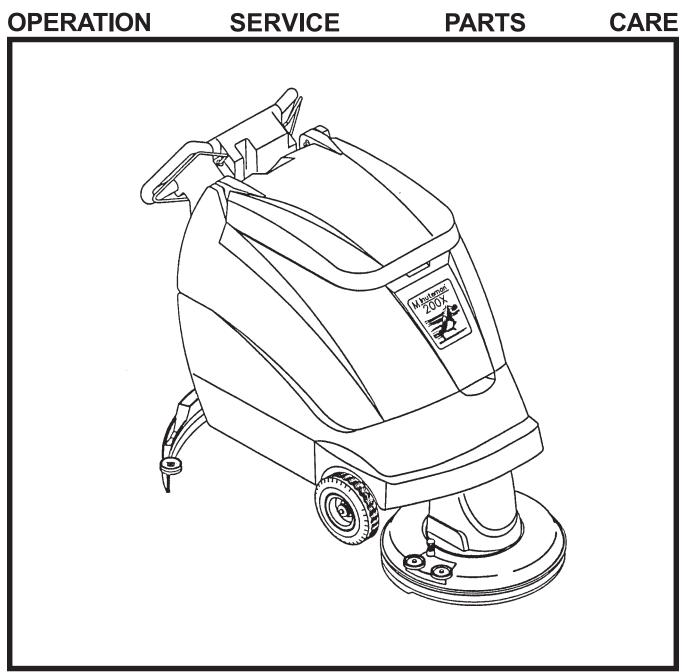
200X Brush Drive Floor Scrubber Battery Model: MC20000QP, CE



Revised 8/02

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	J ND	VIBRATION
81 dB	77dB	4.8 m/s ²
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:

 $23^{\circ}C$

Barometric Pressure: 29.1

Humidity:

70%

Jeff Pollack, Standards Engineer

Date

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:

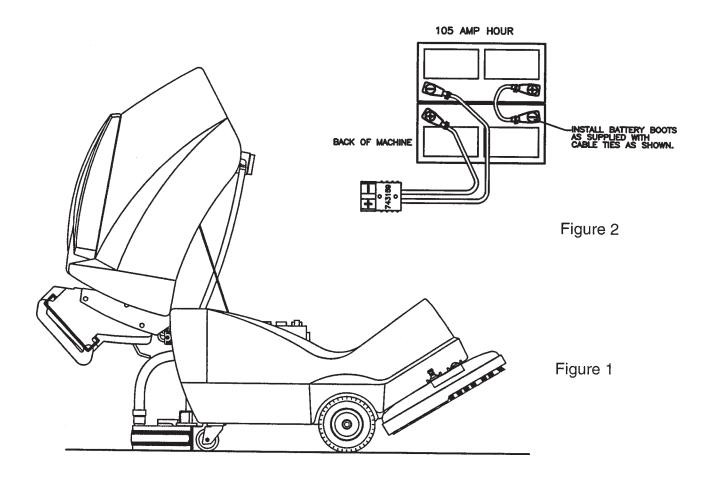
Warning: Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.

BATTERY INSTALLATION:

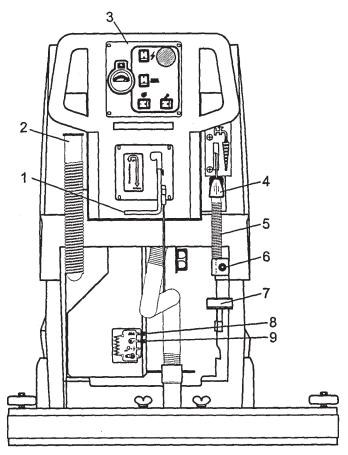
- 1. Raise tank assembly by gripping the front of the tank and lift the tank backward as shown in Fig. 1.
- 3. Install batteries as shown in Figure 2.

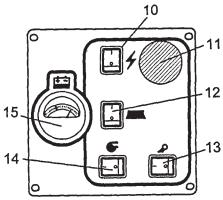
CHARGING OF BATTERIES:

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
- 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.

