Specifications - Invitation for Bid 6100065148

ISSUING OFFICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
BUREAU OF PROCUREMENT
1800 Herr Street
Arsenal Building, 2nd Floor
Harrisburg, PA 17103

- ON BEHALF OF-

Pennsylvania Department of Transportation

Issue Date: February 3rd, 2026

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Invitation for Bid 6100065148 Summary

Issue Date	02/03/2026
Deadline for Questions	Bidders with questions regarding IFB 6100065148 must submit all inquiries via email. Questions must be received no later than five (5) days prior to the bid closing date. All questions shall be directed to **alangreen@pa.gov** and must include the bid number in the subject line.
Bid Submission Deadline	02/26/2026
Contract Term	One Time Purchase
Overview	The purpose of this Invitation for Bid (IFB) is to procure a vehicle capable of performing under-bridge inspections. The vehicle must allow positioning of three (3) personnel and their tools approximately 61 feet, 9 inches horizontally under a bridge, extend up to 50 feet above, and extend down approximately 65 feet below the bridge surface to inspect areas as directed in the performance requirements of these specifications. With the work platform fully extended, the vehicle must be capable of slow forward and backward movement to provide continuous or overlapping inspection coverage. The unit must operate within 102 inches of the traffic lane to minimize lane closures. The vehicle shall be an under-bridge inspection unit consisting of a truck chassis, flatbed body, aerial device, and all necessary equipment, components, accessories, and options required to furnish a complete, fully operational unit. The aerial device shall be truck-mounted, hydraulically powered, and equipped with four (4) articulating boom sections, two (2) telescoping sections, two (2) rotation turrets,

	and a maneuverable rotating aluminum platform with a minimum capacity of 700 pounds for three (3) personnel. The platform shall feature fully proportional controls. The completed unit shall comply with all ANSI 92.8 regulations. Reference unit: Aspen Aerial A-62.
Eligible Bidder Qualifications	1. Must be an **Authorized/Franchised dealer** for the vehicles offered in **Pennsylvania** 2. Must hold a valid Pennsylvania Dealer License 3. Meet all specifications 4. Complete Page 5 of the Specifications All bidders must be authorized new vehicle dealers for the manufacturer(s) they represent. Bidders shall submit Franchised dealer authorization on official manufacturer letterhead, dated within six (6) months of the bid due date. Suppliers are advised that licensing requirements are governed by Act No. 84 of 1983, commonly referred to as the Board of Vehicles Act. Act of Dec. 22, 1983,P.L. 306, No. 84 Cl. 63 - BOARD OF VEHICLES ACT

Bid Submission Information	Suppliers must be registered in the Commonwealth's procurement system prior to bid submission. All bids must be submitted electronically through the **Pennsylvania Supplier Portal**.- www.pasupplierportal.state.pa.us. The following documentation **must** be submitted with the bid. Failure to submit any required documentation will result in bid rejection: • Letter of Authorization or Franchised Dealer Agreement, dated within six (6) months of bid submission deadline. • Pennsylvania Dealer License • Lobbying Certification and Disclosure (BOP-1307) • Reciprocal Limitations Act Form (GSPUR-89) • Iran Free Procurement Certification • Worker Protection and Investment Certification (BOP-2201) • Any applicable OEM Letters

1. **PURPOSE/STATEMENT OF WORK:**
   The Department of General Services, on behalf of the Pennsylvania Department of

   Transportation is issuing Invitation for Bid (IFB) 6100065148 for the purchase and delivery of one (1) Bridge Inspection Crane, in accordance with the requirements outlined in Bid Specification Section.

2. **ELIGIBLE BIDDERS:**
   Bidders must meet **all** the following requirements:

   1. Be an Authorized/Franchised dealer for the vehicles offered in Pennsylvania
   2. Hold a valid Pennsylvania Dealer License
   3. Complete Page 5 of the Specifications
   4. Meet all specifications

All bidders must submit franchised dealer authorization on official manufacturer letterhead dated within six (6) months of the bid due date. Bidders must comply with all specifications, attachments, drawings, and PCIDs associated with IFB 6100065148.

Licensing requirements are governed by Act No. 84 of 1983, commonly known as the **Board of Vehicles Act**.

All vehicles provided under this contract must be manufactured in North America (United States, Canada, or Mexico), with the majority of principal components assembled in a North American facility, in accordance with the Motor Vehicle Procurement Act (62 Pa. C.S. §§ 3731–3736).

3. BIDDING INSTRUCTIONS:

The following documentation must be completed and submitted with the bid. Failure to submit the documentation listed below will result in the bid being rejected.

- A **Letter of Authorization** or **Franchised Dealer Agreement** from the vehicle manufacturer, confirming that the bidder is an authorized dealer for the vehicles offered to the Commonwealth, is required for all vehicle bids. The letter of authorization must be **dated within the last six (6) months**.

- Pennsylvania Dealer License.

- Lobbing Certifications and Disclosure, BOP-1307- This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed under *Section 1352, Title 31, U. S. Code.* Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than **$100,000** for such failure.

- Reciprocal Limitations Act, GSPUR-89- Reciprocal Limitations Act (GSPUR-89): See Section II.4 II-IFB-017.1b Reciprocal Limitations Act – Electronic Submittal (February 2007) of the Terms and Conditions for details and requirements regarding this Act. All bidders must complete and return the Reciprocal Limitations Act Requirements Form, which is attached hereto and made part of this IFB. The completed and signed GSPUR-89 form shall be submitted with the bid response.

- Iran Free Certification and Disclosure-Prior to entering a contract worth at least $1,000,000 or more with a Commonwealth entity, a bidder must: a) certify it is not on the current list of persons engaged in investment activities in Iran created by the Pennsylvania Department of General Services (“DGS”) pursuant to Section 3503 of the Procurement Code and is eligible to contract with the Commonwealth under Sections 3501-3506 of the Procurement Code; or b) demonstrate it has received an exception from the certification requirement for that solicitation or contract pursuant to Section 3503(e). All bidders must complete and

return the Iran Free Procurement Certification form, which is attached hereto and made part of this IFB. The completed and signed Iran Free Procurement Certification form shall be submitted with the bid response.

- Worker Protection Act, BOP-2201- Pursuant to Executive Order 2021-06, Worker Protection and Investment (October 21, 2021), the Commonwealth is responsible for ensuring that every Pennsylvania worker has a safe and healthy work environment, and the protections afforded them through labor laws. To that end, contractors and grantees of the Commonwealth must certify that they are in compliance with all applicable Pennsylvania state labor and workforce safety laws.

  Such certification shall be made through the Worker Protection and Investment Certification Form (BOP-2201) (Appendix C). The completed and signed Worker Protection Certification Form shall be submitted with the bid response.

4. METHOD OF AWARD:

It is the intent of the Commonwealth to make a single award of unit(s) listed in the IFB to the lowest responsive and responsible bidder. The Commonwealth reserves the right to award by line item if it determines that it is in the best interest of the Commonwealth to do so.

Awarded vendor shall be responsible for contacting the Specification Section of the Fleet Management Division at (717) 787-1567 to set up a pre-build meeting for all chassis and body mounting component locations prior to chassis build.

Any deviations to the specification must be granted in writing by the Chief of the Specification Section, previous acceptance will not be considered pre-approved. It shall be understood that any discrepancies/deviations between the specification and the completed unit(s), chassis or body up-fitter related, must be addressed and corrected prior to the delivery deadline and the Departments acceptances.

Unit(s) shall be delivered clean, with current PA state Inspection and a full tank of fuel.

5. PO TERM:

The Commonwealth shall put forth reasonable efforts to make payment by the required payment date. The required payment date is: (a) the date on which payment is due under the terms of the Contract; (b) thirty (30) days after a proper invoice actually is received at the "Bill To" address if a date on which payment is due is not specified in the Contract (a "proper" invoice is not received until the Commonwealth accepts the service as satisfactorily performed); or (c) the payment date specified on the invoice if later than the dates established by (a) and (b) above. Payment may be delayed if the payment amount on an invoice is not.

All units must be delivered within 300 days after receipt of the purchase order by the successful bidder.

6. FREIGHT:

All vehicle(s) shall be delivered F.O.B. Destination. The Contractor agrees to bear the risk of loss, injury, or destruction of the vehicle(s) ordered prior to the receipt of the vehicle(s) by the Commonwealth. Such loss, injury, or destruction shall not release the Contractor from any contractual obligations. Except as otherwise provided in this contract, all vehicle(s) must be delivered within the time period specified in the Contract. Time is of the essence and, in addition to any other remedies, the Contract is subject to termination for failure to deliver as specified.

7. STANDARD WARRANTY:

The price shall include the standard manufacturer's warranty for all products provided if that warranty is greater than warranty required in the attached Terms and Conditions. Per PCID 1075: E.1. Construction Equipment - 2 years or 4000 hours whichever first occurs. 1 year starting from the Department's in-service date. The warranty start-up date shall be defined as the date of transfer from the PennDOT Fleet Management Division to the designated county location. This will be considered the date of delivery to the county and NOT the date of delivery by the successful bidder to the Department. The PennDOT Fleet Management will supply the actual start-up date, equipment number, and serial number of the machine, via email, to the successful bidder. It is the responsibility of the successful bidder to ensure that the equipment manufacturer recognizes and applies the Department's actual warranty start-up date in their database. Warranty repairs shall be completed at the manufacturer's location or in-house field repair completed by PENNDOT. it shall be the department's discretion to repair internally or transport the unit to the dealership/vendor. The manufacturer shall reimburse the department at the manufacturer's standard published in-house labor rate. the labor rate shall be mutually agreed upon between the department and vendor/bidder. All in-house warranty documentation shall be delivered with the pilot model. All warranty documentation shall be delivered with the pilot model.

BUMPER-TO-BUMPER WARRANTY: 1 year starting from the Department's in-service date. BRIDGE INSPECTION UNIT WARRANTY: Full factory service maintenance and warranty package shall apply to this unit. The bidder manufacturer shall warrant that the Bridge Inspection Unit manufactured by it shall be free from defects in design, workmanship, and materials for a period of 1 year, 100% parts and labor of the entire bridge inspection unit.

TECHNICAL ASSISTANCE: Manufacturer shall agree to dispatch its technicians to assist the Department with any item of maintenance or repair within 48 hours from the time such assistance is required. This service shall be available in addition to the requirements otherwise described for initial training and inspection programs. Any warranties that exceed the above warranty shall be in effect.

BRAKE WARRANTY: Manufacturer's service and warranty policy for automatic slack adjusters shall be for two (2) years 100% parts only.

RADIATOR WARRANTY: Manufacturer's standard service and warranty policy for radiator minimum shall be for one (1) year, 100% parts and labor.

ENGINE WARRANTY: The awarded vendor shall provide the Department with 100% parts and labor engine warranty, shall include all engine components internal and external FOR 60 months / 150,000 miles minimum. The oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 5 years, 100% parts and labor.

EMISSION WARRANTY: The awarded vendor shall provide the Department with a 100% parts and labor warranty for all emission-related components to include the diesel particulate filter (DPF) FOR 60 months / 100,000 miles, unlimited engine hours. Shall be warranted against corrosion, rust, rust through etc. regardless of atmospheric conditions

TRANSMISSION WARRANTY: Manufacturer's service and warranty policy for automatic shall be three (3) years, 100% parts and labor. This warranty shall include all internal and external components related to automatic transmission.

DIFFERENTIAL/AXLE WARRANTY: Manufacturer's service and warranty policy for differentials and axles shall be for three (3) years 100% parts and labor.

HYDRAULIC PUMP: Manufacturer's service and warranty policy for the hydraulic pumps, compressor, and generator shall be three (3) years 100% parts and labor.

SECONDARY / ENGINE: Manufacturer's service and warranty policy shall be three (3) years 100% parts and labor.

BODY ELECTRICAL/LIGHTING: Wiring harness shall be 5 years 100% parts. First year shall include 100% labor. All LED lights shall be 5 years 100% parts

8. Manuals:

The successful vendor shall furnish all applicable manuals per unit:

3 Operator's

3 Parts

3 Service

3 Engine

3 Transmission (Automatic or Manual)

3 Body and Sub-frame (Parts and Service)

3 Complete set of manuals for any additional items/equipment added to a piece of equipment.

The manuals listed above shall be official O.E.M. publications supplemented with technical manuals for all components as published by sub-vendors/manufacturers.

Parts Service Manuals presented must be relative to "all" items utilized to build this units, with appropriate part numbers.

All manuals shall be supplied on thumb drive in PDF format that can be loaded to a dedicated website.

Paper manuals may be supplied if available from manufacture. Paper manuals do not relieve the requirement for the thumb drives.

Delivery of these manuals shall be completed with each unit at delivery, prior to being accepted.

9.TRAINING:

Operator and Mechanic:

The successful vendor shall provide services of qualified factory trained technicians for not more than ___1___ training sessions of not more than _24____ hours at ___1___ PennDOT locations to train personnel in the operation, preventive maintenance and review of the proper usage of parts and service manuals, as well as component/system adjustments that need to be monitored at specified service intervals.

The successful vendor shall submit a training plan to the Fleet Management Division for approval within 45 days after receipt of the Purchase Order. The training plan shall consist of course outline and class schedule.

All training must be completed within 60 days after the dates established in the approved training plan unless an extension is mutually agreed to in writing by the Chief of the Fleet Management Division.

All training shall be coordinated with the District Equipment Managers, with the exception of Asphalt related training, which must be coordinated with the Statewide Training Coordinator (717) 787-4836, Fax (717) 783-4438.

The successful vendor shall furnish all applicable manuals for each unit, including:

- Three (3) Operator’s Manuals
- Three (3) Parts Manuals

SPECIFICATIONS

054700

TRUCK - SPECIAL PURPOSE - 60 FEET UNDER BRIDGE INSPECTION CRANE
TRI-AXLE (054700)

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District 10-0

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December 30, 2025, GW

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SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS:

A. INTENT STATEMENT:

Pennsylvania Department of General Services, PCID No. 1075, "*General Requirements for Bidding PENNDOT Vehicles/Equipment"*, most current version effective at the time and date of bid opening, is included as a part of this specification. PCID No. 1075 may be reviewed and downloaded from the Department of General Services website, http://www.dgs.state.pa.us. Delivery as required per Department of General Service PCID NO. 1075 Section "G". All units must be delivered within **300** days after receipt of the purchase order by the successful bidder.

Awarded OEM vendor shall be responsible for contacting the Specification Section of the Fleet Management Division at (717) 787-1567 to set up a pre-build meeting for all chassis and body mounting component locations prior to chassis build. Any deviations to the specification must be granted in writing by the Chief of the Specification Section, previous acceptance will not be considered pre-approved. It shall be understood that any discrepancies/deviations between the specification and the completed unit(s), chassis or body up-fitter related, must be addressed and corrected prior to the delivery deadline and the Departments acceptances.

Unit shall be delivered clean, with current PA state Inspection and a full tank of fuel.

All component manuals and weight distribution sheets shall be completed and supplied with the Pilot unit and the subsequent delivery of each unit.

The purpose of these specifications to describe a vehicle to provide under bridge inspection by making it possible to position three (3) personnel and their tools approximately 61-9"' horizontally under a bridge, extend 50' above and extended down approximately 65' below the bridge surface to perform inspection of areas under the bridge as directed in the performance section of these specifications. With the work platform completely extended, the truck can be driven slowly forward or backward to provide continuous or overlapping areas of coverage. The vehicle must operate within 102" of the traffic lane so that lane closures are kept to a minimum. The vehicle shall be an under-bridge inspection vehicle and will include a truck chassis, flatbed body, aerial device, and any necessary equipment, components, accessories, or options required to furnish a complete unit ready for operation. The aerial unit shall be truck-mounted, hydraulic-powered with four (4) articulating boom sections, two telescoping sections, two rotation turrets, and a maneuverable three-person, 700-pound capacity rotating aluminum platform with fully proportional controls. The construction and stability of the completed unit shall conform to all ANSI 92.8 regulations. Ref. Aspen Aerial A-62

The specified unit in this contract is not intended to be used as a crane, and the term "bridge crane" shall be synonymous with under bridge inspection unit.

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS:

B. WEIGHT DISTRIBUTION:

Weight Distribution Charts shall be submitted with the bid.

These shall be reviewed as part of bid evaluation to determine the weight distribution with "maximum legal" payload for the unit which is proposed. Engineering Certified Weight Distributions shall be provided with the pilot model.

It is understood that the components specified are minimum and if the truck manufacturer's Engineering Department recommends or deems necessary, due to their particular weight distribution, a larger component or a large GAWR totally, the burden of responsibility is hereby placed upon the manufacturer's Engineering Department to supply a unit that is totally engineered.
A written concurrence shall be supported with the bid.

1. Frame
2. Axle
3. Tires
4. Steering components
5. Rims
6. Suspension
7. Brakes
8. Any other items as required

The dynamic and static loads created by the unit, plus operational stresses, must be reviewed to ensure the Commonwealth of a properly designed/engineered unit.

