

TRUCK MOUNTED ATTENUATOR NCHRP 350 TEST LEVEL III

This specification is a product of the Manitoba Department of Transportation and Government Services.

PART I – GENERAL CLAUSES AND CONDITIONS

- 1.0 The equipment furnished under this specification shall be the latest improved model in current production, as offered to commercial trade, and shall be of quality workmanship and material. The respondent represents that all equipment offered under this specification shall be new. **Used, shopworn, demonstrator, prototype, or discontinued models are not acceptable.**
- 2.0 Respondent should submit with the solicitation the latest printed literature and detailed specifications regarding the equipment the respondent proposes to furnish. This literature is for informational purposes only.
- 3.0 The unit shall be completely assembled and adjusted, and all equipment including standard and supplemental equipment shall be installed and the unit made ready for installation by Transportation and Government Services upon delivery.
- 4.0 All parts not specifically mentioned which are necessary for the unit to be complete and ready for operation or which are normally furnished as standard equipment shall be furnished by the vendor. All parts shall conform in strength, quality and workmanship to the accepted standards of the industry.
- 5.0 The unit provided shall meet or exceed all Federal and Province of Manitoba safety, health, lighting and noise regulations and standards in effect and applicable to equipment furnished at the time of manufacture.
- 6.0 All plastic components furnished to this specification should have an imprinted SAE symbol identifying the resin composition of the component so that the item can be recycled after its useful life. Manufacturers are encouraged to use recycled plastics and materials in the manufacture of their products in order to conserve natural resources, energy and landfill space.
- 7.0 Transportation and Government Services is committed to procuring quality goods and equipment. We encourage manufacturers to adopt the International Organization for Standardization (ISO) 9001-9003 standards, technically equivalent to the American National Standards Institute/American Society for Quality Control (ANSI/ASQC Q91-93 1987), and obtain certification. Adopting and implementing these standards is considered beneficial to the manufacturer, the Department of Transportation and Government Services, and the environment. It is Transportation and Government Services' position that the

total quality management concepts contained within these standards can result in reduced production costs, higher quality products, and more efficient use of energy and natural resources. Manufacturers should note that future revisions to this specification may require ISO certification.

8.0 Measurements will be given in the metric system.

PART II – SPECIFICATIONS

1.0 Scope

This specification describes a crash attenuator for truck mounting, used for protecting Department personnel and equipment as well as the general public from injury and damage caused when errant vehicles crash into Department equipment used in highway operations. Units furnished to this specification shall meet or exceed the following requirements.

2.0 Approved Product

The products which may be furnished to this specification are certified as having passed the National Cooperative Highway Research Program (NCHRP) Report 350 crash test. Only units that have successfully passed test level 3 will be considered for this purpose.

3.0 Design and Performance Requirements

Design and performance requirements shall be functionally designed to incur no structural failures or impairment of energy absorbing capability due to vibration under normal use for the life of the unit. Normal use is defined as being hauled at highway speeds for extended periods of time on highways, over railroad crossings, potholes, speed bumps and rough road surfaces. It shall also not incur structural failures or impairment of energy absorbing capability due to moisture retention.

4.0 Mounting Hardware

- 4.1 Mounting hardware and fasteners shall be constructed of steel or aluminum and designed for mounting on a single rear axle, standard production 12,250 kg GVWR truck.
- 4.2 Vendor shall disclose with their response, or within 10 days of request, all special parameter and vehicle configuration requirements necessary for their TMA to mount on all types of trucks with platform, dump, and other bodystyles.

5.0 Crash Testing and Certification

Each new TMA design purchased under this specification shall be tested and certified as being in compliance with the test criteria established in NCHRP 350.

6.0 Leveling Stands

The front of the unit shall be equipped with at least two adjustable caster-wheeled leveling stands to assist in mounting of the unit. At least one caster wheeled, retractable, leveling stand shall be located at the rear of the unit for portability purposes when unit is not mounted.

7.0 Self-Contained Tilt Mechanism

The unit shall be equipped with a self-contained tilt feature powered by a replacement fuse-protected link to the 12 volt vehicle electrical system that will allow the rear of the device to be raised and lowered from horizontal to vertical (90 degrees). The controls for activating this operation shall be located in the truck cab (raise only), convenient to driver, and at the right rear corner of the truck, to allow the operator to raise/lower the unit to its full 90 degree tilt position and manually or hydraulically lock the unit in position with a minimum of one locking pin or other mechanical locking device. The manual or hydraulic locking system shall be designed to allow routine locking of the unit in a maximum of three minutes.

8.0 Quick Attach/Detach Mounting

The quick attach/detach mounting shall be such that the attenuator assembly including mounting brackets and hydraulics may be routinely removed from the supporting truck's mounting plate, within 15 minutes. Any remaining mounting hardware and components shall be completely under the truck body or frame so that when the unit is removed from a dump truck, the full dump capabilities are unaffected. Vendor shall describe with the bid, or within 10 days from request, how their unit meets these requirements.

