

SPECIFICATIONS
A-48-AU-F-AW

054105
TRUCK – 52K GVWR TANDEM-AXLE - 30 FEET UNDER BRIDGE INSPECTION CRANE
INDEX

District 12-0

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January 17, 2018 GAW

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SPECIFICATIONS
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I. GENERAL TRUCK SPECIFICATIONS:

A. INTENT STATEMENT:

NOTE: 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.

The purpose of these specifications to describe a vehicle to provide under bridge inspection by making it possible to position three (3) workmen and their tools approximately thirty (30') foot' horizontally under a bridge, extend 28' above and extended down approximately 30' below the bridge surface to perform inspection of areas under the bridge as directed in the performance section of these specifications. With the work bucket 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, one telescoping section, two rotation turrets, and a maneuverable three-man, 600-pound capacity 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-30

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

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

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

- 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 shall 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 600 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 56,000 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	_____ 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.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

B. WEIGHT DISTRIBUTION: (Continued)

Truck GAWR's as Built (LB)

	Front GAWR	Rear GAWR	Rear GAWR
Axle _____	_____	_____	_____
Tires _____	_____	_____	_____
Springs _____	_____	_____	_____
Rims _____	_____	_____	_____

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

C. POWER TRAIN OVERVIEW:

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

ENGINE: CUMMINS L9 MIN. 350 HP AT GOVERNED RPM, MIN, 1,000 LB/FT TORQUE. SHALL MEET LATEST EPA EMISSIONS.

TRANSMISSION: AUTOMATIC ALLISION 3000 RDS 6 speed or 3500 RDS 6 SPEED

REAR AXLE: DANA DD405P
MERITOR RT-40-160-P
MERITOR MT-40-14X-4DFR-P

NOTE: All rear axles must provide axle shafts with a minimum diameter of 2.19 inch at the spline.

NOTE: LUBRICANTS FOR FRONT AXLE HUBS AND DIFFERENTIALS, MANUAL AND AUTOMATIC TRANSMISSIONS, TRANSFER CASES AND ALL REAR DIFFERENTIALS SHALL MEET OR EXCEED ALL APPROPRIATE MIL AND SAE SPECIFICATIONS FOR SYNTHETIC LUBRICANTS AND SHALL HAVE ALL PLUGS IDENTIFIED AS SYNTHETIC OR PAINTED RED.

(The OEM shall provide written exemption if synthetic oil is not installed)

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS:

1. AXLE - FRONT:

The front axle shall be set forward and rated at 16,000 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:

REAR AXLE: DANA DD405P
 MERITOR RT-40-160-P
 MERITOR MT-40-14X-4DFR-P

If available rear axles shall be provided with an oil lube pump.

NOTE: Aluminum or lightweight housing is unacceptable.

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. 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.

The OEM shall provide written exemption if synthetic oil is not installed.

Stemco guardian rear wheel seals, or approved equal. All axles shall have magnetic drainplugs.

NOTE: Rear axle selection shall be made after the award and may be 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. This information shall be presented at the pre-build meeting. The rear axle ratios must be "identical" throughout the entire build.

3. BRAKES:

Full air antilock in compliance with the most current FMVSS requirements.

The ABS shall incorporate a diagnostic fault switch that is capable of illuminating a fault light for diagnostic purposes. The switch shall be easily accessible and can be either dash or under-dash mounted. A dash-mounted display that will show all SAE message descriptions for the ABS is an acceptable means of diagnostics in lieu of the fault switch.

Rear brakes: 16.5 inch x 7 inch "S" cam with quick-change type single or double pin. **(No substitute, standardization).** Backing plates installed.

Steer-axle-brake: 16.5 inch x 6 inch or a power front disc brake system providing equal performance.

Quick-change type single or double anchor pin if drum type brakes are furnished. Backing plates installed.

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.

Buzzer-type, low air pressure indicator.

Parking brake: Rear wheel spring-type, MGM E 30/30 or Anchorlock 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.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

3. BRAKES: (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, outside frame rail 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. Per: Haldex DRYest or Bendix AD-IP installation made in concurrence with the air compressor manufacturer's recommendations.

