GRITWIZARD™
PNEUMATIC PRESSURE-HOLD REMOTE CONTROL SYSTEMS
O. M. 31342

DATE OF ISSUE: 08/22
REVISION:

⚠ 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 the installation, operation, maintenance, troubleshooting, and replacement parts for Clemco GritWizard™ Pneumatic Pressure-Hold Remote Control Systems. Accessory manuals for equipment that may be used with the remote controls are shown below. Manuals are available on our web site at www.clemcoindustries.com.

Single Chamber Blast Machine	Manual No. 06160
Dual Chamber Blast Machine	Manual No. 06154
ACE Air Valve	Manual No. 23938
GritWizard™ Abrasive Metering Valve	Manual No. 31199
RLX Control Handle	Manual No. 10574

1.1.2 This manual contains important safety information. All operators and personnel involved with the abrasive blasting process must read and understand the contents of these instructions, including the orange cover. It is equally important that the operator is trained and qualified to safely operate the blast machine and remote controls and all other equipment used with the blast machine.

1.1.3 All personnel involved with the abrasive blasting process must be made aware of the hazards associated with abrasive blasting. The Clemco booklet ″Abrasive Blasting Safety Practices″ is included with every blast machine, The booklet contains important safety information about abrasive blasting that may not be included in equipment operation manuals. The booklet is available in both English and Spanish; to request 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, can result in property damage.

⚠ CAUTION

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

⚠ WARNING

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

⚠ DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

1.3 Table of Contents

1.4 System Components

1.4.1 The key components of the GritWizard pneumatic remote control system are shown in Figure 1. They include the GritWizard™ Abrasive Metering Valve, ACE Air Valve, RLX Control Handle with abrasive cut-off (ACS) air switch assembly, 50 foot twinline control hose, 50 ft single-line control hose, 18" hose, 3 ft and 5 ft control hose, 1/4" OD x 6 ft Poly tubing, and all necessary fittings.

1.5 General Description

1.5.1 The remote control system is an OSHA-required safety device, and it is required whenever an operator mans the blast nozzle. The control handle, located near the blast nozzle, is the activator of the remote control system. Blasting begins when the operator applies handheld pressure to the control handle lever. Blasting stops when the operator removes pressure from the lever.

⚠ WARNING

Never modify or substitute remote control parts. Parts from other manufacturers are not compatible with Clemco equipment. If ANY part of the remote control system is altered, involuntary activation can occur, causing serious injury.

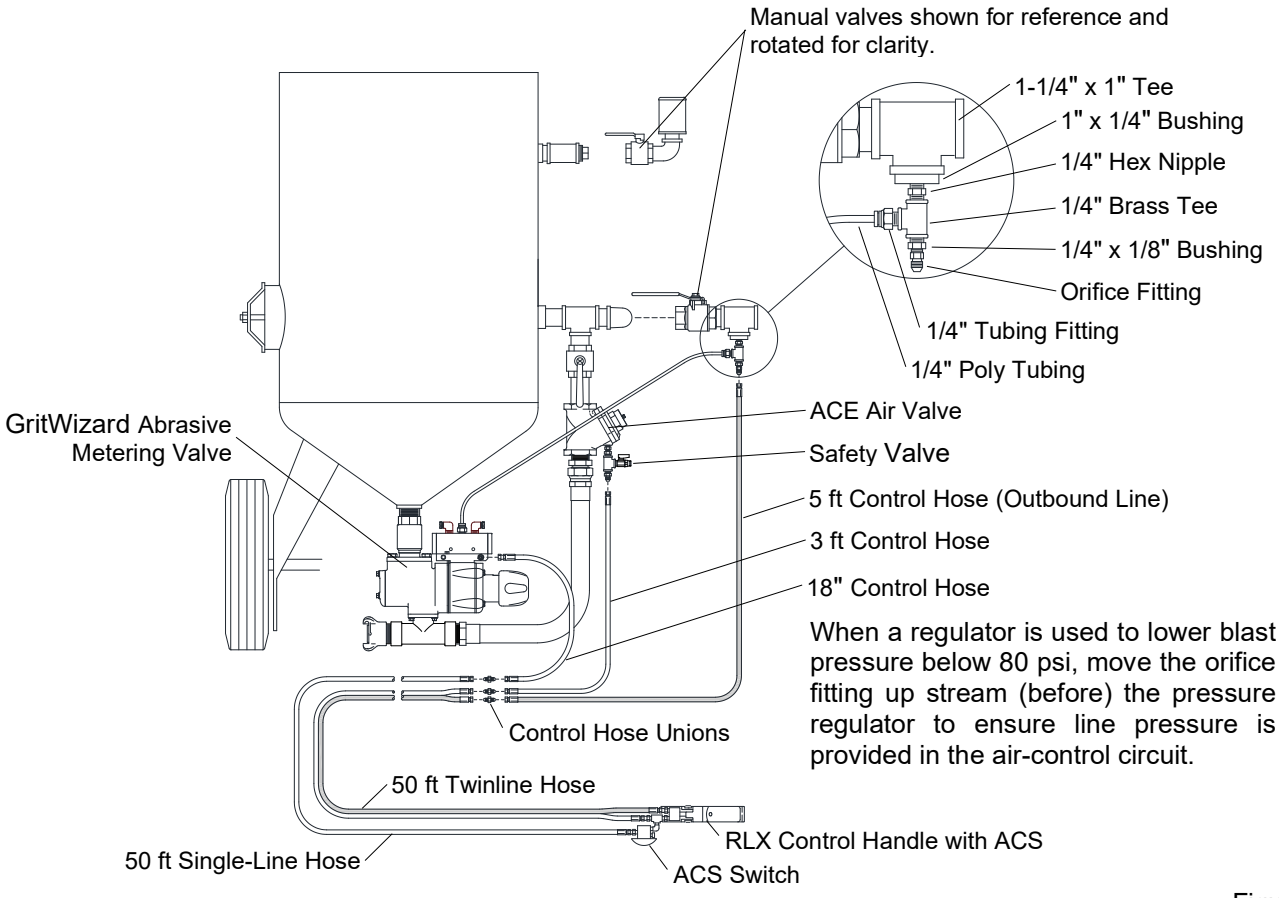


Figure 1

1.5.2 The remote control system "fails to safe," which means blasting stops when an interruption occurs for any reason in the control-air circuit, such as a break in the line, or should the operator drop the blast hose. When the operator presses the control handle lever, the normally closed (NC) abrasive metering valve and air valve open, which begins the blasting process. When the operator intentionally or unintentionally removes handheld pressure from the control handle, the abrasive metering valve and air valve return to their normally closed positions, stopping air and abrasive flow through the nozzle.

