

# Request for Quote

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
ONE CAPITOL HILL  
PROVIDENCE RI 02908

CREATION DATE : 30-JUL-15  
BID NUMBER: 7549767  
TITLE: TRAILER MOUNTED ATTENUATORS - DOT  
  
BID CLOSING DATE AND TIME: 21-AUG-2015 11:00:00

BUYER: Hill, Lisa  
PHONE #: 401-574-8118

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DOT ACCOUNTS PAYABLE  
TWO CAPITOL HILL, RM 230  
SMITH ST  
PROVIDENCE, RI 02903  
US

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DOT MAINTENANCE BUSINESS OFFICE  
360 LINCOLN AVE  
WARWICK, RI 02888  
US

Requisition Number: 1423510

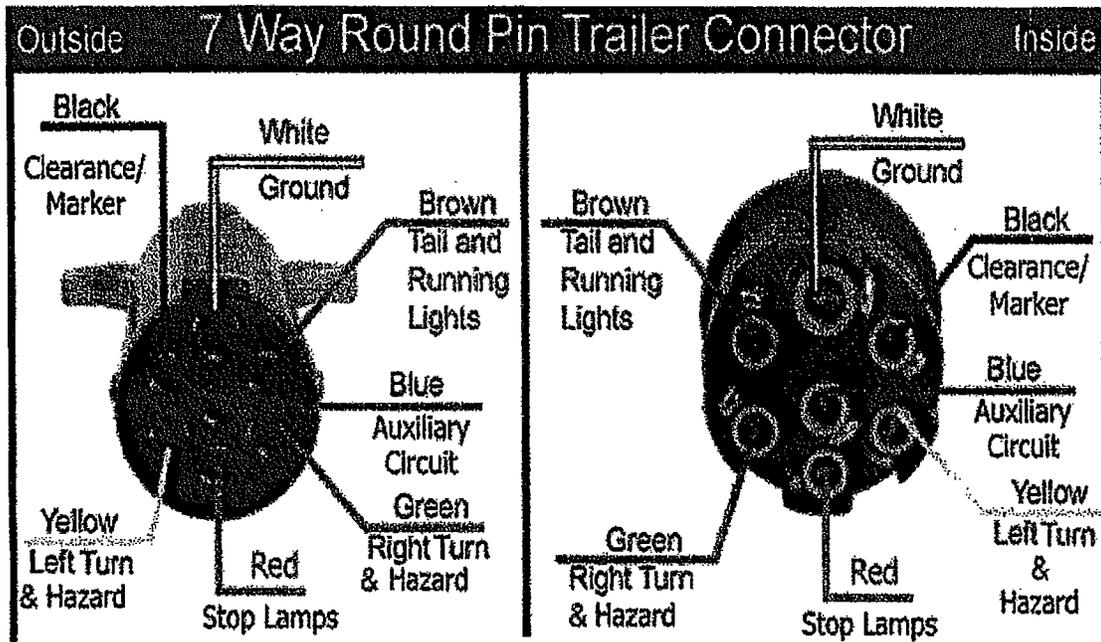
Line	Description	Quantity	Unit	Unit Price	Total
1	2015 TL-3 SCORPION TRAILER MOUNTED ATTENUATORS WITH MOUNTED MB5-15 LED ARROWBOARDS, IN ACCORDANCE WITH ATTACHED SPECIFICATIONS. NO SUBSTITUTIONS TRUCK MOUNTED ATTENUATORS ARE A SAFETY REQUIREMENT FOR USE IN PROTECTING WORK CREWS DURING HIGHWAY OPERATIONS. A TOTAL OF THREE (3) UNITS ARE REQUESTED PER ATTACHED SPECIFICATIONS.  MAKE _____  MODEL _____	3.00	Each		

Delivery: \_\_\_\_\_

Terms of Payment: \_\_\_\_\_

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer

**RIDOT**  
**STANDARD TRAILER**  
**WIRING DIAGRAM**



PLASTIC GROTE PLUG	#82-2140
FITS PLASTIC GROTE SOCKET	#82-2145

# Trailer Mounted Crash Attenuator Specifications

## GENERAL:

The system required under these specifications is to be used by RIDOT to protect motorist and workers in both moving vehicle and stationary barrier vehicle application. The system provided shall be tested and approved to meet the NCHRP 350 tests 3-51, 3-52, and 3-53. The Trailer Attenuator shall be tested and FHWA approved.