All electrical connectors for drain valve and air dryer shall be covered with heat shrink material or have sealed connections.

System shall be equipped with anti-compounding valve to prevent mechanical failure of the foundation brakes, slack adjusters, etc.

4. 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 have a 5-inch minimum extension.

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.

Air horn(s): Minimum 1 horn with snow-shield (not required if under hood mount).

All controls and knobs shall be properly identified.

Brake and throttle pedals 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. (513-621-4211) 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.

Cruise control.

Cup holder in the cab within easy reach of the operator.

Dome light shall be provided.

Dual sun visors.

Windshield: One (1) or two (2) piece construction is acceptable, must be tinted. Safety glass throughout.

Drivers and passenger's side windows shall be power.

Drivers and passenger's side door locks shall be powered.

Dual windshield wipers, arctic type with the heaviest arms and linkages available. Wipers shall be minimum 2-speed electric with intermittent feature.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

4. CAB: (Continued)

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 both sides, minimum 5.5 inch X 7 inch or 8" 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. 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 **high visibility orange** seat belt. 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.** Both driver and passenger seat shall be color coordinated, and to cab interior. Passenger seat shall be the manufacturer's standard non-suspension (static) high back type. Passengers seat shall have a three-point retractable **high visibility orange** seat belt. Note: 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.

Steering wheel diameter shall be 18 inch (approx.).

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

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 No. NST4 full size, Ohio Grating No. JA21195G4 serrated, IKG. Industries Type B54 or Mack Part # 85QM423OM4. Top of the first step shall be approximately 21 inch above the ground.

There shall be a permanent decal, 2-inch-high red letters on white back ground 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, at all bed ladder areas or all areas design to be stepped or climbed on. Ref. EQN – 552-1. Exact location to be determined at pre-build meeting.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

5. CHASSIS:

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

The GVWR rating of the truck shall be 56,000 LB. A label stating this shall be affixed on the door or in the cab as the completion certification label.

CT dimension: 144-inch approximate. Wheel base dimension 212 inch approximate. Wheelbase and CA dimension 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 for reinforcement. (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 8 bolts (minimum) of sufficient length, and grade 8 elastic type self-locking nuts, or by full welding.

License plate bracket: Front and rear. Securely mounted.

There shall be a centralized, on board chassis lubrication system (#2 grease) installed. Ref: EQN-501.

6. DRIVE LINE:

Main driveline: Spicer Life XL or Meritor RPL Series. "**Factory balanced**" greasable, (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 Series.

7. ELECTRICALS:

All copper system, 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:

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 insulated liner).

c.) Mounting bolts shall be grade 8 with self-locking nuts.

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. And shall be individually permanently labeled.

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D. VEHICLE COMPONENTS: (Continued)

7. ELECTRICALS: (Continued)

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. Battery cable from battery negative terminal to starter motor.

Note: 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 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.

Note: 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.

Reference section I. E. 14 Body Lighting: Whelen 4-6-week lead time is needed, Contact Dave Comerford 1-860-526-9504 or Brad Walker 631-206-2920.

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.

PTO mode shall override engine shut down feature.

PTO mode shall continue in operation with forward and reverse gears as in neutral.

Chassis speed shall be limited to a maximum of 5 MPH in PTO mode.

GPS Combo Radio Antenna: There shall be a pedestal mount base with built-in GPS, PCTEL model GPPB-204-54-12-S1-M1 and a low profile black antenna, PCTEL model BMLPU700. Assembly shall be mounted on pedestal (with mini light bar) with the antenna cable routed 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 department radio. Antenna shall be prewired with a MINI - UHF MALE connection. (No substitute, standardization). No mounting in roof. REF. EQN-120Q

Power Distribution Center: There shall be a 4-way power/ground distribution center located on the underside of the dash for connection of department 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.

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.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

8. ENGINE:

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.

Fuel filter/water separator shall be Racor with coolant heat or Artic Fox stainless steel inline coolant to fuel heater. In fuel tank heaters, will not be accepted.

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 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.

9. ENGINE ACCESSORIES:

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.

A full length and full width screening system shall be installed that will protect the radiator from road debris.

Governor: Set at manufacturer's recommended maximum rpm.

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

PTO mode shall override engine shut down feature.

