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da   Dansk
Undertegnede Tait Electronics Ltd erklærer herved, at følgende udstyr TMAB1A & TMAH5A overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Se endvidere: http://eudocs.taitworld.com/

de   Deutsch
Hiermit erklärt Tait Electronics Ltd die Übereinstimmung des Gerätes TMAB1A & TMAH5A mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.
Siehe auch: http://eudocs.taitworld.com/

el   Ελληνικός
Με την παρουσα Tait Electronics Ltd δηλωνει οτι TMAB1A & TMAH5A συμμορφωνεται προσ τισ ουσιωδεισ απαιτησεια και τισ λοιπεσ σχετικεσ διαταξεισ τησ οδηγιασ 1999/5/ΕΚ.
βλέπε και: http://eudocs.taitworld.com/

en   English
Tait Electronics Ltd declares that this TMAB1A & TMAH5A complies with the essential requirements and other relevant provisions of Directive 1999/5/EC.
See also: http://eudocs.taitworld.com/

es   Español
Por medio de la presente Tait Electronics Ltd declara que el TMAB1A & TMAH5A cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Vea también: http://eudocs.taitworld.com/

fi   Suomi
Tait Electronics Ltd vakuuttaa täten että TMAB1A & TMAH5A tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Katso: http://eudocs.taitworld.com/

fr   Français
Par la présente, Tait Electronics Ltd déclare que l'appareil TMAB1A & TMAH5A est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Voir aussi: http://eudocs.taitworld.com/

it   Italiano
Con la presente Tait Electronics Ltd dichiara che questo TMAB1A & TMAH5A è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Vedi anche: http://eudocs.taitworld.com/

nl   Nederlands
Hierbij verklaart Tait Electronics Ltd dat het toestel TMAB1A & TMAH5A in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/ EG.
Zie ook: http://eudocs.taitworld.com/

pt   Português
Tait Electronics Ltd declara que este TMAB1A & TMAH5A está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.
Veja também: http://eudocs.taitworld.com/

sv   Svensk
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Se även: http://eudocs.taitworld.com/

TM8100 User's Guide

About this guide

This user's guide provides information about TM8105, TM8110 and TM8115 mobile radios and is divided into two parts.

■ Part 1 explains how the TM8110 and TM8115 radios operate. The TM8105 radio has a control head without a user interface, so no TM8105 operating information is needed.

■ Part 2 outlines the installation procedure for TM8105, TM8110 and TM8115 radios, and gives the pin allocations for the TM8105 programming connector.

Important safety information

This user's guide also contains important safety information about using and installing these radios. Refer to page 10 for user safety instructions and page 24 for installation safety instructions.

Safety warnings used in this guide

Within this guide, the following conventions are used to alert you to important safely information:

⚠ **Warning:** There is a potential risk of death or serious injury.

⚠ **Caution:** There is the risk of minor or moderate injury to people.

Caution: There is a risk of equipment damage or malfunction.

Feedback about this guide

If you have any enquiries regarding this guide, or any comments, suggestions and notifications of errors, please contact Technical Support at support@taitworld.com.

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Disclaimer

There are no warranties extended or granted by this guide. Tait Electronics Ltd accepts no responsibility for damage arising from use of the information contained in the guide or of the equipment and software it describes. It is the responsibility of the user to ensure that use of such information, equipment and software complies with the laws, rules and regulations of the applicable jurisdictions.

Your radio's settings

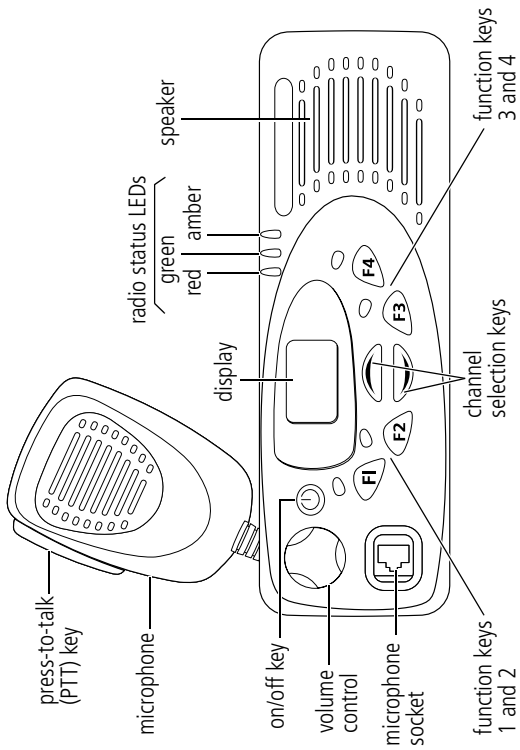Use the following table to list your radio's programmed settings.