Each complete unit shall be new, of a current model and be in production at the time of delivery as evidenced by the Manufacture's published literature.

Detailed specifications of the exact unit offered shall accompany the Proposal. Failure to do so shall disqualify the Proposer.

All supplies, parts and/or attachments not specially mentioned, but necessary to make the described unit fully operational shall be furnished by the Contractor. All units shall conform in strength, quality of material and workmanship to the industry standard. Any allied equipment shall be installed by the contractor in such a manner so as not to adversely affect the Original Equipment Manufacturers (OEM's) product.

## DESIGN/SPECIFICATIONS:

The Trailer Attenuator shall consist of four major components;

- (1) Steel Tongue Section including Telescoping Anti-Rotational System.
- (2) Aluminum Strut Section with Curved Re-directing Aluminum Tubes.
- (3) Aluminum Cartridge with Curved Re-directing Aluminum Tubes.
- (4) Rear Axle Wheel Assembly.

The trailer tongue section shall include Telescoping Anti-Rotational System to prevent the Trailer Attenuator from rotating to the side or becoming detached from the host vehicle in off-set and off-set angled impacts. The Telescoping Anti-Rotational System shall have a single pintle hook connection and not include any hydraulic systems or secondary/ancillary attachments to the host vehicle.

The Trailer Attenuator shall incorporate a single lift jack with adequate lift capacity and load capacity as per the manufacturer. An integrated safety braking system shall be installed and operational on each Trailer Attenuator and function per the manufacturers requirements.

Lighting -- the trailer attenuator shall have a trailer lighting assembly per FMVSS no. 108, lamps, reflective devices and associated equipment. Reflective tape or conspicuity tape shall be installed on the upper curved aluminum side members of the strut and cartridge sections. The unit shall include brake lights, LED taillights, turn signal, reverse lights and an ICC bar light. The standard single 7 pin trailer connector (see attached spec) shall make the connection for all lights to the back of truck. Each unit must come complete with a wireless remote controlled led lighted arrow board, mounted and ready for use (see attached spec).

*Each unit shall be delivered to 360 Lincoln Avenue Warwick RI 02888 completely assembled and ready for use. Each unit must come equipped complete with recommended arrow-board uprights/mounts along with LED lighted arrow board (see attached spec.) mounted and ready for use, with wireless remote installed and ready for use. Each unit must be installed and delivered by the awarded vendor.*

# Trailer Mounted Crash Attenuator Specifications

## **REFERENCES:**

The Proposer shall provide with the Proposal, the business names, addresses, telephone numbers and contact persons of (3) three references (current customers) whose individual operations are similar in size to RIDOT. Failure to do so may disqualify the Proposal.

## **SPECIAL REQUIREMENTS:**

The Proposer shall be an authorized distributor of the unit offered and remain so for the duration of the Contract. The Proposer shall provide proof of distributorship from the Manufacturer with their Proposal.

## **AUTHORIZED DEALER:**

The Proposer shall be a Manufacturer authorized and licensed dealer specializing in the sales and service of the unit offered and remain so for the term of the Contract. The Proposer shall be established in this type of business for a minimum of (3) three years and shall be currently and for the term of the Contract.

## **APPROVED EQUAL / NO SUBSTITUTES:**

When material or equipment is referred to by brand name and/ or model, consider the term "or approved equal" to follow unless "no substitute" is noted. If the Proposer is not providing or offering the brand and model suggested by the Client Agency, the Proposer shall supply bid documentation and/ or specifications, illustrations and all other pertinent information as evidence that the substitute offered is equal to or better than the brand and/ or model noted in the specification. Failure to do so may result in bid disqualification.

