POWER GUN
SUCTION ABRASIVE BLAST TOOLS
O. M. 24189

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⚠ WARNING

Do not use this equipment before READING this MANUAL and UNDERSTANDING its contents.

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity. Failure to read and understand these warnings can result in injury or death.

Electronic files include a Preface containing the same important information as in the orange cover.

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1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 This manual covers installation, operation, maintenance, and replacement parts of Clemco Power Gun suction blast tools.

1.1.2 All personnel involved with abrasive blasting must be aware of the hazards associated with abrasive blasting. The Clemco booklet ″Abrasive Blasting Safety Practices″ is included with every blast machine; it contains important safety information about abrasive blasting that may not be included in equipment operation manuals. To request additional copies, email info@clemcoindustries.com.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-2011, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:

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

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

⚠ DANGER

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

1.3 Table of Contents

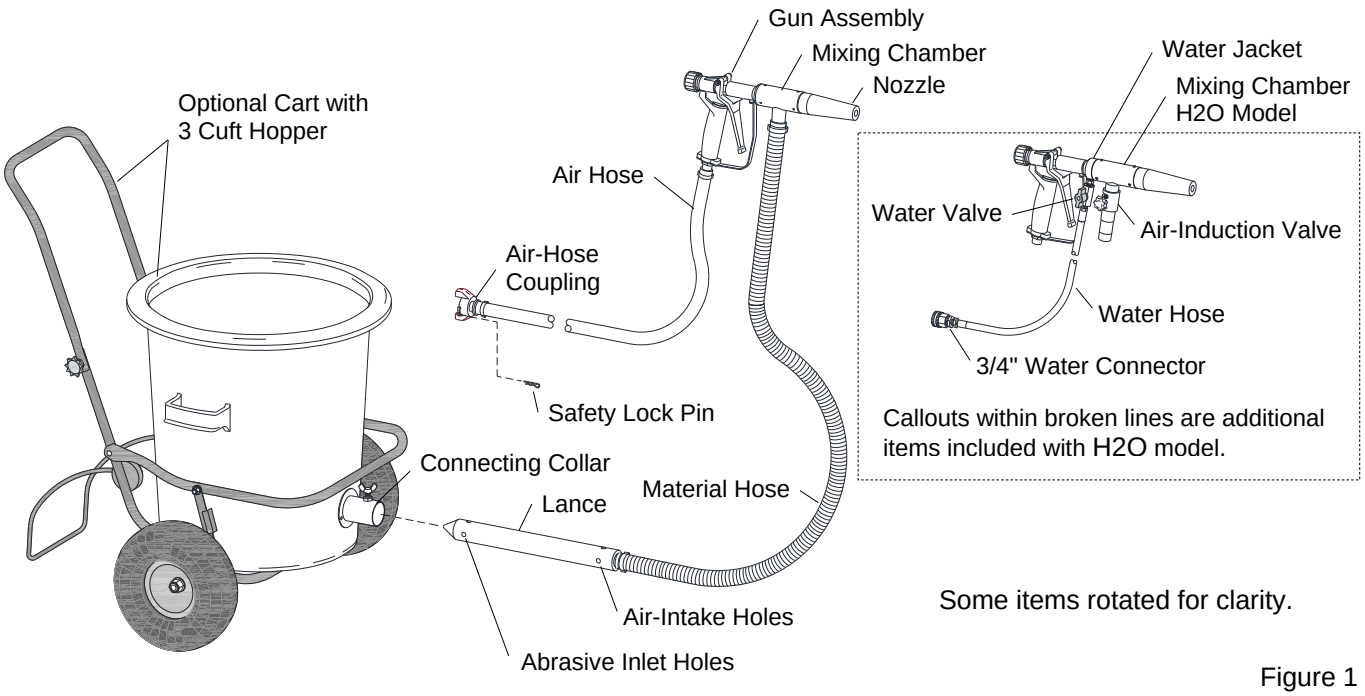


Figure 1

1.4 General Description

1.4.1 This manual covers two Power Gun models. Both models are available with or without the cart and 3 cuft hopper.

Conventional Power Gun: limited to dry blasting only.

Power Gun Model H2O: can be used for dry blasting and has water connections to add water into the blast stream.

1.4.2 Power Guns are ideally suited for light-duty, small, and touchup blasting jobs. The performance of the Power Gun approaches that of a small pressure system, but does not require a pressure vessel nor does it require the setup time and maintenance of a pressure system.

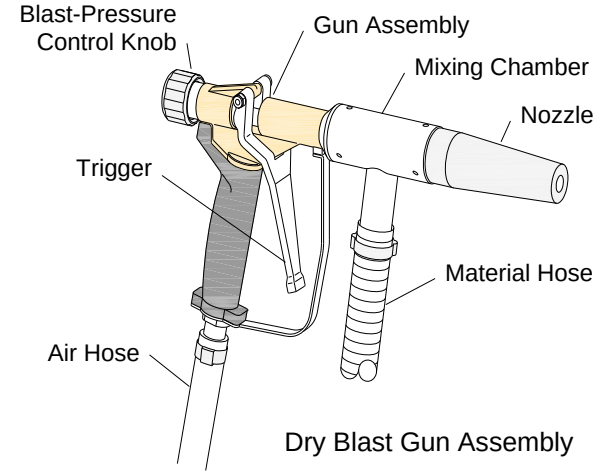
1.5 Components and Operating Principles

1.5.1 Components

1.5.1.1 Components of the Power Guns are shown in Figure 1, the gun assembly is shown in Figure 2, and the additional parts for the Model H2O wetblast gun assembly are shown in Figure 3.

1.5.2 Operating Principles

1.5.2.1 When compressed air is supplied to the gun and the trigger is pulled, air flows through the gun, creating a partial vacuum in the material hose. As a result, abrasive is drawn into the lance, through the material hose, and into the mixing chamber. Abrasive mixes with the air stream within the mixing chamber and is propelled through the nozzle onto the surface being blasted.



Dry Blast Gun Assembly

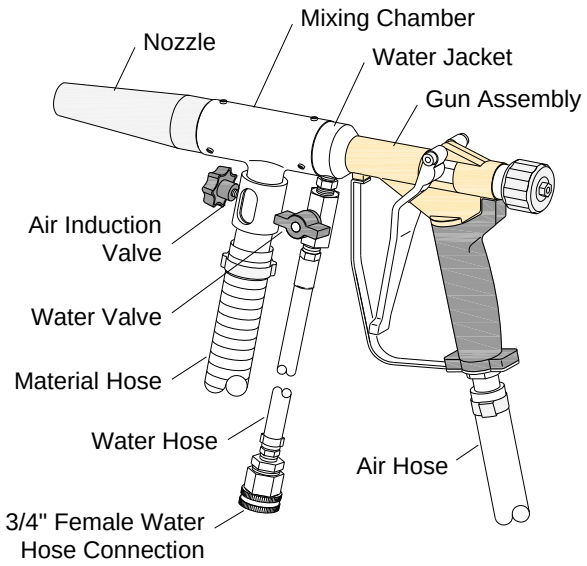
Figure 2

1.5.2.2 Besides being an effective dry blaster, additional parts provided with the H2O model (shown in the insert in Figure 1 and Figure 3) include a water jacket and hose, which attaches to a municipal water supply (faucet). When the water supply is turned ON, the water valve allows the operator to turn water ON and OFF and regulate the amount of water added into the mixing chamber and blast stream. Water entering the blast

stream is combined with air and abrasive before exiting the nozzle.

