

MegaClean™

Owner's Handbook

**Hose
and Tube
Cleaning
Systems**



Gates®

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INTRODUCTION

Gates MegaClean™ system is designed specifically for removing internal contamination from hose and tube. It can help reduce downtime, extend filter life and reduce the risk of failure and premature wear due to contamination.

This Owner's Handbook will give you basic information on how to safely and efficiently use your MegaClean system.

Please carefully follow **ALL** safety procedures and recommendations contained in this handbook.

Contact Gates immediately if you have any questions about the MegaClean system.

MegaClean Applications

Hydraulics	Removes: rubber dust and metal particles from the cutting process on hydraulic hose; metal flash from the crimping process on hose and tubes; and contaminated oil from hoses and tubes in hydraulic systems.
Pneumatics	Eliminates rubber contamination, metal particles, contaminated oil and moisture that causes breakdowns and inefficiency.
Heat Exchangers and Condensers	Eliminates contamination that reduces heat transfer resulting in low level performance.
Steam Boilers	Removes most scaling in steam pipes for maintenance servicing.
Air Conditioning and Refrigeration	Eliminates minute particles in copper tubes and coolant lines that affect system performance.
Oxygen and Gas	Eliminates oil, grease and other contaminants from copper or S/S tubing.
Oil, Gas and Chemical Processing	Cleans product pipes as part of service maintenance.
Earthmoving Equipment Maintenance	Reduces flushing time and filter usage.
Automotive and Servicing	Cleans fuel lines and brake lines prior to assembly and servicing of components.
Wave Guide	Cleans microwave signal transfer lines.
Food and Beverage Product Recovery	Retrieves product from lines. Reduces or eliminates solvents or detergents.
Gun Barrels	Removes rust, scale or powder residue much faster than brushing or swabbing.

For more information regarding the above applications, please contact Gates Product Application.

HAND HELD LAUNCHERS

Gates MegaClean (MC) hand held launchers are ideal for production hose and tube shops, mobile hose fabricators

and job site applications because of their simplistic design, size and portability.



MC-L32

MegaClean 2" Launcher

Part No. MC-L32
Product No. 7467-1000

Features and Benefits

- Full flow quick release coupling and unique 360 degree rotary plug for proper air flow and to eliminate operator fatigue.
- Unique safety release bar ensures faceplate is closed for safe operation.
- Capable of passing 31 percent more standard cubic feet per minute than other launchers on the market—perfect for cleaning applications above 1-1/2" and long lengths of hose and tube.
- Manufactured from precision machined aluminum and fully anodized for harsh environments and heavy use.

MegaClean 1-1/4" Launcher

Part No. MC-L20
Product No. 7467-1001

Features and Benefits

- Has a quarter turn locking ring for easy nozzle change and projectile loading.
- Constructed of durable brass internals, strong plastic handle and anodized aluminum firing head and locking ring.
- Effortless to operate because of its simplistic design.



MC-L64

MegaClean 3-1/2" Launcher

Part No. MC-L64
Product No. 7467-1002

Adapter Requirements

- MC-L32 launcher – MC-GAR-1 adapter ring for nozzles 1/8" through 1-1/4".
- MC-L64 launcher – MC-GAR-2 adapter ring for nozzles 1/8" through 1-1/4" and MC-GAR-3 for nozzles 1-1/2" and 2".
- MC-GH-40-64 Universal Nozzle (2-1/4" through 3-1/2") – no adapter ring required.

Air Requirements

- 80 psi minimum to 110 psi maximum.
- 1/2" ID air hose.
- 5 micron filter and regulator with gauge are strongly suggested.



MC-L20

Air Requirements

- 85 PSI minimum to 140 PSI maximum.
- 1/2" ID air hose.
- 5 micron filter and regulator with gauge are strongly suggested.

Setup

Prior to operating the hand held launchers, follow these steps:

Note: Set-up is shown on the MegaClean 2" Launcher. Slight variations in set-up will occur depending on the type of launcher you are using.

Step 1: Open Face Plate

Push the top of the safety release forward and then down to release the faceplate.



Step 2: Insert Nozzle

Drop the face plate down and select a suitable nozzle and adapter ring (if needed) for the application. The adapter ring snaps into the face plate first. Then you can slide the nozzle into the adapter ring.