Function key settings

F1 _____

F2 _____

F3 _____

F4 _____

Channel list

ID	Description	ID	Description
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____

speaker

radio status LEDs
green amber
red

display

press-to-talk
(PTT) key

microphone

on/off key

volume
control

microphone
socket

function keys
1 and 2

function keys
3 and 4

channel
selection keys

F4

F3

F2

F1

Part 1: Radio operation

Safety warnings

Safe operation

⚠️ **Warning:** Switch the radio off at petrol filling stations or near flammable liquids or gases.

⚠️ **Warning:** Switch the radio off in the vicinity of explosive devices and blasting zones.

⚠️ **Warning:** Using a handheld microphone or a radio while driving a vehicle may violate the laws and legislation that apply in your country or state. Please check the vehicle regulations in your area.

EN 60950 requirements (25 watt radios)

This radio complies with the European Union standard EN 60950 when operated up to the rated 33% duty cycle of two minutes transmit and four minutes receive, and with ambient temperatures of 30°C or lower.

⚠️ **Caution:** Operation outside these limits may cause the external temperature of the radio to rise higher than this standard permits.

High temperatures

⚠️ **Caution:** The bottom surface of the radio and the heatsink fins can become hot during prolonged operation. Do not touch these parts of the radio.

Warning: FCC RF exposure limits

This product generates RF (radio frequency) energy during transmissions. This device must be restricted to work-related use in an occupational/controlled exposure environment.

The radio operator must have control of the exposure conditions and duration of all persons exposed to the antenna of this transmitter to satisfy FCC RF exposure compliance. This device is not approved for general population use.

- This device must only be used with authorized accessories and antennas.
- The operator must ensure that the minimum safe distance of 0.9m (35 inches) between persons and the antenna is maintained during transmissions.
- This minimum safe distance is based on the assumption that there is a duty cycle of 50% transmit mode to stand-by or receive modes. The radio is in transmit mode when the PTT (press-to-talk) key on the microphone is pressed and the control head red LED (light emitting diode) glows.

Please refer to the following website for more information on what RF energy is and how to control your exposure to assure compliance with established RF exposure limits.

Website: http://www.fcc.gov/oet/rfsafety/rf-faqs.html.

Radio protection

Always remove the fuses from the radio power cable before charging the vehicle battery, connecting a second battery or using power from another vehicle (e.g. when "jump-starting" the vehicle).

Getting started

This section provides a brief description of your radio's basic operation. If you need further information, contact your radio provider.

Radio controls

The radio controls are the PTT key, volume control, on/off key, channel selection keys and function keys. Some keys may have functions assigned to both short and long key presses:

■ a short key press is defined as less than one second, and

■ a long key press is more than one second.

The radio controls and their functions are summarized in the following diagram.
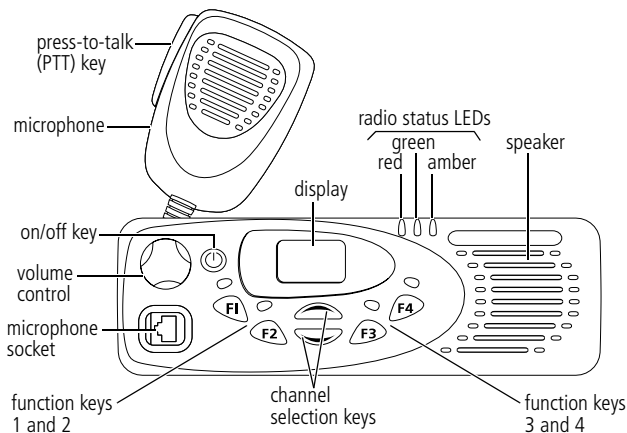
Symbol	Name	Function
	PTT	press and hold to transmit and release to listen
	volume control	rotate to change the speaker volume
ⓞ	on/off	a long press turns the radio on or off
⌒⌄	channel selection keys	move up and down through the channel list
F1 F2 F3 F4	function keys 1, 2, 3 and 4	function keys with programmed options

