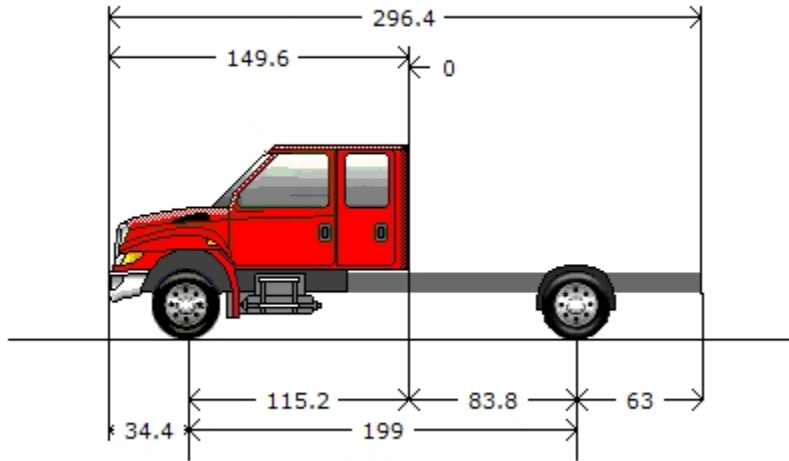


Prepared For:
 Toyne, Inc
 Bill Bird
 104 Grante Av
 Breda, IA 51436-
 (712)673 - 2328
 Reference ID: N/A

Presented By:
 O'HALLORAN INTERNATIONAL
 Ryan Borkowski
 3311 ADVENTURELAND DRIVE
 ALTOONA IA 50009 -
 (515)967-3300

Thank you for the opportunity to provide you with the following quotation on a new International truck. I am sure the following detailed specification will meet your operational requirements, and I look forward to serving your business needs.



Model Profile
2020 CV515 SFA (CV515)

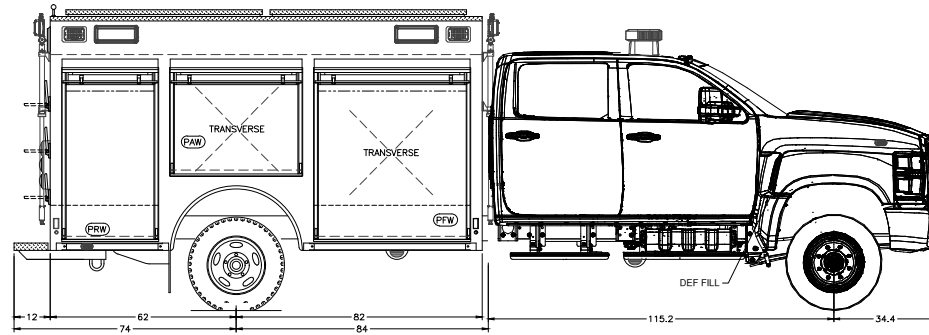
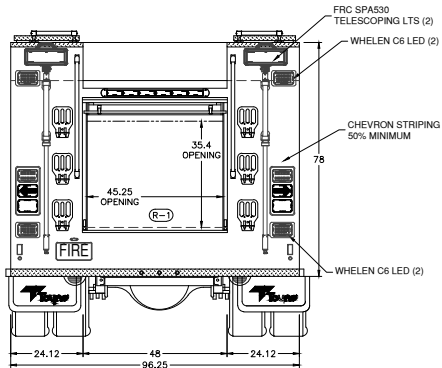
| | |
|----------------------------------|--|
| AXLE CONFIG: | 4X4 |
| APPLICATION: | Rescue |
| MISSION: | Requested GVWR: 25999. Calc. GVWR: 22500 Calc. Start / Grade Ability: 30.58% / 2.04% @ 55 MPH Calc. Geared Speed: 103.5 MPH |
| DIMENSION: | Wheelbase: 199.00, CA: 83.80, Axle to Frame: 63.00 |
| ENGINE, DIESEL: | {International 6.6} EPA 2017, 350HP @ 2700 RPM, 700 lb-ft Torque @ 1600 RPM, 2900 RPM Governed Speed, 350 Peak HP (Max) |
| TRANSMISSION, AUTOMATIC: | {Allison 2700 EVS} 5th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Park Pawl, with 23,500-lb GVW and 26,000 GCW Max, On/Off Highway |
| AXLE, FRONT DRIVING: | {Dana Spicer 60-256} Single Reduction, 7,500-lb Capacity, with Hub Piloted Wheel Mounting |
| AXLE, REAR, SINGLE: | {Dana Spicer S16-130} Single Reduction, 15,500-lb Capacity, 190 Wheel Ends Gear Ratio: 4.30 |
| CAB: | Conventional 6-Man Crew Cab |
| TIRE, FRONT: | (2) 225/70R19.5 Load Range G AH35 (HANKOOK), 641 rev/mile, 75 MPH, All-Position |
| TIRE, REAR: | (4) 225/70R19.5 Load Range G AH35 (HANKOOK), 641 rev/mile, 75 MPH, All-Position |
| SUSPENSION, REAR, SINGLE: | 15,500-lb Capacity, Vari-Rate Springs |
| PAINT: | Cab schematic 100CX Location 1: 2562, Red (Prem) Chassis schematic N/A |

