

# User Manual Admiral 40 Sweeper/Scrubber



PowerBoss, Inc.  
A Member Of The Hako Group

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Please be advised explicitly that we cannot accept any legal claims out of the contents of this manual.

If repair work has to be performed, make sure that only genuine spare parts are used; only genuine parts may guarantee a dependable machine. PowerBoss, Inc. reserves the right to make changes without notice.

Valid as of Oct. 2001 on.  
Chassis number 758002.1.0571.5

PowerBoss, Inc.  
175 Anderson Street  
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Phone (910)944-2105 USA

Thank you for purchasing the Admiral 40, It's our desire that the good characteristics of the Admiral 40 should justify the confidence you demonstrated by making this purchase. We did our best to supply you with an efficient and dependable machine. Before the first operation of your new machine please read these instructions carefully. The manual will inform you in detail about operation of the machine and provides valuable information about service and maintenance. The symbol  as used in this manual identifies items relevant to safety. Please make sure to pass all safety instructions to other operators.



**Caution:** Prior to first operation of this machine, read the manual carefully and strictly comply with the instructions contained. Please also refer to the General Safety Provisions (page 4).

## Proper use

The Admiral 40 is an automatic scrubber with optional vacuum sweeper for large areas, designed exclusively for dry and wet cleaning of hard floors.

Any use of the unit beyond that field of application shall be deemed to be improper use; the manufacturer cannot be held responsible for damages resulting therefrom.

Proper use also includes that the operating, maintenance and repair conditions specified by the manufacturer are adhered to.

The Admiral 40 may be used, serviced and repaired only by persons who are familiar with the unit and who have been informed of possible hazards.

The appropriate provisions for prevention of accidents as well as the other generally acknowledged regulations referring to safety and health at work must be complied with.

If modifications to the machine are made without the manufacturer's prior consent, the latter cannot be held liable for damage resulting from such unauthorized modifications.

**Note:** the vacuum sweeping attachment (if installed) is designed for CAT U; it is not designed for sweeping and collecting dusts hazardous to health. The Admiral 40 is not licensed for use on public roads.

## Acceptance of the machine

Right away after receipt of the machine, check your consignment for possible transit damage, which will be refunded to you. have the freight forwarder confirm such damage right away. Mail this confirmation and waybill to;

**Warranty Dept.  
PowerBoss, Inc.  
175 Anderson Street  
Aberdeen NC 28315 USA**



## General Safety Provisions

Apart from the instructions contained in this manual, the general safety instructions and accident prevention regulations, as provided by law, must be complied with. Do not put the operating instructions aside without reading them, even if you have used similar machines before. Take time to read them now and save time later. Make yourself familiar with all accessories and controls, as well as their function, before you start working. Take time now to save time later.

Operators have to run the machine within its design limits. When driving the machine, account for local conditions, and watch out for other persons, in particular for children. Keep clear of hazard zones. Warning and instruction stickers attached to machine contain important information about safe operation. Before commencing work, the operator has to make sure the machine and its accessories are in proper and safe condition.

Machines with known defects must not be used. It is important to make yourself familiar with all controls, their function, and "where they arrive", before running the machine.

Avoid the trouble of having to read this book while trying to run the machine.

### Operation

Floor sweepers may be run by skilled personnel only; such personnel will have to have evidenced their qualification for running the machine to the owner or his authorized representative; operators explicitly will have to be instructed by the owner or his authorized representative to use the machine.



Only such areas may be treated with the floor sweeper that have been so designated by the owner or his authorized representative. Never leave the machine unattended, with the motors running. The operator may leave the machine only after having stopped the motor and after having secured the machine against unintended movement. To avoid the risk of unauthorized use, pull the key.

Stop motor when transporting. When driving the machine, account for local conditions, and watch out for other persons, in particular for children.

Use only cleaning agents suitable for automatic machines (low-foaming), and adhere to the instructions for use, disposal and to precautions specified by the cleaning agent's manufacturer. The machine has not been designed for collecting dusts hazardous to health.

When collecting dusts hazardous to health (e.g. heavy metals), the applicable dumping provisions of Trade Associations must be complied with. The machine must not be used under explosive ambient conditions.

Before commencing any repair-, servicing- and cleaning work, pull key. Before working on the electrical system, disconnect battery plug.

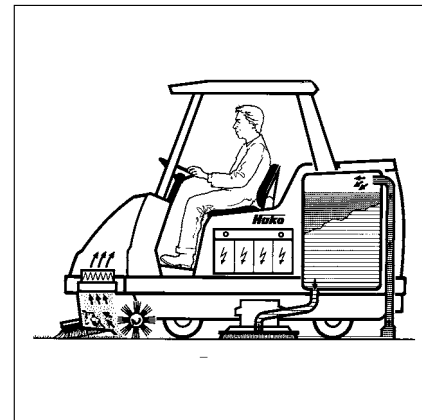
No passenger transport admitted! Machines equipped with a driver's seat may be started by person seated only (safety contactor under seat).

The machine is drip-proof. Proper maintenance of the machine will be a good approach to accident prevention. Use adequate tools for maintenance, servicing and adjustment work. As far as aspects of safety are concerned, spare parts at least will have to reach the level of genuine parts. Safety installations, locks and other safety equipment preventing possible hazards will have to be inspected by an authorized expert before first operation, and thereafter in regular intervals (we recommend to perform such inspections not less than once a year), and after modification or important repair actions.

### **Safety recommendations for handling batteries**

Refer to detailed instructions issued by the battery manufacturer. Such instructions will have to be accessible to the operators all the time. Never leave batteries in low charge condition, but recharge as soon as possible. Top with distilled water only. Never top good cells with battery acid. To avoid leakage currents, keep batteries clean and dry, protect against contamination, e.g. metal dust.

Never put metal parts, such as tools on batteries to avoid hazards of short-circuit or deflagration. Spilled (straight) battery acid must not get into the sewer; neutralize before draining. Comply with local requirements and regulations imposed by law. Battery acid is extremely caustic (keep out of the reach of children). Wear goggles when checking the acid level. If splashes of acid gets into your eye, flush with tap water for 15 minutes and see a doctor right away. When handling batteries, use adequate protective equipment, e.g. gloves or fingerstalls. Never use open flames when handling batteries, in particular when checking the acid density (explosion hazard).



### **Sweeping Principle Of the Admiral 40**

The Admiral 40 works by the tandem principle. In the dry area in front of the scrubber, its optional vacuum sweeping attachment sweeps debris free of dust, thereafter it vigorously scrubs the floor (wet) with its scrubber. A squeegee located under the rear end of the machine will extract the dirty water into a dirty water recovery tank.

### **Vacuum sweeping attachment (optional)**

Collects garbage in the dry area in front of the scrubber. Both side brushes sweep the debris into the sweeping brush's path. Fine dust is collected by a vacuum motor and held back by a filter. Nothing but clean air will leave the machine. The Admiral 40 with the vacuum sweeping attachment installed complies with CAT U (BIA), vacuum sweeper and filter are easily accessible for maintenance.

### **Scrubber**

High cleaning power by disc-type brushes; no tools necessary for replacing brushes. Depending on type of floor and soilage, brush load is adjusted electrically. Brush lift automatically interrupts water supply and rotation of brushes.

An optional side scrubber is available for working close to walls. This side scrubber is located on the right side of the machine and is retractable.

### **Extra-large squeegee in pendulum-type suspension**

High suction power removes dirty water even from uneven floor and during turning. Floor is left dry and ready to step on. Automatic lift for reverse travel.

## **First Operation**

First operation of the Admiral 40 should be performed by a representative of your local PowerBoss distributor. Right away after shipping of the machine, the local distributor is advised and will get in touch with you to make a date for training.

## **Battery charge condition monitor**

The Admiral 40 is equipped with a charge condition monitor to preclude poor battery charge conditions. That charge condition monitor is part of the electronic system and adjusted by the factory as required for PzS batteries (Displayed number: 5).

If different batteries are used, the low voltage sender will have to be set for such batteries.

**Note:** The low voltage sender should be set by a PowerBoss service center only

## **Battery / charger**

Tray-type battery, 36 V/640 Ah5, PzS: Low-maintenance drive battery in steel tray, includes water refill system and cable harness.

### **Battery charger**

**36 Volts / 36 Amps:** characteristic IULa.

Power supply 120 VAC.

## **Installation / removal of tray-type battery**

Battery installs as follows:

- open left and right doors
- swing seat structure forward
- introduce tray-type battery with a hoist or forklift from the left, as shown.



**Note:** a slot (arrow) is machined in the hard-top (optional) that allows to install the battery.

- connect plug connectors (battery and machine).  
Reverse above order for removal.

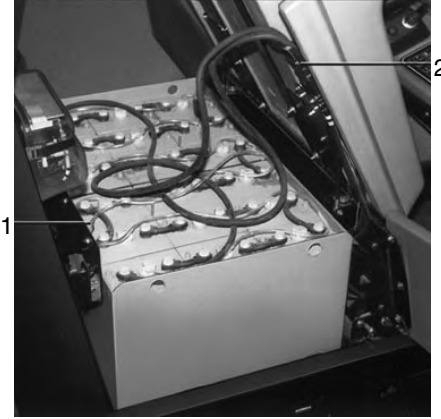
**Note:** as shown, hold seat structure (hood) at its handle on the right, to avoid squeezing your hands between hood and hard-top.

**Coding for plug connectors**  
Instructions for coding the battery-, machine- and chargerplugs see last pages.



### Tray-type battery

The tray-type battery is equipped with a water refill system and a power cable with plug connector. Topping is performed through a coupling (1) with the water dosing attachment (optional). "Aquamatic" plugs on the battery cells will maintain the right electrolyte level.