Radio indicators

The LED indicators and the radio's audible tones all combine to give you information about the state of your radio. Although the way these indicators behave is affected by the way your radio is programmed, the following sections describe the most common operation of the radio indicators.

LED Indicators

LED	Meaning
red (transmit)	glowing: your radio is transmitting
	flashing: your transmit timer is about to expire
green (receive and monitor)	glowing: there is activity on the current channel, even though you may not be able to hear it
	flashing: you have received a call with valid special signalling, or you have activated monitor or squelch override
amber (scanning)	glowing: your radio is scanning a group of channels for activity
	flashing: your radio has detected activity on a channel, and has halted on this channel
function key LEDs	the operation of these LEDs depends on the type of function programmed for each function key

Audible tones

For a description of other audible tones, see "Describing the radio's audible tones" on page 21.

Tone type	Meaning
one short beep after the power-up beeps	radio locked: you need to enter your PIN (personal identity number) before you can use the radio
two short beeps	radio turned on: the radio is powered on and ready to use

Tone type	Meaning
one short beep	radio turned off: the radio is being powered off, or
	valid keypress: the action you have attempted is permitted, or
	function activated: a function key has been pressed and that function has been initiated
one short, low-pitched beep	function de-activated: a function key has been pressed and the corresponding function has been turned off
one long, low-pitched beep	invalid keypress: the action you have attempted is not permitted, or
	transmission inhibited: you have attempted to transmit but for some reason transmission is not permitted at this time
three short beeps	channel now free: you were prevented from transmitting on a busy channel and that channel is now free
three beeps	transmit timeout imminent: in 10 seconds your transmit timer will expire and your current transmission will be terminated

Basic operation

This section describes the basic operation of your radio, including turning the radio on and off, adjusting volume, selecting channels, making calls and receiving calls.

Turning the radio on and off

A long press of the on/off key ◎ turns the radio either on or off. When the radio is first turned on, the red, green and amber LEDs flash briefly and the radio gives two short beeps.

Adjusting the volume

Rotate the volume control clockwise to increase the speaker volume and counterclockwise to decrease the volume. The volume control also changes the volume level of the radio's audible indicators.

Selecting a channel

Use the channel selection keys ⌒ or ⌄ to scroll through the channel list until the channel you want is displayed.

Making a call

1 Select the required channel using the channel selection keys ⌒ or ⌄.

2 Check the green LED.
   If the green LED is glowing, the channel is busy and you cannot transmit.

3 Once the channel is clear (the green LED is off), lift the microphone off the microphone clip.

4 Hold the microphone about 5cm (2 inches) from your mouth and press the PTT key to transmit.

5 Speak clearly into the microphone and release the PTT key when you have finished talking.

Note: You cannot change channels while transmitting.

Transmit timer

Your radio may have a transmit timer that limits the amount of time you can transmit continuously. When the transmit timer is about to expire, the red LED flashes and the radio gives three beeps. You must release the PTT before you can transmit again.

Note: Your radio may be unable to transmit for a short time after the transmit timer has expired.

Receiving a call

When there is valid activity on your radio's currently selected channel or group, the radio then unmutes and you can hear the call.

If the incoming call contains special signalling that matches the signalling programmed for your radio, the green LED flashes and your radio may give a ringing tone.

What you hear on a channel

Your radio may be programmed so that you hear all conversations on a channel, or your user group may be segregated from other user groups by using special signalling. The special signalling is used to control the muting and unmuting of your radio, so that your radio is muted when other user groups are talking and unmuted for members of your user group.

There are two muting controls that operate in your radio:

■ signalling mute, and

■ squelch.

Signalling mute

The radio's signalling mute only allows the radio to unmute if the incoming call carries the tones specific to your user group. Your user group may use tones that are either audible, subaudible or both.

