OCS – ORDNANCE CLEANING SYSTEM
Caliber 155 Complete Kit

OCS-KIT-155

USE AND MAINTENANCE MANUAL

Ordnance Cleaning Systems, LLC
10950 Wellness Way
Concord Twp, OH 44077
Tel: (440) 205-0677
Fax: (440) 205-0678
ocs@ordclean.com
www.ordclean.com

Table of Contents

1. INTRODUCTION

The following manual is a document that accompanies this system throughout its lifetime. It is, therefore, an integral part of the system. Carefully read the following instructions and procedures before engaging in any activity with this system. The following maintenance and instruction manual is an integral part of the system and must always be available to the personnel in charge of using and maintaining it. The operator and the personnel in charge of handling this system must have knowledge of the contents of the manual.

1.1. Basic description of the system

The machine described in this manual is an Ordnance Cleaning System - OCS which can be used for cleaning, oiling and foaming of bore and chamber, of a 155mm weapon system.

SYSTEM WARNINGS*

-Make sure proper personal protection equipment is used during operation with the machine.

-Never start the vibrations before the brush is in the bore. When the cylinder is vibrating in the bore just a loose grip for a few seconds with a hand is allowed. No other contact of the vibrating parts with the human body is allowed.

-Use recommended oils and materials to ensure system operates properly.

1.2 Technical Features

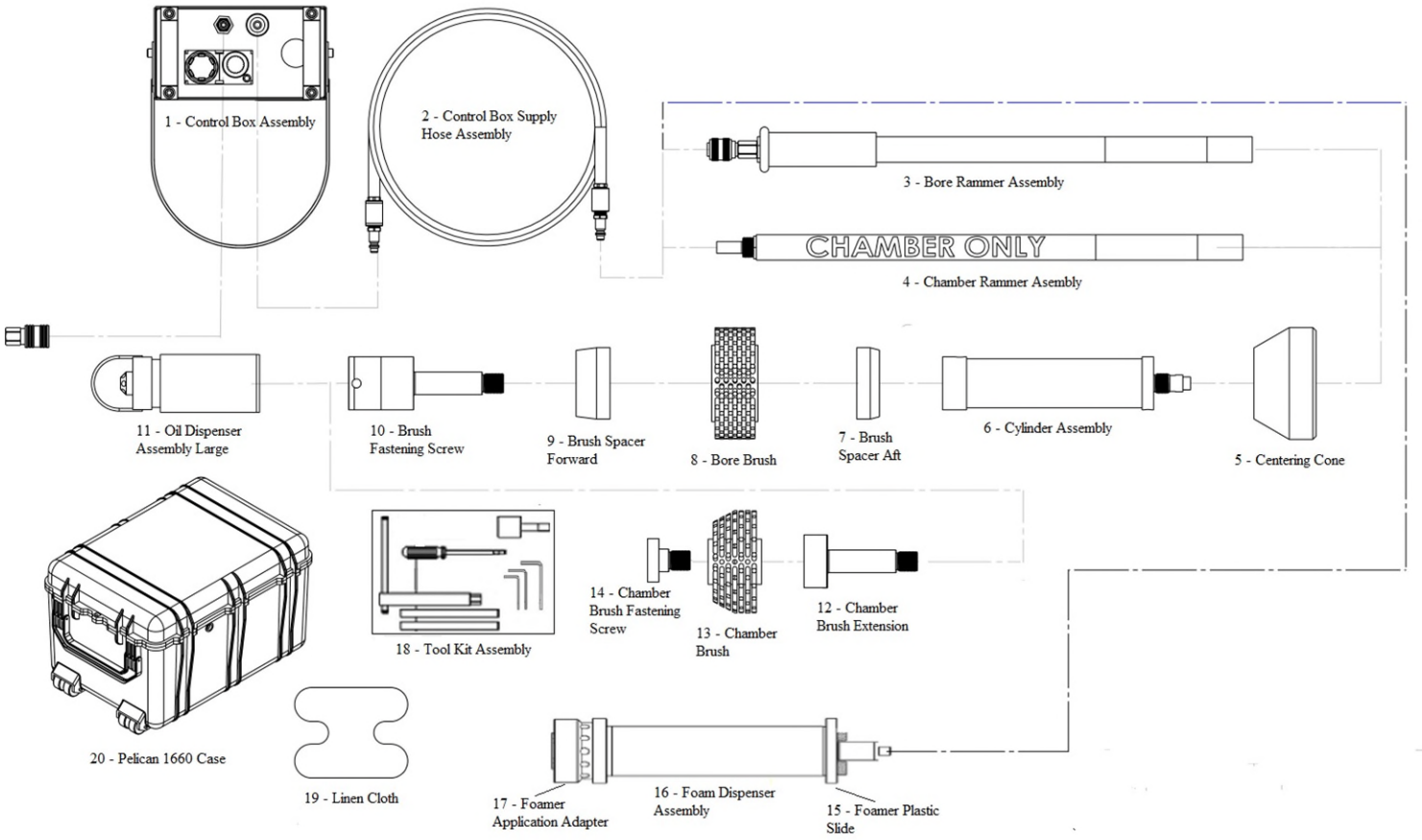
Weight	73 lbs
Max. Air supply pressure	145 psi
Air consumption	approximately 6-7 CFM at 90psi
Air inlet coupling	¼”
Vibrations	1500 – 2500 vibs/min (depends on air pressure & brush stiffness)

1.3 System Overview

The machine consists of 20 major components.

1. OCS-CBA-001 - Control Box Assembly
2. OCS-CBSH-001 - Control Box Supply Hose
3. OCS-BRA-076 - Bore Rammer Assembly
4. OCS-CRA-076 - Chamber Rammer Assembly
5. OCS-CCK-155 - Centering Cone
6. OCS-CYL-076-155 - Cylinder Assembly
7. OCS-BSA-001 – Brush Spacer Aft
8. OCS-BBRA-155 (Bore Brush Abrasive); OCS-BBRN-155 (Bore Brush Nylon); OCS-BBRS-155 (Bore Brush Stainless Steel)
9. OCS-BSF-001 – Brush Spacer Forward
10. OCS-BFS-001 – Brush Fastening Screw
11. OCS-OIL-076 – Oil Dispenser Assembly Large
12. OCS-CBE-001 – Chamber Brush Extension
13. OCS-CBRA-155 (Chamber Brush Abrasive); OCS-CBRN-155 (Chamber Brush Nylon); OCS-CBRS-155 (Chamber Brush Stainless Steel)
14. OCS-CBFS-001 – Chamber Brush Fastening Screw
15. OCS-FPS-155 – 155mm Foamer Plastic Slide
16. OCS-FDA-076-155 – Foam Dispenser Assembly
17. OCS-FAA-155 – 155mm Foamer Application Adapter
18. OCS-TKA-002 – Tool Kit Assembly
19. OCS-LIN-155 – Linen Cloth x 25
20. OCS-CAS-002 - Pelican 1660 Case

OCS-KIT-155 155MM COMPLETE KIT



2. OPERATION

If not stated otherwise the following instructions refer to parts or subassemblies described above.
Proper assembly and disassembly contributes to system effectiveness and longevity of the system as well as unit readiness. This section discusses exactly how the system should be removed, used, and repacked.