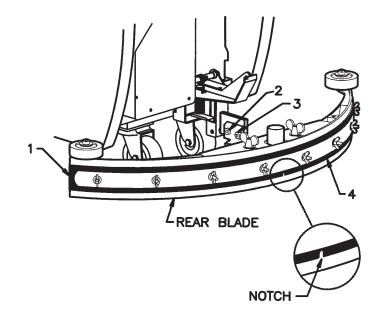
SQUEEGEE ADJUSTMENTS

Squeegee Adjustment

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

Pitch Control Adjustment

- Ensure that the scrubber is on a relatively flat surface. Pull the red emergency button away from the dashboard to activate power. Turn on the main power switch and turn the key switch. Raise the scrubhead off the floor. Turn the vacuum switch.
- Lower the squeegee (item 1) to the floor and move the machine one or two feet forward to check the rear squeegee blade 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, pitch adjustment is necessary. Loosen the pivot screw (item 2) and the pitch screw (item 3). Move the machine forward and allow the squeegee to level itself or adjust the angular position accordingly to achieve a uniform blade deflection. Re-tighten screws.
- 5. In certain applications where a different blade set-up is required, the reinforcement blade (item 4) may be turned upside down. The notch, which is normally on the bottom will now be located on the topside. This allows the rear squeegee blade a larger deflection than normal.

BRUSH INSTALLATION - REMOVAL

INSTALLATION

Traction 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.

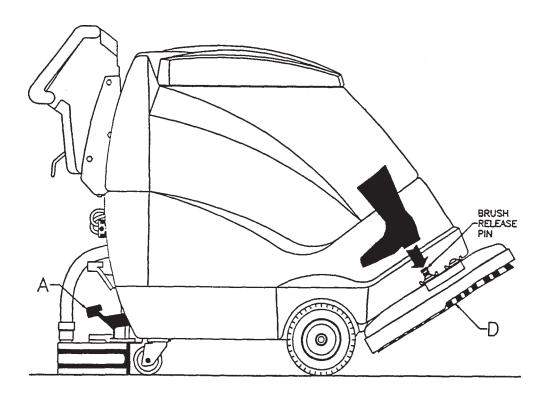
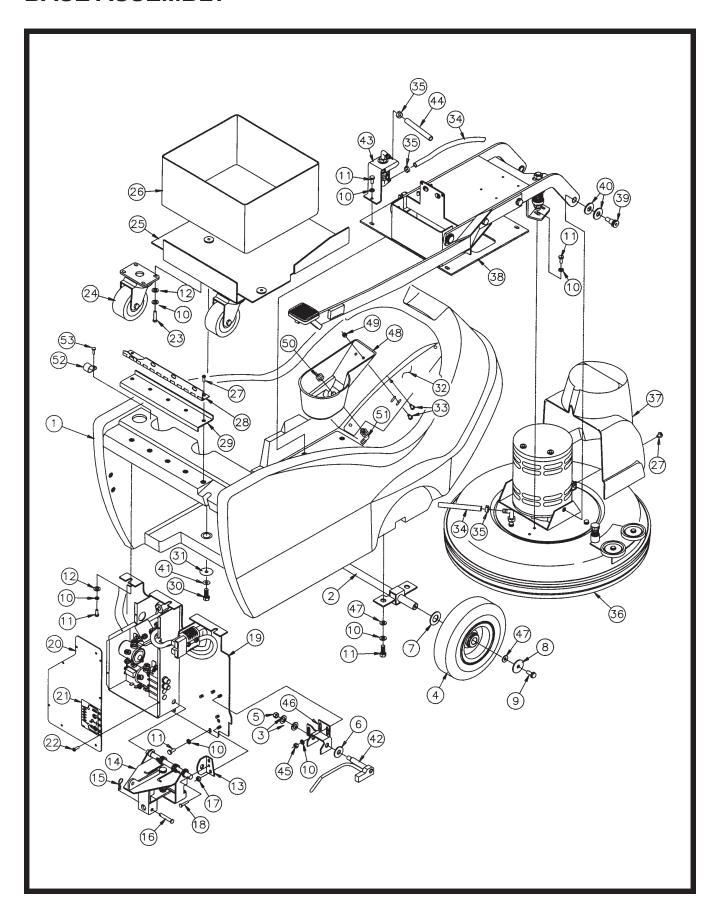


