ICOM

INSTRUCTION MANUAL

HF TRANSCEIVER

IC-77

Icom Inc.

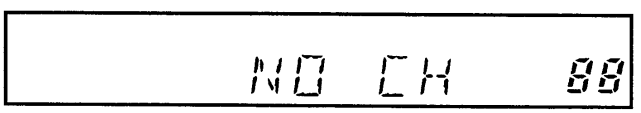
IMPORTANT

READ THIS INSTRUCTION MANUAL CAREFULLY before attempting to operate the transceiver.

SAVE THIS INSTRUCTION MANUAL. This instruction manual contains important safety and operating instructions for the IC-77.

WHEN FIRST APPLYING POWER

If "NO CH" appears, the IC-77 is not programmed yet, and does not operate. In this case, contact your Icom Dealer for channel programming.



Channel programming and optional settings are performed at your Icom Dealer. Unauthorized frequency and mode programming is prohibited by radio law.

The following programming and optional settings are available:

- Up to 50 channel expansion
- Operating frequency and mode* for each channel
- Comment modification for each channel
- Permitted receive mode*
- Beep tone ON/OFF for switch operation
- Scan resume ON/OFF
- CW side tone level

* Philippine version: USB mode only. Other modes cannot be set.

PRECAUTIONS

⚠ **NEVER** apply AC power to the [DC 13.8V] socket. This could cause a fire or ruin the transceiver.

⚠ **NEVER** apply more than 16 V DC to the [DC 13.8V] socket. This could cause a fire or ruin the transceiver.

⚠ **NEVER** allow children to touch the transceiver.

⚠ **NEVER** let metal, wire or other objects touch any internal parts or connectors on the rear panel of the transceiver. This will cause an electric shock.

⚠ **NEVER** expose the transceiver to rain, snow or any liquids.

AVOID using or placing the transceiver in areas with temperatures below −10°C or above +60°C.

AVOID placing the transceiver against walls or putting anything on top of the transceiver. This will obstruct heat dissipation.

AVOID placing the transceiver in excessively dusty environments or in direct sunlight.

AVOID transmitting without an antenna. This will damage the transceiver.

In mobile operation, **DO NOT** operate the transceiver without running the vehicle's engine. The vehicle's battery will quickly run out.

BE CAREFUL! The heatsink becomes hot when operating the transceiver continuously for long periods.

BE CAREFUL! DO NOT apply undue force to the function display. **DO NOT** push the function display.

FOREWORD

Thank you for purchasing the **IC-77** HF TRANSCEIVER. The **IC-77** is a compact, easy-to-operate transceiver designed with Icom's state-of-the-art technology.

If you have any questions regarding the **IC-77**, feel free to contact your nearest Icom Dealer or Service Center.

EXPLICIT DEFINITIONS

Word	Definition
⚠ **WARNING**	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No personal injury, risk of fire or electric shock.

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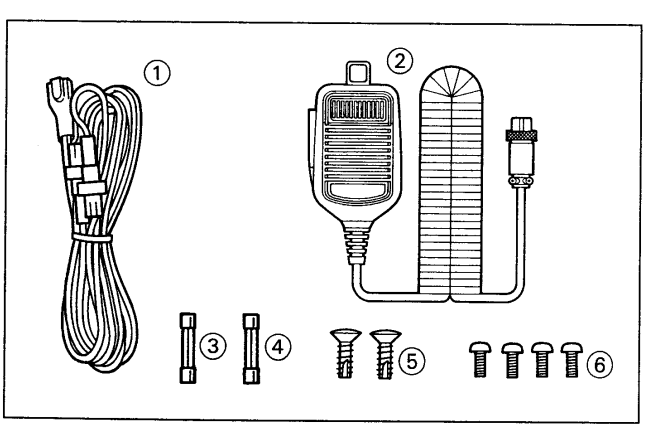
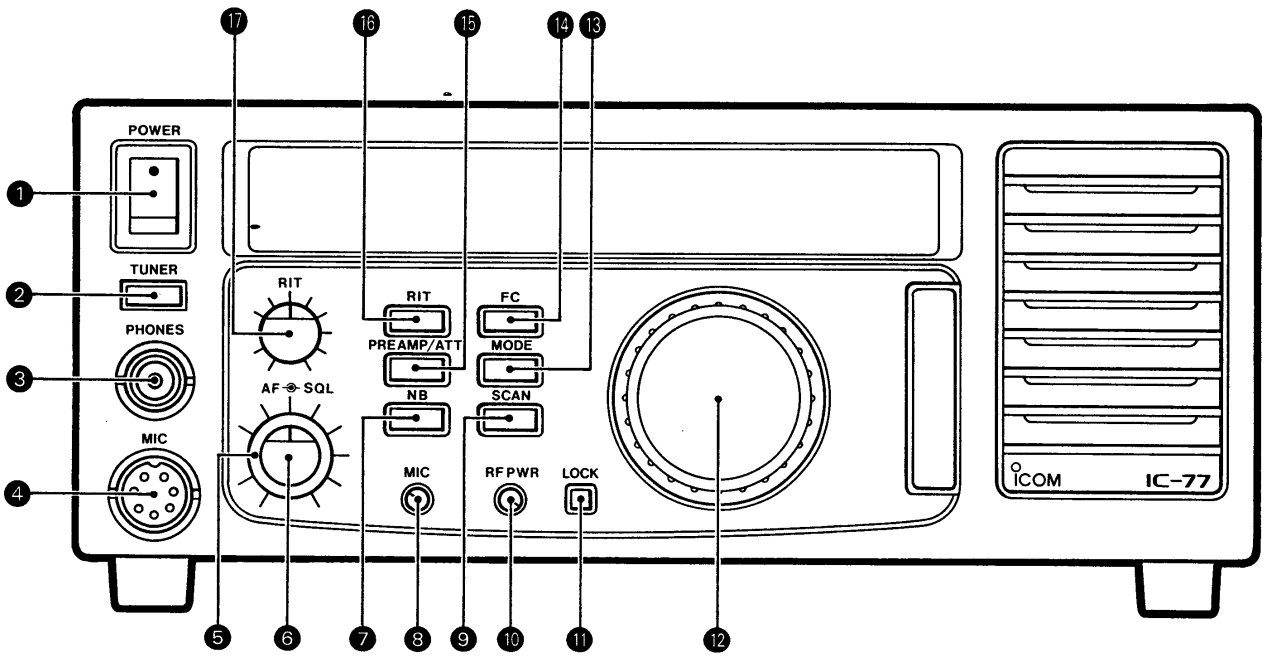
UNPACKING



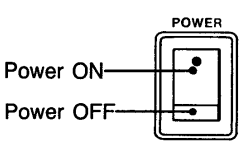
Accessories included with the IC-77: **Qty.**
① DC power cable (OPC-025A) 1
② Hand microphone (HM-36) 1
③ Spare fuse
(for DC power cable, FGB 20 A) 1
④ Spare fuse (for internal PA unit, FGB 4 A) 1
⑤ 4 × 12 mm self-tapping screws
(for optional MB-23) 2
⑥ 3 × 6 mm self-tapping screws
(for optional MB-23) 4

1 PANEL DESCRIPTION

■ Front panel



❶ POWER SWITCH [POWER] (p. 5)
Turns power ON and OFF.



❷ ANTENNA TUNER SWITCH [TUNER] (p. 10)
When an optional AT-130 HF AUTOMATIC ANTENNA TUNER is connected, starts tuning.

❸ HEADPHONE JACK [PHONES]
Connects headphones. When headphones are connected, no receive audio comes from the speaker.

Usable headphones

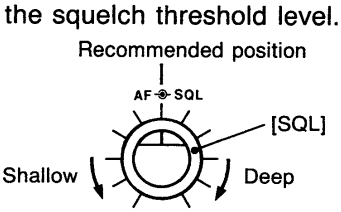
Headphones with 4 – 16 Ω impedance can be used.

❹ MICROPHONE CONNECTOR [MIC] (p. 4)
Connects the supplied hand microphone.

Optional microphones

An optional SM-6, SM-8 or SM-20 DESKTOP MICROPHONE can also be used.

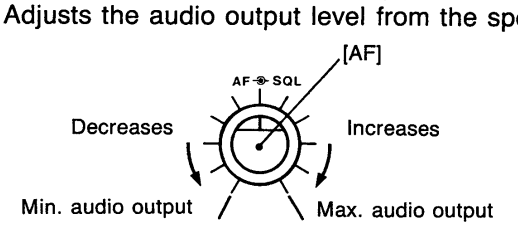
❺ SQUELCH CONTROL [SQL] (p. 8)
Adjusts the squelch threshold level.



What is the squelch?

The **squelch** mutes noise when no signal is received.

❻ AF GAIN CONTROL [AF] (p. 8)
Adjusts the audio output level from the speaker.

