

SPECIFICATIONS

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**-036890- TRAILER, TANDEM, TANKER, TRANSPORT, 3-LANE SPRAY BAR, 80,000 COMBINATION
TO BE USED WITH LOWBOY TRUCK TRACTOR Approx. 4,000 GALLON**

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September 8, 2022 GAW

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INTENT STATEMENT:

The intent of this specification is to describe a tank trailer to be used in conjunction with Department tractors for transporting salt brine weighing approximately 11 pounds per gallon to county stockpiles during winter operations. The tanker will also be used during summer operations coupled or uncoupled for water transport, such as stationary water supply for paving operations. Tanker trailer shall be supplied with a self-contained suitable sized engine and pump to load, off load salt brine in a reasonable amount of time into stockpile storage tanks. Trailer pump shall also be capable of providing flow and pressure with the use of a "Fire nozzle" spray nozzle for bridge flushing/washing. Spray bar shall include wireless remote, controlled from truck tractor cab to operate spray bars to allow brine to be applied to the roadway in one, two or three lanes configurations. The trailer shall be rated for maximum capacity of 80,000 LBS. GVWR in combination, at highway speeds of 65 MPH. The trailer must be compatible with the Department tandem axle tractor(s) in critical areas such as electrical connectors, fifth wheel clearance and pin size while meeting state and federal bridge laws.

It shall be the sole responsibility of the successful vendor to ensure compatibility with the Department's tractor(s), to include not surpassing the overall length ruling and meeting all bridge formulas.

The vendor shall, prior to bid, inspect the Department's tractor/s to ensure this compatibility and is aware of the tasks assigned to this unit.

For tractor location and design contact the Fleet Management Division at 717-783-2371. It is understood that the components specified are minimum and if the vendor's Engineering Department recommends or deems necessary, additional components, it shall be the successful vendor's responsibility to ensure complete 100% compatibility and successful integration/operation. The burden of responsibility is hereby placed upon the vendor's Engineering Department to supply a unit that is totally engineered.

Transportation of the trailer to the Fleet Management Division upon completion shall be the vendor's responsibility.

Department of General Service PCID NO. 1075 is included as part of this specification.

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.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

B. TRAILER COMPONENTS:

1. AXLE AND SUSPENSION:

The trailer shall be equipped with the following axles and suspension:

Axle: minimum 5-inch round 0.58-inch wall 22,000 LBS. capacity axles.

Suspension: axles shall be air ride, Ref. Hendrickson HT300.

Shall be in accordance with PA State Inspection Laws.

Suspension shall be tailored to axle loads and shall be adequate to sustain maximum GVW without overload or permanent set. Design shall permit loading or unloading operation with and without being coupled to the tractor.

The axles shall have a 71-inch track length. Each shall be a through-type design with a 5-inch round outer and 0.58-inch wall dimension. They shall be of cast ductile iron, hub piloted design with integral hubs. They shall have detachable outboard cast brake drums and shall be equipped with an oil seal assembly. (REF: Webb or equal).

2. BRAKE SYSTEM:

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

The service brake shall be a two-line system with an emergency breakaway feature conforming to ICC and Commonwealth of Pennsylvania Specifications. The complete system shall include necessary tubing, glad hands connectors at the front of the bulkhead, reservoir(s), (minimum 1500 cubic inch capacity), remote drain cock and type 30 air chamber with self-adjusting slack adjusters of the clearance sensing type for each brake drum. Air chamber shall be mounted parallel to or below the axles. The brake shoes shall be the two (2) shoe internal expanding type with molded block lining minimum 16.5-inch x 7-inch 4S, 2M ABS anti-lock system. There shall be spring parking brakes installed for each wheel.

3. DIMENSIONS:

King pin setting will be minimum 15 inch, maximum 16 inch.

The trailer shall be equipped with a king pin that is compatible with Fontaine Model – AL6ATB775024

Overall width shall not exceed 96 inches.

