

# PART D Servicing the radio

This part describes the disassembly and reassembly of Tait Orca 5000 handportables and the servicing of some key mechanical and ancillary devices.

Information is also provided on ordering spare parts for servicing handportables.

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# Servicing the radio

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The manufacturing process does not allow direct servicing access to components on the main PCB. Service repairs of Tait Orca 5000 handportables are therefore limited to key mechanical and ancillary devices associated with the main PCB. These include:

- front panel assembly;
- lens (Orca 5020, Orca 5035 and Orca 5040);
- PTT keypad;
- speaker;
- keypad (Orca 5020, Orca 5035 and Orca 5040);
- LCD display (Orca 5020, Orca 5035 and Orca 5040);
- shield, complete with user interface PCB assembly and polyester dome (Orca 5020, Orca 5035 and Orca 5040);
- main PCB assembly;
- antenna connector;
- channel selector switch;
- volume control switch;
- microphone;
- speaker contacts;
- battery contacts;
- PTT tact switch;
- RF out assembly; and
- auxiliary flexible PCB.

A list of spares kits available for servicing Tait Orca 5000 handportables is shown in Table D-1 on page D-16. These spares can be ordered from your local Tait dealer.

## Screw head types

Most of the screws in Tait Orca 5000 handportables are Torx head screws, and so a Torx T6 driver bit is supplied as part of the service kit. When removing screws be sure to use the correct driver.

Torx head 1.8\*5 mm screws should be removed using the supplied Torx T6 driver. When replacing these screws, set the driver to 2 inch pounds.

# Disassembling the radio

## Removing the front panel from the chassis

Unscrew the antenna and detach the battery pack.

The channel selector and on/off/volume control knobs need to be removed before separating the front panel and the chassis.

To remove the knobs, insert a side cutter at the base of each knob, flat side down (Figure D-2), making sure not to damage the knob label and the switch shaft. Squeeze lightly; the knobs should pop off. Discard the knobs.

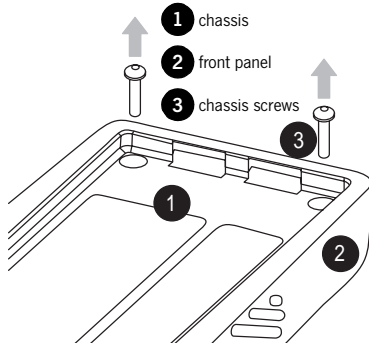
Some earlier Tait Orca 5000 handportables have the knobs glued on. If so, the knob's metal insert will remain on the switch shaft. Remove the insert using a sharp scalpel blade.

Remove the two chassis screws at the base of the radio (Figure D-1), then reattach the battery and hold the base of the radio in one hand. With the other hand, pull the chassis from the front panel using the base of the battery as leverage (Figure D-3).

At this point you can replace the following:

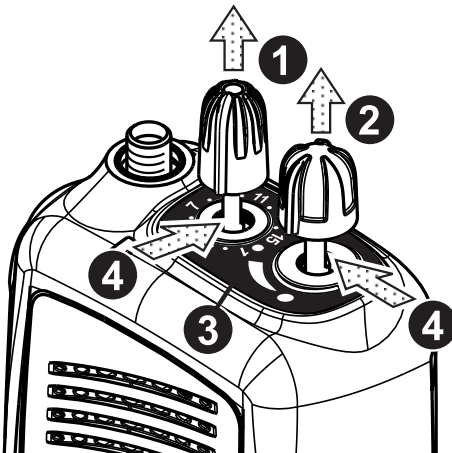
- the front panel assembly;
- the PTT keypad (PTT key and function keys);
- the speaker;
- the lens;
- the keypad; and
- the volume plate and volume keypad.

Figure D-1: Removing the chassis screws



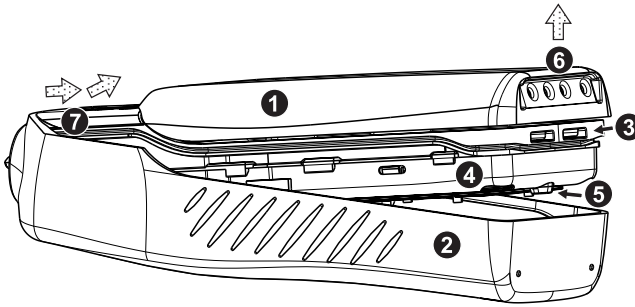
Note that you should not attempt to remove the PTT keypad before removing the front panel from the chassis. See “Replacing the PTT keypad” on page D-8 for more information.

Figure D-2: Removing the knobs



- 1 channel selector
- 2 on/off/volume control
- 3 knob label
- 4 insert side cutters here

Figure D-3: Removing the front panel from the chassis, using the battery as leverage



- 1 battery pack
- 2 front panel
- 3 chassis
- 4 shield
- 5 microphone grommet protruding from the shield
- 6 grip battery here, gently pull away from the front panel
- 7 pull radio out and away from the front panel at this point

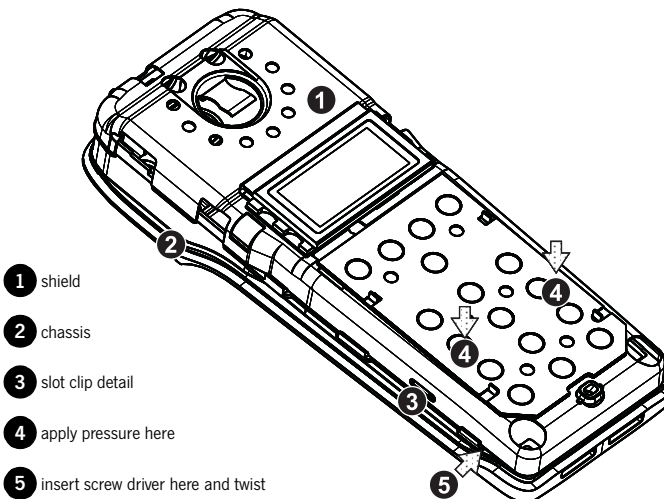
### Removing the shield sub-assembly from the chassis

To remove the shield sub-assembly, place the radio's internal assembly on a flat surface with the shield side facing up toward you. Press lightly down on the shield sub-assembly above the slot clip detail (shown in Figure D-4), which will slightly bow the shield away from

the chassis.

