

**micom3CarryOn**

# MICOM-3TS-RDP HF-SSB Rapid Deployment Package



*Supplement to  
MICOM-3F/3T/3R Owner's Guide  
6886867J01A*

6888882V09



***MICOM-3TS-RDP***  
***HF-SSB Rapid Deployment Package***

**Supplement to MICOM-3F/3T/3R Owner's Guide**  
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# Before You Begin

This Owner's Guide is designed to acquaint you with the features, care, and installation of your micom3CarryOn radio (MICOM-3TS-RDP Rapid Deployment Package), part of the MICOM-3 family of HF/SSB transceivers.

This Owner's Guide includes all the information pertaining to this MICOM-3 radio set version; the other procedures, which are common to the whole MICOM-3 product line, are described in the "Owner's Guide, MICOM-3F/3T/3R HF-SSB Transceivers", Publication 6886867J01A, and in the other applicable MICOM-3 Supplements that cover optional features. Therefore, you should use this Owner's Guide in conjunction with the MICOM-3F/3T/3R Owner's Guide.

Before you begin using your MICOM-3TS-RDP radio, we recommend that you read the following sections of the MICOM-3F/3T/3R Owner's Guide:

- Overview
- Getting Started
- Operating Instructions.

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**Note** *The Installation section of the MICOM-3F/3T/3R Owner's Guide is not relevant to the MICOM-3TS-RDP.*

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## Warnings, Cautions and Notes

The following notations are used to place special emphasis on procedures, or to call attention to precautionary measures.



**Warning**

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**An operating procedure, practice and so forth, which if not followed correctly, could result in personal injury, or loss of life.**

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**Caution**

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**BEFORE USING THIS RADIO, READ THIS BOOKLET WHICH CONTAINS IMPORTANT OPERATING INSTRUCTIONS FOR SAFE USAGE AND RF ENERGY AWARENESS AND CONTROL INFORMATION FOR COMPLIANCE WITH RF ENERGY EXPOSURE LIMITS IN APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS.**

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**Note** *An operating procedure, condition and so forth, to which special attention should be paid.*

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## General Safety Precautions

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply, in addition to the precautions listed in the *Information for Safe, Efficient Operation* section (page v).



**Warning  
High  
Voltage**

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***Do not touch the antenna and the RF connectors when the radio operates.***

**During transmission, high RF voltages appear at the RF connectors, the antenna cables, and on the antenna itself. These voltages may cause severe injury or even death on contact.**

**Avoid locating the antenna near electrical power lines. Make sure to locate the antenna tuner unit (ATU) close to a good quality ground system.**

**Operating and maintenance personnel must be familiar with the applicable safety requirements before attempting to install or operate the radio. Severe injury or death could result from failure to comply with the safety practices.**

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# Information for Safe, Efficient Operation

## Exposure to Radio Frequency Energy

The FCC has established limits for safe exposure to radio frequency (RF) emissions from mobile two-way radios. The FCC requires manufacturers to demonstrate compliance with RF exposure limits before mobile two-way radios can be marketed in the U.S. When two-way radios are approved for occupational/controlled environment exposure limits, the FCC requires users to be fully aware of, and exercise control over, their exposure. Awareness and control of RF exposure can be accomplished by education or training through appropriate means such as information and instructions in user manuals or safety booklets, or other appropriate means. This user safety booklet includes useful information about RF exposure and helpful instructions on how to control your RF exposure.

The design of your MICOM-3TS-RDP two-way radio complies with the FCC guidelines and these standards:

- American National Standards Institute (C95.1-1992)
- National Council on Radiation Protection and Measurements (NCRP-1986)
- International Commission on Non-Ionizing Radiation Protection (ICNRP-1986).

To assure optimal radio performance and to ensure that exposure to RF energy is within the guidelines in the above standards, install antennas correctly, following recommended installation procedures.

Transmit only when people are 1 to 3 feet away from the properly installed, antenna; distance guidelines for different power levels are:

Rated power of radio	Distance of people from transmitting antenna
15 W or less	1 Foot
16 to 50 W	2 Feet
Over 50 W	3 Feet

## Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed in Vehicles

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures:

- **To transmit (talk), push the Push-To-Talk (PTT) button; to receive, release the PTT button.**  
Transmit only when people outside the vehicle are at least 7 feet from a properly installed, externally-mounted antenna.
- **Install mobile antennas at the center of the roof or the center of the trunk deck per specific guidelines and instructions in the Radio Installation Manual. These mobile antenna installation guidelines are limited to metal body vehicles.**  
Use only the supplied antenna or an approved replacement antenna. Use of non-approved antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

## Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed as Fixed Site Control Stations

If mobile radio equipment is installed at a fixed location and operated as a control station or as a fixed unit, the antenna installation must comply with the following requirements in order to ensure optimal performance and compliance with the RF energy exposure limits in the standards and guidelines listed on [page v](#):

- The antenna should be mounted outside the building on the roof or a tower if at all possible.
- As with all fixed site antenna installations, it is the responsibility of the licensee to manage the site in accordance with applicable regulatory requirements and may require additional compliance actions such as site survey measurements, signage, and site access restrictions in order to ensure that exposure limits are not exceeded.

## Electromagnetic Interference/Compatibility

**Note** *Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility. It may be necessary to conduct compatibility testing to determine if any electronic equipment used in or around vehicles or near fixed site antenna is sensitive to external RF energy or if any procedures need to be followed to eliminate or mitigate the potential for interaction between the radio transmitter and the equipment or device.*

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### Facilities

To avoid electromagnetic interference and/or compatibility conflicts, **turn off your radio in any facility where posted notices instruct you to do so.** Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

### Vehicles

To avoid possible interaction between the radio transmitter and any vehicle electronic control modules, for example, ABS, engine, or transmission controls, the radio should be installed only by an experienced installer and that the following precautions be used when installing the radio:

1. Refer to the manufacturer's instructions or other technical bulletins for recommendations on radio installation.
2. Before installing the radio, determine the location of the electronic control modules and their harnesses in the vehicle.
3. Route all radio wiring, including the antenna transmission line, as far away as possible from the electronic control units and associated wiring.

