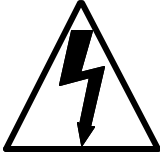
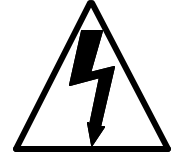


# WRANGLER 20 W/D

## IMPORTANT SAFETY INSTRUCTIONS



**READ AND UNDERSTAND ALL INSTRUCTIONS  
BEFORE OPERATING OR SERVICING MACHINE**



**DANGER!** Failure to Observe These Instructions Can Cause Personal Injury to Machine Operator, By-standers or Possible Machine Damage.

- \* **NEVER** attempt to operate this machine unless you have been trained in its operation.
- \* **NEVER** allow an untrained person to operate this machine.
- \* Use this machine **ONLY** as described in this manual.
- \* **NEVER** attempt to operate this machine if it is not working properly or has been damaged in any manner.
- \* **NEVER** disconnect or modify any switch or safety device (circuit breaker) on this machine.
- \* **ALWAYS** operate this machine from the rear control panel, not from the side.
- \* **NEVER** drop or insert any object into any machine opening.
- \* **ALWAYS** keep face, fingers, hair or any body part, or loose clothing away from any machine opening or moving part (revolving brush, pad driver, or vacuum motor).
- \* **NEVER** operate this machine with any air opening blocked. Keep all air openings free of dust, lint, hair etc.
- \* **NEVER** spray this machine with water or any liquids.
- \* **NEVER** allow the vacuum motor or battery charging plug to get wet. The vacuum motor and battery charging plug will short out if wet.
- \* **NEVER** operate this machine when battery charger is plugged in.
- \* **NEVER** operate this machine in an explosive atmosphere (grain dust, flammable liquids or fumes).
- \* **NEVER** use flammable liquids (gas, kerosene, solvents or thinners) to clean floor.
- \* **ALWAYS** turn the brush switch **OFF** when attaching pads or brushes.
- \* **NEVER** operate this machine with the splash skirt removed.
- \* **NEVER** leave this machine unattended.
- \* **ALWAYS** store this machine indoors in a dry, cool area.

**PERSONAL INJURY AND PROPERTY DAMAGE FROM THIS MACHINE OVERTURNING, BATTERIES FALLING OUT OF THE MACHINE OR BATTERIES LEAKING ACID CAN OCCUR IF YOU DO NOT FOLLOW THESE PRECAUTIONS:**

- \* **ALWAYS** be sure that the ramp is secured to the vehicle before attempting to load / unload.
- \* **ALWAYS** use extreme caution when operating this machine on a ramp or loading / unloading this machine into or out of a truck. Use extreme caution if the ramp is wet, oily or covered with cleaning chemicals.
- \* **NEVER** turn this machine on an ramp or incline.
- \* **NEVER** stop this machine on a ramp or incline.
- \* **NEVER** attempt to climb a grade or operate this machine on a ramp or incline of more than 20 degrees.
- \* **NEVER** park or store this machine near a dock, on ramps, near a furnace, boiler, open flame, or other high heat source.
- \* **NEVER** allow this machine to freeze.
- \* **NEVER** store any items on this machine.

**ALL** repair service must be performed by an NSS authorized distributor/service station. Use only NSS original equipment parts.

**SAVE THESE INSTRUCTIONS**



## **MACHINE INSPECTION**

- \* Carefully unpack the Wrangler 20 W/D, and recycle all packing materials.
- \* Inspect the machine for damage or missing components. If damage is found, contact the local freight company to file a freight claim.

## **MACHINE COMPONENTS**

### **Solution Tank**

The solution tank is the lower part of the machine body. This tank has a capacity of **14 gallons**, and is filled by pouring the water and cleaning chemicals through the filter in the square opening in the corner of the lower tank.

### **Recovery Tank**

The recovery tank is the upper part of the machine body. This tank has a capacity of **14 gallons**, a round, clear view lid assembly, closes the tank. In this tank is a foam sensitive float shut-off assembly, as the water level rises, the float ball will rise into the tube and shut off the air flow of the vacuum, it does not shut off the vacuum motor.

## **CONTROL PANEL**

The operator control panel is located at the upper rear of the machine. This panel has components that control various machine function. Starting on the left side of the control panel:

- \* The battery meter shows the state of charge of the batteries during operation and recharge.
- \* The first toggle switch turns the brush motor "ON and OFF".
- \* The next toggle switch turns the vacuum motor "ON and OFF".
- \* The next toggle switch controls the direction of the machine and has three positions: forward, neutral, and reverse.
- \* The last toggle switch on the right controls the speed of the machine and has three positions: low, neutral, and high.
- \* The top circuit breaker is for the brush motor and is rated at 30 Amps.
- \* The bottom circuit breaker is for the drive motor and is rated at 10 Amps.

## **BATTERY PACKAGE**

The Wrangler 20 W/D is a **24 volt system** and is available with two battery packages:

- \* Two (2) 12 volt batteries.
- \* Four (6) volt batteries.

Consult your local NSS authorized distributor for application recommendations.

## **To Install The Batteries**

- \* Turn off all switches and place the speed and direction switches in the neutral position. Lower the brush motor to the floor. Loosen the black knob and raise the recovery tank, use the support arm to hold up the tank.
- \* For ease of installing the batteries you may wish to completely remove the recovery tank. Remove the two (2) hinge pins under the front of the recovery tank.
- \* The batteries are heavy - use two people to install them.
- \* Refer to the wiring diagram on the back of the control panel. Align the batteries in the compartment as shown on the diagram.
- \* Install the battery cables as shown on the wiring diagram. Tighten the bolts and hex nuts with a wrench.
- \* Loose or improper battery connections will cause battery or machine damage and possible injury.

## MACHINE OPERATION

### General Information

The Wrangler 20 W/D is very maneuverable and is designed to clean as you drive the machine from behind. Follow these steps to prepare the machine for daily operation.

**Always** sweep the floor of debris before scrubbing. You may also need to **preclean** some types of spills or stains before scrubbing. Plan your work so that you make long, straight paths with the fewest amount of turns as possible. Remove as many obstacles as possible from the area to be cleaned. Consult your local NSS distributor for more complete procedures and chemical advice.

**Caution** - We recommend you wear clean tennis shoes or non-slip shoes when working with a carpet extractor. Street shoes or rubber cushion soled shoes when wet will release absorbed dirt or grease onto the wet carpet and cause resoiling. Wet shoes can also cause the operator to slip and fall when walking from wet carpet onto bare floors. Make sure you wipe your shoes dry before walking onto bare floors. Also, some carpet cleaning chemicals **may** affect bare floor finishes.

### DAILY USE

#### To Prepare the Solution Tank:

- \* **Never** use water over 140° F (60° C).
- \* Lower the brush motor on to the floor, completely loosen the black knob securing the recovery tank and lift the recovery tank, use the support arm to hold the tank up.
- \* Pour all liquids through the mesh filter at the left side of the solution tank. **Do Not** splash any liquids into the vacuum motor intake.
- \* Put 1 to 2 gallons of clean water into the solution tank first to help dilute the chemicals and prevent excess sudsing.
- \* Add the cleaning chemicals to the solution tank and fill with water as needed.
- \* Carefully close the recovery tank and secure it with the black knob. Do not damage the threads by over tightening the knob.
- \* Raise the brush motor off of the floor.

#### To Prepare the Recovery Tank:

- \* **Always** use a defoamer to protect the vacuum motor of this machine, we recommend that you add at least 4 to 6 ounces of defoamer chemical into the recovery tank before resuming work. Vacuum the defoamer into the recovery tank through the squeegee vac hose.
- \* Make sure that the drain plug of the recovery tank hose is closed tightly and in it's holding clip.

#### To Install a Pad Driver and Pad:

- \* There are a wide range of pads or brushes available for the many cleaning applications of this machine. See the "Accessories" page. Turn the pad driver upside down on the floor and remove the pad holding cup.
- \* Remove the center cutout of the 20" pad and place the pad on the face of the pad driver.
- \* The pad *must be centered* on the driver to prevent wobbling or bouncing.
- \* Install and secure the pad holding cup to the pad driver. Turn the pad driver over so that the pad faces the floor.
- \* Raise the brush motor into the transport position.
- \* Align the notches of the pad driver with lugs of the drive casting.
- \* Turn the pad driver clockwise to lock onto the drive casting.

#### To Install a Brush:

- \* Raise the brush motor into the transport position.
- \* Align the notches of the brush with the lugs of the drive casting.
- \* Turn the brush clockwise to lock onto the drive casting.

## **SQUEEGEE ASSEMBLY**

Remove the squeegee assembly from the box and inspect for concealed damage.

The squeegee assembly has a wide, flat frame to help prevent damage, two (2) mounting knobs, and two (2) small wheels to prevent “rollover” while in reverse.

### **To Install the Squeegee Assembly:**

- \* Place the squeegee lift arm in the storage (up) position.
- \* Loosen the two mounting knobs and slide the squeegee assembly onto the mounting plate. The roller wheels must face the operator.
- \* Hand tighten the mounting knobs. Do **not** use pliers to tighten the knobs as this will defeat the “breakaway” design.

### **To Adjust the Squeegee Assembly:**

As the machine is used, the squeegee blades wear out, and need to be replaced due to damage. Some adjustment may be needed.

- \* Squeegee blades should lay over slightly (like a window squeegee) whenever the machine is moving.
- \* Adjust the blade angle by turning the wing nut on the pivot arm.
- \* Do not add any weights or other pressure to the squeegee mechanism, it will not improve the performance or service life.

## **MACHINE MAINTENANCE**

### **Daily Maintenance**

- \* Recharge the batteries at the end of every shift.
- \* Empty and rinse clean the recovery tank.
- \* Remove and rinse clean the squeegee assembly.
- \* Remove and rise clean the pad driver and / or brush.
- \* Inspect the machine components for wear or damage. Repair or replace as needed.

### **Weekly Maintenance**

- \* Verify that all daily maintenance has been performed.
- \* Inspect the battery liquid level, adjust to the proper level as needed.
- \* Check all battery terminal and cable connections. Tighten as deemed necessary.
- \* Clean any corrosion from the battery terminals and cables.
- \* Check the solution flow to the pad driver and / or brush. Flush clean the solution tank and hose with a mixture of 8 oz. (250ml.) of white vinegar to 1 gallon (4 liter) of warm water.

### **Monthly Maintenance**

- \* Verify that all daily and weekly maintenance has been performed.
- \* Lubricate the drive wheels, bearings, the caster axle, and swivel bearing. Use a high grade water resistant grease.

### **After every 750 Hours of Operation:**

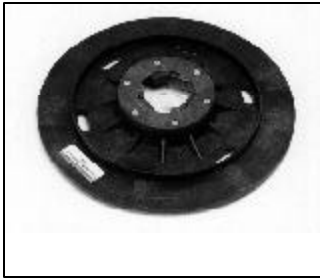
- \* Inspect the drive motor (transaxle) carbon brushes for wear. Replace the brushes when they are 3/8 in. (9mm.) in length.
- \* Inspect the brush drive motor carbon brushes for wear. Replace the brushes when they are 1/2 in. (13mm.) in length.
- \* Inspect the vacuum motor carbon brushes for wear. Replace the brushes when they are 7/16 in. (11mm.) in length.