Maintain pressure and insert a flat bladed screwdriver (approximately 4 mm) in the gap between the shield and the chassis. Twist the screwdriver and the shield should rise up over the clip.

Figure D-4: Removing the shield sub-assembly from the chassis



Repeat this on the other side. Remove the microphone grommet by pulling upward (Figure D-5).

You can now see the bottom surface of the PCB. The basic layout of the PCB is shown in Figures D-8 and D-9. Refer to these diagrams for the placement of parts.

Note that on Orca 5020, Orca 5035 and Orca 5040 radios, the user interface loom must be detached from the main PCB before the shield can be separated from the main PCB and chassis.

At this point you can replace:

- the LCD display (Orca 5020, Orca 5035 and Orca 5040); and
- the shield, complete with user interface PCB assembly and polyester dome (Orca 5020, Orca 5035 and Orca 5040).

At this point you can replace:

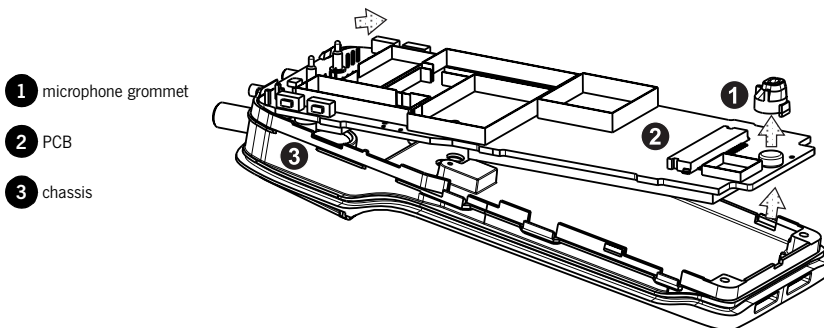
- the main PCB assembly;
- the antenna connector;
- the channel selector switch;
- the volume control switch;
- the microphone;
- the speaker contacts;
- the battery contacts;
- the PTT tact switch; and
- the RF out assembly.

## Removing the PCB from the chassis

Remove the knob seal, which covers the antenna connector, channel selector switch and volume control switch.

Remove the screw through the PA shield. Remove the three nuts for the antenna connector and knobs using the supplied 8 mm long reach socket driver, then remove the three ribbed lock washers. Gently lift the PCB up to the angle shown in Figure D-5, then pull it away from the chassis.

Figure D-5: Removing the PCB from the chassis



## Removing the rear panel

Follow the disassembly instructions and disassemble the radio to the PCB level. Refer to Figure D-10 for the details of the rear panel assembly.

Insert a small flat bladed screw driver under the auxiliary dummy rear cover and apply pressure to push the dummy rear cover lugs free of the holes in the rear panel. To remove the rear panel, either:

- slide the cover forward by pushing at the base with your thumbs; or
- insert a small flat-bladed screwdriver just under the notch in the base and twist.

Remove the rear panel seal. Note that the RF contact pin normally remains in the rear panel seal. Make sure that this is not lost during disassembly.

Using a calibration pin, lift the auxiliary flexible PCB contact area from the lower lefthand corner. Remove the flexible PCB with the seal from the chassis; they should come out as a unit.

You can now replace the auxiliary flexible PCB.

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# Replacing key mechanical and ancillary devices

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This section describes the replacement of key mechanical and ancillary devices associated with the main PCB. These include:

- lens (Orca 5020, Orca 5035 and Orca 5040);
- PTT keypad;
- speaker;
- LCD display (Orca 5020, Orca 5035 and Orca 5040);
- shield, complete with user interface PCB assembly and polyester dome;
- antenna connector;
- channel selector switch;
- volume control switch;
- microphone;
- speaker contacts;
- battery contacts; and
- PTT tact switch.

Note that instructions for replacing the RF out assembly and the auxiliary flexible PCB are included as part of the reassembly instructions.

Refer to Figures D-8 and D-9 for the placement of parts. Once the required devices have been replaced, refer to the reassembly instructions on pages D-13 to D-15.

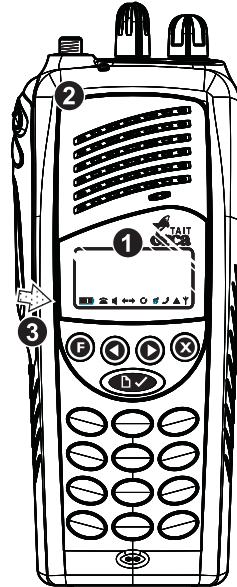
## Replacing the lens (Orca 5020, Orca 5035 and Orca 5040)

You must disassemble the radio before gently prising the lens away from the front panel of the radio. Remove any adhesive remaining on the front panel.

Peel the paper from the back of the new lens, and place the lens in position on the front panel.

Press firmly into position, then remove the piece of clear plastic from the front of the lens.

Figure D-6: Replacing the lens



- 1 lens
- 2 front panel
- 3 gently prise the lens away from the front panel

## Replacing the PTT keypad

Following the disassembly instructions, remove the front panel from the chassis.

To remove the PTT retaining plate, from the inside of the front panel, gently push the central latch that holds the retaining plate in place. Be careful not to lose the two pins that act as actuators for the function keys.

To replace the PTT retaining plate, insert the bottom tab into the hole at the bottom of the PTT recess. Bend the PTT retaining plate very



slightly so that the top tab slots easily into the hole at the top of the PTT recess. Be sure not to split or otherwise damage it.

## Replacing the speaker

Following the disassembly instructions, remove the front panel from the chassis. The speaker sits in the inside of the front panel (see Figure D-7).

Using a scalpel and a flat screw driver, carefully remove the speaker from the front panel. Clean with alcohol any remaining adhesive from the speaker seating. Replace the adhesive ring and secure a new speaker in place. Be sure to align the tabs.

