



Agilent G4560A Upgrade Kit

For the Agilent 7697A Headspace Sampler

Installation Guide

Parts Supplied

The Agilent 7697A Upgrade Kit comes in three boxes described in [Table 1](#), [Table 2](#), and [Table 3](#).

Table 1 Box 1 (labeled G4556-67009)

Description	Quantity
111 Vial Model Oven Assembly	1

Table 2 Box 2 (labeled G4556-67005)

Description	Quantity
111 Vial Model Cover Kit includes:	1
• T-20 Torx screws, 5/pk	1
• Front cover	1
• Top instrument cover (with 3 cables, pre installed)	1
• Cable, G4556-60140, BCR power to panel cable	
• Cable, G4556-60141, Data cable	
• Cable, G4556-60142, Panel tray power cable	

Table 3 Box 3 (labeled G4556-64014)

Description	Quantity
111 Vial Model Tray	1
• 111 Vial Model Tray Ship Kit, G4556-60830 (3 vial racks)	1
• 7697A Tray	1



Parts Identification

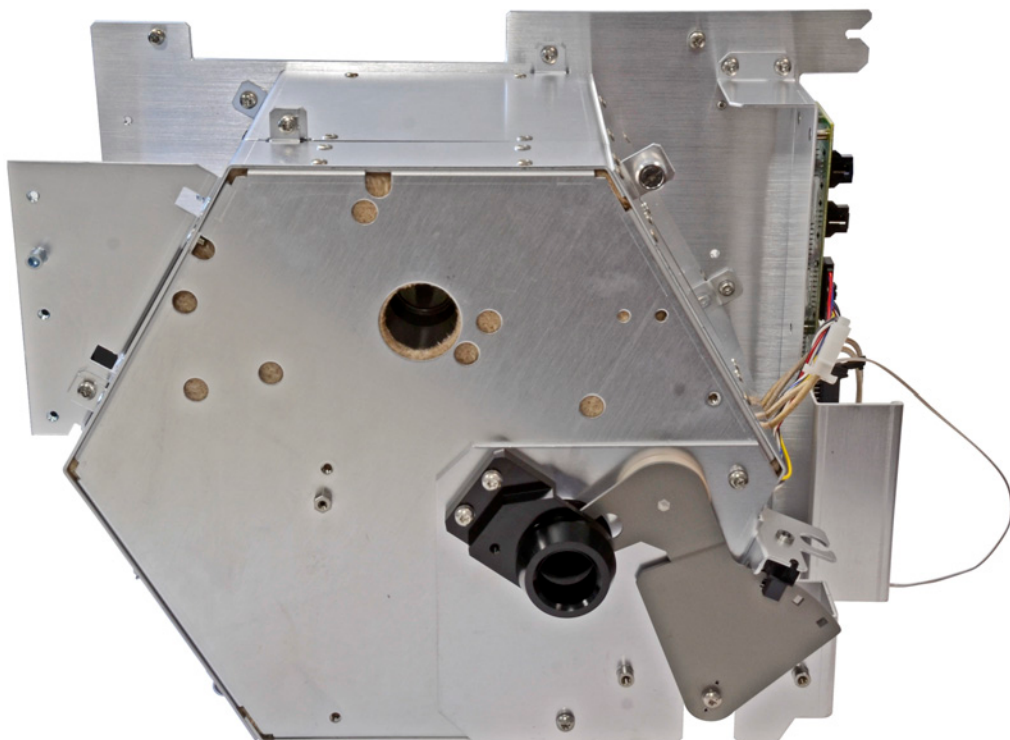


Figure 1 111 Vial Model Oven Assembly

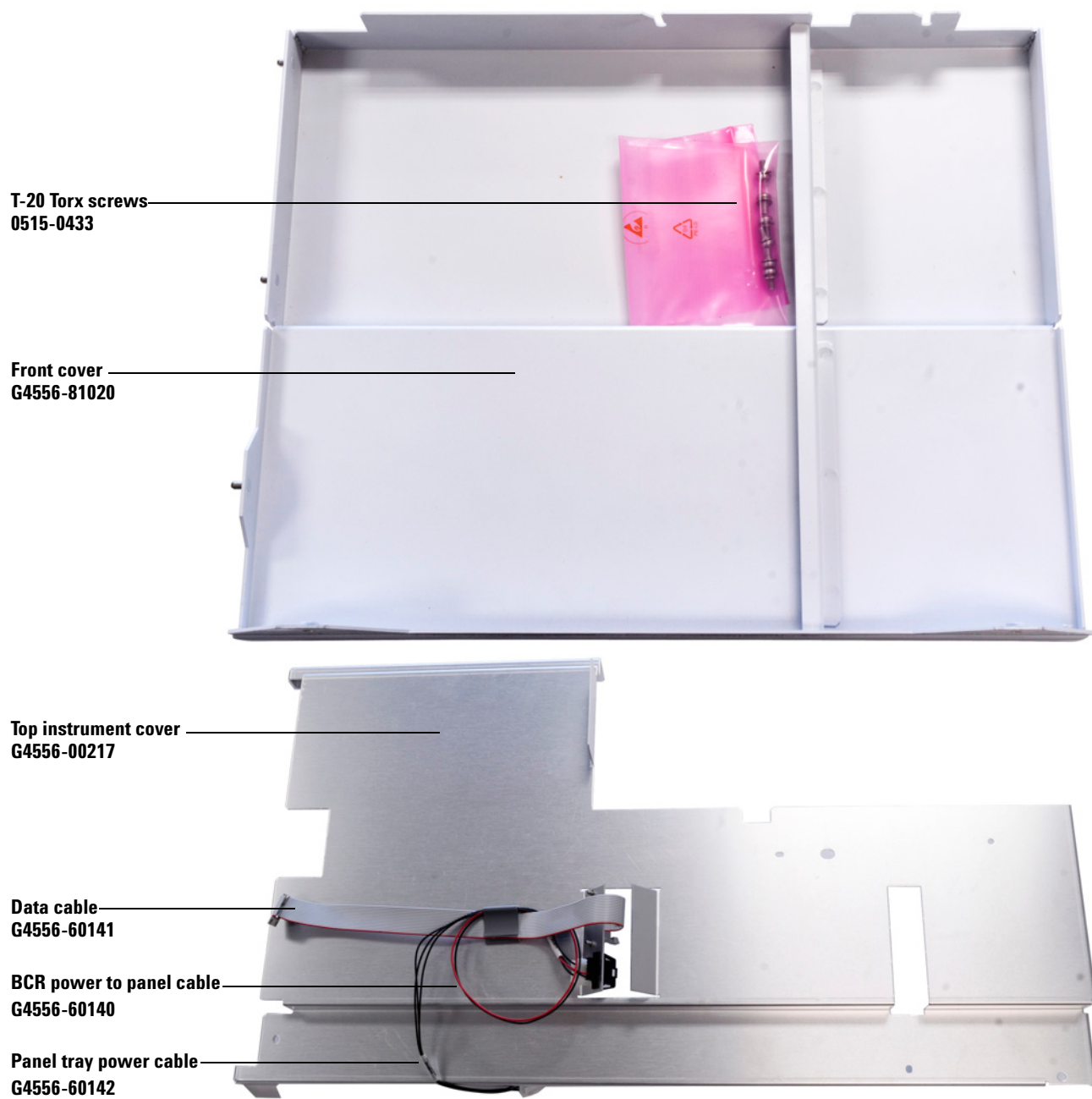


Figure 2 111 Vial Cover Kit

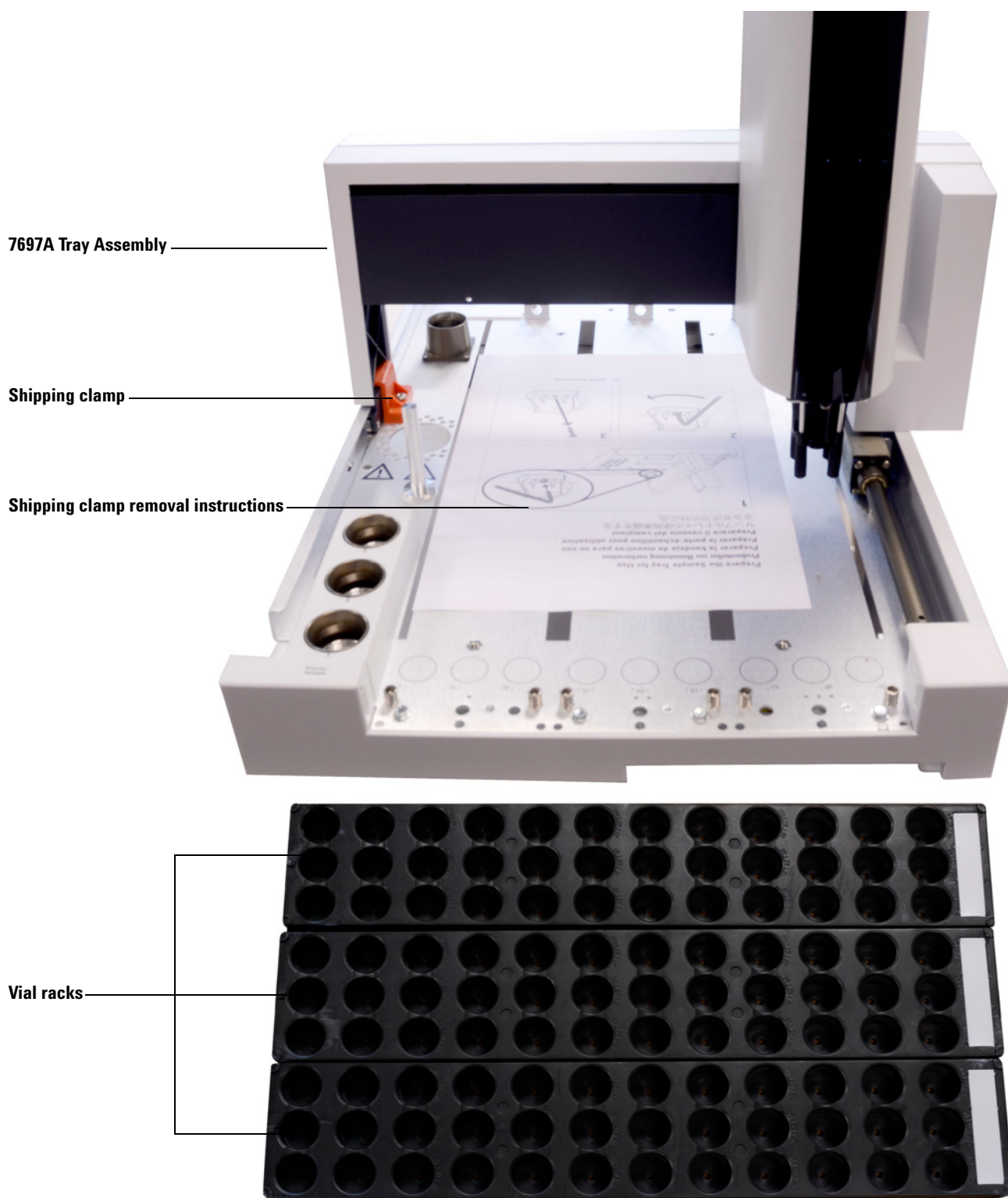


Figure 3 G4556-64014 - 111 Vial Model Tray kit

Tools Required

- T-20 Torx driver
- Agilent Instrument Utilities software, version B.01.05 SP1 or later
- **FSE license** for Agilent Instrument Utilities software
- Antistatic (ESD) wrist strap
- Lint-free gloves
- Lint-free cloth

Installation Procedure

Read the Agilent 7697A Headspace Sampler Safety Manual before upgrading the headspace sampler, and whenever needed. The safety manual describes precautions to follow when installing and using the headspace sampler, as well as important regulatory information.

Confirm that all parts have been received. Refer to [“Parts Supplied”](#) and [“Parts Identification”](#) for information.

CAUTION

Wear clean, lint-free gloves to prevent contamination of parts with dirt and skin oils.

CAUTION

Make sure you use an antistatic (ESD) wrist strap and take other antistatic precautions during the following installation procedures.