Figure 1

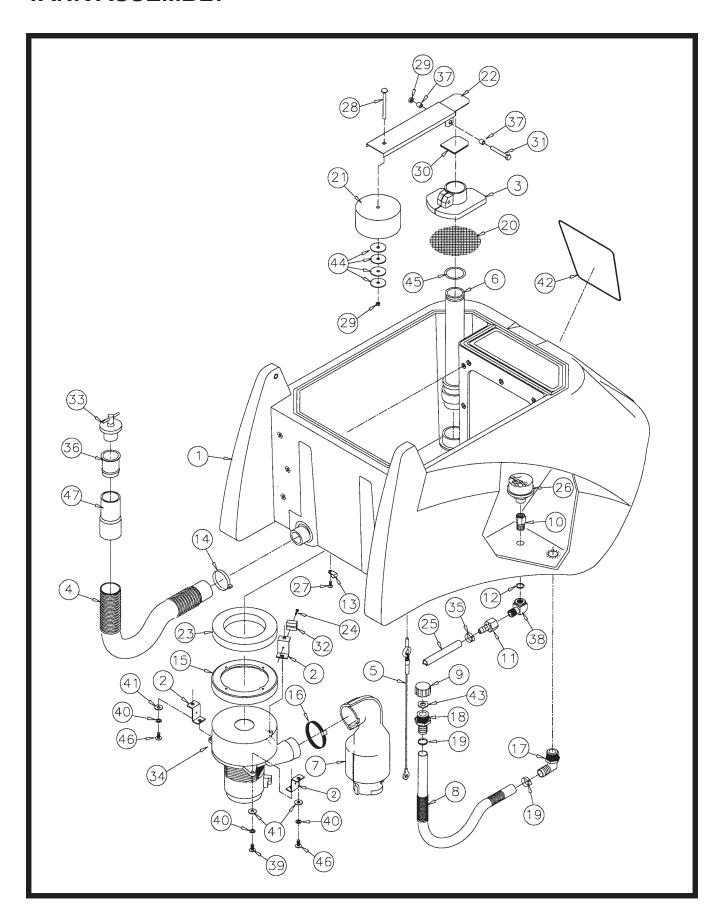
BASE ASSEMBLY



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	200153	1	Squeegee Mechanism Assy.
15	711808	1	Cotter Pin
16	210415	1	Clevis Pin 5/16
17	260183	3	Nut ¼ NPT Nyloc
18	712564	1	Bolt-HH 1/4-20 x 1 SS
19	200265	1	Back Panel Assy BD
20	200154	1 1	Electrical Box Cover
21 22	715286 711125	4	Decal, CB SCR-ST-B #10 x ½
23	711123	8	BLT-HH 1/4-20 x .75
23 24	200345	2	Caster, 3 1/2"
25	200345	1	Battery Tray Weldment
26	210048	1	Battery Liner
27	712565	5	SCR-MC 1/4-20 x .62 SS
28	200145	1	Hinge
29	200146	1	Hinge Plate
30	711228	4	Bolt-HH 5/16-18 x 3/4
31	711507	4	WSR-Flat .37 x 1.12 x .06
32	200233	1	Bottom Cover
33	712822	5	SCR-THMS 10-24 x 1/2
34	200235	1	Hose Nylobraid 17.50
35	450076	2	Crimp Clamp 185R SS
36	200255	1	Scrubhead Assy. BD
37	200186	1	Motor Cover
38	200280	1	Motor Lift Assy.
39	712099PLT	2	Shoulder Bolt ½ 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
44	200234	1	Solution Hose 51.00
45	711316	3	Nut-Hex ¼-20
46	200129	1	Pawl Mounting Bracket
47 49	711575	6	WSR-Flat .312 x .75 x .06
48 40	200318MCH	1 2	Reservoir
49 50	712908 260183	1	Nut-Wizz 10-24 Nut-Nylon 1/4 NPT
51 52	833325	1	Barb 90° Elbow 3/8 x 1/4 NPT
52 53	82-54-A	1	Clamp
53	711106	1	SCR-ST-A 10 x .75 PL

