

INSTRUCTIONS FOR MODEL MX-3.5S
80M SSB/CW HAND-HELD TRANSCEIVER

Introduction:

Model MX-3.5S is a QRP 80 METER SSB/CW transceiver featurized size and light-weight for optimum portable use and yet ensuring highly reliable performance. Although the output power is 2W, you can surely enjoy relatively long distance QSO when transmitting from altitude like mountain or hill. The circuit composition is well comparable to that of much larger transceiver except for power amplifier circuit and a variety of optional accessories will give you added enjoyment of this tranceiver.

The MX-3.5S has been carefully engineered and manufactured. But before attempting to operate this transceiver, please read the instructions carefully so that you can enjoy dependable operation for many years to come.

Specifications:

General

Frequency	: 3.5 MHz (or 3.6 MHz) 50KHz coverage.
Wave Mode	: SSB(LSB), CW
Semiconductors	: 4 ICs, 13 TRs. 6 FETs & 37 Diodes
Power Supply Voltage	: 9VDC, (UM3x6), EXT.Power Source: 9.5VDC
Power Consumption	: RX...68mA (At No Signal) TX..600mA (Maxmum)
Frequency Stability	: + 500Hz (initial) 100 Hz/30 min. at 25 degree C after initial
Aerial Impedance	: 50 ohms
Demensions & Weight	: 66W x 39H x 142D mm 645g incl. batteries.

Transmitter

Max. Input Power	: 2W
Spurious Radiation	: Below -40dB
Modulation	: Balanced Modulation
Carrier Suppression	: 40dB minimum
SSB Suppression	: 40dB minimum

Receiver

Receiver Method	: Single Super
Sensitivity	: S/N 15dB minimum at 0.5uV input
Intermediate Frequency	: 11.2735 MHz

Local Oscillator

Oscillation Method	: Variable Crystal Oscillation
Output Frequency	: 14.5 MHz

Caution Before Use

1) Power Supply

This transceiver is driven by DC9V power source. When using an external power supply, be sure to use a regulated DC power supply of 9.5VDC 650mA minimum. When power is fed from car battery or fixed station power source of 12-14VDC, please also do not forget to use a DC-DC converter to get 9.5VDC. The DC-DC converter will be optionally available. Please specify model PM-1.

When operating this transceiver with UM3 cells(6 pcs), remove the battery cover with your thumb finger and instrall the batteries observing the proper polarity.

- 2) Be sure to use 3.5MHz band antenna with 50 ohm impedance. The connector used is of BNC Type. If you would use and M-type connector, use an adapting plug from BNC to M optionally available. Please specify model PM-1. For short distance QSO, the rod antenna model AN-3.5 will be optionally available.

OPTIONAL ACCESSORIES

1) Optional VXO Crystal available as standard options are as follows.

<u>Part Number</u>	<u>Frequency Coverage (25KHz coverage)</u>
3.5S-00S	3.500 - 3.525 MHz
3.5X-50S	3.550 - 3.575 MHz

3.5S - 25S

2) BM6 Carring case with hand-strap.

3) PM-1 Adpting plug/DC-DC Converter
This comes with a BNC-to-M type adapting plug, an encased DC-DC Converter for 9.5V converted from 12-14V and Belt Hook.

4) MS-1 External Speaker Microphone with Press-to-Talk switch.

5) NB-2S Noise Blanker unit for Kit form.

6) AN-3.5 Rod Antenna

7) PL-3.5S 10W Linear Amplifier

*SPECIFICATIONS:

Final Stage	: 2SC1945 X 1
Final Stage Input Power & Voltage:	20W 13.8V
Wave Mode	: A3J A1
Output Power	: 10W
Input Power	: 2W
In/Output Impedance	: 50 Ohms
Semiconductors	: 4 TR., 1 IC, 9 Di.
Power Source	: 13.8VDC
External Dimensions & Weight	: 110W X 39H X 142D mm 520g
Additional Circuit	: TX/RX LED Monitoring, 9.5V DC Terminal

8) CW-2S CW Semi-Break-in Circuit & Side Tone Circuit

*SPECIFICATIONS:

Semiconductors	: 7 TR., 4 Di.
Battery	: 9V DC (006P)
Power Consumptin	: 18mA
External Dimensions	: 39W X 39H X 142D mm

9) PR-3S .Mobile Rack with Bracket for MX-3.5S, PL-3.5S and CW-2S.

