

# ***Minuteman***<sup>®</sup> ***PowerBoss***<sup>®</sup>

Model:  
PB38036CE  
PB38036QP  
PB38036QPI

## ***PowerBoss 38*** **Floor Scrubber** **Traction Driven**

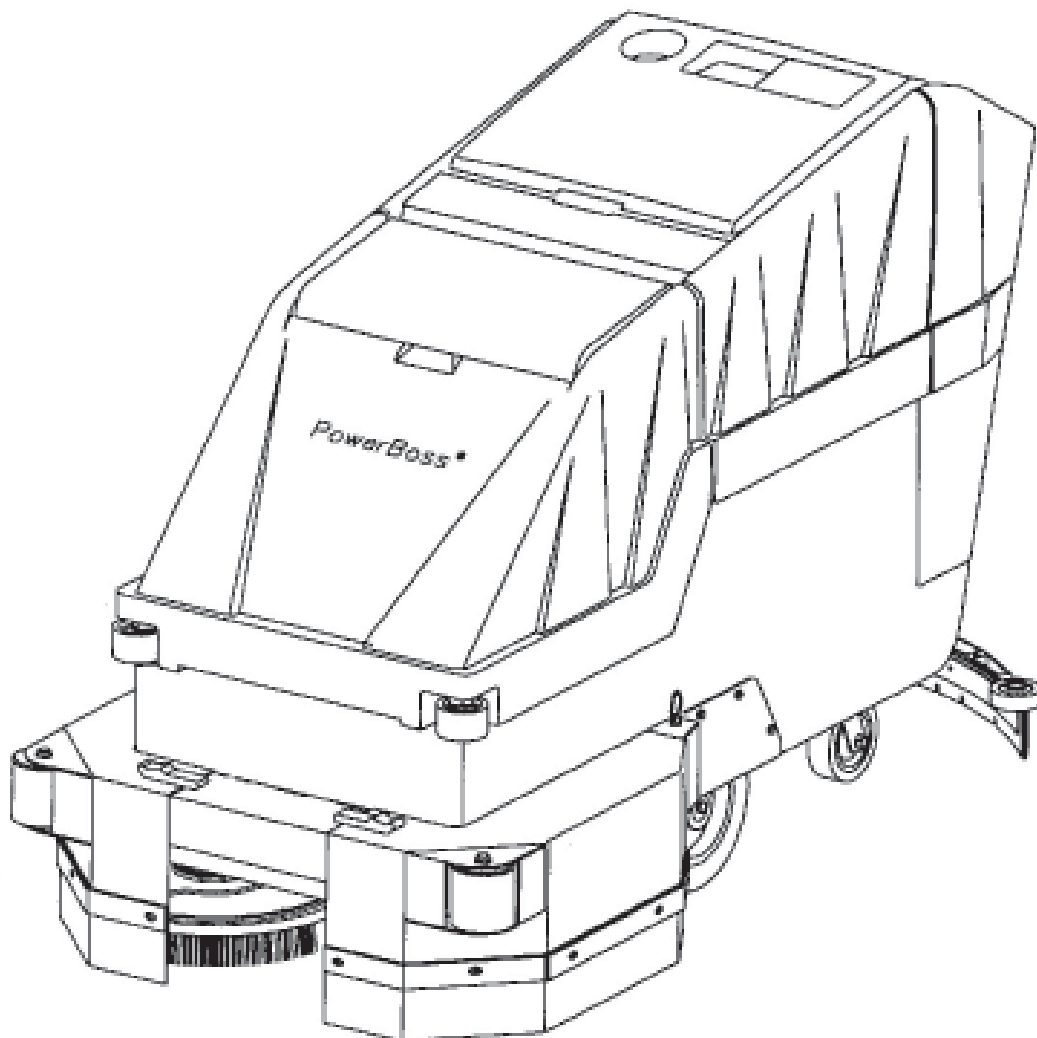
With Old Style Squeegee and Transaxle

OPERATION

SERVICE

PARTS

CARE



## EC Declaration of Conformity

according to Directives 89/392, 89/336 and 72/73

We, Minuteman International Incorporated, of 111 South Rohlwing Road Addison Illinois 60101 USA, declare under our sole responsibility that the product MC38036CE and PB38036CE Automatic Floor Scrubbing machines to which this declaration relates corresponds to the relevant requirements of the EC Directives 89/392, 89/336 and 72/73. The following standards were used to determine compliance with the Directives: EN 292, EN 294, EN 811, EN 55011, EN 55104, EN 50082-2, EN 60335-1 and IEC 335-2-72.

| SOUND   |                        | VIBRATION  |                    |        |       |         |              |      |           |     |                      |      |  |  |
|---|------------------------|--|--------------------|--------|-------|---------|--------------|------|-----------|-----|----------------------|------|--|--|
| <b>72 dB<br/>Operator</b>   | <b>69 dB<br/>At 3m</b> | <b>1.9 m/s<sup>2</sup><br/>At Operators Hand Grips</b> |                    |        |       |         |              |      |           |     |                      |      |  |  |
| Tests were conducted on 10/19/98 with calibrated sound and vibration equipment under the conditions noted below: <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 33%;">General Condition:</td> <td style="width: 33%;">Cloudy</td> <td style="width: 33%;">Wind:</td> <td style="width: 33%;">0 km/hr</td> </tr> <tr> <td>Temperature:</td> <td>21°C</td> <td>Humidity:</td> <td>85%</td> </tr> <tr> <td>Barometric Pressure:</td> <td>29.3</td> <td></td> <td></td> </tr> </table> |                        |  | General Condition: | Cloudy | Wind: | 0 km/hr | Temperature: | 21°C | Humidity: | 85% | Barometric Pressure: | 29.3 |  |  |
| General Condition:  | Cloudy                 | Wind:  | 0 km/hr            |        |       |         |              |      |           |     |                      |      |  |  |
| Temperature:  | 21°C                   | Humidity:  | 85%                |        |       |         |              |      |           |     |                      |      |  |  |
| Barometric Pressure:  | 29.3                   |  |                    |        |       |         |              |      |           |     |                      |      |  |  |

  
 \_\_\_\_\_  
 Kenneth Kaczmarz, Standards Engineer

3/19/99  
 \_\_\_\_\_  
 Date

## TABLE OF CONTENTS

|                               | <b>Page</b> |
|-------------------------------|-------------|
| Safety Instructions           | 1           |
| Electrical Requirements       | 2           |
| Control Panel Identification  | 3           |
| Squeegee Adjustments          | 4           |
| Operating Instructions        | 5           |
| Maintenance of Machine        | 6 & 7       |
| Polyethylene Components       | 8 & 9       |
| Recovery Tank                 | 10          |
| Solution Tank                 | 11          |
| Drive Assemblies              | 12 & 13     |
| Main Frame                    | 14 & 15     |
| Console Assembly              | 16 & 17     |
| Scrubhead Assembly            | 18          |
| Squeegee Mechanism Assembly   | 19          |
| Squeegee Assembly Complete    | 20          |
| Wiring Diagram CE Model       | 21          |
| Wiring Diagram Standard Model | 22          |

## **IMPORTANT SAFETY INSTRUCTIONS**

### **CAUTION**

Operators must read and understand this manual before operating or maintaining this equipment.

- Keep hands and feet clear of moving parts while machine is in operation.
- All switches must be in the “OFF” position when charging batteries.
- Electrical motors and components can cause an explosion when operated near explosive materials or vapors. Do not operate this machine near flammable materials such as solvents, thinners, fuels, grain dusts, etc.
- Make sure all switches are turned “OFF” and battery connections are removed before performing any maintenance procedures.
- Store or park this machine on a level surface only.
- These machines are designed for level floor operation only. **DO NOT OPERATE** on ramps or inclines.
- Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.
- This machine is not suitable for picking up hazardous dust.
- Charging batteries generates explosive gases. **DO NOT CHARGE BATTERIES WHEN OPEN FLAMES OR SPARKS ARE PRESENT. DO NOT SMOKE.** Make sure the charger is turned off before disconnecting it from the batteries. Charge the batteries in a well-ventilated area.
- Maintenance and repairs must be performed by authorized personnel.

**SAVE THESE INSTRUCTIONS**

**ELECTRICAL REQUIREMENTS:**

This piece of equipment operates on 36 Volt DC.

**BATTERY REQUIREMENTS:**

6 x 6V 220AH P/N 956720

6 x 6V 275AH P/N 956740

**BATTERY SERVICE AND INSTALLATION:**

\* Warning: Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.

**BATTERY INSTALLATION:**

1. Raise tank assembly by raising rear cover and disconnecting vacuum recovery hose, Figure 1.
2. Tilt recovery tank.
3. Install batteries as shown in figure 2.

**CHARGING OF BATTERIES:**

Charging of batteries generates explosive gases. DO NOT CHARGE BATTERIES WHEN OPEN FLAMES OR SPARKS ARE PRESENT. DO NOT SMOKE. Make sure the charger is turned off before disconnecting it from the batteries. Charge the batteries in a well-ventilated area. Fluid levels should be checked before and after charging and maintained at the proper levels.

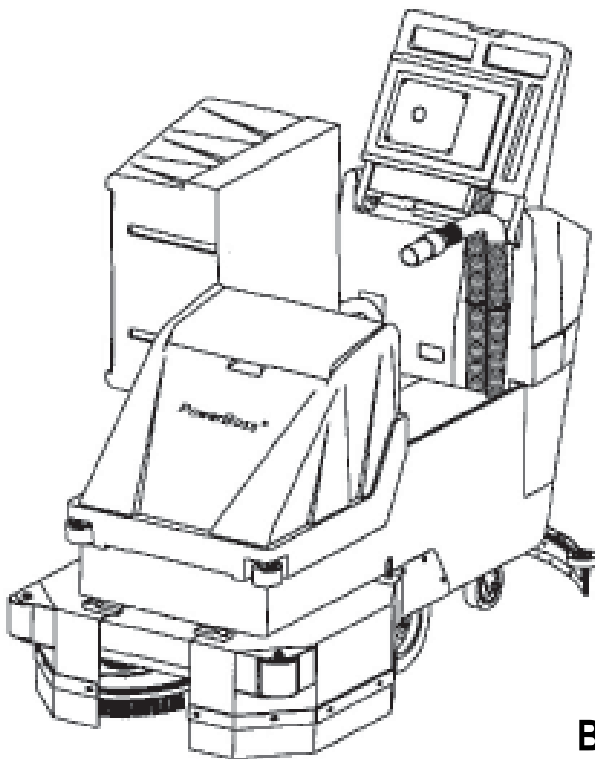
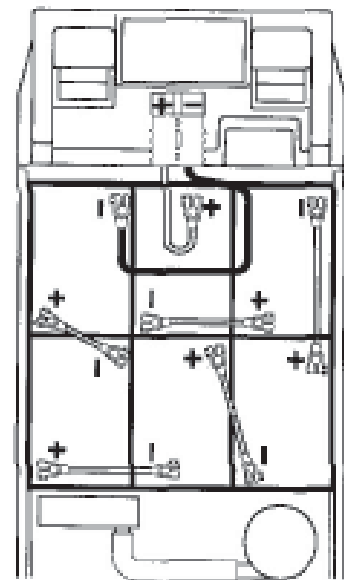


