OPERATING INSTRUCTIONS

EMPIRE ABRASIVE EQUIPMENT

Pneumatic Recovery System (PRS)

PRSoi415

Model Number: _____ **Serial Number:** _____

Date of Purchase: _____ **Date of Installation:** _____

Place of Purchase: Distributor Name: _____

Address: _____

Phone: _____ Email: _____

Manufacturer: Empire Abrasive Equipment Co., 2101 W. Cabot Blvd. Langhorne, PA 19047-1893
• **Phone:** 215-752-8800 • **Fax:** 215-752-9373
• **Email:** Airblast@empire-airblast.com • **Web:** www.empire-airblast.com

Empire equipment should be properly maintained per the operating instructions. For peak performance of your equipment, use only genuine Empire replacement parts; accept no substitutes! **The use of non-Empire parts may void the warranty.**

PARTS AND SERVICE: **1-800-497-4543**

To order Empire replacement parts, contact your local authorized Empire distributor. For the name of you local distributor, call Empire Customer Service (800-497-4543), send us a Fax (215-752-9373), or Email us on our Website (www.empire-airblast.com). We **will** call you back.

NEVER USE SILICA SAND IN ANY EMPIRE EQUIPMENT.

● ● ● WARNING: Safety Precautions ● ● ●

Failure to follow all the manufacturer's instructions for operator safety equipment and blast equipment could result in ***serious injury or death****.*

• Read this manual completely before installing and operating the SuperBlast® equipment.

• For maximum operator safety, use protective equipment. NIOSH/OSHA require the use of a respirator (air-fed hood) with proper air supply, remote controls, canvas jacket, pants, and leather gloves.

• OSHA requires that the air-fed hood be equipped with a personal air filter, grade "D" compressed air, and CO monitor or an ambient air pump.

• Always use safety wires when joining blast hose and air hose couplings.

• Always check filters before blasting.

• Ensure that there is an adequate air supply to both the operator's helmet and the pressure vessel.

● ● ● Safety Note: ● ● ●

Operating instructions for operator safety equipment, such as respirators (air-fed hoods), personal air filters, and ambient air pumps, are provided separately by their manufacturer.

OPERATING INSTRUCTIONS: Pneumatic Recovery System (PRS)

Table of Contents

1.0 Introduction

1.1 Contents of this Manual

This manual will provide the user a basic background in the operation and maintenance of Empire's Pneumatic Recovery System (PRS). The PRS provides an economical method of blasting and reclaiming abrasives.

Read this manual carefully and keep it handy for future reference.

1.2 Additional Information

If you have any questions regarding the operation or maintenance of any Empire equipment, please contact your local Empire distributor. Every Empire distributor is qualified to assist you with service and offers a complete stock of replacement parts. You may also contact Empire's Technical Service Department at 800-497-4543.

2.0 Description

The Pneumatic Recovery System (PRS) consists of a high-performance, high-vacuum dust collector and fan with a 900 CFM reclaimer and a storage hopper designed to fit on top of a portable pressure vessel. The pressure vessel may be existing or supplied with the system.

The Pneumatic Recovery System is illustrated in Figure 2-1 and the parts list is provided in Table 2-1. Reference numbers in Figure 2-1 correspond to the numbered items in Table 2-1.