## ACCESSORIES



### CLUTCH PLATES

- 2893001 ALUMINUM CLUTCH PLATE, 4" DIAMETER, 3 HOLES
- 2890981 PLASTIC CLUTCH PLATE, 4" DIAMETER, 3 HOLES
- 2890991 ALUMINUM CLUTCH PLATE, 5" DIAMETER, 6 HOLES
- 2890101 PLASTIC CLUTCH PLATE, 5" DIAMETER, 6 HOLES
- 2890971 PLASTIC CLUTCH PLATE, 5" DIAMETER, 6 HOLES  
BROWN TRU FIT
- 2890951 PLASTIC CLUTCH PLATE 5" DIAMETER, 6 HOLES  
WHITE SPIN OFF



### PAD CUP

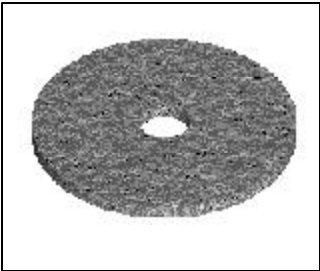
- 5990721 CREAM PAD CUP

### 20" PAD DRIVERS AND BRUSHES

- 2892601 20" STRUCTURAL FOAM PAD DRIVER

### BURNISHING (175 TO 3000 RPM) FLOOR PADS

- 7992051 20" NSS LITE BLUE POLISH / BURNISH PAD



### SCRUBBING (150 TO 300 RPM) FLOOR PADS

- 7992041 20" NSS UHS CLEAN BUFF PAD
- 7992031 20" NSS BLUE SCRUB PAD
- 7992021 20" NSS GREEN SCRUB PAD

### STRIPPING (150 TO 300 RPM) FLOOR PADS

- 7992001 20" NSS BLACK STRIP PAD
- 7992011 20" NSS BROWN STRIP PAD



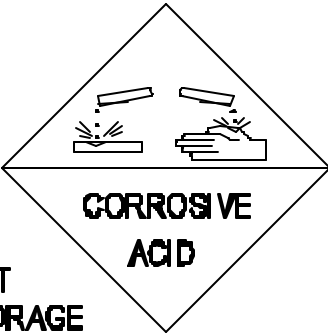
### TOOL KITS

- 2392129 WRANGLER 20 WET PICK UP TOOL KIT  
INCLUDES: TUBE HANDLE  
VACUUM HOSE  
SQUEEGEE TOOL  
ALUMINIUM CONNECTOR

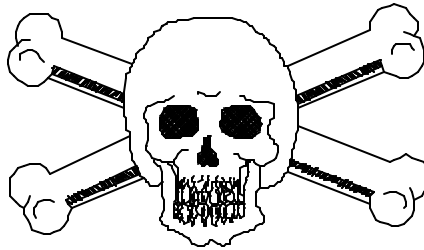
### AUTHORIZED REPAIR SERVICE

Repair service for this machine must be performed by an authorized service center. Repairs performed by an unauthorized company will void the machine warranty.

# BATTERY INSTALLATION INSTRUCTIONS



**WET  
STORAGE  
BATTERY**



**POISON/DANGER  
CAUSES SEVERE BURNS**

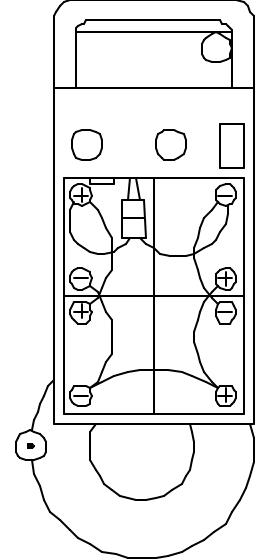
**READ BEFORE INSTALLING OR SERVICING  
BATTERIES TO PREVENT PERSONAL INJURY.**

- \* **ALWAYS** wear eye protection and protective clothing when working with the batteries.
- \* The batteries contain **ACID**. Avoid contact with skin or clothing.
- \* **ANTIDOTE:**
  - EYES** - Flush with water 15 minutes, Call physician.
  - INTERNAL** - Drink water or milk.  
Follow with Milk of Magnesia, beaten egg or vegetable oil.  
Call physician.
- \* Service should be done only by authorized, trained personnel.
- \* Charge batteries in a well ventilated area with the battery compartment opened by raising the recovery tank.
- \* **Batteries generate explosive gases - keep sparks, flames, burning cigarettes, or other ignition sources away at all times.**
- \* Never lay anything on top of batteries, to prevent arcing.
- \* Turn off all switches during installation and service.
- \* To maintain machine balance, always slide batteries into position as shown on the battery installation decal.
- \* Connect the batteries as shown on the battery installation decal to avoid shorting out the batteries and the electrical system.
- \* Disconnect the battery leads before performing any service or repairs.
- \* **ALWAYS** make sure the battery charger is turned off when connecting / disconnecting to machine to prevent sparking.

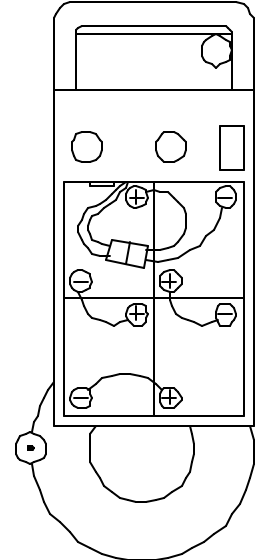
## STORAGE

- \* **ALWAYS** store machine indoors in a dry, cool area.
- \* **ALWAYS** empty and rinse clean the solution and recovery tanks after every use.
- \* **ALWAYS** remove and clean the squeegee assembly after every use.
- \* **ALWAYS** remove the pad driver or brush after every use.
- \* **NEVER** store machine near furnaces, boilers or open flames which may damage machine.
- \* **NEVER** store any item on the machine.
- \* **ALWAYS** protect the machine from freezing temperatures.

