

## Truckee Tahoe Airport Technical Specifications for New 5000 Gallon Jet Refueler

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### Basic Requirements

**Chassis:** New, 2016 model year, International 7300/7400 series chassis, MaxxForce DT diesel engine (CARB approved Tier 4 or better) with Allison 3500 automatic transmission

**Product Tank:** Polished aluminum 5000 gallon product tank, DOT 406, fully baffled

**Flow Capacity:** Fully rated 300 GPM pumping system

**Configuration:** Side mounted equipment modules (side dispensing), with (1) single-wrap underwing hose reel (mounted behind the driver), chassis cab, and one (1) overwing reel, (side mounted)

#### Flow Rates

Underwing pressure fueling:	300GPM
Overwing fueling/1 overwing reel:	70GPM
Bottom Loading:	400 GPM
Recirculation:	300 GPM

### Compliance and Certification

The Jet refueler shall be designed and engineered to be safe, reliable, and easy to maintain. It shall meet or exceed all industry standards, including the following:

**A4A / ATA:** Airlines for America (A4A) Guidelines for Aircraft Fueling Equipment Requirements (formerly ATA-103)

**U.S. DOT 406:** U.S. Department of Transportation (DOT) guidelines. Refueler manufacturer must be certified to manufacture and assemble fuel cargo vehicles as per DOT-406 requirements, and hold a current DOT CT (Cargo Tank) Certification

**NFPA 385 and 407:** National Fire Protection Association (NFPA) guidelines, NFPA #385 and #407

**Current Dealer Licensing:** Refueler manufacturer must maintain a current California Dealer License.

## **Section #1 Summary: General Description of Refueler and Flow Performance**

- **Flow Capacity:**
  - Underwing pressure fueling: 300 GPM through one (1) 50' x 2" fueling hose
  - Over-the-wing fueling: 70 GPM through one (1) 50' 1 ¼" fueling hose
- **Bottom Loading:** A bottom loading system shall be mounted on the passenger's side of the refueler and include a pre-check and an automatic high-level shut-off control.
- **Underwing Fueling (via 'Single-wrap' Style Hose Reel):** An underwing hose reel assembly with a shut-off valve, fueling hose, and single point nozzle, shall be mounted onto a 'single-wrap' style hose reel installed between the back of the chassis cab and the front of the product tank.
- **Over-the-wing Fueling:** An overwing hose reel assembly with a shut-off valve, fueling hose, and overwing nozzle shall be mounted onto a 'drum' style hose reel mounted in the open, side mounted, equipment module.
- **Refueler Configuration:** The 'single-wrap' style underwing hose reel shall be installed behind the chassis cab and in front of the product tank. The overwing hose and nozzle and other equipment (i.e. control panel, deadman control, etc.) shall be mounted in driver's side open equipment module. The filter/separator, pressure control valves, and the Prist additive injection system shall be mounted in the passenger's side open equipment module.
- **Compliance / Certifications:** See Page 1.
- **Primary Pressure Control: (via an In-line Pressure Control / Deadman Valve):** The primary pressure control is to be provided through an in-line control valve and shall be set at 40 PSI (+/- 3 PSI).
- **Secondary Pressure Control (via Hose End Pressure Control Valve):** This secondary pressure control is to be provided through a HEPCV (in the event the primary pressure control fails) and shall be set at 48 (+/- 3 PSI).