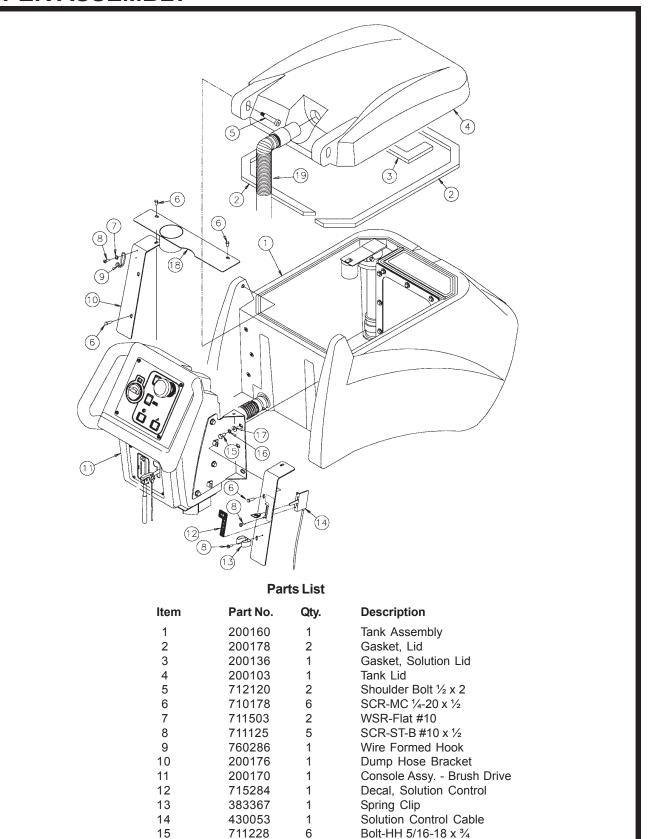
TANK ASSEMBLY



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, ¾ 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	250039	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 ¾ MPT ¾ Barb PP
18	200022	1	3/4" MGHT x Hose Barb
19	829129	2	Clamp, Crimp ¾ Hose
20	430050	1	Filter Screen 4 x 4
21	260155	1	Foam Float
22	430090	1	Float Valve Weldment
23	460019	1	Gasket
24	710207	1	SCR-MC 6-32 x .87 ST PL
25	200234	Ref.	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
34	740225	1	Vac Motor 6515-13 24V
35	760245	2	Hose Clamp 62P24
36	760343	1	Tube Hose 24/32B
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