Additional controls on the H2O mixing chamber, allow the user to control all of the following from the blast gun:

1. Dry blasting with air and abrasive
2. Wet blasting with air, abrasive, and water
3. Wash down with air and water
4. Blow down with air only



H20-Blast Gun Assembly

Figure 3

1.5.3 Hose Limitations

1.5.3.1 Material Hose: Standard Power Gun assemblies come with 16 feet or 30 feet of material hose. The maximum recommended length is 30 feet, provided adequate pressure is maintained at the gun and the nozzle and jet are maintained as noted in Section 6.0.

1.5.3.2 Air Hose: Standard Power Gun assemblies come with 16 feet or 30 feet of air hose. Longer length of bulk air hose may be ordered or a 3/4" ID or larger extension hose may be added, provided adequate pressure is maintained at the gun. Refer to Section 2.1.

2.0 COMPRESSED-AIR and ABRASIVES

2.1 Compressed Air Requirements

2.1.1 The table in Figure 4 shows approximate air consumption (cfm) at various pressures (psi) for the Power Gun alone. Additional air is needed for a supplied-air respirator, plus other air tools that may be in use at the same time as the Power Gun. The table shows air consumption; it does not show the recommended compressor size. Check with a compressor supplier for compressor recommendations based on total compressed-air requirements.

2.1.2 For most applications, the compressor should be large enough to maintain 80-100 psi under working conditions. Delicate work may require lower pressure, and tough applications may require higher pressure.

2.1.3 The air-jet orifice is 1/4" ID and the nozzle orifice is 1/2" ID.

Air consumption in cfm

PSI	40	50	60	70	80	90	100	120	140
CFM	49	58	67	76	85	94	103	121	138

Figure 4

2.2 Abrasives

2.2.1 Abrasive Size: The Power Gun utilizes common abrasives that are 12 mesh and finer. Limited air supply, low blast pressure, or heavy abrasive may limit abrasive to smaller sizes.

2.2.2 Use only abrasives specifically manufactured for blast cleaning and that are compatible with the surface being blasted. Abrasive produced for other applications may be inconsistent in size and shape, and contain particles that could jam the suction gun, and produce an unsatisfactory finish.

⚠ WARNING

All abrasives produce hazardous dust. Obtain a safety data sheet (SDS) for the blast abrasive being used and make sure it is available for the operator to read and understand. Failure to use appropriate respiratory equipment can result in injury or death.

3.0 SETUP

3.1 General Setup

3.1.1 An air filter is recommended in the air supply to remove condensed moisture from the air line.

3.1.2 Connect the Power Gun's air hose to a 3/4" or larger air supply line. An isolation valve is required at the air source to enable depressurization.

3.1.3 Secure all compressed-air supply hose connections with safety lock pins and safety cables to prevent accidental disconnection. Lock pins and safety cables are listed in Section 9.1.

⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins or safety wire to lock twist-on claw type couplings together and prevent accidental separation, and safety cables to prevent hose from whipping should separation occur.

3.1.4 Make sure the setscrews securing the nozzle, jet, and gun assembly are tight.

3.2 Water Connection (H2O Model), Figure 5

3.2.1 Connect the water hose to a water faucet.

3.2.2 Make sure the water valve is in the OFF position, handle perpendicular to the valve.

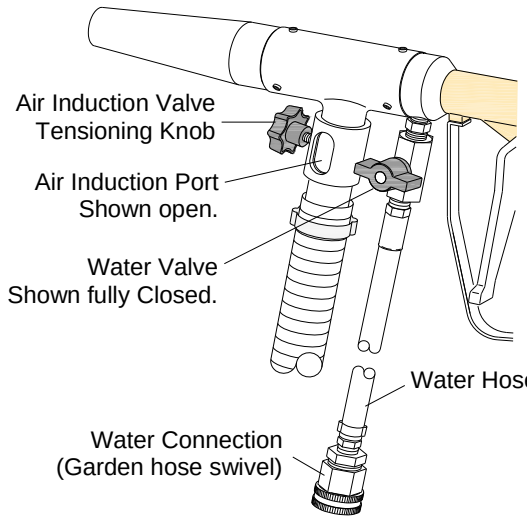


Figure 5

3.2.3 Loosen the air-induction tensioning knob and rotate the sleeve to close the induction port. Tighten the knob to secure.

3.2.4 Connect the water hose to a faucet; use a garden hose if additional hose is needed.

3.2.5 Open the faucet to supply water to the Power Gun.

3.2.6 Begin dry blasting per Section 4.5. After dry blasting adjustments are made, open the water valve as needed to regulate water flow. Open the valve only enough to water to suppress dust and prevent it from being airborne.

4.0 OPERATION

NOTE: Unless noted otherwise, the sequence of operation in Sections 4.1 through 4.4 may be done in any order that is best suited for the application.

4.1 Start Compressed Air Supply

4.1.1 For onsite blasting, locate the compressor upwind and away from the blasting operation.

4.1.2 Make sure that all compressed-air supply-hose claw-type couplings are secure with safety lock pins and safety cables to prevent accidental disconnection. Lock pins and safety cables are listed in Section 9.1.

⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins and safety cables on all blast hose and air hose coupling connections to help prevent hose couplings from accidental disconnection.

4.1.3 Close the air-supply valve, start the compressor and bring it up to operating temperature and pressure.

4.1.4 Slowly open the compressor air valve to pressurize the air-supply line. Listen for noise that indicates any open lines or leaks.

4.1.5 Do not allow anyone around the blasting area who is not appropriately fitted with approved personal protective equipment, per Section 4.2.

4.2 Operator Safety Equipment

⚠ WARNING

Before blasting, test the coating and substrate for toxic materials (such as lead, other heavy metals, or asbestos). These hazards require special measures to protect the operators and the environment.

Obtain a safety data sheet (SDS) for the blast abrasive to identify hazardous substances. Silica sand (crystalline) can cause silicosis, lung cancer, and breathing problems in exposed workers. Slag abrasives may contain amounts of toxic metals such as arsenic, beryllium, and cadmium. Any abrasive dust has potential to cause lung disease.

Abrasive blasting operations can create high levels of dust and noise. No dust is safe to breathe. Abrasive blasting can produce harmful dust. Failure to wear NIOSH-approved respirators can result in serious lung disease or death. The respirators must be properly-fitted and maintained. Use only NIOSH-approved, type-CE supplied-air respirators approved for abrasive blasting.

During abrasive blasting, abrasive particles and dust in the area around the blast machine and blast nozzle become airborne. Everyone working in the vicinity of abrasive blasting must wear properly-maintained, NIOSH-approved, respiratory protection and eye protection appropriate for the job site hazards.

Loud noise generated by the use of compressed air can cause hearing damage. Everyone in the blasting area must wear approved hearing protection.

It is the employer's responsibility to train employees to identify hazardous substances and to provide suitable policies, procedures, monitoring, recordkeeping, and personal protective equipment.

4.2.1 Operators and anyone else exposed to the hazards generated by abrasive blasting must wear appropriate protective gear, including abrasive-resistant clothing, leather gloves, eye and hearing protection, and a NIOSH-approved Type CE supplied-air respirator.

4.2.2 Don all protective blasting attire outside the blast area in a clean nonhazardous environment free of contaminants, where the air is safe to breathe.

4.2.3 When finished blasting and after cleanup is completed, remove the respirator and protective clothing outside the blasting area in a clean environment free of contaminants where the air is safe to breathe.

