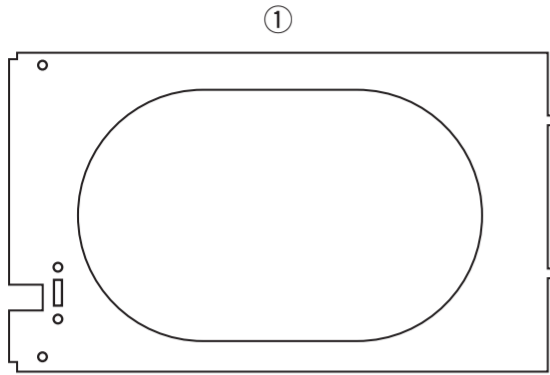


Thank you for purchasing the **IC-A210/A210E** VHF AIR BAND TRANSCEIVER with Icom's state of the art technology.

Please read this installation guide and the transceiver's instruction manual carefully before installing and operating.

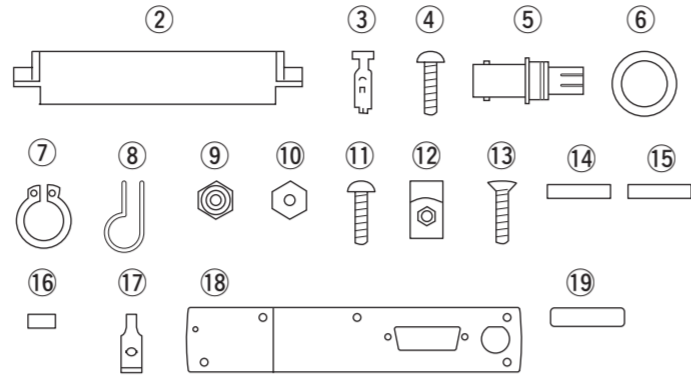
1 IC-A210/A210E SUPPLIED ACCESSORIES

The following accessories are supplied with the IC-A210/A210E. Inspect the quantity of each part carefully.



- ① Mounting bracket 1
- ② Molex connector (4338-15) 1
- ③ Molex terminals (4366-GL) 30
- ④ Screws Bind UNC (No. 4 × 12.7) 2
- ⑤ BNC-LP 1
- ⑥ Washer (Icom washer V) 1
- ⑦ C-shaped ring 1
- ⑧ Antenna cable clip 1
- ⑨ Self crimping nut (No. 6) 1
- ⑩ Nut (No. 6) 1

Make sure you have received all accessories and that there is no shipping damage.



- ⑪ Screw (No. 6 × 12.7) 1
 - ⑫ Crimp nuts (No. 6) 6
 - ⑬ Screws (No. 6 × 12.7) 6
 - ⑭ COMM1 sticker 1
 - ⑮ COMM2 sticker 1
 - ⑯ Molex polarizing key 1
 - ⑰ Speed nut UNC (No. 6) 4
 - ⑱ MB-113* 1
 - ⑲ Voltage sticker (IC-A210E only) 1
- *Not supplied with some transceiver's versions.

2 IMPORTANT

READ THIS, INSTALLATION GUIDE CAREFULLY before attempting to install the IC-A210/A210E in an aircraft. This sheet contains important safety instructions.

NEVER install the transceiver where normal navigation of the aircraft may be hindered.

NEVER install an antenna near any aircraft projection, engine, or propeller.

INSTALL a circuit breaker between the aircraft battery and the IC-A210/A210E.

Check operation after installation.

Install the IC-A210/A210E according to the following procedure.

The antenna should also be spaced at least 1 m from any position occupied by any person on board of the aircraft.

3 INSTALLATION PROCEDURES

- ① Check the quantity of parts. Refer to **1 IC-A210/A210E SUPPLIED ACCESSORIES**.
- ② Prepare miscellaneous items required for installation. Refer to Miscellaneous items in **4 PRECAUTIONS**.
- ③ Prepare required wiring. Refer to **6 CABLE CONNECTIONS**, **7 CONNECTOR INFORMATION** and **8 MOLEX CONNECTOR ASSEMBLY**.
- ④ Assemble supplied mounting bracket and other parts. Refer to **10 MOUNTING BRACKET ASSEMBLY**.
- ⑤ Cut the mounting hole. Refer to **11 MARKING MOUNTING HOLES**.
- ⑥ Mount the IC-A210/A210E into the mounting bracket. Refer to **12 MOUNTING TO THE BRACKET**.
- ⑦ Check the IC-A210/A210E operation. Refer to **9 OPERATION CHECK**.