## Driver Safety

Check the laws and regulations on the use of radios in the area where you drive. Always obey them.

### When using your radio while driving, please:

- Give full attention to driving and to the road.
- Pull off the road and park before making or answering a call if driving conditions so require.

## Operational Warnings



**Warning**

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### For Vehicles with an Air Bag

Do not mount or place a mobile radio in the area over an air bag deployment area. Air bags inflate with great force. If a radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

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**Warning**

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### Potentially Explosive Atmospheres

Turn off your radio prior to entering any area with a potentially explosive atmosphere. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

The areas with potentially explosive atmospheres include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles such as grain, dust or metal powders. Areas with potentially explosive atmospheres are often, but not always, posted.

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**Warning**

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### Blasting Caps and Blasting Areas

To avoid possible interference with blasting operations, turn off warning your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio". Obey all signs and instructions.

For radios installed in vehicles fueled by liquefied petroleum gas, refer to the (U.S.) National Fire Protection Association standard, NFPA 58, for storage, handling, and/or container information. For a copy of the LP-gas standard, NFPA 58, contact the National Fire Protection Association, One Battery Park, Quincy, MA.

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## Installation Safety Warning

Consider the vehicle occupants' safety when you choose a location for the MICOM-3TS-RDP. Do not place the suitcase overhead unless you take special precautions.

If you have to mount the radio overhead, give it the added protection of a retaining strap.

## Grounding Warning

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*Warning*

**All equipment must be properly grounded according to the manufacturer's instructions for safe operation.**

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## Operational Safety Warning

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*Warning*

**When using the MICOM-3TS-RDP in vehicles equipped with an electronic anti-skid system, see the manufacturer's instructions in this respect.**

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## When Using the MICOM-3TS-RDP in Vehicles with an Air Bag

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*Warning*

**An air bag inflates with great force. Do not place objects, including portable or mobile two-way radios, in the area over the air bag or in the air bag deployment area. If improperly placed wireless equipment is in the air bag deployment area and the air bag inflates, serious injury could result.**

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## Restrictions

Because this radio contains a transmitter, federal law prohibits unauthorized, non-licensed personnel from adjusting or maintaining it. If any operational difficulties should arise while using this product, report them to authorized service personnel as soon as possible.

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*Warning*

**Do not attempt any unauthorized modification to the radio.**

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# Overview

## General

MICOM-3TS-RDP is an advanced transportable HF/SSB DSP-based communication system, intended for a very wide range of radio communications. Packed in a rugged suitcase, the MICOM-3TS-RDP provides a highly sophisticated solution for voice, data, fax and e-mail transfer, while remaining reliable and simple to operate. The MICOM-3TS-RDP contains fully solid-state components of the highest integration density and of state-of-the-art modules with the latest SMD (Surface Mounted Devices) technology.

The MICOM-3TS-RDP is based on the MICOM-3T Trunk Mount Mobile Radio, model M91AMN0KV5-K, and is available with two conversion kit options: G580 or G581.

- G580 – this kit includes a built-in detachable tuner and a long-wire antenna.
- G581 – this kit is used with a tactical broadband antenna and does not include a tuner.

The MICOM-3TS-RDP is a self-contained communication system with a radio, AC/DC power supply, and antenna, enabling rapid setup of communications in almost any conditions, and operating in the 1.6 to 30 MHz frequency range with a power output of 125 W (PEP and average) for voice and data operation.

The radio control head is detachable, enabling flexibility in different operational conditions.

## HF-SSB Radio Features

- Digital Signal Processing (DSP)
- Built-in Test Equipment (BITE)
- RF power indications
- 200 channel capacity, simplex or half-duplex
- Channel scan or Automatic Link Establishment (ALE) per MIL-STD-188-141B/FED-STD-1045
- MultiNet function for seamless integration of different HF radio networks in one network
- Automatic IF shift
- Clarifier
- Voice-activated digital squelch
- Excellent transmitter and receiver performance
- High frequency stability option
- DSP software can be upgraded to incorporate future options and new technologies
- Large LCD display and optional support for multiple languages
- MIL-STD-810C, D and E compliance.

## Radio Options and Accessories

- RS-232 remote control interface
- Linear power amplifier interface
- Phone patch interface
- Data/fax modem interface
- MRC or RSS for PC
- High (0.1 ppm) frequency accuracy
- Voice privacy unit
- HF vocoder unit
- Internal GPS receiver
- ISB operation
- Desktop microphone
- Automatic antenna tuners
- Continuous duty data transmission kit
- AC power supply
- 500 W linear power amplifier
- 1 kW linear power amplifier
- Antennas and grounding
- CW key and headphones
- External speaker.

## The MICOM-3TS-RDP Suitcase

The MICOM-3TS-RDP is designed for the rugged environment encountered in various transportation conditions (trucks, planes, boats, etc.), and meets the US MIL-STD-810E standard for shock and vibration. The suitcase is made of heavy gauge aluminum and is splash proof and dust resistant. The transceiver, control panel and power supply are shock mounted.

When the suitcase is opened, it includes the following components:

