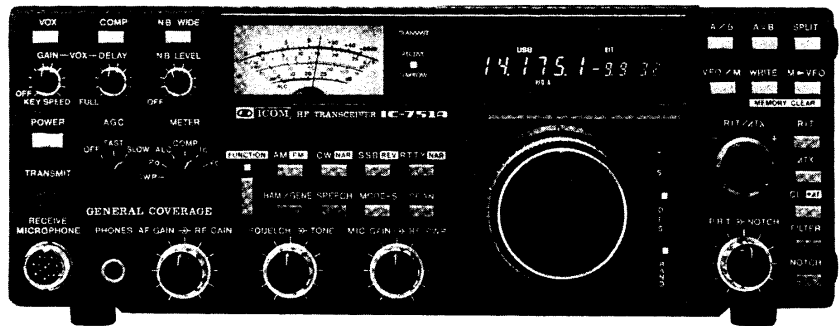


IC-751A

HF ALL BAND TRANSCEIVER
GENERAL COVERAGE RECEIVER

INSTRUCTION MANUAL



ICOM

FOREWORD

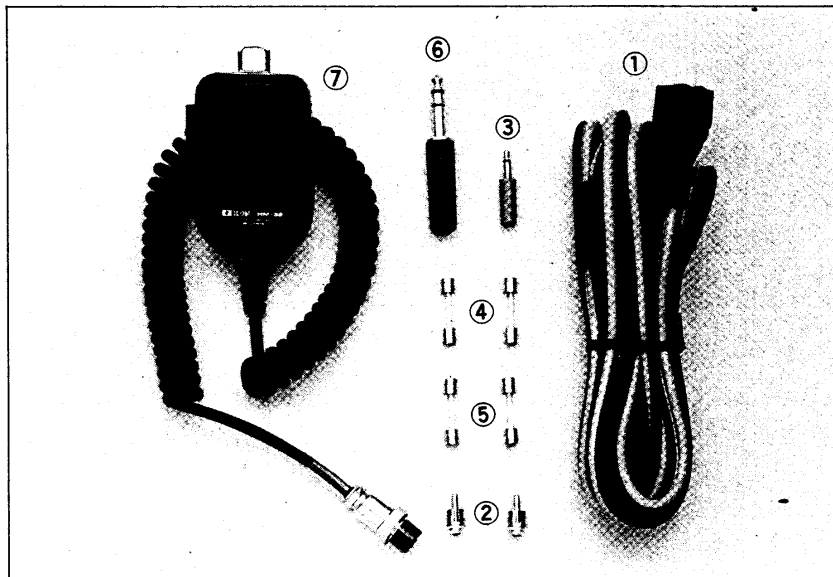
Thank you very much for choosing this ICOM product.

The **IC-751A** HF transceiver is a refined version of the popular IC-751. Through intensive market research, ICOM has compiled ideas from Amateur Radio operators worldwide and used this feedback in an effort to design the best transceiver with those features actually required by today's active participant in the field of Amateur communications. This research program is evidence of the basic ICOM philosophy of providing a product Amateurs want.

This is it. The **IC-751A** is an all mode HF transceiver and general coverage receiver developed using the most current computer-based design techniques and HF engineering.

Please study this instruction manual thoroughly to learn all functions of the **IC-751A** and refer back to the manual periodically as necessary. Feel free to contact any authorized ICOM dealer should you have questions regarding the operation or capabilities of the **IC-751A**.

UNPACKING



1. DC power cable	1
2. Pin plugs	2
3. External speaker plug	1
4. Spare fuses (20 ampere)	2
5. Spare fuses (3 ampere)	2
6. CW key plug	1
7. Microphone (HM-36)	1

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SECTION 1 FEATURES

■ COMPLETE HF RADIO

- ALL BAND, ALL MODE
ALL SOLID-STATE

The IC-751A covers all Amateur HF frequencies from 1.8MHz to 30MHz, including the three new bands of 10MHz, 18MHz and 24MHz. It also offers SSB, CW, AM, FM and RTTY operating modes as standard features. All circuits in the IC-751A, including the driver and final power stages, are completely solid-state producing a final output power of 100 watts.

- GENERAL COVERAGE RECEIVER

The IC-751A features general coverage receive capability with a tuning range from 100kHz to 30MHz. This wide range is accomplished by means of up-conversion using a high side IF and a CPU control system.