Step 3: Insert Projectile

Select the projectile from the sizing charts located on pages 13–16 of this handbook. Insert the recommended MegaClean projectile into the nozzle.



Important: The safety release bar and faceplate must always be in the locked position prior to firing the MC-L32 launcher. Failure to secure faceplate and safety release bar in the locked position may cause serious injury to the operator and/or damage to the launcher.

Setup continued



Step 4: Close the Faceplate

Push the top of the safety release bar forward and then down. Close the faceplate and confirm that the safety release bar locks the faceplate into position.



Step 5: Connect Air Source

Refer to page 2 of this handbook for recommended minimum and maximum air pressure requirements for specific launchers. The air source can be a compressor or suitable nitrogen filled gas bottle. **Never use oxygen.**

It is strongly recommended that the air line and any connection from air source to the launcher is at least 1/2" ID. The air or inert gas, such as nitrogen, should always be regulated to the correct pressure and filtered to assure contaminant-free air.



Step 6: Begin Operation

Place the hose or tube against the nozzle to ensure a good air tight seal. Depress the trigger. Keep the trigger depressed until the projectile exits the hose or tube you are cleaning.

LAUNCHER KITS

For your convenience, the following launcher kits are available. You can also create your own kit using any of these components. Contact your local Gates representative for more information.

MegaClean 2" Launcher Kit

Part No. MC-K32

Product No. 7467-0001

The perfect kit for hose and tube fabrication shops includes:

- complete implementation process and 100% Guarantee
- hand held launcher
- 13 projectiles
- 19 nozzles in Hose, FFORX, JIC and Tube styles
- adapter ring
- quick release coupling and rotary plug
- carry case
- catcher bucket
- MegaClean Tape
- counter/shop poster

Air Requirements

- 80 psi minimum to 110 psi maximum.
- 1/2" ID air hose.
- 5 micron filter and regulator with gauge are strongly suggested.

Note: All MC-L32 launchers include full flow quick release coupling and rotary plug.



MegaClean 1-1/4" Launcher Kit

Part No. MC-K20

Product No. 7467-0002



- Unit comes complete with seven acetyl hose nozzles, quick release coupling and carry case.
- Additional nozzles for JIC and tube applications are also available. Please refer to the sizing charts, located on pages 13 of this handbook, for any additional nozzles that you may need.

Air Requirements

- 85 psi minimum to 140 psi maximum.
- 1/2" ID air hose.
- 5 micron filter and regulator with gauge are strongly suggested.

MegaClean 3-1/2" Launcher Kit

Part No. MC-K40-64

Product No. 7467-000

- Kit includes MC-L64 hand launcher, case, universal nozzle and adapter rings.
- Optional adapters available to 1/8".

Air Requirements

- 80 psi minimum to 110 psi maximum.
- 1/2" ID air hose.
- 5 micron filter and regulator with gauge are strongly suggested.



BENCH MOUNT LAUNCHER

MegaClean 1-1/4" Bench Mount Launcher

Part No. MC-BM20

Product No. 7467-0003

Features and Benefits

- Supplied with your choice of nozzles, 5 micron air filter, pneumatic foot pedal and twin line air hose.
- Stainless steel housing with anodized aluminum internal componentry.
- Effortless to operate with a cycle time of 1.2 seconds.
- Ideal for production type environments because of its speed and simplicity.

Air Requirements

- 80 psi minimum to 120 psi maximum.
- 1/2" ID air line minimum.
- Large industrial compressor strongly recommended.
- 5 micron air filter must be installed or warranty is null and void.



Bench Mount Launcher continued

Setup



Step 1: Make sure Bench Mount Unit is properly secured to a sturdy work surface.



Step 2: Connect Twin Line Air Hose
Air connections on the Bench Mount Launcher and Foot Pedal are color coded to match the twin line air hose. Twin line air connections between the bench mount unit and foot pedal must be made **first** before connecting main air supply to foot pedal.



Step 3: Install 5 Micron Filter

The air supply line to and from the 5 micron filter and the foot pedal should be 1/2" ID to ensure proper air flow.

