



RLX CONTROL HANDLE

O. M. 10574

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WARNING

Do not proceed with these instructions until you have READ the orange cover of this MANUAL and YOU UNDERSTAND its contents. *

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

***If you are using a Clemco Distributor Maintenance and Part Guide, refer to the orange warnings insert preceding the Index before continuing with the enclosed instructions.**

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

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⚠ WARNING

- Read and follow ALL instructions before using this equipment.
- Failure to comply with ALL instructions can result in serious injury or death.
- In the event that the user, or any assistants of the user of this equipment cannot read or cannot completely understand the warnings and information contained in these instructions, the employer of the user and his assistants must thoroughly educate and train them on the proper operation and safety procedures of this equipment.

NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL

The products described in this material, and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose or application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

Abrasive Blast Equipment is only a component of the range of equipment used in an abrasive blasting job. Other products may include an air compressor, abrasive, scaffolding, hydraulic work platforms or booms, paint spray equipment, dehumidification equipment, air filters and receivers, lights, ventilation equipment, parts handling equipment, specialized respirators, or equipment that while offered by Clemco may have been supplied by others. Each manufacturer and supplier of the other products used in the abrasive blasting job must be contacted for information, training, instruction and warnings with regard to the proper and safe use of their equipment in the particular application for which the equipment is being used. The information provided by Clemco is intended to provide instruction only on Clemco products. All operators must be trained in the proper, safe, use of this equipment. It is the responsibility of the users to familiarize themselves with, and comply with, all appropriate laws, regulations, and safe practices that apply to the use of these products. Consult with your employer about training programs and materials that are available.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

GENERAL INSTRUCTIONS

Described herein are some, BUT NOT ALL, of the major requirements for safe and productive use of blast machines, remote control systems, operator respirator assemblies, and related accessories. Completely read ALL instruction manuals prior to using equipment.

The user's work environment may include certain HAZARDS related to the abrasive blasting operation. Proper protection for the blaster, as well as anyone else that may be EXPOSED to the hazards generated by the blasting process, is the responsibility of the user and/or the employer. Operators MUST consult with their employer about what hazards may be present in the work environment including, but not limited to, exposure to dust that may contain TOXIC MATERIALS due to the presence of silica, cyanide, arsenic or other toxins in the abrasive, or materials present in the surface to be blasted such as lead or heavy metals in coatings. The environment may also include fumes that may be present from adjacent coatings application, contaminated water, engine exhaust, chemicals, and asbestos. The work area may include PHYSICAL HAZARDS such as an uneven work surface, poor visibility, excess noise, and electrical hazards. The operator MUST consult with his employer on the identification of potential hazards, and the appropriate measures that MUST be taken to protect the blaster and others that might be exposed to these hazards.

ALL machines, components and accessories MUST be installed, tested, operated and maintained only by trained, knowledgeable, experienced users.

DO NOT modify or substitute any Clemco parts with other types or brands of equipment. Unauthorized modification and parts substitution on supplied air respirators is a violation of OSHA regulations and voids the NIOSH approval.

OPERATIONAL INSTRUCTIONS

OPERATOR SAFETY EQUIPMENT

⚠ WARNING


- Blast operators and others working in the vicinity of abrasive blasting must always wear properly-maintained, NIOSH-approved, respiratory protection appropriate for the job site hazards.
- DO NOT USE abrasives containing more than one percent crystalline (free) silica. Ref. NIOSH Alert #92-102
- Inhalation of toxic dust (crystalline silica, asbestos, lead paint and other toxins) can lead to serious or fatal disease (silicosis, asbestosis, lead or other poisoning).

- ALWAYS wear NIOSH-approved supplied-air respirators as required by OSHA, in the presence of any dust including, but not limited to, handling or loading abrasive; blasting or working in the vicinity of blast jobs; and cleanup of expended abrasive. Prior to removing respirator, an air monitoring

instrument should be used to determine when surrounding atmosphere is clear of dust and safe to breathe.

- NIOSH-approved, supplied-air respirators are to be worn ONLY in atmospheres:
 - NOT IMMEDIATELY dangerous to life or health and,
 - from which a user can escape WITHOUT using the respirator.
- Clemco supplied-air respirators **DO NOT REMOVE OR PROTECT AGAINST CARBON MONOXIDE (CO) OR ANY OTHER TOXIC GAS.** Carbon monoxide and toxic gas removal and/or monitoring device must be used in conjunction with respirator to insure safe breathing air.
- Air supplied to respirator **MUST BE AT LEAST GRADE D QUALITY** as described in Compressed Gas Association Commodity Specification G-7.1, and as specified by OSHA Regulation 1910.139 (d).
- ALWAYS locate compressors to prevent contaminated air (such as CO from engine exhaust) from entering the air intake system. A suitable in-line air purifying sorbent bed and filter or CO Monitor should be installed to assure breathing air quality.
- ALWAYS use a NIOSH-approved breathing air hose to connect an appropriate air filter to the respirator. Use of a non-approved air hose can subject the operator to illness caused by the release of chemical agents used in the manufacture of non-approved breathing air hose.
- ALWAYS check to make sure air filter and respirator system hoses are NOT CONNECTED to in-plant lines that contain nitrogen, acetylene or any other non-breathable gas. NEVER use oxygen with air line respirators. NEVER modify air line connections to accommodate air filter/respirator breathing hose WITHOUT FIRST testing content of the air line. **FAILURE TO TEST THE AIR LINE MAY RESULT IN DEATH TO THE RESPIRATOR USER.**
- Respirator lenses are designed to protect against rebounding abrasive. They do not protect against flying objects, glare, liquids, radiation or high speed heavy materials. Substitute lenses from sources other than the original respirator manufacturer will void NIOSH-approval of this respirator.

BLAST MACHINES AND REMOTE CONTROLS

 WARNING
<ul style="list-style-type: none"> • ALWAYS equip abrasive blast machines with remote controls. • Abrasive blast machine operators must wear NIOSH-approved supplied-air respirators (ref: OSHA regulations 1910.94, 1910.132, 1910.139 and 1910.244).

- NEVER modify OR substitute remote control parts. Parts from different manufacturers are NOT compatible with Clemco

equipment. If controls are altered, involuntary activation, which may cause serious injury, can occur.