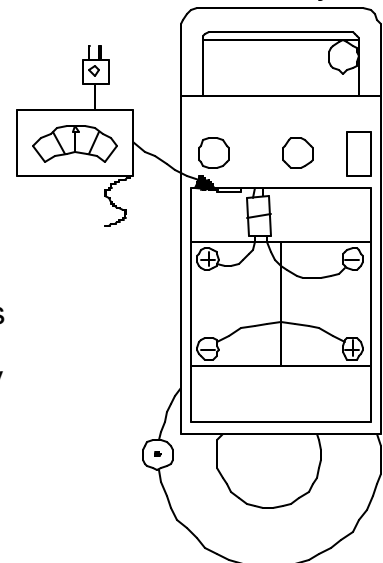
**4 X 12 VOLT**



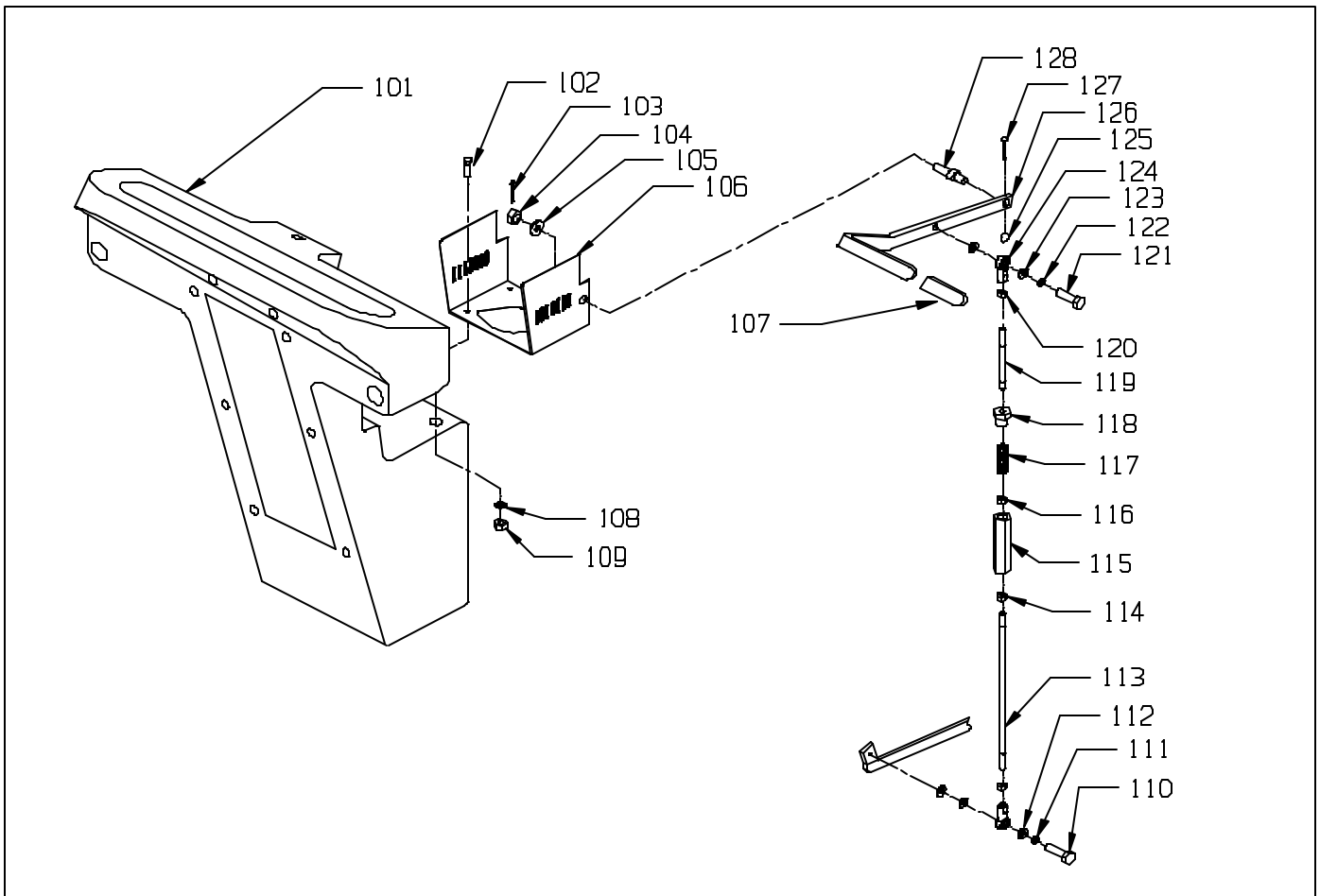
**4 X 6 VOLT**



**2 X 12 VOLT**



## LIFT ROD ASSEMBLY

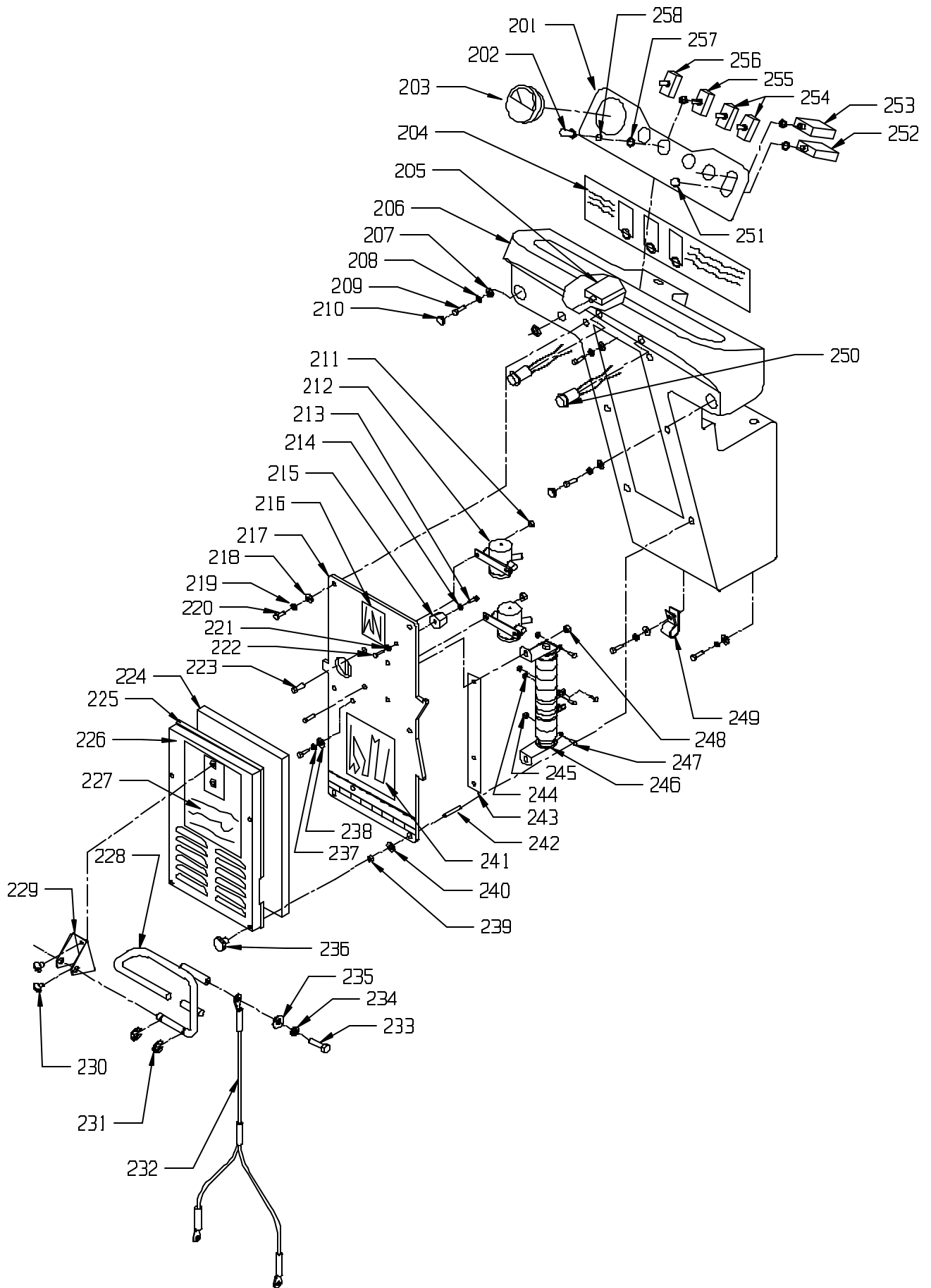


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
101	23-9-552-1	PANEL, CONTROL	1
102	91-2-125-0	1/4-20 X 3/4 HEX BOLT WITH NYLON PATCH	4
103	52-9-652-1	HUMPED COTTER PIN	1
104	23-9-271-1	1/2-13 HEX SLOTTED NUT	1
105	91-2-245-0	17/32 I.D. X 11/16 O.D. X .074/.121 THICK SAE FLAT WASHER (1/2)	1
106	23-9-556-3	BRACKET, MOUNT LIFT ARM	1
107	26-9-098-1	LIFT HANDLE GRIP	1
108	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	4
109	91-2-091-0	1/4-20 HEX NUT WITH STAR LOCK WASHER	4
110	91-2-230-0	3/8-16 X 1 1/4 HEX BOLT	1
111	91-2-210-0	3/8 SPLIT LOCK WASHER	1
112	91-2-198-0	13/32 I.D. X 13/16 O.D. X .051/.080 THICK SAE FLAT WASHER (3/8)	3
113	23-9-537-1	LOCK DOWN LIFT ROD	1
114	91-2-200-0	3/8-16 HEX NUT	1
115	26-9-182-1	SPRING HOUSING, BRUSH LIFT	1
116	91-2-214-0	3/8-16 HEX NUT WITH NY-LOK INSERT	1
117	26-9-184-1	SPRING, BRUSH PRESSURE	1
118	26-9-183-1	SPRING HOUSING, RETAINER	1
119	26-9-181-1	SHORT LIFT ROD, BRUSH	1
120	91-2-201-0	3/8-24 HEX NUT	2
121	91-2-226-0	3/8-16 X 1 HEX BOLT	1
122	91-2-210-0	3/8 SPLIT LOCK WASHER	1
123	91-2-198-0	13/32 I.D. X 13/16 O.D. X .051/.080 THICK SAE FLAT WASHER (3/8)	2
124	44-9-053-1	3/8" ROD END	2
125	23-9-256-1	CIRCLE COTTER - #CC-7	1
126	26-9-137-3	LIFT HANDLE, BRUSH	1
127	23-9-195-1	PIN	1
128	24-9-066-1	STUD, PIVOT	1

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
201	23-9-553-1	LABEL, CONTROL	1
202	06-9-314-1	RUBBER SWITCH BOOT	4
203	23-9-139-1	BATTERY METER - 24 VOLT	1
204	23-9-616-1	LABEL, BATTERY LABEL	1
205	26-9-487-1	CIRCUIT BREAKER, 6 AMP	1
206	23-9-552-1	PANEL, CONTROL	1
207	91-2-140-0	3/8 I.D. X 7/8 O.D. X .064/.104 THICK WROUGHT WASHER (5/16)	5
208	91-2-141-0	5/16 EXTERNAL STAR LOCK WASHER	5
209	91-2-164-0	5/16-18 X 3/4 HEX HEAD BOLT	5
210	06-9-076-1	PLUG BUTTON	2
211	91-2-091-0	1/4-20 HEX NUT WITH STAR LOCK WASHER	5
212	23-9-135-1	SOLENOID, 24 VOLT	2
213	91-2-117-0	1/4-20 X 1/2 HEX HEAD BOLT	1
214	91-2-097-0	1/4 EXTERNAL STAR LOCK WASHER	1
215	44-9-056-1	INSULATED STANDOFF	1
216	23-9-605-1	VAC MOTOR ACCESS LABEL	1
217	23-9-539-3	COVER PANEL	1
218	91-2-037-0	7/32 I.D. X 1/2 O.D. X .032/.065 THICK SAE FLAT WASHER (#10)	2
219	91-2-032-0	#10 SPLIT LOCK WASHER	2
220	91-2-072-0	10-32 X 3/8 ROUND HEAD PHILLIPS MACHINE SCREW	2
221	91-2-097-0	1/4 EXTERNAL STAR LOCK WASHER	1
222	91-2-116-0	1/4-20 X 3/8 HEX HEAD BOLT	1
223	91-2-116-0	1/4-20 X 3/8 HEX HEAD BOLT	6
224	23-9-153-1	FILTER	1
225	04-9-355-1	C-14 BAG RING GASKET	1
226	23-9-549-3	COVER BOX	1
227	23-9-543-1	BRUSH LABEL	1
228	23-9-592-1	SQUEEGEE LIFT HANDLE	1
229	13-9-079-3	SQUEEGEE LIFT BRACKET	1
230	91-2-099-0	1/4-20 X 3/8 TRUSS HEAD PHILLIPS MACHINE SCREW	2
231	13-9-094-1	5/16 E RING	2
232	24-9-530-1	SQUEEGEE LIFT CABLE - 25"	1
233	91-2-038-0	10-24 X 3/8 ROUND HEAD PHILLIPS MACHINE SCREW	1
234	91-2-032-0	#10 SPLIT LOCK WASHER	1
235	91-2-037-0	7/32 I.D. X 1/2 O.D. X .032/.065 THICK SAE FLAT WASHER (#10)	1
236	23-9-137-1	KNURLED KNOB	4
237	91-2-088-0	1/4 SPLIT LOCK WASHER	2
238	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	2
239	91-2-069-0	10-32 HEX NUT WITH STAR LOCK WASHER	4
240	91-2-245-0	17/32 I.D. X 1 1/16 O.D. X .074/.121 THICK SAE FLAT WASHER (1/2)	4
241	23-9-618-1	WIRE DIAGRAM DECAL	1
242	23-9-249-1	10-32 X 1 3/4 SET SCREW	4
243	23-9-577-3	RESISTOR BRACKET	1
244	—————	10-24 SQUARE NUT	1
245	91-2-036-0	10-24 HEX NUT WITH STAR LOCK WASHER	3
246	26-9-512-1	RESISTOR	1
247	91-2-041-0	10-24 X 1/2 ROUND HEAD PHILLIPS MACHINE SCREW	4
248	91-2-092-0	1/4-20 HEX NUT	2
249	23-9-291-1	HOSE/WIRE TIE DOWN	1
250	23-9-522-1	WIRE ASSEMBLY, DEADMAN SWITCH WITH RING TERMINAL	2
251	48-9-247-1	CIRCUIT BREAKER BUTTON SEAL	2
252	23-9-220-1	CIRCUIT BREAKER, 10 AMP	1
253	23-9-136-1	CIRCUIT BREAKER, 30 AMP	1
254	33-9-041-1	FORWARD / REVERSE SWITCHES	2
255	27-9-204-1	VAC MOTOR TOGGLE SWITCH	1
256	44-9-110-1	MOTOR TOGGLE SWITCH	1
257	10-9-987-1	FLAT WASHER	4
258	06-9-185-1	STAR LOCK WASHER	4