Note: Failure to use the supplied 5 micron air filter will void manufacturer's 3-year warranty.

Step 4: Insert Nozzle

The locking ring on each bench mount unit can be removed by turning it counter clockwise. Insert the nozzle through the back of locking ring. Lightly turn locking ring clockwise onto male thread. Locking ring and nozzle will seat against O-ring when tight. **Do Not** over tighten locking ring.

Note: Refer to the MegaClean hose and tube sizing chart on pages 13–16 of this handbook for the recommended size and style nozzle for your application.



Step 5: Load Projectile

MegaClean Projectiles should be dropped through the top opening on the bench mount unit in a horizontal fashion for optimal performance. The unit will align the projectile and insert it into the nozzle.

Note: The MC-HP-20 Projectile can only be dropped through the top opening in this manner (as shown) due to the size of the projectiles and the top opening. Failure to do so will cause the MC-HP-20 projectiles to jam.



Correct



Incorrect

Step 6: Begin Operation

Hold hose or tube tightly onto nozzle. Depress the foot pedal until the projectile has exited the hose or tube.

Replacing Nozzle O-ring

1. Remove air supply from unit.
2. Unscrew locking ring from unit and replace O-ring, reconnect air supply.

Dislodging Stuck Projectiles

1. Remove air supply from foot pedal. Unscrew locking ring and nozzle and remove from unit. Remove stuck or lodged projectile.

Dislodging Projectiles from Behind the Sealing Ring

1. WARNING – Do not attempt to remove projectiles with air supply still connected. Physical injury can result.
2. Depress foot pedal to fire launcher, remove air supply from foot pedal while it is still depressed. This will keep the sealing ring and ram in the forward position.
3. It is now safe to remove projectile. Use an air gun to blow out contamination that may be behind sealing ring.
4. Make sure that there are no foreign objects behind sealing ring or in firing chamber. Reconnect air line to foot pedal.

Warnings

1. Bench Mount units are never to be operated with cover removed.
2. Never point or fire the units in the direction of any person.
3. Keep hands and body parts away from the front of the nozzle when firing projectiles.
4. Do not place any objects into the launching tube other than MegaClean Projectiles.
5. Do not attempt to dislodge a projectile from the Bench Mount Launcher when air is supplied to the unit.
6. Launcher and projectiles are to only be used for cleaning hose and tubes rated for at least 120 psi.
7. Safety glasses should always be worn when operating the MC-BM20.
8. A projectile catcher should always be used to catch spent MegaClean Projectiles and contamination.
9. Please call Gates Corporation with any questions about the safe operation of this unit. Failure to follow warnings and fully understand the operation of this unit could cause serious injury to personnel and may void warranty.

NOZZLE SELECTION

The MegaClean System offers a range of nozzles for use on different sizes and types of hose and tube, as well as coupling configurations. Special nozzles can be made to suit specific applications.

Nozzle Stock Types:

- **Hose (GH)**—the hose nozzle is inserted into the ID of the hose. Hose nozzles also work on pipe, heavy walled tubing and many coupling configurations. It is the most popular nozzle.
- **JIC (GA)**—the JIC nozzle has a male flare at the top that will mate against the female JIC on hose and tube assemblies.
- **Tube (GT)**—the tube nozzle has a stop on the inside that will form an airtight seal when the tube is fully inserted into the nozzle.
- **FFORX (GA)**—special nozzle designed to accommodate -4 Flat Face O-Ring Style Fittings. These fittings may be referred to as Face Seal, Seal Lok or FFORX.
- **Large Universal Nozzle**—this nozzle is similar to our hose style nozzle. It enlarges 2-1/8" (55mm) to 3-1/2" (90mm) in 1/16" (10mm) increments. The 1/16" increments can be easily cut off to suit your application. The Universal Nozzle can be ordered as Part No. MC-GH-40-64 or Product No. 7467-3010.



Sampling of Hose, JIC, Tube and FFORX Nozzles



Universal Nozzle

Part No. MC-GH-40-64
Product No. 7467-3010

Nozzle Abbreviations

	MC = MegaClean
Nozzle	GA = Gates Assembly
Nozzle	GH = Gates Hose
Nozzle	GT = Gates Tubing

Custom Nozzles:

Gates can engineer and fabricate special nozzles in your choice of material for difficult or unique applications.

