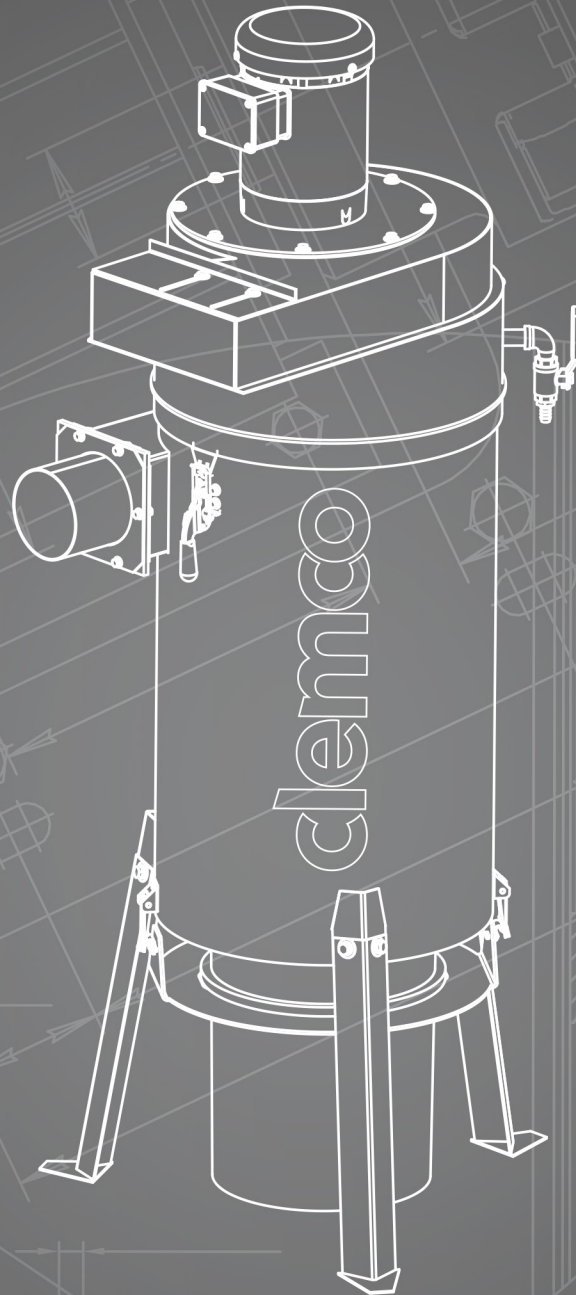


COMPONENT MANUAL



CM 32558

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DCU Dust Collector

Industrial Cabinet Series Blast Systems

Date of Issue: 04/26 | Rev. Ø

NOTICE

Notice to purchasers and users of our products and this informational material

Clemco proudly provides products for the abrasive blast industry and is confident that industry professionals will use their knowledge and expertise for the safe and efficient use of these products.

The products described in this material and the information relating to these products are intended for knowledgeable, experienced users. It is the responsibility of the user to insure that proper training of operators has been performed and a safe work environment is provided.

No representation is intended or made as to: the suitability of the products described here for any purpose or application, or to the efficiency, production rate, or useful life of these products. All estimates regarding production rates or finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, not from information contained in this material.

It is possible that the products described in this material may be combined with other products by the user for purposes determined solely by the user. No representations are intended or made as to the suitability of, or engineering balance of, or compliance with regulations or standard practice of any such combination of products or components the user may employ.

This equipment is only one component of a cabinet blasting operation. Other products, such as air compressors, air filters and receivers, abrasives, equipment for ventilating, dehumidifying, or other equipment, even if offered by Clemco, may have been manufactured or supplied by others. The information Clemco provides is intended to support the products Clemco manufactures. Users must contact each manufacturer and supplier of products used in the blast operation for warnings, information, training, and instruction relating to the proper and safe use of their equipment.

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Safety Alerts Key



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

NOTICE

Notice indicates information that is considered important, but not hazard-related, if not avoided, could result in property damage.

CAUTION

Caution indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

WARNING

DANGER

Warning and Danger, indicates a hazardous situation that, if not avoided, will result in death or serious injury.

1.0 Introduction

1.0.1 | This manual covers the installation, operation, and maintenance of the DCU Reverse-Pulse Dust Collector. The dust collector is used with blast cabinets and reclaimers. These instructions also contain important information required for safe operation of the collector. Before operating the dust collector and other equipment used with the collector, all personnel involved with the operation must read this entire manual. Refer to the appropriate manual for operation of equipment used in conjunction with the dust collector.

1.1 | General Description

1.1.1 | DCU dust collectors are dry, reverse-pulse single-cartridge collectors, primarily used to ventilate abrasive blast

cabinets and remove dust from exhausting air. The DCU dust collector is available in one size:

- 300 cfm with 5" inlet - used with a small-to-medium-size cabinet with a 300 cfm reclaimer.

Figure 1 shows call outs of the dust collector components.

1.2 | Theory of Operation

1.2.1 | The exhauster is mounted on the clean-air side of the filter cartridge, and provides "pull-thru" (pulls air through the filter cartridge) air flow, rated at 300 cfm. The exhauster draws dust-laden air through a flexible duct hose from the reclaimer into the lower side of the collector and through the filter cartridge. As air passes through the cartridge, dust accumulates on the outer surface. Cleaned air flows up through the center of the cartridge and out the exhauster.