Prepare the GC and 7697A 12-Vial headspace sampler

- 1 Set your GC oven, GC inlet, headspace oven, and transfer line to ambient temperatures and wait for them to cool.
- 2 Once the GC oven, headspace oven, and transfer line have cooled to ambient temperature, turn off the headspace and unplug the power cord.
- 3 Turn all gas flows off at their sources.
- 4 Disconnect the transfer line from the GC inlet. Secure the transfer line to its support bracket.
- 5 Open the rotating top cover and remove all vials from the carousel.

Remove covers from the headspace sampler

Remove the covers shown in [Figure 4](#) from the headspace sampler.

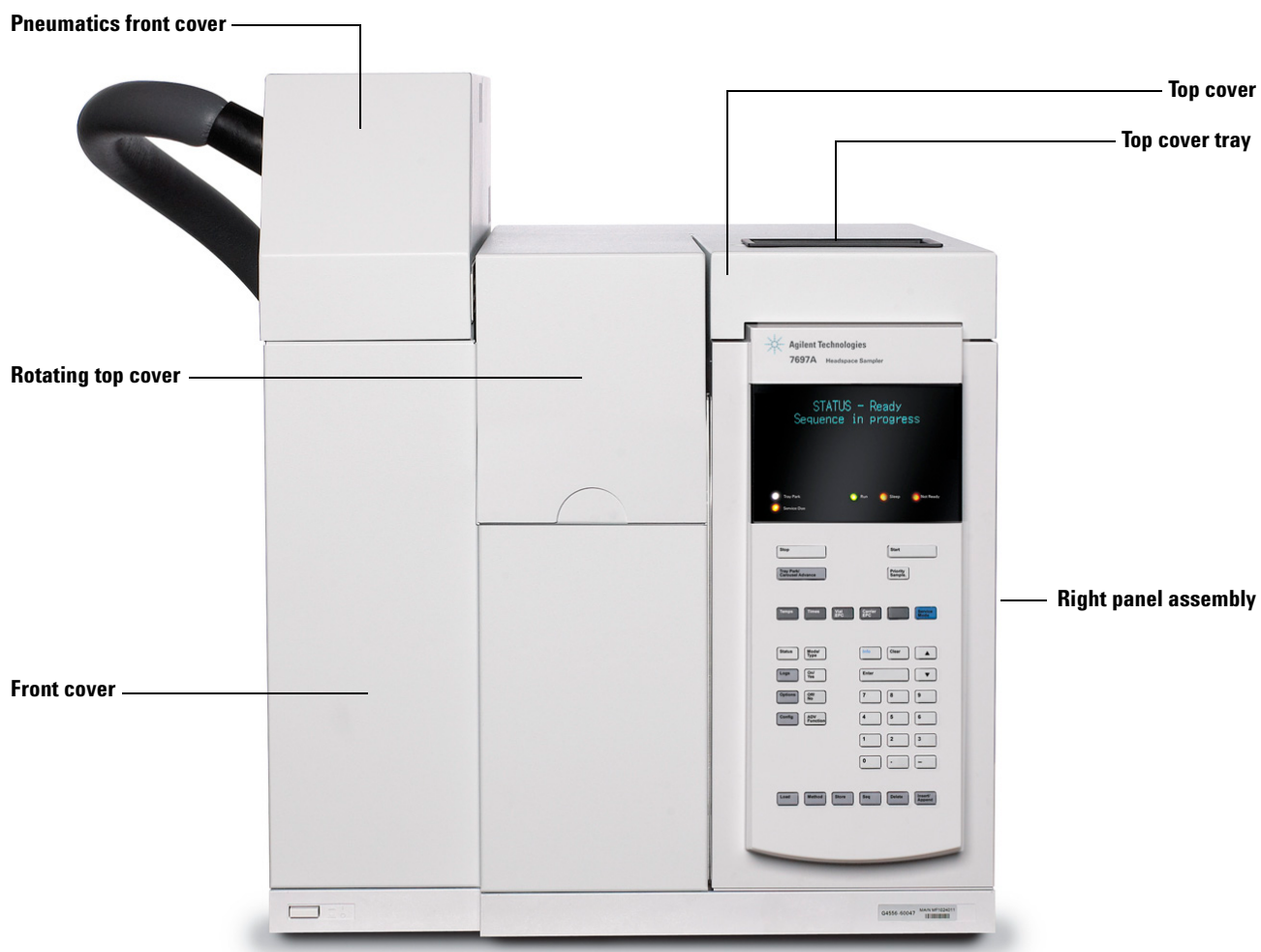


Figure 4 Covers to remove from the 12 vial model headspace sampler

- 1 Remove the rotating top cover (Figure 5).

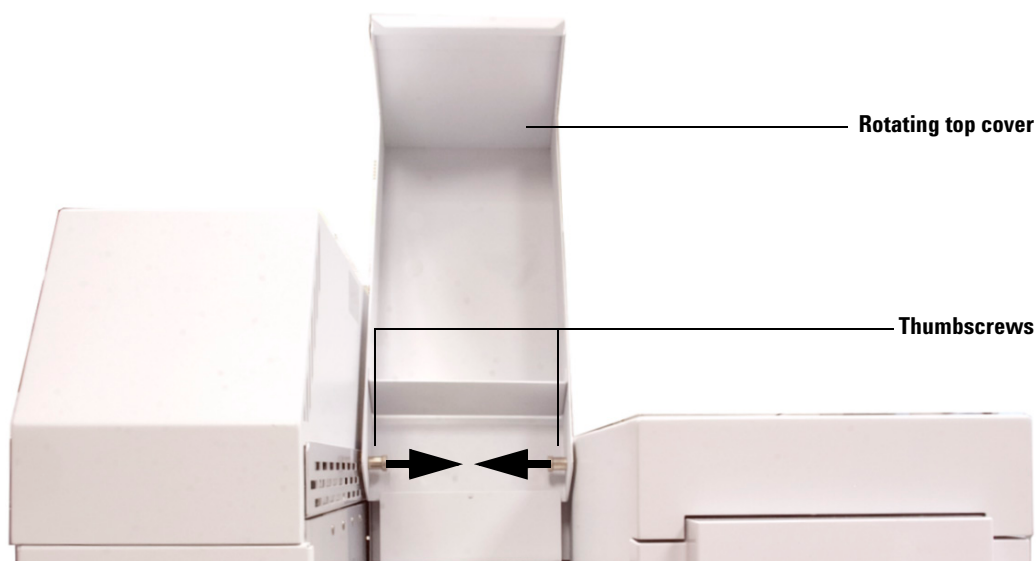


Figure 5 Removing the rotating top cover

- a Lift the rotating top cover from the front so that the two thumbscrews are accessible underneath.
 - b Unhinge and remove the tray cover by pulling one of the two thumbscrews inward while lifting the tray cover off of the chassis. Once the thumbscrew disconnects, repeat the same action for the second thumbscrew.
 - c Remove the rotating top cover.
- 2 Remove the top cover. (See Figure 4.)
 - a Remove two T-20 Torx screws on the back of the headspace sampler.
 - b Lift and remove the top cover tray, and remove the T-20 Torx screw under the top cover tray.
 - c Remove the top cover.
- 3 Remove the front cover. (See Figure 4.)
 - a If necessary, move the headspace sampler away from the GC to access the T-20 Torx screws on the left side of the headspace.
 - b Remove two T-20 Torx screws on the left side of the headspace sampler.
 - c Remove the front cover.
- 4 Remove the right panel assembly. (See Figure 4.)
 - a Remove the two T-20 Torx screws on the right panel assembly.
 - b Lift up and remove the right panel assembly.

