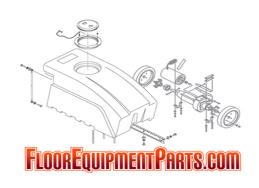
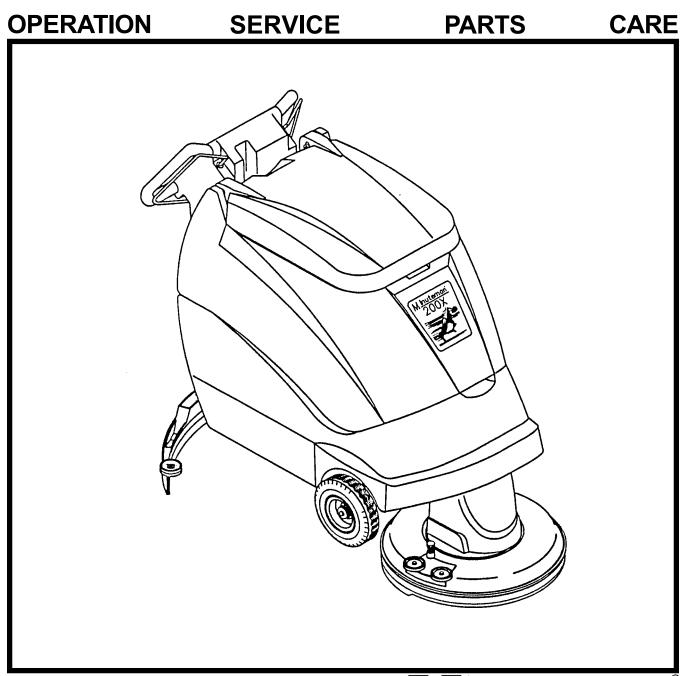
# 200X Brush Drive Floor Scrubber Battery

Model: MC20000QP, CE





**Minuteman** 

# **EC Declaration of Conformity**

according to Directives 72/23, 89/392, and 89/336

We, Minuteman International Incorporated, of 111 South Rohlwing Road Addison Illinois 60101 USA, declare under our sole responsibility that the product MC20004CE Commercial Automatic Floor Scrubber to which this declaration relates corresponds to the relevant requirements of the EC Directives 72/23, 89/392 and 89/336. The following standards were used to determine compliance with the Directives: EN 292, EN 294, EN 811, EN 55014, EN 55104 and IEC 335-1-72.

SOU	U <b>ND</b>	VIBRATION
81 dB	77dB	4.8 m/s <sup>2</sup>
Operator	/ At 3m	At Operators Handle

Tests were conducted on 6/14/00 with calibrated sound and vibration equipment under the conditions noted below:

General Condition:

**Indoors** 

Wind:

0 km/hr

Temperature:

 $23^{\circ}C$ 

Humidity:

70%

Barometric Pressure: 29.1

Date

Jeff Pollack, Standards Engineer

Form: EC040

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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 24 Volt DC.

#### **BATTERY REQUIREMENTS:**

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

#### **BATTERY SERVICE AND INSTALLATION:**

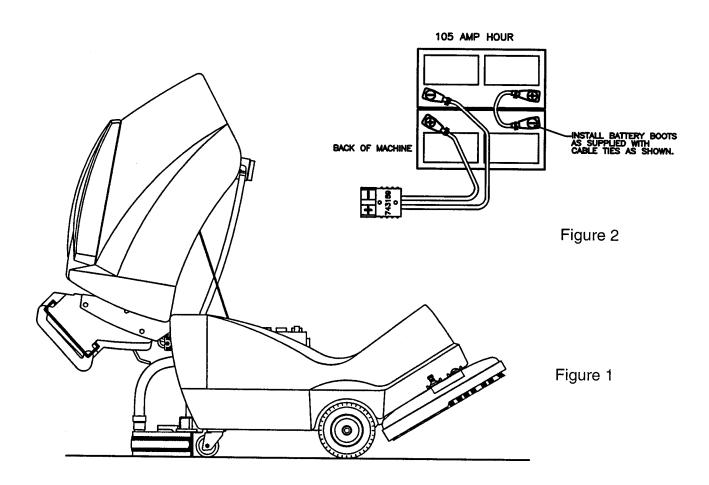
Warning: Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.

#### **BATTERY INSTALLATION:**

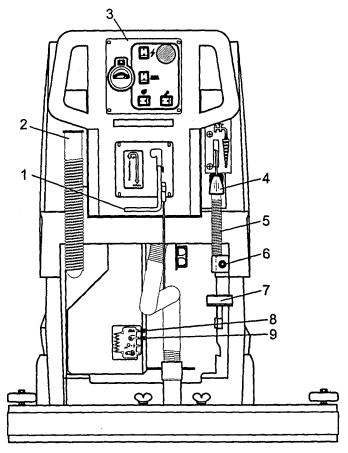
- 1. Raise tank assembly by gripping the front of the tank and lift the tank backward as shown in Fig. 1.
- 3. Install batteries as shown in Figure 2.