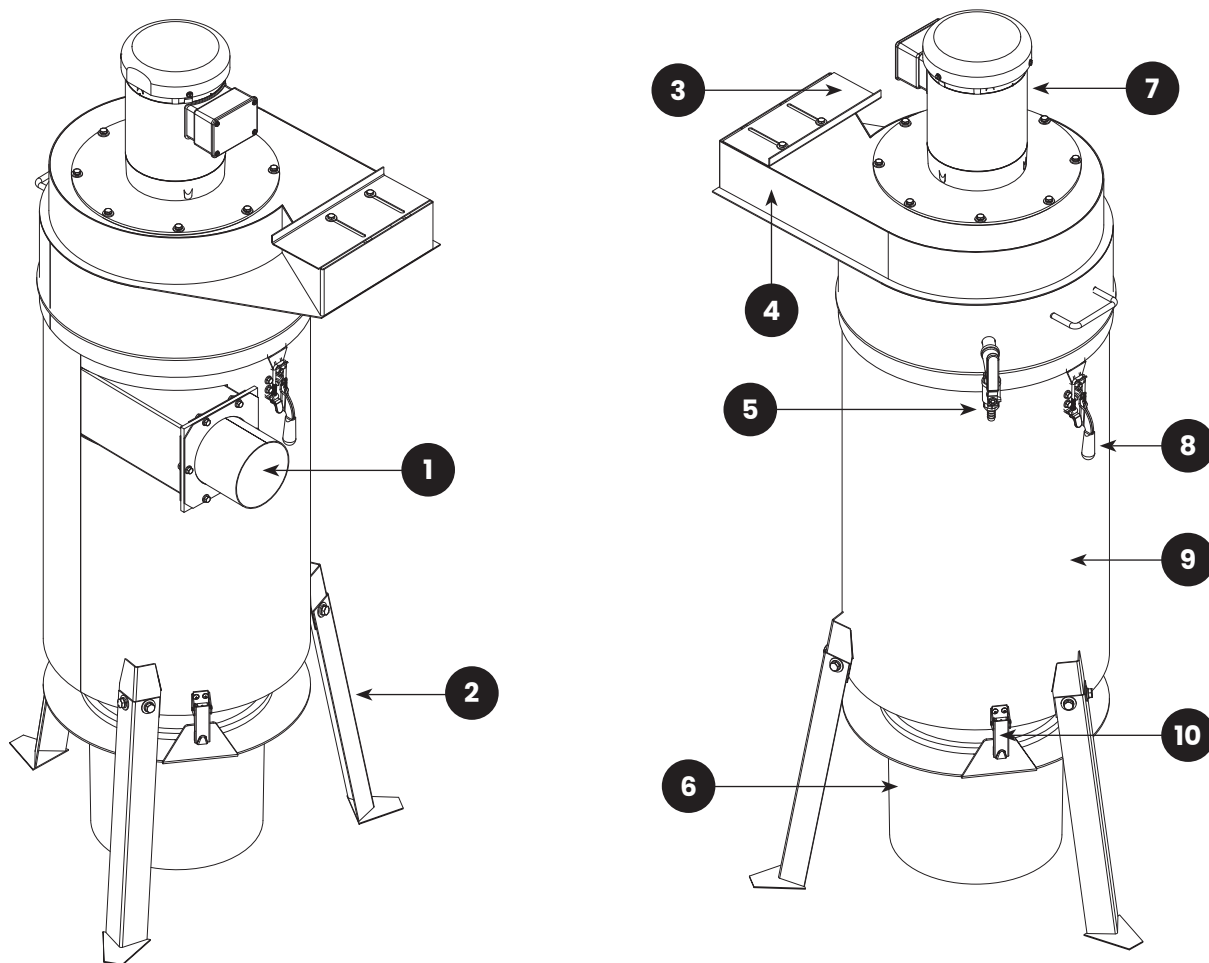


FIGURE 1: (1) Inlet Pipe; (2) Bolt on Leg; (3) Damper; (4) Fan Housing/DCU Top; (5) Pulse Air Supply; (6) Dust Bin; (7) Fan Motor; (8) DCU Top Latch; (9) DCU Body; (10) Dust Bin Latch

1.2.2 | Accumulated dust is released from the cartridge when a periodic pulse of high-velocity compressed air expands against the inner surface of the cartridge. The pulse occurs each time the operator operates the manually controlled pulse valve. The dust particles fall away from the cartridge into the dust container for disposal.

! NOTICE

Do not pulse new dust collectors or replacement cartridge until the cartridge is properly seasoned per Section 5.2. Pulsing unseasoned cartridges can cause premature cartridge failure and decrease efficiency of the dust collector.

2.0 | SETUP AND INSTALLATION

2.0.1 | Select a location where compressed air and electrical service are available. The location must comply with OSHA and local safety codes. Refer to the following table for the collector height.

Model	Height
300 cfm	65 inches

2.0.2 | Refer to **Figure 2** and place the collector so the inlet flex hose has as few bends as possible. Determine the best location and position of all units before making the final assembly. Doing so will ensure there are no placement issues during maintenance.

2.1 | Setup

2.1.1 | The dust collector is shipped standing up. Place the skid close to the collector's final position and remove all shipping restraints.

! WARNING

Weight of an assembled dust collector varies slightly among models. A dust collector weighs approximately 500 lbs. Up-righting the collector and moving it into position should be performed by experienced personnel who are familiar with safety hazards associated with handling steel material of this sort, using only approved tools and hoists that are required for safe erection of this product.

2.2 | Positioning Dust Collector

2.2.1 | **Figure 2** shows typical arrangements and call outs when the dust collector is connected to a blast cabinet reclaimer.