UPPER ASSEMBLY



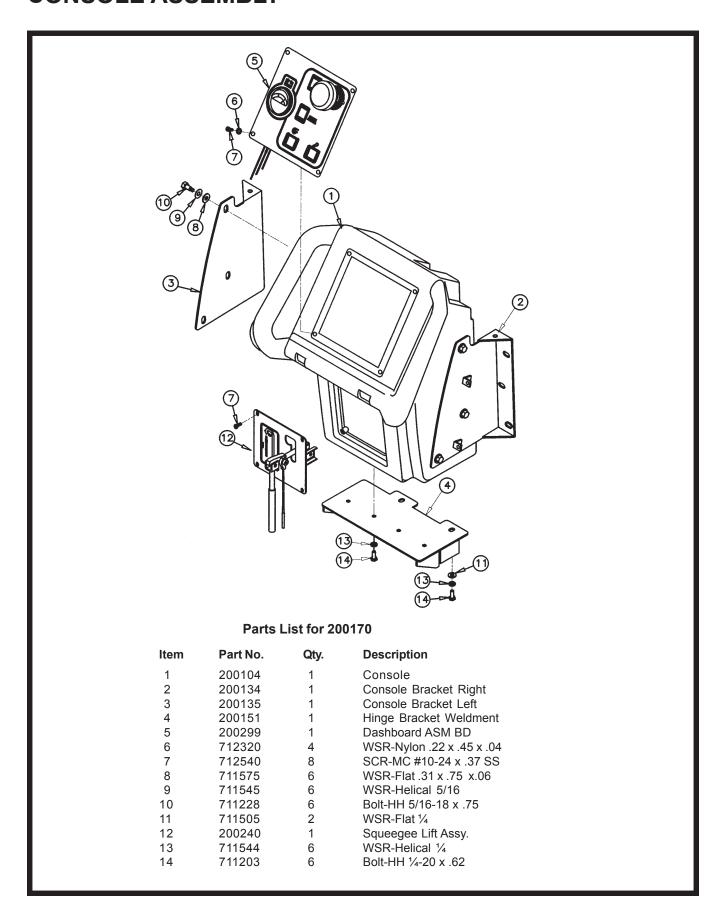
WSR-Helical 5/16

Console Back Cover Weldment

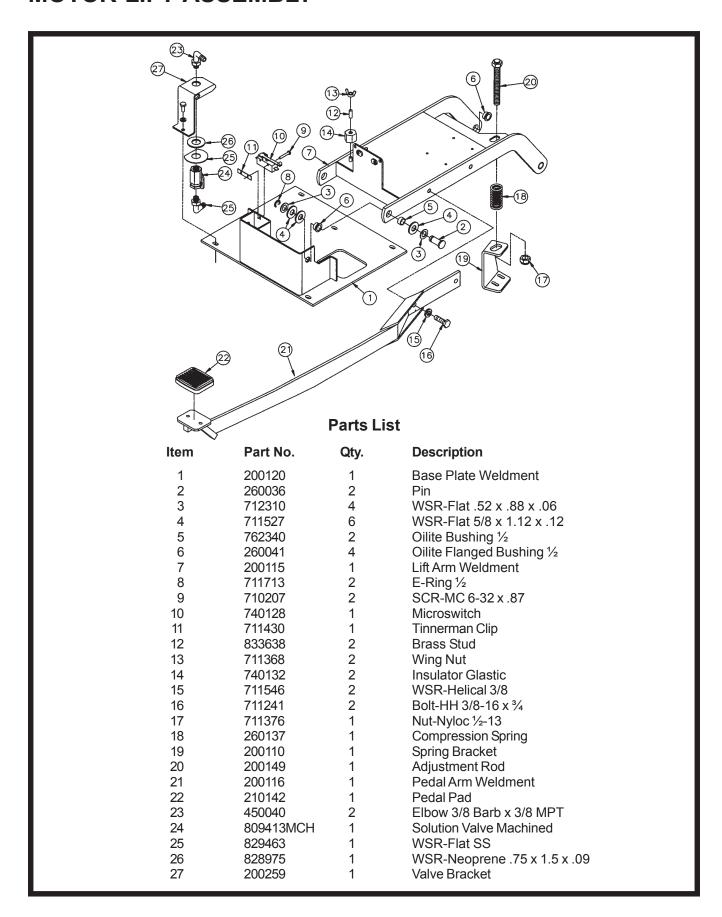
Vacuum Recovery Hose

WSR-Flat 5/16

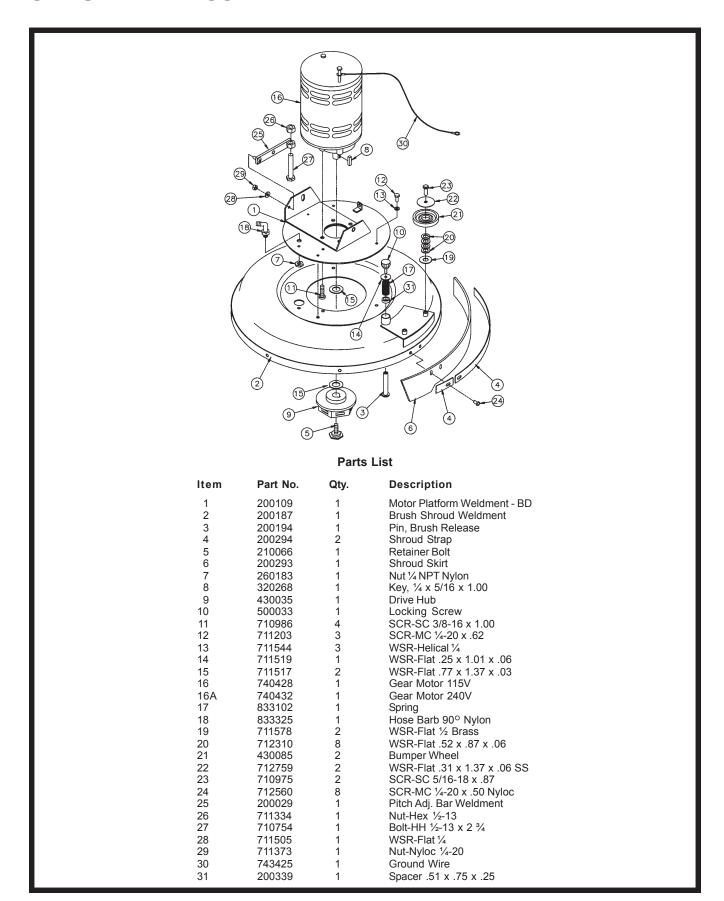
CONSOLE ASSEMBLY



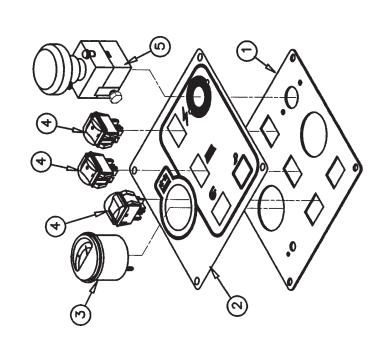
MOTOR LIFT ASSEMBLY



SCRUBHEAD ASSEMBLY



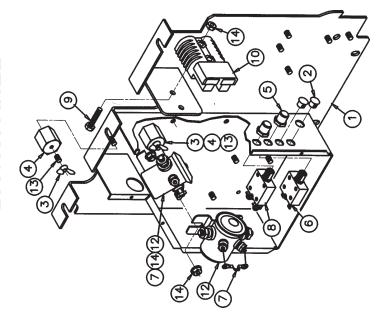
DASHBOARD



Parts List for 200299

Description	Dashboard Plate	Decal 200 Dashboard	Battery Gauge	Switch Dreefs	Disconnect Switch 125A	Switch Boot
Qty.	_	_	_	က	_	က
Part No.	200179	715283	740216	740711	742202	740811
Item	_	7	က	4	2	9

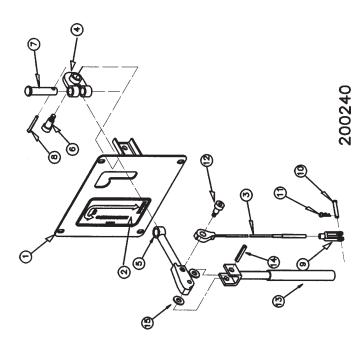
BACK PANEL



Parts List for 200265

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-Nut 1/4-20
Qty.	_	7	7	2	7	_	7	_	2	_	_	7	7	9
Part No.	200124	742749	711368	740132	742748	740247	742000	740549	711210	740159	743260	788147	833638	711425
Item	_	7	က	4	2	9	7	œ	o	10	7	12	13	4