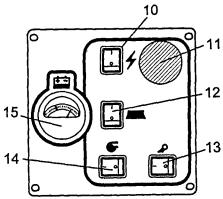
#### **CHARGING OF BATTERIES:**

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.



# CONTROL PANEL IDENTIFICATION





- 1. Squeegee lift lever
- 2. Recovery dump hose
- 3. Dashboard control panel
- 4. Solution control lever
- 5. Solution dump hose
- 6. Quick disconnect aux. out (optional)
- 7. Food pedal
- 8. Circuit breaker Brush
- 9. Circuit breaker Vac
- 10. Main power
- 11. Emergency button
- 12. Brush switch
- 13. Pump switch
- 14. Vacuum switch
- 15. Battery gauge

#### **AUTO SCRUBBER BRUSH DESCRIPTION**

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

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

#### OPERATING INSTRUCTIONS

# BEFORE STARING, FAMILIARIZE YOURSELF WITH THE MACHINE AND ITS CONTROLS (SEE "MACHINE OVERVIEW" & CONTROL PANEL DIAGRAMS)

- 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 machine by lifting the red emergency disconnect button (11) so it is in the up position. Turn on main power switch (10).
- 4. Lower brush assembly.
  - To lower the brush, first push the pedal (7) slightly outward on the machine (unlock it), and then release it slowly.
  - To lift the brush, press the pedal (7) down until lift mechanism engages.
- 5. Turn on brush (12).
- 6. Adjust solution control feed lever (4).
- 7. Turn on vacuum switch (14).
- 8. Lower squeegee assembly by lowering handle (1).

#### After Use:

- 1. Turn off solution feed (4).
- 2. Switch off brush (12) and raise (7).
- 3. Raise squeegee assembly (1).
- 4. Turn off vacuum motor (14).

Solution and recovery tanks should be emptied after every use.

#### **MAINTENANCE:**

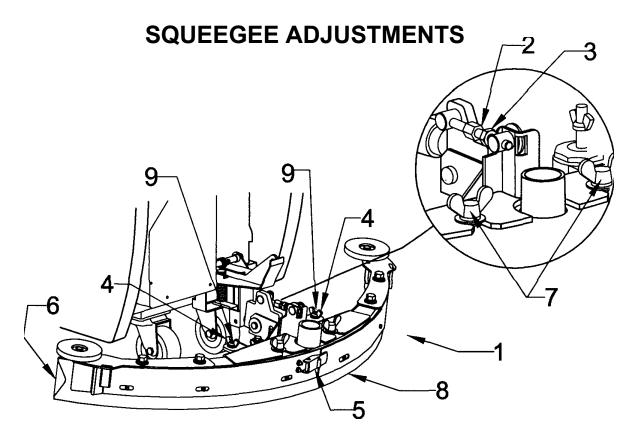
Daily

- 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 front wheels.
- 3. Grease pivot points on brush motor assembly.

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



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 lower the scrubhead assembly to the floor.
- 2 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 castor height. If the squeegee blade is deflecting too much, the castors need to be lowered to control the down pressure. Lower the castor by turning the exposed threaded stem (item 9) on the castor clockwise. Make the adjustment a few turns at a time. Repeat Step 2.
- If the blades are not deflecting enough, raise the castor by turning the stem counter clockwise to adjust the castor height to allow more down pressure on the squeegee. Repeat Step 2.
- 6 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 castor setting in place.
- 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.
- 8 To adjust the 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 the entire length is the desired set up.
- 9 Repeat Step 2 until the desired set up is achieved.
- 10 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.
- 11 You can also easily replace the rear blade by unlatching the latch (item 5) and removing the straps by sliding them off the assembly.

#### **BRUSH INSTALLATION - REMOVAL**

#### **INSTALLATION**

#### **Brush Drive**

- 1. Raise the scrubhead to the "UP" position by depressing the pedal (A) downward as shown on Fig. 1.
- 2. Center brush (D) under the scrubhead shroud while lining up the center hex drive hub and pressing the brush up until the brush engages on the drive hub.

#### **REMOVAL**

- 1. Raise the scrubhead to the "UP" position by depressing the pedal (A) downward as shown on Fig. 1.
- 2. Remove the brush (D) by stepping on the "BRUSH RELEASE PIN" on the top of the scrubhead shroud as shown on Fig. 1 below.