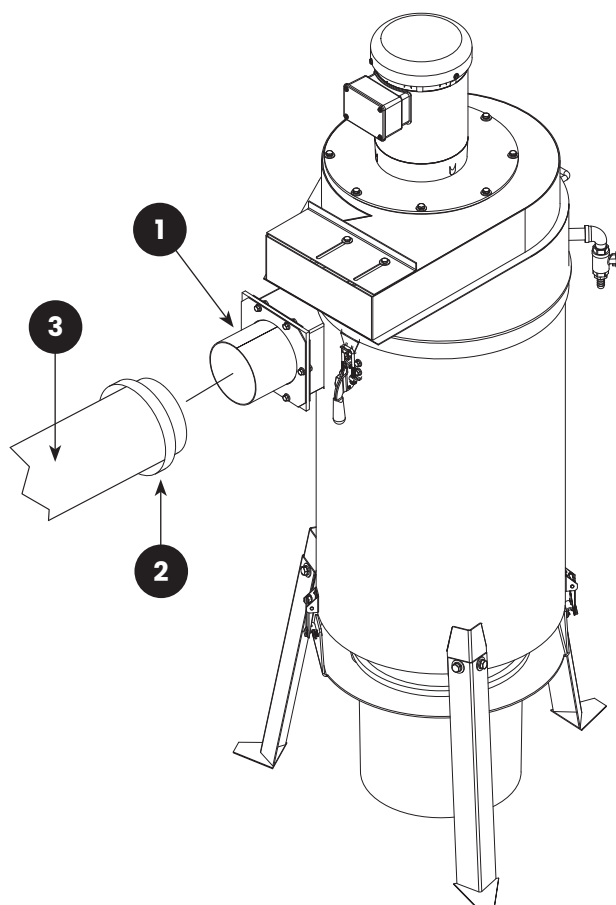


FIGURE 2: (1) DCU Air Inlet; (2) Hose Clamp; (3) Flexhose from Reclaim Outlet

2.2.2 | Position the collector in a convenient location that complies with OSHA and local safety codes. Provide ample space at the front to remove the fan and replace the cartridge, and to remove the dust container.

2.2.3 | Recheck orientation of the dust collector, blast cabinet and reclaimer, or other equipment the collector is servicing. When satisfied that all are correctly positioned, anchor the collector to the floor. **NOTE:** If there is any doubt about the final positioning of the dust collector, do not remove the lifting equipment until the collector is fully assembled, connected to the mating, equipment, and ready to be anchored.

2.2.4 | After the collector is firmly anchored, remove the lifting chain/sling.

2.3 | Flex Hose Connections

Removing the wire from the first two or three inches of hose eases installation and creates a tighter seal. Use care not to damage the hose. Secure the hose with worm clamps. The hose wire helps dissipate static in the conveying hose and helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

2.3.1 | Refer to **Figure 2** when connecting flex hose to a reclaimer, and connect the hose between the reclaimer and dust collector inlet pipe.

2.3.2 | Cut the hose to length to provide a connection loose enough to avoid stretching the hose, but taut enough to prevent excessive sagging. Support the hose if needed.

2.4 | Ground Dust Collector

2.4.1 | To prevent static electricity build up, attach an external grounded wire from an earth ground to the grounding lug located on the dust collector.

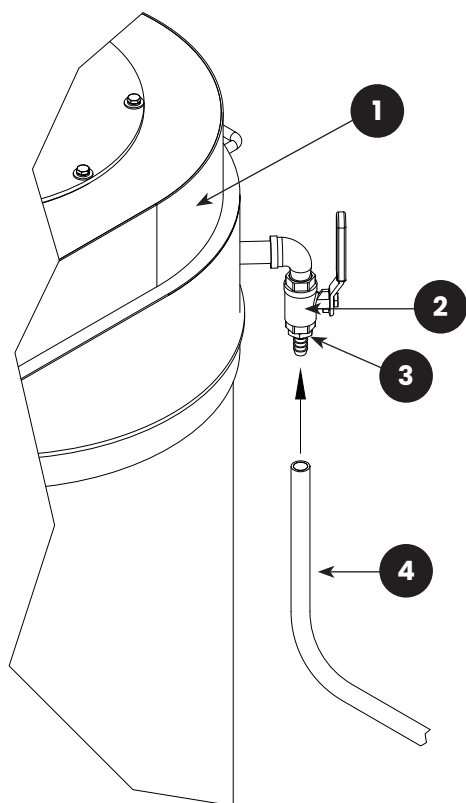


FIGURE 3: (1) DCU Top Assembly; (2) Pulse Valve; (3) 1/2" Barb Fitting; (4) 1/2" I.D. Air Hose

2.5 | Connect Compressed-Air Supply

Figure 3, for maximum filter life and efficiency, the pulse air source should be 30% relative humidity or less, and be free of any oil contaminants. If line air does not meet this requirement, an air dryer is recommended.

! WARNING

Failure to observe the following before connecting the equipment to the compressed-air source can cause serious injury or death from the sudden release of compressed air.

- Lockout and tagout the compressed-air supply.
- Bleed the compressed-air-supply line.

2.5.1 | Connect a 1/2" air hose to the 1/2in Barb fitting on the pulse valve (ball valve).

2.5.2 | Install an isolation valve at the compressed-air source to enable depressurization for service. Connect a 1/2" ID or larger air line from the air source to the fitting mounted on the pulse valve. A smaller diameter hose may reduce effectiveness of the filter pulse.

2.6 | Electrical Service

2.6.1 | Electrical Installation Notes

! WARNING

Shorting electrical components can result in serious electrical shocks or equipment damage. Electrical power must be locked out and tagged out before performing any electrical work. All electrical work or any work done inside a control panel or junction box must be performed by a qualified electrician, and comply with applicable codes.

Electrical requirements depend on the size and phase of the motor. Standard dust collectors are supplied as follows:

- 300 cfm, 1/2 HP, 115/208-230 V, 1 PH, 60 HZ FLA 115/7, 208/3.4, 230/3.5.

