

**MATERIALS PURCHASE AND SERVICES AGREEMENT
BETWEEN
THE TOWN OF FOUNTAIN HILLS
AND
CRIMSON FIRE, INC., d/b/a SPARTAN ERV**

THIS MATERIALS PURCHASE AND SERVICES AGREEMENT (this "Agreement") is entered into as of May 2, 2013, between the Town of Fountain Hills, an Arizona municipal corporation (the "Town") and Crimson Fire, Inc., a South Dakota corporation d/b/a Spartan ERV (the "Contractor").

RECITALS

A. The Town issued a Request for Proposals entitled "Fire Pumper Truck 2013" (the "RFP"), a copy of which is attached hereto as Exhibit A and incorporated herein by reference, seeking proposals from qualified bidders for the design, assembly and delivery of a fire pumper truck (the "Pumper Truck") to the Town.

B. The Contractor submitted a proposal in response to the RFP (the "Proposal"), attached hereto as Exhibit B and incorporated herein by reference and the Town desires to enter into an Agreement with the Contractor for the design, assembly and delivery of the Pumper Truck (the "Services").

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals, which are incorporated herein by reference, the following mutual covenants and conditions, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Town and the Contractor hereby agree as follows:

1. Term of Agreement. This Agreement shall be effective as of the date first set forth above and shall remain in full force and effect until May 2, 2014, unless terminated as otherwise provided pursuant to the terms and conditions of this Agreement.

2. Scope of Work. Contractor shall perform the Services as set forth in the specifications contained in the Proposal, attached hereto as Exhibit B.

3. Delivery. Timing is of the essence for this Agreement. Contractor shall deliver the completed Pumper Truck to the Town within 270 days from the effective date of this Agreement. Contractor shall bear the risk of loss for the Pumper Truck until final acceptance of the Town according to Section 8 below.

4. Compensation. The Town shall pay Contractor an amount not to exceed \$500,728.20 for the Services at the rate set forth in the Proposal, attached hereto as Exhibit B.

5. Payments. The Town shall pay the Contractor upon delivery of the Pumper Truck and upon the submission and approval of invoices. Pre-payment discount options shall be as set

forth in the Proposal, attached hereto as Exhibit B. Payment for the balance of the apparatus price shall be upon delivery and acceptance by the Town of the Pumper Truck according to Section 8 below and completion of the training set forth in Section 9 below.

6. Documents. All documents prepared and submitted to the Town pursuant to this Agreement shall be the property of the Town.

7. Contractor Personnel. Contractor shall provide adequate, experienced personnel, capable of and devoted to the successful completion of the Services to be performed under this Agreement. Contractor agrees to assign specific individuals to key positions. Contractor agrees that, upon commencement of the Services to be performed under this Agreement, key personnel shall not be removed or replaced without prior written notice to the Town. If key personnel are not available to perform the Services for a continuous period exceeding 30 calendar days, or are expected to devote substantially less effort to the Services than initially anticipated, Contractor shall immediately notify the Town of same and shall, subject to the concurrence of the Town, replace such personnel with personnel possessing substantially equal ability and qualifications.

8. Inspection; Acceptance. All work shall be subject to inspection and acceptance by the Town at reasonable times during Contractor's performance. Contractor shall provide and maintain a self-inspection system that is acceptable to the Town. There shall be a minimum of two pre-delivery meetings which shall take place at the manufacturing facility with three authorized Town representatives attending such meetings. All transportation, lodging and meal costs of the Town representatives shall be the responsibility of the Contractor.

9. Training. Within seven days after delivery of the Pumper Truck, Contractor shall provide the Town with instructions as to the proper use of the Pumper Truck. Training shall be conducted by a trained specialist who shall be responsible for the complete instruction on the operation and maintenance of the Pumper Truck. Contractor shall provide a minimum of three eight hour structured training courses scheduled to cover the proper training of Town personnel. Training sessions shall be held at the Town of Fountain Hills Fire Station No. 1 located at 16426 East Palisades Boulevard, Fountain Hills, Arizona, 85268. All costs associated with the training sessions herein shall be the responsibility of the Contractor.

10. Licenses; Materials. Contractor shall maintain in current status all federal, state and local licenses and permits required for the operation of the business conducted by the Contractor. The Town has no obligation to provide Contractor, its employees or subcontractors any business registrations or licenses required to perform the specific services set forth in this Agreement. The Town has no obligation to provide tools, equipment or material to Contractor. Contractor shall have access to a local stocking parts dealer and maintenance facility in the Phoenix, Arizona metro area to provide proprietary parts used for repair of the Pumper Truck and to perform warranty work on the Pumper Truck.

11. Performance Warranty. Contractor warrants that the Services rendered and the Pumper Truck delivered will conform to the requirements of this Agreement and to the highest professional standards in the field.

12. Indemnification. To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Town and each council member, officer, employee or agent thereof (the Town and any such person being herein called an “Indemnified Party”), for, from and against any and all losses, claims, damages, liabilities, costs and expenses (including, but not limited to, reasonable attorneys’ fees, court costs and the costs of appellate proceedings) to which any such Indemnified Party may become subject, under any theory of liability whatsoever (“Claims”), insofar as such Claims (or actions in respect thereof) relate to, arise out of, or are caused by or based upon the negligent acts, intentional misconduct, errors, mistakes or omissions, in connection with the work or services of the Contractor, its officers, employees, agents, or any tier of subcontractor in the performance of this Agreement. The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this Section.

13. Insurance.

13.1 General.

A. Insurer Qualifications. Without limiting any obligations or liabilities of Contractor, Contractor shall purchase and maintain, at its own expense, hereinafter stipulated minimum insurance with insurance companies authorized to do business in the State of Arizona pursuant to ARIZ. REV. STAT. § 20-206, as amended, with an AM Best, Inc. rating of A- or above with policies and forms satisfactory to the Town. Failure to maintain insurance as specified herein may result in termination of this Agreement at the Town’s option.

B. No Representation of Coverage Adequacy. By requiring insurance herein, the Town does not represent that coverage and limits will be adequate to protect Contractor. The Town reserves the right to review any and all of the insurance policies and/or endorsements cited in this Agreement but has no obligation to do so. Failure to demand such evidence of full compliance with the insurance requirements set forth in this Agreement or failure to identify any insurance deficiency shall not relieve Contractor from, nor be construed or deemed a waiver of, its obligation to maintain the required insurance at all times during the performance of this Agreement.

C. Additional Insured. All insurance coverage and self-insured retention or deductible portions, except Workers’ Compensation insurance and Professional Liability insurance, if applicable, shall name, to the fullest extent permitted by law for claims arising out of the performance of this Agreement, the Town, its agents, representatives, officers, directors, officials and employees as Additional Insured as specified under the respective coverage sections of this Agreement.

D. Coverage Term. All insurance required herein shall be maintained in full force and effect until all work or services required to be performed under the terms of this Agreement are satisfactorily performed, completed and formally accepted by the Town, unless specified otherwise in this Agreement.

E. Primary Insurance. Contractor's insurance shall be primary insurance with respect to performance of this Agreement and in the protection of the Town as an Additional Insured.

F. Waiver. All policies, except for Professional Liability, including Workers' Compensation insurance, shall contain a waiver of rights of recovery (subrogation) against the Town, its agents, representatives, officials, officers and employees for any claims arising out of the work or services of Contractor. Contractor shall arrange to have such subrogation waivers incorporated into each policy via formal written endorsement thereto.

G. Policy Deductibles and/or Self-Insured Retentions. The policies set forth in these requirements may provide coverage that contains deductibles or self-insured retention amounts. Such deductibles or self-insured retention shall not be applicable with respect to the policy limits provided to the Town. Contractor shall be solely responsible for any such deductible or self-insured retention amount.

H. Use of Subcontractors. If any work under this Agreement is subcontracted in any way, Contractor shall execute written agreements with its subcontractors containing the indemnification provisions set forth in this Section and insurance requirements set forth herein protecting the Town and Contractor. Contractor shall be responsible for executing any agreements with its subcontractors and obtaining certificates of insurance verifying the insurance requirements.

I. Evidence of Insurance. Prior to commencing any work or services under this Agreement, Contractor will provide the Town with suitable evidence of insurance in the form of certificates of insurance and a copy of the declaration page(s) of the insurance policies as required by this Agreement, issued by Contractor's insurance insurer(s) as evidence that policies are placed with acceptable insurers as specified herein and provide the required coverages, conditions and limits of coverage specified in this Agreement and that such coverage and provisions are in full force and effect. Confidential information such as the policy premium may be redacted from the declaration page(s) of each insurance policy, provided that such redactions do not alter any of the information required by this Agreement. The Town shall reasonably rely upon the certificates of insurance and declaration page(s) of the insurance policies as evidence of coverage but such acceptance and reliance shall not waive or alter in any way the insurance requirements or obligations of this Agreement. In the event any insurance policy required by this Agreement is written on a "claims made" basis, coverage shall extend for two years past completion of the Services and the Town's acceptance of the Contractor's work or services and as evidenced by annual certificates of insurance. If any of the policies required by this Agreement expire during the life of this Agreement, it shall be Contractor's responsibility to forward renewal certificates and declaration page(s) to the Town 30 days prior to the expiration date. All certificates of insurance and declarations required by this Agreement shall be identified by referencing the RFP title or this Agreement. A \$25.00 administrative fee shall be assessed for all certificates or declarations received without the appropriate RFP number and title or a reference to this Agreement, as applicable. Additionally, certificates of insurance and declaration page(s)

of the insurance policies submitted without referencing the appropriate RFP number and title or a reference to this Agreement, as applicable, will be subject to rejection and may be returned or discarded. Certificates of insurance and declaration page(s) shall specifically include the following provisions:

(1) The Town, its agents, representatives, officers, directors, officials and employees are Additional Insureds as follows:

(a) Commercial General Liability – Under Insurance Services Office, Inc., (“ISO”) Form CG 20 10 03 97 or equivalent.

(b) Auto Liability – Under ISO Form CA 20 48 or equivalent.

(c) Excess Liability – Follow Form to underlying insurance.

(2) Contractor’s insurance shall be primary insurance as respects performance of this Agreement.

(3) All policies, except for Professional Liability, including Workers’ Compensation, waive rights of recovery (subrogation) against Town, its agents, representatives, officers, officials and employees for any claims arising out of work or services performed by Contractor under this Agreement.

(4) A 30-day advance notice cancellation provision. If ACORD certificate of insurance form 25 (2001/08) is used, the phrases in the cancellation provision “endeavor to” and “but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives” shall be deleted. Certificate forms other than ACORD form shall have similar restrictive language deleted.

13.2 Required Insurance Coverage.

A. Commercial General Liability. Contractor shall maintain “occurrence” form Commercial General Liability insurance with an unimpaired limit of not less than \$1,000,000 for each occurrence, \$2,000,000 Products and Completed Operations Annual Aggregate and a \$2,000,000 General Aggregate Limit. The policy shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury. Coverage under the policy will be at least as broad as ISO policy form CG 00 010 93 or equivalent thereof, including but not limited to, separation of insured’s clause. To the fullest extent allowed by law, for claims arising out of the performance of this Agreement, the Town, its agents, representatives, officers, officials and employees shall be cited as an Additional Insured under ISO, Commercial General Liability Additional Insured Endorsement form CG 20 10 03 97, or equivalent, which shall read “Who is an Insured (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with

respect to liability arising out of “your work” for that insured by or for you.” If any Excess insurance is utilized to fulfill the requirements of this subsection, such Excess insurance shall be “follow form” equal or broader in coverage scope than underlying insurance.

B. Vehicle Liability. Contractor shall maintain Business Automobile Liability insurance with a limit of \$1,000,000 each occurrence on Contractor’s owned, hired and non-owned vehicles assigned to or used in the performance of the Contractor’s work or services under this Agreement. Coverage will be at least as broad as ISO coverage code “1” “any auto” policy form CA 00 01 12 93 or equivalent thereof. To the fullest extent allowed by law, for claims arising out of the performance of this Agreement, the Town, its agents, representatives, officers, directors, officials and employees shall be cited as an Additional Insured under ISO Business Auto policy Designated Insured Endorsement form CA 20 48 or equivalent. If any Excess insurance is utilized to fulfill the requirements of this subsection, such Excess insurance shall be “follow form” equal or broader in coverage scope than underlying insurance.

C. Professional Liability. INTENTIONALLY OMMITTED

D. Workers’ Compensation Insurance. Contractor shall maintain Workers’ Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction over Contractor’s employees engaged in the performance of work or services under this Agreement and shall also maintain Employers Liability Insurance of not less than \$500,000 for each accident, \$500,000 disease for each employee and \$1,000,000 disease policy limit.

13.3 Cancellation and Expiration Notice. Insurance required herein shall not expire, be canceled, or materially changed without 30 days’ prior written notice to the Town.

14. Termination; Cancellation.

14.1 For Town’s Convenience. This Agreement is for the convenience of the Town and, as such, may be terminated without cause after receipt by Contractor of written notice by the Town. Upon termination for convenience, Contractor shall be paid for all undisputed services performed to the termination date.

14.2 For Cause. If either party fails to perform any obligation pursuant to this Agreement and such party fails to cure its nonperformance within 30 days after notice of nonperformance is given by the non-defaulting party, such party will be in default. In the event of such default, the non-defaulting party may terminate this Agreement immediately for cause and will have all remedies that are available to it at law or in equity including, without limitation, the remedy of specific performance. If the nature of the defaulting party’s nonperformance is such that it cannot reasonably be cured within 30 days, then the defaulting party will have such additional periods of time as may be reasonably necessary under the circumstances, provided the defaulting party immediately (A) provides written notice to the non-defaulting party and (B) commences to cure its nonperformance and thereafter diligently continues to completion the cure of its nonperformance. In no event shall any such cure period exceed 90 days. In the event of

such termination for cause, payment shall be made by the Town to the Contractor for the undisputed portion of its fee due as of the termination date.

14.3 Due to Work Stoppage. This Agreement may be terminated by the Town upon 30 days' written notice to Contractor in the event that the Services are permanently abandoned. In the event of such termination due to work stoppage, payment shall be made by the Town to the Contractor for the undisputed portion of its fee due as of the termination date.

14.4 Conflict of Interest. This Agreement is subject to the provisions of ARIZ. REV. STAT. § 38-511. The Town may cancel this Agreement without penalty or further obligations by the Town or any of its departments or agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating this Agreement on behalf of the Town or any of its departments or agencies is, at any time while this Agreement or any extension of this Agreement is in effect, an employee of any other party to this Agreement in any capacity or a contractor to any other party of this Agreement with respect to the subject matter of this Agreement.

14.5 Gratuities. The Town may, by written notice to the Contractor, cancel this Agreement if it is found by the Town that gratuities, in the form of economic opportunity, future employment, entertainment, gifts or otherwise, were offered or given by the Contractor or any agent or representative of the Contractor to any officer, agent or employee of the Town for the purpose of securing this Agreement. In the event this Agreement is canceled by the Town pursuant to this provision, the Town shall be entitled, in addition to any other rights and remedies, to recover or withhold from the Contractor an amount equal to 150% of the gratuity.

14.6 Agreement Subject to Appropriation. This Agreement is subject to the provisions of ARIZ. CONST. ART. IX, § 5 and ARIZ. REV. STAT. § 42-17106. The provisions of this Agreement for payment of funds by the Town shall be effective when funds are appropriated for purposes of this Agreement and are actually available for payment. The Town shall be the sole judge and authority in determining the availability of funds under this Agreement and the Town shall keep the Contractor fully informed as to the availability of funds for this Agreement. The obligation of the Town to make any payment pursuant to this Agreement is a current expense of the Town, payable exclusively from such annual appropriations, and is not a general obligation or indebtedness of the Town. If the Town Council fails to appropriate money sufficient to pay the amounts as set forth in this Agreement during any immediately succeeding fiscal year, this Agreement shall terminate at the end of then-current fiscal year and the Town and the Contractor shall be relieved of any subsequent obligation under this Agreement.

15. Miscellaneous.

15.1 Independent Contractor. The Contractor acknowledges and agrees that the Services provided under this Agreement are being provided as an independent contractor, not as an employee or agent of the Town. Contractor, its employees and subcontractors are not entitled to workers' compensation benefits from the Town. The Town does not have the authority to supervise or control the actual work of Contractor, its employees or subcontractors. The Contractor, and not the Town, shall determine the time of its performance of the services provided under this Agreement so long as Contractor meets the requirements of its agreed Scope

of Work as set forth in Section 2 above. Contractor is neither prohibited from entering into other contracts nor prohibited from practicing its profession elsewhere. Town and Contractor do not intend to nor will they combine business operations under this Agreement.

15.2 Applicable Law; Venue. This Agreement shall be governed by the laws of the State of Arizona and suit pertaining to this Agreement may be brought only in courts in the Maricopa County, Arizona.

15.3 Laws and Regulations. Contractor shall keep fully informed and shall at all times during the performance of its duties under this Agreement ensure that it and any person for whom the Contractor is responsible abides by, and remains in compliance with, all rules, regulations, ordinances, statutes or laws affecting the Services, including, but not limited to, the following: (A) existing and future Town and County ordinances and regulations, (B) existing and future State and Federal laws and (C) existing and future Occupational Safety and Health Administration standards.

15.4 Amendments. This Agreement may be modified only by a written amendment signed by persons duly authorized to enter into contracts on behalf of the Town and the Contractor.

15.5 Provisions Required by Law. Each and every provision of law and any clause required by law to be in this Agreement will be read and enforced as though it were included herein and, if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, this Agreement will promptly be physically amended to make such insertion or correction.

15.6 Severability. The provisions of this Agreement are severable to the extent that any provision or application held to be invalid by a Court of competent jurisdiction shall not affect any other provision or application of this Agreement which may remain in effect without the invalid provision or application.

15.7 Entire Agreement; Interpretation; Parol Evidence. This Agreement represents the entire agreement of the parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this Agreement are hereby revoked and superseded by this Agreement. No representations, warranties, inducements or oral agreements have been made by any of the parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this Agreement. This Agreement shall be construed and interpreted according to its plain meaning, and no presumption shall be deemed to apply in favor of, or against the party drafting this Agreement. The parties acknowledge and agree that each has had the opportunity to seek and utilize legal counsel in the drafting of, review of, and entry into this Agreement.

15.8 Assignment; Delegation. No right or interest in this Agreement shall be assigned by Contractor without prior, written permission of the Town signed by the Town Manager and no delegation of any duty of Contractor shall be made without prior, written permission of the Town signed by the Town Manager. Any attempted assignment or delegation by Contractor in violation of this provision shall be a breach of this Agreement by Contractor.

15.9 Subcontracts. No subcontract shall be entered into by the Contractor with any other party to furnish any of the material or services specified herein without the prior written approval of the Town. The Contractor is responsible for performance under this Agreement whether or not subcontractors are used. Failure to pay subcontractors in a timely manner pursuant to any subcontract shall be a material breach of this Agreement by Contractor.

15.10 Rights and Remedies. No provision in this Agreement shall be construed, expressly or by implication, as waiver by the Town of any existing or future right and/or remedy available by law in the event of any claim of default or breach of this Agreement. The failure of the Town to insist upon the strict performance of any term or condition of this Agreement or to exercise or delay the exercise of any right or remedy provided in this Agreement, or by law, or the Town's acceptance of and payment for services, shall not release the Contractor from any responsibilities or obligations imposed by this Agreement or by law, and shall not be deemed a waiver of any right of the Town to insist upon the strict performance of this Agreement.

15.11 Attorneys' Fees. In the event either party brings any action for any relief, declaratory or otherwise, arising out of this Agreement or on account of any breach or default hereof, the prevailing party shall be entitled to receive from the other party reasonable attorneys' fees and reasonable costs and expenses, determined by the court sitting without a jury, which shall be deemed to have accrued on the commencement of such action and shall be enforced whether or not such action is prosecuted through judgment.

15.12 Liens. All materials or services shall be free of all liens and, if the Town requests, a formal release of all liens shall be delivered to the Town.

15.13 Offset.

A. Offset for Damages. In addition to all other remedies at law or equity, the Town may offset from any money due to the Contractor any amounts Contractor owes to the Town for damages resulting from breach or deficiencies in performance or breach of any obligation under this Agreement.

B. Offset for Delinquent Fees or Taxes. The Town may offset from any money due to the Contractor any amounts Contractor owes to the Town for delinquent fees, transaction privilege taxes and property taxes, including any interest or penalties.

15.14 Notices and Requests. Any notice or other communication required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been duly given if (A) delivered to the party at the address set forth below, (B) deposited in the U.S. Mail, registered or certified, return receipt requested, to the address set forth below or (C) given to a recognized and reputable overnight delivery service, to the address set forth below:

If to the Town: Town of Fountain Hills
 16705 East Avenue of the Fountains
 Fountain Hills, Arizona 85268

Attn: Kenneth W. Buchanan, Town Manager

With copy to: GUST ROSENFELD, P.L.C.
One East Washington Street, Suite 1600
Phoenix, Arizona 85004-2553
Attn: Andrew J. McGuire, Esq.

If to Contractor: Crimson Fire, Inc., d/b/a Spartan ERV
907 7th Avenue North
Brandon, South Dakota 57005
Attn: Travis Grinstead

or at such other address, and to the attention of such other person or officer, as any party may designate in writing by notice duly given pursuant to this subsection. Notices shall be deemed received (A) when delivered to the party, (B) three business days after being placed in the U.S. Mail, properly addressed, with sufficient postage or (C) the following business day after being given to a recognized overnight delivery service, with the person giving the notice paying all required charges and instructing the delivery service to deliver on the following business day. If a copy of a notice is also given to a party's counsel or other recipient, the provisions above governing the date on which a notice is deemed to have been received by a party shall mean and refer to the date on which the party, and not its counsel or other recipient to which a copy of the notice may be sent, is deemed to have received the notice.

15.15 Confidentiality of Records. The Contractor shall establish and maintain procedures and controls that are acceptable to the Town for the purpose of ensuring that information contained in its records or obtained from the Town or from others in carrying out its obligations under this Agreement shall not be used or disclosed by it, its agents, officers, or employees, except as required to perform Contractor's duties under this Agreement. Persons requesting such information should be referred to the Town. Contractor also agrees that any information pertaining to individual persons shall not be divulged other than to employees or officers of Contractor as needed for the performance of duties under this Agreement.

15.16 Records and Audit Rights. To ensure that the Contractor and its subcontractors are complying with the warranty under subsection 15.17 below, Contractor's and its subcontractor's books, records, correspondence, accounting procedures and practices, and any other supporting evidence relating to this Agreement, including the papers of any Contractor and its subcontractors' employees who perform any work or services pursuant to this Agreement (all of the foregoing hereinafter referred to as "Records"), shall be open to inspection and subject to audit and/or reproduction during normal working hours by the Town, to the extent necessary to adequately permit (A) evaluation and verification of any invoices, payments or claims based on Contractor's and its subcontractors' actual costs (including direct and indirect costs and overhead allocations) incurred, or units expended directly in the performance of work under this Agreement and (B) evaluation of the Contractor's and its subcontractors' compliance with the Arizona employer sanctions laws referenced in subsection 15.17 below. To the extent necessary for the Town to audit Records as set forth in this subsection, Contractor and its subcontractors hereby waive any rights to keep such Records confidential. For the purpose of evaluating or verifying such actual or claimed costs or units expended, the Town shall have access to said

Records, even if located at its subcontractors' facilities, from the effective date of this Agreement for the duration of the work and until three years after the date of final payment by the Town to Contractor pursuant to this Agreement. Contractor and its subcontractors shall provide the Town with adequate and appropriate workspace so that the Town can conduct audits in compliance with the provisions of this subsection. The Town shall give Contractor or its subcontractors reasonable advance notice of intended audits. Contractor shall require its subcontractors to comply with the provisions of this subsection by insertion of the requirements hereof in any subcontract pursuant to this Agreement.

15.17 E-verify Requirements. To the extent applicable under ARIZ. REV. STAT. § 41-4401, the Contractor and its subcontractors warrant compliance with all federal immigration laws and regulations that relate to their employees and their compliance with the E-verify requirements under ARIZ. REV. STAT. § 23-214(A). Contractor's or its subcontractor's failure to comply with such warranty shall be deemed a material breach of this Agreement and may result in the termination of this Agreement by the Town.

15.18 Scrutinized Business Operations. Pursuant to ARIZ. REV. STAT. §§ 35-391.06 and 35-393.06, the Contractor certifies that it does not have scrutinized business operations in Sudan or Iran. For the purpose of this subsection the term "scrutinized business operations" shall have the meaning set forth in ARIZ. REV. STAT. §§ 35-391 or 35-393, as applicable. If the Town determines that the Contractor submitted a false certification, the Town may impose remedies as provided by law including terminating this Agreement pursuant to subsection 14.2 above.

15.19 Conflicting Terms. In the event of any inconsistency, conflict or ambiguity among the terms of this Agreement, the Proposal, the Proposal and the RFP, the documents shall govern in the order listed herein.

15.20 Non-Exclusive Contract. This Agreement is entered into with the understanding and agreement that it is for the sole convenience of the Town. The Town reserves the right to obtain like goods and services from another source when necessary.

15.21 Price Warranty. Contractor shall give the Town the benefit of any price reductions before actual time of shipment, except that should the Procurement Officer of the Town permit shipment to be made prior to specified shipping date that the Town shall have advantage of any price reduction before specified shipping date.

15.22 Federal Tax Exemption. As a political subdivision of the State of Arizona, the Town is exempt from federal excise tax.

[SIGNATURES ON FOLLOWING PAGES]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first set forth above.

“Town”

TOWN OF FOUNTAIN HILLS, an Arizona municipal corporation

Kenneth W. Buchanan
Kenneth W. Buchanan, Town Manager

ATTEST:

Bevelyn J. Bender
Bevelyn J. Bender, Town Clerk

(ACKNOWLEDGMENT)

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

This instrument was acknowledged before me on May 6, 2013, by Kenneth W. Buchanan, the Town Manager of the TOWN OF FOUNTAIN HILLS, an Arizona municipal corporation, on behalf of the Town of Fountain Hills.



(affix notary seal here)

Catherine E. Whynot
Notary Public in and for the State of Arizona

[SIGNATURES CONTINUE ON FOLLOWING PAGE]

“Contractor”

CRIMSON FIRE, INC.,
a South Dakota corporation
d/b/a SPARTAN ERV

By: 

Name: JOE VOLK

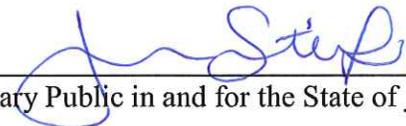
Title: GENERAL MANAGER

(ACKNOWLEDGMENT)

STATE OF South Dakota
) ss.
COUNTY OF Minnehaha

This instrument was acknowledged before me on April 23, 2013,
by Joe Volk, as General Manager of CRIMSON FIRE, INC., a South Dakota
corporation, d/b/a SPARTAN ERV, on behalf of the corporation.




Notary Public in and for the State of SD

**My Commission Expires
August 21, 2018**

EXHIBIT A
TO
MATERIALS PURCHASE AND SERVICES AGREEMENT
BETWEEN
THE TOWN OF FOUNTAIN HILLS
AND
CRIMSON FIRE, INC., d/b/a SPARTAN ERV

[RFP]

See following pages.



**REQUEST FOR PROPOSALS
FOR
FIRE PUMPER TRUCK**

Town of Fountain Hills
16705 East Avenue of the Fountains
Fountain Hills, Arizona 85268

SOLICITATION INFORMATION AND SELECTION SCHEDULE

Solicitation Title:	Fire Pumper Truck - 2013
Release Date:	February 25, 2013
Advertisement Date:	February 28, 2013 - Arizona Business Gazette
Pre-Submittal Conference:	NOT APPLICABLE TO THIS SOLICITATION
Final Date for Inquiries:	March 7, 2013
Proposal Due Date and Time:	March 28, 2013 3:00 p.m. (local time, Phoenix, Arizona)
Contract to Council:	May 2, 2013
RFP Administrator:	Scott LaGreca slagreca@fh.az.gov

- * In the event that a Vendor cannot be selected based solely on Proposals submitted, Oral Interviews may be conducted at the Town's sole discretion.
- ** The Town of Fountain Hills reserves the right to amend the solicitation schedule as necessary.

This RFP may be picked up at the Town of Fountain Hills or downloaded from the Town's website at:
www.fh.az.gov

SECTION A

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SECTION A

ARTICLE I. RFP PROCESS; AWARD OF AGREEMENT

1. Purpose; Scope of Work. The Town of Fountain Hills (the “Town”) is issuing this Request For Proposals (this “RFP”) seeking proposals (“Proposals”) from qualified bidders (“Vendors”) interested in designing, assembling and delivering a fire pumper truck (the “Pumper Truck”) to the Town according to the specifications included in this RFP (the “Services”). In accordance with the Town’s Procurement Code, the Town will accept sealed Proposals for the Pumper Truck as more particularly set forth herein.

1.1 Objectives; Background. The Town desires to:

A. Purchase a fire pumper truck completely assembled and ready for operation to replace the 15 year old pumper truck currently in use by the Fire Department.

B. Select a Vendor that can (1) design, assemble and deliver a fire pumper truck to the Town, (2) provide the type, size and quality of equipment that best meets the needs of the Town’s fire pumper truck requirements and (3) provide the required maintenance to the fire pumper truck.

1.2 Proposed Specifications. The selected Vendor must provide a Pumper Truck that incorporates the specifications set forth herein and in the Specifications Questionnaire in Section B of this RFP.

2. Preparation/Submission of Proposal. Vendors are invited to participate in the competitive selection process for the Services outlined in this RFP. Responding parties shall review their Proposal submissions to ensure the following requirements are met.

2.1 Irregular or Non-responsive Proposals. The Town shall consider as “irregular” or “non-responsive” and reject any Proposal not prepared and submitted in accordance with this RFP, or any Proposal lacking sufficient information to enable the Town to make a reasonable determination of compliance to the minimum qualifications. Unauthorized or unreasonable exceptions, conditions, limitations, or provisions shall be cause for rejection. Proposals may be deemed non-responsive at any time during the evaluation process if, in the sole opinion of the Town, any of the following are true:

A. Vendor does not meet the minimum required skill, experience or requirements to perform or provide the Services.

B. Vendor has a past record of failing to fully perform or fulfill contractual obligations.

C. Vendor cannot demonstrate financial stability.

D. Vendor’s Proposal contains false, inaccurate or misleading statements that, in the opinion of the Town Manager or authorized designee, are intended to mislead the Town in its evaluation of the Proposal.

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2.2 Submittal Quantities. Interested Vendors must submit **one (1) original and three (3) copies four (4) total submittals** of the Proposal. In addition, interested parties must submit **one (1) original copy** of the Proposal on a CD-ROM (or electronic media approved by the Town) in printable Adobe or Microsoft Word format (or other format approved by the Town). Failure to adhere to the submittal quantity criteria shall result in the Proposal being considered non-responsive.

2.3 Required Submittal. The Proposal shall be submitted with a cover letter with an **original ink** signature by a person authorized to bind the Vendor. Proposals submitted without a cover letter with an **original ink signature** by a person authorized to bind the Vendor shall be considered non-responsive. The Proposal shall be a maximum of **twenty five (25)** pages to address the Proposal criteria (excluding resumes, Vendor Information Form, Specifications Questionnaire, literature and appendices requested by the Town, but including the materials necessary to address Pumper Truck understanding, general information, organizational chart, photos, tables, graphs, and diagrams). Each page side (maximum 8 1/2" x 11") with criteria information shall be counted. However, one page may be substituted with an 11" x 17" sheet of paper, folded to 8 1/2" x 11", showing a proposed Pumper Truck schedule or organizational chart and only having information on one side. Cover, back, table of contents and tabs may be used and shall not be included in the page count, unless they include additional Pumper Truck-specific information or Proposal criteria responses. The minimum allowable font for the Proposal is **11 pt, Arial or Times New Roman**. Failure to adhere to the page limit, size and font criteria shall result in the Proposal being considered non-responsive. Telegraphic (facsimile), electronic (e-mail) or mailgram Proposals will not be considered.

A. The Proposal shall include **two (2) originals** of a D-size engineered construction drawing. Submitted drawing must be specifically designed for the Pumper Truck and shall depict all major specified components. The drawings shall depict a front view, street side view with proposed chassis, curbside view with proposed chassis, rear view, top view with proposed chassis, hose bed height and approach, break over and departure angle. The drawings shall contain the dimensions for the overall length (in feet and inches), overall height (in feet and inches), wheelbase, angle of approach, break over angle, angle of departure, and overall width of the apparatus and hose bed volume dimensions, indicating the hose bed width, length, and height. Submission of "similar to" or "standard" drawings, or statements referencing submission of drawings after award of contract shall result in the Proposal being considered non-responsive.

B. The Proposal shall include an engineering drawing that provides a top view of the Pumper Truck with the following turning ability information listed in decimal feet: (1) SAE turning radius, (2) curb to curb radius, (3) bumper swing radius and (4) inside radius. The calculations must be performed according to SAE J-695.

2.4. Vendor Responsibilities. All Vendors shall (A) examine the entire RFP, (B) seek clarification of any item or requirement that may not be clear, (C) check all responses for accuracy before submitting a Proposal and (D) submit the entire Proposal by the Proposal Due Date and Time. Late Proposals will not be considered. A Vendor submitting a late Proposal shall be so notified. Negligence in preparing a Proposal confers no right of withdrawal

SECTION A

after the Proposal Due Date and Time, unless otherwise provided in the Town's Procurement Code.

2.5. Sealed Submittals. All Proposals shall be sealed and clearly marked with the RFP title, **Fire Pumper Truck - 2013**, on the lower left hand corner of the mailing envelope. A return address must also appear on the outside of the sealed Proposal. The Town is not responsible for the pre-opening of, post-opening of or the failure to open any Proposals not properly addressed or identified.

2.6. Pricing. The Vendor shall submit the same number of copies of the Fee Proposal as the number of submittals described in Article I, Section 2.2 in a separate, sealed envelope enclosed with the Vendor's Proposal. Vendor's Price Proposal shall be inclusive of all of the Services required to deliver the Pumper Truck to the Town, as described in this RFP.

2.7. Address. All Proposals shall be directed to the following address: Town Clerk, 16705 East Avenue of the Fountains, Fountain Hills, Arizona, 85268, or hand-delivered to the Town Clerk's office by the Proposal Due Date and Time indicated on the cover page of this RFP.

2.8. Pricing Errors. If price is a consideration and, in case of error in the extension of prices in the Proposal, the unit price shall govern. Periods of time, stated as number of days, shall be calendar days.

2.9. Proposal Irrevocable. In order to allow for an adequate evaluation, the Town requires the Proposal to be valid and irrevocable for **90** days after the Proposal Due Date and Time indicated on the cover of this RFP.

2.10 Amendment/Withdrawal of Proposal. At any time prior to the specified Proposal Due Date and Time, a Vendor (or designated representative) may amend or withdraw its Proposal. Any erasures, interlineations, or other modifications in the Proposal shall be initialed in **original ink** by the authorized person signing the Proposal. Facsimile, electronic (e-mail) or mailgram Proposal amendments or withdrawals will not be considered. No Proposal shall be altered, amended or withdrawn after the specified Proposal Due Date and Time.

2.11 Addenda. It shall be the Vendor's responsibility to check for addenda issued to this RFP. Any addendum issued by the Town with respect to this RFP will be available at: Town of Fountain Hills, Town Clerk's Office, 16705 East Avenue of the Fountains, Fountain Hills, Arizona, 85268 or the Town of Fountain Hills website at www.fh.az.gov. Any addenda issued as a result of any change in this RFP shall become part of the RFP and must be acknowledged in the Proposal submittal. Failure to indicate receipt of the addendum shall result in the Proposal being rejected as non-responsive.

3. Cost of Proposal Preparation. The Town does not reimburse the cost of developing, presenting or providing any response to this solicitation. Proposals submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The Vendor is responsible for all costs incurred in responding to this RFP. All materials and documents submitted in response to this RFP become the property of the Town and will not be returned.

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4. Inquiries.

4.1 Written/Verbal Inquiries. Any question related to the RFP shall be directed to the RFP Administrator whose name appears on the cover page of this RFP. Questions shall be submitted in writing or via e-mail by the close of business on the Final Date for Inquiries indicated on the cover page of this RFP or submitted verbally (A) at the Pre-Submittal Conference on the date indicated on the cover page of this RFP (if such Pre-Submittal Conference is held) or (B) submitted in writing or via e-mail by the close of business on the Final Date for Inquiries indicated on the cover page of this RFP. In the event the Town is closed on the Final Date for Inquiries, the Vendor shall submit the question(s) to one of the Town Representatives via e-mail. Any inquiries related to this RFP shall refer to the RFP title, page and paragraph. However, the Vendor shall not place the RFP title on the outside of any envelope containing questions, because such an envelope may be identified as a sealed Proposal and may not be opened until after the Proposal Due Date and Time.

4.2 Inquiries Answered. Written questions will be read and answered at the Pre-Submittal Conference on the date indicated on the cover page of this RFP. Verbal or telephone inquiries directed to Town staff **will not be answered**. Within two (2) business days following the Pre-Submittal Conference, answers to all questions received in writing or via e-mail or verbally at the Pre-Submittal Conference will be mailed, sent via facsimile and/or e-mailed to all parties who obtained an RFP package from the Town and who legibly provided their mailing address, facsimile and/or e-mail address to the Town. No questions, submitted in any form, will be answered after the Final Date for Inquiries listed on the cover of this RFP.

5. Pre-Submittal Conference. A Pre-Submittal Conference may be held. If scheduled, the date and time of this Pre-Submittal Conference will be indicated on the cover page of this RFP. This Pre-Submittal Conference may be designated as mandatory or non-mandatory on the cover page of this RFP. Additionally, if the Pre-Submittal Conference is designated as mandatory, failure to attend shall render the Vendor's Proposal non-responsive. Vendors are strongly encouraged to attend those Pre-Submittal Conferences designated as non-mandatory. The purpose of the Pre-Submittal Conference will be to clarify the contents of this RFP in order to prevent any misunderstanding of the Town's requirements. Any doubt as to the requirements of this RFP or any apparent omission or discrepancy should be presented to the Town at this conference. The Town will then determine if any action is necessary and may issue a written amendment or addendum to the RFP. Oral statements or instructions will not constitute an amendment or addendum to this RFP.

6. Payment Requirements; Payment Discounts. Any Proposal that requires payment in less than 30 calendar days shall not be considered. Payment discounts of 30 calendar days or less will not be deducted from the Proposal price in determining the low Proposal. The Town shall be entitled to take advantage of any payment discount offered by the Vendor provided payment is made within the discount period. Payment discounts shall be indicated in the Fee Proposal.

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7. Taxes. The Town is exempt from Federal Excise Tax, including the Federal Transportation Tax. Sales tax, if any, shall be indicated as a separate item. It is the sole responsibility of the Vendor to determine any applicable State tax rates and calculate the Fee Proposal accordingly. Failure to accurately tabulate and applicable taxes may result in a determination that a Proposal is non-responsive. The Vendor shall not rely on, and shall independently verify, any tax information provided by the Town.

8. Public Record. All Proposals shall become the property of the Town. After award of an Agreement, Proposals shall become public records and shall be available for public inspection in accordance with the Town's Procurement Code, except that any portion of a Proposal that was designated as confidential pursuant to Section 9 below shall remain confidential from and after the time of Proposal opening to the extent permitted by Arizona law.

9. Confidential Information. If a Vendor believes that a Proposal or protest contains information that should be withheld from the public record, a statement advising the Town Representative of this fact shall accompany the submission and the information shall be identified. The information identified by the Vendor as confidential shall not be disclosed until the Town Representative makes a written determination. The Town Representative shall review the statement and information and shall determine in writing whether the information shall be withheld. If the Town Representative determines to disclose the information, the Town Representative shall inform the Vendor in writing of such determination.

10. Vendor Licensing and Registration. Prior to the award of the Agreement, the successful Vendor shall be licensed with the Arizona Corporation Commission to do business in Arizona. The Vendor shall provide licensure information with the Proposal. Upon the Town's request, corporations, limited liability companies, partnerships or other entities shall be able to provide a Certificate of Good Standing from the Arizona Corporation Commission.

11. Certification. By submitting a Proposal, the Vendor certifies:

11.1 No Collusion. The submission of the Proposal did not involve collusion or other anti-competitive practices.

11.2 No Discrimination. It shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246.

11.3 No Gratuity. It has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor or service to a Town employee, officer or agent in connection with the submitted Proposal or a resultant Agreement. It (including the Vendor's employees, representatives, agents, lobbyists, attorneys, and subcontractors) has refrained, under penalty of disqualification, from direct or indirect contact for the purpose of influencing the selection or creating bias in the selection process with any person who may play a part in the selection process, including the Selection Committee, elected officials, the Town Manager, Assistant Town Managers, Department Heads, and other Town staff. All contact must be addressed to the Town's Procurement Agent, except for questions submitted as set forth in Section 4 above. Any attempt to influence the selection process by any means shall void the submitted Proposal and any resulting Agreement.

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11.4 Financial Stability. It is financially stable, solvent and has adequate cash reserves to meet all financial obligations including any potential costs resulting from an award of the Agreement.

11.5 No Signature/False or Misleading Statement. Failure to sign the Proposal, or signing it with a false or misleading statement, shall void the submitted Proposal and any resulting Agreement.

12. Award of Agreement.

12.1 Selection. A Selection Committee composed of representatives from the Town will conduct the selection process according to the schedule listed on the cover page of this RFP. Proposals shall be opened at the time and place designated on the cover page of this RFP. The name of each Vendor and the identity of the RFP for which the Proposal was submitted shall be publicly read and recorded in the presence of witnesses. PRICES SHALL NOT BE READ. The Selection Committee shall award the agreement to the responsible and responsive Vendor whose Proposal is determined, in writing, to be the most advantageous to the Town and best meets the overall needs of the Town taking into consideration the scoring criteria set forth in this RFP. The amount of applicable transaction privilege or use tax of the Town shall not be a factor in determining the most advantageous Proposal. After the Town has entered into an Agreement with the successful Vendor, the successful Proposal and the scoring documentation shall be open for public inspection.

12.2 Form of Agreement. The selected Vendor will be required to execute an agreement for the Pumper Truck and services in a form acceptable to the Town Attorney. If the Town is unsuccessful in negotiating an Agreement with the highest-scoring Vendor, the Town may then negotiate with the second, then third, highest-scoring Vendor until an Agreement is executed. Town Council approval may be required. The Town reserves the right to terminate the selection process at any time.

12.3 Waiver; Rejection; Reissuance. Notwithstanding any other provision of this RFP, the Town expressly reserves the right to: (A) waive any immaterial defect or informality, (B) reject any or all Proposals or portions thereof and (C) reissue an RFP.

12.4 Protests. Any Vendor may protest this RFP issued by the Town, the proposed award of an Agreement, or the actual award of an Agreement. All protests will be considered in accordance with the Town Procurement Code.

13. Offer. A Proposal is an offer to contract with the Town based upon the terms, conditions and specifications contained in this RFP and the Vendor's responsive Proposal, unless any of the terms, conditions, or specifications is modified by a written addendum or agreement amendment. Provided, however, that no contractual relationship shall be established until the Vendor has signed, and the Town has approved, an agreement between the Town and the Vendor in the form acceptable to the Town Attorney.

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ARTICLE II. PROPOSAL FORMAT; EVALUATION

Upon receipt of a Proposal, each submittal will be reviewed for compliance with the Proposal requirements by the Selection Committee. Proposals shall be organized and submitted in the format as outlined below. Failure to conform to the designated format, standards and minimum requirements shall result in a determination that the Proposal is non-responsive. Additionally, the Selection Committee will evaluate based upon the criteria as outlined in this document. Points listed below are the maximum number of points possible for each criteria. If necessary, the Selection Committee may elect to conduct oral presentations/ demonstrations with selected Vendors and/or request site visits from Vendors still under active consideration, at no cost to the Town. Demonstrations may be requested to be held at a Town facility. The Town is not required to hold such presentations or demonstrations and is not obligated to provide Vendors with such an opportunity.

Section 1: General Information

5 pts

- A. One page cover letter as described in Article I, Section 2.3.
- B. Explain the legal organization of the Vendor. Provide identification information of the Vendor. Include the legal name, address, identification number and legal form of the Vendor (e.g., partnership, corporation, joint venture, sole proprietorship). If a joint venture, identify the members of the joint venture and provide all of the information required under this section for each member. If the Vendor is a wholly owned subsidiary of another company, identify the parent company. Provide the name, address and telephone number of the person to contact concerning the Proposal.
- C. Identify the location of the Vendor's principal office and the local work office, if different from the Vendor's principal office.
- D. Provide a general description of the Vendor that is proposing to provide the Pumper Truck, including years in business.
- E. Identify any contract or subcontract held by the Vendor or officers of the Vendor that have been terminated within the last five (5) years. Briefly describe the circumstances and the outcome.
- F. Identify any claims arising from a contract which resulted in litigation or arbitration within the last five (5) years. Briefly describe the circumstances and the outcome.
- G. Vendor Information Form (may be attached as separate appendix).

Section 2: Experience and Qualifications of the Vendor

5 pts

- A. Provide a detailed description of the Vendor's experience in providing similar services to municipalities or other entities of a similar size to the Town; specifically relating experience with respect to manufacturing fire pumper trucks.

