



IPC Eagle

OPERATIONS MANUAL

Battery Burnisher



BB20N – 20” Non-Traction drive

BB20T – 20” Traction Drive

BB24T – 24” Traction Drive

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Instructions For Use

Failure to read and understand this manual before operating this machine or performing service on this machine may result in injury to the operator or nearby personnel or result in damage to the machine or nearby property. Each operator must be trained in the operation of this machine before being allowed to use it. Contact IPC Eagle Customer Service at 1-800-486-2775 or 1-561-686-5399 or an authorized IPC Eagle Distributor to inquire about training or to request a replacement manual.

NOTICE

Proper maintenance is necessary with all battery powered floor machines. Following the scheduled maintenance procedures found in your operation manual will provide many years of uninterrupted service.

In addition to the scheduled maintenance procedures listed it is recommended to have your machine serviced by certified service personnel every three months.

In this Operation Manual you will find three statements that you must read and observe to ensure safe operation of this machine.

DANGER! indicates that the possibility of severe bodily injury or death can occur if DANGER! statements are ignored. Read and observe all DANGER! statements included in the Operation Manual and attached to the machine.

WARNING! indicated that the possibility of bodily injury to the operator and other people can occur if WARNING! statements are ignored. Read and observe all WARNING! statements included in the Operation Manual and attached to the machine.

CAUTION! indicates that the possibility of damage to the machine or other property can occur if CAUTION! statements are ignored. Read and observe all CAUTION! statements included in the Operation Manual and attached to the machine.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

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Machine Specifications

VOLTAGE:36 VDC (3 - 12 VDC Batteries)

BATTERIES:.....12 VDC Lead Acid 210 Ah
12 VDC AGM 230 Ah

BURNISH RATE:
20 in..... ±26,000 ft²/hr (2415 m²/hr)
24 in..... ±31,200 ft²/hr (2899 m²/hr)

BURNISH WIDTH:
20 in..... 20 in (51 cm)
24 in..... 24 in (61 cm)

BURNISH PAD:
20 in.....20 in (51 cm)
24 in..... 24 in (61 cm)

PAD SPEED:.....
20 in.....(20 in) 2000 rpm
24 in.....(24 in) 1800 rpm

PAD PRESSURE:.....Adjustable

FORWARD SPEED (Traction Only).....3.25 mph
(5.23 km/h)

REVERSE SPEED: (Traction Only).....1.5 mph
(2.4 km/h)

BURNISH MOTOR:.....PM 2.5 hp (1.86 kw)

TRANSAXLE (Traction Only).....1/4hp
(6 watt)

BATTERY CHARGER:.....On-Board 36VDC 25A

WHEELS:.....8 in. (20.3 cm) Solid

NOISE LEVEL:.....<70 Db

VIBRATION LEVEL:.....Less than 2.5 m/s²

WEIGHT (w/o BATTERIES):
20" Pad Assist..... 200 lbs (91 kg)
Traction..... 219 lbs (99 kg)

24" Pad Assist..... 212 lbs (96 kg)
Traction..... 231 lbs (105 kg)

BATTERY WEIGHT.....(3) Sealed 418 lbs
(3) Lead Acid 378 lbs

OVERLOAD PROTECTION.....Resettable
Breakers

OPERATING TIME:.....Approximately 3 hrs

LENGTH:
20 in (Head Up).....49 in (124cm)
(Head Down).....58 in (147cm)
24 in (Head Up).....49 in (124cm)
(Head Down).....61 in (155cm)

DECK WIDTH:
20 in.....22 in (56 cm)
24 in.....26 in (66 cm)

FRAME
WIDTH:.....22 in (56 cm)
HEIGHT.....45 in (114 cm)

Safety Precautions

Anyone operating the machine should read the following carefully and be informed of potentially dangerous operating conditions. Operators should be familiar with the location and use of all safety devices on the machine. Do not use the machine if it is not in proper operating condition, and report any damage or operation faults immediately.

DANGER! This machine has parts including the pad/brush assemblies that can cause severe injury if these parts are contacted while they are moving. Do not allow any part of the body or clothing to come in contact with these parts while they are moving. Do not try to change the pads/brushes while the machine is running. Do not allow other people to come near the machine while it is in operation. Do not allow the machine to run unattended. Do not leave the machine in a place where unauthorized or untrained personnel could use the machine. Do not run the machine with the pads/brushes off center, damaged or missing. Do not operate the machine if the machine has loose parts.

WARNING! Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging. Do not smoke around batteries. Avoid skin contact with the acid contained in the batteries. Never allow metal objects to lay across battery tops.

WARNING! Operate from the rear of the machine only.

WARNING! Inspect pad holders regularly. A fractured pad holder may result in pad fragments causing injury.

WARNING! Use caution when operating the machine on a ramp or incline. Do not turn the machine, or leave it unattended, on a ramp or incline.

WARNING! Store machine inside. Keep the electrical components of the machine dry. **DO NOT PRESSURE WASH MACHINE.**

WARNING! Modifications or alterations to this machine can lead to personal injury or damage to the machine. Do not make unauthorized modifications or alterations to this machine. IPC Eagle assumes no liabilities for injury or damage resulting from an unauthorized modification or alteration to the

machine. Any unauthorized modification or alteration to this machine voids all warranties.

WARNING! The motor and motor controller become hot enough while the machine is in operation, and for a long time after the machine is shut off, to cause severe burns. Do not touch these parts of the machine until they have cooled.

WARNING! Injury can occur to the eyes and body while using the machine. Safety goggles, safety shoes, and safety clothing are recommended while operating the machine.

WARNING! Machine vibration may cause tingling or numbness in the fingers or hands. Gloves are recommended to reduce machine vibration. If tingling or numbness persists, shut off the machine. If the vibration is caused by loose parts such as an off center pad/brush, adjust or tighten these parts before using the machine again.

WARNING! Do not burnish on an incline. This machine is designed to burnish on a flat level floor.

CAUTION! Do not operate machine unless trained and authorized. Do not operate machine unless you have read and understand the operation manual. Do not operate machine in flammable or explosive areas.

CAUTION! Before starting machine ensure all safety devices are in place and functioning properly. Before starting machine check for proper operation.

CAUTION! When using machine, go slowly on inclines or slippery surfaces. Use care when operating machine in reverse. Follow all manufacturers instructions on chemical product containers when handling, mixing, or using chemical products.

CAUTION! When servicing machine, stay clear of moving parts. Do not wear loose clothing when working on machine. Block machine wheels before raising or jacking up machine. Use hoist stands that will support the weight of the machine. Wear eye and ear protection when using pressurized air. Disconnect battery connections before servicing machine. Use only replacement parts supplied by IPC Eagle or an IPC Eagle Authorized Distributor or Service Center.

This machine is manufactured for commercial use only.

This machine is designed and manufactured for burnishing indoor hard floor surfaces. IPC Eagle does not recommend use of this machine in any environment other than an indoor environment. Battery powered floor equipment is designed and manufactured for commercial use only. These machines are designed to burnish most modern types of floors including composition tile, stone, marble, terrazzo, and resilient floor covering, and some coated wood floors.

Operator Responsibility

The operator is responsible for performing the recommended daily maintenance and checkups of the machine to keep it in good working condition. The operator must inform the service mechanic or supervisor when recommended maintenance procedures are required as prescribed in the MAINTENANCE section of this manual. Read this manual carefully before operating this machine.

FOR SAFETY: Do not operate machine before reading and understanding the operation manual.

Check the machine for shipping damage.

Keep your machine regularly maintained by following the maintenance information in this manual. We recommend taking advantage of a service contract from your IPC Eagle Distributor or Service Center.

Order parts and supplies only from an Authorized IPC Eagle Distributor. Use the parts illustration section of your manual when ordering parts.

During and after operation, perform the recommended daily and hourly procedures outlined in the Maintenance Chart.

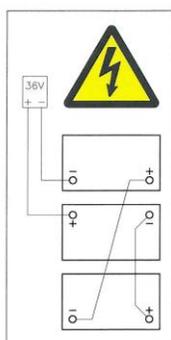
Machine Preparation

Unpacking the Machine

1. Cut and remove green bands holding the box to the pallet.
2. Remove staples attaching the box to the platform at the edge of the box.
3. With two people, one at either end of the box, lift box straight up and off the machine.
4. Remove loose accessories from the top of machine.
5. Cut and remove the bands across the top of the machine and across the burnish head.
6. If the machine has batteries, then remove the battery cover and plug the battery pack plug into the machine, turn on the key, drive the machine down the ramp off the pallet. If the machine does not have batteries, pull the machine down the ramp and off the pallet. See the "Connecting the batteries" section of the manual.

Connecting the Batteries

1. Place the batteries in the machine oriented as shown in diagram.
2. Connect the batteries as shown in the battery connection diagram
3. **DANGER! Incorrect connection of batteries can cause explosion and/or serious injury.**
4. Double check battery connections.



5. Connect the battery pack plug to the machine.

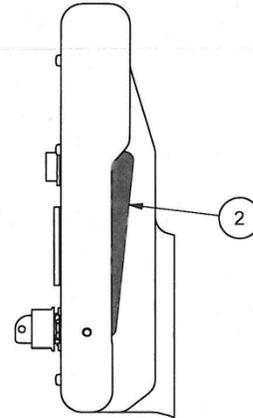
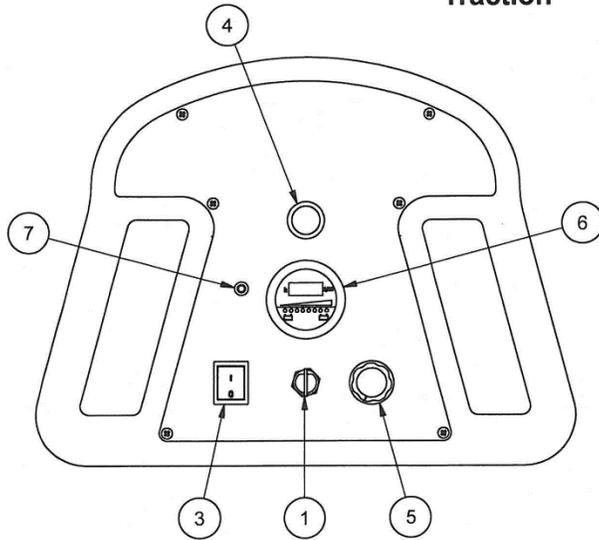
Installing Steel Skirt