## **Section # 2: Truck-Chassis Specifications**

<b><u>Chassis Make / Model</u></b>	New, 2016 model year, International 7300/7400 4x2 conventional cab and chassis. <b><u>NOTE:</u></b> Engine-chassis must be 50 state and California Air Resources Control Board compliant
<b><u>Engine</u></b>	International MaxxForce DT diesel engine, 275hp, (wet sleeve, fully re-buildable)
<b><u>Exhaust</u></b>	Truck-chassis for 5000 gallon jet refuelers to include an exhaust system, a diesel particulate filter (DPF) and associated safety devices applicable for airport operations. The exhaust system shall be modified to discharge on the passenger side and in front of the product tank.
<b><u>Transmission</u></b>	Allison 5-speed automatic – 3500 series with PTO provision
<b><u>Wheel Base / C.A.</u></b>	260” wheel base (193” cab-to-axle)
<b><u>Frame</u></b>	Heat treated alloy steel, channel reinforced frame rails - 120,000 PSI
<b><u>Front Axle / Suspension</u></b>	14,000# capacity, wide track, I-beam type (with power steering) including a parabolic spring suspension with shock absorbers.
<b><u>Rear Axle / Suspension</u></b>	Single rear axle set-up, special ‘for airport use’ fully rated for weight of loaded vehicle. Includes spring suspension with 4500# multi-leaf auxiliary
<b><u>Brakes</u></b>	Air Brakes (Anti-lock Braking System) - 16.5”x6” front, & 16.5” x 7” rear w/ spring activated parking brake
<b><u>Alternator</u></b>	Brush type, 12V, 120 amp
<b><u>Batteries</u></b>	Two (2) 12 Volt 1300 CCA total, maintenance free
<b><u>Compressor</u></b>	13.2 CFM, Bendix Tu-Flo 550
<b><u>Air Dryer</u></b>	Bendix AD-9, with heater
<b><u>Accessories</u></b>	Two front tow hooks Gauges: High Water Temperature, Low Oil Pressure Light and Buzzer Engine Hour Meter, Fuel Tank – 50 gallon, Engine Block Heater Master battery disconnect switch Mirrors (2) rectangular, West Coast type, 16” x 7”
<b><u>Exclude</u></b>	Air conditioning, radio, power windows and cigarette lighter shall not be included with the vehicle

**Chassis Specifications – End**

## Section # 3: 5000 Gallon Aluminum Product Tank

	Comply	Exception
<ul style="list-style-type: none"> <li>• <b><u>General Tank Information:</u></b>  <b><u>5000 U.S. Gallon</u></b> (+ 3% outage) aluminum tank shall be supplied. The tank shall be a single compartment design and fully baffled to prevent liquid surge. The bulkheads shall be rigid to prevent deflection or accidental reversal of curvature. The tank shell, compartment bulkheads, internal baffles, rollover rails, cradles, framing, and skirting construction material to be aluminum.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Access Openings:</u></b> One (1) 20" diameter access opening with a 10" fill cover and one (1) 20" diameter inspection cover included. The aluminum 20" round manhole shall be located on the tank center line and centered between bulkheads. The hinge on the 10" fill opening shall be located facing the front of the tank. Location of the manholes and key components inside the tank shall be visible for inspection.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Overturn Protection:</u></b> Overturn protection will include aluminum overturn rails extending full length of the tank and provide a minimum of 1" clearance over all covers and vents. Flashing to provide carry-off of any spilled fuel and accumulated rainwater through clear drain tubes installed (2) front and (2) rear, included. Drain tubes shall direct spilled product away from engine, exhaust and electrical system.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Tank Vents:</u></b> One (1) air operated 5¼" vent with fire screen and weather hood to work in conjunction with the internal valves during fueling and bottom loading will be included. Additionally, two (2) emergency vents are required.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Access Ladder (To Top of Tank):</u></b> One (1) rear mounted access ladder, meeting OSHA guidelines, shall be included.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Drain Valve(s):</u></b> A 1" spring loaded water drain-off valve with a ¾" ball valve, located at lowest point of tank, is required. A cable to operate the spring loaded valve will be located in the passenger side equipment module, and shall be plumbed to the Aljac fuel sampler.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Internal Valves (via Dual Internal Valve Design):</u></b> Two (2) internal emergency valves with vortex breakers are required. One (1) 3" valve is air operated for unloading / off-loading of fuel, and one (1) 4" valve is fuel pressure operated for isolated bottom loading and/or re-circulation of fuel.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Low-Level Shut-Off Switch:</u></b> The product tank must be equipped with a low-level float switch to disengage the PTO and deactivate the pump system should the fuel in the product tank reach a minimum acceptable low separate "Low Level" indicator light shall be included on the operator's control panel.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Side-Mounted Equipment Modules:</u></b>  Heavy duty, side mounted equipment modules shall be installed on both sides of the vehicle <ul style="list-style-type: none"> <li>• Driver's side module – to include structural aluminum equipment hangars, fully grated, and mounted to the chassis frame, to house the side-mounted dispensing equipment</li> <li>• Passenger side –to include open floor structural aluminum equipment hangars to house the filter and other equipment as required.</li> </ul> </li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

