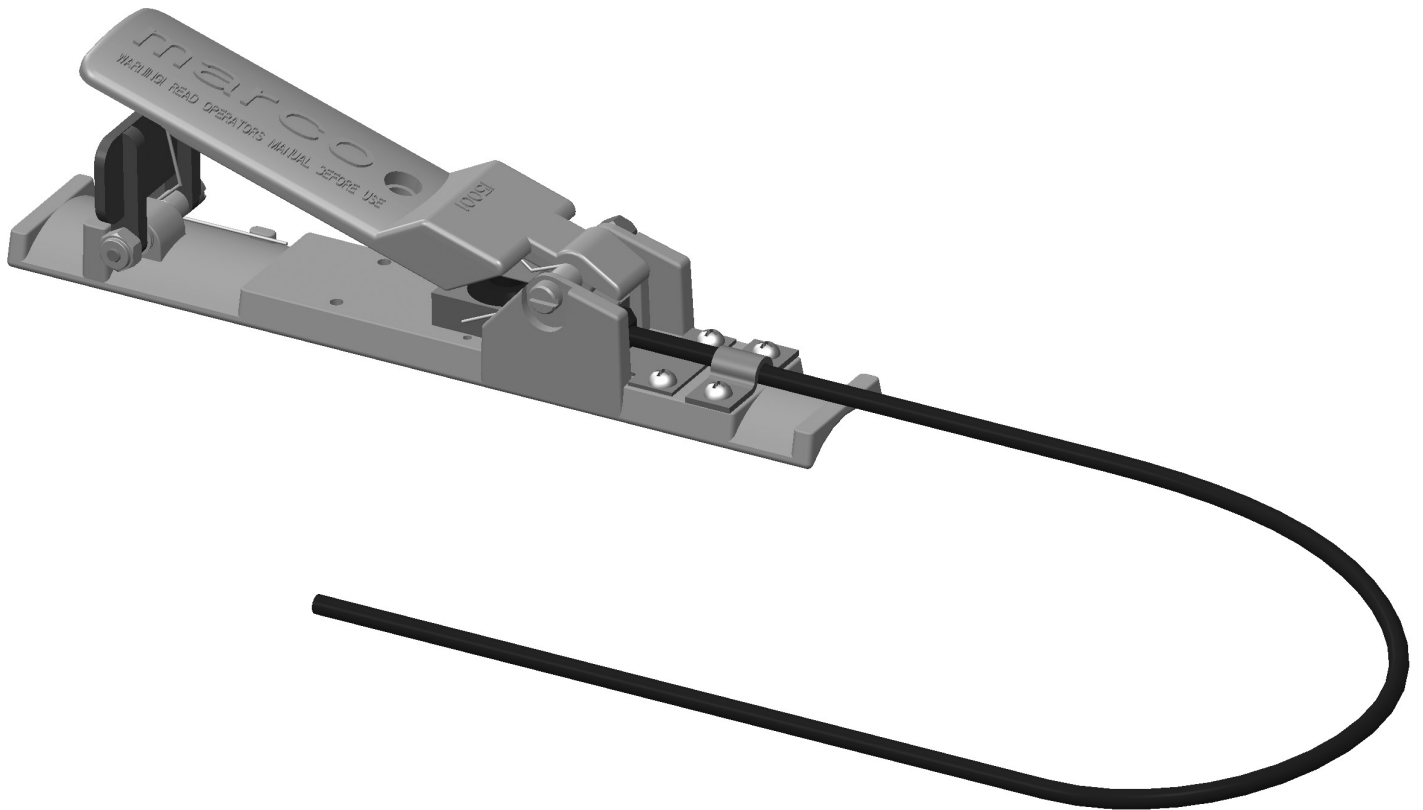


# OPERATOR'S MANUAL

## MARCO® 151E REMOTE CONTROL SWITCH



### **⚠ WARNING**

Before using this equipment, read, understand and follow all instructions in the Operator's Manuals provided with this equipment. If the user and/or assistants cannot read or understand the warnings and instructions, the employer of the user and/or assistants must provide adequate and necessary training to ensure proper operation and compliance with all safety procedures pertaining to this equipment. If Operator's Manuals have been lost, please visit [www.allredi-us.com](http://www.allredi-us.com), or contact Allredi at 563.324.2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

**✓ ALLREDI™**

## Company Profile

Allredi was formed in the early 2020, when two of the largest distributors in the blasting, coating, safety, and environmental industry, APE Companies and Marco Group International, joined forces. While the qualities both companies are known for have not changed, a lot about our business is new. New abilities. New agilities. New ways to help you win. This calls for a new name, Allredi.

This name exemplifies what we have become. It is completely oriented to the needs of our customers. To your needs. It says that when you call us for anything – products, service, expert advice, anything – you can consider it done. Or even better, Allredi done.

We are your right-now supplier. From skills to SKUs, we deliver the goods fast. So you can be more agile every minute, every day. This is who we are. This is what our new name means. Go ahead and expect excellence, because we're bringing it.

## Our Mission and Vision

To be the industry's preferred partner in surface preparation solutions through unrivaled technical expertise, customer experience, product availability, and tailored service offerings.

## The Allredi Difference

- **Industry Experience** – With Allredi on your team, you have access to expertise which can only come from decades of industry leadership. We have organized our engineering department, production specialists, customer operations, and safety support into a “Center of Competence.” As an Allredi customer, you have access to hundreds of years of cumulative experience related to your operations.
- **Manufacturing Excellence** – Allredi is a U.S. based manufacturer of equipment for the Surface Preparation and Protective Coatings industries. Allredi's engineers benchmark the industry to ensure that we design and manufacture superior products that set the “Gold Standard” for performance, safety, and quality.
- **Legendary Customer Service** – Allredi's legendary customer service team is staffed by friendly, highly-trained individuals who are focused on providing the highest level of product support, order accuracy, and customer satisfaction.
- **Product Availability** – We stock over 10,000 SKU's and have over 45 shipping locations to serve North American and International markets for all major brands of blasting, coating, environmental, and safety equipment. Allredi is your right-now supplier, so you can keep your projects moving. From our foundation of strong relationships, we have built a nationwide network that puts vast inventory and ready service close to our customers. We provide advanced expertise, and we deliver the goods fast – so you can easily access the products and services you need to me more agile every minute, every day.
- **Technology Leadership** – Our website provides: Operator's Manuals, Part Numbers and Schematics Guides, SDS information, and key product features and specifications, providing access to information 24/7.