Height from ground to underside of gooseneck fifth wheel plate at kingpin, loaded on level and parallel surface approximately 49 inch to 52 inch.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

B. TRAILER COMPONENTS: (Continued)

4. ELECTRIC SYSTEM:

The trailer shall be furnished with shock proof LED running lights and reflectors, fully complying with FMVSS minimum requirements, and with the Motor Vehicle Laws and Regulations of the Commonwealth of Pennsylvania. All lights shall be provided with adequate guards to prevent damage.

Rear lights shall be Whelen and contain the following:

- 4- PN# 01-066B1866R1J (M6BTDD) Stop, tail, turn lights, two (2) per side mounted to outside of rear bumper with brush guards.
- 2- PN# 01-066A797-A1H (M6AD) M6-Amber warning with Deutsch connector, one (1) to each side on rear bumper mounted with brush guards to inside (center of bumper) of stop turn taillight.
- 6- PN# 01-046C334-000 (M6Brush) Brush guards
- 8- PN# 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). Manufacture to provide the remaining marker and FMVSS lighting, wiring shall be Grote, Trucklite or pre-approved equal.

M6AD shall have a permanently labeled weather resistant switch mounted inside the pressure / vacuum pump and engine enclosure. M6AD lights shall receive power form the pony engine battery.

There shall be two (2) adjustable work lights (LED), mounted on the rear of the trailer to illuminate the work area. Work lights shall have a permanently labeled weather resistant switch mounted inside the pressure / vacuum pump and engine enclosure. Work lights shall receive power form the pony engine battery. Work light switch shall have indicator light.

There shall be a 12-volt power supply plug at the bulkhead. Ref. Tectran or pre-approved equal.

Sockets PN#670-22, socket boots PN#670-722. Connection shall be made using 4-gauge copper wire to the self-contained pressure / vacuum pump engine battery.

All wiring shall be routed and properly attached using "P" type clamp with a maximum of 12 inch spacing.

All wiring shall be in a protective loom.

All electrical connections shall be made in sealed box and treated with di-electric grease.

A color-coded electric wiring chart and schematic shall be provided with each unit.

Any connectors shall be designed to have **NO** corrosion after 500 hours in a 35C salt spray. Cabling shall be rated excellent in low temperature flexibility and in its resistance to oxidation, heat, oil, weather, sun, ozone, abrasion, electrical priorities, flame, water, acid, alkali, gasoline, benzol, toluol, degreaser solvents, alcohol.

5. FRAME:

Tank shall be integral onto frame rails and be full penetration weld.

Sub frame shall be minimum 0.250-inch-thick Cor-Ten® corrosion resistant steel suspension sub-frame.

The tank shall be mounted to provide a low center of gravity.

One lockable aluminum 24-inch X 24-inch X 36-inch toolbox, shock mounted. Access shall be from left (Drivers side).

Fender / Hose trays: there shall be 21 feet formed aluminum hose trays with incorporated fenders to cover trailer axle tires, frame attached and properly supported.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

B. TRAILER COMPONENTS: (Continued)

6. LANDING GEAR:

Shall be two speed and capable to sustain loaded trailer, fully functional with flat pads on legs, rollers will not be accepted.

7. REAR BUMPER:

A minimum 4-inch channel ICC bumper shall be integral to the sub frame full width side to side and from top to bottom within 18 inches of road surface. Under ride protection per EQN-118.

Fenders shall have exterior spray-suppression installed in front and sides of tires to minimize road spray.

Rear mud flaps in accordance with PA State Inspection Laws.

Conspicuity Reflective Sheeting required on the rear panel and bumper. Ref. EQN-122 A.

8. RUSTPROOFING/ PAINT:

All metal surfaces shall be ground to eliminate splatter, scale, rust and sharp edges, properly cleaned of dust, debris and oils prior to rust preventive etching 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. Aerosol can touch up paint and primer will not be accepted and will be rejected at the time of delivery inspection.

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

9. TIRES, WHEELS, RIMS:

All tires shall be "trailer" type straight tread steel belted radials. All axles shall be the same tire size and design. Tires shall be 12R22.5 16ply 25/32 minimum, Ref. Michelin, Goodyear or Bridgestone.