- 5 Remove the pneumatics front cover. (See [Figure 4](#).)
 - a Remove the T-20 screw that secures the cover in place ([Figure 6](#)).



Figure 6 T-20 Torx screw securing the pneumatics front cover

- b Slide out, then lift to remove the pneumatics front cover.

Remove the oven assembly

CAUTION

Do not remove the pneumatics assembly completely. Be careful to not damage any attached cables and gas lines when moving the pneumatics assembly.

- 1 Remove the pneumatics assembly from the headspace sampler.
 - a Completely loosen the two T-20 Torx captive thumbscrews that are inset at the front of the pneumatics assembly (Figure 7).

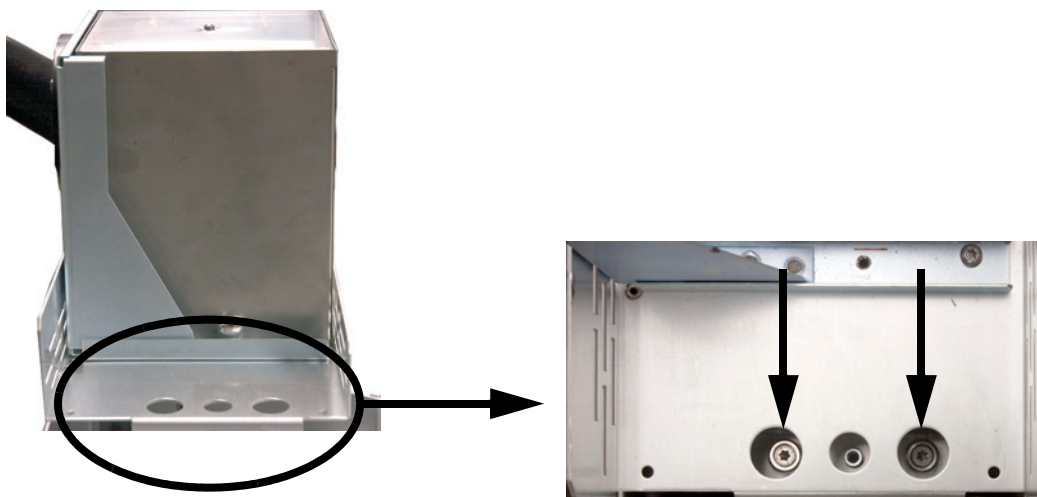


Figure 7 Front T-20 Torx thumbscrews

- b Completely loosen the T-20 Torx captive thumbscrew in the back area of the pneumatics assembly (Figure 8).

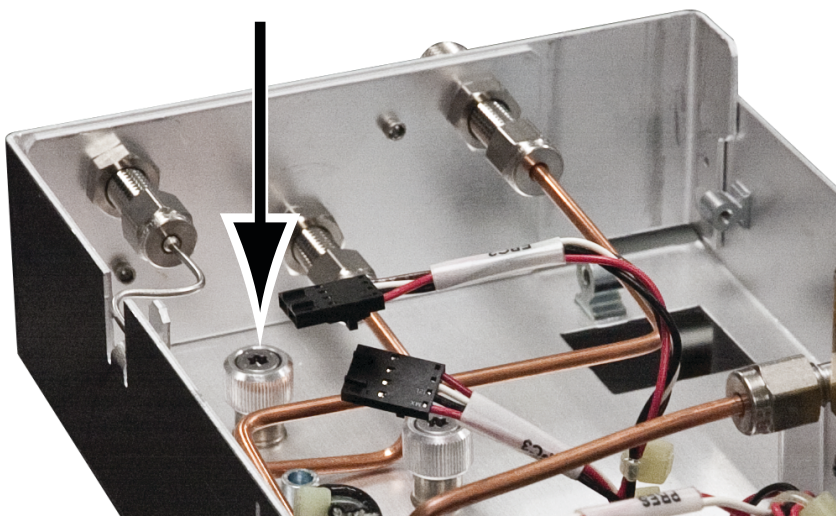


Figure 8 Back T-20 Torx thumbscrew

- c Lift the pneumatics assembly straight up, rotate the unit about 90 degrees counterclockwise, and lay it across the back of the headspace sampler.
 - d If desired, disconnect the pneumatics assembly cables at the PCM and heater locations. The cable harness should remain connected to

the electronics control board for easy re-installation.

- 2 Disconnect the 12-vial model heater assembly cables from the headspace sampler.
 - a Disconnect the oven heater cable (Figure 9). The oven heater connection jack is located on the left side behind the oven compartment facing the front of the headspace sampler.

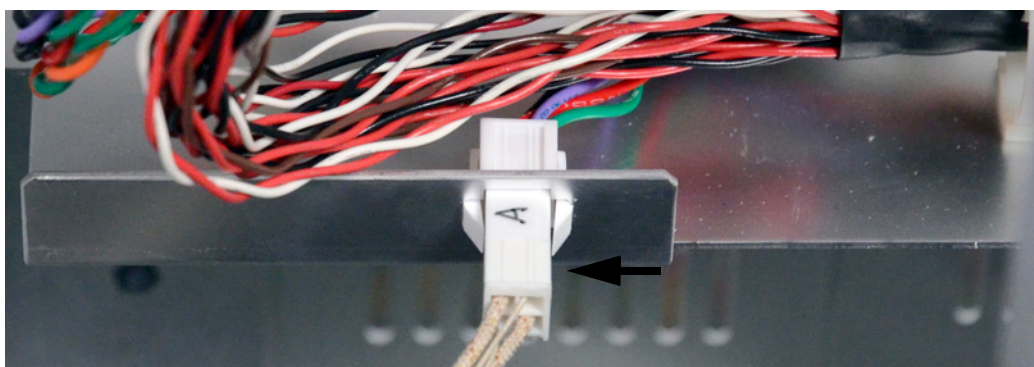


Figure 9 Disconnecting the oven heater connection

- b Disconnect the ribbon cable from P1 on the control board. The control board is located behind the oven compartment and faces the back of the headspace sampler.

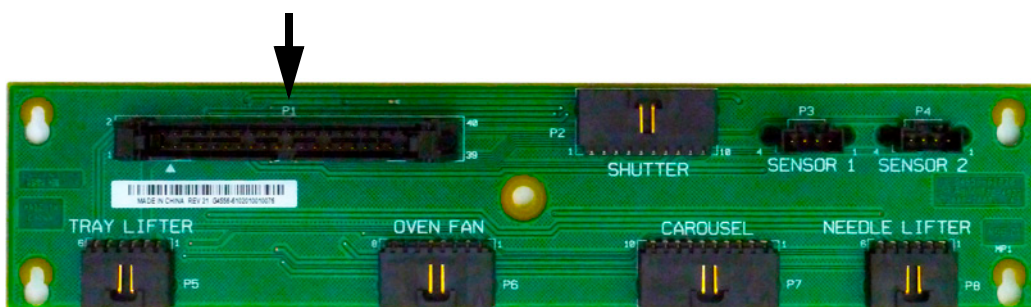


Figure 10 Disconnecting the ribbon cable from P1 on the control board

- 3 Loosen the four T-20 Torx screws shown in [Figure 11](#).

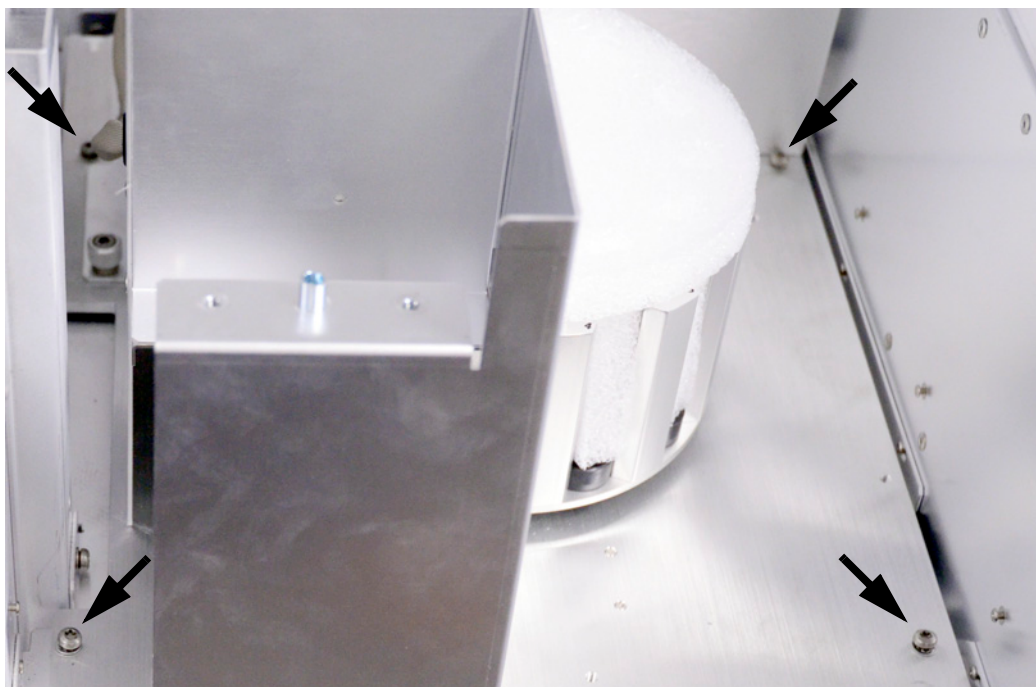


Figure 11 Loosening four T-20 Torx screws

- 4 If any broken glass exists, carefully remove it from the carousel and vial tray area using a vacuum cleaner.
- 5 Carefully lift the oven assembly out of the headspace sampler.

Adjust the oven side racks on the headspace sampler

The oven side racks are located just below the oven compartment on either side of the headspace chassis as shown in [Figure 12](#).