When materials or equipment is referred to by a brand name and model and is followed by the words "**NO SUBSTITUTES**", the Proposer shall provide that specific brand name and model of the material or equipment specified by the Client Agency. Any Proposal received not in compliance with the "**NO SUBSTITUTES**" requirement shall be disqualified.

## **DELIVERY INSPECTION:**

Each complete unit and/or workmanship shall be subject to incoming inspection and testing by the Client Agency prior to the complete unit being received by Client Agency. In the event that a unit is deemed defective in material or workmanship or otherwise does not conform to the requirements of the Contract, the Client Agency shall have the right to either refuse delivery of it or to require its correction at no cost to the Client Agency.

## **REQUIRED DOCUMENTATION:**

One (1) fully completed set of Detailed Specification sheets, parts and repair manuals shall be submitted with the bid. Failure to do so may result in bid disqualification.

Two (2) official letters of acceptance from the Federal Highway Administration (FHWA) for successfully completing the National Cooperative Highway Research Program (NCHRP) Report 350 test level 3 (TL-3). Failure to do so may disqualify the bid.

Two (2) complete sets of detailed brochures for the unit being offered shall be submitted with the bid. Failure to so may result in bid disqualification.

An official warranty statement or information booklet stipulating the warranty terms offered or any deviations shall be submitted with the bid and can be endorsed by the Manufacturer. Failure to so do may disqualify the bid.

# Trailer Mounted Crash Attenuator Specifications

## **SAFETY AND STANDARDS:**

Each unit shall comply with all applicable Federal and State Motor Vehicle, Occupational Safety and Health Administration (OSHA) and Federal and Motor Vehicle Safety Standards (FMVSS) requirements, safety standards and codes and any other applicable regulations in force.

It is expected that all units delivered under the Contract resulting from these specifications will be built with identical and interchangeable parts and components. If any substitutions or changes are made for such reasons as production or improvements of product, the Client Agency shall approve said substitutions or changes in writing.

## **WARRANTY / PRODUCT SUPPORT:**

The warranty shall be in effect as follows, starting from the date of acceptance by the Client Agency. The Client Agency shall notify the Contractor when the unit is placed into service.

The Contractor must furnish a minimum one (1) year, no cost, parts and labor warranty. Any shipping expense is to be included, if applicable.

## **TRAINING:**

The Contractor shall provide a competent representative to provide at least four (4) hours of operator training for each of the locations where the unit(s) is assigned. This training shall include all aspects of operating and servicing the complete unit. Electronic media may be used to supplement training with Client Agency approval. The Contractor shall supply any audio/visual equipment if required for each session.

All training shall be conducted within the State of Rhode Island at a centrally located area or at the location where the unit is assigned during normal working hours of 7:00AM to 3:30 PM Monday through Friday. The Client Agencies training center may be available for use at no cost. If requested Training shall be offered and conducted at no cost to the Client Agency. If requested by the Client Agency, the Contractor shall submit lesson plans on the intended training approval before a purchase order is issued.

## **DELIVERY:**

The Contractor shall deliver the units complete and in order to be put into immediate service upon delivery. The Contractor shall state the best factual delivery date possible on the Schedule.

Each delivery shall be made to the location determined by each purchase order. Delivery shall be made between 7:00AM and 3:30PM, Monday through Friday. The Contractor shall notify the Client Agency forty-eight (48) hours in advance of the scheduled delivery in order to allow for acceptance inspection at the location determined by the purchase order.

## **PURCHASE ORDERS:**

Questions concerning a purchase order shall be directed to Purchasing, Lisa Hill Phone # 401-574-8113.

