Chip**CHECK**
ONLY BY GASTOPS

CC120 Maintenance and Service

CHIPS ANALYZER (B166500)

6.0 Maintenance & Service

The ChipCHECK unit is designed to require a minimum amount of maintenance. The sub-sections below provide the regular maintenance procedures required for the ChipCHECK unit. In the event of any equipment failure, Users are strictly forbidden to perform any kind of service. Service activities are restricted to Gastops authorized technicians who have the appropriate laser safety training.

6.1   Allowable User Maintenance

The ChipCHECK system is contained within an enclosure that acts as protective shielding preventing all laser radiation above Class 1 to the Operator. This section reviews the recommended, although infrequent, maintenance that will ensure the longevity and performance of the unit.

It is important to note that this section covers only recommended maintenance and there is absolutely NO SERVICE ALLOWED by the User where "service" is defined as any action requiring the removal or opening of an enclosure panel. In the event that the unit requires service, then it shall only be serviced or repaired by Gastops authorized technicians.

For the maintenance procedures discussed herein, there is no need to remove any covers or modify the unit. The User is strictly forbidden from modifying the unit, removing any covers, or to alter, interfere, modify, remove, circumvent, defeat or de-active any safety system or interlocks (refer to Section 2.2.2).

Both the Standardization and Calibration Patches are consumable and will require replacement every year. When the Standardization patch is replaced, it is recommended that the Containment Window (refer to Figure 6-1) either be cleaned or replaced. This is due to the slow accumulation of Laser Generated Air Contaminants (LGACs) that may occur after an extensive number of analyses. Over time, if these containments become excessive, the overall performance of the unit may be affected.

Figure 6-1 shows all of the components that are accessible during the maintenance of the unit.

Finally, if the fuse blows, then the User is permitted to replace the fuse with the proper part.   To ensure the integrity of the unit, it is recommended that this fuse be sourced directly from Gastops.

Note that, to ensure optimum performance and longevity of the equipment the Gastops in-service support package must be maintained throughout the life of the equipment.

Figure 6-1: Containment Window Location

6.1.1 Replacement of the Containment Window

If the Containment Window is to be completely replaced, then the following procedure must be followed. Note that gloves are required to complete this procedure and the User must refer to Figures 6-1, 6-2 and 6-3 to supplement the procedure below.

- In the software interface, navigate to the 'Welcome' screen and enter the assigned 'Maintainer' pass code (refer to Section 5.1, the Maintainer pass code is provided during training).

- Once in 'Maintenance' mode, press the 'Conduct Maintenance' button near the middle of the screen.

- The Sample Receptacle will automatically displace further outside of the unit providing the required access to the Containment Window Assembly.

- Remove the Sample Tray, and set it aside.

- Remove the Containment Window from its housing by carefully lifting the metallic cover located on top of the Sample Receptacle. This cover is held in place by magnets. As a result, a vertical lift shall remove the lid from the assembly. Be sure to not apply much force to the Receptacle assembly.

- During this process ensure to not touch the surface of the Containment Window with bare fingers. Gloves are required.

- Take the replacement Containment Window and place it onto the Sample Receptacle ensuring that the Containment Window is properly seated on the centering features of the Receptacle.

- Carefully place the metallic cover back over the seated Containment Window – ensure that the cover is fully seated (note that the Containment Window metallic cover can only be assembled in one orientation).

- Lastly, return to the software interface and press the 'Maintenance Complete' button.

- The full Sample Receptacle will automatically re-insert itself back into the ejection position.

- Replace the Sample Tray, and return to the 'Welcome' screen for normal operation.

Figure 6-2: Maintenance – Holder Receptacle Position (Left) Containment Window Assembly (Right)

6.1.2 Cleaning the Containment Window

If the Containment Window is to be cleaned (not replaced), then the following procedure must be followed. Note that gloves are required to complete this procedure and the User must refer to Figures 6-1, 6-2 and 6-3 to supplement the procedure below.

- In the software interface, navigate to the 'Welcome' screen and enter the assigned 'Maintainer' pass code (refer to Section 5.1, the Maintainer pass code is provided during training).

- Once in 'Maintenance' mode, press the 'Conduct Maintenance' button near the middle of the screen.

- The Sample Receptacle will automatically displace further outside of the unit providing the required access to the Containment Window Assembly.

- Remove the Sample Tray, and set it aside.

- Remove the Containment Window from its housing by carefully lifting the metallic cover located on top of the Sample Receptacle. This cover is held in place by magnets. As a result, a vertical lift shall remove the lid from the assembly. Be sure to not apply much force to the Receptacle assembly.

- Place the Containment Window on a non-abrasive, lint free cloth/paper, with its bottom face pointing upwards (i.e.: the face of the Containment Window that is exposed to the contaminants placed in a manner that will allow for it to be cleaned).

