

GUTTER BROOMS

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Gutter Broom Assemblies

The gutter brooms rotate with the leading edge rotating towards the center of sweeper, clockwise on the driver's side and counter clockwise on the passenger side. These brooms move material to the center of the sweeper so that the main broom can pick the material up. There must always be an overlap of the gutter brooms and main broom, if there is no overlap the main broom will leave streaks of material behind the sweeper. All mechanical broom sweepers will leave a streak on the inside of a curve. This is caused by a cantilever effect of the main broom around the chassis rear axle, this can be reduced with adjustments.

The gutter broom cleans along a curb. Curbs (gutter) collect water and drain it to a catch basin. The curbs can be of varying depths and will require adjustments of the side to side angle effectively extract materials from material out of the bottom of the gutter. The side to side angle of the gutter broom can be adjusted from the control panel in the cab of the chassis.

The gutter brooms must follow the contours of the surface as the sweeper moves forward. The gutter broom can encounter many obstacles while sweeping like sign posts, trees, guard rails, broken pavement and trash cans. If the gutter brooms are set correctly they can be very forgiving when encountering any of these obstacles.

Since the gutter broom has to follow the contours of the surface and be able to move to get around obstacles they must be able to move up/down and in/out and then return to the ideal sweeping position once the obstacle is past or the surface levels. To do this most joints and/or connections must be able to move in relationship to each other. Therefore when bolts seem to be slightly loose on the broom linkage it may be that these components are required to move. Since the gutter broom sticks outside the chassis wheels even in the transport position they must be spring loaded in case an obstacle is encountered. When the gutter brooms are lifted they automatically retract in as well. When they are put down for sweeping, the friction of the bristles on the surface will pull the gutter broom out. The brooms do have a helper spring that assists the broom to extend.

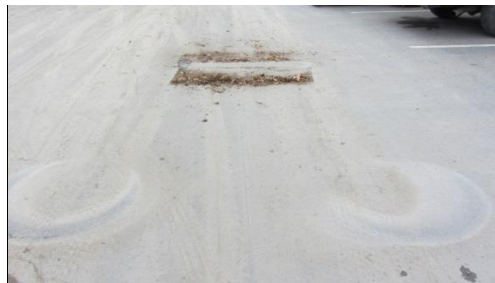
Adjustments

There are 3 mechanical adjustments that can be made to a gutter broom. The first adjustment that is set at the factory and would only need to be readjusted if the gutter broom was being refurbished is the front to back angle. This is adjusted by the large $\frac{3}{4}$ " turnbuckle running horizontal between the front

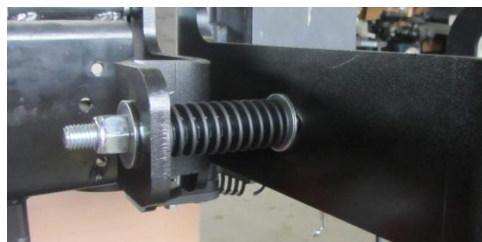
section and the back section of the broom. To adjust shorten the turnbuckle to increase the angle and lengthen to decrease the angle. The correct angle should always be 3 to 5 degrees down on the front.



The other adjustment that is set at the factory and should not require readjusting is the overlap of the gutter broom and main broom. This is done when the gutter broom is out as far as it can travel. Adjust the bolt on the inside of the mount post. This bolt has a spring around it on the other side of the bracket. Tighten the bolt to bring the gutter broom in and loosen the bolt to move the broom out. The gutter broom is adjusted correctly when there is a 3" or more overlap on the main broom while sweeping in a straight line.



A shorter or longer bolt may be required to get the preferred overlap.



The only adjustment that could require change is the down pressure of the broom. The sweeper uses a spring balanced suspension system. Once the down pressure is adjusted for the particular application it should not require readjusting unless the application changes. The broom will not require readjusting even as the broom bristles wear. The vertical spring will maintain a constant down pressure. The gutter brooms sweep best when the bristles contact the surface just heavy enough to flick the material to the center of the sweeper. If there is too much down pressure the bristles will scour the surface causing excessive wear on the bristles and not do a good job of sweeping.



Factory Settings

When the gutter brooms are set at the factory they are set for a heavy sweeping application, as in picture below. The reason for this is because when a sweeper is built the final application is not known and the heavy down pressure adjustment is acceptable for most applications.



Gutter Broom Pattern

When the sweeper goes into service the gutter broom down pressure should be readjusted for that particular customer's application and requirements. Excessive gutter broom down pressure, as shown in the picture above, will wear brooms quickly and not enough down pressure will have poor sweeping performance. The picture below shows what a correct broom pattern should be.



Down pressure becomes a matter of customer preference of what is acceptable to them in their application.

When demonstrating a sweeper it is best to know the application in which the demonstration is taking place. Down pressure settings are not the same for all applications. Leaves require a light down pressure were millings (grinding) require a heavier down pressure. The sales person should determine these details prior to the demo and adjust the sweeper accordingly. It is not “one pressure fits all”.

To change the down pressure use the ½” turnbuckle that is on the outside of the linkage. This turnbuckle is attached to a bell crank type lever with a spring attached to the other end. To increase the down pressure the turnbuckle must be lengthened and to decrease down pressure shorten the turnbuckle. There are connector links attaching the turnbuckle to the lever as well as one attaching the spring to the lever. If less down pressure is required than what the turnbuckle can adjust then remove one connector link and readjust.

Once the mechanical adjustments are made the only other adjustment is the side to side adjustment. This is done from the chassis cab and is controlled by the operator. To see the pattern of these brooms, put the brooms down and turn the sweep forward on, let them run for 1 minute and then lift the brooms and move the sweeper ahead so the pattern can be clearly seen. The correct pattern should be in the shape of a crescent moon and on the driver’s side be contacting the surface between 9 and 2 o’clock. On the passenger side it should be between 10 and 3 o’clock. The broom contact should always be more to the outside. If the broom contact is more to the inside then the material that the broom is sweeping to the center will continue around with the broom and be thrown to the outside. You will also get a similar effect if the broom is running to flat on the front to back angle.

When transporting the sweeper from one sweep job to another if the bristles are contacting the surface, try leveling off the side to side tilt angle so the bristles don’t touch the road surface.

Maintenance

There are only 3 grease points on each gutter broom. These points are in sensitive spots that will prevent the broom from moving when required. These grease points only require greasing once a week or every 40 hours of operation.

The main component to be checked and cleaned daily is the hydraulic motor shaft. The shaft tends to wrap with debris such as tape ribbon, twine, fishing line and tire trash which wrap into the bearings causing premature failures.