

- 1-  
SPECIFICATIONS  
A-48-DN-A-AL

**060100**

**TRUCK, PAINT SUPPLY W / ATTENUATOR**

**20 FOOT BODY, CONVENTIONAL CAB, 64,000 LB GVWR**

INDEX

I. SPECIFICATIONS INFORMATION:

- A. Intent Statement
- B. Weight Distribution
- C. Power Train Overview
- D. Vehicle Components
  - 1. Axle Front
  - 2. Axle Rear
  - 3. Brakes
  - 4. Cab
  - 5. Chassis
  - 6. Drive Line
  - 7. Electrical
  - 8. Engine
  - 9. Exhaust
  - 10. Fast Lube Oil Change System (FLOCS)
  - 11. Frame
  - 12. Instrumentation
  - 13. Lights - Warning
  - 14. Paint
  - 15. Safety
  - 16. Steering
  - 17. Suspension: Front
  - 18. Suspension: Rear
  - 19. Tank - Fuel
  - 20. Wheels and Tires
  - 21. Transmission

October 5, 2021 GAW

- 2-  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. Flat Body and Equipment

1. Flat Bed Body
2. Floor
3. Body Structure
4. Paint
5. Splash Guards
6. Emergency spill kit
7. Miscellaneous
8. Tie Down System
9. Safety
10. Message Board
11. Mounted Attenuator

III. DRAWINGS

IV. MANUALS

V. TRAINING

VI. WARRANTY

- 3-  
SPECIFICATIONS  
A-48-DN-A-AL

I. SPECIFICATION INFORMATION:

A. INTENT STATEMENT:

The purpose of these specifications is to describe a conventional cab, dual rear axle truck equipped with a 20-foot platform flat bed. It shall be capable of carrying paint and glass bead containers with a 4 feet X 8 feet full matrix message board and a folding attenuator (TMA) mounted to the rear truck chassis frame.

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 **270** 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, washed, 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 delivery of each unit.

Department representatives will review the final design of the unit before work begins on the pilot model.

The successful bidder will provide detailed drawings of the various systems, i.e., heating, electrical, hydraulic, etc.

The Department reserves the right to have its representative(s) periodically inspect each unit during assembly at the successful bidder's assembly point.

- 4-  
SPECIFICATIONS  
A-48-DN-A-AL

I. SPECIFICATION INFORMATION:

B. WEIGHT DISTRIBUTION:

Weight slip shall be submitted with each unit.

Engineering certified weigh slips shall be provided with the pilot model and signed by the Manufacturer's Engineering Department. 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.

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 insure the Commonwealth of a properly designed/engineered unit.

Front and rear axle legal weight distribution apply to non-emergency applications only.

In addition to the Engineering Certified weight distribution provided with the unit, the following information is required.

The vehicle shall be certified for 64,000 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).

ACTUAL TRUCK WEIGHT: (LB)

"Chassis only" (shall be signed by a certified weigh master.)

\_\_\_\_\_ Front Axle

\_\_\_\_\_ Rear Axle

\_\_\_\_\_ Total

"Chassis with body" (shall be signed by a certified weigh master).

\_\_\_\_\_ Front Axle

\_\_\_\_\_ Rear Axle

\_\_\_\_\_ Total

THE ABOVE MAY BE PERFORMED BY THE BODY COMPANY.

- 5-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

Truck GAWR's as Built (LB)

	<u>Front GAWR</u>	<u>Rear GAWR</u>
Axle	_____	_____
Tires	_____	_____
Springs	_____	_____
Rims	_____	_____

- 6-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS:

C. POWER TRAIN OVERVIEW:

ENGINE:

DIESEL, MIN. 425 HP AT GOVERNED RPM, MIN. PEAK TORQUE OF 1540 LB/FT TORQUE, MIN. 12.4 LITER (actual engine liters).

TRANSMISSION:

AUTOMATIC ALLISION HD 4500 RDS 6 SPEED

REAR AXLE:

DANA DT463P

MACK S462

MERITOR RT46 -164 -P

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.

- 7 -  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: Continued)

D. VEHICLE COMPONENTS:

1. AXLE FRONT:

18,000 LB capacity, minimum.  
MERITOR  
MACK  
DANA

The front axle shall be rated at 18,000 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 oil seal assembly, including hub, plug type window, and seal. Each unit shall receive a front-end alignment prior to delivery.

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.

**This information shall be presented at the pre-build meeting.**

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

3. 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 dash-mounted display that will show all SAE message descriptions for the ABS shall be easily navigated and viewed from the driver's seat.