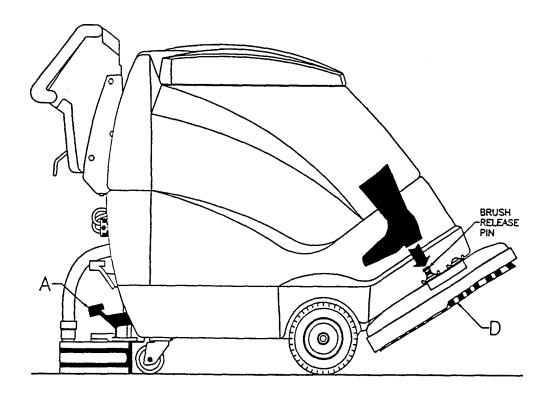
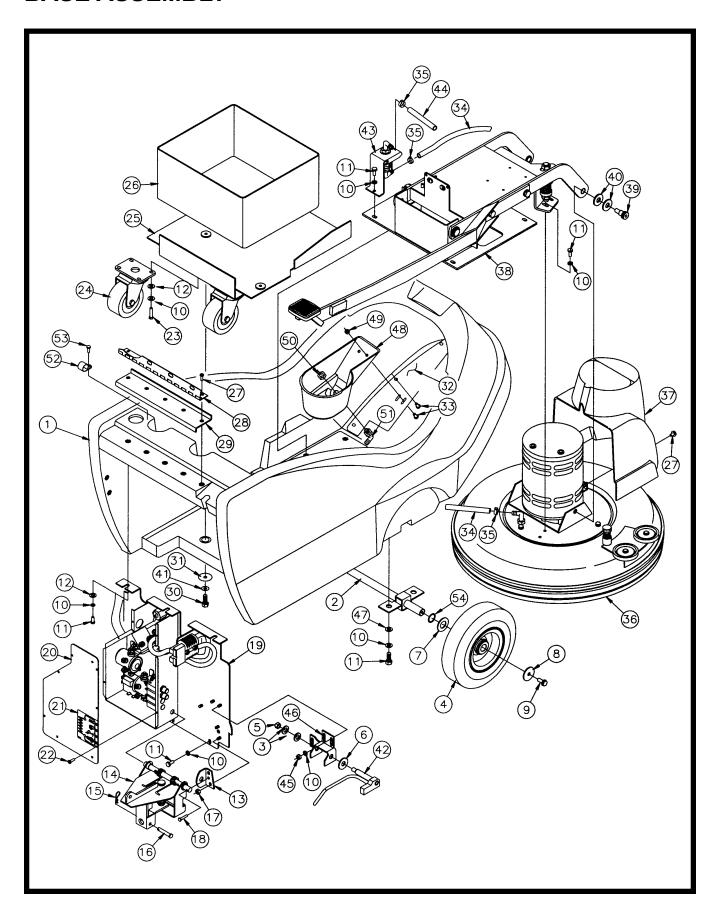