- Inspect the air control orifice DAILY for cleanliness. NEVER use welding hose in place of twinline control hose. The internal diameter and rubber composition are UNSAFE for remote control use.
- UNLESS OTHERWISE SPECIFIED, maximum working pressure of blast machines and related components MUST NOT exceed National Board approved 125 psig (8.5 BAR).
- NEVER weld on blast machine. Welding may affect dimensional integrity of steel wall and WILL VOID National Board approval.
- Point nozzle ONLY at structure being blasted. High velocity abrasive particles WILL inflict serious injury. Keep unprotected workers OUT of blast area.
- NEVER attempt to manually move blast machine when it contains abrasive. EMPTY machines, up to 6 cu. ft.(270kg) capacity, are designed to be moved:
 - on flat, smooth surfaces by AT LEAST two people;
 - with the Clemco "Mule"; or
 - with other specially designed machine moving devices.
- Larger empty blast machines or ANY blast machine containing abrasive MUST be transported by mechanical lifting equipment.

AIR HOSE, BLAST HOSE, COUPLINGS, AND NOZZLE HOLDERS

- Air hose, air hose fittings and connectors at compressors and blast machines MUST be FOUR times the size of the nozzle orifice. Air hose lengths MUST be kept as short as possible AND in a straight line. Inspect DAILY and repair leakage IMMEDIATELY.
- Blast hose inside diameter MUST be THREE to FOUR times the size of the nozzle orifice. AVOID sharp bends that wear out hose rapidly. Use SHORTEST hose lengths possible to reduce pressure loss. Check blast hose DAILY for soft spots. Repair or replace IMMEDIATELY.
- ALWAYS cut loose hose ends square when installing hose couplings and nozzle holders to allow uniform fit of hose to coupling shoulder. NEVER install couplings or nozzle holders that DO NOT provide a TIGHT fit on hose. ALWAYS use manufacturers recommended coupling screws.
- Replace coupling gaskets FREQUENTLY to prevent leakage. Abrasive leakage can result in dangerous coupling failure. ALL gaskets MUST be checked SEVERAL times during a working day for wear, distortion and softness.
- Install safety pins at EVERY coupling connection to prevent accidental disengagement during hose movement.
- ALWAYS attach safety cables at ALL air hose AND blast hose coupling connections. Cables relieve tension on hose and control whipping action in the event of a coupling blow-out.

MAINTENANCE

- ALWAYS shut off compressor and depressurize blast machine BEFORE doing ANY maintenance.
- Always check and clean ALL filters, screens and alarm systems when doing any maintenance.
- ALWAYS cage springs BEFORE disassembling valves IF spring-loaded abrasive control valves are used.
- ALWAYS completely follow owner's manual instructions and maintain equipment at RECOMMENDED intervals.

ADDITIONAL ASSISTANCE

- Training and Educational Programs. Clemco Industries Corp. offers a booklet, Blast-Off 2, developed to educate personnel on abrasive blast equipment function and surface preparation techniques. Readers will learn safe and productive use of machines, components and various accessories, including selection of abrasive materials for specific surface profiles and degrees of cleanliness.
- The Society for Protective Coatings (SSPC) offers a video training series on protective coatings including one entitled "Surface Preparation." For loan or purchase information, contact SSPC at the address shown below.

TECHNICAL DATA AND RESEARCH COMMITTEES

- The following associations offer information, materials and videos relating to abrasive blasting and safe operating practices.

The Society for Protective Coatings (SSPC)
 40 24th Street, Pittsburgh PA 15222-4643
 Phone: (412) 281-2331 • FAX (412) 281-9992
 Email: research@sspc.org • Website: www.sspc.org

National Association of Corrosion Engineers (NACE)
 1440 South Creek Drive, Houston TX 77084
 Phone: (281) 228-6200 • FAX (281) 228-6300
 Email: msd@mail.nace.org • Website: www.nace.org

American Society for Testing and Materials (ASTM)
 100 Barr Harbor Dr., West Conshohocken, PA 19428
 Phone (610) 832-9500 • FAX (610) 832-9555
 Email: service@astm.org • Website: www.astm.org

NOTICE

This equipment is not intended to be used in an area that might be considered a hazardous location as described in the National Electric Code NFPA 70 1996, article 500.


WARRANTY

The following is in lieu of all warranties express, implied or statutory and in no event shall seller or its agents, successors, nominees or assignees, or either, be liable for special or consequential damage arising out of a breach of warranty. This warranty does not apply to any damage or defect resulting from negligent or improper assembly or use of any item by the buyer or its agent or from alteration or attempted repair by any person other than an authorized agent of seller. All used, repaired, modified or altered items are purchased "as is" and with all faults. In no event shall seller be liable for consequential or incidental damages. The sole and exclusive remedy of buyer for breach of warranty by seller shall be repair or replacement of defective parts or, at seller's option, refund

- of the purchase price, as set forth below:
1. Seller makes no warranty with respect to products used other than in accordance hereunder.
 2. On products seller manufactures, seller warrants that all products are to be free from defects in workmanship and materials for a period of one year from date of shipment to buyer, but no warranty is made that the products are fit for a particular purpose.
 3. On products which seller buys and resells pursuant to this order, seller warrants that the products shall carry the then standard warranties of the manufacturers thereof, a copy of which shall be made available to customer upon request.
 4. The use of any sample or model in connection with this order is for illustrative purposes only and is not to be construed as a warranty that the product will conform to the sample or model.
 5. Seller makes no warranty that the products are delivered free of the rightful claim of any third party by way of patent infringement or the like.
 6. This warranty is conditioned upon seller's receipt within ten (10) days after a buyer's discovery of a defect, of a written notice stating in what specific material respects the product failed to meet this warranty. If such notice is timely given, seller will, at its option, either modify the product or part to correct the defect, replace the product or part with complying products or parts, or refund the amount paid for the defective product, any one of which will constitute the sole liability of seller and a full settlement of all claims. No allowance will be made for alterations or repairs made by other than those authorized by seller without the prior written consent of seller. Buyer shall afford seller prompt and reasonable opportunity to inspect the products for which any claim is made as above stated.

Except as expressly set forth above, all warranties, express, implied or statutory, including implied warranty of merchantability, are hereby disclaimed.

DAILY SET-UP CHECK LIST

 WARNING
<ul style="list-style-type: none"> • ALL piping, fittings and hoses MUST be checked DAILY for tightness and leakage. • ALL equipment and components MUST be thoroughly checked for wear. • ALL worn or suspicious parts MUST be replaced. • ALL blast operators MUST be properly trained to operate equipment. • ALL blast operators MUST be properly outfitted with abrasive resistant clothing, safety shoes, leather gloves and ear protection. • BEFORE blasting ALWAYS use the following check list.

1. PROPERLY MAINTAINED AIR COMPRESSOR sized to provide sufficient volume (cfm) for nozzle and other tools PLUS a 50% reserve to allow for nozzle wear. Use large compressor outlet and large air hose (4 times the nozzle orifice size). FOLLOW MANUFACTURERS MAINTENANCE INSTRUCTIONS.