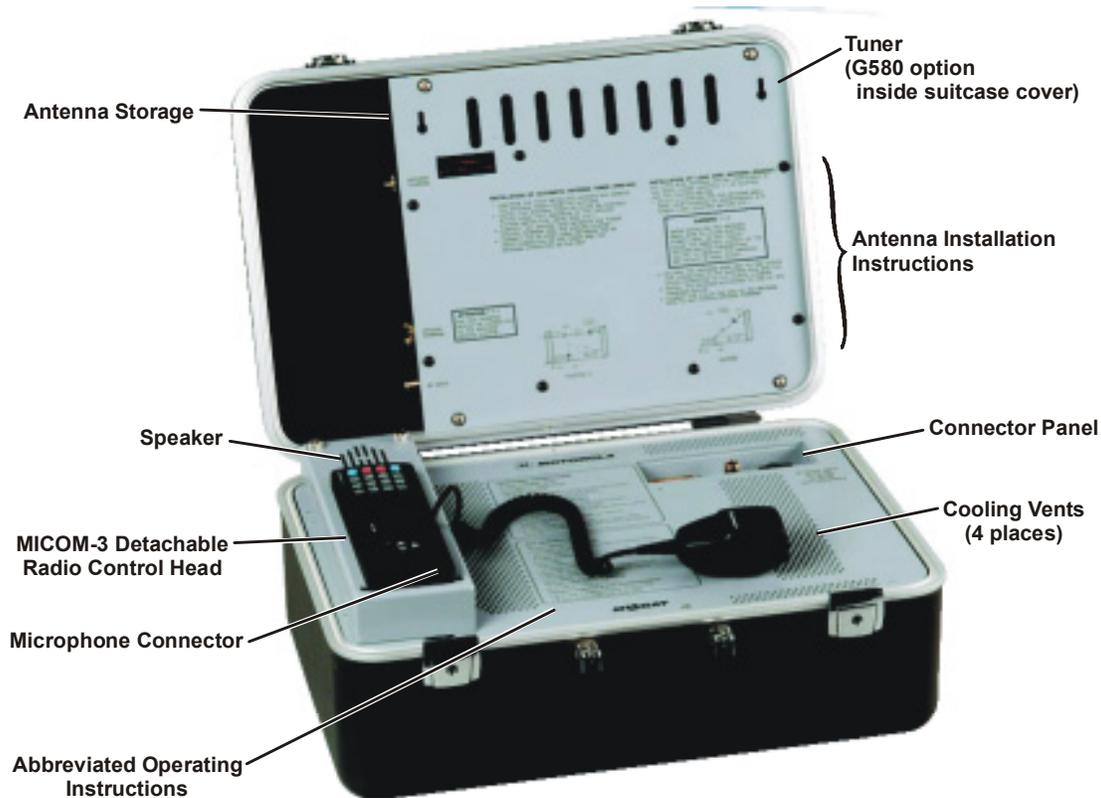


Figure 1. Components of the MICOM-3TS-RDP

## MICOM-3 Radio

For detailed operating instructions, refer to the "Owner's Guide, MICOM-3F/3T/3R HF-SSB Transceivers", Publication 6886867J01A, supplied with the RDP.

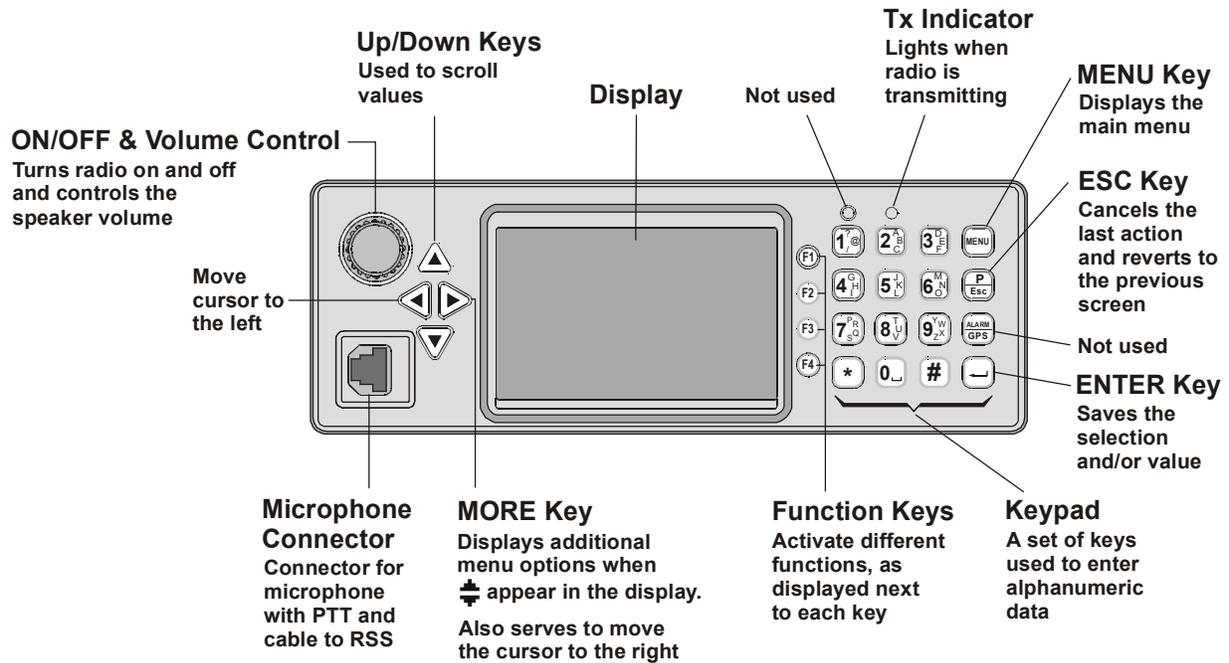


Figure 2. MICOM-3 Control Panel

## Radio Features

The MICOM-3 radio incorporated in the MICOM-3TS-RDP includes the following features:

- Security access code
- Front panel programming
- Digital Signal Processing (DSP)
- Built-In Test Equipment (BITE)
- RF power indicator
- 200-channel capacity, simplex or half-duplex
- Channel scan or ALE
- Priority and guard channels
- ISB option
- Automatic IF shift
- Digital noise blanker and clarifier
- Multi-language liquid crystal display
- Excellent transmitter and receiver performance
- High frequency stability option
- Voice-activated digital squelch

## Power Supply Options

The power supply unit is capable of operating with, and automatically identifying, either 110V/220V, 47-65 Hz AC or 12V DC power sources. The AC source has priority.

When operating the MICOM-3TS-RDP using AC power, a backup battery can be connected (13.8V lead-gel or lead acid battery, maximum 45Ah), which will automatically be trickle charged. This offers an immediate backup power supply in case of a power failure.

## Standards and Compliance

The MICOM-3TS-RDP conforms to MIL-STD-810E standard and EIA-RS152B specifications and complies with ISO 9001 requirements and FCC and EMC standards. The radio ALE option conforms to FED-STD-1045 and MIL-STD-188-141B.