Rear 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**).

- 8-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

3. BRAKES: (Continued)

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 brake shall provide modulated emergency braking via the foot valve in the event of a rear service system failure.

All brake chambers, front and rear, shall be equipped with rubber boots on the brake chamber push rods. Rear service brake chambers and spring brake chambers shall be mounted to provide adequate clearance for backing into bituminous paving machines.

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 valve to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

4. CAB:

Aluminum or galvanized steel cab.

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.

Hood: Fiberglass, tilting. Fenders shall be part of tilting hood. Grille shall be fixed and constructed of a non-rusting material. Hood shall be one piece design, high visibility, and without any access panels.

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 have a formed extension. Not to exceed 102-inch truck width.

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 shield, shield not required if under hood mount.

All controls and knobs shall be properly identified.

Brake and throttle pedal shall be suspended if available from the factory.



SPECIFICATIONS

A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

4. CAB: (Continued)

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.

Covering shall seal against all mating and adjoining surfaces sealing dirt and liquid on the surface keeping it from penetrating 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.

Driver's and passenger's doors shall be equipped with power door locks.

Halogen headlights, all other cab lighting shall be L.E.D.

Windshield: Manufacturer's standard heated windshield. One (1) or two (2) piece construction is acceptable, must be tinted. Safety glass throughout.

Dual windshield wipers: Arctic wipers and heaviest, motor, arms and linkages available. Wiper blades, maximum length, shall follow windshield contours. They shall be minimum two (2) speed intermittent. Washer system shall be electric. Washer tank shall be a minimum capacity of two (2) quarts of washer fluid. It shall be filled with an anti-freeze type solvent. Washer fill point shall be located to be accessed from ground level, without overhead reaching. With unobstructed and unrestricted flow from a one-gallon jug.

Washer system shall be electric. Minimum capacity of two (2) quarts of washer fluid and shall be filled with an anti-freeze type solvent. Washer fill point shall be located to be accessed from ground level, without overhead reaching. With unobstructed and unrestricted flow from a one-gallon jug.

Mirrors: Driver and passenger side west coast style powered mirrors with manufactures standard heavy-duty breakaway arms. Mirrors shall have a minimum 105 square inch reflective surface. Mirrors shall be heated with a lighted toggle switch mounted within accessible reach of the operator, automatic on/off is acceptable. There shall be a heated convex mirror, minimum 50 square inch reflective surface. A heated blind-spot elimination mirror shall be mounted on the right front fender and it shall be minimum 50 square inch reflective area, stainless steel or aluminum head. Mirror shall be a conventional convex mirror and shall not be of the half-round cross view type. All mirror wires shall be fitted in such a way that the mirror glass/element can be changed by unplugging the two-wire lead. All arm/s and hardware shall also be stainless steel. Fender type washers, stainless or aluminum, with rubber pads shall be placed on both sides of the fender. Pedestal system shall be single, double or triple mounting assemblies (stainless steel or aluminum). Mirror shall be mounted in rubber or vinyl. Ref: Grote

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). Seat belts shall be equipped with a comfort lock. A bellow-type or protective skirt shall cover the seat suspension mechanism. 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.

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, standardization)**. 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). Color coordinated.

Steering wheel diameter shall be 18 inch (approx.), Manufacturers standard.

Steering Column: Steering wheel and column shall be tilt and telescopic, infinitely adjustable to multiple positions.

- 10-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

4. CAB: (Continued)

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.

Top of the first step shall be approximately 21 inch above the ground.

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.

5. CHASSIS:

The GVWR rating of the truck shall be 64,000 LB. A label stating this shall be affixed on the door or in the cab as the completion certification label.

Cab- (CT) dimension Approximate 155 - 180 inch CT dimension. CT dimension may be adjusted to provide the optimum legal weight distributions with maximum payload.

The frame AF shall be reinforced by cross-member(s) at the rear of the frame, Local installation is acceptable if required.

Consideration shall be made for frame rail extending past flatbed body, to accept message board and attenuator mounting.

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

Front mounted tow hooks or eyes, two (2) front, or one center mounted tow pin.

License plate bracket rear securely mounted to prevent damage when backing.

6. DRIVE LINE:

Main driveline: Spicer Life HDXL or Meritor MXL Series. "**Factory balanced**" greaseable, (one zerk minimum). Heavy-duty driveline 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 or Meritor MXL Series.

7. ELECTRICAL:

All copper system, negative ground.

