

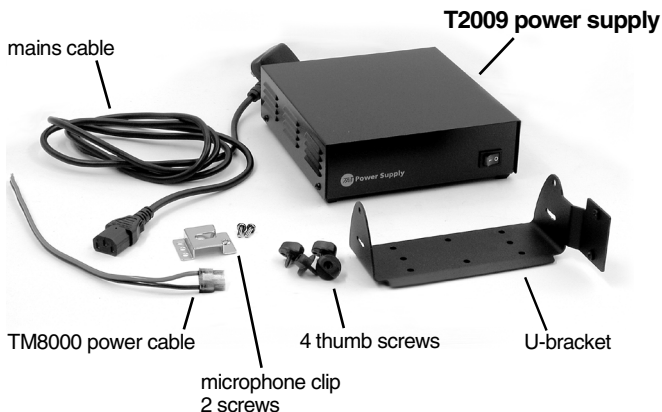
# TMAA12 / T2009 Power Supply User's Guide

for Tait TM8000 and T2000 Mobile Radios

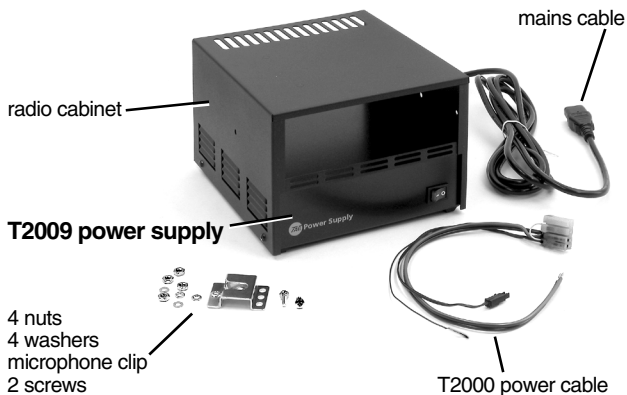


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## TMAA12 kit for TM8000 Installation (page 6)



## T2009 kit for T2000 Installation (page 10)



# Contents

Important Safety Information .....	2
User Information .....	4
Installing a TM8000 .....	6
Installing a T2000 .....	10
Fault Finding Information .....	16
Electrical Specifications .....	17

## Updating this Guide

In the interests of improving the performance, reliability or servicing of the equipment, Tait Electronics Ltd. reserves the right to update either the equipment or this user's guide, without prior notice.

# Important Safety Information

Please read these warnings before using your T2009 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 it off 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 operate two or more units in parallel.
- Your power supply should be properly connected and grounded. Use the provided AC power cable to connect it 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 a proper 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 servicing technician. Incorrect assembly may result in electric shock or fire. We recommend that you return your power supply to a qualified Tait Electronics Ltd. dealer for any service or repair.



### **Warning: High Voltage Levels**

Some of the components inside the T2009 operate at voltage levels that may be lethal.

# User Information

The T2009 power supply enables you to use your Tait T2000 or Tait TM8000 mobile radio as a desktop radio.

The T2009 is a switched mode power supply. It converts mains input voltage to regulated 13.8VDC, using pulse width modulation (PWM) control.

The T2009 power supply is protected against short circuits, as well as over current and over voltage conditions.

## Check the Mains Supply Voltage

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

The voltage rating of the T2009 is printed on a label on the bottom of the supply. Verify that it corresponds with your local mains supply voltage (i.e. 120 VAC or 230 VAC).

The variations in mains supply voltage under which the T2009 can operate, are listed in the "Electrical Specifications" table on page 17.

## Turning the Power Supply on

The T2009 has an illuminated on/off switch, marked "I" for on and "O" for off. Turn the power supply on by pressing the "I" side of the switch. The indicator inside the switch will illuminate.



**Note:** If the T2009 does not turn on, refer to "Fault Finding Information" on page 16.

## 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 "O" side of the power switch.

## Cooling

The T2009 is cooled by convection cooling (normal airflow around the power supply).

Place the unit 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

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

## Battery Charging

The T2009 should not be used as a battery charger.

## Servicing

By following the procedures in this manual, and by exercising normal care, your T2009 will give you trouble-free service for many years.

However, when required, servicing should be carried out by a qualified service technician. Within the warranty period, servicing must be carried out by your Tait dealer.