# Installation

## General

This section describes the procedures for setting up the MICOM-3TS-RDP. These procedures can be performed by the system operator under field conditions, with no prior experience.

The radio should be set up and configured in accordance with the instructions in the "Owner's Guide, MICOM-3F/3T/3R HF-SSB Transceivers", Publication 6886867J01A.

Locate the MICOM-3TS-RDP in a convenient location, at a safe distance from strong electrical fields produced by electric brush motors, generators, power lines, etc.

Unpack the following items from the RDP suitcase: antenna, coaxial (RF) cable, power cable (DC and/or AC) and microphone, all stored inside the suitcase cover.



**Warning**

**Verify that the ON/OFF and volume control on the radio control panel is in the OFF position before beginning the installation.**

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## Antenna Installation

Depending on the option ordered with your MICOM-3TS-RDP (G580 or G581), in order to communicate you will have to set up a long-wire or broadband antenna.

### Broadband Antenna Installation

The antenna supplied with the MICOM-3TS-RDP Option G581 is an end-fed portable, broadband HF antenna which can be used in temporary applications, or as a permanently installed base station antenna. The antenna includes:

- One SWQ-100-M antenna
- One stainless steel earth stake
- One 5m (17 ft) length of coaxial cable fitted with connectors
- One 15m (50 ft) length of throw cord with throwing weight
- One 5m (17 ft) length of tensioning cord

When rewinding the antenna onto the spool, take care not to wind it too tightly, and do not allow the cable to become kinked.

When using this antenna, no tuner is necessary: and the antenna is connected directly to the ANTENNA connector on the connector panel, in the suitcase body.

Verify that the tuner option of the MICOM-3 radio is turned off: select **TUNER=NO** on **MENU>MORE>PROG>RADIO>OPTS>ACC** screen.

### Selecting a Location

The location selected for antenna erection should preferably be a clear area with a large tree or other tall support such as a pole or building in the center. If possible, avoid areas with large numbers of trees around the antenna, as this will reduce the antenna performance. Selecting the highest location

in the area will enhance performance.

The antenna should not be installed near power lines, highways, broadcast stations, electrical motors etc. If possible, the antenna should be erected with the grounded or low end of the antenna pointing in the general direction of the station you wish to contact.

### Broadband Antenna Grounding

It is important to ensure that the antenna is correctly grounded, either via the grounding stake, or to a vehicle body. This will enable you to obtain optimal performance.

### Erecting a Broadband Antenna with Earth Grounding

1. Fit the grounding stake through the holes in the antenna spool. Pull out the black handle on the spool. Holding the stake in one hand, use the handle to wind and unwind the antenna wire.
2. Unreel the antenna, laying it in a straight line along the ground.
3. Tie the bare end of the long throw cord securely to the white eyelet on the antenna wire, located near the small metal load cylinder.
4. Throw the weight of the throw cord over a branch of the tree, or any other suitable place.

**Note** Select a smooth clear branch, so as to facilitate retrieval of the cord after antenna installation.

5. The end of the antenna (load cable) will drop vertically from the suspension point. Allow it to drape along the ground, and verify that the end of the antenna is in contact with the ground.
6. Thread the grounding stake through the metal ring located near the balun box, and push it firmly into the ground. This serves to ground the antenna.
7. Verify that the antenna is fully extended and pulled tight to full tension.
8. Extend the counterpoise cable fully.
9. Connect the transceiver to the balun box, using the provided coaxial cable.

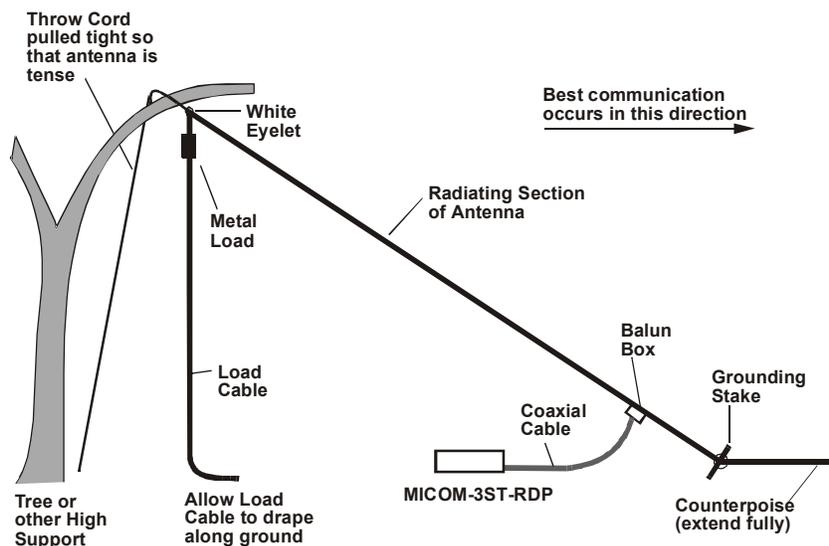


Figure 3. Erecting a Broadband Antenna with Earth Grounding

## Erecting a Broadband Antenna Using a Vehicle for Grounding

This method is used if your MICOM-3TS-RDP is located in a vehicle, or if a vehicle is available and can be used for grounding. This will give better results than earth grounding.

1. Fit the grounding stake through the holes in the antenna spool. Pull out the black handle on the spool. Holding the stake in one hand, use the handle to wind and unwind the antenna wire.
2. Unreel the antenna, laying it in a straight line along the ground.
3. Tie the bare end of the long throw cord securely to the white eyelet on the antenna wire, located near the small metal cylinder.
4. Throw the weight of the throw cord over a branch of the tree, or any other suitable place.