4 PRECAUTIONS

◇ Miscellaneous items

The following items are required for installation but are **NOT** supplied with the IC-A210/A210E.

- ① VHF air band antenna for the communication band.
- ② Various cables.
- ③ Antenna cable with BNC connector (50 Ω).
- ④ Switches to be mounted on the aircraft yoke.
- ⑤ Headphones (500 Ω).
- ⑥ Low-impedance carbon or dynamic microphone.
- ⑦ Preamplifier for a dynamic microphone.

◇ Transceiver location

Select a location which can support the weight of the transceiver.

NEVER place the transceiver where normal navigation of the aircraft may be hindered or where it could cause bodily injury.

NEVER bend the cables sharply or place the cables too near the aircraft control cables.

DO NOT place the transceiver where hot or cold air blows directly on it.

AVOID placing the transceiver in areas with temperatures below -20°C or above +55°C (-4°F to +131°F).

◇ Battery connection

NEVER connect the transceiver to a power source using reverse polarity. Reverse polarity will damage the transceiver.

To prevent voltage drops, solder or crimp the cable lug when connecting the DC power cable to the power supply.

◇ Antenna

NEVER install an antenna near any aircraft projection, engine or propeller.

Use a 50 Ω, vertically-polarized, VHF air band antenna.

VSWR should be less than 2.5:1.

Mount the antenna on an flat metal surface or install a ground plane of at least 120 cm² (18 in²).

◇ Intercom

The intercom function is enabled by wiring and installing a yoke-mounted communications/intercom switch.

This function facilitates swift contact between the pilot and co-pilot. 2-pairs of headphones and microphones are required for pilot and co-pilot.

◇ Interlock

When 2 transceivers are installed into your aircraft, use the interlock function to prevent simultaneous transmission. See "Transmit/receive interlock connections" in **6 CABLE CONNECTIONS** for details.

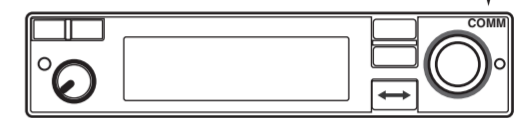
However, when 2 transceivers are installed via a dual audio panel, the connections are not necessary.

The interlock function can be set in the MENU mode. See the instruction manual for details.

◇ COMM1 and COMM2 stickers

When 2 transceivers are installed, to distinguish them from one another, attach the supplied COMM1 and COMM2 stickers.

COMM1 or COMM2 sticker

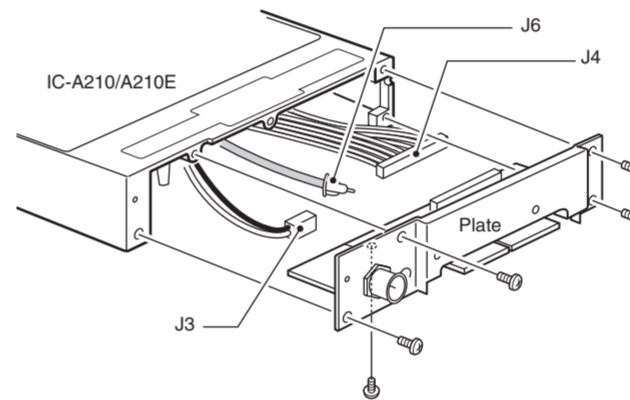


5 USING THE MB-113

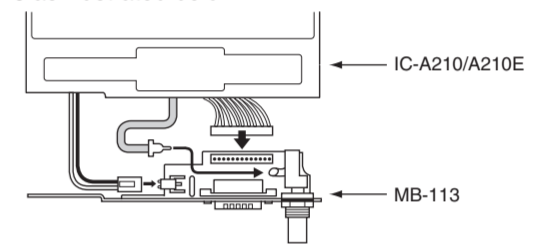
When installing the IC-A210/A210E into your aircraft, etc., with another connection system using D-sub 15-pin connector, use the supplied MB-113 as described below.

◇ Attachment

- ① Unscrew the 10 bottom screws, then remove the bottom cover from the transceiver.
- ② Unscrew the 5 rear plate screws.
- ③ Disconnect the I/O cable connectors and coaxial, J3, J4 and J6, then remove the rear plate from the transceiver.