**Product Tank End**

## Section # 4: Refueling System / Pumping System

	Comply	Exception
<ul style="list-style-type: none"> <li>• <b><u>Pump</u></b>: A 300 GPM, Air Shift PTO Driven, Gorman Rupp model 03H1 product pump or equal. Pump shall be self-priming centrifugal pump with “<i>Hot Shift</i>” PTO.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Pump Engagement</u></b>: The unit must include an automatic PTO engagement system to activate the PTO when the overwing nozzle is removed from its cradle, or with operation of deadman handle.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Pump By-Pass</u></b>: One (1) 2" pump by-pass must be located in the pump discharge line (<b><u>Morrison, or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Filter / Separator</u></b>: A filter / separator rated at 300 GPM and meeting the latest API 1581 / EI 1581 shall be included. A spring loaded, normally closed, 3/4" drain valve shall be provided. New filter elements and coalescers to be installed at time of shipment and stamped with the date of installation (<b><u>Facet or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Water Defense</u></b>: Along with the filter / separator, a float switch device to disengage the PTO, deactivate the pumping system, and close the in-line control valve will be included (to shut down the fueling system should water be introduced into the filter). An external water detection test switch and indicator light shall be installed on the operator’s control panel.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Air Eliminator and Pressure Relief Valves</u></b>: The filter vessel shall include a 3/4" air eliminator mounted on the filter with a 3/4" line plumbed back to the product tank. Additionally, a 3/4" pressure relief valve set at 150 PSI shall be included, and will be mounted on the filter vessel and plumbed back to the product tank with 3/4" tubing.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Differential Pressure Gauge (DP Gauge)</u></b>: A direct reading 0-30 PSI differential pressure gauge shall be included and installed on the control panel with clearance to change its filter. The DP gauge measures the pressure drop across the filter vessel. The DP gauge includes a purge valve to allow for testing that is plumbed back to the product tank (<b><u>Gammon or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Sample Connections / Sample Ports</u></b>: Two (2) 1/4" couplings shall be included, with (1) coupling located upstream of the filter and one (1) coupling located downstream of filter for sampling fuel. An additional third coupling to be located downstream of the bayonet connection and upstream of the valve. Each coupling is equipped with Millipore or equivalent fuel sampling dry break disconnects with caps.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>In-Line Deadman Valve and Pressure Control Valve</u></b>: A 3" in-line pressure control / deadman valve of aluminum material shall be provided and shall be installed downstream of the filter (<b><u>Eaton / Carter or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Deadman Control</u></b>: A 12-volt electric deadman operating handle and cable on a recoil reel shall be provided and will include 50’ of cable. The deadman handle is mounted in the driver’s side open equipment module. Activation and deactivation of the deadman handle engages and disengages the PTO (which in-turn activates and de-activates the product pump and deadman valve)</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Retractable Deadman Reel</u></b>: An intrinsically safe, spring rewind, deadman reel shall be provided to retract and store the deadman cable when it’s not being used</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