1. Lift the deck upward about 90 degrees by pulling up on the front of the deck. At this point, the tilt latch will hold the deck in the pad change position. (Ref. Machine Operation - Installing/Changing Burnishing Pad)
2. Remove steel skirt from bubble wrap packing and on the outside of the skirt, loosen the 1/4" hex bolt with jam.
3. Slide the skirt onto the burnish head aligning the slots in the skirt with the tabs on the deck. Make sure the 1/4" bolt is at the back of the shroud.
4. Tighten the 1/4" bolt until the skirt is snug around the deck but also floats up and down freely.
5. Tighten jam nut and lower deck to burnish position. (Ref. Machine Operation: Installing / Changing Burnishing Pad)

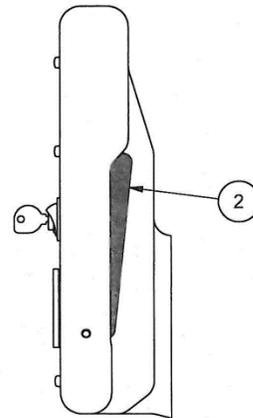
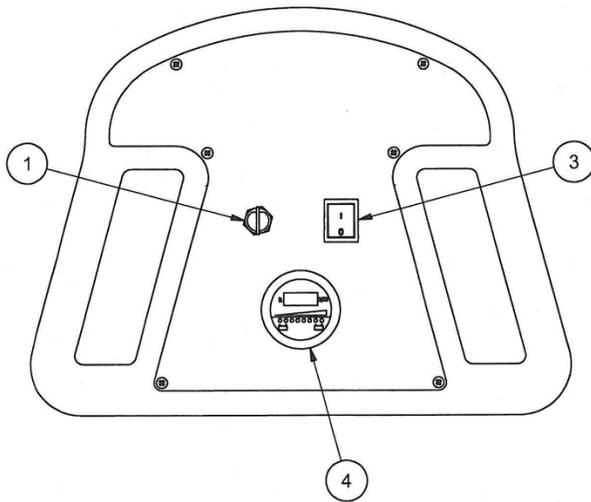
Machine Operation

Controls and Instruments

Traction



Non-Traction



Controls and Instruments

Traction Model

1. **Key Switch** - Turns the machine on/off.
2. **Handle Lever** - When the lever is engaged the machine will move forward. If the Burnish switch is on, the pad will also start turning. If the burnish head is tilted up into the pad change position, the burnish motor will not engage.

Note: The machine needs to be moving when the burnish switch is turned on or off in order to keep from burning the floor.

3. **Burnish Switch** - Turns burnish function on/off. The burnish motor will not engage unless the burnish switch is on and the handle lever is engaged. If the burnish head is tilted up into the pad change position, the burnish motor will not engage.
4. **Reverse Switch** - Hold down this switch while the handle lever is engaged and the machine will move in reverse. Once the reverse switch is released the machine will start moving forward.
5. **Traction Speed Control** - Turn the knob clockwise to increase speed. Turn the knob counter-clockwise to decrease speed.
6. **Hour Meter / Battery Discharge Indicator** - The LCD displays the number of burnishing hours. The machine will only count hours while burnishing. The row of LEDs display the charge level of the battery pack. When all the yellow LEDs are lit, the battery pack is fully charged. In order to protect the battery pack, when the red LED is lit, the burnish motor will stop and the machine should be recharged.
7. **Alarm LED** - Displays trouble codes as a blink pattern. In normal operation this LED will be off. If it comes on, refer to the troubleshooting section.

Non-Traction Model

1. **Key Switch** - Turns the machine on/off.
2. **Handle Lever** - When the lever is engaged, if the Burnish switch is on, the pad will start turning. If the burnish head is tilted up into the pad change position, the burnish motor will not engage.

Note: The machine needs to be moving when the burnish switch is turned on or off in order to keep from burning the floor.

3. **Burnish Switch** - Turns burnish function on/off. The burnish motor will not engage unless the burnish switch is on and the handle lever is engaged. If the burnish head is tilted up into the pad change position, the burnish motor will not engage.
4. **Hour Meter / Battery Discharge Indicator** - The LCD displays the number of burnishing hours. The machine will only count hours while burnishing. The row of LEDs display the charge level of the battery pack. When all the yellow LEDs are lit the battery pack is fully charged. In order to protect the battery pack, when the red LED is lit the burnish motor will stop and the machine should be recharged.

Over Current Protection

1. 70A Breaker - Over current protection for the Burnish Motor. Push to reset. (20" & 24" Models)
2. 40A Breaker - Over current protection for the Traction Drive. Push to reset (Only on Traction models).
3. 3A Fuse In-Line holder - Over current protection for key switch.

Onboard Battery Charger

To charge the batteries, first drive the machine to a flat, dry, well-ventilated area then turn the machine off. If using lead acid batteries, check the water level in all the battery cells. If the level is low, **add just enough distilled water to cover the plates. **DO NOT OVERFILL.****

Then plug the charger cord into a wall socket. The battery charger will initialize and then soft start the charging cycle.

WARNING! Batteries emit hydrogen gas when charging. Explosion or fire can result. Keep sparks and open flame away when charging.

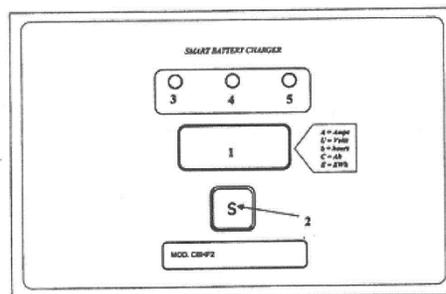
CAUTION! When servicing machine, wear protective gloves and goggles when handling batteries or battery cables. Avoid contact with battery acid.

Battery Charger Controls:

1. Three-digit display + symbol (1), to view A=charging current, U=battery voltage, h=charging time, C=charging ampere-hours (AH), E=energy used to charge (KWh)
2. Button for the Selection of the display mode (2): A, U,h, C, E. After 10 seconds the display returns to the display of charging current.
3. Red control indicator (3): when it is on, the charging cycle has started.
4. Yellow control indicator (4): when it is on, the final phase of the charging cycle has started.
5. Green control indicator (5): when it is on, the charging cycle has finished.

Once the charge cycle is complete, the charger will remain active in a trickle charge mode to maintain the charge on the batteries until the charger is unplugged from the wall socket.

FRONT PANEL OF BATTERY CHARGER MODEL
CBHF2



Charger Settings

The On-Board battery charger settings need to be set for your battery type before charging. Failure to properly set will result in battery damage.

To determine your battery type, see battery label or contact your battery supplier.

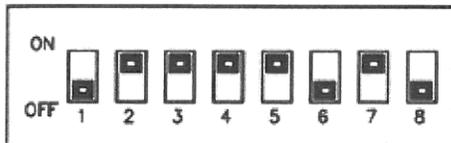
To change charger settings:

1. Unplug the charger.
2. Peel back the corner of the display label.

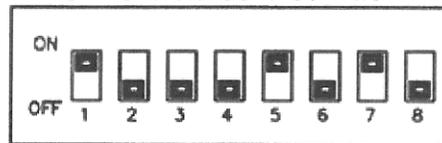


3. Set the DIP switches, according to your battery pack, as shown below. If your battery pack type is not listed please call IPC Eagle for correct setting.

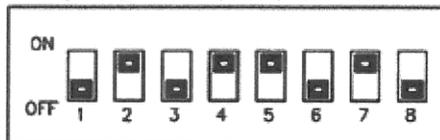
LEAD ACID BATTERIES
DIP SWITCH CONFIGURATION



DISCOVER SEALED BATTERIES
DIP SWITCH CONFIGURATION



FULL RIVER SEALED BATTERIES
DIP SWITCH CONFIGURATION



Battery Charger Fault Codes

Fault	Description	Remedy
No Display	No display on the charger, no LED indicators.	Check that the plug is connected to an operating wall outlet. Check fuse. 20A fuse MP265100.
bAŁ	Incorrect battery connection or no battery connection.	Check the connection and the polarity of the battery connection.
E01	The maximum voltage admissible by the battery has been exceeded. The charge cycle was interrupted.	Restart the charge cycle. If problem persists, battery pack may be damaged.
E02	The maximum temperature has been exceeded. The charge cycle was interrupted.	Restart the charge cycle. If problem persists, battery pack may be damaged.
E03	The maximum time for the charging phase has been exceeded. The charge cycle was interrupted.	Restart the charge cycle. If problem persists, battery pack may be damaged.
SŁŁ	The total safety time has interrupted the charge cycle.	Restart the charge cycle. If problem persists, battery pack may be damaged.
SrŁ	Internal charger fault.	Replace battery charger.

How the Machine Works

The Burnish components of the machine are:

- Burnish pad holder
- Burnish pad
- Burnish motor
- Dust Collection Bag

As the machine moves forward, the burnish pad shines the floor. Any excess dirt or wax gets picked up by the pad and distributed into the dust collection bag via the dust collection system.

Pre-Operation Checklist

Before operating the machine:

- Check that the Burnish Switch is in the off position.
- Check the pad holder to ensure there are no breaks or cracks.
- Check correct connection of the batteries.
- Check that the Dust Collection Bag is empty.
- Release caster breaks.

Turning on the Machine

1. Complete pre-operation check.
2. Turn the Key to the ON position.
3. Turn on the burnish switch and engage the handle levers.
4. Adjust speed as needed with traction speed control knob. (Traction Models Only)

Changing Direction

When the handle levers are engaged the machine will travel in the forward direction. To travel in reverse, while the handle levers are engaged, hold down the reverse switch. The machine will change from forward direction to reverse direction. The machine will continue in the reverse direction until the reverse switch is released.

Stopping and Turning Off Machine

To stop the machine, release the handle levers and the machine will smoothly brake to a stop and after 3 seconds the burnish motor will stop. When turning the machine off, turn off the burnish switch and then turn off the key switch.

Installing/Changing Burnishing Pad

1. Make sure the Burnish Switch is OFF.
2. Lift on the front of the deck and tilt deck into the pad change position.
3. Remove the center device by turning counterclockwise and carefully remove the old pad from the Velcro material.

CAUTION! CAREFULLY INSPECT THE PAD HOLDER FOR CRACKS OR DAMAGE! Replace if necessary .

4. Pull center from new pad, align pad on pad holder and secure with centering device by turning clockwise.
5. Press pad firmly onto Velcro.
6. Lift the front of the shroud and lift the shroud release lever and SLOWLY let the shroud return to the down position.

CAUTION! KEEP HOLD OF THE DECK TO AVOID INJURY!

Dust Bag Removal

The machine has two dust bag options. A re-usable cloth bag and a disposable paper bag. Monitor the dust bag carefully and empty/change as needed. The dust collection system will not operate effectively when the dust bag is full. Under heavy burnishing conditions the dust bag should be emptied/changed every hour.