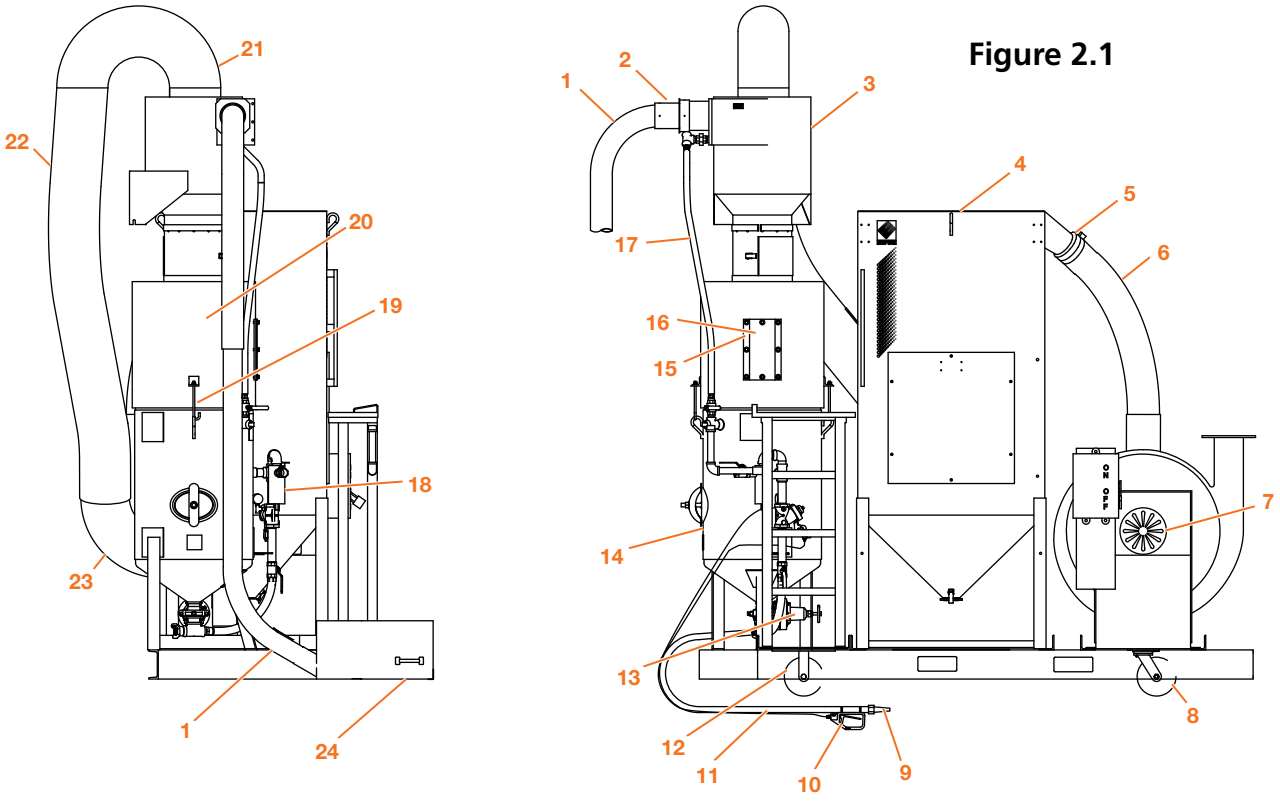


Figure 2.1

Table 2.1

MODEL		PRS-6	PRS-6S	PRS-10	PRS10-S
Item	Description	PART NUMBERS			
1	Hose, heavy duty, 4” diameter (25’ standard; lengths to 50’)	515911	515911	515911	515911
2	Adapter, 4” x 6”, reclaimer inlet	764032	764032	764032	764032
3	Reclaimer assembly, 6” inlet (does not include PN 764032) *(See page 17 for details.)*	140441	140441	140441	140441
4	Dust collector, DCM-200HV PRS *(See page 14 for details.)*	113300	113300	113300	113300
	Dust collector, CDCHV *(See page 15 for details.)*	113020	113020	113020	113020
5	Clamp, 6”	520551	520551	520551	520551
6	Hose, 6” dia. x 8’	515641	515641	515641	515641
	Hose, 6” dia. x 11’, used with optional leg extension kit	516101	516101	516101	516101
7	Blower assembly, 208V, 60 Hz, 3 phase	549932	549932	549932	549932
	Blower assembly, 460V, 60 Hz, 3 phase	549942	549942	549942	549942
	Blower assembly, 575V, 60 Hz, 3 phase	549952	549952	549952	549952
	Blower motor only, 10 hp, 460V, 60 Hz, 3 phase	549972	549972	549972	549972
	Blower wheel kit (includes wheel and bushing for fan before 2003)	549943	549943	549943	549943
	Blower wheel (for fan before 2003)	549944	549944	549944	549944
8	Caster, swivel with lock	511511	511511	511511	511511
9	Nozzle, SCV-5 (5⁄16” silicon carbide)	502732	502732	502732	502732
10	Pneumatic Saf-Stop II remote control handle	290164	290164	290164	290164
11	Dual-line hose (55’) with fittings	521892	521892	521892	521892
12	Caster, rigid	511521	511521	511521	511521
13	Automatic Sure-Flo® grit valve	NA	290215	NA	290215
14	Pressure vessel assembly, 780 systems	NA	221004	NA	241004
	Pressure vessel assembly, room systems	NA	235651	NA	235051
15	Hold down, window	768262	768262	768262	768262
16	Window	526231	526231	526231	526231
17	Blast hose, 1”, for exhaust (9 feet required)	520822	520822	520822	520822
18	Pipe string assembly, 780 systems	Call	Call	Call	Call
	Pipe string assembly, room systems	Call	Call	Call	Call
19	J-bolt, 3⁄8” - 16 x 8”	764484	764484	764484	764484
20	Storage hopper assembly	290476	290476	290477	290477
	Gasket, 7’ for PRS-6 & 6S (specify length), PRS-10 & 10S precut	523641	523641	524443	524443
21	Elbow, 10”, 180° at top of reclaimer	548010	548010	548010	548010
22	Dust hose, 10” x 10’	516887	516887	516887	516887
23	Elbow, 10”, 90° a dust collector inlet	790228	790228	790228	790228
24	Media recovery hopper, 30” x 30” x 12”	768211	768211	768211	768211

2.1 Principles of Operation

After blasting, media which falls on the floor of the blast enclosure can be shoveled into the portable media recovery hopper or swept into an optional 8, 10 or 12 foot long recessed floor trough. The 10 hp blower pneumatically conveys the media to the tunable cyclonic reclaimer. The reclaimer separates the reusable media from dust and fines, which are carried to the high-vacuum dust collector. The reusable media drops into the storage hopper and is held until needed to refill the pressure vessel.

3.0 Set-Up

The PRS consists of a skid-mounted fan, dust collector, and pressure vessel (if supplied). Shipped separately are the media storage hopper, recovery hopper (or optional recovery trough), dust hose, heavy-duty recovery hose, blast hose(s), and reclaimer — plus optional items ordered.

If you have purchased a system without wheels, locate the PRS in a position that allows access for maintenance and is reasonably close to your blast enclosure. There is an access panel on the dust collector for changing filters. The reclaimer band will require adjustment, the screen inside the reclaimer will require cleaning, and the pressure vessel pipe string must also be accessible.

The PRS is not to be located within a blast enclosure. The skid should be placed just outside the enclosure. You will need to make several holes in your blast enclosure to connect the blast and remote control hoses, the breathing air hose, and the reclamation hose.

3.1 Component Assembly

Step **Procedure** ***(Reference Figure 2.1)***

1. Remove the bolts and washers from the top of the media storage hopper ***(20)***. They will be used to mount the reclaimer later. If you have purchased a system that includes a pressure vessel, go directly to **Step 5**. Please note the location of the viewing window on the storage hopper. The hopper should be oriented so that the window is easily accessible. There is a ladder mounted to the front of the skid to allow the operator to easily check the media level in the storage hopper.

2a. If the media storage hopper is to be mounted to an existing Empire SuperBlast® Portable Pressure Vessel, it should be firmly secured to the two lifting eyes with the J-hooks provided.

2b. If the storage hopper is to be mounted to a pressure vessel without lifting eyes, use the optional clamping ring.

Make sure the gasket on the inner lip of the storage hopper is sealed against the top of the pressure vessel.

NOTE:

ASME Code pressure vessels can not be welded, cut, ground or altered in any way, except by properly qualified personnel. Any alteration or repair to these vessels requires recertification by a licensed inspector.