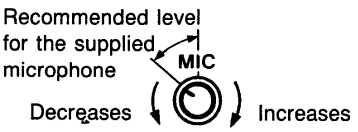


❼ NOISE BLANKER SWITCH [NB] (p. 8)
Turns the noise blanker ON and OFF.

What is the noise blanker?

The **noise blanker** reduces click noise generated by vehicle ignition systems, etc.

❽ MICROPHONE GAIN CONTROL [MIC] (p. 10)
Adjusts microphone input gain.

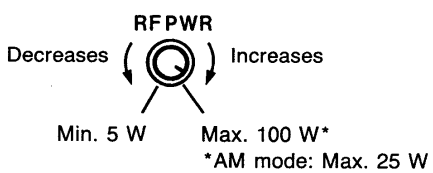


❾ SCAN SWITCH [SCAN] (p. 6)
Starts and stops channel scan.

What is channel scan?

Channel scan repeatedly scans all channels.

❿ RF POWER CONTROL [RF PWR] (p. 10)
Adjusts the RF output power from minimum to maximum.



⓫ LOCK SWITCH [LOCK] (p. 6)
Electronically locks the channel selector.

What is the lock function?

The **lock function** prevents accidental changing of the channel.

⓬ CHANNEL SELECTOR (p. 6)
Selects a channel.

⓭ MODE SWITCH [MODE] (p. 6)
Selects an operating mode temporarily while frequency is indicated.

Permitted mode

USB mode is commonly used for voice communication. Other modes may be inhibited, since selectable mode for receiving varies according to optional setting at your Icom Dealer.

When the [PTT] switch is pushed, previous operating mode is selected.

⓮ FREQUENCY/COMMENT SWITCH [FC] (p. 6)
Selects frequency or comment (alphanumeric note) indication on the function display.

⓯ PREAMP/ATTENUATOR SWITCH [PREAMP/ATT] (p. 8)
– Turns the 10 dB preamp ON and OFF.
– Turns the 20 dB attenuator ON and OFF.

What is the preamp?

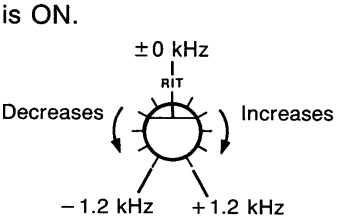
The **preamp** amplifies a desired weak signal.

What is the attenuator?

The **attenuator** prevents a desired signal from distorting under the following conditions:
– When very strong signals are near the desired frequency.
– When very strong stations are near your location.

⓰ RIT SWITCH [RIT] (p. 8)
Turns the RIT function ON and OFF.

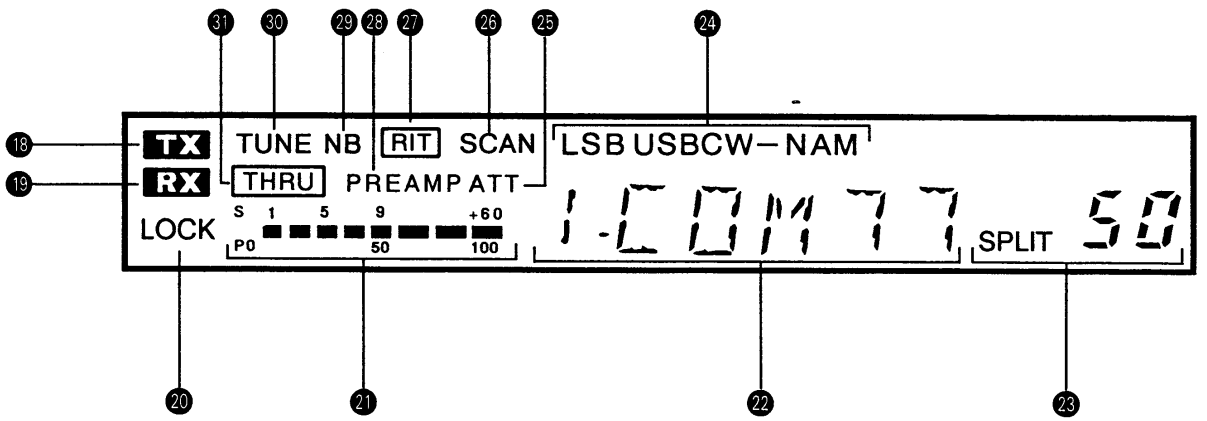
⓱ RIT CONTROL [RIT] (p. 8)
Shifts the receive frequency while the RIT function is ON.



What is the RIT function?

The **RIT control** shifts the receiving frequency to obtain clear audio for an off-frequency signal. RIT stands for Receiver Incremental Tuning.

■ Function display



⑱ TRANSMIT INDICATOR (p. 9)
Shows that the transceiver is transmitting.

⑲ RECEIVE INDICATOR (p. 7)
Shows that the squelch is open while receiving.

⑳ LOCK INDICATOR (p. 6)
Shows that the channel selector is electronically locked.

㉑ S/RF INDICATOR (pgs. 7, 9)
- Shows the relative receive signal strength while receiving.
- Shows the RF output power level while transmitting.

㉒ COMMENT READOUT (p. 6)
- Shows the comment (alphanumeric note) for a channel.
- When the [FC] switch is pushed, shows the operating frequency.

㉓ CHANNEL NUMBER READOUT
Shows the selected channel number and simplex/duplex condition.

"SPLIT" disappears	When a simplex channel is selected. Transmit frequency is the same as receive frequency.
"SPLIT" appears	When a duplex channel is selected. Transmit frequency differs from receive frequency.

• Available channel number varies according to versions and programming at your Icom Dealer.

㉔ MODE INDICATORS (p. 6)
When the [FC] switch is pushed, show the operating mode.

㉕ ATTENUATOR INDICATOR (p. 8)
Shows that the RF attenuator is ON.

㉖ SCAN INDICATOR (p. 6)
Shows that the channel scan function is activated.

㉗ RIT INDICATOR (p. 8)
Shows that the RIT function is ON.

㉘ PREAMP INDICATOR (p. 8)
Shows that the preamp is ON.

㉙ NOISE BLANKER INDICATOR (p. 8)
Shows that the noise blanker is ON.

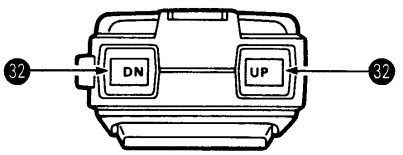
㉚ TUNE INDICATOR (p. 10)
When an optional AT-130 HF AUTOMATIC ANTENNA TUNER is connected, shows the following conditions:
- Lights up when the antenna tuner completes tuning.
- Blinks during tuning operation.

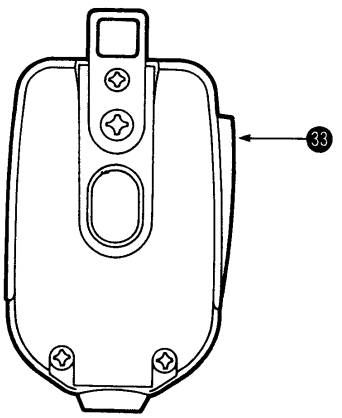
㉛ THROUGH INDICATOR (p. 10)
When an optional AT-130 HF AUTOMATIC ANTENNA TUNER is connected, shows that the connected antenna does not match the antenna tuner's matching range.

CAUTION: DO NOT transmit while the through indicator appears, since the transceiver may be damaged.

When the **through indicator** appears, the AT-130 is bypassed and the [ANT] connector is directly connected to the antenna.

■ Microphone (HM-36)



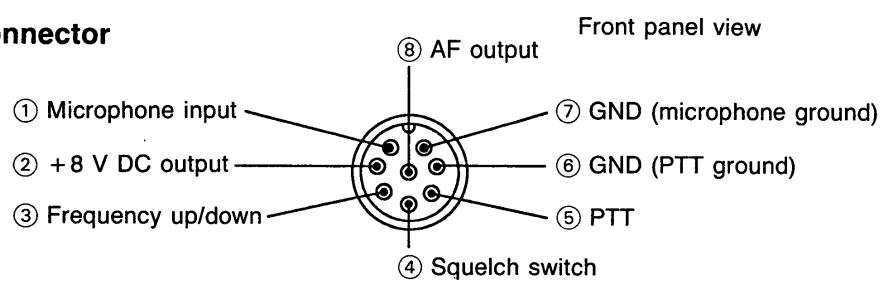


32 UP/DOWN SWITCHES [UP]/[DN] (p. 6)
- Change channels.
- Continuous pushing to step through the channels.
- Cancel the scan function.