Figure 1

# **BASE ASSEMBLY**

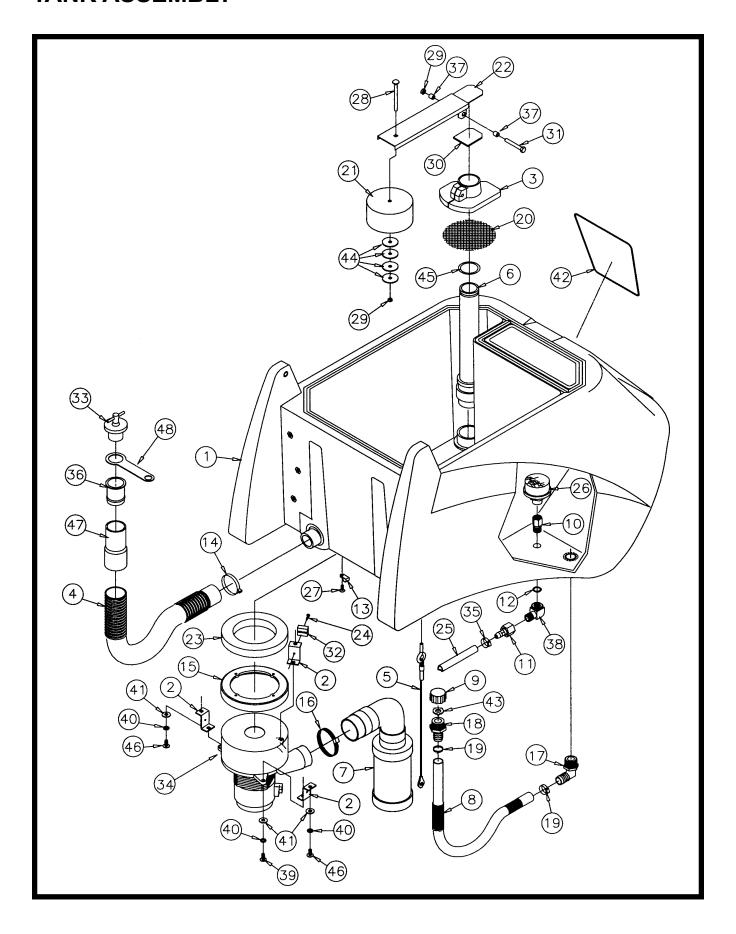


# **BASE ASSEMBLY**

# Parts List

Item	Part No.	Qty.	Description
1	200102	1	Base
2	200250	1	Axle Weldment
3	712310	2	WSR-Flat .52 x .87 x .06
4	762332	2	Wheel, 8 x 2 w/Bearing
5	711375	1	Nut-Nyloc 3/8-16
6	711578	1	WSR-Flat 1/2 Brass
7	712318	2	WSR-Flat 3/4 x 1.12 x .12
8	712759	2	WSR-Flat 5/16 x 1.37 x .06 SS
9	712042	2	BOLT-WSR HH 5/16-18 x .62
10	711544	30	WSR-Helical 1/4
11	711203	19	BLT-HH 1/4-20 x .62
12	711505	11	WSR-Flat 1/4
13	200158	1	Pin Bracket
14 15	200153	1	Squeegee Mechanism Assy.
15 16	711808	1	Cotter Pin
16	210415	1	Clevis Pin 5/16
17 19	711373	2 1	Nut-Nyloc 1/4-20
18 10	712564		Bolt-HH 1/4-20 x 1 SS
19 20	200265	1	Back Panel Assy BD Electrical Box Cover
20	200154	1 1	
21	715286		Decal, CB SCR-ST-B #10 x 1/2
22	711125	4	
23	713002	8	BLT-HH 1/4-20 x .75
24	200345	2 1	Caster, 3 1/2"
25 26	200125	1	Battery Tray Weldment
26 27	210048		Battery Liner SCR-MC 1/4-20 x .62 SS
27	712565	5 1	
28	200145	1	Hinge
29	200146 711228	4	Hinge Plate
30 31	711226 711507	4	Bolt-HH 5/16-18 x 3/4 WSR-Flat .37 x 1.12 x .06
32	200233	1	Bottom Cover
33	712822	5	SCR-THMS 10-24 x 1/2
33 34	200235	1	Hose Nylobraid 17.50
35	450076	3	Crimp Clamp 185R SS
36	200255	1	Scrubhead Assy. BD
30 37	200255	1	Motor Cover
38	200280	1	Motor Lift Assy.
39	712099PLT	2	Shoulder Bolt 1/2 x .50
40	711510	4	WSR-Flat .50 x 1.38 x .10
41	711545	4	WSR-Helical 5/16
42	200130	1	Pawl Weldment
43	200260	1	Solution Valve Assy BD
<del>4</del> 3	200234	1	Solution Hose 51.00
<del>45</del>	711316	3	Nut-Hex 1/4-20
46	200129	1	Pawl Mounting Bracket
<del>4</del> 0 47	711575	4	WSR-Flat .312 x .75 x .06
48	200318MCH	1	Reservoir
49	712908	2	Nut-Wizz 10-24
<del>4</del> 9 50	260183	1	Nut-Nylon 1/4 NPT
50 51	833325	1	Barb 90° Elbow 3/8 x 1/4 NPT
52	82-54-A	1	Clamp
53	711106	1	SCR-ST-A 10 x .75 PL
53 54	711583	2	WSR-Wave .78 x 1.00 x .02
<del></del>	7 11303	_	VVOIN-VVAVE ./ U A 1.00 A .UZ