Squelch

The radio's squelch allows the radio to unmute only when the strength of the incoming signal is above a predetermined threshold. This means that only signals of reasonable intelligibility are made audible.

Monitor

The monitor function is used to check that the channel is clear before you make a call. While monitor is on, the green LED flashes continually.

Activating monitor

1 Press the monitor function key and monitor overrides the signalling mute, allowing you to hear any traffic on the channel.

Note: Your radio may be programmed to activate monitor whenever the microphone is off the microphone clip.

2 Press the monitor function key again to turn monitor off, and the green LED no longer flashes.

Activating squelch override

1 Press and hold the monitor function key for longer than one second to override both squelch and the signalling mute.

This allows you to hear even faint and noisy signals.

2 Press the monitor function key again to return the radio to a quiet state.

Note: Squelch cannot be overridden when the radio is scanning.

Scanning

The scan function is used to monitor a programmed group of channels, looking for activity. When activity is detected on a scan group channel, the radio stops on that channel. The amber LED flashes and, if the channel signalling is valid, the

radio unmutes and you can hear the call. Scanning resumes when the channel is no longer busy or the signalling is no longer valid.

One or two priority scan channels may be set. These channels are scanned more often than other channels and are scanned periodically when a non-priority channel is busy.

Activating scanning

1 Place the microphone on the microphone clip.

2 Press the function key assigned to scanning. The amber LED glows to show that the radio is scanning.

3 Press the scanning function key again to cancel scanning, and the amber LED no longer glows.

Nuisance delete

If a member channel of the scan group is busy for a long time and you do not wish to hear the conversation, you can use the function key assigned to nuisance delete to temporarily delete it from the scan group.

Alternatively, press and hold the scanning function key. When the scan group is next selected, the deleted channel is again part of the scan group.

Note: Priority channels cannot be removed from the scan group using the nuisance delete function.

Voting

A group of channels carrying the same traffic can be grouped together in a voting group. When you press the function key assigned to voting, the best communication channel is always selected for you to use.

Nuisance delete

If you wish to delete one of the channels from the voting group, you can use the function key assigned to nuisance delete to temporarily delete it from the voting group.

Troubleshooting

When your radio won't turn on

If the red, green and amber LEDs on the control head do not light up when the radio is turned on, it is likely that no power is reaching the radio. Check the following:

- Is the power connector firmly plugged into the rear of the radio?
- Are the in-line fuses in good condition?
- Is the power cable securely connected to the vehicle battery or power supply?

If all appears to be in order, then contact your radio provider for further assistance.

Removing the radio from the vehicle
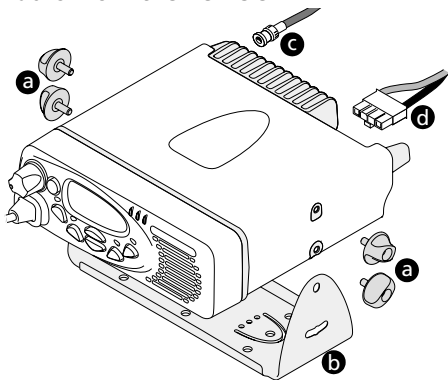
1 Switch off the radio.
2 Unscrew the four thumb screws **ⓐ** that secure the radio to the U-bracket **ⓑ**.
3 Lift the radio clear of the U-bracket.
4 Disconnect the antenna **ⓒ** and power cable **ⓓ** from the rear of the radio.

Describing the radio's audible tones

The following table summarizes the radio's audible tones.

Tone type	Meaning
two short beeps	radio turned on: the radio is powered on and ready to use
one short beep after the power-up beeps	radio locked: you need to enter your PIN (personal identity number) before you can use the radio
one long, low-pitched beep	radio PIN entry unsuccessful: you need to re-enter your PIN
two short beeps	radio PIN entry successful: the radio is ready to use, or
	radio is revived: the radio has made operable by your service provider
one short beep	radio turned off: the radio is being powered off, or
	valid keypress: the action you have attempted is permitted, or
	function activated: a function key has been pressed and that function has been initiated
one short, low-pitched beep	function de-activated: a function key has been pressed and the corresponding function has been turned off
one long, low-pitched beep	invalid keypress: the action you have attempted is not permitted, or
	transmission inhibited: you have attempted to transmit but for some reason transmission is not permitted at this time
three short beeps	channel now free: you were prevented from transmitting on a busy channel and that channel is now free
three beeps	transmit timeout imminent: in 10 seconds your transmit timer will expire and your current transmission will be terminated