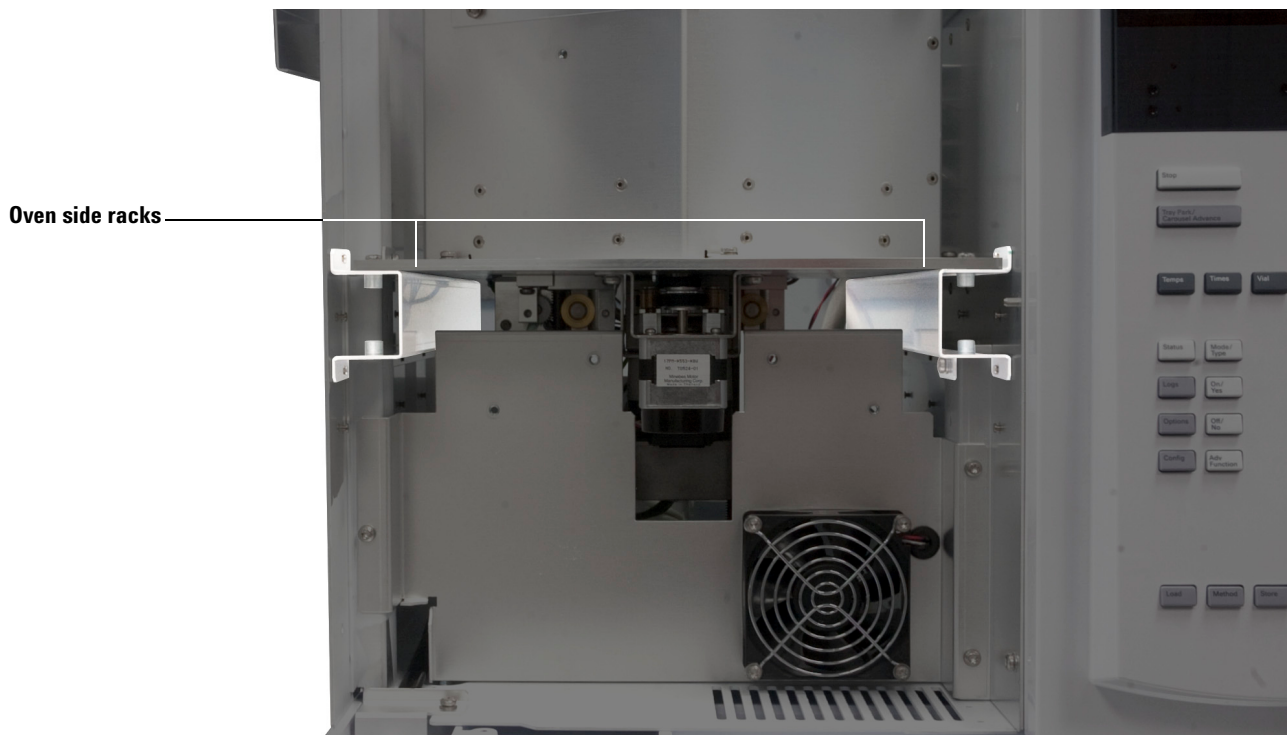


Figure 12 Locating the oven side racks

- 1 Remove the T-20 Torx screw on the side oven racks ([Figure 13](#) and [Figure 14](#)).

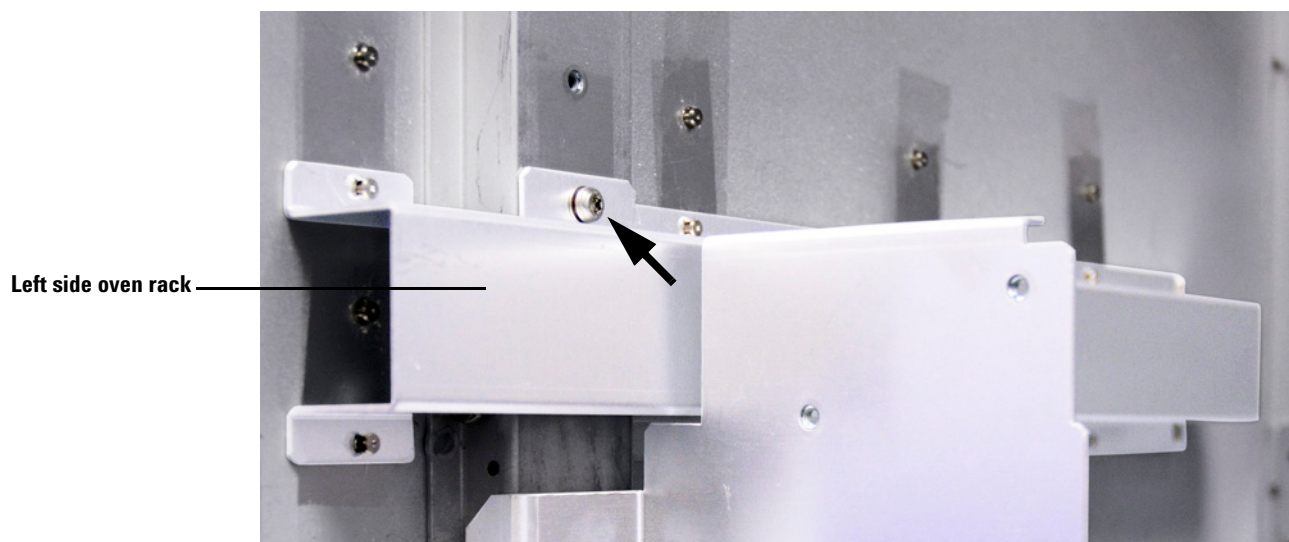


Figure 13 Removing the T-20 Torx screw on the left side oven rack

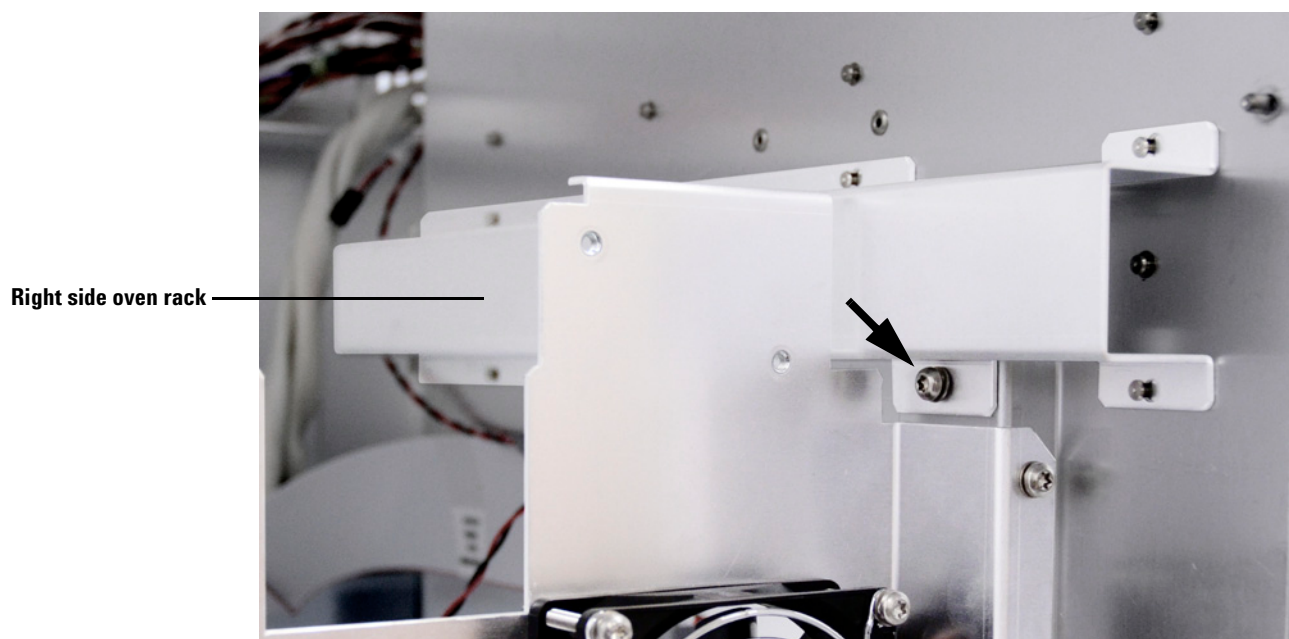


Figure 14 Removing the T-20 Torx screw on the right side oven rack

- 2 Carefully push the left side rack towards the back of the headspace sampler (Figure 15).

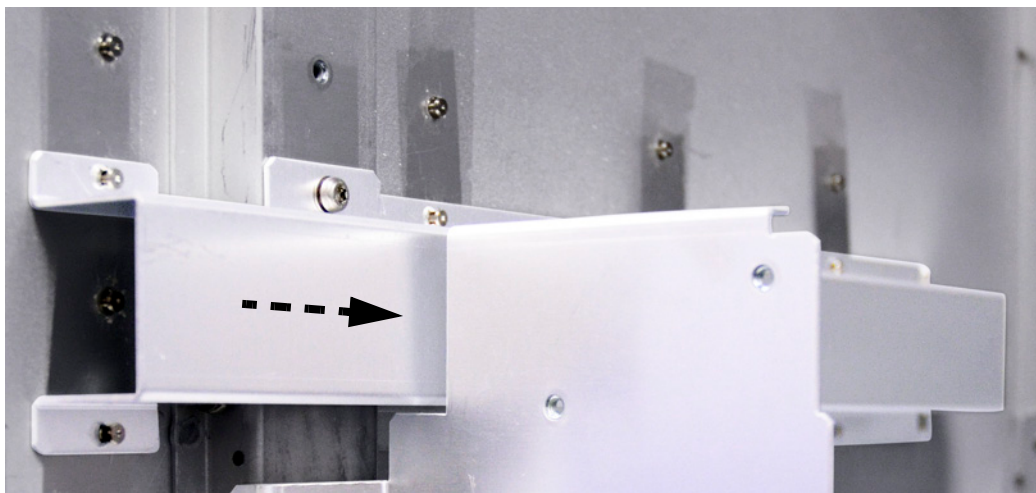


Figure 15 Sliding the side rack (left side oven rack shown)

- 3 Remove the left side rack by pulling it out and off of the support rivets.
- 4 Install the left side rack onto the top row of support rivets. Be sure all eight rivets fit into each of the holes in the left side rack (Figure 16).

