

A95

APEX SERIES SHOT BLASTER

SERVICE MANUAL



Read Manual Before Servicing Machine

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Specifications

Product Specifications						
Width	Length	Height	Weight	Working Width	Blasting Capacity	Power
12" (30.5 cm)	45" max. (114.3 cm) 37" min (94.0 cm)	41" max. (104.1 cm) 34" min. (86.4 cm)	121 lbs (54.9 kg)	8" (20.3 cm)	Up to 400 ft ² /hr	1.5 HP (1.12 kW)

Machine Variants			
Region	Serial Number	Max. Amps	Input Power
Domestic (North America)	A95-10XXXX	17A	120V / 60 Hz
International	A95-11XXXX	12A	230V / 50 Hz
	A95-20XXXX	16A	110V / 50 Hz

Recommended Dust Collector: DL2000 or other with 200 CFM minimum rating

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GENERAL RULES FOR SAFE OPERATION

Before use, anyone operating or performing maintenance on this equipment must read and understand this manual, as well as any labels packaged with or attached to the machine and its components. Read the manual carefully to learn equipment applications and limitations, as well as potential hazards associated with this type of equipment. Keep manual near machine at all times. If your manual is lost or damaged, contact National Flooring Equipment (NFE) for a replacement.

Personal

Dress properly and use safety gear.

Do not wear loose clothing; it may be caught in moving parts. Anyone in the work area must wear safety goggles or glasses and hearing protection. Wear a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be worn when specified or necessary.

Maintain control; stay alert.

Keep proper footing and balance, and maintain a firm grip. Observe surroundings at all times. Do not use when tired, distracted, or under the influence of drugs, alcohol, or any medication that may cause decreased control.

Keep hands away from all moving parts and tooling.

Wear gloves when changing tooling. Remove tooling when machine is not in use and/or lower cutting head to the floor.

Do not force equipment.

Equipment will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear, and reduced control.

Environment

Avoid use in dangerous environments.

Do not use in rain, damp or wet locations, or in the presence of explosive atmospheres (gaseous fumes, dust, or flammable materials). Remove materials or debris that may be ignited by sparks. Keep work area tidy and well-lit - a cluttered or dark work area may lead to accidents.

Protect others in the work area and be aware of surroundings.

Provide barriers or shields as needed to protect others from debris and machine operation. Children and other bystanders should be kept at a safe distance from the work area to avoid distracting the operator and/or coming into contact with the machine. Operator should be aware of who is around them and their proximity. Support personnel should never stand next to, in front of, or behind the machine while the machine is running. Operator should look behind them before backing up.

Guard against electric shock.

Ensure that machine is connected to a properly grounded outlet. Prevent bodily contact with grounded surfaces, e.g. pipes, radiators, ranges, and refrigerators. When scoring or making cuts, always check the work area for hidden wires or pipes.

Maintenance & Repairs

Begin maintenance work only when the machine is shut down, unplugged, and cooled down.

Use proper cleaning agents.

Ensure that all cleaning rags are fiber-free; do not use any aggressive cleaning products.

Schedule regular maintenance check-ups.

Ensure machine is properly cleaned and serviced. Remove all traces of oil, combustible fuel, or cleaning fluids from the machine and its connections and fittings. Retighten all loose fittings found during maintenance and repair work. Loose or damaged parts should be replaced immediately; use only NFE parts.

Do not weld or flame-cut on the machine during repairs, or make changes to machine without authorization from NFE.

Equipment

Use proper parts and accessories.

Only use NFE-approved or recommended parts and accessories. Using any that are not recommended may be hazardous.

Ensure accessories are properly installed and maintained.

Do not permanently remove a guard or other safety device when installing an accessory or attachment.

Inspect for damaged parts.

Check for misalignment, binding of moving parts, loose fasteners, improper mounting, broken parts, and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the machine off immediately. Do not use damaged equipment until repaired. Do not use if power switch does not turn machine on and off. For all repairs, insist on only identical NFE replacement parts.

Maintain equipment and labels.

Keep handles dry, clean, and free from oil and grease. Keep cutting edges sharp and clean. Follow instructions for lubricating and changing accessories. Motor and switches should be completely enclosed at all times with no exposed wiring. Inspect cord regularly. Labels carry important information; if unreadable or missing, contact NFE for a free replacement.

Avoid accidental starting; store idle equipment.

When not in use, ensure that the machine is unplugged; do not turn on before plugging in. Store in a dry, secured place. Remove tooling when storing, and keep away from children.

Safety

SHOT BLASTER SAFETY GUIDELINES

Before use, anyone operating this equipment must read and understand these safety instructions.

Shot Blasting

Beware of hidden obtrusions.

Watch out for hidden dangers and protrusions in flooring. Do not use on largely uneven surfaces.

Avoid contact with hot shroud.

Do not touch the shroud without proper hand protection. Both become hot during operation and remain hot after stopping the machine.

Provide barriers, shields, or safety glasses as needed to protect others from debris.

Use for correct applications.

Do not force equipment to do heavier duty work than it was made for.

Use a magnetic sweep immediately after blasting.

Steel shot that is left on the walking surfaces creates a slipping hazard which could cause unexpected falls.

Dust Collection

Turn off machine before working with dust collector.

Do not switch off or remove the dust collector while the machine is running.

Use with appropriate dust collecting system.

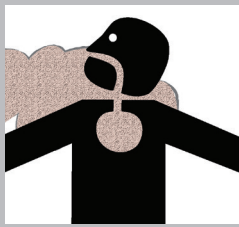
Do not operate machine designed for use with a dust collector without the dust collector. Ensure dust collector is on and operating properly while grinding.

Dispose of collected waste.

Do not leave the dust collector bag full of waste. Handle and dispose of bag and waste in accordance with all applicable local, state, and federal regulations. The dust bin of a connected dust collector must be emptied before transportation.



WARNING: GRINDING/CUTTING/DRILLING OF MASONRY, CONCRETE, METAL AND OTHER MATERIALS CAN GENERATE DUST, MISTS AND FUMES CONTAINING CHEMICALS KNOWN TO CAUSE SERIOUS FATAL INJURY OR ILLNESS, SUCH AS RESPIRATORY DISEASE, CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. IF YOU ARE UNFAMILIAR WITH THE RISKS ASSOCIATED WITH THE PARTICULAR MATERIAL BEING CUT, REVIEW THE MATERIAL SAFETY DATA SHEET AND/OR CONSULT YOU EMPLOYER, THE MATERIAL MANUFACTURER/SUPPLIER, GOVERNMENTAL AGENCIES SUCH AS OSHA AND NIOSH AND OTHER AUTHORITIES ON HAZARDOUS MATERIALS. CALIFORNIA AND SOME OTHER AUTHORITIES, FOR INSTANCE, HAVE PUBLISHED LISTS OF SUBSTANCES KNOWN TO CAUSE CANCER, REPRODUCTIVE TOXICITY, OR OTHER HARMFUL EFFECTS. CONTROL DUST, MIST AND FUMES AT THE SOURCE WHERE POSSIBLE. IN THIS REGARD USE GOOD WORK PRACTICES AND FOLLOW THE RECOMMENDATIONS OF THE MANUFACTURER/SUPPLIER, OSHA/NIOSH, AND OCCUPATIONAL AND TRADE ASSOCIATIONS. WHEN THE HAZARDS FROM INHALATION OF DUST, MISTS AND FUMES CANNOT BE ELIMINATED, THE OPERATOR AND ANY BYSTANDERS SHOULD ALWAYS WEAR A RESPIRATOR APPROVED BY OSHA/MSHA FOR THE MATERIAL BEING CUT.



RECOMMENDED ELECTRICAL PRACTICES



WARNING: ELECTRICAL CORDS CAN BE HAZARDOUS. MISUSE CAN RESULT IN FIRE OR DEATH BY ELECTRICAL SHOCK. READ CAREFULLY AND FOLLOW ALL DIRECTIONS.



CAUTION: ALWAYS FOLLOW APPLICABLE ELECTRICAL CODES, STANDARDS AND/OR REGULATIONS. CONSULT YOUR LOCAL ELECTRICAL AUTHORITY OR A LICENSED ELECTRICIAN BEFORE ATTEMPTING TO MODIFY AN ELECTRICAL INSTALLATION. ENSURE THAT CIRCUIT AND GROUND FAULT PROTECTION DEVICES AND ALL OTHER ELECTRICAL SAFETY EQUIPMENT ARE FUNCTIONING PROPERLY.

Guidelines for Using Extension Cords

- Ensure the cord type is suitable for the application and location. If you are unsure about your cord type, consult a qualified electrical professional or electrician.
- Ground your equipment. The equipment must be plugged into an appropriate outlet, one which is properly installed and grounded in accordance with all codes and ordinances. Do NOT modify the plug provided with the equipment. Never remove the grounding prong from the plug.
- Do not remove, bend or modify any metal prongs or pins of the plug. Modifications to power cords and/or plugs may result injury and/or equipment damage.
- FULLY INSERT plug into outlet.
- Do not use excessive force to make connections.
- Never unplug by pulling the cord from the outlet. Pull plug rather than cord to reduce the risk of damage.
- Regularly examine your extension cord and ensure it is in good electrical condition. Never use a damaged cord—either replace it or have it repaired by a qualified person.
- Protect your extension cords from sharp objects, excessive heat and damp or wet areas. Keep the cord away from oil, cutting edges and moving parts.
- Do not drive, drag or place objects over cord.
- Avoid overheating. Uncoil cord and do not cover it with any material.
- Avoid accidental starting. Be sure equipment is turned off before plugging in. Do not use equipment if the power switch does not turn the equipment on and off.
- Make sure equipment is not running before disconnecting cord.
- Unplug equipment. When not in use and before changing accessories or performing maintenance, unplug the machine.

Extension Cord Selection

All cords should be sized appropriately to reduce the risk of damage, fire or reduced performance. Reference the table in this section for recommended cord sizes.

Safety

RECOMMENDED ELECTRICAL PRACTICES—CONTINUED

How to Use This Table

1. Determine your supply voltage.
2. Determine the total length of your cord including all extension cords.
3. Determine the maximum amp draw for your machine.
4. Trace your voltage across the top of the table to the first length that is greater than or equal to your cord length.
5. Follow the column down to the first row that contains a maximum amp draw greater than or equal to yours.
6. This cell contains the minimum recommended wire size for your application.

Example

Application: Max Amps = 11A, Length = 40ft, Voltage = 120V

Solution: 40ft is between the 25ft and 50ft columns, so the larger of the two columns is chosen. Likewise, 11A is between the 10A and 12A rows, so the larger of the two rows is chosen. 14 AWG (2.5mm²) is the minimum recommended wire size for this example.

		Single Phase Equipment			
Max Length	120V Supply	25ft (7.5m)	50ft (15m)	75ft (22.5m)	100ft (30m)
	230V Supply	50ft (15m)	100ft (30m)	150ft (45m)	200ft (60m)
Max Amps		Minimum Wire Size			
8		16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)
10		16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)
12		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)
14		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)

Recommended Extension Cord Sizes

		Single Phase Equipment					
Max Length	120V Supply	25ft (7.5m)	50ft (15m)	75ft (25m)	100ft (30m)	150ft (45m)	200ft (60m)
	230V Supply	50ft (15m)	100ft (30m)	150ft (45m)	200ft (60m)	300ft (90m)	400ft (120m)
Max Amps		Minimum Wire Size					
8		16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)
10		16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	16 AWG (1.5mm ²)	14 AWG (2.5mm ²)	12 AWG (4mm ²)
12		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)
14		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	12 AWG (4mm ²)	10 AWG (6mm ²)
16		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	12 AWG (4mm ²)	10 AWG (6mm ²)
18		14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	14 AWG (2.5mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)	10 AWG (6mm ²)
20		12 AWG (4mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)	10 AWG (6mm ²)	10 AWG (6mm ²)
25		12 AWG (4mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)	12 AWG (4mm ²)	10 AWG (6mm ²)	8 AWG (10mm ²)
30		10 AWG (6mm ²)	10 AWG (6mm ²)	10 AWG (6mm ²)	10 AWG (6mm ²)	8 AWG (10mm ²)	8 AWG (10mm ²)

Note: The table is based on a <10% voltage loss, data from the U.S. National Electrical Code Tables 400.5(A) & 400.5(B) and typical resistances for copper wire.

