

320 Floor Scrubber Traction Driven

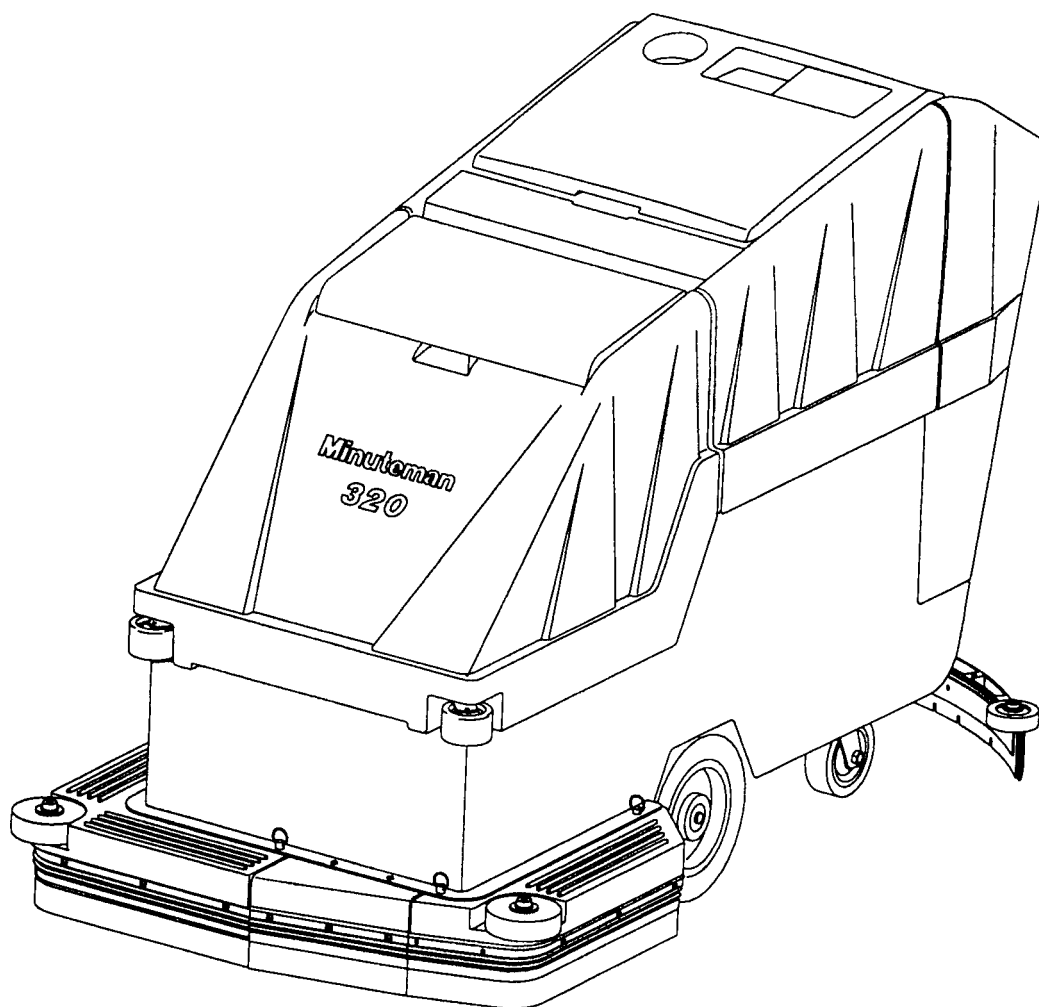
**Model: MC32036QP
MC32036CE**

OPERATION

SERVICE

PARTS

CARE



Revised 9/05

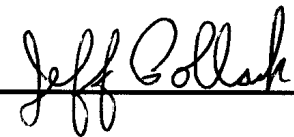
Minuteman[®]

EC Declaration of Conformity

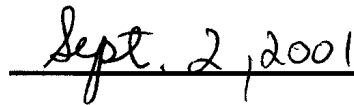
according to Directives 89/392, 89/336 and 72/73

We, Minuteman International Incorporated, of 111 South Rohlwing Road Addison Illinois 60101 USA, declare under our sole responsibility that the product MC32036CE & PB32036CE, 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
72 dB Operator	69 dB At 3m	1.9 m/s² At Operators Hand Grips
Tests were conducted on 6/7/96 with calibrated sound and vibration equipment under the conditions noted below: General Condition: Cloudy Wind: 0 km/hr Temperature: 29°C Humidity: 85% Barometric Pressure: 29.5		



Jeff Pollack, Standards Engineer



Date

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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, Fig. 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.

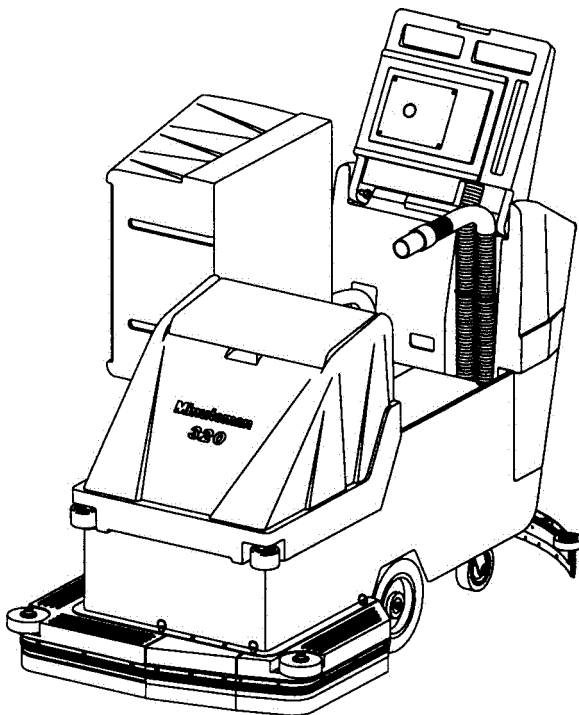


Figure 1

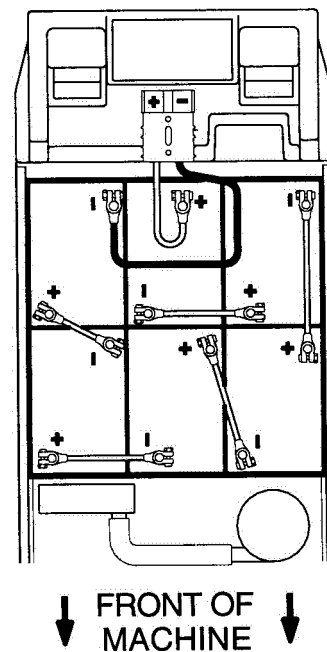
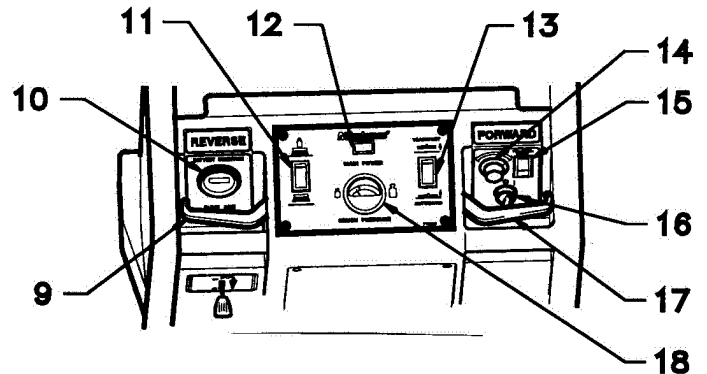
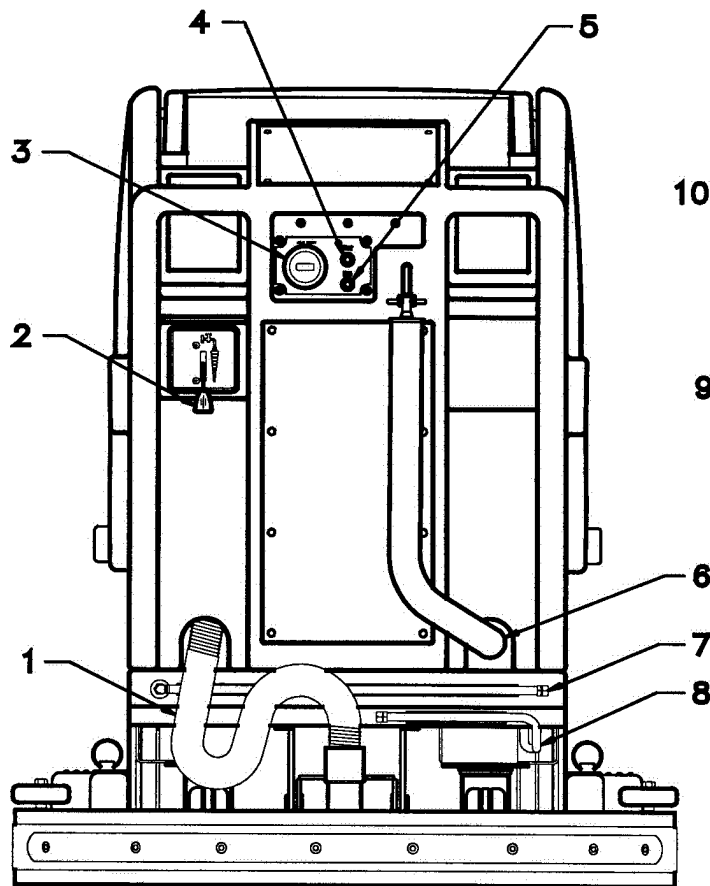