2. BREATHING AIR COMPRESSOR (oil-less air pump) capable of providing Grade D Quality air located in a dust free, contaminant free area. If oil-lubricated air compressor is used to supply respirator, it should have high temperature monitor and CO monitor or both. If CO monitor is not used, air **MUST** be tested FREQUENTLY to ensure proper air quality.

3. Clean, properly maintained NIOSH-APPROVED SUPPLIED-AIR RESPIRATOR. ALL components should ALWAYS be present. NEVER operate without inner lens in place. Thoroughly inspect ALL components DAILY for cleanliness and wear. ANY substitution of parts voids NIOSH approval i.e. cape, lenses, breathing hose, breathing air supply hose, air control valve, cool air or climate control devices.

4. OSHA required BREATHING AIR FILTER for removal of moisture and particulate matter from breathing air supply. THIS DEVICE DOES NOT REMOVE OR DETECT CARBON MONOXIDE (CO). ALWAYS USE CO MONITOR ALARM.

5. ASME CODED BLAST MACHINE sized to hold 1/2 hour abrasive supply. ALWAYS ground machine to eliminate static electricity hazard. Examine pop up valve for alignment. Blast machine MUST be fitted with a screen to keep out foreign objects and a cover to prevent entry of moisture overnight.

6. AIR LINE FILTER installed AS CLOSE AS POSSIBLE to machine inlet. Sized to match inlet piping or larger air supply line. Clean filter DAILY. Drain OFTEN.

7. REMOTE CONTROLS MUST be in PERFECT operating condition. ONLY use APPROVED spare parts, including twin-line hose. DAILY: test system operation and check button bumper and spring action of lever and lever lock. DO NOT USE WELDING HOSE.

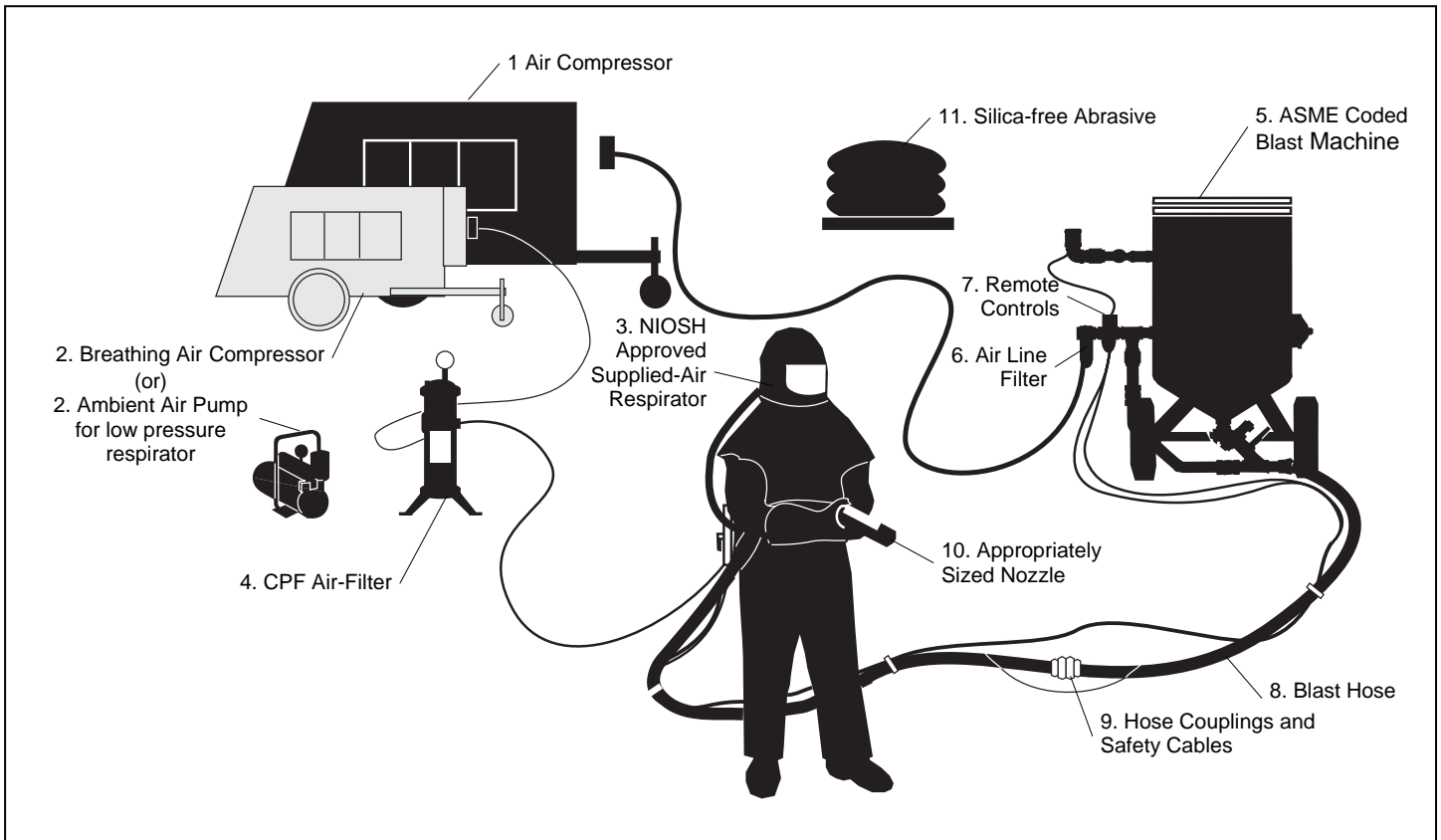
8. BLAST HOSE with ID 3 to 4 times the nozzle orifice. Lines MUST be run AS STRAIGHT AS POSSIBLE from machine to work area with NO sharp bends. Check DAILY for internal wear and external damage.

9. HOSE COUPLINGS, NOZZLE HOLDERS fitted SNUGLY to hose end and installed using PROPER coupling screws. Coupling lugs MUST be snapped FIRMLY into locking position. Gasket MUST form positive seal with safety pins inserted through pin holes. Check gaskets and replace if ANY sign of wear, softness or distortion. ALWAYS install safety cables at every connection to prevent disengagement. Check nozzle holder for worn threads. NEVER MIX DIFFERENT BRANDS OF COMPONENTS. Check each of these components DAILY.

10. Inspect NOZZLE and GASKET DAILY for wear. Replace nozzle when 1/16" larger than original size or if liner appears cracked. Check nozzle threads for wear.

11. Use abrasive that is properly sized and free of harmful substances; such as, free silica, cyanide, arsenic or lead. Check material data sheet for presence of toxic or harmful substances.

12. Test surface to be blasted for toxic substances. Take appropriate, and NIOSH required, protective measures for operator and bystanders which pertain to substances found on the surface to be blasted.



