IC-28H

144MHz FM TRANSCEIVER

INSTRUCTION MANUAL

ICOM

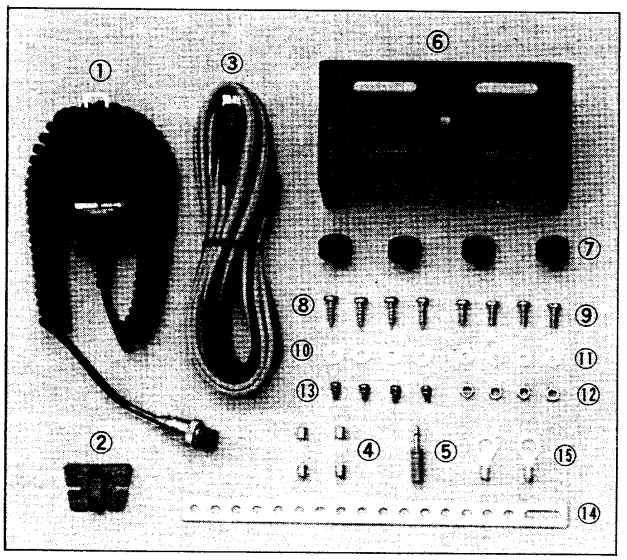
FOREWORD

Congratulations for choosing this technically-advanced ICOM product.

The IC-28H VHF FM transceiver is the latest addition to the ICOM system of Amateur radio equipment. Included in the IC-28H design is provision for use of the newly developed Digital Code Squelch method of communicating. Digital Code Squelch uses the latest digital techniques to create a communications system capable of dramatically reducing the inconvenience of heavily populated Amateur bands. In addition, a full 45 watts gives extra communication range in the IC-28H.

Use the IC-28H with the knowledge that this transceiver, and every ICOM product, is supported by a world-wide network of authorized service centers and dealers ready to provide assistance efficiently.

UNPACKING



IC-28H ACCESSORIES SUPPLIED	QTY.
1. *Microphone	1
2. Microphone hanger	1
3. Power cable	1
4. Fuses (15A)	2
5. External speaker plug	1
6. Mounting bracket	1
7. Mounting bracket knobs	4
8. Mounting screws (self-tapping)	4
9. Mounting screws	4
10. Flat washers (large)	4
11. Flat washers (small)	4
12. Nuts	4
13. Screws/spring washers	4
14. Support bracket	1
15. Cable lugs	2

* U.S.A. version : HM-12
Europe, Italy and Spain versions : HM-15

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SECTION 1 SPECIFICATIONS

1-1 GENERAL

Frequency coverage :

MODEL	GUARANTEED RANGE	OPERATIONAL RANGE	
	TRANSCEIVER	RECEIVER	TRANSMITTER
U.S.A. version	144.00 ~ 148.00	138.00 ~ 174.00	140.10 ~ 150.00
Australia version	144.00 ~ 148.00	144.00 ~ 148.00	144.00 ~ 148.00
Europe version	144.00 ~ 146.00	144.00 ~ 146.00	144.00 ~ 146.00
Italy, Spain versions	144.00 ~ 148.00	140.00 ~ 150.00	140.00 ~ 150.00

Frequency resolution : U.S.A., Australia versions 5, 10, 15, 20 or 25kHz (programmable)
Europe, Italy, Spain versions 12.5 or 25kHz (programmable)

Frequency control : CPU based 5kHz (or 6.25kHz) step digital PLL synthesizer
Simplex and semi-duplex capability (programmable offset)

Memory channels : 21 channels

Usable temperature range : −10°C ~ +60°C (+14°F ~ +140°F)

Power supply requirement : 13.8V DC ±15% (negative ground)
AC power supply is available for AC operation.

Current drain (at 13.8V DC) : Transmit

HIGH (45W)	Maximum	9.5A
LOW (5W)	Approx.	3.5A

Receive

Max. audio output	Approx.	800mA
Squelched	Approx.	450mA

Antenna impedance : 50 ohms unbalanced

Dimensions : 140(140)mm(W) x 50(50)mm(H) x 155(171)mm(D)
Bracketed values include projections

Weight : 1.2kg

1-2 TRANSMITTER

Output power : HIGH 45W LOW 5W

Emission mode : 16K0F3E (16K0F2D: When operating with an optional UT-28)

Modulation system : Variable reactance frequency modulation

Max. frequency deviation : ±5.0kHz

Spurious emission : More than 60dB below carrier

Microphone : 600 ohm electret condenser with push-to-talk and scanning switches
(Europe, Italy, Spain versions 1750Hz tone burst switch)

1-3 RECEIVER

Receive system : Double-conversion superheterodyne

Modulation acceptance : 16K0F3E

Intermediate frequencies : 1st 17.2MHz 2nd 455kHz

Selectivity : More than 12.5kHz at −6dB
Less than 25.0kHz at −60dB

Sensitivity : Less than 0.18μV for 12dB SINAD

Audio output : More than 2.4 watts at 10% distortion with 8 ohm load

Audio output impedance : 4 ~ 8 ohms

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

SECTION 2 FEATURES

•COMPACT AND HIGH OUTPUT POWER 144MHz MOBILE

Smaller than many conventional automobile broadcast band receivers, the sophisticated IC-28H transceiver provides 45W of powerful output on any frequency in the 2 meter band and contains an internal speaker as well.