Batteries: Three (3) heavy duty 12-volts, maintenance-free, with stud type posts and anti-corrosion treatment on each terminal. 1825 total cold cranking amperes (CCA) at 0 degrees F minimum.

Battery mounting: It shall include the following:

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

- 11-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

7. ELECTRICAL: (Continued)

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.

Mounting of 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. Any circuit deemed necessary for connection in the battery box by the body up fitter or component manufacturer shall have attached non-metallic embossed labels/tags. Labels/tags applied with self-adhesives or stickers will not be accepted.

**All circuits shall be individually permanently labeled.**

Cables shall conform to RCC Practice 105 with "sealed" terminal ends for stud-type battery posts. Circuit-breaker-equipped electrical system in easily accessible location Fuses acceptable in circuit(s) so identified by manufacturer as safety factor.

Alternator: Delco 36SI (No substitute, Standardization) 160 A minimum, high performance, solid state (brushless). Dual-drive alternator belt assembly, energy efficient belts, or prior-approved heavy-duty single.

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. 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).

Alternator and starter mounting bolts: Grade 8 minimum.

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 with (DRL's) daytime running lights.

Flatbed body lights shall have their own dedicated circuit.

Any fuse or switch liable to be damaged during truck operation shall have an easily removable protective cover.

All exposed junctions: Waterproof and sealed against salt.

Radio Antenna: There shall be an antenna base, PCTEL Maxrad NMO-52-360-XX-N and a VHF StiCO Roof-FT-NITI-M whip shall be cut to 18.0 inches per manufactures cut sheet. 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 near the console for connection of P25 two-way state radio. The lugs shall be labeled and 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: EQN-562

Electrical wiring: Chassis wiring harness protected at areas prone to cause chafing by installing convoluted plastic conduit and clamped using steel band clamps with rubber inserts. All pass-through points shall be properly sealed and protected.

- 12-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

8. ENGINE:

Automatic idle shutdown shall be set to five (5) minutes. An audible warning alarm and dash light shall be provided to alert operator prior to engine shutting down.

ECM shall be set to a maximum of sixty-five (65) miles per hour.

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, belts 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 382 or 487 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)**. Mounting location to be determined at pre-build meeting.

Davco 382 Unit shall be equipped with engine coolant heat and 120-volt heater circuit. The 120-volt circuit and engine block heater shall be powered via the same electrical connection. **(No substitute, standardization)**

Davco 487 shall be equipped with 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 operation at low speeds as a shadow vehicle during prolonged line painting operations in low gears. 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 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 if required by engine manufacturer.

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 manufactures.

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.

Screening system: Mounted in front of radiator that protects radiator full width and full length from stones and road debris. System to be approved by engine and truck manufacturer(s).

Engine Vibration Dampener

Governor: Set at manufacturer's recommended maximum rpm.

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.

- 13-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

8. ENGINE: (Continued)

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.

Engine Brake: Engine shall be equipped with a minimum 2 stage, full engine compression brake.

**Brake lights shall activate when engine brake is activated**, Ref: Jacobs.

9. 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 body 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 truck body. The flex in the body, when operating on an uneven terrain, must be considered in the design.

The muffler, DPF and tail pipe 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.

All exhaust/DEF components shall be properly shielded to protect personnel from contact, at ground level to the side and rear of cab and normal entrance and exit into cab. Exhaust components below and to the inside of the frame rails do not need shielding. Awarded OEM Model will be discussed at pre-build.

10. 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. 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.

11. FRAME:

Frame shall be single rail; dual and drop frame rails are unacceptable.

The Resisting Bending Moment (RBM) shall be a minimum of 2.5-million-inch LB per rail, for the entire length of the frame, including any frame liners. Where engine and radiator adjustments are required, a minimum of 1.0-million-inch LB per rail R.B.M. will be accepted. Frame material shall be of at least 120,000 PSI yield strength.

Minimum frame RBM shall be approved by manufacturer's Engineering Department.

Bolt-on or welded extension will not be accepted.

Main frame and any required liners shall be either straight channel or offset channel, full length. **(NO SPLICING)**

Frame AF extension: An integral and continuous extension of the main-frame side rail section modulus.

Length sufficient to properly mount body and equipment.

Consideration shall be made for frame rail extending past flatbed body, to accept message board and attenuator mounting.

- 14-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

12. INSTRUMENTATION:

All instruments shall be dashboard-mounted unless 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 Restriction Gauge: Vehicle OEM equipped electronic dash that incorporates an air restriction gauge or indicator light, shall be required.