Figure 2

CONTROL PANEL IDENTIFICATION



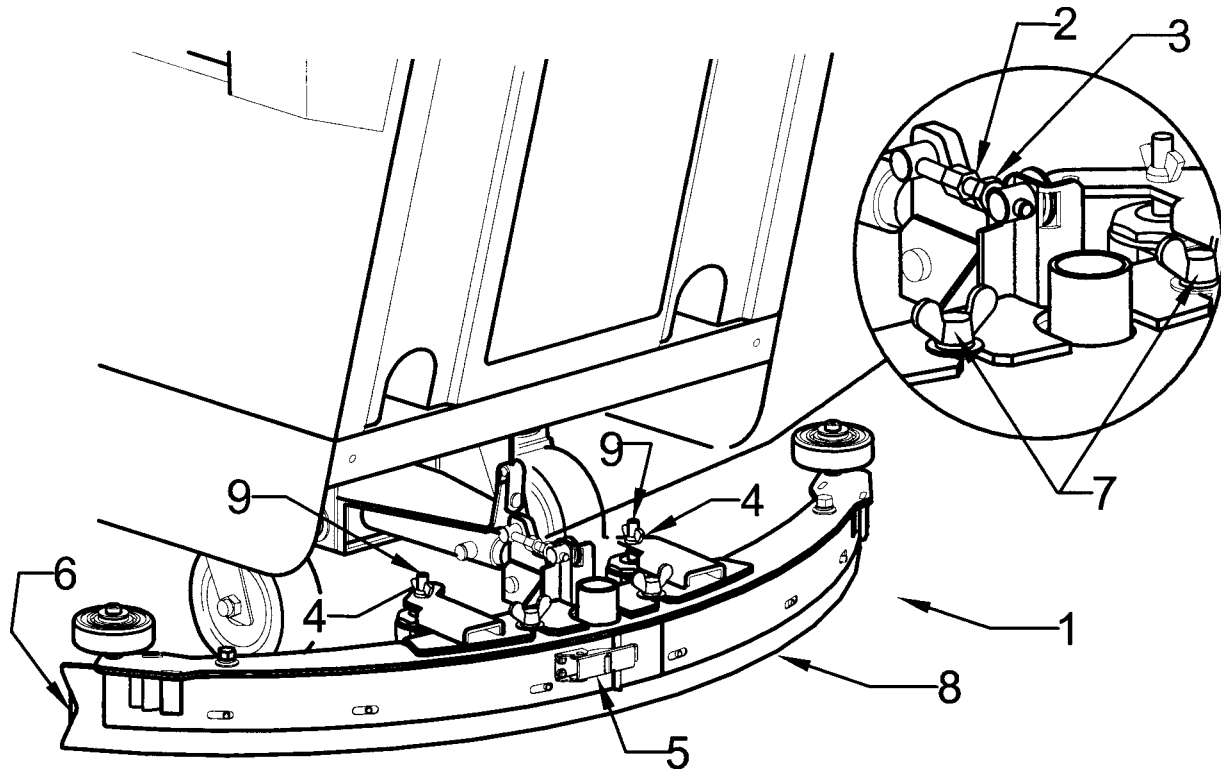
1. Vacuum recovery hose
2. Solution control lever
3. Hour meter (optional)
4. Circuit breaker for vacuum motor
5. Circuit breaker for brush motor
6. Drain hose recovery tank
7. Drain hose solution tank
8. Drain hose for battery tray
9. Reverse control lever
10. Battery condition gauge
11. Brush pressure 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 Silicone 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



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

1. **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.**
2. 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 (item 8) for uniform deflection to the floor.
3. If uneven deflection or lay is evident, minor adjustments may be necessary to avoid streaking and uneven wear on the blade.
4. To correct this, loosen the wing jam nut (item 4) in order to adjust the caster height. If the squeegee blade is deflecting too much, the casters need to be lowered to control the down pressure. Lower the caster by turning the exposed threaded stem (item 9) on the caster clockwise. Make the adjustment a few turns at a time.
5. Repeat step 2.
6. If the blades are not deflecting enough, raise the caster by turning the stem counter-clockwise to adjust the caster height to allow more down pressure on the squeegee. Repeat Step 2.
7. Make sure that there is an even deflection on the entire length of the rear blade. Adjust the castors and retighten the wing jam nuts to lock the caster setting in place.
8. Pitch adjustment is necessary if the outer ends on the squeegee blade does not contact the floor and there is too much deflection in the middle area or if the outer ends are over deflected and there is no contact in the middle.
9. To adjust pitch, lower the squeegee to the floor. Loosen the lock nut (item 3) in the turnbuckle assembly. Turning the turnbuckle (item 2) clockwise or counter-clockwise controls the forward and backward pitch of the squeegee. Having the rear blades deflected uniformly along its entire length is the desired setup.
10. Repeat Step 2 until the desired setup is achieved.
11. In certain applications where a non-slotted front wiper blade (item 6) is needed, detach the squeegee assembly by loosening the wing bolts (item 7). Unlock the clamp on the front squeegee to release the straps and flip the blade over to the non-slotted side. Reattach straps and lock the clamp back in place.
12. You can also easily replace the rear blade by unlatching the latch (item 5) and removing the straps by sliding them off the assembly.

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 #15).
4. Adjust main speed control #14 to full counter-clockwise position.
5. Lower brush assembly (ref. page 3 #11) using switch. Brushes will not come on until forward #17 or reverse #9 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 #11 and reading brush pressure gauge #18.
6. Squeegee Control/Vacuum. Switch #13 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):

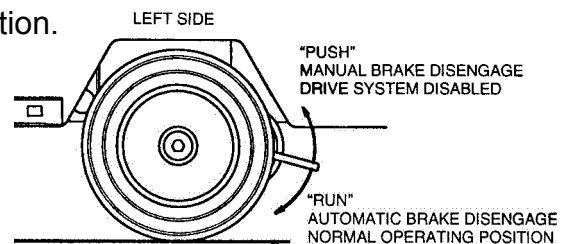
Brake lever located behind left wheel.

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.

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 can be obtained by reversing it, provided it is not torn or otherwise damaged.

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 or 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.

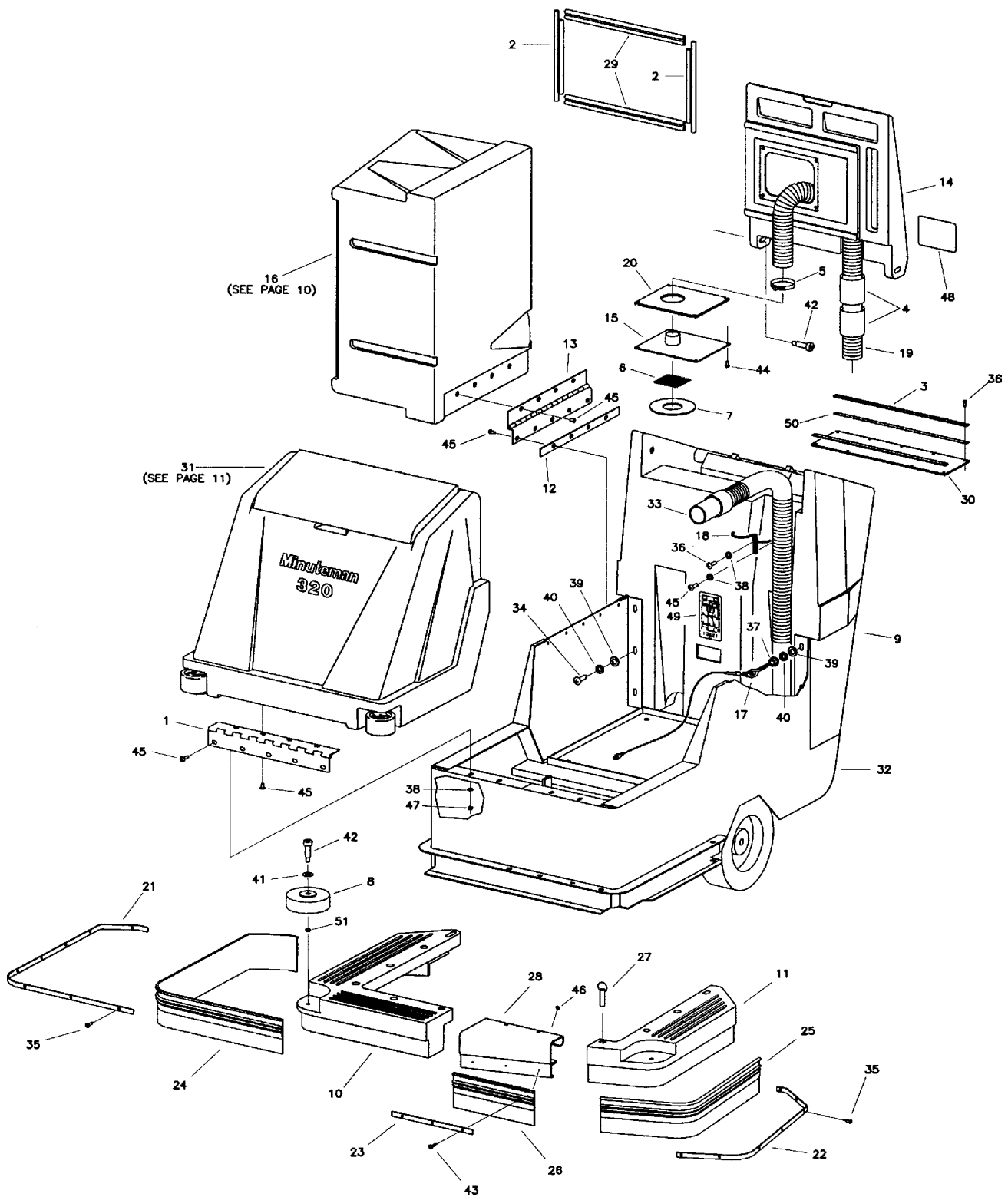
Solution: Check voltage on batteries after full charging; output voltage should be 43-45 volts with specific gravity at 1.260-1.265. Check battery electrolyte level. Check for loose or corroded battery leads and connections. Replace batteries that will not hold a charge. Lubricate casters. Reduce scrubbing 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.