## Replacing the LCD display (Orca 5020, Orca 5035 and Orca 5040)

Following the disassembly instructions, remove the shield from the front panel and unplug the user interface loom from the main PCB.

Unplug the LCD display loom from the user interface PCB, remove the LCD display from the shield and discard the LCD display.

Position the new LCD display on the shield, pass the LCD loom through the gap in the shield and plug into the connector on the user interface PCB. Push down the two connector lugs to secure the loom.

Plug the user interface PCB loom onto the connector on the main PCB and push down the connector lugs to secure.

Refit the shield onto the chassis (refer to page D-14 for detailed instructions).

Place the LCD holder over the LCD, fitting the LCD holder locating blocks into the holes in the shield.

Refit the front panel to the chassis (refer to page D-15 for detailed instructions).

Figure D-7: Mounting the speaker in the front panel

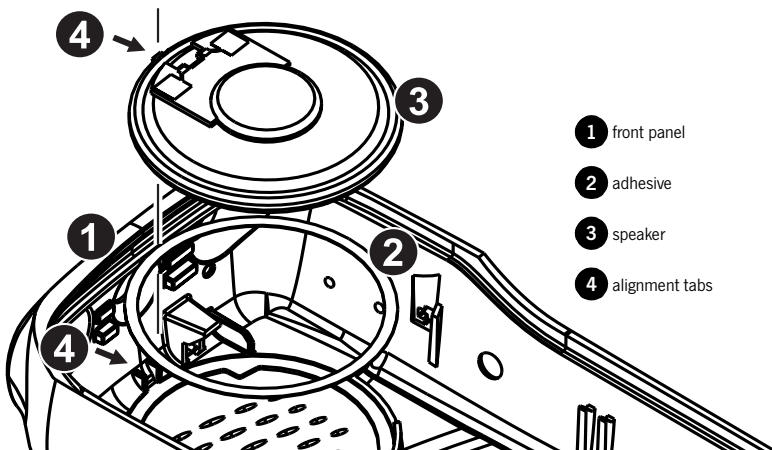
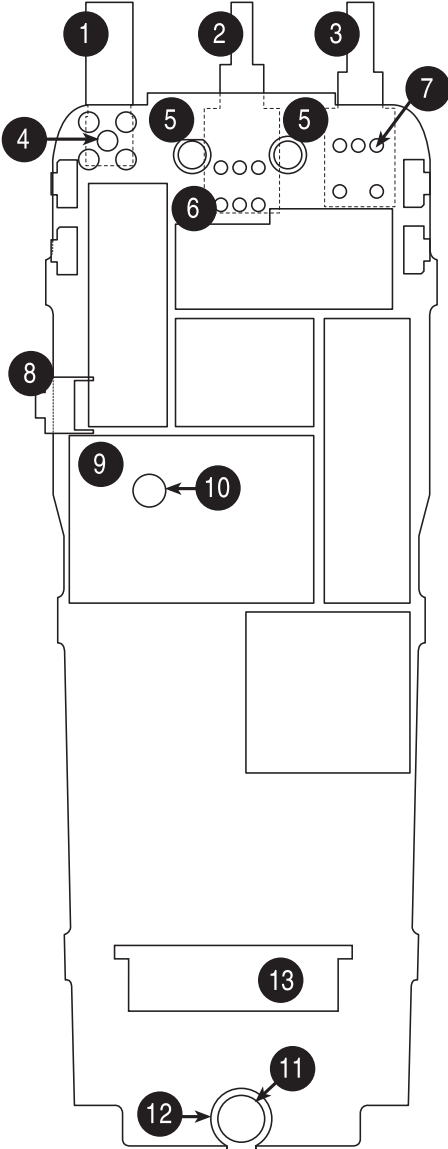
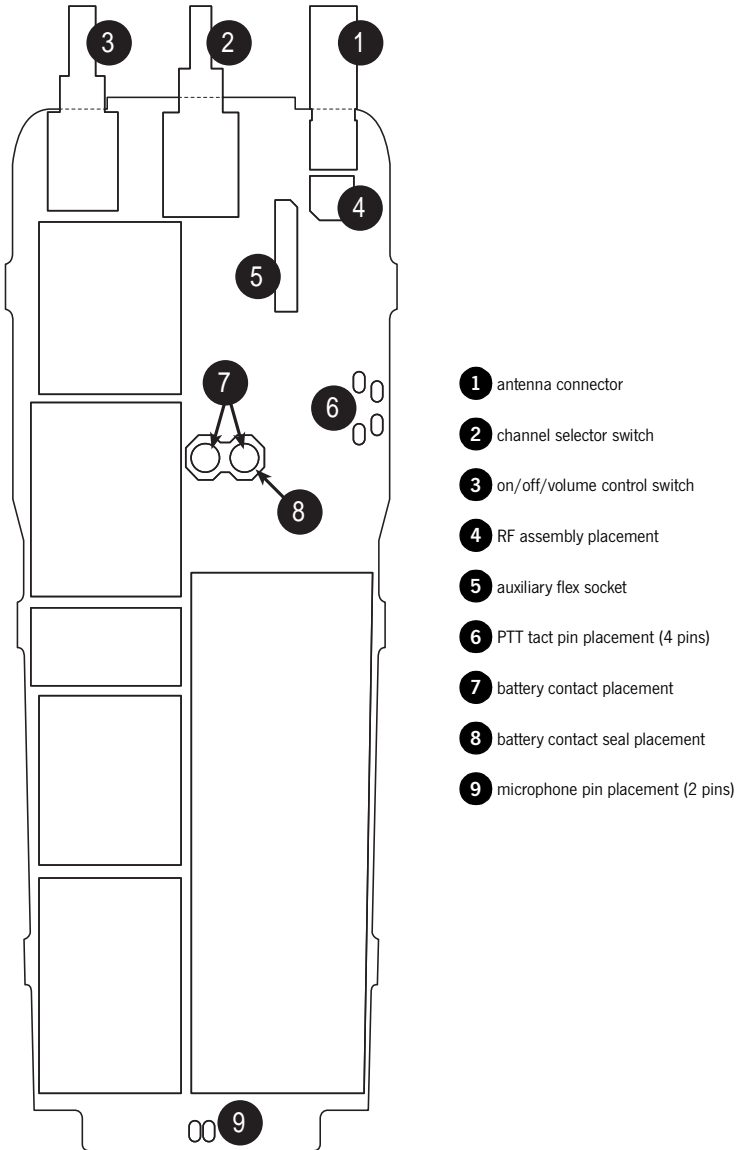