1.0 INTRODUCTION

1.1 Scope

1.1.1 This Owner's Manual covers the installation, operation, maintenance, troubleshooting, and replacement parts for the following models of Clemco RLX pneumatic and electric control handles.

Description	Stock no.
RLX Pneumatic	10565
RLX Pneumatic with ACS Toggle Switch.....	07625
RLX Electric w/Lo-Profile Connector	10840
RLX Electric w/Twist-Lock Connector	05801


1.1.2 This manual contains instructions common to both the pneumatic and electric control handle. Read the common instructions before proceeding to the section relating specifically to pneumatic or electric model.

1.1.3 This manual covers the RLX Remote Control Handle only. The operator must be trained in the safe operation of remote control system, blast machine, and all other equipment used. They must know about the hazards associated with abrasive blasting. To ensure safe blasting, before using the control handle, read the manuals for the specific blast machine, remote controls and accessories used.

1.1.4 The current RLX and the earlier RLX and Recova-Loks are interchangeable when used as complete units.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, 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 the user of this equipment of potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may 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 General Description

1.3.1 The principal components of the control handle are shown in Figure 1. The control handle is the main activator of Clemco remote control systems. When the control handle lever is up, it is in the non-blast position. Pressing the control handle lever down activates the remote controls.

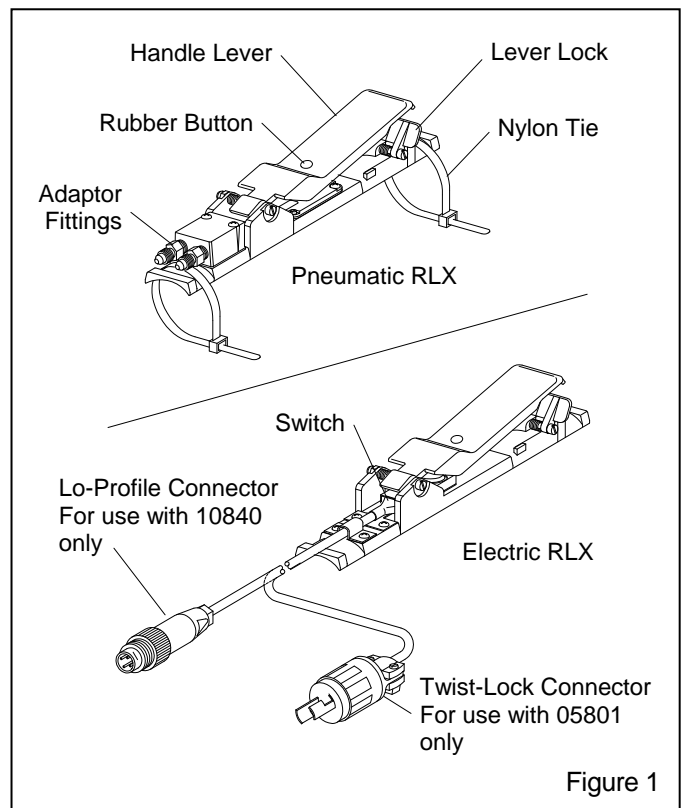


Figure 1

1.3.2 A remote control system is an OSHA-required safety device. Pressing the control handle lever down activates the remote controls. When the operator intentionally or unintentionally removes hand-held pressure from the remote control handle, the machine deactivates, stopping air and abrasive flow through the nozzle. The remote control system “fails to safe”, which means any interruption in the control-air circuit for reasons such as a break in the line, the compressor stops running, or the operator drops the blast hose, the remote controls deactivate the blast machine.

WARNING

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

1.3.3 Pneumatic control

1.3.3.1 Pneumatic remote controls operate on the return-air or completed-circuit principle. When the control handle lever is up, control air from the blast machine travels along the outbound twinline hose, and escapes through a vent opening located under the control handle lever. As long as air escapes through the vent, the remote control system remains inactive. When the control handle lever is pressed, the opening is sealed, and air in the outbound line returns through the inbound line to activate the remote control valves, which start the blasting. When the handle lever is released, air exhausts from the return line, the remote control system deactivates and blasting stops.

1.3.4 Electric control

1.3.4.1 Electric remote controls are electro-pneumatic. When the control handle lever is up, control air from the blast machine travels to the control box and stops. As long as air does not pass through the box, the remote control system remains inactive. From the box, a 12-volt electrical current is sent through the control cord to a switch mounted under the control handle lever. When the control handle lever is pressed, it makes contact with the switch, engages solenoids in the control box to permit air to pass through the box to activate the pneumatic remote controls, which starts the blasting. When the handle lever is released, it immediately disengages the control box, cuts off incoming control air, and simultaneously opens the control box exhaust port so blasting stops.

1.3.5 ACS Option

1.3.5.1 The ACS is a separate control that is usually used to operate an air-actuated abrasive metering valve. The ACS closes the metering valve independently of the blasting, so air without abrasive exits the nozzle. The operator uses this feature for blow-down. If an application requires frequent choking of the blast machine, the line could control a valve to remotely choke the machine.

1.3.5.2 Pneumatic control: The pneumatic ACS switch is mounted on the control handle. A separate air line connects to the ACS switch to operate the valve. Refer to the remote control systems manual for instructions.

1.3.5.3 Electric control: The electric ACS cut off switch is an integral part of the control cord, not the control handle. The system utilizes a standard electric RLX. Refer to the remote control systems manual for instructions.

2.0 INSTALLATION

WARNING

Use the RLX Remote Control Handle only with Clemco Remote Control Systems. This control handle was designed to operate only Clemco Remote Controls that include the use of an air flow restricting orifice in the air inlet valve or air inlet piping. Using this control handle on other brands of remote controls may cause involuntary activation of the blast machine or some other malfunction which could result in serious injury or death.

WARNING

Moist air that freezes could cause blockage at the control handle or in the control lines. Blockage could cause involuntary activation of the remote controls, or prevent the controls from deactivating upon release of the control handle. This situation could result in serious injury or death. If remote controls are operated in freezing or near freezing weather, install a Clemco Anti-Freeze Injector, stock no. 05537, on the remote control air supply line. Clemco Electric Remote Controls have anti-freeze injectors mounted on the control box.

2.1 Band the control handle to the blast hose close to the nozzle holder, using the two nylon ties provided. Once the control is firmly attached, clip the tie ends so they will not snag the operator's clothing or interfere with the operation of the control handle.

2.2 Pneumatic Controls

⚠ WARNING

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

2.2.1 Attach the 50-foot twinline hose to the two adaptor fittings on the control handle. Either side of the hose can be attached to either fitting.

2.2.2 Working from the control handle back, band or tape the twinline hose to the blast hose every four to six feet, and as close to the couplings as possible.