## Installation Information



**Caution:** Install the T2009 indoors. It is not designed for operation out-of-doors or in wet environments.

The installation of the T2009 and mobile radio is critical to its performance. Tait authorised dealers are able to offer a prompt, professional installation service.

The mobile radio can be operated at a distance from the T2009, or it can be mounted on top of the T2009.



**Note:** When using a Tait radio in a desk top or despatcher configuration (i.e. in conjunction with the T2009 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.

# Installing a TM8000

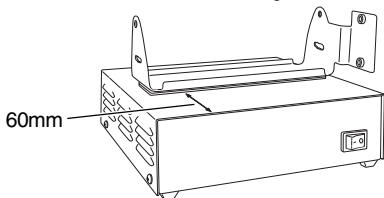
The parts required to install a TM8000 radio on the T2009 are shown on the inside front cover of this user's guide.

## Quick Reference

- Mount the U-bracket on the T2009.
- 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 T2009, 60mm from the front edge.



## Clean the top surface of the T2009

1. Use a solution of isopropanol and water (50/50) to remove any oil or dirt from the top surface of the T2009.

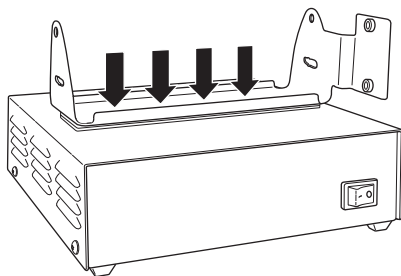
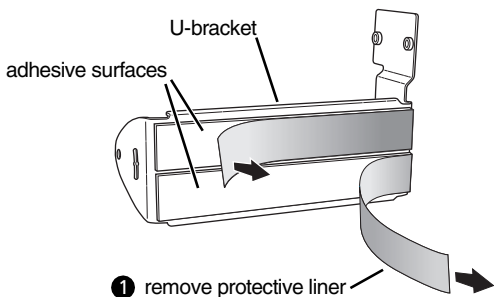


**Caution:** Be extremely careful when handling solvents. Follow the manufacturer's precautions and directions for use.



## Mount the U-bracket on the T2009

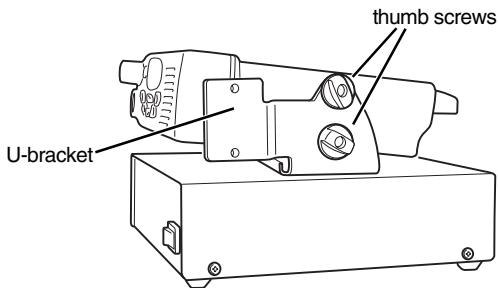
To ensure maximum bond strength, the temperature of both the T2009 and the U-bracket should be above 20°C (68°F).



### 2 press U-bracket down firmly

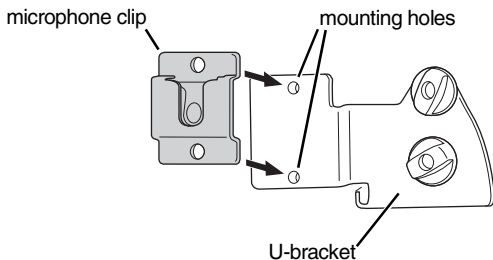
1. Remove the liners that protect the adhesive surfaces on the bottom of the U-bracket.
2. Position the U-bracket on the T2009 and press down firmly along the whole length of the U-bracket
3. Maximum bond strength will be achieved within 72 hours.

## Mount the TM8000 Radio



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

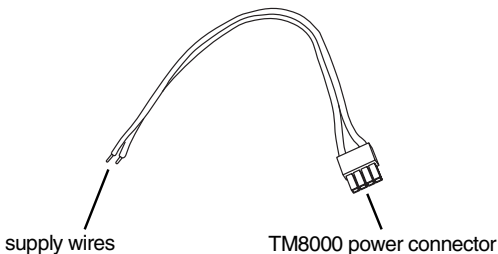


1. Mount the microphone clip to the side of the U-bracket, as shown below, with the supplied screws.



## Connect the Radio and the Power Supply

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



1. Make sure that the radio and the T2009 are both turned off. Unplug the T2009 from the mains supply outlet.
2. Connect the power cable's positive (red) wire and negative (black) wire to the positive and negative terminals on the back of the T2009.
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. Make sure that the radio is switched off, as described in the user documentation for the radio.
3. Plug the power supply into the mains supply outlet and switch it on.
4. Make sure that the power indicator in the switch illuminates. If the indicator fails to light up, check the connection and mains power outlet. Turn to "Fault Finding Information" on page 16 if the problem persists.
5. Connect the radio's antenna.
6. Turn on the radio and make sure that it operates satisfactorily, as described in the user documentation for the radio.