2.6.2 | Single-Phase Wiring for Blast Cabinets

2.6.2.1 | Refer to the wiring schematic in **Figure 4**. Wire the

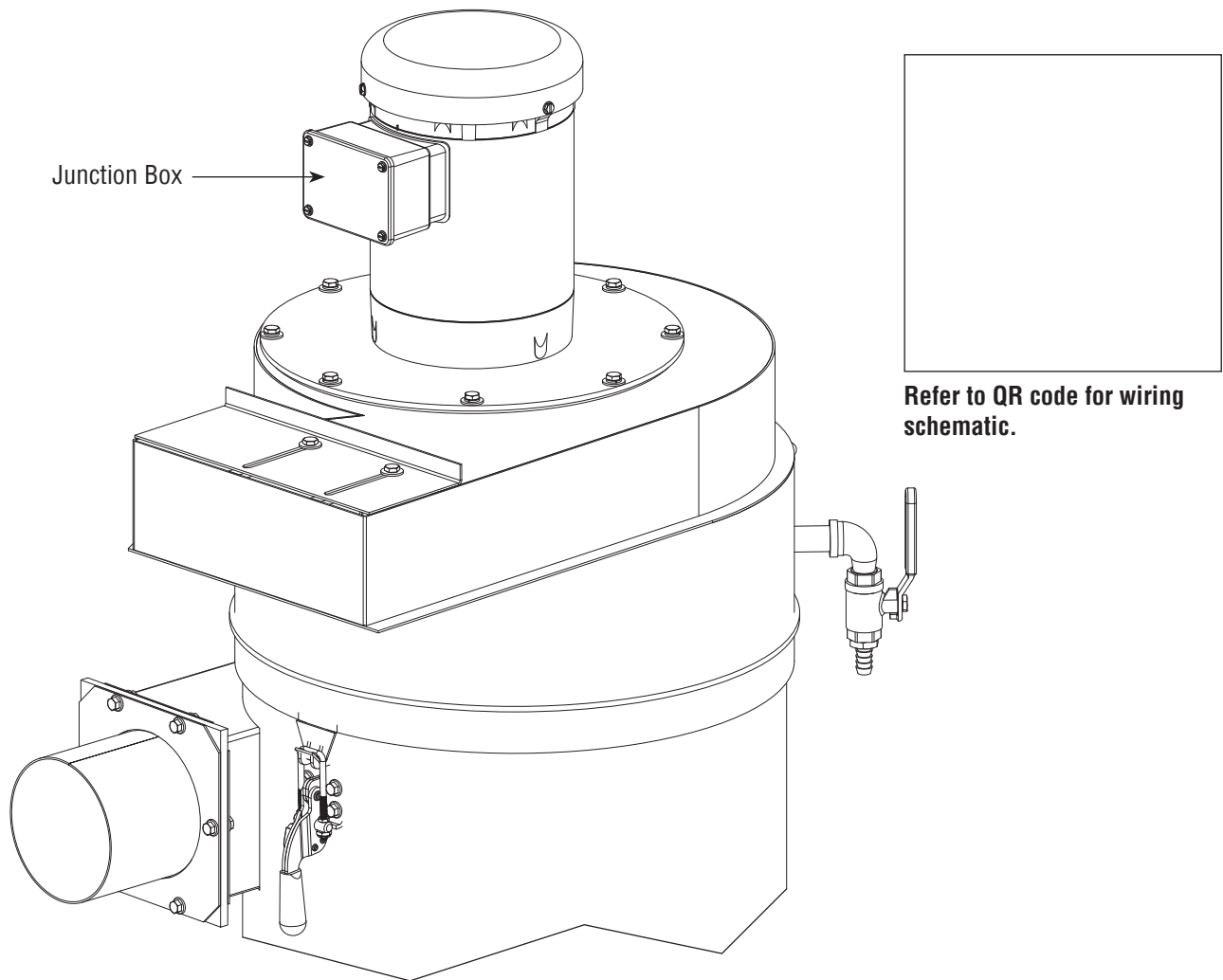


FIGURE 4

dust collector motor per instruction on the motor data plate to the junction box mounted on the cabinet. When wired as noted in **Figure 4**, the exhaustor motor will start when the cabinet light switch is turned ON and stop when the switch is turned OFF.

! WARNING

Do not look into the exhaustor outlet while the paddle wheel is turning. Injury to the eye or face can occur from objects being ejected from the exhaustor.

2.7 | Check Motor Rotation

2.7.1 | After wiring is completed, observe the following warning and check the motor rotation. To check rotation, jog the starter (momentarily turn switch ON and OFF). This causes

the motor to rotate slowly. Look through the slots in the motor fan housing where rotation of the fan can easily be observed. Proper rotation is indicated by the arrow on the exhaustor housing; the fan should rotate toward the exhaustor outlet as shown in **Figure 5**.

2.8 | Install/Change Filter Cartridge — Figure 6

NOTE: The filter cartridge is shipped loose to avoid damage during transportation.

! WARNING

Fall Hazard: Follow OSHA Regulations in 29CFR1910 Subpart D and F for fall protection when working above 4 feet.

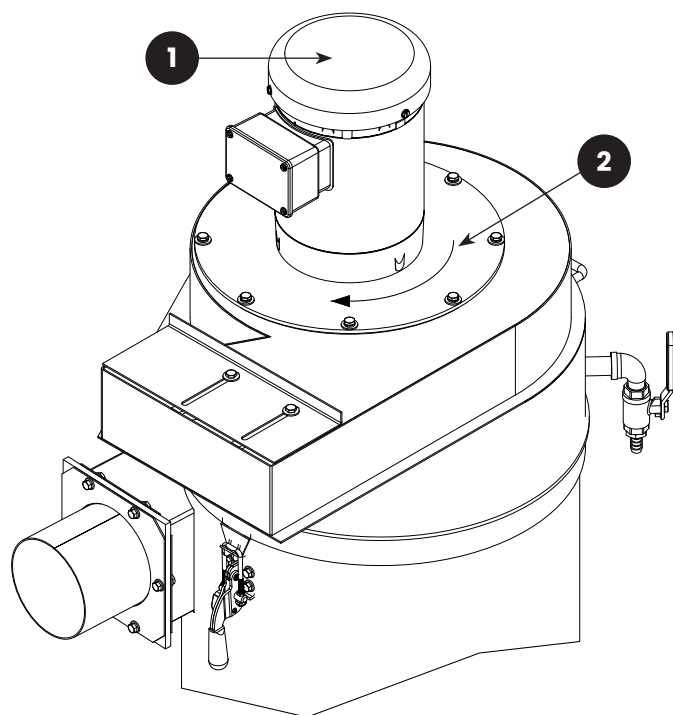


FIGURE 5: (1) Fan Motor; (2) Fan Rotation Arrow

2.8.1 | Unlatch the DCU Top Assembly from the DCU Body using the latches shown in **Figure 6**.