	Comply	Exception
<ul style="list-style-type: none"> <li>• <b><u>Flow Meter:</u></b> One (1) aluminum, positive displacement flow meter (<b><u>Total Controls or equal</u></b>). Meter shall be constructed of aluminum, with inlets and outlets sized appropriately for proper flow. Meter shall be lighted with large numbers.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Electronic Meter Register with Panel Mounted Large Numeral Display (Designed for Future Use of Wireless Data Collection and Transmission):</u></b> A remote mounted, waist high (panel mounted), electronic meter register head shall be provided. The register must also include a built-in large numeral display to be mounted at the top of the left side-mounted equipment module.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Venturi:</u></b> One (1) aluminum construction venturi shall be included (with Victaulic inlet and outlet connections). The venturi includes a needle valve for adjustment.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Underwing Hose Reel:</u></b> One (1) 2” electric rewind <i>‘single-wrap’ style</i> hose reel sized for 2” x 50’ hose shall be included and installed behind the chassis cab and in front of the product tank). The hose reel shall include non-ferrous internals and swing joint. A shutoff valve shall be installed upstream of the hose reel (<b><u>Hannay or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Overwing Hose Reel(s):</u></b> One (1) 2” electric rewind <i>‘drum style’</i> hose reel sized for 1½” x 50’ hose and mounted in the open side equipment module. The hose reel shall include non-ferrous internals and a swing joint. A shut-off valve shall be installed upstream of all hose reel (<b><u>Hannay or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Characteristics for all Hose Reels:</u></b> All fueling hose reels are electric rewind w/ 12-V DC explosion proof motors, switches and circuit breakers. Hose reels shall include non-ferrous internals and aluminum swivel joints. The swivels shall incorporate Victaulic connections to prevent stress caused by non-concentric hose reel hubs. Roller assemblies shall be included. The hose reels must incorporate ball or roller bearings and the system shall allow for the reels to unwind freely. All hose reels shall include manual rewind systems with friction-type adjustable drag. A manual reset circuit breaker (50-amp) shall be included with each hose reel.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Fueling Hoses (Goodyear, Hewitt or equal):</u></b> Should be approved for aviation refueling, and manufactured to meet the latest API 1529, 6<sup>th</sup> Edition, Grade 2, Type C. The couplings shall be fabricated of non-sparking metal, and with standard male NPT screw couplings, and are affixed by machine. Test certificates shall be included.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>One (1) Underwing Fueling Hose:</u></b> One (1) 2” x 50’ fueling hose with MxM couplings shall be installed on the standard underwing hose reel for underwing fueling</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>One (1) Overwing Fueling Hose:</u></b> One (1) 1 ¼” x 50’ overwing fueling hose with MxM couplings shall be installed on a ‘drum’ style / multi-wrap hose reel for overwing fueling.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Underwing Nozzle:</u></b> One (1) 2½” standard bayonet underwing nozzle with swivel, 48 PSI hose end pressure control valve, 100 mesh strainer and dust cap shall be provided (<b><u>Carter 64200 or equal</u></b>).</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

- **Overwing Nozzle:** One (1) 1½” overwing nozzle with swivel, 100 mesh strainer, jet spout and dust cap shall be included (***OPW 295 SAJ or equal***).

- **Nozzle Interlocks and Stowage:** Nozzle holders shall be installed to ensure hoses are not forced or kinked in the stored position.

Nozzle holders will include electric proximity switches to send a signal to set chassis brakes and immobilize the refueler when nozzles are removed from stowage brackets. All brake interlocks shall be designed to activate the chassis parking brake and immobilize the refueler upon the following actions...

- When off-loading internal valve is open
- When nozzles are removed from stowage brackets
- When the bottom loading gate is open
- When the refueler is in pump mode

An interlock override system shall be installed in the dash board of the chassis cab. The system shall include a switch, safety wired in the normal position (i.e. with interlocks fully activated), and shall include an ‘Interlock Override’ indicator light.

- **Bottom Loading (Passenger’s Side):** One (1) 2½" bayonet type adapter and shut-off valve along with associated piping connected to the internal valve are to be included for bottom loading. A brake interlock gate will be included to actuate the brake interlock system, open the tank vent automatically, and prevent the refueler from moving during bottom loading.