1.6 Operating Principles

1.6.1 GritWizard remote controls are pressure-hold type systems. This means that pressurization and depressurization of the blast machine is a separate function from the remote controls which controls the blasting.

1.6.2 When compressed air is supplied to the blast machine, it is split into three streams.

One stream goes to the abrasive metering valve and assist in closing the valve.

One stream is the control air, which passes through the orifice fitting, down the outbound twinline, and escapes trough an opening located under the RLX Control Handle (which is the main activator of the system).

The third stream stops at the hand-operated inlet valve. Using the hand-operated inlet and outlet valves, the operator manually pressurizes and depressurizes the blast machine. When the operator manually opens the inlet valve, the stream of air is split again. One stream goes directly into the blast machine and pressurizes it, the other goes to the pusher line, where is stops at the ACE Air Valve.

1.6.3 Although the machine is under pressure neither air nor abrasive exits from the nozzle because the normally closed (NC) GritWizard Metering Valve shuts off abrasive flow, and the ACE Air Valve shuts off air flow. Blasting will not start until the operator activates the control handle. Pressure remains in the blast machine until it is manually depressurized.

1.6.4 GritWizard remote controls operate pneumatically on the return-air principle; refer to Figure 1. When the machine is manually pressurized, control air travels from the orifice fitting, down the outbound twinline and escapes through an opening located under the control handle lever. As long as air escapes through the opening, the remote control system remains inactive (no blasting). When the operator applies pressure to the control handle, a rubber button seals the opening forcing air from the outbound side of twinline to return through the inbound side. Pressure in the return line opens both the abrasive metering valve and the air valve, which begins the blasting process. When the operator releases the handle, control air exhausts from the opening, which returns the valves to their normally closed positions, and stops blasting. Pressure remains in the vessel until it is manually depressurized.

1.6.5 Abrasive cutoff switch (ACS): An abrasive cut-off switch (ACS) is a standard feature of the GritWizard Remote Controls. The abrasive cut-off switch is mounted on the control handle, as shown in Figure 1. The operator uses the switch to close the abrasive valve independently of the air valve, so air without abrasive exits the nozzle. This feature is used to clear abrasive from the blast hose or to blow-down the blasted surface. Refer to Section 3.5 for operation of the ACS.

1.7 Electric Control Option

1.7.1 Electric remote controls (electric over-pneumatic) are recommended when the nozzle and remote control handle are farther than 100 feet from the blast machine. Pressure drop through pneumatic systems over longer distances increases actuation time, which prevents fast, safe operation. Contact your local Clemco Distributor for more information.

2.0 INSTALLATION

⚠ WARNING

Failure to observe the following procedure before performing any service on a blast machine or pneumatic accessories could cause serious injury or death from the sudden release of trapped compressed air.

- **Empty the blast machine of abrasive.**
- **Depressurize the blast machine.**
- **Lockout and tagout the compressed air supply.**
- **Bleed the air-supply line to the blast machine.**

2.1 Installation Note: To prevent thread galling, ensure airtight seals, and make assembly easier, apply pipe-thread sealant to all male NPT (pipe) threads.

Additional fittings may be required to connect the valve to some blast machines and piping configurations. Use 1-1/4-NPT Schedule 40 nipples, to connect the fittings, as shown in Figures 1 and 2.

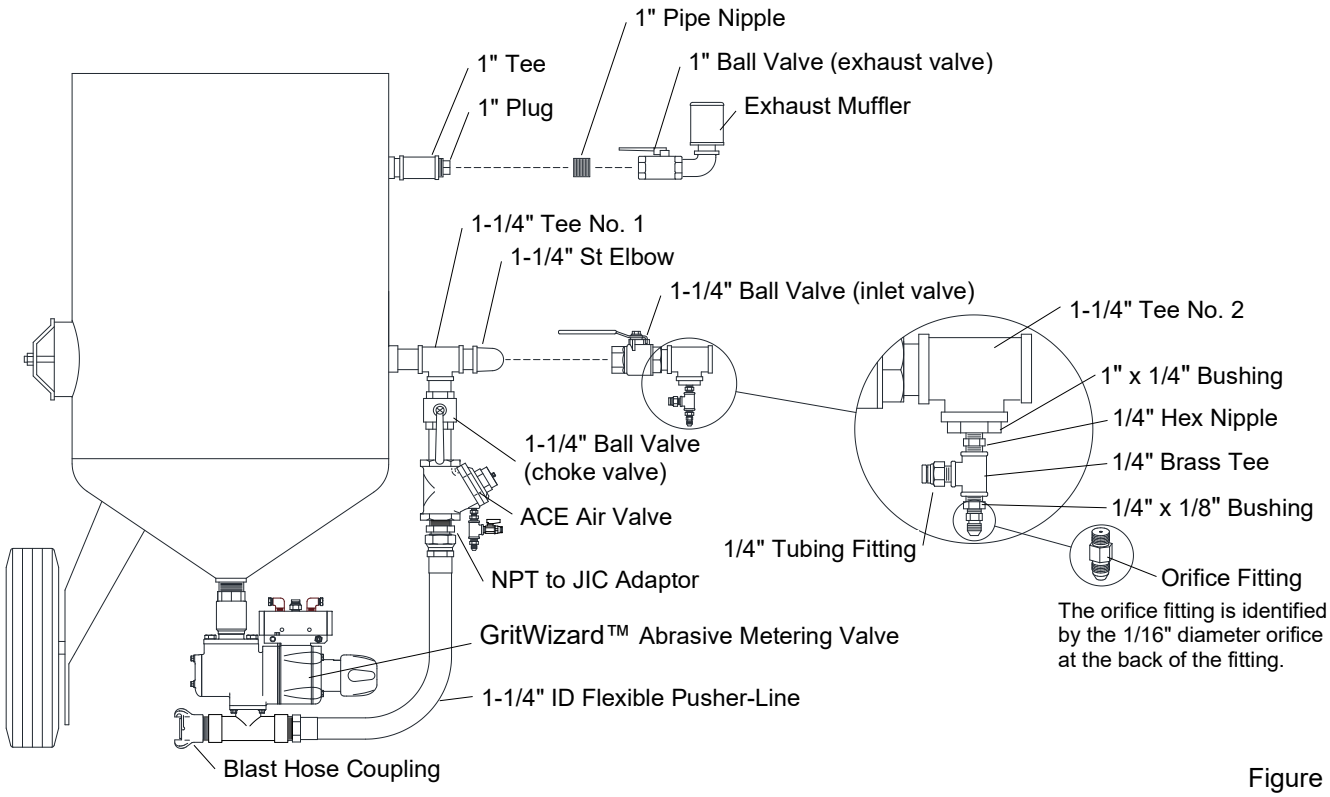


Figure 2

2.2 Blast Machine with Factory Installed Controls: If the remote control system was factory installed onto a new blast machine, confirm the control hose and tubing connections in Figure 1, then skip to Section 2.4.