Figure 1

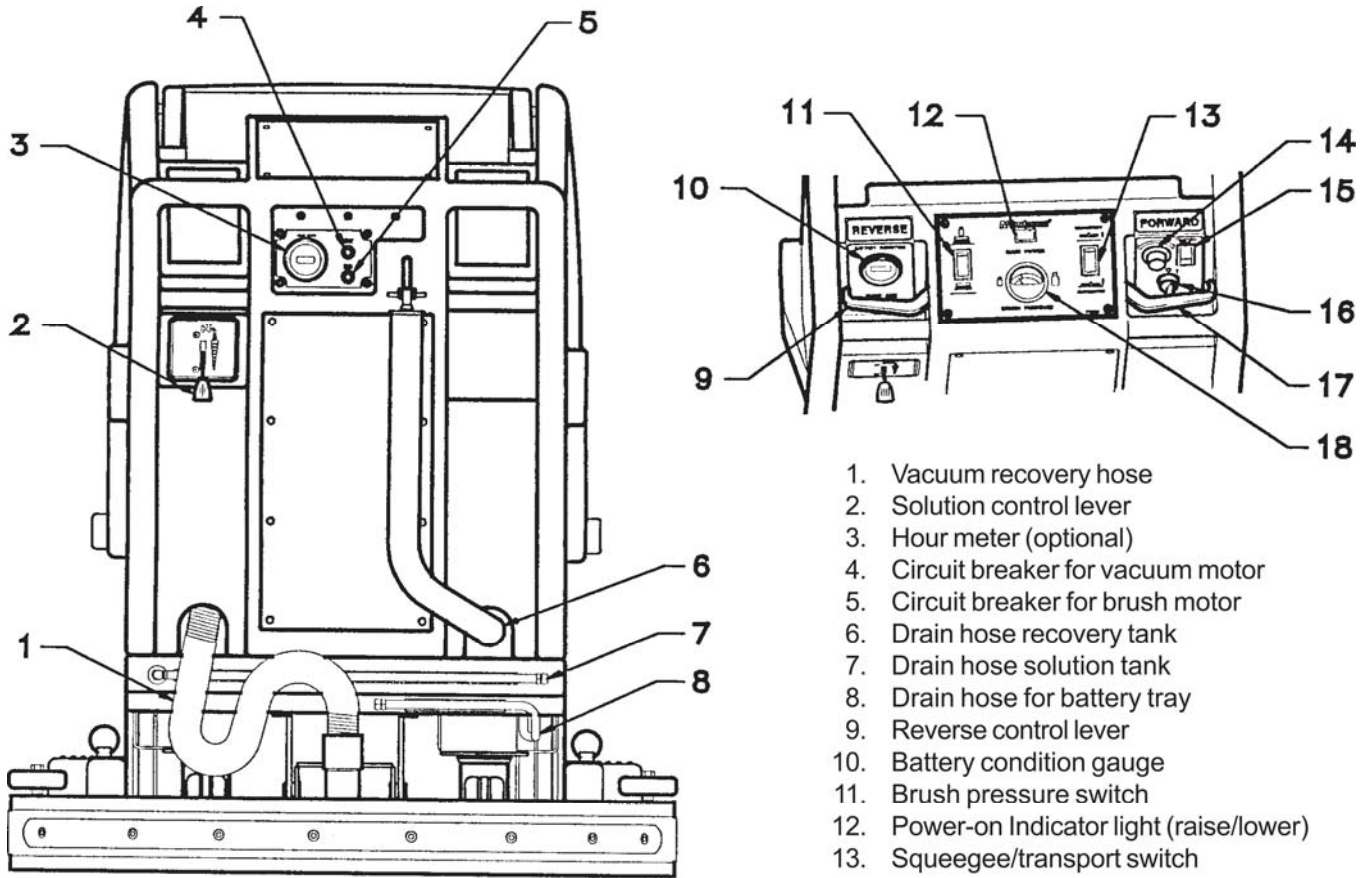
Battery Cable Set  
Part # 320245



↓ FRONT OF MACHINE ↓

Figure 2

# CONTROL PANEL IDENTIFICATION



1. Vacuum recovery hose
2. Solution control lever
3. Hour meter (optional)
4. Circuit breaker for vacuum motor
5. Circuit breaker for brush motor
6. Drain hose recovery tank
7. Drain hose solution tank
8. Drain hose for battery tray
9. Reverse control lever
10. Battery condition gauge
11. Brush pressure switch
12. Power-on Indicator light (raise/lower)
13. Squeegee/transport switch
14. Speed control knob
15. Main power switch
16. Key switch (optional)
17. Forward control lever
18. Brush pressure gauge

## AUTO SCRUBBER BRUSH DESCRIPTION

| TYPE        | DESCRIPTION  | DURABILITY* | COLOR      | COMPARISON TO PADS | RECOMMENDED USE  |
|-------------|--|-------------|------------|--------------------|--|
| Bassine     | Natural Fiber  | Short       | DarkBrown  | Red                | Light duty general cleaning, acid etching  |
| Nylon       | Nylon  | Medium      | Black      | Tan/Red            | General cleaning & scrubbing vinyl floors, ceramic tile & concrete floors                          |
| Dyna-Scrub  | Nylon impregnated with 500 Grit Silicon Carbide Fine Bristle, Dense Fill | Long        | Light Blue | Red                | General scrubbing, vinyl tile, ceramic tile, epoxy floors, urethane finish, uneven concrete floors |
| Power-Scrub | Nylon impregnated with 120 Grit Silicon Carbide Fine Bristle, Dense Fill | Long        | Rust       | Red/Blue           | Moderate aggressive scrubbing, tile floors concrete floors   |
| Poly-Grit   | Nylon impregnated with 80 Grit Silicon Carbide Coarse Bristle            | Long        | Green      | Brown/Black        | Aggressive stripping and scrubbing, tile floors, unfinished concrete floors                        |
| Strata-Grit | Nylon impregnated with 46 Grit Silicon Carbide Coarse Bristle            | Long        | Dark Blue  | Black              | Heavy duty stripping/scrubbing unfinished concrete   |

\* Durability is dependent on floor surface, chemicals used and proper care.

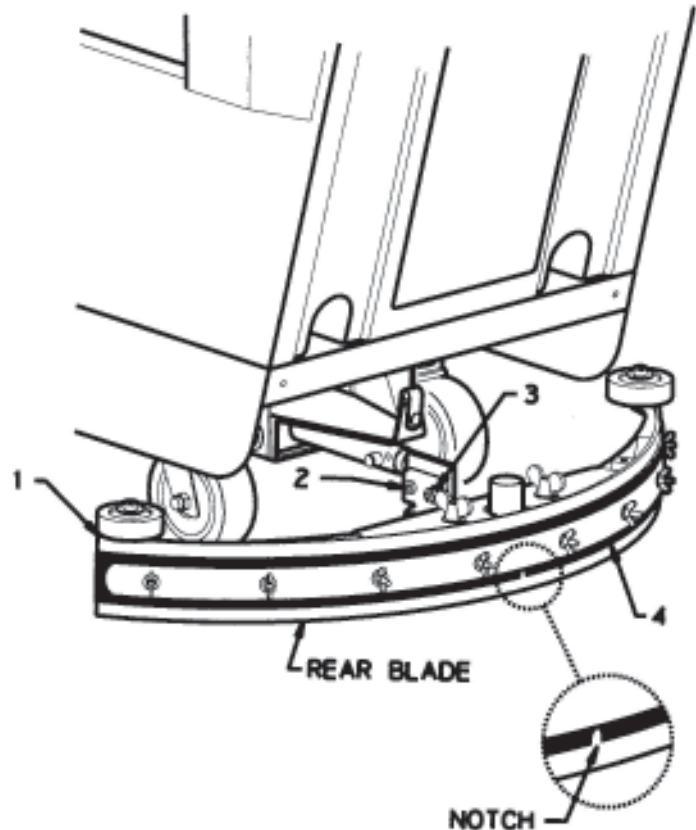
# SQUEEGEE ADJUSTMENTS

## Squeegee Adjustment

The squeegee set-up is pre-adjusted at the factory. Adjustments may be required to get optimum performance for different floors and conditions.

### 1. Pitch Control Adjustment

2. Ensure that the scrubber is on a relatively flat surface. Turn on the main power switch and raise the scrub head assembly off the floor. Set the squeegee/ vacuum switch to the automatic mode.
3. Turn the speed control knob counter-clockwise to the low speed position. Squeeze the forward control lever to lower the squeegee (item 1) to the floor. Move the machine one or two feet forward to check the rear squeegee blade for uniform deflection to the floor.
4. If uneven deflection or lay is evident, minor adjustments may be necessary to avoid streaking and uneven wear on the blade.
5. To correct this, pitch adjustment is necessary. Loosen the pivot screw (item 2) and the pitch screw (item 3). Move the machine forward and allow the squeegee to level itself or adjust the angular position accordingly to achieve a uniform blade deflection. Re-tighten screws.
6. In certain applications where a different blade set-up is required, the reinforcement blade (item 4) may be turned upside down. The notch, which is normally on the bottom will now be located on the top side. This adjustment allows the rear squeegee blade a larger deflection than normal.





# OPERATING INSTRUCTIONS

1. Filling: Fill the solution tank with the desired amount of water and add liquid cleaning solution to the proper dilution ratio. **DO NOT USE** powdered cleaning chemicals. Powders are unlikely to dissolve thoroughly, resulting in clogging the in-line solution filter. This can reduce or stop water flow to the brush.
2. Close lid.
3. Turn on main power switch (Refer to Page 3 #16).
4. Adjust main speed control #15 to full counter-clockwise position.
5. Lower brush assembly (ref. page 3 #12) using switch. Brushes will not come on until forward #18 or reverse #10 lever are pulled. Brushes will remain on for 3 to 5 seconds after levers are released. Adjustments to brush pressure can be made by depressing switch #12 and reading brush pressure gauge #19.
6. Squeegee Control/Vacuum. Switch #14 has two positions one is for **transport**/ double scrubbing, when the switch is in this position the squeegee will raise and the vacuum will turn off. With the switch in **automatic** mode the squeegee will automatically lower in forward movement of the machine and vacuum will turn on. When the machine is reversed the squeegee will automatically raise and the vacuum motor will turn off.
7. Solution Control #2. The solution lever is a mechanical cable that opens the solution valve. This lever must be moved to the full on position then decrease to desired flow to operate properly.

## AUTOMATIC PARKING BRAKE OPERATION (CE Only):

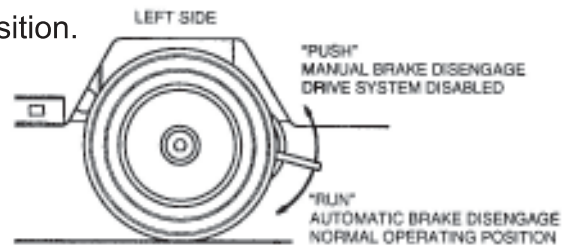
Brake lever located behind left wheel.

**Run Mode** - Normal operation; Brake lever in down position.

- When the power is turned off the brake is automatically engaged.
- When the power is turned on the brake is automatically disengaged and the drive system is enabled.

**Push Mode** - Machine inoperable; Brake lever in up position.

- Brake is manually disengaged.
- Power is shut off to the drive system.



## MAINTENANCE:

Daily

1. Clean float assembly & squeegee blades. Vac filter.
2. Recharge batteries (check battery acid levels before and after charging).

Monthly

1. Check wear on squeegee blades.
2. Grease rear wheels.
3. Grease pivot points on brush motor assembly.



# MAINTENANCE OF MACHINE

## VACUUM MOTOR

Motor brushes can be replaced with Brush Set, Part No. 741008. Brushes should be replaced only once. More than once brush replacement will cause very high current consumption. This undue current consumption lowers overall machine performance and is not in the best interest of economical machine use.

## CARBON BRUSHES IN DRIVE MOTOR

Inspect these brushes once every 18 months or 720 hours.

The brushes can now be inspected by removing the brush caps near the end of the drive motor. Examine all four brush lengths; if the back end of a brush is even with the edge of the brush holder or shorter, the brush must be replaced. Replace with Brush Set, Part No. 744155. When installing new brushes, also inspect commutator for pits and/or excessive wear. If it is in poor condition, replace drive motor with Part No. 744154.

Also check and adjust drive train when servicing drive motor brushes. Follow procedures outlined on section *Drive Chain*.

## CARBON BRUSHES IN BRUSH DRIVE MOTORS

Inspect these brushes once every six months or 360 hours.

Remove scrub head assembly. Examine brush lengths; if the back end of brush is even with the edge of the brush holder or shorter, the brush must be replaced. Replace with Part No. 833474. When installing new brushes, also inspect commutator for pits and/or excessive wear. Replace motor with Part No. 742714 if commutator is in poor condition.

## LUBRICATION

1. Grease casters once every week (two fittings per caster) or 15 hours.
2. Oil all moving parts such as hinges and pressure points once every month or every 60 hours.

## SQUEEGEE RUBBERS

When the thick rear squeegee rubber is damaged or worn excessively, it will cause streaking and poor solution pickup. Extended rubber life and be obtained by reversing it, provided it is not torn or otherwise damaged. Do not tighten screws so tightly that squeegee rubbers are made to bulge and show an uneven edge.

## TANKS

At the end of a day's work (or work cycle, both the vacuum and solution tanks should be drained and flushed with warm water.

Once a week for 15 hours the vacuum tank should be cleaned of settled debris. This can be done by lowering the drain hose and washing out the debris.