Maintenance Schedule



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL START-UP.

MAINTENANCE AND INSPECTION LIST

Operating Hours/Time Period	Inspection Points and Maintenance Instructions
1-12 hours after repairing	<ul style="list-style-type: none"> • Ensure all safety devices are functioning properly. • Check that all accessible fasteners are tight.
Before, during, and after operation	<ul style="list-style-type: none"> • Check for any foreign matter in the hopper, feed spout or the blast wheel. • Check the amount of shot in the hopper. Refill if necessary.
Daily and prior to starting work	<ul style="list-style-type: none"> • Check the hose connection for tightness and fixed seals. • Check dust hose and filter for damage. • Ensure dust collector has been emptied. • Check blast wheel, feed spout, liners, and fasteners for wear and damage. • Check the separator parts for wear and damage. • Remove foreign parts and dust deposits. • Check magnets and brushes for wear. • Check the electrical connections for dirt and contaminants. • Check the electrical motor for dirt and other contaminants.
Annually	<ul style="list-style-type: none"> • Full overhaul and cleaning of the machine.

MAINTENANCE INTERVALS

Inspections Interval	Part	Sign of Wear	Repairing Action
10-20 hours	Brushes	Wear at the lower end	Readjust brushes flush with floor or replace if needed.
	Blast wheel and control cage	Blades of the blast wheel are worn 1/3, deep groves	Replace blast wheel and control cage.
50 hours	Liners	Side liners loose from wear reaching threaded stud	Replace liners.
100 hours	Rebound plate in the separator	Significant wear of the rebound plate	Replace rebound plate.
200 hours	Feed spout	Cracked or worn out feed spout	Replace feed spout.

Troubleshooting Guide

GENERAL ERRORS

Problem	Cause	Solution
Unusual vibrations or noise	Control cage not centered.	Center control cage.
	Blast wheel installed incorrectly.	Check pin on wheel hub.
	Loose blast wheel nut.	Replace and/or tighten nut.
	Wheel hub worn out.	Replace wheel hub.
	Unbalance due to broken blast wheel blade.	Replace blast wheel. Check inside of machine and remove broken blade.
	Worn motor bearings or shaft.	Replace motor.
	Uneven wear of blast wheel.	Replace blast wheel.
Reduced or no performance	Not enough shot in hopper.	Add shot.
	Insufficient shot fed to blast wheel.	Clean mesh tray. Check valve for blockage.
	Loose valve lever.	Tighten set screw to secure lever to flapper.
	Valve out of adjustment.	Reset the amperage to factory spec.
	Too much dust in hopper.	Check dust collector filters and replace if needed. Purge more frequently. Verify CFM rating of dust collector is sufficient.
	Blast wheel or control cage is worn out.	Replace worn parts.
	Valve does not close properly.	Clear valve of debris.
	Too much shot fed when turned on.	Ensure motor reaches a steady state before opening the valve.
	Travel speed is too fast.	Reduce travel speed to achieve desired profile.
Dropping shot	Too much dust in shot hopper.	Check filters and size of dust collector (CFM).
		Concrete is too soft, building up too much dust in hopper.
	Separator cover is not sealed.	Check cover seal for air leaks. Adjust cover position or replace seal.
	Shot hopper is over-filled.	Remove excess shot to level just below the mesh tray.
	Magnet height out of adjustment.	Verify magnet height is not above .32 (8 mm).
	Control cage not rotated correctly.	Adjust control cage to achieve even blast pattern.
	Blast wheel worn.	Replace blast wheel.
	Liners worn.	Replace liners.
Magnets lost field.	Replace magnets.	
Losing shot	Shot being sucked out of vacuum port.	Use a smaller dust collector or reduce suction and flow.
Too much dust present	Insufficient air flow towards dust collector.	Verify CFM rating of the dust collector is sufficient (200 CFM minimum rating).
		Check all seals and dust hoses.
		Check dust collector filters and replace if needed. Purge more frequently.

Troubleshooting Guide

ELECTRICAL ERRORS

Problem	Cause	Solution
Motor does not start. Motor stops during operation.	Emergency stop is depressed.	Release emergency stop button.
	Circuit breaker tripped.	Make sure dust collector and shot blaster are connected on separate circuits.
		Make sure you are using an appropriately sized circuit for the amperage requirements.
		Reset the amperage to factory spec.
	Ground fault related failure.	Ensure ground fault protection device is functioning properly.
	Cord unplugged.	Plug in cord.
	Wires damaged.	Check wires, replace if needed.
	Faulty switch or relays.	Contact NFE customer support for service.
Motor is damaged.	Contact NFE customer support for service.	



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Maintenance



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

ADJUSTING THE BLAST PATTERN

Factors That Affect the Blast Pattern

- **Position of the control cage:** The correct adjustment of the control cage is the most important factor in achieving an even blast pattern and optimum machine performance. The position of the control cage determines where the shot is fed on the blast wheel and therefore the direction the shot is thrown to the surface. Incorrect adjustment of the control cage results in premature wear and reduced blasting performance.
- **Changing blast wheel and control cage:** After changing the blast wheel and control cage, the blast pattern must be checked and readjusted.
- **Worn blast wheel and control cage:** The blast pattern changes with increased wear of the blast wheel and control cage.
- **Shot size:** The size of shot affects the blast pattern. Check the blast pattern whenever the shot is changed and readjust if needed.

Adjusting the Control Cage (Figures 1-4)

When blasting the surface, material should be removed within the whole width of the blast opening and the blast pattern should be even. Evenness of the blast pattern is determined by the position of the control cage. The control cage marks indicate the position of the opening through which the shot is fed onto the blast wheel. The marks should be aligned as shown in Figure 2. If the machine produces a one-sided, uneven blast pattern, adjust the control cage as follows:

1. Loosen the cage clamps (1). The feed spout (2) does not have to be removed.
2. Observe the evenness of the blast pattern to determine the direction of adjustment. View from the front of machine. Make adjustments in fine increments.
 - If the blast pattern is too heavy to the left, adjust control cage (3) counterclockwise to achieve an even pattern.
 - If the blast pattern is too heavy to the right, adjust control cage (3) clockwise to achieve an even pattern.
3. Tighten the cage clamps. Create a blast pattern to check the adjustment.
4. If blast pattern is even, proceed with blasting. If blast pattern is still uneven, repeat the process.

Note: The control cage must be centered to reduce wear and avoid grinding shot. If a grinding noise can be heard after the control cage has been adjusted, it must be centered. Loosen the cage clamps, adjust the control cage very slightly in a radial direction, tighten the cage clamps and start the machine. Repeat process until the grinding noise can no longer be heard—this may take several attempts. (If grinding noise is still present, remove the control cage and inspect for wear marks to help determine the adjustment direction.)

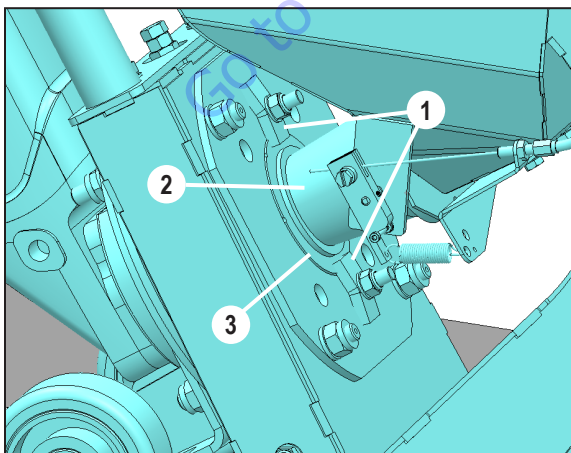


FIG. 1

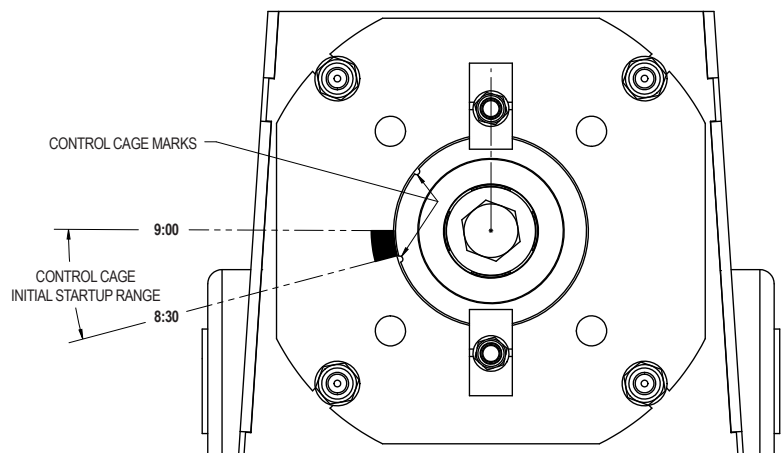


FIG. 2

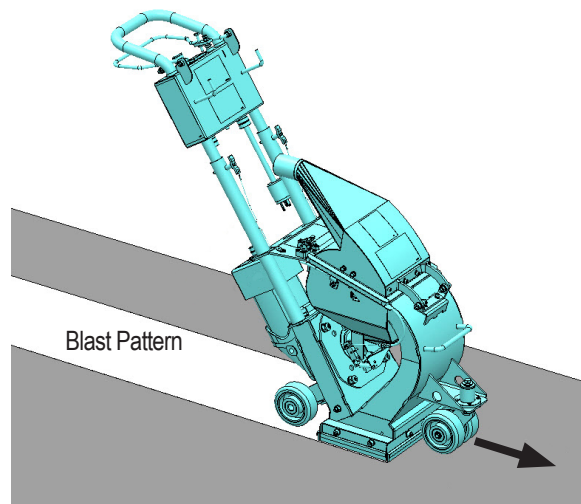


FIG. 3



BLAST PATTERN
TOO HEAVY TO LEFT



DIRECTION OF TRAVEL



BLAST PATTERN
TOO HEAVY TO RIGHT



DIRECTION OF TRAVEL



EVEN BLAST PATTERN



DIRECTION OF TRAVEL

FIG. 4

Maintenance



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

ADJUSTING THE HEIGHT OF MAGNETS AND BRUSHES (FIGURE 5)

The correct height adjustment of the magnets is .25-.32" (6-8 mm) and is important for regulating airflow through the machine and creating a good seal. The magnets should be set at the maximum height of .32" (8 mm) for very rough surfaces. For very smooth surfaces the magnets should be set at the minimum height of .25" (6 mm).

1. Remove the front and side brushes from the machine.
2. Tip the machine up and scrape the shot from the magnets using a putty knife or similar tool.



WARNING: DO NOT USE YOUR BARE HANDS TO REMOVE SHOT FROM MAGNETS. STAPLES, NAILS OR OTHER SHARP OBJECTS THAT MAY HAVE BEEN PICKED UP DURING USE COULD CAUSE INJURY.

3. Loosen the nuts of the rear wheel bracket and adjust the bracket so the bottom of the magnets are .25-.32" (6-8 mm) above the floor.
4. Retighten the nuts.
5. Replace the front and side brushes flush with the floor.
6. Rear brush height should be .125" (3 mm) from floor.