Tone type	Meaning
one short, high-pitched beep	radio is stunned: the radio has been made inoperable by your service provider
two low-pitched beeps	radio's temperature is high: the radio's temperature is in the high-temperature range, but the radio will continue to operate
two high-pitched beeps	radio's temperature is very high: the radio's temperature is in the very high temperature range and all transmissions will now be at low power; if the radio's temperature rises outside this range, transmissions will be inhibited
continuous low-pitched tone	radio system error: a system error has occurred and the radio may be inoperable (**E**, **E1** or **E2** appears in the display)
two long low-high pitched tone pairs	synthesizer is out-of-lock: the radio's synthesizer is out-of-lock on the current channel and you cannot operate on that channel (**L** or **OL** flashes in the display)

Part 2: Radio installation procedures

Installation warnings

The following topics are covered in this section:

- safe radio mounting
- interference with vehicular electronics
- preparation when drilling holes
- vehicles powered by liquefied petroleum gas (LPG)
- radio installation in gas or fuel tankers
- non-standard radio installations
- negative ground supply.

Safe radio mounting

⚠️ **Caution:** Observe the following precautions when mounting the radio.

- Mount the radio securely so that it will not break loose in the event of a collision. An unsecured radio is dangerous to the vehicle occupants.
- Mount the radio where it will not interfere with the deployment of passenger air bags.
- Do not mount the radio vertically, with the control head facing down. This will violate compliance with the European Union standard EN 60950, Safety of Information Technology Equipment.

Interference with vehicular electronics

⚠️ **Caution:** Some vehicular electronic devices may be prone to malfunction, due to the lack of protection from RF energy present when your radio is transmitting.

Examples of vehicular electronic devices that may be affected by RF energy are:

- electronic fuel injection systems
- electronic anti-skid braking systems
- electronic cruise control systems.

If the vehicle contains such equipment, consult the vehicle manufacturer or dealer in order to determine whether these electronic circuits will perform normally when the radio is transmitting.

Preparation when drilling holes

⚠ **Caution:** When drilling holes in the vehicle, check that drilling at the selected points will not damage existing wiring, petrol tanks, fuel lines, brake pipes or battery cables.

Vehicles powered by liquefied petroleum gas (LPG)

⚠ **Caution:** Radio installation in vehicles powered by LPG with the LPG container in a sealed-off space within the interior of the vehicle must conform to the National Fire Protection Association Standard NFPA 58. This standard states that the radio equipment installation must meet the following requirements.

- The space containing the radio equipment shall be isolated by a seal from the space containing the LPG container and its fitting.
- Outside filling connections shall be used for the LPG container and its fittings.
- The LPG container space shall be vented to the outside of the vehicle.

## Radio installation in gas or fuel tankers

Special conditions must be observed when installing a radio in gas and fuel tankers. Consult your radio provider or Tait-accredited service centre for more details.

Non-standard radio installations

The installation U-bracket described in this guide has been designed so that there is enough airflow around the radio to provide cooling.

Installation warnings **25**

If a non-standard installation method is used, care must be taken that sufficient heat can be dissipated from the radio heatsink fins and the bottom surface of the radio chassis.

10mm (3/8 inch)
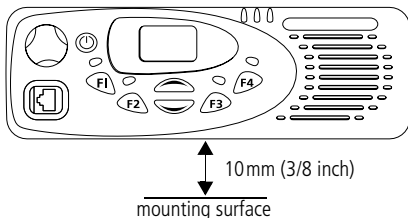
mounting surface

For this to be achieved, there must be a gap of more than 10mm (3/8 inch) between the bottom surface of the radio chassis and the mounting surface.

Negative ground supply

TM8100 radios are designed to operate only in a negative ground system.