- 1 coupling for water refill system
- 2 battery plug.

### First use of battery

For details about first use of the battery refer to the documentation shipped with every battery. This documentation also contains valuable information about care and maintenance.

More details see leaflet 88-60-2556 "Hints for drive batteries".



For working on the electrical system disconnect battery plug.

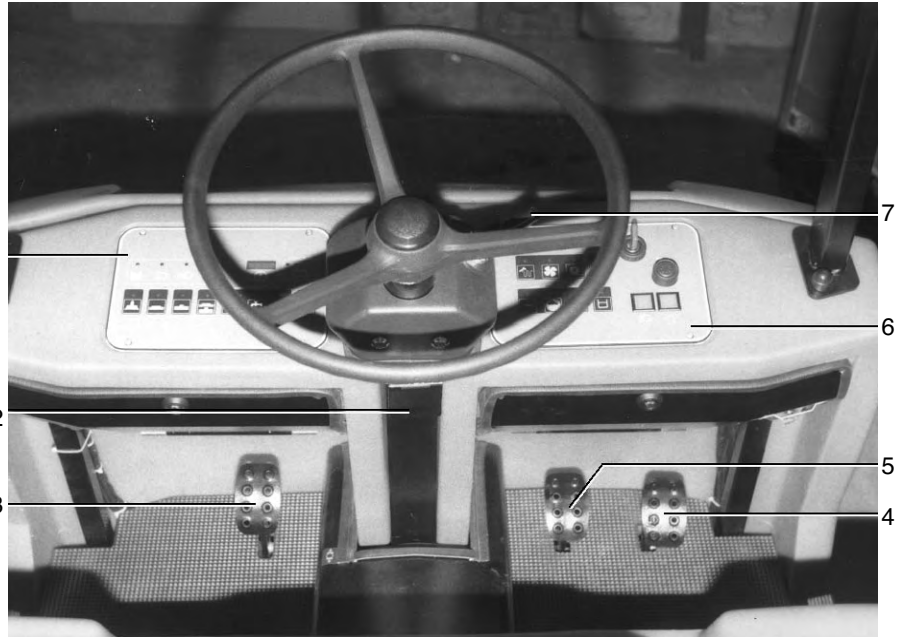
Never use open flames when handling batteries, in particular when checking the acid density (explosion hazard).

The charging area must be well ventilated. Spilled (straight) battery acid must not get into the sewer; neutralize before draining, i.e. dilute with water or use granules. Comply with local requirements and regulations imposed by law (for more details refer to page xx).

#### Basic charging of batteries

To achieve an optimum output and a maximum service life, the batteries must be given a basic charging after being filled. The method of operation of the battery charger is described in detail in the instruction manual supplied with each charger.

**Note:** Battery and charger are matched items; please do not use but chargers and batteries recommended by us. Do not take the risk of voiding your full warranty.



- 1 control panel "A"
- 2 parking brake release knob
- 3 parking brake
- 4 accelerator pedal (forward & reverse)

- 5 service brake
- 6 control panel "B"
- 7 direction flasher

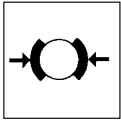


# Operation

## Controls

### 1 Control panel "A"

for more details about keys on this panel, refer to this page.



### 2 Parking brake release knob

to release the locked parking brake.  
How do: slightly depress pedal, depress release knob, release pedal.

### 3 Parking brake pedal

to actuate the parking brake on the rear wheels. Before leaving the machine, lock parking brake and set the forward / reverse selector to neutral. Pilot light 3 in control panel A turns ON. A buzzer will sound when the forward / reverse selector is actuated.

### 4 Accelerator pedal

to continuously adjust traveling speed. Before depressing the accelerator pedal, select direction of travel with forward / reverse selector (I/9).

Forward / reverse travel:

= slowly depress forward end of accelerator pedal;

= release pedal; it will return to neutral by itself; speed will decrease; machine slows down to standstill. To definitely stop machine, actuate service brake. Traveling speed is 5 mph (8 kmh) forward and 2.5 mph (4 kmh) approx. reverse. Working speed with brushes, squeegee and sweeping attachment ON is 4.35 mph (7 kmh) approx.

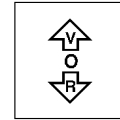
**Note:** a buzzer will sound if a thermal overload condition of the motor is detected, and a pilot light (4) in control panel A turns ON, traveling speed is reduced by 50 approx. percent, the same time an error code appears in the service display.

### 5 Service brake

to actuate the hydraulic drum brake on the rear wheels.

### 6 Control panel B

for more details about keys and pilot lights refer to page 12.



### 7 Direction selector

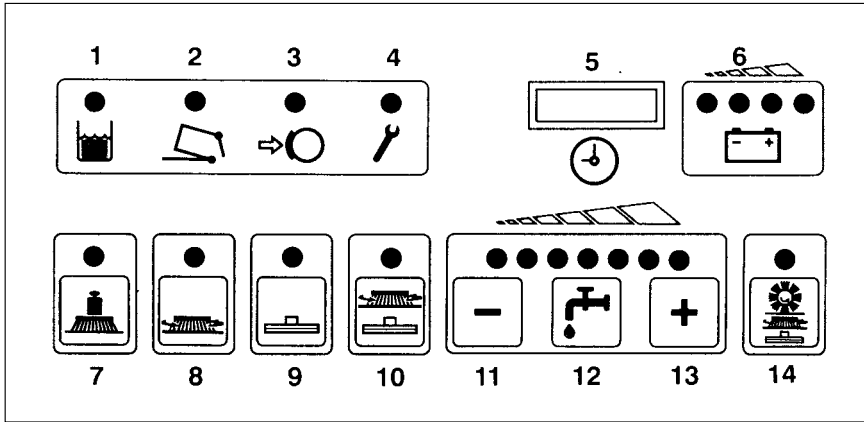
to select direction of travel.

stick forward = forward travel

stick "0" = neutral

stick back = reverse travel.

Before changing direction, slow down the machine with its service brake, select new direction and start traveling again.



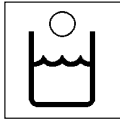
## Control panels A and B

These control panels hold all keys for the electronically controlled cleaning programs. Individual functions may be activated / deactivated as needed. All keys are marked with easy-to-understand symbols. Green pilot lights in the keys confirm that these functions are active.

### Control panel A (lefthand)

- |   |  |
|---|--|
| <p>1 pilot light (YELLOW) for fill level (dirty water tank)</p> <p>2 pilot light (RED) for sweeping attachment's dirt hopper (optional)</p> <p>3 pilot light (RED) for parking brake</p> <p>4 pilot light (RED) for error message</p> | <p>7 key for changing brush load <input type="checkbox"/></p> <p>8 key for brush drive</p> <p><input type="checkbox"/> 9 key for squeegee and suction turbine</p> <p>10 key for brushes, squeegee / suction turbine</p> <p>11 key to decrease waterflow</p> <p>12 key for waterflow</p> <p>13 key to increase waterflow</p> <p>14 key for brushes, squeegee, suction turbine and sweeping attachment</p> |
|---|--|

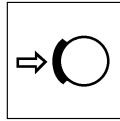
## Control panel A



- 1 Pilot lights (YELLOW) for max. fill level in dirty water tank** turns ON when max. fill level in dirty water tank is reached. A float switch will disconnect the suction turbine. A buzzer will sound every 15 seconds and the squeegee is lifted.



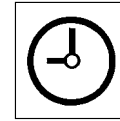
- 2 Pilot light (RED) for hopper and forward flap** turns ON when hopper is not locked in place or forward flap not closed completely.  
**Note:** the optional vacuum sweeping attachment is inop at this time.



- 3 Pilot light (RED) for parking brake** turns ON when the parking brake pedal (1/3) is depressed. A buzzer will sound when the travel drive motor is turned ON in this configuration.



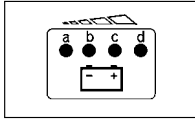
- 4 Pilot light (RED) for error message** turns ON if one of the following malfunctions is detected:
- thermal circuit breaker of brush- or travel drive motor responded
  - one or more fuses were blown or an electronic circuit breaker responded.
  - other defects
- the same time a 4-digit number (error code) appears in the service display (A/5), dots are blinking and a buzzer will sound.  
For more details refer to "hourmeter /service display".



- 5 Hourmeter / service display** to display hours run. The counter-won't work unless electric systems are ON, e.g. travel drive or brush motors, vacuum motor, or sweeping attachment. The same time a red dot will blink in the lower right corner of the display.

### Service display

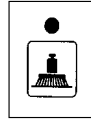
the service display is part of the hourmeter display. When turning the key switch to ON, a sequence of one or two 4-digit numbers appears, followed by the hourmeter display. For more details refer to page 63, key switch (B/19). In case of a malfunction during operation, a 4-digit number will appear in the service display, the dots blink and a buzzer sounds. Pages 42 - 44 contain error code tables for malfunctions you can repair yourself.  
If despite such action the machine should not work, denote error code and call your PowerBoss distributor.



## 6 Battery charge monitor

when turning the key switch to ON, all lights (b - d) will turn ON if battery is fully charged. As battery is discharged, lights b, c, d will dim, one after the other. The red light (a) flashing signals that the job should be com

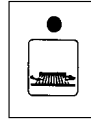
- after 3 minutes: brushes and sweeping attachment (if installed) will return to their neutral position
  - after 3 more minutes: vacuum motors are disconnected, squeegee is lifted. If red light stays on permanently, the machine may be disconnected totally after 1 or more minutes.
- Note:** We recommend to head for the charging station after the vacuum motors stop.