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B. Vendor shall provide the Pumper Truck using an integrated approach. The cab and chassis, pump module, and apparatus body shall be assembled on the manufacturer's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from the Vendor and not split between manufacturers (i.e. body and chassis). No exceptions will be permitted to this requirement.

C. Provide a list of at least three (3) organizations of a similar size or similar operation to the Town in which work has been performed. This list shall include, at a minimum, the following:

- (i) Name of company or organization.
- (ii) Contact name.
- (iii) Contact address, telephone number and e-mail address.
- (iv) Type of services provided.

The above information must be current, as this will be used to verify references. Inability of the Town to verify references and evidence of manufacturing shall result in the Proposal being considered non-responsive.

Section 3: Project Approach

35 pts

A. Briefly describe the Vendor's approach to providing the required Pumper Truck and related services described in this RFP and its approach to contract management, including its perspective and experience with respect to design, assemble, testing, certification, delivery and maintenance of a fire apparatus. Describe any alternate approaches if it is believed that such an approach would best suit the needs of the Town. Include rationale for alternate approaches, and indicate how the Vendor will ensure that all efforts are coordinated with the Town's general objectives.

B. Vendors are required to complete the Specifications Questionnaire provided in Section B of this RFP. Vendors must provide a detailed description of any proposed specifications and/or construction methods that deviates from the Town specifications. Vendors shall provide drawings of any proposed alternative construction methods. Partial descriptions or general clarifications covering groups of sections of the specifications may result in the Proposal being considered non-responsive. Proposals taking total exception to the specifications contained herein shall be deemed non-responsive. If the subassembly manufacturer's name or brand name for a product is provided in a specification description, the product identified is the desired product to use. Vendors proposing the use of a product other than the named product must indicate such in the Proposal. Where the words "or equal" are used in a paragraph in reference to an identified product, Vendor may suggest an equal product substitution. Each Vendor is encouraged to provide descriptive literature with its Proposal on any equipment or features that are proposed in lieu of those named and/or described in the specifications. Submitted literature shall be an original and will be retained by the Town for use during the evaluation process.

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C. There shall be a **minimum of one (1)** pre-construction meeting before the successful Vendor begins assembly of the Pumper Truck. All specifications shall be reviewed and approved during the meeting and the Town and the Vendor shall sign off on the final drawings of the Pumper Truck. All travel, hotel and accommodations costs shall be the responsibility of the awarded Vendor. The meeting shall take place at the Fountain Hills Fire Department located at 16246 East Palisades Boulevard, Fountain Hills, Arizona 85268.

D. There shall be a **minimum of two (2)** pre-delivery meetings before the scheduled delivery of the completed Pumper Truck to the Town. The pre-delivery meetings shall take place at the facility where the finish work is being done. During the meetings, the Town shall confirm compliance with the agreed-upon specifications. This shall include all operational performance specifications. The awarded Vendor shall make provisions for three (3) Town representatives or their designees to attend the meetings. If the meetings take place outside of the Phoenix metro area, the Vendor shall make provisions that include the transportation and lodging costs of the Town representatives.

E. Vendor shall provide Fire Department personnel with instruction as to the proper use of the Pumper Truck, including but not limited to chassis, fire pump system, the apparatus and other equipment. Training shall be conducted by a factory-trained specialist who shall be responsible for complete instruction on the operation and maintenance of the Pumper Truck. Vendor shall provide mechanic training in the areas of operator preventive maintenance, safety, operation controls, routine repairs and adjustments, maintenance and service of the equipment. Vendor shall conduct a **minimum of three (3)** training sessions. Training sessions shall be held at the Town of Fountain Hills Fire Station No. 1 located at 16426 East Palisades Boulevard, Fountain Hills, Arizona 85268. The training specialist shall be available for a **minimum of three (3) days, eight (8) hours per day**, to provide thorough training of all fire personnel as instructed by Chief of the Fire Department. All travel costs and accommodations related to the training sessions shall be the responsibility of the awarded vendor.

F. Vendor shall have access to a local stocking parts dealer in the Phoenix, Arizona metro area for the proprietary parts used for the repair of the Pumper Truck. The Vendor shall list the size of the parts facility, the number of line items stocked and the value of those line items. Vendor shall make the designated parts facility available for inspection by the Town.

G. Vendor shall provide the following manuals and sheets to the Town upon delivery of the Pumper Truck. Three-ring binders filled with Vendor catalogs are unacceptable.

(i) Vendor shall provide **two (2) copies** of the completed apparatus and chassis operation and general maintenance manual. Vendor shall provide an electronic version of the manual in which provides hyperlinks to major categories and/or subjects from a content page. The manual shall encompass complete information for the Pumper Truck and Pumper Truck systems, including all accessories and/or options, including the (a) operator section of the manual describing each component, gauge and switch with proper operation and operational warnings, (b) maintenance section of the manual describing proper maintenance of the Pumper Truck for all systems and components supplied and (c) lubrication section of the manual showing all lubricant types and capacities for the vehicle, including diagrams to visually locate the lubrication points of

SECTION A

the Pumper Truck.

(ii) Vendor shall provide **2 two electronic copies** of all “as-built” wiring schematics and related diagrams for the entire Pumper Truck at the time of delivery (including electrical system, air system, etc.). As-built schematics for each system of the Pumper Truck shall be provided with hyperlinks to applicable components of the Pumper Truck drawings for the exact location within the Pumper Truck.

(iii) Vendor shall also provide **two (2) copies** of the Pumper Truck build sheet. The build sheet shall include the major assemblies used in construction of the Pumper Truck. Final inspection data including the serial numbers of the engine, transmission, axles and tires equipped on the Pumper Truck shall also be included on the build sheet.

Section 4: Project Schedule:

15 pts

A. Provide a proposed Pumper Truck schedule showing key Pumper Truck milestones, deliverables and a definite delivery date for the Pumper Truck. Complete design, assembly and delivery of the Pumper Truck shall be no later than **two hundred seventy (270)** calendar days after acceptance of the formal contract by the Vendor. Vendor shall be assessed a **two hundred dollar (\$200.00)** per day late fee for every calendar day that Vendor exceeds the delivery date provided in the Vendor’s Proposal. The delivery date shall be defined as the day that all of the following criteria have been met: (i) the equipment, accessories and manuals contained in the Vendor’s Proposal are complete and in possession of the Town, (ii) the applicable paperwork, including, M.S.O., title, invoices and inspection certificate, is in possession of the Town and (iii) all discrepancies between the equipment, accessories and manuals supplied to the Town and the specifications contained in the Vendor’s Proposal have been reconciled. The Vendor shall not be charged for delays due to fire, flood, riots, acts of God or any other circumstance beyond the Vendor’s control.

Section 5: Pricing

40 pts

Vendor shall submit the same number of copies of the Fee Proposal described in Article I, Section 2.6 in a separate, sealed envelope enclosed with the Vendor’s Proposal with the signature of the representative of the Vendor who is authorized to make such an offer. The Fee Proposal shall list the individual cost for each of the expenses associated with the Pumper Truck and shall provide sufficient detail to enable Town staff to evaluate all Pumper Truck costs.

Total Possible Points for Proposal:

100 pts

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ARTICLE III. ORAL INTERVIEWS; SCORING

In the event that a Vendor cannot be selected based solely on the Proposals submitted, up to three Vendors may be selected for oral interviews. The selected Vendors will be invited to participate in discussions with the Selection Committee on the date indicated on the cover page of this RFP and awarded points based upon the criteria as outlined below. Vendors may be given additional information for these oral interviews. These discussions will relate less to past experience and qualifications already detailed in the Proposals and relate more to identification of the Vendor's Pumper Truck approach and to an appraisal of the people who would be directly involved in this services for this RFP.

Oral Interview

5	General Information
5	Experience and Qualifications of the Vendor
35	Project Approach
15	Project Schedule
<u>40</u>	Pricing
100	Total Possible Points for Oral Interview

Total Points Possible for this RFP:

200 pts

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

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ARTICLE IV. VENDOR INFORMATION FORM

By submitting a Proposal, the submitting Vendor certifies that it has reviewed the entire RFP, any administrative information and, if awarded the Agreement, agrees to be bound thereto.

VENDOR SUBMITTING PROPOSAL

FEDERAL TAX ID NUMBER

PRINTED NAME AND TITLE

AUTHORIZED SIGNATURE

ADDRESS

TELEPHONE

FAX #

CITY STATE ZIP

DATE

WEB SITE: _____

E-MAIL ADDRESS: _____

**SMALL, MINORITY, DISADVANTAGED AND WOMEN-OWNED
BUSINESS ENTERPRISES (check appropriate item(s):**

- _____ Small Business Enterprise (SBE)
- _____ Minority Business Enterprise (MBE)
- _____ Disadvantaged Business Enterprise (DBE)
- _____ Women-Owned Business Enterprise (WBE)

Has the Vendor been certified by any jurisdiction in Arizona as a minority or woman-owned business enterprise?

If yes, please provide details and documentation of the certification.

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SPECIFICATIONS QUESTIONNAIRE

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ROAD TEST	<p>Upon completion of the apparatus and prior to delivery to the Town, a road test shall be conducted with the finished apparatus completely loaded. During this time, the apparatus shall not show loss of power and/or overheating. The transmission driveshaft or shafts and rear axle shall run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.</p> <p>The apparatus must be capable of accelerating to thirty-five miles per hour (35 mph) from a standing start within twenty-five (25) seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.</p> <p>The apparatus must be capable of achieving and sustaining a minimum of forty miles per hour (40 mph) on a ten percent (10%) grade on a two (2) mile non-stop road test. The apparatus must also be able to sustain thirty-five miles per hour (35 mph) on an eighteen percent (18%) grade.</p> <p>The fully loaded apparatus shall be capable of a minimum average speed of sixty miles per hour (60 mph) over varied terrain on a ten (10) mile non-stop road test.</p> <p>The Vendor shall furnish copies of the engine installation approvals, signed by the appropriate engine company, upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p> <p>The Vendor shall furnish copies of the transmission approval, signed by the transmission manufacturer, upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ROAD TEST (cont'd)	<p>The Vendor shall furnish copies of the front and rear axle approvals upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p> <p>The Pumper Truck shall meet all of the above testing criteria without any gauges or indicators exceeding normal limits. Failure of this test will require the Vendor to make changes in the Pumper Truck as needed to pass the test. Delivery date penalties shall continue to accrue</p>		
CAB AND CHASSIS	The cab and chassis shall be a medium four (4) door, 10' raised roof over crew and driver-officer area, aluminum tilt cab, built specifically for fire service by a publicly held U.S. parent company, specializing in chassis design for all fire service applications. The cab and chassis shall meet the requirements of the National Fire Protection Association Standard 1901, (latest edition).		
CHASSIS WARRANTY	The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months . The warranty period shall begin on the date the vehicle is delivered to the original purchaser. A copy of the warranty shall be included with the Proposal.		
CAB WARRANTY	The cab shall be warranted for a period of ten (10) years . The warranty will state that the cab shall be free of structural damage inside or out by rust and/or corrosion. A copy of the warranty shall be included with the Proposal.		
FRAME WARRANTY	The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the warranty shall be included with the Proposal.		
PAINT FRAME AND CHASSIS UNDERCARRIAGE	The chassis undercarriage, consisting of frame, axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with standard black paint. Paint shall be applied before airlines and electrical wiring is installed.		
CHASSIS WHEELBASE	The chassis wheelbase shall be less than 176".		
OVERALL HEIGHT	The height of the vehicle shall not exceed 10' from the ground.		
FUEL TANK	The fuel tank shall have a minimum capacity of fifty (50) gallons. The fuel tank shall be mounted under the frame, behind the rear axle with a three (3)- piece strap hanger assembly with a "U" strap bolted midway on the fuel tank front and rear so the tank can be easily lowered and removed for service purposes. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
FRONT BUMPER	A one (1) piece, 10-gauge, 304 polished stainless steel front bumper shall be provided. The bumper shall be 12" high, two (2)-rib wrap-around type. The bumper shall be extended 16" ahead of the cab.		
FRONT BUMPER APRON	The front bumper apron, if required shall be installed by the apparatus manufacturer.		
TOW HOOKS	Two (2) heavy duty steel tow hooks shall be installed under the bumper and bolted directly to the chassis frame with "grade 8" bolts. The tow hooks shall be painted black to match the chassis frame.		
AIR HORNS	Dual Grover Stutter tone 21" air horns shall be recessed in the front bumper on the passenger side. A 3/8" airline "teed" equal distance from each horn shall be installed.		
AIR HORN ACTUATION	The steering wheel horn button and a right side officer's foot switch shall accomplish air horn actuation.		
FRONT AXLE	The front axle shall be an ArvinMeritor.		
CHASSIS ALIGNMENT	The chassis frame rails shall be crosschecked for length and squareness. Front and rear axles shall be laser aligned. Tires and wheels shall be aligned and toe-in set on the front tires at the chassis manufacturer's facility. The completed apparatus should be rechecked for proper alignment after the chassis has been fully loaded.		
ANGLE OF APPROACH / DEPARTURE	The angles shall be as close to 15/20 degrees as possible.		
FRONT AXLE CRAMP ANGLE	The front axle cramp angle shall be a minimum of 48 degrees.		
FRONT TIRES	The front tires shall be Goodyear tubeless radial highway tread.		
FRONT WHEELS ALCOA ALUMINUM	The front wheels shall be Alcoa hub piloted, polished aluminum wheels.		
FRONT WHEEL BEARINGS OIL LUBRICATED	The front axle wheel bearings shall be oil lubricated and come equipped with an oil level visual inspection window.		
FRONT SHOCK ABSORBERS	Two (2) Bilstein monotubular design, nitrogen gas charged shock absorbers shall be part of the front axle suspension. Bilstein shall warranty the shock for a period of five (5) years .		
STEERING COLUMN AND WHEEL	The steering column shall be a multi-position tilt and telescopic type with an 18" steering wheel. The steering wheel shall be covered with black absorbite padding. The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.		
FRONT BRAKES	The front brakes shall be drum S-cam type with ArvinMeritor automatic slack adjusters.		
TELMA FOCAL RETARDER	No alternates allowed.		
REAR AXLE	The rear axle shall be an ArvinMeritor.		
TOP SPEED	The top speed of the vehicle shall be 60 – 65 mph at governed engine RPM.		

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**TOWN OF FOUNTAIN HILLS
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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
REAR BRAKES	The rear brakes shall be drum S-cam type with ArvinMeritor automatic slack adjusters.		
ABS BRAKE SYSTEM	An anti-lock braking system (ABS) shall be installed on the front and rear axles for safer vehicle control during braking and reduced stopping distance in skid conditions. The electronic monitoring system shall incorporate diagonal circuitry to monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. A momentary test switch shall be installed to test the system for diagnostic codes. The ABS system shall automatically disengage the auxiliary braking system device when required.		
ABS BRAKE SYSTEM	The ABS system shall have a three (3) year or 300,000-mile warranty.		
REAR TIRES	The rear tires shall be Goodyear tubeless radial highway tread.		
REAR WHEELS ALCOA ALUMINUM	The single rear axle wheels shall be Alcoa hub piloted, polished aluminum wheels.		
OIL LUBRICATED REAR WHEEL BEARINGS	The rear axle shall have oil lubricated wheel bearings.		
REAR SUSPENSION	The spring capacity must meet or exceed the capacity of the rear axle.		
AXLE COVER KIT STAINLESS STEEL (ALL WHEELS)	The front and rear wheels shall have aluminum or stainless steel lug nut covers. The front axles shall be covered with aluminum baby moons with hole to view oil seal window. The rear axles shall be covered with foam mounted aluminum or stainless steel high hats. The lug nut covers, baby moons and high hats shall meet D.O.T. certification standards. All baby moons and high hats shall carry a lifetime warranty .		
AIR BRAKE SYSTEM	A FMVSS 121 and NFPA rapid build-up, compliant air brake system shall be provided. A floor mounted treadle valve shall be mounted in the cab for service brake application. Emergency braking shall be modulated through an inversion valve. A hand control valve shall operate the parking brake system. The rear axle spring brakes are to automatically apply in case of air pressure loss, with a mechanical means for releasing the spring-brake chambers.		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
AIR DRYER	<p>A Meritor Wabco system saver 1200 spin-on desiccant air dryer with a 12-volt, 100-watt automatic heated moisture ejector and integrated ECON valve shall be installed in the air brake system and shall be located in an area that is easily accessible for maintenance.</p> <p>The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor “unload” cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure.</p>		
MANUAL DRAINS ON AIR TANKS	Manual pull style drains shall be installed on all reservoirs of the air brake system. They shall be easily accessible from the outside of the vehicle.		
NYLON AIR LINE TUBING	A dual air system plumbed with color-coded reinforced nylon tubing air lines shall be installed, (a) the primary (rear) brake line shall be green, (b) the secondary (front) brake line shall be red, (c) the parking brake line shall be orange and (d) the auxiliary (outlet) shall be blue. Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall be fiber reinforced neoprene covered hoses.		
AIR COMPRESSOR	The air compressor on the engine shall be gear driven, engine oil pressure lubricated and cooled by the engine cooling system.		
ENGINE	<p>A Cummins ISX12 liter/500 HP with the ability to override the regeneration cycle shall be provided, and shall not Derate power due to low DEF Fuel Levels. A spin on engine coolant filter with shut-off valve shall be provided.</p> <p>An engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge shall be part of the engine’s lubrication system.</p>		
ENGINE WARRANTY	The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.		
ENGINE OIL LEVEL CHECK	A low engine oil level switch shall be provided that will indicate when the engine oil is approximately four (4) quarts or below. The switch shall light a red “LOW OIL LEVEL” indicator light in the dash. The indicator shall only function while the ignition switch is on and the engine is not running.		
EXHAUST SYSTEM	The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires with a turn down.		
COOLING SYSTEM FAN	The fan shall automatically lock-up when the vehicle is placed in pumping mode.		
ENGINE PUMP HEAT EXCHANGER	A single-bundle type coolant to water heat exchanger shall be installed.		

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SECTION B

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TRANSMISSION	The transmission shall be an Allison 4000 EVS automatic with electronic controls. The transmission will have two (2) 10-bolt PTO pads. THE TRANSMISSION GEAR RATIOS SHALL ENABLE THE VEHICLE TO CLIMB AN 18% GRADE AT 35 MPH.		
TRANSMISSION TOUCH PAD	An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and reach.		
TRANSMISSION MODE	The transmission, upon start-up, will select five (5)-speed operation.		
TRANSMISSION WARRANTY	The Allison 4000 EVS series transmission shall have a five (5) year/unlimited mileage warranty covering 100% parts and labor. The transmission must be filled with transynd synthetic fluid or Allison approved equal.		
DRIVELINES	All drivelines shall be Spicer heavy-duty series with “glide coat” splines on all slip shafts.		
MULTIPLEX ELECTRICAL SYSTEM WITH COLOR DISPLAY OR EQUIVALENT	A Weldon multiplex electrical system shall be supplied. The system shall be a single starting type, installed per N.F.P.A. 1901. The electrical system shall be 12-volt, suppressed per SAE J551 with six (6) Optima SC 31 DS batteries and welding type starter cables per SAE J541. The Multiplexed wiring system shall include dash or engine tunnel mounted information center LCD screen.		
LED Ground Lighting	The cab shall be equipped with LED lighting under each cab door, below pump panel, opposite side of pump panel, one under L3, L4 compartments and one under each side of rear of truck, lighting the ground to the rear of apparatus. The lights shall be activated by parking brake activation.		
Alternating Headlights	An alternating high beam headlamp flashing system shall be installed into the high beam headlamp system that will allow the high beams to flash alternately from left to right. The completed system shall be capable of using high-beam to override flashing function and will flash high beams only when the low beam headlamps are selected.		
Audible and Visible Alarm for Open Door Light	An audible and visible alarm shall be wired to the open door light, which will sound when a door is open and the air brake is off with the vehicle in gear.		
BATTERY JUMPER STUDS	Battery jumper studs shall be provided in the driver’s step-area. The studs allow the vehicle to be jumpstarted or the cab to be raised in an emergency due to battery failure. Power and grounding studs shall be provided and installed behind the electrical center cover with a breaker.		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ALTERNATOR	Alternator shall be a Leece Neville_40 SI with battery voltage sense wire.		
SUPER AUTO EJECT 20 AMP KUSSMAUL	A Kussmaul 20 amperes Super auto-eject electrical receptacle with a Red weatherproof cover and box shall be installed on the left side of the cab above the wheel well. It shall automatically eject the plug when the starter button is depressed.		
BATTERY CONDITIONER KUSSMAUL	A Kussmaul Auto Charge 35/10, 35 amperes battery conditioner and 10 amperes power supply shall be installed in the cab behind the driver's seat. The conditioner shall incorporate a 10 amperes Battery Saver to provide a 12-volt power supply for a mobile data terminal, radio or hand held lights. The Battery Saver shall automatically disconnect the accessory loads from the battery when the shoreline is plugged in and power them from an internal power supply. The remote charge indicator shall be located near the receptacle.		
BACK-UP CAMERA	Shall be equipped with back-up camera with display on multiplex system.		
BACK-UP ALARM	An NFPA compliant back-up alarm shall be installed at the rear of the chassis with an output level. The alarm will automatically activate when the transmission is placed in reverse.		
NFPA APPROVED UPPER LIGHTING PACKAGE	A Whelen, NFPA 1901 certifiable LED upper level lighting package shall be provided which consists of the following equipment:		
WARNING LIGHTS ZONE A UPPER WHELEN	Option Five NFPA Edge Ultra Freedom LED Light bar with Global Traffic Technologies Traffic emitter in front center of light bar. The emitter and white lights will deactivate when parking brake is set.		
WARNING LIGHTS ZONE A LOWER WHELEN	Option Five super LED red flasher surface mount next to front turn signals. Additional lights mounted on the sides of the front bumper. Two Whelen LED 500 series red warning lights shall be installed, one on each cab side over the front wheel wells to act as intersection lights.		
LOWER ZONE B WHELEN PUMPER PACKAGE ONE	Option Six super LED red flasher surface mount over rear wheel well.		
LOWER ZONE D WHELEN PUMPER PACKAGE ONE	Option Six super LED red flasher surface mount over rear wheel well.		
ZONE C UPPER WHELEN	Option Six – super LED red flasher surface mount on upper rear left and right corners rear facing. Whelen traffic advisor series TAM63.		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ZONE C LOWER WHELEN	Option Five super LED red flasher surface mount with brake/tail, turn and reverse lights.		
SCENE LIGHTS	Upper zone B - Whelen model scene light mounted recessed raised roof section. Two (2) on each side. Lights to be individually controlled by Vista IV module. Upper zone D - Whelen scene light mounted recessed raised roof section. Two (2) on each side. Lights to be individually controlled by Vista IV module.		
REAR DOT LIGHTING	Rear DOT lighting shall be provided and consist of the following:		
Back-Up Lights	A pair of clear back-up lights shall be provided at the rear of the body, one on each side. The above DOT taillights shall be provided with a Cast 4V aluminum frame at the rear of the body, one on each side. The frames shall have a bright aluminum finish and shall include a space for a 6" X 4" lower zone "C" Whelen super LED red flasher warning light. Two (2) Zico lights shall be provided and installed above the rear wheels. There shall be one (1) on each side of the apparatus body. The lights shall activate when the vehicle is placed in reverse gear. The lights shall be able to be activated with a switch in the cab as well.		
License Plate Bracket And Light	One (1) license plate mounting bracket and light shall be provided at the rear of the body.		
Rub Rail Clearance Lights	Rub rails shall have Truck-Lite LED clearance lights provided at the side and rear of the body. Lights shall be recessed into the side facing vertical surfaces of each rub rail.		
Cluster Lights	Three (3) recessed Truck-Lite red LED marker lights shall be provided at the center of the rear step-area.		
Pump Compartment Light	One (1) LED light with manual switch on the pump panel shall be provided inside the pump compartment. Light shall be place within reach of the pump and plumbing compartment access door.		
Compartment Lights	A minimum of two (2) Whelen tube/rope LED lights shall be installed in each side wall of the specified enclosed compartment.		
Compartment Door Switches	All compartments shall be equipped with two (2), single function automatic compartment door switches. One (1) switch shall control the corresponding compartment light(s) and one (1) shall activate the flashing door hazard warning light located in the cab.		

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HAZARD WARNING AND DOOR AJAR LIGHT - DASH	One (1) surface mounted light shall be provided near the center of the cab dash area in easy view of the driver and the officer. The light shall flash whenever a compartment door or other possible hazard on the apparatus is open, extended or ajar. The light shall be wired directly into the door ajar switch and hazard circuit. This light shall have a red lens. The hazard warning light shall be marked with a tag stating “DO NOT MOVE APPARATUS WHEN LIGHT IS ON.”		
FRONT AND REAR ROLL DOWN DOOR WINDOWS	The front doors shall have a full roll-down window. The rear doors shall have a roll-down window.		
INNER DOOR PANELS ZOLATONE PAINTED	The inner door panels shall be aluminum panels. A “Fireman Friendly” cast steel pull handle shall be included with the front door panel.		
DOOR WARNING	Four (4) Chevron reflective signs shall be installed on the lowest portion of the inner door panels, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.		
ENGINE COVER	The fixed cover shall be an integral part of the cab. The engine side of this area shall be heavily insulated with multi-layer insulating materials. All exposed insulation seams and edges are sealed to reduce moisture contamination and debris build-up.		
MOBILE DATA TERMINAL, HEADSETS AND RADIO PROVISION W/GLOVE COMPARTMENT	<p>A Mobile Data Terminal (MDT) provision shall be provided above the glove Compartment. A 20 amp 12 AWG clean power and ground circuit will be provided to the MDT area.</p> <p>Sigtronics headsets, five (5) positions, three (3) push to talk, Captain, Engineer and Pump panel.</p> <p>Provide a console and pre-wire for 2 mobile radios. Provide pre-wire for 4 portable radio chargers (locations to be determined at pre-build).</p> <p>Radios shall be programmed with Fountain Hills Fire Department frequencies by Vendor (FHFD will provide frequencies).</p>		
FULL WIDTH CREW CAB DOOR ASSIST RAILS	Black powder coated cast aluminum assist rails shall be provided and installed on the inside of the rear crew doors the full width of the window glass. The rails shall assist personnel in exiting and entering the cab. The rails shall be located at the retracted door window glass level and will protect the exposed window glass area.		
INTERIOR LIGHTING	<p>The cab interior lighting shall consist of the following:</p> <ul style="list-style-type: none"> • A red/white LED dome lamp shall be located over each door. The white lamp shall be activated by its respective door when opened and both activated by an individual switch on the light. 		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
INTERIOR LIGHTING (cont'd)	<ul style="list-style-type: none"> • A red/white LED dome lamp with individual switches shall be located in the headliner, over the engine tunnel to serve as a tunnel surface light. 		
FLASHING DOOR AJAR LIGHT	A red LED flashing door ajar light shall be located in the headliner, centered in the cab. The light shall be 6.00" long x 2.50" wide x 1.75" high and labeled "Do Not Move Apparatus". The light shall be wired to indicate an open door on the cab when the parking brake is released.		
ENGINE TUNNEL LIGHT	A Trucklite 4" diameter clear work light shall be provided and installed under the engine tunnel.		
FABRIC COVERED SEATS - DURABLE BALLISTIC POLYESTER	The seats shall be covered with a high strength, wear resistant fabric of durable ballistic polyester. A PVC coating shall be bonded to the backside of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.		
GRAY SEAT COLOR	All seats supplied on the chassis shall be gray in color.		
SEATBELT WARNING SYSTEM	<p>A seatbelt use warning system shall be installed in the chassis. The system will provide a visual and audible warning when all of the following conditions are met:</p> <p>(a) Any seat is occupied (sixty pounds minimum).</p> <p>(b) The corresponding seat belt(s) remains unfastened.</p> <p>(c) The park brake is released.</p> <p>Once activated, the visual and audible indicators will remain active until all occupied seats have the seat belts fastened.</p>		
DRIVER SEAT	<p>The driver's seat shall be a four (4)-way air suspended type Seats Inc. 911 "Universal" high back seat with air control valve located at lower front of seat. Or equivalent. The suspension mechanism shall be enclosed by a rubber bellows.</p> <p>The seat shall be equipped with an adjustable lumbar support, adjustable titling seat back and "knee rake" bottom cushion adjustment. The seat shall be equipped with a red three (3)-point shoulder harness with lap belt and an automatic retractor attached to the cab.</p>		
OFFICER SEAT	The officer's seat shall be a Seats Inc. 911 "Universal" high back seat, or equivalent. If seat is mounted on a box frame, it shall provide storage with a latching door.		
REAR FACING OUTBOARD SEATS	<p>Two (2) outboard rear facing crew area Seats Inc. 911 "Universal" SCBA high back individual seats shall be installed in the rear of the cab.</p> <p>Each "Universal" high back seat shall include a tapered and padded seat cushion and back.</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
REAR FACING OUTBOARD SEATS (cont'd)	Each seat back shall include a vertically split hinged headrest and ZICO "ULL" bracket with LLS strap. A removable padded vinyl cover shall be supplied over the SCBA cavity. Two (2) forward facing seats (fold down type).		
HVAC SYSTEM	The cab shall be equipped with a ceiling mounted HVAC system. The system shall consist of an overhead heater/defroster/air- conditioning unit mounted above the engine tunnel in a central location with climate control through VMUX.		
ADDITIONAL INSULATION PACKAGE	Additional insulation in the cab shall be installed (where available) to improve air-conditioning and/or heating in extreme weather climates as well as reducing road noise.		
CAB TILT ACTUATION	The entire cab shall tilt 45 degrees to allow for easy maintenance of the engine and transmission. The cab tilt actuation shall be with an electric over hydraulic lift pump located with easy access for repair/replacement with cab down, with a control box mounted inside right side pump compartment with removable panel or access door. Cab tilt shall have the capability of being lifted with a manual cab jack pump in the event of electrical failure. The lift system shall have an ignition interlock and red lockdown indicator lamp, which shall illuminate when holding "down" switch to indicate safe road operation. It shall be necessary to activate the master battery switch with the park brake set in order to tilt the cab. A steel safety assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety assembly shall fall over the lift cylinder when the cab is in the "up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab. Fluid level dipsticks shall be accessible without having to raise the cab.		
WHEEL WELL LINERS	Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning.		
EXTERIOR CAB ASSIST HANDLES	Four (4) 18" knurled anti-slip one-piece exterior assist handles shall be installed, one (1) behind each cab door. The assist handle shall be made of 14-gauge, 304 stainless steel 1.25" diameter to enable easy grabbing with the gloved hand.		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
CAB MIRRORS	Two (2) Ramco model 6015-FFR-750 mirrors shall be provided. Vision, motorized and non-heated.		
TWO TONE PAINT	The cab shall be painted two-toned with a finished break line 1.5” below the cab side windows and down to the top of the grill on the cab front fascia. The top portion will be white and the bottom portion will be red (using Fountain Hills Fire Department approved colors). A 3/4” K Tape 4167 Engine turned Gold leaf stripe with black boarders shall be applied on the break line between the two different colored surfaces. The roll-up compartment doors shall be unpainted and left in a natural metal color.		
ENGINE AND TRANSMISSION OPERATION MANUAL	Two (2) engine operation and maintenance manuals and two (2) transmission operation manuals shall be included in the Spartan operator’s manual (digital copies are acceptable).		
FIRE EXTINGUISHER	A 2.5 pound BC D.O.T approved fire extinguisher shall be shipped loose with the cab.		
CHASSIS ELECTRICAL REQUIREMENTS	The apparatus chassis shall be equipped with heavy-duty 12-volt negative ground system. The electric system shall include all parts, components, switches, relays, wiring, and other devices necessary to assure complete and proper operation. All warning lights shall be controlled through VMUX.		
CHASSIS ELECTRICAL TRAFFIC WARNING SYSTEM	The following traffic warning system shall be provided and installed to the specified cab and chassis by the apparatus builder.		
Electronic Siren	One (1) NFPA compliant electronic siren shall be provided and mounted in the cab in a location convenient to the driver and the officer. The siren will be full feature with manual, wail, yelp and Hyper Yelp sound modes, as well as public address and radio rebroadcast. Siren will have a hard-wired noise-canceling microphone for use with the P.A. system. Siren shall be wired to the specified speaker(s).		
Speaker	One (1) Federal, BP100F 100 watt chrome plated speaker shall be provided and mounted in the front bumper. Speaker shall be wired to the siren system.		
Mechanic Siren	One (1) Federal Q2B-P mechanical siren shall be provided at the front of the apparatus and shall be located under the front bumper extension and recessed behind the front bumper. The siren shall have two (2) foot operated switches, one (1) on each side of the cab floor, and a siren brake switch centered in the cab in reach of both the driver and the officer. Sufficient bracing shall be provided underneath the siren for support against vibration.		

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MECHANICAL AND ENVIRONMENTAL TEST	All optical warning devices shall be tested to the requirements of SAE J595, <i>Flashing Warning Lamps for Authorized Emergency, Maintenance, and Service Vehicles</i> , SAE J845, <i>Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles</i> , SAE J1318, <i>Gaseous Discharge Warning Lamp for Authorized Emergency, Maintenance, and Service Vehicles</i> , or SAE J1889, <i>L.E.D. Lighting Devices</i> .		
COMPLIANCE DOCUMENTATION	The apparatus manufacturer shall demonstrate compliance of the warning system by one of the following methods: (a) Certification that the system was installed within the geometric parameters specified by the manufacturer of the system and referencing the optical source test reports provided by the manufacturer of the system. (b) Certification that a mathematical calculation based on test reports for individual optical sources provided by the manufacturer of the devices and performed by a qualified person demonstrates that the combination of individual devices as installed meets the requirements of this standard. (c) Actual measurement of the lighting system after installation on the apparatus.		
CHASSIS ADDITIONS AND MODIFICATIONS	The following additions and modifications to the specified cab and chassis shall be provided and installed by either the apparatus builder or the chassis manufacturer.		
Chassis Fluids Plate	A permanently mounted plate showing fluid levels and types shall be provided in the driver's compartment in easy view. This plate shall show the quantity and types of fluid for the following items: (a) Engine Oil (b) Pump Transmission Lubrication Fluid (c) Engine Coolant (d) Pump Primer Fluid (e) Transmission Fluid (f) Drive Axle Lubrication Fluid		
Vehicle Warning Height Plate	A vehicle height warning tag shall be provided and installed.		

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Final State Manufacturer Vehicle Certification Plate	A Final Stage Manufacturer Vehicle certification tag shall be provided and installed.		
Air Filter Ember Protection Screen Inspection Tag	One (1) warning tag shall be provided and installed on the dash and shall read, “This Apparatus is equipped with an Air Filter Ember Protection Screen, Routine Inspection is required.”		
PTO Shift	A PTO shall be supplied to accommodate PTO driven generator and CAF compressor. The PTO shall be equipped with an air power shifting mechanism with a shift control located in the cab. A two position positive locking air shift control shall be supplied by the PTO manufacturer.		
Tow Eyes	Two (2) heavy-duty tow eyes shall be provided at the rear of the apparatus, extending through the rear of the body. Tow eyes shall be attached directly to the rear frame rails and shall be threaded for removal purposes when not required.		
Front Bumper Extension	The chassis shall be ordered with extended front frame rails. Additional steel under-structure shall be added and covered with aluminum diamond tread plate. The ends of extension shall be boxed in for added strength and a pleasing appearance. Two (2) hose guide rollers shall be mounted on vertical stanchions on each forward outer corner to protect cab from hose damage.		
Hose Tray	The hose compartment in the front bumper shall be capable holding the quantity of hose listed below. The compartment shall be provided with drain holes and have rubber floor matting on the bottom for air circulation. A hinged door shall cover the compartment and the tray shall carry 200’ of 1 3/4” double jacket fire hose. The compartment shall be pre-plumbed with 2” flexible wire hose with a 90 degree swivel with 1.5” NST male threaded outlet mounted inside box. A 3/4 auto drain shall be installed in plumbing as close to the compartment as possible.		
Mud Flaps – Rear Wheels	One (1) pair of flexible rubber mud flaps shall be provided on both sides of the apparatus behind the rear wheels. The mud flaps shall extend down far enough to be effective but not allow the flap to be entangled with the wheel when backing up.		
APPARATUS BODY DESCRIPTION	<p>Body Design Body shall be designed for fire service use only; no commercially designed bodies for use in other industries are acceptable in quality, construction, design or longevity.</p> <p>Body shall be built in two sections, which separates the pump module from the body and compartment module. The front portion of the pump compartment structure (directly behind the cab) shall not be overlaid, to provide</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
APPARATUS BODY DESCRIPTION (cont'd)	<p>an opening for access to the pump area. Each module shall utilize a full sub- frame, separate from the chassis, and incorporated into the body superstructure.</p> <p>Body Construction The apparatus body shall be totally constructed and assembled in a facility owned and operated by the manufacturer.</p> <p>Pre-fabricated bodies or bodies which are purchased from a sub-contracting company will not be acceptable.</p> <p>The pump compartment module shall be constructed featuring a structural superstructure for both vertical and horizontal cross-members. The body module shall be constructed featuring a structural superstructure for both vertical and horizontal cross-members and utilize individual inset compartmentation. Body construction shall be in accordance with current NFPA standards. Strict attention shall be given to the elimination of hazards to personnel and equipment, such as rough edges, sharp corners, or protruding nuts and bolts. All exposed welded corners on aluminum tread plate shall be ground smooth and polished. All exposed corners shall be radiused and deburred.</p> <p>Body and pump compartment to be completely modular in design, thereby allowing its transfer to a new chassis because of age or accident.</p> <p>Body Material All materials utilized shall be of the correct type, alloy, and thickness to withstand the intended usage and provide protection against cracking, corrosion or metal fatigue. All materials utilized shall be of open stock origin, commonly available through local sources, for rapid and economical repair or modification of the body.</p> <p>Walkways/Drip Moldings The tops of both the left and right side compartments shall be covered with .125" aluminum tread plate. Tread plate shall be formed down ninety degrees at front rear and outside edges, with the outside edge flanged out to provide a full-length drip molding above the side compartment doors. All corners shall be welded, ground and polished. Bright formed stainless drip moldings shall be installed above all other compartment door openings.</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
APPARATUS BODY DESCRIPTION (cont'd)	<p>Vertical Surfaces The vertical surfaces at the front of the compartments next to each pump panel, at the rear of the compartments, and at the rear of the body between the beavertails, including the inside surfaces of the beavertails below the hose bed, shall be covered with polished aluminum tread plate for appearance, wear, and enhanced visibility at night. The inside surface of the beavertail at the hose bed exit above the aluminum tread plate shall be covered with 14-gauge brushed-finish stainless steel to provide protection against hose abrasion and paint damage from hose couplings.</p>		
HANDRAILS	<p>All handrails on the body shall be constructed of round extruded aluminum stock, with three black rubber inserts for a firm grip. Handrails will be a minimum of 1-1/4" in diameter, and be secured against rotation in matching, chrome plated end stanchions.</p> <p>One (1) horizontal handrail shall be installed below and spanning the width of the hose bed exit area. This handrail shall be located so as to prevent interference with hose loading and unloading operations. Chrome plated stanchions shall be installed at both ends and the center of this handrail.</p>		
RUNNING BOARDS	<p>A running board shall be provided on the body below each side pump panel. A tubular perimeter framework shall support each running board and inset with Diamondback non-skid serrated aluminum tread. Each running board shall have an anodized aluminum channel along the outward facing edge, providing a rub rail. Recessed clearance lights shall be installed in the vertical rub rail surface. Each running board shall be set out to allow for water runoff and to minimize body damage in the event of an accident.</p>		
REAR STEP	<p>A beaver tail type tailboard step shall be constructed of a structural tubing framework, inset with Diamondback non-skid aluminum tread with 24" standing slide out platform. The entire step shall not exceed 3 inches beyond the width of the rear compartments.</p> <p>A warning plate shall be affixed to the rear of the apparatus in a conspicuous place and shall read: "WARNING, DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION, DEATH OR SERIOUS INJURY MAY RESULT"</p>		
FOLDING STEP	<p>Six (6) large chrome plated folding steps shall be provided and installed at the rear of the apparatus. The steps shall be constructed of die cast aluminum with a 35 square inch non-skid serrated surface and shall be spring loaded in the down and closed position. The steps shall</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
FOLDING STEP (cont'd)	<p>have a static load rating of 800 psi, and the apparatus-mounting surface shall be provided to withstand 500 psi, meeting NFPA recommendations. Adequate step illumination shall be provided.</p> <p>Two (2) additional steps mounted at the pump panel and passenger side. To aid in accessing Dunn age area.</p> <p>Steps will have LED actuated lighting when folded down.</p>		
BODY FLEX JOINT	<p>The pump compartment and any specified compartments in front of the pump panel shall be split from the main body behind the pump panels. This split shall consist of each section being a separate structure to allow for greater flex of the entire apparatus without extra stress being put on the body.</p>		
COMPARTMENTATION	<p>All compartments shall be welded for strength and shall be sealed from the elements.</p> <p>All compartment floors shall be sweep-out in design and shall be reinforced by a formed .125" aluminum brace, running full width between, and welded to, the extension of the side walls below the floor.</p> <p>All compartments shall be attached to the aluminum super structure only, in order to maintain a truly modular design.</p> <p>All compartments shall be individual and free standing. No compartments shall have any common walls, floors or ceilings, unless so designed to be transverse with an adjacent compartment.</p> <p>All closed compartments shall be water and dust tight, and shall contain louvers. Moisture barriers shall be placed behind the louvers in such a way as to prevent water infiltration and allow for ventilation to the outside of the compartment.</p> <p>All compartment and shelf floors shall be lined with dry decking.</p> <p>All compartments shall be as large as possible, as determined by the design of the apparatus.</p> <p>Approximate required compartments sizes are listed herein.</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
DRIVER'S SIDE COMPARTMENTS	<p>One (1) rescue style compartment shall be provided on the driver's side of the apparatus body forward of the rear wheels. The compartment shall extend from behind the pump panel to the front of the wheel well area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth. Compartment shall include three (3) pull-out shelves.</p> <p>One (1) rescue style compartment shall be provided on the driver's side of the apparatus body behind the rear wheels. The compartment shall extend from behind the wheel well area to the front of the rear tailboard area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth. Compartment shall include two (2) pull-out shelves.</p> <p>One compartment shall be provided above the rear wheels on the driver's side of the apparatus body. Compartment shall span between the rescue style compartments. The rear wall shall extend back but shall not common with the water tank. The rear wall of the compartment shall be designed so that holes can be drilled to mount equipment without damaging the water tank. Compartment shall include one (1) drop down slide out tray that angles down on extension.</p>		
PASSENGER'S SIDE COMPARTMENTS	<p>One (1) rescue style compartment shall be provided on the passenger's side of the apparatus body forward of the rear wheels. The compartment shall extend from behind the pump panel to the front of the wheel well area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth.</p> <p>Power plugs to this compartment for EMS suction units and flashlights. This compartment must also have a remote activated lock. Remote device will be inside the cab by the rear passenger door. Compartment will include three (3) adjustable shelves.</p> <p>One compartment shall be provided above the rear wheels on the passenger's side of the apparatus body.</p> <p>Compartment shall span between the rescue style compartments. The rear wall shall extend back but shall</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
PASSENGER'S SIDE COMPARTMENTS (cont'd)	not common with the water tank. The rear wall of the compartment shall be designed so that holes can be drilled to mount equipment without damaging the water tank. (1) One drop down slide out tray that angles down on extension.		
REAR COMPARTMENT	One compartment shall be provided at the lower center rear of the apparatus body, above the rear step, between the two rear side compartments, height as much as allowable and still accommodate roll up door. The back wall of this compartment shall be provided with a separate pre-plumbed internal compartment to accommodate 200' of 1" forestry hose/nozzle with latched drop down hinged door. Rear compartment back wall shall have a removable bolt in panel to gain access to the fuel tank sender, tank mounts, airlines or other normal maintenance items that would otherwise not be accessible. This panel shall be sealed to prevent leakage from overflow.		
COMPARTMENT ROLL-UP DOOR	<p>All roll-up doors on specified compartments shall be designed to open completely out of the way and shall use a roll configuration to have a maximum of 6" intrusion into the compartment space. Roll-up doors shall not reduce the clear door opening as specified.</p> <p>Door shall be manufactured by ROM and constructed of double wall anodized aluminum slats. Nylon end shoes to slide in the track will be provided on each slat to assure smooth operation and will not require constant lubrication.</p> <p>Each slat shall be designed with an interseal to prevent water from entering the compartment, absorbing shock and eliminating clatter.</p> <p>Doors shall be designed to work in extreme temperature ranges. The latch shall be a lift bar lock to allow one-hand opening. Roll-up doors will be left unpainted.</p>		
ROLL-UP DOOR - REAR COMPARTMENT	<p>A roll-up door shall be provided for the specified rear compartment.</p> <p>Door shall be manufactured by ROM and constructed of double wall anodized aluminum slats. Nylon end shoes to slide in the track will be provided on each slat to assure smooth operation and will not require constant lubrication.</p> <p>Each slat shall be designed with an interseal to prevent water from entering the compartment, absorbing shock and eliminating clatter.</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ROLL-UP DOOR - REAR COMPARTMENT (cont'd)	Doors shall be designed to work in extreme temperature ranges. The latch shall be a lift bar lock to allow one-hand opening.		
ADJUSTABLE SHELF CHANNEL	Vertically mounted Unistrut channels shall be provided and installed in each compartment specified for the installation of infinitely adjustable shelving. The design of the channels shall allow square type spring loaded, self-tightening nuts to be attached inside of the channel.		
FENDERS AND WHEEL WELLS & WHEEL WELL COMPARTMENTS	Both rear wheel wells of the apparatus body shall be provided with fenders and full liners. Rear fenders shall be constructed of No. 304 stainless steel, contoured to match the perimeter of the wheel well opening. The fender shall extend out from the body approximately 1" and shall have a 1-1/4" radius. The fender shall be bolted to the wheel well liner and/or the body to allow for easy replacement in the event of damage. A rubber gasket shall be provided between the fender and the surface of the body to protect the finish and seal against moisture. Full-width wheel well liners shall be provided to deflect road splash away from the apparatus body interior. Wheel well liners shall be contoured to match the shape of the fenders. Wheel well liners shall be sized to provide ample clearance for chains fitted to the specified size of wheel and tire and shall be bolted to the quarter panel and the fender to allow easy replacement in the event it is damaged. The vertical body quarter panels spanning between the rear wheel wells and the apparatus body super-structure shall be constructed of the same material as the body, and welded completely to the body structure to provide a seam free surface. The quarter panels shall be painted to match the body. Forward driver side wheel well compartment will house three (3) SCBA cylinders. Rear driver side wheel well compartment will have access to fuel cell and have a small compartment. Forward passenger side wheel will house three (3) SCBA cylinders. Rear passenger side will house three (3) air bags (small, medium and large) and pressurized water can.		
FUEL FILL CUP AND DOOR	One (1) Cast Product fuel fill cup shall be provided on the left rear quarter panel inside the wheel well compartment.		
RUB RAILS	Body rub rails shall be constructed using extruded, anodized aluminum channel. They shall be installed along the lower edge of both sides of the apparatus body. Rub rails shall be 2" in height and protrude 1-1/4" for protection of the apparatus body and compartment doors. Rub rails shall include rubber end caps at the ends to provide protection and a pleasing appearance.		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
RUB RAILS (cont'd)	Rub rails shall be attached with threaded fasteners with spacers to be easily removed for repair or replacement.		
STORAGE COMPARTMENT ABOVE PUMP	<p>An open top storage area shall be provided above the pump compartment and in front of the main hose bed area. This storage area shall be provided with a removable aluminum diamond plate floor for traction and access into the pump compartment. The rear wall of this structure shall form the bulkhead separating this compartment from the main hose bed.</p> <p>Structure shall be designed and constructed to adequately support the installation of all specified equipment, plus all miscellaneous tools and supplies stored in this area.</p>		
HOSE BODY	<p>The hose body shall be located above the water tank and start from the front bulkhead of the body just behind the top equipment storage compartment, pump compartment or crosslay when specified and shall extend to the rear of the body. The front bulkhead of the hose bed as well as the side sheets shall be constructed of 1/8" 5052 H-32 aluminum plate with a bright finish on the unpainted exposed side. The inside of the side sheets shall not be painted on the area that the hose will come in contact with, to prevent the paint rubbing on the hose and any maintenance of having to repaint this area and shall be left in the natural bright finish of the aluminum. The complete hose compartment shall be free of all projections to eliminate any snagging or damage to hose.</p> <p>The main hose bed shall have a removable aluminum extruded slatted floor. Extrusions shall incorporate a ribbed design and be 3" wide x .750" thick. Rear hose bed exit area shall be protected with a stainless steel angle trim piece spanning the full width of the exit area. NFPA requirement of 800 feet of 4" large diameter hose.</p>		
HOSE BED DIVIDER	<p>Left side adjustable aluminum hose bed divider compartment – 2'H x 1'W x full length of hose bed with door on rear and on top.</p> <p>Right side adjustable aluminum hose bed divider with rear door compartment suitable to hold two (2) backboards attached.</p>		
CROSSLAY COMPARTMENT	The crosslay compartment walls shall be constructed of 1/8" 5052 H-32 aluminum plate with a bright finish on the unpainted exposed side of the hose bed. The inside of the side sheets, next to the hose, shall be left unpainted to prevent hose from rubbing on the painted surface and requiring maintenance to repaint. This area shall be left in the natural bright aluminum finish. The		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
CROSSLAY COMPARTMENT (cont'd)	<p>complete hose compartment shall be free of all projections to eliminate any snagging or damage to hose.</p> <p>Crosslay hose bed shall have a removable aluminum ventilated floor. Ends of flooring shall have an extruded channel for attaching adjustable dividers, when specified.</p> <p>Stainless steel rollers shall be provided on the two sides and bottom of the crosslay hose bed on each side. The rollers shall be 1-1/4" stainless steel tubing with nylon bushings, and 1/2" stainless steel rod.</p> <p>Each cross lay hose bed shall have a minimum hose bed storage area for the following hose load:</p> <p>(a) Two (2) 200' of 1 3/4" double jacket fire hose.</p> <p>(b) One (1) 200' of 2 1/2" double jacket fire hose.</p> <p>(c) Two (2) cross lay hose bed dividers shall be provided in the cross lay hose bed. The divider shall be constructed of 1/4" aluminum and shall be adjustable from side to side to allow for hose size changes.</p>		
STAINLESS STEEL BODY TRIM	<p>All compartment doorsills shall be covered with stainless steel scuff plates.</p> <p>All vertical exterior body corners shall be covered with polished stainless steel and act as body corner scuff guards.</p> <p>Rear hose bed exit area shall be covered with brushed stainless steel at rear horizontal edge of hose bed for protection.</p>		
LADDER STORAGE COMPARTMENT	<p>One (1) compartment shall be provided in a tunnel on the right side of the apparatus next to the water tank to hold the specified ladders.</p> <p>One (1) 24' two (2) section extension ladder. One (1) 14' roof ladder. One (1) 10' attic ladder.</p> <p>The compartment shall have an aluminum diamond plate door at the rear of the body.</p>		
PUMP GENERAL	<p>Pump shall be a HALE or WATEROUS, of minimum 1500 GPM, Single Stage midship mounted, split case, centrifugal type cast iron pump body, bronze fitted.</p>		
PUMP SPECIFICATIONS	<p>The pump must deliver the percentage of rated capacity at pressure listed below:</p> <p>100% of rated capacity at 150 psi net pumps pressure.</p>		