Figure D-8: Bottom surface of the PCB, which is visible when the shield has been removed from the chassis



- 1 antenna connector
- 2 channel selector switch
- 3 on/off/volume control switch
- 4 antenna connector pin placement (5 pins)
- 5 speaker contact pin placement
- 6 channel selector pin placement (6 pins)
- 7 on/off/volume control pin placement (5 pins)
- 8 PTT tact switch
- 9 PA can
- 10 PA screw
- 11 microphone placement
- 12 microphone grommet placement
- 13 user interface loom connector

Figure D-9: Top surface of PCB, which is visible only when the PCB has been removed from the chassis



## **Replacing the shield, user interface PCB assembly and polyester dome (Orca 5020, Orca 5035 and Orca 5040)**

On Orca 5020, Orca 5035 and Orca 5040 radios the shield, user interface PCB and polyester dome are replaced as one complete assembly.

Following the disassembly instructions, remove the shield from the front panel and unplug the user interface loom from the user interface PCB.

Remove the LCD display assembly from the discarded shield, and fit to the replacement shield according to the instructions on page D-9.

Plug the user interface loom into the connector on the new user interface PCB, and reassemble the shield onto the chassis according to the instructions on page D-14.

## **Replacing the antenna connector, channel selector switch and volume control switch**

Following the disassembly instructions, disassemble the radio to the PCB level. Remove the PCB from the chassis.

If any of the antenna connector, channel selector switch or volume control switch need to be replaced, remove them using a vacuum-operated solder station. Replace them according to the reassembly instructions on pages D-13 to D-16.

## **Replacing the microphone**

Following the disassembly instructions, disassemble the radio to the PCB level. Remove the PCB from the chassis.

Use a desoldering station to remove the microphone. Discard the microphone.

When replacing the microphone, make sure it is aligned with the marks on the PCB, since it is polarised. Refer to Figures D-8 and D-9 for the placement of the microphone.

The microphone should not hang over the edge of the PCB. Solder it in place using a light-tip soldering iron (e.g. Weller PTR7 tip).

## **Replacing the battery and speaker contacts**

Following the disassembly instructions, disassemble the radio to the PCB level. Remove the PCB from the chassis.

When replacing one of the battery or speaker contacts, replace the other contact, even if only one is faulty. If available, use solder paste to replace the contacts.

Note that the contacts are heat-sensitive and will fail if they are overheated. Low temperature solder must be used and the contacts must not be heated above 260°C.

Remove the contact with a soldering iron and discard. Refer to Figures D-7 and D-8 for the placement of the battery and speaker contacts.

Solder the replacement contact in place using a heavy-tip soldering iron (e.g. Weller 2PTCC8 tip). Hold onto the contact with a pair of pliers and apply large amounts of solder to the PCB, rather than to the contact, to avoid damaging the contact.

## **Replacing the tact switch**

Following the disassembly instructions, disassemble the radio to the PCB level. Remove the PCB from the chassis.

Remove the PTT tact switch using a desoldering station or solderwick. Note that there is a lot of solder on both sides of the board, so be sure to remove it all.

Refer to Figures D-8 and D-9 for the placement of the PTT tact switch.

Place the new PTT on the board and solder it in place using a heavy-tip soldering iron (e.g. Weller 2PTCC8 tip).

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# Reassembling the radio

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This section describes the reassembly of the radio once the required units have been serviced. Additional instructions for replacing the following mechanical and ancillary devices are also included:

- auxiliary flexible PCB;
- RF out assembly;
- volume plate and volume keypad;
- antenna connector;
- channel selector switch; and
- volume control switch.

## Rear panel reassembly and replacing the auxiliary flexible PCB

Follow the instructions on page D-7 to access the auxiliary flexible PCB, and replace. Push the flexible PCB with seal firmly into the chassis, aligning the notch in the seal with the locating pin on the chassis (see Figure D-10).

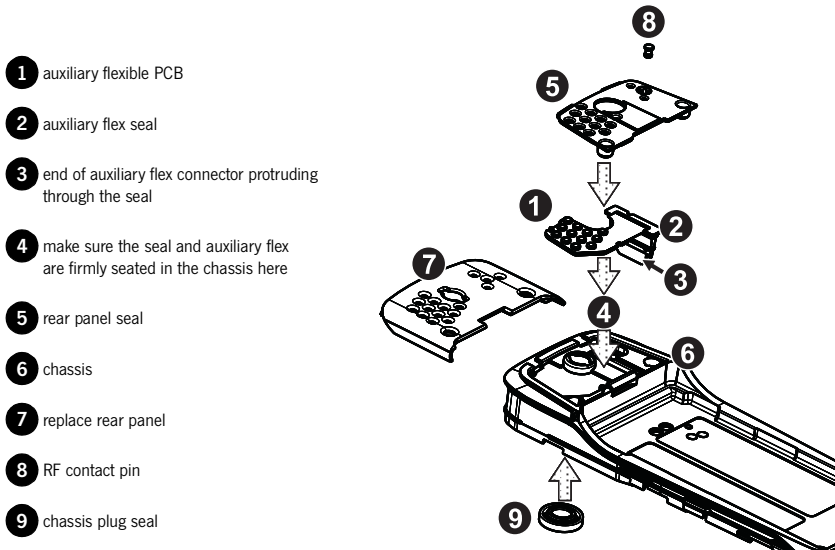
The rubber must sit flush with the back of the chassis or the rear panel will not sit properly and the battery will not fit correctly.