The bridge inspection unit shall be designed to provide proper weight distribution for the chassis cab to axle dimension proposed. The weight of the bridge inspection unit portion less chassis weight is required to show the center of gravity on a drawing and shall be submitted with the bid. The equipment should be located to provide serviceability and optimum weight distribution. Any bidder, who does not submit this information, will not be considered.

Bucket payload shall be 700 LBS.

In addition to the Engineering weight distribution provided at the pilot model inspection, the following information is required:

The vehicle shall be certified for 80,000 LB Gross Vehicle Weight Rating (GVWR). The GVWR shall be identified in the cab or on the door as the final complete certification label (minimum rating).

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS

D. VEHICLE COMPONENTS

: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

ACTUAL TRUCK WEIGHT (LB):

Chassis only _____Front Axle
_____Rear Axle
_____Total

"Chassis with crane body", shall be split weighed and total weighed

_____Front Axle
_____Rear Axle
_____Total

The above may be performed by the bridge inspection unit company.

Truck GAWR's as Built (LB)

	Front GAWR	Rear GAWR Axle 1	Rear GAWR Axle 2	Rear GAWR Axle 3
Axle	_____	_____	_____	_____
Tires	_____	_____	_____	_____
Springs	_____	_____	_____	_____
Rims	_____	_____	_____	_____

C. POWER TRAIN OVERVIEW:

The following power train combinations are acceptable (any deviation requires, prior to bid, approval in writing from Chief, Equipment Division):

ENGINE:
DIESEL, MIN. 475 HP AT GOVERNED RPM, MIN. PEAK TORQUE OF 1700 LB/FT TORQUE, MIN. 12.7 LITER (ACTUAL LITRE ENGINE)

TRANSMISSION:
AUTOMATIC ALLISION 4500 RDS 6 SPEED, with PTO provision

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

REAR AXLE:

DANA DT463P
MERITOR RT46 -164 -P
MACK S462

Lubricants for front axle hubs, automatic transmission and all rear axle differentials shall meet or exceed all appropriate MIL and SAE specifications for synthetic lubricants and shall have all plugs identified as synthetic oil, or painted red. All axles shall have magnetic drain plugs. The OEM shall provide written exemption if synthetic oil is not installed.

_____: (Continued)

D. VEHICLE COMPONENTS:

1. AXLE - FRONT:

MERITOR MFS-2
MACK FXL 20
DANA D-20000F

The front axle shall be set forward and rated at 20,000 LB minimum capacity. The front axle drag links and tie rods shall have grease zerks installed. Kingpin or bushings shall be grooved to permit grease flow. Sufficient tire clearance at maximum turning angles. Complete “Stemco” oil seal assembly, including hub, plug type window, and "Guardian" seal, or approved equal.

2. AXLE - REAR:

DANA DT463P MERITOR RT46 -164 –P MACK S462
Rear axles shall be rated at 23,000 LB. each.
Aluminum or lightweight housing is unacceptable. Only heaviest duty housing will be accepted.
All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline. All rear axle(s) shall have an extended breather tube to prevent debris buildup from entering axle housing. There shall be a torque-proportioning traction-assist device, which is full locking within the differential housing. The device shall provide maximum traction to the rear wheels when actuated and shall be a self-relieving designed to prevent gear damage and/or axle shaft breakage under extreme service conditions.

The traction-assist device shall be driver actuated by a dash mounted traction control switch.
Lubricants for all rear axles shall meet or exceed all appropriate MIL and SAE specifications for synthetic lubricants and shall have all fill plugs identified as synthetic oil, or painted red.
Stemco guardian or SKF Scotseal, Chicago Rawhide rear wheel seals, or approved equal. All axles shall have magnetic drain plugs.

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

The following information shall be presented following award of the successful vendor.

Rear axle selection shall be made after the award and maybe a mix of ratios as required. The successful vendor/manufacturer shall present three (3) computer runs showing the three most likely ratios for consideration for a top speed range of 55 MPH to 65 MPH max.

3. AXLE – LIFT – PUSHER

Axle spacing as required, to provide optimum weight distribution. 20,000 LB. minimum axle, Watson & Chalin model AL-2200 **(No substitute, standardization).** Shall be equipped with air brakes. Non-steer axle. Mounted 70 inches (or as required by the Bridge Inspection Unit manufacturer) in front of the front tandem axle. Shall utilize and include wheel/tire assemblies the same as I.D.22.

_____: (Continued)

D. VEHICLE COMPONENTS: (Continued)

5. BRAKES:

Full air antilock in compliance with the most current FMVSS requirements.
The ABS shall incorporate a diagnostic display capable of retrieving SAE fault codes. The activation switch shall be easily accessible and can be either dash or steering column mounted. A dashmounted display that will show all SAE message descriptions for the ABS shall be easily navigated and viewed from the driver's seat.
Rear & lift axle brakes: 16.5-inch x 7 inch "S" cam with quick-change type double anchor pin. Meritor Q **(No substitute, standardization).**
Steer-axle-brake: 16.5-inch x 6 inch "S" cam with quick-change type double anchor pin. Meritor Q+ (**No substitute, standardization).**

Drum brakes shall have automatic slack adjusters, and they shall be clearance-sensing type only, with adjustment on application of the brake. **(No substitute, standardization).** Backing plates shall be installed on all drum brakes.
Air compressor: Per truck manufacturer's recommendation. Compressor shall be fitted with a safety valve to prevent mechanical failure.
Low air pressure indicator: Buzzer-type and dash light. Must meet current Federal DOT guideline requirements. Air gauge shall display in 5lb. increments. Digital numerical readout is acceptable.
Air gauge and low air warning buzzer shall operate with key switch **on** and engine **off**.
Function shall not have capabilities of being deactivated by the operator.

Parking brake: Rear wheel spring-type, MGM E 30/30 or Haldex 30/30 gold seal chambers.
Parking brakes shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

Air tank: Automatic drain valve, with heater on wet (first) tank. Each of the remaining air tanks shall have a manual drain valve.

Air dryer: With heater, mounted away from road splashing and a minimum of 20 inches above road surface. Dryer shall be compatible with the body company clearance requirements for sub-frame, valve body, etc. Bendix AD-IP **(No substitute, standardization)** installation made in concurrence with the air compressor manufacturer's recommendations.

Air dryer shall be placed outside of frame rail to accommodate the changing of filter cartridges without disconnecting any hoses or removing dryer base from its mounting location.
System shall be equipped with anti-compounding valves to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

5. CAB:

Conventional aluminum or galvanized steel cab.

Hood: Fiberglass, tilting. Fenders shall be part of tilting hood. Grille shall be fixed, with protective radiator screen full size.

Air suspension system for the cab shall be factory installed. Air deflector: Clear or smoke, hood mounted. Manufacturer's standard full width for the truck model. Access to front-end hood tilt handle shall not be blocked. Fenders: Front fenders shall cover tires.

Deluxe fresh air hot water heater and defroster, manufacturer's highest output. Air Conditioning: Highest output available as OEM option.

AM/FM radio with weather band and wireless hands-free cell phone connection.
Air horn(s): Minimum 1 horn with snow-shield (not required if under hood mount).

5.CAB: (Continued)

All controls and knobs shall be properly identified.
Brake pedal and throttle shall be suspended if available from the factory.
Cab shall have reflective enhancement per EQN-127A.
There shall be a triangle warning kit mounted in the cab.
The Emergency triangle warning kit with hold down (Ref: KD610-464S, KD Lamp Co., Tel. (513-6214211) or equal, stowed (fastened) in the cab.
Fire extinguisher: Rechargeable with vehicle mount. Mounted in the cab for easy and quick access. Ref. 3A:40B: C (5 LB).
CB Power connections One (1) pair, on the dash, Ref: EQN-78.
Cab floor covering shall be heavy-duty rubber with closed cell rubber or heavy felt backing.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

Covering shall seal against all mating and adjoining surfaces sealing dirt and liquid on the surface keeping it from penetrating or accessing the metal cab flooring causing corrosion from inside the cab.
Cruise control.
Cup holder in the cab within easy reach of the operator.
Dome light shall be provided. Dual sun visors.
Drivers and passenger's side windows shall be power.
Drivers and passenger's side door locks shall be powered.
Windshield: One (1) or two (2) piece construction is acceptable, must be tinted. Safety glass throughout.
Dual windshield wipers, arctic type with the heaviest arms and linkages available. Wipers shall be minimum 2-speed electric with intermittent feature.
Washer system shall be electric. Minimum capacity of two (2) quarts of washer fluid and shall be filled with an anti-freeze type solvent.

Mirrors: Drivers and passengers side power mirrors, west coast style minimum 7-inch X 16-inch manufacturers standard heavy-duty breakaway arms. Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. The wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead. There shall be a heated convex mirror on both sides, minimum 5.5-inch X 7-inch or 8-inch diameter, minimum. A blind-spot elimination heated mirror shall be mounted on the right front fender, and it shall be 8-inch minimum diameter, stainless steel or aluminum head with mirror. Mirror shall be a conventional convex mirror and shall not be of the half-round cross view type. All arm/s and hardware shall also be stainless steel. Fender type washers' stainless, or aluminum, with rubber pads to be placed on both sides of the fender shall be included. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl.

Seats: Driver's seat shall be high back adjustable Bostrom air 915 Series with lumbar support or National 195 Series with lumbar or DuraForm Air Command Series (fabri form cushions with lumbar support), with body cloth insert and three-point retractable seat belt, **Seatbelt shall be High Visibility Orange**. A bellow-type or protective skirt shall cover the seat suspension mechanism. There shall be an inside armrest on the driver's seat plus an outside armrest installed on the seat or the driver's door. No substitute on seats reference. Color coordinated to cab interior.
Passenger seat shall be the manufacturer's standard non-suspension (static) high back type and shall have a three-point retractable seat belt**; Seatbelt shall be High Visibility Orange**. If due to cab configuration a Bostrom 915 or National 195 seat cannot be used, a Bostrom 910 may be substituted. All other requirements must be met.

5.CAB: (Continued)

Steering wheel diameter shall be 18 inches (approx).
Steering Column: Steering wheel and column shall be tilt and telescopic, infinitely adjustable to multiple positions.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

Grab handles shall be supplied on all cab entry locations. Three points of contact shall be achievable at all cab entry locations. Handrails shall be coated with non-skid paint (non-skid tape is unacceptable) or have OEM anti-slip rubber inserts, both non-skid paint or rubber inserts must extend the full length of the grab handle. Exterior grab handles shall be supplied if available from OEM.

Steps: Drivers and passenger entrance steps: Shall be aluminum, serrated. The outer step edge must be serrated in lieu of plain. (Overlay is not acceptable). Step design material must be the same, both left and right side. Ref: Bustin, Ohio Grating serrated, IKG. Industries. Top of the first step shall be approximately 21 inches above the ground.

There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum travel height of the completed and unloaded unit. (Example) HT-__' __" Ref. EQN-552.
There shall be permanent decals, "Three Point Contact" located at each entry point of the truck cab and at all bed ladder areas per EQN – 552-1. Exact location to be determined at prebuild meeting.

Wiring Pass Through: All wiring entering the cab shall be made through a rubber boot assembly and be weather tight. There shall be no connectors in the wiring at the pass-through point. Wiring shall be protected against sharp edges and from rubbing / chaffing. Boot design shall be pre-approved.

6. CHASSIS:

Consideration shall be made on chassis selection with body up fitter to ensure overall height requirements are met. Ref. Section I., E., 1 Aerial Device.

The GVWR rating of the truck shall be 80,000 LB. A label stating this shall be affixed on the door or in the cab as the completion certification label.

(CT) dimension: 206–210-inch cab to axle. Wheelbase dimension 285 inch approximate. Wheelbase and CT dimensions may be adjusted to provide the optimum legal weight distribution and to meet the vehicles' intent statement.

The frame AF shall incorporate a cross member at the rear of the frame to reinforce body pivot point. (Local installation is acceptable).

Front Bumper: Heavy duty swept back design, mounted to the frame with the inner face of the bumper against the chassis frame.

Frame mounted tow hooks or eyes: Two (2) front. These may be installed by the body company. Using grade bolts (minimum) of sufficient length, and grade 8 elastic type self-locking nuts, or by full welding.

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

License plate bracket: Front and rear. Securely mounted.

There shall be a centralized-on board chassis lubrication system installed, manufactured by SKF Lincoln Industrial Model# 94012 **(No Substitute, standardization)** Ref: EQN-501.

DRIVE LINE:

Main driveline: Spicer Life XL or Meritor RPL Series. **"Factory balanced"** greaseable, (one zero minimum). Heavy-duty drivelines shall be engineered and be compatible to engine, drive train and transmission torque. Heavy-duty center bearing, if required, with due consideration to drive shaft angles, length, location, proper bolting based upon engine and transmission selection. Inter-Axle driveline: Spicer Life XL Series.

ELECTRICALS:

All copper systems, negative ground.
Alternator: Delco 36SI (No substitute, Standardization) 160 A minimum, high performance, solid state (brushless), with battery cable from battery negative terminal to starter motor or frame.
All alternator and starter bolts shall be grade 8.

Batteries: Three (3), heavy-duty, 12-volt, maintenance-free, BCI Group Size 31, with stud-type posts and anti-corrosion treatment on each terminal. 2500 total cold cranking amperes (CCA) at 0 degrees F. 540 minutes of total reserve capacity at 80 degrees F as per SAE. Battery Mounting: Mounting shall include the following:

0.25-inch-thick rubber shock pad under the battery.
Box with cover. Cover shall be constructed of fiberglass, poly, or aluminum (if aluminum there shall be an insulated liner).
Mounting bolts shall be grade 8 with self-locking nuts.

Mounting accessories within the battery box is prohibited. Any connections that are essential in the battery box must be pre-approved by the Chief of the Specification unit at the Fleet
Management Division in writing (717) 787-1567. And shall be permanently labeled.

All OEM connections within the battery box shall have attached non-metallic embossed labels/tags.
Labels/tags applied with self-adhesives or stickers will not be accepted.
Cables shall conform to RCC Practice 105 with “sealed” terminal ends for stud-type battery posts.
Starter motor: Delco 39 MT (No Substitute, Standardization) with thermal over-crank protection and high torque capacity. Suitable for the diesel engines offered as per starter manufacturer's recommendation.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

Battery cable from battery negative terminal to starter motor. Starter shall have (OCP) either built in or
controlled by the Vehicle's control system, (if required)

Electrical system: System shall be circuit-breaker-equipped, in an easily accessible location and weatherproof. Fuses acceptable in circuit so identified by manufacturer as safety factor. Any fuse or circuit breaker liable to be damaged during truck operation shall have an easily removable protective cover. All wire splices in the cab shall be insulated with heat shrink materials.

Electrical chassis wiring: Factory heavy duty harness to power components in rear light module.
Flasher: (All) heavy-duty electrical, Ref: Tridon Model EL 12 or equal.

If an audible alarm is supplied for the 4-way and turn signal circuit, it shall have on/off capability.
Lights: All lights shall meet all Federal and State regulations. The head Lights shall be Halogen or heated LED with (DRL's) daytime running lights. Body lights shall have their own dedicated complete circuit. All connections shall be connected via a "home run" style harness, with all connection points starting within the cab and ending at light source. The connection at the light source shall be made using deutsch connectors.

Brake lights shall activate when engine brake is activated.
Radio Antenna: There shall be an antenna base, PCTEL Maxrad BMATM //NC25 and a multi-band StiCO
RFMT-NT-V/U/C-A whip. Assembly shall be mounted to the stationary headache/cab protector, (to the street side, of the light bar) with the antenna cable routed (within protective conduit) to the floor area between the seats. There shall be a minimum of 4 feet of antenna cable coiled at the base of the floor to
allow for connection of radio on spreader control pedestal.
Antenna shall be prewired with a UHF MALE connection. (No substitute, standardization). Antenna shall be mounted to not interfere with cab shield.

Power Distribution Center: There shall be a 4-way power/ground distribution center located on the underside of the dash for connection of the state radio. The lugs shall be configured in the following manner: (1) lug shall be a 30-ampere constant hot circuit, (1) lug shall be a 10-ampere ignition controlled
circuit. (2) lugs shall be chassis ground. All connections shall be enclosed in a weatherproof enclosure.
See EQN-562 drawing for details.

8. ELECTRICALS: (Continued)

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

Each circuit shall be supplied individually, labeled, properly sized, protected from weather and sealed to be watertight. Chassis wiring harness protected at areas prone to cause chafing by installing convoluted plastic conduit and clamped using steel band clamps with rubber inserts.

A Data port, read only shall be supplied within easy access under the dash with 12-volt constant power and ground terminals for connection to department fuel system equipment **and a separate** data port, or terminating resistor shall be supplied within easy access under the dash with 12-volt constant power and ground terminals for connection to department AVL system equipment.12volt constant and ground circuit (fuse protected) may be utilized for both the fuel system and AVL equipment. If read only data ports are supplied for both the Department's fuel and AVL systems, the data ports, must be independent of one another.