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## DEFINITION OF TERMS

### **DANGER**

This is an example of danger. This indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **CAUTION**

This is an example of a caution. This indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It can also be used to alert against unsafe practices.

### **WARNING**

This is an example of a warning. This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### **NOTICE**

This is an example of a notice. This indicates policy or practice directly related to safety of personnel or protection of property.

## HAZARD IDENTIFICATIONS

### **WARNING**

**Failure to comply with ANY WARNING listed below could result in death or serious injury.**

- ▶ OSHA sets exposure limits to protect workers from exposure to respirable crystalline silica, 29 CFR 1910.1053. Airborne dust could increase the exposure levels beyond permissible limits. Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust.
- ▶ Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the 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 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- ▶ You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- ▶ Abrasive blasting operators must receive thorough training on the use of abrasive resistant attire which includes: supplied-air respirator, abrasive blasting suit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- ▶ Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions.
- ▶ OSHA requires abrasive blasting nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a “deadman” control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury. OSHA 29CFR 1910.244(b)
- ▶ Point the abrasive blasting nozzle only at the surface being abrasive blasted. Never point the abrasive blasting nozzle or abrasive stream at yourself or others.
- ▶ Unless otherwise specified, maximum working pressure of abrasive blasting pots and related components must not exceed 150 psi. Exceeding maximum working pressure of 150 psi could cause the abrasive blasting pot and components to burst. Failure to comply with the above warning could result in death or serious injury.
- ▶ Never weld, grind or drill on the abrasive blasting pot (or any pressure vessel). Doing so will void ASME certification and manufacturer’s warranty. Welding, grinding or drilling on the abrasive blasting pot (or any pressure vessel) could weaken the vessel causing it to burst. Failure to comply with the above warning could result in death or serious injury. (ASME Pressure Vessel Code, Section VIII, Division 1)
- ▶ This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location could cause an explosion or electrocution.
- ▶ Never attempt to move an abrasive blasting pot containing abrasive. Never attempt to manually move abrasive blasting pots greater than 6.5 cubic foot capacity. Always use at least two capable people to manually move an abrasive blasting pot on flat, smooth surfaces. A mechanical lifting device must be used if an abrasive blasting pot is moved in any other manner.

# HAZARD IDENTIFICATIONS

## **WARNING**

**Failure to comply with ANY WARNING listed below could result in death or serious injury.**

- ▶ This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFI) for all electrical power source connections. Use of this product in wet environments could create a shock or electrocution hazard.
- ▶ Frozen moisture could cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control lines could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air. In conditions where moisture may freeze in the control lines an antifreeze injection system approved for this application can be installed.
- ▶ Do not cut, obstruct, restrict or pinch pneumatic control lines. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air.
- ▶ Use of Marco remote control switches with other manufacturer's remote control systems could cause unintended activation of remote control systems resulting in the release of high speed abrasive and compressed air. Only Marco remote control switches should be used with Marco remote control systems.
- ▶ Always be certain to have secure footing when abrasive blasting. There is a recoil hazard when abrasive blasting starts that may cause user to fall and misdirect the abrasive stream at operator or bystander.
- ▶ Never use an abrasive blasting pot or attachments as a climbing device. The person could slip and fall. The abrasive blasting pot could become unstable and tip over.
- ▶ For equipment manufactured by entities other than Allredi, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment.
- ▶ Flammable fumes, such as solvent and paint fumes in the work area can present an ignition or explosion hazard if allowed to collect in adequate concentrations. To reduce conditions that could result in a fire or an explosion, provide adequate ventilation, eliminate all ignition or spark sources, keep the work area free of debris, store solvents and solvent contaminated rags in approved containers, follow proper grounding procedures, do not plug/unplug power cord or turn on/off power switches when flammable fumes are present, keep a working fire extinguisher or provide another fire suppression system in the work area. Cease all operations and correct condition if a spark or ignition source is identified during operation.
- ▶ Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.
- ▶ Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.
- ▶ Surfaces of heated supply tanks, drums and/or lines as well as the adjoining plumbing may become hot during normal use. Do not touch these heated surfaces without proper protection. Deactivate and allow sufficient time for all surfaces to cool before attempting any maintenance.
- ▶ High-pressure fluid from gun, hose leaks, or ruptured components can pierce skin and can cause a serious injury that may result in amputation. Do not point gun or spray tip at anyone or at any part of the body. Keep clear of any leaks or ruptures. Depressurize the entire system before attempting cleaning, inspecting, or servicing equipment.
- ▶ Exposure to toxic fluids or fumes may occur during the normal operation of this system. Before attempting to fill, use, or service this system, read SDS's to know the specific hazards of the fluids you are using. Always use proper Personal Protective Equipment when attempting to fill, use, or service this system.
- ▶ The use of this product for any purpose other than originally intended or altered from its original design is prohibited.
- ▶ Never hang objects from the abrasive blasting pot handle. Doing so may cause the abrasive blasting pot to become unstable and tip over.

## HAZARD IDENTIFICATIONS

### **⚠ CAUTION**

**Failure to comply with ANY CAUTION listed below may result in minor or moderate injury.**

- ▶ Static electricity can be generated by abrasive moving through the abrasive blasting hose causing a shock hazard. Prior to use, ground the abrasive blasting pot and abrasive blasting nozzle to dissipate static electricity.
- ▶ High decibel noise levels are generated during the abrasive blasting process which may cause loss of hearing. Ensure appropriate Personal Protective Equipment and hearing protection is in use.