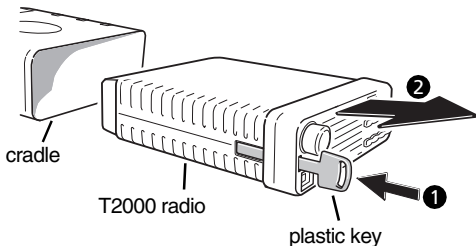
# Installing a T2000

The parts required to install a T2000 radio on the T2009 are shown on the inside front cover of this user's guide.

## Quick Reference

- Install the radio inside the radio cabinet.
- Mount the radio cabinet on the T2009.
- Connect the power supply connector to the radio.
- Mount the microphone clip.
- Connect the power supply to the radio.
- Turn on the radio and check its operation.

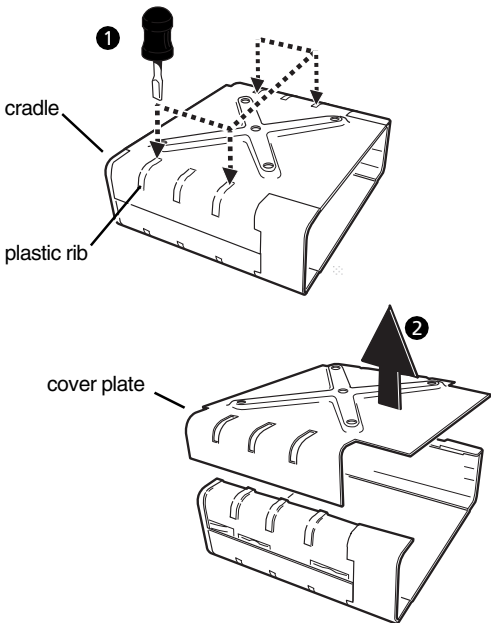
## Remove the T2000 Radio from its cradle



1. Slide the plastic key provided with the radio fully into the small slot on the left front of the radio unit.
2. You can now slide the radio out forwards from the cradle, as shown below:

## Disassemble the T2000 Cradle

The cradle consists of two outer covers made from metal, held together by two plastic side mouldings. The plastic mouldings have ribs that mate with the metal covers.



1. To disassemble the cradle, place the tip of a small screwdriver on the first protruding plastic rib, as indicated above. Gently push down with the screwdriver. This will release the first rib from the cover plate. Repeat for the other three outer ribs.
2. Remove the metal cover plate. It is not necessary to disassemble the cradle further..

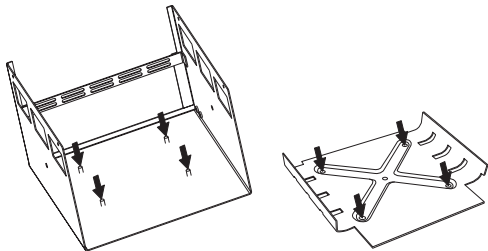


## Remove the Radio Cabinet

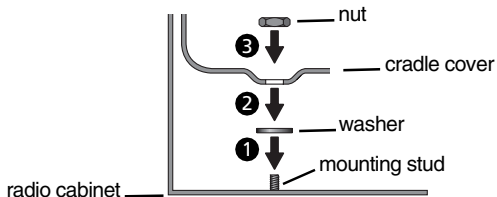
**Warning:** Some of the components inside the T2009 operate at voltage levels that may be lethal. Do not remove the T2009 cover plate.

1. **Unplug the T2009 from the mains supply.**
2. Remove the four mounting screws on the side of the powers supply.
3. Remove the radio cabinet from the T2009, but do not remove the T2009's cover plate.