Coolant temperature with warning light or audible alarm.

Transmission oil temperature gauge with warning light or audible alarm.

Air pressure gauge(s) for dual circuit, dual indicator with low-pressure audible alarm and warning light.

Fuel gauge

Hour meter, that records only when the engine is running.

Speedometer with odometer.

Tachometer

Voltmeter/Ammeter

13. LIGHTS - WARNING:

Whelen Light Kit Part # PADOTSY8, Kit contains the following lighting. Light kit requires a 6-8-week lead time for delivery, kit information contact Brad Walker # (740) 325-6727.

1) 01-0687181A1PA (R10PADOT) Light Bar to be pedestal mounted on the driver's side cab protector. In no case, shall the light bar be mounted on the roof of the vehicle. Ref. EQN-120Q

2) 01-066A797-A1H (M6AD) Amber warning lights with brush guard mounted to the rear of bed.

2) 01-066B1866R1J (M6BTDD) Stop, Tail, Turn lights with brush guard.

2) 01-066B160112G (M6BUD) Back-up lights with brush guards.

IONAD Amber lights shall be mounted with the rubber grommet.

4) 01-066D363310D (IONAD) Amber warning lights, grommet mounted, mounted 1 to each side (middle/center) of bed and 2 mounted in front grill per EQN-120Q. Warning lights are to be wired in conjunction with above light bar.

4) 01-046D378-00B (IONGROM) Grommet Kits.

10) 01-0416467-410 (W441D) Harness side mating Deutsch connectors.

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.

There shall be a Truck-Lite Model# 36140C LED license plate light with light bracket PN# 36710. (Installed)

Body builder to supply remaining marker and ICC lighting, they shall be protected against damage and shall also be shock mounted. Connections shall be watertight. All Body lighting shall be LED.

Electrical chassis wiring: Factory heavy duty harness to power components in rear light module. Trailer light plug shall have brake lights operate in conjunction with the turn signals. One Pin Type 7-way female electrical trailer plug connection installed. per EQN: 80A

Rear lights shall be mounted as not to be obscured by the attenuator in the folded position.

The Warning lights / Light bar shall be a single 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.

Lights: All lights shall meet all Federal and State regulations. The head Lights shall be Halogen with (DRL's) daytime running lights manufacture's STD or aftermarket. Body lights shall have their own dedicated complete circuit. All pass-through points shall be properly sealed and protected. All lights shall be LED.

- 15-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

14. 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 rust-resistant (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.

Body up fitter 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. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

15. SAFETY:

ECCO 450 back up alarm installed with rubber grommet **(No substitute, standardization)**

Cab and body shall have reflective enhancement per EQN-127A.

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.

There shall be one set of wheel chocks per truck with a rope connection. Mounting location will be determined at pre-build meeting. EQN-82D.

All corners shall be angled or rounded for safety.

There shall be an emergency triangle warning kit mounted in the cab. Ref: EQN-66A.

Fire extinguisher: 3A:40B:C 5 LB. rechargeable with vehicle mount. Mounted in the cab for easy and quick access.

Underride protection per EQN-118.

Reflectivity enhancement per EQN-127A

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 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 pre-build meeting.

- 16-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

16. STEERING:

Single integral type hydraulic power steering.

The pump shall not be the integral filter type unit.

Steering system (e.g., Flow, pressure, relief valve etc.) Shall be selected considering the full front-GAWR axle loading. Ref: ROSS, SHEPPARD or TRW gear assembly.

Hydraulic supply pump, vane type or roller type supply pump with sufficient oil flow to permit one (1) steering wheel revolution per second with front axle loaded to rated capacity, in a "park" condition.

Power Steering Reservoir, "remote mounted", incorporating a filter which is easy to remove and replace.

The remote filter referenced above shall be factory mounted.

Glidecoat steering shaft, Bendix wedge lock lube-for-life shaft or ZF type steering shaft.

17. SUSPENSION: FRONT:

9,000 LB capacity at ground, each front spring. Springs shall be multi leaf design. 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. Maintenance free front spring bushings are acceptable.

Tailored to match or exceed the front axle and GVWR without overload or permanent set. Two (2) shock absorbers.

18. SUSPENSION: REAR:

23,000 LB capacity at ground, each rear spring. 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.

19. TANK - FUEL:

Safety - type tank as per the requirements of FMVSS.

One (1) 100-gallon minimum aluminum or stainless steel, unpainted and mounted, under the left door.