| <u>Code</u> | <u>Description</u> | <u>F/R Wt</u> (lbs) | <u>Tot Wt</u> (lbs) |
|-------------|--|------------------------|------------------------|
| CV51500 | Base Chassis, Model CV515 SFA with 199.00 Wheelbase, 83.80 CA, and 63.00 Axle to Frame. | 4671/2886 | 7557 |
| 1570 | TOW HOOK, FRONT (2) Frame Mounted | 13/-1 | 12 |
| 1AMM | SKID PLATE Steel, Frame Mounted, Protects the Transfer Case from the Ground | 50/14 | 64 |
| 1ANB | AXLE CONFIGURATION {Navistar} 4x4 | 0/0 | 0 |
| 1CGH | FRAME RAILS High Strength Low Alloy Steel (50,000 PSI Yield), Straight Top Flange with Contoured Bottom, Height Transitions from 7.375" (187.325mm) to 9.125" (231.775mm) to 7.625" (193.675mm); Width: 3.079" (78.21mm); Thickness: 0.3125" (7.94mm); 383.3" (9735.8mm) Max OAL | 81/121 | 202 |
| 1LNZ | BUMPER, FRONT Contoured, Steel, Chrome Plated, for CV and RE Bus | 0/0 | 0 |
| 1WEC | WHEELBASE RANGE 185" (470cm) Through and Including 236" (600cm) | 10/30 | 40 |
| 2EWA | AXLE, FRONT DRIVING {Dana Spicer 60-256} Single Reduction, 7,500-lb Capacity, with Hub Piloted Wheel Mounting | 155/0 | 155 |
| 2WLC | AXLE, FRONT DRIVING, LUBE {EmGard FE-75W-90} Synthetic Oil; 1 thru 29.99 Pints | 0/0 | 0 |
| 3AJN | SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, Shackle Type, 7,500-lb Capacity, with Shock Absorbers | 8/0 | 8 |
| 3WAP | STABILIZER BAR, FRONT | 50/0 | 50 |
| 4198 | BRAKE SYSTEM, HYDRAULIC {Bosch} Split System, with Four Channel ABS, Traction Control, Hydromax Brake Booster and Master Cylinder | 0/0 | 0 |
| 4EVD | DUST SHIELDS, FRONT BRAKE for Hydraulic Brakes | 0/0 | 0 |
| 4EVE | DUST SHIELDS, REAR BRAKE for Hydraulic Brakes | 0/0 | 0 |
| 4GBJ | BRAKE, PARKING {Bosch} DSSA Type, 12" x 3"; for Hydraulic Brake Chassis; Foot Operated in Cab; Differential Mounted | 0/0 | 0 |
| 4JNR | BRAKES, FRONT, HYDRAULIC DISC Quadraulic; Four 64mm Diameter Pistons | 0/0 | 0 |
| 4NNM | BRAKES, REAR, HYDRAULIC DISC Quadraulic; Four 64mm Diameter Pistons | 0/0 | 0 |
| 5708 | STEERING COLUMN Tilting | 0/0 | 0 |
| 5CBG | STEERING WHEEL 4-Spoke; 15" Dia., Black | 0/0 | 0 |
| 5PSS | STEERING GEAR {Bosch S2 8014 Plus} Power | 0/0 | 0 |
| 7BLL | EXHAUST SYSTEM Horizontal, Frame Mounted Right Side, Under Rail, for Single Exhaust | 0/0 | 0 |
| 7SDS | ENGINE EXHAUST BRAKE for International 6.6 Engine | 0/0 | 0 |
| 7WDU | TAIL PIPE Horizontal, Single Exhaust, Exits Right Side Ahead of Rear Wheel | 2/25 | 27 |
| 7XAA | MANUAL REGEN Capability | 0/0 | 0 |
| 8002 | ELECTRICAL SYSTEM 12-Volt for CV Model <u>Includes</u> : HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover : HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever : PARKING LIGHT PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light : TURN SIGNAL SWITCH Self-Cancelling with Lane Change Feature : WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature, Integral with Turn Signal Lever | 0/0 | 0 |
| 8GJC | ALTERNATOR {Denso SC2/SC6} Dual, Brush Type, 12 Volt 150 and 220 Amp. Capacity | 18/0 | 18 |
| 8HXV | BODY BUILDER WIRING Back of Standard Cab at Left Frame or Under Crew Cab at Left Frame; Includes One Sealed Connector for Separate Ground/Backup/Left and Right Hand Turn, Left and Right Hand Tail/Stop/Accessory Power and Combined for Left and Right Hand Stop/Turn | 3/1 | 4 |
| 8MWA | BATTERY SYSTEM {VARTA} (2) 12-Volt 1300CCA Total | 0/0 | 0 |
| 8RNU | SPEAKERS (6) | 2/0 | 2 |
| 8RNV | RADIO AM/FM Stereo/Clock/Bluetooth, Seek/Scan, with 7" Color Touch Panel Display, Satellite Radio Compatible | 1/0 | 1 |
| 8RNY | CAMERA SYSTEM, REAR VIEW Includes Camera, Mounting, Wiring and Interface to the Monitor, for the Back-up Camera System | 1/1 | 2 |
| 8THB | BACK-UP ALARM Electric, 102 dBA | 5/1 | 6 |

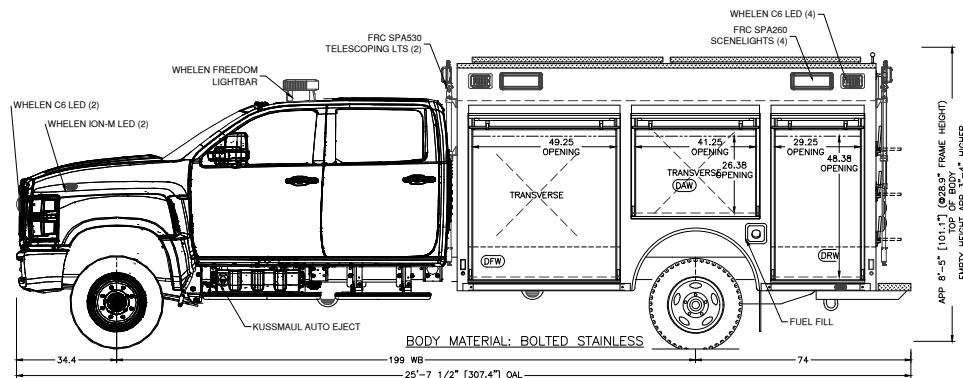
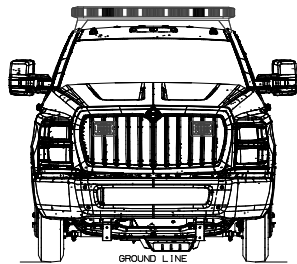
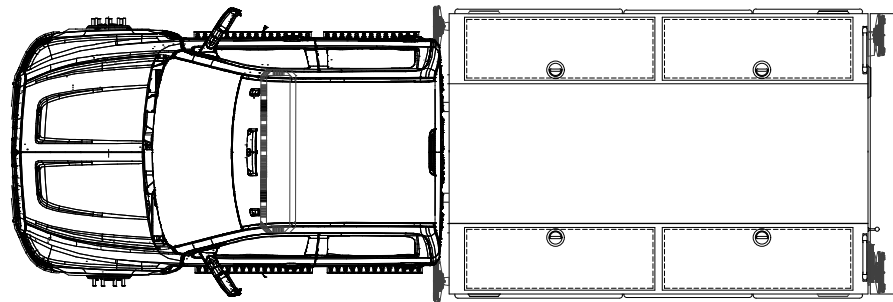
| <u>Code</u> | <u>Description</u> | <u>F/R Wt</u> (lbs) | <u>Tot Wt</u> (lbs) |
|-------------|--|------------------------|------------------------|
| 8TUL | STOP, TURN, TAIL & B/U LIGHTS Multi-Function, Sealed, Incandescent Stop, Turn and Tail Lights, Backup Lights with Rear Reflex Reflector, Includes License Plate Light | 0/0 | 0 |
| 8VAY | HORN, ELECTRIC Disc Style | 0/0 | 0 |
| 8VVB | BATTERY BOX Steel, with Plastic Cover, 2 Battery Capacity, Parallel to Rail, 28" Wide, Mounted Left Side Under Cab | 0/0 | 0 |
| 8XJM | HEADLIGHTS (2) Halogen; Composite Aero Design with Chrome Trim Bezel, Includes Daytime Running Lights | 0/0 | 0 |
| 8XJP | SWITCH, AUXILIARY 1 to 4 Latching Switches with 30-Amp Fuses | 0/0 | 0 |
| 8XJV | CLEARANCE/MARKER LIGHTS (5) Amber LED Lights, Flush Mounted on Cab | 0/0 | 0 |
| 8XJW | STARTING MOTOR 12 Volt | 0/0 | 0 |
| 9AAC | LOGOS EXTERIOR Model Badges, Shipped Loose, Located in Cab | 0/0 | 0 |
| 9HCG | GRILLE Chrome, with Chrome Headlight Bezels | 0/0 | 0 |
| 9HCU | RADIATOR STONE GUARD Mounted to Front Bumper | 4/0 | 4 |
| 9WAC | BUG SCREEN Mounted Behind Grille | 11/-1 | 10 |
| 9WAY | FRONT END Tilting, Fiberglass, with Three Piece Construction | 0/0 | 0 |
| 9WBN | FENDER EXTENSIONS Painted | 0/0 | 0 |
| 10060 | PAINT SCHEMATIC, PT-1 Single Color, Design 100 | 0/0 | 0 |
| 10761 | PAINT TYPE Base Coat/Clear Coat, 1-2 Tone | 0/0 | 0 |
| 10769 | PAINT CLASS Premium Color | 0/0 | 0 |
| 10XAX | GVWR WEIGHT CLASSIFICATION Class 6 (19,501-26,000 lbs) | 0/0 | 0 |
| 12GAD | ENGINE, DIESEL {International 6.6} EPA 2017, 350HP @ 2700 RPM, 700 lb-ft Torque @ 1600 RPM, 2900 RPM Governed Speed, 350 Peak HP (Max) <u>Includes</u> : OIL FILTER, ENGINE Spin-On Type | 0/0 | 0 |
| 12TTM | FAN DRIVE Viscous Screw On Type, Rear Tether, Electronically Controlled | 0/0 | 0 |
| 12VGC | AIR CLEANER Single Element, with Water Separator | 0/0 | 0 |
| 12VHB | FEDERAL EMISSIONS {International 6.6} EPA, OBD and GHG Certified for Calendar Year 2019 | 0/0 | 0 |
| 12WGG | THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic Controlled, On/Off Switch Mounted on Dash, with Steering Wheel Button Control | 0/0 | 0 |
| 12WUU | GOVERNOR Electronic Road Speed Type; with 75 MPH Default | 0/0 | 0 |
| 12WZE | EMISSION COMPLIANCE Federal, Does Not Comply with California Clean Air Idle Regulations | 0/0 | 0 |
| 12XZD | RADIATOR Aluminum; 3-Row, Down Flow, Front to Back System, 730 SqIn Louvered, with 578 SqIn Charge Air Cooler, with In-Tank Transmission Cooler | 0/0 | 0 |
| 13AXJ | TRANSMISSION, AUTOMATIC {Allison 2700 EVS} 5th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Park Pawl, with 23,500-lb GVW and 26,000 GCW Max, On/Off Highway | 0/0 | 0 |
| 13TLP | TRANSFER CASE {Meritor 3203} Two-Speed, Gear Drive, 3,000 lb-ft Capacity with Electric Shifting Controls, without PTO Provision | 203/119 | 322 |
| 13WDB | TRANSFER CASE LUBE {EmGard 50W} Synthetic; 1 thru 14.99 Pints | 0/0 | 0 |
| 13WYY | SHIFT CONTROL PARAMETERS Allison 1000 or 2000 Series Transmissions, 5th Generation Controls, Performance Programming | 0/0 | 0 |
| 13XAK | PTO LOCATION Right Side of Transmission | 0/0 | 0 |
| 14888 | DIFFERENTIAL, LOCKING {Dana Spicer Truetrac} Torque Proportioning Limited Slip | 0/12 | 12 |
| 14AJE | AXLE, REAR, SINGLE {Dana Spicer S16-130} Single Reduction, 15,500-lb Capacity, 190 Wheel Ends . Gear Ratio: 4.30 | 0/12 | 12 |
| 14SAE | SUSPENSION, REAR, SINGLE 15,500-lb Capacity, Vari-Rate Springs | 0/41 | 41 |
| 15SZN | FUEL TANK Top Draw, Plastic, Rectangular, 17" Tank Depth, 40 US Gal (151L), Includes Auxiliary Draw Port and Fuel Filler Assembly, Mounted Between Frame Rails and Behind Rear Axle | 0/0 | 0 |
| 15WDZ | DEF TANK 6.75 US Gal (26L) Capacity, Frame Mounted Outside Right Rail, Under Cab | 0/0 | 0 |
| 16196 | CAB Conventional 6-Man Crew Cab <u>Includes</u> | 336/230 | 566 |