9. ENGINE:

Automatic idle shutdown shall be set to five (5) minutes. An audible warning alarm shall be provided to alert operator prior to engine shutting down.
Automatic idle shutdown shall be programed to be overridden when the PTO Mode is engaged.
ECM shall be set to a maximum of sixty-five (65) miles per hour.

Governor: Set at manufacturer's recommended maximum rpm.
The engine components facing wheel areas, on both sides, and the areas to the rear of wheels shall be shielded. The shield shall protect the engine, fan, radiator and areas behind tires from stones and debris. Replaceable heavy-duty oil filter(s) as recommended by the manufacturer and bearing a legible OEM part number.

Diesel Fuel Filter: There shall be a DAVCO filtration unit installed and mounted Higher than fuel tank per manufactures recommendations in a location to accommodate filter replacements, yet be protected from road debris (No substitute, standardization).

Davco Unit equipped with engine coolant heat and a 120 volt heater circuit. The 120-volt circuit and engine block heater shall be powered via the same electrical connection.
(No substitute,standardization)

Davco Unit equipped with return fuel and a 12 volt and 120-volt heater circuit. 12-volt heater circuit will activate with the ignition key switch, the 120-volt heater circuit and engine block heater shall be powered via the same electrical connection. (No substitute, standardization).

Cooling System: The system shall be the largest factory engine cooling capacity, compatible with engines and transmissions referenced for continuous high engine output under extreme temperatures and/or operating conditions. The water pump shall be adequately sized to provide proper cooling and be of sufficient size to accommodate the larger pulley to adequately handle the specified options. Shall be fitted with provisions for visually monitoring coolant without necessitating removal of the cap from the

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

radiator or expansion tank (e.g., sight glass, transparent expansion tank). The antifreeze solution shall meet all applicable EPA requirements. A non-charged spin-on coolant filter shall be installed.

Cooler guard: Mounted in front of radiator, full width and length to protect from stones and road debris. System to be approved by engine and truck manufacturers.

The oil dipstick must have tubing and dipstick with sufficient length to provide reasonable access for checking the oil level.

Engine Heater: Immersion in-block type, for cooling system, with waterproof plug, flush-mounted in an accessible location at the front/side of the vehicle, outside the cab/hood, 110 volt, 3-prong plug. The electrical cable from the heater to plug shall be one piece and waterproof. Location to be determined at the pre-build meeting.

Air Cleaner: Air filter shall be manufacturer's heaviest duty air cleaner that meets all the requirements of the extended engine warranty.

Fan: Thermostatically controlled viscous type or manufacturer’s recommended automatic fan.

Hoses: The air induction system and large radiator cooling system hoses shall be clamped with 0.500 inch wide, 150-inch LB stainless steel, constant torque, spring-loaded worm clamps. Ref: Wittek Manufacturing (Tel: (312) 492-9400) or Breeze Clamp Co, Constant Torque clamps with liner for silicone hoses. Cooling system hoses under 1 inch OD may use factory standard hose clamps, as a minimum acceptable standard.
Air intake hoses shall be 0.250-inch minimum thickness, molded hoses. Ref: Gates, Goodyear or equal. Silicone or premium rubber, radiator, and heater hoses. Hoses shall not be painted.

Lubricating Oil Lines: High quality flexible wire-braid type, "Aeroquip" or approved equal system, minimum standard if hoses are used.

Drive Belts: Cog belts or serpentine (cog belts not required for power steering).

Engine Retarder: Manufacturers standard engine retarder with dash-mounted on/off switch. It should be equipped with a minimum 2 stage, full engine compression brake. Brake lights shall activate when engine brake is activated.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

11. EXHAUST:

Vertical tailpipe with elbow and muffler system or horizontal muffler and vertical tail pipe with elbow. Exhaust system shall neither interfere with the operation of the under-bridge inspection unit or equipment, nor shall it be close to any fluid tank. The tail pipe shall be installed in a manner that will keep the muffler and tail pipe away from the under-bridge inspection unit. The flex in the body, when operating on an uneven terrain, must be considered in the design. The muffler, DPF (diesel particulate filter) and tail pipe (all exhaust piping) shall be shielded or insulated to protect personnel from burns when entering or exiting the cab. The shield shall be 180 degrees to 360 degrees and shall be of non-rustable material such as stainless steel or aluminum. Ref: Riker or equal. DPF (diesel particulate filter) and exhaust system shall meet the latest EPA emission requirements.

12. FAST LUBE OIL CHANGE SYSTEM (FLOCS):

This FLOCS system shall be installed with all fittings, brackets, clamps and hoses. Hose from oil pan to FLOCS fitting shall be hydraulic hose with a 100R2 rating and properly secured. The system shall be compatible with all fittings presently used by the Department. Independent brackets shall be used in routing to attach the hose. The final placement of the male half of the snap coupler, on the equipment, shall be determined at the pre-build meeting. Ref: EQN-351A.

13. FRAME:

Resisting Bending Moment (R.B.M.) shall be a minimum of 3,850,000-million-inch LB per rail, including extension, for the entire length of the frame, including any frame liners. Where engine and radiator adjustments are required, a minimum of one-million-inch LB per rail R.B.M. will be accepted. Frame side rail shall meet or exceed the required section modules of 35 cubic inches minimum with a 120,000-PSI yield strength. Minimum frame RBM shall be approved by manufacturer ‘s Engineering Department. If a larger RBM is required to perform the specified operational duties, the vendor shall bid a frame concurrent with the intent and spirit of this contract. Mainframe and any required liners shall be full “C” channel, full length. Bolt-on or welded extension will not be accepted. Minimum frame RBM shall be approved by the truck and bridge inspection crane manufacturer’s Engineering Departments. Frame AF shall be an integral and continuous extension of the main frame side rail of sufficient length to accommodate the specified body and equipment. Bolt-on or welded extension to achieve the required AF are not acceptable. The truck offered must be inherently designed to accommodate a bridge inspection crane.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

14. INSTRUMENTATION:

All instruments and gauges shall be illuminated and dash-mounted, except where specified otherwise. All standard instruments shall be supplied, including, but not limited to the following: Oil pressure gauge with warning light or audible alarm. Air pressure gauge(s) for dual circuit, dual indicator with low-pressure audible alarm and warning light.
Coolant temperature with warning light or audible alarm. Transmission oil temperature gauge with warning light or audible alarm. Fuel gauge. DEF level gauge. Hour meter that records only when the engine is running. In – dash, integral with instrument panel and readable from the operator's seat. Speedometer with odometer

Low air pressure indicator: Buzzer-type and dash light. Must meet current Federal DOT guideline requirements. Air gauge shall display in 5lb. increments. Digital numerical readout is acceptable. Air gauge and low air warning buzzer shall operate with key switch **on** and engine **off**.
Function shall not have capabilities of being deactivated by the operator.
Tachometer
Voltmeter
Parking brake indicator light
Hydraulic fluid level gauge
Air Restriction Gauge: Flush, dash-mounted with indicator slide for engine air cleaner, Ref: Filter Minder, manufactured by Engineered Products Company. If the vehicle is OEM equipped with an electronic dash that incorporates an air restriction gauge or indicator light, it shall be acceptable.

15. ON BOARD GREASER SYSTEM

There shall be a centralized-on board chassis lubrication system installed, manufactured by SKF Lincoln Industrial Model# 94012 **(No Substitute, standardization)** Ref: EQN-501.

16. PAINT:

Cab shall be painted with OEM manufactures standard painting process PENNDOT yellow Ref: DuPont F9885, PPG 85246, Sherwin Williams 73266, Sikkens 4017 and NAPA 73266 for shade only. Entire cab except for glass, rubber and those metallic accessories or fixtures constructed of rustresistant (Aluminum and Stainless Steel) or plated material not normally painted. Base coat and clear coat. Ref: Axalita Imron for durability.

OEM frame manufactures standard procedures shall be acceptable, all underside and attached components shall be ground to eliminate weld splatter, scale, sharp edges, rust and oils prior to a rust preventive primer and topcoat of black paint. Powder coating is acceptable. Rims shall be painted as specified in the tire and wheel section of this specification section I, D, 21 page 15.

Body up fitter: All metal surfaces shall be painted PennDOT yellow. Reference DUPONT F9885, PPG 85246, Sherwin Williams 73266, NAPA 73266 and Sikkens 4017 for shade only. Prior to painting all body and upfit attachments shall be ground to eliminate splatter, scale, and sharp edges. All metal surfaces shall

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

be cleaned to eliminate rust and oils prior to primer and final painting. All surfaces to be primed and painted, except for glass, rubber and those metallic accessories or fixtures constructed of rust-resistant (Aluminum and Stainless Steel) or plated material not normally painted shall be coated with one (1) coat of a rust preventive etching primer, (1) coat of epoxy primer and two (2) coats of the body up fitters lead free Acrylic urethane black paint to match frame. Deck, grab handles and railing anti-slip paint may be black. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

17. STEERING:

Power Steering: Single integral type hydraulic power steering. Glidecoat steering shaft or Bendix wedge lock lube-for-life shaft. The steering system (e.g., flow, pressure, relief valve etc.) shall be selected considering the full front-GAWR axle loading. Hydraulic supply pump shall be vane or roller type design with sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to rated capacity, in a "park" condition. Ref: Vickers V-20, Eaton, or Borg Warner. The pump shall not be the integral filter type unit. Power steering reservoir shall be remote mounted, minimum 2-quart capacity, incorporating a filter that is easy to remove and replace. The remote filter referenced above shall be factory mounted, certified and engineering approved in conjunction with the appropriate pump.

18. SUSPENSION: FRONT:

10,000 LB capacity at ground, each front spring. The six (6) front spring pins or bearings/bushing shall be furnished with 360-degree grease grooves to insure adequate lubricant penetration. Spring hangers shall be heavy castings with sufficient pin and bearing surface to render trouble free service.

19. SUSPENSION: REAR:

46,000 LB capacity rear springs. Suspension shall be tailored to axle loads and shall be adequate to sustain maximum GVW, without overload or permanent set. The spring hanger brackets shall be severe duty castings with sufficient bearing surface/wall thickness to prevent premature bolt wear. The spring center bolts shall be a minimum of .4375-inch size, preferably .5000 inch. The rear spring hanger pins shall be the grease able type. Bolts must be of sufficient length to go through the washer, spring bracket and truck frame with sufficient length to install a self-locking nut. Hendrickson RT-463 suspension series required.

20. TANK - FUEL:

Safety- type fuel tank as per the requirements of FMVSS. Dual tanks are unacceptable. One (1) 100GAL maximum total tank capacity, frame mounted, under the left door. Largest diameter available. Tank mounting hardware and brackets shall be for “severe duty” applications. Heavy-duty aluminum or stainless steel, minimum 2-inch-wide straps with rubber shims/liners shall be utilized. Fuel and DEF tank shall be mounted forward as not to interfere with available accessory mounting space under the front body deck. The fill pipe shall be accessible without interfering with the body; fuel fill can be located at either end of tank to avoid interference with steps.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

21. TRANSMISSION:

ALLISION AUTOMATIC 4500 RDS 6 SPEED with PTO opening.
Automatic transmission cooler lines shall be stainless steel.

All vehicles shall have a transmission (auto) operated safety starting switch that will avoid engine starting with drivetrain in gear.

Unit shall be programed to require a service brake application for transmission to shift into any gear from neutral.

Dash mounted console with push button shift selector or steering column mounted stalk style selector.

An external, Allison approved cooling system shall be installed regardless of whether a full engine compression brake is incorporated in the system or not. The oil cooler for transmission is required for prolonged stationary operation. Cooler shall be sized to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions (Water to oil type cooler).

Automatic transmission cooler lines shall be stainless steel, Braded hoses will not be accepted, and all hoses shall be routed toprevent rub-through with hanging brackets and P-style clamps. Unit shall be programed to require a service brake application for transmission to shift into any gear from neutral.

Transmission shall require a brake application to shift into any gear from neutral with parking brake in the “OFF” position. Transmission shall stay in gear while parking brake is set to “ON” for a “Pull Test”. All transmission modules shall be routed and installed in the cab and sealed to be weatherproof.

22. WHEELS/TIRES:

The truck shall be equipped with hub piloted ACCU-Armor aluminum disc wheels for tubeless tires. The wheel end shall be equipped with outboard cast brake drums, and 15-degree tubeless steel wheels, hub piloted, 10 hole - 285.75mm bolt circle with 22mm two-piece flange nuts.

Front: Wheels: 22.5 x 12.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless ACCU-Armor aluminum disc wheel rated at 10,500 LBS at a maximum inflation pressure of 125 PSIG. Accuride part number 29683R **(No substitute, standardization).**

Rear: Wheels: 22.5 x 8.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless ACCU-Armor

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

aluminum disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 40008R **(No substitute, standardization).**
The dual rear wheel/tire assembly shall have clearance between the tires, which permits the use of dual Tire chains.
Wheel-Guard Separators: The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator as follows:
Front axle - between the wheel and the brake drum.
Rear axle - between the inner dual and the brake drum and between the inner and outer duals.

23. WHEELS/TIRES: (continued)

Tires: Drive tires shall be mud/snow tread. All tires shall be radials and have minimum 25/32 thread depth.
Front Tires: 425/65R22.5 Load range L
Rear Tires: 11R22.5 Load Range H
Pusher Tires: 295/75R22.5
MANUFACTURER: Michelin, Goodyear, and Bridgestone

24.SAFETY:

There shall be a permanent decal, “Three Point Contact” located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1.
Grab handles shall be supplied on all cab entry locations. Three points of contact shall be achievable at all cab entry locations.
Handrails shall be coated with non-skid paint (non-skid tape is unacceptable) or have OEM anti-slip rubber inserts, both non-skid paint or rubber inserts must extend the full length of the grab handle.
Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable).
All handrails, ladders, and step configurations shall be built for three points of contact. All ladders shall be built with a positive locking capability in the stowed and deployed position.
There shall be two sets of wheel chocks per truck, each set with rope connection. One set each to the driver and passenger side. Wheel chocks may be mounted to either the back of the rear drive wheel fender, or on top of the deck in close proximity to the drive wheels. Ref. EQN-82B
One (1) grommet mounted back-up alarm, Ecco model 450. **(No substitute, standardization)** Alarm shall be mounted as high as possible, within the rear module plate.
All corners shall be angled or rounded for safety.
Compliance shall be made per EQN-118.
Cab and body shall have reflective enhancement per EQN-122.
Emergency triangle warning kit, with hold down. Warning Triangle Flare Kit, Ref: KD 610-4645, KD Lamp Co. (Tel: (513) 621-4211) or equal, stowed (fastened) in the cab. Ref: EQN-66A
Fire extinguisher: Rechargeable with vehicle mount, 3A: 40B: C minimum 5LB. Mounted in the cab for easy and quick access.

There shall be permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum height of the completed and unloaded unit. Example: HT-__’ __” Ref: EQN-552

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E.

UNDER BRIDGE CRANE SPECIFICATIONS:

1. AERIAL DEVICE:

Designed to operate from the right and left side of truck.
Shall include an automatically actuated audible warning device for cross slope, and grade, conditions which exceed the conditions specified by the manufacturer.
Shall be capable of being folded for storage on truck without overhanging beyond truck bed.
No part shall stand higher than 13 feet from roadway.
Interlock shall be provided between spring locks and aerial device controls.
Shall have maximum safe wind speed/wind speed indicators. Outriggers are unacceptable.

2. DECK BODY:

The body shall be constructed of 1/4" diamond plate steel. The deck shall be welded to the heavy-duty structural steel crossmembers and longitudinals with side and end rails. Deck surface shall be finished with non-skid paint.

The body shall have two (2) locations with access steps installed on the left and rear of the deck. The steps shall be constructed with heavy duty material. First step shall be 15" to 18" from ground. Grab handles shall be supplied on all cab entry locations. Three points of contact shall be achievable at all cab entry locations. Handrails shall be coated with non-skid paint (non-skid tape is unacceptable) or have OEM anti-slip rubber inserts, both non-skid paint or rubber inserts must extend the full length of the grab handle. Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable). All handrails, ladders, and step configurations shall be built for three points of contact. All ladders shall be built with a positive locking capability in the stowed and deployed position.

Two (2) under deck toolboxes shall be installed, one on the right side and one on the left side of the body. Additional boxes shall be provided depending on available space. Boxes shall be constructed of 16-gauge steel. Doors shall be downward opening with chain stops and lock. Doors shall have neoprene automotive d-type seals for weatherproofing. Drain holes shall be provided. Two minimum toolboxes shall be mounted on top of deck, dimensions shall be 36 - inch L X 20-inch H X 18-inch D, Doors shall hinge upward. Location and sizes shall be determined at the pre-build meeting. Locks shall be keyed alike. Minimum one (1) key per lock provided.