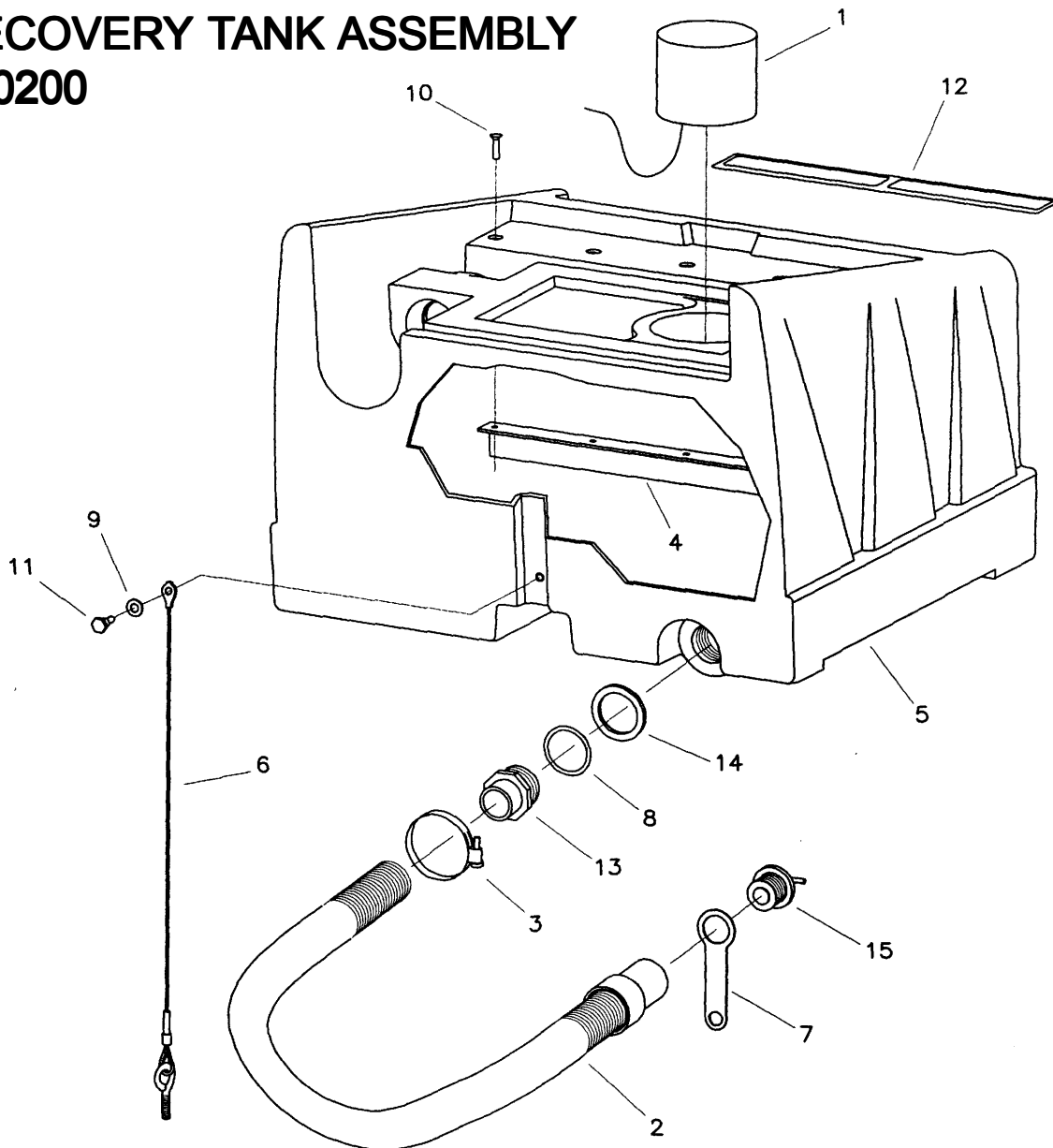
Solution: The speed control has built-in protection to guard against reversed connections, check battery connections. Machine locked in high or low speed. Inspect entire speed control for burn marks of components that have broken. These would be caused by a direct short in the circuit. Replace entire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



Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION
1	260087	1	HINGE-15"
2	260157	2	LID GASKET SHORT 260B
3	260170	2	RETAINER STRIP
4	260192	2	HEAT SHRINK-TUBING
5	260203	1	CLAMP-HOSE 102120 MURRAY
6	260212	1	SCREEN FILTER
7	260294	1	GASKET 260
8	320013	2	WHEEL, BUMPER 4 X 1-1/2
9	320122	1	CONSOLE 320 CHAR GREY
10	320123	1	SKIRT HOUSING 320 RT CHAR GREY
11	320124	1	SKIRT HOUSING 320 LEFT CHAR GREY
12	320144	1	BACKING STRAP HINGE
13	320145	1	HINGE RECOVERY TANK
14	320146B	1	RECOVERY LID 320 BURGUNDY
15	320178	1	SHUT OFF PLATE ASY
16	320200	1	RECOVERY TANK ASY 320
17	320206	1	RECOVERY TANK CABLE
18	320208	1	RETAINER HOOK
19	320220	1	HOSE-VAC 1.5 X 72
20	320222	1	GASKET DIE CUT 320
21	320223	1	RIGHT SKIRT RETAINER
22	320224	1	LEFT SKIRT RETAINER
23	320227	1	SKIRT RETAINER SHORT
24	320230	1	FRONT SKIRT RIGHT 41.50
25	320231	1	FRONT SKIRT LEFT 32.25
26	320232	1	CENTER SKIRT
27	320234	4	PIN-HITCH
28	320235	1	CENTER SKIRT WELDMENT
29	320239	2	GASKET RECOVERY TANK 320
30	320244	1	FLAP LID 320
31	320300	1	SOLUTION TANK ASY 320
32	320700	1	MAINFRAME MMAN 320/380 TD
33	450090	1	HOSE-RECOVERY NEW STYLE
34	710196	5	SCR-MC 5/16-18 X .62
35	711118	16	SCR-ST-A 10 X .75 SS
36	711161	11	SCR-HI/LO #10 X 3/4 ZINC
37	711379	1	NUT-FLANGED WIZZ 5/16-18
38	711504	6	WSR-FLT 1/4 SS
39	711506	6	WSR-FLT 5/16 (NARROW) ST PL
40	711545	6	WSR-HELICAL 5/16
41	711592	2	WSR .5 X 1.06 X .06 NYL
42	712102	4	BLT-SHOULDER 1/2 X 1.5
43	712536	3	SCR-MC 10-24 X .62 SS
44	712540	7	SCR-MC 10-24 X .37 SS TH
45	712565	20	SCR-MC 1/4-20 X .62 SS
46	712638	3	NUT HEX 10-24 SS NYLOC
47	712667	4	NUT-HEX NYLOC 1/4-20 SS
48	715619	1	DECAL-WARNING
49	715628	1	DECAL-BATTERY ROUTING 320
50	760263	2	FOAM TAPE 1/16 X 1/2
51	832015	2	SPACER-.38 X .5 X .14