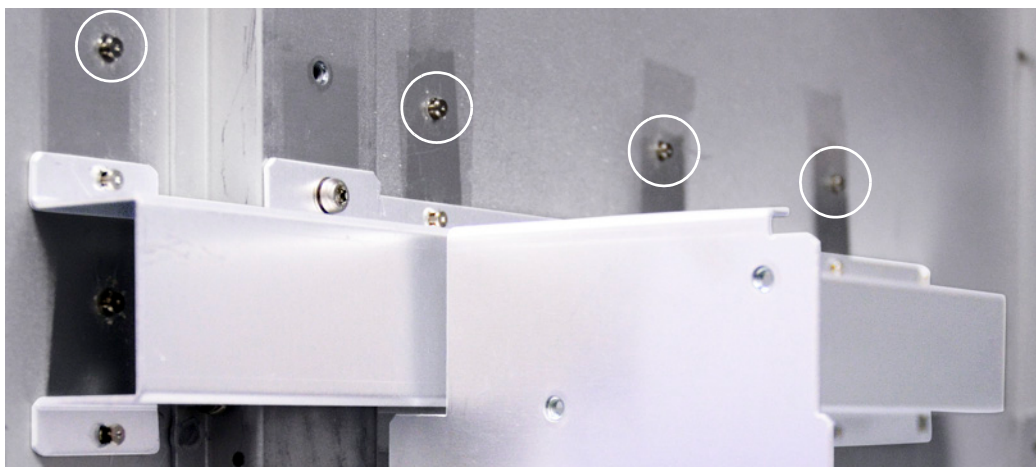


Figure 16 Top row of rivets (left side oven rack shown)

- 5 Pull the left side rack towards the front of the headspace sampler until it slides into place.
- 6 Install the T-20 Torx screw to secure the side rack to the headspace sampler.

Repeat [step 2](#) through [step 6](#) for the right side rack.

Install the 111 vial model oven assembly

WARNING

The oven assembly fits tightly into the headspace oven area. To avoid injury, wear gloves and be cautious of sharp edges when placing the oven assembly into the headspace sampler.

- 1 Lower the oven assembly down into the headspace sampler and rest it on the oven racks so that the carousel motor faces the front as shown in Figure 17. Lay it closer towards the front than its installation location to protect your hands from injury while lowering.

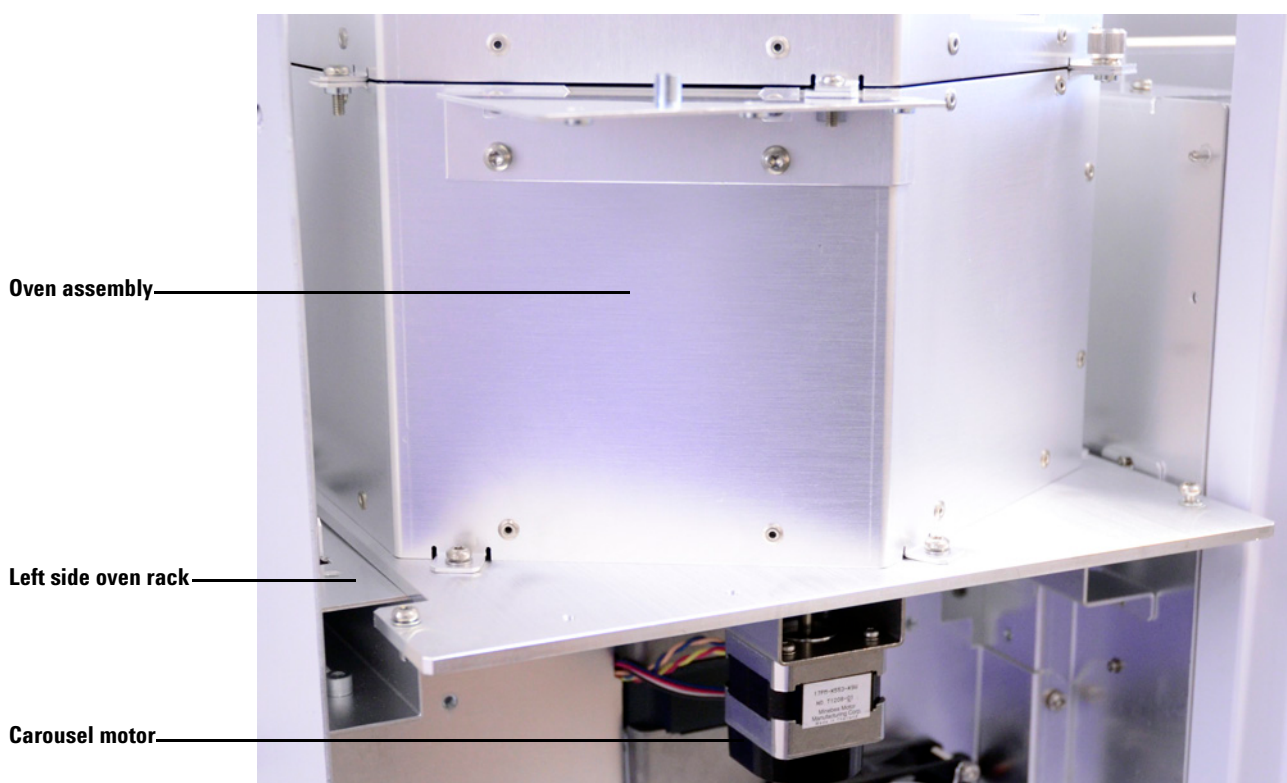


Figure 17 Front view of the oven assembly placed into the headspace sampler

- 2 Slightly lift the oven assembly and slide it backwards until the rivets on the side racks align with the holes in the oven assembly base.
- 3 Install four T-20 Torx screws at the corners of the oven assembly base to secure it to the side oven racks and headspace sampler.

- 4 Connect the ribbon cable to connection P1 on the control board (Figure 18).

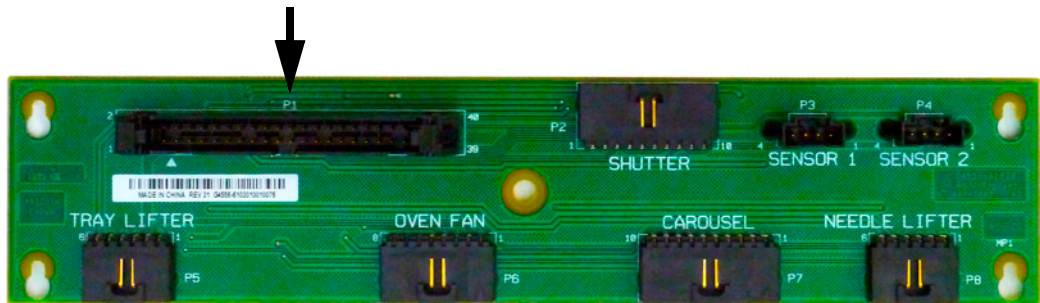


Figure 18 Connect the ribbon cable to P1 on the control board

- 5 Route the oven sensor cable through the insulated opening in the headspace chassis as shown in Figure 19.

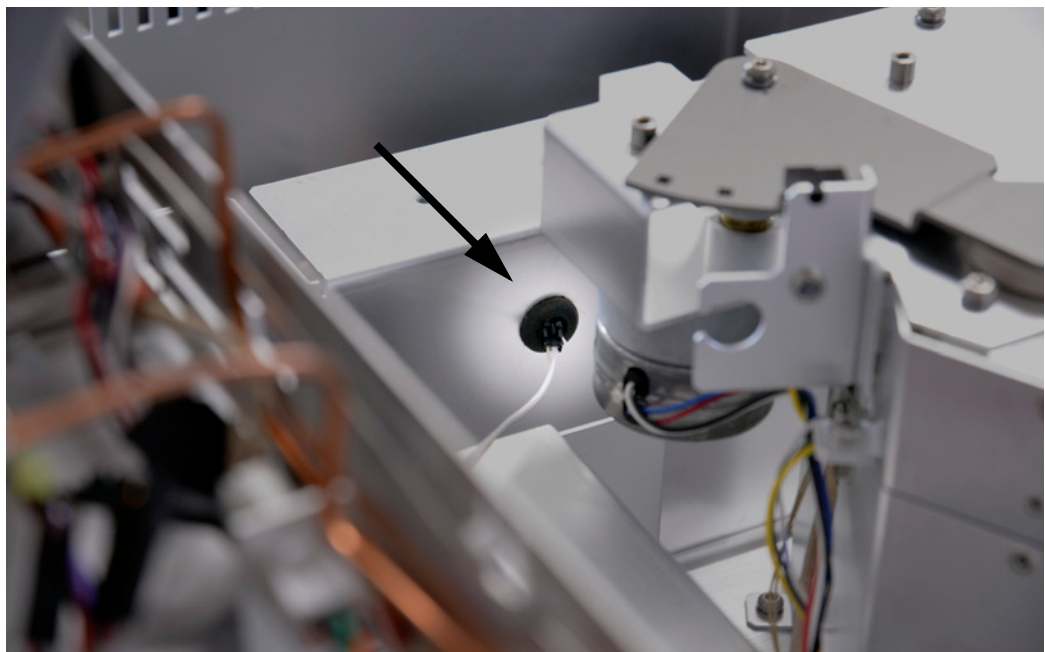


Figure 19 Routing the oven sensor cable

- 6 Route the cables from the oven assembly through the opening in the headspace chassis and to the main board as shown in [Figure 20](#).