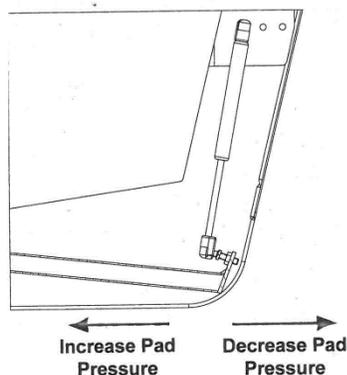
1. Turn off the Burnish Motor.
2. Unscrew the knobs holding the dust bag cover to the shroud.
3. Pull the dust bag off the dust tube.
4. Empty/Change dust bag.

Pad Pressure Adjustment

The pad pressure is set at the factory for optimal burnish performance in most conditions. If the pad pressure needs to be adjusted, follow the procedure outlined below.

Note: *Pad pressure adjustments should only be performed by a qualified technician.*

1. Turn burnish switch off.
2. Remove back panel.
3. Adjust ball end to increase or decrease pad pressure as shown in diagram.



Storage

1. Machine should be stored in a dry environment.
2. Store machine away from objects that may fall and damage it.
3. Never store burnisher near an open flame or heat producing device.
4. Make sure burnisher is cleaned properly by wiping machine down with damp cloth before storing. CAUTION! NEVER PRESSURE WASH MACHINE!
5. Disconnect batteries before storage.

Operation on Inclines

CAUTION! When using the machine, go slowly on inclines.

CAUTION! Do not run burnish pad on an incline. The maximum rated climb and descent incline is 6°.

Post Operation Checklist

Turn the machine OFF and perform the following checks:

- Check for wire, string, or twine wrapped around the burnish pad.
- Check Wire fray or damage.
- Empty the Dust Collection Bag.
- Inspect batteries.
- Plug in on-board battery charger.

Lubrication of Rear Casters

Each of the two rear casters has two grease fittings. Lubricate each caster with a grease gun every 100 hours of machine operation.

Caster Parking Brake

The two rear casters are equipped with brakes. To set the brake, push down the "ON" side of the brake lever. To release the brake push down the "OFF" side of the brake lever. The caster breaks should only be used as a parking brake if needed. Before moving the machine make sure both breaks are released.

Body Maintenance

The body may be cleaned with a damp cloth to remove dust and scuff marks. More stubborn scuff marks on the tank exterior can be removed with a vinyl cleaner.

Battery Maintenance

The batteries are deep cycle 12 volt batteries. The lifetime of the batteries is limited by the number of charges the batteries receive. To get the most life from the batteries, charge them when the battery discharge LED(Red) starts to blink (20% charge left). Use only the on-board battery charger supplied to charge the batteries. Periodically clean the top surface of the batteries and the terminals, and check for loose connections. Use a strong solution of baking soda and water. Brush the solution sparingly over the battery tops, terminals, and cable clamps. **DO NOT ALLOW ANY BAKING SODA SOLUTION TO ENTER THE BATTERIES!** Use a wire brush to clean the terminal posts and cable connectors. After cleaning, apply a coating of clear battery post protectant to the terminals and the cable connectors. Keep the tops of the batteries clean and dry. To prevent a possible short circuit, keep all metallic objects off the top of the batteries. Replace any worn or damaged wires.

Lead Acid Batteries

Never add acid to the batteries, only distilled water. Always keep the battery caps on, except when adding water or taking hydrometer readings. Check the electrolyte level in each battery cell before and after charging, and after every 50 hours of operation. Do not charge the batteries unless the fluid is slightly above the battery plates. If needed, add just enough distilled water to cover the plates. **Never add acid to the batteries. Do not overfill.**

Measuring the specific gravity, using a hydrometer, is a way to determine the charge level and condition of the batteries. If one or more of the battery cells test lower than the other battery cell (0.050 or more), the cell is damaged, shorted, or is about to fail

. Sealed batteries no additional maintenance required.

CAUTION! When working with batteries, always wear eye protection and protective clothing.

CAUTION! Batteries emit Hydrogen Gas. NO SMOKING!

CAUTION! Battery damage will occur if the electrolyte level does not cover the battery plates.

CAUTION! Machine and/or battery damage can occur if the electrolyte level is above the bottom of the tube in each cell.

CAUTION! Never use tap water to fill battery cells. Tap water contains contaminants that will damage the battery. Only use distilled water to fill battery cells.

Repacking the Machine

Refer to Unpacking section on page 5 and repack machine using original packing materials and container.

Transporting the Machine

When shipping the machine, make sure the batteries are disconnected and the machine is secured in the transporting vehicle.

Maintenance

Operation	Interval						
	Daily	Every 20 Hrs	Every 25 Hrs	Every 50 Hrs	Every 100 Hrs	Every 200 Hrs	Every 1000 Hrs
Empty/Clean Dust Bag	●						
Inspect Pad Holder	●						
Inspect Battery water level (Lead Acid only)				●			
Check wiring harness for fray or cut			●				
Check for loose/missing nuts or screws	●						
Tighten nuts and screws					●		
Check brushes on transaxle motor and burnish motor							●
Lubricate rear casters					●		
Check Burnish motor ampere draw						●	
Inspect Burnishing Head Assembly (30")				●			
Inspect Deck Drive Belt (30")					●		
Replace Drive Belt (30")	As Required						

Machine Troubleshooting

Problem	Possible Cause	Remedy
Machine will not turn on	Breaker Tripped	Push breaker button to reset
	Incorrect battery connection	Check batteries are wired together correctly via the battery connection diagram, check the Anderson connectors are plugged together
	On-board battery charger plugged in	Unplug the charging cord from the machine
	Key switch failure	Check key switch is functioning and wiring to the key switch is correct
	Failed Fuse	Check the fuse in the in line fuse holder.
Burnish motor will not start	Deck tilted into pad change position	Lower the deck to the burnish position
	Speed control knob turned all the way counter-clockwise (off)	Turn speed control knob clockwise to increase speed
	Burnish switch off	Turn on burnish switch
	Handle levers not engaged	Engage handle levers
	70A or 50A breaker tripped	Push 70A or 50A breaker to reset. DO NOT use round pads on the PE300BU30X. Using round pads will shorten the run time and trip the 50A breaker. The use of round pads on this machine will damage the burnish motor and void the warranty.
Battery lockout	Batteries need to be charged	
Red LED Flashing on Dash	Check alarm code reference sheet	Troubleshoot accordingly
Machine exhibits poor burnishing performance	Pad dirty	Remove debris or string/twine from pads; clean pad; replace pad
	Incorrect pad	Use more aggressive burnishing pad
	Pad worn down	Replace pad
Machine exhibits very aggressive burnish performance	Gas Spring faulty	Check ampere draw of burnish motor (should not be above 50 amps); replace gas spring
	Incorrect pad	Use less aggressive burnishing pad
Dust collection not working properly	Dust collection bad, is not collecting dust	Empty dust bag
		Check the dust tube to see if there is an obstruction
	Skirt is not sealing to the floor	Skirt is bent or damaged. Replace if necessary.
		Adjust the skirt to fit tightly against the seal, but still able to move freely
		Check wear edge on bottom of the skirt and replace if necessary

Alarm Codes (Traction Model Only)

Number of Flashes	Description	Possible Cause
1 (fast)	Low Battery Voltage	The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connections are good, try charging the battery.
1 (medium)	Handle lever engaged at key on	Disengage the handle lever, key off and key back on to clear.
1 (slow)	Machine Time Out	The machine has been left with the key on. Turn the key off and then back on again.
2	Motor Disconnected	The motor has a bad connection. Check all the connections and leads between the motor and the controller.
3	Motor Wiring Trip	The motor has a short circuit to a battery. Check all the connections and leads between the motor and the battery.
6	Inhibit Active	The controller is being inhibited from driving. Check the state of the Inhibit inputs.
7	Throttle Trip	A throttle trip is indicated. Make sure that the throttle is in the rest position before switching on the vehicle.
8	Possible Controller Trip	A possible controller trip is indicated. Make sure that all connections are secure.
9	Solenoid Brake Trip	The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the controller connections are secure.
10	High Battery Voltage	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection. Check the battery connections.

Routine Maintenance Parts

Cloth Dust Bag: A-MP414100

Paper Dust Bag: A-MP414200 (3 Per Pack)

Pad Driver: (20") A-MP414000 (24") MP435000 (30") MP448100 - Qty 2

Pad Driver Center Device: A-MP432400

3A Glass Fuse:A-MP234700

115V Charger Fuse:A-MP265100 **220V Charger Fuse:** A-MP289100

Steel Skirt: (20") A-MP425200 (24") A-MP434200

Skirt Edging: (20") A-MP139800 - 6 ft (183 cm) (24") A-MP139800 - 7 ft (214 cm)

Lead Acid 12V 210AH Battery: 12V210 (Qty 3)

