



Electronic Service Manuals

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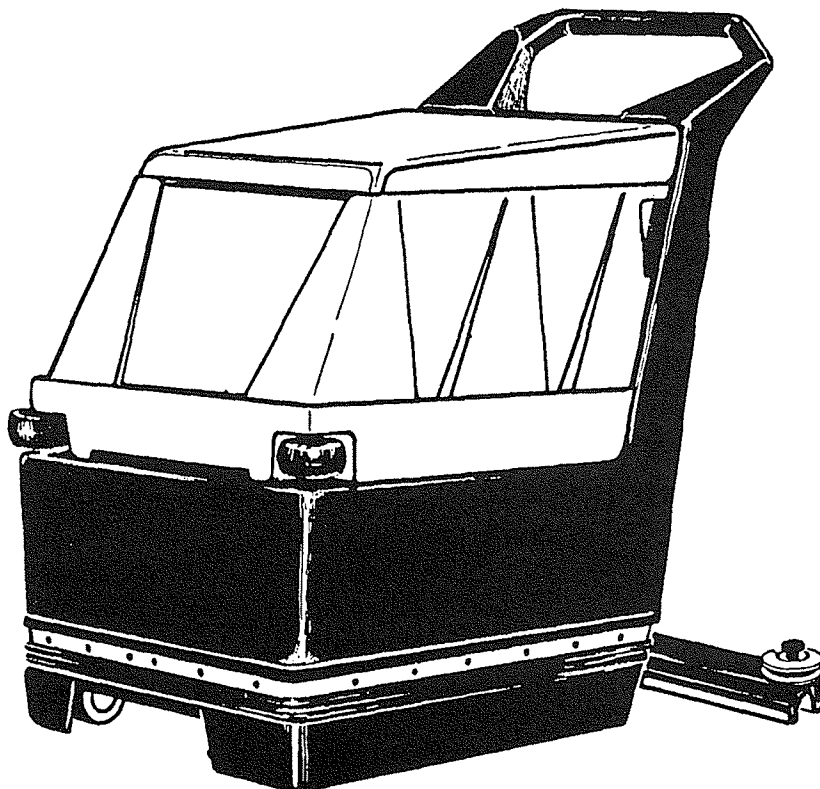
Serving the Cleaning Industry Since 1922

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170 Automatic Floor Scrubber, Battery

Model: MC17000QP
MC17000-00CE

■ OPERATION ■ SERVICE ■ PARTS ■ CARE



Revised 8/01

Minuteman[®]

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IMPORTANT SAFETY INSTRUCTIONS

CAUTION

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

- Do not operate this scrubber in the red discharge area of the battery condition meter. Operating the scrubber for long periods in the red zone of the gauge will cause overheating of the motors and possible permanent damage to the batteries may result. If you are using the machine and the battery indicator needle does go into the red, finish the area you are working in and then recharge the batteries immediately.
- 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 24 Volt DC.

BATTERY REQUIREMENTS:

2 x 12V 80 Amp Hour 20 Hour Rate Deepcycle P/N 956721

2 x 12V 105 Amp Hour 20 Hour Rate Deepcycle P/N 956712

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. Disconnect tank drain hose from rear of machine.
2. Disconnect vacuum recovery hose.
3. Raise tank assembly by gripping side hand holds, and tilting forward.
4. Position tank kickstand as shown below, figure 1, to hold tank in upright position. To lower, raise tank slightly forward and manually move kickstand to freed position.
5. 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.