- ④ Connect the I/O cable connectors and coaxial onto the MB-113 as illustrated below.



- ⑤ Attach the MB-113 to the transceiver with the 5 rear plate screws.
- ⑥ Replace the removed bottom cover and 10 screws.

About MB-113 :

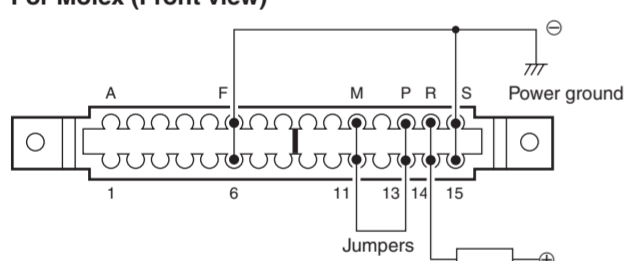
Not supplied with some transceiver's versions.

6 CABLE CONNECTIONS

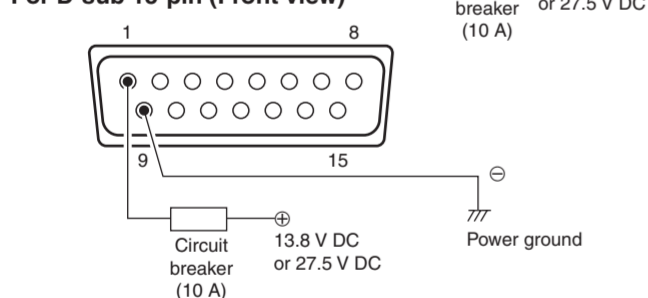
◇ Power cable wiring

Use 2 pairs of #18 AWG wires for power and power ground connections.

For Molex (Front view)



For D-sub 15-pin (Front view)



• Circuit breaker

To prevent physical damage, a 10 A circuit breaker **MUST** be installed in the DC power line in the aircraft. Install the circuit breaker in the aircraft breaker panel or instrument panel to ensure easy access during flight.

• Ground

Connect the transceiver power ground to the airframe ground.

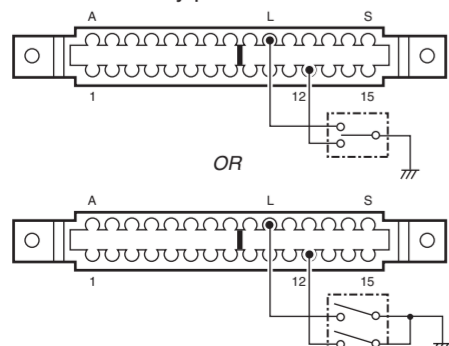
• Jumpers

Pins 11, M, P and 13 **MUST** be jumped together with AWG #20 wires or thicker.

◇ Yoke-mounted channel and frequency exchange switches

NOTE: Channel and frequency selections are available with the Molex connection only.

For the yoke-mounted channel switch and frequency exchange switch, use a 2-position spring loaded rocker switch or 2 separate momentary push switches.



◇ Transmit/receive interlock connections

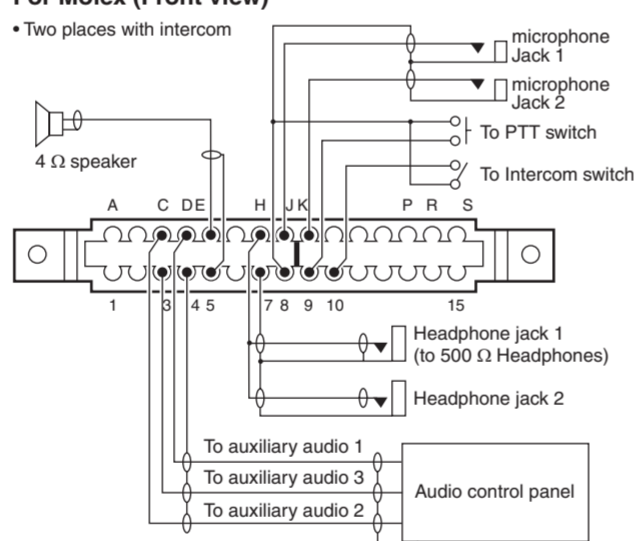
When 2 transceivers are installed, connect pin N to another transceiver's pin 9 each other to prevent the simultaneous transmission for both transceivers.

However, when 2 transceivers are installed via a dual audio panel, the connections are not necessary.