33 PTT SWITCH [PTT] (p. 10)
Push and hold to transmit. Release to receive.

Microphone information

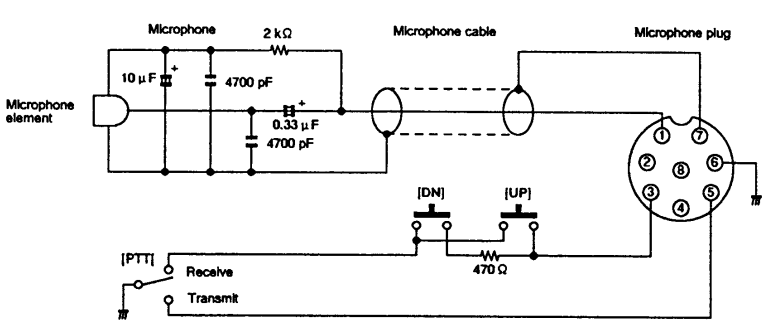
• Microphone connector



Pin No.	Function	Description
②	+8 V DC output	Max. 10 mA
③	Frequency up	Ground
	Frequency down	Ground through 470 Ω
④	Squelch open	"LOW" level
	Squelch closed	"HIGH" level

CAUTION: DO NOT short pin 2 to ground, since this can damage the internal circuit.

• HM-36 schematic diagram

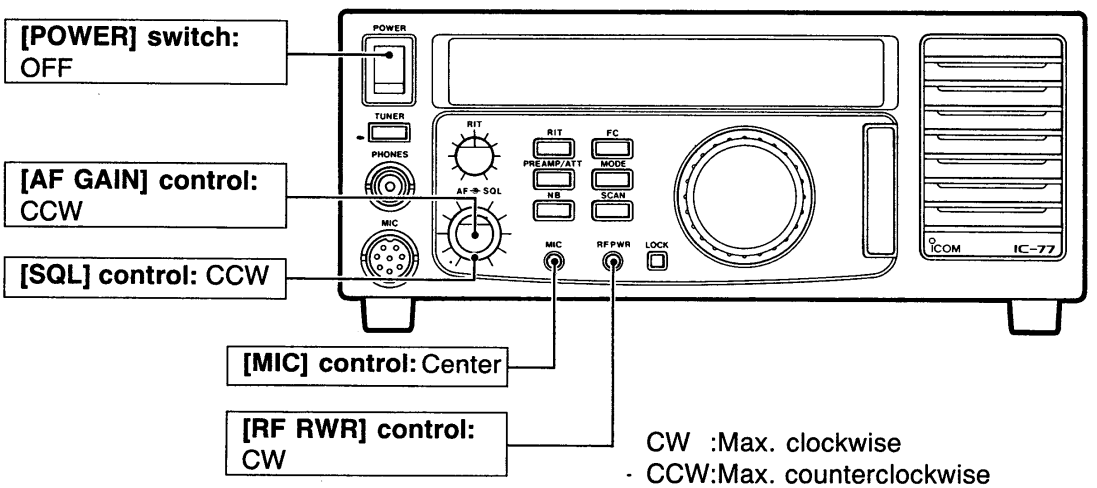


2 OPERATION

■ Initial settings

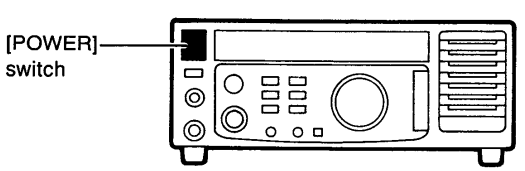
Before performing the initial settings, make sure all required connections are complete.

Before power ON, set controls and switches as shown in the figure below.

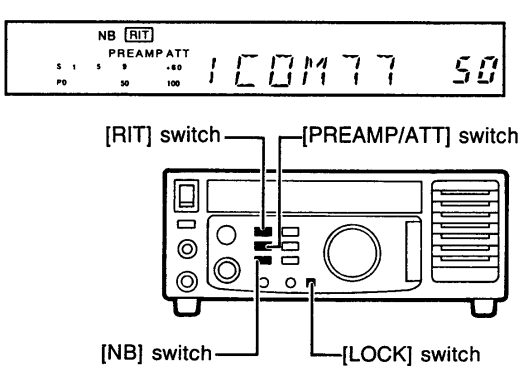


■ Basic operation

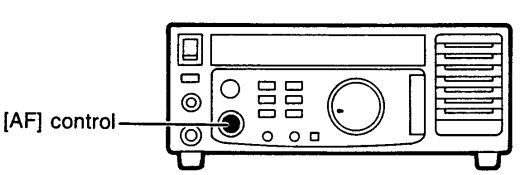
1) Turn the [POWER] switch to the ON position.



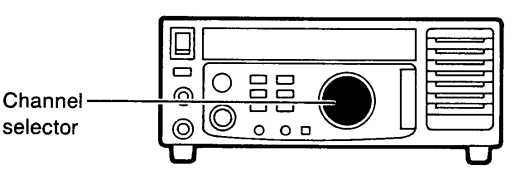
2) If "RIT," "PREAMP," "ATT," "LOCK" or "NB" appears, cancel the function.



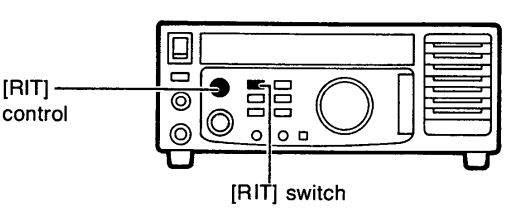
3) Rotate the [AF] control clockwise to adjust the desired audio output level.



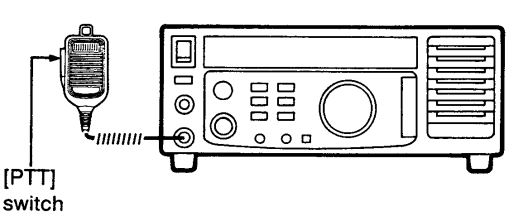
4) Rotate the channel selector to select a desired channel.



5) If bass or treble of receive audio is too strong, push the [RIT] switch, then rotate the [RIT] control to obtain clear audio.



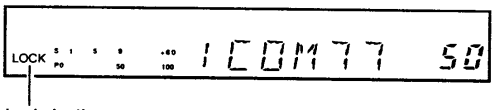
6) Push the [PTT] switch on the microphone to transmit. Release the [PTT] switch to receive.



■ Lock function

The lock function electronically locks the channel selector to prevent accidental channel changing.

Push the [LOCK] switch to turn the lock function ON and OFF. Before channel selection, turn this function OFF.

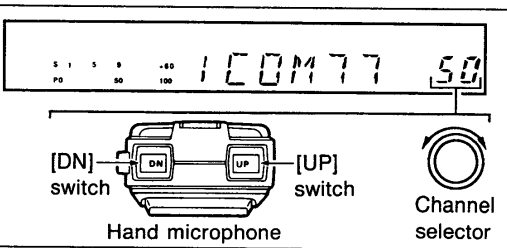


The lock indicator appears when the channel selector is electronically locked.

■ Channel selection

By rotating the channel selector or pushing the [UP] or [DN] switch on the microphone, a channel can be selected. When a duplex channel is selected, "SPLIT" appears.

Available channel number varies according to versions and programming at your Icom Dealer.

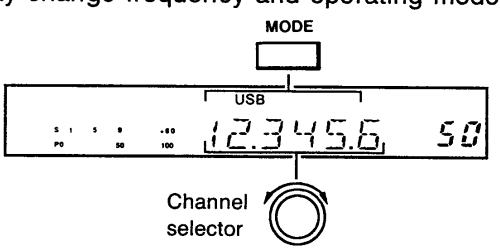


■ Frequency indication

When a simplex channel is selected
By pushing the [FC] switch, comment indication, or frequency indication can be selected.

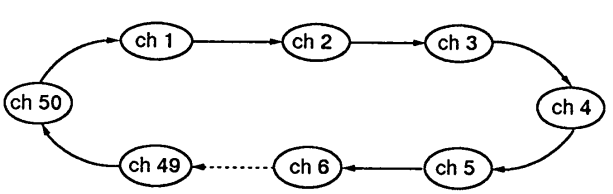
When a duplex channel is selected
By pushing the [FC] switch, comment indication, receive frequency or transmit frequency indication can be selected.

The channel selector and the [MODE] switch temporality change frequency and operating mode.



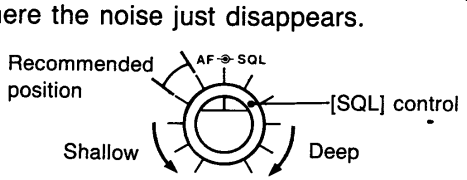
■ Channel scan

Channel scan repeatedly scans programmed channels. This function is convenient to wait for calls on multiple frequencies.

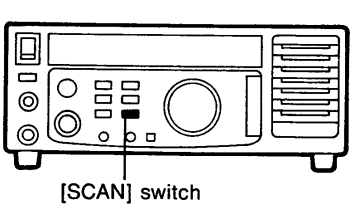


1) Rotate the [SQL] control fully counterclockwise.

2) Rotate the [SQL] control clockwise to the position where the noise just disappears.



3) Push the [SCAN] switch to start the channel scan.