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PUMP SPECIFICATIONS (cont'd)	<p>70% of rated capacity at 200 psi net pumps pressure.</p> <p>50% of rated capacity at 250 psi net pumps pressure.</p> <p>When dry, the pump shall be capable of taking suction and discharging water with a lift of not to exceed ten (10) feet in not more than thirty (30) seconds.</p>		
PUMP CONSTRUCTION	<p>The pump shall meet requirements of NFPA be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1901 rated performance. Pump shall be equipped with a TRVL-120 valve with test button and warning light.</p> <p>Pump will be protected by two anodes.</p> <p>The entire pump shall be assembled, and tested at the pump manufacturer's factory.</p> <p>The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.</p>		
PUMP PANEL DESCRIPTION	<p>Pump panels shall be easily removable with paddle style latches. Each side to be fabricated from 14-gauge rubberized or black wrinkle finish. Controls and gauges shall be located on left side of apparatus and properly labeled, and color-coded.</p>		
PUMP COMPARTMENT	<p>An aluminum diamond plate panel shall enclose the top of the pump compartment, which shall be removable for pump access. All steel plumbing components inside the pump compartment shall be fully painted. All other components including wiring, gauges, pump panel rear surfaces, high pressure hoses, and small diameter tubing shall be left unpainted for rapid identification and ease of repair. ANY PAINTING OF THESE COMPONENTS IS UNACCEPTABLE.</p>		
PUMP PANEL LIGHTS	<p>Three (3) LED lights equipped with a full length polished stainless steel shield shall illuminate the left and right side pump panel. A switch on the operators pump panel shall control the lights.</p>		
HINGED GAUGE PANEL	<p>There shall be provided a hinged gauge panel located above the operator's panel on the left-side of the apparatus body for access to the back of the gauges and to the interior of the pump compartment. This upper panel shall be of the same material as the lower panel. The panel shall be vertically hinged and be provided with compression latches for easy opening.</p>		

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ACCESS PANEL-RIGHT SIDE	A panel shall be provided on the right side of the apparatus pump body to access the pump compartment for maintenance. The panel shall be fully removable and be provided with compression latches for easy opening.		
VALVES, CONTROLS GAUGES & PLUMBING REQUIREMENTS	The following pump, plumbing, controls, gauges and accessories shall be provided as indicated below. The plumbing requirements outlined below shall be considered a minimum standard and shall be followed by the manufacturer without exception.		
MAIN PUMP DISCHARGE & INTAKE LINES	<p>All plumbing shall be stainless steel with sweep elbows where applicable.</p> <p>All side discharge and intake valves specified shall be mounted directly to the pump discharge or intake castings. Controls for these valves shall either be direct 1/4 turn type or directly connected control rods from the valve handle to the operator's panel. The valves or valve controls shall be provided with a locking feature; either manufactured into the valve or into the control handle.</p> <p>All discharges 2-1/2" or larger shall have 30 degree angled adapters for deflecting the water stream towards the ground unless otherwise specified.</p> <p>All discharge and suction intake valves 1-1/2" or larger shall have individual 3/4" drain valves located adjacent to the outlet, control, or at the bottom of the pump panel. The drain outlets must have 3/4" minimum rubber hose running to below the height of the corresponding running board to prevent water spraying in the pump compartment or through the pump panel openings.</p> <p>All discharges shall have chrome plated caps and chains, unless designed to be pre- connected, or otherwise specified.</p> <p>All in-line valves shall be Akron 8000 series swing-out style valves unless otherwise stated. All valves shall be designed to operate under normal conditions up to 500 psi and shall have dual seats to work not only for pressure but also for vacuum. All 3" or larger discharge and intake valves, with the exception of the tank to pump valve, shall be equipped with a slow closing feature meeting the requirements of NFPA. The delay in closing or opening the valve is to prevent unreasonable back pressure or water hammer on the pump and/or sudden increases in pressure to other discharge lines due to the rapid closing or opening of a valve.</p>		

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
MAIN PUMP DISCHARGE & INTAKE LINES (cont'd)	<p>All gated inlets shall be directly plumbed into the intake manifold of the pump. Heavy-duty piping or suction elbow castings shall be used.</p> <p>All valves and controls shall be easily accessible for service, removal or for replacement.</p> <p>Where vibration or chassis flexing may damage or loosen piping, the piping shall be equipped with victaulic type couplings.</p>		
AUXILIARY DISCHARGE LINES & PLUMBING MANIFOLD	<p>All auxiliary discharge control valves, when appropriate, shall be quarter-turn, ball type and shall be located on a common plumbing manifold, securely mounted, with all of the controls for these valves on the main pump panel operating in a common direction. The manifold shall be constructed from a minimum of 4" x 4" x 3/16" stainless steel tubing. For each specified line the connection shall be made with a weld-on threaded flange to insure strength against breakage for continuously opening and closing of the discharge lines. The manifold is to be pressure tested before installation and painted to prevent rust. The main discharge line from the pump to the manifold shall be of sufficient size to assure a minimum of friction loss and proper flow to all discharge lines attached to this manifold.</p> <p>All remote discharge outlets shall be plumbed with stainless steel pipe or high- pressure wire braided hose. The wire- braided hose shall be designed to withstand the normal operating pressure of the pump.</p>		
Pump Performance Acceptance Test Plate	<p>A stamped or engraved plate shall be provided on the left pump panel to list the performance ratings of the pump. The plate shall show the gpm and rpm for the pump's performance at 100%, 70% and 50% of the rated capacity.</p>		
Test Gauge Panel	<p>The left pump panel shall be provided with two (2) test ports; one plumbed to the intake side and the other plumbed to the discharge side of the water pump. These test ports shall be installed to provide a port for installing certified test gauges when testing the pump performance. The test ports shall be located for easy access and be correctly labeled.</p>		
Pump Panel Labeling	<p>The controls, discharges, intakes, and other pump panel features that are not provided with a pre-printed legend or trim plate shall be labeled as required for ease of operation. This labeling shall be accomplished by using color-coded engraved or etched tags. The tags are to be self-adhesive type and attach to the pump panel. The tags shall be placed adjacent to the control in such a way as to clearly distinguish the item it is to label.</p>		

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Master Discharge Pressure Gauge	A Master Discharge pressure gauge shall be provided on the operator's panel and shall be located close and to the right of the Master Intake pressure gauge. The gauge shall be a compound gauge, minimum 4-1/2" diameter, dry anti flutter to dampen the movement. Liquid filled gauges will not be accepted.		
Master Intake Pressure Gauge	A Master Intake pressure gauge shall be provided on the operator's panel and shall be located close and to the left of the Master Discharge pressure gauge. The gauge shall be a compound gauge, minimum 4-1/2" diameter, dry anti-flutter to dampen the movement. Liquid filled gauges will not be accepted.		
Individual Discharge Gauges	All discharge valves that are controlled at the operator's panel shall have a corresponding pressure gauge. These gauges shall be located adjacent to the control and/or the outlet for the discharge so that monitoring the pressure for any discharge is made easier. Gauges shall be 2-1/2" minimum diameter, graduated dry anti-flutter to dampen the movement. Liquid filled gauges will not be accepted. Pump panel designs that place all discharge gauges in one group at the top of the pump panel regardless of the location of the discharges will be unacceptable.		
MASTER DRAIN	A bronze multiple port drain valve shall be provided and controlled from the left side pump panel. The valve shall be plumbed to drain both the discharge and intake sides of the pump, the relief valve and other components. The valve shall be placed as low as possible to provide for proper draining.		
PUMP COOLER (PUMP BY- PASS LINE)	A 3/8" line shall run from the discharge side of the pump to the water tank to help keep the pump cool when water is not being discharged. This line will be designed to by- pass water when the valve is open and maintain the pump water temperature at a safe level. The valve for this by-pass line shall be located on the operator's panel.		
TACHOMETER DRIVE	In addition to the test ports, a speed counter cable and adapter shall be provided to allow an external rpm speed counter to be used during pump testing for checking true engine and/or pump speed.		
PUMP HOUR METER	Pump panel shall have a non-resettable hour meter to display actual pumping hours for maintenance purposes and the life of the apparatus.		
WATER TANK LEVEL GAUGE	The apparatus shall be equipped with two (2) Whelen strip light series PS-tank (for indicating water level). The Tank Level Gauge shall indicate the liquid level on an easy to read LED bar graph display. The strip lights shall be mounted on the exterior side of the dunnage area with no exposed wires to dunnage.		

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PRIMING PUMP	Primer to be an "air jet" type primer.		
ENGINE/PUMP CONTROLLER	<p>This apparatus shall be equipped with a "Class 1" Total Pressure Governor Plus connected directly to the Electronic Control Module (ECM) mounted on the engine. The Total Pressure Governor Plus is to operate as a pressure sensor (regulating) governor (PSG) eliminating any need for a relief valve on the discharge side of the pump.</p> <p>A special preset feature shall permit a predetermined pressure of rpm to be set. The preset pressure or rpm will be displayed on the message display of the Total Pressure Governor Plus. The preset shall be easily adjustable by the operator.</p> <p>Engine Status Center is incorporated in Total Pressure Governor Plus.</p>		
DISCHARGE LOCATIONS	<p>One (1) 2-1/2" NST water only discharge shall be provided on the right side pump panel.</p> <p>One (1) 3" NST water only discharge shall be provided on the right side pump panel. The discharge shall be controlled by a hand wheel driven worm gear at the pump panel to limit the time required to fully open or close the valve to three (3) seconds or longer, meeting NFPA requirements.</p> <p>Two (2) 2" discharges with CAFS shall be provided in the cross lay hose bed. The discharges shall be plumbed with 2" flexible wire braided hose and a 2" quarter turn ball valve. The discharges shall have a 90 degree full swivel elbow with 1-1/2" threads to allow the hose to be pulled from either side. The discharges shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2-1/2" CAFS discharge shall be provided in the cross lay hose bed. The discharge shall be plumbed with 2-1/2" flexible wire braided hose and a 2-1/2" quarter turn ball valve. The discharge shall have a 90 degree full swivel elbow with 2-1/2" threads to allow the hose to be pulled from either side. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2" discharge pre-connect shall be provided in the front jump line basket and shall be plumbed with CAFS.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
DISCHARGE LOCATIONS (cont'd)	<p>The discharge shall be plumbed with 2" flexible wire braided hose and a 2" quarter turn ball valve. The discharge shall have a 90-degree full swivel elbow with 1-1/2" threads to allow the hose to be pulled in any direction without kinking. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 1" forestry discharge shall be provided at the rear of the apparatus body in the rear forestry compartment and shall be plumbed with CAFS. The discharge shall be plumbed with 1" flexible wire braided hose, and have 1" NHST forestry threads with chrome plated cap and chain. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2-1/2" NST CAFS discharge shall be provided at the left front of the hose bed. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel and shall be provided with a 3/4" drain valve located at the bottom of the left pump panel.</p>		
MONITOR PLUMBING	<p>One (1) 3" monitor riser pipe shall be provided in the area designated above the pump. The plumbing shall be 3" with a 3" ball valve from the discharge side of the pump. All plumbing shall be adequately braced to support the piping, monitor and the side-to-side pressure exerted on the riser while discharging water at any angle. The top of the riser shall extend far enough to allow the specified monitor to swing 360 degrees with the nozzle or tips at a normal operating angle. The discharge shall be controlled by a hand wheel driven worm gear at the pump panel to limit the time required to fully open or close the valve to three (3) seconds or longer, meeting NFPA requirements. The monitor discharge shall be provided with a corresponding pressure gauge located near the control and a 3/4" drain valve located at the bottom of the of the pump operator's panel.</p> <p>Elkhart Brass- Vulcan RF (W.E.T) wireless electronic technology with remote and pump panel push button panel mount control (or equivalent).</p> <p>Elkhart Brass- Electrically Actuated Extender (18 inch).</p>		
INTAKE LOCATIONS	<p>Two (2) 6" NST intakes shall be provided, one (1) on the left side, and one (1) on the right side of the pump. Each intake shall be provided with an anode intake screen and a NFPA approved chrome-plated cap.</p> <p>Two (2) Black Max piston intake valves shall be included.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
2-1/2" AUXILIARY INTAKE - RIGHT PUMP PANEL	One (1) 2-1/2" intake valve shall be provided on the right pump panel and controlled by a chrome plated or stainless steel handle at the inlet. Valve controls shall be provided with a locking feature. The valve shall have a 3/4" drain valve, female swivel adapter, chrome plated plug and chain.		
INTAKE RELIEF VALVE	An intake pressure relief dump valve shall be provided and plumbed into the intake side of the pump. Pressure setting controls shall be provided on the valve and shall be accessible from underneath the pump compartment area by means of an adjustment knob on the valve. The valve shall be pre-set at the factory for 125 psi. The valve shall be installed to allow operation from any intake. The valve shall be an Elkhart Brass Model 40-20 series. The discharge side of the relief valve shall be plumbed to the side of the apparatus just under the body or running board. The pipe shall terminate with a 2-1/2" NST male adapter and a label affixed to read, "DO NOT CAP."		
TANK TO PUMP LINE	An in-line valve shall be installed between the pump and the booster tank. The valve shall be of the quarter turn type of fixed pivot design. The valve shall be controlled from operator's panel. The tank to pump line shall be provided with a check valve to prevent over pressurization of the water tank. The valve and piping shall be 3" without restrictions.		
TANK FILL	The apparatus shall be equipped with a 1.5" tank fill line with a 2" in-line valve. The control for this fill line shall be located at the main operator's panel.		
CAF SYSTEM FOR USE WITH SINGLE CLASS A FOAM TANK	A Waterous PTO driven compressed air foam system shall be installed and be capable of developing a minimum of 300 gallons per minute of water at 125 psi and 150 cubic feet of air at 125 psi simultaneously (NFPA rating).		
PUMPER CERTIFICATION TEST	The apparatus, upon completion, shall be tested and certified by Underwriters Laboratories, Inc, an organization that is accredited with testing systems on fire apparatus in accordance with ANSI Z34.1. The certification tests shall follow the guidelines outlined in NFPA 1901 "Standard for Pumper Fire Apparatus;" 2003 edition. The certification shall include the pumping test, pumping engine overload test, the pressure control system test, the priming device test, the vacuum test and, if the apparatus is equipped with a water tank, the water tank to pump flow test. The test results shall be filed with UL and a copy provided to the Fire Department for its records.		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
WATER TANK	<p>The water tank will be a 500 gallon capacity POLY-TANK. The tank shall be completely removable without disturbing or dismantling the apparatus body structure.</p> <p>Tank sump shall be equipped with a 3” clean out and PVC pipe plug. The “Poly-Tank”, polypropylene water tank that is to be provided with the apparatus and shall have a lifetime warranty from the manufacturer. The manufacturer (UPF) shall repair the tank at no cost to the Town.</p>		
FOAM TANK	<p>One (1) 30-gallon foam tank shall be provided and plumbed to the foam system. The tank shall be constructed of polypropylene and shall be integrated into the main water tank. The foam tank shall have separate fill tower with catch basin to prevent spilled foam from contacting the apparatus. The fill tower shall be of a different color to eliminate confusion of contents. The foam tank fill tower lid shall be labeled for the type of foam concentrate the tank contains.</p>		
BODY ELECTRICAL REQUIREMENTS	<p>Independent circuits shall serve all apparatus body electrical equipment, separate and distinct from the vehicle chassis circuits.</p> <p>The wiring shall be installed in high temperature flexible type loom and shall be labeled and color-coded or function labeled. The wiring shall be grease, oil and moisture resistant and securely fastened. Solderless insulated connectors shall be provided and enclosed with heat shrink tubing for extra protection.</p> <p>Automatic reset circuit breakers shall be provided.</p>		
ELECTRICAL EQUIPMENT	<p>The following electrical equipment shall be supplied with the completed apparatus.</p>		
Electric Cord Reel	<p>One (1) Hannay electric cord reel with electric rewind shall be provided and mounted in the rear compartment. The reel shall have a 200’ capacity for 12/3 SO type cord. A covered rewind button shall be provided on the frame of the reel to activate the rewind motor.</p> <p>One (1) 200’ length(s) of 12/3 electric cord shall be provided and installed on the specified cord reel. The cord shall be a heavy-duty type yellow in color and shall be resistant to most solvents and corrosives.</p>		
PTO Driven Generator	<p>One (1) generator shall be provided and installed. The generator shall provide a minimum of 5000 watts of 120/230 volt AC power. The generator shall be wired to the main electrical panel.</p>		
Circuit Breaker Panel	<p>There shall be an electrical circuit breaker panel provided and installed in the engineers’ compartment. The panel shall be wired to the on-board APU to provide individual protection for all installed AC powered lights and receptacles.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor’s response in a separate document to be submitted with the Vendor’s Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
ELECTRICAL SYSTEM PERFORMANCE TEST, LOW-VOLTAGE	<p>The fire apparatus low voltage electrical system shall be tested as required by this section and the test results certified by the apparatus manufacturer. The certification shall be delivered to the purchaser with the apparatus. Tests shall be performed when the air temperature is between 0°F and 110°F (18°C and 43°C).</p> <p>Documentation At the time of delivery, the Vendor shall provide the following:</p> <p>(a) Documentation of the electrical system performance tests.</p> <p>(b) A written electrical load analysis, including the following:</p> <ul style="list-style-type: none"> • The nameplate rating of the alternator. • The alternator rating under the conditions specified in NFPA 1901 (current edition). • Each of the component loads specified in 13.3.3 that make up the minimum continuous electrical load. • Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load. • Each individual intermittent electrical load. 		
ELECTRICAL SYSTEM PERFORMANCE TEST, LINE-VOLTAGE	The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.		
APPARATUS BODY COLOR	The body shall be painted to match the Fire Department's existing apparatus. If required, a color chip shall be sent to and approved by the Fire Department prior to the final painting. Roll-up compartment doors will be unpainted.		
CHASSIS FINISH	The chassis manufacturer shall supply the chassis finish.		
TOUCH UP PAINT	One (1) pint of touch up paint shall be provided matching each finish color at time of delivery.		
REFLECTIVE STRIPE	A 6" Scotchlite reflective stripe shall be applied to each side and front (design to meet Fountain Hills standard). Rear to meet current NFPA standard.		
EQUIPMENT	The following specified equipment should be provided. The equipment shall be new and unused and shall meet all current NFPA, OSHA and other applicable safety regulations.		
Road Kit	<p>The apparatus shall be equipped with a road kit containing the following:</p> <p>One (1) Model 5 BC fire extinguisher.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
Road Kit (cont'd)	<p>One (1) set of triangle reflectors containing three (3) reflectors.</p> <p>One (1) set of fuses, if required.</p>		
Miscellaneous Equipment	<p>One (1) Duo-Safety, Model 775-A, 14' Aluminum Roof Ladder.</p> <p>One (1) Duo-Safety, Model 900-A, 24' Two- Section Aluminum Extension Ladder.</p> <p>Two (2) Ziamatic Model AC2 large wheel chock block with mounting bracket shall be provided and on the apparatus body. The Town shall direct location for the chock block.</p> <p>Two (2) six foot San Francisco style pike poles.</p> <p>Two (2) Black Max piston intake valves shall be included/storz intake valve.</p> <p>One (1) six foot collapsible ladder. LED map light Officer position.</p> <p>Mounting hardware for equipment – decided at Pre engineering meeting.</p> <p>Sigtronic headsets. Five (5) positions, 3 push to talk.</p> <p>One (1) remote wireless GOLIGHT model #7900.</p>		
WARRANTIES	<p>All material and workmanship herein specified, including all equipment furnished shall be guaranteed for a period of one (1) year after the acceptance date of the apparatus, unless otherwise noted, with exception to any normal maintenance services or adjustments which are required.</p> <p>Under this warranty, the guarantor shall pay for any additional expense to the apparatus that has been caused by defective workmanship or materials during the one (1) year period.</p> <p>This warranty shallnot apply to the following:</p> <p>Any component parts or trade accessories such as chassis, engines, tires, pumps, valves, signaling devices, batteries, electric lights, bulbs, alternators, and all other installed equipment and accessories in as much as they are usually warranted separately by their respective manufacturers or are subject to normal wear and tear.</p> <p>Failures resulting from the apparatus being operated in a manner or for a purpose not recommended by the manufacturer.</p>		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
WARRANTIES (cont'd)	<p>Loss of time or use of the apparatus, inconvenience or other incidental expenses.</p> <p>Any apparatus which shall have been repaired or altered outside of the manufacturer's factory in any way so as in our judgment, to affect its stability, nor which has been subject to misuse, negligence, or accident.</p>		
TEN (10) YEAR CORROSION AND PERFORATION WARRANTY	The body supplier shall provide a Body Corrosion Perforation Warranty on all aluminum and Stainless Steel bodies for the period of ten (10) years from the date of delivery to the Town. The warranty shall cover the repair of the body for corrosion perforation caused by manufacturing or material failures. This warranty shall not pertain to steel bodies.		
7 YEAR PAINT GUARANTEE	A Sherwin-Williams 7 Year Paint Performance Guarantee shall cover the areas of the vehicle finished with specified products for a period of seven (7) years beginning the day the vehicle was delivered from the Sherwin-Williams Original. Equipment Manufacturer to the vehicle owner. The warranty shall cover the peeling or delaminating of the topcoat and/or other layers of paint, cracking or checking, loss of gloss caused by cracking, checking and hazing and any paint failure caused by defective Sherwin-Williams finishes which are covered by this guarantee.		
WATER TANK WARRANTY	A UPF brand "Poly-Tank", polypropylene water tank that is to be provided with the apparatus and shall have a lifetime warranty from the manufacturer. The manufacturer (UPF) shall repair the tank at no cost to the Town. The warranty shall cover the reasonable costs of removing or replacing the water tank into the apparatus.		

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

EXHIBIT B
TO
MATERIALS PURCHASE AND SERVICES AGREEMENT
BETWEEN
THE TOWN OF FOUNTAIN HILLS
AND
CRIMSON FIRE, INC., d/b/a SPARTAN ERV

[Proposal]

See following pages.



Prepared for the:

Town of Fountain Hills

RFP: Fire Pumper Trucks

Due: March 28, 2013, 3:00pm



907 7th Avenue North Brandon, SD 57005
64 Cocalico Creek Road Ephrata, PA 17522
725 SW 46th Avenue Ocala, FL 34474

SPARTANERV.COM
605.582.4000



907 7th Avenue North Brandon, SD 57005
64 Cocalico Creek Road Ephrata, PA 17522
725 SW 46th Avenue Ocala, FL 34474

SPARTANERV.COM
605.582.4000

March 26, 2013

Town of Fountain Hills
Scott LaGrecca
16705 East Avenue of the Fountains
Fountain Hills, AZ 85268

Dear Mr. LaGrecca,

On behalf of *Spartan ERV*, I would like to thank you for the opportunity to provide you with the following offer for the Fountain Hills Fire Department with the following proposal to purchase one (1) Spartan ERV Star Series Custom Pumper.

Spartan ERV's local dealer is *Emergency Vehicle Group, Inc.* and both are proud to be in the business of serving those who bravely serve our communities and help ensure the safety of our families and friends. Our pledge is to offer you the same quality of service and expertise that is demanded from you. Over the years we have introduced fire departments, municipalities and private companies to the absolute best in service, sales and support for emergency vehicle products.

Our mission is to develop long-term relationships and provide our customers with "honest, intelligent effort" in everything we do for you.

Spartan ERV is founded on over 100 years in the fire apparatus manufacturing industry and leads the industry in state of the art engineering and experience. *Spartan ERV* is publicly traded under *Spartan Motors, Inc.* which provides the financial stability, transparency and longevity that is not provided by other manufacturers.

Please feel free to contact Mike Virnig, *Spartan ERV's* West Coast Regional Sales Manager, or myself at anytime should you have any questions or need anything additional.

All of believe in long-term relationships and we look forward to the opportunity of working with you and the Town of Fountain Hills. I would again like to thank you for the opportunity to provide you with this offer. Each of us at offer you our sincere pledge of "Honest, Intelligent Effort" in everything we do for you now, and in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "T-Grinstead".

Travis B. Grinstead
Emergency Vehicle Group, Inc.
President and Co-Founder



907 7th Avenue North Brandon, SD 57005
 64 Cocalico Creek Road Ephrata, PA 17522
 725 SW 46th Avenue Ocala, FL 34474

SPARTANERV.COM
 605.582.4000

Town of Fountain Hills

Purchase Proposal for

One (1) Spartan ERV Star Series Custom Pumper

The following proposal is for the Town of Fountain Hills to purchase one (1) Spartan ERV Star Series Custom Pumper per the enclosed specifications and bid response. The below prices are quoted FOB Fountain Hills, AZ.

Description	Qty	Each	Extended
Spartan ERV Star Series Custom Pumper	1	\$476,884.00	\$476,884.00

Prepayment Discount Options:

CONTRACT PREPAYS	Discount	Payment Amount
100% Contract Prepay, Contract Signing	6,010	470,874
80% Contract Prepay, Contract Signing	4,808	381,507
50% Contract Prepay, Contract Signing	3,005	238,442

CHASSIS PREPAYS		
100% Chassis Prepay, Contract Signing	3,110	246,760
50% Chassis Prepay, Contract Signing	1,555	123,380
100% Chassis Prepay, Arrival at Plant	2,056	246,760

General Information

Manufacturer

Crimson Fire, Inc.

dba Spartan ERV

907 7th Ave N, Brandon, SD 57005

EIN #46-0416545

Corporation

Dealer

Emergency Vehicle Group, Inc.

Point of Contact: Travis Grinstead, President 714-238-0110

Spartan ERV Point of Contact

Michael Virnig (605) 212-7597 Western Regional Sales Manager

History of Spartan ERV



INNOVATION AND PERFORMANCE
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History of Spartan ERV



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1

The Crimson Fire Heritage



CRIMSON FIRE
A SPARTAN COMPANY



- In 2003, Luverne Fire and Quality Manufacturing merge a new entity is formed called Crimson Fire, Inc., A Spartan Motors Company
- In 2011, Classic Fire is acquired and rolled into the Crimson Fire product portfolio as the Classic Series



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Spartan ERV Today



- Office/manufacturing facilities in three locations:
 - Brandon, SD
 - Ephrata, PA
 - Ocala, FL
- Employment – Approximately 240 personnel
- Nationally recognized brand
- Innovation and sales driven company
- True customized apparatus builder complimented with a pre-configured stock apparatus program



INNOVATION AND PERFORMANCE
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Spartan ERV References

BAGDAD FIRE DEPARTMENT	01/11/2011
501 N. MAIN ST. AZ 86321	
(928) 848-8012	1 UNIT
TUCSON ELECTRIC & POWER	12/17/2010
4350 E. IRVINGTON RD.	
TUCSON MAIL STOP AZ 857141	UNIT PUMPER STAR
MARIN COUNTY FIRE DEPARTMENT	04/25/2011
WOODACRE33 CASTLE ROCK AVE.CA94973	
(415) 499-67171 UNITTANKER STAR	
SAN FRANCISCO FIRE DEPARTMENT0	3/29/2011

SAN FRANCISCO

698 SECOND STREET CA94107

(414) 558-32151

UNIT TDA 103' STAR

SAN FRANCISCO FIRE DEPT.

07/12/2010

SAN FRANCISCO698 SECOND ST.CA 941072015

(415) 550-46265

UNIT SPUMPER STAR

VIEJAS FIRE DEPARTMENT

01/31/2011

VIEJAS1 VIEJAS GRADE ROAD CA 91901

(619) 445-77721

UNIT RESCUE PUMPER STAR

SANTA ANA FIRE DEPARTMENT

10/31/2010

SANTA ANA1439 SO. BROADWAY ST. CA92707

(714) 647-57002

UNIT SPUMPER STAR

SANTA BARBARA FIRE DEPT.

08/10/2010

SANTA BARBARA 121 W. CARRILLO ST.CA 93101

(805) 965-52541

UNIT 103' TD AERIAL STAR

Star Series Products

Construction Methods – Corrosion Resistance



- 9-step paint process
- Minimum of two base coats and two clear coats
- Hand buffed

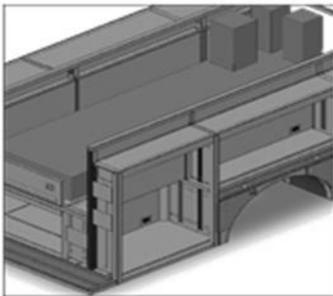


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Star Series Products

Construction Methods – Side walls and overlays



Compartment tops and side walls:

- 14 Ga Stainless Steel
- 1/8" or 3/16" Aluminum



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Star Series Products

Construction Methods – Tor-Max™ Engineered Sub-Frame



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Star Series Products

Construction Methods – Body Mounting



- Vibra-Torq™
- Spartan ERV designed this exclusive body mounting technology for maximum life of the body structure
- Vibra-Torq™ reduces stress and vibration created by chassis and terrain



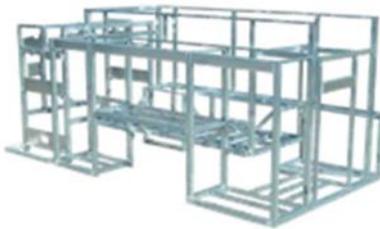
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Star Series Products

Construction Methods – Tor-Max™ & Tri-Max™ Structure

Self-supporting modular body



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- There shall be a pre-construction conference in Fountain Hills AZ prior to construction of the apparatus.
- All factory trips included in the bid are provided for in the bid price.

- Training as specified in the bid is provided in the bid price.
- Specifications Questionnaire provided in bid proposal.
- Two copies of maintenance manuals will be provided at the time of delivery.
- Two copies of the operations manuals will be provided at the time of delivery.
- As Built electrical system manuals will be provided at the time of delivery.
- As Built air system manuals will be provided at the time of delivery.
- Two copies of the pumper truck build sheet will be provided at time of delivery.
- Local stocking parts will be provided at Rush Truck Centers, Phoenix AZ.

Project Schedule

The proposed build timeline for this project is 270 days from receipt of Contract.

- Pre-Construction meeting in Fountain Hills
- Mid inspection meeting in Brandon SD.
- Final inspection in Brandon SD.
- Delivery to Fountain Hills AZ

Performance Testing and Documentation

- The completed apparatus will be evaluated at customer's facility for performance spec.
- Copies of Engine instillation approval will be provided.
- Copies of transmission instillation approval will be provided.
- Copies of axle instillation approval will be provided.



**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

**REQUEST FOR PROPOSALS
FOR
FIRE PUMPER TRUCK**

Town of Fountain Hills
16705 East Avenue of the Fountains
Fountain Hills, Arizona 85268

SOLICITATION INFORMATION AND SELECTION SCHEDULE

Solicitation Title: **Fire Pumper Truck - 2013**
Release Date: **February 25, 2013**
Advertisement Date: **February 28, 2013 - Arizona Business Gazette**
Pre-Submittal Conference: **NOT APPLICABLE TO THIS SOLICITATION**
Final Date for Inquiries: **March 7, 2013**
Proposal Due Date and Time: **March 28, 2013**
3:00 p.m. (local time, Phoenix, Arizona)
Contract to Council: **May 2, 2013**
RFP Administrator: **Scott LaGreca**
slagreca@fh.az.gov

- * In the event that a Vendor cannot be selected based solely on Proposals submitted, Oral Interviews may be conducted at the Town's sole discretion.
- ** The Town of Fountain Hills reserves the right to amend the solicitation schedule as necessary.

This RFP may be picked up at the Town of Fountain Hills or downloaded from the Town's website at:
www.fh.az.gov

SECTION A

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Specifications Questionnaire	B-1

SECTION A

ARTICLE I. RFP PROCESS; AWARD OF AGREEMENT

1. Purpose; Scope of Work. The Town of Fountain Hills (the "Town") is issuing this Request For Proposals (this "RFP") seeking proposals ("Proposals") from qualified bidders ("Vendors") interested in designing, assembling and delivering a fire pumper truck (the "Pumper Truck") to the Town according to the specifications included in this RFP (the "Services"). In accordance with the Town's Procurement Code, the Town will accept sealed Proposals for the Pumper Truck as more particularly set forth herein.

1.1 Objectives; Background. The Town desires to:

A. Purchase a fire pumper truck completely assembled and ready for operation to replace the 15 year old pumper truck currently in use by the Fire Department.

B. Select a Vendor that can (1) design, assemble and deliver a fire pumper truck to the Town, (2) provide the type, size and quality of equipment that best meets the needs of the Town's fire pumper truck requirements and (3) provide the required maintenance to the fire pumper truck.

1.2 Proposed Specifications. The selected Vendor must provide a Pumper Truck that incorporates the specifications set forth herein and in the Specifications Questionnaire in Section B of this RFP.

2. Preparation/Submission of Proposal. Vendors are invited to participate in the competitive selection process for the Services outlined in this RFP. Responding parties shall review their Proposal submissions to ensure the following requirements are met.

2.1 Irregular or Non-responsive Proposals. The Town shall consider as "irregular" or "non-responsive" and reject any Proposal not prepared and submitted in accordance with this RFP, or any Proposal lacking sufficient information to enable the Town to make a reasonable determination of compliance to the minimum qualifications. Unauthorized or unreasonable exceptions, conditions, limitations, or provisions shall be cause for rejection. Proposals may be deemed non-responsive at any time during the evaluation process if, in the sole opinion of the Town, any of the following are true:

A. Vendor does not meet the minimum required skill, experience or requirements to perform or provide the Services.

B. Vendor has a past record of failing to fully perform or fulfill contractual obligations.

C. Vendor cannot demonstrate financial stability.

D. Vendor's Proposal contains false, inaccurate or misleading statements that, in the opinion of the Town Manager or authorized designee, are intended to mislead the Town in its evaluation of the Proposal.

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION A

2.2 Submittal Quantities. Interested Vendors must submit **one (1) original and three (3) copies four (4) total submittals** of the Proposal. In addition, interested parties must submit **one (1) original copy** of the Proposal on a CD-ROM (or electronic media approved by the Town) in printable Adobe or Microsoft Word format (or other format approved by the Town). Failure to adhere to the submittal quantity criteria shall result in the Proposal being considered non-responsive.

2.3 Required Submittal. The Proposal shall be submitted with a cover letter with an **original ink** signature by a person authorized to bind the Vendor. Proposals submitted without a cover letter with an **original ink signature** by a person authorized to bind the Vendor shall be considered non-responsive. The Proposal shall be a maximum of **twenty five (25)** pages to address the Proposal criteria (excluding resumes, Vendor Information Form, Specifications Questionnaire, literature and appendices requested by the Town, but including the materials necessary to address Pumper Truck understanding, general information, organizational chart, photos, tables, graphs, and diagrams). Each page side (maximum 8 1/2" x 11") with criteria information shall be counted. However, one page may be substituted with an 11" x 17" sheet of paper, folded to 8 1/2" x 11", showing a proposed Pumper Truck schedule or organizational chart and only having information on one side. Cover, back, table of contents and tabs may be used and shall not be included in the page count, unless they include additional Pumper Truck-specific information or Proposal criteria responses. The minimum allowable font for the Proposal is **11 pt, Arial or Times New Roman**. Failure to adhere to the page limit, size and font criteria shall result in the Proposal being considered non-responsive. Telegraphic (facsimile), electronic (e-mail) or mailgram Proposals will not be considered.

A. The Proposal shall include **two (2) originals** of a D-size engineered construction drawing. Submitted drawing must be specifically designed for the Pumper Truck and shall depict all major specified components. The drawings shall depict a front view, street side view with proposed chassis, curbside view with proposed chassis, rear view, top view with proposed chassis, hose bed height and approach, break over and departure angle. The drawings shall contain the dimensions for the overall length (in feet and inches), overall height (in feet and inches), wheelbase, angle of approach, break over angle, angle of departure, and overall width of the apparatus and hose bed volume dimensions, indicating the hose bed width, length, and height. Submission of "similar to" or "standard" drawings, or statements referencing submission of drawings after award of contract shall result in the Proposal being considered non-responsive.

B. The Proposal shall include an engineering drawing that provides a top view of the Pumper Truck with the following turning ability information listed in decimal feet: (1) SAE turning radius, (2) curb to curb radius, (3) bumper swing radius and (4) inside radius. The calculations must be performed according to SAE J-695.

2.4. Vendor Responsibilities. All Vendors shall (A) examine the entire RFP, (B) seek clarification of any item or requirement that may not be clear, (C) check all responses for accuracy before submitting a Proposal and (D) submit the entire Proposal by the Proposal Due Date and Time. Late Proposals will not be considered. A Vendor submitting a late Proposal shall be so notified. Negligence in preparing a Proposal confers no right of withdrawal

**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION A

after the Proposal Due Date and Time, unless otherwise provided in the Town's Procurement Code.

2.5. Sealed Submittals. All Proposals shall be sealed and clearly marked with the RFP title, **Fire Pumper Truck - 2013**, on the lower left hand corner of the mailing envelope. A return address must also appear on the outside of the sealed Proposal. The Town is not responsible for the pre-opening of, post-opening of or the failure to open any Proposals not properly addressed or identified.

2.6. Pricing. The Vendor shall submit the same number of copies of the Fee Proposal as the number of submittals described in Article I, Section 2.2 in a separate, sealed envelope enclosed with the Vendor's Proposal. Vendor's Price Proposal shall be inclusive of all of the Services required to deliver the Pumper Truck to the Town, as described in this RFP.

2.7. Address. All Proposals shall be directed to the following address: Town Clerk, 16705 East Avenue of the Fountains, Fountain Hills, Arizona, 85268, or hand-delivered to the Town Clerk's office by the Proposal Due Date and Time indicated on the cover page of this RFP.

2.8. Pricing Errors. If price is a consideration and, in case of error in the extension of prices in the Proposal, the unit price shall govern. Periods of time, stated as number of days, shall be calendar days.

2.9. Proposal Irrevocable. In order to allow for an adequate evaluation, the Town requires the Proposal to be valid and irrevocable for **90** days after the Proposal Due Date and Time indicated on the cover of this RFP.

2.10 Amendment/Withdrawal of Proposal. At any time prior to the specified Proposal Due Date and Time, a Vendor (or designated representative) may amend or withdraw its Proposal. Any erasures, interlineations, or other modifications in the Proposal shall be initialed in **original ink** by the authorized person signing the Proposal. Facsimile, electronic (e-mail) or mailgram Proposal amendments or withdrawals will not be considered. No Proposal shall be altered, amended or withdrawn after the specified Proposal Due Date and Time.

2.11 Addenda. It shall be the Vendor's responsibility to check for addenda issued to this RFP. Any addendum issued by the Town with respect to this RFP will be available at: Town of Fountain Hills, Town Clerk's Office, 16705 East Avenue of the Fountains, Fountain Hills, Arizona, 85268 or the Town of Fountain Hills website at www.fh.az.gov. Any addenda issued as a result of any change in this RFP shall become part of the RFP and must be acknowledged in the Proposal submittal. Failure to indicate receipt of the addendum shall result in the Proposal being rejected as non-responsive.

3. Cost of Proposal Preparation. The Town does not reimburse the cost of developing, presenting or providing any response to this solicitation. Proposals submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The Vendor is responsible for all costs incurred in responding to this RFP. All materials and documents submitted in response to this RFP become the property of the Town and will not be returned.

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4. Inquiries.