## BATTERIES (956720, 956740)

Periodically remove batteries from machine. Clean batteries, battery tray, and battery compartment with a solution of baking soda and water. Check all battery cables and wiring for signs of damage or wear. Replace as needed. Check battery fluid level each charge. Check electrolyte with hydrometer every 15 hours.

## TROUBLE SHOOTING

1. Inefficient scrubbing - floors are smeared in appearance.

Solution: Use proper type and correct amount of detergent. Replace worn or damaged scrub attachments. Increase force on scrubbing head.

2. Squeegee streaks.

Solution: Check rear squeegee rubber for imbedded objects, clean; reverse, or replace if worn or damaged. Make sure scrub solution is being fed onto brush properly. Use more scrubbing solution. Replace well-worn scrubber attachments.

3. Odor development.

Solution: Inspect and clean thoroughly the vacuum tank, solution tank, squeegee, vacuum motor, vacuum hose. NOTE: Super Staph-Trole 256 disinfectant cleaner can be helpful in reducing odors.

4. Vacuum not picking up.

Solution: Water lift should be 60-65" with fully charged batteries. Check seals around vacuum motor and hose connections. Check vacuum tank drain hose and plug to insure seal. Check hoses for holes. Clean out squeegee inlet and check squeegee rubbers for severe wear. Make sure solution is properly feeding into scrubhead attachments. Clean and/or repair vacuum motor.

5. Charger malfunction.

Solution: Consult maintenance and repair data contained in brochure herewith for detailed information. In general, make sure charger is put in upright position when charging - this helps keep unit cool. Do not cover charger when it is in use. Make sure connectors on inlet and outlet cords are not broken. Check AC input voltage – it should be 110 volts, 120 volts, maximum. Replace faulty fuses, ammeter, timer, or other components, when necessary.

6. Use cycle too short.

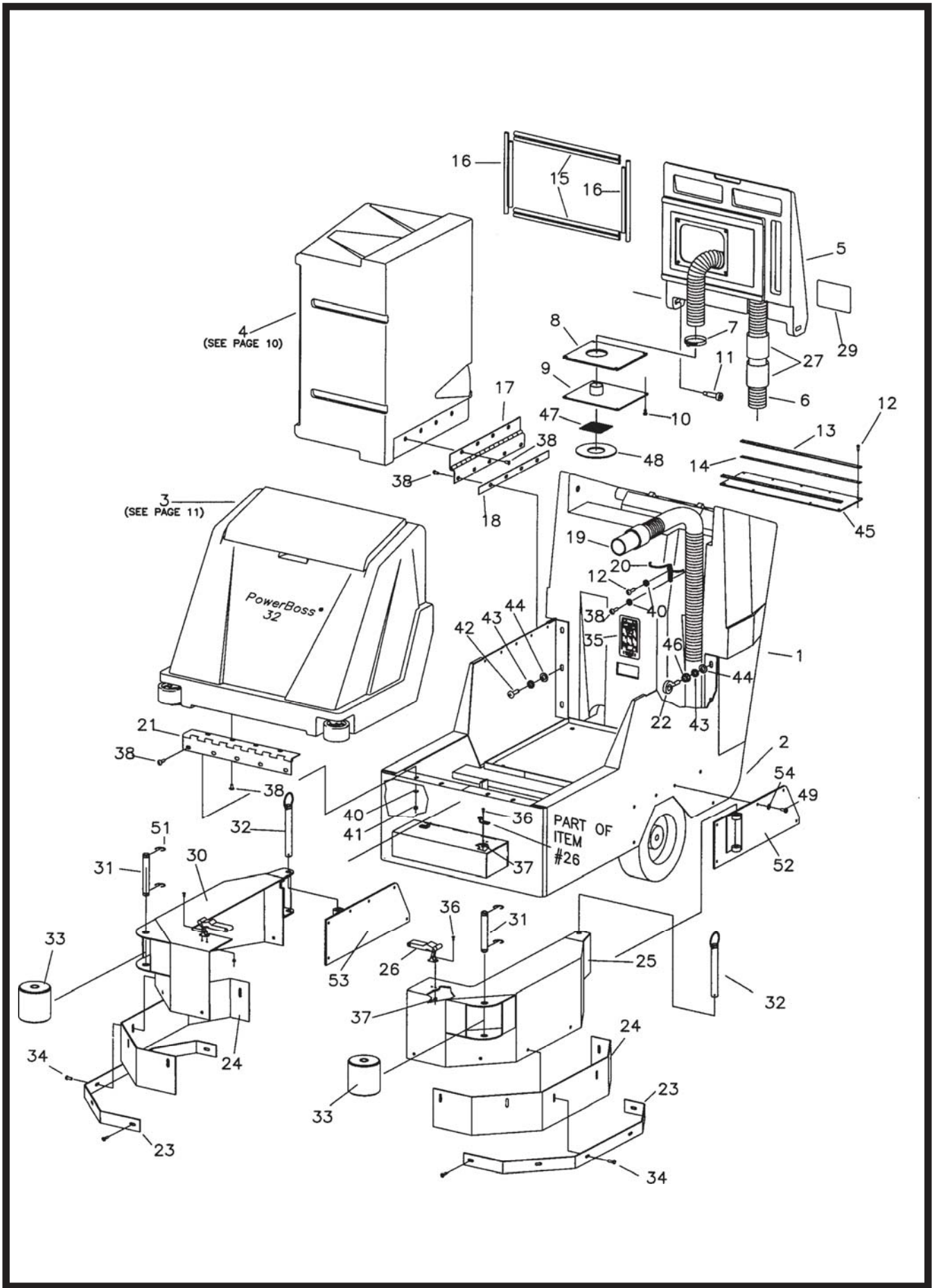
Solution: Check voltage on batteries after full charging; output voltage should be 43-45 volts with specific gravity at 1.260-1.265. Check battery electrolyte level. Check for loose or corroded battery leads and connections. Replace batteries that will not hold a charge. Lubricate casters. Reduce scrubbing pressure. Check brushes on motors, especially on vacuum motor. Replace brushes on motors when needed. Test charger for output, it may need repair.

7. Motors will not start or run.

Solution: Check battery leads and connection for corrosion and looseness; correct if required. Check switches for proper contacting; replace if required. Check motor brushes; replace brushes or motors if required.

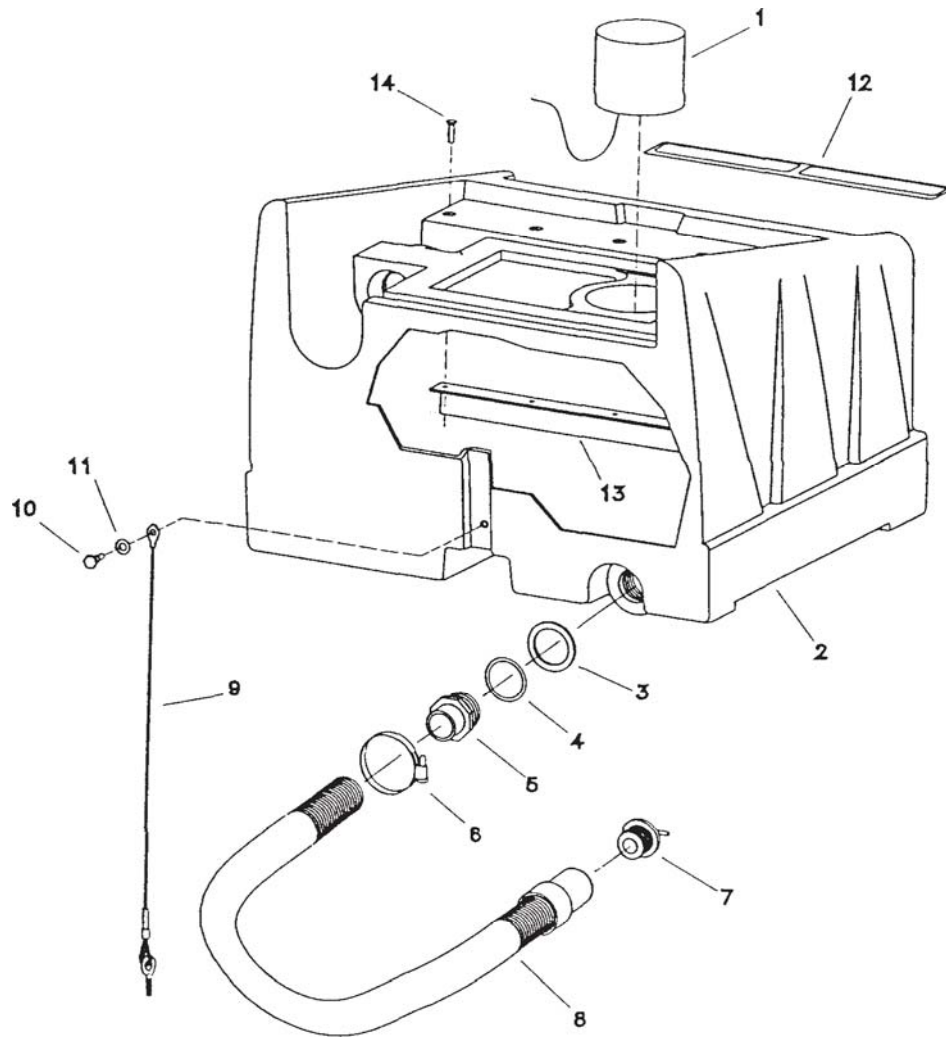
8. Speed control does not function.

Solution: The speed control has built-in protection to guard against reversed connections, check battery connections. Machine locked in high or low speed. Inspect entire speed control for burn marks of components that have broken. These would be caused by a direct short in the circuit. Replace entire control as needed.