### **NOTICE**

**Failure to comply with ANY NOTICE listed below could pose a hazard to personnel or property.**

- ▶ See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- ▶ Always use abrasive that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, abrasive metering valve and abrasive blasting nozzle.
- ▶ Moisture build-up occurs when air is compressed. Any moisture within the abrasive blasting system will cause abrasive to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the abrasive blasting system. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open (at all times) petcock should be opened frequently to release water.
- ▶ To reduce abrasive intrusion in the air supply hose, depressurize the abrasive blasting pot before shutting off air supply from compressor.
- ▶ Inspect abrasive blasting nozzle before placing into service. Damage to abrasive blasting nozzle liner or jacket may occur during shipping. If you receive a damaged abrasive blasting nozzle, contact your distributor immediately for replacement. Abrasive blasting nozzles placed into service may not be returned. Abrasive blasting nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged abrasive blasting nozzle.
- ▶ Abrasive blasting at optimal pressure for the abrasive used is critical to productivity. Example: For an abrasive with an optimal abrasive blasting pressure of 100 psi at the abrasive blasting nozzle, one pound per square inch of pressure loss will reduce abrasive blasting efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your abrasive supplier for the requirements of your abrasive.
- ▶ Replace abrasive blasting nozzle if liner or jacket is cracked or damaged. Replace abrasive blasting nozzle if original orifice size has worn 1/16" or more. Determine abrasive blasting nozzle wear by inserting a drill bit 1/16" larger than original size of abrasive blasting nozzle orifice. If the drill bit passes through abrasive blasting nozzle, replacement is needed.

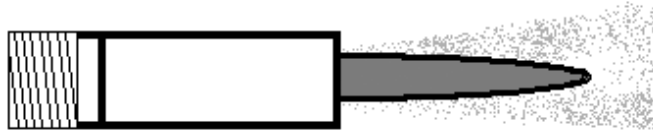


# AIR & ABRASIVE CONSUMPTION CHART

## NOTICE

Failure to comply with ANY NOTICE listed below could pose a hazard to personnel or property.

- ▶ See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- ▶ When it comes to air & abrasive mixtures, more is not necessarily better. Optimum abrasive blasting efficiency takes place when a lean air & abrasive mixture is used. To correctly set the abrasive metering valve, begin with the valve fully closed and slowly increase the amount of abrasive entering the airstream. As you increase the abrasive flow, watch for a “blue flame” at the exit of the abrasive blasting nozzle. Faster cutting, reduced abrasive consumption and lower clean up costs, are benefits of the “blue flame”.
- ▶ Abrasive blasting at optimal pressure for the abrasive used is critical to productivity. Example: For an abrasive with an optimal abrasive blasting pressure of 100 psi at the abrasive blasting nozzle, one pound per square inch of pressure loss will reduce abrasive blasting efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your abrasive supplier for the requirements of your abrasive.



## NOTICE

Inspect abrasive blasting nozzle before placing into service. Damage to abrasive blasting nozzle liner or jacket may occur during shipping. If you receive a damaged abrasive blasting nozzle, contact your distributor immediately for replacement. Abrasive blasting nozzles placed into service may not be returned. Abrasive blasting nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged abrasive blasting nozzle.

## Air & Abrasive Consumption Chart\*

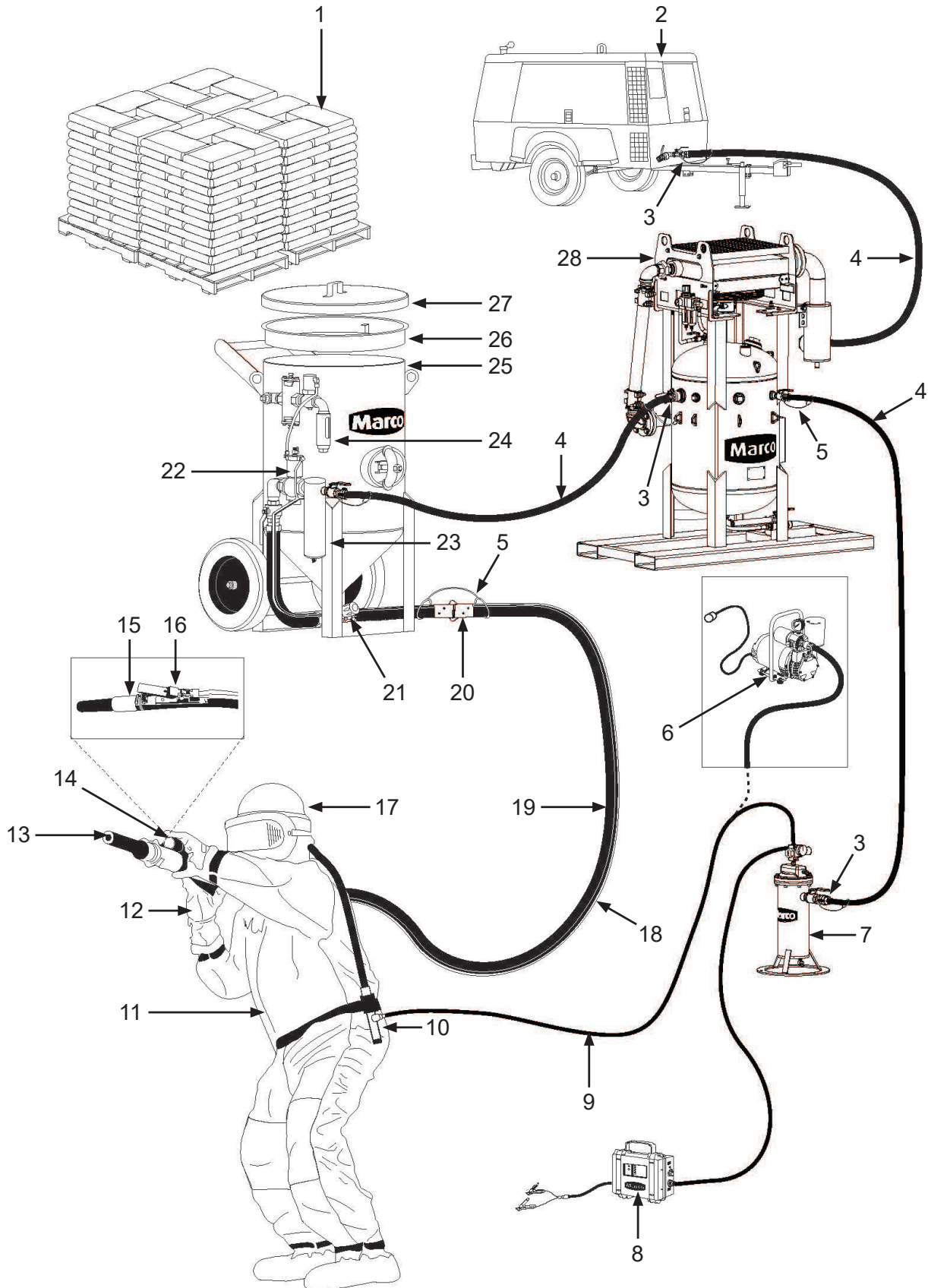
Nozzle Orifice	Pressure at the Nozzle (PSI)								Air (in cfm), Abrasive & Compressor Requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8")	11	13	15	17	18	20	25	28	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	67	77	88	101	112	123	152	170	
	2.5	3	3.5	4	4.5	5	5.5	6.2	
No. 3 (3/16")	26	30	33	38	41	45	55	62	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	150	171	196	216	238	264	319	357	
	6	7	8	9	10	10	12	13	
No. 4 (1/4")	47	54	61	68	74	81	98	110	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	268	312	354	408	448	494	608	681	
	11	12	14	16	17	18	22	25	
No. 5 (5/16")	77	89	101	113	126	137	168	188	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	468	534	604	672	740	812	982	1100	
	18	20	23	26	28	31	37	41	
No. 6 (3/8")	108	126	143	161	173	196	237	265	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	668	764	864	960	1052	1152	1393	1560	
	24	28	32	36	39	44	52	58	
No. 7 (7/16")	147	170	194	217	240	254	314	352	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	896	1032	1176	1312	1448	1584	1931	2163	
	33	38	44	49	54	57	69	77	
No. 8 (1/2")	195	224	252	280	309	338	409	458	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	1160	1336	1512	1680	1856	2024	2459	2754	
	44	50	56	63	69	75	90	101	
No. 10 (5/8")	308	356	404	452	504	548	663	742	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	1875	2140	2422	2690	2973	3250	3932	4405	
	68.5	79.5	90	100.5	112	122	146	165	
No. 12 (3/4")	432	504	572	644	692	784	948	1062	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
	2672	3056	3456	3840	4208	4608	5570	6238	
	96	112	127	143	154	174.5	209	236	