Fold the flexible PCB over and fit the contact area on the chassis; it should fit snugly in place.

Replace the rear panel seal by tucking the two tags at the top of the seal under the lip on the chassis and folding it over the flexible PCB. Check that the RF contact pin is positioned correctly in the rear panel seal, and that the seal is flush with the chassis.

Slide the rear panel on from the top of the radio (Figure D-10). Force it into place by pressing the top edge of the cover against the edge of a table; it will clip home. Make sure the gap between the cover and the chassis is as small as possible. Refit the auxiliary dummy cover by pushing the lugs into the holes on the rear panel. Replace the chassis plug seal, pushing it onto the chassis boss.

Figure D-10: Rear panel assembly



## Fitting the PCB to the chassis and replacing the RF out assembly

Put the battery contact seal over the battery contacts rather than into the chassis. If you put the seal on the chassis, the contacts will squash the seal.

Fit the replacement RF out assembly as shown in Figure D-11.

If you have removed the antenna connector or either of the switches, fit them on the PCB (refer to Figures D-8 and D-9), but do not yet solder them in place. Align them with the holes in the chassis, and as you lower the PCB onto the chassis, make sure the accessory flex protruding from the chassis fits into the socket on the PCB. Lower the PCB onto the chassis, making sure it is firmly seated.

Fit the PA screw loosely in place. Align the switches so they are centred, referring to Figures D-8 and D-9 for placement.

Figure D-12 shows the reassembly of the antenna and switches. Replace the washers, making sure the cone faces up. The nuts for the two switches are black.

Replace the nuts, making sure they are thread-

ed correctly before using an 8 mm long reach socket driver set to 10 inch pounds. Then tighten the PA screw to 2 inch pounds.

Using a heavy-tip soldering iron (e.g. Weller 2PTCC8 tip), solder the antenna connector and two switches in place, if required, taking care not to damage the surrounding components.

Replace the knob seal over the antenna connector and the two switches (see Figure D-12).

## Fitting the shield to the chassis

Replace the microphone grommet over the microphone.

Replace the shield from the top of the radio, ensuring that the two pins on the chassis go into the two holes at the top of the shield.

Should the main seal need replacing, place the new seal so that the notch at the top of the chassis (behind the channel selector switch) matches that on the seal and the profile matches the chassis.

Run your finger around the seal to ensure that it fits properly into the seal retaining well.

Figure D-11: Placing the RF out assembly

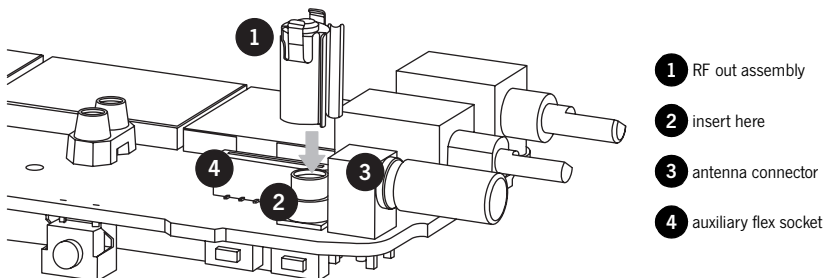
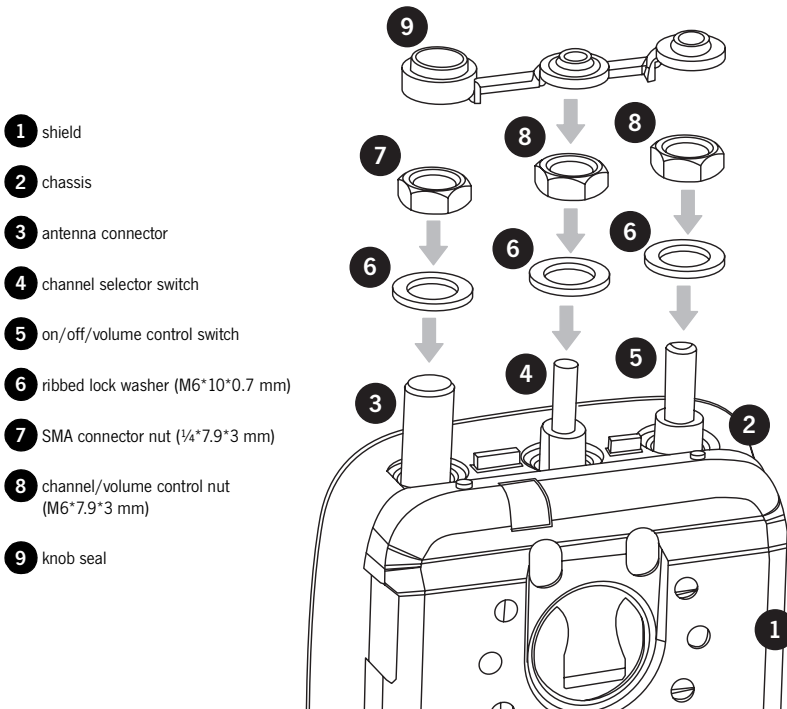


Figure D-12: Assembly of the switches



## Fitting the front panel to the chassis

Place the radio into the front panel top first, inserting the antenna connector and knob switches through the holes. Gently ease the radio into the front panel until the edge of the chassis is flush with the edge of the front panel, while making sure that the seal is not pinched; using the battery as leverage as in radio disassembly may be helpful. Replace the two chassis screws at the base of the radio, tightening them to 2 inch pounds.

Replace the two knobs on the radio with new knobs, after placing a spot of Loctite™ 680 on each switch shaft. Make sure there is no gap between the base of each knob and the knob label by firmly pressing the top of each knob against a firm surface. Choose a surface that will not damage the top of the knob.

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# Spares kits

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The following table shows a list of spares kits which are currently available for servicing Tait Orca 5000 handportables. Spares kits are designed to service 100 radios, and can be ordered from your local Tait dealer.