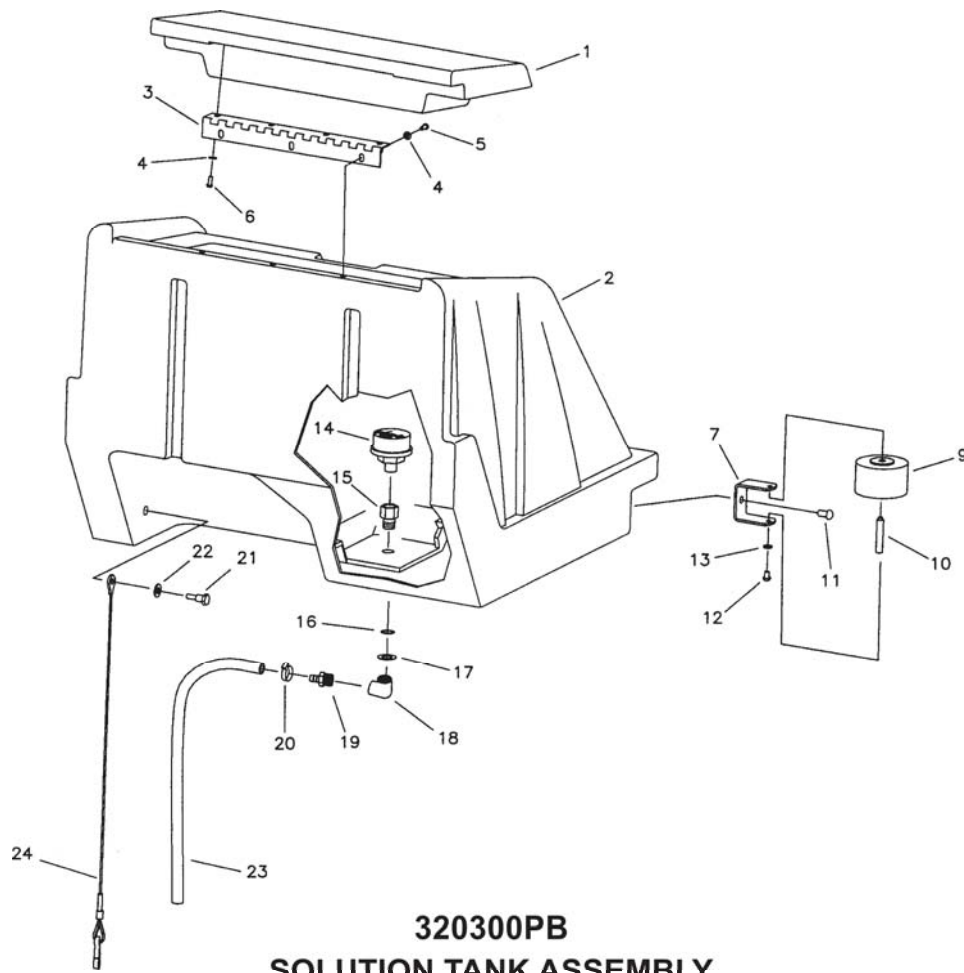
# Parts List

| Item | Part No. | Qty. | Description                  |
|------|----------|------|------------------------------|
| 1    | 320122   | 1    | Console Machined             |
| 2    | 320730   | 1    | Mainframe PowerBoss 32/38    |
| 3    | 320300PB | 1    | Solution Tank Assembly       |
| 4    | 320200   | 1    | Recovery Tank Assembly       |
| 5    | 320146B  | 1    | Recovery Lid Burgundy        |
| 6    | 320220   | 1    | Vacuum Hose Long             |
| 7    | 260203   | 1    | Wire Grip Hose Clamp         |
| 8    | 320222   | 1    | Gasket                       |
| 9    | 320178   | 1    | Water Shut-Off Plate         |
| 10   | 712540   | 6    | SCR-MC 10-24 x .37 SS TH     |
| 11   | 712102   | 2    | Bolt-Shoulder 1/2-20 x 1.50  |
| 12   | 711161   | 11   | SCR-Hi/Lo 10 x 5/8           |
| 13   | 260170   | 2    | Retainer Flap                |
| 14   | 760263   | 2    | Foam Tape 16.50"             |
| 15   | 320239   | 2    | Lid Gasket Long              |
| 16   | 260157   | 2    | Lid Gasket Short             |
| 17   | 320145   | 1    | Recovery Tank Hinge          |
| 18   | 320144   | 1    | Backing Strap                |
| 19   | 450090   | 1    | Recovery Hose Assembly       |
| 20   | 320208   | 1    | Retaining Hook               |
| 21   | 260087   | 1    | Hinge                        |
| 22   | 712086   | 1    | 5/16 Wire Eyebolt            |
| 23   | 320283   | 2    | Skirt Retainer               |
| 24   | 320284   | 2    | Rubber Skirt                 |
| 25   | 320280   | 1    | Shroud Weldment - Left Side  |
| 26   | 340664   | 2    | Latch                        |
| 27   | 260192   | 2    | Sleeve                       |
| 28   |          |      |                              |
| 29   | 715619   | 1    | Warning Decal                |
| 30   | 320279   | 1    | Shroud Weldment - Right Side |
| 31   | 380215   | 1    | Roller Pin                   |
| 32   | 711811   | 2    | Hitch Pin, Cotterless        |
| 33   | 66-436-A | 2    | Roller Wheel                 |
| 34   | 712565   | 17   | SCR-MC 10-24 x .50 SS        |
| 35   | 715628   | 1    | Battery Decal                |
| 36   | 712810   | 8    | SCR-MC 10-32 x 3/8           |
| 37   | 711350   | 8    | Nut-Nyloc 10-32              |
| 38   | 712565   | 20   | SCR-MC 1/4-20 x .75 SS       |
| 39   |          |      |                              |
| 40   | 711504   | 6    | WSR-Flat 1/4 SS              |
| 41   | 712667   | 4    | Nut-Nyloc 1/4-20             |
| 42   | 710196   | 5    | SCR-MC 5/16-18 x .75 ST PL   |
| 43   | 711545   | 6    | WSR-Helical 5/16             |
| 44   | 711506   | 6    | WSR-Flat 5/16 STPL           |
| 45   | 320244   | 1    | Lid Flap                     |
| 46   | 711379   | 1    | Nut-Flanged Wizz 5/16-18     |
| 47   | 807051   | 1    | Screen Filter 4.0 x 4.0      |
| 48   | 260294   | 1    | Gasket 2.0 x 4.0 x .125      |
| 49   | 711202   | 12   | Bolt-HH 1/4-20 x .50         |
| 50   |          |      |                              |
| 51   | 809148   | 4    | Retaining Ring               |
| 52   | 320275   | 1    | Side Plate Weldment - Left   |
| 53   | 320276   | 1    | Side Plate Weldment - Right  |
| 54   | 711544   | 12   | WSR-Helical 1/4              |



**320200  
RECOVERY TANK ASSEMBLY**

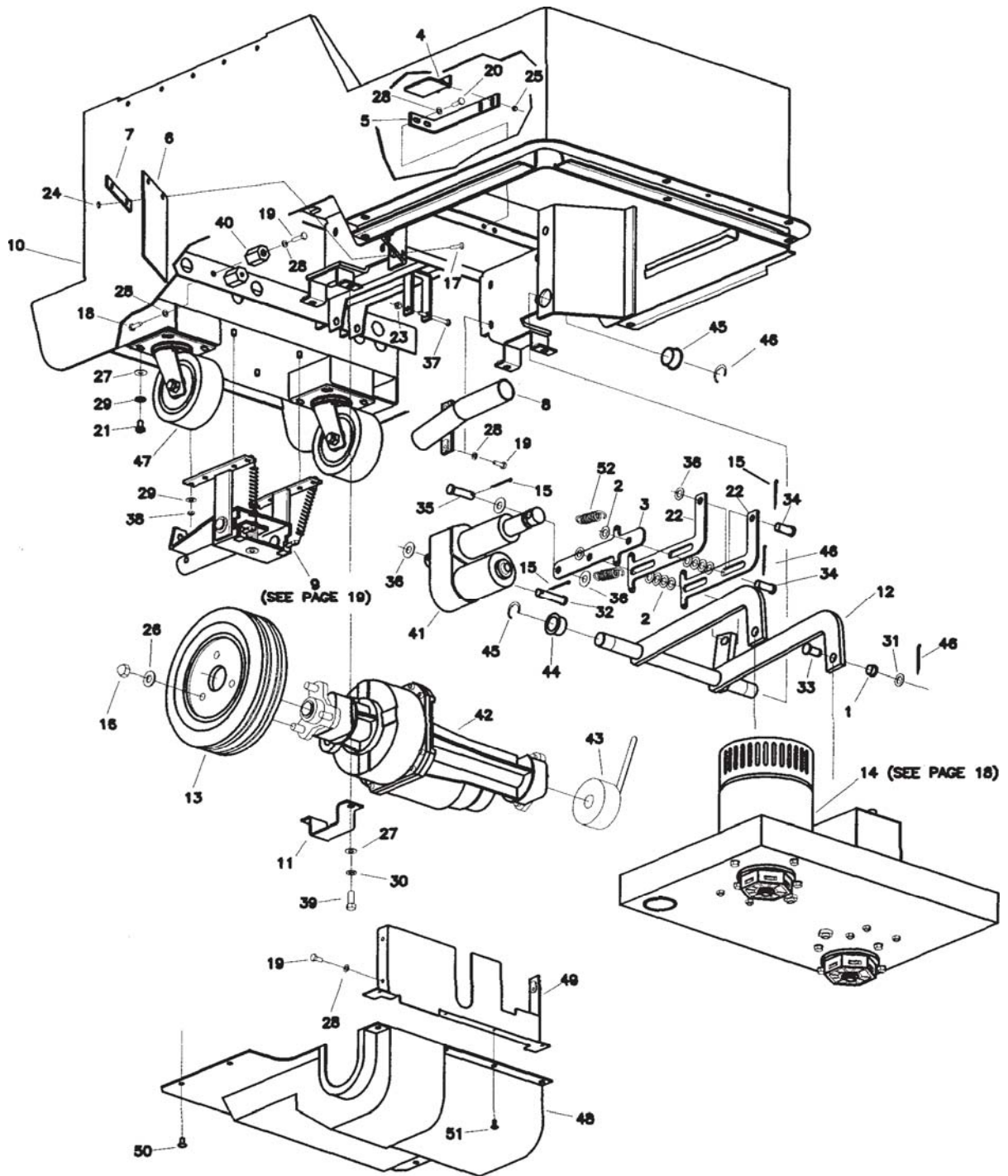
| Item | Part No.  | Qty. | Description                  |
|------|-----------|------|------------------------------|
| 1    | 260156    | 1    | Foam Float Assembly          |
| 2    | 320121    | 1    | Recovery Tank                |
| 3    | 828970    | 1    | WSR-Neop 1.81 x 2.37         |
| 4    | 450081    | 1    | WSR-SS 1.908 x 2.41 x .03    |
| 5    | 760220MCH | 1    | 1.5 Adaptor Gray             |
| 6    | 260203    | 1    | Hose Clamp Wire Grip         |
| 7    | 833316    | 1    | Drain Plug 1 1/4             |
| 8    | 260202    | 1    | Drain Hose Assembly          |
| 9    | 320206    | 1    | Recovery Tank Cable          |
| 10   | 712575    | 1    | 5/16-18 x .75 HH SS          |
| 11   | 711506    | 1    | WSR-Flat 5/16                |
| 12   | 715620    | 1    | Decal "Maintenance Schedule" |
| 13   | 320009    | 1    | Backing Angle                |
| 14   | 712563    | 5    | SCR-MC 1/4-20 x 1.00 FH      |



**320300PB  
SOLUTION TANK ASSEMBLY**

| Item | Part No. | Qty. | Description                     |
|------|----------|------|---------------------------------|
| 1    | 260029   | 1    | Solution Lid                    |
| 2    | 320120   | 1    | Solution Tank                   |
| 3    | 450021   | 1    | Hinge                           |
| 4    | 712764   | 7    | WSR-SS #10                      |
| 5    |          |      |                                 |
| 6    | 712540   | 7    | SCR-MC 10-24 x .37 SS TH        |
| 7    | 832949   | 2    | Bracket - Bumper                |
| 8    |          |      |                                 |
| 9    | 832896   | 2    | Guide Wheel                     |
| 10   | 833254   | 2    | Bumper Wheel Axle               |
| 11   | 710985   | 2    | SCR-SC 3/8-16 x .62             |
| 12   | 710353   | 2    | SCR-MC 10-32 x .37              |
| 13   | 711553   | 2    | WSR-Internal Lock 10            |
| 14   | 130118   | 1    | Solution Strainer M3-40         |
| 15   | 210409   | 1    | Adapter Brass 3/8 FPT x 3/8 MPT |
| 16   | 210414   | 1    | O-Ring                          |
| 17   | 711513   | 1    | WSR-Flat .69 x 1.06 x .03 SS    |
| 18   | 700028   | 1    | 90° Union EL 3/8 FPT x FPT 3/8  |
| 19   | 320265   | 1    | 3/8 Dubl-Barb x 3/8 MPT         |
| 20   | 450076   | 1    | Crimp Clamp SS 185R             |
| 21   | 712575   | 1    | 5/16-18 x .75 HH SS             |
| 22   | 711506   | 1    | WSR-Flat 5/16                   |
| 23   | 320252   | 1    | Hose, Nylon                     |
| 24   | 210020   | 1    | Solution Tank Cable Assembly    |