4.3 Insert Lance into Optional Hopper – Figure 6

4.3.1 The hopper and cart assembly must be placed on a firm and level surface.

⚠ WARNING

The four-wheel cart rolls easily. It must remain on sound, level ground. Do not place the cart on scaffolding. Do not use on elevated surfaces unless it is adequately anchored to prevent movement. Failure can result in injury.

4.3.2 Make sure the cart's rear support bar is down.

4.3.3 Remove any foreign material that may have fallen inside the hopper.

4.3.4 Insert the lance about halfway into the connecting collar, making sure the air-intake holes remain outside the collar. Tighten the thumbscrew to secure the lance.

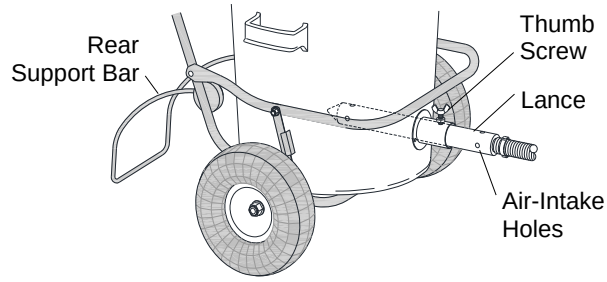


Figure 6

4.3.5 Pour abrasive into the hopper; remove any foreign material that may fall in. Do not fill the hopper to a level that impairs easy maneuvering. If preferred, bagged abrasive may be placed inside the hopper, and the lance inserted into the bag as described in Section 4.4.

4.4 Insert Lance into Bagged Abrasive – Figure 7

4.4.1 Abrasive may be kept in the bag or poured into a hopper, bucket, or similar container. Insert the lance into the abrasive, making sure the upper (air-intake) holes remain open and outside of the abrasive.

4.4.2 To use bagged abrasive, pierce the bag with the pointed end of the lance. Insert the lance into the

abrasive. Using bagged abrasive requires repositioning of the lance as the abrasive level drops.

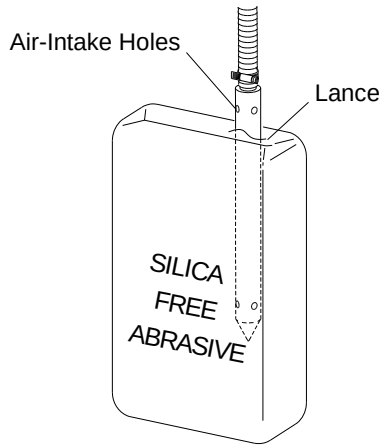


Figure 7

4.5 Dry Blasting

4.5.1 Don appropriate protective gear, including a NIOSH-approved supplied-air respirator, abrasive resistant clothing, leather gloves, and hearing protection as required. Refer to Section 4.2.

4.5.2 Hold the gun approximately 6 inches from the blast surface and squeeze the trigger. Adjust the stand-off distance and angle for optimum performance.

4.5.3 Adjust blast pressure per Section 5.1.

4.5.4 To stop blasting release the trigger.

4.6 Wetblasting, H2O Model Only – Figure 8

4.6.1 Set up water connections per Section 3.2.

4.6.2 Close air-induction valve and begin dry blasting, and set blast pressure per Section 4.5.

4.6.3 A moment after pulling the trigger, open the water valve and adjust water flow per Section 5.3.

NOTICE

Open the water valve only after pulling the trigger to begin blasting and always close it before releasing the trigger to stop blasting. Failure to have the water valve closed when the trigger is released can allow water to flow into the mixing chamber and material hose, causing blockage from wet abrasive.

4.6.4 To stop blasting, close the water valve before releasing the trigger. By not closing the water valve first will allow water to flow into the mixing chamber and material hose, causing blockage.

4.6.5 Wash Down: While blasting, loosen the air-induction tensioning knob and rotate the sleeve to fully open the induction port. This step stops abrasive flow while air and water continue to flow through the nozzle as long as the trigger is pulled.

NOTICE

Whenever using water, open the water valve after pulling the trigger and close the water valve before releasing the trigger. By having the valve open when the trigger is not pulled can allow water to flow into the mixing chamber and material hose, causing blockage

4.6.6 Air Drying and Blow-off: After wash-down, close the water valve and continue to hold the trigger. Doing so will have air alone coming from the gun to speed up the drying process. This process can also be used to blow-off the blasted surface after dry blasting.

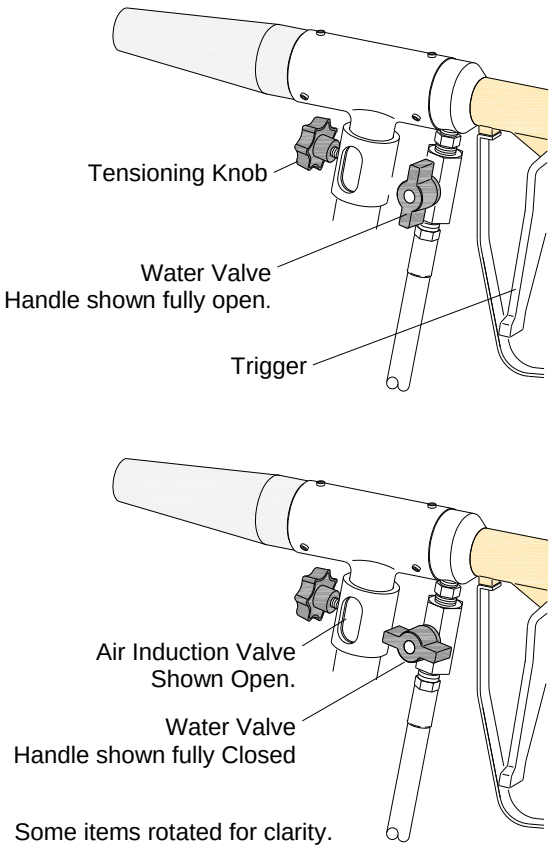


Figure 8

4.6.7 To stop blasting release the trigger.

4.7 Shutdown

4.7.1 When finished blasting, remove the lance from the abrasive and shake abrasive from the material hose. If conditions are safe to do so, pull the trigger to further empty the hose.

4.7.2 Depressurize the air-supply line and shut down the compressor.

4.7.3 For H2O models, shut off the water supply, drain the water hose, and disconnect the hose.

5.0 ADJUSTMENTS

5.1 Blast Pressure – Figure 9

To reduce blast pressure rotate the control knob clockwise. Reduced pressure is caused from reducing the air volume through the gun. If greater control is required, install a pressure regulator in the air-supply line.

5.1.1 The control knob adjusts the force of air (blast pressure) coming out the nozzle. Turning the knob clockwise decreases the blasting force for delicate jobs, and turning it counterclockwise increases the blast force for tougher jobs.

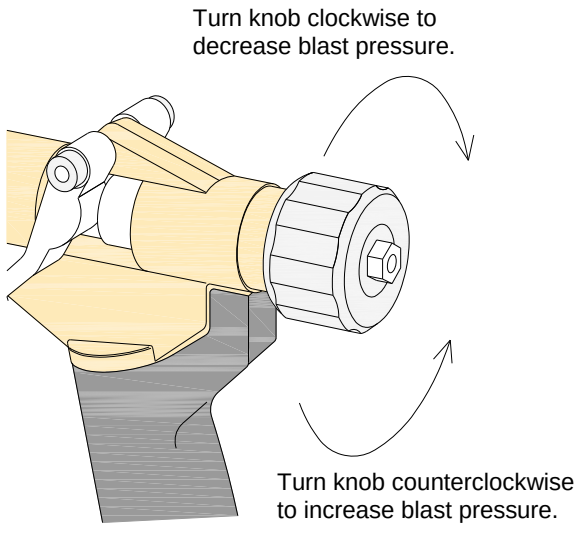


Figure 9

5.2 Positioning of Hose and Gun – Figure 10

5.2.1 Whether the operator is left or right handed could determine the most comfortable positioning of the handle grip and material hose. To change the orientation of the material hose with that of the handle grip, loosen the three setscrews securing the mixing chamber to the air-jet assembly.