2.3 Field Installation on Existing Blast Machine Figures 2 and 3.

2.3.1 Empty the blast machine of abrasive. Depressurize the machine. Shut down the compressed air source. Bleed the air supply line. Lockout and tagout the air supply. Disconnect the air supply line.

2.3.2 Refer to Figure 2 for the final piping arrangement, and remove the existing abrasive metering valve and all unnecessary external piping from the blast machine. Safe the external piping for reuse.

2.3.3 Refer to the GritWizard™ Abrasive Metering Valve operations manual No. 31199 and install the metering valve.

2.3.4 Install a 1-1/4" pipe tee (Tee No. 1) and street elbow at the blast machine inlet, as shown in Figure 2. NOTE: The elbow should be facing toward the back of the machine, so the weight of the piping puts the fittings in the tightening position.

2.3.5 Connect a manually operated ball valve (inlet valve) and a second tee (Tee No. 2) to the elbow, as shown. NOTE: The second tee and all fittings necessary to complete the assembly shown in the detail circle in Figure 2, are included with the remote system.

2.3.6 Assemble a manual outlet valve assembly, and install it as shown. NOTE: Clemco installs an exhaust muffler, Stock No. 05068, with all blast machines 1.5 cubic feet and larger. The muffler is not part of the remote control system. The muffler reduces exhaust noise and directs the exhaust downward, which prevents abrasive from exhausting into the air. When the blast machine depressurizes, the muffler body pops up and diffuse the escaping air and abrasive. When the machine is fully depressurized, the muffler body drops, permitting trapped abrasive to empty. For the muffler to work properly, it must be installed with the body facing up, as shown in Figures 1 and 2.

2.3.7 Loosely assemble a pusher-line under Tee No. 1 using standard pipe fittings as shown in Figure 2. Start at the tee and work downstream; this line must include a manual choke valve, ACE Air Valve, and NPT to JIC adaptor, in that order. A separate manual is provided for the ACE Air Valve.

2.3.8 Connect the flexible pusher line and check the fit. Remember the JIC fitting will be somewhat higher

after the fittings are tightened. The old pusher line may be too long or too short to connect to the fittings without it streatching or kinking. Some adjustment can be done by lengthening or shorting the nipples between the tee, choke valve, and ACE Valve, as shown in Figure 3. Tighten the fittings when certain the pusher line fits. **If the pusher line does not fit correctly, a shorter or longer pusher line is required.**

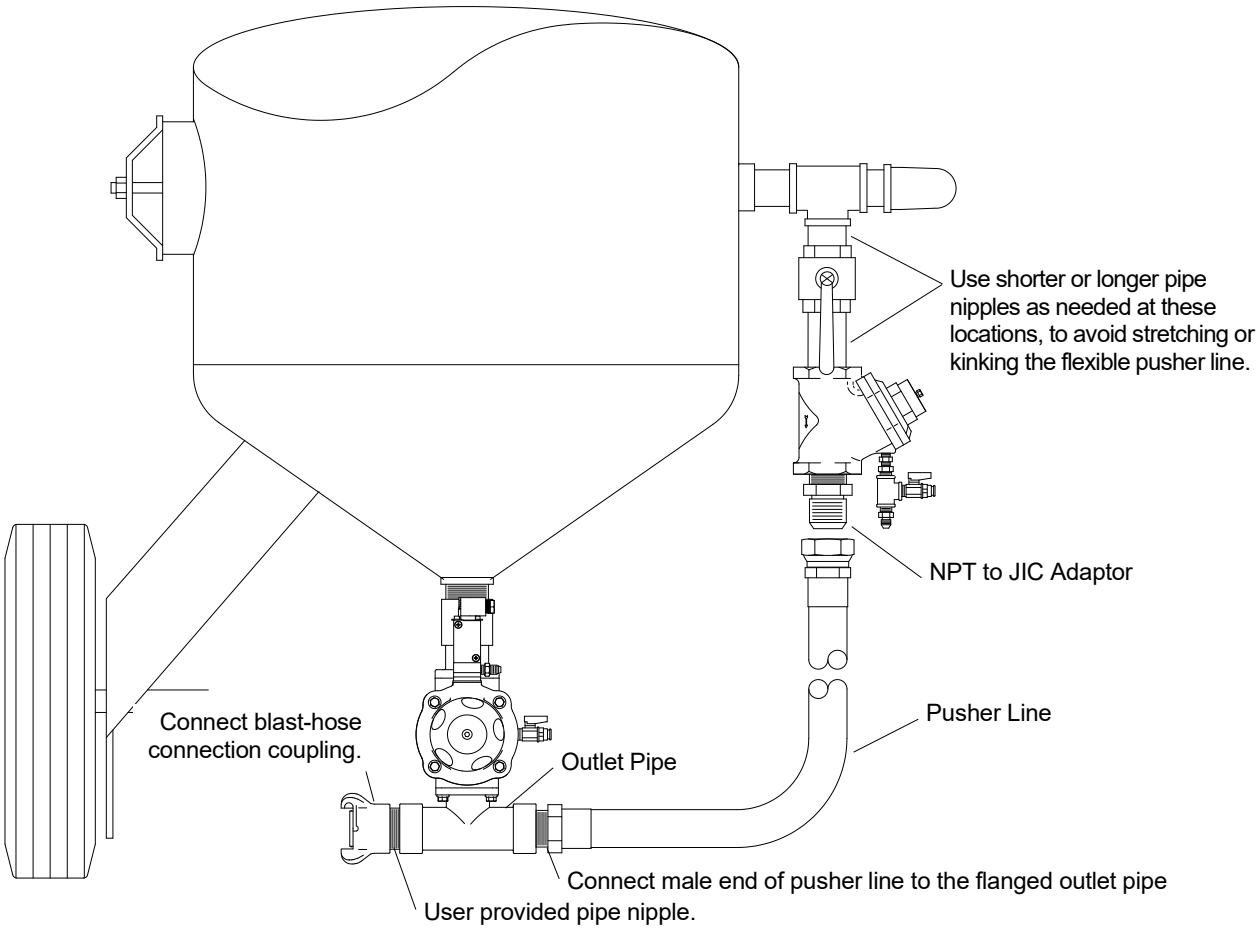
2.3.9 Refer to the detail circle in Figure 2, and assemble all fittings within the circle. NOTE: The orifice fitting (shown in the detail circle) looks similar to other fittings, but it has a 1/16" opening in the back end of the fitting. It is important that the orifice is installed at this location, as it meters the appropriate amount of air to the air circuit.