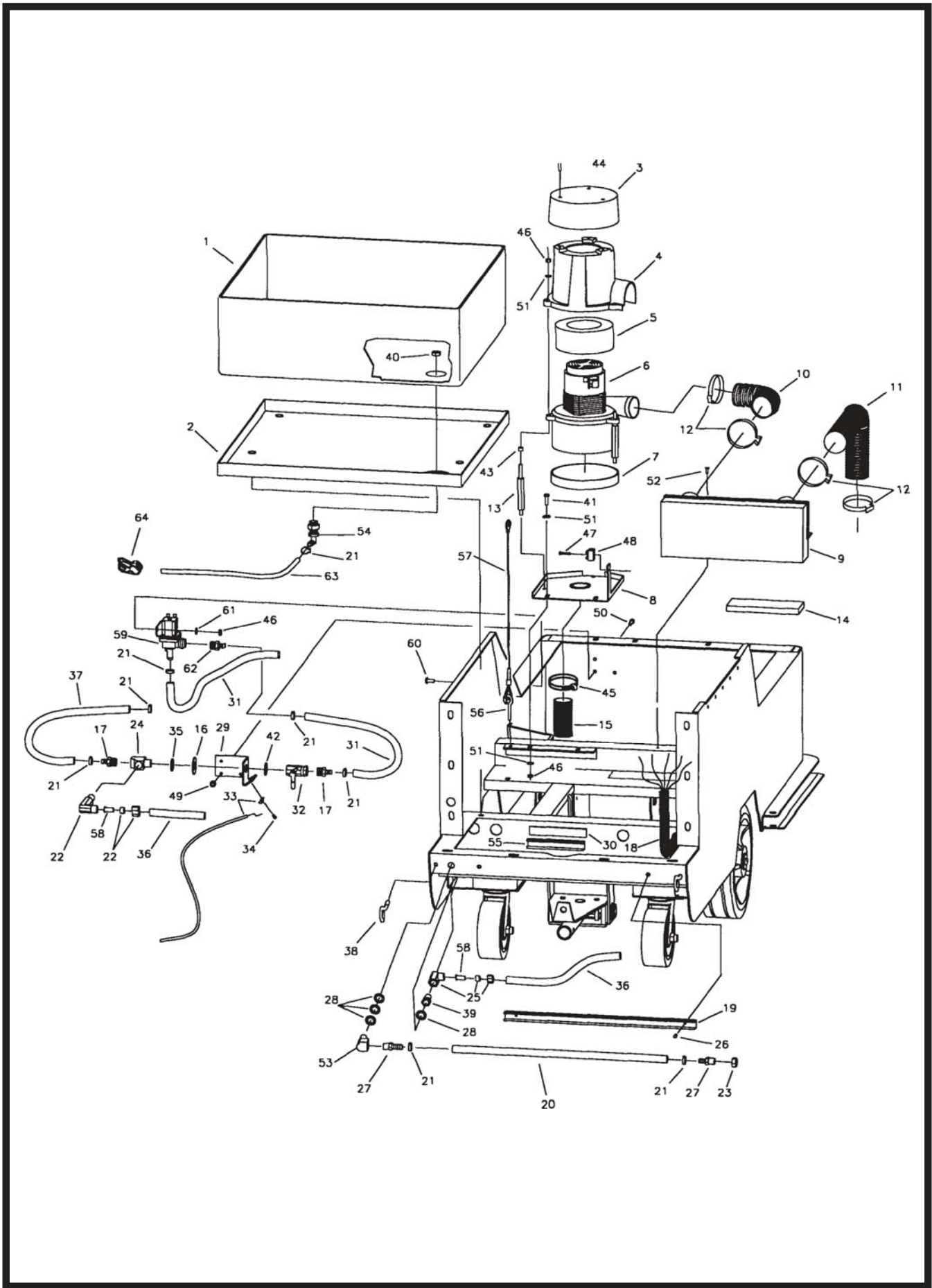






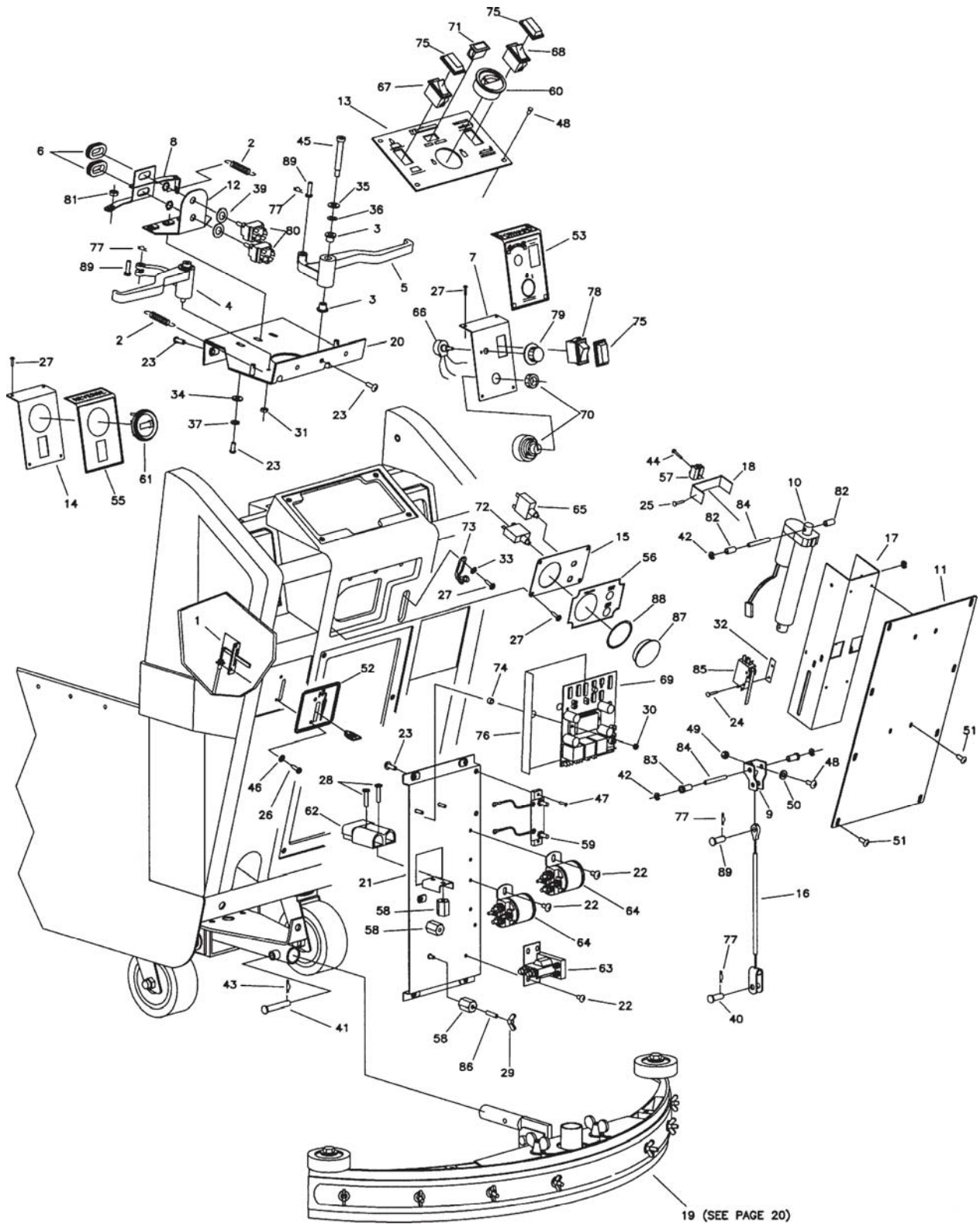
# Parts List

| Item | Part No.   | Qty. | Description                 |
|------|------------|------|-----------------------------|
| 1    | 260041     | 2    | 1/2" Oilite Bushing         |
| 2    | 711579     | 10   | WSR-Flat .56 x 1.00 x .100  |
| 3    | 320732     | 1    | Link, Brush Press, Adj.     |
| 4    | 320174     | 1    | Switch Bracket              |
| 5    | 320175     | 1    | Bracket Arm                 |
| 6    | 320213     | 1    | Splash Guard                |
| 7    | 320214     | 1    | Retainer Strap              |
| 8    | 320236     | 1    | Vacuum Pipe Weldment        |
| 9    | 320450     | 1    | Squeegee Mech. Asm. Comp.   |
| 10   | 320700     | 1    | Mainframe Weldment          |
| 11   | 320705     | 2    | Transaxle Bracket, Lower    |
| 12   | 320735     | 1    | Lift Weldment               |
| 13   | 320731     | 2    | Wheel 10 x 2.75, 3 Bolt     |
| 14   | 320750     | 1    | Scrubhead Assembly Complete |
| 15   | 380-532-20 | 3    | Cotter Key                  |
| 16   | 670070     | 6    | Acorn Nut 1/2-20            |
| 17   | 710180     | 2    | SCR-MC 1/4-20 x .75         |
| 18   | 711202     | 2    | BLT-HH 1/4-20 x .50         |
| 19   | 711203     | 10   | BLT-HH 1/4-20 x 5/8         |
| 20   | 711206     | 2    | BLT-HH 1/4-20 x 3/4         |
| 21   | 711228     | 8    | BLT-HH 5/16-18 x .75        |
| 22   | 320733     | 2    | Link, Spring Adjuster       |
| 23   | 711373     | 1    | Nut-Nyloc 1/4-20            |
| 24   | 711425     | 2    | Nut-Flanged Wizz 1/4-20     |
| 25   | 711427     | 2    | Nut-Flanged Wizz 10-24      |
| 26   | 711509     | 6    | WSR-Flat 1/2                |
| 27   | 711515     | 12   | WSR-Flat .38 x .82 x .05    |
| 28   | 711544     | 16   | WSR-Helical 1/4             |
| 29   | 711545     | 12   | WSR-Helical 5/16            |
| 30   | 711546     | 4    | WSR-Helical 3/8             |
| 31   | 711594     | 2    | WSR-Flat .56 x .88 x .03    |
| 32   | 711669     | 1    | Clevis Pin 1/2 x 2.25       |
| 33   | 711672     | 2    | Clevis Pin 1/2 x 2          |
| 34   | 712108     | 3    | Clevis Pin 1/2 x 1.25       |
| 35   | 712109     | 1    | Clevis Pin 1/2 x .1.75      |
| 36   | 712310     | 4    | WSR-Flat .52 x .87 x .06    |
| 37   | 712574     | 1    | BLT-SS Carr 1/4-20 x 3.00   |
| 38   | 712680     | 4    | 5/16-18 Nut SS              |
| 39   | 713042     | 4    | BLT-HH 3/8-16 x 1.00 #5     |
| 40   | 740132     | 2    | Insulator                   |
| 41   | 740802     | 1    | Actuator                    |
| 42   | 744151     | 1    | Transaxle 18" 36V           |
| 43   | 744151-1   | 1    | Brake, 320 Trans CE Only    |
| 44   | 809236     | 2    | 1 Oilite Flanged Bushing    |
| 45   | 809237     | 2    | Retaining Ring              |
| 46   | 809311     | 4    | Cotter Pin                  |
| 47   | 827110     | 2    | Caster                      |
| 48   | 320711     | 1    | Transaxle Cover             |
| 49   | 320712     | 1    | Splash Guard                |
| 50   | 710178     | 4    | SCR-MC 1/4-20 x .50 STPL    |
| 51   | 712534     | 4    | SCR-MC 10-24 x .50 SS       |
| 52   | 320407     | 2    | Spring, Extension           |



