

ICOM

INSTRUCTION MANUAL

HF TRANSCEIVER
IC-725A



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-725A.

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 ($+14^{\circ}\text{F}$) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

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.

During 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 for long periods.

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

FOREWORD

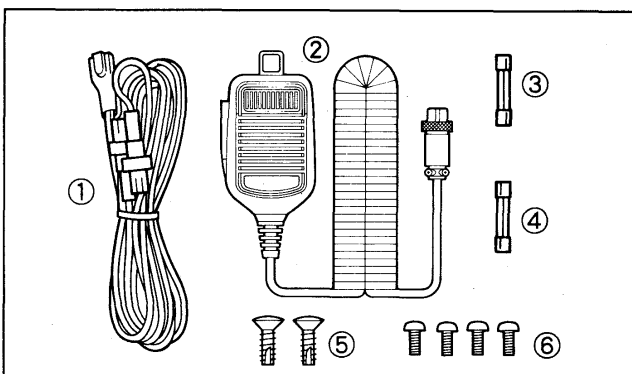
Thank you for purchasing the **IC-725A HF TRANSCEIVER**. The **IC-725A** is a compact, easy-to-operate transceiver designed with Icom's state-of-the-art technology.

If you have any questions regarding the **IC-725A**, 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.

UNPACKING



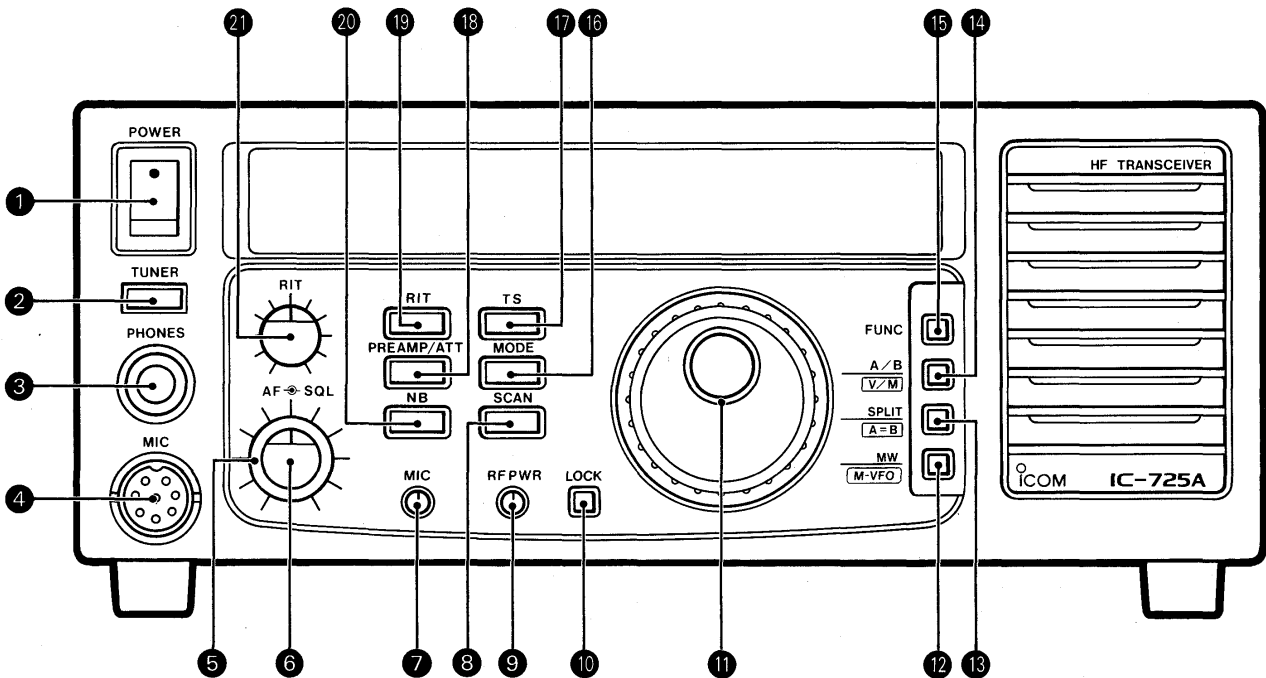
Accessories included with the IC-725A:	Qty.
① DC power cable (OPC-025A)	1
② Hand microphone (HM-36)	1
③ Spare fuse (for DC power cable, FGB 20 A)	1
④ Spare fuse (for internal PA unit, FGB 4 A)	1
⑤ 4 X 12 mm self-tapping screws (for optional MB-23)	2
⑥ 3 X 6 mm self-tapping screws (for optional MB-23)	4

