



OWNER'S MANUAL

MODEL 3806



Two Meter VHF/FM Portable Amateur Transceiver

HY-GAIN ELECTRONICS CORPORATION

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Lincoln, Nebraska 68505

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GENERAL DESCRIPTION

The Hy-Gain 3806 VHF/FM 2 meter, amateur band transceiver is an entirely self contained radio which provides the safety and convenience of VHF communications in one compact unit. It operates in the 144 ~ 148MHz band and is ideal for mobile or fixed short distance communications.

The transceiver will perform reliably in all weather conditions. It is crystal controlled in both receiver and transmitter. Crystals are supplied for channels .52/.52. The 3806 will operate from AA cells, 12 VDC external power source, or an optional Nicad power pack (available from your Hy-Gain dealer).

The 3806 transceiver is FCC Type Accepted for Part 15.

SPECIFICATIONS

General

Dimensions	216mm (H) x 87mm (W) x 47mm (D) (8.5" x 3.42" x 1.85")
Weight	Approx. 1kg (2.2lbs) w/Nicad power pack
Power requirement	12 VDC
Current drain	Transmit: approx. 380mA @ 12 VDC Receiver: Max, audio output 100mA@12VDC Stand-by: Squelch on, 20mA @ 12 VDC
Power source	8 AA penlight cells or optional Nicad power pack
Channels	6, crystals for 146.52T & 146.52R
Output impeance	50 ohms nominal
Frequency range	144.1 ~ 148.0 MHz

Transmitter

Circuit system	Crystal - controlled, phase modulation 32pf parallel load capacity, HC-25 holder
Nominal RF output	1 watt (12VDC input)
Frequency multiplication	12 times

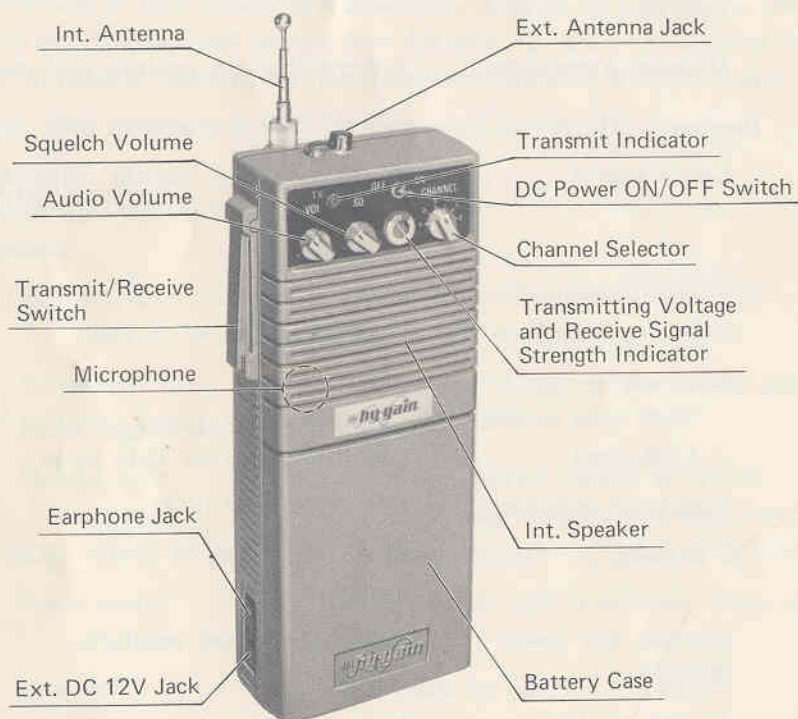
Frequency stability	$\pm 10 \times 10^{-6}$ from -20°C to $+50^{\circ}\text{C}$ ambient temperature (10 ~ 14 VDC)
Max. frequency deviation	$\pm 5\text{kHz}$ (frequency modulation)
TX audio frequency response	Within $+1\text{dB}$ and -3dB of true 6dB per octave, pre-emphasis from 300Hz ~ 3000Hz
Minimum signal/noise ratio	At least 35dB below 3.3kHz deviation at 1kHz
Modulation sensitivity	Adjustable sound pressure level mic pre-amp

