Request for Quote

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ONE CAPITOL HILL
PROVIDENCE RI 02908

CREATION DATE : 16-SEP-21
BID NUMBER: 7658820
TITLE: SIX WHEEL SINGLE WING PLOW TRUCKS - DOT

BLANKET START : 01-NOV-21
BLANKET END : 31-OCT-22
BID CLOSING DATE AND TIME: 15-OCT-2021 11:30:00

BUYER: Delfarno, Marisa
PHONE #: 401-574-9235

BILL TO
DOT ACCOUNTS PAYABLE
TWO CAPITOL HILL, RM 230
SMITH ST
PROVIDENCE, RI 02903
US

SHIP TO
DOT MAINTENANCE BUSINESS OFFICE
360 LINCOLN AVE
WARWICK, RI 02888
US

Requistion Number: 1725094
Note to Bidders: QUESTIONS CONCERNING THIS SOLICITATION MUST BE SUBMITTED IN WRITING TO MARISA.DELFARNO@PURCHASING.RI.GOV NO LATER THAN OCTOBER 8TH, 2021 AT 4:00PM.

Line	Description	Quantity	Unit	Unit Price	Total
1	SIX WHEEL SINGLE WING PLOW TRUCKS WITH STAINLESS STEEL CONVENTIONAL DUMP BODIES & DROP IN SALT SPREADERS PER SPECIFICATIONS CHASSIS MFG: _____ CHASSIS MODEL: _____ BODY MFG: _____ BODY MODEL: _____ PLOW MFG: _____ PLOW MODEL: _____ WING PLOW MFG: _____ WING PLOW MODEL: _____ SPREADER MFG: _____ SPREADER MODEL: _____ ********** ANTICIPATED DELIVERY DATE: _____	7.00	Each		

Delivery: _____

Terms of Payment: _____

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer

Contract Terms and Conditions

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Terms and Conditions

BID STANDARD TERMS AND CONDITIONS

TERMS AND CONDITIONS FOR THIS BID

RIVIP INFO - BID SUBMISSION REQUIREMENTS

It is the vendor's responsibility to check and download anyand all addenda from the RIVIP. Thisoffer may not be considered unless a signed RIVIP generated BidderCertification Cover Form is attached and the Unit Price column is completed.The signed Certification Cover Form should be attached to the front of theoffer. Each bid proposal must be submitted in a separate sealed envelope withthe bidder's name and address and the specific "Solicitation Number,""Solicitation Title," and the "Bid Proposal Submission Deadline" marked in theupper left-hand corner of the envelope.

The bid proposal must be delivered (via mail, messengerservice, or personal delivery) to the Division of Purchases and date-stampedreceipted by the date and time specified for the bid proposal submissiondeadline. Bidders should mail bid proposals sufficiently in advance of the bidproposal submission deadline to ensure timely delivery to the Division ofPurchases or, when delivering a bid proposal in person or by messenger, shouldallow additional time for parking and clearance through security checkpoints.Bid proposals must be addressed to:

Rhode Island Department of Administration

Division of Purchases, 2nd Floor

One Capitol Hill, Providence, RI 02908-5855

Bid proposals that are not received by the Division ofPurchases by the bid proposal submission deadline for whatever reason will bedeemed late and will not be considered. The submission time will be determinedby the time clock in the Division of Purchases. Postmarks will not be considered proof of timely submission.

Bid proposals in electronic format are not accepted at thistime.

At the bid proposal submission deadline, bid proposals willbe opened and read aloud in public.

DIVESTITURE OF INVESTMENTS IN IRAN REQUIREMENT:
No vendor engaged in investment activities in Iran as described in R.I. Gen. Laws §37-2.5-2(b) may submit a bid proposal to, or renew a contract with, the Division of Purchases. Each vendor submitting a bid proposal or entering into a renewal of a contract is required to certify that the vendor does not appear on the list maintained by the General Treasurer pursuant to R.I. Gen. Laws §37-2.5-3.

DELIVERY PER AGENCY

DELIVERY OF GOODS OR SERVICES AS REQUESTED BY AGENCY.

VENDOR SPECIFICATIONS

ALL VENDORS MUST INCLUDE SPECIFICATIONS WITH BID PROPOSAL (EVEN THOSE BIDDING BRAND SPECIFIED). FAILURE TO SUBMIT SPECIFICATIONS WITH BID PROPOSAL MAY RESULT IN DISQUALIFICATION OF BID. ITEMS IN CATALOGS MUST BE CLEARLY MARKED AND PAGES TABBED.

ZOOM BID OPENING INSTRUCTIONS

Division of Purchases is inviting you to a scheduled Zoom meeting.

Topic: 7658820
Time: Oct 15, 2021 11:30 AM Eastern Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/89332662995?pwd=eWs5MkVic1o4VU9sU2V5cjlFdENMdz09

Meeting ID: 893 3266 2995
Passcode: 297982
One tap mobile
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+1 669 900 9128 US (San Jose)
+1 253 215 8782 US (Tacoma)
833 548 0282 US Toll-free
877 853 5247 US Toll-free
888 788 0099 US Toll-free
833 548 0276 US Toll-free
Meeting ID: 893 3266 2995
Passcode: 297982
Find your local number: https://us02web.zoom.us/u/keaRTYK3zP

Rhode Island
Department of Transportation

Highway and Bridge Maintenance

6 WHEEL DUMP TRUCK WITH WING

BACKGROUND:

The Rhode Island Department of Transportation is seeking to contract with a vendor with demonstrated proficiency in building Six-Wheel Dump Trucks for highway winter maintenance operations. Units are utilized primarily for Winter Operations and shall be outfitted with All season body, saddle tanks, and front plow.

The Department expects to contract for 7 units. The vendor cost proposal will represent one total cost per unit.

General Scope of Work

The following specifications and dimensions shall apply to purchases of HEAVY-DUTY TRUCK (6-WHEELER) for the Rhode Island Department of Transportation. The State reserves the right to waive minor technicalities under this specification. Federal and State laws supersede any conflicting part of this specification.

The unit shall be the latest current model of standard design manufactured, complete with all standard equipment, and warranties. Bidders are to supply the latest printed literature and detailed specifications on equipment the bidder purposes to furnish. All parts utilized on the unit shall be new and unused and of which parts are stocked at one or more locations in Rhode Island and/or Southern New England region.

The unit bid must be designed, and all components selected and used according to sound engineering principles and industry best practices. All completed units shall comply and be tested in accordance with all applicable FEDERAL, O.S.H.A. ANSI, FMVSS, EPA and DOT standards and regulations. The specifications listed below shall be considered minimum requirements.

The bidder agrees, if his proposal is accepted, to guarantee the design, material and workmanship of the unit bid according to the standard factory warranty, or detailed in the following specification, whichever is greater. A copy of the warranty shall accompany the bid. Warranty coverage shall include costs of transporting the unit to and from servicing shop, when outside a 50 mile radius of the delivery point. The bidder shall be responsible for pickup and delivery (including fuel) of any units that are found to have defects within the first three (3) weeks of delivery to RIDOT and have to return to dealer for repairs.

The dimensions in this specification are not intended to preclude any manufactures. Minor deviations to the dimensions based on sound engineering and proven product life in municipal applications are acceptable.

Manufacture cut sheets and dimensioned line drawings for the proposed body, plow components, and enclosures shall be submitted with the bid package. The details for the hydraulic system shall be submitted to demonstrate that it has been sized properly.

Any manufacture's deviation from the specification, no matter how minor, shall be noted on a separate sheet and be referenced to the section. The deviation shall be explained in detail and identified as an Exception, Clarification or Enhancement. Any "or equal" or "equivalent" items for brand specified components shall be listed with the bid package. Complete description and literature on the "or equal" components shall be supplied for consideration by the RIDOT. The burden of proof regarding "or

equal" items will be upon the vendor. Responses that do not include an Exception, Clarification or Enhancement sheet on the bidder's letterhead shall be determined to be non-responsive.

The chassis supplier and upfitter shall coordinate this build such that all the available upfit components, switches, wiring harnesses and interfaces provided by the chassis manufacture are utilized. A description of the manufacturers available components shall be provided.

CHASSIS MANUFACTURER AND MODEL NUMBER:
Indicate manufacturer and model number of the chassis quoted.

Manufacturer: _____

Model Year: _____

Model: _____

BODY MANUFACTURER AND MODEL NUMBER:
Indicate manufacturer and model number of the body quoted.

Body Manufacturer: _____

Body Model: _____

PLOW AND WING PLOW MANUFACTURER AND MODEL NUMBER:
Indicate manufacturer and model number of the plows quoted.

Plow Manufacturer: _____

Plow Model: _____

Wing Plow Manufacturer: _____

Wing Plow Model: _____

SPREADER MANUFACTURER AND MODEL NUMBER:
Indicate manufacturer and model number of the spreader quoted.

Spreader Manufacturer: _____

Spreader Model: _____

CHASSIS DATA:
The chassis shall be a minimum 48,000 lbs. G.V.W.R., and dual rear wheels. The chassis charging system must be adequate to meet the requirements of the specified equipment.

Comply: _____

NOTE: It is expected that chassis providers and respective up-fitting/body builders communicate and understand the coordination that is required for this build.