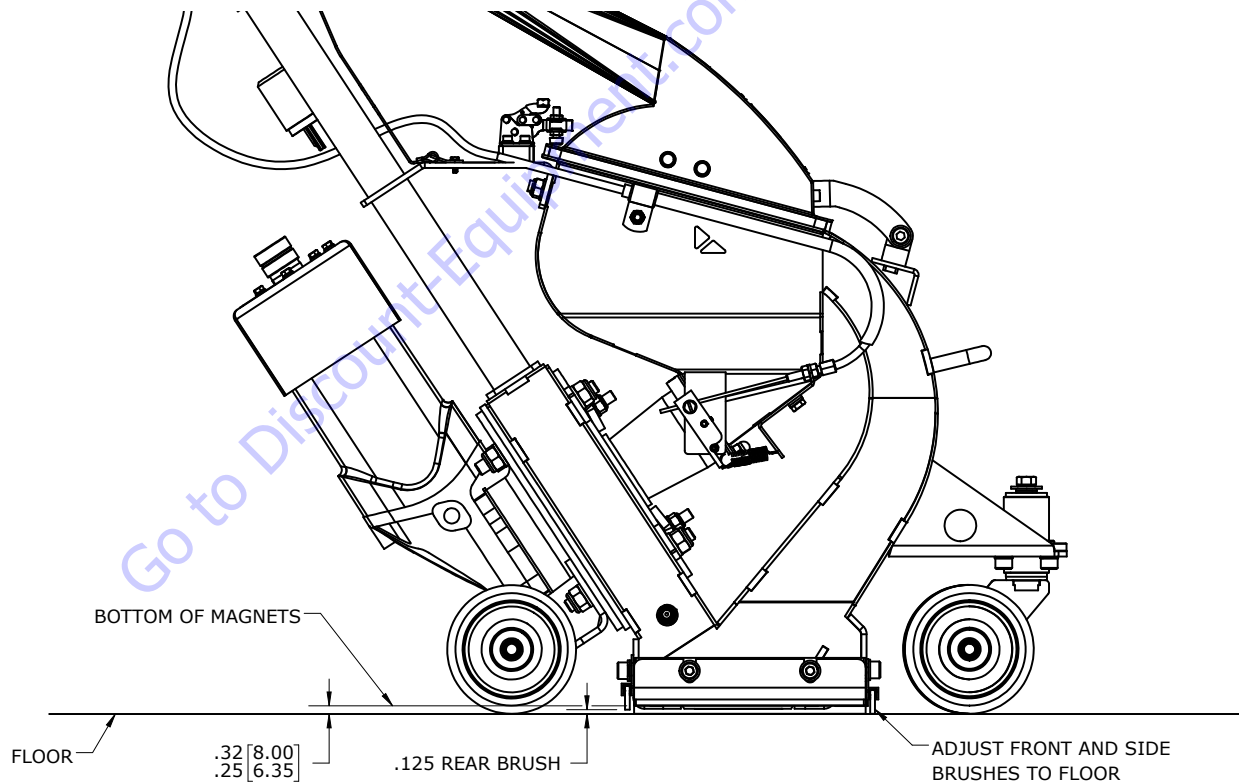


FIG. 5



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

ADJUSTING SEPARATOR COVER (FIGURES 6-7)

The correct adjustment of the separator cover is important for creating a good seal between the cover and the hopper.

1. Loosen screws (1) to adjust separator cover to hopper opening.
2. Loosen screws (2) to adjust the compression of the separator cover gasket to .28" (7 mm).

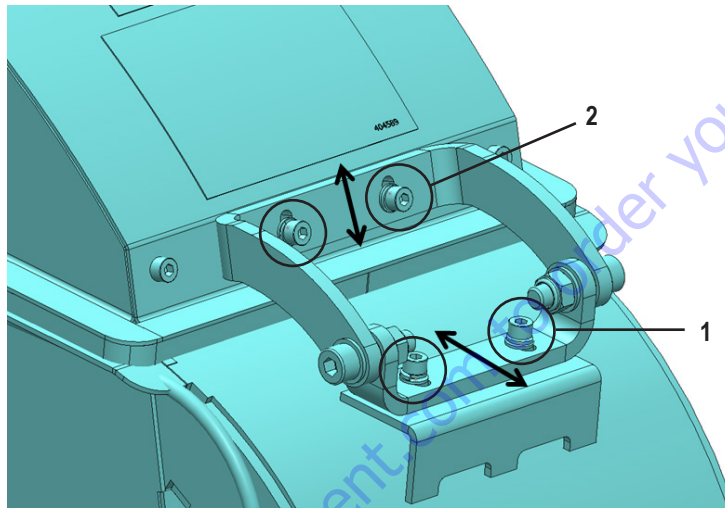


FIG. 6

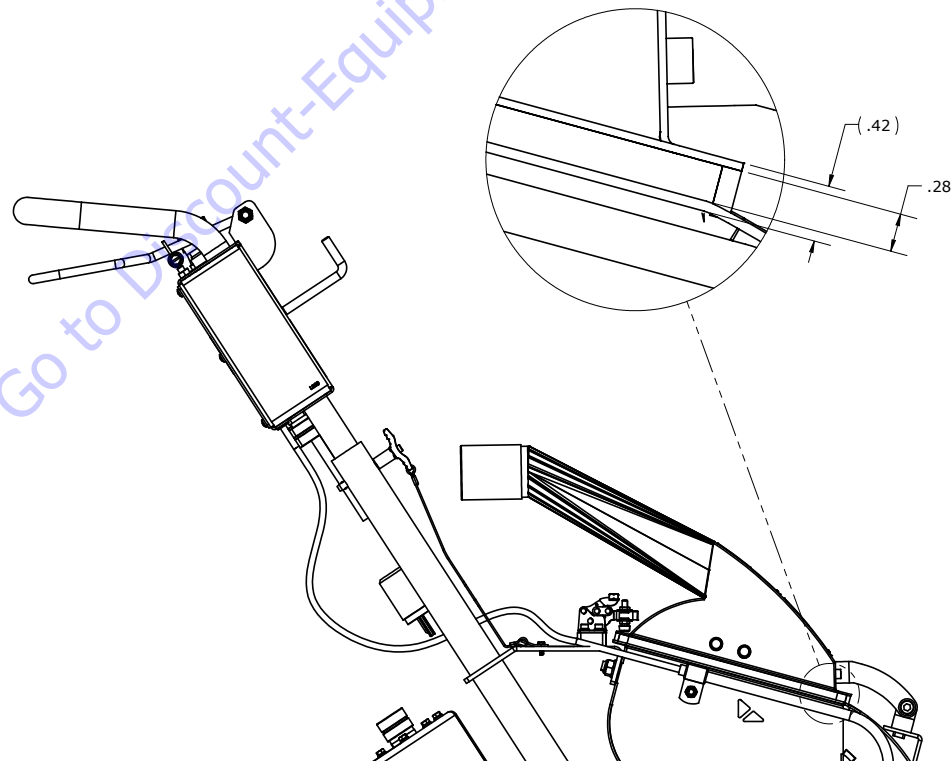


FIG. 7

Maintenance



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

REMOVING THE BLAST WHEEL (FIGURE 8-9)

1. Remove feed spout (1) by pulling it out of the housing.
2. Loosen the control cage clamps (2).
3. Remove the control cage (3).
4. Remove the nuts (4) of the front plate (5) and remove the plate.
5. Fix the blast wheel (7) from rotating by pressing the shaft-locking button on motor (Figure 9).
6. Remove the blast wheel nut (6).
7. Remove the blast wheel (7).
8. Remove the wheel hub (8) and inspect for wear.
9. Inspect the seal (9) for wear.

INSTALLING THE BLAST WHEEL (FIGURES 8-9)

1. Replace seal (9) if it is worn.
2. Place wheel hub (8) on motor shaft making sure it is properly aligned and fully seated.
3. Place blast wheel (7) through the housing opening and onto the wheel hub aligning with the pins of the hub (8). Spin wheel to ensure it is properly seated on the pins and doesn't wobble.
4. Clean threads of motor shaft and blast wheel nut removing any shot.
5. Fix the blast wheel (7) from rotating by pressing the shaft-locking button on motor (Figure 9).
6. Tighten the blast wheel nut (6) to secure the blast wheel. Spin wheel to ensure it doesn't wobble.
7. Reattach the front plate (5) with the nuts (4). Spin blast wheel to ensure it doesn't wobble.
8. Install the control cage (3). Spin blast wheel and listen for any grinding noises.
9. Tighten the cage clamps to secure the control cage (2). Make sure the blast wheel can rotate freely.
10. Replace the feed spout (1).
11. Adjust the control cage (3) to achieve an even blast pattern.

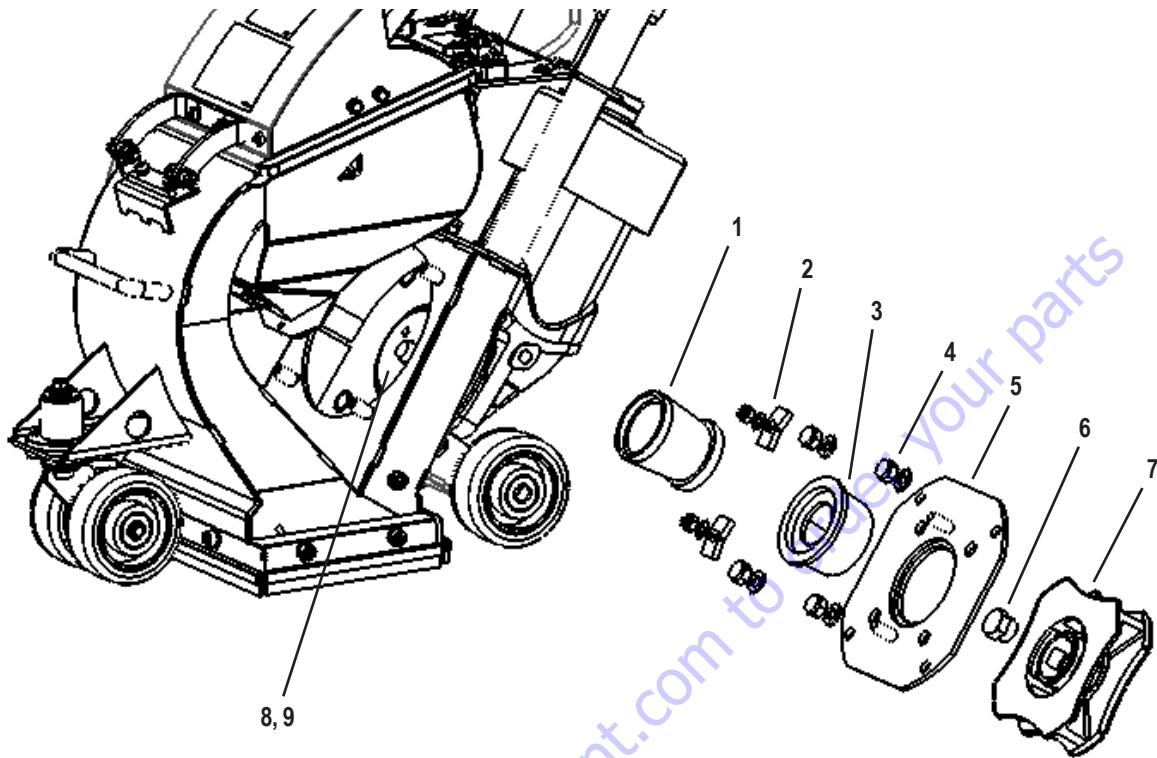


FIG. 8

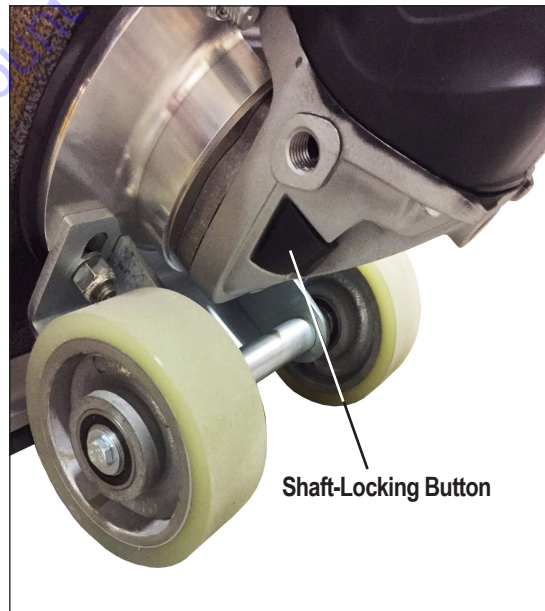


FIG. 9

Maintenance



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

REMOVING THE LINERS (FIGURE 10)

1. Before removing liners, remove the blast wheel and wheel hub for easier liner removal and replacement.
2. Lay the machine down on its back exposing the underside of the machine.
3. Loosen the fastening nuts of the left hand (1) and right hand (2) liners.
4. Turn the liners toward the inside of the blast housing and remove them through the bottom opening of the housing.
5. Tighten the pressure screw (4) against the top liner (3) and tighten it down completely.
6. Loosen the pressure screw (4) and remove it.
7. Insert a punch through the thread opening and tap until the top liner (3) slides out.
8. Turn the top liner around the motor shaft and remove it through the bottom opening of the housing.