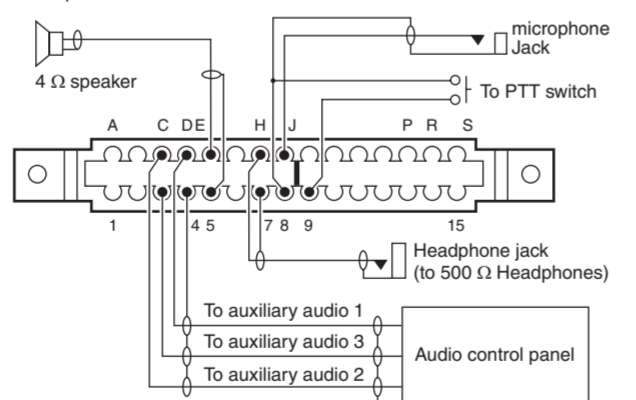
◇ Audio line connections

Use #24 AWG wires for connections.

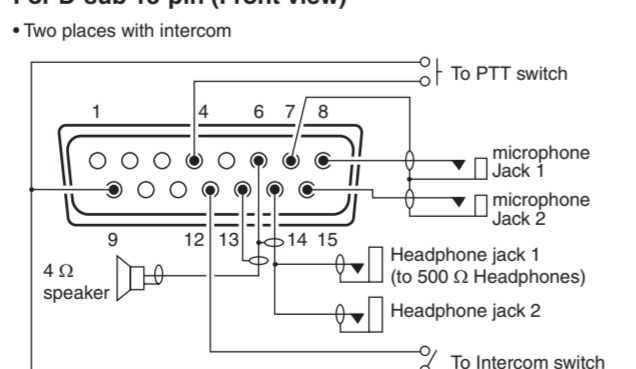
For Molex (Front view)



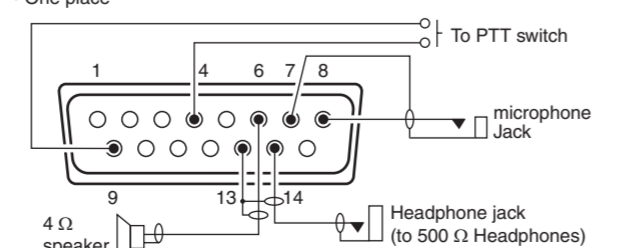
• One place



For D-sub 15-pin (Front view)



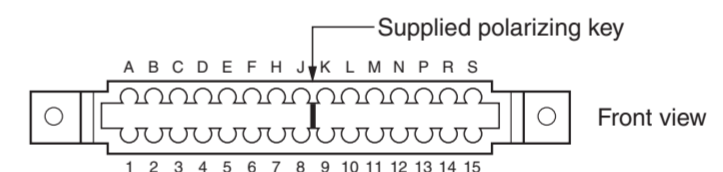
• One place



Either an intercom or a yoke-mounted channel/frequency exchange switch can be installed. Both switches cannot be installed at the same time.

7 CONNECTOR INFORMATION

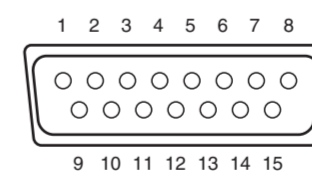
◇ Molex connector



Pin	I/O	Description	Pin	I/O	Description
A	-	No connection	1	Out	RS-232 Serial data ⊕ (TXD)
B	-	No connection	2	In	RS-232 Serial data ⊕ (RXD)
C	In	Auxiliary audio 2 ⊕	3	In	Auxiliary audio 3 ⊕
D	In	Auxiliary audio 1 ⊕	4	In	Auxiliary audio 1, 2, 3 ⊖
E	Out	External speaker ⊕ (4 Ω/5 W)	5	In	External speaker ⊖
F	In	Aircraft power ⊕	6	In	Aircraft power ⊖
H	Out	Headphones audio ⊕ (500 Ω/60 mW)	7	Out	Headphones audio ⊖
J	In	Microphone 1 ⊕ (600 Ω)	8	In	Mic., Intercom mic. and PTT ⊖
K	In	Microphone 2 ⊕ (600 Ω)	9	In	PTT ⊕*
L	In	Memory channel switch*	10	In	Intercom switch*
M	In	+13.8 V power ⊕	11	In	+13.8 V power ⊕
N	-	Transmit/receive interlock	12	In	Frequency exchange switch*
P	-	No connection	13	-	No connection
R	In	Aircraft power ⊕ (13.8/27.5 V)	14	In	Aircraft power ⊕ (13.8/27.5 V)
S	In	Aircraft power ⊖	15	In	Aircraft power ⊖

*Ground to activate.