- FULL BREAK-IN FUNCTION

For CW operators, both semi break-in and full break-in are provided for smooth, fast and natural CW conversations.

■ OUTSTANDING RECEIVER PERFORMANCE

- ICOM'S DFM SYSTEM

The ICOM DFM (Direct Feed Mixer) feeds the incoming signals directly into a high level first mixer developed by ICOM. This advanced system produces a higher spurious response rejection ratio, a higher receiver sensitivity and a wider dynamic range.

- 105dB DYNAMIC RANGE

The IC-751A has a 105dB dynamic range. Even with the PREAMP switched ON, the dynamic range is approximately 100dB.

- PREAMP AND ATTENUATOR
INCLUDED

Both a 10dB preamplifier PLUS a 20dB attenuator are installed as standard equipment. The preamplifier increases receiver sensitivity while the attenuator provides added protection from intermodulation problems.

■ NEWLY DEVELOPED CPU

- VARIOUS SCANNING FUNCTIONS

Memory Scan allows monitoring of all memory channels or only those storing a particular mode. Programmed Scan provides scanning between any two programmed frequencies. Mode Scan automatically monitors only memories containing frequencies with a similar mode. In all cases, the Auto-stop function halts the scan when a signal is received and the Resume function restarts the scan when the frequency is clear.

- 32 MEMORIES

Thirty-two programmable memories are provided to store mode and frequency, and the CPU is backed up by an internal lithium battery to maintain the memories for up to ten years. Scanning of frequencies or memories is possible from either the transceiver or the HM-36 scanning microphone.

■ OPTIONS AVAILABLE

- IC-PS30

The IC-PS30 external AC power supply was developed especially for ICOM base radios and matches the style and size of the IC-751A. This power supply uses a recently designed switching regulator, resulting in light weight and high efficiency.

- IC-2KL

The IC-2KL is a completely solid-state, HF broadband linear amplifier with 500 watts output to give your signal the extra boost needed for solid contacts when propagation is poor.

SECTION 2 SPECIFICATIONS

2 - 1 GENERAL

Number of semiconductors	:	Transistors	59
		(Australia, France:	61)
		FETs	23
		Diodes	336
		ICs (Includes CPU)	64
Frequency coverage	:	Ham Bands	
		1.8MHz ~ 2.0MHz	
		3.45MHz ~ 4.1MHz	
		6.95MHz ~ 7.5MHz	
		9.95MHz ~ 10.5MHz	
		13.95MHz ~ 14.5MHz	
		17.95MHz ~ 18.5MHz	
		20.95MHz ~ 21.5MHz	
		24.45MHz ~ 25.1MHz	
		27.95MHz ~ 30.0MHz	
		General Coverage (Receive Only)	
		0.1MHz ~ 30.0MHz	
Usable temperature range	:	-10°C ~ +60°C (+14°F ~ +140°F)	
Frequency control	:	CPU based 10Hz step digital PLL synthesizer.	
		Independent transmit/receive frequency.	
Frequency readout	:	6 digit 100Hz illuminated FIP.	
Frequency stability	:	Less than ±200Hz from 1 to 60 minutes after power ON.	
		Less than ±30Hz after 1 hour at 25°C.	
		Less than ±350Hz in the range of 0°C +50°C.	
Power supply requirements	:	13.8V DC ±15% (negative ground), current drain 20A maximum at 200W input.	
		AC power supply is available for AC operation.	
Current drain (at 13.8V DC)	:	Transmitting	
		At 200 watts input	Approx. 20.0A
		Receiving	
		At maximum audio output	Approx. 1.8A
		Squelched	Approx. 1.5A
Antenna impedance	:	50 ohms unbalanced.	
Weight	:	8.5kg	
Dimensions	:	306(322)mm(W) x 115(120)mm(H) x 355(385)mm(D)	
		Bracketed values include projections.	