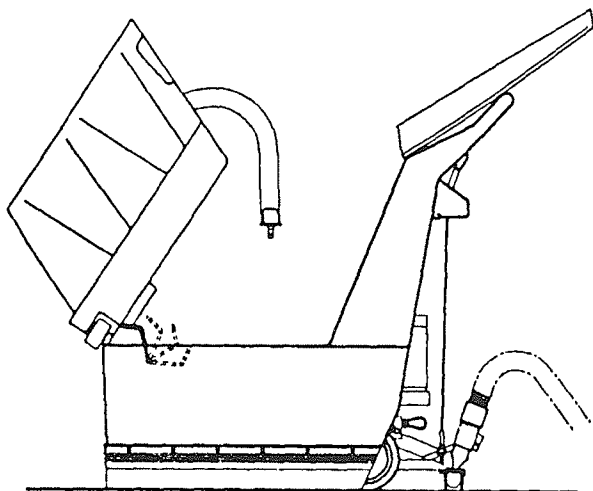


Figure1

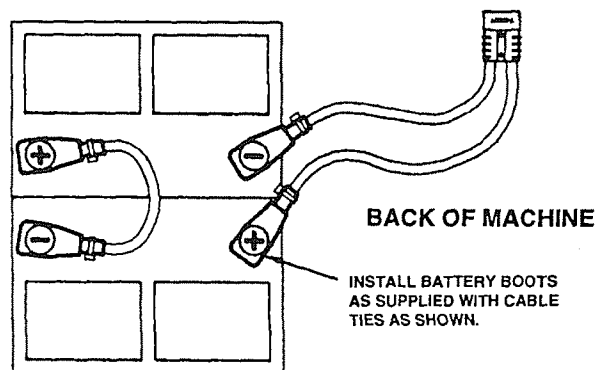
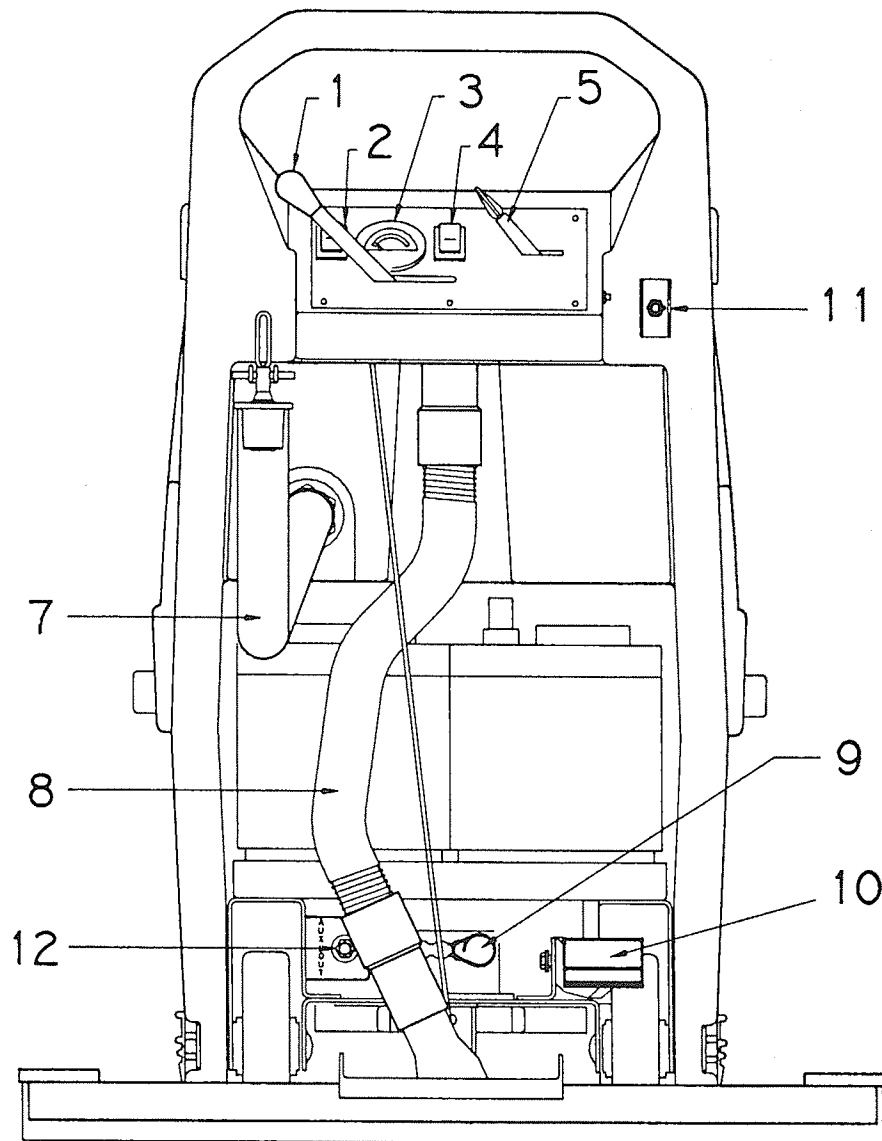


Figure 2

CONTROLS



- | | |
|---------------------------------|----------------------------------------|
| 1. Squeegee left lever | 8. Vacuum recovery hose |
| 2. Vacuum switch | 9. Power assist control |
| 3. Battery condition gauge | 10. Foot pedal for lower/raising brush |
| 4. Brush switch | 11. Pump switch |
| 5. Solution control lever | 12. Auxiliary out |
| 7. Drain hose for recovery tank | |

BRUSH REMOVAL

Empty solution and recovery tanks.

Disconnect batteries.

Remove Squeegee assembly.

Lower brush.

Tilt machine as shown (figure 3) until machine rests on foot pedal.

Brush has a snap-on push off clutch plate. Pushing brush away from the machine from the side, will release brush assembly.

To install: Hold brush in the center and snap on to drive hub.