INSTALLING THE LINERS (FIGURE 10)

1. Lay the machine down on its back exposing the underside of the machine.
2. Before installing new liners, check the wheel housing and its corners for wear.
3. Install the pressure screw (4) for the top liner (3).
4. Insert the top liner (3) through the bottom and rotate it around the motor shaft into the upper part of the housing.
5. Place the side liners (1 & 2) in the housing, so the threaded studs can be pushed through the holes in the side of the housing.
6. Thread the nuts onto the studs and tighten them slightly.
7. Position the side liners (1 & 2) so the liners stick out at the bottom of the housing approximately .09" (2 mm).
8. Tighten the side liner nuts.
9. Tighten the pressure screw (4) until the edges of the top liner (3) are in contact with the upper edges of the side liners (1 & 2).
10. Reinstall the blast wheel and wheel hub.
11. Adjust the control cage to achieve an even blast pattern.

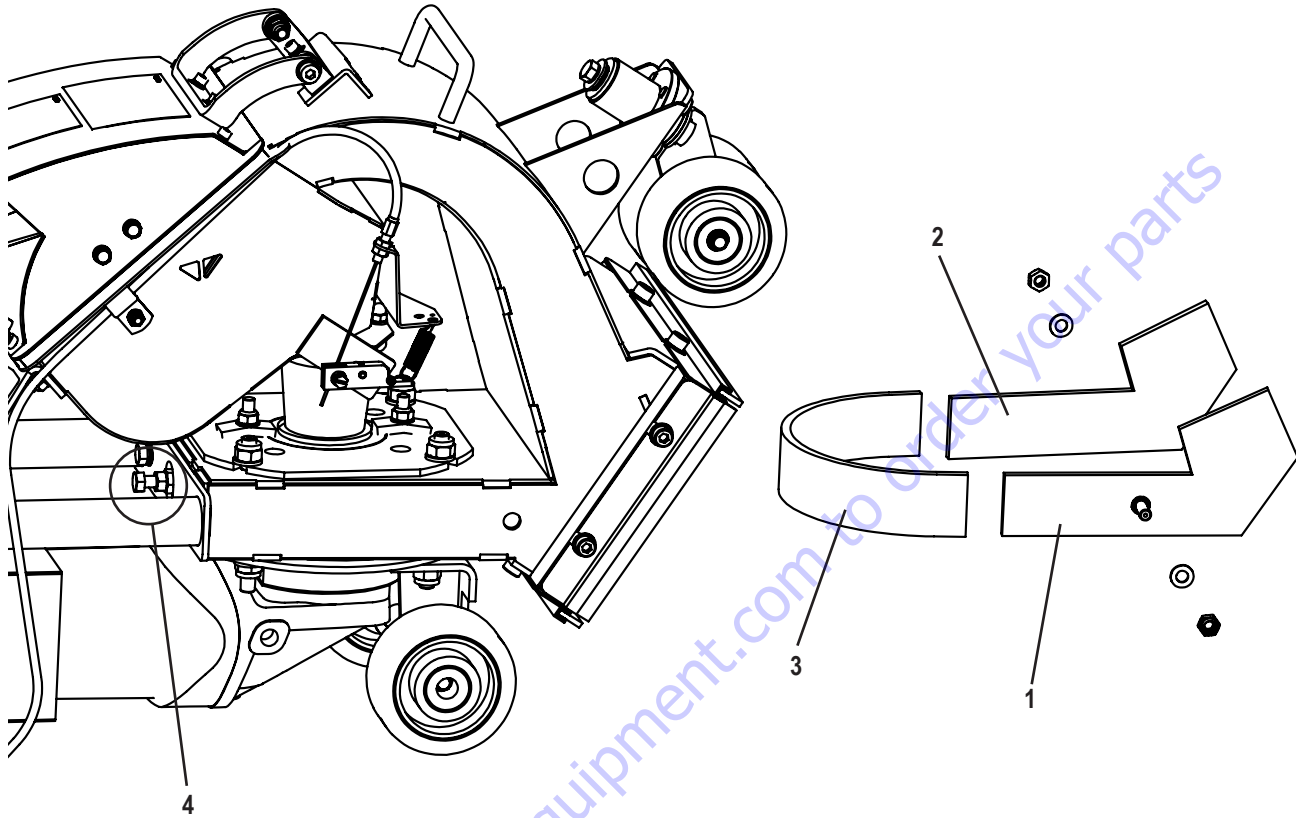


FIG. 10

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Maintenance



WARNING: BEFORE PERFORMING MAINTENANCE, ALWAYS DISCONNECT THE MACHINE FROM POWER TO PREVENT ACCIDENTAL STARTUP.

REMOVING THE SHOT VALVE CONTROL CABLE (FIGURES 11-12)

1. Loosen hex screw of the shot valve barrel fitting (1). Pull cable from adjuster fitting (2). Remove fitting from bracket.
2. Remove control box cover.
3. Loosen hex screw of the control lever barrel fitting (5). Remove Nylok nut (6).
4. Remove cable from cable tube (7) by pulling it upward through the bottom hole in control box.

INSTALLING THE SHOT VALVE CONTROL CABLE (FIGURES 11-12)

1. Feed uncrimped end of cable downward through bottom hole in control box and through the cable tube (7).
2. Thread Keps nut on crimped adjuster fitting about .25" (8 mm) from end. Insert fitting into upper hole in control box. Install Nylok nut (6) and tighten until flush.
3. Feed cable through control lever barrel fitting (5) and tighten hex screw.
4. Replace control box cover.
5. Install adjuster fitting (2) into shot valve bracket. Hand tighten the nuts (3). (Nuts will be fully tightened when amperage is set.)
6. Insert uncrimped end of cable into fitting (2) and feed cable into the shot valve barrel fitting (1). Do NOT tighten hex screw at this time.
7. Rotate shot valve lever (4) by hand to close shot valve. With the shot valve closed, remove slack in cable and tighten hex screw (1). Squeeze control lever to verify shot valve opens.
8. Set the amperage. See *Setting the Amperage*.

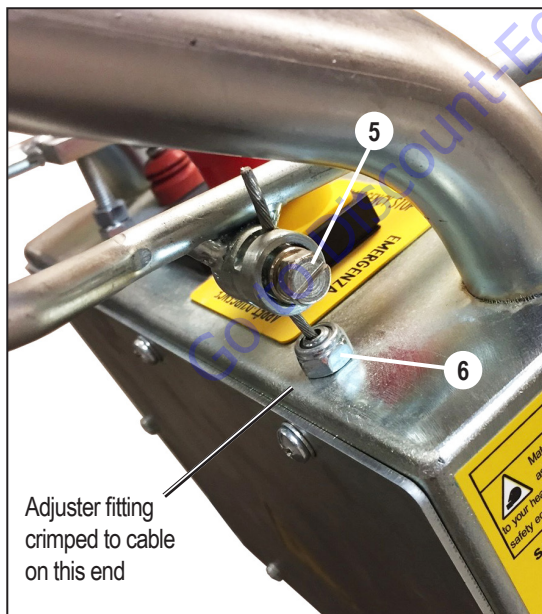


FIG. 11

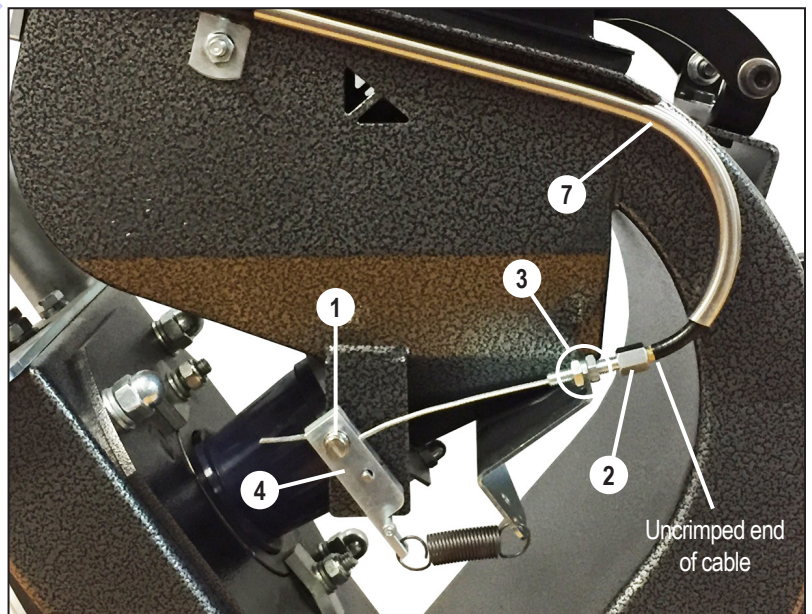


FIG. 12

SETTING THE AMPERAGE (FIGURE 13)

The amperage must be set whenever the shot valve control cable has been damaged or replaced.

1. Move machine to an area where blasting can be performed. Before blasting, follow *Preparing for Operation* and *Start-Up Procedure* in operating manual.
2. Connect machine to power source and release the emergency stop switch.
3. Squeeze the control lever slightly to start the blast wheel motor and allow the motor to reach a steady state.
4. With the motor running, squeeze the control lever completely. The ammeter reading should match the factory specification (indicated by the label located on top of the control box). Release control lever, push emergency stop switch and disconnect machine from power.
5. If reading matches the factory specification, tighten nuts on shot valve adjuster fitting.
6. If reading does NOT match the factory specification, the cable must be adjusted. Move the adjuster fitting in the direction shown by adjusting the two nuts. Repeat Steps 2-6 until reading matches the factory specification.