◇ D-sub 15-pin



Pin	I/O	Description	Pin	I/O	Description
1	In	Aircraft power ⊕ (13.8/27.5 V)	9	In	Aircraft power ⊖
2	-	No connection (reserved)	10	In	RS-232 Serial data ⊕ (RXD)
3	Out	RS-232 Serial data ⊕ (TXD)	11	I/O	RS-232 Serial data ⊖
4	In	PTT ⊕*	12	In	Intercom select switch*
5	In	Auxiliary audio ⊕	13	Out	External speaker and headphones ⊖
6	Out	External speaker ⊕ (4 Ω/5 W)	14	Out	Headphones audio ⊕ (500 Ω/60 mW)
7	In	Microphone 1 ⊕ (600 Ω)	15	In	Microphone 2 ⊕ (600 Ω)

*Ground to activate.

8 MOLEX CONNECTOR ASSEMBLY

The IC-A210/A210E mates with a Molex connector in the rack mount. Assemble the Molex connector as follows.

◆ Contact terminal assembly

- Strip 4 mm (0.16") from each wire for the contact terminal.
- Open the HTR-6115 Molex hand crimper with the engraved side toward you.
- Insert the stripped conductor unit the insulation is even with the side of the crimper facing you.
- Clip the conductor tab until a crimp is obtained.
- Move the lead to the crimper anvil.
- Place the insulating tab section on the crimper anvil.
- Crimp again until a sufficient crimp is obtained.

◆ Polarizing key

Before installing the Molex connector into the mounting bracket, check the polarizing key position between contacts 8 and 9. Refer to Connector front view in **7** CONNECTOR INFORMATION.

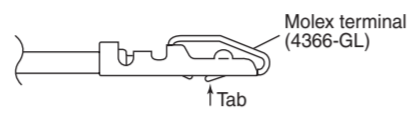
◆ Contact insertion

Insert the contact terminals into the proper location in the connector housing. Push the terminal until a click is heard.

◆ Contact extraction

Use the Molex contact ejector tool.

- Slip the flat narrow blade of the contact ejector tool under the contact on the mating side of the connector.
- Turn the connector upside down to slide the blade into the stop.
- When the blade is fully in, pull the lead using moderate force.
- Before reinstalling, make sure the tab extends as in the figure below.



9 OPERATION CHECK

Check the following points after transceiver installation.

- Polarity of the power supply.
- **NO** interference caused to other equipment.
- **NO** noise or interference from other equipment.
- VSWR is less than 2.5:1.
- Communication capability on both the highest and lowest communication frequencies, if possible.

INFORMATION FOR GPS RECEIVER CONNECTION

Connect the GPS receiver's input/output terminals as below table.

GPS receiver's terminal	Molex connector	D-sub connector
Input terminal	pin 1	pin 3
Output terminal	pin 2	pin 10

11 MARKING MOUNTING HOLES

◆ Notes for making the mounting hole

The IC-A210/A210E can be mounted securely in the supplied mounting bracket.

Remember to allow adequate space for installation of cables and connectors.

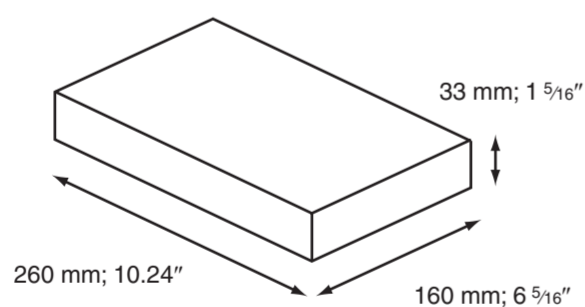
When installing 2 or more transceivers in a stack, the mounting trays should be 1.27 mm (0.05") apart.

The mounting bracket has 0.64 mm (0.025") dimples in the top, bottom, and both sides for proper spacing.