**Note** Select a smooth clear branch, so as to facilitate retrieval of the cord after antenna installation.

5. The end of the antenna (load cable) will drop vertically from the suspension point. Allow it to drape along the ground, and verify that the end of the antenna is in contact with the ground.
6. Position the vehicle so that the antenna can be pulled tense between the tree and the vehicle.
7. Tie the short throw cord to the white eyelet near the balun box.
8. Secure the other end of the antenna to the vehicle, selecting a point as high off the ground as possible (for instance a roof rack).
9. Verify that the antenna is fully extended and pulled tight to full tension.
10. Attach the clip at the end of the counterpoise cord to the tow bar of the vehicle, or any other point on the vehicle chassis where a bare metal contact can be made. The counterpoise cord can remain lying loosely on the ground and does not have to be pulled tight.

**Note** Painted, rusty or greasy surfaces will not provide good grounding.

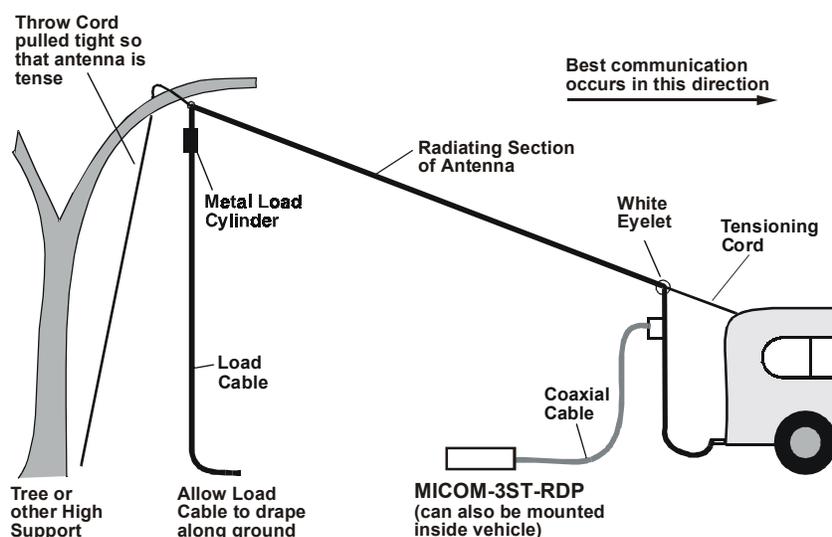


Figure 4. Erecting a Broadband Antenna Using a Vehicle for Grounding

11. Connect the transceiver to the balun box, using the provided coaxial cable.

## Long-Wire Antenna Installation

The antenna supplied with the MICOM-3TS-RDP Option G580 is a long-wire antenna. The antenna includes:

- One 18m (60 ft) antenna wire
- One stainless steel earth stake
- One 5m (17 ft) length of coaxial cable fitted with connectors
- Two throw cords with throwing weights

This antenna is supplied wound on one slot of the spool, while the two throw cords used for installation are wound on the other slot. One of these cords is attached to the ring element on the antenna wire, and the other to the spool itself. Both cords have a weight attached to the end of the cord to facilitate their connection to supports such as poles, towers, trees, etc.

**Note** When disassembling the antenna, first wind the rope attached to the plastic element onto the spool, and then wind the rope attached to the ring element.

When rewinding the antenna onto the spool, take care not to wind it too tightly, and not to allow the cable to become kinked.

When using a long-wire antenna, the tuner of the MICOM-3TS-RDP must be used.

**Note** To operate the tuner, the tuner option must be turned on: select **TUNER=YES** on **MENU>MORE>PROG>RADIO>OPTS>ACC** screen.

The antenna can be erected to operate as an inverted "L" antenna, or as a sloping wire.

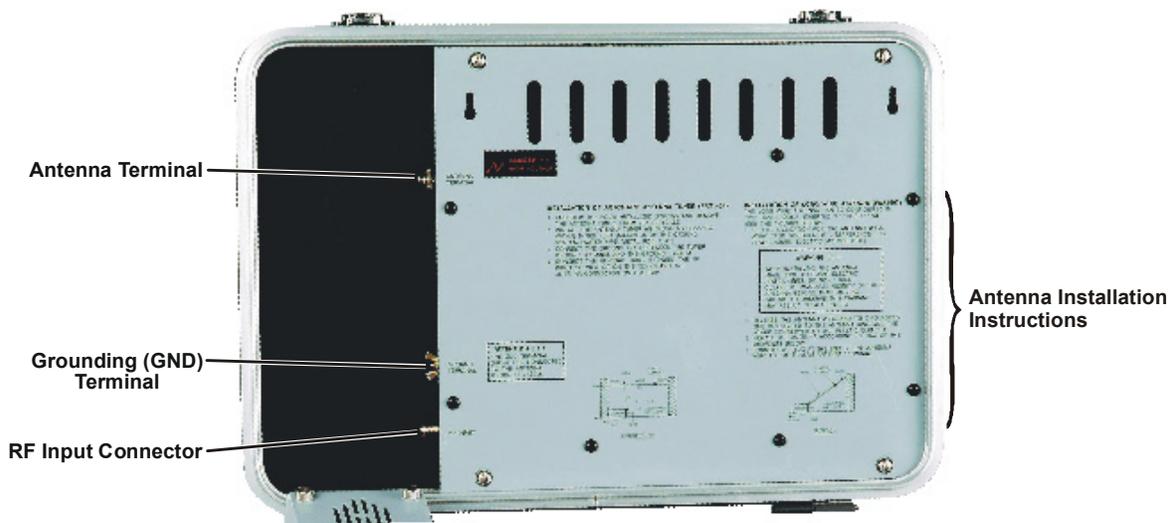


Figure 5. The MICOM-3TS-RDP Tuner

## Selecting a Location

The location selected for antenna erection should preferably be a clear area with one or two large trees or other tall supports such as poles or buildings in the center. If possible, avoid areas with large numbers of trees around the antenna, as this will reduce performance. Selecting the highest location in the area will enhance performance. The antenna should not be installed near power lines, highways, broadcast stations, electrical motors etc.

## Erecting an Inverted "L" Long-Wire Antenna

1. Open the four screws on the inner panel of the MICOM-3TS-RDP suitcase cover to remove the tuner.
2. Connect the black coaxial cable to the N-type RF antenna connector at the side of the tuner; connect the other end to the ANTENNA connector on the connector panel, on the suitcase body.
3. Connect one side of the grounding strap to the GND terminal at the left side of the tuner; connect the other end of the grounding cable to the ground, using the supplied grounding stake.