# Trailer Mounted Crash Attenuator Specifications

## INVOICING AND PAYMENTS:

For Prompt payment processing, please mail invoices to the following address:

State of Rhode Island

Department of Transportation

Highway Bridge and Maintenance

Attn:

360 Lincoln Avenue

Warwick, Rhode Island 02888

Req 1423510

## TRAILER ATTENUATOR MOUNTED ARROWBOARD SPECIFICATIONS

### GENERAL SPECIFICATIONS:

#### 48"x96" ARROWBOARD

The purpose of these specifications is to describe an attenuator trailer mounted, traffic control warning unit which shall consist of an all-weather sign panel containing illuminated directional arrow capable of being readily understood from a distance of one-half mile minimum during either daytime or nighttime operation.

The attenuator trailer mount Type C arrow panel unit shall meet the requirements of the Manual of Uniform Traffic Control Devices (MUTCD). The unit shall be used on public streets and highways to direct and to warn traffic of lane closures, road diversions and slow moving maintenance operations. The unit shall operate from the vehicle electrical system.

### GENERAL OPERATING CRITERIA:

Sign arrow shall be capable of a flashing operation. Remote operation shall be, arranged for simplicity and quick operation so that setup and takedown time can be kept to a minimum and can be operated by one person. All welding shall comply with American Welding Society standards. All nuts and bolts shall be steel, minimum grade 5, zinc plated or stainless steel.

### EQUIPMENT COMPONENTS:

#### SIGN PANEL:

Sign panel shall be sandwich type and lamps shall be mounted on it. Panels shall be fabricated from 0.063" thick aluminum sheets riveted to 3" minimum aluminum channels. Aluminum panels shall be etched and finished with a minimum of two coats of non-reflective flat black enamel on front and back surfaces. Panels shall be not less than 48" high x 96" wide. The perimeter frame shall be from extruded aluminum alloy 1/8" x 3" x 1" minimum. The frame shall be welded. The panel shall be adequately mounted and braced against vibration and shock.

#### SIGN LAMPS:

A minimum 15 lamps per board are required. A solid-state electronic flasher system shall provide 25 to 40 flashes per minute.

Sign lamps shall be arranged and securely mounted on the panel to provide "arrow" or "caution" delineation as a traffic message indicator. Not less than five (5) lamps per "Arrowhead" are required. The sign shall be capable of indicating right or left traffic direction. By illumination of lamps, the sign shall also be capable of indicating that traffic pass to either side of the unit. Lamps shall be LED (amber), PAR 46, and hooked individually.

The LED lamps shall incorporate a pulse burst of white light prior to the amber flash with wireless remote control. The white flash burst shall be on for 35 milliseconds and off for 50 milliseconds prior to the normal amber flash. The white flash shall be produced by 8 super bright LED's and not effect the normal MUTCD operation of the amber LED flash sequences.

Lamp hoods shall be high-impact plastic and shall circumscribe the lamps 360 degrees. Lamp hoods shall be attached to the sign panel by stainless steel machine screws into insertion nuts permanently installed in the sign panel. The lamp wiring harness shall be securely fastened to the inside of the sign panel to reduce fatigue at the lamp terminals.

#### **CONTROL AND CIRCUITRY:**

The system shall operate on 12 VDC current, incorporating an automatic, ambient light monitoring system to maximize system efficiency.

The lamps shall be operated electronically. An automatic lamp intensity regulator to keep lamp output constant with varying battery voltages. The control unit shall have touch pad control with graphic LCD arrow display and lamp intensity and voltage graphic.

Electro-mechanical toggle and/or rotary switches are not acceptable. The controller shall have an LCD display to indicate and verify mode selection and operation. The remote display shall show the operator a preview of the selected mode prior to arrow panel activation.

Instantaneous mode switching is not acceptable.

The control shall incorporate back lighted membrane switches, reverse polarity protection and audible and visual low battery alarm.

