Ultrasonic Screed for Road Construction

Overview

Current practice is that the screed plate of the asphalt paver is held at 300°F by resistive heating to match the temperature of the hot asphalt in order to prevent the asphalt from adhering to the screed plate. This method requires too much energy and Volvo Construction is looking for an alternative solution to prevent the adhesion of asphalt. Any asphalt that sticks to the screed plate will cause defects in the freshly paved road surface as the screed floats along to spread out the asphalt coming out of the paver. Volvo currently holds a patent for the use of ultrasonic applications for asphalt separation on road construction equipment.

Objectives

- Research ultrasonic technologies
- Design a suitable test rig where experimental observations can be made
- Provide information that may help prove/disprove the ultrasonic vibration method as a viable technique for asphalt separation

Approach

- Research ultrasonic technologies and applications
- Design a suitable test rig where experimental observations can be made
- Purchase materials necessary in order to construct test equipment
- Fabricate test equipment with water jet, plasma cutter, and other power tools

Outcomes

- Tar binder cures at a much faster pace than without ultrasonic vibrations applied
- Large aggregate did not stick to the simulated screed plate when ultrasonic vibrations were applied, but instead cured the tar binder quicker