**Note** For good grounding, the cable can be connected to a water pipe or to any nearby grounding rod. The length of the ground lead must not exceed 30 cm (1 foot).

4. Unwind the green cord attached to the ring element from the spool. Unwind the antenna wire until the ring element is released. The ring element is 4.5m (15 ft) from the tuner connector.
5. Use the cord to tie the antenna wire to the first support. Release as much of the remaining length of the antenna wire as required, depending on the specific location (maximum 13.5m (45 ft)).
6. Lock the green antenna wire into the hook of the spool, and tie the cord connected to the spool to the second antenna support.
7. Connect the lug at the end of the antenna wire to the antenna terminal on the left side of the tuner.

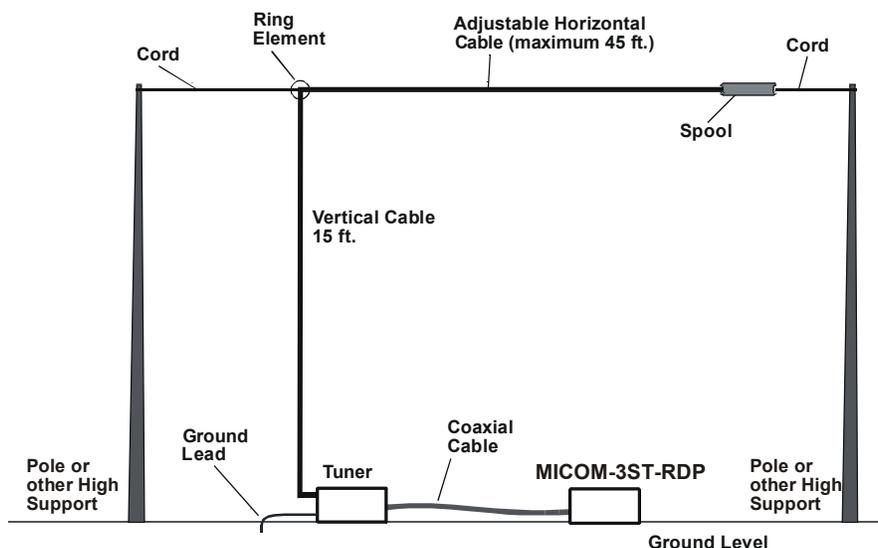


Figure 6. Erecting an Inverted "L" Long-Wire Antenna

8. Tighten the antenna to remove any slack. The wire should be tense, but not so tight as to stress the lug connection.

## Erecting a Sloping Long-Wire Antenna

1. Open the four screws on the inner panel of the MICOM-3TS-RDP suitcase cover and remove the tuner.
2. Connect the black coaxial cable to the N-type RF antenna connector at the left side of the tuner; connect the other end to the ANTENNA connector on the connector panel on the suitcase body.
3. Connect one side of the grounding strap to the GND terminal at the left side of the tuner; connect the other end of the grounding cable to the ground, using the supplied grounding rod.

**Note** For good grounding, the cable can be connected to a water pipe or to any nearby grounding rod. The length of the ground lead must not exceed 30 cm (1 foot).

4. Detach the green cord attached to the ring element and store it on the spool. This cord is not used in sloping antenna erection.
5. Release as much of the green antenna wire as required, depending on the specific location (maximum 18m (60 ft)).
6. Lock the antenna wire into the hook of the spool.
7. Unwind as much of the cord connected to the spool as required, depending on the specific location, and tie the cord to the antenna support.
8. Connect the lug at the end of the antenna wire to the antenna terminal on the left side of the tuner.
9. Tighten the antenna to remove any slack. The wire should be tense, but not so tight as to stress the lug connection.

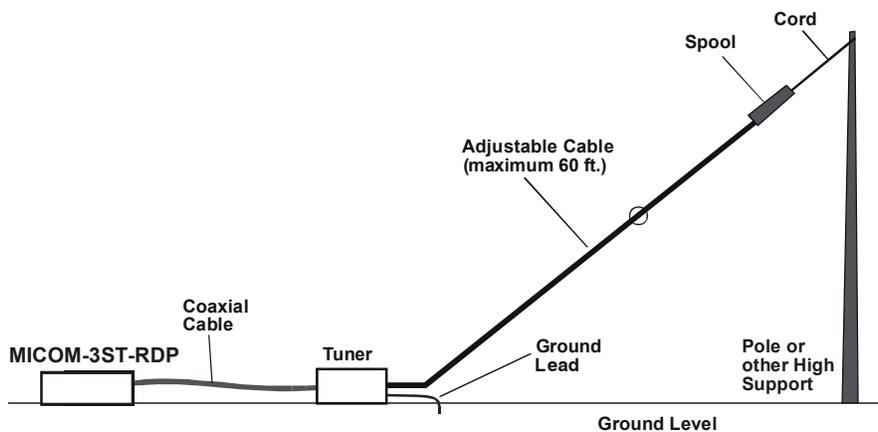


Figure 7. Erecting a Sloping Long-Wire Antenna

## MICOM-3TS-RDP Connections

Most connections are made to the connectors in the connector panel of the MICOM-3TS-RDP (with the exception of the microphone, which is connected directly to the front panel of the MICOM-3 radio control head).

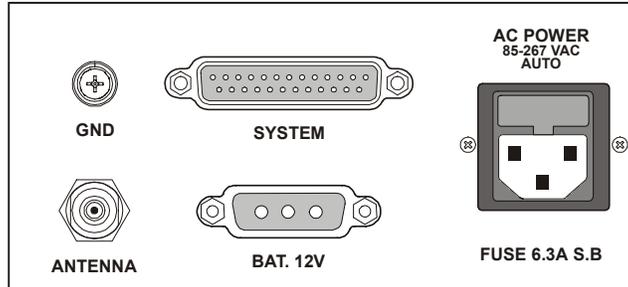


Figure 8. MICOM-3TS-RDP Connector Panel

### Connecting the MICOM-3TS-RDP to Grounding

It is highly recommended to connect the MICOM-3TS-RDP suitcase to the ground. Optimal performance is achieved with ground connection of a very low resistance.