## 7 Key for changing brush pressure

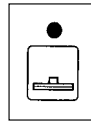
To increase brush pressure to 119 lbs (54 kg) max., if so required by the degree of soilage.

**Note:** working with high brush pressure means high brush wear. Use this key as needed only.



## 8 Key for brush drive

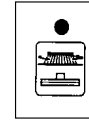
to turn brushes and waterflow ON/OFF; the same time brushes are lowered / lifted.



## 9 Key for vacuum motors and squeegee

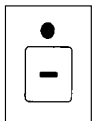
to turn the vacuum motors ON/OFF and lower / lift the squeegee @ the same time.

**Note:** when using extra tools for suction hose applications, depress this key. The operator must not be seated (seat contactor). In this configuration, the vacuum motors are turned ON, the squeegee remains lifted.



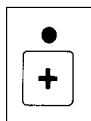
## 10 Key for brushes, vacuum motors and squeegee

to turn ON / OFF vacuum motors, brushes and waterflow, as well as for lowering / lifting brushes and squeegee, all the same time.



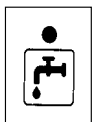
### 11 Key to decrease waterflow

to reduce waterflow to the brushes. Waterflow can be reduced in seven steps from 2 US gal to 0.34 US gal (7.5 - 1.3 litres) per minute. One lamp equals 1 step. The last step used is saved (last-station-memory).



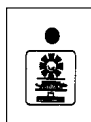
### 13 Key to increase waterflow

to increase waterflow to the brushes. Waterflow can be increased in seven steps from 0.34 US gal to 2 US gal (1.3 - 7.5 litres) per minute. One lamp equals 1 step. The last step used is saved (last-station-memory).



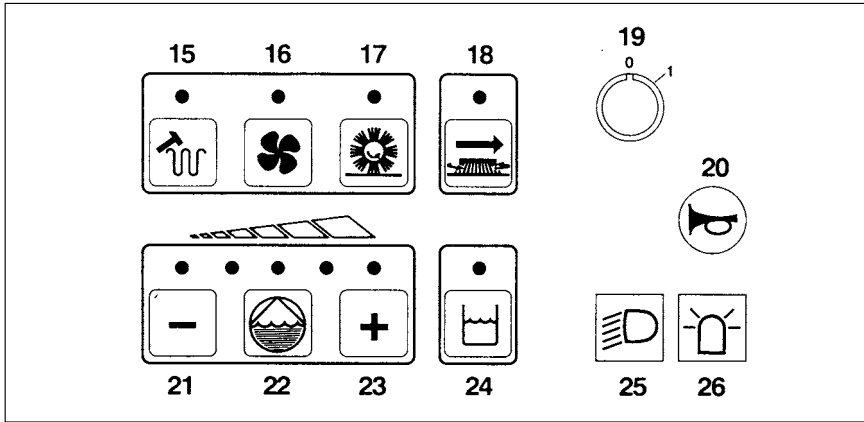
### 12 key for waterflow

this key turns waterflow ON and OFF. When activating the scrubber program, automatically about 0.92 US gal (3.5 litres) will flow per minute. This basic flow or such flow-rates as set with the #7 & 9 keys may be turned ON/OFF with this key, when the brush head is lowered.



### 14 Key for vacuum sweeping attachment, brushes, vacuum motors and squeegee

this key turns ON/OFF the sweeping attachment, brushes, suction motors and waterflow all at a time; sweeping roller, side brushes, brushes and squeegee are lifted / lowered either.

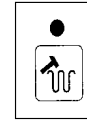


### Control panel B (righthand)

- 15\* key for filter shaker in vacuum sweeping attachment)
- 16\* key for vacuum motors in vacuum sweeping attachment
- 17\* key for vacuum sweeping attachment (optional)
- 18\* key for side scrubber (optional)
- 19 key switch
- 20 horn button
- 21\* key for decreasing detergent dosage
- 22\* key for detergent dosing attachment (optional)

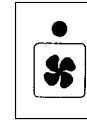
- 23\*\* key for increasing detergent dosage
- 24\*\* key for dirty water purification system (optional)
- 25\* switch for searchlight (optional)
- 26\* switch rotating beacon (optional)

- \* these keys are inop unless the respective option is installed.
- \*\* When actuating, "OP" will appear in the hourmeter display, in case the option isn't existing.



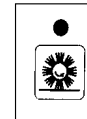
### 15 Key for filter shaker

to shake the filter system (filter panels); dust falls into the vacuum sweeping attachment. When activating, 3 interval shaking cycles (for 6 approx. seconds) will be started. This action may be discontinued by turning the key switch ON/OFF (RESET) or by depressing the #15 key once again.



### 16 Key for vacuum motors

to turn the vacuum motors for the sweeping attachment's filter plant ON/OFF.



### 17 Key for vacuum sweeping attachment

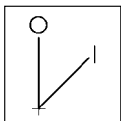
to turn the sweeping attachment ON/OFF



### 18 Key for side scrubber

to turn ON/OFF and lower/lift the side scrubber (optional).

**Note:** side scrubber won't turn ON unless the brushes are working.



### 19 Key switch

to turn the electrical system ON/OFF and protect the machine against unauthorized use.

When turning ON, the following sequence of information will appear in the hourmeter display:

- software status for 1 approx. second, e.g.

3.	0	1	5
----	---	---	---

- last error found, for approx. 2 seconds (points blink), e.g.

1.	2.	6.	1.
----	----	----	----

**Note:** if a defect is still existing, a buzzer sounds and the red display (A/4) turns ON.

- hours run, e.g. during operation, the dots will blink.

0	2	1	5.
---	---	---	----

**Note:** on factory-new machines, the display may read when the key switch is turned to ON.

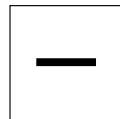
9	9	9	9.
---	---	---	----

This is an internal control code; display will change to 0 hours after not more than one hour. The Admiral 40 is serviceable with this display. Error display is active.



### 20 Horn button

to actuate the horn.



### 21 Key for decreasing detergent dosage

to decrease dosage (mixing ratio).

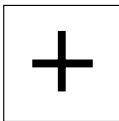
**Note:** keys 21 - 23 are used for the optional detergent dosing attachment.



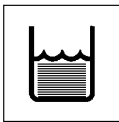
### 22 Key for detergent dosing attachment

to turn the detergent dosing attachment ON/OFF (optional).

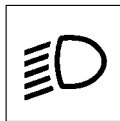
**Note:** the dosing attachment cannot be activated unless waterflow has been turned ON before.



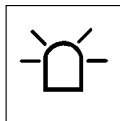
**23 Key for increasing detergent dosage**  
to increase dosage (mixing ratio)



**24 Key for water purification system**  
to activate the water purification system. The pump in the freshwater recirculating line is turned OFF. Water purification is an option.



**25 Switch for searchlights**  
to turn searchlights ON/OFF.  
Will work without key switch either.  
Searchlights are optional.



**26 Switch for rotating beacon**  
to turn rotating beacon ON/OFF.  
Will work without key switch either.  
Rotating beacon is optional.



## How to run the Admiral 40

The driver is requested to carefully read this operator's manual. All controls are marked with easy to understand symbols that ease familiarization. First driving attempts should be limited to an area that is free of obstacles until you are familiar with all controls.



### Please comply with the following safety provisions:

When operating the Admiral 40, take all safety precautions that are standard for self propelled machines.

Passenger transport on the Admiral 40 is prohibited.

Warning and instruction stickers attached to the Admiral 40 contain valuable information for safe operation.

Prior to operating, inspect the Admiral 40 and its attached systems for proper condition, to include operational safety.

Never run the Admiral 40 without adequate protective equipment

## Adjusting driver's seat

Adjust seat to that driver is seated comfortably an can reach all control sat ease.

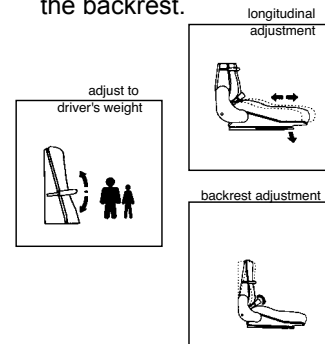
The Admiral 40 driver's seat adjusts as follows:

longitudinal: push lever on the right side of the seat outboard, slide seatback in 0.6" (15 mm) increments.

adjust seat to driver's weight:

rotate lever in upper right corner of backrest. Lever up = low weight, lever down = heavy weight.

adjust backrest: adjust inclination wanted with hand wheel located at bottom right end of the backrest.





### **Driving the Admiral 40**

Getting started;

- Disconnect battery plug from charger and connect to machine.

**Note:** before connecting make sure, key switch is OFF.

- Driver must be seated

**Note:** machine uses a safety contactor under the seat.

Turn key switch ON

- Select direction of travel (forward)

- Release parking brake slowly depress accelerator pedal until reaching the speed wanted.

### **Towing the Admiral 40**

Should the Admiral 40 ever need to be towed, make sure you move it on level floor and with a max. speed of 1.9 mph (4 kmh). Attach cable to pull rings located at the front end.

- Accelerator (returns to neutral by itself)
- Slow down machine with service brake.
- Turn key switch to OFF and remove key.
- When leaving the machine Apply parking brake and remove key.

