POWER-MITE PM1 & PM2

Instruction Sheet No. 6

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DESCRIPTION

The Power-Mite I and II contain all the necessary features for reception and transmission, either crystal or transceiver operation, in the 3.5-4.0 MHz and 7.0-7.3 MHz amateur bands.

MX-1 RECEIVER MODULE: The receiver module is a synchrodyne converter-detector. The received frequency is converted directly to audio. Undesired signals are eliminated.

AA-1 AUDIO MODULE: An IC audio amplifier provides the necessary gain to bring the detected signal to headphone level.

VO-1 VARIABLE OSCILLATOR MODULE: The oscillator-buffer, used with the receiver, can be connected to the transmitter for transceiver operation on either 80 or 40 meters.

TX-1 TRANSMITTER MODULE: The transmitter is a crystal oscillator-power amplifier running 2 watts input.

SPECIFICATIONS

Frequency range:

BAND	RANGE
80	3.475-4.025
40	6.975-7.325

Size: 4" high, 10-1/8" wide, 7-1/2" deep. Shipping weight: 4 lbs.
Finish: Baked enamel
Power: 12 volts 20 ma. on receive, 300 ma. on transmit
Semiconductor devices: 1-Dual gate MOSFET
1-Integrated circuit
4-Silicon transistors
Types of reception: CW - SSB - AM
Sensitivity: Less than one microvolt provides readable signal
Antenna input: 50-75 ohms
Selectivity: 2 KC at 6 db down points
Audio: Output impedance - 1000 ohms. Frequency response - ± 3 db 200 Hz - 2500 Hz
Frequency stability: Less than 100 Hz drift
Transmitter: Power - 2 watts input. Output impedance 50-75 ohms, fixed link
Headphones: Front panel tip jacks are provided
Key: Phono jack is provided on rear apron
Crystal: A crystal socket is provided on the front panel. The socket accepts holders of the HC6U type or any crystal with .486 inch spacing and .050 diameter pins.

INSTALLATION

UNPACKING

Open carton carefully to prevent damage. Remove packing material and equipment from the carton. Check all knobs switches, etc. to see that they operate properly. Any claims for damage should be filed promptly with the transportation company.

EXTERNAL CONNECTIONS

ANTENNA: The transceiver is designed to operate into a 50 ohm unbalanced transmission line. Many of the popular beam and dipole antennas using 50-75 ohm transmission lines will give excellent results. Station antennas terminating in other than 50-75 ohms will require an impedance mathing device similar to the model AC5 antenna tuner.

C A U T I O N

Do not subject the antenna input to RF exceeding 10 volts. Excessive RF may be encountered if operated in conjunction with high-power transmitters if the receiving antenna is not disconnected and/or shorted during transmitting.

OPERATION

Set the front panel controls as follows:

VOL	Mid rotation (12 o'clock)
REC	Mid rotation (12 o'clock)
80, 40	80
ON-OFF	OFF
TRANS-RECV	RECV
80-40, 15	80-40 (both switches)
OSC	2 o'clock
AMP	2 o'clock
XTAL-VFO	XTAL

FOR CRYSTAL OPERATION

For 80 Meter Operation

Connect a 12 volts 300 ma. DC source to the power socket on the rear of the transceiver. Attach headphones, key and antenna. Turn the power switch on, tune in a signal and peak the REC control for maximum sensitivity. Plug an 80 meter crystal in the socket. Place the TRANS-RECV switch in TRANS and close the key. Tune the OSC control for maximum deflection of the meter. Tune the AMP control for a dip in the meter. The OSC and AMP controls should be approximately at 2 o'clock for correct operation. It is possible to find a false dip in the final current toward 11

o'clock which would indicate the power amplifier is doubling to 40 meters. Listen to the signal with the receiver to insure correct operation and keying. The OSC control should be set toward the maximum capacity (clockwise) side of oscillation for best keying.

For 40 Meter Operation

Connect key, phones, etc. as described above. Set the 80-40 switch to 40 and the REC control to 10 o'clock. Tune in a signal and repeak the REC control for maximum sensitivity. Plug a 40 meter crystal into the socket, place the TRANS-RECV switch in TRANS and close the key. Tune the OSC control for maximum meter deflection (around 11 o'clock) and tune the AMP control for a dip. It should also occur at 11 o'clock. Listen to the signal with the receiver to insure correct operation and keying. The OSC control should be set toward the maximum capacity (clockwise) side of oscillation for best keying.

TRANSCEIVER OPERAITON WITH THE RECEIVER OSCILLATOR

Place the XTAL-VFO switch in the VFO position, and remove the crystal. Tune as for crystal operation. The OSC control will peak in a more CCW position than with the crystal. Since the oscillator frequency shifts downward slightly during transmit, tune the desired signal on the high frequency side of zero beat.

15 METER OPERATION WITH MODEL AC3 ACCESSORY

Place 80-40, 15 switches in the 15 position. Tune the receiver for 80 meters. The 15 meter input is fixed tuned and the REC control peaks the tunable I.F. of 3.5-4.0 MHz.

Plug a 15 meter crystal into the socket, close the key and rotate the OSC control full CCW for maximum meter deflection. Tune the AMP control for dip. It should occur at approximately 10 o'clock. Check operation, as before, with the receiver.

NOTE: The Power Mite I and II have been designed with sufficient overload protection for all but extreme cases. Should any interference occur, such as a near-by local broadcast station, a trap in the antenna lead will eliminate it.

WARRANTY

This equipment is guaranteed to be free of defects in workmanship and material for one year after date of purchase.

If, at any time up to 5 years after expiration of this warranty, any failure is experienced, send the unit to us, prepaid, with $1.00. It will be placed in proper operating condition and returned postpaid.