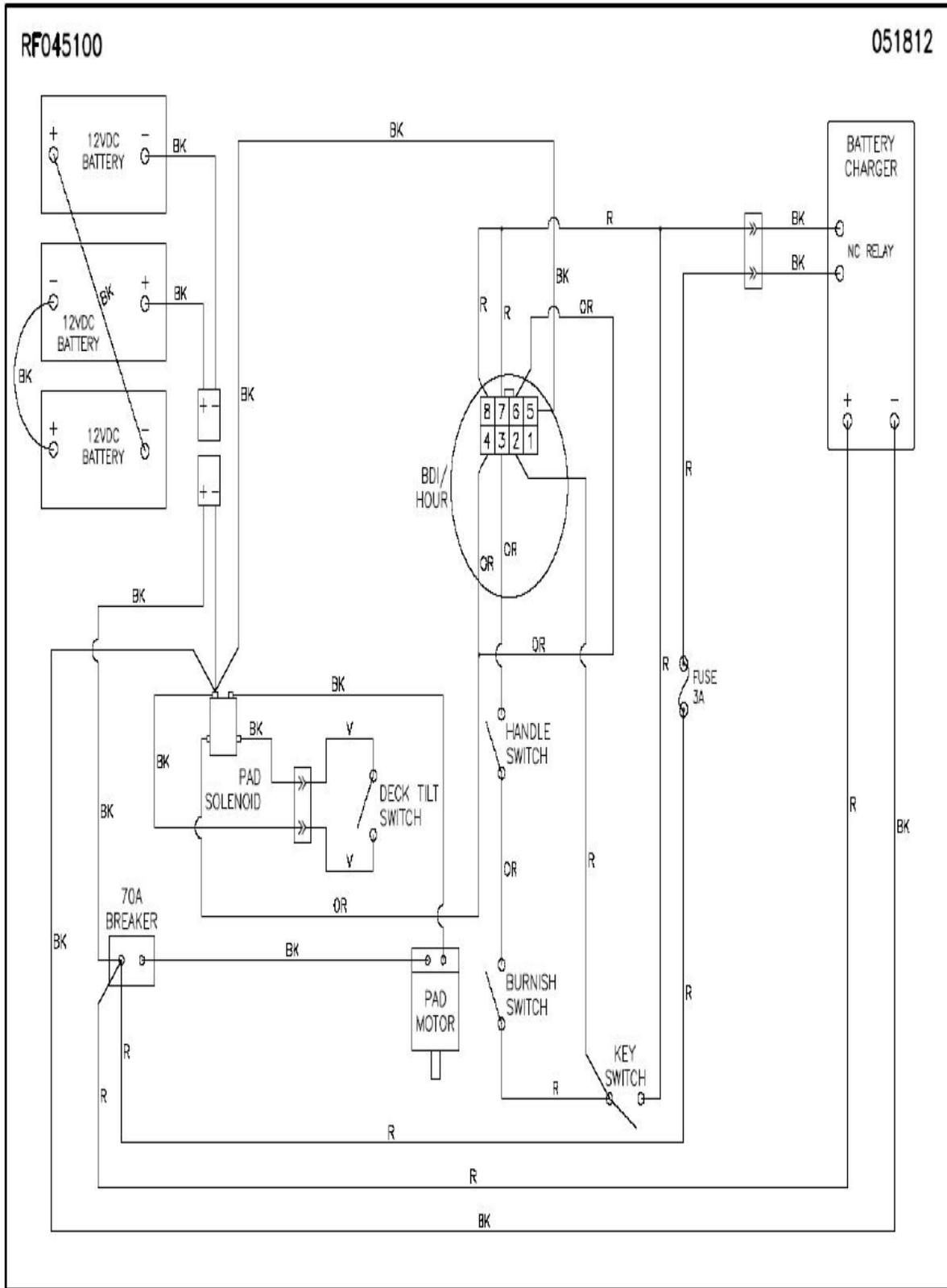
Sealed 12V AGM Battery: 12V230-AGM (Qty 3)

Gas Spring: (20") A-MP415200 (24") A-MP434500

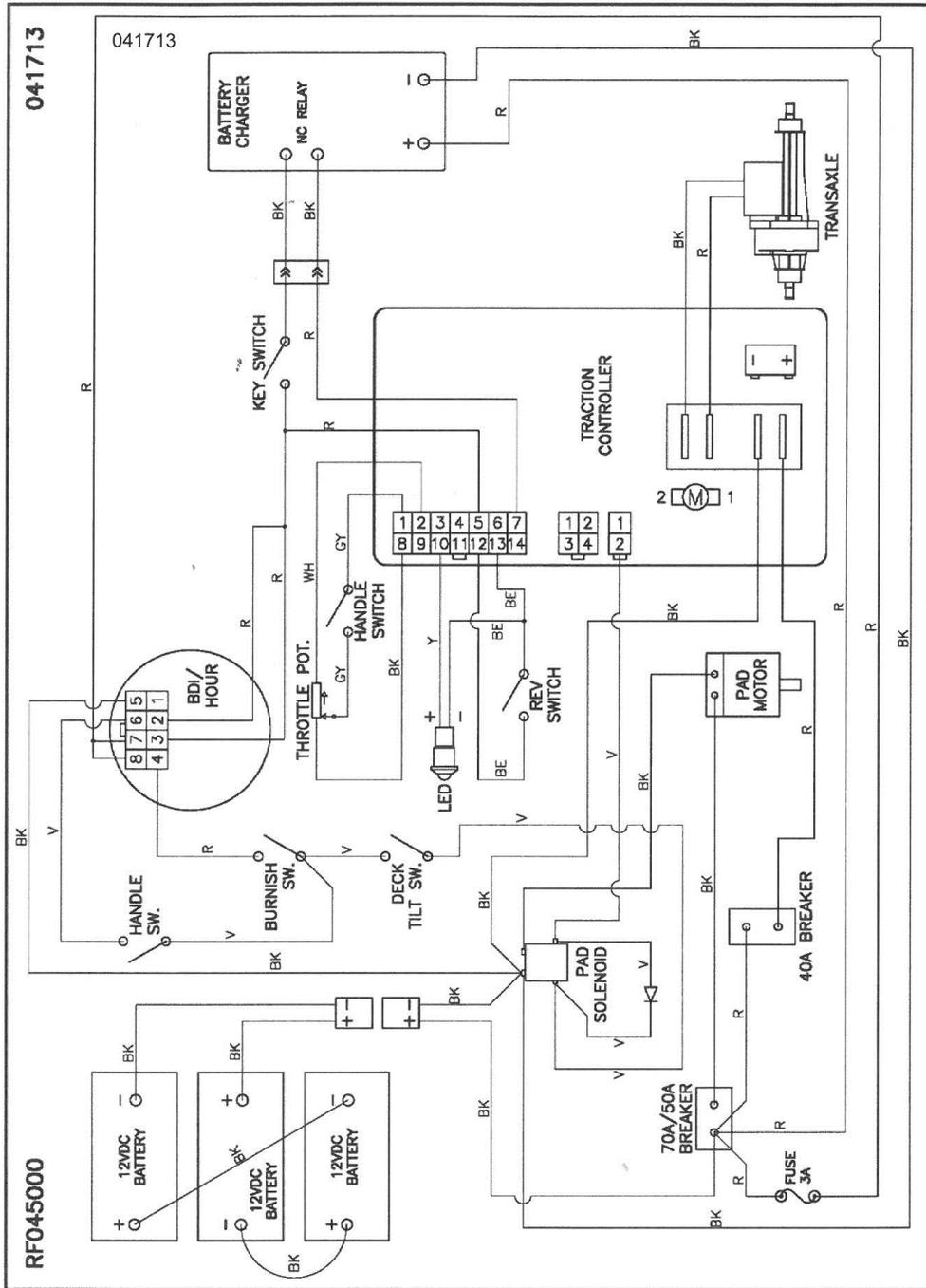
Burnish Motor Brushes: A-MP433200

Transaxle Motor Brush: A-MP433300

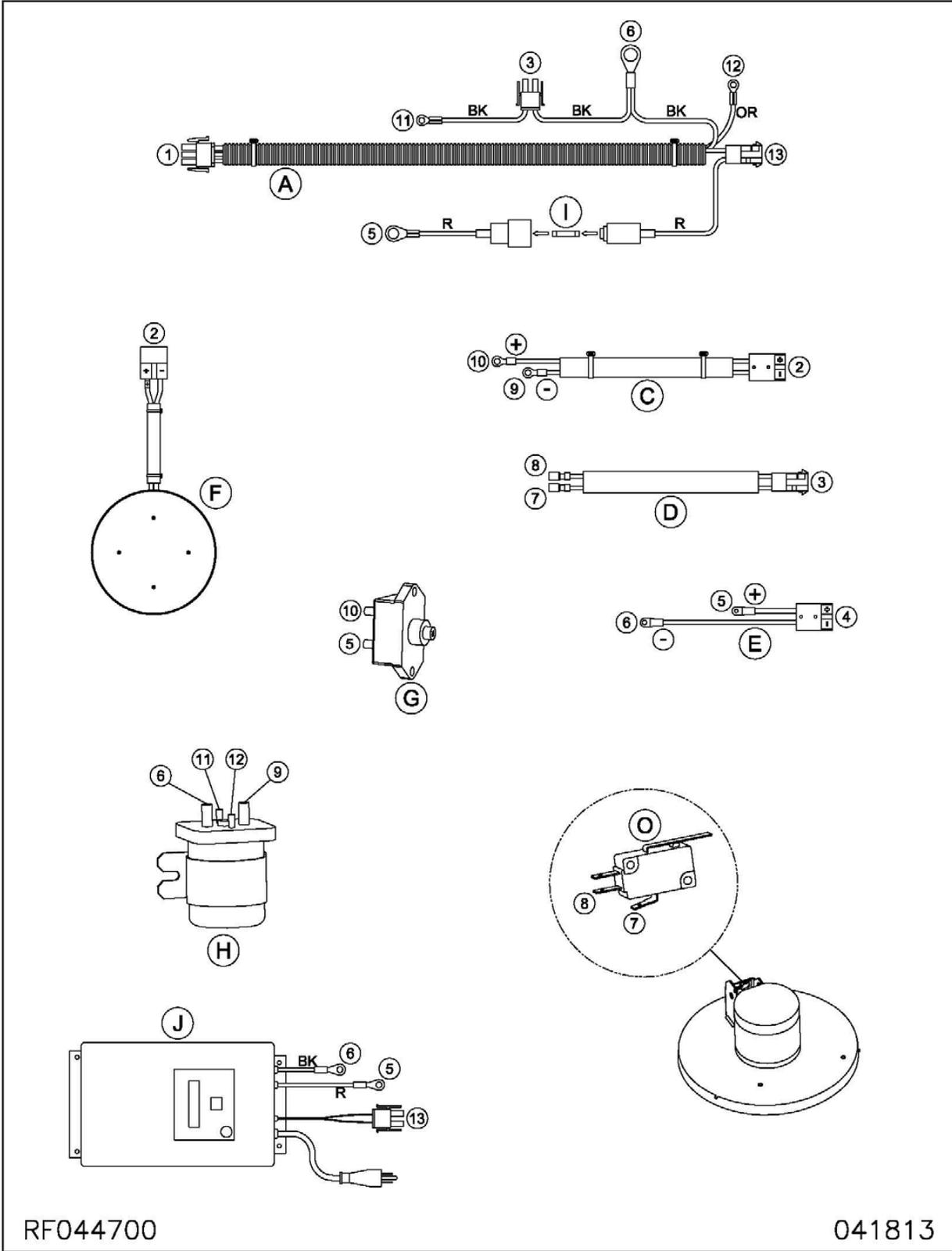
Electrical Schematic (Non-Traction)



Electrical Schematic (Traction)