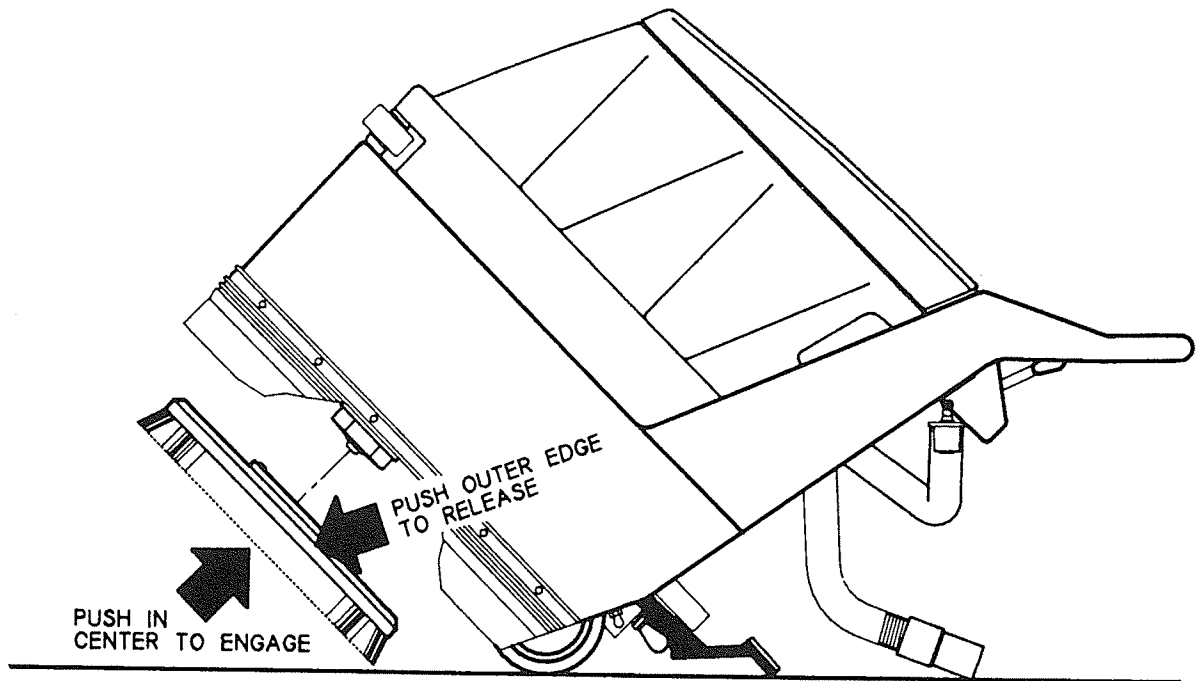


Figure 3

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. Lower brush assembly.
 - To lower the brush, first push the pedal slightly towards the center of the machine (unlock it), then release it slowly.
 - To lift the brush, press the pedal down until lift mechanism engages.
4. Turn on brush switch.
5. Adjust solution control feed lever.
6. Turn on vacuum switch.
7. Lower Squeegee assembly.

After Use:

1. Turn off solution feed.
2. Switch off brush and raise.
3. Raise Squeegee assembly.
4. Turn off vacuum motor.

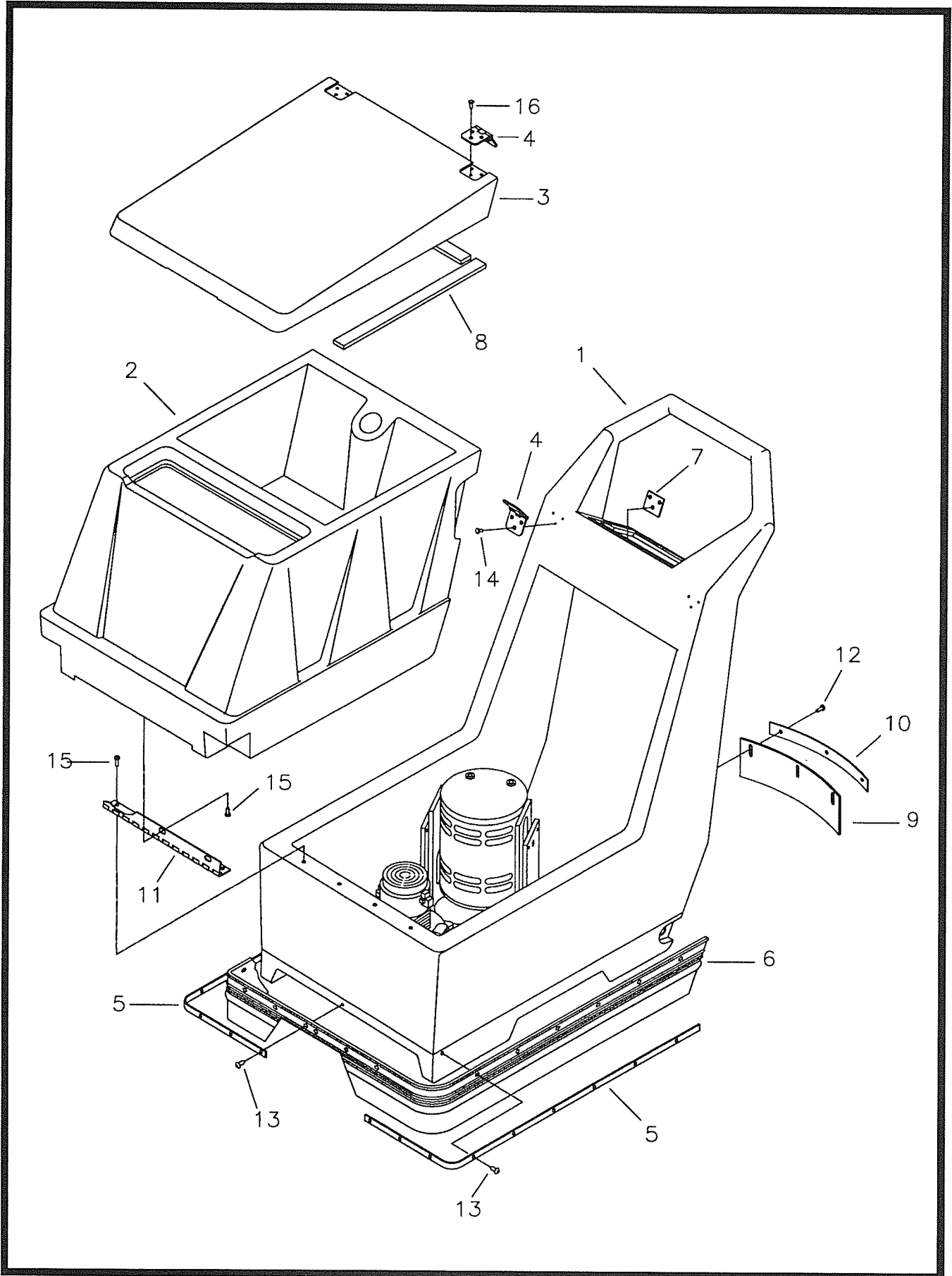
Solution and recovery tanks should be emptied after every use.

MAINTENANCE:

- | | |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Daily | <ol style="list-style-type: none">1. Clean float assembly & Squeegee blades. Vac filter.2. Recharge batteries (check battery acid levels before and after charging). |
| Monthly | <ol style="list-style-type: none">1. Check wear on Squeegee blades.2. Grease rear wheels.3. Grease pivot points on brush motor assembly. |

Every 500 hours check condition of carbon brushes on vacuum motor and brush drive motor.

