

FOR EXPORT ONLY
PLL/Synthesized
Completely Water-Proofed
Handheld Radio
KC458HWP/MWP



- Microprocessor controlled PLL-Synthesizer circuitry
- Ruggedized all aluminum/diecast construction, completely waterproof and submersible housing
- 16-channels operation
- CTCSS tones built-in. Individually programmable for Encode/Decode tones on each channel
- Pre-programmable time-out-timer
- All controls on the top for easier operations
- Scanning channels
- Optional modules for ANI, Multi-Tone Selcall (CCIR, ZWEI, EEA, EIA, MODAT) DTMF encoder/decoder, burst tone encoder and encryption modules.
- Full line of accessory items



Standard Specifications

		Model KC458MWP	Model KC458HWP
General	Frequency Range (MHz)	66-88	138-174
	Number of channel	16	16
	Communication System	CPU controlled PLL/Synthesizer	
	Channel Spacing (KHz)	12.5/25	12.5/25
	Bandwidth	5MHz	10MHz
	Battery Life	9 hrs. on 10-10-80 duty cycle Std-by at low power	
	Power Supply	10.8V Nicad Pack	
	Dimension (mm.)	80(W)×55(T)×205(H)	
	Weight	Approx. 980 grams with Antenna & Nicad pack.	
Transmitter	RF Output Power	2W/0.5W (or 2W/1W)	5W/1W
	Frequency Stability	±0.0005% from -30°C to +60°C	
	Spurious Harmonics	50dB	60dB
	FM Noise	35dB at 1KHz 60% modulation	
	Audio Distortion	Less than 10% at 1KHz 60% modulation	
Receiver	Receiving System	Double Conversion Superheterodyne	
	Frequency Stability	±0.001% from -30°C to +60°C	
	Sensitivity	0.35µV at 12dB Sinad	
	Selectivity	60dB	70dB
	Spurious & Image	60dB	70dB
	Intermodulation	60dB	65dB
	Audio Output	500mW to speaker at less than 10% distortion	

Specifications subject to change without a notice.

* Tests to prove protection against ingress of water made at 1 meter depth for 30 minutes.

Accessories

NP-18
Long life 800 maH
Nicad battery pack



BC-125
Desk top charger



HMS-8
Remote mike-speaker
for Mobile/Portable
radios



RA-12
Rubber duckie
flexible antenna



MC-4
Wall mount Multi-Charger.
Four units drop in operation



VOX-100
Voice-activated
operations for hands-
free portable and
mobile radio
communications



FP-1
CPU Programmer
for Frequency/CTCSS
tone programming



MILITARY PRODUCTS PRICE LIST #99.01
EFFECTIVE 1 MARCH 1999
EXPIRES 28 FEBRUARY 2000

MP-25 TRANSCEIVER

PART NO.	DESCRIPTION	LBS/KG	PRICE
MP-25(E)	HF/SSB MANPACK TRANSCEIVER..... WITHOUT BATTERY PACK, ANTENNA, HANDSET, CARRYING BAG OR OTHER ACCESSORIES.	11.3/5.1	3,990.00
MP-25-VS*	VOICE ENCRYPTION OPTION FOR MP-25 TRANSCEIVER..... INTERNAL VOICE SCRAMBLER MODULE, PROVIDES HIGH PRIVACY LEVELS USING REAL-TIME AUDIO FREQUENCY SHIFTING UNDER FULL DIGITAL CONTROL. 2,048 DISTINCT PRIVACY CODES ARE AVAILABLE THROUGH INTERNAL PROGRAMMING. PRICE INCLUDES INSTALLATION AND SUBSTITUTION OF MP-25 TRANSCEIVER'S STANDARD 1.9 kHz USB AND LSB FILTERS WITH SPECIAL 3.5 kHz WIDE FILTERS.	N/A	1,950.00

