

Tait Orca Vehicle Kit

The Tait Orca vehicle kit provides a secure environment for a Tait Orca handportable used in a vehicle. The vehicle kit allows the radio to be connected to the vehicle's external antenna and also acts as a fast charger for the radio's NiCd battery.

Note that NiMH batteries are not charged by the vehicle kit, and that the desktop fast charger should still be used to short condition NiCd batteries each week.

This section outlines the vehicle kit operation, specifications and servicing. A detailed circuit and interface description is also provided, to allow customised modification of the vehicle kit.

Product Codes

Table F-3 gives the product codes of available vehicle kit options and accessories.

The vehicle kits in Group A include selected mounting options and accessories. These accessories and other installation options are available separately as items in Group B.

Table F-3: Vehicle kit product codes

Product code	Description
TOPA-VK-002	Vehicle kit, no installation accessories
TOPA-VK-006	Vehicle kit with mobile microphone & mounting hardware
TOPA-VK-007	Vehicle kit with mobile microphone, speaker & mounting hardware
TOPA-VK-008	Vehicle kit with heavy duty mobile microphone & mounting hardware
TOPA-VK-009	Vehicle kit with heavy duty mobile microphone, speaker & mounting hardware
TOPA-VK-011	Vehicle kit with heavy duty microphone & speaker (no additional mounting hardware)

Group A

Product code	Description
TOPA-VK-010	Vehicle kit mounting adaptor
TOPA-VK-020	Vehicle kit single height U bracket
TOPA-VK-030	Vehicle kit double height U bracket
TOPA-VK-040	Vehicle kit triple height U bracket
TOPA-VK-050	Vehicle kit mounting plate
TOPA-VK-060	Vehicle kit charger disable kit
TOPA-VK-100	Vehicle kit mobile microphone
TOPA-VK-200	Vehicle kit external speaker
TOPA-VK-300	Vehicle kit visor microphone
TOPA-VK-400	Vehicle kit remote PTT
TOPA-VK-500	Vehicle kit heavy duty mobile mic.

Group B

Installing a Vehicle Kit

Detailed installation instructions are provided in the *Tait Orca vehicle kit installation guide* (IPN 429-40000-xx). This guide is included with each vehicle kit.

Vehicle Kit Operation

Inserting the Radio

Remove the accessory connector cover from the radio.

Ensure the vehicle kit release button is down and insert the radio into the radio cavity.

Push the radio firmly into place against the locating pegs and radio interface. You should hear the radio snap into place and the release button will pop up.

Locking a Radio in the Vehicle Kit

You can use the supplied key to lock the radio into the vehicle kit when you leave the vehicle unattended.

To lock the radio in the vehicle kit, insert the supplied key in the lock and turn it clockwise.

To unlock the radio from the vehicle kit, turn the key counterclockwise.

Removing the Radio

To remove the radio from the vehicle kit, push the release button down. The radio can now be removed from the radio cavity.

Charging the Battery

Once the radio is inserted into the radio cavity, the charger status LED will glow amber for three seconds, then red. When the LED glows green, the battery is charged to a minimum of 70% capacity.

If the battery is too hot or too cold, the LED will glow amber until the battery temperature is within the safe range for recharging (0°C to 50°C). If the indicator remains amber, consider turning on your air conditioning. Optimum battery charging performance is obtained between 15°C and 25°C.

Charge times when the radio is turned off are:

- up to 1½ hours for the 1100 mAh NiCd battery; and
- up to 2 hours for the 1500 mAh NiCd. battery.

You can still use the radio while the battery is being charged, but the charge times will vary, depending on how much the radio is being used.

The vehicle charger functional indicators are summarised in Table F-4.