2.8.2 | Using two people, carefully lift the DCU Top Assembly off of the DCU Body and place to the side.

2.8.3 | Remove the three 3/8" bolts holding the filter in place.

2.8.4 | Lift and remove filter from the DCU body.

2.8.5 | Dispose of used filter cartridge.

! WARNING

When disposing of the filter cartridge, avoid inhaling dust particles, as they may contain harmful contaminants. Wear appropriate respiratory protection and handle the filter carefully to minimize dust exposure. Dispose of the cartridge in accordance with local regulations for hazardous or particulate waste. It is the customer and users' responsibility to be aware of the potential hazards associated with the dust generated by the abrasive blasting operation. Inhalation of hazardous dust can cause serious injury, including death.

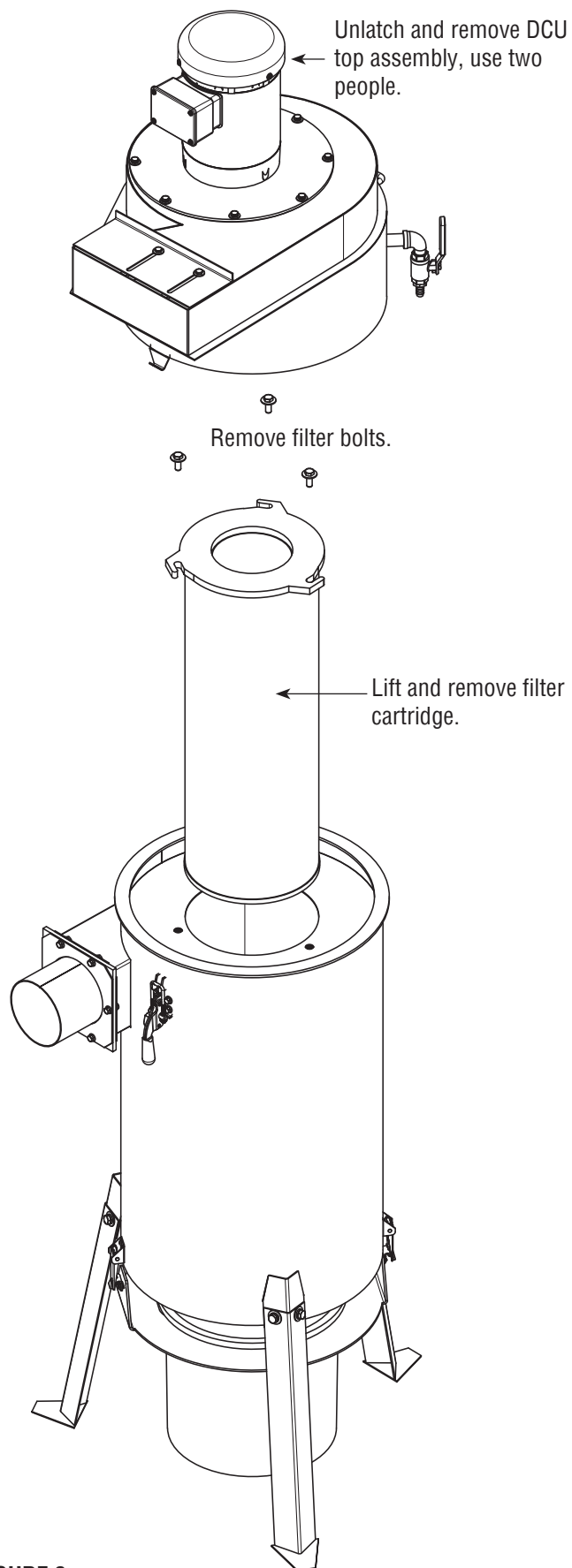


FIGURE 6

2.8.6 | Install new filter cartridge. Lower new cartridge into the DCU body.

2.8.7 | Replace the three bolts to hold the filter in place. Tighten so that the filter gasket is sealed on the DCU body.

2.8.8 | Using two people, replace the DCU Top Assembly back on the DCU Body and relatch.

2.8.9 | Follow Filter seasoning instruction in Section 5.2.

3.0 | OPERATION

! WARNING

Everyone operating and servicing this equipment must be made aware of the hazards associated with abrasive blasting; including handling toxic materials such as lead and dust. Toxicity and health risks vary with the type of media used and dust generated by blasting. Identify all material being removed by blasting, and obtain a Safety Data Sheet (SDS) for the blast media.

! NOTICE

The dust collector top, dust container cover, and flex hose must be secure when the dust collector is in operation.

3.1 | Initial Startup

3.1.1 | Pressurize the air supply line to the pulse valve and check all pneumatic connections for leaks.

3.1.2 | Refer to **Figure 7** and operate the manual pulse-valve. The collector should pulse every time the valve is operated.

NOTE: Do not hold the valve open; holding the valve open for more than a moment will not increase cleaning efficiency. Prolonged opening of the valve could cause dust leaks and needlessly consume compressed air.

3.1.3 | After the operation is checked, do not pulse the dust collector until the cartridge is seasoned per Section 5.2.

3.2 | Operational Startup

3.2.1 | Make sure the dust container is secure.