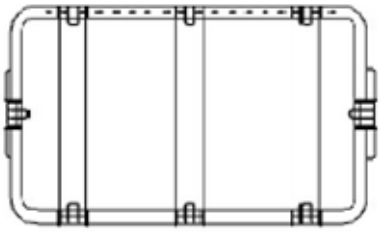
WARNING
Make sure proper personal protection equipment is used during operation with the machine.

-Never start the vibrations before the brush is in the bore. When the cylinder is vibrating in the bore just a loose grip for a few seconds with a hand is allowed. No other contact of the vibrating parts with human body is allowed.

-Use recommended oils and materials to insure system operates properly.

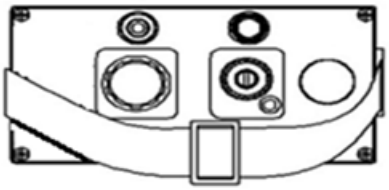
2.1 Assembly

a. Open the Pelican 1660 Case.

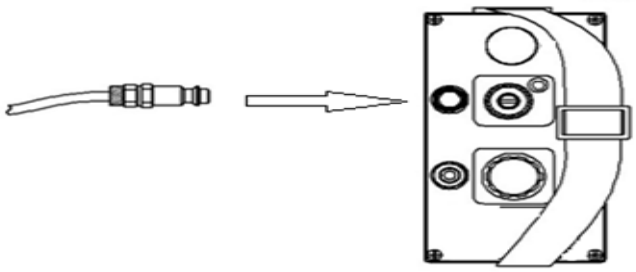


Pelican 1660

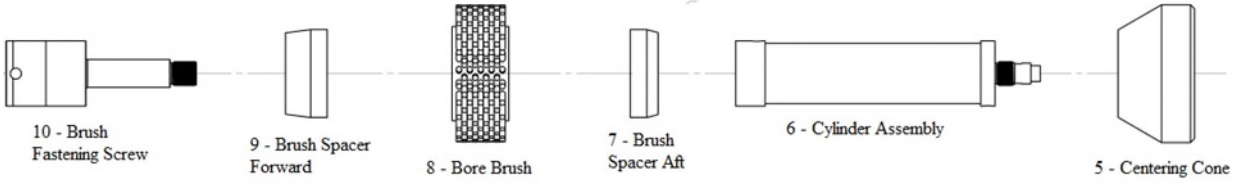
b. Remove the CBA from the case first and set it next to the weapon or hang it over the barrel of the weapon. (Barrel of weapon should be parallel to the ground +/- 5 degrees). Make sure the control box is not turned on. ON/OFF knob should be in DOWN position.



c. Remove the Control Box Supply Hose from the case. Connect the male quick disconnect hose end to the female quick disconnect coupler on the CBA. Place remaining hose on the ground.

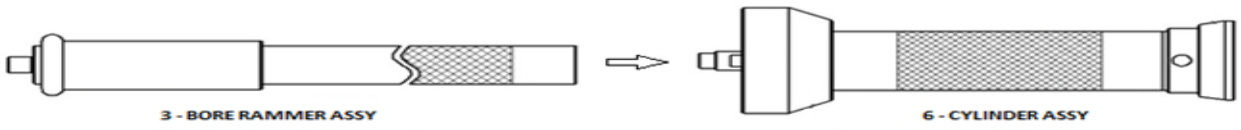


d. Remove the Cylinder Assembly from the case and apply the **Stainless Steel Bore Brush** (This will already be done but this is also how you change brushes). First unscrew the Brush Fastening Screw. Then apply the Brush Spacer Aft followed by the Bore Brush followed by the Brush Spacer Forward and finally screw back on the Brush Fastening Screw.

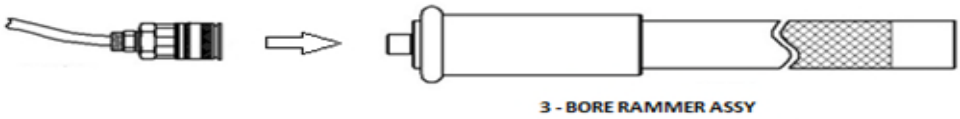


e. Remove the Bore Rammer Assembly from the case and attach it to the end of the Cylinder Assembly.

NOTE: this should be done in the upright position so to not damage the threads when attaching the pieces together.



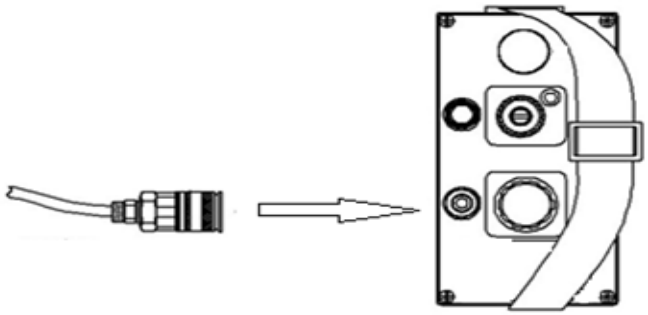
f. Attach the other end of the Control Box Supply Hose to the end of the Bore Rammer Assembly.



g. Make sure all parts are tightly fastened to each other.

h. Finally you will attach your air supply to the male quick disconnect on the control box.

NOTE: We recommend a Speedaire 3.0 HP, 230VAC, 20 Gal. Portable Electric Barrel Air Compressor



