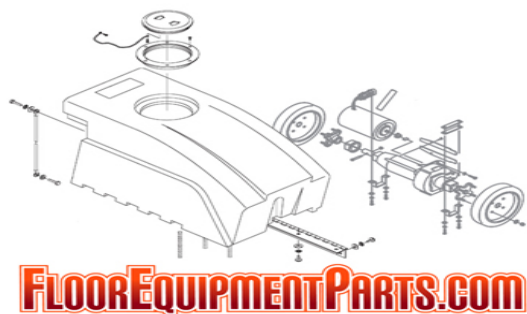


USERS MANUAL

Kleen Sweep M



Users Manual Kleen Sweep 27M
REV * 12/07

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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 may guarantee a dependable machine and will make sure that your rights under current warranty are not affected. We reserve the right for technical improvements.

Valid as of August 1995

Minuteman International Inc.
111 South Rohlwing Road
ADDISON, IL. 60101-4244
U.S.A.

It is our desire that the good characteristics of the KS 27 M should justify the confidence you demonstrated to us by making this purchase. We tried to supply you with an efficient and dependable machine. Prior to starting-up this machine, read the operating manual carefully. It will inform you in detail about operation of the unit and provides valuable advice for service and maintenance.

Provisions for use

The KS 27 M is designed exclusively for sweeping floors, e.g. in production facilities, warehouses, parking sites, and pedestrian areas, for collecting both, dry and moist matter.

Use in excess of these specifications will be deemed to be improper use; the manufacturer cannot be held liable for consequential damage; proper use also includes that maintenance work is done as specified by the manufacturer.



Caution: The machine must not be used for evacuation of dusts dangerous to health!

Acceptance of the machine

As soon as the machine arrives, please check whether any damage has occurred in transit. This will be refunded to you if you have the damage confirmed immediately by the Railway Officer or by the Forwarding Agent, and send the statement of damage together with the bill of lading to

**Minuteman International Inc. 111
South Rohlwing Road ADDISON,
IL. 60101-4244 U.S.A.**

First operation

Assembly

For reasons of packaging, handlebar and side broom arm, to include broom and Vee belt are not assembled. After unpacking the KS 27 M, first assemble the handlebar and the side broom next.



A

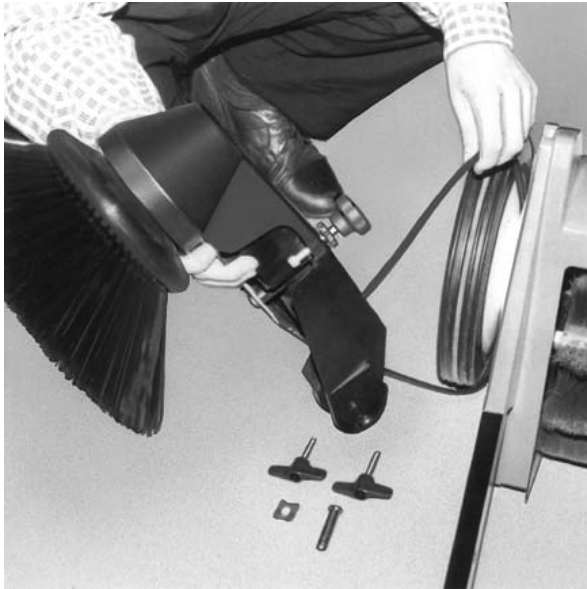
Attach handlebar

- Bolt handlebar to both sides of the housing, use the wing bolts (A/1)

Note: The handlebar can be mounted in two positions, as suitable for the operators' tallness.

For short people: Install the handlebar with handle rod bent to downside.

For average and bigger tallness: Install the handlebar with handle rod bent to the top end.