# Parts List

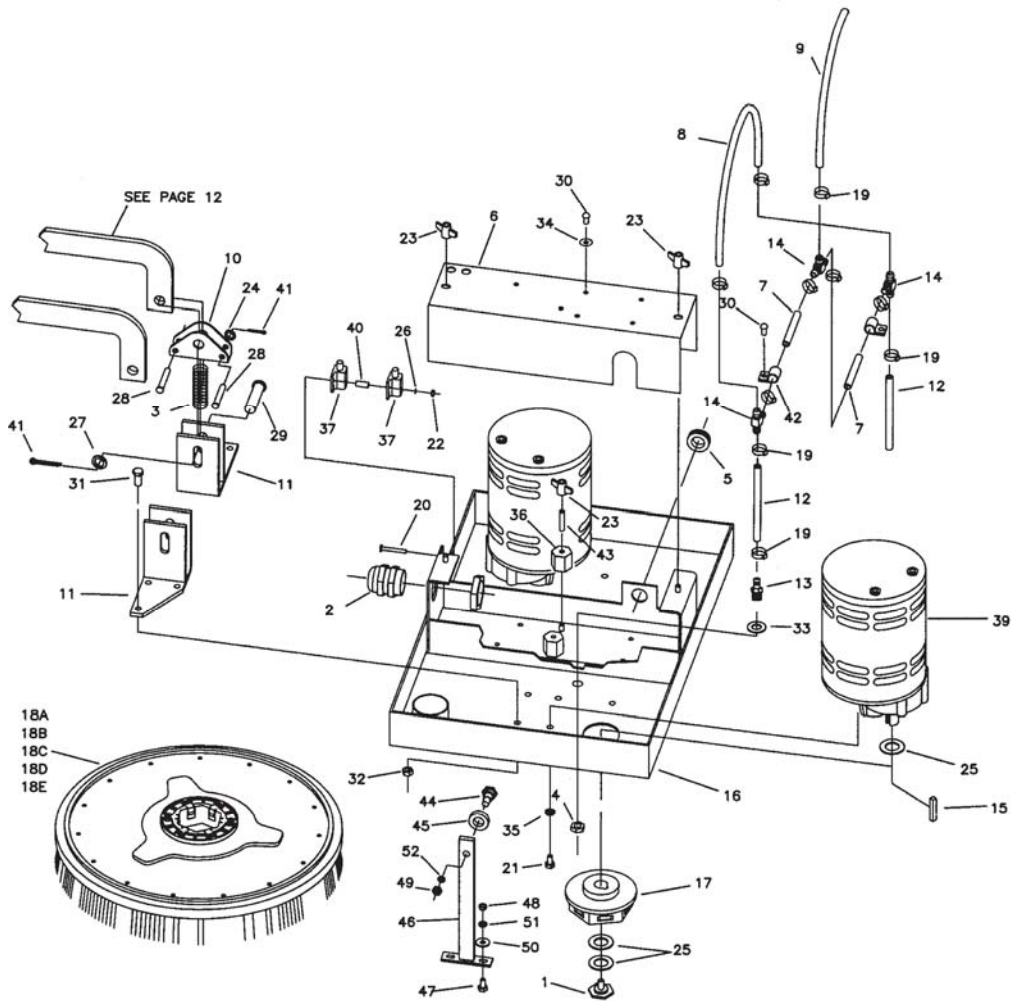
| Item | Part No.  | Qty. | Description                  |
|------|-----------|------|------------------------------|
| 1    | 320215    | 1    | Battery Tray Liner           |
| 2    | 320118    | 1    | Battery Tray                 |
| 3    | 840011    | 1    | Vac Motor Cover, Top         |
| 4    | 840012    | 1    | Vac Motor Cover, Bottom      |
| 4A   | 840012CTD | 1    | Vac Motor Cover, Bottom (CE) |
| 5    | 380064    | 1    | Foam Ring                    |
| 6    | 740228    | 1    | Vac Motor 36V 3-Stage        |
| 7    | 290017    | 1    | Molded Gasket                |
| 8    | 320119    | 1    | Motor Platform               |
| 9    | 320185    | 1    | Exhaust Manifold Weldment    |
| 10   | 833191    | 1    | Hose Rubber Flex 2 x 9       |
| 11   | 320216    | 1    | Hose Rubber Flex 2 x 20      |
| 12   | 829067    | 4    | Crimp Clamp                  |
| 13   | 833265PLT | 3    | Stand-Off 1/4-20             |
| 14   | 809412    | 1    | Gasket Support               |
| 15   | 320241    | 1    | Vacuum Hose Short            |
| 16   | 828975    | 1    | WSR-Neop .75 x 1.5 x .09     |
| 17   | 320265    | 2    | 3/8 Dubl-Barb 3/8 MPT        |
| 18   | 742001    | 1    | Wire Harness                 |
| 19   | 430120    | 1    | U-Channel                    |
| 20   | 260181    | 1    | Hose, Clear 18"              |
| 21   | 450076    | 9    | Crimp Clamp SS 185R          |
| 22   | 420009    | 1    | Hose Fitting (Male Elbow)    |
| 23   | 430114    | 1    | Nylon Cap 1/4 FPT HC4        |
| 24   | 210408    | 1    | 3/8 Brass Tee                |
| 25   | 420065    | 1    | Hose Fitting (Female Elbow)  |
| 26   | 711124    | 2    | SCR-ST 10 x .38 NI           |
| 27   | 828952    | 3    | 3/8 Barb x 1/4 MPT           |
| 28   | 712760    | 4    | WSR-Flat .56 x 1.00 SS       |
| 29   | 210370    | 1    | Solution Valve Bracket       |
| 30   | 711379    | 2    | Nut Flanged Whizz 5/16-18    |
| 31   | 320253    | 2    | Valve Solution Hose          |
| 32   | 809413MCH | 1    | Solution Valve               |
| 33   | 210045    | 1    | Solution Control Cable       |
| 34   | 711124    | 1    | SCR-ST-B 10 x .37 NI         |
| 35   | 711512    | 1    | WSR-Flat .75 x 1.37 x .08    |
| 36   | 320218    | 1    | Clear Hose, Dump             |
| 37   | 320252    | 1    | Wire Hose, Supply            |
| 38   | 712086    | 2    | 5/16 Wire Eyebolt            |
| 39   | 830708    | 1    | Reducer 3/8 x 1/4            |
| 40   | 320272    | 1    | Nut-PLS 1/4 NPT              |
| 41   | 712565    | 2    | SCR-MC 1/4-20 x .63 SS       |
| 42   | 711517    | 1    | WSR-Flat .77 x 1.37 X .03    |
| 43   | 762073    | 3    | Spacer                       |
| 44   | 711106    | 3    | SCR-ST-A 10 x .75            |
| 45   | 260203    | 2    | Hose Clamp Wire Grip         |
| 46   | 712667    | 7    | Nut Nyloc 1/4-20 SS          |
| 47   | 711128    | 1    | SCR-ST 8 x .63               |
| 48   | 832996    | 1    | Terminal Block               |
| 49   | 712638    | 3    | Nut-Hex 10-24 SS Nyloc       |
| 50   | 712537    | 3    | SCR-MC 10-24 x .75 SS TH     |
| 51   | 711505    | 4    | WSR-Flat 1/4                 |
| 52   | 72-416-10 | 2    | SCR-TF 1/4-20                |
| 53   | 831306    | 1    | Street 90° 1/4 x 1/4         |
| 54   | 320271    | 1    | 90° Nozzle                   |
| 55   | 711230    | 2    | Bolt-HH 5/16-18 x 1" STPL    |
| 56   | 712026    | 1    | 1/4 Wire Eyebolt             |
| 57   | 320246    | 1    | Solution Tank Cable          |
| 58   | 420011    | 2    | Sleeve Insert                |
| 59   | 740494    | 1    | Water Valve 36VDC            |
| 60   | 712565    | 2    | SCR-MC 1/4-20 x .62 SS       |
| 61   | 711504    | 2    | WSR-Flat 1/4 ID SS           |
| 62   | 320264    | 1    | 3/8 Dubl-Barb x 1/4 MPT      |
| 63   | 260224    | 1    | Clear Hose 18"               |
| 64   | 320273    | 1    | Hose Shut-Off Clamp          |
| 65   | 380223    | 1    | Counterweight Weldment       |
| 66   | 809444    | 1    | Clip Cord                    |



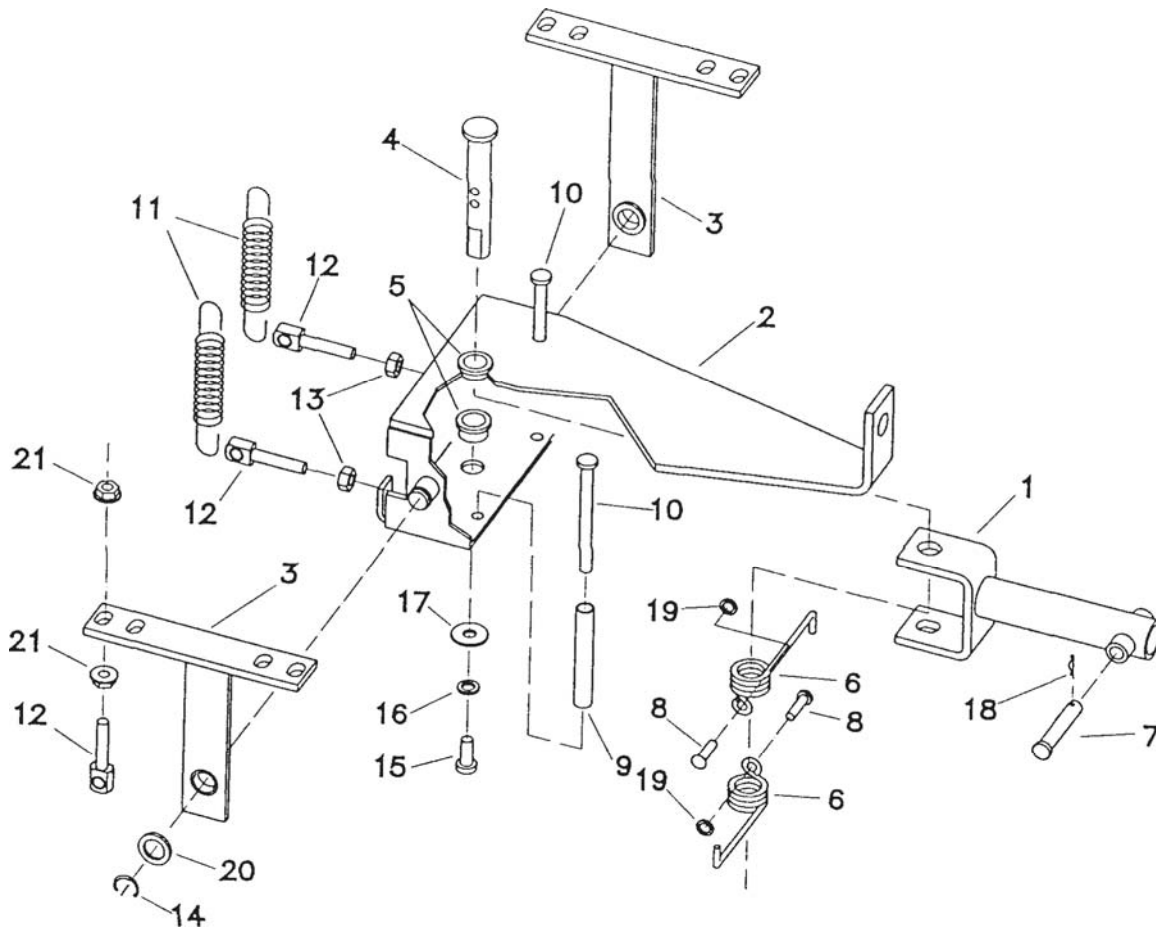
# Parts List

| Item | Part No.   | Qty. | Description                 | Item | Part No.  | Qty. | Description                 |
|------|------------|------|-----------------------------|------|-----------|------|-----------------------------|
| 1    | 210045     | 1    | Cable Solution Control      | 47   | 712536    | 2    | SCR-MC 10-24 x .62 STPL     |
| 2    | 210413     | 2    | Return Springs              | 48   | 712540    | 5    | SCR-MC 10-24 x .37 TH       |
| 3    | 260066     | 4    | 3/8 Oilite Flanged Bushing  | 49   | 712638    | 1    | Nut-Hex 10-24 SS Nyloc      |
| 4    | 260069MCH  | 1    | Left Handle                 | 50   | 712764    | 1    | WSR-SS #10                  |
| 5    | 260070MCH  | 1    | Right Handle                | 51   | 712822    | 12   | SCR-MC 10-24 x .50 TH       |
| 6    | 260274     | 2    | Rubber Grommet              | 52   | 715604    | 1    | Decal Solution              |
| 7    | 260255     | 1    | Speed Control Bracket       | 53   | 715608    | 1    | Forward Decal               |
| 7CE  | 260255CE   | 1    | Speed Control Bracket, CE   | 54   |           |      |                             |
| 8    | 320147     | 1    | Switch Actuator Weldment    | 55   | 715611    | 1    | Reverse Decal               |
| 9    | 320161     | 1    | Clevis, Squeegee Cable      | 56   | 715617    | 1    | Circuit Breaker Decal       |
| 10   | 320166     | 1    | Linear Actuator - Squeegee  | 57   | 740036    | 1    | Terminal Block, CE          |
| 11   | 320176     | 1    | Back Panel                  | 58   | 740132    | 3    | Insulator Glastic           |
| 12   | 320187     | 1    | Dual Switch Bracket         | 59   | 740134    | 1    | Shunt                       |
| 13   | 320202SP   | 1    | Dashboard Screen Printed    | 60   | 740135    | 1    | Meter, 100A DC - Pressure   |
| 13CE | 320202CESP | 1    | Dashboard CE Screen Printed | 61   | 740136    | 1    | Battery Condition           |
| 14   | 320203     | 1    | Battery Gauge Bracket       | 62   | 740147    | 1    | Connector                   |
| 15   | 320207     | 1    | Circuit Breaker Face Plate  | 63   | 740242    | 1    | Contactora 36V              |
| 16   | 320211     | 1    | Cable, Squeegee Cable       | 64   | 740243    | 2    | Solenoid 36V                |
| 17   | 320212     | 1    | Actuator Support            | 65   | 740247    | 1    | 30 amp Circuit Breaker      |
| 18   | 320247     | 1    | Terminal Block Bracket, CE  | 66   | 740368    | 1    | Potentiometer Assembly      |
| 19   | 320600     | 1    | Squeegee Assembly Complete  | 67   | 740800    | 1    | Rocker Switch Momentary     |
| 20   | 320706     | 1    | Lever Mounting Bracket      | 67CE | 740800CE  | 1    | Rocker Switch Momentary CE  |
| 21   | 320726     | 1    | Electrical Panel            | 68   | 740801    | 1    | Rocker Switch               |
| 22   | 710178     | 6    | SCR-MC 1/4-20 x .50         | 68CE | 740801CE  | 1    | Rocker Switch CE            |
| 23   | 710180     | 15   | SCR-MC 1/4-20 x .75         | 69   | 740803    | 1    | Speed Control 36V           |
| 24   | 710207     | 2    | SCR-MC 6-32 x 1.0           | 70   | 741005    | 1    | Key Switch (optional)       |
| 25   | 711104     | 1    | SCR-ST-A 10 x .50, CE       | 71   | 742010    | 1    | Indicator Light, 36VDC      |
| 26   | 711125     | 2    | SCR-ST-B 10 x .50           | 72   | 742266    | 1    | 60 amp Circuit Breaker      |
| 27   | 711161     | 14   | SCR-Hi/Lo 10 x .75          | 73   | 760286    | 1    | Wire Formed Hook            |
| 28   | 711210     | 1    | Bolt-HH 1/4-20 x 1.25       | 74   | 200340    | 2    | Spacer                      |
| 29   | 711368     | 3    | Wing Nut 1/4-20             | 75   | 802657    | 3    | Switch Boot                 |
| 30   | 711372     | 2    | Nut-Nyloc 8-32              | 75A  | 740811    | 1    | Switch Boot, CE             |
| 31   | 711420     | 2    | Nut-Hex Jam 5/16-18         | 76   | 805637    | 1    | SCR Insulator               |
| 32   | 711430     | 1    | Tinnerman Clip              | 77   | 809311    | 4    | Cotter Pin 7/64 x 1.0       |
| 33   | 711503     | 2    | WSR-Flat 10                 | 78   | 809754    | 1    | Rocker Switch               |
| 34   | 711505     | 3    | WSR-Flat 1/4                | 78A  | 740711CE  | 1    | Rocker Switch, CE           |
| 35   | 711515     | 2    | WSR-Flat .38 x .82 x .05    | 79   | 809874    | 1    | Knob                        |
| 36   | 711523     | 2    | WSR-Wave .38 x .68 x .01    | 80   | 827060    | 2    | Forward/Reverse Switches    |
| 37   | 711544     | 3    | WSR-Helical 1/4             | 81   | 832015    | 2    | Spacer                      |
| 38   | 711575     | 1    | WSR-Flat .312 x .75         | 82   | 833277PLT | 2    | Actuator Bush Plated        |
| 39   | 711579     | 2    | WSR-Flat .56 x 1.00         | 83   | 833286PLT | 2    | Actuator Bush Plated        |
| 40   | 711668     | 1    | Clevis Pin 3/8 x 1.0        | 84   | 833294    | 2    | Actuator Pin                |
| 41   | 711671     | 1    | Clevis Pin .306 x 2.125     | 85   | 833329    | 1    | Micro Switch                |
| 42   | 711720     | 4    | Retaining Ring E Ext. .25   | 86   | 833638    | 3    | Brass Stud                  |
| 43   | 711808     | 1    | Cotter Pin                  | 87   | 833823    | 1    | 2" Hole Plug                |
| 44   | 712088     | 1    | SCR-Hi/Lo 8-18 x .75, CE    | 88   | 833824    | 1    | S.S. Washer 2 x 2.43 x .035 |
| 45   | 712100     | 2    | Bolt-Shoulder 3/8 x 2.25    | 89   | 881002    | 3    | Clevis Pin 5/16 x 1.00      |
| 46   | 712320     | 2    | WSR-Nylon .22 x .45 x .04   |      |           |      |                             |