4) When a signal is received, the channel scan pauses on the channel.
- The channel scan resumes 2 sec. after the signal disappears.

5) Push the [SCAN] switch to cancel the channel scan.

NOTE: The scan resume condition (the action after signal receiving) can be selected as "scan resume" or "scan cancel." Ask your Icom Dealer for optional setting.

■ Receiving

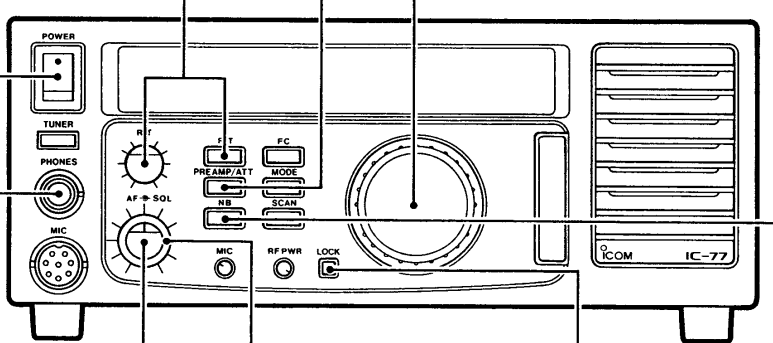
[RIT] switch
When bass or treble of receive audio is too strong, turn the RIT function ON.

[RIT] control
Rotate to shift the receive frequency to obtain clear audio.

[PREAMP/ATT] switch
Used when a receive signal is weak or when a signal is distorting. Turn the preamp and attenuator ON or OFF according to receiving condition.

[NB] switch
For reducing pulse-type noise, turn the noise blanker ON.

Channel selector
Selects a desired channel.



[POWER] switch
Turn ON.

[PHONES] jack
Connect headphones, if required.

[AF] control
Adjusts the audio output level from the speaker.

[SQL] control
To mute noise when no signal is received, rotate to the 12 o'clock position.

[LOCK] switch
Electronically locks the channel selector.

: Required operations

: Convenient functions

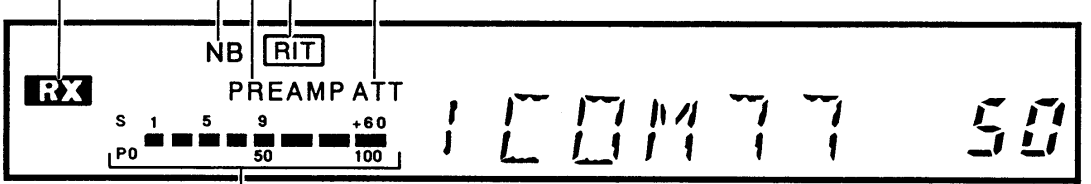
Noise blanker indicator
Shows that the noise blanker is ON.

Preamp indicator
Shows that the preamp is ON.

RIT indicator
Shows that the RIT function is ON.

Receive indicator
Shows that the squelch is open.

Attenuator indicator
Shows that the RF attenuator is ON.



S/RF indicator
Shows the receive signal strength.

Because of internal circuit design, a weak beat signal may be heard near 21.484 MHz.

Basic receiving

1) Turn the [POWER] switch to the ON position.

2) Rotate the [AF] control clockwise to adjust the desired audio output level.

3) Rotate the channel selector to select a desired channel.

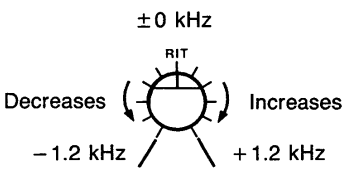
4) If receive audio is not clear or includes noise, use the functions below.

RIT function

If bass or treble of receive audio is too strong, receive signal may be off frequency. Using the RIT function, shift the receive frequency to obtain clear audio.

Push the [RIT] switch to turn the RIT function ON.
- "RIT" appears.

Rotate the [RIT] control.



Push the [RIT] switch again to turn the RIT function OFF.
- "RIT" disappears.

Preamp

The preamp is useful under the following conditions:
- When a receive signal is weak.
- When poor propagation conditions exist.

Push the [PREAMP/ATT] switch 1 time to turn the preamp ON.
- If "ATT" appears, push 2 times.
- "PREAMP" appears.

Push the [PREAMP/ATT] switch 2 times to turn the preamp OFF.
- "PREAMP" disappears.

NOTE: When a receive signal is not weak, turn the preamp OFF. Otherwise, suddenly appearing strong signal may interfere with the desired signal.

Attenuator

The attenuator is useful to prevent the receive signal from distorting under the following conditions:
- When strong signals are near the desired frequency.
- When strong signal stations are near your location.

Push the [PREAMP/ATT] switch 2 times to turn the attenuator ON.
- If "PREAMP" appears, push 1 time.
- "ATT" appears.

Push the [PREAMP/ATT] switch 1 time to turn the attenuator OFF.
- "ATT" disappears.

Noise blanker

The noise blanker reduces click noise generated by vehicle ignition systems, etc.

Push the [NB] switch to turn the noise blanker ON.
- "NB" appears.

Push the [NB] switch again to turn the noise blanker OFF.
- "NB" disappears.

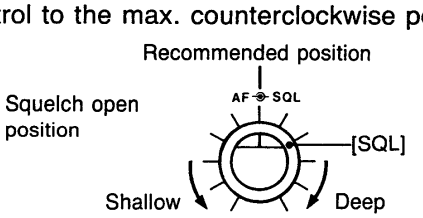
NOTE: To prevent the receive signal from distorting, turn the preamp OFF when click noise is not received.

Squelch function

For quiet standby, the squelch mutes noise when no signal is received.

Rotate the [SQL] control to the 12 o'clock position to mute noise, if required.
- When the [SQL] control is rotated too far clockwise, weak signals cannot be received.

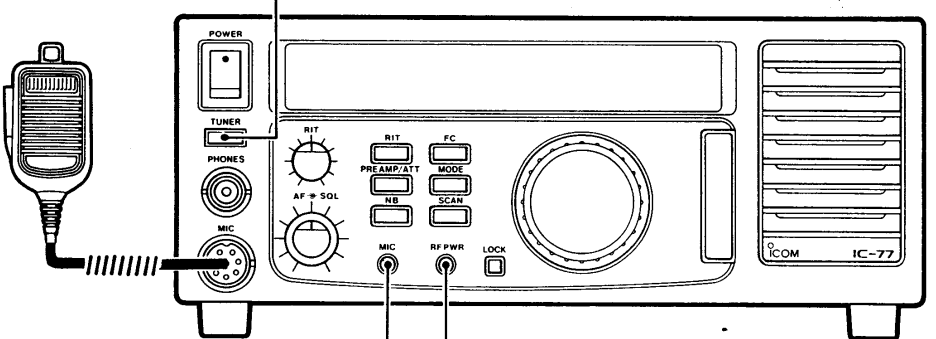
When the squelch is not required, rotate the [SQL] control to the max. counterclockwise position.



■ Transmitting

[PTT] switch
Push and hold to transmit. Release to receive.

[TUNER] switch
When an optional AT-130 HF AUTOMATIC ANTENNA TUNER is connected, push each time you change a channel.



[MIC] control
Adjust to the 10 – 12 o'clock position when using the supplied hand microphone.

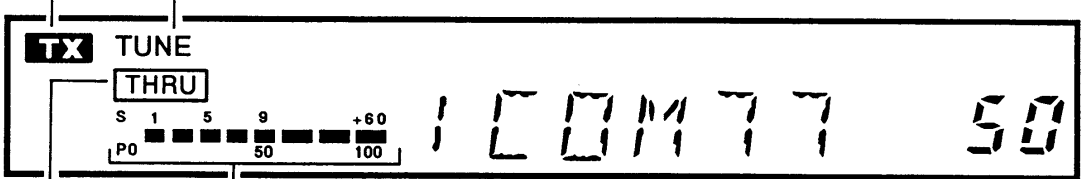
[RF PWR] control
Adjust the RF output power.

: Required operations

: Convenient functions

Transmit indicator
Shows the transmitting condition.

Tune indicator
Refer to pgs. 3 and 10 for details.



Through indicator
DO NOT transmit while the through indicator appears. Refer to pgs. 3 and 10 for details.

S/RF indicator
Shows the RF output power level.

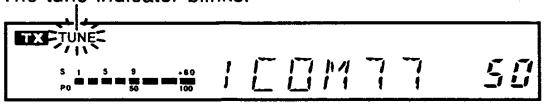
Basic transmitting

CAUTION: Transmitting without an antenna may damage the transceiver.

After completing the receiving procedures on pgs. 7 and 8, perform transmitting. To prevent interference, listen on the channel before transmitting.

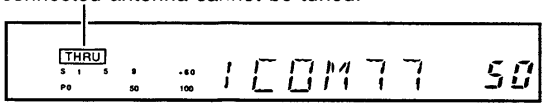
1) If an optional AT-130 HF AUTOMATIC ANTENNA TUNER is connected, push the [TUNE] switch.