! NOTICE

Do not pulse a new dust collector or replacement cartridge until the cartridge is properly seasoned per Section 5.2. Pulsing unseasoned cartridges can cause premature cartridge failure and decrease the efficiency of dust collector.

3.2.2 | Switch ON the lights and exhauster. If wired according to the cabinet schematic, the ON/OFF switch located on the cabinet performs both functions.

3.3 | Pulsing (Cleaning) Dust Collector Cartridge

3.3.1 | The filter cartridge pulses each time the manual pulse-valve is operated; refer to **Figure 7**. With the exhauster running, quickly operate the pulse valve. Several pulses may be needed to clean the cartridge; wait about five seconds between pulses. Rapid repetitive pulsing may cause dust leakage.

3.3.2 | If the collector is used with a blast cabinet, begin pulsing the cartridge at least every half hour of blasting. Dusty blasting conditions will require more frequent pulsing. As the dust cake on the cartridge increases, more frequent pulsing is required.

NOTE: Handle shown in open position, close when done pulsing.

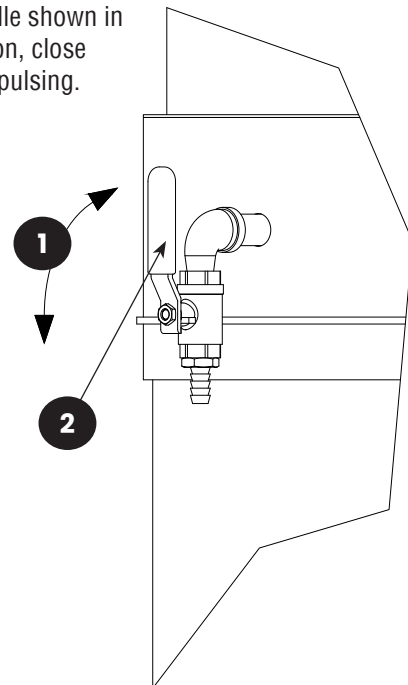


FIGURE 7: (1) Handle Rotation; (2) Pulse Valve Handle

3.4 | Shutdown

3.4.1 | Allow the collector exhauster to run until all system components are cleared or empty (refer to the accessory components manual) and all ventilated areas are free of airborne dust.

3.4.2 | Turn off the exhauster.

3.4.3 | Shut off the pulse-valve air supply.

3.4.4 | Empty dust container when it is no more than half-full. Refer to Section 4.1.

! WARNING

Prior to doing any maintenance or opening the dust collector, the employer must meet OSHA standards required but not limited to 29CFR 1910 for:

- Appropriate Respirator
- Protective Clothing
- Toxic and Hazardous Substances
- Fall Protection

Toxicity and health risk vary with type of dust generated by blasting. Identify all material that is being removed by blasting and obtain a Safety Data Sheet (SDS) for the blast media. Waste dust in the collector can cause serious injury or death through inhalation, absorption, or consumption. The employer shall meet all OSHA requirements including those for: confined space, combustible dust, fall protection, and hazard communication.

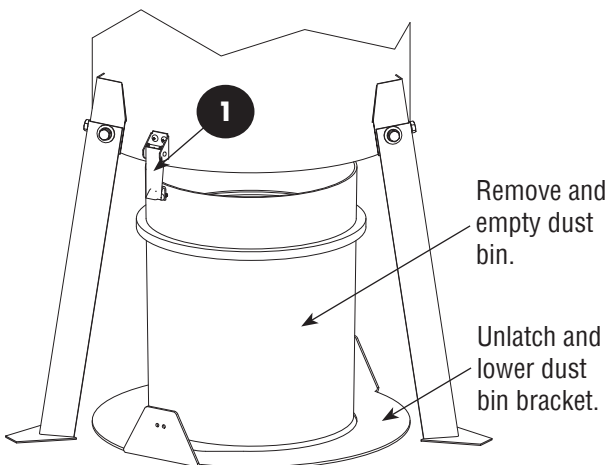


FIGURE 8: (1) Dust Bin Latch

4.0 | DAILY PREVENTIVE MAINTENANCE

4.1 | Inspect and Empty Dust Container

4.1.1 | Empty the dust containers regularly. Start by checking the containers at least daily and when adding media, then adjust frequency based on usage, contamination, and friability of the media.

! NOTICE

Inspect dust level in the dust container each time the collector is shut off and when adding new media to the cabinet. Empty the dust container when it is no more than half-full. Failure to monitor the dust level will overfill the collector and cause spillage, requiring extensive cleaning while wearing approved respirator and personal protection.

4.1.2 | Turn off the exhauster and unlatch the bin from the dust collector, as shown in **Figure 8**.

4.1.3 | Remove the bin from under the dust collector, tie off the dust bag, and place it into a suitable disposal receptacle.

4.1.4 | Replace the bin under the dust collector.

4.1.5 | Clip both latch hooks into the latch brackets and raise both latch handles to raise the bin, and latch it in place.

4.2 | Check Exhaust Air for Dust

4.2.1 | Dust discharge at the exhauster indicates a leaking or damaged filter cartridge that must be checked immediately. Note that a small amount of dust egress is normal for a short time when the cartridge is new before it is seasoned.

4.3 | Cartridge Pulsing

4.3.1 | Pulse the cartridge at least every half hour of cabinet blasting and before turning OFF the exhauster as noted in Section 3.3. Dusty blasting conditions and dust loading on the cartridge will require more frequent pulsing.

5.0 | SERVICE MAINTENANCE

WARNING

Prior to doing any maintenance or opening the dust collector, the employer must meet OSHA standards required but not limited to 29CFR 1910 for:

- Appropriate Respirator
- Protective Clothing
- Toxic and Hazardous Substances
- Fall Protection

Toxicity and health risk vary with type of dust generated by blasting. Identify all material that is being removed by blasting and obtain a Safety Data Sheet (SDS) for the blast media. Waste dust in the collector can cause serious injury or death through inhalation, absorption, or consumption. The employer shall meet all OSHA requirements including those for: confined space, combustible dust, fall protection, and hazard communication.

