

# ALC

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## 40001, 40003, 40004 and 40005 PRESSURE BLASTER with Deadman Control System

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### OPERATION GUIDE



# ALC

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**WARNING!**

Do not use an ALC Pressure Blaster until you have read this manual and you understand its contents and warnings. These warnings are included for the health and safety of the operator and those in the immediate vicinity. Keep this manual for future reference.

Dust created by power sanding, sawing, grinding, drilling, and other construction activities may contain chemicals known to cause cancer, birth defects or other reproductive harm and respiratory illnesses. Some examples of the chemicals include:

- Lead from lead based paints
- Crystalline silica from bricks, cement and other masonry products
- Arsenic and chromium from chemically-treated lumber

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Abrasive blasting produces harmful dust. Everyone in the blasting area must wear a properly fitted and properly maintained NIOSH-approved supplied-air respirator.

**SILICOSIS AND OTHER DUST WARNINGS:**

Breathing dust from silica sand may cause silicosis, a fatal lung disease. Breathing dust during blasting operations may also cause asbestosis and/or other serious or fatal diseases. A NIOSH-approved, well-maintained air-supplied abrasive blasting respirator must be used by anyone blasting, anyone handling or using media containing toxic substances or media with more than point one percent (.001) free crystalline silica and anyone in the area of the dust. Harmful dust can remain suspended in the air for long periods of time after blasting has ceased, causing serious injury or death.

Before removing respirator, use an air monitoring instrument to determine if atmosphere is safe to breathe. Contact local OSHA or NIOSH office to determine the proper respirator for your particular application.

Supplied-Air respirators do not remove or protect against carbon monoxide (CO) or any other toxic gas. Use a carbon monoxide removal device and monitoring device with the respirator to ensure grade D quality air. Follow all applicable OSHA standards and OSHA regulation 1910.134 (d).

## ASSEMBLY INSTRUCTIONS

**NOTE:** Refer to diagrams on page 9 when assembling.

1. Attach wheel assemblies to wheel support as shown in inset #1 (p. 13). Do not tighten nut snugly against wheel hub, as some movement is required to allow free rolling of wheels. Tighten hex nut directly against wheel support housing to lock wheel assembly in place.
2. Abrasive regulator valve has been preassembled and attached to the bottom of the tank. Pipe dope has been used on all fittings for positive sealing. Connect hose assemblies as shown in illustration with enclosed hose stems and hose clamps.
3. Attach abrasive hose and air by-pass hose to tank base. Proceed with assembly of air intake, choke valve, and pressure gauge assembly as shown in diagram. Optional air filter assembly as shown in diagram should be attached during this step. Manufacturer recommends the use of pipe dope on all fittings for positive sealing. Several subassemblies have been completed at the factory for your convenience. Be certain all pipe fittings and hose clamps are tight before using blaster.

### **WARNING!**

**Disconnecting hose while Unit is under pressure could cause serious injury or death. Use safety lock pins and safety cables in all coupling connections to help prevent hose couplings from accidental disconnection.**

**If twist-on type air hose couplings are used, they must be secured by safety lock pins or wires to prevent accidental disconnection while under pressure. Hose disconnection while under pressure could cause serious injury.**

4. The Deadman Valve Assembly (less ceramic nozzle) has been preassembled and attached to the abrasive hose. It allows single-handed operation with safety shut-off when operator's hand is removed or valve is dropped. (Do not over-tighten retainer nut against ceramic nozzle. Excessive tightening may cause damage to nozzle.) **IMPORTANT:** The 40164/40165 sealing block/nut and bolt assembly must be adjusted after inserting ceramic nozzle. Note: The Deadman Valve is adaptable to any blaster using 1/2" I.D. blast hose. Inspect and replace nozzle washer as needed or when replacing nozzles..
5. Recheck all pipe fittings and hose clamps to ensure they are securely tightened.

## **PRESSURE BLASTER SAFETY PROCEDURES**

**CAUTION: READ THESE SAFETY PROCEDURES IN THEIR ENTIRETY – PARTS OF THE OPERATING INSTRUCTIONS ARE WITHIN THESE WARNINGS.**

These procedures are not intended to be exhaustive due to the many variables in the abrasive blasting field. Therefore, we **INSIST** that the hands, ears, mouth, nose and eyes be covered with appropriate safety protection at all times.