**Dual Tanks are unacceptable.**

Heavy duty mounting straps with rubber shims/liners.

Tank Mounting Hardware and brackets shall be for "severe duty" applications. Heavy-Duty aluminum or stainless-steel minimum 1.9-inch-wide straps with rubber shims/liners shall be utilized.

Accessible fill pipe (located at either end of tank to avoid interference with steps).



- 17-  
SPECIFICATIONS  
A-48-DN-A-AL

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. VEHICLE COMPONENTS: (Continued)

20. WHEELS/TIRES:

The truck shall be equipped with hub piloted steel 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 9.00, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 10,000 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 29039. **(No substitute, standardization).**

Rear: Wheels: 22.5 x 8.25, 10 hole - 285.75mm bolt circle with 220mm bore, tubeless steel disc wheel rated at 7,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 28828. **(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.

Paint: The wheels shall be topcoat painted with TGIC Polyester Powder Paint MLD-82008 High Gloss Gray or equal applied over Cathodic Electro-Disposition Gray Primer.

Tires: Drive tires shall be mud/snow tread. All tires shall be radials and have a minimum 25/32 tread depth.

Front Tires: 315/80R22.5 (Load Range L).

Rear Tires: 12R22.5H (Load Range H). Acceptable tire manufacturers Goodyear, Michelin and Bridgestone.

21. TRANSMISSION:

AUTOMATIC:

ALLISON 4500 RDS 6 SPEED

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.

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 due to prolonged transmission torque converter operation in low gears. 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, Braided hoses will not be accepted, and all hoses shall be routed to prevent rub-through with hanging brackets and P-style clamps.

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

All transmission modules shall be routed and installed in the cab

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

- 18-  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT:

The body shall be reinforced to withstand SEVERE duty service 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 **270** 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. 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 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.**

- 19-  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

1. 20 FEET FLAT BED BODY:

Minimum 20 feet bed.

The front body bulkhead shall be 0.172-inch minimum, standard aluminum grade 5454H32, one-piece, and shall be a minimum of six (6) inch to a maximum of twelve (12) inch above cab roof. The front bulkhead shall have an expandable aluminum or pre-punched aluminum area the size of the cab window.

There shall be four (4) entry ladders, two front of body Left (driver side) and Right (passengers' side) two rear of body Left (driver's side) and Right (passengers' side). Ladders shall have a minimum of three-inch-deep serrated front edge steps, serrated edge type step treads. Top of first step shall be approximately 21 inches above the ground, with evenly spaced steps to the top of the deck. Each ladder shall have grab handle(s) to provide three points of contact achievable at all entry locations. (Overlay is unacceptable). Safety decals attached at rear ladder areas warning of "Overhead Obstruction" with attenuator folded.

The outer step edge must be serrated in lieu of plain, smooth metal edge.

All edges must be banded on the outer perimeter.

Top of first step shall be approximately 21 inches above the ground.

Step design and material shall be the same design and material on the left and right side of the equipment if applicable.

Referenced acceptable material – Bustin NST4, Ohio Grating JA2119SG4 or IKG Industries BS4.

Grab handles shall be coated with non-skid paint. Three points of contact shall be achievable at all entry/exits locations.

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 pre-build meeting.

Body side rail design shall incorporate tie down system from section II. C. 8.

2. FLOOR:

Ref: EQN-225A.

Body floor shall be 2-inch min. thick pressure treated pine. (Oak or apitong is acceptable).

There shall be four (4) sets of recessed hold-down devices installed front to back evenly place in the floor.

Recessed hold-down devices shall be attached to cross members, attachment to the floor only will not be accepted. There shall be four (4) heavy duty ratchet straps supplied. The straps shall be Goodall, Tel: 1-800-328-7730, Part No. 13-329 or strap equal in size, design and strength.

Deck surface to be walked on shall be coated with non-skid paint, non-skid tape will not be accepted.

3. BODY STRUCTURE:

The body sub frame shall be "Stacked Construction".

The body sub frame shall be reinforced to withstand SEVERE duty service.

The Chief of the Fleet Management Division will approve all methods of alternate design.

The longitudinal I-beams shall be minimum 6 in, 12.5 lb/ft.

Channel 8.2 lb per foot sides with rub rail on the outside of the stake pockets min.

Cross members shall be spaced on maximum 13-inch centers.

- 20-  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

4. PAINT:

Body color shall match the cab color yellow. Body up fitter 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. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

Entire wood deck surface shall be painted with matching yellow non-skid paint. **Tape is unacceptable.**

Bumpers shall be painted black or argent.