Receiver

Circuit system	Crystal-controlled, double conversion super-heterodyne: 32pf parallel load capacity, HC – 25 holder
1st local oscillator frequency stability	$\pm 10 \times 10^{-6}$ from -20°C to 50°C ambient temperature (10 ~ 14 VDC)
Sensitivity:	
20dB noise quieting	Less than 0.5 uv (closed circuit method)
12dB sinad	Less than 0.4 uv for 12dB Sinad
Modulation acceptance	More than 7kHz (EIA)
Selectivity	More than 70dB @ 20kHz (20dB quieting method)
Spurious and image response	60dB below rated sensitivity
Squelch sensitivity	Noise compensated type: 0.3 uv threshold, below 2 uv with full squelch
Adjacent channel selectivity	2 signal generator method: 65dB @ 25kHz
Intermodulation	55dB (EIA SINAD, 3 generator method)
Audio frequency response	Within $+2\text{dB}$ and -8dB of true 6dB per octave, de-emphasis from 300Hz ~ 3000Hz
Audio output power	$1/2\text{ watt}$ @ less than 10% distortion

DON'T LET THEFT HAPPEN TO YOU

Before using your transceiver, engrave some sort of identification number directly onto the outer case. You can use the serial number of the transceiver, or your social security number. The important thing is to keep a record of whichever number you use. If your transceiver should be stolen, the identification number can be traced back to you.



CONTROL & SWITCHES

Channel Selector — Place the dial on the channel you wish to use.

Volume Control — Rotate clockwise for loudness.

Squelch Control — Quiets the receiver when signals aren't being received and allows quiet stand-by operation. It operates only in the receive mode and does not affect the receiver volume. Rotate the squelch control clockwise

until the receiver is just quieted when no signal is being received. Incoming signals will automatically release the squelch. Careful adjustment is necessary. Setting the squelch too far counterclockwise will not allow weaker signals to release the squelch.

On/Off Switch — Turns the power on and off.

Meter — Transmit: Indicates battery voltage
Receive: Indicates signal strength

Transmit/Receive — Depress this button to transmit. Release it to receive.

Telescoping Antenna — Pull the antenna up for transmitting or receiving.

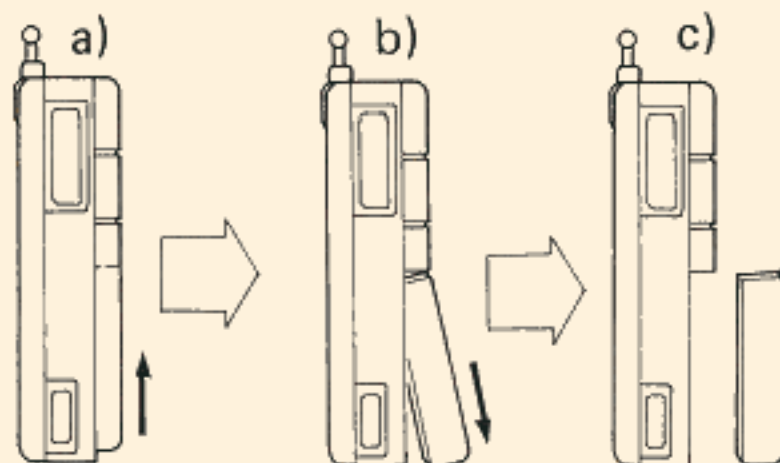
External Antenna Jack — An HMB plug on the connector is required for this jack.

