



In Reply Refer To: HSA-10/CC-36D

Mr. Michael Kempen Impact Absorption, Inc. 46-06 245<sup>th</sup> Street Douglaston, NY 11362

## Dear Mr. Kempen:

The Vanderbilt Truck-Mounted Attenuator (VTMA) design, originally confirmed as being crashworthy by Mr. Frederick G. Wright, Jr. in his February 13, 2001, letter, was subsequently modified by adding a rear impact face with support wheels. The original VMTA was cantilevered from the shadow vehicle and supported by a wire rope/steel boom assembly. The modified design successfully met the evaluation criteria for the National Cooperative Highway Research Report (NCHRP) Report 350 test 3-52, one of the two optional TMA tests identified in that document.

Via a FedEx package received on May 18, 2006, you provided information on a further modification to the VTMA – the addition of front wheels and a trailer hitch assembly. This new design transforms the unit from a cantilevered-type design directly connected to the frame of a support vehicle to an independent trailer, enabling quick hook-up and detachment from a support vehicle. The new design is shown as Enclosure 1. Your undated letter, which arrived in the package, requested FHWA acceptance of this new design.

To verify the continued crashworthiness of the VTMA, you conducted the NCHRP Report 350 test 3-52 at the Transportation Research Center in East Liberty, Ohio. Test 3-52 requires a 100-km/h impact at zero degrees with a 2000-kg pickup truck striking the attenuator with the centerline of the pickup truck offset one-third of the pickup truck width from the centerline of the TMA. Your test was run within these parameters with a maximum reported occupant impact velocity of 10.6 m/s and a maximum ridedown acceleration of 11.6 g's. This latter value was less than the Report 350 preferred 15 g's, and significantly less than the maximum allowable acceleration of 20 g's. The test summary sheet is shown in Enclosure 2. The occupant impact velocity and subsequent ridedown accelerations were both lower than the corresponding values in the earlier test 3-52 when the VTMA was connected directly to the support truck. These reductions were most likely the result of the design of the trailer armature, which includes a dampening mechanism that dissipates some of the energy of the impacting vehicle.





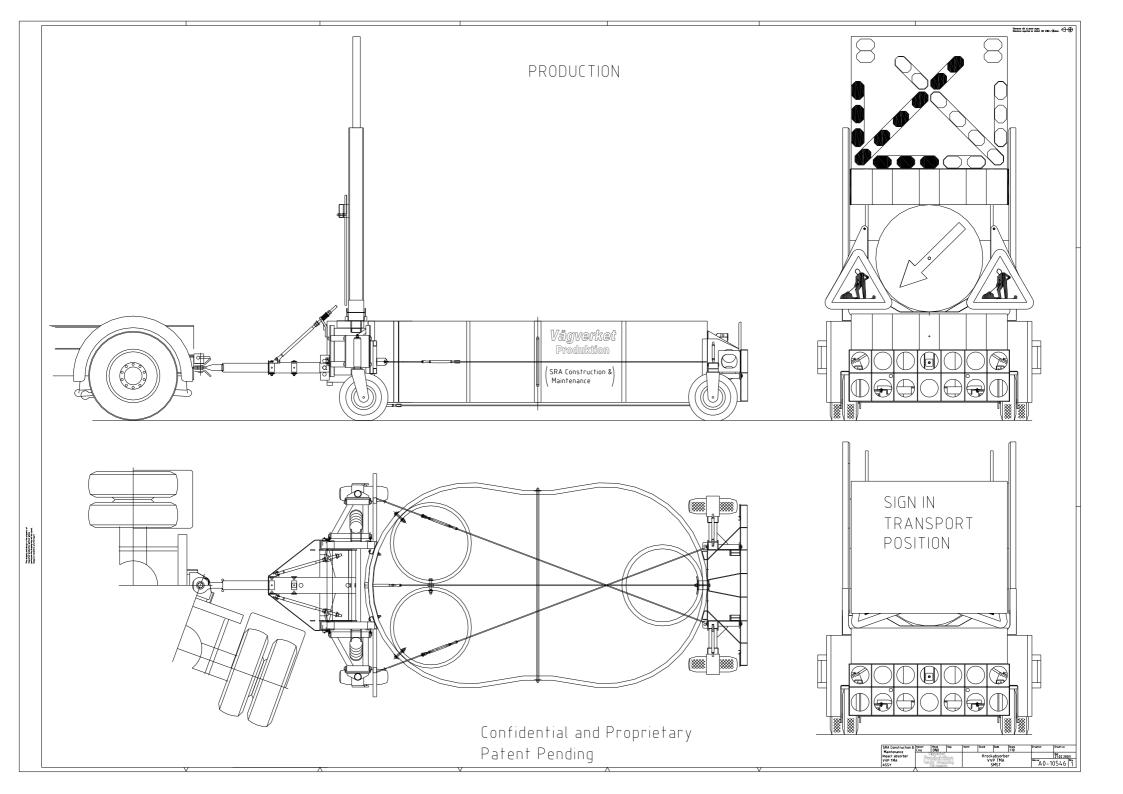
Based on the reported test results, I concur that the trailer VMTA meets the NCHRP Report 350 evaluation criteria for test 3-52, and may be assumed to satisfy these criteria for tests 3-50 and 3-51 as well. I understand that the VTMA is not currently available for use in the United States. If it is eventually sold here, all plans and specifications will need to be converted to English, with copies provided for our files.