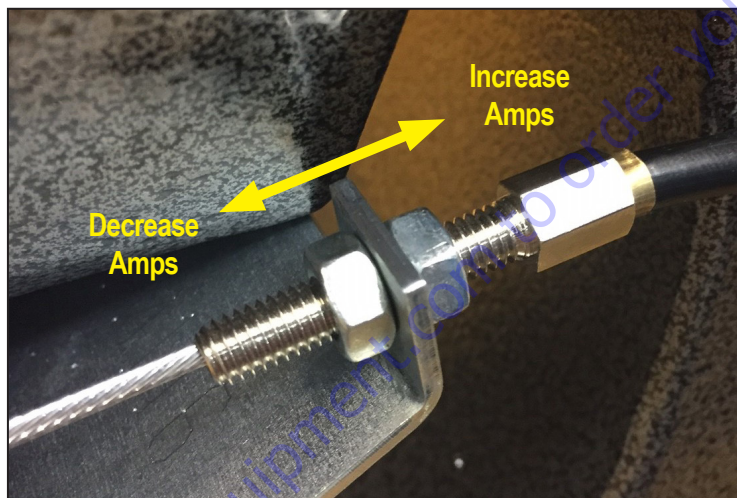


FIG. 13

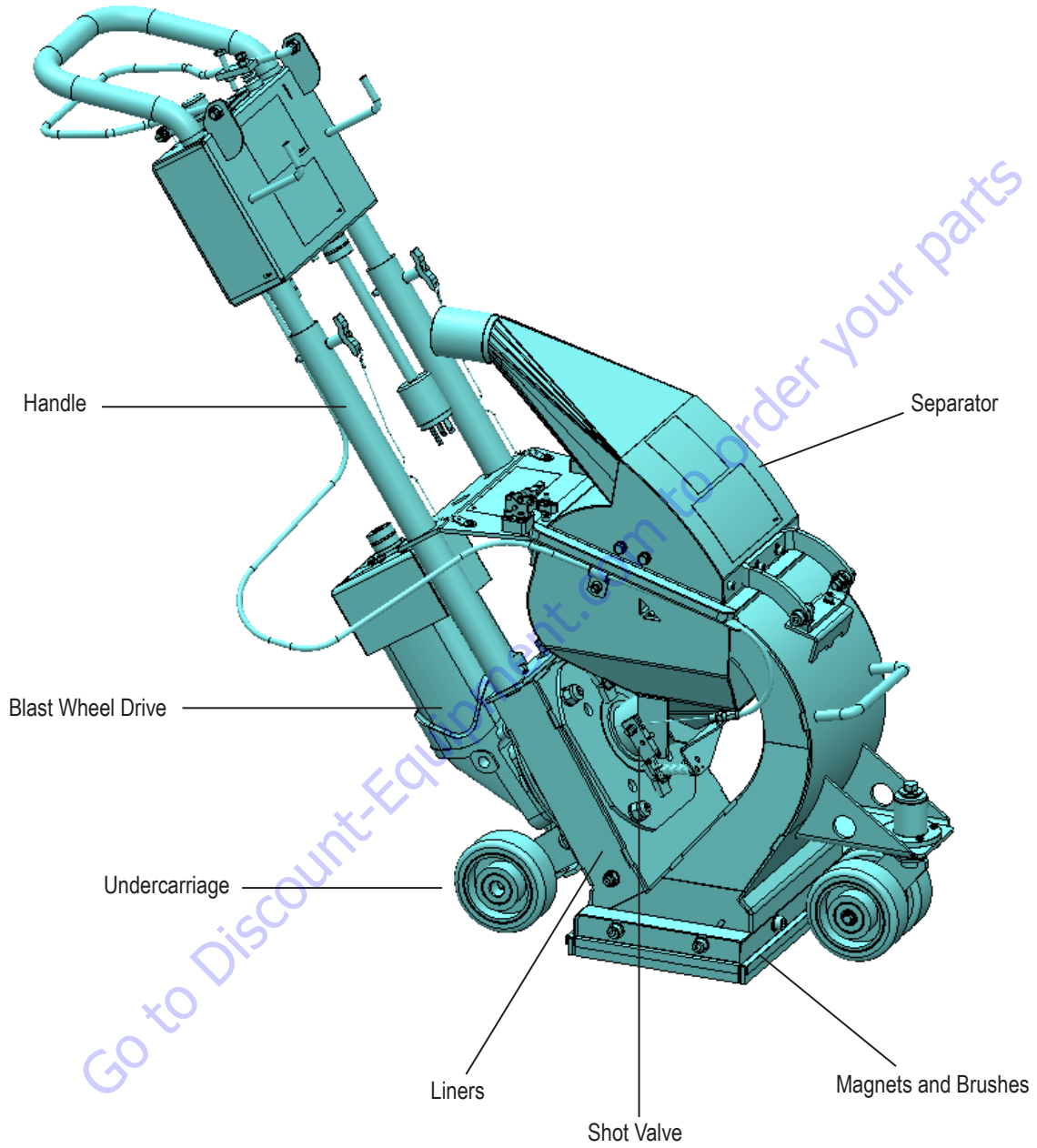
RECOMMENDED SPARE PARTS LIST

To avoid downtime, NFE recommends keeping the following spare parts in stock. NFE offers a maintenance kit (Part# A95KIT) which contains the indicated parts as well as tools needed for some maintenance work.

Part Number	Description	Quantity	Included in Kit?
3395-201000145	Service Kit, Blast Wheel, 20mm x 165mm	1	Yes
400473	Liner, Top	1	Yes
400410	Liner, Right (Weldment)	1	Yes
400409	Liner, Left (Weldment)	1	Yes
400458	Brush, Side	2	Yes
400457	Brush, Front/Rear	2	Yes
400575	Seal, Drive Motor, Felt	1	No
403623	Nut, Hex, Retaining, 5/8-11 (A95-10XXXX, -20XXXX ONLY)	1	No
400532	Nut, Blast Wheel, M14 x 2.0 (A95-11XXXX ONLY)	1	No
400413	Cable, Valve Control	1	Yes

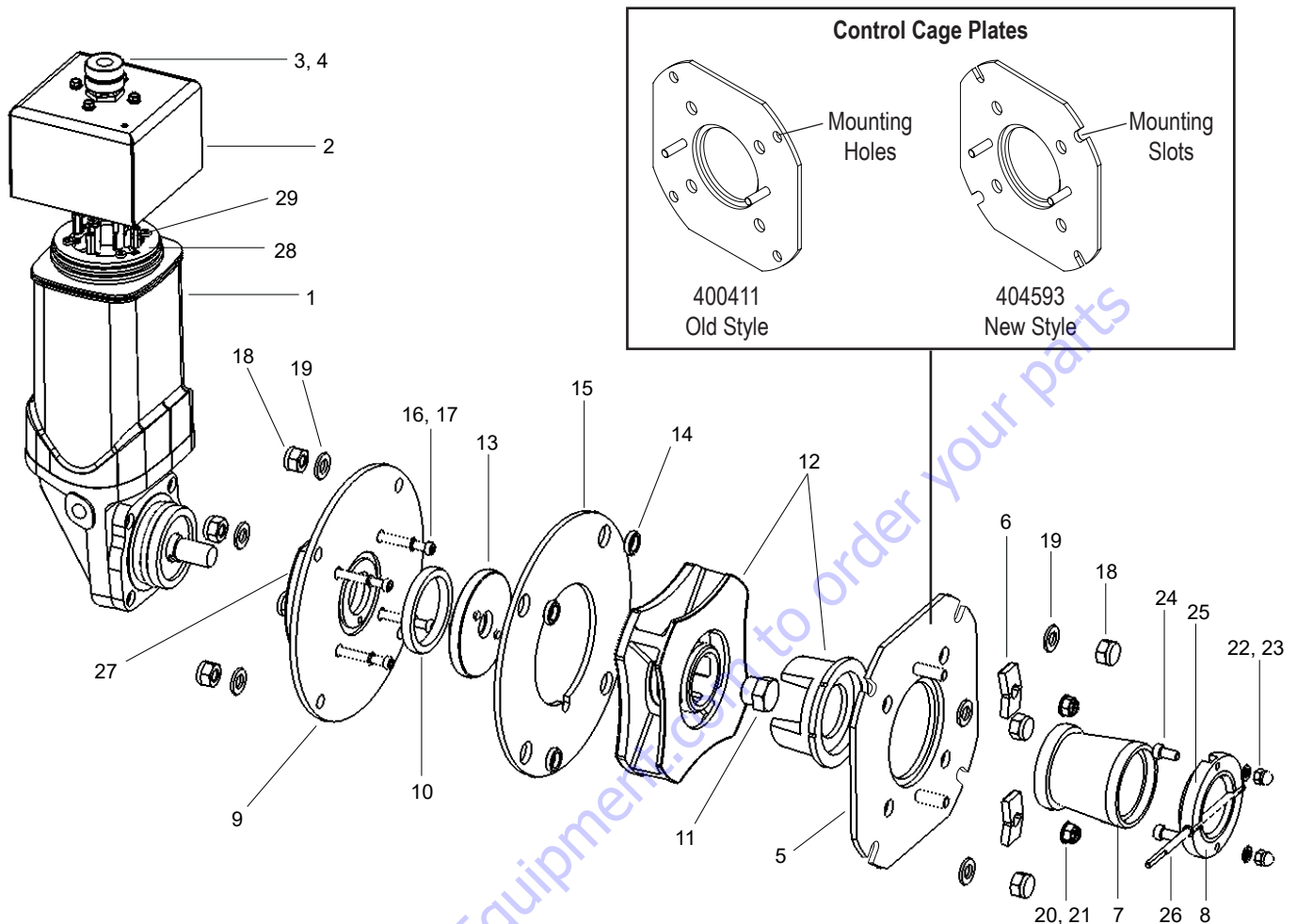
Parts List and Diagrams

OVERALL



Parts List and Diagrams

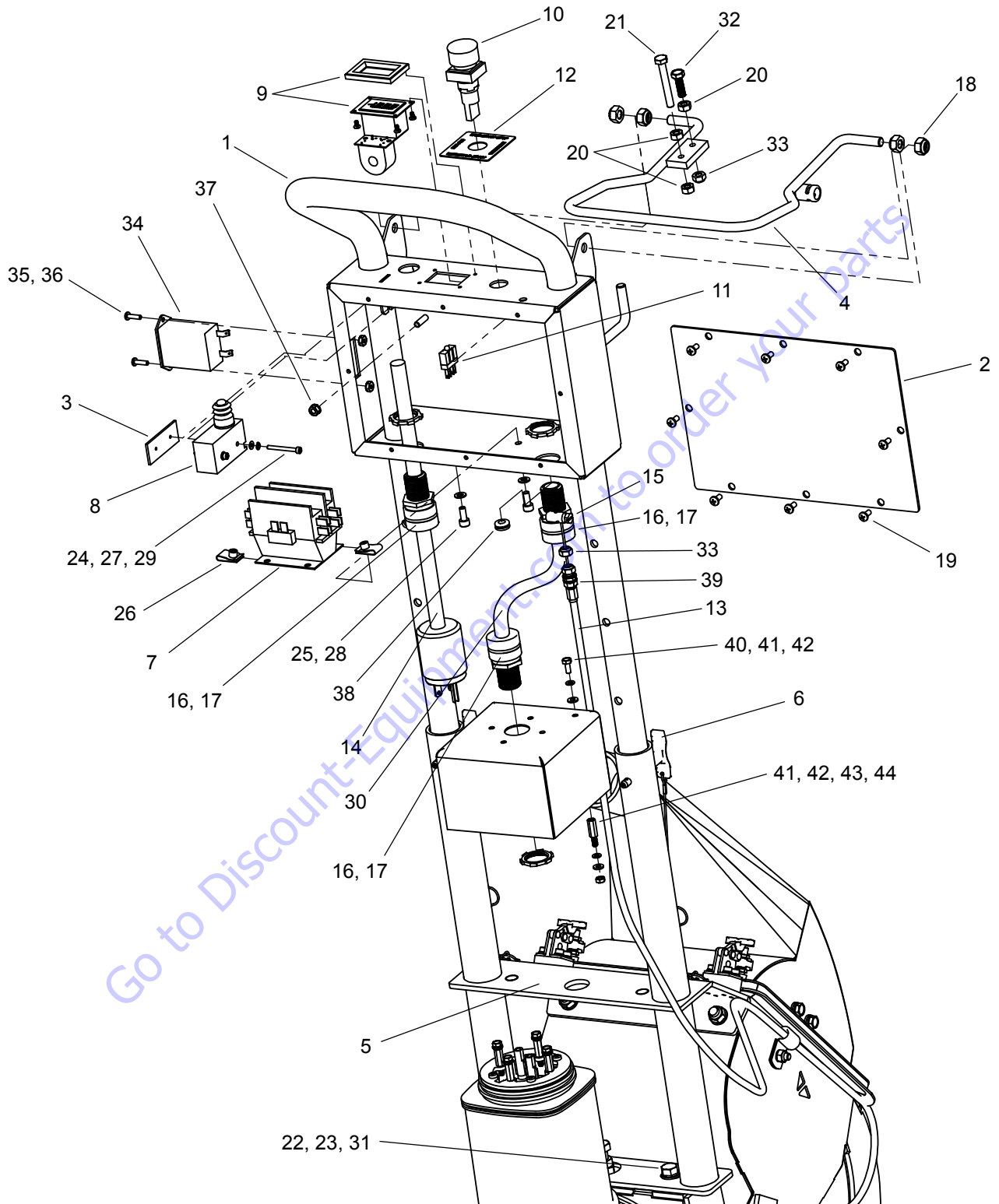
BLAST WHEEL DRIVE



PART#	DESCRIPTION	QTY	PART#	DESCRIPTION	QTY
1	403622 ASSEMBLY, DRIVE MOTOR, 120V, 5/8-11 SPINDLE	1	14	400487 SPACER, SEAL	4
	402221 ASSEMBLY, DRIVE MOTOR, 240V (A95-11XXXX ONLY)	1	15	400486 SEAL, RING	1
2	400573 COVER, MOTOR GUARD	1	16	403764 SCREW, SOCKET HEAD CAP, M5-0.8X45, BLACK OXIDE	4
3	72804 STRAIN RELIEF, STRAIGHT, 1/2" NPT, .38"-.50" ID	1	17	401331 WASHER, LOCK, M5	4
4	73401 LOCKNUT, CONDUIT, 1/2"	1	18	402240 NUT, HEX, NYLON INSERT, M10-1.5	8
5	400411 PLATE, CONTROL CAGE (OLD STYLE)	1	19	74655 WASHER, FLAT, M10	8
	404593 PLATE, CONTROL CAGE (NEW STYLE)	1	20	401509 NUT, HEX, NYLON INSERT, M8-1.25	2
6	400536 CLAMP, CONTROL CAGE	2	21	401329 WASHER, FLAT, M8	2
7	400496 SPOUT, SHOT FEED	1	22	74619 WASHER, LOCK, M6	2
8	400464 SPACER, MAGNET	1	23	401300 NUT, HEX, ACORN, M6-1.0	2
9	400574 PLATE, MOTOR SUPPORT	1	24	401322 SCREW, SOCKET HEAD CAP, M6-1.0 X 14	2
10	400575 SEAL, DRIVE MOTOR, FELT	1	25	400412 VALVE, MAGNETIC, ASSEMBLY	1
11	403623 NUT, HEX, RETAINING, 5/8-11	1	26	400607 FLAPPER, VALVE	1
	400532 NUT, BLAST WHEEL, M14 X 2.0 (A95-11XXXX ONLY)	1	27	400570 SPACER, DRIVE MOTOR	1
12	3395-201000145 SERVICE KIT, BLAST WHEEL, 20MM X 165MM	1	28	400589 BRKT, MOTOR GUARD MTG	1
13	403625 HUB, BLAST WHEEL, 5/8 ID	1	29	400590 STANDOFF, METRIC	4
	400425 HUB, BLAST WHEEL, 9/16 BORE (A95-11XXXX ONLY)	1			

