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# **TMAA12 and TMAA13 Power Supply** for Tait TM8000 Mobile Radios

## **User's Guide**



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## Updating this Guide

In the interests of improving the performance, reliability or servicing of the equipment, either the equipment or this user's guide may be updated without prior notice.

# Important safety information

Please read these warnings before using the TMAA12 or TMAA13 power supply.



## **Warning: Safe operation**

To reduce the risk of fire or electric shock, please adhere to these warnings:

- **Moisture:** Do not expose this appliance to rain or moisture.
- **Cleaning:** Unplug the power supply from the mains power outlet before cleaning. Switching off the power supply will not reduce this risk.
- **Ventilation:** Place the power supply in an area that will allow air to flow freely around the unit. This will prevent the power supply and mobile radio from overheating. Do not block or obstruct any of the ventilation openings on the unit.



## **Warning: Electrical connections**

To reduce the risk of fire or electric shock, please adhere to these warnings:

- Do not connect two or more power supplies together.
- The power supply should be properly connected and grounded. Use the provided AC power cable to connect the power supply to a mains power outlet that is properly installed and grounded, in accordance with all local codes and ordinances. If the power supply cord is damaged, it must be replaced with the same type to comply with safety requirements.

- Never alter the provided AC cable or plug. If the plug does not fit into the outlet, have an appropriate outlet installed by a certified electrician.
- Use an extension cord only when absolutely necessary. The extension cord must have the same voltage and power rating as the original power supply plug. Make sure that the pins on the plug are of the same number, size and shape as those of the original power supply plug.
- Do not connect a backup battery directly to the power supply.
- Do not use the power supply to directly charge a battery.



### **Warning: Servicing**

This power supply should be serviced by a qualified service technician. Incorrect assembly may result in electric shock or fire. We recommend that you return the power supply to a qualified dealer for all services and repairs.



### **Warning: High voltage levels**

Some of the components inside the power supply can operate at voltage levels that may be lethal.

# User information

The TMAA13 and TMAA12 power supplies enable you to use your TM8000 mobile radio as a desktop radio.



## Note:

- For **TM8000 25W (standard power)** radio users: Use the TMAA12 power supply.
- For **TM8000 30–50W (high power)** radio users: Use the TMAA13 power supply.

If you are unsure of the power rating for your mobile radio, please contact your dealer.

The TMAA12 and TMAA13 are switched mode power supplies: they convert mains input voltage to regulated 13.8V<sub>DC</sub> using pulse width modulation (PWM) control.

The TMAA12 and TMAA13 power supplies are protected against short circuits, as well as over-current and over-voltage conditions. The TMAA13 model also offers over-temperature shutdown.

## Check the mains supply voltage

Before you plug in and turn on the power supply for the first time, please check the mains supply voltage.

The voltage rating of the power supply is printed on a label on the bottom of the unit. Verify that it corresponds with your local mains supply voltage (that is, 120V<sub>AC</sub> or 230V<sub>AC</sub>).

The variations in mains supply voltage under which the TMAA12 and TMAA13 power supplies can operate, are listed in the [‘Electrical specifications’ tables on pages 18–19](#).

## Turning the power supply on

The power supply has an illuminated on/off switch, marked “1” for on and “0” for off. Turn the power supply on by pressing the “1” side of the switch. The indicator inside the switch will illuminate.



**Note:** If the power supply does not turn on, refer to ‘[Troubleshooting](#)’ on page 17.

## Turning the power supply off

Before you turn the power supply off, turn the radio off as described in the user documentation for the radio.

To turn the power supply off, press the “0” side of the power switch.

## Cooling

The TMAA12 power supply is cooled by convection cooling (that is, normal airflow around the power supply).

The TMAA13 power supply is cooled by convection and forced air cooling (that is, normal airflow around the power supply in combination with a temperature controlled fan to improve cooling at higher levels of use). The fan is activated by a sensor when the temperature rises above 70°C.



**Caution:** Place the power supply in a well ventilated and cool area. Do not block the ventilation openings on the sides, back or top of the unit.

## Using the microphone

The radio can be programmed to activate or deactivate scanning or monitoring through the “hookswitch” feature. For more information, refer to the user and programming documentation for your radio.

## Battery charging

For information on using the TMAA12 or TMAA13 as a battery charger, please contact your dealer.

## Servicing

By following the procedures in this user's guide, and by exercising normal care, the power supply will give you trouble-free service for many years. However, when required, servicing should be carried out by a qualified service technician. While within the warranty period, servicing must be carried out by your dealer.