MP-25 BATTERY PACKS

MP-25-BP(NCE)	NI-CAD BATTERY PACK..... 12 VDC, 7 AH. INCLUDES BATTERY BOX AND RECHARGEABLE NI-CAD BATTERIES.	6.8/3.1	625.00
MP-25-BP(LAE)	SEALED LEAD ACID BATTERY PACK..... 12 VDC, 6 AH. INCLUDES BATTERY BOX AND RECHARGEABLE SEALED LEAD ACID BATTERIES.	7.0/3.15	300.00

MP-25 ANTENNAS AND ANTENNA ACCESSORIES

MP-25-AD(OD)	DIPOLE ANTENNA..... INCLUDES OLIVE DRAB COLOR CARRYING BAG.	2.9/1.3	230.00
MP-25-AD(GC)	DIPOLE ANTENNA..... INCLUDES GREEN CAMOUFLAGE PATTERN CARRYING BAG.	2.9/1.3	230.00
MP-25-AW	FOLDING WHIP ANTENNA..... FOR PORTABLE OPERATION WITH MP-25 TRANSCEIVER. FITS INTO TRANSCEIVER CARRYING BAG WHEN FOLDED. INCLUDES ADJUSTABLE MOUNTING BASE AND QUICK-RELEASE CONNECTOR.	1.0/45	160.00
MP-25-MW1	MOBILE WHIP ANTENNA..... STAINLESS STEEL, 9 FT., WITHOUT MOUNTING BASE (ORDER MP-25-BL BALL MOUNT SEPARATELY).	2.0/9	46.00
MP-25-BL	BALL MOUNT..... FOR USE WITH MP-25-MW1 MOBILE WHIP ANTENNA.	1.4/6	39.00
MP-25-S2	SPRING, HEAVY DUTY..... FOR USE WITH MP-25-MW1 AND MP-25-BL	1.9/85	39.00
000043	RG58/AU COAXIAL CABLE..... SOLD BY METER. WEIGHT SHOWN IS FOR 1000 FT. SPOOL (305 METERS)	19.0/8.5	1.50
980017	MOBILE ANTENNA LEAD..... 5 METERS HIGH VOLTAGE CABLE WITH MALE BNC CONNECTOR.	4.0/1.8	40.00

MP-25 POWER SUPPLIES AND BATTERY CHARGERS

PART NO.	DESCRIPTION	LBS/KG	PRICE
MP-25-PSC(E)	POWER SUPPLY/CHARGER..... CHARGES UP TO 2 BATTERY PACKS SIMULTANEOUSLY (ONE ATTACHED TO RADIO AND ONE UNATTACHED) AND ALSO ALLOWS MP-25 TRANSCEIVER TO OPERATE FROM A.C. POWER. SWITCHABLE TO ALLOW OPERATION FROM 115 TO 230 V.A.C. INCLUDES BUILT-IN SPEAKER TO SUPPLEMENT THE TRANSCEIVER'S SMALLER INTERNAL SPEAKER.	8.4/3.8	685.00
MP-25-HG	HANDCRANK GENERATOR.....		PRICE ON REQUEST

MP-25 MICROPHONES, HANDSETS AND HEADPHONES

MP-25-MC*	MICROPHONE..... NOISE CANCELING, MILITARY TYPE M-80/U	0.98/44	130.00
MP-25-HS2	HANDSET..... DYNAMIC, MILITARY TYPE H189/GR	1.23/55	140.00
MP-25-HP1*	HEADPHONES..... MILITARY TYPE H140/BU	1.54/69	100.00

MP-25 MISCELLANEOUS ACCESSORIES

MP-25-CB(OD)	TRANSCEIVER CARRYING BAG..... NYLON, OLIVE DRAB COLOR.	1.4/63	180.00
MP-25-CB(GC)	TRANSCEIVER CARRYING BAG..... NYLON, GREEN CAMOUFLAGE PATTERN.	1.4/63	190.00
MP-25-CB(IO)	TRANSCEIVER CARRYING BAG..... NYLON, INTERNATIONAL ORANGE COLOR.	1.4/63	190.00
MP-25-CW	TELEGRAPH KEY..... WITH LEG STRAP	1.2/54	190.00
MP-25-MB	TRANSCEIVER MOBILE MOUNTING BRACKET.....	1.5/72	60.00
828012	MP-25 OPERATING AND MAINTENANCE MANUAL.....	0.95/43	60.00
980013	EXTENDER BOARD KIT..... FOR MP-25 TRANSCEIVER	0.46/21	115.00
980014	MOBILE DC POWER CORD..... FOR OPERATING MP-25 TRANSCEIVER FROM 12VDC POWER SOURCE.	0.8/36	125.00