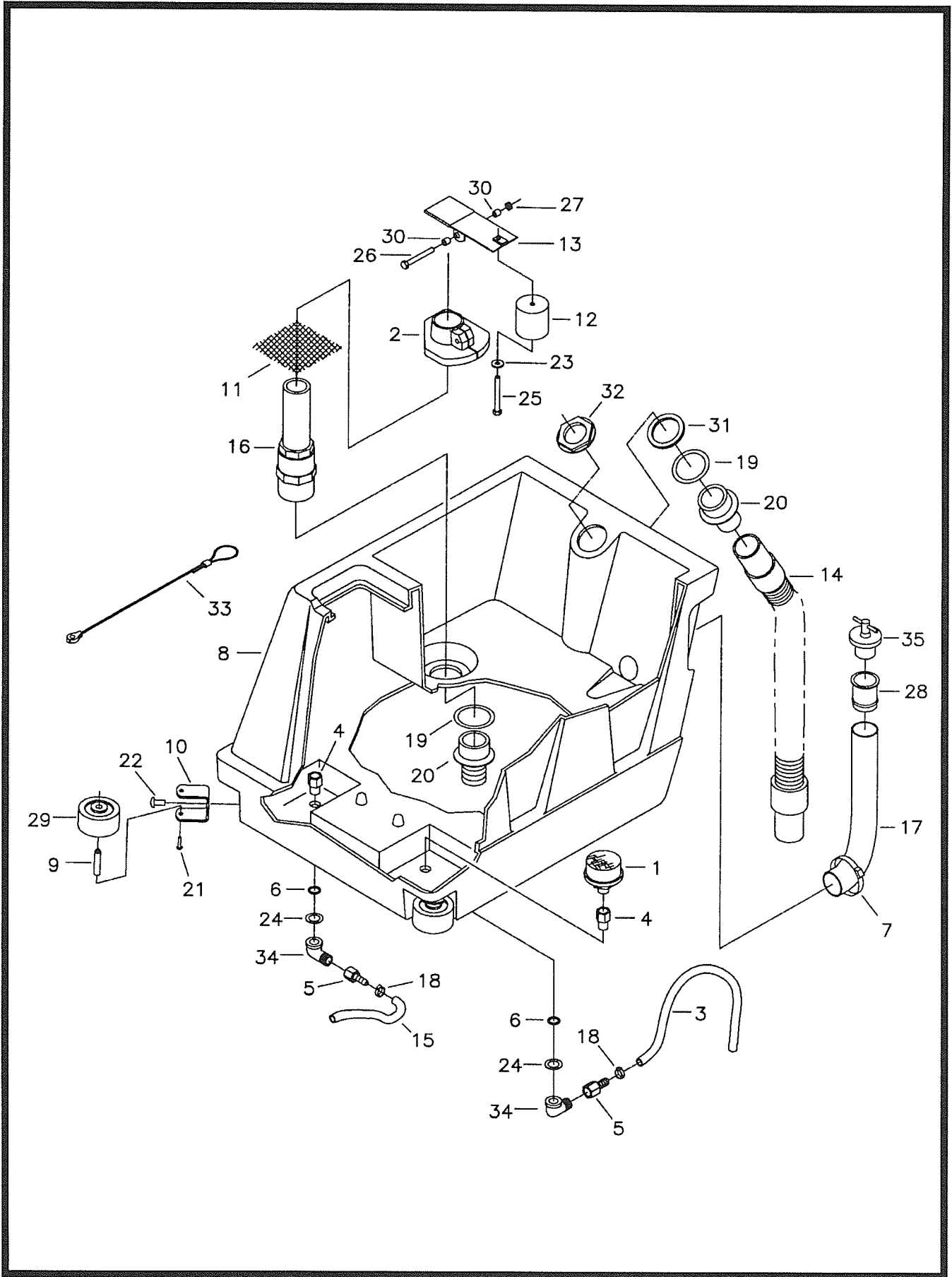
Main Components



Parts List

Item	Part No.	Qty.	Description
1	430000MCH	1	Base Assy. 17 B/E Machined
2	430001MCH	1	170 Sol/Recovery Tank Assy.
3	430002	1	Cover Poly 170 Burgundy
4	430044	2	Hinge Lid 17 B/E
5	430046	2	Side Skirt Retainer 17
6	430049	1	Splash Skirt 17 B/E
7	430126	2	Hinge Backing Plate
8	430136	1	Gasket Seal Kit (4)
9	430141	1	Splash Skirt 170
10	430142	1	Mounting Bracket
11	450021	1	Hinge
12	711104	3	SCR-ST-A #10 x .50
13	711161	18	SCR-HI/LO #10 x 3/4 PL
14	712536	6	SCR-MC 10-24 x .50 SS
15	712560	6	SCR-MC 1/4 - 20 x .50 S.S.
16	712822	6	SCR-THMS 10 - 24 x .50 STPL