B

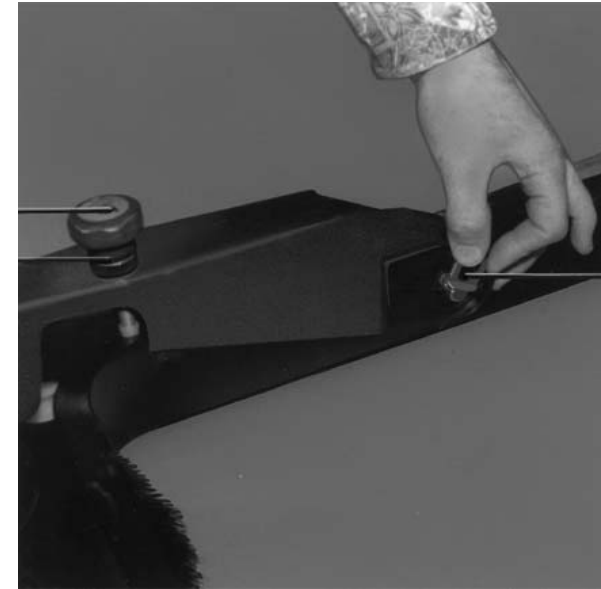
Attach side broom

- Unpack side broom arm and broom;
- Plug side broom on broom shaft and secure with bolt; use 10 mm spanner size. Do not overtorque bolt to avoid damage to the broom hub;
- Place the Vee belt in the pulley over the RH wheel; side broom will have to rotate CCW when machine moves forward (top view);



C

- Attach side broom arm with plug (C/1) and safety pin (D/3). Introduce plug from outside;
- Slue side broom down and adjust broom height, or better said, broom pressure with knurled-head bolt (D/1); loosen knurled nut (D/2). Side broom should not be seated on the floor with more than 2/3 of its circumference. Secure with knurled check-nut;



D

- Check belt tension, adjust tension as required (refer to para. "Side broom" on page 21).

Operating the KS 27 M

All controls are identified by easy-to-understand symbols which will help you to get familiar with the machine. The KS 27 M uses two brooms. The dish-type side broom feeds the matter swept to the main broom. The main broom is rotating against the direction of travel of the machine and throws the dirt into the dirt hopper located at the forward end.

Both brooms are driven by the machine wheels.

A jackwheel will guarantee uniform ground clearance and perfect sweeping. The broom housing uses rubber seals all around to seal it against the floor surface. At the forward end, the broom housing is closed by the dirt hopper, at the rear end a large rubber lip is assembled.



If any part of the floor shall be omitted (smeared floor or transport), just lift both brooms from the floor by depressing the handlebar. Steps and stairs are easily overcome by the KS 27 M. The large wheels extend beyond the rear end of the machine. This means that all usual obstacles are overcome by pulling the machine "uphill" or pushing it "downhill". The handlebar is folding to ease transportation or storage of the KS 27 M.

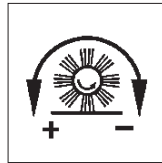
For folding, loosen both wingbolts a few turns, expand the handlebar structure and fold forward.



- 1
- 2
- 3

- 1 handwheel for sweeping roller adjustment
- 2 hopper handle
- 3 butterfly nuts for fixing of handlebar
- 4 handwheel with knurled nut for side brush adjustment

Controls



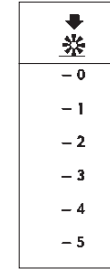
1 Handwheel for sweeping roller adjustment

is used for adjustment of the sweeping roller ground pressure. The sweeping roller ground pressure should be adjusted as recommended by us, or be adapted to local conditions, until good sweeping performance will be achieved. Adjustment is indicated by the scale close to the track wheel.

Recommended adjustment

(valid for sweeping roller in "as new" condition) Basic adjustment: Scale code 1.5

| Scale code | litter | ground |
|------------|--|-----------------|
| 1 | light-weight, dry litter | unruffled |
| 1.5 | basic adjustment | |
| 2 | heavy dirt, or big dirt quantities; humid or sticky dirt | rough or uneven |



Note: Sweeping roller ground pressure, if adjusted to too high a value, requires higher physical force to push the machine, and increases the wear of brooms. Best sweeping performance will be achieved at 2.5 m.p.h. = 4 km.p.h., i. e. normal pedestrian's speed.

2 Hopper handle

is used to remove the dust hopper.

3 Butterfly nuts for fixing of handlebar

are used to secure the handlebar.



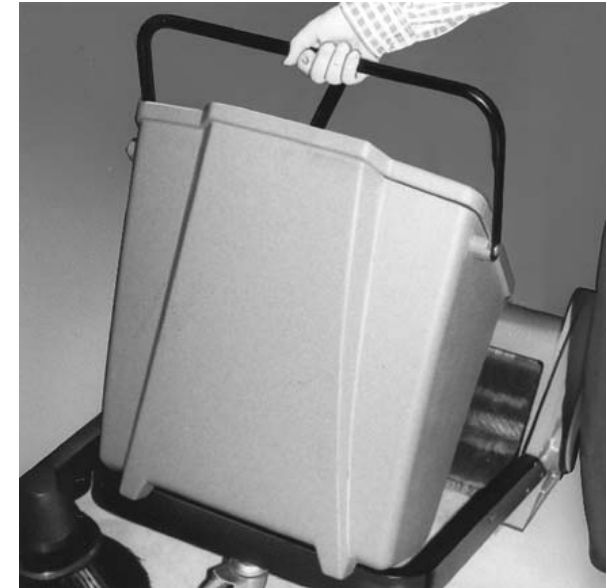
4 Handwheel to adjust side broom

The broom may touch the floor with the forward 2/3 of its circumference only so that it can feed the rubbish to the forward end of the main broom and not sweep it around only. The preset working level of the side broom is kept constant as soon as the knurled nut (checknut) is tightened in position.