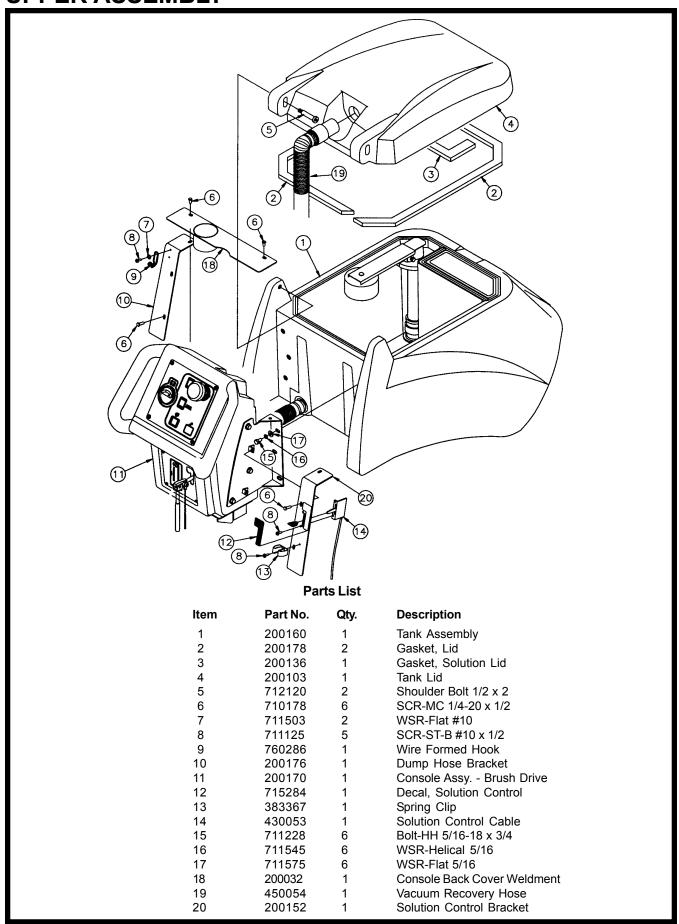
# **TANK ASSEMBLY**



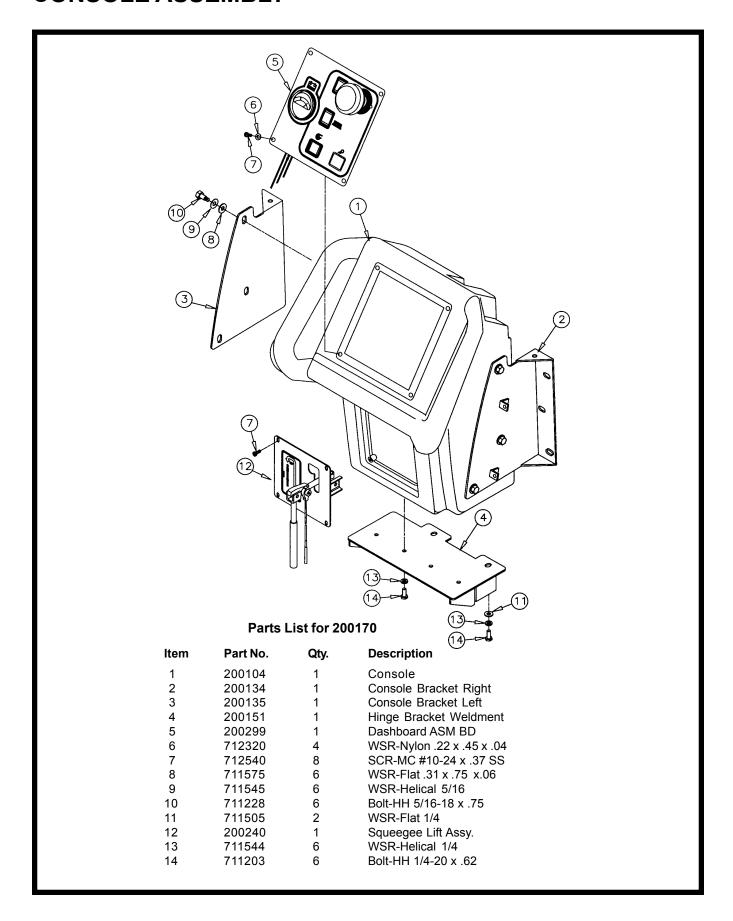
# TANK ASSEMBLY Parts List

Item	Part No.	Qty.	Description
1	200101	1	Solution/Recovery Tank
2	200147	3	Bracket, Vac Motor
3	200173	1	Float, Housing
4	210122	1	Drain Hose, Wirelock
5	200232	1	Cable, Tank
6	200251	1	Stand Pipe Assembly
7	200258	1	Muffler Assembly
8	200270	1	Hose, 3/4 Solution Drain
9	200023	1	Garden Hose Cap
10	210409	1	Fitting, Brass 3/8 MPT
11	210410	1	Fitting, Brass 3/8 FPT
12	210414	1	"O" Ring 2-113
13	250038	3	Clamp, Plastic 5/16 3305
14	260203	1	Hose Clamp 102120 Murray
15	290017	1	Gasket, Molded, Vac Motor
16	760859	1	Clamp-Hose
17	383321	1	Elbow 3/4 MPT 3/4 Barb PP
18	200022	1	3/4" MGHT x Hose Barb
19	829129	2	Clamp, Crimp 3/4 Hose
20	430050	1	Filter Screen 4 x 4
21	260155	1	Foam Float
22	200320	1	Float Valve Weldment
23	460019	1	Gasket
24	710207	1	SCR-MC 6-32 x .87 ST PL
25	200234	1	Solution Hose
26	130118	1	Solution Strainer
27	712540	3	SCR-MC #10-24 x .375 SS
28	712574	1	CR Bolt SS 1/4-20 x 3"
29	712667	2	Nut-Hex 1/4-20 SS Nyloc
30	200321	1	Gasket, Shut-Off
31	712568	1	SCR-MC 1/4-20 x 2.25 SS
32	832996	1	Terminal Block 2-Pole VDE
33	833316	1	Drain Plug
33 34	740225	1	Vac Motor 6515-13 24V
3 <del>4</del> 35	740225 760245	2	
36		1	Hose Clamp 62P24 Tube Hose 24/32B
	760343		
37	762384	2	Bushing .277 x .375 x .37 SS
38	830062	1	Fitting Brass 90 3/8 MPT
39	710180	3	SCR-MC 1/4-20 x .75
40	711544	6	Lockwasher - Helical 1/4
41	711505	6	Washer 1/4
42	715285	1	Decal, 200X
43	200024	1	Black Vinyl Washer
44	712759	4	WSR-Flat .31 x 1.37 x .06 SS
45	310008	1	O-Ring
46	712565	3	SCR-MC 1/4-20 x .625 SS
47	805613	1	Hose Cuff, Grey Vinyl
48	320269	1	Strap, Drain Plug Retaining