Table D-1: Spares kits

| Product code | Description                          |
|--------------|--------------------------------------|
| TOPA-SP-401  | Orca 5010/5030 spares kit            |
| TOPA-SP-402  | Orca 5035 spares kit                 |
| TOPA-SP-403  | Orca 5020/5040 spares kit            |
| TOPA-SP-404  | Orca 5010/5030 re-skinning kit       |
| TOPA-SP-405  | Orca 5035 re-skinning kit            |
| TOPA-SP-406  | Orca 5020/5040 re-skinning kit       |
| TOPA-SP-407  | Orca 5020/5035/5040 U/I PCB + shield |
| TOPA-SP-504  | Battery catch x 10                   |
| TOPA-SP-506  | Orca 5000 series volume knobs x 10   |
| TOPA-SP-507  | Orca 5000 series channel knobs x 10  |

The contents of the Orca 5000 low, mid and high tier spares kits (TOPA-SP-401, TOPA-SP-402 and TOPA-SP-403) are shown in Tables D-2, D-3 and D-4. The contents of the Orca 5000 handportable re-skinning kits are shown in Tables D-5, D-6 and D-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 'Reference' column are Figure numbers in which the spares item is shown, and the number in brackets refers to the numbered legend within each figure.

Tait Orca 5000 main PCBs are available on an exchange basis from the Customer Services Division of Tait Electronics Ltd. When ordering, use the following naming convention

TOP-XXXXX-KS.

For example, a replacement main PCB for a TOP-B2620-T0 is a TOP-B2620-KS.



Table D-2: Orca 5010/5030 spares kit (TOPA-SP-401)

| IPN          | Description   | Quantity | Reference        |
|--------------|---|----------|------------------|
| 040-05500-08 | Volume Control Switch                                     | 10       | D-8 (3), D-9 (3) |
| 219-50029-00 | RF out assembly   | 5        | D-11 (1)         |
| 220-01414-03 | Aux Flex Connector PCB                                    | 5        | D-10 (1)         |
| 231-00010-45 | Channel Selector Switch                                   | 10       | D-8 (2), D-9 (2) |
| 232-00010-42 | Switch PTT (Low Profile)                                  | 5        | D-8 (8), D-9 (6) |
| 240-02156-01 | Antenna SMA Connector                                     | 10       | D-12 (4)         |
| 252-00010-77 | Speaker 40mm 0.5W 16E FST                                 | 5        | —                |
| 252-00010-56 | Microphone  | 5        | D-8 (11)         |
| 316-85133-00 | PTT/Function Key Retaining Plate                          | 10       | —                |
| 360-02019-00 | Microphone Grommet/Seal                                   | 10       | D-5 (1)          |
| 303-11213-00 | Handportable Chassis                                      | 5        | D-4 (2), D-5 (3) |
| 303-30072-00 | Battery Catch   | 20       | —                |
| 308-01057-02 | Housing Accessory Dummy Cover                             | 20       | —                |
| 311-01049-00 | Channel Selector Knob                                     | 20       | D-2 (1)          |
| 311-03108-00 | PTT/Function Keypad                                       | 20       | —                |
| 316-06765-00 | Rear Panel  | 5        | D-10 (7)         |
| 316-06763-00 | Knob Label  | 5        | D-2 (3)          |
| 365-01673-00 | Insert Front Panel Logo Label                             | 1        | —                |
| 319-01026-00 | Main RF Shield  | 5        | D-4 (1)          |
| 345-00020-09 | PA Screw M2x5mm Pan Torx                                  | 10       | D-8 (10)         |
| 345-00020-11 | Chassis Screw M2x8mm Pan Torx                             | 10       | D-1 (3)          |
| 349-00030-00 | Speaker Screw 1.8x5mm Torx                                | 10       | D-7 (3)          |
| 352-00010-52 | Channel/volume Control Nut (M6x7.9x3mm)                   | 20       | D-12 (9)         |
| 352-01053-00 | Antenna SMA Connector Nut                                 | 10       | D-12 (8)         |
| 353-00010-42 | Ribbed Lock Washer M6x10x0.7mm                            | 30       | D-12 (7)         |
| 356-01077-00 | Battery Contact Probe                                     | 10       | D-9 (7)          |
| 360-01060-00 | PTT/Function Key Actuator                                 | 40       | —                |
| 360-00010-39 | Chassis Plug Seal   | 10       | D-10 (9)         |
| 362-01087-00 | Battery Contact Seal                                      | 10       | D-9 (8)          |
| 362-01106-00 | Rear Panel Seal   | 10       | D-10 (5)         |
| 362-01089-01 | Aux Flex Seal   | 10       | D-10 (2)         |
| 362-01091-01 | Knob Seal   | 10       | D-12 (10)        |
| 362-01092-02 | Main Seal   | 20       | —                |
| 369-01039-00 | Adhesive Ring 40mm (speaker)                              | 5        | D-7 (2)          |
| OPP401       | Front Panel Assembly. This comprises the following parts: | 1        | —                |
| 252-00010-77 | Speaker 40mm 0.5W 16E FST                                 | 1        | —                |
| 307-01022-00 | Speaker cloth   | 1        | —                |
| 316-06760-00 | Front Panel   | 1        | —                |
| 316-06763-00 | Knob Label  | 1        | D-2 (3)          |
| 354-01044-00 | Bush M2 Threaded Brass                                    | 2        | —                |
| 369-01039-00 | Adhesive Ring 40mm (speaker)                              | 1        | D-7 (2)          |