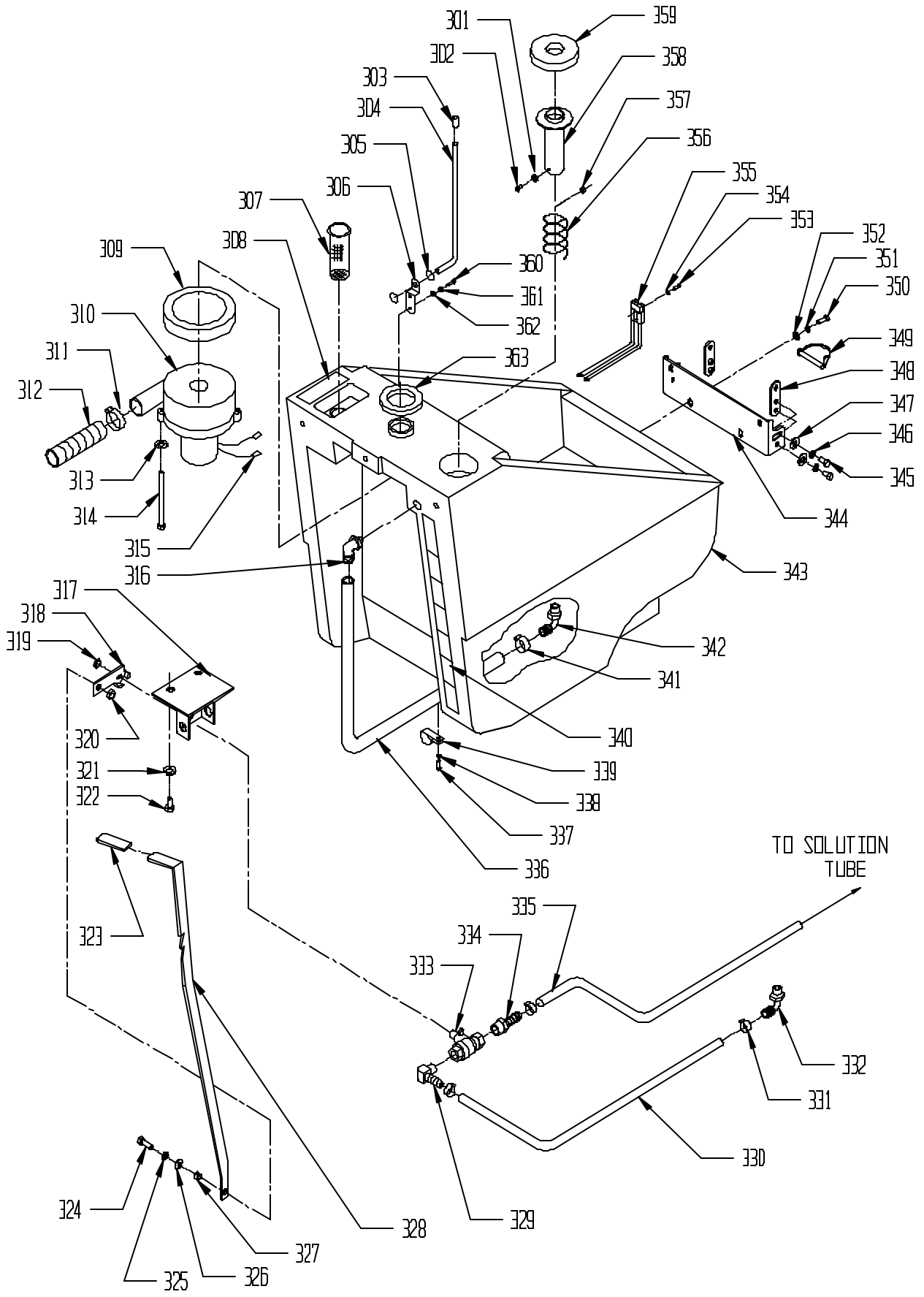


# CONTROL PANEL



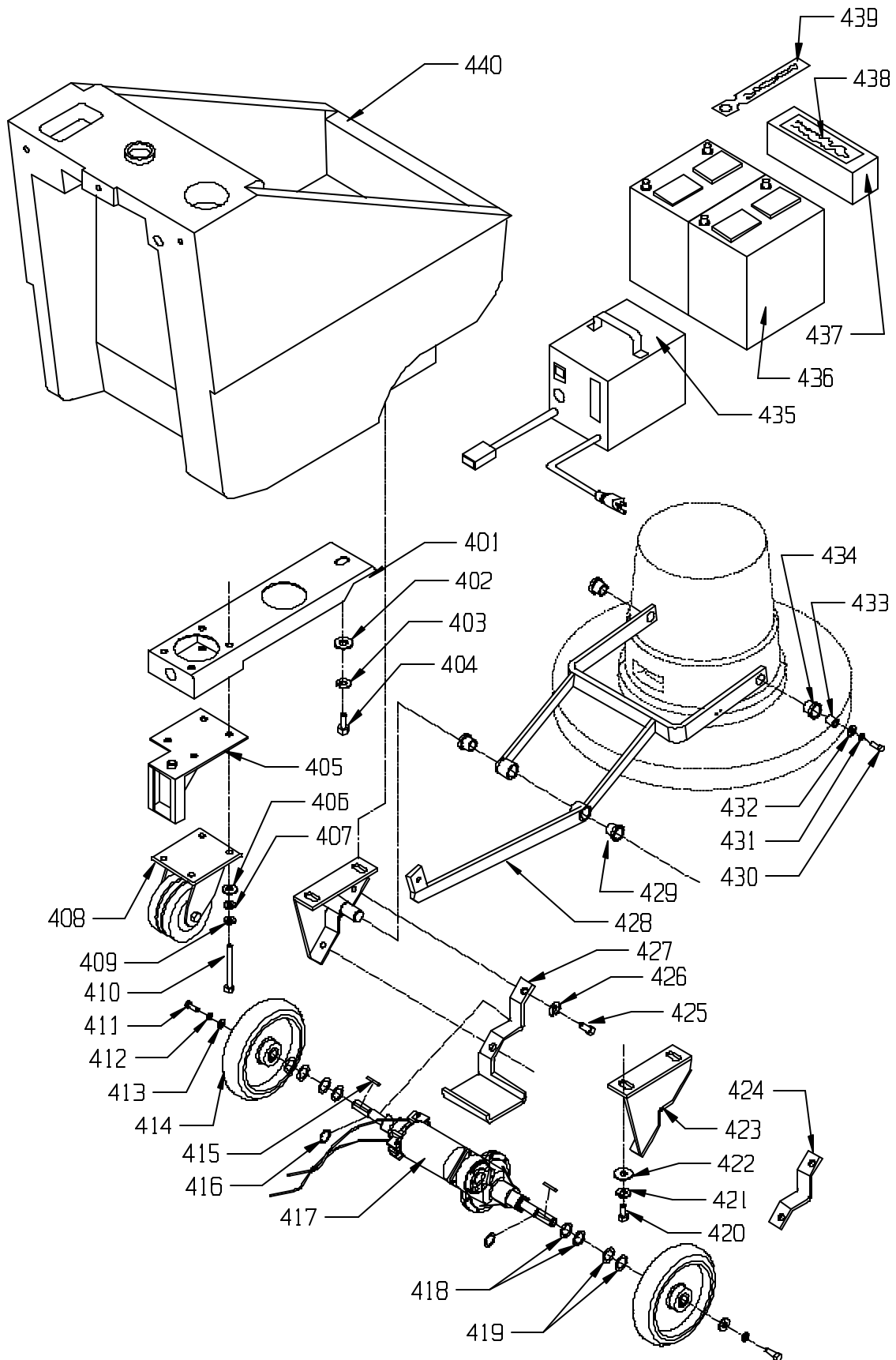
ITEM	PART NO.	DESCRIPTION	QTY.
301	91-2-032-0	#10 SPLIT LOCK WASHER	1
302	91-2-038-0	10-24 X 3/8 ROUND HEAD PHILLIPS MACHINE SCREW	1
303	50-9-253-1	CAP	1
304	23-9-163-6	HOOD ROD, PLATED	1
305	23-9-256-1	CIRCLE COTTER - #CC-7	2
306	23-9-164-6	ROD BRACKET, PLATED	1
307	27-9-189-9	SOLUTION TANK FILTER	1
	27-9-189-1	BAG, TANK SCREEN	1
	27-9-176-1	RING	1
308	23-9-217-1	DECAL CLEAN WATER	1
309	46-9-010-1	MOTOR SEAL GASKET	1
310	23-9-557-1	VAC MOTOR, 24 VOLT 3 STAGE	1
311	44-9-544-1	CLAMP, HOSE 1 9/16" TO 2 1/2" DIAMETER	1
312	23-9-565-1	HOSE, VAC MOTOR EXHAUST	1
313	91-2-088-0	1/4 SPLIT LOCK WASHER	3
314	91-2-136-0	1/4-20 X 4 HEX BOLT	3
315	23-9-264-1	BUTT CONNECTOR, 12/10 GAGE YELLOW	2
316	23-9-177-1	90 DEGREE HOSE BARB	1
317	23-9-531-3	BRACKET, SOLUTION VALVE	1
318	23-9-547-1	LEVER, VALVE (SHORT)	1
319	91-2-153-0	NUT, 5/16-24 HEX	1
320	91-2-089-0	1/4-20 THIN HEX NUT WITH NY-LOK INSERT	1
321	91-2-152-0	5/16 SPLIT LOCK WASHER	2
322	91-2-164-0	5/16-18 X 3/4 HEX BOLT	2
323	23-9-118-1	GRIP, VALVE LEVER	1
324	91-2-125-0	1/4-20 X 3/4 HEX BOLT WITH NYLON PATCH	1
325	91-2-088-0	1/4 SPLIT LOCK WASHER	1
326	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	1
327	27-9-128-6	BUSHING SPACER	1
328	26-9-028-3	VALVE LEVER	1
329	27-9-179-1	90 DEGREE HOSE BARB - 1/4 NPT	1
330	23-9-597-7	VINYL HOSE, 3/8" I.D. X 14" LONG	1
331	23-9-248-1	HOSE CLAMP, 7/32" TO 5/8" DIAMETER	3
332	24-9-060-1	FITTING, ELBOW 3/8 BARB X 1/4 MNPT	1
333	13-9-153-1	SOLUTION VALVE	1
334	38-9-066-0	HOSE BARB X 1/4" MPT	1
335	23-9-598-7	VINYL HOSE, 3/8" I.D. X 23" LONG	1
336	23-9-599-7	VINYL HOSE, 3/4" I.D. X 23" LONG	1
337	91-2-164-0	5/16-18 X 3/4 HEX BOLT	1
338	91-2-152-0	5/16 SPLIT LOCK WASHER	1
339	23-9-576-1	CLAMP, TUBE	1
340	23-9-185-1	SOLUTION LABEL	1
341	23-9-214-1	HOSE CLAMP, 11/16" TO 1 1/4 DIAMETER	1
342	23-9-177-1	90 DEGREE HOSE BARB	1
343	23-9-101-1	SOLUTION TANK	1
344	23-9-594-3	HINGE BRACKET - LOWER	1
345	91-2-121-0	1/4-20 X 5/8 HEX BOLT	4
346	91-2-088-0	1/4 SPLIT LOCK WASHER	4
347	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	4
348	23-9-593-3	ADJUSTMENT PLATE - HINGE BRACKET	2
349	23-9-165-1	HINGE PIN	2
350	91-2-125-0	1/4-20 X 3/4 HEX BOLT WITH NYLON PATCH	4
351	91-2-088-0	1/4 SPLIT LOCK WASHER	4
352	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	4
353	91-2-008-0	#6-32 X 3/4 ROUND HEAD PHILLIPS MACHINE SCREW	2
354	91-2-013-0	#6 EXTERNAL STAR LOCK WASHER	2
355	23-9-200-1	CHARGER PLUG, RED 24 VOLT WITH WIRES	1
356	23-9-158-1	SPRING TUBE ADAPTER	1
357	91-2-036-0	10-24 HEX NUT WITH STAR LOCK WASHER	1
358	23-9-157-3	TUBE ADAPTER	1
359	23-9-159-1	GASKET TUBE ADAPTER	1
360	91-2-117-0	1/4-20 X 1/2 HEX BOLT	2
361	91-2-088-0	1/4 SPLIT LOCK WASHER	2
362	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	2
363	02-9-434-1	TOP MOTOR SEAL - NEOPRENE	1