Tank Assembly



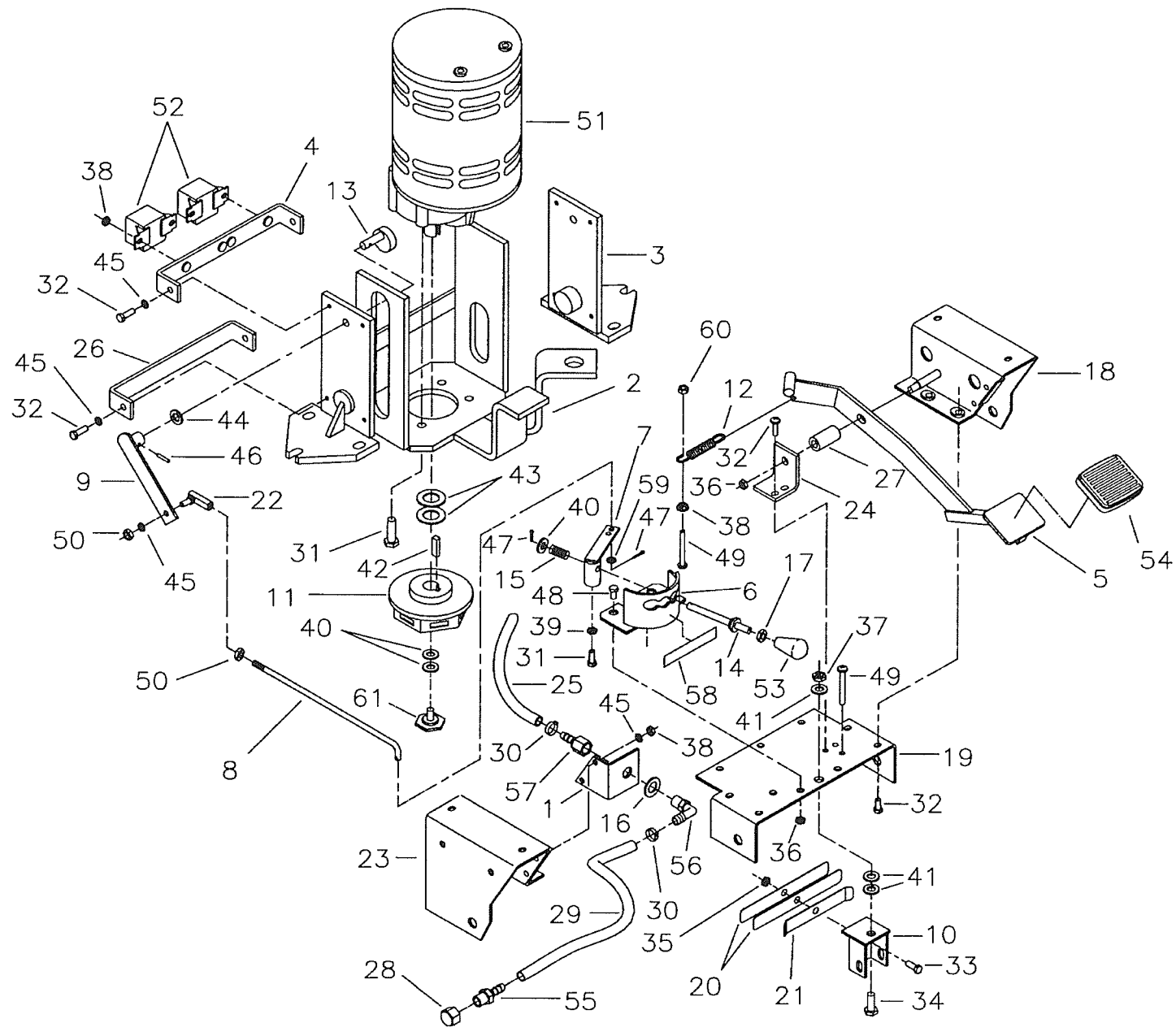
Parts List

Item	Part No.	Qty.	Description
1	130118	1	Solution Strainer
2	200173	1	Float Housing
3	210401	1	Solution Hose
4	210409	2	Fitting Brass 3/8 MPT 3/8 FPT
5	210410	2	Fitting Brass 3/8 FPT 3/8 Barb
6	210414	2	O Ring 2-113
7	290203	1	Hose Clamp
8	430001MCH	1	170 Sol/Recovery Tank
9	430037	2	Bumper Wheel Axle
10	430038	2	U Bracket Wheel Mount
11	430050	1	Filter Screen 4 x 4
12	430089	1	Float 17B
13	430090	1	Float Valve Weldment
14	430098	1	Vac Recovery Hose 22 C/L
15	430116	1	Hose 3/8 Nylo 34"
16	430121	1	Standpipe Assy 170/175
17	430199	1	Hose White Wireloc 24"
18	450076	1	Crimp Clamp SS 185R
19	450081	2	WSR SS 1.908 x 2.41 x .03
20	450083	2	Insert Fitting
21	710353	2	SCR-MC 10-32 x .37 STPL
22	710985	2	SCR-SC 3/8-16 x .62
23	711504	1	WSR-Flat 1/4 ID SS
24	711513	2	WF .689 x 1.06 x .029 SS
25	712092	1	SCR Nylon 1/4-20 x 2.5
26	712568	1	SCR-MC 1/4-20 x 2.25 SS
27	712667	1	Nut-Hex 1/4-20 SS Nyloc
28	760343	1	Tube Hose 24/32B
29	762331	2	Wheel, 2.5D x 1.28W x .38ID
30	762384	2	Bushing SS .277 x .375 x .37
31	828970	1	WSR Neop 1.87 x 2.4 .125
32	828971	1	Nut 1-1/2 Pipe Thread
33	829559	1	Cable Assy 170/175
34	830062	2	Fitting Brass 90 3/8MPT
35	833316	1	Drain Plug