3. Bolt or weld the pressure vessel legs to the PRS skid. You may need to make modifications to the legs of the pressure vessel or to the skid.

● ● ● WARNING ● ● ●

Do not attempt to fill hopper or operate PRS without securely mounting pressure vessel legs to PRS skid and storage hopper to pressure vessel. Failure to do so may result in serious injury or death.

4. **DCM-200 HV Dust Collector** — Connect the ¼" air hose to the fitting on the front of the dust collector above the right leg. If possible, connect the other end to a fitting on the pressure vessel pipe string, using line pressure air. This air line is required to operate the cylinder in the dust collector that shakes the bags.

   CDC-HV Dust Collector — Connect the provided air hose to the top right of the collector. If possible, connect the other end to a fitting on the pressure vessel pipe string, using line pressure air. This air line is required for the reverse pulse cleaning of the filter cartridges. *(See instructions on collector for more information.)*

5. Set the flat screen in place over the hole in the top of the media storage hopper. Use the bolts from Step 1 to mount the reclaimer ***(3)*** to the top of the media storage hopper ***(20)***. Confirm that the gasket between the hopper and the reclaimer is in place and in good condition, as an air-tight seal is vital. Pay particular attention to the orientation of the 4" inlet on the side of the reclaimer. The recovery hose will be connected to that inlet. Also note that the door of the reclaimer should face the front of the machine. There is a ladder welded to the skid that allows maintenance personnel to clean the screens in the reclaimer. Open the reclaimer door and insert the basket screen atop the flat perforated screen in the reclaimer.

6. Insert one end of the 4" heavy duty recovery hose ***(24)*** to the inside of the reclaimer inlet. Use the pre-drilled holes and the screws provided to secure the hose to the reclaimer adapter ***(2)***. Apply silicone caulk around the hose to provide a completely airtight connection.

7. Connect the other end of the 4" heavy duty recovery hose to the recovery hopper ***(25)*** using the special spiral clamp provided.

8. Install the 10" diameter dust hose ***(22)*** between the reclaimer outlet elbow and dust collector ***(4)*** inlet located at the bottom, in the rear. Use the worm gear clamps provided. Insure that the connections are air-tight.

9. Attach one end of the 1" exhaust hose ***(17)*** to the hose barb on the reclaimer. Connect the other end to exhaust valve on the pressure vessel and clamp both ends.

3.2 Electrical Connections

The PRS is powered by a 10 horsepower high pressure fan ***(7)***. A fused disconnect is provided for the fan motor. The supply wiring to the fused disconnect must be sized and wired by a qualified electrician in accordance with the standards outlined in the National Electric Code Article 430 and all applicable local codes.

The fused disconnect furnished provides branch-circuit short-circuit, ground-fault and over-load protection for the fan motor in accordance with the National Electric Code.

NOTE:
Make sure the fan rotates in the correct direction, shown by the arrow on the side of the fan housing.

3.3 Compressed Air Requirements

The only compressed air requirement for this machine is for the blast nozzle. The volume of air required depends on the size of the nozzle used and the desired blast pressure. See the air requirement chart below to determine your minimum compressed air requirements. Keep in mind that nozzles do wear out. As the orifice in the nozzle enlarges, your air requirement increases.

IMPORTANT:
For proper operation, your system requires dry, clean air. Moisture or oil in your compressed air supply can contaminate abrasive and prevent it from flowing freely, resulting in inefficient blasting. If a pressure vessel was purchased with the system, then the unit is equipped with a manual drain separator which will help remove condensation. However, this separator is not designed to clean grossly contaminated air.

The chart below shows the amount of air (cfm) required to operate the most commonly used nozzles at typical blast pressures.

Blast Pressure	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi
3⁄16" nozzle orifice	30	33	38	41	45	—
1⁄4" nozzle orifice	54	61	68	74	81	97
5⁄16" nozzle orifice	89	101	113	126	137	152
3⁄8" nozzle orifice	126	143	161	173	196	220
7⁄16" nozzle orifice	170	194	217	240	254	300
1⁄2" nozzle orifice	224	252	280	309	338	392
5⁄8" nozzle orifice	356	404	452	504	548	611

3.4 Pressure Vessel

If you purchased or are using an Empire pressure vessel ***(14)*** with your system, see the attached SuperBlast® Operating Manual for set-up and operation.

The standard pressure vessel for this system is equipped with 780 pneumatic controls.

4.0 Operation

Your system is designed to allow one operator to blast within an enclosed area. After the operator has blasted, spent media can be swept or shoveled from the floor into the low profile recovery hopper provided. (Snow shovels are very efficient, low-cost tools for collecting media from the floor).

Empire does not recommend having one operator blasting while another is sweeping. If you choose to blast and recover simultaneously, precautions must be taken so that the blast is not directed at personnel. While blasting is taking place, all personnel inside the blast enclosure must wear the appropriate OSHA safety equipment.

4.1 Start-up

After the hoses, controls, power supply and compressed air supply are connected, the system is ready for use. Double check all hose connections to be sure that they are air-tight and that safety pins have been installed in all blast hose quick couplings. Inspect the interior of the pressure vessel for cleanliness. Remove any debris that may be present.

4.2 Media Loading

1. Make sure pressure vessel is depressurized. Start the blower.

2. With the blower running, load the initial charge of media into the recovery hopper. The amount of media required to fully charge your system is shown below:

   Pounds of media required for full charge:

6.5 ft^3 system:	1,680 steel grit	1,380 steel shot	900 alox	780 garnet
10.5 ft^3 system:	2,800 steel grit	2,300 steel shot	1,500 alox	1,300 garnet

3. When the pressure vessel is three-quarters full, pressurize the pressure vessel to allow the storage hopper to fill. Observe the media level in the storage hopper through its viewing window. Do not let the storage hopper overfill as this can interfere with both the reclaimer and the pressure vessel's operation.