Rims shall be Accuride Accu-armor 22.5 X 8.25 hub piloted aluminum disc wheels for tubeless tires and, 10 hole - 285.75mm bolt circle with 22mm two-piece flange nuts (No substitute).

The wheel ends shall be equipped with the Accuride part number 5903 Wheel Guard Separator between the brake drum and rims.

10. MISCELLANEOUS:

A decal stating the light weight of the trailer shall be attached on the roadside. The decal shall be approximately 1.50 inches high and 3 inches long and read L.W. _____LB.

A decal stating "(MLWR)" trailers actual load carrying capacity is _____, shall be attached in a clearly visible area of the trailer.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

B. TRAILER COMPONENTS: (Continued)

11. SAFETY:

There shall be a pair of wheel chocks with holder/s mounted to the left side of unit. Ref. EQN-82.

All steps shall be serrated swage lock, with end band, stainless steel or aluminum.

All areas likely to be stepped/climbed or walked upon shall be serrated or coated with non-skid paint (non-skid tape is unacceptable).

All handrails shall be built to provide "**Three Points of Contact**" and shall be coated with non-skid paint (non-skid tape is unacceptable).

Compliance shall be made per EQN-118.

Trailer shall have reflective enhancement per EQN- 127A.

12. WELDING:

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 and ends shall be continuous welds, full penetration, without skip welds.

All corners shall be angled or rounded for safety.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

C. LIQUIDS COMPONETS:

ENGINE, ENGINE COMPARTMENT, PUMP 3 Lane Spay Bar:

The product pump/engine shall be sized to provide loading/offloading of liquid, and operation of spray bars during anti-icing roadways.

A self-contained electric start gas powered, direct drive pressure pump system shall be securely mounted behind the landing gear in an area that will not be impacted by debris and road spray yet be easily serviced.

There shall be an aluminum enclosure, this enclosure shall offer protection from the elements, yet allow for all ventilation and intake/exhaust needs. Enclosure shall be accessed from the left (driver side).

Product pump shall be supplied with a flush and recovery tank, to provide lubrication and rust prevention.

The spray bars (quantity 2 per lane) shall be 8 feet in width for center lane and 18 inch for side lanes.

Spray booms shall be constructed of stainless steel. Nozzles shall be clip on type to allow for easy replacement (3) on low flow discharge spray bar and (4) couplings for high flow spray bar. Spray Booms shall have caps, pipe thread or bolted flange on both ends. Side boom nozzles are to be stainless steel and mounted onto ball and socket type swivels to allow for nozzle aiming and adjustment.

The following system (closed loop ground speed) shall be installed and operational by the successful vendor. Wireless controller shall give the operator the options of on/off spray bar(s), spraying the (a) driving lane only, or (b) the driving lane and the right lane, or (c) the driving land and the left lane, and (d) left, center and right concurrently.

System shall be capable of calibration, and to apply minimum of 25 gallon to a maximum 90 gallon per single lane mile at 45 MPH. Application rate shall be accurate and consistent with 1, 2 or 3 lane (up to 270 gallon for 3 lanes) in operation, with flows being maintained by road speed. The ground speed control.

A laminated calibration/operation guide (2) per vehicle shall be provided showing applicable application rates, and operational overview of spray system. In addition, an 8-inch x 10-inch decal illustrating valve position and operation for on, offloading, spray bar and 2-inch hose connection for "fire nozzle" style bridge flushing/washing operation shall be adhered to pump enclosure lid.

Tank shall be equipped with stainless steel internal sending unit, which will be interlinked to spray system electrical circuit. Low-level signal to shut down spray bars when circuit is activated as tank reaches a near empty condition. Set to activate at 100 GAL.

The solenoid valves used to control the flow to the various spray bars (6) shall be constructed of nylon or polypropylene. Valves shall be of the manifold type and bolted or clamped together. All components of the valves shall be impervious to the effects of the liquid melting agents used for winter pavement maintenance.