2.3 Electric Controls

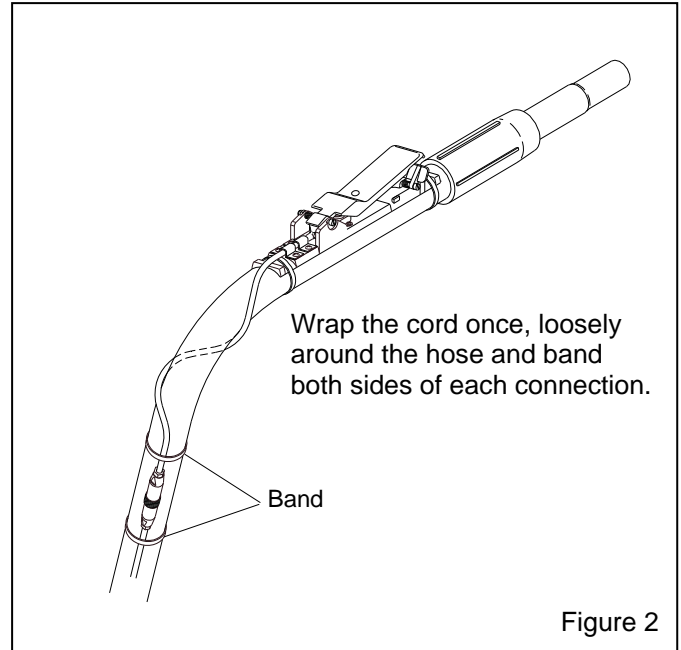
⚠ WARNING

The maximum recommended total length of control cord is 300 feet. Distances greater than 300 feet will offer too much electrical resistance, and may cause the controls to malfunction. If an application requires greater distance, we suggest that appropriate cord with larger gauge wire be provided by the user.

2.3.1 Wrap the whip cord from the electric control handle loosely around the blast hose as shown in Figure 2, and then connect it to the control cord. The cord must have ample slack and wrapped as described. Too little slack will cause excessive strain on the cord and may pull the wires out of the connectors or switch when the hose is curved, or pulled.

CAUTION

Provide enough slack at all cord connections to prevent the cord from pulling out of the connectors when the blast hose is pulled or dragged. Band the cord to the blast hose on both sides of all connections.



2.3.2 Working from the control handle back, band the cord to the blast hose every 4 to 6 feet, and on both sides of each cord connection.

3.0 OPERATION

3.1 Set-Up

3.1.1 Set up the blast machine and remote controls as instructed in the corresponding manuals.

⚠ WARNING

Do not operate this equipment before reading the instruction manuals for all equipment.

3.2 Daily Check

3.2.1 With the air off, before beginning blasting

3.2.1.1 Make sure that the handle lever will not seal the vent on pneumatic controls, or will not engage the switch on electric controls, unless the safety lever lock is pulled down.

3.2.1.2 Make sure that the control handle lever and lever lock return to the "up" position when the handle is released.

3.2.1.3 Both the handle lever and safety lever lock must move freely with no drag or binding.

3.2.1.4 Before applying air be certain the handle lever and lever lock are in the up (no-blast) position

WARNING

Malfunctioning control handles could cause unintentional actuation of a blast machine, or prevent a machine from deactivating upon release. Malfunctioning control handles must be taken out of service immediately and repaired or replaced. Serious injury or death can result from unintentional blasting.

3.2.2 With the air on and while blasting, check the pneumatic control handle for leaks.

3.3 Blasting

3.3.1 Operators must wear appropriate protective gear, including: abrasive-resistant clothing, leather gloves, eye and hearing protection, and a NIOSH-approved Type CE Supplied-Air Respirator.

WARNING

Failure to wear approved respirators could result in serious lung disease or death. Abrasive blasting produces harmful dust. Do not blast without the use of a properly fitted and maintained NIOSH-approved, type CE Supplied-Air Respirator that is approved for abrasive blasting. Everyone in the blasting area must wear an approved respirator.

Abrasive blasting could cause abrasive particles around the blast machine and blast nozzle to become airborne. The loud sounds of air released at the blast machine and nozzle could cause hearing damage. Anyone in the blasting area must wear an approved respirator, eye protection and hearing protection.

3.3.2 Hold the blast hose securely and point the nozzle only at objects intended to be blast cleaned.

3.3.3 Pull back the safety lever lock and depress the remote control handle. Within a few seconds the remote controls will respond and blasting will begin.

WARNING

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

WARNING

OSHA requires the use of remote controls on all blast machines when an operator controls the nozzle. To comply with OSHA regulations, the control handle, 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 Stop Blasting

3.4.1 To stop blasting, release the handle lever.

3.4.2 When the control handle lever is released, the safety lever lock will flip up to lock the handle lever in the up (open) position.

3.4.3 Make sure that the control handle safety lever lock is up, and that it prevents the handle lever from engaging.

3.4.4 Always open the safety petcock during work breaks and before filling the blast machine. Opening the petcock prevents unintentional blasting. Refer to the remote control owner's manual for the location of the safety petcock.

WARNING

When approaching an idle blast machine, and before loading the blast machine with abrasive, always check to make sure the safety petcock is open. This step is especially important if one worker (a machine tender) loads the machine with abrasive while another worker (the blast operator) controls the blasting. The blast operator could pressurize the machine before the machine tender has moved away from the machine. During pressurization abrasive could be forced out of the top of the machine, and cause injury.

4.0 MAINTENANCE

4.1 Inspection

4.1.1 The RLX Control Handle is a safety device. Inspect it before and after each use to make sure it functions properly.

- The handle lever must not engage unless the lever lock is pulled down.
- The handle lever must return to the full up position when released.
- The lever lock must return to the up position when the handle lever is released.
- Both the handle lever and lever lock must move freely with no drag or binding.

4.2 Cleaning

4.2.1 Periodically clean around the springs, handle lever, and lever lock to make sure the unit is free of abrasive and debris that could cause the handle lever or lever lock to bind.

4.3 Spring Replacement

4.3.1 Follow the instructions in Section 4.4 to replace the lever lock spring, and Section 4.5 to replace the handle lever spring.

4.4 Lever Lock Replacement, Figure 3

4.4.1 Remove the lock nut from the shoulder screw. Before removing the screw, note the positions of the spacers and spring, as shown in Figure 3. The bent end of the spring is toward the inside and forcing the lever lock up. The straight end is toward the outside facing down and against the tab.

