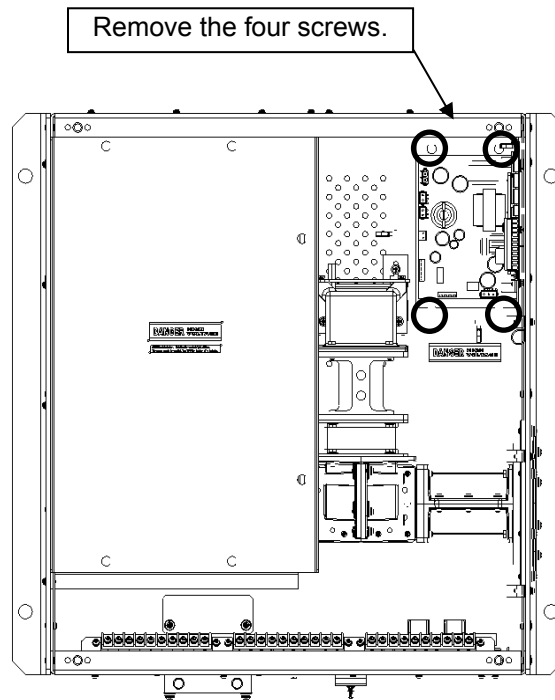
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



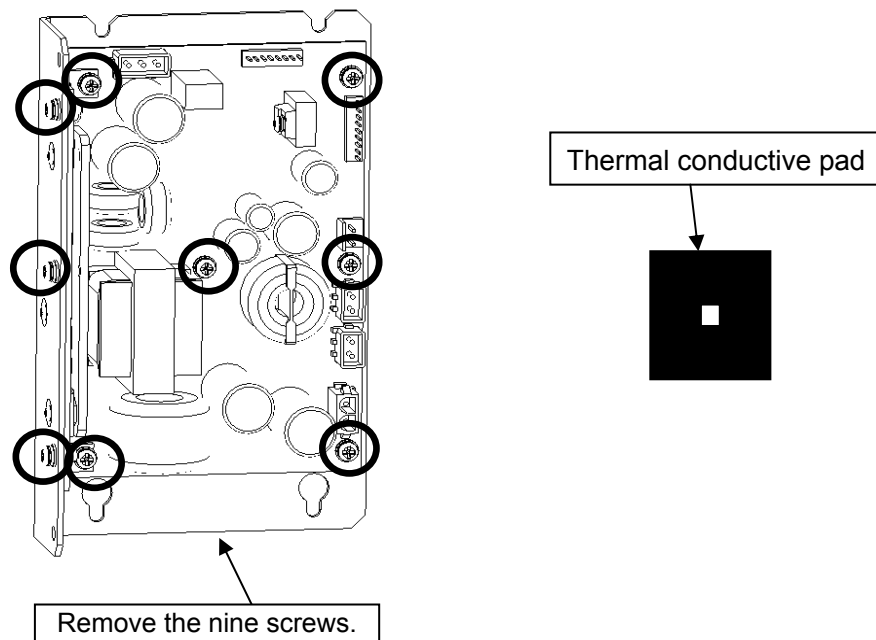
Step 2 Remove the power supply circuit board.

After having removed all the cables connected to the power supply circuit board, remove the fixing screws (four M4 screws) and remove the power supply circuit board with the attached heat radiation plate.



Step 3 Replace the power supply circuit board

Remove the fixing screws (nine M4 screws) and remove the power supply circuit board from the heat radiation plate. If the thermal conductive pad on the heat radiation plate is torn, replace it with the sheet that comes with the replacement power supply circuit board. After having replaced the power supply circuit board, reassemble the unit by 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 4 Operation check

After having completed the replacement, 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 is correctly displayed.



This completes power supply circuit board replacement.

4.2.2.5 T/R Control Circuit Board (CMC-1205R) Replacement/NTG-3230

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2	



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 Back up the scanner unit data.