2.2 Operating the System

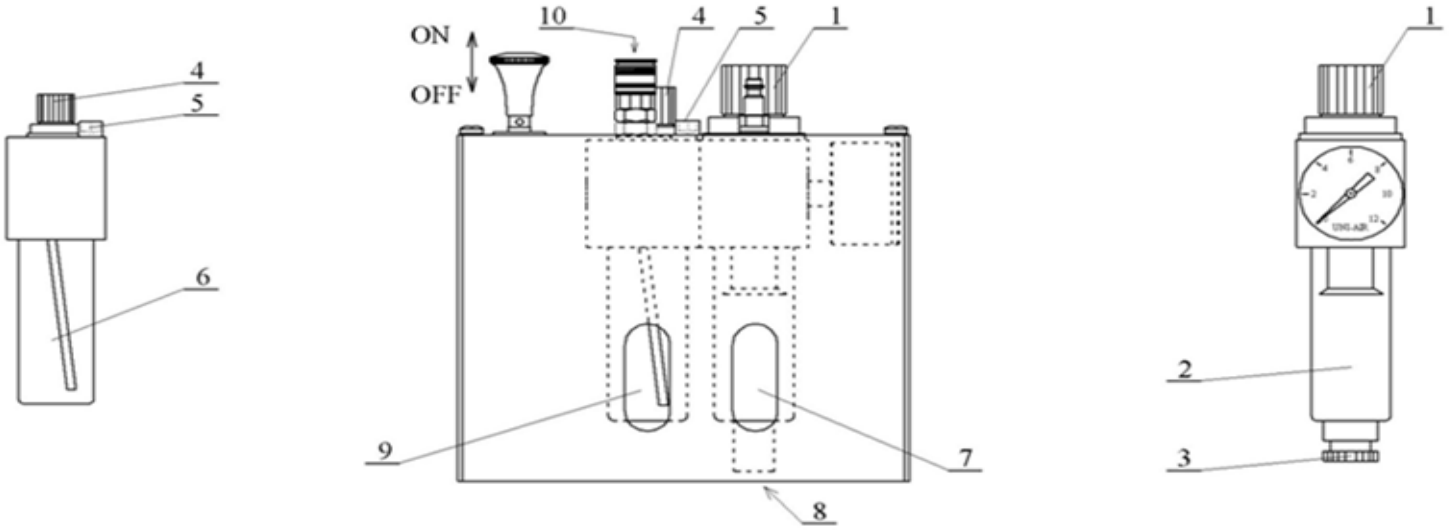


Fig. 1

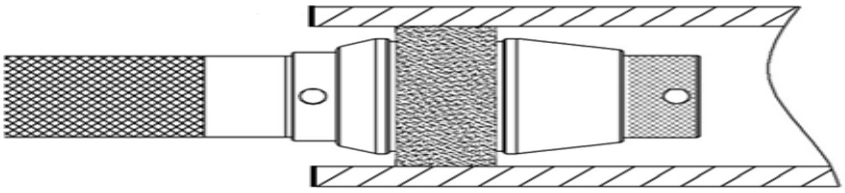
NOTE: Control box should always be in vertical position.

a. Check that the air pressure is between 100-120psi for optimum brush performance (Fig. 1-2). Adjust the knob at the top of regulator to add or release air pressure (Fig. 1-1). Always check the condensed water level in the dehumidifier cup (Fig. 1-7). No liquid should be present. Unscrew the knob at bottom to empty if necessary (Fig. 1-3). To do this, you will have to unscrew the 4 screws at the top of the box and open the Control Box Up.

b. Check that the oil levels are between the minimum and the maximum level lines on the glass (Fig. 1-9) of the oil regulator (Fig. 1-6). If oil is low, unscrew cap at top (Fig. 1-5) and put in more oil. There is a funnel in the tool kit to assist with this as well as a hex key to untighten the cap (hex key 6).

NOTE: We recommend F442 OIL. The amount of air lubrication oil that is atomized into the air is regulated with the knob on top (Fig. 1-4). Rotating the knob clockwise lowers the amount of lubrication oil and rotating counter-clockwise increases. Recommended amount of oil is 1¾ turns from totally closed. When the CBA is turned on and air is blowing through the CBSH, a drop of oil should be noticed in the chamber of the FRL every 8 to 10 seconds.

c. After Control box has been checked. Pick up the Cylinder Assembly and insert it into the muzzle end of the barrel so that the brush is fully inserted.



d. Pull the knob on the control box upwards to turn system on (Fig 1).
NOTE: Do not turn on system before brush is inserted into bore. When the cylinder is vibrating in the bore just a loose grip for a few seconds with a hand is allowed. Prolonged contact with your person may result in injury.

e. Let the system run down the barrel of the weapon system, guiding the hose as it moves automatically.

f. Once it reaches the chamber, you will feel the system stop. Pull quickly on the hose and maintain pressure until it reverses the direction of the system. Again, just guide the hose out as it automatically comes back towards you.

g. Push down on the ON/OFF knob when the brush returns to the end of the barrel to turn the system off.

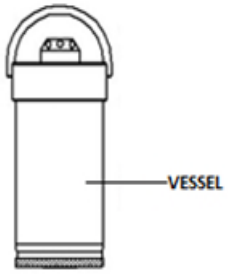
h. Repeat procedure **2-2 [c. - g.]** as many times as needed to clean the majority of the debris out of the barrel.

2.3 Oiling the Barrel

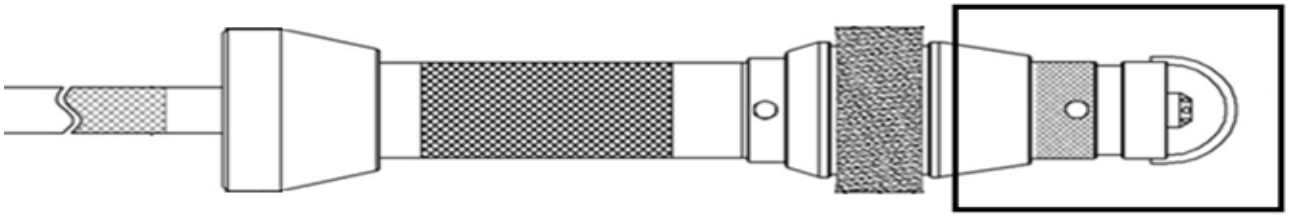
NOTE: You will want to change to the **Abrasive Nylon Brush** (gray bristles) for this procedure. To do this, Remove the Brush Fastening Screw and follow the procedures used in **2-1[d.]**. Replace the stainless brush with the abrasive brush and retighten the brush fastening screw. Oil dispenser is designed only to spray oils. Pouring other liquids into the dispenser could damage the dispenser.

a. Once you have applied the Abrasive Nylon Brush you will then add the oiler to the cylinder assembly.

b. Remove the Oiler from the Pelican Case. It will be kept in a vessel for safe keeping and to prevent oil leakage after use. You will have to unscrew it from the vessel.



c. Screw the Oiler into the end of the Brush Fastening Screw at the end of the cylinder assembly.



d. Follow the same steps in **2-2 [c. - g.]** with the oiler attached to perform the oiling of the barrel. Oiler sprays the bore surface with oil while the assembly is vibrating through the bore.

e. Repeat as many times as desired. A couple passes should be sufficient enough but it does depend on how dirty the barrel was.

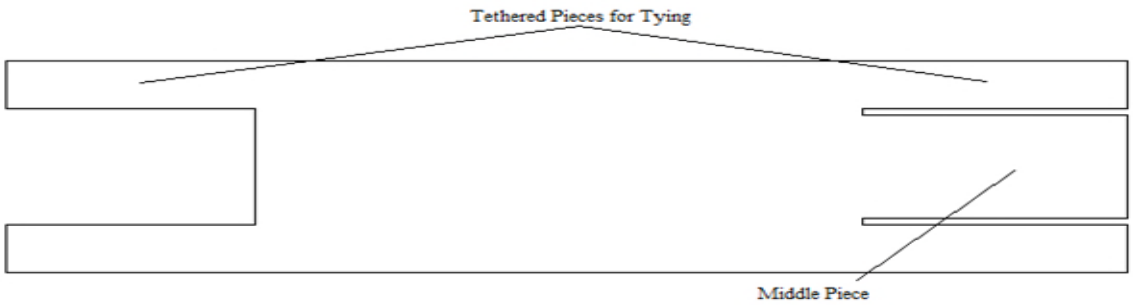
f. Once finished, remove the oiler and place it back in the vessel to be put back in the case.