2 - 2 TRANSMITTER

RF power	:	SSB (J3E) : 200 watts PEP input	
		CW (A1A) : 200 watts input	
		FM (F3E) : 200 watts input	
		RTTY (F1A) : 200 watts input	
		AM (A3E) : 50 watts output	
Emission modes	:	SSB (J3E) Upper and Lower sideband	
		CW (A1A)	
		FM (F3E)	
		RTTY (F1A)	
		AM (A3E)	
Harmonic emissions	:	More than 40dB below peak power output.	
Spurious emissions	:	More than 60dB below peak power output.	
		(Guaranteed for transmissions within the Amateur bands.)	
Carrier suppression	:	More than 40dB below peak power output.	
Unwanted sideband	:	More than 55dB down with 1000Hz AF input.	
Microphone	:	Impedance 600 ohms	
		Input level 12 millivolts typical	
		Dynamic or electret condenser	
ΔTX variable range	:	±9.9kHz	

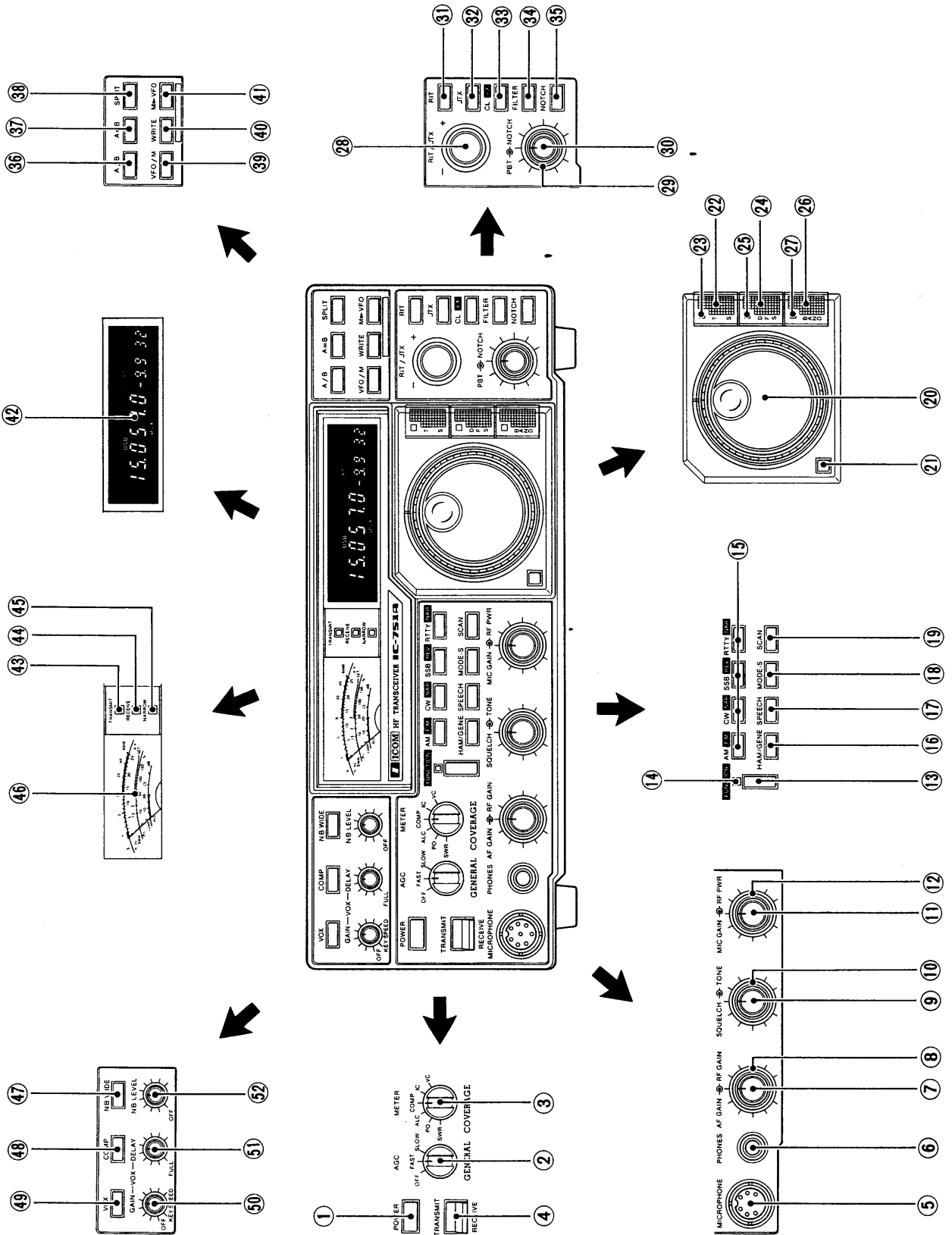
2 - 3 RECEIVER

Receive system	: SSB, CW, RTTY, AM Quadruple-conversion superheterodyne with continuous bandwidth control. FM Triple-conversion superheterodyne.
Receive modes	: SSB (J3E) Upper and Lower sideband CW (A1A) FM (F3E) RTTY (F1A) AM (A3E)
Intermediate frequencies	: 1st: All modes 70.4515MHz 2nd: SSB 9.0115MHz CW, RTTY 9.0106MHz FM, AM 9.0100MHz 3rd: All modes 455kHz 4th: SSB 9.0115MHz CW, RTTY 9.0106MHz AM 9.0100MHz
Sensitivity (PREAMP ON)	: SSB, CW, RTTY 0.1 ~ 0.5MHz Less than 0.5 μ V for 10dB S/N 0.5 ~ 1.6MHz Less than 1 μ V for 10dB S/N 1.6 ~ 30.0MHz Less than 0.15 μ V for 10dB S/N AM (NARROW FILTER selected) 0.1 ~ 0.5MHz Less than 3 μ V for 10dB S/N 0.5 ~ 1.6MHz Less than 6 μ V for 10dB S/N 1.6 ~ 30.0MHz Less than 1 μ V for 10dB S/N FM 28 ~ 30MHz Less than 0.3 μ V for 12dB SINAD
Squelch sensitivity	: 1.6 ~ 30MHz Less than 0.3 μ V
Selectivity	: SSB, CW, RTTY (WIDE FILTER selected), AM (NARROW) 2.3kHz at -6dB points 3.8kHz at -60dB points CW, RTTY 500Hz at -6dB points 1.3kHz at -60dB points FM 15kHz at -6dB points 30kHz at -50dB points AM (WIDE FILTER selected) 8kHz at -6dB points 18kHz at -50dB points