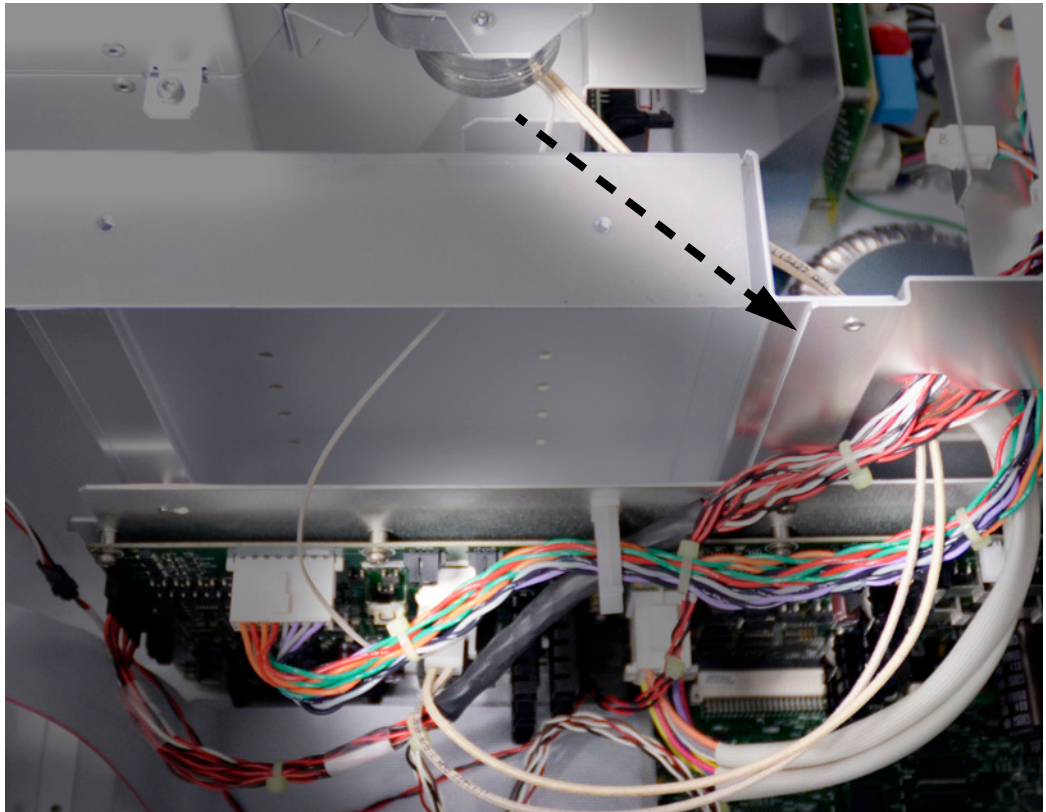


Figure 20 Routing the oven cables to the main board

Be sure that the cables run cleanly from the oven assembly to the main board. This will ensure enough cable slack to avoid stress on the main board connections.

- 7 Connect the oven heater cable to P22 on the main board (Figure 21).

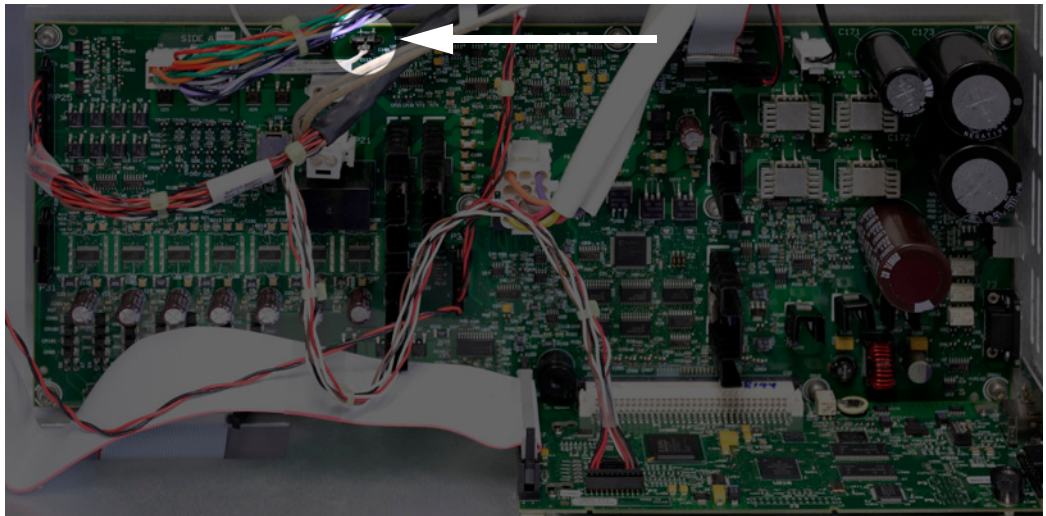


Figure 21 Connecting the oven sensor cable to P22 on the main board

Install the 111 vial model top instrument cover

- 1 Install the pneumatics assembly.
 - a Lift the pneumatics assembly up, rotate the unit about 90 degrees clockwise, and lower it into position on the top-left of the headspace sampler.
 - b Tighten the two T-20 Torx captive thumbscrews in the front of the pneumatics assembly (see Figure 7 on page 9).
 - c Tighten the T-20 Torx captive thumbscrew in the back of the pneumatics assembly (see Figure 8 on page 9).

- 2 Remove the T-20 Torx screw from the headspace chassis bracket found to the right of the oven assembly and behind the display panel (Figure 22). This screw will be reused in [step 5](#).

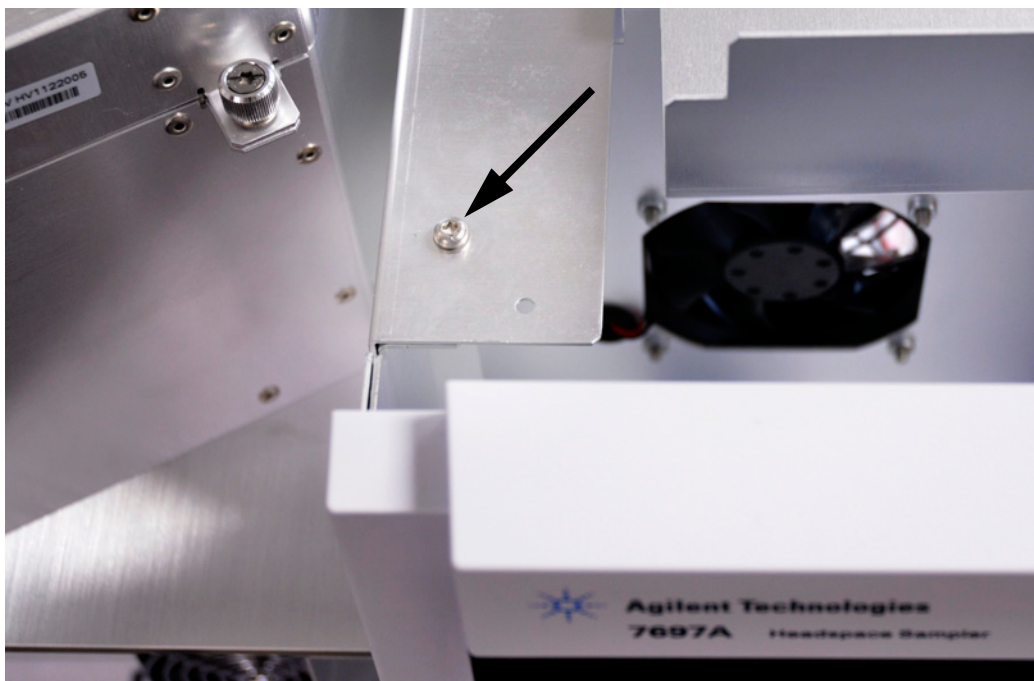


Figure 22 Remove the T-20 Torx screw from the headspace chassis bracket

- 3 Place the top instrument cover onto the headspace.
 - Be sure that the top instrument cover sits below the headspace chassis bracket as shown in [Figure 23](#).

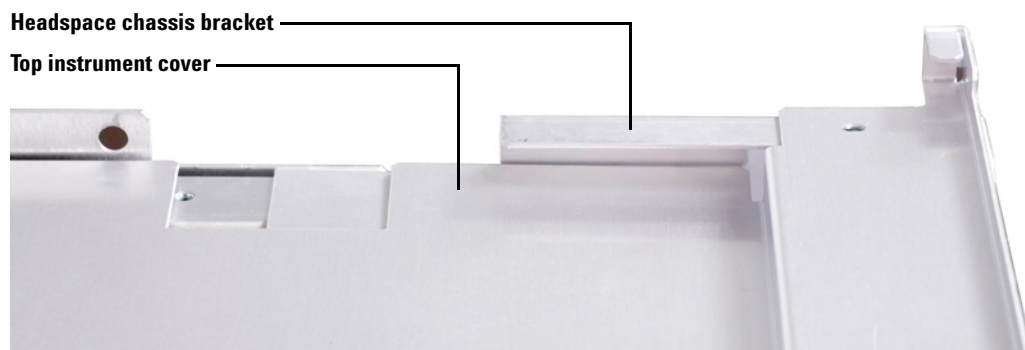


Figure 23 Top instrument cover installed correctly

- Be sure that the rivet shown in [Figure 24](#) passes entirely through the opening on the top instrument cover.