PROJECTILE SELECTION

The projectile cleans the internal surface of the hose or tube by being pressed against that surface. This pressure is achieved as the projectile is approximately 20 to 30 percent larger

than the ID of the hose or tube. For instance, a 2" (50mm) projectile is recommended for a 1-1/2" (38mm) hose.

Two types of projectiles are available:

MegaClean (MC)

Use on hose and tube assemblies. Removes fine particles of loose contamination and can also be used for product purging.

Abrasive and Grinding* (A)

Use in hose or tube. Removes build up of contamination, surface rust or scale.

NOTE: A MegaClean projectile should always be used after an abrasive projectile to verify cleanliness.

*This is a special order item. Contact your local Gates representative for pricing and availability.

Individual circumstances may require a smaller or larger projectile. If the projectile is too large it will not leave the

nozzle and if it is too small it will not clean effectively. The enormous variety in the types of couplings available today could also mean in some circumstances that the recommended size is inappropriate. When cleaning assemblies, a reduction in projectile size may be appropriate, as all the recommendations are based on the most commonly used coupling sizes.

Bulk Projectiles

MegaClean Projectiles can also be purchased in bulk pack quantities. The bulk projectile program is especially ideal for the Bench Mount Launcher, which is typically used in a production type atmosphere. Contact your local distributor or sales representative for pricing and package quantities.



NOZZLE AND PROJECTILE SIZING CHARTS

The following sizes are recommendations. Due to types of fittings, and the amount of contamination in the line, the projectile size may need to be adjusted.

Hose and Hose Assemblies

Hose Only		
Hose Size	Nozzle	MegaClean Projectile*
3/16"	MC-GH-04	MC-HAP-04-01
1/4"	MC-GH-04	MC-HP-04 OR MC-HAP-06
5/16"	MC-GH-05	MC-HAP-06 OR MC-HP-06
3/8"	MC-GH-06	MC-HP-06 OR MC-HAP-08
1/2"	MC-GH-08	MC-HP-08 OR MC-HP-08-01
5/8"	MC-GH-10	MC-HP-10
3/4"	MC-GH-12	MC-HP-12
1"	MC-GH-16	MC-HP-16 OR MC-HP-16-1
1-1/4"	MC-GH-20	MC-HP-20 OR MC-HP-20-1
1-1/2"	MC-GH-24	MC-HP-24 OR MC-HP-24-1
2"	MC-GH-32	MC-HP-32 OR MC-HP-32-1
2-1/2"	MC-GH-40-64	MC-HP-40
3"	MC-GH-40-64	MC-HP-48
3-1/2"	MC-GH-40-64	MC-HP-56
4"	MC-GH-40-64	MC-HP-64

Nozzle and Projectile Abbreviations

	MC = MegaClean
Nozzle	GA = Gates Assembly
Nozzle	GH = Gates Hose
Nozzle	GT = Gates Tubing
Projectile	HP = Hose Projectile
Projectile	HAP = Hose Assembly Projectile

Hose Assembly with Flat-Face O-Ring Swivel		
FFORX Size	Nozzle	MegaClean Projectile*
1/4"	MC-GA-04-FFORX	MC-HAP-04-01 OR MC-HAP-04
3/8"	MC-GH-04	MC-HAP-06
1/2"	MC-GH-06	MC-HAP-08
5/8"	MC-GH-08	MC-HP-10
3/4"	MC-GH-10	MC-HP-12
1"	MC-GH-12	MC-HP-16
1-1/4"	MC-GH-16	MC-HP-20

* Use large size projectiles when cutting hose with an abrasive wheel.