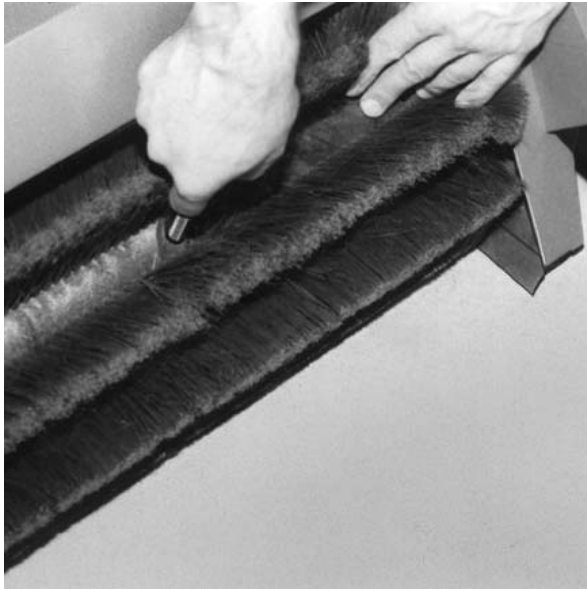
Emptying the dirt hopper

To lift the dirt hopper, just use the handle provided.



Insert the dirt hopper

Locate the hopper on the forward frame as shown, and slue down.
Note: Do not place the dirt hopper flat on ground to avoid damage to the rubber lip. Use the four feet for storing the detached hopper.



Replacement of main broom

The broom roller bears 10 ea. rows of alterned soft and hard bristles and consists of two broom halves.

Width: 480 mm (18.9")

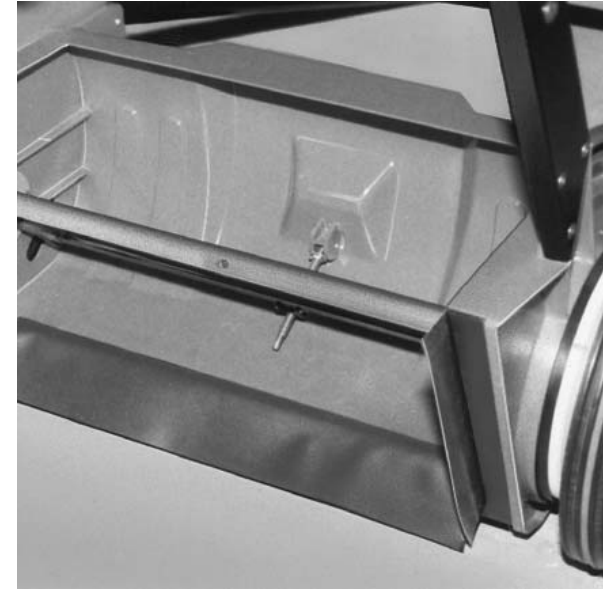
Dia.: 250 mm (9.8")

Dia, wear limit: approx. 180 mm (7.1")



The broom roller is replaced as follows:

- Slue side broom up
- Tilt machine back to rest on the handlebar



Remove three ea. Phillips screws, turn broom roller 180°, remove Phillips screws from second half. Pull the drive pin out of the broom shaft. To install, reverse above procedure.

Side broom

The side broom is driven by a Vee belt from the RH wheel. Slueing down the side broom will tension the belt, and driving condition thus will be established.

Replacement of side broom

- Slue-up side broom arm
- Remove clamp screw underneath side broom (spanner size 10 mm)
- Pull out side broom
- Plug-on new side broom and secure. Do not overtorque clamp screw to avoid squeezing the bristles hub.

Note: Adjust ground clearance with handwheel (A/1) so that $\frac{2}{3}$ of the broom circumference is going to touch the floor. Higher load will cause excessive bristle wear and more power for moving the machine.