DO NOT OVERLOAD THE SYSTEM!

It is designed to operate with a full pressure vessel and a full storage hopper. Additional media in the system will cause reclamation and blasting problems.

NOTE:

Total weight of media loaded into any Pneumatic Recovery System must never exceed 3,000 pounds. Loading more than 3,000 pounds could cause structural damage to the system.

4.3 Blasting

Follow manufacturer's instructions for operation of your pressure vessel. If you are using an Empire pressure vessel, see the Operating Instructions for the SuperBlast® Portable System for safe operation.

4.4 Media Recovery

To begin media recovery, start the fan motor and then shovel media into the low profile recovery hopper. This hopper is designed to meter the media at a controlled rate so as not to overload the conveying system. In addition to the standard above floor hopper, optional in-floor troughs up to 12' long are available. *(See page 18 for details.)*

The PRS is capable of reclaiming up to A-12 aluminum oxide or G-25 steel grit.

The media recovery hopper is designed to be used with 25 feet of 4" heavy duty recovery hose.

If the clean-up operator will be working at the same time as the blast operator(s), then he **must** be furnished with an OSHA compliant air-fed breathing system and protective clothing. Again, precautions must be taken so that the blast is not directed at any personnel.

4.5 Reclaimer Fine Tuning *(See Figure 7-3, page 17)*

A key feature of the recovery system is the reclaimer's ability to separate unusable dust from good media. This improves visibility in the blasting area and increases the blast effectiveness. The reclaimer is adjustable so that it may work with different types and sizes of media. The tuning band ***(8)*** is joined at both ends by a bolt that must be loosened before adjusting the band to allow more or less secondary air. The slot pattern in the reclaimer body has one slot omitted. The joined ends of the band must be located over the area of the omitted slot. The larger the opening, the more secondary air introduced. With more secondary air comes more carry-over to the dust collector.

Step 1. Move the band by sliding in one direction until 1/16" of opening is created between the band and reclaimer slots.

HELPFUL HINT:
Place a pencil mark on the band and a corresponding mark on the reclaimer body.

Step 2. Turn the blower on and shovel media into the recovery hopper.

NOTE:
Dust collectors require a light coating of dust on their filters to achieve maximum efficiency (referred to as "seasoning"). Until your filters are "seasoned," the system may require periodic adjustment.

Step 3. Shut down the blower. Dump the waste from the dust collector and check it for usable media.

Step 4. If no media is found in the waste, open the reclaimer metering band 1/16" to expose more of the reclaimer body slot area (let more air pass).

Step 5. Make a new reference mark on the reclaimer body.

Repeat steps 1 through 5 until media is present in the dust collector waste.

Step 6. When you find more than a trace amount of media in the dust collector waste, move the reclaimer metering band back to the last mark on the reclaimer body.

Once your filters are seasoned, you should receive consistent reclamation of good media.
The proper opening for the tuning band will vary depending on the type and size of media and

the condition of the dust collector bags. The proper tuning band setting must be determined by trial and error. When a system is new, the tuning band may have to be adjusted periodically to make sure the proper sized media is retained. After the system is "broken in," it will be possible to "set and forget" the tuning band.

● ● ● WARNINGS ● ● ●

1. Explosive Dust
Dust is generated from blast media, removed coatings and substrates. An extreme concentration of dust may combust if ignited by spark or flame. As a precaution, clean the system and empty the dust collector often. Change media that has excessive dust concentration.

2. Emptying the Dust Collector
Empty dust collector after each bag or cartridge filter cleaning. Always wear an appropriate dust mask when emptying dust collector or changing filter bags or cartridges.

4.6 Dust Collector *(See Figure 7.1, page 14 for DCM-200HV. See Figure 7.2, page 15, for CDC-HV.)*

Shake DCM-200HV bags by pushing the "bag shake" button 10 to 15 times. The fan must be off when cleaning the bags. Always empty the waste container after shaking bags.

Instructions for cleaning CDC-HV filters appear on the unit.

5.0 Maintenance

Most of the maintenance required for your system will pertain to the pressure vessel. Follow the recommendations in the manufacturer's operating and maintenance manual. Other maintenance required is listed below.

5.1 Every Four Hours

DCM-200HV dust collector: Shake bags by pushing the "bag shake" button 10 to 15 times. The fan must be off when cleaning the bags. Empty dust from dust collector.

CDC-HV dust collector: Check the reading on minihelic gage. Follow the cleaning instructions on the collector when the gage reaches "4."

5.2 Daily

a. Check operator's protective equipment, such as air-fed hood, lenses, gloves and protective clothing.

b. Clean screen in recovery hopper and in cyclone reclaimer.

c. Empty dust from dust collector.

d. Check that all hoses are in good condition and tightly secured, (i.e. recovery, dust, blast and remote control hoses).

5.3 Hoses

All hoses are specially constructed to withstand the high static pressure generated by the blower. Replace worn hoses with genuine Empire replacement parts.

5.4 Blower

WARNING

This fan has moving parts that can cause serious bodily injury.

The fan and accessories should be inspected upon receipt for any shipping damage. Turn the wheel by hand to see that it rotates freely and does not bind. Also verify that the taper-lock bushings are tight and lubricated.

Lubrication: Bearings should be lubricated with a premium quality lithium-based grease conforming to NLGI Grade 2 or 3. Examples are:

Mobil – Mobilith AW2, Texaco – Premium RB, Gulf Oil – Gulf Crown #2 or #3 and Shell – Alvania #2 or #3

Do not use "high temperature" greases, as many are not formulated to be compatible with fan bearings. Add grease to the bearing while running the blower or rotating the shaft by hand. Be sure all guards are in place if lubrication is performed while the blower is operating. Add just enough grease to cause a slight purging at the seals. Do not over-lubricate.

Lubricate the ball bearings every 2 to 4 months and roller bearings monthly.