| <u>Code</u> | <u>Description</u> | <u>F/R Wt</u> (lbs) | <u>Tot Wt</u> (lbs) |
|-------------|---|------------------------|------------------------|
| | : DOME LIGHT, CAB with OFF/DOOR/ON Settings; Located in Overhead Console | | |
| | : READING LIGHT, CAB Located in Overhead Console | | |
| | : STEP (4) One Step Per Door | | |
| | : STORAGE POCKET, DOOR (2) Full Length, Driver and Passenger Door | | |
| 16ACB | MIRROR, INSIDE REAR VIEW with Manual Tilt | 0/0 | 0 |
| 16BAN | DOOR HANDLE, EXTERIOR Bright Finish | 0/0 | 0 |
| 16BBA | GLASS, ALL WINDOWS Solar Absorbing, Tint | 0/0 | 0 |
| 16CEM | COLOR, INTERIOR Dark Ash | 0/0 | 0 |
| 16HCT | GAUGE CLUSTER English Speedometer, Includes English Odometer; Includes 3.5" Monochromatic Display with Personalization, Warning Messages and Vehicle Information | 0/0 | 0 |
| 16KVS | SEAT, DRIVER High Back with Integral Headrest, with Recline, Vinyl, Fixed Lumbar | 0/0 | 0 |
| 16KZC | SEAT, REAR BENCH, Vinyl | 0/0 | 0 |
| 16LVU | SEAT, PASSENGER High Back with Integral Headrest, Vinyl, with Recline, without Center Section | 0/0 | 0 |
| 16SPS | MIRRORS (2) Wide Load, Manual Folding and Extending, Black Head, Mounting Bracket and Arms, Heated Head, Turn Signal Indicator Located in Mirror, Power Operated | 0/0 | 0 |
| 16VCA | SEAT BELT All Red; 4 to 6 | 0/0 | 0 |
| 16VKD | CAB INTERIOR TRIM Classic, for Crew Cab <u>Includes</u> : SUN VISOR (2) Vinyl | 0/0 | 0 |
| 16XCP | AIR BAG, DRIVER SIDE | 0/0 | 0 |
| 16XCR | AIR BAG, PASSENGER SIDE | 0/0 | 0 |
| 16XCT | WINDOW, POWER (4) in Left and Right Doors, Front and Rear | 0/0 | 0 |
| 16XUD | ACCESS, CAB Driver & Passenger Sides, One Bright Aluminum Step Per Door, for use with Crew Cab | 86/38 | 124 |
| 16XZA | AIR CONDITIONER and Heater, Single Zone | 0/0 | 0 |
| 27DVT | WHEELS, FRONT {Alcoa 76543} DISC; 19.5x6.75 Rims, Polished Aluminum, 8-Stud, 275mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs | 0/0 | 0 |
| 28DVT | WHEELS, REAR {Alcoa 76543} DUAL DISC; 19.5" Polished Aluminum Outer Wheel and Steel Inner Wheel, 8-Stud (275MM BC) Hub Piloted, Flanged Nut, Metric Mount, 6.75 Rims; with Steel Hubs | 0/0 | 0 |
| 29PBY | COATING IDENTITY, REAR WHEELS {Alcoa Durabright XBR/EVO} Aluminum Disc Rear Wheels, with Vendor Applied Treatment; Not for Super Single Wide Base | 0/0 | 0 |
| 29PBZ | COATING IDENTITY, FRONT WHEELS {Alcoa Durabright XBR/EVO} Disc Front Wheels; Aluminum, with Vendor Applied Treatment; Not for Wide Base | 0/0 | 0 |
| 7779445811 | (2) TIRE, FRONT 225/70R19.5 Load Range G AH35 (HANKOOK), 641 rev/mile, 75 MPH, All-Position | 0/0 | 0 |
| 7779445811 | (4) TIRE, REAR 225/70R19.5 Load Range G AH35 (HANKOOK), 641 rev/mile, 75 MPH, All-Position | 0/0 | 0 |
| | Services Section: | | |
| 40131 | WARRANTY Standard for CV515, Effective with Vehicles Built December 3, 2018 or Later, CTS-3000A | 0/0 | 0 |
| | Total Component Weight: | 5710/3529 | 9239 |