# SOLUTION



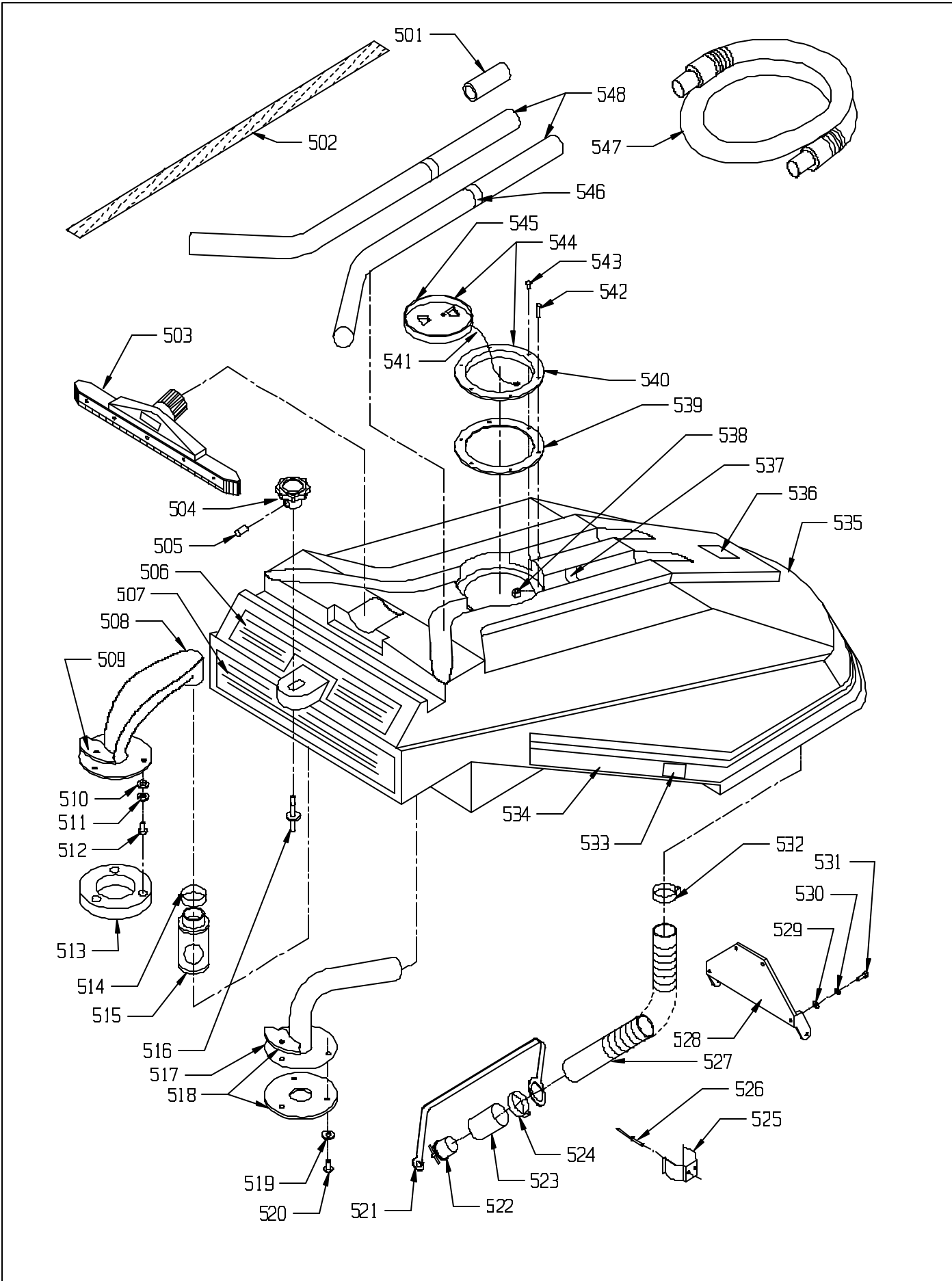
ITEM	PART NO.	DESCRIPTION	QTY.
401	23-9-532-3	CASTER - CHANNEL DRIVE	1
402	91-2-245-0	17/32 I.D. X 1 1/16 O.D. X .074/.121 THICK SAE FLAT WASHER (1/2)	1
403	91-2-242-0	1/2 SPLIT LOCK WASHER	1
404	91-2-250-0	1/2-13 X 7/8 HEX BOLT	1
405	23-9-574-3	BRACKET, SQUEEGEE MOUNT	1
406	52-9-354-1	MOTOR WASHER 1" O.D.	4
407	91-2-198-0	13/32 I.D. X 13/16 O.D. X .051/.080 THICK SAE FLAT WASHER (3/8)	4
408	26-9-258-1	4" GRAY SOFT GREY CASTER COMPLETE	1
	44-9-049-1	REPLACEMENT SOFT CASTER WHEEL ONLY	1
	44-9-050-1	RED WHEEL 4" CASTER COMPLETE	1
	44-9-039-1	REPLACEMENT RED CASTER WHEEL ONLY	1
409	91-2-210-0	3/8 SPLIT LOCK WASHER	4
410	91-2-235-0	3/8-16 X 3 HEX BOLT	4
411	91-2-226-0	3/8-16 X 1 HEX BOLT	2
412	91-2-210-0	3/8 SPLIT LOCK WASHER	2
413	91-2-218-0	7/16 I.D. X 1 3/8 O.D. X .086/.132 THICK WROUGHT WASHER (3/8)	2
414	23-9-550-1	8 X 2 DRIVE WHEEL	2
415	49-9-121-1	KEY, MAIN AXLE SPROCKET	2
416	52-9-315-1	RETAINING RING	2
417	23-9-548-1	TRANSAXLE, 20"	1
	24-9-522-1	BRACKET, BRUSH WITH BRUSHES TRANSAXLE	1
	24-9-523-1	GEAR PARTS TRANSAXLE	1
	24-9-524-1	GEAR / PINION ASSEMBLY KEYED TRANSAXLE	1
	99-9-764-1	ANTI-SEIZE LUBRICANT, PERMATEX	
	24-9-525-1	CARBON BRUSH - TRANSAXLE	2
	24-9-526-1	CARBON BRUSH CAP - TRANSAXLE	2
	24-9-527-1	TOP MOTOR BRACKET - TRANSAXLE	1
418	52-9-341-1	1 1/4" I.D. X .770" O.D. X .082" THICK WASHER, PLATED	4
419	49-9-109-1	NYLON WASHER	4
420	91-2-250-0	1/2-13 X 7/8 HEX BOLT	4
421	91-2-242-0	1/2 SPLIT LOCK WASHER	4
422	91-2-245-0	17/32 I.D. X 1 1/16 O.D. X .074/.121 THICK SAE FLAT WASHER (1/2)	4
423	23-9-546-3	BRACKET, RIGHT AXLE SUPPORT	1
	23-9-534-3	BRACKET, LEFT AXLE SUPPORT	1
424	23-9-535-3	CLAMP, AXLE	1
425	91-2-125-0	1/4-20 X 3/4 HEX BOLT WITH NYLON PATCH	4
426	91-2-088-0	1/4 SPLIT LOCK WASHER	4
427	23-9-524-3	AXLE STRAP WITH BRUSH GUARD	1
428	23-9-529-9	LIFT FORK ASSEMBLY (INCLUDES ITEMS 428, 429, & 434)	1
	23-9-529-3	LIFT FORK	1
429	27-9-137-1	FLANGE BEARING FF-838-3	2
430	91-2-254-0	1/2-13 X 1 1/4 HEX BOLT	2
431	91-2-242-0	1/2 SPLIT LOCK WASHER	2
432	91-2-245-0	17/32 I.D. X 1 1/16 O.D. X .074/.121 THICK SAE FLAT WASHER (1/2)	2
433	27-9-075-6	BUSHING SPACER	2
434	27-9-076-1	FLANGE BEARING FF-71	2
435	23-9-199-1	24 VOLT BATTERY CHARGER 50HZ 240 VOLT AC	1
	23-9-201-1	24 VOLT BATTERY CHARGER 120 VOLT AC - GELL BATTERY	1
	23-9-251-1	BATTERY CHARGER 24 VOLT DC 100 VOLT AC EXPORT ONLY	1
	23-9-294-1	24 VOLT BATTERY CHARGER 240 VOLT AC - GELL BATTERY	1
	23-9-295-1	24 VOLT 120/250, 50/60HZ BATTERY CHARGER	1
	23-9-607-1	CHARGER - 24 VOLT BATTERY, 10 AMP, 120 VOLT	1
	23-9-608-1	CHARGER - 24 VOLT BATTERY, 25 AMP, 120 VOLT	1
436	63-9-365-1	BATTERY (12 VOLT, 145 AMP HOURS)	2
	33-9-036-1	BATTERY (6 VOLT, 220 AMP HOURS)	4
	23-9-273-1	BATTERY 12 VOLT GELL CELL 105 AMP HOURS)	2
	23-9-282-1	BATTERY (12 VOLT, 105 AMP HOURS, DRY)	2
437	23-9-219-1	BATTERY BLOCK	2
438	23-9-246-1	LABEL - BATTERY BLOCK	2
439	23-9-276-1	WARNING TAG - BATTERY TERMINAL	1
440	23-9-101-1	SOLUTION TANK	1

# CHASSIS TRANSAXLE



<b>ITEM</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
501	22-9-121-1	5 INCH ALUMINUM CONNECTOR	1
502	23-9-124-1	HOSE STRAP	1
503	57-9-701-1	TOOL - SQUEEGEE WITH WHEELS, 15"	1
504	44-9-052-1	LOAD ADJUST KNOB	1
505	91-2-064-0	10-32 X 1/4 SET SCREW - CUP POINT	1
506	23-9-178-1	WARNING/OPERATE LABEL	1
507	23-9-566-1	TANK DRAIN LABEL	1
508	23-9-545-1	VACUUM TUBE	1
509	23-9-161-1	INLET TUBE GASKET	1
510	91-2-093-0	9/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	3
511	91-2-097-0	1/4 EXTERNAL STAR LOCK WASHER	3
512	91-2-100-0	1/4-20 X 5/8 TRUSS HEAD PHILLIPS MACHINE SCREW	3
513	23-9-160-1	GASKET, VAC TUBE	1
514	48-9-267-1	HOSE CLAMP 1 1/16" TO 2"	1
515	23-9-154-1	FLOAT SCREEN ASSEMBLY	1
516	23-9-162-6	STUD, HOOD KNOB	1
517	23-9-156-3	INLET TUBE	1
518	23-9-161-1	GASKET INLET TUBE	2
519	91-2-097-0	1/4 EXTERNAL STAR LOCK WASHER	3
520	91-2-100-0	1/4-20 X 5/8 TRUSS HEAD PHILLIPS SCREW	3
521	27-9-188-1	PLUG STRAP	1
522	27-9-562-1	DRAIN PLUG	1
523	23-9-166-6	HOSE TUBE	1
524	23-9-216-1	TUBE HOSE CLAMP, CRIMP-ON TYPE	1
525	23-9-213-1	SPRING CLIP, HOSE	1
526	23-9-175-1	POP RIVET 1/8" X 5/8"	2
527	23-9-167-1	DRAIN HOSE, CRUSH PROOF	1
528	23-9-169-3	UPPER HINGE	1
529	91-2-093-0	9/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	4
530	91-2-088-0	1/4 SPLIT LOCK WASHER	4
531	91-2-121-0	1/4-20 X 5/8 HEX BOLT	4
532	44-9-544-1	HOSE CLAMP, 1 9/16" TO 2 1/2" DIAMETER	1
533	23-9-554-1	LABEL, W/D	2
534	23-9-181-1	SIDE LABEL, RIGHT	1
	23-9-180-1	SIDE LABEL, LEFT	1
535	23-9-544-1	TANK, RECOVERY	1
536	27-9-196-1	BATTERY COVER LABEL - NSS	1
537	99-9-755-0	VELCRO HOOK, P.S. 2"	2
538	91-2-036-0	10-24 HEX NUT WITH STAR LOCK WASHER	2
539	26-9-089-1	RECOVERY TANK LID GASKET	1
540	26-9-092-1	LID MOUNTING RING	1
541	26-9-093-1	LID CHAIN RECOVERY TANK	1
542	91-2-045-0	10-24 X 1 ROUND HEAD PHILLIPS MACHINE SCREW	1
543	91-2-079-0	10 X 5/8 PAN HEAD PHILLIPS SHEET METAL SCREW	5
544	26-9-088-1	RECOVERY TANK LID ASSEMBLY (INCL. ITEMS 540, 539, 544)	1
	26-9-088-9	RECOVERY TANK LID & GASKET ASSY. (INCL. ITEMS 538, 539, 544)	1
545	26-9-091-1	CLEAR TANK LID	1
546	99-9-756-0	VELCRO LOOP, P.S. 6"	2
547	23-9-123-1	VACUUM HOSE	1
548	57-9-033-1	WAND - 2 PIECE, 1 1/2"	1