Nozzle and Projectile Sizing Charts continued

Hose Assembly with Female JIC

FJ SIZE	NOZZLE	MegaClean Projectile*
1/4"	MC-GA-04	MC-HAP-04-01 OR MC-HAP-04
3/8"	MC-GA-06	MC-HAP-06
1/2"	MC-GA-08	MC-HAP-08
5/8"	MC-GA-10	MC-HP-10
3/4"	MC-GA-12	MC-HP-12
1"	MC-GA-16	MC-HP-16
1-1/4"	MC-GA-20	MC-HP-20
1-1/2"	MC-GA-24	MC-HP-24
2"	MC-GA-32	MC-HP-32

Hose Assembly with Code 61 and 62 Flanges

Flange Size	Nozzle	MegaClean Projectile*
1/2"	MC-GH-06	MC-HAP-08
3/4"	MC-GH-10	MC-HP-12
1"	MC-GH-12	MC-HP-16
1-1/4"	MC-GH-16	MC-HP-20
1-1/2"	MC-GH-20	MC-HP-24
2"	MC-GH-24	MC-HP-32

Hydraulic Tubing

OD X Wall	Nozzle	MegaClean Projectile
1/8" X .030"	MC-GT-02	MC-HA-02-1
1/4" X .035"	MC-GT-04	MC-HP-04
1/4" X .065"	MC-GT-04	MC-HAP-04
5/16" X .035"	MC-GT-05	MC-HAP-06
3/8" X .035"	MC-GT-06	MC-HP-06
3/8" X .049"	MC-GT-06	MC-HP-06
3/8" X .065"	MC-GT-06	MC-HAP-06

* Use large size projectiles when cutting hose with an abrasive wheel.

Hydraulic Tubing

OD X Wall	Nozzle	MegaClean Projectile
1/2" X .035"	MC-GA-08	MC-HAP-08
1/2" X .049"	MC-GA-08	MC-HAP-08
1/2" X .065"	MC-GA-08	MC-HAP-08
1/2" X .083"	MC-GA-08	MC-HP-06
5/8" X .049"	MC-GA-10	MC-HP-10
5/8" X .065"	MC-GA-10	MC-HP-08-1
5/8" X .083"	MC-GA-10	MC-HP-08-1
3/4" X .049"	MC-GA-10	MC-HP-12
3/4" X .065"	MC-GA-12	MC-HP-12
3/4" X .095"	MC-GA-12	MC-HP-10
7/8" X .049"	MC-GA-16	MC-HP-16
7/8" X .065"	MC-GA-16	MC-HP-14
7/8" X .095"	MC-GH-10	MC-HP-12-1
1" X .065"	MC-GA-20	MC-HP-16
1" X .083"	MC-GA-20	MC-HP-16
1" X .095"	MC-GA-20	MC-HP-16
1" X .120"	MC-GA-20	MC-HP-14
1-1/4" X .065"	MC-GT-20	MC-HP-20
1-1/4" X .083"	MC-GT-20	MC-HP-20
1-1/4" X .095"	MC-GT-20	MC-HP-20
1-1/4" X .109"	MC-GT-20	MC-HP-16-1
1-1/4" X .120"	MC-GT-20	MC-HP-16-1
1-1/2" X .065"	MC-GA-24	MC-HP-24
1-1/2" X .083"	MC-GA-24	MC-HP-24
1-1/2" X .095"	MC-GA-24	MC-HP-24
1-1/2" X .120"	MC-GA-24	MC-HP-24
1-1/2" X .134"	MC-GA-24	MC-HP-20-1
1-1/2" X .148"	MC-GA-24	MC-HP-20-1
2" X .065"	MC-GA-32	MC-HP-32
2" X .095"	MC-GA-32	MC-HP-32
2" X .109"	MC-GA-32	MC-HP-32
2" X .120"	MC-GA-32	MC-HP-32
2" X .134"	MC-GA-32	MC-HP-24-1
2" X .180"	MC-GA-32	MC-HP-24-1
2" X .188"	MC-GA-32	MC-HP-24-1

Note: Tubing must be de-burred prior to firing projectiles.

If the operator is unsure which type or size projectile to use, please contact Gates for technical assistance.