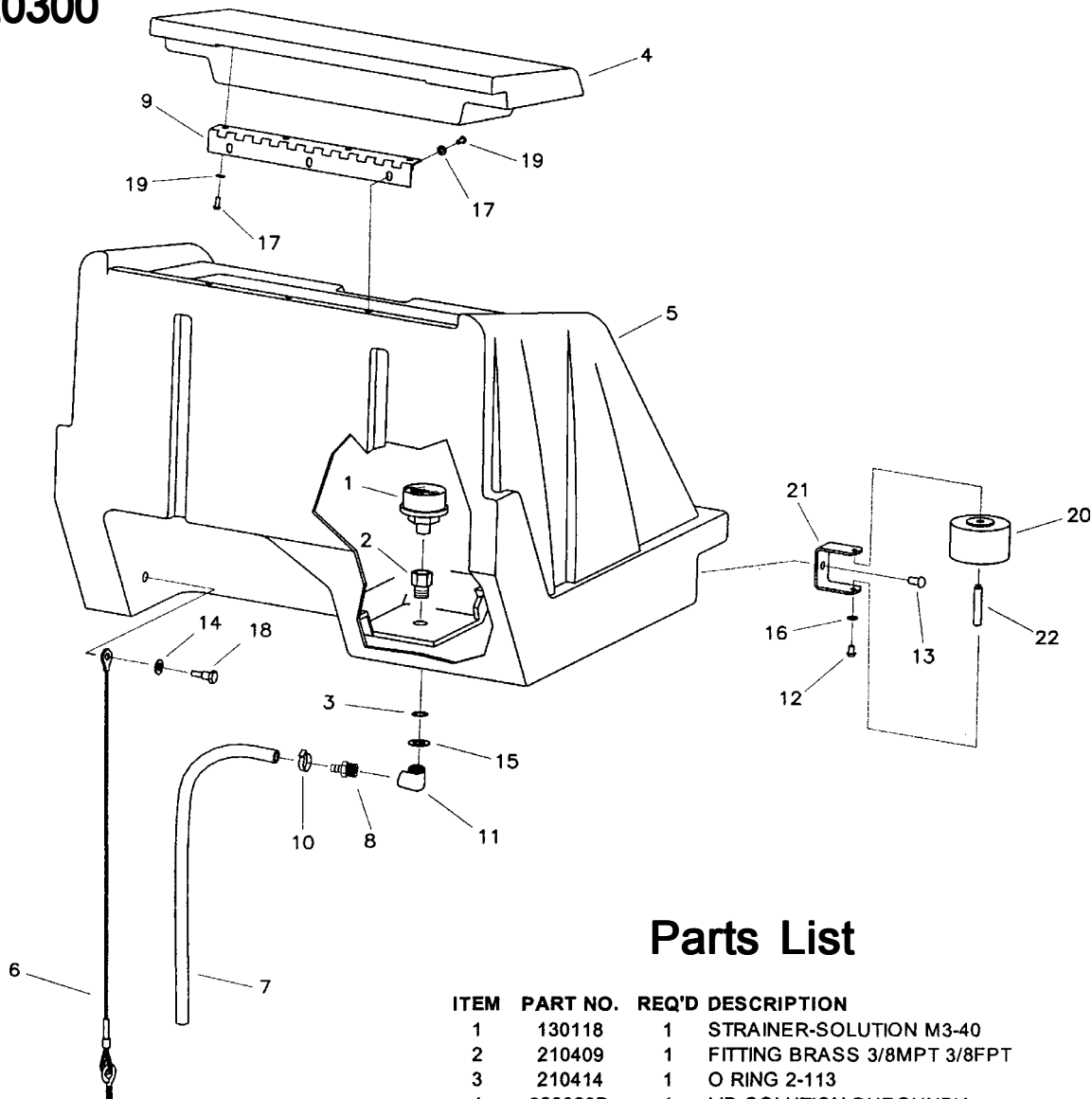
RECOVERY TANK ASSEMBLY 320200



Parts List

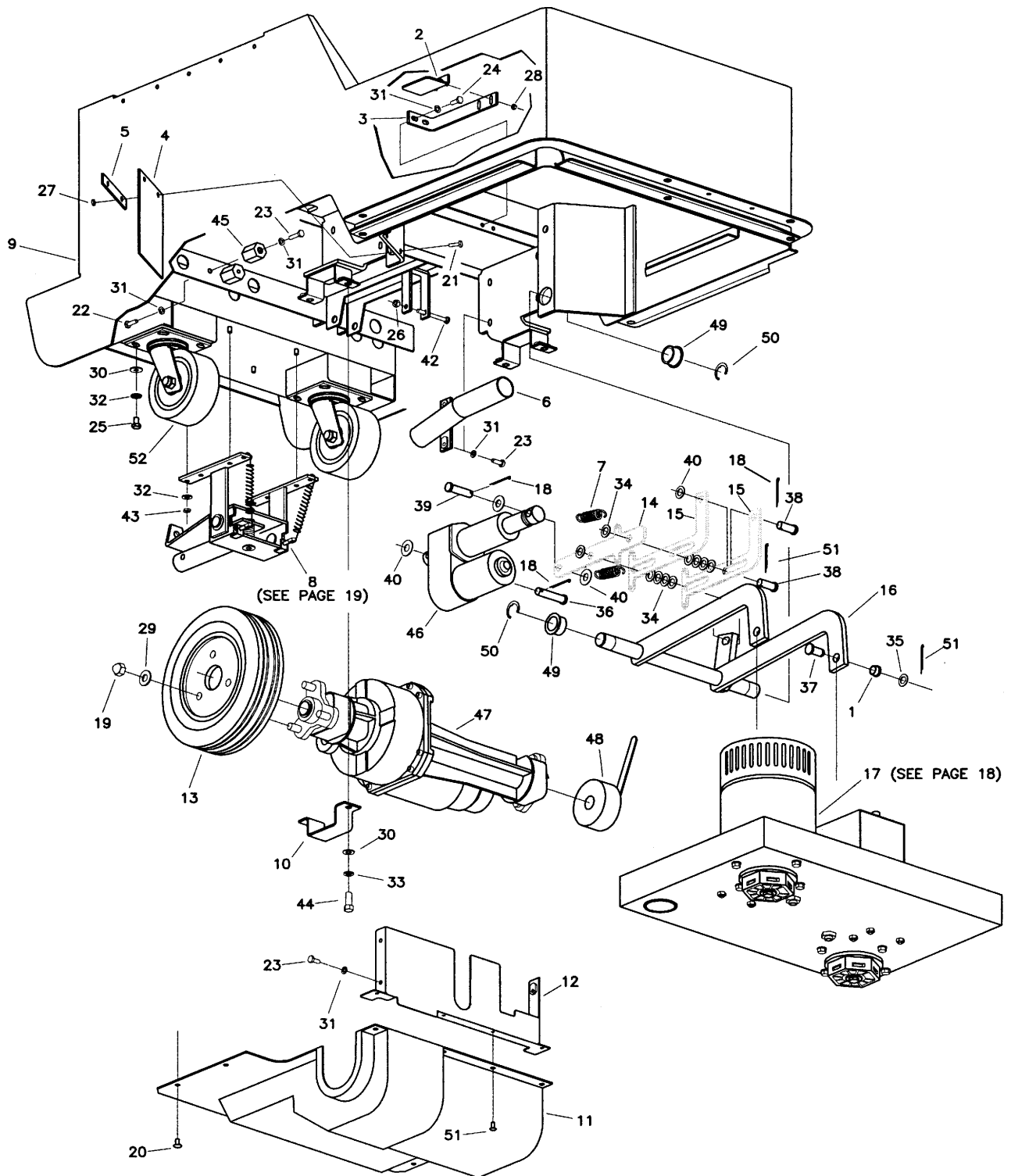
ITEM	PART NO.	REQ'D	DESCRIPTION
1	260156	1	FLOAT ASSEMBLY
2	260202	1	HOSE ASY 260B NEW STYLE
3	260203	1	CLAMP-HOSE 102120 MURRAY
4	320009	1	BACKING ANGLE
5	320121	1	RECOVERY TANK 320 LIGHT GREY
6	320206	1	RECOVERY TANK CABLE
7	320269	1	STRAP, DRAIN PLUG RETAINING
8	450081	1	WSR 1.908 X 2.41 X .03 SS
9	711506	1	WSR-FLT 5/16 (NARROW) ST PL
10	712563	5	SCR-MC 1/4-20 X 1.00 SS
11	712575	1	BLT-HH 5/16-18 X .75 SS
12	715620	1	DECAL-MAINTENANCE SCHEDULE
13	760220MCH	1	1.5 ADAPTER MCH (833310)
14	828970	1	WSR NEOP 1.87X2.4X.125
15	833316	1	DRAIN PLUG

SOLUTION TANK ASSEMBLY 320300



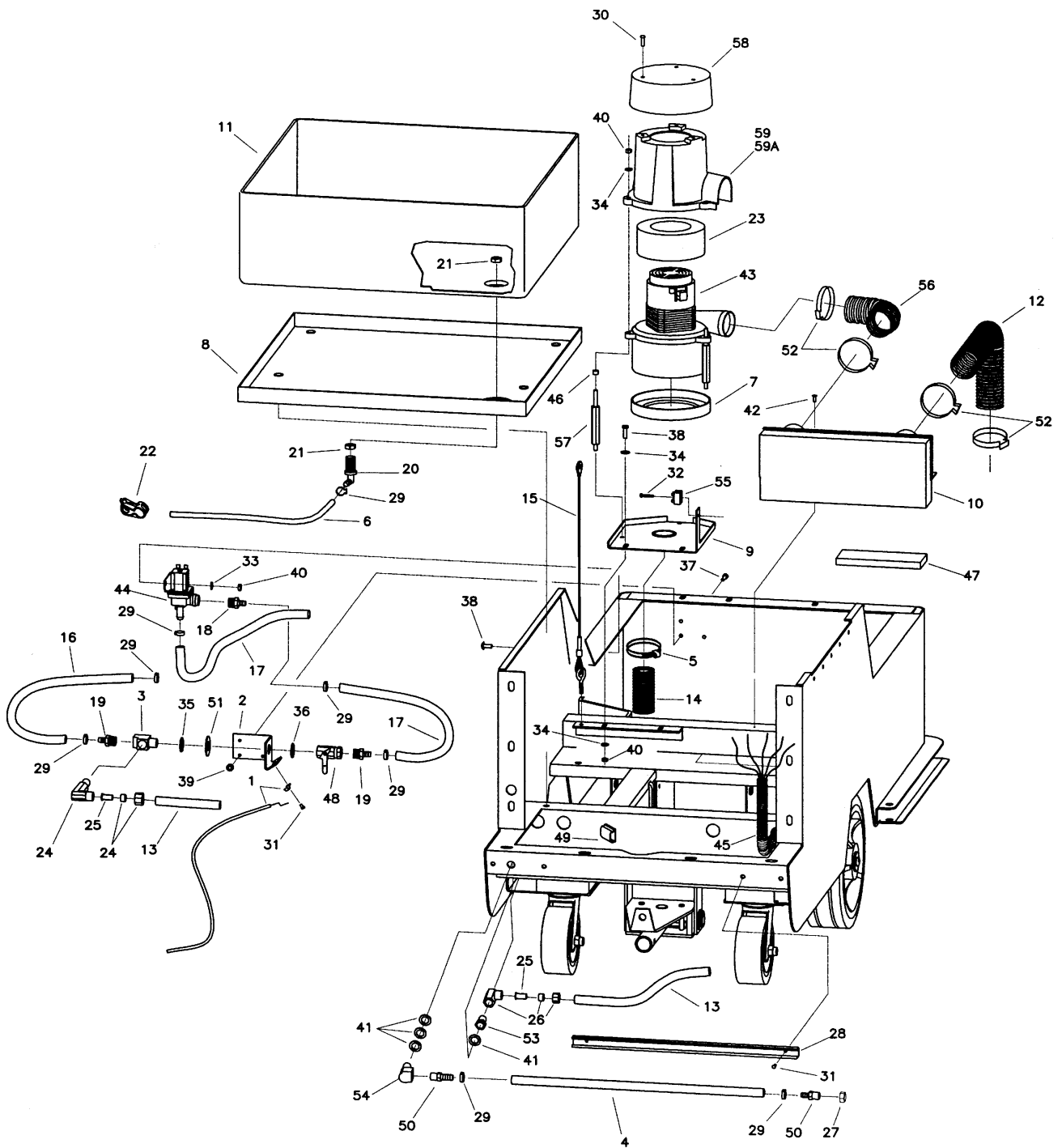
Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION
1	130118	1	STRAINER-SOLUTION M3-40
2	210409	1	FITTING BRASS 3/8MPT 3/8FPT
3	210414	1	O RING 2-113
4	260029B	1	LID SOLUTION BURGUNDY
5	320120	1	SOLUTION TANK 320 LIGHT GREY
6	320246	1	SOLUTION TANK CABLE
7	320252	1	TANK SOLUTION HOSE
8	320265	1	FITTING BRASS DBL 3/8MPT 3/8HO
9	450021	1	HINGE
10	450076	1	CLAMP-CRIMP 185R SS
11	700028	1	FITTING BRASS 90 3/8FPT 3/8FPT
12	710353	2	SCR-MC 10-32 X .37 ZINC
13	710985	2	SC 3/8-16 X .62
14	711506	1	WSR-FLT 5/16 (NARROW) ST PL
15	711513	1	WSR-FLT .689 X 1.06 X .029 SS
16	711553	2	WSR-INT LOCK #10
17	712540	7	SCR-MC 10-24 X .37 SS TH
18	712575	1	BLT-HH 5/16-18 X .75 SS
19	712764	7	WSR #10 SS
20	832896	2	GUIDE WHEEL ACSII
21	832949	2	BRACKET BUMPER
22	833254	2	BUMPER WHEEL AXLE