## Installation information



**Caution:** Install the power supply indoors. It is not designed for operation out-of-doors or in wet environments.



**Note:** When using a TM8000 radio in a desktop or despatcher configuration (that is, in conjunction with the TMAA12 or TMAA13 power supply at a fixed location), check the maximum legal transmit output power as defined by the local regulatory authority (often in the range of 1 to 5W). Exceeding this output power may result in prosecution.

The correct installation of the TMAA12 or TMAA13 power supply and your mobile radio is critical to your radio's performance. Authorised dealers are able to offer a prompt, professional installation service.

The mobile radio can be installed at a distance from the power supply, or it can be mounted on top of the power supply.

# Installation

To Install the TM8000, you will require a power supply kit, and either a plinth or U-bracket kit.



**Note:** The connector plug on the power cable for the plinth and U-bracket kits differ for the TM8000 25W and 50W models. Please ensure that you have the plinth or U-bracket kit that is appropriate for your radio (see [page 8](#)).

## Power supply kit

TMAA12 or TMAA13

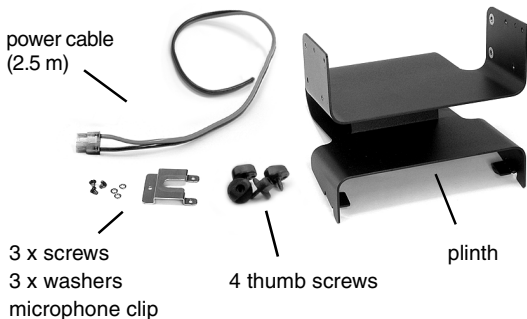




## Plinth kit

TMAA03-09 – for TM8000 25W radios (TMAA12 power supply)

TMAA03-12 – for TM8000 30–50W radios (TMAA13 power supply)

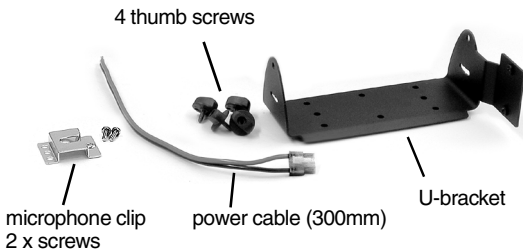


## U-bracket kit

(TM8100 mobile radios only)

TMAA03-06 – for TM8100 25W radios (TMAA12 power supply)

TMAA03-13 – for TM8100 30–50W radios (TMAA13 power supply)



# Plinth installation

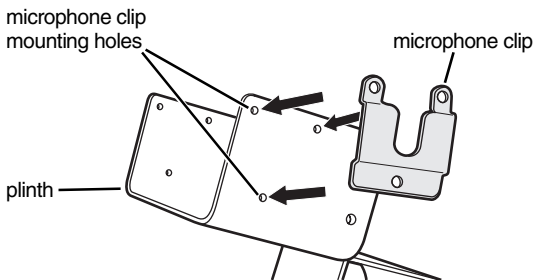
To install a TM8000 radio in a plinth, you will require:

- TMAA12 or TMAA13 power supply kit.
- TMAA03-09 (25W) or TMAA03-12 (30–50W) plinth kit.

## Quick reference

- Mount the microphone clip.
- Mount the radio in the plinth.
- Connect the power supply to the radio.
- Connect the antenna to the radio.
- Turn on the radio and check its operation.

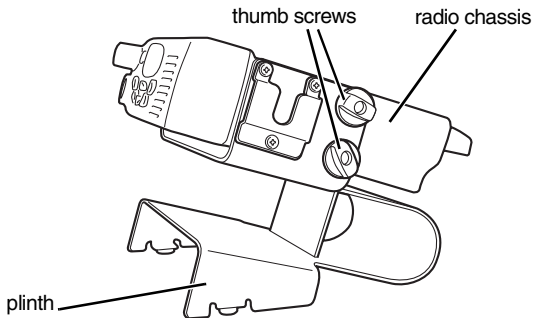
## Mount the microphone clip



The microphone clip can be mounted on either side of the plinth, allowing for left-handed or right-handed use.

1. Mount the microphone clip to the side of the plinth with the supplied screws and washers.

## Mount the radio on the plinth



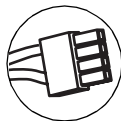
1. Position the radio in the plinth so that the mounting holes in the plinth line up with the holes in the radio chassis.
2. Fasten the radio with the four thumb screws.