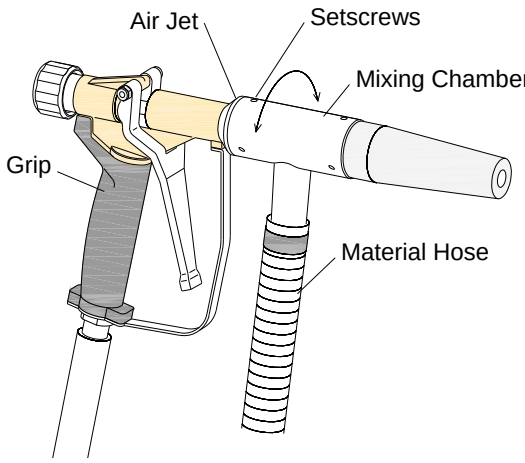


Figure 10

5.2.2 Rotate the mixing chamber to obtain the most comfortable position while holding the gun assembly and material hose.

5.2.3 Make sure the jet is fully seated into the mixing chamber before tightening the setscrews.

5.3 Water Flow (H2O Model only) – Figure 11

5.3.1 The water valve opens, regulates, and closes water flow. Open only enough to suppress dust.

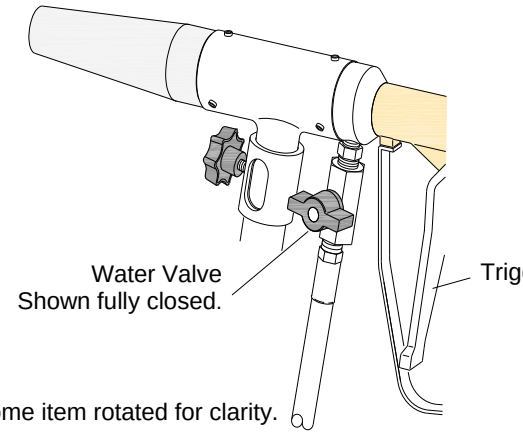


Figure 11

5.3.2 Open the water valve only after the pulling the trigger to begin blasting and closed before releasing the trigger to stop blasting.

NOTICE

Open the water valve only <u>after</u> pulling the trigger to begin blasting and always close it <u>before</u> releasing the trigger to stop blasting. Failure to have the water valve closed when the trigger is released can allow water to flow into the mixing chamber and material hose, causing blockage from wet abrasive.

5.4 Air-Induction Valve (stops abrasive flow) Figure 12

5.4.1 Opening the air-induction valve disrupts the vacuum used to pull abrasive into the mixing chamber allowing air only (no abrasive) to exit the nozzle. This step is used to blow off dry abrasive from the blast surface or assist in drying a wet surface after wet blasting.

5.4.2 To stop abrasive flow, loosen the tensioning knob and rotate the sleeve to fully open the induction port. Close the valve to resume blasting.

Wash Down: If the water valve is open, air and water continue to flow through the nozzle (as long as the trigger is pulled) to wash off the blast surface. Refer to Section 4.6.5.

Air Drying and Blow-Off: If the water valve is closed, air continues to flow through the nozzle (as long as the trigger is pulled) to blow-off dry surface or assist in dry wet surfaces. Refer to Section 4.6.6.

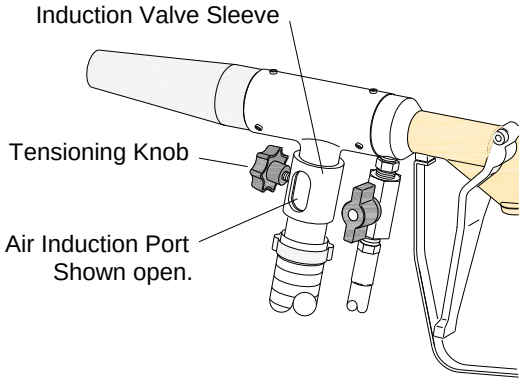


Figure 12

6.0 MAINTENANCE

⚠ WARNING

Failure to observe the following procedure before performing any maintenance or service can cause serious injury or death from the sudden release of compressed air.

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

Periodically inspect the air jet, mixing chamber, nozzle, and material hose for wear.

6.1 Removing Nozzle and Air Jet: There are no threads on the mixing chamber; the jet and nozzle are held onto the mixing chamber with three setscrews. Use a 2.5 mm hex key to loosen the setscrews and while twisting the nozzle and jet to loosen them, pull out to remove them from the mixing chamber.

6.2 Nozzle: A new nozzle has a 1/2" ID orifice. Replace the nozzle when its diameter has increased by more than 1/16" (9/16" ID) or sooner if suction diminishes noticeably.

6.3 Air Jet, Dry Blast

Refer to Section 6.4 to service the H2O air jet.

NOTE: Breakaway thread sealant is used on the threads between the air jet and gun. The sealant prevents parts from rotating out of alignment during operation. When removing the jet, use a strap wrench or similar wrench that will not damage the shaded areas shown in Figure 13. If a wrench that can damage the surface must be applied to remove the jet, the jaws must be placed in the recess area as shown in Figure 13.

6.3.1 Separate the air jet from the mixing chamber. Use a 2.5 mm hex key to loosen the three setscrews holding the jet to the mixing chamber and while twisting the jet to loosen it, pull out to remove it from the chamber.

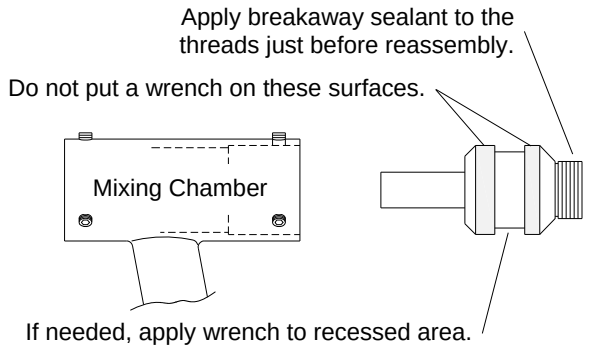
6.3.2 Replace the air jet when wear reaches the orifice and affects the overall length. New air-jet orifices are 1/4" ID and extend approximately 1-5/16" from the jet body.

NOTICE

When removing and installing an air jet, do not put a wrench on the shaded areas shown in Figure 13. The jet is a slip fit into the mixing chamber; gouges will interfere with the fit.

6.3.3 The recommended method for removing the air jet from the gun is with a strap wrench or similar tool that will not damage the outside surface of the jet. If a suitable wrench is not available use a pipe wrench or slip-joint plier on the recess of the jet. **If the jet is worn and needs to be replaced, it does not matter if the surfaces are damaged upon removal.**

6.3.4 While the jet is removed, inspect the gun seat for wear or damage. Replace as needed.



Dry-blast jet shown for reference.

Figure 13

6.3.5 Apply breakaway sealant such as Loctite 243 to the air-jet threads and while pulling the gun's trigger, thread the jet fully into the gun until it bottoms-out. Snug hand-tight is adequate. Refer to the sealant's directions and allow the sealant to cure before putting the gun into service.