2.4 Finish Cleaning With the Sleeve

NOTE: You will want to change to the **Nylon Brush** (black bristles) for this procedure. To do this, Remove the Brush Fastening Screw and follow the procedures used in **2-1[d.]**. Replace the abrasive nylon brush with the nylon brush and retighten the brush fastening screw.

a. The sleeve is mounted on the brush. Wrap the middle piece around the bore brush starting with the tethered end so that it gets covered up once the remaining cloth comes back around.

b. Use the smaller tethered pieces at the top and bottom of the linen to create a knot to hold the sleeve onto the bore brush.



c. There are no special requirements about the sleeves that should be used for barrel cleaning, but the optimum performance is guaranteed only with the original sleeves. Other sleeves might damage the design of the brush ring. The sleeve must be mounted on the brush ring firmly. The sleeve must not be too large. This might jeopardize good movement of the assembly through the bore.

d. Complete assembly is now ready to be placed inside the bore. Repeat steps in **2.2 [c. - g.]** to perform the cleaning again. The sleeve wipes the bore surface while the assembly is vibrating through the bore.

e. Repeat as many times as needed.

2.5 Disassembly

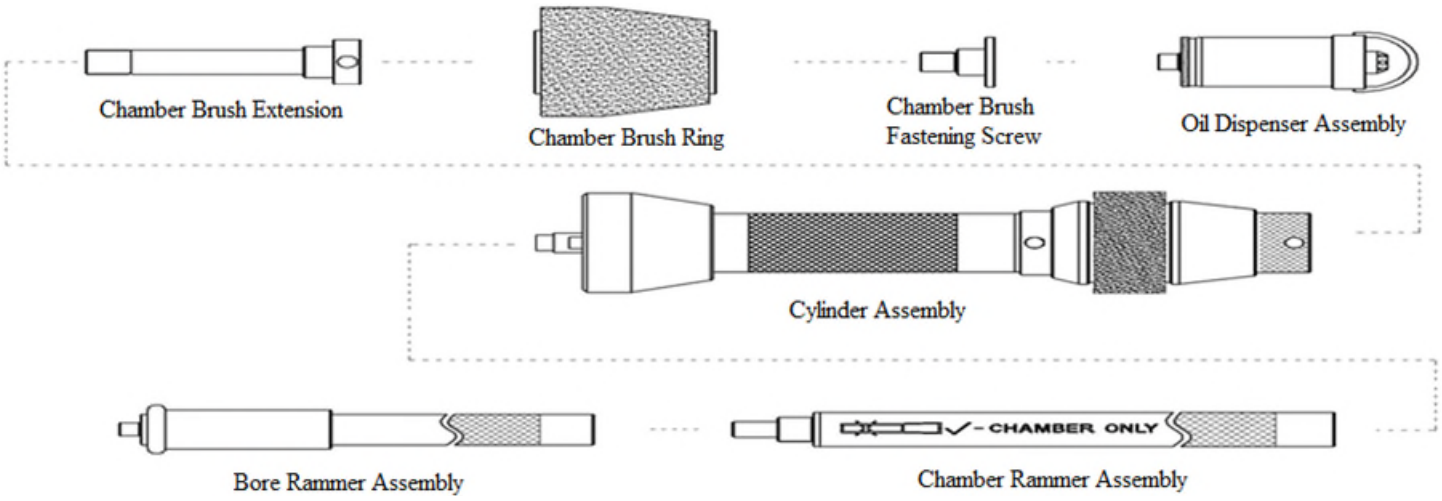
To disassemble you will follow the instructions in **2.1** in reverse order.

a. Disconnect the air supply hose from the Control Box.
b. Disconnect the control box supply hose from the end of the bore rammer attached to the cylinder.
c. Wrap up the hose to put it back in the case.
d. Remove the Bore Rammer from the Cylinder Assembly (In a vertical position) and place it back in the case.
e. The Cylinder Assembly with brush attached will fit into the box so you can leave that assembled but if you are taking it apart first you unscrew the brush fastening screw and take off the brush and the brush spacers and place them into the box and then reattach the brush fastening screw to the cylinder and place it back in the case.
f. Finally place the control box back in the case and close it up.

3. CHAMBER CLEANING

Complete disassembled chamber cleaning equipment, consisting of the following part numbers listed below is presented in the diagram.

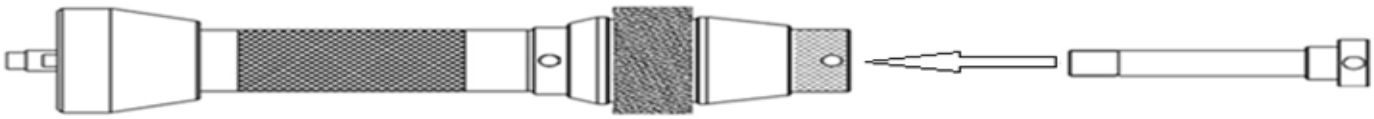
- OCS-CBE-001 – Chamber Brush Extension
- OCS-CBRA-155 (CBRN, CBRS) - Chamber Brush Ring (Abrasive, Nylon, Steel)
- OCS-CBFS-001 – Chamber Brush Fastening Screw
- OCS-OIL-076 – Oil Dispenser Assembly
- OCS-CYL-076-155 - Cylinder Assembly
- OCS-BRA-076 – Bore Rammer Assembly
- OCS-CRA-076 – Chamber Rammer Assembly



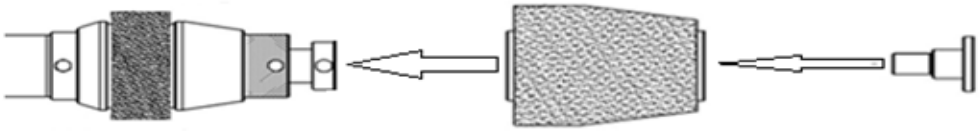
3.1 Assembly of the Chamber Brush

Once you have assembled the cleaning system as described in **2. OPERATION, step 2.1,** you will then follow these steps to assemble the Chamber Brush to the cleaning system.

a. Take the Cylinder Assembly and screw the Chamber Brush Extension into the top end as shown below.

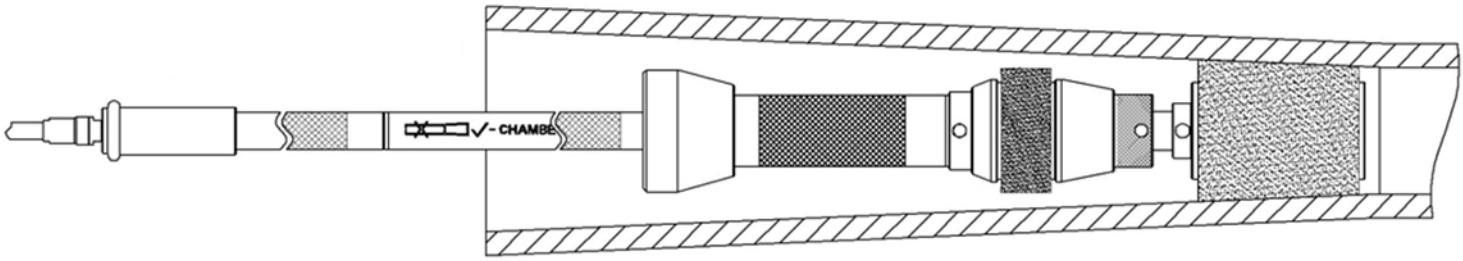


b. You will then place the Chamber Brush on top of the Chamber Brush Extension that you just applied and you will secure the Chamber Brush to the Chamber Brush Extension with the Chamber Brush Fastening Screw. Use the Hex Key 10 provided in the tool kit to fasten the screw on to the assembly.