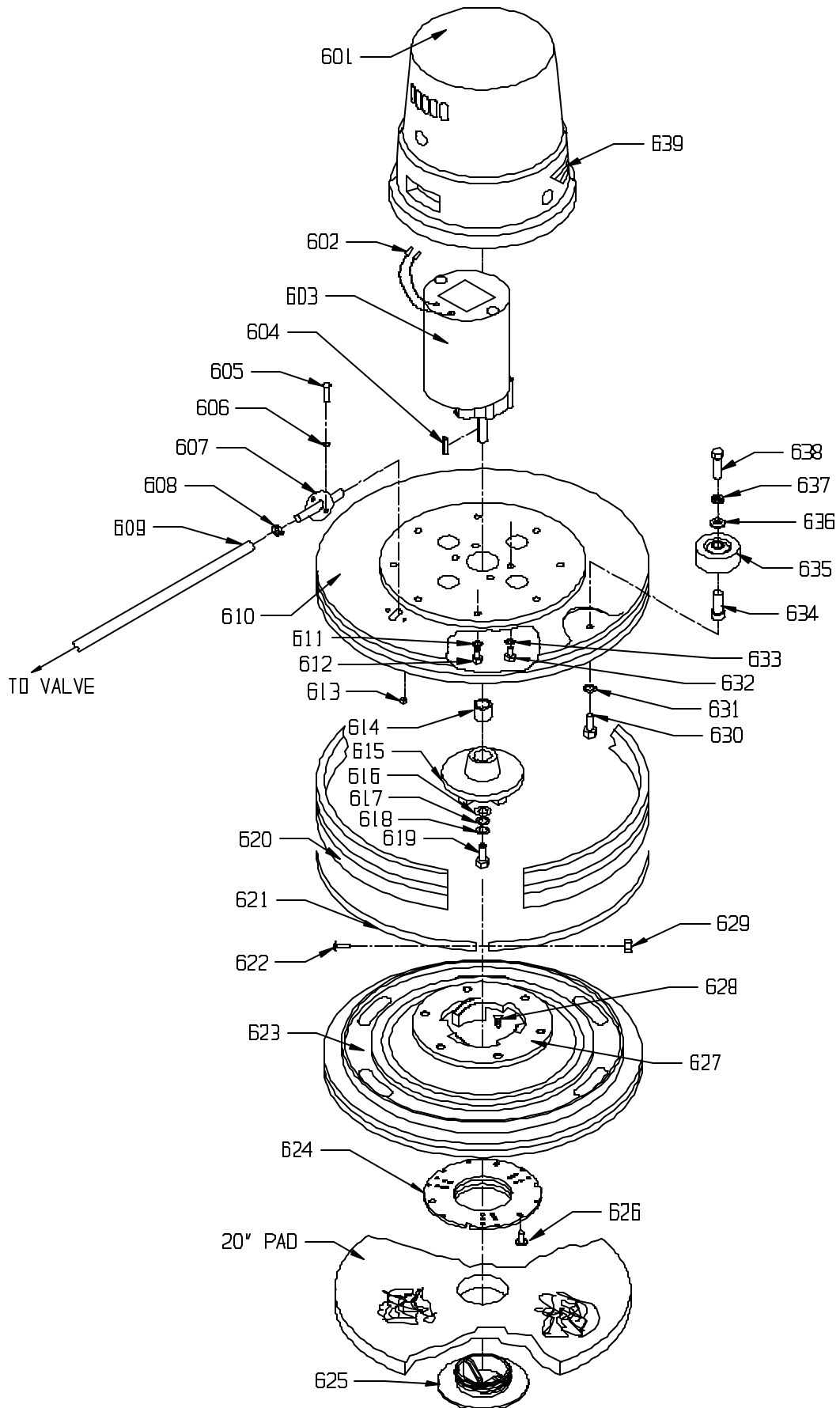
# RECOVERY TANK



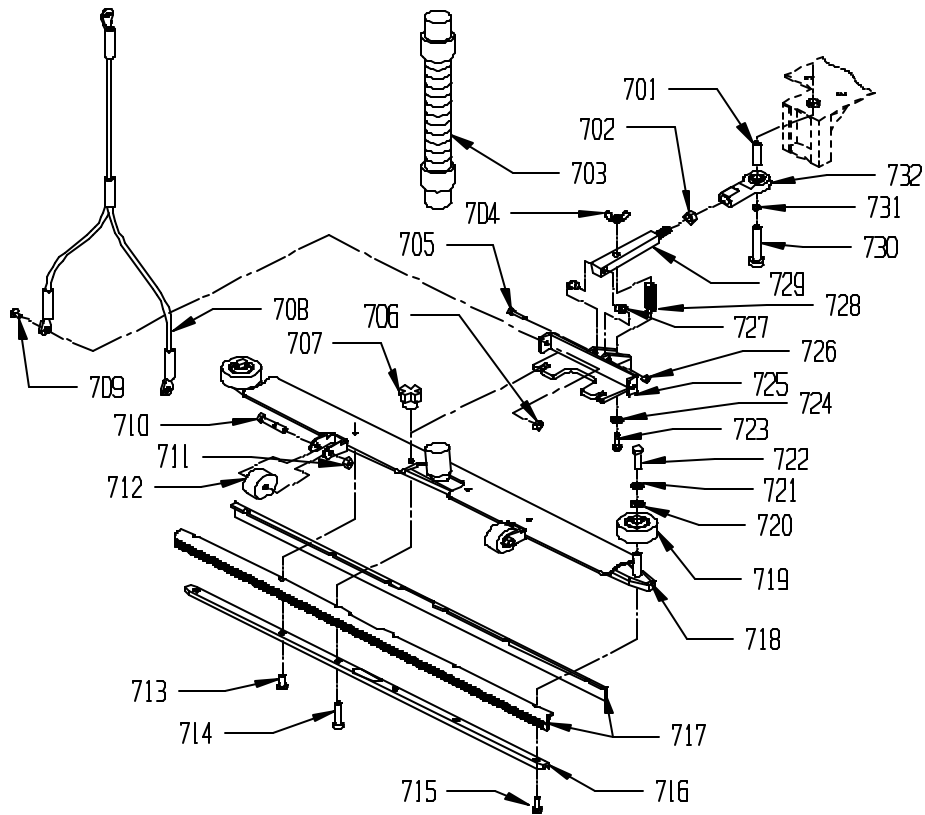
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
601	23-9-303-1	MOTOR HOUSING (IMPERIAL)	1
602	23-9-299-1	BUTT CONNECTOR	2
603	23-9-300-1	GEAR MOTOR (IMPERIAL) 3/4 HP 24 VOLT DC	1
604	27-9-268-1	KEY	1
605	91-2-024-0	8-32 X 1/2 ROUND HEAD PHILLIPS MACHINE SCREW	2
606	91-2-018-0	#8 INTERNAL STAR LOCK WASHER	2
607	23-9-113-6	WATER FEED TUBE	1
608	23-9-248-1	HOSE CLAMP 7/32" TO 5/8" DIAMETER.	1
609	87-9-107-0	VINYL HOSE, 3/8" I.D. X 1/2" O.D. X 23" LONG	1
610	23-9-304-3	SKIRT (IMPERIAL)	1
611	91-2-152-0	5/16 SPLIT LOCK WASHER	8
612	91-2-164-0	5/16-18 X 3/4 HEX HEAD BOLT	8
613	91-2-019-0	8-32 HEX NUT WITH STAR LOCK WASHER	2
614	23-9-306-1	SPACER FOR IMPERIAL MOTOR	1
615	23-9-305-2	CLUTCH CASTING (IMPERIAL)	1
616	52-9-354-1	MOTOR WASHER 1" O.D.	1
617	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	1
618	91-2-152-0	5/16 SPLIT LOCK WASHER	1
619	91-2-164-0	5/16-18 X 3/4 HEX BOLT	1
620	23-9-112-1	BUMPER GUARD	1
621	23-9-170-2	SKIRT BAND	1
622	91-2-045-0	10-24 X 1 ROUND HEAD PHILLIPS MACHINE SCREW	1
623	28-9-260-1	PAD DRIVER	1
624	52-9-769-1	PAD HOLDER BASE (YELLOW)	1
625	44-9-548-1	LOCK RING DEEP (YELLOW)	1
	59-9-072-1	SPRING CLIP PAD HOLDER SET (WHITE)	1
626	91-2-079-0	#10 X 5/8 PAN HEAD PHILLIPS SHEET METAL SCREW	3
627	28-9-010-1	CLUTCH PLATE, PLASTIC 5" DIAMETER 6 HOLES	1
	28-9-097-1	6 HOLES, PLASTIC CLUTCH PLATE - BROWN, TRU FIT	1
	28-9-095-1	6 HOLES, 5" DIAMETER, PLASTIC CLUTCH PLATE - WHITE SPINOFF	1
628	—————	10 X 1 FLAT HEAD SCREW	6
629	91-2-035-0	10-24 HEX NUT WITH NY-LOK INSERT	1
630	91-2-156-0	5/16-18 X 1/2 HEX BOLT	1
631	91-2-141-0	5/16 EXTERNAL STAR LOCK WASHER	1
632	91-2-222-0	3/8-16 X 3/4 HEX BOLT	4
633	91-2-210-0	3/8 SPLIT LOCK WASHER	4
634	23-9-227-6	BUMPER WHEEL AXLE	1
635	27-9-028-1	3" BUMPER WHEEL	1
636	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	1
637	91-2-141-0	5/16 EXTERNAL STAR LOCK WASHER	1
638	91-2-156-0	5/16-18 X 1/2 HEX BOLT	1
639	23-9-184-1	MOTOR STRIPE LABEL	1