Installation planning

The procedures outlined in this and the following sections are for installing a TM8100 radio in a vehicle, using a standard U-bracket.

The following topics are covered in this section:

- MPT 1362 code of practice
- checking equipment
- installation tools
- selecting the mounting position.

MPT 1362 code of practice

TM8100 radios should be installed in accordance with the MPT 1362 Code of Practice. This code of practice covers the installation of mobile radio equipment in land based vehicles and has been developed by the United Kingdom Office of Communication (Ofcom).

Website: For the full text of the MPT 1362 Code of Practice, go to the Ofcom website, http://www.ofcom.org.uk/codes_guidelines/radio_comms/radio_equip_stnds/.

Checking equipment

Unpack the radio and check that you have the following items:

- radio control head with connecting loom
- radio body
- microphone with microphone clip and screws
- U-bracket installation kit, consisting of:
  — U-bracket
  — thumbscrews
  — self-drilling screws and washers
  — power cable with DC connector
  — 10A fuses (25W radios)
  — 20A fuses (40W/50W radios)

— fuse holders
— receptacles for a remote speaker (speaker not included)
— BNC or mini-UHF antenna plug.

Installation tools

The following installation tools may be required:

- portable drill and drill bit
- Pozidriv screwdriver
- 8mm (5/16 inch) socket (or Pozidriv screwdriver)
- BNC or mini-UHF crimp tool
- fuse crimp tool
- in-line RF power meter capable of measuring forward and reflected power at the operating frequency of the radio.

Microphone clip installation tools

The following installation tools may be required for installing the microphone:

- centre punch
- drill bit
- Pozidriv screwdriver
- hammer.

Selecting the mounting position

Inspect the vehicle and determine the safest and most convenient location for mounting the radio.

The installation must meet the following requirements:

- sufficient clearance behind the radio for the heatsink and cables
- a large enough flat surface so that the mounting bracket will not be distorted
- no danger of the radio interfering with air bag deployment.

Radio installation

The following topics are covered in this section:

- installing and removing the control head
- installing the microphone
- installing the antenna
- installing the power cable
- mounting the U-bracket
- installing the radio in the U-bracket
- TM8105 programming connector
- checking the installation
- other installation options.

Installing and removing the control head

Caution: The control head contains devices which can be damaged by static discharges. Always install or remove the control head in a static-safe environment.

Website: For information on antistatic precautions, go to the Electrostatic Discharge Association (ESD) website, http://www.esda.org.

Installing the control head on the radio body

Note: The way in which the U-bracket is mounted determines which way up the control head is mounted on the radio body.

The numbers in the diagram on the following page refer to the numbered steps below.

1 Plug the control head loom onto the control head connector.

2 Insert the bottom edge of the control head onto the two clips in the front of the radio chassis, then snap into place.
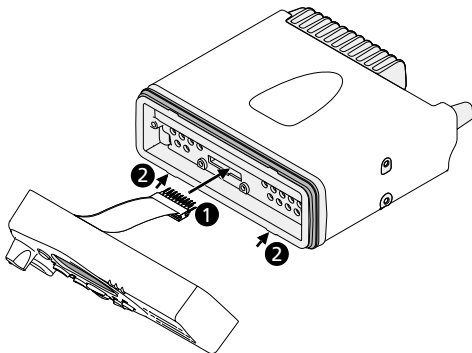
Removing the control head

Caution: During this procedure, take care that the control-head seal is not damaged. Damage to this seal reduces environmental protection.

1 On the underside of the radio, insert a 5mm (3/16 inch) flat-bladed screwdriver between the control head and the control-head seal, in either position ❶ or ❷.

Insertion points ❶ and ❷ are lever points and are indicated on the radio chassis by a dot-dash-dot pattern (•——•).
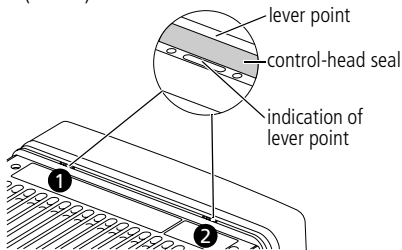
2 Use the screwdriver to lift the control head off the chassis clip, then repeat in the other position.

The control head can now be removed from the radio body.