9.0 Lighting

The rear of the crash attenuator shall be equipped with a red tail lamp, red stop lamp, turn indicator lamp and a red reflector on each side. These lamps and reflectors may be incorporated into a single unit on each side. A wiring harness shall be provided for connection of the crash attenuator lighting system to that of the vehicle on which the unit is mounted. All wires shall be protected by a replaceable fuse and be colour coded or otherwise identified and shall extend the full length of the mounting hardware with enough additional length to enable Transportation and Government Services personnel to install a plug (supplied by Transportation and Government Services) compatible with the receptacle on the

supporting vehicle. The lighting arrangement on the crash attenuator shall be in accordance with Manitoba Highway Traffic Act.

10.0 Safety Plaques or Decals

Product safety plaques or decals shall be furnished and affixed at the operator's station and at any hazardous area. The safety plaques or decals shall describe the nature of the hazard, level of hazard seriousness, how to avoid the hazard, and the consequence of human interaction with the hazard. Permanent plaques are preferred to decals. Type, size and location of product safety plaques or decals shall be in accordance with current ANSI Z535.4.

10.1 A permanent lubrication plaque shall be furnished and visible from the outside of the unit. The plaque shall note all lubrication points and recommended periodic oil changes and lubrication intervals.

10.2 Each side of TMA shall be labelled as to level and vehicle impact speed.

11.0 Painting

The unit shall be painted an approved manufacturer's standard colour except for glass, rubber and those metallic accessories or fixtures constructed or rust-resistant or plated material not normally painted. Lead paint is not acceptable.

11.1 The entire rear portion of the attenuator when in the horizontal operating position shall be equipped with 3M diamond grade sheeting with alternating black and fluorescent orange, inverted V-shaped chevron stripes. Each stripe shall be 212 mm wide.

11.2 In addition to the stripes required in paragraph 11.1 above, the rear portion of the attenuator when in the vertical stowed position, shall also be equipped with 3M diamond grade sheeting with alternating black and fluorescent orange, inverted V-shaped chevron stripes. The size of the striped area of the TMA in this position shall be as a minimum, the same size as the striped area while in the operating position. This striped area shall be located at the lower portion of the TMA.

12.0 Manuals

One copy each of an illustrated parts book, operator's manual, service manual and installation manual shall be delivered with each unit. The manuals may be combined into one comprehensive manual. These shall include, as a minimum, appropriate manuals for the electrical system and proper maintenance of the unit.

12.1 The manuals supplied shall include the electrical, mechanical, hydraulic system, and controls. Additionally, one set of complete wiring, plumbing and hydraulic schematics shall be delivered with each unit. All schematics

shall be clear, legible and indicate the location of each component. Hydraulic schematics shall include the diameter and length of each hose and the manufacturer and part number of each fitting.

- 12.2 The manuals and schematics supplied shall provide complete and comprehensive information on all equipment, components and accessories, as supplied to comply with this specification.
- 12.3 Parts manuals shall show the manufacturer of each part and all cross-referencing between the vendor and the manufacturer.
- 12.4 The operator's manual shall include detailed instructions on the proper method of operation of the unit. Necessary warnings and safety precautions shall be included.
- 12.5 The following additional information shall be provided by the vendor at time of delivery if it is not included in the manuals required above.
 - 12.5.1 Manufacturer's recommended service/preventative maintenance intervals.
 - 12.5.2 Recommended fluids, lubricants, and their SAE equivalents.

PART III – DELIVERY, ACCEPTANCE AND PAYMENT

1.0 Delivery Requirements

Delivery of all equipment on this order shall be complete within the number of days bid, as shown on the purchase order. Any units not delivered within this time frame may be cancelled from the purchase order.

2.0 Acceptance Inspection

All units may be subject to acceptance inspection and road testing upon receipt. Acceptance inspection and road testing will not take more than five working days, weather permitting. The vendor will be notified within this time frame of any units not delivered in full compliance with the purchase order specification.

3.0 Instructions on Safety, Operation and Preventative Maintenance

The vendor shall provide to Transportation and Government Services the services of a competent, factory-trained technician, knowledgeable in the use and operation of the unit, for a minimum of four hours scheduled instruction on safety, operation and preventative maintenance of the unit by factory-trained personnel. Instruction shall be provided at a time mutually agreed upon by the vendor and Transportation and Government Services, but prior to payment.

4.0 Payment

Payment will be made within 30 days after the acceptance inspection has been completed and Transportation and Government Services determines that the equipment delivered meets specifications or the day on which a correct invoice for the goods or materials was received, whichever is later.

PART IV – WARRANTY

1.0 Warranty

The unit shall be warranted against defects in material and workmanship for a period of not less than 12 months and shall cover 100 percent parts and labour for the unit. If the manufacturer's standard warranty period exceeds 12 months, then the standard warranty period shall be in effect. The vendor shall furnish the manufacturer's warranty to the shipping address at time of delivery. The vendor shall be ultimately responsible for the warranty. The warranty begins on the date the unit is determined to meet specifications and accepted into Transportation and Government Services inventory.

2.0 Parts and Service

The manufacturer of the equipment furnished shall have factory-trained personnel available for warranty repairs and the performance of service. The dealer shall also maintain an inventory of high-usage parts and a quick source for low-usage parts.