2.3.10 Apply pipe thread sealant to the male threads of a new 1-1/4" NPT nipple (1-1/2" NPT when using the 1-1/2" outlet pipe) and connect the blast hose coupling to the outlet pipe, as shown in Figure 3.

2.3.11 Connect control hoses and tubing to the valves, as shown in Figure 1. Do not connect the 50 ft hoses at this time. **NOTE: 6 ft of tubing is provided, cut the tubing to fit.**

2.4 Blast Hose and Control Hose Connections

NOTE: The following instructions explain the connections on a single operator blast machine and remote control system. Connections for dual operator machines are the same except the connections must be made twice; once for operator #1 and again for operator #2. Controls for operator #1 and #2 must be kept separate. Read the following warning before making the connections.



The Flanged Outlet Pipe may be rotated 90 degrees, positioning the metering knob toward a convienient adjusting position, as noted in the GritWizard Operations Manual.

Figure 3

⚠ WARNING

Carefully trace, connect, and mark, control lines and blast hose on multiple-outlet blast machines, or where two or more blast machines are used. Switching control lines or blast hose, could lead to injury and property damage from unintentional actuation of a blast machine. To reduce the possibility of hose switching, blast hose and control cord should be of equal lengths. Hose identification kits, part no. 15890 for two outlets, or part no. 15891 for up to four outlets should be used where multiple blast hose and control lines are in use.

2.4.1 Uncoil a coupled length of 50-ft blast hose and lay the 50-ft twinline hose and 50-ft single-line hose alongside it. Hoses should be of equal lengths.

2.4.2 Band the RLX Control Handle to the blast hose at a suitable, comfortable position behind the nozzle holder, as shown in Figure 4. Use the two nylon ties provided or similar means to secure the control handle to the hose. Once the control is firmly attached, clip the tie ends so they do not snag the operator's clothing or interfere with the operation of the control handle.

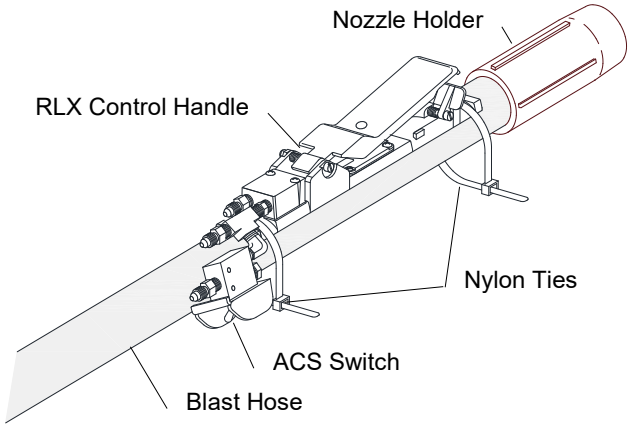


Figure 4

2.4.3 Attach the 50 ft single-line control hose to the ACS cut-off switch mounted on the control handle, as shown in Figure 5.

2.4.4 Attach the 50 ft twinline hose to the two fittings on the control handle. Either leg can be coupled to either fitting.

2.4.5 Working from the control handle back, band the twinline and single-line hoses to the blast hose, as shown in Figure 5, every 4 to 6 feet and as close to the couplings as possible.

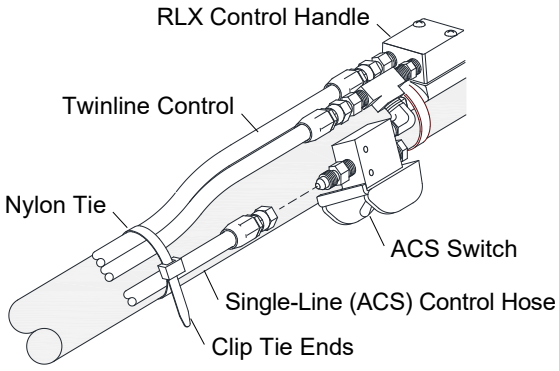


Figure 5

2.4.6 Repeat the process for each section of control lines and blast hoses.

2.4.7 Attach the blast hose to the blast machine. Use safety lock pins or wires to securely lock the couplings.

2.4.8 Screw the three control-hose unions into the unattached fittings of the twinline and single-line hose.

2.4.9 Connect the 18" control hose between the GritWizard valve and the union on the 50 ft single line hose.

2.4.10 Connect the 5 ft control hose between the orifice fitting on the inlet tee and either one of the unions on the twinline hose.

⚠ WARNING

The fittings used in the tee assembly shown in Figure 1 must have a 1/16" orifice in the end that threads into the bushing. Never use fittings that do not have the 1/16" restricting orifice. Any other fitting will cause accidental actuation of the blast machine which can result in property damage, injury, or death.

2.4.11 Complete the control hose connections by connecting the 3 ft control hose between the ACE air valve and the remaining union on the twinline hose.

2.4.12 Make sure all fittings are tight. Leaks will cause the system to malfunction.

2.4.13 Band the control hoses on the blast machine side of the unions to the quick coupling nipple.

2.4.14 Read all information regarding the operation of the controls. Test the operation of the blast machine and remote controls before loading the machine with abrasive.

3.0 OPERATION

3.1 Startup

3.1.1 Make sure the control handle is in the up (no-blast) position and that it moves freely. Make sure the rubber button does not reach the opening on the control handle unless the safety lock is pulled down.

⚠ WARNING

A malfunctioning control handle could cause unintentional actuation of a blast machine, or prevent a machine from deactivating upon releasing the handle. A malfunctioning control handle must be taken out of service immediately and repaired or replaced.

3.1.2 Make sure that all hose connections are secure. Install safety lock pins and safety cables on all quick coupling connections to prevent accidental separation of hoses.

3.1.3 Connect the blast machine to an adequate air supply. The compressor should be located upwind from the blasting operation to prevent dust from entering the compressor intake.