Spurious and image response rejection	: Image rejection More than 80dB IF rejection More than 70dB
Audio output	: More than 2.6 watts at 10% distortion with 8 ohm load.
Notch filter attenuation	: More than 45dB
RIT variable range	: \pm 9.9kHz

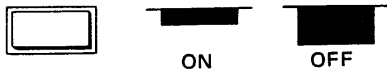
SECTION 3 CONTROL FUNCTIONS

3-1 FRONT PANEL

See SECTION 3-2 for frequency display.

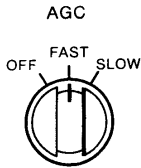


① POWER SWITCH



This is a push-lock switch which controls the input DC power to the IC-751A. When the IC-PS30 AC power supply is used, the switch also acts as the AC power supply switch. Power is supplied to the transceiver when the switch is pushed IN and locked. Power to all circuits is cut (except to the PA unit when using a DC power supply) when the switch is pushed again and released.

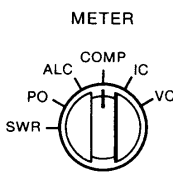
② AUTOMATIC GAIN CONTROL SWITCH [AGC]



This switch changes the time constant of the AGC circuit. In the SLOW position, the AGC voltage releases slowly for SSB reception. In the FAST position, the AGC voltage releases quickly suitable for receiving CW signals or signals with rapid fading.

In the OFF position, the AGC circuit and S-meter are disabled. Also, the AGC circuit does not actuate in the FM mode.

③ METER SWITCH



In the transmit mode, the front panel meter has six functions.

Vc	Indicates the collector voltage of the final transistors.
Ic	Indicates the collector current of the final transistors.
COMP	Indicates the compression level when the speech compressor is in use.
ALC	Indicates the ALC level. The ALC circuit begins to function when the RF output power reaches a preset level.
Po	Indicates the approximate output power.
SWR	Indicates the SWR of the antenna system after the meter is referenced at "SET" while the Po meter function is selected.