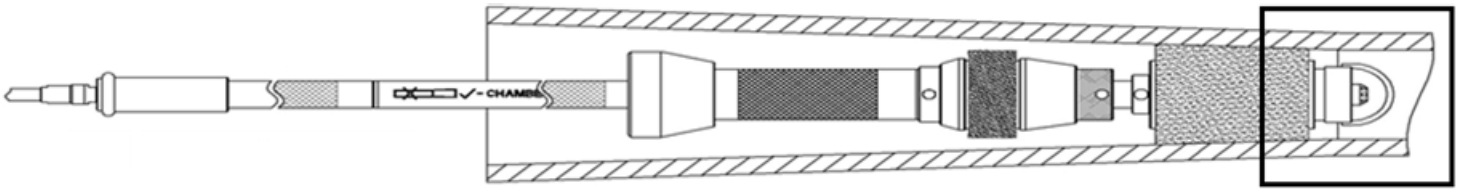


c. The System is now ready to clean the chamber. If the chamber is longer, you can attach the Chamber Rammer Assembly to help reach inside the chamber better.

Below is the Final Assembly with Chamber Brush Attached.

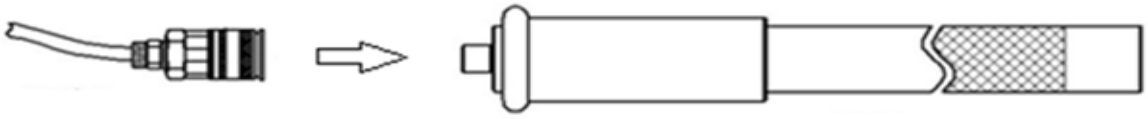


NOTE: The oiler will screw into the end of the system on the inside of the Chamber just as it was screwed into the Brush Fastening Screw described in step **2.3**. This allows you to use the system to oil the inside of the chamber just as you did the bore barrel.

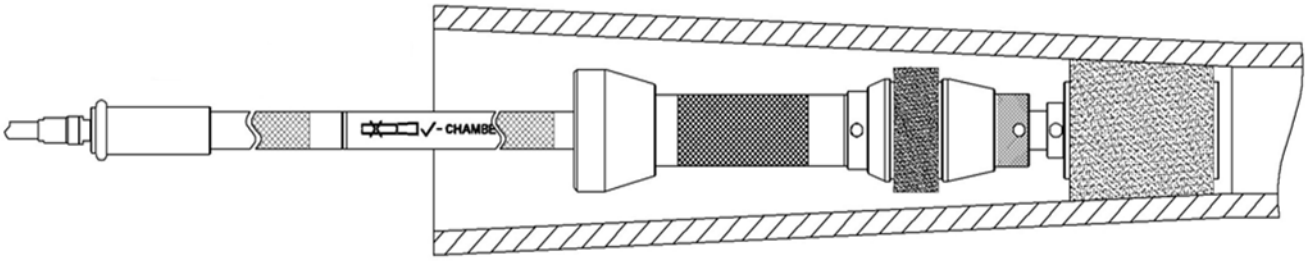


3.2 Chamber Brush Operation

a. Connect the air supply hose to the rammer as described in **Section 2.1 step f.**



b. Place complete assembly into the chamber as shown below and start vibrations.



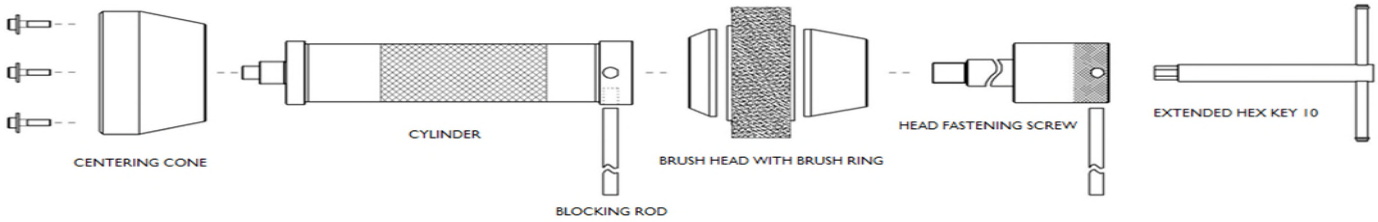
c. Slowly move the vibrating assembly inwards and outwards in the chamber in order to clean the chamber.

d. Follow the same steps as you took in **Section 2. Operation** to thoroughly clean the chamber. You will start with the stainless steel brush. Then move to the abrasive brush when applying the oiler. Finally apply the black nylon brush when using the cloth to finish cleaning and absorb the oil.

3.3 Disassembly of the Chamber Brush

Follow steps as described in **Section 3.1** but in reverse order

4. COMPLETE CYLINDER ASSEMBLY/DISASSEMBLY



- Centering cone replacement:

Centering cone is replaced using hex key 5 that is a part of the Tool kit. Centering cone is screwed on the Cylinder with 3 socket head screws.

- Brush ring replacement:

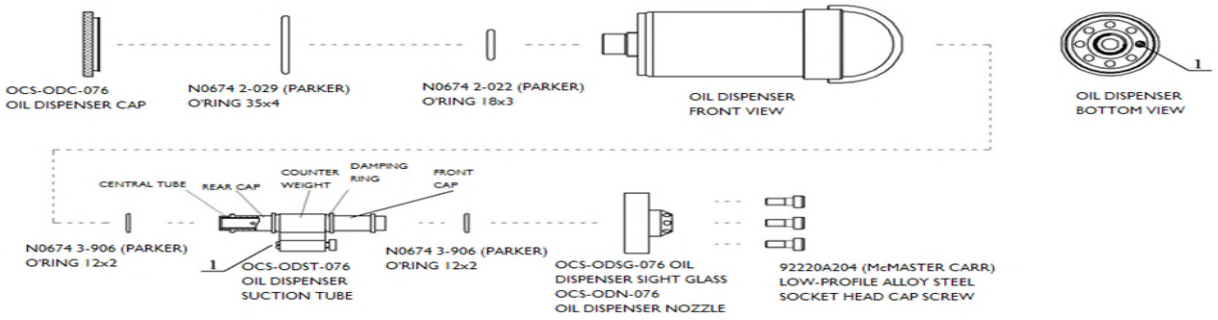
Brush ring is replaced using the extended hex key 10 and the Blocking rod that are parts of the Tool kit. Brush head is screwed on the Cylinder with the Head fastening screw that is placed in the center of the Brush head and tightened on the Cylinder using the extended hex key 10. Hex key 10 shape is found in the bottom of the cup of the head fastening screw.