TABLE OF CONTENTS

IMPORTANT	i	5 SCANS	29
PRECAUTIONS	i	■ Scan types	29
FOREWORD	i	■ Pre-operation	29
EXPLICIT DEFINITIONS	i	■ Scan operation	29
UNPACKING	i	6 SET MODE	30–32
TABLE OF CONTENTS	ii	■ What is SET mode?	30
1 PANEL DESCRIPTION	1–6	■ SET mode construction	30
■ Front panel	1	■ Selectable modes	31
■ Function display	3	■ Beep tone	31
■ Microphone (HM-36)	4	■ Scan resume	31
■ Rear panel	5	■ Tuner type	31
2 INSTALLATION AND CONNECTIONS	7–12	■ CI-V address	32
■ Mounting the transceiver	7	■ CI-V baud rate	32
■ Antenna	7	■ CI-V transceive	32
■ Connections chart	8	■ CI-V data length	32
■ Power supply connections	9	7 MAINTENANCE AND ADJUSTMENT	33–34
■ Linear amplifier connections	10	■ Disassembly	33
■ Antenna tuner connections	11	■ Level presets	34
■ Antenna selector connections	12	■ DC power cable fuse replacement	34
■ AFSK terminal unit connections	12	■ PA unit fuse replacement	34
■ Remote jack (CI-V) information	12	8 OPTIONS INSTALLATION	35–36
3 OPERATION	13–24	■ UI-9 FM UNIT	35
■ Initial settings	13	■ UT-30 PROGRAMMABLE TONE ENCODER	
■ Basic operation	13	UNIT	35
■ What are VFO and MEMORY modes?	14	■ FL-52A or FL-53A CW NARROW FILTER	35
■ Frequency setting	15	■ CR-338 HIGH-STABILITY CRYSTAL UNIT	36
■ Voice receiving	17	■ PLL reference frequency adjustment	36
■ Voice transmitting	19	9 TROUBLESHOOTING	37–38
■ CW mode operation	20	■ Troubleshooting chart	37
■ RTTY mode operation	21	■ CPU backup battery	38
■ Frequency equalizing operation	22	■ CPU resetting	38
■ Split frequency operation	22	10 INSIDE VIEWS	39–40
■ Repeater operation	22	■ MAIN unit and VR board	39
■ AH-3 HF AUTOMATIC ANTENNA TUNER	23	■ PA, FILTER and PLL units	40
■ AT-160 HF AUTOMATIC ANTENNA TUNER	24	11 SPECIFICATIONS	41
■ IC-AT500, AT-150 HF AUTOMATIC		■ General	41
ANTENNA TUNERS	24	■ Transmitter	41
4 MEMORY CHANNELS	25–28	■ Receiver	41
■ Channel functions	25	12 OPTIONS	42–44
■ VFO and MEMORY mode selection	25	SCHEMATIC AND BLOCK DIAGRAMS	Separate
■ Memory channel selection	25	Technical information	
■ Memory channel programming	26	• Microphone connector and	
■ Frequency transferring	27	the HM-36 schematic diagram	4
■ Split memory channels	28	• ACC sockets	6

1 PANEL DESCRIPTION

Front panel



- ① **POWER SWITCH [POWER]** (p. 13)
Turns power ON and OFF.
- ② **ANTENNA TUNER SWITCH [TUNER]** (pgs. 23, 24)
 - For an optional AH-3 HF AUTOMATIC ANTENNA TUNER: When pushed and held, starts tuning.
 - For an optional AT-160 HF AUTOMATIC ANTENNA TUNER: Turns the AT-160 power ON and OFF. When pushed and held, starts re-tuning.

Tuner type selection

Before operation, tuner type selection in SET mode is required. Refer to p. 31.

- ③ **HEADPHONE JACK [PHONES]**
Connects headphones. When headphones are connected, no receive audio comes from the speaker.
- ④ **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.

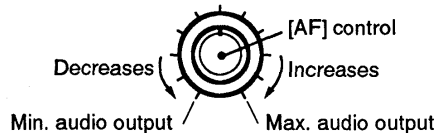
- ⑤ **SQUELCH CONTROL [SQL]** (p. 18)
Adjusts the squelch threshold level.