- During this process ensure to not touch the surface of the Containment Window with bare fingers. Gloves are required.

- Place one or two drops of Isopropyl Alcohol on the exposed face of the Containment Window.

- Gently place the non-abrasive, lint free cloth/paper onto the Isopropyl Alcohol and allow for a few seconds for the Isopropyl to propagate through the cloth.

- Carefully and slowly drag the Isopropyl soaked cloth over the surface of the Containment Window (pulling parallel to the exposed surface of the Containment Window ensuring no pressure is applied to the window itself).

- Repeat these steps as required.

- Once the Containment Window is clean, place it back onto the Sample Receptacle ensuring that the Containment Window is properly seated on the centering features of the Receptacle.

- During this process ensure to not touch the surface of the Containment Window with bare fingers. Gloves are required.

- Carefully place the metallic cover back over the seated Containment Window – ensure that the cover is fully seated against the (note that the Containment Window metallic cover can only be assembled in one orientation).

- Lastly, return to the software interface and press the 'Maintenance Complete' button.

- The full Sample Receptacle will automatically re-insert itself back into the ejection position.

- Replace the Sample Tray, and return to the 'Welcome' screen for normal operation.

6.1.3 Replacing the Fuse

In the event that a fuse requires replacement, then the following procedure must be followed.

WARNING: Disconnect supply before servicing (note that service/servicing can only be completed by Gastops authorized technicians).

Disconnect supply before replacing fuse.

- Power down the ChipCHECK unit by pressing the Power Button on the front of the unit (Refer to Figure 3-3).

- Switch the Main Power Switch on the Power Entry Module to the off position (Refer to Figure 3-3).

- Disconnect the ChipCHECK unit's power cord from the ChipCHECK unit.

- Remove the Fuse Holder and extract the Fuse (see Figure 6-3).

- Insert the new Fuse and then reinsert the Fuse Holder into the Power Entry Module.

- Follow the set up instructions as described in Section 3.3.

Figure 6-3: Power Entry Module and Main Power Switch

6.2   Unit Service (No Allowable Service)

In the event of any equipment failure or component replacement, Users are strictly forbidden to perform any kind of service. There is absolutely NO SERVICE ALLOWED by the User.

Service activities are restricted to only Gastops authorized technicians who have the appropriate laser safety training. There are no User serviceable parts. This unit is to be serviced or repaired only by Gastops authorized technicians.

During servicing all precautions must be taken to avoid possible exposure to laser and collateral radiation above Class 1. This is a Class 1 laser product that contains a Class 4 laser. Removal of any

panels may allow for exposure to Class 4 laser radiation. Such panels include the unit's side panels, back panel, and main aluminum wrap. Tamper proof fasteners have been used for your protection. Only Gastops authorized technicians may remove these fasteners. Users are strictly forbidden from removing any fastener external to the unit.

6.3   Basic Trouble-Shooting

If you run into any problems with the operation of ChipCHECK, use the trouble-shooting procedures below in Table 6-1. Should any problem persist, contact your designated customer support representative (Refer to Section 8.0).

Table 6-1: Basic Trouble-Shooting Procedures

Symptom	Possible Remedy
Software interface does not respond to user input	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
Error occurs in software that ceases use of unit	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
The unit will not power up	• Ensure the unit is plugged into an appropriate 100-240 VAC socket and conduct the typical power up sequence according to Section 3.3. • Check and replace the fuse, if necessary (See Section 6.1.3). • If that does not work, then contact Gastops Customer Support (See Section 8.0).

Symptom	Possible Remedy
Software interface does not respond to user input	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
The unit lost connection to one or more of its internal devices	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
The unit fails Standardization	• Power cycle the unit. • Repeat Standardization. • If Standardization fails three times in a row, conduct Calibration (See Section 5.4).
The unit fails both Standardization and Calibration	• Power cycle the unit. • Perform the maintenance sequences defined in Section 6.0. • Repeat Calibration and the complete Standardization. • If the unit still fails Calibration, then contact Gastops Customer Support (See Section 8.0).
Chip Analysis – "No Particles Found" result after analysis	• Verify that the correct Sample Patch was inserted into the unit for analysis. • Ensure that the sample under analysis contains particles larger than 80µm x 80µm. • Rerun the analysis. • If the issue persists, then contact Gastops Customer Support (See Section 8.0).
Chip Analysis – "Analysis Failed" result after analysis	• Power cycle the unit. • Rerun the analysis. • If the issue persists, then contact Gastops Customer Support (See Section 8.0).
Chip Analysis – "Particles Unclassified" result after analysis	• Clean the particles on the patch using a drop or two (only) of Isopropyl Alcohol then rerun the analysis. • If the results are unclassified again, then the particle alloys are not in the material library.