•SIMPLE PANEL DESIGN

Front panel layout is extremely simple in spite of the great number of functions available. The total number of controls on the front panel is significantly fewer than other models currently available while, at the same time, new features have been added resulting in a mobile unit that is safe and easy to use while driving without sacrificing performance.

•HIGHLY VISIBLE LCD READOUT

The LCD front panel readout features a particularly wide viewing angle designed to enable the driver to easily see the display, even in bright daylight, without changing position.

•AUTOMATIC DIMMER CIRCUIT

Variations in ambient light conditions pose no problems when using the IC-28H since the built-in light sensor automatically adjusts a dimmer circuit to control the backlighting of the display to suit the time of day or night that you are operating. This feature is particularly convenient for night operation to reduce eye fatigue caused by overly bright displays.

•21 MEMORY CHANNELS

The IC-28H introduces a large capacity memory with 21 fully programmable memory channels. These memory channels place a variety of communications functions at the fingertips of the driver.

•DUAL SCANNING FUNCTIONS

- FREQUENCY SCAN:
  The entire band is searched continuously with frequency increments specified by the operator.
- MEMORY SCAN:
  All memory channels are continuously checked.

•SUBAUDIBLE TONE ENCODER STANDARD

With 38 different subaudible tones standard on the IC-28H (U.S.A. version), maximum communications coverage is assured by allowing full access to all your local repeaters.

•SQUELCH OPTIONS

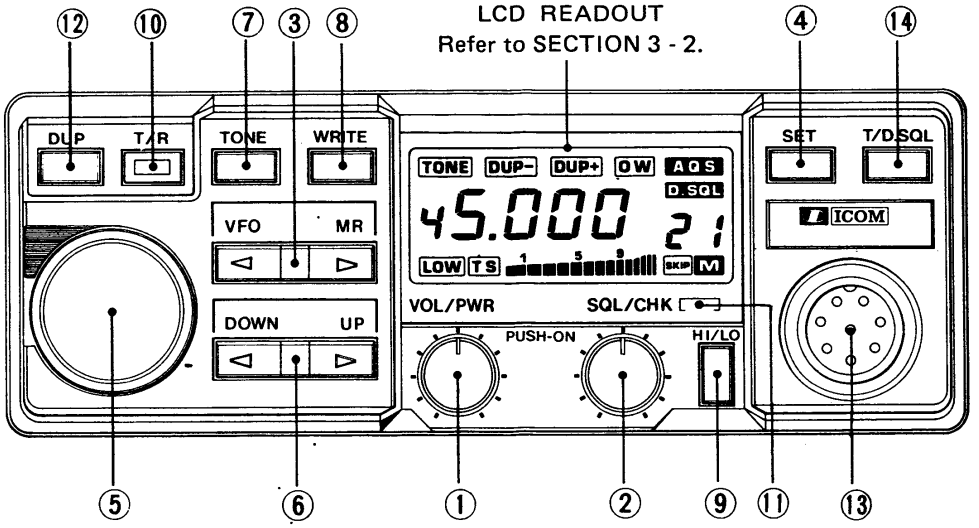
Two new optional units specially designed for the IC-28H are ideal for handling the crowded band conditions found on 2 meters in many locations. Either the UT-28 or the UT-29 may be installed.

- UT-28 DIGITAL CODE SQUELCH UNIT:
  Incorporating a system of digital coding and decoding, the UT-28 option allows a "personalized" squelch to be programmed using 1 of 100,000 different code numbers.

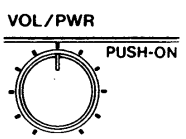
- UT-29 TONE SQUELCH UNIT:
  The UT-29 is a subaudible tone encoder/decoder which may be installed as an alternative to the UT-28 Digital Code Squelch Unit.

SECTION 3 CONTROL FUNCTIONS

3 - 1 FRONT PANEL

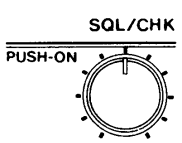


① VOLUME CONTROL/POWER SWITCH [VOL/PWR]



Push this control to turn the power ON and OFF. Turn the control clockwise to increase the audio level. Refer to SECTION 5 - 1 RECEIVING.

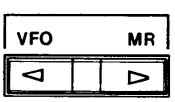
② SQUELCH CONTROL/CHECK SWITCH [SQL/CHK]



The squelch circuit quiets the noise from the receiver while no signals are being received. While monitoring a vacant channel, turn the control clockwise until the green T/R LED goes out. Refer to SECTION 5 - 1 RECEIVING.

A second function of this control is to allow the operator to monitor the transmit frequency when the duplex mode is selected. Push the control to use the CHECK function. The receive frequency is restored when the control is released. Refer to SECTION 5 - 4 DUPLEX PROGRAMMING.

③ VFO/MEMORY READ SWITCH [VFO/MR]



Push to select either the VFO mode or the MEMORY mode of operation. When the MEMORY mode is selected, the letter "M" appears under the memory channel number on the LCD readout. Refer to SECTIONS 5 - 1 RECEIVING and 5 - 2 MEMORY READING.

④ SET SWITCH [SET]

This is a multi-function switch which operates in different ways depending on which mode is currently selected with the IC-28H.

In the VFO mode, the SET SWITCH permits programming of the subaudible tone encoder on the IC-28H (U.S.A. version), the transmit offset frequency and the tuning step size of the TUNING CONTROL. Refer to SECTIONS 5 - 4 SUBAUDIBLE TONE ENCODER and DUPLEX PROGRAMMING, and 5 - 1 RECEIVING.

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