Memorandum

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Subject: ACTION: Docket Submission of "Technical Drawings of a Preliminary Surrogate Retractor Design for Testing Booster Seats" (Second Draft- March 2018)

Date: FEB 2 0 2020

From: Lori K. Summers
Director
Office of Crashworthiness Standards

To: Docket No. NHTSA-2013-0055

Thru: Jonathan C. Morrison
Chief Counsel

NHTSA has developed updated technical drawings of a preliminary (upgraded) surrogate retractor for possible use to evaluate booster seats, and seeks to submit these to the docket.

Previously, at the direction of NHTSA, the University of Michigan Transportation Research Institute (UMTRI) developed a surrogate shoulder belt retractor for possible use on a new vehicle seat assembly used to evaluate child restraints under Federal Motor Vehicle Safety Standard No. 213, "Child restraint systems."[1] The UMTRI surrogate retractor was designed to replicate the performance of commercial retractors which allow a small amount of webbing to spool out before locking during a crash event. NHTSA later evaluated the retractor, and modified it. Modifications included the addition of spacer sleeves, thrust and roller bearings, and an aluminum locking pin, and changing the material of certain parts from aluminum to steel. Future modifications may be made on the retractor.

The attachments to this memorandum contain the updated (second draft) drawings of the preliminary surrogate retractor design as currently configured. These preliminary drawings are subject to change.

Please submit this memorandum to Docket No. NHTSA-2013-0055.

Attachments:

- Surrogate Retractor Drawing Package March 2018.pdf

[1] Manary, M.A, Klinich, K.D, Boyle, K.J., Orton, N.R., Eby, B. and Weir, Q. "Development of a surrogate shoulder belt retractor for sled testing of booster seats" January 2016. Link: https://deepblue.lib.umich.edu/bitstream/handle/2027.42/140786/UMTRI-2016-21.pdf?sequence=1&isAllowed=y