The GND terminal in the connector panel of the MICOM-3TS-RDP should be connected to grounding such as water piping in a building, a grounding rod or a vehicle chassis.

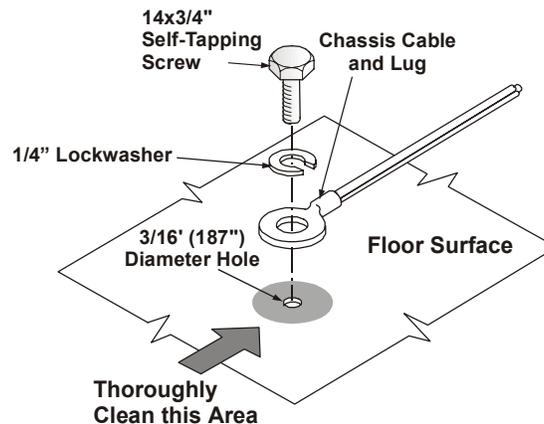


Figure 9. Ground Connection to Vehicle Chassis

### Connecting a Microphone

Connect the microphone to the MIC connector on the front panel of the MICOM-3 radio control head.

### Connecting the MICOM-3TS-RDP to the Power Source

The MICOM-3TS-RDP can be connected to the following power sources:

- 12V negative ground vehicular battery
- 110V/220V AC, 47 to 65 Hz power source.

**Note** Always connect the power supply cable to the MICOM-3TS-RDP **before** connecting the other end of the cable to the power source.

When using DC power, connect the DC cable to the 3-pin DC power connector, BAT. 12V, on the MICOM-3TS-RDP connector panel. It is recommended to insert a 30A protection fuse in the positive lead of the battery cable.

When using AC power, connect the AC cable to the AC POWER connector in the connector panel of the MICOM-3TS-RDP.

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**Note** *You can connect both AC and DC cables to the MICOM-3TS-RDP simultaneously, so that the battery serves as a backup power source:*

- *If the AC power source fails, the battery is used as the main power source.*
  - *When AC power is restored, the power supply trickle-charges the battery.*
- 

## Completing the Installation

1. Connect the DC and/or AC power cables to the power source and/or battery.
2. Turn on the MICOM-3TS-RDP.

The MICOM-3TS-RDP is now ready to operate.

## Removing the Control Head

The control head of the MICOM-3TS-RDP can be removed from the suitcase body, for placement on a desktop or at any other convenient location, or semi-permanent wall hanging. The control head is connected to the MICOM-3TS-RDP suitcase with a 5m (17 ft) cable.

Unscrew the four screws at the corners of the control head. The control head can now be removed. You can use the two holes at the back of the control head to hang the control head on a wall. The screws for hanging the control head should be 26.4 cm apart.

# Maintenance

## Introduction

This section provides maintenance information for the user of the radio. By carrying out the installation procedures correctly and following the maintenance instructions properly, you ensure continuous operation of your radio set.

When an internal problem appears or is suspected, the radio internal BITE (built-in test equipment) will assist you in locating the source of this possible problem to inform the service representative accordingly.

## Preventative Maintenance

### System Integrity

Periodically check the integrity of your system: check the power source, cables including coax cables, connectors, antenna tuner (if used) and antenna.

Carefully check that no damage has been caused to your cables; pay extra attention to runway through holes and bent cables.

### Periodic Calibration

To keep the frequency accuracy of your radio, it is required to calibrate its internal frequency source after 3, 6 and 12 months of operation during the first year, and once a year thereafter. Please ensure that your radio is calibrated on time.

## Using BIT

Every time the radio is turned on, a self-test procedure is performed. If an internal malfunction is found, an error message will be displayed. Please contact your service representative and report the malfunction or error indicated by the BIT function. A list of error messages is given in the **Using Bit** section of the "Owner's Guide, MICOM-3F/3T/3R HF-SSB Transceivers", Publication 6886867J01A.

## Troubleshooting

In case a problem or malfunction occurs, identify the closest description appearing in Table 1 and then perform the listed corrective actions.

Table 1. Troubleshooting Chart

Problem	Corrective Actions
Blank display	CHECK <ul style="list-style-type: none"> <li>• DC and/or AC power cables are connected properly.</li> <li>• The 30A fuse installed in the fuse holder located on the red wire of the DC power cable is good.</li> <li>• The 6.3A fuse installed in the AC POWER connector located on the MICOM-3TS-RDP connector panel, is good.</li> </ul>
Display present but weak or no receive signal or noise	CHECK <ul style="list-style-type: none"> <li>• The setting of the volume control is in the middle position.</li> <li>• The squelch is set to OFF, and the monitor is set to ON.</li> <li>• The operating channel is properly programmed (frequency, mode of operation, etc.).</li> <li>• All antenna wires and tuner cables and connections are intact.</li> </ul>
Engine noise picked up by the antenna	Determine by observing difference in the reception by turning the engine ON/OFF. ENSURE <ul style="list-style-type: none"> <li>• Ground leads are properly connected, all power wires and ground leads are as short as possible</li> <li>• That the noise blanker is enabled.</li> <li>• Install noise reduction kit.</li> </ul>
Poor or no transmission	CHECK <ul style="list-style-type: none"> <li>• The 30A fuse protecting the positive lead of the power cable is good.</li> <li>• The 6.3A fuse installed in the AC POWER connector located on the MICOM-3TS-RDP connector panel, is good.</li> <li>• Proper grounding cables are connected from the radio and from the antenna tuner to the vehicle chassis.</li> <li>• While speaking, check RF power bars for activity. The resulting RF power output is displayed in approximately 15W increments (bars) being added from the bottom of the display upwards:               <ul style="list-style-type: none"> <li>◦ When three or more bars disappear from the RF power bar display, there may be a problem in the antenna system. If the antenna cabling or the antenna mast rigging position has changed since the antenna was last tuned, the antenna tuner will not be adjusted automatically. To retune the antenna tuner, press the ENTER key. If transmission is still poor, inspect the tuner, antenna and ground plane for loose connections or misplaced parts. If no loose connections are found, call your service representative for assistance.</li> <li>◦ There are no bars on the RF power bar display: indicates low transmitter power, which can be caused by a faulty microphone, faulty transmitter, overheating, or defective antenna system.</li> </ul> </li> </ul>

## Service

Proper repair and maintenance procedures will assure efficient operation and long life for this product. A maintenance agreement will provide expert service to keep this and all other communication equipment in perfect operating condition. Through its maintenance and installation program, the manufacturer makes available the finest service to those desiring reliable, continuous communications on a contract basis.