The sides and rear shall have conspicuity tape striping Ref. EQN-127A.

5. SPLASH GUARDS:

Ref: EQN-66.

Metal, 0.172-inch-thick mm. splash guards shall be attached to the body on each side behind the rearmost dual wheels and extend downward approximately 12 inch the rubber splash guards shall be bolted to these metal splash guards using self-locking nuts and metal strips.

The forward splash guards shall be steel and extend downward 3/4 of the length of the rear splash guard/mud flap, with a 1/4 length, unmarked mud flap attached for the remaining distance.

Both front and rear splash guard assemblies shall be properly braced.

6. EMERGENCY SPILL KIT:

Trucks shall be equipped with a Pig Series 303 refill kit only or equal (1-800-621-PIGS). Location of kit shall be in one of the right (passenger) side underbody storage boxes. Decal/stencil "Spill Kit Inside" shall be on outside door of storage box.

7. MISCELLANEOUS:

There shall be three aluminum storage boxes approximately 36-inch X 19-inch X 19-inch located under the flatbed. Door shall hinge downward with weatherproof seal. Reference Weather-Guard, Buyers or pre-approved equal (with locks-keyed alike). Preferred location of boxes is two on the right (passengers) side and one on the left (driver) side. One box on the right (passenger) side shall be designated for the emergency spill kit. Mounting location is left to the discretion of vendor due to weight distribution.

There shall be four (4) entry ladders, two front of body Left (driver side) and Right (passengers' side) two rear of body Left (driver's side) and Right (passengers' side). Ladders shall have a minimum of three-inch-deep serrated front edge steps, ref. Bustin type step treads. Top of first step shall be approximately 21 inches above the ground, with evenly spaced steps to the top of the deck. Each ladder shall have grab handle(s) to provide three points of contact achievable at all entry locations.

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 pre-build meeting.

Safety decals attached at rear ladder areas warning of "Overhead Obstruction" with attenuator folded.

- 21 -  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

8. TIE DOWN SYSTEM:

There shall be four (4) sliding webbing track installed full length on the drivers' side of the flat bed.

Tracks shall be approximately six (6) feet in length. Tracks shall allow sliding winches to move easily in both directions and lock firmly in place when tension is applied. Part # 3606 (steel). There shall be a full-length tie down bar to accommodate straps listed below, installed curbside if the body is not already equipped. Tracks shall be supplied with five (5) sliding winches.

There shall be ten (10) – 4-inch webbing straps Part # 422721 and five (5) portable webbing winches. Part # 1820P and one winch operator.

Ref: Kinedyne Corp. (785) 841-4000 or strap equal in size, design and strength.

The above shall be supplied with each truck.

All items above shall be supplied with each truck.

9. SAFETY:

Deck surface to be walked on shall be coated with matching yellow (cab) non-skid paint.

Safety decals attached at rear ladder areas warning of "Overhead Obstruction" with attenuator folded.

There shall be a set of wheel chocks per truck, each set with rope connection mounted in holder. Ref. EQN-82D

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 fire extinguisher mounted in the cab. Ref. 3A:40B: C - 5 LB.

The vehicle shall meet all the requirements set forth in EQN-118.

Grab handles shall be supplied on all cab and body entry locations. "Three points of contact" shall be achievable at all cab entry locations.

All handrails, ladders, and step configurations shall be built for three points of contact.

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).

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 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.

There shall be a 10-person first aid kit installed in the cab.

Manufacturer shall install all safety decals, warning labels, guards and devices available as standard equipment on all equipment supplied.

ECCO 450 back up alarm installed with rubber grommet **(No substitute, standardization)**

- 22 -  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

10. Message Board: Supplied and installed on each unit.

Intent Statement:

This specification is to provide minimum requirements for an LED illuminated, self-contained, message panel which is to be used on a truck in the Commonwealth to direct and warn traffic of lane closures, roadway diversions and slow-moving maintenance operations. The purpose of these specifications is to describe a warning traffic control unit which shall consist of an all-weather panel. Unit must be capable of being readily understood from a distance of one mile minimum during either daytime or nighttime operation. The unit shall contain its own power system sufficient for the total operation of the unit including raising and lowering of the board approximately 48 inch and operation of the message board messages.