The tune indicator blinks.



- The tune indicator appears continuously after tuning is complete.

The through indicator appears when the connected antenna cannot be tuned.



- If the AT-130 cannot tune the connected antenna, the through indicator appears. In this case, the AT-130 is bypassed and the [ANT] connector is directly connected to the antenna.

CAUTION: Transmitting under the following conditions may damage the transceiver:
- Before tuning.
- While the through indicator appears on the function display.

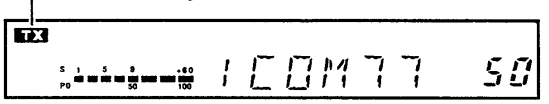
Re-tuning is required each time you change a channel.

2) Adjust the [MIC] control to the 10 – 12 o'clock position.
- Refer to "Microphone gain control" below for details.

3) If required, adjust the [RF PWR] control as described below.

4) Push and hold the [PTT] switch, and speak into the microphone.
- **DO NOT** hold the microphone too close to your mouth or speak too loudly. This may distort the signal.

The transmit indicator appears.



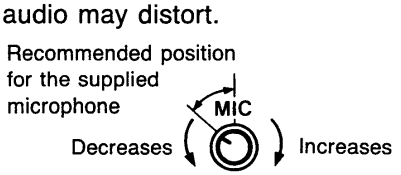
5) Release the [PTT] switch to receive.

Microphone gain control

Adjust the [MIC] control to the 10 – 12 o'clock position when using the supplied hand microphone.

Suitable position differs according to the connected microphone.

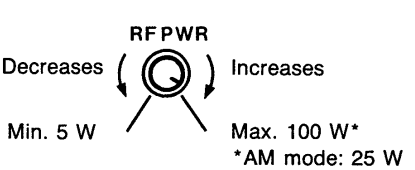
When rotated too far counterclockwise, output power becomes too low. When rotated too far clockwise, transmit audio may distort.



RF power control

If required, adjust RF output power level.

If maximum RF output power is not required, decrease it to save vehicle's battery power.



CW operation

For CW mode operation, optional setting is required at your Icom Dealer. Connect a CW key to the [KEY] jack on the rear panel. Refer to p. 11 for details.

The transceiver transmits when the key is down, and receives when the key is up.

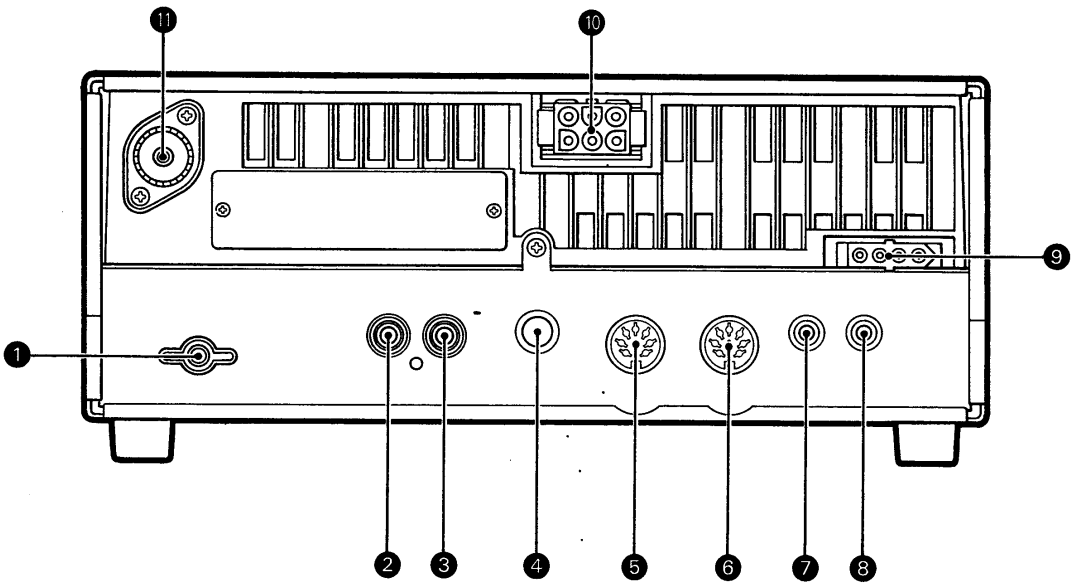
NOTE: The Philippine version has no CW mode capability.

For better CW receiving, an optional FL-52A or FL-53A CW NARROW FILTER can be installed at your Icom Dealer.

	Center frequency	Passband width
FL-52A	455 kHz	500 Hz/–6 dB
FL-53A	455 kHz	250 Hz/–6 dB

3 INSTALLATION AND CONNECTIONS

■ Rear panel



❶ GROUND TERMINAL [GND] (p. 13)
Connects to a ground to prevent electrical shocks, TVI (TeleVision Interference), BCI (BroadCasting Interference) and other problems.

❷ SEND CONTROL JACK [SEND]
Grounded while transmitting. When grounded transmits. Used to control external equipment such as a non-Icom linear amplifier.

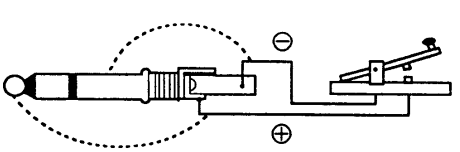
❸ ALC INPUT JACK [ALC]
Connects to the ALC output jack of a non-Icom linear amplifier.

Note

Ask your Icom Dealer whether or not linear amplifier connection is permitted in your country. Refer to your linear amplifier instruction manual for connection.

For the [SEND] jack and [ALC] jack specifications, refer to p. 12 ACC(1) socket pins 3 and 8, respectively.

❹ CW KEY JACK [KEY] (p. 14)
Connects a straight key or electronic keyer with a standard 1/4 inch 3-conductor plug.



Note

For CW mode operation, optional setting is required at your Icom Dealer.

❺ ACCESSORY (2) SOCKET [ACC (2)] (p. 12)
7-pin DIN socket. Connects external equipment such as a linear amplifier, an automatic antenna tuner, etc.

❻ ACCESSORY (1) SOCKET [ACC(1)] (p. 12)
8-pin DIN socket. Connects external equipment such as a linear amplifier, etc.

❼ EXTERNAL SPEAKER JACK [EXT SP] (p. 14)
Accepts a 4 – 16 Ω speaker.

Optional speaker

An optional SP-7 EXTERNAL SPEAKER is available for office operation.

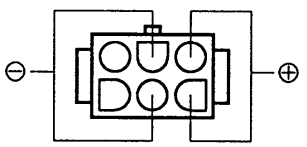
❽ CLONING JACK [CLONING]
For Icom Dealers only. **DO NOT** connect any equipment.

❾ TUNER CONTROL SOCKET [TUNER] (p. 14)
Accepts the control cable from an optional AT-130 HF AUTOMATIC ANTENNA TUNER.

Note

Refer to the AT-130 instruction manual for installation.

⑩ DC POWER SOCKET [DC 13.8V] (p. 14)
Connects an optional DC power supply or a 12 V vehicle battery through the supplied DC power cable.



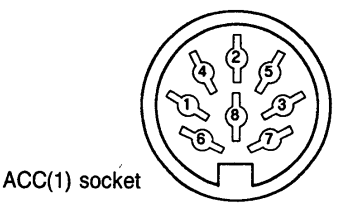
Rear panel view

Optional DC power supply

An optional PS-55 DC POWER SUPPLY is available for AC operation.

⑪ ANTENNA CONNECTOR [ANT] (p. 13)
Connects to an HF antenna or optional AT-130 HF AUTOMATIC ANTENNA TUNER through a 50 Ω coaxial cable with a PL-259 connector.

ACC socket information



ACC(1) socket

Pin No.	Pin name	Description	Specifications
1	NC	No connection.	———
2	GND	Connects to ground.	Connected in parallel with ACC(2) pin 2.
3	SEND	Input/output pin. Grounded when transmitting. When grounded, transmits.	Ground level : −0.5 to 0.8 V Input current : Less than 20 mA Connected in parallel with ACC(2) pin 3.
4	MOD	Modulator input. Connects to a modulator.	Input impedance : 10 kΩ Input level : Approx. 100 mV rms.
5	AF	AF detector output. Fixed, regardless of the [AF] control position.	Output impedance : 4.7 kΩ Output level : 100 to 350 mV rms
6	SQLS	Squelch output. Grounded when squelch opens.	Squelch open : Less than 0.3 V, 5 mA Squelch closed : More than 6.0 V, 100 µA
7	13.8 V	13.8 V output.	Output current : Max. 1 A Connected in parallel with ACC(2) pin 7.
8	ALC	ALC voltage input.	Control voltage : −4 to 0 V Input impedance : More than 10 kΩ Connected in parallel with ACC(2) pin 5.