Parts List and Diagrams

HANDLE



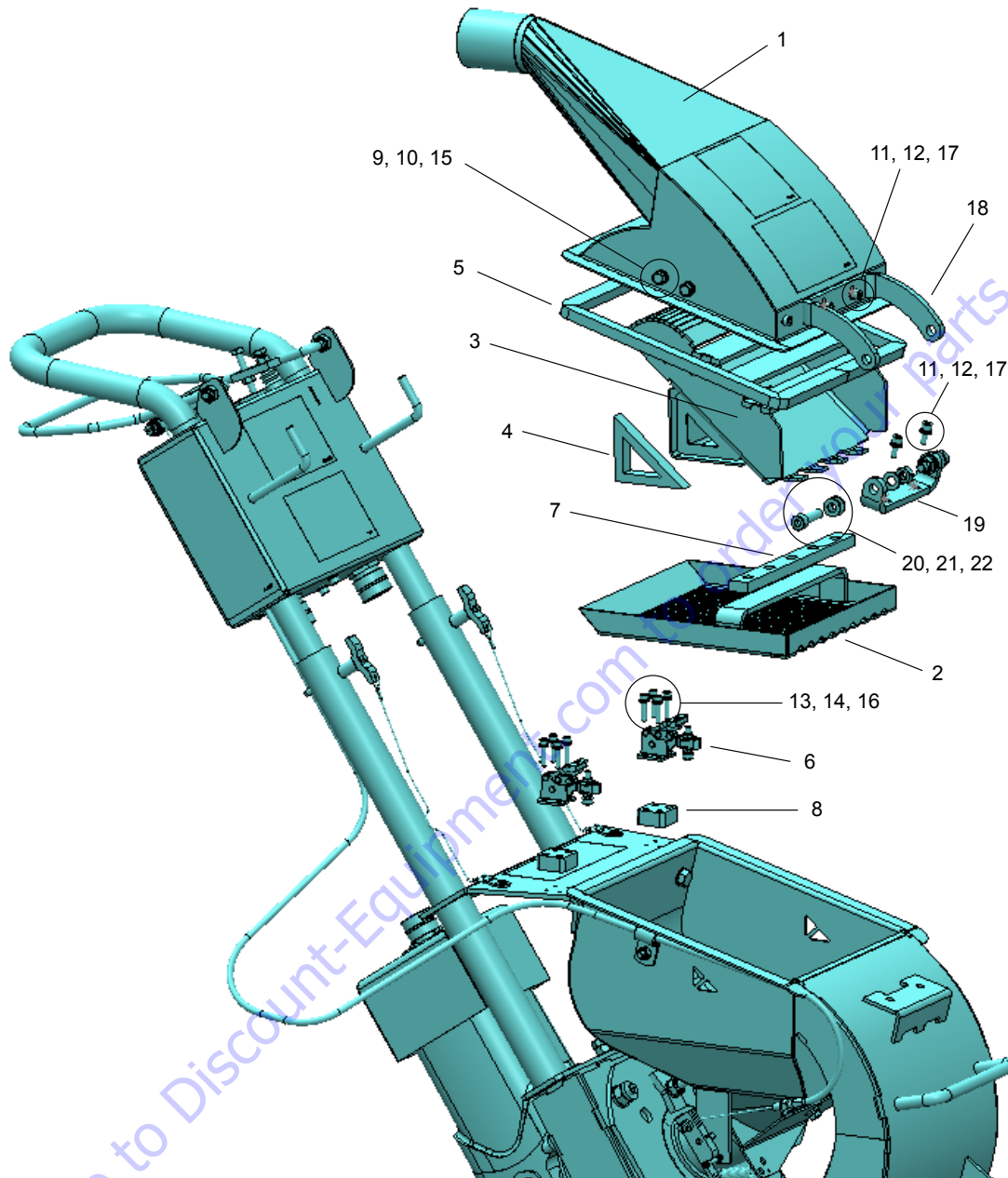
Parts List and Diagrams

HANDLE—CONTINUED

PART#	DESCRIPTION	QTY
1	400419 WELDMENT, TOP HANDLE	1
2	400455 COVER, CONTROL BOX	1
3	400545 PLATE, CLAMPING	1
4	400420 WELDMENT, CONTROL LEVER	1
5	400416 WELDMENT, BOTTOM HANDLE	1
6	400454 PIN, T-HANDLE, W/TETHER	2
7	400541 RELAY, CONTACTOR, 120V	1
	402108 RELAY, CONTACTOR, 240V (A95-11XXXX ONLY)	1
8	400544 SWITCH, MICRO LIMIT	1
9	400542 METER, AMP, AC, DIGITAL, 20A	1
10	400540 SWITCH, EMERGENCY STOP	1
11	400547 BLOCK, CONTACT, 240V	1
12	400546 LABEL, EMERGENCY STOP	1
13	400413 CABLE, VALVE CONTROL	1
14	404205 ASSEMBLY, CORD, POWER, 12/3, NEMA 5-20P, 30FT (A95-10XXXX ONLY)	1
	404661 ASSEMBLY, CORD, POWER, 2.5MM/3,30FT, EU1-16P (A95-11XXXX ONLY)	1
	404662 ASSEMBLY, CORD, POWER, 2.5MM/3,30FT, IEC 309 16A (A95-20XXXX ONLY)	1
15	400460 FITTING, CABLE BARREL	2
16	73401 LOCKNUT, CONDUIT, 1/2"	3
17	72804 STRAIN RELIEF, STRAIGHT, 1/2" NPT, .38"- .50" ID	3
18	401509 NUT, HEX, NYLON INSERT, M8-1.25, CLEAR ZINC	4
19	74567 SCREW, PHILLIPS PAN HEAD M 8-32X3/8	8
20	401306 NUT, HEX, M6-1.0, CLEAR ZINC	3
21	404720 SCREW, HEX HEAD CAP, M6X1.0X45MM, ZINC PLATED	1
22	401315 SCREW, HEX HEAD CAP, M8-1.25 X 20, CLEAR ZINC	2
23	401329 WASHER, FLAT, M8, CLEAR ZINC	2
24	402220 SCREW, SOCKET HEAD CAP, M3-0.5X30, CLEAR ZINC	2
25	401658 SCREW, SOCKET HEAD CAP, M5-0.8 X 12, BLACK OXIDE	2
26	401340 NUT, CLIP, M5-0.8	2
27	401346 WASHER, FLAT, M3, CLEAR ZINC	2
28	401327 WASHER, FLAT, M5, CLEAR ZINC	2
29	402257 WASHER, LOCK, M3, STAINLESS STEEL	1
30	404098 ASSEMBLY, CABLE, MOTOR, A95	1
31	401332 WASHER, LOCK, M8, CLEAR ZINC	2
32	401313 SCREW, HEX HEAD CAP, M6-1.0 X 20, CLEAR ZINC	1
33	401516 NUT, HEX, NYLON INSERT, M6-1.0, CLEAR ZINC	2
34	402873 METER, HOUR, 90-264VAC, 50/60HZ	1
35	74508 SCREW, PHILLIPS PAN HEAD, 6-32X1/2	2
36	74518 NUT, KEPS, 6-32	2
37	402258 NUT, KEPS, M5-0.8, CLEAR ZINC	1
38	74744 GROMMET, RUBBER 1/4 X 3/8 X 1/16	1
39	403235 NUT, KEPS, M6-1.0, CLEAR ZINC	1
40	401338 SCREW, HEX HEAD CAP, M4-0.7 X 10, CLEAR ZINC	1
41	401330 WASHER, LOCK, M4, CLEAR ZINC	2
42	401326 WASHER, FLAT, M4, CLEAR ZINC	2
43	400590 STANDOFF, METRIC	1
44	401339 NUT, HEX, M4-0.7, CLEAR ZINC	1

Parts List and Diagrams

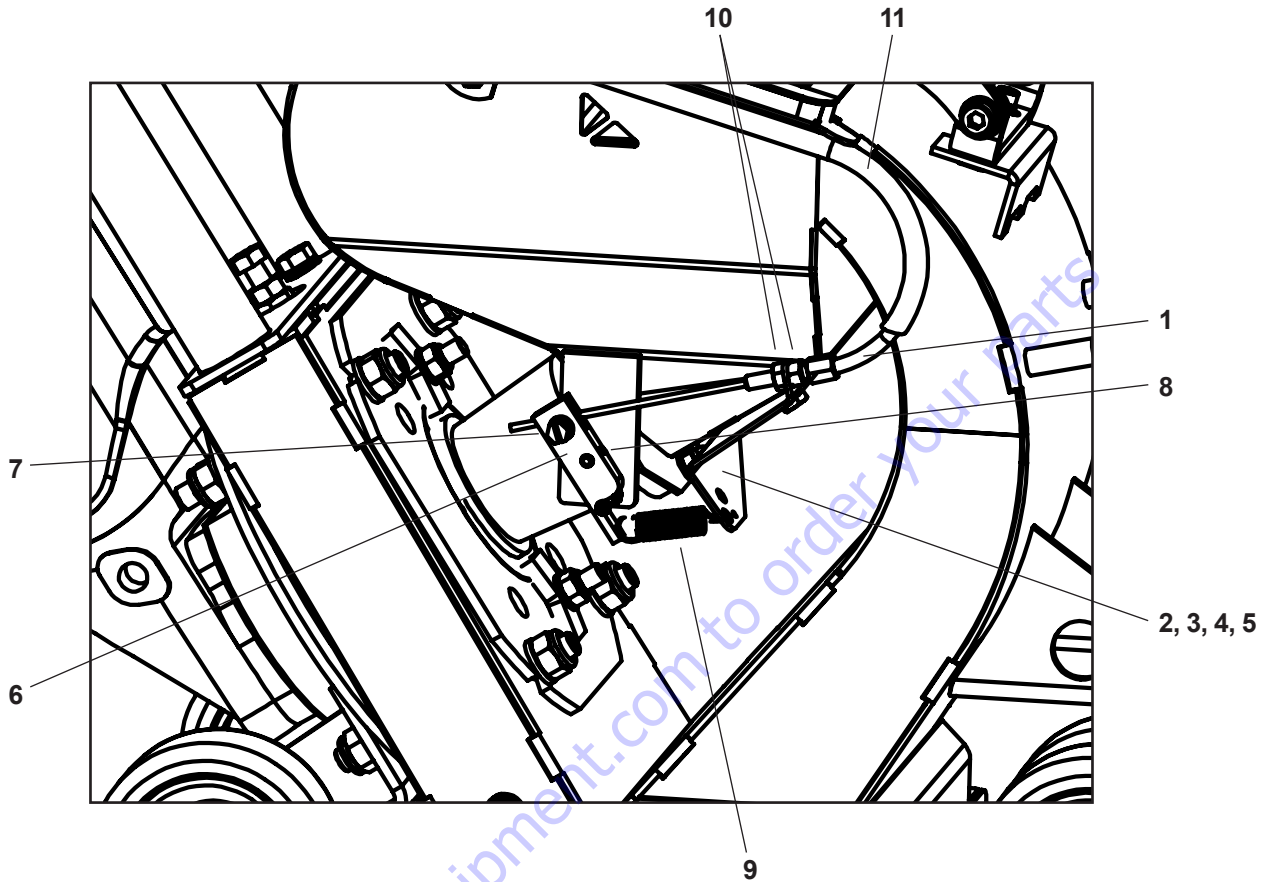
SEPARATOR



PART#	DESCRIPTION	QTY	PART#	DESCRIPTION	QTY
1	400406 WELDMENT, SEPARATOR COVER	1	13	401318 SCREW, SOCKET HEAD CAP, M4-0.7 X 20, BLACK OXIDE	8
2	400404 WELDMENT, HOPPER TRAY	1	14	401326 WASHER, FLAT, M4, CLEAR ZINC	8
3	400407 WELDMENT, SEPARATOR	1	15	74619 WASHER, LOCK, M6	4
4	400447 SEAL, SEPARATOR	2	16	401330 WASHER, LOCK, M4, CLEAR ZINC	8
5	404196 GASKET, SEAL, SEPERATOR COVER	1	17	401331 WASHER, LOCK, M5, CLEAR ZINC	4
6	400495 CLAMP, SEPARATOR	2	18	404193 PLATE, HINGE, HOPPER COVER	1
7	400606 GASKET, SEPARATOR	1	19	404194 PLATE, HINGE, CHUTE	1
8	400494 SPACER, CLAMP	2	20	404329 SCREW, SOCKET HEAD CAP, M8 X 1.25 X 30, BLACK OXIDE	2
9	401312 SCREW, HEX HEAD CAP, M6-1.0 X 14, CLEAR ZINC	4	21	401509 NUT, HEX, NYLON INSERT, M8-1.25, CLEAR ZINC	2
10	401328 WASHER, FLAT, M6, CLEAR ZINC	4	22	401329 WASHER, FLAT, M8, STAINLESS STEEL	6
11	401320 SCREW, SOCKET HEAD CAP, M5-0.8 X 14, BLACK OXIDE	4			
12	401327 WASHER, FLAT, M5, CLEAR ZINC	4			