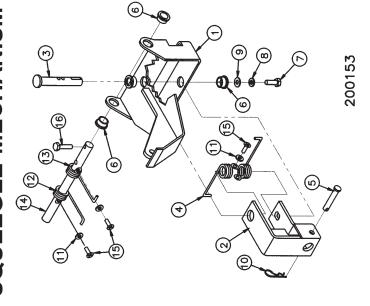
SQUEEGEE LIFT



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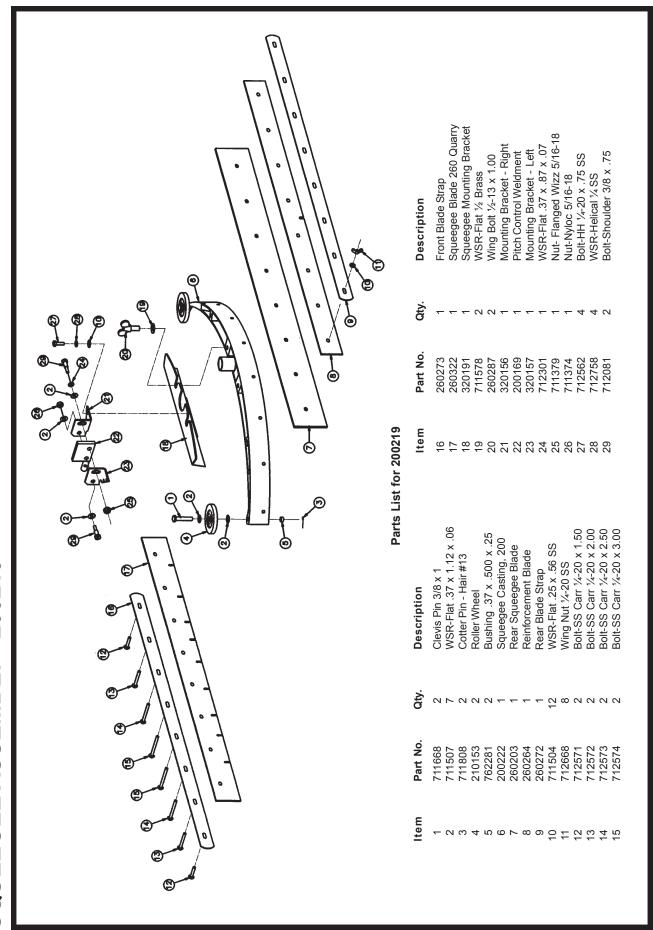
Description	Panel Cover Weldment	Decal Squeegee Lift	Squeegee Lift Cable	Inner Arm Weldment	Arm Squeegee Lift Weldment	Bolt, Shoulder 5/16 x .75	Clevis Pin 3/8	Cotter Pin 7/64 x 1"	Yoke	Clevis Pin 5/16	Cotter Pin #13	Bolt-Shoulder 5/16 x .44	Handle Weldment	3/16 x 1.00 Roll Pin	WSR-Flat 1/4, SS
Qty.	~	_	_	_	_	_	_	_	_	_	_	_	_	_	^
Part No.	200239	715603	200241	200261	200017	712070	831965	809311	881009	881002	711808	712041	200038	711642	711504
Item	_	7	က	4	Ŋ	9	7	∞	о	10	1	12	13	4	5