WARNING

Make sure the following conditions are met before performing any maintenance on the collector:

- Turn off compressed-air supply and drain air.

Failure to observe the above warnings can result in serious injury from the sudden release of trapped compressed air.

5.1 | Replacing Filter Cartridge

WARNING

NO DUST IS SAFE TO BREATHE.

The inhalation of airborne dust can cause injury and lead to serious respiratory illness and death. Always wear approved respiratory protection when servicing the dust collector, while handling filter bags and cartridges, and when emptying the dust container.

5.1.1 | Lockout and tagout the compressed-air supply and electrical power.

5.1.2 | Close the air-supply valve and bleed all air.

5.1.3 | Empty the dust container.

NOTE: Refer to Section 2.8 for Reference

WARNING

Lifting Hazard: Dust cartridges may exceed 50 pounds when dirty. Follow good material and lifting practices when changing filters.

5.2 | Seasoning Cartridge

5.2.1 | New cartridges must be seasoned before starting pulsing. Cartridge is seasoned by letting a layer of dust (dust cake) develop on the outer surface of the filter media. The dust cake protects the filter cartridge and enhances the filtering efficiency; it is the dust cake that actually does the filtering.

5.2.2 | Operate the cabinet without pulsing for about two hours or until visibility decreases, whichever comes first. At that time, begin pulsing as noted in Section 3.3.

6.0 | TROUBLESHOOTING

WARNING

Shut down the collector immediately if dust discharges from the exhaustor. Check the cartridge to make sure it is seated and not worn or damaged. Prolonged breathing of abrasive dust and blasting by-product dust can result in serious lung disease or death. Short term ingestion of toxic dust such as lead, poses an immediate danger to health. Identify all materials to be removed by blasting, and obtain a safety data sheet (SDS) for the blast media.

6.1 | Collector Not Pulsing

6.1.1 | Check the compressed-air supply; look for leaks or a closed supply valve.

6.1.2 | Check function of the pulse-valve located on the DCU Body; make sure it is operating correctly.

6.2 | Exhauster Not Running

6.2.1 | Exhauster overload could be tripped. Have a qualified electrician reset and check for overload.

6.2.2 | Make sure that the main disconnect is in the ON position.

6.2.3 | Make sure there is electrical power to the motor. Have a qualified electrician check for electrical malfunction.

6.2.4 | Motor faulty. Have a qualified electrician check for electrical malfunction.

6.3 | Dust Discharges from Exhauster

6.3.1 | Check for loose or damaged filter cartridge.

6.3.2 | Filter cartridge not seasoned. Refer to Section 5.2.

7.0 | REPLACEMENT PARTS

7.1 | Replacement Dust Collectors

7.1.1 | Dust collectors for cabinet use (12.5-ft. flex hose included)

- 300 cfm dust collector
- with 1/2 HP, 115-v/1/60 exhauster **32019**

7.2 | Field-Installed Accessories

- Sound foam, adhesive-backed, per sq. ft.
- 4 sq. ft. required, trim to fit **12484**

7.3 | Exhauster / DCU Top Assembly

1. Motor, 1/2HP, 3450 RPM..... **12308**
2. 1/4"-20 x 1.00 Hex HD Bolt..... **03053**
3. 1/4" Lock Washer **03117**
4. 1/4" Flat Washer **03116**
5. Motor Plate, DCU Top **32765**
6. 3/8" Lock Washer **03318**
7. 3/8"-16 x 1.00 Hex HD Bolt..... **03252**
8. 3/16" x 1.00 ADH. Backed Gasket..... **00186**
9. Weldt, Paddle Wheel, DCU..... **32764**
10. Damper Plate, DCU Top **32766**
11. Weldt, DCU Top **32763**
12. 1/2" NPT 90 Degree Street Elbow **01773**
13. 1/2" NPT Ball Valve Less Handle..... **01239**
14. 1/2" Ball Valve Handle..... **01252**
15. 1/2" Hose Barb to 1/2" NPT **11722**