Parts List and Diagrams

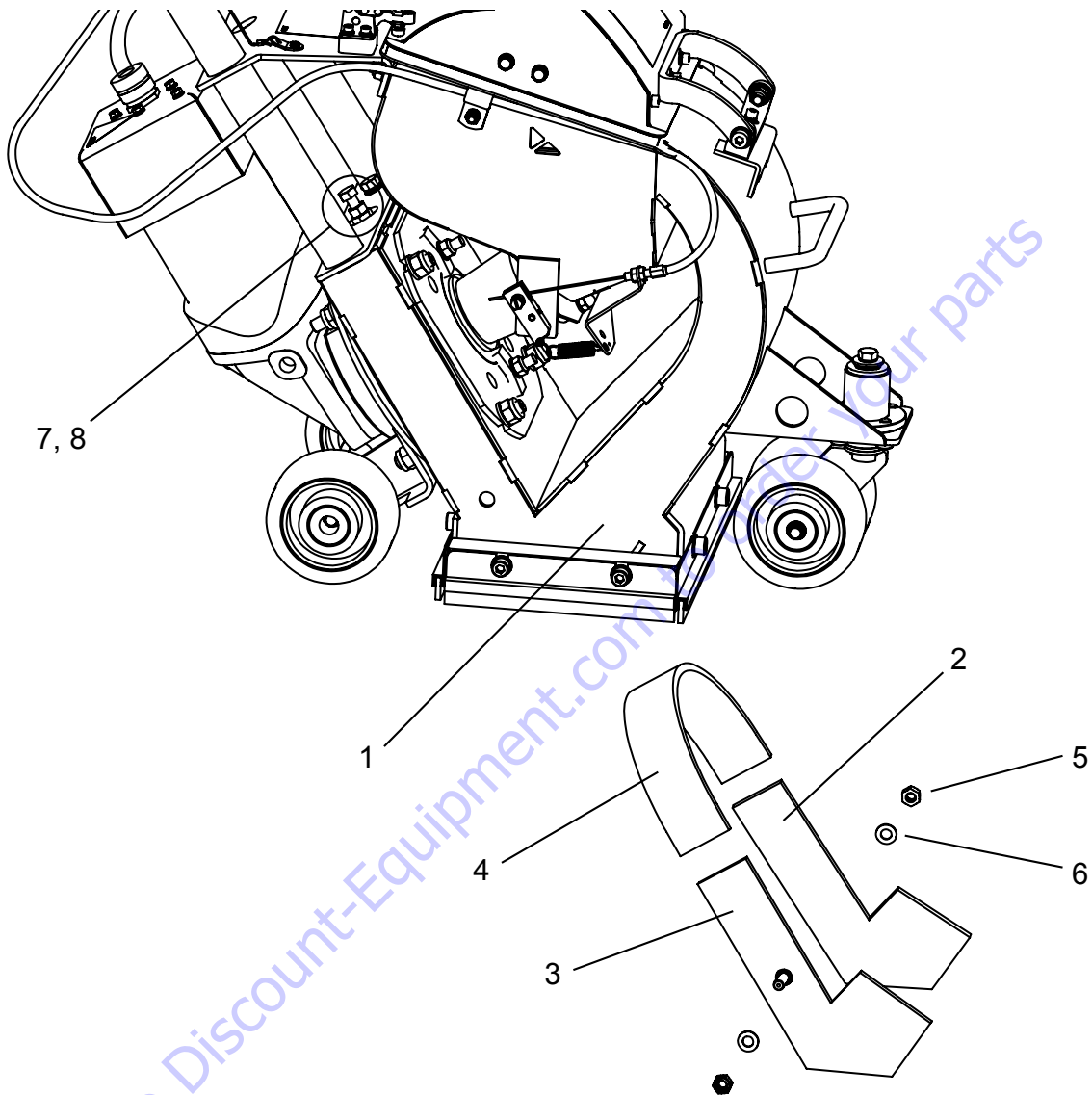
SHOT VALVE



PART#	DESCRIPTION	QTY
1 400413	CABLE, VALVE CONTROL	1
2 400502	BRACKET, CONTROL CABLE	1
3 401312	SCREW, HEX HEAD CAP, M6-1.0 X 14, CLEAR ZINC	2
4 401328	WASHER, FLAT, M6, CLEAR ZINC	2
5 74619	WASHER, LOCK, M6	2
6 400509	LEVER, FEED VALVE	1
7 400460	FITTING, CABLE BARREL	1
8 401344	SCREW, SET, FLAT, M3-0.5X6, BLACK OXIDE	1
9 400512	SPRING, TENSION	1
10 401306	NUT, HEX, M6-1.0, CLEAR ZINC	2
11 405199	TUBE, CABLE, FORMED	1

Parts List and Diagrams

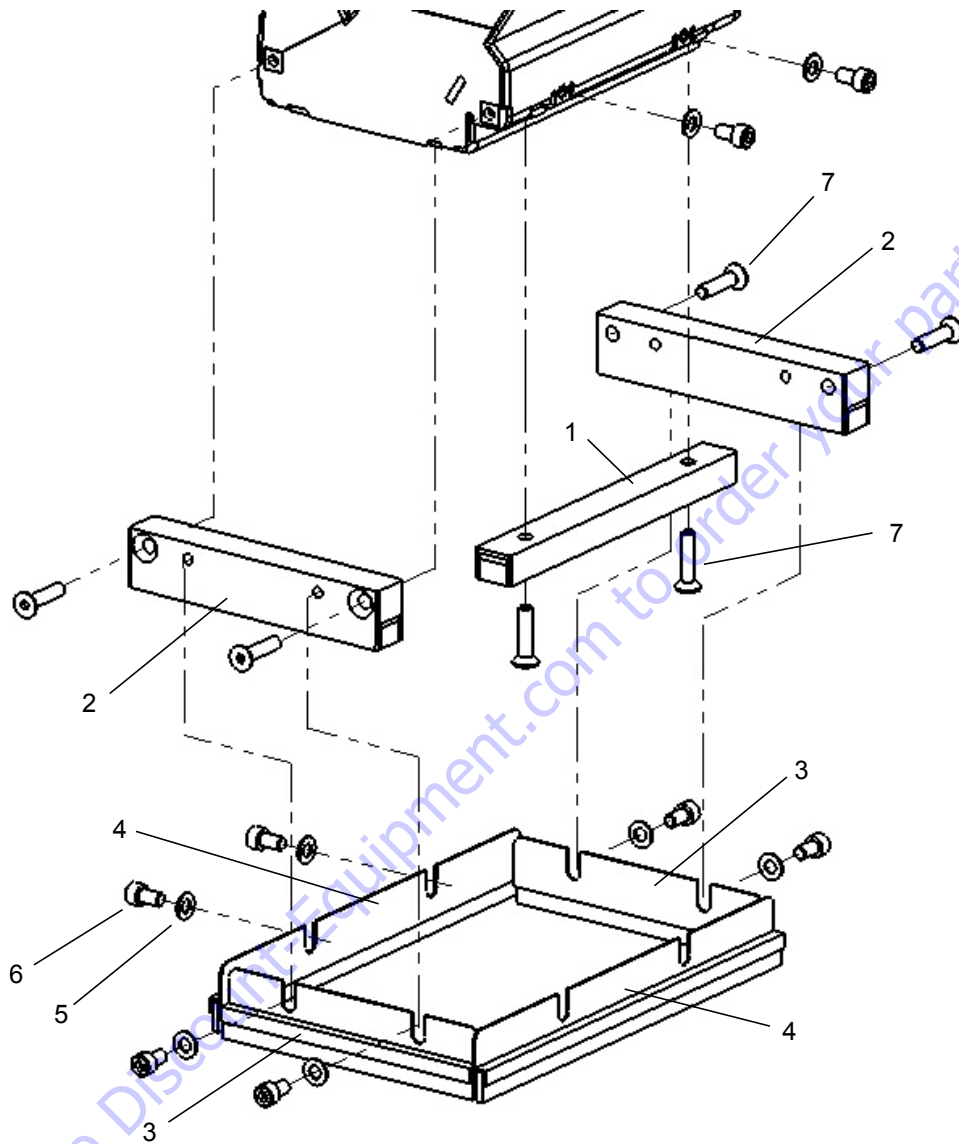
LINERS



PART#	DESCRIPTION	QTY	PART#	DESCRIPTION	QTY
1	400408 WELDMENT, CHUTE & HOPPER	1	5	401509 NUT, HEX, NYLON INSERT, M8-1.25, CLEAR ZINC	2
2	400410 LINER, RIGHT (WELDMENT)	1	6	401329 WASHER, FLAT, M8, CLEAR ZINC	2
3	400409 LINER, LEFT (WELDMENT)	1	7	401316 SCREW, HEX HEAD CAP, M8-1.25 X 30, CLEAR ZINC	1
4	400473 LINER, TOP	1	8	74635 NUT, HEX, M8-1.25	1