MP-25 SPARE PARTS

1000.029-4	DEPOT LEVEL SPARE PARTS KIT..... FOR MP-25 TRANSCEIVER	10.0/4.5	9,210.89
1000.032-2	DEPOT LEVEL SPARE PARTS KIT..... FOR MP-25 POWER SUPPLY/CHARGER AND MP-25-CH MULTI-UNIT BATTERY CHARGER.	N/A	933.14
1000.034	ORGANIZATIONAL SPARES KIT..... FOR MP-25 TRANSCEIVER. CONTAINS ONE EACH OF PC101, PC201, PC301, PC401, PC501, PC601, PC701, P801 AND ANTENNA TUNER MODULE.	2.8/1.26	2,700.00

PART NO.	DESCRIPTION	LBS/KG	PRICE
990201	PC101 MODULE..... RECEIVER, TRANSMITTER MIXER AND IF FUNCTIONS. ALIGNED AND TESTED.	0.68/.31	500.00
990202	PC201 MODULE..... BFO/CARRIER GENERATOR, RECEIVER, AND TRANSMITTER AUDIO AND BALANCED MODULATOR FUNCTIONS. ALIGNED AND TESTED.	0.51/.23	250.00
990203	PC301 MODULE..... TRANSMITTER LINEAR AMPLIFIER. ALIGNED AND TESTED.	0.79/.35	350.00
990204	PC401 MODULE..... BCD TO READOUT CONVERTER. TESTED	0.28/.13	95.00
990205	PC501 MODULE..... UNIVERSAL DIVIDER. TESTED	0.35/.16	250.00
990206	PC601 MODULE..... SYNTHESIZER VCO, MASTER OSCILLATOR AND DETECTORS	0.41/.18	400.00
990207	PC701 MODULE..... LED READOUTS AND FREQUENCY SELECTOR SWITCHES. TESTED	0.35/.16	340.00
990209	P801 MODULE..... LOW PASS FILTER. MHZ SELECTOR SWITCH. TESTED	0.48/.22	300.00
990211	ANTENNA TUNER MODULE.....	0.56/.25	250.00

KC458 RUGGEDIZED PORTABLE TRANSCEIVERS



KC458MWP	VHF PORTABLE TRANSCEIVER..... 66-88 MHz, 16 CHANNELS, 2 WATTS HIGH, 0.5 WATT LOW. SUPPLIED WITH 800 maH NI-CAD BATTERY PACK AND RUBBER WHIP ANTENNA.	2.0/.9	875.00
KC-458HWP	VHF PORTABLE TRANSCEIVER..... 138-174 MHz, 16 CHANNELS, 5 WATTS HIGH, 1 WATT LOW. SUPPLIED WITH 800 maH NI-CAD BATTERY PACK AND RUBBER WHIP ANTENNA.	2.0/.9	875.00
BC-125	DESK TOP BATTERY CHARGER..... 115/230 VAC (SPECIFY WHEN ORDERING).	3.5/1.58	175.00
HMS-8	SPEAKER/MIC..... WITH COILED CORD AND CONNECTOR FOR KC458HWP/MWP.	1.0/.45	75.00
FP-1	CPU PROGRAMMER..... FOR KC458HWP TRANSCEIVER ONLY. EXTERNAL PROGRAMMER FOR FREQUENCY/CTCSS TONE PROGRAMMING.	3.5/1.58	850.00
PK-1	PC PROGRAMMING KIT..... FOR KC458MWP TRANSCEIVER ONLY. SOFTWARE FOR IBM COMPATIBLE COMPUTERS ALLOWS FREQUENCY/CTCSS TONE PROGRAMMING FROM A PERSONAL COMPUTER.	1.0/.45	125.00
KC-458-VS	VOICE ENCRYPTION OPTION FOR KC458HWP/MWP TRANSCEIVERS.... INTERNAL MODULE PROVIDES REAL-TIME VOICE-ENCRYPTION	N/A	395.00