Both front and rear splashguard assemblies shall be properly braced. Ref: EQN-66
The unit shall have four (4) unmarked anti-sail flaps, installed in front and back of rear tandem wheels. The flaps shall have road clearance of ten (10) inches when truck is empty.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

3. UNDER BRIDGE INSPECTION UNIT OVER DIMENSIONS:

Overall Dimensions:

a. Overall stored length: 42', 0 " (maximum).
b. Overall stored height: 13', 0” (maximum).
c. Overall stored width: 102” (maximum).

All components of the aerial device shall be stored inside the length and width of the flatbed body. When in operation, only 102” of the traffic lane shall be occupied.

4. PEDESTAL & SUBFRAME:

Both the pedestal and subframe shall be constructed of high strength steel and shall have sufficient strength to withstand all torsional stress imposed by the boom assemblies with the maximum rated load in the work platform.

The pedestal shall be mounted behind the truck cab. The pedestal shall be welded to a tubular or beam type subframe which shall extend the full length of the chassis frame.

The subframe shall be fastened to the chassis frame with mounting plates and grade 8 bolts.

5. ROTATION TURRETS:

Turret No. 1:
The main turret shall be mounted on top of the pedestal and hinged to the main boom (No. 1). It shall rotate the booms off both sides of the vehicle.

Turret No. 2:
The second turret shall be mounted at the end of Boom No. 1 and hinged to Boom No. 2. It shall rotate a minimum of 180° when all booms are deployed. The turret shall be controlled automatically by a hydraulic cylinder to eliminate leveling arms. It shall also have the capability of being controlled manually to adjust for bridge slopes of up to 5 degrees.

Bearing:
Each turret shall rotate on a heavy-duty shear ball type bearing protected against dirt and moisture and provided with means for pressure lubrication.

Motor and Gear Box:
Rotation shall be powered by a reversible hydraulic orbital motor driving a gear box, which shall prevent freewheeling in case of hydraulic failure.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

Counterweight:
A counterweight shall be attached to the pedestal assembly and shall rotate with the bridge inspection unit on the opposite side and stay within the width of unit when the booms are deployed.

6. BOOMS:

The under bridge inspection aerial device shall be equipped with four articulating, hydraulically operated booms. All telescopic boom sections shall be equipped with high wear capacity nylon support rollers or pads. There shall be no exposed hose reels.

Boom No. 1:
The main boom, min. 16'-11" long, shall be hinged to the mainframe pedestal turret. Sidewalks width clearance shall be 12'-6" minimum

Boom No. 2: The second boom shall be attached to the end of Boom No. 1 and provide vertical clearance of 24' minimum. It shall be capable of articulating to a horizontal position, perpendicular from the bridge so that the inspection bucket can access the bridge fascia.

Boom No. 3:
The third boom shall be telescopic and hinged to the end of Boom No. 2. The third and fourth booms must be capable of reaching a minimum of 53' horizontally under the bridge when boom no. 2 is in a vertical (90°) position.

Boom No. 4:
Shall be a pivoting end section with an articulating range of 90 degrees above horizontal, and 35 degrees below horizontal. It shall be telescoping providing a reach of 13' minimum, measured from the top of boom no. 3 to the top of the platform.

Boom Cylinders:
Booms shall have full hydraulic powered cylinders. All cylinders shall be pilot operated, double-acting with integral safety holding valve. Chrome rods shall be provided on all lift cylinders.

Cylinder Swivel Pins:
Cylinder shall be attached to the booms with high strength steel pins. Cylinder pins may be secured with either keeper bolts in the head of the pin or locking nuts. All cylinders have replaceable bushings.

Overhead Reach:
The platform must be capable of being placed above the bridge deck approximately 50 feet.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

7. THREE-PERSON ALUMINUM PLATFORM:

One (1) Three (3)-person aluminum platform with a minimum 700 lb. capacity shall be hinged at the end of the fourth boom and shall automatically be kept level at all times by a hydraulic leveling system. It shall be capable of being rotated hydraulically 180 degrees.

Platform dimensions shall be a minimum of 40"x60"x44" deep. An access gate shall be provided. The sides of platform shall be solid metal. Covers shall be provided for controller and outlets.

Safety Harnesses & Lanyards:

Three (3) safety harnesses and lanyards shall be furnished. Attachments for lanyards shall be installed in the platform.

AUXILIARY DIESEL ENGINE AND PTO POWER SOURCES:

The primary source of power for operation of the Underbridge Inspection aerial device hydraulic and electric systems shall be provided by a PTO-driven, transmission-mounted hydraulic pump.

As an auxiliary power source, an auxiliary diesel engine shall be supplied. It shall have the capacity to perform more than one unit movement simultaneously.
This auxiliary engine shall include the following:

1. 12-volt electrical system with keyed ignition, electric starter, and alternator.

2. Fuel connection to the chassis fuel tank(s).

3. Diesel engine fuel filtration system.

4. Engine compartment cover which allows complete access to engine and hydraulic system components.

5. Hour meter shall record engine hours only when engine is operated.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

8. HYDRAULIC SYSTEM:

All movements of the under-bridge inspection aerial device shall be made by hydraulic pressure. All hydraulic cylinders shall be double acting with direct coupled safety check valves as protection, in case of pump or hose failure.

Reservoir shall be of steel welded construction with 50-gallon (minimum) storage capacity. Reservoir shall have baffles and exterior oil sight level gauge.

9. HYDRAULIC SYSTEM: (Continued)

Hydraulic oil shall be filtered through a return line 10-micron filter with replaceable element. A 100-mesh strainer shall be located on the suction side of the reservoir. All filters shall be accessible for easy element replacement.

Shut-off valve shall be provided and installed to allow for cleaning.

Hydraulic fluid transmission lines shall be flexible hoses, wired braid reinforced and shall have a weather and abrasion resistant covering. Bursting pressure rating shall be at least 200% of the system operating pressure.

Hydraulic Hose: All hoses and hose ends shall be matched and assembled on a hose machine to prevent hose failure. All hydraulic plumbing practices shall conform to JIC H11 standards. Pressure and return hoses shall be SAE 100R16 or SAE 100R17 and suction lines shall be 100R4. Velocity in pressure lines shall not exceed twenty (20) feet per second, return lines not to exceed ten (10) feet per second, and not to exceed four (4) feet per second in suction lines. All hoses shall include JIC female swivel ends with the exception of the suction line. All hydraulic components shall have SAE porting wherever possible. All hydraulic hoses shall be securely clamped at approximately 18-inch intervals along the chassis frame, shielded from exhaust and include a protective sleeve where necessary to prevent damage and/or failure. All hoses shall have JIC swivel connections at each end and be located in such a manner to aid in easy component replacement.
Ref: EQN-94.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

10. CONTROLS AND SAFETY SYSTEM:

Controls:
Three complete sets of controls shall be provided:

1. One set of hydraulic controls at the pedestal.
2. One set of radio controls at the basket.
3. One set of radio controls for operation at the pedestal and from edge of bridge.

In case of electrical failure, the hydraulic valve at the pedestal shall be capable of overriding the radio controls.

All Boom articulation and turret no. 1 and 2 controls must be equipped with two-way, return to neutral type levers and have proportional flow control and precise metering capability to provide smooth operation of the unit in all working positions and to insure the safety of operating personnel at all times.

11. CONTROLS AND SAFETY SYSTEM: (Continued)

Controls shall be arranged to allow for each individual movement separately or in any combination desired. Controls shall be located to facilitate maintenance access. Manual overrides shall be provided for all functions.

Remote carrier and auxiliary engine kill switches shall be installed at the pedestal and platform control station. A color display shall be provided at the pedestal with control of front and rear suspension lockouts, counterweight and accessories. It shall also display status of limit switch system.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

Safety Devices:

1.Interlock to prevent operation of underbridge inspection aerial device if suspension lockouts are not engaged.

2.Limit switches to prevent rotation or articulation of booms into unstable positions.

3.Relief valve and switches to prevent overloading hydraulic system with excessive pressures.

4.Emergency kill switch of truck and auxiliary engines at the pedestal and basket

5.Automatic check valves on hydraulic cylinders in case of pump or hose failure.

6.Automatic audible alarm to signal excessive slope conditions.

7.All boom lift cylinder shafts shall be of chrome rods to resist corrosion and shall be able to withstand a 100-hour salt spray test.

12. TRUCK STABILIZERS:

The frame shall be equipped with four (4) hydraulically operated suspension lockouts, two at the front axle and two at the rear axle, controlled from the pedestal station. The lockout system shall include indicator lights to alert the driver that the lockouts are engaged or disengaged. Lights shall be installed in the cab.

An interlock shall be installed to prevent operation of the under-bridge inspection aerial device when the suspension lockout system is disengaged. A manual override (to allow booms to be stowed in case of system malfunction) shall be installed at the pedestal.

When lockouts are engaged, the truck shall be capable of withstanding all tipping forces generated by booms in all positions in both stationary and moving applications.
OUTRIGGERS ARE UNACCEPTABLE.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS

: (Continued)

13. COMMUNICATION SYSTEM:

An intercommunication system between personnel in the truck cab, the pedestal control station, the ground remote control station, and the work platform shall be provided and installed. System shall consist of:

1. A fully transistorized amplifier (powered by the truck batteries) with on/off switch, volume controls and an integral press-to-talk switch mounted in the truck cab convenient to the driver, and at the pedestal. The basket speaker shall be activated in a hands-free mode.

2. Two (2) single earpiece headsets with microphone. Jacks for the headsets shall be provided at the pedestal station, driver's seat in the chassis cab and in the work platform.

14. LIGHTS:

All lights shall meet all Federal and State regulations. The head Lights shall be Halogen or heated LED with (DRL's) daytime running lights. Factory or aftermarket installation. Body lights shall have their own dedicated complete circuit.

All lights including the body shall be LED, exception of the headlights.
A Whelen lights shall be used as follows.

10 - Whelen IONSMAD PN# 01-066D363310D amber (amber only) grommet mounted perimeter amber strobe lights.
2 - Facing forward, grill or above bumper not to interfere with hood tilting.
2 - Facing rearward
2 - Facing passenger side
2 - Facing driver's side
2 – mounted opposite bottom corners, front and back of work platform.
4 - M6BTTD PN# 01-066B1866R1J brake, stop and tail 2 to each side rear brake stop & taillights
2 - M6BUD PN# 01-066B160112G reverse lights
1 - Whelen PADOTCCP9X 54-inch Amber/Green light bar, warning light shall be mounted on pedestal aft and above cab. No mounting/drilling to cab roof Ref. EQN-120Q.
There shall be a Truck-Lite Model# 36140C LED license plate light with light bracket PN# 36710, Installed.
Perimeter lighting and pedestal amber/green warning lights shall be controlled from the same in cab dash mounted illuminated switch.
Three-person aluminum platform shall have two (2) PN# 876350230-inch top mount, with 5-inch offset pioneer pole systems mounted to the control side of the basket to accommodate a pioneer work light PN# 02-036E027-01. One (1) 3 position socket plug, truck PN# 39-3103026.
The above lights are supplied with male and female Deutsch connectors that shall be utilized to connect the vendor supplied harness to each light source.
Body builder to supply remaining marker and ICC lighting, they shall be protected against damage and shall also be shock mounted.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

Connections shall be watertight.
The Warning lights / Light bar shall have a lighted, permanently labeled toggle switch located in the dash.
Body wiring shall be Grote, Trucklite, or Prior Approved Equal.
There shall be no splices outside of a sealed box or fixture.
A color-coded electrical wiring chart and schematic shall accompany each body.
Exact locations of the warning lights shall be determined during the pre-bid meeting.

15. ACCESSORIES:

A minimum 30 CFM @ 100 psi hydraulic air compressor shall be mounted under the deck body. The unit shall include a safety valve, condensation drain, pressure gauge and globe valve.

An air line with a minimum 100 psi working pressure rating shall be provided to the work bucket. The airline shall be routed along the booms in protected areas and shall terminate at the bucket with a quick disconnect coupling. There shall be a ½ inch airline routed along the frame/body and terminate at the rear passenger side deck with a quick coupling.

Four (4) 115-volt, three (3) contact, weatherproof, grounding, receptacles shall be provided, 2 at the bucket and 2 at the truck platform. Receptacles shall be ground fault interruption protected.

Unit shall be equipped with a minimum single phase 60 Hz, AC generator which will be driven by the auxiliary diesel engine. Generator shall be a minimum 10 KW for the operation of the heaters, and electrical outlets.

Work platform shall be equipped with three (3) 1500-watt, 5000 BTU, 115-volt, 60 Hz heaters with blower fans for the convenience of the personnel during cold weather operations.

16. SPLASH GUARDS:

Both front and rear splashguard assemblies shall be properly braced. Ref: EQN-66
The unit shall have four (4) unmarked anti-sail flaps, installed in front and back of rear tandem wheels.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

17. Paint:

Cab shall be painted with OEM manufactures standard painting process PENNDOT yellow Ref: DuPont F9885, PPG 85246, Sherwin Williams 73266, Sikkens 4017 and NAPA 73266 for shade only. Entire cab except for glass, rubber and those metallic accessories or fixtures constructed of rustresistant (Aluminum and Stainless Steel) or plated material not normally painted. Base coat and clear coat. Ref: Axalita Imron for durability
OEM frame manufactures standard procedures shall be acceptable, all underside and attached components shall be ground to eliminate weld splatter, scale, sharp edges, rust and oils prior to a rust preventive primer and topcoat of black paint. Powder coating is acceptable. Rims shall be painted as specified in the tire and wheel section of this specification section I, D, 21 page 15. Body up fitter: All metal surfaces shall be painted PennDOT yellow. Reference DUPONT F9885, PPG 85246, Sherwin Williams 73266, NAPA 73266 and Sikkens 4017 for shade only. Prior to painting all body and upfit attachments shall be ground to eliminate splatter, scale, and sharp edges. All metal surfaces shall be cleaned to eliminate rust and oils prior to primer and final painting. All surfaces to be primed and painted, except for glass, rubber and those metallic accessories or fixtures constructed of rust-resistant (Aluminum and Stainless Steel) or plated material not normally painted shall be coated with one (1) coat of a rust preventive etching primer, (1) coat of epoxy primer and two (2) coats of the body up fitters lead free Acrylic urethane black paint to match frame. Deck, grab handles and railing anti-slip paint may be black. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

18. INSTALLATION PRACTICES:

Any place steel and aluminum contact each other Mylar or an approved equal shall be used as a buffer. Laminate rubber is unacceptable.

All welding shall be in accordance with standard welding practices as set forth by the American Welding Society.

All vertical and horizontal seams of the body sides shall be continuous welds with full penetration.

All corners shall be angled or rounded for safety.

All mounting procedures shall be in accordance with NTEA standards.

All hydraulic circuits shall be tested for proper operation and flow.

Control systems shall be calibrated and programmed for Department material spread rates prior to delivery. Material spread rates will be disclosed at the pre-build meeting.

The use of any of the following items or practices WILL NOT BE ACCEPTED.
The use of accumulators or auxiliary pumps.
Non-steel fittings on hydraulic pressure lines.

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

Excessive use of elbows on hydraulic lines.
Use of thread tape on hydraulic fittings.
Use of galvanized fittings or components on hydraulic system.
Improper hydraulic line size.
Use of high-pressure hose for hydraulic suction line.
Scotchlok-type wire splices.
Non-insulated wire splices.
Improper hose or wire routing near exhaust, over-sharp edges or through holes with sharp edges without grommets.
Improperly prepared, primed, and painted surfaces.
Non-fused electric circuits.
Hydraulic circuits without pressure relief protection. Laminated
Rubber
All zerk fittings shall be threaded.

SPECIFICATIONS

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

BRIDGE CRANE SPECIFICATIONS: (Continued)

F.

19. SAFETY:

Deck surface to be walked on shall be black non-skid paint.
There shall be two sets of wheel chocks per truck, each set with rope connection. One set each to the driver and passenger side. Wheel chocks may be mounted to either the back of the rear drive wheel fender, or on top of the deck in close proximity to the drive wheels. Ref. EQN-82B All corners shall be angled or rounded for safety.
There shall be a triangle warning kit mounted in the cab. Ref. EQN – 66A There shall be a 5 lb. fire extinguisher mounted in the cab. Ref. 3A:40B: C (5 LB) The vehicle shall meet all the requirements set forth in EQN-118.
There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side door handle stating the overall maximum height of the completed and unloaded unit.
Example: HT-__' __" Ref: EQN-552
There shall be a permanent decal, "Three Point Contact" located at each entry point of the truck cab and at the bed ladder area per EQN – 552-1. Exact location to be determined at prebuild meeting.
Grab handles shall be supplied on all cab entry locations. Three points of contact shall be achievable at all cab entry locations.
Handrails shall be coated with non-skid paint (non-skid tape is unacceptable) or have OEM anti-slip rubber inserts, both non-skid paint or rubber inserts must extend the full length of the grab handle.
Anti-slip paint is required on all handholds, for the entire length, (tape is unacceptable).
All handrails, ladders, and step configurations shall be built for three points of contact.
One (1) grommet mounted back-up alarm, Ecco model 450. **(No substitute, standardization)** Alarm shall be mounted as high as possible, without obstruction within the rear module plate.