A laminated operation guide (2) per vehicle shall be provided showing operational overview of engine/pump system. In addition, an 8-inch x 10-inch decal illustrating valve position and operation for on, offloading and 2-inch hose connection for "fire nozzle" style bridge flushing/washing operation shall be adhered to pump enclosure lid.

2. FAST LUBE OIL CHANGE SYSTEM (FLOCS):

This system will be installed with all fittings, brackets, clamps and hoses. 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 will be determined at the pre-build meeting.

Ref: EQN-351A.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

C. LIQUIDS COMPONETS: (Continued)

3. PLUMBING:

All tank fittings shall be constructed of stainless steel. All hose fittings shall be constructed of stainless steel. All valves shall be 1/4 turn type and be constructed of stainless steel. All valves shall have aluminum or brass tags. Tags shall be numbered, and these numbers shall coincide with the weatherproof operating procedures posted on the insert.

All plumbing shall be constructed in a manner to avoid road splash/debris and be properly secured throughout the trailer. All plumbing shall be stainless steel. All fittings may either be TTMA flange or clamp/manifold type. All tank fittings constructed of 304L schedule 40 stainless steel shall be welded into the tank with 308L stainless wire.

All fluid discharge tank fittings shall have shut off valves that can be manually closed.

All valves shall be 1/4 turn or gate type and be constructed of stainless steel.

All valves shall have aluminum or brass tags, numbered, and these numbers shall coincide with the weatherproof operating procedures posted on the insert at the material or pressure/vacuum pump and engine enclosure.

Traps: Primary, oil catch, tank mount, secondary moister, oil catch, underslung behind landing gear.

Relief: One (1) 2-inch 15 psi. pressure and one (1) 1.50-inch 18 psi. vacuum.

There shall be two (2) 2-inch cam lock (male end) with caps. One shall be located mid-point to the left (driver's side) and one at the rear. 2-inch male ends shall be used for loading and unloading of liquid with or without the use of the material or pressure/vacuum pump.

All plumbing components shall be impervious to the effects of the liquid melting agents used for winter pavement maintenance.

There shall be a minimum 2-inch suction strainer with a stainless steel # 30 mesh screen.

Hose plumbing shall be kept to a minimum, where hoses are required hose clamps on all liquid hoses shall be of the T bolt type, stainless steel.

Both product and hydraulic system shall be leak free.

4. PRODUCT TANK:

Stainless steel designed to transport, load, unload and spray salt brine anti-icing liquid with a product weight of up to 11 pounds per gallon. Tanker trailer shall be designed for operation coupled or uncoupled to the tractor.

Tank shall be a minimum 4,000-gallon capacity, not to exceed the legal load limit of combination 80,000 LB. Dished heads full diameter and shell shall be minimum 0.250 thick 304 stainless steel, with full perimeter welds.

Minimum two (2) internal flanged anti-surge baffles with full perimeter welds on the face and back side of the baffle flanges. Internal baffles shall provide access to adjoining compartments.

Tank shall have two (2) dished manhole doors one (1) top and one (1) rear with a 20-inch opening.

Tank shall have one (1) 20-inch dished manhole door top front with a primary shutoff.

Tank shall have a 2-inch vent cap with screen, vent shall be manually operated from left side at ground level.

Tank shall be vacuum pressure service to minimum 35 psi. internal and 15 psi. external.

There shall be a left side access ladder to the tank manhole. Ladder steps shall be Bustin step material with serrated edges. There shall be safety grab handles (2) to provide "**Three Points of Contact**". Handles shall be painted with non-skid paint. Grab handles shall extend a minimum of 12 inch above the manhole.

There shall be a level indicator on fore or aft head with an approximate gallon indicator at 1/4, 1/2, 3/4 and full increments.

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I. GENERAL UNIT SPECIFICATINONS: (Continued)

C. LIQUIDS COMPONETS: (Continued)

5. SAFETY:

Fire extinguisher: 20lb.Rechargeable with a weatherproof cover shall be mounted close to engine/pump for easy and quick access. 5A: 40B: C.