MP-25 MILITARY MANPACK TRANSCEIVER



MP-25 MILITARY MANPACK TRANSCEIVER

KACHINA 
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MP-25

The MP-25, 25 watt SSB Synthesized Manpack Transceiver covers the 2-15 MHz frequency range in 100 Hz increments. This lightweight, immersible transceiver features a built-in antenna tuner and speaker. Meets MIL-STD-108.

Application

The Kachina MP-25 Transceiver is intended primarily for tactical military and defense communications, although its rugged construction and ability to be used under extreme conditions make it attractive to industrial users as well. When operated with the optional battery pack (nickel cadmium or lead acid), collapsible whip antenna and carrying bag, the MP-25 is a completely portable manpack. An optional mobile mounting bracket and provision to operate from a 12 V DC vehicle battery allows mobile installation. An optional power supply/charger and longwire/dipole antenna provide base station capability.

Construction

The MP-25 Transceiver chassis is constructed of rugged, iridized aluminum, reinforced with aluminum crossmembers. These crossmembers provide structural support, and also serve as RF shielding. The drawn aluminum case is of one-piece design reducing the chance of water ingress. Both the case and the front panel controls are water tight, allowing the MP-25 to be submerged to depths of up to 1 m. Printed circuit boards are covered with a fungicidal, fire retardant coating. Six of these seven modules plug into a central mother board, and the seventh, the program display module, quickly disconnects for simplified maintenance. The front panel is constructed of lightweight, unbreakable Lexan® plastic.

Features

Modern Single Loop Synthesizer Design — Single loop synthesizer covers 2-14.999 MHz in 100 Hz steps, resulting in vastly simplified circuitry over older designs. This up-conversion superheterodyne system uses a 16 MHz IF frequency.

Light, Compact Package — Weighs only 7.25 kg with lead acid battery pack, 4.3 kg without battery. Measures only 29x35x11.68 cm.

Built-in Antenna Tuner — Allows the MP-25 to match any antenna greater than 2 meters in length over the entire 2-15 MHz range. Special provision has also been made to allow the transceiver to operate with antennas of less than 50 ohms impedance, such as used in mobile installations.

Modular Construction — Allows printed circuit modules to be unplugged and replaced in seconds. Front panel hinges down for simplified maintenance.

Multi Mode Operation — USB, LSB, Compatible AM, semi break-in CW, FSK.

Transmitter — 25 watts PEP and average power output with high/low power selector switch in the "high" position, typically 6 watts in the "low" position. Transmitter features include SWR bridge, automatic level control, 6 watt "tune" signal.

Receiver — Provides 1 watt audio output with not more than 10% distortion. Features fast attack, slow release AGC system.

Clip-on Rechargeable Battery Pack — Available in 6 Ah Sealed Lead Acid or 7 Ah Nickel Cadmium types.

Convenient Front Panel Controls — All operator adjustments are located on the front panel. Panel mounted meter reads relative signal strength, relative power output, battery voltage and SWR nul indication.

LED Frequency Display — The operating frequency is displayed on the front panel by large orange/red light emitting diodes. These LED's and the meter light are actuated by a toggle switch and turn off automatically after approximately 10 seconds, to conserve battery power.

High/Low Power Selector — This switch, located on the front panel, allows the operator to conserve batteries when operating at close ranges.



Internal Speaker — Speaker may be turned on/off via front panel selector switch. Voice and CW sidetone available through handset, CW sidetone through speaker.

Resettable Circuit Breaker Switch — Eliminates need for spare fuses. The circuit breaker is tripped in the event of overload or short circuit.

Rotating Antenna Base — Allows whip antenna to be adjusted to any angle in relation to transceiver.

Mobile Mounting — Rugged mobile mounting bracket (optional) attaches directly to transceiver case. Designed for use under most severe conditions.