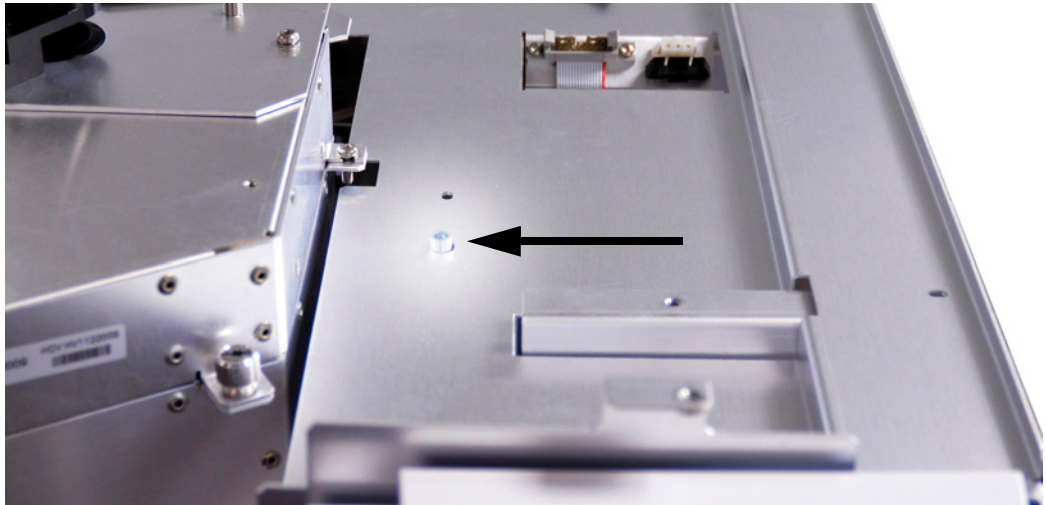


Figure 24 Top instrument cover correctly installed

- 4 Route and connect the tray cables to connections P41, P42, and P43 on the main board ([Figure 25](#)).

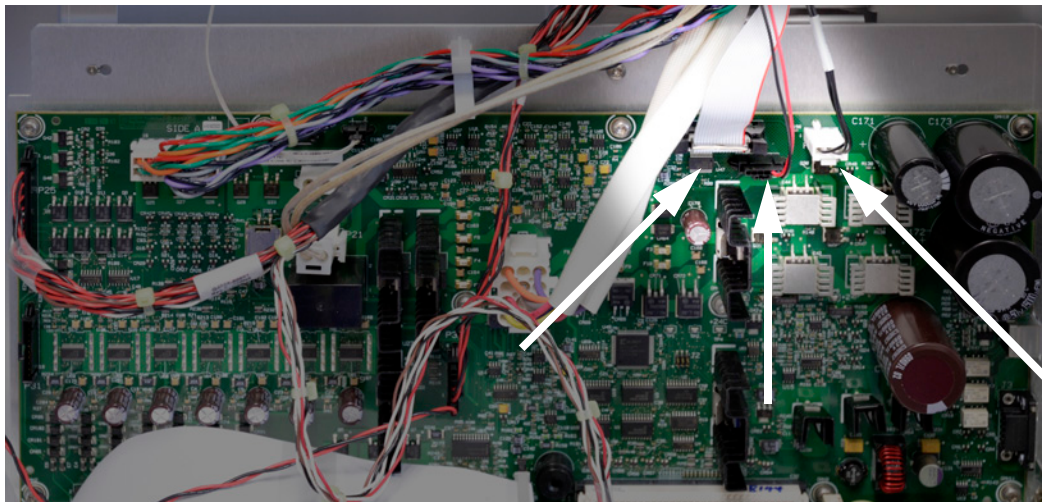


Figure 25 Tray cable connections P41, P42, and P43 on the main board

- 5 Install the T-20 Torx screws shown in [Figure 26](#) to secure the top instrument cover to the headspace.

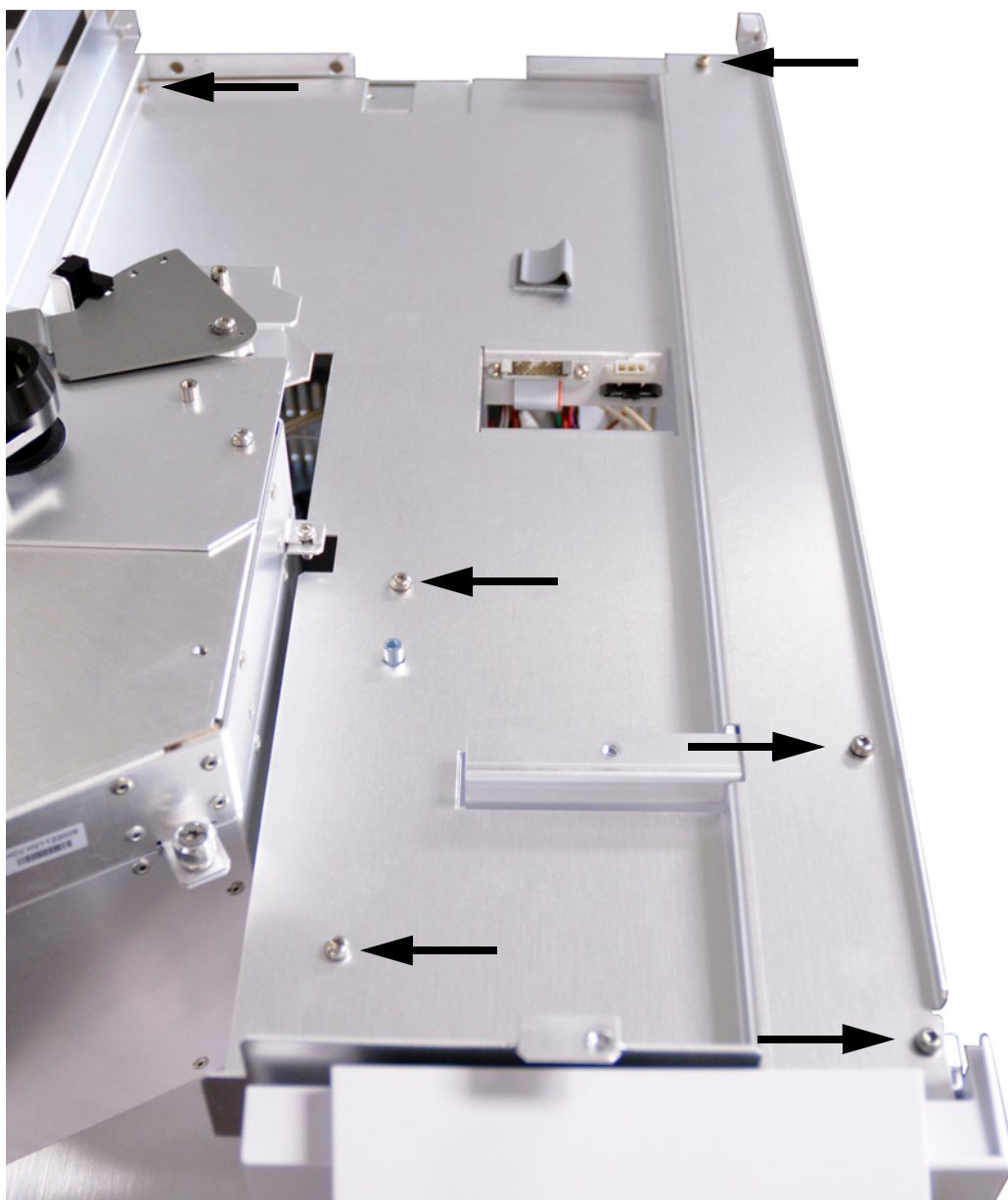


Figure 26 Install T-20 Torx screws to secure the top instrument cover to the headspace

Install 111 vial model tray

- 1 Lower the back of the tray assembly onto the top instrument cover while holding the front of the tray assembly above the headspace.
- 2 Slide the cables into the tray cable clip ([Figure 27](#)).

Tray cable clip

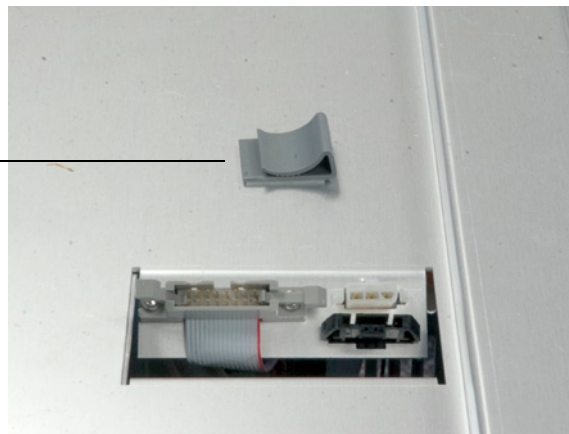


Figure 27 Tray cable clip

- 3 Connect the tray cables to the cable connections (Figure 28).

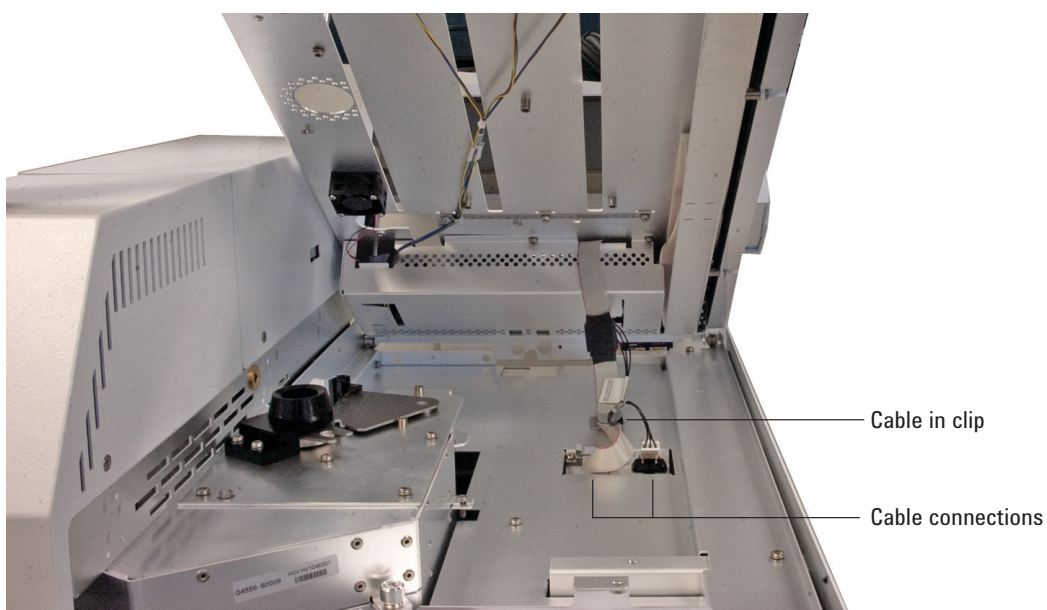


Figure 28 Tray cable connections

- 4 Lower the front of the tray assembly onto the headspace. Be sure it is sitting level on the headspace sampler.
- 5 Remove the tray shipping clamp. Refer to the instruction sheet provided with the 111 vial tray.