## Mount the T2000 Cradle



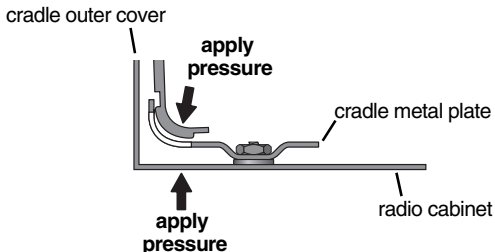
The T2000 cradle is mounted inside the radio cabinet. The mounting studs and mounting holes are shown above.



1. Fit a washer on each of the mounting studs inside the radio cabinet.

2. Fit the metal cover plate onto the mounting studs. The end of the cover plate that overhangs the plastic side mouldings, must face towards the rear of the supply.
3. Fit the nuts onto the protruding studs and fasten firmly.

## Reassemble the T2000 Cradle

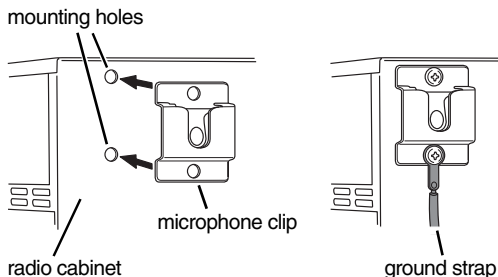


1. Position the cradle on the mounted cover plate, taking care to locate the plastic ribs into their mating slots. They will not fit if the cradle is back to front.
2. Clip the ribs home. This will require gentle pressure, with your index fingers on the inside and thumbs on the outside, as shown below.

## Mount the Radio Cabinet and T2000 Radio

1. Position the radio cabinet over the power supply so that the mounting holes in the radio cabinet line up with the corresponding holes in the power supply.
2. Insert the screws and then tighten all four screws firmly.
3. Slide the radio, heatsink first, into the front of the cradle until it seats firmly.

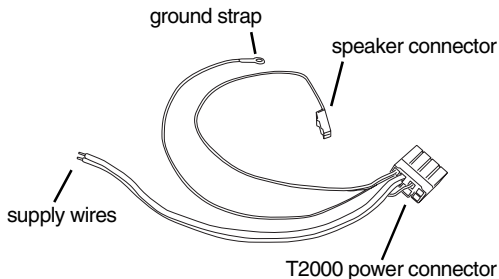
## Mount the Microphone clip



1. Mount the microphone clip to the side of the radio cabinet, as shown below.
2. The power cable has a single black wire that ends in a solder tag: this is the ground strap. For correct hookswitch operation (as described in "Using the Microphone" on page 5), fasten the ground strap's solder tag to the microphone clip with one of the two microphone mounting screws, as shown below.

## Connect the Radio and the Power Supply

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



1. Make sure that the radio and the T2009 are both turned off and unplug the T2009 from the mains supply outlet.



2. Connect the power cable's positive (red and black) wire and negative (black) wire to the positive and negative terminals on the back of the T2009.
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. Make sure that the radio is switched off, as described in the user documentation for the radio.
3. Plug the power supply into the mains supply outlet and switch it on.
4. Make sure that the power indicator in the switch illuminates. If the indicator fails to light up, check the connection and mains power outlet. Turn to "Fault Finding Information" on page 16 if the problem persists.
5. Connect the radio's antenna.
6. Turn on the radio and make sure that it operates satisfactorily, as described in the user documentation for the radio.

# Fault Finding Information

## **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 fuse ratings on page 17)

## **Fuse Blows when Power is Turned On**

**Probable cause:** Unit is defective

**Suggested solution:** Call technical support.

## **Output Voltage is 0 V 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 are not shorted together.

# Electrical Specifications

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Input voltage	
T2009-22	100 to 130 VAC, 60 Hz
T2009-21, T2009-23, T2009-24	200 to 250 VAC, 50 Hz
Output voltage	13.8 VDC
Output ripple & noise (on full load)	less than 10 mV <sub>RMS</sub>
Output current, continuous	10 A
Current limit	14 A
Protection	Over current, short circuit and over voltage
Input fuse rating	
T2009-22	3 A
T2009-21, T2009-23, T2009-24	2 A
Fuse type	5 mm x 20 mm glass, 250 V

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