20. REAR & BOOM CAMERA SYSTEM:

There shall be three (3) camera and one (1) monitor system installed. Cameras shall be installed on boom 1 facing down on bridge, one on boom 3 facing under a bridge and one installed on center rear bumper of chassis to serve as a back up camera. Monitor minimum 7-inch color shall be installed within the cab and easily viewed from the operator seat. Cameras shall be weatherproof and have the ability to be operational during low light and night operation. Ref: MS Foster & Associates, Inc. 1-219-879-9925 or msfoster@msfoster.com

III. DRAWINGS:

EQN-66	dated Rev.	07-20-09	sheets 1 & 2	SPLASH GUARDS
EQN-66A	dated Rev.	07-13-17	sheet 1	TRIANGLE STORAGE BOX AND BRACKET
EQN-78	dated Rev.	10-27-06	sheet 1	CB RADIO CONNECTIONS
EQN-82B	dated Rev.	07-22-15	sheet 1	CHOCK AND HOLDER
EQN-94	dated Rev.	07-26-18	sheet 1	HOSES AND COUPLERS
EQN-118	dated Rev.	06-26-09	sheet 1	UNDERRIDE PROTECTION
EQN-120Q	dated Rev.	01-28-20	1 sheet	UNIVERSAL TRUCK LIGHTING
EQN-122A	dated Rev.	04-09-12	sheet 1	REAR BUMPER REFLECTIVE SHEETING
EQN-127A	dated Rev.	01-02-09	sheet 1	CONSPICUITY TAPE STRIPING REQUIREMENTS
EQN-351A	dated Rev.	06-19-13	sheets 1 & 2	FAST LUBE OIL CHANGE SYSTEM
EQN-501	dated Rev.	06-08-09	sheets 1 & 2	CENTRALIZED LUBE SYSTEM
EQN-552	dated Rev.	07-06-17	1 sheet	MAX TRAVEL HEIGHT STICKER
EQN-552-1	dated Rev.	07-24-18	1 sheet	THREE POINTS OF CONTACT
EQN-562	dated Rev.	01-08-14	1 sheet	POWER DISTRIBUTION BOX FOR STATE RADIO

The above referenced drawings shall become part of these specifications.
These drawings reflect the intent of the Department, and any discrepancies shall be resolved at the line setting ticket meeting between the vendor and the Equipment Chief, or the pre-production inspection of the truck.

DRAWINGS APPEAR AT THE END OF THE SPECIFICATIONS.

9. MANUALS:

The successful vendor shall furnish all applicable manuals per unit:

3 Operator's

3 Parts

3 Service

3 Engine

3 Transmission (Automatic or Manual)

3 Body and Sub-frame (Parts and Service)

3 Complete set of manuals for any additional items/equipment added to a piece of equipment.

The manuals listed above shall be official O.E.M. publications supplemented with technical manuals for all components as published by sub-vendors/manufacturers.
Parts Service Manuals presented must be relative to "all" items utilized to build this units, with appropriate part numbers.

All manuals shall be supplied on thumb drive in PDF format that can be loaded to a dedicated website. Paper manuals may be supplied if available from manufacture. Paper manuals do not relieve the requirement for the thumb drives.

Delivery of these manuals shall be completed with each unit at delivery, prior to being accepted.

10. TRAINING:

Operator and Mechanic:

The successful vendor shall provide services of qualified factory trained technicians for not more than ___1___ training sessions of not more than _24____ hours at ___1___ PennDOT locations to train personnel in the operation, preventive maintenance and review of the proper usage of parts and service manuals, as well as component/system adjustments that need to be monitored at specified service intervals.

The successful vendor shall submit a training plan to the Fleet Management Division for approval within 45 days after receipt of the Purchase Order. The training plan shall consist of course outline and class schedule.

All training must be completed within 60 days after the dates established in the approved training plan unless an extension is mutually agreed to in writing by the Chief of the Fleet Management Division.

All training shall be coordinated with the District Equipment Managers, with the exception of Asphalt related training, which must be coordinated with the Statewide Training Coordinator (717) 787-4836, Fax (717) 783-4438.

V. WARRANTY:

Per PCID 1075: E.1. Construction Equipment - 2 years or 4000 hours whichever first occurs.
1 year starting from the Department's in-service date.
The warranty start-up date shall be defined as the date of transfer from the PennDOT Fleet Management Division to the designated county location. This will be considered the date of delivery to the county and NOT the date of delivery by the successful bidder to the Department. The PennDOT Fleet Management will supply the actual start-up date, equipment number, and serial number of the machine, via email, to the successful bidder. It is the responsibility of the successful bidder to ensure that the equipment manufacturer recognizes and applies the Department's actual warranty start-up date in their database.

Warranty repairs shall be completed at the manufacturer's location or in-house field repair completed by PENNDOT. it shall be the departments discretion to repair internally or transport the unit to the dealership/vendor. The manufacturer shall reimburse the department at the manufacturers standard published in-house labor rate. the labor rate shall be mutually agreed upon between the department and vendor/bidder. all in-house warranty documentation shall be delivered with the pilot model. all warranty documentation shall be delivered with the pilot model.

BUMPER-TO-BUMPER WARRANTY:
1 year starting from the Department's in-service date.

BRIDGE INSPECTION UNIT WARRANTY:
Full factory service maintenance and warranty package shall apply to this unit.
The bidder manufacturer shall warrant that the Bridge Inspection Unit manufactured by it shall be free from defects in design, workmanship, and materials for a period of 1 year, 100% parts and labor of the entire bridge inspection unit.

TECHNICAL ASSISTANCE:
Manufacturer shall agree to dispatch its technicians to assist the Department with any item of maintenance or repair within 48 hours from the time such assistance is required. This service shall be available in addition to the requirements otherwise described for initial training and inspection programs. Any warranties that exceed the above warranty shall be in effect.

BRAKE WARRANTY:
Manufacturer's service and warranty policy for automatic slack adjusters shall be for two (2) years 100% parts only.

RADIATOR WARRANTY:
Manufacturer's standard service and warranty policy for radiator minimum shall be for one (1) year, 100% parts and labor.

ENGINE WARRANTY:
The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor engine warranty, shall include all engine components internal and external FOR 60 months / 150,000 miles minimum.
The oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 5 years, 100% parts and labor.

EMISSION WARRANTY: The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor warranty for all emission related components to include the diesel particulate filter (DPF) FOR 60 months / 100,000 miles, unlimited engine hours. Shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions.

VI. WARRANTY: (Continued)

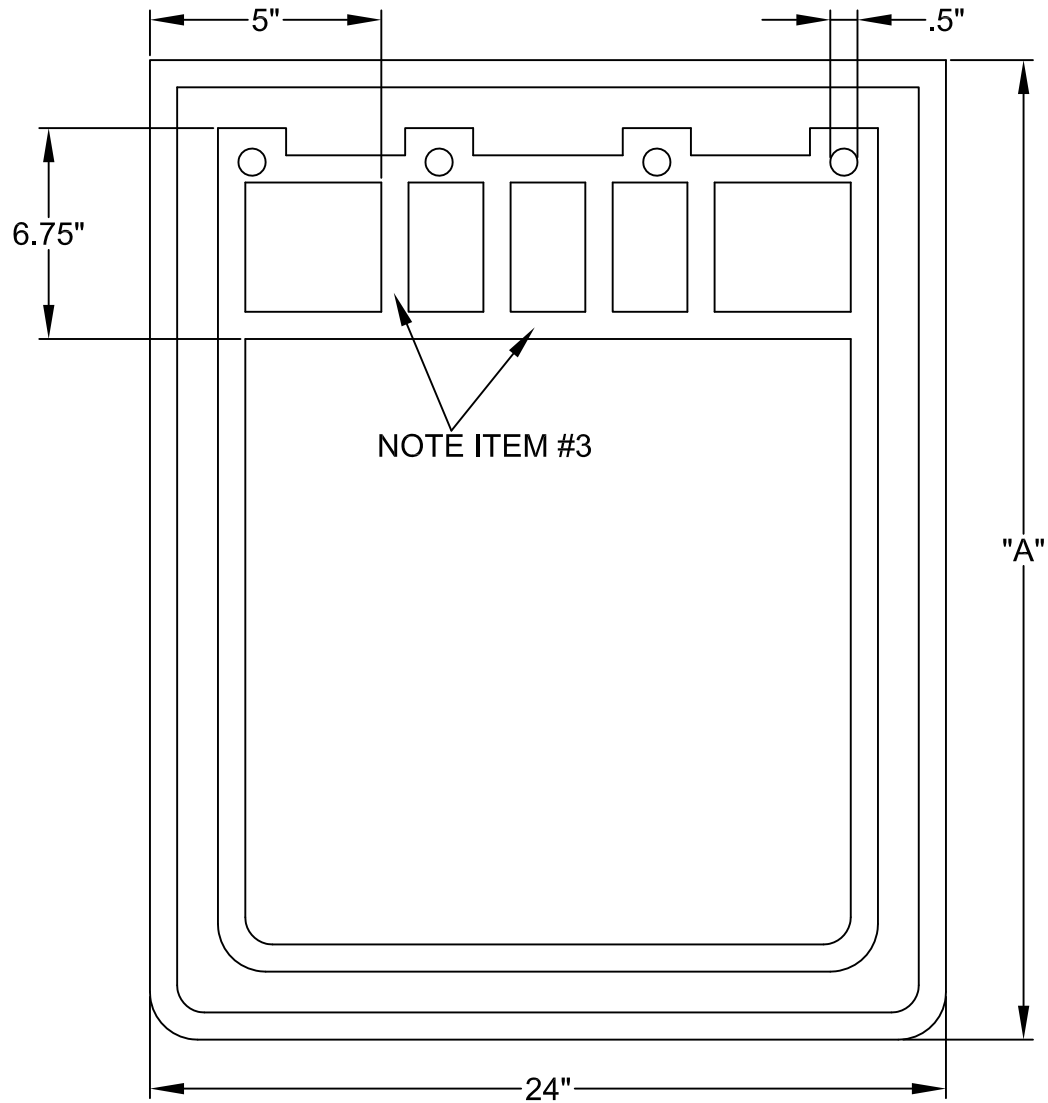
TRANSMISSION WARRANTY:
Manufacturer's service and warranty policy for automatic shall be three (3) years 100% parts and labor. This warranty shall include all internal and external components related to the automatic transmission.

DIFFERENTIAL/AXLE WARRANTY:
Manufacturer's service and warranty policy for differential and axles shall be for three (3) years 100% parts and labor.

HYDRAULIC PUMP:
Manufacturer's service and warranty policy for the hydraulic pumps, compressor, and generator shall be three (3) years 100% parts and labor.

SECONDARY / ENGINE:
Manufacturer's service and warranty policy shall be three (3) years 100% parts and labor.

BODY ELECTRICAL/LIGHTING:
Wiring harness shall be 5 years 100% parts. First year shall include 100% labor.
All LED lights shall be 5 years 100% parts.



SAFETY

NOTE:
1. DIMENSION "A" DEPENDANT ON REQUISITION.
2. MUD FLAPS SHALL BE "UNMARKED"

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			SPLASH GUARDS-RUBBER TRAILER & TRUCK		
NO.	DATE	BY			
1	05-28-02	DWG			
2	11-28-06	CJW	DRAWN BY S.T.	SCALE N/A	EQN-66
3	07-20-09	TOD	DATE 11-18-87	CHK'D BY RED	SHEET 1 OF 2

FENDERS AND FLAPS: VEHICLES SPECIFIED UNDER THIS SUBCHAPTER SHALL BE EQUIPPED WITH FENDERS WHICH PROVIDE AT LEAST AS MUCH COVERAGE OF THE WHEEL AS THE ORIGINAL EQUIPMENT. ALL WHEELS SHALL BE SUFFICIENTLY COVERED WITH FENDERS OR FLAPS SO AS TO PREVENT LOOSE OBJECTS, RAIN, SNOW, AND THE LIKE FROM BEING THROWN ABOUT IN A MANNER WHICH MAY INTERFERE WITH OTHER PERSONS USING THE HIGHWAY.

REAR WHEEL SHIELDS: VEHICLE SPECIFIED UNDER THIS SUBCHAPTER EXCEPT TRUCK-TRACTOR WHILE TOWING A TRAILER SHALL BE CONSTRUCTED OR EQUIPPED AS FAR AS TO BAR WATER OR OTHER ROAD SURFACES THROWN FROM REAR WHEELS OF SUCH VEHICLE OR COMBINATION AT TANGENTS ESCEEDING 22.5 DEGREES, MEASURED FROM ROAD SURFACE FROM PASSING IN STRAIGHT LINE TO THE REAR OF SUCH VEHICLE. SEE 75 PA C554533 (RELATING TO REAR WHEEL SHIELDS)

AREA 6.75"x24" ACROSS THE TOP IS ACCEPTABLE IN SOLID VIS RIBS PROVIDED IT MEASURES .225" IN THICKNESS

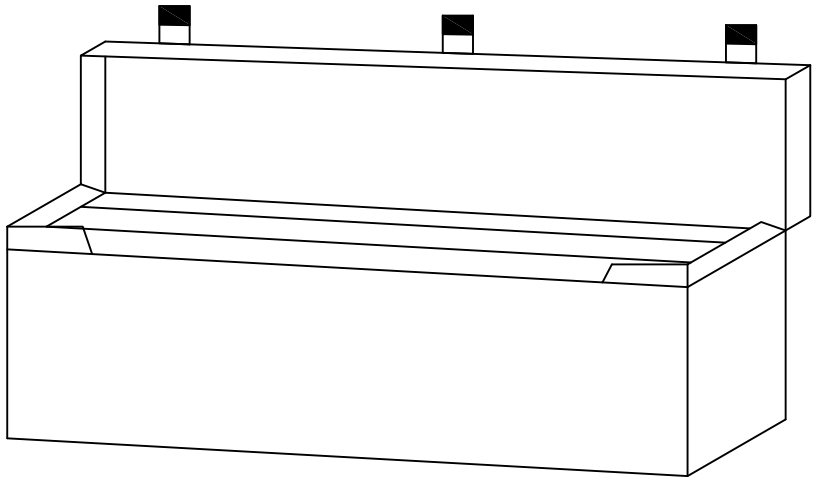
THE BODY OF SPLASH GUARD SHALL BE A MINIMUM OF .09375" THE TRIM AREA SHALL BE $\frac{3}{8}$" MINIMUM THICKNESS. THE BODY AREA IS THE AREA WITHIN THE OUTSIDE DIMENSIONS OF 24"x36" TOLERANCES +/- .250" THE WEIGHT OF THE SPLASH GUARD SHALL BE 6LBS FOR 24"x30" AND 7.5lbs x 24" x 36" MINIMUM.