Audible Alarm — Sounds when battery pack needs recharging or synthesizer is out-of-lock.

Accessories

- a. **MP-25-HS Handset** — Military type H189/GR. Weight .51 kg.
- b. **MP-25-AW Folding Whip Antenna** — May be stored in transceiver carrying bag. Connects automatically when fitted to transceiver. Antenna may be rotated to any angle with respect to transceiver and locked in place. Constructed of fiberglass tubing, allowing antenna to be extremely light-weight and resilient. Weight .39 kg.
- c. **MP-25-AD Dipole Antenna** — Supplied complete with carrying bag (carrying bag can also be used for spare battery pack). Weight 1.3 kg.
- d. **MP-25-BP Battery Pack** — 12 volt rechargeable battery in a protective aluminum box. Clips on to rear of transceiver. Available in choice of sealed lead acid or nickel cadmium. See specifications for weights.

e. **MP-25-CB Transceiver Carrying Bag** — Made of durable nylon, the bag protects the transceiver and provides pockets for accessories. Fitted with adjustable, padded shoulder straps. Available in olive drab, camouflage pattern or international orange. Weight .63 kg.

f. **MP-25-MB Mobile Mounting Bracket** — Heavy duty type clamps around body of transceiver, allowing a strong attachment to the vehicle. Weight 1.12 kg.

g. **MP-25-PSC Power Supply/Charger** — Front panel switch converts this base station power supply to a battery charger allowing the battery to be charged while attached to the transceiver. Operates from 110 or 220VAC, 50 or 60 Hz. A fuse and current limiting cutout protect the power supply against short circuits. The supply is electronically regulated and circuit limited, and the output is over-voltage protected. Contains built-in loud speaker for base station operation of MP-25 Transceiver. Weight 3.65 kg.

h. **MP-25-HG Hand Generator** — Designed to operate the MP-25 Transceiver and simultaneously charge the batteries. Weight 2.0 kg.

i. **KC-SP-1 Solar Power Unit** — Allows transceiver batteries to be charged from the sun. Fitted with meter so that the collector may be positioned for maximum charge. Limited availability. Weight 1.94 kg.

j. **MP-25-MC-Hand Microphone** — M-80/U, dynamic type microphone. Weight .39 kg.

Also available (not pictured):

MP-25-CW Telegraph Key — May be positioned on sender's knee or operated on table or other surface. Weight .48 kg.

MP-25-MW1 - Mobile Whip Antenna — 2.5 meter (9 foot) length. Stainless steel. Supplied complete with ball mount and spring. Weight 2.2 kg.

MP-25-CH Battery Charger — Allows the simultaneous charging of up to 4 battery packs, either sealed lead acid or nickel cadmium. Will operate from 110/220 VAC, 50 or 60 Hz.

MP-25-HP1 Headphones — Military type H140/BU. Weight .69 kg.

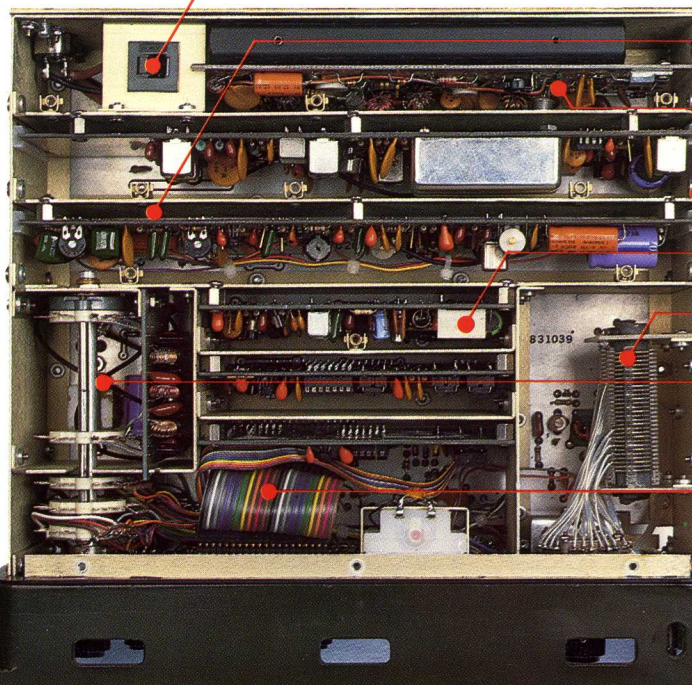
PN980013 Extender Board Kit — A set of extender boards to allow printed circuit modules to be extended above the transceiver for maintenance and service. Weight .19 kg.