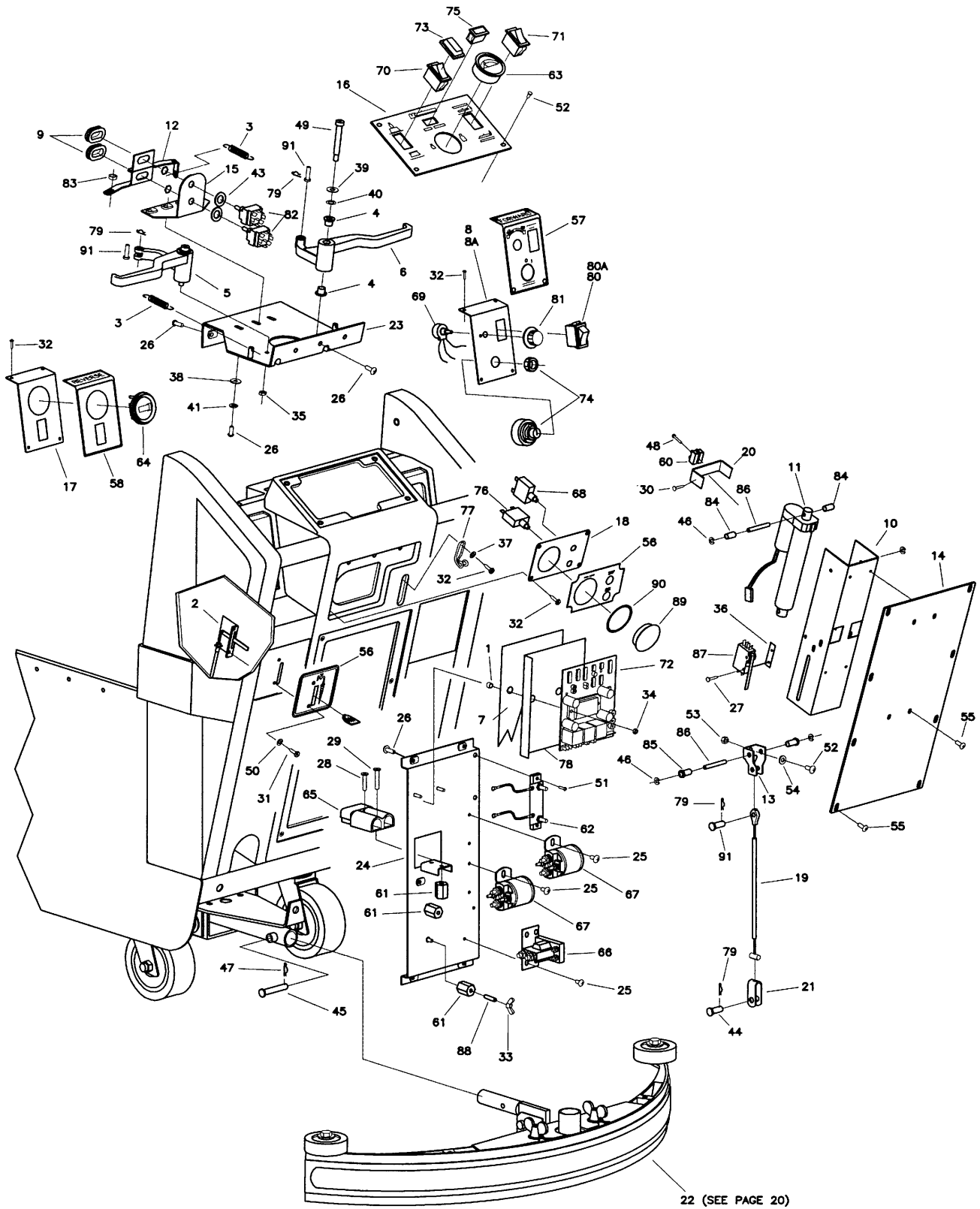
Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION
1	260041	2	BUSHING-FLG .502 X .750 X .375
2	320174	1	SWITCH BRACKET
3	320175	1	BRACKET ARM
4	320213	1	SPLASH GUARD
5	320214	1	RETAINER STRAP
6	320236	1	VACUUM PIPE WELDMENT
7	320408	2	SPRING-EXT 2.25 X .75 X .125
8	320450	1	SQUEEGE MECHANISM SUB ASY
9	320700	1	MAINFRAME MMAN 320/380 TD
10	320705	2	TRANSAXLE BRACKET, LOWER
11	320711	1	COVER TRANSAXLE
12	320712	1	SPLASH GUARD
13	320731	2	WHEEL 10X2.75 3 BOLT
14	320732	1	LINK, BRUSH PRESSURE ADJ
15	320733	2	LINK, SPRING ADJUSTER
16	320735	1	LIFT WELDMENT
17	320750	1	SCRUB HEAD ASSY 320TD
18	380-532-20	3	PIN-COTTER
19	670070	6	NUT-ACORN 1/2-20
20	710178	4	SCR-MC TR HD 1/4-20 X .50 ZINC
21	710180	2	SCR-MC 1/4-20 X .75 ZINC
22	711202	2	BLT-HH 1/4-20 X .50 STL ZINC
23	711203	10	BLT-HH 1/4-20 X .62
24	711206	2	BLT-HH 1/4-20 X .87 STL ZINC
25	711228	8	BLT-HH 5/16-18 X .75 STL ZINC
26	711373	1	NUT-NYLOC 1/4-20
27	711425	2	NUT-FLANGED WIZZ 1/4-20
28	711427	2	NUT-FLANGED WIZZ 10-32
29	711509	6	WSR-FLT 1/2
30	711515	12	WSR-FLT .406 X .812 X .0625
31	711544	16	WSR-HELICAL 1/4
32	711545	12	WSR-HELICAL 5/16
33	711546	4	WSR-HELICAL 3/8
34	711579	10	WSR-FLT .56 X 1.00
35	711594	2	WSR-FLT .56 X .88 X .03 NICKEL
36	711669	1	PIN-CLEVIS 11-233 .5 X 2.5
37	711672	2	PIN-CLEVIS 1/2 X 2.00
38	712108	3	PIN-CLEVIS 1/2 X 1.25
39	712109	1	PIN-CLEVIS 1/2 X 1.75
40	712310	4	WSR-FLT .52 X .87 X .06 PL
41	712534	4	SCR-MC 10-24 X .50 SS
42	712574	1	BLT-CARR 1/4-20 X 3.00 SS
43	712680	4	NUT-HEX 5/16-18 SS
44	713042	4	BLT-HH 3/8-16 X 1.00 #5
45	740132	2	INSULATOR (GLASTIC)
46	740802	1	ACTUATOR
47	744151	1	TRANSAXLE-18" 36V W/FLANGE
48	744151-1	1	BRAKE 320 TRANS. W/BOOT (CE ONLY)
49	809236	2	BUSHING-FLG OILITE
50	809237	2	RET RING
51	809311	4	PIN-COTTER 7/64 X 1
52	827110	2	CASTER 5 INCH



Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION
1	210045	1	CABLE-SOLUTION CONTROL
2	210370	1	SOLUTION VALVE BRACKET
3	210408	1	FITTING BRASS TEE 3/8MPT&FPT
4	260181	1	HOSE-DRAIN .375 X .5 X 18 CLEA
5	260203	2	CLAMP-HOSE 102120 MURRAY
6	260224	1	DRAIN HOSE 1/4 X 18 SILICONE
7	290017	1	MOULDED VAC MOTOR GASKET
8	320118	1	BATTERY TRAY
9	320119	1	VAC MTR PLATFORM
10	320185	1	EXHAUST MANIFOLD
11	320215	1	BATTERY LINER 320
12	320216	1	VACUUM EXHAUST HOSE
13	320218	1	SOLUTION DUMP HOSE
14	320241	1	HOSE-VAC 1.5 X 9
15	320246	1	SOLUTION TNK CABLE
16	320252	1	TNK SOLUTION HOSE
17	320253	2	VALVE SOLUTION HOSE
18	320264	1	FITTING BRASS DBL 1/4MPT 3/8HO
19	320265	2	FITTING BRASS DBL 3/8MPT 3/8HO
20	320271	1	FITTING PP 90 3/8MPT 3/8HOSE
21	320272	2	NOZZLE BODY LOCKNUT
22	320273	1	CLAMP-HOSE SHUT-OFF
23	380064	1	RING, FOAM
24	420009	1	MALE ELBOW 469F
25	420011	2	INSERT BRASS 461F
26	420065	1	FEMALE ELBOW 90 470F W/O INSER
27	430114	1	FITTING NYLON CAP 1/4FPT
28	430120	1	U CHANNEL 170 17"
29	450076	9	CLAMP-CRIMP 185R SS
30	711106	3	SCR-ST-A 10 X .75 PL
31	711124	3	SCR-ST-B 10 X .37 NI
32	711128	1	SCR-ST-B HI-LO 8 X .62 ZINC
33	711504	2	WSR-FLT 1/4 SS
34	711505	4	WSR-FLT 1/4
35	711512	1	WSR-FLT .75 X 1.37 X .08
36	711517	1	WSR-FLT .77 X 1.37 X .03
37	712537	3	SCR-TR HD 10-24 X .75 SS
38	712565	4	SCR-MC 1/4-20 X .62 SS
39	712638	3	NUT HEX 10-24 SS NYLOC
40	712667	7	NUT-HEX NYLOC 1/4-20 SS
41	712760	4	WSR-FLT .56 X 1.06 X .04 SS
42	72-416-10	2	BLT ST 1/4 X 5/8
43	740228	1	VAC MTR 6513-13 36V
44	740494	1	WATER VALVE 36VDC
45	742001	1	WIRE HARNESS 320 SCRUBHD
46	762073	3	BUSHING-.259 X .375 X .265
47	809412	1	GASKET SUPPORT
48	809413MCH	1	SOLUTION VALVE
49	809444	1	CLIP-CORD
50	828952	3	FITTING PP 1/4MPT 3/8BARB
51	828975	1	WSR NEOP .75X1.5X.09
52	829067	4	CLAMP-CRIMP 560R
53	830708	1	BUSHING-BR 3/8 MPT X 1/4 FPT
54	831306	1	FITTING BRASS 90 1/4MPT 1/4FPT
55	832996	1	TERMINAL BLOCK 2POLE VDE
56	833191	1	HOSE RUBBER FLEX 2X9
57	833265PLT	3	THREADED SPACER PLT ZINC
58	840011	1	VAC MOTOR COVER TOP
59	840012	1	VAC MOTOR COVER BOTTOM
59A	840012CTD	1	ALUMINUM COATED VAC COVER (CE)