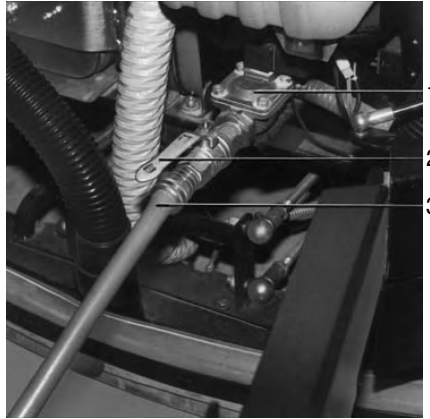
### **Sweeping and scrubbing with the Admiral 40**

Fill solution tank (on the right, in direction of travel) as follows:  
by the automatic filler

**Note:** please comply with the regulations of your water works. IAW DIN 1988 the machine must not be connected to the public water supply directly, in order to protect the water against intrusion of chemicals. The machine however may be connected for a short period of time IAW DVGW if a non-return valve with pipe ventilation is used. EA 2 or EA 3 shut-off valves have to be used.



- open rear doors and rear fairing of chassis



- connect 3/4" filler hose (3)
  - open ball cock (2)
  - depress button for solenoid valve (1) underneath suction turbines\*
  - open tap (max. water temperature 122° F (50° C))
  - float switch in tank will close the solenoid valve (1= automatically when fill level is reached)
- Note:** check float switch for contamination in regular intervals.

\* key switch may be OFF

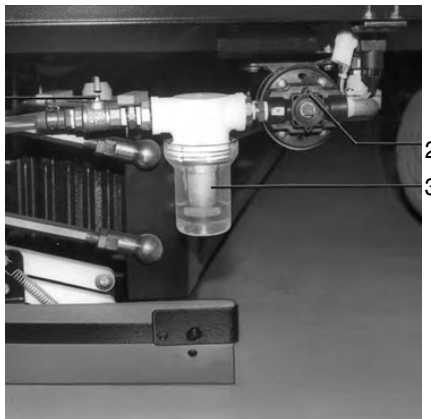


- close ball cock (2) and tap
- disconnect filler hose, close rear fairing and doors
- swing tank lid open and secure as shown
- add detergent per suppliers instructions
- close tank lid

## b) Manual tank filling

- swing tank lid open and secure in place
- fill solution tank (on the right, in direction of travel) with water (122° F / 50° C max.) and add detergent IAW manufacturer's specifications. Fill level: upper edge of flex partition (arrow)  
Max. capacity: 82 US gal (310 litres)
- close tank lid

**Note:** use low-foaming detergents for automatic machines only. We recommend to use our cleaning agents, formulated for the PowerBoss. These products comply with the provisions of the Detergents Act (WRMG). Use only recommended amounts. Correct dosage saves money and protects the environment. Heavy foaming will affect machine function. It is a sign of overdosage or improper matching with the actual degree of soilage. Non-consumed detergent in the dirty water will cause this foaming.



- 1 ball cock
- 2 water pump
- 3 filter

More details about dosage are printed on the detergent pack. Use these figures for a first try. You soon will find the right detergent for you needs and its right dosage.

- Solution Flow to the brushes: solution flow automatically starts with the scrubbing program. If needed, solution flow may be stopped by closing the ball cock (1) by hand.  
The solution line holds a strainer (3) that has to be cleaned when dirt is visible in the bowl.

For this purpose close the ball cock (1) to avoid leakage

- unthread bowl by hand, remove filter screen by pulling it down;
- clean both parts with water and reinstall.












## Range on one tank fill (flex-partition model)










at approx. 0.5 US gal (2 litres)  
per minute = 155 minutes  
at approx. 1 US gal (4 litres)  
per minute = 77 minutes  
at approx. 1.85 US gal (7 litres)  
per minute = 44 minutes.



## Sweeping, wet scrubbing, vacuum drying

- drive Admiral 40 as described on page 18
- select a cleaning program on control panel A.

Some examples overleaf.

Cleaning Program	Key	Symbols
<b>A</b> sweeping (if sweeping attachment installed) – wet scrubbing – dry vacuum cleaning →	14	
Depending on the type of mission, the following functions may be activated or deactivated <ul style="list-style-type: none"> <li>● dust extractor fan ON/OFF → (disactivate on wet floor)</li> <li>● increase solution delivery →</li> <li>● reduce solution delivery →</li> <li>● solution delivery ON/OFF →</li> <li>● increase brush pressure →</li> </ul>	16  13  11  12  7	    
<b>B</b> wet scrubbing – dry vacuum cleaning →	10	
Depending on the type of mission, the following functions may be activated or deactivated <ul style="list-style-type: none"> <li>● increase solution delivery →</li> <li>● reduce solution delivery →</li> <li>● solution delivery ON/OFF →</li> <li>● increase brush pressure →</li> </ul>	13  11  12  7	   

Cleaning Program (control panel "A")	Key	Symbol
<b>C</b> sweep (if vacuum sweeping attachment installed) →	17	
Depending on the type of mission, the following functions may be activated or deactivated <ul style="list-style-type: none"> <li data-bbox="124 262 1102 322">● dust extractor fan ON/OFF → (disactivate on wet floor)</li> <li data-bbox="124 351 1102 385">● actuate filter shaker (once a day normally) →</li> </ul>	16	  
<b>D</b> wet scrubbing (basic cleaning) →	8	
Depending on the type of mission, the following functions may be activated or deactivated <ul style="list-style-type: none"> <li data-bbox="124 553 1102 613">● water delivery ON/OFF → (disconnect solution delivery for soaking)</li> <li data-bbox="124 642 1102 665">● increase solution delivery →</li> <li data-bbox="124 694 1102 716">● reduce solution delivery →</li> <li data-bbox="124 757 1102 779">● increase brush pressure →</li> </ul>	12  13  11  7	      
<b>E</b> dry vacuum sweeping	9	

Cleaning Program	Key	Symbols
<b>F</b> suction hose (optional)   <b>Note:</b> the vacuum motor switch ON if contactor under driver's seat is not actuated. The squeegee is in "lift up" position.	9	

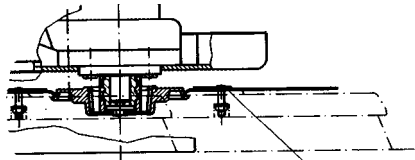
## Brushes

Depending on dirt accumulation and floor quality, the Admiral 40 has to be fitted with the right sort of brushes out of our accessory program.

**Note:** the brushes are equipped with a water control ring in the factory; this ring will reduce water consumption during scrubbing significantly.

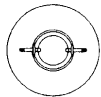
We recommend:

brush: degree of soilage	bristles	P/N	qty.
light/medium	plastic PPN 0.5	7587	2
light/medium, textured floor	plastic, K 901	7589	2
medium/heavy	plastic PPN 0.8	7588	2
heavy soilage and basic cleaning	SIC PA 6, grain 180, grey	7590	2
extreme soilage and basic cleaning	SIC PA 6.12, grain 120, green	7591	2
Super-Pads with pad-holder: type of cleaning	colour		
upkeep cleaning	brown	7594	2
basic cleaning and heavy soilage	black	7595	2
requires use of center-lock pad-holder		7592	2

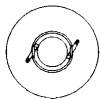


sketch A

1



**sketch B**  
lock engaged



lock open



### Attach brushes

prior to attach / detach brushes, make sure, key switch if OFF.

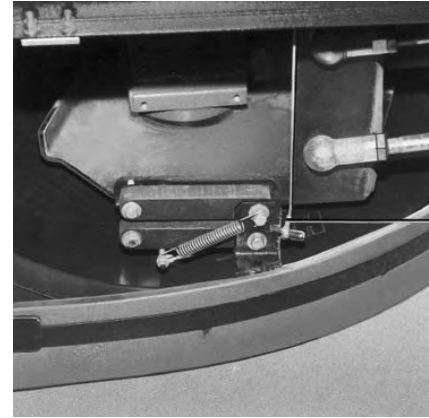
### Attach the brush lock

Attach the brush lock which is in the enclosed bag as shown in sketch A (1) at the brushes.

- swing up lower side fairings on both sides
- refer to picture and slide brush under brush head. Lift brush, turn until in gear, pull up until all 6 pawls positively catch the drive plate (to make sure, turn brush by one revolution)
- engage lock on brush (refer to schematic drawing).

### Attach thrust plate with pad

- invert thrust plate, press pad on adhesive side, secure with center-lock.
- engage thrust plate with pad in drive plate as described for "attach brushes", positively catch.



1

### Deflector strips on brush head

deflector strips located on both sides of the brush head may be lifted as needed, e.g. for basic cleaning without immediate extraction (soaking).

- hook-up cable (1) when brush head is lifted, as shown.

**Note:** for all cleaning jobs with immediate extraction, this cable has to be off hook so that the deflector strip is seated on the floor.



## Water tanks

The Admiral 40 is equipped with a flex partition that separates the dirty water and clean solution compartments. This design allows to store a full 82 US gal (310 litres) of fresh water. The Dirty water is sucked into the dirty water recovery compartment through the squeegee by a vacuum. A float switch located at the upper end of the dirty water compartment will disconnect the suction motor automatically as soon as max. fill level is reached (pilot light 24 in control panel B turns ON and a buzzer sounds).



- 1 drain hose for dirty water
- 2 drain hose for suds

## Drain dirty water tank

- open rear doors (both sides) and rear fairing of chassis. Detach drain hose (1) from hook, swing down slowly, open valve (twist). Flow rate can be adjusted by twisting the valve.
- close valve completely, put drain hose on hook

**Note:** when the job is complete, drain and rinse the dirty water tank. Drain hose valve should be cleaned in regular intervals. Lubricate O-ring as required. Comply with regulations as imposed by law when dumping dirty water and suds.