\*Abrasive consumption is based on abrasive with a bulk density of 100 lbs per Cubic Foot

## NOTICE

Replace abrasive blasting nozzle if liner or jacket is cracked or damaged. Replace abrasive blasting nozzle if original orifice size has worn 1/16" or more. Determine abrasive blasting nozzle wear by inserting a drill bit 1/16" larger than original size of abrasive blasting nozzle orifice. If the drill bit passes through abrasive blasting nozzle, replacement is needed.

# "THE BIG PICTURE"





# DAILY PRE-OPERATION CHECKLIST

## Daily Pre-operation Checklist

- 1. Abrasive
- 2. Air Compressor
- 3. Air Hose Couplings & Gaskets
- 4. Air Hose
- 5. Safety Cable
- 6. Ambient Air Pump\*
- 7. Breathing Air Filter
- 8. CO Monitor
- 9. Breathing Line
- 10. Climate Control Device
- 11. Abrasive Blasting Suit
- 12. Gloves
- 13. Abrasive Blasting Nozzle
- 14. Lighting System\*
- 15. Abrasive Blasting Nozzle Holder
- 16. Remote Control Switch
- 17. Supplied-Air Respirator
- 18. Control Line
- 19. Abrasive Blasting Hose
- 20. Abrasive Blasting Hose Couplings & Gaskets
- 21. Abrasive Metering Valve
- 22. Remote Control System
- 23. Moisture Separator
- 24. Abrasive Blasting Pot Exhaust Muffler
- 25. Abrasive Blasting Pot
- 26. Abrasive Blasting Pot Screen
- 27. Abrasive Blasting Pot Lid
- 28. Aftercooler\*

\* *Optional or alternative device.  
Ask your Allredi Representative  
for more details.*

**Abrasive** – Select the correct Abrasive (1) for the application. Review the MSDS (*Material Safety Data Sheet*) to ensure the correct PPE (*Personal Protective Equipment*) and Environmental Controls have been selected and are in place.

**Air Compressor** – Select an Air Compressor (2) of adequate size to support all equipment requirements. Refer to “Air & Abrasive Consumption Chart” for Abrasive Blasting Nozzle (13) air consumption requirements. Before connecting Air Hose (4), sample the air being produced by the air compressor (2) to ensure it is free of petroleum contaminants.

**Air Hose, and Air Hose Couplings & Gaskets** – Select Air Hoses (4) of sufficient size to support all subsequent volumetric requirements and with a sufficient PSI (*pound per square inch*) rating. Inspect all Air Hoses (4), and Air Hose Couplings & Gaskets (3) for damage or wear. Repair or replace damaged or worn components.

**Abrasive Blasting Hose, Abrasive Blasting Hose Couplings & Gaskets, and Abrasive Blasting Nozzle Holder** – Select an Abrasive Blasting Hose (19) that has an inner diameter 3 to 4 times larger than your Abrasive Blasting Nozzle (13). Inspect Abrasive Blasting Hose (19), Abrasive Blasting Hose Couplings & Gaskets (20), and Abrasive Blasting Nozzle Holder (15) for damage or wear. Repair or replace damaged or worn components.

**Safety Cables** – Install a Safety Cable (5) at each Abrasive Blasting Hose (19), and Air Hose (4) connection points.

**Aftercooler and Moisture Separator** – Ensure Aftercooler (28) is positioned on stable ground. Keep petcock drain of Moisture Separator (23) slightly open during use. Drain both devices after each use.

**Supplied-Air Respirator, Breathing Line, Breathing Air Filter, Climate Control Device, CO Monitor, Ambient Air Pump** – You MUST consult the Operator’s Manual supplied with your Respiratory Equipment (6, 7, 8, 9, 10, 17) for ALL applicable instructions and warnings. Inspect all Respiratory Equipment components for damage or wear. Repair or replace damaged or worn components.

**Abrasive Blasting Suit and Gloves** – Select an abrasive-resistant Abrasive Blasting Suit (11) that is slightly oversized to allow ease of movement and allows air to flow around your body. Select abrasive-resistant Gloves (12) with a tight fit and a long cuff that overlaps the sleeve of the Abrasive Blasting Suit (11).

**Abrasive Metering Valve and Abrasive Blasting Pot** – Confirm Abrasive Blasting Pot (25) is positioned on stable ground. Inspect Abrasive Blasting Pot (25) and Abrasive Metering Valve (21) for damage or wear. Repair or replace damaged or worn components.