A quick acting shut-off valve shall be installed downstream of the bottom load adapter. A pressure gauge shall be installed to measure the bottom loading supply pressure and is upstream of the quick acting shut-off valve.

A jet sensor type automatic high-level shut-off system shall be included to close the Emergency Valve when the product tank is full. The jet sensor shall be pre-set at the factory and will be lock-wired at the rated capacity.

A pre-check valve located in the pressure line to the jet sensor shall be included and mounted close to the bottom load connection. Additionally, the shut-off system shall be capable of being easily tested for proper operation w/o removal, and be capable of being removed or installed from the manhole without entering the product tank (with adequate tubing supplied for this purpose).

- **Piping and Fittings:** All piping and product transfer lines consist of aluminum tubing appropriately sized for the rated flow. All piping and fittings shall be rated and tested to 150 PSI working pressure and 225 PSI test pressure. All fittings shall be aluminum with pre-formed belled ends. ½” non-ferrous couplings with brass plugs shall be installed in low points for drains. The tank outlet shall include a shear section below the internal valve.

Victaulic couplings shall be included at appropriate points to permit removal of valves and other components for ease of maintenance. All gasket material is to be a combination cork - Buna N or a non-asbestos type composition for aviation fuels. No exclusively cork or Buna-N gaskets are permitted. Suitable brackets with U-bolts shall be installed to prevent excessive movement of piping and all components shall be adequately supported.

	Comply	Exception
<ul style="list-style-type: none"> <li>• <b><u>Drain Lines, Fuel Lines, and Pneumatic Lines:</u></b> All drain and sump lines shall consist of Synflex tubing with spring loaded ball valves and terminate in Camlock fittings with dust caps. All pneumatic lines shall include “push type” quick-disconnect fittings, and all fuel lines shall include “compression type” fittings. All pneumatic lines shall be color coded “green” and all fuel lines shall be color coded “red”.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Control Panel:</u></b> An aluminum control panel shall be installed on the driver’s side equipment module. All components and gauges on the panel shall be identified with engraved labels, and the control panel is to be illuminated. The control panel will include the following features: <ul style="list-style-type: none"> <li>1. <u>Differential pressure gauge:</u> 0-30 PSI increment direct reading differential pressure gauge w/ purge valve</li> <li>2. <u>Nozzle pressure gauge:</u> A 4”, color coded nozzle pressure gauge shall be provided with measurement in 2 PSI increments. Nozzle pressure gauge shall include a gauge test port to allow easy inspection of the gauge (test port via Millipore style connection, <b><u>Gammon GTP-5</u></b>)</li> <li>3. <u>Pump pressure gauge</u></li> <li>4. <u>Speed control:</u> A high/low throttle selector</li> <li>5. <u>Air pressure:</u> An auxiliary air fill connection</li> <li>6. <u>PTO indicator light</u></li> <li>7. <u>Water detection indicator:</u> To operate with optional filter separator, a water detector test switch &amp; light will be included</li> <li>8. <u>Prist:</u> Switch and light for injection system activation/deactivation</li> </ul> </li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Electrical:</u></b> The electrical system shall include the following: <ul style="list-style-type: none"> <li>• A master battery disconnect switch to isolate the electrical systems from the battery source.</li> <li>• The twelve-volt electrical system wiring that is numbered to match the engineering schematics. Each circuit to include over-current protection.</li> <li>• All wires insulated with material impervious to the effects of petroleum fuels.</li> <li>• All conduit professionally installed to eliminate bends or sharp curves.</li> <li>• All conduit securely anchored throughout the entire length.</li> <li>• All circuit breakers and solenoids mounted in an easily accessible location.</li> <li>• Individual circuit breakers provided for each circuit.</li> </ul> </li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>