5.5 Photohelic Controlled Pulse Jet Cleaning

Turn ON the compressed air supply to the dust collector compressed air manifold. Adjust regulator to 60 psig of pressure. Pressure of 60 psig is the most typical setting for satisfactory cleaning performance. Adjust the photohelic low setpoint to 2 inches and the high setpoint to 4 inches.

WARNING

DO NOT adjust ON TIME. It has been factory adjusted. Too much or too little ON time can cause shortened filter element life.

Pulse On Time: Factory set at 100 milliseconds (1/10 second). Off Time: Adjustable 1.5 to 30 seconds, factory set at 30 seconds. Operating Temperature Range: -40 degrees to +150 degrees F.

Solenoid Valves: 115 VAC at 19.7 watts each.

6.0 Troubleshooting

For problems with the pressure vessel, refer to the manufacturer's operation and maintenance manual. Troubleshooting for the pneumatic reclaim portion of your system is described below.

Problem	***Cause***	***Remedy***
Media carry-over to dust collector	Too much secondary air	Close tuning band *(See Section 4.5)*; check for air leaks between storage hopper and pressure vessel, and between hopper and reclaimer; close optional fan damper.
Dust in good media	Not enough secondary air	Open tuning band *(See Section 4.5).*
No reclamation	Air inlet blocked	Clear recovery hopper air inlet (front, bottom of recovery hopper).
	Recovery hose plugged	Clear hose.
	DCM-200HV collector: Dust collector or bags clogged	Shake filter bags and/or empty dust collector.
	CDC-HV collector: Dust collector or filters clogged	Check reading on "minihelic" gage; Follow instructions on collector.
	Exhaust blockage	Clear blower exhaust.
	Air leaks	Check for holes in hoses or leaks in hose connections.
	Incorrect wiring	Check fan rotation.

7.0 Replacement Parts

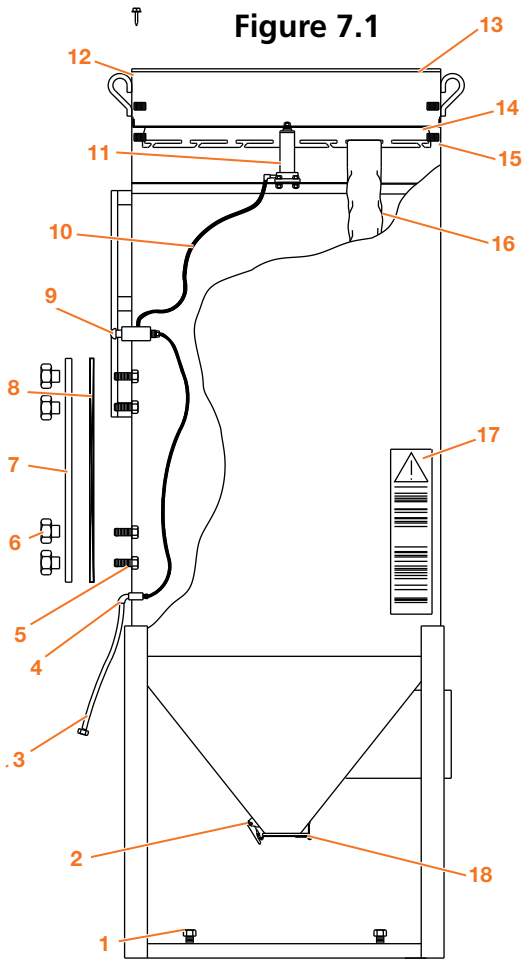
Figure 7-1 illustrates the bag-house dust collector and its components. Table 7-1 provides a parts list. The reference numbers in Figure 7-1 correspond to the numbered items in Table 7-1.

Table 7.1

DCM-200HV Dust Collector (Part # 113300)

Item	Description	PART#
1	Bolt, levelling, ⅜" - 16 x 2" (4 required)	553892
2	Latch and keeper (requires welding)	509581
3	Hose with fittings, ¼" x 16', dust collector	523161
4	Adapter, ¼" tube x ¼" MPT (inlet)	521081
5	Bolt, ⅜" - 16 x 1¼" (6 required)	551852
6	Knob, ⅜" - 16 (6 required)	510461
7	Access door, dust collector	768342
8	Gasket, access door, ⅝" x ⅝", 103" section Gasket, ⅝" x ⅝" (specify length)	525711 525061
9	Valve, push-button, ⅛" NPT & #10 - 32, "3P" Barbed fitting, ¼" tube x #10 - 32, 2 per assembly Adapter, ¼" tube x ⅛" MPT, 90° (for air cylinder)	517221 521101 520432
10	Tubing, ¼" OD (8' required)	510541
11	Air cylinder, standard collector and auto shaker Air cylinder, auto-pneumatic bag shaker only	515981 515771
12	Gasket, top plate, ⅛" x ¼" x 12'	523551
13	Top plate	768332
14	Bag-rack weldment	760921
15	Rubber bumper (8 required)	523541
16	Dust bag, cotton sateen (30 required)	515521
16	SuperSmooth dust bag (optional) handles severe dust loading (30 required)	516181
17	Decal, Instruction/Warning	567405
18	Gasket, clean-out door, dust collector	524351
	Decal, Empire logo	564305
	Decal, orange dot strip	564301
	Paint, 6 oz. aerosol, beige	564476

Figure 7.1



DCM-200HV Options

	PART NUMBERS FACTORY INSTALLED	PART NUMBERS CUSTOMER INSTALLED
Automatic bag shaker cleans bags thoroughly every time the system is turned off.		
Electric shaker	140340	140390
Pneumatic shaker	140683	140684
HEPA filter captures very fine particles.	140215	140215
HEPA filter, pressure differential gage assembly informs operator regarding filter cleanliness.	140221	140221
Leg extension kit (includes stand and lid assembly) raises collector so larger collection drum can be placed underneath.	140256	140256
SuperSmooth dust bags (30 required with customer installation) handle severe dust loading.	140682	516181