BATTERY REQUIREMENT

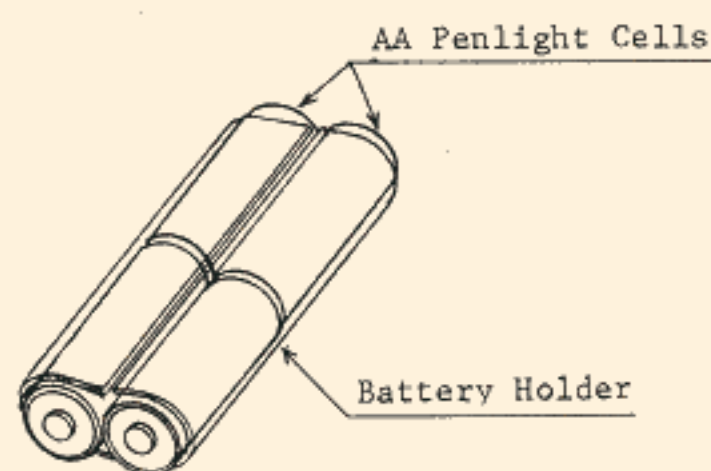
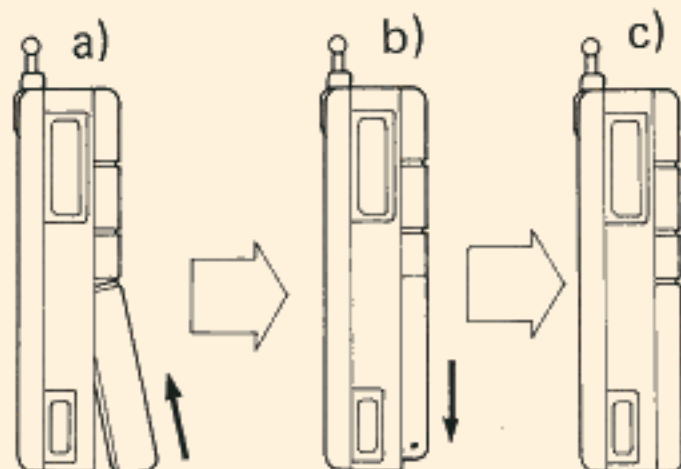
Eight AA penlight cells (Alkaline will last longer than standard dry cells) must be installed in the battery pack includes with the radio.

A heavy duty Nicad battery pack is available as an option. For best results, recharge the Nicad battery pack after about 14 hours of continuous use, or when the voltage at the terminal of the pack reaches 10V.

BATTERY REMOVAL



BATTERY INSTALLATION



OPERATING INSTRUCTIONS

To Receive:

1. Rotate the Volume control clockwise and adjust for a comfortable listening level.
2. Set the channel selector on the desired operation channel and readjust the Volume control as necessary.
3. Adjust the Squelch control clockwise slowly until the background noise is just quieted. This should be done when there are no signals being received. It is important that this control be adjusted just the threshold point so that weak signals will still be audible. When a transmission is received, it will release the squelch circuit, allowing the signal to be heard.

To Transmit:

1. Select the desired channel and listen carefully to assure that it is not busy. Do not interrupt unless an emergency situation exists.
2. If the channel is clear, press the Push-to-Talk button on the microphone to activate the transmitter. Release the microphone button to receive a reply.

ACCESSORIES AVAILABLE

	Model
Nicad Battery Pack	3807
Plug Mount Charger	1106
Cigarette Lighter Adapter	1107
External Antenna Cable	1108
Miniature Earphone	1109
Case	1110
Flexible Antenna	269

A detailed service manual is available through Hy-Gain. For more information, contact:

Hy-Gain Warranty Service Department
4900 Superior Street
Lincoln, N. E. 68504 U.S.A.

CRYSTAL ORDERING SPECIFICATIONS

General (Applies to both transmit and receive):

Holder	HC — 25/U
Frequency tolerance at room temperature	$\pm 0.001\%$ ($25^{\circ}\text{C} \pm 2^{\circ}\text{C}$)
Temperature coefficient	$\pm 0.001\%$ -20°C to $+50^{\circ}\text{C}$
Operating temperature	-20°C to 50°C
Load capacitance	32pF $\pm 0.5\text{pF}$ (parallel)
Drive level	1 mw ± 2 mw

Receiver

Mode	Third overtone
Oscillation frequency and range	$\frac{F - 10.7}{3}$

Where F is operating frequency from 144.1 to 148.0MHz

Resistance	Less than 40 ohms
Markings	1) Manufacturer's name 2) Manufacturing No. 3) Channel frequency 4) Oscillation frequency 5) Mark: R