5. COMPLETE OILER ASSEMBLY/DISASSEMBLY

- In case oil is not sprayed out of the Oil dispenser, the dispenser has to be disassembled. In the diagram below the Oil Dispenser Assembly is presented.

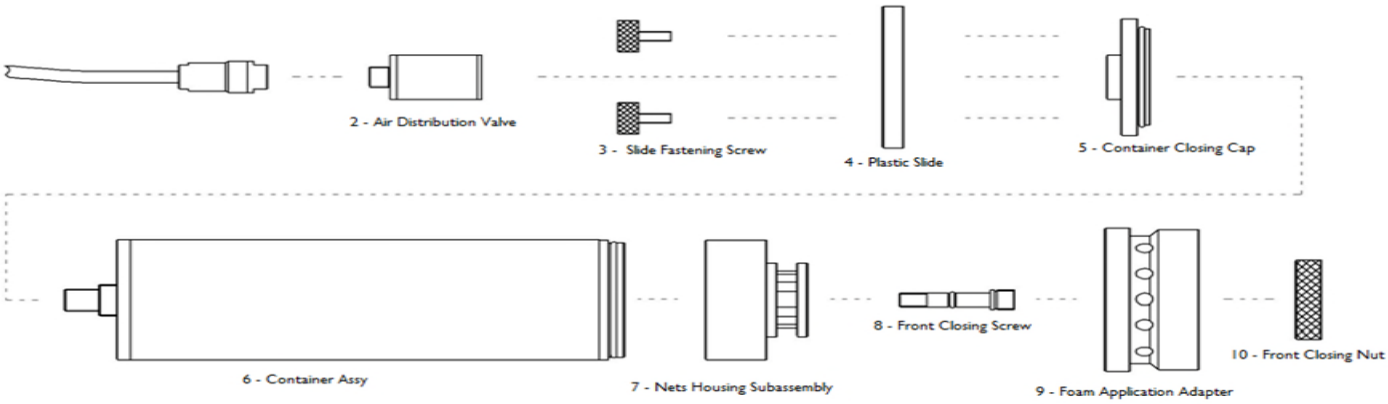
- Remove the Transparent container cover by unscrewing three socket head screws using hex key 5 that is a part of the Tool kit. Remove the Oil suction tube subassembly. Clean precisely all the parts of this subassembly with compressed air. Make sure that all air and oil paths are opened. The amount of oil that is sprayed out of the dispenser is controlled with the screw found on the Counter weight. Rotating the screw clockwise with a screwdriver reduces the amount of oil and rotating counter-clockwise increases the amount of oil. Make sure that the Oil suction tube subassembly is placed back into the container properly. Make sure that the Central tube is oriented properly.

Note:
Amount of the oil sprayed out of the dispenser could also be controlled in case the dispenser is assembled. After the Oil dispenser closing cap is unscrewed you can reach the adjustment screw with a small screwdriver through concentric holes at the bottom of the Oil dispenser.



6. FOAMING THE BARREL – DECOPPERING

WARNING
Make sure proper personal protection equipment is used during operation with the Foam Dispenser. Never use the dispenser without eye protection goggles.



The Foam Dispenser is a pneumatically driven device designed for foaming of internal surfaces of a bore.
6.1 Filling the Foam Dispenser

a. To fill the Foam Dispenser, you must first remove the Air Distribution Valve as seen above. This just simply screws off with no tools needed.

b. Then you will need to remove the Slide fastening screws next, again no tools should be needed. Once removed, the plastic slide will come right off.

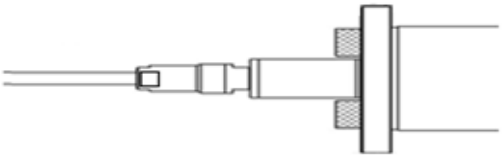
c. Now you can unscrew the Container Closing Cap. This will only be hand tightened on as well.

d. Fill the container with the decoppering liquid and screw the container closing cap back on. The system is now ready to be used.

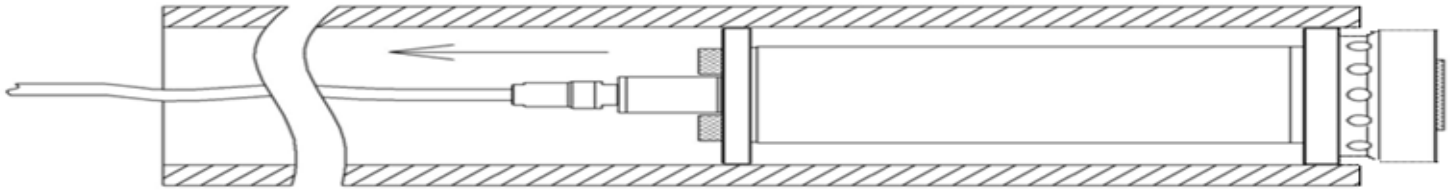
6.2 Operating the Foam Dispenser

a. The Foam Dispenser will come preassembled as shown below. Different size Plastic Slides and Foam Application Adapters can be switched out depending on the bore size that needs to be cleaned.

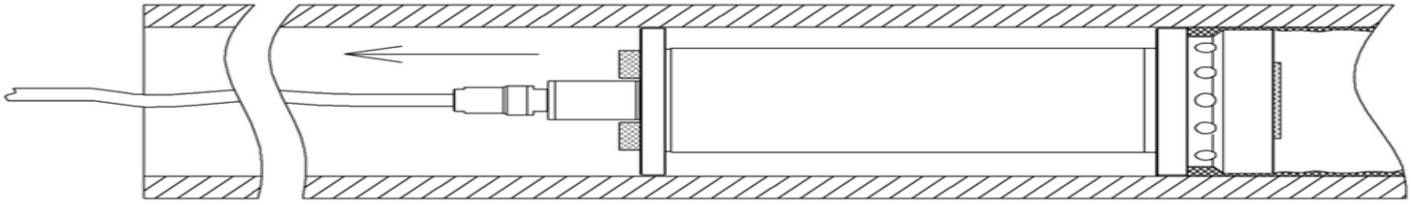
b. To begin operation of the Foam Dispenser you must first send one end of the Control Box Supply Hose (CBSH) through the barrel of the weapon system to the other side and then attach it to the Foam Dispenser. The other end of the Control Box Supply Hose should still be attached to the Control Box.



c. Once the CBSH is attached to the Foam Dispenser push the unit into the barrel of the weapon until it sits evenly as shown below.