- 1 door lock
- 2 cleaning door
- 3 splashguard

## Clean dirty water tank

- open rear doors (both sides) and rear fairing of chassis
- drain dirty water tank
- pull splashguard (3) in place
- open door lock (turn wingnut CCW)
- open cleaning door
- flush dirty water tank through open tank lid

- when job is complete, close cleaning door (2)
- push splashguard (3) back
- close rear fairing of chassis and doors.

**Note:** do not use the cleaning door for draining dirty water.

Never clean the machine with a high-pressure water jet or steam jet, since temperature would exceed 212° F (100° C). For cleaning use a water hose (line pressure 5 - 6 bar), start working at the top end. Never direct the water jet against cutouts, slots, electronic modules, control panels and seals.

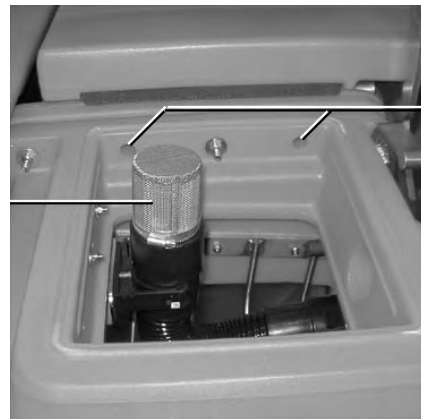
## Intake filter

the filter screen (1) are located at the top end of the dirty water tank, on the intake pipe, and above max. water level. Inspect these screen for contamination daily and clean as required. Remove screen from pipe by pulling and clean with water.

**Note:** for cleaning always remove the screen.

When cleaning the machine or during use do not let get water or particles of dirt into the intake pipe of the suction turbine. After cleaning the filter screen let it dry before inserting.

- inspect bores (2) to the suds tank for contamination and clean as required.



- 1 filter screen
- 2 bores to suds tank

## Drain suds tank

- open rear doors (both sides) and rear fairing of chassis. Detach drain hose (1) from hook, swing down slowly, open valve (twist). Flow rate can be adjusted by twisting the valve.



- 1 drain hose for dirty water tank
- 2 drain hose for suds tank

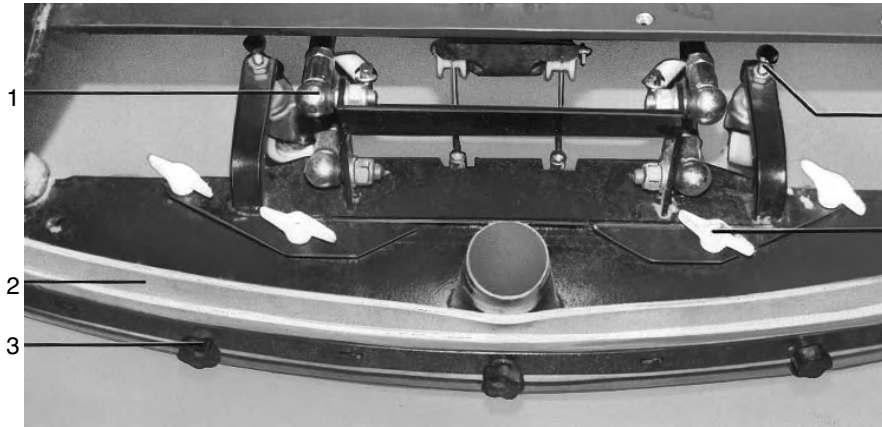
- close valve completely, put drain hose on hook
- close rear doors (both sides) and rear fairing of chassis.  
**Note:** drain hose valve should be cleaned in regular intervals. Lubricate O-ring as required.  
**Caution:** Comply with regulations as imposed by law when dumping dirty water and suds.

### Squeegee

The squeegee of the Admiral 40 oscillates in a pendulum-type suspension. The squeegee, which protrudes laterally, turns aside from obstacles in the track, and swings back after having passed by such obstacles. Before starting operation, remove foreign matter possibly sucked-in by the squeegee, and check it for proper condition. Casters support the squeegee and avoid excessive deflection of squeegee blades.

### Attach/detach squeegee

- lower squeegee (key 9, control panel A), turn key switch OFF, pull key
  - open rear doors (both sides) and rear fairing of chassis.
  - detach suction hose by pulling
  - unthread wingnuts (4)
  - lift squeegee (turn key switch ON), squeegee will be left on the floor
  - pull out squeegee to the rear
- Reverse above order for installation.



- 1 hinges for lift-out
- 2 squeegee blades
- 3 knurled nuts

- 4 wingnuts
- 5 casters, adjustable

## Adjust squeegee

Depending on conditions at site, the squeegee is adjusted on level floor.

The squeegee is seated on the floor (straight, as set by the factory). During operation of the machine, the squeegee blade slightly deflects to the rear.

Ground clearance of the squeegee itself is adjusted with the supporting casters (5). Loosen locknuts and uniformly increase ground clearance on both sides (turn screw CCW, secure with locknut).

Now the squeegee blade slightly deflects to the rear, when the machine moves.

Ground clearance has to be adjusted to compensate for blade wear.

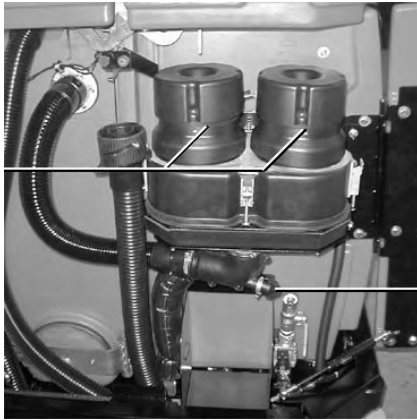
## Replace sealing strips

Squeegee blades (2) remove as follows (no tools required):

- lower and remove squeegee
- unthread knurled nuts (3)
- remove clamp-, backing- and squeegee blades by pulling off
- Note:** rear blades can be used both ways.
- remove front squeegee blades the same way

When installing squeegee blades, make sure, the blades touch the floor.

- uniformly tighten knurled nuts (3) beginning with the center nut (avoid warpage of the sealing strip)
- perform adjustment work as described in next paragraph.



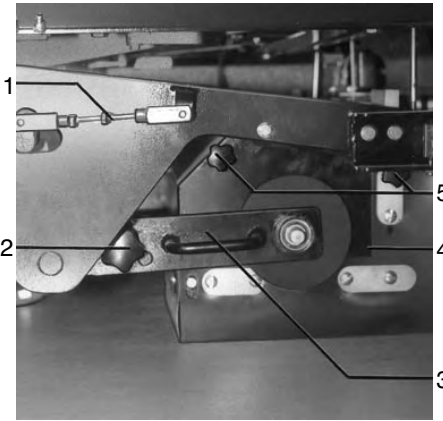
1 vacuum motors  
2 valve

## Extraction

Both vacuum motors are located on the rear wall of the solution tank and accessible by opening the rear doors. The vacuum motors (1) turn ON/OFF automatically when the squeegee is lowered or lifted. A float switch in the recovery tank will disconnect the vacuum motors when max. water level is reached. The valve (2) located at the suction hose is to be inspected daily and clean if required.

## Vacuum sweeping attachment (option)

The vacuum sweeping attachment is an option that maybe retrofited. Retrofit installation instructions are shipped with the sweeping attachment option. The present manual describes operation and maintenance only. The vacuum sweeping attachment is located in front of the scrubber and collects debris from the dry floor. Due to its sense of rotation, debris is swept into the sweeping path by both side brushes; the sweeping brush in turn will sweep the debris forward, into the hopper. The sweeping brush has 10 rows of bristles in helical arrangement.



### Dumping Hopper

- Open LH and RH locks (1) by pushing up (front hood should be closed)
- Hopper swings down
- Hold hopper with both hands (molded handles on both sides) and remove hopper by pulling it forward in its guide rails; dump hopper. Reverse above order for installation.

**Note:** Fit hopper in guide rails (hit stop), push up until caught by lock mechanism (audible click). If the hopper is not locked, the pilot light (2) in control panel A turns ON. Vacuum sweeping attachment will be inop.

1. Setting fixture for sweeping broom width
2. Knurled screw for sweeping brush arm
3. Sweeping brush arm
4. cover of sweeping roller housing
5. Knurled screw for sweeping brush housing cover

### Remove Sweeping Brush

Get access to the sweeping brush from the right and proceed as follows: lower sweeping brush (key 17, control panel B), turn key switch OFF, pull key; sweeper remains lowered swing-up RH door

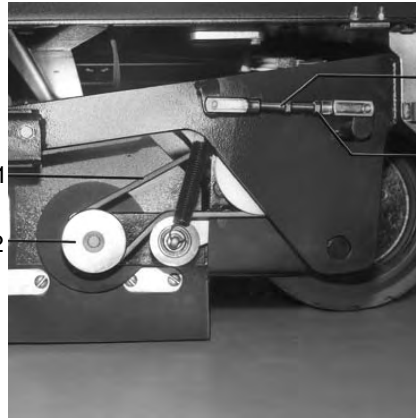
- unthread knurled screw (2)
  - remove sweeping brush arm (3) by pulling
  - unthread knurled screws (5)
  - lift cover of sweeping brush housing (4)
  - remove sweeping brush by pulling
- Reverse above order for installation.

## Check sweeping track width (parallelism)

A setting fixture on both sides allows fine-tuning for individual sweeping conditions. With regard to low wear and for normal missions, the sweeping brush should be adjusted as described below. Check brush setting on smooth floor:

- lower sweeping brush and run for a few seconds on the same spot
- lift brush, move the machine forward by a minor amount.