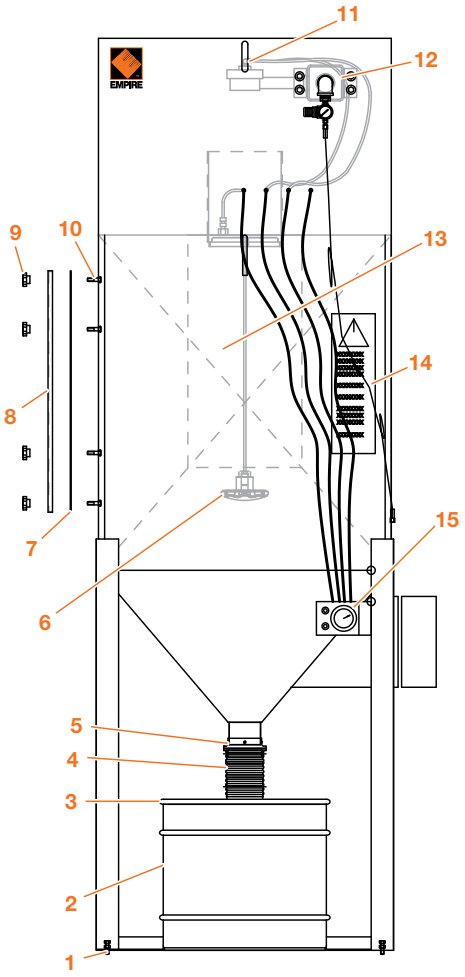
Figure 7-2 illustrates the cartridge type dust collector. Table 7-2 provides a parts list. The reference numbers in Figure 7-2 correspond.

Table 7.2

CDC-HV Dust Collector (Part # 113020)

Item	Description	PART#
1	Bolt, levelling, ⅜" - 16 x 2" (4 required)	553892
2	16-gallon drum	504016
3	Lid for 16 gallon drum	850099-1
	Gasket, dust drum lid, 5' (not shown)	800166
4	Tube	523750
5	Hose clamp, 4" (2 required)	520531
	16 gallon drum assembly (includes items 2 through 5)	113015
6	Knob, filter clamping assembly	515526
7	Gasket, access door, ⅝" x ⅝", 103" section	525061
	Gasket, ⅝" x ⅝" (specify length)	525061
8	Access door, dust collector	760851
9	Knob, ⅜" - 16 (6 required)	510461
10	Bolt, ⅜" - 16 x 1¼" (6 required)	551852
	Empire logo	564305
11	Diaphragm valve (2 required)	516352
12	Air supply assembly	140851
13 *	Cartridge filter (2 required)	515525
14	Decal, Instruction/Warning	567406
15	Mini-Helic package	550450