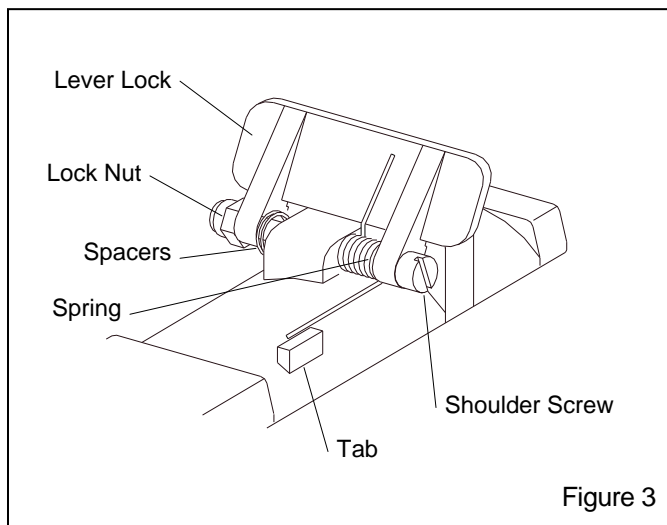


Figure 3

4.4.2 Install a new lever lock and spring, and reassemble in reverse order.

4.4.3 Check to make sure the lever lock moves freely, raises to full up position, and that the handle lever will not engage unless the lever lock is pulled down.

4.5 Handle Lever Replacement, Figure 4

4.5.1 Remove the lock nut from the shoulder screw. Before removing the screw, note the positions of the spacers and spring as shown in Figure 4. The bent end of the spring is against the handle lever and facing up. The straight end is against the body and facing down. The spring and spacers must be placed correctly when reinstalling the handle.

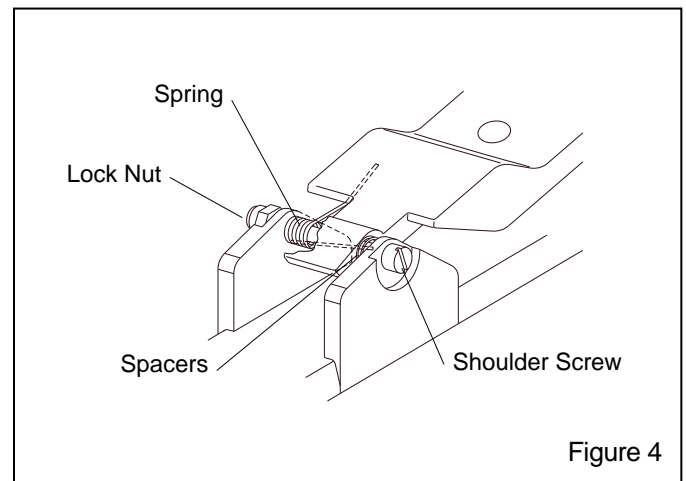


Figure 4

4.5.2 Install a new handle lever and spring, and reassemble in reverse order.

4.5.3 Check to make sure that the handle lever moves freely, that it rises to full up position, and does not engage unless the lever lock is pulled down.

4.6 Pneumatic Control Handle

4.6.1 Rubber button replacement

4.6.1.1 Remove the old button.

4.6.1.2 Install the new button, stem first, by pushing it from the bottom side of the handle lever. Pull the stem to seat the button.

4.6.1.3 Trim the button stem flush with the top of the handle lever.

4.6.2 Gasket replacement

4.6.2.1 Remove the handle lever per Section 4.5.

4.6.2.2 Remove the six screws holding the pneumatic adaptor to the body.

4.6.2.3 Install a new gasket.

4.6.2.4 Place the pneumatic adaptor on the gasket and hand tighten all screws before tightening them with a screwdriver to uniformly compress the gasket.

4.6.2.5 Reassemble the handle lever, making sure the spacers and spring are in place.

4.6.2.6 Check to make sure that the handle lever moves freely, that it rises to full up position, and will not engage unless the lever lock is pulled down.

4.7 Electric Control Handle

4.7.1 Switch replacement

4.7.1.1 Remove the handle lever per Section 4.5.

4.7.1.2 Remove screws holding the switch and cord clamp.

4.7.1.3 Follow instructions in Section 4.8.2 for replacing the switch with Lo-Profile connector, or Section 4.8.3 for Twist-Lock connector.

4.7.2 Lo-Profile Connector: Ref. Figure 5

4.7.2.1 Remove the compression nut, thrust washer, and gasket from the connector shell.

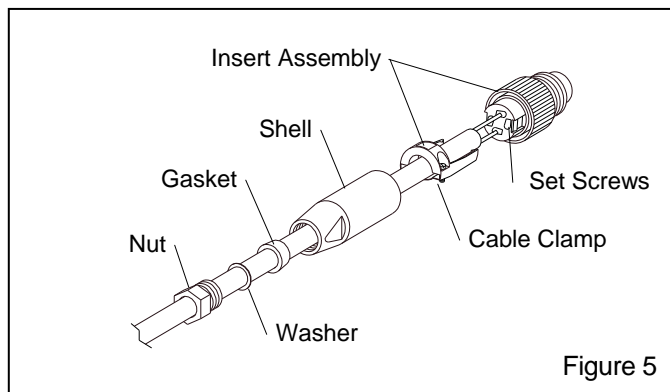


Figure 5

4.7.2.2 Unscrew the shell from the coupling insert assembly.

4.7.2.3 Loosen the cable clamp and set screws holding the cord, and remove the cord from the assembly.

4.7.2.4 Install a new switch and cord assembly using Terminals No. 1 and 3. Provide slack in the wires between the cable clamp and connector; if the cord is pulled the wire will not pull from the connector.

4.7.2.5 Reassemble in reverse order. Make sure that the springs are in place, the handle lever and lever lock move freely, and the handle lever will not engage unless the lever lock is down.

4.7.3 Twist-Lock Connector

4.7.3.1 Loosen the screws clamping the cord, and the front of the connector.

4.7.3.2 Pull the shell off the plug, and remove the two leads from the screw terminals.

4.7.3.3 Install a new switch and cord assembly. Either lead can go on either terminal.

4.7.3.4 Reassemble in reverse order. Make sure that the springs are in place, the handle lever and lever lock move freely, and the handle lever will not engage unless the lever lock is down.

5.0 TROUBLESHOOTING

Section 5.1 troubleshoots common symptoms for both the pneumatic and electric control handles. Section 5.2 covers the pneumatic control handle, Section 5.3 is for the electric control handle. Section 5.4 pertains to the optional ACS feature. Refer to the appropriate remote control manual for malfunctions in the remote control system.

5.1 Common Symptoms, Pneumatic & Electric

5.1.1 Handle Lever Fails To Return To The Non-Blast Position (Up) When Released.

5.1.1.1 Inspect the handle lever for damage or abrasive that may cause binding against the body.

5.1.1.2 Inspect the spring for damage or fatigue.

5.1.1.3 Replace the handle lever or spring as necessary.

5.1.2 Lever Lock Fails To Pop Up When the Handle Is Released

5.1.2.1 Inspect the lever lock for damage or build up of debris or abrasive that could cause binding.

5.1.2.2 Inspect the spring for damage or fatigue.

5.1.2.3 Replace lever lock or spring as necessary.

5.2 Pneumatic Control Handle

5.2.1 Remote Controls Do Not Activate When The Handle Lever Is Pressed.

5.2.1.1 Inspect the rubber button for wear or damage, and make sure it seals the vent opening in the pneumatic adaptor when the handle is pressed.