6.4. Air Jet, H2O Model
Refer to Section 6.3 to service the dry blast jet.

NOTICE

When handling the H2O gun be careful not to apply force pressure to the water fittings and valve. Applying force on the fittings can break the water jacket fitting.

NOTE: Breakaway thread sealant is used on the threads between the air jet and water jacket and between the water jacket and gun. The sealant prevents parts from rotating out of alignment during operation. When removing the jet, use a strap wrench or similar wrench that will not damage the shaded areas shown in Figure 13.

6.4.1 Separate the air jet from the mixing chamber. Use a 2.5 mm hex key to loosen the three setscrews holding the jet to the mixing chamber and while twisting the jet to loosen it, pull out to remove it from the chamber.

6.4.2 Replace the air jet when wear reaches the orifice and affects the overall length. New air-jet orifices are 1/4" ID and extend approximately 1-5/16" from the jet body.

NOTICE

When removing and installing an air jet, do not put a wrench on the shaded areas shown in Figure 13. The jet is a slip fit into the mixing chamber, gouges will interfere with the fit.

6.4.3 The recommended method for removing the air jet from the water jacket is with a strap wrench or similar tool that will not damage the outside surface of the jet. If a suitable wrench is not available use a pipe wrench or slip-joint plier on the recess of the jet. **If the jet is worn and needs to be replaced, it does not matter if the surfaces are damaged upon removal.**

6.4.4 Remove the water disc and washer from the water jacket. Inspect all items and replace any that are worn.

6.4.5 While the jet is removed, remove the water jacket from the gun for inspection and inspect the gun seat for wear or damage. Replace as needed.

6.4.6 Make sure the jet slots are facing away from the water jacket, as shown in Figure 14, and insert the washer and waterjet disc into the jacket.

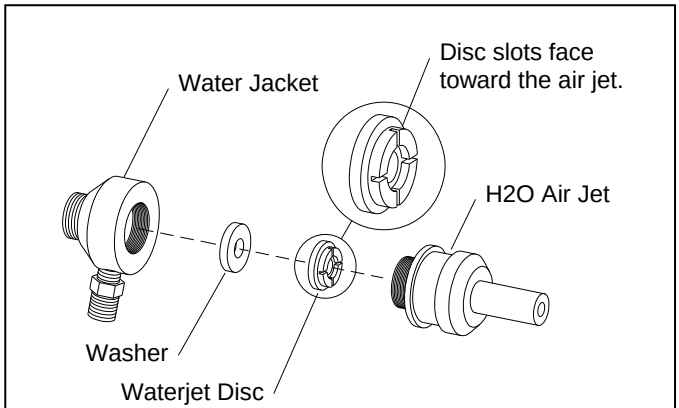


Figure 14

6.4.7 Apply breakaway sealant to the first few threads on the jet (excessive sealant could plug the slots in the waterjet disc) and screw the jet into the water jacket until it bottoms-out.

6.4.8 Apply breakaway sealant to the threads on the water jacket. While pulling the gun's trigger, thread the jacket fully into the gun. Position the jacket's water port as noted in paragraph 7.3.2.

7.0 Converting Dry Blast to H2O Model Wetblast

7.1 The following instruction explains the conversion of a dry blast power gun to a wetblast power gun Model H2O. Components of the conversion kit are shown in Figure 15.

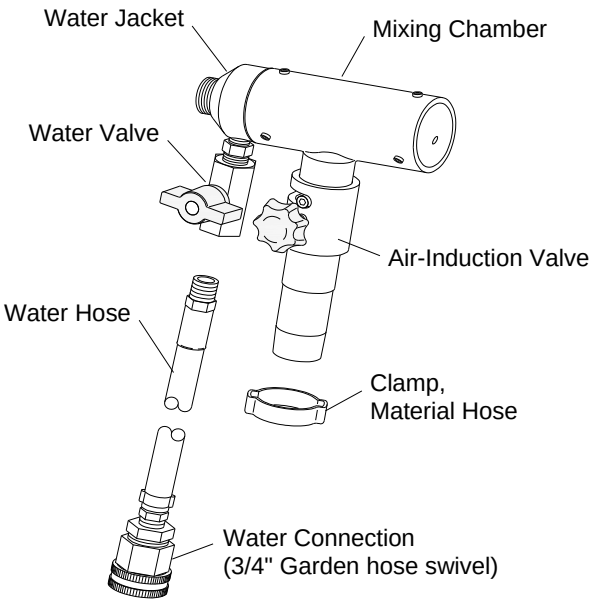


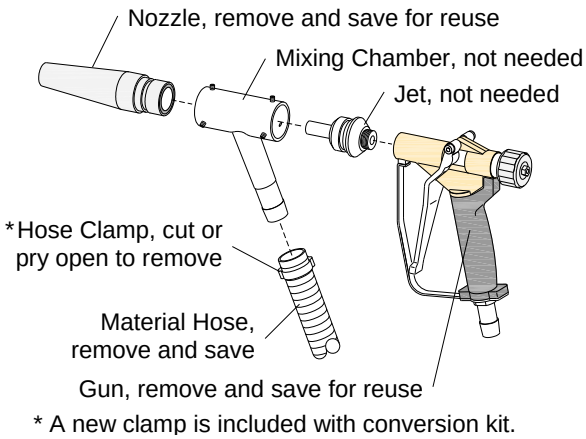
Figure 15

7.2 Remove Dry Blast Components from the Power Gun – Figure 16

7.2.1 Separate the mixing chamber from the air jet. Use a 2.5 mm hex key to loosen the three setscrews holding the mixing chamber to the jet. Then while twisting the mixing chamber to loosen it, pull out to remove it from the jet.

7.2.2 Use the same process to remove the nozzle from the mixing chamber. Set the nozzle aside for reuse; the mixing chamber will not be reused.

7.2.3 Pry or cut the hose clamp from the material hose (a new clamp is provided with the kit) and remove the hose from the mixing chamber. Set the hose aside for reuse.



* A new clamp is included with conversion kit.

Figure 16

7.2.4 Remove the existing air jet from the gun assembly. **NOTE: Breakaway thread sealant is used on the threads between the air jet and gun. The sealant prevents parts from rotating out of alignment during operation.** The recommended method for removing the air jet is with a strap wrench or similar tool that will not damage the outside surface of the jet. If a suitable wrench is not available, use a pipe wrench or slip-joint plier on the recess of the jet as shown in Figure 17. **The conversion kit comes with a different type jet. If the existing jet will be discarded, it does not matter if the surfaces are damaged upon removal.**

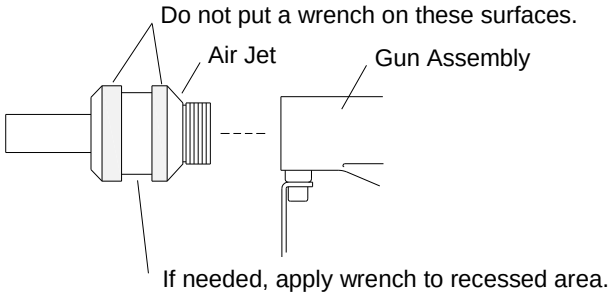


Figure 17

7.3 Assemble H2O Components

7.3.1 Refer to Figure 18 and separate the water jacket/jet assembly from the mixing chamber assembly by using a 2.5 mm hex key to loosen the three setscrews holding the jet to the mixing chamber. Then while twisting the jet to loosen it, pull out to remove it from the chamber.