PN980014 Mobile D.C. Power Lead — Allows the transceiver to be operated from vehicle battery. Weight .33 kg.

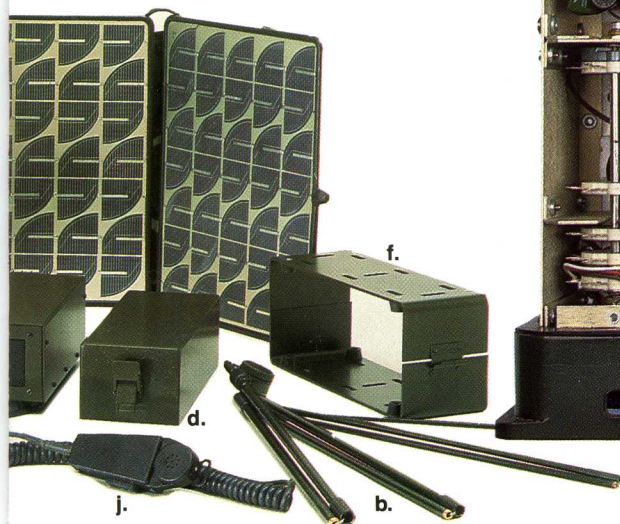
The Kachina Communications MP-25 is made in the U.S.A. The Kachina dolls depicted in our logo are used by the Hopi Indians of Arizona to communicate legends from one generation to the next.

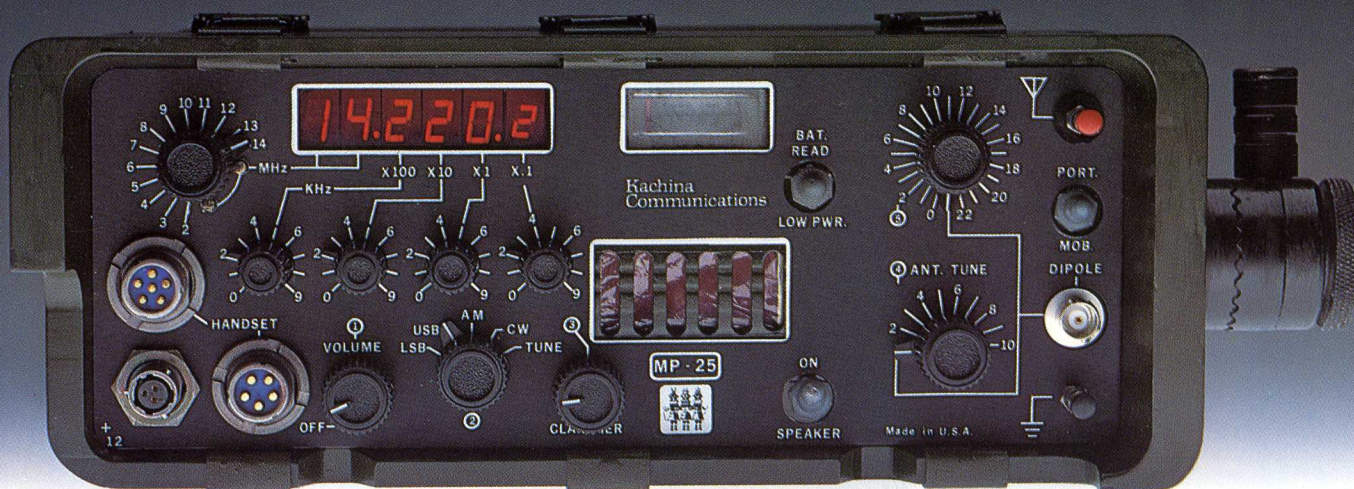


Top view, with watertight case and top cover removed.