4.1 Written/Verbal Inquiries. Any question related to the RFP shall be directed to the RFP Administrator whose name appears on the cover page of this RFP. Questions shall be submitted in writing or via e-mail by the close of business on the Final Date for Inquiries indicated on the cover page of this RFP or submitted verbally (A) at the Pre-Submittal Conference on the date indicated on the cover page of this RFP (if such Pre-Submittal Conference is held) or (B) submitted in writing or via e-mail by the close of business on the Final Date for Inquiries indicated on the cover page of this RFP. In the event the Town is closed on the Final Date for Inquiries, the Vendor shall submit the question(s) to one of the Town Representatives via e-mail. Any inquiries related to this RFP shall refer to the RFP title, page and paragraph. However, the Vendor shall not place the RFP title on the outside of any envelope containing questions, because such an envelope may be identified as a sealed Proposal and may not be opened until after the Proposal Due Date and Time.

4.2 Inquiries Answered. Written questions will be read and answered at the Pre-Submittal Conference on the date indicated on the cover page of this RFP. Verbal or telephone inquiries directed to Town staff **will not be answered**. Within two (2) business days following the Pre-Submittal Conference, answers to all questions received in writing or via e-mail or verbally at the Pre-Submittal Conference will be mailed, sent via facsimile and/or e-mailed to all parties who obtained an RFP package from the Town and who legibly provided their mailing address, facsimile and/or e-mail address to the Town. No questions, submitted in any form, will be answered after the Final Date for Inquiries listed on the cover of this RFP.

5. Pre-Submittal Conference. A Pre-Submittal Conference may be held. If scheduled, the date and time of this Pre-Submittal Conference will be indicated on the cover page of this RFP. This Pre-Submittal Conference may be designated as mandatory or non-mandatory on the cover page of this RFP. Additionally, if the Pre-Submittal Conference is designated as mandatory, failure to attend shall render the Vendor's Proposal non-responsive. Vendors are strongly encouraged to attend those Pre-Submittal Conferences designated as non-mandatory. The purpose of the Pre-Submittal Conference will be to clarify the contents of this RFP in order to prevent any misunderstanding of the Town's requirements. Any doubt as to the requirements of this RFP or any apparent omission or discrepancy should be presented to the Town at this conference. The Town will then determine if any action is necessary and may issue a written amendment or addendum to the RFP. Oral statements or instructions will not constitute an amendment or addendum to this RFP.

6. Payment Requirements; Payment Discounts. Any Proposal that requires payment in less than 30 calendar days shall not be considered. Payment discounts of 30 calendar days or less will not be deducted from the Proposal price in determining the low Proposal. The Town shall be entitled to take advantage of any payment discount offered by the Vendor provided payment is made within the discount period. Payment discounts shall be indicated in the Fee Proposal.

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7. Taxes. The Town is exempt from Federal Excise Tax, including the Federal Transportation Tax. Sales tax, if any, shall be indicated as a separate item. It is the sole responsibility of the Vendor to determine any applicable State tax rates and calculate the Fee Proposal accordingly. Failure to accurately tabulate and applicable taxes may result in a determination that a Proposal is non-responsive. The Vendor shall not rely on, and shall independently verify, any tax information provided by the Town.

8. Public Record. All Proposals shall become the property of the Town. After award of an Agreement, Proposals shall become public records and shall be available for public inspection in accordance with the Town's Procurement Code, except that any portion of a Proposal that was designated as confidential pursuant to Section 9 below shall remain confidential from and after the time of Proposal opening to the extent permitted by Arizona law.

9. Confidential Information. If a Vendor believes that a Proposal or protest contains information that should be withheld from the public record, a statement advising the Town Representative of this fact shall accompany the submission and the information shall be identified. The information identified by the Vendor as confidential shall not be disclosed until the Town Representative makes a written determination. The Town Representative shall review the statement and information and shall determine in writing whether the information shall be withheld. If the Town Representative determines to disclose the information, the Town Representative shall inform the Vendor in writing of such determination.

10. Vendor Licensing and Registration. Prior to the award of the Agreement, the successful Vendor shall be licensed with the Arizona Corporation Commission to do business in Arizona. The Vendor shall provide licensure information with the Proposal. Upon the Town's request, corporations, limited liability companies, partnerships or other entities shall be able to provide a Certificate of Good Standing from the Arizona Corporation Commission.

11. Certification. By submitting a Proposal, the Vendor certifies:

11.1 No Collusion. The submission of the Proposal did not involve collusion or other anti-competitive practices.

11.2 No Discrimination. It shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246.

11.3 No Gratuity. It has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor or service to a Town employee, officer or agent in connection with the submitted Proposal or a resultant Agreement. It (including the Vendor's employees, representatives, agents, lobbyists, attorneys, and subcontractors) has refrained, under penalty of disqualification, from direct or indirect contact for the purpose of influencing the selection or creating bias in the selection process with any person who may play a part in the selection process, including the Selection Committee, elected officials, the Town Manager, Assistant Town Managers, Department Heads, and other Town staff. All contact must be addressed to the Town's Procurement Agent, except for questions submitted as set forth in Section 4 above. Any attempt to influence the selection process by any means shall void the submitted Proposal and any resulting Agreement.

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11.4 Financial Stability. It is financially stable, solvent and has adequate cash reserves to meet all financial obligations including any potential costs resulting from an award of the Agreement.

11.5 No Signature/False or Misleading Statement. Failure to sign the Proposal, or signing it with a false or misleading statement, shall void the submitted Proposal and any resulting Agreement.

12. Award of Agreement.

12.1 Selection. A Selection Committee composed of representatives from the Town will conduct the selection process according to the schedule listed on the cover page of this RFP. Proposals shall be opened at the time and place designated on the cover page of this RFP. The name of each Vendor and the identity of the RFP for which the Proposal was submitted shall be publicly read and recorded in the presence of witnesses. PRICES SHALL NOT BE READ. The Selection Committee shall award the agreement to the responsible and responsive Vendor whose Proposal is determined, in writing, to be the most advantageous to the Town and best meets the overall needs of the Town taking into consideration the scoring criteria set forth in this RFP. The amount of applicable transaction privilege or use tax of the Town shall not be a factor in determining the most advantageous Proposal. After the Town has entered into an Agreement with the successful Vendor, the successful Proposal and the scoring documentation shall be open for public inspection.

12.2 Form of Agreement. The selected Vendor will be required to execute an agreement for the Pumper Truck and services in a form acceptable to the Town Attorney. If the Town is unsuccessful in negotiating an Agreement with the highest-scoring Vendor, the Town may then negotiate with the second, then third, highest-scoring Vendor until an Agreement is executed. Town Council approval may be required. The Town reserves the right to terminate the selection process at any time.

12.3 Waiver; Rejection; Reissuance. Notwithstanding any other provision of this RFP, the Town expressly reserves the right to: (A) waive any immaterial defect or informality, (B) reject any or all Proposals or portions thereof and (C) reissue an RFP.

12.4 Protests. Any Vendor may protest this RFP issued by the Town, the proposed award of an Agreement, or the actual award of an Agreement. All protests will be considered in accordance with the Town Procurement Code.

13. Offer. A Proposal is an offer to contract with the Town based upon the terms, conditions and specifications contained in this RFP and the Vendor's responsive Proposal, unless any of the terms, conditions, or specifications is modified by a written addendum or agreement amendment. Provided, however, that no contractual relationship shall be established until the Vendor has signed, and the Town has approved, an agreement between the Town and the Vendor in the form acceptable to the Town Attorney.

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ARTICLE II. PROPOSAL FORMAT; EVALUATION

Upon receipt of a Proposal, each submittal will be reviewed for compliance with the Proposal requirements by the Selection Committee. Proposals shall be organized and submitted in the format as outlined below. Failure to conform to the designated format, standards and minimum requirements shall result in a determination that the Proposal is non-responsive. Additionally, the Selection Committee will evaluate based upon the criteria as outlined in this document. Points listed below are the maximum number of points possible for each criteria. If necessary, the Selection Committee may elect to conduct oral presentations/ demonstrations with selected Vendors and/or request site visits from Vendors still under active consideration, at no cost to the Town. Demonstrations may be requested to be held at a Town facility. The Town is not required to hold such presentations or demonstrations and is not obligated to provide Vendors with such an opportunity.

Section 1: General Information

5 pts

- A. One page cover letter as described in Article I, Section 2.3.
- B. Explain the legal organization of the Vendor. Provide identification information of the Vendor. Include the legal name, address, identification number and legal form of the Vendor (e.g., partnership, corporation, joint venture, sole proprietorship). If a joint venture, identify the members of the joint venture and provide all of the information required under this section for each member. If the Vendor is a wholly owned subsidiary of another company, identify the parent company. Provide the name, address and telephone number of the person to contact concerning the Proposal.
- C. Identify the location of the Vendor's principal office and the local work office, if different from the Vendor's principal office.
- D. Provide a general description of the Vendor that is proposing to provide the Pumper Truck, including years in business.
- E. Identify any contract or subcontract held by the Vendor or officers of the Vendor that have been terminated within the last five (5) years. Briefly describe the circumstances and the outcome.
- F. Identify any claims arising from a contract which resulted in litigation or arbitration within the last five (5) years. Briefly describe the circumstances and the outcome.
- G. Vendor Information Form (may be attached as separate appendix).

Section 2: Experience and Qualifications of the Vendor

5 pts

- A. Provide a detailed description of the Vendor's experience in providing similar services to municipalities or other entities of a similar size to the Town; specifically relating experience with respect to manufacturing fire pumper trucks.

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SECTION A

B. Vendor shall provide the Pumper Truck using an integrated approach. The cab and chassis, pump module, and apparatus body shall be assembled on the manufacturer's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from the Vendor and not split between manufacturers (i.e. body and chassis). No exceptions will be permitted to this requirement.

C. Provide a list of at least three (3) organizations of a similar size or similar operation to the Town in which work has been performed. This list shall include, at a minimum, the following:

- (i) Name of company or organization.
- (ii) Contact name.
- (iii) Contact address, telephone number and e-mail address.
- (iv) Type of services provided.

The above information must be current, as this will be used to verify references. Inability of the Town to verify references and evidence of manufacturing shall result in the Proposal being considered non-responsive.

Section 3: Project Approach

35 pts

A. Briefly describe the Vendor's approach to providing the required Pumper Truck and related services described in this RFP and its approach to contract management, including its perspective and experience with respect to design, assemble, testing, certification, delivery and maintenance of a fire apparatus. Describe any alternate approaches if it is believed that such an approach would best suit the needs of the Town. Include rationale for alternate approaches, and indicate how the Vendor will ensure that all efforts are coordinated with the Town's general objectives.

B. Vendors are required to complete the Specifications Questionnaire provided in Section B of this RFP. Vendors must provide a detailed description of any proposed specifications and/or construction methods that deviates from the Town specifications. Vendors shall provide drawings of any proposed alternative construction methods. Partial descriptions or general clarifications covering groups of sections of the specifications may result in the Proposal being considered non-responsive. Proposals taking total exception to the specifications contained herein shall be deemed non-responsive. If the subassembly manufacturer's name or brand name for a product is provided in a specification description, the product identified is the desired product to use. Vendors proposing the use of a product other than the named product must indicate such in the Proposal. Where the words "or equal" are used in a paragraph in reference to an identified product, Vendor may suggest an equal product substitution. Each Vendor is encouraged to provide descriptive literature with its Proposal on any equipment or features that are proposed in lieu of those named and/or described in the specifications. Submitted literature shall be an original and will be retained by the Town for use during the evaluation process.

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C. There shall be a **minimum of one (1)** pre-construction meeting before the successful Vendor begins assembly of the Pumper Truck. All specifications shall be reviewed and approved during the meeting and the Town and the Vendor shall sign off on the final drawings of the Pumper Truck. All travel, hotel and accommodations costs shall be the responsibility of the awarded Vendor. The meeting shall take place at the Fountain Hills Fire Department located at 16246 East Palisades Boulevard, Fountain Hills, Arizona 85268.

D. There shall be a **minimum of two (2)** pre-delivery meetings before the scheduled delivery of the completed Pumper Truck to the Town. The pre-delivery meetings shall take place at the facility where the finish work is being done. During the meetings, the Town shall confirm compliance with the agreed-upon specifications. This shall include all operational performance specifications. The awarded Vendor shall make provisions for three (3) Town representatives or their designees to attend the meetings. If the meetings take place outside of the Phoenix metro area, the Vendor shall make provisions that include the transportation and lodging costs of the Town representatives.

E. Vendor shall provide Fire Department personnel with instruction as to the proper use of the Pumper Truck, including but not limited to chassis, fire pump system, the apparatus and other equipment. Training shall be conducted by a factory-trained specialist who shall be responsible for complete instruction on the operation and maintenance of the Pumper Truck. Vendor shall provide mechanic training in the areas of operator preventive maintenance, safety, operation controls, routine repairs and adjustments, maintenance and service of the equipment. Vendor shall conduct a **minimum of three (3)** training sessions. Training sessions shall be held at the Town of Fountain Hills Fire Station No. 1 located at 16426 East Palisades Boulevard, Fountain Hills, Arizona 85268. The training specialist shall be available for a **minimum of three (3) days, eight (8) hours per day**, to provide thorough training of all fire personnel as instructed by Chief of the Fire Department. All travel costs and accommodations related to the training sessions shall be the responsibility of the awarded vendor.

F. Vendor shall have access to a local stocking parts dealer in the Phoenix, Arizona metro area for the proprietary parts used for the repair of the Pumper Truck. The Vendor shall list the size of the parts facility, the number of line items stocked and the value of those line items. Vendor shall make the designated parts facility available for inspection by the Town.

G. Vendor shall provide the following manuals and sheets to the Town upon delivery of the Pumper Truck. Three-ring binders filled with Vendor catalogs are unacceptable.

(i) Vendor shall provide **two (2) copies** of the completed apparatus and chassis operation and general maintenance manual. Vendor shall provide an electronic version of the manual in which provides hyperlinks to major categories and/or subjects from a content page. The manual shall encompass complete information for the Pumper Truck and Pumper Truck systems, including all accessories and/or options, including the (a) operator section of the manual describing each component, gauge and switch with proper operation and operational warnings, (b) maintenance section of the manual describing proper maintenance of the Pumper Truck for all systems and components supplied and (c) lubrication section of the manual showing all lubricant types and capacities for the vehicle, including diagrams to visually locate the lubrication points of

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the Pumper Truck.

(ii) Vendor shall provide **2 two electronic copies** of all "as-built" wiring schematics and related diagrams for the entire Pumper Truck at the time of delivery (including electrical system, air system, etc.). As-built schematics for each system of the Pumper Truck shall be provided with hyperlinks to applicable components of the Pumper Truck drawings for the exact location within the Pumper Truck.

(iii) Vendor shall also provide **two (2) copies** of the Pumper Truck build sheet. The build sheet shall include the major assemblies used in construction of the Pumper Truck. Final inspection data including the serial numbers of the engine, transmission, axles and tires equipped on the Pumper Truck shall also be included on the build sheet.

Section 4: Project Schedule:

15 pts

A. Provide a proposed Pumper Truck schedule showing key Pumper Truck milestones, deliverables and a definite delivery date for the Pumper Truck. Complete design, assembly and delivery of the Pumper Truck shall be no later than **two hundred seventy (270)** calendar days after acceptance of the formal contract by the Vendor. Vendor shall be assessed a **two hundred dollar (\$200.00)** per day late fee for every calendar day that Vendor exceeds the delivery date provided in the Vendor's Proposal. The delivery date shall be defined as the day that all of the following criteria have been met: (i) the equipment, accessories and manuals contained in the Vendor's Proposal are complete and in possession of the Town, (ii) the applicable paperwork, including, M.S.O., title, invoices and inspection certificate, is in possession of the Town and (iii) all discrepancies between the equipment, accessories and manuals supplied to the Town and the specifications contained in the Vendor's Proposal have been reconciled. The Vendor shall not be charged for delays due to fire, flood, riots, acts of God or any other circumstance beyond the Vendor's control.

Section 5: Pricing

40 pts

Vendor shall submit the same number of copies of the Fee Proposal described in Article I, Section 2.6 in a separate, sealed envelope enclosed with the Vendor's Proposal with the signature of the representative of the Vendor who is authorized to make such an offer. The Fee Proposal shall list the individual cost for each of the expenses associated with the Pumper Truck and shall provide sufficient detail to enable Town staff to evaluate all Pumper Truck costs.

Total Possible Points for Proposal:

100 pts

SECTION A

ARTICLE III. ORAL INTERVIEWS: SCORING

In the event that a Vendor cannot be selected based solely on the Proposals submitted, up to three Vendors may be selected for oral interviews. The selected Vendors will be invited to participate in discussions with the Selection Committee on the date indicated on the cover page of this RFP and awarded points based upon the criteria as outlined below. Vendors may be given additional information for these oral interviews. These discussions will relate less to past experience and qualifications already detailed in the Proposals and relate more to identification of the Vendor's Pumper Truck approach and to an appraisal of the people who would be directly involved in this services for this RFP.

Oral Interview

5	General Information
5	Experience and Qualifications of the Vendor
35	Project Approach
15	Project Schedule
<u>40</u>	Pricing
100	Total Possible Points for Oral Interview

Total Points Possible for this RFP:

200 pts

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SECTION A

ARTICLE IV. VENDOR INFORMATION FORM

By submitting a Proposal, the submitting Vendor certifies that it has reviewed the entire RFP, any administrative information and, if awarded the Agreement, agrees to be bound thereto.

Joe Volk Crimson Fire Inc. 46-0416545
VENDOR SUBMITTING PROPOSAL d/for FEDERAL TAX ID NUMBER
SPARTAN ERV

JOE VOLK GENERAL MANAGER Joe Volk
PRINTED NAME AND TITLE AUTHORIZED SIGNATURE

907 7th AVE 605 582 4000
ADDRESS TELEPHONE FAX #

BRANDON SD 57005 4/23/13
CITY STATE ZIP DATE

WEB SITE: _____ E-MAIL ADDRESS: joe.volk@spartanerv.com

SMALL, MINORITY, DISADVANTAGED AND WOMEN-OWNED
BUSINESS ENTERPRISES (check appropriate item(s):

- Small Business Enterprise (SBE)
- Minority Business Enterprise (MBE)
- Disadvantaged Business Enterprise (DBE)
- Women-Owned Business Enterprise (WBE)

Has the Vendor been certified by any jurisdiction in Arizona as a minority or woman-owned business enterprise? No

If yes, please provide details and documentation of the certification.

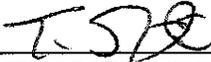
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ARTICLE IV. VENDOR INFORMATION FORM

By submitting a Proposal, the submitting Vendor certifies that it has reviewed the entire RFP, any administrative information and, if awarded the Agreement, agrees to be bound thereto.

Spartan ERV (a d/b/a of Crimson Fire, Inc). 46-0416545
VENDOR SUBMITTING PROPOSAL FEDERAL TAX ID NUMBER

Travis Grinstead, President
Emergency Vehicle Group, Inc. (Dealer)
PRINTED NAME AND TITLE 
AUTHORIZED SIGNATURE

907 7th Ave North 605-212-7597 605-528-4001
ADDRESS TELEPHONE FAX #

Brandon, SD 57005 3/25/2013
CITY STATE ZIP DATE

WEB SITE: www.spartanerv.com E-MAIL ADDRESS: mike.virnig@spartanerv.com
and tgrinstead@evginc.net

SMALL, MINORITY, DISADVANTAGED AND WOMEN-OWNED
BUSINESS ENTERPRISES (check appropriate item(s):

- Small Business Enterprise (SBE)
- Minority Business Enterprise (MBE)
- Disadvantaged Business Enterprise (DBE)
- Women-Owned Business Enterprise (WBE)

Has the Vendor been certified by any jurisdiction in Arizona as a minority or woman-owned business enterprise?

If yes, please provide details and documentation of the certification.

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SECTION B

SPECIFICATIONS QUESTIONNAIRE

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
ROAD TEST	<p>Upon completion of the apparatus and prior to delivery to the Town, a road test shall be conducted with the finished apparatus completely loaded. During this time, the apparatus shall not show loss of power and/or overheating. The transmission driveshaft or shafts and rear axle shall run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.</p> <p>The apparatus must be capable of accelerating to thirty-five miles per hour (35 mph) from a standing start within twenty-five (25) seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.</p> <p>The apparatus must be capable of achieving and sustaining a minimum of forty miles per hour (40 mph) on a ten percent (10%) grade on a two (2) mile non-stop road test. The apparatus must also be able to sustain thirty-five miles per hour (35 mph) on an eighteen percent (18%) grade.</p> <p>The fully loaded apparatus shall be capable of a minimum average speed of sixty miles per hour (60 mph) over varied terrain on a ten (10) mile non-stop road test.</p> <p>The Vendor shall furnish copies of the engine installation approvals, signed by the appropriate engine company, upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p> <p>The Vendor shall furnish copies of the transmission approval, signed by the transmission manufacturer, upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p>	<p style="text-align: center;">Yes</p>	

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.

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Feature	Description	Yes/No/Not Applicable	Deviation
ROAD TEST (cont'd)	<p>The Vendor shall furnish copies of the front and rear axle approvals upon delivery of the Pumper Truck to the Fire Department. No exceptions will be permitted to this requirement.</p> <p>The Pumper Truck shall meet all of the above testing criteria without any gauges or indicators exceeding normal limits. Failure of this test will require the Vendor to make changes in the Pumper Truck as needed to pass the test. Delivery date penalties shall continue to accrue</p>	Yes	
CAB AND CHASSIS	The cab and chassis shall be a medium four (4) door, 10" raised roof over crew and driver-officer arca, aluminum tilt cab, built specifically for fire service by a publicly held U.S. parent company, specializing in chassis design for all fire service applications. The cab and chassis shall meet the requirements of the National Fire Protection Association Standard 1901, (latest edition).	Yes	
CHASSIS WARRANTY	The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months . The warranty period shall begin on the date the vehicle is delivered to the original purchaser. A copy of the warranty shall be included with the Proposal.	Exceeds	
CAB WARRANTY	The cab shall be warranted for a period of ten (10) years . The warranty will state that the cab shall be free of structural damage inside or out by rust and/or corrosion. A copy of the warranty shall be included with the Proposal.	Yes	
FRAME WARRANTY	The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the warranty shall be included with the Proposal.	Yes	
PAINT FRAME AND CHASSIS UNDERCARRIAGE	The chassis undercarriage, consisting of frame, axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with standard black paint. Paint shall be applied before airlines and electrical wiring is installed.	Yes	
CHASSIS WHEELBASE	The chassis wheelbase shall be less than 176".	Yes	
OVERALL HEIGHT	The height of the vehicle shall not exceed 10' from the ground.	Yes	
FUEL TANK	The fuel tank shall have a minimum capacity of fifty (50) gallons. The fuel tank shall be mounted under the frame, behind the rear axle with a three (3)- piece strap hanger assembly with a "U" strap bolted midway on the fuel tank front and rear so the tank can be easily lowered and removed for service purposes. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.	Yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
FRONT BUMPER	A one (1) piece, 10-gauge, 304 polished stainless steel front bumper shall be provided. The bumper shall be 12" high, two (2)-rib wrap-around type. The bumper shall be extended 16" ahead of the cab.	Yes	
FRONT BUMPER APRON	The front bumper apron, if required shall be installed by the apparatus manufacturer.	Yes	
TOW HOOKS	Two (2) heavy duty steel tow hooks shall be installed under the bumper and bolted directly to the chassis frame with "grade 8" bolts. The tow hooks shall be painted black to match the chassis frame.	Yes	
AIR HORNS	Dual Grover Stutter tone 21" air horns shall be recessed in the front bumper on the passenger side. A 3/8" airline "teed" equal distance from each horn shall be installed.	Yes	
AIR HORN ACTUATION	The steering wheel horn button and a right side officer's foot switch shall accomplish air horn actuation.	Yes	
FRONT AXLE	The front axle shall be an ArvinMeritor.	Yes	
CHASSIS ALIGNMENT	The chassis frame rails shall be crosschecked for length and squareness. Front and rear axles shall be laser aligned. Tires and wheels shall be aligned and toe-in set on the front tires at the chassis manufacturer's facility. The completed apparatus should be rechecked for proper alignment after the chassis has been fully loaded.	Yes	
ANGLE OF APPROACH / DEPARTURE	The angles shall be as close to 15/20 degrees as possible.	Yes	
FRONT AXLE CRAMP ANGLE	The front axle cramp angle shall be a minimum of 48 degrees.	Yes	
FRONT TIRES	The front tires shall be Goodyear tubeless radial highway tread.	Yes	
FRONT WHEELS ALCOA ALUMINUM	The front wheels shall be Alcoa hub piloted, polished aluminum wheels.	Yes	
FRONT WHEEL BEARINGS OIL LUBRICATED	The front axle wheel bearings shall be oil lubricated and come equipped with an oil level visual inspection window.	Yes	
FRONT SHOCK ABSORBERS	Two (2) Bilstein monotubular design, nitrogen gas charged shock absorbers shall be part of the front axle suspension. Bilstein shall warranty the shock for a period of five (5) years .	Yes	
STEERING COLUMN AND WHEEL	The steering column shall be a multi-position tilt and telescopic type with an 18" steering wheel. The steering wheel shall be covered with black absorbite padding. The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.	Yes	
FRONT BRAKES	The front brakes shall be drum S-cam type with ArvinMeritor automatic slack adjusters.	Yes	
TELMA FOCAL RETARDER	No alternates allowed.	Yes	
REAR AXLE	The rear axle shall be an ArvinMeritor.	Yes	
TOP SPEED	The top speed of the vehicle shall be 60 - 65 mph at governed engine RPM.	Yes	

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**TOWN OF FOUNTAIN HILLS
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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
REAR BRAKES	The rear brakes shall be drum S-cam type with ArvinMeritor automatic slack adjusters.	Yes	
ABS BRAKE SYSTEM	An anti-lock braking system (ABS) shall be installed on the front and rear axles for safer vehicle control during braking and reduced stopping distance in skid conditions. The electronic monitoring system shall incorporate diagonal circuitry to monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. A momentary test switch shall be installed to test the system for diagnostic codes. The ABS system shall automatically disengage the auxiliary braking system device when required.	Yes	
ABS BRAKE SYSTEM	The ABS system shall have a three (3) year or 300,000-mile warranty.	Yes	
REAR TIRES	The rear tires shall be Goodyear tubeless radial highway tread.	Yes	
REAR WHEELS ALCOA ALUMINUM	The single rear axle wheels shall be Alcoa hub piloted, polished aluminum wheels.	Yes	
OIL LUBRICATED REAR WHEEL BEARINGS	The rear axle shall have oil lubricated wheel bearings.	Yes	
REAR SUSPENSION	The spring capacity must meet or exceed the capacity of the rear axle.	Yes	
AXLE COVER KIT STAINLESS STEEL (ALL WHEELS)	The front and rear wheels shall have aluminum or stainless steel lug nut covers. The front axles shall be covered with aluminum baby moons with hole to view oil seal window. The rear axles shall be covered with foam mounted aluminum or stainless steel high hats. The lug nut covers, baby moons and high hats shall meet D.O.T. certification standards. All baby moons and high hats shall carry a lifetime warranty.	Yes	
AIR BRAKE SYSTEM	A FMVSS 121 and NFPA rapid build-up, compliant air brake system shall be provided. A floor mounted treadle valve shall be mounted in the cab for service brake application. Emergency braking shall be modulated through an inversion valve. A hand control valve shall operate the parking brake system. The rear axle spring brakes are to automatically apply in case of air pressure loss, with a mechanical means for releasing the spring-brake chambers.	Yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Applicable (Yes/No/Not Applicable)	Comments
AIR DRYER	A Meritor Wabco system saver 1200 spin-on desiccant air dryer with a 12-volt, 100-watt automatic heated moisture ejector and integrated ECON valve shall be installed in the air brake system and shall be located in an area that is easily accessible for maintenance. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure.	Yes	
MANUAL DRAINS ON AIR TANKS	Manual pull style drains shall be installed on all reservoirs of the air brake system. They shall be easily accessible from the outside of the vehicle.	Yes	
NYLON AIR LINE TUBING	A dual air system plumbed with color-coded reinforced nylon tubing air lines shall be installed, (a) the primary (rear) brake line shall be green, (b) the secondary (front) brake line shall be red, (c) the parking brake line shall be orange and (d) the auxiliary (outlet) shall be blue. Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall be fiber reinforced neoprene covered hoses.	Yes	
AIR COMPRESSOR	The air compressor on the engine shall be gear driven, engine oil pressure lubricated and cooled by the engine cooling system.	No	*
ENGINE	A Cummins ISX12 liter/500 HP with the ability to override the regeneration cycle shall be provided, and shall not Derate power due to low DEF Fuel Levels. A spin on engine coolant filter with shut-off valve shall be provided. An engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge shall be part of the engine's lubrication system.	Yes	
ENGINE WARRANTY	The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles , whichever occurs first.	Yes	
ENGINE OIL LEVEL CHECK	A low engine oil level switch shall be provided that will indicate when the engine oil is approximately four (4) quarts or below. The switch shall light a red "LOW OIL LEVEL" indicator light in the dash. The indicator shall only function while the ignition switch is on and the engine is not running.	Yes	
EXHAUST SYSTEM	The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires with a turn down.	Yes	
COOLING SYSTEM FAN	The fan shall automatically lock-up when the vehicle is placed in pumping mode.	Yes	
ENGINE PUMP HEAT EXCHANGER	A single-bundle type coolant to water heat exchanger shall be installed.	Yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Features	Description	Compliance (Yes/No/Not Applicable)	Deviation
TRANSMISSION	The transmission shall be an Allison 4000 EVS automatic with electronic controls. The transmission will have two (2) 10-bolt PTO pads. THE TRANSMISSION GEAR RATIOS SHALL ENABLE THE VEHICLE TO CLIMB AN 18% GRADE AT 35 MPH.	Yes	
TRANSMISSION TOUCH PAD	An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and reach.	Yes	
TRANSMISSION MODE	The transmission, upon start-up, will select five (5)-speed operation.	Yes	
TRANSMISSION WARRANTY	The Allison 4000 EVS series transmission shall have a five (5) year/unlimited mileage warranty covering 100% parts and labor. The transmission must be filled with transynd synthetic fluid or Allison approved equal.	Yes	
DRIVELINES	All drivelines shall be Spicer heavy-duty series with "glide coat" splines on all slip shafts.	Yes	
MULTIPLEX ELECTRICAL SYSTEM WITH COLOR DISPLAY OR EQUIVALENT	A Weldon multiplex electrical system shall be supplied. The system shall be a single starting type, installed per N.F.P.A. 1901. The electrical system shall be 12-volt, suppressed per SAE J551 with six (6) Optima SC 31 DS batteries and welding type starter cables per SAE J541. The Multiplexed wiring system shall include dash or engine tunnel mounted information center LCD screen.	Yes	
LED Ground Lighting	The cab shall be equipped with LED lighting under each cab door, below pump panel, opposite side of pump panel, one under L3, L4 compartments and one under each side of rear of truck, lighting the ground to the rear of apparatus. The lights shall be activated by parking brake activation.	Yes	
Alternating Headlights	An alternating high beam headlamp flashing system shall be installed into the high beam headlamp system that will allow the high beams to flash alternately from left to right. The completed system shall be capable of using high-beam to override flashing function and will flash high beams only when the low beam headlamps are selected.	Yes	
Audible and Visible Alarm for Open Door Light	An audible and visible alarm shall be wired to the open door light, which will sound when a door is open and the air brake is off with the vehicle in gear.	Yes	
BATTERY JUMPER STUDS	Battery jumper studs shall be provided in the driver's step-area. The studs allow the vehicle to be jumpstarted or the cab to be raised in an emergency due to battery failure. Power and grounding studs shall be provided and installed behind the electrical center cover with a breaker.	Yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
ALTERNATOR	Alternator shall be a Leece Neville 40 SI with battery voltage sense wire.	Yes	
SUPER AUTO EJECT 20 AMP KUSSMAUL	A Kussmaul 20 amperes Super auto-eject electrical receptacle with a Red weatherproof cover and box shall be installed on the left side of the cab above the wheel well. It shall automatically eject the plug when the starter button is depressed.	Yes	
BATTERY CONDITIONER KUSSMAUL	A Kussmaul Auto Charge 35/10, 35 amperes battery conditioner and 10 amperes power supply shall be installed in the cab behind the driver's seat. The conditioner shall incorporate a 10 amperes Battery Saver to provide a 12-volt power supply for a mobile data terminal, radio or hand held lights. The Battery Saver shall automatically disconnect the accessory loads from the battery when the shoreline is plugged in and power them from an internal power supply. The remote charge indicator shall be located near the receptacle.	Yes	
BACK-UP CAMERA	Shall be equipped with back-up camera with display on multiplex system.	Yes	
BACK-UP ALARM	An NFPA compliant back-up alarm shall be installed at the rear of the chassis with an output level. The alarm will automatically activate when the transmission is placed in reverse.	Yes	
NFPA APPROVED UPPER LIGHTING PACKAGE	A Whelen, NFPA 1901 certifiable LED upper level lighting package shall be provided which consists of the following equipment:	Yes	
WARNING LIGHTS ZONE A UPPER WHELEN	Option Five NFPA Edge Ultra Freedom LED Light bar with Global Traffic Technologies Traffic emitter in front center of light bar. The emitter and white lights will deactivate when parking brake is set.	Yes	
WARNING LIGHTS ZONE A LOWER WHELEN	Option Five super LED red flasher surface mount next to front turn signals. Additional lights mounted on the sides of the front bumper. Two Whelen LED 500 series red warning lights shall be installed, one on each cab side over the front wheel wells to act as intersection lights.	Yes	
LOWER ZONE B WHELEN PUMPER PACKAGE ONE	Option Six super LED red flasher surface mount over rear wheel well.	Yes	
LOWER ZONE D WHELEN PUMPER PACKAGE ONE	Option Six super LED red flasher surface mount over rear wheel well.	Yes	
ZONE C UPPER WHELEN	Option Six - super LED red flasher surface mount on upper rear left and right corners rear facing. Whelen traffic advisor series TAM63.	Yes	

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SECTION B

Feature	Description	Compliance (Yes, No, Not Applicable)	Deviation
ZONE C LOWER WHELEN	Option Five super LED red flasher surface mount with brake/tail, turn and reverse lights.	Yes	
SCENE LIGHTS	Upper zone B - Whelen model scene light mounted recessed raised roof section. Two (2) on each side. Lights to be individually controlled by Vista IV module. Upper zone D - Whelen scene light mounted recessed raised roof section. Two (2) on each side. Lights to be individually controlled by Vista IV module.	Yes	
REAR DOT LIGHTING	Rear DOT lighting shall be provided and consist of the following:	Yes	
Back-Up Lights	A pair of clear back-up lights shall be provided at the rear of the body, one on each side. The above DOT taillights shall be provided with a Cast 4V aluminum frame at the rear of the body, one on each side. The frames shall have a bright aluminum finish and shall include a space for a 6" X 4" lower zone "C" Whelen super LED red flasher warning light. Two (2) Zico lights shall be provided and installed above the rear wheels. There shall be one (1) on each side of the apparatus body. The lights shall activate when the vehicle is placed in reverse gear. The lights shall be able to be activated with a switch in the cab as well.	Yes	
License Plate Bracket And Light	One (1) license plate mounting bracket and light shall be provided at the rear of the body.	Yes	
Rub Rail Clearance Lights	Rub rails shall have Truck-Lite LED clearance lights provided at the side and rear of the body. Lights shall be recessed into the side facing vertical surfaces of each rub rail.	Yes	
Cluster Lights	Three (3) recessed Truck-Lite red LED marker lights shall be provided at the center of the rear step-area.	Yes	
Pump Compartment Light	One (1) LED light with manual switch on the pump panel shall be provided inside the pump compartment. Light shall be place within reach of the pump and plumbing compartment access door.	Yes	
Compartment Lights	A minimum of two (2) Whelen tube/rope LED lights shall be installed in each side wall of the specified enclosed compartment.	Yes	
Compartment Door Switches	All compartments shall be equipped with two (2), single function automatic compartment door switches. One (1) switch shall control the corresponding compartment light(s) and one (1) shall activate the flashing door hazard warning light located in the cab.	Yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
HAZARD WARNING AND DOOR AJAR LIGHT - DASH	One (1) surface mounted light shall be provided near the center of the cab dash area in easy view of the driver and the officer. The light shall flash whenever a compartment door or other possible hazard on the apparatus is open, extended or ajar. The light shall be wired directly into the door ajar switch and hazard circuit. This light shall have a red lens. The hazard warning light shall be marked with a tag stating "DO NOT MOVE APPARATUS WHEN LIGHT IS ON."	Yes	
FRONT AND REAR ROLL DOWN DOOR WINDOWS	The front doors shall have a full roll-down window. The rear doors shall have a roll-down window.	Yes	
INNER DOOR PANELS ZOLATONE PAINTED	The inner door panels shall be aluminum panels. A "Fireman Friendly" cast steel pull handle shall be included with the front door panel.	Yes	
DOOR WARNING	Four (4) Chevron reflective signs shall be installed on the lowest portion of the inner door panels, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.	Yes	
ENGINE COVER	The fixed cover shall be an integral part of the cab. The engine side of this area shall be heavily insulated with multi-layer insulating materials. All exposed insulation seams and edges are sealed to reduce moisture contamination and debris build-up.	Yes	
MOBILE DATA TERMINAL, HEADSETS AND RADIO PROVISION W/GLOVE COMPARTMENT	A Mobile Data Terminal (MDT) provision shall be provided above the glove Compartment. A 20 amp 12 AWG clean power and ground circuit will be provided to the MDT area. Sigtronics headsets, five (5) positions, three (3) push to talk, Captain, Engineer and Pump panel. Provide a console and pre-wire for 2 mobile radios. Provide pre-wire for 4 portable radio chargers (locations to be determined at pre-build). Radios shall be programmed with Fountain Hills Fire Department frequencies by Vendor (FHFD will provide frequencies).	Yes	
FULL WIDTH CREW CAB DOOR ASSIST RAILS	Black powder coated cast aluminum assist rails shall be provided and installed on the inside of the rear crew doors the full width of the window glass. The rails shall assist personnel in exiting and entering the cab. The rails shall be located at the retracted door window glass level and will protect the exposed window glass area.	Yes	
INTERIOR LIGHTING	The cab interior lighting shall consist of the following: • A red/white LED dome lamp shall be located over each door. The white lamp shall be activated by its respective door when opened and both activated by an individual switch on the light.	Yes	

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
INTERIOR LIGHTING (cont'd)	• A red/white LED dome lamp with individual switches shall be located in the headliner, over the engine tunnel to serve as a tunnel surface light.	Yes	
FLASHING DOOR AJAR LIGHT	A red LED flashing door ajar light shall be located in the headliner, centered in the cab. The light shall be 6.00" long x 2.50" wide x 1.75" high and labeled "Do Not Move Apparatus". The light shall be wired to indicate an open door on the cab when the parking brake is released.	Yes	
ENGINE TUNNEL LIGHT	A Trucklite 4" diameter clear work light shall be provided and installed under the engine tunnel.	Yes	
FABRIC COVERED SEATS - DURABLE BALLISTIC POLYESTER	The seats shall be covered with a high strength, wear resistant fabric of durable ballistic polyester. A PVC coating shall be bonded to the backside of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.	Yes	
GRAY SEAT COLOR	All seats supplied on the chassis shall be gray in color.		
SEATBELT WARNING SYSTEM	A seatbelt use warning system shall be installed in the chassis. The system will provide a visual and audible warning when all of the following conditions are met: (a) Any seat is occupied (sixty pounds minimum). (b) The corresponding seat belt(s) remains unfastened. (c) The park brake is released. Once activated, the visual and audible indicators will remain active until all occupied seats have the seat belts fastened.	Yes	
DRIVER SEAT	The driver's seat shall be a four (4)-way air suspended type Seats Inc. 911 "Universal" high back seat with air control valve located at lower front of seat. Or equivalent. The suspension mechanism shall be enclosed by a rubber bellows. The seat shall be equipped with an adjustable lumbar support, adjustable tilting seat back and "knee rake" bottom cushion adjustment. The seat shall be equipped with a red three (3)-point shoulder harness with lap belt and an automatic retractor attached to the cab.	Yes	
OFFICER SEAT	The officer's seat shall be a Seats Inc. 911 "Universal" high back seat, or equivalent. If seat is mounted on a box frame, it shall provide storage with a latching door.	Yes	
REAR FACING OUTBOARD SEATS	Two (2) outboard rear facing crew area Seats Inc. 911 "Universal" SCBA high back individual seats shall be installed in the rear of the cab. Each "Universal" high back seat shall include a tapered and padded seat cushion and back.	Yes	

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable/Deviation)	
REAR FACING OUTBOARD SEATS (cont'd)	<p>Each seat back shall include a vertically split hinged headrest and ZICO "ULL" bracket with LLS strap. A removable padded vinyl cover shall be supplied over the SCBA cavity.</p> <p>Two (2) forward facing seats (fold down type).</p>	Yes	
HVAC SYSTEM	The cab shall be equipped with a ceiling mounted HVAC system. The system shall consist of an overhead heater/defroster/air- conditioning unit mounted above the engine tunnel in a central location with climate control through VMUX.	Yes	
ADDITIONAL INSULATION PACKAGE	Additional insulation in the cab shall be installed (where available) to improve air-conditioning and/or heating in extreme weather climates as well as reducing road noise.	Yes	
CAB TILT ACTUATION	<p>The entire cab shall tilt 45 degrees to allow for easy maintenance of the engine and transmission.</p> <p>The cab tilt actuation shall be with an electric over hydraulic lift pump located with easy access for repair/replacement with cab down, with a control box mounted inside right side pump compartment with removable panel or access door.</p> <p>Cab tilt shall have the capability of being lifted with a manual cab jack pump in the event of electrical failure.</p> <p>The lift system shall have an ignition interlock and red lockdown indicator lamp, which shall illuminate when holding "down" switch to indicate safe road operation. It shall be necessary to activate the master battery switch with the park brake set in order to tilt the cab.</p> <p>A steel safety assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering.</p> <p>The safety assembly shall fall over the lift cylinder when the cab is in the "up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab.</p> <p>Fluid level dipsticks shall be accessible without having to raise the cab.</p>	Yes	
WHEEL WELL LINERS	Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning.	Yes	
EXTERIOR CAB ASSIST HANDLES	<p>Four (4) 18" knurled anti-slip one-piece exterior assist handles shall be installed, one (1) behind each cab door.</p> <p>The assist handle shall be made of 14-gauge, 304 stainless steel 1.25" diameter to enable easy grabbing with the gloved hand.</p>	Yes	

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
CAB MIRRORS	Two (2) Ramco model 6015-FFR-750 mirrors shall be provided. Vision, motorized and non-heated.	Yes	
TWO TONE PAINT	The cab shall be painted two-toned with a finished break line 1.5" below the cab side windows and down to the top of the grill on the cab front fascia. The top portion will be white and the bottom portion will be red (using Fountain Hills Fire Department approved colors). A 3/4" K Tape 4167 Engine turned Gold leaf stripe with black boarders shall be applied on the break line between the two different colored surfaces. The roll-up compartment doors shall be unpainted and left in a natural metal color.	Yes	
ENGINE AND TRANSMISSION OPERATION MANUAL	Two (2) engine operation and maintenance manuals and two (2) transmission operation manuals shall be included in the Spartan operator's manual (digital copies are acceptable).	Yes	
FIRE EXTINGUISHER	A 2.5 pound BC D.O.T approved fire extinguisher shall be shipped loose with the cab.	Yes	
CHASSIS ELECTRICAL REQUIREMENTS	The apparatus chassis shall be equipped with heavy-duty 12-volt negative ground system. The electric system shall include all parts, components, switches, relays, wiring, and other devices necessary to assure complete and proper operation. All warning lights shall be controlled through VMUX.	Yes	
CHASSIS ELECTRICAL TRAFFIC WARNING SYSTEM	The following traffic warning system shall be provided and installed to the specified cab and chassis by the apparatus builder.	Yes	
Electronic Siren	One (1) NFPA compliant electronic siren shall be provided and mounted in the cab in a location convenient to the driver and the officer. The siren will be full feature with manual, wail, yelp and Hyper Yelp sound modes, as well as public address and radio rebroadcast. Siren will have a hard-wired noise-canceling microphone for use with the P.A. system. Siren shall be wired to the specified speaker(s).	Yes	
Speaker	One (1) Federal, BP100F 100 watt chrome plated speaker shall be provided and mounted in the front bumper. Speaker shall be wired to the siren system.	Yes	
Mechanic Siren	One (1) Federal Q2B-P mechanical siren shall be provided at the front of the apparatus and shall be located under the front bumper extension and recessed behind the front bumper. The siren shall have two (2) foot operated switches, one (1) on each side of the cab floor, and a siren brake switch centered in the cab in reach of both the driver and the officer. Sufficient bracing shall be provided underneath the siren for support against vibration.	Yes	