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

The tank shall be stenciled/decaled "AVOID SKIN AND EYE CONTACT".

All necessary placards shall be included with the trailer to include personnel safety hazard warning.

Handrails shall provide "Three Points of Contact" and be coated with non-skid paint (non-skid tape is unacceptable).

Body shall have reflective enhancement to meet FMVSS Ref. EQN-127A.

All corners shall be angled or rounded for safety.

Conspicuity Reflective Sheeting required on the entire rear of tank and bumper. Ref. EQN-122 A.

Discharge tank valve(s) shall have a manual override shut off, within easy reach or with acceptable linkage connected to valve shut off handle.

There shall be a permanent decal, 2-inch-high red letters on white background affixed by the driver side front stating the overall maximum travel height of the completed and unloaded unit.

(Example) HT-__' __" Ref. EQN-552

6. 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 tested/calibrated and programmed for Department material spread rates prior to delivery.

All electrical connections shall be treated with di-electric grease.

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.

Scotch Lok-type wire splices.

Non-insulated wire splices.

Non-fused electric circuits.

Improper hose or wire routing near exhaust, over-sharp edges or through holes without grommets.

Loose hanging wires that are not secure or pulled tight, so they are suspended with no support.

Improperly prepared, primed and painted surfaces.

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II. DRAWINGS:

EQN-80B	dated	Rev.	05-16-18	1 sheet	WIRING DIAGRAM / 7 WAY MALE CONNECTOR
EQN-81A	dated	Rev.	2-27-07	1 sheet	7 WAY TRAILER CONNECTOR
EQN-82C	dated	Rev.	07-22-15	1 sheet	CHOCK AND HOLDER
EQN-118	dated	Rev.	06-26-09	1 sheet	UNDERRIDE PROTECTION
EQN-122A	dated	Rev.	04-09-12	1 sheet	REAR BUMPER REFLECTIVE SHEETING
EQN-127A	dated	Rev.	01-02-09	1 sheet	CONSPICUITY TAPE STRIPING
EQN-250T	dated	Rev.	5-20-16	1 sheet	BRINE / WATER TRANSPORT TRAILER
EQN-351A	dated	Rev.	06-19-13	2 sheets	FAST LUBE OIL CHANGE SYSTEM (FLOCS)

III. MANUALS:

The successful vendor shall furnish all applicable manuals per unit in thumb drive version:

- 1 Operator's
- 1 Parts – With original OEM part numbers
- 1 Service
- 1 Engine
- 0 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.
- 1 Electrical System Charts

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.

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IV. TRAINING:

Mechanic & Operator:

The successful vendor shall provide services of qualified factory trained technicians for not more than 1 training session(s) of not more than 3.5 hours at 1 PennDOT locations to train personnel in the proper operation and safety of the equipment.

The successful vendor shall submit a training plan to the Equipment 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 Equipment Division.

All training shall be completed at **final delivery destination (county locations)**. 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.

VI. WARRANTY: Per PCID No. 1075.

Per PCID 1075: E.1. A. Construction Equipment - 2 years or 2000 hours whichever first occurs.

Per PCID No. 1075. Section E.3.f.

The manufacturer's standard service and warranty policy shall be for a minimum of two (2) years. This warranty shall start on the final date of acceptance of the entire order and continue for the two (2) years thereafter, (2) full winter seasons.

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.

The warranty start-up date shall be defined as the date of transfer from the PennDOT Fleet Management Division to the designated county location. This will be considered the date of delivery to the county and NOT the date of delivery by the successful bidder to the Department. The PennDOT Fleet Management will supply the actual start-up date, equipment number, and serial number of the machine, via email, to the successful bidder. It is the responsibility of the successful bidder to ensure that the equipment manufacturer recognizes and applies the Department's actual warranty start-up date in their database.

Warranty repairs shall be completed at the manufacturer's location or in-house field repair completed by PENNDOT. it shall be the departments discretion to repair internally or transport the unit to the dealership. 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.