All surfaces including welds shall be properly cleaned, deburred and free of welding splatter before coating. All stainless steel non-coated surfaces shall be properly cleaned, deburred and free of welding splatter. These surfaces shall be finished in accordance with the specifications and be uniform in appearance.

All sensor cables shall be one piece from the main control point to the sensor location. Splice points in these cables will not be accepted.

DUMP BODY

This specification shall describe a **304 Stainless Steel** dump body. Bidders must submit with their bid complete specifications on the unit they propose to furnish.

General: The specifications describe a "Heavy Duty" conventional dump with a monoshell design, the material used for the substructure, sides and gate will be 304 Stainless-Steel The floor will be HARDOX 450. The body shall be equipped with rough cut oak 2" x 10" side boards painted Black.

Body length: 10' inside/11 outside body length
Side Height: 30"
Tailgate Height: 40"

Body Material/Construction	
Sides / Ends Material:	304 Stainless Steel sides, ends
Floor Material:	1/4" AR400
Cabshield:	10 ga. with 7 ga. endplates, 304 Stainless Steel
Rear Apron / Bolsters:	304 Stainless Steel
Tailgate Bracing:	304 Stainless Steel

Floor: One-piece material with 45-degree ramps to the sides and front.

Sides: 3/16" Smooth side with dirt shedding lower rub rails, boxed top rail with inverted angle the full length for dirt shedding, board pockets. (See General side Boards)

Gate: two panel with air-controlled tailgate latch, two manual asphalt chute doors installed in the left and right of the gate.

Cab Shield: 42" Full seam welded

Lift Cylinder: cylinder shall not protrude into the load space area.

COMPLY _____

Body Hinge

Body Hinge Type:	Greaseable Hinge Blocks
Body Hinge Paint:	Rear Hinge Painted to match chassis

COMPLY _____

HOIST

Heavy duty front telescopic type hoist suitable for use with a combination body on a road and highway maintenance truck used for snow and ice control.

Mailhot Nitrided top lift 3 stage telescopic hoist NTEA rated Class 40.
All cylinder stages to be nitrated for corrosion resistance and wear resistance.
Hoist lift cylinder to be forward mounted three (3) stage top lift telescopic.
Minimum 4.5" inside diameter cylinder base tube.
Largest diameter stage must be at bottom; inverted cylinder is not acceptable.
Hoist capacity shall be a minimum of 30 tons @ 2,000 P.S.I.
Hoist cylinder shall have a five (5) degree oscillating collar and be installed with a minimum of ¾" free space in the last stage when the body is down on the chassis.
Special Mailhot coating to provide protection to hoist seals in spreader position.
Cylinder stroke shall be a minimum of 90".
Dump box dump angle shall be variable to 50 degrees from horizontal.
The upper pin of the body hoist shall be easily serviceable and removable. It shall be able to be greaseable from the base of the body.
Rear hinge diameter shall be a 2" minimum.
Rear hinge assembly to be cut into truck frame rail behind rear spring hanger of rear axle.
A sub-frame for hoist is not acceptable.
Hoist control valve shall be air operated from inside cab.
The body to be equipped with a positive locking support brace.
Dump box dump angle shall be variable to 50 degrees from horizontal.

COMPLY _____

Tailgate

Tailgate shall be double acting.
Upper hinge plates to be offset design cut from 1" 304L stainless steel plate.
Tailgate shall be rectangle shaped to allow use of asphalt or stone chip spreader.
Construction shall be of 3/16" 304L stainless steel with 3/16" formed cross bracing.
Latch mechanism for the tailgate shall be air trip actuated from inside cab.
Spreader chains and brackets shall be supplied on tailgate and rear apron. Chain shall be grade 70 coil proof 3/8" minimum.
The unit shall have air operated tailgate with dual brake chamber air tailgate latches. Pivot shafts shall have greaseable stainless steel bushings.
Shall include two manual asphalt chute doors installed in the left and right of the gate.
The tailgate shall have lifting eyes installed at the required locations based on the manufactures design to allow for the safe removal and installation.

COMPLY _____

COVER SYSTEM SPECIFICATIONS POWER COVER MODEL DT-2000 CH or equal

-·1/2" STAINLESS STEEL POWER MOUNTS WITH Teflon sealed spherical bearing
Grade 8 bolts and nuts
The in-cab power cover control lever shall be in line with other control levers
- A spool sectional valve is stacked with the existing sectional valves. A built -in check valve in the sectional valve safety locks the system in both directions. 25/3000 PSI hydraulic hose with #4 JIC fitting
Hydraulic cylinders have a W-bore 16, stroke with an I" chrome plated piston rod

Stainless Steel side arm wall tubing (2" x l ½"x 11 gauge) with stainless steel welded ends and cylinder mounts
- 3 ½" galvanized steel tube roll assembly
- 18 oz Armor Guard Cover (wear resistant and asphalt approved) (UHMW) self-lubricating wedges (high density polypropylene)
- Full 100% warranty on parts and labor for two years (excludes cover)

COMPLY _____

DUMP BODY ALARM

Dump body shall have a visual and audible body up alarm. The alarm shall be located such that it is clearly visible and can be heard by the driver when the truck is in motion. The body up switch shall also have an exterior audible alarm.

COMPLY _____

MATERIAL SPREADER

Length: 10'
Width: 82"
Height: 62"

12 gauge stainless steel sides and ends with a 45degree side slope, 7 Gauge stainless steel longitudinal with slotted ends for gearbox and drive shaft removal, 25:1 gearbox with 1 W' drive shaft and 1 W' idler shaft, spring loaded chain take up, 6 tooth sprockets, pintle type. Conveyor chain with 1 W'x W' double welded cross bars; tip up style spinner assembly with Poly disc, Top screen, stainless steel light bar with flashers/ICC and S/T/T mounted to the top rear of the spreader, installed in the dump body with a tailgate latch bar and four tie downs. Must come with 2x6 pressure treated board mounted on bottom of sander. The top screens shall have lifting eyes installed at the required locations based on the manufactures design to allow for the safe removal and installation. ½" x 18" rubber flap bolted across the top of both sides of the spreader to prevent material from fall into the body.

COMPLY _____

Pre-Wetting System

Hydraulic powered calcium pump mounted in a stainless steel or poly weathertight enclosure, all required hoses/spray bar and nozzles to make the system fully functional and controlled by the Hydraulic controller. Shall have 1" Banjo nozzle with Cap for filling of tanks.

Tanks (One per side) shall be minimum 75 gallons per tank.

COMPLY _____

SPINNER AND SPINNER ASSEMBLY

The rear spinner shall be hydraulic direct drive 20" diameter poly spinner disk.
A material chute shall be used to discharge material from main conveyor to the spinner disc.
Spinner guard weldment shall be fabricated from a minimum 3/16" 304L stainless steel material.
The spinner height shall be capable of spreading evenly up to a 20 ft radius with a main operating range of 0 to 15 ft radius.
Spinner assembly must be adjustable left to right, front to back, and up and down to assure accurate placement of material on spinner disc to facilitate control of spread pattern.
Spinner assembly shall be capable of discharge rate from 100 lbs./lane mile to 2,500 lbs./lane mile.
Hydraulic hoses to be spinner motor shall be complete with quick disconnect automatic sealing breakaway couplers and shall be assembled so that the male end may plug into the female end on

the spinner motor and the hoist frame when the spinner assembly is disconnected.

Dump Box Access Ladder COMPLY _____

Dump box access ladder shall be 15" wide, two piece fold-up ladder located at the rear curb side of body. Access ladder steps shall be manufactured from safety grip strut material.

CONSPICUITY MARKING: COMPLY _____

Conspicuity marking shall be installed along the sides and rear of the body.

Side Boards Comply: _____

2" x 10" rough cut oak painted black

Top Screens COMPLY _____

Shall include removable top screen assembly

Flaps COMPLY _____

Installed front and rear of the rear axle. Rear flaps to have a stainless-steel swinging bracket mounted to body and flap. The rear flap shall also have a removable center section to prevent material from the spinner from being blown up onto the rear of the truck.

COMPLY _____

HARDWARE: All nuts, bolts, shackles and chains shall be stainless-steel or zinc plated.

COMPLY _____

CYLINDER RODS: All snow plow hydraulic cylinder rods shall be nitrided.

COMPLY _____

Custom Power Tilt Hitch-Plow and Wing Mount

The custom truck/plow attachment shall be manufactured by a recognized snow plow manufacturer and shall include 1/2" thick side plates reinforced and bolted as far back on the truck frame as feasible. The upper and lower horizontal support members shall be fabricated from not less than 4" x 4" x 3/8" and 7" x 4" x 3/8" wall square and rectangular structural tubing respectively, the vertical risers shall be from not less than 4" x 3" x 3/8" wall rectangular structural tubing. The horizontal member to which the base of the lift cylinder pins shall be from a minimum of 4" x 4" x 3/8" wall square structural tubing.

The rod end of the lift cylinder shall attach to a longitudinal, pivoting lift yoke weldment from 3/4" and 1/2" plate. It shall be possible to lockout plow lift action and instead hydraulically tilt the entire center portion of the plow attachment (and any applicable side wing appurtenances) forward to accommodate a tilt hood truck chassis. This function shall utilize the same cylinder used for plow lift.