Table D-3: Orca 5035 spares kit (TOPA-SP-402)

| IPN          | Description   | Quantity | Reference        |
|--------------|---|----------|------------------|
| 040-05500-08 | Volume Control Switch                                     | 10       | D-8 (3), D-9 (3) |
| 219-50029-00 | RF out assembly   | 5        | D-11 (1)         |
| 220-01414-03 | Aux Flex Connector PCB                                    | 5        | D-10 (1)         |
| 231-00010-45 | Channel Selector Switch                                   | 10       | D-8 (2), D-9 (2) |
| 232-00010-42 | Switch PTT (Low Profile)                                  | 5        | D-8 (8), D-9 (6) |
| 240-02156-01 | Antenna SMA Connector                                     | 10       | D-12 (4)         |
| 252-00010-77 | Speaker 40mm 0.5W 16E FST                                 | 5        | —                |
| 252-00010-56 | Microphone  | 5        | D-8 (11)         |
| 304-07043-00 | LCD Holder  | 1        | —                |
| 360-02019-00 | Microphone Grommet/Seal                                   | 10       | D-5 (1)          |
| 303-11213-00 | Handportable Chassis                                      | 5        | D-4 (2), D-5 (3) |
| 303-30072-00 | Battery Catch   | 20       | —                |
| 308-01057-02 | Housing Accessory Dummy Cover                             | 20       | —                |
| 311-01049-00 | Channel Selector Knob                                     | 20       | D-2 (1)          |
| 311-01050-00 | Volume Knob   | 20       | D-2 (2)          |
| 311-03108-00 | PTT/Function Keypad                                       | 20       | —                |
| 316-06765-00 | Rear Panel  | 5        | D-10 (7)         |
| 316-06763-00 | Knob Label  | 5        | D-2 (3)          |
| 316-85133-00 | PTT/Function Key Retaining Plate                          | 10       | —                |
| 319-01203-00 | Main RF Shield  | 5        | D-4 (1)          |
| 345-00020-09 | PA Screw M2x5mm Pan Torx                                  | 10       | D-8 (10)         |
| 345-00020-11 | Chassis Screw M2x8mm Pan Torx                             | 10       | D-1 (3)          |
| 349-00030-00 | Speaker Screw 1.8x5mm Torx                                | 10       | D-7 (3)          |
| 352-00010-52 | Channel/volume Control Nut (M6x7.9x3mm)                   | 20       | D-12 (9)         |
| 352-01053-00 | Antenna SMA Connector Nut                                 | 10       | D-12 (8)         |
| 353-00010-42 | Ribbed Lock Washer M6x10x0.7mm                            | 30       | D-12 (7)         |
| 356-01077-00 | Battery Contact Probe                                     | 10       | D-9 (7)          |
| 360-01060-00 | PTT/Function Key Actuator                                 | 40       | —                |
| 360-00010-39 | Chassis Plug Seal   | 10       | D-10 (9)         |
| 362-01087-00 | Battery Contact Seal                                      | 10       | D-9 (8)          |
| 362-01106-00 | Rear Panel Seal   | 10       | D-10 (5)         |
| 362-01089-01 | Aux Flex Seal   | 10       | D-10 (2)         |
| 362-01091-01 | Knob Seal   | 10       | D-12 (10)        |
| 362-01092-02 | Main Seal   | 20       | —                |
| 369-01039-00 | Adhesive Ring 40mm (speaker)                              | 5        | D-7 (2)          |
| OPP501       | Front Panel Assembly. This comprises the following parts: | 1        | —                |
| 252-00010-77 | Speaker 40mm 0.5W 16E FST                                 | 1        | —                |
| 307-01022-00 | Speaker cloth   | 1        | —                |
| 316-06761-00 | Front Panel   | 1        | —                |
| 316-06763-00 | Knob Label  | 1        | D-2 (3)          |
| 354-01044-00 | Bush M2 Threaded Brass                                    | 2        | —                |
| 369-01039-00 | Adhesive Ring 40mm (speaker)                              | 1        | D-7 (2)          |
| 312-10183-00 | Lens  | 1        | D-6 (1)          |
| 008-36671-80 | LCD Display   | 1        | —                |
| 220-01501-00 | User Interface Loom PCB                                   | 5        | —                |
| 311-03110-00 | Keypad  | 5        | —                |
| 311-04006-00 | Polyester Dome  | 5        | —                |
| 312-01083-00 | Lens  | 2        | D-6 (1)          |
| OPF200-B     | UI PCB SMT Subassembly                                    | 1        | —                |
| 365-00011-38 | Yellow static warning label                               | 3        | —                |
| 399-00010-86 | Static Shielding Bag 127x203mm                            | 3        | —                |

Table D-4: Orca 5020/5040 spares kit (TOPA-SP-403)