### **ADDITIONAL WARNINGS! CAUTION MUST BE EXERCISED BY USER AT ALL TIMES**

- 1. Do not place fingers, any body parts or any components in the filler plug seal area when the blast machine is being pressurized. Failure to keep body parts from the filler plug area will result in serious injury.**
- 2. Do not exceed maximum working pressure of 110 PSI. Failure to keep maximum working pressure below 110 PSI can cause the blast machine to burst, causing death or serious injury.**
- 3. Everyone in the blast area including the equipment operator should correctly use and maintain a NIOSH-approved air-supplied respirator, even after blasting has ceased. Harmful dust can remain suspended in the air for long periods of time after blasting has ceased causing injury or death.**
- 4. Before using the pressure blaster: Put on safety glasses, gloves, and NIOSH-approved respirator. Always wear these protective items when operating and while servicing your abrasive blaster. While a protective hood is provided to help protect you from flying particles as you use the machine, the hood does not provide protection from air borne particles. A well maintained air supplied blasting respirator must be used by anyone blasting.**
- 5. Use thick gloves with gauntlets to protect your hands.**
- 6. Use backboards to prevent overspray from hitting someone or something else because the dust will travel a long distance. Blast in a large open area to minimize abrasive accumulation in surrounding areas.**
- 7. Do not pull media tank around by the abrasive hose or let tank fall over as a fitting may break rendering the machine unsafe. Media and air under 125 PSI have a very high destructive force. Never leave a pressurized machine unattended. If an emergency occurs, such as a burst blast hose, shutdown the machine immediately.**

8. **Drain air out of tank through the inlet valve and disconnect power before maintenance cleaning of any kind. When removing nozzle, caution must be exercised as air pressure may still be in the hose if the nozzle is plugged.**
9. **For safe operation, perform recommended preventive maintenance on blaster tank, remote unit and accessories. Replace all worn parts before they fail. Immediate replacement of worn components is required. Failure to replace worn components could result in exposing the operator or bystanders to high speed media and compressed air, causing serious injury.**
10. **Do not use corrosive materials of any type in unit. Use only clean, dry media.**
11. **Do not splice abrasive hose. The splice will wear out quickly and may violently spray media over the surrounding area. A worn blast hose could suddenly fail by bursting. Couplings and nozzle holders may not adequately grip worn hose, causing them to blow off under pressure. Compressed air and abrasive escaping from a burst hose, or disconnected coupling or nozzle holder, could cause severe injury.**
12. **Welding, grinding, or drilling on the blast machine could weaken the vessel. Compressed air pressure could cause a weakened blast machine to rupture, resulting in death or serious injury.**
13. **Always place the machine so that the outlet is pointed away from any objects or persons. Stand clear of the path of exiting abrasive. It may come out at high velocity. Impact from exiting abrasive could cause severe injury.**
14. **Static electricity can be created by the use of this equipment. Do not use within fifty feet of any explosive, potentially explosive substances, or their vapors as an explosion can occur.**
15. **Do not use this equipment in any area that might be considered hazardous or where flammable gases or liquids are present. Failure to do so may cause an explosion resulting in serious injury.**
16. **Do not overfill tank with media. Do not fill to within 6 inches from top of the tank.**