Parts List

Item	Part No.	Qty.	Description
1	250041	1	Seal, Rubber
2	831001	2	Crimp Clamp 440R
3	290017	1	Molded Vac Motor Gasket
4	430018	2	Z Bracket
5	430029	2	Caster
6	430042	1	Caster Mounting Bracket
7	430138-1	2	Wheel 6"
8	430069	1	Vacuum Manifold Assembly
9	828264	1	Spring Washer Cup
10	430099	1	Vacuum Hose
11	450038	2	Z Bracket
12	460019	1	Gasket 3.75 x 5.75 x .75
13	710178	7	SCR-MC 1/4 - 20 x .50 STPL
14	712129	3	SCR-TR 1/4 - 20 x 1.00 HWH
15	711106	4	SCR-ST-A 10 x .75 PL
16	711161	5	SR HI/LO #10 x 3/4 PL
17	711210	3	BLT-HH 1/4 - 20 x 1.25 STPL
18	711243	6	BLT-HH 3/8 - 167 x 1.5 STPL
19	711380	8	Nut-Nyloc 3/8 - 16
20	711425	3	Nut-Flanged Wizz 1/4 - 20
21	711439	2	Nut-Flanged Wizz 3/8 - 16
22	711506	3	WSR-Flat 5/16 STPL
23	711509	6	WSR-Flat 1/2
24	430149	4	Bushing .531 x 1 x .25 SS
25	711515	6	WSR-Flat .406 x .812 x .062
26	712090	2	Shoulder Blt. 1/2 x 3.5
27	740063	1	Vac Motor 24V
28	740132	1	Insulator (Glastic)
29	760859	1	Clamp, Hose
30	762398	1	Hose, Rubber Flex 2 x 13
31	801013	1	Sleeve, Hose
32	832136	1	Nylon Sleeve Sol. Feed
33A	430034	1	Nylon Brush
33B	430108	1	Pad Driver
33C	430111	1	Poly Grit Brush
33D	430132	1	Strato Grit Brush
34	710986	2	SCR-SC 3/8 - 16 x 1.00
35	364-816	1	Nut-Nyloc 1/2
36	711510	2	Washer
37	828301	1	Spring
38	711559	1	WSR-Internal Lock 3/4
39	210083	1	Adj Rod Weldment
40	450040	1	Elbow 3/8 MPT x 3/8 BARB
41	450076	1	Crimp Clamp SS
42	210401	1	Solution Hose 3/8
43	809413MCH	1	Solution Valve
44	829463	1	WSR-Flat 0.75 x 2.00 x .05
45	828975	1	WSR-Neo .75 x 1.50 x .09
46	210370	1	Solution Valve Bracket
47	711106	3	SCR-ST-A 10 x .75 PL
48	711513	1	WSR-Flat .689 x 1.06 x .029
49	342430	1	Hose BARB 3/8 MPT x 3/8 BARB
50	742254	1	Torroid Ferrite
51	840112CTD	1	Vac Cover
52	832996	1	Terminal Block
53	742281	1	Ground Strap
54	380064	1	Foam Ring