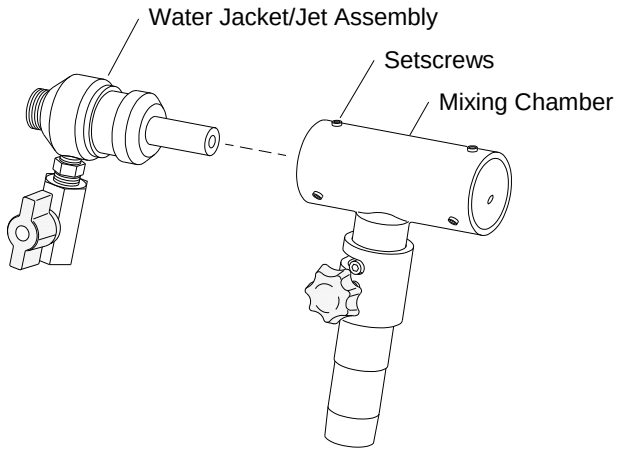


Figure 18

NOTE: Review the assembly process and dry fit the water jacket/jet assembly to the gun to determine its final position before applying thread sealant.

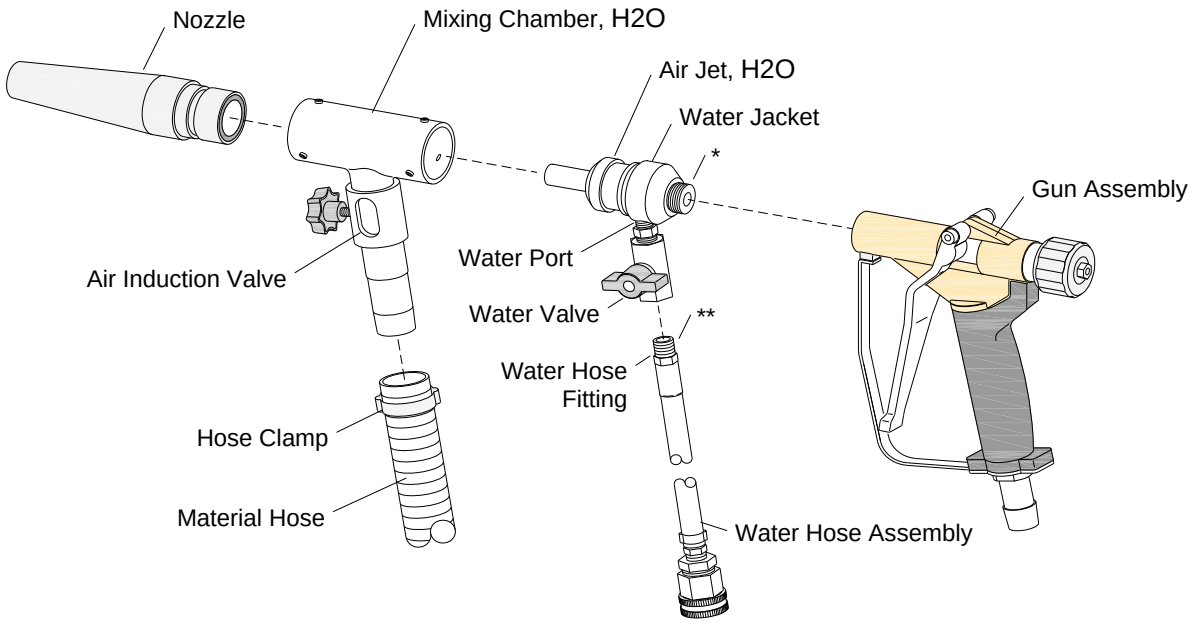
7.3.2 While applying slight pressure on the trigger, screw the water jacket into the gun until the trigger begins to move. ***Make note of the position of the water port (Shown in Figure 19) in relation to the gun***, then screw the jacket in all the way. Note the position of the water port when the jacket is threaded into the gun. If the port is facing down or slightly to either side of the bottom position, it is okay. If it is sideways or facing UP, loosen the jacket until the port is facing down or slightly to either side. Do not loosen it beyond the position noted above in ***bold Italics*** or the gun will leak air. Make a note of this positioning; this will be the final position of the jacket when it is reinstalled using thread sealant.

7.3.3 Note which side the water valve handle is facing. After the jacket is removed, the valve may be rotated to the left or right side, whichever is most comfortable for the operator.

7.3.4 Remove the water jacket/jet assembly from the gun and if necessary rotate the water valve so the handle is in the most comfortable side for the operator to adjust.

7.3.5 Apply breakaway thread sealant such as Loctite 243 to the first few threads on the water jacket and screw the jacket into the gun to the position noted in Paragraph 7.3.2.

7.3.6 Set the gun assembly aside and refer to the sealant's directions to allow the sealant to cure. **NOTE: Do not attach any other components to the gun assembly until the sealant has cured for the recommended time.**



* Apply breakaway sealant such as Loctite 243 to the male threads when assembling these parts.

**Apply Teflon thread sealant or other common thread sealant to the male threads on these parts.

Figure 19

7.3.7 Slide the new material-hose clamp onto the material hose and slip the material hose onto the mixing chamber's connection pipe. Crimp the clamp ears to tighten the clamp.

7.3.8 Install nozzle: Make sure the mixing chamber setscrews do not extend past the inside of the mixing chamber. Fully insert the nozzle into the end of the mixing chamber and tighten the setscrews to secure.

7.3.9 After the thread sealant has cured, apply Teflon sealant tape or other common thread sealant to the male threads on the water hose fitting and thread the fitting into the water valve. Tighten to secure.

7.3.10 Make sure the mixing chamber setscrews do not extend past the inside of the mixing chamber. Fully insert the jet into the end of the mixing chamber.

7.3.11 Rotate the mixing chamber to obtain the most comfortable position while holding the gun assembly and material hose and then tighten the setscrews to maintain the position.

7.3.12 The conversion is complete. Refer to the instructions within the manual for operation.

8.0 TROUBLESHOOTING

⚠ WARNING

Failure to observe the following procedure before performing any maintenance or service can cause serious injury from the sudden release of trapped compressed air.

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

8.1 No Abrasive Flow

8.1.1 Foreign material in the mixing chamber assembly: Remove nozzle and check for blockage in the mixing chamber and nozzle.

8.1.2 Abrasive blockage in the material hose: If the material hose packs with abrasive, it is a sign that the abrasive mixture is too rich. Make sure the air-intake holes in the lance are open. When using the lance into bagged abrasive make sure the intake holes are not buried in abrasive

8.1.3 Worn nozzle: Replace the nozzle when the orifice is worn to 9/16" or sooner if production decreases noticeably.

8.1.4 Air jet worn: Inspect end of air jet and replace when wear reaches the orifice.

8.1.5 Air jet and/or nozzle not seated correctly: The jet and nozzle must be fully seated into the mixing chamber, and the setscrews must be tight.

8.1.6 Abrasive bridging at the lance's abrasive inlet holes: Frequent bridges or blockages are most likely caused by damp abrasive. Refer to Section 8.3.

8.1.7 Hole worn in material hose: Inspect hose for holes and inspect the clamps for leaks. Repair as needed.

8.2 Plugged Nozzle

8.2.1 Foreign material in the nozzle: Clean and re-install.

8.2.2 Abrasive mixture too rich: Make sure the air-intake holes in the lance are open.

8.3 Abrasive Bridging

8.3.1 Frequent bridging or blockage at the lance can be caused by damp abrasive. Some abrasives tend to absorb moisture from the air, especially fine-mesh abrasives in high-humidity areas. Empty the material hose and hopper of abrasive, and store the abrasive in an airtight container when not in use.