3.1.4 Make sure the safety valves on the GritWizard metering valve and ACE air valve are open.

⚠ WARNING

To prevent severe injury or death from accidental activation of the blast machine, open both safety valves when the blast machine is not in use. The control handle will not activate the machine when the valves are open.

3.1.5 Start the compressor, and bring it up to operating temperature and pressure. The pressure must be more than 80 pounds per square inch (psi) but not more than the maximum working pressure rating of the blast machine.

3.1.6 Load the machine with abrasive by following the instructions in the blast machine operations manual.

3.2 Personal Protective Equipment

⚠ WARNING

All dust is hazardous to breath. Before blasting, test the coating and substrate for toxic materials, such as lead or 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 trace 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 harmful dust and noise. No dust is safe to breathe. 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 and dust particles 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, eye protection, and hearing 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.

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

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

3.2.3 When finished blasting and after cleanup is completed, remove the respirator and protective clothing outside the respirator-use area in a clean environment where the air is safe to breathe.

3.3 Pressurize the Blast Machine and Prepare to Blast

The following are general guidelines; follow the manufacture's instruction to pressurize the blast machine:

3.3.1 Don all protective blasting attire, per Section 3.2.

3.3.2 Make sure the toggle on the RLX Control Handle ACS switch is pointing away from the nozzle. Refer to Section 3.5 for operation of the abrasive cutoff switch (ACS).

3.3.3 When the blast operator is ready to blast, the operator or the machine tender closes the outlet valve, and open the inlet valve. Air entering the machine causes it to pressurize.

3.3.4 Close the safety valves. Air should be heard escaping from the orifice under the control handle lever but nowhere else.

3.4 Start Blasting

3.4.1 Hold the blast hose securely and point the nozzle only toward objects intended to be blasted.

3.4.2 Fold down the safety lever lock and depress the remote control handle, as shown in Figure 6. Be prepared for blasting to begin within a few seconds.

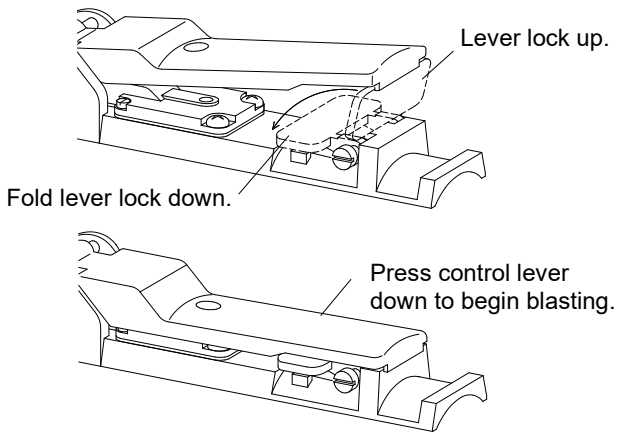


Figure 6

⚠ WARNING

Be prepared for the recoil from the blast hose. Blasting will begin within a few seconds after pressing the control lever.

⚠ WARNING

OSHA requires the use of remote controls on all blast machines. To comply with OSHA regulations, the remote control handle, which starts and stops the flow of air and abrasive, must be held down manually. Do not tie down the control handle lever or attempt to bypass any part of the remote control system. Doing so will defeat the purpose of the fail-to-safe feature of the remote control. Serious injury or death could result from uncontrolled blasting. Ref. 29 CFR 1910.244 (b)

3.4.3 Adjust abrasive flow per Section 4.1.

3.5 Operation and Function of the Abrasive Cutoff Switch (ACS)

⚠ WARNING

OSHA sets exposure limits for people and the environment. Airborne dust can increase the exposure levels beyond permissible limits. OSHA prohibits blowing with compressed air as a cleaning method for lead-based paint dust or other hazardous dust, unless the compressed air is used in conjunction with a ventilation system designed to capture the volume of airborne dust created by the compressed air, 29 CFR 1926 (h). The ACS is for blowing abrasive off a blasted surface, NOT as a general area cleanup tool.

3.5.1 The ACS closes the abrasive metering valve so that air alone without abrasive exits the nozzle. Common uses for this feature are:

1. Clearing abrasive from the blast hose when finished blasting. This is helpful in many applications and is necessary when blasting vertically to prevent abrasive from collecting in low spots in the blast hose, eliminating excessive abrasive slugging at startup.
2. Blowing abrasive off the blasted surface. NOTE: Small amounts of residual abrasive may exit the nozzle with the air, requiring additional blowing off or

otherwise cleaning the surface outside the blasting area prior to painting.

3. When wet blasting with an injector or wetblast attachment, it is used to assist in blow drying the surface after it is washed down.

3.5.2 The abrasive cutoff switch is situated directly behind the control handle, as shown in Figure 7. The switch may be flipped ON or OFF at any time, but it will not operate the metering valve unless the control handle is pressed.

3.5.3 Blast mode: Moving the ACS toggle to point away from the nozzle to the ON ("CYL" port) position, sends control air to the abrasive metering valve and opens the valve; the blast machine operates normally, with air and abrasive coming out the nozzle.

3.5.4 Blowdown mode: Moving the ACS toggle to point toward the nozzle, to the OFF position, cuts off control air to the abrasive metering valve to close the valve and stops abrasive flow. This action allows air alone to exit the nozzle, which is useful for clearing the blast hose before shutting down and for blowing abrasive off the blasted surface.

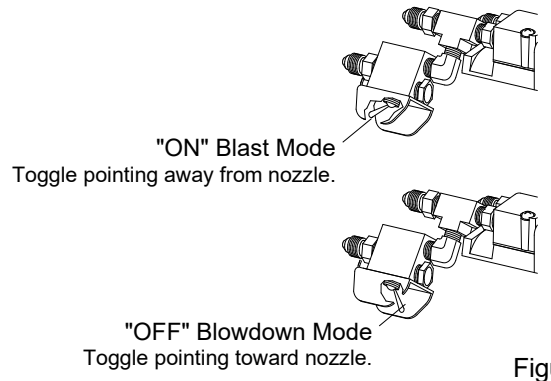


Figure 7

3.6 Stop Blasting

3.6.1 Before releasing the control handle, the operator may use the ACS to shut off the abrasive flow to clear the blast hose, or blow-down the blast surface. See Section 3.5.

3.6.2 To stop blasting, release the control handle lever. The control handle safety lever will flip up to lock the handle lever in the up (no blast) position to prevent accidental activation of the blast machine.