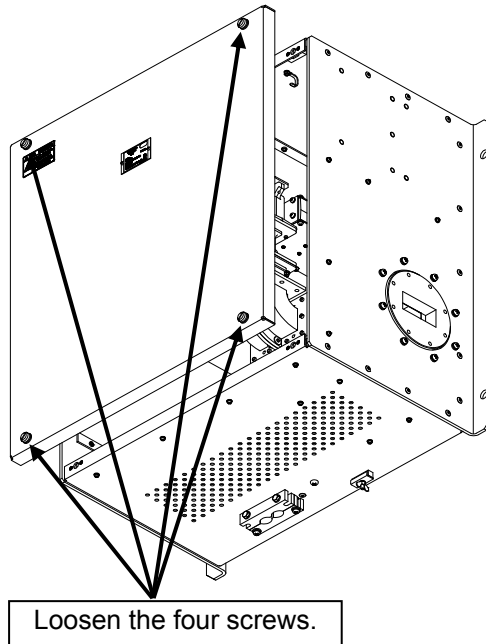
Before beginning the replacement procedure, open the service engineer menu of the radar display unit and back up the scanner unit data (transmission time and motor rotation time).



If you do not back up this data, it will not be possible to maintain continuity in scanner data such as the magnetron usage time

Step 2 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws. Use a flat head screwdriver.



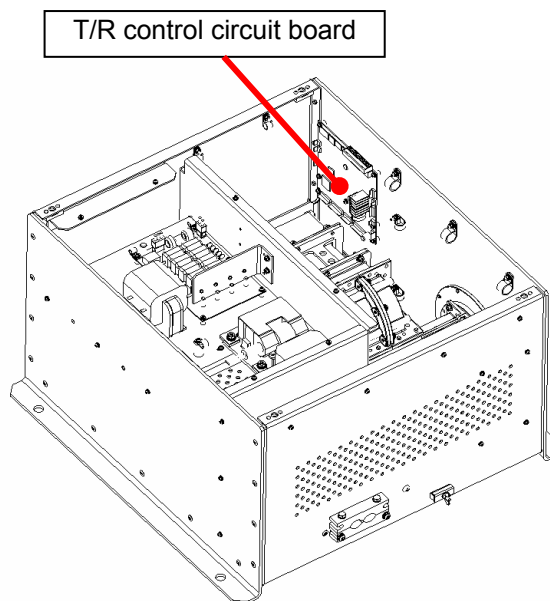
Step 3 **Replace the T/R control circuit board.**

Remove the cables connected to the T/R control circuit board and the screws (seven M4 screws) and replace the T/R control circuit board.

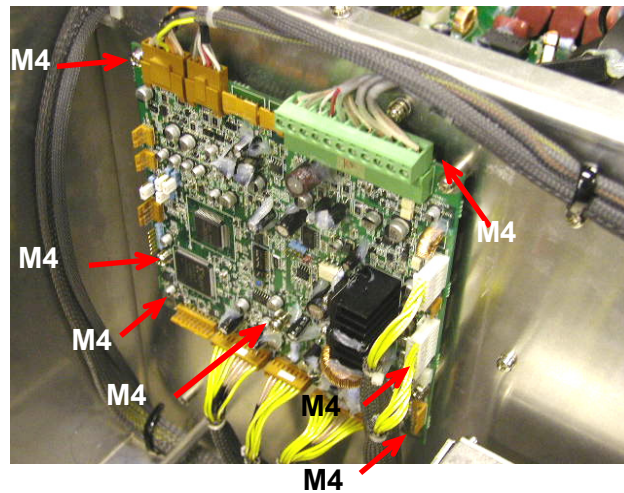


Set the DIP switch and jumper pins of the T/R control circuit board to suit the NTG-3230.

After replacing the T/R control circuit board, assemble the unit in the reverse order of the disassembly procedure. Do not forget to tighten the bolts or screws, and make sure that the cables are connected.



Remove the seven screws.



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 radar, open the service engineer menu, restore the scanner unit times, and make sure that the data has been correctly continued before/after the T/R control circuit board replacement (check the transmission time and the motor rotation time).

- (2) Begin transmission once the countdown is complete and check that the radar image is correctly displayed.



This completes T/R control circuit board replacement.