Installing the microphone

A microphone and microphone clip are only used for radios with a user interface.
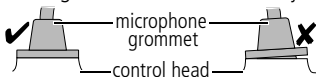
Connecting the microphone

Caution: The microphone grommet must be installed whenever the microphone is plugged into the microphone socket. When installed, the grommet has two functions:

■ to prevent damage to the microphone socket when there is movement of the microphone cord, and

■ to ensure that the control head is sealed against water, dust and other environmental hazards.

To install the microphone:

1 Plug the microphone into the microphone socket.

2 Slide the microphone grommet along the microphone cord and push two adjacent corners of the grommet into the microphone socket cavity.

3 Squeeze the grommet and push the remaining corners into position.

4 Check that the grommet is seated correctly in the cavity.

microphone grommet — control head

Installing the microphone clip

Caution: Only install the microphone clip provided. If a non-standard microphone clip is used, the correct operation of the microphone hookswitch cannot be guaranteed.

Install the microphone clip in the most convenient location for the radio user. It must be installed:

■ within easy reach of the user, and

■ in such a position that the microphone PTT key cannot be inadvertently activated or jammed on.

Installing the antenna

Install the external antenna according to the supplier's instructions. Good quality 50 ohm coaxial cable must be used, such as RG58 or UR76.

Caution: The cable should be routed in a manner that minimizes coupling into the electronic control systems of the vehicle.

Caution: Avoid sharp bends in the cable. These distort the cable and alter its electrical characteristics.

Warning: RF exposure hazard

To comply with FCC RF exposure limits:

1 Mount the antenna at a location such that no person or persons can come closer than 0.9 m (35 inches) to the antenna.

2 For 25 W radios, the radio must be installed using an externally mounted antenna with a gain of either a 2.15 dBi or 5.15 dBi gain.

3 For 40 W/50 W radios:
— VHF radios must be installed using an antenna mounted centrally on the vehicle roof, with a gain of 2.15 dBi or 5.15 dBi.
— UHF radios must be installed using an antenna either mounted centrally on the vehicle roof with a gain of 2.15 dBi or 5.65 dBi, or mounted centrally on the trunk with a gain of 5.65 dBi.

Antenna termination

1 Run the free end of the coaxial cable to the radio's mounting position and cut it to length, allowing 20 - 30 cm (8 - 12 inches) excess.

Caution: The cable should be protected from engine heat, sharp edges and from being pinched or crushed.

**2** Terminate the free end of the cable with the BNC or mini-UHF plug.

Installing the power cable

One end of the power cable is connected to the vehicle battery and the other end plugs into the radio's power connector.

Power connector

The power connector on 25W radios is different to the power connector on 40W/50W radios. The following tables explain the pin allocations for each power connector.

25W radio power connector

25W radio

①②③④

rear view
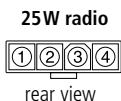
Pin	Signal name	Description
1	AGND	earth return for radio body power source
2	SPK−	external speaker output
3	SPK+	external speaker output
4	13V8_BATT	DC power input for radio body and control head

40W/50W radio power connector

40W/50W radio

④③②①

rear view
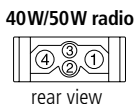
Pin	Signal name	Description
1	13V8_BATT	DC power input for radio body and control head
2	SPK−	external speaker output
3	SPK+	external speaker output
4	AGND	earth return for radio body power source

Battery supply voltage

This radio is designed to operate from a nominal 12V negative ground supply and may draw up to 8A of current (25W radios) or 15A of current (40W/50W radios). The radio will tolerate a supply voltage range of 10.8V to 16.0V at the radio.

Caution: In vehicles with a supply voltage greater than 16.0V, such as many trucks, it is essential to provide a suitably rated DC to DC converter. This will isolate the radio from excessive battery voltage and provide the correct DC operating conditions.

Connecting the power cable

Caution: Disconnecting the vehicle's battery may cause problems with electronic equipment, such as vehicle alarms, engine management systems and in-car entertainment systems. Check that the vehicle owner has the necessary information to make all electronic equipment function correctly after battery reconnection.

Caution: If the battery is not disconnected, exercise extreme caution throughout the installation and install the fuses only when the installation is ready to be checked (see "Checking the installation" on page 37).