The weight calculations included in this proposal are an estimate of future vehicle weight. The actual weight as manufactured may be different from the estimated weight. Navistar, Inc. shall not be liable for any consequences resulting from any differences between the estimated weight of a vehicle and the actual weight.



| COMP. | HEIGHT | WIDTH | USABLE UPPER | DEPTH LOWER | DIVIDE HEIGHT | FT ³ |
|-------------|--------|-------|--------------|-------------|---------------|-----------------|
| DFW | 59.12 | 55.88 | 90 | 22 | 11 | 11.20 |
| DAW | 38.12 | 51.75 | 90 | -- | -- | 22.92 |
| DRW | 59.12 | 32.00 | -- | 22 | -- | 21.24 |
| PFW | 59.12 | 55.88 | 90 | 22 | 11 | 11.20 |
| PAW | 38.12 | 51.75 | 90 | -- | -- | 22.92 |
| PRW | 59.12 | 32.00 | -- | 22 | -- | 21.24 |
| R-1 | 45.12 | 48.00 | -- | 34 | -- | 24.66 |
| HOSEBED | 12.75 | 48 | -- | 144 | -- | 53.13 |
| FRONT XLAY | 16 | 7.5 | -- | 73.75 | -- | 5.12 |
| MIDDLE XLAY | 16 | 7.5 | -- | 73.75 | -- | 5.12 |



NOTE:
DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR CHANGE AS MAY BE FOUND NECESSARY DURING CONSTRUCTION. MINOR DETAILS MAY NOT BE SHOWN. IF DISCREPANCIES EXIST BETWEEN THIS DRAWING AND THE WRITTEN SPECIFICATIONS PROVIDED BY TOYNE, THE WRITTEN SPECIFICATIONS SHALL PREVAIL.

| ORIGINAL DRAWING | 30DEC20 | CHASSIS: | INTERNATIONAL CV CREW CAB 4x4 | SCALE: | 1/66 | SHEET: | A |
|------------------|---------|--------------|-------------------------------|--------|------------------|--------|---|
| | | WB-CA-AF: | 199"-84"-61" D9 | CITY: | -- | | |
| | | BODY MATL: | BOLTED STAINLESS STEEL | STATE: | -- | | |
| | | PUMP: | N/A | DLR: | -- | | |
| | | TANK: | N/A | CAD: | GROSSMAN | | |
| | | FOAM SYSTEM: | N/A | DATE: | 30 DECEMBER 2020 | | |
| | | GENERATOR: | N/A | FILE: | 13051CVDEMO-A | | |

BREDA, IA 51436
800-648-3358
WWW.TOYNE.COM

CV DEMO
CUSTOM MINI RESCUE

Toyne Inc.

CORPORATE OWNERSHIP OF MANUFACTURER

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

CORPORATE CONTACT INFORMATION

The purchaser shall be provided with the following information to allow them to contact the President/CEO of the manufacturing company (not dealer) when deemed necessary:

- Name of Company President.
- Office address.
- Office telephone number.
- Email address.
- Home address.
- Home telephone number.
- 24/7 Cellular telephone number.

If the manufacturing company is a subsidiary of, division of, or owned by a different Company, the above information shall also be provided on the 'Parent' Company.

There will be no exception to this requirement.

TOP OF THE LINE FIRE APPARATUS

If the manufacturer or bidder for the apparatus manufacturer represents two or more different lines of apparatus and/or operates two or more manufacturing plants, it should be clearly stated in the bid proposal.

In addition to this requirement, the bidder shall give a detailed explanation of why the particular line, brand, model or manufacturing facility will be used.

Manufacturer's or bidder's with multiple lines (two or more) or multiple manufacturing facilities (two or more) shall be required to submit bid proposals on only the top of the line brand/model or from the top of the line facility.

It is the intention of the purchaser to purchase a top of the line, first class, #1 quality fire apparatus. Any bidder that submits a bid on a "lower end" line, brand, model, or from a "lower end" manufacturing facility will be immediately rejected.

The purchaser is not interested in purchasing a manufacturer's or bidders "lower end" apparatus. Because of this, any bids submitted that do not comply with the above requirements will be immediately rejected.

CERTIFICATION OF NFPA 1901-2016 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901 are met. The manufacturer shall be responsible for providing or performing only the items requested by the purchaser in the documents provided to the manufacturer by the

Toyne Inc.

purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party or waive any item required by NFPA 1901, the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901 4.21.

The "Statement of Exceptions" shall include:

- A separate specification of the section of the NFPA Standard for which the apparatus is lacking compliance.
- A description of the particular aspect of the apparatus that is not compliant therewith or required equipment that is missing.
- A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.
- An identification of the entity that will be responsible for making the necessary post-delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance to the standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901.

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall provide all other equipment and accessories that are required by NFPA 1901 but not specifically listed in these specifications.

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

- Apparatus with 1250 gallon combined water tank capacity shall not exceed 60 MPH.
- Apparatus with GVWR of over 50,000 lbs. shall not exceed 60 MPH.
- Apparatus weighing over 26,000 lbs. shall not exceed 68 MPH.

APPARATUS BODY MATERIAL

The entire apparatus body shall be constructed of 304 marine grade stainless steel with a #4 annealed and polished finish on both the interior and exterior surfaces. The interior or exterior of the apparatus body shall not require any finish painting.

APPARATUS BODY CONSTRUCTION

The entire apparatus body shall be formed by sheering and bending the sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. All edges of the sheared metal shall be sanded to remove any sharp shearing edges prior to bending the metal. After sheering and bending, the body shall be assembled on a jig table that is designed to hold all parts securely in place to insure an accurately built apparatus body.

Toyne Inc.

APPARATUS BODY ASSEMBLY METHOD

The entire apparatus body shall be assembled using only bolted type construction. All apparatus body parts shall be able to be unbolted without the need to cut welds, etc. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner.

COMPARTMENT FLOORS

All compartment floors shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface. The drain ports shall be designed to prevent road spray from entering the compartment. The front edge shall consist of a minimum of two bends to provide additional strength in the compartment floor and shall then form the lower door jamb.

All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheel well, any transverse compartments, and the rear face compartment(s). Any exception to this requirement will cause immediate rejection of bid.

INTERIOR COMPARTMENT SURFACES

All visible interior compartment surfaces shall be 304 marine grade stainless steel with a # 4 annealed and polished finish. Surfaces that are painted or coated in any manner, raw material or any surface with any type sanded finish are not acceptable.

FRONT COMPARTMENT CORNERS

The apparatus body front compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be a one-piece fabrication from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the front compartment door jamb providing front corner protection.

REAR COMPARTMENT CORNERS - BRUSHED

The apparatus body rear compartment corners and vertical faces on both sides shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be a one-piece fabrication from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the rear compartment door jamb providing front corner protection.

COMPARTMENT TOPS/CEILINGS

The apparatus body compartment tops shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface.

Toyne Inc.

COMPARTMENT TOP OVERLAY

The compartment top shall be overlaid with 1/8" aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus body or shall the bottom side of the treadbrite be visible when looking into the compartment.