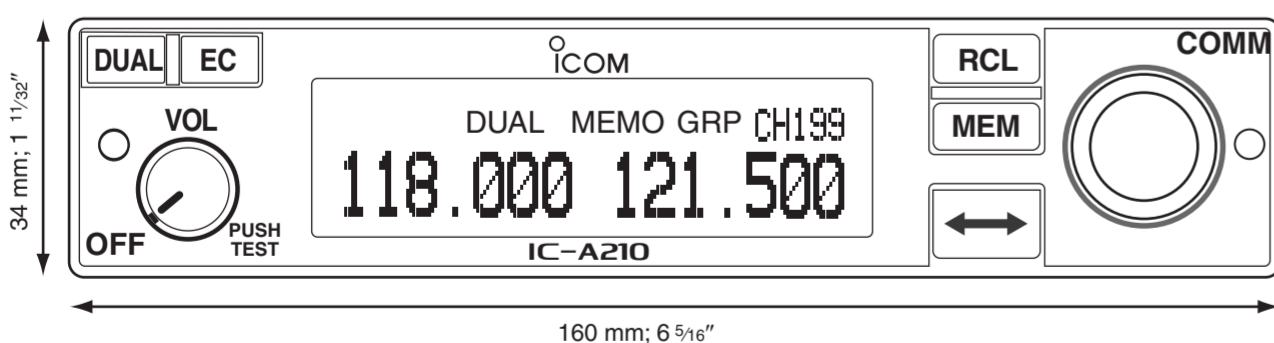
Mark and cut the mounting holes.

To support the mounting bracket, the rear mounting bosses should be attached to the airframe.