## OPERATING INSTRUCTIONS

### OPERATING TECHNIQUE:

1. Connect air hose to air inlet valve. Manufacturer recommends using minimum incoming air hose of 1/2" I.D. Using an air hose smaller than 1/2" I.D. will restrict air volume and result in poor unit operation. Prior to injection of air, be certain air inlet valve and nozzle valve are in the OFF position. With Deadman Valve closed and closure plug in the UP position, open air inlet valve allowing air to pressurize. Operating range of unit is 40 to 110 PSI. **Note:** For proper nozzle selection, refer to nozzle selection chart below. After proper nozzle selection, insert nozzle into retainer base. Set against washer and slide retainer nut over nozzle and tighten by hand.
2. The Pressure Blaster is equipped with a unique semi-automotive pull-up closure design. Manufacturer recommends a fine grade abrasive with granular size similar to that of table salt. This assures proper flow and reduces the possibility of nozzle obstruction. When ready to pressurize container, pull up closure and turn on incoming air. The internal air pressure will seal the closure.
3. With the blaster pressurized and abrasive flow regulator valve at base of unit closed, open choke valve allowing air to flow through by-pass hose to base of the unit. Then holding the abrasive hose by nozzle retainer housing with nozzle directed away from unit and operator, quickly squeeze the Deadman Valve fully open and adjust the regulator valve at base of tank to bleed the abrasive into air flow. **Slowly open regulator valve until abrasive material is slightly visible.** Once the regulator flow valve is adjusted to the desired setting, further adjustment should only be required when changing grade of abrasive material or when a nozzle with a different I.D. is used.

For best performance, the Deadman Valve should be opened and closed quickly. **Note:** The choke valve located at the rear of the tank on the by-pass air line must always be open during blasting.

### **WARNING!**

**All persons except for the equipment user must stay clear of the blast machine. The user may pressurize or depressurize the machine at any time. The noise generated by the sudden release of compressed air while the machine is pressurized or depressurized may startle bystanders, and may vent abrasive under pressure. Either condition could result in injury.**

<b>NOZZLE SELECTION CHART</b>					
<b>PART NO. ALC</b>	<b>NOZZLE I.D.</b>	<b>CFM</b>	<b>PSI</b>	<b>BLASTING AREA SQ. FT./MIN.</b>	<b>ABRASIVE USAGE/HR.</b>
40067	3/32"	7	80	1/2	100 lbs.
40068	1/8"	15	80	1 to 1-1/2	150 lbs.
40069	5/32"	25	80	2 to 2-1/2	200 lbs.
40070	3/16"	40	80	3 to 3-1/2	300 lbs.
40071	1/4"	80	80	4 to 4-1/2	500 lbs.
40072	5/16"	125	80	5 to 6	800 lbs.

**NOTE:** Blast area coverage per minute and abrasive consumption are approximate guidelines. Abrasive material and surface blasted may alter coverage and consumption rates. Furthermore, for each 50 feet of blast hose there will be a 5 PSI pressure drop.

### **WARNING!**

The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. Check the threads for wear, and make sure nozzle holder securely grips the nozzle. The nozzle washer must also be inspected for wear. Worn nozzle washers cause thread erosion. A loose-fitting nozzle may eject from the holder under pressure and could cause severe injury.

**AIR COMPRESSOR RECOMMENDATION:**

To permit efficient operation of your air compressor, follow these guidelines:

1. Use a smaller size nozzle to control the demand of air.
2. Do not blast continuously. Stop blasting operation periodically to allow the compressor to cool. No compressor is designed to constantly run at full RPM. Use 70% of the rated output.
3. Use a minimum 1/2" air hose or metal piping from your air compressor to the blaster. If your compressor is creating an excessive amount of moisture, we recommend using a water trap or a moisture separator. Open the bleeder valve until water slowly flows out continuously.
4. The air compressor should be drained at the bottom of the supply tank through a drain valve and should be blown down daily. It is not unusual to drain three or four gallons of water from the supply tank on a high humidity day. An additional supply tank will help.
5. Keep dust and media created by blasting away from the air compressor unit. Observe maximum air pressure requirements for the blaster and either set your compressor to run within these limits or use a pressure regulator valve to reduce the air pressure to the appropriate range.

**ABRASIVE (MEDIA) USAGE:**

1. If moisture is in the media it will eventually damage the blaster tank or plug the system. Keep the media and compressor air dry to avoid this problem.
2. If media is moist, screen it and dry it before using.
3. Do not leave media in the tank after blasting because it can absorb moisture and impair blasting performance.
4. Store media in a dry place; keep media off the ground or concrete floors. Put it on a wooden skid.
5. If the humidity is excessively high, it may not be advisable to blast at that time.
6. Consider using different grades or different types of media to prevent nozzle clogging due to high moisture content.
7. Do not use sand.