ACC(2) socket

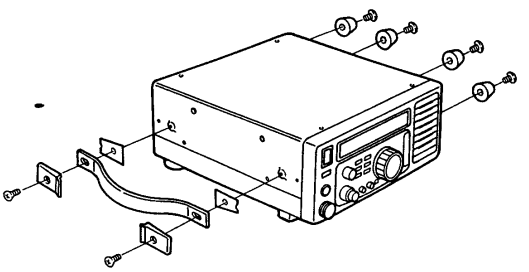
Pin No.	Pin name	Description	specifications
1	8 V	Regulated 8 V output.	Output voltage : 8 V ±0.3 V Output current : Less than 10 mA
2	GND	Same as ACC(1) pin 2.	
3	SEND	Same as ACC(1) pin 3.	
4	BAND	Band voltage output.	Output voltage : 0 to 8.0 V
5	ALC	Same as ACC(1) pin 8.	
6	TPS	Tuner selection voltage.	Output voltage : 4 to 5 V
7	13.8 V	Same as ACC(1) pin 7.	

■ Mounting the transceiver

For office operation
Select a location which:
- allows adequate air circulation.
- is free from extreme heat, cold, or vibrations.
- is away from TV sets, radios and other electromagnetic sources.

For mobile operation
Mount the transceiver using an optional IC-MB5 MOBILE MOUNTING BRACKET. Select a location which:
- can support the weight of the transceiver.
- does not interfere with the operation of the vehicle.
- does not interfere with air bags.

Optional MB-23 CARRYING HANDLE
For carrying and transporting, attach the MB-23. Supplied screws with the MB-23 **CANNOT** be used with the IC-77. Use the screws supplied with the IC-77.



■ Antenna

An antenna is one of the most important items. Ask your Icom Dealer for suitable antenna and installation information then select an antenna as follows:

If there is enought space:
To expand communication distance, connect a high-gain antenna.

CAUTION: Protect your transceiver from lightning by using a lightning arrestor.

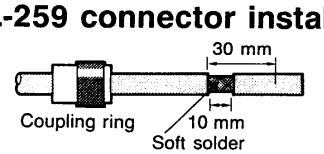
If there is not enough space:
An optional AT-130 HF AUTOMATIC ANTENNA TUNER is recommended. Required antenna length is as follows:

The lowest frequency	Required antenna length
1.6 MHz	7 m or longer
3.5 MHz	3 m* or longer

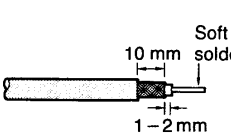
*If grounding condition is por, tuning may not be possible.

For mobile operation:
On 3.5 MHz and above, an optional AH-2b ANTENNA ELEMENT can be connected to the AT-130.

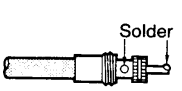
PL-259 connector installation

① 

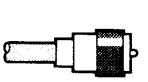
Slide the coupling ring down. Strip the cable jacket and soft solder.

② 

Strip the cable as shown at left. Soft-solder the center conductor.

③ 

Slide the connector body on and solder it.

④ 
Screw the coupling ring onto the connector body.

Grounding

⚠ **DANGER!** **NEVER** connect the [GND] terminal to gas or electrical pipe.

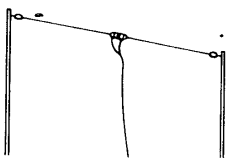
To prevent electric shock, TVI (TeleVision Interference), BCI (BroadCasting Interference) and other problems, ground the transceiver through the [GND] terminal on the rear panel.

For best results, connect a heavy gauge wire or strap to a long earth-sunk copper rod. Make the distance between the [GND] terminal and ground as short as possible.

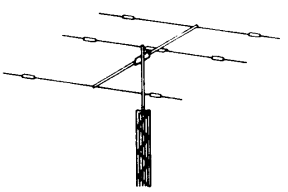
■ Connections chart

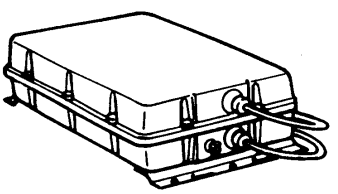
HF antenna (p. 13)

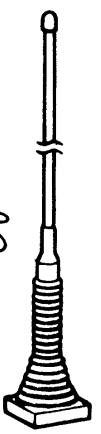
- Dipole antenna



- Yagi beam antenna



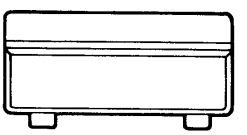




- AT-130 HF AUTOMATIC ANTENNA TUNER + AH-2b ANTENNA ELEMENT

DC power supply or vehicle battery (p. 15)

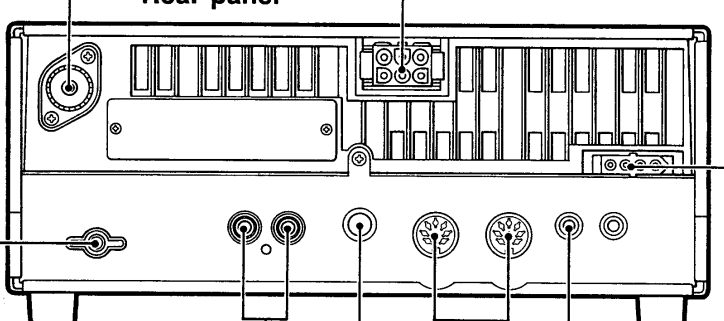
- PS-55 DC POWER SUPPLY
  For AC power operation.



- 12 V vehicle battery
- PS-66 DC-DC CONVERTER
  For 24 V vehicle battery.

Ground (p. 13)
The transceiver MUST be grounded through this terminal.

Rear panel



Required connections

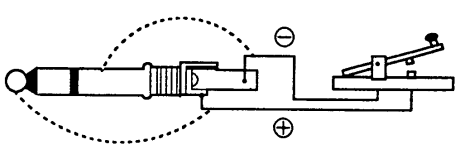
Convenient connections

Non-Icom linear amplifier
Refer to your linear amplifier instruction manual.

External equipment (p. 12)

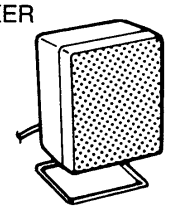
Control cable (p. 11)
Accepts a control cable from optional AT-130.

CW key
Straight key or external electronic keyer connection.



4 – 8 Ω speaker

- SP-7 EXTERNAL SPEAKER



■ Power supply connections

CAUTION: Before connecting the DC power cable, confirm the following:
The [POWER] switch is OFF.

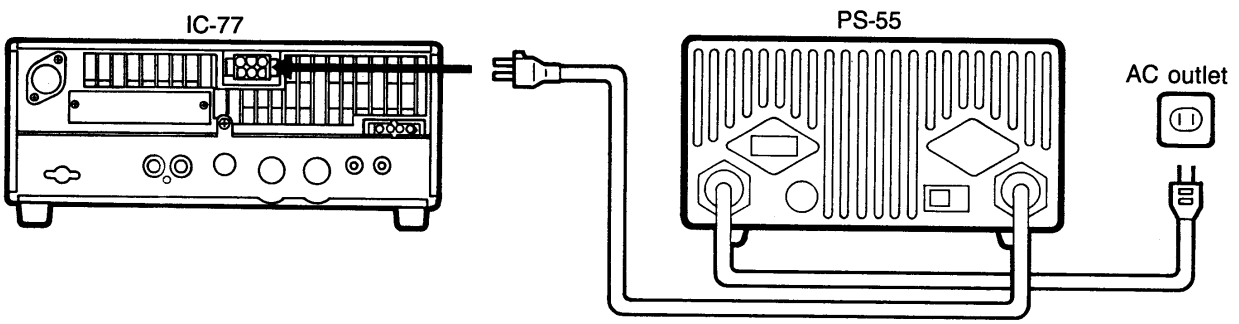
For non-Icom DC power supply or vehicle battery connection, DC power cable polarity is correct.
Red : positive ⊕ terminal
Black : negative ⊖ terminal

For mobile operation, connect a 12 V battery.

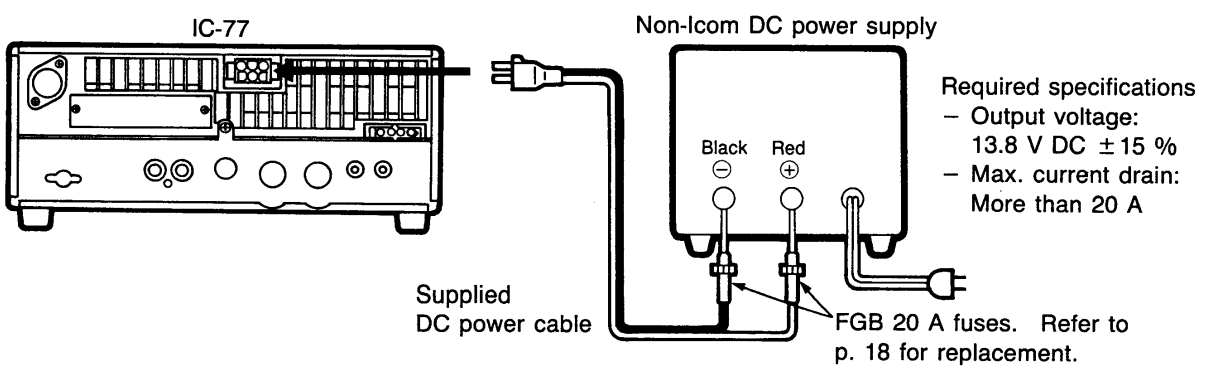
NEVER connect a 24 V battery directly. Connect an optional PS-66 DC-DC CONVERTER between 24 V battery and the IC-77.