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
MECHANICAL AND ENVIRONMENTAL TEST	All optical warning devices shall be tested to the requirements of SAE J595, <i>Flashing Warning Lamps for Authorized Emergency, Maintenance, and Service Vehicles</i> , SAE J845, <i>Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles</i> , SAE J1318, <i>Gaseous Discharge Warning Lamp for Authorized Emergency, Maintenance, and Service Vehicles</i> , or SAE J1889, <i>L.E.D. Lighting Devices</i> .	Yes	
COMPLIANCE DOCUMENTATION	The apparatus manufacturer shall demonstrate compliance of the warning system by one of the following methods: (a) Certification that the system was installed within the geometric parameters specified by the manufacturer of the system and referencing the optical source test reports provided by the manufacturer of the system. (b) Certification that a mathematical calculation based on test reports for individual optical sources provided by the manufacturer of the devices and performed by a qualified person demonstrates that the combination of individual devices as installed meets the requirements of this standard. (c) Actual measurement of the lighting system after installation on the apparatus.	Yes	
CHASSIS ADDITIONS AND MODIFICATIONS	The following additions and modifications to the specified cab and chassis shall be provided and installed by either the apparatus builder or the chassis manufacturer.	Yes	
Chassis Fluids Plate	A permanently mounted plate showing fluid levels and types shall be provided in the driver's compartment in easy view. This plate shall show the quantity and types of fluid for the following items: (a) Engine Oil (b) Pump Transmission Lubrication Fluid (c) Engine Coolant (d) Pump Primer Fluid (e) Transmission Fluid (f) Drive Axle Lubrication Fluid	Yes	
Vehicle Warning Height Plate	A vehicle height warning tag shall be provided and installed.	Yes	

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SECTION B

Feature	Description	Yes/No/Not Available	Deviation
Final State Manufacturer Vehicle Certification Plate	A Final Stage Manufacturer Vehicle certification tag shall be provided and installed.	Yes	
Air Filter Ember Protection Screen Inspection Tag	One (1) warning tag shall be provided and installed on the dash and shall read, "This Apparatus is equipped with an Air Filter Ember Protection Screen, Routine Inspection is required."	Yes	
PTO Shift	A PTO shall be supplied to accommodate PTO driven generator and CAF compressor. The PTO shall be equipped with an air power shifting mechanism with a shift control located in the cab. A two position positive locking air shift control shall be supplied by the PTO manufacturer.	Yes	
Tow Eyes	Two (2) heavy-duty tow eyes shall be provided at the rear of the apparatus, extending through the rear of the body. Tow eyes shall be attached directly to the rear frame rails and shall be threaded for removal purposes when not required.	Yes	
Front Bumper Extension	The chassis shall be ordered with extended front frame rails. Additional steel under-structure shall be added and covered with aluminum diamond tread plate. The ends of extension shall be boxed in for added strength and a pleasing appearance. Two (2) hose guide rollers shall be mounted on vertical stanchions on each forward outer corner to protect cab from hose damage.	Yes	
Hose Tray	The hose compartment in the front bumper shall be capable holding the quantity of hose listed below. The compartment shall be provided with drain holes and have rubber floor matting on the bottom for air circulation. A hinged door shall cover the compartment and the tray shall carry 200' of 1 3/4" double jacket fire hose. The compartment shall be pre-plumbed with 2" flexible wire hose with a 90 degree swivel with 1.5" NST male threaded outlet mounted inside box. A 3/4" auto drain shall be installed in plumbing as close to the compartment as possible.	Yes	
Mud Flaps - Rear Wheels	One (1) pair of flexible rubber mud flaps shall be provided on both sides of the apparatus behind the rear wheels. The mud flaps shall extend down far enough to be effective but not allow the flap to be entangled with the wheel when backing up.	Yes	
APPARATUS BODY DESCRIPTION	<p>Body Design Body shall be designed for fire service use only; no commercially designed bodies for use in other industries are acceptable in quality, construction, design or longevity.</p> <p>Body shall be built in two sections, which separates the pump module from the body and compartment module. The front portion of the pump compartment structure (directly behind the cab) shall not be overlaid, to provide</p>	Yes	

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Feature	Description	Compliance Yes/No/Not Applicable	Deviation
APPARATUS BODY DESCRIPTION (cont'd)	<p>Vertical Surfaces The vertical surfaces at the front of the compartments next to each pump panel, at the rear of the compartments, and at the rear of the body between the beavertails, including the inside surfaces of the beavertails below the hose bed, shall be covered with polished aluminum tread plate for appearance, wear, and enhanced visibility at night. The inside surface of the beavertail at the hose bed exit above the aluminum tread plate shall be covered with 14-gauge brushed-finish stainless steel to provide protection against hose abrasion and paint damage from hose couplings.</p>	Yes	
HANDRAILS	<p>All handrails on the body shall be constructed of round extruded aluminum stock, with three black rubber inserts for a firm grip. Handrails will be a minimum of 1-1/4" in diameter, and be secured against rotation in matching, chrome plated end stanchions.</p> <p>One (1) horizontal handrail shall be installed below and spanning the width of the hose bed exit area. This handrail shall be located so as to prevent interference with hose loading and unloading operations. Chrome plated stanchions shall be installed at both ends and the center of this handrail.</p>	Yes	
RUNNING BOARDS	<p>A running board shall be provided on the body below each side pump panel. A tubular perimeter framework shall support each running board and inset with Diamondback non-skid serrated aluminum tread. Each running board shall have an anodized aluminum channel along the outward facing edge, providing a rub rail. Recessed clearance lights shall be installed in the vertical rub rail surface. Each running board shall be set out to allow for water runoff and to minimize body damage in the event of an accident.</p>	Yes	
REAR STEP	<p>A beaver tail type tailboard step shall be constructed of a structural tubing framework, inset with Diamondback non-skid aluminum tread with 24" standing slide out platform. The entire step shall not exceed 3 inches beyond the width of the rear compartments.</p> <p>A warning plate shall be affixed to the rear of the apparatus in a conspicuous place and shall read: "WARNING, DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION, DEATH OR SERIOUS INJURY MAY RESULT"</p>	Yes	
FOLDING STEP	<p>Six (6) large chrome plated folding steps shall be provided and installed at the rear of the apparatus. The steps shall be constructed of die cast aluminum with a 35 square inch non-skid serrated surface and shall be spring loaded in the down and closed position. The steps shall</p>	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
FOLDING STEP (cont'd)	<p>have a static load rating of 800 psi, and the apparatus-mounting surface shall be provided to withstand 500 psi, meeting NFPA recommendations. Adequate step illumination shall be provided.</p> <p>Two (2) additional steps mounted at the pump panel and passenger side. To aid in accessing Dunn age area.</p> <p>Steps will have LED actuated lighting when folded down.</p>	Yes	
BODY FLEX JOINT	<p>The pump compartment and any specified compartments in front of the pump panel shall be split from the main body behind the pump panels. This split shall consist of each section being a separate structure to allow for greater flex of the entire apparatus without extra stress being put on the body.</p>	Yes	
COMPARTMENTATION	<p>All compartments shall be welded for strength and shall be sealed from the elements.</p> <p>All compartment floors shall be sweep-out in design and shall be reinforced by a formed .125" aluminum brace, running full width between, and welded to, the extension of the side walls below the floor.</p> <p>All compartments shall be attached to the aluminum super structure only, in order to maintain a truly modular design.</p> <p>All compartments shall be individual and free standing. No compartments shall have any common walls, floors or ceilings, unless so designed to be transverse with an adjacent compartment.</p> <p>All closed compartments shall be water and dust tight, and shall contain louvers. Moisture barriers shall be placed behind the louvers in such a way as to prevent water infiltration and allow for ventilation to the outside of the compartment.</p> <p>All compartment and shelf floors shall be lined with dry decking.</p> <p>All compartments shall be as large as possible, as determined by the design of the apparatus.</p> <p>Approximate required compartments sizes are listed herein.</p>	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
<p>DRIVER'S SIDE COMPARTMENTS</p>	<p>One (1) rescue style compartment shall be provided on the driver's side of the apparatus body forward of the rear wheels. The compartment shall extend from behind the pump panel to the front of the wheel well area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth. Compartment shall include three (3) pull-out shelves.</p> <p>One (1) rescue style compartment shall be provided on the driver's side of the apparatus body behind the rear wheels. The compartment shall extend from behind the wheel well area to the front of the rear tailboard area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth. Compartment shall include two (2) pull-out shelves.</p> <p>One compartment shall be provided above the rear wheels on the driver's side of the apparatus body. Compartment shall span between the rescue style compartments. The rear wall shall extend back but shall not common with the water tank. The rear wall of the compartment shall be designed so that holes can be drilled to mount equipment without damaging the water tank. Compartment shall include one (1) drop down slide out tray that angles down on extension.</p>	<p>Yes</p>	
<p>PASSENGER'S SIDE COMPARTMENTS</p>	<p>One (1) rescue style compartment shall be provided on the passenger's side of the apparatus body forward of the rear wheels. The compartment shall extend from behind the pump panel to the front of the wheel well area in width and equal to the compartment over the rear wheel at the top extending to the bottom of the body in height. The lower portion of this compartment shall extend under the "T" section of the water tank for maximum depth.</p> <p>Power plugs to this compartment for EMS suction units and flashlights. This compartment must also have a remote activated lock. Remote device will be inside the cab by the rear passenger door. Compartment will include three (3) adjustable shelves.</p> <p>One compartment shall be provided above the rear wheels on the passenger's side of the apparatus body.</p> <p>Compartment shall span between the rescue style compartments. The rear wall shall extend back but shall</p>	<p>Yes</p>	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
PASSENGER'S SIDE COMPARTMENTS (cont'd)	not common with the water tank. The rear wall of the compartment shall be designed so that holes can be drilled to mount equipment without damaging the water tank. (1) One drop down slide out tray that angles down on extension.	Yes	
REAR COMPARTMENT	One compartment shall be provided at the lower center rear of the apparatus body, above the rear step, between the two rear side compartments, height as much as allowable and still accommodate roll up door. The back wall of this compartment shall be provided with a separate pre-plumbed internal compartment to accommodate 200' of 1" forestry hose/nozzle with latched drop down hinged door. Rear compartment back wall shall have a removable bolt in panel to gain access to the fuel tank sender, tank mounts, airlines or other normal maintenance items that would otherwise not be accessible. This panel shall be sealed to prevent leakage from overflow.	Yes	
COMPARTMENT ROLL-UP DOOR	All roll-up doors on specified compartments shall be designed to open completely out of the way and shall use a roll configuration to have a maximum of 6" intrusion into the compartment space. Roll-up doors shall not reduce the clear door opening as specified. Door shall be manufactured by ROM and constructed of double wall anodized aluminum slats. Nylon end shoes to slide in the track will be provided on each slat to assure smooth operation and will not require constant lubrication. Each slat shall be designed with an interseal to prevent water from entering the compartment, absorbing shock and eliminating clatter. Doors shall be designed to work in extreme temperature ranges. The latch shall be a lift bar lock to allow one-hand opening. Roll-up doors will be left unpainted.	Yes	
ROLL-UP DOOR - REAR COMPARTMENT	A roll-up door shall be provided for the specified rear compartment. Door shall be manufactured by ROM and constructed of double wall anodized aluminum slats. Nylon end shoes to slide in the track will be provided on each slat to assure smooth operation and will not require constant lubrication. Each slat shall be designed with an interseal to prevent water from entering the compartment, absorbing shock and eliminating clatter.	Yes	

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Feature	Description	Applicable	Disposition
ROLL-UP DOOR - REAR COMPARTMENT (cont'd)	Doors shall be designed to work in extreme temperature ranges. The latch shall be a lift bar lock to allow one-hand opening.	Yes	
ADJUSTABLE SHELF CHANNEL	Vertically mounted Unistrut channels shall be provided and installed in each compartment specified for the installation of infinitely adjustable shelving. The design of the channels shall allow square type spring loaded, self-tightening nuts to be attached inside of the channel.	Yes	
FENDERS AND WHEEL WELLS & WHEEL WELL COMPARTMENTS	Both rear wheel wells of the apparatus body shall be provided with fenders and full liners. Rear fenders shall be constructed of No. 304 stainless steel, contoured to match the perimeter of the wheel well opening. The fender shall extend out from the body approximately 1" and shall have a 1-1/4" radius. The fender shall be bolted to the wheel well liner and/or the body to allow for easy replacement in the event of damage. A rubber gasket shall be provided between the fender and the surface of the body to protect the finish and seal against moisture. Full-width wheel well liners shall be provided to deflect road splash away from the apparatus body interior. Wheel well liners shall be contoured to match the shape of the fenders. Wheel well liners shall be sized to provide ample clearance for chains fitted to the specified size of wheel and tire and shall be bolted to the quarter panel and the fender to allow easy replacement in the event it is damaged. The vertical body quarter panels spanning between the rear wheel wells and the apparatus body super-structure shall be constructed of the same material as the body, and welded completely to the body structure to provide a seam free surface. The quarter panels shall be painted to match the body. Forward driver side wheel well compartment will house three (3) SCBA cylinders. Rear driver side wheel well compartment will have access to fuel cell and have a small compartment. Forward passenger side wheel well house three (3) SCBA cylinders. Rear passenger side will house three (3) air bags (small, medium and large) and pressurized water can.	Yes	
FUEL FILL CUP AND DOOR	One (1) Cast Product fuel fill cup shall be provided on the left rear quarter panel inside the wheel well compartment.	Yes	
RUB RAILS	Body rub rails shall be constructed using extruded, anodized aluminum channel. They shall be installed along the lower edge of both sides of the apparatus body. Rub rails shall be 2" in height and protrude 1-1/4" for protection of the apparatus body and compartment doors. Rub rails shall include rubber end caps at the ends to provide protection and a pleasing appearance.	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
RUB RAILS (cont'd)	Rub rails shall be attached with threaded fasteners with spacers to be easily removed for repair or replacement.	Yes	
STORAGE COMPARTMENT ABOVE PUMP	An open top storage area shall be provided above the pump compartment and in front of the main hose bed area. This storage area shall be provided with a removable aluminum diamond plate floor for traction and access into the pump compartment. The rear wall of this structure shall form the bulkhead separating this compartment from the main hose bed. Structure shall be designed and constructed to adequately support the installation of all specified equipment, plus all miscellaneous tools and supplies stored in this area.	Yes	
HOSE BODY	The hose body shall be located above the water tank and start from the front bulkhead of the body just behind the top equipment storage compartment, pump compartment or crosslay when specified and shall extend to the rear of the body. The front bulkhead of the hose bed as well as the side sheets shall be constructed of 1/8" 5052 H-32 aluminum plate with a bright finish on the unpainted exposed side. The inside of the side sheets shall not be painted on the area that the hose will come in contact with, to prevent the paint rubbing on the hose and any maintenance of having to repaint this area and shall be left in the natural bright finish of the aluminum. The complete hose compartment shall be free of all projections to eliminate any snagging or damage to hose. The main hose bed shall have a removable aluminum extruded slatted floor. Extrusions shall incorporate a ribbed design and be 3" wide x .750" thick. Rear hose bed exit area shall be protected with a stainless steel angle trim piece spanning the full width of the exit area. NFPA requirement of 800 feet of 4" large diameter hose.	NO	*
HOSE BED DIVIDER	Left side adjustable aluminum hose bed divider compartment - 2'H x 1'W x full length of hose bed with door on rear and on top. Right side adjustable aluminum hose bed divider with rear door compartment suitable to hold two (2) backboards attached.	Yes	
CROSSLAY COMPARTMENT	The crosslay compartment walls shall be constructed of 1/8" 5052 H-32 aluminum plate with a bright finish on the unpainted exposed side of the hose bed. The inside of the side sheets, next to the hose, shall be left unpainted to prevent hose from rubbing on the painted surface and requiring maintenance to repaint. This area shall be left in the natural bright aluminum finish. The	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
CROSSLAY COMPARTMENT (cont'd)	<p>complete hose compartment shall be free of all projections to eliminate any snagging or damage to hose.</p> <p>Crosslay hose bed shall have a removable aluminum ventilated floor. Ends of flooring shall have an extruded channel for attaching adjustable dividers, when specified.</p> <p>Stainless steel rollers shall be provided on the two sides and bottom of the crosslay hose bed on each side. The rollers shall be 1-1/4" stainless steel tubing with nylon bushings, and 1/2" stainless steel rod.</p> <p>Each cross lay hose bed shall have a minimum hose bed storage area for the following hose load:</p> <p>(a) Two (2) 200' of 1 3/4" double jacket fire hose.</p> <p>(b) One (1) 200' of 2 1/2" double jacket fire hose.</p> <p>(c) Two (2) cross lay hose bed dividers shall be provided in the cross lay hose bed. The divider shall be constructed of 1/4" aluminum and shall be adjustable from side to side to allow for hose size changes.</p>	Yes	
STAINLESS STEEL BODY TRIM	<p>All compartment doorsills shall be covered with stainless steel scuff plates.</p> <p>All vertical exterior body corners shall be covered with polished stainless steel and act as body corner scuff guards.</p> <p>Rear hose bed exit area shall be covered with brushed stainless steel at rear horizontal edge of hose bed for protection.</p>	Yes	
LADDER STORAGE COMPARTMENT	<p>One (1) compartment shall be provided in a tunnel on the right side of the apparatus next to the water tank to hold the specified ladders.</p> <p>One (1) 24' two (2) section extension ladder. One (1) 14' roof ladder. One (1) 10' attic ladder.</p> <p>The compartment shall have an aluminum diamond plate door at the rear of the body.</p>	Yes	
PUMP GENERAL	<p>Pump shall be a HALE or WATEROUS, of minimum 1500 GPM, Single Stage midship mounted, split case, centrifugal type cast iron pump body, bronze fitted.</p>	Yes	
PUMP SPECIFICATIONS	<p>The pump must deliver the percentage of rated capacity at pressure listed below:</p> <p>100% of rated capacity at 150 psi net pumps pressure.</p>	Yes	

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PUMP SPECIFICATIONS (cont'd)	<p>70% of rated capacity at 200 psi net pumps pressure.</p> <p>50% of rated capacity at 250 psi net pumps pressure.</p> <p>When dry, the pump shall be capable of taking suction and discharging water with a lift of not to exceed ten (10) feet in not more than thirty (30) seconds.</p>	Yes	
PUMP CONSTRUCTION	<p>The pump shall meet requirements of NFPA be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1901 rated performance. Pump shall be equipped with a TRVL-120 valve with test button and warning light.</p> <p>Pump will be protected by two anodes.</p> <p>The entire pump shall be assembled, and tested at the pump manufacturer's factory.</p> <p>The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.</p>	Yes	
PUMP PANEL DESCRIPTION	<p>Pump panels shall be easily removable with paddle style latches. Each side to be fabricated from 14-gauge rubberized or black wrinkle finish. Controls and gauges shall be located on left side of apparatus and properly labeled, and color-coded.</p>	Yes	
PUMP COMPARTMENT	<p>An aluminum diamond plate panel shall enclose the top of the pump compartment, which shall be removable for pump access. All steel plumbing components inside the pump compartment shall be fully painted. All other components including wiring, gauges, pump panel rear surfaces, high pressure hoses, and small diameter tubing shall be left unpainted for rapid identification and ease of repair. ANY PAINTING OF THESE COMPONENTS IS UNACCEPTABLE.</p>	Yes	
PUMP PANEL LIGHTS	<p>Three (3) LED lights equipped with a full length polished stainless steel shield shall illuminate the left and right side pump panel. A switch on the operators pump panel shall control the lights.</p>	Yes	
HINGED GAUGE PANEL	<p>There shall be provided a hinged gauge panel located above the operator's panel on the left-side of the apparatus body for access to the back of the gauges and to the interior of the pump compartment. This upper panel shall be of the same material as the lower panel. The panel shall be vertically hinged and be provided with compression latches for easy opening.</p>	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
ACCESS PANEL-RIGHT SIDE	A panel shall be provided on the right side of the apparatus pump body to access the pump compartment for maintenance. The panel shall be fully removable and be provided with compression latches for easy opening.	Yes	
VALVES, CONTROLS GAUGES & PLUMBING REQUIREMENTS	The following pump, plumbing, controls, gauges and accessories shall be provided as indicated below. The plumbing requirements outlined below shall be considered a minimum standard and shall be followed by the manufacturer without exception.	Yes	
MAIN PUMP DISCHARGE & INTAKE LINES	<p>All plumbing shall be stainless steel with sweep elbows where applicable.</p> <p>All side discharge and intake valves specified shall be mounted directly to the pump discharge or intake castings. Controls for these valves shall either be direct 1/4 turn type or directly connected control rods from the valve handle to the operator's panel. The valves or valve controls shall be provided with a locking feature; either manufactured into the valve or into the control handle.</p> <p>All discharges 2-1/2" or larger shall have 30 degree angled adapters for deflecting the water stream towards the ground unless otherwise specified.</p> <p>All discharge and suction intake valves 1-1/2" or larger shall have individual 3/4" drain valves located adjacent to the outlet, control, or at the bottom of the pump panel. The drain outlets must have 3/4" minimum rubber hose running to below the height of the corresponding running board to prevent water spraying in the pump compartment or through the pump panel openings.</p> <p>All discharges shall have chrome plated caps and chains, unless designed to be pre-connected, or otherwise specified.</p> <p>All in-line valves shall be Akron 8000 series swing-out style valves unless otherwise stated. All valves shall be designed to operate under normal conditions up to 500 psi and shall have dual seats to work not only for pressure but also for vacuum. All 3" or larger discharge and intake valves, with the exception of the tank to pump valve, shall be equipped with a slow closing feature meeting the requirements of NFPA. The delay in closing or opening the valve is to prevent unreasonable back pressure or water hammer on the pump and/or sudden increases in pressure to other discharge lines due to the rapid closing or opening of a valve.</p>	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
MAIN PUMP DISCHARGE & INTAKE LINES (cont'd)	<p>All gated inlets shall be directly plumbed into the intake manifold of the pump. Heavy-duty piping or suction elbow castings shall be used.</p> <p>All valves and controls shall be easily accessible for service, removal or for replacement.</p> <p>Where vibration or chassis flexing may damage or loosen piping, the piping shall be equipped with victaulic type couplings.</p>	yes	
AUXILIARY DISCHARGE LINES & PLUMBING MANIFOLD	<p>All auxiliary discharge control valves, when appropriate, shall be quarter-turn, ball type and shall be located on a common plumbing manifold, securely mounted, with all of the controls for these valves on the main pump panel operating in a common direction. The manifold shall be constructed from a minimum of 4" x 4" x 3/16" stainless steel tubing. For each specified line the connection shall be made with a weld-on threaded flange to insure strength against breakage for continuously opening and closing of the discharge lines. The manifold is to be pressure tested before installation and painted to prevent rust. The main discharge line from the pump to the manifold shall be of sufficient size to assure a minimum of friction loss and proper flow to all discharge lines attached to this manifold.</p> <p>All remote discharge outlets shall be plumbed with stainless steel pipe or high- pressure wire braided hose. The wire- braided hose shall be designed to withstand the normal operating pressure of the pump.</p>	yes	
Pump Performance Acceptance Test Plate	A stamped or engraved plate shall be provided on the left pump panel to list the performance ratings of the pump. The plate shall show the gpm and rpm for the pump's performance at 100%, 70% and 50% of the rated capacity.	yes	
Test Gauge Panel	The left pump panel shall be provided with two (2) test ports; one plumbed to the intake side and the other plumbed to the discharge side of the water pump. These test ports shall be installed to provide a port for installing certified test gauges when testing the pump performance. The test ports shall be located for easy access and be correctly labeled.	yes	
Pump Panel Labeling	The controls, discharges, intakes, and other pump panel features that are not provided with a pre-printed legend or trim plate shall be labeled as required for ease of operation. This labeling shall be accomplished by using color-coded engraved or etched tags. The tags are to be self-adhesive type and attach to the pump panel. The tags shall be placed adjacent to the control in such a way as to clearly distinguish the item it is to label.	yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation*
Master Discharge Pressure Gauge	A Master Discharge pressure gauge shall be provided on the operator's panel and shall be located close and to the right of the Master Intake pressure gauge. The gauge shall be a compound gauge, minimum 4-1/2" diameter, dry anti flutter to dampen the movement. Liquid filled gauges will not be accepted.	Yes	
Master Intake Pressure Gauge	A Master Intake pressure gauge shall be provided on the operator's panel and shall be located close and to the left of the Master Discharge pressure gauge. The gauge shall be a compound gauge, minimum 4-1/2" diameter, dry anti-flutter to dampen the movement. Liquid filled gauges will not be accepted.	Yes	
Individual Discharge Gauges	All discharge valves that are controlled at the operator's panel shall have a corresponding pressure gauge. These gauges shall be located adjacent to the control and/or the outlet for the discharge so that monitoring the pressure for any discharge is made easier. Gauges shall be 2-1/2" minimum diameter, graduated dry anti-flutter to dampen the movement. Liquid filled gauges will not be accepted. Pump panel designs that place all discharge gauges in one group at the top of the pump panel regardless of the location of the discharges will be unacceptable.	Yes	
MASTER DRAIN	A bronze multiple port drain valve shall be provided and controlled from the left side pump panel. The valve shall be plumbed to drain both the discharge and intake sides of the pump, the relief valve and other components. The valve shall be placed as low as possible to provide for proper draining.	Yes	
PUMP COOLER (PUMP BY- PASS LINE)	A 3/8" line shall run from the discharge side of the pump to the water tank to help keep the pump cool when water is not being discharged. This line will be designed to by- pass water when the valve is open and maintain the pump water temperature at a safe level. The valve for this by-pass line shall be located on the operator's panel.	Yes	
TACHOMETER DRIVE	In addition to the test ports, a speed counter cable and adapter shall be provided to allow an external rpm speed counter to be used during pump testing for checking true engine and/or pump speed.	Yes	
PUMP HOUR METER	Pump panel shall have a non-resettable hour meter to display actual pumping hours for maintenance purposes and the life of the apparatus.	Yes	
WATER TANK LEVEL GAUGE	The apparatus shall be equipped with two (2) Whelen strip light series PS-tank (for indicating water level). The Tank Level Gauge shall indicate the liquid level on an easy to read LED bar graph display. The strip lights shall be mounted on the exterior side of the dunnage area with no exposed wires to dunnage.	Yes	

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Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
PRIMING PUMP	Primer to be an "air jet" type primer.	no	ke
ENGINE/PUMP CONTROLLER	<p>This apparatus shall be equipped with a "Class 1" Total Pressure Governor Plus connected directly to the Electronic Control Module (ECM) mounted on the engine. The Total Pressure Governor Plus is to operate as a pressure sensor (regulating) governor (PSG) eliminating any need for a relief valve on the discharge side of the pump.</p> <p>A special preset feature shall permit a predetermined pressure of rpm to be set. The preset pressure or rpm will be displayed on the message display of the Total Pressure Governor Plus. The preset shall be easily adjustable by the operator.</p> <p>Engine Status Center is incorporated in Total Pressure Governor Plus.</p>	yes	
DISCHARGE LOCATIONS	<p>One (1) 2-1/2" NST water only discharge shall be provided on the right side pump panel.</p> <p>One (1) 3" NST water only discharge shall be provided on the right side pump panel. The discharge shall be controlled by a hand wheel driven worm gear at the pump panel to limit the time required to fully open or close the valve to three (3) seconds or longer, meeting NFPA requirements.</p> <p>Two (2) 2" discharges with CAFS shall be provided in the cross lay hose bed. The discharges shall be plumbed with 2" flexible wire braided hose and a 2" quarter turn ball valve. The discharges shall have a 90 degree full swivel elbow with 1-1/2" threads to allow the hose to be pulled from either side. The discharges shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2-1/2" CAFS discharge shall be provided in the cross lay hose bed. The discharge shall be plumbed with 2-1/2" flexible wire braided hose and a 2-1/2" quarter turn ball valve. The discharge shall have a 90 degree full swivel elbow with 2-1/2" threads to allow the hose to be pulled from either side. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2" discharge pre-connect shall be provided in the front jump line basket and shall be plumbed with CAFS.</p>	yes	

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**TOWN OF FOUNTAIN HILLS
FIRE DEPARTMENT**

SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
DISCHARGE LOCATIONS (cont'd)	<p>The discharge shall be plumbed with 2" flexible wire braided hose and a 2" quarter turn ball valve. The discharge shall have a 90-degree full swivel elbow with 1-1/2" threads to allow the hose to be pulled in any direction without kinking. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 1" forestry discharge shall be provided at the rear of the apparatus body in the rear forestry compartment and shall be plumbed with CAFS. The discharge shall be plumbed with 1" flexible wire braided hose, and have 1" NHST forestry threads with chrome plated cap and chain. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel.</p> <p>One (1) 2-1/2" NST CAFS discharge shall be provided at the left front of the hose bed. The discharge shall be controlled by an UICS-2 for Elkhart Brass Unibody series electric valves from the operator's panel and shall be provided with a 3/4" drain valve located at the bottom of the left pump panel.</p>	Yes	
MONITOR PLUMBING	<p>One (1) 3" monitor riser pipe shall be provided in the area designated above the pump. The plumbing shall be 3" with a 3" ball valve from the discharge side of the pump. All plumbing shall be adequately braced to support the piping, monitor and the side-to-side pressure exerted on the riser while discharging water at any angle. The top of the riser shall extend far enough to allow the specified monitor to swing 360 degrees with the nozzle or tips at a normal operating angle. The discharge shall be controlled by a hand wheel driven worm gear at the pump panel to limit the time required to fully open or close the valve to three (3) seconds or longer, meeting NFPA requirements. The monitor discharge shall be provided with a corresponding pressure gauge located near the control and a 3/4" drain valve located at the bottom of the of the pump operator's panel.</p> <p>Elkhart Brass- Vulcan RF (W.E.T) wireless electronic technology with remote and pump panel push button panel mount control (or equivalent).</p> <p>Elkhart Brass- Electrically Actuated Extender (18 inch).</p>	Yes	
INTAKE LOCATIONS	<p>Two (2) 6" NST intakes shall be provided, one (1) on the left side, and one (1) on the right side of the pump. Each intake shall be provided with an anode intake screen and a NFPA approved chrome-plated cap.</p> <p>Two (2) Black Max piston intake valves shall be included.</p>	Yes	

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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
2-1/2" AUXILIARY INTAKE - RIGHT PUMP PANEL	One (1) 2-1/2" intake valve shall be provided on the right pump panel and controlled by a chrome plated or stainless steel handle at the inlet. Valve controls shall be provided with a locking feature. The valve shall have a 3/4" drain valve, female swivel adapter, chrome plated plug and chain.	Yes	
INTAKE RELIEF VALVE	An intake pressure relief dump valve shall be provided and plumbed into the intake side of the pump. Pressure setting controls shall be provided on the valve and shall be accessible from underneath the pump compartment area by means of an adjustment knob on the valve. The valve shall be pre-set at the factory for 125 psi. The valve shall be installed to allow operation from any intake. The valve shall be an Elkhart Brass Model 40-20 series. The discharge side of the relief valve shall be plumbed to the side of the apparatus just under the body or running board. The pipe shall terminate with a 2-1/2" NST male adapter and a label affixed to read, "DO NOT CAP."	Yes	
TANK TO PUMP LINE	An in-line valve shall be installed between the pump and the booster tank. The valve shall be of the quarter turn type of fixed pivot design. The valve shall be controlled from operator's panel. The tank to pump line shall be provided with a check valve to prevent over pressurization of the water tank. The valve and piping shall be 3" without restrictions.	Yes	
TANK FILL	The apparatus shall be equipped with a 1.5" tank fill line with a 2" in-line valve. The control for this fill line shall be located at the main operator's panel.	Yes	
CAF SYSTEM FOR USE WITH SINGLE CLASS A FOAM TANK	A Waterous PTO driven compressed air foam system shall be installed and be capable of developing a minimum of 300 gallons per minute of water at 125 psi and 150 cubic feet of air at 125 psi simultaneously (NFA rating).	No	*
PUMPER CERTIFICATION TEST	The apparatus, upon completion, shall be tested and certified by Underwriters Laboratories, Inc, an organization that is accredited with testing systems on fire apparatus in accordance with ANSI Z34.1. The certification tests shall follow the guidelines outlined in NFPA 1901 "Standard for Pumper Fire Apparatus;" 2003 edition. The certification shall include the pumping test, pumping engine overload test, the pressure control system test, the priming device test, the vacuum test and, if the apparatus is equipped with a water tank, the water tank to pump flow test. The test results shall be filed with UL and a copy provided to the Fire Department for its records.	Yes	

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**TOWN OF FOUNTAIN HILLS
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SECTION B

Feature	Description	Compliance (Yes/No/Not Applicable)	Deviation
WATER TANK	<p>The water tank will be a 500 gallon capacity POLY-TANK. The tank shall be completely removable without disturbing or dismantling the apparatus body structure.</p> <p>Tank sump shall be equipped with a 3" clean out and PVC pipe plug. The "Poly-Tank", polypropylene water tank that is to be provided with the apparatus and shall have a lifetime warranty from the manufacturer. The manufacturer (UPF) shall repair the tank at no cost to the Town.</p>	Yes	
FOAM TANK	<p>One (1) 30-gallon foam tank shall be provided and plumbed to the foam system. The tank shall be constructed of polypropylene and shall be integrated into the main water tank. The foam tank shall have separate fill tower with catch basin to prevent spilled foam from contacting the apparatus. The fill tower shall be of a different color to eliminate confusion of contents. The foam tank fill tower lid shall be labeled for the type of foam concentrate the tank contains.</p>	Yes	
BODY ELECTRICAL REQUIREMENTS	<p>Independent circuits shall serve all apparatus body electrical equipment, separate and distinct from the vehicle chassis circuits.</p> <p>The wiring shall be installed in high temperature flexible type loom and shall be labeled and color-coded or function labeled. The wiring shall be grease, oil and moisture resistant and securely fastened. Solderless insulated connectors shall be provided and enclosed with heat shrink tubing for extra protection.</p> <p>Automatic reset circuit breakers shall be provided.</p>	Yes	
ELECTRICAL EQUIPMENT	<p>The following electrical equipment shall be supplied with the completed apparatus.</p>	Yes	
Electric Cord Reel	<p>One (1) Hannay electric cord reel with electric rewind shall be provided and mounted in the rear compartment. The reel shall have a 200' capacity for 12/3 SO type cord. A covered rewind button shall be provided on the frame of the reel to activate the rewind motor.</p> <p>One (1) 200' length(s) of 12/3 electric cord shall be provided and installed on the specified cord reel. The cord shall be a heavy-duty type yellow in color and shall be resistant to most solvents and corrosives.</p>	Yes	
PTO Driven Generator	<p>One (1) generator shall be provided and installed. The generator shall provide a minimum of 5000 watts of 120/230 volt AC power. The generator shall be wired to the main electrical panel.</p>	Yes	
Circuit Breaker Panel	<p>There shall be an electrical circuit breaker panel provided and installed in the engineers' compartment. The panel shall be wired to the on-board APU to provide individual protection for all installed AC powered lights and receptacles.</p>	Yes	

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SECTION B

Feature	Description	Yes/No/Not Applicable	Deviation
ELECTRICAL SYSTEM PERFORMANCE TEST, LOW-VOLTAGE	<p>The fire apparatus low voltage electrical system shall be tested as required by this section and the test results certified by the apparatus manufacturer. The certification shall be delivered to the purchaser with the apparatus. Tests shall be performed when the air temperature is between 0°F and 110°F (18°C and 43°C).</p> <p>Documentation At the time of delivery, the Vendor shall provide the following:</p> <p>(a) Documentation of the electrical system performance tests.</p> <p>(b) A written electrical load analysis, including the following:</p> <ul style="list-style-type: none"> • The nameplate rating of the alternator. • The alternator rating under the conditions specified in NFPA 1901 (current edition). • Each of the component loads specified in 13.3.3 that make up the minimum continuous electrical load. • Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load. • Each individual intermittent electrical load. 	yes	
ELECTRICAL SYSTEM PERFORMANCE TEST, LINE-VOLTAGE	The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.	yes	
APPARATUS BODY COLOR	The body shall be painted to match the Fire Department's existing apparatus. If required, a color chip shall be sent to and approved by the Fire Department prior to the final painting. Roll-up compartment doors will be unpainted.	yes	
CHASSIS FINISH	The chassis manufacturer shall supply the chassis finish.	yes	
TOUCH UP PAINT	One (1) pint of touch up paint shall be provided matching each finish color at time of delivery.	yes	
REFLECTIVE STRIPE	A 6" Scotchlite reflective stripe shall be applied to each side and front (design to meet Fountain Hills standard). Rear to meet current NFPA standard.	yes	
EQUIPMENT	The following specified equipment should be provided. The equipment shall be new and unused and shall meet all current NFPA, OSHA and other applicable safety regulations.	yes	
Road Kit	<p>The apparatus shall be equipped with a road kit containing the following:</p> <p>One (1) Model 5 BC fire extinguisher.</p>	yes	

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SECTION B

Item	Description	Yes/No/Not Applicable	Deviation
WARRANTIES (cont'd)	<p>Loss of time or use of the apparatus, inconvenience or other incidental expenses.</p> <p>Any apparatus which shall have been repaired or altered outside of the manufacturer's factory in any way so as in our judgment, to affect its stability, nor which has been subject to misuse, negligence, or accident.</p>	Yes	
TEN (10) YEAR CORROSION AND PERFORATION WARRANTY	<p>The body supplier shall provide a Body Corrosion Perforation Warranty on all aluminum and Stainless Steel bodies for the period of ten (10) years from the date of delivery to the Town. The warranty shall cover the repair of the body for corrosion perforation caused by manufacturing or material failures. This warranty shall not pertain to steel bodies.</p>	Yes	
7 YEAR PAINT GUARANTEE	<p>A Sherwin-Williams 7 Year Paint Performance Guarantee shall cover the areas of the vehicle finished with specified products for a period of seven (7) years beginning the day the vehicle was delivered from the Sherwin-Williams Original Equipment Manufacturer to the vehicle owner. The warranty shall cover the peeling or delaminating of the topcoat and/or other layers of paint, cracking or checking, loss of gloss caused by cracking, checking and hazing and any paint failure caused by defective Sherwin-Williams finishes which are covered by this guarantee.</p>	Exceeds	
WATER TANK WARRANTY	<p>A UPF brand "Poly-Tank", polypropylene water tank that is to be provided with the apparatus and shall have a lifetime warranty from the manufacturer. The manufacturer (UPF) shall repair the tank at no cost to the Town. The warranty shall cover the reasonable costs of removing or replacing the water tank into the apparatus.</p>	Yes	

* Vendor must provide a detailed description of any proposed specification that deviates from the specifications contained herein. If additional space is required, Vendor may re-print the inquiries followed by the Vendor's response in a separate document to be submitted with the Vendor's Proposal.



CLARIFICATIONS TO SPECIFICATIONS

1. Page B-2, Chassis Warranty
 - a. A warranty shall be offered for each new fire apparatus manufactured for a period of Two (2) years from the date of delivery.
2. Page B-5, Air Compressor
 - a. The air compressor shall be driven by a shaft from a PTO mounted to the transmission. The compressor air end shall be of the oil flooded rotary screw type, designed to supply a minimum of 140 SCFM of free air, at maximum CAFS operating RPM.
3. Page B-21, Hose Body
 - a. The main hose body will have extrusions that are .250" Thick.
4. Page B-27, Priming Pump
 - a. The priming system shall include an electrically driven rotary vane priming pump rigidly attached to the pump transmission. The priming pump shall be self-lubricating and shall not require an external oil reservoir.
5. Page B-29, CAFS
 - a. A One Touch Rapid 140 cfm compressed air foam system shall be installed to provide compressed air foam to the designated discharges. The consistency of the compressed air foam shall be individually adjustable to each discharge outlet.

Operational Features

All CAFS operations are initiated with a 'one touch' button capable of supplying water, foam, wet CAFS or dry CAFS to different discharges simultaneously. Operations shall be equipped with an automated mechanical balancing valve that requires no adjustments.

The foam system will start automatically when foam is required for CAFS. Air is injected through a unique combination air injection mixing inductor.

Safety Features

Air will shut off automatically when foam stops flowing or the foam tank runs dry. Air will shut off automatically when water stops flowing. The air compressor will shut off automatically if the compressor overheats.

6. Page B-33, 7 year paint
 - a. The paint warranty will be 10 years as provided by PPG.

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INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified with a view of obtaining the best results and the most acceptable apparatus for service in the Department. These specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor. The manufacturer shall provide loose equipment only when specified by the customer. Otherwise, in accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of twenty-five years.

Each bidder shall provide satisfactory evidence of their ability to construct the apparatus specified, and shall state the location of the factory where the apparatus is to be built. They shall also show that they are in a position to render prompt service and to furnish replacements parts.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments serving populations of over 250,000 in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Each bid shall be accompanied by a detailed set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus being furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices. The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points:

Accessibility of the various units, which require periodic maintenance; and ease of operation (including both pumping and driving); and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under Performance tests and requirements. Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair.

All steel welding shall follow (American Welding Society) requirements for AWS D1.6:1999 Structural Welding Code for welding stainless steel structural assemblies. All aluminum welding shall follow (American Welding Society) requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type structure made from aluminum structural alloys. All sheet metal welding shall follow (American Welding Society) AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow (American Society of Mechanical Engineers) ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, (American Welding Society) AWS standards A5.20-E70T1. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during testing operations within working hours to monitor weld quality.

Employees classified as welders shall be tested and certified to meet American Welding Society and American Society of Mechanical Engineers welding codes.

DELIVERY

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To insure proper break-in of all components while still under warranty, the apparatus **shall be delivered under its own power**, rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall provide a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

- A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).
- C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D. The apparatus, when fully loaded, shall have not less than 25 percent nor more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

If optioned, the apparatus shall be tested and approved by the Underwriter's Laboratories Incorporated in accordance with their standard practices for pumping engines. The contractor shall provide copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered. If optioned, the vendor, at their expense, shall have the Underwriter's Laboratories Incorporated conduct the tests required by the Underwriter Laboratories Incorporated (Guide for the Certification of Fire Department Pumper subject 822 dated 1995 or latest). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 / latest revision.)

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

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LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

BID SPECIFICATION REQUIREMENTS

Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Bidders shall submit a detailed proposal. Each bidder shall submit their proposals in the same arrangement as these specifications for ease of evaluation, comparison, and examination of compliance. Bid communications by letter only and/or written on a company letterhead, shall not be acceptable.

EXCEPTIONS TO SPECIFICATIONS

Exceptions shall be allowed if they are equal to, or superior to that as specified and providing they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list shall refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications will not be acceptable. The Apparatus shall be inspected upon completion for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive. **An exception to these requirements shall not be tolerated.**

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Agency.

The apparatus shall be designed so that the operator could perform all recommended daily maintenance checks easily without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus. The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

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The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

One (1)
00-03-1110

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24" x 36"). Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable. Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

One (1)
00-03-1211

APPROVAL/PRE-CON DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use of pre-construction conference. The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus. The Customer will sign the final approval drawing.

One (1)
00-03-1310

AS BUILT DRAWING PDF

The contractor shall provide to the customer a "PDF" type, as built drawing.

One (1)
00-10-4000

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis has been utilized in evaluating and engineering the critical areas of the apparatus body. Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions. The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall be a minimum of 3 different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus. This is in addition to the static stress analysis. The analysis shall have included the weight of the structure plus an estimate of all the components that exist on a fully loaded apparatus (i.e. Tank, water, hose load,

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equipment in compartments, etc.).

Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. Detailed colored drawings shall be supplied with the bidder's proposal.

One (1)

00-13-1000

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) copies of apparatus manuals with all manufactured apparatus. The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and upkeep of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

Owner name and address;

Apparatus manufacturer, model, and serial number;

Chassis make, model, and serial number;

GAWR of front and rear axles;

Front tire size and total rated capacity in pounds;

Rear tire size and total rated capacity in pounds;

Chassis weight distribution in pounds with water (if applicable) and manufacturer mounted equipment (front and rear)

Engine make, model, serial number, rated horsepower, related speed and no load governed speed;

Type of fuel and fuel tank capacity;

Electrical system voltage and alternator output in amps;

Battery make and model, capacity in CCA:

Paint numbers;

Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose):

Written load analysis and results of the electrical system performance tests;

Transmission make, model, and type;

Pump to drive through the transmission (yes or no);

Engine to pump gear ratio and transmission gear ratio used;

Pump make, model, rated capacity in gallons per minute, serial number, and number of stages;

Pump manufacturer's certification of suction capability;

Pump manufacturer's certification of hydrostatic test;

Pump manufacturer's certification of inspection and test for the fire pump;

Copy of the apparatus manufacturer's approval for stationary pumping applications;

Pump transmission make, model and serial number;

Priming device type;

Type of pump pressure control system;

The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed;

Certification of water tank capacity;

One (1)

00-13-2000

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COLOR CODED ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) **and one (1) CD copy of** as-built wiring schematics, to include all line voltage schematics with each apparatus.

One (1)

00-60-1000

GENERAL WARRANTY

A warranty shall be offered for each new fire apparatus manufactured for a period of Two (2) years from the date of delivery, except for the commercial chassis and certain other components as noted in the next paragraph.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities. Please see the official warranty document in the appendix (attached) for specific details.

One (1)

00-70-0900

STRUCTURAL WARRANTY

A structural Aluminum warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

One (1)

00-80-0500

PAINT WARRANTY

A ten (10) year Prorated Paint Warranty shall be included with the apparatus.

One (1)

00-90-8200

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be offered for each new fire apparatus manufactured for a period of ten (10) years from the date of delivery.

One (1)

00-91-4100

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, UPF.

One (1)

00-91-9100

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

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The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

One (1)

00-10-1000

APPARATUS TEST BY UNDERWRITERS LABORATORIES

The following Apparatus shall comply with all NFPA 1901 applicable regulations in effect as of the contract signing date. There shall be multiple tests performed by the contractor and Underwriter's Laboratories when the apparatus has been completed. The manufacturer shall furnish the completed Test Certificate(s) to the purchaser at time of delivery.