5.2.1.2 Press the handle lever and feel and listen for air leaks anyplace on the handle. When the handle lever is pressed, no air should escape. If there is a leak, it must be located and repaired. If no air escapes when the handle lever is down, the problem is not in the control handle; refer to the appropriate remote control manual for malfunctions in the remote control system.

5.2.2 Remote Controls Do Not Deactivate When The Handle Lever Is Released.

5.2.2.1 Inspect the pneumatic adaptor gasket for swelling, which restricts air flow through the handle vent opening.

5.2.2.2 Inspect the vent opening on the pneumatic adaptor; make sure it is clear of flashing or obstruction that inhibits air from escaping from the opening.

5.2.2.3 Refer to the appropriate remote control manual for malfunctions in the remote control system.

5.3 Electric Control Handle

5.3.1 Remote controls do not activate when the handle lever is pressed.

5.3.1.1 Faulty switch: The easiest method to check the switch is to substitute the control handle with one that is functioning properly. If this isn't possible; turn off the compressed air supply. Disconnect the control handle at the control cord. With the handle lever down, check continuity across pins No. 1 and 3 in the Lo-Profile connector, or the two prongs if Twist-Lock connectors are used. Another method is to listen to the control box and short across socket No. 1 and 3 on the extension cord. If the box clicks, the fault is in the switch. Remove the old switch and install a replacement.

5.3.2 Remote Controls Do Not Deactivate When The Handle Lever Is Released.

5.3.2.1 Make sure the handle lever disengages the switch when it is released.

5.3.2.2 Make sure the return spring raises the handle lever fully up.

5.3.2.3 Refer to the appropriate remote control manual for malfunctions in the remote control system.

5.4 Optional ACS Feature

5.4.1 No Abrasive Flow When the ACS Toggle Is Turned On.

5.4.1.1 Pneumatic

- Make sure the metering valve is not closed.
- Check for leak or blockage in the single line hose or fittings from the control handle to the metering valve.
- Obstruction in abrasive metering valve, or valve requires service. Refer to the metering valve manual for operation of the valve.
- Make sure the machine contains abrasive.

5.4.1.2 Electric

- Make sure the metering valve is not closed.
- Check for leaks or blockage in the hose or fittings from the control panel to the metering valve.
- Inspect the solenoid operating the metering valve per instructions in the electric remote control system manual.
- Inspect the ACS switch per instructions in the electric remote control system manual.
- Obstruction in abrasive metering valve, or the valve requires service. Refer to the metering valve manual for operation of the valve.
- Make sure the machine contains abrasive.

5.4.2 Abrasive Flow Does Not Stop When ACS Switch Is Off.

5.4.2.1 Pneumatic

- Brass filter on ACS switch clogged.
- Metering valve requires service. Refer to the metering valve manual for operation of the valve.

5.4.2.2 Electric

- Check the exhaust port on the bottom of the panel, air should momentarily exhaust from the port when the ACS switch is turned off. If it does not, check the following:
 - Obstruction in the line between the metering valve and the "GRIT VALVE" connection on the panel.
 - Faulty ACS switch.
 - Faulty solenoid.
- Metering valve requires service. Refer to the metering valve manual for operation of the valve.

6.0 REPLACEMENT PARTS

6.1 RLX Pneumatic, Figure 6

Item	Description	Stock No.
(-)	RLX Pneumatic Control Handle Assembly ...	10565
*	Service kit, Pneumatic RLX (Fig. 6a)	22859
1.	Handle lever	10573
2.	Body.....	10568
3.	Pneumatic adaptor.....	10562
4.	Adaptor, 1/8" NPT (2 required).....	01940
5.	Tie, nylon wire	02195

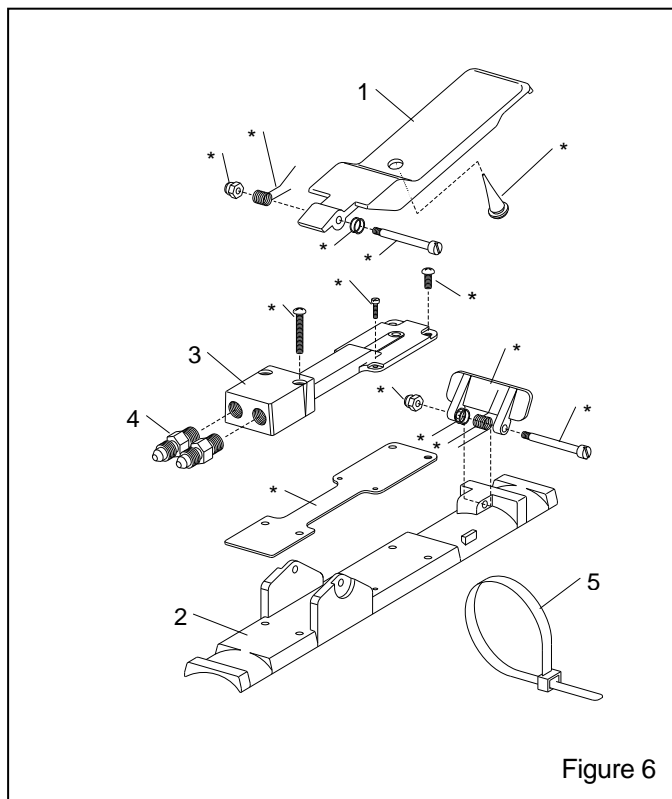


Figure 6

22859 SERVICE KIT
RLX PNEUMATIC CONTROL HANDLE

Item	Qty	Description
1.	1	Lever lock
2.	2	Spring
3.	2	Nut, 8-32 lock, ss
4.	4	Spacer washer, stainless steel
5.	2	Screw, 3/16" x 1-1/4" shoulder
6.	2	Screw, 8-32 x 1"
7.	2	Screw, 4-40 x 3/8"
8.	3	Rubber button
9.	1	Gasket, pneumatic adaptor
10.	2	Screw, 8-32 x 3/8"