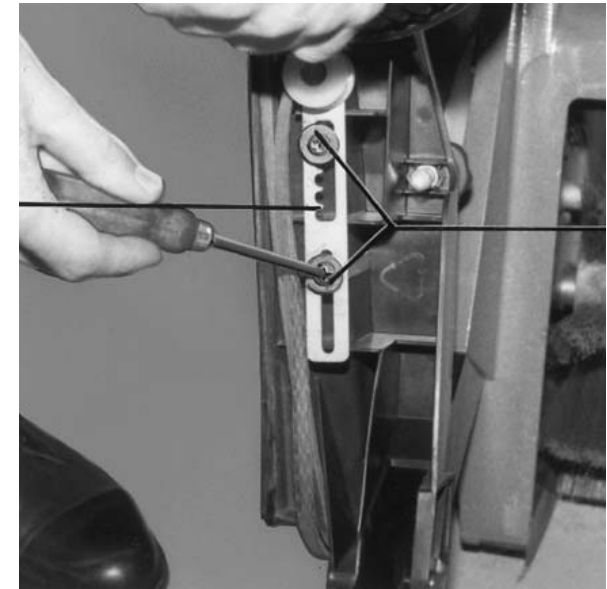


A

Adjust tension of side broom Vee belt

To tension the Vee belt, proceed in the following way:

- Slue-up side broom;
- Loosen bolts (B/2), should come out approx. 5 mm (0.2");
- Lift roller holder (B/1) from slot in plastic rib;
- Slue roller holder (B/1) out, introduce into next slot, slue back and tighten;



B

- Slue down side broom, check tension, readjust as required.

Note: Adjust Vee belt tension just as far as required to ensure power transmission. Do not adjust too high a tension of the Vee belt to avoid excessive load and wear to the side broom, and to preclude poor sweeping performance.



A

Replacement of side broom Vee belt

To remove or to re-install a Vee-belt, proceed in the following way:

- Remove side broom
- Remove washers, deflector plate and spacers from broom shaft (fig. A);
- Remove circlip, pull washers and pulley with Vee belt off shaft (key should not drop out from the shaft);



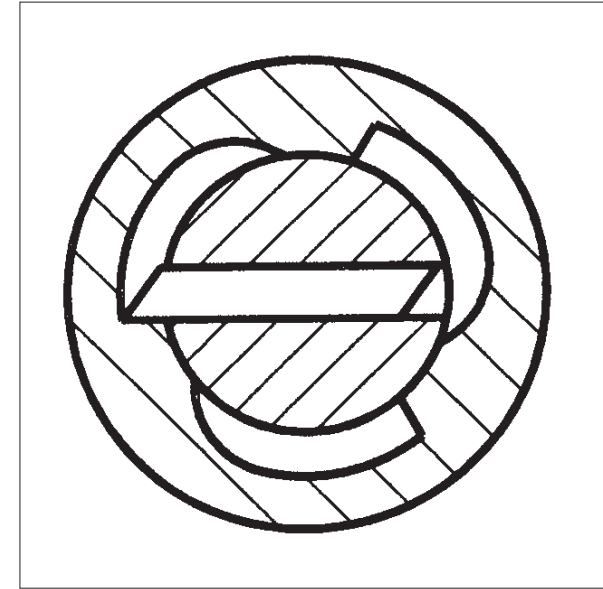
B

- Fit new Vee belt on pulley and re-assemble (reverse the above procedure).

Note: After having assembled the pulley, check for key in place (refer to sketch right above).

Check:

Move Vee belt to the right, shaft will have to follow, move Vee belt to the left, shaft will have to stand still. (view into side broom arm).



Location of key:

(bottom view, into side broom arm)

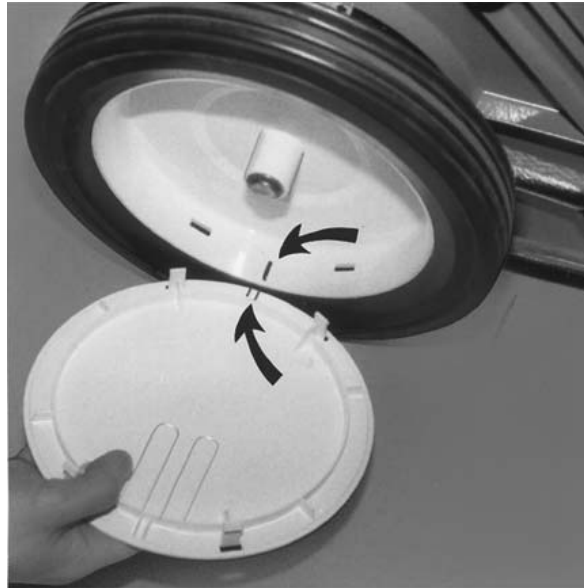
Sealing lips

The rubber sealing lips will avoid dust to be expelled by the broom.