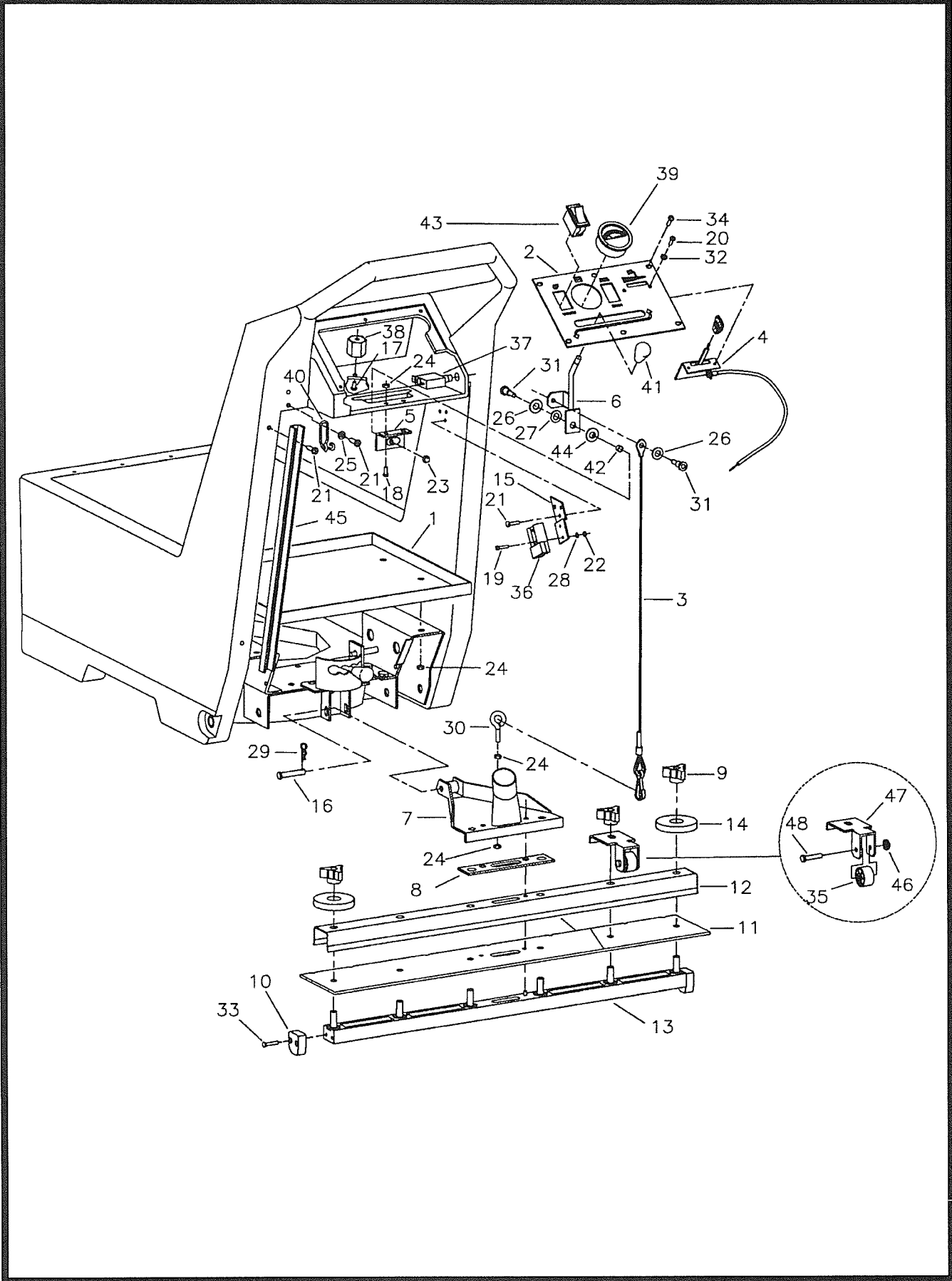
Brush Drive Assembly



Parts List

Item	Part No.	Qty.	Description	Item	Part No.	Qty.	Description
1	100000	1	Mounting Brkt Quick Disk	31	710986	5	SCR-SC 3/-16 x 1.00 STPL
2	430003	1	Motor Mount Weldment	32	711202	10	BLT-HH 1/4-20 x .50 STPL
3	430009	2	Motor Brkt Weldment	33	711227	1	BLT-HH 5/16-18 x .62
4	430013	3	Stabilizer Brkt	34	711246	1	BLT-HH 3/8-16 x .87 STPL
5	430014	1	Motor Lift Weldment	35	711374	1	Nut-Nyloc 5/16-18
6	430019	1	Speed Control Weldment	36	711379	3	Nut-Flanged Wizz 5/16-18
7	430022	1	Control Pivot Weldment	37	711380	1	Nut-Nyloc 3/8-16
8	430025	1	Speed Control Rod	38	711425	8	Nut-Flanged Wizz 1/4-20
9	430026	1	Speed Control Weldment	39	711439	1	Nut-Flanged Wizz 3/8-16
10	430030	1	Squeegee Mount Weldment	40	711506	3	WSR-Flat 5/16 STPL
11	430035	1	Drive Hub	41	711515	2	WSR-Flat .44 x .87 x .07
12	430051	1	Return Spring	42	320268	1	Key 1/4 x 5/16 x 1
13	430054	1	Pivot Cam 17 B/E	43	711517	3	WSR-Flat .77 x 1.37 x .03
14	430055	1	Threaded Connecting Rod	44	711523	2	WSR-Wave .37 x .68 x .02
15	430056	1	Compression Spring	45	711544	9	WSR-Helical .1/4
16	711579	1	WSR-Flat .56 x 1.00	46	711615	1	Rollpin .12 x .75
17	711420	1	Nut-Hex Jam 5/16-18 ST PL	47	711803	2	Cotter Pin .06 x .75
18	430064	1	Wheel Mount U Strut RH	48	712042	2	Drive Hub Retainer Bolt
19	430065	1	Mtg Plate Wheel Carriage	49	712569	3	Bolt-WSR HH 5/16-18 x .62
20	430066	3	Squeegee Return Spring L	50	712666	2	Nut-Hex Jam 1/4-28 SS
21	430067	1	Squeegee Return Spring S	51	740209	1	Gearmotor 24V 17B
22	430080	1	Balljoint (SP1002)	52	740241	2	Contactora 24V 50AMP
23	430081	1	Wheel Mount U Strut LH	53	760592	2	Knob Oval Tapered
24	430088	1	L Mrkt Motor Lift	54	210142	1	Pedal Pad
25	430116	1	Hose 3/8 Nylo x 34"	55	828952	1	Fitting 1/4 MPT x 3/8 Barb
26	430106	1	Stabilizer Bar Lower	56	833325	1	Fitting Nylon 90° 1/4 MPT
27	430113	1	Hose 3/8 x 1.375	57	833473	1	Fitting Brass 1/4FPT x 3/8 Barb
28	430114	1	Nylon Cap 1/4 FPT HC4	58	715136	1	Decal Diecut Speed Control
29	430118	1	Cleat Dump Hose C/L 22"	59	711505	3	WSR-Flat 1/4
30	450076	2	Crimp Clamp SS 185G	60	711373	1	Nut-Nyloc 1/4-20
				61	210066	1	Drive Hub Retainer Bolt