Table F-4: Charger status LED indicators

Indicator	Meaning
steady green	battery charging
steady green	battery charged to a minimum of 70% capacity
steady amber	charge suspended until battery temperature is within correct range
flashing red	battery not seated properly in the charger, contacts dirty, battery faulty or NiMH battery inserted

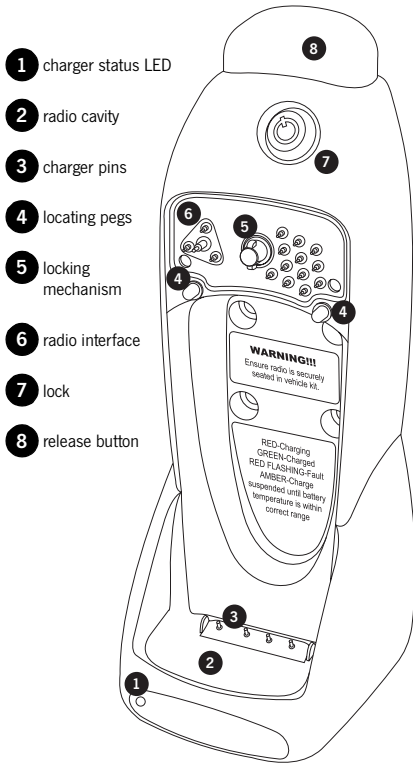


Figure F-7: Vehicle kit assembly

Using the Radio while in the Vehicle Kit

While the radio is seated in the vehicle kit, operation remains the same, except:

- the radio's microphone will be inoperative and an external microphone such as a mobile microphone must be used; and
- the radio's speaker will be inoperative when an external speaker has been installed. Volume can be adjusted from the radio's volume control.

The standard installation results in the charger and external speaker being turned off when the ignition is off.

If the vehicle kit determines that the vehicle's battery is too low (less than 11 V), the vehicle kit will turn off.

WARNING: The vehicle kit uses less than 30 mA from the vehicle's battery when the ignition is off. For this reason, if you are leaving your vehicle unattended for an extended period of time (for example, more than one month), the positive fuse should be removed.

Basic Care and Safety

- It is essential to short condition your battery weekly using the desktop fast charger.
- Wipe the radio contacts and accessory interface with a dry, lint-free cloth to remove any dirt, oil or grease.
- Do not allow the vehicle kit to come into contact with detergents, alcohols, aerosol sprays or petroleum-based products, as they may permanently damage the case.

Vehicle Kit Specifications

The following table outlines the vehicle kit specifications. Details of test methods can be obtained from Tait Electronics Ltd.

Table F-5: General specifications

Supply voltage	13.8 VDC (nominal)
range	11 to 16 V range
protection	3 A fuses in power lead
Ambient temperature range	-10 to +60°C
Battery charger temperature range	0 to +50°C
Weight	375 g
Size W x H x D	80 mm x 230 mm x 95 mm (2 in x 5.8 in x 2.4 in)
Product supported	<ul style="list-style-type: none"> • all Tait Orca handportables (frequency bands up to 530 MHz supported) • all Tait Orca belt clips • all Tait Orca NiCd batteries
Note that NiMH batteries are not charged.	
Technical compliance	complies with FCC part 15, CISPR 14 and CISPR 14-2
Fast charger charge current	0.8 A
Charger control	the charger uses voltage, temperature and temperature change to safely charge and maintain battery capacity

Servicing the Vehicle Kit

The vehicle kit contains four PCBs, and the following servicing instructions outline the disassembly of the vehicle kit to allow replacement of these PCBs.

Servicing Warnings: Screw Head Types

There are four different types of Torx screws used in the vehicle kit: KC22x6, KC25x6, KC30x8 and KC30x10. All these screws require a Torx head screwdriver. When tightening any screws, be careful not to strip the threads in the plastic mouldings by exerting too much force.

The following table explains the torque settings required for the different Torx screw types.