PTO mode shall continue in operation with forward and reverse gears as in neutral.

Chassis speed shall be limited to a maximum of 5 MPH in PTO mode.

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.

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I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. VEHICLE COMPONENTS: (Continued)

9. ENGINE ACCESSORIES: (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 (cog belts not required for power steering).

Engine Retarder: Manufacturers standard engine retarder with dash-mounted on/off switch. Shall be equipped with a minimum 2 stage, full engine compression brake.

Brake lights shall activate when engine brake is activated.

10. 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-rust able 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.

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.

12. FRAME AND FRAME EXTENSION:

Resisting Bending Moment (R.B.M.) shall be a minimum of 2,750,000 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 25.0cubic inches minimum with a 110,000-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.

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D. VEHICLE COMPONENTS: (Continued)

13. 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.

Hour meter that records only when the engine is running. In – dash, integral with instrument panel and readable from the operator's seat.

In cab dash mounted slope gauge.

Speedometer with odometer.

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.

14. PAINT:

Cab shall be painted PennDOT yellow. Reference: DuPont F9885, PPG 85246, Sherwin Williams 73266, NAPA 73266 and Sikkens 4017 for shade only. Cab paint shall be a minimum one coat color and one coat clear. Front bumper, frame and all underside components shall be painted black. All surfaces shall be properly cleaned and prepared, with all weld splatter and debris removed prior to bead blasting and a zinc phosphate pre-treat. An epoxy based primer shall be applied, followed by powder coat and or E-Coat.

15. 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.

16. SUSPENSION: FRONT:

8,000 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.

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D. VEHICLE COMPONENTS: (Continued)

17. SUSPENSION: REAR:

40,000 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-403 suspension series required.

18. TANK - FUEL:

Safety- type fuel tank as per the requirements of FMVSS. **Dual tanks are unacceptable.** One (1) 100 GAL 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.

19. TRANSMISSION AUTOMATIC: See POWER TRAIN OVERVIEW for acceptable transmission.

Dash mounted console with push button shift selector. There shall be an external oil cooler. The oil cooler for transmission is required due to prolonged transmission torque converter operation in low gears. Cooler size must be provided to keep the transmission fluid at an acceptable operating temperature under these prolonged conditions. (Water to oil type cooler). An Allison approved cooling system shall be installed regardless of whether retarder is incorporated in the system or not.

PTO mode shall override engine shut down feature.

PTO mode shall continue in operation with forward and reverse gears as in neutral.

Chassis speed shall be limited to a maximum of 5 MPH in PTO mode.

All vehicles shall have a transmission-operated safety starting switch.

Automatic transmission cooler lines shall be stainless steel or a **preapproved** no-rusting material.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

D. 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 10,500 LBS at a maximum inflation pressure of 120 PSIG. Accuride part number 29806.
(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 minimum Load Range L

Rear Tires: 11R22.5 minimum Load Range H

Acceptable tire manufacturers: Goodyear, Bridgestone and Michelin

21. 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. Exact location to be determined at pre-build 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.

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-82.

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

SPECIFICATIONS
A-48-AU-F-AW

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 12 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. ALARM - BACKUP:

Ecco 450, shock mounted.

3. 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.

Two (2) under deck tool boxes shall be installed 36" L X 20"H X 18" D approximate, one on the right side and one on the left side of the body. Boxes shall be constructed of 16-gauge steel. Doors shall be downward opening with chain stops and lockable. Doors shall have neoprene automotive d-type seals for weatherproofing. Drain holes shall be provided. 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.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

4. UNDER BRIDGE INSPECTION UNIT OVER DIMENSIONS:

Overall Dimensions:

- a. Overall stored length: 34', 0" (maximum).
- b. Overall stored height: 12', 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.

5. PEDESTAL & SUBFRAME:

Both the pedestal and sub frame 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 sub frame which shall extend the full length of the chassis frame.

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

The pedestal control station at T-1 shall have full safety railing, access point shall be from the deck and built with three points of contact.

6. 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 to deploy the boom from the right or left 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.

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 self-locking gear box, which shall prevent freewheeling in case of hydraulic failure.

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.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

7. 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 wear pads. There shall be no exposed hose reels.