In addition it shall be possible with the removal of four (4) pins to expediently detach the plow lift device (and any side wing appurtenances) from the custom truck attachment for summer truck application.

Two (2) front truck frame mounted tow hooks or eyes accessible through the bumper.
The receiver shall be a able to accept 21" and 30-1/2" pin centers.
The plow hoist cylinder shall be of premium grade and shall be a double acting 4" bore x 10" stroke. The piston rod is to be of a nitrited process. Chrome plating not acceptable.

COMPLY _____

TRIP EDGE POWER REVERSIBLE PLOW SPECIFICATIONS
MOLDBOARD:

Shall be 11' long, 42" high inside and shall extend at least 12" out over the cutting edge. The moldboard sheet shall be roll formed from one piece of 3/8" thick UHMV polymer sheet. The upper portion of the polymer sheet shall be bolted to and sandwiched between 3" x 3"x ¼" and 3½" x 3½" x ¼" angles to form a rigid structure at the top. The bottom of the moldboard shall be reinforced by not less than a 5" x 5" x ½" angle. It shall be provided with eight one-piece ½" plate vertical ribs, and shall be equipped with two 10-degree moldboard shoes.

The moldboard shall be equipped with a ½" x 18" rubber flap bolted across the top of the moldboard to prevent snow from blowing over.

Carbide Cutting Edge: It shall be (3) piece ¾" x 6" carbide sections, and shall be bolted to the plow for easy replacement with 5/8" Grade 5 carriage bolts and locknuts on 12" centers. Shall be C1090 AASHO Standard. Shall be equipped with a carbon steel backer blade.

COMPLY _____

Cutting Edge Reinforcement: Shall be at least 4" x 4" x ½" steel angle with ½" steel plate gussets electrically welded to the framework. The cutting edge reinforcement shall not be less than 4" x 4" x ½" angle with ½" steel plate reinforcing gussets, welded along its entire length.

Shoes: Replaceable wear parts shall include two (2) moldboard shoes and two (2) cast chilled malleable iron curb shoes.

COMPLY _____

TRIPPING MECHANISM:
The trip mechanism shall be an adjustable torsional one piece cutting edge trip. Springs shall have a zero-insertion force for increased safety while servicing. Three (3) position adjustment on each individual torsion spring on the trip assembly to allow adjustment in various settings for road conditions.

COMPLY _____

TABLE PUSH FRAME:
Reversing Frame and A Frame: The intention of this specification is not to preclude products manufactured from Henke, Henderson, Viking or other manufactures that are manufactured for severe duty municipal applications. The reversing frame shall be fabricated from 1/2" minimum thickness plates and 3/8" minimum gusseted at key stress points. Three (3) sets of ½" thick reinforced connecting lugs spanning 80" shall be welded to the 4" x 4" x 3/8" member of the reversing circle. These lugs shall serve as connection points to the moldboard.

Lubrication fittings shall be supplied to ease movement of the slide assembly. Two (2) rear channels of the push frame shall be provided with two heavy duty 1" thick steel ears bolted to the push frame. Ear spacing of plow portion hitch shall be 30 ½" to fit truck portion pin hitch using 1-1/4" diameter pins.

The rear plate shall be fitted with an oscillating bar from ¾" plate, which incorporates 1 ¼" drive ears on 30 ½" centers.

The oscillating bar shall revolve about an I ½" Grade 5 bolt so to allow the plow to follow road contour.

The sliding member, as noted above in the "A" Frame section, shall include a 1-3/4" minimum diameter CRS pivot pin for attachment to the Reversing Frame. It shall sit inside the "A" Frame weldment where it shall be secured in position by a 9/16" diameter wire extension spring.

This spring retained sliding member shall provide moldboard locking/unlocking action when the reversing cylinders are activated.

COMPLY _____

Reversing & Locking Mechanism NO EXCEPTIONS: The hydraulic reversible push frame shall offer a minimum of nine (9) plowing positions: four (4) on either side of center for a minimum of 35 degrees right or left for discharge to the right or left Reversing actuation shall be via two (2) 3" diameter x 10" minimum stroke single acting cylinders

Cylinder protection shall be provided by the aforementioned spring retained sliding mechanism with a minimum I ¼" Nicroloy or 1" CR1045 diameter locking pin.

Locking force is provided by the combination of spring tension and forward plows movement, while unlocking force is provided by the reversing cylinders.

COMPLY _____

Hardware Plating: All nuts, bolts and chain shall be zinc plated

COMPLY _____

Plow lift shall be a "Level lift" design to allow continuous level lift in any position and include a lift arm with lift chains or dead sheave leveling device with stainless steel cable.

COMPLY _____

Cylinder Rods: All snow plow hydraulic cylinder rods shall Nitrided.

COMPLY _____

Wrap-A-Round Bumper: An additional bumper shall be supplied at each end of the moldboard (quantity 2). They shall be from a minimum of 5/8" thick steel, shall bolt at the cutting edge face and shall project outward beyond the cutting edge where they shall terminate with a 2 1/8" diameter round bar.

COMPLY _____

PAINT:

All metal surfaces are shall be phosphate washed to remove slag, splatter, oxide and oil residue.
Moldboard is powder-coated orange for increase paint durability.
Push frame, "A" frame and other miscellaneous components are powder-coated black for increase paint durability.

COMPLY _____

SPECIFICATIONS FOR RIGHT HAND MOUNT AND POWER HYDRAULIC CONTROLS

General: The rear mast arrangement shall be located behind the cab and in front of the dump body. The wing shall have a 48" minimum moldboard ground clearance for benching purposes.

Front Mast Specifications Hydraulic

The front mast shall be fabricated from an 8" beam of 18.4#/ft. Built into the top of the beam shall be a sheave housing which shall incorporate a 5" outside diameter cast steel (ASTM A27 GR 1025) sheave turning on a 1" cold rolled steel pin with grease fitting. The sheave shall be equipped with a bronze (SAE 660/ASTM B505) bushing. The front mast shall be bolted to, and supported by a lower cross member from not less than 7" x 4" x 3/8" wall rectangular tubing extending from the bottom of the truck attachment.

Integrally located, at the inside of the beam be not less than a 3" x 33" stroke double acting cylinder. It shall be reeved with 1/2" diameter fiber core (8 x 19 IPS) wire rope cable over 6" outside diameter cast steel (ASTM A27 GR 1025) sheaves, which include bronze bushings turning on 1 3/8" cold rolled steel pins fitted with grease fittings. Sheave heads bolt to the piston rods. Heads which weld to the piston rod are not acceptable.

The travel of the slide on the front mast shall be 66".

COMPLY _____

Rear Mast Specifications

The rear mast vertical beam shall be fabricated from a 10" x 20#/ft channel. This vertical beam shall be integrally welded to, and supported by, a second horizontal fabricated channel of 3/8" steel plate which spans the width of the frame. These vertical and horizontal members shall be further connected by a 1/2" plate, one (1) vertical stabilizing rib, (1) lower diagonal channel of 10" x 20#/ft, and (3) diagonal members from 1/2" x 3" bar stock. The steel bars shall provide stability by means of connecting the top of the vertical member to a point mid-way across the horizontal member. The lower diagonal channel shall provide additional support by means of connecting the bottom of the vertical member to a point back at the frame mounting plate.

There shall be two (2) cylinders provided to control the rear of the wing. The rear of wing lift cylinder shall be not less than a 3" x 14-7/8"stroke double acting type. It shall attach between the rear mast slide and a sliding collar at the upper stand-off arm. Adjustable flow restrictors shall be installed between the hydraulic control valve and this cylinder so to provide for variation of speed. The cylinder shall be fitted with an integral counter-balance valve at its base, so to protect against impact load and the possibility of the wing dropping due to pressure line failure.

The rear slide cylinder shall be not less than a 3" x 33" stroke double acting type, which shall be located at the outside of the rear mast vertical support beam. It shall have a stationary barrel, which attaches to the bottom of the rear mast tower.

Drive ribs at the rear mast shall be so positioned that they make it possible to place the wing arms at a 90° angle to the rear of the wing.

Wing shall have safeguards to prevent dropping.

Must have a Minimum 10" Round Mirror mounted to the front masts for driver visibility of wing plow during lowering operation.

COMPLY _____

HEAVY DUTY TRIP EDGE SINGLE WING:
Wing: Shall have an overall length of 12 feet, a nose height of 29" and a discharge height of 40 ¼". The moldboard shall be fabricated from 8 gauge HRMS, the top of which shall incorporate an integral channel shaped continuation of the same so to enhance rigidity. The bottom moldboard reinforcement shall be from not less than 5" x 5" x 1/2" structural angle.

Moldboard: Shall be provided with not less than five vertical reinforcing ribs from 1/2" thick plate. Located between the two (2) outside vertical ribs, at the discharge end of the moldboard, shall be foul (4) horizontal ribs also from 1/2" thick plate (two upper and two lower): All with a series of vertically punched holes so to provide a selection of attachment points for the upper and lower stand-off arms.

Additionally, the front nose portion of the wing shall include a selection of two (2) 1- 9/16"diameter holes for attachment with an I ½" hex head bolt at the front mast hinge.

Carbide Cutting Edge: It shall be (3) piece ¾" x 6" carbide sections, and shall be bolted to the plow for easy replacement with 5/8" x 2 ½" Grade 5 carriage bolts and locknuts on 12" centers and be C1090 AASHO Standard. Included at the discharge end shall be 10 degree moldboard shoe and shall include a carbon steel backer blade.

