**Editorial comments:**  
  
Changes to be made by the Author(s):  
  
**1. Please take this opportunity to thoroughly proofread the manuscript to ensure that there are no spelling or grammar issues. The JoVE editor will not copy-edit your manuscript and any errors in the submitted revision may be present in the published version.**

The manuscript has been proofread and no spelling or grammatical issues were found.

**2. A number of areas need greater detail:  
-Step 1.1.5 asks to enter information on the test condition. These conditions should be mentioned in the protocol prior to this point if this data should be collected. How is this information collected?**

A new step is added in the protocol prior to the original Step 1.1. Information on how to record test conditions can be found in Step 1.5.3.

**-Describe the possible conditions listed in step 1.5.3 in a table or other way so that the various characteristic options are known.**

We think there is no need to list the conditions in a table because all possible outcomes can be well described in three terms, namely splash, deposition and spatter. Also, the three outcomes are already shown and described in Figure 3.

**-Section 1.5.5 does not describe how many images this information should be taken from. For instance, should it come from the video at 5 second intervals?**

More details on image measurements are included in the protocol (Step 1.6.5). Because the test conditions are well-controlled in the impingement experiments, both the jet and the resulting lamella are highly stable in the case of deposition. Therefore, only two to three measurements are needed to confirm the measurement results are constant and reliable.

**-How is the projectile speed measured in section 2?**

This information is added to Step 2.3

**- Please describe the stop mechanism in greater detail.**

More detail on the stop mechanism is added to the Discussion.

**3. References are missing DOIs in some cases. Please provide DOIs if available.**

All available DOIs are provided in the reference list.

**Reviewer #1:**   
  
**(1) In the Intro, the authors refer to "dozens" of locomotives. I would much prefer an indication of the uptake of this technology in terms of percent use, for example.**

The total amount of locomotives railroad companies possess is considered confidential business information, and therefore not disclosed to us. The company that makes profit from this technology, L.B. Foster, is currently listed in NASDAQ with a market cap of half a billion. Their global customers include Union Pacific and Canadian Pacific Railroad.

**(2) In the Intro, two paragraphs start with effectively the same sentence: "Despite its practical importance, ..." and then "There have been comparatively few studies of ...". I think the second could be eliminated.**

The second paragraph is modified to make the logic flow more explicit.

**(3) While jet impingement onto surfaces hasn't been much studied, drop impingement has, and there's been lots of work on splashing and deposition, and the effect of roughness, for example. I'm not asking that the authors comprehensively cite that work, but I think an acknowledgement of that work, and references to one or two reviews would be appropriate.**

A new paragraph is added in the introduction.

**(4) Finally, I know this article isn't about the physics of jet impingement onto moving surfaces, but I was surprised that the authors didn't present their experiments in non-dimensional terms (e.g. Re, We, Oh, ...). Just a thought.**

The dimensionless numbers are added to the manuscript.

**Reviewer #2:**

***Manuscript Summary:*   
The article describe the design and use of two different devices for characterizing low-reynolds-number liquid jets on moving surfaces for applications in the transportation industries.  
  
*Major Concerns:*  
No Major Concerns.  
  
*Minor Concerns:*  
No Minor Concerns.  
  
*Additional Comments to Authors:*  
Very well written article. Illustrations are clear and the devices used are well described.**

**Reviewer #3:**   
  
**1. The references in the introduction are insufficient. Searching the citations of, for example, reference 7 brings up 18 other articles; and the references are biased towards the work of the corresponding author and do not fully communicate the state of the field. In addition, a discussion of applications beyond lubrication of rails (pages 2 and 3) would increase interest for a broader readership.**

5 more references have been added. A brief discussion of some possible applications of the experimental method is included in the last paragraph of Introduction (page 4).

**2. The protocol steps in 1.4 (especially those describing the automated software acquisition) are poorly described. Is the software here custom-built or commercial? If the former, what are the critical design/control parameters? This information would be required to design a similar apparatus.**

More details on the control system are added to Discussion.

**3. This protocol would be significantly more useful if the authors were to provide specifics about the relevant dimensionless number regimes that they are able to access. For example, what is a "high speed" surface? What is an "intermediate fluid viscosity" (page 10 of protocol)? Such descriptors are not meaningful without the relevant dimensionless parameters. What Reynolds and Deborah numbers (in the case of non-Newtonian fluids) does this protocol allow access to (for example, in their test case data)? It is critical to specify these dimensionless numbers if the protocol is to be used to probe flow regimes that are inaccessible by other techniques. This information should probably be included in/near the introduction (as part of a comparison to existing techniques) and also in the discussion.**

The dimensionless numbers are added to the manuscript.

**4. The data analysis section is insufficient — although the authors provide a picture of a measuring tool in Figure 4, representative data (not simply pictures) should also be included. Again, this would aid researchers who wanted to use this technique to make quantitative measurements across a wide parameter space.**

Figure 10 is added to the manuscript showing some representative measurement data.