3.6.3 Open the safety valves located on the ACE air valve and GritWizard metering valve. Always open the safety valves during work breaks to prevent unintentional blasting.

3.6.4 It is not necessary to depressurize the machine between short blasting pauses. The media valve and air valve close when the control handle lever is released. To prevent accidental activation, depressurize the blast machine before any work break.

3.7 Depressurize the Blast Machine

The following are general guidelines; follow the manufacture's instruction to depressurize the blast machine:

3.7.1 Close the manual inlet valve.

3.7.2 While standing back and facing away from the exhaust muffler, promptly open the manual outlet valve; as air exhaust from the outlet valve the machine depressurizes. The pop-up valve automatically drops when air is expelled from the machine and pressure equalizes.

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

4.0 ADJUSTMENTS

4.1 Adjust Abrasive Flow – Figure 8

4.1.1 The valve is closed when the knob is fully clockwise. Increase abrasive flow by turning the knob counterclockwise and decrease abrasive flow by turning the knob clockwise, as shown in Figure 8. Begin with the knob set two turns from fully closed. Adjust abrasive flow by turning the knob no more than 1/4 turn before rechecking flow. Continue adjusting as described until the correct flow is attained.

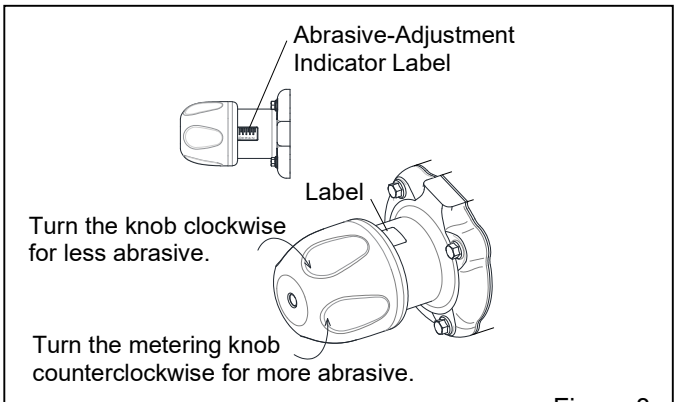


Figure 8

4.1.2 The indicator label behind the knob shows how far the metering valve is open. When the knob is turned

in or out it moves over the label, allowing the operator to reset the valve to the same position when abrasive flow is temporarily changed.

4.1.3 Optimum abrasive flow depends on the type and size of abrasive and blasting pressure, and can best be determined by experience. Use as little abrasive as possible while maintaining the maximum cleaning rate. The air-abrasive mixture should be mainly air. As a rule, the stream of abrasive coming out of the nozzle should barely discolor the air when seen against a contrasting background.

5.0 PREVENTIVE MAINTENANCE

NOTE: The following preventive maintenance instructions pertain to the remote controls only. Also read the manuals for the blast machine and all blast accessories, for inspection and maintenance schedules of those items.

5.1 Daily Inspection

To avoid unscheduled downtime and to improve safety, establish a daily inspection schedule. Inspect all parts subjected to abrasive contact, including the blast hose, nozzle, and all items covered in this section.

5.1.1 With the air OFF, before blasting do the following:

RLX control handle: Refer to the RLX Remote Control Handle operations manual, as listed in Paragraph 1.1.1.

- Make sure the control lever does not seal the exhaust port on pneumatic controls unless the safety lever lock is intentionally folded down.
- The **control lever** must return to the UP position when released.
- The **safety lever lock** must return to the UP position when the control lever is released.
- Both the control lever and safety lever lock must move freely with no drag or binding.

⚠ WARNING

Malfunctioning control handles can cause unintentional actuation of a blast machine and also prevent a machine from deactivating upon release. Malfunctioning control handles must be taken out of service immediately and be repaired or replaced. Serious injury or death can result from unintentional blasting. Refer to the RLX operations manual for service instructions.

5.1.2 With the vessel under pressure but before blasting, do the following:

- Check the blast machine vessel for leaks. If leaks are found around the pop-up valve, inspection door, or any pipe-fitting ports on the vessel, repair or replace worn parts immediately.

NOTICE

If leaks are allowed to continue, abrasive erosion can cause extensive or irreparable damage to the blast machine.

- Check for air leaking from the nozzle. If air is felt from the nozzle, close the choke.
  - If the leak stops, the air valve requires service. Refer to the ACE Air Valve operations manual for service instructions.
  - If the leak continues, the abrasive metering valve requires service. Refer to the GritWizard Abrasive Metering Valve operations manual.

5.1.3 During blasting, do the following:

- Check the RLX Control Handle for leaks.

5.2 Weekly Inspection

5.2.1 During blasting do the following:

- Inspect all control hoses and valves for leaks. If leaks are found, stop blasting and repair.

5.3 Periodic Inspection

NOTE: Periodic inspection of the following items will prevent unscheduled down-time.

5.3.1 The remote control system is a safety device. For safety and to avoid unscheduled downtime, periodically inspect the internal parts of the GritWizard Valve and ACE Air Valve. Inspect for wear and lubrication of o-rings, pistons, springs, seals, and castings. Refer to the individual manuals for equipment listed in Paragraph 1.1.1.

5.3.2 The control handle is the actuator of the remote control system. Periodically clean around the springs, control lever, and safety lever lock to ensure that the unit is free of abrasive and debris that may cause the control lever or safety lever lock to bind. Refer to the RLX operations manual for service instructions.

6.0 SERVICE MAINTENANCE

⚠ WARNING

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

- **Depressurize the blast machine.**
- **Lockout and tagout the compressed air supply.**
- **Bleed the air supply line to the blast machine.**

6.1 GritWizard Abrasive Metering Valve

Refer to the GritWizard Metering Valve operations manual, No. 31199, for service instructions for the metering valve.

6.2 ACE Air Valve

Refer to the ACE Air Valve operations manual, No. 23938 for service instructions for the air valve.

6.3 RLX Control Handle

Refer to the RLX control handle manual, No. 10574 for service instructions for the control handle.

6.4 Cutting Control Hose and Reusing Control-Hose Fittings – Figure 9

NOTE: Control hoses may be shortened and cut to length as follows:

6.4.1 Remove the hose end by placing the sleeve in a vise or use a backup wrench on the sleeve to prevent it from turning. Unscrew the insert by turning it counterclockwise.