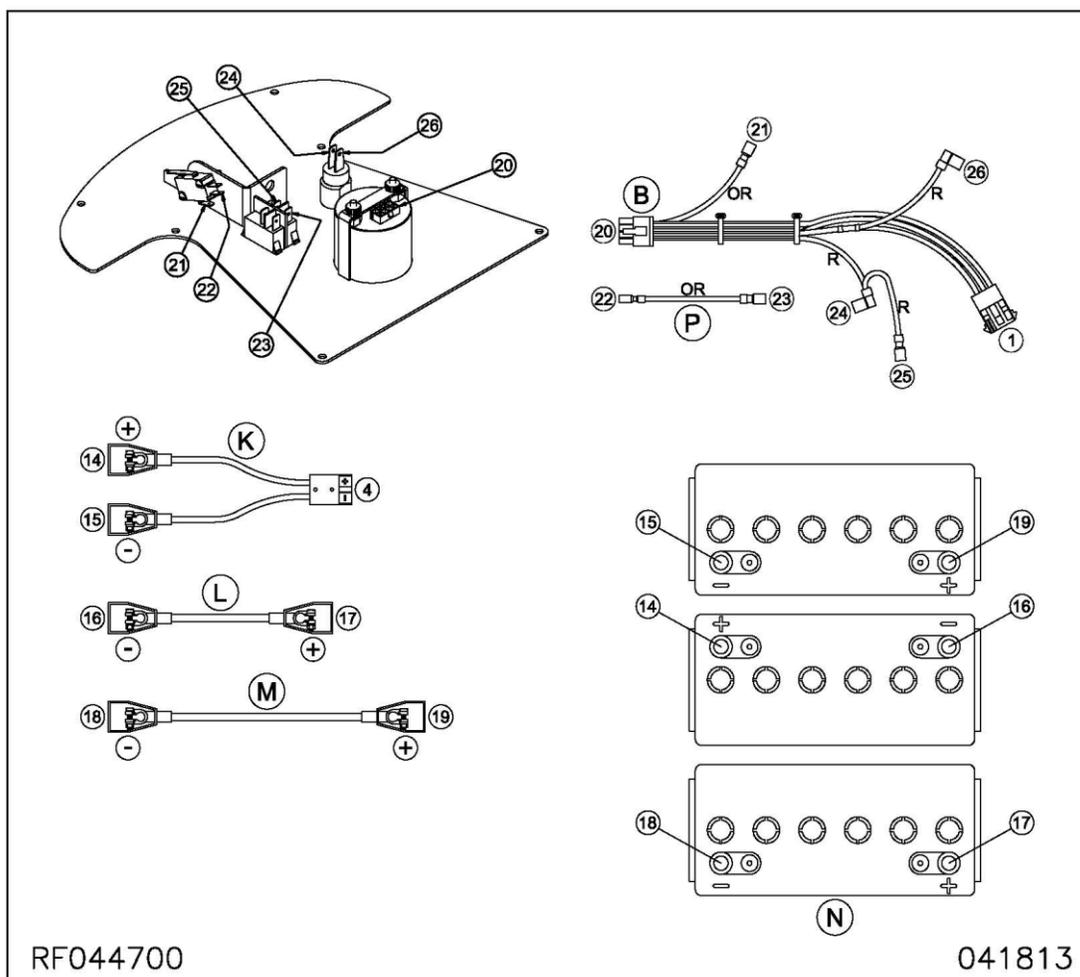
Connections (Non-Traction)



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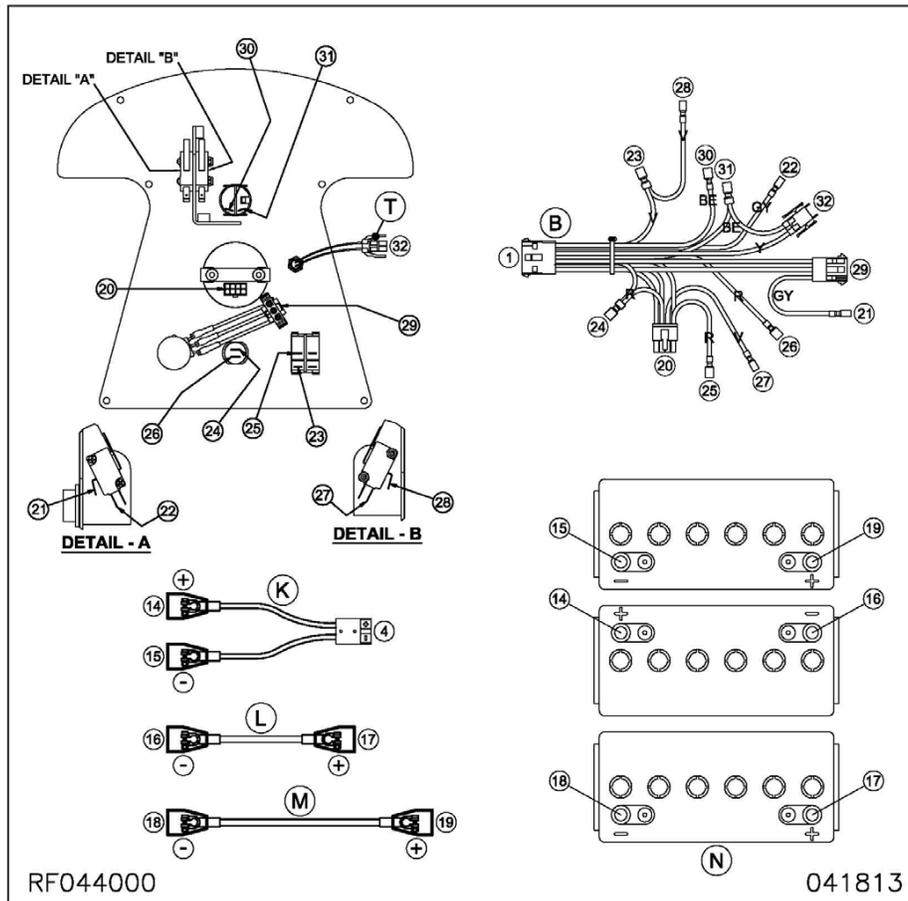
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Connections (Non-Traction) Continued



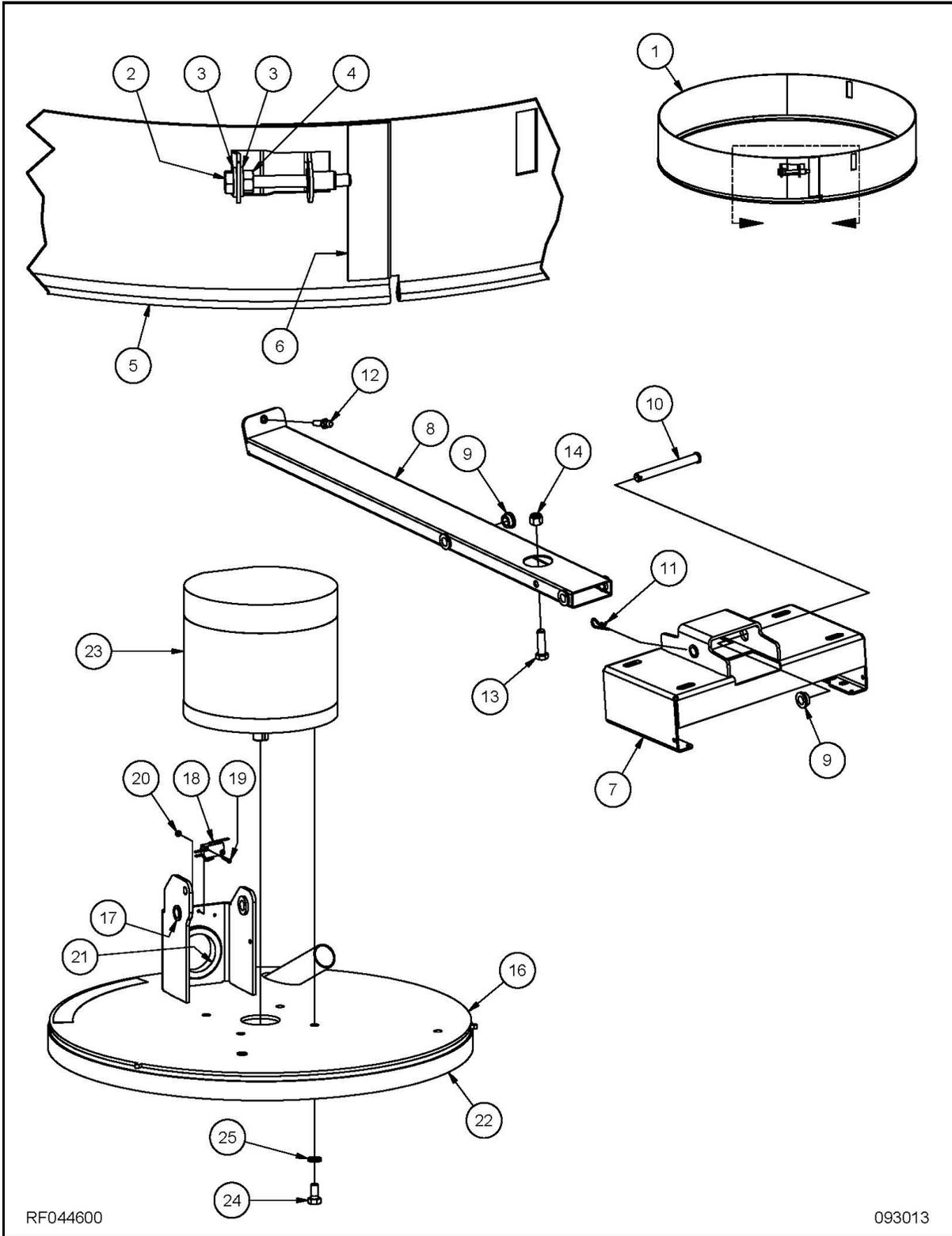
Ref. #	Part Number	Description	Qty	Ref. #	Part Number	Description	Qty
A	A-MP426500	HARNESS, MAIN, PAD ASST.	1	J1	A-SA027500	CHARGER, 110V, 36V, ASM.	1
B	A-MP426700	HARNESS, CONT. PAN., PAD ASST.	1	J2	A-SA027600	CHARGER, 220V, 36V, ASM.	1
C	A-MP426800	HARNESS, MOTOR, BURNISH	1	K	A-MP279700	CABEL, BATT./ CONNECTOR	1
D	A-MP427000	HARNESS, SWITCH, TILT, HEAD	1	L	A-MP238200	CABLE, BATTERY, 13.5"	1
E	A-MP427200	CABLE, BATTERY, 2 AWG, ASM.	1	M	A-MP279800	CABLE, BATT./ CONNECTOR	1
F1	A-MP424200	MOTOR, 2000 RPM, ASM (20")	1	N1	12V210	BATTERY, 12V, LEAD ACID	3
F2	A-MP434100	MOTOR, 1800 RPM, ASM (24")	1	N2	12V230-AGM	BATTERY, 12V, SEALED	3
G1	A-MP414800	BREAKER, CIRCUIT, 70 AMP	1	O	A-MP318400	SWITCH, MICRO, 12V,	1
H	A-MP207000	SOLENOID, 36VDC, SPNO	1	P	A-MP427800	WIRE, SWITCH, ORANGE	1
I	A-MP234700	FUSE, GLASS, 3 AMP	1				