If sweeping brush setting is ok, parallel lines of sweep will appear on the floor. Its width should be; 1.18 - 2 inches (30 - 50 mm). High brush load delivers a wider track, at low brush load, width will decrease.



- 1 V-belt
- 2 belt pulley (from drive motor)
- 3 locknut
- 4 setting fixture for broom pattern width and parallelism

## Adjust sweeping track width and parallelism

The sweeping track or broom pattern must be limited by 2 parallel lines, it must not be wedge shaped.

Adjust as follows:

- lower sweeping brush, turn OFF and pull key
  - swing doors open (both sides)
  - loosen locknut (3)
  - turn setting fixture (4)  
CCW = increase track width  
CW = decrease track width
- Adjust both sides
- turn sweeping brush ON; check sweeping brush for parallelism; repeat setting procedure as required
  - tighten locknut, close side door

## Side brushes

The side brushes collect debris from corners and edges and sweeps it into the sweeping brush's track. This way you do not need to approach shelves, walls, machines and the like too closely, but may maintain sufficient clearance for steering. Inclination of the side brushes was set by the factory (5 - 6° forward and to the side). Contact pressure of the side brushes can be adjusted to compensate for brush wear. Adjust as follows:

- turn sweeper ON, so that sweeping brush and side brushes are lowered, turn key switch OFF, pull key
- loosen Allen bolt on top of the deflector plate (secured with a locknut)
- slide side brush with deflector plate down on the shaft and tighten in place. Correct setting: brush sits on the ground with 1/3 of its circumference.

Attach / detach side brushes

- turn sweeper OFF, pull key
- loosen Allen bolt on top of deflector plate (secured with locknut)
- remove side brush with deflector plate from shaft by pulling it down
- unthread hex bolts (3 ea.) on underside of brush, remove brush
- attach new brush and adjust ground clearance

## Filter plant / dust extraction

The filter plant is CAT U. It is located in a filter case on top of the hopper. Fine dust raised by the sweeping brush is sucked against the filter element by the vacuum motor. A gasket between filter case and hopper avoids air leaks. The filter case suspension on the hopper is flexible to allow filter shaking via (electric motor).



- 1 lid of filter case with shaker motor
- 2 filter element

### Removing filter element

- swing front hood open (forward)
- lift lid (1) of filter case after having removed the straps
- remove filter element (2) and clean by beating

**Note:** make sure to install the filter element the right way; arrow mark ▲ on filter frame points up; replace defective filter elements without delay.



## Travel drive assembly

Travel drive assembly uses a geared motor on the steerable front wheel. Traveling speed uses continuous control by the accelerator pedal (electronic pulse control). Transmission uses conventional gears in an oil bath. Oil fill: 0.68 US gal (2.6 litres) of SAE 80-90 transmission oil. Oilchange: after first 200 hours in service, thereafter every 2000 hours, but not less than once a year. Drain plug is located at the bottom of the transmission (Allen plug). Filler neck (may be used to check oil level either) is located on top of the transmission (forward end).



## Brake

The Admiral 40 is equipped with a service brake and a parking brake. The drum brake on the rear wheels is hydraulic (service brake) and mechanical for the parking brake (control cables). Adjust hydraulic service brake with screw in the rear of the anchor plate; the parking brake uses threaded ends on the control cables. Brake fluid reservoir is located in the pedal area under the tunnel fairing.

Fill level in reservoir:  $\frac{3}{4}$ .  
Quantity: 0.08 Us gal (0.3 litres) of ATE brake fluid.  
Change brake fluid every two years.



The driver must not leave the machine unless having stopped all motors, secured the machine against unintended movement, locked the parking brake and pulled the key.

## Wheelchange

To change rear wheels, jack the Admiral 40 on either side, as required. Put 2-ton hydraulic jack under lifting pads attached to frame in front of the rear wheels. For changing the front wheel, put jack under forward frame brace (center). Torque wheel attaching nuts to 140 Nm. Check wheel attaching nuts for correct torque after first 100 hours and thereafter every 200 hours.

## Electrical system



### Fuses

Prior to commencing any work on the electrical system, disconnect battery plug.

The Admiral 40 uses electronic circuit breakers and fuses for the following systems:

- all lift actuators
- all brush motors, to include side scrubber
- sweeping brush and side brush motors (optional)

Fuses only:

- Vacuum motors: 20 Amps fuse (plug-in)
- Shaker motor: 20 Amps fuse (plug-in)
- suction motors: 35 Amps fuse (strip-type)
- water pump and solenoid valve: 10 Amps fuse (plug-in)
- travel drive motor: 160 Amps current limiter in travel drive control circuit
- searchlights and rotating beacon, key switch, automatic filler and horn: 10 Amps (F 51) plug-in fuse (if blown, the machine will be inop, the control panel won't tell you about this situation)

- DC/DC converter (A8): 10 Amps fuse, plug-in (if blown, the control panel won't tell you about this situation)
- control circuit (A 1): 2 Amps fuse (plug-in) (if blown, the control panel won't tell you about this situation)
- master fuse: 200 Amps (F 50), strip-type

### Error message - pilot light (RED)

turns ON when, when one of the following situations is detected:

- thermal circuit breakers of brush- / travel drive motor or side scrubber motor & sweeping roller (option) dropped
- one of the fuses blown, or an electronic circuit breaker responded
- other defects

### Service display

as soon as one of the above pilot lights turns ON, a 4-digit number will appear in the service display (error code), four dots will blink. For more details refer to "hourmeter / service display".

### Hauling the Admiral 40

When hauling on a truck, ramp angle must not exceed 20°.

**Note:** check stability of the ramp. Weight: 1,560 lb (707 kg) approx. (dry, battery not included).

Gross weight, to include battery and driver (except water, except vacuum sweeping attachment): 4,100 lb(1,860 kg) approx.

For securing in place on the truck, attaching points are located at the rear end of the chassis and on both sides under the door cutout. These attaching points hold telescopic bolts that may be pulled out of the chassis. They also maybe used to attach cables of a hoist.

<b>Technical data</b>		
<b>Dimensions</b> length with brush head and squeegee length with vacuum sweeping attachment (opt.) width w. / w/o squeegee width w. vacuum sweeping attachment (opt.) width with side scrubber (opt.) height w/o / w. canopy	in/mm in/mm in/mm in/mm in/mm in/mm	84.65/2150 103/2620 44.5/49.6 / 1130/1260 49.6/1260 49.6/1260 55.12/78.74 / 1400/2000
<b>Working width</b> brush head with side scrubber (opt.) squeegee vacuum sweeping attachment	in/mm in/mm in/mm in/mm	40.16/1020 46.45/1180 49.6/1260 54.33/1380
<b>Sweeping capacity</b> theoretic, at 4.35 mph (7 km/h)	sq.ft/h (m <sup>2</sup> /h)	76,8/54.6 (7140)
<b>Weights</b> empty, w/o drive battery, no options, with solid-partition / diaphragm tank overall weight, ready to go, wet, with solid-partition / diaphragm tank (W/O driver) max. adm. weight	lbs (kg)  lbs (kg) lbs (kg)	1559 (707)  3364/3940 (1662/1787) 4630 (2100)
<b>Axle loads</b> ready to go, front ready to go, rear	lbs (kg) lbs (kg)	1698 (770) 2452 (1112)

<p><b>Performance data</b>  travelling speed, forward / reverse  working speed, forward, max.  gradability (basic machine), empty/full, 1 minute max.  ramp angle (basic machine), max.  turning circle dia. (outside)  with/without vacuum sweeping attachment  turning in an aisle, min.  with/without vacuum sweeping attachment  operating time on one battery charge</p>	<p>mph (km/h)  mph (km/h)  %  %    in (m)    in (m)  h</p>	<p>4.97/2.5 (8/4)  4.35 (7)  20/15  20    132/167 (3.35/4.25)    94/112 (2.40/2.85)  5 approx.</p>
<p><b>Travel drive assembly</b>  geared motor (P2)  transmission oil fill  grade</p>	<p>W  US gal (l)  SAE</p>	<p>2000  0.68 (2.6)  90</p>
<p><b>Axles – Wheels</b>  wheelbase  track (rear)  wheels: dia./width  specific wheel load at max. adm. weight,  front/rear  wheel nuts (both axles) torqued to</p>	<p>in/mm  in/mm  in (mm)    N/mm<sup>2</sup>  Nm</p>	<p>45.28/1150  35/880  12.20/4.72 (310/120)    1.16/0.83  140</p>
<p><b>Brakes</b>  service brake  drum brakes (rear) w. automatic adjustment, dia./width  brake fluid  parking brake: cable-controlled (rear),  adjustable, dia./width</p>	<p>in (mm)  US gal (l)    in (mm)</p>	<p>hydraulic  7.09/1.57 (180/40)  0.08 (0.3)    7.09/1.57 (180/40)</p>