**Warning! Do not fill the pressure vessel to within six (6) inches of the top of the vessel. If a hose is accidentally disconnected during use media spray may occur.**



ABRASIVE AND PRESSURE GUIDE					
Material to Be Cleaned	Air Pressure	Abrasive		Grit Size	
Steel vats	100-125 psi	Coal Slag	Garnet	30/50	20/40
Auto fenders	50-80 psi	Coal Slag	Garnet	80/120	20/40
Brick and block	80-125 psi	Coal Slag	Garnet	30/50	20/40
Steel cabinets	80-125 psi	Coal Slag	Garnet	30/50	20/40
Truck bodies	100-125 psi	Coal Slag	Garnet	30-50	20/40
Glass etching	50-70 psi	Glass beads	Aluminum Oxide	30/40	100
Wood	50-70 psi	Nut shells	Glass beads	14/30	30/40

### Coal Slag #40093

Coal Slag is used when paint and rust has to be removed from steel, such as car bodies, tanks or heavy machinery. Coal Slag is faster cutting, can be re-used, is moisture free, and will not pack or absorb moisture. (25 Lb. container)

### Steel Grit #40109

Steel grit is extremely fast cutting on rusty metal and hard to remove paint. Steel Grit is popular because it leaves a very smooth finish. It is also comparable in price to most other specialty abrasives. Steel Grit is recommended in reclaim systems or cabinets. (25 Lb. container)

### Glass Bead #40105

Glass Bead is used in creating a satin or matte finish. Glass Bead is recommended in reclaim systems or cabinets. (25 Lb. container)

### Aluminum Oxide #40098

Aluminum Oxide is a high quality abrasive that is sharper than sand (not recommended) and cuts twice as fast as sand. It leaves a smooth textured finish with no pits or burrs. Aluminum Oxide is rougher than glass bead and can be used over and over again. It is one of the most economical abrasives you can use in any reclaim systems or cabinets. (4/25 Lb. container)

### Plastic Grit #40110

Primarily used to strip aluminum and fiberglass. Great for stripping paint, light oxidation and surface rust. Recommended for use in blast cabinets because it creates very little dust. Works quickly, last a long time and increases visibility within the cabinet. (10 Lb. container)

### Walnut Shells #40112

Walnut shells are recommended for use on "soft" surfaces such as aluminum, glass, wood, and other areas where no pitting is desired. Leaves a smooth, dull finish. (10 Lb. container)

## TROUBLESHOOTING TIPS

### PROBLEM/CAUSE

### POSSIBLE SOLUTION

#### Surging of blast flow:

Air pressure too low  
Too much media

Check pressure gauge on compressor  
Adjust media valve 40200

#### Excessive media consumption:

Media valve open too far  
Air pressure too low

Close slightly  
Check pressure gauge on compressor

#### Clogging and plugging of blast flow:

Debris in media  
Media size too large  
Nozzle plugs  
Nozzle plugs  
Wet media

Purge and screen  
Use smaller grit size  
Use larger nozzle  
Adjust media valve 40200  
Dry media, drain water from air

#### Moisture in abrasive media:

Wet media  
Water in air  
Water in tank

Change or use dry media  
Drain water from air lines  
Empty, dry out and refill

#### Humid weather:

Moderate humidity  
Moderate humidity  
High humidity

Keep media as dry as possible  
Use drier or moisture separator  
Avoid that period of use if possible

#### Overtaxed compressor:

Compressor too small  
Nozzle size too large  
Too many leaks in plumbing  
Holes in abrasive hose  
Air filter on compressor plugged

Restrict time used  
Use smaller size  
Seal and tighten plumbing  
Replace hose  
Clean

#### Lack of air pressure:

Compressor too small  
Supply valves not on full position  
Nozzle size too large  
Leaks in plumbing  
Holes in abrasive hose  
Air filter on compressor plugged  
Urethane gasket worn or dirty

Use smaller nozzle  
Open valves  
Use smaller size  
Seal and tighten plumbing  
Replace hose  
Clean filter  
Clean or replace gasket