Connections (Traction) Continued



Ref. #	Part Number	Description	Qty	Ref. #	Part Number	Description	Qty
A	A-MP432200	HARNESS, MAIN, TRACTION	1	L	A-MP238200	CABLE, BATTERY, 13.5"	1
B	A-MP432100	HARNESS, CONT. PAN., TRAC.	1	M	A-MP279800	CABLE, BATT./ CONNECTOR	1
C	A-MP426800	HARNESS, MOTOR, BURNISH	1	N1	12V210	BATTERY, 12V, LEAD ACID	3
D	A-MP427000	HARNESS, SWITCH, TILT, HEAD	1	N2	12V230-AGM	BATTERY, 12V, SEALED	3
E	A-MP427200	CABLE, BATTERY, 2 AWG, ASM.	1	O	A-MP426900	HARNESS, WIRING, TRANSAXLE	1
F1	A-MP424200	MOTOR, 2000 RPM, 20", ASM.	1	P	A-MP424500	TRANSAXLE, 36 VDC, ASM.	1
F2	A-MP434100	MOTOR, 1800 RPM (24"), ASM.	1	Q	A-MP409401	CONTROLLER, TRACTION,	1
G1	A-MP414800	BREAKER, CIRCUIT, 70A (20" & 24")	1	R	A-MP414900	BREAKER, CIRCUIT, 40 AMP	1
H	A-MP207000	SOLENOID, 36 VDC, SPNO	1	S	A-MP254600	DIODE, 400VDC, 6 AMP, ASM.	1
I	A-MP234700	FUSE, GLASS, 3 AMP	1	T	A-SA028000	LED, RED, REPLACEMENT, KIT	1
J1	A-SA027500	CHARGER, 110V, 36V, ASM.	1	U	A-MP318400	SWITCH, MICRO, 12V, 15A, 1" LEVER	1
J2	A-SA027600	CHARGER, 220V, 36V, ASM.	1	V	A-MP427500	WIRE, 10 AWG, RED, 3"L 1	1
J3	A-SA028100	CHARGER, AUSTRALIAN, ASM.	1	W	A-MP427600	WIRE, 10 AWG, RED, 16"L 1	1
K	A-MP279700	CABEL, BATT./ CONNECTOR	1	X	A-MP427700	WIRE, 10 AWG, BLACK, 12"L 1	1

Sub Assembly



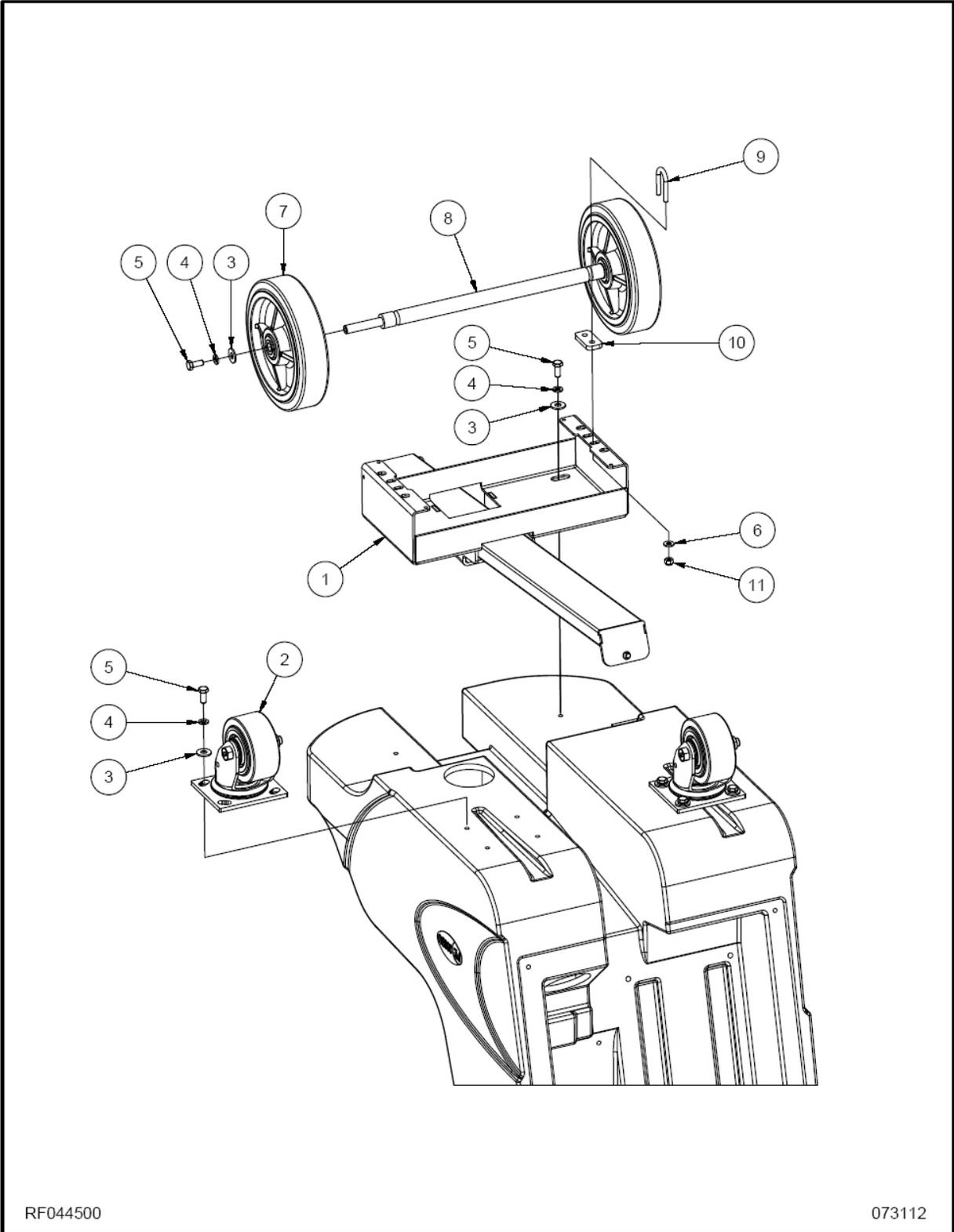
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Sub Assembly Continued

Ref. #	Part Number	Description	Qty
1A	A-MP425200	SKIRT, 20", ASM. (20")	1
1B	A-MP434200	SKIRT, 24", ASM. (24")	1
2	A-NB050600	BOLT, HEX, TAP, 1/4-20 x 2-1/2"	1
3	A-NB3350	WASHER, FLAT, 1/4"	2
4	A-MX1045	NUT, HEX, 1/4-20	1
5A	A-MP139800	EDGING, SKIRT, (20")	6FT
5B	A-MP139800	EDGING, SKIRT, (24")	7FT
6	A-MP6600	VELCRO, FELT, BLACK	2
7	A-MP423700	BRACKET, MNT, AXLE/TRANSAXLE	1
8	A-MP423800	TUBE, MOUNT, SHROUD, WLDMT.	1
9	A-MP237100	BUSHING, FLANGED, 1/2 ID X 3/8 L	6
10	A-NB039704	PIN, CLEVIS, 1/2" X 4-1/2"	1
11	A-NB025600	PIN, PRESTO, 3/32 X 1 5/8, SS	1
12	A-MP414300	BALL, STUD, LONG, 10MM	1
13A	A-NB068900	BOLT, HEX, TAP, 1/2-13 X 1 3/4	1
13B	A-NB068800	BOLT, HEX, TAP, 7/16-14 X 1 1/2	1
14A	A-NB014600	NUT, LOCK, 1/2-13 (20")	1
14B	A-NB067700	NUT, LOCK, 7/16-14 (24")	1
15	N/A		
16A	A-MP432600	SHROUD, 20", ASM (20")	1
16B	A-MP438800	SHROUD, 24", ASM (24")	1
17	A-MP237100	BUSHING, FLANGED, 1/2 ID X 3/8 L	2
18	A-MP318400	SWITCH, MICRO, 12V	1
19	A-NB9625 SC	REW, 4-40 X 3/4"	2
20	A-NB007000	NUT, LOCK, NYLON, 4-40	2
21	A-NB043800	GROMMET, 2" ID	1
22A	A-MP415100	VELCRO, LOOP, 1", (20")	6FT
22B	A-MP415100	VELCRO, LOOP, 1", (24")	7FT
23A	A-MP424200	MOTOR, 2000 RPM, ASM (20")	1
23B	A-MP434100	MOTOR, 1800 RPM, ASM (24")	1
24	A-NB6851	SCREW, CAP, HH, 3/8-16 X 3/4	4
25	A-MX1075	WASSHER, LOCK, 3/8"	4

Final Bottom Assembly (Non-Traction)