When battery charge level is approaching cut-off, the sign display will automatically switch to four-corner caution mode, conserving energy and preventing a "blank" display condition. All sign panel lamp wiring shall be protected to prevent damage to lamps or panel harness in the event of a short circuit. A battery charge condition indicator shall be provided to check battery supply voltage. Lamp intensity shall be regulated by a photo resistor monitoring ambient light levels 24 hours a day. A lamp intensity indicator shall be provided to display lamp intensity level. The control system shall have self diagnoses and indicate to the operator of a lamp circuit failure. Automatic dimming for night time operation shall be 50% reduction in intensity to eliminate glare. An automatic, low voltage disconnect shall protect batteries from deep discharge condition. The disconnect level shall be preset as prescribed by the battery manufacturer to reduce battery wear. The flash rate shall be 25 - 40 flashes per minute with a 50 duty cycle. The system shall incorporate a remote control capable of being removed from the trailer and operated from the cab of the towing vehicle for moving operations. The remote control shall communicate with the sign via FCC approved radio transmitters. The remote control shall be security coded and be dedicated to the "host" sign.

Default sign display to be four-corner caution.

The wireless remote shall derive power independently from the controller power source. A lockable NEMA enclosure shall be mounted on the upright supports for storage of the wireless remote when not use.

#### **FUSE PROTECTED CIRCUITRY:**

All wire, cable and other electrical components shall be properly sized/rated for the unit and its operations and shall be suitable for exposed outdoor installations subject to adverse weather conditions and ambient temperatures ranging from 120 degrees F down to -40 degrees F. Wiring and cable shall UL approved for use under required operating conditions. The system shall be protected against short circuit, overload and reverse polarity by appropriate fuses and protective devices.

#### **SIGN PANEL MOUNT - POWER LIFT:**

A 12-volt DC power lift unit shall be incorporated into the sign panel mount to provide a method to remotely raise the sign panel from the travel position to the operating position. The power lift unit shall consist of 12-volt DC, linear actuator, 250 pound capacity, equipped with automatic reset thermal overload and ball detent overload crutches. An actuator control switch shall be incorporated into the sign panel remote for operation of the power lift from within the vehicle cab.

The power lift support shall consist of two (2) pieces of 2"x2"x3/16"x80" steel tubing. These members shall have encapsulating brackets and have 1/2" through hole to mate with the holes in the attenuator trailer frame. They shall be secured by 1/2" grade 5 cap screws with locking nuts. These vertical supports will accept the sign panel power lift mount.

**POWER SUPPLY**

The unit should be self powered stand alone with 55 watt solar panel, solar regulated. With one (1) group 27 deep cycle 12 volt battery 100 amps per hour.

Battery tray must be steel with a poly battery cover.

**WARRANTY:**

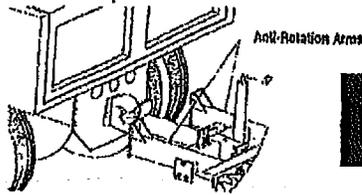
The warranty shall apply to parts and labor covered by standard factory warranty, and accessories by their respective manufacturer. The above also applies to parts and accessories used under normal operating conditions.

**MANUALS:**

One copy of the current service manual and one copy of the operation manual shall be provided with each unit.

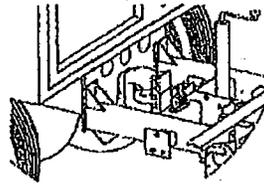
# Telescoping Anti-Rotation System (TARS™)

## Pre-Impact Condition



Scorpion®  
Trailer Attenuator  
10002 Series

## Post-Impact Condition



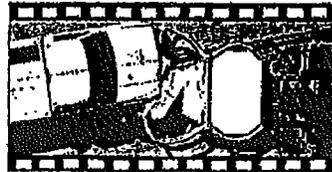
The Scorpion Trailer attaches directly to the pintle hook. It does not require additional installation, or truck modification, beyond standard factory installed pintle hook and 1/2" steel frame plate.

Upon impact, two heavy duty anti-rotation arms are driven against the frame plate, preventing angular rotation of the Scorpion Trailer during an accident.