The cutting edge reinforcement shall not be less than 4" x 4" x 3/4" angle with ½" steel plate reinforcing gussets, welded along its entire length.

The trip mechanism shall be of the single section trip edge type. It shall consist of five (5) 7/8" alloy wire torsion springs with sixteen (16) active coils 17 3/8" long It shall have two (2) hinge rods made from 1/2" HR steel which slide through the springs and hinge lugs to support the trip edge mechanism. Each spring shall have provision for pre-load adjustment.

Standoff Arm: The standoff arms shall be ruggedly designed with the inner arms fabricated from 2 1/8" solid bar stock, and the outer arms fabricated from 2 1/2" schedule 80 pipe.

Hardware Plating: All nuts, bolts and chain shall be zinc plated.

PAINT: All snowplow components shall be shot blasted and-Powder coated orange.

COMPLY _____

CENTRAL HYDRAULIC SYSTEM

If the hydraulic component supplier is different than the supplier of the spreader controller, the truck equipment company (body installer) shall take responsibility for coordinating efforts of the two suppliers. It will be the responsibility of the truck equipment company to ensure that the total hydraulic package functions as intended.

TYPE:
System shall be a load sensing pressure-compensated type, pumping oil only when needed and in exact volume and pressure required.
Pump shall automatically revert to standby mode when no oil flow is required (No on/off switch).

Shall be able to operate all equipment on truck simultaneously if necessary. No one function shall interfere with any other.
System controls are shall be electronic and air.
Operating speed of all functions shall be variable and adjustable.
One complete system shall operate all functions.

COMPLY _____

HYDRAULIC PUMP AND POWER TAKE-OFF:

The hydraulic pump shall be an axial piston pressure and flow compensated load-sensing type. The pump shall have a displacement that is sized to operate all hydraulic functions simultaneously at engine idle speed (600 engine RPM) and operating speed (3000 RPM Max). The pump must operate at a level of quietness that exceeds the requirements of today's work conditions. The noise rating shall not exceed 76db @ 1800 RPM, operating at full flow. The pump shall have a minimum 2" inch suction line and ½" control drain line plumbed directly back to the reservoir. The pumps compensator shall have rear facing adjustments. The pump shall be rated for 5800 PSI maximum and 4800 PSI continuous.

Power take off shall be rear engine mounted (REPTO) with no less than 100% of engine speed. The PTO shall accept a variable displacement pump. Controls shall be provided, in the cab, to engage/disengage the hydraulic flow from the pump to the Central Hydraulic system while maintaining lubrication to the pump. The controller shall monitor hydraulic reservoir oil level via the reservoir oil level float switch, once the oil level drops below a safe operating level, this switch will disengage the hydraulic flow from the pump. An enunciator in the cab that is on a control panel will alert the driver that the hydraulic flow has been disengaged. The control panel will also incorporate an override switch wired to de-energize the shutdown system to facilitate diagnostics and equipment storage.

COMPLY _____

HYDRAULIC VALVES:

The valve assembly shall be Danfoss spool type closed center valves deigned to function with a variable displacement piston pump. The valve must be pre-compensated, proportional and load independent. The valve body shall be constructed of modular sections mounted together to form a single assembly. Each function is equipped with screw adjustable manual overrides protected by debris covers. The assembly shall be appropriated sized to operate efficiently at idle and operating speed. All functions shall be adjustable for user preferences.

COMPLY _____

PLOW FLOAT BALANCE VALVE

A plow float/balance valve shall be provided and controlled with a dash mounted rocker switch for on/off. The plow float/balance can be turned off as needed. When in use, the valve will allow the valve to use a pressure reducing/relieving system to control the float/balance lifting pressure on the plow's lift arm assembly. Two solenoid valves wired together turn the valve off and on. One solenoid valve opens the inlet of the pressure reducing valve to the pump. The other solenoid valve opens the outlet of the pressure reducing/relieving valve to the lift port. Oil flowing in and out of the lift port is restricted with an orifice.

COMPLY _____

OPERATOR CONTROLS FOR DUMP BODY HOIST, LOAD COVER and SNOW PLOW:
The dump lift and load cover controls shall be single axis controls with lock in the center position to prevent accidental actuation. It shall be mounted on the floor next to the driver.
The valve control for the plow functions shall be a dual axis remote air control with joystick using air shift actuators for valve. It shall be mounted in an adjustable tower counsel next to the driver.
The controls shall have pressure protection valves to protect against loss of pressure in the primary system caused by a broken line or an air leak somewhere in the auxiliary system. There shall also be a FLR (filter, lubricator, and regulator) plumbed into the auxiliary air system to protect the air controls from contamination and being over pressurized. All the air tubing will be color coded to identify each individual hydraulic function from control to valve section. Final placement of the operator controls shall be approved by RIDOT Motor Pool.

COMPLY _____

SPREADER CONTROL:
Certified Cirus SpreadSmart RX® (no exceptions)

COMPLY _____

RESERVOIR/VALVE ENCLOSURE:

The valve assembly shall be mounted in a weather tight valve enclosure constructed from 304 stainless-steel. The enclosure will use a gasket-less passive technology. The enclosure shall be constructed in such a manner that any required maintenance, repair or replacement of the valves can be accomplished with-out obstruction.

The reservoir shall be constructed of 304 stainless-steel and include the following:
35-gallon capacity tank constructed of 10-gauge stainless-steel and be internally baffled
10 micron in tank filter with indicator
50 mesh fill screen with breather cap
Level sight gauge
Temperature gauge
A 2" full flow brass ball valve shall be plumbed at the suction port of the tank
A low oil/high temp sending unit shall be mounted in the reservoir with warning lights mounted in the cab and wired to the electrical indicators.
Bottom mounter work ports

COMPLY _____

Hydraulic Lines and Fittings:
Stainless-steel tubing shall be used under body and cab in lieu of hosing. Only hosing to be used is ends of stainless-steel tubing to reach each function's quick couplers or connection. Tubing shall be seamless #304 stainless steel construction with a minimum wall thickness of 0.065". The ends must be flared to accommodate a 37-degree JIC fitting. The use of compression fittings is not Acceptable. Spacing of each tube to allow for material to fall between each tube.
All stainless tubing must be mounted in polyurethane tube clamps.
All hoses to be wire braid reinforced with swaged on high pressure JIC 37-degree tapered seat end fittings.
Hydraulic lines to front shall be 1/2" 100% stainless tubing with quick couplers for power reversing plow.
Hydraulic lines to rear with 1/2" 100% stainless steel quick couplers for spinner (no exceptions).

Spinner stainless steel hose couplers to be mounted on either frame rail or pintle plate under body at rear.
Polymer dust plugs or caps on all couplers with retainer straps.
All hydraulic quick disconnect couplings shall be stainless steel Aero-Quip FD45 series and include attached male and female dust covers. Couplings shall be configured to eliminate confusion when coupling.

All hydraulic connections and hose end fittings shall be wrapped with 50mm PetroWrap® Anit-Corrosion Tape. All hydraulic connections and hose end fittings shall be cleaned (Remove all contaminants such as dirt, oil, and excessive moisture). Wrap PetroWrap® Anti-Corrosion Tape spirally around prepared surface using even tension. An overlap of 55% is recommended to assure total protection.

COMPLY _____

PLOW LIGHTS: TruckLite brand LED heated element plow lights or approved equal.

Plow lights to be wired into the truck's existing headlight circuit using the factory installed switch. Plow lights shall function in high and low beam modes using existing truck's dimmer switch. Plow lights and truck chassis headlights shall never operate at the same time

COMPLY _____

Tool Box

A lockable weatherproof toolboxes with T-handle latches shall be mounted to the frame on the curb side, under the body. The toolboxes shall be approximately 36 inches long by 18 inches high by 18 inches wide. To be constructed of 12-gauge 201 Stainless Steel minimum, with opening stainless-steel door with stainless steel piano hinge. Front panel shall have exterior jam lip designed to deflect water away from the door opening. Edges of door shall seal tightly against weather stripping and chain door retainer. Two keys shall be provided with each unit. The unit shall be bolted to the frame using stainless steel cradle type mounting brackets.

COMPLY _____

ELECTRICAL, WARNING and LIGHTING SYSTEMS

Electrical System:
All electrical equipment installed must conform to current automotive electrical system standards. The wiring shall be individually and permanently color-coded on the insulation. The insulation shall meet SAE Standard J1128 in its latest edition for GXL or SXL temperature rating. All exposed wiring shall be run in a heat resistant loom or conduit. All wiring looms or conduit shall be properly supported and attached to body members along the entire run. At any point where wire or looms must pass through metal, rubber grommets shall be installed to protect the wire from abrasion.

COMPLY _____

The main low voltage chassis to body interface point shall at the chassis manufacturer's body builders upfit point. All available switches provided by the chassis manufacture shall be used by the upfitter for these trucks prior to adding any aftermarket switches. It is expected that chassis providers and respective up-fitting/body builders communicate and understand the coordination that is required for this build. This area must provide easy access for service. The distribution panel shall be labeled and shall contain body electrical relays, and wire connection bar. The distribution panel must contain

electrical harness quick disconnects or connectors to facilitate removal of the body module in the future. Additionally, the Flex-Panel shall include an integral 6 position switch console.