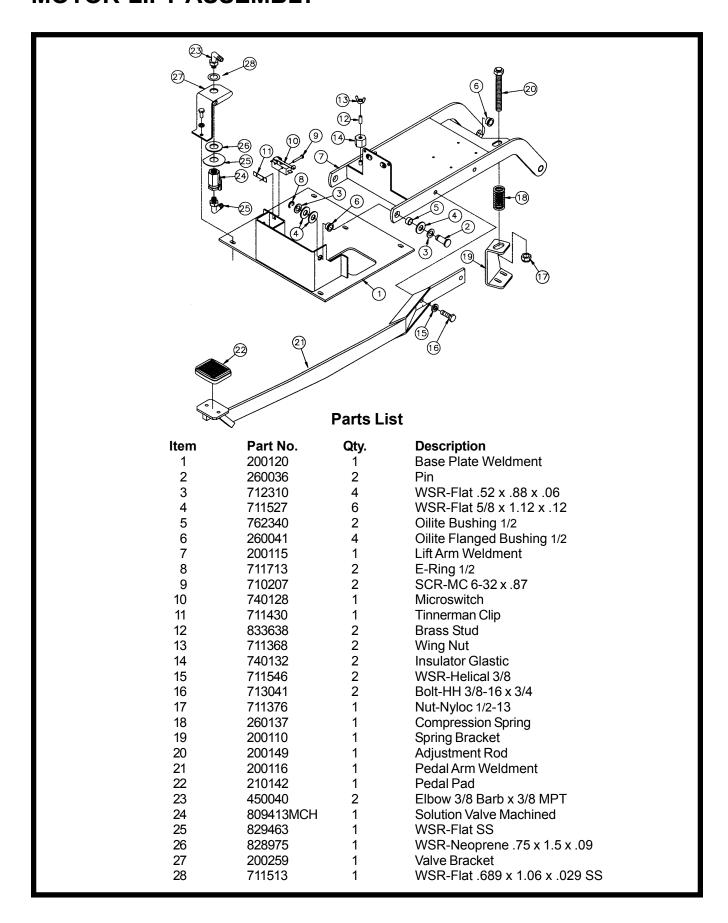
# **UPPER ASSEMBLY**



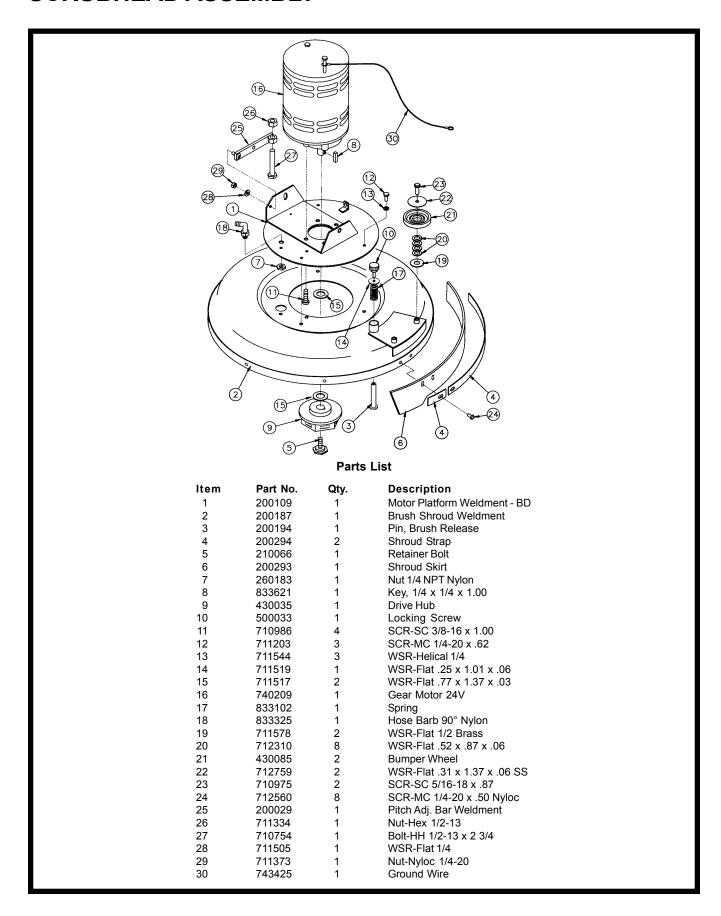
# **CONSOLE ASSEMBLY**



#### **MOTOR LIFT ASSEMBLY**

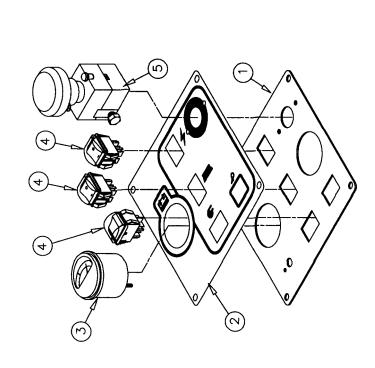


#### **SCRUBHEAD ASSEMBLY**



# DASHBOARD

**BACK PANEL** 



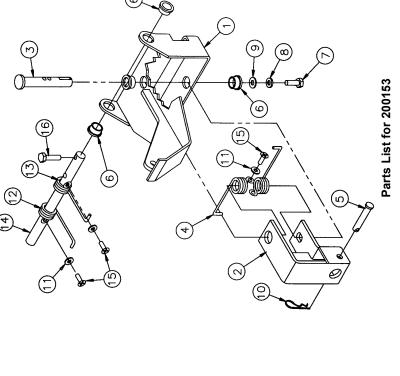
_
, 7
Parts List for 200265
Part

Description	Backpanel Weldment	Circuit Breaker Plug	Wing Nut, 1/4-20	Insulator (Glastic)	Boot, Circuit Breaker	Circuit Breaker 30	Diode Assembly	Circuit Breaker 50	SCR-HH 1/4-20 x 1 1/4	CB175 Red Housing Only	Wire Harness, 200X BD	Solenoid 24VDC	Brass Stud	Whiz-Ni # 1/20