NOTE:

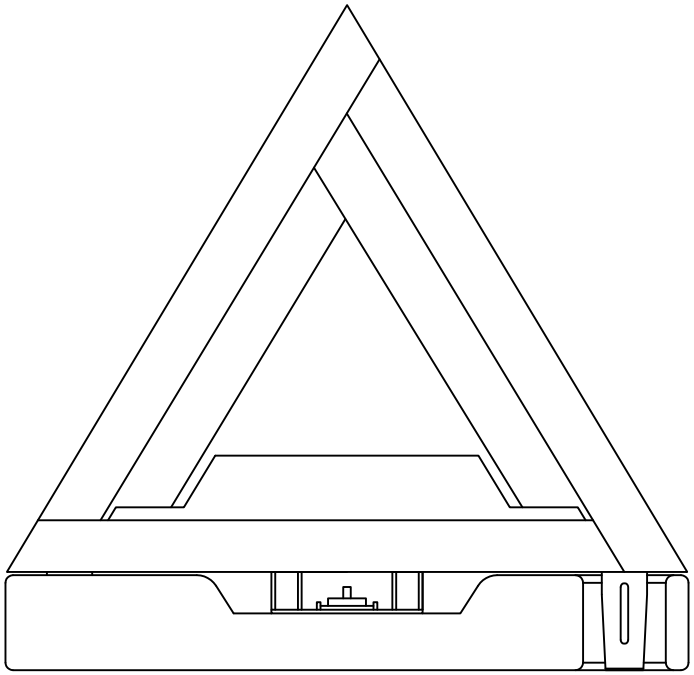
1. MATERIAL: MOLDED NATURAL OR SYNTHETIC BLACK TIRE CHORD IMPREGNATED RUBBER. OIL AND SALT RESISTANT.
2. ANTI-SAIL NOT ACCEPTABLE.
3. MANUFACTURERS STANDARD SIZE ACCEPTABLE IF ALL MINIMUM THICKNESS, DIMENSIONS, AND WEIGHT SPECIFICATIONS ARE MET.
4. AS PER PA VEHICLES EQUIPMENT AND INSPECTION REGULATIONS, SECTION 175-108.
5. DIMENSION "A" WILL BE 30" OF 36" AS NECESSARY, WHEN INSTALLED TO MEET PA MOTOR VEHICLE CODE OR AS SPECIFIED ON THE CONTRACT.
6. MUD FLAPS SHALL BE "UNMARKED"

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			SPLASH GUARDS-RUBBER TRAILER & TRUCK		
NO.	DATE	BY			
1	05-28-02	DWG			
2	11-28-06	CJW	DRAWN BY S.T.	SCALE N/A	EQN-66
3	07-20-09	TOD	DATE 11-18-87	CHK'D BY RED	SHEET 2 OF 2

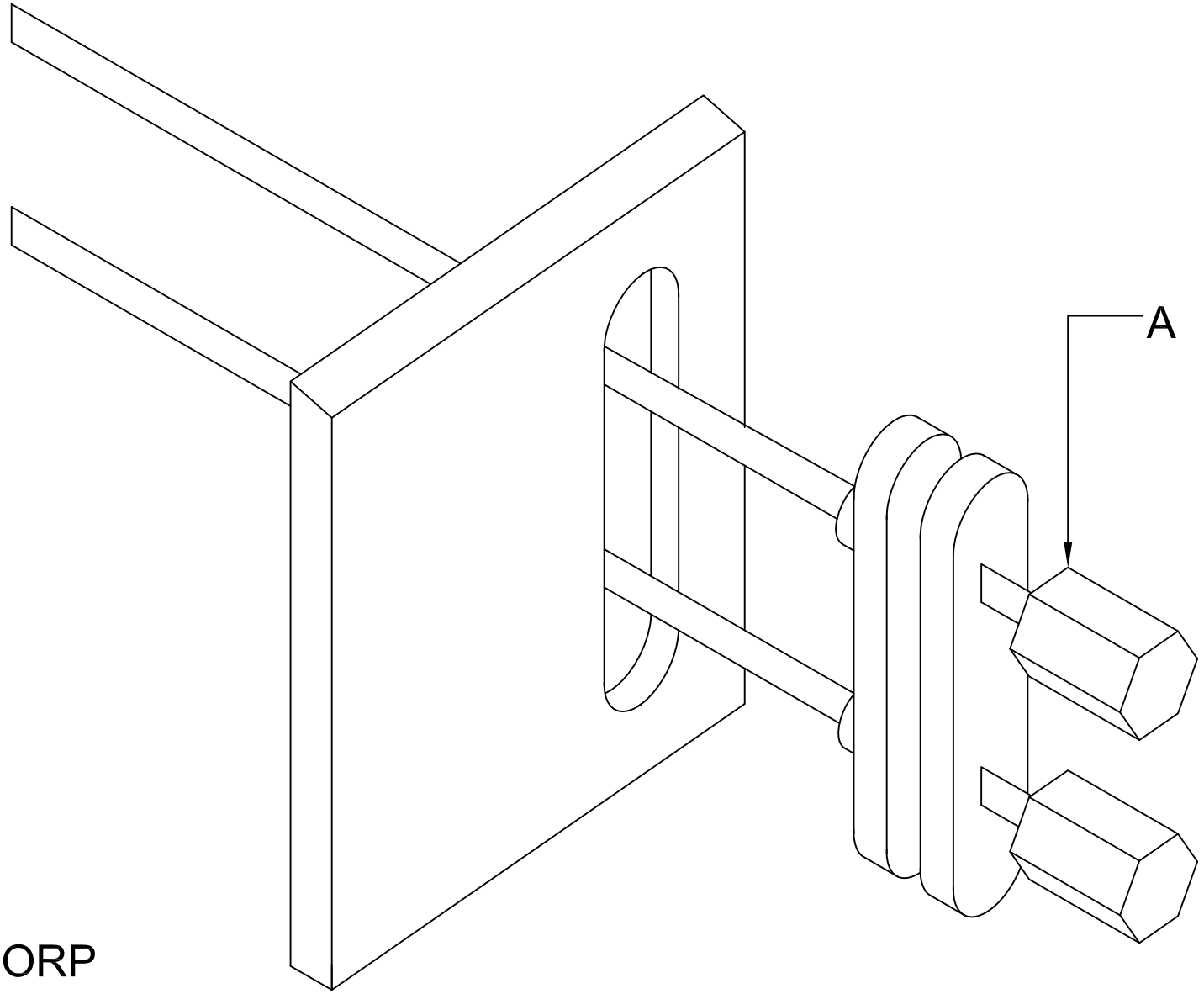


JAMES KING & CO.
TRIANGLE PART #1005
OR APPROVED EQUAL



PA DEPARTMENT OF TRANSPORTATION

REVISIONS			TRIANGLE STORAGE BOX AND BRACKET		
NO.	DATE	BY			
1	05-31-07	KNH			
2	07-20-09	TOD	DRAWN BY WHM	SCALE N/A	EQN-66A
3	07-13-17	HMR	DATE 04-23-92	CHK'D BY RED	SHEET 1 OF 1

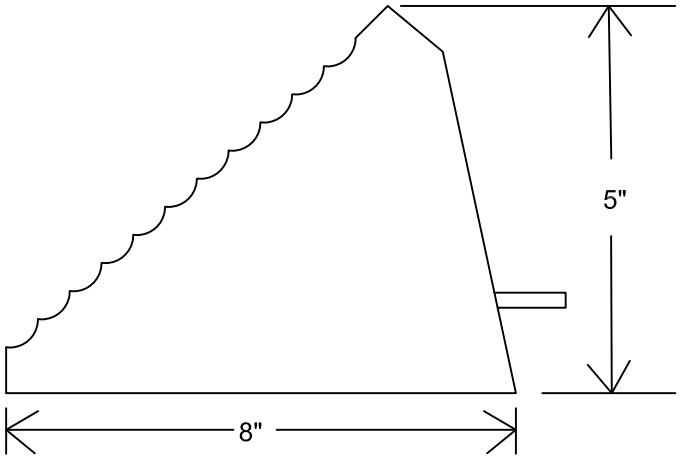


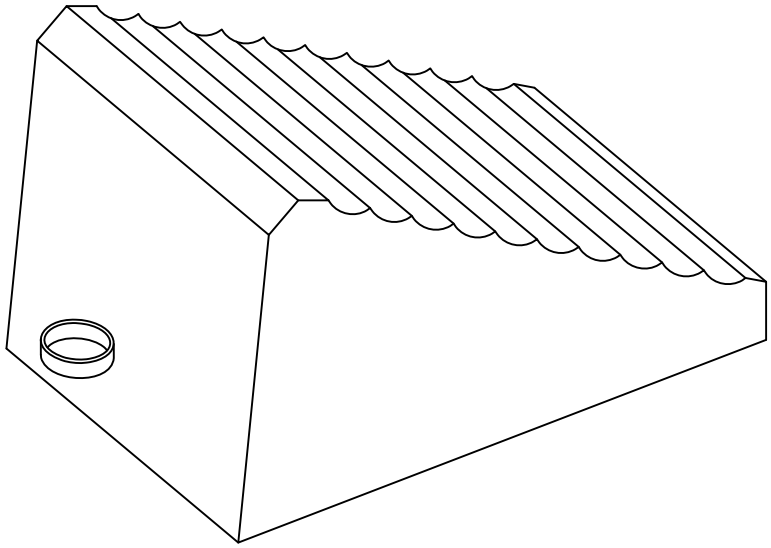
A.
PANA PACIFIC CORP
541 DIVISION STREET
CAMPBELL, CALIFORNIA 95008
408-374-7900

PART #531 277 C1

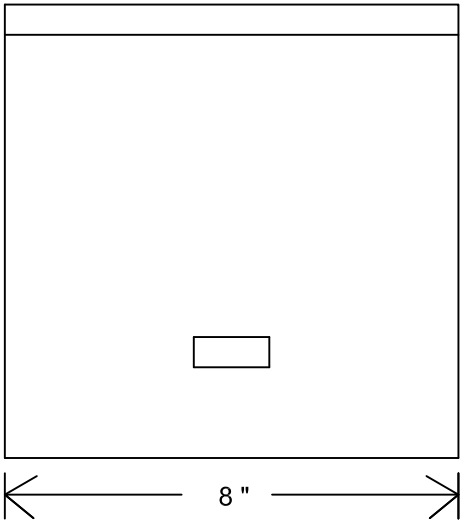
PA DEPARTMENT OF TRANSPORTATION

REVISIONS			C.B. RADIO CONNECTIONS		
NO.	DATE	BY			
1	08-15-90	WHM			
2	07-02-97	DLW	DRAWN BY WHM	SCALE N/A	EQN-78
3	10-27-06	CJW	DATE 08-15-90	CHK'D BY RED	SHEET 1 OF 1



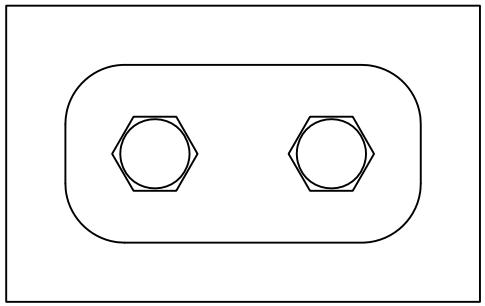


FINAL MOUNTING LOCATION SHALL BE DETERMINED AT THE PRE-BUILD MEETING. CHOCK HOLDERS SHALL BE ALUMINUM. TWO CHOCKS PER TRUCK SHALL BE SUPPLIED. CHOCKS SHALL HAVE 4 FEET OF $\frac{3}{8}$ INCH NYLON ROPE CONNECTING THE TWO CHOCKS TOGETHER.



PA DEPARTMENT OF TRANSPORTATION

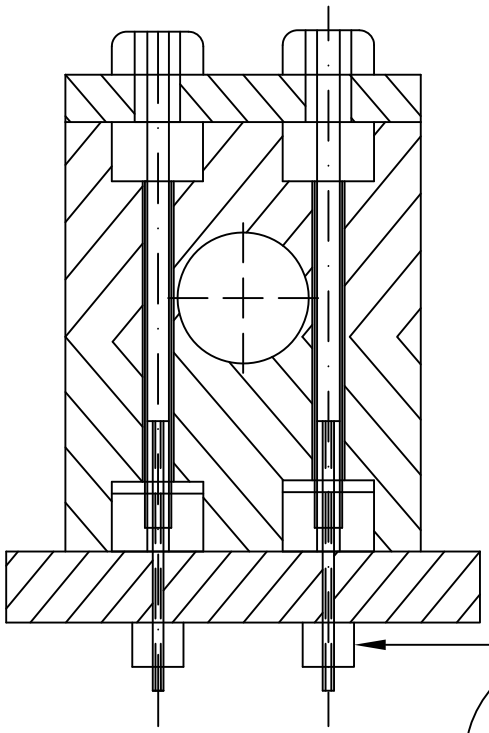
REVISIONS			5" X 8" X 8" CHOCK AND HOLDER		
NO.	DATE	BY			
1					
2			DRAWN BY JJB	SCALE N/A	EQN-82B
3			DATE 07-22-15	CHK'D BY	SHEET 1 OF 1



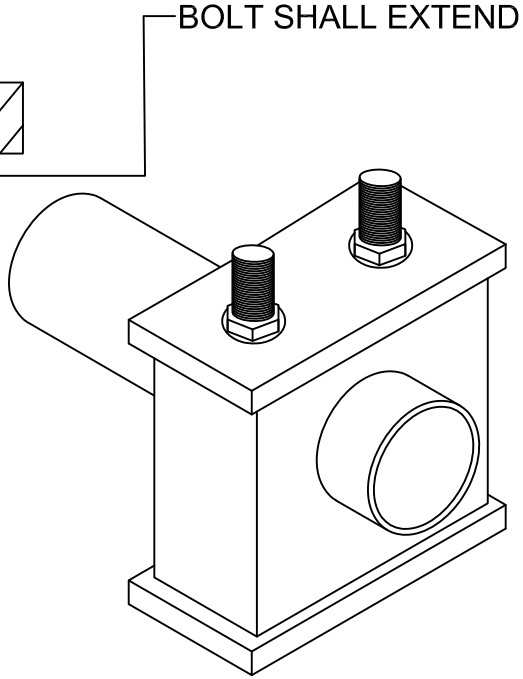
HYDRAULIC HOSES/ FITTINGS

HYDRAULIC HOSES SHALL NOT EXTEND BELOW THE TOP OF THE FRONT AXLE. ALL HYDRAULIC HOSES SHALL BE ADEQUATELY CLAMPED, SHIELDED FROM EXHAUST SYSTEM AND PREVENTED FROM RUBBING UP AGAINST ANY PART OF THE TRUCK FRAME BODY.

HYCON CLAMPS AS REQUIRED TO PREVENT CHAFFING OR RUBBING. DUE TO THE VARIATIONS OF SIZES PART NUMBERS HAVE NOT BEEN INCLUDED. WELD-ON OR BOLT-ON ARE ACCEPTABLE. AVAILABLE IN STANDARD AND HEAVY DUTY SERIES. LOCATIONS TO BE APPROVED BY CHIEF, FLEET MANAGEMENT DIVISION
REF: HYCON CORPORATION, LEHIGH VALLEY, PA OR BEHRINGER PIPE SYSTEM INC.



NOTE:
ALL BOLTS/NUTS SHALL BE COATED WITH NEVER SIEZE.



PA DEPARTMENT OF TRANSPORTATION

REVISIONS			HYCON HOSES AND CLAMPS		
NO.	DATE	BY			
1	10-02-06	CJW			
2	12-20-16	JJB	DRAWN BY LM	SCALE N/A	EQN-94
3	07-26-18	KBD	DATE RED	CHK'D BY 11-03-78	SHEET 1 OF 5

SECTION 393.86 READS AS FOLLOWS:: "EVERY MOTOR VEHICLE, EXCEPT TRUCK-TRACTORS, POLE TRAILERS, AND VEHICLES IN DRIVEWAY-TOWAWAY OPERATIONS, THE DATE OF MANUFACTURE OF WHICH IS SUBSEQUENT TO DECEMBER 31, 1952, WHICH IS SO CONSTRUCTED THAT THE BODY OR THE CHASSIS ASSEMBLY IF WITHOUT A BODY HAS A CLEARANCE AT THE REAR END OF MORE THAN 30 in. FROM THE GROUND WHEN EMPTY, SHALL BE PROVIDED WITH BUMPERS OR DEVICES SERVING SIMILAR PURPOSES WHICH SHALL BE SO CONSTRUCTED AND LOCATED THAT: (A) THE CLEARANCE BETWEEN THE EFFECTED BOTTOM OF THE BUMPERS OR DEVICES AND THE GROUND SHALL NOT EXCEED 30 in. WITH VEHICLE EMPTY; (B) THE MAXIMUM DISTANCE BETWEEN THE CLOSEST POINTS BETWEEN BUMPERS, OR DEVICES, IF MORE THAN ONE IS USED, SHALL NOT EXCEED 24 in.; (C) THE MAXIMUM TRANSVERSE DISTANCE FROM THE WIDEST PART OF THE MOTOR VEHICLE AT THE REAR TO THE BUMPER OR DEVICE SHALL NOT EXCEED 18 in.; (D) THE BUMPER OR DEVICES SHALL BE LOCATED NOT MORE THAN 24 in. FORWARD OF THE EXTREME REAROF THE VEHICLE; (E) AND THE BUMPER OR DEVICES SHALL BE SUBSTANTIALLY CONSTRUCTED AND FIRMLYATTACHED. MOTOR VEHICLES CONSTRUCTED AND MAINTAINED SO THAT THE BODY, CHASSIS, OR OTHER PARTS OF THE VEHICLE AFFORD THE REAR END PROTECTION CONTEMPLATED SHALL BE DEEMED TO BE IN COMPLIANCE WITH THIS SECTION."

THE REGULATIONS ALSO REQUIRE ALL MOTOR VEHICLES TRANSPORTING HAZARDOUS MATERIALS REQUIRING PLACARDING BE EQUIPPED WITH REAR END PROTECTION (REFERANCE 49CFR PART 397, 49 CFR SECTION 177.823, 49 CFR PART 172, AND 49 CFR SECTION 171.12A).