COMPLY _____

Electrical connections in exposed areas shall be made using heat shrink or weatherproof connections. All circuits shall be protected with automatic reset circuit breakers.

COMPLY _____

All electrical equipment switches shall be mounted on a switch panel mounted in the cab convenient to the operator. These light switches shall be rocker type with integral indicator light to show when the circuit is energized. All switches shall be appropriately identified as to function.

COMPLY _____

WARNING LIGHTS:

Lighting System:

There shall be a Whelen model # RIDOTSY1 Super-LED® lighting system installed. The lighting system shall be made and manufactured in the United States of America. The lighting system shall include (2) Micro 400 SS. Each Micro 400 SS shall contain (3) 400 Series Super-LED® Warning Lightheads (Front/Side/Rear) facing that are to be mounted within a 7 gauge stainless steel housing assembly. Each Micro 400 SS shall have 60' of 4/C, 14 Gauge TPE cable. Each rear corner post shall contain (1) 400 VV Series Amber Super-LED® Warning, (1) 400 LED BTT, (1) 400 LED Back-Up, and (1) side facing TIR3 Super-LED® Warning. (2) MCRNSC# Surface Mount split color Amber/White mounted on front lower corner of dump body in place of reflector. The rear Lighthead shall be mounted within a Whelen 400 series 7 gauge, stainless steel D housing. The lighting system shall include the Whelen SnowAway heated lens system. Each housing assembly shall include flex tubing for strain relief purposes. There shall be 45' of 2/C 14 gauge TPE cable for the warning lights and 45' of 5/C 18 gauge TPE cable for the BTT/BU included with each rear housing assembly. All the Lightheads shall be easily replaceable and utilize waterproof Deutsch® connectors for each light module. All Whelen cable shall home run into the cab where all connection will be made within the Whelen SmartLogic flasher/junction box. Each lens shall be made of polycarbonate and have a smooth outer surface for self-cleaning. The Lighthead assemblies shall use stainless steel screws that screw directly into a nylon mounting bracket to eliminate dissimilar metal corrosion. Units that screw into a steel bracket are unacceptable since they tend to corrode over time. The system shall be warranted by the manufacturer to the user directly to be free from defects of material or workmanship for a period of 24 months from date of purchase (no warranty is offered on optical plastic parts and halogen bulbs). LED's shall be warranted for a period of five (5) years. Written proof of this warranty by the manufacturer shall be furnished by the bidder and attached to the bid. The product being bid shall meet all current "S.A.E." requirements for this type and use of warning device, and be certified by an AMECA-accredited testing lab to meeting these requirements in the appropriate specified safety colors.

Sander Illumination

Whelen Model # P36SLCHG

COMPLY _____

SPREADER LIGHTING:

Two (2) 48 watt LED flood lights installed on a swivel mount, one each side of the outside bottom side of the dump body to light the sides of the truck. These Two (2) lights shall be individually switched.

COMPLY _____

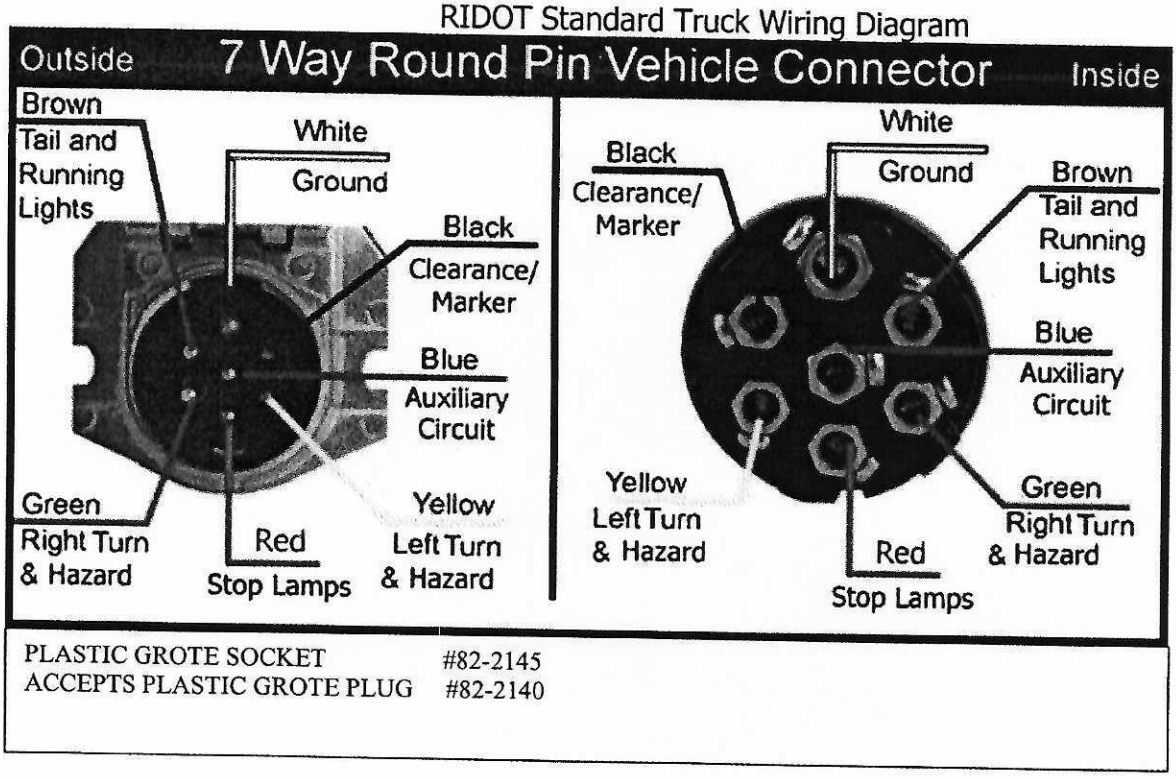
SWITCHING:

Switches shall operate the working lights, all warning lights and a spare and be powered by key-switch accessory.

COMPLY _____

TRAILER PLUG:

RIDOT Standard Truck Wiring Diagram



PLASTIC GROTE SOCKET #82-2145
ACCEPTS PLASTIC GROTE PLUG #82-2140

Two (2) trailer plugs compatible with RIDOT equipment shall be supplied. One (1) trailer plug for use when towing trailers equipped with air brakes. One (1) trailer plug for use when towing trailers equipped with electric brakes. The trailer plugs connections to the chassis electrical system shall be wired into a weather proof box at the rear of the chassis. Each trailer plug shall be labeled with a stamped metal plate identifying function. Final placement of the trailer plugs shall be approved by RIDOT Motor Pool.

COMPLY _____

Towing

Chassis mounted ¾" pintle plate with a 25-ton Swivel Type Pintle Hook, two (2) "D" rings, and a pair of air trailer brake (Gladhand) connections in an area adjacent to the hitch assembly.

COMPLY _____

Supply and install an Electric Trailer Brake control compatible with RIDOT equipment.

COMPLY _____

Shall have two (2) rear frame mounted tow hooks.

COMPLY _____

ADDITIONAL EQUIPMENT

Three safety triangles, One First-Aid Kit
5 lb. ABC UL Rated 3A:40B:C industrial fire extinguisher mounted at the direction of RIDOT
One 5-gallon absorption capacity universal spill response kit
Two (2) grip strut wheel chocks
One (1) ring style cone holder capable of holding 6 cones

COMPLY _____

UPFIT, CONVERSION and BODY WARRANTY: (No Exceptions)
Two (2) year onsite warranty including all parts and labor. Any repairs that cannot be completed on site shall be transported by the supplier.

COMPLY _____

2021 or CURRENT MODEL YEAR CAB & CHASSIS 6-WHEEL TRUCK

These trucks are to be outfitted with a front plow assembly. If the below listed requirements and minimum requirements require alterations to properly execute this build, then it is the BIDDERS responsibility to bid accordingly.

Dimensions/G.V.W .R.
GVWR 48,000 lbs minimum
Wheelbase 151" minimum to be verified by body builder
CA dimension 96" minimum to be verified by body builder
AF dimension 49" AF to be verified by body builder

COMPLY _____

Frame
Single rail 120,000 psi steel with minimum 3.25" flange
Minimum Section Modulus 23.5
Minimum REM 2,750,400
20" integral frame extension (not bolted)
Swept back bumper
Two front tow hooks
Two rear tow hooks

COMPLY _____

Engine Diesel/Engine Equipment
Minimum 385, HP @ 1700 rpm minimum
Minimum 1450 ft./lbs. torque @ 1300 rpm
Minimum 11 Liter, wet sleeved
Inside/outside air intake with in-cab controls
120V/1500W engine block heater w/receptacle under driver door
Minimum 15.9 CFM compressor;
Bug screen mounted behind grille
Silicone engine hoses
DPF and SCR exhaust emissions after treatment with regeneration control
Engine shut down for low engine oil pressure, high coolant temperature and low coolant level
Fuel/water separator with thermostat control
Oil pan – corrosion resistant – Stainless Steel preferred.
Engine compression brake, Jake Brake similar with on/off switch
Exhaust-single RH vertical cab mounted with exhaust guard and turned back tailpipe
MUST FEDERAL EMISSIONS EPA, OBD and GHG Certified for current Calendar Year.