- **Lighting:** The refueler shall include LED lighting, clearance lights, and back-up lights and meet applicable U.S. DOT requirements. All light fixtures and junctions boxes are to be weather, dust and vapor tight. Two clear back-up lights and two red combination stop, tail and turn signal lights shall be mounted on the rear bumper, as follows:

    

- Two (2) red marker lights – one (1) on each side of the far rear corners of the refueler
- Two (2) amber marker lights – one (1) on each side of the tank, as far forward as possible
- Three (3) red clearance lights on the rear of the overturn rail (per DOT 406 requirements)
- Equipment and meter lights covered to prevent glare and direct light onto surrounding equipment
- Equipment and marker lights shall operate with the existing chassis parking switches
- A vapor proof light installed at the meter to illuminate the meter face
- A spotlight located on the fueling side capable of illuminating the ramp area (with light adjustable both vertically and horizontally)

- **Pneumatics (Minimal Use of Pneumatics):** A minimal amount of pneumatics shall be used on the refueler, and shall be limited to the chassis brakes and the refueler’s tank vent and off-loading internal valve. Pneumatic lines shall include “push type” quick-disconnect fittings, and all fuel lines include “compression type” brass fittings. Additionally, pneumatic lines are color coded “green” and fuel lines are color coded “red”.

    

- Air shall be supplied to the refueler control system via an air compressor capable of producing adequate volume at 120 PSI. A safety valve is to be installed to ensure adequate air pressure is maintained in the chassis braking system prior to the refueler control system being charged.
- The air system shall include a pressure protection valve, to protect chassis reservoirs for supply exclusively to the control and interlock system.
- The air valves shall be centrally located on an easily accessible valve panel. The valves shall be individually numbered to match the schematic.
- The air valves shall be connected using ‘push type’ and quick-disconnect brass fittings to allow for quick diagnostic testing of the entire pneumatic system.
- The pneumatic valves shall be mounted onto sub-bases. The sub-bases shall be affixed to the valve panel to allow for easy removal and inspection without having to disconnect any air lines.
- An auxiliary air fill fitting shall be installed on the control panel to allow for outside air to charge the air system.

**Refueling / Pumping System – End**

## Section # 5: Required Additional Features and Safety Items

	Comply	Exception
• <b><u>Provide a fused location in cab for 2 airport installed radios</u></b>	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Front Bumper Lights:</u></b> Two (2) front bumper LED light wands (so the driver can determine the location of the front bumper)	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Chock Block's and Holder:</u></b> A set of chock blocks and an aluminum holder (wheel chocks are to be included).	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Aluminum Spill Kit Container Storage Container:</u></b> A weather tight, aluminum storage container with a lockable door (24"L x 24"W x 24"H) with 1' clearance minimum, to be located on driver's side	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Product Recovery Tank:</u></b> A 20 gallon, aluminum, product recovery tank. The product recovery tank shall include a 10" vented fill cover, clock gauge, <u>and a connection for single point nozzle</u> (to allow fuel contents of nozzle to drain into recovery tank during nozzle screen inspections).	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Auto Pump-out of Product Recovery Tank:</u></b> An electric pump shall be added to the product recovery tank to allow operator to pump the contents of the tank back into the refueler product tank at any level.	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Aljac Visual Fuel Sampler:</u></b> An Aljac closed fuel sampler w/ internal hydrometer holder and drain (to drain directly into the product recovery tank).	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Prist Additive Injection System and Prist Reservoir:</u></b> A Prist additive injection system including a pick-up tube, desiccant dryer and remote operating panel (to be included on the control panel on the driver's side) and sixteen (16) gallon polycarbonate product reservoir. A coupling installed downstream of the filter / separator is to be provided to allow for testing, and a quick-disconnect fitting on the additive pick-up tube ( <i><u>Gammon Viper Model</u></i> ).	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Engine Block Heater:</u></b> minimum of 1250 watts with plug in below driver's side door	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Amber Flashing Beacon</u></b>	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Back-up Alarm:</u></b> The back-up alarm shall be a Federal Signal brand "Reactor" style, and activate when chassis is shifted into 'Reverse' mode.	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Grounding / Bonding Reel:</u></b> A spring rewind bonding reel w/ 50' of orange coated cable & a bonding clamp.	<input type="checkbox"/>	<input type="checkbox"/>
• <b><u>Fjord Dust Covers:</u></b> Color coded Fjord dust covers on all fueling nozzles.	<input type="checkbox"/>	<input type="checkbox"/>