Q ty	_	7	7	7	7	_	7	_	7	_	_	7	7	G
Part No.	200124	742749	711368	740132	742748	740247	742000	740549	711210	740159	743260	788147	833638	711425
Item	~	2	င	4	2	9	7	80	6	10	7	12	13	4

0299
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Parts

Description	Dashboard Plate	Decal 200 Dashboard	Battery Gauge	Switch Dreefs w/Splashguard	Disconnect Switch 125A
Qty.	_	_	_	က	<b>~</b>
Part No.	200179	715283	740216	740711CE	742202
Item	_	2	က	4	2

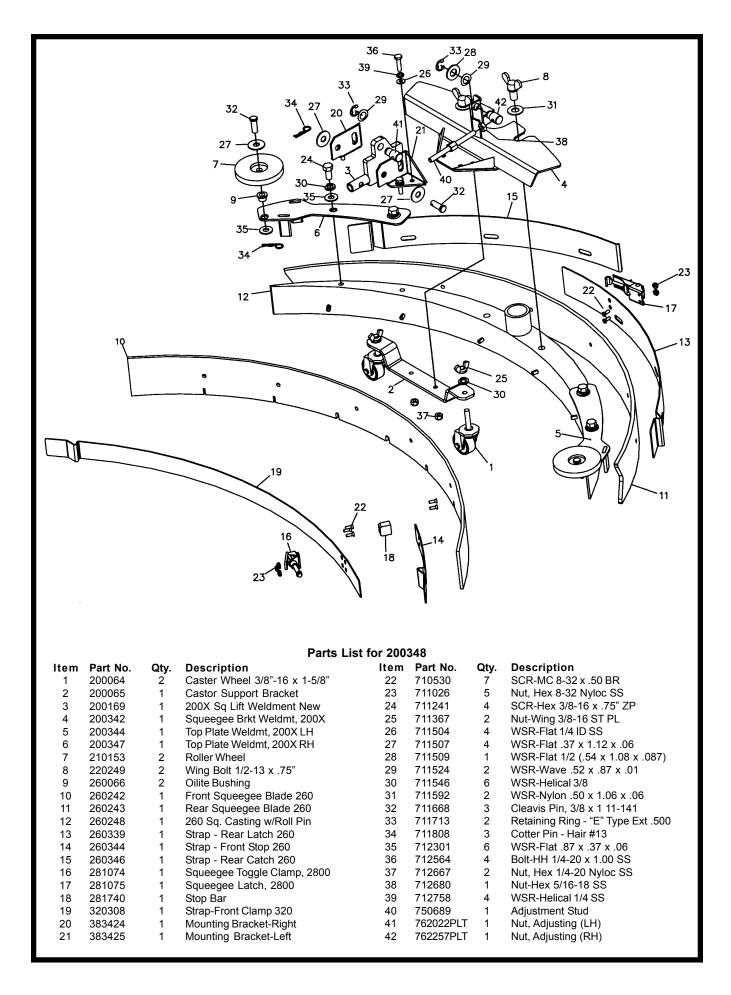
# SQUEEGEE LIFT SQUEEGEE LIFT Barts List for 200240