# BRUSH HEAD ASSEMBLY

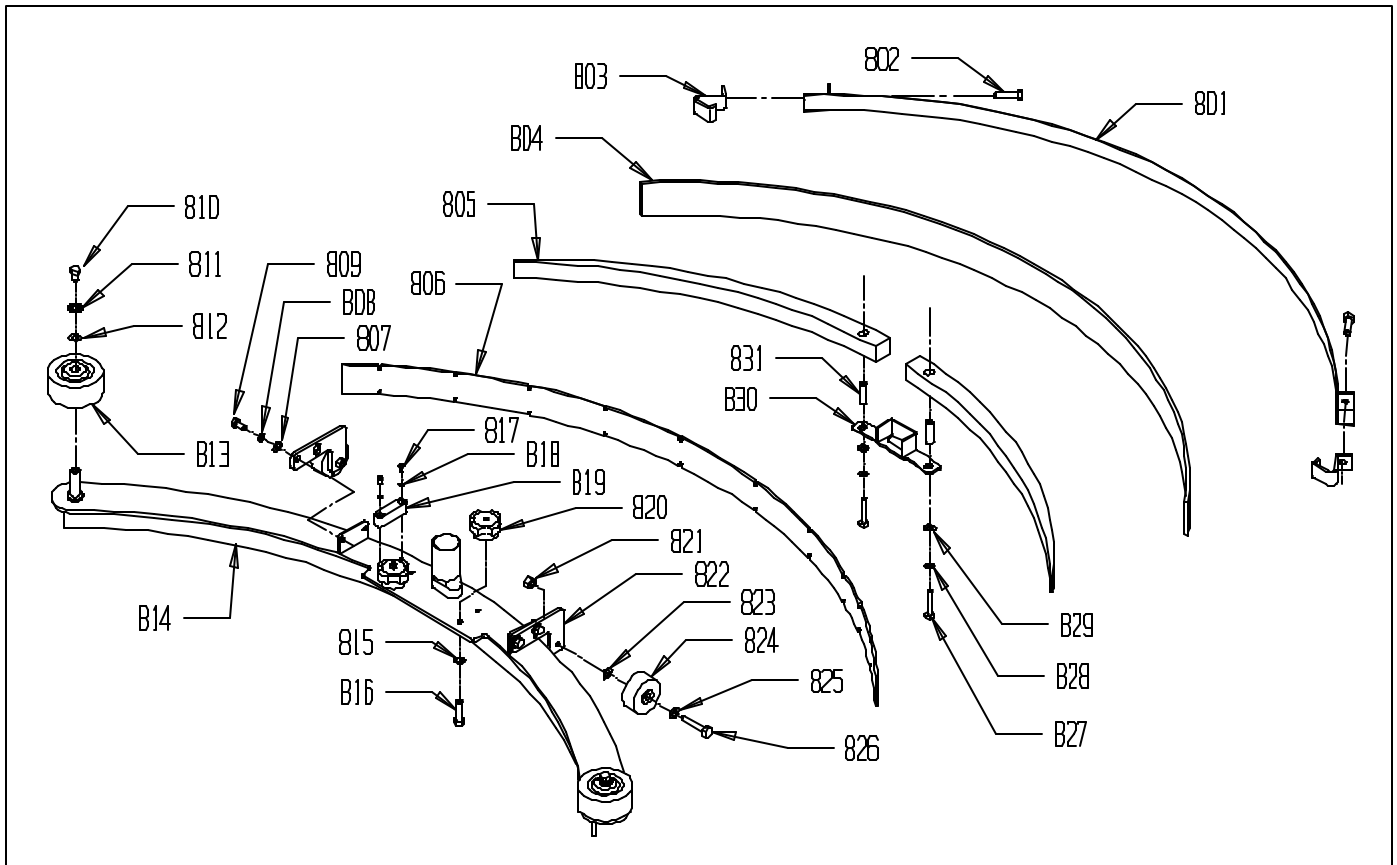


## SQUEEGEE ASSEMBLY



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
701	24-9-059-1	SPACER, SQUEEGEE PIVOT	1
702	91-2-267-0	1/2-20 HEX JAM NUT	1
703	26-9-059-1	SQUEEGEE VAC HOSE WITH CUFFS	1
704	91-2-144-0	5/16-18 WING NUT	1
705	91-2-234-0	3/8-16 X 2 HEX BOLT	1
706	91-2-090-0	1/4-20 HEX NUT WITH NY-LOK INSERT	2
707	27-9-100-2	SQUEEGEE KNOB	2
708	24-9-530-1	SQUEEGEE LIFT CABLE	1
709	91-2-101-0	1/4-20 X 3/4 TRUSS HEAD PHILLIPS MACHINE SCREW	2
710	91-2-176-0	5/16-18 X 1 3/4 HEX BOLT	2
711	91-2-145-0	5/16-18 HEX NUT WITH NY-LOK INSERT	2
712	30-9-674-1	WHEEL, BUMPER - SMALL, GRAY	2
713	91-2-188-0	5/16-18 X 3/4 SOCKET HEAD CAP SCREW	2
714	91-2-192-0	5/16-18 X 1 1/2 SOCKET HEAD CAP SCREW	2
715	91-2-188-0	5/16-18 X 3/4 SOCKET HEAD CAP SCREW	2
716	26-9-253-3	INNER CHANNEL SQUEEGEE NARROW MOUNT	1
717	27-9-106-1	32" REPLACEABLE SQUEEGEE BLADES, SET OF 2	1
718	26-9-252-3	HOUSING, NARROW MOUNT SQUEEGEE	1
	26-9-253-9	SQUEEGEE ASSEMBLY NARROW MOUNT	1
719	27-9-028-1	3" BUMPER WHEEL	2
720	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	2
721	91-2-141-0	5/16 EXTERNAL STAR LOCK WASHER	2
722	91-2-156-0	5/16-18 X 1/2 HEX BOLT	2
723	91-2-213-0	5/16-18 X 2 1/4 HEX BOLT	1
724	91-2-152-0	WASHER, 5/16 SPLIT LOCK	1
725	13-9-017-1	SQUEEGEE BRACKET	1
726	91-2-214-0	3/8-16 HEX NUT WITH NY-LOK INSERT	1
727	13-9-117-1	BUSHING, SQUEEGEE SHAFT	2
728	36-9-558-1	HEIGHT ADJUSTING SPRING	1
729	13-9-015-6	SQUEEGEE SHAFT	1
730	91-2-266-0	1/2-13 X 3 HEX BOLT WITH NY-LOK PATCH	1
731	10-9-098-1	SWITCH GUARD SPACER	1
732	23-9-194-1	BALL JOINT	1

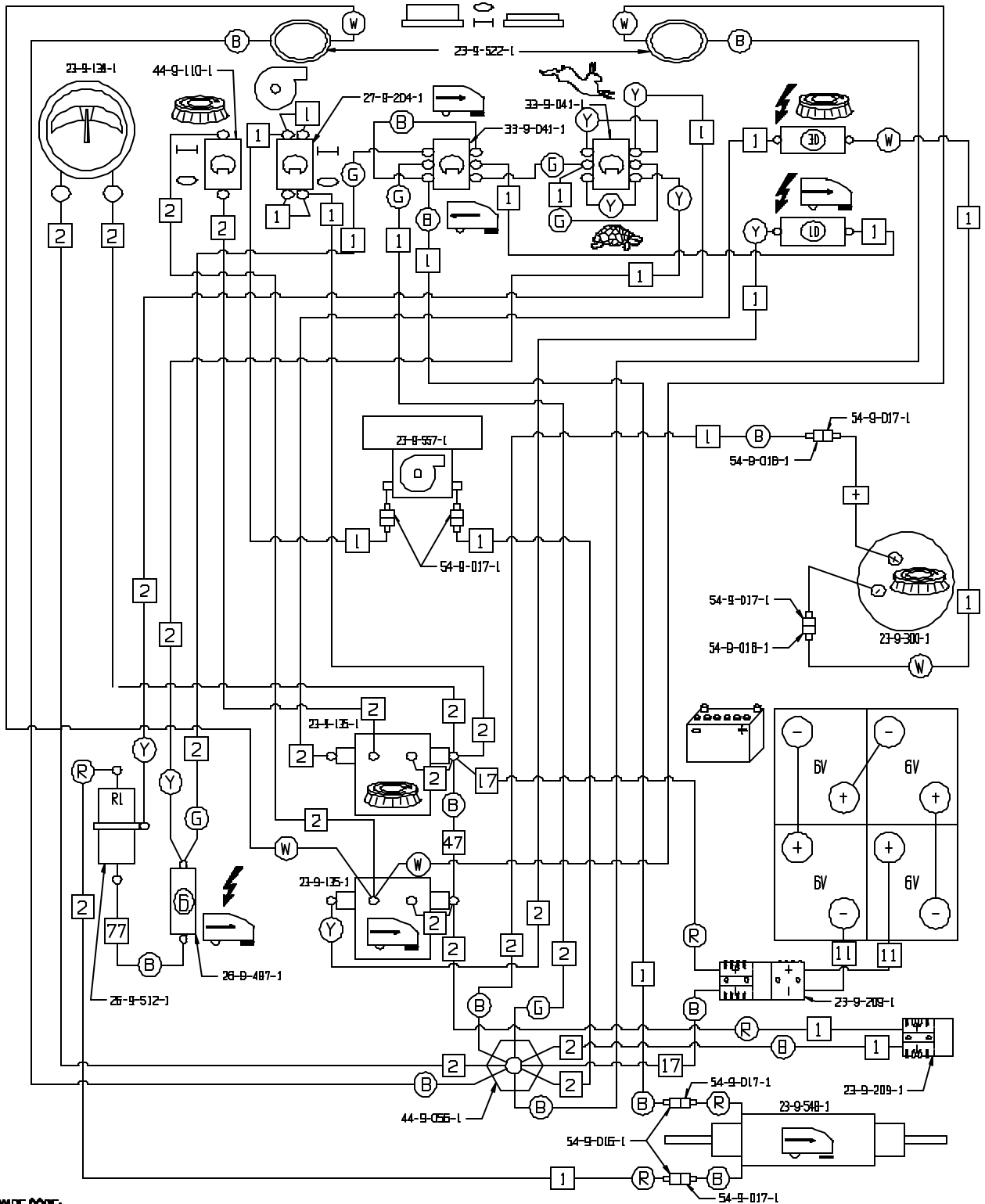
## CURVED SQUEEGEE ASSEMBLY



<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
	24-9-249-9	CURVED SQUEEGEE COMPLETE	1
801	24-9-255-1	REAR SECURING STRAP	1
802	91-2-172-0	5/16-18 X 1 1/4 FULL THREADED HEX HEAD BOLT	2
803	24-9-256-1	HOOKED END	2
804	24-9-253-1	REAR BLADE	1
805	24-9-251-1	CENTER WEDGE	2
806	24-9-252-1	FRONT BLADE	1
807	91-2-121-0	1/4-20 X 5/8 HEX BOLT	4
808	91-2-088-0	1/4 SPLIT LOCK WASHER	4
809	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	4
810	91-2-156-0	5/16-18 X 1/2 HEX BOLT	2
811	91-2-141-0	5/16 EXTERNAL STAR LOCK WASHER	2
812	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	2
813	27-9-028-1	BUMPER WHEEL	2
814	24-9-250-3	MAIN HOUSING	1
	24-9-249-9	CURVED SQUEEGEE ASSEMBLY	1
815	91-2-152-0	5/16 SPLIT LOCK WASHER	2
816	91-2-172-0	5/16-18 X 1 1/4 FULL THREADED HEX HEAD BOLT	2
817	91-2-007-0	6-32 X 3/8 ROUND HEAD PHILLIPS MACHINE SCREW	2
818	91-2-003-0	#6 SPLIT LOCK WASHER	2
819	24-9-258-1	SQUEEGEE LEVEL	1
820	27-9-100-2	SQUEEGEE KNOB	2
821	91-2-145-0	5/16-18 HEX NUT WITH NY-LOK INSERT	2
822	24-9-257-1	DOLLY WHEEL MOUNTING BRACKET	2
823	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	2
824	30-9-674-1	ROLLER WHEEL	2
825	91-2-139-0	11/32 I.D. X 11/16 O.D. X .051/.080 THICK SAE FLAT WASHER (5/16)	2
826	91-2-176-0	5/16-18 X 1 3/4 HEX BOLT	2
827	91-2-128-0	1/4-20 X 1 1/2 HEX BOLT	2
828	91-2-088-0	1/4 SPLIT LOCK WASHER	2
829	91-2-093-0	9/32 I.D. X 5/8 O.D. X .051/.080 THICK SAE FLAT WASHER (1/4)	2
830	24-9-254-1	CENTER HOLD DOWN	1
831	24-9-259-1	CENTER HOLD DOWN SPACER	2