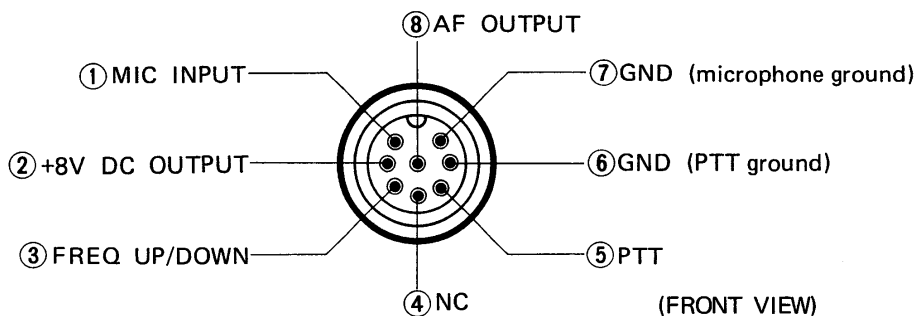
④ TRANSMIT/RECEIVE (T/R) SWITCH



This switch is for manually changing between transmit and receive. Set the switch to RECEIVE (down) to place the IC-751A in the receive mode. Move the switch to TRANSMIT (up) to change to the transmit mode. When using the PTT SWITCH on the microphone or VOX operation, the T/R SWITCH must be at RECEIVE.

⑤ MIC CONNECTOR

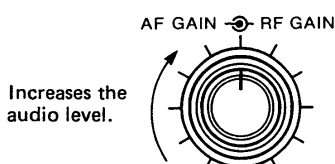
Connect a suitable microphone to this connector. The supplied HM-36 hand microphone or the optional SM-10 desk microphone may be used. When using other microphones, refer to the diagram in SECTION 4 - 4.



⑥ PHONES JACK

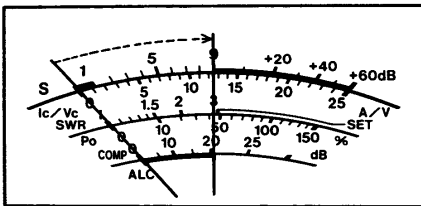
This jack accepts a standard 1/4 inch plug from headphones with an impedance of 4 ~ 16 ohms. Stereo headphones may be used without modification.

⑦ AF GAIN CONTROL



This control varies the audio output level in the receive mode. Clockwise rotation increases the level.

⑧ RF GAIN CONTROL

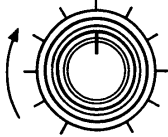


This control varies the gain of the RF stage when the transceiver is in the receive mode. Rotate the control fully clockwise for maximum gain. When tuning in the SSB or CW mode, the S-meter needle rises as the control is rotated counterclockwise and only those signals stronger than the level indicated by the needle are heard.

⑨ SQUELCH CONTROL

SQUELCH \rightarrow TONE

Raises the threshold level.



This control sets the squelch threshold level. To turn OFF the squelch function, rotate this control completely counterclockwise. To set the threshold level higher, rotate the control clockwise.

Adjust this control clockwise until the green RECEIVE indicator just goes out while no signal is being received.

⑩ TONE CONTROL

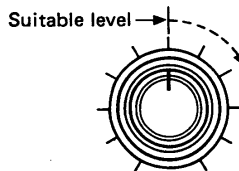
SQUELCH \rightarrow TONE



This control varies the receive audio tone. Adjust the control to provide the clearest, most pleasing audio.

⑪ MIC GAIN CONTROL

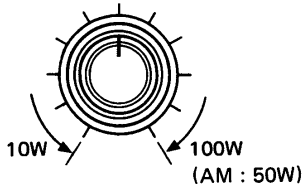
MIC GAIN \rightarrow RF PWR



Adjust this control for a suitable modulation level while speaking into the microphone in a normal voice. Rotate the control clockwise to increase the gain.

⑫ RF POWER CONTROL

MIC GAIN \rightarrow RF PWR

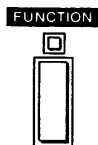


This control varies the RF output power from 10 watts to maximum.

- SSB : 100W PEP
- CW, RTTY, FM : 100W
- AM : 50W

Rotate the control clockwise to increase the output power. Use the minimum power necessary for reliable communication.

⑬ FUNCTION SWITCH



This switch activates the secondary switch functions on the front panel as indicated by the reverse-image lettering (white letters on a black background).

⑭ FUNCTION INDICATOR

The FUNCTION INDICATOR lights after the FUNCTION SWITCH is pushed, and indicates that the secondary switch functions are activated.

⑮ MODE SWITCHES



AM:
Push for AM operation.

FM:
Push the FUNCTION SWITCH first, then push the AM SWITCH to select the FM mode.

CW:
Push for CW operation with the standard filters.



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