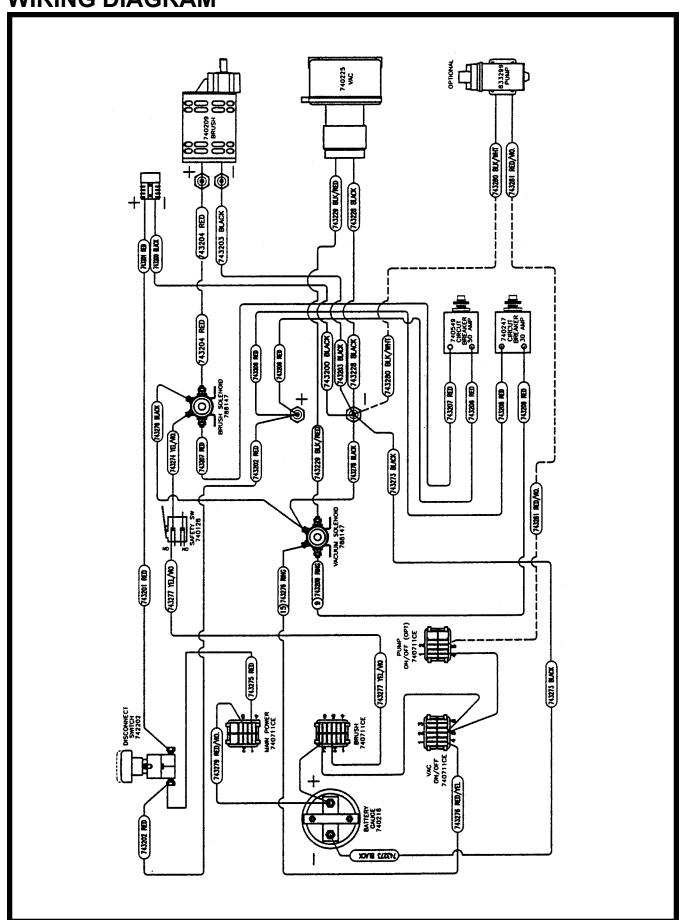
SQUEEGEE MECHANISM

Item	Part No.	Qty.	Description
_	200144	~	Spring Housing Weldment
2	200300	<b>~</b>	Yoke Weldment
3	210375	~	Swivel Pin
4	210391	2	Return Spring SS
2	210415	<b>~</b>	Clevis Pin .31 x 1.7 11-097
9	260041	4	Oilite Flange Bushing
7	710180	<b>~</b>	SCR-MC 1/4-20 x .75 ST PL
∞	711544	~	WSR-Helical 1/4
6	711519	_	WSR-Flat .25 x 1.01 x .06
10	711808	_	Cotter Pin - Hair #13
7	712320	4	WSR-Nylon .22 x .45 x .04
12	080006	_	Spring, Torsion RH
13	900081	<b>-</b>	Spring, Torsion LH
14	200159	_	Pin
15	712536	4	SCR-MC 10-24 x .62 SS
16	712564	_	BLT-HH 1/4-20 x 1.00 SS

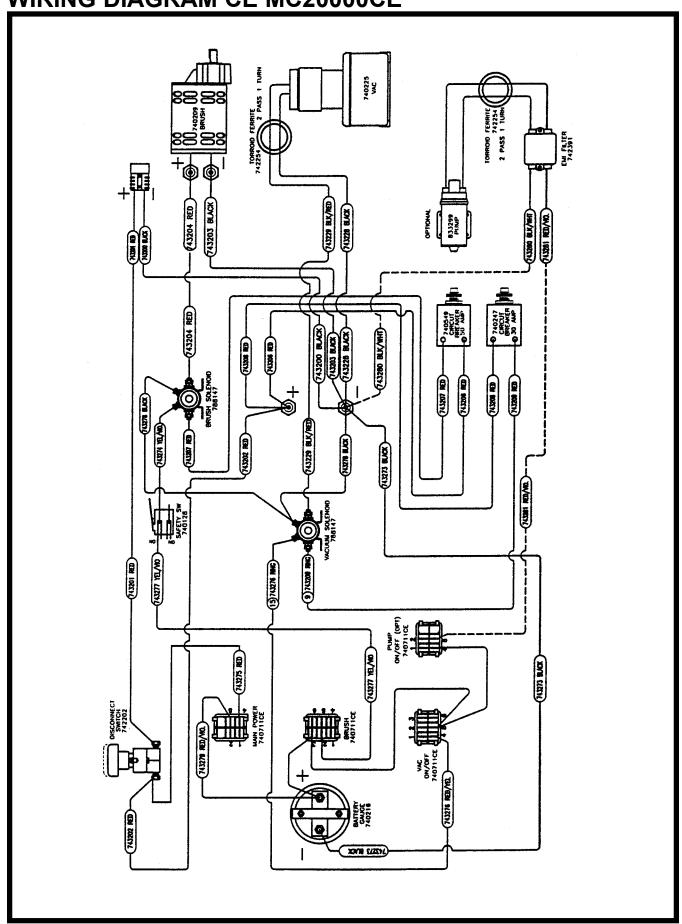
Description	Panel Cover Weldment	Decal Squeegee Lift	Squeegee Lift Cable	Inner Arm Weldment	Arm Squeegee Lift Weldment	Bolt, Shoulder 5/16 x .75	Clevis Pin 3/8	Cotter Pin 7/64 x 1"	Yoke	Clevis Pin 5/16	Cotter Pin #13	Bolt-Shoulder 5/16 x .44	Handle Weldment	3/16 x 1.00 Roll Pin	WSR-Flat 1/4, SS
Q.	_	_	_	_	_	_	_	_	_	_	_	_	_	_	7
Part No.	200239	715603	200241	200261	200017	712081	831965	809311	881009	881002	711808	712041	200038	711642	711504
Item	~	2	က	4	2	9	7	80	6	10	7	12	13	41	15



# **WIRING DIAGRAM**



# **WIRING DIAGRAM CE MC20000CE**



#### 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 warranteed 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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