| IPN          | Description   | Quantity | Reference        |
|--------------|---|----------|------------------|
| 040-05500-08 | Volume Control Switch                                     | 10       | D-8 (3), D-9 (3) |
| 219-50029-00 | RF out assembly   | 5        | D-11 (1)         |
| 220-01414-03 | Aux Flex Connector PCB                                    | 5        | D-10 (1)         |
| 231-00010-45 | Channel Selector Switch                                   | 10       | D-8 (2), D-9 (2) |
| 232-00010-42 | Switch PTT (Low Profile)                                  | 5        | D-8 (8), D-9 (6) |
| 240-02156-01 | Antenna SMA Connector                                     | 10       | D-12 (4)         |
| 252-00010-77 | Speaker 40mm 0.5W 16E FST                                 | 5        | —                |
| 252-00010-56 | Microphone  | 5        | D-8 (11)         |
| 304-07043-00 | LCD Holder  | 1        | —                |
| 316-85133-00 | PTT/Function Retaining Plate                              | 10       | —                |
| 360-02019-00 | Microphone Grommet/ Seal                                  | 10       | D-5 (1)          |
| 303-11213-00 | Handportable Chassis                                      | 5        | D-4 (2), D-5 (3) |
| 303-30072-00 | Battery Catch   | 20       | —                |
| 308-01057-02 | Housing Accessory Dummy Cover                             | 20       | —                |
| 311-01049-00 | Channel Selector Knob                                     | 20       | D-2 (1)          |
| 311-01050-00 | Volume Knob   | 20       | D-2 (2)          |
| 311-03108-00 | PTT/Function Keypad                                       | 20       | —                |
| 316-06765-00 | Rear Panel  | 5        | D-10 (7)         |
| 316-06763-00 | Knob Label  | 5        | D-2 (3)          |
| 319-01203-01 | Main RF Shield  | 5        | D-4 (1)          |
| 345-00020-09 | PA Screw M2x5mm Pan Torx                                  | 10       | D-8 (10)         |
| 345-00020-11 | Chassis Screw M2x8mm Pan Torx                             | 10       | D-1 (3)          |
| 349-00030-00 | Speaker Screw 1.8x5mm Torx                                | 10       | D-7 (3)          |
| 352-00010-52 | Channel/volume Control Nut (M6x7.9x3mm)                   | 20       | D-12 (9)         |
| 352-01053-00 | Antenna SMA Connector Nut                                 | 10       | D-12 (8)         |
| 353-00010-42 | Ribbed Lock Washer M6x10x0.7mm                            | 30       | D-12 (7)         |
| 356-01077-00 | Battery Contact Probe                                     | 10       | D-9 (7)          |
| 360-01060-00 | PTT/Function Key Actuator                                 | 40       | —                |
| 360-00010-39 | Chassis Plug Seal   | 10       | D-10 (9)         |
| 362-01087-00 | Battery Contact Seal                                      | 10       | D-9 (8)          |
| 362-01106-00 | Rear Panel Seal   | 10       | D-10 (5)         |
| 362-01089-01 | Aux Flex Seal   | 10       | D-10 (2)         |
| 362-01091-01 | Knob Seal   | 10       | D-12 (10)        |
| 362-01092-02 | Main Seal   | 20       | —                |
| 369-01039-00 | Adhesive Ring 40mm (speaker)                              | 5        | D-7 (2)          |
| OPP601       | Front Panel Assembly. This comprises the following parts: | 1        | —                |
|              | 252-00010-77 Speaker 40mm 0.5W 16E FST                    | 1        | —                |
|              | 307-01022-00 Speaker cloth                                | 1        | —                |
|              | 316-06762-00 Front Panel                                  | 1        | —                |
|              | 316-06763-00 Knob Label                                   | 1        | D-2 (3)          |
|              | 354-01044-00 Bush M2 Threaded Brass                       | 2        | —                |
|              | 369-01039-00 Adhesive Ring 40mm (speaker)                 | 1        | D-7 (2)          |
|              | 312-10183-00 Lens   | 1        | D-6 (1)          |
| 008-36671-80 | LCD Display   | 1        | —                |
| 220-01501-00 | User Interface Loom PCB                                   | 5        | —                |
| 311-03109-00 | Keypad  | 5        | —                |
| 311-04005-00 | Polyester Dome  | 5        | —                |
| 312-01083-00 | Lens  | 2        | D-6 (1)          |
| OPF200-B     | UI PCB SMT Subassembly                                    | 1        | —                |
| 365-00011-38 | Yellow static warning label                               | 3        | —                |
| 399-00010-86 | Static Shielding Bag 127x203mm                            | 3        | —                |

Table D-5: Orca 5010/5030 Re-skinning kit (TOPA-SP-404)

| IPN          | Description                        | Quantity |
|--------------|------------------------------------|----------|
| 311-01049-00 | Channel Knob Gr                    | 1        |
| 311-01050-00 | Volume Knob Gr                     | 1        |
| 311-03108-00 | PTT/Function Keypad                | 1        |
| 316-06765-00 | Rear Panel                         | 1        |
| 316-85133-00 | PTT/Function keypad retainer plate | 1        |
| 345-00020-11 | Screw M2x8mm SS Pan Torx Patch     | 2        |
| 360-01060-00 | Actuator Pressel                   | 2        |
| 362-01106-00 | Rear Cover Seal                    | 1        |
| 362-01091-01 | Knob Seal                          | 1        |
| 362-01092-02 | Main Seal                          | 1        |
| OPP401       | PHA Front Panel Assembly           | 1        |

Table D-6: Orca 5035 Re-skinning kit (TOPA-SP-405)

| IPN          | Description                        | Quantity |
|--------------|------------------------------------|----------|
| 311-01049-00 | Channel Knob Gr                    | 1        |
| 311-01050-00 | Volume Knob Gr                     | 1        |
| 311-03108-00 | PTT/Function Keypad                | 1        |
| 316-06765-00 | Rear Panel                         | 1        |
| 316-85133-00 | PTT/Function keypad retainer plate | 1        |
| 345-00020-11 | Screw M2x8mm SS Pan Torx Patch     | 2        |
| 360-01060-00 | Actuator Pressel                   | 2        |
| 362-01106-00 | Rear Cover Seal                    | 1        |
| 362-01091-01 | Knob Seal                          | 1        |
| 362-01092-02 | Main Seal                          | 1        |
| OPP501       | PHA Front Panel Assembly           | 1        |

Table D-7: Orca 5020/5040 Re-skinning kit (TOPA-SP-406)

| IPN          | Description                        | Quantity |
|--------------|------------------------------------|----------|
| 311-01049-00 | Channel Knob Gr                    | 1        |
| 311-01050-00 | Volume Knob Gr                     | 1        |
| 311-03108-00 | PTT/Function Keypad                | 1        |
| 316-06765-00 | Rear Panel                         | 1        |
| 316-85133-00 | PTT/Function keypad retainer plate | 1        |
| 345-00020-11 | Screw M2x8mm SS Pan Torx Patch     | 2        |
| 360-01060-00 | Actuator Pressel                   | 2        |
| 362-01106-00 | Rear Cover Seal                    | 1        |
| 362-01091-01 | Knob Seal                          | 1        |
| 362-01092-02 | Main Seal                          | 1        |
| OPP601       | PHA Front Panel Assembly           | 1        |

Table D-8: Orca 5020/5035/5040 User Interface PCB and Shield (TOPA-SP-407)

| IPN          | Description                    | Quantity |
|--------------|--------------------------------|----------|
| OPF200-B     | UI PCB SMT Subassembly         | 1        |
| 311-04005-00 | Ins Poly Dome for 5020/5040    | 1        |
| 319-01026-00 | Main Shield RF                 | 1        |
| 399-00010-86 | Static Shielding Bag 127x203mm | 1        |
| 008-36671-80 | LCD Display 12x2 Lines Flex    | 1        |
| 304-07043-00 | LCD Frame Holder               | 1        |
| 220-01501-00 | PCB Flexi User Interface       | 1        |