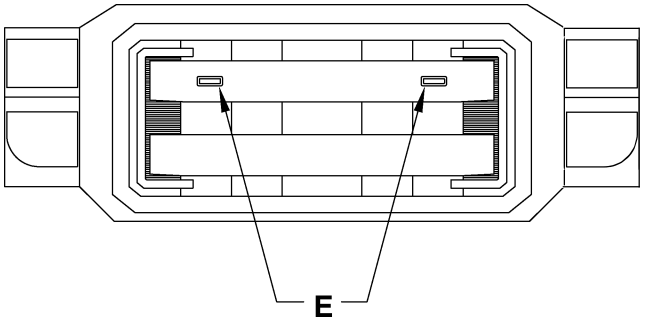
ALTHOUGH SECTION 393.86 DOES NOT SET FORTH SPECIFIC PERFORMANCE REQUIREMENTS FOR THE REAR END PROTECTION STRUCTURE, SUBPART J - SPECIFICATIONS FOR CONTAINERS FOR MOTOR VEHICLE TRANSPORTATION OF PART 178 - SHIPPING CONTAINER SPECIFICATIONS OF SUBCHAPTER C - HAZARDOUS MATERIAL REGULATIONS OF CHAPTER I - RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION DOES CONTAIN SPECIFIC PERFORMANCE REQUIREMENTS FOR REAR END PROTECTION ON CARGO TANK MOTOR VEHICLES (REFERENCE SECTIONS 178.337-10(D), 178.338-10(C), 178.345-8(D), 178.346-8, 178.347-8, AND 178.348-8). PENNSYLVANIA HAS ADOPTED 49 CFR 393.86 REAR END PROTECTION FOR COMMERCIAL MOTOR VEHICLES WITH A GVW OF 17,000 lbs. / 7711.07 kg. OR MORE OPERATED IN INTRASTATE COMMERCE, AND ANY SIZE VEHICLE HAULING HAZARDOUS MATERIALS REQUIRING PLACARDS WITH AN ADDITIONAL REQUIREMENT: "SOME PART OF THE HORIZONTAL BUMPER BAR SHALL FALL WITHIN 16-30in. / 40.64-76.2cm. ABOVE GROUND LEVEL." SEE TITLE 67 CHAPTER 175 OF THE PENNSYLVANIA CODE FOR THE SPECIFIC REQUIREMENTS FOR REAR END PROTECTION ON COMMERCIAL MOTOR VEHICLES WITH A GVW OF 10,001-17,000 lbs. / 4536.38-7711.07 kg. OPERATED IN INTRASTATE COMMERCE.

ANY / ALL REVISIONS SHALL SUPERSEDE THE ABOVE

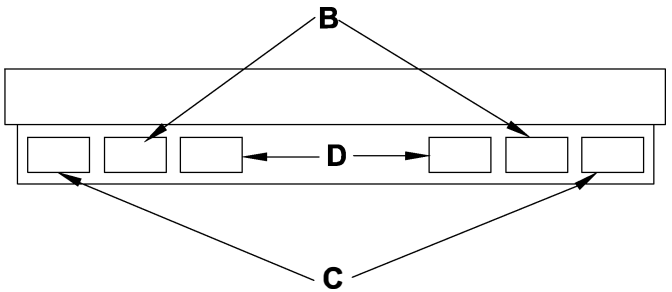
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

REVISIONS			**UNDERRIDE PROTECTION**		
NO.	DATE	BY			
1	07/08/97	DLW			
2	07/01/03	KGK	DRAWN BY DLW	SCALE N/A	EQN -118
3	06/26/09	TOD	DATE 02-04-92	CHK'D BY RR	SHEET 1 OF 1

FRONT VIEW



REAR VIEW

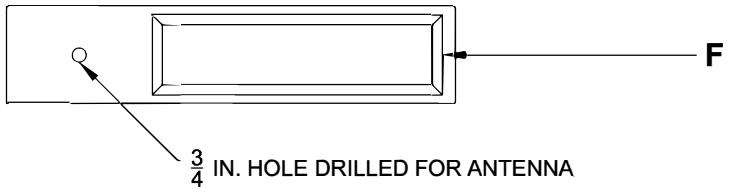


The purpose of this drawing is to show locations for Body Lighting, Whelen part # PADOTSY8.

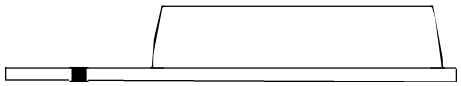
A. IONAD Amber Warning Light, grommet (flush) mounted, one each side.
B. M6BUD Back up Lights with Brush Guards.
C. M5BTTD Stop / Tail / Turn Lights with Brush Guards.
D. M6AD Amber Warning Lights with Brush Guards.
E. IONAD Amber Warning Light, both grommet mounted (flush with Front Grill).
F. Mini Bar Warning Light.

PLATFORM MOUNTED LED LIGHT BAR & ANTENNA HOLE

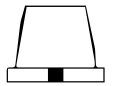
TOP VIEW



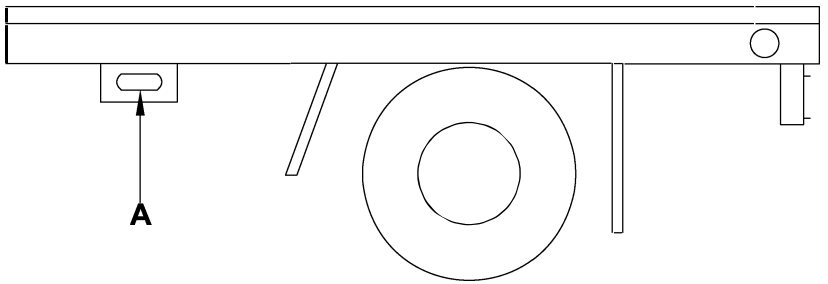
FRONT VIEW



SIDE VIEW

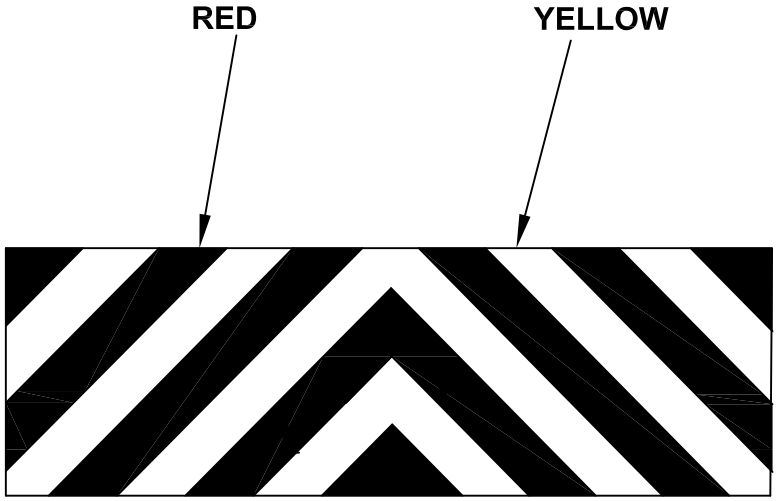


SIDE VIEW



PA DEPARTMENT OF TRANSPORTATION

REVISIONS			UNIVERSAL TRUCK LIGHTING		
NO.	DATE	BY			
1	01-28-20	GW			
2			DRAWN BY TOD	SCALE N/A	EQN-120Q
3			DATE	CHK'D BY TOD	SHEET 1 OF 1



REAR BUMPER STRIPING

THE REAR BUMPER SHALL BE STRIPED AS SHOWN WITH 8" WIDE ALTERNATING RED/YELLOW BANDS CREATING A CHEVRON (INVERTED V) AT 45 DEGREE ANGLES, ACROSS THE BUMPER TO SERVE AS A SAFETY WARNING SYSTEM.
TAPE SHALL BE REFLEXITE DAYBRIGHT V92 CONSPICUITY SHEETING. RED - SRHI4R, YELLOW - SRHI4Y. TWO 4" SHEETS CAN BE COMBINED TO EQUAL THE 8" REQUIREMENT.

THIS VEHICLE SHALL COMPLY WITH THE RULES OF THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (NHTSA). THE MOST CURRENT REGULATIONS SHALL BE ADHERED TO.

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			REAR BUMPER REFLECTIVE SHEETING		
NO.	DATE	BY			
1					
2			DRAWN BY TOD	SCALE N/A	EQN-122 A
3			DATE 04-09-12	CHK'D BY TOD	SHEET 1

THIS VEHICLE SHALL COMPLY WITH THE RULES OF THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (NHTSA) IN THAT:

THE MOUNTING HEIGHT OF THE HORIZONTAL STRIPES ARE RESTRICTED TO THE SAME HEIGHT AS OTHER RETROFLECTIVE DEVICES CURRENTLY REQUIRED BY STANDARD NUMBER 108. THE CENTER OF THE MATERIAL MUST NOT BE LESS THAN 15in. ABOVE THE ROAD SURFACE, AND THE UPPER EDGE NOT MORE THAN 60in. ABOVE IT.

REFLECTIVE MATERIAL SHALL BE APPLIED TO THE HORIZONTAL BAR OF THE REAR UNDERRIDE DEVICE IN ADDITION TO THE FLOOR LEVEL HORIZONTAL STRIPE. THE UPPER CORNERS ARE TO BE MARKED BY TWO 90 DEGREE ANGLE BRACKETS OF WHITE STRIPES 12in. BY TWO INCHES WIDE, INDICATING THE WIDTH AND HEIGHT OF THE TRAILER.

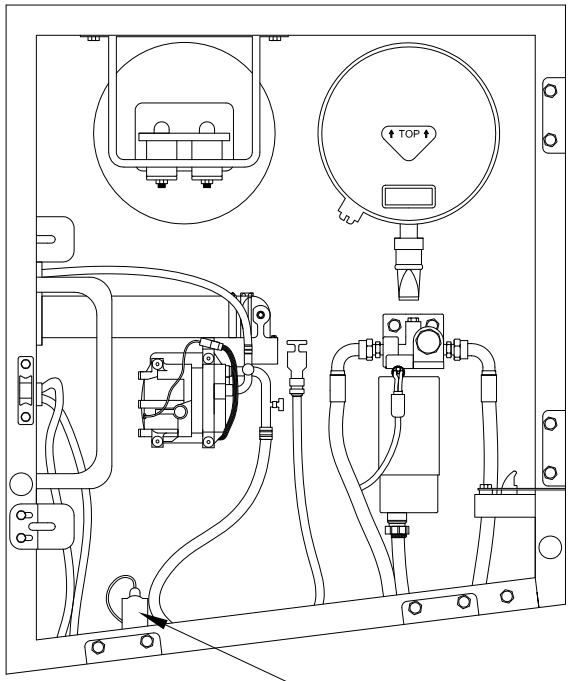
THE CONFIGURATION SHALL IDENTIFY THE VEHICLE AS TO ITS ESTIMATED SIZE AND THE CLOSEING DISTANCE TO IT. THE DISTRIBUTION OF SPACES AND MATERIALS SHALL BE AS UNIFORM AS PRACTICAL AND INDICATE THE FULL LENGTH AND WIDTH OF THE VEHICLE. THE COLORS SHALL BE PLACED IN ALTERNATING SEQUENCE WITH MORE THAN TWO-THIRDS OF THE MATERIAL IN COLOR.

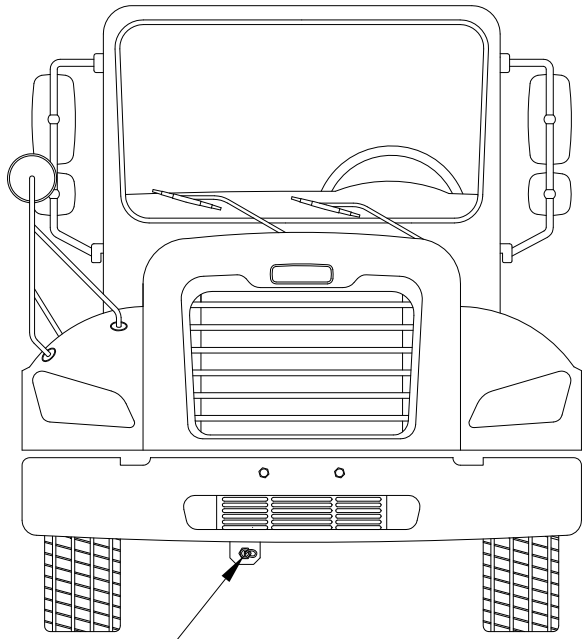
CONSPICUITY TAPE SHALL BE REFLECTORIZED. 2in. WIDE, MATERIAL SHALL BE APPLIED. MATERIAL SHALL BE RED/SILVER CONTINUOUS BACKING REFLEXITE CONSPICUITY II SYSTEM OR 3M SCOTCHLITE CONSPICUITY SHEETING SERIES 980.

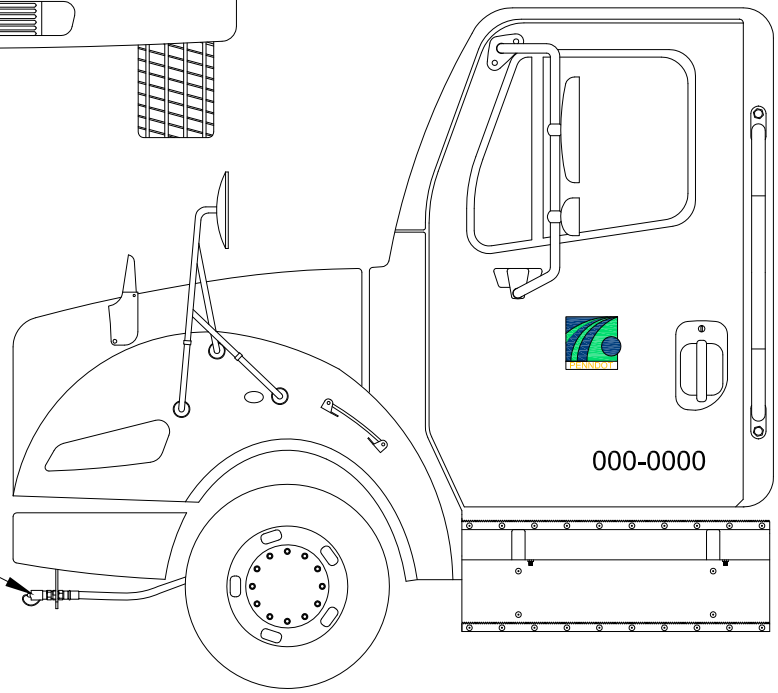
THE MOST CURRENT REGULATIONS SHALL BE ADHERED TO.

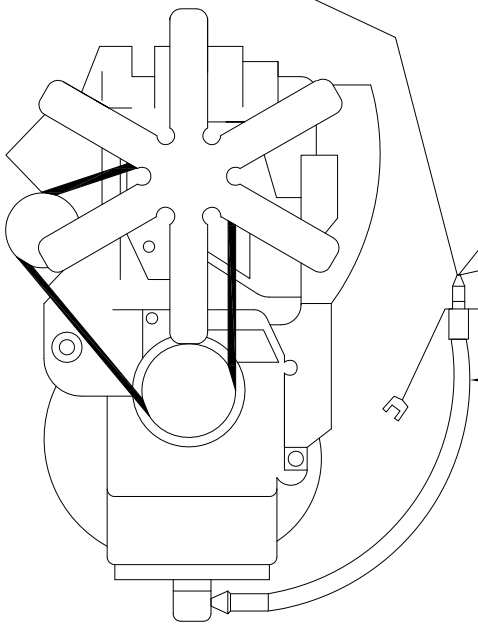
PA DEPARTMENT OF TRANSPORTATION

REVISIONS			CONSPICUITY TAPE STRIPING REQIREMENTS		
NO.	DATE	BY			
1	05-16-02	DWG			
2	11-03-06	CJW	DRAWN BY DLW	SCALE N/A	EQN-127A
3	01-02-09	MHH	DATE 11-07-97	CHK'D BY DMA	SHEET 1 OF 1









DISCONNECT COUPLING

FLOCS ENGINE KIT

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			FAST LUBEOIL CHANGE SYSTEM OVERVIEW AND PARTS LIST		
NO.	DATE	BY			
1	07-01-03	BLD			
2	10-20-06	CJW	DRAWN BY DLW	SCALE N/A	EQN-351A
3	06-19-13	JFM	DATE 08-22-97	CHK'D BY WHM	SHEET 1 OF 2

1. CONTACT AEROQUIP WITH YOUR DRAIN PAN PLUG SIZE
2. AEROQUIP DEALER TELEPHONE NUMBERS:

ADVANCED FLUID CONNECTORS.....717-757-1068
AIR BRAKE & POWER EQUIPMENT CO..717-622-6188
AMERICAN BEARING & POWER.....717-569-3291
GOODALL RUBBER COMPANY.....610-534-2100
POWER DRIVES INC.....814-833-8181
R L MILLER INC.....412-833-6800
R L MILLER INC.....814-456-8900
SRG/BEVCO.....610-358-3100
VOTO MANUFACTURERS SALES CO....814-226-7101

FLOCS SHALL INCLUDE, BUT NOT LIMITED TO:

A. DUST CAP 5657-12
B. HOSE TO SUIT LENGTH
C. HOSE FITTING TO SUIT
D. ADAPTER TO SUIT
E. HOSE CLAMP #900729-6
F. BRACKET TO SUIT
G. COUPLING 5602-12-12S

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			FAST LUBEOIL CHANGE SYSTEM OVERVIEW AND PARTS LIST		
NO.	DATE	BY			
1	07-01-03	BLD			
2	10-20-06	CJW	DRAWN BY DLW	SCALE N/A	EQN-351A
3	06-19-13	JFM	DATE 08-22-97	CHK'D BY WHM	SHEET 2 OF 2

Centralized Lubrication System
On Road Equipment EQN - 501

There shall be an automatic centralized lubrication system professionally installed to maintain all the daily, weekly, and monthly lubrication points. Only electrically controlled, #2 chassis grease systems shall be accepted. The use of pneumatic systems is unacceptable. The requirements for the lubrication system components and installation procedures are outlined below. It is the responsibility of the vendor to ensure that the automatic lubrication system complies with all of these requirements.