4.2.2.6 Relay Filter Circuit Board (CSC-656) Replacement/NTG-3230

[Required Tools]

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

Table Required Tools

No	Name	Size	Appearance
1	Flat head screwdriver	6 mm	
2	Phillips screwdriver(shielded)	Size #2	



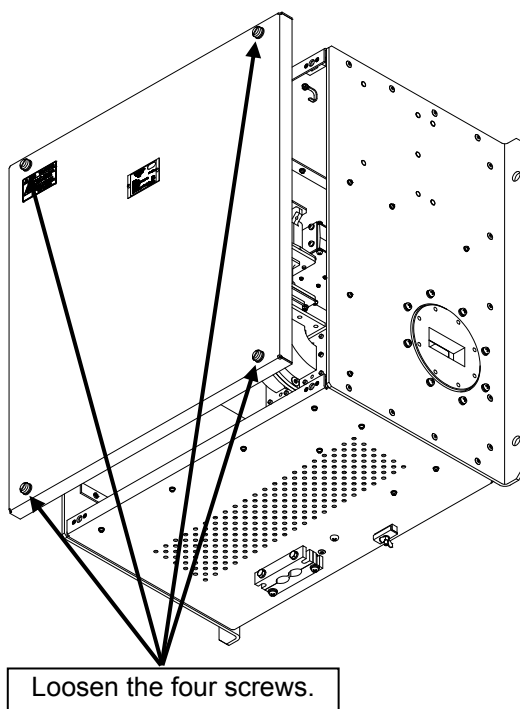
Before conducting replacement work, turn Off the circuit breaker for the power supply of the display unit.



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

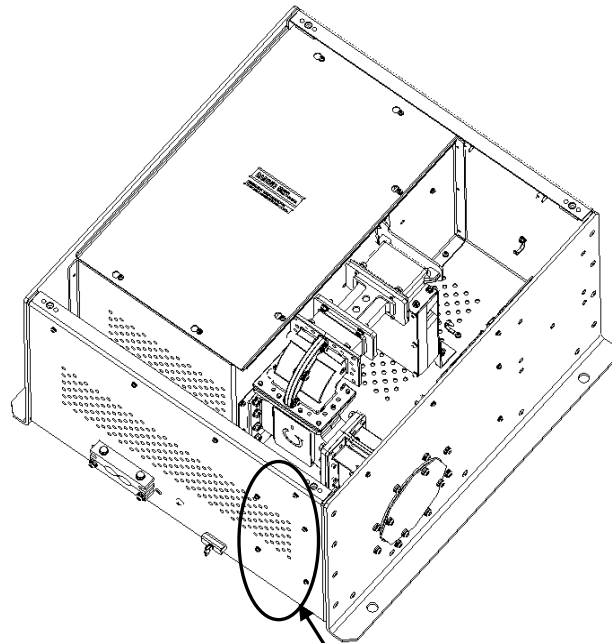
Step 1 Remove the cover.

Loosen the four screws and remove the cover. The screws are slotted captive screws.
Use a flat head screwdriver.



Step 2 Remove the relay filter circuit board.

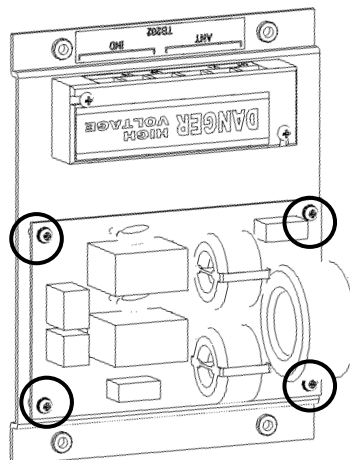
After having removed all the cables connected to the relay filter circuit board, remove the fixing screws (four M4 screws) and remove the relay filter circuit board together with the metal fitting.



Remove the four screws.

Step 3 Remove the relay filter circuit board.

Remove the screws holding the relay filter circuit board in place (four M4 screws) and replace the relay filter circuit board on the metal fitting. After having replaced the relay filter circuit board, 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.



Remove the four screws.

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. After the countdown is completed, start transmission and check that the radar image appears without error.

This completes relay filter circuit board replacement.