**Abrasive Blasting Pot Screen and Abrasive Blasting Pot Lid** – Always use an Abrasive Blasting Pot Screen (26) when filling Abrasive Blasting Pot (25) with Abrasive (1) to prevent debris from entering the Abrasive Blasting Pot (25). Remove Abrasive Blasting Pot Lid (27) before operating the Abrasive Blasting Pot (25). Install Abrasive Blasting Pot Lid (27) after use to protect the Abrasive Blasting Pot’s (25) interior.

**Remote Control System, Remote Control Switch, Control Line,** – Inspect Remote Control System (22) and Control Line (18) for damage or wear. Repair or replace damaged or worn components. Ensure Control Line (18) fittings connected to the Remote Control System (22) are tight and free of leaks. Ensure Remote Control Switch (16) is functioning properly. Consult Remote Control Switch Operator’s Manual for applicable instructions.

**Abrasive Blasting Pot Exhaust Muffler** – Inspect Abrasive Blasting Pot Exhaust Muffler (24) at start and end of daily use. Replace element of Abrasive Blasting Pot Exhaust Muffler (24) per Operator’s Manual instructions.

**Lighting System** – Ensure the Lighting System (14) is connected to a proper power supply before use.

# OPERATING INSTRUCTIONS

## **WARNING**

W-568

Use of Marco remote control switches with other manufacturer's remote control systems could cause unintended activation of remote control systems resulting in the release of high speed abrasive and compressed air. Only Marco remote control switches should be used with Marco remote control systems. Failure to comply with the above warning could result in death or serious injury.

## **WARNING**

W-568

OSHA requires blast cleaning nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a "deadman" control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury. OSHA 29CFR 1910.244(b)

## **WARNING**

W-519

This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFI) for all electrical power source connections. Use of this product in wet environments could create a shock or electrocution hazard. Failure to comply with the above warning could result in death or serious injury.

## Description

A remote control switch gives an operator the ability to remotely activate and deactivate the remote control system at the abrasive blasting nozzle. An electric remote control switch reduces the cycle time required to activate and deactivate the remote control system compared to a pneumatic remote control switch. The reduced cycle time is most noticeable when the operator is working at distances greater than 100 feet from the abrasive blasting pot. The Marco® 151E Remote Control Switch manufactured by Allredi™ features a spring-assisted safety tab and control handle, providing a dual "Fail-to-Safe" design. Typical applications include blast rooms, blast yards, bridges, oil refineries, pipelines, railcar shops, shipyards, and storage tanks.

## Operational Requirements

**The following may cause safety hazards or reduced performance:**

- Improper installation and/or maintenance of components.
- Use of anything other than hand pressure to activate Remote Control Switch.
- Use of electric control line smaller than 16 gauge wire.

## Operating Instructions

**Before using:**

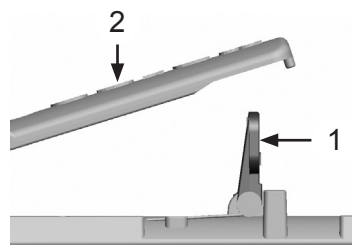
- Set up abrasive blasting blast pot and remote control system. (See Operator's Manuals.)
- Inspect electric control line and connectors for cracks or abrasions.
- Inspect the remote control switch for damage. Ensure Safety Tab (1) and Handle (2) move freely without binding. Depress the handle. If the handle and safety tab are not returned to the UP position by the springs when released, remove remote control switch from service or repair it before using.

**During use:**

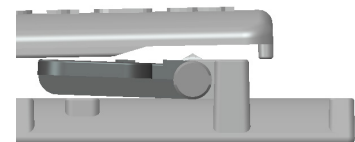
- To activate the remote control switch, move Safety Tab (1) forward to the DOWN position and move Handle (2) to the DOWN position. This will allow the boss on the handle to make contact with the micro switch.
- To deactivate the remote control switch, release the handle. The springs will return the handle and safety tab to the UP position.
- Monitor function of remote control switch components. Malfunctioning control handles must be taken out of service immediately and repaired or replaced.

**After use:**

- When abrasive blasting is concluded, inspect components for damage. Store abrasive blasting hose with remote control switch attached in an area clear of debris and abrasive.



Up Position



Down Position

# INSTALLATION

## Marco® 151E Remote Control Switch

### **WARNING**

W-562

Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

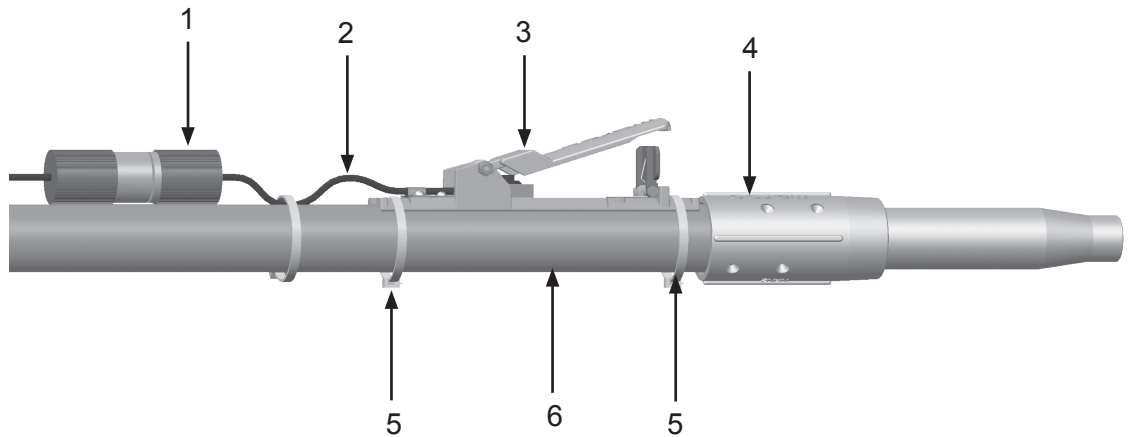
### **NOTICE**

N-516

Pulling and dragging abrasive blasting hose may cause control line and electric cord connections to separate. Connect the control line and electrical cord to the abrasive blasting hose every 4 to 6 feet and on each side of the control line connections. Provide adequate slack at each connection.