PAINTED FENDERWELLS

The left and right side rear fender wells shall be constructed of stainless sheet steel. The fender wells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fender wells shall be thoroughly cleaned and all seams sealed to prevent corrosion in the fender well area.

The outer surface of the fender well shall be finished painted. This surface shall not be overlaid with aluminum treadbrite or other non-painted dissimilar material.

PAINTED FENDERWELLS

The fender wells shall be finish painted the primary exterior color of the apparatus.

REMOVABLE INNER FENDER LINER

The fender wells shall be radius cut and shall have a circular inner liner to prevent corrosion pockets and for ease of cleaning. The inner liner shall be constructed of high impact polypropylene material and shall be fully removable for chassis suspension access.

To prevent the accumulation of potential corrosive materials in the fender well area, there shall be no exception to the removable inner fender liner.

STAINLESS STEEL FENDERETTE

The fender wells shall be trimmed with a polished stainless steel fenderette. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface. The fenderettes shall protrude from the apparatus body a maximum of 1".

REPLACEABLE FENDERETTE

The stainless steel fenderette shall be secured to the apparatus body with stainless steel fasteners and shall be easily removable for replacement.

Fenderettes that are welded to the apparatus body are not acceptable.

COMPARTMENT VENTILATION

Toyne Inc.

Each compartment shall be ventilated to the exterior of the body through a removable metal ventilation plate in the compartment wall or through pass through ventilation into an adjoining compartment.

A cleanable filter material shall be provided behind the plate.

Plastic cover plates will not be acceptable.

AMDOR ROLL UP COMPARTMENT DOORS

Amdor roll up doors shall be installed on all compartments requesting roll up doors.

The doors shall be constructed of 1" aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingress and weather tight recessed dual durometer seals.

The bottom panel shall be double wall reinforced with stainless steel lift bar latching system. The bottom panel flange shall have cut-outs for ease of access with gloved hands.

The slat shoes shall be reusable with positive snap-lock securement. A smooth interior door curtain surface shall be provided to prevent equipment hang-ups. The side frames shall be a one piece design constructed of aluminum.

A top drip rail with non-marring seal, recessed non-marring side seals and a dual leg bottom seal shall be provided.

The door striker shall include support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through a dissimilar metal panel shall be Magna-Gard, or equal, coated to help prevent metal reaction and corrosion.

As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it.

Because dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similar "baked on" coatings) fasteners are commercially available to all manufacturers and is not a proprietary product, there shall be no exception to this requirement.

SIDE COMPARTMENTS

Full height compartments shall be provided on both the driver's and passenger's side.

One compartment shall be provided ahead of the rear wheels on both sides. The interior dimensions of the compartments shall be 55 3/4" wide x 59" high x 22" useable depth below the chassis framerail height and transverse above the chassis framerails.

One compartment shall be provided above the wheels on both sides. The interior dimensions of the compartments shall be 51 3/4" wide x 38" high x transverse.

One compartment shall be provided behind the rear wheels on both sides. The interior dimensions of the compartments shall be 32" wide x 59" high x 22" useable depth.

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REAR FACE COMPARTMENT

One compartment shall be provided on the rear face of the apparatus. The interior dimensions of the compartments shall be 48" wide x 34" useable depth.

UPPER DOOR JAMB EXTENSIONS FINISH PAINTED

The outer surface of the upper door jamb shall be finish painted to match the exterior of the apparatus body color.

UPPER DOOR JAMB EXTENSIONS

The upper door jamb of the side compartments shall be extended upward on both sides providing a mounting area for side upper warning lights, scenelighting, large scale lettering, etc.

LEFT SIDE UPPER COMPARTMENT

A compartment shall be provided above the side compartments on the left side. The compartment shall be 20" wide x 12 3/4" high x 102" depth.

The compartment shall have two aluminum treadbrite hinged doors on top.

RIGHT SIDE UPPER COMPARTMENT

A compartment shall be provided above the side compartments on the right side. The compartment shall be 20" wide x 12 3/4" high x 102" depth.

The compartment shall have two aluminum treadbrite hinged doors on top.

REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE

The rear step shall be constructed of NFPA complaint bright finish aluminum treadbrite.

12" REAR TAILBOARD STEP

The outer rear edge of the rear step shall be positioned 12" from the rear face of the apparatus. This shall include an approximate 3/4" wash out gap at the rear face of body.

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RUBRAILS - BRIGHT ANODIZED ALUMINUM

Extruded aluminum rub rails shall be provided on the apparatus body sides. The rub rails shall have a bright finish with anodized coating to protect the finish. The rub rails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers.

The rub rails must be bolted on to the apparatus body to allow easy replacement if damaged. Rub rails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable. **NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT.**

RUB RAIL ENDS

The rub rail ends shall be 'capped' with a high impact resistant black EPDM contoured block.

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode:

- Propulsion engine and transmission.
- The clearance and marker lights.
- Communication equipment (5 amp default).
- Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.
- Minimum warning lights required for "blocking right of way" mode.
- The current to simultaneously operate and fire pump and all specified electrical devices.
- Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

A Reserve Capacity Test shall performed on the completed apparatus. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, those items shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

An "alternator performance test at idle" test shall be completed. The minimum continuous electrical load shall be activated with the engine running at idle speed. When the engine temperature has been stabilized at idle speed, the battery system shall be tested to detect any battery discharge current.

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

An "alternator performance test at full load" test shall be completed. The minimum continuous electrical load shall be

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activated with the engine running up to the engine manufacturer's governed speed for a 2 hour period.

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device does not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every 3" along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy duty PVC split loom securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets.

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

Removable access panels shall be provided to provide access to the wire and electrical components.

MULTI-PLEXED ELECTRICAL SYSTEM

The apparatus body electrical system shall incorporate a Multiplexed Electrical System. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into an electrical harness utilizing Deutsch connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs. The multiplex system shall be field re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, door open notification system, interlock modules, separate volt meter and ammeter.

The Base System Shall Include:

- Total Load Management
- Load Shedding Capabilities
- Load Sequencing Capabilities
- "On-Board" Diagnostics Readout
- Very Reliable, Solid-State Hardware
- Error Reporting

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- Continuous system monitoring and reporting
- Emergency warning lamp flasher
- Door Ajar System
- Field Configurable
- Expandability Capabilities
- Advanced PC Diagnostics

As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions. Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted.**

VMUX WARRANTY

The VMUX multiplexed electrical system shall be warranted, under normal use and service, for a period of four years. One year parts and labor and the remaining three years parts only.

AUTOMATIC HIGH IDLE FUNCTION WITH MANUAL SWITCH

An automatic high idle system shall be installed and will automatically activate whenever the system voltage drops below determined voltage. The high idle will remain on until adequate voltage is achieved.

A manual high idle switch shall also be provided on the cab switch panel to allow manual activation of high idle system.

MASTER BATTERY DISCONNECT

A Cole Hersee master battery disconnect switch shall be provided and mounted within easy reach of the driver when entering the apparatus.

A green 'battery on' indicator light shall be provided in clear view of the driver. The light shall be mounted in a manner that will not impair the driver's vision.

REAR LICENSE PLATE LIGHT/BRACKET

A chrome plated LED license plate light shall be provided on the rear of the apparatus.

A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.

CLEARANCE LIGHTS/REFLECTORS

All apparatus body clearance lights shall be LED style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.