COMPLY _____

Transmission and Equipment/Driveline
Automated Manual transmission, minimum 10 speeds with PTO gear
Synthetic transmission fluid
Dash mounted PTO control
Transmission oil cooler
Push button shift control
Heavy duty driveline calculated to torque requirements

COMPLY _____

Axles
All hub seals shall be severe duty quality (Stemco Grit Guard or equivalent)

COMPLY _____

Front axle
I-beam 22,000 lb capacity
22,000 lb multi-leaf shackle type springs
Shock absorbers
Synthetic: lube

COMPLY _____

Rear axle
30,000 lb single reduction rear axle
Driver controlled locking differential
31,000 multi-leaf springs with 4,500 lb auxiliary springs
synthetic lube

COMPLY _____

Driveshaft
Heavy duty calculated to driveline torque requirements

COMPLY _____

Brakes
(Brakes shall be sized correctly for stopping distances in accordance with FMVSS regulations)

Front Brakes

Front Brake Package:	Q+ cast, standard lube
Front Brake Dimension:	l6.5"x6" minimum
Front Brake Drum:	Outboard mounted cast iron
Front Brake Chamber Type:	Minimum 24 square inch (service)

COMPLY _____

Rear Brakes

Rear Brake Package:	Q+P cast, standard lube
Rear Brake Dimension:	18"x 7" minimum
Rear Brake Drum:	Outboard mounted cast iron
Rear Brake Chambers Type:	36"/36" square inch (service/emergency)

COMPLY _____

Heated air dryer
Dust shields -front and rear
Automatic slack adjusters - front and rear
All rear brake chamber clevis pins shall be lubricated with an anti-seize lubricant
All rear brake shoe anchor pins shall be grease-able with grease fittings
Anti-lock brake system with traction control
Full trailer package with air and light lines

COMPLY _____

Tires
Front 4255/65R22.5 Load range L/20 ply 11,600 lb weight rating
Rear 12R24.5 Load range H/16 ply traction tread design.

COMPLY _____

Wheels
Front steel disc, hub piloted (two to five hand holes) rims
Rear steel disc, hub piloted (two to five hand holes) rims
Front and Rear - Wheels shall be powder coated white.

COMPLY _____

SPARE WHEELS AND TIRES:
One complete set, Two(2) front and Four(4) rear spare tires and rims matching above, shall be furnished for this lot of trucks.

COMPLY _____

Electrical System
Twelve-volt negative ground electrical system
220-amp alternator
Three maintenance free batteries - total 1950 CCA
Stop, turn, tail and backup lights
Plow Light Prep
Body builder wiring and module for body installation
All chassis wiring that is exposed to the elements shall be covered with protective sleeves.
All lights and reflectors shall conform to the motor vehicle laws of the State of Rhode Island.

COMPLY _____

Fuel System
Minimum 100-gallon aluminum fuel tank
Minimum 9.5-gallon DEF tank
Aluminum or Stainless-Steel fuel tank steps/straps

COMPLY _____

Cab
Conventional Cab, air suspended (welded steel galvanized or aluminum shell) to include corrosion preventative procedures.
Air Ride
Tinted windshield and glass
LH & RH interior cab access grab handles with additional driver side outside handle
Fiberglass tilt hood and fenders with frame mounted splash shields
Engine access hatch
ICC clearance, lights
Long life Halogen headlights that turn on when windshield wipers are 'turned on
Chrome stationary grille
Sound abatement-extra insulation under hood and splash panels
Heated LH &'RH west coast mirrors with integral convex mirrors
Frame mounted air' horn
RADIO AM/FM/WB/ Clock/ 3MM/Auxiliary Input, with Multiple Speakers, With CD player, Blue Tooth for Hands Free
Winter wiper blades
Power windows/ Power Locks
Gauge package to include exhaust pyrometer, air restriction monitor, hour meter, engine oil temperature, and transmission oil temperature.
(6) Dash mounted miscellaneous switches - (2) 15A ign, (1) 20A ign, (1) 10A ign, (1) 15A bat, and (1) 20A bat
Dash control/power supply for local install of plow lamps w/lead at grill
PTO – control, switch and light w/wiring

COMPLY _____

Paint

Cab shall be White over proper primer for cab and sheet metal. No other color will be accepted by RIDOT, chassis and running gear shall be black. Wheels shall be powder coated white.
2" Diamond Grade 3-M conspicuity tape with 6" alternating red and white blocks shall be used to outline the perimeter of the tailgates and the dump body sides.

COMPLY _____

Accessories

Three sets of Ignition keys, with keyless entry remote.
Ignition keyed synonymously with all vehicles
Fender extensions for front tires
Back-up alarm
Backup camera fully installed and operational. Will provide automatic rear view camera and monitor for priority view of rear of vehicle when truck is in reverse. Monitor shall be 7" or larger.
Air conditioning
Driver side air ride seat
One Motorola APX 1500 Project 25, 700/800 MHz digital radio installed and ready for use, powered by key-switch accessory. (Attachment #1)
Floor covering rubber, black
Heated Mirrors
An infrared pavement temperature sensor (Quixote Transportation Technologies Surface Patrol no exceptions) shall be properly mounted per the manufacturer's recommendations. The gauge shall be mounted in a visible location integrated into the dash layout or as part of spreader control and shall display both air and pavement temperature simultaneously.

COMPLY _____

Warranties

Engine - The Engine shall have the standard manufacturer's warranty extended for the period of 60 months/100,000 miles to include 100% parts, labor and other incidentals which are cover under the standard new vehicle warranty.

Engine After treatment system and EA Harness and sensors – 60 months/100,000 miles – 100% parts and labor

Chassis - The standard manufacturer's warranty shall be extended for the period of 60 months/100,000 miles to include 100% parts, labor and other incidentals which are cover under the standard new vehicle warranty

Transmission – 60 months/no mileage limits – 100% parts and labor

No engine hour limitation in above warranties COMPLY _____
A breakdown of the standard manufacturer's warranty when it is in excess of the 2 years requested shall be listed for each component of the cab and chassis and included in the manual set.

COMPLY _____

LAPTOP/DIAGNOSTIC TOOL

One (1) Panasonic "Toughbook" lap-top/tablet computer, Windows 10 (latest version) compatible shall be provided with the capability to interface with the vehicle.

It Shall include Noregon JPRO Professional with Fault Guidance and NextStep Repair Diagnostic Toolbox (Product ID# 264425) with a paid 5 years of annual subscription renewals.

Chassis manufacturer's diagnostic software shall also be loaded in computer and licensed to the Rhode Island Department of Transportation. Electronic media shall include annual subscription renewals for five (5) year. Electronic media shall be capable of being moved to new computer or reloaded in the event of hard drive crash without additional charges. An example of the Chassis manufacturer's software required would be Cummins Insite Lite, Navistar Engine Diagnostics (NEDS) Software, Navistar Diamond Logic Builder (DLB), Mack/Volvo PTT, Allison Transmission DOC Premium, Meritor WABCO TOOLBOX™ or approved equal.

COMPLY _____

MANUALS:

Vendor shall provide current editions of all available cab and chassis manuals. This shall a hard copy of the manufacturers upfit documentation and all available overhaul and tune-up manuals, diagnostic, wiring, troubleshooting, and parts manuals for engine, transmission, differential and all components.

The service manuals shall include a complete wiring diagram of the chassis connections for all components. It shall be color coded and include sketches and pictures of how the wiring is installed

Two operator's manuals detailing the recommended operating procedure shall be delivered with each unit. These shall be supplied in both hardcopy and electronic formats. They shall consist of the following: shop manual, parts manual including exploded views of major components with their part numbers, wiring diagram, operator's manual, and a summary of warranties offered in excess of the standard one year. The manuals shall fully and clearly cover all components of the components installed on chassis by the upfitter. Manuals shall also include comprehensive trouble shooting and diagnosis information for all functions. Shop manual shall explain, in detail, procedures for overhauling all major components. The content of the set will be evaluated for approval at the prototype approval meeting. The manuals shall fully and clearly cover all components of the unit, including the pump, valves, controls, tanks, etc. Manuals shall also include comprehensive trouble shooting and diagnosis information for all functions.

Manuals shall also cover all allied equipment and components installed on chassis provided by body installer. Body company to furnish operator's, parts and service manuals for all components manufacturer's i.e., combination body, hoist, snow plow, central hydraulic system, strobe lights, and pintle hook. The service manuals shall include a complete wiring diagram of all components. It shall be color coded and include sketches and pictures of how the wiring is installed. All shall be supplied in a binder with outside cover stating RIDOT's name, job #, serial numbers of dump body, plow, plow hitch, and snow plow. Inside shall include all hard copies of such manuals and flash drive copy. Pictures of all major components at the time of delivery, including hydraulic system, shall be included. The manual shall explain, in detail, procedures for overhauling all major components.

Any deviations from this system shall be noted on the bid and approved by the RIDOT Division of Highway & Bridge Maintenance Administration. A complete system description and product literature for major components shall accompany the bid. Failure to provide manuals may result in 5 percent of total bid being withheld.