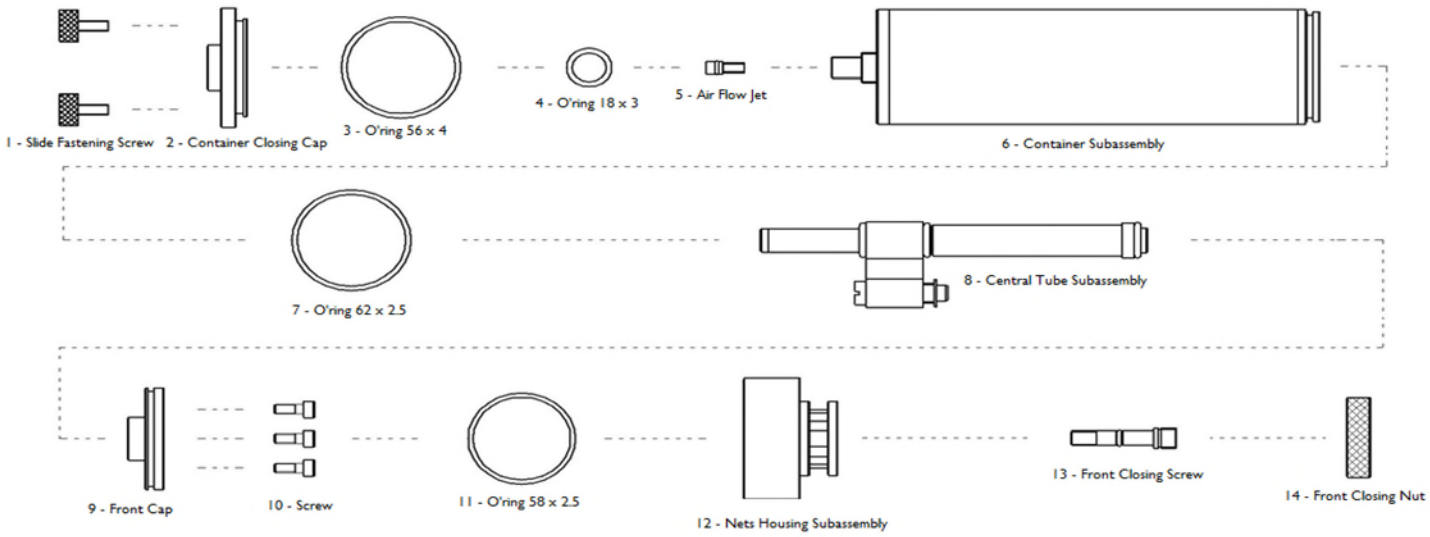
d. You are now ready to operate the system. To do this, you will go back to the control box and turn it on but first you want to check and make sure the **operating pressure is in range from 73 to 101 psi**. While it is on, you will slowly pull on the CBSH and bring the system through the barrel, towards yourself. It will disperse a layer of foam on the inside of the barrel like shown below.



NOTE: Thickness of foam layer on the bore walls depends on how fast you pull the assembly out of the bore. Slow movement of the dispenser through the bore means thicker foam layer and faster pull means thinner foam layer.

Once the switch is pushed to OFF position, foam generation is not stopped instantly. The reason for that is there is still going to be a small amount of pressure trapped in the container. In case you want to stop the foam generation immediately, you need to release this pressure from the container by loosening the Container closing cap. This can be done without having to disassemble completely. Grip the two Slide Fastening Screws and turn counter clockwise.

6.3 Maintaining the Foam Dispenser



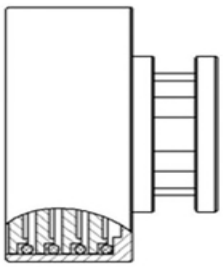
a. Foam Dispenser may be cleaned with water without any limitations. Dispenser is cleaned using one or two containers of water same way as if foam would be produced. Fill the container with water. Close the container with the Container closing cap. Connect the CBSH to the Air distribution valve. Connect the Air distribution valve to the dispenser. Pull the CBA switch to ON position. Water will clean all openings and air and liquid paths.

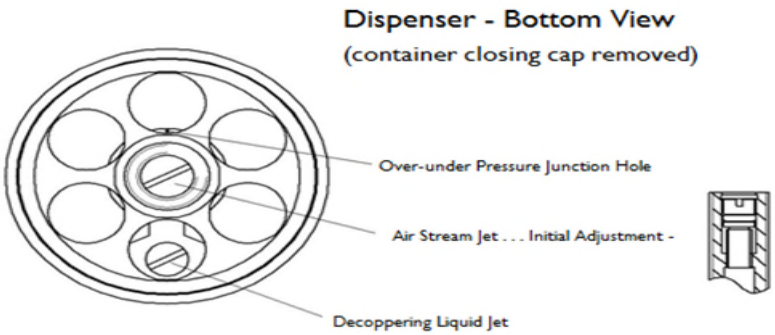
b. In case the dispenser does not produce foam or it is somehow damaged, authorized person should disassemble the dispenser as shown above. Clean precisely all the parts and make sure all air and liquid paths are open. Make sure no dirt particles are present on the Foaming nets stack. Check proper orientation of the Foaming nets stack, which can be seen in the image below. Check the Over-under pressure junction hole illustrated below. This hole (4mm long) is a tiny opening that might be clogged. Use suitable needle to clean it.

c. In case the dispenser produces foam, but quantity or quality of the foam is not acceptable follow the following instructions.

Quality or quantity of the foam is adjusted easily with pressure regulator.
Optimal operating pressure is in range from 73 to 101 psi. Decreasing the pressure means less foam produced. Always check pressure gauge in the CBA.

- Dispenser initial adjustments:





d. Quality and quantity of the foam, that the dispenser produces, is adjusted with two jets. After removal of the Container closing cap, jets can be adjusted with a screwdriver. In case you feel lost during adjustments, adjust the dispenser to initial adjustments.

e. **Air stream jet:** Initial adjustment of the Air stream jet is presented in the image on the previous page. Top surface of the jet should be aligned with the groove. In most cases air stream has to be increased in order to achieve good foam quality. Air stream through the dispenser is increased by rotating the jet clockwise. Doing so, more foam or more firm foam is produced. Air stream through the dispenser is decreased by rotating the jet counter-clockwise. Doing so, less foam is generated.

f. Decoppering liquid jet: Initial adjustment of the Decoppering liquid jet is between 1½ and 2½ rotations from totally closed position. First rotate the jet clockwise until the jet is completely closed. Then rotate the jet approximately 2 turns (720 degrees) counter-clockwise. Rotating the jet clockwise means less liquid added to the air stream. Less but more firm foam is produced. Rotating the jet counter-clockwise means more liquid added to the air stream. That means less firm foam, but the quantity is greater.

In order to achieve
- **More firm foam:**
Increase the air stream through the dispenser (rotate the Air stream jet clockwise a few rotations) and decrease liquid added to the air stream (rotate the Decoppering liquid jet clockwise approximately ¾ of rotation).
- **More foam:**
Increase liquid added to the air stream (rotate the Decoppering liquid jet counter-clockwise ¾ of a rotation). Increase the air stream through the dispenser (rotate the Air stream jet clockwise a few rotations).

In case foam is wet, that means it is not firm enough, open the Air stream jet generously.

7. TOOL KIT

Integral part of the OCS is also The Tool Kit. Tools in the kit are used for small repairs and OCS everyday use.