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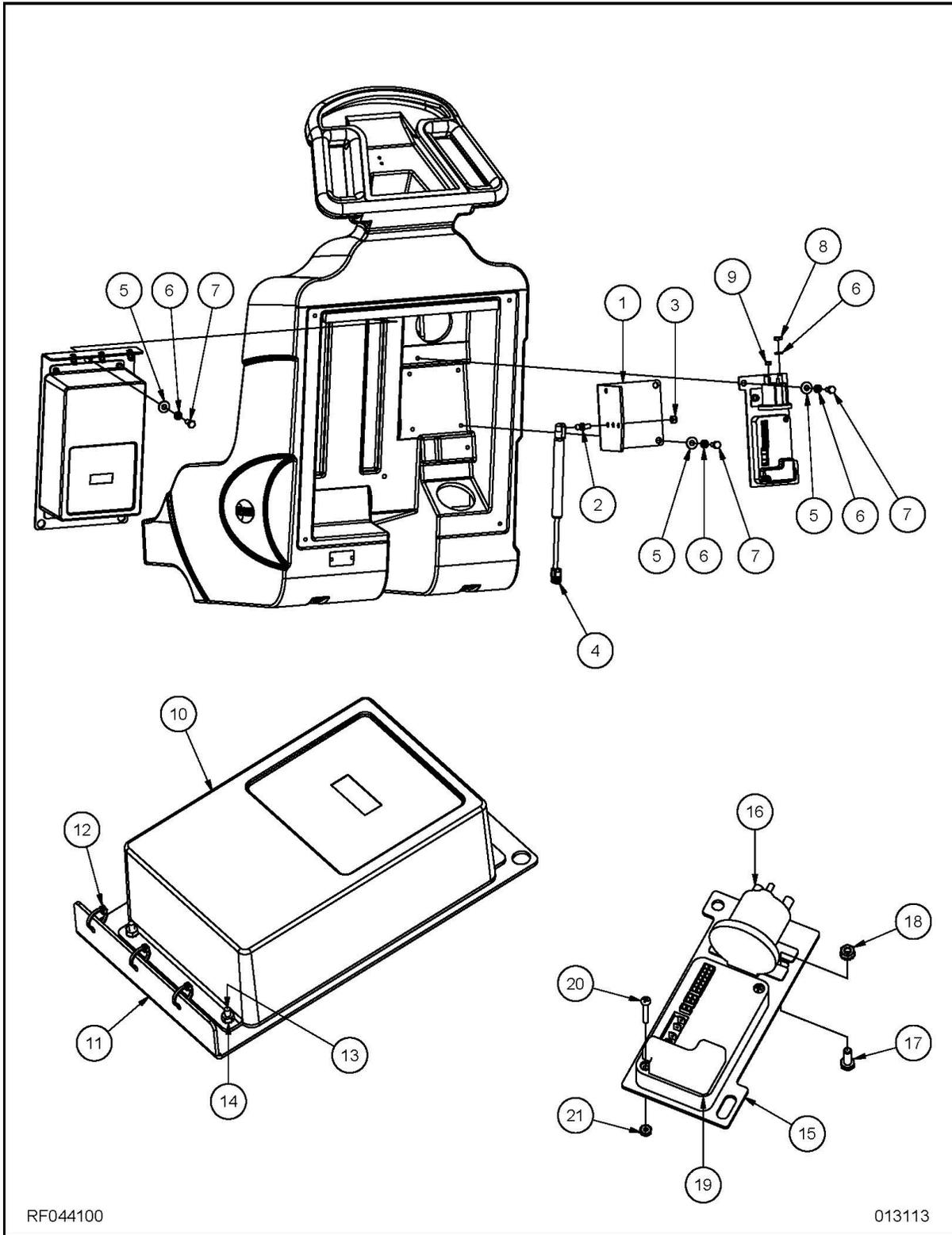
Final Bottom Assembly (Non-Traction) Continued

Ref. #	Part Number	Description	Qty
1A	MP424400	BRACKET, AXLE / TRANS AXLE, ASM., (20")	1
1B	MP440800	0 BRACKET, AXLE / TRANSAXLE, ASM. (24")	1
2	MP432500	CASTER, 4", SWIVEL, w/ BRAKE	2
3	NB9267	WASHER, FLAT, 5/16"	14
4	NB6111	WASHER, LOCK, 5/16"	14
5	NB9745	SCREW, CAP, 5/16"-18 X 3/4"	14
6	NB3350	WASHER, FLAT, 1/4"	4
7	MP409900	WHEEL, 8" X 2", W/SEALED BALL BEARING	2
8	MP423500	AXLE, 19"L, 1/ 1/2" DIA. ENDS	1
9	NB061600	BOLT, U, 1/4-20 X 5/8, 1 3/4 LEG	2
10	MP425301	SPACER, AXLE, 2" X 1" X 1/4"	2
11	NB3275	NUT, LOCK, 1/4"	4

Final Bottom Assembly (Traction) Continued

Ref. #	Part Number	Description	Qty
1A	A-MP424400	BRACKET, TRANSAXLE, ASM. (20")	1
1B	A-MP440800	BRACKET, TRANSAXLE, ASM. (24" & 30")	1
2	A-MP424500	TRANSAXLE, 36 VDC, ASM.	1
3	A-PG001801	BRACKET, TRANSAXLE, PAINTED	2
4	A-NB6545	SCREW, CAP, HH, 5/16"-18 X 1"	4
5	A-NB3265	NUT, LOCK, 5/16"-18, NC	4
6	A-BA003300	KEY, 3/16 X 1.50	2
7	A-NB018500	RING, RETAINER, 3/4"	2
8	A-MP409800	WHEEL, 8" X 2", DRIVE, GREY	2
9	A-NB9302	SCREW, SET, 1/4-20 X 3/8	4
10	A-NB9505	WASHER, FLAT, 5/16" X 1 1/2"	2
11	A-MP432500	CASTER, 4", SWIVEL, w/ BRAKE	2
12	A-NB9267	WASHER, FLAT, 5/16"	20
13	A-NB6111	WASHER, LOCK, 5/16"	14
14	A-NB9745	SCREW, CAP, 5/16"-18 X 3/4"	14

Final Rear Assembly



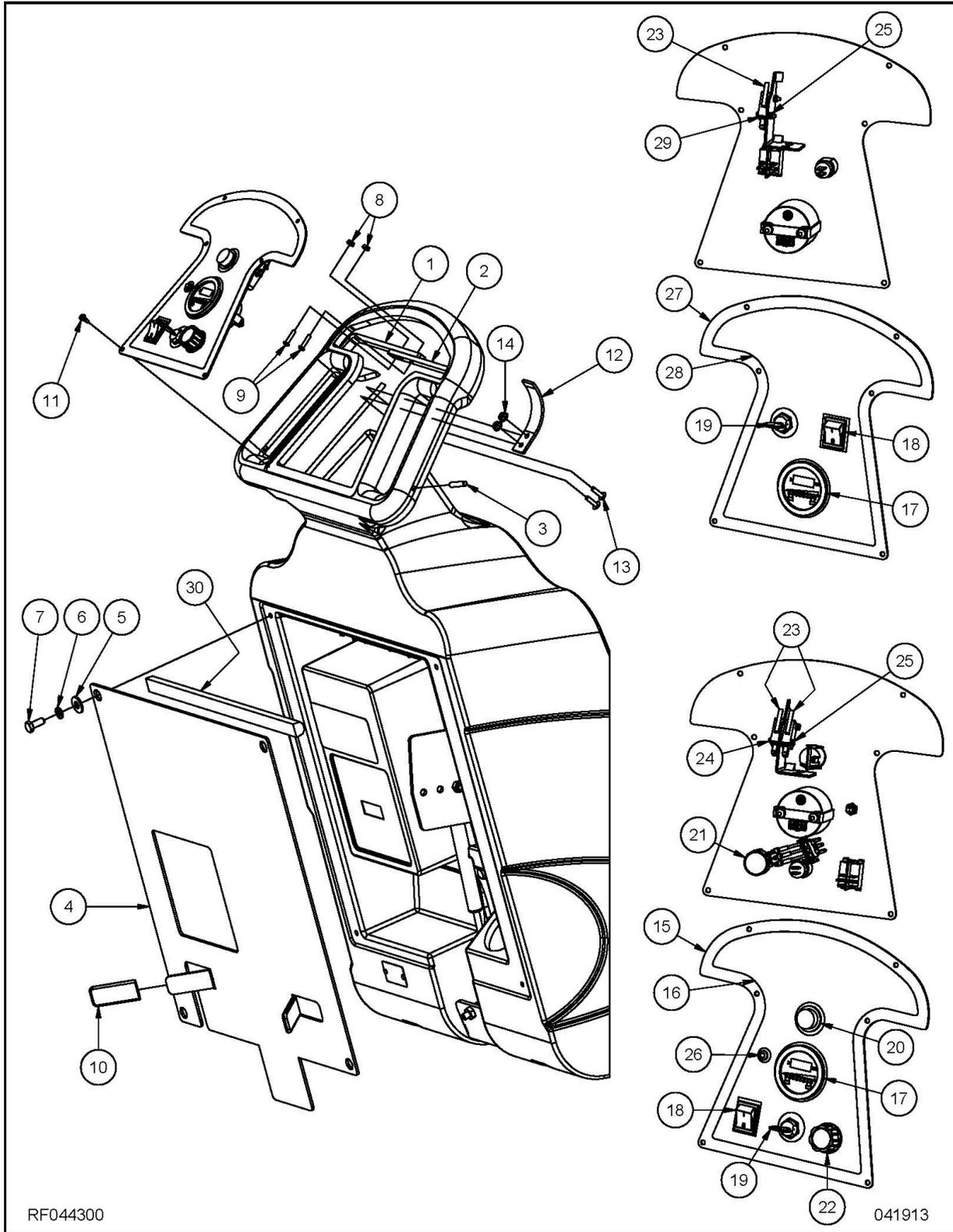
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Final Rear Assembly Continued

Ref. #	Part Number	Description	Qty
1	A-MP422901	PLATE, MOUNT, SHOCK	1
2	A-MP206000	BALL, STUD, 10MM	1
3	A-NB3265	NUT, LOCK, 5/16"-18, NC	1
4A	A-MP415200	SPRING, GAS, (20")	1
4B	A-MP434500	SPRING, GAS, (24")	1
4C	A-MP450300	SPRING, GAS, (30")	1
5	A-NB9267	WASHER, FLAT, 5/16"	9
6	A-NB6111	WASHER, LOCK, 5/16"	11
7	A-NB9745	SCREW, CAP, 5/16"-18 X 3/4"	9
8	A-NB005700	NUT, 5/16-24, JAM	2
9	A-NB006600	NUT, KEPS, 10-32	2
10	A-A SA027500	CHARGER, 110V IN, 36V OUT, ASM.	1
10	A-B SA027600	CHARGER, 220V IN, 36V OUT, ASM.	1
10	A-C SA028100	CHARGER, AUSTRALIAN, ASM.	1
11	A-MP423101	PLATE, MOUNT, CHARGER	1
12	A-NB6035	TIE, NYLON, 1/8 X 4, BLK	3
13	A-NB040400	SCREW, PAN HEAD, #10-32 UNF, X 3/4	4
14	A-NB006600	NUT, KEPS, 10-32	4
15	A-MP423001	PLATE, MOUNT, CONTACTOR	1
16	A-MP207000	SOLENOID, 36VDC, SPNO	1
17	A-NB6535	SCREW, CAP, HH, 1/4-20 X 3/4	2
18	A-NB9845	NUT, KEPS, 1/4-20	2
19	A-MP409401	CONTROLLER, TRAC., 36V	1
20	A-MX1011	SCREW, MACH, 8-32 X 1 1/4 (TRAC. ONLY)	2
21	A-NB9710	NUT, KEPS, 8-32, ZINC (TRAC. ONLY)	2