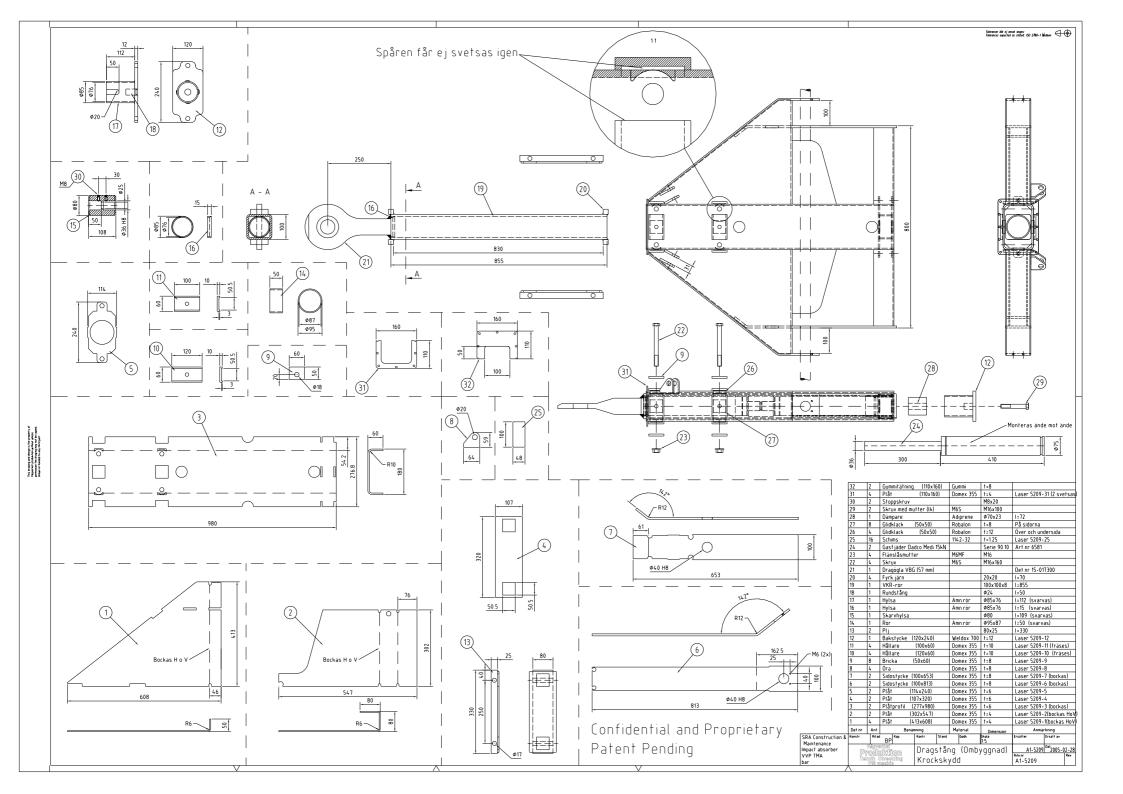
Sincerely yours,

/original signed by/

John R. Baxter, P.E. Director, Office of Safety Design Office of Safety

2 Enclosures







General Information		Impact Conditions		Test Article Deflections (m)		Vehicle Trajectory Post Test	The impacting
Test Agency	Transportation Research	Speed (km/h)	97.7	Dynamic	N/A		vehicle's final
	Center Inc. (TRC Inc.)	Angle (deg)	0	Permanent	0.3		most outer left
Test Type	NCHRP 3-52	Exit Conditions					trajectory did not
Test No.	060325	Speed (km/h)	N/A	Vehicle Damage			stay within six
Date	March 25, 2006	Angle (deg)	N/A	Exterior			feet of the
Test Article		Occupant Risk Values		VDS	N/A		centerline on
Type	Truck Mounted Attenuator	Impact Velocity (m/s)		CDC	12FDEW2		which it was
Name or Manufacturer	Impact Absorption	x-direction	10.6	Interior			traveling.
Size and/or dimension	4 polyethylene cylinders	y-direction	0.4	OCDI	F0000000		Assuming that
and material of key		THIV (optional)	N/A	Maximum Exterior			the impacting
elements		Ridedown Acceleration (g's)		Vehicle Crush (mm)	Not		vehicle was
Soil Type and Condition	N/A	x-direction	11.6		recorded		centered mid-lane
Test Vehicle		y-direction	4.8	Max. Occ. Compart.			at impact, it
Type	Production Model	PHD (optional)	N/A	Deformation (mm)	24		would not
Designation	2000P	ASI (optional)	N/A				have stayed
Model	1997 GMC 2500 Sierra SL	Max. 0.050 -s Average (g's)		Post-Impact Vehicular Behavior			within a 12-foot
Mass (kg)		x-direction	N/A	Maximum Roll Angle (deg)	5		lane width.
Curb		y-direction	N/A	Maximum Pitch Angle (deg)	16		
Test Inertial	2001.6	z-direction	N/A	Maximum Yaw Angle (deg)	34		
Dummy(s)	N/A						
Gross Static	2001.6						

Figure 9. Summary of results for test 060325