MID-MOUNTED SIDE TURN SIGNAL - LED

An amber LED side turn signal shall be provided in the mid-section area of the apparatus on both sides.

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DUAL TRACK TYPE LED COMPARTMENT LIGHTING

Each apparatus body compartment shall have two track type LED lights vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

A compartment that is considered a 'full height' compartment shall each have two 48" long light sections and a 'low height' or above wheel compartment shall each have two 18" long sections.

The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable.**

COMPARTMENT LIGHT SWITCHES

Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch.

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

The compartment lights shall function automatically when the door is opened. A master compartment light switch shall not be acceptable.

DOOR AJAR INDICATOR - LED

A red LED flashing light shall be provided on the switch console area to warn of an open compartment or personnel door.

A label shall be provided that states "Do Not Move Apparatus When Light Is On".

AUDIBLE DOOR AJAR INDICATOR

In addition to the flashing door ajar indicator, an audible alarm shall be provided in the cab to warn of an open compartment or personnel door.

DOOR AJAR INDICATOR PARK BRAKE DISABLE

All apparatus body door ajar indicators shall be disabled when the park brake is set.

PERIMETER GROUND LIGHTING one (1)

There shall be one (1) 4" diameter underbody LED perimeter lights furnished and installed. The lights shall have an unbreakable polycarbonate lens and housing. The lights shall be sealed to help prevent moisture entry.

The ground lights shall be activated with the parking brake.

PERIMETER GROUND LIGHTING six (6)

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There shall be six (6) 4" diameter underbody LED perimeter lights furnished and installed. The lights shall have an unbreakable polycarbonate lens and housing. The lights shall be sealed to help prevent moisture entry.

The ground lights shall be activated with the parking brake.

LED APPARATUS BODY STEP LIGHTING

All apparatus steps and running boards shall be illuminated using chrome plated or stainless steel LED lights. The lights shall function automatically with the park brake.

LED APPARATUS BODY STEP LIGHTING

All apparatus steps and running boards shall be illuminated using chrome plated or stainless steel LED lights. The lights shall function automatically with the park brake.

GROUND/STEP LIGHTING CUTOFF SWITCH

A ground/step light cut off switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released.

GROUND/STEP LIGHTING CUTOFF SWITCH

A ground/step light cut off switch shall be provided in the cab to allow the driver to disable the ground lights and other lights that activate when the parking brake is set. The switch shall automatically re-set itself when the parking brake is released.

KUSSMAUL LPC40 BATTERY CHARGER

A Kussmaul LPC40 fully automatic battery charger with 40 amp output shall be installed on the apparatus. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires.

A 15 amp DC auxiliary output circuit shall be provided on the charger.

AUTO-EJECT SHORELINE CONNECTION

A Kussmaul 20 amp 120-volt Super Auto-Eject shall be provided. The unit shall automatically eject the connecting plug when the engine is cranked.

The connection shall be located under the driver's door.

AUTO-EJECT COVER - YELLOW

The Auto-Eject shall have a spring loaded cover yellow in color.

AUTO-EJECT MATING PLUG

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A NEMA 5-20P mating female cord end shall be shipped loose with the apparatus to allow the Fire Department to connect the cord end to a Fire Department provided charging cord.

WHELEN C6 TRI-CLUSTER TAILLIGHTS - LED

Whelen C6BTT LED taillights, C6T LED turn signals and a C6BU clear LED backup lights shall be provided.

A PLASC3V chrome plated trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, and backup lights.

BACKUP LIGHTS PARK FUNCTION

The backup lights shall automatically activate when the park brake is set to provide work lighting at the rear of the apparatus.

BACKUP ALARM

One (1) 97db backup alarm(s) shall be provided and shall automatically activate when the apparatus transmission is placed into reverse.

The backup alarm(s) shall exceed all NFPA1901 and SAE J994 Type D requirements and testing.

CONSOLE MOUNTED CONTROL PANEL

A control console shall be provided between the driver's and officer's seats for all warning/auxiliary light controls.

WARNING LIGHT SWITCH - SINGLE

A single master optical warning device switch shall be provided that will activate all minimum optical warning lighting through a single switch. Individual switches shall not be provided for any minimum optical warning lighting to insure total compliance to the warning lighting requirements defined in NFPA 1901. All lighting controlled by this switch shall not be subject to load management.

Any warning lights that are installed on the apparatus that are not required to meet the minimum optical warning lighting requirements shall be subjected to load management and shall have individual switches to activate/de-activate the warning light.

All switches shall be clearly labeled as to their function.

CENTER CONSOLE MAP POCKET

A 16" long (side to side) x 2 3/4" wide (front to rear) and 8" depth storage pocket shall be provided on the rear of the console for storing books, maps, etc. The pocket shall be constructed of aluminum treadbrite.

CENTER CONSOLE CONSTRUCTION MATERIAL

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The console shall be constructed of aluminum treadbrite.

CENTER CONSOLE PANEL MATERIAL

The console panel shall be constructed of brushed stainless steel.

ZONE A UPPER WARNING LIGHTING

A Whelen F4N0QLED lightbar shall be mounted on the top of the cab roof. The lightbar shall be 60" in length and mounted with low profile stainless steel brackets.

Each side of the lightbar shall have one red end LED, one red corner LED and two front linear LED's (one red and one white).

The lenses on the Officer's and Driver's shall be clear.

ZONE C UPPER WARNING LIGHTING

Two Whelen model L31HRFN NFPA LED red beacons shall be provided one on each side on the rear.

WHELEN C6LRC SUPER MAX LED LOWER ZONE A WARNING LIGHTING

Two Whelen C6LRC Super Max red LED light heads shall be mounted in the grille area on the apparatus. Both shall have clear lenses.

C6FC chrome trim housings shall be provided.

ZONES B & D LOWER WARNING LIGHTING - SIDES

Two Whelen TLMIR ION Mini T red LED lights shall be provided on the right and left sides, four total. One light shall be mounted as low and as far forward on the apparatus cab as possible and one shall be mounted as low and as far rearward as possible on the apparatus body.

TIONMFC chrome trim housings shall be provided.

WHELEN C6LRC SUPER MAX LED LOWER REAR WARNING LIGHTS

Two Whelen C6LRC Super Max red LED light heads shall be mounted on the rear of the apparatus in a low position. Both shall have clear lenses. A C6FC chrome bezel shall be provided around the lights.

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WHELEN C6 SURFACE MAX LED UPPER ZONE B/D WARNING LIGHTING

Two Whelen C6 Surface Max red LED light heads shall be mounted on each side of the apparatus above the side compartments. The forward light shall be a C6LBC blue and the rearward light shall be a C6LRC red. Both shall have clear lenses. A C6FC chrome bezel shall be provided for each light.

WHELEN C6LC SUPER MAX LED UPPER ZONE C WARNING LIGHTING

Two Whelen C6LRC Super Max red LED light heads shall be mounted on the rear of the apparatus, one each side. Both shall have clear lenses. A C6FC chrome bezel shall be provided for each light.

WHELEN TAL65 TRAFFIC ADVISOR

A Whelen TAL65 36" 6 lamp LED directional traffic advisor shall be provided and mounted on the rear of the apparatus. The advisor shall be subject to load management shedding to comply with NFPA 1901.

A Whelen TACTL5 controller shall be provided for the Traffic Advisor.

