

MAIN BROOM

TOPICS

Main Broom Assembly

Adjustments

Maintenance

Carbide Drag Shoes

Main Broom Assembly

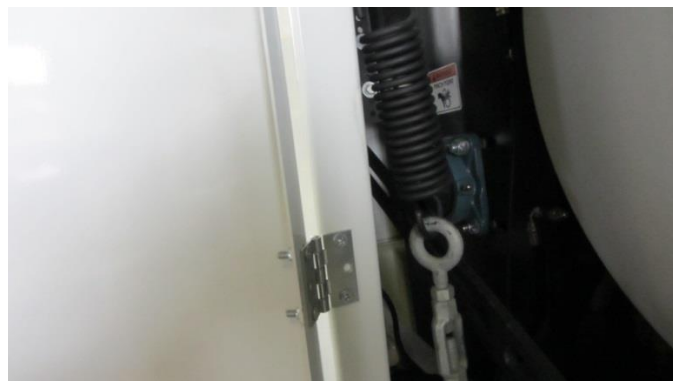
The main broom rotates such that the bottom of the broom is moving towards the chassis cab. The main broom must be free floating and able to follow the contours of the road surface. The broom must be able to operate for extended periods of time with minimal adjustments throughout the life of the broom.

There are many different designs of broom bristle configurations. The one that is used on the StarFire series is the chevron strip broom. It has been determined that this is the most versatile arrangement for the widest applications but even the strip brooms have several variations. Broom selection may change depending on customer preference.

The chevron strip broom directs material from the outer edges of the broom towards the center. This assists in a more uniform filling of the hopper.

Adjustments

The main broom uses a spring balanced suspension system that is very similar to the system used on the gutter broom and adjusted in the same manor. The broom is raised and lowered by mechanical linkage but once it is down it is able to float with the surface contours. The suspension system only operates when the broom is down and suspended from a chain on either side. The chain connects to a lever and suspension shaft that connects both sides together. The levers are also connected to a spring that gently holds the broom up. Adjusting the tension of the spring determines the down pressure on the main broom. The suspension shaft that connects both sides helps suspend the opposite side if the sweeper drops into a pot hole on one side. This is a very efficient system that requires no adjustment after the brooms pattern has been set unless the application changes.



To change the down pressure use the ½” turnbuckle that is on the inside of the rear canopy or to the frame, depending on the model. This turnbuckle is attached to a lever with a spring. The other side of the lever is attached to a chain that extends down to the main broom support arm. When increasing the down pressure the turnbuckle needs to be lengthened, to decrease down pressure the turnbuckle needs to be shortened. The correct down pressure will be determined by the pattern of the broom rubbing on the road surface and the correct pattern will be determined by the application.

The broom pattern for normal street sweeping should be between 4-6 inches. If the sweeper is being set up for heavy sweeping such as millings (grinding) the broom pattern may be between 6-8 inches and for leaves it may be 2-4 inches. The final broom pattern will be determined by customer preference for their application. Also make sure the pattern is equal on both sides of the broom to prevent broom coning.



One side or the other may need to be adjusted more or less than the other to get an even pattern.

The initial setting at the factory is 6-8 inches for the most all around sweeping performance of heavy material.



The setting for customer's preference and application should be readjusted upon delivery. The reason for an initial setting of 6-8 inches is on demos potential customers will normally put the sweeper into unrealistic heavy sweeping conditions. The sweeper is being judged on tough conditions and not on what it would be sweeping normally.

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 needs to find these details out prior to the demo to adjust the sweeper accordingly. It is not “one pressure fits all”.

Maintenance

There are only 3 grease points on each side of the main broom that require greasing weekly or every 40 hours of operation and only 1 grease point that require greasing daily or every 8 hours of operation. The weekly points are in sensitive spots that will prevent the broom from moving when required. The grease daily point is on the main broom support shaft opposite to the motor.

Carbide Drag Shoes

The main components to be checked and cleaned daily are the hydraulic motor shaft and drag shoes. The motor shaft tends to wrap with debris such as tape ribbon, twine, fishing line and tire trash which wrap into the motor bearings causing premature failures. The drag shoes also need to be checked to make sure they do not get bent. The drag shoes slide along the surface and hold the material in so the main broom can sweep the material to the elevator. The drag shoes have carbide imbedded in the bottom of them to prevent wear.



The shoes could get bent when turning a corner and the shoe getting hung up in a crack or on a manhole. During milling operations they can get bent going into or out of a mill cut. If the shoes get bent they will not seal against the main broom and could leave a trail. There is an optional drag brush arrangement that can be bolted onto the main broom arm and the drag shoes are removed. The drag brush option can leave trails on regular street sweeping.