



CAD Drawing of a Simple Salter/Sander Chute

Project Title CAD Drawing of a Simple Salter/Sander Chute

Project Number 2009-13

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Problem There is a continued need for equipment capable of more accurate and precise salt and sand placement on roadways, such as a simple salter/sander chute. Currently, there is a lack of drawings or documentation to guide the fabrication and installation of this equipment. Such a drawing could help ensure that salter/sander chutes are accessible to any road authority seeking to cost-effectively control their salt or sand usage.

Solution Washington County fabricated a simple salter/sander chute that can be installed below a vehicle's spinner, allowing the spinner to disperse deicing material when necessary. An accompanying CAD drawing was created to allow other agencies to easily fabricate, install, and adjust the salter/sander chute.

Procedure Three chute designs were fabricated, and the chute identified as the easiest to install and adjust was chosen for the CAD drawing. The selected design is attached to the spinner motor with a clamp and can be adjusted to deliver material at different angles depending on the type of roads on a given route. The chute also remains centered under the spinner even when pivoted, ensuring that all material coming off of the spinner falls into the chute.

Results The design was attached to one truck for the winter of 2010-11. The driver reported more accurate material placement and minimal loss of material off of the road, with an estimated 25 percent less material used on the route. The Minnesota Department of Transportation also conducted extensive testing on the chute, and results indicate excellent performance at speeds between 20 and 30 miles per hour. The chute allows deicing material to be placed on the road without the loss of material commonly caused by higher forward speed.

No wear edge was installed on the chute, which caused two to three inches of the plastic to wear away where the chute came in contact with the pavement. A wear edge made of heavy rubber could be bolted to the bottom of the chute and replaced as needed to increase the overall life of the chute.

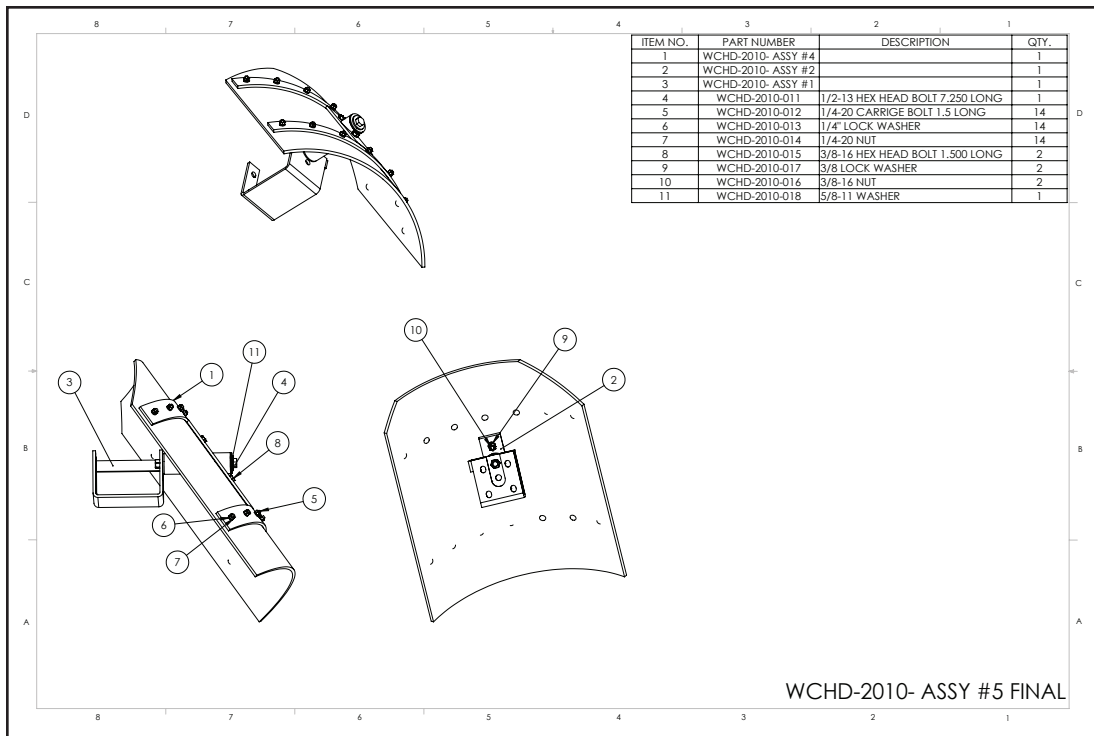
Approximate Cost \$2,000

OPERA Funding \$2,000

Implementation Washington County is now using chutes on a trial basis, with plans to install them on more trucks in its fleet. The county also plans to install chutes on dual-spinner trucks to ensure more accurate placement of material on roads with multiple turn lanes. It costs \$100 to \$200 and takes about three hours to build a chute.

Status Complete

View the complete project report and CAD drawings online at www.mnltap.umn.edu/opera.



CAD drawings of the salter/sander chute are available online at www.mnltap.umn.edu/opera.

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