COMPLY _____

TRAINING:

A 1 day, "hands on" operator/technician training session shall be provided at RIDOT Division of Highway & Bridge Maintenance Headquarters. The training session topics will be coordinated through RIDOT Motor Pool section and may include but are not limited to engine maintenance and operation, proper unit maintenance and complete unit operation. The training session shall accommodate at least 28 RIDOT employees at each session. Training shall be provided approximately 3 weeks after delivery of the first unit.

A follow up session is required for operators after the unit has been used one season. These sessions are to be held Division of Highway & Bridge Maintenance Headquarters. The operator's session is to be approximately 4 to 6 hours. All training sessions shall be scheduled on a date mutually agreed upon by RIDOT and the supplier. All training sessions shall be performed by competent technician thoroughly trained in the use, service, and operation of the unit.

COMPLY _____

CUSTOMER SERVICE:

The Vender(s) shall provide a single, local point of contact and a backup to handle questions and resolve problems that arise. At least one Customer Service Representative and one backup shall be available at all times. All service representatives shall have access to information to provide immediate response to inquiries concerning the status of orders, service call information, delivery information, back-order information, contract pricing, contracted product offerings/exclusions, billing questions or issues, contract compliance requirements, and general product information. Representatives shall be available by phone, fax, or email (local or toll free number preferred).

Primary Customer Service Representative _____
Primary Customer Service Representative Contact Number _____
Backup Customer Service Representative _____
Backup Customer Service Representative Contact Number _____
Upfitter Customer Service Representative _____
Upfitter Customer Service Representative Contact Number _____

COMPLY _____

The vender shall have a designated Service Representative assigned to oversee all warranty repair resolution and timely return to service. The chassis manufacture and upfitter are responsible for providing on-site service if they or an authorized service center are located outside a 50-mile radius from Warwick.

Primary Service Representative _____
Primary Service Representative 24/7 Contact Number _____
Backup Service Representative _____
Backup Service Representative 24/7 Contact Number _____
Upfitter Service Representative _____
Upfitter Service Representative 24/7 Contact Number _____

COMPLY _____

At the time of bid, the vender shall be certified by the respective chassis manufacture as an accelerate service provider. Examples of these certifications are as follows:

Mack/Volvo	Certified Uptime Center
Freightliner/Western Star	Elite Support Dealership
International	Accelerated Service Dealership

Peterbilt	Rapid Check Center
Ford	BPN Dealer
Hino	Certified Ultimate Dealer

Please indicate your company's ability to provide this level of service, and any other services you provide. A current copy of the above certification shall be included with the bid.

COMPLY _____

TRUCK DELIVERY SCHEDULE:

Fabrication of the first prototype unit shall be completed within one hundred eighty (180) days of the successful proposal. Delivery of all the units shall be completed within seventy-five (75) days of approval of the prototype. All bidders shall provide as part of their bid a schedule for the delivery of all trucks to RIDOT 360 Lincoln Ave, Warwick, RI 02888. This date shall be listed as the number of days following issuance of a Notice-to-Proceed (allow 14 days for approval of the prototype) that the bidder shall successfully deliver all units to the Rhode Island Department of Transportation. Failure to submit a schedule will result in the bid being considered non-responsive. Failure to meet the schedule will result in 3% retention on the total order.

COMPLY _____

PREPARATION FOR DELIVERY:

The unit shall be delivered complete and fully operational. It shall be properly serviced, free of leaks, with all mechanical adjustments made prior to delivery. A minimum of three days' notice prior to delivery shall be given to RIDOT.

The vendor shall be responsible to complete new vehicle delivery inspection. The engine, transmission, differential and cooling system shall be filled to the manufacturer's recommended capacity. The vehicle will receive a new vehicle cleaning and preparation prior to delivery. All equipment shall be completely installed, and adjustments made prior to delivery and to make the vehicle available for immediate use. The vehicle shall be free of any defects when delivered. All vehicles must be delivered without dealer's name or advertising of any type visible on the body.

All units must be inspected prior to delivery with a focus on functionality, consistency, and quality assurance. The body installation company must develop an inspection check sheet that is detailed and includes all major components of each truck. This inspection check list should also include checking items that may have loosened or have been missed by the body company such as hydraulic leaks and body components shaking loose. Each inspection item must be initialed, and a copy of the inspection sheet shall be placed in the document holder of the truck prior to delivery. The inspection check sheet shall be developed and presented at the final prototype meeting for review and input from RIDOT.

If any deficiencies are observed and cannot be corrected within two (2) business days, the vehicle will be deleted from the invoice and payment will not made until corrective action is taken and the vehicle is re-inspected and accepted. It shall be the responsibility of the vendor for the pickup and delivery of the vehicle for re-inspection.

CERTIFICATE OF ORIGIN, TITLE and DELIVERY DOCUMENTATION:

At the time of delivery to the State, each vehicles delivered shall be accompanied by a window sticker, title certificate, "Certificate of Origin," and registration documents.

1. The "Certificate of Origin" shall have the owner listed as "STATE OF RI/FLEET OPERATIONS, ONE CAPITOL HILL, PROVIDENCE, RI 02908." It shall include at a minimum, the following information:

   THE MANUFACTURER, MODEL NAME AND NUMBER
   THE MANUFACTURER'S VEHICLE IDENTIFICATION NUMBER (VIN)
   THE NUMBER OF ENGINE CYLINDERS AND ENGINE TYPE
   A GENERAL DESCRIPTION OF THE BODY AND GVW #
   THE ODOMETER DISCLOSURE MUST BE COMPLETED ON THE VENDOR'S SIDE OF "CERTIFICATE OF ORIGIN".

2. Title certificates must be provided.

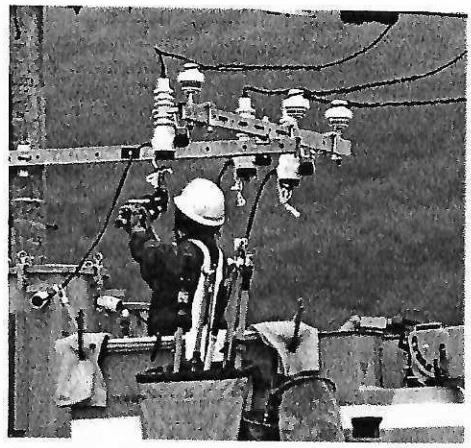
3. The successful vendors will be required to provide the following:
   - A completed application for registration and Title Certificate (TR-1) with the exception of Sections G and H. Owner to be listed as:
     State of RI/Fleet Operations, One Capitol Hill, Providence, RI 02908.
   - A completed Sates or Use Tax Exemption Certification - Motor Vehicles. Purchaser to be listed as: State of RI/Fleet Operations, One Capitol Hill, Providence, RI 02908.

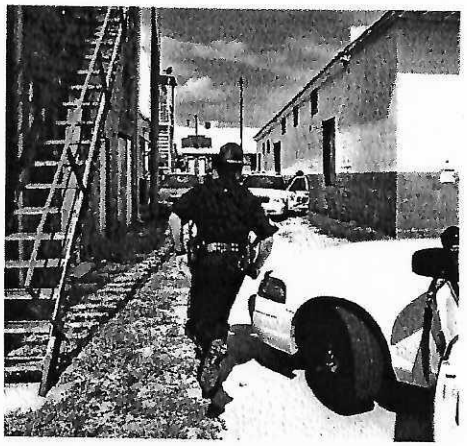
CONCLUDING STATEMENTS:

Responses to this solicitation must be submitted in duplicate and each page shall be numbered (ex. 1 of X) and include the vender's name. A Pre-Bid conference will be held for this bid at a date to be determined. Bids must be predicated on the basis of the bidder's full and unencumbered title to the vehicle(s) as of the date of delivery to the State. Bids subject to lien or assignment at the time of delivery to the State, or which stipulate third party or joint payment, will be rejected. The State may, at its sole option, elect to require presentation(s) by offerors clearly in consideration for award.

End of Specification

MOTOROLA SOLUTIONS





WORK SAFER WHEREVER THE MISSION TAKES YOU

APX™ 1500 PROJECT 25 MOBILE RADIO

Whether a marathon race is passing through the streets of downtown or a water main breaks in the city's largest pipeline, you need the ability to interoperate seamlessly and securely with other agencies and responders. You need to instantly connect and be informed to make better decisions to keep your responders and the community safe. While the advanced technology of APX radios expertly equips you for your day to day operations and the unexpected, your organization may be challenged to improve operating expenses.

The APX 1500 P25 mobile radio is equipped with all the features you need at a price you can afford. It delivers all the benefits of TDMA technology in the most compact P25 capable mobile in the industry. The APX 1500 brings together powerful technology in an easy-to-use radio that's easy on your budget. It seamlessly unifies public works, utility, rural public safety and transportation users to first responders so they can interoperate effectively in the moments that matter.

BE UP TO THE MINUTE INFORMED

Keeping your crew safe is your number one priority. Like all our APX P25 radios trusted by responders worldwide, the APX 1500 mobile redefines safety. Your crews can count on quick, seamless interoperability and extended range wherever the mission may take them. You can depend on ADP software encryption for secure, tamperproof voice and data communications every time they connect.

The O2 Control Head with color display is easy to read and operate in all lighting conditions, from bright sunlight to dark streets. The intelligent lighting on the O2 Control Head notifies your workers when a call is received, an emergency arises, or when they are out of range. Plus, an enlarged multifunction knob makes it easy to use talk-group and volume settings when they're wearing gloves.