### **NOTICE**

Use a 16 gauge electric cord for lengths up to 300 feet. To reduce electrical resistance, use larger gauge electrical cord for distances greater than 300 feet.



### Installation

- 1) Install Electric Connector (1) on to Electric Control Line (2) of Remote Control Switch (3).
- 2) Place Remote Control Switch (3) on Abrasive Blasting Hose (6) behind Nozzle Holder (4).
- 3) Place Nylon Band (5) on front of Remote Control Switch (3). Do not tighten Band completely.
- 4) Place Nylon Band (5) on rear of Remote Control Switch (3). Do not tighten Band completely.
- 5) Adjust location of Remote Control Switch (3) to a comfortable position on Abrasive Blasting Hose (6) and tighten Nylon Bands (5) to secure the Switch Assembly to the Abrasive Blasting Hose. Cut off excess tail of Nylon Bands.
- 6) Secure Electric Control Line (2) to Abrasive Blasting Hose (6) every 4 to 6 feet, and on each side of the hose connections. Provide adequate slack at each connection.

# MAINTENANCE

## WARNING

W-562  
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

## WARNING

W-520  
The use of this product for any purpose other than originally intended or altered from its original design is prohibited. Failure to comply with the above warning could result in death or serious injury.

## Disassemble and Assemble Marco® 151E Remote Control Switch

Maintenance of the Marco® 151E Remote Control Switch is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

### **Disassemble:**

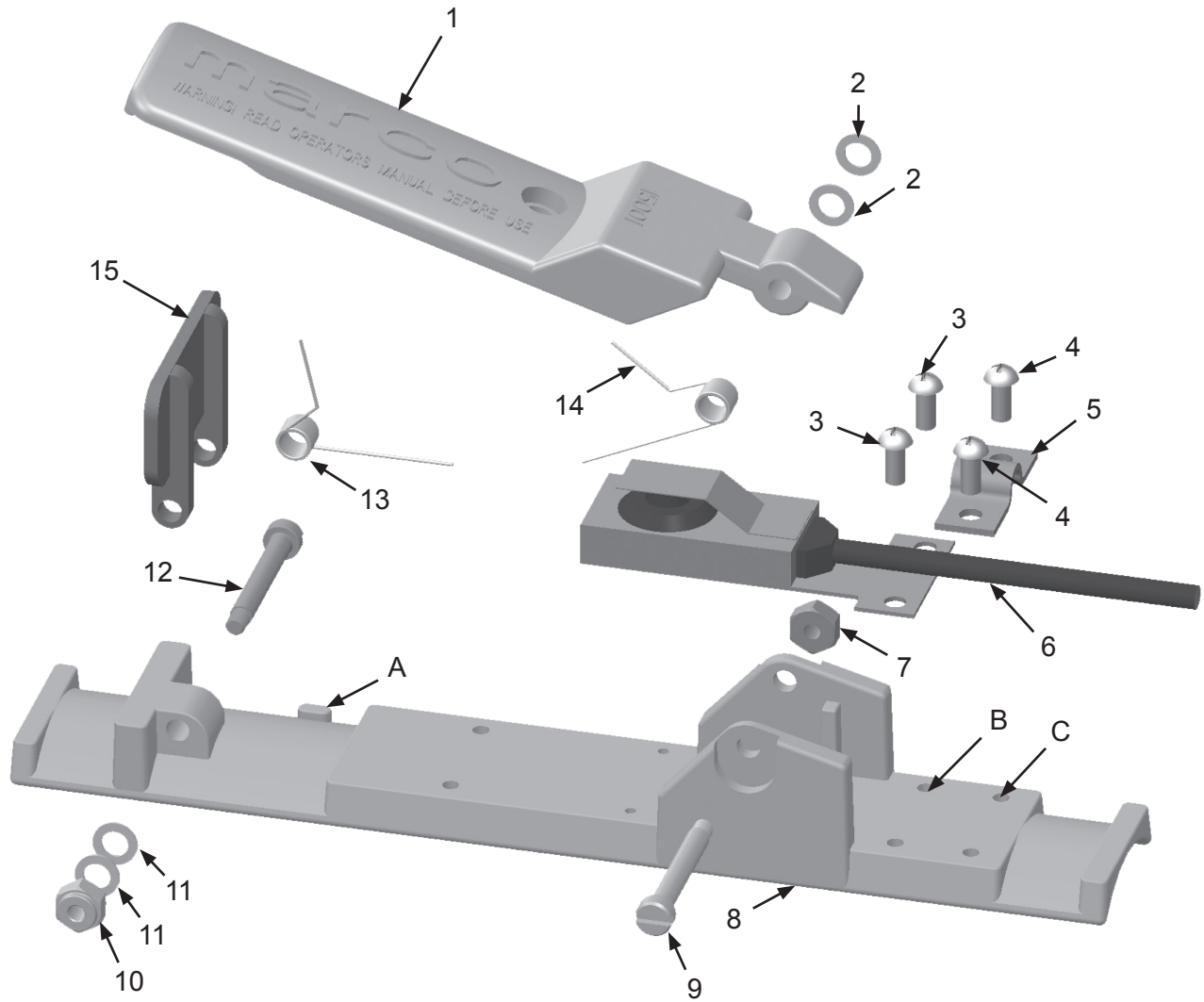
- 1) Remove Nut (7) from Shoulder Screw (9).
- 2) Slide Shoulder Screw (9) from Body (8).
- 3) Remove Washer (2), Handle (1), and Spring (14) from Body (8).
- 4) Remove Nut (10) from Shoulder Screw (13).
- 5) Remove Shoulder Screw (13) from Body (8).
- 6) Remove Washer (11), Spring (12), and Safety Tab (15) from Body (8).
- 7) Remove Screw (4) from Cord Grip (5).
- 8) Remove two Screws (3), and remove Micro Switch (6) from Body (8).