Since the inspection services of Underwriters Laboratories are available to all bidders on an equal basis, no other third party testing service shall be acceptable.

The tests conducted on the apparatus shall include, but not be limited to:

PUMP & PLUMBING PERFORMANCE TEST

The apparatus pump and plumbing system shall be tested and certified.

12 VOLT ELECTRICAL TEST

The apparatus low voltage electrical system shall be tested and certified.

One (1)

00-30-1000

FACTORY PRECONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a preconstruction conference at the manufacturing facility with a factory representative present and individuals from the _____ Fire Department to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

One (1)

00-30-2000

MID-CONSTRUCTION INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a mid-construction conference at the site of the manufacturing facility with _____ individuals from the _____ to inspect the apparatus during construction. The "Purchaser" shall designate the stage of construction at which the visit will be conducted.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

One (1)

00-30-4000

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection

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conference at the site of the manufacturing facility with _____ individuals from the _____ to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

One (1)

00-30-5000

ON-LINE CUSTOMER INTERACTION

The manufacture shall provide the capability for online access through the manufacture's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacture's website:

1. Chassis
2. Body – Prior to Paint
3. Body – Painted
4. Pump and Plumbing
5. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

One (1)

00-38-0000

PUMP & APPARATUS TRAINING

The successful bidder shall provide a factory-trained technician to provide the following training:

A minimum ____hour structured training course for the fire apparatus mechanics of the department, covering the repair and maintenance of all components of the apparatus called for in the specifications.

The successful bidder shall provide a minimum ____ hour structured training course to be repeated three times to cover each of the _____ shifts of personnel assigned to operate the apparatus, covering nomenclature of components, proper operation of the apparatus, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

It is intended that this training be organized in such a manner that both the mechanics and fire personnel receive full benefit of the aforementioned structured training. The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier".

One (1)

00-90-6800

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date placed into service.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)

00-95-0000

Apparatus Requirements

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One (1)
00-95-1E50

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

One (1)
00-95-2E00

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall height of [120](#) inches.

One (1)
00-95-3E00

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99") inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripherals that are 'removable' shall not be incorporated into this measurement.

Items that are considered 'removable' are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Etc.

One (1)
00-95-5E00

MAXIMUM WHEEL BASE REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum wheel base of [172](#) inches.

One (1)
00-95-6E00

MINIMUM ANGLE OF APPROACH REQUIREMENT

The apparatus specified shall be constructed as detailed and shall meet or exceed a minimum angle of approach of [as close to 15 degrees as possible](#).

One (1)
00-95-7E00

MINIMUM ANGLE OF DEPARTURE REQUIREMENT

The apparatus specified shall be constructed as detailed and shall meet or exceed a minimum angle of departure of [as close to 20 degrees as possible](#).

One (1)

CHASSIS MODEL

The chassis shall be a Gladiator model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

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The chassis shall have a vehicle identification number that reflects a 2013 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. Spartan Chassis is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from Spartan Chassis or their OEM needed to be in compliance with those regulations.

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 20,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location.

CAB STYLE

The cab shall be a custom, fully enclosed, MFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

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The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 99.40 inches wide with a minimum interior width of 91.00 inches. The overall cab length shall be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 49.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.25 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.38 inches deep X 32.13 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 10.38 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.20 inches deep X 21.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

OCCUPANT PROTECTION

The vehicle shall include the Advanced Protection System™ (APS) which shall secure belted occupants and increase the survivable space within the cab. The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The system components shall include:

- Driver steering wheel airbag

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- Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries
- Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event
- Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM
- Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the RCM. In a qualifying front impact event the outboard sensors provide inputs to the RCM. The RCM activates the steering wheel airbag, driver side dual knee airbags (patent pending), officer side knee airbag, and advanced seat belts for each occupant in the cab.

The APS frontal impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 208. Frontal impact into a rigid barrier at 25 mph shall be conducted by an independent third party test facility using belted 95th percentile Hybrid II test dummies.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the RCM. In qualifying rollover or side impact events the outboard sensors provide inputs to the RCM. The RCM activates the side curtain airbags and advanced seat belts for each occupant in the cab. The RCM measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the RCM shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

The APS side impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 214. Side impact from a moving barrier at 17 mph shall be conducted by an independent third party test facility using belted 50th percentile ES-2re test dummies.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the "Classic" design.

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The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps.

FRONT GRILLE

The front cab fascia shall include a classic box style, 304 stainless steel front grille with a Spartan logo. The grille shall measure 55.45 inches wide at the top tapering to 50.00 inches wide at the bottom X 33.06 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 750.00 square inches.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the upper and lower colors specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be PPG FBCH 75376 Red.

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be PPG FBCH 91776 white.

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which is specifically detailed by the customer. This special paint breakline shall be represented in a photograph or drawing and shall be provided with the chassis order.

Break-line to be 1.5" below the cab side windows and down to the top of the grill on the cab front fascia.

CAB PAINT PINSTRIPE

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Where the upper and lower paint colors meet a temporary 0.50 inch wide black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps.

CAB STRUCTURAL WARRANTY

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi – Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

MULTIPLEX DISPLAY

The multiplex electrical system shall include a Weldon Vista IV Touchscreen display which shall be located on the left side of the dash in the switch panel. The Touchscreen display shall feature a full color LCD screen. The display shall include a message bar displaying the time of day, and important messages requiring acknowledgement by the user. There shall be virtual controls for the on-board diagnostics. The display screen shall be video ready for back- up cameras,

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thermal cameras, and DVD. A DIN type input connector ready for GPS interfacing shall be incorporated into the back of the display.

The Touchscreen display shall measure approximately 6.25 inches wide x 3.38 inches in height. The display shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

AUXILIARY ACCESSORY POWER

An auxiliary set of power and ground studs shall be provided and installed behind the MDT cut out with a 20 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 20 amp battery direct load

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ENGINE

The chassis engine shall be a Cummins ISX12 engine. The ISX12 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 500 horse power at 1800 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1645 foot pounds of torque at 1200 RPM with 729 cubic inches (11.9 liter) of displacement.

The ISX12 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2010 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

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The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade 0.19 of an inch thick aluminum alloy plate. The tunnel shall be a maximum of 46.50 inches wide X 29.00 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled via an off/low/medium/high virtual button on the Vista display and control screen. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

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The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The engine tunnel shall include an access door to allow for engine oil and power steering fluid visual checks. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a Fire Research In Control 300/400 pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall be designed for a side mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate "Pump Engaged" and "OK to Pump" indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive. The clutch fan shall automatically engage in pump mode.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

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The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer eleven (11) blade fan with a fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements, and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ENGINE COOLANT FILTER

An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.

Proposals offering engines equipped with coolant filters shall be supplied with standard non-chemical type particulate filters.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling system hoses shall be silicone heater hose with rubber hoses in the cab interior. The radiator hoses shall be formed silicone coolant hoses with formed aluminized steel tubing. All heater hose, silicone coolant hose, and tubing shall be secured with stainless steel constant torque band clamps.

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ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the right hand side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the right hand side. The dry type filter shall ensure dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in pressure differential for improved horsepower and fuel economy. The air intake shall be mounted within easy access via a hinged panel behind the right hand side headlight module. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system through the decomposition tube between the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps.

The exhaust system shall be mounted on the right side below the frame with the discharge terminating horizontally ahead of the rear tires. The system shall utilize a 90-degree bend in the exhaust tubing from the turbo into a side inlet DPF canister that allows the entire system to be pulled forward. The DPF shall be installed in the outboard position with the SCR offset to an inboard mount rearward of the DPF, maximizing space for the body compartments rearward of the DPF. The exhaust outlet shall be a fixed pipe connected directly to the side outlet of the SCR.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

ENGINE EXHAUST WRAP

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The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

TRANSMISSION

The drive train shall include an Allison model EVS 4000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters which shall offer Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	0.74:1
6th	0.64:1 (if applicable)
Rev	4.80:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen IV-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

An eight (8) pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission control module. The Gen IV-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall provide a prognostic indicator (wrench symbol) on the digital display

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between the selected and attained indicators. The prognostics monitor various operating parameters to determine and shall alert you when a specific maintenance function is required.

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed oil drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat[®].

DRIVELINE RETARDER

A Telma electromagnetic driveline retarder shall be focal mounted on the rear axle to act as an auxiliary braking system.

MIDSHIP RETARDER CONTROL

There shall be four (4) stages of activation for the driveline retarder. The first stage shall be 25% activation, the second stage shall be 50% activation, the third stage shall be 75% activation and the fourth stage shall be 100% activation. All four stages shall work off pressure applied to the service brake. The first stage shall activate with 3 PSI of pressure, the second stage shall activate with 5 PSI of pressure, the third stage shall activate with 7 PSI of pressure, and the fourth stage shall activate with 10 PSI of pressure. The driveline retarder shall be controlled by a virtual On/Off switch located on the Vista display. There shall be an indicator light mounted in the instrument panel. The indicator light shall indicate each of the four (4) stages of activation.

The driveline retarder shall disengage in pump mode or during an ABS event. A positive activation of the driveline retarder shall activate the brake lights.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Hale QMAX pump.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.28:1 (23).

MIDSHIP PUMP GEARBOX DROP

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The Hale pump gearbox shall have an "L" (long) drop length.

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 92.00 inches.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black textile braided lines which are reinforced with braided high tensile steel wire. The fuel lines shall be connected with reusable steel fittings.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length. The baffled tank shall be made of 14 gauge aluminized steel. The exterior of the tank shall be painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

A 1.50 inch diameter hole shall be provided in the left and right frame rails for vent hose routing provisions. The holes shall be located adjacent to the fuel tank and 5.13 inches up from the bottom of each rail.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle.

FRONT AXLE WARRANTY

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The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and "road sensing" shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or "road sensing" designed shocks shall not be considered.

FRONT SUSPENSION

The front suspension shall include a nine (9) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and 44-degrees to the right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85 with an assist cylinder.

CHASSIS ALIGNMENT

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The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-26-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 68 MPH +/- 2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.

FRONT TIRE

The front tires shall be Goodyear 385/65R-22.5 18PR "J" tubeless radial G296 MSA mixed service tread.

The front tire stamped load capacity shall be 18,740 pounds per axle with a speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.

The Goodyear Intermittent Service Rating load capacity shall be 20,000 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 120 pounds per square inch. If the maximum speed is 70-75 MPH the tire shall be rated at stamped rating of 18,740 lbs. The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

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The rear tires shall be Goodyear 12R-22.5 16PR "H" tubeless radial G661 HSA mixed service tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

TIRE PRESSURE INDICATOR

There shall be a voucher provided with the chassis for a pop up style tire pressure indicator at each tire valve stem. The indicator shall provide visual indication of pressure in the specific tire.

The tire pressure indicators shall be redeemed upon the vehicle manufacturer's receipt of the voucher for installation by the customer.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and a polished finish that lasts.

REAR WHEEL

The outer rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch LvL One™ aluminum wheels with a polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch aluminum wheels with LvL One™ bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver

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of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual style switch shall be provided and properly labeled "mud/snow". When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Meritor 16.50 inch x 6.00 inch S-cam drum type.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the center of the tunnel within easy access of both the driver and officer positions.

FRONT BRAKE SLACK ADJUSTERS

The front brakes shall include Meritor automatic slack adjusters installed on the chassis which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

REAR BRAKE SLACK ADJUSTERS

Haldex rear brake automatic slack adjusters shall be installed on the axle.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 30 brake chambers.

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REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be mounted to the right frame rail.

MOISTURE EJECTORS

Manual pet-cock type drain valves shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

AUXILIARY AIR CONNECTION

An auxiliary air line shall be plumbed off the auxiliary air tank and routed inside the cab terminating under the driver dash area. A temporary mounted brass single port tee shall be supplied for the OEM usage, such as pump shift operator valves. If used for a pump shift control it shall be provided and installed by the OEM.

AIR TANK SPACERS

There shall be spacers included with the air tank mounting. The spacers shall move the air tanks 1.50 inches inward towards the center of the chassis. This shall provide clearance between the air tanks and the frame for body U-bolt clearance.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

WHEELBASE

The chassis wheelbase shall be 172.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.

FRAME

The frame shall consist of single rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, 10.25 inch web X 3.50 inches deep upper and lower flanges X 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each single rail shall be rated by a Resistance Bending Moment (RBM) minimum of 1,830,400 inch pounds and have a

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minimum section modulus of 16.64 cubic inches calculated by the radius method. The outside dimension frame shall measure 34.25 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.

FRAME WARRANTY

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

REAR TOW DEVICE

The frame rails shall contain (6) holes per frame in a pattern specified by the OEM for mounting Crimson tow eyes at the rear of the frame at a location defined by the OEM.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

REAR MUD FLAP

The unit shall be equipped with a temporary wooden fender and mud flap assembly for transport to the body manufacturer.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 104.50 inches wide.

FRONT BUMPER EXTENSION LENGTH

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The front bumper shall be extended approximately 16.00 inches ahead of the cab.

FRONT BUMPER EXTENSION FRAME WIDTH

The front bumper extension frame shall feature an overall width of 47.50 inches.

FRONT BUMPER APRON

The 16.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

FRONT BUMPER COMPARTMENT CENTER

The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. The compartment shall include a notched cover constructed of 0.19 inch thick bright embossed aluminum tread plate. The notch shall be located in the right front of the cover and shall be four inches in length and two inches in width.

FRONT BUMPER COMPARTMENT COVER HARDWARE

The front bumper compartment cover shall include gas cylinder stays which shall hold the cover open. The cover shall held in the closed position via a D-ring style latch.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep.

MECHANICAL SIREN LOCATION

The siren shall be recess mounted on the driver side of the front fascia of the bumper, in the outboard position.

MECHANICAL SIREN ACCESSORIES

The front of the siren shall include (2) stainless steel flat bars approximately 1.00 inch wide by 19.00 inches long. Each bar shall be placed vertically on the right and left side of the siren face wrapping around towards the back of the siren into the bumper extension offering protection to the Q2B siren.

AIR HORN

The chassis shall include two (2) Grover brand Stutter Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

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The bumper shall include one (1) Federal Signal model BP100-EF, 100 watt speaker which shall be recess mounted within the bumper fascia. The speaker shall measure 5.50 inches high X 5.50 inches wide X 5.50 inches deep. The speaker shall include a Federal Signal "Electric F" style grille which shall measure 6.61 inches tall X 6.78 inches wide.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the chassis frame, shall be installed in a rearward position out of the approach angle area, bolted directly to the side of the chassis frame with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump housing.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2969.88 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

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GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR RH

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR LH

The rear left hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew door which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

CLIMATE CONTROL

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The cab shall be equipped with a ceiling mounted combination defrost / heating and air-conditioning system mounted above the engine tunnel in a central location.

The system shall offer sixteen (16) adjustable louvers. Six (6) of the louvers shall face forward towards the windshield, offering 45,000 BTU of heat at 320 CFM for defrosting. The system shall include six (6) rearward facing louvers to direct air for the crew area and four (4) for driver and officer comfort. The HVAC system shall be designed to produce 60,000 BTU of heat and 32,000 BTU of cooling. The HVAC cover shall be made of aluminum which shall be coated with a customer specified interior paint, or protective coating.

All defrost/heating systems shall be plumbed with one (1) seasonal shut-off valve at the front corner on the right side of the cab.

The air conditioner lines shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-Quip EZ-Clip fittings.

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be located on the Vista display and control screen.

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a Zolatone #20-72 silver gray texture finish.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32,000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft² PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

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The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM VINYL

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of durable vacuum formed ABS composite.

TRIM LH DASH

The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right hand dash trim shall consist of a vacuum formed ABS composite module, which contains a glove compartment with a hinged locking door and a Mobile Data Terminal (MDT) provision. The glove compartment size shall be 13.50 inches wide X 6.25 inches high X 5.50 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

The cab engine tunnel shall include a hinged aluminum access hatch with flush latches. The access hatch shall allow access to the engine compartment to check fluids.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

UNDER CAB ACCESS DOOR

The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

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INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape 1.00 inch in width shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR TRIM VINYL COLOR

The cab interior vinyl trim surfaces shall be gray in color.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

INTERIOR ABS TRIM COLOR

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with Zolatone #20-72 silver gray texture finish.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall be coated with Zolatone #20-72 silver gray texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

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SWITCHES CENTER PANEL

The center dash panel shall include no rocker switches or legends.

SWITCHES LEFT PANEL

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel. The switch shall have backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screen(s), an indicator light in the instrument panel, and an audible alarm.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include the "Spartan ERV" logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be a Seats Inc. 911 Battalion series. The seat shall be self leveling feature a 3.00 inch vertical travel air suspension and manual fore and aft adjustment. The bottom seat cushion shall include an adjustment for height and rake angle offering added comfort.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 37.00 inches measured with the seat suspension height adjusted to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208.

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The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver's seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The driver's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the driver, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.
- Large side curtain airbag - protects the driver's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the driver in a qualifying event by covering the window and the upper portion of the door.
- Dual knee airbags (patent pending) with energy management mounting (patent pending) - protects the driver's lower body from dangerous surface contact injuries, acceleration injuries, and from intrusion as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

Steering wheel airbag - protects the driver's head, neck, and upper torso from contact injuries, acceleration injuries, and contact points with intrusive surfaces as a result of a collision.

SEAT OFFICER

The officer's seat shall be a Seats Inc. 911 ABTS Battalion series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

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The officer's seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The officer's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the officer, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.
- Large side curtain airbag - protects the officer's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the officer in a qualifying event by covering the window and the upper portion of the door.

Knee airbags - protects the officer's lower body from dangerous surface contact injuries, acceleration injuries, and from contact points with intrusive surfaces as a result of a collision as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

SEAT REAR FACING OUTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right side front seat.

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a Seats Inc. Battalion series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK REAR FACING OUTER

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The crew area shall include a seat back in the rear facing outer position which shall include a Ziamatic brand Load and Lock™ walk away self contained breathing apparatus (SCBA) bracket. The mechanical walk away bracket shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of fire truck cabs. The bracket shall consist of a back plate and a short back plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.

The bracket shall accommodate and secure all types of self-contained breathing apparatus cylinders. Each bracket shall include a model LLS strap assembly which shall meet the NFPA 1901-03 standard for SCBA retention and shall be easily adjustable.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING REAR FACING OUTER

The rear facing outer seat on the left side of the cab shall offer a special mounting position 2.50 inches rearward of the standard offering additional leg room for the occupant.

OCCUPANT PROTECTION RFO

The rear facing outer seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each rear facing outer seating position APS shall include:

- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - protects each occupant's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to each seating position with an airbag custom designed for each cab configuration.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a Seats Inc. 911 Battalion series. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through

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the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

The seat back in the rear facing center position shall be comprised of a standard seat back. The seat back shall feature an all belts to seat (ABTS) style safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The seat back shall feature a contoured, adjustable head rest.

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall be installed facing the front of the cab.

OCCUPANT PROTECTION FFC

The forward facing center seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each forward facing center seating position APS shall include:

- APS advanced seatbelt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to crew seating with an airbag custom designed for each cab configuration.

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height.

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a Zolatone #20-72 silver gray texture.

WINDSHIELD WIPER SYSTEM

The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

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ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow “Check Message Center” indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a “Check Washer Fluid Level” message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. The each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

GRAB HANDLES

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Ramco model 6015-FFR-750 bus style mirrors shall be provided. The mirror heads shall be polished cast aluminum and shall measure 9.75 inches wide X 13.00 inches high with an additional top mount convex assembly. The mirrors shall be mounted one (1) on each front cab corner radius below the windshield with 15.00 inch long polished cast aluminum arms.

The mirrors shall feature a remote controlled full flat glass and a top mounted manually adjustable convex glass. The mirror control switches shall be located within easy reach of the driver. The mirrors shall be manufactured using the finest quality non-glare glass and shall feature a rigid mounting thereby reducing vibration. The mirrors shall be corrosion free under all weather conditions.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 14 gauge 304 polished stainless steel.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include one (1) Spartan ERV emblem installed on the front air intake grille.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

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BATTERY

The single start electrical system shall include six (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed and encapsulated at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

BATTERY CONDITIONER

A Kussmaul 35/10 battery conditioner shall be supplied. The battery conditioner shall provide a 35 amp output for the chassis batteries and a 10 amp battery saver output. The battery conditioner shall be mounted in the cab behind the driver's seat.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:

Kussmaul 1000 Charger - 3.5 Amps

Kussmaul 1200 Charger - 10 Amps

Kussmaul 35/10 Charger - 10 Amps

1000W Engine Heater - 8.33 Amps

1500W Engine Heater - 12.5 Amps

120V Air Compressor - 4.2 Amps

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ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

HEADLIGHTS

The cab front shall include four (4) rectangular halogen headlamps with separate high and low beams mounted in bright chrome bezels.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable amber LED turn signals which shall be installed in the outboard position.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) LED cab marker lamps designating identification, center and clearance provided. These lamps shall be installed on the roof of the cab. The lamps shall be a teardrop shape and include chrome housings. The lights shall measure 3.00 inches high X 3.75 inches wide X 11.00 inches long.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights to 80% brilliance when the battery master switch is in the "On" position and the parking brake is released.

GROUND LIGHTS

Each door shall include an NFPA compliant LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the door on the respective cab side, when the parking brake is set and through a virtual button on the Vista display and control screen.

STEP LIGHTS

The middle step located at each door shall include a 4.00 inch round incandescent light which shall activate with the opening of the respective door.

ENGINE COMPARTMENT LIGHT

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

SIDE SCENE LIGHTS

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The side of the cab shall include two (2) Whelen model 700 halogen scene lights, one (1) each side, which shall be recess mounted.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab "B" pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light, and by opening the respective side cab doors.

INTERIOR OVERHEAD LIGHTS

The cab shall include a two-section, red and clear Weldon LED dome lamp located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 7.00 inches in length X 3.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and via the multiplex display and both the red and clear portion can be activated by individual push lenses on each lamp.

An additional two-section, red and clear Whelen LED dome lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.

CAB SPOTLIGHTS

The cab shall include one (1) Golight Radioray model 7900 programmable remote control spotlight. The spotlight shall be mounted on a bracket above the lightbar in the center of the roof. The spotlight shall include a remote control shipped loose for OEM installation

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red Whelen 500 Series 5mm LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be 5.40 inches long X 1.70 inches wide X 0.90 inches high and shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled "E Master" for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the "ON" position when the master switch is activated shall automatically power up.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a virtual button on the Vista display and control screen.

INBOARD FRONT WARNING LIGHTS

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The cab front fascia shall include two (2) Whelen 600 series Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen 600 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted on the side of the bumper.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen 500 Series TIR6™ Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn. The lights shall be mounted to the sides of the cab with a chrome flange.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red with clear lens.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by Spartan Chassis. The light bar installation shall include mounting and wiring to a control switch on the cab dash.

CAB FRONT LIGHTBAR

The lightbar provisions shall be for one (1) Whelen brand Freedom FN72QLED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar shall feature six (6) red LED lights and two (2) clear LED lights. The clear lights shall be disabled with park brake engaged. The lightbar shall include an Opticom mounted centered in the front of the light bar. The cable shall exit the lightbar on the right side of the cab.

LIGHTBAR SWITCH

The light bar shall be controlled through a virtual button on the Vista display and control screen. There shall be an additional button located on the Vista display and control screen to control the clear lights.

TRAFFIC CONTROL

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There shall be one (1) GTT (Global Traffic Technologies) Opticom model 795H traffic control optical emitter mounted in the lightbar on the front of the cab roof. There shall be an indicator light on the dash. The emitter shall be activated with the lightbar switch and shall be deactivated when the parking brake is applied.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

HORN BUTTON SELECTOR SWITCH

A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AIR HORN ACTIVATION

The air horn activation shall be accomplished by the steering wheel horn button for the driver and a right hand side Linemaster model SP491-S81 foot switch for the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

MECHANICAL SIREN ACTIVATION

The mechanical siren shall be actuated by two (2) Linemaster model SP491-S81 foot switches mounted in the front section of the cab for use by the driver and officer. A siren brake shall be provided on the Vista display.

The siren shall only be active when master warning switch is on to prevent accidental engagement.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

The instrument panel shall contain the following gauges:

One (1) electronic speedometer shall be included. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H.

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) two-movement gauge displaying primary system, and secondary system air volumes and integral LCD odometer/trip odometer shall be included on the lower portion of the LCD. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI). The air pressure scales shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate a low air pressure, as well as a message on the LCD screen. The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD shall display Transmission Temperature in degrees Fahrenheit on the upper portion of the LCD. The LCD screen shall also be capable of displaying certain diagnostic functions.

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One (1) four-movement gauge displaying engine oil pressure, coolant temperature, fuel level, voltmeter, and an indicator bar displaying Diesel Exhaust Fluid (DEF) LED bar shall be included. The scale on the engine oil pressure gauge shall read from 0 to 120 pounds per square inch (PSI). The engine oil pressure scale shall be linear to operate with an accuracy of 1 degree of the measured. A red indicator light in the gauge shall indicate a low engine oil pressure, as well as a message on the LCD screen. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The coolant temperature scale shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate high coolant temperature, as well as a message on the LCD screen. The scale on the fuel level gauge shall read from empty to full as a percentage of fuel remaining. An amber indicator light shall indicate low fuel at 25% tank level. The scale on the voltmeter shall read from 10 to 16 volts with a red indication zone on the gauge showing critical levels of battery voltage. A red indicator light shall indicate high or low system voltage, as well as a message on the LCD screen. The scale on the DEF LED bar will consist of four (4) LEDs displaying levels in increments of 25% of useable DEF in green. Upon decreasing levels, the indicator bar will change colors to notify the driver of decreasing levels of DEF and action will be required. An amber indicator light shall indicate low levels of DEF, as well as a message on the LCD screen and an audible alarm.

The instrument panel shall include a light bar that contains the following LED indicator lights and produce the following audible alarms in applicable configurations:

RED LAMPS

Stop Engine-indicates critical engine fault
Air Filter Restricted-indicates excessive engine air intake restriction
Park Brake-indicates parking brake is set
Seat Belt Indicator-indicates when a seat is occupied and corresponding seat belt remains unfastened
Low Coolant-indicates engine coolant is required

AMBER LAMPS

MIL-indicates an engine emission control system fault
Check Engine-indicates engine fault
Check Trans-indicates transmission fault
High Transmission Temperature-indicates excessive transmission oil temperature
ABS-indicates anti-lock brake system fault
Wait to Start-indicates active engine air preheat cycle
HEST-indicates a high exhaust system temperature
Water in Fuel-indicates presence of water in fuel filter
DPF-indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration has been postponed due to user interaction
Range Inhibit-indicates a transmission operation is prevented and requested shift request may not occur.
SRS-indicates a problem in the RollTek supplemental restraint system
Check Message-Turn Signal On
Check Message-Door Ajar
Check Message-Cab Ajar
Check Message-ESC Active
Check Message-DPF Regen Active
Check Message-No Engine Data
Check Message-No Transmission Data
Check Message-No ABS Data
Check Message-No Data All Communication With Vehicle Systems Has Been Lost
Check Message-Check Engine Oil Level
Check Message-Check Washer Fluid Level
Check Message-Check Power Steering Fluid Level
Check Message-Low Transmission Fluid Level
Check Message-Check Coolant Level

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GREEN LAMPS

Left and Right turn signal indicators

ATC-indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system

High Idle-indicates engine high idle is active.

Cruise Control-indicates cruise control is active

OK to Pump-indicates the pump engage conditions have been met

Pump Engaged-indicates the pump is currently in use

Auxiliary Brake-indicates secondary braking device is active

BLUE LAMPS

High Beam Indicator

CONSTANT AUDIBLE ALARMS FROM GAUGE PACKAGE

High Trans Temp

High or Low Voltage

Seatbelt

Check Engine

Check Transmission

Stop Engine

Low Air Pressure

Fuel Low

Water in Fuel

ESC

High Coolant Temperature

Low Engine Oil Pressure

Low Coolant Level

Low DEF Level

Air Filter Restricted

Extended Left and Right Turn Remaining On

Cab Ajar

Door Ajar

ABS System Fault

SRS (Supplemental Restraint System) Fault

EXTERNAL AUDIBLE ALARMS

Air Filter

Cab Ajar

Door Ajar

Seatbelt

Check Engine

Stop Engine

Low Air Pressure

Water in Fuel

Low DEF

ABS System Fault

SRS (Supplemental Restraint System) Fault

High or Low Voltage

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

CAMERA

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An Audiovox Voyager heavy duty rearview camera system shall be supplied. One (1) camera with a teardrop shaped chrome plated housing shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera shall be wired to a single Weldon Vista display. The camera shall activate when the transmission is placed in reverse and by a button on the Vista display.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

DIAGNOSTIC SOFTWARE OCCUPANT PROTECTION

Diagnostic software for the Spartan Advanced Protection System shall be available for free download from the Spartan Chassis website to Spartan authorized OEMs, dealers and service centers, as well as the vehicle owner.

The software has been validated to be compatible with the following RP1210 interface adapters:

- Dearborn Group DPA4 Plus
- Noregon Systems JPRO® DLA+
- Cummins INLINE5
- Cummins INLINE6
- NexIQ™ USB-Link™

The software and adapter utilize the SAE J1939-13 heavy duty nine (9) pin connector which is located below the driver's side dash to the left of the steering column.

WARRANTY

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the end user. The warranty shall include conditional items listed in the detailed warranty document which shall be provided upon request.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

There shall be two (2) digital copies of the engine operation manual and two (2) digital copies of the transmission operation manual specific to the model ordered included with the chassis in the ship loose items.

ENGINE SERVICE MANUALS

There shall be two (2) printed hard copy sets of Cummins ISX engine service reference manuals which shall be provided with the chassis.

TRANSMISSION SERVICE MANUALS

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There shall be two (2) printed hard copy sets of Allison 4000 transmission service manuals included with the chassis.
CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

DRIVE LINE MODIFICATION

The chassis drive line shall be modified from its OEM Status to accommodate any changes required by the OEM for wheelbase, pump installation, or otherwise.

One (1)
04-92-1001

TIRE PRESSURE INDICATOR VOUCHER

A voucher will be provided by the chassis manufacture with the owner's manual for redemption by the customer.

To redeem the voucher, the customer will be required to supply the chassis manufacture with the SO# or VIN, mileage at time of call, and an accurate in-service weight for the front and rear axle on the apparatus. This will allow the chassis manufacture to provide a set of tire pressure indicators that accurately corresponds to the recommended pressure setting for that particular application.

The tire pressure and load indicated on the sidewall of a tire corresponds to the maximum permissible values based on the design of the tire. For optimal tire performance (including ride, handling, life, and fuel efficiency), actual tire pressure should be set according to the load that the axle will carry during in-service use. Tire manufacturers publish load / inflation tables for the purpose of determining the appropriate tire pressure for various axle loads based on tire and rim industry guidelines. These tables, along with the information provided by the customer, will be used by the chassis manufacture to select the appropriate PSI settings for the indicators.

One (1)
06-11-0250

BUMPER EXTENSION

There shall be a front bumper extension provided with the chassis from the chassis manufacturer.

One (1)
06-14-1000

FRONT BUMPER HOSE GUIDE POLES

Roller style front bumper guide poles shall be installed on the driver and officer sides of the bumper, one (1) each side. The hose rollers will be installed on vertical stanchions and located to not to interfere with the tilting of the cab.

One (1)
06-22-0500

CAB TILT CONTROL

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel.

There shall also be a cab tilt instruction plate located as close as possible to the control pendant for ease of operation.

One (1)
56-05-1000

SMART STORAGE FUEL FILL ASSEMBLY

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There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the left rear Smart Storage module behind the rear axle.

The fuel fill assembly will have a door that matches the Smart Storage module doors. There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The stainless steel fuel fill neck shall have a 3/8" inside diameter vent line installed from the top of the fuel tank to the fill tube.

Two (2)
70-12-1000

12-VOLT OUTLET

Two (2) 12-volt cigarette style outlet(s) shall be provided and installed with circuit breaker protection. The outlet(s) shall be capable of carrying up to a 15 amp battery direct load.

Two (2)
70-13-1600

- Two (2) outlet(s) shall be located on the forward wall, inside the right front (R1) body compartment.

Two (2)
04-45-0900

ANTENNA MOUNTING BASE AND RADIO WIRING

There shall be two (2) antenna mounting base(s) with sufficient length of 50 OHM coax cable and weather resistant cap shall be supplied for two-way radios. The mount shall be located on the cab roof in a best fit location determined by the manufacture. The cable shall be routed to the officer's side seat box with enough cable for the customer to route to the instrument panel if needed.

Wiring provisions will be provided to the customer installation of the following radio's. The exact location will be determined at the pre-construction meeting.

Motorola CDM-1550LS+VHF
Motorola XTL 5000 10-35 watt, 764-870mhz

PORTABLE RADIO CHARGER INSTALLATION

Wiring provision will be provided for the customer installation of four (4) Motorola XTS-5000 portable radio chargers.

One (1)
04-45-9300

INTERCOM SYSTEM

A four (4) person five (5) position Sigtronics US45-D intercom system shall be installed on the apparatus. The system shall be designed for four person operation at five locations and consist of the following specified components: The system shall consist of the following specified components:

One (1) model #US45-D intercom with (dual radios) mobile interface.

Four (4) #SE-8- behind the head helmet headsets (dual radio).

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Two (2) #900116 Interface "Y" adapter.

Five (5) #800120 headset jack (driver, officer, (2) crew and panel).

Three (3) #800122 Push-To-Talk (PTT)switch box.

Four (4) #800144 headset hook with hardware.

One (1)

04-45-3350

HEADSET JACK LOCATION

There shall be one (1) headset located in the cab above and to the right of the driver's seat, one (1) above and to the left of the officer's seat, two (2) located in the crew area above the outboard seats and one (1) weather resistant jack shall be located on the pump panel.

One (1)

04-45-9455

RADIO INTERFACE CABLE

A two-way radio interface cable shall be provided to interface with the Sigtronics intercom system. The two-way radio system is MUST EDIT.

One (1)

04-50-2800

AIR TANK DRAIN CABLES (extended)

There shall be manual pull air tank drain cables provided with the apparatus. The cables shall be extended to the outer edge of the apparatus to facilitate draining moisture from the chassis air tanks. A label shall be affixed indicating "Air Tank Drain".

One (1)

04-62-0250

The siren speaker(s) shall be provided with the chassis.

One (1)

04-85-0250

AIR HORNS

The air horn(s) shall be provided with the chassis.

One (1)

04-87-0000

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided. The signs shall be visible from all seating positions.

There shall be a lubrication plate mounted inside cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

Engine oil

Engine Coolant

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Transmission Fluid
Pump Transmission Lubrication Fluid (if applicable)
Drive Axle Lubrication Fluid
Generator Lubrication Fluid (if applicable)
Tire Pressures

In addition to standard labeling, the following shall be included:

1. On Dash - "WARNING Noise Hazards Occur During Siren Operation"
2. Pump Panel - "WARNING Noise Hazards Occur During Pump Operation"
3. On Dash - "This apparatus is equipped with an Air Filter Ember Protection Scree, Routine Inspection is required"
One (1)
04-87-5000

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

Overall Height listed in feet and inches.
Overall Length listed in feet and inches.
Overall GVWR listed in tons.
One (1)
04-87-5010

CAB HELMET WARNING LABEL

A high-visibility label shall be installed in a location clearly detectable from each seating position. The label shall indicate the following specified information.

“DO NOT WEAR HELMET WHILE SEATED”
One (1)
05-15-0100

HELMET RESTRAINTS

Six (6)
05-15-1100

Six (6) Ziamatic UHH-1 Universal Helmet Holders shall be provided and installed in a best fit location determined by the apparatus manufacturer.

One (1)
06-20-1000

MUD FLAPS

Heavy-duty rubber mud flaps shall be provided behind the rear wheels. The mud flaps shall be black rubber type and be bolted in place.

One (1)

== Star Pumper/Midship Pump Pump Control - 8.610 09/28/12 ==

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One (1)
26-10-4000

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that is encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

One (1)
30-20-1100

VIBRA-TORQUE™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

One (1)
26-40-5000

SIDE OPERATORS PANEL

The pump operator's panel shall be located on the left, upper side of the apparatus pump compartment. The panel shall be split into an upper and lower section. The upper panel shall house all gauges and controls and be hinged to allow easy access to those components. The door shall have a stainless steel hinge, dual point chrome push button latches and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house. The lower panel shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled and color coded for ease of use. All markings shall be permanent in nature.

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One (1)
26-10-3510

PANEL LIGHTS

Adequate illumination shall be provided for all gauges and controls by means of a brushed stainless steel shielded light assembly with three (3) 9" OnScen LED "Night Stik" lights on the left side or an adequate amount of lights space permitting and one LED directional light (Grote style #60571 clear Surface Mount series) on the right side panel.

There shall be a switch located on the operators pump panel to turn two (2) of the pump panel lights and the directional light on or off. This switch shall also activate any area step lighting. The third light on the pump panel shall illuminate when the pump is engaged and it is "OK TO PUMP".

One (1)
26-10-9000

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid to provide an opening for access to the midship fire pump.

One (1)
26-11-0750

PUMP COMPARTMENT STRUCTURE

The structural framework of the pump compartment shall be self-supportive and independent of the apparatus body. The pump module shall be approximately 74" in width as measured laterally across the apparatus. The width of the apparatus as measured longitudinally (measured within the wheelbase dimension of the apparatus) shall be specified in the remainder of the specifications.

One (1)
26-11-3000

The width of the pump compartment (front to back) shall be 47".

One (1)
26-22-6025

APPARATUS LABELING

The apparatus shall be descriptively tagged with color coded metal labels. The labels shall be applied near the apparatus features that require a user function description. Wherever necessary, the labels shall be color coded to differentiate controls and their respective functions to simplify and clarify complex configurations.

One (1)
26-41-1000

BLACK LAMINOL SIDE PANELS

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by a quick-release type latch, closing against a door seal. Both panels shall be easily removed for access to the pump for service.

All panels shall be made from heavy duty "Black Laminol" covered aluminum, capable of withstanding the effects of extreme weather and temperature.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be

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made of "Black Laminol" covered aluminum.

One (1)
27-00-1000

RUNNING BOARDS

The running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface.

One (1)
27-10-1000

GRIP STRUT-INSERT

The left side running board shall have aluminum diamond "Grip Strut" insert installed. The surface area shall be as large as possible by extending to the perimeter of the inside of the structural running board framework.

The "Grip Strut" material will allow debris and water to pass through to eliminate build-up, thereby aid in retaining the minimum NFPA standard requirements for slip resistance.

One (1)
27-20-1000

GRIP STRUT-SURFACE INSERT

The right side running board shall have an aluminum diamond "Grip Strut" insert installed. The grip surface area shall be as large as possible by extending to the perimeter of the inside of the structural running board framework.

The "Grip Strut" material will allow debris and water to pass through to eliminate build-up, thereby aid in retaining the minimum NFPA standard requirements for slip resistance.

One (1)
28-10-1000

MASTER GAUGES

The master intake and master discharge gauges shall be manufactured by Class One and installed on the pump operator's panel. [They shall be dry anti-flutter style, liquid filled not acceptable.](#) The master gauges shall be 4 1/2" in diameter.

The master intake gauge shall read from - 30 to 400 psi with the master discharge gauge reading from 0 to 400 psi. The gauges shall be Class 1 [or equal.](#)

One (1)
28-12-1000

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump. They shall have 0.25 in. standard pipe thread connections and be manufactured of non-corrosive polished stainless steel or brass plugs.

One (1)
28-12-6000

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HOUR METER

An hour meter shall be installed on the pump operator's panel that tracks the number of hours the pump is running.

One (1)

28-21-3000

CLASS 1 TPG PLUS PRESSURE GOVERNOR

There shall be a Class 1 TPG + total pressure governor and monitoring display kit provided and installed with the apparatus.

The pressure governor shall be connected to the engine control module mounted on the engine and operate as a pressure sensor regulating governor (PSG) utilizing the engine's J1939 data for optimal resolution and response when supported by the engine manufacturer. If J-1939 engine control is not supported, then analog remote throttle control shall be provided by the "TPG". The "TPG" shall function as a master pump discharge and intake gauge.

The TPG shall utilize control algorithms that minimize pressure spikes during low or erratic water supply situations. The "TPG" shall be backwards compatible to any engine that supplies J1939 RPM, temperature and oil pressure information providing the ability to maintain a consistent fleet fire-fighting capability and reduce operator cross training and confusion.

The "TPG" shall have the ability to use either a 300 PSI or a 600 PSI discharge pressure transducer and a 300 PSI intake pressure transducer. PSG system diagnostics shall be built in and accessible by technicians. Programmable presets for RPM and pressure settings shall be easily configurable. The straightforward menu structure shall allow the "TPG" configuration to match existing apparatus operation as closely as possible.

The following indications shall be provided:

Engine RPM

System Voltage

Engine oil pressure and engine/transmission temperature w/audible alarm.

J1939 data bus for engine information, requiring no additional sensors.

Monitor and display pump and engine hours.

J1939 broadcast warnings for the alarm as a standard and allow the "user" to select warning values if SOP's dictate.

One (1)

28-21-2700

The PSG installation shall be wired specifically for the Cummins electronic engine.

One (1)

09-09-0500

SUCTION RELIEF VALVE

An Elkhart suction relief valve with a range of pressure adjustment from 75 to 250 PSI shall be installed inside pump compartment piped to the suction side of the pump.

The valve shall be preset at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere via the unloader pipe and shall dump on the opposite side of the pump operator.

The valve shall come with 2 1/2" male NST threads that can be capped if the relief valve fails in the open position. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP"

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installed.
One (1)
28-40-2000

HEAT EXCHANGER

The supplementary heat exchanger cooling system provided on the chassis, it shall be complete to the discharge side of the fire pump through to the engine compartment, without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

One (1)
28-40-3010

A manual shut-off, Class One 1/4" Ball Valve (#14BV) shall be supplied at the pump operator's position.

One (1)
54-50-5200

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be overlaid with materials of a non slip 1/8" embossed aluminum diamond plate, meeting the minimum NFPA standard requirements for slip resistance.

One (1)
26-10-6000

DUNNAGE AREA

A single wall 1/8" aluminum diamond plate dunnage area shall be provided above the pump house compartment for equipment mounting and storage space. The dunnage area shall be as wide as possible from side to side, and as deep as allowed with the available space.

The floor of the dunnage area shall be removable aluminum diamondplate.

One (1)

== Star Pumper/Midship Pump Plumbing - 8.610 09/28/12 ==

One (1)
08-21-1000

MIDSHIP PUMP

The pump shall have a capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSUC20, single stage midship pump.

One (1)
08-21-9000

Impeller shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire

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impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3 1/2" openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35" in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest NFPA 1901. Pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.

100% of rated capacity at 165 PSI net pump pressure.

70% of rated capacity at 200 PSI net pump pressure.

50% of rated capacity at 250 PSI net pump pressure.

One (1)

09-01-05M0

MASTER DRAIN VALVE

There shall be a manifold type drain valve installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled on the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper function, such as draining, or if no lower or vertical sill exists. In this event, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

One (1)

09-23-1000

PUMP SEALS

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The pump shall be equipped with self adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manor that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

One (1)

09-24-1000

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit. The remaining panel lights shall be controlled via push button switch.

One (1)

09-25-5010

PRIMING SYSTEM

The priming system shall include an electrically driven rotary vane priming pump rigidly attached to the pump transmission. The priming pump shall be self-lubricating and shall not require an external oil reservoir. The pump, when dry, shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds through 20 feet of suction hose through the steamers. Priming pump shall be built by the manufacturer of the fire pump.

One (1)

09-25-9500

PRIMER CONTROL

There shall be a push button control to simultaneously actuate the primer control valve and the primer motor.

One (1)

09-50-1000

THERMAL RELIEF VALVE

A mechanical thermal relief valve shall be installed to protect the pump from overheating. It shall be mechanical and will not require operator monitoring. It shall automatically reset in the event of it going into operation. It shall contain an integral strainer to keep mechanism free of contamination. It shall be set at 120 degrees F(49 degrees C).

Relief valve shall discharge out below the running board. A warning light shall be installed on the pump panel to alert the operator that the relief valve is open. The valve shall be a Hale TRVL-120.

One (1)

10-12-1000

STEAMER INLETS

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There shall be two (2) 6" inlets installed, one (1) on each side of the pump. The inlets shall protrude 1-2" away from the side panels and shall have 6" NST threads and a removable strainer.

Two (2)
10-25-1000

6" CHROME PLATED BRONZE CAP(S)

There shall be two (2) 6" long handled chrome plated cap(s) installed the apparatus. The cap(s) shall be National Standard Thread.

One (1)
09-73-1000

PUMP COOLING LINE

There shall be a 3/8" line run from the pump to the water tank to assist in keeping the pump water from overheating. There shall be a 1/4 turn on/off valve installed on the operator's panel.

One (1)
09-73-4000

SPEED COUNTER

There shall be a speed counter port supplied in the lower sill of the pump compartment on the driver's side of the apparatus. This pump revolution adapter drive shall be used to check the RPM of the pump impeller. The port shall have a cap provided to protect the connection when not in use.

Two (2)
09-73-5000

PUMP ANODE(S)

Two (2) pump anode(s) shall be installed in plumping system of the apparatus, to prevent damage from galvanic corrosion within the pump system.