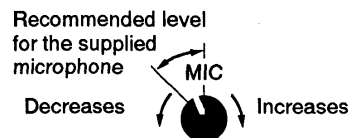
What is the squelch?

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

- ⑥ **AF GAIN CONTROL [AF]** (p. 17)
Adjusts the audio output level from the speaker.



- ⑦ **MICROPHONE GAIN CONTROL [MIC]** (p. 19)
Adjusts microphone input gain.

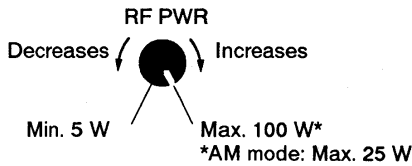


- ⑧ **SCAN SWITCH [SCAN]** (p. 29)
 - While in VFO mode: Starts and stops programmed scan.
 - While in MEMORY mode: Starts and stops memory scan.

What is scan?

- **Programmed scan** repeatedly scans between scan edge frequencies.
- **Memory scan** repeatedly scans memory channels 1 – 30.

- 9 **RF POWER CONTROL [RF PWR]** (p. 19)
Adjusts the RF output power from minimum to maximum.



- 10 **DIAL LOCK SWITCH [LOCK]** (p. 15)
Electronically locks the main dial to prevent accidental changing of operating frequency or memory channel.

- 11 **MAIN DIAL** (pgs. 15, 16, 25)
 - Selects displayed frequency.
 - After pushing the [FUNC] switch: Selects a memory channel.

- 12 **MEMORY WRITE SWITCH [MW $\overline{M \blacktriangleright VFO}$]** (pgs. 26, 27)
 - When pushed and held, stores the displayed frequency and mode into a memory channel.
 - After pushing the [FUNC] switch: When pushed and held, transfers the memory channel contents into the VFO.

- 13 **SPLIT SWITCH [SPLIT $\overline{A=B}$]** (pgs. 22, 28)
 - Activates and cancels split frequency operation.
 - After pushing the [FUNC] switch: Copies displayed VFO contents into undisplayed VFO.

What is split operation?

Split frequency operation allows you to transmit and receive on 2 different frequencies.

- 14 **VFO SWITCH [A/B $\overline{V/M}$]** (pgs. 14, 25)
 - Selects VFO A and VFO B alternately.
 - After pushing the [FUNC] switch: Selects VFO mode and MEMORY mode alternately.

What is VFO?

VFO controls required frequencies. VFO stands for Variable Frequency Oscillator.

- 15 **FUNCTION SWITCH [FUNC]**
Provides access to a secondary function. Refer to 11, 12, 13 and 14 above.

- 16 **MODE SWITCH [MODE]** (p. 17)
Selects an operating mode.

Selectable mode restriction

According to your preference, selectable modes can be restricted in SET mode. Refer to p. 31

Required options

- For CW narrow mode: the FL-52A or FL-53A CW NARROW FILTER
 - For FM mode: the UI-9 FM UNIT
 - For accessing a repeater that requires a subaudible tone: the UI-9 and UT-30 PROGRAMMABLE TONE ENCODER UNIT
- Refer to p. 35 for installation.

- 17 **TUNING STEP SWITCH [TS]** (pgs. 15, 16)
Selects 10 Hz, 1 kHz and 1 MHz tuning steps or an amateur band.

Minimum tuning step

Even though 10 Hz digit is not shown on the frequency readout, the minimum tuning step is 10 Hz.

- 18 **PREAMP/ATTENUATOR SWITCH [PREAMP/ATT]** (p. 18)
Activates the preamp or attenuator and cancels them.

What is the preamp?

The preamp amplifies a desired weak signal with 10 dB of amplifier gain.

What is the attenuator?

The attenuator protects a desired signal from interference with 20 dB of attenuation when:

- very strong signals are near the desired frequency.
- very strong stations are near your location.

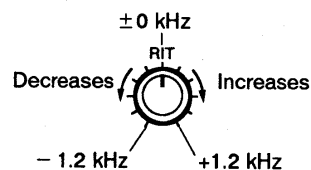
- 19 **RIT SWITCH [RIT]** (p. 18)
Activates and cancels the RIT function.

- 20 **NOISE BLANKER SWITCH [NB]** (p. 18)
Activates and cancels the noise blanker.

What is the noise blanker?