| Item | Part No. | Qty. | Description                | Item | Part No. | Qty. | Description                  |
|------|----------|------|----------------------------|------|----------|------|------------------------------|
| 1    | 210066   | 2    | Retainer Bolt              | 25   | 711517   | 4    | WSR-Flat .77                 |
| 2    | 210405   | 1    | Liquid Tight Fitting       | 26   | 711552   | 2    | WSR-Internal Lock #8         |
| 3    | 260137   | 2    | Compression Spring         | 27   | 711594   | 2    | WSR-Flat .56 x .88 x .03     |
| 4    | 260183   | 2    | Nut-PLS 1/4 NPT            | 28   | 711671   | 4    | Clevis Pin, .31 x 2.13       |
| 5    | 260274   | 2    | Rubber Grommet             | 29   | 711672   | 2    | Clevis Pin, 1/2 x 2          |
| 6    | 320173   | 1    | Cover                      | 30   | 712536   | 6    | SCR-MC 10-24 x .63 SS        |
| 7    | 320250   | 2    | Short Solution Hose        | 31   | 712576   | 6    | BLT-HH 5/16-18 x 1.25 SS     |
| 8    | 320251   | 1    | By-Pass Hose               | 32   | 712683   | 6    | Nut 5/16-18 SS Nyloc         |
| 9    | 320253   | 1    | Valve Solution Hose        | 33   | 712760   | 2    | WSR-Flat .56 x 1.06 x .04 SS |
| 10   | 320255   | 2    | Bracket, Spring Support    | 34   | 712764   | 4    | WSR-Flat 10 SS               |
| 11   | 320258   | 2    | Lift Bracket Weldment      | 35   | 712769   | 8    | WSR-Helical 3/8 SS           |
| 12   | 320259   | 2    | Solution Hose              | 36   | 740132   | 2    | Insulator                    |
| 13   | 320264   | 2    | 3/8 DUBL-Barb x 1/4 MPT    | 37   | 740282   | 2    | Switch                       |
| 14   | 320266   | 3    | 3/8 DUBL-Barb Tee          | 38   | 742121   | 1    | Solenoid Wire Harness        |
| 15   | 320268   | 2    | Key                        | 39   | 742714   | 2    | Motor 36V 1HP                |
| 16   | 380152   | 1    | Motor Pan Weldment         | 40   | 761946   | 2    | Spacer .196 x .312 x .75     |
| 17   | 430035   | 2    | Drive Hub                  | 41   | 809311   | 6    | Cotter Pin                   |
| 18A  | 381039   | 2    | Nylon Brush                | 42   | 827998   | 2    | P-Clamp                      |
| 18B  | 381038   | 2    | Pad Driver                 | 43   | 833638   | 2    | Brass Stud                   |
| 18C  | 381040   | 2    | Poly-Grit Brush            | 44   | 210124   | 1    | Bearing Stud                 |
| 18D  | NA       | 2    | Bassine Brush              | 45   | 361254   | 1    | Bearing                      |
| 18E  | 381041   | 2    | Strata-Grit Brush          | 46   | 380153   | 1    | Bearing Mount Weldment       |
| 19   | 450076   | 10   | Crimp Clamp SS 185R        | 47   | 712562   | 2    | BLT-HH 1/4-20 x .75          |
| 20   | 710036   | 2    | SCR-MC 8-32 x 1.50         | 48   | 711316   | 2    | Nut-Hex 1/4-20               |
| 21   | 710986   | 8    | SCR-SC 3/8-16 x 1.00 ST PL | 49   | 711328   | 1    | Nut-Hex 3/8-16               |
| 22   | 711304   | 2    | Nut-Hex 8-32               | 50   | 711505   | 2    | WSR-Flat 1/4 STPL            |
| 23   | 711368   | 4    | Wing Nut                   | 51   | 712758   | 2    | WSR-Helical 1/4 SS           |
| 24   | 711506   | 4    | WSR-Flat, 5/16 ST PL       | 52   | 711546   | 1    | WSR-Helical 3/8              |

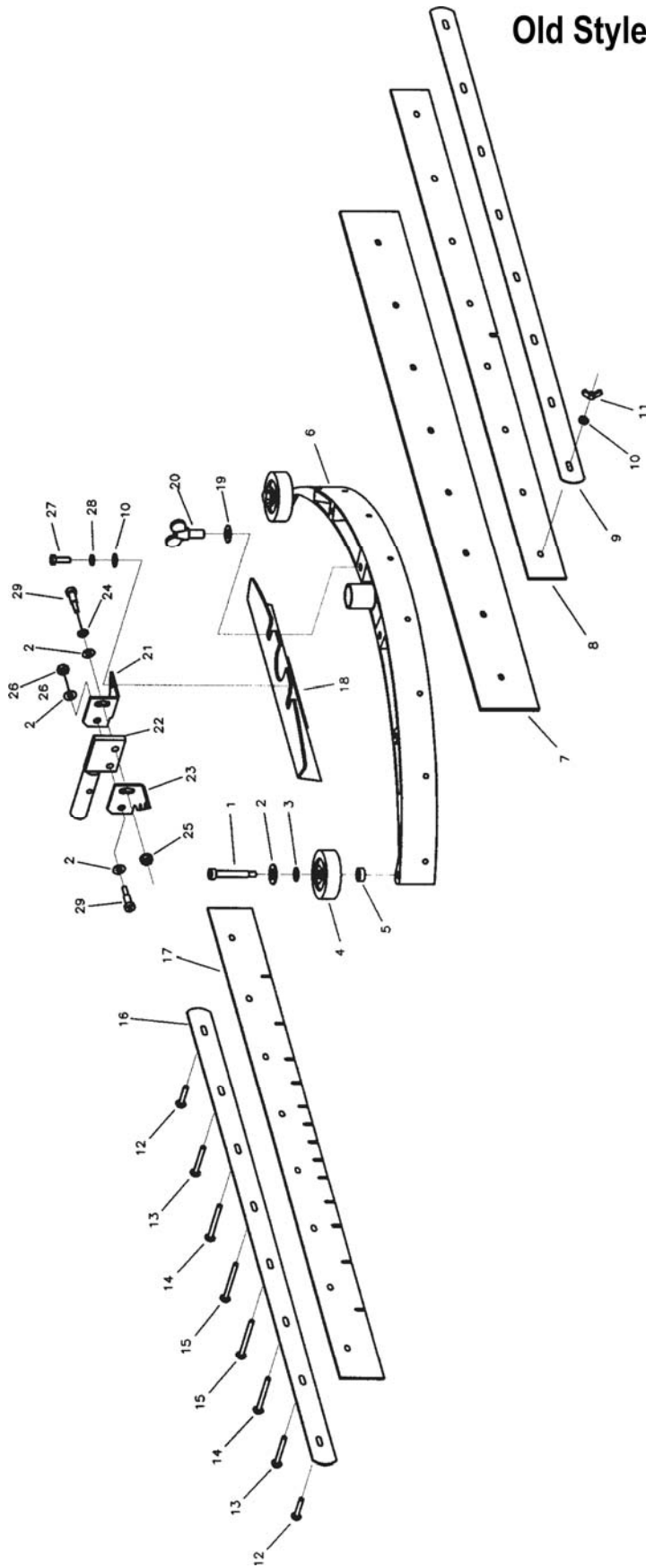


**320450  
SQUEEGEE MECHANISM  
ASSEMBLY**

| Item | Part No. | Qty. | Description                   |
|------|----------|------|-------------------------------|
| 1    | 320160   | 1    | Yoke Weldment                 |
| 2    | 320162   | 1    | Spring Housing Weldment       |
| 3    | 320008   | 2    | Pivot Bracket Weldment        |
| 4    | 210375   | 1    | Swivel Pin                    |
| 5    | 260041   | 2    | 1/2 Oilite Bushing            |
| 6    | 210391   | 2    | Torsion Spring SS             |
| 7    | 711671   | 1    | Clevis Pin 5/16 x 2.125       |
| 8    | 712536   | 2    | SCR-MC 10-24 x .62            |
| 9    | 210400   | 2    | Spacer Tube                   |
| 10   | 710592   | 2    | SCR-MC 1/4-20 x 2.75          |
| 11   | 430051   | 2    | Return Spring                 |
| 12   | 260292   | 4    | Swing Bolt                    |
| 13   | 712665   | 2    | Nut-Hex 1/4-20                |
| 14   | 711715   | 2    | 3/4 Retaining Ring            |
| 15   | 712562   | 1    | Bolt-HH 1/4-20 x .75 SS       |
| 16   | 712758   | 1    | WSR-Helical 1/4 SS            |
| 17   | 711504   | 1    | WSR-Flat .25 I.D. SS          |
| 18   | 711808   | 1    | Cotter Pin                    |
| 19   | 712320   | 2    | WSR-Nylon .22 x .45 x .04     |
| 20   | 711517   | 2    | WSR-Flat .75 x 1.375 x .09 SS |
| 21   | 711425   | 4    | Nut-Flange Whiz 1/4-20        |