Symptom	Possible Remedy
Software interface does not respond to user input	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
"Door Interlock fault condition exists. Servicing is required. Please call customer support"	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
"Sequence contains no matching element" "Object reference not set to instance of an object" "Out of memory" "A generic error occurred in GDI+"	• Conduct a complete unit shutdown and power down. Then power up and restart the unit as per Section 3.3. • If this does not work, then contact Gastops Customer Support (See Section 8.0).
Unexpected unit shut down	• Restart the system. • If unit continues to shut down unexpectedly, then contact Gastops Customer Support (see Section 8.0).

7.0 Transport/Shipping and Storage

7.1 Transport/Shipping

The ChipCHECK unit comes packaged in MIL-STD-810 compliant case for field deployability (see Figure 7-1). Within the transport case, a removable foam insert protects the front face of the ChipCHECK unit. When unboxing the unit, this insert must be removed before the ChipCHECK can be removed from the transport case. To remove the unit from its transport case, simply open the case lid, lift out the foam insert, and then lift the unit out of the box (see Figure 7-2).

NOTE: Slots for storing accessories can be found in the foam insert, and in the foam lining of the case underneath the foam insert see Figure 7-3 and 7-4.

Figure 7-1: ChipCHECK Transport Case

Figure 7-2: ChipCHECK Transport Case Interior

The unit itself weighs approximately 40 lbs (18 kg). The Transport Case that was provided with the instrument must be used any time the instrument is moved positions or locations. Where possible, two people shall transport the unit and the instrument shall be kept in its vertical orientation at all times. The following procedure must be followed when transporting the instrument:

1. Complete an instrument shutdown in accordance with Section 4.7.

2. Unplug the AC power cable from both the unit and the wall power socket.

3. Open the provided Transport Case by undoing all latches and removing the top cover.

4. Remove the instrument's accessory foam insert from the Transport Case.

5. Carefully lift the instrument and place it into the Transport Case, within its dedicated custom foam cut out. Note that there is only one proper orientation for the unit to be placed, otherwise the Transport Case will not close properly.

6. Replace the instrument's accessory foam insert, and place all of the instrument's accessories and power cable into their respective custom foam cut outs.

7. Replace the Transport Case cover and re-fasten all latches.

8. Lock or fasten each latch (where possible).

9. Where possible, two people shall move the unit (in its transport case) to its new location. The Transport Case is also equipped with a retractable handle and wheels for single person transport.

NOTE: Relocation within the same room is acceptable to be completed without using the transport case; however, the transport case must be used otherwise. Prior to shipment/relocation, ensure that the lid is fully and firmly attached to the   main body of the case with all latches fastened or locked. All parts, components and accessories required to operate the unit are must be included in the transport case.

NOTE: The Sample Tray must be removed from the unit and placed in its proper location within the foam insert prior to transport.
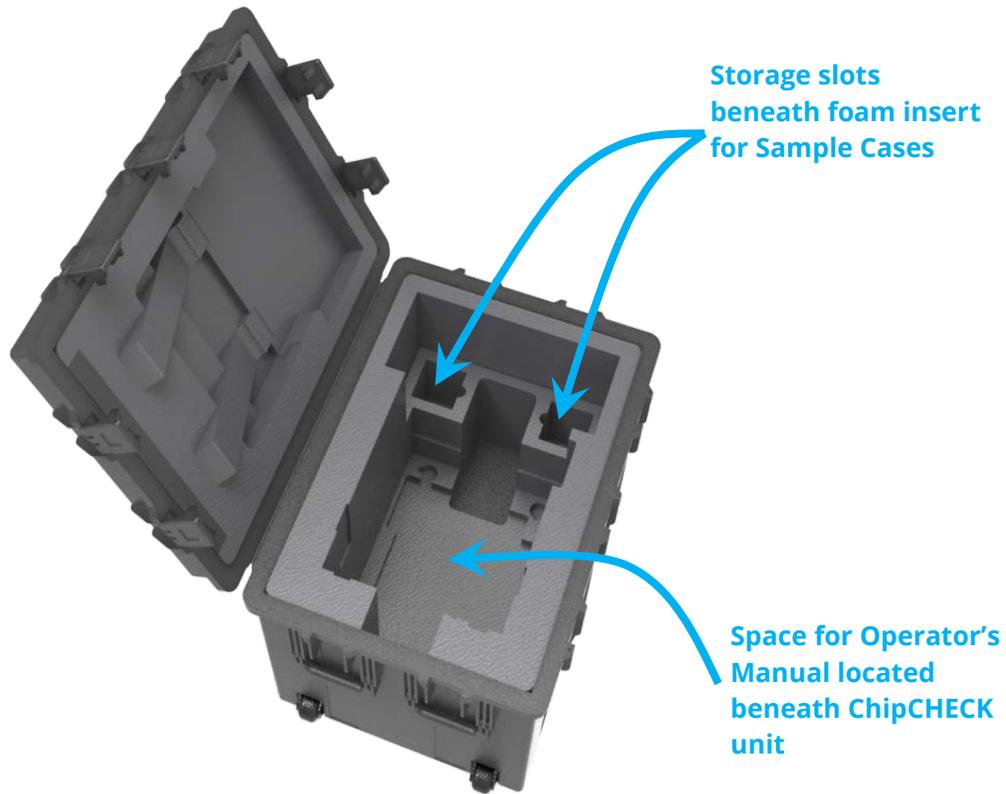
Storage slots beneath foam insert for Sample Cases