SIZED RIGHT FOR YOUR BUDGET

The APX 1500 gives you the ruggedibility and reliability you need at an affordable price. Since the APX 1500 is P25 Phase 2 capable for twice the voice capacity, you can add more users without adding more frequencies or infrastructure. Count on APX quality for years to come. The APX 1500 can withstand wet, dusty and hazardous conditions.

APX 1500 SPECIFICATIONS

FEATURES AND BENEFITS:

Available in 700/800 MHz, VHF, UHF R1 and UHF R2 frequency bands

Channels: Standard 512

Trunking Standards supported:
- Clear or digital private Trunked Operation

Analog MDC-1200 and Digital APCO P25 Conventional System Configurations

Narrow and wide bandwidth digital receiver (6.25kHz/12.5kHz/20kHz/25 kHz)

Embedded digital signaling (ASTRO and ASTRO 25)

Intelligent lighting

Radio profiles

Unified Call List

Meets applicable MIL-STD 810C, D, E, F, G

Ships standard IP56

Utlizes Windows XP, Vista and Windows 7 Customer Programming Software (CPS)
- Supports USB Communications
- Built in FLASHport™ support

Uses standard Dash mounted APX accessories

Software Key

ASTRO 25 integrated Voice and Data

ADP Privacy

Integrated GPS/GLONASS for outdoor location tracking

OPTIONAL FEATURES:

Programming over Project 25 (POP25)

Text Messaging

12 character RF ID asset tracking

*CPS version R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8

APX 1500 CONTROL HEAD PORTFOLIO

02 RUGGED CONTROL HEAD
- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Built in 7.5 watt speaker
- Multifunction volume/channel knob
- Night/day mode button

TRANSMITTER – TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	764-776 MHz 794-806 MHz	806-824 MHz 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj*	3-30 Watts (2-3 Watts Itinerant)	3-35 Watts	1-50 Watts	1-40 Watts	1-45 Watts
Frequency Stability* (–30°C to +60°C, +25°C Ref.)	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM
Modulation Limiting*	±5 kHz / ±2.5 kHz	±5 kHz/±4 kHz (NPSPAC) /±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz
Modulation Fidelity (C4FM) 12.5kHz Digital Channel	1.5%	1.5%	2.5%	1.1%	1.1%
Emissions*	Conducted+ Radiated+ –75/–85 dBc –20/–40 dBm	Conducted Radiated –75 dBc –20 dBm	Conducted Radiated –85 dBc –20 dBm	Conducted Radiated –85 dBc –20 dBm	Conducted Radiated –85 dBc –20 dBm
Audio Response*	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)
FM Hum & Noise 25 & 20 kHz 12.5 kHz	–50 dB –48 dB	–50 dB –48 dB	–52 dB –51 dB	–51 dB –48 dB	–51 dB –48 dB
Audio Distortion* 25 & 20 kHz 12.5 kHz	0.50% 0.50%	0.50% 0.50%	0.50% 0.50%	0.50% 0.50%	0.50% 0.50%

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	764-776 MHz	851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz	25/20/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at 3% distortion*	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++
Frequency Stability* (–30°C to +60°C, +25°C Ref.)	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM	±0.8 PPM
Analog Sensitivity* 12 dB SINAD Digital Sensitivity 5% BER	–120 dBm –121 dBm	–120 dBm –121 dBm	Pre-Amp Standard –123 dBm –119 dBm –123 dBm –119 dBm	Pre-Amp Standard –123 dBm –119 dBm –123 dBm –119 dBm	Pre-Amp Standard –123 dBm –119 dBm –123 dBm –119 dBm
Intermodulation Rejection 25 kHz 12.5 kHz	82 dB 82 dB	82 dB 82 dB	84 dB 86 dB 85 dB 86 dB	82 dB 86 dB 83 dB 85 dB	82 dB 86 dB 83 dB 85 dB
Spurious Rejection	91 dB	91 dB	95 dB	91 dB	91 dB
Audio Distortion at rated*	2%	2%	2%	2%	2%
Selectivity* 25 kHz 12.5 kHz 30 kHz	85 dB 75 dB —	85 dB 75 dB —	89 dB 77 dB 90 dB	83 dB 72 dB —	83 dB 72 dB —

DIMENSIONS

	Inches	Millimeters
Mid Power Radio Transceiver	2 x 7 x 6.4	50.8 x 178 x 163
O2 Control Head	2.7 x 8.1 x 2.1	69 x 207 x 53
Mid Power Radio Transceiver and O2 Control Head - Dash Mount	2.7 x 8.1 x 8.8	69 x 207 x 223
Mid Power Radio Transceiver and O2 Control Head Weight	5.28 lbs	2.45 kg

RADIO MODELS

700/800 (763-870 MHz)	M36URS9PW1AN
VHF (136-174 MHz)	M36KSS9PW1AN
UHF Range 1 (380-470 MHz)	M36QSS9PW1AN
UHF Range 2 (450-520 MHz)	M36SSS9PW1AN

SIGNALING (ASTRO MODE)

Signaling Rate	9.6 kbps
Digital ID Capacity	10,000,000 Conventional / 48,000 Trunking
Digital Network Access Codes	4,096 network site addresses
ASTRO® Digital User Group Addresses	4,096 network site addresses
Project 25 – CAI Digital User Group Addresses	65,000 Conventional / 4,094 Trunking
Error Correction Techniques	Golay, BCH, Reed-Solomon codes
Data Access Control	Slotted CSMA. Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions.

POWER AND BATTERY DRAIN

Model Type	136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz
Minimum RF Power Output	2***-25 Watts (764-776 MHz), 2***-25 Watts (794-806 MHz), 2***-25 Watts (806-824 MHz), 2***-25 Watts (851-870 MHz), 1-25 Watts (136-174 MHz), 1-25 Watts (380-470 MHz), 1-25 Watts (450-520 MHz)
Operation	13.8V DC ±20% Negative Ground
Standby at 13.8V	0.85A (764-870 MHz), 0.85A (136-174 MHz), 0.85A (380-470 MHz), 0.85A (450-520 MHz)
Receive Current at Rated Audio at 13.8V	3.2A (764-870 MHz), 3.2A (136-174 MHz), 3.2A (380-470 MHz), 3.2A (450-520 MHz)
Transmit Current (A) at Rated Power	136-174 MHz (1-25 Watt) 9.5A (25W) 764-870 MHz (10-35 Watt) (2***-25 Watts) 9.5A (25W) 380-470 MHz (1-25 Watt) 9.5A (25W) 450-520 MHz (1-25 Watt) 9.5A (25W)

MOBILE MILITARY STANDARDS 810 C, D, E, F, G

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G	
	Method	Proc./Cat.	Method	Proc./Cat	Method	Proc./Cat.	Method	Proc./Cat	Method	Proc./Cat.
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.5	II
High Temperature Storage	501.1	I	501.2	I/A1	501.3	I/A1	501.4	I/Hot	501.5	I/A1
High Temperature Operation	501.1	II	501.2	II/A1	501.3	II/A1	501.4	II/Hot	501.5	II
Low Temperature Storage	502.1	I	502.2	I/C3	502.3	I/C3	502.4	I/C3	502.5	I/C3
Low Temperature Operation	502.1	I	502.2	II/C1	502.3	II/C1	502.4	II/C1	502.5	II
Temperature Shock	503.1	-	503.2	I/A1-C3	503.3	I/A1-C3	503.4	I/Hot-C3	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain Blowing	506.1	I	506.2	I	506.3	I	506.4	I	506.5	I
Rain Steady	506.1	II	506.2	II	506.3	II	506.4	III	506.5	III
Humidity	507.1	II	507.2	II	507.3	II	507.4	-	507.5	II-Aggravated
Salt Fog	509.1	-	509.2	-	509.3	-	509.4	-	509.5	1 Proc
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Blowing Sand		-	510.2	II	510.3	II	510.4	II	510.5	II
Vibration Min. Integrity	514.2	VIII/F, Curve-W	514.3	I/10	514.4	I/10	514.5	I/24	514.6	I-Cat.24
Vibration Loose Cargo	514.2	XI	514.3	II/3	514.4	II/3	514.5	II/5	514.6	-
Shock Functional	516.2	I	516.3	I	516.4	I	516.5	I	516.6	I, V, VI

ENCRYPTION

Supported Encryption Algorithms	ADP SW
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP56, MIL-STD

* Measured in the analog mode per TIA/EIA 603 under nominal conditions

** Accuracy specs are for long-term tracking (95th percentile values >5 satellites visible at a nominal –130 dBm signal strength)

+ Specs includes performance for the non-GNSS/GNSS bands

++ Output power in to 8 and 3.2 Ohm external speakers respectively

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.

Version 2, Dec 14

TRANSMITTER CERTIFICATION

700/800 (764-775, 793-805, 806-824, 851-869 MHz)	AZ492FT7055
VHF (136-174 MHz)	AZ492FT4916
UHF R1 (380-470 MHz)	AZ492FT3826
UHF R2 (450-520 MHz)	AZ492FT4915

FCC EMISSIONS DESIGNATORS

FCC Emissions Designators	8K10F1D, 8K10F1E, 8K10F1W, 11K0F3E, 16K0F3E, 20K0F1E