One (1)
09-73-7020

PLUMBING PAINTED

All plumbing shall be painted.

One (1)
09-73-7061

The color shall be the same as the lower body color.

One (1)
12-10-1000

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with schedule 10 stainless steel pipe, brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

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The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.5" through 4". Sizes 3/4", 1" and 5" are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1" through 5" for maximum performance in tight bend applications. The material has a temperature rating of -40° F to +210° F.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male 3/4" and 1" couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.

One (1)

12-10-1250

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suction, ABS discharge gauge lines and any other connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied and rubber coated "P" clamped, to keep the items secured.

One (1)

12-10-131T

All manual drains shall be model Class One #34BV 3/4" ball valve with quarter turn cast T-Handle.

One (1)

14-20-1500

2 1/2" RIGHT SIDE INLET

There shall be a gated suction inlet with 3/4" bleeder installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

One (1)

14-30-4000

A 2 1/2" Akron Brass 8000 series swing-out valve with stainless steel ball.

One (1)

14-35-3000

The control valve shall be a 'swing out type' direct operation manual lever actuator.

One (1)

14-45-4000

The plumbing shall consist of 2.5" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)

14-55-1000

The suction termination shall include the following components:

One (1) 2.5" NST swivel female adapter with screen

One (1) 2.5" male self-venting plug, secured by a chain

One (1)

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16-20-4000

REAR FORESTRY DISCHARGE

There shall be a gated discharge installed [inside](#) the [rear center compartment](#) of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

One (1)

16-31-4200

A 2 1/2" Elkhart Brass electrically actuated Unibody valve model EB25E1F with stainless steel ball and dual self adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components, and will be capable of swinging out of the waterway for maintenance.

The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

One (1)

20-3U-BEC1

The electric valve shall be operated with a Unibody Electric controller Model [UICS-2](#) switch located on the pump operator's panel.

One (1)

16-45-3200

The plumbing shall consist of 2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)

16-52-1100

The discharge termination shall include the following components:

One (1) [1" Male NST Forestry adapter](#).

[One \(1\) 1" female self-venting cap, secured by a chain](#)

One (1)

16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)

16-20-6200

PRE-CONNECTS

One (1) hose bed pre-connects shall be provided for 2 1/2" hose.

[Discharge will be plumbed to the CAFS system.](#)

One (1)

16-31-4200

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A 2 1/2" Elkhart Brass electrically actuated Unibody valve model EB25E1F with stainless steel ball and dual self adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components, and will be capable of swinging out of the waterway for maintenance.

The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

One (1)
20-3U-BEC1

The electric valve shall be operated with a Unibody Electric controller Model [UICS-2](#) switch located on the pump operator's panel.

One (1)
16-45-4300

The plumbing shall consist of 2 1/2" piping, to the left side lower corner of the hose bed header wall and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-50-4000

The discharge termination shall include the following components:

One (1) 2.5" NPT x 2.5" MNST chrome plated brass fitting
One (1)
16-59-1000

The discharge shall terminate to the left side lower corner of the hose bed header wall.

One (1)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-20-7000

DISCHARGE OUTLET (Front Bumper)

One (1) front bumper discharge outlet(s) shall be provided and installed in the location specified.

[To be plumbed for CAFS.](#)

One (1)
16-31-4200

A 2 1/2" Elkhart Brass electrically actuated Unibody valve model EB25E1F with stainless steel ball and dual self adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components, and will be capable of swinging out of the waterway for maintenance.

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The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

One (1)
20-3U-BEC1

The electric valve shall be operated with a Unibody Electric controller Model [UICS-2](#) switch located on the pump operator's panel.

One (1)
16-45-3500

The plumbing shall consist of 2" piping, and incorporate a manual drain control installed below the pump area for ease of access. Auto-drain(s) shall be installed in the discharge piping at lowest point of the plumbed system.

One (1)
16-50-1010

The discharge termination shall include the following components:

One (1) 2" NPT x 1.5" NST, polished SST chicksan swivel
One (1)
16-75-1000

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed to the right of the hose well. The discharge shall terminate with a chicksan swivel to accommodate deployment of hose in different directions.

One (1)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-20-1500

RIGHT SIDE DISCHARGE

There shall be a gated discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

One (1)
16-30-4000

A 2 1/2" Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-2000

The discharge shall be controlled from the side operator's panel.

One (1)
16-45-4000

The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-52-1100

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The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter.

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female self-venting cap, secured by a chain

One (1)

16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)

16-20-2500

MASTER DISCHARGE

There shall be a master discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

One (1)

16-30-5100

A 3" Akron Brass valve with handwheel control and mechanically driven dial type position indicator.

One (1)

16-45-5000

The plumbing shall consist of 3" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)

16-53-1000

The discharge termination shall include the following components:

One (1) 3" NST Straight adapter.

One (1) 3" NST female by 4" Storz cast aluminum 30 degree elbow.

One (1) 4" female Storz self-venting cap, secured by a chain.

One (1)

16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)

16-20-3500

RIGHT REAR DISCHARGE

There shall be a gated discharge installed on the right rear of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

One (1)

16-30-3900

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A 2 1/2" Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
16-35-2000

The discharge shall be controlled from the side operator's panel.

One (1)
16-45-4200

The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-52-1100

The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter.

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female self-venting cap, secured by a chain

One (1)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-20-4700

SINGLE STACK CROSSLAYS

The crosslay hose beds shall be located in the upper portion of the pump compartment. The crosslay shall be constructed with a twenty-five (25") inch approximate depth for laying a single stack of each hose size specified below. The crosslay area shall be located at the front of side control module apparatus and at the rear of top control module apparatus. The crosslay area shall span the entire width of the pump module apparatus. Removable slotted aluminum flooring shall be provided for hose area.

Chicksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to the chicksans. The chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

Two (2)
16-20-4800

Two (2) crosslay(s) shall be provided for up to 200 feet of 1 3/4" hose.

[Two \(2\) 1.75" crosslays shall be CAFS.](#)

Two (2)
16-31-3200

A 2" Elkhart Brass electrically actuated Unibody valve model EB20E1F with stainless steel ball and dual self adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components, and will be capable of swinging out of the waterway for

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maintenance.

The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

Two (2)
20-3U-BEC1

The electric valve shall be operated with a Unibody Electric controller Model [UICS-2](#) switch located on the pump operator's panel.

Two (2)
16-45-3100

The plumbing shall consist of 2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Two (2)
16-50-1000

The discharge termination shall include the following components:

One (1) 2" NPT x 1.5" NST brass chicksan swivel

Two (2)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-20-4900

One (1) crosslay(s) shall be provided for up to 200 feet of 2 1/2" hose.

[One \(1\) 2.5" crosslay to be CAFS.](#)

One (1)
16-31-4200

A 2 1/2" Elkhart Brass electrically actuated Unibody valve model EB25E1F with stainless steel ball and dual self adjusting polymer seats.

The valve shall be capable of bi-directional flow and incorporating a self-locking ball. The valve shall not require lubrication of seats or other internal waterway components, and will be capable of swinging out of the waterway for maintenance.

The valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions and open or close in less than 5 seconds. Valve travel shall be limited by an integral sensor with current limit back-up.

One (1)
20-3U-BEC1

The electric valve shall be operated with a Unibody Electric controller Model [UICS-2](#) switch located on the pump operator's panel.

One (1)
16-45-4100

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The plumbing shall consist of 2 1/2" piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-50-2000

The discharge termination shall include the following components:

One (1) 2.5" NPT x 2.5" NST brass chickens swivel
One (1)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-64-1000

CROSSLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the crosslay hose bed area. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

One (1)
16-65-1000

CROSSLAY COVER

The crosslay hose bed area shall have a vinyl cover installed on the top and sides of the crosslay area. The top cover shall be held in place by an extrusion across the front of crosslays and velcro across the rear and the sides shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of securing the the cover to the apparatus.

One (1)
16-66-1000

The crosslay hose bed cover shall be red in color.

One (1)
78-00-5100

CROSSLAY HOSE BED LIGHT

There shall be one flood light furnished and installed on the pump compartment to illuminate the crosslay hose bed. It shall be 6" in diameter and be 50 watts. The light shall be manufactured by Unity.

One (1)
16-67-1000

CROSSLAY ROLLERS

Stainless steel hose roller guides shall be installed at the openings on each side of the crosslay hose bed area. The rollers shall aid in hose deployment and reduce the chaffing of the hose jacket on the edges of the bay area.

One (1)
16-20-6500

DECK GUN MONITOR WATERWAY

One (1)
16-20-6600

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There shall be one (1) deck gun monitor waterway(s) installed on the apparatus.

One (1)
16-30-5100

A 3" Akron Brass valve with handwheel control and mechanically driven dial type position indicator.

One (1)
16-45-5400

The waterway shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted.

The plumbing shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

One (1)
16-60-1000

A Class 1 2.5" (63mm) gauge shall be supplied for the discharge pressure reading 0-400 psi. The gauge model shall be Class 1 [dry style](#).

One (1)
16-79-1000

The deluge pipe shall be located up through the pump compartment, centered from left to right.

One (1)
16-82-0110

There shall be one (1) Elkhart [#8500-01 Vulcan](#) electric monitor with discharge pipe provided and installed on the apparatus. The deck gun shall be mounted to the deluge waterway via a top mount adapter and include the following components:

One (1) 282A stream shaper.

[One \(1\) ST-194 Quad Stacked Tips](#)

One (1) Relay box.

One (1) Panel mount control box.

[One \(1\) 18" electric Extender](#)

One (1)
16-82-4000

There shall be one (1) Elkhart model [#SM-1250E](#), 300-1250 GPM nozzle provided with the apparatus.

One (1)
18-10-5000

ONE-TOUCH RAPIPD CAFS

A One Touch Rapid 140 cfm compressed air foam system shall be installed to provide compressed air foam to the designated discharges. The consistency of the compressed air foam shall be individually adjustable to each discharge outlet.

Operational Features

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All CAFS operations are initiated with a 'one touch' button capable of supplying water, foam, wet CAFS or dry CAFS to different discharges simultaneously.

Operations shall be equipped with an automated mechanical balancing valve that requires no adjustments.

The foam system will start automatically when foam is required for CAFS.

Air is injected through a unique combination air injection mixing inductor.

Safety Features

Air will shut off automatically when foam stops flowing or the foam tank runs dry.

Air will shut off automatically when water stops flowing.

The air compressor will shut off automatically if the compressor overheats.

Air Compressor System

The air compressor shall be driven by a shaft from a PTO mounted to the transmission. The compressor air end shall be of the oil flooded rotary screw type, designed to supply a minimum of 140 SCFM of free air, at maximum CAFS operating RPM.

A pneumatic modulating inlet valve mounted on the air end inlet shall control the airflow into the compressor. This controller shall sense air pressure and control the air delivery of the air end while maintaining constant pressure. A balancing valve system shall be provided to maintain the proper air pressure in relation to the water pressure throughout the operating range of the system, within plus or minus 5% of the water pump pressure, throughout the pressure range.

The compressor system sump/pressure vessel shall be constructed in compliance with the requirements of the ASME Boiler and Pressure Vessel Code and include an ASME certification plate affixed to the outside of the vessel. The sump/pressure vessel shall be equipped with an oil level sight glass, drain valve, air pressure relief valve and threaded oil fill cap.

The air compressor system shall feature a spin-on, full-flow oil filter unit.

The compressor shall be cooled by the apparatus fire pump, utilizing a water cooled heat exchanger. The cooler shall be capable of operating at 124,000 BTU/hr. Water shall flow through the heat exchanger whenever the fire pump is operating. The compressor cooling system shall be capable of maintaining recommended operating temperatures throughout its full operating range at ambient temperatures up to 120degrees Fahrenheit. An interlock shall be provided to preclude engagement of the compressor PTO unless the fire pump is engaged.

Compressor System Protection

A warning system shall be provided in the air compressor hydraulic oil system to alert the operator to high temperature. A warning light and audible alarm shall be mounted on the pump operators panel. If the compressor overheats, the system shall automatically disengage the PTO to prevent damage to the air compressor.

Plumbing

The CAFS system shall be able to be operated simultaneously in several pumping modes; water only, foam solution without compressed air, compressed air foam and compressed air only for support operations. It shall be possible to pump water from one discharge, foam solution from another discharge while pumping compressed air foam from another discharge.

A foam discharge manifold shall be installed to distribute the foam solution to the designated foam discharges. A check valve is provided at the inlet end of the foam manifold to prevent foam solution back-flow into the pump. All foam discharge piping shall be stainless steel and/or high-pressure wire braid reinforced hose with stainless steel fittings.

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Each compressed air foam discharge shall be equipped with individual corrosion resistant check valves on the compressed air plumbing that prevent back-flow of foam solution, air and/or compressed air foam into the pump, air lines or foam proportioning system. There will be a check valve on the foam manifold that prevents backflow of foam solution into the pump or other discharges.

Controls and Instruments

The following CAFS controls and instruments shall be provided on the pump operator's panel, arranged in a logical and operator friendly manner:

Air compressor engage switch and indicator light
Air compressor temperature gauge with warning light and audible alarm
CAF system air pressure gauge

System Tests

Prior to delivery to the customer, the apparatus manufacturer shall test the operation of the water pump and air compressor system simultaneously to determine the integrity of the system and to ensure that there is adequate power available to operate these components as a complete compressed air foam system.

Manuals

Two (2) complete operation and maintenance manuals shall be provided with the completed apparatus. One manual will be printed and the other will be delivered on a CD-ROM. Manuals shall include instruction in the operation and maintenance of the overall compressed air foam system and each major component.

ONE TOUCH CAFS CONTROLS

Controls and Instruments

The following CAFS controls and instruments shall be provided on the pump operator's panel, arranged in a logical and operator friendly manner:

One Touch button to activate CAFS for each CAFS – ready discharge
Air compressor oil temperature gauge with warning light
CAF system duplex air pressure / water pressure gauge.

Each discharge will utilize a manually operated water discharge valve with the CAFS operation controlled by a push button switch on the panel adjacent to the manual valve handle. Each discharge will also incorporate a paddlewheel into the plumbing to recognize movement in the foam flow. One push on the button will turn the foam system on (if it is not on) and after the paddlewheel sends a flow signal, 5 seconds will elapse and then the air valve will open for that discharge. The time delay will insure foam flow to avoid the “slug flow” condition in the line that comes from an air water mix without foam.

“Wet” or “dry” foam consistency is achieved by opening or closing the manual valve control.

If the foam system runs out of foam, the system will automatically shut off the individual air valves.

One (1)
18-0P-0010

HOT SHIFT PTO

A ‘hot’ shift shall be added to the CAFS installation.

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A guarded switch located on the pump operator's panel shall be used to engage and disengage the PTO and activate the CAFS system.

The switch shall be labeled "CAFS PTO ENGAGED"

The switch shall be supplied with an indicator light. This light will be energized when the PTO is engaged.

One (1)

18-10-0100

CAF SYSTEM TRAINING

A representative of the manufacturer shall instruct the department on the operation and care and maintenance of the CAF System. This service is provided within the contiguous lower 48 states.

One (1)

18-10-5500

2.5" AUTOMATIC WATER TANK FILL SYSTEM

A 2.5" inch electrically actuated, automatic water tank fill system with rapid fill module shall be installed on the apparatus. The system shall monitor the water level in the tank and automatically re-fill as required during pumping operations. An activation switch for the system shall be located at the pump operator's panel.

This system is especially useful during CAFS operations due to the optimum CAFS proportioning achieved by pumping from the tank.

One (1)

14-45-0100

The Inlet shall be terminated at the left rear face of the apparatus body, directly below the intermediate step.

One (1)

14-55-4400

The inlet termination shall include the following components:

One (1) 2.5" FNST 45 degree swivel elbow

One (1) 2.5" MST plug, secured by a chain

One (1)

18-10-5535

FOAM TANK REFILL SYSTEM

The apparatus shall be equipped with a 12 volt foam tank refill system that allows the foam tank to be refilled from the ground/outside source. The system shall be controlled from a momentary type on/off switch located on the pump operators panel, and shall have an automatic shutoff switch when the foam tank is full. The system shall be provided with a pickup tube and be suitable for Class A foam concentrate only.

One (1)

18-10-6000

HALE FOAMLOGIX

A Hale FoamLogix 12-volt DC powered variable-speed electronic direct-injection foam-concentrate proportioning system

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with a 2.1-gpm-foam concentrate pump shall be installed on the apparatus to provide foam proportioning. The pump shall be capable of handling Class A foam concentrate only and be operated by a full-function panel mounted digital display.

The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel double waterway check-valve manifold that includes a ½-inch chemical injection point check valve. The foam proportioning system shall be rated at 2.1-gpm-foam concentrate flow rate with maximum operating pressure of 250 PSI.

The system shall operate via a paddlewheel flow sensor mounted in a 3-inch stainless steel double waterway check-valve manifold that includes a ½-inch chemical injection point check valve. This double check-valve assembly is required for backflow prevention and NFPA compliance. A single check valve assembly will not be permitted.

The system shall be equipped with a digital electronic control display. The electronic control unit shall permit the pump operator to perform the following control and operation functions for the foam proportioning system:

- Provide push-button ON/OFF control of foam proportioning system.
- Provide push-button control of foam proportioning rates from 0.1% to 1%, in 0.1% increments.
- Show real time flow rate of water or foam solution.
- Show total volume of water or foam solution discharged during and after foam operations.
- Show foam concentrate injection rate.
- Show total amount of foam concentrate consumed.
- Permit resetting of totalized values for water and foam concentrate.
- Simulate water flow rates for manual operation, calibration and testing of foam system.
- Enable system setup and full range system diagnostic functions.
- Indicate on LED bargraph foam concentrate is being injected and the foam system capacity.
- Indicate on LED bar graph when system capacity is not within design parameters.
- Store independent default values for Class A and Class B foam concentrate injection.
- Flash a “low concentrate” warning when the foam concentrate tank runs low.
- Flash a “no concentrate” warning and shut the system off when the foam tank is empty.
- Flash a “low battery” warning when battery voltage is low enough to affect system operation.
- Flash a “hot” warning when system is running hot due to low voltage or radiant heat.
- Read out calibration valves to allow setting up a replacement unit.

One (1)
00-10-3000

FOAM SYSTEM TESTING

The apparatus foam system shall be tested and certified.

Five (5)
18-0D-0100

The foam system shall supply a total of five (5) discharge(s) as specified below:

One (1)
18-10-9500

The system shall be supplied by a single foam tank.

One (1)
18-70-3000

FOAM TANK

A 30 gallon foam tank with square hinged lid, equipped with a hold down device shall be installed and plumbed with non-corrosive piping to the foam system. The fill tower shall be approximately 10" x 10".

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A label shall be affixed to the foam tank fill indicating: "WARNING" Class A (or B) foam tank fill, do not mix brands or types of foam.

One (1)
18-90-2000

The foam tank(s) shall be integral with the booster water tank provided.

One (1)
18-90-5000

There shall be a 1" quarter turn drain valve installed to drain the foam tank. The valve shall be installed in the pump house with a drain line extended to the side running board.

The drain line shall be labeled "FOAM DRAIN".

One (1)
18-91-3000

FOAM TANK LEVEL GAUGE

There shall be one (1) Fire Research TankVision LED electronic foam level gauge located on the operator's control panel. This level gauge utilizes ultra bright LEDs for sunlight readability, and two wide-viewing lenses for 180 degrees of clear viewing.

One (1)
20-00-1000

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA Pamphlet 1901, latest revision and shall be tested to those standards when the pump is being certified. One (1) non-collapsible flexible hose(s) and valve(s) shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 or Poly-Vinyl Chloride schedule 40 piping may be used to complete the connection from the tank to pump valve to the water tank.

One (1)
20-30-5000

A 3" Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)
20-35-2000

The valve shall be controlled from the side operator's panel.

One (1)
20-00-5000

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements, which shall be of bronze construction. The check valve shall be mounted as an integral part of the pump suction extension.

One (1)
20-10-1100

TANK FILL LINE

One (1) 2" tank fill/recirculating line shall be installed from the pump directly to the booster tank.

One (1)

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20-30-3000

A 2" Akron Brass 8000 series swing-out valve with a stainless steel ball.

One (1)

20-35-2000

The valve shall be controlled from the side operator's panel.

One (1)

== Star Pumper/Midship Pump Body - 8.610 09/28/12 ==

One (1)

30-12-1000

TRI-MAX™ Space Frame Body - ALUMINUM

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

Body Structure Members: The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.5" in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 to .250 throughout, dependent on the design requirement.

Body Material Type: All body structural members shall be Aluminum 6061-T6 alloy material. All .125 sheet material shall be Aluminum Alloy 5052-H32 and .250 sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all around performance for strength, manufacturing properties, and corrosion resistance.

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor.

Front Body Compartment Walls: The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

Rear Body Compartment Walls: The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

Compartment Top: The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

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Compartment Floors: The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1" lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a "sweep-out" compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

Compartment Load Capacity: Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs per compartment

Half depth side compartment: 750 lbs per compartment

Rear center compartment: 1,500 lbs per compartment

Exterior Hose Bed Walls: The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

Finite Element Analysis: The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

One (1)

56-60-0950

REAR TAILBOARD AND BEAVER TAILS

The rear tailboard shall be fabricated of the same structural materials as used in the apparatus body. The tailboard shall be an independent assembly welded to the rear structural framing to provide body protection and a solid rear stepping platform. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

The rear of the apparatus body shall have "beaver tails" or "tail-fins" added. The beaver tails shall be constructed of the same materials as the apparatus body and extend from the top of the body side down to the edge of the rear tailboard. On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (Per NFPA 1901).

One (1)

56-61-3050

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate a ventilated "Diamondback" material stepping surface bolted in place which spans the full width of the apparatus on non-recess designs, and as wide as possible on inset recess designs. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage.

The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The

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framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

One (1)
58-30-1200

FOLDING STEP

CPI illuminated folding step(s) shall be installed on the body as directed by the department or required per NFPA. The top of the stepping surface shall have a knurled finish and an LED light that illuminates the stepping surface. An additional light shall be provided on the step mounting bracket to illuminate the area under the step.

One (1)
58-34-4010

Two (2) folding steps shall be installed on the right forward wall of the front compartment. These steps shall be utilized to access the water tank fill tower of the apparatus. The steps shall also be utilized to gain access to the top of the pump compartment structure and any equipment located in the immediate vicinity.

One (1)
59-82-4100

HANDRAIL

One (1) 10" vertical handrail(s) with mounting stanshions shall be installed as directed by the department. The handrails shall be 1-1/4" in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert. There shall be a 2" minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail that has been determined by the department and in accordance with the current edition of NFPA 1901 standard requirements.

One (1)
58-34-7020

Three (3) folding steps shall be installed on the right rear vertical face of the body.

One (1)
59-82-4600

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be installed in a best fit location above the rearward step(s) to assist in climbing the steps in accordance with the current edition of NFPA 1901 standard requirements. There shall be a 2" minimum clearance between the bracket and the body.

One (1)
58-34-3010

Two (2) folding steps shall be installed on the left forward wall of the front compartment. These steps shall be utilized to access the water tank fill tower of the apparatus. The steps shall also be utilized to gain access to the top of the pump compartment structure and any equipment located in the immediate vicinity.

One (1)
59-82-4100

HANDRAIL

One (1) 10" vertical handrail(s) with mounting stanshions shall be installed as directed by the department. The handrails shall be 1-1/4" in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective inserts and full length illuminated LED light insert. There shall be a 2" minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail that has been determined by the department and in accordance with the current edition of NFPA 1901 standard requirements.

One (1)

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58-34-6020

Three (3) folding steps shall be installed on the left rear vertical face of the body.

One (1)

59-82-4600

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be installed in a best fit location above the rearward step(s) to assist in climbing the steps in accordance with the current edition of NFPA 1901 standard requirements. There shall be a 2" minimum clearance between the bracket and the body.

One (1)

69-71-0500

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be PPG Industries Delta® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Material Data Safety Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The

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apparatus body, will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard. (SEE PDF).

One (1)
69-75-0500

BODY PAINT COLOR

One (1)
69-85-1000

The apparatus body shall be painted {" [B75736 Red](#) " }.

One (1)
69-81-1050

SPEEDLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Speedliner. The color shall be medium gray.

Speedliner is an Industrial polymer coating with a low VOC content offering good resistance to U.V. and common chemical solvents including fuels and corrosive materials. Speedliner provides a tough 4600 psi tensile strength protective coating that is tear and abrasion resistant. Speedliner is approved in accordance with the Federal Motor Vehicle Safety Standard FMVSS 302 to provide an acceptable flammability and flame propagation rate for coatings applied to motor vehicles. It requires no special maintenance and is washable.

One (1)
30-13-1500

GENERAL BODY DETAILS

All compartmentation shall be constructed in a sweep out design to be water and dust resistant, and manufactured to the maximum possible storage capacity.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. The Manufacturer may be requested to supply evidence of fastener coating and results of salt spray testing when dissimilar metals are used. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

One (1)
30-15-4000

WHEEL WELL MODULES

The body wheel well area shall be fabricated of smooth aluminum and finish painted. There shall be "smart storage" compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

One (1)

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30-16-2000

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

One (1)

30-16-5000

The compartment shall be located in front of the axle on the left side.

One (1)

30-16-2000

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

One (1)

30-16-6000

The compartment shall be located in front of the axle on the right side.

One (1)

30-16-1050

DIVIDED STORAGE COMPARTMENT

There shall be a compartment located in the wheel well for storage of miscellaneous equipment.

The Fire Departments desires the compartment to hold three (3) Fire Department supplied air bags and one (1) water extinguisher. Due to size constraints this will be discussed at the pre-construction conference.

One (1)

30-16-5000

The compartment shall be located in front of the axle on the left side.

One (1)

30-16-1000

WHEEL CHOCK COMPARTMENT

There shall be a compartment located in the wheel well to hold a set of Zico folding wheel chocks.

One (1)

30-16-5000

The compartment shall be located in front of the axle on the left side.

One (1)

30-17-1300

The smart storage compartment doors shall be painted.

One (1)

70-21-3000

DOOR OPEN INDICATOR

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Each smart storage compartment door shall have a “plunger” style switch.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

One (1)

30-20-1000

VIBRA-TORQUE™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

One (1)

30-30-1000

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99" excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

One (1)

30-31-5000

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. The vents will be chrome louvered plate and installed appropriately on the compartment interior walls.

One (1)

31-40-5200

SIDE COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body “SIDE” compartments, to accommodate the installation of shelves, trays, tool boards and or other miscellaneous equipment.

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One (1)
35-03-0300

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1": There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 69" high with a lower depth of 25.5" and an upper depth of 12.5". The framed opening shall measure approximately 31" wide by 65" high. The compartment will have approximately 24.9 cubic feet of space.

Compartment "L2": There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 39.5" high with a depth of 12.5". The framed opening shall measure approximately 62" wide by 35.5" high. The compartment will have approximately 15.5 cubic feet of space.

Compartment "L3": There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 61.5" high with an upper depth of 12.5" and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 46.5" wide by 57.5" high. The compartment will have approximately 31 cubic feet of space.

Compartment "R1": There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 69" high with a lower depth of 25.5" and an upper depth of 12.5". The framed opening shall measure approximately 31" wide by 65" high. The compartment will have approximately 24.9 cubic feet of space.

Compartment "R2": There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 39.5" high with a depth of 12.5". The framed opening shall measure approximately 62" wide by 35.5" high. The compartment will have approximately 15.5 cubic feet of space.

Compartment "R3": There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 61.5" high with an upper depth of 12.5" and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 46.5" wide by 57.5" high. The compartment will have approximately 31 cubic feet of space.

One (1)
30-81-1100

FULL HEIGHT (NARROW OPENING) REAR CENTER COMPT W/ ROLL-UP DOOR

"B1" Compartment: There shall be one (1) compartment located at the rear of the apparatus, directly below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43" wide and 25" high or as high as possible determined by the hose bed height with a depth of 31" dependent on suspension, with the sides of the compartment being open to the side compartments for maximum storage area.

The compartment shall have a roll-up door installed. The framed opening shall be approximately 38" wide and 21.5" high.

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There shall be a secondary compartment provided with a separate pre-plumbed internal compartment to accommodate 200' of 1" forestry hose/nozzle with latched drop down hinged door.

One (1)
30-41-1050

R.O.M ROLL-UP DOORS

Roll up doors shall be R.O.M Corporation brand. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4" diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

One (1)
30-43-2050

REAR COMPARTMENT DOOR ALUMINUM SATIN FINISH

The rear center compartment door shall be satin aluminum finish.

One (1)
30-44-1005

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

One (1)
30-82-1000

FUEL TANK ACCESS

There shall be a removable panel located on the interior back wall of the rear center compartment for maintenance access to the chassis fuel tank.

One (1)
31-40-7800

REAR COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed on the back wall of the rear center compartment to accommodate mounting of shelves, trays, tool boards and or other miscellaneous equipment.

One (1)
35-05-0300

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DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

One (1)

30-41-1000

R.O.M ROLL-UP DOORS

Roll up doors shall be R.O.M Corporation brand. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4" diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

One (1)

30-43-2000

SIDE COMPARTMENT DOOR ALUMINUM SATIN FINISH

The side compartment roll up doors shall be satin aluminum finish.

One (1)

70-21-2000

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

One (1)

35-05-03AX

ELECTRIC LOCKING COMPARTMENT DOOR

The passage side front compartment (R1) will have an electric lock. The lock will be controlled by a switch located at in side the cab near the rear passenger door.

One (1)

49-02-1000

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

One (1)

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50-15-5000

HOSE STORAGE

A hose bed shall be provided and installed with a minimum of thirty (30) cubic feet of storage space available. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

One (1)

50-12-3000

The walls of the hose bed shall be 85" tall, measured from the bottom edge of the compartments to the top flange.

One (1)

50-41-3100

VINYL COATED NYLON HOSE BED COVER

There shall be a hose bed cover furnished that is made of vinyl coated nylon. The cover shall be held in place by extruded aluminum channel on the front and an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover on the sides. Hooks shall be provided on the sides to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum. The cover shall have a flap that extends down over the rear of the hose bed which shall be described below.

One (1)

50-41-5100

The cover shall have a flap that extends down over the rear of the hose bed which shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

One (1)

50-42-2000

The hose bed cover shall be red in color.

One (1)

50-60-2000

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

One (1)

50-60-5010

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1" on each side of the hose bed side wall.

One (1)

69-95-1300

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

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One (1)
50-15-9E00

The hose bed shall accommodate the following hose loads:

<u>Qty</u>	<u>Size</u>
Two (2)	50-20-1000

HOSE BED DIVIDER(S)

There shall be a divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the divider.

There shall be a total quantity of two (2) dividers installed in the hose bed.

One (1)
50-50-0000

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed area, just behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

One (1)
54-20-1000

FENDERETTES

Two (2) polished stainless steel fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

One (1)
61-00-5700

TANK CAPACITY

The tank shall be 500 gallons in capacity.

One (1)
28-50-0000

TANK LEVEL GAUGE

A Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed on the apparatus. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

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The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

One (1)

28-55-1300

ADDITIONAL TANK LEVEL GAUGE - WHELEN PSTANK

There shall be additional tank level gauge(s) mounted on the apparatus. The tank level gauge(s) shall utilize a Fire Research pressure transducer and driver to provide an accurate reading of the water tank level.

Two (2)

28-55-6000

WHELEN PSTANK LEVEL GAUGE

There shall be a Whelen model PSTANK level gauge provided and installed with the apparatus.

The tank level gauge shall indicate fluid level in the water tank. The light colors shall be from top to bottom, Green, Blue, Amber, and Red. These lights will automatically turn off to indicate the water level in the booster tank in 1/4 increments.

There shall be a total quantity of two (2).

The PSTANK lights shall be mounted on the sides of the dunnage area, with no exposed wiring into the dunnage area.

One (1)

61-00-4000

UPF POLYPROPYLENE TANK

The booster tank shall be constructed of 1/2" thick PT2ETM poly sheet stock which is a non-corrosive stress relieved thermoplastic, natural in color, and UV stabilized for maximum protection. It shall be designed to be completely independent of the body and compartments. All joints and seams are nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy tank removal. The transverse swash partitions shall be manufactured of 3/8" PT2ETM poly (natural in color) and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" PT2ETM poly (natural in color) and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

Cover

The tank cover shall be constructed of 1/2" thick PT2ETM poly, natural in color, and UV stabilized, to incorporate a multi three-piece locking design which allows for individual removal and inspection if necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" poly dowels spaced a maximum of 30" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 13" to accommodate the lifting eyes.

Mounting

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The tank shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches, cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank must be isolated from the cross members through the use of hard rubber strips with, a minimum thickness and width dimensions of .250" x 2" and a minimum Rockwell Hardness of 60 durometer. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both, front and rear as well as side to side to prevent the tank from shifting during vehicle operation.

A picture frame type cradle mount shall be utilized with a minimum of 2" x 2" x .250 mild steel, stainless steel or aluminum angle. Where aluminum or steel tubing and channel sub-frames are incorporated in the body structure, the use of corner angles having a minimum dimension of 4" x 4" x .250 x 6" high are permitted for the purpose of capturing the tank.

Although the tank is designed on a free floating suspension principle, it is required that the tank have adequate hold down restraints to minimize movement during vehicle operation. If proper retention has not been incorporated into the apparatus hose floor structure, an optional mounting restraint system shall be located on top of the tank, half way between the front and the rear on each side of the tank. These stops can be constructed of steel, stainless steel or aluminum angle having minimum dimensions of 3" x 3" x .250 and shall be approximately 6 to 12 inches long. These brackets must incorporate a hard rubber isolating pad with a minimum thickness of .250 inch affixed on the underside of the angle. The angle should then be bolted to the body side walls of the vehicle while extending down to rest on the top outside edge of the upper side wall of the tank. Internal mounting block design and hose bed floors must also be designed so that the floor slat supports extend full width from side wall to side wall and are not permitted to drop off the edge of the tank or in any way come in contact with the individual covers where a puncture could occur. Hose floor loading must support up to 200 lbs per square foot and must be evenly distributed whenever possible. Other equipment such as generators, portable pumps, etc. must not be mounted directly to the tank top unless provisions have been designed into the tank for that purpose. The tank shall be completely removable without disturbing or dismantling the apparatus structure.

One (1)

61-00-4100

FILL TOWER: Fill opening shall be approximately 13" x 12". The tower will have a 1/4" thick removable polyprene screen and a polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polyprene screen to prevent debris from falling into the tank. The fill tower shall have a 4" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity.

One (1)

61-00-4200

The fill tower shall be located in the left front hose bed.

One (1)

61-00-4300

SUMP:

The sump will be constructed of 1/2" polyprene and be located inline with the tank suction valve. There shall be a 4" schedule 40 polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

One (1)

61-00-4310

The sump shall have a 3" plug for use in draining and cleaning out the tank.

One (1)

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61-00-4400

OUTLETS:

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

One (1)

62-45-0000

LADDER STORAGE

The ladders shall be stored within a compartment located beside the booster tank.

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, to support the ladders and allow ease of removal. There shall be a stop in the front of each section to prevent the items from sliding forward.

There shall be a vertically hinged door, matching the rear overlay material, on the rear of the compartment with two push button type latches and a chrome handle centered between the push button latches.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "Door Open" indicator light in the cab to warn the crew.

One (1)

62-45-1500

The compartment shall be located on the right side of the tank, with the ladders lying on their side.

One (1)

62-45-3500

The compartment shall be enclosed through the tank and open at the pumphouse end; where "stops" will be incorporated to prevent the ladders from sliding forward and damaging internal pumphouse components.

One (1)

62-46-1050

The compartment shall be large enough for one (1) 10' aluminum folding ladder, one (1) 14 foot aluminum roof ladder and one (1) 24 foot two section Duo-Safety aluminum extension ladder to be stowed in individual divided slots, so one item may be removed without disturbing another.

There shall be a stop in the front of each compartment to prevent the items from sliding forward.

One (1)

52-13-0000

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions, fabricated of the same material as the body, shall be welded in place in all over-wheel compartments flush to the forward and rearward frame openings.

These partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

One (1)

52-15-0000

COMPARTMENT FLOOR MATTING

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Seven (7)
52-15-1050

Black Turtle Tile floor mating shall be installed on seven (7) compartment floor(s). The tile shall be custom fitted to the interior compartment floor construction to protect the entire floor surface from equipment damage.

One (1)
52-20-0000

SHELVING

Each shelf shall be fabricated of 3/16" thick aluminum sheet material with the outside and inside edges flanged up to prevent equipment from sliding off. Each shelf shall be as wide as possible to allow proper attachment to uni-strut channels. Each shelf shall be adjustable up and down.

The following shall be provided:

Five (5)
52-20-2100

A {12.5"} deep shelf shall be supplied and installed in the compartment. Each shelf shall be as wide as possible and there shall be a total quantity of five (5).

Five (5)
52-20-7300

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

Three (3)
52-26-0011

- Three (3) located in the R-1 compartment.

Two (2)
52-26-0013

- Two (2) located in the R-3 compartment.

One (1)
52-25-0105

ROLL OUT TRAY/AUSTIN

Each tray shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four 3" side flanges; corner welded for maximum strength. Each tray shall be as wide and deep as the door allows and secured to (Austin Hardware) "heavy duty" slide assemblies. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a pneumatic hold-open and closed device.

The following shall be provided:

Two (2)
52-25-0110

A {300#} capacity tray with {100% } extension shall be installed to the compartment floor. There shall be a total quantity of two (2).

Two (2)
52-20-7300

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

One (1)

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52-26-0001

- One (1) located in the L-1 compartment.

One (1)

52-26-0003

- One (1) located in the L-3 compartment.

Three (3)

52-25-0120

A {300#} capacity tray with {100%} extension and adjustable height utilizing uni-strut materials shall be installed. There shall be a total quantity of three (3).

Three (3)

52-20-7300

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

Two (2)

52-26-0001

- Two (2) located in the L-1 compartment.

One (1)

52-26-0003

- One (1) located in the L-3 compartment.

One (1)

52-25-0405

ROLL OUT/TILT DOWN TRAY

Each tray shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four 3" side flanges; corner welded for maximum strength. Each tray shall be designed to utilize the full compartment width and depth and be secured to a (Slide Master) rollout/tilt down unit. The slide unit shall extend down 30-degrees and 90% of the slide capacity. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a latching device to hold the tray in the stored position.

The following shall be provided:

Two (2)

52-25-0420

A {250#} capacity tray with 30 degree tilt and {90%} extension shall be supplied and installed in the compartment. There shall be a total quantity of two (2).

Two (2)

52-20-7300

Each shelf or tray shall be covered with (black) Turtle Tile for durability and a pleasing appearance.

Two (2)

52-25-0257

The slide shall be held in the locked position by a lever actuated twist lock.

Two (2)

52-25-0261

The Slide Master slides shall be wet painted {silver} in color.

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One (1)
52-26-0002

- One (1) located in the L-2 compartment.

One (1)
52-26-0012

- One (1) located in the R-2 compartment.

One (1)
52-42-0000

There shall be a free standing, permanently mounted, rescue equipment storage compartment provided and installed with the apparatus. The compartment shall be constructed of 1/8" smooth aluminum and allow access from either side if mounted in a transverse designed section. The interior floor of the compartment shall be lined with black ABS plastic for ease of stowing and un-stowing equipment.

The compartment shall include provisions for mounting the following:

Two (2)
52-42-1000

Two (2) Backboard(s) shall be stored in individual storage slot(s). The slot shall have clear inside dimensions of approximately 18"high x 2.5"wide x 75"long. The backboard shall be removable without disturbing the storage of another.

One (1)
52-44-9070

The storage compartment shall be located in the hose bed storage area.

One (1)
52-44-9100

DIAMOND PLATE HINGED DOOR

The compartment shall have a hinged door to access equipment. The door shall be fabricated with .125 aluminum diamond plate and shall be secured with one (1) push button latch.

One (1)
52-44-9999

The door shall be switched to the "Open Door Indicator Light" in the cab to alert the driver if the door is open.

One (1)
54-10-1200

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with 1/2" nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

One (1)

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54-50-1045

OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed.

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

One (1)

54-50-2100

The front of the apparatus body, vertical wall overlay shall be integrated with a 1/8" aluminum diamond plate corner trim pieces for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

One (1)

54-50-2200

The rear face of the apparatus body, vertical wall overlays shall be installed with a 1/8" aluminum diamond plate 1.0" x 1.0" corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

The inside surface of the beavertail at the hosebed exit above the aluminum treadplate will be covered with 14-gauge brushed-finish stainless steel.

One (1)

54-50-5600

CATWALKS

The catwalks shall be constructed with materials of a non-slip embossed aluminum diamond plate, meeting the minimum NFPA standard requirements for slip resistance.

One (1)

58-70-0000

RUBBER GRIP INSERT HANDRAIL SPECIFICATIONS

All handrails shall be 1 1/4" in diameter, constructed of extruded aluminum with rubber grip inserts. There shall be a 2" minimum clearance between the bracket and the body. The following handrails shall be installed at the approximate lengths noted:

One (1)

58-70-0100

RUBBER GRIP INSERT HAND RAILS

There shall be three (3) hand rails installed on the rear of the apparatus. Each hand rail shall provide approximately 42 inches of gripping area for personnel. Each hand rail shall be constructed of an aluminum extrusion with three (3) rubber inserts to provide a positive grip. The handrails shall be spaced away from the body using chrome plated ends. Two (2) vertical hand rails shall be installed, one on each side, just below the hose bed sides. The remaining hand rail shall be

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installed horizontally, just below the hose bed area.

One (1)

60-10-1000

TOW EYES

There shall be two rear tow eyes installed to the frame rails, one each side, accessible below the rear center compartment. They shall be manufactured of 1" plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of (6) grade 8 bolts. The two plates shall be anchored together with 1" steel tubing to prevent swaying of the frame rails during a towing operation.

One (1)

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One (1)

70-10-1200

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the NFPA 1901 standard guidelines.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted.**

One (1)

70-10-4010

NODE

An electrical distribution node or relay shall be installed and located as high as possible on the interior of the most rearward compartments on each side of the apparatus body.

Full depth body compartmentation designs shall have the node mounted to the back wall and run parallel front to back of the apparatus.

Half depth compartment ion designs shall have the node mounted to the back wall and run parallel front to back of the apparatus.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16 to 22" in length and shall match the compartments interior finish.

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Node covers will not include any type of shelve mounting structure and shall limit the height of uni-strut or shelf height within the compartments.

One (1)
70-10-40AX

12-VOLT COMPARTMENT POWER

There will be a circuit protected 40AMP terminal block located in the passenger side forward compartment (R1). The terminal will provide circuits for department supplied and installed flashlights and EMS suction device.

One (1)
70-10-5200

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus, for use as identification lamps. Two (2) lights shall be located on the rear, one each side and two (2) lights on the sides facing the side, for use as clearance lamps.

If the apparatus is 30' or longer there shall be two (2) amber intermediate turn signals and two (2) amber intermediate marker lights on the sides of the apparatus (one (1) each per side) between the front and rear axles.

The lights shall be Weldon brand 9186-1500 series LED red and amber markers.

One (1)
70-10-6600

LED/HALOGEN REAR TAIL LIGHT CLUSTER

There shall be a Whelen, combination LED and Halogen rear tail light cluster provided and installed in a polished bezel on the rear of the apparatus, one each side. The cluster shall consist of the following specified components:

- 1 - Whelen #60 LED series amber turn signal light populated in the shape of an arrow
- 1 - Whelen #60 LED series red brake light
- 1 - Whelen #60 Clear backup light (Halogen)

One (1)
70-10-7400

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

One (1)
70-20-2100

PUMP/TRANSVERSE COMPARTMENT LIGHTING

There shall be Weldon LED light(s) model #2631-0000-30 provided and installed with the apparatus. The lights shall be flush mounted in individual bezels and switched at the light with a weather resistant toggle switch. There shall be a total of one (1).

One (1)
70-30-0000

COMPARTMENT LIGHTING

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One (1)
70-30-4000

WHELEN FLOURENT COMPARTMENT STRIP LIGHTING

Whelen Flourent LED strip lighting shall be installed in the compartments as specified. The lighting in each compartment shall be on a separate circuit, and only illuminate when the compartment doors are open.

Two (2)
70-30-4120

Two (2) Whelen Flourent LED strip lights shall be installed in two (2) over wheel compartment(s).

Four (4)
70-30-4140

Two (2) Whelen Flourent LED strip lights shall be installed in four (4) full height compartment(s).

One (1)
70-30-4150

Two (2) Whelen Flourent LED strip lights shall be installed in the rear center compartment.

One (1)
70-34-1250

PERIMETER LIGHTS

There shall be four (4) LED underbody perimeter lights provided and installed in addition to the chassis provided lights. One, (1) under each side of the front of the body, and two (2) under the rear step to illuminate the ground around the truck.

Lighting designed to provide illumination under the cab step areas shall be of a switch-able design although, activate automatically when the exit doors are opened. All other ground area lighting shall be of the standard switch-able design.

They shall be manufactured by Trucklite and be model # 44308C.

One (1)
70-35-8100

BODY SIDE BACK UP LIGHTS

There shall be two (2) body side back up lights furnished and installed. One (1) each side in the body in the wheel well area, facing rearward and slightly downward to illuminate the ground around and behind the rear axle. The back up lights shall be activated whenever the truck is placed in reverse. The lights shall be manufactured by Zico and be model #ZQL-SS-H7614.