8.4 Neither Air Nor Abrasive Comes Out the Nozzle When Trigger is Pulled

8.4.1 Inspect nozzle for blockage: Refer to Section 8.2.

8.4.2 Make sure that the air compressor is on and air supply valves are open.

8.5 Air Leaks from Gun After Trigger is Released

8.5.1 Binding at the trigger, rod, or rod guide: Clean abrasive from parts and inspect for cause of resistance.

8.5.2 Worn or damaged rod tip or obstruction between the rod tip and air jet: Repair as needed.

8.6 Abrasive Surge

8.6.1 Abrasive flow is too rich: Make sure the air-intake holes in the lance are open.

8.7 Poor Suction in Material Hose

8.7.1 Inadequate air supply: Refer to the table in Figure 4.

8.7.2 Blockage in material hose or nozzle: Refer to Sections 8.1 and 8.2.

8.7.3 H2O Model: Make sure the air-induction valve is closed.

8.7.4 H2O Model: Check for water in material hose. Open water supply after pulling trigger; close water supply before releasing trigger.

8.8 Blow-Back Through Material Hose

8.8.1 Blockage in nozzle: Remove the nozzle and check for blockage.

8.9 Air Leak at Gun and Trigger Assembly

8.9.1 Faulty rod seal: Replace seal.

9.0 ACCESSORIES AND REPLACEMENT PARTS

9.1 Optional Accessories

Lock pin, coupling, package of 25 11203
Safety cable, 1/2" to 1-1/4" OD hose 15012
Conversion kit, dry blast to wetblast, items in Fig. 20
with 16-ft. water hose 29255
with 30-ft. water hose 29339

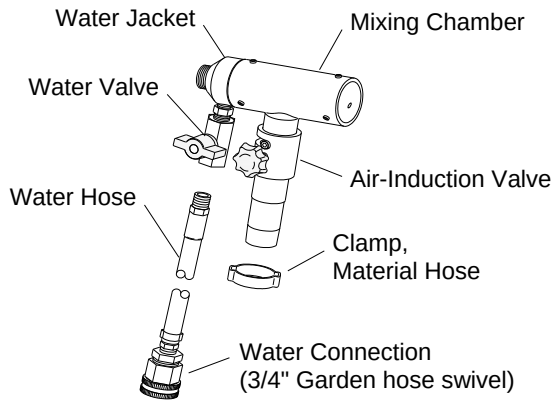


Figure 20

9.2 Power Gun Systems

Description	Stock No.
Power Gun with 3 cuft cart and hopper	
with 16-ft. air and material hose	99860
with 30-ft. air and material hose	24687
Power Gun without cart and hopper	
with 16-ft. air and material hose	90253
with 30-ft. air and material hose	24688
H2O Power Gun with 3 cuft cart and hopper	
with 16-ft. air and material hose	29335
with 30-ft. air and material hose	29337
H2O Power Gun without cart and hopper	
with 16-ft. air and material hose	29249
with 30-ft. air and material hose	29336

9.3 Blast Gun Assembly, Dry Blast – Figure 21

Item	Description	Stock No.
(-)	Blast gun assembly includes all items shown in Figure 21	100477
1.	Gun and trigger assembly	27532
2.	Nozzle, 1/2" orifice w/tungsten liner	90209
3.	Air jet, 1/4" orifice, tungsten carbide	90213
4.	Mixing chamber	90366

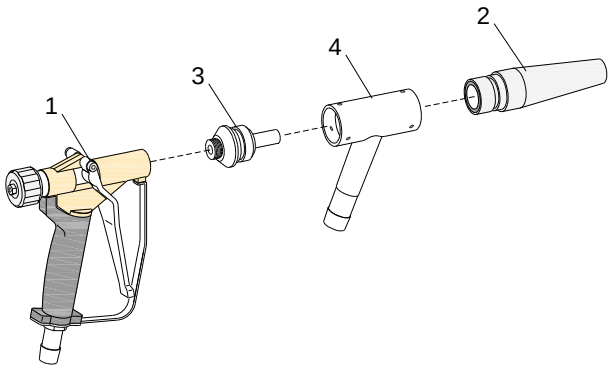


Figure 21

9.4 System Replacement Parts – Figure 22

Refer to Section 9.5, Figure 23 for additional items used with the H2O Model.

Item	Description	Stock No.
1.	Blast gun assembly, dry blast model refer to Figure 21 for individual parts	100477
2.	Lance	90214
3.	Hose, material, bulk specify feet required 16-ft. and 30-ft. are standard lengths	24778
4.	Hose, air, bulk, specify feet required 16-ft. and 30-ft. are standard lengths	24779
5.	Clamp, material hose	24780
6.*	Clamp, 3/4" OD band	28018
7.	Coupling, air hose	00595
8.	Lock pin, package of 25	11203
9.	Hopper and lid, 3 cuft	25589
10.	Cart assembly	25591
11.	Hopper and cart assembly, 3 cuft	99899
12.	Hose assembly, coupled air, includes: three of Item 6 (one loose) and one Item 7	
	16-ft. long, standard length	28177
	30ft. long	28178

* Field installation of this clamp requires a BAND-IT® tool, number C00169 or equal.