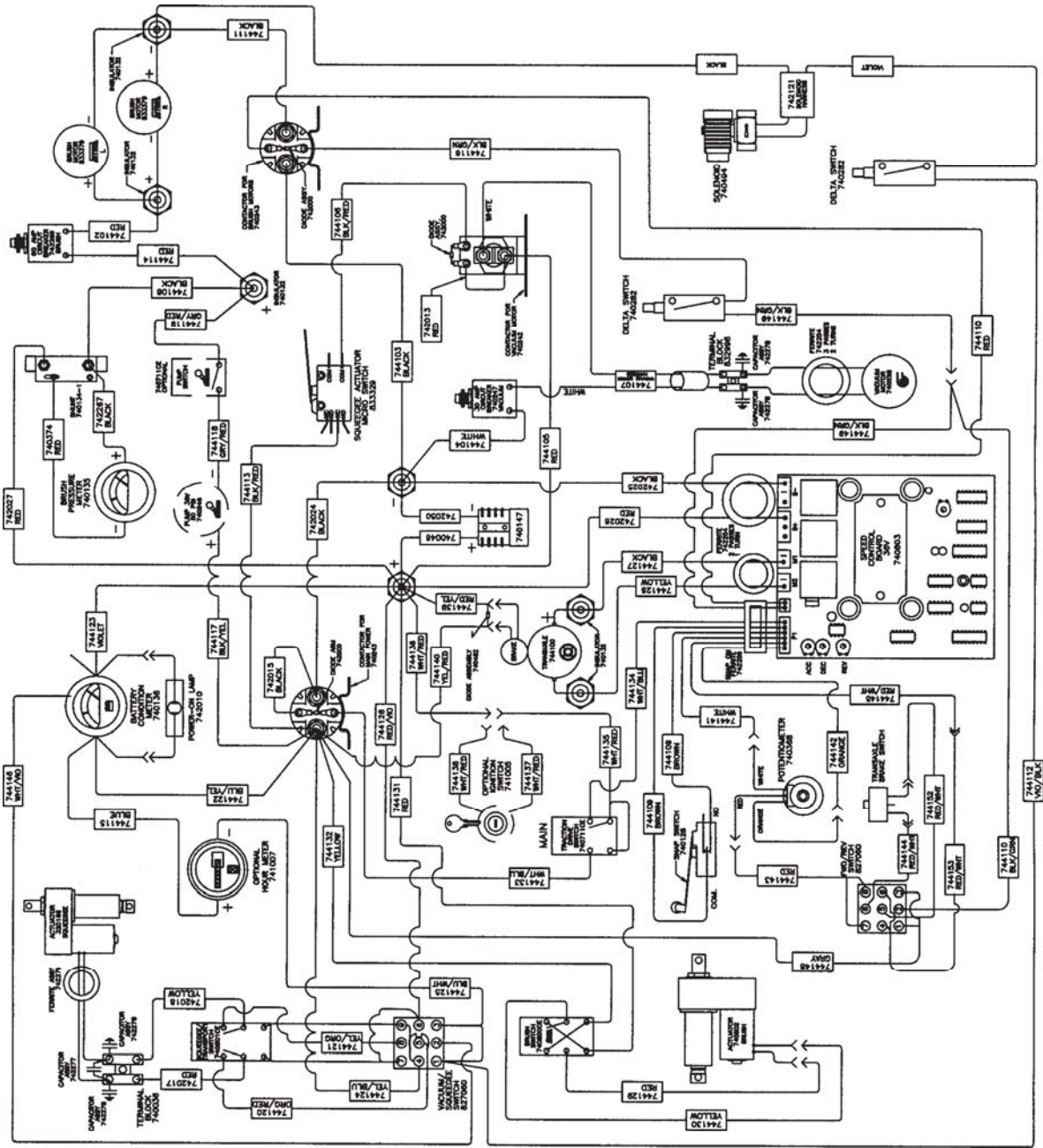
# Old Style Squeegee



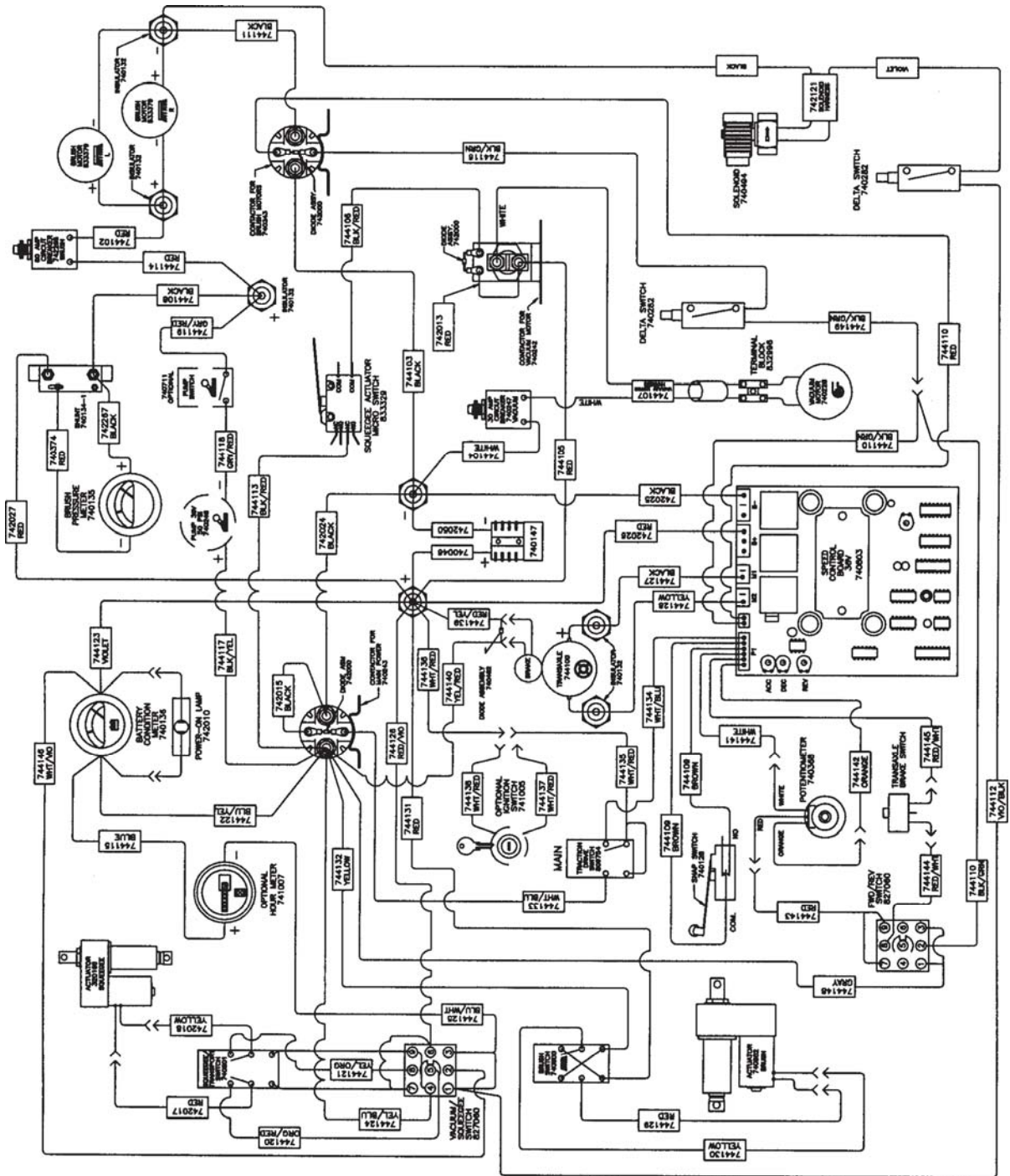
## SQUEEGEE ASSEMBLY COMPLETE

| Item | Part No.  | Qty. | Description                | Item | Part No. | Qty. | Description               |
|------|-----------|------|----------------------------|------|----------|------|---------------------------|
| 1    | 712091    | 2    | Bolt-Shoulder 3/8 x 1.50   | 16   | 383083   | 1    | Front Blade Strap         |
| 2    | 711507    | 5    | WSR-Flat .37 x 1.12 x .06  | 17   | 383086   | 1    | Front Squeegee Blade      |
| 3    | 711592    | 2    | WSR-Nylon .50 x 1.06 x .06 | 18   | 383081   | 1    | Squeegee Mounting Bracket |
| 4    | 808829    | 2    | Squeegee Bumper Wheel      | 19   | 711578   | 2    | WSR-Flat 1/2 Brass        |
| 5    | 832015    | 2    | Spacer                     | 20   | 260287   | 2    | Wing-Bolt 1/2-13 x 1.00   |
| 6    | 383100MCH | 1    | Squeegee Machined          | 21   | 320156   | 1    | Mounting Bracket, Right   |
| 7    | 383084    | 1    | Rear Squeegee Blade        | 22   | 320154   | 1    | Squeegee Mount Weldment   |
| 8    | 383085    | 1    | Reinforcement Blade        | 23   | 320157   | 1    | Mounting Bracket, Left    |
| 9    | 383082    | 1    | Rear Blade Strap           | 24   | 712301   | 1    | WSR-Flanged Wizz 5/16-18  |
| 10   | 711504    | 12   | WSR-Flat .25 x .56 SS      | 25   | 711379   | 1    | Nut-Nyloc 5/16-18         |
| 11   | 712668    | 8    | Wing Nut 1/4-20 SS         | 26   | 711374   | 1    | Nut-Nyloc 5/16-18         |
| 12   | 712571    | 2    | Bolt-SS Carr 1/4-20 x 1.50 | 27   | 712562   | 4    | Bolt-HH 1/4-20 x .75 SS   |
| 13   | 712573    | 2    | Bolt-SS Carr 1/4-20 x 2.50 | 28   | 712758   | 4    | WSR-Helical 1/4 SS        |
| 14   | 712574    | 2    | Bolt-SS Carr 1/4-20 x 3.00 | 29   | 712081   | 2    | Bolt-Shoulder 3/8 x .75   |
| 15   | 712577    | 2    | Bolt-SS Carr 1/4-20 x 3.50 |      |          |      |                           |

# WIRING DIAGRAM CE MODEL



# WIRING DIAGRAM STANDARD MODEL



# LIMITED WARRANTY

Minuteman International, Inc. warrants to the original purchaser/user that this product is free from defects in workmanship and materials under normal use and service for a period of three years from date of purchase. In addition, Minuteman International, Inc. will, at its option, honor labor warranty claims for the first 12 months from date of sale, provided such claims are submitted through and approved by factory authorized repair stations. Minuteman International, Inc. will, at its option, repair or replace without charge, except for transportation costs, parts that fail under normal use and service when operated and maintained in accordance with the applicable operation and instruction manuals.

This warranty does not apply to normal wear, or to items whose life is dependent on their use and care, such as belts, cords, switches, hoses, rubber parts, electrical motor components or adjustments. Parts not manufactured by Minuteman International, Inc. such as engines, batteries, battery chargers, hydraulic pumps, and tires are covered by and subject to the warranties and/or guarantees of their manufacturers. Please contact Minuteman International, Inc. for procedures in warranty claims against these manufacturers.

**Special warning to purchaser** — Use of replacement filters and/or prefilters not manufactured by Minuteman International, Inc. or its designated licensees, will void all warranties expressed or implied.

A potential health hazard exists without exact original equipment replacement.

All warranted items become the sole property of Minuteman International, Inc. or its original manufacturer, whichever the case may be.

Minuteman International, Inc. disclaims any implied warranty, including the warranty of merchantability and the warranty of fitness for a particular purpose. Minuteman International, Inc. assumes no responsibility for any special, incidental or consequential damages.

This limited warranty is applicable only in the U.S.A. and Canada, and is extended only to the original user/purchaser of this product. Customers outside the U.S.A. and Canada should contact their local distributor for export warranty policies. Minuteman International, Inc. is not responsible for costs or repairs performed by persons other than those specifically authorized by Minuteman International, Inc. This warranty does not apply to damage from transportation, alterations by unauthorized persons, misuse or abuse of the equipment, use of non-compatible chemicals, or damage to property, or loss of income due to malfunctions of the product.

If a difficulty develops with this machine, you should contact the dealer from whom it was purchased.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow the exclusion or limitation of special, incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

## **Minuteman<sup>®</sup>**

**World Headquarters**  
Minuteman International, Inc.  
111 South Rohlwing Road  
Addison, Illinois 60101

Minuteman Canada, Inc.  
2210 Drew Road  
Mississauga, Ontario  
L5S 1B1

(630) 627-6900  
FAX (630) 627-1130

(905) 673-3222  
FAX (905) 673-5161

987614  
Printed in U.S.A.