#### Lack of abrasive flow:

Blaster tank empty  
Moisture in media  
Not enough air pressure  
Abrasive hose kinked  
Debris in media

Fill tank  
Dry media  
Check system  
Straighten hose  
Clean or screen media

## **MAINTENANCE**

### **WARNING!**

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

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

**Immediate replacement of worn components is required. Failure to replace worn components could expose the operator or bystanders to high speed media and compressed air could cause death or serious injury.**

**Leaks around couplings and nozzle holders indicate worn or loose fitting parts. Nozzle holders and couplings that do not fit tightly on hose and nozzles that do not fit tightly in nozzle holders could disconnect while under pressure. Impact from nozzles, couplings, hoses, or abrasive, and parts disconnected while under pressure could cause severe injury.**

## **MAINTENANCE**

To ensure a long and efficient operational life of the Deadman Control System, it is highly recommended that the following procedures be followed:

1. Periodically (after 5-6 months of moderate use or after 10-15 hours of heavy industrial use) replace all hose adaptors that are for abrasive flow use only (Order No. 40192).
2. Replace rubber sealing block on 40166 after 7-10 hours of use to maintain proper shut-off (Order No. 40164).
3. Check abrasive hose when it begins to soften or leaks media or air around the hose of handle area.
4. Replace the nozzle when it wears to the next larger size (at this time the Venturi effect of the nozzle is inefficient).
5. Check the urethane gasket in the pull-up closure when the air leaks excessively from the opening (make sure the gasket is free from media).