Install the 111 vial model covers

- 1 Install the right panel assembly.
 - a Lower the bottom of the panel into the headspace sampler and slide the panel assembly into position.
 - b Install the two T-20 Torx screws on the right panel assembly.
- 2 Install the 111 vial front cover.
 - a Slide the front cover down and to the right until the cover is in position on the headspace sampler.
 - b Install the two T-20 Torx screws on the left side to secure the cover to the headspace sampler.
- 3 Install the pneumatics front cover.
 - a Lower and slide the pneumatics front cover into place.
 - b Install the T-20 Torx screw shown in [Figure 6](#) on page 8.

Restore the headspace and GC to operating conditions

- 1 Move the headspace back to its position next to the GC.
- 2 Reinstall the transfer line to the GC inlet.
- 3 Restore all gas flows and plug in the headspace power cord.

Power on the headspace sampler

- 1 Power on the headspace sampler (Figure 29).



Figure 29 Power on the headspace sampler

- 2 Press **[Status]** on the headspace keypad. The headspace status displays a message similar to what is shown in Figure 30.

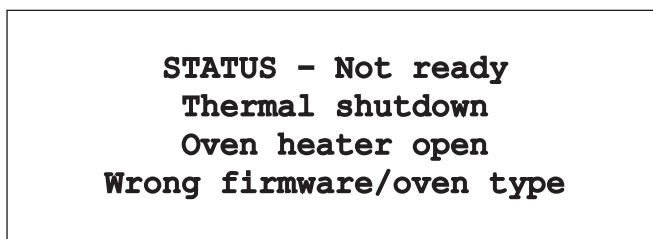


Figure 30 Headspace status with incorrect firmware installed

Update the headspace firmware

Update the headspace firmware by using the Agilent Instrument Utilities software, version B.01.05 SP1 or later.

- 1 Load Agilent Instrument Utilities.
- 2 Navigate to **Configuration > Licenses** and enter your FSE license information.
- 3 Select **Firmware Update** from the explorer pane.

- 4 Select the **Agilent 7697A Headspace Sampler** from the **Instruments** list and click **Connect**.

If the Agilent 7697A Headspace Sampler is not available, click **Add New Instrument** to open **Configure Instruments**. Add the new instrument, then return to firmware update.

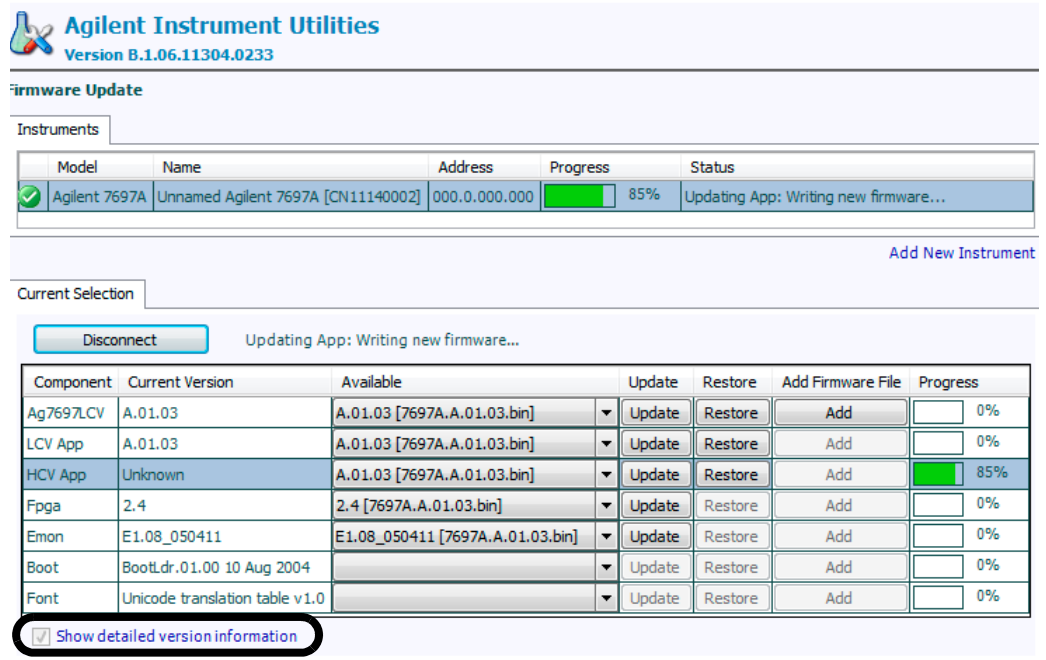
- 5 If necessary, update the 7697A headspace sampler to the latest version of the firmware.
 - a Download the latest firmware from <http://www.chem.agilent.com>.
 - b Unzip the firmware file(s).
 - c In the **Firmware Update** utility, click **Add**. Browse to and select the files unzipped in the previous step. The new firmware version will now appear in the **Available** drop-down list.
 - d Click **Update**.
 - e When prompted, save the active method and configuration data. You will restore the data from this file in a later step.

WARNING

Do not turn off power to the device during firmware update.

- f When the process completes, the instrument reboots. Reconnect to the instrument, then click **Restore**. Select the previously-saved data file to restore the active method.

- 6 Select the **Show detailed version information** checkbox (Figure 31).



Agilent Instrument Utilities
Version B.1.06.11304.0233

Firmware Update

Instruments

Model	Name	Address	Progress	Status
Agilent 7697A	Unnamed Agilent 7697A [CN11140002]	000.0.000.000	85%	Updating App: Writing new firmware...

Add New Instrument

Current Selection

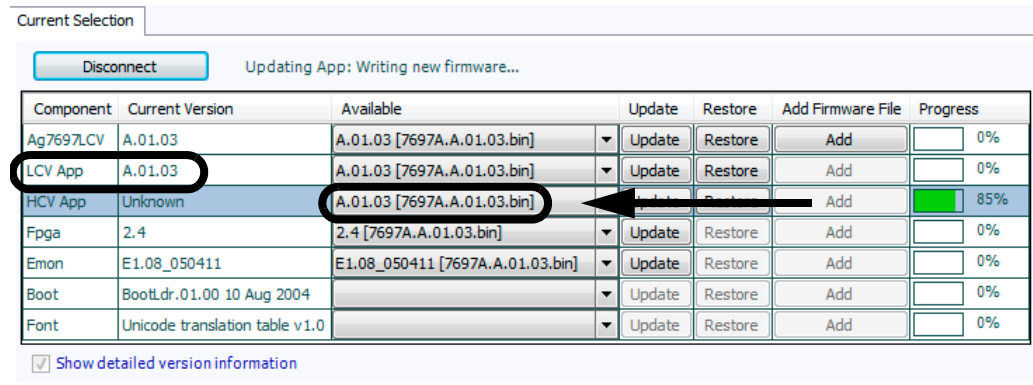
Disconnect Updating App: Writing new firmware...

Component	Current Version	Available	Update	Restore	Add Firmware File	Progress
Ag7697LCV	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
LCV App	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
HCV App	Unknown	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	85%
Fpga	2.4	2.4 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Emon	E1.08_050411	E1.08_050411 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Boot	BootLdr.01.00 10 Aug 2004		Update	Restore	Add	0%
Font	Unicode translation table v1.0		Update	Restore	Add	0%

☒ Show detailed version information

Figure 31 Showing detailed version information in the Firmware Update utility

- 7 In the **HCV App** row, select the same firmware revision as is installed for the **LCV App** (Figure 32).



Current Selection

Disconnect Updating App: Writing new firmware...

Component	Current Version	Available	Update	Restore	Add Firmware File	Progress
Ag7697LCV	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
LCV App	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
HCV App	Unknown	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	85%
Fpga	2.4	2.4 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Emon	E1.08_050411	E1.08_050411 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Boot	BootLdr.01.00 10 Aug 2004		Update	Restore	Add	0%
Font	Unicode translation table v1.0		Update	Restore	Add	0%

☒ Show detailed version information

Figure 32 Select the same firmware version for HCV App as is installed for LCV App



- 8 Click **Update** in the **HCV App** row to update the firmware to the HCV version (Figure 33).

Current Selection

Disconnect Updating App: Writing new firmware...

Component	Current Version	Available	Update	Restore	Add Firmware File	Progress
Ag7697LCV	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
LCV App	A.01.03	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	0%
HCV App	Unknown	A.01.03 [7697A.A.01.03.bin]	Update	Restore	Add	85%
Fpga	2.4	2.4 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Emon	E1.08_050411	E1.08_050411 [7697A.A.01.03.bin]	Update	Restore	Add	0%
Boot	BootLdr.01.00 10 Aug 2004		Update	Restore	Add	0%
Font	Unicode translation table v1.0		Update	Restore	Add	0%

☒ Show detailed version information

Figure 33 Clicking Update for the HCV App

- 9 When complete, power cycle the 7697A Headspace Sampler.

Warranty

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