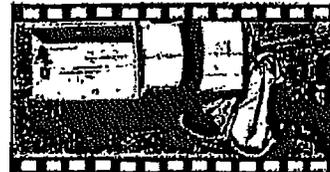
**TL-3; 3-53 Offset Angled Test — 4,500 lb vehicle impacts 20,000 lb host vehicle at 62.5 mph (100 kph)**



Beginning of impact



Mid-point of impact

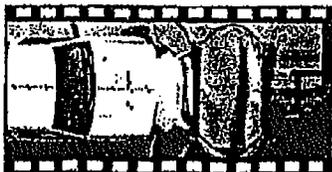


End of impact

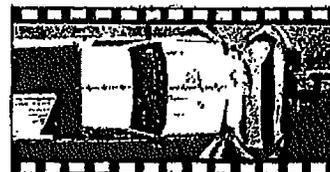
**TL-3; 3-51m Inline Test — 4,500 lb vehicle impacts 10,000 lb host vehicle at 62.5 mph (100 kph)**



Beginning of impact



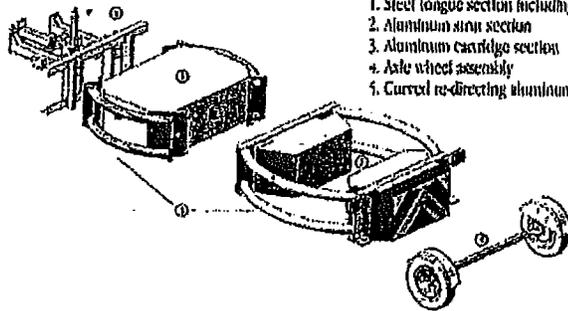
Mid-point of impact



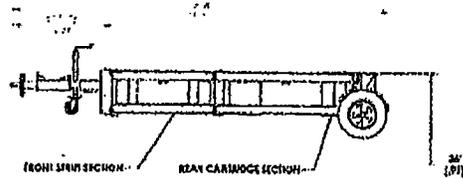
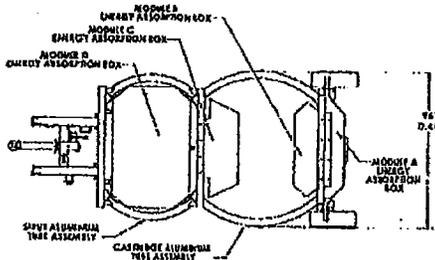
End of impact

## Specifications

	TL2	TL3-STD	TL3-Buro
• Length	13' 0" (3.96m)	17' 10" (5.44m)	17' 10" (5.44m)
• Width	96" (2.44m)	96" (2.44m)	96" (2.44m)
• Height	36" (.91m)	36" (.91m)	36" (.91m)
• Weight	1240 lbs (562kg)	1730 lbs (785kg)	1541 lb (700kg)



1. Steel tongue section including TARS™
2. Aluminum strut section
3. Aluminum carriage section
4. Axle wheel assembly
5. Curved re-directing aluminum tubes



Scorpion Brand only  
NO substitutes

**Contract Terms and Conditions**

**Table of Contents**

Terms and Conditions.....VI  
    BID STANDARD TERMS AND CONDITIONS .....VI  
    TERMS AND CONDITIONS FOR THIS BID .....VI  
    VENDOR SPECIFICATIONS .....VI  
    DELIVERY PER AGENCY .....VI

**Terms and Conditions**

**BID STANDARD TERMS AND CONDITIONS**

**TERMS AND CONDITIONS FOR THIS BID**

**VENDOR SPECIFICATIONS**

ALL VENDORS MUST INCLUDE SPECIFICATIONS WITH BID PROPOSAL (EVEN THOSE BIDDING BRAND SPECIFIED). FAILURE TO SUBMIT SPECIFICATIONS WITH BID PROPOSAL MAY RESULT IN DISQUALIFICATION OF BID. ITEMS IN CATALOGS MUST BE CLEARLY MARKED AND PAGES TABBED.

**DELIVERY PER AGENCY**

DELIVERY OF GOODS OR SERVICES AS REQUESTED BY AGENCY.