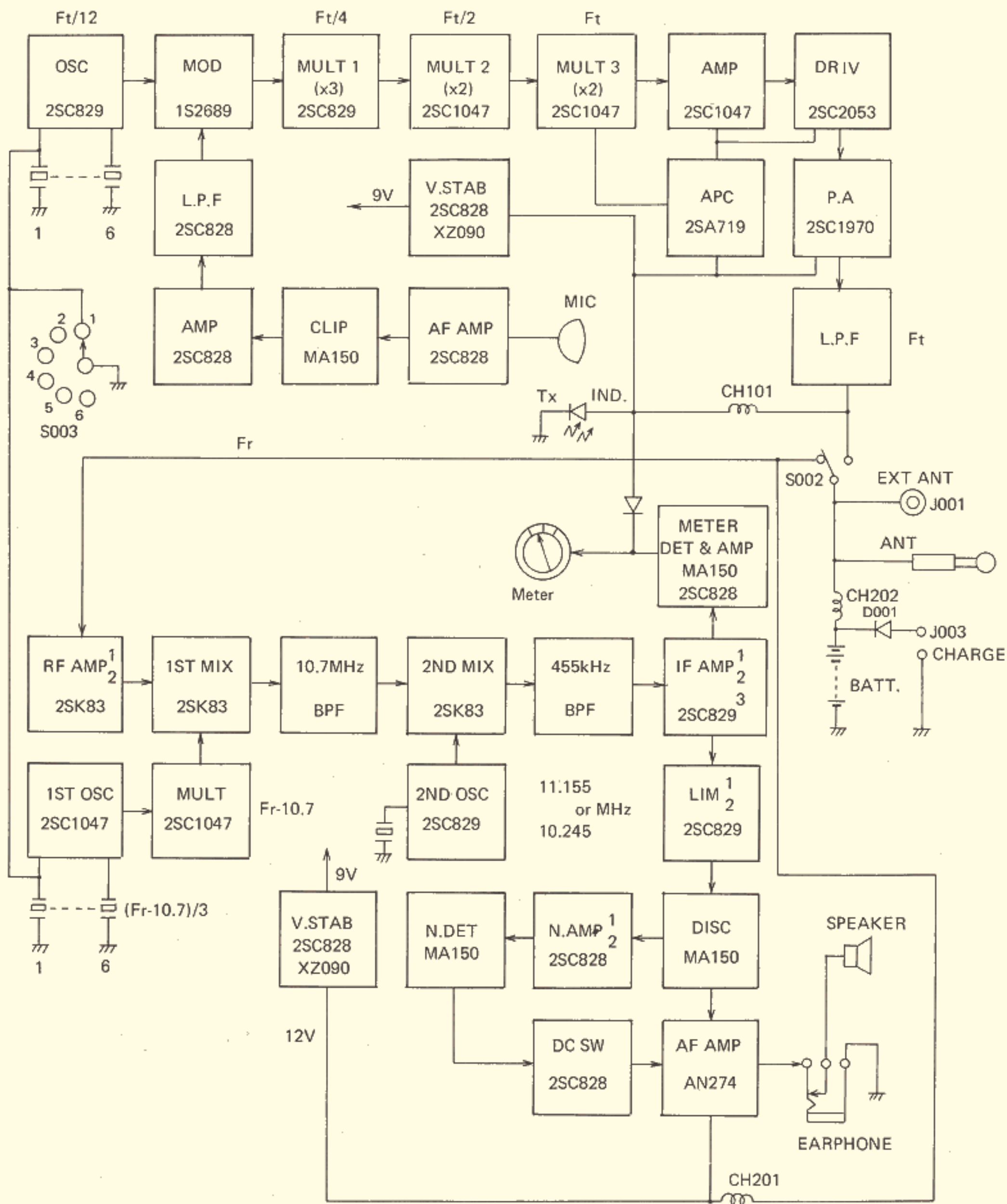
Transmit

Mode	Fundamental
Oscillation frequency and range	$\frac{F}{12}$

Where F is operating frequency from 144.1 to 148.0MHz

Resistance	Less than 25 ohms
Markings	1) Manufacturer's name 2) Manufacturing No. 3) Channel frequency 4) Oscillation frequency 5) Mark: T

BLOCK DIAGRAM (MODEL 3806)



SCHEMATIC DIAGRAM MODEL 3806