Connecting an Icom DC power supply

An optional PS-55 DC POWER SUPPLY is available for AC power operation.



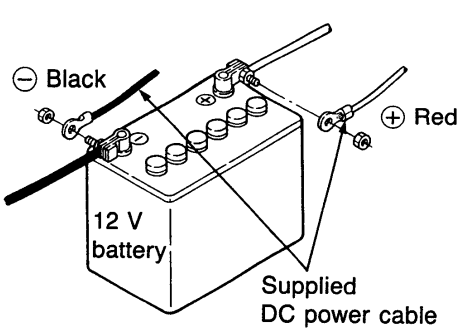
Connecting a non-Icom DC power supply



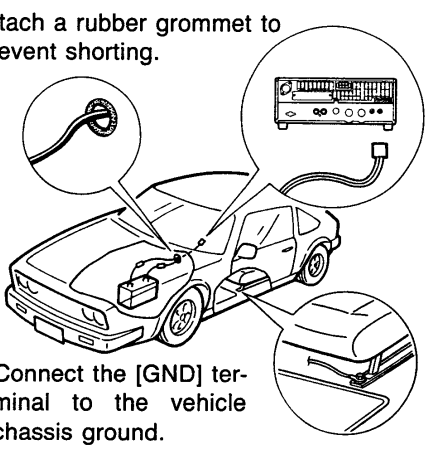
Required specifications
- Output voltage: 13.8 V DC ±15 %
- Max. current drain: More than 20 A

FGB 20 A fuses. Refer to p. 18 for replacement.

Connecting a vehicle battery

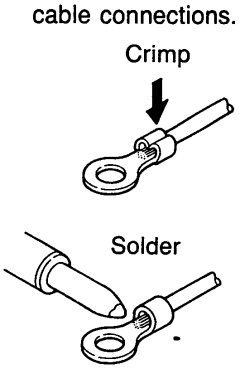


Attach a rubber grommet to prevent shorting.



Connect the [GND] terminal to the vehicle chassis ground.

Use terminals for the cable connections.



■ General

- Frequency coverage : Transmit
  1.6050 – 1.9999 MHz
  3.5000 – 3.9999 MHz
  5.0000 – 7.9999 MHz
  9.0000 – 30.0000 MHz*
  *Philippine version:
  9.0000 – 28.0000 MHz

  Receive
  0.5000 – 30.0000 MHz

- Mode :
  Philippine version: SSB (USB)

  Other versions: Normal setting SSB (USB)
  Optional settings SSB (LSB), AM, CW

- Max. number of channels : 25, 30, 40 or 50 channels (according to versions)

- Antenna impedance : 50 Ω nominal

- Usable temperature range : −10°C to +60°C; +14°F to +140°F

- Frequency stability :
  Philippine version: Less than ±20 Hz
  from 15 min. after power ON, at 0°C to +50°C

  Other versions: Less than ±200 Hz
  from 1 min. to 60 min. after power ON, at +25°C
  Less than ±30 Hz/hr.
  from 60 min. after power ON, at +25°C
  Less than ±350 Hz
  at temperature fluctuations 0°C to +50°C

- Power supply requirement : 13.8 V DC ±15%

- Current drain (at 13.8 V DC) : Transmit High power 20A
  Receive Squelched 1.3 A
  Max. audio output 2.1 A

- Dimensions : 240(W) × 95(H) × 239(D) mm
  9½(W) × 3¾(H) × 9⁷⁄₁₆(D) in
  (projections not included)

- Weight : 3.9 kg; 8.6 lb

■ Transmitter

- Output power : SSB, CW 5 – 100 W
  AM 5 – 25 W

- Modulation system : SSB Balanced modulation
  AM Low power modulation

- Spurious emissions : 46 dB below peak output power

- Carrier suppression : More than 40 dB

- Unwanted sideband : More than 50 dB

- Microphone impedance : 600 Ω

■ Receiver

- Sensitivity :
  (preamp ON)
  SSB, CW 1.6050 – 30.0000 MHz
  Less than 0.5 µV for 12 dB SINAD
  AM 0.5000 – 1.6050 MHz
  Less than 12.6 µV for 10 dB S/N
  1.6050 – 30.0000 MHz
  Less than 2.0 µV for 10 dB S/N

- Squelch sensitivity (preamp OFF) : SSB, CW 5.6 µV

- Selectivity : SSB, CW
  More than 2.1 kHz/−6 dB
  Less than 4.0 kHz/−60 dB
  AM
  More than 6.0 kHz/−6 dB
  Less than 20.0 kHz/−40 dB

- Spurious and image rejection ratio : More than 70 dB

- Audio output power : More than 2.6 W with an 8 Ω load

- RIT variable range : ±1.2 kHz

All stated specifications are approximate and subject to change without notice or obligation.

5 MAINTENANCE

■ Troubleshooting

The following chart is designed to help you correct problems which are not equipment malfunctions.

If you cannot solve a problem, contact your nearest Icom Dealer or Service Center.

	PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Does not operate	"NO CH" appears on the function display and the transceiver does not operate.	• Channels are not programmed.	• Ask your Icom Dealer for channel programming.	—
		• The lithium backup battery is exhausted and channels are erased.	• Ask your Icom Dealer for backup battery replacement and reprogramming.	p. 18
	Power does not come ON when the [POWER] switch is in the ON position.	• The DC power cable is improperly connected.	• Reconnect the power cable correctly.	p. 15
		• A fuse in the DC power cable is blown.	• Check for the cause, then replace the blown fuse in the DC power cable with a new one.	p. 18
		• For mobile operation, vehicle's battery is exhausted.	• Charge the vehicle's battery.	—
Receive	No sound comes from the speaker.	• Volume level is too low.	• Rotate the [AF] control clockwise to obtain a suitable listening level.	p. 8
		• The squelch is closed.	• Rotate the [SQL] control counter-clockwise to open the squelch.	p. 8
		• An external speaker or headphones are connected.	• Disconnect the external speaker or headphone plug.	pgs. 7,14
		• CW narrow mode is selected without an optional FL-52A or FL-53A CW NARROW FILTER.	• Ask your Icom Dealer for the FL-52A or FL-53A installation, if required.	p. 20
	Sensitivity is low.	• The antenna is not connected properly.	• Reconnect the antenna connector.	p. 13
		• The coaxial cable is cut or shorted.	• Check the coaxial cable and correct any improper conditions.	—
		• An antenna not suitable for the operating frequency is connected.	• Connect an antenna suitable for the operating frequency.	—
		• An antenna is not properly tuned when using an optional AT-130 HF AUTOMATIC ANTENNA TUNER.	• Push the [TUNE] switch to retune the antenna.	p. 10
		• The attenuator is ON.	• Push the [PREAMP/ATT] switch 1 time to turn OFF the attenuator.	p. 8
		• The preamp is OFF.	• Push the [PREAMP/ATT] switch 1 time to turn ON the preamplifier, if required.	p. 8
	Receive signal is distorted with strong signals.	• The noise blanker is ON.	• Push the [NB] switch to turn OFF the noise blanker.	p. 8
		• The preamp is ON.	• Push the [PREAMP/ATT] switch 2 times to turn OFF the preamp.	p. 8
	Receive audio is not clear.	• Receive signal is off frequency.	• Push the [RIT] switch and rotate the [RIT] control to obtain clear audio.	p. 8

	PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Transmit	Output power is too low.	• The [RF PWR] control is set too far counterclockwise.	• Rotate the [RF PWR] control clockwise.	p. 10
		• The [MIC] control is set too far counterclockwise.	• Rotate the [MIC] control to a suitable position.	p. 10
		• The antenna is not connected properly.	• Reconnect the antenna connector.	p. 13
		• The coaxial cable is cut or shorted.	• Check the coaxial cable and correct any improper conditions.	—
		• An antenna not suitable for the operating frequency is connected.	• Connect an antenna suitable for the operating frequency.	—
		• The antenna is not properly tuned when using an optional AT-130 HF AUTOMATIC ANTENNA TUNER.	• Push the [TUNE] switch to retune the antenna.	p. 10
	Transmitted signals are distorted.	• The [MIC] control is set too far clockwise.	• Rotate the [MIC] control to a suitable position.	p. 10
Display	The displayed memory channel cannot be changed.	• The lock function is activated.	• Push the [LOCK] switch to cancel the lock function.	p. 6
Scan	Channel scan does not start.	• Squelch is open.	• Rotate the [SQL] control to the threshold point.	p. 6
	When a signal is received, the channel scan is cancelled.	• Scan resume condition is OFF.	• Ask your Icom Dealer to program scan resume condition ON.	