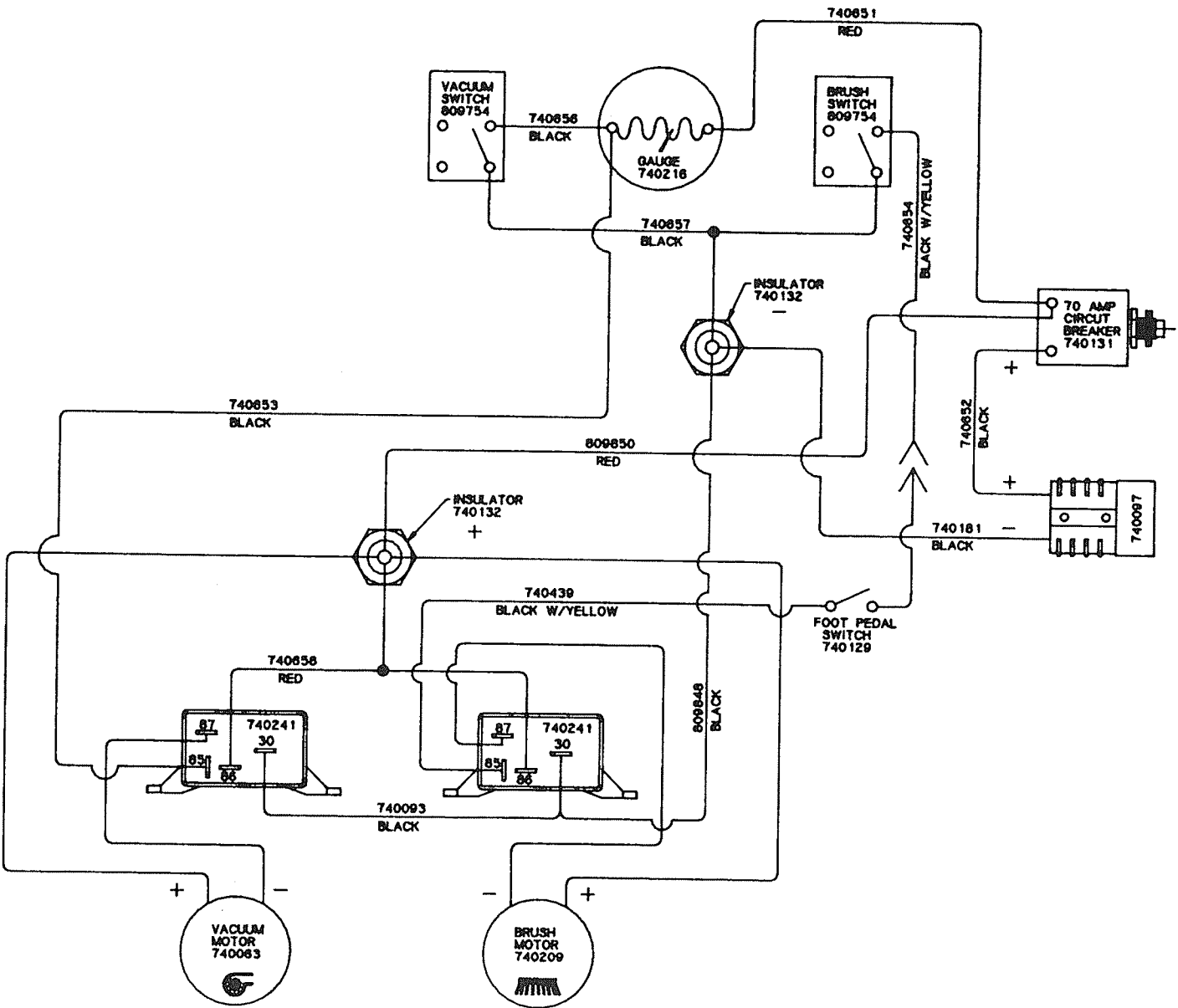
Squeegee Assembly



Parts List

Item	Part No.	Qty.	Description
1	430033	1	Battery Tray
2	430039SP	1	Dashboard 170 Screen Printed
2CE	430039CESP	1	Dashboard 170CE Screen Printed
3	430052	1	Squeegee Lift Cable Assy
4	430053	1	Solution Control Cable A
5	430059	1	Squeegee Lift Brkt Assy
6	430060	1	Squeegee Lift Arm Assy
7	430070	1	Squeegee Mount Assy
8	430073	1	Gasket Diecut PS Back
9	430074	6	Adjusting Nut 17 B/E
10	430076	2	Nylon Squeegee Insert
11	11-145	1	Squeegee Gum Rubber
12	430078	1	U Profile
13	430079	1	Casting Squeegee Bumper Wheel
14	430085	2	Squeegee Bumper Wheel
15	430087	1	Anderson Plug Brkt
16	430105	1	Clevis Pin .312 x 1.75
17	710178	1	SCR-MC 1/4-20 x .50 STPL
18	710180	2	SCR-MC 1/4-20 x .75 STPL
19	710207	2	SCR-MC #6-32 x .87 STPL
20	711124	2	SCR-ST-B #10 x .37 NI
21	711161	7	SCR Hi/Lo #10 x 3/4 PL
22	711301	2	Nut-Hex #6-32 STPL
23	711352	1	Nut-Acorn 1/4-20 ST NI
24	711425	4	Nut-Flanged Wizz 1/4-20
25	711503	2	WSR-Flat #10
26	711506	2	WSR-Flat 5/16 STPL
27	711523	1	WSR-Wave .37 x .68 x .02
28	711551	2	WSR-Internal Lock #6
29	711808	1	Cotter Pin-Hair #13
30	712026	1	Wire Eye Bolt 1/4-20
31	712041	2	BLT-SDER 1/4-20 x .44 x .37
32	712320	2	WSR Nylon .22 x .45 x .04
33	712517	4	SCR-MC #8-32 x 1 SS FH
34	712822	6	SCR-THMS #10-24 x .50 STPL
35	370031	2	Wheel 1.5 Molded
36	740097	1	CB50 Red Housing
37	740131	1	Circuit Breaker 70AMP
38	740132	1	Insulator (Glastic)
39	740216	1	Gauge Battery Condition
40	760286	1	Wire Formed Hook
41	760592	1	Knob Oval Tapered
42	762058	1	Spacer .319 x .375 x .250
43	809754	2	Switch Rocker
43CE	740711CE	2	Switch w/Splashguard
44	829014	1	Flanged Bushing
45	430120	1	U Channel 170 18"
46	370074	2	Hubcap
47	832973	2	Wheel Bracket
48	832974	2	Clevis Pin 1/4 x 1-3/8

Wiring Diagram Standard Version

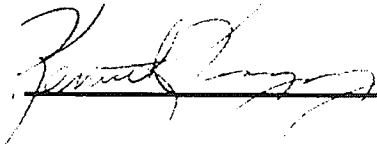


EC Declaration of Conformity

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 products MC17000-00CE, MC17500-00 Commercial 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 335-72.

SOUND		VIBRATION												
75 dB Operator	72 dB At 3m	.68 m/s² At Operators Hand Grips												
Tests were conducted on 6/7/96 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>29°C</td> <td>Humidity:</td> <td>85%</td> </tr> <tr> <td>Barometric Pressure:</td> <td>29.5</td> <td></td> <td></td> </tr> </table>			General Condition:	Cloudy	Wind:	0 km/hr	Temperature:	29°C	Humidity:	85%	Barometric Pressure:	29.5		
General Condition:	Cloudy	Wind:	0 km/hr											
Temperature:	29°C	Humidity:	85%											
Barometric Pressure:	29.5													



Kenneth Kaczmarz, Standards Engineer

12/15/77

Date

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.

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