## Connect the power supply to the radio

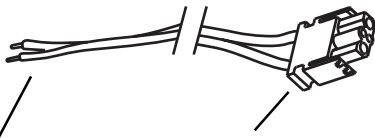
**Note:** The red wire of the power cable is positive.



TM8000 25W power connector



supply wires



TM8000 30-50W power connector

1. Unplug the power supply from the mains supply outlet.
2. Connect the power cable's positive (red) wire to the positive terminal and connect the negative (black) wire to the negative terminal on the back of the power supply.
3. Plug the power cable into the power socket on the back of the radio.

### **To complete the installation**

1. If an external speaker is required, connect it as described in the installation documentation for the speaker.
2. Plug the power supply into the mains supply outlet and switch it on.
3. Make sure that the power indicator in the switch illuminates. If the indicator fails to light up, check the connection and mains power outlet. If the problem persists, turn to ['Troubleshooting' on page 17](#).
4. Connect the radio's antenna.
5. Turn on the radio and make sure that it operates satisfactorily, as described in the user documentation for the radio.

# U-bracket installation



**Note:** The U-bracket kit can only be used with TM8100 mobile radios

To install a TM8100 radio on a TMAA12 or TMAA13 power supply, you will require:

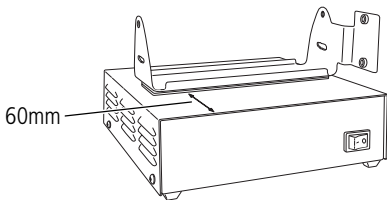
- TMAA12 or TMAA13 power supply kit.
- TMAA03-06 (25W) or TMAA03-13 (30–50W) U-bracket kit.

## Quick reference

- Mount the U-bracket on the power supply.
- Mount the radio in its U-bracket.
- Mount the microphone clip.
- Connect the power supply to the radio.
- Connect the antenna to the radio.
- Turn on the radio and check its operation.

## Determine the U-bracket's position

The recommended position for the U-bracket is on the top surface of the power supply, 60mm from the front edge.



## Clean the top surface of the power supply

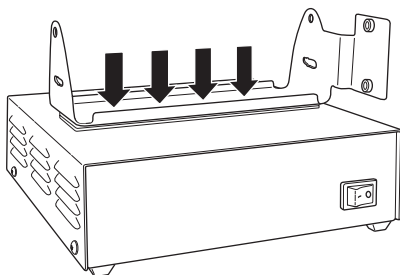
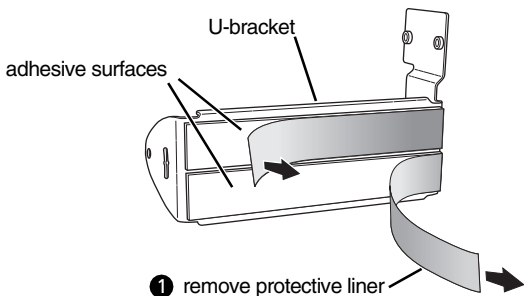
1. Use a solution of isopropanol and water (50/50) to remove any oil or dirt from the top surface of the power supply.



**Caution:** Be extremely careful when handling solvents. Follow the manufacturer's precautions and directions for use.

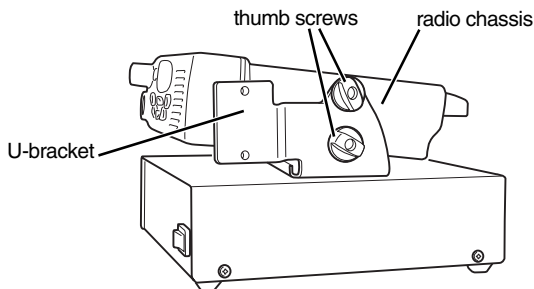
## Mount the U-bracket on the power supply

To ensure maximum bond strength, the temperature of both the power supply and the U-bracket should be above 20°C (68°F).



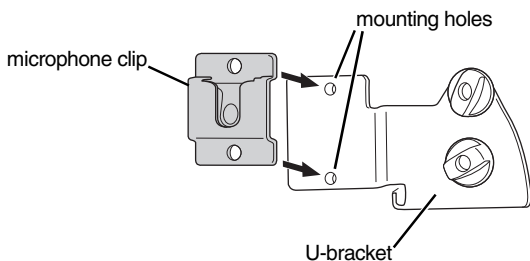
1. Remove the liners that protect the adhesive surfaces on the bottom of the U-bracket.
2. Position the U-bracket on the power supply and press down firmly along the whole length of the U-bracket. Maximum bond strength will be achieved within 72 hours.