◆ Mounting bracket dimensions



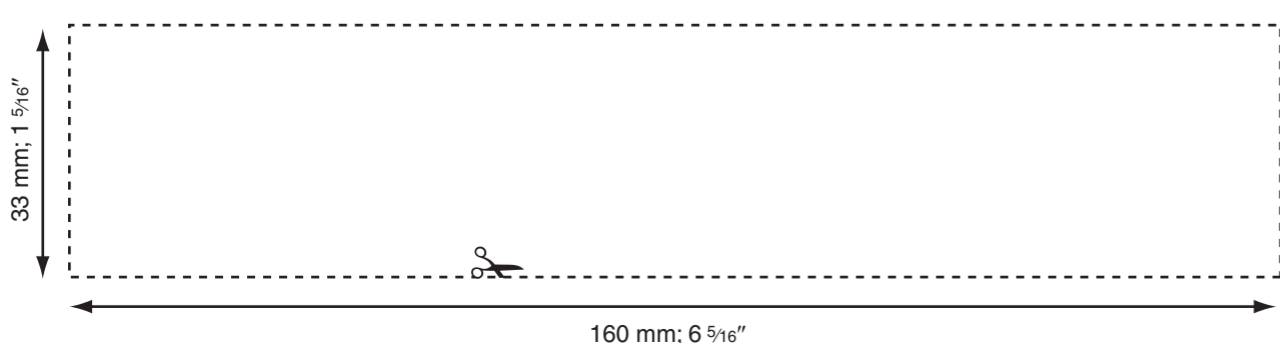
◆ Front panel dimensions



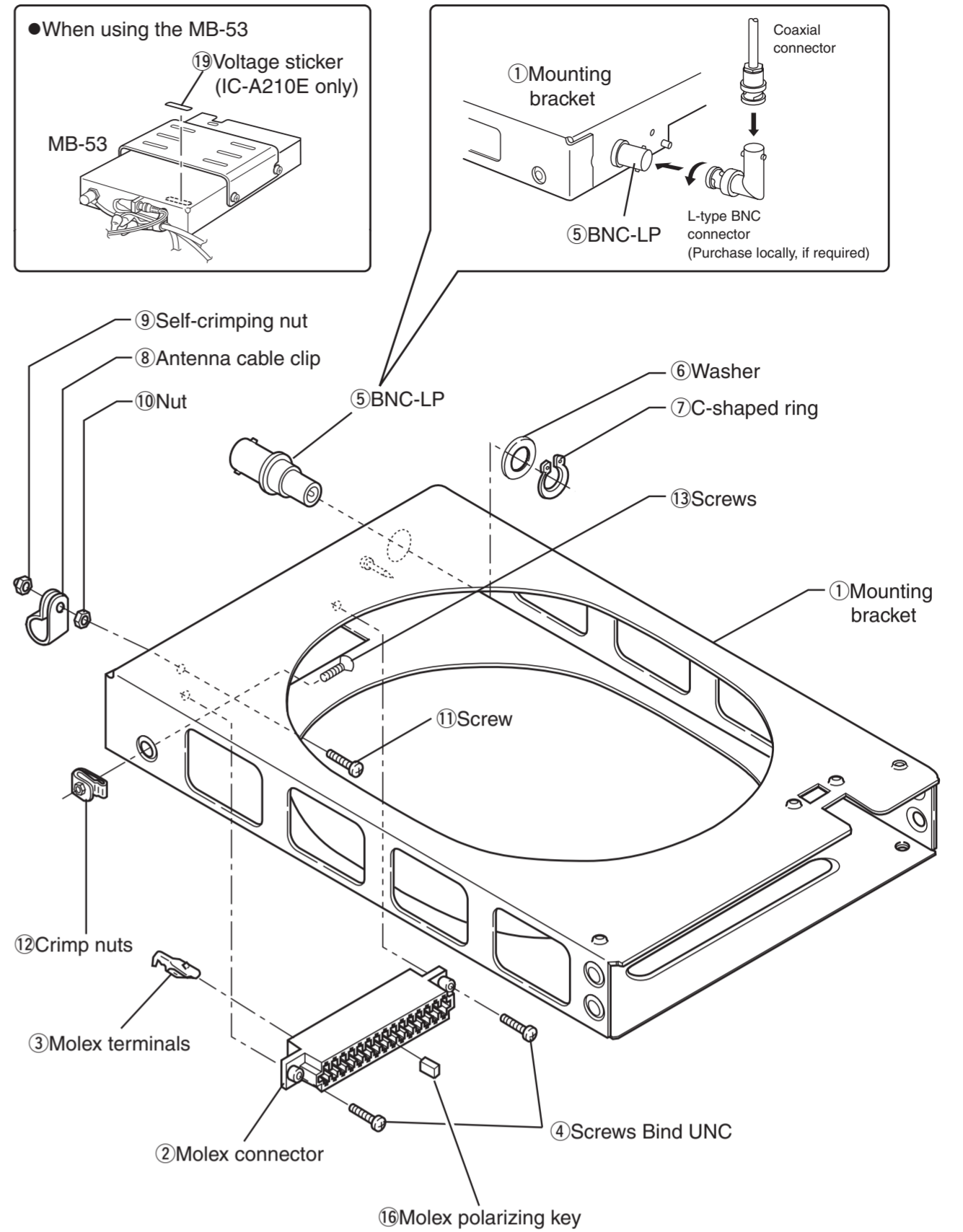
Allow space for the front panel as shown above (illustration: IC-A210).

◆ Template

Cut out dimensions for the mounting bracket as follows.



10 MOUNTING BRACKET ASSEMBLY



12 MOUNTING TO THE BRACKET

◆ Transceiver installation

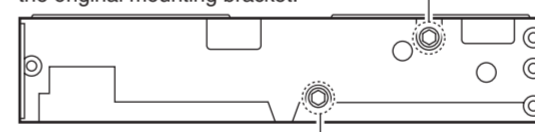
- Remove the front panel from the main unit, using a $\frac{3}{32}$ " (2.381mm) allen wrench, then carefully disconnect the flat cable from the front panel. (Fig. 1)

CAUTION: Treat the flat cable with care when disconnecting it to avoid possible damage. Improper care disconnecting the cable can cause damage and result in severe non-warranty repair.

- Insert a $\frac{3}{32}$ " (2.381mm) allen wrench into the hole of the main unit and unscrew the inside lock screw until the inside metal catch touches the chassis hole. (Fig. 2)
 - Use the metal catch located on bottom side of the transceiver when installing into the existing mounting bracket with MB-113.

Main unit front view

Use when installing with the original mounting bracket.



Using this hole when installing with the MB-113.

- Rotate the lock screw clockwise 4 revolutions (Fig. 3), and then rotate counterclockwise a quarter revolution. (Fig. 4)
- Insert the main unit (transceiver) into the mounting bracket. (Fig. 5)

- Screw the lock screw to fix the main unit (transceiver) to the bracket. (Fig. 6)
- Connect the flat cable. (Fig. 7)