The unit shall be mounted on the rear of a vehicle and shall be remote-controlled from the cab. The unit shall be used on public streets and highways in the Commonwealth to direct and to warn traffic of lane closures, road diversions, and slow-moving maintenance operations. Only models that have been reviewed in accordance with this specification and for which a Certificate of Approval has been issued by the Department shall be used or offered for sale or use on any public highway within the Commonwealth. Ref: Bulletin 15, Section 901.

- **Message board manufacture must have a repair facility within the Commonwealth.**
- **Unit must be approved and listed for use on PA Bulletin 15.**

Power Supply Unit:

Shall be 12- volt direct current (DC) system. The power shall be supplied by the host vehicle.

The message board power shall come directly from the vehicle batteries. The power supply cable shall be protected by a fuse at the battery end and enclosed in conduit or protective sheaf. A power off/on switch and oversize indicator lamp shall be within easy reach of the operator. 3M Scotchlok type connectors will not be accepted.

The unit shall be mounted on the rear of a vehicle and shall be remote-controlled via a power off/on switch and a mounted message board controller from the cab. The message board shall include all the necessary hardware for installation and shall be fully operational. All message board manuals and software must be included.

Message Panel:

The unit shall have a changeable message board (approximately four feet by eight feet) full matrix, all LED changeable message sign that is fully programmable.

Shall be capable of displaying messages in either alphanumeric text or symbolic graphic representation and have the capability of retaining in memory, preprogrammed and user-generated messages, MUTCD Part IV construction signs and all arrow board functions.

The sign shall be designed to facilitate vehicle mounting on the flatbed supply truck to support moving work zone operations such as pavement striping.

SPECIFICATIONS

A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

10. Message Board: Supplied and installed on each unit. (Continued)

Message Panel: (Continued)

The outside dimension of the panel shall be a MAXIMUM of 48 inches high x 96 inches wide. The MAXIMUM sign case depth shall not exceed 3". The dynamic sign shall be modular in design. The modular character panels shall be 100 % solid state with no moving parts or switches. Each sign shall be controlled by a single board computer (SBC) providing power and communication inputs to the sign. The (SBC) shall provide necessary non-volatile memory for storing up to 200 sequences and be able to select preprogrammed messages stored in the sign with the mounted in cab controller. The (SBC) and the in-cab terminal shall be separate units. Keyboard type controls are not acceptable. The SBC shall have a built-in photo cell and accept communication inputs from manufacturer supplied hand-held terminal and a customer supplied Pentium ® PC. A mount rail shall provide mounting for modules. Vandal-resistant devices shall secure each display module onto the rail to withstand winds to 90 mph. The sign shall consist of (3) rows of (4) modular character panels, displaying a minimum of 8 characters per row. The frame shall be 1" x 3" aluminum channel and shall be heli-arc welded. The back panel shall be .063 aluminum sheet riveted to the frame. The aluminum frame and back shall be etched and finished with a minimum of two coats of non-reflective flat black enamel. Ref. EQN-203.

MODULAR PANELS:

The display module shall consist of (4) LEDs per pixel. The individual pixels shall provide both daytime and nighttime legible viewing angle of 30 degrees. The display modules shall have 96 pixels consisting of 384 LEDs. The LEDs shall be rated for a 100,000-hour service life and shall have an operating temperature range of -22 degrees Fahrenheit to + 165 degrees Fahrenheit. The body of the module shall be composed of UV-inhibited, high impact, ABS thermo-plastic material and be environmentally sealed against contaminants. The modular sign system shall comply with environmental standards set forth by SAE J1455. The display panels shall be identical and interchangeable with all other panels without any programming modifications. **One piece polycarbonate doors or display windows not acceptable.**

- 24-  
SPECIFICATIONS  
A-48-DN-A-AL

II. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. FLAT BODY AND EQUIPMENT: (Continued)

11. MOUNTED ATTENUATOR: Supplied and installed on each unit.

The attenuator must meet or exceed the requirements of National Cooperative Highway Research Program (NCHRP) report 350 for Truck Mounted Attenuators (TMAS) or updated M.A.S.H. testing.

- **Unit must be approved and listed for use on PA Bulletin 15.**

Reference Scorpion Model C by Traffix Devices Inc.

The attenuator shall be mounted to the vehicle in accordance with the manufacturer's installation instructions by a certified installer.

The TMA shall be constructed with collapsing modular components which can be replaced in successive stages made with an Aluminum Tube Structure and Aluminum Boxes with Aluminum Honeycomb construction. TMA shall be a Bi-Fold unit that folds over and stores above the bed of the host vehicle. TMA Features include: 12 Volt Motor, LED Lighting, Standard Yellow Sheeting Black Chevron striping, In-Cab Controller and Flat Bed Center Support.