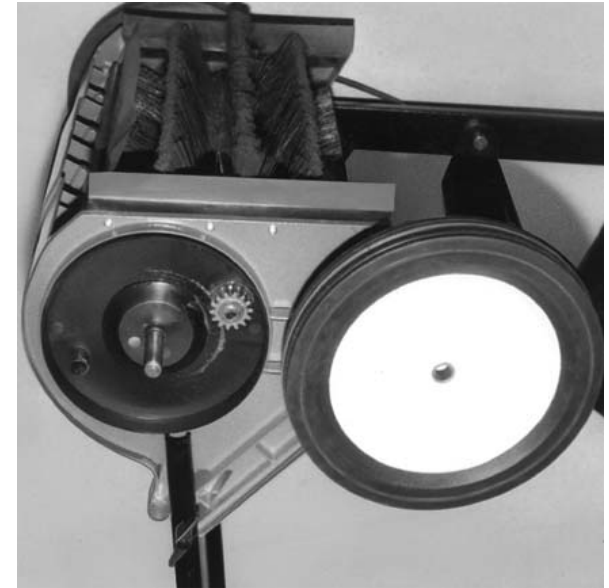
Damaged or worn-out lips will have to be replaced.



A



B



C

Grease track wheels

For cleaning and greasing the axle and pinion, remove track wheels as follows:

- Remove hub caps
Insert two screwdrivers into the slots marked by arrows, and remove the hub cap using the screwdriver as a lever, applying force in a uniform manner (fig. A).

- Then remove the circlip from the wheel axle and remove the track wheel (fig. C).
- Grease axle and pinion
- Re-assemble track wheel.
Attach hub cap as shown in fig. B, check for index marks in place (arrows).

Technical Data

| Dimensions, weights, ratings | unit of measurement | measures |
|--|---------------------|----------------------------|
| width w/o side broom | mm (") | 720 (28.35) |
| width with side broom | mm (") | 790 (31.10) |
| height with handlebar, handlebar high position | mm (") | 1,060 (41.7) |
| height with handlebar, handlebar low position | mm (") | 900 (35.4) |
| height with folded handlebar | mm (") | 390 (15.35) |
| length with folded handlebar with side broom | mm (") | 1,030 (40.5) |
| length w/o side broom, handlebar high position | mm (") | 1,080 (42.5) |
| length w/o side broom, handlebar low position | mm (") | 1,260 (49.6) |
| length with side broom, handlebar high position | mm (") | 1,330 (52.4) |
| length with side broom, handlebar low position | mm (") | 1,510 (59.4) |
| weight (opearting, incl. side broom) | kg (lbs) | 25 (55) |
| drive wheels (dia./width) | mm (") | 280 x 40 (11.02 x 1.57) |
| swept width w/o side broom | mm (") | 480 (18.9) |
| swept width with side broom | mm (") | 670 (26.38) |
| broom roller dia. | mm (") | 250 (9.84) |
| broom roller width | mm (") | 480 (18.9) |
| min. dia. of roller broom | mm (") | 180 (7.09) |
| broom speed at 4 km/h (2.5 mph) | rpm | 250 |
| side broom (Polyester), dia. | mm (") | 325 (12.8) |
| side broom speed at 4 km/h (2.5 mph) | rpm | 85 |
| side broom drive (Vee belt) | mm | 8 x 1765 ± 5 |
| dirt hopper (40 litres capacity) | l | 25–28 usable |
| surfacing rating (theoretic) at 4 km/h with side broom | m ² /h | 2,680 |

Maintenance work

Compliance with the maintenance work recommended by Minuteman will make sure that your machine is ready to operate at any time.

Precautions are easier than repair – and cheaper!

Should your in-house workshop not be able to perform maintenance work per our schedule, please contact your local Minuteman dealer for concluding a maintenance agreement.

Please have your machine number available for all repairs or parts orders. It is printed on the data plate. The data plate is located at the left bottom end of the frame.

Intervals

daily

- empty and clean dirt hopper
- clean the machine
- inspect broom bars and sealing lips

every 6 months

- grease axles of track wheels and pinions
- check drive belt tension, re-adjust as required



**Superior technology for a cleaner
and better environment**



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