**Note:** Replace with genuine ALC parts – do not substitute.

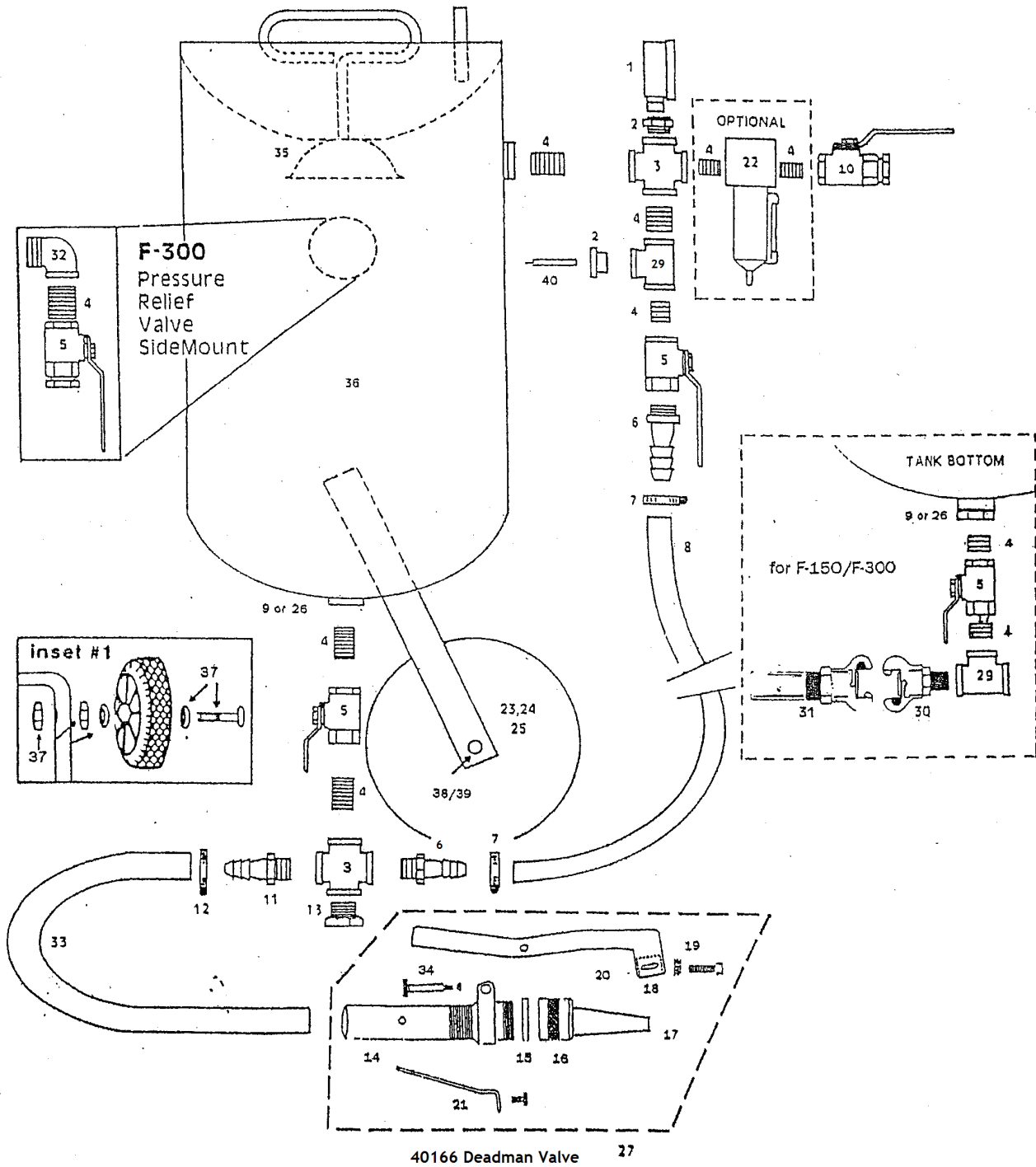
**PARTS LIST**

ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	40224	0-200 psi pressure gauge	23	40225	6" wheels (40001 only)
2	40219	1/2" x 1/4" bushing	24	40226	8" wheels (40003 and 40004)
3	40221	1/2" cross	25	40227	10" wheels (40005 only)
4	40213	1/2" x close nipples	26	40231	1-1/2" x 1/2" bushing (40005)
5	40198	1/2" bronze ball valve	27	40166	Complete deadman handle
6	40186	1/2" brass adapter	29	40230	1/2" tee
7	10935	Hose clamp	30	40209	2-prong quick disconnect coupling (40004 and 40005)
8	40123	Red by-pass hose	31	40210	2-prong hose connection (40004 and 40005)
9	40217	3/4" x 1/2" bushing	32	40216	1/2" 90° elbow
10	40199	1/2" ball valve (pressure relieving)	33	40117	1/2" abrasive hose (40001 and 40003)
11	40192	1/2" hose adaptor		40118	1/2" abrasive hose (40004)
12	10905	1/2" hose clamp		40120	1/2" abrasive hose (40005)
13	40223	1/2" plug	34	40173	Shoulder bolt with nut
14	40170	Nozzle base with bracket	35	40228	Closure gasket
15	40196	Nozzle washer	36	40279	65# pressure tank only
16	40193	Nozzle retainer nut		40281	110# pressure tank only
17		Nozzle—see pg. 4 for size/part no.		40282	150# pressure tank only
18	40164	Sealing block		40284	300# pressure tank only
19	40165	Nut and bolt assembly	37	40232	Axle bolt assy. (40001, 40003, 40004)
20	40168	Handle	38	10973	5/8" diameter axle (F-300)
21	11500	Pivot tension spring	39	10974	Palnuts for S-40 axle
22	40207	1/2" moisture separator (optional)	40	40229	Pressure relief valve

Moisture separator is standard on models 40004 and 40005. It is optional for models 40001 and 40003.

## 40001, 40003, 40004, 40005 with Deadman Control System

### REPLACEMENT PARTS



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### LIMITED WARRANTY

**S & H Industries, Inc. warrants this product to be free from defects in materials or workmanship for two years after the date of original purchase.**

**If the product should become defective within that warranty period, we will repair or replace it (at our option) free of charge including return transportation to you provided you deliver it prepaid to S & H Industries, Inc., 5200 Richmond Road, Bedford Hts., Ohio 44146.**

**This warranty does not include damage resulting from accident, abuse or misuse of the product. Nor does it apply to parts subject to abrasive wear, i.e., nozzles, air jets, seal blocks, valves, hose connections and hoses.**

**Implied warranties including those of merchantability and fitness for a particular purpose are excluded to the extent permitted by law, and any and all implied warranties are excluded. This is the exclusive remedy and liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law.**