Figure F-8: Vehicle kit torque specifications

Screw Type	IPN	Quantity	Torque (in.lb)
KC22x6	346-10022-06	2	2
KC25x6	346-10025-06	3	2
KC30x8	346-10030-08	2	6
KC30x10	346-10030-10	4	6

Removing the Vehicle Kit Back Cover

The back cover is held to the front moulding by two plastic clips at the base of the unit. Insert the tip of a round screwdriver into the two holes at the bottom of the rear panel. Lever the tip upwards towards the top of the unit.

Hold the unit in such a way that your forefinger and thumb exert a slight pressure to separate the rear panel away from the front moulding, while you lever the clips with the screwdriver.

Replacing the Accessory Probe PCB

Remove the back cover and unplug the accessory loom at the top of the options PCB. Unscrew the two KC30x10 screws holding the trigger assembly together. The trigger assembly can now be lifted out.

Note that the trigger assembly must be pressed

downwards while undoing these screws, as there are springs underneath.

Unplug the loom from the accessory probe PCB. Carefully use narrow nose pliers to unplug the MCX connector from the accessory probe PCB. Now remove the two KC22x6 screws on the front of the vehicle kit holding the accessory probe PCB into the front moulding. The accessory probe PCB can now be tilted upwards and removed from the moulding.

Fit the seal onto the new accessory probe PCB and reassemble the vehicle kit. Read the assembly instructions for more information.

Replacing the Charger Probe PCB

Remove the back cover and unplug the accessory loom at the top of the options PCB. Lift the options/charger PCB assembly out of the front moulding, until the charger loom is accessible.

Unplug the charger loom and remove both PCBs from the front moulding. Note that these PCBs are still attached via the RF cable.

Unscrew the two KC30x8 screws holding the charger probe moulding into the front moulding, and slide out the probe moulding. Unscrew the three KC25x6 screws holding the probe PCB to the probe moulding. Fit the seal onto the new charger probe PCB and reassemble the vehicle kit.

Removing the Options or Charger PCBs

Remove the two DB25 fasteners holding the back panel to the accessory/options connector. Remove the two KC30x10 screws holding the back plate to the audio PA. Unclip the backplate from the options PCB. The PCBs can now be unplugged and replaced.

When putting the options/charger assembly back into the front moulding, make sure that the charger PCB is running in its tracks. Be careful that you do not bump the LED at the bottom of the charger PCB; the PCB does not require any force to insert.

Reassembling the Vehicle Kit

To assemble the vehicle kit, reverse the disassembly process.

Note that when doing up the KC30x10 screws the threads in the plastic PA moulding must **not** be stripped. It is important that the audio PA is held firmly against the backplate, as the backplate serves as a heatsink.

Trigger Reassembly

When reassembling the trigger assembly, insert the peg moulding into the front panel. Insert the quarter turn moulding and rotate it until the peg moulding prevents it from turning. Drop the two springs into the peg moulding. While pressing in the trigger cap, replace the trigger assembly.

While holding the trigger assembly cover together (before doing up the screws) check that the locking mechanism works correctly. To do this, press in the locating pegs and check that the trigger cap pops up. Press the trigger cap down and check that the locating pegs pop out. If the trigger assembly does not work correctly, check that the quarter turn moulding is in the correct position and repeat the assembly process.

Tighten the two KC30x10 trigger assembly screws, while holding the trigger assembly in place.

Rear Cover Reassembly

Locate the top of the rear cover into the back of the trigger assembly. Press the bottom of the rear cover to click/lock the cover into the front moulding.

Spares Kits

The following table shows a list of spares kits which are currently available for servicing Tait Orca vehicle kits. These can be ordered from you local Tait dealer.

Table F-6: Vehicle kit spares kits

Product code	Description
TOPA-SP-301	Vehicle kit spares kit
TOPA-SP-302	Vehicle kit reskinning kit

The contents of these kits are shown in Tables F-6 and F-7.

Note that the 'IPN' column is the ten digit 'internal part number' which uniquely identifies any component used in a Tait product.

The numbers in the 'Legend' column refer to Figure numbers in which the spares item is shown. The numbers in brackets refer to the numbered legend within the figure, where appropriate.