SQUEEGEE MECHANISM

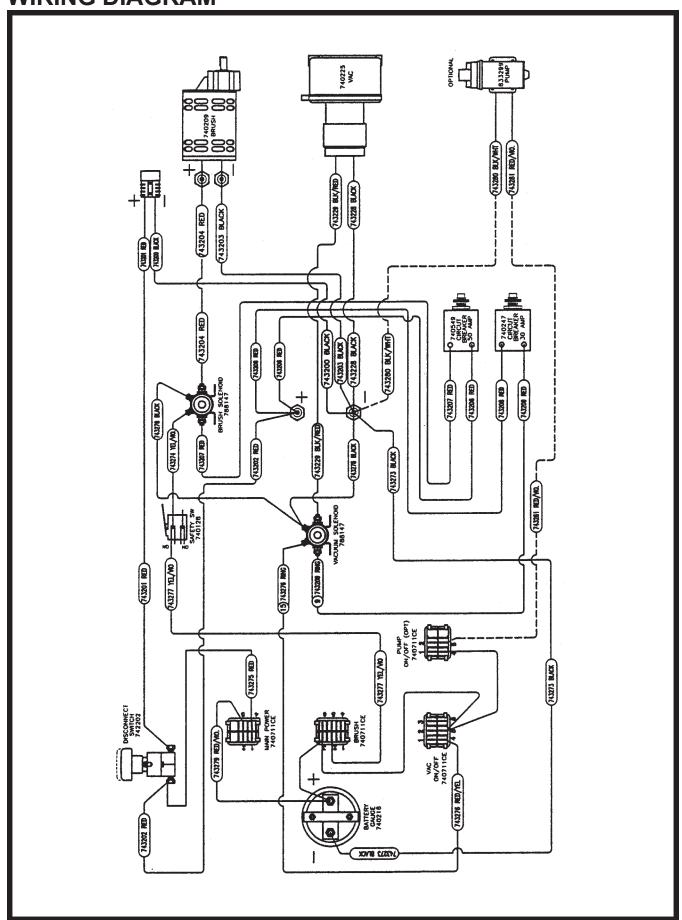


Parts List for 200153

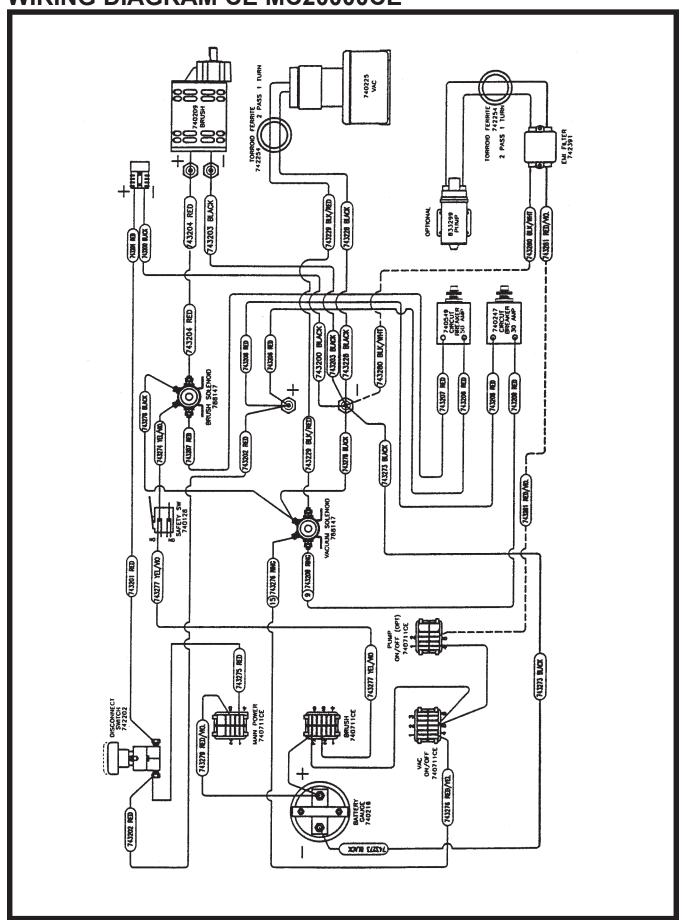
Item	Part No.	Qty.	Description
~	200144	_	Spring Housing Weldment
2	200300	_	Yoke Weldment
က	210375	_	Swivel Pin
4	210391	2	Return Spring SS
2	210415	_	Clevis Pin .31 x 1.7 11-097
9	260041	4	Oilite Flange Bushing
7	710180	_	SCR-MC 1/4-20 x .75 ST PL
∞	711544	_	WSR-Helical 1/4
6	711519	_	WSR-Flat .25 x 1.01 x .06
10	711808	_	Cotter Pin - Hair #13
7	712320	7	WSR-Nylon .22 x .45 x .04
12	080006	_	Spring, Torsion RH
13	900081	_	Spring, Torsion LH
41	200159	_	Pin
15	712536	4	SCR-MC 10-24 x .62 SS
16	712564	_	BLT-HH 1/4-20 x 1.00 SS



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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