Boom No. 1:

The main boom shall be hinged to the mainframe pedestal turret.

Boom No. 2:

The second boom shall be attached to the end of Boom No. 1.

Boom No. 3 & 4:

The third boom shall be attached to the end of boom No. 2 and shall include a telescoping boom section. At the end of the telescoping boom shall be a fourth boom which shall have a minimum 5' vertical reach.

Under bridge Reach:

Full reach (30°) must be obtained when Boom No. 2 is at 90° vertical, so that girders and fences can be cleared.

Overhead Reach:

The platform must be capable of being placed above the bridge deck a minimum of 28 feet.

Boom Cylinders:

Booms shall have full hydraulic powered cylinders. All cylinders shall be pilot operated, double-acting with integral safety holding valve.

Cylinder Swivel Pins:

Boom swivel pins shall be of high strength steel, turned, ground and polished or chrome plated. Pins shall be threaded and secured with self-locking nuts. Swivel bearings shall be of high strength material with provision for lubrication and replacement.

8. THREE-MAN ALUMINUM PLATFORM:

One (1) Three (3)-man aluminum platform with a minimum 600 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.

Platform dimensions shall be a minimum of 40"x60"x42" deep. An access gate shall be provided. The sides of platform shall be expanded metal and covers shall be provided.

Safety Harnesses & Lanyards:

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

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

9. AUXILIARY DIESEL ENGINE AND PTO POWER SOURCES:

The primary source of power for operation of the Under bridge 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.

10. 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.

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.

Hydraulic cooler shall be oil to air type.

Pressure gauge shall be provided for checking manufacturer's specified pressure settings.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

11. 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 controls at the basket.
3. One set of 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. The platform and remote controls shall be interchangeable.

All movements of the bridge inspection unit shall be controlled by low voltage electrical power, direct hydraulic power, or a properly balanced combination thereof. All controls must be equipped with two-way, return to neutral type levers. All control valves shall 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.

Truck engine kill switch shall be installed at each control station.

Electric/hydraulic control switch for both front and rear suspension lockouts shall be located in the cab within easy reach and view of operator.

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.

Safety Devices:

1. Interlock to prevent operation of under bridge 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 chrome rods to resist corrosion and shall be able to withstand a 100 hour salt spray test.
8. Engine shutdown system when low oil pressure, loss of coolant, or overheating develops.
9. A power control switch shall be provided in the basket to render the basket controls inoperable when the unit is in its work position.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

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 operator that the lockouts are engaged or disengaged. Lights shall be installed at the control station and 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.

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 ear piece 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 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.

A Whelen Model **PDOTSY15** light kit shall be used as follows.

* NOTE: LINZ6AD Amber lights are supplied with both a rubber grommet and a plastic housing mount, all LINZ6 are to be mounted with the rubber grommet.

8 - Whelen LINZ6AD amber **grommet mounted** perimeter amber strobe lights.

2 - Facing forward, grill or above bumper not to interfere with hood tilting. Grommet Mounted.

2 - Facing rearward. Grommet Mounted.

2 - Facing passenger side. Grommet Mounted.

2 - Facing driver's side. Grommet Mounted.

4 - M6BTT brake, stop and tail 2 to each side rear brake stop & tail lights

2 - M6BU reverse lights

2 - Amber side lights

2 - Whelen R10-mini amber bar LED warning lights shall be mounted on pedestals aft and above cab.

Ref. EQN-120Q.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

14. LIGHTS: (Continued)

There shall be a Truck-Lite Model# 36140C LED license plate light with light bracket PN# 36710 (Installed). Perimeter lighting and pedestal warning lights shall be controlled from the same in cab dash mounted illuminated switch.

Three-man aluminum platform shall have two (2) 30-inch top mount, with 5-inch offset pioneer pole systems mounted to the control side of the basket to accommodate a pioneer work light.

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.

Connections shall be water tight.

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 minimum 30 gallon capacity ASME stamped air receiver tank(s) with safety valve, condensation drain, pressure gauge and globe valve.

An air line with a minimum 125 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/bucket shall be equipped with three (3) 1500 watt, 5000 BTU, 115 volt, 60 Hz heaters with blower fans for the convenience of the workman 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.