Final Top Assembly



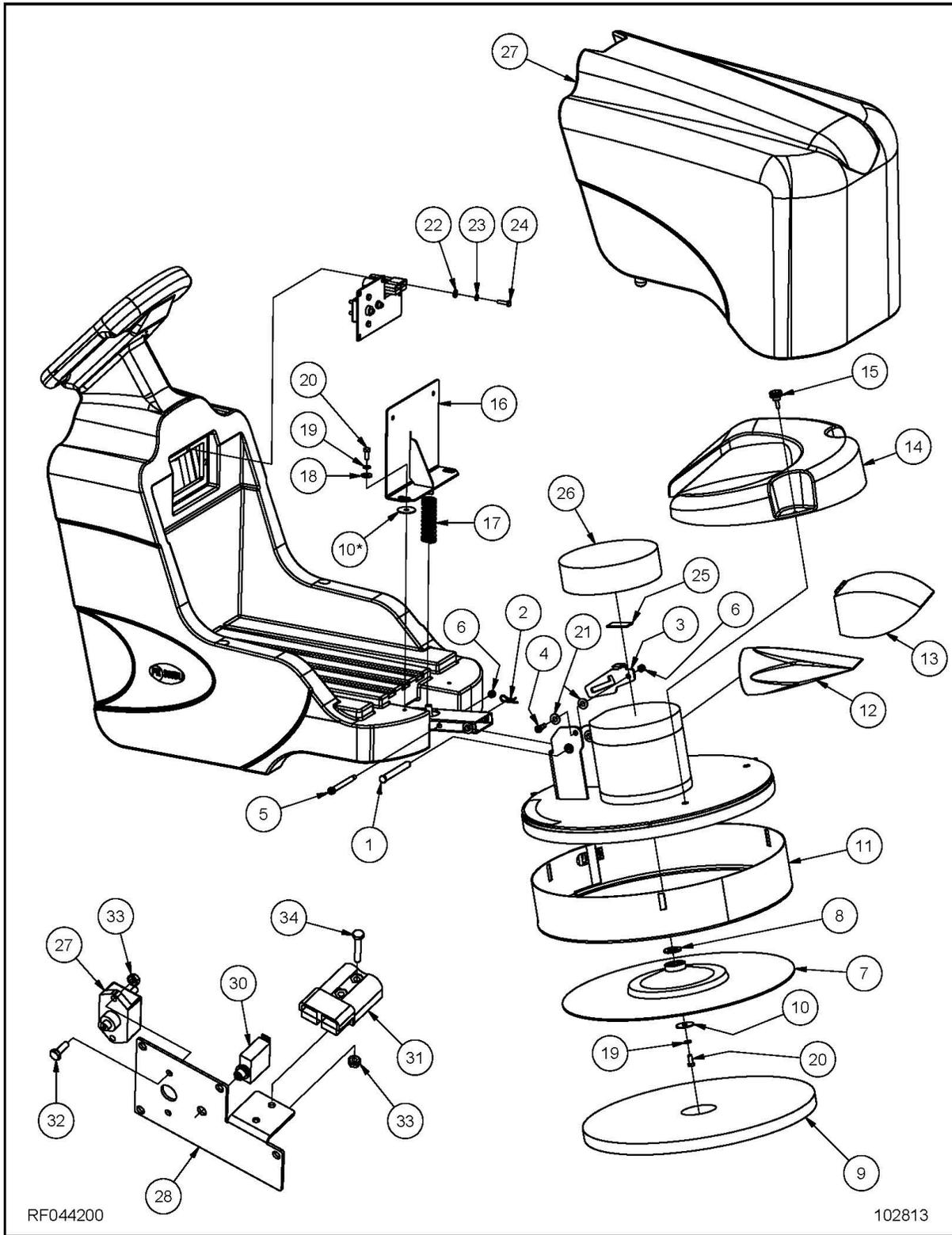
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Final Top Assembly Continued

Ref. #	Part Number	Description	Qty
1	A-MP423201	LEVER, HANDLE, LEFT	1
2	A-MP423202	LEVER, HANDLE, RIGHT	1
3	A-NB6390	PIN, ROLL, 1/4 X 1 1/8	2
4	A-MP431401	PLATE, COVER, REAR, W/ SLOT	1
5	A-NB9267	WASHER, FLAT, 5/16"	35
6	A-NB6111	WASHER, LOCK, 5/16"	33
7	A-NB9745	SCREW, CAP, 5/16"-18 X 3/4"	30
8	A-NB9710	NUT, KEPS, 8-32, ZINC	2
9	A-NB041200	SCREW, PAN HEAD, #8 X 3/4"	2
10	A-MP077400	COVER, TENSION, SPRING	2
11	A-NB043600	SCREW, PH, HI-LO, #8 x 3/8"	6
12	A-MP432900	SPRING, HANDLE LEVER, 1/8"X1"X 4"	1
13	A-MX1025	SCREW, PAN HD. 10-24 X 3/4	2
14	A-NB9510	NUT, SPIN LOCK, 10-24	2
15	A-MP431600	PANEL, CONTROL, TRACTION, WLDMNT	1
16	A-MP426200	DECAL, CONTROL PANEL, TRACTION	1
17	A-MP414501	METER, HOUR/ BATTERY IND.,	1
18	A-MP414600	SWITCH, ROCKER, DPST 1	1
19A	A-A MP411300	SWITCH, KEY, 36V 1	1
19B	A-B KC4834001	REPLACEMENT KEY (NOT SHOWN)	1
20	A-MP415000	SWITCH, PUSH, 250V(TRAC. ONLY)	1
21	A-PG016400	POTENTIOMETER, ASM. (TRAC. ONLY)	1
22	A-MP418000	KNOB, PHENOLIC, (TRAC. ONLY)	1
23	A-MP318400	SWITCH, MICRO, 12V, 15A, 1" LEVER	1
24	A-NB051000	SCREW, MACH., PAN HD., 4-40 X 1	2
25	A-NB007000	NUT, LOCK, NYLON, 4-40	4
26	A-SA028000	LED, RED, 36V REPLACEMENT KIT	1
27	A-MP424100	PANEL, CONTROL, PAD ASSIST	1
28	A-MP426300	DECAL, CONTROL PANEL, 300BU	1
29	A-NB9625	SCREW, 4-40 X 3/4"	2
30	A-MP038300	MOLDING, TRIM	16"

Final Front Assembly



RF044200

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Final Front Assembly Continued

Ref. #	Part Number	Description	Qty
1	A-NB039704	PIN, CLEVIS, 1/2" X 4-1/2"	1
2	A-NB025600	PIN, PRESTO, 3/32 X 1 5/8, SS	1
3	A-MP423301	LATCH, TILT, SHROUD	1
4	A-NB026200	SCREW, SHOULDER, 3/8" X 1/2"	1
5	A-NB038600	SCREW, SHOULDER, 3/8 X 3-1/2	1
6	A-NB3265	NUT, LOCK, 5/16"-18, NC	2
7A	A-MP414000	PADHOLDER, 20", W/ PAD RETAINER	1
7B	A-MP435000	PADHOLDER, 24", W/ PAD RETAINER	1
7C	A-MP432400	RETAINER, PAD (NOT SHOWN)	
8	A-NB018600	WASHER, FLAT, 3/4"	1
9		SEE ROUTINE MAINTENANCE PARTS LIST	
10	A-NB9505 W	WASHER, FLAT, 5/16" X 1 1/2"	1
11	A-A MP425200	SKIRT, STEEL, 20", ASM.	1
11	A-B MP434200	SKIRT, STEEL, 24", ASM.	1
12	A-MP414100	BAG, DUST, CLOTH	1
13	A-MP414200	BAG, DUST, PAPER, 3 PACK	1
14	A-MP431300	COVER, DUST BAG	1
15	A-MP155600	KNOB, FLUTED, 1/4-20	2
16	A-MP423900	RETAINER, BATTERY, WELDMENT	1
17	A-A MP415300	SPRING, COMP. (20")	1
17	A-B MP434400	SPRING, COMP. (24")	1
18	A-NB9267	WASHER, FLAT, 5/16"	2
19	A-NB6111	WASHER, LOCK, 5/16"	3
20	A-NB9745	SCREW, CAP, 5/16"-18 X 3/4"	3
21	A-NB025200	WASHER, FLAT, 3/8", SS	2
22	A-NB3350	WASHER, FLAT, 1/4"	4
23	A-NB6110	WASHER, LOCK, 1/4"	4
24	A-NB6530	SCREW, CAP, HH, 1/4-20 X 1	4
25	A-MP8300	VELCRO, HOOK, 1" w/ ADHESIVE	2"
26	A-MP464800	FILTER, DUST, MOTOR, 7.75" ID	1
27	A-MP432700	COVER, BATTERY, w/ DECAL	1
28	A-MP422801	PLATE, MOUNT, PLUG, BATTERY	1
29	A-A MP414800	BREAKER, CIRCUIT, 70 AMP (20" & 24")	1
30	A-MP414900	BREAKER, CIRCUIT, 40 AMP (TRAC. ONLY)	1
31	A-MP427200	CABLE, BATT, 2 AWG, ASM.	1
32	A-NB6535	SCREW, CAP, HH, 1/4-20 X 3/4	2
33	A-NB9845	NUT, KEPS, 1/4-20	4
34	A-NB9000	SCREW, CAP, 1/4"-20 X 1 1/2", GD5	2



IPC Eagle

Warranty Policy

Limited Warranty

Eagle Power Products (EPP) warrants new cleaning equipment against defects in material and workmanship under normal use and service to the original purchaser as detailed below.

10 Years

Subject to the conditions stated below, EPP warrants polyethylene tanks and housings to be free from defects in materials and workmanship for a period of ten years.

3 Years

Subject to the conditions stated below, EPP warrants all automatic scrubber components to be free from defects in materials and workmanship for a 3-year period. Parts replaced or repaired are warranted for the remainder of the original warranty period.

1 Year

Subject to the conditions stated below, EPP warrants all other cleaning equipment components to be free from defects in materials and workmanship for a 1-year period. Parts replaced or repaired are warranted for the remainder of the original warranty period. Batteries are prorated for one year.

EPP will furnish and charge for replacement parts, including transportation, to the original owner through an EPP authorized service center. If the part is returned within 30 days and is found defective, the owner will be credited for the cost of the replacement part including shipping and handling.

Labor charges are covered for one year from the date of purchase if provided by an authorized EPP service center. Travel is covered for 90 days for battery operated equipment only.

Wear items exempt from warranty include belts, carbon brushes, power cords, wheels, pad drivers, clutch plates, brushes, pads, handle grips, filters, screens, throttle cables, and squeegees.

This warranty shall not apply to failures caused by misuse or abuse, improper maintenance as stated in the operation manuals, use of unauthorized repair parts, repairs by other than an EPP authorized service center, and damage in transit.

EPP disclaims and denies any liability for any direct, indirect, special incidental or consequential damage which may be suffered as a result of sale, delivery, servicing, use, loss of any product, downtime, labor, freight, or other charges not expressly included herein.

Date Purchased: _____

Model Number: _____

Serial Number: _____

Please be sure to record this information. This information will be necessary for future warranty claims.



IPC Eagle

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