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

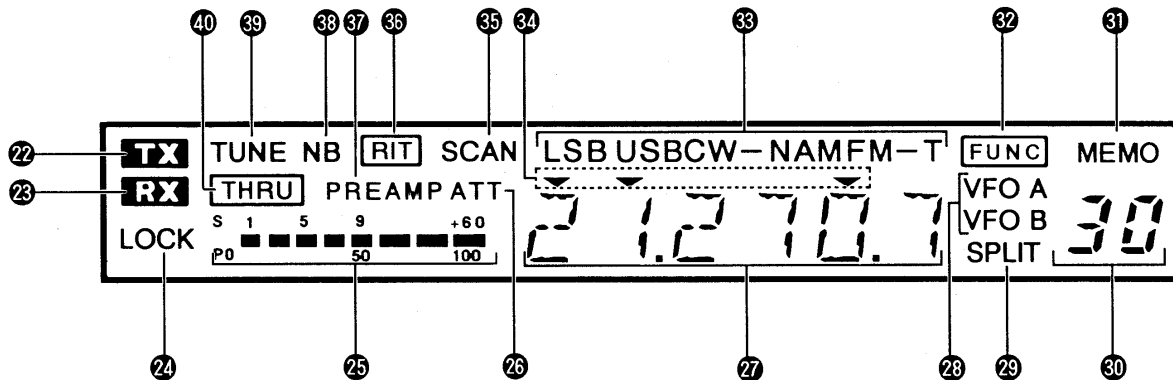
- 21 **RIT CONTROL [RIT]** (p. 18)
Shifts the receive frequency while the RIT function is activated.



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



- 22 **TRANSMIT INDICATOR** (p. 19)
Shows that the transceiver is transmitting.
- 23 **RECEIVE INDICATOR** (p. 17)
Shows that the squelch is open while receiving.
- 24 **LOCK INDICATOR** (p. 15)
Shows that the main dial is electronically locked.
- 25 **S/RF INDICATOR** (pgs. 17, 19)
 - Shows the receive signal strength while receiving.
 - Shows the RF output power level while transmitting.
- 26 **ATTENUATOR INDICATOR** (p. 18)
Shows that the RF attenuator is activated.
- 27 **FREQUENCY READOUT**
Shows the operating frequency.
- 28 **VFO INDICATORS** (p. 14)
Shows that VFO mode is selected.
 - Selected VFO is indicated.
- 29 **SPLIT INDICATOR** (pgs. 22, 28)
Shows that the split frequency operation is activated.
 - This indicator blinks for 2 sec. when a split memory channel is selected.
- 30 **MEMORY CHANNEL NUMBER READOUT** (p. 25)
Shows the selected memory channel number.
- 31 **MEMORY INDICATOR** (pgs. 14, 25)
Shows that MEMORY mode is selected.
- 32 **FUNCTION INDICATOR**
Shows that secondary functions can be activated.
- 33 **MODE INDICATORS** (pgs. 17, 20, 21)
Show the operating mode.
- 34 **TUNING STEP INDICATORS** (pgs. 15, 16)
 - When “▼” or “▼▼” disappears: Shows that 10 Hz step is selected.
 - When “▼” appears on the 1 kHz or 1 MHz digit: Shows the selected tuning step.
 - When “▼▼” appears on the 10 MHz and 1 MHz digits: Shows that the band change function is activated.
- 35 **SCAN INDICATOR** (p. 29)
Shows that programmed scan or memory scan is activated.
- 36 **RIT INDICATOR** (p. 18)
Shows that the RIT function is activated.
- 37 **PREAMP INDICATOR** (p. 18)
Shows that the preamp is activated.
- 38 **NOISE BLANKER INDICATOR** (p. 18)
Shows that the noise blanker is activated.
- 39 **TUNE INDICATOR** (pgs. 23, 24)
When an optional AT-160 or AH-3 HF AUTOMATIC ANTENNA TUNER is connected, shows the following conditions:
 - Blinks during tuning operation.
 - Appears continuously when the antenna tuner completes tuning.
- 40 **THROUGH INDICATOR** (pgs. 23, 24)
When an optional AT-160 or AH-3 HF AUTOMATIC ANTENNA TUNER is connected, shows that the [ANT] connector is directly connected to the antenna.
 - ▨ **CAUTION:** When the AH-3 is connected, **DO NOT** transmit while “THRU” appears, since the transceiver may be damaged.