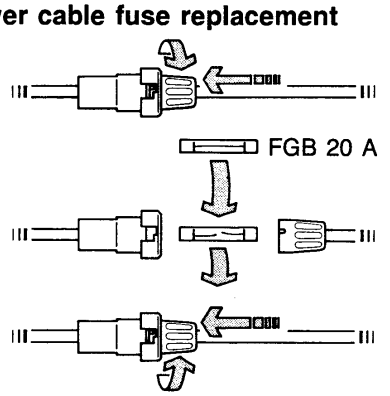
■ Fuse replacement

If a fuse blows, check for the cause, then replace the blown fuse in the DC power cable with a new one.
• DC power cable fuses: FGB 20 A

If the power does not come ON even after fuse replacement, the internal fuse may be blown. Ask your Icom Dealer for internal fuse replacement.
• Internal fuse: FGB 4 A

CAUTION: DISCONNECT the DC power cable from the DC power supply or battery when changing the fuse.

DC power cable fuse replacement



■ CPU backup battery

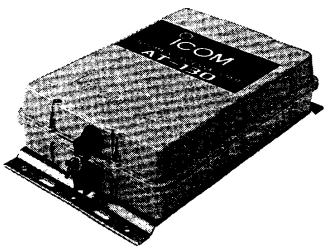
The IC-77 has a lithium backup battery for retaining channel information. When this battery is exhausted, channels are erased. The usual life of the battery is more than 5 years.

Ask your Icom Dealer or Service Center for backup battery replacement and re-programming.

⚠WARNING: NEVER replace the lithium backup battery yourself. If the backup battery is incorrectly replaced, an explosion may occur. The backup battery should be replaced by an authorized Icom Dealer or Service Center.

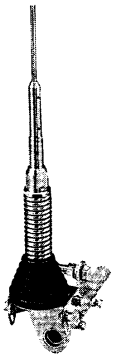
6 OPTIONS

AT-130 HF AUTOMATIC ANTENNA TUNER



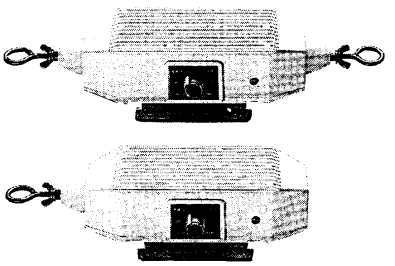
Automatically matches the IC-77 to a long-wire antenna. Convenient for portable or mobile operation.
- Max. input power : 150 W

AH-2b ANTENNA ELEMENT



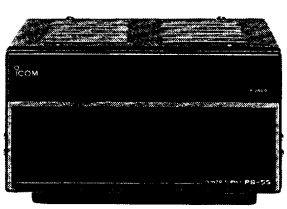
A 2.5 m long mobile antenna element with a 90 cm feeder. Can be used with the AT-130 for operation above 3.5 MHz. Includes a sturdy tow hook mount system and all required hardware.

MN-100, MN-100L ANTENNA MATCHERS



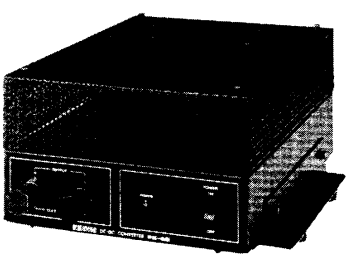
Match the IC-77 to an antenna element without applying DC power.
- MN-100 : For dipole or whip antenna.
- MN-100L : For whip or long-wire antenna.

PS-55 DC POWER SUPPLY



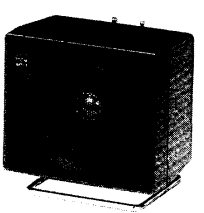
A heavy-duty power supply. Built-in cooling fan for full-duty operation. The size is matched with the IC-77.
- Output voltage : 13.8 V DC
- Max. current drain : 20 A

PS-66 DC-DC CONVERTER



Allows you to use the IC-77 with a 24 V battery.
- Input voltage : 19 – 32 V DC
- Output voltage: 13.6 V DC
- Max. current drain: 30 A

SP-7 EXTERNAL SPEAKER



Designed for office operation. Style and size are matched with the IC-77.
- Input impedance : 8 Ω
- Max. input power : 5 W

SM-6 DESKTOP MICROPHONE

Easy-to-use microphone for office operation. Electret condenser type.

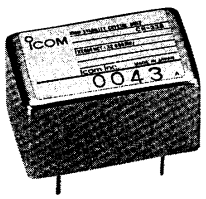
SM-8 DESKTOP MICROPHONE

Includes [UP]/[DOWN] switches. Can be connected to two IC-77's. Includes 2 connection cables. Electret condenser type.

SM-20 DESKTOP MICROPHONE

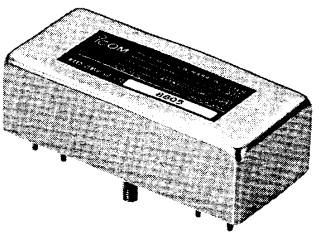
High-quality microphone with a heavy, stable base. Includes [UP]/[DOWN] and low frequency cut switches. Electret condenser type.

CR-338 HIGH-STABILITY CRYSTAL UNIT



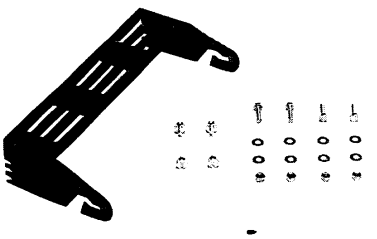
For improved frequency stability. Ask your Icom Dealer for installation. Already installed in Philippine version.
- Frequency stability: 0.5 ppm (−10°C to +60°C)

FL-52A, FL-53A CW NARROW FILTERS



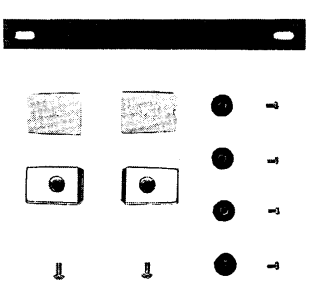
Provide better CW receiving during crowded band condition.
- Center frequency : 455 kHz
- Passband width:
  FL-52A : 500 Hz/−6 dB
  FL-53A : 250 Hz/−6 dB

IC-MB5 MOBILE MOUNTING BRACKET



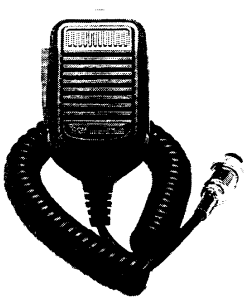
Transceiver bracket for mobile operation.

MB-23 CARRYING HANDLE



For easy portable operation. Some screws are supplied with the IC-77 for the MB-23 installation.

HM-36 HAND MICROPHONE



The same type as supplied with the IC-77.

OPC-420 CONTROL CABLE

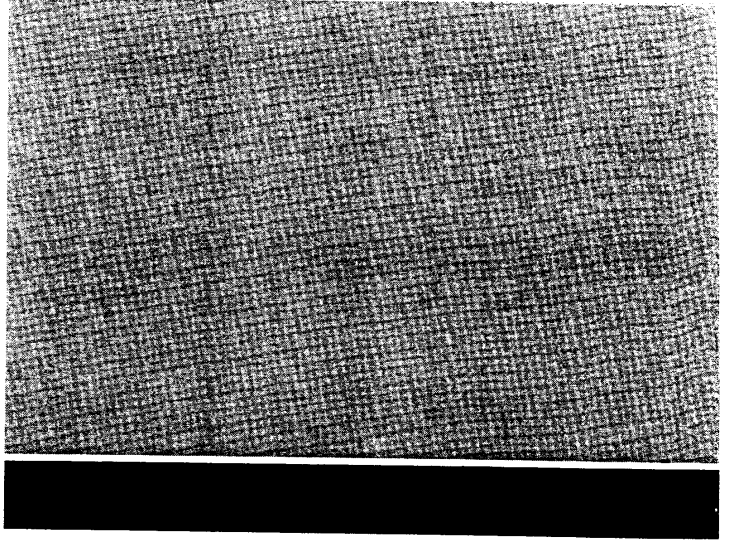
AT-130 ⟷ IC-77. 10 m long.

OPC-025A DC POWER CABLE

The same type as supplied with the IC-77.

Some versions cannot use all the options listed above, since type approval for the IC-77 varies between counteries. Ask your Icom Dealer for available options.

Count on us!



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