- Resettable circuit breaker, instead of easily lost fuses.
- Printed circuit modules plug-in to main or "mother" board.
- Transmitter module provides 25 watts PEP power output.
- Rugged iridited aluminum chassis and shielding.
- State-of-the-art single loop synthesizer section.
- Built-in antenna tuner.
- Modular construction. Entire low pass filter or antenna tuner sections may be replaced as a unit in minutes.
- Ribbon connector to easily removable LED frequency display.
- Watertight sealing gaskets.





Specifications

General

Power Source: Internal 12 volt rechargeable batteries or external 11-15 volt D.C. supply, negative ground only.

Frequency Range: 2,000.0 - 14,999.9 kHz in 100 Hz steps.

Modes: A3J (USB & LSB), A1 (CW), A3H (compatible AM), F1 (FSK).

Operating Temperature Range: -30° C to +55° C.

Frequency Stability:

±30 Hz from -10° C to +50° C.
±100 Hz from -30° C to +55° C.

Waterproofing: Immersion to 1 meter (20° C).

Size (W x D x H):

With battery pack - 29 x 34.8 x 11.68 cm (11.3 x 13.7 x 4.55 in.).

Weight, without batteries: 4.3 kg (9.6 lbs.).

Weight, with sealed lead acid battery pack: 7.25 kg (16.1 lbs.).

Weight, with nickel cadmium battery pack: 7.29 kg (16.2 lbs.).

Metering: Relative received signal strength, relative transmitter power output, reflected power (tune mode), battery voltage.

Antenna Tuner: Built-in. Capable of matching to whip or longwire antennas from 2 - 150 meters in length. Special provision to match mobile antenna.

Lighting: Spring loaded switch activates readout display for approximately 10 seconds. Meter illuminated while switch held on. Meter illuminated when mode switch in Tune position.

Memory: Frequency change may be entered only when readout display is illuminated. Last four digits of second frequency may be switch programmed in readiness for a change. Will not activate until READ switch is activated.

Out-of-Lock Indicator: Audio tone warns if synthesizer out-of-lock, such as when large changes in frequency are made or battery needs charging.

Receiver (at 12.6 VDC)

Signal to Noise: Better than 10dB for .5uV input signal.

Selectivity: Greater than 2.4 kHz at -6 dB. Less than 5 kHz at -60 dB.

Sensitivity: More than .125 watts output for .5uV input signal.

AGC: Less than 10dB variation in audio output from 5uV to .01V input signal.

IF Rejection: 2 - 9.9 MHz Better than -90dB. 9.9 - 15 MHz Better than -60dB.

Image Rejection: Better than -90dB.

Internal Spurious Signals: Not greater than the equivalent of .5uV except at 5 MHz and 10 MHz = 3uV.

Audio Output: 1 watt minimum with not more than 10% distortion.

Clarifier: ±50 Hz. minimum.

Current Drain: (readout display off, volume low): Typically 170mA.

Current Drain: (readout display on, volume low): Typically 200mA.

Current Drain: (readout display off, volume normal listening level): Typically 185mA.

Transmitter (at 12.6 VDC)

Power Output:

SSB. 25W P-P average
20W minimum (6 watts with selector switch in "LOW" position).

CW. 10W (internally adjustable).

AM. 6W (carrier).

Intermodulation distortion: Not less than -26dB at 20 watts. Typically -30dB at 25 watts.

Spurious output: -50dB with reference to 25W level.

Sideband Suppression: Better than -50dB.

Harmonic Suppression: (50 ohm output): -40dB.

Carrier Suppression: -40dB minimum.

ALC: Limits output power to within 1dB of setting.

Current Drain: Average voice 1 - 2 amps.
CW (Key down) 4 amps.

CW (Average) 1 - 2 amps.

AM 1.5 amps.

Microphone: H-250/U or equivalent.



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The MP-25 will interface with the voice encryption units of several manufacturers. Details available upon request.

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