

LS-Pro TMA GENERAL SPECIFICATIONS

I. GENERAL

- A. All LS-Pro TMA Truck Mounted Attenuators shall be designed and manufactured by Energy Absorption Systems, Incorporated, Chicago, Illinois, in accordance with this specification.
- B. The LS-Pro TMA is a lightweight attenuator (409 kg, 900 lbs) system designed for installation at the back end of trucks with a minimum gross vehicle weight (GVW) of 2720 kg to 11,350 kg (6000 lbs to 25,000 lbs). Because the weight of the rearward protruding TMA is supported by the back end of the shadow vehicle, care must be taken not to exceed the truck manufacturer's published maximum axle loads. To ensure that the driving characteristics of the vehicle are maintained, adhere to the truck manufacturer's recommended center of gravity zone.
- C. The truck and TMA combined shall have a forward skid distance during an impact by a 2000 kg (4410 lbs) pickup truck, at a design speed of 50 km/h (30mph), of less than 4 m (13 ft) for trucks weighing greater than 2720 kg (6000 lb). This distance is based on all the truck's wheels being locked, the transmission in gear, parking brake set, with the truck being situated on clean, dry asphalt pavement.

II. PERFORMANCE CRITERIA

- A. The LS-Pro TMA, when mounted to a truck weighing up to 8550 kg (18,850 lbs) (actual weight), located on clean, dry pavement with the transmission in second gear and brakes locked, shall perform as follows:
 - 1. For impacting vehicles weighing up to 2000 kg (4410 lbs) impacting straight into the rear of the TMA, a durable nose material shall prevent the TMA system from incurring damage at speeds up to 8 km/h (5 mph) remaining in service without repairs. The durable nose will be capable of flexing up to 100 mm (4 in), and returning to its original shape without affecting the energy absorbing capacity of the cartridge.
 - 2. For vehicles weighing 2000 kg (4410 lbs) impacting straight into the rear of the TMA at 50 km/h (31 mph), the occupant impact velocity shall be less than 12 m/s (40 ft/sec), and the occupant ride down acceleration shall be less than 20 g's. This is a modified Test 2-51 of National Cooperative Highway Research Program Report 350 (NCHRP 350) at 50 km/h (30 mph).

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3. For vehicles weighing 820 kg (1800 lbs) impacting straight into the rear of the TMA at 50 km/h (31 mph), the occupant impact velocity shall be less than 12 m/s (40 ft/sec), and the occupant ridedown acceleration shall be less than 20 g's. This is a modified Test 2-50 of NCHRP 350 conducted at 50 km/h (31 mph).

Test results, associated test reports, and films showing ground targets, car targets and a method of timing for obtaining vehicle speed shall be submitted showing that the TMA cartridge assembly the vendor is providing has met the test and performance criteria as called out in these specifications. The report shall be in the format of and evaluated by NCHRP 350 guidelines.

III. DESCRIPTION OF SYSTEM

- A. The LS-Pro TMA shall consist of three basic components: aluminum cartridge with a Durashell™ nose, a backup, and a backup support structure for attaching the system to the truck. Total weight of the basic system shall be approximately 409 kg (900 lb). The complete LS-Pro TMA shall be designed to make attachment or detachment from the truck simple and fast, with the major sub-assemblies listed above remaining together when detached from truck.
- B. The LS-Pro TMA cartridge shall have a standard trailer lighting system including brake lights, tail lights, turn signals, and ICC bar lights. The wiring from the rear lights shall be routed and secured inside the cartridge. A strain-relief connector shall secure the wiring at the exit of the cartridge.
- C. The standard LS-Pro TMA cartridge will also be equipped with one steel-wheeled, rear-mounted jack, which in the retracted position shall act as a skid protector. The two rear bottom outside comers shall also be protected by plastic skid protectors.
- D. The exposed steel shall be primed and painted yellow. All welding shall be done by or under the direct supervision of a certified welder.
- E. The standard rear-facing surface of the cartridge shall have a 100 mm (4 in)-wide black-on-yellow inverted "Y" chevron pattern.

IV. OPTIONAL ACCESSORIES

- A. Two front hand-crank jacks with swivel casters attached to backup for removing unit from truck for storage.

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