One (1)
72-2A-1000

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

One (1)
72-1A-0000

The lightbar(s) shall be supplied with the chassis.

One (1)
72-2M-3000

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ZONE C: There shall be two (2) Whelen, model 90RR5FCR 7"x9" flashing red LED lights with clear lenses and chrome bezels provided and installed on the apparatus.

One (1) in each outboard upper corner at the rear of the body.

One (1)

72-2N-1300

ZONE B&D: There shall be two (2) Whelen model 90RR5FCR 7"x9" flashing red LED lights with clear lenses and chrome bezels, provided and installed at the rear of the apparatus, on the upper side corners, one (1) each side.

One (1)

74-2A-1000

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

One (1)

74-2B-0500

ZONE A: The warning lights shall be provided with the chassis.

One (1)

74-2F-1550

ZONES B&D: There shall be four (4) Whelen model 60R02FCR 4"x6" flashing red LED lights with clear lenses and chrome bezels, provided and installed with the apparatus.

Two (2) on each side, in addition to the chassis provided.

One (1)

74-2J-1400

ZONE C: There shall be two (2) Whelen model 60R02FCR 4"x6" flashing red LED lights with clear lenses and chrome bezels, provided and installed on the rear of the body.

One (1)

75-59-1000

LOWER ZONES B&D CAST ALUMINUM LIGHT HOUSING

A cast aluminum light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible.

One (1)

76-31-0500

REAR DIRECTIONAL LIGHT BAR

One (1)

76-32-4000

There shall be a Whelen model #TAM65 36" long directional lightbar with six (6) TIR-Super LED light heads provided and installed on the rear of the apparatus.

The lightbar shall be installed above the rear center compartment area so as to be readily visible by approaching traffic.

One (1)

76-20-1000

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There shall be a tread plate shield installed above the rear directional light bar to protect the light bar from being damaged during hose unloading and loading operations. This light shield shall not be used as a stepping surface.

One (1)

77-00-0200

REAR VIEW CAMERA SYSTEM

A chassis supplied camera shall be **recess** mounted on the center rear of the apparatus body **directly above the directional stick**.

One (1)

78-00-1000

HOSE BED SPOT AND FLOOD LIGHTS

There shall be two rear deck lights, one spot and one flood, furnished and installed at the rear of the apparatus. The Unity brand lights shall be 6" in diameter and be 50 watts each.

One (1)

78-50-1000

12 VOLT SCENE LIGHTS

Four (4)

78-55-1300

There shall be a Whelen model #70K000ZR 12 volt, 8-12 degree optic, scene light with chrome bezel provided and installed with the apparatus as specified.

There shall be a total quantity of four (4).

One (1)

78-58-1300

The scene lights shall be located on the side of the body, one (1) each side, **forward** on the body side wall.

Two (2)

78-58-9E10

The scene light(s) shall be activated through the multiplexing vista display.

One (1)

78-58-1500

The scene lights shall be located on the rear of the body, one (1) each side.

One (1)

78-58-9E10

The scene light(s) shall be activated through the multiplexing vista display.

One (1)

00-10-2000

UL TESTING 110/220-VOLT & GENERATOR

The apparatus electrical and generator system shall be tested and UL certified.

One (1)

80-11-2000

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ONAN HYDRAULIC 6,000 WATT GENERATOR

One (1) Onan Hydraulic Driven Generator rated at 6,000 watts.
One (1)
80-11-0500

ONAN HYDRAULICALLY DRIVEN GENERATOR

A PTO driven hydraulically powered generator system shall be supplied and installed. The genset shall be an Onan model HG. The genset shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes. The genset shall be capable of being switched on or off at any time, with or without electrical loads applied. The genset field and armature windings shall be of copper magnet wire, coated with class 200 film insulation. The genset alternator shall be capable of accepting a zero power factor load of 200% rated kVa and recover to 90% of rated voltage within ½ second. The genset shall be capable of continuous operation in 120°F ambient conditions.

The gear ratio of the PTO shall be selected to provide required genset pump speeds with respect to engine speeds. The hydraulic pump can be directly mounted to the PTO using the standard SAE flange or the pump can be remote mounted utilizing a driveshaft. Direct mount pumps on the PTO shall have supports per the manufacturer instructions to avoid stress damage to the PTO mounting face. Remotely mounted pumps shall have adequately sized & configured mounting brackets, drive shafts and guarding to prevent entangling injuries.

The compartment or installation location for the genset module shall be made per the manufacturer recommendations. Proper cooling air control, service panel access and exhaust air venting shall be demonstrated. The compartment or location shall have an under tray and adequate structure to support the genset module.

The hydraulic system reservoir shall be mounted above the pump and shall have access for fluid filling, draining and viewing the sight glass fluid level indicator. Clearance of at least 10" above the reservoir shall be provided for hydraulic fluid filter service. The system reservoir shall be labeled with the type and approximate amount of fluid required. The fluid shall be Dextron III hydraulic fluid.

All connecting hydraulic hoses & fittings shall be of the size and pressure rating specified by the manufacturer. The hoses shall be adequately protected from chafing or abrasion during operation.

One (1)
80-18-8700

HOT SHIFT PTO

A 'hot' shift shall be added to the hydraulic generator installation.

The Generator will remain "continuously excited" when the PTO is engaged. The PTO shall remain 'engaged' to keep fluid circulating through the system.

A guarded switch shall be located on the cab dash or other operator accessible area in the cab. The switch shall be used to disconnect the PTO from the transmission in the event of hydraulic failure (broken hose, etc) during operation.

The switch shall be labeled "GENERATOR EMERGENCY STOP".

One (1)
80-32-0002

GENERATOR INSTALLED

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The generator shall be installed in the hose bed area near the front of the apparatus above the water tank.

One (1)
80-90-1000

LOAD CENTER

There shall be an electrical load center furnished and installed in a protected environment. The load center shall have provisions for eight (8) 20 amp manual reset type circuit breakers.

One (1)
80-91-1000

The load center shall be surface mounted to the upper -outward facing- back wall of the L1 compartment. The box shall be located as far forward to the bulkhead wall of the L1 compartment as possible.

One (1)
84-00-0000

ELECTRIC CORD REEL

One (1)
84-11-3100

One (1) Hannay model #ECR-1618-17-18 series electric rewind cord reel(s) shall be installed on the apparatus as specified.

There shall be a four way roller assembly provided and installed to guide the cord on and off of the spool to prevent chafing on the body or opening. There shall also be a cord stop supplied. The reel shall come equipped with 200 feet of yellow 10-3 electrical cord.

A weather resistant push button switch to activate the rewind shall be located next to the reel. The switch shall be labeled "CORD REEL".

One (1)
84-12-0100

The cord shall be hardwired to a Circle D remote power distribution box with (4) four NEMA L5-15 single receptacles. The distribution box shall be stored in a mounting bracket when not in use. The box shall be equipped with a light to indicate when distribution box is energized.

The distribution box shall be equipped with the following receptacles:

Position 1: NEMA L5-15 R

Position 2: NEMA L5-15 R

Position 3: NEMA L5-15 R

Position 4: NEMA L5-15 R

One (1)
84-12-4920

The hose reel shall be located, (Specify Here)

One (1)

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One (1)
88-50-2000

REFLECTIVE STRIPING

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There shall be a 6" high reflective Scotchlite stripe applied to the outside perimeter of the chassis and apparatus.

One (1)

88-59-4000

The reflective striping shall be applied..."Specify Here"

One (1)

88-60-1000

The reflective striping shall be white in color.

One (1)

88-65-1000

RETROREFLECTIVE CHEVRON STRIPING

There shall be diamond grade retroreflective chevron striping applied prior to applying the accessories on the rear of the apparatus.

One (1)

88-66-1000

The retroreflective chevron striping shall be red and yellow in color.

One (1)

88-78-0000

LICENSE PLATE MOUNTING

One (1)

88-78-2000

Provisions (holes) for mounting a license plate shall be installed in conjunction with the proper illumination to meet DOT requirements.

One (1)

88-78-2010

A Weldon 12 Candle Power model #9186-23882-30 light with a chrome shield shall be installed to meet DOT requirements.

One (1)

90-02-0000

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

One (1)

90-03-1000

ZICO WHEEL CHOCKS

One (1) set(s) of NFPA compliant Ziamatic folding wheel chocks model # AC2 shall be supplied with the apparatus.

One (1)

90-03-1100

ZICO WHEEL CHOCK MOUNTING BRACKETS

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One (1) set(s) Ziamatic folding wheel chock underbody horizontal mounts model #QCH-2 shall be installed on the apparatus under the body in front of the rear wheels.

One (1)
90-05-0001

FLARES

Five (5)
90-05-0054

All NFPA required flares will be supplied and installed by the Customer before the truck is placed into service.

One (1)
90-07-0001

TRAFFIC CONES

Five (5)
90-07-0054

All NFPA required traffic cones will be supplied and installed by the Customer before the truck is placed into service.

One (1)
90-07-1001

TRAFFIC VEST

Five (5)
90-07-1054

All NFPA required traffic vest will be supplied and installed by the Customer before the truck is placed into service.

One (1)
90-09-0000

GROUND LADDERS

One (1)
90-11-2000

One (1) Duo-Safety 24' two (2) section aluminum extension ladder(s), model 900A.

One (1)
90-12-1400

One (1) Duo-Safety 14' aluminum roof ladder(s) with folding hooks, model 775A.

One (1)
90-13-2000

One (1) Duo-Safety 10' aluminum attic ladder(s), model 585A

One (1)
90-20-01FH

FIRE HOOKS UNLIMITED PIKE POLES

One (1)
90-21-2003

- one (1) Fire Hooks Unlimited 6' solid fiberglass All Purpose Hook(s), model APH-6.

One (1)
90-70-0001

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SALVAGE COVERS

One (1)
90-70-0054

All NFPA required salvage covers will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-00-0000

EXTINGUISHERS

One (1)
91-00-0054

All NFPA required fire extinguisher will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-20-0000

RECHARGEABLE FLASHLIGHTS

One (1)
91-20-0054

All NFPA required portable hand lights will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-23-0001

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

One (1)
91-23-0054

All NFPA required AED will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-25-0001

FIRST AID KIT

One (1)
91-25-0054

All NFPA required First Aid Kit will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-30-0000

AXES

One (1)
91-30-0054

All NFPA required Axes will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-35-0000

WRENCH SETS

One (1)
91-35-0054

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All NFPA required spanner and hydrant wrenches will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-36-0000

NOZZLES

One (1)
91-36-0054

All NFPA required nozzles will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-40-1500

CROW BAR

Two (2)
91-40-1554

All NFPA required crowbars will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-40-2754

RUBBER MALLET

All NFPA required rubber mallets will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-50-0000

STRAINERS

One (1)
91-50-0504

All NFPA required strainers (hard suction) will be supplied and installed by the Customer before the truck is placed into service.

One (1)
91-70-0000

SUPPLY HOSE

One (1)
91-70-0054

All NFPA required fire hose will be supplied and installed by the Customer before the truck is placed into service.

One (1)
92-01-0100

ADAPTORS

Two (2)
92-01-0154

INTAKE VALVES

Two (2) Akron Black Max intake valves 6"FNST x 5" Stortz. To be shipped loose.

One (1)
92-10-0100

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SCBA & CYLINDERS (air packs)

Four (4)

92-10-0154

All NFPA required SCBA and Cylinders will be supplied and installed by the Customer before the truck is placed into service.

6' LADDER

A 6' collapsible ladder shall be provided.

MOUNTING HARDWARE

Mounting Hardware shall be provided for the customer to install and mount equipment. Per the specifications, details will be discussed at preconstruction meeting.



CHASSIS: SPARTAN GLADIATOR MFD

ENGINE: CUMMINS ISX 500 HP

TRANSMISSION: ALLISON 4000 EVS

AXLES: (FRONT / REAR) 20,000 LBS / 27,000 LBS

MODEL: STAR PUMPER

WATER/FOAM: 500 GAL / 30 GAL

PUMP: WATEROUS CSU 1500 GPM

GENERATOR: ONAN 6.0 KW

DOOR FRAMED OPENINGS

COMPARTMENT	DOOR FRAME LENGTH X HEIGHT
L1	31.0" x 65.0"
L2	62.0" x 31.0"
L3	46.5" x 57.5"
R1	31.0" x 65.0"
R2	62.0" x 31.0"
R3	46.5" x 57.5"
B1	38.0" x 31.0"
B2	38.0" x 8.00"

SPECIAL NOTES:

CUSTOMER
THIS DRAWING IS A CLOSE APPROXIMATION OF YOUR FIRE APPARATUS. IN ALL CASES WHERE THE DRAWING AND THE WRITTEN SPECIFICATION DIFFER, THE SPECIFICATION SHALL PREVAIL. PLEASE WORK WITH YOUR DEALER TO ASSURE THAT THE WRITTEN SPECIFICATION REPRESENTS WHAT YOU WANT IN YOUR FINISHED PRODUCT. SPARTAN ERV BUILDS TO THE WRITTEN SPECIFICATION, NOT THE DRAWING TO ASSURE THAT YOUR NEEDS ARE MET.

PROPRIETARY AND CONFIDENTIAL

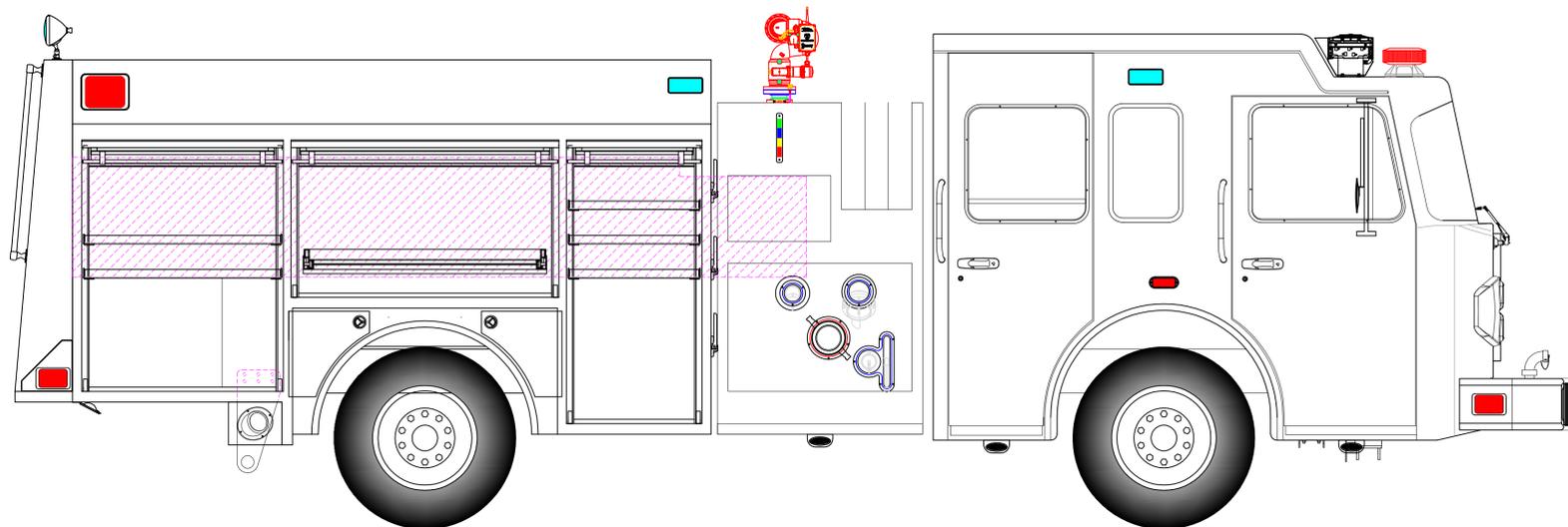
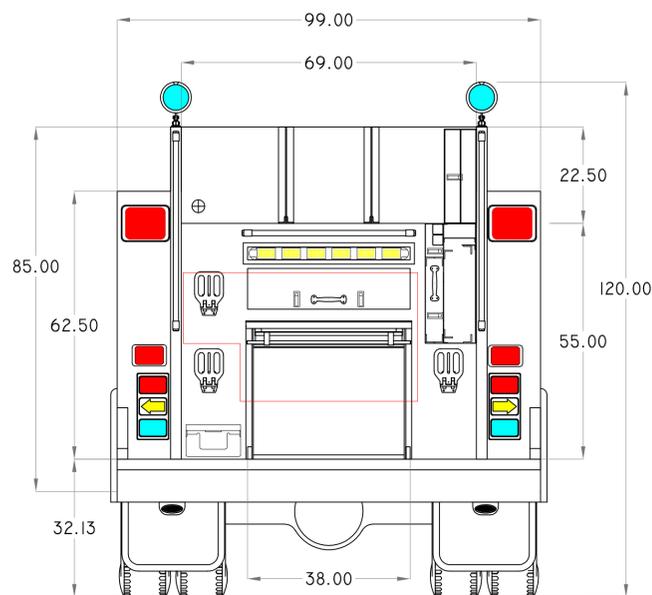
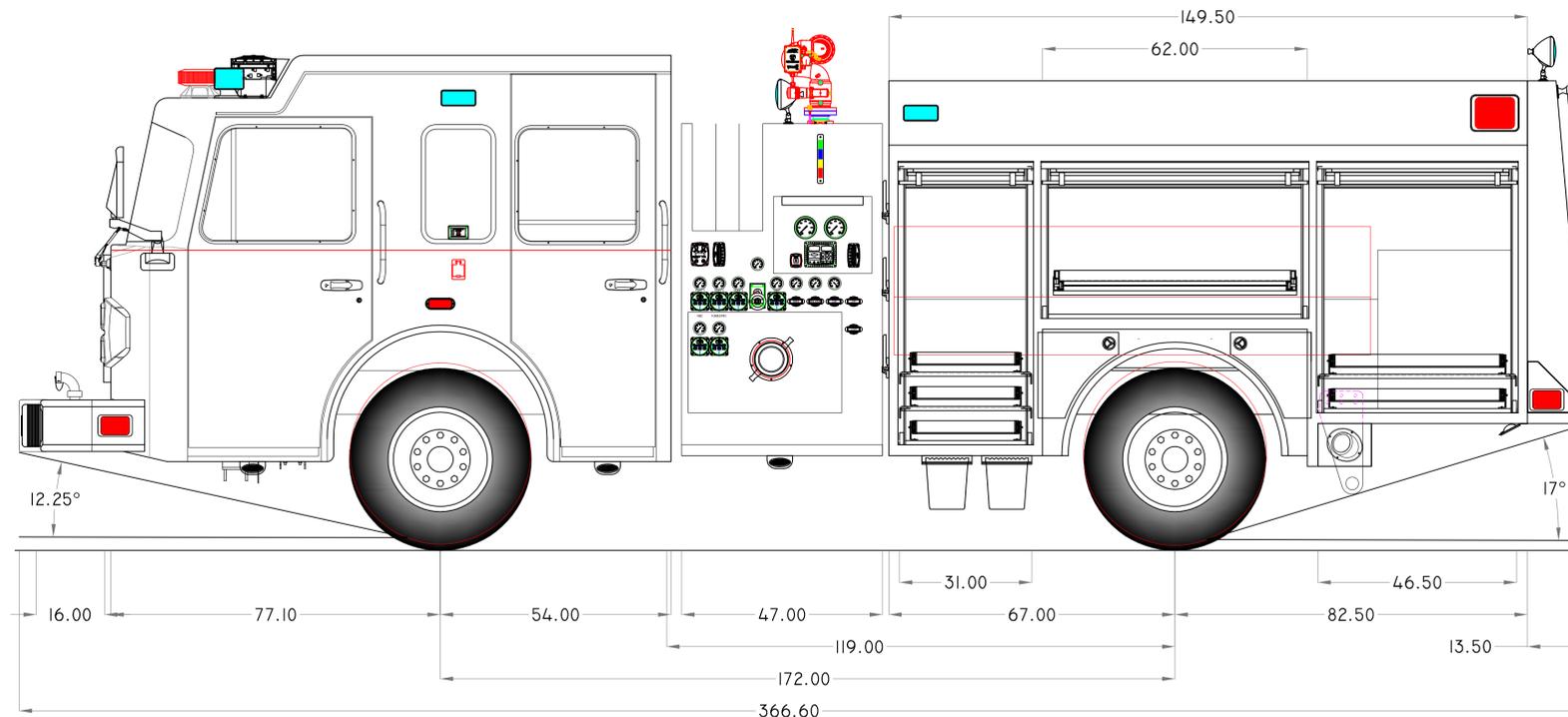
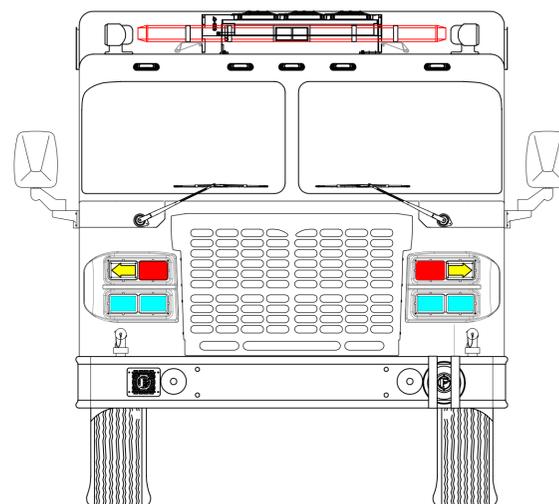
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REV.	DATE	DESCRIPTION	NAME
2	03/22/13	MARK UPS	KJS
1	11/12/12	INITIAL PROPOSAL	KJS
0	11/04/12	INITIAL PROPOSAL	RH

SCALE: NOT TO SCALE

CUSTOMER:
**FOUNTAIN HILLS
FIRE DEPARTMENT**

TRUCK NUMBER: **000000** DEALER:
**EQUIPMENT
MANAGEMENT
COMPANY**



FIRE DEPARTMENT NAME

Fountain Hills

Wheel Base: 172
Tire Size: 385
Bumper Extension: 16

OUTSIDE CURB TO CURB TURNING RADIUS

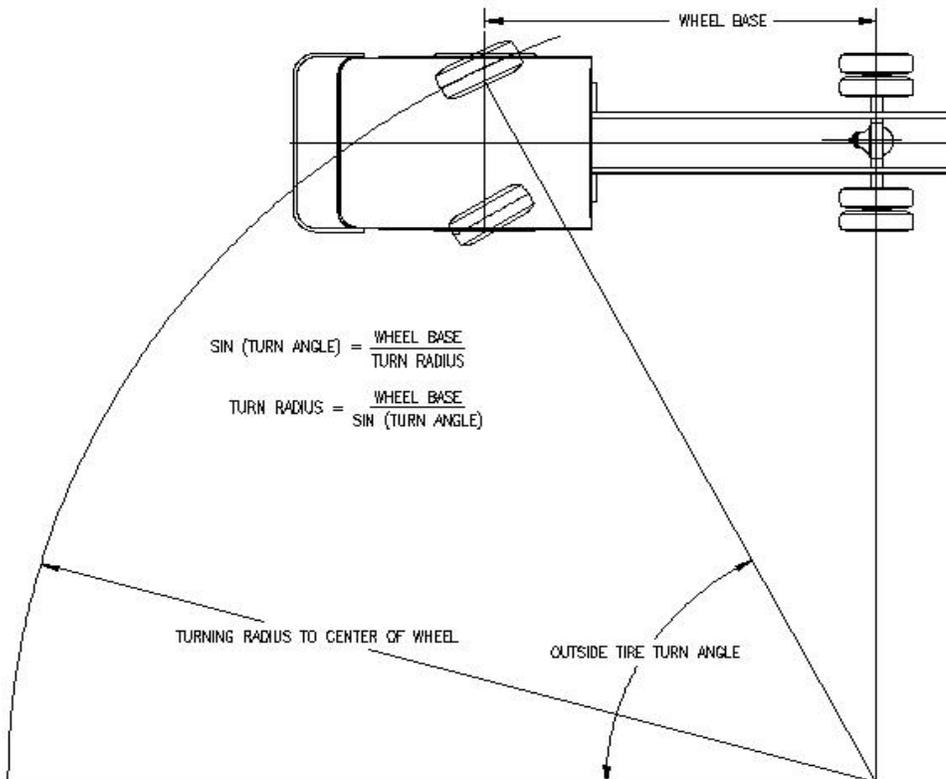
Input wheelbase? 172
Input front wheel INSIDE turn angle? 44
Input offset from kingpin to outside of wheel 15.1

Turn radius is **28.45**

WALL TO WALL TURNING RADIUS

Input wheelbase? 172
Input length of extension? 16
Input width of extension? 101
Input front wheel INSIDE turn angle? 44
Input radius at front corner? 12

Turn radius is **32.26**





STAR SERIES
TEN YEAR BODY STRUCTURAL INTEGRITY WARRANTY

1. LIMITED WARRANTY

Except as provided below, and provided the vehicle shall have been placed in service within thirty (30) days after it leaves Crimson Fire, Inc. D/B/A Spartan ERV (as established by the recorded date on the reverse side of this document), to the original purchaser, for a period ending on the first to occur of the expiration of ten years or 100,000 miles of vehicle use after delivery to the original purchaser. Spartan ERV warrants to the user the body of its new Fire and Rescue Apparatus vehicle shall be free of structural failures caused by defective design or workmanship. This warranty shall apply only to the body tubular support structure and mounting structures and other structural components of the body of the vehicle, as identified in the Spartan ERV specifications for the Fire and Rescue Apparatus. This limited warranty shall apply only if the vehicle is properly maintained and used in service which is normal to the particular vehicle. Normal service means service, which does not subject the vehicle to stresses or impacts greater than normal results from the careful use of the vehicle or chassis. If the buyer discovers a defect or nonconformity it must notify Spartan ERV in writing within thirty (30) days after the date of discovery. This limited warranty is not transferable by the first user.

Spartan ERV makes no warranty whatsoever as to (1) Integral parts, components, attachments or trade accessories not manufactured by Spartan ERV, but instead, the applicable warranties, if any, of the respective manufacturers thereof shall apply; (2) Any vehicle, chassis or component, part, attachment or accessory damaged by misuse, neglect or accident; (3) Any vehicle chassis or component, part, attachment or accessory shall have been repaired, altered or assembled in any way by others other than Spartan ERV, which, in sole judgment of Spartan ERV, affects the performance, stability or purpose for which it was manufactured; (4) Products or parts which are not defective but which may wear out and have to be replaced during the warranty period including, but not limited to, fasteners. Spartan ERV assumes no responsibility for the assembly of its parts or sub-assembly into finished products unless the assembly is performed by Spartan ERV.

The original purchaser may void this warranty in part or in its entirety if one or more structural components of the body are repaired or replaced (1) without prior written approval of the Spartan ERV Service Department (2) at a facility which is not then approved by Spartan ERV as to technical capability.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTIES SET FORTH IN PARAGRAPH 1 ARE THE EXCLUSIVE WARRANTIES GIVEN BY SPARTAN ERV. SPARTAN ERV HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYERS REMEDIES

If the product fails to conform to the warranties set forth in paragraph 1 and such nonconformity is not due to misuse or improper maintenance, the buyer shall notify Spartan ERV as provided in paragraph 1, and shall make the product available for inspection by Spartan ERV or its designated agent. At the request of Spartan ERV any defective part shall be returned to Spartan ERV for examination, with transportation charges prepaid and assumed by the shipper. Within a reasonable time Spartan ERV shall provide, at its discretion, one of the following (a) repair or replacement of any nonconforming or defective parts; or (b) full refund of the purchase price. Repair or replacement shall be made only by a facility approved in advance by Spartan ERV. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

IN NO EVENT SHALL SPARTAN ERV BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM NONDELIVERY OR FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT OR FROM THE NEGLIGENCE OF SPARTAN ERV OR FROM TORT. This exclusion applies regardless of whether such damages are sought for breach of warranty, breach of contract, negligence or strict liability or tort or under any other legal theory.

NOTE: Surety Bond, if a part of the sale of the vehicle, to which this limited warranty is provided, applies only to the General One Year Warranty for such vehicle, and not to any other warranty made by Spartan ERV or any Spartan ERV Supplier.

Not for Actual Customer Use

Spartan ERV Truck Serial #

Sample/Bidding Purposes Only

Customer Name

Actual Warranties will come with the unit upon delivery

*

Authorized Customer Signature, Title

Date

*

Authorized Crimson Fire, Inc. D/B/A Spartan ERV Signature, General Manager

* Sign and return one copy of each warranty certificate before claims will be accepted.

Rev. 4/11/12



STAR SERIES Ten (10) YEAR PAINT/CORROSION
LIMITED WARRANTY

1. LIMITED WARRANTY

Except as provided below, and provided the vehicle shall have been placed in service within thirty (30) days after it leaves Crimson Fire, Inc. D/B/A Spartan ERV (as established by the recorded date on the reverse side of this document), for a period of seven years after delivery to the original purchaser. Spartan ERV warrants to the user that its body is free of adhesion defects caused by defective paint application or selection of paint materials for exterior surfaces of the cab and body of the vehicle. This limited warranty shall apply only if the vehicle is properly maintained and used in service which is normal to the particular vehicle. Normal service means service, which does not subject the vehicle to stresses or impacts greater than normal results from the careful use of the vehicle or chassis. If the buyer discovers a defect or nonconformity it must notify Spartan ERV in writing within thirty (30) days after the date of discovery. This limited warranty is not transferable by the first user, and is applicable to the vehicle in the following percentage costs of warranty repair, if any:

**Ten (10) Year Paint/Corrosion Limited Warranty
As of 4/15/12**

- 1. Four (4) years of 100% coverage left.**
- 2. Two (2) years of 50 % coverage left after above 100 % coverage expires.**
- 3. Two (2) years of 25% coverage left after the above 50% coverage expires.**

This limited warranty applies only to exterior body paint. Paint on the vehicle's undercarriage, cab and body interior is warranted only under the Spartan ERV General One Year Limited Warranty.

In addition to the foregoing, and subject to all of the terms and conditions of the Limited Warranty, except cost allocations, Spartan ERV warrants its body exterior for a period of **TEN (10) YEARS** against corrosion perforation.

Spartan ERV makes no warranty whatsoever as to (1) Integral parts, components, attachments or trade accessories not manufactured by Spartan ERV, but instead, the applicable warranties, if any, of the respective manufacturers thereof shall apply; (2) Any vehicle, chassis or component, part, attachment or accessory damaged by misuse, neglect or accident; (3) Any vehicle chassis or component, part, attachment or accessory shall have been repaired, altered or assembled in any way by others other than Spartan ERV, which, in sole judgment of Spartan ERV, affects the performance, stability or purpose for which it was manufactured; (4) Products or parts which are not defective but which may wear out and have to be replaced during the warranty period; (5) Damage from exposure to corrosive agents. Spartan ERV assumes no responsibility for the assembly of its parts or sub-assembly into finished products unless the assembly is performed by Spartan ERV.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTIES SET FORTH IN PARAGRAPH 1 ARE THE EXCLUSIVE WARRANTIES GIVEN BY SPARTAN ERV. SPARTAN ERV HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYERS REMEDIES

If the product fails to conform to the warranties set forth in paragraph 1 and such nonconformity is not due to misuse or improper maintenance, the buyer shall notify Spartan ERV as provided in paragraph 1, and shall make the product available for inspection by Spartan ERV or its designated agent. At the request of Spartan ERV any defective part shall be returned to Spartan ERV for examination, with transportation charges prepaid and assumed by the shipper. Within a reasonable time Spartan ERV shall provide, at its discretion, one of the following (a) repair or replacement of any nonconforming or defective parts; or (b) full refund of the purchase price. Repair or replacement shall be made only by a facility approved in advance by Spartan ERV. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Warranty Exclusions:

- Damage from exposure to corrosive agents.
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing or aggressive mechanical wash systems.
- Paint deterioration caused by abuse, accidents, acid rain, chemical fallout or acts of nature.
- Exception is made for PPG supplied anti-graffiti coatings systems cleaned with PPG approved cleaning products.
- Accidents, scratches, chips, bruises and gloss reduction due to normal vehicle use and maintenance.
- Custom finishes; exotic finishes or any finish not conforming to standard refinish procedures.
- Finishes on vehicles used for competitive purposes.
- Failures resulting from product misuse or abuse.
- Repairs done over previously refinished areas unless stripped to bare metal or appropriate substrate.
- Claims presented without proper Warranty documentation.
- Failure on finishes utilizing products not approved by PPG for use in systems applied on vehicles covered under the warranty.
- Failure on finishes performed by NON-PPG Certified Refinish Technicians.
- Failure on finishes performed by Non-PPG Certified Repair Centers.
- Failure on finishes performed by PPG Certified Refinisher that has let their certification expire.

IN NO EVENT SHALL SPARTAN ERV BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM NONDELIVERY OR FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT OR FROM THE NEGLIGENCE OF SPARTAN ERV OR FROM TORT. This exclusion applies regardless of whether such damages are sought for breach of warranty, breach of contract, negligence or strict liability or tort or under any other legal theory.

NOTE: Surety Bond, if a part of the sale of the vehicle, to which this limited warranty is provided, applies only to the General One Year Warranty for such vehicle, and not to any other warranty made by Spartan ERV or any Spartan ERV Supplier.

Not for Actual Customer Use

Spartan ERV Truck Serial #

Sample/Bidding Purposes Only

Customer Name

Actual Warranties will come with the unit upon delivery

* _____
Authorized Customer Signature, Title

Date

* _____
Authorized Crimson Fire, Inc. D/B/A Spartan ERV Signature, General Manager

* Sign and return one copy of each warranty certificate before claims will be accepted.



Warranty Table

All items manufactured by Weldon warrant for a minimum period of twenty-four (24) months from the date of product manufacture shown on the assembly. For products not manufactured by, but sold by Weldon, warranty is limited to that extended by the original manufacturer.

Lighting/Flashers

Part number or Series	Warranty Period
Diamondback V Series	5 year (60 months)
1010 LED Series	5 year (60 months)
1020 LED Series	5 year (60 months)
3800 LED Series	5 year (60 months)
4600 LED Series	5 year (60 months)
7800 LED Series	5 year (60 months)
8048 LED Series	5 year (60 months)
7000 Series Flashers	3 year (36 months)

V-Mux

Part number or Series	Parts	Weldon Repair Parts Labor Period
6000 Hercules	4 years	4 years
6010-0000-00 Mini 4x12	4 years	4 years
6020-0000-00 Mini 16	4 years	4 years
611X-0000-00 Transceiver	1 year	1 year
613X-0000-00 Diag Kit, Serial or USB	1 year	1 year
6231- Vista III L C Display Nodes		
LC Display Screen	1 year	1 year
All other parts	4 years	4 years
6310-0000-12/14 Switch Controllers	4 years	4 years
6311-0X00-00 Smart Switch Module	4 years	4 years
6400-0000-00 Gateway Node	4 years	4 years
6500-0000-00 Camera	1 year	1 year
6550-0000-00 GPS	1 year	1 year
0N70-1519-03/04 Climate Control	4 year	4 year
0R00-2306-00 Hall Effect Sensor	1 year	1 year
0R13-0614-00 Temp sensor	1 year	1 year
0R80-0615-00 Shunt interface Module	1 year	1 year
0U10-0715-00 VFD 2 Line Display	1 year	1 year
Cables or other accessories	30 days	N/A

UPF POLY-TANK®IIE Tank

The ALL-OUT™ Lifetime Warranty

UNITED PLASTIC FABRICATING, INC. warrants each UPF POLY-TANK®IIE Booster/Foam Tank to be free from manufacturing defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in fire suppression). The warranty is transferable* within the United States and Canada by notifying UPF within thirty (30) days of the vehicle transfer date. Every UPF POLY-TANK®IIE is thoroughly inspected and tested for leaks before leaving our facility and must be installed in accordance with the United Plastic Fabricating Installation Guidelines. Should any problems develop with your UPF POLY-TANK®IIE Booster/Foam Tank, please notify UPF in writing or call our TOLL FREE HOTLINE at 1-800-USA-POLY and provide UPF with the serial number and a description of the problem. If UPF determines that the tank problem has rendered the truck out-of-service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank (This time period is for the United States and Canada only). If it is determined that the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period. Should the vehicle be located outside of the United States and Canada, UPF will assume costs for labor and material for the repair and for any travel costs to the U.S. port of embarkation. Cost for airline or other means of travel outside of the U.S. and Canada will not be the responsibility of United Plastic Fabricating, Inc.

UPF will repair or, at its option, replace the tank with a new UPF POLY-TANK®IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK®IIE. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATING, INC.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly canceled. UNITED PLASTIC FABRICATING, INC. neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATING, INC. BE LIABLE FOR AN AMOUNT IN EXCESS OF THE CURRENTLY PUBLISHED RETAIL PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.



FILL IN THE INFORMATION CONTAINED ON YOUR WARRANTY CARD IN THE FORM TO THE RIGHT. PLEASE KEEP THIS INFORMATION IN A SAFE PLACE FOR REFERENCE. IF SERVICE SHOULD EVER BE NEEDED, CALL 1-800-USA-POLY.

POLY-TANK®IIE is a registered trademark of UPF, Inc.
ALL-OUT™ and PT2E™ are all trademarks of UPF, Inc.
AccTuf™ is a trademark of Amoco Polymers, Inc.
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Transfer of Ownership Form

Serial Number: _____

Original Owner: _____

Address: _____

City/Town: _____ St: _____ Zip: _____

Complete and fax or mail to UPF to transfer warranty

Date of transfer: _____

New Owner: _____

Address: _____

City/Town: _____ St: _____ Zip: _____

**All transfers subject to approval by UPF.*

ATTORNEYS AT LAW

WASHINGTON HARBOUR
3000 K STREET, N.W.
SUITE 600
WASHINGTON, D.C. 20007-5109
202.672.5300 TEL
202.672.5399 FAX
foley.com

May 2, 2013

VIA E-MAIL

CLIENT/MATTER NUMBER
066244-0102

Mr. Ken Buchanan
Town Manager
Fountain Hills
16705 E. Avenue of the Fountains
Fountain Hills, Arizona 85268

Re: Clarification of Arizona Dealership Licensing Law

Dear Mr. Buchanan:

I am in receipt of your letter to Travis Grinstead dated May 1, 2013 regarding a recent protest letter that you received in connection with the Request for Proposals (“RFP”) by Fountain Hills, Arizona. Thank you for providing Crimson Fire, Inc. d/b/a Spartan ERV (“Spartan”) and its dealer Emergency Vehicle Group, Inc. (“EVG”) (collectively, “Spartan/EVG”) an opportunity to respond. I write to provide clarification of the applicable Arizona dealership licensing law, which is inapplicable here.

By way of background, Spartan/EVG contracts with various government entities such as Fountain Hills for the sale of emergency response vehicles commonly referred to as fire trucks. Most recently, Spartan/EVG—along with several other companies—submitted a timely response to Fountain Hills’ RFP. On or before April 30, 2013, Spartan learned that Fountain Hills accepted its proposal (the “Contract”). Shortly thereafter, however, Spartan/EVG learned that Fountain Hills received protests from companies that submitted competing proposals, accusing Spartan of not doing business lawfully in Arizona considering its purported lack of a dealer license in violation of Arizona Revised Statute Section 28-4333.

You wrote to Mr. Grinstead, the president of EVG, which is licensed in California, allowing Spartan/EVG the opportunity explain the applicability of Section 28-4333 and, if necessary, the opportunity to come into compliance with Arizona law. After reviewing the relevant Arizona statutes and case law, I conclude, as further explained herein, that fire trucks generally and Spartan/EVG specifically are not subject to Arizona’s dealership licensing requirement. Among other reasons, this is because Spartan does not offer, sell, and service its fire trucks to or for members of the general public. Accordingly, the dealership licensing requirement about which the competitors of Spartan/EVG are concerned is inapplicable.

As a threshold matter, Arizona law prohibits Spartan as a vehicle manufacturer from selling fire trucks directly to its customers as opposed to through an authorized dealer such as EVG. *See generally* Ariz. Rev. Stat. Ann. § 28-4460 (outlining the terms of the prohibition). This prohibition

BOSTON
BRUSSELS
CHICAGO
DETROIT

JACKSONVILLE
LOS ANGELES
MADISON
MIAMI

MILWAUKEE
NEW YORK
ORLANDO
SACRAMENTO

SAN DIEGO
SAN DIEGO/DEL MAR
SAN FRANCISCO
SHANGHAI

SILICON VALLEY
TALLAHASSEE
TAMPA
TOKYO
WASHINGTON, D.C.

Mr. Ken Buchanan
May 2, 2013
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is a common feature of many state motor vehicle franchise laws. In view of this prohibition, the sole relevant inquiry here is whether EVG as an authorized Spartan dealer needs to be licensed in Arizona to conduct business as various competitors of Spartan/EVG have purportedly represented in their protests.

Title 28, Chapter 10 of the Arizona Revised Statute applies to vehicle dealers. Article 2 of Chapter 10, entitled Licensing Requirements, provides as follows:

A *new motor vehicle* shall not be sold in this state unless either the manufacturer or direct dealerships of domestic vehicles, the importer of foreign manufactured vehicles or direct dealerships or the distributor or indirect dealerships of either domestic or foreign vehicles is licensed as provided in this chapter. Obtaining the license conclusively establishes that the manufacturer, distributor or importer is subject to the laws of this state regulating manufacturers, importers and distributors.

Ariz. Rev. Stat. Ann. § 28-4333(A) (emphasis added). Thus, the key inquiry in determining the application of the dealership licensing requirement is to discern the meaning of the term “new motor vehicle” for purposes of Section 28-4333(A). As the Arizona Court of Appeals explained in a case that necessitated interpretation of a different provision of the same chapter, “[t]he primary rule of statutory construction is to find and give effect to legislative intent and, to determine that intent, we look first to the language of the statute, and we presume that the legislature has said what it means.” *Sanderson Lincoln Mercury, Inc. v. Ford Motor Co.*, 205 Ariz. 202, 205, 68 P.3d 428 (Ariz. Ct. App. 2003).

Chapter 10 defines a “new motor vehicle” as “a motor vehicle, other than a used motor vehicle, that is held either for: (a) Sale by the franchisee who first acquired the vehicle from the manufacturer or distributor of the vehicle[; or] (b) Sale by another franchisee of the same line-make.” Ariz. Rev. Stat. Ann. § 28-4301(24). Thus, the definition of the term “new motor vehicle” for purposes of the dealership licensing requirement in Section 28-4333(A) depends on the meaning of the term “franchisee.” Chapter 10 defines “franchisee” as “a person who both: (a) Receives new motor vehicles from the franchisor under a franchise[; and] (b) **Offers and sells to and services new motor vehicles for the general public.**” Ariz. Rev. Stat. Ann. § 28-4301(13) (emphasis added). There are no Arizona cases that provide further guidance regarding the meaning of these provisions.

Neither Spartan nor EVG sells its fire trucks to the general public. Because members of the general public do not own the fire trucks in question, neither Spartan nor EVG could provide services to the general public for such vehicles. *See* Ariz. Rev. Stat. Ann. § 28-4301(13) (defining “franchisee” for purposes of licensing requirements). Accordingly, neither Spartan nor EVG qualifies as a “franchisee” for purposes of Chapter 10. Fire trucks cannot be considered “new motor vehicles” for purposes of Chapter 10. As a result, neither Spartan nor EVG is subject to Section 28-4333(A)’s dealership registration requirements. *See* Ariz. Rev. Stat. Ann. § 28-4301(24) (defining



FOLEY & LARDNER LLP

Mr. Ken Buchanan
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“new motor vehicle” for purposes of licensing requirements). This conclusion only makes sense considering the unique nature of the business and its customer base.

Please feel free to contact me with any additional questions or concerns. Spartan/EVG looks forward to continuing to work with you and Fountain Hills.

Best regards,

A handwritten signature in cursive script, appearing to read "Marilee L. Miller".

Marilee L. Miller, Esq.

Cc: Travis B. Grinstead
Thomas T. Kivell, Esq.
Michael J. Lockerby, Esq.



TAX EXEMPTION CERTIFICATE

The undersigned hereby certifies that he is DEPUTY TOWN MGR/FIN DIR (Title of Officer) of TOWN OF FOUNTAIN HILLS (Name of Municipality/Business) and that he is authorized

to execute this certificate and that the article or articles specified in the accompanying contract, are purchased from the Crimson Fire Inc., d/b/a Spartan ERV, for the exclusive use of:

TOWN OF FOUNTAIN HILLS (Name of Municipality/Business)

It is understood that the exemption from federal excise tax in the case of sales or articles under this exemption certificate is limited to the sale of articles purchased for their exclusive use. It is also understood that the fraudulent use of this certificate to secure exemption may subject the undersigned and all guilty parties to a fine of not more than \$10,000 or to imprisonment for not more than 5 years, or both, together with costs of prosecution.

The above named business respectfully certifies that all tangible property purchased from CRIMSON FIRE, INC. d/b/a Spartan ERV, Brandon, South Dakota is exempt from federal excise tax for reason(s) checked below:

- () Resale as tangible personal property
() Non-profit or Charitable Unit
(X) Governmental Unit or Instrumentality
() Other (explain fully):

Federal Tax Identification No. is 86-0650150

Name of Organization: TOWN OF FOUNTAIN HILLS

Address 16705 E. AVE. OF THE FOUNTAINS, FOUNTAIN HILLS, AZ 85268

Signature: J. Ripheth Title: DEP. TOWN MANAGER/ FINANCE DIRECTOR