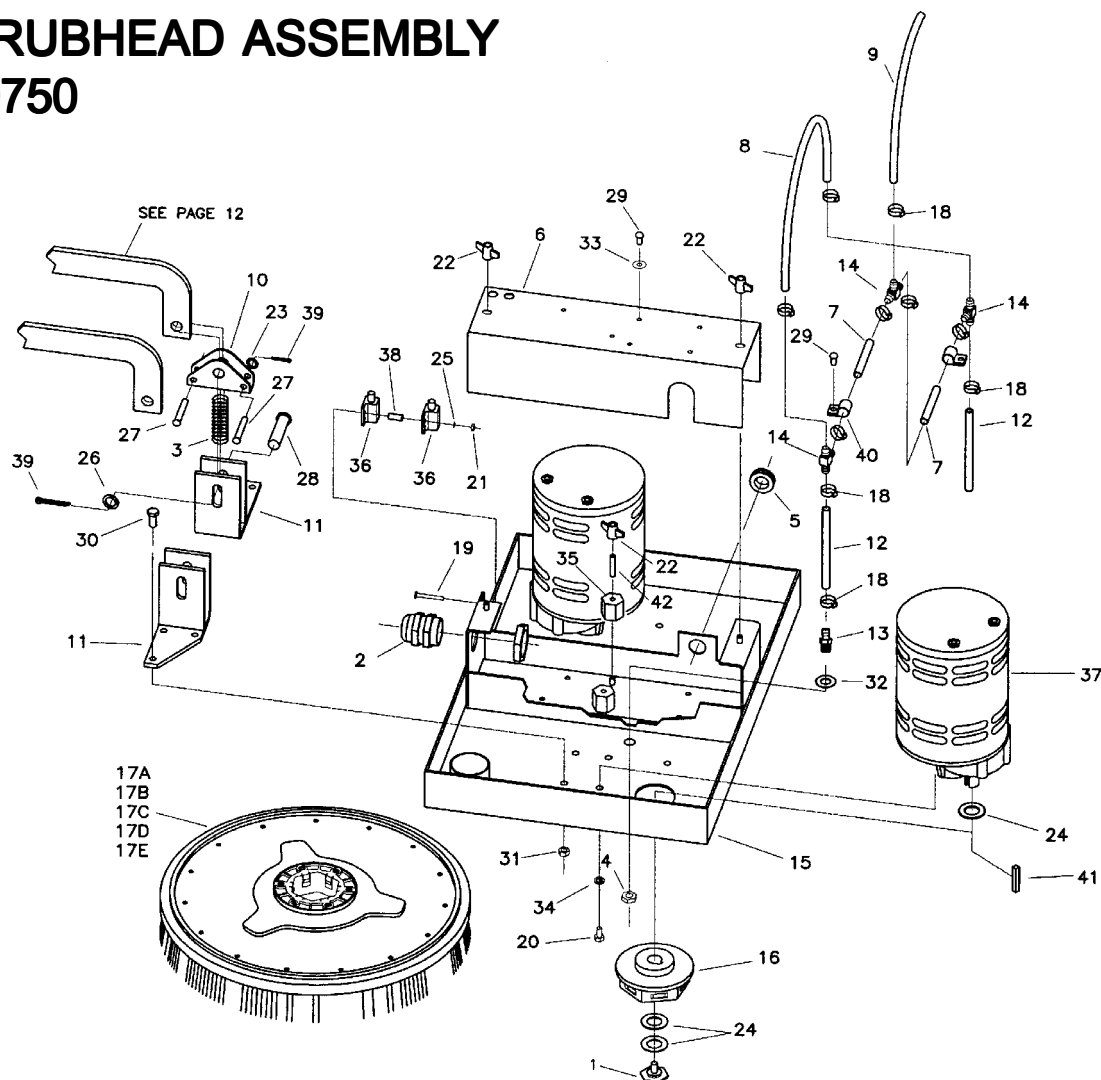


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Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	200340	2	SPACER-SCR BOARD	47	711808	1	PIN-HAIRPIN COTTER #13
2	210045	1	CABLE-SOLUTION CONTROL	48	712088	1	SCR HI-LOW PLUS 8-18X.75 (CE)
3	210413	2	SPRING-EXT .312 X .438 X 2.5 S	49	712100	2	BLT-SHOULDER 3/8 X 2.25
4	260066	4	BUSHING-FLG .377 X .687 X .406	50	712320	2	WSR .22 X .45 X .04 NYL
5	260069MCH	1	LEFT HANDLE MACHINED	51	712536	2	SCR-MC 10-24 X .62 SS
6	260070MCH	1	RIGHT HANDLE MACHINED	52	712540	6	SCR-MC 10-24 X .37 SS TH
7	260210	1	MOISTURE GUARD SCR 260TD	53	712638	1	NUT HEX 10-24 SS NYLOC
8	260255	1	SPEED CONTROL BRACKET 260TD	54	712764	1	WSR #10 SS
8A	260255CE	1	SPEED CONTROL BRACKET 260TDCE	55	712822	12	SCR-MC TR HD 10-24 X .50 SS
9	260274	2	GROMMET Z-421	56	715604	1	DECAL-SOLUTION 260
10	320011	1	ACTUATOR SUPPORT	57	715608	1	DECAL-FORWARD 26TD
11	320012	1	ACTUATOR-LINEAR 50LB 36V	58	715611	1	DECAL-REVERSE 320
12	320147	1	SWITCH ACTUATOR WELDMENT	59	715617	1	DECAL-CB 320
13	320161	1	SQUEEGEE CABLE BRACKET	60	740036	1	TERMINAL BLOCK PA-27-2 (CE)
14	320176	1	BACK PANEL	61	740132	3	INSULATOR (GLASTIC)
15	320187	1	DUAL SWITCH BRACKET	62	740134-1	1	SHUNT W/O WIRES
16	320202CESP	1	DASHBOARD 320CE SCREEN PRINTED	63	740135	1	METER, 100A DC (PRESSURE)
17	320203	1	BATTERY GUAGE BRACKET	64	740136	1	METER, VOLT 22V45V (BATT)
18	320207	1	FACE PLATE CIRCUIT 320	65	740147	1	CIRCUIT BRKR-175 GREY HOUSING
19	320211	1	CABLE-LIFT 320	66	740242	1	CONTACTOR 36V 120-119712
20	320247	1	BRACKET, GROUND STRAP (CE)	67	740243	2	CONTACT-36V 124-117111 1 POLE
21	320248	1	CLEVIS, SLOTTED	68	740247	1	CIRCUIT BRKR-30AMP PUSH BUTTON
22	320297	1	320 SQUEEGEE ASSEMBLY, NEW	69	740368	1	POTENTIOMETER ASY 200TD
23	320706	1	LEVER MOUNTING BRACKET	70	740800CE	1	SWITCH-DREEFS MOMENTARY
24	320726	1	ELECTRICAL PANEL 320 NEW	71	740801CE	1	SWITCH-DREEFS ON/ON SPLA
25	710178	6	SCR-MC TR HD 1/4-20 X .50 ZINC	72	740803-1	1	SPEED CONTROL 36V 1203A-304
26	710180	15	SCR-MC 1/4-20 X .75 ZINC	73	740811	1	SWITCH-BOOT
27	710207	2	SCR-MC 6-32 X .87 ZINC	74	741005	1	SWITCH-KEY ON-OFF (OPTIONAL)
28	710383	1	SCR-MC 1/4-20 X 1.25 ZINC	75	742010	1	INDICATOR LIGHT ASM
29	710385	1	SCR-MC 1/4-20 X 1.50 NICKEL	76	742266	1	CIRCUIT BRKR-60AMP PUSH BUTTON
30	711104	2	SCR-ST-A 10 X .50 (CE)	77	760286	1	WIRE FORMED HOOK
31	711125	2	SCR-ST-B 10 X .50 NI	78	805637	1	SCR INSULATOR
32	711161	14	SCR-HI/LO #10 X 3/4 ZINC	79	809311	4	PIN-COTTER 7/64 X 1
33	711368	3	NUT-WING NYLOC 1/4-20 PL	80	809754	1	SWITCH-ROCKER
34	711372	2	NUT-NYLOC 8-32	80A	740711CE	1	SWITCH-DREEFS W/ SPLASHGUARD
35	711420	2	NUT-HEX JAM 5/16-18 STPL	81	809874	1	KNOB SPEED CONTROL
36	711430	1	NUT-TINNERMAN 6-32	82	827060	2	SWITCH-DRIVE
37	711503	2	WSR-FLT #10	83	832015	2	SPACER-.38 X .5 X .14
38	711505	3	WSR-FLT 1/4	84	833277PLT	2	ACTUATOR TOP BUSH PLATED
39	711515	2	WSR-FLT .406 X .812 X .0625	85	833286PLT	2	ACTUATOR BOTTOM BUSH PLT
40	711523	2	WSR-WAVE .37 X .68 X .08	86	833294	2	ACTUATOR PIN
41	711544	3	WSR-HELICAL 1/4	87	833329SA	1	SWITCH-STAGERED ACTION
42	711575	1	WSR-FLT .31 X .75 X .06 STL	88	833638	3	BRASS STUD
43	711579	2	WSR-FLT .56 X 1.00	89	833823	1	DOME PLUG 2" BLACK
44	711668	1	PIN-CLEVIS 3/8 X 1 11-141	90	833824	1	WSR 2 X 2.43 X .035 SS
45	711671	1	PIN-CLEVIS .31 X 2.13 11-10	91	881002	3	PIN-CLEVIS 11-083 ZINC
46	711720	4	RET RING-E EXT .25				

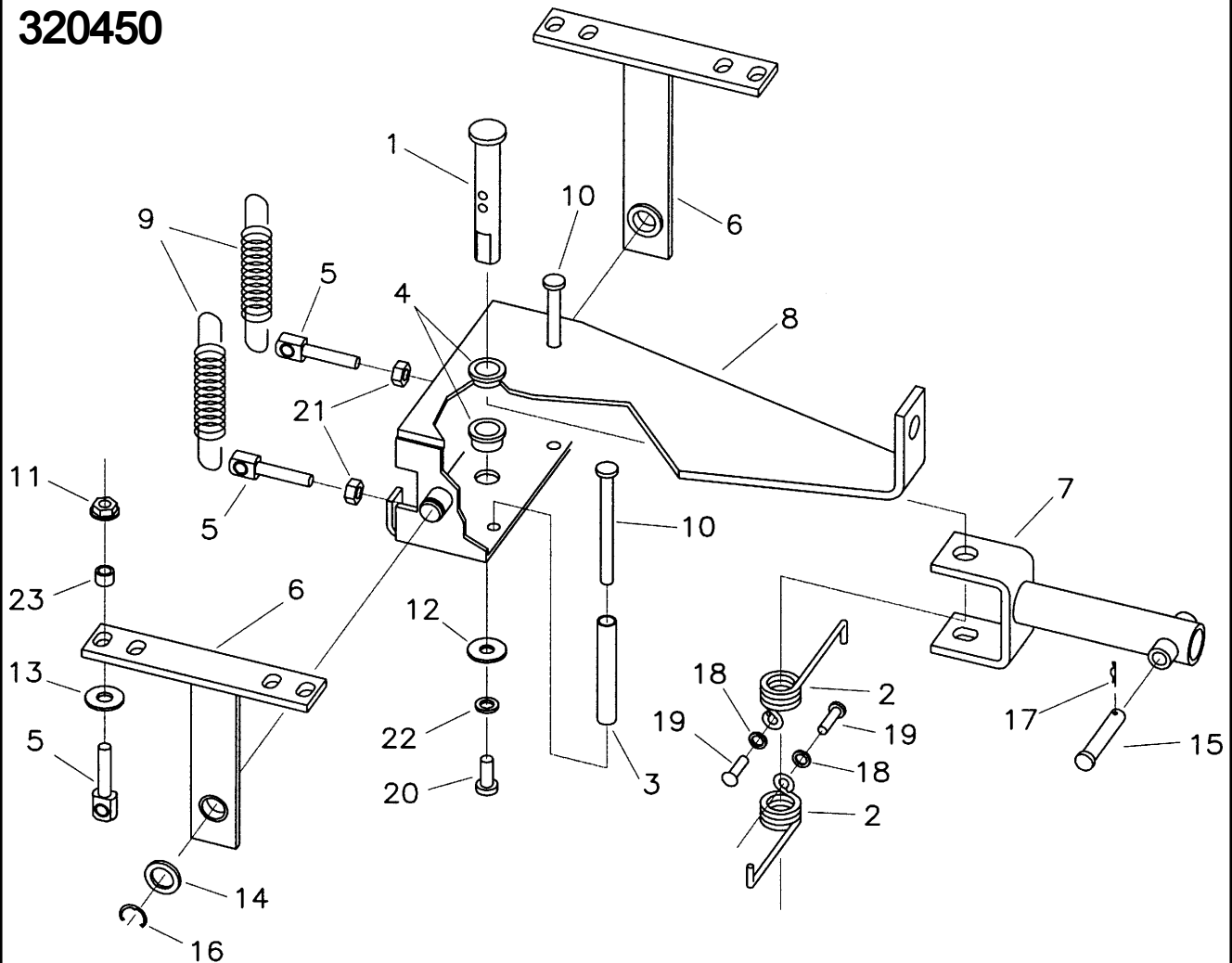
SCRUBHEAD ASSEMBLY 320750



Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	210066	2	DRIVE HUB RETAINER BOLT	20	710986	8	SC 3/8-16 X 1 ZINC
2	210405	1	LIQUID TIGHT FITTING 3225	21	711304	2	NUT-HEX 8-32 ST PL
3	260137	2	SPRING-COMP .960 X 2.00 ZINC	22	711368	4	NUT-WING NYLOC 1/4-20 PL
4	260183	2	NUT 1/4 NPT NYL	23	711506	4	WSR-FLT 5/16 (NARROW) ST PL
5	260274	2	GROMMET Z-421	24	711517	6	WSR-FLT .77 X 1.37 X .03
6	320173	1	COVER ELECTR BOX	25	711552	2	WSR-INT LOCK #8
7	320250	2	SOLUTION HOSE SHORT	26	711594	2	WSR-FLT .56 X .88 X .03 NICKEL
8	320251	1	BYPASS HOSE	27	711671	4	PIN-CLEVIS .31 X 2.13 11-10
9	320253	1	VALVE SOLUTION HOSE	28	711672	2	PIN-CLEVIS 1/2 X 2.00
10	320255	2	BRACKET, SPRING SUPPORT	29	712536	6	SCR-MC 10-24 X .62 SS
11	320258	2	LIFT BRACKET WELDMENT	30	712576	6	SCR-MC 5/16-18 X 1.25 SS
12	320259	2	SOLUTION HOSE	31	712683	6	NUT-HEX NYLOC 5/16-18 SS
13	320264	2	FITTING BRASS DBL 1/4MPT 3/8 HOSE	32	712760	2	WSR-FLT .56 X 1.06 X .04 SS
14	320266	3	FITTING BRASS TEE DBL 3/8 BARB	33	712764	4	WSR #10 SS
15	320286	1	MOTOR PAN WELDMENT	34	712769	8	WSR-HELICAL 3/8 SS
16	430035-1	2	DRIVE HUB W/ BRASS INSERT	35	740132	2	INSULATOR (GLASTIC)
17A	430034	2	BRUSH-17B/E 32B NYL	36	740282	2	SWITCH DELTA 6451
17B	430108	2	PAD DRV-17B/E 32B	37	742714	2	MOTOR, 36V 1HP
17C	430111	2	BRUSH-POLY GRIT 17B/E 32	38	761946	2	SPACER .196X.312X.75
17D	430131	2	BRUSH-BASSINE 17B/E 32B	39	809311	6	PIN-COTTER 7/64 X 1
17E	430132	2	BRUSH-STRATAGRIT 17B/B32	40	827998	2	CLAMP
18	450076	10	CLAMP-CRIMP 185R SS	41	833621	2	KEY 1/4 X 1/4 X 1
19	710036	2	SCR-MC 8-32 X 1.50 ZINC	42	833638	2	BRASS STUD