### **Assemble:**

- 1) Place Micro Switch (6) on Body (8). Align holes in Micro Switch with Holes (B).
- 2) Install two Screws (3) in Holes (B).
- 3) Place Cord Grip (5) over power cord and align Cord Grip with Holes (C). Install two Screws (4) in Holes (C).
- 4) With flat side of Safety Tab (15) facing away, place offset leg of Spring (12) against Safety Tab and insert Shoulder Screw (13) in hole on right side of Safety Tab. Place assembled components on Body (8) with straight leg of Spring at Location (A) on body. Insert Shoulder Screw (13) through holes in Safety Tab (15) and Body (8).
- 5) Place Washers (11) and Nut (10) on Shoulder Screw (13) and tighten. Test movement of Safety Tab (15) by pulling down. If binding occurs, loosen Nut and repeat test.
- 6) Partially insert Shoulder Screw (9) in Body (8). Place Spring (14) on Shoulder Screw with straight leg of Spring (14) on the bottom facing Safety Tab (15).
- 7) Align Handle (1) with uprights and insert Shoulder Screw (9) through hole in Handle. Place Washer (2) on Shoulder Screw.
- 8) Install Nut (7) on to Shoulder Screw (9) and tighten. Test movement of Handle (1) by depressing Handle. If binding occurs, loosen Nut and repeat test.

# MAINTENANCE

## Disassemble and Assemble Marco® 151E Remote Control Switch



# TROUBLESHOOTING

## **WARNING**

W-562

Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

## **NOTICE**

Use a 16 gauge electric cord for lengths up to 300 feet. To reduce electrical resistance, use larger gauge electrical cord for distances greater than 300 feet.

If the Marco® 151E Remote Control Switch does not function properly, check the following:

### **SYMPTOM (Cause)**

### **ACTION**

**Remote Control Switch will not activate when Remote Control Handle is depressed**

*(Damaged components, Switch requires adjustment, Damaged Electric Control Line, Remote Control Switch malfunction)*

Handle is not making contact with Micro Switch. Adjust height of Micro Switch per instructions in this manual.

Inspect Micro Switch for visible damage. If protective covering is damaged, replace Micro Switch immediately.

Test electric continuity of Micro Switch. Remove Micro Switch from Remote Control Body. Remove Electric Plug from Micro Switch. Test continuity of the Micro Switch by placing the electrodes on each wire and press Micro Switch. If no continuity is detected, replace Micro Switch.

Inspect electric control line and connections for damage. Test electric continuity of power cord between Remote Control System and Remote Control Switch. Repair or replace damaged electric control line and connectors.

Electrical resistance in electric control line. Replace power cord with larger gauge power cord.

See remote control system Operator's Manual.

**Remote Control Switch will not deactivate when Remote Control Handle is released**

*(Damaged components, Damaged Electric Control Line, Remote Control Switch malfunction)*

Ensure Handle returns to the up position. Inspect Safety Tab and Springs for debris or damage. Replace damaged components immediately.

Inspect Micro Switch for visible damage. If protective covering is damaged replace Micro Switch immediately.

Test electric continuity of Micro Switch. Remove Micro Switch from Remote Control Body. Remove Electric Plug from Micro Switch. Test continuity of the Micro Switch by placing the electrodes on each wire. If continuity is detected without pressing Micro Switch, replace Micro Switch.

Inspect electric control line and connections for damage. Test electric continuity of electric control line between Remote Control System and Remote Control Switch. Repair or replace damaged remote control line and connectors.

See remote control system Operator's Manual.



## **ADDITIONAL TECHNICAL DATA**

The associations listed below offer information, materials and videos pertaining to abrasive blasting and safe operating practices.

- **American Society for Testing and Materials (ASTM)**

100 Barr Harbor Drive  
West Conshohocken,  
PA 19428-2959

Phone: (610) 832-9585

FAX: (610) 832-9555  
www.astm.org

- **Occupational Safety & Health Administration (OSHA)**

United States  
Department of Labor  
200 Constitution Avenue  
Washington, DC 20210

Phone: (800) 321-OSHA  
(800) 321-6742  
www.osha.gov

- **The National Board of Boiler & Pressure Vessel Inspectors**

1055 Crupper Avenue  
Columbus, Ohio 4322

Phone: (614) 888-8320  
FAX: (614) 888-0750  
www.nationalboard.org

- **The Association for Materials Protection and Performance (AMPP)**

800 Trumbull Drive  
Pittsburgh, PA 15205

Phone: (277) 281-7772

15835 Park Ten Place  
Houston, TX 77084

Phone: (800) 797-6223

4501 Mission Bay Drive  
Suite 2G

San Diego, CA 92109

Phone: (858) 768-0828  
www.ampp.org

- **American National Standards Institute (ANSI)**

1899 L Street, NW, 11th Floor  
Washington, DC 20036

Phone: (202) 293-8020

FAX: (202) 293-9287  
www.ansi.org

## **LIMITED WARRANTY**

Seller warrants to the original purchaser that the Product covered by this Limited Warranty will remain free from defects in workmanship or material under normal commercial use and service for a period of one year from the date of shipment to the original Purchaser. This Warranty shall not apply to defects arising, in whole or in part, from any accident, negligence, alteration, misuse or abuse of the Product, operation of the Product which is not in accordance with applicable instructions or manuals or under conditions more severe than, or otherwise exceeding, those set forth in the written specifications for the Product, nor shall this Warranty extend to repairs or alterations of the Product and/or any maintenance part by persons other than Seller or Seller's authorized representatives. This warranty does not apply to accessory items. Further, this Warranty does not apply to damage or wear to the surface finish or appearance of the Product or normal wear and tear to the Product. This Warranty is limited to a purchaser who purchases the Product either directly from the Seller or from one of Seller's "Authorized Distributors". An Authorized Distributor is a Seller approved distributor that purchases the Product directly from the Seller for the sole purpose of re-selling the Product at retail, without any use or modifications whatsoever, to an end-purchaser. This warranty is specifically non-assignable and non-transferable.