For a contract service agreement, please contact your nearest service representative, or sales representative.

## Radio Checks

If you suspect a radio problem, check the following items before requesting service.

- Be sure the radio is turned on.
- Replace or recharge the battery. The first time a new battery is used, it should be charged for at least 16 hours.
- The antenna must be screwed on properly, with its base flush against the top of the antenna base.
- Could your radio problem be caused by accessories improperly connected?

Try operating the radio from several different locations, especially when using the radio inside buildings.

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## Model Complements

### micom3CarryOn (RDP) with G580 ATU System

M91AMN0KV5-K & G580

Long Wire Antenna Inverted	FAA5507A
RDP ATU Board	FLA5515A
RDP Customer Kit	FKN5913A
Suitcase	FLN6442A
Power Supply for RDP	FPN5513A
Microphone	FMN1615A
DC Cable for RDP (20")	FKN4829A
RDP Assembly	FHN6063A
Control Head Unit	FLN2775A
Low RF Assembly	FLN2773A
Blank Panel for RDP	FLN2674A
High Power Unit	FLN3173A
Control Cable	HKN6098A
Digital Noise Blanker	S135AD
DC Cable	FKN4830A
RSS Programming Cable	0102703K65
HDW ATU MICOM-3	FHN6013A
Owners Guide for MICOM-3	6886867J01A
Owners Guide for MICOM-3TS-RDP	6888882V09
Hardware Kit	2072-48290-00

## micom3CarryOn (RDP) with G581 Broadband Antenna

M91AMN0KV5-K & G581

Suitcase	FLN6442A
Power Supply for RDP	FPN5513A
Microphone	FMN1615A
DC Cable for RDP (20")	FKN4829A
RDP Assembly	FHN6063A
Control Head Unit	FLN2775A
Low RF Assembly	FLN2773A
Blank Panel for RDP	FLN2674A
High Power Unit	FLN3173A
Control Cable	HKN6098A
Digital Noise Blanker	S135AD
DC Cable	FKN4830A
RSS Programming Cable	0102703K65
HDW ATU MICOM-3	FHN6013A
Owners Guide for MICOM-3	688687J01A
Owners Guide for MICOM-3TS-RDP	6888882V09
Hardware Kit	2072-48290-00

# Technical Specifications

This section lists the main technical characteristics of the equipment. See the “Owner’s Guide, MICOM-3F/3T/3R HF-SSB Transceivers”, Publication 6886867J01A for detailed specifications.

<b>General</b>	<i>Model</i>	M91AMN0KV5-K & G580 or G581
	<i>Transmit Frequency Range</i>	1.6 to 30 MHz
	<i>Receive Frequency Range</i>	0.1 to 30 MHz (0.1 to 1.6 MHz reduced performance)
	<i>RF Input Impedance</i>	50 $\Omega$
	<i>Sensitivity</i>	SSB: 0.3 $\mu$ V for 10 dB SINAD
	<i>Audio Bandwidth</i>	350 to 2700 Hz
	<i>Data Bandwidth</i>	300 to 3300 Hz
	<i>Number of Channels</i>	200 simplex or half duplex, user programmable
	<i>Scanning</i>	5 groups with up to 100 channels per group, including 1 guard channel. Programmable scan rate: 1 to 5 sec. per channel, in 1 sec. steps
	<i>ALE</i>	Per FED-STD-1045B and MIL-STD-188-141B, JITC certified
	<i>Frequency Stability</i>	0.6 ppm (0.1 ppm optional) for -30° to 60°C / -22° to +140°F
	<i>Frequency Resolution</i>	10 Hz
	<i>Operating Temperature Range</i>	-30° to +60°C / -22° to +140°F
	<i>Humidity</i>	Max. 95% @ 50°C / 122°F
	<i>Remote Control Interface</i>	RS-232C (optional)
	<i>Modes of Operation</i>	<ul style="list-style-type: none"> <li>• J3E SSB</li> <li>• R3E PILOT</li> <li>• H3E AME</li> <li>• J2A CW</li> <li>• J2B RTTY, ARQ, FEC, PACKET, MCW</li> <li>• B8C FAX, DATA, FSK</li> </ul>
	<i>Operating Voltage</i>	
	AC	110VAC/220VAC (nominal), 47 to 65 Hz
	DC	13.8 VDC $\pm$ 20%, negative ground
	<i>Dimensions</i>	
	<i>Height</i>	341 mm / 13.5 inch
	<i>Width</i>	507 mm / 20 inch
	<i>Depth</i>	209 mm / 8.3 inch
	<i>Weight</i>	20 kg / 44 lbs

<b>Broadband Antenna</b>	<i>Frequency Range</i>	2 to 30 MHz
	<i>Power Rating</i>	100 W PEP
	<i>Input Impedance</i>	50 $\Omega$ nominal
	<i>VSWR</i>	Max. 2:1 across operating range
	<i>Input Connector</i>	BNC socket
	<i>Coaxial Cable</i>	5m (17 ft) long RG58 C/U, fitted with N plug
	<i>Total Length when Erected</i>	16m (55 ft)
	<i>Antenna and Elect. Elements</i>	Stainless steel
	<i>Packed Weight</i>	1.2 kg (including grounding stake and coaxial cable)

*Specifications subject to change without notice.*