1 Disconnect the vehicle's battery, unless specifically prohibited from doing so by the customer, vehicle manufacturer, agent or supplier.

2 Run the power cable between the radio's mounting position and the vehicle battery.

Caution: The power cable should be protected from engine heat, sharp edges and from being pinched or crushed.

3 Cut the power cable to length, allowing about 20cm (8 inches) excess at the radio end.

4 Cut the negative and the positive wires where the in-line fuse holders will be placed (as close to the battery as possible).

Caution: Do not install the fuses until the installation is ready to be checked.

5 Insert each end of the negative wire into one of the in-line fuse holders and crimp them to force the metal contacts onto the wires.

6 Connect the negative wire to the battery ground.

7 Repeat step 5 for the positive wire and connect it to the positive terminal of the battery.

Mounting the U-bracket

The U-bracket can be used to install the radio on the dash-board or on any sufficiently flat surface, using the self-drilling screws and washers provided in the installation kit.

Caution: When mounting the radio, check whether the mounting surface needs to be reinforced.

**Caution:** The U-bracket must be installed using at least four screws.

1 If the U-bracket is being mounted over a curved surface, bend the U-bracket tabs slightly, to match the surface shape.

2 Drill any holes required for cables and install suitable grommets or bushings in the holes.

Caution: Check that the U-bracket is not distorted when the screws are tightened.

3 Screw the U-bracket in the chosen mounting position using the self-drilling screws and washers provided.
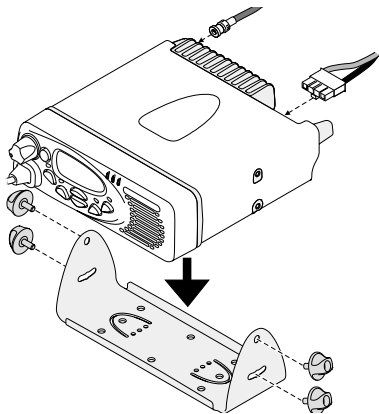

Tip: For more precise positioning, predrill 3 mm (1/8 inch) pilot holes for
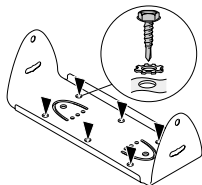
the self-drilling screws. Reduce the hole size in metal that is less than 1 mm (1/32 inch) thick.

Installing the radio in the U-bracket

1 Connect the antenna and power cables to the rear of the radio.

2 Position the radio in the U-bracket so that the holes in the U-bracket line up with the holes in the radio chassis.

3 Screw the radio into position using the four thumb screws but without fully tightening the screws.

4 Position the radio in the U-bracket for best viewing angle, then tighten the thumb screws.

TM8105 programming connector

The TM8105 has a 9-way D-range plug on the control head, for remote connection. The pin allocations of the programming connector are shown in the following diagram and table.

programming connector
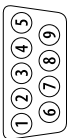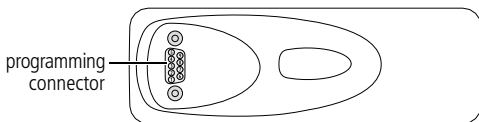
Pin	Signal	Description
1	RX_AUD	receive audio output (after volume control)
2	TXD	asynchronous serial port: transmit data
3	MIC_AUD	microphone audio input
4	RXD	asynchronous serial port: receive data
5	ON_OFF	hardware power on/software power off
6	+13V8_BATT	unswitched 13.8V power supply
7	PTT	PTT input from microphone, with hookswitch signal
8	AGND	analogue ground
9	DGND	digital ground

English

Checking the installation

1 Insert the fuses into the power leads.

2 Switch on the radio to confirm that it is operational.

Caution: Do not transmit yet.

3 Connect an in-line power meter between the radio and the antenna.

4 Transmit and measure the forward and reflected power levels.

Less than 4% of the forward power should be reflected. If this is not achieved, check the installation, including the antenna length.

5 Radios with a user interface only:

Once the reflected power levels are within tolerance, make a call to another party on the radio (see "Making a call" on page 16).

Other installation options

Contact your radio provider for further information.

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