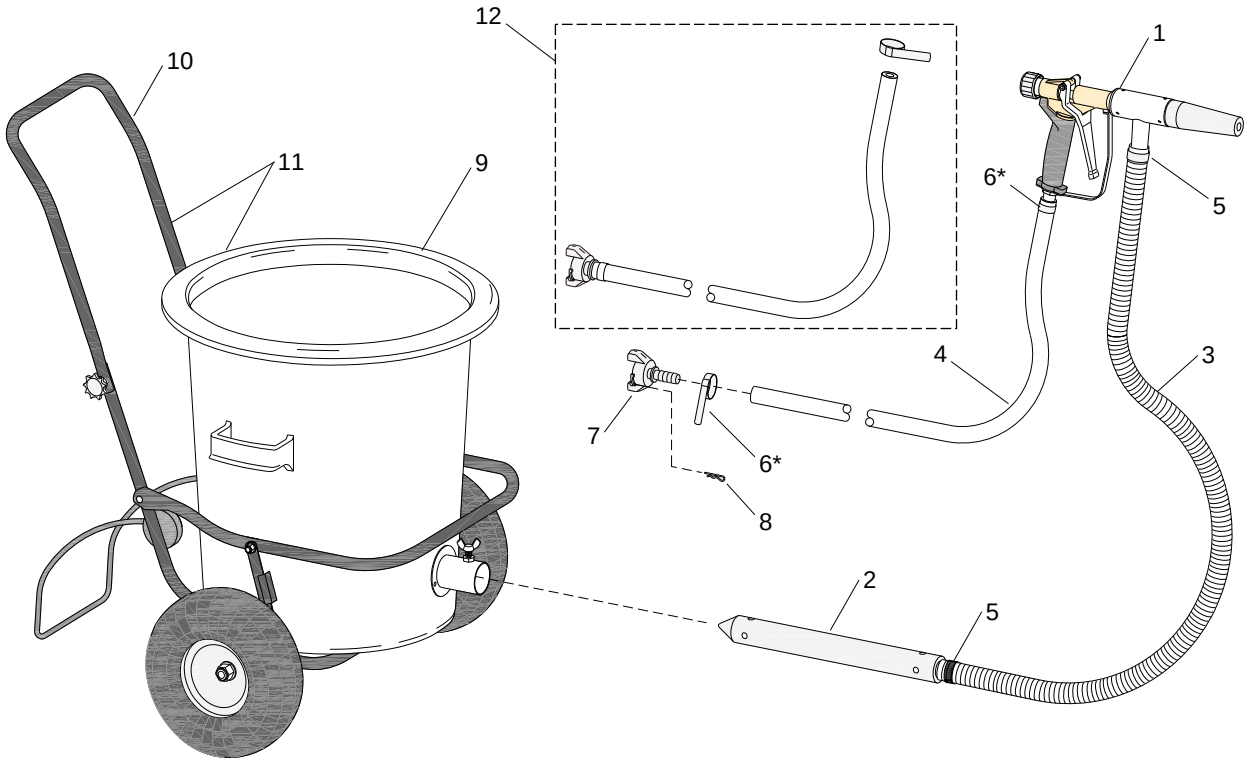


Figure 22

9.5 Blast Gun Assembly, H2O Model – Figure 23

Item	Description	Stock No.
1.	Gun and trigger assembly	27532
2.	Nozzle, 1/2" orifice w/tungsten liner	90209
3.	Water injector jacket	100496
4.	Gasket, NW-0, jet disc	29251
5.	Waterjet disc	100495
6.	Air jet, H2O 1/4" orifice, tungsten carbide	100490
7.	Mixing chamber, H2O	100491
8.	Nipple, 1/8" x 1/4" reducing	29252
9.	Valve, 1/4" NPT ball (shutoff)	29254
10.	Clamp, 1/2" ID hose	29658
11.	Hose, 1/4" ID water, bulk, per foot specify length required	04911
12.	Hose fitting, 1/4 MNPT x 1/4" barb	02714
13.	Bushing, 1/2" x 1/4" brass	02706
14.	Adaptor, 1/2-FPT x 3/4" fem water swivel	02705
15.	Washer, pack of 6	04370
16.	Sleeve, air induction valve	100492
17.	Knob, tensioning	100493
18.	Screw, M4 x 5 socket head	100494
19.	Clamp, material hose	24780
20.	Setscrew, M5 x 6mm, 6 required	29253
21.	Hose, material, bulk specify feet required 16-ft. and 30-ft. are standard lengths	24778

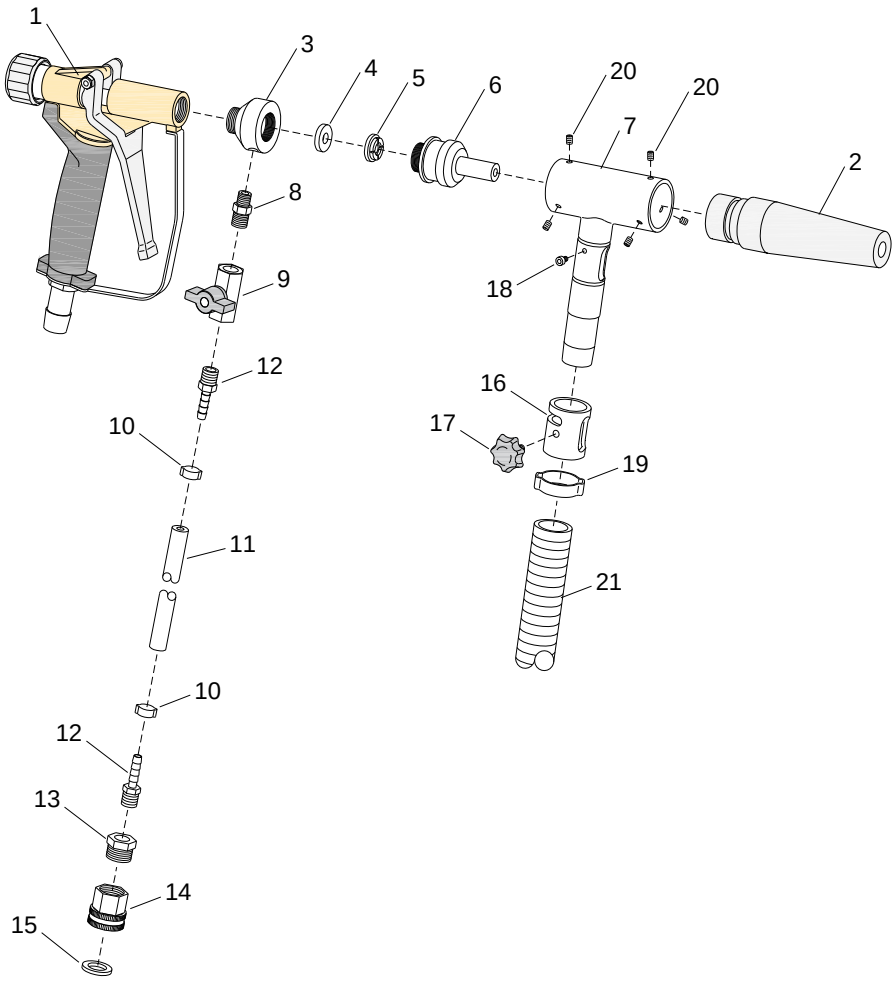


Figure 23

9.6 Gun and Trigger Assembly – Figure 24

Item	Description	Stock No.
(-)	Gun and trigger assembly includes all items shown in Figure 24	27532
(-)	Service kit, gun assembly, includes items 1 thru 12	90208
1.	Knob, control	90584
2.	Bushing, knob stem	90585
3.	Nut, control knob retaining	90586
4.	Stem, control knob	90587
5.	Screw, stem stop	90588
6.	Spring, control knob	90589
7.	Spring, return	90590
8.	Guide, rod	90591
9.	Setscrew, rod guide	90592
10.	Plug, rod and seal	90593
11.	Rod and tip assembly	90594
12.	Seal, rod	90595
13.	Gun body and trigger assembly	Not available as separate item

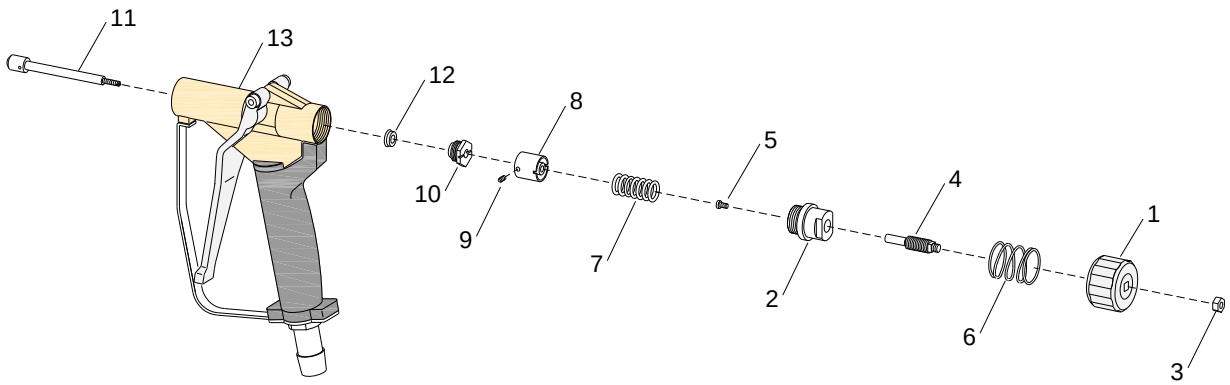


Figure 24