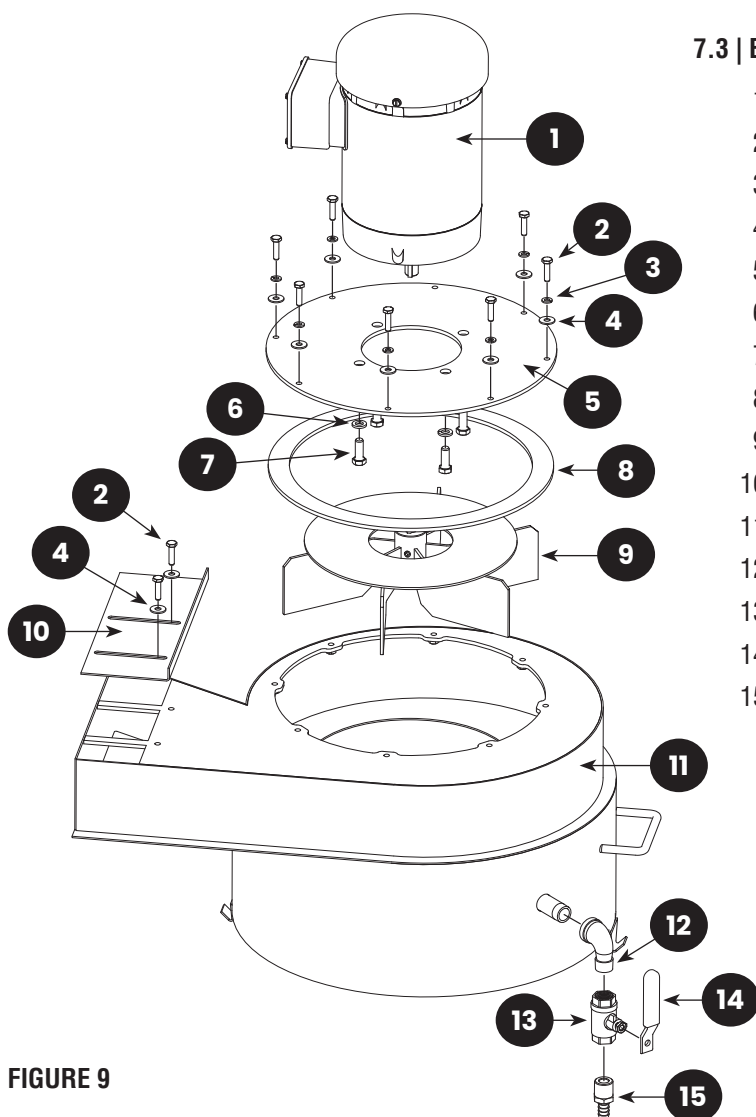


FIGURE 9

7.4 | DCU Body Assembly

1. 3/8"-16 x 1.00 Hex HD Bolt.....	03252
2. 3/8" Flat Washer	03317
3. Filter, 9" Diameter x 26"	32777
4. 3/16" x 1.00 Gasket	00186
5. Weldt, Body, DCU	32780
6. 1/4"-20 x 3/4" Hex Flange Bolt.....	28060
7. U Hook Latch Clamp	31692
8. Weldt, Air Inlet, DCU	32781
9. 1/4"-20 Flange Hex Nut.....	28063
10. Latch, Bucket, DCU	32778
11. 10-24 x 1/2" Pan HD Screw	12062
12. Bracket, Bucket Holder, DCU.....	32776
13. Bucket Dust.....	32779
14. 3/8" Lock Washer	03318
15. Weldt, Leg, DCU.....	32782

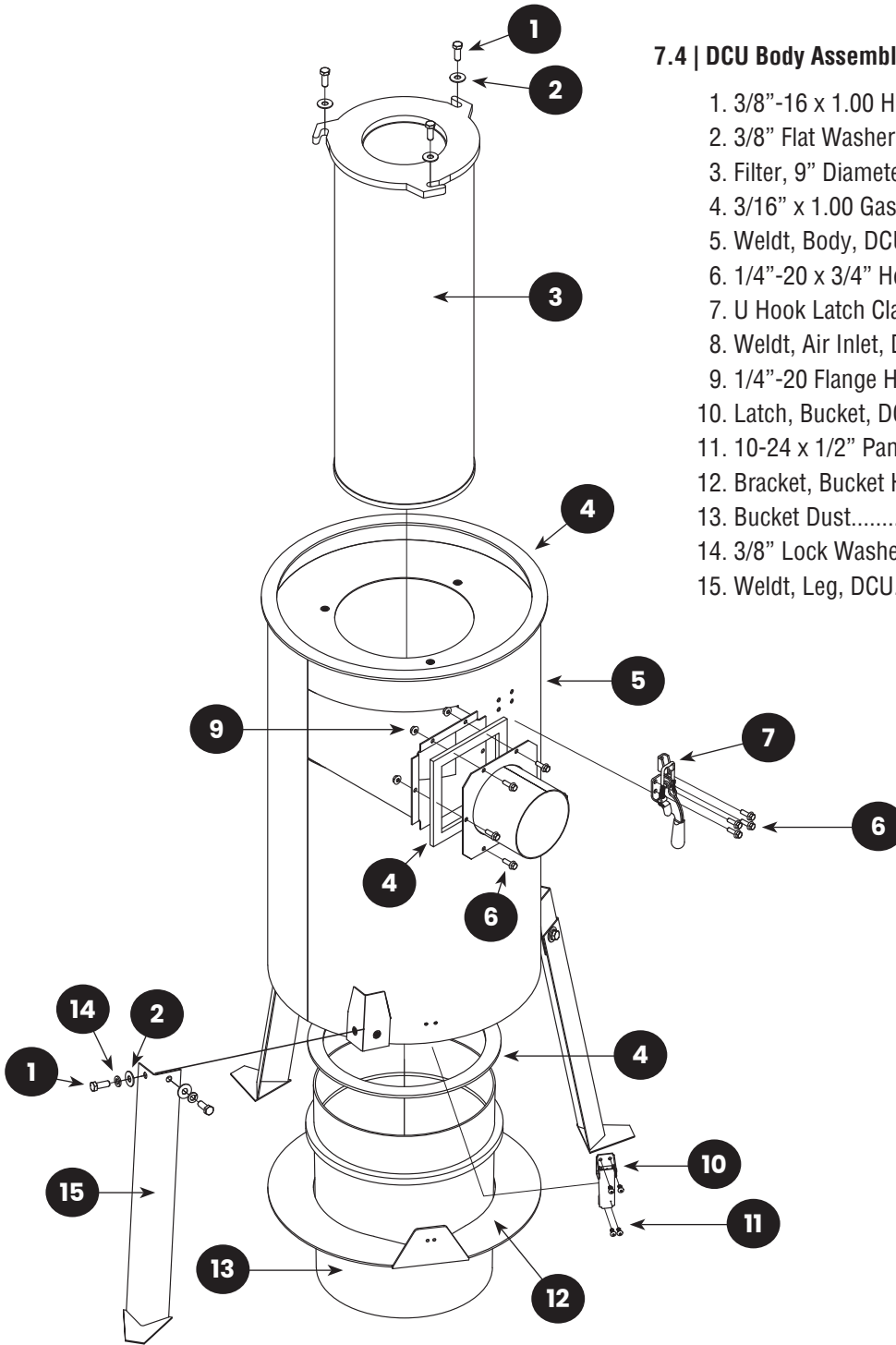


FIGURE 10

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DCU DUST COLLECTOR

CM 32541



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