Nozzle and Projectile Sizing Charts continued

Metric Tubing

mmOD X Wall	Nozzle	MegaClean Projectile
6 X 1.5	MC-GT-04	MC-HAP-04
8 X 1.0	MC-GT-05	MC-HP-04
10 X 1.0	MC-GH-04	MC-HP-06
10 X 1.5	MC-GH-04	MC-HAP-06
12 X 1.0	MC-GA-05	MC-HAP-08
12 X 1.5	MC-GA-08	MC-HP-06
12 X 2.0	MC-GH-04	MC-HAP-06
14 X 1.0	MC-GH-06	MC-HP-08
14 X 1.5	MC-GH-06	MC-HAP-08
14 X 2.0	MC-GH-06	MC-HAP-08
15 X 1.0	MC-GH-08	MC-HP-08-1
15 X 1.5	MC-GH-06	MC-HP-08
15 X 2.0	MC-GH-06	MC-HAP-08
16 X 1.0	MC-GA-10	MC-HP-10
16 X 1.5	MC-GA-10	MC-HP-08-1
16 X 2.0	MC-GA-10	MC-HP-08
16 X 2.5	MC-GA-10	MC-HAP-08
18 X 1.0	MC-GA-12	MC-HP-12
18 X 1.5	MC-GA-12	MC-HP-10-1
18 X 2.0	MC-GA-12	MC-HP-10
18 X 2.5	MC-GA-12	MC-HP-08-1
20 X 1.5	MC-GH-10	MC-HP-12-1
20 X 2.0	MC-GH-10	MC-HP-12
20 X 2.5	MC-GH-08	MC-HP-10-1
20 X 3.0	MC-GH-08	MC-HP-10
22 X 1.0	MC-GA-16	MC-HP-14
22 X 1.5	MC-GA-16	MC-HP-12-1
22 X 2.0	MC-GA-16	MC-HP-12-1
25 X 2.0	MC-GA-20	MC-HP-16
25 X 2.5	MC-GA-20	MC-HP-14
25 X 3.0	MC-GH-12	MC-HP-12-1
30 X 2.0	MC-GH-16	MC-HP-16-1
30 X 2.5	MC-GH-16	MC-HP-16-1
30 X 3.0	MC-GH-16	MC-HP-16
30 X 4.0	MC-GH-12	MC-HP-16
35 X 2.0	MC-GH-20	MC-HP-20-1
35 X 3.0	MC-GH-16	MC-HP-20
35 X 4.0	MC-GH-16	MC-HP-16-1
35 X 5.0	MC-GH-16	MC-HP-16-1
38 X 2.5	MC-GA-24	MC-HP-24
38 X 3.0	MC-GA-24	MC-HP-24
38 X 4.0	MC-GA-24	MC-HP-20-1
38 X 5.0	MC-GH-16	MC-HP-20
50 X 5.0	MC-GA-32	MC-HP-24-1

Note: Tubing must be deburred prior to firing projectiles.

If the operator is unsure which type or size projectile to use, please contact Gates for technical assistance.

ACCESSORIES

Nozzle Holder

Gates offers a MegaClean nozzle holder that can be attached to a work bench. The advantages of using a nozzle holder over leaving your nozzles in the carry case include:

- easy access during operation
- reminds employees to follow set cleaning procedures

- serves as a promotional feature for customers
- accommodates 1/4" – 2" nozzles

The nozzle holder is a special order item. Contact your local Gates representative for pricing and availability.



Projectile Catcher Bucket

The Projectile Catcher is an integral part of the MegaClean System because it can help:

- prevent injury to you, a customer or an innocent bystander should contamination (such as steel slivers or fragments of wire) be forcefully propelled from the hose or tube
- catch the projectile so that you can visually inspect the contamination
- serve as an indicator to determine the internal condition of the hose, tube or pipe

- display the level of cleanliness and determine whether more projectiles are needed to complete the job
- maintain a clean and professional work space
- save time and cleaning costs
- increase sales to customers

The projectile catcher, as with all tools, should be located in a convenient and practical position.

Order Part No. MC-PCB,
Product No. 7467-1006.



Assembly Tape

As a matter of course in your assembly and fabrication business, Gates recommends labeling all hose and tube with MegaClean tape. The tape explains and promotes the importance of using contamination-free hoses and tubes. If the tape is applied over an open end after cleaning, it will ensure that the

product stays clean. MegaClean tape can be easily removed before installation of the hose or tube.

Order Part No. MC-TAPE,
Product No. 7467-1007.