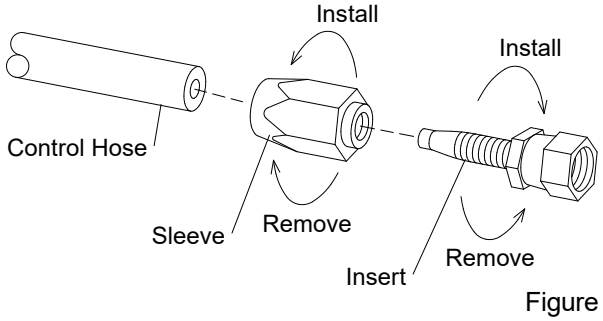


Figure 9

6.4.2 Turn the sleeve clockwise to remove it from the hose.

6.4.3 Cut hose to the required length.

6.4.4 Turn the sleeve counterclockwise to install it onto the hose. Do not over-tighten the sleeve. Stop tightening as soon as the hose bottoms against the sleeve's internal shoulder. Over-tightening will cause the hose to curl inward and could cause blockage.

6.4.5 Push the end of the insert into the sleeve and turn it clockwise to tighten until the insert hex is against the sleeve.

6.5 Using Tube-Lock Fittings – Figure 10

⚠ WARNING

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

- **Lockout and tagout the compressed-air supply.**
- **Bleed all compressed air-supply lines.**

6.5.1 To remove the tubing from tube-lock fittings, push the retaining collar toward the fitting, which releases the tubing so it can be easily removed by pulling it out. Do not force it; only a slight pull on the tubing is required if the retaining collar is pushed in correctly.

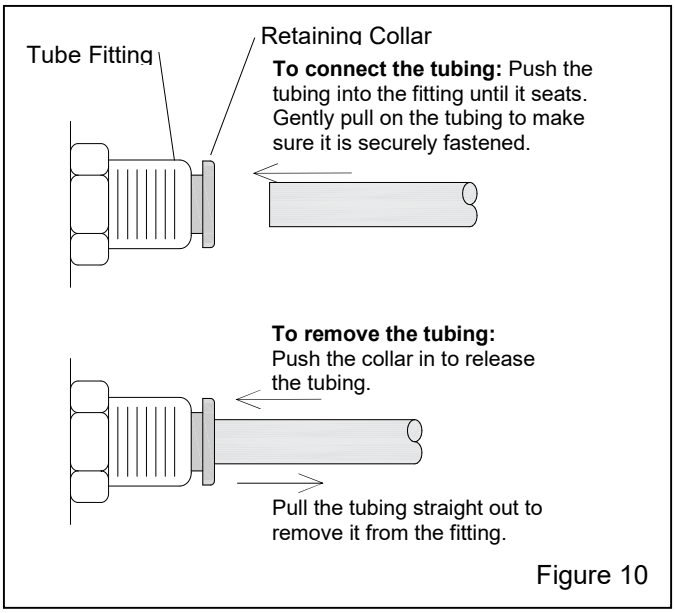


Figure 10

6.5.2 Reconnect the tubing by inserting it through the collar until it seats. Tug on the tubing to make sure it is tight.

7.0 TROUBLESHOOTING

NOTE: This section only identifies conditions and problems in the remote control system. For service information, always refer to the appropriate section of this manual, manuals listed in Paragraph 1.1.1, or manuals for accessory equipment when troubleshooting and before servicing the equipment.

⚠ WARNING

To avoid serious injury from the sudden release of compressed air, observe the following when troubleshooting the machine and remote controls:

- **Turn OFF the air supply, and lockout and tagout the air supply.**
- **Drain the air-supply line.**
- **When checking, if the controls requires air, always enlist the aid of another person to operate the control handle, hold the nozzle securely, and point it in a safe direction.**
- **Never strap the remote control lever down in the operating position.**

7.1 Blasting does not start (no air and no abrasive) when the control handle lever is pressed

7.1.1 Make sure the blast machine is pressurized.

7.1.2 Make sure the safety valves on the GritWizard valve and Ace air valve are closed.

7.1.3 Check the nozzle for blockage. Open the safety valve on the ACE Air Valve and make sure the control handle is UP, in the nonblast position. Remove the nozzle and check it for an obstruction. When clear of obstruction, replace the nozzle and close the safety valves.

7.1.4 With safety valves closed and the control lever UP, check for air escaping from the opening under the control lever.

- If no or minimal air flows from the opening, the orifice fitting or the outbound line from the orifice to the handle is plugged. Inspect the orifice and control hoses for blockage.
- If air does flow from the opening, press the control handle and check for air leaks in the RLX Control Handle, all control hoses, tubing, fittings, ACE Air Valve, and metering valve. After the control handle is pressed there should be no air leaks anyplace in the air circuit. Any air leak can prevent the controls from operating correctly and must be corrected.

7.1.5 Open the safety valve on the ACE Air Valve and press the control lever. The same volume of air that came out the handle should come out of the valve. If it does not, check the following:

- Opening on the control handle is not sealed off.
- Air leaks in control handle or hoses.
- Line from the control handle to the Ace air valve is blocked.

7.2 Air continues to leak from the nozzle after the control handle lever is released.

7.2.1 Close the choke valve. If the leak stops, the problem is in the ACE air valve or a blockage in the control line between the air valve and control handle. If the leak continues, the GritWizard requires service, or there is a blockage in the control line between the GritWizard and the control handle.

7.3 Heavy abrasive flow.

7.3.1 Adjust the metering valve per Section 4.1.

7.3.2 Make sure the choke valve is open.

7.3.3 Inspect the internal parts in the GritWizard Valve for wear. Refer to the GritWizard Metering Valve operations manual for service instruction.

7.3.4 Inspect diaphragm in the ACE Air Valve for damage. Refer to the ACE Valve operations manual.

7.4 Abrasive flow continues when the ACS toggle is forward toward the nozzle.

7.4.1 Check the exhaust port on the front of the ACS switch, air should momentarily exhaust from the port when the ACS toggle is moved from the back position to the forward position. If it does not, check the following:

- Remove the muffler and check for blockage.
- Obstruction in the air line between the GritWizard valve and ACS switch. Check for obstruction.
- Faulty ACS switch.
- Worn internal parts in GritWizard valve. Inspect valve for wear.

7.5 Air flow, but no abrasive.

7.5.1 Make sure the machine contains abrasive.

7.5.2 Make sure the GritWizard valve is not closed. The valve is closed when the knob is turned fully clockwise.

7.5.3 Make sure the ACS switch is in the blast position (toggle pointing away from nozzle) Refer to Section 3.5.

7.5.4 Check for a leak or blockage in the hose or fittings from the control handle to the GritWizard valve.

7.5.5 The GritWizard valve may require service. Refer to the GritWizard Metering Valve operations manual.

7.5.6 Use the following methods to clear minor obstruction in the GritWizard valve.

7.5.6.1 Fully open the metering valve. The valve is full open when the knob is turned fully counterclockwise. While blasting, close the choke valve to force out small obstructions or wet abrasive.