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	23-9-523-1	COMPLETE MAIN WIRE HARNESS	1
2	23-9-521-1	COMPLETE BACK WIRE HARNESS	1
11	23-9-614-1	WIRE ASSEMBLY ANDERSON TO POSITIVE / NEGATIVE BATTERY	1
17	23-9-615-1	WIRE ASSEMBLY ANDERSON TO SOLENOID / STANDOFF	1
47	27-9-214-1	CABLE ASSEMBLY #6 X 6"	1
77	26-9-489-1	WIRE ASSEMBLY RESISTOR TO CIRCUIT BREAKER	1
97	23-9-198-1	BATTERY JUMPER 3/8 RING	5
	26-9-487-1	CIRCUIT BREAKER 6 AMP	1
	23-9-136-1	CIRCUIT BREAKER 24 VOLT 30 AMP	1
	23-9-220-1	CIRCUIT BREAKER 115 VOLT 10 AMP	1
	23-9-135-1	SOLENOID CONTACTOR 24 VOLT	1
	23-9-139-1	BATTERY METER	1
	23-9-209-1	CHARGER PLUG ONLY, RED 24 VOLT	1
	23-9-548-1	TRANSAXLE, 20"	1
	23-9-522-9	DEADMAN BUTTON SWITCH WITH RING TERMINALS	2
	23-9-557-1	VAC MOTOR 24 VOLT 3 STAGE	1
	23-9-300-1	BRUSH DRIVE MOTOR	1
	27-9-204-1	VAC MOTOR SWITCH	1
	33-9-041-1	FORWARD / REVERSE SWITCH	2
	44-9-056-1	INSULATED STAND OFF	1
	44-9-110-1	TOGGLE SWITCH	1
	54-9-016-1	1/4 FEMALE TERMINAL FULLY INSULATED 16-14 GAGE	4
	54-9-017-1	1/4 MALE SPADE TERMINAL FULLY INSULATED 16-14 GAGE	6
	26-9-512-1	RESISTOR	1
	35-9-084-1	WIRE TIE, 11" LONG	1

# WIRING DIAGRAM

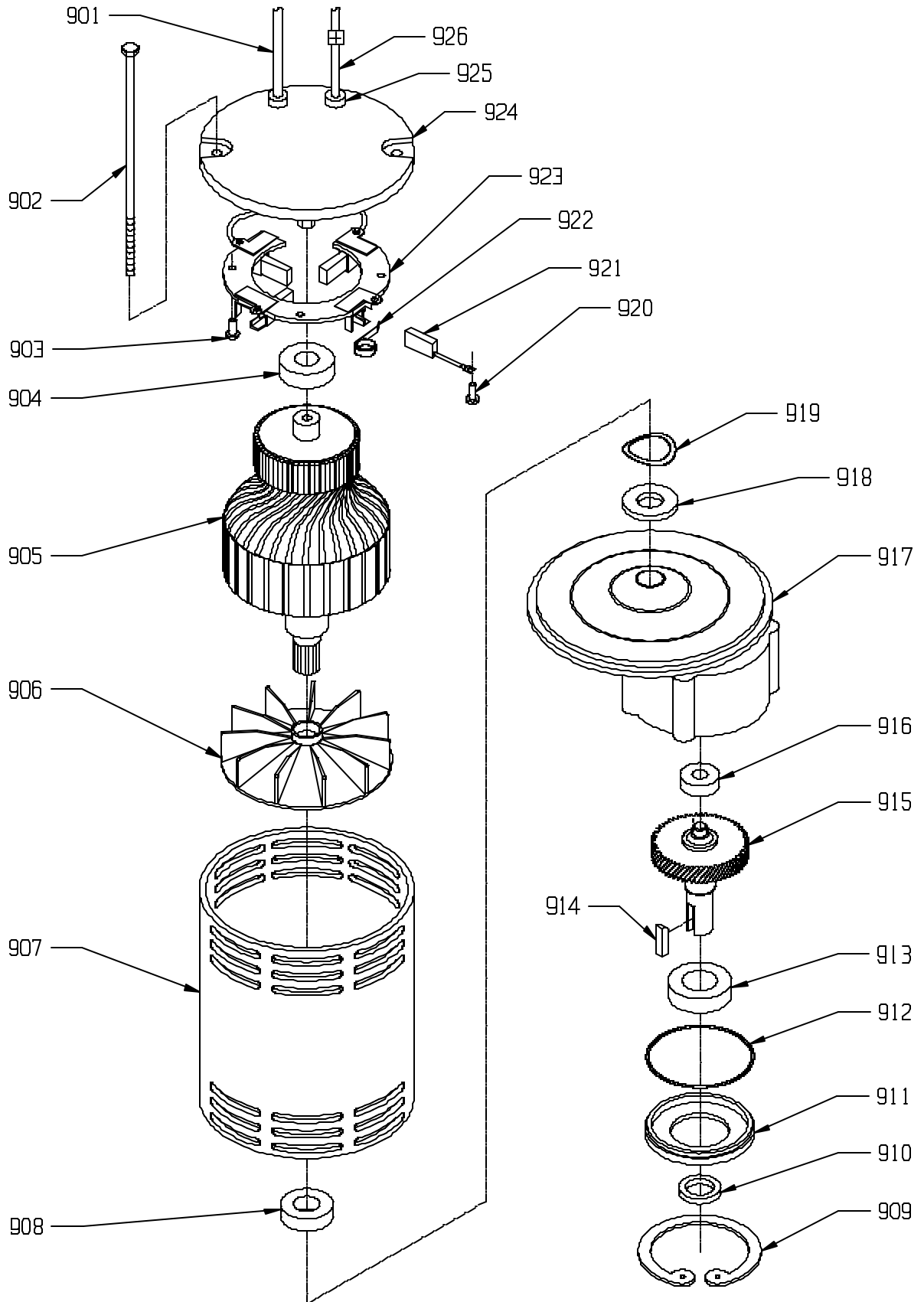


**WIRE CODE:**  
**B = BLACK**  
**G = GREEN**  
**R = RED**  
**W = WHITE**  
**Y = YELLOW**

## WRANGLER 20 W/D 24 VOLT SYSTEM

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
	23-9-300-1	COMPLETE MOTOR ASSEMBLY	1
901	33-9-122-1	NEGATIVE LEAD	1
902	33-9-120-1	THRU BOLT 1/4-20 X 7 3/4	2
903	—————	10-24 X 1/2 SELF TAP ROUND HEAD SLOTTED SCREW	2
904	50-9-204-1	TOP END BEARING	1
905	23-9-325-1	ARMATURE ASSEMBLY, INCLUDES VENT FAN AND BEARINGS	1
906	33-9-119-1	ARMATURE VENT FAN	1
907	33-9-104-1	STATOR FRAME ASSEMBLY WITH MAGNETS	1
908	33-9-105-1	BOTTOM END BEARING	1
909	33-9-117-1	SNAP RING	1
910	33-9-116-1	OIL SEAL, SMALL	1
911	33-9-115-1	END CAP	1
912	33-9-114-1	"O" RING	1
913	33-9-113-1	BOTTOM BEARING, LARGE	1
914	27-9-268-1	MOTOR KEY, 1/4 X 1/4 X 1	1
915	33-9-112-1	GEAR SHAFT	1
916	33-9-111-1	TOP BEARING, SMALL	1
917	33-9-110-1	GEAR BOX - HOUSING ONLY	1
	33-9-118-1	GEAR BOX ASSEMBLY, (INCLUDES ITEMS 17-26)	1
918	33-9-109-1	OIL SEAL, LARGE	1
919	27-9-759-1	HELICAL WASHER	1
920	—————	10-32 X 1/2 PAN HEAD SLOTTED SCREW, BRASS	4
921	33-9-108-1	CARBON BRUSH	4
922	27-9-757-1	CARBON BRUSH SPRING	4
923	33-9-102-1	BRUSH BOARD ASSEMBLY, INCL. CARBON BRUSHES & SPRINGS	1
924	33-9-100-1	TOP END BRACKET ONLY	1
	33-9-101-1	TOP END BRACKET WITH BRUSH BOARD ASSEMBLY	1
925	33-9-107-1	STRAIN RELIEF	2
926	33-9-121-1	POSITIVE LEAD	1

# BRUSH GEAR MOTOR



<b>PROBLEM</b>	<b>TROUBLESHOOTING CAUSE</b>	<b>SOLUTION</b>
No Solution Flow.	The solution valve is closed. Obstruction in the solution hose. Solution valve or linkage damaged. Solution tank is empty.	Open the solution valve. Remove the obstruction. Repair/replace the valve linkage. Fill the tank.
Solution Flow Does Not Stop.	The solution valve is open. Solution valve or linkage damage. Solution valve is dirty. Damaged seat and washer in valve. The valve stem is dirty.	Close the solution valve. Repair/replace the valve linkage. Clean the solution valve. Replace valve. Clean and lubricate valve stem.
Will Not Pick Up Any Water From Floor.	Squeegee is up. Vac motor switch is "off". Recovery tank is full. Vacuum shut-off float is stuck. Obstruction/damage in the squeegee, squeegee hose or standpipe. Leaking over gasket. Vac motor is not running.	Lower squeegee. Turn vac motor switch "on". Empty tank. Open float valve/remove obstruction. Remove obstruction/repair damage. Remove old gasket/replace. Have an authorized serviceman repair.
Will Not Pick Up All of the Water From the Floor.	Squeegee blade is worn/damaged. Obstruction/damage in the squeegee, squeegee hose or standpipe. Squeegee pressure needs adjustment. Vacuum motor worn out.	Reverse/replace squeegee blade. Remove obstruction/repair damage. Adjust pressure. Repair/replace vac motor.
Batteries Do Not Seem To Run Long Enough.	Tops of batteries are dirty/wet. Battery terminals are dirty/damaged.  Electrolyte level is too low. Batteries are not fully charged. Charger is damaged. Battery is defective.	Clean/dry, charge batteries. Clean terminals and connectors, replace damaged cables. Charge. Add distilled water and charge. Charge batteries for 8 hours. Have an authorized serviceman repair. Check cell voltage while discharging.
Cleaning Is Not Even.	Brush/pads are worn. Damage to brush assembly, casters or solution valve. Motor is not running.	Replace. Have an authorized serviceman repair.  Repair wiring, replace switch, replace carbon brushes. Reset circuit breaker button.
Machine Does Not Run.	The machine loses power.	Reset circuit breaker. Check battery connections.

**NOTE:** If problems remain after taking the above steps, contact your local authorized service station for further evaluation and repair.



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