Launcher Stand

As with the Projectile Catcher, the launcher stand is an essential piece of equipment. It offers the following advantages to the operator:

- works as an anchor in a situation where the operator needs both hands to lift the hose to the nozzle
- prevents damage to the launcher or nozzles, which can occur from being dropped or rough handling during routine work processes
- provides a permanent storage facility
- ensures the launcher is always ready for your hose and tube cleaning requirements

The launcher stand should be located in a convenient location that provides easy access in situations where the operator needs two hands to lift the tube or hose, and where the product can be easily picked up and put back down again. Many operators use the launcher stand as a permanent storage place for the launcher, rather than continually removing the launcher from the carrying case.

NOTE: Rough handling or abuse of equipment voids all warranties.

Order Part No. MC-LSTAND,
Product No. 7467-1008.



MAINTENANCE AND CLEANING PROCEDURES

Launcher

Maintenance

- Keep the Launcher clean at all times.
- Nozzles can be cleaned by using soap and warm water.
- Periodically smear the O-rings with high-grade petroleum jelly or light grease.
- Always use clean, dry air. A filter regulator is strongly suggested.

Safety

- Check that the safety release bar and faceplate is locked into the closed position before depressing the trigger.
- Verify air supply is correctly fitted.
- Make sure that the launcher is pointed in a safe direction before operating.
- Point the end of the hose or tube where projectile and contaminants will be ejected into a projectile catcher.

- Safety glasses are recommended when operating the MegaClean system.
- Do not operate the MegaClean system when aimed at another person.
- Turn off air supply before disconnecting line if a self closing valve has not been used.
- Never use air pressures above the maximum stated working pressure for the respective launcher.

Recommended Cleaning Procedures

Hose

When hydraulic hose is cut with saws that use metal blades or abrasive wheels, a tremendous amount of heat is generated. The heat from the cutting process will cause the rubber dust and metal particle contaminants to stick to the hose tube as they cool.

1. To achieve the best results, it is vitally important to clean the hose immediately after the cutting process before the contaminants cool and stick.
2. A MegaClean projectile should be fired through the hose prior to the installation of couplings. Fire one projectile in each direction through the length of the hose. This will allow cleaning in the areas occupied by the insertion of the hose nozzle at either end during the cleaning process.
3. After the crimping or swaging of fittings, a MegaClean projectile should be fired through the entire hose assembly. This projectile will remove the metal flash from the crimping or swaging process.
4. It is also vitally important to tape or cap the end fittings immediately following the last projectile. Taping the hose ends will keep airborne contaminants from entering the hose.

Used Hose and Tube Assemblies

Contaminated oil should always be removed from hydraulic hose and tube assemblies on systems that have experienced failure.

1. Disconnect each end of the assembly and secure one end into the Projectile Catcher.
2. Fire air into the assembly without a projectile for several seconds to remove the excess contaminated hydraulic fluid.
3. Fire three-to-four MegaClean projectiles through assembly to remove contamination.
4. Visibly check the last projectile for contamination. Repeat process until projectile has no signs of rubber or metallic particles in it. If the projectiles continue to show rubber particles, the hose may need to be replaced. This is usually a sign of a rubber tube that is failing.

Tube

When tubing requires cutting, the ends should be thoroughly deburred prior to the use of the cleaning system. A tube nozzle and two MegaClean projectiles may then be implemented to clean the tube.

If the tube appears to contain rust, weld slag or other corrosion on the inside surface, then an abrasive projectile should be used first, as many times as is necessary to remove the corrosion. Follow by using a MegaClean projectile to ensure proper cleanliness.

If flaring is required, this should also be done prior to cleaning. In this case, the use of a JIC nozzle will be necessary to mate properly with the flared end of the tubing. If special fittings are used that require crimping, then the use of a MegaClean projectile, in addition to the procedure described above, is also recommended after the assembly is completed.