<p><b>Tank capacity</b>  diaphragm tank, fresh / dirty water  delivery rate per minute  solid partition tank, fresh / dirty water  delivery rate per minute</p>	<p>US gal (l)  US gal (l)  US gal (l)  US gal (l)</p>	<p>81.84/81.84 (310/310)  0.52-1.84 (2-7)  48.87/43.6 (185/165)  0.34-1.84 (1.3-7)</p>
<p><b>Brush head</b>  number of brushes  brush dia.  brush speed  brush motor rating (P2)/speed  brush load normal / high  specific pressure, normal / high</p>	<p>ea.  in (mm)  rpm  W/rpm  lbs (kg)  N/cm<sup>2</sup></p>	<p>2  20.87 (53)  210  2x700/1750  97/119 (44/54)  0.14/0.17</p>
<p><b>Suction motors</b>  power rating / speed  air flow  suction pressure</p>	<p>W/rpm  cu.ft./h (m<sup>3</sup>/h)  HPa (mmWC)</p>	<p>635/13867  8,475 (240)  203 (2030)</p>
<p><b>Electrical system</b>  voltage, nominal  current  power rating, nominal  protection class  battery compartment, l x w x h</p>	<p>VDC  DC  W  VDE 0700  in/mm</p>	<p>36    3600-4000  III  37.4 x 24 x 18.31 /  950 x 610 x 465</p>
<p><b>Noise emission</b>  sound pressure level IAW in 45635 T1, w. brushes 7587  sound pressure level IAW in 45635 T1, w. brushes 7588</p>	<p>dB(A)  dB(A)</p>	<p>78  82</p>

<p><b>Vibrations</b>  The frequency weighted acceleration measured to EN 1033 which have an effect upon the upper limbs (hand-arm system) amounts under normal working conditions not more than  The frequency weighted acceleration measured according to EN 1032 which have an effect upon lower limbs (feet and seat) amounts under normal working conditions</p>	<p>m/s<sup>2</sup></p> <p>m/s<sup>2</sup></p>	<p>2.5</p> <p>0.5</p>
<b>Optional equipment</b>		
<p><b>drive batteries</b>  tray-type battery, 18-cell, type 80 PzS  weight  dimensions: l x w x h</p>	<p>P/N  V/Ah<sub>5</sub>  kg  in/mm</p>	<p>7565  36/640  735  37.4 x 24 x 18.19 /  950 x 610 x 462</p>
<p><b>Battery charger</b>  primary  charging power  charging time</p>	<p>P/N  VAC  V/A  h</p>	<p>N/A  120  36/36  12 - 14</p>
<p><b>Vacuum sweeping attachment</b>  hopper volume, theoretic/usable  max. fill  filter area  category ZH 1/487  fan motor  fan speed  air flow  suction pressure in broom housing  drive motor, broom (P1/P2)</p>	<p>US gal (l)  lbs (kg)  sq.ft (m<sup>2</sup>)  KAT  W  rpm  cu.ft/h (m<sup>3</sup>/h)  mm/CW  W</p>	<p>13.20/5.28 (50/20)  66.14 (30)  16.15 (1.5)  U  234  3200  11.830 (335)  8.0  612/550</p>

<b>Vacuum sweeping attachment</b> sweep broom: length/dia. sweep broom, min. dia. sweep broom, speed sweeping track width drive motor, side broom (P1) side broom dia. side broom speed	in (mm) in (mm) rpm in (mm) W in (mm) rpm	27.56/9.84 (700/250) 7.09 (180) 510 1.18 - 1.97 (30 - 50) 2 x 100 15.75 (400) 105
<b>Canopy</b>	P/N	7582
<b>Dirty water purification system (SWA)</b>	P/N	7583
<b>Side scrubber</b> brush speed brush motor, power rating/speed	P/N rpm W/rpm	7586 250 260/2600
<b>Working floodlight</b>	P/N V/W	7584 2x24/70
<b>Rotating beacon</b>	P/N V	7585 36
<b>Brushes</b> plastic, PPN 0.5 plastic mix K 901 plastic, PPN 0.8 SIC PA, grain 180, grey SIC PA 6.12, grain 120, green	P/N P/N P/N P/N P/N	7587 7589 7588 7590 7591

<p><b>Pads</b> drive pad pad, brown pad, black</p>	<p>P/N P/N P/N</p>	<p>7592 7594 7595</p>
<p><b>Optional tools for working with the suction hose</b> adapter suction hose suction pipe suction nozzle with rubber strips</p>	<p>P/N P/N P/N P/N</p>	<p>7893 7880 7881 7883</p>

## Maintenance

Performing maintenance work as recommended will make sure to work with a dependable machine at all times. It is better to take precautions than repairing damage, and it saves money! Please get in touch with your local PowerBoss distributor if you cannot do the job in-house; he will be glad to have this work done for you or conclude a service agreement with you. For questions and parts orders always have your machine's serial on hand. This number is printed on the data plate located on the flap L.H. behind the front covering.



When cleaning or servicing the machine, or replacing parts, have the motors stopped and the battery plug disconnected, secure the machine against unintended movement and unauthorized use. Collect oils and dispose of IAW regulations imposed by law.

**Note:** Never attempt to clean the machine with a high-pressure jet or steam cleaner. For cleaning use a water hose (line pressure 5 - 6 bar), start working at the top end. Never direct the water jet against cutouts, slots, electronic modules, control panels and seals. Allow the machine to get dry over the weekend. Avoid using aggressive or etching detergents for cleaning.



Comply with regulations imposed by law when disposing of detergents. Before commencing any work on the electrical system, always disconnect battery connector. Every day, before first operation, the Admiral 40 should be inspected for operational safety.

The Admiral 40 must be inspected for safe condition by an authorized expert as required, not less than once a year. Results of such inspection must be kept on file at least until next inspection is performed.

**Note:** prior to performing maintenance work, as described below, a function check of all controls should be done, in order to determine serviceability of the machine.

## Service display

The Admiral 40 is equipped with a service display. If an error is detected, e.g. a fuse is blown, a 4-digit number will appear in the display (hour-meter), 4 dots start blinking and a buzzer sounds. This numerical display contains valuable information for the service engineer about the last error found. This feature will make it an easy job to repair a defect. The following table describes some possible error codes which you may repair yourself.

## Notes on warranty

The terms of the sales contract apply. Damages are not subject to warranty if they are due to non-compliance with the maintenance and service provisions. Any maintenance work has to be performed by an authorized PowerBoss service work shop and confirmed in the „maintenance certificate“ which is the warranty document.

The following is excluded from warranty:

natural wear and tear after overload, fuses and damages caused by inexperienced handling and unauthorized modification of the machine. Moreover, any claim for warranty becomes extinct if damages at the machine are caused by fitting of parts or accessories without PowerBoss's prior and explicit consent.

## Service display

error code in display	malfunction	possible reason	remedy
1. 2. 5. 2.	brushes stop (thermal circuit breaker dropped)	<ul style="list-style-type: none"> <li>● tape or similar foreign matter stuck between brush and shaft</li> <li>● motor overheated</li> </ul>	<ul style="list-style-type: none"> <li>● check brushes for foreign matter and remove</li> <li>● allow motor to cool down; if problem persists, check for reason</li> </ul>
1. 2. 6. 1.	brushes stop (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter, tape or similar stuck in the brush</li> </ul>	<ul style="list-style-type: none"> <li>● check brush head for foreign matter and remove</li> </ul>
1. 2. 6. 3.	brush lift-out and brush motor stop (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter between brush head and machine</li> </ul>	<ul style="list-style-type: none"> <li>● check brush head for foreign matter and remove</li> </ul>
1. 3. 5. 1.	side brush stops (thermal circuit breaker dropped)	<ul style="list-style-type: none"> <li>● foreign matter stuck between brush and shaft</li> <li>● motor overheated</li> </ul>	<ul style="list-style-type: none"> <li>● check side brush for foreign matter and remove</li> <li>● allow motor to cool down</li> </ul>
1. 3. 6. 1.	side brush stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter, tape etc. block the side brush</li> </ul>	<ul style="list-style-type: none"> <li>● check side brush for foreign matter and remove</li> </ul>

Service display			
error code in display	malfunction	possible reason	remedy
1. 3. 6. 2.	side brush lift-out stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter between side brush and machine</li> </ul>	<ul style="list-style-type: none"> <li>● check side brush lift-out for foreign matter and remove</li> </ul>
1. 4. 6. 1.	squeegee lift-out stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter between squeegee and machine</li> <li>● squeegee stuck</li> </ul>	<ul style="list-style-type: none"> <li>● check lift-out for foreign matter and remove</li> <li>● clear squeegee</li> </ul>
2. 2. 5. 1.	sweeping brush stops (thermal circuit breaker dropped)	<ul style="list-style-type: none"> <li>● foreign matter, type etc. block the sweeping brush</li> <li>● motor overheated</li> </ul>	<ul style="list-style-type: none"> <li>● check sweeping brush for foreign matter and remove</li> <li>● allow motor to cool down</li> </ul>
2. 2. 6. 1.	sweeping brush stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter, tape etc. block the side brush</li> </ul>	<ul style="list-style-type: none"> <li>● check sweeping brush for foreign matter and remove</li> </ul>
2. 2. 6. 2.	sweeping brush lift-out stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter stuck between sweeping brush and machine</li> </ul>	<ul style="list-style-type: none"> <li>● check sweeping brush lift-out for foreign matter and remove</li> </ul>

## Service display

error code in display	malfunction	possible reason	remedy				
<table border="1"> <tr> <td>2.</td> <td>3.</td> <td>6.</td> <td>1.</td> </tr> </table>	2.	3.	6.	1.	LH side brush stops (stall protector responded)	<ul style="list-style-type: none"> <li>● check side brush for foreign matter and remove</li> </ul>	<ul style="list-style-type: none"> <li>● check side brush for foreign matter and remove</li> </ul>
2.	3.	6.	1.				
<table border="1"> <tr> <td>2.</td> <td>3.</td> <td>6.</td> <td>2.</td> </tr> </table>	2.	3.	6.	2.	RH side brush stops (stall protector responded)	<ul style="list-style-type: none"> <li>● foreign matter, tape, etc. block the side brush</li> </ul>	<ul style="list-style-type: none"> <li>● check side brush for foreign matter and remove</li> </ul>
2.	3.	6.	2.				
<table border="1"> <tr> <td>3.</td> <td>4.</td> <td>5.</td> <td>1.</td> </tr> </table>	3.	4.	5.	1.	travel drive motor overheated, turns to half power	<ul style="list-style-type: none"> <li>● motor overload, ride uphill</li> <li>● parking brake locked</li> </ul>	<ul style="list-style-type: none"> <li>● allow motor to cool down</li> <li>● release parking brake</li> </ul>
3.	4.	5.	1.				