	Comply	Exception
<ul style="list-style-type: none"> <li>• <b><u>Ladder Rack:</u></b> Ladder storage for a single step ladder via ‘J’ hooks on the rear bumper with 6’ fiberglass Class 1A ladder to be included</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Camlock Dust Caps:</u></b> Camlock dust caps and fittings on all drains and sump outlets</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Emergency Shut-Down Valves:</u></b> Two (2) emergency “PUSH” button valves to be installed for emergency shut-down; one (1) valve shall be mounted on the driver’s side (front of the tank), &amp; one (1) valve shall be mounted on the passenger side (rear of the tank). The Emergency Shut Down valves disengage the PTO, deactivate the pump, and close the control valve.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Fusible Plugs:</u></b> One (1) fusible plug shall be included in the air system at the internal valve under the tank.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Fire Extinguishers:</u></b> Two (2) <u>Purple K agent fire extinguishers.</u> – one (1) on the driver’s side of refueler, and one (1) at the passenger’s side of the refueler.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Rear Bumper:</u></b> The rear steel channel bumper shall be designed, constructed and installed in conformance with DOT 406</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Rear Access Ladder:</u></b> One (1) rear mounted ladder meeting OSHA guidelines.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Testing:</u></b> All refuelers shall be tested for tightness and performance in accordance with specifications for fueling. Refuelers shall be thoroughly flow tested by qualified technicians to all performance criteria. A record of performance testing shall be supplied with each unit is maintained for future reference.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Instructions / Operating Manual:</u></b> Two operations manual to be provided with the refueler</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Painting and Decals:</u></b> The chassis cab shall be factory white. The aluminum product tank shall be polished finish. The fueling equipment and brackets, where required, are painted one color with polyurethane paint to match the chassis cab. All appropriate and required AVFUEL graphics, operating placards and warning labels shall be included.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Placards:</u></b> Additionally, all safety and emergency controls and fuel product decals installed will be in conformance with NFPA 407.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Documentation:</u></b> two complete printed sets and one digital copy of maintenance and parts manuals and two complete printed and one digital copy of the operator’s manual</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Training:</u></b> minimum of four (4) hours of on-site staff training by manufacturer’s representative at time of delivery. Factory service training for two Airport Maintenance personnel or an additional 16 hours of on-site in-depth service training at the Truckee Tahoe Airport</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• <b><u>Filters/Tools:</u></b> complete set of replacement chassis and fueling system filters following manufacturer’s recommended break-in period and specialized tools required for routine servicing and/or maintenance of the fueling equipment shall be provided</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

**Additional Required Features and Safety Items – End**

## **Section #6: Optional Features**

*The District may choose none or any combination of optional features. Price to be for an installed and fully functional system and include all applicable taxes and fees.*

- **Backup / Rear Vision Camera:** A backup camera with an in-cab mounted color monitor. \$ \_\_\_\_\_
- **Electronic Tank Contents Gauge:** A Titan Logix TD 80 or equivalent electronic tank gauge w/ a digital display. \$ \_\_\_\_\_
- **Painted Product Tank:** Same color as cab \$ \_\_\_\_\_
- **Pre-Set / Auto Shut-off Function:** The flow meter shall be equipped with a pre-set function to allow the operator to pre-select the amount of fuel to be pumped-off the refueler. Pre-set device shall be precise and shall stop flow at the exact amount selected by the operator. \$ \_\_\_\_\_