Parts List and Diagrams

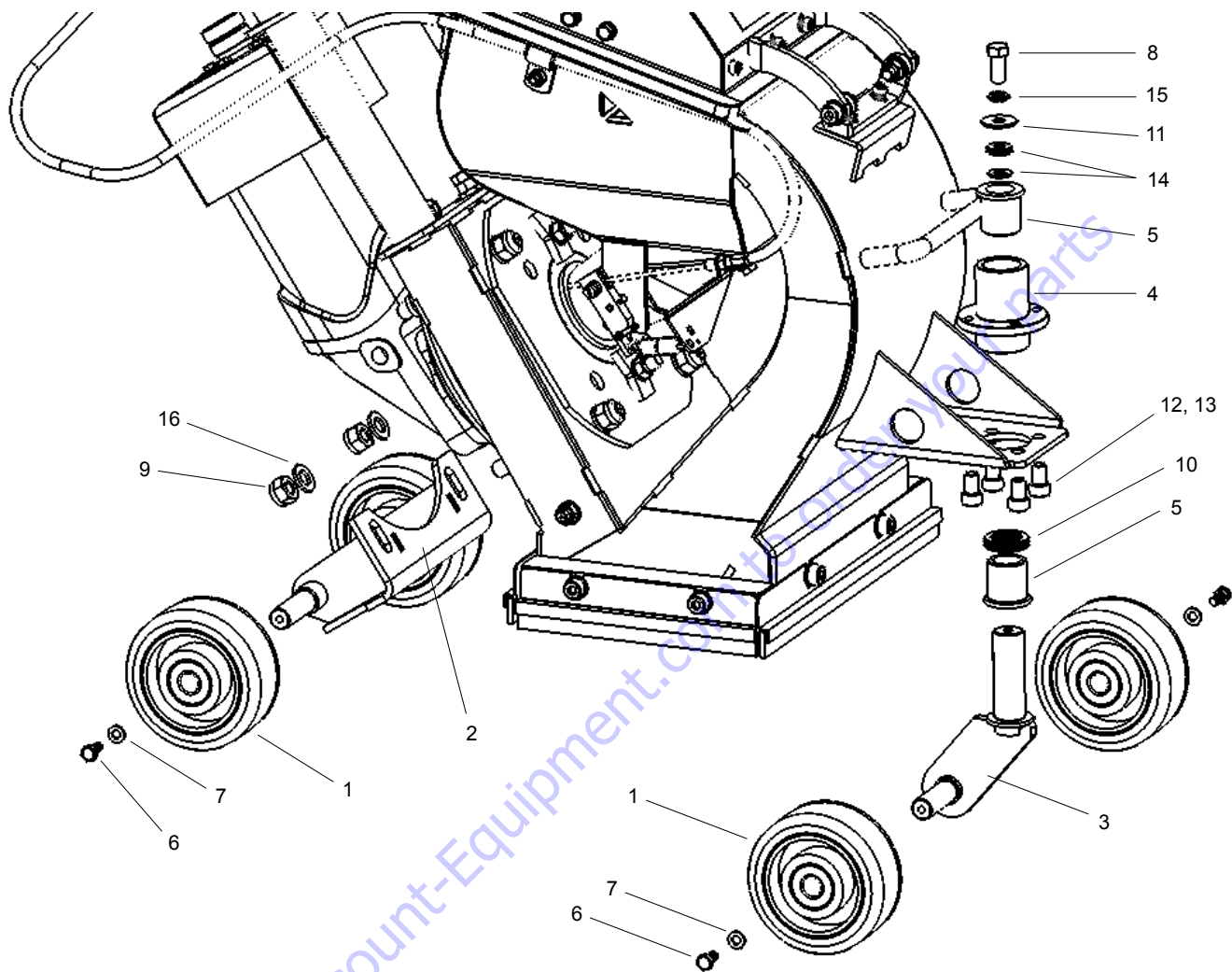
MAGNETS AND BRUSHES



PART#	DESCRIPTION	QTY	PART#	DESCRIPTION	QTY		
1	402316	ASSEMBLY, MAGNET, FRONT	1				
2	402315	ASSEMBLY, MAGNET, SIDE	2	6	401324	SCREW, SOCKET HEAD CAP, M8-1.25X14, STAINLESS STEEL	8
3	400458	BRUSH, SIDE	2	7	401308	SCREW, FLAT HEAD SOCKET CAP, M8-1.25 X 35, STAINLESS STEEL	6
4	400457	BRUSH, FRONT/REAR	2				
5	401329	WASHER, FLAT, M8, STAINLESS STEEL	8				

Parts List and Diagrams

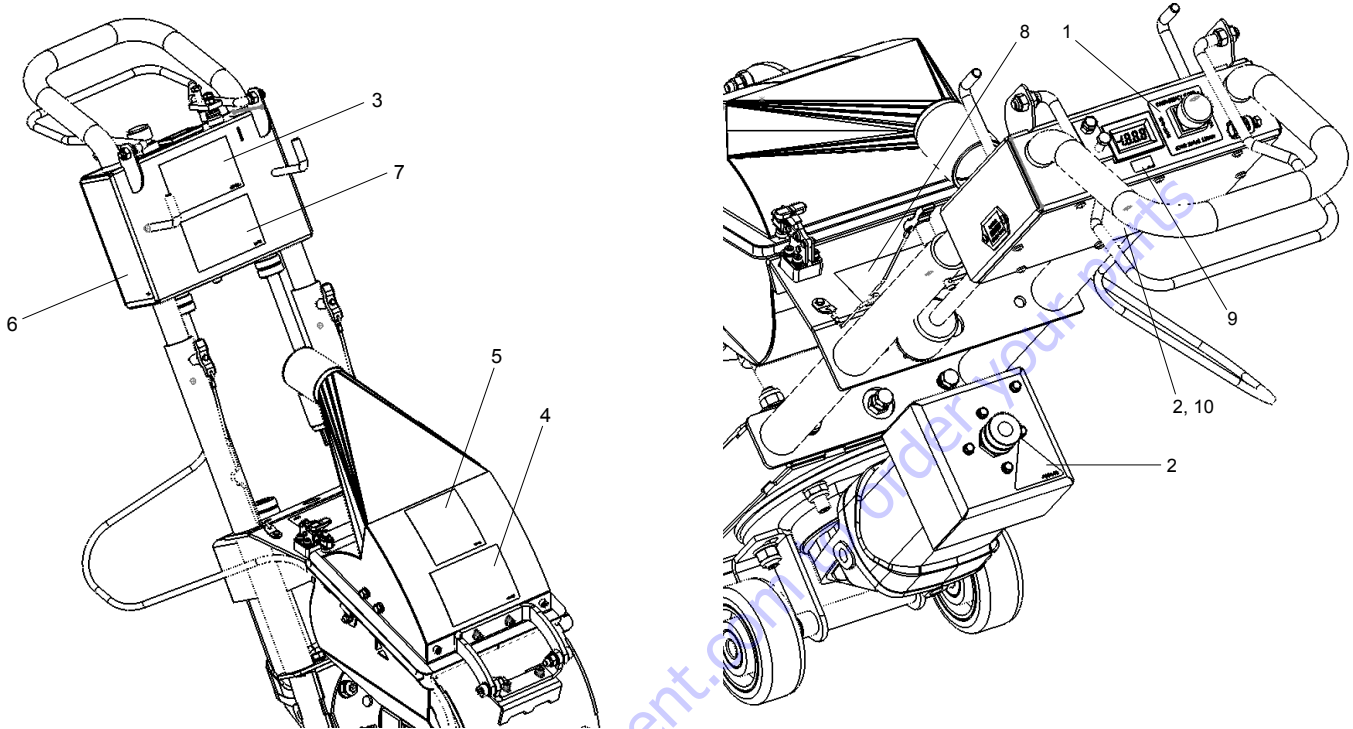
UNDERCARRIAGE



PART#	DESCRIPTION	QTY	PART#	DESCRIPTION	QTY
1	401611 WHEEL, CASTER	4	10	401342 WASHER, SHIM, 22 X 30 X 1MM	3
2	400427 WELDMENT, REAR WHEEL BRACKET	1	11	401349 WASHER, FENDER, M8, CLEAR ZINC	1
3	400426 WELDMENT, FRONT WHEEL BRACKET	1	12	401324 SCREW, SOCKET HEAD CAP, M8-1.25 X 14, BLACK OXIDE	4
4	400483 BUSHING, SWIVEL	1	13	401332 WASHER, LOCK, M8, CLEAR ZINC	5
5	400484 BUSHING, FLANGE	2	14	401329 WASHER, FLAT, M8, STAINLESS STEEL	4
6	401312 SCREW, HEX HEAD CAP, M6-1.0 X 14, CLEAR ZINC	4	15	401332 WASHER, LOCK, M8, CLEAR ZINC	1
7	401328 WASHER, FLAT, M6, CLEAR ZINC	6	16	74655 WASHER, FLAT, M10	2
8	401315 SCREW, HEX HEAD CAP, M8-1.25 X 20, CLEAR ZINC	1			
9	402240 NUT, HEX, NYLON INSERT, M10-1.5, HEAVY, CLEAR ZINC	2			

Parts List and Diagrams

LABELS

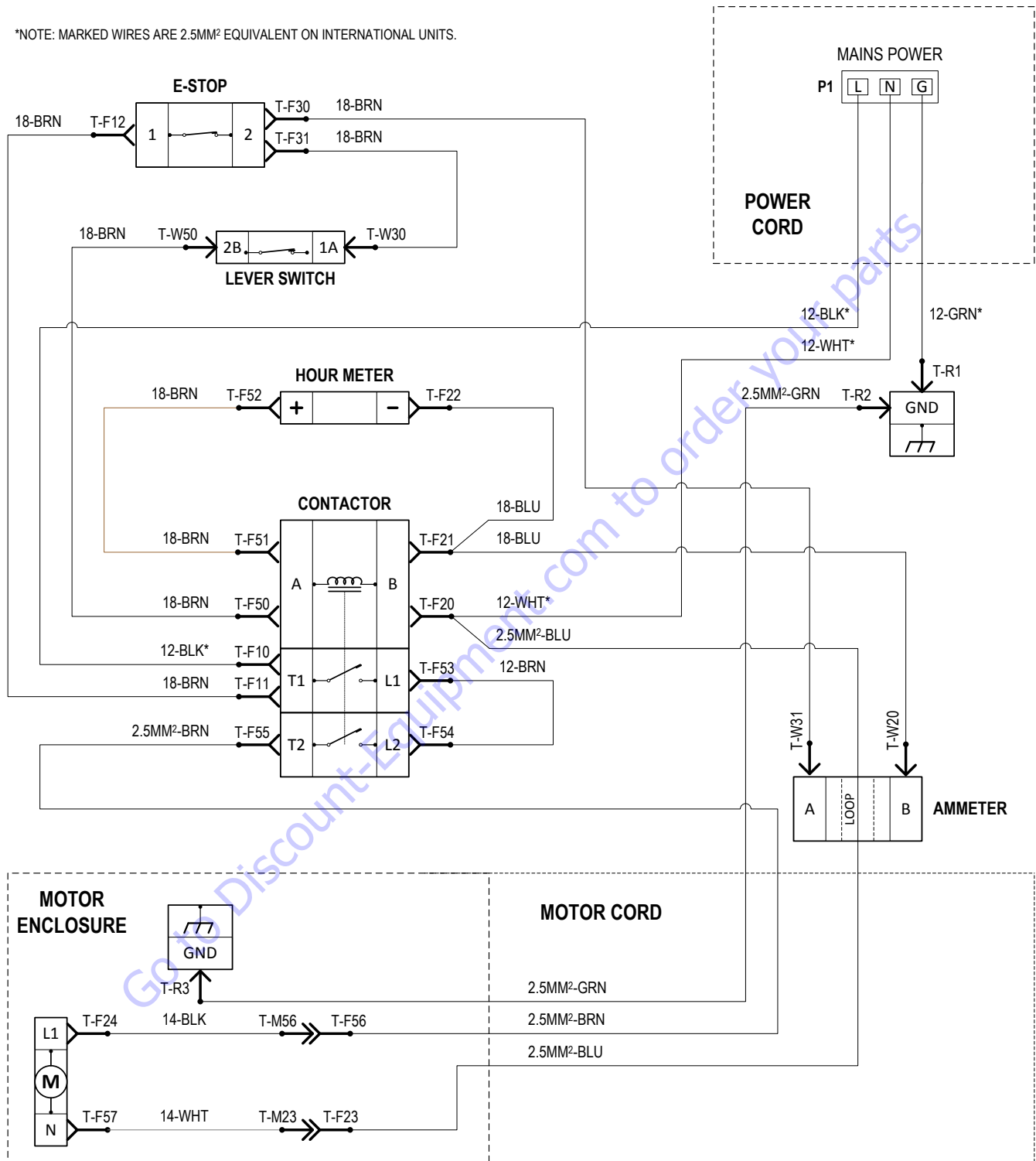


PART#	DESCRIPTION	QTY
1	400546 LABEL, EMERGENCY STOP	1
2	400440 LABEL, HAZARD SHOCK	2
3	401665 LABEL, EYE PROTECTION WARNING	1
4	404589 LABEL, A95	1
5	402462 LABEL, NATIONAL LOGO, 3 X 3	1
6	L189 LABEL ASBESTOS HD	1
7	L192 LABEL, EAR PROTECTION	1
8	L265 LABEL, SILICA DUST	1
9	404236 LABEL, 17A, 120V, 60HZ (A95-10XXXX ONLY)	1
	404599 LABEL, 12A (A95-11XXXX ONLY)	1
	404598 LABEL, 16A (A95-20XXXX ONLY)	1
10	404669 LABEL, CE, A95, 230V, 50HZ (A95-11XXXX ONLY)	1
	404668 LABEL, CE, A95, 110V, 50HZ (A95-20XXXX ONLY)	1

Parts List and Diagrams

A95 Wiring Diagram

*NOTE: MARKED WIRES ARE 2.5MM² EQUIVALENT ON INTERNATIONAL UNITS.



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