⚠ WARNING

Depressurize the blast machine, and lockout and tagout the air supply before continuing.

7.5.6.2 For large obstructions shut down the machine to examine the GritWizard valve. Remove the inspection plate from the flanged adaptor and clear obstruction.

⚠ WARNING

Do not stick fingers into the piston area of the inspection opening. The piston is under spring pressure, and could suddenly close when the obstruction is cleared.

7.6 Abrasive flow continues after the control handle lever is released.

7.6.1 The control air may not be exhausting from the GritWizard valve or control handle. Refer to the RLX control handle manual.

7.6.2 Check the exhaust filter on the ACS switch for blockage.

7.6.3 Inspect the GritWizard plunger and valve seat for wear or obstruction. Refer to the GritWizard Metering Valve operations manual.

8.0 REPLACEMENT PARTS

8.1 GritWizard Pneumatic Remote Control Systems

Item	Description	Stock No.
(-)	GritWizard Pneumatic Single-Operator	25834
(-)	GritWizard Pneumatic Dual-Operator	25835

8.2 GritWizard Pneumatic Remote Control System Replacement Parts – Figure 11

Item	Description	Stock No.
1.	Metering valve assembly with 1-1/4” outlet pipe with flanged ball valve	31172
	without flanged ball valve	31171
	Metering valve assembly with 1-1/2” outlet pipe with flanged ball valve	31158
2.	ACE 1-1/4" air valve, standard valve only, without fittings	24074
	valve assembly with fittings	24044
	ACE 1-1/2" air valve, for 1-1/2" piping valve only, without fittings	25288
	valve assembly with fittings	25289
3.	RLX Control handle assembly, complete with ACS	07625
4.	Union, twinline hose (3 required)	01944
5.	Adaptor, 1/8" NPT w/ 1/16" orifice	01945
6.	Hose, twinline, 50 ft coupled	01951
7.	Hose, single line, 50 ft, 3/16" coupled	03087
8.	Hose, 5 ft coupled	03083
9.	Hose, 18" coupled	02454
10.	Hose, 3 ft coupled	02498
11.	Fitting, 1/4" NPT x 1/4" OD tube	11737
12.	Tubing, 1/4" OD Poly, specify ft required	12480
13.	Tie, Nylon	02195
14.	Tee, 1-1/4" x 1" pipe	01811
15.	Bushing, 1" x 1/4"	02023
16.	Nipple, 1/4" hex	02808
17.	Tee, 1/4" NPT	01785
18.	Bushing, 1/4" X 1/8" brass	02010
19.*	Tee, 2" x 2" x 1"	01812
20.*	Nipple, 1/4" X 1/8" reducing hex	02026
21.*	Nipple, 1/8" hex	01962
22.*	Fitting, 1/8" NPT x 1/4" OD tube	11214
23.*	Tee, 1/8" NPT	11734
24.*	Cross, 1/8" NPT brass	31209

* Used on dual controls only

8.3 Valve Replacement Parts (Operations Manuals)

NOTE: For replacement parts of individual valves, refer to the following operation manual:

GritWizard Abrasive Metering Valve Manual No. 31199
ACE Air Valve ..... Manual No. 23938
RLX Control Handle ..... Manual No. 10574

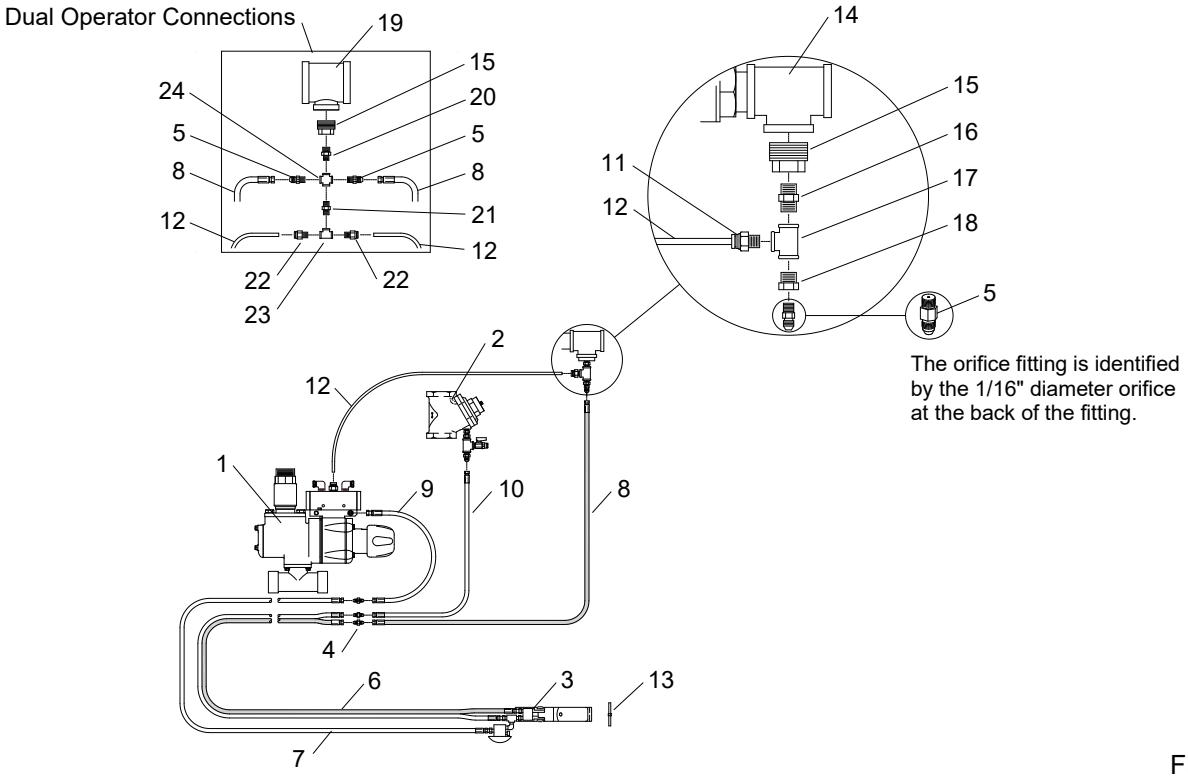


Figure 11