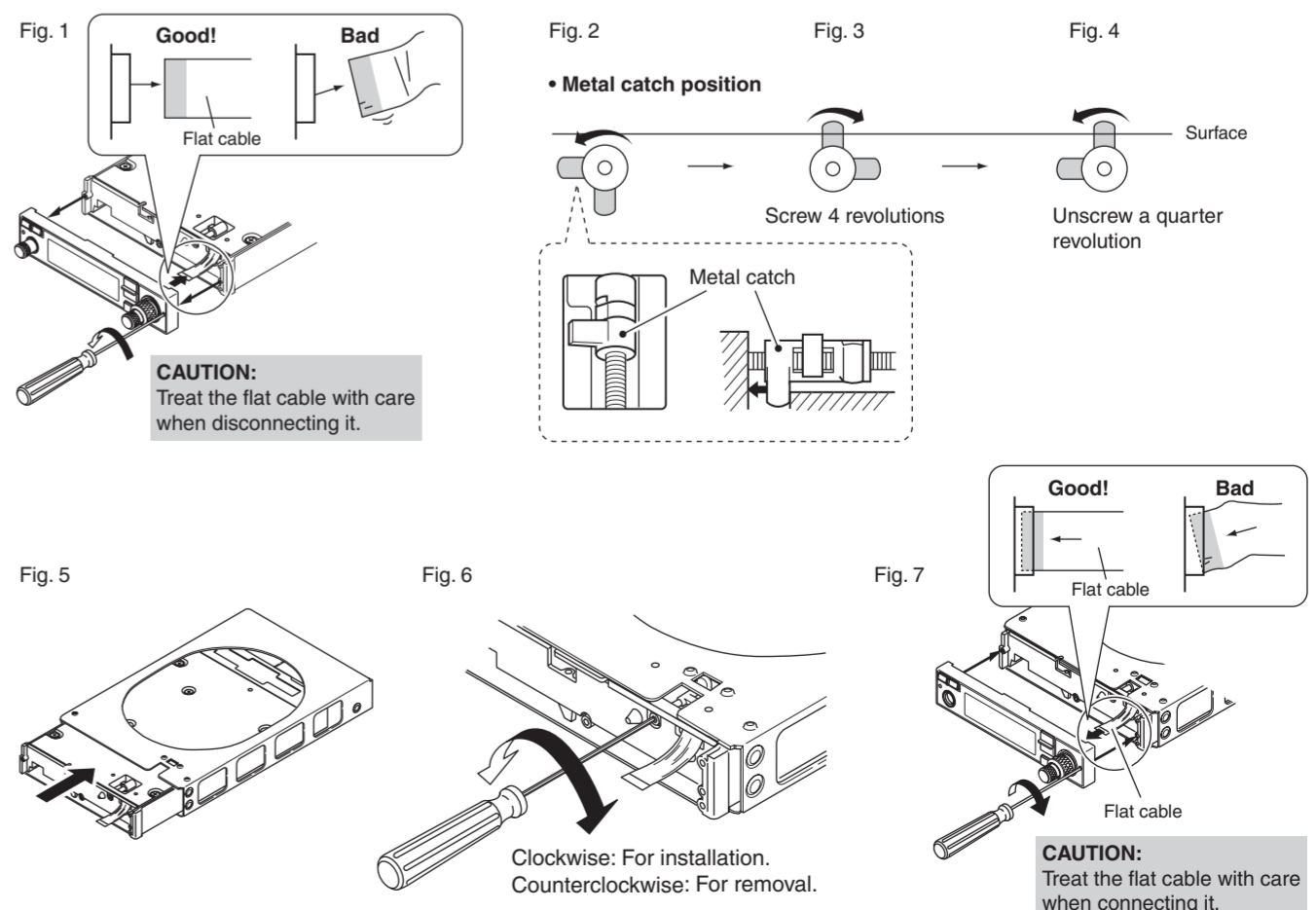
CAUTION: Make sure that the flat cable between the transceiver and front panel is securely connected. The transceiver may not function properly when loose or when a wrong connection is made. Improper care installing the cable can cause damage and result in severe non-warranty repair.

- Attach the front panel and re-screw the allen bolts (Fig. 7).

◆ Transceiver removal

The IC-A210/A210E is easily removed from the mounting bracket, if required.

- Remove the front panel from the main unit, using a $\frac{3}{32}$ " (2.381mm) allen wrench, then disconnect the flat cable from the front panel.
- Insert a $\frac{3}{32}$ " (2.381mm) allen wrench into the hole of the main unit and unscrew the inside lock screw.
- Slowly pull the transceiver out from the mounting bracket.
- Connect the flat cable to the front panel.
- Attach the front panel and tighten the allen screws.



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