1. Performance Requirements

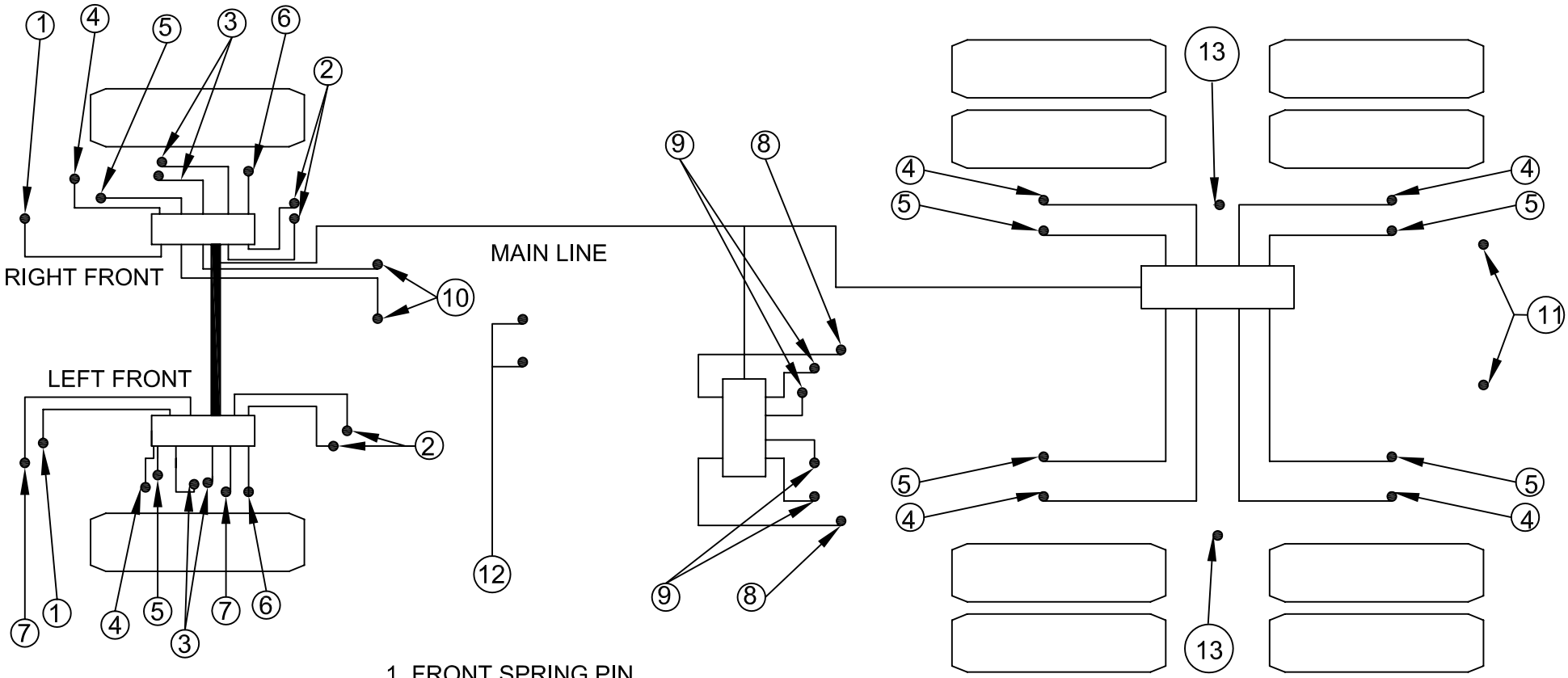
- The system pump shall be capable of delivering NLGI #2 grease over a temperature range of minus 10 degrees Fahrenheit to 120 degrees Fahrenheit.
- The pump shall have an integral adjustable timer to change the grease delivery intervals as needed.
- The system shall use a fused electric pump, either 12 Volt DC or 24 Volt DC depending on application. Pneumatic pumps are not acceptable.
- The pump shall be equipped with a pressure relief valve device at the pump outlet to protect the pump from damage due to over pressure.
- For ease of service, the pump shall have a pumping element located on the side that can be removed and replaced or repaired as needed without having to remove or disassemble the pump.
- The pump shall use a clear or translucent reservoir to allow for visual inspection of the grease level. Reservoir shall have a full level indicator. Bladder type reservoirs are not acceptable.
- The grease reservoir shall be a minimum four pound capacity.
- The system shall have a cab mounted fault light that will notify the operator of a lube system fault and low grease level. If any point in the system will not take grease, the fault light shall illuminate.
- The system shall be a positive displacement series progressive type, using primary and secondary valves.
- All secondary valves shall be non-segmented to minimize the potential leak path and or sources of contamination.
- All valves shall be made of corrosion resistant coated carbon steel.
- The positive displacement proportioning valves shall have a tee and high back pressure grease fittings at each valve inlet for manual filling, system testing, and to fill repaired lines.
- The system shall have a manual override fitting to enable the system to be manually operated if the pump is inoperable.
- Equipment shall have a 2 year manufacturer's warranty.

2. Installation Requirements - On Road

- The system shall use only high pressure hose (4,000 psig operating, 10,000 psig burst). All hoses are to be of US standard sizes (1/8" ID hose 5/16 OD) and readily available from local sources.
- All hoses shall use a two piece re-usable hose end with quick disconnects at the valve outlet for ease of inspection and repair.
- All lines from the secondary valves to the chassis or body inlet points shall be flexible with at least a 500 PSI working pressure. All tubing shall be standard size (1/4 inch OD) and readily available from local sources.
- All line runs will be secured to the chassis or air lines via tie wraps. Protective wrap shall be used for all lines run over any edge of the chassis and especially at the termination points for front suspension including upper & lower king pins, tie rod ends and any exposed lines that are not fixed. The use of steel tubing is prohibited.
- The pump shall be installed in a safe location on the truck chassis that is protected and easy to monitor the grease level and refill. For exact mounting location, contact PennDOT Equipment Division, Specification Unit - 717.787.2123
- Ground Level filling shall be provided for all lube systems. Remote lines are acceptable if reservoir is viewable from remote fill location.
- Installations shall be warranted for 2 years of operation.

PA DEPARTMENT OF TRANSPORTATION				
REVISIONS			CENTRALIZED LUBE SYSTEM	
NO.	DATE	BY		
1			SCALE N/A	EQN-501
2			DRAWN BY TOD	
3			DATE 6-8-09	CHK'D BY SHEET 1 OF 2

MINIMUM TYPICAL LUBE POINTS
TANDEM AXLE



MINIMUM TYPICAL VEHICLE LUBE POINTS.

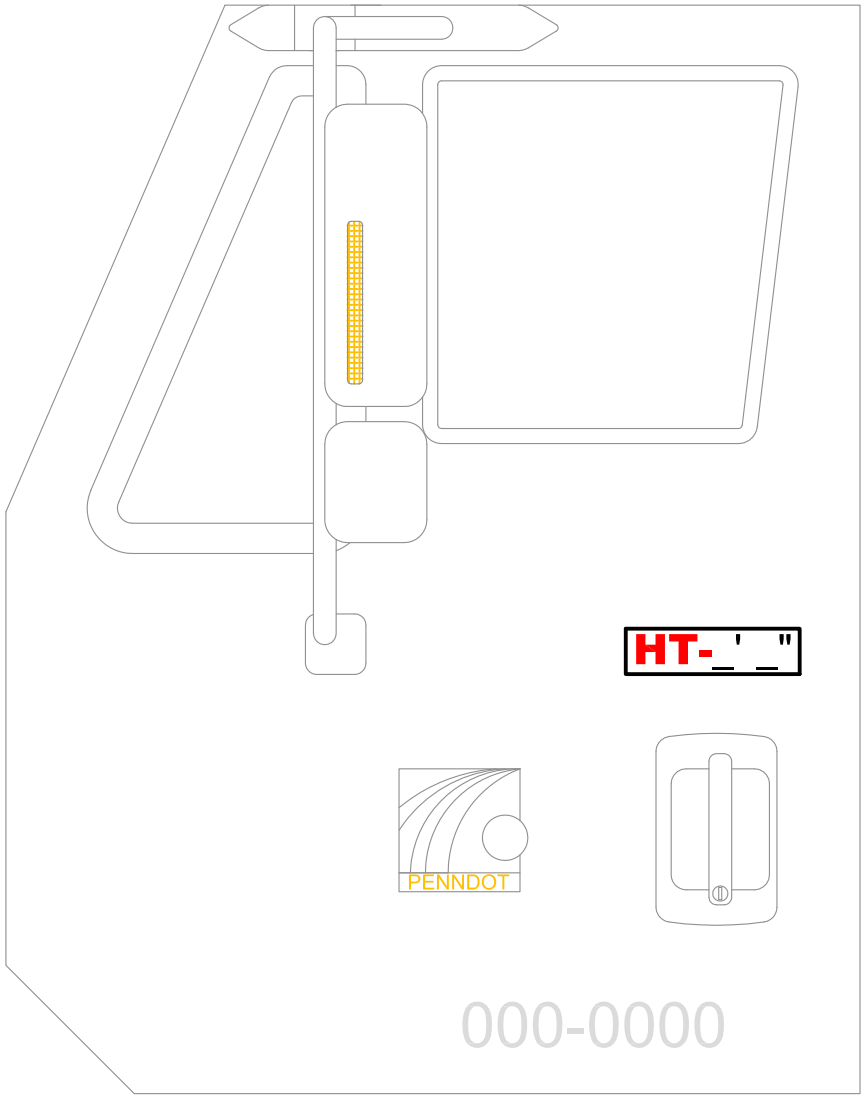
*ALL LUBRICATION POINTS SHALL BE INCORPORATED INTO THE ON-BOARD GREASE SYSTEM. INCLUDING ALL CHASSIS AND BODY POINTS, EXCEPT LOCATIONS RESTRICTED BY ROTATING DESIGN; IE: DRIVESHAFT & PTO

1. FRONT SPRING PIN
2. FRONT SPRING SHACKLES (UPPER AND LOWER)
3. KING PIN (UPPER AND LOWER)
4. BRAKE CAM SHAFT
5. BRAKE SLACK ADJUSTER
6. TIE ROD
7. DRAG LINK
8. FIFTH WHEEL PIVOT (IF APPLICABLE)
9. FITH WHEEL PLATE (IF APPLICABLE)
10. CLUTCH CROSS SHAFT
11. REAR DUMP BED HINGE (1 EACH SIDE)
12. TOP AND BOTTOM OF HOIST CYL.

13. DEPENDING ON APPLICATION, ALL REAR SUSPENSION, TRUNIONS, LEAF SPRINGS

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			CENTRALIZED LUBE SYSTEM GENERIC ARRANGEMENT		
NO.	DATE	BY			
1	12-15-00	GAH			
2	01-02-07	CJW	DRAWN BY GAH	SCALE N/A	EQN-501
3	06-09-09	TOD	DATE 8-31-99	CHK'D BY LHA	SHEET 2 OF 2
4					
5					



THERE SHALL BE A PERMANENT DECAL, 2 INCH HIGH RED LETTERS ON WHITE BACKGROUND AFFIXED BY THE DRIVER SIDE DOOR HANDLE OR OPERATOR STATION STATING THE OVERALL MAXIMUM TRAVEL HEIGHT OF THE COMPLETED AND UNLOADED UNIT.

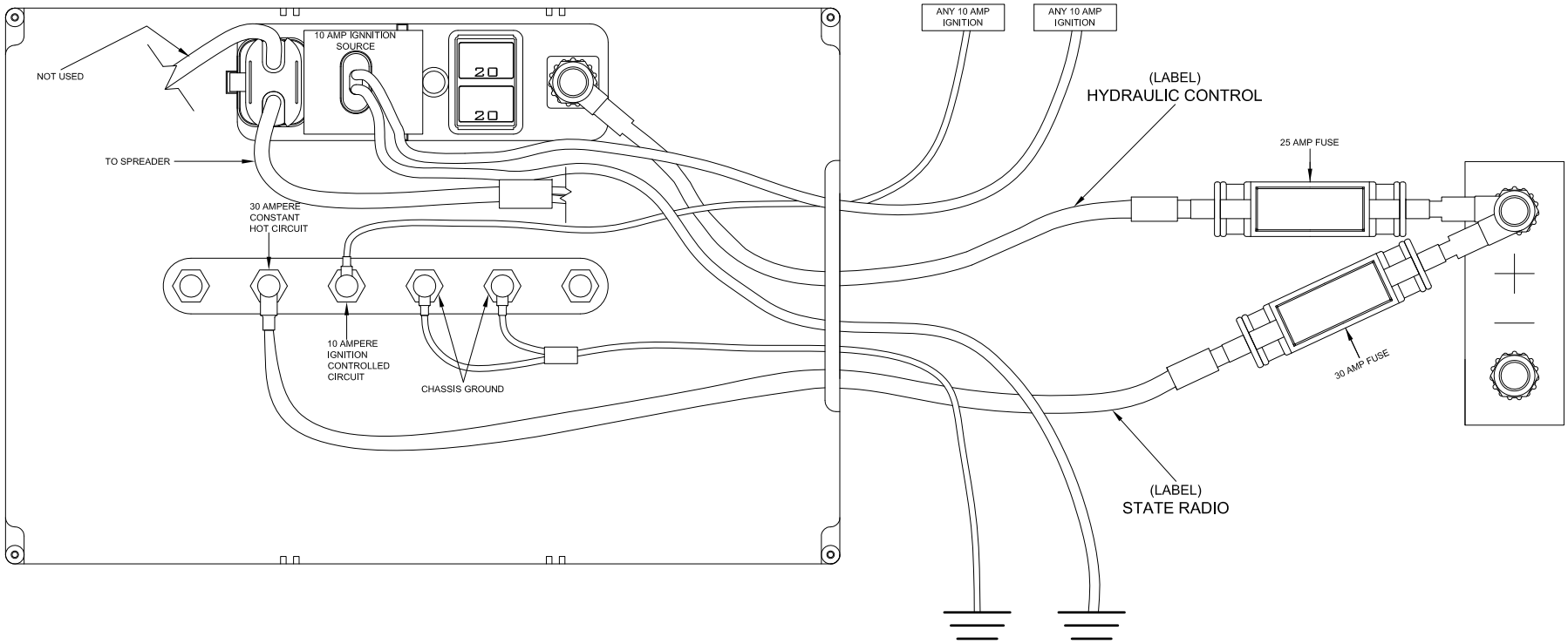
PA DEPARTMENT OF TRANSPORTATION

REVISIONS			MAX TRAVEL HEIGHT STICKER		
NO.	DATE	BY			
1	07-06-17	HMR			
2			DRAWN BY JFM	SCALE 2	EQN-552
3			DATE 05-29-13	CHK'D BY INT	SHEET 1 OF 1

THERE SHALL BE A PERMANENT DECAL AFFIXED BY EACH ENTRY POINT. THE SAME PERMANENT DECAL SHALL BE AFFIXED BY EACH LADDER, PLATFORM OR STEP DESIGNED TO BE CLIMBED OR STEPPED ON. MEASUREMENTS OF DECAL ARE REFERENCED ABOVE.

PA DEPARTMENT OF TRANSPORTATION

REVISIONS			THREE POINTS OF CONTACT STICKER		
NO.	DATE	BY			
1	12-20-16	JJB			
2	07-06-17	HMR	DRAWN BY GAW	SCALE N/A	EQN-552-1
3	07-24-18	KBD	DATE 03-23-15	CHK'D BY TOD	SHEET 1 OF 1



NOTE:

EACH CIRCUIT SHALL BE SUPPLIED INDIVIDUALLY, LABELED, PROPERLY SIZED, PROTECTED FROM WEATHER, AND SEALED TO BE WATERTIGHT.

PA DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	DATE	BY
1	00-00-00	INT
2		
3		

POWER DISTRIBUTION BOX FOR STATE RADIO AND SPREADER CONTROLS

DRAWN BY	SCALE	
JFM	N/A	EQN-562
DATE	CHK'D BY	
01-08-14	INT	SHEET 1 OF 1