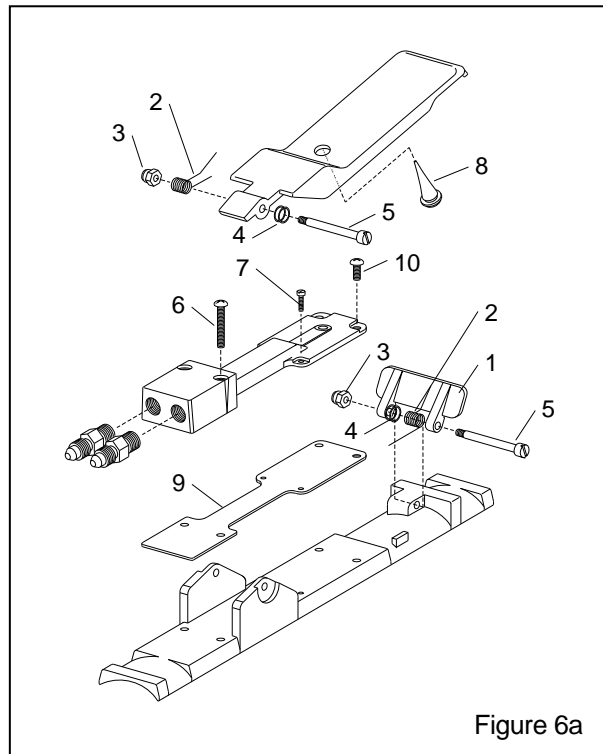


Figure 6a

6.2 RLX Pneumatic Handle with ACS, Figure 7

Note: See Section 6.1 for RLX replacement parts

Item	Description	Stock No.
(-)	RLX Control Handle Assembly w/ ACS	07625
1.	RLX Control Handle (Standard).....	10565
2.	Switch assembly, ACS pneumatic	07654
3.	Elbow, 1/8" NPT male	03085
4.	Tee, 1/8" NPT brass.....	02171
5.	Adaptor, 1/8" NPT	01940
6.	Guard, ACS pneumatic switch	07655
7.	Breather muffler, 1/8" NPT	07657
8.	Switch only, ACS	07658
9.	Connector, 1/8" NPT brass	01962

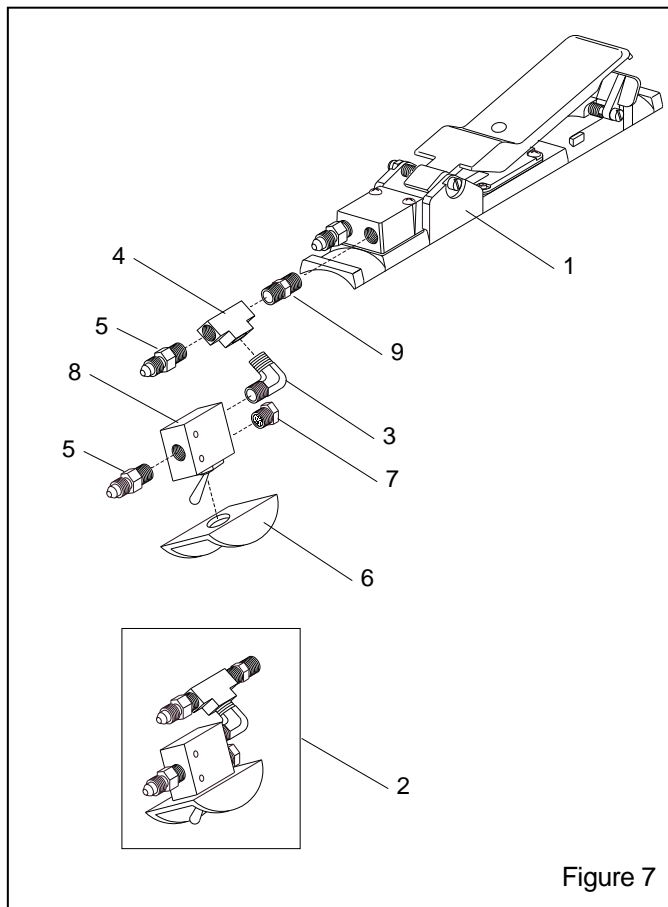


Figure 7

6.3 RLX Electric, Figure 8

Item	Description	Stock No.
(-)	RLX Electric Control Handle w/ Lo-Profile connector.....	10840
(-)	RLX Electric Control Handle w/ Twist-Lock connector.....	05801
1.	Handle lever.....	10573
2.	Body.....	10568
3.	Lever lock	10564
4.	Clamp, switch cord	05810
5.	Spring, lever (2 required)	05823
6.	Switch with cord.....	24842
7.	Screw, 8-32 X 3/8" rd. hd. (4 required)	05814
8.	Nut, 8-32 lock, ss (2 required)	05815
9.	Spacer washer, stainless steel (4 required)	05434
10.	Screw, 3/16" X 1-1/4" shoulder (2 required)	05817
11.	Ties, nylon wire.....	02195
12.	Connector, Lo-Profile male (for 10840 only).....	10828
13.	Connector, Twist-Lock male (for 05801 only).....	02899

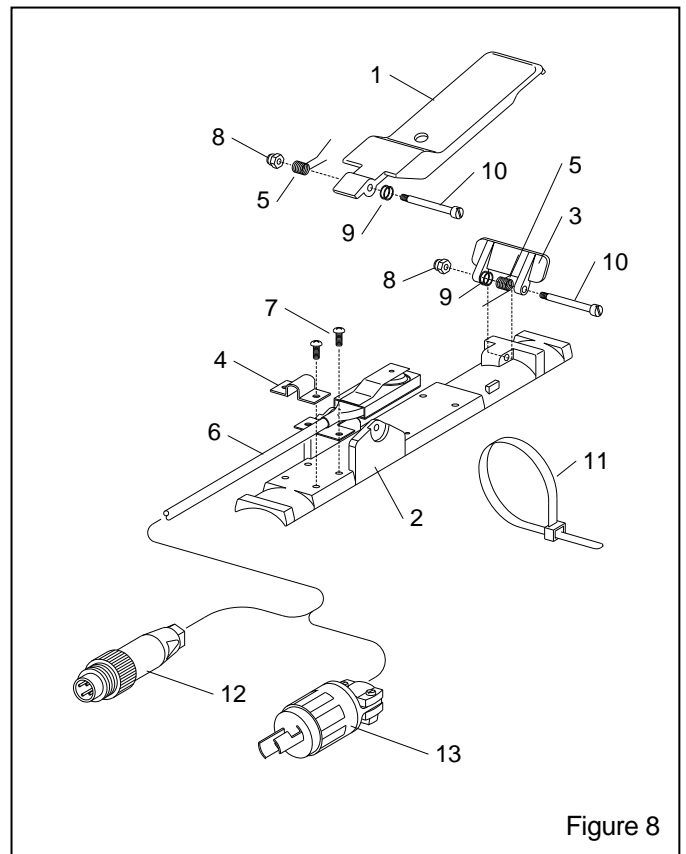


Figure 8