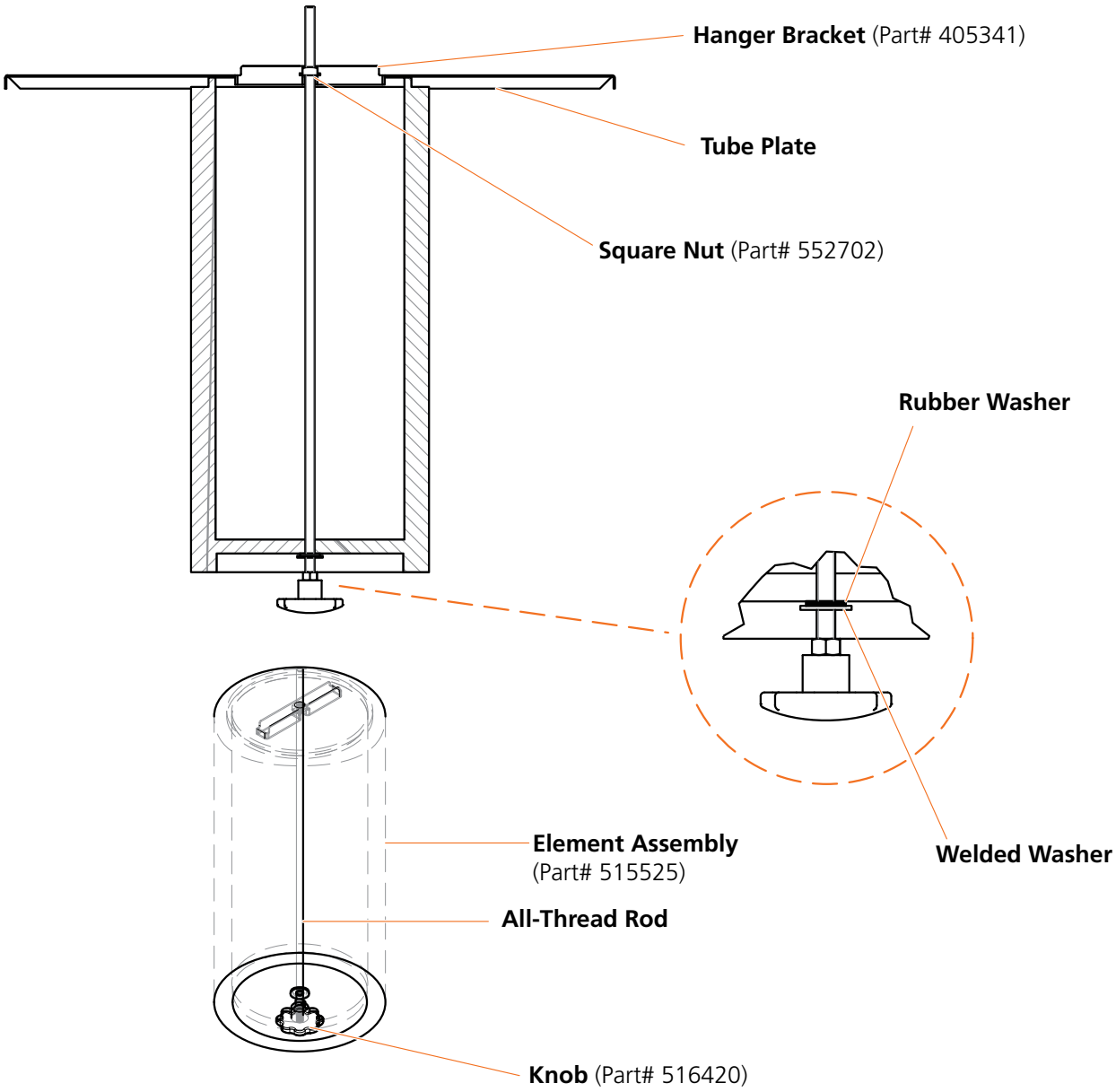
Figure 7.2



CDC-HV Options

	PART NUMBERS FACTORY INSTALLED	PART NUMBERS CUSTOMER INSTALLED
HEPA filter captures very fine particles.	140215	140215
HEPA filter, pressure differential gage assembly informs operator regarding filter cleanliness.	140221	140221
Leg extension kit (includes stand and lid assembly) raises collector so larger collection drum can be placed underneath.	140257	140257
Photohelic cartridge cleaning improves system performance, saves operator time.	140900	140900

CDC-HV Cartridge Replacement



Step 1. Remove the square nut from the threaded rod.

Step 2. Push the rubber washer down on top of the welded steel washer at the knob end.

Step 3. Thread the square nut onto the rod until it is flush with the end of the rod.

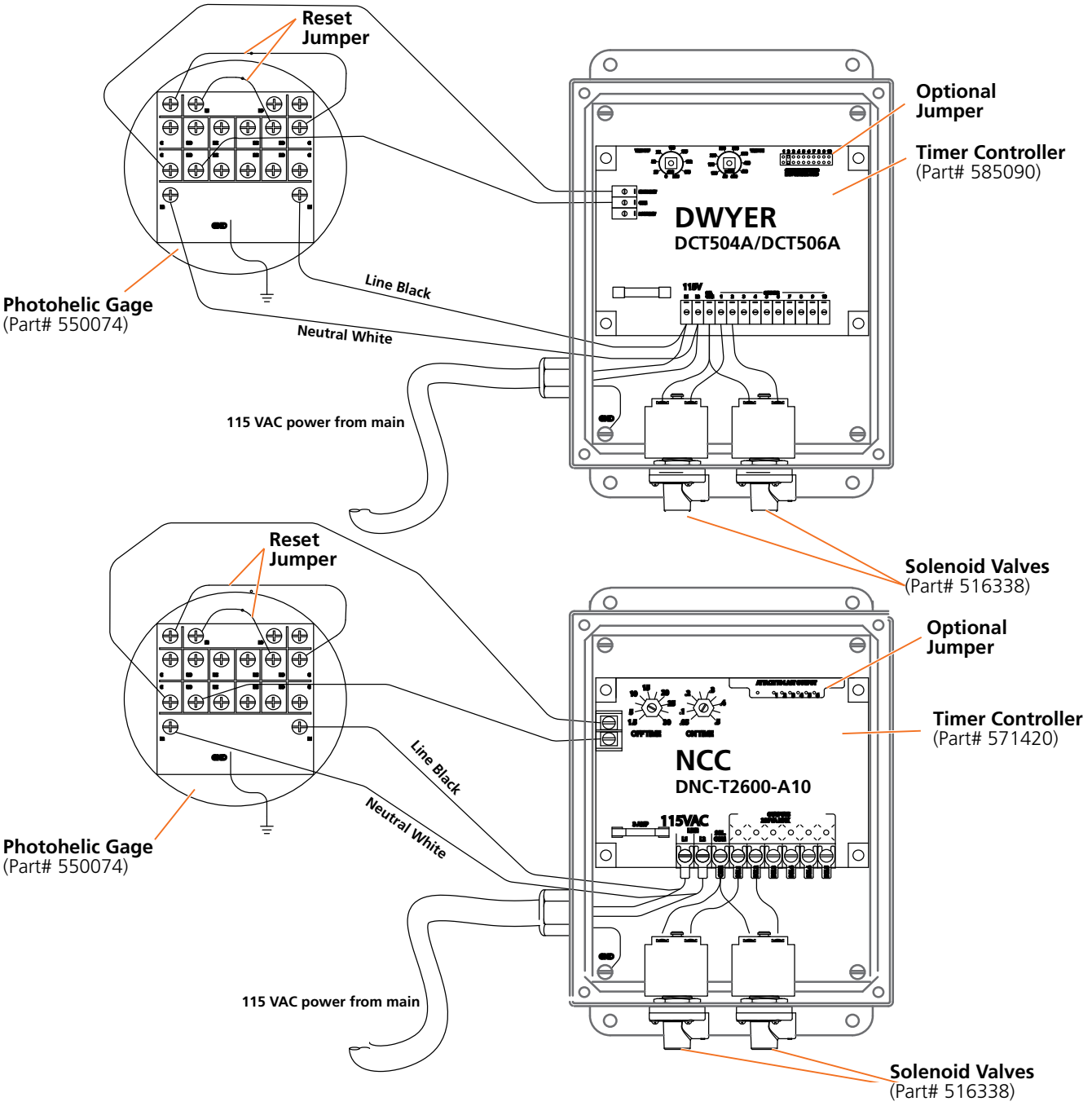
Step 4. While holding the cartridge filter and rod, insert the square nut into the center of the support bracket in the round hole in the tube plate.

Step 4. Turn the knob clockwise while holding the filter straight until the filter gasket makes contact with the tube plate.

Step 5. Tighten the knob until the gasket is compressed 50%.

NOTE:
Do **NOT** remove the filters from the dust collector unless you intend to replace them.

Photohelic Gage Setup



Step 1. Determine the type of the timer control being connected, DWYER or NCC.

Step 2. Set output jumper on 2 pin (2 solenoids).

Step 3. Set "TIME OFF"/"OFF TIME" to 10-15 seconds.