SQUEEGEE MECHANISM ASSEMBLY 320450

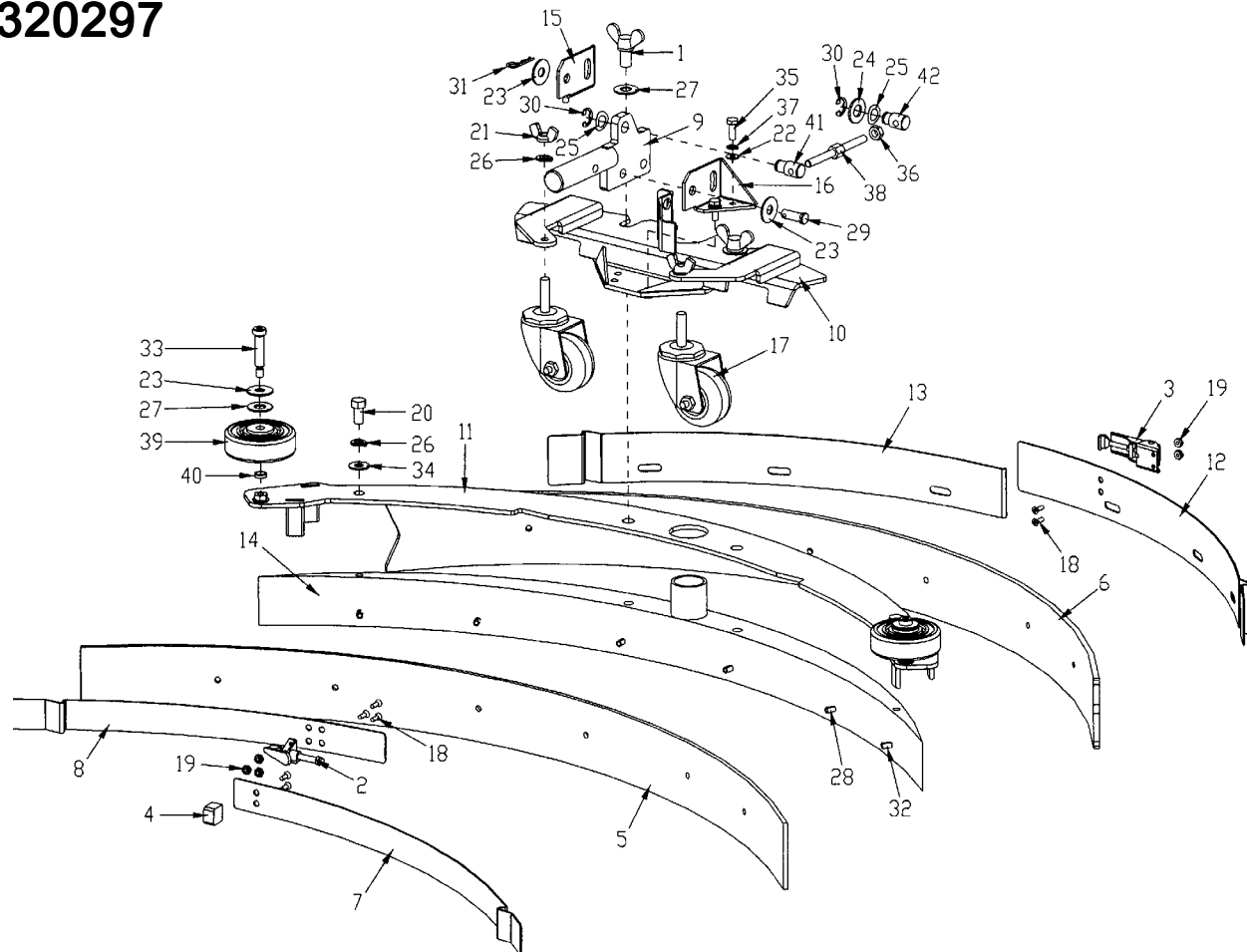


Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION
1	210375	1	SWIVEL PIN
2	210391	2	SPRING-TORSION .563 X 2.595 SS
3	210400	2	SPACER-TUBE
4	260041	2	BUSHING-FLG .502 X .750 X .375
5	260292	4	SWING BOLT ZINC PLATED
6	320008	2	PIVOT BRACKET ASSEMBLY
7	320160	1	YOKE WELDMENT
8	320162	1	SPRING HSG WELDT
9	430051	2	SPRING-RETURN .313 X .438 X 2.
10	710592	2	SCR-MC TH 1/4-20 X 3.00 SS
11	711425	2	NUT-FLANGED WIZZ 1/4-20
12	711504	1	WSR-FLT 1/4 SS
13	711505	2	WSR-FLT 1/4
14	711517	2	WSR-FLT .77 X 1.37 X .03
15	711671	1	PIN-CLEVIS .31 X 2.13 11-10
16	711715	2	RET RING-EXT .75
17	711808	1	PIN-HAIRPIN COTTER #13
18	712320	2	WSR .22 X .45 X .04 NYL
19	712530	2	SCR-MC 10-24 X .62 SS
20	712562	1	BLT-HH 1/4-20 X .75 SS
21	712665	2	NUT-HEX 1/4-20 SS
22	712758	1	WSR-HELICAL 1/4 SS
23	762371	2	BUSHING-.260 X .50 X .37 ALM

SQUEEGEE ASSEMBLY COMPLETE

320297



Parts List

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	220249	2	WING BOLT 1/2-13 X .75"	22	711504	4	WSR-FLAT 1/4 ID SS
2	281074	1	SQUEEGEE TOGGLE CLAMP, 2800	23	711507	4	WSR-FLAT .37 X 1.12 X .06
3	281075	1	SQUEEGEE LATCH, 2800	24	711509	1	WSR-FLAT 1/2 (.54X1.082X.087)
4	281740	1	STOP BAR	25	711524	2	WSR-WAVE .52 X .87 X .01
5	320014	1	SQUEEGEE FRONT BLADE 320	26	711546	4	WSR-HELICAL 3/8
6	320015	1	SQUEEGEE REAR BLADE 320	27	711592	4	WSR NYLON .5 X 1.06 X .06
7	320021	1	STRAP - FRONT STOP 320	28	711658	8	ROLL PIN 1/4"X1.00"
8	320022	1	STRAP-FRONT CLAMP 320	29	711668	1	CLEVIS PIN, 3/8X1 11-141
9	320154	1	SQUEEGEE MOUNT WELD'T NEW	30	711713	2	RETAINING RING - "E" TYPE EXT .500
10	320289	1	SQ. MTG BRKT WELDM'T	31	711808	1	COTTER PIN-HAIR #13
11	320293	1	TOP PLATE WELDMENT, 320	32	711904	2	ROLL PIN 1/4"X1.50"
12	320310	1	STRAP-REAR LATCH 320	33	712091	2	SHOULDER BLT 3/8 X 1.50
13	320313	1	STRAP-CATCH 320	34	712301	2	WSR-FLAT .87 X .38 X .06
14	320314	1	320 SQ CASTING MCHD, NEW	35	712562	4	BOLT-HH 1/4-20X3/4 SS
15	383424	1	MOUNTING BRACKET-RIGHT	36	712680	1	NUT-HEX 5/16-18 SS
16	383425	1	MOUNTING BRACKET-LEFT	37	712758	4	WSR-HELICAL 1/4 SS
17	430325	2	CASTER WHEEL 3/8"-16 X 1.500	38	750689	1	ADJUSTMENT STUD
18	710530	7	SCR-MC FL HD 8-32 X .50 BRS	39	808829	2	WHEEL,TRUCK
19	711026	5	NUT, HEX 8-32 NYLOC SS	40	832015	2	SPACER .38 X .50 X .140
20	711241	2	SCR-HEX 3/8 -16X .75" ZP	41	762022PLT	1	NUT, ADJUSTING (LH)
21	711367	2	NUT- WING 3/8-16 ST PL	42	762257PLT	1	NUT, ADJUSTING (RH)

This is a complex wiring diagram for a vehicle's electrical system. It shows the following components and their interconnections:

- Battery:** 740135, connected to the main power line.
- Alternator:** 740003, connected to the battery and the main power line.
- Solenoid:** 740135, connected to the battery and the main power line.
- Wiring Harness:** Numerous wires are labeled with color codes and part numbers, such as 744115 BLK, 744103 RED, 744114 BLK, 744118 BLK, 744119 BLK, 744120 RED, 744121 RED, 744122 RED, 744123 RED, 744124 RED, 744125 RED, 744126 RED, 744127 RED, 744128 RED, 744129 RED, 744130 RED, 744131 RED, 744132 RED, 744133 RED, 744134 RED, 744135 RED, 744136 RED, 744137 RED, 744138 RED, 744139 RED, 744140 RED, 744141 RED, 744142 RED, 744143 RED, 744144 RED, 744145 RED, 744146 RED, 744147 RED, 744148 RED, 744149 RED, 744150 RED, 744151 RED, 744152 RED, 744153 RED, 744154 RED, 744155 RED, 744156 RED, 744157 RED, 744158 RED, 744159 RED, 744160 RED, 744161 RED, 744162 RED, 744163 RED, 744164 RED, 744165 RED, 744166 RED, 744167 RED, 744168 RED, 744169 RED, 744170 RED, 744171 RED, 744172 RED, 744173 RED, 744174 RED, 744175 RED, 744176 RED, 744177 RED, 744178 RED, 744179 RED, 744180 RED, 744181 RED, 744182 RED, 744183 RED, 744184 RED, 744185 RED, 744186 RED, 744187 RED, 744188 RED, 744189 RED, 744190 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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[®]

A Minuteman International Company

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988311
Rev. A 9/05
Printed in U.S.A.