DIRECTIONAL LIGHT MOUNTING

The directional light shall be surface mounted to the rear face of the apparatus.

WHELEN 295HFS2 "FLUSH MOUNT" SIREN

A Whelen 295HFS2 siren shall be provided and mounted in the cab.

The siren shall have wail, yelp and pierce, as well as public address (PA) and shall be capable of radio re-broadcast. A hard wired microphone shall be provided.

Siren certifications, etc.

100 WATT SPEAKER

A 100 watt speaker shall be provided and recessed into the front bumper. The model of speaker installed shall be designed to fit bumper type.

FRC SPECTRA LED TELESCOPING LIGHT - 12 VOLT

Four (4) Fire Research model SPA530-Q20 bottom raising telescoping light(s) shall be mounted on the apparatus. The lighthead shall be 12 volt LED and shall draw a maximum of 18 amps creating 20,000 lumens.

The telescoping pole shall be constructed of heavy wall anodized tube. The pole shall be secured in any raised position with a non-directional advanced twist lock locking device. The twist lock mechanism shall have a knurled positive grip. The light(s) shall include a three wire coiled cord extended from the pole bottom.

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The light(s) shall be electrically tested so that they are safe for their intended use. The light(s) shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.

The telescoping light(s) shall be equipped with a FRC "ON" switch on the lighthouse(s).

The telescoping light(s) shall be mounted on the rear of the apparatus.

The telescoping light(s) shall be mounted on the front of the apparatus.

FRC SPECTRA LED LIGHTING -12 VOLT

Four Fire Research SPA260-Q20 surface mounted light(s) shall be mounted on the apparatus. Each light head shall be a 12 volt DC LED and shall draw 13.8 amps creating 20,000 lumens.

The lights shall be located two on each side.

The light housing shall be white.

12v scenelight switching (sides only)

12 VOLT SCENE LIGHT ACTIVATION SWITCHES (2)

Two switches shall be provided to activate the 12 volt scene light(s). The driver's side lights and the passenger's side lights shall each be individually switched. The switches shall be located on the cab control console.

OBSERVATION SYSTEM DISPLAY

An ASA Voyager observation system shall be provided on the apparatus. The system shall include a model AOM711 7" flat panel color display. The display shall have 300 nits brightness with a contrast ratio of 150:1. Viewing angles shall be 55 degrees left to right and 25 to 40 degrees top to bottom. The display shall have a water resistant housing, built-in audio speaker with volume control, 12 volt audio enable and power on (standby) trigger inputs, on screen display picture controls, day/night mode, backlit controls and detachable sunshield. A 72704 mounting bracket shall also be included. The display shall be 7 3/4" wide x 5 1/4" high x 1 3/16" depth.

OBSERVATION SYSTEM CAMERA

An ASA Voyager VCCS130 color camera shall be provided and properly connected to the flat panel display. The camera shall feature a built-in microphone, enhanced low-light performance (LED assisted), image orientation selector switch and a locking waterproof cable connector with CEC50 camera extension cable.

The camera shall be mounted on the rear of the apparatus.

FIRE HELMET MOUNTING

The end user of the apparatus shall be responsible for insuring that all helmets are either stored in an exterior compartment or a securely mounted to NFPA 1901 standards inside the cab.

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PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

All interior compartment surfaces shall remain # brushed stainless steel. There shall be no paint or any other type of coating on the interior compartment surfaces. Standard mill finish, DA finish or swirled finish shall not be accepted.

Any exterior surfaces that are to be painted shall be individually listed in the apparatus body portion of this specification.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moisture accumulation in flanged areas.

PPG CERTIFIED 10 YEAR LIMITED PAINT WARRANTY

The apparatus body exterior finish paint shall have a 10 year limited warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided to the end user. Any warranty that is extended by the apparatus manufacturer and not backed by the paint manufacturer will not be acceptable.

PPG Commercial OEM Product Warranty Coverage:

Warranty Inclusions:

- Delamination of the topcoat and/or other layers of paint.
- Cracking or checking due to failure of the product.
- Excessive loss of gloss caused by cracking, checking and hazing.

Warranty Exclusions:

- Paint deterioration caused by blisters, bubbles, flaking or other degradation due to rust or corrosion originating from the substrate.
- 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, scratches, chips, gloss reduction, accidents, acid rain, chemical fallout, road treatment materials/chemicals or acts of nature.
- Any paint that was not applied by Toyne, Inc.
- Claims presented without proper Warranty documentation.
- Failure on finishes performed by Non-PPG Commercial Certified Technicians.
- Failure on finishes due to inadequate film builds.
- Failures due to improper cleaning or surface preparation or failure to follow the product use instructions.

THESE ARE THE ONLY WARRANTIES THAT PPG MAKES, AND ALL OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATIONS, ANY WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG.

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such

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as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to help minimize electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

SINGLE COLOR APPARATUS BODY PAINT

The apparatus body shall have a single color non-metallic paint scheme.

APPARATUS BODY UNDERCOATING

The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.

COMPARTMENT INTERIORS - BRUSHED STAINLESS FINISH

The compartment interiors shall be brushed stainless steel # 4 finish. The brushed finish shall be as provided by the manufacturer of the material.

Interiors with any type of paint, sprayed-on coatings, DA finish, or standard "mill finish" will not be acceptable.

TIRE PRESSURE VISUAL INDICATOR - SINGLE AXLE

Real Wheels RWTG1234 valve stem mounted visual indicators shall be provided on each tire. The LED indicators shall flash when the tire pressure drops 8 psi.

1"-6"-1" NFPA REFLECTIVE STRIPE

A 6" reflective stripe shall be applied to the apparatus.

A 1" gap shall be provided on both the top and bottom of the 6" stripe followed by a 1" reflective stripe above and below the upper and lower gap.

A single 6" stripe shall be applied to the front if space does not permit for the 3 stripe pattern.

The striping shall be applied to a minimum of 50% of the length of the apparatus on each side and 25% across the front of the apparatus. The stripe shall comply with NFPA 1901 requirements.

PRIMARY REFLECTIVE STRIPE COLOR - WHITE

The primary reflective stripe shall be 680-10 white.

SECONDARY UPPER REFLECTIVE STRIPE COLOR - WHITE

The secondary upper reflective stripe shall be 680-10 white.

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SECONDARY LOWER REFLECTIVE STRIPE COLOR - WHITE

The secondary lower reflective stripe shall be 680-10 white.

REFLECTIVE STRIPE - HORIZONTAL

The reflective stripe shall be applied in a straight horizontal line from front to rear. The height of the stripe on the chassis cab and the body shall be as close as possible.

INNER CAB DOOR REFLECTIVE STRIPING - 4 DOOR

A minimum of 100 square inches of reflective material shall be provided on the inner door liner of each cab door.

REAR CHEVRON STRIPING

A minimum of 50 percent of the rear vertical surface of the apparatus shall be covered with 6 inch alternating red and fluorescent yellow green retro-reflective striping. The striping shall slope downward away from the centerline of the apparatus at a 45-degree angle.

The retro-reflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retro-Reflective Sheeting for Traffic Control", Type I or better.

ENGINE HORIZONTAL EXHAUST

Shielding shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed to comply with EPA equipment requirements and shall not be modified.

FRONT MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the front wheels. The mud flaps shall be attached to the apparatus in the wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

REAR MUD FLAPS

Heavy duty black rubber mud flaps shall be provided on the rear wheels. The mud flaps shall be attached to the apparatus in the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

REAR PULLING EYES

Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.