SPECIFICATIONS
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

E. BRIDGE CRANE SPECIFICATIONS: (Continued)

17. Paint:

All metal surfaces shall be painted PennDOT yellow. Reference DUPONT F9885, PPG 85246, Sherwin Williams 73266, NAPA 73266 and Sikkens 4017 for shade only. All bare metal surfaces shall be bead blasted and properly cleaned and prepared, with all weld splatter and debris removed prior to epoxy primer. A high solid urethane topcoat finish shall be applied to the properly prepared primer base. Deck, grab handles and railing anti-slip paint may be black.

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.

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
A-48-AU-F-AW

I. GENERAL TRUCK SPECIFICATIONS: (Continued)

F. BRIDGE CRANE SPECIFICATIONS: (Continued)

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-82

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.

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.

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) first aid kit.

In cab dash mounted slope gauge.

20. COLLISION AVOIDANCE SYSTEM:

There shall be a CAS installed. Monitor 5.6-inch LCD color monitor minimum. shall be cab mounted.

Camera system shall automatically activate in reverse Manual activation in forward direction is acceptable. Camera shall be mounted on the rear of the truck in a protected location. CAS shall be weatherproof.

SPECIFICATIONS
A-48-AU-F-AW

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.	12-20-16	sheets 1 of 2	HOSES AND COUPLERS
EQN-118	dated	Rev.	06-26-09	sheet 1	UNDERRIDE PROTECTION
EQN-120Q	dated	Rev.	08-06-12	1 sheet	UNIVERSAL TRUCK LIGHTING
EQN-122	dated	Rev.	06-30-14	sheet 2	REFLECTIVE SHEETING
EQN-127A	dated	Rev.	01-02-09	sheet 1	CONSPICUITY TAPE
EQN-210B	dated	Rev.	04-05-12	sheets 1 & 2	LED WARNING LIGHT
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.	05-29-13	1 sheet	MAX TRAVEL HEIGHT STICKER
EQN-552-1	dated	Rev.	03-23-15	1 sheet	THREE POINTS OF CONTACT

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.

SPECIFICATIONS
A-48-AU-F-AW

III. 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 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.

Delivery of these manuals shall be completed with the delivery of each unit.

Manuals may be supplied on CD Disc in lieu of paper manuals.

SPECIFICATIONS
A-48-AU-F-AW

IV. 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 No. 1075 Section E.1., and the additional specific warranty items stated below.

Warranty Start Date

BUMPER-TO-BUMPER WARRANTY:

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 the date that the vehicle is placed into service 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.

Warranty on all parts will be for minimum one (1) calendar year or manufacturer's standard commercial term (whichever is greater), from date of departments acceptance. If the manufacturer neglects or fails to correct defect(s) during the warranty period, their responsibility shall continue until such time as it takes to correct the defect(s). The manufacturer is expected to respond to warranty problems and administrate effective solutions in the best interest of the Commonwealth.

SPECIFICATIONS
A-48-AU-F-AW

VI. WARRANTY: (Continued).

NOTE: 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.

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 service and warranty policy for radiator shall be for two (2) years, 100% parts and labor plus an additional three (3) years, 100% parts only.

ENGINE WARRANTY:

The successful vendor and or supplying OEM shall provide the Department with a 100% parts and labor engine warranty FOR 60 months / 150,000 miles / 5,400 hours minimum. In addition to the engine warranty, the engine block shall be warranted against external perforation from corrosion for 10 years, 100% parts and labor.

NOTE: The oil pan shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions for 5 years, 100% parts only.

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VI. WARRANTY: (Continued)

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 / 150,000 miles / 5,400 hours minimum. Shall be warranted against corrosion, rust, rust thru etc. regardless of atmospheric conditions.

TRANSMISSION WARRANTY:

Manufacturer's service and warranty policy for Automatic transmissions shall be Five (5) years 100% parts and labor. This warranty shall include all internal and external components related to the automatic transmission. This warranty shall also include, but not be limited to, the transmission cooler, cooler hoses or lines, and all electronic transmission controls (harnesses, connections, and modules) regardless of atmospheric conditions.

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.

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.