- OCS-TKB-001 - Tool kit bag
- 5374A21 - T Handle Hex key 3/8” - Tightening of bore brush fastening screw.
- OCS-ROD-001 - Spanner Rod, Cylinder and Brush Fastening Screw rod (for tightening or untightening) x 2
- 7122A47 - 3/16” Hex Key – Centering Cone replacement, control box screws.
- 6985A15 - Hex key 5 - Oil dispenser repairment, Foam Dispenser repairment.
- 6985A14 - Hex key 4 - Lubrication unit oil refilling.
- 5682A75 - Screwdriver - Oil dispenser adjustments, air lubrication unit adjustments.
- 4384T1 - Funnel - Air lubrication unit oil refill

Note: On special request of the customer some other items could be added to the Tool kit.

8. TROUBLESHOOTING

WARNING
In the case of any problem or malfunction, an unauthorised person should not try to repair or change the machine. Make sure proper personal protection equipment is used during repair in maintenance procedures. If not stated otherwise, power source should be disconnected from the machine during troubleshooting, repair and maintenance procedures. In case operator has any doubts regarding proper function of the machine or its components authorised person should be informed about the problem.

In case the system is not working properly please follow the following instructions. For more detailed instructions please read carefully complete Use and Maintenance Manual. **The operator of the described equipment should be familiar with the complete content of this Use and Maintenance Manual.**

WARNING

Never start the vibrations before the brush is in the bore. When the cylinder is vibrating in the bore just a loose grip for a few seconds with a hand is allowed. No other contact of the vibrating parts with the human body is allowed.

8.1 Air leaks

When audible air leaks are heard follow the following steps:

- Push the switch on the CBA to OFF position.
- Connect the Air supply hose to the CBA.
- Pull the switch on the CBA to ON position.
- Detect air leak. Inform an authorised person about the problem.

8.2 Hose connection

- Air supply hose w/connectors – (not included with kit)

- CBSH with connectors – OCS-CBSH-001

When connection of air hoses with quick couplings are impossible or air leaks are noticed follow the following steps:

- Pull the sleeve of the coupling.
- Connect the coupling.
- Detect the damage on the coupling or coupling plug. Inform an authorised person about the problem.

8.3 Control Box Assembly – OCS-CBA-001

Pressure gauge

Optimal regulated pressure for cleaning procedure is 100-120 psi. In case you have difficulties adjusting the pressure follow the following steps:

- Make sure you connect pressurized air.
- Adjust pressure to 120 psi.
- In case rotating the pressure regulating knob results in no response on the pressure gauge inform an authorised person about the problem.

Air lubrication

In case you notice problem with air lubrication follow the following steps:

- Try to adjust the amount of oil added to air stream on air lubrication unit.
- In case adjustment of the air lubrication unit results in no air lubrication inform an authorised person about the problem.

Air leak

In case you notice air leak in the CBA follow the following steps:

- Try to detect the air leak.
- In case the air leak is caused due to loosening of some connection, repair the connection.
- In case part from the CBA has been damaged inform an authorised person about the problem.

8.4 Rammer connection

- Bore Rammer Assembly – OCS-BRA-076

- Chamber Rammer Assembly – OCS-CRA-076

In case you find problems with connection of the rammer follow the following steps:

- Try to connect the rammer.
- In case rammer connection is not possible locate damaged threads. Inform an authorised person about the problem.

8.5 Cylinder Assembly – OCS-CYL-076-155

In case cylinder assembly does not produce sufficient or no vibrations follow the following steps:

- Connect pressurized air to the CBA using the Air supply hose.
- Check pressure gauge in the CBA. Optimal pressure is 100-120 psi.
- Connect the CBSH to the CBA.
- Connect the Rammer to the CBSH.
- Pull the switch on the CBA to ON position. Strong air blast should be heard and felt. In case there is no air blast noticed from the Rammer, refer to section **8.2 and 8.3 Troubleshooting - topics about Control Box Assembly and Hoses.**
- Push the switch on the CBA to OFF position.
- Apply fast jerky movement on the cylinder. Piston movement inside the cylinder should be felt and heard. If the piston does not move inside the cylinder inform an authorised person about the problem.
- Connect the Rammer to the cylinder assembly.
- Pull the switch on the CBA to ON position. In case only air is blown through the cylinder and no vibrations are produced inform an authorised person about the problem.

8.6 Oil Dispenser – OCS-OIL-076

In case oil is not sprayed out of the Oil dispenser follow the following steps:

- Adjust the jet that controls the amount of oil sprayed out of the dispenser.
- Disassemble the Oil dispenser and clean precisely all the parts.
- In case some part is damaged inform an authorised person about the problem.

8.7 Cylinder assembly does not move through the bore

In case cylinder assembly is not moving through the bore follow the following steps:

- Make sure the cylinder produces vibrations. In case the cylinder produces no vibrations refer to section **8.5 Troubleshooting - topics about Cylinder assembly.**
- In case the cylinder produces vibrations, but assembly is not moving through the bore replace non suitable brush ring.

8.8 Cylinder assembly does not clean the chamber properly

In case cylinder assembly is not cleaning the chamber properly follow the following steps:

- Make sure the cylinder produces vibrations. In case the cylinder produces no vibrations refer to section **8.5 Trouble shooting - topics about Cylinder assembly**
- In case the cylinder produces vibrations, but assembly does not clean the chamber properly replace non suitable chamber brush ring.

8.9 Foam Dispenser does not produce foam

In case Foam Dispenser does not produce foam follow the following steps:

- Check air supply to the dispenser.
- Disassemble the Foam dispenser and clean precisely all the parts.
- Check adjustment of air and liquid jets.
- In case some part is damaged inform an authorised person about the problem.

9. STORAGE

- Clean precisely all parts of the machine with damp sleeve after each use. Use non aggressive cleaning agent.
Aggressive bore cleaning agent could damage painted surfaces of the machine in case it is not removed.

- When transporting and storing the machine make sure the surrounding temperature remains included between -31˚F and +149°F.

- If the need arises to store the machine for a longer period of time, make sure the humidity values in the storage area remains included between 30 and 80%.

- No special actions are required for placing the equipment into storage.

- No special actions are required for removing the equipment from storage. Functional test should be carried out before using the equipment for the first time after longer period of storage.

10. ACRONYMS

ASHC	Air Supply Hose w/Connectors (not included with kit)
BBRA	Bore Brush Abrasive
BBRN	Bore Brush Nylon
BBRS	Bore Brush Stainless Steel
BFS	Brush Fastening Screw
BRA	Bore Rammer Assembly
BRS	Brush Ring Spacer
CBA	Control Box Assembly
CBRA	Chamber Brush Abrasive
CBRN	Chamber Brush Nylon
CBRS	Chamber Brush Stainless Steel
CBS	Chamber Brush Screw Assembly
CBSH	Control Box Supply Hose
CCK	Centering Cone
CRA	Chamber Rammer Assembly
FDA	Foam Dispenser Assembly
FRL	Filter Regulator Lubricator
OCS	Ordnance Cleaning System
OIL	Oil Dispenser Assembly
TKA	Tool Kit Assembly
CYL	Cylinder Assembly
SRA	Short Rammer Assembly
CAS	Pelican Case
CBFS	Chamber Brush Fastening Screw
CBE	Chamber Brush Extension