Space for Operator's Manual located beneath ChipCHECK unit

Figure 7-3: Transport Case Storage Locations (Foam insert removed)

External Keyboard (optional)

Sample Preparation Tools (optional)

Wash Bottle (optional)

External USB Hub (optional)

Calibration & Standardization Patches

Sample Tray

External Mouse (optional)

Tweezers (optional)

Sample Patches, Ethernet Adapter
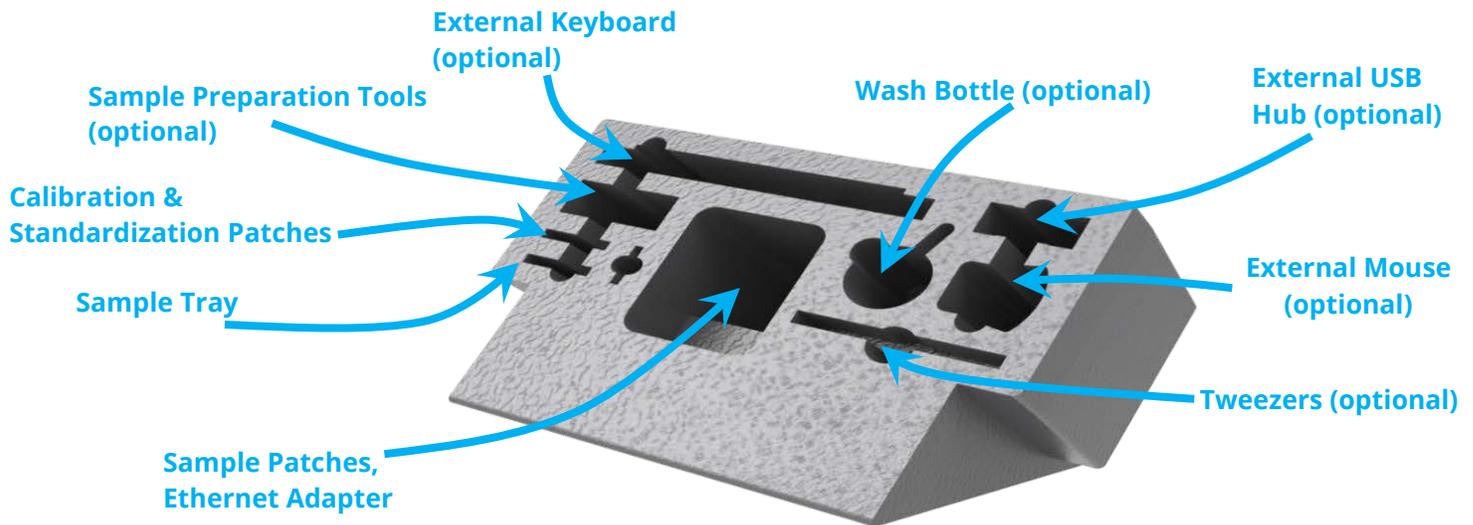
Figure 7-4: Foam Insert Storage Locations

Included in the Transport Case:

Quantity	Description
1x	ChipCHECK Unit
1x	Unit Power Cable
1x	Sample Tray (Chip)
200x	Sample Patches
1x	Standardization Standard
1x	Calibration Standard
20X	Sample Patch Cases
1x	USB Ethernet Adapter

Additional optional accessories may include the following:

- External keyboard

- External mouse

- External USB hub

- Sample preparation tools (tweezers, probe set, wash bottle)

7.2   Storage

When storing the unit temporarily, take note of the environmental limitations defined at the beginning of the manual and all shipping procedures must be followed (Refer to Section 7.1).

8.0 Customer Support

Gastops technical support representatives for ChipCHECK can be reached at:

Phone: 1-613-744-3530

Fax: 1-613-744-8846

Toll Free: 1-800-363-8658

Email: support@gastops.com

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