Maintenance schedule	daily	Service hours	
		every 100	every 200
charge batteries	●		
check battery acid level, top with distilled water as required	●		
check squeegee blades for appearance	●		
check squeegee and hose for trapped foreign matter, clean as required	●		
check squeegee casters for foreign matter, ease of motion, clean as required	●		
drain and clean dirty water tank	●		
clean filter in solution delivery pipe, replace as req.	●		
Check the filter screen from the intake filter and valve at the suction hose and clean as required	●		
check brake function	●		
check battery acid density		●	
check squeegee blades for wear, invert or replace as required		●	
check splash skirts @ brush head (LH & RH), replace as required		●	
check brushes for firm seat and wear		●	
check sweep broom drive belt for tension and appearance, adjust tension or replace as required		●	
check sweep broom for wear and foreign matter (e.g. type, wire), replace as required		●	

Maintenance schedule	daily	Service hours	
		every 100	every 200
check brush arms for ease of motion		●	
check sweeping track width		●	
check sweep broom setting, adjust as require		●	
check sealing skirts of broom housing, replace as required		●	
check side broom bristles for wear, replace as required		●	
check filter system for tightness, remove and clean filter element, replace as required		●	
check shaker motor and fan motor for f		●	
check steering play, adjust chain tension as required, lubricate (chain spray, P/N 37-039)		●	
check wheel nut torque (140 Nm) (*after first 100 h, thereafter every 200 h)		●*	●
change oil in travel drive transmission (after first 200 hours, *thereafter every 2000 h) quantity: US gal/l 0.68/2.6, grade SAE 80-90			●*

Maintenance schedule	daily	Service hours		
		every 100	every 200	every 500
check service brake – main and wheel brake cylinders, pipes, hoses, fittings of the brake system for damage and leaks – repair without delay – top brake fluid in compensation tank, as required <b>Note:</b> replace brake fluid every 2 years – check brake linings for wear, adjust brake or replace brake linings as required			●	
check parking brake, to include pedal lock and pilot light			●	
clean motors of wheel-, brush-, suction turbine and roller broom drive of carbon dust, check carbon brushes for ease of motion and wear, replace as required min measurement for carbon brushes of the brush motors: 16 mm				●
lubricate ball bearing slewing device of travel drive assembly (2 points, access from below)				●
perform safety test on travel drive electronics				●
perform test ride and check all controls for proper function		●	●	●

# EC Declaration of Conformity

according to  
**Directive 89/392/EEC**

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**PowerBoss®**  
*The Power of Clean*

declare under our sole responsibility,  
that the product

**Admiral 40**  
**Type 7580.02**

For the relevant implementation of the  
safety and health requirements men-  
tioned in the Directives, the following  
standard(s) and/or technical specifica-  
tion(s) has (have) been respected:

**EN 292, IEC 335-2-72,**  
**EN 55011, IEC 1000-4**

to which this declaration relates corres-  
ponds to the relevant basic safety and  
health requirements of the Directive  
89/392/EEC, and to requirements of  
the other relevant Directives:  
– 89/336/EEC.



# Maintenance document

<p style="text-align: center;"><b>Acceptance inspection</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>		<p style="text-align: center;"><b>100 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>200 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>
<p style="text-align: center;"><b>300 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>400 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>500 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>600 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>
<p style="text-align: center;"><b>700 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>800 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>900 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p style="text-align: center;"><b>1000 operating hours Maintenance</b></p> <p style="text-align: center;">Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>

<p><b>1100 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1200 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1300 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1400 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>
<p><b>1500 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1600 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1700 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>1800 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>
<p><b>1900 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>2000 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>2100 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>	<p><b>2200 operating hours Maintenance</b> Workshop stamp</p> <p>carried out on _____ at _____ operating hours</p>

**Revision F**

**Effective November 1, 2008**

**PowerBoss Made Simple Industrial Limited Warranty**

Minuteman International owner of PowerBoss warrants to the original purchaser/user that the product is free from defects in workmanship and materials under normal use. PowerBoss will, at its option, repair or replace without charge, parts that fail under normal use and service when operated and maintained in accordance with the applicable operation and instruction manuals. All warranty claims must be submitted through and approved by factory authorized repair stations.

This warranty does not apply to normal wear, or to items whose life is dependent on their use and care. Parts not manufactured by PowerBoss are covered by and subject to the warranties and/or guarantees of their manufacturers. Please contact Minuteman International for procedures in warranty claims against these manufacturers.

**Special warning to purchaser** -- Use of replacement parts not manufactured by PowerBoss or its designated licensees, will void all warranties expressed or implied. A potential health hazard exists without original equipment replacement.

All warranted items become the sole property of Minuteman International or PowerBoss or its original manufacturer, whichever the case may be.

PowerBoss disclaims any implied warranty, including the warranty of merchantability and the warranty of fitness for a particular purpose. PowerBoss 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. PowerBoss is not responsible for costs or repairs performed by persons other than those specifically authorized by PowerBoss. 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.

	Travel*	Labor	Parts	Engine	Extended Warranty	Costs
<b>Walk behinds</b>						
Battery sweepers	Ninety days	One year	One year	N/A	2 years Parts + Labor (or 2000 Hours)	2%
IC sweepers	Ninety days	One year	One year	Through manufacturer	2 years Parts + Labor (or 2000 Hours)	2%
Battery scrubbers	Ninety days	Two years	Three years	N/A	3 Years Parts + Labor (or 3000 Hours)	2%
<b>Riders</b>						
Battery scrubbers	Ninety days	Two years	Three years/2000 hrs	N/A	3 Years Parts + Labor (or 3000 Hours)	2%
IC sweeper/scrubbers	Ninety days	Six months	Two years/2000 hrs	Two years/3000 hrs**	2 years Parts + Labor (or 2000 Hours)	3%
IC sweepers	Ninety days	Six months	Four years/3000 hrs	Five years/3000 hrs**	4 Years Parts + 2 Years Labor (or 4000 Hours)	3%
<b>Exceptions</b>						
Apex series sweeper	Ninety days	One year	One year/1000 hrs	One year/1000 hrs**	2 years Parts + Labor (or 2000 Hours)	3%
6X sweeper	Ninety days	Six months	Two years/2000 hrs	Two years/2000 hours**	2 years Parts + Labor (or 2000 Hours)	3%

**Tank Bladders**

Eight years/ no additional labor

**Polypropylene plastic tanks**

Ten years/ no additional labor

**Batteries**

0-3 months full replacement, 4-12 prorated credit

**Chargers**

One-year replacement

**Replacement parts**

Ninety days

**\*Two-hour cap**

**\*\*Through engine manufacturer. See section 3 of warranty manual for engine warranty exceptions**

**\*\*\* Based upon dealer's certification status**

**Extended Warranty MUST be signed up within 30 days of delivery to End User (Dealer has 1Year from Receiving Machine to Sign up extended Warranty)**

**Extended Warranty Cost is based on Invoice Price multiplied by the Percentage listed in the Extended Warranty Column**

*All above labor and travel reimbursed at 65 or 75% of the published shop rate.*

# Important Information about how to get the optimum of cleaning power from your PowerBoss Automatic Floor Sweeper.

Dear Customer,

With your new PowerBoss automatic floor sweeper you decided for a superior-quality product with excellent cleaning power, high comfort, perfect safety (GS-sign), backed by an immediate-response service network.

Our recommendations in the instruction manual and more information disclosed to you on delivery of the machine will guarantee excellent cleaning results.

However, you should not forget that cleaning power depends on condition of the scrubber brushes and the squeegee blades of the squeegee tool. Check these items for wear in regular intervals and go by the maintenance instructions.

In case of any problems, please contact your local PowerBoss service center.

## **The cleaning agent used is an essential part of the entire cleaning concept.**

PowerBoss cleaners and additives are perfectly matched with the PowerBoss machine and have undergone extensive field testing. High quality requirements were met in these tests.

## **PowerBoss cleaning agents and additives feature the following advantages :**

- **fast-acting** ; allows high cleaning speed and hence, large areas may be cleaned per unit of time ;

- **special formula** for a variety of soilage and floor qualities ;
- **non-foaming**, to guarantee perfect function of the suction system ;
- **friendly with the environment** ; Federal Agency tested and approved (license number).

Your contact in the PowerBoss sales organization will be glad to give you more information for perfect cleaning of hard floors.

Best regards,

Your service contact :



**PowerBoss<sup>®</sup>**  
The Power of Clean

***“The Power of Clean”***

**PowerBoss Is A Full Line Manufacturer Of Sweepers and Scrubbers For  
Industrial Facilities.**

PowerBoss, Inc 175 Anderson Street P.O. Box 1227- Aberdeen North Carolina 28315

Phone: 800-982-7141 - Fax: 1-800-277-7141 Local: 910-944-2105 Fax: 910-944-7409 e-mail: [techsupport@powerboss.com](mailto:techsupport@powerboss.com)

**A Member Of The Hako Group**