12-volt power supply circuit shall be properly protected with appropriately sized circuit breaker or fuse. If wired within chassis battery box circuit breaker or fuse shall be in a sealed weather proof box. All wires shall be routed with protective loom, connections shall be sealed with heat shrink and permanently labeled. 3M Scotchlok type connectors will not be accepted.

TMA shall be attached to the truck with a Fast-Trak Swift Connect system.

TMA Dimensions:

Length – Travel/Storage 2' 5" not to exceed 3' from rear of vehicle in stored position

Length – Deployed not to exceed 13' 10" from rear of vehicle

Width – 8'

Height – Travel/Storage not to exceed 10' 6"

Min. Height – Deployed 1' (+/- 1")

In the travel/storage position the attenuator and cradle rest shall have a minimum height clearance of 55 inch to accommodate the positioning of a two skids of product side by side on the rear most part of the flatbed. Aluminum attenuator tubes shall have cradle pads installed.

12. ON BOARD GREASE 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.



- 25-  
SPECIFICATIONS  
A-48-DN-A-AL

III. DRAWINGS:

EQN-66	dated	Rev. 07-20-09	2 sheets	SPLASH GUARDS-RUBBER TRAILER & TRUCK
EQN-66A	dated	Rev. 07-13-17	1 sheet	TRIANGLE STORAGE BOX
EQN-78	dated	Rev. 10-27-06	1 sheet	CB RADIO CONNECTION
EQN-80A	dated	Rev. 08-02-18	1 sheet	7-WAY TRIALER CONNECTOR
EQN-82D	dated	Rev. 07-22-15	1 sheet	CHOCK AND HOLDER
EQN-118	dated	Rev. 06-26-09	1 sheet	UNDERRIDE PROTECTION
EQN-120Q	dated	Rev. 01-28-20	sheet 1	TRUCK LIGHTING UNIVERSAL
EQN-127A	dated	Rev. 01-02-09	1 sheet	REFLECTIVITY ENHANCEMENT
EQN-203	dated	Rev. 11-17-06	sheets 1 & 2	LIGHT BOARD & TELESCOPIC DEVICE
EQN-225A	dated	Rev. 01-16-07	sheet 1 of 1	PLATFORM BODY DETAILS
EQN-351A	dated	Rev. 06-19-13	2 sheets	FAST LUBE OIL CHANGE SYSTEM
EQN-552	dated	Rev. 07-25-18	1 sheet	MAX. TRAVEL HEIGHT
EQN-552-1	dated	Rev. 07-24-18	1 sheet	THREE POINT CONTACT
EQN-562	dated	Rev. 01-08-14	1 sheet	POWER DISTRIBUTION 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.

- 26-  
SPECIFICATIONS  
A-48-DN-A-AL

IV. MANUALS:

The successful vendor shall furnish all applicable manuals per unit:

- 1 Operator's
- 1 Parts
- 1 Service
- 1 Engine
- 1 Transmission (Automatic or Manual)
- 1 Body and Sub-frame (Parts and Service)
- 1 Complete set of manuals for any additional items/equipment added to a piece of equipment.

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

Parts Manual presented must be a relative to "all" items utilized to build these 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 manuals shall be completed with the delivery of each unit.**

- 27 -  
SPECIFICATIONS  
A-48-DN-A-AL

V. TRAINING:

Mechanic:

The successful vendor shall provide services of qualified factory trained technicians for not more than   0   training sessions of not more than   0   hours at   0   PennDOT locations to train personnel for in-depth preventive maintenance, overhaul 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.

Operator:

The successful vendor shall provide services of qualified factory trained technicians for not more than   0   training sessions of not more than   0   hours at   0   PennDOT locations to train personnel in the proper operation, safety and servicing of the equipment.

**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.**

- 28-  
SPECIFICATIONS  
A-48-DN-A-AL

VI. WARRANTY: Per PCID No. 1075.

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.

This warranty is in effect as follows, starting from date of acceptance by the Department. Warranty shall not be voided due to Department operation as explained in the Intent Statement. It is understood that the components specified are minimum and if the manufacturer's Engineering Department recommends or deems necessary a more robust component, other than specified, be installed to meet the vehicles intent statement and to not void the warranty, it shall be the bidders/vendors responsibility.

**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.

**RADIATOR WARRANTY:**

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

**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.

**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.

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. 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.