## **DISCLAIMER OF WARRANTY**

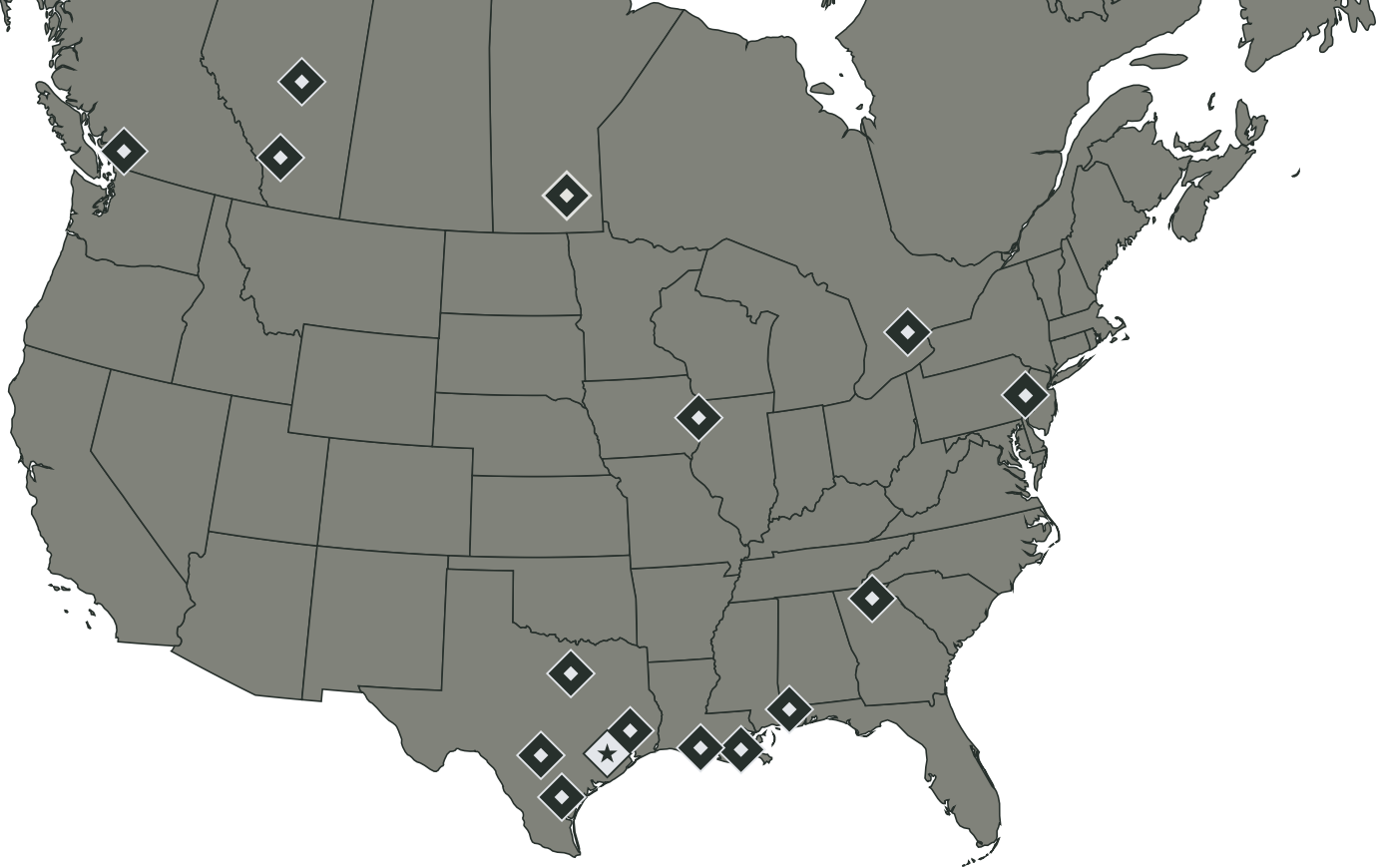
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THE SOLE AND EXCLUSIVE REMEDY UNDER THE FOREGOING LIMITED WARRANTY, AND TO THE EXTENT PERMITTED BY LAW, ANY WARRANTY OR CONDITION IMPLIED BY LAW, COVERING THIS PRODUCT SHALL BE, AT THE SELLER'S OPTION, THE REPAIR OR REPLACEMENT, FREE OF CHARGE, F.O.B. POINT OF MANUFACTURE, OF ANY DEFECTIVE PART OR PARTS OF THE PRODUCT THAT WERE MANUFACTURED BY SELLER, AND WHICH ARE RETURNED TO SELLER AT SELLER'S PRINCIPAL PLACE OF BUSINESS, POSTAGE PREPAID BY THE PURCHASER. THIS SOLE AND EXCLUSIVE REMEDY IS CONDITIONED UPON PURCHASER'S PROMPT WRITTEN NOTICE TO SELLER AT SELLER'S PLACE OF BUSINESS THAT A DEFECT HAS BEEN DISCOVERED, TOGETHER WITH A REASONABLY DETAILED DESCRIPTION OF THE DEFECT IN THE PRODUCT, PROOF OF PURCHASE OF THE PRODUCT, AND THE MODEL AND IDENTIFICATION NUMBER OF THE PRODUCT WITHIN THIRTY (30) DAYS AFTER DISCOVERY OF THE DEFECT, OTHERWISE SUCH CLAIMS SHALL BE DEEMED WAIVED. NO ALLOWANCE WILL BE GRANTED FOR ANY REPAIRS OR ALTERATIONS MADE BY PURCHASER OR OTHERS WITHOUT SELLER'S PRIOR WRITTEN CONSENT. IF SUCH NOTICE IS TIMELY GIVEN, SELLER WILL HAVE THE OPTION TO EITHER MODIFY THE PRODUCT OR COMPONENT PART THEREOF 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 FULL SETTLEMENT OF ALL CLAIMS. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OBLIGATION GREATER THAN THE ORIGINAL PURCHASE PRICE OF THE PRODUCT UNDER THIS WARRANTY. PURCHASER SHALL AFFORD SELLER PROMPT AND REASONABLE OPPORTUNITY TO INSPECT THE PRODUCT FOR WHICH A CLAIM IS MADE. THE SOLE PURPOSE OF THE FOREGOING STIPULATED EXCLUSIVE REMEDY SHALL BE TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR COMPONENTS THEREOF, OR TO REFUND PURCHASER THE PURCHASE PRICE THEREOF. THIS STIPULATED EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE SO LONG AS SELLER IS WILLING AND ABLE TO REPAIR OR REPLACE THE DEFECTIVE PARTS OR REFUND THE PURCHASE PRICE IN ACCORDANCE WITH THE TERMS HEREOF. PRODUCTS THAT HAVE BEEN REPAIRED OR REPLACED UNDER THIS WARRANTY DO NOT RECEIVE A NEW WARRANTY AND ARE ONLY COVERED BY THE REMAINING PORTION OF THE ORIGINAL WARRANTY.

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