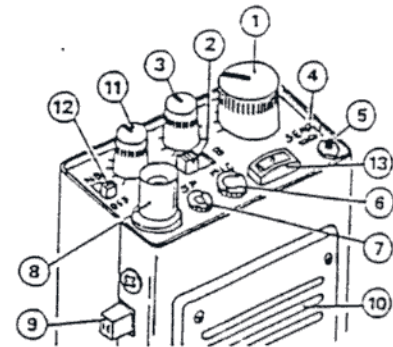
Controls & Functions

1) Tuning Knob

This is a frequency tuning knob for both transmit and receive. The dial indication is calibrated at 2.5KHz each apart. When the band switch(2) is set to "A", frequency continuously covers 3.525 - 3.550MHz.

The dial calibration indicates under "+KHz".

For example, when the white indicator line on the knob points '45', it means 3.545MHz. The calibration from '0-25' shown in the lower side is used for the another optional band crystal, for example, crystal 3.5X-00S(Mizuho) covering 3.500-3.525MHz to be built in "B" channel. When you put in other frequency crystals, please add or reduce 25KHz to the calibration according to frequencies.

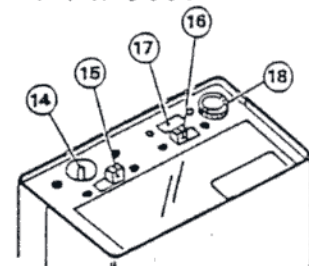


2) Band Switch

Use "A" position for 3.525 - 3.550 MHz(Crystal 3.5X-25S) and also "B" band for optional crystal frequency.

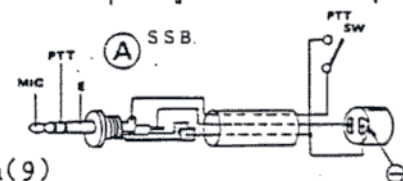
3) Volume Control/Power Switch

The power is off when the switch is set to fully counter-clockwise position. Turning it clockwise will turn power "ON" lighting up an LED indicator(4). Further rotation will turn up the volume.



4) Transmitting Check Indicator "SEND"

When pushing the stand-by switch (9) at SSB mode, this indicator lights up. At CW mode when pushing the stand-by switch(9) and key-switch(5) or CW Keyer simultaneously, this indicator also lights up.



5) Key Switch for CW

The mini CW Keyer is built-in. Use it when you do not have an external keyer.

6) External Mic., Stand-by Terminals "MIC"

Put 3.5mm dia. plug in here when using an external microphone optionally available. See sketch right hand for internal wiring. The microphone connection is different from MX-3.5S and please use external speaker microphone model MS-1.

7) External Speaker and Earphone Jack 2.5mm diameter "SP"

Use this terminal for use with external speaker microphone(the speaker side plug of MS-1) or earphone of 8 ohm impedance.

8) Antenna Terminal

Connect the 3.5MHz band 50 Ohm antenna or AN-3.5 optionally available to this terminal.

9) Stand-by Switch (Push-to-Lock/Push-to-Release)

Use this switch for both transmit and receive. Pushing the switch(Lock position) enables you to transmit. Another push(release) allows you to receive.

10) Built-in Speaker and Condensor Microphone

11) RIT Knob

Use this knob for variation of RX frequencies without any change TX frequency.(2-00Hz). The frequency of TX and RX is the same when the knob is stopped at the center(click feeling). When the knob is turned clockwise(+), the RX frequency will be changed to higher than TX frequency. Turn this knob anti-clockwise(-), the RX frequency will be lowered against TX frequency. Normally, set this knob to the