### Mount the radio in its U-bracket



1. Position the radio in the U-bracket so that the holes in the U-bracket line up with the holes in the radio chassis.
2. Fasten the radio with the four thumb screws.
3. Adjust the radio in the U-bracket for best viewing angle and tighten the thumb screws.

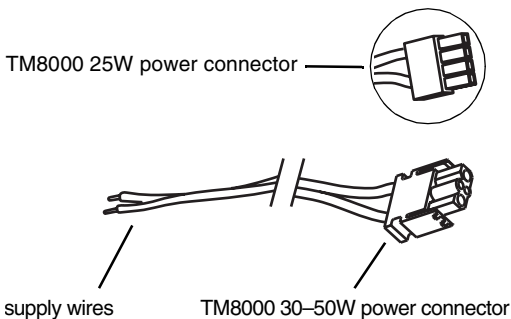
## Mount the microphone clip



1. Mount the microphone clip to the side of the U-bracket with the supplied screws.

## Connect the power supply to the radio

**Note:** The red wire of the power cable is positive.



1. Unplug the power supply from the mains supply outlet.
2. Connect the power cable's positive (red) wire to the positive terminal and connect the negative (black) wire to the negative terminal on the back of the power supply.



3. Plug the power cable into the power socket on the back of the radio.

### **To complete the installation**

1. If an external speaker is required, connect it as described in the installation documentation for the speaker.
2. Plug the power supply into the mains supply outlet and switch it on.
3. Make sure that the power indicator in the switch illuminates. If the indicator fails to light up, check the connection and mains power outlet. If the problem persists, turn to ["Troubleshooting" on page 17](#).
4. Connect the radio's antenna.
5. Turn on the radio and make sure that it operates satisfactorily, as described in the user documentation for the radio.

# Troubleshooting

## **Power switch does not illuminate when turned on**

**Probable cause:** No power in the AC outlet, or the main input fuse inside the power supply is blown.

**Suggested solution:** Check the mains power outlet, or replace the mains input fuse inside the unit (refer to the input fuse ratings [on pages 18–19](#)).

## **Fuse blows when power is turned on**

**Probable cause:** Unit is defective.

**Suggested solution:** Call technical support.

## **Output voltage is 0V or very low**

Verify this fault condition with a multimeter.

**Probable cause:** The unit is in current limit condition.

**Suggested solution:** Check that the output terminals have not short-circuited.

# Electrical specifications

## TMAA12 power supply

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Input voltage	
TMAA12-22	100 to 130V <sub>AC</sub> 60Hz (UL approved)
TMAA12-21	200 to 250V <sub>AC</sub> 50Hz (CE approved)
TMAA12-23	200 to 250V <sub>AC</sub> 50Hz (CE approved)
TMAA12-24	200 to 250V <sub>AC</sub> 50Hz (CE approved)
Output voltage	13.8V <sub>DC</sub>
Output ripple & noise (on full load)	Less than 10mV <sub>rms</sub>
Output current, continuous	10A
Current limit	14A
Protection	Over-current Short-circuit Over-voltage
Input fuse rating	
TMAA12-22	3A
TMAA12-21	2A
TMAA12-23	2A
TMAA12-24	2A
Fuse type	5mm x 20mm glass, 250V

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**Note:** Specifications may change without prior notice.

## TMAA13 power supply

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Input voltage	
TMAA13-22	100 to 130V <sub>AC</sub> 60Hz (UL approved)
TMAA13-21	200 to 250V <sub>AC</sub> 50Hz (CE approved)
TMAA13-23	200 to 250V <sub>AC</sub> 50Hz (CE approved)
TMAA13-24	200 to 250V <sub>AC</sub> 50Hz (CE approved)
Output voltage	13.8V <sub>DC</sub>
Output ripple & noise (on full load)	150mV <sub>rms</sub>
Output current, continuous	23A
Current limit	25A
Protection	Over-current Short-circuit Over-voltage Over-temperature shutdown
Input fuse rating	
TMAA13-22	6.3A
TMAA13-21	4A
TMAA13-23	4A
TMAA13-24	4A
Fuse type	5mm x 20mm glass, 250V

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**Note:** Specifications may change without prior notice.