Step 4. Set "TIME ON"/"ON TIME" to 100 milliseconds (0.1 second).

Step 5. Connect wires between the timer control and photohelic gage as shown.

Step 6. Adjust the low/left setpoint (red pointer) to 2" on the photohelic gage.

Step 7. Adjust the high/right setpoint (red pointer) to 4" on the photohelic gage.

Step 8. Connect 115VAC power to the timer control and photohelic gage as shown.

Step 9. Connect the two solenoids to their output terminals.

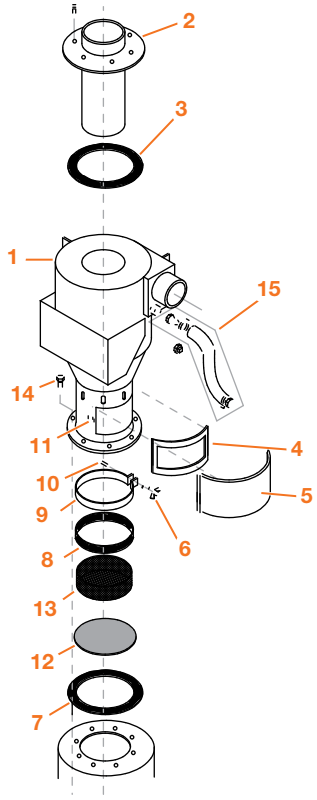
Figure 7-3 illustrates the reclaimer and its components. Table 7-3 provides a parts list. The referenced numbers in Figure 7-3 correspond to the numbered items in Table 7-3.

Table 7.3

Reclaimer (900 CFM) (Part # 140441)

Item	Description	PART #
1	Reclaimer body assembly (includes items 1 through 11)	140441
	Ultra-wear lining (factory-installed option)	526193
2	Removable top	766751
3	Gasket, reclaimer to storage hopper	524371
4	Gasket, reclaimer door	524331
5	Door, reclaimer	760721
6	Wing nut, ¼" - 20	552392
7	Gasket, reclaimer to storage hopper	524371
8	Gasket, tuning band, solid	524342
	Gasket, tuning band, with slots	524341
9	Tuning band (steel part only), solid	767581
	Tuning band (steel part only), with slots	760701
10	Bolt, ¼" - 20 x 2"	551782
11	Latch and keeper (requires welding)	509581
12	Screen, flat, 5⁄16", 13" OD	760711
13	Screen, fine 11½" OD, 8 mesh (standard)	739041
	Screen, 11½" OD, 4 mesh	739051
14	Bolt, ⅜" - 16 x 1" (8 required)	551852
15	Exhaust hose assembly for 1 cu. ft. pressure vessel	522611

Figure 7.3



Reclaimer Options

	PART NUMBERS	
	FACTORY INSTALLED	CUSTOMER INSTALLED
Magnetic separator protects delicate substrates by removing ferrous contaminants from media.	511572	511572
Vibrator aids the flow of media passing through reclaimer screens.	140335	140419
Wear plate extends reclaimer life; easy to replace.	514491	514521

Figure 7-4 illustrates the heavy-duty recovery trough and its components. Table 7-4 provides a parts list. The referenced numbers in Figure 7-4 correspond to the numbered items in Table 7-4.

Recovery Troughs

	PART#
Sweep-in recovery troughs expedite reclamation of blast media.	
Sweep-in trough, 8' long, heavy duty *(Includes deduction of standard hopper)*	340160
Sweep-in trough, 10' long, heavy duty *(Includes deduction of standard hopper)*	340161
Sweep-in trough, 12' long, heavy duty *(includes deduction of standard hopper)*	340162

Table 7.4

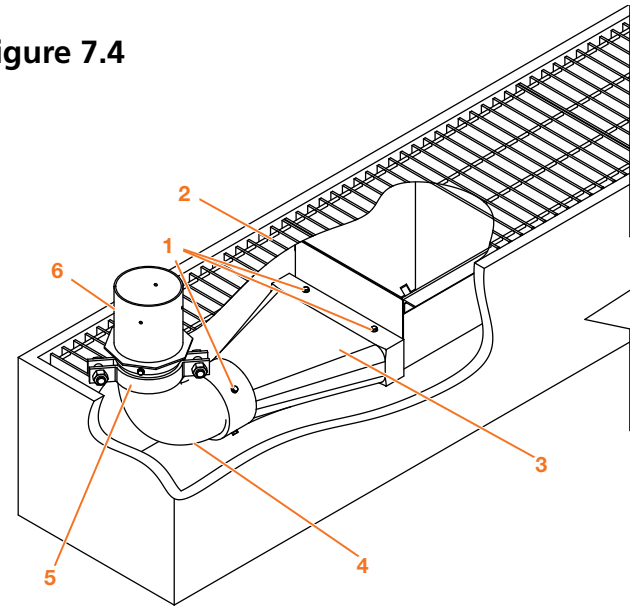
Recovery Trough Components

Item	Description	Part #
1	Screws, ¼" x 1", self drilling (10)	551560
2	Grating, 1" thick, 23 15/16" x 13½" each	760076
3	Urethane transition with floor, 4"	580245
4	Urethane elbow, 90°, 4" diameter	580213
5	Pipe clamp, 4" pipe, two bolt	522900
6	Urethane duct work adapter, 4", to dust hose	760064

NOTES:

- 2,500 psi concrete, 5" thick (minimum) floors are recommended for installation.
- Floor area of installation should be level to within ¼". Otherwise, trough must be shimmed and grouted for support.

Figure 7.4



8.0 Warranty

Empire guarantees all parts and equipment against defects in material and workmanship, under normal use and service, for THREE YEARS from the date of installation.

Material found to be defective within this THREE YEAR period will be replaced at NO CHARGE.

This warranty does not apply to the normal wear of nozzles, blast hose, or other components exposed to direct contact with the blast media.

EMPIRE ABRASIVE EQUIPMENT

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