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NON-REMOVABLE IGNITION KEY

The chassis ignition key shall be chained and not removable from chassis without cutting the securing device.

BATTERY DANGERS LABEL - FAMA01

A permanent label shall be provided near the battery location that warns of potential injury or death that could be caused by the batteries. The label shall also state precautions that should be taken while working on or around the batteries.

ROTATING SHAFTS DANGER LABEL - FAMA02

A permanent label shall be provided on each side of the frame rail and in any other location(s) where rotating shaft hazards are apparent. The label shall warn of potential injury or death that could be caused by the movement of the shaft(s) as well as precautions that should be taken while working on or around them.

HOT SURFACE DANGERS LABEL - FAMA03

A permanent label shall be provided near any hot surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

HOT EXHAUST DANGERS LABEL - FAMA04

A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

SPINNING ENGINE FAN DANGER LABEL - FAMA05

A permanent label shall be provided on both sides of the engine fan. The label shall warn of potential injury or death that could be caused by the movement of the fan as well as precautions that should be taken while working on or around them.

SEATED AND BELTED WARNING LABEL - FAMA07

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

AIR CONDITIONING REFRIGERANT WARNING LABEL - FAMA09

If the apparatus is equipped with any type of air conditioning system, a permanent label shall be provided that is located in an area that would be visible to service personnel. The label shall state that the system contains R134A, the necessary precautions that should be taken and the dangers of working on or around the system.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA10

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A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

FIRE SERVICE TIRE RATING LABEL - FAMA12

A permanent label shall be provided inside of the cab in view of the driver while entering the cab warning of the dangers of improper use of the tires on the apparatus. The label shall also warn of potential injury or death that could be caused by improper tire use or condition.

ELECTRONIC STABILITY CONTROL LABEL - FAMA13

If the apparatus is equipped with an electronic stability control system, a permanent label shall be provided inside of the cab in view of the driver warning of the dangers of improper operation of the apparatus and the importance of safe driving. The label shall also warn of potential injury or death that could be caused by improper operation of the apparatus.

MAXIMUM OCCUPANCY LABEL - FAMA14

A permanent label shall be provided inside of the cab in view of the driver stating the maximum number of personnel that can ride in the apparatus. The label shall also warn of potential injury or death that could be caused by exceeding the stated capacity.

DO NOT WEAR HELMET LABEL - FAMA15

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL - FAMA17

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

ACCESS STEPS/LADDER LABEL - FAMA23

A permanent label shall be provided at any area of the apparatus where personnel will be boarding or exiting the apparatus. The label shall instruct the operator in the proper method of climbing into or onto the apparatus as well as exiting and provide indication of potential injury or death that could occur in failing to do so.

DO NOT RIDE ON REAR STEP WARNING LABEL - FAMA24

A permanent label shall be provided at the rear step area stating that riding in this area while the vehicle is in motion is prohibited and shall warn of the potential dangers, including injury or death, in doing so.

TRAINED OPERATOR ONLY LABEL - FAMA25

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A permanent label shall be provided on the pump panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

NOT A STEP WARNING LABEL - FAMA26

A permanent label shall be provided in any horizontal location that a firefighter may feel tempted to use as a step but is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

COMPARTMENT TOP WARNING LABEL - FAMA26

A permanent label shall be provided on the front and rear of the compartment tops on both sides warning that the area is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

BODY ROOF WARNING LABEL - FAMA26

A permanent label shall be provided on the top of the body warning that the area is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

SIREN NOISE WARNING LABEL - FAMA42

A permanent label shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

- Engine oil.
- Engine coolant.
- Chassis transmission fluid.
- Pump transmission fluid.
- Pump primer fluid.
- Drive axle fluid.
- Air conditioning refrigerant.
- Air conditioning lubrication oil.
- Power steering fluid.
- Cab-tilt mechanism fluid (if applicable).
- Transfer case fluid (if applicable).
- Equipment rack fluid (if applicable).
- CAFS compressor system lubricant (if applicable).
- Generator system lubricant (if applicable).
- Front tire cold pressure.
- Rear tire cold pressure.

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- Maximum tire speed ratings.

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/label was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate.

OPTICAL WARNING LIGHT CERTIFICATION

The emergency warning light system shall be certified using one of the available methods provided for in NFPA 1901 13.8.16.

SIREN CERTIFICATION

The siren manufacturer shall certify the siren to NFPA 1901 13.9.1.1.

ELECTRICAL SYSTEM PERFORMANCE CERTIFICATION

A written load analysis and the results of the electrical system performance test shall be provided with the completed apparatus. The load analysis shall include the following:

- Nameplate rating of the alternator.
- The alternator rating under the conditions specified in NFPA 1901 13.3.2.
- Each of the component loads specified in NFPA 1901 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.

NFPA SLIP RESISTANCE CERTIFICATION

Any materials used as a stepping, standing or walking surface shall be certified to be compliant with NFPA 1901 15.7.4. Documentation shall be provided with the completed apparatus.

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WEIGHT CERTIFICATION

Documents from a certified scale showing actual loading on the front, rear and overall apparatus shall be provided. The apparatus shall be scaled without personnel, equipment and hose.

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MANUFACTURER'S RECORD OF APPARATUS CONSTRUCTION

All information required to comply with NFPA 1901 4.20.1 shall be provided with the completed apparatus.

OPERATIONS AND SERVICE DOCUMENTATION

The apparatus shall be complete with all operation and service documentation covering the apparatus as delivered and accepted. The documentation shall address the inspection, service and operations of the apparatus and all major components as required in NFPA 1901 4.20.2.

"AS BUILT" APPARATUS BODY OWNERS MANUALS (2)

Two "as built" apparatus body owner's manual USB drives shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the drive. The USB shall be "read only" and shall not allow modification.

To eliminate component confusion, generic documentation with equipment that is not provided on the apparatus body shall not be acceptable.

FAMA FIRE APPARATUS SAFETY GUIDE

One (1) FAMA Fire Apparatus Safety Guide(s) shall be provided with the completed apparatus.

STATEMENT OF EXCEPTION - NFPA MISCELLANEOUS REQUIRED EQUIPMENT

The customer shall be responsible for providing all NFPA required miscellaneous equipment that is not contained within these specifications. All required equipment must be properly installed on the apparatus and in working condition prior to the apparatus being placed into service.

FAMILIARIZATION AND DEMONSTRATION

Upon completion of the new apparatus, an authorized properly trained representative of the manufacturer shall perform a "Familiarization and Demonstration" overview of the apparatus and related components.

The Department shall provide the representative with a written list, by full proper names, of the individual(s) that are to receive the overview. Upon completion of the overview, each person in attendance will be required to acknowledge, by signature, that they understand the operation of the apparatus and all related components.

CHASSIS FAMILIARIZATION

Familiarization of the apparatus shall include the following:

- How to locate gauges or indicators and check all fluid levels and operational use of the apparatus.
- How to tilt the chassis cab or hood assembly for access to the engine or any other device to allow access to fluids or for required maintenance.
- Interior cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, exhaust regeneration (if applicable), seat adjustments, warning light engagement and other operational equipment.

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POST ACCEPTANCE TRAINING REQUIREMENTS

After apparatus acceptance, the Department shall be responsible for ongoing training of personnel. The Department shall not allow untrained or undertrained personnel to operate the apparatus or any included feature of the apparatus.