TROUBLESHOOTING

Problem	Solution
Projectile remains lodged in hose, tube or assembly.	<ul style="list-style-type: none"> • To clear projectile, operate unit from other end without using a projectile. • Check hose or tube for leaks, holes, breakage, etc. • Check restrictions in line, i.e. contraction from 1/16" to 1/32" then expansion to 1/16". • Check projectiles for tear marks. • Check air pressure at air source. • Make sure hose fittings from air source are correct. • Consider using smaller projectile.
Projectile will not enter hose, tube or assembly.	<ul style="list-style-type: none"> • Check air pressure, as compressor may not have built up sufficient pressure. • Try smaller projectile. • Make sure quick release coupling is correct size (1/24" minimum is required). • Operate unit from other end. • Ensure tube entry is not restricted from process of cutting.
Launcher will not operate.	<ul style="list-style-type: none"> • Make sure air is connected and turned on.
Leaking air at hose, tube or assembly entry.	<ul style="list-style-type: none"> • Hold unit firmly against hose, tube or assembly to ensure proper seal.
Contraction of two pipes into one.	<ul style="list-style-type: none"> • Operate pneumatic launcher from one of two ends in the one continuing line. • Operate launcher from other end into the one continuing line.
Nozzle does not fit into O-ring on launcher easily.	<ul style="list-style-type: none"> • Apply small amount of high-grade petroleum jelly to O-ring.
Trigger jams allowing air to escape.	<ul style="list-style-type: none"> • Release quick release coupling.

LIMITED WARRANTY

The MegaClean Hand Held System and its components (excluding projectiles) are warranted to be free from defects in material or workmanship for 12 months from the date of delivery to Purchaser. The Cylinder, Launcher housing and Manifold are warranted against defects in workmanship and materials for 36 months from the date of delivery to Purchaser. The Gates Corporation will, at its option, replace or repair any merchandise proved defective in material or workmanship, or both, during the warranty period. This shall be the sole remedy for breach of warranty. **ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, HEREBY ARE EXPRESSLY DISCLAIMED. LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY AND INDIRECT DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, HEREBY ARE EXPRESSLY EXCLUDED, REGARDLESS OF WHETHER THEY WERE REASONABLY FORESEEABLE, OR WHETHER SELLER HAD KNOWLEDGE THAT THEY COULD OCCUR.**

Warranty Exclusions:

1. This warranty only applies to the parts and components of the MegaClean System (excluding projectiles). The warranty becomes invalid if such parts or components are removed and used in any other products or for any other purposes.
2. The warranty is void if projectiles other than those made or licensed by Gates Corporation are used at any time.
3. The warranty is void if Gates Corporation determines, in its sole discretion, that the defect has been caused by misuse, wear and tear, dirt, fire, accidental damage, or by any of the other items identified anywhere under Warranty Exclusions.
4. Gates Corporation is not liable for labor or for any loss or expense arising from a breakdown of any parts or for any damages, direct or indirect, or for any repairs made or attempted to be made without the written permission of Gates Corporation. Distributors or employees are not authorized to give any warranty or make any representation whatsoever, verbal or otherwise. To provide protection under warranty, purchasers should note that the registration number should not be removed or defaced. All MegaClean Hand Held Launchers are engraved with a serial number. It is clearly visible and is located on the firing head of the launcher.
5. **Warranty is void if Hand Held Launchers are pressurized above the stated maximum working pressure that is clearly marked on the handle of each respective launcher. Warranty for MC-BM Bench Mount Launcher also is void if owner of Bench Mount unit fails to install a 5 micron filter to ensure clean air, or remove housing cover. MegaClean Projectiles are the only projectiles that should be used in the MegaClean MC-BM20 launcher. Other projectiles may cause the unit to jam and cause damage to the internal components, thus voiding the warranty.**
6. Warranty does not cover ordinary wear, tear, abuse, misuse, mishandling, improper (i) storage, (ii) matching with other applications, (iii) installation, or (iv) usage; induction of defect by other products, racing or competition, abnormal conditions of temperature, overloading of air pressures or projectiles or any use not recommended in writing by Gates. No warranty is made with respect to items altered, damaged in shipment, misapplied or in contact with contaminants. Gates Corporation assumes no liability to any company or person for any damages, direct or indirect, to property or person.

Warranty claims should be made promptly by the purchaser and within the warranty period, by notifying in writing the distributor from which the MegaClean System was purchased, and arranging for its return and inspection by Gates. Warranty Registration Forms are provided with each MC-L32 AND MC-L64 Launcher purchased. Forms must be returned, together with proof of purchase, for warranty to be honored.



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